

## INDUSTRIAL TOOLS

Cylinders  
Lifting Products  
Pumps  
Control Valves  
System Components  
Presses  
Pullers  
Specialty Tools  
Cutters  
Bolting Tools  
Flange Maintenance  
Heavy Lifting Technology  
On-site Machining



**400+ PAGES FILLED  
WITH OVER 2000 TOOLS**

**GB**

**E330e**

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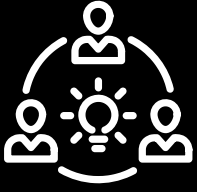
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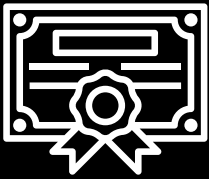
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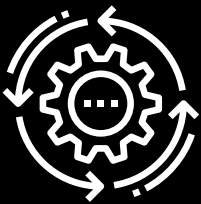
**CUSTOMER-DRIVEN  
INNOVATION**



**INDUSTRY LEADING  
TECHNOLOGY**



**CONTINUOUS  
IMPROVEMENT**



# ENDLESS INNOVATION RESULTS IN THE RIGHT TOOL

We believe it takes advanced technical expertise and ingenuity to develop the industry's most trusted solutions. Our relentless pursuit to deliver the highest standard of excellence means never compromising on quality. Yet, it all starts with a thorough understanding of our customer needs, the environments they work in and the ideas of tomorrow that help get jobs done faster, easier and safer.

## SOLVING CUSTOMER PROBLEMS

One of our core values is to continually innovate and solve customer problems. That all begins with the discovery process. Through the efforts of a dedicated innovation team and several centers of excellence, new ideas are uncovered by listening to our customer's pain points and observing how they perform tasks in their own environments. These inputs lead to the forming of ideas and eventually prototypes that can be tested, refined and transformed into finished products.

## FIND OUR NEWEST PRODUCTS AT...

**[enerpac.com/innovation](http://enerpac.com/innovation)**

Continuous improvement means new products are introduced and made available to customers on a regular basis throughout the year. Find the newest Enerpac products at [Enerpac.com/innovation](http://Enerpac.com/innovation).

# THE RIGHT TOOL MAKES ALL THE DIFFERENCE

Backed by a global legacy of ultra-reliable quality and superior precision, Enerpac is pushing the industry forward with a wide range of advanced industrial tools and services that first and foremost ensure our customers operate safely and productively every day. It isn't about being compliant. Or "as good" as the next guy; we outpace the competition by delivering technically superior solutions that are easy to get, safe to use and built to outlast.

## NEVER COMPROMISE

Enerpac combines technical excellence with proven performance – every day, every year, year after year. We believe customers shouldn't have to compromise – they can rest easy knowing that even in the most complex situations, their reputations and productivity are protected by the most trusted industrial tools available.

## SAFETY AND PRODUCTIVITY

Our customers put their physical well-being and reputations on the line each day they go to work; we take the fact that they put their trust in us very seriously. Enerpac team members are obsessively committed to developing solutions that keep the world's workers safe and productive in highly demanding working conditions.

## ON-DEMAND ACCESS

For us, offering the ideal customer experience means working overtime to make sure our customers can be heroes when it matters most by providing on-demand access to a vast catalog of products and services, extensive training and mobilized field teams no matter where they are in the world.

As a global market leader in high-pressure hydraulic tools, controlled force products and solutions for precision positioning of heavy loads, Enerpac products have maintained and moved some of the largest structures on earth. They are the industry standard in aerospace, infrastructure, manufacturing, mining, oil & gas, power generation and much more.

**110**  
YEARS OF HISTORY

**~2600**  
EMPLOYEES

**100+**  
COUNTRIES

**2500+**  
DISTRIBUTORS

**3500+**  
POINTS OF SALE



Enerpac hydraulic cylinders are available in hundreds of different configurations. Whatever the industrial application... lifting, pushing, pulling, bending, holding... whatever the force capacity, stroke length, or size restrictions... single- or double-acting, solid or hollow plunger, you can be sure that Enerpac has the cylinder to suit your high force application. Enerpac jacking cylinders fully comply to ASME B30.1 (except BRD-Series).



**With the 3rd Generation comes a trio of key features**

The next evolution of the legendary Enerpac RC-Series hydraulic cylinder. The driving force of the Enerpac cylinder range, the new **RC-TRIO** is as **versatile** as ever. Featuring a new Trio Bearing System for **enhanced durability** and a hybrid spring-return system for **faster retraction** and even **greater productivity**.

System for **enhanced durability** and a hybrid spring-return system for **faster retraction** and even **greater productivity**.

## NEW RC-TRIO SERIES CYLINDERS

### New TRIO Bearing System

- Includes up to 4 high-performance wear bands that offer increased resistance to damage, reducing bearing load and increasing cylinder lifespan.
- Hardened composite material wear bands increase bearing surface area for greater sideload resistance - Significantly improving cylinder life.
- New high-performance Polyethylene seals last longer than ever, improving lifespan and keep you working for longer.

### New TRIO Stop Ring

- Part of the Trio Bearing System, the Trio Stop Ring includes an additional wear band or high-strength bronze to absorb greater side load
- Capable of taking full cylinder extension force
- Features durable wiper to help prevent contamination from entering the cylinder during retract cycles.

### New TRIO Spring System

- Hybrid pre-tensioned return springs for up to 3x faster retraction and increased productivity.
- High-strength steel wire improves spring life
- Spring retention design improves serviceability while allowing higher pre-load during assembly
- Spring is easily removed without special tools.

### Durable Piston Rod

- High-strength steel plunger for improved life and sideload resistance
- Nickel-plated plunger coating improves corrosion protection
- Internal plunger threads for easy tool fixturing.

### Enhanced Ergonomics

- Standard carry handles on cylinders from 15 up to 25 kg. Sizes above include certified lifting eyes or optional handles.
- Collar threads, plunger threads and base mounting holes enable easy fixturing (on most models).



### Improved Saddle Retention

- Hardened plunger saddle protects plunger end during all lifting operations
- Easily removable for access to plunger mounting threads
- Tilt and smooth saddles available as accessories (compatible with new range of CATS-Series Tilt Saddles).

### Enduring Compatibility








































- For full compatibility and peace of mind, the new RC-Series model numbers, external dimensions and threads remain unchanged from prior RC-Series cylinders. Ensuring compatibility with historical versions and systems.



Note: The cut-away drawing is representative of typical cylinder construction, and may not represent all cylinders in this section.



# Hydraulic Cylinders and Lifting Products Section Overview

| Capacity <sup>1)</sup><br>ton (kN) | Stroke Range<br>(mm) | Cylinder Type and Functions   | Series   | Page   |
|------------------------------------|----------------------|---|--|--|
| <b>5 - 95</b><br>(45 - 933)        | <b>16 - 362</b>      | <b>General Purpose Cylinders, Single-Acting</b><br><b>Accessories: Saddles, Base Plates,</b><br><b>Mounting Blocks, Clevis Eyes</b> | <br>RC<br>A, CATS<br>JBI, RE  | <br><b>6</b> ▶<br><b>10</b> ▶                   |
| <b>10 - 150</b><br>(63 - 1589)     | <b>50 - 250</b>      | <b>Aluminium Cylinders,</b><br><b>Single-Acting, Lock Nut,</b><br><b>Hollow Plunger</b>   | <br><br>RAC<br>RACL<br>RACH | <br><b>12</b> ▶<br><b>14</b> ▶<br><b>16</b> ▶   |
| <b>20 - 150</b><br>(229 - 1589)    | <b>50 - 250</b>      | <b>Aluminium Cylinders, Double-Acting</b><br><b>Hollow Plunger &amp; Solid Plunger</b>  | <br><br>RARH<br>RAR       | <br><b>18</b> ▶<br><b>20</b> ▶                  |
| <b>10 - 1000</b><br>(97 - 10.165)  | <b>6 - 17</b>        | <b>Ultra-Flat Cylinders, Single-Acting,</b><br><b>Load Return, with Stop Ring or Tilting Function</b>                               | <br>CULP<br>CUSP  | <br><b>22</b> ▶<br><b>23</b> ▶                  |
| <b>60 - 500</b><br>(606 - 5114)    | <b>45 - 50</b>       | <b>Low-Height Lock Nut Cylinders</b><br><b>Single-Acting, Load Return</b>   | <br>LPL   | <br><b>24</b> ▶                                 |
| <b>5 - 150</b><br>(45 - 1386)      | <b>6 - 62</b>        | <b>Low-Height Cylinders,</b><br><b>Single-Acting or spring-return</b>   | <br><br>RSM<br>RCS        | <br><b>26</b> ▶                                 |
| <b>4 - 74</b><br>(43 - 727)        | <b>17 - 600</b>      | <b>Low-Height Telescopic Cylinders</b><br><b>Multi-Stage Telescopic Cylinders</b>   | <br>RLT<br>RT  | <br><b>28</b> ▶<br><b>30</b> ▶                 |
| <b>2,5 - 50</b><br>(24 - 506)      | <b>127 - 154</b>     | <b>Pull Cylinders,</b><br><b>Single-Acting, Spring Return</b>   | <br>BRC<br>BRP  | <br><b>32</b> ▶                               |
| <b>12 - 145</b><br>(125 - 1429)    | <b>8 - 258</b>       | <b>Hollow Plunger Cylinders,</b><br><b>Single- and Double-Acting</b>  | <br><br>RCH<br>RRH    | <br><b>34</b> ▶<br><b>36</b> ▶                |
| <b>4 - 23</b><br>(35 - 222)        | <b>28 - 260</b>      | <b>Precision Production Cylinders,</b><br><b>Double-Acting</b><br><b>(including Mounting Attachments)</b>                           | <br>BRD   | <br><b>38</b> ▶                               |
| <b>10 - 520</b><br>(101 - 5108)    | <b>16 - 1219</b>     | <b>Long Stroke Cylinders,</b><br><b>Double-Acting</b>   | <br>RR  | <br><b>40</b> ▶                               |
| <b>50 - 1000</b><br>(550 - 10.644) | <b>50 - 300</b>      | <b>High Tonnage Cylinders,</b><br><b>Single- and Double-Acting</b>  | <br><br>HCG<br>HCR    | <br><b>48</b> ▶<br><b>52</b> ▶                |
| <b>50 - 1000</b><br>(550 - 10.644) | <b>50 - 300</b>      | <b>High Tonnage Lock Nut Cylinders,</b><br><b>Single- and Double-Acting</b>   | <br><br>HCL<br>HCRL   | <br><b>56</b> ▶<br><b>60</b> ▶                |
| <b>1 - 95</b><br>(8,9 - 933)       | <b>11 - 362</b>      | <b>Cylinder - Pump Sets, Single-Acting</b><br><b>Extreme Environment Products</b><br><b>Power Box – Portable Tool Sets</b>          | <br>SC<br>RC, P, V<br>SL, SR, SW  | <br><b>62</b> ▶<br><b>64</b> ▶<br><b>65</b> ▶ |
| <b>2 - 100</b><br>(20 - 980)       | <b>62 - 460</b>      | <b>Aluminium and Steel Jacks</b><br><b>Industrial Steel Bottle Jacks</b>  | <br>JH, JHA<br>GBJ  | <br><b>66</b> ▶<br><b>67</b> ▶                |
| <b>54 - 181</b><br>(533 - 1778)    | <b>356 - 686</b>     | <b>POW'R-RISER® Mobile Lifting Jacks</b><br><b>POW'R-LOCK™ Mobile Lift System</b>   | <br><br>PR<br>PL      | <br><b>68</b> ▶<br><b>70</b> ▶                |

<sup>1)</sup> All ton values specified in this catalog are metric ton and are approximate for cylinder class identification only. Please refer to the kN data for calculations.

▼ From left to right: RC2510, RC53, RC1002, RC108, RC5010, RC156



- Trio Bearing system with hardened composite wear bands for optimal side load resistance
- Strengthened Trio Stop Ring improves durability and side load resistance
- Trio Hybrid pre-tensioned spring system provides faster retraction
- High-grade polyethylene seals for low wear and long service life
- Plunger wiper reduces contamination, extending cylinder life.
- Collar and plunger threads and base mounting holes enable easy fixturing (on most models)
- Standard certified lifting eyes on cylinder models above 25 kg weight. Interchangeable with optional CHM6 carrying handle
- Designed for use in all positions
- Baked enamel finish for increased corrosion resistance
- Includes CR400 coupler, dust cap and collar thread protector
- RC-Series model numbers, external dimensions and threads remain unchanged from prior RC-Series cylinders

▼ *Foundation repair: to re-stabilize the foundation, the 308 ton silo needed to be lifted, levelled and structurally supported. 25 ton RC-Series hydraulic jacks were attached to a bracket on the top of each steel pier. Powered by a Z-Class pump, the hydraulic jacks applied 20 ton of force at each placement to lift the silo 5,1 cm.*



## The Industry Standard General Purpose Cylinder



### Saddles

All RC cylinders (except RC50 and RC101) have a hardened removable grooved saddle. For tilt and flat saddles, see the RC-Series accessory page. All CATS-Series Tilt Saddles use a nitrocarburization surface treatment for improved corrosion protection.

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### Base Plates

To ensure the stability of cylinders for lifting applications, base plates are available for 10, 25 and 50 ton RC cylinders.

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### Specialty Attachments

For solving all kinds of application problems, specialty attachments are available for 5, 10 and 25 ton RC cylinders.

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▼ *Synchronous lifting set-up for 200 ton petrochemical process module using twelve RC2510 cylinders. To ensure the stability of the cylinders JBI25 base plates are installed.*






# Single-Acting, General Purpose Cylinders



## Optional Carrying Handle CHM6

Standard certified lifting eyes on cylinder models above 25 kg weight (RC5010 and heavier models). Interchangeable with optional carrying handle. Order model number **CHM6**.

▼ **QUICK SELECTION CHART** For complete technical information see next page.

| Cylinder Capacity  | Stroke | Model Number    | Cylinder Effective Area | Oil Capacity       | Collapsed Height |  |
|--------------------|--------|-----------------|-------------------------|--------------------|------------------|---|
| ton (kN)           | (mm)   |                 | (cm <sup>2</sup> )      | (cm <sup>3</sup> ) | (mm)             | (kg)  |
| <b>5</b><br>(45)   | 16     | <b>RC50</b>     | 6,4                     | 10                 | 41               | 1,0   |
|                    | 25     | <b>RC51</b>     | 6,4                     | 16                 | 110              | 1,0   |
|                    | 79     | <b>RC53</b>     | 6,4                     | 50                 | 165              | 1,5   |
|                    | 127    | <b>RC55 *</b>   | 6,4                     | 83                 | 216              | 1,9   |
|                    | 177    | <b>RC57</b>     | 6,4                     | 115                | 273              | 2,4   |
|                    | 232    | <b>RC59</b>     | 6,4                     | 151                | 324              | 2,8   |
| <b>10</b><br>(101) | 26     | <b>RC101</b>    | 14,4                    | 38                 | 90               | 1,8   |
|                    | 54     | <b>RC102 *</b>  | 14,4                    | 78                 | 121              | 2,3   |
|                    | 105    | <b>RC104</b>    | 14,4                    | 152                | 171              | 3,3   |
|                    | 156    | <b>RC106 *</b>  | 14,4                    | 226                | 248              | 4,4   |
|                    | 203    | <b>RC108</b>    | 14,4                    | 294                | 298              | 5,4   |
|                    | 257    | <b>RC1010 *</b> | 14,4                    | 373                | 349              | 6,4   |
|                    | 304    | <b>RC1012</b>   | 14,4                    | 441                | 400              | 6,8   |
|                    | 356    | <b>RC1014</b>   | 14,4                    | 516                | 451              | 8,2   |
| <b>15</b><br>(142) | 25     | <b>RC151</b>    | 20,3                    | 51                 | 124              | 3,3   |
|                    | 51     | <b>RC152</b>    | 20,3                    | 104                | 149              | 4,1   |
|                    | 101    | <b>RC154 *</b>  | 20,3                    | 205                | 200              | 5,0   |
|                    | 152    | <b>RC156 *</b>  | 20,3                    | 308                | 271              | 6,8   |
|                    | 203    | <b>RC158</b>    | 20,3                    | 411                | 322              | 8,2   |
|                    | 254    | <b>RC1510</b>   | 20,3                    | 516                | 373              | 9,5   |
|                    | 305    | <b>RC1512</b>   | 20,3                    | 619                | 424              | 10,9  |
|                    | 356    | <b>RC1514</b>   | 20,3                    | 723                | 475              | 11,8  |
| <b>25</b><br>(232) | 26     | <b>RC251</b>    | 33,3                    | 86                 | 140              | 5,9   |
|                    | 50     | <b>RC252 *</b>  | 33,3                    | 166                | 165              | 6,4   |
|                    | 102    | <b>RC254 *</b>  | 33,3                    | 339                | 216              | 8,2   |
|                    | 158    | <b>RC256 *</b>  | 33,3                    | 525                | 273              | 10,0  |
|                    | 210    | <b>RC258</b>    | 33,3                    | 697                | 324              | 12,2  |
|                    | 261    | <b>RC2510</b>   | 33,3                    | 867                | 375              | 14,1  |
|                    | 311    | <b>RC2512</b>   | 33,3                    | 1033               | 425              | 16,3  |
|                    | 362    | <b>RC2514 *</b> | 33,3                    | 1202               | 476              | 17,7  |
| <b>30</b> (295)    | 209    | <b>RC308</b>    | 42,9                    | 880                | 387              | 18,1  |
| <b>50</b><br>(498) | 51     | <b>RC502</b>    | 71,3                    | 362                | 176              | 15,0  |
|                    | 101    | <b>RC504</b>    | 71,3                    | 719                | 227              | 19,1  |
|                    | 159    | <b>RC506 *</b>  | 71,3                    | 1131               | 283              | 23,1  |
|                    | 260    | <b>RC5010</b>   | 71,3                    | 1855               | 384              | 31,8  |
|                    | 337    | <b>RC5013</b>   | 71,3                    | 2399               | 460              | 37,6  |
| <b>75</b><br>(718) | 156    | <b>RC756</b>    | 102,6                   | 1601               | 286              | 29,5  |
|                    | 333    | <b>RC7513</b>   | 102,6                   | 3417               | 492              | 59,0  |
| <b>95</b><br>(933) | 50     | <b>RC1002</b>   | 133,1                   | 676                | 219              | 36,7  |
|                    | 168    | <b>RC1006</b>   | 133,1                   | 2239               | 357              | 59,0  |
|                    | 260    | <b>RC10010</b>  | 133,1                   | 3466               | 449              | 72,6  |

\* Available as set, see note on this page.

## RC-Trio Series



Capacity:  
**5 - 95 ton**

Stroke:  
**16 - 362 mm**

Maximum Operating Pressure:  
**700 bar**



### Think Safety

Manufacturer's rating of load and stroke are maximum safe limits. Good practice encourages using only 80% of these ratings.

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### Lightweight Aluminium Cylinders

If you need a higher cylinder capacity-to-weight-ratio the **RAC-Series** are the perfect choice.

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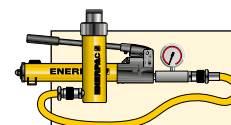


### Gauges

Minimize the risk of overloading and ensure long, dependable service from your equipment. Refer to the System Components

Section for a full range of gauges.

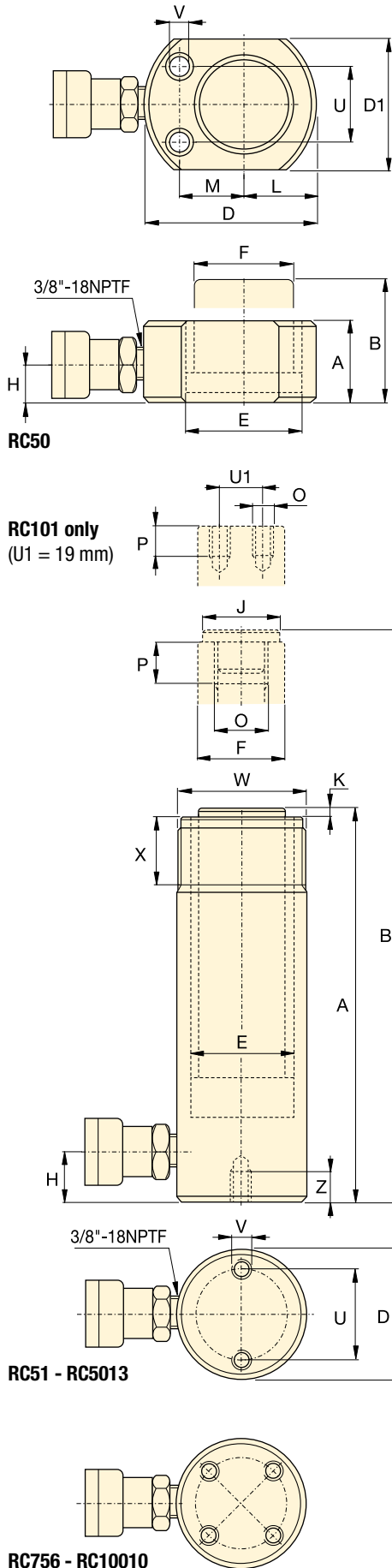
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### Cylinder-Pump Sets

All cylinders marked with an \* are available as **sets** (cylinder, gauge, couplers, hose and pump) for your ordering convenience.

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### Speed Chart and Pump Selection Tool

See the Enerpac Cylinder Speed Chart in our 'Yellow Pages' to determine your approximate cylinder speed. See Pump Selection Tool on website for help to choose the most suitable pump for your application.

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◀ For full features see previous page.

| Cylinder Capacity | Stroke | Model Number                | Cylinder Effective Area | Oil Capacity       | Collapsed Height | Extended Height | Outside Dia.     |
|-------------------|--------|-----------------------------|-------------------------|--------------------|------------------|-----------------|------------------|
| ton (kN)          | (mm)   |                             | (cm <sup>2</sup> )      | (cm <sup>3</sup> ) | A (mm)           | B (mm)          | D (mm)           |
| <b>5 (45)</b>     | 16     | <b>RC50</b> <sup>2)</sup>   | 6,4                     | 10                 | 41               | 57              | 58 <sup>3)</sup> |
|                   | 25     | <b>RC51</b>                 | 6,4                     | 16                 | 110              | 135             | 38               |
|                   | 79     | <b>RC53</b>                 | 6,4                     | 50                 | 165              | 244             | 38               |
|                   | 127    | <b>RC55</b> <sup>1)</sup>   | 6,4                     | 83                 | 216              | 343             | 38               |
|                   | 177    | <b>RC57</b>                 | 6,4                     | 115                | 273              | 450             | 38               |
|                   | 232    | <b>RC59</b>                 | 6,4                     | 151                | 324              | 556             | 38               |
| <b>10 (101)</b>   | 26     | <b>RC101</b> <sup>4)</sup>  | 14,4                    | 38                 | 90               | 116             | 57               |
|                   | 54     | <b>RC102</b> <sup>1)</sup>  | 14,4                    | 78                 | 121              | 175             | 57               |
|                   | 105    | <b>RC104</b>                | 14,4                    | 152                | 171              | 276             | 57               |
|                   | 156    | <b>RC106</b> <sup>1)</sup>  | 14,4                    | 226                | 248              | 404             | 57               |
|                   | 203    | <b>RC108</b>                | 14,4                    | 294                | 298              | 501             | 57               |
|                   | 257    | <b>RC1010</b> <sup>1)</sup> | 14,4                    | 373                | 349              | 606             | 57               |
|                   | 304    | <b>RC1012</b>               | 14,4                    | 441                | 400              | 704             | 57               |
|                   | 356    | <b>RC1014</b>               | 14,4                    | 516                | 451              | 807             | 57               |
| <b>15 (142)</b>   | 25     | <b>RC151</b>                | 20,3                    | 51                 | 124              | 149             | 70               |
|                   | 51     | <b>RC152</b>                | 20,3                    | 104                | 149              | 200             | 70               |
|                   | 101    | <b>RC154</b> <sup>1)</sup>  | 20,3                    | 205                | 200              | 301             | 70               |
|                   | 152    | <b>RC156</b> <sup>1)</sup>  | 20,3                    | 308                | 271              | 423             | 70               |
|                   | 203    | <b>RC158</b>                | 20,3                    | 411                | 322              | 525             | 70               |
|                   | 254    | <b>RC1510</b>               | 20,3                    | 516                | 373              | 627             | 70               |
|                   | 305    | <b>RC1512</b>               | 20,3                    | 619                | 424              | 729             | 70               |
|                   | 356    | <b>RC1514</b>               | 20,3                    | 723                | 475              | 831             | 70               |
| <b>25 (232)</b>   | 26     | <b>RC251</b>                | 33,3                    | 86                 | 140              | 166             | 86               |
|                   | 50     | <b>RC252</b> <sup>1)</sup>  | 33,3                    | 166                | 165              | 215             | 86               |
|                   | 102    | <b>RC254</b> <sup>1)</sup>  | 33,3                    | 339                | 216              | 318             | 86               |
|                   | 158    | <b>RC256</b> <sup>1)</sup>  | 33,3                    | 525                | 273              | 431             | 86               |
|                   | 210    | <b>RC258</b>                | 33,3                    | 697                | 324              | 534             | 86               |
|                   | 261    | <b>RC2510</b>               | 33,3                    | 867                | 375              | 636             | 86               |
|                   | 311    | <b>RC2512</b>               | 33,3                    | 1033               | 425              | 736             | 86               |
|                   | 362    | <b>RC2514</b> <sup>1)</sup> | 33,3                    | 1202               | 476              | 838             | 86               |
| <b>30 (295)</b>   | 209    | <b>RC308</b>                | 42,9                    | 880                | 387              | 596             | 102              |
| <b>50 (498)</b>   | 51     | <b>RC502</b>                | 71,3                    | 362                | 176              | 227             | 127              |
|                   | 101    | <b>RC504</b>                | 71,3                    | 719                | 227              | 328             | 127              |
|                   | 159    | <b>RC506</b> <sup>1)</sup>  | 71,3                    | 1131               | 283              | 442             | 127              |
|                   | 260    | <b>RC5010</b>               | 71,3                    | 1855               | 384              | 644             | 127              |
|                   | 337    | <b>RC5013</b>               | 71,3                    | 2399               | 460              | 797             | 127              |
| <b>75 (718)</b>   | 156    | <b>RC756</b>                | 102,6                   | 1601               | 286              | 442             | 146              |
|                   | 333    | <b>RC7513</b>               | 102,6                   | 3417               | 492              | 825             | 146              |
| <b>95 (933)</b>   | 51     | <b>RC1002</b>               | 133,1                   | 676                | 219              | 270             | 178              |
|                   | 168    | <b>RC1006</b>               | 133,1                   | 2239               | 357              | 525             | 178              |
|                   | 260    | <b>RC10010</b>              | 133,1                   | 3466               | 449              | 709             | 178              |

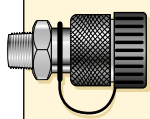
<sup>1)</sup> Available as set, see note on page 7.

<sup>2)</sup> RC50 cylinder has a non removable grooved saddle and no collar thread.

<sup>3)</sup> RC50: D1 = 41 mm, L = 20 mm, M = 25 mm.

<sup>4)</sup> RC101 has plunger with two thread holes and non-removable saddle.

# Single-Acting, General Purpose Cylinders



### Couplers Included!

CR-400 couplers included on all models. Fits all HC-Series hoses.

Capacity:

**5 - 95 ton**

Stroke:


**16 - 362 mm**

Maximum Operating Pressure:

**700 bar**

### RC-Trio Series



| Cylinder Bore Dia. E (mm) | Plunger Dia. F (mm) | Base to Adv. Port H (mm) | Saddle Dia. J (mm) | Saddle Protr. from Plgr. K (mm) | Plunger Internal Thread O | Plunger Thread Length P (mm) | Base Mounting Holes |                |                   | Collar Thread W | Collar Thread Length X (mm) |  (kg) | Model Number         |
|---------------------------|---------------------|--------------------------|--------------------|---------------------------------|---------------------------|------------------------------|---------------------|----------------|-------------------|-----------------|-----------------------------|--|----------------------|
|                           |                     |                          |                    |                                 |                           |                              | Bolt Circle U (mm)  | Thread V       | Thd. Depth Z (mm) |                 |                             |  |                      |
| 28,6                      | 25,4                | 19                       | 2)                 | 2)                              | 2)                        | 2)                           | 29                  | 5,6 mm         | —                 | —               | —                           | 1,0  | RC50 <sup>2)</sup>   |
| 28,6                      | 25,4                | 19                       | 25                 | 6                               | 3/4" - 16 UN              | 14                           | 25                  | 1/4" - 20 UNC  | 14                | 1 1/2" - 16 UN  | 28                          | 1,0  | RC51                 |
| 28,6                      | 25,4                | 19                       | 25                 | 6                               | 3/4" - 16 UN              | 14                           | 25                  | 1/4" - 20 UNC  | 14                | 1 1/2" - 16 UN  | 28                          | 1,5  | RC53                 |
| 28,6                      | 25,4                | 19                       | 25                 | 6                               | 3/4" - 16 UN              | 14                           | 25                  | 1/4" - 20 UNC  | 14                | 1 1/2" - 16 UN  | 28                          | 1,9  | RC55 <sup>1)</sup>   |
| 28,6                      | 25,4                | 19                       | 25                 | 6                               | 3/4" - 16 UN              | 16                           | 25                  | 1/4" - 20 UNC  | 14                | 1 1/2" - 16 UN  | 28                          | 2,4  | RC57                 |
| 28,6                      | 25,4                | 19                       | 25                 | 6                               | 3/4" - 16 UN              | 16                           | 25                  | 1/4" - 20 UNC  | 14                | 1 1/2" - 16 UN  | 28                          | 2,8  | RC59                 |
| 42,8                      | 38,1                | 19                       | —                  | —                               | #10 - 24 UN               | 6                            | 40                  | 5/16" - 18 UNC | 12                | 2 1/4" - 14 UN  | 27                          | 1,8  | RC101 <sup>4)</sup>  |
| 42,8                      | 38,1                | 19                       | 35                 | 6                               | 1" - 8 UN                 | 19                           | 40                  | 5/16" - 18 UNC | 12                | 2 1/4" - 14 UN  | 27                          | 2,3  | RC102 <sup>1)</sup>  |
| 42,8                      | 38,1                | 19                       | 35                 | 6                               | 1" - 8 UN                 | 19                           | 40                  | 5/16" - 18 UNC | 12                | 2 1/4" - 14 UN  | 27                          | 3,3  | RC104                |
| 42,8                      | 38,1                | 19                       | 35                 | 6                               | 1" - 8 UN                 | 19                           | 40                  | 5/16" - 18 UNC | 12                | 2 1/4" - 14 UN  | 27                          | 4,4  | RC106 <sup>1)</sup>  |
| 42,8                      | 38,1                | 19                       | 35                 | 6                               | 1" - 8 UN                 | 19                           | 40                  | 5/16" - 18 UNC | 12                | 2 1/4" - 14 UN  | 27                          | 5,4  | RC108                |
| 42,8                      | 38,1                | 19                       | 35                 | 6                               | 1" - 8 UN                 | 19                           | 40                  | 5/16" - 18 UNC | 12                | 2 1/4" - 14 UN  | 27                          | 6,4  | RC1010 <sup>1)</sup> |
| 42,8                      | 38,1                | 19                       | 35                 | 6                               | 1" - 8 UN                 | 19                           | 40                  | 5/16" - 18 UNC | 12                | 2 1/4" - 14 UN  | 27                          | 6,8  | RC1012               |
| 42,8                      | 38,1                | 19                       | 35                 | 6                               | 1" - 8 UN                 | 19                           | 40                  | 5/16" - 18 UNC | 12                | 2 1/4" - 14 UN  | 27                          | 8,2  | RC1014               |
| 50,8                      | 41,3                | 19                       | 38                 | 9                               | 1" - 8 UN                 | 25                           | 48                  | 3/8" - 16 UNC  | 12                | 2 3/4" - 16 UN  | 30                          | 3,3  | RC151                |
| 50,8                      | 41,3                | 19                       | 38                 | 9                               | 1" - 8 UN                 | 25                           | 48                  | 3/8" - 16 UNC  | 12                | 2 3/4" - 16 UN  | 30                          | 4,1  | RC152                |
| 50,8                      | 41,3                | 19                       | 38                 | 9                               | 1" - 8 UN                 | 25                           | 48                  | 3/8" - 16 UNC  | 12                | 2 3/4" - 16 UN  | 30                          | 5,0  | RC154 <sup>1)</sup>  |
| 50,8                      | 41,3                | 25                       | 38                 | 9                               | 1" - 8 UN                 | 25                           | 48                  | 3/8" - 16 UNC  | 12                | 2 3/4" - 16 UN  | 30                          | 6,8  | RC156 <sup>1)</sup>  |
| 50,8                      | 41,3                | 25                       | 38                 | 9                               | 1" - 8 UN                 | 25                           | 48                  | 3/8" - 16 UNC  | 12                | 2 3/4" - 16 UN  | 30                          | 8,2  | RC158                |
| 50,8                      | 41,3                | 25                       | 38                 | 9                               | 1" - 8 UN                 | 25                           | 48                  | 3/8" - 16 UNC  | 12                | 2 3/4" - 16 UN  | 30                          | 9,5  | RC1510               |
| 50,8                      | 41,3                | 25                       | 38                 | 9                               | 1" - 8 UN                 | 25                           | 48                  | 3/8" - 16 UNC  | 12                | 2 3/4" - 16 UN  | 30                          | 10,9   | RC1512               |
| 50,8                      | 41,3                | 25                       | 38                 | 9                               | 1" - 8 UN                 | 25                           | 48                  | 3/8" - 16 UNC  | 12                | 2 3/4" - 16 UN  | 30                          | 11,8   | RC1514               |
| 65,1                      | 57,2                | 25                       | 51                 | 10                              | 1 1/2" - 16 UN            | 25                           | 59                  | 1/2" - 13 UNC  | 19                | 3 5/16" - 12 UN | 49                          | 5,9  | RC251                |
| 65,1                      | 57,2                | 25                       | 51                 | 10                              | 1 1/2" - 16 UN            | 25                           | 59                  | 1/2" - 13 UNC  | 19                | 3 5/16" - 12 UN | 49                          | 6,4  | RC252 <sup>1)</sup>  |
| 65,1                      | 57,2                | 25                       | 51                 | 10                              | 1 1/2" - 16 UN            | 25                           | 59                  | 1/2" - 13 UNC  | 19                | 3 5/16" - 12 UN | 49                          | 8,2  | RC254 <sup>1)</sup>  |
| 65,1                      | 57,2                | 25                       | 51                 | 10                              | 1 1/2" - 16 UN            | 25                           | 59                  | 1/2" - 13 UNC  | 19                | 3 5/16" - 12 UN | 49                          | 10,0   | RC256 <sup>1)</sup>  |
| 65,1                      | 57,2                | 25                       | 51                 | 10                              | 1 1/2" - 16 UN            | 25                           | 59                  | 1/2" - 13 UNC  | 19                | 3 5/16" - 12 UN | 49                          | 12,2   | RC258                |
| 65,1                      | 57,2                | 25                       | 51                 | 10                              | 1 1/2" - 16 UN            | 25                           | 59                  | 1/2" - 13 UNC  | 19                | 3 5/16" - 12 UN | 49                          | 14,1   | RC2510               |
| 65,1                      | 57,2                | 25                       | 51                 | 10                              | 1 1/2" - 16 UN            | 25                           | 59                  | 1/2" - 13 UNC  | 19                | 3 5/16" - 12 UN | 49                          | 16,3   | RC2512               |
| 65,1                      | 57,2                | 25                       | 51                 | 10                              | 1 1/2" - 16 UN            | 25                           | 59                  | 1/2" - 13 UNC  | 19                | 3 5/16" - 12 UN | 49                          | 17,7   | RC2514 <sup>1)</sup> |
| 73,0                      | 57,2                | 29                       | 51                 | 10                              | 1 1/2" - 16 UN            | 25                           | 59                  | 1/2" - 13 UNC  | 16                | 3 5/16" - 12 UN | 49                          | 18,1   | RC308                |
| 95,2                      | 79,4                | 33                       | 71                 | 2                               | —                         | —                            | 95                  | 1/2" - 13 UNC  | 19                | 5" - 12 UN      | 55                          | 15,0   | RC502                |
| 95,2                      | 79,4                | 33                       | 71                 | 2                               | —                         | —                            | 95                  | 1/2" - 13 UNC  | 19                | 5" - 12 UN      | 55                          | 19,1   | RC504                |
| 95,2                      | 79,4                | 35                       | 71                 | 2                               | —                         | —                            | 95                  | 1/2" - 13 UNC  | 19                | 5" - 12 UN      | 55                          | 23,1   | RC506 <sup>1)</sup>  |
| 95,2                      | 79,4                | 35                       | 71                 | 2                               | —                         | —                            | 95                  | 1/2" - 13 UNC  | 19                | 5" - 12 UN      | 55                          | 31,8   | RC5010               |
| 95,2                      | 79,4                | 35                       | 71                 | 2                               | —                         | —                            | 95                  | 1/2" - 13 UNC  | 19                | 5" - 12 UN      | 55                          | 37,6   | RC5013               |
| 114,3                     | 95,3                | 30                       | 71                 | 2                               | —                         | —                            | 114                 | 5/8" - 13 UNC  | 16                | 5 3/4" - 12 UN  | 44                          | 29,5   | RC756                |
| 114,3                     | 95,3                | 30                       | 71                 | 2                               | —                         | —                            | 114                 | 5/8" - 13 UNC  | 16                | 5 3/4" - 12 UN  | 44                          | 59,0   | RC7513               |
| 130,2                     | 104,8               | 41                       | 71                 | 2                               | —                         | —                            | 140                 | 3/4" - 10 UNC  | 25                | 6 7/8" - 12 UN  | 44                          | 36,7   | RC1002               |
| 130,2                     | 104,8               | 41                       | 71                 | 2                               | —                         | —                            | 140                 | 3/4" - 10 UNC  | 25                | 6 7/8" - 12 UN  | 44                          | 59,0   | RC1006               |
| 130,2                     | 104,8               | 41                       | 71                 | 2                               | —                         | —                            | 140                 | 3/4" - 10 UNC  | 25                | 6 7/8" - 12 UN  | 44                          | 72,6   | RC10010              |

## SELECTION CHART

| For use with Cylinder Capacity<br>ton (kN) | Saddles                                 |                       |                      | Base Plate          | Mounting Block   | Clevis Eyes        |                     |
|--|---|-----------------------|----------------------|---------------------|--|--------------------|---------------------|
|  | Flat                                    | Grooved <sup>1)</sup> | Tilt                 |                     |  | Base <sup>4)</sup> | Plunger             |
| 5 (45)                                     | A53F <sup>2)</sup>                      | A53G <sup>2)</sup>    | -                    | -                   | RB5 <sup>2)</sup> ,<br>AW51 <sup>2)</sup> , AW53 <sup>2)</sup> | REB5 <sup>2)</sup> | REP5 <sup>2)</sup>  |
| 10 (101)                                   | A12 <sup>3)</sup> , A102F <sup>3)</sup> | A102G <sup>3)</sup>   | CATS12 <sup>3)</sup> | JB110 <sup>3)</sup> | RB10, AW102  | REB10              | REP10 <sup>3)</sup> |
| 15 (142)                                   | -                                       | A152G                 | CATS12               | -                   | RB15   | REB15              | REP10               |
| 25 (232)                                   | A29 <sup>5)</sup>                       | A252G                 | CATS52               | JB125               | RB25   | REB25              | REP25               |
| 30 (295)                                   | A29 <sup>5)</sup>                       | A252G                 | CATS52               | -                   | RB25   | -                  | REP25               |
| 50 (498)                                   | -                                       | -                     | CATS100              | JB150               | -  | -                  | -                   |
| 75 (718)                                   | -                                       | -                     | CATS100              | -                   | -  | -                  | -                   |
| 95 (933)                                   | -                                       | -                     | CATS100              | -                   | -  | -                  | -                   |

<sup>1)</sup> Standard on 5-30 ton RC-cylinders   <sup>2)</sup> Except RC50   <sup>3)</sup> Except RC101   <sup>4)</sup> Mounting screws are included.   <sup>5)</sup> Used with Bender Sets.

## DIMENSION CHARTS

| Model Number   | Saddle Dimensions (mm) |    |          | A53F, A102F<br>A12, A29 | For Cylinder Capacity ton (kN) | Tilt Saddle Model Number | Addition to Collapsed Height A1 (mm) | Saddle Diameter J1 (mm) | Diagram |
|----------------|------------------------|----|----------|-------------------------|--------------------------------|--------------------------|--------------------------------------|-------------------------|---------|
|                | A                      | B  | C        |                         |                                |                          |                                      |                         |         |
| <b>Flat</b>    |                        |    |          |                         | 10 (101)                       | CATS12                   | 14                                   | 35                      |         |
| A53F           | 25                     | 6  | 17       | 15 (142)                | CATS12                         | 11                       | 35                                   |                         |         |
| A102F          | 35                     | 6  | 22       | 25 (232)                | CATS52                         | 15                       | 50                                   |                         |         |
| A12            | 51                     | 48 | 1"-8 UNC | 30 (295)                | CATS52                         | 15                       | 50                                   |                         |         |
| <b>Grooved</b> |                        |    |          |                         | 50 (498)                       | CATS100                  | 15                                   | 71                      |         |
| A53G           | 25                     | 6  | 17       | 75 (718)                | CATS100                        | 15                       | 71                                   |                         |         |
| A102G          | 35                     | 6  | 22       | 95 (933)                | CATS100                        | 15                       | 71                                   |                         |         |
| A152G          | 38                     | 9  | 22       |                         |                                |                          |                                      |                         |         |
| A252G          | 50                     | 9  | 35       |                         |                                |                          |                                      |                         |         |

| Model Number | Base Plate Dimensions (mm) |     |     |     |    | Diagram |
|--------------|----------------------------|-----|-----|-----|----|---------|
|              | A                          | B   | C   | D   | E  |         |
| JB110        | 228                        | 228 | 135 | 58  | 20 |         |
| JB125        | 279                        | 279 | 140 | 86  | 26 |         |
| JB150        | 304                        | 15  | 95  | 131 | 31 |         |

| Model Number | Mounting Block Dimensions (mm) |     |     |    |    |    |              |    | Diagram |
|--------------|--------------------------------|-----|-----|----|----|----|--------------|----|---------|
|              | A                              | B   | C   | D  | E  | F  | G            | H  |         |
| RB5          | 1 1/2" -16UN                   | 88  | 76  | -  | 25 | -  | -            | -  |         |
| AW51         | 1 1/2" -16UN                   | 70  | 59  | 10 | 24 | 54 | 1/4" -16 UN  | 41 |         |
| AW53         | 1 1/2" -16UN                   | 72  | 7   | 7  | 19 | 57 | 1/4" -20 UN  | 10 |         |
| RB10         | 2 1/4" -14UN                   | 114 | 88  | -  | 25 | -  | -            | -  |         |
| AW102        | 2 1/4" -14UN                   | 100 | 82  | 16 | 30 | 76 | 7/16" -20 UN | 58 |         |
| RB15         | 2 3/4" -16UN                   | 101 | 114 | -  | 38 | -  | -            | -  |         |
| RB25         | 3 5/16" -12UN                  | 127 | 165 | -  | 50 | -  | -            | -  |         |

| Type               | Model Number | Clevis Eye Dimensions (mm) |    |    |    |    |    | Pin-to-Pin * (mm) | Diagram |
|--------------------|--------------|----------------------------|----|----|----|----|----|-------------------|---------|
|                    |              | A                          | B  | C  | D  | E  | F  |                   |         |
| Base <sup>4)</sup> | REB5         | 44                         | 47 | 14 | 16 | 16 | 25 | 60,2              |         |
|                    | REB10        | 63                         | 66 | 25 | 22 | 25 | 35 | 78,0              |         |
|                    | REB15        | 76                         | 66 | 25 | 22 | 25 | 35 | 78,0              |         |
|                    | REB25        | 95                         | 79 | 38 | 31 | 31 | 41 | 87,6              |         |
| Plunger            | REP5         | 28                         | 45 | 14 | 16 | 16 | 19 | -                 |         |
|                    | REP10        | 42                         | 61 | 25 | 22 | 25 | 28 | -                 |         |
|                    | REP25        | 57                         | 71 | 38 | 31 | 31 | 35 | -                 |         |

<sup>4)</sup> Mounting screws are included.

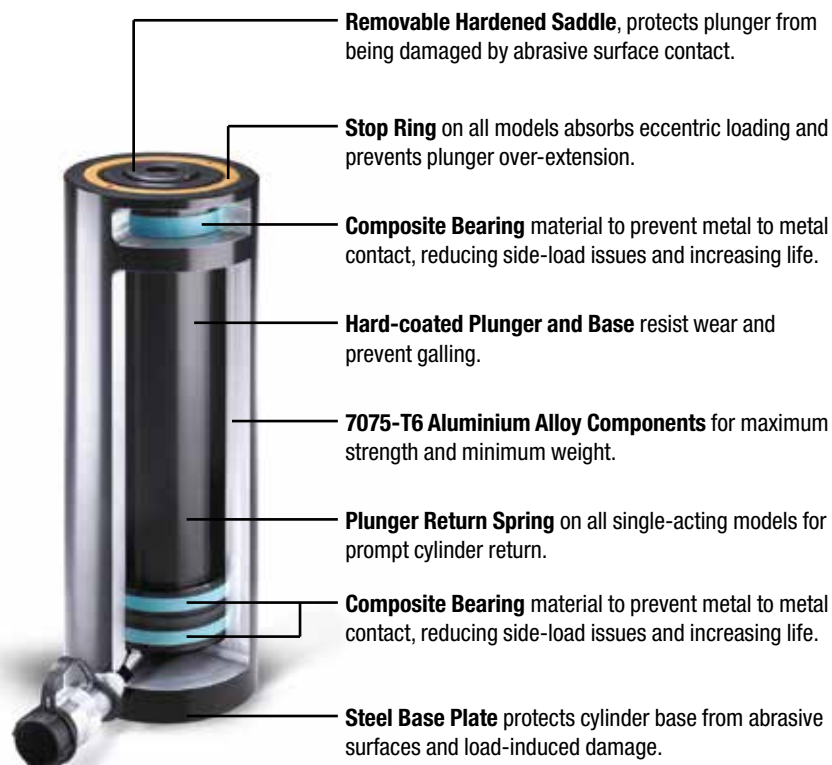
\* Pin to Pin – REB and REP Clevises fitted. Add cylinder collapsed height.

# The Enerpac Lightweight Aluminium Cylinders

▼ From left to right: RAC, RACL, RACH, RAR



- **Lightweight, easy to carry and position to allow a higher cylinder capacity-to-weight-ratio**
- **Non-corrosive by design, aluminium has always been a good material for use in many caustic environments**
- **Composite Bearings on all moving surfaces guarantee no metal-to-metal contact, to resist side loads and increase cylinder life.**



## RA Series

Capacity:  
**10 - 150 ton**

Stroke:  
**50 - 250 mm**

Maximum Operating Pressure:  
**700 bar**



### Think Safety

**Manufacturer's rating of load and stroke are maximum safe limits.**

**Good practice encourages using only 80% of these ratings.**

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### Aluminium versus Steel

Aluminium cylinders, while offering the most lightweight solution, also have some unique limitations due to material properties. It differs from steel in that it has a lower finite fatigue life. Aluminium cylinders should NOT be used in high-cycle applications such as production.

The Enerpac line of aluminium cylinders are designed to provide 5000 cycles at their recommended pressure. **This limit should not be exceeded.** In normal lifting and many maintenance applications, this should provide a lifetime of use.



### Steel Base Plate

The steel base plate protects the cylinder from damage, it should not be removed.

**The base holes in these aluminium cylinders are designed for securing the steel base plate. They will not withstand the capacity of the cylinder.**

Do not use the base holes in these aluminium cylinders to attach any device to the cylinder.



▼ Shown from left to right: RAC5010, RAC15010, RAC304, RAC208



## Lightweight for Maximum Portability



### Saddles

All RAC-cylinders are equipped with bolt-on removable hardened steel saddles. For Tilt Saddles see next page.

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### Lightweight Hand Pumps

The Enerpac composite lightweight hand pumps P392 or P802 make the optimal lightweight set.

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- Composite bearings prevent metal-to-metal contact, increasing cylinder life and resistance to side-loads of up to 10%
- Hard-Coat finish on all surfaces resists damage and extends cylinder life
- Handles included on all 30 - 150 ton models
- For protection against load-induced damage a saddle is standard on all models
- Steel base plate is standard on RAC 20 ton models and above. The steel base plate is optional only on RAC10 and 15 ton models
- Integral stop ring prevents plunger over-travel and is capable of withstanding the full cylinder capacity
- High strength return spring for rapid cylinder retraction
- CR400 coupler and dustcap included on all models
- All cylinders meet ASME B-30.1 standard.

| Cylinder Capacity at 700 bar<br>ton (kN) | Stroke<br>(mm) | Model Number | Cylinder Effective Area<br>(cm <sup>2</sup> ) |
|--|----------------|--------------|---|
| 10<br>(88)                               | 50             | RAC102       | 12,6  |
|  | 100            | RAC104       | 12,6  |
|  | 150            | RAC106       | 12,6  |
| 15<br>(137)                              | 50             | RAC152       | 19,6  |
|  | 100            | RAC154       | 19,6  |
|  | 150            | RAC156       | 19,6  |
| 20<br>(218)                              | 50             | RAC202       | 31,2  |
|  | 100            | RAC204       | 31,2  |
|  | 150            | RAC206       | 31,2  |
|  | 200            | RAC208       | 31,2  |
| 30<br>(309)                              | 250            | RAC2010      | 31,2  |
|  | 50             | RAC302       | 44,2  |
|  | 100            | RAC304       | 44,2  |
|  | 150            | RAC306       | 44,2  |
|  | 200            | RAC308       | 44,2  |
| 50<br>(496)                              | 250            | RAC3010      | 44,2  |
|  | 50             | RAC502       | 70,9  |
|  | 100            | RAC504       | 70,9  |
|  | 150            | RAC506       | 70,9  |
|  | 200            | RAC508       | 70,9  |
| 100<br>(1002)                            | 250            | RAC5010      | 70,9  |
|  | 50             | RAC1002      | 143,1   |
|  | 100            | RAC1004      | 143,1   |
|  | 150            | RAC1006      | 143,1   |
|  | 200            | RAC1008      | 143,1   |
| 150<br>(1589)                            | 250            | RAC10010     | 143,1   |
|  | 50             | RAC1502      | 227,0   |
|  | 100            | RAC1504      | 227,0   |
|  | 150            | RAC1506      | 227,0   |
|  | 200            | RAC1508      | 227,0   |
|  | 250            | RAC15010     | 227,0   |

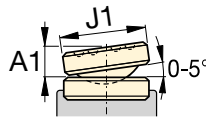


◀ The unique Enerpac RA-Series cylinders – lightweight and made of aluminium alloy – these RAC506 cylinders are ideal for the positioning of tunnel elements under the river (High Speed Train Line, The Netherlands).



# Single-Acting, Aluminium Cylinders

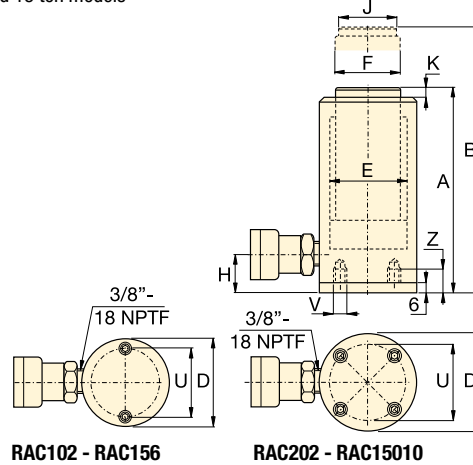
| Optional Bolt-on Tilt Saddle Dimensions (mm) |                            |                      |                                 |
|--|----------------------------|----------------------|---------------------------------|
| For Cylinder Model / Capacity ton            | Tilt Saddle * Model Number | Tilt Saddle Diameter | Addition to Collapsed Height A1 |
| RAC20, 30                                    | CATS30                     | 55                   | 11                              |
| RAC50  | CATS50                     | 71                   | 14                              |
| RAC100                                       | CATS150                    | 97                   | 19                              |
| RAC150                                       | CATS200                    | 126                  | 18                              |



\* Tilt saddles not available for 10 and 15 ton models

| Optional Steel Base Plate         |                                       |
|-----------------------------------|---------------------------------------|
| For Cylinder Model / Capacity ton | Base Plate <sup>2)</sup> Model Number |
| RAC10                             | JBA10                                 |
| RAC15                             | JBA15                                 |

<sup>2)</sup> Base plate height of 6mm included on all 20-150 ton models. Base Plate is optional on 10-15 ton cylinders.



RAC102 - RAC156

RAC202 - RAC15010

## RAC Series



Capacity:

**10 - 150 ton**

Stroke:

**50 - 250 mm**

Maximum Operating Pressure:

**700 bar**



### Steel Base Plate

The steel base plate protects the cylinder from damage, it should not be removed. See warning on page 11.

| Oil Capacity       | Collapsed Height | Extended Height | Outside Diameter | Cylinder Bore Diameter | Plunger Diameter | Bottom to Advance Port | Saddle Diameter | Saddle Protrusion from Plunger | Bolt Circle | Thread | Thread Depth |      | Model Number |
|--------------------|------------------|-----------------|------------------|------------------------|------------------|------------------------|-----------------|--------------------------------|-------------|--------|--------------|------|--------------|
| (cm <sup>3</sup> ) | A (mm)           | B (mm)          | D (mm)           | E (mm)                 | F (mm)           | H (mm)                 | J (mm)          | K (mm)                         | U (mm)      | V (mm) | Z (mm)       | (kg) |              |
| 60                 | 154              | 201             | 58               | 40                     | 32               | 23                     | 24              | 3                              | 39          | M6     | 12           | 1,3  | RAC102       |
| 130                | 204              | 304             | 58               | 40                     | 32               | 23                     | 24              | 3                              | 39          | M6     | 12           | 1,7  | RAC104       |
| 190                | 254              | 404             | 58               | 40                     | 32               | 23                     | 24              | 3                              | 39          | M6     | 12           | 2,0  | RAC106       |
| 100                | 161              | 211             | 70               | 50                     | 40               | 23                     | 29              | 3                              | 48          | M6     | 12           | 1,9  | RAC152       |
| 200                | 211              | 311             | 70               | 50                     | 40               | 23                     | 29              | 3                              | 48          | M6     | 12           | 2,4  | RAC154       |
| 290                | 261              | 411             | 70               | 50                     | 40               | 23                     | 29              | 3                              | 48          | M6     | 12           | 2,9  | RAC156       |
| 156                | 174              | 224             | 85               | 63                     | 50               | 27                     | 40              | 3                              | 70          | M6     | 12           | 3,6  | RAC202       |
| 312                | 224              | 324             | 85               | 63                     | 50               | 27                     | 40              | 3                              | 70          | M6     | 12           | 4,1  | RAC204       |
| 468                | 274              | 424             | 85               | 63                     | 50               | 27                     | 40              | 3                              | 70          | M6     | 12           | 4,6  | RAC206       |
| 624                | 324              | 524             | 85               | 63                     | 50               | 27                     | 40              | 3                              | 70          | M6     | 12           | 5,1  | RAC208       |
| 780                | 374              | 624             | 85               | 63                     | 50               | 27                     | 40              | 3                              | 70          | M6     | 12           | 5,6  | RAC2010      |
| 221                | 181              | 231             | 100              | 75                     | 60               | 32                     | 40              | 3                              | 80          | M6     | 12           | 4,5  | RAC302       |
| 442                | 231              | 331             | 100              | 75                     | 60               | 32                     | 40              | 3                              | 80          | M6     | 12           | 5,2  | RAC304       |
| 663                | 281              | 431             | 100              | 75                     | 60               | 32                     | 40              | 3                              | 80          | M6     | 12           | 5,9  | RAC306       |
| 884                | 331              | 531             | 100              | 75                     | 60               | 32                     | 40              | 3                              | 80          | M6     | 12           | 6,6  | RAC308       |
| 1105               | 381              | 631             | 100              | 75                     | 60               | 32                     | 40              | 3                              | 80          | M6     | 12           | 7,3  | RAC3010      |
| 354                | 186              | 236             | 130              | 95                     | 80               | 30                     | 50              | 3                              | 110         | M6     | 12           | 8,5  | RAC502       |
| 709                | 236              | 336             | 130              | 95                     | 80               | 30                     | 50              | 3                              | 110         | M6     | 12           | 9,8  | RAC504       |
| 1063               | 286              | 436             | 130              | 95                     | 80               | 30                     | 50              | 3                              | 110         | M6     | 12           | 11,1 | RAC506       |
| 1417               | 336              | 536             | 130              | 95                     | 80               | 30                     | 50              | 3                              | 110         | M6     | 12           | 12,4 | RAC508       |
| 1771               | 386              | 636             | 130              | 95                     | 80               | 30                     | 50              | 3                              | 110         | M6     | 12           | 13,7 | RAC5010      |
| 715                | 221              | 271             | 180              | 135                    | 110              | 46                     | 94              | 3                              | 150         | M10    | 12           | 17,3 | RAC1002      |
| 1431               | 271              | 371             | 180              | 135                    | 110              | 46                     | 94              | 3                              | 150         | M10    | 12           | 19,6 | RAC1004      |
| 2147               | 321              | 471             | 180              | 135                    | 110              | 46                     | 94              | 3                              | 150         | M10    | 12           | 21,9 | RAC1006      |
| 2863               | 371              | 571             | 180              | 135                    | 110              | 46                     | 94              | 3                              | 150         | M10    | 12           | 24,2 | RAC1008      |
| 3578               | 421              | 671             | 180              | 135                    | 110              | 46                     | 94              | 3                              | 150         | M10    | 12           | 26,5 | RAC10010     |
| 1135               | 243              | 293             | 230              | 170                    | 140              | 51                     | 113             | 3                              | 200         | M10    | 12           | 25,3 | RAC1502      |
| 2270               | 293              | 393             | 230              | 170                    | 140              | 51                     | 113             | 3                              | 200         | M10    | 12           | 29,3 | RAC1504      |
| 3405               | 343              | 493             | 230              | 170                    | 140              | 51                     | 113             | 3                              | 200         | M10    | 12           | 33,3 | RAC1506      |
| 4540               | 393              | 593             | 230              | 170                    | 140              | 51                     | 113             | 3                              | 200         | M10    | 12           | 37,3 | RAC1508      |
| 5675               | 443              | 693             | 230              | 170                    | 140              | 51                     | 113             | 3                              | 200         | M10    | 12           | 41,3 | RAC15010     |

▼ Shown from left to right: RACL1006, RACL504, RACL5010



- Aluminium Lock Nut provides mechanical load holding for extended periods
- Hardened steel stop ring increasing cylinder life and resistance to side-loads of up to 5%
- Hard-Coat finish on all surfaces resists damage and extends cylinder life
- Composite bearings increase cylinder life and side load resistance
- Handles included on all models
- Steel base plate and saddle for protection against load-induced damage
- Integral stop ring prevents plunger over-travel and is capable of withstanding the full cylinder capacity
- High strength return spring for rapid cylinder retraction
- CR400 coupler and dustcap included on all models
- All cylinders meet ASME B-30.1 standards.



◀ The portable lock nut cylinder RACL1506 used for extended load supports during epoxy injection for bridge reinforcement.



### Saddles

All RACL-cylinders are equipped with bolt-on removable hardened steel saddles. For Tilt Saddles see next page.

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### Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only Enerpac hydraulic hoses.

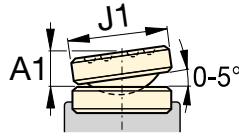
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| Cylinder Capacity @ 700 bar<br>ton (kN) | Stroke<br>(mm) | Model Number | Cylinder Effective Area<br>(cm <sup>2</sup> ) |
|---|----------------|--------------|---|
| 20 (218)                                | 50             | RACL202      | 31,2  |
|   | 100            | RACL204      | 31,2  |
|   | 150            | RACL206      | 31,2  |
|   | 200            | RACL208      | 31,2  |
|   | 250            | RACL2010     | 31,2  |
| 30 (309)                                | 50             | RACL302      | 44,2  |
|   | 100            | RACL304      | 44,2  |
|   | 150            | RACL306      | 44,2  |
|   | 200            | RACL308      | 44,2  |
|   | 250            | RACL3010     | 44,2  |
| 50 (496)                                | 50             | RACL502      | 70,9  |
|   | 100            | RACL504      | 70,9  |
|   | 150            | RACL506      | 70,9  |
|   | 200            | RACL508      | 70,9  |
|   | 250            | RACL5010     | 70,9  |
| 100 (1002)                              | 50             | RACL1002     | 143,1   |
|   | 100            | RACL1004     | 143,1   |
|   | 150            | RACL1006     | 143,1   |
|   | 200            | RACL1008     | 143,1   |
|   | 250            | RACL10010    | 143,1   |
| 150 (1589)                              | 50             | RACL1502     | 227,0   |
|   | 100            | RACL1504     | 227,0   |
|   | 150            | RACL1506     | 227,0   |
|   | 200            | RACL1508     | 227,0   |
|   | 250            | RACL15010    | 227,0   |

# Single-Acting, Aluminium Lock Nut Cylinders

## Optional Bolt-on Tilt Saddle Dimensions (mm)

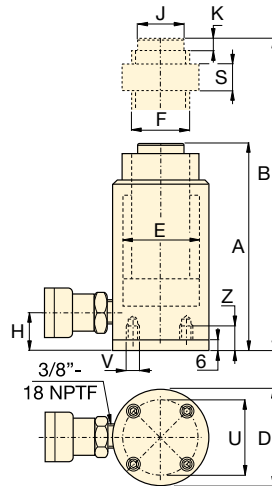
| For Cylinder Model / Capacity ton | Tilt Saddle Model Number | Tilt Saddle Diameter | Addition to Collapsed Height A1 |
|-----------------------------------|--------------------------|----------------------|---------------------------------|
|                                   |                          | J1                   | A1                              |
| <b>RACL20, 30</b>                 | <b>CATS30</b>            | 55                   | 11                              |
| <b>RACL50</b>                     | <b>CATS50</b>            | 71                   | 14                              |
| <b>RACL100</b>                    | <b>CATS150</b>           | 97                   | 19                              |
| <b>RACL150</b>                    | <b>CATS200</b>           | 126                  | 18                              |



## Steel Base Plate Mounting Holes

| Cylinder Model / Capacity ton | Bolt Circle U (mm) | Thread V (mm) | Thread Depth <sup>1)</sup> Z (mm) |
|-------------------------------|--------------------|---------------|-----------------------------------|
| <b>RACL20</b>                 | 70                 | M6            | 12                                |
| <b>RACL30</b>                 | 80                 | M6            | 12                                |
| <b>RACL50</b>                 | 110                | M6            | 12                                |
| <b>RACL100</b>                | 150                | M10           | 12                                |
| <b>RACL150</b>                | 200                | M10           | 12                                |

<sup>1)</sup> Including Base Plate Height of 6 mm and four (4) base plate bolts M6.



## RACL Series



Capacity:

**20 - 150 ton**

Stroke:

**50 - 250 mm**

Maximum Operating Pressure:

**700 bar**

| Oil Capacity (cm <sup>3</sup> ) | Collapsed Height A (mm) | Extended Height B (mm) | Outside Diameter D (mm) | Cylinder Bore Diameter E (mm) | Plunger Diameter (Threaded) F (mm) | Bottom to Advance Port H (mm) | Saddle Diameter J (mm) | Saddle Protrusion from Plunger K (mm) | Lock Nut Height S (mm) | Weight (kg) | Model Number     |
|---------------------------------|-------------------------|------------------------|-------------------------|-------------------------------|------------------------------------|-------------------------------|------------------------|---------------------------------------|------------------------|-------------|------------------|
| 156                             | 224                     | 274                    | 85                      | 63                            | Tr 55 x 4                          | 27                            | 40                     | 3                                     | 50                     | 4,0         | <b>RACL202</b>   |
| 312                             | 274                     | 374                    | 85                      | 63                            | Tr 55 x 4                          | 27                            | 40                     | 3                                     | 50                     | 4,6         | <b>RACL204</b>   |
| 468                             | 324                     | 474                    | 85                      | 63                            | Tr 55 x 4                          | 27                            | 40                     | 3                                     | 50                     | 5,2         | <b>RACL206</b>   |
| 624                             | 374                     | 574                    | 85                      | 63                            | Tr 55 x 4                          | 27                            | 40                     | 3                                     | 50                     | 5,8         | <b>RACL208</b>   |
| 780                             | 424                     | 674                    | 85                      | 63                            | Tr 55 x 4                          | 27                            | 40                     | 3                                     | 50                     | 6,4         | <b>RACL2010</b>  |
| 221                             | 231                     | 281                    | 100                     | 75                            | Tr 60 x 4                          | 33                            | 40                     | 3                                     | 50                     | 5,4         | <b>RACL302</b>   |
| 442                             | 281                     | 381                    | 100                     | 75                            | Tr 60 x 4                          | 33                            | 40                     | 3                                     | 50                     | 6,1         | <b>RACL304</b>   |
| 663                             | 331                     | 481                    | 100                     | 75                            | Tr 60 x 4                          | 33                            | 40                     | 3                                     | 50                     | 6,8         | <b>RACL306</b>   |
| 883                             | 381                     | 581                    | 100                     | 75                            | Tr 60 x 4                          | 33                            | 40                     | 3                                     | 50                     | 7,5         | <b>RACL308</b>   |
| 1105                            | 431                     | 681                    | 100                     | 75                            | Tr 60 x 4                          | 33                            | 40                     | 3                                     | 50                     | 8,2         | <b>RACL3010</b>  |
| 354                             | 236                     | 286                    | 130                     | 95                            | Tr 80 x 4                          | 30                            | 50                     | 3                                     | 50                     | 9,3         | <b>RACL502</b>   |
| 709                             | 286                     | 386                    | 130                     | 95                            | Tr 80 x 4                          | 30                            | 50                     | 3                                     | 50                     | 10,6        | <b>RACL504</b>   |
| 1063                            | 336                     | 486                    | 130                     | 95                            | Tr 80 x 4                          | 30                            | 50                     | 3                                     | 50                     | 12,6        | <b>RACL506</b>   |
| 1417                            | 386                     | 586                    | 130                     | 95                            | Tr 80 x 4                          | 30                            | 50                     | 3                                     | 50                     | 13,2        | <b>RACL508</b>   |
| 1771                            | 436                     | 686                    | 130                     | 95                            | Tr 80 x 4                          | 30                            | 50                     | 3                                     | 50                     | 14,5        | <b>RACL5010</b>  |
| 716                             | 296                     | 346                    | 180                     | 135                           | Tr 110 x 6                         | 46                            | 94                     | 3                                     | 75                     | 21,9        | <b>RACL1002</b>  |
| 1431                            | 346                     | 446                    | 180                     | 135                           | Tr 110 x 6                         | 46                            | 94                     | 3                                     | 75                     | 24,2        | <b>RACL1004</b>  |
| 2147                            | 396                     | 546                    | 180                     | 135                           | Tr 110 x 6                         | 46                            | 94                     | 3                                     | 75                     | 26,5        | <b>RACL1006</b>  |
| 2863                            | 446                     | 646                    | 180                     | 135                           | Tr 110 x 6                         | 46                            | 94                     | 3                                     | 75                     | 28,8        | <b>RACL1008</b>  |
| 3578                            | 496                     | 746                    | 180                     | 135                           | Tr 110 x 6                         | 46                            | 94                     | 3                                     | 75                     | 31,1        | <b>RACL10010</b> |
| 1135                            | 323                     | 373                    | 230                     | 170                           | Tr 140 x 6                         | 51                            | 113                    | 3                                     | 80                     | 32,2        | <b>RACL1502</b>  |
| 2270                            | 373                     | 473                    | 230                     | 170                           | Tr 140 x 6                         | 51                            | 113                    | 3                                     | 80                     | 36,2        | <b>RACL1504</b>  |
| 3405                            | 423                     | 573                    | 230                     | 170                           | Tr 140 x 6                         | 51                            | 113                    | 3                                     | 80                     | 40,2        | <b>RACL1506</b>  |
| 4540                            | 473                     | 673                    | 230                     | 170                           | Tr 140 x 6                         | 51                            | 113                    | 3                                     | 80                     | 44,2        | <b>RACL1508</b>  |
| 5675                            | 523                     | 773                    | 230                     | 170                           | Tr 140 x 6                         | 51                            | 113                    | 3                                     | 80                     | 48,2        | <b>RACL15010</b> |

▼ Shown from left to right: RACH1504, RACH15010, RACH206, RACH306



## The Lightweight Solution for Tensioning and Testing



### Saddles

All RACH-cylinders are equipped with bolt-on hollow removable saddles of hardened steel.



### Lightweight Hand Pumps

The Enerpac composite lightweight hand pumps P392 or P802 make the optimal lightweight set.

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- Hollow plunger design allows for both pull and push forces
- Composite bearings increase cylinder life and sideload resistance
- Hard-Coat finish on all surfaces resists damage and extends cylinder life
- Floating center tube increases seal and product life
- Handles standard on all models
- Steel base plate and saddle for protection against load-induced damage
- Integral stop ring prevents plunger over-travel and is capable of withstanding the full cylinder capacity
- High strength return spring for rapid cylinder retraction
- CR400 coupler and dustcap included on all models
- All cylinders meet ASME B-30.1 standards.



◀ An RACH306 powered by a P392 hand pump used to extract corroded carriage pins of refuse collection vehicles.

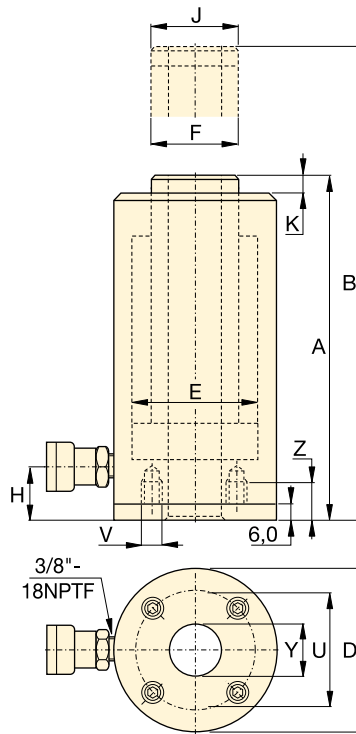
| Cylinder Capacity @ 700 bar<br>ton (kN) | Stroke<br>(mm) | Model Number | Cylinder Effective Area<br>(cm <sup>2</sup> ) |
|---|----------------|--------------|---|
| 20 (229)                                | 50             | RACH202      | 32,7  |
|   | 100            | RACH204      | 32,7  |
|   | 150            | RACH206      | 32,7  |
|   | 200            | RACH208      | 32,7  |
|   | 250            | RACH2010     | 32,7  |
| 30 (358)                                | 50             | RACH302      | 51,1  |
|   | 100            | RACH304      | 51,1  |
|   | 150            | RACH306      | 51,1  |
|   | 200            | RACH308      | 51,1  |
|   | 250            | RACH3010     | 51,1  |
| 60 (596)                                | 50             | RACH602      | 84,7  |
|   | 100            | RACH604      | 84,7  |
|   | 150            | RACH606      | 84,7  |
|   | 200            | RACH608      | 84,7  |
|   | 250            | RACH6010     | 84,7  |
| 100 (1157)                              | 50             | RACH1002     | 164,6   |
|   | 100            | RACH1004     | 164,6   |
|   | 150            | RACH1006     | 164,6   |
|   | 200            | RACH1008     | 164,6   |
|   | 250            | RACH10010    | 164,6   |
| 150 (1588)                              | 50             | RACH1502     | 225,8   |
|   | 100            | RACH1504     | 225,8   |
|   | 150            | RACH1506     | 225,8   |
|   | 200            | RACH1508     | 225,8   |
|   | 250            | RACH15010    | 225,8   |

# Single-Acting, Aluminium Hollow Plunger Cylinders

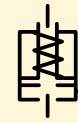
## Steel Base Plate Mounting Holes

| Cylinder Model / Capacity ton | Bolt Circle U (mm) | Thread V (mm) | Thread Depth <sup>1)</sup> Z (mm) |
|-------------------------------|--------------------|---------------|-----------------------------------|
| RACH20                        | 80                 | M6            | 12                                |
| RACH30                        | 110                | M6            | 12                                |
| RACH60                        | 160                | M6            | 12                                |
| RACH100                       | 220                | M10           | 12                                |
| RACH150                       | 245                | M10           | 12                                |

<sup>1)</sup> Including Base Plate Height of 6 mm and four (4) base plate bolts M6.



## RACH Series



Capacity:

**20 - 150 ton**

Stroke:

**50 - 250 mm**

Center Hole Diameter:

**27 - 79 mm**

Maximum Operating Pressure:

**700 bar**

| Oil Capacity (cm <sup>3</sup> ) | Collapsed Height A (mm) | Extended Height B (mm) | Outside Diameter D (mm) | Cylinder Bore Diameter E (mm) | Plunger Diameter F (mm) | Bottom to Advance Port H (mm) | Saddle Diameter J (mm) | Saddle Protrusion from Plunger K (mm) | Center Hole Diameter Y (mm) | Weight (kg) | Model Number |
|---------------------------------|-------------------------|------------------------|-------------------------|-------------------------------|-------------------------|-------------------------------|------------------------|---------------------------------------|-----------------------------|-------------|--------------|
| 164                             | 188                     | 238                    | 100                     | 75                            | 55                      | 29                            | 55                     | 10                                    | 27                          | 5,2         | RACH202      |
| 327                             | 251                     | 351                    | 100                     | 75                            | 55                      | 29                            | 55                     | 10                                    | 27                          | 6,1         | RACH204      |
| 491                             | 315                     | 465                    | 100                     | 75                            | 55                      | 29                            | 55                     | 10                                    | 27                          | 7,1         | RACH206      |
| 654                             | 378                     | 578                    | 100                     | 75                            | 55                      | 29                            | 55                     | 10                                    | 27                          | 8,0         | RACH208      |
| 818                             | 442                     | 692                    | 100                     | 75                            | 55                      | 29                            | 55                     | 10                                    | 27                          | 9,0         | RACH2010     |
| 256                             | 208                     | 258                    | 130                     | 95                            | 70                      | 29                            | 70                     | 10                                    | 34                          | 8,0         | RACH302      |
| 511                             | 267                     | 367                    | 130                     | 95                            | 70                      | 29                            | 70                     | 10                                    | 34                          | 9,5         | RACH304      |
| 766                             | 333                     | 483                    | 130                     | 95                            | 70                      | 29                            | 70                     | 10                                    | 34                          | 11,2        | RACH306      |
| 1022                            | 395                     | 595                    | 130                     | 95                            | 70                      | 29                            | 70                     | 10                                    | 34                          | 12,9        | RACH308      |
| 1277                            | 458                     | 708                    | 130                     | 95                            | 70                      | 29                            | 70                     | 10                                    | 34                          | 14,5        | RACH3010     |
| 423                             | 251                     | 301                    | 180                     | 130                           | 100                     | 61                            | 100                    | 12                                    | 54                          | 16,2        | RACH602      |
| 847                             | 315                     | 415                    | 180                     | 130                           | 100                     | 61                            | 100                    | 12                                    | 54                          | 19,5        | RACH604      |
| 1270                            | 380                     | 530                    | 180                     | 130                           | 100                     | 61                            | 100                    | 12                                    | 54                          | 25,6        | RACH606      |
| 1694                            | 445                     | 645                    | 180                     | 130                           | 100                     | 61                            | 100                    | 12                                    | 54                          | 26,0        | RACH608      |
| 2117                            | 510                     | 760                    | 180                     | 130                           | 100                     | 61                            | 100                    | 12                                    | 54                          | 29,6        | RACH6010     |
| 823                             | 258                     | 308                    | 250                     | 185                           | 145                     | 61                            | 145                    | 14                                    | 79                          | 33,8        | RACH1002     |
| 1646                            | 325                     | 425                    | 250                     | 185                           | 145                     | 61                            | 145                    | 14                                    | 79                          | 39,8        | RACH1004     |
| 2487                            | 391                     | 541                    | 250                     | 185                           | 145                     | 61                            | 145                    | 14                                    | 79                          | 46,2        | RACH1006     |
| 3291                            | 459                     | 659                    | 250                     | 185                           | 145                     | 61                            | 145                    | 14                                    | 79                          | 52,2        | RACH1008     |
| 4114                            | 527                     | 777                    | 250                     | 185                           | 145                     | 61                            | 145                    | 14                                    | 79                          | 58,8        | RACH10010    |
| 1129                            | 280                     | 330                    | 275                     | 205                           | 150                     | 61                            | 145                    | 14                                    | 79                          | 48,9        | RACH1502     |
| 2258                            | 360                     | 460                    | 275                     | 205                           | 150                     | 61                            | 145                    | 14                                    | 79                          | 55,7        | RACH1504     |
| 3387                            | 430                     | 580                    | 275                     | 205                           | 150                     | 61                            | 145                    | 14                                    | 79                          | 63,0        | RACH1506     |
| 4517                            | 500                     | 700                    | 275                     | 205                           | 150                     | 61                            | 145                    | 14                                    | 79                          | 70,1        | RACH1508     |
| 5646                            | 570                     | 820                    | 275                     | 205                           | 150                     | 61                            | 145                    | 14                                    | 79                          | 77,2        | RACH15010    |



▼ Shown from left to right: RARH6010 and RARH306



- Lighter and shorter collapsed height than equivalent RACH models
- Double-acting for rapid retraction, regardless of hose lengths or system losses
- Built-in safety valve prevents accidental over-pressurization
- Hollow plunger design allows for both pull and push forces
- Hard coat finish on all surfaces resists damage and extends cylinder life
- Handles and CR400 couplers with dust caps included on all models
- Floating center tube increases seal life
- Steel baseplate and saddle for protection against load-induced damage
- Integral stop ring prevents plunger over-travel and is capable of withstanding the full cylinder capacity
- All cylinders meet ASME B-30.1 standards.

## The Lightweight Solution for Double-Acting Applications



### Hoses

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only Enerpac hydraulic hoses.

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### Gauges

Minimize the risk of overloading and ensure long, dependable service from your equipment. Refer to the System Components section for a full range of gauges.

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### 4-Way Control Valve

The P84 and P464 hand pumps feature a manual 4-way control valve, designed for use with one double-acting or two single-acting cylinders. For system set-up information:

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| Cylinder Capacity<br>ton (kN) | Stroke *<br>(mm) | Model Number | Maximum Cylinder Capacity at 700 bar (kN) |         | Cylinder Effective Area (cm <sup>2</sup> ) |         | Oil Capacity (cm <sup>3</sup> ) |         |
|-------------------------------|------------------|--------------|---|---------|--|---------|---------------------------------|---------|
|                               |                  |              | Advance                                   | Retract | Advance                                    | Retract | Advance                         | Retract |
| 30<br>(359)                   | 50               | RARH302      | 359                                       | 187     | 51,2                                       | 26,7    | 256                             | 134     |
|                               | 150              | RARH306      | 359                                       | 187     | 51,2                                       | 26,7    | 769                             | 401     |
|                               | 250              | RARH3010     | 359                                       | 187     | 51,2                                       | 26,7    | 1281                            | 668     |
| 60<br>(595)                   | 50               | RARH602      | 595                                       | 264     | 84,9                                       | 37,7    | 425                             | 189     |
|                               | 150              | RARH606      | 595                                       | 264     | 84,9                                       | 37,7    | 1274                            | 566     |
|                               | 250              | RARH6010     | 595                                       | 264     | 84,9                                       | 37,7    | 2124                            | 943     |
| 100<br>(1001)                 | 50               | RARH1002     | 1001                                      | 568     | 142,9                                      | 81,1    | 715                             | 405     |
|                               | 150              | RARH1006     | 1001                                      | 568     | 142,9                                      | 81,1    | 2144                            | 1216    |
|                               | 250              | RARH10010    | 1001                                      | 568     | 142,9                                      | 81,1    | 3574                            | 2027    |
| 150<br>(1489)                 | 50               | RARH1502     | 1489                                      | 748     | 212,6                                      | 106,8   | 1063                            | 534     |
|                               | 150              | RARH1506     | 1489                                      | 748     | 212,6                                      | 106,8   | 3190                            | 1602    |
|                               | 250              | RARH15010    | 1489                                      | 748     | 212,6                                      | 106,8   | 5316                            | 2670    |

\* Intermediate strokes and other tonnages available upon request.



# Aluminium Double-Acting Hollow Plunger Cylinders



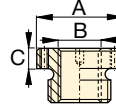
## Steel Base Plate

The steel base plate protects the cylinder base from damage, it should not be removed. The base holes in these aluminum cylinders are designed for securing the steel base plate.

They will not withstand the capacity of the cylinder. Do not use the base holes in these aluminum cylinders to attach any device to the cylinder.

## Optional Threaded Hollow Saddles

| Saddle Type     | Cylinder Model Number | Saddle Model Number | Saddle Dimensions (mm) |                   |    |
|-----------------|-----------------------|---------------------|------------------------|-------------------|----|
|                 |                       |                     | A                      | B                 | C  |
| Threaded Hollow | RARH302, 306, 3010    | HP3015              | 63                     | 1 1/4" - 7 UN     | 9  |
|                 | RARH602, 606, 6010    | HP5016              | 91                     | 1 5/8" - 5 1/2 UN | 12 |
|                 | RARH1002, 1006, 10010 | HP10016             | 126                    | 2 1/2" - 8 UN     | 13 |

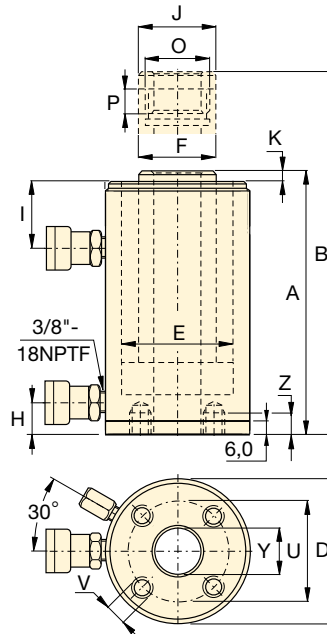


Smooth hollow saddles are standard on all RARH-models.

## Steel Base Plate Mounting Holes (mm)

| Cylinder Model / Capacity (ton) | Bolt Circle U | Thread V | Thread Depth <sup>1)</sup> Z |
|---------------------------------|---------------|----------|------------------------------|
| RARH30                          | 110           | M6       | 12                           |
| RARH60                          | 160           | M6       | 12                           |
| RARH100                         | 200           | M10      | 12                           |
| RARH150                         | 250           | M10      | 12                           |

<sup>1)</sup> Including Base Plate Height of 6 mm and four (4) base plate bolts.



## RARH Series



Capacity:

**30 - 150 ton**

Stroke:

**50 - 250 mm**

Center Hole Diameter:

**34 - 79 mm**

Maximum Operating Pressure:

**700 bar**



## RACH-Series, Single-Acting, Spring Return

To be used when a single-acting pump is available and retraction time is not critical.

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## Pump Selection

A double-acting cylinder must be powered by a pump with a 4-way valve.

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| Collapsed Height | Extended Height | Outside Diameter | Cylinder Bore Diameter | Plunger Diameter | Cyl. Base to Advance Port | Cyl. Top to Return Port | Saddle Diameter | Saddle Protrusion from Plunger | Plunger Internal Thread | Plunger Thread Length | Center Hole Diameter | Weight (kg) | Model Number |
|------------------|-----------------|------------------|------------------------|------------------|---------------------------|-------------------------|-----------------|--------------------------------|-------------------------|-----------------------|----------------------|-------------|--------------|
| A (mm)           | B (mm)          | D (mm)           | E (mm)                 | F (mm)           | H (mm)                    | I (mm)                  | J (mm)          | K (mm)                         | O (inch)                | P (mm)                | Y (mm)               | (kg)        |              |
| 209              | 259             | 135              | 95                     | 75               | 22                        | 64                      | 63              | 10                             | 1 13/16"-16 UN          | 23                    | 34                   | 8,9         | RARH302      |
| 309              | 459             | 135              | 95                     | 75               | 22                        | 64                      | 63              | 10                             | 1 13/16"-16 UN          | 23                    | 34                   | 11,9        | RARH306      |
| 409              | 659             | 135              | 95                     | 75               | 22                        | 64                      | 63              | 10                             | 1 13/16"-16 UN          | 23                    | 34                   | 14,9        | RARH3010     |
| 246              | 296             | 180              | 130                    | 110              | 48                        | 83                      | 92              | 13                             | 2 3/4"-16 UN            | 20                    | 54                   | 16,8        | RARH602      |
| 346              | 496             | 180              | 130                    | 110              | 48                        | 83                      | 92              | 13                             | 2 3/4"-16 UN            | 20                    | 54                   | 22,2        | RARH606      |
| 446              | 696             | 180              | 130                    | 110              | 48                        | 83                      | 92              | 13                             | 2 3/4"-16 UN            | 20                    | 54                   | 27,6        | RARH6010     |
| 254              | 304             | 235              | 165                    | 130              | 61                        | 78                      | 126             | 13,5                           | 4"-16 UN                | 27                    | 79                   | 28,9        | RARH1002     |
| 354              | 504             | 235              | 165                    | 130              | 61                        | 78                      | 126             | 13,5                           | 4"-16 UN                | 27                    | 79                   | 38,3        | RARH1006     |
| 454              | 704             | 235              | 165                    | 130              | 61                        | 78                      | 126             | 13,5                           | 4"-16 UN                | 27                    | 79                   | 47,7        | RARH10010    |
| 264              | 314             | 280              | 190                    | 150              | 61                        | 83                      | 127             | 18,8                           | 4 1/4"-12 UN            | 40                    | 79                   | 42,4        | RARH1502     |
| 364              | 514             | 280              | 190                    | 150              | 61                        | 83                      | 127             | 18,8                           | 4 1/4"-12 UN            | 40                    | 79                   | 56,2        | RARH1506     |
| 464              | 714             | 280              | 190                    | 150              | 61                        | 83                      | 127             | 18,8                           | 4 1/4"-12 UN            | 40                    | 79                   | 70,0        | RARH15010    |

▼ Shown from left to right: RAR5010, RAR308, RAR204



### Saddles

All RAR-cylinders are equipped with bolt-on removable hardened steel saddles. For Tilt Saddles see next page.

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### Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only Enerpac hydraulic hoses.

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- Double-acting for rapid retraction, regardless of hose lengths or system losses
- Composite bearings increase cylinder life and sideload resistance
- Hard-Coat finish on all surfaces resists damage and extends cylinder life
- Handles and CR400 couplers included on all models
- Steel base plate and saddle for protection against load-induced damage
- Integral stop ring prevents plunger over-travel and is capable of withstanding the full cylinder capacity
- Built-in safety valve prevents accidental over-pressurization.

▼ An RAR506 was easy to position under a bulldozer for repair of frame member.

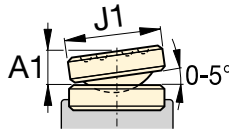


| Cylinder Capacity @ 700 bar<br>ton | Stroke<br>(mm) | Model Number | Max. Cylinder Capacity (kN)<br>Push | Cylinder Effective Area (cm <sup>2</sup> ) |       | Oil Capacity (cm <sup>3</sup> ) |      |
|------------------------------------|----------------|--------------|-------------------------------------|--|-------|---------------------------------|------|
|                                    |                |              |                                     | Push                                       | Pull  | Push                            | Pull |
| 20                                 | 50             | RAR202       | 218                                 | 31,2                                       | 18,6  | 156                             | 93   |
|                                    | 100            | RAR204       | 218                                 | 31,2                                       | 18,6  | 312                             | 186  |
|                                    | 150            | RAR206       | 218                                 | 31,2                                       | 18,6  | 468                             | 279  |
|                                    | 200            | RAR208       | 218                                 | 31,2                                       | 18,6  | 624                             | 372  |
|                                    | 250            | RAR2010      | 218                                 | 31,2                                       | 18,6  | 780                             | 465  |
| 30                                 | 50             | RAR302       | 309                                 | 44,2                                       | 24,5  | 221                             | 123  |
|                                    | 100            | RAR304       | 309                                 | 44,2                                       | 24,5  | 442                             | 245  |
|                                    | 150            | RAR306       | 309                                 | 44,2                                       | 24,5  | 663                             | 368  |
|                                    | 200            | RAR308       | 309                                 | 44,2                                       | 24,5  | 884                             | 490  |
|                                    | 250            | RAR3010      | 309                                 | 44,2                                       | 24,5  | 1105                            | 613  |
| 50                                 | 50             | RAR502       | 496                                 | 70,9                                       | 26,7  | 354                             | 134  |
|                                    | 100            | RAR504       | 496                                 | 70,9                                       | 26,7  | 709                             | 267  |
|                                    | 150            | RAR506       | 496                                 | 70,9                                       | 26,7  | 1063                            | 401  |
|                                    | 200            | RAR508       | 496                                 | 70,9                                       | 26,7  | 1417                            | 534  |
|                                    | 250            | RAR5010      | 496                                 | 70,9                                       | 26,7  | 1771                            | 668  |
| 100                                | 50             | RAR1002      | 1002                                | 143,1                                      | 79,5  | 715                             | 398  |
|                                    | 100            | RAR1004      | 1002                                | 143,1                                      | 79,5  | 1431                            | 795  |
|                                    | 150            | RAR1006      | 1002                                | 143,1                                      | 79,5  | 2147                            | 1193 |
|                                    | 200            | RAR1008      | 1002                                | 143,1                                      | 79,5  | 2863                            | 1590 |
|                                    | 250            | RAR10010     | 1002                                | 143,1                                      | 79,5  | 3578                            | 1988 |
| 150                                | 50             | RAR1502      | 1589                                | 227,0                                      | 132,0 | 1135                            | 660  |
|                                    | 100            | RAR1504      | 1589                                | 227,0                                      | 132,0 | 2270                            | 1320 |
|                                    | 150            | RAR1506      | 1589                                | 227,0                                      | 132,0 | 3405                            | 1980 |
|                                    | 200            | RAR1508      | 1589                                | 227,0                                      | 132,0 | 4540                            | 2640 |
|                                    | 250            | RAR15010     | 1589                                | 227,0                                      | 132,0 | 5675                            | 3300 |

# Double-Acting Aluminium Cylinders

## Optional Bolt-on Tilt Saddle Dimensions (mm)

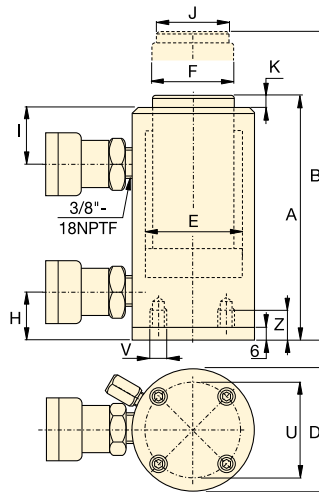
| For Cylinder Model / Capacity ton | Tilt Saddle Model Number | Tilt Saddle Diameter | Addition to Collapsed Height |
|-----------------------------------|--------------------------|----------------------|------------------------------|
|                                   |                          | J1                   | A1                           |
| <b>RAR20</b>                      | <b>CATS20</b>            | 42                   | 10                           |
| <b>RAR30</b>                      | <b>CATS30</b>            | 55                   | 11                           |
| <b>RAR50</b>                      | <b>CATS50</b>            | 71                   | 14                           |
| <b>RAR100</b>                     | <b>CATS101</b>           | 71                   | 10                           |
| <b>RAR150</b>                     | <b>CATS150</b>           | 97                   | 19                           |



## Steel Base Plate Mounting Holes

| Cylinder Model / Capacity ton | Bolt Circle U (mm) | Thread V (mm) | Thread Depth <sup>1)</sup> Z (mm) |
|-------------------------------|--------------------|---------------|-----------------------------------|
| <b>RAR20</b>                  | 93                 | M6            | 12                                |
| <b>RAR30</b>                  | 105                | M6            | 12                                |
| <b>RAR50</b>                  | 110                | M6            | 12                                |
| <b>RAR100</b>                 | 165                | M6            | 12                                |
| <b>RAR150</b>                 | 200                | M6            | 12                                |

<sup>1)</sup> Including Base Plate Height of 6 mm and four (4) base plate bolts M6.



## RAR Series



Capacity:


**20 - 150 ton**

Stroke:

**50 - 250 mm**

Maximum Operating Pressure:

**700 bar**

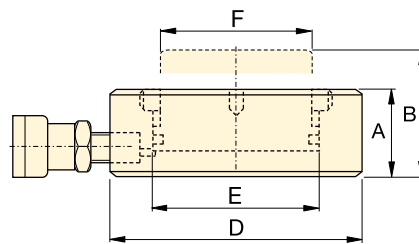
| Collapsed Height | Extended Height | Outside Diameter | Cylinder Bore Diameter | Plunger Diameter | Bottom to Advance Port | Top to Retract Port | Saddle Diameter | Saddle Protrusion from Plunger |  | Model Number    |
|------------------|-----------------|------------------|------------------------|------------------|------------------------|---------------------|-----------------|--------------------------------|---|-----------------|
| A (mm)           | B (mm)          | D (mm)           | E (mm)                 | F (mm)           | H (mm)                 | I (mm)              | J (mm)          | K (mm)                         | (kg)  |                 |
| 189              | 239             | 113              | 63                     | 40               | 30                     | 50                  | 30              | 3                              | 7,4   | <b>RAR202</b>   |
| 239              | 339             | 113              | 63                     | 40               | 30                     | 50                  | 30              | 3                              | 8,0   | <b>RAR204</b>   |
| 289              | 439             | 113              | 63                     | 40               | 30                     | 50                  | 30              | 3                              | 8,6   | <b>RAR206</b>   |
| 339              | 539             | 113              | 63                     | 40               | 30                     | 50                  | 30              | 3                              | 9,2   | <b>RAR208</b>   |
| 389              | 639             | 113              | 63                     | 40               | 30                     | 50                  | 30              | 3                              | 9,8   | <b>RAR2010</b>  |
| 201              | 251             | 125              | 75                     | 50               | 30                     | 55                  | 40              | 3                              | 8,6   | <b>RAR302</b>   |
| 251              | 351             | 125              | 75                     | 50               | 30                     | 55                  | 40              | 3                              | 9,5   | <b>RAR304</b>   |
| 301              | 451             | 125              | 75                     | 50               | 30                     | 55                  | 40              | 3                              | 10,4  | <b>RAR306</b>   |
| 351              | 551             | 125              | 75                     | 50               | 30                     | 55                  | 40              | 3                              | 11,3  | <b>RAR308</b>   |
| 401              | 651             | 125              | 75                     | 50               | 30                     | 55                  | 40              | 3                              | 12,2  | <b>RAR3010</b>  |
| 201              | 251             | 145              | 95                     | 75               | 30                     | 56                  | 50              | 3                              | 11,1  | <b>RAR502</b>   |
| 251              | 351             | 145              | 95                     | 75               | 30                     | 56                  | 50              | 3                              | 12,7  | <b>RAR504</b>   |
| 301              | 451             | 145              | 95                     | 75               | 30                     | 56                  | 50              | 3                              | 14,3  | <b>RAR506</b>   |
| 351              | 551             | 145              | 95                     | 75               | 30                     | 56                  | 50              | 3                              | 15,9  | <b>RAR508</b>   |
| 401              | 651             | 145              | 95                     | 75               | 30                     | 56                  | 50              | 3                              | 17,5  | <b>RAR5010</b>  |
| 251              | 301             | 185              | 135                    | 90               | 43                     | 80                  | 75              | 3                              | 16,4  | <b>RAR1002</b>  |
| 301              | 401             | 185              | 135                    | 90               | 43                     | 80                  | 75              | 3                              | 19,3  | <b>RAR1004</b>  |
| 351              | 501             | 185              | 135                    | 90               | 43                     | 80                  | 75              | 3                              | 22,2  | <b>RAR1006</b>  |
| 401              | 601             | 185              | 135                    | 90               | 43                     | 80                  | 75              | 3                              | 25,1  | <b>RAR1008</b>  |
| 451              | 701             | 185              | 135                    | 90               | 43                     | 80                  | 75              | 3                              | 28,0  | <b>RAR10010</b> |
| 248              | 298             | 230              | 170                    | 110              | 38                     | 75                  | 94              | 3                              | 24,2  | <b>RAR1502</b>  |
| 298              | 398             | 230              | 170                    | 110              | 38                     | 75                  | 94              | 3                              | 28,9  | <b>RAR1504</b>  |
| 348              | 498             | 230              | 170                    | 110              | 38                     | 75                  | 94              | 3                              | 33,2  | <b>RAR1506</b>  |
| 398              | 598             | 230              | 170                    | 110              | 38                     | 75                  | 94              | 3                              | 37,9  | <b>RAR1508</b>  |
| 448              | 698             | 230              | 170                    | 110              | 38                     | 75                  | 94              | 3                              | 42,6  | <b>RAR15010</b> |

▼ CULP50 Ultra-Flat Cylinder, with Stop Ring

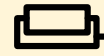


- Up to 4% side load of maximum capacity
- Stop ring for maximum stroke limitation
- Extremely low collapsed height
- Nitrocarburized surface treatment for harsh conditions.

▼ The Ultra-Flat cylinders are designed for applications where high lifting forces are required in confined spaces starting at 2,8 cm.



## CULP Series



Capacity:

**10 - 100 ton**

Stroke:

**6 mm**

Maximum Operating Pressure:

**700 bar**

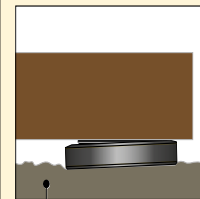


### IMPORTANT!

All Ultra-Flat Cylinders require a solid lifting surface for correct support. The use of these flat cylinders on surfaces such as sand, mud or dirt, may result in cylinder damage.



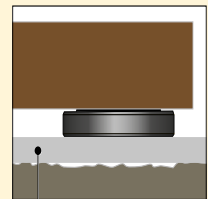
**INCORRECT!**



Rough soil



**CORRECT!**



Flat lifting surface

For more safety instructions see our 'Yellow Pages'.

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### Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only Enerpac

hydraulic hoses.

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| Cylinder Capacity @ 700 bar<br>ton (kN) | Stroke<br>(mm) | Model Number                 | Cylinder Effective Area<br>(cm <sup>2</sup> ) | Oil Capacity<br>(cm <sup>3</sup> ) | Collapsed Height |        | Outside Diameter<br>D (mm) | Cylinder Bore Diameter<br>E (mm) | Plunger Diameter<br>F (mm) | <br>(kg) |
|---|----------------|------------------------------|---|------------------------------------|------------------|--------|----------------------------|----------------------------------|----------------------------|----------|
|   |                |                              |   |                                    | A (mm)           | B (mm) |                            |                                  |                            |          |
| 10 (97)                                 | 6              | <b>CULP10</b> <sup>1)</sup>  | 13,9  | 8,3                                | 27,5             | 33,5   | 72                         | 42                               | 38                         | 1,0      |
| 20 (198)                                | 6              | <b>CULP20</b> <sup>1)</sup>  | 28,3  | 17,0                               | 32,0             | 38,0   | 90                         | 60                               | 55                         | 1,7      |
| 30 (310)                                | 6              | <b>CULP30</b> <sup>1)</sup>  | 44,2  | 26,5                               | 35,0             | 41,0   | 105                        | 75                               | 67                         | 2,5      |
| 50 (550)                                | 6              | <b>CULP50</b> <sup>1)</sup>  | 78,5  | 47,1                               | 44,5             | 50,5   | 140                        | 100                              | 90                         | 5,4      |
| 100 (1078)                              | 6              | <b>CULP100</b> <sup>2)</sup> | 153,9   | 92,5                               | 65,0             | 71,0   | 195                        | 140                              | 125                        | 11,5     |

<sup>1)</sup> Coupler AR630 including dustcap: use HB7206 hose including AH630 coupler to connect to your pump.

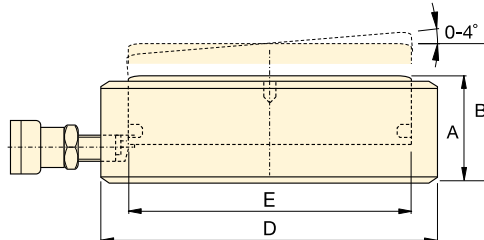
<sup>2)</sup> Coupler CR400 including dustcap: use HC-Series hose including CH604 coupler to connect to your pump.

# High Tonnage, Ultra-Flat Cylinders

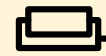
▼ CUSP-Series, Ultra-Flat High Tonnage Cylinders, integrated tilting function.



- Up to 4% side load of maximum capacity
- Extremely low collapsed height
- Integrated tilting function up to 4 degrees to evenly distribute the load
- Nitrocarburized surface treatment for harsh conditions
- “Red Line” for visual maximum stroke indication.



## CUSP Series



Capacity:

**10 - 1000 ton**

Stroke Straight / Tilted Stroke:

**7 - 17 mm / 6 - 10 mm**

Integrated:

**Tilting Function**

Maximum Operating Pressure:

**700 bar**



**IMPORTANT!**

**CUSP-Cylinders DO NOT have a Stop Ring for stroke limitation!**




**IMPORTANT!**

**All Ultra-Flat Cylinders require a solid lifting surface for correct support. The use of these flat cylinders on surfaces such as sand, mud or dirt, may result in cylinder damage.**

See instructions on page 22 or more safety instructions in our Yellow Pages.

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| Cylinder Capacity @ 700 bar | Tilted Stroke | Straight Stroke | Model Number           | Tilting +/- | Cylinder Effective Area | Oil Capacity       | Collapsed Height | Extended Height | Cylinder Outside Diameter | Cylinder Bore Diameter |  |
|-----------------------------|---------------|-----------------|------------------------|-------------|-------------------------|--------------------|------------------|-----------------|---------------------------|------------------------|---|
| ton (kN)                    | (mm)          | (mm)            |                        | (degree)    | (cm <sup>2</sup> )      | (cm <sup>3</sup> ) | A (mm)           | B (mm)          | D (mm)                    | E (mm)                 | (kg)  |
| 10 (97)                     | 6             | 6,7             | CUSP10 <sup>1)</sup>   | 2           | 13,9                    | 9,3                | 35,5             | 41,5            | 72                        | 42                     | 1,2   |
| 20 (198)                    | 6             | 7,0             | CUSP20 <sup>1)</sup>   | 2           | 28,3                    | 19,8               | 40,5             | 46,5            | 90                        | 60                     | 1,9   |
| 30 (310)                    | 6             | 7,3             | CUSP30 <sup>1)</sup>   | 2           | 44,2                    | 32,1               | 42,5             | 48,5            | 105                       | 75                     | 2,7   |
| 50 (550)                    | 10            | 13,3            | CUSP50 <sup>1)</sup>   | 4           | 78,5                    | 104                | 57,0             | 67,0            | 130                       | 100                    | 5,6   |
| 75 (792)                    | 10            | 14,0            | CUSP75 <sup>1)</sup>   | 4           | 113,1                   | 158                | 60,5             | 70,5            | 150                       | 120                    | 8,0   |
| 100 (1078)                  | 10            | 14,7            | CUSP100 <sup>2)</sup>  | 4           | 153,9                   | 226                | 63,5             | 73,5            | 170                       | 140                    | 10,8  |
| 150 (1589)                  | 10            | 14,3            | CUSP150 <sup>2)</sup>  | 3           | 227,0                   | 324                | 65,0             | 75,0            | 200                       | 170                    | 15,3  |
| 200 (2090)                  | 10            | 14,9            | CUSP200 <sup>2)</sup>  | 3           | 298,6                   | 446                | 69,0             | 79,0            | 229                       | 195                    | 21,5  |
| 250 (2542)                  | 10            | 15,5            | CUSP250 <sup>2)</sup>  | 3           | 363,1                   | 569                | 72,5             | 82,5            | 252                       | 215                    | 27,3  |
| 300 (3167)                  | 10            | 14,1            | CUSP300 <sup>2)</sup>  | 2           | 452,4                   | 637                | 72,5             | 82,5            | 282                       | 240                    | 34,4  |
| 400 (4008)                  | 10            | 14,6            | CUSP400 <sup>2)</sup>  | 2           | 572,6                   | 837                | 77,5             | 87,5            | 316                       | 270                    | 46,2  |
| 500 (5115)                  | 10            | 15,2            | CUSP500 <sup>2)</sup>  | 2           | 730,6                   | 1111               | 82,5             | 92,5            | 356                       | 305                    | 62,7  |
| 600 (5987)                  | 10            | 15,6            | CUSP600 <sup>2)</sup>  | 2           | 855,3                   | 1334               | 87,5             | 97,5            | 386                       | 330                    | 78,4  |
| 750 (7527)                  | 10            | 16,3            | CUSP750 <sup>2)</sup>  | 2           | 1075,2                  | 1757               | 93,5             | 103,5           | 432                       | 370                    | 105,2   |
| 1000 (10.165)               | 10            | 17,4            | CUSP1000 <sup>2)</sup> | 2           | 1452,2                  | 2531               | 103,0            | 113,0           | 502                       | 430                    | 157,0   |

<sup>1)</sup> Coupler AR630 including dustcap: Use HB7206 hose including AH630 coupler to connect to your pump.

<sup>2)</sup> Coupler CR400 including dustcap: Use HC-Series hose including CH604 coupler to connect to your pump.



▼ LPL-Series, Low-Height Lock Nut Cylinders



- Lock nut provides mechanical load holding for a safe work environment
- Integrated tilt saddle allows for up to 5 degrees of misalignment
- Extreme low height for use in confined areas
- Side-load resistance 5-10% of maximum capacity
- Overflow port as stroke limiter to prevent plunger blow-out
- Single-acting, gravity-return.

▼ Only the extreme low-height LPL-cylinder fits in this confined area to lift the construction. The lock nut provides positive and safe mechanical load holding over a long period of time.



### Integrated Tilt Saddles

All LPL-Series cylinders include integral tilt saddles with maximum tilt angles up to 5°.



### The Summit Edition

Innovation is at the heart of the new Summit Edition of cylinders, delivering the high quality construction that you expect from Enerpac. The durability ensures your job gets done safely and reliably.

- Replaceable plunger support bearing adds support for eccentric loads \*
- Nitrocarburization surface treatment for improved load and wear resistance and corrosion protection
- Low wear, high pressure seals provide longer service life.

\* Eccentric load (or "side-load") is inevitable in heavy lifting. Our unique Summit Edition features provide the ultimate protection against side load. Increased bearing surface maintains stability and nitrocarburization treatment prevents scoring on the inside of the cylinder. Side-load poses a real problem.... our new cylinder features are the solution!

| Cylinder Capacity | Stroke | Model Number | Maximum Cylinder Capacity at 700 bar ton (kN) | Side-load Resistance of Maximum Capacity | Cylinder Effective Area |
|-------------------|--------|--------------|---|--|-------------------------|
| ton               | (mm)   |              |   |  | (cm <sup>2</sup> )      |
| 60                | 50     | LPL602       | 62 (606)                                      | 10%                                      | 86,6                    |
| 100               | 50     | LPL1002      | 102 (1002)                                    | 10%                                      | 143,1                   |
| 150               | 45     | LPL1602      | 162 (1589)                                    | 8%                                       | 227,0                   |
| 200               | 45     | LPL2002      | 202 (1985)                                    | 8%                                       | 283,5                   |
| 250               | 45     | LPL2502      | 259 (2541)                                    | 5%                                       | 363,1                   |
| 400               | 45     | LPL4002      | 409 (4008)                                    | 5%                                       | 572,6                   |
| 500               | 45     | LPL5002      | 522 (5114)                                    | 5%                                       | 730,6                   |

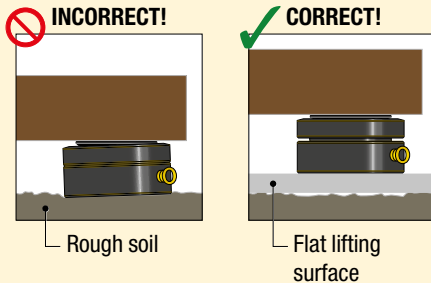


# Single-Acting, Low-Height Lock Nut Cylinders

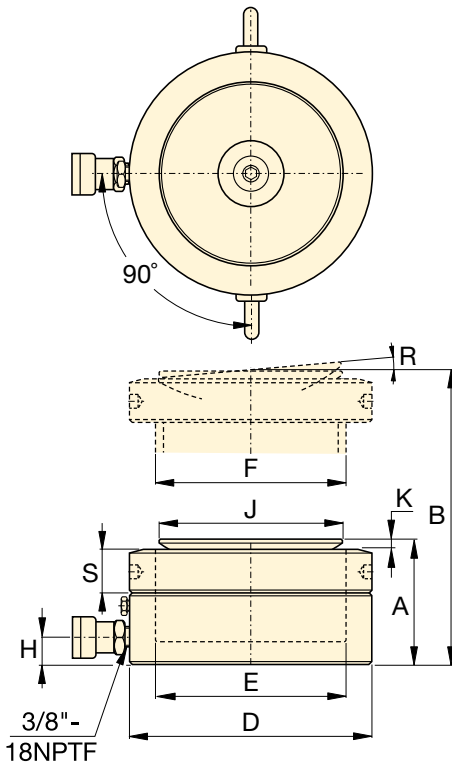


## IMPORTANT!

All LPL-Series cylinders require a solid lifting surface for correct support. The use of these cylinders on surfaces such as sand, mud or dirt, may result in cylinder damage.



For more safety instructions see our 'Learning Center' on [www.enerpac.com](http://www.enerpac.com)



## LPL Series



Capacity:

**60 - 500 ton**

Stroke:

**45 - 50 mm**

Maximum Operating Pressure:

**700 bar**



### Longer Stroke Lock Nut Cylinders

For longer stroke applications **HCL and HCRL-Series** lock nut cylinders are the perfect choice.

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### SFP-Series, Split-Flow Pumps

SFP-Series Pumps with multiple outlets with equal oil flow. For lifting and lowering applications on multiple points

these pumps are a far better alternative than using separately operated pumps.


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### Synchronous Lifting Systems

**EVO-Series** pumps the multi-functional lifting system and multiple lift point capabilities.

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| Oil Capacity       | Collapsed Height | Extended Height | Outside Diameter | Cylinder Bore Diameter | Plunger Diameter | Base to Advance Port | Saddle Diameter | Saddle Protrusion from Plgr. | Saddle Max. Tilt Angle | Lock Nut Height |  (kg) | Model Number   |
|--------------------|------------------|-----------------|------------------|------------------------|------------------|----------------------|-----------------|------------------------------|------------------------|-----------------|--|----------------|
| (cm <sup>3</sup> ) | A (mm)           | B (mm)          | D (mm)           | E (mm)                 | F (mm)           | H (mm)               | J (mm)          | K (mm)                       | R                      | S (mm)          |  |                |
| 433,0              | 126              | 176             | 140              | 105                    | Tr 105 x 4       | 19                   | 96              | 7                            | 5°                     | 28              | 15   | <b>LPL602</b>  |
| 715,7              | 137              | 187             | 173              | 135                    | Tr 135 x 6       | 21                   | 126             | 8                            | 5°                     | 31              | 25   | <b>LPL1002</b> |
| 1021,4             | 148              | 193             | 220              | 170                    | Tr 170 x 6       | 27                   | 160             | 9                            | 5°                     | 40              | 43   | <b>LPL1602</b> |
| 1275,9             | 155              | 200             | 245              | 190                    | Tr 190 x 6       | 30                   | 180             | 10                           | 5°                     | 43              | 55   | <b>LPL2002</b> |
| 1633,7             | 159              | 204             | 275              | 215                    | Tr 215 x 6       | 32                   | 200             | 12                           | 5°                     | 43              | 70   | <b>LPL2502</b> |
| 2576,5             | 178              | 223             | 350              | 270                    | Tr 270 x 6       | 40                   | 250             | 12                           | 4°                     | 55              | 129  | <b>LPL4002</b> |
| 3287,8             | 192              | 237             | 400              | 305                    | Tr 305 x 6       | 49                   | 290             | 10                           | 3°                     | 61,5            | 183  | <b>LPL5002</b> |

▼ Shown from left to right: RSM1000, RSM300, RSM50, RCS1002, RCS302



## Maximum Power-to-Height Ratio



### Saddles

All RCS-Series cylinders have plunger mounting holes for installation of tilt saddles. See table for selection and dimensional information.

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### Low Clearance Lifting

The LW-Series Lifting Wedges and SOH-Series Machine Lifts are the perfect choice for lifting the first few millimeters.

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### RSM-series, Low-Height Cylinders

- Compact, flat design for use where most other cylinders will not fit
- Single-acting, spring return
- RSM750, 1000 and 1500 have handles for easy carrying
- Mounting holes permit easy fixturing
- Baked enamel finish for increased corrosion resistance
- CR400 coupler and dust cap included on all models<sup>1)</sup>
- Hard chrome plated high quality steel plungers
- Grooved plunger ends require no saddle.

### RCS-series, Low-Height Cylinders

- Lightweight, low profile design for use in confined spaces
- Single-acting, spring return
- Baked enamel finish for increased corrosion resistance
- Plunger wiper reduces contamination, extending cylinder life
- CR400 coupler and dust cap included on all models
- Grooved plunger end with threaded holes for mounting tilt saddles
- Integral handle on RCS1002 for easy carrying
- Plated steel plungers.

▼ Only a couple of centimeters will do for an RSM-cylinder to lift a large construction.

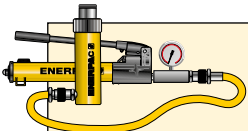


| Cyl. Capacity | Stroke | Model Number        | Cylinder Effective Area | Oil Capacity       |
|---------------|--------|---------------------|-------------------------|--------------------|
| ton (kN)      | (mm)   |                     | (cm <sup>2</sup> )      | (cm <sup>3</sup> ) |
| 5 (45)        | 6      | RSM50 <sup>1)</sup> | 6,5                     | 4                  |
| 10 (101)      | 11     | RSM100 *            | 14,5                    | 18                 |
| 20 (201)      | 11     | RSM200 *            | 28,7                    | 32                 |
| 30 (295)      | 13     | RSM300 *            | 42,1                    | 55                 |
| 45 (435)      | 16     | RSM500 *            | 62,1                    | 99                 |
| 75 (718)      | 16     | RSM750              | 102,6                   | 164                |
| 90 (887)      | 16     | RSM1000             | 126,7                   | 203                |
| 150 (1386)    | 16     | RSM1500             | 198,1                   | 317                |
| 10 (101)      | 38     | RCS101 *            | 14,5                    | 55                 |
| 20 (201)      | 45     | RCS201 *            | 28,7                    | 129                |
| 30 (295)      | 62     | RCS302 *            | 42,1                    | 261                |
| 45 (435)      | 60     | RCS502 *            | 62,1                    | 373                |
| 90 (887)      | 57     | RCS1002 *           | 126,7                   | 722                |

<sup>1)</sup> RSM50 is fitted with an AR400 coupler.

\* Available as set, see note on next page.

# Single-Acting, Low-Height Cylinders



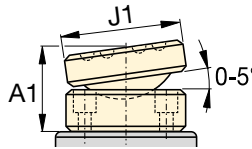
## Cylinder-Pump Sets

All cylinders marked with an \* are available as sets (cylinder, gauge, couplers, hose and pump) for your ordering convenience.

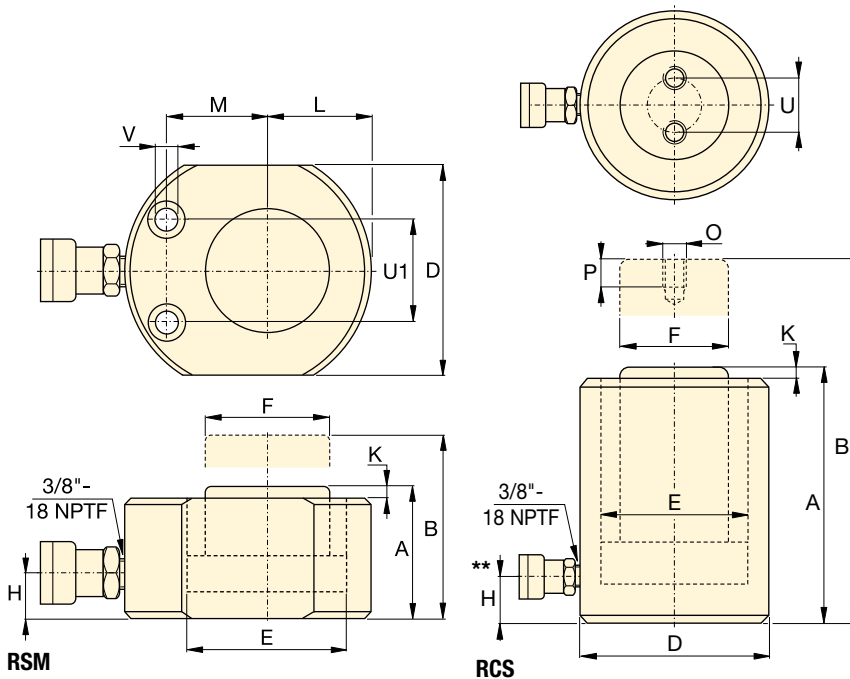
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### Optional Bolt On Tilt Saddle Dimensions (mm)

| For Cylinder Model: | Model Number | J1 | A1 * |
|---------------------|--------------|----|------|
| RCS101              | CATS13       | 35 | 20   |
| RCS201, 302, 502    | CATS53       | 50 | 26   |
| RCS1002             | CATS103      | 71 | 35   |



\* A1 = Addition to Collapsed Height.



## RSM, RCS Series



Capacity:

**5 - 150 ton**

Stroke:

**6 - 62 mm**

Maximum Operating Pressure:

**700 bar**



### Power Box

Tool box with hand pump, gauge adaptor assembly, hose and RSM or RCS-cylinders.

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### RSM Cylinder Mounting Hole Dimensions (mm)

| Model Number | Bolt Circle U1 | Hole Dia. V | Counter Bore Dia. | Counter Bore Depth |
|--------------|----------------|-------------|-------------------|--------------------|
| RSM50        | 28,5           | 5,5         | 9,1               | 4,3                |
| RSM100       | 36,6           | 7,1         | 10,7              | 7,9                |
| RSM200       | 49,3           | 10,0        | 15,1              | 9,9                |
| RSM300       | 52,3           | 10,0        | 15,9              | 11,2               |
| RSM500       | 66,5           | 11,0        | 19,0              | 12,7               |
| RSM750       | 76,2           | 13,5        | 20,6              | 14,2               |
| RSM1000      | 76,2           | 13,5        | 20,6              | 14,2               |
| RSM1500      | 117,3          | 13,5        | 20,6              | 14,2               |

| Collapsed Height A (mm) | Extended Height B (mm) | Outside Diameter D (mm) | Cylinder Bore Dia. E (mm) | Plunger Dia. F (mm) | Base to Advance Port H (mm) | Plunger Protrusion from Base K (mm) | Plunger to Base L (mm) | Plunger to Mtg. Hole M (mm) | Thread O (mm) | Thread Depth P (mm) | Bolt Circle U (mm) | Weight (kg) | Model Number        |
|-------------------------|------------------------|-------------------------|---------------------------|---------------------|-----------------------------|-------------------------------------|------------------------|-----------------------------|---------------|---------------------|--------------------|-------------|---------------------|
| 32                      | 38                     | 58 x 41                 | 28,7                      | 25,4                | 16                          | 1                                   | 20                     | 22                          | -             | -                   | -                  | 1,0         | RSM50 <sup>1)</sup> |
| 43                      | 54                     | 82 x 55                 | 42,9                      | 38,1                | 19                          | 1                                   | 27                     | 34                          | -             | -                   | -                  | 1,4         | RSM100 *            |
| 51                      | 62                     | 101 x 76                | 60,5                      | 50,8                | 19                          | 1                                   | 39                     | 39                          | -             | -                   | -                  | 3,1         | RSM200 *            |
| 58                      | 71                     | 117 x 95                | 73,2                      | 63,4                | 19                          | 2                                   | 47                     | 44                          | -             | -                   | -                  | 4,5         | RSM300 *            |
| 66                      | 82                     | 140 x 114               | 88,9                      | 69,8                | 19                          | 2                                   | 57                     | 53                          | -             | -                   | -                  | 6,8         | RSM500 *            |
| 79                      | 95                     | 165 x 139               | 114,3                     | 82,6                | 19                          | 2                                   | 69                     | 66                          | -             | -                   | -                  | 11,3        | RSM750              |
| 85                      | 101                    | 178 x 153               | 127,0                     | 92,2                | 19                          | 2                                   | 76                     | 74                          | -             | -                   | -                  | 14,5        | RSM1000             |
| 100                     | 116                    | 215 x 190               | 158,8                     | 114,3               | 23                          | 2                                   | 95                     | 82                          | -             | -                   | -                  | 26,3        | RSM1500             |
| 88                      | 126                    | 69                      | 42,9                      | 38,1                | 17                          | 5                                   | -                      | -                           | M4            | 8                   | 26                 | 2,7         | RCS101 *            |
| 98                      | 143                    | 92                      | 60,5                      | 50,8                | 17                          | 3                                   | -                      | -                           | M5            | 8                   | 40                 | 5,0         | RCS201 *            |
| 117                     | 179                    | 101                     | 73,2                      | 66,5                | 19                          | 3                                   | -                      | -                           | M5            | 8                   | 40                 | 6,8         | RCS302 *            |
| 122                     | 182                    | 124                     | 88,9                      | 69,8                | 23                          | 2                                   | -                      | -                           | M5            | 8                   | 40                 | 10,0        | RCS502 *            |
| 141                     | 198                    | 165                     | 127,0                     | 92,2                | 31                          | 1                                   | -                      | -                           | M8            | 10                  | 55                 | 20,7        | RCS1002 *           |

\*\* 5° angle position of coupler on RCS101, 201, 302.

▼ RLT-Series, Low-Height Telescopic Cylinder



- **Single-acting, load-return**
- **Nitrocarburized surface treatment inside and out provides corrosion protection**
- **For use in confined spaces: machinery positioning, tool fastening**
- **Mounting bolt holes for easy fixing**
- **Up to 3% side-load of maximum capacity**
- **Design safety factor complies with ASME B30.1 & EN1494**
- **CR400 coupler for compatibility with standard product**
- **High-Alloy steel for maximum strength.**

**For longer cylinder strokes in confined spaces**



**RLT-Series, Low-Height Telescopic Cylinders**

Enerpac compact, low-height telescopic cylinders are available with two or three pistons, and can lift loads up to 40 mm in a single movement.

Nitrocarburization surface treatment for improved wear resistance and corrosion protection for increased safety and longer service life in harsh conditions. The longer stroke length of telescopic cylinders will save you time and simplify projects by moving a load a greater distance and eliminating the use of temporary cribbing.



**Multi-Stage Cylinders**

**1st Stage:** maximum load capacity at lower stroke.

**2nd Stage:** extended stroke with lower capacity than the 1st stage.

**Final Stage:** maximum stroke extension with lowest capacity.



| Cylinder Capacity at Maximum Stroke<br>ton (kN) | Maximum Stroke<br>(mm) | Model Number | Collapsed Height | Extended Height | Oil Capacity<br>(cm <sup>3</sup> ) |
|---|------------------------|--------------|------------------|-----------------|------------------------------------|
|   |                        |              | A<br>(mm)        | B<br>(mm)       |                                    |
| 4,4 (43)  | 17                     | RLT40        | 45,0             | 62,0            | 21                                 |
| 4,4 (43)  | 23                     | RLT41        | 54,0             | 77,0            | 51                                 |
| 11,4 (111)                                      | 18                     | RLT110       | 54,5             | 72,5            | 48                                 |
| 11,4 (111)                                      | 40                     | RLT111       | 89,0             | 129,0           | 241                                |
| 23,7 (232)                                      | 27                     | RLT230       | 75,0             | 102,0           | 150                                |
| 23,7 (232)                                      | 32                     | RLT231       | 96,0             | 128,0           | 303                                |
| 31,5 (309)                                      | 29                     | RLT311       | 89,0             | 118,0           | 224                                |
| 50,6 (496)                                      | 26                     | RLT501       | 96,0             | 122,0           | 283                                |
| 74,1 (727)                                      | 26                     | RLT741       | 114,0            | 140,0           | 426                                |



# Low-Height Telescopic Cylinders, Single-Acting



## Assisted-return Pumps with Venturi Valve Technology

To improve productivity and plunger retraction,

Enerpac offers valve configurations designed to accelerate your cylinder retraction speeds, ZU4 and ZE-Series pumps feature **Venturi Valve Technology** to facilitate the faster return of single-acting load and spring-return cylinders. See [enerpac.com](http://enerpac.com) for details.

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## 4-way Manifold assembly complete with gauges

Offering ease of portability and convenience with an ergonomic robust design,

ready for use. Enerpac's CR400 female couplers on all ports allow the manifold to be quickly connected to up to 4 cylinders. Glycerine filled, 700 bar gauges allow operators to work safely. All protected by the robust protection frame.

| Manifold Type (Used for cylinders) | Model Number  |
|------------------------------------|---------------|
| 4x Single-acting                   | <b>AMGC41</b> |
| 4x Double-acting                   | <b>AMGC42</b> |

## RLT Series



Capacity:

**4,4 - 74,1 ton**

Stroke:

**17 - 40 mm**

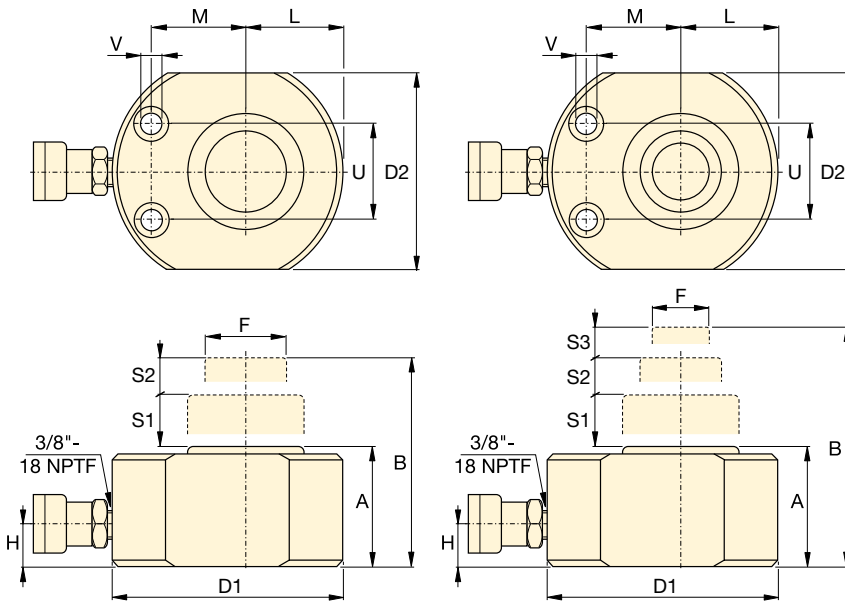
Maximum Operating Pressure:

**700 bar**



### WARNING:

If several telescopic cylinders need to be controlled simultaneously Enerpac recommend the use of EVO-Series Synchronous Lifting Pumps. Enerpac advise not to use SFP-Series Split-Flow pumps to operate several telescopic cylinders at a time due to the volume difference on the different stages.



### RLT-Cylinders

#### Mounting Hole Dimensions (mm)

| Model Number  | Bolt Distance | Hole Diameter | Counter Bore Diameter | Counter Bore Depth |
|---------------|---------------|---------------|-----------------------|--------------------|
|               | U             | V             |                       |                    |
| <b>RLT40</b>  | 37            | 6,5           | 11                    | 7                  |
| <b>RLT41</b>  | 50            | 9,0           | 14                    | 9                  |
| <b>RLT110</b> | 50            | 9,0           | 14                    | 9                  |
| <b>RLT111</b> | 76            | 13,0          | 20                    | 13                 |
| <b>RLT230</b> | 67            | 13,0          | 20                    | 13                 |
| <b>RLT231</b> | 76            | 6,5           | 11                    | 7                  |
| <b>RLT311</b> | 76            | 13,0          | 20                    | 13                 |
| <b>RLT501</b> | 76            | 6,5           | 11                    | 7                  |
| <b>RLT741</b> | 117           | 9,0           | 14                    | 9                  |

| 1st Stage            |                   | 2nd Stage            |                   | 3rd Stage            |                   | Outside Diameter<br>D1 x D2 (mm) | Plunger Diameter<br>F (mm) | Bottom to Advance Port<br>H (mm) | Plunger to Base<br>L (mm) | Plunger to Mounting Hole<br>M (mm) | <br>(kg) | Model Number  |
|----------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------------------|----------------------------|----------------------------------|---------------------------|------------------------------------|----------|---------------|
| Capacity<br>ton (kN) | Stroke<br>S1 (mm) | Capacity<br>ton (kN) | Stroke<br>S2 (mm) | Capacity<br>ton (kN) | Stroke<br>S3 (mm) |                                  |                            |                                  |                           |                                    |          |               |
| <b>11,4 (111)</b>    | 11                | <b>4,4 (43)</b>      | 6                 | -                    | -                 | 83 x 56                          | 25                         | 20                               | 29,0                      | 33                                 | 1,8      | <b>RLT40</b>  |
| <b>23,7 (232)</b>    | 11                | <b>11,4 (111)</b>    | 7                 | <b>4,4 (43)</b>      | 5                 | 102 x 80                         | 25                         | 20                               | 41,0                      | 39                                 | 3,1      | <b>RLT41</b>  |
| <b>23,7 (232)</b>    | 11                | <b>11,4 (111)</b>    | 7                 | -                    | -                 | 102 x 80                         | 38                         | 20                               | 41,0                      | 39                                 | 3,0      | <b>RLT110</b> |
| <b>74,1 (727)</b>    | 16                | <b>31,5 (309)</b>    | 13                | <b>11,4 (111)</b>    | 11                | 165 x 140                        | 38                         | 25                               | 70,5                      | 66                                 | 13,1     | <b>RLT111</b> |
| <b>50,6 (496)</b>    | 16                | <b>23,7 (232)</b>    | 11                | -                    | -                 | 140 x 114                        | 57                         | 20                               | 58,0                      | 56                                 | 7,6      | <b>RLT230</b> |
| <b>94,7 (929)</b>    | 16                | <b>50,6 (496)</b>    | 10                | <b>23,7 (232)</b>    | 6                 | 178 x 162                        | 57                         | 29                               | 89,0                      | 70                                 | 17,3     | <b>RLT231</b> |
| <b>74,1 (727)</b>    | 16                | <b>31,5 (309)</b>    | 13                | -                    | -                 | 165 x 140                        | 60                         | 25                               | 70,5                      | 66                                 | 13,0     | <b>RLT311</b> |
| <b>94,7 (929)</b>    | 16                | <b>50,6 (496)</b>    | 10                | -                    | -                 | 178 x 162                        | 78                         | 29                               | 89,0                      | 70                                 | 17,3     | <b>RLT501</b> |
| <b>143,5 (1407)</b>  | 16                | <b>74,1 (727)</b>    | 10                | -                    | -                 | 216 x 196                        | 95                         | 35                               | 108,0                     | 78                                 | 30,4     | <b>RLT741</b> |

▼ RT3311 Telescopic Cylinder (shown with plunger extended and retracted)



- Nitrocarburized surface treatment inside and out provides corrosion protection
- 3% side-load of full capacity
- Double or triple wear bearings support lifting stages
- Tilting saddles with 5 degrees of maximum tilt standard on all models
- Design Safety factor complies with ASME B30.1 & EN1494
- Certified lifting eyes for safe handling and positioning
- CR400 coupler for compatibility with standard product
- Steel cylinder base for maximum strength.



◀ *The longer stroke length of telescopic cylinders will save you time and simplify projects by moving a load a greater distance and eliminating the use of temporary cribbing.*

## Moving a load a greater distance



### RT-Series, Multi-Stage Cylinders

Enerpac compact, multi-stage telescopic cylinders are available with two or three pistons, and can lift loads up to 600 mm in a single movement.

Nitrocarburized surface treatment inside and out provides unparalleled sideload resistance and corrosion protection for safe use in the harshest conditions. The longer stroke length of telescopic cylinders will save you time and simplify projects by moving a load a greater distance and eliminating the use of temporary cribbing.

### Multi-Stage Cylinders

**1st Stage:** maximum load capacity at lowest maximum stroke

**2nd Stage:** extended stroke but at lower maximum capacity than the 1st stage

**Final Stage:** maximum stroke extension but lowest maximum capacity.

**WARNING:** If several telescopic cylinders need to be controlled simultaneously Enerpac recommend the use of EVO or EVOB-Series Synchronous Lifting Pumps. Enerpac advise not to use SFP-Series Split-Flow pumps to operate several telescopic cylinders at a time due to the volume difference on the different stages.

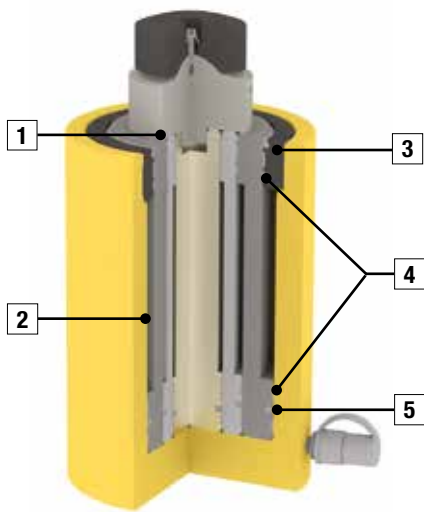


### Tilt Saddles

All RT-Series cylinders include integral tilt saddles with maximum tilt angles up to 5 degree.

| Cylinder Capacity at Maximum Stroke<br>ton (kN) | Maximum Stroke<br>(mm) | Model Number | Collapsed Height |           |
|---|------------------------|--------------|------------------|-----------|
|   |                        |              | A<br>(mm)        | B<br>(mm) |
| 14,0 (137)                                      | 270                    | RT1510       | 283              | 553       |
|   |                        | RT1817       | 345              | 780       |
| 20,2 (198)                                      | 300                    | RT2111       | 317              | 617       |
|   | 500                    | RT2119       | 395              | 895       |
| 31,5 (309)                                      | 300                    | RT3311       | 352              | 652       |
|   | 600                    | RT3323       | 476              | 1076      |

# Multi-Stage Telescopic Cylinders, Single-Acting, Load Return



- 1 **Wiper Ring** on each stage to minimize contamination.
- 2 **Nitrocarburized Coating** for maximum corrosion protection and surface hardness. Exterior in nitrided and Enerpac yellow epoxy.
- 3 **Stop Ring** full load capable to prevent plunger overstroke.
- 4 **Wear Bearings**. Double or triple wear bearings for maximum sideload capability and wear resistance.
- 5 **Seals** for maximum compliance and high wear resistance.

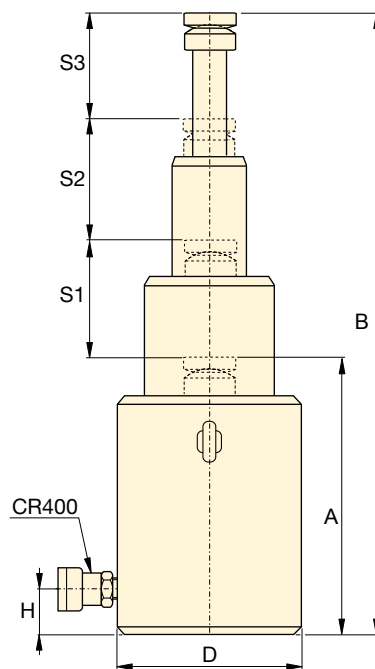
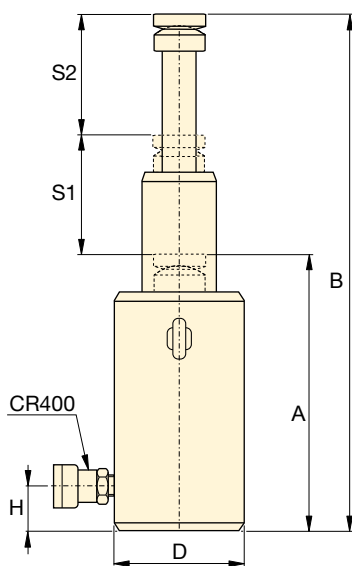
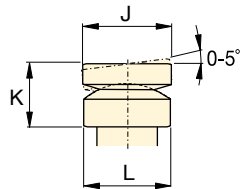
## RT Series



Capacity:  
**14 - 31,5 ton**

Stroke:  
**270 - 600 mm**

Maximum Operating Pressure:  
**700 bar**



### Assisted-return Pumps with Venturi Valve Technology

To improve productivity and plunger retraction, Enerpac offers valve configurations designed to accelerate your cylinder retraction speeds, ZU4 and ZE-Series pumps feature **Venturi Valve Technology** to facilitate the faster return of single-acting load and spring-return cylinders. See [enerpac.com](http://enerpac.com) for details.

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### Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only Enerpac hydraulic hoses.

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| Oil Capacity<br>(cm <sup>3</sup> ) | 1st Stage            |                   | 2nd Stage            |                   | 3rd Stage            |                   | Outside Diameter<br>D (mm) | Bottom to Advance Port<br>H (mm) | Saddle Diameter<br>J (mm) | Saddle Protrusion from Plgr.<br>K (mm) | Saddle Support Diameter<br>L (mm) | Model Number |
|------------------------------------|----------------------|-------------------|----------------------|-------------------|----------------------|-------------------|----------------------------|----------------------------------|---------------------------|--|-----------------------------------|--------------|
|                                    | Capacity<br>ton (kN) | Stroke<br>S1 (mm) | Capacity<br>ton (kN) | Stroke<br>S2 (mm) | Capacity<br>ton (kN) | Stroke<br>S3 (mm) |                            |                                  |                           |  |                                   |              |
| 944                                | 36 (352)             | 135               | 14 (137)             | 135               | -                    | -                 | 110                        | 20                               | 60                        | 49                                     | 60                                | 15,1 RT1510  |
| 3092                               | 95 (929)             | 145               | 41 (397)             | 145               | 17,0 (166)           | 145               | 170                        | 27                               | 80                        | 73                                     | 85                                | 40,3 RT1817  |
| 1487                               | 51 (496)             | 150               | 20 (198)             | 150               | -                    | -                 | 125                        | 23                               | 60                        | 53                                     | 66                                | 21,8 RT2111  |
| 4661                               | 126 (1237)           | 170               | 51 (496)             | 170               | 20,2 (198)           | 160               | 200                        | 34                               | 90                        | 83                                     | 100                               | 67,3 RT2119  |
| 2359                               | 81 (792)             | 150               | 32 (309)             | 150               | -                    | -                 | 160                        | 25                               | 80                        | 66                                     | 89                                | 39,9 RT3311  |
| 8816                               | 202 (1985)           | 200               | 81 (792)             | 200               | 31,5 (309)           | 200               | 250                        | 44                               | 110                       | 111                                    | 123                               | 124,0 RT3323 |

▼ Shown from left to right: BRC25, BRC46, BRP306, BRP606, BRP106C



- High strength alloy steel construction
- Hard chrome-plated plunger for long life
- Replaceable links on BRP-models
- Baked enamel finish for increased corrosion resistance
- CR400 coupler and dust cap included on all models
- Plunger wiper reduces contamination, extending cylinder life
- Single-acting, spring return.

## The Ultimate in Pulling Power



### Gauges

Minimize the risk of overloading and ensure long, dependable service from your equipment. Refer to the System Components

Section for a full range of gauges.

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### Attachments and Accessories

BRC25 and BRC46 units have base, collar and plunger threads to affix a range of optional attachments and accessories, such as chains, saddles and extension tubes.

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▼ Lifting mining conveyor belt using pull cylinders for bearing maintenance.



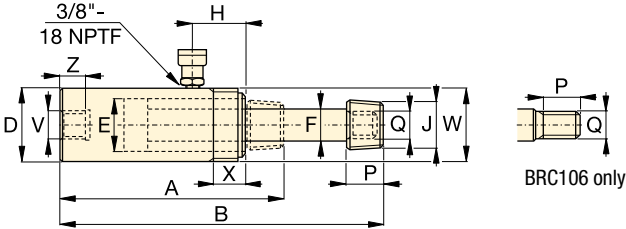
▼ To lift a load bearing mast into place, BRP-Series cylinders were used to tension the supporting cables.





# Single-Acting, Pull Cylinders

| BRC Cylinder Mounting Dimensions (mm) |                      |                 |                     |                   |
|---------------------------------------|----------------------|-----------------|---------------------|-------------------|
| Model Number                          | Base Mounting Hole V | Collar Thread W | Collar Thd. Lgth. X | Mtg. Thd. Lgth. Z |
| <b>BRC-25</b>                         | 3/4" - 14 NPT        | 1 1/2" - 16 UN  | 24                  | 17                |
| <b>BRC-46</b>                         | 1 1/4" - 11 1/2 NPT  | 2 1/4" - 14 UN  | 26                  | 24                |
| <b>BRC-106</b>                        | M30 x 2              | M85 x 2         | 25                  | 24                |



**BRC25, 46, 106**

**BRC,  
BRP  
Series**



Capacity:

**2,5 - 50 ton**

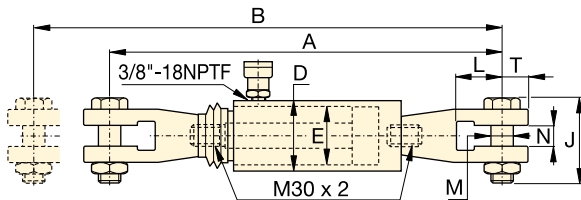
Stroke:

**127 - 154 mm**

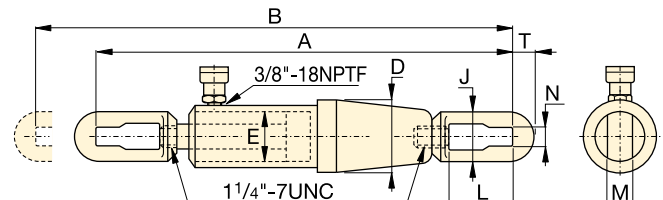
Maximum Operating Pressure:

**700 bar**

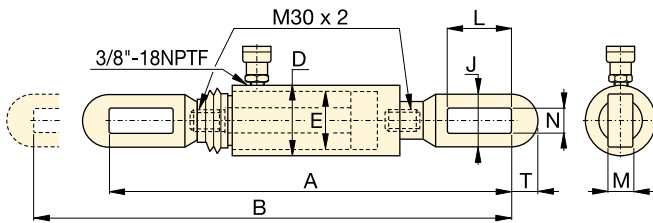
| Cylinder Capacity | Stroke | Model Number  | Cylinder Effective Area | Oil Capacity       | Coll. Height | Ext. Height | Outside Dia. | Cylinder Bore Dia. | Plunger Dia. | Top to Inlet Port H | Saddle Diameter J (NPT) | Plunger Thread Length P (mm) | Plunger Outside Thread Q | (kg) |
|-------------------|--------|---------------|-------------------------|--------------------|--------------|-------------|--------------|--------------------|--------------|---------------------|-------------------------|------------------------------|--------------------------|------|
| ton (kN)          | (mm)   |               | (cm <sup>2</sup> )      | (cm <sup>3</sup> ) | A (mm)       | B (mm)      | D (mm)       | E (mm)             | F (mm)       | H (mm)              | J (NPT)                 | P (mm)                       | Q                        | (kg) |
| <b>2,5 (24)</b>   | 127    | <b>BRC25</b>  | 3,5                     | 45                 | 264          | 391         | 48           | 28,4               | 19,0         | 45                  | 3/4" - 14               | 28                           | 1 1/16" - 24             | 1,8  |
| <b>5 (51)</b>     | 140    | <b>BRC46</b>  | 7,3                     | 101                | 301          | 441         | 57           | 42,9               | 30,2         | 42                  | 1 1/4" - 11 1/2         | 32                           | 1 3/16" - 16             | 4,5  |
| <b>10 (105)</b>   | 151    | <b>BRC106</b> | 15,0                    | 228                | 289          | 440         | 85           | 54,1               | 31,8         | 39                  | -                       | 25                           | M30x2                    | 9,5  |



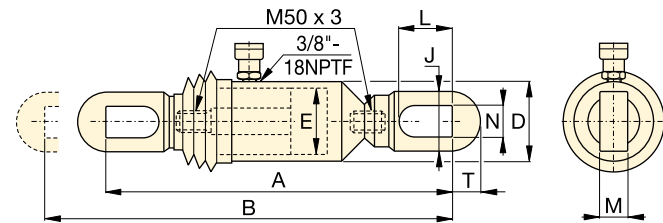
**BRP106C**



**BRP306**



**BRP106L**



**BRP606**

| Cylinder Capacity | Stroke | Model Number   | Cylinder Effective Area | Oil Capacity       | Coll. Height | Ext. Height | Outside Dia. | Cyl. Bore Dia. | Link Height | Link Opening L | Link Thickness M | Link Width N | Slot to Link End T | (kg) |
|-------------------|--------|----------------|-------------------------|--------------------|--------------|-------------|--------------|----------------|-------------|----------------|------------------|--------------|--------------------|------|
| ton (kN)          | (mm)   |                | (cm <sup>2</sup> )      | (cm <sup>3</sup> ) | A (mm)       | B (mm)      | D (mm)       | E (mm)         | J (mm)      | L (mm)         | M (mm)           | N (mm)       | T (mm)             | (kg) |
| <b>10 (110)</b>   | 150    | <b>BRP106C</b> | 15,8                    | 238                | 601          | 751         | 85           | 54,1           | 105         | 87             | 30               | 35           | 32                 | 15,3 |
|                   | 150    | <b>BRP106L</b> | 15,8                    | 238                | 573          | 723         | 85           | 54,1           | 64          | 119            | 22               | 30           | 32                 | 13,3 |
| <b>30 (325)</b>   | 154    | <b>BRP306</b>  | 46,4                    | 715                | 1110         | 1264        | 137          | 88,9           | 114         | 155            | 35               | 40           | 55                 | 63,1 |
| <b>50 (506)</b>   | 153    | <b>BRP606</b>  | 72,1                    | 1096               | 718          | 871         | 140          | 110,1          | 130         | 151            | 40               | 48           | 65                 | 58,3 |

▼ Shown from left to right: RCH306, RCH120, RCH1003

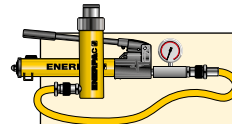


- Hollow plunger design allows for both, pull and push forces
- Single-acting, spring return
- Nickel-plated, floating center tube on models over 20 ton increases product life
- Baked enamel finish for increased corrosion resistance
- Collar threads for easy fixturing
- RCH120 includes AR630 coupler and has 1/4" NPTF port
- RCH121 and RCH1211 have FZ1630 reducer and AR630 coupler, all other models feature CR400 coupler.

▼ Hollow plunger cylinder RCH1003 used in an application for intermediate boom suspension on a dragline.



## Versatility in Testing, Maintenance and Tensioning Applications



### Cylinder-Pump Sets

All cylinders marked with an \* are available as **sets** (cylinder, gauge, couplers, hose and pump) for your ordering convenience.

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### Ultra-Lightweight Aluminium Cylinders

If you need a higher cylinder capacity-to-weight-ratio the lightweight **RACH-Series** are the perfect choice.

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### Saddles

Most RCH-Series cylinders are equipped with smooth saddles. See table at next page for optional threaded saddles and all dimensional information.

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| Cylinder Capacity | Stroke | Model Number     | Cylinder Effective Area | Oil Capacity       |
|-------------------|--------|------------------|-------------------------|--------------------|
| ton (kN)          | (mm)   |                  | (cm <sup>2</sup> )      | (cm <sup>3</sup> ) |
| 12 (125)          | 8      | <b>RCH120</b>    | 17,9                    | 14                 |
|                   | 42     | <b>RCH121 *</b>  | 17,9                    | 75                 |
|                   | 42     | <b>RCH1211</b>   | 17,9                    | 75                 |
|                   | 76     | <b>RCH123</b>    | 17,9                    | 136                |
| 20 (215)          | 49     | <b>RCH202 *</b>  | 30,7                    | 150                |
|                   | 155    | <b>RCH206</b>    | 30,7                    | 476                |
| 30 (326)          | 64     | <b>RCH302 *</b>  | 46,6                    | 298                |
|                   | 155    | <b>RCH306</b>    | 46,6                    | 722                |
| 60 (576)          | 76     | <b>RCH603 *</b>  | 82,3                    | 626                |
|                   | 153    | <b>RCH606</b>    | 82,3                    | 1259               |
| 95 (931)          | 76     | <b>RCH1003 *</b> | 133,0                   | 1011               |

\* Available as set, see note on this page.

# Single-Acting, Hollow Plunger Cylinders

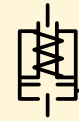


## Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only Enerpac hydraulic hoses.

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## RCH Series



Capacity:

**12 - 95 ton**

Stroke:

**8 - 155 mm**

Center Hole Diameter:

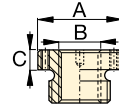
**19,5 - 79,0 mm**

Maximum Operating Pressure:

**700 bar**

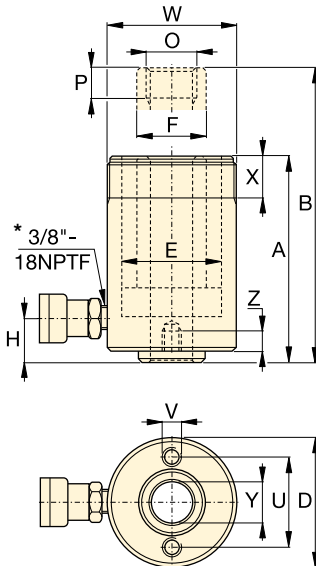
### Optional Threaded Hollow Saddles

| Saddle Type     | Cylinder Model Number | Saddle Model Nr. | Saddle Dimensions (mm) |          |    |
|-----------------|-----------------------|------------------|------------------------|----------|----|
|                 |                       |                  | A                      | B        | C  |
| Threaded Hollow | RCH202, 206           | HP2015           | 53                     | 1" - 8   | 9  |
|                 | RCH302, 306           | HP3015           | 63                     | 1¼" - 7  | 9  |
|                 | RCH603, 606           | HP5016           | 91                     | 1½" - 5½ | 12 |
|                 | RCH1003               | HP10016          | 126                    | 2½" - 8  | 13 |



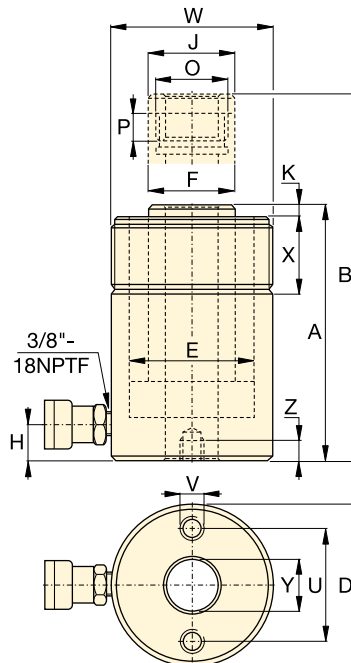
Smooth hollow saddles are standard on all RCH-models (except RCH120, RCH1211).

RCH121 and RCH1211 have a 47 mm dia. boss that protrudes 6 mm from base.



RCH120 to RCH123 models

\* 1/4" NPTF for RCH120 only



RCH202 to RCH1003 models

### Base Mounting Hole Dimensions (mm)

| Model Number | Bolt Circle U | Thread V       | Thread Depth Z |
|--------------|---------------|----------------|----------------|
| RCH120       | 50,8          | 5/16" - 18 UNC | 9,0            |
| RCH121       | -             | -              | -              |
| RCH1211      | -             | -              | -              |
| RCH123       | 50,8          | 5/16" - 18 UNC | 12,7           |
| RCH202       | 82,6          | 3/8" - 16 UNC  | 9,4            |
| RCH206       | 82,6          | 3/8" - 16 UNC  | 9,4            |
| RCH302       | 92,2          | 3/8" - 16 UNC  | 14,0           |
| RCH306       | 92,2          | 3/8" - 16 UNC  | 14,0           |
| RCH603       | 130,3         | 1/2" - 13 UNC  | 14,0           |
| RCH606       | 130,3         | 1/2" - 13 UNC  | 14,0           |
| RCH1003      | 177,8         | 5/8" - 11 UNC  | 19,0           |

| Coll. Height A (mm) | Ext. Height B (mm) | Outside Dia. D (mm) | Cyl. Bore Dia. E (mm) | Plgr. Dia. F (mm) | Cyl. Base to Advance Port H (mm) | Saddle Dia. J (mm) | Saddle Protrusion from Plgr. K (mm) | Plunger Internal Thread O | Plunger Thread Length P (mm) | Collar Thread W | Collar Thread Length X (mm) | Center Hole Dia. Y (mm) | Weight (kg) | Model Number |
|---------------------|--------------------|---------------------|-----------------------|-------------------|----------------------------------|--------------------|-------------------------------------|---------------------------|------------------------------|-----------------|-----------------------------|-------------------------|-------------|--------------|
| 55                  | 63                 | 69                  | 54,1                  | 35,1              | 9                                | -                  | -                                   | 3/4" - 16 UN              | 16                           | 2¾" - 16        | 30                          | 19,5                    | 1,5         | RCH120       |
| 120                 | 162                | 69                  | 54,1                  | 35,1              | 25                               | -                  | -                                   | -                         | -                            | 2¾" - 16        | 30                          | 19,5                    | 2,8         | RCH121 *     |
| 120                 | 162                | 69                  | 54,1                  | 35,1              | 25                               | -                  | -                                   | 3/4" - 16 UN              | 16                           | 2¾" - 16        | 30                          | 19,5                    | 2,8         | RCH1211      |
| 184                 | 260                | 69                  | 54,1                  | 35,1              | 25                               | -                  | -                                   | -                         | -                            | 2¾" - 16        | 30                          | 19,5                    | 4,4         | RCH123       |
| 162                 | 211                | 98                  | 73,1                  | 54,1              | 19                               | 54                 | 9,7                                 | 19/16" - 16 UN            | 19                           | 37/8" - 12      | 38                          | 26,9                    | 7,7         | RCH202 *     |
| 306                 | 461                | 98                  | 73,1                  | 54,1              | 25                               | 54                 | 9,7                                 | 19/16" - 16 UN            | 19                           | 37/8" - 12      | 38                          | 26,9                    | 14,1        | RCH206       |
| 178                 | 242                | 114                 | 88,9                  | 63,5              | 21                               | 63                 | 9,0                                 | 113/16" - 16 UN           | 22                           | 4½" - 12        | 42                          | 33,3                    | 10,9        | RCH302 *     |
| 330                 | 485                | 114                 | 88,9                  | 63,5              | 25                               | 63                 | 9,0                                 | 113/16" - 16 UN           | 22                           | 4½" - 12        | 42                          | 33,3                    | 21,8        | RCH306       |
| 247                 | 323                | 159                 | 123,9                 | 91,9              | 31                               | 91                 | 12,0                                | 2¾" - 16 UN               | 19                           | 6¼" - 12        | 48                          | 53,8                    | 28,1        | RCH603 *     |
| 323                 | 476                | 159                 | 123,9                 | 91,9              | 31                               | 91                 | 12,0                                | 2¾" - 16 UN               | 19                           | 6¼" - 12        | 48                          | 53,8                    | 35,4        | RCH606       |
| 254                 | 330                | 212                 | 165,1                 | 127,0             | 38                               | 126                | 12,0                                | 4" - 16 UN                | 25                           | 8¾" - 12        | 60                          | 79,0                    | 63,0        | RCH1003*     |

▼ Shown from left to right: RRH3010, RRH1001, RRH6010



- Relief valves prevent damage in case of over-pressurisation
- Baked enamel finish for increased corrosion resistance
- Collar threads enable easy fixturing (except RRH1001 and RRH1508)
- Double-acting version for fast retraction
- Nickel-plated, floating center tube increases product life
- Hollow plunger allows for both pull and push forces
- CR400 coupler and dust cap included on all models
- Plunger wiper reduces contamination, extending cylinder life.

## Versatility in Testing, Maintenance and Tensioning Applications



### Ultra-Lightweight Aluminium Cylinders

If you need a higher cylinder capacity-to-weight-ratio the lightweight **RRH-Series** are the perfect choice.

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### Gauges

Minimize the risk of overloading and ensure long, dependable service from your equipment. Refer to the System Components

Section for a full range of gauges.

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### Saddles

All RRH-Series cylinders are equipped with smooth saddles. See table at next page for optional threaded saddles and all dimensional information.

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▼ Double-acting hollow plunger cylinders are applied for bridge launching systems.



| Cylinder Capacity | Stroke | Model Number | Max. Cylinder Capacity (kN) |         | Cylinder Effective Area (cm <sup>2</sup> ) |         | Oil Capacity (cm <sup>3</sup> ) |         |
|-------------------|--------|--------------|-----------------------------|---------|--|---------|---------------------------------|---------|
|                   |        |              | Advance                     | Retract | Advance                                    | Retract | Advance                         | Retract |
| 30                | 178    | RRH307       | 326                         | 213     | 46,6                                       | 30,4    | 829                             | 541     |
|                   | 258    | RRH3010      | 326                         | 213     | 46,6                                       | 30,4    | 1202                            | 784     |
| 60                | 89     | RRH603       | 576                         | 380     | 82,3                                       | 54,2    | 733                             | 482     |
|                   | 166    | RRH606       | 576                         | 380     | 82,3                                       | 54,2    | 1366                            | 900     |
|                   | 257    | RRH6010      | 576                         | 380     | 82,3                                       | 54,2    | 2115                            | 1393    |
| 95                | 38     | RRH1001      | 931                         | 612     | 133,0                                      | 87,4    | 505                             | 333     |
|                   | 76     | RRH1003      | 931                         | 612     | 133,0                                      | 87,4    | 1011                            | 666     |
|                   | 153    | RRH1006      | 931                         | 612     | 133,0                                      | 87,4    | 2035                            | 1337    |
|                   | 257    | RRH10010     | 931                         | 612     | 133,0                                      | 87,4    | 3420                            | 2246    |
| 145               | 203    | RRH1508      | 1429                        | 718     | 204,1                                      | 102,6   | 4144                            | 2083    |



# Double-Acting, Hollow Plunger Cylinders



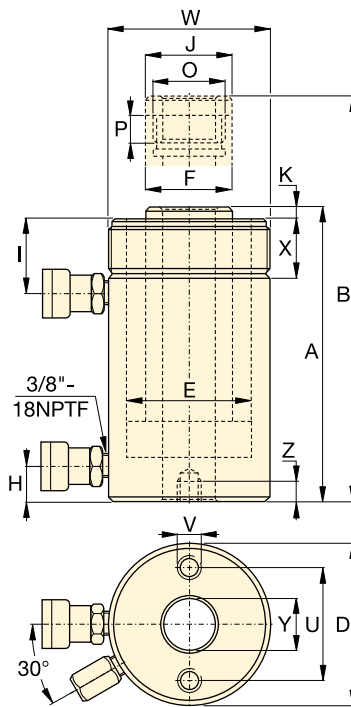
## Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only Enerpac hydraulic hoses.

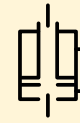
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| Optional Threaded Hollow Saddles |                               |                  |                        |          |    |
|----------------------------------|-------------------------------|------------------|------------------------|----------|----|
| Saddle Type                      | Cylinder Model Number         | Saddle Model Nr. | Saddle Dimensions (mm) |          |    |
|                                  |                               |                  | A                      | B        | C  |
| Threaded Hollow                  | RRH307, 3010                  | HP3015           | 63                     | 1¼" - 7  | 9  |
|                                  | RRH603, 606, 6010             | HP5016           | 91                     | 1½" - 5½ | 12 |
|                                  | RRH1001, 1003, RRH1006, 10010 | HP10016          | 126                    | 2½" - 8  | 13 |

Smooth hollow saddles are standard on all RRH-models.



## RRH Series



Capacity:

**30 - 145 ton**

Stroke:

**38 - 258 mm**

Center Hole Diameter:

**33,3 - 79,2 mm**

Maximum Operating Pressure:

**700 bar**



### Pump Selection

A double-acting cylinder must be powered by a pump with a 4-way valve.

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### Base Mounting Hole Dimensions (mm)

| Model Number | Bolt Circle U | Thread V  | Thread Depth Z |
|--------------|---------------|-----------|----------------|
| RRH307       | 92,2          | 3/8" - 16 | 15,7           |
| RRH3010      | 92,2          | 3/8" - 16 | 15,7           |
| RRH603       | 130,0         | 1/2" - 13 | 14,0           |
| RRH606       | 130,0         | 1/2" - 13 | 14,0           |
| RRH6010      | 130,0         | 1/2" - 13 | 14,0           |
| RRH1001      | 177,8         | 5/8" - 11 | 19,0           |
| RRH1003      | 177,8         | 5/8" - 11 | 19,0           |
| RRH1006      | 177,8         | 5/8" - 11 | 19,0           |
| RRH10010     | 177,8         | 5/8" - 11 | 19,0           |
| RRH1508      | -             | -         | -              |

| Coll. Height A (mm) | Ext. Height B (mm) | Out. Dia. D (mm) | Cyl. Bore Dia. E (mm) | Plgr. Dia. F (mm) | Cyl. Base to Adv. Port H (mm) | Cyl. Top to Return Port I (mm) | Saddle Dia. J (mm) | Saddle Protr. fr. Plgr. K (mm) | Thread O                               | Plunger Thread Length P (mm) | Collar Thread W                      | Collar Thread Length X (mm) | Center Hole Dia. Y (mm) | Weight (kg) | Model Number |
|---------------------|--------------------|------------------|-----------------------|-------------------|-------------------------------|--------------------------------|--------------------|--------------------------------|--|------------------------------|--------------------------------------|-----------------------------|-------------------------|-------------|--------------|
| 330                 | 508                | 114              | 88,9                  | 63,5              | 25                            | 60                             | 63                 | 9                              | 1 <sup>13</sup> / <sub>16</sub> " - 16 | 22                           | 4 <sup>1</sup> / <sub>2</sub> " - 12 | 42                          | 33,3                    | 21          | RRH307       |
| 431                 | 689                | 114              | 88,9                  | 63,5              | 25                            | 60                             | 63                 | 9                              | 1 <sup>13</sup> / <sub>16</sub> " - 16 | 22                           | 4 <sup>1</sup> / <sub>2</sub> " - 12 | 42                          | 33,3                    | 27          | RRH3010      |
| 247                 | 336                | 159              | 123,9                 | 91,9              | 31                            | 66                             | 91                 | 12                             | 2 <sup>3</sup> / <sub>4</sub> " - 16   | 19                           | 6 <sup>1</sup> / <sub>4</sub> " - 12 | 48                          | 53,8                    | 28          | RRH603       |
| 323                 | 489                | 159              | 123,9                 | 91,9              | 31                            | 66                             | 91                 | 12                             | 2 <sup>3</sup> / <sub>4</sub> " - 16   | 19                           | 6 <sup>1</sup> / <sub>4</sub> " - 12 | 48                          | 53,8                    | 35          | RRH606       |
| 438                 | 695                | 159              | 123,9                 | 91,9              | 31                            | 66                             | 91                 | 12                             | 2 <sup>3</sup> / <sub>4</sub> " - 16   | 19                           | 6 <sup>1</sup> / <sub>4</sub> " - 12 | 48                          | 53,8                    | 45          | RRH6010      |
| 165                 | 203                | 212              | 165,1                 | 127,0             | 38                            | 44                             | 126                | 12                             | 4" - 16                                | 25                           | -                                    | -                           | 79,2                    | 33          | RRH1001      |
| 254                 | 330                | 212              | 165,1                 | 127,0             | 38                            | 85                             | 126                | 12                             | 4" - 16                                | 25                           | 8 <sup>3</sup> / <sub>8</sub> " - 12 | 60                          | 79,2                    | 61          | RRH1003      |
| 342                 | 495                | 212              | 165,1                 | 127,0             | 38                            | 85                             | 126                | 12                             | 4" - 16                                | 25                           | 8 <sup>3</sup> / <sub>8</sub> " - 12 | 60                          | 79,2                    | 79          | RRH1006      |
| 460                 | 717                | 212              | 165,1                 | 127,0             | 38                            | 85                             | 126                | 12                             | 4" - 16                                | 25                           | 8 <sup>3</sup> / <sub>8</sub> " - 12 | 60                          | 79,2                    | 106         | RRH10010     |
| 349                 | 552                | 247              | 190,5                 | 152,4             | 38                            | 60                             | 127                | 4                              | 4 <sup>1</sup> / <sub>4</sub> " - 12   | 25                           | -                                    | -                           | 79,2                    | 111         | RRH1508      |

▼ Shown from left to right: BRD2510, BRD96, BRD256, BRD41, BRD166



## High Precision and High Cycle Performance



### Speed Chart

See the Enerpac Cylinder Speed Chart in our 'Yellow Pages' to determine your approximate cylinder speed.

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- Designed for long life, the best choice for production applications
- Unique mounting configurations simplify fixturing
- Baked enamel finish for increased corrosion resistance
- Double-acting operation develops force in both directions, providing maximum versatility
- Plunger wiper reduces contamination, extending cylinder life
- Imperial models (RD-series) available on request.

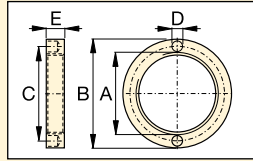
▼ Clamping application using Enerpac BRD cylinders (with clevis eye attachments on both ends) for their high pressure capability and mounting flexibility.



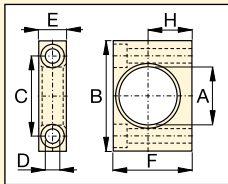
| Cylinder Capacity<br>(ton) | Stroke<br>(mm) | Model Number | Max. Cylinder Capacity (kN) |         | Cylinder Effective Area (cm <sup>2</sup> ) |         | Oil Capacity (cm <sup>3</sup> ) |         | Coll. Height<br>A (mm) | Extended Height<br>B (mm) | Body Length<br>C (mm) | Outside Dia.<br>D (mm) | Cylinder Bore Dia.<br>E (mm) | Plunger Dia.<br>F (mm) |
|----------------------------|----------------|--------------|-----------------------------|---------|--|---------|---------------------------------|---------|------------------------|---------------------------|-----------------------|------------------------|------------------------------|------------------------|
|                            |                |              | Advance                     | Retract | Advance                                    | Retract | Advance                         | Retract |                        |                           |                       |                        |                              |                        |
| 4                          | 28             | BRD41        | 35                          | 16      | 5,1  | 2,2     | 14                              | 6       | 186                    | 214                       | 162                   | 50                     | 25,4                         | 19,0                   |
|                            | 79             | BRD43        | 35                          | 16      | 5,1  | 2,2     | 40                              | 17      | 237                    | 316                       | 213                   | 50                     | 25,4                         | 19,0                   |
|                            | 155            | BRD46        | 35                          | 16      | 5,1  | 2,2     | 79                              | 34      | 313                    | 468                       | 289                   | 50                     | 25,4                         | 19,0                   |
| 8                          | 28             | BRD91        | 80                          | 44      | 11,4                                       | 6,3     | 32                              | 18      | 223                    | 251                       | 198                   | 63,5                   | 38,1                         | 25,4                   |
|                            | 79             | BRD93        | 80                          | 44      | 11,4                                       | 6,3     | 90                              | 50      | 274                    | 353                       | 249                   | 63,5                   | 38,1                         | 25,4                   |
|                            | 155            | BRD96        | 80                          | 44      | 11,4                                       | 6,3     | 177                             | 98      | 350                    | 505                       | 325                   | 63,5                   | 38,1                         | 25,4                   |
|                            | 257            | BRD910       | 80                          | 44      | 11,4                                       | 6,3     | 293                             | 162     | 452                    | 709                       | 427                   | 63,5                   | 38,1                         | 25,4                   |
| 15                         | 159            | BRD166       | 142                         | 77      | 20,3                                       | 10,6    | 323                             | 169     | 389                    | 548                       | 359                   | 80                     | 50,8                         | 35,0                   |
|                            | 260            | BRD1610      | 142                         | 77      | 20,3                                       | 10,6    | 528                             | 276     | 491                    | 751                       | 461                   | 80                     | 50,8                         | 35,0                   |
| 23                         | 159            | BRD256       | 222                         | 98      | 31,7                                       | 13,7    | 504                             | 218     | 424                    | 583                       | 397                   | 92                     | 63,5                         | 47,8                   |
|                            | 260            | BRD2510      | 222                         | 98      | 31,7                                       | 13,7    | 824                             | 356     | 526                    | 786                       | 499                   | 92                     | 63,5                         | 47,8                   |

# Double-Acting, Precision Production Cylinders

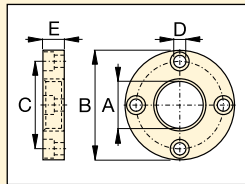
## ▼ BRD CYLINDER ATTACHMENTS



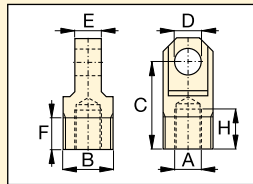
**Retainer Nut**  
For locking foot or flange mountings. Tightens onto cylinder collar threads (Included with foot and flange mounting kits).



**Foot Mounting**  
Mounts onto cylinder collar.



**Flange Mounting**  
Mounts onto cylinder collar.



**Clevis Eye**  
Threads onto plunger or into cylinder base.

| Model Number  | BRD-Cyl. (ton) | Dimensions (mm) |           |       |      |      |       |      |
|---|----------------|-----------------|-----------|-------|------|------|-------|------|
|   |                | A               | B         | C     | D    | E    | F     | H    |
| <b>Foot Mounting with Retainer Nut</b>                                  |                |                 |           |       |      |      |       |      |
| BAD141  | 4              | 42,1            | 80        | 58,0  | 10,5 | 20,0 | 57,0  | 31,8 |
| BAD171  | 8              | 56,1            | 105       | 78,0  | 13,5 | 25,0 | 82,5  | 44,5 |
| BAD181  | 15             | 70,1            | 127       | 95,2  | 20,0 | 35,0 | 100,0 | 52,4 |
| BAD191  | 23             | 85,1            | 159       | 117,5 | 26,5 | 45,0 | 125,0 | 63,5 |
| <b>Flange Mounting with Retainer Nut</b>                                |                |                 |           |       |      |      |       |      |
| BAD142  | 4              | 42,1            | 98,4      | 78,6  | 11,0 | 19,0 | -     | -    |
| BAD172  | 8              | 56,1            | 121       | 98,4  | 11,0 | 25,4 | -     | -    |
| BAD182  | 15             | 70,1            | 143       | 115,9 | 14,0 | 35,0 | -     | -    |
| BAD192  | 23             | 85,1            | 165       | 135,7 | 17,0 | 44,5 | -     | -    |
| <b>Retainer Nut</b>   |                |                 |           |       |      |      |       |      |
| BAD143  | 4              | M42 x 1,5       | 57        | 49,5  | 6,3  | 9,5  | -     | -    |
| BAD173  | 8              | M56 x 2         | 75        | 65,5  | 6,7  | 12,7 | -     | -    |
| BAD183  | 15             | M70 x 2         | 92        | 81,0  | 6,7  | 19,0 | -     | -    |
| BAD193  | 23             | M85 x 2         | 108       | 96,5  | 6,7  | 25,4 | -     | -    |
| <b>Clevis Eye (See chart below for mounting dimensions L, L1 and M)</b> |                |                 |           |       |      |      |       |      |
| BAD150  | 4              | M16 x 1,5       | M30 x 1,5 | 52,4  | 16,0 | 15,9 | 19,1  | 23,8 |
| BAD151  | 8              | M22 x 1,5       | M42 x 1,5 | 57,1  | 20,0 | 25,4 | 25,4  | 23,8 |
| BAD152  | 15             | M30 x 1,5       | M56 x 2   | 77,8  | 25,0 | 31,8 | 25,4  | 30,2 |
| BAD153  | 23             | M42 x 1,5       | M70 x 2   | 77,8  | 32,0 | 38,2 | 25,4  | 27,0 |

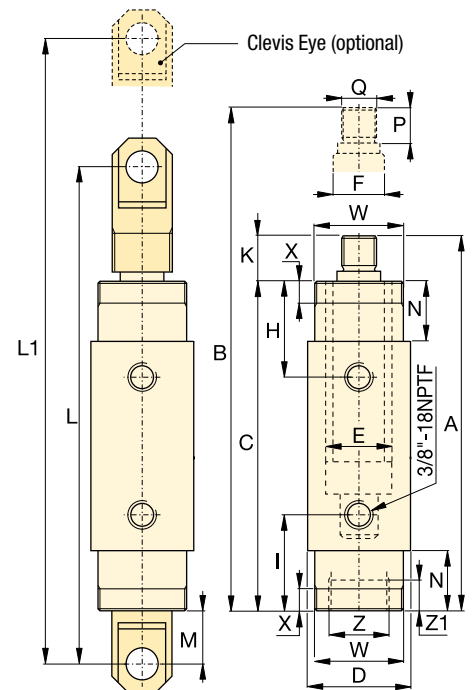
## BRD Series



Capacity:  
**4 - 23 ton**

Stroke:  
**28 - 260 mm**

Maximum Operating Pressure:  
**700 bar**



|  | Top to Retract Port H (mm) | Bottom to Advance Port I (mm) | Plunger Protrusion K (mm) | Clevis Eye Mounting Dimensions |         |        | Neck Length N (mm) | Plunger Thread Length P (mm) | Plunger External Thread Q (mm) | Cylinder Mounting Dimensions (mm) |                        |                        |                            | Model Number |         |
|--|----------------------------|-------------------------------|---------------------------|--------------------------------|---------|--------|--------------------|------------------------------|--------------------------------|-----------------------------------|------------------------|------------------------|----------------------------|--------------|---------|
|  |                            |                               |                           | L (mm)                         | L1 (mm) | M (mm) |                    |                              |                                | Collar Thread W                   | Collar Thread Length X | Internal Base Thread Z | Int. Base Thread Length Z1 |              |         |
|  | 47                         | 47                            | 24                        | 258                            | 286     | 41     | 29                 | 22                           | M16 x 1,5                      | M42 x 1,5                         | 11                     | M30 x 1,5              | 9                          | 2,0          | BRD41   |
|  | 47                         | 47                            | 24                        | 308                            | 387     | 41     | 29                 | 22                           | M16 x 1,5                      | M42 x 1,5                         | 11                     | M30 x 1,5              | 9                          | 2,6          | BRD43   |
|  | 47                         | 47                            | 24                        | 385                            | 540     | 41     | 29                 | 22                           | M16 x 1,5                      | M42 x 1,5                         | 11                     | M30 x 1,5              | 9                          | 3,6          | BRD46   |
|  | 57                         | 57                            | 25                        | 295                            | 323     | 38     | 38                 | 22                           | M22 x 1,5                      | M56 x 2                           | 14                     | M42 x 1,5              | 14                         | 3,0          | BRD91   |
|  | 57                         | 57                            | 25                        | 346                            | 425     | 38     | 38                 | 22                           | M22 x 1,5                      | M56 x 2                           | 14                     | M42 x 1,5              | 14                         | 4,2          | BRD93   |
|  | 57                         | 57                            | 25                        | 422                            | 577     | 38     | 38                 | 22                           | M22 x 1,5                      | M56 x 2                           | 14                     | M42 x 1,5              | 14                         | 5,6          | BRD96   |
|  | 57                         | 57                            | 25                        | 524                            | 781     | 38     | 38                 | 22                           | M22 x 1,5                      | M56 x 2                           | 14                     | M42 x 1,5              | 14                         | 7,3          | BRD910  |
|  | 73                         | 73                            | 30                        | 492                            | 651     | 52     | 54                 | 28                           | M30 x 1,5                      | M70 x 2                           | 22                     | M56 x 2                | 24                         | 10,2         | BRD166  |
|  | 73                         | 73                            | 30                        | 593                            | 853     | 52     | 54                 | 28                           | M30 x 1,5                      | M70 x 2                           | 22                     | M56 x 2                | 24                         | 14,5         | BRD1610 |
|  | 89                         | 89                            | 27                        | 524                            | 683     | 53     | 70                 | 25                           | M42 x 1,5                      | M85 x 2                           | 29                     | M70 x 2                | 26                         | 16,0         | BRD256  |
|  | 89                         | 89                            | 27                        | 626                            | 886     | 53     | 70                 | 25                           | M42 x 1,5                      | M85 x 2                           | 29                     | M70 x 2                | 26                         | 20,3         | BRD2510 |

# RR-Series, Double-Acting Cylinders

**ENERPAC** 

▼ Shown from left to right: RR10013, RR1502, RR20013, RR1010, RR7513



- Collar threads, plunger threads and base mounting holes for easy fixturing (on most models)
- Baked enamel finish for increased corrosion resistance
- Removable hardened saddles protect plunger during lifting and pressing
- Built-in safety valve prevents accidental over-pressurization
- CR400 couplers and dust caps included on all models
- Plunger wiper reduces contamination, extending cylinder life.

▼ A lateral bridge slide method was utilized to slide the new bridge into position. Two RR-Series double acting hydraulic cylinders with ZU4-Series electric pumps were used to push the bridge into position over PTFE sliding elements.



## Most Versatile Performers

Rugged enough for the toughest job site uses and precision designed for high-cycle industrial uses.



## Optional Snap-in Saddles

Optional snap-in saddles for RR-Series double-acting cylinders up to 75 ton.

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## Optimum Performance

Enerpac's range of Z-Class electric pumps, fitted with manual or solenoid operated 4-way valves, offer optimum combinations with RR-Series cylinders.

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▼ RR-cylinders provide power and precision in a special hydraulic press.





# Double-Acting Long Stroke Cylinders



## Pump Selection

A double-acting cylinder must be powered by a pump with a 4-way valve.

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## ▼ QUICK SELECTION CHART

For complete technical information see next page.

| Cylinder Capacity<br>ton<br>(kN) | Stroke<br>(mm) | Model Number | Cylinder Effective Area<br>(cm <sup>2</sup> ) |       | Oil Capacity<br>(cm <sup>3</sup> ) |        | Coll. Height<br>(mm) |
|----------------------------------|----------------|--------------|---|-------|------------------------------------|--------|----------------------|
|                                  |                |              | Push  | Pull  | Push                               | Pull   |                      |
| 10<br>(101)                      | 254            | RR1010       | 14,5  | 4,8   | 368                                | 122    | 409                  |
|                                  | 305            | RR1012       | 14,5  | 4,8   | 442                                | 147    | 457                  |
| 30<br>(295)                      | 209            | RR308        | 42,1  | 19,1  | 879                                | 400    | 394                  |
|                                  | 368            | RR3014       | 42,1  | 19,1  | 1549                               | 703    | 549                  |
| 50<br>(498)                      | 156            | RR506        | 71,2  | 21,5  | 1111                               | 335    | 331                  |
|                                  | 334            | RR5013       | 71,2  | 21,5  | 2378                               | 718    | 509                  |
|                                  | 511            | RR5020       | 71,2  | 21,5  | 3638                               | 1099   | 733                  |
| 75<br>(718)                      | 156            | RR756        | 102,6   | 31,4  | 1601                               | 490    | 347                  |
|                                  | 333            | RR7513       | 102,6   | 31,4  | 3417                               | 1046   | 525                  |
| 95<br>(933)                      | 168            | RR1006       | 133,3   | 62,2  | 2238                               | 1045   | 357                  |
|                                  | 333            | RR10013      | 133,3   | 62,2  | 4439                               | 2071   | 524                  |
|                                  | 460            | RR10018      | 133,3   | 62,2  | 6132                               | 2861   | 687                  |
| 140<br>(1386)                    | 57             | RR1502       | 198,1   | 95,4  | 1129                               | 544    | 183                  |
|                                  | 156            | RR1506       | 198,1   | 95,4  | 3090                               | 1488   | 385                  |
|                                  | 333            | RR15013      | 198,1   | 95,4  | 6597                               | 3177   | 582                  |
|                                  | 815            | RR15032      | 198,1   | 95,4  | 16.145                             | 7775   | 1116                 |
| 200<br>(1995)                    | 152            | RR2006       | 285,0   | 145,3 | 4332                               | 2209   | 430                  |
|                                  | 330            | RR20013      | 285,0   | 145,3 | 9405                               | 4795   | 608                  |
|                                  | 457            | RR20018      | 285,0   | 145,3 | 13.025                             | 6640   | 765                  |
|                                  | 610            | RR20024      | 285,0   | 145,3 | 17.385                             | 8863   | 917                  |
|                                  | 914            | RR20036      | 285,0   | 145,3 | 26.049                             | 13.280 | 1222                 |
| 325<br>(3201)                    | 1219           | RR20048      | 285,0   | 145,3 | 34.741                             | 17.712 | 1527                 |
|                                  | 153            | RR3006       | 457,3   | 243,2 | 6997                               | 3721   | 485                  |
|                                  | 305            | RR30012      | 457,3   | 243,2 | 13.947                             | 7418   | 638                  |
|                                  | 457            | RR30018      | 457,3   | 243,2 | 20.889                             | 11.114 | 790                  |
|                                  | 609            | RR30024      | 457,3   | 243,2 | 27.850                             | 14.811 | 943                  |
|                                  | 915            | RR30036      | 457,3   | 243,2 | 41.843                             | 22.253 | 1247                 |
| 440<br>(4292)                    | 1219           | RR30048      | 457,3   | 243,2 | 55.745                             | 29.646 | 1552                 |
|                                  | 152            | RR4006       | 613,1   | 328,1 | 9319                               | 4987   | 538                  |
|                                  | 305            | RR40012      | 613,1   | 328,1 | 18.700                             | 10.007 | 690                  |
|                                  | 457            | RR40018      | 613,1   | 328,1 | 28.018                             | 14.995 | 843                  |
|                                  | 610            | RR40024      | 613,1   | 328,1 | 37.400                             | 20.014 | 995                  |
|                                  | 914            | RR40036      | 613,1   | 328,1 | 56.037                             | 29.988 | 1300                 |
| 520<br>(5108)                    | 1219           | RR40048      | 613,1   | 328,1 | 74.737                             | 39.996 | 1605                 |
|                                  | 153            | RR5006       | 729,7   | 405,4 | 11.164                             | 6203   | 577                  |
|                                  | 305            | RR50012      | 729,7   | 405,4 | 22.256                             | 12.365 | 730                  |
|                                  | 457            | RR50018      | 729,7   | 405,4 | 33.347                             | 18.526 | 882                  |
|                                  | 609            | RR50024      | 729,7   | 405,4 | 44.440                             | 24.689 | 1035                 |
|                                  | 915            | RR50036      | 729,7   | 405,4 | 66.768                             | 36.973 | 1339                 |
|                                  | 1219           | RR50048      | 729,7   | 405,4 | 88.951                             | 49.418 | 1644                 |

## RR Series



Capacity:

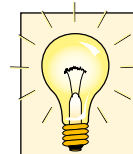
**10 - 520 ton**

Stroke:

**57 - 1219 mm**

Maximum Operating Pressure:

**700 bar**



### Enerpac HCR-Series

If your application does not require high cycle, Enerpac **HCR-Series** cylinders may be the right alternative.

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### Speed Chart

See the Enerpac Cylinder Speed Chart in our 'Yellow Pages' to determine your approximate cylinder speed.

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### Optional Snap-in Saddles

Optional snap-in saddles for RR-Series double-acting cylinders:

| Saddle Type | Cylinder Model | Saddle Model Number |
|-------------|----------------|---------------------|
| Flat        | RR10           | A102F               |
|             | RR10           | CATS12              |
| Tilt        | RR30           | CATS52              |
|             | RR50           | CATS100             |
|             | RR75           | CATS100             |

### Standard Saddles:

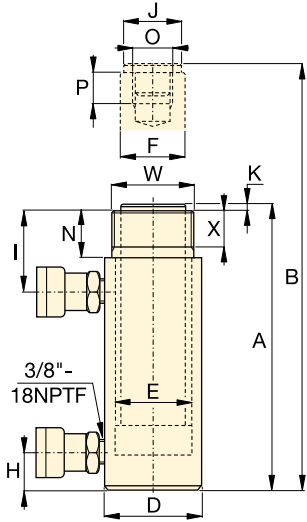
| Grooved | Cylinder Model | Saddle Model Number |
|---------|----------------|---------------------|
| Grooved | RR10           | A102G               |
|         | RR30           | A252G               |

For additional information on saddles:

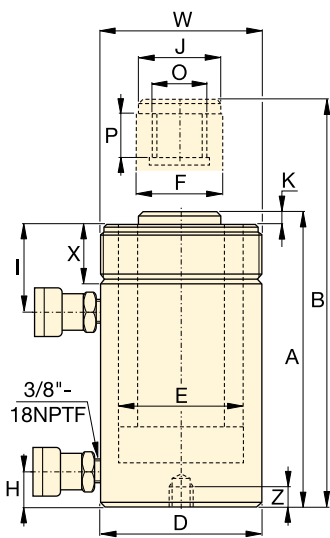
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# RR-Series, Double-Acting Cylinders

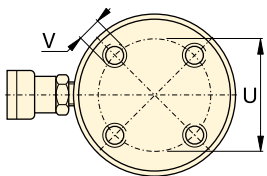
**ENERPAC** 



**RR1010 - RR3014**

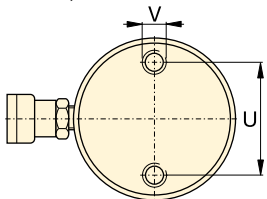


**RR506 - RR50048**



**RR1006 - RR30048**

No mounting holes on:  
RR506, 5013  
RR756, 7513  
RR1502, 15032



**RR4006 - RR50048**

Base mounting hole location is for reference only, as it is affected by assembly.



Cylinder retract capacity for certain RR cylinders may be less than theoretical values, as a result of reduced relief valve pressure settings:

RR308/3014: 275 bar  
RR506/5013/5020: 480 bar  
RR756/7513: 495 bar

◀ For full features see previous page.

| Cylinder Capacity | Stroke (mm) | Model Number | Max. Cylinder Capacity (kN) |      | Cylinder Effective Area (cm <sup>2</sup> ) |       | Oil Capacity (cm <sup>3</sup> ) |        | Coll. Height | Ext. Height | Outside Dia. |
|-------------------|-------------|--------------|-----------------------------|------|--|-------|---------------------------------|--------|--------------|-------------|--------------|
|                   |             |              | Push                        | Pull | Push                                       | Pull  | Push                            | Pull   | A (mm)       | B (mm)      | D (mm)       |
| 10                | 254         | RR1010 *     | 101                         | 33   | 14,5                                       | 4,8   | 368                             | 122    | 409          | 663         | 73           |
|                   | 305         | RR1012 *     | 101                         | 33   | 14,5                                       | 4,8   | 442                             | 147    | 457          | 762         | 73           |
| 30                | 209         | RR308 *      | 295                         | 53   | 42,1                                       | 19,1  | 879                             | 400    | 394          | 603         | 101          |
|                   | 368         | RR3014 *     | 295                         | 53   | 42,1                                       | 19,1  | 1549                            | 703    | 549          | 917         | 101          |
| 50                | 156         | RR506        | 498                         | 103  | 71,2                                       | 21,5  | 1111                            | 335    | 331          | 487         | 127          |
|                   | 334         | RR5013       | 498                         | 103  | 71,2                                       | 21,5  | 2378                            | 718    | 509          | 843         | 127          |
|                   | 511         | RR5020       | 498                         | 103  | 71,2                                       | 21,5  | 3638                            | 1099   | 733          | 1244        | 127          |
| 75                | 156         | RR756        | 718                         | 156  | 102,6                                      | 31,4  | 1601                            | 490    | 347          | 503         | 146          |
|                   | 333         | RR7513       | 718                         | 156  | 102,6                                      | 31,4  | 3417                            | 1046   | 525          | 858         | 146          |
| 95                | 168         | RR1006       | 933                         | 435  | 133,3                                      | 62,2  | 2238                            | 1045   | 357          | 525         | 177          |
|                   | 333         | RR10013      | 933                         | 435  | 133,3                                      | 62,2  | 4439                            | 2071   | 524          | 857         | 177          |
|                   | 460         | RR10018      | 933                         | 435  | 133,3                                      | 62,2  | 6132                            | 2861   | 687          | 1147        | 177          |
| 140               | 57          | RR1502       | 1386                        | 668  | 198,1                                      | 95,4  | 1129                            | 544    | 183          | 240         | 203          |
|                   | 156         | RR1506       | 1386                        | 668  | 198,1                                      | 95,4  | 3090                            | 1488   | 385          | 541         | 203          |
|                   | 333         | RR15013      | 1386                        | 668  | 198,1                                      | 95,4  | 6597                            | 3177   | 582          | 915         | 203          |
|                   | 815         | RR15032      | 1386                        | 668  | 198,1                                      | 95,4  | 16.145                          | 7775   | 1116         | 1931        | 203          |
| 200               | 152         | RR2006       | 1995                        | 1017 | 285,0                                      | 145,3 | 4332                            | 2209   | 430          | 582         | 247          |
|                   | 330         | RR20013      | 1995                        | 1017 | 285,0                                      | 145,3 | 9405                            | 4795   | 608          | 938         | 247          |
|                   | 457         | RR20018      | 1995                        | 1017 | 285,0                                      | 145,3 | 13.025                          | 6640   | 765          | 1222        | 247          |
|                   | 610         | RR20024      | 1995                        | 1017 | 285,0                                      | 145,3 | 17.385                          | 8863   | 917          | 1527        | 247          |
|                   | 914         | RR20036      | 1995                        | 1017 | 285,0                                      | 145,3 | 26.049                          | 13.280 | 1222         | 2136        | 247          |
|                   | 1219        | RR20048      | 1995                        | 1017 | 285,0                                      | 145,3 | 34.741                          | 17.712 | 1527         | 2746        | 247          |
| 325               | 153         | RR3006       | 3201                        | 1703 | 457,3                                      | 243,2 | 6997                            | 3721   | 485          | 638         | 311          |
|                   | 305         | RR30012      | 3201                        | 1703 | 457,3                                      | 243,2 | 13.947                          | 7418   | 638          | 943         | 311          |
|                   | 457         | RR30018      | 3201                        | 1703 | 457,3                                      | 243,2 | 20.889                          | 11.114 | 790          | 1247        | 311          |
|                   | 609         | RR30024      | 3201                        | 1703 | 457,3                                      | 243,2 | 27.850                          | 14.811 | 943          | 1552        | 311          |
|                   | 915         | RR30036      | 3201                        | 1703 | 457,3                                      | 243,2 | 41.843                          | 22.253 | 1247         | 2162        | 311          |
|                   | 1219        | RR30048      | 3201                        | 1703 | 457,3                                      | 243,2 | 55.745                          | 29.646 | 1552         | 2771        | 311          |
| 440               | 152         | RR4006       | 4292                        | 2297 | 613,1                                      | 328,1 | 9319                            | 4987   | 538          | 690         | 358          |
|                   | 305         | RR40012      | 4292                        | 2297 | 613,1                                      | 328,1 | 18.700                          | 10.007 | 690          | 995         | 358          |
|                   | 457         | RR40018      | 4292                        | 2297 | 613,1                                      | 328,1 | 28.018                          | 14.995 | 843          | 1300        | 358          |
|                   | 610         | RR40024      | 4292                        | 2297 | 613,1                                      | 328,1 | 37.400                          | 20.014 | 995          | 1605        | 358          |
|                   | 914         | RR40036      | 4292                        | 2297 | 613,1                                      | 328,1 | 56.037                          | 29.988 | 1300         | 2214        | 358          |
|                   | 1219        | RR40048      | 4292                        | 2297 | 613,1                                      | 328,1 | 74.737                          | 39.996 | 1605         | 2824        | 358          |
| 520               | 153         | RR5006       | 5108                        | 2838 | 729,7                                      | 405,4 | 11.164                          | 6203   | 577          | 730         | 397          |
|                   | 305         | RR50012      | 5108                        | 2838 | 729,7                                      | 405,4 | 22.256                          | 12.365 | 730          | 1035        | 397          |
|                   | 457         | RR50018      | 5108                        | 2838 | 729,7                                      | 405,4 | 33.347                          | 18.526 | 882          | 1339        | 397          |
|                   | 609         | RR50024      | 5108                        | 2838 | 729,7                                      | 405,4 | 44.440                          | 24.689 | 1035         | 1644        | 397          |
|                   | 915         | RR50036      | 5108                        | 2838 | 729,7                                      | 405,4 | 66.768                          | 36.973 | 1339         | 2254        | 397          |
|                   | 1219        | RR50048      | 5108                        | 2838 | 729,7                                      | 405,4 | 88.951                          | 49.418 | 1644         | 2863        | 397          |

\* For RR1010 and RR1012: N = 32 mm; for RR308 and RR3014: N = 55 mm.

# Double-Acting Long Stroke Cylinders

Capacity:

**10 - 520 ton**

Stroke:

**57 - 1219 mm**

Maximum Operating Pressure:

**700 bar**

**RR  
Series**



| Cyl. Bore Dia. E (mm) | Plgr. Dia. F (mm) | Base to Adv. Port H (mm) | Top to Ret. Port I (mm) | Saddle Dia. J (mm) | Saddle Protr. fr. Plgr. K (mm) | Plunger Internal Thread O | Plunger Thread Length P (mm) | Base Mounting Holes |            |                     | Collar Thread W | Collar Thread Length X (mm) | Model Number |         |
|-----------------------|-------------------|--------------------------|-------------------------|--------------------|--------------------------------|---------------------------|------------------------------|---------------------|------------|---------------------|-----------------|-----------------------------|--------------|---------|
|                       |                   |                          |                         |                    |                                |                           |                              | Bolt Circle U (mm)  | Thread V   | Thread Depth Z (mm) |                 |                             |              |         |
| 42,9                  | 34,9              | 36                       | 57                      | 35                 | 6                              | 1" - 8                    | 25                           | -                   | -          | -                   | 2 1/4" - 14     | 26                          | 12           | RR1010* |
| 42,9                  | 34,9              | 36                       | 57                      | 35                 | 6                              | 1" - 8                    | 25                           | -                   | -          | -                   | 2 1/4" - 14     | 26                          | 14           | RR1012* |
| 73,2                  | 54,1              | 39                       | 81                      | 50                 | 10                             | 1 1/2" - 16               | 25                           | -                   | -          | -                   | 3 5/16" - 12    | 49                          | 18           | RR308*  |
| 73,2                  | 54,1              | 39                       | 81                      | 50                 | 10                             | 1 1/2" - 16               | 25                           | -                   | -          | -                   | 3 5/16" - 12    | 49                          | 29           | RR3014* |
| 95,2                  | 79,5              | 28                       | 76                      | 71                 | 2                              | 1" - 12                   | 25                           | -                   | -          | -                   | 5" - 12         | 44                          | 30           | RR506   |
| 95,2                  | 79,5              | 28                       | 76                      | 71                 | 2                              | 1" - 12                   | 25                           | -                   | -          | -                   | 5" - 12         | 44                          | 52           | RR5013  |
| 95,2                  | 79,5              | 57                       | 76                      | 71                 | 2                              | 1" - 12                   | 25                           | 76                  | 1/2" - 13  | 25                  | 5" - 12         | 44                          | 68           | RR5020  |
| 114,3                 | 95,2              | 30                       | 76                      | 71                 | 6                              | 1" - 12                   | 28                           | -                   | -          | -                   | 5 3/4" - 12     | 50                          | 41           | RR756   |
| 114,3                 | 95,2              | 30                       | 81                      | 71                 | 6                              | 1" - 12                   | 28                           | -                   | -          | -                   | 5 3/4" - 12     | 50                          | 68           | RR7513  |
| 130,3                 | 95,2              | 38                       | 71                      | 76                 | 3                              | 1 3/4" - 12               | 35                           | 139                 | 3/4" - 10  | 25                  | 6 7/8" - 12     | 50                          | 61           | RR1006  |
| 130,3                 | 95,2              | 38                       | 71                      | 76                 | 3                              | 1 3/4" - 12               | 35                           | 139                 | 3/4" - 10  | 25                  | 6 7/8" - 12     | 50                          | 93           | RR10013 |
| 130,3                 | 95,2              | 41                       | 92                      | 76                 | 3                              | 1 3/4" - 12               | 35                           | 139                 | 3/4" - 10  | 25                  | 6 7/8" - 12     | 50                          | 117          | RR10018 |
| 158,8                 | 114,3             | 22                       | 66                      | 95                 | 19                             | -                         | -                            | -                   | -          | -                   | -               | -                           | 49           | RR1502  |
| 158,8                 | 114,3             | 49                       | 84                      | 114                | 19                             | 3 3/8" - 16               | 35                           | 158                 | 3/4" - 16  | 28                  | 8" - 12         | 55                          | 93           | RR1506  |
| 158,8                 | 114,3             | 49                       | 84                      | 114                | 19                             | 3 3/8" - 16               | 35                           | 158                 | 3/4" - 16  | 28                  | 8" - 12         | 55                          | 124          | RR15013 |
| 158,8                 | 114,3             | 76                       | 88                      | 114                | 19                             | 3 3/8" - 16               | 35                           | -                   | -          | -                   | 8" - 12         | 55                          | 238          | RR15032 |
| 190,5                 | 133,4             | 57                       | 96                      | 133                | 22                             | -                         | -                            | 127                 | 1" - 8     | 25                  | -               | -                           | 147          | RR2006  |
| 190,5                 | 133,4             | 57                       | 96                      | 133                | 22                             | 2 1/2" - 12               | 63                           | 127                 | 1" - 8     | 25                  | 9 3/4" - 12     | 54                          | 199          | RR20013 |
| 190,5                 | 133,4             | 85                       | 101                     | 133                | 22                             | 2 1/2" - 12               | 63                           | 127                 | 1" - 8     | 25                  | 9 3/4" - 12     | 54                          | 204          | RR20018 |
| 190,5                 | 133,4             | 85                       | 101                     | 133                | 22                             | 2 1/2" - 12               | 63                           | 127                 | 1" - 8     | 25                  | 9 3/4" - 12     | 54                          | 279          | RR20024 |
| 190,5                 | 133,4             | 85                       | 101                     | 133                | 22                             | 2 1/2" - 12               | 63                           | 127                 | 1" - 8     | 25                  | 9 3/4" - 12     | 54                          | 383          | RR20036 |
| 190,5                 | 133,4             | 85                       | 101                     | 133                | 22                             | 2 1/2" - 12               | 63                           | 127                 | 1" - 8     | 25                  | 9 3/4" - 12     | 54                          | 483          | RR20048 |
| 241,3                 | 165,1             | 88                       | 114                     | 165                | 28                             | 2 1/2" - 12               | 82                           | 158                 | 1 1/4" - 7 | 44                  | 12 1/4" - 12    | 58                          | 200          | RR3006  |
| 241,3                 | 165,1             | 88                       | 114                     | 165                | 28                             | 2 1/2" - 12               | 82                           | 158                 | 1 1/4" - 7 | 44                  | 12 1/4" - 12    | 58                          | 312          | RR30012 |
| 241,3                 | 165,1             | 88                       | 114                     | 165                | 28                             | 2 1/2" - 12               | 82                           | 158                 | 1 1/4" - 7 | 44                  | 12 1/4" - 12    | 58                          | 385          | RR30018 |
| 241,3                 | 165,1             | 88                       | 114                     | 165                | 28                             | 2 1/2" - 12               | 82                           | 158                 | 1 1/4" - 7 | 44                  | 12 1/4" - 12    | 58                          | 469          | RR30024 |
| 241,3                 | 165,1             | 88                       | 114                     | 165                | 28                             | 2 1/2" - 12               | 82                           | 158                 | 1 1/4" - 7 | 44                  | 12 1/4" - 12    | 58                          | 628          | RR30036 |
| 241,3                 | 165,1             | 88                       | 114                     | 165                | 28                             | 2 1/2" - 12               | 82                           | 158                 | 1 1/4" - 7 | 44                  | 12 1/4" - 12    | 58                          | 780          | RR30048 |
| 279,4                 | 190,5             | 108                      | 133                     | 190                | 28                             | 3" - 12                   | 95                           | 203                 | 1 1/2" - 6 | 50                  | 14 1/8" - 8     | 65                          | 303          | RR4006  |
| 279,4                 | 190,5             | 108                      | 133                     | 190                | 28                             | 3" - 12                   | 95                           | 203                 | 1 1/2" - 6 | 50                  | 14 1/8" - 8     | 65                          | 399          | RR40012 |
| 279,4                 | 190,5             | 108                      | 133                     | 190                | 28                             | 3" - 12                   | 95                           | 203                 | 1 1/2" - 6 | 50                  | 14 1/8" - 8     | 65                          | 453          | RR40018 |
| 279,4                 | 190,5             | 108                      | 133                     | 190                | 28                             | 3" - 12                   | 95                           | 203                 | 1 1/2" - 6 | 50                  | 14 1/8" - 8     | 65                          | 597          | RR40024 |
| 279,4                 | 190,5             | 108                      | 133                     | 190                | 28                             | 3" - 12                   | 95                           | 203                 | 1 1/2" - 6 | 50                  | 14 1/8" - 8     | 65                          | 792          | RR40036 |
| 279,4                 | 190,5             | 108                      | 133                     | 190                | 28                             | 3" - 12                   | 95                           | 203                 | 1 1/2" - 6 | 50                  | 14 1/8" - 8     | 65                          | 980          | RR40048 |
| 304,8                 | 203,2             | 120                      | 152                     | 203                | 28                             | 3 1/4" - 12               | 108                          | 203                 | 1 3/4" - 5 | 57                  | 15 5/8" - 8     | 79                          | 432          | RR5006  |
| 304,8                 | 203,2             | 120                      | 152                     | 203                | 28                             | 3 1/4" - 12               | 108                          | 203                 | 1 3/4" - 5 | 57                  | 15 5/8" - 8     | 79                          | 589          | RR50012 |
| 304,8                 | 203,2             | 120                      | 152                     | 203                | 28                             | 3 1/4" - 12               | 108                          | 203                 | 1 3/4" - 5 | 57                  | 15 5/8" - 8     | 79                          | 680          | RR50018 |
| 304,8                 | 203,2             | 120                      | 152                     | 203                | 28                             | 3 1/4" - 12               | 108                          | 203                 | 1 3/4" - 5 | 57                  | 15 5/8" - 8     | 79                          | 816          | RR50024 |
| 304,8                 | 203,2             | 120                      | 152                     | 203                | 28                             | 3 1/4" - 12               | 108                          | 203                 | 1 3/4" - 5 | 57                  | 15 5/8" - 8     | 79                          | 1002         | RR50036 |
| 304,8                 | 203,2             | 120                      | 152                     | 203                | 28                             | 3 1/4" - 12               | 108                          | 203                 | 1 3/4" - 5 | 57                  | 15 5/8" - 8     | 79                          | 1224         | RR50048 |

▼ HCL2006, HCG2002, HCR2006



## Reaching the Summit Edition:

- Nitrocarburized hardened surfaces offers improved protection against side-load scoring and cyclic wear
- Weather protected, inside and out
- Low-friction locking rings spin easy, save time and effort <sup>1)</sup>
- State of the art bearing materials reduce wear and avoid bore damage even in high side-load conditions

## Low wear, high pressure seals

- Improved seal design and material selection increases seal performance even in harsh conditions
- Low friction for faster retraction, longer life

## Versatile

- Over 220 models in 5 configurations <sup>1)</sup>
- Certified lifting eyes, base mounting holes and collar threads are included for secure handling and cylinder mounting <sup>1)</sup>

<sup>1)</sup> See specific models technical data for more information.

## Highest Level of Durability



### The Summit Edition

Innovation is at the heart of the new Summit Edition cylinders, delivering the high quality construction you expect from Enerpac. The design and durability add safety and reliability to your job.

- Plunger support bearing adds support for eccentric loads <sup>2)</sup>
- Nitrocarburization surface treatment for improved wear resistance and corrosion protection
- Low wear, high pressure seals provide longer service life.

<sup>2)</sup> Eccentric load (or "side-load") is inevitable in heavy lifting. Our unique Summit Edition features provide the ultimate protection against side-load. Increased bearing surface maintains stability and nitrocarburization treatment prevents scoring on the inside of the cylinder. Side-load poses a real problem.... our new cylinder features are the solution!

▼ Bridge lifting and launching system. The load is balanced on groups of lock nut cylinders. The hydraulic movements are synchronised using the Enerpac PLC-controlled synchronous lift system.







## High Tonnage Cylinders

The Enerpac High Tonnage Cylinders are particularly suitable for (multipoint) lifting applications.

### HCG, HCR, HCL-Series Cylinders

- 50 - 1000 ton lifting capacity
- 50 - 300 mm stroke

### HCG-Series - single-acting

- gravity return
- stop ring to prevent plunger blow-out
- designed to withstand up to 10% side-load of maximum capacity.

### HCR-Series - double-acting

- hydraulic advance and retract for controlled movement
- designed to withstand up to 10% side-load of maximum capacity.

### HCL-Series - lock nut, single-acting

- gravity return
- lock nut for mechanical load holding
- overflow port to prevent plunger blow out
- designed to withstand 10% side-load up to 90% of maximum stroke.

### HCRL-Series - lock nut, double-acting

- hydraulic advance and retract
- designed to withstand up to 10% side-load of maximum capacity
- integrated tilt saddle
- lock nut for mechanical load holding
- 50 - 300 ton lifting capacity
- 150 - 300 mm stroke

### LPL-Series - lock nut, low height, single-acting (see page 24)

- 60 - 500 ton lifting capacity;
- 45 - 50 mm lifting stroke
- integrated tilt saddle
- gravity return
- lock nut for mechanical load holding
- 5-10% side-load of maximum capacity.

In combination with our state of the art power packs, you will have a world class hydraulic system to perform the most challenging lifting jobs in a safe and professional manner. See **page 75** for more information on our pump offering.

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## HCG HCR HCL HCRL Series



Capacity:

**50 - 1000 ton**

Stroke:

**50 - 300 mm**

Maximum Operating Pressure:

**700 bar**



### Assisted Return Pumps

Enerpac HCG, HCL and LPL-Series cylinders are hydraulic advance and gravity return. To improve productivity and plunger retraction Enerpac offers assisted return on ZU4 and ZE-Series pumps featuring Enerpac **Venturi Valve technology**, specifically to facilitate the faster return of single-acting, spring and gravity return cylinders. See [enerpac.com](http://enerpac.com) for details.

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### Split-Flow Pumps

**SFP-Series** pumps with multiple outlets with equal oil flow. For lifting and lowering applications on multiple points these pumps are a far better alternative than using separately operated pumps.

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### Synchronous Lifting Systems

**EVO-Series** pumps the multi-functional lifting system and multiple lift point capabilities.

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## QUICK SELECTION

| Cylinder Capacity<br>ton | Stroke<br>(mm) | Maximum Cylinder Capacity at 700 bar ton (kN) | HCG-Series                                    |                          | HCR-Series                                    |                          | HCL-Series  |                          | HCRL-Series *   |                          |
|--------------------------|----------------|---|---|--------------------------|---|--------------------------|---|--------------------------|---|--------------------------|
|                          |                |   | Model Number Single-Acting<br><i>Page: 48</i> | Collapsed Height<br>(mm) | Model Number Double-Acting<br><i>Page: 52</i> | Collapsed Height<br>(mm) | Model Number Single-Acting With Lock Nut<br><i>Page: 56</i> | Collapsed Height<br>(mm) | Model Number Double-Acting With Lock Nut<br><i>Page: 60</i> | Collapsed Height<br>(mm) |
| 50                       | 50             | 56<br>(550)                                   | HCG502  | 183                      | HCR502  | 183                      | HCL502  | 164                      | —   | —                        |
|                          | 100            |   | HCG504  | 233                      | HCR504  | 233                      | HCL504  | 214                      | —   | —                        |
|                          | 150            |   | HCG506  | 283                      | HCR506  | 283                      | HCL506  | 264                      | HCRL506   | 310                      |
|                          | 200            |   | HCG508  | 346                      | HCR508  | 346                      | HCL508  | 314                      | HCRL508   | 377                      |
|                          | 250            |   | HCG5010                                       | 396                      | HCR5010                                       | 396                      | HCL5010   | 364                      | HCRL5010  | 427                      |
|                          | 300            |   | HCG5012                                       | 446                      | HCR5012                                       | 446                      | HCL5012   | 414                      | HCRL5012  | 477                      |
| 100                      | 50             | 102<br>(1002)                                 | HCG1002                                       | 202                      | HCR1002                                       | 202                      | HCL1002   | 187                      | —   | —                        |
|                          | 100            |   | HCG1004                                       | 252                      | HCR1004                                       | 252                      | HCL1004   | 237                      | —   | —                        |
|                          | 150            |   | HCG1006                                       | 302                      | HCR1006                                       | 302                      | HCL1006   | 287                      | HCRL1006  | 346                      |
|                          | 200            |   | HCG1008                                       | 379                      | HCR1008                                       | 379                      | HCL1008   | 337                      | HCRL1008  | 421                      |
|                          | 250            |   | HCG10010                                      | 429                      | HCR10010                                      | 429                      | HCL10010  | 387                      | HCRL10010   | 471                      |
|                          | 300            |   | HCG10012                                      | 479                      | HCR10012                                      | 479                      | HCL10012  | 437                      | HCRL10012   | 521                      |
| 150                      | 50             | 153<br>(1497)                                 | HCG1502                                       | 220                      | HCR1502                                       | 220                      | HCL1502   | 209                      | —   | —                        |
|                          | 100            |   | HCG1504                                       | 270                      | HCR1504                                       | 270                      | HCL1504   | 259                      | —   | —                        |
|                          | 150            |   | HCG1506                                       | 320                      | HCR1506                                       | 320                      | HCL1506   | 309                      | HCRL1506  | 359                      |
|                          | 200            |   | HCG1508                                       | 397                      | HCR1508                                       | 397                      | HCL1508   | 359                      | HCRL1508  | 434                      |
|                          | 250            |   | HCG15010                                      | 447                      | HCR15010                                      | 447                      | HCL15010  | 409                      | HCRL15010   | 484                      |
|                          | 300            |   | HCG15012                                      | 497                      | HCR15012                                      | 497                      | HCL15012  | 459                      | HCRL15012   | 534                      |
| 200                      | 50             | 202<br>(1985)                                 | HCG2002                                       | 231                      | HCR2002                                       | 231                      | HCL2002   | 238                      | —   | —                        |
|                          | 100            |   | HCG2004                                       | 281                      | HCR2004                                       | 281                      | HCL2004   | 288                      | —   | —                        |
|                          | 150            |   | HCG2006                                       | 331                      | HCR2006                                       | 331                      | HCL2006   | 338                      | HCRL2006  | 399                      |
|                          | 200            |   | HCG2008                                       | 408                      | HCR2008                                       | 408                      | HCL2008   | 388                      | HCRL2008  | 469                      |
|                          | 250            |   | HCG20010                                      | 458                      | HCR20010                                      | 458                      | HCL20010  | 438                      | HCRL20010   | 519                      |
|                          | 300            |   | HCG20012                                      | 508                      | HCR20012                                      | 508                      | HCL20012  | 488                      | HCRL20012   | 569                      |
| 250                      | 50             | 259<br>(2541)                                 | HCG2502                                       | 241                      | HCR2502                                       | 241                      | HCL2502   | 249                      | —   | —                        |
|                          | 100            |   | HCG2504                                       | 291                      | HCR2504                                       | 291                      | HCL2504   | 299                      | —   | —                        |
|                          | 150            |   | HCG2506                                       | 341                      | HCR2506                                       | 341                      | HCL2506   | 349                      | HCRL2506  | 416                      |
|                          | 200            |   | HCG2508                                       | 431                      | HCR2508                                       | 431                      | HCL2508   | 399                      | HCRL2508  | 491                      |
|                          | 250            |   | HCG25010                                      | 481                      | HCR25010                                      | 481                      | HCL25010  | 449                      | HCRL25010   | 541                      |
|                          | 300            |   | HCG25012                                      | 531                      | HCR25012                                      | 531                      | HCL25012  | 499                      | HCRL25012   | 591                      |
| 300                      | 50             | 310<br>(3036)                                 | HCG3002                                       | 296                      | HCR3002                                       | 296                      | HCL3002   | 278                      | —   | —                        |
|                          | 100            |   | HCG3004                                       | 346                      | HCR3004                                       | 346                      | HCL3004   | 328                      | —   | —                        |
|                          | 150            |   | HCG3006                                       | 396                      | HCR3006                                       | 396                      | HCL3006   | 378                      | HCRL3006  | 421                      |
|                          | 200            |   | HCG3008                                       | 446                      | HCR3008                                       | 446                      | HCL3008   | 428                      | HCRL3008  | 496                      |
|                          | 250            |   | HCG30010                                      | 496                      | HCR30010                                      | 496                      | HCL30010  | 478                      | HCRL30010   | 546                      |
|                          | 300            |   | HCG30012                                      | 546                      | HCR30012                                      | 546                      | HCL30012  | 528                      | HCRL30012   | 596                      |

\* See page 60 for HCRL-cylinder maximum capacity.

# Enerpac High Tonnage Cylinders

Capacity:  
**50 - 1000 ton**

Stroke:  
**50 - 300 mm**

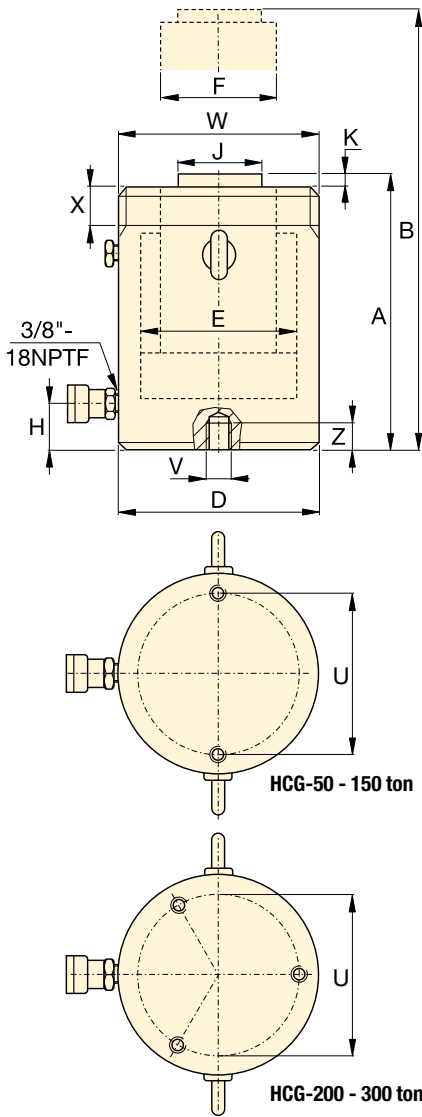
Maximum Operating Pressure:  
**700 bar**

**HCG  
HCR  
HCL  
HCRL  
Series**



## QUICK SELECTION

| Cylinder Capacity<br>ton | Stroke<br>(mm) | Maximum Cylinder Capacity at 700 bar<br>ton (kN) | HCG-Series                                    |                          | HCR-Series                                    |                          | HCL-Series  |                          |
|--------------------------|----------------|--|---|--------------------------|---|--------------------------|---|--------------------------|
|                          |                |  | Model Number Single-Acting<br><i>Page: 50</i> | Collapsed Height<br>(mm) | Model Number Double-Acting<br><i>Page: 54</i> | Collapsed Height<br>(mm) | Model Number Single-Acting With Lock Nut<br><i>Page: 58</i> | Collapsed Height<br>(mm) |
| 400                      | 50             | 409<br>(4008)                                    | HCG4002                                       | 321                      | HCR4002                                       | 321                      | HCL4002   | 317                      |
|                          | 100            |  | HCG4004                                       | 371                      | HCR4004                                       | 371                      | HCL4004   | 367                      |
|                          | 150            |  | HCG4006                                       | 421                      | HCR4006                                       | 421                      | HCL4006   | 417                      |
|                          | 200            |  | HCG4008                                       | 471                      | HCR4008                                       | 471                      | HCL4008   | 467                      |
|                          | 250            |  | HCG40010                                      | 521                      | HCR40010                                      | 521                      | HCL40010  | 517                      |
|                          | 300            |  | HCG40012                                      | 571                      | HCR40012                                      | 571                      | HCL40012  | 567                      |
| 500                      | 50             | 522<br>(5114)                                    | HCG5002                                       | 344                      | HCR5002                                       | 344                      | HCL5002   | 357                      |
|                          | 100            |  | HCG5004                                       | 394                      | HCR5004                                       | 394                      | HCL5004   | 407                      |
|                          | 150            |  | HCG5006                                       | 444                      | HCR5006                                       | 444                      | HCL5006   | 457                      |
|                          | 200            |  | HCG5008                                       | 494                      | HCR5008                                       | 494                      | HCL5008   | 507                      |
|                          | 250            |  | HCG50010                                      | 544                      | HCR50010                                      | 544                      | HCL50010  | 557                      |
|                          | 300            |  | HCG50012                                      | 594                      | HCR50012                                      | 594                      | HCL50012  | 607                      |
| 600                      | 50             | 611<br>(5987)                                    | HCG6002                                       | 352                      | HCR6002                                       | 352                      | HCL6002   | 380                      |
|                          | 100            |  | HCG6004                                       | 402                      | HCR6004                                       | 402                      | HCL6004   | 430                      |
|                          | 150            |  | HCG6006                                       | 452                      | HCR6006                                       | 452                      | HCL6006   | 480                      |
|                          | 200            |  | HCG6008                                       | 502                      | HCR6008                                       | 502                      | HCL6008   | 530                      |
|                          | 250            |  | HCG60010                                      | 552                      | HCR60010                                      | 552                      | HCL60010  | 580                      |
|                          | 300            |  | HCG60012                                      | 602                      | HCR60012                                      | 602                      | HCL60012  | 630                      |
| 800                      | 50             | 831<br>(8149)                                    | HCG8002                                       | 404                      | HCR8002                                       | 404                      | HCL8002   | 430                      |
|                          | 100            |  | HCG8004                                       | 454                      | HCR8004                                       | 454                      | HCL8004   | 480                      |
|                          | 150            |  | HCG8006                                       | 504                      | HCR8006                                       | 504                      | HCL8006   | 530                      |
|                          | 200            |  | HCG8008                                       | 554                      | HCR8008                                       | 554                      | HCL8008   | 580                      |
|                          | 250            |  | HCG80010                                      | 604                      | HCR80010                                      | 604                      | HCL80010  | 630                      |
|                          | 300            |  | HCG80012                                      | 654                      | HCR80012                                      | 654                      | HCL80012  | 680                      |
| 1000                     | 50             | 1085<br>(10.644)                                 | HCG10002                                      | 442                      | HCR10002                                      | 442                      | HCL10002  | 484                      |
|                          | 100            |  | HCG10004                                      | 492                      | HCR10004                                      | 492                      | HCL10004  | 534                      |
|                          | 150            |  | HCG10006                                      | 542                      | HCR10006                                      | 542                      | HCL10006  | 584                      |
|                          | 200            |  | HCG10008                                      | 592                      | HCR10008                                      | 592                      | HCL10008  | 634                      |
|                          | 250            |  | HCG100010                                     | 642                      | HCR100010                                     | 642                      | HCL100010   | 684                      |
|                          | 300            |  | HCG100012                                     | 692                      | HCR100012                                     | 692                      | HCL100012   | 734                      |



## HCG-Series, Single-Acting, Gravity Return Cylinders

- Hardened surface resists side-loading and cyclic wear
- Designed to withstand 10% side-load of maximum capacity <sup>1)</sup>
- Stop ring to prevent plunger blow-out
- Weather protected, inside and out
- Upper and lower replaceable bearings enclose the cylinder plunger for support throughout the stroke
- Certified lifting eyes, base mounting holes and collar threads.
- Standard collar thread up to 250 ton models. Collar thread is optional on 300 ton models and higher.

### SELECTION CHART 50 - 300 TON HCG-MODELS

For 400 - 1000 ton models, see pages 50-51.

For full product features see pages 44-45.

| Cylinder Capacity | Stroke | Model Number          | Maximum Cylinder Capacity at 700 bar ton (kN) | Cylinder Effective Area | Oil Capacity       | Collapsed Height |
|-------------------|--------|-----------------------|---|-------------------------|--------------------|------------------|
| ton               | (mm)   |                       |   | (cm <sup>2</sup> )      | (cm <sup>3</sup> ) | A (mm)           |
| 50                | 50     | HCG502                | 56 (550)                                      | 78,5                    | 393                | 183              |
|                   | 100    | HCG504                |   |                         | 785                | 233              |
|                   | 150    | HCG506 <sup>1)</sup>  |   |                         | 1178               | 283              |
|                   | 200    | HCG508                |   |                         | 1571               | 346              |
|                   | 250    | HCG5010               |   |                         | 1963               | 396              |
|                   | 300    | HCG5012 <sup>1)</sup> |   |                         | 2356               | 446              |
| 100               | 50     | HCG1002               | 102 (1002)                                    | 143,1                   | 716                | 202              |
|                   | 100    | HCG1004               |   |                         | 1431               | 252              |
|                   | 150    | HCG1006               |   |                         | 2147               | 302              |
|                   | 200    | HCG1008               |   |                         | 2863               | 379              |
|                   | 250    | HCG10010              |   |                         | 3578               | 429              |
|                   | 300    | HCG10012              |   |                         | 4294               | 479              |
| 150               | 50     | HCG1502               | 153 (1497)                                    | 213,8                   | 1069               | 220              |
|                   | 100    | HCG1504               |   |                         | 2138               | 270              |
|                   | 150    | HCG1506               |   |                         | 3207               | 320              |
|                   | 200    | HCG1508               |   |                         | 4276               | 397              |
|                   | 250    | HCG15010              |   |                         | 5346               | 447              |
|                   | 300    | HCG15012              |   |                         | 6415               | 497              |
| 200               | 50     | HCG2002               | 202 (1985)                                    | 283,5                   | 1418               | 231              |
|                   | 100    | HCG2004               |   |                         | 2835               | 281              |
|                   | 150    | HCG2006               |   |                         | 4253               | 331              |
|                   | 200    | HCG2008               |   |                         | 5671               | 408              |
|                   | 250    | HCG20010              |   |                         | 7088               | 458              |
|                   | 300    | HCG20012              |   |                         | 8506               | 508              |
| 250               | 50     | HCG2502               | 259 (2541)                                    | 363,1                   | 1815               | 241              |
|                   | 100    | HCG2504               |   |                         | 3631               | 291              |
|                   | 150    | HCG2506               |   |                         | 5446               | 341              |
|                   | 200    | HCG2508               |   |                         | 7261               | 431              |
|                   | 250    | HCG25010              |   |                         | 9076               | 481              |
|                   | 300    | HCG25012              |   |                         | 10.892             | 531              |
| 300               | 50     | HCG3002               | 310 (3036)                                    | 433,7                   | 2169               | 296              |
|                   | 100    | HCG3004               |   |                         | 4337               | 346              |
|                   | 150    | HCG3006               |   |                         | 6506               | 396              |
|                   | 200    | HCG3008               |   |                         | 8675               | 446              |
|                   | 250    | HCG30010              |   |                         | 10.843             | 496              |
|                   | 300    | HCG30012              |   |                         | 13.012             | 546              |

| Collar Thread * (mm) |             |               |
|----------------------|-------------|---------------|
| Model / Capacity ton | Thread Size | Thread Length |
|                      | W           | X             |
| HCG50                | M130 x 2    | 30            |
| HCG100               | M175 x 3    | 46            |
| HCG150               | M215 x 3    | 55            |
| HCG200               | M250 x 3    | 63            |
| HCG250               | M280 x 3    | 64            |
| HCG300*              | M305 x 3    | 73            |

\* Standard collar thread up to 250 ton models. Collar thread is optional on 300 ton models and higher. For collar thread on cylinder add suffix "E002" to model number. **Example: HCG3006E002**  
The collar thread length is designed for the full rated cylinder capacity.

| Base Mounting Holes (mm) |             |             |                      |                 |                    |
|--------------------------|-------------|-------------|----------------------|-----------------|--------------------|
| Model / Capacity ton     | Bolt Circle | Thread Size | Minimum Thread Depth | Number of Holes | Angle from Coupler |
|                          | U           | V           | Z                    |                 |                    |
| HCG50                    | 105         | M12 x 1,75  | 22                   | 2               | 90°                |
| HCG100                   | 150         | M12 x 1,75  | 22                   | 2               | 90°                |
| HCG150                   | 185         | M12 x 1,75  | 22                   | 2               | 90°                |
| HCG200                   | 215         | M12 x 1,75  | 22                   | 3               | 60°                |
| HCG250                   | 245         | M12 x 1,75  | 22                   | 3               | 60°                |
| HCG300                   | 260         | M16 x 2     | 25                   | 3               | 60°                |

<sup>1)</sup> HCG506 and HCG5012: 7% side-load of maximum capacity.



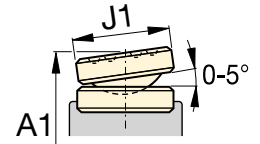
# Single-Acting, High Tonnage Cylinders

Capacity:  
**50 - 300 ton**


Stroke:  
**50 - 300 mm**

Maximum Operating Pressure:  
**700 bar**

**HCG**  
Series



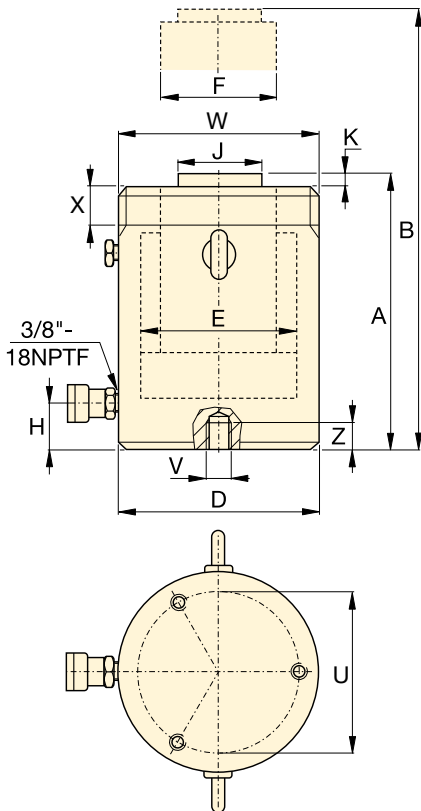
CATS-Series Tilt Saddle

|  | Extended Height<br>B<br>(mm) | Outside Diameter<br>D<br>(mm) | Cylinder Bore Diameter<br>E<br>(mm) | Plunger Diameter<br>F<br>(mm) | Base to Advance Port<br>H<br>(mm) | Standard Saddle Diameter<br>J<br>(mm) | Saddle Protrusion from Plunger<br>K<br>(mm) |  (kg) | Model Number          | Optional Tilt Saddle       |   |                     |     |     |     |     |
|--|------------------------------|-------------------------------|-------------------------------------|-------------------------------|-----------------------------------|---------------------------------------|---|--|-----------------------|----------------------------|---|---------------------|-----|-----|-----|-----|
|  |                              |                               |                                     |                               |                                   |                                       |   |  |                       | Saddle Diameter<br>J1 (mm) | Collapsed Height <sup>2)</sup><br>A1 (mm) | Saddle Model Number |     |     |     |     |
|  | 233                          | 130                           | 100                                 | 70                            | 38                                | 50                                    | 3   | 17   | HCG502                | 71                         | 197                                       | CATS50              |     |     |     |     |
|  | 333                          |                               |                                     |                               |                                   |                                       |   | 20   | HCG504                |                            |   |                     | 247 |     |     |     |
|  | 433                          |                               |                                     |                               |                                   |                                       |   | 24   | HCG506 <sup>1)</sup>  |                            |   |                     |     | 297 |     |     |
|  | 546                          |                               |                                     |                               |                                   |                                       |   | 29   | HCG508                |                            |   |                     |     |     | 360 |     |
|  | 646                          |                               |                                     |                               |                                   |                                       |   | 32   | HCG5010               |                            |   |                     |     |     |     | 410 |
|  | 746                          |                               |                                     |                               |                                   |                                       |   | 36   | HCG5012 <sup>1)</sup> |                            |   |                     |     |     |     |     |
|  | 252                          | 175                           | 135                                 | 95                            | 38                                | 75                                    | 3   | 33   | HCG1002               | 71                         | 212                                       | CATS101             |     |     |     |     |
|  | 352                          |                               |                                     |                               |                                   |                                       |   | 40   | HCG1004               |                            |   |                     | 262 |     |     |     |
|  | 452                          |                               |                                     |                               |                                   |                                       |   | 46   | HCG1006               |                            |   |                     |     | 312 |     |     |
|  | 579                          |                               |                                     |                               |                                   |                                       |   | 58   | HCG1008               |                            |   |                     |     |     | 389 |     |
|  | 679                          |                               |                                     |                               |                                   |                                       |   | 65   | HCG10010              |                            |   |                     |     |     |     | 439 |
|  | 779                          |                               |                                     |                               |                                   |                                       |   | 71   | HCG10012              |                            |   |                     |     |     |     |     |
|  | 270                          | 215                           | 165                                 | 120                           | 41                                | 94                                    | 3   | 56   | HCG1502               | 97                         | 239                                       | CATS150             |     |     |     |     |
|  | 370                          |                               |                                     |                               |                                   |                                       |   | 66   | HCG1504               |                            |   |                     | 289 |     |     |     |
|  | 470                          |                               |                                     |                               |                                   |                                       |   | 76   | HCG1506               |                            |   |                     |     | 339 |     |     |
|  | 597                          |                               |                                     |                               |                                   |                                       |   | 94   | HCG1508               |                            |   |                     |     |     | 416 |     |
|  | 697                          |                               |                                     |                               |                                   |                                       |   | 104  | HCG15010              |                            |   |                     |     |     |     | 466 |
|  | 797                          |                               |                                     |                               |                                   |                                       |   | 115  | HCG15012              |                            |   |                     |     |     |     |     |
|  | 281                          | 250                           | 190                                 | 140                           | 47                                | 113                                   | 3   | 81   | HCG2002               | 126                        | 249                                       | CATS200             |     |     |     |     |
|  | 381                          |                               |                                     |                               |                                   |                                       |   | 95   | HCG2004               |                            |   |                     | 299 |     |     |     |
|  | 481                          |                               |                                     |                               |                                   |                                       |   | 109  | HCG2006               |                            |   |                     |     | 349 |     |     |
|  | 608                          |                               |                                     |                               |                                   |                                       |   | 136  | HCG2008               |                            |   |                     |     |     | 426 |     |
|  | 708                          |                               |                                     |                               |                                   |                                       |   | 150  | HCG20010              |                            |   |                     |     |     |     | 476 |
|  | 808                          |                               |                                     |                               |                                   |                                       |   | 164  | HCG20012              |                            |   |                     |     |     |     |     |
|  | 291                          | 280                           | 215                                 | 170                           | 53                                | 140                                   | 4   | 107  | HCG2502               | 175                        | 280                                       | CATS300             |     |     |     |     |
|  | 391                          |                               |                                     |                               |                                   |                                       |   | 125  | HCG2504               |                            |   |                     | 330 |     |     |     |
|  | 491                          |                               |                                     |                               |                                   |                                       |   | 144  | HCG2506               |                            |   |                     |     | 380 |     |     |
|  | 631                          |                               |                                     |                               |                                   |                                       |   | 182  | HCG2508               |                            |   |                     |     |     | 470 |     |
|  | 731                          |                               |                                     |                               |                                   |                                       |   | 201  | HCG25010              |                            |   |                     |     |     |     | 520 |
|  | 831                          |                               |                                     |                               |                                   |                                       |   | 219  | HCG25012              |                            |   |                     |     |     |     |     |
|  | 346                          | 305                           | 235                                 | 200                           | 58                                | 140                                   | 4   | 158  | HCG3002               | 175                        | 335                                       | CATS300             |     |     |     |     |
|  | 446                          |                               |                                     |                               |                                   |                                       |   | 182  | HCG3004               |                            |   |                     | 385 |     |     |     |
|  | 546                          |                               |                                     |                               |                                   |                                       |   | 206  | HCG3006               |                            |   |                     |     | 435 |     |     |
|  | 646                          |                               |                                     |                               |                                   |                                       |   | 230  | HCG3008               |                            |   |                     |     |     | 485 |     |
|  | 746                          |                               |                                     |                               |                                   |                                       |   | 254  | HCG30010              |                            |   |                     |     |     |     | 535 |
|  | 846                          |                               |                                     |                               |                                   |                                       |   | 278  | HCG30012              |                            |   |                     |     |     |     |     |

<sup>2)</sup> A1 = Collapsed height including CATS-Series tilt saddle.

## HCG-Series, Single-Acting, Gravity Return Cylinders

- Hardened surface resists side-loading and cyclic wear
- Designed to withstand 10% side-load of maximum capacity
- Stop ring to prevent plunger blow-out
- Weather protected, inside and out
- Upper and lower replaceable bearings enclose the cylinder plunger for support throughout the stroke
- Certified lifting eyes, base mounting holes
- Optional collar threads on 300 ton models and higher capacities.



| Optional Collar Thread (mm) |             |               |
|-----------------------------|-------------|---------------|
| Model / Capacity ton        | Thread Size | Thread Length |
|                             | W           | X             |
| HCG400                      | M350 x 3    | 83            |
| HCG500                      | M400 x 4    | 90            |
| HCG600                      | M430 x 4    | 100           |
| HCG800                      | M505 x 5    | 122           |
| HCG1000                     | M570 x 5    | 137           |

Collar thread is optional on 300 ton models and higher. For collar thread on cylinder add suffix "E002" to model number. Example: **HCG400E002**

The collar thread length is designed for the full rated cylinder capacity.

| Base Mounting Holes (mm) |             |             |                      |                 |                    |
|--------------------------|-------------|-------------|----------------------|-----------------|--------------------|
| Model / Capacity ton     | Bolt Circle | Thread Size | Minimum Thread Depth | Number of Holes | Angle from Coupler |
|                          | U           | V           | Z                    |                 |                    |
| HCG400                   | 300         | M16 x 2     | 25                   | 3               | 60°                |
| HCG500                   | 340         | M24 x 3     | 36                   | 3               | 60°                |
| HCG600                   | 370         | M24 x 3     | 36                   | 3               | 60°                |
| HCG800                   | 440         | M24 x 3     | 36                   | 3               | 60°                |
| HCG1000                  | 500         | M24 x 3     | 36                   | 3               | 60°                |

### SELECTION CHART 400 - 1000 TON HCG-MODELS

For 50 - 300 ton models, see pages 48-49.

For full product features see pages 44-45.

| Cylinder Capacity ton | Stroke (mm) | Model Number | Maximum Cylinder Capacity at 700 bar ton (kN) | Cylinder Effective Area (cm <sup>2</sup> ) | Oil Capacity (cm <sup>3</sup> ) | Collapsed Height A (mm) |
|-----------------------|-------------|--------------|---|--|---------------------------------|-------------------------|
| 400                   | 50          | HCG4002      | 409 (4008)                                    | 572,6                                      | 2863                            | 321                     |
|                       | 100         | HCG4004      |   |  | 5726                            | 371                     |
|                       | 150         | HCG4006      |   |  | 8588                            | 421                     |
|                       | 200         | HCG4008      |   |  | 11.451                          | 471                     |
|                       | 250         | HCG40010     |   |  | 14.314                          | 521                     |
|                       | 300         | HCG40012     |   |  | 17.177                          | 571                     |
| 500                   | 50          | HCG5002      | 522 (5114)                                    | 730,6                                      | 3653                            | 344                     |
|                       | 100         | HCG5004      |   |  | 7306                            | 394                     |
|                       | 150         | HCG5006      |   |  | 10.959                          | 444                     |
|                       | 200         | HCG5008      |   |  | 14.612                          | 494                     |
|                       | 250         | HCG50010     |   |  | 18.265                          | 544                     |
|                       | 300         | HCG50012     |   |  | 21.918                          | 594                     |
| 600                   | 50          | HCG6002      | 611 (5987)                                    | 855,3                                      | 4276                            | 352                     |
|                       | 100         | HCG6004      |   |  | 8553                            | 402                     |
|                       | 150         | HCG6006      |   |  | 12.829                          | 452                     |
|                       | 200         | HCG6008      |   |  | 17.106                          | 502                     |
|                       | 250         | HCG60010     |   |  | 21.382                          | 552                     |
|                       | 300         | HCG60012     |   |  | 25.659                          | 602                     |
| 800                   | 50          | HCG8002      | 831 (8149)                                    | 1164,2                                     | 5821                            | 404                     |
|                       | 100         | HCG8004      |   |  | 11.642                          | 454                     |
|                       | 150         | HCG8006      |   |  | 17.462                          | 504                     |
|                       | 200         | HCG8008      |   |  | 23.283                          | 554                     |
|                       | 250         | HCG80010     |   |  | 29.104                          | 604                     |
|                       | 300         | HCG80012     |   |  | 34.925                          | 654                     |
| 1000                  | 50          | HCG10002     | 1085 (10.644)                                 | 1520,5                                     | 7603                            | 442                     |
|                       | 100         | HCG10004     |   |  | 15.205                          | 492                     |
|                       | 150         | HCG10006     |   |  | 22.808                          | 542                     |
|                       | 200         | HCG10008     |   |  | 30.411                          | 592                     |
|                       | 250         | HCG100010    |   |  | 38.013                          | 642                     |
|                       | 300         | HCG100012    |   |  | 45.616                          | 692                     |

# Single-Acting, High Tonnage Cylinders



▲ Offshore wind turbines levelling: Enerpac's synchronous lifting system was the solution for levelling support cross pieces on 80 wind turbines.

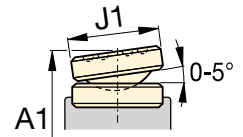
## HCG Series




Capacity:  
**400 - 1000 ton**

Stroke:  
**50 - 300 mm**

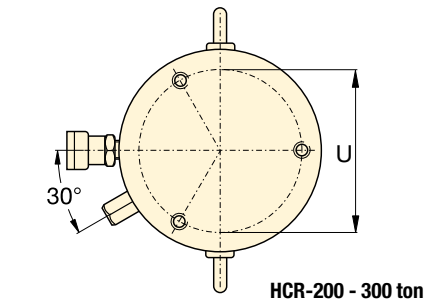
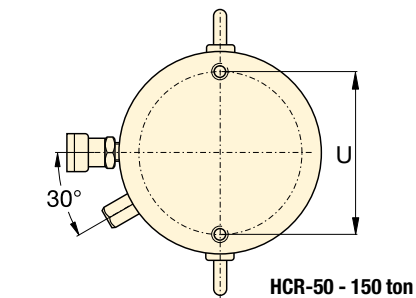
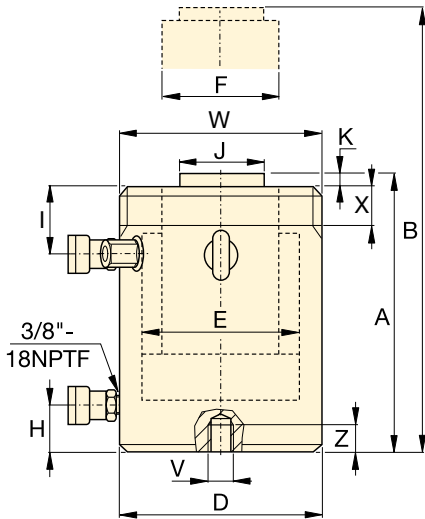
Maximum Operating Pressure:  
**700 bar**



CATS-Series Tilt Saddle

| Extended Height<br>B<br>(mm) | Outside Diameter<br>D<br>(mm) | Cylinder Bore Diameter<br>E<br>(mm) | Plunger Diameter<br>F<br>(mm) | Base to Advance Port<br>H<br>(mm) | Standard Saddle Diameter<br>J<br>(mm) | Saddle Protrusion from Plunger<br>K<br>(mm) |  (kg) | Model Number     | Optional Tilt Saddle       |                               |                     |
|------------------------------|-------------------------------|-------------------------------------|-------------------------------|-----------------------------------|---------------------------------------|---|--|------------------|----------------------------|-------------------------------|---------------------|
|                              |                               |                                     |                               |                                   |                                       |   |  |                  | Saddle Diameter<br>J1 (mm) | Collapsed Height *<br>A1 (mm) | Saddle Model Number |
| 371                          | 350                           | 270                                 | 220                           | 74                                | 159                                   | 4   | 227  | <b>HCG4002</b>   | 210                        | 369                           | <b>CATS400</b>      |
| 471                          |                               |                                     |                               |                                   |                                       |   | 257  | <b>HCG4004</b>   |                            |                               |                     |
| 571                          |                               |                                     |                               |                                   |                                       |   | 287  | <b>HCG4006</b>   |                            |                               |                     |
| 671                          |                               |                                     |                               |                                   |                                       |   | 317  | <b>HCG4008</b>   |                            |                               |                     |
| 771                          |                               |                                     |                               |                                   |                                       |   | 347  | <b>HCG40010</b>  |                            |                               |                     |
| 871                          |                               |                                     |                               |                                   |                                       |   | 378  | <b>HCG40012</b>  |                            |                               |                     |
| 394                          | 400                           | 305                                 | 250                           | 79                                | 179                                   | 4   | 319  | <b>HCG5002</b>   | 230                        | 392                           | <b>CATS500</b>      |
| 494                          |                               |                                     |                               |                                   |                                       |   | 359  | <b>HCG5004</b>   |                            |                               |                     |
| 594                          |                               |                                     |                               |                                   |                                       |   | 399  | <b>HCG5006</b>   |                            |                               |                     |
| 694                          |                               |                                     |                               |                                   |                                       |   | 439  | <b>HCG5008</b>   |                            |                               |                     |
| 794                          |                               |                                     |                               |                                   |                                       |   | 479  | <b>HCG50010</b>  |                            |                               |                     |
| 894                          |                               |                                     |                               |                                   |                                       |   | 519  | <b>HCG50012</b>  |                            |                               |                     |
| 402                          | 430                           | 330                                 | 270                           | 85                                | 194                                   | 4   | 378  | <b>HCG6002</b>   | 250                        | 405                           | <b>CATS600</b>      |
| 502                          |                               |                                     |                               |                                   |                                       |   | 424  | <b>HCG6004</b>   |                            |                               |                     |
| 602                          |                               |                                     |                               |                                   |                                       |   | 470  | <b>HCG6006</b>   |                            |                               |                     |
| 702                          |                               |                                     |                               |                                   |                                       |   | 516  | <b>HCG6008</b>   |                            |                               |                     |
| 802                          |                               |                                     |                               |                                   |                                       |   | 562  | <b>HCG60010</b>  |                            |                               |                     |
| 902                          |                               |                                     |                               |                                   |                                       |   | 608  | <b>HCG60012</b>  |                            |                               |                     |
| 454                          | 505                           | 385                                 | 320                           | 100                               | 224                                   | 4   | 606  | <b>HCG8002</b>   | 275                        | 461                           | <b>CATS800</b>      |
| 554                          |                               |                                     |                               |                                   |                                       |   | 671  | <b>HCG8004</b>   |                            |                               |                     |
| 654                          |                               |                                     |                               |                                   |                                       |   | 735  | <b>HCG8006</b>   |                            |                               |                     |
| 754                          |                               |                                     |                               |                                   |                                       |   | 800  | <b>HCG8008</b>   |                            |                               |                     |
| 854                          |                               |                                     |                               |                                   |                                       |   | 864  | <b>HCG80010</b>  |                            |                               |                     |
| 954                          |                               |                                     |                               |                                   |                                       |   | 929  | <b>HCG80012</b>  |                            |                               |                     |
| 492                          | 570                           | 440                                 | 340                           | 114                               | 249                                   | 4   | 840  | <b>HCG10002</b>  | 300                        | 519                           | <b>CATS1000</b>     |
| 592                          |                               |                                     |                               |                                   |                                       |   | 916  | <b>HCG10004</b>  |                            |                               |                     |
| 692                          |                               |                                     |                               |                                   |                                       |   | 992  | <b>HCG10006</b>  |                            |                               |                     |
| 792                          |                               |                                     |                               |                                   |                                       |   | 1068   | <b>HCG10008</b>  |                            |                               |                     |
| 892                          |                               |                                     |                               |                                   |                                       |   | 1145   | <b>HCG100010</b> |                            |                               |                     |
| 992                          |                               |                                     |                               |                                   |                                       |   | 1221   | <b>HCG100012</b> |                            |                               |                     |

\* A1 = Collapsed height including CATS-Series tilt saddle.



| Collar Thread * (mm) |             |               |
|----------------------|-------------|---------------|
| Model / Capacity ton | Thread Size | Thread Length |
|                      | W           | X             |
| HCR50                | M130 x 2    | 30            |
| HCR100               | M175 x 3    | 46            |
| HCR150               | M215 x 3    | 55            |
| HCR200               | M250 x 3    | 63            |
| HCR250               | M280 x 3    | 64            |
| HCR300*              | M305 x 3    | 73            |

\* Standard collar thread up to 250 ton models. Collar thread is optional on 300 ton models and higher. For collar thread on cylinder add suffix "E002" to model number. **Example: HCR3006E002**  
The collar thread length is designed for the full rated cylinder capacity.

| Base Mounting Holes (mm) |             |             |                      |                 |                    |
|--------------------------|-------------|-------------|----------------------|-----------------|--------------------|
| Model / Capacity ton     | Bolt Circle | Thread Size | Minimum Thread Depth | Number of Holes | Angle from Coupler |
|                          | U           | V           | Z                    |                 |                    |
| HCR50                    | 105         | M12 x 1,75  | 22                   | 2               | 90°                |
| HCR100                   | 150         | M12 x 1,75  | 22                   | 2               | 90°                |
| HCR150                   | 185         | M12 x 1,75  | 22                   | 2               | 90°                |
| HCR200                   | 215         | M12 x 1,75  | 22                   | 3               | 60°                |
| HCR250                   | 245         | M12 x 1,75  | 22                   | 3               | 60°                |
| HCR300                   | 260         | M16 x 2     | 25                   | 3               | 60°                |

## HCR-Series, Double-Acting Cylinders

- Fast advance and retract
- Designed to withstand 10% side-load of maximum capacity<sup>1)</sup>
- Hardened surface resists side-loading and cyclic wear
- Weather protected, inside and out
- Upper and lower replaceable bearings enclose the cylinder plunger for support throughout the stroke
- Certified lifting eyes, base mounting holes and collar threads
- Standard collar thread up to 250 ton models. Collar thread is optional on 300 ton models and higher.

### SELECTION CHART & DETAILS OF 50 - 300 TON HCR-MODELS

For 400 - 1000 ton models, see pages 54-55.

For full product features see pages 44-45.

| Cylinder Capacity ton | Stroke (mm) | Model Number         | Maximum Cylinder Capacity at 700 bar ton (kN) | Cylinder Effective Area (cm <sup>2</sup> ) | Oil Capacity (cm <sup>3</sup> ) |         | Collapsed Height A (mm) |
|-----------------------|-------------|----------------------|---|--|---------------------------------|---------|-------------------------|
|                       |             |                      |   |  | Advance                         | Retract |                         |
| 50                    | 50          | HCR502               | 56 (550)                                      | 78,5                                       | 393                             | 200     | 183                     |
|                       | 100         | HCR504               |   |  | 785                             | 401     | 233                     |
|                       | 150         | HCR506 <sup>1)</sup> |   |  | 1178                            | 601     | 283                     |
|                       | 200         | HCR508               |   |  | 1571                            | 801     | 346                     |
|                       | 250         | HCR5010              |   |  | 1963                            | 1001    | 396                     |
| 100                   | 50          | HCR1002              | 102 (1002)                                    | 143,1                                      | 716                             | 361     | 202                     |
|                       | 100         | HCR1004              |   |  | 1431                            | 723     | 252                     |
|                       | 150         | HCR1006              |   |  | 2147                            | 1084    | 302                     |
|                       | 200         | HCR1008              |   |  | 2863                            | 1445    | 379                     |
|                       | 250         | HCR10010             |   |  | 3578                            | 1806    | 429                     |
| 150                   | 50          | HCR1502              | 153 (1497)                                    | 213,8                                      | 1069                            | 504     | 220                     |
|                       | 100         | HCR1504              |   |  | 2138                            | 1007    | 270                     |
|                       | 150         | HCR1506              |   |  | 3207                            | 1511    | 320                     |
|                       | 200         | HCR1508              |   |  | 4276                            | 2015    | 397                     |
|                       | 250         | HCR15010             |   |  | 5346                            | 2518    | 447                     |
| 200                   | 50          | HCR2002              | 202 (1985)                                    | 283,5                                      | 1418                            | 648     | 231                     |
|                       | 100         | HCR2004              |   |  | 2835                            | 1296    | 281                     |
|                       | 150         | HCR2006              |   |  | 4253                            | 1944    | 331                     |
|                       | 200         | HCR2008              |   |  | 5671                            | 2592    | 408                     |
|                       | 250         | HCR20010             |   |  | 7088                            | 3240    | 458                     |
| 250                   | 50          | HCR2502              | 259 (2541)                                    | 363,1                                      | 1815                            | 680     | 241                     |
|                       | 100         | HCR2504              |   |  | 3631                            | 1361    | 291                     |
|                       | 150         | HCR2506              |   |  | 5446                            | 2041    | 341                     |
|                       | 200         | HCR2508              |   |  | 7261                            | 2721    | 431                     |
|                       | 250         | HCR25010             |   |  | 9076                            | 3402    | 481                     |
| 300                   | 50          | HCR3002              | 310 (3036)                                    | 433,7                                      | 2169                            | 598     | 296                     |
|                       | 100         | HCR3004              |   |  | 4337                            | 1196    | 346                     |
|                       | 150         | HCR3006              |   |  | 6506                            | 1794    | 396                     |
|                       | 200         | HCR3008              |   |  | 8675                            | 2392    | 446                     |
|                       | 250         | HCR30010             |   |  | 10.843                          | 2989    | 496                     |
|                       | 300         | HCR30012             |   |  | 13.012                          | 3587    | 546                     |

<sup>1)</sup> HCR506 and HCR5012: 7% side-load of maximum capacity.



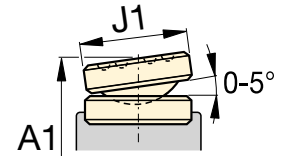
# Double-Acting, High Tonnage Cylinders

Capacity:  
**50 - 300 ton**


Stroke:  
**50 - 300 mm**

Maximum Operating Pressure:  
**700 bar**

**HCR Series**



CATS-Series Tilt Saddle

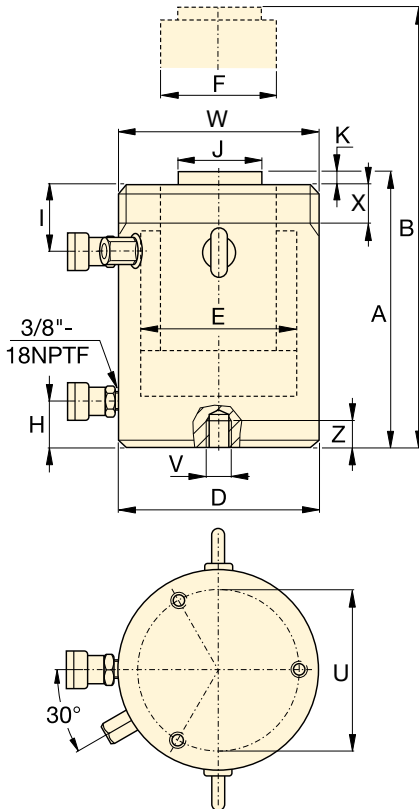
|  | Extended Height<br>B<br>(mm) | Outside Diameter<br>D<br>(mm) | Cylinder Bore Diameter<br>E<br>(mm) | Plunger Diameter<br>F<br>(mm) | Base to Advance Port<br>H<br>(mm) | Top to Retract Port<br>I<br>(mm) | Standard Saddle Diameter<br>J<br>(mm) | Saddle Protrusion from Plunger<br>K<br>(mm) |  (kg) | Model Number          |
|--|------------------------------|-------------------------------|-------------------------------------|-------------------------------|-----------------------------------|----------------------------------|---------------------------------------|---|--|-----------------------|
|  | 233                          | 130                           | 100                                 | 70                            | 38                                | 45                               | 50                                    | 3   | 17   | HCR502                |
|  | 333                          |                               |                                     |                               |                                   |                                  |                                       |   | 21   | HCR504                |
|  | 433                          |                               |                                     |                               |                                   |                                  |                                       |   | 25   | HCR506 <sup>1)</sup>  |
|  | 546                          |                               |                                     |                               |                                   |                                  |                                       |   | 31   | HCR508                |
|  | 646                          |                               |                                     |                               |                                   |                                  |                                       |   | 34   | HCR5010               |
|  | 746                          |                               |                                     |                               |                                   |                                  |                                       |   | 38   | HCR5012 <sup>1)</sup> |
|  | 252                          | 175                           | 135                                 | 95                            | 38                                | 65                               | 75                                    | 3   | 34   | HCR1002               |
|  | 352                          |                               |                                     |                               |                                   |                                  |                                       |   | 41   | HCR1004               |
|  | 452                          |                               |                                     |                               |                                   |                                  |                                       |   | 48   | HCR1006               |
|  | 579                          |                               |                                     |                               |                                   |                                  |                                       |   | 59   | HCR1008               |
|  | 679                          |                               |                                     |                               |                                   |                                  |                                       |   | 66   | HCR10010              |
|  | 779                          |                               |                                     |                               |                                   |                                  |                                       |   | 73   | HCR10012              |
|  | 270                          | 215                           | 165                                 | 120                           | 41                                | 70                               | 94                                    | 3   | 56   | HCR1502               |
|  | 370                          |                               |                                     |                               |                                   |                                  |                                       |   | 67   | HCR1504               |
|  | 470                          |                               |                                     |                               |                                   |                                  |                                       |   | 78   | HCR1506               |
|  | 597                          |                               |                                     |                               |                                   |                                  |                                       |   | 95   | HCR1508               |
|  | 697                          |                               |                                     |                               |                                   |                                  |                                       |   | 106  | HCR15010              |
|  | 797                          |                               |                                     |                               |                                   |                                  |                                       |   | 116  | HCR15012              |
|  | 281                          | 250                           | 190                                 | 140                           | 47                                | 79                               | 113                                   | 3   | 81   | HCR2002               |
|  | 381                          |                               |                                     |                               |                                   |                                  |                                       |   | 96   | HCR2004               |
|  | 481                          |                               |                                     |                               |                                   |                                  |                                       |   | 111  | HCR2006               |
|  | 608                          |                               |                                     |                               |                                   |                                  |                                       |   | 139  | HCR2008               |
|  | 708                          |                               |                                     |                               |                                   |                                  |                                       |   | 153  | HCR20010              |
|  | 808                          |                               |                                     |                               |                                   |                                  |                                       |   | 168  | HCR20012              |
|  | 291                          | 280                           | 215                                 | 170                           | 53                                | 79                               | 140                                   | 4   | 107  | HCR2502               |
|  | 391                          |                               |                                     |                               |                                   |                                  |                                       |   | 127  | HCR2504               |
|  | 491                          |                               |                                     |                               |                                   |                                  |                                       |   | 146  | HCR2506               |
|  | 631                          |                               |                                     |                               |                                   |                                  |                                       |   | 184  | HCR2508               |
|  | 731                          |                               |                                     |                               |                                   |                                  |                                       |   | 207  | HCR25010              |
|  | 831                          |                               |                                     |                               |                                   |                                  |                                       |   | 227  | HCR25012              |
|  | 346                          | 305                           | 235                                 | 200                           | 58                                | 101                              | 140                                   | 4   | 159  | HCR3002               |
|  | 446                          |                               |                                     |                               |                                   |                                  |                                       |   | 183  | HCR3004               |
|  | 546                          |                               |                                     |                               |                                   |                                  |                                       |   | 208  | HCR3006               |
|  | 646                          |                               |                                     |                               |                                   |                                  |                                       |   | 232  | HCR3008               |
|  | 746                          |                               |                                     |                               |                                   |                                  |                                       |   | 257  | HCR30010              |
|  | 846                          |                               |                                     |                               |                                   |                                  |                                       |   | 281  | HCR30012              |

| Optional Tilt Saddle       |   |                     |
|----------------------------|---|---------------------|
| Saddle Diameter<br>J1 (mm) | Collapsed Height <sup>2)</sup><br>A1 (mm) | Saddle Model Number |
| 71                         | 197                                       | CATS50              |
|                            | 247                                       |                     |
|                            | 297                                       |                     |
|                            | 360                                       |                     |
|                            | 410                                       |                     |
|                            | 460                                       |                     |
| 71                         | 212                                       | CATS101             |
|                            | 262                                       |                     |
|                            | 312                                       |                     |
|                            | 389                                       |                     |
|                            | 439                                       |                     |
|                            | 489                                       |                     |
| 97                         | 239                                       | CATS150             |
|                            | 289                                       |                     |
|                            | 339                                       |                     |
|                            | 416                                       |                     |
|                            | 466                                       |                     |
|                            | 516                                       |                     |
| 126                        | 249                                       | CATS200             |
|                            | 299                                       |                     |
|                            | 349                                       |                     |
|                            | 426                                       |                     |
|                            | 476                                       |                     |
|                            | 526                                       |                     |
| 175                        | 280                                       | CATS300             |
|                            | 330                                       |                     |
|                            | 380                                       |                     |
|                            | 470                                       |                     |
|                            | 520                                       |                     |
|                            | 570                                       |                     |
| 175                        | 335                                       | CATS300             |
|                            | 385                                       |                     |
|                            | 435                                       |                     |
|                            | 485                                       |                     |
|                            | 535                                       |                     |
|                            | 585                                       |                     |

<sup>2)</sup> A1 = Collapsed height including CATS-Series tilt saddle.

## HCR-Series, Double-Acting Cylinders

- Fast advance and retract
- Designed to withstand 10% side-load of maximum capacity
- Hardened surface resists side-loading and cyclic wear
- Weather protected, inside and out
- Upper and lower replaceable bearings enclose the cylinder plunger for support throughout the stroke
- Certified lifting eyes, base mounting holes and optional collar threads
- Optional collar threads on 300 ton models and higher capacities.



### SELECTION CHART & DETAILS OF 400 - 1000 TON HCR-MODELS

For 50 - 300 ton models, see pages 52-53.

For full product features see pages 44-45.

| Cylinder Capacity<br>ton | Stroke<br>(mm) | Model Number | Maximum Cylinder Capacity at 700 bar ton (kN) | Cylinder Effective Area<br>(cm <sup>2</sup> ) | Oil Capacity (cm <sup>3</sup> ) |         | Collapsed Height<br>A (mm) |
|--------------------------|----------------|--------------|---|---|---------------------------------|---------|----------------------------|
|                          |                |              |   |   | Advance                         | Retract |                            |
| 400                      | 50             | HCR4002      | 409<br>(4008)                                 | 572,6   | 2863                            | 962     | 321                        |
|                          | 100            | HCR4004      |   |   | 5726                            | 1924    | 371                        |
|                          | 150            | HCR4006      |   |   | 8588                            | 2886    | 421                        |
|                          | 200            | HCR4008      |   |   | 11.451                          | 3848    | 471                        |
|                          | 250            | HCR40010     |   |   | 14.314                          | 4811    | 521                        |
|                          | 300            | HCR40012     |   |   | 17.177                          | 5773    | 571                        |
| 500                      | 50             | HCR5002      | 522<br>(5114)                                 | 730,6   | 3653                            | 1199    | 344                        |
|                          | 100            | HCR5004      |   |   | 7306                            | 2397    | 394                        |
|                          | 150            | HCR5006      |   |   | 10.959                          | 3596    | 444                        |
|                          | 200            | HCR5008      |   |   | 14.612                          | 4795    | 494                        |
|                          | 250            | HCR50010     |   |   | 18.265                          | 5994    | 544                        |
|                          | 300            | HCR50012     |   |   | 21.918                          | 7192    | 594                        |
| 600                      | 50             | HCR6002      | 611<br>(5987)                                 | 855,3   | 4276                            | 1414    | 352                        |
|                          | 100            | HCR6004      |   |   | 8553                            | 2827    | 402                        |
|                          | 150            | HCR6006      |   |   | 12.829                          | 4241    | 452                        |
|                          | 200            | HCR6008      |   |   | 17.106                          | 5655    | 502                        |
|                          | 250            | HCR60010     |   |   | 21.382                          | 7069    | 552                        |
|                          | 300            | HCR60012     |   |   | 25.659                          | 8482    | 602                        |
| 800                      | 50             | HCR8002      | 831<br>(8149)                                 | 1164,2  | 5821                            | 1800    | 404                        |
|                          | 100            | HCR8004      |   |   | 11.642                          | 3599    | 454                        |
|                          | 150            | HCR8006      |   |   | 17.462                          | 5399    | 504                        |
|                          | 200            | HCR8008      |   |   | 23.283                          | 7198    | 554                        |
|                          | 250            | HCR80010     |   |   | 29.104                          | 8998    | 604                        |
|                          | 300            | HCR80012     |   |   | 34.925                          | 10.797  | 654                        |
| 1000                     | 50             | HCR10002     | 1085<br>(10.644)                              | 1520,5  | 7603                            | 3063    | 442                        |
|                          | 100            | HCR10004     |   |   | 15.205                          | 6126    | 492                        |
|                          | 150            | HCR10006     |   |   | 22.808                          | 9189    | 542                        |
|                          | 200            | HCR10008     |   |   | 30.411                          | 12.252  | 592                        |
|                          | 250            | HCR100010    |   |   | 38.013                          | 15.315  | 642                        |
|                          | 300            | HCR100012    |   |   | 45.616                          | 18.378  | 692                        |

#### Optional Collar Thread (mm)

| Model / Capacity ton | Thread Size | Thread Length |
|----------------------|-------------|---------------|
|                      | W           | X             |
| HCR400               | M350 x 3    | 83            |
| HCR500               | M400 x 4    | 90            |
| HCR600               | M430 x 4    | 100           |
| HCR800               | M505 x 5    | 122           |
| HCR1000              | M570 x 5    | 137           |

Collar thread is optional on 300 ton models and higher. For collar thread on cylinder add suffix "E002" to model number. Example: **HCR4006E002**

The collar thread length is designed for the full rated cylinder capacity.

#### Base Mounting Holes (mm)

| Model / Capacity ton | Bolt Circle | Thread Size | Minimum Thread Depth | Number of Holes | Angle from Coupler |
|----------------------|-------------|-------------|----------------------|-----------------|--------------------|
|                      | U           | V           | Z                    |                 |                    |
| HCR400               | 300         | M16 x 2     | 25                   | 3               | 60°                |
| HCR500               | 340         | M24 x 3     | 36                   | 3               | 60°                |
| HCR600               | 370         | M24 x 3     | 36                   | 3               | 60°                |
| HCR800               | 440         | M24 x 3     | 36                   | 3               | 60°                |
| HCR1000              | 500         | M24 x 3     | 36                   | 3               | 60°                |

# Double-Acting, High Tonnage Cylinders



▲ The superlifting and launch of a 43,000-ton floating oil production system in Malaysia for the Gumusut-Kakap offshore field has set high benchmarks for safety through its use of sophisticated EVO-Series synchronous hydraulics to lift, balance, weigh and smoothly launch massive resource structures.

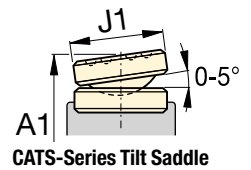
## HCR Series



Capacity:  
**400 - 1000 ton**

Stroke:  
**50 - 300 mm**

Maximum Operating Pressure:  
**700 bar**



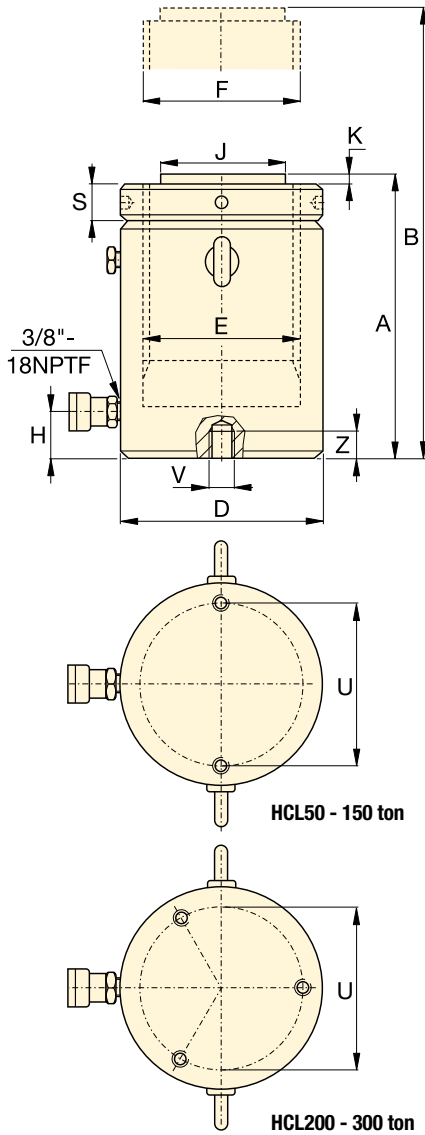
CATS-Series Tilt Saddle

| Extended Height<br>B<br>(mm) | Outside Diameter<br>D<br>(mm) | Cylinder Bore Diameter<br>E<br>(mm) | Plunger Diameter<br>F<br>(mm) | Base to Advance Port<br>H<br>(mm) | Top to Retract Port<br>I<br>(mm) | Standard Saddle Diameter<br>J<br>(mm) | Saddle Protrusion from Plunger<br>K<br>(mm) | Model Number | Optional Tilt Saddle    |                            |                     |          |     |
|------------------------------|-------------------------------|-------------------------------------|-------------------------------|-----------------------------------|----------------------------------|---------------------------------------|---|--------------|-------------------------|----------------------------|---------------------|----------|-----|
|                              |                               |                                     |                               |                                   |                                  |                                       |   |              | Saddle Diameter J1 (mm) | Collapsed Height * A1 (mm) | Saddle Model Number |          |     |
| 371                          | 350                           | 270                                 | 220                           | 74                                | 111                              | 159                                   | 4   | 227          | HCR4002                 | 210                        | 369                 | CATS400  |     |
| 471                          |                               |                                     |                               |                                   |                                  |                                       |   | 258          |                         |                            |                     |          | 419 |
| 571                          |                               |                                     |                               |                                   |                                  |                                       |   | 289          |                         |                            |                     |          | 469 |
| 671                          |                               |                                     |                               |                                   |                                  |                                       |   | 321          |                         |                            |                     |          | 519 |
| 771                          |                               |                                     |                               |                                   |                                  |                                       |   | 352          |                         |                            |                     |          | 569 |
| 871                          |                               |                                     |                               |                                   |                                  |                                       |   | 383          |                         |                            |                     |          | 619 |
| 394                          | 400                           | 305                                 | 250                           | 79                                | 121                              | 179                                   | 4   | 320          | HCR5002                 | 230                        | 392                 | CATS500  |     |
| 494                          |                               |                                     |                               |                                   |                                  |                                       |   | 361          |                         |                            |                     |          | 442 |
| 594                          |                               |                                     |                               |                                   |                                  |                                       |   | 402          |                         |                            |                     |          | 492 |
| 694                          |                               |                                     |                               |                                   |                                  |                                       |   | 443          |                         |                            |                     |          | 542 |
| 794                          |                               |                                     |                               |                                   |                                  |                                       |   | 484          |                         |                            |                     |          | 592 |
| 894                          |                               |                                     |                               |                                   |                                  |                                       |   | 525          |                         |                            |                     |          | 642 |
| 402                          | 430                           | 330                                 | 270                           | 85                                | 121                              | 194                                   | 4   | 379          | HCR6002                 | 250                        | 405                 | CATS600  |     |
| 502                          |                               |                                     |                               |                                   |                                  |                                       |   | 427          |                         |                            |                     |          | 455 |
| 602                          |                               |                                     |                               |                                   |                                  |                                       |   | 474          |                         |                            |                     |          | 505 |
| 702                          |                               |                                     |                               |                                   |                                  |                                       |   | 521          |                         |                            |                     |          | 555 |
| 802                          |                               |                                     |                               |                                   |                                  |                                       |   | 568          |                         |                            |                     |          | 605 |
| 902                          |                               |                                     |                               |                                   |                                  |                                       |   | 615          |                         |                            |                     |          | 655 |
| 454                          | 505                           | 385                                 | 320                           | 100                               | 143                              | 224                                   | 4   | 608          | HCR8002                 | 275                        | 461                 | CATS800  |     |
| 554                          |                               |                                     |                               |                                   |                                  |                                       |   | 674          |                         |                            |                     |          | 511 |
| 654                          |                               |                                     |                               |                                   |                                  |                                       |   | 740          |                         |                            |                     |          | 561 |
| 754                          |                               |                                     |                               |                                   |                                  |                                       |   | 806          |                         |                            |                     |          | 611 |
| 854                          |                               |                                     |                               |                                   |                                  |                                       |   | 872          |                         |                            |                     |          | 661 |
| 954                          |                               |                                     |                               |                                   |                                  |                                       |   | 938          |                         |                            |                     |          | 711 |
| 492                          | 570                           | 440                                 | 340                           | 114                               | 153                              | 249                                   | 4   | 843          | HCR10002                | 300                        | 519                 | CATS1000 |     |
| 592                          |                               |                                     |                               |                                   |                                  |                                       |   | 921          |                         |                            |                     |          | 569 |
| 692                          |                               |                                     |                               |                                   |                                  |                                       |   | 1000         |                         |                            |                     |          | 619 |
| 792                          |                               |                                     |                               |                                   |                                  |                                       |   | 1079         |                         |                            |                     |          | 669 |
| 892                          |                               |                                     |                               |                                   |                                  |                                       |   | 1158         |                         |                            |                     |          | 719 |
| 992                          |                               |                                     |                               |                                   |                                  |                                       |   | 1236         |                         |                            |                     |          | 769 |

\* A1 = Collapsed height including CATS-Series tilt saddle.

## HCL-Series, Single-Acting, Gravity Return Cylinders

- Lock nut provides positive and safe mechanical load holding
- Low-friction locking rings spin easy, save time and effort
- Designed to withstand 10% side-load up to 90% of maximum stroke
- Hardened surface resists side-loading and cyclic wear
- Overflow port as stroke limiter to prevent plunger blow-out
- Weather protected, inside and out
- Replaceable bearings enclose the plunger for support throughout the stroke
- Certified lifting eyes and base mounting holes.



### SELECTION CHART 50 - 300 TON HCL-MODELS

For 400 - 1000 ton models, see pages 58-59.

For full product features see pages 44-45.

| Cylinder Capacity<br>ton | Stroke<br>(mm) | Model Number | Maximum Cylinder Capacity at 700 bar ton (kN) | Cylinder Effective Area<br>(cm <sup>2</sup> ) | Oil Capacity<br>(cm <sup>3</sup> ) | Collapsed Height<br>A<br>(mm) |
|--------------------------|----------------|--------------|---|---|------------------------------------|-------------------------------|
| 50                       | 50             | HCL502       | 56<br>(550)                                   | 78,5  | 393                                | 164                           |
|                          | 100            | HCL504       |   |   | 785                                | 214                           |
|                          | 150            | HCL506       |   |   | 1178                               | 264                           |
|                          | 200            | HCL508       |   |   | 1571                               | 314                           |
|                          | 250            | HCL5010      |   |   | 1963                               | 364                           |
|                          | 300            | HCL5012      |   |   | 2356                               | 414                           |
| 100                      | 50             | HCL1002      | 102<br>(1002)                                 | 143,1   | 716                                | 187                           |
|                          | 100            | HCL1004      |   |   | 1431                               | 237                           |
|                          | 150            | HCL1006      |   |   | 2147                               | 287                           |
|                          | 200            | HCL1008      |   |   | 2863                               | 337                           |
|                          | 250            | HCL10010     |   |   | 3578                               | 387                           |
|                          | 300            | HCL10012     |   |   | 4294                               | 437                           |
| 150                      | 50             | HCL1502      | 153<br>(1497)                                 | 213,8   | 1069                               | 209                           |
|                          | 100            | HCL1504      |   |   | 2138                               | 259                           |
|                          | 150            | HCL1506      |   |   | 3207                               | 309                           |
|                          | 200            | HCL1508      |   |   | 4276                               | 359                           |
|                          | 250            | HCL15010     |   |   | 5346                               | 409                           |
|                          | 300            | HCL15012     |   |   | 6415                               | 459                           |
| 200                      | 50             | HCL2002      | 202<br>(1985)                                 | 283,5   | 1418                               | 238                           |
|                          | 100            | HCL2004      |   |   | 2835                               | 288                           |
|                          | 150            | HCL2006      |   |   | 4253                               | 338                           |
|                          | 200            | HCL2008      |   |   | 5671                               | 388                           |
|                          | 250            | HCL20010     |   |   | 7088                               | 438                           |
|                          | 300            | HCL20012     |   |   | 8506                               | 488                           |
| 250                      | 50             | HCL2502      | 259<br>(2541)                                 | 363,1   | 1815                               | 249                           |
|                          | 100            | HCL2504      |   |   | 3631                               | 299                           |
|                          | 150            | HCL2506      |   |   | 5446                               | 349                           |
|                          | 200            | HCL2508      |   |   | 7261                               | 399                           |
|                          | 250            | HCL25010     |   |   | 9076                               | 449                           |
|                          | 300            | HCL25012     |   |   | 10.892                             | 499                           |
| 300                      | 50             | HCL3002      | 310<br>(3036)                                 | 433,7   | 2169                               | 278                           |
|                          | 100            | HCL3004      |   |   | 4337                               | 328                           |
|                          | 150            | HCL3006      |   |   | 6506                               | 378                           |
|                          | 200            | HCL3008      |   |   | 8675                               | 428                           |
|                          | 250            | HCL30010     |   |   | 10.843                             | 478                           |
|                          | 300            | HCL30012     |   |   | 13.012                             | 528                           |

| Base Mounting Holes (mm) |                  |                  |                           |                 |                    |
|--------------------------|------------------|------------------|---------------------------|-----------------|--------------------|
| Model / Capacity ton     | Bolt Circle<br>U | Thread Size<br>V | Minimum Thread Depth<br>Z | Number of Holes | Angle from Coupler |
| HCL50                    | 105              | M8 x 1,25        | 10                        | 2               | 90°                |
| HCL100                   | 150              | M12 x 1,75       | 17                        | 2               | 90°                |
| HCL150                   | 185              | M12 x 1,75       | 22                        | 2               | 90°                |
| HCL200                   | 215              | M12 x 1,75       | 22                        | 3               | 60°                |
| HCL250                   | 245              | M12 x 1,75       | 22                        | 3               | 60°                |
| HCL300                   | 260              | M16 x 2          | 25                        | 3               | 60°                |



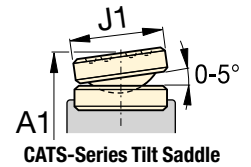
# Single-Acting, Lock Nut Cylinders

Capacity:  
**50 - 300 ton**

Stroke:  
**50 - 300 mm**

Maximum Operating Pressure:  
**700 bar**

**HCL Series**

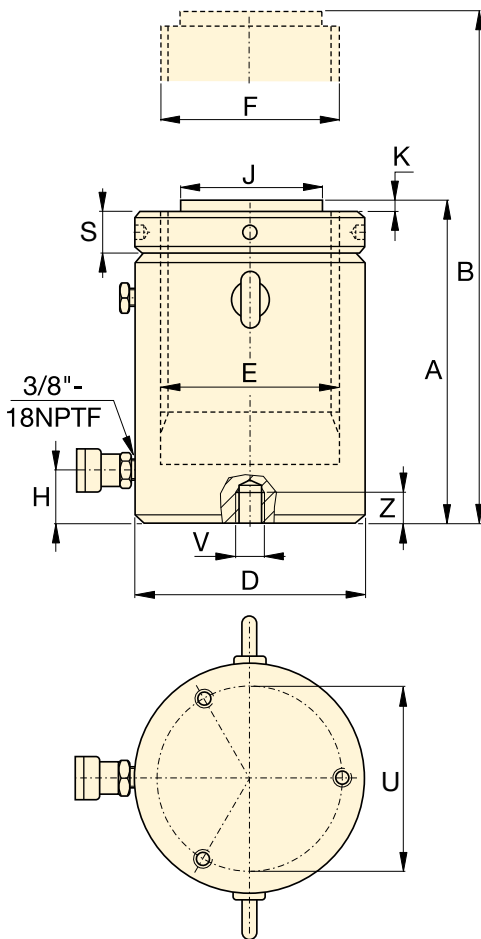


| Extended Height | Outside Diameter | Cylinder Bore Diameter | Plunger Diameter (threaded) | Base to Advance Port | Standard Saddle Diameter | Saddle Protrusion from Plunger | Lock Nut Height | Model Number | Optional Tilt Saddle    |                            |                     |         |     |
|-----------------|------------------|------------------------|-----------------------------|----------------------|--------------------------|--------------------------------|-----------------|--------------|-------------------------|----------------------------|---------------------|---------|-----|
|                 |                  |                        |                             |                      |                          |                                |                 |              | Saddle Diameter J1 (mm) | Collapsed Height * A1 (mm) | Saddle Model Number |         |     |
| 214             | 130              | 100                    | Tr 100 x 4                  | 24                   | 71                       | 2                              | 25              | 17           | HCL502                  | 71                         | 179                 | CATS100 |     |
| 314             |                  |                        |                             |                      |                          |                                |                 | 22           |                         |                            |                     |         | 229 |
| 414             |                  |                        |                             |                      |                          |                                |                 | 27           |                         |                            |                     |         | 279 |
| 514             |                  |                        |                             |                      |                          |                                |                 | 32           |                         |                            |                     |         | 329 |
| 614             |                  |                        |                             |                      |                          |                                |                 | 38           |                         |                            |                     |         | 379 |
| 714             |                  |                        |                             |                      |                          |                                |                 | 43           |                         |                            |                     |         | 429 |
| 237             | 175              | 135                    | Tr 135 x 6                  | 33                   | 71                       | 2                              | 33              | 35           | HCL1002                 | 71                         | 202                 | CATS100 |     |
| 337             |                  |                        |                             |                      |                          |                                |                 | 44           |                         |                            |                     |         | 252 |
| 437             |                  |                        |                             |                      |                          |                                |                 | 54           |                         |                            |                     |         | 302 |
| 537             |                  |                        |                             |                      |                          |                                |                 | 63           |                         |                            |                     |         | 352 |
| 637             |                  |                        |                             |                      |                          |                                |                 | 73           |                         |                            |                     |         | 402 |
| 737             |                  |                        |                             |                      |                          |                                |                 | 82           |                         |                            |                     |         | 452 |
| 259             | 215              | 165                    | Tr 165 x 6                  | 41                   | 130                      | 2                              | 40              | 59           | HCL1502                 | 126                        | 225                 | CATS201 |     |
| 359             |                  |                        |                             |                      |                          |                                |                 | 73           |                         |                            |                     |         | 275 |
| 459             |                  |                        |                             |                      |                          |                                |                 | 87           |                         |                            |                     |         | 325 |
| 559             |                  |                        |                             |                      |                          |                                |                 | 102          |                         |                            |                     |         | 375 |
| 659             |                  |                        |                             |                      |                          |                                |                 | 116          |                         |                            |                     |         | 425 |
| 759             |                  |                        |                             |                      |                          |                                |                 | 130          |                         |                            |                     |         | 475 |
| 288             | 250              | 190                    | Tr 190 x 6                  | 47                   | 130                      | 2                              | 45              | 85           | HCL2002                 | 126                        | 254                 | CATS201 |     |
| 388             |                  |                        |                             |                      |                          |                                |                 | 105          |                         |                            |                     |         | 304 |
| 488             |                  |                        |                             |                      |                          |                                |                 | 124          |                         |                            |                     |         | 354 |
| 588             |                  |                        |                             |                      |                          |                                |                 | 143          |                         |                            |                     |         | 404 |
| 688             |                  |                        |                             |                      |                          |                                |                 | 163          |                         |                            |                     |         | 454 |
| 788             |                  |                        |                             |                      |                          |                                |                 | 182          |                         |                            |                     |         | 504 |
| 299             | 280              | 215                    | Tr 215 x 6                  | 53                   | 140                      | 2                              | 52              | 119          | HCL2502                 | 175                        | 288                 | CATS300 |     |
| 399             |                  |                        |                             |                      |                          |                                |                 | 143          |                         |                            |                     |         | 338 |
| 499             |                  |                        |                             |                      |                          |                                |                 | 167          |                         |                            |                     |         | 388 |
| 599             |                  |                        |                             |                      |                          |                                |                 | 192          |                         |                            |                     |         | 438 |
| 699             |                  |                        |                             |                      |                          |                                |                 | 216          |                         |                            |                     |         | 488 |
| 799             |                  |                        |                             |                      |                          |                                |                 | 240          |                         |                            |                     |         | 538 |
| 328             | 305              | 235                    | Tr 235 x 6                  | 58                   | 140                      | 2                              | 56              | 158          | HCL3002                 | 175                        | 317                 | CATS300 |     |
| 428             |                  |                        |                             |                      |                          |                                |                 | 186          |                         |                            |                     |         | 367 |
| 528             |                  |                        |                             |                      |                          |                                |                 | 215          |                         |                            |                     |         | 417 |
| 628             |                  |                        |                             |                      |                          |                                |                 | 244          |                         |                            |                     |         | 467 |
| 728             |                  |                        |                             |                      |                          |                                |                 | 272          |                         |                            |                     |         | 517 |
| 828             |                  |                        |                             |                      |                          |                                |                 | 301          |                         |                            |                     |         | 567 |

\* A1 = Collapsed height including CATS-Series tilt saddle.

## HCL-Series, Single-Acting, Gravity Return Cylinders

- Lock nut provides positive and safe mechanical load holding
- Low-friction locking rings spin easy, save time and effort
- Designed to withstand 10% side-load up to 90% of maximum stroke
- Hardened surface resists side-loading and cyclic wear
- Overflow port as stroke limiter to prevent plunger blow-out
- Weather protected, inside and out
- Replaceable bearings enclose the plunger for support throughout the stroke
- Certified lifting eyes and base mounting holes.



### SELECTION CHART 400 - 1000 TON HCL-MODELS

For 50 - 300 ton models, see pages 56-57.

For full product features see pages 44-45.

| Cylinder Capacity | Stroke | Model Number | Maximum Cylinder Capacity at 700 bar | Cylinder Effective Area | Oil Capacity       | Collapsed Height |
|-------------------|--------|--------------|--------------------------------------|-------------------------|--------------------|------------------|
| ton               | (mm)   |              | ton (kN)                             | (cm <sup>2</sup> )      | (cm <sup>3</sup> ) | A (mm)           |
| 400               | 50     | HCL4002      | 409<br>(4008)                        | 572,6                   | 2863               | 317              |
|                   | 100    | HCL4004      |                                      |                         | 5726               | 367              |
|                   | 150    | HCL4006      |                                      |                         | 8588               | 417              |
|                   | 200    | HCL4008      |                                      |                         | 11.451             | 467              |
|                   | 250    | HCL40010     |                                      |                         | 14.314             | 517              |
|                   | 300    | HCL40012     |                                      |                         | 17.177             | 567              |
| 500               | 50     | HCL5002      | 522<br>(5114)                        | 730,6                   | 3653               | 357              |
|                   | 100    | HCL5004      |                                      |                         | 7306               | 407              |
|                   | 150    | HCL5006      |                                      |                         | 10.959             | 457              |
|                   | 200    | HCL5008      |                                      |                         | 14.612             | 507              |
|                   | 250    | HCL50010     |                                      |                         | 18.265             | 557              |
|                   | 300    | HCL50012     |                                      |                         | 21.918             | 607              |
| 600               | 50     | HCL6002      | 611<br>(5987)                        | 855,3                   | 4276               | 380              |
|                   | 100    | HCL6004      |                                      |                         | 8553               | 430              |
|                   | 150    | HCL6006      |                                      |                         | 12.829             | 480              |
|                   | 200    | HCL6008      |                                      |                         | 17.106             | 530              |
|                   | 250    | HCL60010     |                                      |                         | 21.382             | 580              |
|                   | 300    | HCL60012     |                                      |                         | 25.659             | 630              |
| 800               | 50     | HCL8002      | 831<br>(8149)                        | 1164,2                  | 5821               | 430              |
|                   | 100    | HCL8004      |                                      |                         | 11.642             | 480              |
|                   | 150    | HCL8006      |                                      |                         | 17.462             | 530              |
|                   | 200    | HCL8008      |                                      |                         | 23.283             | 580              |
|                   | 250    | HCL80010     |                                      |                         | 29.104             | 630              |
|                   | 300    | HCL80012     |                                      |                         | 34.925             | 680              |
| 1000              | 50     | HCL10002     | 1085<br>(10.644)                     | 1520,5                  | 7603               | 484              |
|                   | 100    | HCL10004     |                                      |                         | 15.205             | 534              |
|                   | 150    | HCL10006     |                                      |                         | 22.808             | 584              |
|                   | 200    | HCL10008     |                                      |                         | 30.411             | 634              |
|                   | 250    | HCL100010    |                                      |                         | 38.013             | 684              |
|                   | 300    | HCL100012    |                                      |                         | 45.616             | 734              |

| Base Mounting Holes (mm) |               |               |                        |                 |                    |
|--------------------------|---------------|---------------|------------------------|-----------------|--------------------|
| Model / Capacity ton     | Bolt Circle U | Thread Size V | Minimum Thread Depth Z | Number of Holes | Angle from Coupler |
| HCL400                   | 300           | M16 x 2       | 25                     | 3               | 60°                |
| HCL500                   | 340           | M24 x 3       | 36                     | 3               | 60°                |
| HCL600                   | 370           | M24 x 3       | 36                     | 3               | 60°                |
| HCL800                   | 440           | M24 x 3       | 36                     | 3               | 60°                |
| HCL1000                  | 500           | M24 x 3       | 36                     | 3               | 60°                |

# Single-Acting, Lock Nut Cylinders



▲ Heavy lifting and foundation levelling. The lock nut provides mechanical load holding over a long period of time.

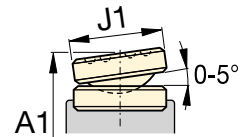
## HCL Series




Capacity:  
**400 - 1000 ton**

Stroke:  
**50 - 300 mm**

Maximum Operating Pressure:  
**700 bar**



CATS-Series Tilt Saddle

| Extended Height<br>B<br>(mm) | Outside Diameter<br>D<br>(mm) | Cylinder Bore Diameter<br>E<br>(mm) | Plunger Diameter (threaded)<br>F<br>(mm) | Base to Advance Port<br>H<br>(mm) | Standard Saddle Diameter<br>J<br>(mm) | Saddle Protrusion from Plunger<br>K<br>(mm) | Lock Nut Height<br>S<br>(mm) |  (kg) | Model Number     | Optional Tilt Saddle       |                               |                 |     |
|------------------------------|-------------------------------|-------------------------------------|--|-----------------------------------|---------------------------------------|---|------------------------------|--|------------------|----------------------------|-------------------------------|-----------------|-----|
|                              |                               |                                     |  |                                   |                                       |   |                              |  |                  | Saddle Diameter<br>J1 (mm) | Collapsed Height *<br>A1 (mm) | Model Number    |     |
| 367                          | 350                           | 270                                 | Tr 270 x 6                               | 67                                | 159                                   | 5   | 65                           | 236  | <b>HCL4002</b>   | 210                        | 365                           | <b>CATS400</b>  |     |
| 467                          |                               |                                     |  |                                   |                                       |   |                              | 274  | <b>HCL4004</b>   |                            |                               |                 | 415 |
| 567                          |                               |                                     |  |                                   |                                       |   |                              | 311  | <b>HCL4006</b>   |                            |                               |                 | 465 |
| 667                          |                               |                                     |  |                                   |                                       |   |                              | 349  | <b>HCL4008</b>   |                            |                               |                 | 515 |
| 767                          |                               |                                     |  |                                   |                                       |   |                              | 387  | <b>HCL40010</b>  |                            |                               |                 | 565 |
| 867                          |                               |                                     |  |                                   |                                       |   |                              | 425  | <b>HCL40012</b>  |                            |                               |                 | 615 |
| 407                          | 400                           | 305                                 | Tr 305 x 6                               | 75                                | 179                                   | 5   | 72                           | 341  | <b>HCL5002</b>   | 230                        | 405                           | <b>CATS500</b>  |     |
| 507                          |                               |                                     |  |                                   |                                       |   |                              | 390  | <b>HCL5004</b>   |                            |                               |                 | 455 |
| 607                          |                               |                                     |  |                                   |                                       |   |                              | 439  | <b>HCL5006</b>   |                            |                               |                 | 505 |
| 707                          |                               |                                     |  |                                   |                                       |   |                              | 489  | <b>HCL5008</b>   |                            |                               |                 | 555 |
| 807                          |                               |                                     |  |                                   |                                       |   |                              | 538  | <b>HCL50010</b>  |                            |                               |                 | 605 |
| 907                          |                               |                                     |  |                                   |                                       |   |                              | 587  | <b>HCL50012</b>  |                            |                               |                 | 655 |
| 430                          | 430                           | 330                                 | Tr 330 x 6                               | 81                                | 194                                   | 5   | 80                           | 427  | <b>HCL6002</b>   | 250                        | 433                           | <b>CATS600</b>  |     |
| 530                          |                               |                                     |  |                                   |                                       |   |                              | 484  | <b>HCL6004</b>   |                            |                               |                 | 483 |
| 630                          |                               |                                     |  |                                   |                                       |   |                              | 541  | <b>HCL6006</b>   |                            |                               |                 | 533 |
| 730                          |                               |                                     |  |                                   |                                       |   |                              | 598  | <b>HCL6008</b>   |                            |                               |                 | 583 |
| 830                          |                               |                                     |  |                                   |                                       |   |                              | 655  | <b>HCL60010</b>  |                            |                               |                 | 633 |
| 930                          |                               |                                     |  |                                   |                                       |   |                              | 712  | <b>HCL60012</b>  |                            |                               |                 | 683 |
| 480                          | 505                           | 385                                 | Tr 385 x 6                               | 95                                | 224                                   | 5   | 90                           | 668  | <b>HCL8002</b>   | 275                        | 487                           | <b>CATS800</b>  |     |
| 580                          |                               |                                     |  |                                   |                                       |   |                              | 746  | <b>HCL8004</b>   |                            |                               |                 | 537 |
| 680                          |                               |                                     |  |                                   |                                       |   |                              | 825  | <b>HCL8006</b>   |                            |                               |                 | 587 |
| 780                          |                               |                                     |  |                                   |                                       |   |                              | 904  | <b>HCL8008</b>   |                            |                               |                 | 637 |
| 880                          |                               |                                     |  |                                   |                                       |   |                              | 982  | <b>HCL80010</b>  |                            |                               |                 | 687 |
| 980                          |                               |                                     |  |                                   |                                       |   |                              | 1061   | <b>HCL80012</b>  |                            |                               |                 | 737 |
| 534                          | 570                           | 440                                 | Tr 440 x 6                               | 110                               | 249                                   | 5   | 105                          | 959  | <b>HCL10002</b>  | 300                        | 561                           | <b>CATS1000</b> |     |
| 634                          |                               |                                     |  |                                   |                                       |   |                              | 1059   | <b>HCL10004</b>  |                            |                               |                 | 611 |
| 734                          |                               |                                     |  |                                   |                                       |   |                              | 1160   | <b>HCL10006</b>  |                            |                               |                 | 661 |
| 834                          |                               |                                     |  |                                   |                                       |   |                              | 1260   | <b>HCL10008</b>  |                            |                               |                 | 711 |
| 934                          |                               |                                     |  |                                   |                                       |   |                              | 1360   | <b>HCL100010</b> |                            |                               |                 | 761 |
| 1034                         |                               |                                     |  |                                   |                                       |   |                              | 1460   | <b>HCL100012</b> |                            |                               |                 | 811 |

\* A1 = Collapsed height including CATS-Series tilt saddle.

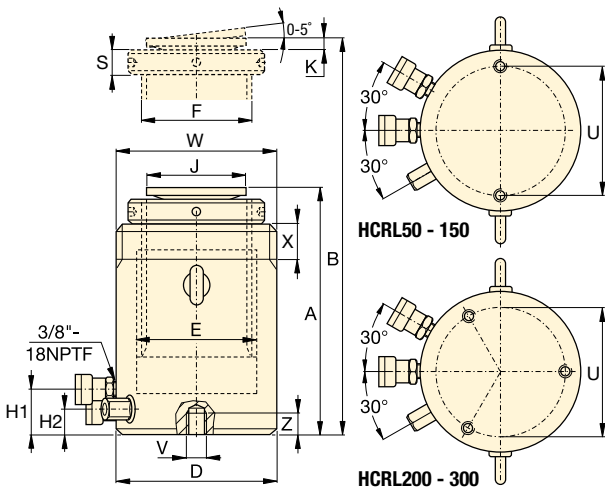
# HCRL-Series, Double-Acting Lock Nut Cylinders



▼ HCRL2006, HCRL506



- Hydraulically controlled fast retraction
- Lock nut provides mechanical load holding for a safe work environment
- Designed to withstand up to 10% side-load of maximum capacity
- Integrated tilt saddle allows up to 5 degrees of misalignment
- Hardened surface resists side-loading and cyclic wear
- Weather protected, inside and out
- Replaceable bearings enclose the plunger external and internally for support
- Certified lifting eyes, base mounting holes and collar thread as standard
- Stop-ring to prevent plunger blow-out
- Low friction lock nut, to spin easily, save time and effort.



## SELECTION CHART 50 - 300 TON HCRL-MODELS

For full product features see pages 44-45.

| Cylinder Capacity *<br>ton | Stroke *<br>(mm) | Model Number | Maximum Cylinder Capacity at 700 bar ton (kN) | Cylinder Effective Area (cm <sup>2</sup> ) | Oil Capacity (cm <sup>3</sup> ) |         |
|----------------------------|------------------|--------------|---|--|---------------------------------|---------|
|                            |                  |              |   |  | Advance                         | Retract |
| 50                         | 150              | HCRL506      | 49 (479)                                      | 68,4                                       | 1025                            | 86      |
|                            | 200              | HCRL508      |   |  | 1367                            | 115     |
|                            | 250              | HCRL5010     |   |  | 1709                            | 143     |
|                            | 300              | HCRL5012     |   |  | 2051                            | 172     |
| 100                        | 150              | HCRL1006     | 101 (990)                                     | 141,4                                      | 2121                            | 236     |
|                            | 200              | HCRL1008     |   |  | 2827                            | 314     |
|                            | 250              | HCRL10010    |   |  | 3534                            | 393     |
|                            | 300              | HCRL10012    |   |  | 4241                            | 471     |
| 150                        | 150              | HCRL1506     | 153 (1501)                                    | 214,4                                      | 3216                            | 236     |
|                            | 200              | HCRL1508     |   |  | 4288                            | 314     |
|                            | 250              | HCRL15010    |   |  | 5360                            | 393     |
|                            | 300              | HCRL15012    |   |  | 6432                            | 471     |
| 200                        | 150              | HCRL2006     | 204 (2001)                                    | 285,9                                      | 4288                            | 530     |
|                            | 200              | HCRL2008     |   |  | 5718                            | 707     |
|                            | 250              | HCRL20010    |   |  | 7147                            | 884     |
|                            | 300              | HCRL20012    |   |  | 8577                            | 1060    |
| 250                        | 150              | HCRL2506     | 251 (2463)                                    | 351,9                                      | 5278                            | 530     |
|                            | 200              | HCRL2508     |   |  | 7037                            | 707     |
|                            | 250              | HCRL25010    |   |  | 8796                            | 884     |
|                            | 300              | HCRL25012    |   |  | 10.556                          | 1060    |
| 300                        | 150              | HCRL3006     | 303 (2969)                                    | 424,1                                      | 6362                            | 530     |
|                            | 200              | HCRL3008     |   |  | 8482                            | 707     |
|                            | 250              | HCRL30010    |   |  | 10.603                          | 884     |
|                            | 300              | HCRL30012    |   |  | 12.723                          | 1060    |

\* Up to 2000 ton and additional stroke lengths available on request.

| Collar Thread (mm)   |               |                 |
|----------------------|---------------|-----------------|
| Model / Capacity ton | Thread Size W | Thread Length X |
| HCRL50               | M130 x 2      | 42              |
| HCRL100              | M185 x 2      | 57              |
| HCRL150              | M222 x 3      | 70              |
| HCRL200              | M260 x 3      | 79              |
| HCRL250              | M290 x 3      | 85              |
| HCRL300              | M315 x 3      | 94              |

The collar thread length is designed for the full rated cylinder capacity.

| Base Mounting Holes (mm) |               |               |                        |
|--------------------------|---------------|---------------|------------------------|
| Model / Capacity ton     | Bolt Circle U | Thread Size V | Minimum Thread Depth Z |
| HCRL50                   | 105           | M12 x 1,75    | 22                     |
| HCRL100                  | 150           | M12 x 1,75    | 22                     |
| HCRL150                  | 185           | M12 x 1,75    | 22                     |
| HCRL200                  | 215           | M12 x 1,75    | 22                     |
| HCRL250                  | 245           | M12 x 1,75    | 22                     |
| HCRL300                  | 260           | M16 x 2       | 25                     |

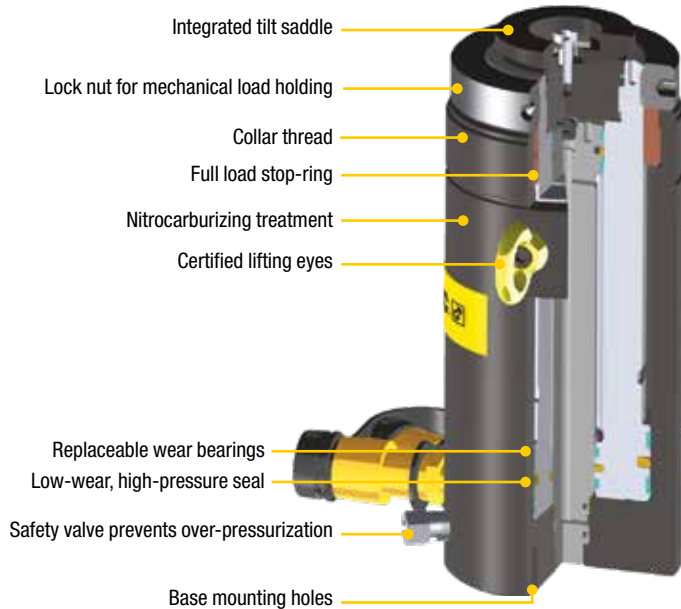


# Double-Acting Lock Nut Cylinders

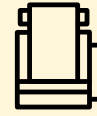


## Higher Capacities, Larger Strokes

The HCRL-Series Cylinders are available up to 2000 ton capacity and additional stroke lengths available on request.



## HCRL Series



Capacity:

**50 - 300 ton**

Stroke:

**150 - 300 mm**

Maximum Operating Pressure:








**700 bar**



## Synchronous Lifting Systems

**EVO-Series** pumps the multi-functional lifting system and multiple lift point capabilities.

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|  | Collapsed Height | Extended Height | Outside Diameter | Cylinder Bore Diameter | Plunger Diameter (threaded) | Base to Advance Port H1 | Base to Retract Port H2 | Saddle Diameter | Saddle Protrusion | Lock Nut Height |  | Model Number |           |
|--|------------------|-----------------|------------------|------------------------|-----------------------------|-------------------------|-------------------------|-----------------|-------------------|-----------------|---|--------------|-----------|
|  | A (mm)           | B (mm)          |                  |                        |                             |                         |                         |                 |                   |                 |   |              | D (mm)    |
|  | 310              | 460             | 130              | 100                    | Tr 90 x 4                   | 41                      | 27                      | 77              | 15                | 26              |  | HCRL506      |           |
|  | 377              | 577             |                  |                        |                             |                         |                         |                 |                   |                 |   | 36           | HCRL508   |
|  | 427              | 677             |                  |                        |                             |                         |                         |                 |                   |                 |   | 40           | HCRL5010  |
|  | 477              | 777             |                  |                        |                             |                         |                         |                 |                   |                 |   | 45           | HCRL5012  |
|  | 346              | 496             | 185              | 140                    | Tr 120 x 6                  | 50                      | 36                      | 77              | 15                | 36              |  | HCRL1006     |           |
|  | 421              | 621             |                  |                        |                             |                         |                         |                 |                   |                 |   | 77           | HCRL1008  |
|  | 471              | 721             |                  |                        |                             |                         |                         |                 |                   |                 |   | 85           | HCRL10010 |
|  | 521              | 821             |                  |                        |                             |                         |                         |                 |                   |                 |   | 94           | HCRL10012 |
|  | 359              | 509             | 222              | 170                    | Tr 150 x 6                  | 46                      | 32                      | 126             | 13                | 45              |  | HCRL1506     |           |
|  | 434              | 634             |                  |                        |                             |                         |                         |                 |                   |                 |   | 116          | HCRL1508  |
|  | 484              | 734             |                  |                        |                             |                         |                         |                 |                   |                 |   | 129          | HCRL15010 |
|  | 534              | 834             |                  |                        |                             |                         |                         |                 |                   |                 |   | 142          | HCRL15012 |
|  | 399              | 549             | 260              | 200                    | Tr 170 x 6                  | 71                      | 49                      | 126             | 13                | 50              |  | HCRL2006     |           |
|  | 469              | 669             |                  |                        |                             |                         |                         |                 |                   |                 |   | 168          | HCRL2008  |
|  | 519              | 769             |                  |                        |                             |                         |                         |                 |                   |                 |   | 184          | HCRL20010 |
|  | 569              | 869             |                  |                        |                             |                         |                         |                 |                   |                 |   | 200          | HCRL20012 |
|  | 416              | 566             | 290              | 220                    | Tr 190 x 6                  | 71                      | 49                      | 160             | 15                | 55              |  | HCRL2506     |           |
|  | 491              | 691             |                  |                        |                             |                         |                         |                 |                   |                 |   | 224          | HCRL2508  |
|  | 541              | 791             |                  |                        |                             |                         |                         |                 |                   |                 |   | 244          | HCRL25010 |
|  | 591              | 891             |                  |                        |                             |                         |                         |                 |                   |                 |   | 265          | HCRL25012 |
|  | 421              | 571             | 315              | 240                    | Tr 210 x 6                  | 71                      | 49                      | 160             | 15                | 55              |  | HCRL3006     |           |
|  | 496              | 696             |                  |                        |                             |                         |                         |                 |                   |                 |   | 269          | HCRL3008  |
|  | 546              | 796             |                  |                        |                             |                         |                         |                 |                   |                 |   | 294          | HCRL30010 |
|  | 596              | 896             |                  |                        |                             |                         |                         |                 |                   |                 |   | 319          | HCRL30012 |

▼ SCR1010H cylinder-pump set



## The Quickest and Easiest Way to Start Working Right Away



**Speed Chart**

See the Enerpac Cylinder Speed Chart in our 'Yellow Pages' section.

Page: 405

- Optimum match of individual components
- All sets are ready-for-use
- Sets include 1,8 m safety hose and gauge with gauge adaptor
- All pumps are two-speed.

| 1 Cylinder Selection<br>(See Cylinder Section of this catalog for full product descriptions)        |                 | Set Capacity<br>ton (kN) | Cylinder Model Number | Stroke<br>(mm) | Collapsed Height<br>(mm) |
|---|-----------------|--------------------------|-----------------------|----------------|--------------------------|
| <p><b>RC-Series, Single-Acting, General Purpose Cylinders</b><br/>For maximum versatility.</p>      | <p>Page: 6</p>  | 5 (45)                   | RC55                  | 127            | 216                      |
|   |                 | 10 (101)                 | RC102                 | 54             | 121                      |
|   |                 |                          | RC106                 | 156            | 248                      |
|   |                 |                          | RC1010                | 257            | 349                      |
|   |                 | 15 (142)                 | RC154                 | 101            | 200                      |
|   |                 |                          | RC156                 | 152            | 271                      |
|   |                 | 25 (232)                 | RC252                 | 50             | 165                      |
|   |                 |                          | RC254                 | 102            | 216                      |
|   |                 |                          | RC256                 | 158            | 273                      |
|   |                 |                          | RC2514                | 362            | 476                      |
| 50 (498)  | RC506           | 159                      | 282                   |                |                          |
| <p><b>RCS-Series, Single-Acting, Low-Height Cylinders</b><br/>Ideal where space is restricted.</p>  | <p>Page: 26</p> | 10 (101)                 | RCS101                | 38             | 88                       |
|   |                 | 20 (201)                 | RCS201                | 45             | 98                       |
|   |                 | 30 (295)                 | RCS302                | 62             | 117                      |
|   |                 | 45 (435)                 | RCS502                | 60             | 122                      |
|   |                 | 90 (887)                 | RCS1002               | 57             | 141                      |
| <p><b>RCH-Series, Single-Acting, Hollow Cylinders</b><br/>For pushing and pulling applications.</p> | <p>Page: 34</p> | 13 (125)                 | RCH121                | 42             | 120                      |
|   |                 | 20 (215)                 | RCH202                | 49             | 162                      |
|   |                 | 30 (326)                 | RCH302                | 64             | 178                      |
|   |                 | 60 (576)                 | RCH603                | 76             | 247                      |
|   |                 | 95 (933)                 | RCH1003               | 76             | 254                      |

# Single-Acting Cylinder-Pump Sets

## SET SELECTION:

- 1** Select the cylinder
- 2** Select the pump
- 3** Find the set model number in the gray matrix

## SELECTION EXAMPLE

### Selected cylinder:

- RC106, Single-Acting cylinder with 156 mm stroke

### Selected pump:

- P392, Lightweight hand pump

### Set model number:

- SCR106H

### Included:

- HC7206 hose
- GF10B gauge
- GA2 adaptor



## GA45GC Gauge Adaptor Assembly

Protect yourself from system overloading by simply ordering one partnumber for a pre-assembled gauge, gauge adaptor and coupler.

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## SC Series



Capacity:

**5 - 95 ton**

Stroke:

**38 - 362 mm**

Maximum Operating Pressure:

**700 bar**



## Power Box

Tool box with hand pump, gauge adaptor assembly, hose and LW-, RC-, RCS, RSM- or WR-Series cylinder.

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**2**

**Pump selection** (See the Pump Section in this catalog for full product descriptions.)

**Accessories included**

**3**

| Hand Pump<br>P142 | Hand Pump<br>P392 | Hand Pump<br>P80 | Foot Pump<br>P392FP | XA-Series<br>Air Pump<br>XA11 | XC-Series<br>Cordless Pump<br>XC1201ME <sup>2)</sup> | Hose<br>Model<br>Number | Gauge<br>Model<br>Number | Gauge<br>Adaptor<br>Model Nr. |
|-------------------|-------------------|------------------|---------------------|-------------------------------|--|-------------------------|--------------------------|-------------------------------|
|                   |                   |                  |                     |                               |  |                         |                          |                               |
| SCR55H            | -                 | -                | -                   | -                             | -  | HC7206                  | GP10S                    | GA4                           |
| -                 | SCR102H           | -                | SCR102FP            | SCR102XA                      | SCR102XCE  | HC7206                  | GF10B                    | GA2                           |
| -                 | SCR106H           | -                | SCR106FP            | SCR106XA                      | SCR106XCE  | HC7206                  | GF10B                    | GA2                           |
| -                 | SCR1010H          | -                | SCR1010FP           | SCR1010XA                     | SCR1010XCE   | HC7206                  | GF10B                    | GA2                           |
| -                 | SCR154H           | -                | SCR154FP            | SCR154XA                      | SCR154XCE  | HC7206                  | GP10S                    | GA2                           |
| -                 | SCR156H           | -                | SCR156FP            | SCR156XA                      | SCR156XCE  | HC7206                  | GP10S                    | GA2                           |
| -                 | SCR252H           | -                | SCR252FP            | SCR252XA                      | SCR252XCE  | HC7206                  | GF20B                    | GA2                           |
| -                 | SCR254H           | -                | SCR254FP            | SCR254XA                      | SCR254XCE  | HC7206                  | GF20B                    | GA2                           |
| -                 | SCR256H           | -                | -                   | SCR256XA                      | SCR256XCE  | HC7206                  | GF20B                    | GA2                           |
| -                 | -                 | SCR2514H         | -                   | SCR2514XA <sup>1)</sup>       | -  | HC7206                  | GF20B                    | GA2                           |
| -                 | -                 | SCR506H          | -                   | SCR506XA <sup>1)</sup>        | -  | HC7206                  | GF50B                    | GA2                           |
| -                 | SCL101H           | -                | SCL101FP            | SCL101XA                      | -  | HC7206                  | GF10B                    | GA2                           |
| -                 | SCL201H           | -                | SCL201FP            | SCL201XA                      | -  | HC7206                  | GF230B                   | GA2                           |
| -                 | SCL302H           | -                | SCL302FP            | SCL302XA                      | SCL302XCE  | HC7206                  | GF230B                   | GA2                           |
| -                 | SCL502H           | -                | SCL502FP            | SCL502XA                      | SCL502XCE  | HC7206                  | GF510B                   | GA2                           |
| -                 | -                 | SCL1002H         | -                   | -                             | SCL1002XCE   | HC7206                  | GF510B                   | GA2                           |
| SCH121H           | -                 | -                | -                   | -                             | -  | HB7206                  | GF120B                   | GA4                           |
| -                 | SCH202H           | -                | SCH202FP            | SCH202XA                      | SCH202XCE  | HC7206                  | GF813B                   | GA3                           |
| -                 | SCH302H           | -                | SCH302FP            | SCH302XA                      | SCH302XCE  | HC7206                  | GF813B                   | GA3                           |
| -                 | -                 | SCH603H          | -                   | SCH603XA <sup>1)</sup>        | SCH603XCE  | HC7206                  | GF813B                   | GA3                           |
| -                 | -                 | SCH1003H         | -                   | -                             | -  | HC7206                  | GP10S                    | GA2                           |

<sup>1)</sup> With XA12 air pump.

<sup>2)</sup> Cordless Pump includes 230V Charger. For 115V charger replace the "E" by the "B" in the model number.

▼ From left to right: P142ALSS, P392ALSS, V152NV, V66NV, RC256NV, RC106NV, RC53NV



- Corrosion resistant, nickel-plated valves and cylinders
- Stainless steel pump inserts will not corrode
- Viton® Seals provide heat and chemical resistance
- Anodized aluminum pump reservoirs and plastic encapsulated pump bodies resist wet environments
- Two-speed operation reduces pump handle strokes 78% compared to single-speed pumps
- Pump handles lock for easy carrying.

## RC, P, V Series

Cylinder Capacity:  
**5 - 25 ton**

Stroke:  
**51 - 156 mm**

Maximum Operating Pressure:  
**700 bar**



### Applications



For use in wet environments such as food processing, pulp and paper, mining, construction and applications in high temperature or in welding areas.







### Multifluid Hand Pumps

MP-Series corrosion resistant hand pumps for low pressure filling and high pressure testing applications, suitable for a wide range of fluids.

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|  | Cylinder Capacity | Stroke | Model Number * | Oil Capacity       | Pressure Rating | Collapsed Height | Extended Height | Outside Diameter |  |
|---|-------------------|--------|----------------|--------------------|-----------------|------------------|-----------------|------------------|---|
|   | ton (kN)          | (mm)   |                | (cm <sup>3</sup> ) | (bar)           | (mm)             | (mm)            | (mm)             | (kg)  |
|   | 5 (45)            | 76     | RC53NV         | 50                 | 700             | 165              | 241             | 38               | 1,5   |
|   | 10 (101)          | 51     | RC102NV        | 78                 | 700             | 121              | 175             | 57               | 2,3   |
|   | 10 (101)          | 156    | RC106NV        | 225                | 700             | 247              | 403             | 57               | 4,4   |
|   | 25 (232)          | 156    | RC256NV        | 528                | 700             | 273              | 431             | 85               | 10,0  |

|  | Pump Type | Oil Capacity       | Model Number * | Pressure Rating | Oil Displacement per Stroke | Port Dimension | Piston Stroke |  |
|---|-----------|--------------------|----------------|-----------------|-----------------------------|----------------|---------------|---|
|   |           | (cm <sup>3</sup> ) |                | (bar)           | (cm <sup>3</sup> )          | (NPTF)         | (mm)          | (kg)  |
|   | Two Speed | 327                | P142ALSS       | 14 / 700        | 3,62 / 0,90                 | 1/4"-18        | 12,7          | 2,0   |
|   |           | 901                | P392ALSS       | 14 / 700        | 11,26 / 2,47                | 3/8"-18        | 25,4          | 4,1   |

|  | Valve Type            | Model Number * | Function                                   | Pressure Rating (bar) |  |
|---|-----------------------|----------------|--|-----------------------|---|
|   | Manual Check Valve    | V66NV *        | Load holding with cylinders                | 700                   | 1,8   |
|   | Pressure Relief Valve | V152NV *       | Limits system pressure, ± 3% repeatability | 55-700                | 1,6   |

\* For cylinder details see pages 7-9; for pump details see pages 76-77; for valve details see pages 144-145.



# Power Box – Portable Tool Sets

▼ SCR154PGH



- Easy to carry sturdy tool box
- Complete and ready-to-use hydraulic sets
- Includes a single-acting cylinder, P392 two-speed lightweight hand pump, gauge adaptor assembly, and 1,8 metres hose HC7206C and couplers
- All components ship inside tool box as one package.

**SC,  
SL,  
SR,  
SW  
Series**



Capacity:

**1 - 45 ton**

Stroke:

**11 - 156 mm**

Maximum Operating Pressure:






**700 bar**



#### Gauge Adaptor Assembly

Power Box Sets include 45 degree angled gauge adaptor assembly for improved safe working conditions.

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|   | Cylinder Model                   | Cylinder Stroke (mm) | Cylinder Capacity ton (kN) | Weight (kg) | Power Box Model Number |
|---|----------------------------------|----------------------|----------------------------|-------------|------------------------|
|  | <b>Lifting Wedge</b>             |                      |                            |             |                        |
|   | LW16                             | 21                   | 16 (157)                   | 9,0         | SLW16PGH <sup>2)</sup> |
|  | <b>Wedge Spread Cylinder</b>     |                      |                            |             |                        |
|   | WR5                              | 94 <sup>1)</sup>     | 1,0 (8,9)                  | 12,0        | SWR5PGH                |
|  | <b>General Purpose Cylinders</b> |                      |                            |             |                        |
|   | RC102                            | 54                   | 10 (101)                   | 12,3        | SCR102PGH              |
|   | RC106                            | 156                  | 10 (101)                   | 14,4        | SCR106PGH              |
|   | RC154                            | 101                  | 15 (142)                   | 15,0        | SCR154PGH              |
|   | RC156                            | 152                  | 15 (142)                   | 16,8        | SCR156PGH              |
|  | <b>Low-Height Cylinders</b>      |                      |                            |             |                        |
|   | RCS101                           | 38                   | 10 (101)                   | 14,1        | SCL101PGH              |
|   | RCS201                           | 45                   | 20 (201)                   | 15,0        | SCL201PGH              |
|  | <b>Low-Height Cylinders</b>      |                      |                            |             |                        |
|   | RSM100                           | 11                   | 10 (101)                   | 11,4        | SRS100PGH              |
|   | RSM200                           | 11                   | 20 (201)                   | 13,1        | SRS200PGH              |
|   | RSM300                           | 13                   | 30 (295)                   | 14,5        | SRS300PGH              |
|   | RSM500                           | 16                   | 45 (435)                   | 16,8        | SRS500PGH              |

<sup>1)</sup> Maximum spread of WR5.

<sup>2)</sup> With P142 two-speed lightweight hand pump.

▼ The Power Box – the portable tool set – applicable everywhere.



▼ Shown from left to right: JHA356, JHA156



## JH, JHA Series

Capacity:  
**7 - 100 ton**

Stroke:  
**76 - 155 mm**

Maximum Operating Pressure:  
**700 bar**

- All-directional operation on 7, 15 and 35 ton JHA-series
- Internal relief valve to prevent overloading
- Machined flat front and bottom surfaces permit flush alignment in tight corners
- Chrome plated plungers
- Pumping handle included
- Automatic by-pass port to prevent over-extension (JH-series).



### Lifting Wedge and Machine Lifts

Ideal to lift the load the first few centimeters. The LW16 Lifting Wedge requires a very small access gap of only 10 mm.


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### Load Skates

For moving heavy loads easily and safely.

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| Style           | Jack Capacity<br>ton (kN) | Stroke<br>(mm) | Model Number | Jack Effective Area<br>(cm <sup>2</sup> ) | Collapsed Height<br>(mm) | Extended Height<br>(mm) | Bottom Plate Dimensions<br>W x L<br>(mm) | Plunger Diameter<br>(mm) | Pump Speed | <br>(kg) |
|-----------------|---------------------------|----------------|--------------|---|--------------------------|-------------------------|--|--------------------------|------------|---|
| Aluminium Jacks | 7 (62)                    | 76             | JHA73        | 9,6                                       | 133                      | 209                     | 73 x 158                                 | 30,2                     | Single     | 5,0   |
|                 | 15 (133)                  | 153            | JHA156       | 20,3                                      | 247                      | 401                     | 92 x 238                                 | 41,4                     | Single     | 13,2  |
|                 | 35 (311)                  | 155            | JHA356       | 45,6                                      | 257                      | 412                     | 117 x 254                                | 54,1                     | Single     | 18,1  |
| Steel Jacks     | 30 (267)                  | 155            | JH306        | 38,3                                      | 254                      | 409                     | 95 x 242                                 | 69,9                     | Single     | 26,8  |
|                 | 50 (445)                  | 154            | JH506        | 62,1                                      | 260                      | 414                     | 127 x 258                                | 88,9                     | 2-Speed    | 40,8  |
|                 | 100 (890)                 | 153            | JH1006       | 133,1                                     | 287                      | 440                     | 181 x 328                                | 130,1                    | 2-Speed    | 74,4  |

# Industrial Steel Bottle Jacks

▼ Shown: GBJ010A, GBJ030A, GBJ003A



- Lower handle effort reduces operator fatigue
- Fully serviceable
- High-strength beam and pump linkage for long life
- Pumping handle included on all models
- Safety relief valve to prevent overload
- Automatic by-pass port to prevent over-extension
- Wiper seal for extended life
- Thick base material with large area for increased strength and stability during lifting
- Positioning handle on 20 ton through 50 ton models.

## GBJ Series



Capacity:

**2 - 100 ton**

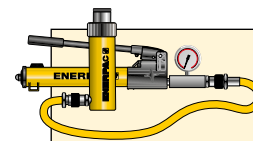
Stroke:

**62 - 460 mm**



### Screw Extension Feature


Heat treated, adjustable extension screw with cleated saddle on selected GBJ models helps adjusting and prevents slipping.



### Cylinder-Pump Sets

As an alternative to bottle jacks where the operator is required to stand remote from the jacking point, see our range of cylinder-pump sets.

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| Capacity<br>ton (kN) | Stroke<br>(mm) | Model<br>Number | Screw<br>Extension<br>(mm) | Min.<br>Height<br>(mm) | Max.<br>Height<br>(mm) | Plunger<br>diameter<br>(mm) | Saddle<br>Diameter<br>(mm) | Bottom<br>Dimensions<br>W x L<br>(mm) | <br>(kg) |
|----------------------|----------------|-----------------|----------------------------|------------------------|------------------------|-----------------------------|----------------------------|---------------------------------------|---|
| 2 (19,6)             | 460            | GBJ002LA        | -                          | 570                    | 1030                   | 29                          | -                          | 75 x 116                              | 10,3  |
| 3 (29,4)             | 105            | GBJ003A         | 65                         | 168                    | 338                    | 24                          | 23,5                       | 75 x 116                              | 3,7   |
| 5 (49,0)             | 150            | GBJ005A         | 75                         | 212                    | 437                    | 29                          | 28,5                       | 75 x 125                              | 4,5   |
| 8 (78,4)             | 150            | GBJ008A         | 75                         | 219                    | 444                    | 37                          | 38,0                       | 90 x 144                              | 6,2   |
| 10 (98,0)            | 150            | GBJ010A         | 75                         | 219                    | 444                    | 37                          | 38,0                       | 90 x 144                              | 6,4   |
| 10 (98,0)            | 62             | GBJ010SA        | 30                         | 131                    | 223                    | 37                          | 38,0                       | 90 x 144                              | 5,0   |
| 15 (147,0)           | 150            | GBJ015A         | 75                         | 228                    | 453                    | 45                          | 45,0                       | 112 x 163                             | 8,8   |
| 20 (196,0)           | 150            | GBJ020A         | 75                         | 234                    | 459                    | 51                          | 61,0                       | 120 x 172                             | 10,6  |
| 20 (196,0)           | 105            | GBJ020SA        | 55                         | 190                    | 350                    | 51                          | 61,0                       | 120 x 172                             | 9,5   |
| 30 (294,0)           | 150            | GBJ030A         | 75                         | 242                    | 467                    | 58                          | 69,0                       | 144 x 196                             | 15,5  |
| 50 (490,0)           | 140            | GBJ050A         | -                          | 260                    | 400                    | 80                          | 80,0                       | 165 x 214                             | 27,0  |
| 100 (980,0)          | 150            | GBJ100          | -                          | 300                    | 450                    | 110                         | 94,0                       | 296 x 333                             | 87,0  |

All GBJ Jacks meet or exceed: ANSI, PALD, CE.

▼ Enerpac heavy-duty bottle jacks make lifting loads easier.



▼ Shown: PRASA10027L and accessory Locking U-Rings



## Safe, Efficient, Mobile Load Lifting



### Pendant cord

Supplied with 3,5 m pendant cord for air driven units with pneumatic valves and 6 m pendant cord for electric driven units keeps operator away from the load.

- 54, 90, 136 and 181 ton capacities with pneumatic or electric pumps for the toughest jobs
- 102 mm ground clearance for transport over rail and rough terrain
- Double-acting cylinder
- Three position handle provides easy tilt back and transport
- Complies with ASME/ANSI B30:1 2015 and CE specifications
- Easy to change external filter minimizes down time
- Rugged, fully enclosed 610 mm wide frame with no exposed fittings or hoses
- SUP-R-STACK™ Extension System allows lifting at all heights without blocking.



### POW'R-LOCK™ – Self-Locking Mobile Lift System

A self-locking jack that performs automatic locking during lifting, lowering and holding.

See the Enerpac PL-Series

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◀ Enerpac POW'R-RISER® used in mining operations to lift heavy equipment.

| Capacity<br>ton (kN) | Stroke<br>(mm) | Model Number<br>with Electric Pump<br>(230V - 1 ph - 50Hz) | <br>(kg) |
|----------------------|----------------|--|----------|
| 54 (533)             | 356            | PREME06014L  | 177      |
|                      | 686            | PREME06027L  | 272      |
| 90 (889)             | 406            | PREME10016L  | 231      |
|                      | 686            | PREME10027L  | 272      |
|                      | 406            | -  | -        |
|                      | 686            | -  | -        |
| 136 (1333)           | 394            | -  | -        |
|                      | 673            | -  | -        |
|                      | 394            | PREME15016L  | 258      |
|                      | 673            | PREME15027L  | 321      |
| 181 (1778)           | 388            | -  | -        |
|                      | 617            | -  | -        |



# POW'R-RISER® Lifting Jack



## SUP-R-STACK Extensions

Increase useful height from 127 to 457 mm.

| Model No. | Size (mm)   | Model No. | Size (mm) |
|-----------|---|-----------|-----------|
| PRE5      | 127   | PRE11     | 279       |
| PRE7      | 178   | PRE14     | 356       |
| PRE9      | 229   | PRE18     | 457       |
| PRES6024  | Extension set includes PRE5, PRE7, PRE11 and PRE18. |           |           |



## Spacers

Fine tune your extension stack height.

| Model No. | Size (mm)  | Model No. | Size (mm) |
|-----------|--|-----------|-----------|
| PRS1      | 25   | PRS3      | 76        |
| PRS2      | 51   | -         | -         |
| PRS4      | Set includes (2x) PRS1, (1x) PRS2 and (1x) PRS3. |           |           |

## PR Series



Rated Lifting Capacity:

**54 - 181 ton**

Stroke:

**356 - 686 mm**

Maximum Operating Pressure:

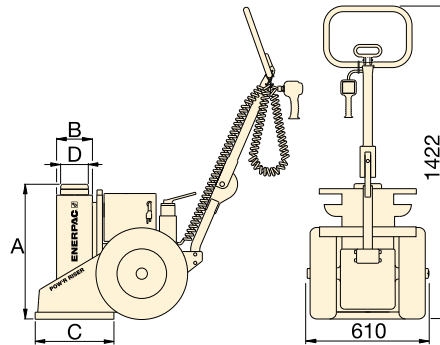
**700 bar**

| Cap. (kN) | Swivel Load Saddle | Locking U-Rings |        |        |        |         | Set Model Number       | Locking U-Ring Sets Include: |        |        |   |                        |        |         |        |        |
|-----------|--------------------|-----------------|--------|--------|--------|---------|------------------------|------------------------------|--------|--------|---|------------------------|--------|---------|--------|--------|
|           |                    | 25 mm           | 76 mm  | 114 mm | 140 mm | 254 mm  |                        | Quantity & model numbers     |        |        |   |                        |        |         |        |        |
| 533       | PRTS60             | PRU11           | PRU13  | PRU14  | -      | PRU110  | <sup>1)</sup> PRUS126  | PRU11                        | PRU13  | PRU14  | - | <sup>2)</sup> PRUS137  | PRU11  | PRU13   | PRU14  | PRU110 |
| 889       | PRTS60             | PRU11           | PRU13  | PRU14  | -      | PRU110  | <sup>1)</sup> PRUS126  | PRU11                        | PRU13  | PRU14  | - | <sup>2)</sup> PRUS137  | PRU11  | PRU13   | PRU14  | PRU110 |
| 1333      | PRTS150            | PRU151          | PRU153 | -      | PRU155 | PRU1510 | <sup>3)</sup> PRUS1526 | PRU151                       | PRU153 | PRU155 | - | <sup>2)</sup> PRUS1537 | PRU151 | PRU1510 | PRU155 | -      |
| 1778      | PRTS200            | PRU201          | PRU203 | -      | PRU205 | PRU2010 | <sup>3)</sup> PRUS2026 | PRU201                       | PRU203 | PRU205 | - | <sup>2)</sup> PRUS2037 | PRU201 | PRU2010 | PRU205 | -      |

<sup>1)</sup> For 356 mm and 406 mm stroke models

<sup>2)</sup> For 686 mm stroke models

<sup>3)</sup> For 394 mm stroke models.



### WARNING!

**Extensions:** Any two extensions may be stacked for loads up to 54 ton. For loads over 54 ton or strokes over 356 mm only one extension and one spacer can be used.

**Spacers:** Never exceed 76 mm in total spacer height.

| Model Number with Air Pump | (kg) | A (mm) | B (mm) | C (mm) | D (mm) | Max. Additional Stack Height Using Optional Extension (mm) | Valve Type |
|----------------------------|------|--------|--------|--------|--------|--|------------|
| PRAMA06014L                | 177  | 610    | 162    | 356    | 102    | 813*   | Manual     |
| PRAMA06027L                | 272  | 940    | 162    | 356    | 102    | 279  |            |
| PRAMA10016L                | 231  | 660    | 178    | 457    | 102    | 533**  |            |
| PRAMA10027L                | 272  | 940    | 178    | 457    | 102    | 279  |            |
| PRASA10016L                | 231  | 660    | 178    | 457    | 102    | 533**  | Pneumatic  |
| PRASA10027L                | 272  | 940    | 178    | 457    | 102    | 279  |            |
| PRASA15016L                | 258  | 660    | 203    | 457    | 127    | 533**  |            |
| PRASA15027L                | 321  | 940    | 203    | 457    | 127    | 279  | Manual     |
| -                          | -    | 660    | 203    | 457    | 127    | 533**  |            |
| -                          | -    | 940    | 203    | 457    | 127    | 279  | Pneumatic  |
| PRASA20016L                | 290  | 660    | 241    | 508    | 165    | 533**  |            |
| PRASA20027L                | 374  | 940    | 241    | 508    | 165    | 279  |            |

\* Based on one 457 mm and one 279 mm extension and one 76 mm spacer.

\*\* Based on one 457 mm extension and one 76 mm spacer.

For power source, the following characters should be inserted in the 5th space of the model number.

### Ordering Example:

**Model No. PREME06014L** is a 356 mm stroke, 54 ton model, with a manual valve and a 230 VAC, 1-ph, 50 Hz electric motor.

**A** Air Pump, 1416 l/min air consumption at 5,5 bar

**B** 115 VAC, 1-ph., 50-60 Hz, 20 A

**E** 208-240 VAC, 1-ph., 50-60 Hz, Euro Plug, 10 A

**I** 208-240 VAC, 1-ph., 50-60 Hz, USA Plug, 10 A

**G** <sup>1)</sup> 208-240 VAC, 3-ph., 50-60 Hz

**W** <sup>1)</sup> 380-415 VAC, 3-ph., 50-60 Hz

**J** <sup>1)</sup> 440-480 VAC, 3-ph., 50-60 Hz

**R** <sup>1)</sup> 575 VAC, 3-ph., 50-60 Hz.

<sup>1)</sup> Not available for 54 ton capacity.

▼ Shown: PL20025-ASA and PL20014-ASA



- Provides continuous locking protection during lift, lower and hold functions
- Patent-pending control technology synchronizes cylinder and lock nut for smooth and efficient lifting and lowering
- Unique double-acting cylinder offers a low collapsed height to accommodate more lifting applications
- Simple 2-button pendant allows operation of raise and lower functions from up to 6,1 metres away
- All load-bearing cylinder components have a nitrocarburized treatment to improve wear characteristics and resist corrosion
- Ergonomic handle has six positions for comfortable handling and folds when not in use
- Meets ANSI/ASME B30.1-2015, AS/NZS-2538, AS/NZS-2693 certification criteria.



## Efficient Lifting with Continuous Automatic Load Locking



### POW'R-LOCK™ Self-Locking Lift System

Only the POW'R-LOCK™ Lift System provides continuous positive locking of the load through all stages of lifting and lowering. No operator intervention is required to activate or de-activate the automatic locking system.

Two different stroke lengths are available. Both models are powered by an external compressed air system (user-supplied).

A convenient two-button pendant controls operation of the Lift System's air motor and directional control valve.



### Tilt Load Cap

All POW'R-LOCK™ Lift System models feature a Tilt Load Cap to reduce side-loading.



### Safety First

When lifting large, heavy vehicles certain precautions must be followed. Follow your published safety directions for lifting and cribbing your loads. The Pow'R-LOCK™ Lift System provides load/lock protection, but you must follow the safety directions for load cribbing operations.

◀ The PL-Series POW'R-LOCK™ Portable Lift System.

# POW'R-LOCK™ Mobile Lift System



## Accessories

**Flat Load Cap** – Non-tilt load cap has lower profile for tight lifting spaces.

**Spacers** – Minimize gap between load cap and lifting point to maximize hydraulic stroke of the jack.

**Extensions** – Stackable, with large alloy steel locating studs to resist effects of side-loading.

**Extension Base Adapter** – Extension Base Adapter design eliminates risk of improper stacking when using more than one extension.

## PL Series



Rated Lifting Capacity:

**181 ton**

Stroke:

**356 - 622 mm**

Maximum Operating Pressure:

**700 bar**

| Model Number | Description            | Height (mm) | PL20014-ASA | PL20025-ASA |
|--------------|------------------------|-------------|-------------|-------------|
| <b>PLC1</b>  | Flat Load Cap          | 34          | x           | x           |
| <b>PLS1</b>  | Spacer                 | 26          | x           | x           |
| <b>PLS2</b>  | Spacer                 | 51          | x           | x           |
| <b>PLE5</b>  | Extension              | 127         | x           | x           |
|              | <b>PLE7</b>            | Extension   | 178         | x           |
|              | <b>PLE9</b>            | Extension   | 229         | x           |
|              | <b>PLE11</b>           | Extension   | 280         | x           |
| <b>PLE14</b> | Extension              | 356         | x           | -           |
| <b>PLB12</b> | Extension base adapter | 305         | x           | -           |

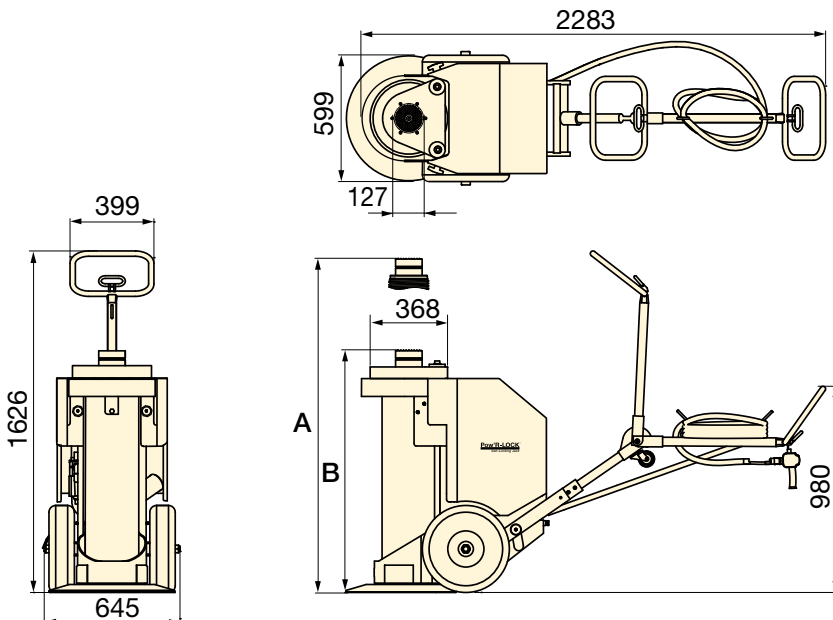


### WARNING!

**PLE11** and **PLE14** Extensions and **PLB12** Extension Base Adapter are to be used with the "short" model **PL20014-ASA** only. Use of these extensions on the "tall" model **PL20025-ASA** will result in an excessive maximum lifting height. Load could become unstable and drop, resulting in possible personal injury and/or property damage.

| Model Number        | Maximum Additional Stack Height * |
|---------------------|-----------------------------------|
| <b>PLS20014-ASA</b> | 712 mm                            |
| <b>PLS20025-ASA</b> | 229 mm                            |

\* Using optional PLB and PLE-Series extensions and PLS-Series spacers. Load cap height is NOT included in the stack height.



### PR-Series, POW'R-RISER® Mobile Lifting Jack

When automatic load-locking is not required, the POW'R-RISER® jack provides a mobile lifting solution.

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| Capacity<br>ton<br>(kN) | Stroke<br>(mm) | Model Nr.<br>with<br>Air Pump | Cylinder Lifting<br>Speed <sup>1)</sup><br>(mm/min) |         | Recommended<br>Air Supply <sup>2)</sup> |           | A <sup>3)</sup><br>(mm) | B <sup>3)</sup><br>(mm) | <br>(kg) |
|-------------------------|----------------|-------------------------------|---|---------|---|-----------|-------------------------|-------------------------|----------|
|                         |                |                               | Load  | No Load | (l/min)                                 | (bar)     |                         |                         |          |
| <b>181</b><br>(1779)    | 356            | <b>PL20014-ASA</b>            | 51  | 61      | 3681 -<br>4247                          | 3,8 - 6,9 | 1219                    | 864                     | 501      |
|                         | 622            | <b>PL20025-ASA</b>            | 51  | 61      |   |           | 1778                    | 1156                    | 599      |

<sup>1)</sup> Depending on available airflow, regulator setting, pump speed and load weight.

<sup>2)</sup> Minimum dynamic air pressure of 3,8-4,1 bar. 6,2-6,9 bar required to achieve 1779 kN capacity.

<sup>3)</sup> Height A and B are with Swivel Load Cap installed. Subtract 51 mm if flat load cap is used.

There's no substitute for experience in customizing hydraulic cylinders and Enerpac meets the needs of the most demanding applications.

Cylinders are the primary workhorse in hydraulic systems required to push or pull. Although Enerpac offers a wide variety of cylinders to fit many application requirements, there are many applications that require customization.

These may include special corrosion protection, ability to handle extreme side loads, or having special mounting needs.



◀ Large capacity, double-acting lock nut cylinders with an external lock ring used for bridge work.



◀ Double-acting cylinders with pilot-operated check valves and rod eyes on both ends for lifting and positioning applications.



◀ Custom private-label cylinders for OEM applications.

## Overview Custom Cylinders



▲ Custom 500 ton double-acting cylinders with 1,83 m stroke for lifting electric rope shovels.

### CUSTOMIZABLE FEATURES:

- Stroke
- Capacity
- Paint
- Pressure Rating
- Fitting
- Special Attachments
- Seals
- Imbedded Sensors
- Collapsed Height
- Rod Modifications
- Special Mounting
- Corrosion Resistance



### Custom Hydraulic Pumps

Enerpac offers a wide variety of hydraulic pumps for all your custom needs. Still, many applications require a customized pump to operate the system.



# Overview Enerpac Heavy Lifting Capabilities



336

## SFP-SERIES, SPLIT-FLOW PUMPS

The split-flow pump is an economical solution for multi-point controlled lifting applications. Split-Flow pumps distribute an equal amount of hydraulic oil to a maximum of 8 outlets.



340

## EVO-SERIES, SYNCHRONOUS LIFTING SYSTEMS

EVO-pumps: modular and multi-functional system to control 4, 8 or 12 lifting points. Network capability to link up to 48 lifting points with 4 EVO-units.



342

## SCJ-SERIES, SELF-LOCKING CUBE JACKS

Compact incremental lifting system with automated mechanical locking. Safe, more efficient alternative to the jack-and-pack method with wooden cribbing. Cube Jack utilizes base lifting frames and self-aligning, lightweight steel cribbing blocks.



346

## BLS-SERIES, CLIMBING JACKS

Double-acting stage lift cylinders with solid plunger design allows for a load to be lifted many times the stroke of the cylinder. The solution for incremental lifting.



348

## JS-SERIES, JACK-UP SYSTEMS

The jack up system is a custom developed multi-point incremental lifting system – synchronously lift and mechanically hold. A typical system setup includes four jack up units positioned under each corner of a load.



350

## HSL-SERIES, STRAND JACKS

Compact high capacity system for controlled lifting and lowering. Strand jack systems that provide fully controlled precise lifting.



352

## SHS, SHAS-SERIES, SYNCHOIST

High precision hoisting and load positioning systems to enhance a crane's capability. SHAS-Series, – Wireless remote control and integrated hydraulics.



354

## ML, SL, SBL-SERIES, HYDRAULIC GANTRIES

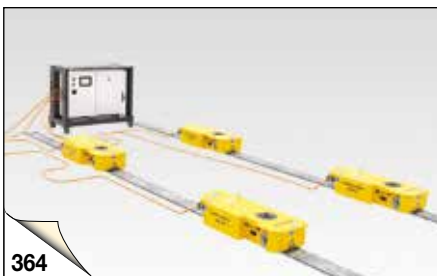
Telescopic hydraulic gantries are heavy lifting systems that offer control and stability, even in confined spaces. Wireless control system is included and offer superior safety and control for your most demanding lifting and rigging operations.



358

## HSK, LH-SERIES, SKIDDING SYSTEMS

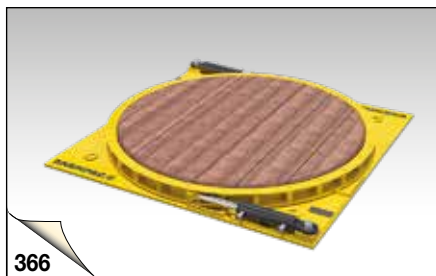
A system comprised of a series of skid-shoes powered by hydraulic push-pull cylinders, traveling over a pre-constructed track. LH-Series includes low-height skid beams that can fit in tight spaces while still offering high capacity.



364

## ETR-SERIES, ELECTRIC TROLLEY SYSTEMS

Safe & synchronized travel. The ETR-System is comprised of electrically-driven trolleys which can carry heavy loads along a fixed track system. The entire system is controlled by a hand held wireless control system.



366

## ETT-SERIES, HYDRAULIC TURNTABLES

Safe and controlled rotation. The ETT-Series is your solution for rotating heavy loads during, before or after a lifting and skidding operation.



367

## SPMT-SELF-PROPELLED MODULAR TRANSPORTER

A trailer with a slim design to transport large and heavy objects. Hydraulic strength in a linear drive transport system.



Enerpac hydraulic pumps are available in over 1000 different configurations. Whatever your high-pressure pump needs are... speed, control, intermittent or heavy duty cycle or pumps for multiple lift point capabilities and synchronous lifting systems, you will find an Enerpac pump suited to the application.

⑦ Featuring Hand, Battery, Electric, Air and Gasoline powered models, with multiple reservoir and valve configurations, Enerpac offers the most comprehensive pump line available.



### Pump Selection

For help in selecting the correct pump for your application, please view our 'Yellow Pages'. If you require further assistance, contact the Enerpac office located near you.

Page: **398**



### Torque Pumps

System matched air and electric pumps provide control to operate Enerpac Torque Wrenches.

Page: **265**



### Pumps for Multiple Lift Point Capabilities

The SFP-Series Split-Flow Pumps are an economical solution for multi-point controlled lifting and lowering applications and a far better alternative than using separately operated pumps.






















### Pumps for Synchronous Lifting Systems

The multi-functional EVO-Series lifting system to control 4, 8, 12 upto 48 lifting points.

Page: **335**



# Pumps and Directional Valves Section Overview

| Power Source   | Pump Types   | Maximum Reservoir Capacity (litres) | Max. Flow at Rated Pressure (l/min) | Maximum Power Consumption | Series        |   | Page  |
|--|--|-------------------------------------|-------------------------------------|---------------------------|---------------|---|-------|
| Manual   | <b>Lightweight Hand Pumps</b><br>Exclusively from Enerpac                      | 2,5                                 | 2,47<br>(cm <sup>3</sup> /stroke)   | –                         | P             |    | 76 ▶  |
|  | <b>ULTIMA Steel Hand Pumps</b>   | 7,4                                 | 4,75                                | –                         | P             |    | 78 ▶  |
|  | <b>Low Pressure Hand Pumps</b>   | 3,3                                 | 9,50                                | –                         | P             |    | 80 ▶  |
|  | <b>Multifluid Hand Pumps</b><br>Pumping Fluids up to 1000 bar                  | –                                   | 20,6<br>(cm <sup>3</sup> /stroke)   | –                         | MP            |    | 82 ▶  |
|  | <b>Foot Pump</b><br>For Hands Free Operation                                   | 0,5                                 | 2,47<br>(cm <sup>3</sup> /stroke)   | –                         | P             |    | 83 ▶  |
|  | <b>Ultra-High Pressure Hand Pumps</b><br>Pressure up to 2800 bar               | 1,0                                 | 2,49<br>(cm <sup>3</sup> /stroke)   | –                         | P, 11         |    | 84 ▶  |
| Electric   | <b>Battery Powered Hydraulic Pumps</b><br>Portable Cordless zero emission pump | 2,0                                 | 0,25                                | 0,37<br>(kW)              | XC            |    | 86 ▶  |
|  | <b>Battery Powered Hydraulic Pumps</b><br>Cordless, zero emission pump         | 8,0                                 | 0,52                                | 1,0<br>(kW)               | ZC            |    | 88 ▶  |
|  | <b>Economy Pump Series</b><br>Compact and Portable                             | 3,8                                 | 0,32                                | 0,37<br>(kW)              | PU            |   | 90 ▶  |
|  | <b>Z-Class Pumps, ZE2-Series</b><br>Durable, reliable, easy to use             | 6,8                                 | 0,27                                | 0,56<br>(kW)              | ZE2           |  | 92 ▶  |
|  | <b>E-Pulse® Hydraulic Pumps</b><br>High Productivity, Innovative Design        | 3,0                                 | 0,50                                | 0,63<br>(kW)              | E<br>E-Pulse® |  | 94 ▶  |
|  | <b>Z-Class Pumps</b><br>Portable Hydraulic Power                               | 39                                  | 1,0                                 | 1,25<br>(kW)              | ZU            |  | 98 ▶  |
|  | <b>Z-Class Pumps</b><br>Powerful and Heavy-Duty                                | 39                                  | 2,73                                | 5,60<br>(kW)              | ZE            |  | 104 ▶ |
| Air  | <b>Air Hydraulic Pumps</b><br>Single and Twin-Air Motor                        | 1,3                                 | 0,13                                | 255 (l/min)               | PA            |  | 110 ▶ |
|  |  | 8,0                                 | 0,15                                | 510 (l/min)               | PAM           |  | 111 ▶ |
|  | <b>Turbo II Air Hydraulic Pumps</b><br>Compact Air Over Hydraulic              | 5,0                                 | 0,16                                | 340<br>(l/min)            | PATG          |  | 112 ▶ |
|  | <b>Air Hydraulic Foot Pumps</b><br>For Productivity and Ergonomics             | 2,0                                 | 0,25                                | 991<br>(l/min)            | XA            |  | 114 ▶ |
|  | <b>Z-Class Air Hydraulic Pumps</b><br>Modular Air Pumps                        | 39                                  | 1,31                                | 2840<br>(l/min)           | ZA            |  | 116 ▶ |
| Gasoline   | <b>Z-Class Gasoline Hydraulic Pumps</b><br>Gas Powered High Flow Pumps         | 39                                  | 1,64                                | 4,8<br>(kW)               | ZG5           |  | 118 ▶ |
|  | <b>Z-Class Gasoline Hydraulic Pumps</b><br>Gas Powered High Flow Pumps         | 39                                  | 3,30                                | 9,7<br>(kW)               | ZG6           |  | 118 ▶ |
| <b>Directional Control Valves</b><br>Manual and Solenoid Valves, pump and remote mounted |  |                                     |                                     |                           | VM, VE<br>VC  |  | 121 ▶ |

▼ Shown from top to bottom: P802, P842, P202, P142



- Lightweight and compact design
- Durable glass-filled nylon reservoir and nylon encapsulated aluminium pump base for maximum corrosion resistance
- Two-speed operation reduces handle strokes by as much as 78% over single speed pumps
- Lower handle effort to minimize operator fatigue
- Integral 4-way valve on P842 for operation of double-acting cylinders
- Handle lock and lightweight construction for easy carrying
- Large oil capacities to power a wide range of cylinders or tools
- Non-conductive fiberglass handle for improved operator safety
- Internal pressure relief valve for overload protection.

▼ Cylinder-pump set SCR254H used to support the construction while monitoring pressure and load with the gauge.



## Exclusively from Enerpac



### Cylinder Matching Chart

For help in selecting the correct hand pump for your application, please refer to the Cylinder Matching Chart located in the 'Yellow Pages'.

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### Speed Chart

To determine how a specific pump will operate your cylinder, see the Pump-Cylinder Speed Chart in the 'Yellow Pages'.

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### Tank Kits:

When a return-to-tank port is required, the Tank Kits provide a 7/16"-20 UN port at the rear of the reservoir.

|      |                       |
|------|-----------------------|
| PC20 | Fits P141, P142       |
| PC25 | Fits P202, P391, P392 |



### Power Box

Portable tool box with P392 hand pump, gauge adaptor assembly, hose and RC-, RCS, RSM-or WR-Serie cylinder.

Page: 65

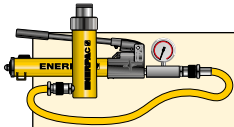
| Pump Type    | Usable Oil Capacity<br>(cm <sup>3</sup> ) | Model Number       | Pressure Rating <sup>2)</sup><br>(bar) |                       | Oil Displacement per Stroke<br>(cm <sup>3</sup> ) |                       | Max. Handle Effort<br>(kg) |
|--------------|---|--------------------|--|-----------------------|---|-----------------------|----------------------------|
|              |   |                    | 1 <sup>st</sup> stage                  | 2 <sup>nd</sup> stage | 1 <sup>st</sup> stage                             | 2 <sup>nd</sup> stage |                            |
| Single-Speed | 327                                       | P141               | -                                      | 700                   | -   | 0,90                  | 32,7                       |
|              | 901                                       | P391               | -                                      | 700                   | -   | 2,47                  | 38,6                       |
| Two-Speed    | 327                                       | P142 <sup>1)</sup> | 13                                     | 700                   | 3,62  | 0,90                  | 35,4                       |
|              | 901                                       | P202               | 13                                     | 700                   | 3,62  | 0,90                  | 28,6                       |
|              | 901                                       | P392 <sup>1)</sup> | 13                                     | 700                   | 11,26   | 2,47                  | 42,2                       |
|              | 2540                                      | P802               | 27                                     | 700                   | 39,33   | 2,47                  | 43,1                       |
|              | 2540                                      | P842 <sup>3)</sup> | 27                                     | 700                   | 39,33   | 2,47                  | 43,1                       |

<sup>1)</sup> Available as set, see note on next page. P392 also available in Power Box Set (page 65).

<sup>2)</sup> Contact Enerpac for applications where operating pressure is less than 10% of pressure rating.

<sup>3)</sup> P842 for use with double-acting cylinders

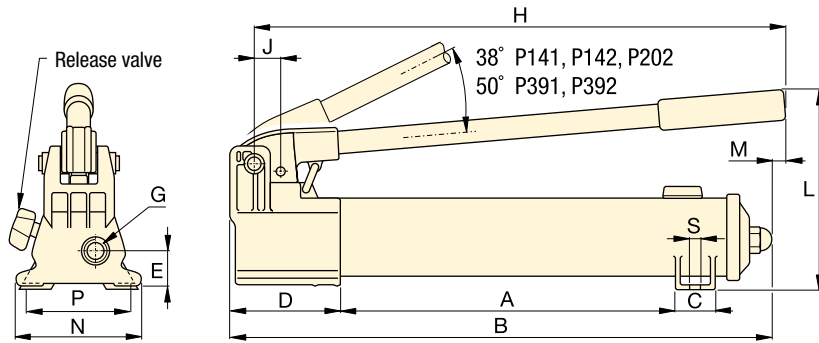
# Lightweight Hand Pumps



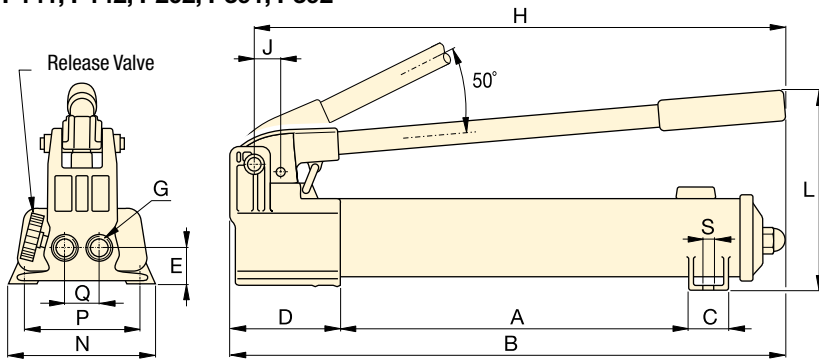
## Pump-Cylinder Sets

All pumps marked with an \* are available as sets (pump, cylinder, gauge, couplers and hose) for your ordering convenience.

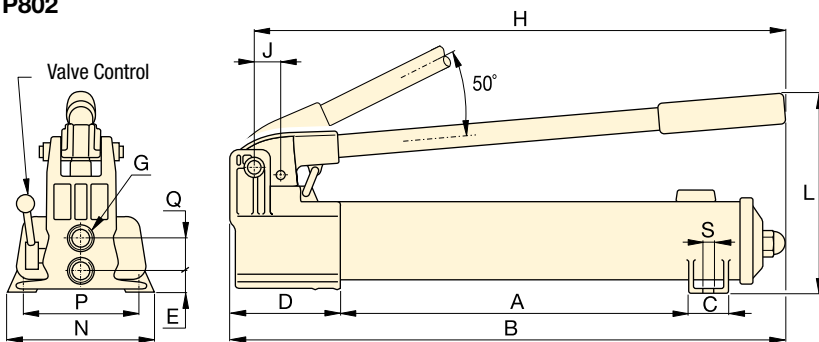
Page: 62



P141, P142, P202, P391, P392



P802



P842

## P Series



Reservoir Capacity:

**327 - 2540 cm<sup>3</sup>**

Flow at Rated Pressure:

**0,90 - 2,47 cm<sup>3</sup>/stroke**

Operating Pressure:

**700 bar**



### Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

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### GA45GC Gauge Adaptor

Protect yourself from system overloading by simply ordering one part number for a pre-assembled gauge, adaptor block and coupler.

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### Foot Pump P392FP

For handsfree operation the lightweight and robust P392FP Foot Pump is the perfect choice.

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| Piston Stroke | Dimensions (mm) |     |    |     |    |              |     |    |     |    |     |     |    |    |      | Model Number       |
|---------------|-----------------|-----|----|-----|----|--------------|-----|----|-----|----|-----|-----|----|----|------|--------------------|
|               | (mm)            | A   | B  | C   | D  | E            | G   | H  | J   | L  | M   | N   | P  | Q  | S    |                    |
| 12,7          | 185             | 336 | 28 | 85  | 28 | 1/4"-18 NPTF | 319 | 19 | 143 | -  | 95  | 80  | -  | 7  | 2,4  | P141               |
| 25,4          | 344             | 533 | 36 | 99  | 33 | 3/8"-18 NPTF | 522 | 30 | 177 | 16 | 120 | -   | -  | -  | 4,1  | P391               |
| 12,7          | 185             | 336 | 28 | 85  | 28 | 1/4"-18 NPTF | 319 | 19 | 143 | -  | 95  | 80  | -  | 7  | 2,4  | P142 <sup>1)</sup> |
| 12,7          | 344             | 509 | 36 | 85  | 28 | 1/4"-18 NPTF | 400 | 19 | 144 | 16 | 95  | -   | -  | -  | 3,4  | P202               |
| 25,4          | 344             | 533 | 36 | 99  | 33 | 3/8"-18 NPTF | 522 | 30 | 177 | 16 | 120 | -   | -  | -  | 4,1  | P392 <sup>1)</sup> |
| 25,4          | 337             | 552 | 45 | 133 | 35 | 3/8"-18 NPTF | 527 | 30 | 228 | -  | 181 | 153 | 35 | 10 | 8,2  | P802               |
| 25,4          | 337             | 552 | 45 | 133 | 20 | 3/8"-18 NPTF | 527 | 30 | 228 | -  | 181 | 153 | 36 | 10 | 10,0 | P842 <sup>3)</sup> |



▼ Shown from left to right: P77, P80, P84, P801, P39



- Reduced handle effort and ergonomic grip for less operator fatigue
- Two-speed operation for fast and easy operation (except P39)
- Vent free reservoir eliminates spills
- Quick grip handle allows for easy transport
- Integral reservoir over-pressurization protection
- All steel construction, chrome plated plunger and wiper system for durable, long lasting performance
- 4-way valving on the P84 and P464 for operation of double-acting cylinders.

▼ In the absence of a power supply, the P80 Hand Pump offers a powerful solution.



## The Solution for Tough Jobs



### Two Speed Pumps

Recommended for applications where cylinder plunger must advance rapidly to load contact, and applications where greater oil capacities are required, such as multiple cylinder hook-ups.



### Foot Pump Conversion Kits

Convert your P39, P77, P80 or P801 to foot power with the PC11 Kit. Includes instructions for easy conversion.



### GA45GC Gauge Adaptor

Protect yourself from system overloading by simply ordering one part number for a pre-assembled gauge, adaptor block and coupler.

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### 4-Way Control Valve

P84 and P464 feature a manual 4-way control valve, designed for use with one double-acting or two single-acting cylinders. For system

set-up information:

Page: 400

| Pump Type | Usable Oil Capacity<br>(cm <sup>3</sup> ) | Model Number       | Pressure Rating <sup>2)</sup><br>(bar) |                       | Oil Displacement per Stroke<br>(cm <sup>3</sup> ) |                       | Max. Handle Effort<br>(kg) |
|-----------|---|--------------------|--|-----------------------|---|-----------------------|----------------------------|
|           |   |                    | 1 <sup>st</sup> stage                  | 2 <sup>nd</sup> stage | 1 <sup>st</sup> stage                             | 2 <sup>nd</sup> stage |                            |
| Single    | 672                                       | P39                | -                                      | 700                   | -   | 2,46                  | 39                         |
| Two-Speed | 672                                       | P77                | 34                                     | 700                   | 16,39   | 2,46                  | 40                         |
|           | 2200                                      | P80 <sup>1)</sup>  | 34                                     | 700                   | 16,39   | 2,46                  | 35                         |
|           | 4100                                      | P801               | 34                                     | 700                   | 16,39   | 2,46                  | 35                         |
|           | 2200                                      | P84 <sup>3)</sup>  | 34                                     | 700                   | 16,39   | 2,46                  | 35                         |
|           | 7423                                      | P462               | 14                                     | 700                   | 126,20  | 4,75                  | 49                         |
|           | 7423                                      | P464 <sup>3)</sup> | 14                                     | 700                   | 126,20  | 4,75                  | 49                         |

<sup>1)</sup> Available as a set, see note on next page.

<sup>2)</sup> Contact Enerpac for applications where operating pressure is less than 10% of pressure rating.

<sup>3)</sup> P84 and P464 are for use with double-acting cylinders.



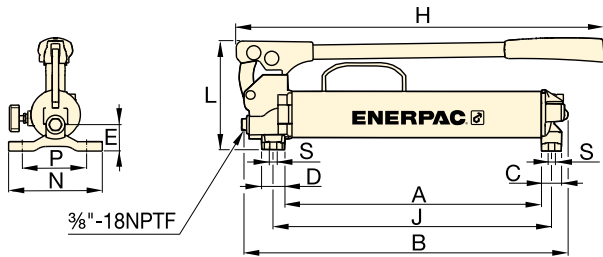
# ULTIMA Steel Hand Pumps



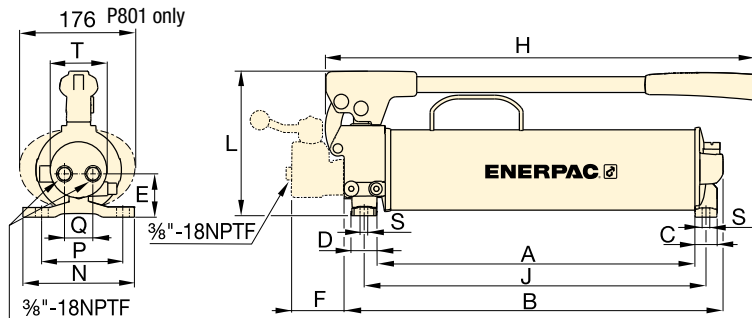
## Speed Chart

To determine how a specific pump will operate your cylinder, see the Pump-Cylinder Speed Chart in the 'Yellow Pages'.

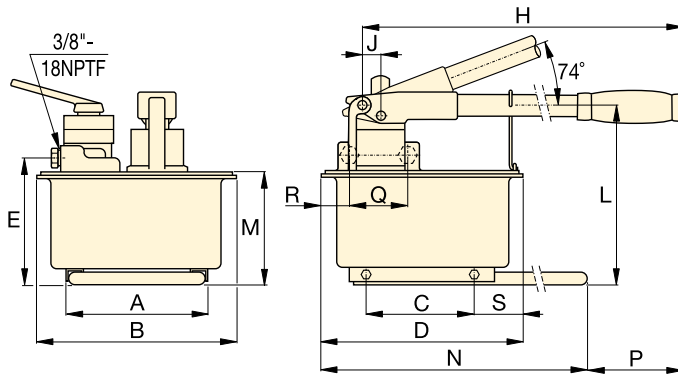
Page: 405



P39, P77



P80, P801, P84



P462, P464

## P Series



Reservoir Capacity:

**672 - 7423 cm<sup>3</sup>**

Flow at Rated Pressure:

**2,46 - 4,75 cm<sup>3</sup>/stroke**

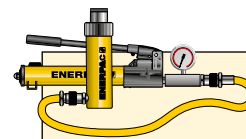
Maximum Operating Pressure:

**700 bar**



## Extra Capacity Hand Pumps

P462 and P464 feature extra large reservoirs and high first-stage flow rate. These pumps are ideally suited for powering high-capacity cylinders.



## Pump-Cylinder Sets

The P80 is also available as **complete set** (pump, cylinder, gauge, couplers and hose) for your ordering convenience.

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## Cylinder Matching Chart

For help in selecting the correct hand pump for your application, please refer to the Cylinder Matching Chart located in the 'Yellow Pages'.

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| Piston Stroke | Dimensions (mm) |     |     |     |     |    |     |     |     |     |     |     |    |    |     |    | Model Number |                          |
|---------------|-----------------|-----|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|----|----|-----|----|--------------|--------------------------|
|               | (mm)            | A   | B   | C   | D   | E  | F   | H   | J   | L   | M   | N   | P  | Q  | R   | S  |              | T                        |
| 25,4          | 383             | 480 | 30  | 35  | 37  | -  | 550 | 416 | 163 | -   | 140 | 111 | -  | -  | 8,4 | -  | 6,2          | <b>P39</b>               |
| 25,4          | 391             | 487 | 30  | 35  | 47  | -  | 550 | 424 | 163 | -   | 140 | 111 | -  | -  | 8,4 | -  | 7,1          | <b>P77</b>               |
| 25,4          | 428             | 511 | 30  | 35  | 55  | -  | 579 | 460 | 195 | -   | 150 | 121 | 42 | -  | 8,4 | 74 | 10,7         | <b>P80<sup>1)</sup></b>  |
| 25,4          | 428             | 511 | 30  | 35  | 55  | -  | 579 | 460 | 195 | -   | 150 | 121 | 42 | -  | 8,4 | 74 | 14,1         | <b>P801</b>              |
| 25,4          | 428             | 510 | 30  | 35  | 55  | 70 | 579 | 460 | 195 | -   | 150 | 121 | 38 | -  | 8,4 | 74 | 11,8         | <b>P84<sup>3)</sup></b>  |
| 38,1          | 210             | 308 | 163 | 320 | 195 | -  | 671 | 25  | 270 | 175 | 650 | 92  | -  | -  | 80  | -  | 27,7         | <b>P462</b>              |
| 38,1          | 210             | 308 | 163 | 320 | 195 | -  | 671 | 25  | 270 | 175 | 650 | 92  | 89 | 68 | 80  | -  | 27,7         | <b>P464<sup>3)</sup></b> |

▼ Shown from left to right: P25, P51, P18



## When Less Than 700 bar is All You Need

- P25 and P50 pump oil in both forward and reverse handle movement improving overall efficiency, ideal when mounting space is restricted
- External load-release valve
- Internal pressure-relief valve for overload protection
- For use with single-acting cylinders and tools
- P18 vertical operation requires pump head facing down
- P25 and P50 vertical operation requires pump vent side facing down
- P51 for horizontal operation only.



### GA45GC Gauge Adaptor

Protect yourself from system overloading by simply ordering one part number for a pre-assembled gauge, adaptor block and coupler.

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### Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

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▼ P18 hand pump used for locking the rotating table for marble polishing.



| Pump Type    | Usable Oil Capacity<br>(cm <sup>3</sup> ) | Model Number * | Pressure Rating<br>(bar) | Oil Displacement per Stroke<br>(cm <sup>3</sup> ) | Max. Handle Effort<br>(kg) |
|--------------|---|----------------|--------------------------|---|----------------------------|
| Single-Speed | 360                                       | <b>P18</b>     | 200                      | 2,46  | 16                         |
|              | 3277                                      | <b>P25</b>     | 175                      | 9,50  | 27                         |
|              | 3277                                      | <b>P50</b>     | 350                      | 4,75  | 27                         |
|              | 819                                       | <b>P51</b>     | 200                      | 4,10  | 27                         |

\* For use with single-acting cylinders and tools

# Low Pressure Hand Pumps

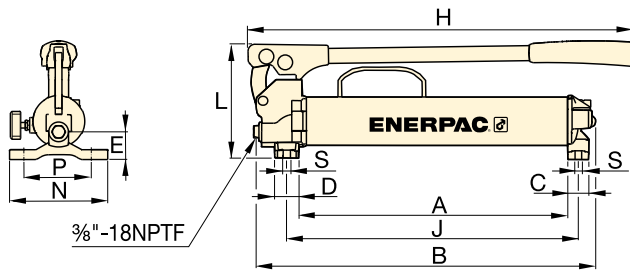
## P Series



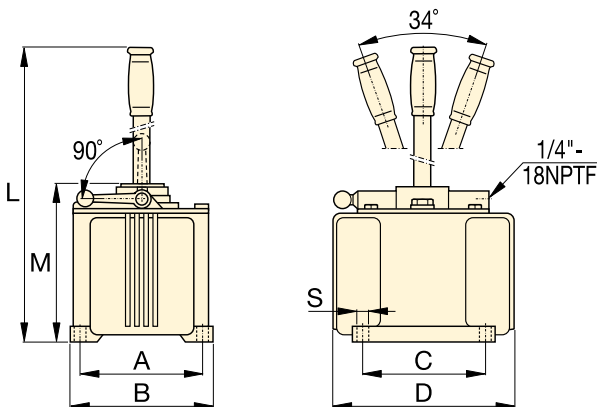
Reservoir Capacity:  
**360 - 3277 cm<sup>3</sup>**

Flow at Rated Pressure:  
**2,46 - 9,50 cm<sup>3</sup>/stroke**

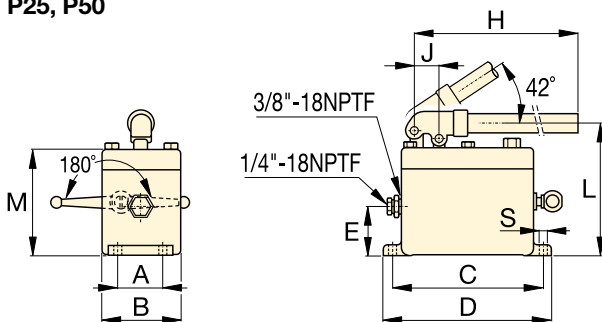
Maximum Operating Pressure:  
**175 - 350 bar**



**P18**



**P25, P50**



**P51**



### MP-Series Multifluid Hand Pumps

Corrosion resistant hand pumps for low pressure filling and high pressure testing applications, suitable for a wide range of fluids.

Page: 82

▼ P51 hand pumps used with RC-series cylinders to keep wooden layers under pressure during lamination of plates.



| Piston Stroke | Dimensions (mm) |     |     |     |    |     |     |     |     |     |     |      | Model Number * |
|---------------|-----------------|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|------|----------------|
|               | (mm)            | A   | B   | C   | D  | E   | H   | J   | L   | M   | N   | S    |                |
| 25,4          | 221             | 316 | 30  | 35  | 37 | 385 | 254 | 163 | -   | 140 | 8,4 | 5,0  | <b>P18</b>     |
| 38,1          | 152             | 173 | 152 | 240 | -  | -   | -   | 684 | 200 | -   | 10  | 16,3 | <b>P25</b>     |
| 38,1          | 152             | 173 | 152 | 240 | -  | -   | -   | 684 | 200 | -   | 10  | 16,8 | <b>P50</b>     |
| 25,4          | 52              | 92  | 181 | 200 | 57 | 610 | 29  | 160 | 129 | -   | 9   | 5,4  | <b>P51</b>     |

▼ MP110



- Superior corrosion resistance
- Standard Nitrile seals – can be used for a wide range of fluids such as demineralised water, oil/water emulsions, waterglycols, mineral oils
- Two speed pumps up to 1000 bar pressure
- Buna Nitrile seals can be exchanged with optional EPDM seal for use with Skydrol or brake fluids
- Impregnated aluminium anodized pump housing with stainless steel internal pumping components
- Externally adjustable pressure relief valve
- 1/4" NPTF gauge port
- For use with single-acting cylinders and tools.

## MP Series

Flow at Rated Pressure:

**1,6 - 20,6 cm<sup>3</sup>/stroke**

Maximum Operating Pressure:

**110 - 1000 bar**



### Optional Reservoir Kit

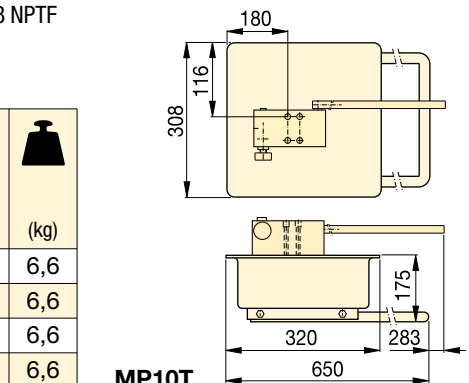
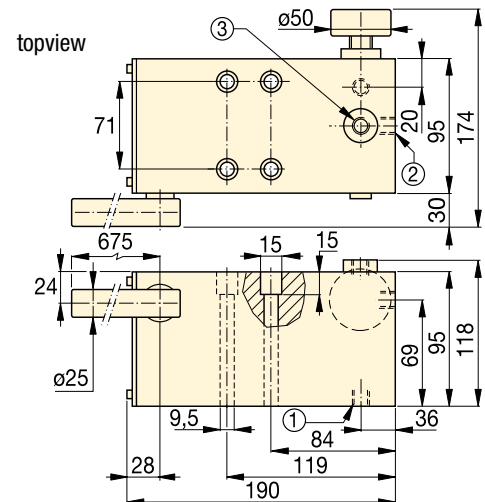
Includes 10 litres tank with skid frame, top plate with reservoir seal, suction pipe and mounting bolts. Useable oil capacity is 7,4 litres. Order modelnr.: **MP10T**.



### Stainless Steel Hand Pump

Also available as stainless steel hand pump, model number **11-400**.

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### MP110, 350, 700, 1000

- ① Suction / Tank return port 3/8"-18 NPTF
- ② Pressure port 3/8"-18 NPTF
- ③ Gauge port 1/4"-18 NPTF

| Pump Type | Usable Oil Capacity *<br>(cm <sup>3</sup> ) | Model Number ** | Pressure Rating (bar) |           | Oil Displacement per Stroke (cm <sup>3</sup> ) |           | Max. Handle Effort (kg) | Piston Stroke (mm) | Weight (kg) |
|-----------|---|-----------------|-----------------------|-----------|--|-----------|-------------------------|--------------------|-------------|
|           |   |                 | 1st stage             | 2nd stage | 1st stage                                      | 2nd stage |                         |                    |             |
| Two Speed | *   | <b>MP110</b>    | 35                    | 110       | 52,6   | 20,60     | 45                      | 27,1               | 6,6         |
|           | *   | <b>MP350</b>    | 35                    | 350       | 52,6   | 7,15      | 45                      | 27,1               | 6,6         |
|           | *   | <b>MP700</b>    | 35                    | 700       | 52,6   | 2,63      | 45                      | 27,1               | 6,6         |
|           | *   | <b>MP1000</b>   | 35                    | 1000      | 52,6   | 1,60      | 45                      | 27,1               | 6,6         |

\* MP-Pump includes 1,5 mm thick gasket for reservoir mounting. MP-Series pumps requires the use of an external reservoir.

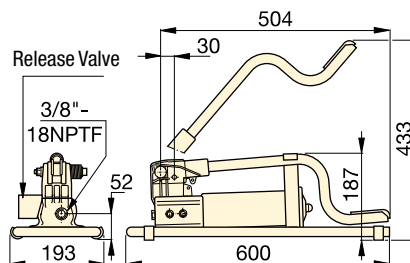
\*\* MP-Series pumps are for use with single-acting cylinders and tools.

# Lightweight Hydraulic Foot Pump

▼ P392FP



- **Robust, durable and compact**
  - Steel frame for maximum stability
  - Steel pumping handle
  - Aluminium reservoir
- **Foot pedal lock and lightweight construction for easy carrying**
- **Two-speed operation reduces foot pedal strokes**
- **Large foot-pedal release valve for controlling load descent**
- **Internal pressure relief valve for overload protection.**



| Usable Oil Capacity<br>(cm <sup>3</sup> ) | Model Number    | Pressure Rating (bar) |           | Oil Displacement per Stroke (cm <sup>3</sup> ) |           | Max. Handle Effort (kg) | Piston Stroke (mm) | Pump Weight (kg) |
|---|-----------------|-----------------------|-----------|--|-----------|-------------------------|--------------------|------------------|
|   |                 | 1st stage             | 2nd stage | 1st stage                                      | 2nd stage |                         |                    |                  |
| 492                                       | <b>P392FP</b> * | 15                    | 700       | 11,26  | 2,47      | 42                      | 25,4               | 7,0              |

\* Available as set, see note on this page.

## P Series



Reservoir Capacity:

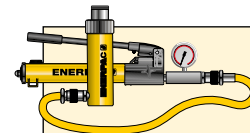
**492 cm<sup>3</sup>**

Flow at Rated Pressure:

**2,47 cm<sup>3</sup>/stroke**

Maximum Operating Pressure:

**700 bar**



### Pump-Cylinder Sets

The P392FP is available as **set** (pump, cylinder, gauge, couplers and hose) for your ordering convenience.

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### Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

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▼ P392FP offers the advantage of hands free operation to handle and control the tool or cylinder.





# P, 11-Series, Ultra-High Pressure Hand Pumps **ENERPAC**

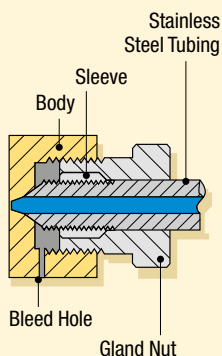
▼ Shown from left to right: 11-100, P2282



- Two-speed operation on the P2282 allows for faster fill operation, reducing cycle times for many testing applications
- 303 Stainless steel construction on the 11-100 and 11-400 models enable use with many different fluids, such as distilled water, diesters, silicones, soluble oils and petroleum
- Large release knob for improved control of pressure release
- Outlet ports are 3/4"-16 cone for 2800 bar rating
- Ultra-high pressure fittings feature all stainless steel construction except adaptor 41-366 which features nickel plated carbon steel construction.

## Cone Seal

Stainless Steel High Pressure fittings seal on a 'cone' surface and do not require pipe sealer. The Gland Nut holds the sleeve and tubing tight against the cone surface to provide a 2800 bar seal.



## Ultra-High Pressure up to 2800 bar



### 2-Way Shut-Off Valve Model Number 72-750

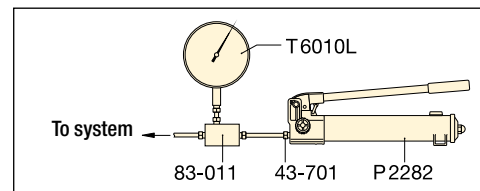
For 2800 bar applications requiring a shut-off valve or gauge snubber. Made of 318 Stainless Steel and utilizing .38 inch cone fittings, it is the perfect selection for use with your ultra-high pressure hand pump.



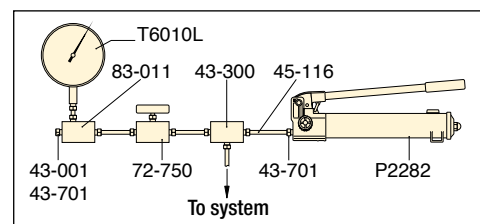
### Test System Gauges

Ideal for monitoring pressure in your hydraulic circuit. Test System Gauges, such as the T6010L, are available with cone threads or NPTF threads and a variety of pressure ranges.

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▲ Typical Test System



▲ Test System with Gauge and Snubber

| Pump Type    | Usable Oil Capacity (cm <sup>3</sup> ) | Model Number  | Pressure Rating * (bar) |                       | Oil Displacement per Stroke (cm <sup>3</sup> ) |                       | Max. Handle Effort (kg) |
|--------------|--|---------------|-------------------------|-----------------------|--|-----------------------|-------------------------|
|              |  |               | 1 <sup>st</sup> stage   | 2 <sup>nd</sup> stage | 1 <sup>st</sup> stage                          | 2 <sup>nd</sup> stage |                         |
| Two-Speed    | 983                                    | <b>P2282</b>  | 13                      | <b>2800</b>           | 16,22  | 0,61                  | 48,1                    |
| Single-Speed | 737                                    | <b>11-100</b> | -                       | <b>700</b>            | -  | 2,49                  | 54,4                    |
|              | 737                                    | <b>11-400</b> | -                       | <b>2800</b>           | -  | 0,62                  | 54,4                    |

\* Contact Enerpac for applications where operating pressure is less than 10% of operating pressure.

# Ultra-High Pressure Hand Pumps

## ▼ Optional Ultra-High Pressure Fittings and Tubings

| Description           | Connection   | Model Nr.                  |
|-----------------------|--|----------------------------|
| <b>2800 bar</b>       |  |                            |
| Gland Nut Plug        | .38" cone  | 43-001                     |
| Elbow                 | .38" cone  | 43-200                     |
| Tee                   | .38" cone  | 43-300                     |
| Gauge Tee             | .38" cone side/<br>.25" cone gauge port  | 43-301                     |
| Gauge Adaptor         | .38" cone side/<br>.25" cone gauge port  | 83-011                     |
| Coupling              | .38" cone  | 43-400                     |
| Cross                 | .38" cone  | 43-600                     |
| Gland Nut with Sleeve | .38" cone  | 43-701                     |
| Gauge Connector       | .25" cone  | 43-704                     |
| Tubing                | 100 mm tube, O.D. .38" *<br>200 mm tube, O.D. .38" *<br>300 mm tube, O.D. .38" * | 45-116<br>45-126<br>45-136 |
| <b>700 bar only</b>   |  |                            |
| Adaptor               | .38" F cone to 1/4" M NPTF   | 41-146                     |
|                       | .38" F cone to 3/8" M NPTF   | 41-166                     |
| Adaptor               | .38" F cone to 1/4" F NPTF   | 41-246                     |
|                       | .38" F cone to 3/8" F NPTF   | 41-266                     |
| Adaptor               | .38" M cone to 3/8" F NPTF   | 41-366                     |

Note: .25" cone fittings use 9/16"-18 threads, 3/8" cone fittings use 3/4"-16 threads.  
\* Actual tubing lengths are 19 mm less than nominal size shown. These dimensions make distance between centers of valves and fittings multiples of 100 mm spaces.

## P 11 Series



Reservoir Capacity:  
**737 - 983 cm<sup>3</sup>**

Flow at Rated Pressure:  
**0,61 - 2,49 cm<sup>3</sup>/stroke**

Maximum Operating Pressure:  
**700 - 2800 bar**



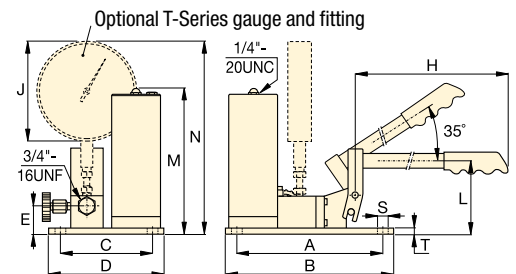
**Ultra-High Pressure pumps DO NOT have an internal safety pressure relief valve.**



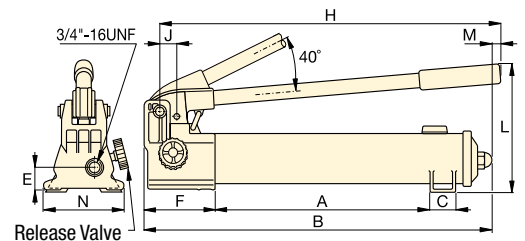
### Stainless Steel Construction

Ultra-high Pressure Fittings feature all stainless steel construction except adaptor **41-366**, which features nickel plated carbon steel construction.

11-100  
11-400



P2282



| Piston Stroke | Dimensions (mm) |     |     |     |    |     |     |     |     |     |     |   |   |      | Model Number |
|---------------|-----------------|-----|-----|-----|----|-----|-----|-----|-----|-----|-----|---|---|------|--------------|
|               | (mm)            | A   | B   | C   | D  | E   | F   | H   | J   | L   | M   | N | S | T    |              |
| 25,4          | 344             | 558 | 35  | -   | 31 | 133 | 527 | 29  | 228 | 7   | 120 | - | - | 6,4  | P2282        |
| 19,8          | 240             | 266 | 151 | 177 | 45 | -   | 635 | 162 | 114 | 237 | 314 | 7 | 9 | 10,0 | 11-100       |
| 19,8          | 240             | 266 | 151 | 177 | 45 | -   | 635 | 162 | 114 | 237 | 314 | 7 | 9 | 10,0 | 11-400       |

▼ XC1201ME



- Cordless, zero emission pump
- Lightweight design with integrated handle and carrying strap for portability
- Bladder reservoir prevents contamination and allows pump usage in any position
- Powerful 0,37 kW motor and 28 Volt Lithium-Ion battery deliver exceptional speed and superior run time
- High-strength fiberglass reinforced composite shroud for superior durability in demanding job site environments
- Cordless technology eliminates tripping hazards found in other electric or air powered pumps
- Three valve options for single- and double-acting cylinders: 3-way/2-position, 4-way/3-position or Dump & Hold
- Also available as torque pumps.



## Performance of a Powered Pump Portability of a Hand Pump



### Interactive Pendant on XC-1302S Models

Available only on **XC1302S** pump models. The interactive pendant allows user to easily toggle from "jog operation" to "dump system pressure" with a push of a button. (Cord length is 3 metres).



### 28-Volt Battery

The **XC28V** with Lithium-Ion technology for maximum battery performance and superior run time.



### Roll Cage

Optional Roll Cage XC-Series pumps. Please order model number **XCRCTK**.



### GA45GC Gauge Adaptor Assembly

Protect yourself from system overloading by simply ordering one part number for a pre-assembled gauge, adaptor block and coupler.

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◀ Portable power and simplicity for the toughest jobs.



## XC-Series Cordless Pumps

The XC-Series cordless pump is ideal for jobs that require a combination of portability, speed, and safety. These cordless pumps are perfect for remote locations without access to power, but also indoors where trip hazards, ergonomics or size is a concern.

The XC-Series cordless pump is compatible with all Enerpac hydraulic tools and small to medium sized cylinders. The XC-Series cordless pump is CSA and CE compliant.

## Lithium-Ion battery for superior run time:

- 279 cuts of 10 mm reinforcing bar using a WHC750 Cutter
- 112 lifts with a WR5 Spreader
- 44 splits on M27 - 8.8 nuts using a NC3241 Nut Cutter
- 28 times lifting with a RC104 cylinder (10 ton, 100 mm stroke).

Note: Actual number of cycles per charge will vary depending on condition of battery, tool and ambient conditions. Battery life with double-acting tools is approximately 75% of that for comparable, single-acting tools.



## XC Series

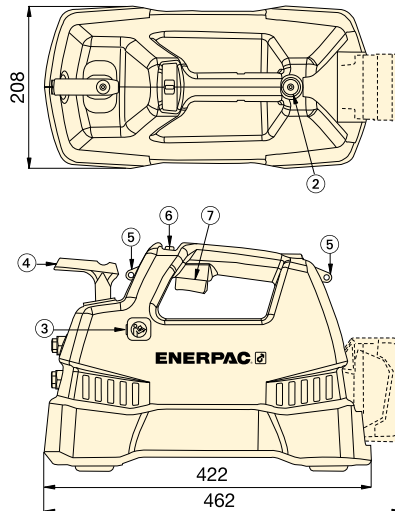
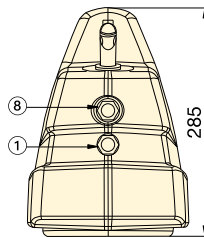


Reservoir Capacity:  
**1,0 - 2,0 litres**

Flow at Rated Pressure:  
**0,25 l/min**

Maximum Operating Pressure:  
**700 bar**

- ① Outlet "Advance" Port 3/8"-18 NPTF
- ② Oil Fill (must use funnel)
- ③ User Adjustable Relief Valve Access Port
- ④ Directional Control Valve
- ⑤ Shoulder Strap Connection Points
- ⑥ Safety Lock Feature
- ⑦ On/Off Switch
- ⑧ Inlet "Retract" Port (double-acting models only)

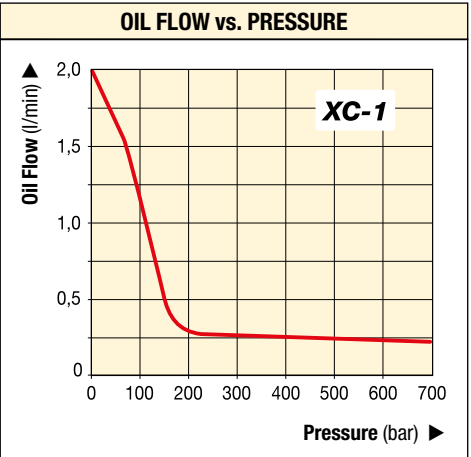


### ▼ SELECTION CHART

| Pump Type<br>(Used with cylinder) | Useable Oil Capacity<br>(litres) | Model Number           | Output Flow Rate<br>(l/min) |         |         | Valve Function | Charger Voltage<br>(VAC) | Weight<br>(kg) |
|-----------------------------------|----------------------------------|------------------------|-----------------------------|---------|---------|----------------|--------------------------|----------------|
|                                   |                                  |                        | No Load                     | 140 bar | 700 bar |                |                          |                |
| Single-Acting                     | 1,0                              | XC1201MB <sup>1)</sup> | 2,05                        | 0,49    | 0,25    | 3-way, 2-pos.  | 115                      | 10,0           |
|                                   | 2,0                              | XC1202MB               | 2,05                        | 0,49    | 0,25    | 3-way, 2-pos.  | 115                      | 11,0           |
|                                   | 1,0                              | XC1201ME <sup>1)</sup> | 2,05                        | 0,49    | 0,25    | 3-way, 2-pos.  | 230                      | 10,0           |
|                                   | 2,0                              | XC1202ME               | 2,05                        | 0,49    | 0,25    | 3-way, 2-pos.  | 230                      | 11,0           |
|                                   | 1,0                              | XC1201M <sup>2)</sup>  | 2,05                        | 0,49    | 0,25    | 3-way, 2-pos.  | –                        | 10,0           |
|                                   | 2,0                              | XC1202M <sup>2)</sup>  | 2,05                        | 0,49    | 0,25    | 3-way, 2-pos.  | –                        | 11,0           |
| Single-Acting                     | 2,0                              | XC1302SB               | 2,05                        | 0,49    | 0,25    | Dump and Hold  | 115                      | 11,4           |
|                                   | 2,0                              | XC1302SE               | 2,05                        | 0,49    | 0,25    | Dump and Hold  | 230                      | 11,4           |
|                                   | 2,0                              | XC1302S <sup>2)</sup>  | 2,05                        | 0,49    | 0,25    | Dump and Hold  | –                        | 10,2           |
| Double-Acting                     | 1,0                              | XC1401MB               | 2,05                        | 0,49    | 0,25    | 4-way, 3-pos.  | 115                      | 10,0           |
|                                   | 2,0                              | XC1402MB               | 2,05                        | 0,49    | 0,25    | 4-way, 3-pos.  | 115                      | 11,0           |
|                                   | 1,0                              | XC1401ME               | 2,05                        | 0,49    | 0,25    | 4-way, 3-pos.  | 230                      | 10,0           |
|                                   | 2,0                              | XC1402ME               | 2,05                        | 0,49    | 0,25    | 4-way, 3-pos.  | 230                      | 11,0           |
|                                   | 1,0                              | XC1401M <sup>2)</sup>  | 2,05                        | 0,49    | 0,25    | 4-way, 3-pos.  | –                        | 10,0           |
|                                   | 2,0                              | XC1402M <sup>2)</sup>  | 2,05                        | 0,49    | 0,25    | 4-way, 3-pos.  | –                        | 11,0           |

<sup>1)</sup> Available as a cylinder pump set, see page 62.

<sup>2)</sup> Batteries and charger not included.



▼ Take the battery pump anywhere without power cords or air hoses.





▼ ZC3308JE



## Productivity, Performance, Safety

- High-flow cordless solution saves users time and money by eliminating the need for using a generator and extension cords
- Brushless 1,0 kW motor and 3 stage pump maximizes pump and tool productivity while minimizing heat buildup and downtime
- The Lithium-Ion battery provides superior run time, even under extreme job site conditions
- Convenient 3 m pendant cord for hassle-free operation
- Reduced noise level 80 dBA max.
- Zero emission hydraulic power pack.

**Z** Tough.  
Dependable.  
Innovative.  
**CLASS**

## High-Performance Battery Power



### Charger \*

|         |               |
|---------|---------------|
| ZC115VC | 120 V - 60 Hz |
| ZC230VC | 230 V - 50 Hz |

### Battery \*\*

|            |            |
|------------|------------|
| ZC82V4NA   | 82 V, 4 Ah |
| ZC82V4EUAU | 82 V, 4 Ah |

\* 1-hour quick charger

\*\* NA is North America and EUAU is European and Australia.



### Gauges

Minimize the risk of overloading and ensure long, dependable service from your equipment. Refer to the System Components

Section for a full range of gauges.

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### Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only Enerpac

hydraulic hoses.

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◀ Special Enerpac ZC-Series Cordless Hydraulic Pump used for rail stressing applications (page 190).



## ZC-Series, Cordless Pumps

The Enerpac ZC-Series pump combines the performance of an electric pump with the convenience and portability of a battery pump. This quiet, cordless solution is ideal for applications where emission and noise are a concern, or when electricity or air is not readily available.

### The Lithium-Ion battery provides impressive run times

Power for the pump is supplied by a rechargeable 82V lithium-ion battery.

The lithium-ion battery is capable of providing impressive run times, even under extreme job site conditions.

- 50 times lifting with RC1006 cylinder (95 ton, 168 mm stroke)
- 90 times lifting with RC504 cylinder (50 ton, 101 mm stroke).

### Valve Options

- 4-way/3-position manual control valve used with double-acting cylinders
- 3-way/3-position manual control valve used with single-acting cylinders
- 4-way/3-position manual control valve with locking and power seat functions used in post tensioning concrete applications.

### Applications

- High-flow cordless solution for industrial applications
- Foundation repair
- Rail industry
- Post-tensioning concrete.

## ZC Series



Reservoir Capacity:

**8 litres**

Flow at Rated Pressure:

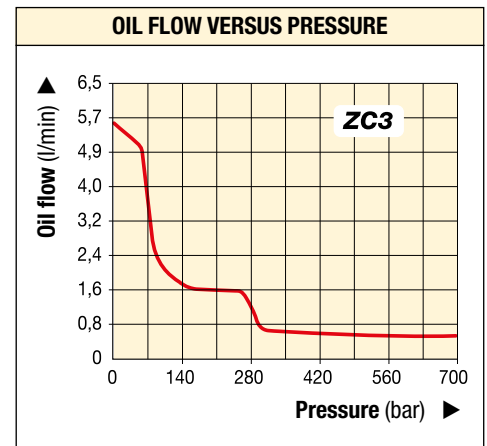
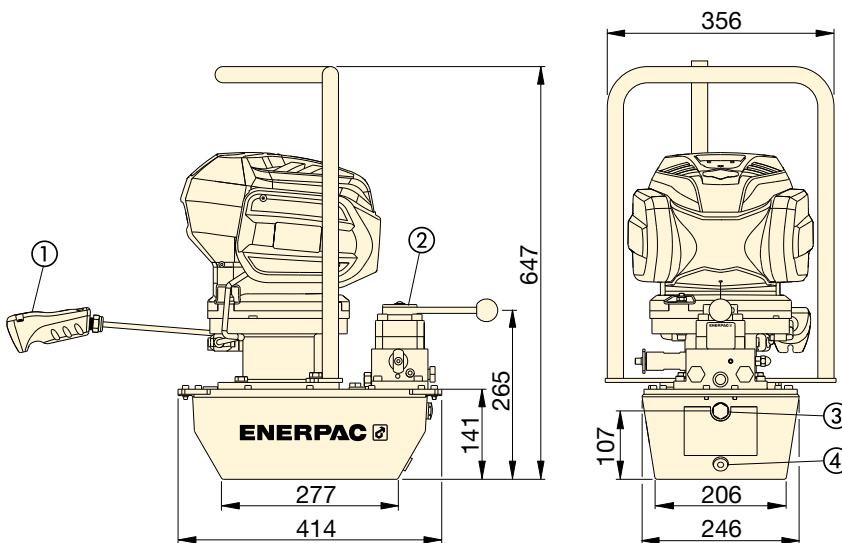
**0,52 l/min**

Motor Size:

**1,0 kW**

Maximum Operating Pressure:

**700 bar**



- ① Motor On/Off Remote Pendant
- ② VM43-LPS Valve Shown
- ③ Sight Glass
- ④ Oil Drain ½" NPTF

| Used for<br>Cylinder or Tools         | Useable<br>Oil<br>Capacity<br>(litres) | Manual<br>Valve<br>Model<br>Number | Valve Function          | Model<br>Number * | Output Flow Rate<br>(l/min) |           |           | Battery<br>Charger<br>Voltage<br>V - Hz | **<br>(kg) |
|---------------------------------------|--|------------------------------------|-------------------------|-------------------|-----------------------------|-----------|-----------|---|------------|
|                                       |  |                                    |                         |                   | < 70 bar                    | < 275 bar | < 700 bar |   |            |
| Single-Acting                         | 6,6                                    | VM33                               | Advance/Neutral/Retract | ZC3308JB          | 5,0                         | 1,3       | 0,52      | 115 - 60                                | 29,7       |
|                                       |  |                                    |                         | ZC3308JE          |                             |           |           | 230 - 50                                |            |
| Double-Acting                         | 6,6                                    | VM43                               | Advance/Neutral/Retract | ZC3408JB          | 5,0                         | 1,3       | 0,52      | 115 - 60                                | 29,7       |
|                                       |  |                                    |                         | ZC3408JE          |                             |           |           | 230 - 50                                |            |
| Power Seater<br>Post-Tensioning Tools | 6,6                                    | VM43LPS                            | Advance/Hold/Retract    | ZC3908JB          | 5,0                         | 1,3       | 0,52      | 115 - 60                                | 33,3       |
|                                       |  |                                    |                         | ZC3908JE          |                             |           |           | 230 - 50                                |            |

\* All models meet CE safety requirements and all TÜV requirements. Pump includes one charger and battery.

\*\* Weight including oil and battery. Battery weight = 2,6 kg.

▼ PUJ1200E



## Heavy on Performance, Light on Weight

- **Lightweight and compact design: 11,8 to 18,6 kg**
- **Large easy-carry handle for maximum portability**
- **Two-speed operation reduces cycle times for improved productivity**
- **230 VAC 50/60-cycle universal motor will operate under poor voltage supply**
- **24 VAC remote motor control, 3 m length for operator safety**
- **Starts under full load**
- **High strength molded shroud, with integral handle, protects motor from contamination and damage**
- **Designed for intermittent duty cycle.**

▼ An Economy Pump PUJ1200E is used with a low-height cylinder RCS302 to reposition a Scissor lift to simplify maintenance.



### Gauges

Minimize the risk of overloading and ensure long, dependable service from your equipment.

For use with the Economy pump the **G2535L** gauge and **GA3** gauge adaptor are suggested.

For a full range of gauges, please refer to the System Components section.

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### Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

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### Speed Chart

To determine how a specific pump will operate your cylinder, see the Pump-Cylinder Speed Chart in the 'Yellow Pages'.

Page: 405

| Pump Type<br><br>(Used with cylinder) | Usable Oil Capacity<br><br>(litres) | Model Number *  | Pressure Rating (bar) |                       |
|---------------------------------------|-------------------------------------|-----------------|-----------------------|-----------------------|
|                                       |                                     |                 | 1 <sup>st</sup> stage | 2 <sup>nd</sup> stage |
| Single-Acting                         | 1,9                                 | <b>PUD1100E</b> | 13                    | 700                   |
|                                       | 3,8                                 | <b>PUD1101E</b> | 13                    | 700                   |
|                                       | 1,9                                 | <b>PUJ1200E</b> | 13                    | 700                   |
|                                       | 3,8                                 | <b>PUJ1201E</b> | 13                    | 700                   |
|                                       | 1,9                                 | <b>PUD1300E</b> | 13                    | 700                   |
|                                       | 3,8                                 | <b>PUD1301E</b> | 13                    | 700                   |
| Double-Acting                         | 1,9                                 | <b>PUJ1400E</b> | 13                    | 700                   |
|                                       | 3,8                                 | <b>PUJ1401E</b> | 13                    | 700                   |

\* For 115 volt applications replace 'E' suffix with 'B'.

\*\* Electric dump valve for auto-retract of cylinders.



### About the Economy Pump

The Economy pump is best suited to power small to medium size cylinders or hydraulic tools. Its lightweight and compact design make it ideal for applications which require easy transport of the pump. The universal motor works well on long extension cords or generator-driven electrical power supplies.

For further application assistance refer to the 'Yellow Pages'.

#### PUD1100 Series

- Provides advance-retract of single-acting cylinders
- Ideal for punching applications
- For applications not requiring load holding
- 3 m cord with pendant controls motor and valve operation.

#### PUD1300 Series

- Provides advance-hold-retract of single-acting cylinders
- Ideal for applications requiring load-holding
- For applications requiring solenoid valve operations
- 3 m cord with pendant controls motor and valve operation.

#### PUJ-Series

- Manual valves provide advance-hold-retract tool operation
- Available with 3- and 4-way valves for single or double-acting cylinders
- 3 m cord with pendant controls the motor operation.



## PU Series



Reservoir Capacity:

**1,9 - 3,8 litres**

Flow at Rated Pressure:

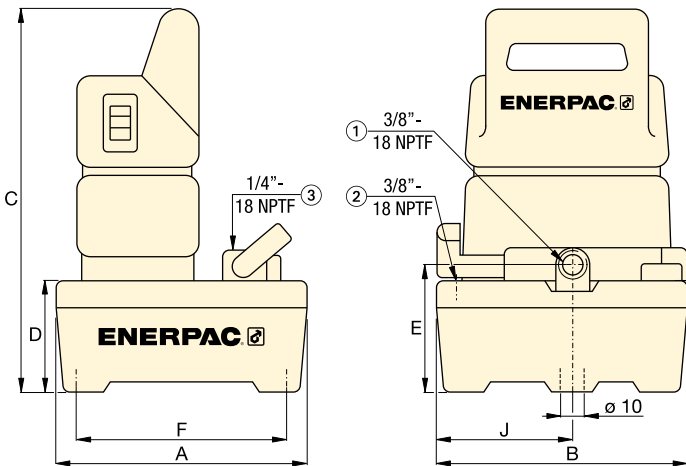
**0,32 l/min**

Motor Size:

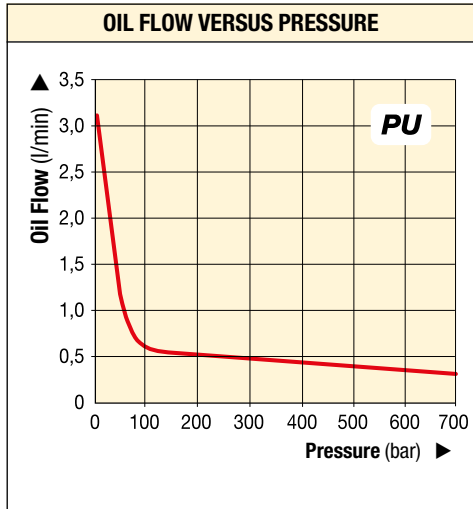
**0,37 kW**

Maximum Operating Pressure:

**700 bar**



- ① Oil Outlet Port
- ② Tank Port
- ③ Gauge Port (PUJ1200 and PUJ1201 models only)



| Output Flow Rate (l/min) |                       | Valve Type   | Valve Function        | Current Draw (Amps) | Motor Voltage (VAC) | Sound Level (dBA) | Dimensions (mm) |     |     |     |     |     |     | Model Number * |                 |
|--------------------------|-----------------------|--------------|-----------------------|---------------------|---------------------|-------------------|-----------------|-----|-----|-----|-----|-----|-----|----------------|-----------------|
| 1 <sup>st</sup> stage    | 2 <sup>nd</sup> stage |              |                       |                     |                     |                   | A               | B   | C   | D   | E   | F   | J   |                |                 |
| 3,31                     | 0,32                  | Dump**       | Advance/Retract       | 3,2                 | 230                 | 85                | 244             | 244 | 362 | 101 | 119 | 203 | 133 | 11,8           | <b>PUD1100E</b> |
| 3,31                     | 0,32                  |              |                       | 3,2                 | 230                 | 85                | 368             | 309 | 373 | 105 | 130 | 323 | 142 | 17,2           | <b>PUD1101E</b> |
| 3,31                     | 0,32                  | 3/2 manual   | Advance/ Hold/Retract | 3,2                 | 230                 | 85                | 244             | 244 | 362 | 101 | 119 | 203 | 133 | 10,0           | <b>PUJ1200E</b> |
| 3,31                     | 0,32                  |              |                       | 3,2                 | 230                 | 85                | 368             | 309 | 373 | 105 | 130 | 323 | 142 | 15,4           | <b>PUJ1201E</b> |
| 3,31                     | 0,32                  | 3/2 solenoid | Dump & Hold           | 3,2                 | 230                 | 85                | 244             | 244 | 362 | 101 | 119 | 203 | 133 | 12,0           | <b>PUD1300E</b> |
| 3,31                     | 0,32                  |              |                       | 3,2                 | 230                 | 85                | 368             | 309 | 373 | 105 | 130 | 323 | 142 | 17,5           | <b>PUD1301E</b> |
| 3,31                     | 0,32                  | 4/3 manual   | Advance/ Hold/Retract | 3,2                 | 230                 | 85                | 244             | 244 | 362 | 101 | 119 | 203 | 133 | 13,2           | <b>PUJ1400E</b> |
| 3,31                     | 0,32                  |              |                       | 3,2                 | 230                 | 85                | 368             | 309 | 373 | 105 | 130 | 323 | 142 | 18,6           | <b>PUJ1401E</b> |



▼ ZE2208ME, ZE2-Series, Electric Pump



- 0,56 kW induction motor for long life and quiet operation
- 71 to 79 dBA across the pressure range
- 6,8 liter, steel reservoir offers capacity and cool operation for wide range of applications
- IP54 protection
- Heavy duty bearings extend pump life by reducing heat, improving lubrication and reducing wear
- Replaceable piston check valves increase service life of major pump components
- VE32D solenoid dump valve model available
- Pendant and manual control options for ease of use.

## Durable, reliable, easy to use



### Gauges

Minimize the risk of overloading and ensure long, dependable service from your equipment. Refer to the System Components

Section for a full range of gauges.

Page: 127



### Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only Enerpac hydraulic hoses.

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### Speed Chart

To determine how a specific pump will operate your cylinder, see the Pump-Cylinder Speed Chart in the 'Yellow Pages'.

Page: 405





## ZE2-Series, Electric Pumps

The ZE2-Series is part of the proven Enerpac ZE-Series and utilizes many of the same design elements as the larger pumps in the family.

The 0,56 kW induction motor enables productive flow rates, long cycle life and quiet operation. Combined with the efficient, robust and easy to service pumping element the ZE2 is ideal for manufacturing and shop environments.

Multiple valve and control options provide the flexibility to match the pump to a wide range of pressing, punching and other operations.

Compare the ZE2 to the other pumps in the ZE-Series and determine the best pump for the application.

## ZE2 Series



Reservoir Capacity:

**6,8 litres**

Flow at Rated Pressure:

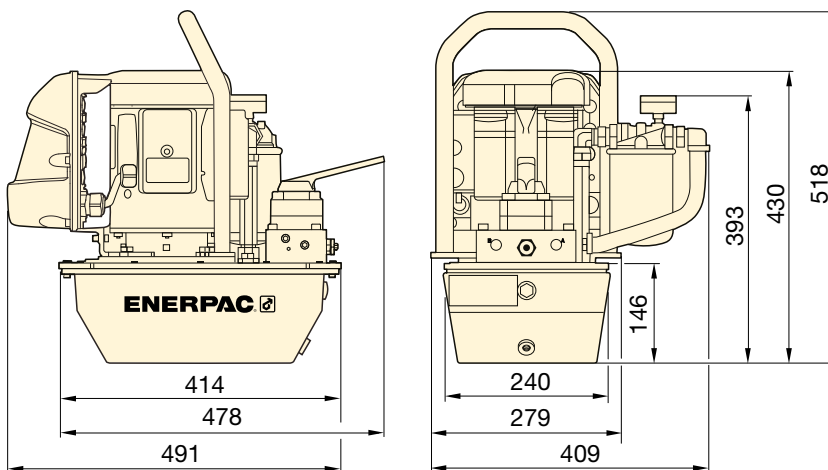
**0,27 l/min**

Motor Size:

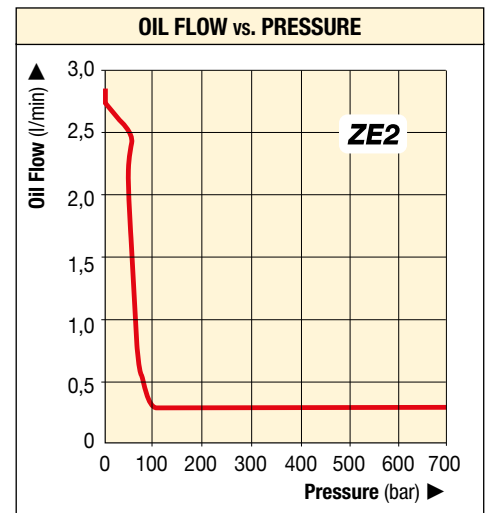
**0,56 kW**

Maximum Operating Pressure:

**700 bar**



ZE2 with Optional Return Line Filter



| Used with Cylinder * | Valve Hold Function | Useable Oil Capacity (Litres) | Model Number <sup>1)</sup> Two-Stage Pump | Oil Flow Rate at 50 Hz (l/min) |         | Valve Type | Valve Operation     | Motor Voltage (VAC) | Motor Size (kW) | Sound Level (dBA) | Weight (kg) |
|----------------------|---------------------|-------------------------------|---|--------------------------------|---------|------------|---------------------|---------------------|-----------------|-------------------|-------------|
|                      |                     |                               |   | 7 bar                          | 700 bar |            |                     |                     |                 |                   |             |
| S/A                  |                     | 6,8                           | <b>ZE2108DE (B, I)</b>                    | 2,7                            | 0,27    | VE32D      | Solenoid w/ Pendant | 230                 | 0,56            | 79                | 42,4        |
| S/A                  |                     | 6,8                           | <b>ZE2208ME (B, I) <sup>2)</sup></b>      | 2,7                            | 0,27    | VM32       | Manual w/o Pendant  | 230                 | 0,56            | 79                | 37,8        |
| S/A                  | •                   | 6,8                           | <b>ZE2308ME (B, I) <sup>2)</sup></b>      | 2,7                            | 0,27    | VM33       | Manual w/o Pendant  | 230                 | 0,56            | 79                | 38,3        |
| D/A                  | •                   | 6,8                           | <b>ZE2408ME (B, I) <sup>2)</sup></b>      | 2,7                            | 0,27    | VM43       | Manual w/o Pendant  | 230                 | 0,56            | 79                | 38,3        |
| S/A                  |                     | 6,8                           | <b>ZE2208PE (B, I)</b>                    | 2,7                            | 0,27    | VM32       | Manual w/ Pendant   | 230                 | 0,56            | 79                | 41,3        |
| S/A                  | •                   | 6,8                           | <b>ZE2308PE (B, I)</b>                    | 2,7                            | 0,27    | VM33       | Manual w/ Pendant   | 230                 | 0,56            | 79                | 41,7        |
| D/A                  | •                   | 6,8                           | <b>ZE2408PE (B, I)</b>                    | 2,7                            | 0,27    | VM43       | Manual w/ Pendant   | 230                 | 0,56            | 79                | 41,7        |
| S/A                  | •                   | 6,8                           | <b>ZE2308EE (B, I)</b>                    | 2,7                            | 0,27    | VE33       | Solenoid w/ Pendant | 230                 | 0,56            | 79                | 49,0        |
| D/A                  | •                   | 6,8                           | <b>ZE2408EE (B, I)</b>                    | 2,7                            | 0,27    | VE43       | Solenoid w/ Pendant | 230                 | 0,56            | 79                | 49,0        |

\* S/A = Single Acting, D/A = Double Acting

<sup>1)</sup> "B" suffix model numbers shown are 115 VAC, 1-phase, 50/60 Hz, CE compliant

"I" indicates pump is available in 208-240V, 1-phase, 50/60 Hz with NEMA 6/15 plug, CE compliant

"E" indicates pump is available in 208-240V, 1-phase, 50/60 Hz with European plug, CE compliant

<sup>1)</sup> All models can be ordered with the following Factory Installed Accessories/Options:

**F** = with Return Line Filter, **G** = with 0-1000 bar gauge (ø 63,5 mm), **S** = Single-stage pump unit

<sup>2)</sup> Models can be ordered with Pressure Switch (P)

▼ EP3204JE-G, E-Pulse® Electric Hydraulic Pump



## High productivity through innovative design



### Interactive Pendant

Integrated pendant control with a magnet that fits securely into the handle of the pump.

- Operation, programming and diagnostics status provided to operator with yellow, green, and red LED as well as vibration pulses.
- Fault codes warn operators of any issues related to voltage, temperature, button controls, or if professional service is required.

### Performance

- Two-stage pump with high flow/pressure ratio: 2,13 l/min at 175 bar; 0,52 l/min at 700 bar
- Smart controls enable motor to maintain constant power across the pressure range
- 24VDC power regulator minimizes effects of poor power supply
- Six-piston block design provides even flow for smooth operation of cylinder or tool.

### Durability

- Durable aluminium housing
- High-efficiency permanent magnet, direct drive motor enables continuous use and long service life
- Built-in thermal protection
- IP Rating: IP54 on the pump, IP67 on the pendant.

### Convenience

- Speed control with dial adjustment for precise operation \*
- Pendant and cord management system
- Integrated pressure gauge with scalereading in bar, MPA and psi
- Convenient oil fill port, oil level indicator and automatic breather.



### Variable Speed Control \*

Speed control with dial adjustment for precise tool or cylinder operation. The adjustable speed range is approximately 25 to 100% of full rated output.



### Tie Down Bracket

Enables pump mounting to a work surface: **MBEP-1** optional Tie Down Bracket.



### Manifold Mounting Bracket

Ability to mount AM21 and AM41 split-flow hydraulic manifolds: **MMBEP-1** optional Manifold Mounting Bracket.

# E-Pulse®, Electric Hydraulic Pumps



## E-Pulse® Pumps

The Enerpac E-Pulse® pums drives high productivity through its innovative design.

Smart controls enable the motor to maintain constant power providing higher flow than traditional pumps.

Adjustable speed control \* enables precision as required. E-Pulse® pumps are designed for convenience.

Features include a cord management system and integrated pendant control with a magnet that fits securely into the handle of the pump.

The durable aluminum housing is designed to give easy access for serviceability. E-Pulse is the heart to any hydraulic system, ensuring high performance and providing ultimate convenience.

## E Series



Reservoir Capacity:  
**3,0 litres**

Flow at Rated Pressure:  
**0,52 l/min**

Motor Size:  
**0,63 kW**

Maximum Operating Pressure:  
**700 bar**



LED status signal

Jog Operation

Latch Operation

**3/2 Jog, 3/2 Dump, 4/3 Jog**  
pendant with 3 metres cord



LED status signal

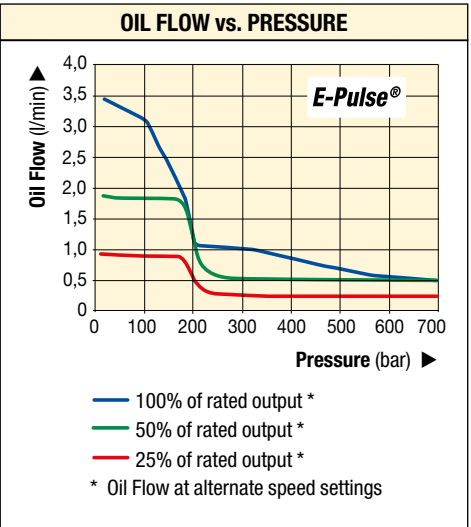
Jog Operation

Dump System Pressure

**3/2 Dump and Hold**  
pendant with 3 metres cord

### ▼ PERFORMANCE CHART

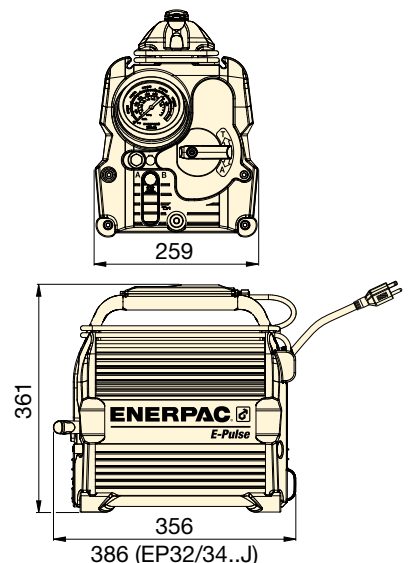
| Pump Series/Type | Output Flow Rate (l/min) |         |         |         | Motor Voltage (VAC) | Plug Type      | Current Draw (Amps) | Sound Level (dBA) |
|------------------|--------------------------|---------|---------|---------|---------------------|----------------|---------------------|-------------------|
|                  | 1 bar                    | 175 bar | 350 bar | 700 bar |                     |                |                     |                   |
| EP3....B-G       | 3,61                     | 2,13    | 0,95    | 0,52    | 100-120             | NEMA 5-15      | 12                  | 70-85             |
| EP3....I-G       |                          |         |         |         | 200-250             | NEMA 6-15      | 7                   |                   |
| EP3....E-G       |                          |         |         |         | 200-250             | Schuko CEE 7/7 | 7                   |                   |



### ▼ SELECTION CHART

| Used with cylinder or tool | Useable Oil Capacity (litres) | Model Number | Valve Type    | Valve Function  | Remote Pendant Functions | Weight (kg) |
|----------------------------|-------------------------------|--------------|---------------|-----------------|--------------------------|-------------|
| Single-Acting              | 3,0                           | EP3104DB-G   | 3/2 Solenoid  | Dump            | Advance                  | 18,6        |
|                            |                               | EP3104DI-G   |               |                 |                          |             |
|                            |                               | EP3104DE-G   |               |                 |                          |             |
|                            | 3,0                           | EP3204JB-G * | 3/2 Manual    | Jog             | Motor On/Off             | 18,4        |
|                            |                               | EP3204JI-G * |               |                 |                          |             |
|                            |                               | EP3204JE-G * |               |                 |                          |             |
| 3,0                        | EP3304SB-G *                  | 3/2 Solenoid | Hold and Dump | Advance/Retract | 18,7                     |             |
|                            | EP3304SI-G *                  |              |               |                 |                          |             |
|                            | EP3304SE-G *                  |              |               |                 |                          |             |
| Double-Acting              | 3,0                           | EP3404JB-G * | 4/3 Manual    | Jog             | Motor On/Off             | 18,6        |
|                            |                               | EP3404JI-G * |               |                 |                          |             |
|                            |                               | EP3404JE-G * |               |                 |                          |             |

\* The adjustable speed control only applies to all EP3204, EP3304 and EP3404 pump models.





Introducing the Z-Class power pumps from Enerpac – pumps that run cooler, use less electricity and are easy to service.

Enerpac has used the latest metallurgical, bearing and seal technologies to produce a pump whose features and benefits far surpass the electric pumps that are available today. By reducing the number of moving parts, improving flow dynamics and decreasing friction, Z-Class pumps will stay on the job longer, require less energy to operate and when needed, have lower service costs.



Z-Class power pumps from Enerpac – simply the best pump you will ever use.

**Z** Tough  
Dependable  
Innovative  
**CLASSIC**



# Z-Class, An Innovation in Pump Design

## Z-Class Pumping Element – The Heart of Your Hydraulic System

**Highly efficient design** provides increased flow rates, reduced heat generation and a decrease in power consumption. This means improved tool speed and increased service life – which results in higher productivity and lower operating costs.

**Heavy-duty bearings** extend pump life by reducing friction, reducing surface-loading and lowering bearing stresses.

**Pump cavity oil bath** extends pump life by reducing heat, improving lubrication and reducing wear.

**Self-priming, high-flow 1st stage pump** increases pump performance by super-charging the 2nd stage piston pump – improving oil flow in both hot and cold weather operation.

**Balanced rotating components reduce vibration** creating a smoother running pump – reducing wear, friction and sound levels.

**Replaceable piston check-valves** increase service life of major pump components.

**Ergonomic pendant** features sealed switches and operates at 24 V for improved operator safety.

### Z-Class factory options & accessories

Extensive list of accessories including heat exchanger, roll cage, skid bar, pressure transducer, return line filter and level and temperature switches, allow complete pump control over a wide range of industrial applications.

### Z-Class power pumps for your application

Available in one flow range for universal motor and eight flow ranges for induction motor. Choose from single or two-stage models to provide the optimum cylinder and tool performance for almost any industrial application.

| Oil Flow Rate at 700 bar<br>(l/min) | Z-Class Pump Series * | Electric Motor Power<br>(kW) | Air Motor-Consumption<br>(l/min) | Gasoline Engine Power<br>(kW) | Page:    |
|-------------------------------------|-----------------------|------------------------------|----------------------------------|-------------------------------|----------|
| 0,27                                | ZE2                   | 0,56                         | –                                | –                             | 92       |
| 0,52                                | ZC3                   | 1,0                          | –                                | –                             | 88       |
| 0,55                                | ZE3                   | 0,75                         | –                                | –                             | 104      |
| 0,82                                | ZE4(T)                | 1,12                         | –                                | –                             | 104, 276 |
| 1,00                                | ZU4(T)                | 1,25                         | –                                | –                             | 98, 272  |
| 1,30                                | ZA4(T)                | –                            | 2840                             | –                             | 116, 280 |
| 1,60                                | ZG5                   | –                            | –                                | 4,8                           | 118      |
| 1,64                                | ZE5(T)                | 2,24                         | –                                | –                             | 104, 276 |
| 2,73                                | ZE6                   | 5,60                         | –                                | –                             | 104      |
| 3,30                                | ZG6                   | –                            | –                                | 9,7                           | 118      |

\* ZC3 battery powered cordless pumps  
ZA4T, ZU4T, ZE4T and ZE5T-Series are Torque Wrench Pumps.

### Back-lit LCD on select Z-Class pumps

- pump usage information, hour and cycle counts
- low-voltage warning and recording
- offers self-test and diagnostic capabilities
- information displayed in 6 languages
- pressure read-out (when used with the optional pressure transducer)
- adjustable trigger pressure setting (when used with the optional pressure transducer).



Back-lit LCD available on ZU and ZE-Series Electric Pumps. ▶



### ZU-Series Pump Applications

- **Mobile:** when frequent pump transport is required and/or on remote locations
- **Universal motor:** 1-phase, runs well under poor voltage supply, using generator power supply or using long extension cord
- **Duty-cycle:** for intermittent applications
- **Cylinders and tools:** for medium to large size single and double-acting applications and high speed
- **Pump speed:** two stage pump unit.



### ZE-Series Pump Applications

- **Stationary:** when pump remains in one location
- **Induction motor:** 1 and 3-phase for high cycle usage
- **Duty-cycle:** for heavy-duty, extended cycle application
- **Cylinders and tools:** for medium to large size single and double-acting applications and high speed
- **Pump speed:** single or two stage pump unit.

▼ ZU4308ME (Classic), ZU4420SEH (Pro)



- High-efficiency two-speed pump design – higher oil flow and bypass pressure
- Powerful 1,25 kW universal electric motor provides high power-to-weight ratio and excellent low-voltage operating characteristics
- High-strength, moulded composite shroud protects motor and electronics, while providing an ergonomic, non-conductive handle for easy transport.

### Pro-Series models only

- Back-lit LCD readout provides pressure display and a number of diagnostics and readout capabilities never offered on a portable pump before:
  - pump usage information, hour and cycle counts
  - self-test, diagnostic and read-out capabilities
  - pressure readout and auto-mode pressure settings.



◀ *Designed to be tough, the ZU4-Series with steel reservoirs will take the abuse of today's construction sites.*



### Z-Class – A Pump For Every Application

Patented Z-Class pump technology provides high by-pass pressures for increased productivity – important in applications using long hose runs and high pressure-drop circuits, like heavy lifting or certain double-acting tools.

Enerpac ZU4-Series Pumps are built to power small to large-sized cylinders or hydraulic tools, or wherever high-speed, intermittent duty, remote hydraulic power is needed.

#### Classic Electric Pumps

- The Classic has traditional electro-mechanical components (transformers, relays and switches) in place of solid-state electronics.
- The Classic delivers durable, safe and efficient hydraulic power for demanding markets like construction, post-tensioning and foundation repair.

#### Standard Electric Pumps

- For applications that do not require digital display features of the Premium Pump. Available in all manual or jog versions.

#### Pro Electric Pumps

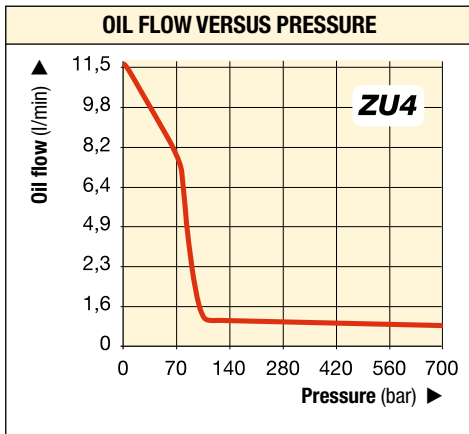
- Digital (LCD) display features a built-in hour meter and shows self-diagnostic, cycle-count and low voltage warning information.
- Pressure can also be displayed when the pump is equipped with an optional pressure transducer.



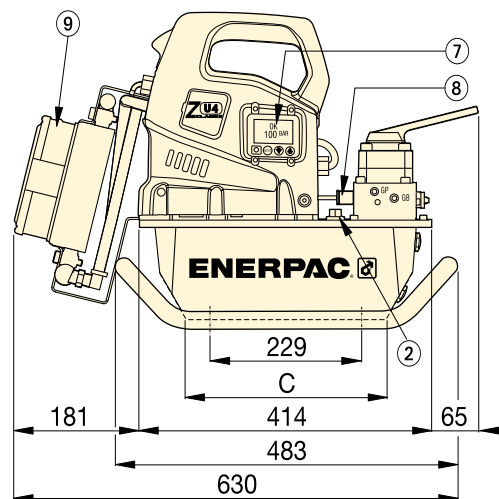
### Assisted Return Pumps with Venturi Valve Technology

To improve productivity and plunger retraction, Enerpac offers valve configurations designed to accelerate your cylinder retraction speeds, ZU4-Series pumps feature **Venturi Valve Technology** to facilitate the faster return of single-acting gravity return cylinders. See valve type in ordering matrix and details in section Directional Control Valves.

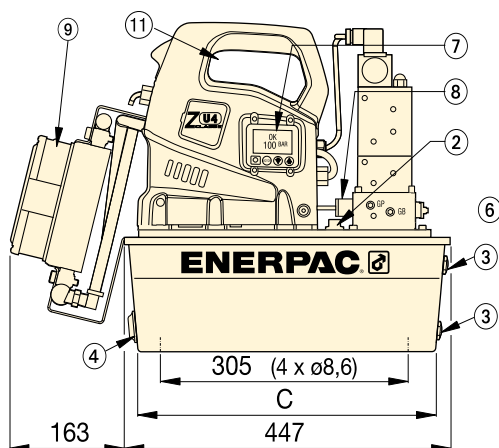
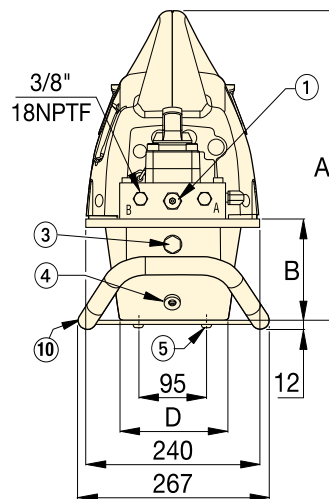
# ZU4-Series, Specifications and Dimensions



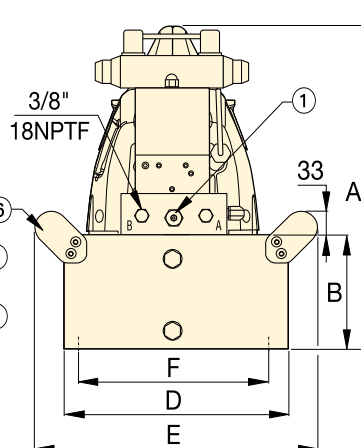
| ZU4-SERIES PERFORMANCE CHART |                                   |        |         |         |  |                      |  |
|------------------------------|-----------------------------------|--------|---------|---------|--|----------------------|--|
| Motor Size<br>(kW)           | Output Flow Rate at 50 Hz (l/min) |        |         |         | Motor Electrical Specifications<br>(Volts-Ph-Hz) | Sound Level<br>(dBA) | Relief Valve Adjustment Range<br>(bar) |
|                              | 7 bar                             | 50 bar | 350 bar | 700 bar |  |                      |  |
| 1,25                         | 11,5                              | 8,8    | 1,2     | 1,0     | 115-1-50/60<br>230-1-50/60                       | 85-90                | 140-700                                |



ZU4-Series with 4,6 and 6,8 litres reservoirs



ZU4-Series with 19,8 and 39 litres reservoirs  
(left view shown without side handle)



## ZU4 Series



Reservoir Capacity:  
**4,6 - 39 litres**

Flow at Rated Pressure:  
**1,0 l/min**

Motor Size:  
**1,25 kW**

Maximum Operating Pressure:  
**700 bar**

3/8"-18 NPTF Advance and Retract Ports

- ① User adjustable relief valve
- ② Oil fill port SAE #10 7/8"-14 UNF-2B
- ③ Oil level sight gauge
- ④ Oil drain 1/2" NPTF
- ⑤ M8, 6 mm deep
- ⑥ Handles on all 19,8 and 39 litres reservoirs.

### Options

- ⑦ Back-lit LCD Electric
- ⑧ Pressure transducer
- ⑨ Heat Exchanger
- ⑩ Skid Bar. Fits 4,6 and 6,8 litres reservoirs
- ⑪ Handle guard installed on all 19,8 and 39 litres reservoirs
- ⑫ Reservoir handles (not shown) included on all 19,8 and 39 litres reservoirs

| Pump Dimensions (mm)           |     |     |     |     |     |     |
|--------------------------------|-----|-----|-----|-----|-----|-----|
| Reservoir Capacity<br>(litres) | A   | B   | C   | D   | E   | F   |
| 4,6                            | 424 | 142 | 279 | 152 | -   | -   |
| 6,8                            | 424 | 142 | 279 | 206 | -   | -   |
| 19,8                           | 465 | 180 | 413 | 422 | 500 | 396 |
| 39                             | 551 | 269 | 399 | 503 | 576 | 480 |



## ▼ STEP 1: Select a pump from the Pump Ordering Matrix

The functionality of the pump can be determined by the model number. Utilize the guide below to select the best pump for the application from the pump ordering matrix.

|                   |                 |                 |                 |                         |                      |              |          |                                    |          |
|-------------------|-----------------|-----------------|-----------------|-------------------------|----------------------|--------------|----------|------------------------------------|----------|
| <b>Z</b>          | <b>U</b>        | <b>4</b>        | <b>4</b>        | <b>08</b>               | <b>J</b>             | <b>E</b>     | <b>-</b> | <b>H</b>                           | <b>R</b> |
| 1<br>Product Type | 2<br>Motor Type | 3<br>Flow Group | 4<br>Valve Type | 5<br>Reservoir Capacity | 6<br>Valve Operation | 7<br>Voltage |          | 8<br>Factory Installed Accessories |          |

### 1 Product Type

**Z** = Pump Series

### 2 Motor Type

**U** = Universal electric motor

### 3 Flow Group

**4** = 1,0 l/min @ 700 bar

### 4 Valve Type

- 1** = Dump (**VE32D**)
- 2** = 3 way/2 position manual or electric (**VM32** or **VE32**)
- 3** = 3 way/3 position manual or electric (**VM33** or **VE33**)
- 4** = 4 way/3 position manual or electric (**VM43** or **VE43**)
- 6** = 3 way/3 position locking manual with pilot operated check valve (**VM33L**)
- 7** = 3 way/2 position manual (**VM22**)
- 8** = 4 way/3 position locking manual with pilot operated check valve (**VM43L**)
- 9** = 4 way/3 position manual w/power seating (**VM43LPS**)
- 10** = 3 way/3 position manual Venturi valve (**VM33VAC**)
- 11** = 3 way/3 position electric Venturi valve (**VE33VAC**)

### 5 Reservoir Capacity

- 04** = 4,6 litres
- 08** = 6,8 litres
- 20** = 19,8 litres
- 40** = 39,0 litres

### 6 Valve Operation

- D** = Dump solenoid valve with pendant and LCD Electric
- J** = Jog manual valve with pendant (without LCD)
- L** = Manual valve with LCD Electric (without pendant)
- M** = Manual valve (without pendant and LCD)
- P** = Manual valve with pendant (without LCD)
- S** = Solenoid valve with pendant and LCD Electric

### 7 Voltage

- B** = 115V, 1 ph, 50/60Hz
- E** = 208-240V, 1 ph, 50/60 Hz (with European plug and CE EMC compliant)
- I** = 208-240V, 1 ph, 50/60 Hz (with NEMA 6-15 plug)

## ▼ STEP 2: Factory Installed Accessories

Select factory installed accessories and add to the pump model number after the hyphen. The example above shows that a **Heat Exchanger (H)** and **Roll Cage (R)** have been added to the pump.

### 8 Factory installed accessories include the following:

- |   |  |
|---|--|
| <b>F</b> = Return Line Filter                     | <b>N</b> = Lifting Eyes (no reservoir handles) |
| <b>G</b> = Pressure Gauge <sup>1)</sup>           | <b>R</b> = Roll Cage                           |
| <b>H</b> = Heat Exchanger                         | <b>T</b> = Pressure Transducer                 |
| <b>K</b> = Skid Bar                               | <b>U</b> = Foot Switch                         |
| <b>L</b> = Level/Temperature Switch <sup>2)</sup> |  |

<sup>1)</sup> + <sup>2)</sup>: See the notes about Pressure Gauge and Level/Temperature Switch in right column.



### Two Speed Pumps

Recommended for applications where cylinder plunger must advance rapidly to load contact, and applications where greater oil capacities are required, such as multiple cylinder hook-ups.



### Speed Chart

To determine how a specific pump will operate your cylinder, see the Pump-Cylinder Speed Chart in the 'Yellow Pages'.

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### Assisted Return Pumps with Venturi Valve Technology

To improve productivity and plunger retraction, Enerpac offers valve configurations designed to accelerate your cylinder retraction speeds. ZU4 and ZE-Series pumps feature **Venturi Valve Technology** to facilitate the faster return of single-acting gravity and spring return cylinders. See valve type in ordering matrix and details in section Directional Control Valves.

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### Spring Centred Valve Kits

VM and VC-Series manual 3-position valves can be easily converted into spring centred valves. With these retro-fit kits the handle will automatically move into the neutral valve position when released.

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### Pressure Gauge, Level/Temperature Switch

<sup>1)</sup> Pressure Gauge (**G**) not available on pump models with pressure transducer (**T**). The pressure transducer provides digital pressure read-out on LCD-display.

<sup>2)</sup> Level/Temperature Switch (**L**) requires electric package. Not available on reservoirs 04 and 08.

# ZU4-Series, Pump Ordering Matrix

## ▼ ZU-PRO SERIES PUMP MODELS WITH SOLENOID VALVE, PENDANT AND LCD ELECTRIC

|   | S/A or D/A <sup>1)</sup> | Hold  | Valve Type <sup>2)</sup> | Reservoir Capacity (litres) |  (kg) | Model Number                             |
|---|--------------------------|--|--------------------------|-----------------------------|--|--|
|   |                          |  |                          |                             |  | 230 VAC, 1 phase, 50/60 Hz <sup>3)</sup> |
| <b>With Dump Valve</b> <ul style="list-style-type: none"> <li>• Ideal for punching, crimping and cutting</li> <li>• For use when load-holding is not required.</li> </ul>   | S/A                      |  | VE32D                    | 4,6                         | 29   | ZU4104DE (B, I)                          |
|   | S/A                      |  | VE32D                    | 6,8                         | 31   | ZU4108DE (B, I)                          |
|   | S/A                      |  | VE32D                    | 19,8                        | 51   | ZU4120DE (B, I)                          |
|   | –                        |  | –                        | –                           | –  | –  |
|   | –                        |  | –                        | –                           | –  | –  |
| <b>With Solenoid Valves</b> <ul style="list-style-type: none"> <li>• Ideal for lifting applications and where remote control is required</li> <li>• Motor runs continuously on pumps with VE33 and VE43 valves.</li> <li>• With VE32 valve, motor only runs during the advance function, while holding and retracting, the motor is off</li> <li>• Venturi Valve technology (VE33VAC) for faster retract of single-acting cylinders.</li> </ul> | S/A                      | ●  | VE32                     | 4,6                         | 29   | ZU4204SE (B, I)                          |
|   | S/A                      | ●  | VE32                     | 6,8                         | 31   | ZU4208SE (B, I)                          |
|   | S/A                      | ●  | VE32                     | 19,8                        | 51   | ZU4220SE (B, I)                          |
|   | S/A                      | ●  | VE33                     | 6,8                         | 37   | ZU4308SE (B, I)                          |
|   | S/A                      | ●  | VE33                     | 19,8                        | 57   | ZU4320SE (B, I)                          |
|   | S/A                      | ●  | VE33                     | 39,0                        | 79   | ZU4340SE (B, I)                          |
|   | S/A                      | ●  | VE33VAC                  | 6,8                         | 34   | ZU41108SE (B)                            |
|   | S/A                      | ●  | VE33VAC                  | 19,8                        | 53   | ZU41120SE (B)                            |
|   | S/A                      | ●  | VE33VAC                  | 39,0                        | 76   | ZU41140SE (B)                            |
|   | D/A                      | ●  | VE43                     | 6,8                         | 37   | ZU4408SE (B, I)                          |
|   | D/A                      | ●  | VE43                     | 19,8                        | 56   | ZU4420SE (B, I)                          |
|   | D/A                      | ●  | VE43                     | 39,0                        | 79   | ZU4440SE (B, I)                          |

## ZU4-Series



Reservoir Capacity:

**4,6 - 39 litres**

Flow at Rated Pressure:

**1,0 l/min**



Motor Size:

**1,25 kW**

Maximum Operating Pressure:

**700 bar**

## ▼ ZU-SERIES PUMP MODELS WITH MANUAL VALVES

|  | S/A or D/A <sup>1)</sup> | Hold  | Valve Type <sup>2)</sup> | Reservoir Capacity (litres) |  (kg) <sup>5)</sup> | Model Number 230 VAC, 1 phase, 50/60 Hz <sup>3)</sup> |                                |   |
|--|--------------------------|--|--------------------------|-----------------------------|--|---|--------------------------------|---|
|  |                          |  |                          |                             |  | Manual Only   | Standard Electric with Pendant | Classic Electric with Pendant <sup>4)</sup> |
| <b>With Manual Valves</b> <ul style="list-style-type: none"> <li>• Ideal choice for most applications</li> <li>• Manual valve control, for single-acting or double-acting applications</li> <li>• Motor control on shroud</li> <li>• Venturi Valve technology (VM33VAC) for faster retract of single acting cylinders</li> <li>• Pendant models ideal for light production and lifting applications</li> <li>• Locking valves provide hydraulic locking of cylinder until valve is shifted into retract position.</li> </ul> | S/A                      |  | VM22                     | 4,6                         | 27   | ZU4704ME (B, I)                                       | –                              | ZU4704PE (B, I)                             |
|  | S/A                      |  | VM22                     | 6,8                         | 29   | ZU4708ME (B, I)                                       | –                              | ZU4708PE (B, I)                             |
|  | S/A                      |  | VM22                     | 19,8                        | 49   | ZU4720ME (B, I)                                       | –                              | ZU4720PE (B, I)                             |
|  | S/A                      |  | VM32                     | 4,6                         | 25   | ZU4204ME (B, I)                                       | ZU4204JE (B, I)                | –   |
|  | S/A                      |  | VM32                     | 6,8                         | 28   | ZU4208ME (B, I)                                       | ZU4208JE (B, I)                | –   |
|  | S/A                      |  | VM32                     | 19,8                        | 47   | ZU4220ME (B, I)                                       | ZU4220JE (B, I)                | –   |
|  | S/A                      |  | VM32                     | 39,0                        | 70   | ZU4240ME (B, I)                                       | ZU4240JE (B, I)                | –   |
|  | S/A                      | ●  | VM33                     | 4,6                         | 25   | ZU4304ME (B, I)                                       | –                              | –   |
|  | S/A                      | ●  | VM33                     | 6,8                         | 28   | ZU4308ME (B, I)                                       | ZU4308JE (B, I)                | ZU4308PE (B)                                |
|  | S/A                      | ●  | VM33                     | 19,8                        | 48   | ZU4320ME (B, I)                                       | ZU4320JE (B, I)                | ZU4320PE (B)                                |
|  | S/A                      | ●  | VM33                     | 39,0                        | 71   | ZU4340ME (B, I)                                       | ZU4340JE (B, I)                | ZU4340PE (B)                                |
|  | S/A                      | ●  | VM33VAC                  | 6,8                         | 29   | ZU41008ME (B)   | ZU41008JE (B)                  | –   |
|  | S/A                      | ●  | VM33VAC                  | 19,8                        | 48   | ZU41020ME (B)   | ZU41020JE (B)                  | –   |
|  | S/A                      | ●  | VM33L                    | 6,8                         | 30   | ZU4608ME (B)  | ZU4608JE (B)                   | –   |
|  | S/A                      | ●  | VM33L                    | 19,8                        | 49   | ZU4620ME (B)  | ZU4620JE (B)                   | –   |
|  | D/A                      | ●  | VM43                     | 6,8                         | 29   | ZU4408ME (B, I)                                       | ZU4408JE (B, I)                | ZU4408PE (B)                                |
|  | D/A                      | ●  | VM43                     | 19,8                        | 48   | ZU4420ME (B, I)                                       | ZU4420JE (B, I)                | ZU4420PE (B)                                |
|  | D/A                      | ●  | VM43                     | 39,0                        | 71   | ZU4440ME (B, I)                                       | ZU4440JE (B, I)                | ZU4440PE (B)                                |
|  | D/A                      | ●  | VM43L                    | 4,6                         | 30   | ZU4808ME (B)  | ZU4808JE (B)                   | –   |
|  | D/A                      | ●  | VM43L                    | 19,8                        | 50   | ZU4820ME (B)  | ZU4820JE (B)                   | –   |

<sup>1)</sup> S/A or D/A = For use with Single-Acting or Double-Acting cylinders and tools. <sup>2)</sup> Additional details can be found in the Directional Control Valve section

<sup>3)</sup> "B" indicates pump is available in 115V, 1-phase, 50/60 Hz. Model number order example: **ZU4208MB**.

"I" indicates pump is available in 208-240V, 1-phase, 50/60 Hz with NEMA 6-15 plug. Model number order example: **ZU4208MI**.

<sup>4)</sup> Classic Electric Pump has traditional electro-mechanical components (transformers, relays, switches) in place of solid-state electronics.

<sup>5)</sup> Weights given for pump with manual valve. For Standard Electric with pendant add 0,5 kg and Classic Electric with pendant add 1,5 kg.


NOTE: Valve operation "L" available on pumps with manual valve. Substitute "M" for "L" valve operation. Example: **ZU4608LE**.



### Roll Cage (R)

- Protects and stabilizes the pump.

| Popular Pump Models with Factory Installed Roll Cage |                   |
|--|-------------------|
| ZU4108DE-R (B, I)                                    | ZU4308ME-R (B, I) |
| ZU4208JE-R (B, I)                                    | ZU4320ME-R (B, I) |
| ZU4220JE-R (B, I)                                    | ZU4408ME-R (B, I) |
| ZU4208SE-R (B, I)                                    | ZU4420ME-R (B, I) |
| ZU4308JE-R (B, I)                                    | ZU4408JE-R (B, I) |
| ZU4320JE-R (B, I)                                    | ZU4420JE-R (B, I) |
| ZU4308SE-R (B, I)                                    | ZU4408SE-R (B, I) |
| ZU4320SE-R (B, I)                                    | ZU4420SE-R (B, I) |

| Accessory Kit Model Nr.   | Fits on Reservoir                |
|---|----------------------------------|
|  |                                  |
| ZRC-04  | 4,6 and 6,8 litres <sup>1)</sup> |
| ZRC-04H   | 4,6 and 6,8 litres <sup>2)</sup> |
| ZRB-20  | 19,8 litres                      |
| ZRB-40  | 39 litres                        |

<sup>1)</sup> Without heat exchanger


<sup>2)</sup> With heat exchanger



### Foot Switch (U)

- 3 metres cord, hands-free control.

| Popular Pump Models with Factory Installed Foot Switch |  |
|--|--|
| ZU4108DE-U (B, I)                                      |  |
| ZU4208SE-U (B, I)                                      |  |
| ZU4220SE-U (B, I)                                      |  |
| ZU4320SE-U (B, I)                                      |  |
| ZU4408SE-U (B, I)                                      |  |
| ZU4420SE-U (B, I)                                      |  |


| Accessory Kit Model Nr.   | Can be used on ZU4 Pumps with solenoid dump and 3-position valves, LCD electric |
|---|---|
|  |   |
| ZCF-2   | Solenoid VE-Series valves   |



### Heat Exchanger (H)

- Removes heat from bypass oil
- Increases oil life, reduces wear on hydraulic components.

| Popular Pump Models with Factory Installed Heat Exchanger |  |
|---|--|
| ZU4108DE-H (B, I)   |  |
| ZU4208SE-H (B, I)   |  |
| ZU4308SE-H (B, I)   |  |
| ZU4408SE-H (B, I)   |  |
| ZU4420SE-H (B, I)   |  |


| Accessory Kit Model Nr.   | Can be used on |
|---|----------------|
|  |                |
| ZHE-U115  | 115 V pumps    |
| ZHE-U230  | 230V pumps     |



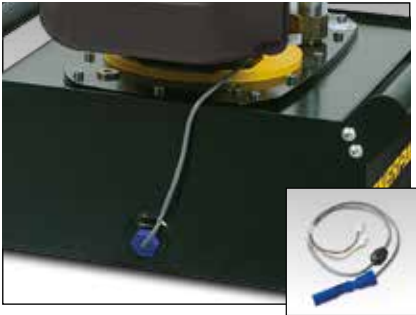
### Pressure Transducer (T)

- More durable than analog gauges
- Displays psi, bar or Mpa
- Motor shutoff or shift to neutral at set pressure.

| Popular Pump Models with Factory Installed Pressure Transducer, Requires LCD Electric Pump |  |
|--|--|
| ZU4108DE-T (B, I)  |  |
| ZU4208SE-T (B, I)  |  |
| ZU4308SE-T (B, I)  |  |
| ZU4408SE-T (B, I)  |  |
| ZU4420SE-T (B, I)  |  |

| Accessory Kit Model Nr.   | Adjustable Pressure Range | Switch-Point Repeatability | Dead-band |
|---|---------------------------|----------------------------|-----------|
|  | (bar)                     | (%)                        | (bar)     |
| ZPT-U4  | 3,5 - 700                 | ± 0,5                      | 3,5       |

**Note:** The pressure transducer provides digital pressure read-out on LCD-display.



### Level/Temperature Switch (L) <sup>1)</sup>

- Shuts off pump when high operating temperature or low oil is reached
- Plugs directly into pump electrical enclosure
- Easy installation to pump reservoir
- Requires LCD electric.



### Return Line Filter (F)

- 25 micron filter removes contaminants from return oil flow
- Internal by-pass valve prevents damage if filter is dirty
- With maintenance indicator
- Replaceable filter element PF25.

## ZU4 Series



Reservoir Capacity:

**4,6 - 39 litres**

Flow at Rated Pressure:


**1,0 l/min**

Motor Size:

**1,25 kW**

Maximum Operating Pressure:

**700 bar**

| Accessory Kit Model Nr. | Operating Temperature (°C) | Maximum Pressure (bar) |  (kg) |
|-------------------------|----------------------------|------------------------|--|
| ZLS-U4                  | 5 - 110                    | 10                     | 0,1  |

<sup>1)</sup> Level/Temperature switch (L) not available on 4,6 or 6,8 litres reservoir.

| Accessory Kit Model Nr. | Max. Pressure (bar) | Max. Oil Flow (l/min) | By-Pass Setting (bar) |
|-------------------------|---------------------|-----------------------|-----------------------|
| ZPF                     | 14                  | 45                    | 1,7                   |



### Heat Exchanger

Stabilizes oil temperature at a maximum of 54 °C at 21 °C ambient temperature.

Do not exceed maximum oil flow and pressure ratings. Heat exchanger is not suitable for water-glycol or water based fluids.

| Thermal Transfer * (Btu/h) | Maximum Pressure (bar) | Maximum Oil Flow (l/min) | Voltage (VDC) |
|----------------------------|------------------------|--------------------------|---------------|
| 900                        | 20,7                   | 26,5                     | 12            |

\* At 1,9 l/min at 21 °C ambient temperature.



### Skidbar (K)

- Provides easy two-hand lift
- Provides greater pump stability on soft or uneven surfaces
- Cannot be used in combination with roll cage.




### Pressure Gauge (G)

- Minimize risk of overloading to ensure long life of equipment
- ø 63 mm face diameter, glycerin filled
- Dual scale in bar and psi.



### Hoses

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only Enerpac hydraulic hoses.

| Accessory Kit Model Nr. | Fits on Reservoir                |  (kg) |
|-------------------------|----------------------------------|--|
| SBZ-4                   | 4,6 and 6,8 litres <sup>2)</sup> | 2,2  |
| SBZ-4L                  | 4,6 and 6,8 litres <sup>3)</sup> | 3,2  |

<sup>2)</sup> Without heat exchanger

<sup>3)</sup> With heat exchanger

| Accessory Kit Model Nr. | Description                  |
|-------------------------|------------------------------|
| G2536L                  | 0 - 1000 bar, 0 - 15.000 psi |

**Note:** Pressure Gauge not available on pump models with pressure transducer. The pressure transducer provides digital pressure read-out on LCD-display.



▼ Shown from left to right: ZE3304ME-K, ZE4110DE-FHR



- High-efficiency pump design – higher oil flow and by-pass pressure
- High-strength, moulded electrical box protects electronics, power supplies and LCD readout and stands up to harsh industrial environments
- IP54 protection and isolation class
- Back-lit LCD provides self test, diagnostic and read-out capabilities never before offered on an industrial pump (included on pump with electric valves, optional on other models)
- Totally enclosed, fan-cooled industrial electric motors for extended life
- User adjustable relief valve built-in on manual and solenoid valves. Oil ports on valves are 3/8" NPTF
- Steel fan guard on all electric motors
- Full sight oil level glass on 9,8, 19,8 and 39 litres reservoirs, oil level indicators on 4,6 and 6,8 litres reservoirs.
- 40 micron filter breather with splash guard
- Durable steel reservoirs.



◀ Rail wheel pulling using RACH aluminium cylinder powered by ZE-Series pump.

## ZE Series

Reservoir Capacity:

**4,6 - 39 litres**

Flow at Rated Pressure:

**0,55 - 2,73 l/min**

Motor Size:

**0,75 - 5,60 kW**

Maximum Operating Pressure:

**700 bar**

**Z** Tough  
Dependable  
Innovative  
**CLASS**



### Speed Chart

To determine how a specific pump will operate your cylinder, see the Pump-Cylinder Speed Chart in the 'Yellow Pages'.

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### Locking Valves

For applications requiring positive load holding, VM-Series valves (except VM32) are available with a pilot-operated check valve

**VM33L and VM43L.** This provides hydraulic locking of the load until the valve is shifted into the retract position.



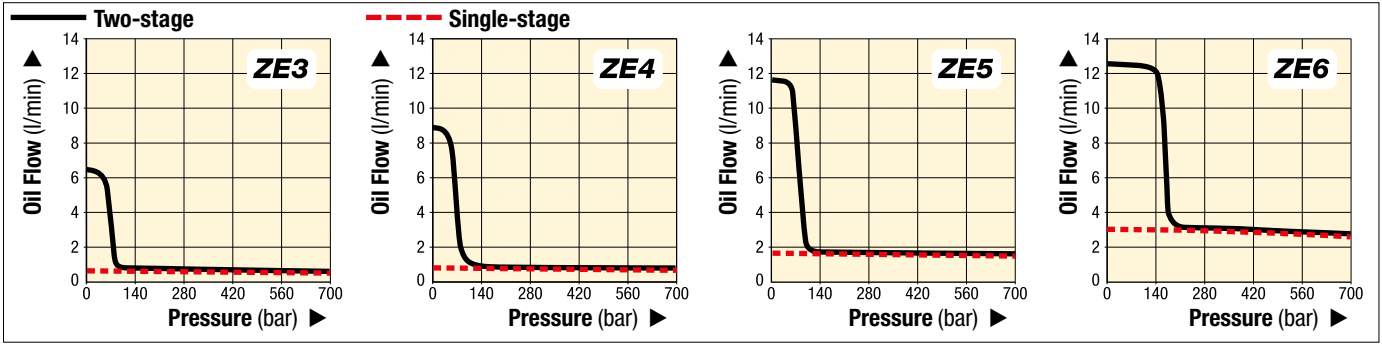
### Assisted Return Pumps

To improve productivity and plunger retraction, Enerpac offers valve configurations designed to accelerate your cylinder retraction

speeds, ZU4 and ZE-Series pumps feature **Venturi Valve Technology** to facilitate the faster return of single-acting gravity and spring return cylinders. See valve type in ordering matrix and details in section Directional Control Valves.

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# ZE-Series, Specifications & Dimensions



## ▼ ZE-SERIES PERFORMANCE CHART

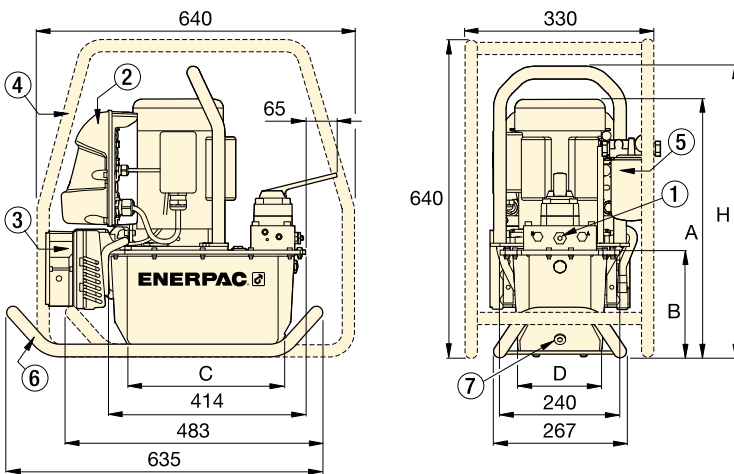
| Pump Series | Output Flow Rate at 50 Hz *<br>(l/min) |           |               |             | Pump Unit    | Available Reservoir Sizes<br>(litres) | Motor Size<br>(kW) | Relief Valve Adjustment Range<br>(bar) | Sound Level<br>(dBA) |
|-------------|--|-----------|---------------|-------------|--------------|---------------------------------------|--------------------|--|----------------------|
|             | low pressure                           |           | high pressure |             |              |                                       |                    |  |                      |
|             | at 7 bar                               | at 50 bar | at 350 bar    | at 700 bar  |              |                                       |                    |  |                      |
| ZE3         | 0,59                                   | 0,59      | 0,57          | <b>0,55</b> | Single-stage | 4,6 - 6,8 - 9,8                       | 0,75               | 70-700                                 | 75                   |
|             | 6,15                                   | 5,26      | 0,57          | <b>0,55</b> | Two-stage    | 19,8 - 39                             |                    |  |                      |
| ZE4         | 0,87                                   | 0,87      | 0,84          | <b>0,82</b> | Single-stage | 4,6 - 6,8 - 9,8                       | 1,12               | 70-700                                 | 75                   |
|             | 8,88                                   | 8,20      | 0,84          | <b>0,82</b> | Two-stage    | 19,8 - 39                             |                    |  |                      |
| ZE5         | 1,75                                   | 1,72      | 1,68          | <b>1,64</b> | Single-stage | 9,8 - 19,8 - 39                       | 2,24               | 70-700                                 | 75                   |
|             | 11,61                                  | 11,27     | 1,68          | <b>1,64</b> | Two-stage    |                                       |                    |  |                      |
| ZE6         | 3,00                                   | 2,94      | 2,86          | <b>2,73</b> | Single-stage | 9,8 - 19,8 - 39                       | 5,60               | 70-700                                 | 80                   |
|             | 12,29                                  | 12,15     | 2,86          | <b>2,73</b> | Two-stage    |                                       |                    |  |                      |

\* Oil flow will be approximately 6/5 of these values at 60 Hz.

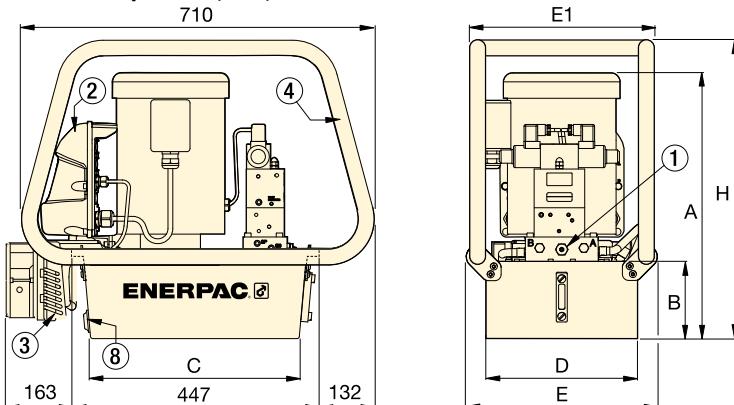


### Single or Two-Stage

Choose single-stage pumps for applications that require constant flow regardless of pressure such as testing or clamping. Two-stage pumps have an increased output flow at low pressure to allow fast movement towards the load, for reduced cycle times and increased productivity.



ZE-Series Pumps with 4,6 - 6,8 litres reservoir



ZE-Series Pumps with 9,8 - 19,8 - 39 litres reservoir

- ① User adjustable relief valve on all manual and solenoid valves. 3/8" NPTF on A and B ports; 1/4" NPTF on auxiliary ports.
- ② Electric Box
- ③ Heat Exchanger
- ④ Roll Cage
- ⑤ Return Line Filter
- ⑥ Skid Bar
- ⑦ Magnetic Oil Drain
- ⑧ Oil Drain / Oil Level & Temperature Switch

| Reservoir Size<br>(litres) | ZE-Series Pump Dimensions (mm) |     |     |     |     |     |     |
|----------------------------|--------------------------------|-----|-----|-----|-----|-----|-----|
|                            | A                              | B   | C   | D   | E   | E1  | H   |
| 4,6                        | 457                            | 143 | 279 | 152 | -   | -   | 513 |
| 6,8                        | 457                            | 143 | 279 | 206 | -   | -   | 513 |
| 9,8                        | 533                            | 158 | 419 | 305 | 384 | 371 | 600 |
| 19,8                       | 558                            | 180 | 419 | 422 | 501 | 488 | 625 |
| 39                         | 648                            | 270 | 399 | 505 | 576 | 572 | 715 |

## ▼ STEP 1: Select a pump from the Pump Ordering Matrix

The functionality of the pump can be determined by the model number. Utilize the guide below to select the best pump for the application from the pump ordering matrix.

|              |            |            |            |                    |                 |          |          |                               |          |
|--------------|------------|------------|------------|--------------------|-----------------|----------|----------|-------------------------------|----------|
| <b>Z</b>     | <b>E</b>   | <b>4</b>   | <b>4</b>   | <b>20</b>          | <b>M</b>        | <b>E</b> | <b>-</b> | <b>F</b>                      | <b>H</b> |
| 1            | 2          | 3          | 4          | 5                  | 6               | 7        |          | 8                             |          |
| Product Type | Motor Type | Flow Group | Valve Type | Reservoir Capacity | Valve Operation | Voltage  |          | Factory Installed Accessories |          |

### 1 Product Type

**Z** = Pump Class

### 2 Prime Mover

**E** = Induction electric motor

### 3 Flow Group

**3** = 0,55 l/min @ 700 bar

**4** = 0,82 l/min @ 700 bar

**5<sup>1)</sup>** = 1,64 l/min @ 700 bar

**6<sup>1)</sup>** = 2,73 l/min @ 700 bar

### 4 Valve Type

**0** = No valve, with cover plate

**1** = 3/2 Dump valve **VE32D**

**2** = 3/2 manual **VM32**

**3** = 3/3 manual **VM33** or electric **VE33**

**4** = 4/3 manual **VM43** or electric **VE43**

**6** = 3/3 manual locking valve **VM33L** with pilot operated check

**8** = 4/3 manual locking valve **VM43L** with pilot operated check

**10<sup>6)</sup>** = 3 way/3 position manual **Venturi** valve **VM33VAC**

**11<sup>6)</sup>** = 3 way/3 position electric **Venturi** valve **VE33VAC**

### 5 Reservoir Capacity

**04** = 4,6 litres (not available on ZE5, ZE6)

**08** = 6,8 litres (not available on ZE5, ZE6)

**10** = 9,8 litres

**20** = 19,8 litres

**40** = 39,0 litres

### 6 Valve Operation

**D** = Dump solenoid valve with pendant and LCD

**L** = Manual valve with LCD Electric (without pendant)

**M** = Manual valve, without pendant or LCD

**N** = No valve, no electric box

**S** = Solenoid valve, with pendant and LCD

### 7 Motor Voltage

#### Single phase motor (not on ZE5, ZE6)

**B<sup>1)</sup>** = 115V, 1 ph, 50-60 Hz

**E** = 208-240V, 1 ph, 50-60 Hz with European SCHUKO Plug

**I** = 208-240V, 1 ph, 50-60 Hz with USA Nema 6-15 plug

#### Three phase motor<sup>3)</sup>

**G** = 208-240V, 3 ph, 50-60 Hz

**J** = 460-480V, 3 ph, 50-60 Hz

**W** = 380-415V, 3 ph, 50-60 Hz

## ▼ STEP 2: Factory Installed Accessories

Select factory installed accessories and add to the pump model number after the hyphen. The example above shows that a **Return Line Filter (F)** and **Heat Exchanger (H)** have been added to the pump.

### 8 Factory installed accessories include the following:

**F** = Return Line Filter

**G** = Pressure Gauge<sup>4)</sup>

**H** = Heat exchanger<sup>2)</sup>

**K** = Skid Bar

**L** = Level/Temperature switch<sup>2)</sup>

**N** = Lifting Eyes (no reservoir handles)<sup>7)</sup>

**P** = Pressure Switch<sup>2)</sup>

**R** = Roll Cage

**S** = Single stage pump unit<sup>5)</sup>

**T** = Pressure transducer<sup>2)4)</sup>

**U** = Foot switch<sup>2)</sup>

<sup>1)</sup> 115-volt pumps are supplied with 15-Amp plug for intermittent use. 20-Amp circuit recommended for frequent full pressure use.

<sup>2)</sup> These accessories (H, L, P and T) require LCD electrical package. Level/Temperature switch (L) not available on 4,6 or 6,8 litres reservoir. Pressure switch option (P) only available on manual valves without locking valve. The LCD electrical package can accept either a pressure switch or pressure transducer, but not both.

<sup>3)</sup> Pump with 3-ph motors without Electric Box shipped without cord, motor starter or overload protection.

<sup>4)</sup> Pressure gauge (G) not available on pump models with pressure transducer. Pressure transducer provides digital pressure readout on LCD display.

<sup>5)</sup> Not available on pumps with Venturi Valve Type 10 or 11.


<sup>6)</sup> Not available on ZE3-Series pumps.

<sup>7)</sup> Lifting eyes (N) not available on reservoir capacities 04 or 08.

## ▼ ZE-SERIES PUMP MODELS

|  |  |
|--|--|
|  |  |
| <b>No Valve, with coverplate, no electric box</b>  |  |
| <b>Manual Valve without Electric Box or LCD</b>    | <ul style="list-style-type: none"> <li>• Ideal choice for most applications</li> <li>• Manual valve control, for both single-acting or double-acting applications</li> <li>• Venturi Valve Technology (VM33VAC) for faster retract of single-acting cylinders</li> <li>• Manual motor control</li> <li>• On/off switch on 1-phase electric motor.</li> </ul> |
| <b>Solenoid Dump Valve, Electric Box and LCD</b>   | <ul style="list-style-type: none"> <li>• Ideal for punching, crimping and cutting</li> <li>• For use when load holding is not required</li> <li>• Push-button control pendant with 3 m. cord controls the valve and motor.</li> </ul>  |
| <b>Solenoid 3-position Valve with Electric Box</b> | <ul style="list-style-type: none"> <li>• Ideal for production and lifting applications</li> <li>• All valves are 3-position for Advance-Hold-Retract</li> <li>• Venturi Valve Technology (VE33VAC) for faster retract of single-acting cylinders</li> <li>• Push-button control pendant with 3 m. cord controls the valve and motor.</li> </ul>              |

# ZE-Series, Pump Ordering Matrix

| S/A or D/A <sup>1)</sup> | Hold  | Valve Type <sup>2)</sup> | Reservoir Capacity (litres) | ZE3-Series (0,75 kW)<br>Output Flow Rate at 700 bar: 0,55 l/min |      | ZE4-Series (1,12 kW)<br>Output Flow Rate at 700 bar: 0,82 l/min |      | ZE5-Series (2,24 kW)<br>Output Flow Rate at 700 bar: 1,64 l/min |      | ZE6-Series (5,60 kW)<br>Output Flow Rate at 700 bar: 2,73 l/min |      |
|--------------------------|--|--------------------------|-----------------------------|---|------|---|------|---|------|---|------|
|                          |  |                          |                             | Model Number <sup>3)</sup><br>E = 230 V, 1 ph                   | (kg) | Model Number <sup>3)</sup><br>E = 230 V, 1 ph                   | (kg) | Model Number <sup>3)</sup><br>W = 400 V, 3 ph                   | (kg) | Model Number <sup>3)</sup><br>W = 400 V, 3 ph                   | (kg) |
|                          |  | –                        | 6,8                         | ZE3008NE (B, I, J, G, W)  | 45   | ZE4008NE (B, I, J, G, W)  | 43   | –   | –    | –   | –    |
|                          |  | –                        | 9,8                         | ZE3010NE (B, I, J, G, W)  | 45   | ZE4010NE (B, I, J, G, W)  | 49   | ZE5010NW (J, G)   | 54   | ZE6010NW (J, G)   | 72   |
|                          |  | –                        | 19,8                        | ZE3020NE (B, I, J, G, W)  | 57   | ZE4020NE (B, I, J, G, W)  | 61   | ZE5020NW (J, G)   | 66   | ZE6020NW (J, G)   | 84   |
|                          |  | –                        | 39,0                        | ZE3040NE (B, I, J, G, W)  | 80   | ZE4040NE (B, I, J, G, W)  | 84   | ZE5040NW (J, G)   | 89   | ZE6040NW (J, G)   | 107  |
| S/A                      | –  | VM22                     | 19,8                        | –   | –    | ZE4720ME (B, W)   | 65   | –   | –    | –   | –    |
| S/A                      | –  | VM32                     | 4,6                         | ZE3204ME (B)  | 39   | –   | –    | –   | –    | –   | –    |
| S/A                      | –  | VM32                     | 6,8                         | ZE3208ME (B, I, J, G, W)  | 41   | ZE4208ME (B, I, J, G, W)  | 45   | –   | –    | –   | –    |
| S/A                      | –  | VM32                     | 9,8                         | ZE3210ME (B, I, J, G, W)  | 47   | ZE4210ME (B, I, J, G, W)  | 51   | ZE5210MW (J, G)   | 56   | ZE6210MW (J, G)   | 74   |
| S/A                      | –  | VM32                     | 19,8                        | ZE3220ME (B, I, J, G, W)  | 59   | ZE4220ME (B, I, J, G, W)  | 64   | ZE5220MW (J, G)   | 68   | ZE6220MW (J, G)   | 86   |
| S/A                      | ●  | VM33                     | 4,6                         | ZE3304ME (B)  | 39   | –   | –    | –   | –    | –   | –    |
| S/A                      | ●  | VM33                     | 6,8                         | ZE3308ME (B, I, J, G, W)  | 42   | ZE4308ME (B, I, J, G, W)  | 46   | –   | –    | –   | –    |
| S/A                      | ●  | VM33                     | 9,8                         | ZE3310ME (B, I, J, G, W)  | 48   | ZE4310ME (B, I, J, G, W)  | 52   | ZE5310MW (J, G)   | 57   | ZE6310MW (J, G)   | 75   |
| S/A                      | ●  | VM33                     | 19,8                        | ZE3320ME (B, I, J, G, W)  | 60   | ZE4320ME (B, I, J, G, W)  | 64   | ZE5320MW (J, G)   | 69   | ZE6320MW (J, G)   | 87   |
| S/A                      | ●  | VM33                     | 39,0                        | ZE3340ME (B, I, J, G, W)  | 83   | ZE4340ME (B, I, J, G, W)  | 87   | ZE5340MW (J, G)   | 92   | ZE6340MW (J, G)   | 110  |
| S/A                      | ●  | VM33VAC                  | 6,8                         | –   | –    | ZE41008ME (B, I, J, G, W)                                       | 46   | –   | –    | –   | –    |
| S/A                      | ●  | VM33VAC                  | 19,8                        | –   | –    | ZE41020ME (B, I, J, G, W)                                       | 64   | ZE51020MW (J, G)  | 69   | ZE61020MW (J, G)  | 87   |
| S/A                      | ●  | VM33VAC                  | 39,0                        | –   | –    | –   | –    | ZE51040MW (J, G)  | 92   | ZE61040MW (J, G)  | 110  |
| S/A                      | ●  | VM33L                    | 6,8                         | ZE3608ME (B, I, J, G, W)  | 42   | –   | –    | –   | –    | –   | –    |
| S/A                      | ●  | VM33L                    | 19,8                        | ZE3620ME (B, I, J, G, W)  | 62   | ZE4620ME (B, I, J, G, W)  | 66   | –   | –    | –   | –    |
| S/A                      | ●  | VM33L                    | 39,0                        | ZE3640ME (B, I, J, G, W)  | 85   | ZE4640ME (B, I, J, G, W)  | 89   | –   | –    | –   | –    |
| D/A                      | ●  | VM43                     | 4,6                         | ZE3404ME (B)  | 39   | –   | –    | –   | –    | –   | –    |
| D/A                      | ●  | VM43                     | 6,8                         | ZE3408ME (B, I, J, G, W)  | 42   | ZE4408ME (B, I, J, G, W)  | 46   | –   | –    | –   | –    |
| D/A                      | ●  | VM43                     | 9,8                         | ZE3410ME (B, I, J, G, W)  | 48   | ZE4410ME (B, I, J, G, W)  | 52   | ZE5410MW (J, G)   | 57   | ZE6410MW (J, G)   | 74   |
| D/A                      | ●  | VM43                     | 19,8                        | ZE3420ME (B, I, J, G, W)  | 60   | ZE4420ME (B, I, J, G, W)  | 64   | ZE5420MW (J, G)   | 69   | ZE6420MW (J, G)   | 87   |
| D/A                      | ●  | VM43                     | 39,0                        | ZE3440ME (B, I, J, G, W)  | 83   | ZE4440ME (B, I, J, G, W)  | 87   | ZE5440MW (J, G)   | 92   | ZE6440MW (J, G)   | 110  |
| D/A                      | ●  | VM43L                    | 6,8                         | ZE3808ME (B, I, J, G, W)  | 44   | –   | –    | –   | –    | –   | –    |
| D/A                      | ●  | VM43L                    | 19,8                        | ZE3820ME (B, I, J, G, W)  | 62   | ZE4820ME (B, I, J, G, W)  | 66   | ZE5820MW (J, G)   | 71   | ZE6820MW (J, G)   | –    |
| D/A                      | ●  | VM43L                    | 39,0                        | ZE3840ME (B, I, J, G, W)  | 85   | ZE4840ME (B, I, J, G, W)  | 89   | ZE5840MW (J, G)   | 94   | ZE6840MW (J, G)   | 112  |
| S/A                      | –  | VE32D                    | 4,6                         | ZE3104DE (B, I, J, G, W)  | 43   | –   | –    | –   | –    | –   | –    |
| S/A                      | –  | VE32D                    | 6,8                         | ZE3108DE (B, I, J, G, W)  | 45   | ZE4108DE (B, I, J, G, W)  | 49   | –   | –    | –   | –    |
| S/A                      | –  | VE32D                    | 9,8                         | ZE3110DE (B, I, J, G, W)  | 52   | ZE4110DE (B, I, J, G, W)  | 55   | ZE5110DW (J, G)   | 62   | ZE6110DW (J, G)   | 79   |
| S/A                      | –  | VE32D                    | 19,8                        | ZE3120DE (B, I, J, G, W)  | 64   | ZE4120DE (B, I, J, G, W)  | 68   | ZE5120DW (J, G)   | 74   | ZE6120DW (J, G)   | 92   |
| S/A                      | –  | VE32D                    | 39,0                        | –   | –    | ZE4140DE (B, I, J, G, W)  | 91   | ZE5140DW (J, G)   | 97   | ZE6140DW (J, G)   | 114  |
| S/A                      | ●  | VE33                     | 4,6                         | ZE3304SE (B, I, J, G, W)  | 48   | –   | –    | –   | –    | –   | –    |
| S/A                      | ●  | VE33                     | 6,8                         | ZE3308SE (B, I, J, G, W)  | 51   | ZE4308SE (B, I, J, G, W)  | 55   | –   | –    | –   | –    |
| S/A                      | ●  | VE33                     | 9,8                         | ZE3310SE (B, I, J, G, W)  | 57   | ZE4310SE (B, I, J, G, W)  | 61   | ZE5310SW (J, G)   | 67   | ZE6310SW (J, G)   | 84   |
| S/A                      | ●  | VE33                     | 19,8                        | ZE3320SE (B, I, J, G, W)  | 69   | ZE4320SE (B, I, J, G, W)  | 73   | ZE5320SW (J, G)   | 79   | ZE6320SW (J, G)   | 97   |
| S/A                      | ●  | VE33                     | 39,0                        | ZE3340SE (B, I, J, G, W)  | 92   | ZE4340SE (B, I, J, G, W)  | 96   | ZE5340SW (J, G)   | 102  | ZE6340SW (J, G)   | 120  |
| S/A                      | ●  | VE33VAC                  | 6,8                         | –   | –    | ZE41108SE (B, I, J, G, W)                                       | 52   | –   | –    | –   | –    |
| S/A                      | ●  | VE33VAC                  | 19,8                        | –   | –    | ZE41120SE (B, I, J, G, W)                                       | 70   | ZE51120SW (J, G)  | 76   | ZE61120SW (J, G)  | 94   |
| S/A                      | ●  | VE33VAC                  | 39,0                        | –   | –    | –   | –    | ZE51140SW (J, G)  | 99   | ZE61140SW (J, G)  | 117  |
| D/A                      | ●  | VE43                     | 4,6                         | ZE3404SE (B, I, J, G, W)  | 48   | –   | –    | –   | –    | –   | –    |
| D/A                      | ●  | VE43                     | 6,8                         | ZE3408SE (B, I, J, G, W)  | 51   | ZE4408SE (B, I, J, G, W)  | 55   | –   | –    | –   | –    |
| D/A                      | ●  | VE43                     | 9,8                         | ZE3410SE (B, I, J, G, W)  | 57   | ZE4410SE (B, I, J, G, W)  | 61   | ZE5410SW (J, G)   | 67   | ZE6410SW (J, G)   | 84   |
| D/A                      | ●  | VE43                     | 19,8                        | ZE3420SE (B, I, J, G, W)  | 69   | ZE4420SE (B, I, J, G, W)  | 73   | ZE5420SW (J, G)   | 79   | ZE6420SW (J, G)   | 97   |
| D/A                      | ●  | VE43                     | 39,0                        | ZE3440SE (B, I, J, G, W)  | 92   | ZE4440SE (B, I, J, G, W)  | 96   | ZE5440SW (J, G)   | 102  | ZE6440SW (J, G)   | 120  |

<sup>1)</sup> S/A or D/A = For use with Single-Acting or Double-Acting cylinders and tools. <sup>2)</sup> Additional details can be found in the Directional Control Valve section.

<sup>3)</sup> "E" suffix model numbers shown are 230 VAC, 1-phase, 50/60 Hz. "W" suffix model numbers shown are 400 VAC, 3-phase, 50/60 Hz. Other voltages available as shown.

Replace "E" voltage suffix with selected voltage character. Model number order example: **ZE4108DB** is 115VAC, 1 phase, 50/60 Hz. See Ordering Guide page 106 for voltage descriptions.

NOTE: Voltage options K (440 VAC, 3-phase, 50/60 Hz) and R (575 VAC, 3-phase, 60 Hz) are available on select models. Contact your local representative for availability.

NOTE: Valve operation "L" available on pumps with manual valve. Substitute "M" for "L" valve operation. Example: **ZE3608LE**.





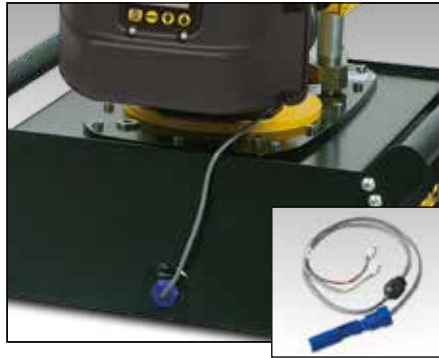
### Electric Box <sup>1)</sup>

- Back-lit LCD
- Pump usage information, hour and cycle counts
- Low-voltage warning and recording
- Self-test and diagnostic capabilities
- Pressure read-out <sup>2)</sup>
- Auto-mode pressure setting <sup>2)</sup>
- Information can be displayed in six languages <sup>3)</sup>

<sup>1)</sup> Included on pumps with solenoid valves.

<sup>2)</sup> When used with optional pressure transducer.

<sup>3)</sup> English, French, German, Italian, Spanish and Portuguese.



### Level & Temperature Switch (L) <sup>4)</sup>

- Shuts down pump before oil level reaches an unsafe level, avoiding damage due to cavitation
- Shuts down pump when unsafe oil temperature is reached
- Ideal if pump is used in remote area without visual access to oil level.

<sup>4)</sup> 24 V, requires Electric Box. Available for 9,8; 19,8 and 39 litres reservoirs.



### Return Line Filter (F)

- 25 micron nominal filter removes contaminants from return oil flow before allowing it back into tank
- Internal by-pass valve prevents damage if filter is dirty
- With maintenance indicator
- Replaceable filter element PF25.

| Accessory Kit Modelnr. | Fixed Temperature Signal (°C) | Operating Temperature (°C) | Max. Pressure (bar) |
|------------------------|-------------------------------|----------------------------|---------------------|
| ZLS-U4                 | 80                            | 5 - 110                    | 10                  |

| Accessory Kit Modelnr. | Maximum Pressure (bar) | Maximum Oil Flow (l/min) | By-pass Setting (bar) |
|------------------------|------------------------|--------------------------|-----------------------|
| ZPF                    | 13,8                   | 45,4                     | 1,7                   |



### Roll Cage (R)

- For easy portability and hoisting
- Protects pump and electric box
- Available for all reservoir sizes.



### Skid Bar (K)

- Provides easy two-hand lift
- Provides greater pump stability on soft or uneven surfaces.



### Foot Switch (U) <sup>7)</sup>

- Hands-free remote control on solenoid dump and 3-position valves
- With 3 meters cord.

<sup>7)</sup> 15 V, requires Electric Box.

| Accessory Kit Nr. | Fits on reservoir size:          | (kg) |
|-------------------|----------------------------------|------|
| ZRC-04            | 4,6 and 6,8 litres <sup>5)</sup> | 5,5  |
| ZRC-04H           | 4,6 and 6,8 litres <sup>6)</sup> | 6,5  |
| ZRB-10            | 9,8 litres                       | 6,0  |
| ZRB-20            | 19,8 litres                      | 6,0  |
| ZRB-40            | 39 litres                        | 6,0  |

<sup>5)</sup> For pump without heat exchanger

<sup>6)</sup> For pump with heat exchanger.

| Accessory Kit Nr. | Fits on reservoir size:          | (kg) |
|-------------------|----------------------------------|------|
| SBZ-4             | 4,6 and 6,8 litres <sup>5)</sup> | 2,2  |
| SBZ-4L            | 4,6 and 6,8 litres <sup>6)</sup> | 3,2  |

<sup>5)</sup> For pump without heat exchanger

<sup>6)</sup> For pump with heat exchanger.

| Accessory Kit Nr. | Can be used on ZE-Series pumps with |
|-------------------|-------------------------------------|
| ZCF-2             | Solenoid VE-Series valves           |



### Pressure Transducer (T) <sup>1)</sup>

- Displays pressure on LCD in bar, MPa or psi
- More accurate than analog gauge
- Calibration can be fine-tuned for certification
- Easy-viewing variable rate display
- "Set pressure" feature turns off motor at user defined pressure.

<sup>1)</sup> 24 V, requires Electric Box.



### Pressure Switch (P) <sup>2)</sup>

- Controls pump, monitors system
- Adjustable pressure 35-700 bar
- Includes glycerine filled 1000 bar pressure gauge G2536L
- Accuracy  $\pm 1,5\%$  of full scale.

<sup>2)</sup> 24 V, requires Electric Box. Not available in combination with pressure transducer. Not available on LCD-electronics.

## ZE Series



Reservoir Capacity:

**4,6 - 39 litres**

Flow at Rated Pressure:

**0,55 - 2,73 l/min**

Motor Size:

**0,75 - 5,60 kW**

Maximum Operating Pressure:

**700 bar**

| Accessory Kit Modelnr. | Adjustable Pressure Range (bar) | Switch-point repeatability | Dead-band (bar) |
|------------------------|---------------------------------|----------------------------|-----------------|
| ZPT-U4                 | 3,5 - 700                       | $\pm 0,5\%$                | 3,5             |

| Accessory Kit Modelnr. | Switch-point repeatability | Deadband (bar) | Oil Ports (NPTF) |
|------------------------|----------------------------|----------------|------------------|
| ZPS-E3                 | $\pm 2\%$                  | 8 - 38         | 3/8"             |



### ZPT-U4 Pressure Transducer

More durable against mechanical and hydraulic shock than analog gauges.

- Digital pressure read-out provides accuracy of 0,5% of full scale.
- Easy-viewing variable rate display automatically varies increments between 3, 14, 35 and 145 bar as rate of pressure change increases.
- "Set pressure" feature turns off motor at user defined pressure (or shifts valve to neutral on VE33 and VE43 valves).



### Heat Exchanger (H) <sup>3)</sup>

- Removes heat from by-pass oil to provide cooler operation
- Stabilizes oil viscosity, increasing oil life and reduces wear of pump and other hydraulic components.

<sup>3)</sup> 24 VDC, requires electric box.



### Pressure Gauge (G)

- Minimize risk of overloading to ensure long life of equipment
- $\varnothing$  63 mm face diameter, glycerin filled
- Dual scale in bar and psi.

**Note:** Pressure Gauge not available on pump models with pressure transducer. The pressure transducer provides digital pressure read-out on LCD-display.



### ZHE-Series Heat Exchangers

Heat exchanger stabilizes oil temperature at 54 °C at 21 °C ambient temperature. Thermal transfer at

1,9 l/min and 21 °C ambient temperature: 900 Btu/hour [950 kJ].

**Do not exceed max. oil flow of 26,5 l/min and max. pressure of 20,7 bar. Not suitable for water-glycol or high water based fluids.**

| Accessory Kit Nr. | Fits on reservoir size: | (kg) |
|-------------------|-------------------------|------|
| ZHE-E04           | 4,6 and 6,8 litres      | 4,1  |
| ZHE-E10           | 9,8; 19,8 and 39 litres | 4,1  |

| Accessory Kit Model Nr. | Description                  |
|-------------------------|------------------------------|
| G2536L                  | 0 - 1000 bar, 0 - 15.000 psi |

# PA-Series, Air Hydraulic Foot Pumps

**ENERPAC** 

▼ Shown: PA1150, PA133



## PA Series

Reservoir Capacity:  
**0,6 - 1,3 litres**

Flow at Rated Pressure:  
**0,13 l/min**

Air Consumption:  
**255 l/min**

Maximum Operating Pressure:  
**700 bar**



### Reservoir Conversion Kit

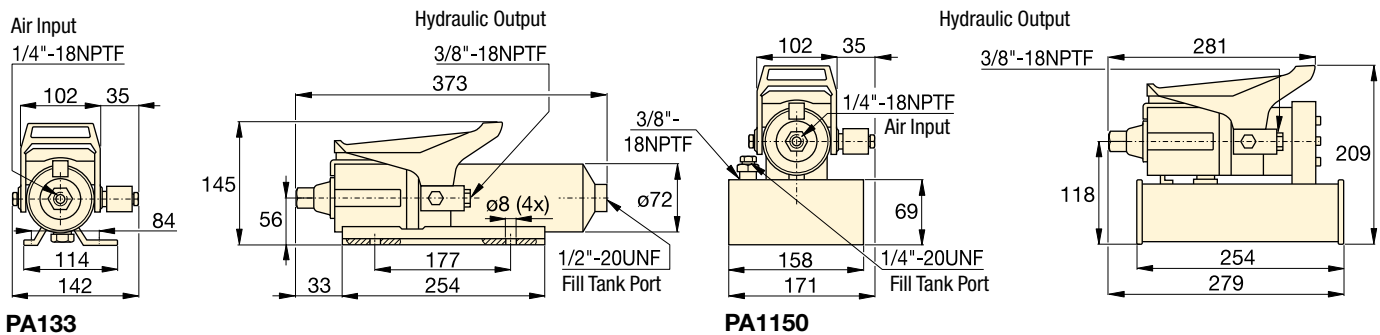
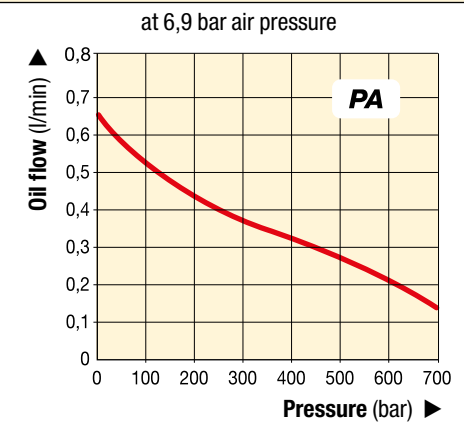
Double the reservoir capacity of your existing PA133 with this easy to install conversion kit.

Model Number

**PC66**

- Rugged construction – built for long life and easy service
- Swivel coupling simplifies hydraulic connection and pump operation
- Three-position treadle provides cylinder advance, hold or retract operation
- Operates in all positions for increased versatility in use and mounting (except PA1150)
- Base mounting slots provided on PA133.

### OIL FLOW VERSUS PRESSURE



| Used with Cylinder | Usable Oil Capacity (cm <sup>3</sup> ) | Model Number | Pressure Rating (bar) | Output Flow Rate (l/min) |      | Valve Function           | Air Pressure Range * (bar) | Air Consumption (l/min) | Sound Level (dBA) | Weight (kg) |
|--------------------|--|--------------|-----------------------|--------------------------|------|--------------------------|----------------------------|-------------------------|-------------------|-------------|
|                    |  |              |                       | No load                  | Load |                          |                            |                         |                   |             |
| Single-Acting      | 589                                    | PA133        | 700                   | 0,65                     | 0,13 | Advance / Hold / Retract | 4,1 - 8,3                  | 255                     | 85                | 5,4         |
|                    | 1311                                   | PA1150       | 700                   | 0,65                     | 0,13 | Advance / Hold / Retract | 4,1 - 8,3                  | 255                     | 85                | 8,2         |

\* Recommended Regulator-Filter-Lubricator: RFL102.

# PAM-Series, Air Hydraulic Pumps

▼ Shown: PAM1041



## PAM Series

Reservoir Capacity:

**4,0 - 8,0 litres**

Flow at Rated Pressure:

**0,15 l/min**

Air Consumption:

**510 l/min**

Maximum Operating Pressure:

**700 bar**



### Locking Valves

Pumps with 4/3 manual valves are available with 4/3 manual locking valves **VM4L** instead. Add suffix "L" to pump model number. Example: **PAM1042L**.

Page: **122**

- Twin air motor configuration delivers high-flow performance in first stage, up to 14 bar, for rapid cylinder advance
- 4 and 8 litres reservoirs for use with a wide range of cylinders
- Integral shroud protects air motors and provides easy portability.

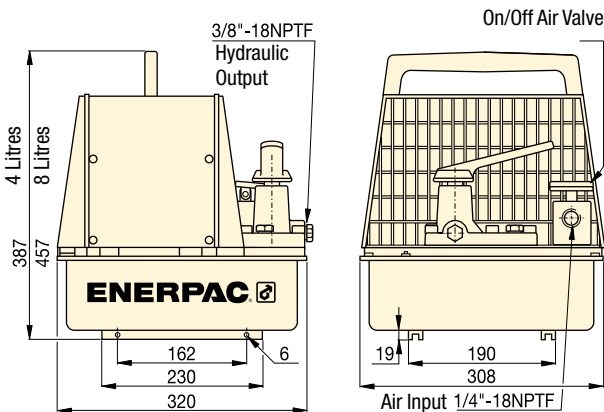


### Remote Air Valve

For remote operation of PAM-Series air pumps. Permits either hand or foot operation.

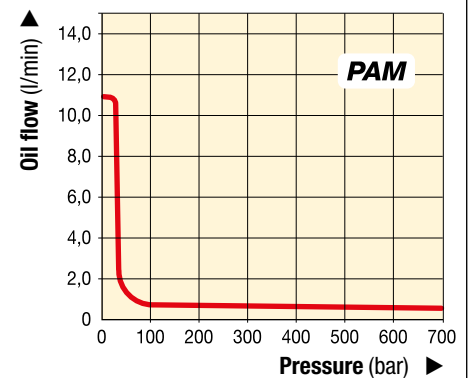
Model Number

**VA2**



### OIL FLOW VERSUS PRESSURE

at 6,9 bar air pressure



| Used with Cylinder | Usable Oil Cap. (litres) | Model Number with Shroud | Pressure Rating (bar) | Output Flow Rate (l/min) |                       | Valve Function        | Valve Type | Valve Model Number | Air Pressure Range * (bar) | Air Consumption (l/min) | Sound Level (dBA) | Weight (kg) |
|--------------------|--------------------------|--------------------------|-----------------------|--------------------------|-----------------------|-----------------------|------------|--------------------|----------------------------|-------------------------|-------------------|-------------|
|                    |                          |                          |                       | 1 <sup>st</sup> stage    | 2 <sup>nd</sup> stage |                       |            |                    |                            |                         |                   |             |
| Single-Acting      | 2,6                      | <b>PAM1021</b>           | 700                   | 10,65                    | 0,15                  | Advance/Hold/Retract  | 3/2        | VM2                | 4,1 - 8,3                  | 510                     | 87                | 22,7        |
|                    | 7,6                      | <b>PAM1022</b>           | 700                   | 10,65                    | 0,15                  | Advance/Hold/Retract  | 3/2        | VM2                | 4,1 - 8,3                  | 510                     | 87                | 27,2        |
| Double-Acting      | 2,6                      | <b>PAM1041</b>           | 700                   | 10,65                    | 0,15                  | Advance/Hold /Retract | 4/3        | VM4                | 4,1 - 8,3                  | 510                     | 87                | 22,7        |
|                    | 7,6                      | <b>PAM1042</b>           | 700                   | 10,65                    | 0,15                  | Advance/Hold/Retract  | 4/3        | VM4                | 4,1 - 8,3                  | 510                     | 87                | 27,2        |

\* Recommended Regulator-Filter-Lubricator: **RFL102**.



▼ Shown from top to bottom: PAMG1402N, PARG1102N, PATG1102N, PATG1105N



- External adjustable pressure relief valve (behind sight glass)
- Return-to-tank port for use in remote valve applications
- Internal pressure relief valve provides overload protection
- Quieter operation – reduced noise level to 76 dBA
- Operating air pressure: 2,8 - 8,8 bar, enables pump to start at extremely low pressure
- High efficiency cast aluminium air motor
- Reinforced heavy-duty lightweight reservoir for applications in tough environments
- Air pendant for remote control operation.

## Compact Air Over Hydraulic



### Regulator-Filter-Lubricator

Recommended for use with all Turbo air pumps. Provides clean, lubricated air and allows for air pressure adjustment. Steel bowl guards are standard.

Model Number

**RFL102**



### Large Reservoir Models

The Turbo II Air Pump is also available with an enlarged reservoir: **PATG1105N**, **PAMG1405N** and **PARG1105N**.



### Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

Page: **128**

▼ Easily operated by hand or by foot.



| Used with Cylinder | Usable Oil Capacity (cm <sup>3</sup> ) | Model Number     |
|--------------------|--|------------------|
| Single-Acting      | 2081                                   | <b>PATG1102N</b> |
|                    | 3770                                   | <b>PATG1105N</b> |
| Single-Acting      | 2081                                   | <b>PARG1102N</b> |
|                    | 3770                                   | <b>PARG1105N</b> |
| Double-Acting      | 2081                                   | <b>PAMG1402N</b> |
|                    | 3770                                   | <b>PAMG1405N</b> |

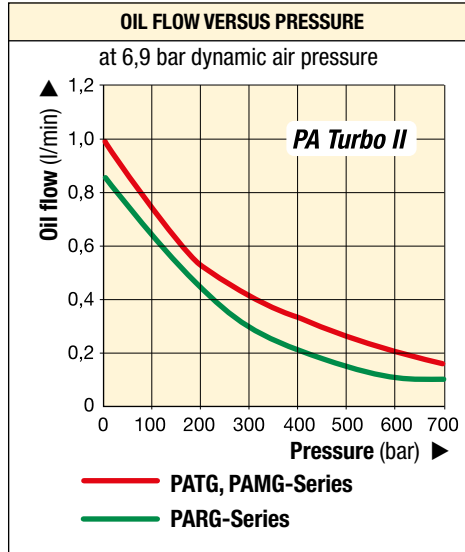
# PA-Series, Turbo II Air Hydraulic Pumps



**PATG-models** use a foot or hand operated treadle to control air and valve functions.

**PAMG-models** use a treadle with a locking feature to control air, and a 4-way manual valve to control hydraulics.

**PARG-models** use air pendant for remote control.



## PATG PAMG PARG Series



Reservoir Capacity:

**2,5 - 5,0 litres**

Flow at Rated Pressure:

**0,10 - 0,16 l/min**

Air Consumption:

**227 - 340 l/min**

Maximum Operating Pressure:

**700 bar**

| Maximum Pressure<br>(bar) | Output Flow Rate<br>(l/min) |      | Pump Series | Valve Function | Air Pressure Range<br>(bar) | Air Consumption at 5,2 bar air<br>(l/min) | Sound Level<br>(dBA) |
|---------------------------|-----------------------------|------|-------------|----------------|-----------------------------|---|----------------------|
|                           | No Load                     | Load |             |                |                             |   |                      |
| 700                       | 1,00                        | 0,16 | <b>PATG</b> | A / H / R *    | 2,8 - 8,8                   | 340                                       | 76                   |
| 700                       | 0,76                        | 0,10 | <b>PARG</b> | A / H / R *    | 2,8 - 10,3                  | 227                                       | 76                   |
| 700                       | 1,00                        | 0,16 | <b>PAMG</b> | A / H / R *    | 2,8 - 8,8                   | 340                                       | 76                   |

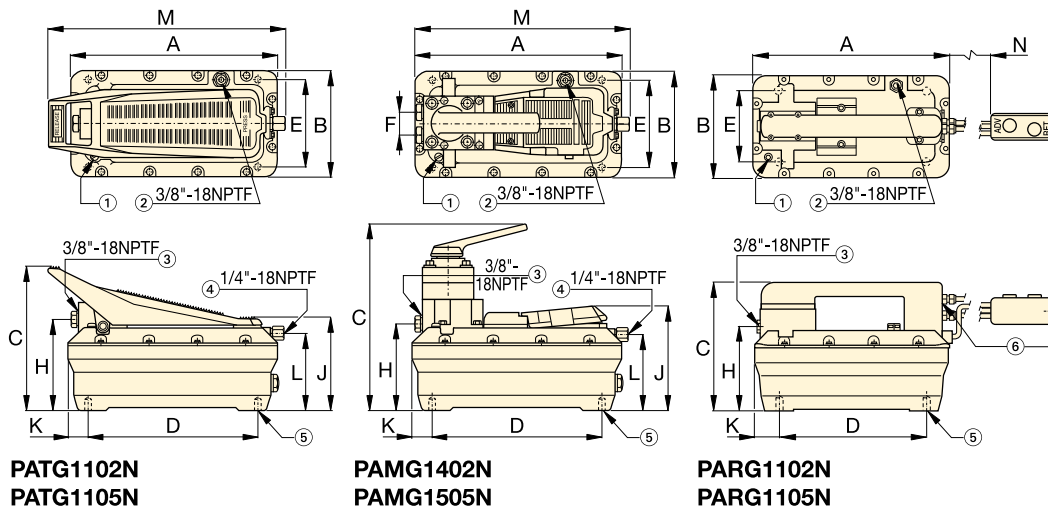
\* Valve function: Advance / Hold / Retract.



### Speed Chart

To determine how a specific pump will operate your cylinder, see the Pump-Cylinder Speed Chart in the 'Yellow Pages'.

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| Valve Operation | Turbo II Dimensions (mm) |     |     |     |     |    |     |     |    |     |     |      |      | (kg)             | Model Number |
|-----------------|--------------------------|-----|-----|-----|-----|----|-----|-----|----|-----|-----|------|------|------------------|--------------|
|                 | A                        | B   | C   | D   | E   | F  | H   | J   | K  | L   | M   | N    |      |                  |              |
| Treadle 3/3     | 313                      | 165 | 211 | 230 | 102 | —  | 129 | 146 | 42 | 113 | 347 | —    | 8,2  | <b>PATG1102N</b> |              |
|                 | 396                      | 201 | 209 | 230 | 102 | —  | 131 | 146 | 86 | 112 | 437 | —    | 9,9  | <b>PATG1105N</b> |              |
| Air Pendant 3/3 | 313                      | 165 | 200 | 230 | 102 | —  | 129 | —   | 42 | —   | —   | 4500 | 10,0 | <b>PARG1102N</b> |              |
|                 | 396                      | 201 | 209 | 230 | 102 | —  | 131 | —   | 86 | —   | —   | 4500 | 11,7 | <b>PARG1105N</b> |              |
| Manual 4/3      | 313                      | 165 | 267 | 230 | 102 | 36 | 130 | 152 | 42 | 113 | 315 | —    | 11,0 | <b>PAMG1402N</b> |              |
|                 | 396                      | 201 | 267 | 230 | 102 | 36 | 132 | 152 | 86 | 112 | 405 | —    | 12,7 | <b>PAMG1405N</b> |              |

▼ Shown: XA11G



- Ergonomic design for less operator fatigue
- Variable oil flow & fine metering for precise control
- Higher oil flow for increased productivity
- Closed hydraulic system prevents contamination and allows pump usage in any position
- Pedal lock function for retract position
- External adjustable pressure setting valve
- Ground screw for improved ATEX explosion safety.

II 2 GD ck T4

▼ Easy operated by foot. No need to fully lift up foot – rest bodyweight on heel, resulting in a handsfree and stabile working position.



## Productivity & Ergonomics



### Optional Pressure Gauge

Integrated gauge with calibrated scale reading in bar, psi and MPa for actual pressure reading.



### 4/3 Control Valve

For powering double-acting hydraulic cylinders and tools.



### 2 Litres Reservoir

Double oil capacity for powering larger hydraulic cylinders and tools.



### "Joy-stick" Lever Kit

Customer installed set of handles for manual operation of both pedals.

Model Number<sup>1)</sup>

**XLK1**



### Swivel Connector

Customer installed swivel connector for optimal orientation of the hydraulic hose. See page 133 for details.

Model Number<sup>1)</sup>

**XSC1**

<sup>1)</sup> Accessories must be ordered separately.

# Air Driven Hydraulic Foot Pumps



## Production Application

XA11 pump is used with a 13 tons hollow cylinder to compress and position diesel engine valve springs.

The operator benefits from the fine metering capacities of this pump to apply the mandatory precise stroke and force.

## XA Series



Reservoir Capacity:

**1,0 - 2,0 litres**

Flow at Rated Pressure:

**0,25 l/min**

Air Consumption:

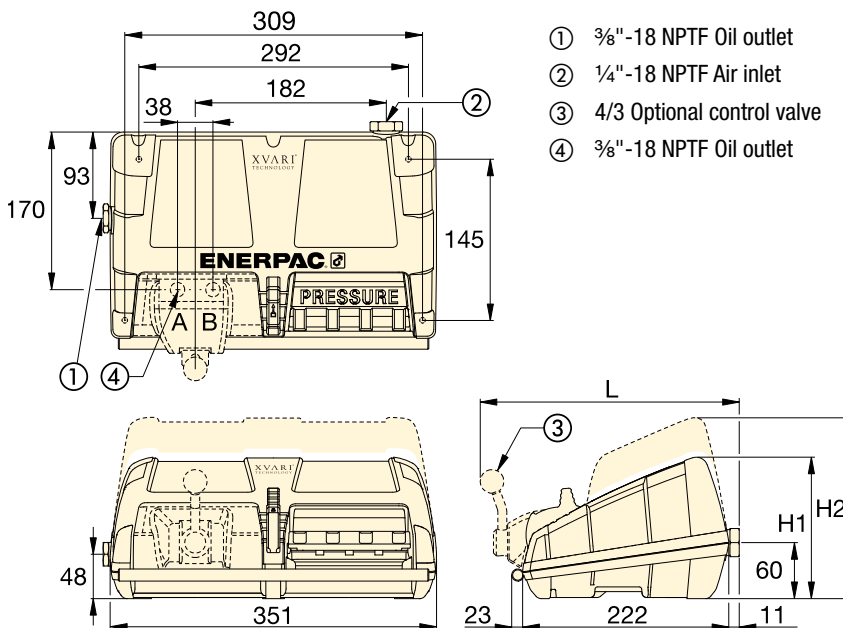
**283 - 991 l/min**

Maximum Operating Pressure:

**700 bar**

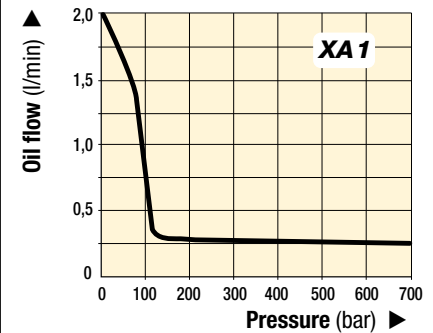
### ▼ XA-SERIES PERFORMANCE CHART

| Maximum Pressure<br>(bar) | Output Flow Rate<br>(l/min) |      | Pump Series | Valve Function           | Dynamic Air Pressure<br>(bar) |
|---------------------------|-----------------------------|------|-------------|--------------------------|-------------------------------|
|                           | No load                     | Load |             |                          |                               |
| 700                       | 2,0                         | 0,25 | <b>XA1</b>  | Advance / Hold / Retract | 2,1 - 8,6                     |



### OIL FLOW VERSUS PRESSURE

at 6,9 bar dynamic air pressure



### Regulator-Filter-Lubricator

Recommended for use with all XA-Series Air pumps. Provides clean, lubricated air and allows for air pressure adjustment.

Model Number<sup>1)</sup>

**RFL102**

### ▼ SELECTION CHART

| For use with cylinder or tool | Usable Oil Capacity (litres) | Model Number <sup>1)</sup> | Pressure Gauge | 3-way 3-pos. Valve | 4-way 3-pos. Valve | Dimensions (mm) |     |     | Weight (kg) |
|-------------------------------|------------------------------|----------------------------|----------------|--------------------|--------------------|-----------------|-----|-----|-------------|
|                               |                              |                            |                |                    |                    | H1              | H2  | L   |             |
| Single-acting                 | 1,0                          | <b>XA11</b> <sup>2)</sup>  | –              | •                  | –                  | 152             | –   | –   | 8,6         |
|                               | 2,0                          | <b>XA12</b> <sup>2)</sup>  | –              | •                  | –                  | –               | 170 | –   | 10,2        |
| Single-acting                 | 1,0                          | <b>XA11G</b>               | •              | •                  | –                  | 152             | –   | –   | 8,8         |
|                               | 2,0                          | <b>XA12G</b>               | •              | •                  | –                  | –               | 170 | –   | 10,4        |
| Double-acting                 | 1,0                          | <b>XA11V</b>               | –              | –                  | •                  | 152             | –   | 279 | 10,1        |
|                               | 2,0                          | <b>XA12V</b>               | –              | –                  | •                  | –               | 170 | 279 | 11,7        |
| Double-acting                 | 1,0                          | <b>XA11VG</b>              | •              | –                  | •                  | 152             | –   | 279 | 10,3        |
|                               | 2,0                          | <b>XA12VG</b>              | •              | –                  | •                  | –               | 170 | 279 | 11,9        |

<sup>1)</sup> High-Flow coupler CR400 and accessories must be ordered separately. <sup>2)</sup> Available as cylinder-pump set, see page 62.



▼ Shown: ZA4208MX, ZA4420MX



## Z Tough Dependable Innovative CLASS

- ATEX 95 certified for use in potentially explosive atmospheres
- Features Z-Class high efficiency pump design, higher oil flow and bypass pressure
- Two-speed operation reduces cycle time for improved productivity
- User adjustable relief valve built-in on manual valves. Oil ports on valves are 3/8" NPTF
- Optional heat exchanger warms exhaust air to prevent freezing and cools the oil
- Full sight oil level glass on 9,8, 19,8 and 39 litres reservoirs, oil level indicators on 4,6 and 6,8 litres reservoirs.



### ATEX 95 Certified

The Enerpac ZA4-series air pumps are tested and certified according to the **Equipment Directive 94 / 9 / EC "ATEX Directive"** for equipment and protective systems intended for use in potentially explosive atmospheres.



**II 2 GD ck T4**  
DEKRA 0602

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### Speed Chart

To determine how a specific pump will operate your cylinder, see the Pump-Cylinder Speed Chart in the 'Yellow Pages'.

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### Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

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| Used with Cylinder | Reservoir Size (litres) | Manual Valve <sup>1)</sup> Model Number | Valve Function          | Model Number    | Output Flow Rate <sup>2)</sup> |           |            |            | Relief Valve Adjustment Range (bar) | Maximum Air Consumption <sup>3)</sup> (l/min) |
|--------------------|-------------------------|---|-------------------------|-----------------|--------------------------------|-----------|------------|------------|-------------------------------------|---|
|                    |                         |   |                         |                 | at 7 bar                       | at 50 bar | at 350 bar | at 700 bar |                                     |   |
| –                  | 4,6                     | –                                       | –                       | <b>ZA4004NX</b> | 14,0                           | 11,0      | 1,8        | <b>1,3</b> | –                                   | 2840  |
| Single-acting      | 4,6                     | VM32                                    | Advance / Retract       | <b>ZA4204MX</b> | 14,0                           | 11,0      | 1,8        | <b>1,3</b> | 70 - 700                            | 2840  |
|                    | 6,8                     | VM33                                    | Advance / Hold /Retract | <b>ZA4308MX</b> | 14,0                           | 11,0      | 1,8        | <b>1,3</b> | 70 - 700                            | 2840  |
|                    | 9,8                     | VM33L                                   | Advance / Hold /Retract | <b>ZA4610MX</b> | 14,0                           | 11,0      | 1,8        | <b>1,3</b> | 70 - 700                            | 2840  |
| Double-acting      | 4,6                     | VM43                                    | Advance / Hold /Retract | <b>ZA4404MX</b> | 14,0                           | 11,0      | 1,8        | <b>1,3</b> | 70 - 700                            | 2840  |
|                    | 6,8                     | VM43                                    | Advance / Hold /Retract | <b>ZA4408MX</b> | 14,0                           | 11,0      | 1,8        | <b>1,3</b> | 70 - 700                            | 2840  |
|                    | 9,8                     | VM43L                                   | Advance / Hold /Retract | <b>ZA4810MX</b> | 14,0                           | 11,0      | 1,8        | <b>1,3</b> | 70 - 700                            | 2840  |
|                    | 19,8                    | VM43                                    | Advance / Hold /Retract | <b>ZA4420MX</b> | 14,0                           | 11,0      | 1,8        | <b>1,3</b> | 70 - 700                            | 2840  |
|                    | 39                      | VM43                                    | Advance / Hold /Retract | <b>ZA4440MX</b> | 14,0                           | 11,0      | 1,8        | <b>1,3</b> | 70 - 700                            | 2840  |

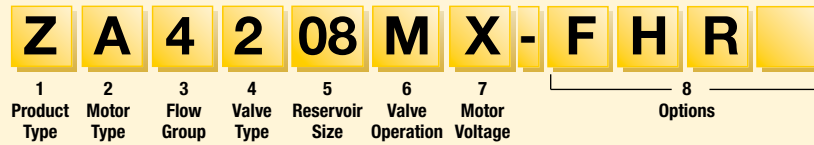
<sup>1)</sup> See pages 122-123 for hydraulic symbols of these valves.

<sup>2)</sup> Actual oil flow will vary with air supply.

<sup>3)</sup> Dynamic air pressure range: 4 - 7 bar.

# Modulair Air Hydraulic Pumps

▼ This is how a ZA4-Series pump model number is built up:



### 1 Product Type

**Z** = Pump Class

### 2 Prime Mover

**A** = Air motor

### 3 Flow Group

**4** = 1,3 l/min @ 700 bar

### 4 Valve Type

- 0** = No valve, with cover plate
- 2** = 3/2 manual valve **VM32**
- 3** = 3/3 manual valve **VM33**
- 4** = 4/3 manual valve **VM43**
- 6** = 3/3 manual locking valve **VM33L** with pilot operated check
- 7** = 3/2 manual valve **VM22**
- 8** = 4/3 manual locking valve **VM43L** with pilot operated check.

### 5 Reservoir Size

- 04** = 4,6 litres
- 08** = 6,8 litres
- 10** = 9,8 litres
- 20** = 19,8 litres
- 40** = 39 litres

### 6 Valve Operation

- M** = Manual valve
- N** = No valve

### 7 Motor Voltage

- X** = Not applicable

### 8 Options

- F** = Return Line Filter
- G** = 1000 bar gauge
- H** = Heat exchanger (on 4,6 and 6,8 litres reservoir only)
- K** = Skid Bar (on 4,6 and 6,8 litres reservoir only)
- N** = No reservoir handles (includes lifting eyes on 9,8, 19,8 and 39 litres)
- R** = Roll Cage

### Ordering Example

Model Number: **ZA4208MX-FHK**

ZA4208MX-FHK is an air operated pump with a 3-way, 2-position manual valve, 6,8 litres reservoir, filter, heat exchanger and skid bar.

## ZA4 Series



Reservoir Capacity:

**4,6 - 39 litres**

Flow at Rated Pressure:

**1,3 l/min**

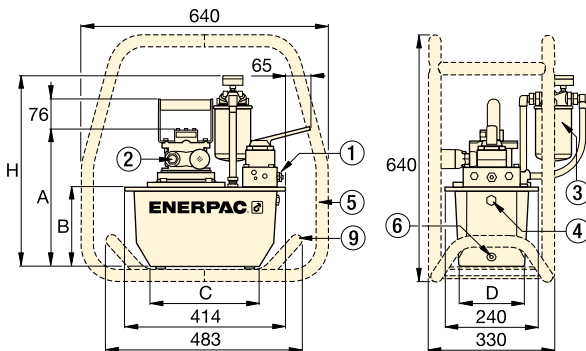
Air Consumption:

**2840 l/min**

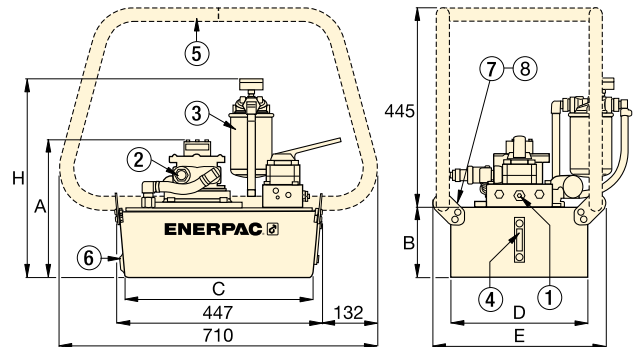
Maximum Operating Pressure:

**700 bar**

- ① User adjustable relief valve on all manual valves. 3/8" NPTF on A and B ports; 1/4" NPTF on auxiliary ports.
- ② Air inlet 1/2" NPTF
- ③ Return Line Filter (optional)
- ④ Oil Sight Gauge
- ⑤ Roll Cage (optional)
- ⑥ Oil Drain
- ⑦ Lifting eyes (optional)
- ⑧ Handles
- ⑨ Skid Bar (Modelnr. SBZ4) (optional)

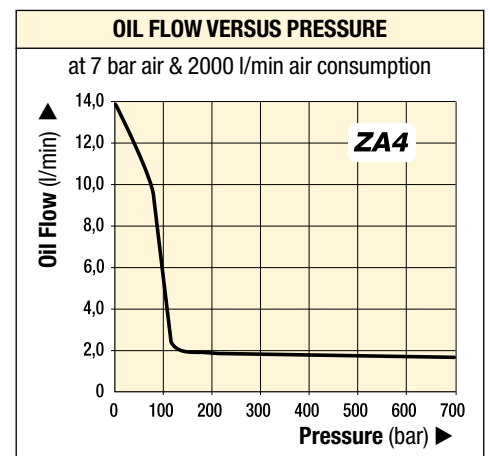


ZA4-Series Pumps with 4,6 - 6,8 litres reservoir



ZA4-Series Pumps with 9,8, 19,8 and 39 litres reservoir

| Sound Level (dBA) | Motor Size (kW) | Dimensions (mm) |     |     |     |     |     |    | Weight (kg)     | Model Number |
|-------------------|-----------------|-----------------|-----|-----|-----|-----|-----|----|-----------------|--------------|
|                   |                 | A               | B   | C   | D   | E   | H   |    |                 |              |
| 80 - 95           | 3,0             | 295             | 142 | 279 | 152 | -   | 429 | 27 | <b>ZA4004NX</b> |              |
| 80 - 95           | 3,0             | 295             | 142 | 279 | 152 | -   | 429 | 30 | <b>ZA4204MX</b> |              |
| 80 - 95           | 3,0             | 356             | 203 | 279 | 205 | -   | 490 | 34 | <b>ZA4308MX</b> |              |
| 80 - 95           | 3,0             | 330             | 180 | 414 | 421 | 500 | 467 | 51 | <b>ZA4610MX</b> |              |
| 80 - 95           | 3,0             | 295             | 142 | 279 | 152 | -   | 429 | 31 | <b>ZA4404MX</b> |              |
| 80 - 95           | 3,0             | 356             | 203 | 279 | 205 | -   | 490 | 35 | <b>ZA4408MX</b> |              |
| 80 - 95           | 3,0             | 305             | 155 | 419 | 305 | 384 | 442 | 40 | <b>ZA4810MX</b> |              |
| 80 - 95           | 3,0             | 330             | 180 | 414 | 421 | 500 | 467 | 52 | <b>ZA4420MX</b> |              |
| 80 - 95           | 3,0             | 419             | 269 | 399 | 505 | 584 | 556 | 75 | <b>ZA4440MX</b> |              |



▼ Shown from left to right: ZG6440MX-BFCH, ZG5420MX-B



**Z** Tough,  
Dependable,  
Innovative  
**CLASS**

- Features Z-Class high efficiency pump design, higher oil flow and bypass pressure
- Two-speed operation reduces cycle time for improved productivity
- User adjustable relief valve built-in on manual valves. Oil ports on valves are 3/8" NPTF
- Available in three 4-cycle engine sizes: 4,1 kW Honda and 4,8 kW and 9,7 kW Briggs & Stratton
- Full sight oil level glass on all reservoirs allow quick and easy oil level monitoring.

### ZG6-Series

- Easy serviceable 9,7 kW, 4-cycle gasoline engine with electric start, pressurized oil and 12 Volt charge output for accessories
- Dual forced air heat exchanger stabilizes hydraulic oil temperature
- Sturdy wheeled cart with collapsible handles.



#### GA45GC Gauge Adaptor Assembly

Protect yourself from system overloading by simply ordering one part number for a pre-assembled gauge, adaptor block and coupler.

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#### User Adjustable Relief Valve

All VM-Series directional valves have a user adjustable relief valve to allow the operator to easily set the optimum working pressure.

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### ▼ SELECTION CHART

| Used with Cylinder | Reservoir Size<br>(litres) | Manual Valve <sup>1)</sup><br>Model Number | Valve Function           | Model Number with Roll Cage | Output Flow Rate (l/min) |           |            |            | 4-Cycle Engine Type and Size |
|--------------------|----------------------------|--|--------------------------|-----------------------------|--------------------------|-----------|------------|------------|------------------------------|
|                    |                            |  |                          |                             | at 7 bar                 | at 50 bar | at 350 bar | at 700 bar |                              |
| Single-Acting      | 9,8                        | VM33                                       | Advance / Hold / Retract | ZG5310MX-R                  | 11,5                     | 10,7      | 1,8        | 1,6        | Honda<br>4,1 kW              |
|                    | 19,8                       | VM33                                       | Advance / Hold / Retract | ZG5320MX-R                  | 11,5                     | 10,7      | 1,8        | 1,6        |                              |
| Double-Acting      | 9,8                        | VM43                                       | Advance / Hold / Retract | ZG5410MX-R                  | 11,5                     | 10,7      | 1,8        | 1,6        |                              |
|                    | 19,8                       | VM43                                       | Advance / Hold / Retract | ZG5420MX-R                  | 11,5                     | 10,7      | 1,8        | 1,6        |                              |
| Single-Acting      | 9,8                        | VM33                                       | Advance / Hold / Retract | ZG5310MX-BR                 | 6,5                      | 6,2       | 1,8        | 1,6        | Briggs & Stratton<br>4,8 kW  |
|                    | 19,8                       | VM33                                       | Advance / Hold / Retract | ZG5320MX-BR                 | 6,5                      | 6,2       | 1,8        | 1,6        |                              |
| Double-Acting      | 9,8                        | VM43                                       | Advance / Hold / Retract | ZG5410MX-BR                 | 6,5                      | 6,2       | 1,8        | 1,6        |                              |
|                    | 19,8                       | VM43                                       | Advance / Hold / Retract | ZG5420MX-BR                 | 6,5                      | 6,2       | 1,8        | 1,6        |                              |
|                    | 39                         | VM43L                                      | Advance / Hold / Retract | ZG5840MX-BR                 | 6,5                      | 6,2       | 1,8        | 1,6        |                              |
| Double-Acting      | 39                         | VM43                                       | Advance / Hold / Retract | ZG6440MX-BCFH               | 14,7                     | 14,5      | 3,7        | 3,3        |                              |
|                    | -                          | -  | -                        | -                           | -                        | -         | -          | -          |                              |

<sup>1)</sup> See pages 122-123 for hydraulic symbols of these valves.

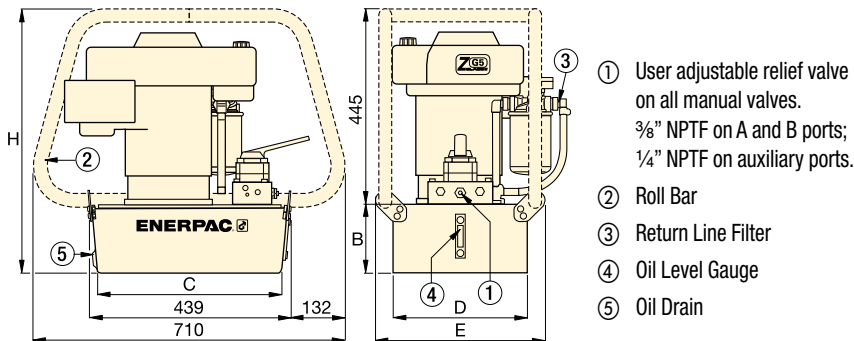


## ZG-Series, Gasoline Pump Performance

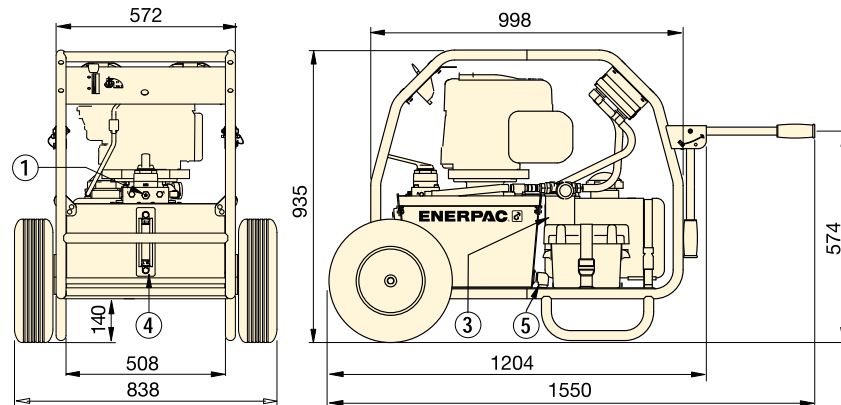
Elevation can affect the performance of any gasoline engine. ZG-Series pumps are designed to develop rated performance at elevations up to 1500 m. For applications above this elevation, please consult your Enerpac office.

### Optional: Diesel Engine

ZG-Series pumps can also be equipped with a Diesel Engine. Contact Enerpac for details.



ZG5-Series



ZG6-Series

## ZG Series



Reservoir Capacity:

**9,8 - 19,8 - 39 litres**

Flow at Rated Pressure:

**1,6 - 3,3 l/min**

Engine Size:

**4,1 - 4,8 - 9,7 kW**

Maximum Operating Pressure:

**700 bar**



### High Pressure Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

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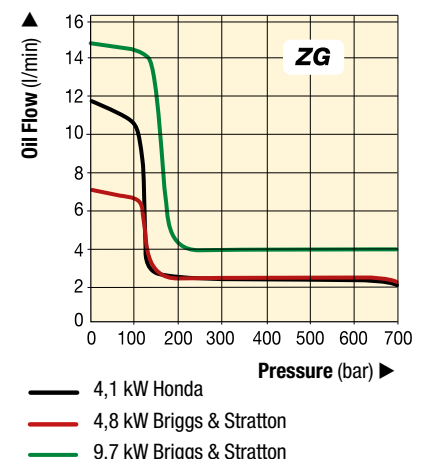
### Speed Chart

To determine how a specific pump will operate your cylinder, see the Pump-Cylinder Speed Chart in the 'Yellow Pages'.

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| Relief Valve Adjustment Range (bar) | Sound Level (dBA) | Dimensions (mm) |     |     |     |     | Model Number with Roll Cage (kg) |               |
|-------------------------------------|-------------------|-----------------|-----|-----|-----|-----|----------------------------------|---------------|
|                                     |                   | B               | C   | D   | E   | H   |                                  |               |
| 70 - 700                            | 88 - 93           | 155             | 419 | 305 | 384 | 600 | 52                               | ZG5310MX-R    |
|                                     |                   | 180             | 414 | 421 | 500 | 625 | 64                               | ZG5320MX-R    |
|                                     |                   | 155             | 419 | 305 | 384 | 600 | 52                               | ZG5410MX-R    |
|                                     |                   | 180             | 414 | 421 | 500 | 625 | 64                               | ZG5420MX-R    |
| 70 - 700                            | 88 - 93           | 155             | 419 | 305 | 384 | 600 | 50                               | ZG5310MX-BR   |
|                                     |                   | 180             | 414 | 421 | 500 | 625 | 63                               | ZG5320MX-BR   |
|                                     |                   | 155             | 419 | 305 | 384 | 600 | 50                               | ZG5410MX-BR   |
|                                     |                   | 180             | 414 | 421 | 500 | 625 | 63                               | ZG5420MX-BR   |
|                                     |                   | 269             | 399 | 505 | 557 | 714 | 86                               | ZG5840MX-BR   |
| 70 - 700                            | 88 - 93           | -               | -   | -   | -   | -   | 152                              | ZG6440MX-BCFH |
|                                     |                   | -               | -   | -   | -   | -   | -                                | -             |

### OIL FLOW VERSUS PRESSURE





Enerpac offers a wide variety of hydraulic pumps for all your custom needs. Still, many applications require a customized pump to operate the system.

Hydraulic pumps are at the heart of any hydraulic system. Different systems require different flow, pressure and control.

Enerpac offers a wide variety of hydraulic pumps from small hand-operated pumps to large gasoline-powered pumps.

Still, many applications require a customized pump to operate the system. These may include larger reservoir capacity, custom valve configurations or added electrical controls. Enerpac also specializes in power units and controls used for synchronous lifting/lowering of multiple jacking points.



◀ Private-label hand or foot pumps with fire-resistant oil and special exterior paint.



◀ XC-Series Cordless Pump with custom black shroud for private-label OEM customer to be used with a variety of hand held hydraulic tools.



◀ Electric pump with large cooler and controls for high-temperature applications.

## Overview Custom Pumps



▲ Custom hydraulic pumps for a bridge deck launching system.

### CUSTOMIZABLE FEATURES:



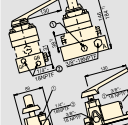
- Reservoir and Frame
- Valves
- Controls
- Oil
- Seals
- Pressure and Flow
- Coolers and Heaters
- Paint
- Motor Type

# Directional Control Valves

Energac hydraulic valves are available in a wide variety of models and configurations.

Whatever your requirements... directional control, flow control, or pressure control... you can be sure that Energac has the correct valve to match your application exactly.

Designed and manufactured for safe operation up to 700 bar, the range of Energac valves allows for direct pump mounting, remote mounting, manual or solenoid actuation, and in-line installation, giving you flexible solutions to control your hydraulic system.

| Valve Type  | Series         |   | Page  |
|---|----------------|---|-------|
| Pump Mounted Manual and Solenoid Directional Control Valves | VM<br>VE       |  | 122 ▶ |
| Remote Mounted Manual Directional Control Valves            | VC             |  | 124 ▶ |
| Valve Dimensions  | VM<br>VE<br>VC |  | 125 ▶ |



### Pressure & Flow Control Valves

For more hydraulic system control with pressure relief valves, shut-off valves, check valves and sequence valves see our "System Components".

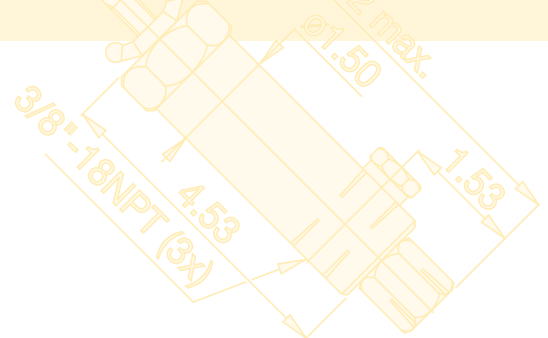
Page: 144



### Valving Help

See Basic System Set-Up and Valve Information in our 'Yellow Pages'.

Page: 395



▼ Shown from left to right: VM32, VE33, VM33, VM43L, VE43



- Advance/Retract and Advance/Hold/Retract operation of single- and double-acting cylinders and tools
- Manual or solenoid operation
- Pump mounting will retrofit on most Enerpac pumps
- Available “locking” option on VM-Series valves for load-holding applications
- Standard “locking” feature on VE-Series 3-position valves
- User adjustable relief valve allows the operator to easily set the working pressure.

### Venturi Valve Technology

- For fast return of single-acting gravity and spring return cylinders
- Available as manual or solenoid valve on ZU4- and ZE-Series electric pumps
- Retrofit Venturi valve kits for field installation on existing ZU4- and ZE-Series electric pumps.



#### Adjustable relief valve

All valves feature several gauge ports for “system”, A port and B port pressure monitoring. User adjustable relief valves are included on all models to allow the operator to easily set the optimum working pressure for each application.

VM33 and VE43 valves include “System Check” feature, for more precise pressure holding and improved system control.

The VM33 has improved porting which provides faster cylinder retraction while motor is running.

#### Locking Valves

For applications that require positive load holding, VM-Series valves (except VM22 and VM32) are available with a pilot-operated check valve. This option provides hydraulic locking of the load until the valve is shifted into the retract position.

## Reliable Control of Single and Double-Acting Cylinders and Tools

| Valve Operation | Used with Cylinder | Valve Type  |  |
|-----------------|--------------------|---|--|
| Manual          | Single-acting      | 3-Way, 2-Position                                       |  |
| Manual          | Single-acting      | 3-Way, 2-Position                                       |  |
| Manual          | Single-acting      | 3-Way, 3-Position, Tandem Center                        |  |
| Manual          | Single-acting      | 3-Way, 3-Position, Tandem Center, Venturi Return Assist |  |
| Manual          | Double-acting      | 4-Way, 3-Position, Tandem Center                        |  |
| Manual          | Single-acting      | 3-Way, 3-Position, Tandem Center, Locking               |  |
| Manual          | Double-acting      | 4-Way, 3-Position, Tandem Center, Locking               |  |
| Solenoid 24 VDC | Single-acting      | 3-Way, 2-Position                                       |  |
| Solenoid 24 VDC | Single-acting      | 3-Way, 2-Position, Dump                                 |  |
| Solenoid 24 VDC | Single-acting      | 3-Way, 3-Position, Tandem Center, Venturi Return Assist |  |
| Solenoid 24 VDC | Single-acting      | 3-Way, 3-Position, Tandem Center                        |  |
| Solenoid 24 VDC | Double-acting      | 4-Way, 3-Position, Tandem Center                        |  |

For remote valve information, see page 124.  
See page 125 for valve dimensions.

# Pump Mounted Directional Control Valves

## VM VE Series



Maximum Flow Capacity:

**17 l/min**

Maximum Operating Pressure:

**700 bar**

| Model Number | Hydraulic Symbol | Schematic Flowpath |         |         | ⚖️<br>(kg) |
|--------------|------------------|--------------------|---------|---------|------------|
|              |                  | Advance            | Neutral | Retract |            |
| VM22         |                  |                    |         |         | 2,5        |
| VM32         |                  |                    |         |         | 2,5        |
| VM33         |                  |                    |         |         | 3,0        |
| VM33VAC      |                  |                    |         |         | 3,5        |
| VM43         |                  |                    |         |         | 3,1        |
| VM33L        |                  |                    |         |         | 4,8        |
| VM43L        |                  |                    |         |         | 4,9        |
| VE32         |                  |                    |         |         | 3,9        |
| VE32D        |                  |                    |         |         | 3,9        |
| VE33VAC      |                  |                    |         |         | 10,0       |
| VE33         |                  |                    |         |         | 9,3        |
| VE43         |                  |                    |         |         | 9,3        |



### Assisted Return Pumps with Venturi Valve Technology

To improve productivity and plunger retraction, Enerpac offers valve configurations designed to

accelerate your cylinder retraction speeds, ZU4 and ZE-Series pumps feature **Venturi Valve Technology** to facilitate the faster return of single-acting gravity and spring return cylinders.

See valve type in ZU4 and ZE-pump ordering matrix on pages 100 and 106.

### Venturi Valve Retrofit Kits

For field installation on existing ZU4, ZE and ZA-Series pumps, Retrofit Kits are available for manual and solenoid operated valves.

| For valve model | For valve operation | Retrofit Kit Model Nr. |
|-----------------|---------------------|------------------------|
| VM33, VM33L     | Manual              | <b>VM33RVK</b>         |
| VE33            | Solenoid            | <b>VUV5</b>            |



### Spring Centred Valve Kits

VM and VC-Series manual 3-position valves can be easily converted into spring centred valves. With these retro-fit kits the

handle will automatically move into the neutral valve position when released.

| For valve model          | Model Number     |
|--------------------------|------------------|
| VM33, VM43               | <b>VMC3343K</b>  |
| VM33L, VM43L             | <b>VMC3343KL</b> |
| VC3, VC15, VC4, VC20     | <b>VMC34K</b>    |
| VC3L, VC15L, VC4L, VC20L | <b>VMC34KL</b>   |



▼ Shown from left to right: VC20, VC4L



## Remote Control of Single and Double-Acting Cylinders and Tools



### Locking Valves

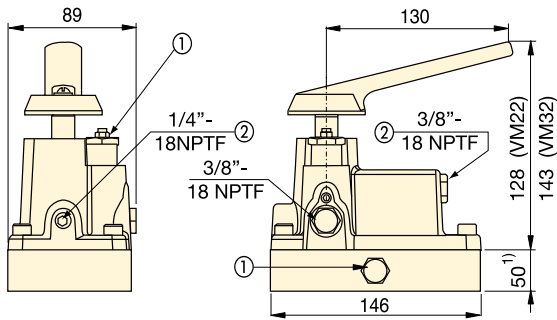
For applications that require positive load holding, VC-Series valves are available with a pilot-operated check valve. This option provides hydraulic locking of the load until the valve is shifted into the retract position.

- Advance/Hold/Retract operation for use with single-acting or double-acting cylinders and tools
- Return line kit included with remote valves.

| Valve Operation | Used with Cylinder | Valve Type                                | Model Number | Hydraulic Symbol | Schematic Flowpath |      |         | (kg) |
|-----------------|--------------------|---|--------------|------------------|--------------------|------|---------|------|
|                 |                    |   |              |                  | Advance            | Hold | Retract |      |
| Manual          | Single-Acting      | 3-Way, 3-Position, Tandem Center          | <b>VC3</b>   |                  |                    |      |         | 2,9  |
| Manual          | Single-Acting      | 3-Way, 3-Position, Tandem Center, Locking | <b>VC3L</b>  |                  |                    |      |         | 4,7  |
| Manual          | Single-Acting      | 3-Way, 3-Position, Closed Center          | <b>VC15</b>  |                  |                    |      |         | 2,9  |
| Manual          | Single-Acting      | 3-Way, 3-Position, Closed Center, Locking | <b>VC15L</b> |                  |                    |      |         | 4,7  |
| Manual          | Double-Acting      | 4-Way, 3-Position, Tandem Center          | <b>VC4</b>   |                  |                    |      |         | 2,9  |
| Manual          | Double-Acting      | 4-Way, 3-Position, Tandem Center, Locking | <b>VC4L</b>  |                  |                    |      |         | 4,7  |
| Manual          | Double-Acting      | 4-Way, 3-Position, Closed Center          | <b>VC20</b>  |                  |                    |      |         | 2,9  |
| Manual          | Double-Acting      | 4-Way, 3-Position, Closed Center, Locking | <b>VC20L</b> |                  |                    |      |         | 4,7  |

# Directional Control Valves Dimensions

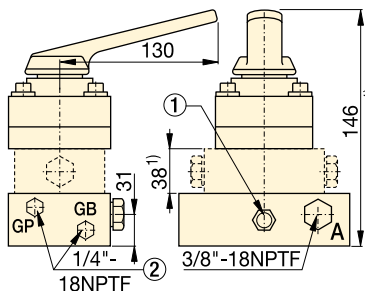
## Pump Mounted Directional Control Valves



VM22, VM32

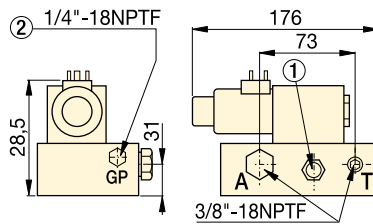
<sup>1)</sup> VM22 only

- ① User Adjustable Relief Valve
- ② Auxiliary Port

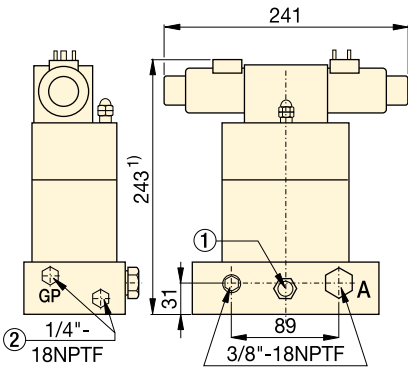


VM33, VM33L, VM33VAC, VM43, VM43L

<sup>1)</sup> VM33VAC, VM33L and VM43L only

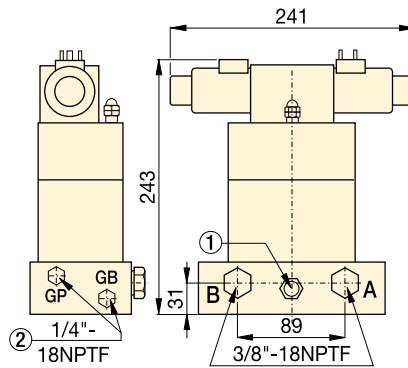


VE32D



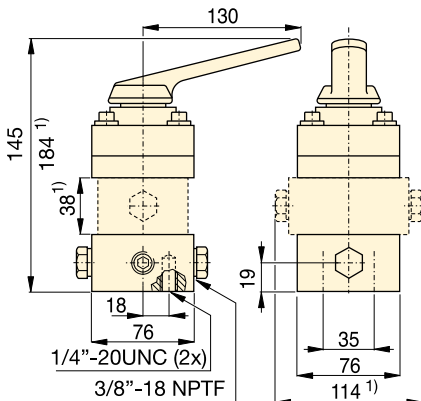
VE33, VE33VAC

<sup>1)</sup> VE33VAC is 38 mm higher: 281 mm



VE43

## Remote Manual Directional Control Valves



VC3, VC3L, VC15, VC15L

VC4, VC4L, VC20, VC20L

<sup>1)</sup> VC3L, VC15L, VC4L and VC20L only

## VM VE VC Series



Maximum Flow Capacity:

**17 l/min**

Maximum Operating Pressure:

**700 bar**



### Spring Centred Valve Kits

VM and VC-Series manual 3-position valves can be easily converted into spring centred valves. With these retro-fit kits the

handle will automatically move into the neutral valve position when released.

| For valve models         | Model Number     |
|--------------------------|------------------|
| VM33, VM43               | <b>VMC3343K</b>  |
| VM33L, VM43L             | <b>VMC3343KL</b> |
| VC3, VC15, VC4, VC20     | <b>VMC34K</b>    |
| VC3L, VC15L, VC4L, VC20L | <b>VMC34KL</b>   |



### Gauges

Minimize the risk of overloading and ensure long, dependable service from your equipment. Refer to the System Components

Section for a full range of gauges.

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### Fittings

For additional fittings see the fitting page of the System Components section in this catalogue.

Page: 133



### Valving Help

See Basic System Set-Up and Valve Information in our 'Yellow Pages'.

Page: 406

## Enerpac System Components:

All the additional elements you need to complete your high pressure hydraulic system and get started.

Engineered to work with your Enerpac cylinders, pumps and tools, all Enerpac components are designed to the most exacting standards.

With this complete line of hydraulic hoses, couplers, fittings, manifolds, oil and gauges, Enerpac has the accessories to complement your system and ensure the efficient operation, long life and safety of your hydraulic equipment.



### Yellow Pages

For sample system set-ups and how to correctly specify your system components, please view the Enerpac "Yellow Pages" section in this catalogue.

Page: 394


















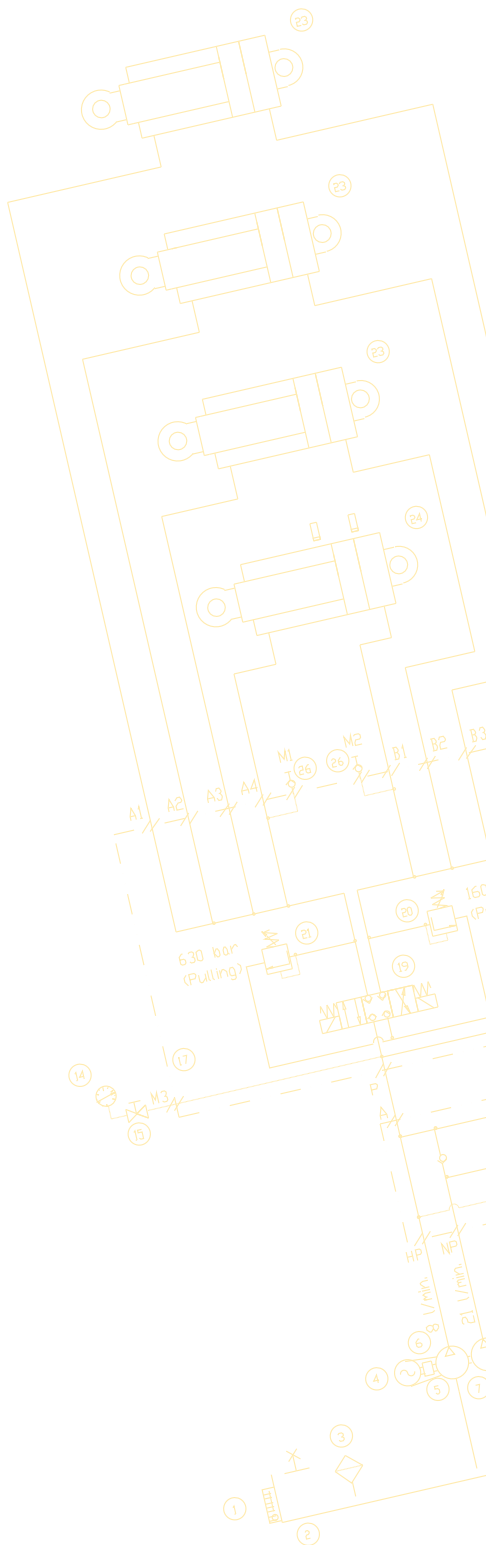
### Maintain System Integrity

Use Enerpac System Components, designed to interface with Enerpac cylinders, pumps and tools to ensure your system operates at peak performance.



# System Components & Control Valves Overview

| Component Type  | Series      |   | Page  |
|---|-------------|---|-------|
| High Pressure Hoses                                       | H700        |    | 128 ▶ |
| Couplers  | A, C, F, T  |    | 130 ▶ |
| Hydraulic Oil   | HF          |    | 132 ▶ |
| Manifolds   | A           |    | 132 ▶ |
| Control Manifolds   | AM          |    | 132 ▶ |
| Fittings  | BFZ, FZ XSC |    | 133 ▶ |
| Split-Flow Manifolds                                      | SFM         |   | 134 ▶ |
| Force Gauges<br>Pressure Gauges                           | GF<br>GP    |  | 136 ▶ |
| Pressure Gauges, glycerine filled<br>Pressure Gauges, dry | G<br>H      |  | 138 ▶ |
| Test System Gauges  | T           |  | 140 ▶ |
| Digital Hydraulic Pressure Gauge                          | DGR         |  | 141 ▶ |
| Gauge Adaptor Assembly                                    | GA45        |  | 142 ▶ |
| 4-Way Manifold Assembly<br>with Gauges                    | AMGC        |  | 142 ▶ |
| Gauge Adaptors<br>Swivel Adaptor, Needle Valves           | GA<br>NV, V |  | 143 ▶ |
| Pressure and Flow Control Valves                          | V           |  | 144 ▶ |





▼ HC7206



## Thermo-Plastic Safety Hoses (H700-Series)

- For demanding applications, featuring a 4:1 safety factor
- Maximum working pressure of 700 bar
- Outside jacket is polyurethane, to provide maximum abrasion resistance
- Exhibits low volumetric expansion under pressure to enhance overall system efficiency
- Vinyl strain relief guard on both ends of hose to improve life and durability on all models.

▼ To prevent back pressure and to increase cylinder retraction speed, when using long hoses with single-acting cylinders, the Enerpac HC7300-Series of hoses with increased internal diameter is the best choice.



## Safety and Quality



To ensure the integrity of your system, specify only Enerpac hydraulic hoses.

### WARNING !

- Do not exceed 700 bar maximum pressure.
- Do not handle hoses which are under pressure.

More safety instructions in our 'Yellow pages'.

Page: 396

## ▼ Hose End Couplings

|           |  |
|-----------|--|
| 1/4" NPTF |  |
| 3/8" NPTF |  |
| A604      |  |
| A630      |  |
| AH604     |  |
| AH630     |  |
| C604      |  |
| CH604     |  |



## Hose Oil Capacity

When using greater hose lengths, it is sometimes necessary to fill the pump reservoir after filling the hoses.

To determine the hose oil capacity, use the following:

For 6,4 mm inside diameter hoses:

Capacity (cm<sup>3</sup>) = 32,1699 x Length (m)

For 9,7 mm inside diameter hoses:

Capacity (cm<sup>3</sup>) = 73,8981 x Length (m)

## H700 Series



Inside Diameter:

**6,4 - 9,7 mm**

Length:

**0,6 - 15 m**

Maximum Operating Pressure:

**700 bar**

| Internal Diameter<br>(mm) | Hose End Assemblies and Couplers * |           | Hose Length<br>(m) | Model Number | Weight<br>(kg) |        |     |   |
|---------------------------|------------------------------------|-----------|--------------------|--------------|----------------|--------|-----|---|
|                           | End one                            | End two   |                    |              |                |        |     |   |
| 6,4                       | 1/4" NPTF                          |           | -                  | -            | -              |        |     |   |
|                           |                                    |           |                    | -            | -              | -      |     |   |
|                           |                                    | A630      | 1,8                | HB7206QB     | 1,1            |        |     |   |
|                           |                                    | CH604     | 1,8                | HC7206Q      | 1,0            |        |     |   |
|                           | 3/8" NPTF                          | 3/8" NPTF |                    | 0,6          | H7202          | 0,5    |     |   |
|                           |                                    |           |                    | 0,9          | H7203          | 0,7    |     |   |
|                           |                                    |           |                    | 1,8          | H7206          | 0,9    |     |   |
|                           |                                    |           |                    | 3,0          | H7210          | 1,4    |     |   |
|                           |                                    |           |                    | 6,1          | H7220          | 2,8    |     |   |
|                           |                                    |           |                    | 9,1          | H7230          | 4,5    |     |   |
|                           |                                    |           |                    | 15           | H7250          | 7,0    |     |   |
|                           |                                    |           |                    |              |                |        |     |   |
|                           |                                    | A604      |                    | -            | -              | -      | -   |   |
|                           |                                    |           |                    | 1,8          | HA7206B        | 1,1    |     |   |
|                           |                                    |           |                    | -            | -              | -      | -   |   |
|                           |                                    |           |                    | -            | -              | -      | -   |   |
|                           |                                    |           | AH604              |              | -              | -      | -   | - |
|                           |                                    |           |                    |              | 1,8            | HA7206 | 1,0 |   |
|                           |                                    |           |                    |              | 3,0            | HA7210 | 1,5 |   |
|                           |                                    |           |                    |              | 1,8            | HB7206 | 1,0 |   |
|                           | AH630                              |           | 0,9                | HC7203B      | 1,0            |        |     |   |
|                           |                                    |           | 1,8                | HC7206B      | 1,3            |        |     |   |
|                           |                                    |           | 3,0                | HC7210B      | 1,8            |        |     |   |
|                           |                                    |           | 0,9                | HC7203       | 0,8            |        |     |   |
| C604                      |                                    | 1,8       | HC7206             | 1,0          |                |        |     |   |
|                           |                                    | 3,0       | HC7210             | 1,5          |                |        |     |   |
|                           |                                    | 6,1       | HC7220             | 2,9          |                |        |     |   |
|                           |                                    | 1,8       | HC7206C            | 1,1          |                |        |     |   |
| CH604                     |                                    | 6,1       | HC7220C            | 3,0          |                |        |     |   |
|                           |                                    | 15        | HC7250C            | 7,0          |                |        |     |   |
|                           | 3/8" NPTF                          |           | 1,8                | H7306        | 1,6            |        |     |   |
|                           |                                    |           | 3,0                | H7310        | 2,4            |        |     |   |
|                           |                                    | 6,1       | H7320              | 4,5          |                |        |     |   |
|                           |                                    | 9,1       | H7330              | 7,3          |                |        |     |   |
|                           |                                    | 15        | H7350              | 11,5         |                |        |     |   |
| CH604                     |                                    | 1,8       | HC7306             | 1,7          |                |        |     |   |
|                           |                                    | 3,0       | HC7310             | 2,5          |                |        |     |   |
|                           |                                    | 6,1       | HC7320             | 5,1          |                |        |     |   |

\* For technical information on couplers see next page.



### GA45GC Gauge Adaptor

Protect yourself from system overloading by simply ordering one part number for a pre-assembled gauge, adaptor block and coupler.

Page: 142



### Torque Wrench Hoses

Use Enerpac twin safety hoses with double-acting wrenches to ensure the integrity of your hydraulic system.

Page: 249



### Fittings

For additional fittings see the fitting page of the System Components section.

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### Premium Hydraulic Oil

Use only genuine Enerpac hydraulic oil. Wrong fluid can destroy seals and pump and will render your warranty null and void your guarantee.

Page: 132

▼ Shown: FH604, FR400, AR630, C604, AH604, AR400



## 3/8" High Flow Couplers

- Standard equipment on most Enerpac cylinders
- Recommended for use on all Enerpac pumps and cylinders where space and porting permits
- Includes "2-in-1" dust cap for use on male and female couplers.

## 3/8" High Pressure 'Flush-face' Couplers

- Featuring "Push-to-connect" operation, to guarantee good connection every time
- Flush-face, zero-leak operation for minimal spillage and reduced pressure drop
- HTMA \* recognized for safety and performance
- Will not interchange with low pressure couplers.

## 3/8" Regular Spee-D-Couplers®

- For medium duty applications with hand pumps
- Includes female aluminium dust cap.

## 1/4" Regular Couplers

- For use with small cylinders and hand pumps
- Includes female aluminium dust cap.

## 1/4" Spin-on Torque Wrench Couplers

- For use with 700 bar S, W, RSL, DSX and HMT-Series torque wrenches, THQ-Series hoses and 700 bar torque wrench pumps.

\* Hydraulic Tool Manufacturers Association.

## Quick Connection of Hydraulic Lines



### Thread sealer

To seal NPTF threads use one of the new anaerobic thread sealers or Teflon paste. When using Teflon Tape, apply the tape one thread from the end of a fitting to prevent it from winding up in the hydraulic system.



### WARNING!

Couplers should be pressurized only when completely connected and should not be coupled or uncoupled when pressurized.

More safety instructions in our 'Yellow Pages'.

Page: 396



### F-Series

Flush-faced couplers provide reduced pressure drop versus other types and are preferred in dirty, grimy construction and mining environments due to easy clean, non-dirt trapping faces.

▼ With the use of Enerpac high flow couplers, hoses are easily installed for multiple hydraulic line connections in this 34 points PLC-controlled lifting system.



# Hydraulic Couplers



## CT604 Safety Tool

Use the Enerpac CT604 to relieve hydraulic back pressure by safely bleeding the hydraulic coupler.

NOTE: For use on CR400 and CH604 700 bar High-Flow Couplers only

Minimize injuries from projectile parts and under-skin hydraulic fluid injections by eliminating unsafe coupler bleeding practices. The CT604 is Enerpac-engineering safe for use at 700 bar.

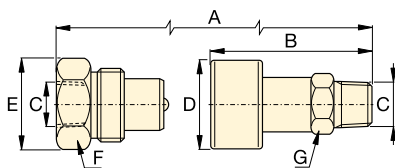
## A, C, F, T Series



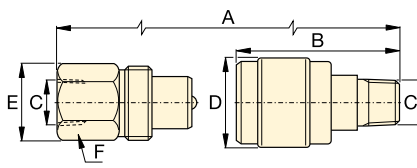
Maximum Flow Capacity:  
**7,6 - 40,0 l/min**

Thread:  
**1/4" - 3/8" NPTF**

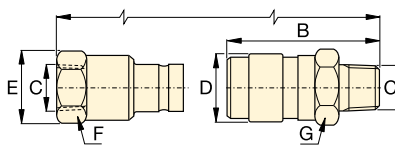
Maximum Operating Pressure:  
**700 bar**



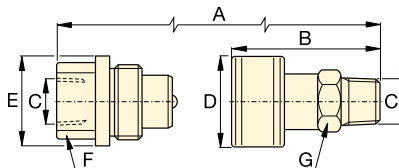
**C604**



**A604  
A630**



**F604**



**T630**








### Metal Dust Caps

Steel dust caps are available for the C604 series couplers.

Order model number:

**CD411M** for female half  
**CD415M** for male half

| Maximum Flow Capacity (l/min) | Coupler Type   | Model Numbers |              |              | Dimensions (mm) |    |           |    |    |    |    | Dust Cap(s) Modelnr.       |
|-------------------------------|--|---------------|--------------|--------------|-----------------|----|-----------|----|----|----|----|----------------------------|
|                               |  | Complete Set  | Female Half  | Male Half    | A*              | B  | C         | D  | E  | F  | G  |                            |
| 35                            | 700 bar High-Flow Coupler<br>       | <b>C604</b>   | <b>CR400</b> | <b>CH604</b> | 83              | 64 | 3/8" NPTF | 35 | 36 | 32 | 25 | (2x)<br><b>CD411</b>       |
| 40                            | 700 bar Flush-Face coupler<br>      | <b>F604</b>   | <b>FR400</b> | <b>FH604</b> | 111             | 72 | 3/8" NPTF | 31 | 31 | 27 | 29 | -                          |
| 7,6                           | 700 bar Regular Spee-D-Coupler®<br> | <b>A604</b>   | <b>AR400</b> | <b>AH604</b> | 77              | 42 | 3/8" NPTF | 28 | 26 | 23 | 19 | <b>Z410</b><br>female only |
| 7,6                           | 700 bar Regular Coupler<br>         | <b>A630</b>   | <b>AR630</b> | <b>AH630</b> | 66              | 35 | 1/4" NPTF | 22 | 20 | 19 | 15 | <b>Z640</b><br>female only |
| 11,4                          | 700 bar Spin-on Coupler<br>         | <b>T630</b>   | <b>TR630</b> | <b>TH630</b> | 73              | 60 | 1/4" NPTF | 29 | 29 | 19 | 21 | -                          |

\* Value A is total length when male and female half are connected.



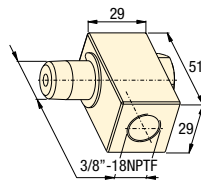


# Hydraulic Oil, Manifolds and Fittings




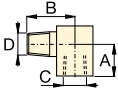

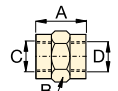

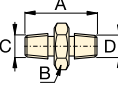

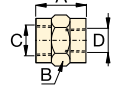

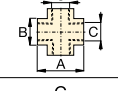

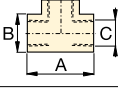

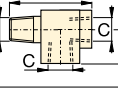

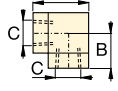

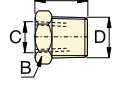

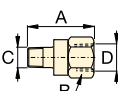

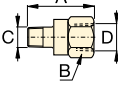

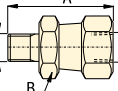
## 3/8" Swivel Connector

360 degree swivel coupler for optimal orientation of the hydraulic connection on cylinders, pumps and hoses.  
Order Model Number. **XSC1**



**A, AM  
BFZ  
FZ  
HF  
Series**



| 700 bar Fittings          |                      | Model Number  | Dimensions (mm)  |    |    |              | Diagram      |   |
|---------------------------|----------------------|---|------------------|----|----|--------------|--------------|---|
|                           |                      |   | A                | B  | C  | D            |              |   |
| <b>Street Elbow</b>       |                      |    | <b>FZ1616</b>    | 23 | 33 | 3/8"-18 NPTF | 3/8"-18 NPTF |    |
| From: 3/8"-NPTF Male      | To: 3/8"-NPTF Female |   |                  |    |    |              |              |   |
| <b>Reducing Connector</b> |                      |    | <b>FZ1615</b>    | 28 | 25 | 3/8"-18 NPTF | 1/4"-18 NPTF |    |
| From: 3/8"-NPTF Female    | To: 1/4"-NPTF Female |   |                  |    |    |              |              |   |
| From: 1/2"-NPTF Female    | To: 3/8"-NPTF Female |   |                  |    |    |              |              |   |
| <b>Hexagon Nipple</b>     |                      |    | <b>FZ1608</b>    | 38 | 16 | 1/4"-18 NPTF | 1/4"-18 NPTF |    |
| From: 1/4"-NPTF           | To: 1/4"-NPTF        |   |                  |    |    |              |              |   |
| From: 3/8"-NPTF           | To: 3/8"-NPTF        |   |                  |    |    |              |              |   |
| From: 3/8"-NPTF           | To: 3/8"-NPTF        |   |                  |    |    |              |              |   |
| <b>Coupling</b>           |                      |   | <b>FZ1614</b>    | 29 | 23 | 3/8"-18 NPTF | 3/8"-18 NPTF |   |
| From: 3/8"-NPTF           | To: 3/8"-NPTF        |   |                  |    |    |              |              |   |
| From: 1/4"-NPTF           | To: 1/4"-NPTF        |   |                  |    |    |              |              |   |
| <b>Cross</b>              |                      |  | <b>FZ1613</b>    | 45 | 25 | 3/8"-18 NPTF | -            |  |
| From: 3/8"-NPTF Female    | To: 3/8"-NPTF Female |   |                  |    |    |              |              |   |
| <b>Tee</b>                |                      |  | <b>FZ1612</b>    | 45 | 25 | 3/8"-18 NPTF | -            |  |
| From: 3/8"-NPTF           | To: 3/8"-NPTF        |   |                  |    |    |              |              |   |
| From: 1/4"-NPTF           | To: 1/4"-NPTF        |   |                  |    |    |              |              |   |
| <b>Street Tee</b>         |                      |  | <b>BFZ16312</b>  | 56 | 26 | 3/8"-18 NPTF | 3/8"-18 NPTF |  |
| From: 3/8"-NPTF Female    | To: 3/8"-NPTF Male   |   |                  |    |    |              |              |   |
| <b>Elbow</b>              |                      |  | <b>FZ1610</b>    | 33 | 20 | 3/8"-18 NPTF | -            |  |
| From: 3/8"-NPTF           | To: 3/8"-NPTF        |   |                  |    |    |              |              |   |
| From: 1/4"-NPTF           | To: 1/4"-NPTF        |   |                  |    |    |              |              |   |
| <b>Reducer</b>            |                      |  | <b>FZ1630</b>    | 19 | 19 | 1/4"-18 NPTF | 3/8"-18 NPTF |  |
| From: 3/8"-NPTF           | To: 1/4"-NPTF        |   |                  |    |    |              |              |   |
| From: 1/4"-NPTF           | To: 1/2"-NPTF        |   |                  |    |    |              |              |   |
| From: 3/8"-NPTF           | To: G1/4"            |   |                  |    |    |              |              |   |
| <b>Adaptor</b>            |                      |  | <b>BFZ-16411</b> | 35 | 19 | 1/4"-18 NPTF | G1/4"        |  |
| From: G1/4"               | To: 1/4"-NPTF        |   |                  |    |    |              |              |   |
| From: G1/4"               | To: 1/8"-NPTF        |   |                  |    |    |              |              |   |
| From: G3/8"               | To: 1/4"-NPTF        |   |                  |    |    |              |              |   |
| From: G3/8"               | To: 3/8"-NPTF        |   |                  |    |    |              |              |   |
| <b>Adaptor</b>            |                      |  | <b>FZ1055</b>    | 44 | 23 | 1/4"-18 NPTF | 3/8"-18 NPTF |  |
| From: 1/4"-NPTF           | To: 3/8"-NPTF        |   |                  |    |    |              |              |   |
| From: 1/4"-NPTF           | To: 1/8"-NPTF        |   |                  |    |    |              |              |   |
| From: 1/2"-NPTF           | To: 3/8"-NPTF        |   |                  |    |    |              |              |   |
| <b>Swivel Fitting</b>     |                      |  | <b>FZ1660</b>    | 40 | 22 | 3/8"-18 NPTF | 3/8"-18 NPTF |  |
| From: 3/8"-NPTF Male      | To: 3/8"-NPTF Female |   |                  |    |    |              |              |   |

▼ Shown from left to right: SFM41, SFM42 Split-Flow Manifolds



- Split-Flow Manifolds improve safety, precision and control in lifting and lowering operations
- Pressure gauge, flow control valve in each outlet port; CR400 couplers installed in each inlet and outlet port
- Regulates both advance and retract speeds: lifting and lowering
- 1 inlet, 4 outlets. Maximum of 4 cylinders per manifold: SFM41 for single-acting cylinders, SFM42 for double-acting cylinders
- Minimum pump oil flow: 1,40 l/min to deliver 0,15 - 0,25 l/min per cylinder
- Maximum difference among outlets: 10% of the stroke (in 150 mm)
- More cylinders can be controlled simultaneously by connecting several SFM-models parallel.



## Improved safety on basic simultaneous lifting applications



### Pressure Gauges G2535L

Glycerine filled pressure gauges are installed in each outlet pressure line to monitor the pressure of each cylinder.



### Optimum Performance

Minimum pump oil flow must be 1,40 l/min to deliver 0,15 - 0,25 l/min per cylinder. Enerpac recommends to use Z-Class

electric or gasoline pumps from the ZE5 and ZG-Series.



### SFP-Series, Split-Flow Pumps

When a higher accuracy is required across cylinder strokes in a multi-point lifting or lowering application Enerpac recommends

to use the SFP-Series Split-Flow Pumps.



### Contact Enerpac!

Contact the Enerpac office nearest to you for advice and technical assistance in the layout of your ideal Lifting

System or visit us at: [www.enerpac.com](http://www.enerpac.com).

Or ask Enerpac for assistance:

[enerpac.com/contact-us](http://enerpac.com/contact-us)

◀ To repair the foundation, silos needed to be lifted, levelled and structurally supported. Powered by a ZE5-Series electric pump the split-flow manifold used to operate multiple hydraulic cylinders.



## Split-Flow Manifolds

The SFM-Series offer an economical solution for basic multi-point simultaneous lifting applications and enables a single operator to control a maximum of 4 lifting points from one manifold.

The Split-Flow Manifolds are equipped with pressure compensated flow control valves, to preset and limit advance and retract speed of each cylinder, allowing to move up to 4 cylinders simultaneously.

The SFM-Series provide more lifting and lowering control compared to AM-Series Control Manifolds. See flow control valve adjustments table below.

Minimum pump oil flow must be 1,40 l/min (ZE5-Series pumps) to deliver 0,15 - 0,25 l/min per cylinder. Several SFM-models can be connected parallel to the same pump to allow simultaneous operation of 8, 12 or 16 cylinders.

Higher flow pumps are required to achieve faster advance speeds. A 20% higher oil flow must be considered for a proper speed compensation.

Example : when using 4 cylinders: if oil flow of 0,45 l/min is required per cylinder, the pump oil flow must be:  
 $4 \times 0,45 = 1,8 \text{ l/min} + 20\% = 2,16 \text{ l/min}$ .

The maximum stroke deviation between the cylinders can reach up to 10% (in 150 mm) depending on the cylinder pressure. Oil flow adjustment is also possible during cylinder operation by fine tuning using the flow control valves.

All cylinders connected to the SFM-manifold must have the same capacity (effective area). Both advance and retract speed are limited by the same valves. Use hoses of the same lengths to improve the accuracy of the hydraulic system. Improved precision when difference of pressures among the cylinders is within 200 bar.

## SFM Series



Inlet Connection:

**1x power pump**

Outlet Connections:

**Max. 4 cylinders**

Minimum Pump Flow Required:

**1,40 l/min**

Maximum Operating Pressure:

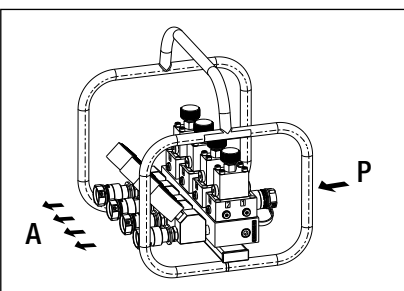
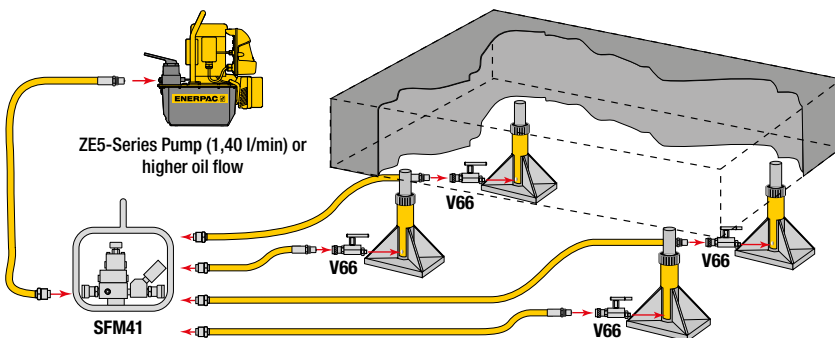
**700 bar**



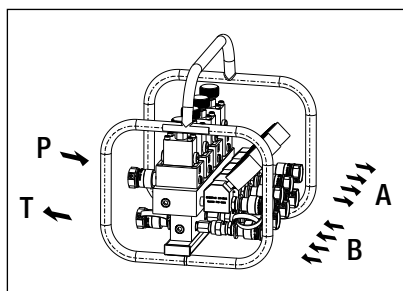
### Load Holding

Use **V66 check valves** for load holding applications with single-acting cylinders.

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SFM41



SFM42

### ▼ SPLIT-FLOW MANIFOLDS

| For use with cylinders | Model Number | Minimum oil flow to each cylinder (l/min) | Female couplers included | Dimensions L x W x H (mm) | (kg) |
|------------------------|--------------|---|--------------------------|---------------------------|------|
| 4x single-acting       | <b>SFM41</b> | 0,15                                      | CR400                    | 370 x 335 x 375           | 24   |
| 4x double-acting       | <b>SFM42</b> | 0,15                                      | CR400                    | 370 x 335 x 375           | 30   |



### Hoses

Energac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only Energac hydraulic hoses. Energac recommends to use hoses of the same lengths between the SFM and cylinders to improve system accuracy.



### Flow Control Valves

The Split-Flow Manifold has pressure compensated flow control valves installed in each outlet line. The oil flow from the SFM-Manifold to each cylinder can be adjusted by turning the knob on the valve.

#### Flow Control Valve Adjustments

| Number of Knob Turns | Oil Flow (l/min) | Number of Knob Turns | Oil Flow (l/min) |
|----------------------|------------------|----------------------|------------------|
| 1/2                  | 0,15             | 3                    | 1,9              |
| 1                    | 0,45             | 3 1/2                | 3,6              |
| 1 1/2                | 0,75             | 4                    | 5,6              |
| 2                    | 0,90             | 4 1/2                | 8,3              |
| 2 1/2                | 1,3              | Open                 | 10,3             |



▼ Shown from left to right: GF230B, GF835B, GP10S



- **GF-series gauges:** calibrated with dual scale reading for pressure (bar) and force (kN)
- **GF-series gauges:** all pressure sensing parts are sealed and dampened by glycerine for long life
- **GP-series gauges:** calibrated with dual scale reading for pressure in bar and psi
- **Excellent readability:** gauge face dimensions 100 mm
- **Fast, easy installation**
- **Stainless steel gauge cases for corrosion resistance.**

▼ A GP10S gauge is used on this press to check the hydraulic pressure required to bend flat steel bar.



## Visual Reference for System Pressure and Force



### Auto-Damper Valve V10

For automatic control of gauge fluctuations, the V10 Auto-Damper Valve controls the movement of the gauge needle by restricting oil flow in and out of the gauge. No adjustments needed.

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### Snubber Valve V91

Infinitely adjustable for metering oil out of a gauge. The V91 Snubber Valve is also suitable as a shut-off valve to protect the gauge during high cycle applications.

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| Used With                |                                 |
|--------------------------|---------------------------------|
|                          | All cylinders                   |
|                          | All cylinders                   |
|                          | 5 ton RC, RSM-cylinders         |
|                          | 10 ton RC, RCS, RSM-cylinders   |
|                          | All 25 ton RC-cylinders         |
|                          | All 50 ton RC, RR-cylinders     |
|                          | 13 ton RCH-Series               |
|                          | RCS201, 302                     |
|                          | RCS502, 1002                    |
|                          | RCH202, 302, 603                |
|                          | 25, 30, 50 ton RC, RCS, RSM, RR |
|                          | 75 and 95 ton RC, RR-cylinders  |
|                          | 150 and 200 ton RR-cylinders    |
|                          | 10 ton VLP Presses              |
|                          | 25 ton XLP Presses              |
|                          | 50 ton XLP, BPR Presses         |
| 100 ton VLP, BPR Presses |                                 |
| 200 ton VLP, BPR Presses |                                 |

# Hydraulic Force & Pressure Gauges



### Maximum Indicator Pointer

Indicator retains peak readings of pressure or force generated by the system.

Can easily be installed on GP and H-Series gauges. Order model nr: **BSA881**.



### Pressure Gauges

To measure the input pressure into cylinders or high pressure systems. Also for all testing applications.

### Force Gauges

To measure external load supported by a cylinder or jack in kN. For pressing parts together under pre-determined loads, weighing, testing, etc.

**GP-Series** are dry gauges.

**GF-Series** are glycerine filled gauges.

## GF GP Series



Pressure Range:

**0 - 1000 bar**

Force Range:

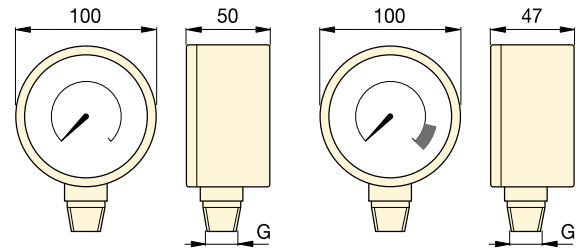
**0 - 2000 kN**

Gauge Face Diameter:

**100 mm**




Accuracy, % of full scale:

**± 1%**



GP-series

GF-series

| Gauge Type and Calibration  |          |   |               | Units per Division | Model Number * | Thread G  | Gauge Adaptor   |     |   |
|---|----------|---|---------------|--------------------|----------------|-----------|---|-----|---|
|  |          |  |               |                    |                |           |  143 |     |   |
| bar   | psi      | bar   | kN            |                    |                | Required  |   |     |   |
|   |          |   |               |                    |                | GA1       | GA2   | GA3 |   |
| 0-700   | 0-10.000 | -   | -             | 10 bar, 100 psi    | <b>GP10S</b>   | 1/2" NPTF | ●   | ●   |   |
| 0-1000  | 0-15.000 | -   | -             | 10 bar, 200 psi    | <b>GP15S</b>   | 1/2" NPTF | ●   | ●   |   |
| -   | -        | 0-700   | 0-45          | 10 bar, 0,5 kN     | <b>GF5B</b>    | 1/2" NPTF | ●   | ●   |   |
| -   | -        | 0-700   | 0-100         | 10 bar, 1 kN       | <b>GF10B</b>   | 1/2" NPTF | ●   | ●   |   |
| -   | -        | 0-700   | 0-232         | 10 bar, 2 kN       | <b>GF20B</b>   | 1/2" NPTF | ●   | ●   |   |
| -   | -        | 0-700   | 0-500         | 10 bar, 5 kN       | <b>GF50B</b>   | 1/2" NPTF | ●   | ●   |   |
| -   | -        | 0-700   | 0-124         | 10 bar, 1 kN       | <b>GF120B</b>  | 1/2" NPTF | ●   | ●   |   |
| -   | -        | 0-700   | 0-175/275     | 10 bar, 2 + 5 kN   | <b>GF230B</b>  | 1/2" NPTF | ●   | ●   |   |
| -   | -        | 0-700   | 0-450/900     | 10 bar, 5 + 10 kN  | <b>GF510B</b>  | 1/2" NPTF | ●   | ●   |   |
| -   | -        | 0-700   | 0-210/320/570 | 10 bar, 5 kN       | <b>GF813B</b>  | 1/4" NPTF |   |     | ● |
| -   | -        | 0-700   | 0-232/300/500 | 10 bar, 5 kN       | <b>GF835B</b>  | 1/4" NPTF |   |     | ● |
| -   | -        | 0-700   | 0-720/930     | 10 bar, 10 kN      | <b>GF871B</b>  | 1/4" NPTF |   |     | ● |
| -   | -        | 0-700   | 0-1400/2000   | 10 bar, 25 kN      | <b>GF200B</b>  | 1/4" NPTF |   |     | ● |
| -   | -        | 0-700   | 0-100         | 10 bar, 1 kN       | <b>GF10B</b>   | 1/2" NPTF | ●   | ●   |   |
| -   | -        | 0-700   | 0-232         | 10 bar, 2 kN       | <b>GF20B</b>   | 1/2" NPTF | ●   | ●   |   |
| -   | -        | 0-700   | 0-500         | 10 bar, 5 kN       | <b>GF50B</b>   | 1/2" NPTF | ●   | ●   |   |
| -   | -        | 0-700   | 0-720/930     | 10 bar, 10 kN      | <b>GF871B</b>  | 1/4" NPTF |   |     | ● |
| -   | -        | 0-700   | 0-1400/2000   | 10 bar, 25 kN      | <b>GF200B</b>  | 1/4" NPTF |   |     | ● |

\* GF-Series Force gauges with imperial scale reading (psi, lbs) are available by changing the suffix 'B' into 'P'.

▼ Shown from left to right: H4049L, G2534R, G4089L, G2535L, G4040L



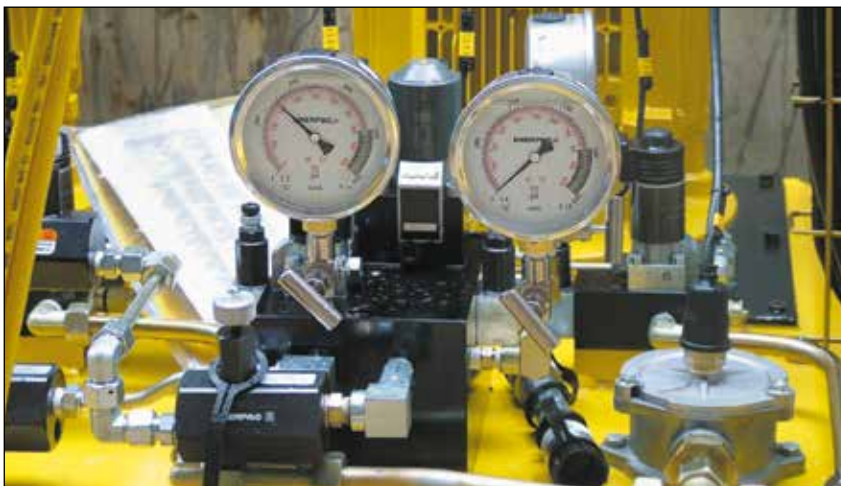
## Visual Reference of System Pressure

### Glycerine Filled (G-Series)

- Dual scale reading calibrated in bar and psi
- All pressure sensing parts sealed and dampened by glycerine for long life
- Includes safety blow-out disk and pressure equalizing membrane
- Gauge snubbers or needle valves recommended for high cycle applications.

### High Cycle Dry Gauges (H-Series)

- Dual scale reading calibrated in bar and psi
- Ideal for use in many applications, specifically for high cycle and harsh environments
- Gauge snubbers or needle valves recommended to shut off gauge when not in use.



#### Gauge adaptor assembly

45° Angled gauge adaptor **GA45GC** improves safe working conditions.

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#### Gauge Adaptor

For easy gauge installation into almost any system, Enerpac offers a complete line of gauge adaptors.

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#### Snubber Valve V91

Infinitely adjustable for metering oil out of a gauge. The V91 Snubber Valve is also suitable as a shut-off valve to protect the gauge during high cycle applications.

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◀ When lifting or pressing, always use a gauge. A gauge is your 'window' to the system. It lets you see what's going on.

# Hydraulic Pressure Gauges



## CAUTION! When lifting or pressing, always use a gauge

Do not override factory setting of relief valves. Always use a gauge to check system pressure. A gauge is your 'window' to the system. It lets you see what's going on. See our Safety Instructions.

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## G H Series



Pressure Range:

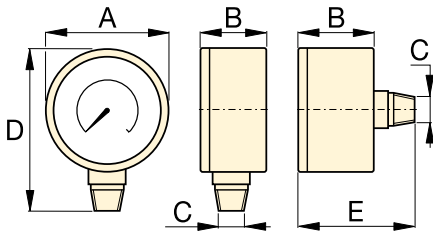
**0 - 1000 bar**

Face Diameter:

**63 - 100 mm**

Accuracy, % of full scale:

**± 1,0 - 1,5%**



| Size<br>(mm) | Connection  | Dimensions (mm) |    |         |     |    |
|--------------|-------------|-----------------|----|---------|-----|----|
|              |             | A               | B  | C       | D   | E  |
| 63           | Lower Mount | 63              | 37 | ¼" NPTF | 84  | -  |
| 63           | Center Rear | 63              | 37 | ¼" NPTF | -   | 63 |
| 100          | Lower Mount | 100             | 29 | ¼" NPTF | 121 | -  |
| 100          | Lower Mount | 100             | 49 | ½" NPTF | 136 | -  |

Note: dimensions for reference only.



### Maximum Indicator Pointer

Indicator retains peak readings of pressure or force generated by the system.

Can easily be installed on GP and H-Series ø 100 mm gauges. Order model nr: **BSA881**.

## ▼ SELECTION CHART

| Gauge Series | Pressure Range |          | Model Number                   |                                |                                 |                                 | Major Graduation |       | Minor Graduation |       | Major Graduation |       | Minor Graduation |       |
|--------------|----------------|----------|--------------------------------|--------------------------------|---------------------------------|---------------------------------|------------------|-------|------------------|-------|------------------|-------|------------------|-------|
|              |                |          | ø 63<br>¼" NPTF<br>Lower Mount | ø 63<br>¼" NPTF<br>Center Rear | ø 100<br>¼" NPTF<br>Lower Mount | ø 100<br>½" NPTF<br>Lower Mount | bar              |       | psi              |       | bar              |       | psi              |       |
|              | (bar)          | (psi)    | Accuracy: ± 1,5 %              |                                | Accuracy: ± 1,0 %               |                                 | ø 63             | ø 100 | ø 63             | ø 100 | ø 63             | ø 100 | ø 63             | ø 100 |
|              | G-Series       | 0-7      | 0-100                          | G2509L                         | -                               | -                               | -                | 1     | -                | 0,01  | -                | 10    | -                | 2     |
| 0-11         |                | 0-160    | G2510L                         | -                              | -                               | -                               | 1                | -     | 0,02             | -     | 10               | -     | 2                | -     |
| 0-14         |                | 0-200    | G2511L                         | -                              | -                               | -                               | 1                | -     | 0,02             | -     | 50               | -     | 5                | -     |
| 0-20         |                | 0-300    | G2512L                         | -                              | -                               | -                               | 5                | -     | 0,50             | -     | 50               | -     | 5                | -     |
| 0-40         |                | 0-600    | G2513L                         | -                              | -                               | -                               | 10               | -     | 1                | -     | 100              | -     | 10               | -     |
| 0-70         |                | 0-1.000  | G2514L                         | G2531R                         | -                               | -                               | 10               | -     | 1                | -     | 100              | -     | 20               | -     |
| 0-140        |                | 0-2.000  | G2515L                         | -                              | -                               | -                               | 10               | -     | 5                | -     | 500              | -     | 50               | -     |
| 0-200        |                | 0-3.000  | G2516L                         | -                              | -                               | -                               | 50               | -     | 5                | -     | 500              | -     | 50               | -     |
| 0-400        |                | 0-6.000  | G2517L                         | G2534R                         | -                               | -                               | 100              | -     | 10               | -     | 1000             | -     | 100              | -     |
| 0-700        |                | 0-10.000 | G2535L                         | G2537R                         | G4088L                          | G4039L                          | 100              | 100   | 10               | 10    | 2000             | 1000  | 200              | 100   |
| 0-1000       | 0-15.000       | G2536L   | G2538R                         | G4089L                         | G4040L                          | 100                             | 100              | 20    | 20               | 3000  | 3000             | 200   | 200              |       |
| H-Series     | 0-700          | 0-10.000 | -                              | -                              | H4049L                          | H4071L                          | -                | 100   | -                | 10    | -                | 1000  | -                | 100   |



▼ Gauge shown: **T6003L**



- **Dual scale reading calibrated in bar and psi**
- **All gauges have spring-loaded backs with rubber blow-out plugs to protect case assembly in case of over-pressurization**
- **Integral maximum indicator pointer standard included**
- **2800 and 3500 bar models include flange mounting**
- **1/2" NPTF versions are made of high strength alloy steel**
- **0.25" cone models are made of 316 stainless steel, with 403 stainless steel on 2800 and 3500 bar models.**

▼ An Enerpac P2282 hand pump equipped with a T6011L test system gauge is used for proof pressure testing of hydraulic valves.



## T Series

Pressure Range:  
**0 - 3500 bar**

Face Diameter:  
**162 - 192 mm**

Accuracy, % of full scale:  
**± 0,5 - 1,5%**



### Cone Mount Gauge Adaptor

Contains fittings to connect 1/4" cone fitting gauge to 3/8" cone system. Kit includes 43-301 tee, 43-704 gauge adaptor and 45-116 tubing. Order model number: **83-011**.

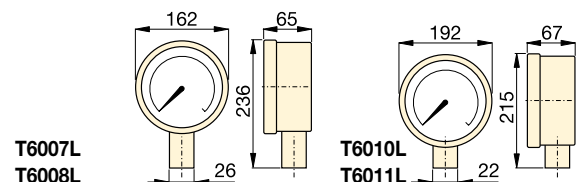
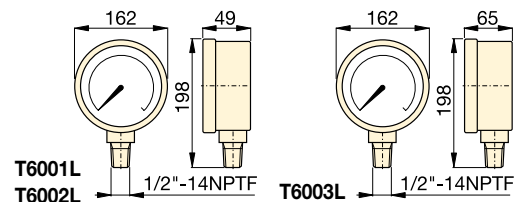
Page: **85**



### Cone Mount Gauge Connector

For connecting gauges with 0.25" cone fitting directly to model number **11-100** or **11-400** pump (page 84). May be used with other

0.25" cone systems  
Order model number: **43-704**



| Pressure Range<br>(bar) | Pressure Range<br>(psi) | Model Number             |                              | Number Intervals<br>(bar) | Graduation Intervals<br>(bar) | Number Intervals<br>(psi) | Graduation Intervals<br>(psi) |
|-------------------------|-------------------------|--------------------------|------------------------------|---------------------------|-------------------------------|---------------------------|-------------------------------|
|                         |                         | Alloy Steel<br>1/2" NPTF | Stainless Steel<br>0,25 cone |                           |                               |                           |                               |
| 0-70 <sup>1)</sup>      | 0-1000                  | <b>T6001L</b>            | –                            | 10                        | 1                             | 100                       | 10                            |
| 0-350 <sup>1)</sup>     | 0-5000                  | <b>T6002L</b>            | –                            | 50                        | 5                             | 500                       | 50                            |
| 0-700 <sup>1)</sup>     | 0-10.000                | <b>T6003L</b>            | <b>T6007L</b>                | 100                       | 10                            | 1.000                     | 100                           |
| 0-1400 <sup>1)</sup>    | 0-20.000                | –                        | <b>T6008L</b>                | 200                       | 20                            | 1.000                     | 100                           |
| 0-2800 <sup>2)</sup>    | 0-40.000                | –                        | <b>T6010L</b>                | 500                       | 20                            | 5.000                     | 200                           |
| 0-3500 <sup>2)</sup>    | 0-50.000                | –                        | <b>T6011L</b>                | 500                       | 50                            | 5.000                     | 200                           |

<sup>1)</sup> Accuracy ± 0,5%

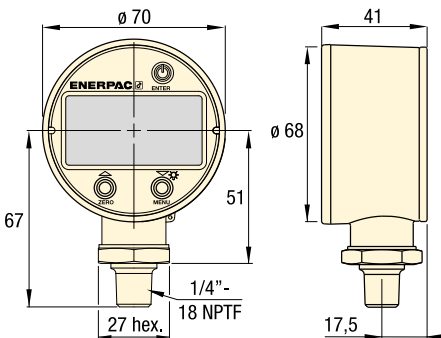
<sup>2)</sup> Accuracy ± 1,5%

# Digital Hydraulic Pressure Gauge

▼ Gauge shown: DGR2



- Rated for system pressure up to 1380 bar
- Displays in bar, psi, MPa and kg/cm<sup>2</sup>
- Zero reset - ensures that gauge reads actual pressure
- IP65 protection, UL listed, CE and RoHS compliant
- Batteries included, condition indicator on read-out
- Shut-off selectable – menu driven
- Back-lit readout allows easy reading in less than ideal lighting
- Protective cover included.



| High Pressure Rating<br>(bar) |            | High Pressure Rating<br>(MPa) |            | Model Number | High Pressure Rating<br>(psi) |            | High Pressure Rating<br>(kg/cm <sup>2</sup> ) |            |
|-------------------------------|------------|-------------------------------|------------|--------------|-------------------------------|------------|---|------------|
| Range                         | Resolution | Range                         | Resolution |              | Range                         | Resolution | Range   | Resolution |
| 0-1380                        | 0,1        | 0-140                         | 0,01       | <b>DGR2</b>  | 0-20.000                      | 1          | 0-1400  | 0,1        |

Weight: 0,23 kg.

## DGR Series

Pressure Range:

**0 - 1380 bar**

Voltage:

**3 Volt (battery)**

Accuracy, % of full scale:

**± 0,25%**



### Gauge Adaptor

For easy gauge installation into almost any system, Enerpac offers a complete line of gauge adaptors. Maximum operating pressure 700 bar.

Page: 143

▼ Greater accuracy and easier to read: enhance your ability to monitor and control hydraulic system pressure up to 1380 bar.



▼ Shown: GA45GC



- 45° angled gauge improves visibility
- Slim and narrow design
- Easy to fit in a broad range of systems
- Maximize controlled load movement
- Glycerin dampened gauge with dual scale
- Enerpac High-Flow female coupler CR400.

## GA45GC, AMGC Series

Connection 1:  
**3/8" NPTF male**

Connection 2:  
**CR400 coupler**

Maximum Operating Pressure:  
**700 bar**



### 4-Way Manifold assembly complete with gauges

Offering ease of portability and convenience with an ergonomic robust design, ready for use.

Enerpac's CR400 female couplers on all ports allow the manifold to be quickly connected to up to 4 cylinders. Glycerine filled, 700 bar gauges allow operators to work safely. All protected by the robust protection frame.

| Manifold Type (Used for cylinders) | Model Number  |
|------------------------------------|---------------|
| 4x Single-acting                   | <b>AMGC41</b> |
| 4x Double-acting                   | <b>AMGC42</b> |

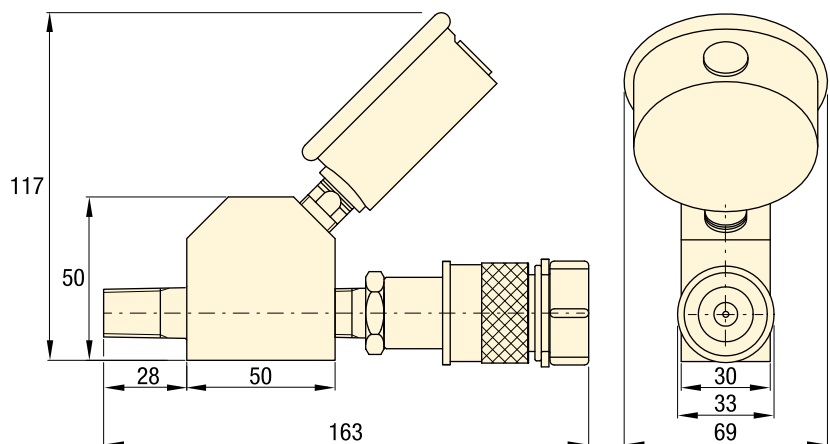


### Power Box

Portable tool box with hand pump, GA45GC gauge adaptor assembly, hose and RC, RSM, RCS-cylinder, WR5 wedgie or LW16-lifting wedge.

Page: **65**

▼ The Gauge Adaptor Assembly is the window to your system; allows easy reading of the pressure for safe operation.



| Model Number  | Gauge Port (1/4" NPTF) | Male End (NPTF) | Female End (3/8" NPTF) | Gauge Range |            |
|---------------|------------------------|-----------------|------------------------|-------------|------------|
|               |                        |                 |                        | (bar)       | (psi)      |
| <b>GA45GC</b> | G2535L                 | 3/8" -18        | CR400                  | 0 - 700     | 0 - 10.000 |

▼ Shown from left to right: GA3, V91, GA1, GA2, GA4, NV251, GA918



## GA, NV, V Series

Maximum Operating Pressure:  
**700 bar**

▼ A gauge is easily installed into your hydraulic system using a gauge adaptor.



**Gauge Adaptors (GA-Series)**

- For easy mounting of a pressure gauge onto your system
- Male end screws into pump or cylinder port, female end accepts hose or coupler, 3<sup>rd</sup> port is for gauge connection
- GA918 provides for swivel connection.

| Model Number | Gauge Port (NPTF) | Male End (NPTF) | Female End (NPTF) | Dimensions (mm) |    |           |           |           |    |
|--------------|-------------------|-----------------|-------------------|-----------------|----|-----------|-----------|-----------|----|
|              |                   |                 |                   | A               | B  | C         | D         | E         | F  |
| GA1          | 1/2"              | 3/8"            | 3/8"              | 71              | 31 | 1/2" NPTF | 3/8" NPTF | 3/8" NPTF | 32 |
| GA2          | 1/2"              | 3/8"            |                   | 155             | 35 | 1/2" NPTF | 3/8" NPTF | 3/8" NPTF | 32 |
| GA3          | 1/4"              | 3/8"            |                   | 133             | 35 | 1/4" NPTF | 3/8" NPTF | 3/8" NPTF | 32 |
| GA4          | 1/2"              | 1/4"            |                   | 111             | 35 | 1/2" NPTF | 1/4" NPTF | 3/8" NPTF | 32 |

GA1

GA2, GA3, GA4

**Swivel Adaptor (GA918)**

- Simplifies gauge installation and reading.

| Model Number | Dimensions (mm) |    |           |      |           |    |    |
|--------------|-----------------|----|-----------|------|-----------|----|----|
|              | A               | B  | C         | D    | E         | S  | S1 |
| GA918        | 117             | 43 | 1/2" NPTF | 28,5 | 1/2" NPTF | 29 | 38 |

GA918

**Needle Valves (V- and NV-Series)**

- Both NV251 and V91 provide positive shut-off
- 316 stainless steel stem, 24 threads/in (NV251).

| Model Number | Orifice (mm) | Thread Size | Dimensions (mm) |    |           |    |    |    |    |
|--------------|--------------|-------------|-----------------|----|-----------|----|----|----|----|
|              |              |             | A               | B  | C         | D  | E  | F  | H  |
| NV251        | 4,3          | 1/4" NPTF   | 57              | 29 | 1/4" NPTF | 57 | 46 | 19 | 19 |
| V91          | 4,8          | 1/2" NPTF   | 89              | 32 | 1/2" NPTF | 64 | 32 | 37 | 37 |

NV251

V91



▼ From left to right: V152, V66, V82, V161, V42, V17



## Your Hydraulic Control Solution



### Valve Applications

To see these valves used in typical hydraulic circuits, please see our 'Yellow Pages'.

Page: **400**

▼ The V152 pressure relief valve limits the pressure or force developed in the hydraulic system.



- All valves are rated for 700 bar operating pressure
- All valves feature NPTF porting to insure against leakage at rated pressure
- All valves are painted, coated, or plated for corrosion resistance
- Viton® seals (in V66NV and V152NV) for high temperature applications, nickel-plated for maximum corrosion resistance.

Valve dimensions in mm

|                          |                    |                            |                    |
|--------------------------|--------------------|----------------------------|--------------------|
| <p><b>V82</b></p>        | <p><b>V182</b></p> | <p><b>V8F</b></p>          | <p><b>V91</b></p>  |
| <p><b>V10</b></p>        | <p><b>V17</b></p>  | <p><b>V42</b></p>          |                    |
| <p><b>V66, V66NV</b></p> | <p><b>V66F</b></p> | <p><b>V152, V152NV</b></p> | <p><b>V161</b></p> |

# Pressure and Flow Control Valves



## Control Manifolds

For two or four port manifolds with integral flow control valves, see the manifold page of the System Components section.

Page: 132



## Fittings

For additional fittings see the fitting page of the System Components section in this catalogue.

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## V Series



Maximum Operating Pressure:  
**700 bar**








| Valve Type and Model Number                           |  | Description  |   | Hydraulic Symbol |
|---|--|--|---|------------------|
| Needle Valve<br>V82<br>V182<br>V8F                    |  | <b>V82:</b> To control cylinder speed. Can also be used as shutoff valve for temporary load holding. 3/8" NPTF ports, nickle plated.<br><b>V182:</b> Same as V82, but with 1/4" NPTF female ports, nickle plated.          | Also suitable for gauge snubbing (also V82).<br><b>V8F:</b> Like V82, but with very fine metering for precise flow control 0,16 - 14,7 l/min at 275 bar. <b>Not recommended as shutoff valve.</b> |                  |
| Snubber Valve<br>V91                                  |  | <b>V91:</b> Infinitely adjustable for metering oil out of a gauge to prevent snapping of gauge pointer when load or pressure is suddenly released.   | Also suitable as shutoff valve to protect the gauge during high cycling applications. 1/2" NPTF male and female threads for use with GA1, GA2 or GA4 gauge adaptors.                              |                  |
| Auto Damper® Valve<br>V10                             |  | <b>V10:</b> To be used when gauge pressure must be monitored during high cycle applications. Creates a flow resistance when load is released suddenly.   | No adjustments are necessary. 1/2" NPTF male and female threads for use with GA1, GA2 or GA4 gauge adaptors.  |                  |
| Check Valve<br>V17                                    |  | <b>V17:</b> Ruggedly built to resist shock and operate with low pressure drop. Closes smoothly without pounding. 3/8" NPTF female port.  |   |                  |
| Pilot Operated Check Valve<br>V42                     |  | <b>V42:</b> Can be mounted at the cylinder to hold the load in case of system pressure loss. Normally used with doubleacting cylinders where pilot port receives pressure from a Tee-fitting in the cylinder retract line. | 3/8" NPTF female ports.<br>Pilot presure ratio 14% (6,5:1).   |                  |
| Manually Operated Check Valve<br>V66, V66NV *<br>V66F |  | <b>V66, V66NV:</b> For load holding applications with single and double acting cylinders. Valves allow oil to flow back to tank when cylinder retracts.  | <b>V66NV</b> with Viton seals, nickelplated.<br><b>V66F:</b> Similar to V66, but with very fine metering capability for precise flow control. V66F is not designed for load holding.              |                  |
| Pressure Relief Valve<br>V152<br>V152NV *             |  | <b>V152:</b> Limits pressure developed by the pump in hydraulic circuit, thus limiting the force imposed on other components. Valve opens whenever preset pressure is reached.   | To increase pressure setting, turn handle clockwise. Includes:<br>• 0,9 m return line hose kit,<br>• ± 3% repeatability,<br>• 55 - 700 bar adjustment range.                                      |                  |
| Sequence Valve<br>V161                                |  | <b>V161:</b> To control oil flow to a secondary circuit. Flow is blocked until system pressure rises to the V161 setting. When this pressure level is reached, the V161 opens to allow flow to the secondary circuit.      | A pressure differential is always maintained between the primary and secondary circuit.<br><b>Mininum operating pressure: 140 bar.</b>  |                  |

\* See page 64 for more information about products for use in high temperature and extreme environment applications.

Enerpac Hydraulic Presses are available in a variety of capacities and sizes. The press frames are designed for maximum strength and durability. Strong frames and powerful high-pressure hydraulics will provide years of dependable service in many applications.

Enerpac Presses are available in Bench, C-Frame, Arbor, Workshop and Roll-Frame models.

Available in capacities from 10 to 200 ton, each Enerpac press consists of three basic high quality components: press frame, power source and a cylinder.

| Capacity ton (kN)     | Press type and functions  |                    | Series  | Page  |
|-----------------------|---------------------------|--------------------|---|-------|
| 10 (101)              | Bench Presses             | VLP                |    | 148 ▶ |
| 25 - 200 (232 - 1995) | Workshop Presses          | XLP VLP            |    | 148 ▶ |
| 50 - 200 (498 - 1995) | Roll-Frame Presses        | BPR                |    | 150 ▶ |
| 5 - 20 (45 - 178)     | C-Clamp Presses           | A                  |    | 152 ▶ |
| 10 - 30 (101 - 295)   | Arbor Presses             | A                  |    | 152 ▶ |
| 10 - 200 (101 - 1995) | Press Accessories         | A, VB BSS IPL, XLP |   | 154 ▶ |
| 900 - 90.000 kg       | Tension Meters Load Cells | TM LH              |  | 155 ▶ |



**IMPORTANT!**

The pressframe of the workshop presses are exclusively designed for pressing operations, not for pulling. For pulling applications please contact Enerpac.

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**With decades of experience and in-house capabilities look to Enerpac to help find solutions to your customization needs.**

Next to our large range of standard workshop presses, Enerpac offers the possibility of customization. Because many customers have specific requirements, we offer turn-key project management, including design, engineering and manufacturing. As the market leader, we listen to our customers and with our world

wide experience we offer the best solutions, especially when safety is not negotiable. Whether a longer stroke, wider frame or complete new design is required, our custom product group has many years of experience in multiple industries to deliver a solution that meets or exceeds expectations.

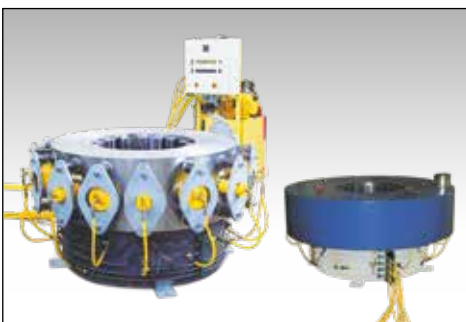
## Overview Custom Presses



▲ Enerpac's hydraulic presses can be configured to fulfill a broad range of applications. Each press is designed and manufactured according to customer specifications and in cooperation with our engineering team.



◀ Fully Automated PLC-Controlled 1800-Ton, High-Accuracy Press. The pressing and heating cycle, during the production of magnetic acceleration coils, required high force and high-accuracy to ensure absolute quality



◀ 600 Ton High-Accuracy Collar Press. For the production of accelerator coils, sheet metal needs to be formed into a specific shape and size.



◀ 50 ton Workshop Press for maintenance jobs.

### CUSTOMIZABLE FEATURES:

- Capacity
- Cylinder Stroke
- Pump Type
- Controls
- Guarding
- Daylight Dimensions

### CONFIGURATIONS:

- Vertical and horizontal press
- Cylinders mounted in upper and lower bolsters
- Height built to customer specifications
- Daylight (vertical and horizontal) built to customer specifications



▼ From left to right: XLP256XA11G, XLP506XA12G, VLP106P142



## No Workshop can do without one



### XA-Series Foot Pump

The XLP-press with XA-Series air powered foot pump: no need to fully lift up foot – rest bodyweight on heel, resulting in a handsfree and stable working position – safe and controlled press operation (see page 114 for XA-Series Pumps).



### Gauges

All press models include a gauge and gauge adaptor, matching the press capacity.



### Side-to-side cylinder movement

Cylinder can be positioned horizontally side-to-side on all XLP-Series presses.



### Safety Cages & Screen

Optional safety cages and screen with polycarbonate glass for additional operator protection.

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### XLP-Series Presses

- Multi-functional presses in kit form (50 and 75 ton presses)
- Easy grip forklift access on 50 and 75 ton presses
- Height adjustment of upper or lower bed with winch (50 & 75 ton)
- Width adjustment allows cylinder to move from side-to-side
- Pump options include XA-Series air-operated foot pump
  - pressure gauge integrated in pump for optimal control
  - suitable for delicate pressing jobs from variable oil flow.

### VLP-Series presses

- Unique “Hydrajust” bed positioning device on 100 and 200 ton VLP-presses allows adjustment of the lower bed.

### ▼ SELECTION CHART

| Press Capacity<br>ton (kN) | Maximum Daylight (mm) |            | Press Model Number | Power Source |       |            |      |                | Cylinder      |     |   |             |                    |         |       |
|----------------------------|-----------------------|------------|--------------------|--------------|-------|------------|------|----------------|---------------|-----|---|-------------|--------------------|---------|-------|
|                            | Vertical              | Horizontal |                    | Pump Type    |       | Valve Type |      | Pump Model Nr. | Page:         |     |   | Stroke (mm) | Cylinder Model Nr. | Page:   |       |
|                            |                       |            |                    | Man.         | Elec. | Air        | Man. |                |               |     |   |             |                    |         | Elec. |
| 10 (101)                   | 430                   | 435        | VLP106P142         | ●            |       |            | ●    |                | P142          | 76  | ● |             | 156                | RC106   | 6     |
|                            | 430                   | 435        | VLP106PAT1         |              |       | ●          | ●    |                | PATG1102N     | 112 | ● |             | 156                | RC106   | 6     |
| 25 (232)                   | 1265                  | 510        | XLP256P392         | ●            |       |            | ●    |                | P392          | 76  | ● |             | 158                | RC256   | 6     |
|                            | 1265                  | 510        | XLP256XA11G        |              |       | ●          | ●    |                | XA11G         | 114 | ● |             | 158                | RC256   | 6     |
| 50 (498)                   | 980                   | 990        | XLP506P802 *       | ●            |       |            | ●    |                | P802          | 78  | ● |             | 159                | RC506   | 6     |
|                            | 980                   | 990        | XLP506XA12G *      |              |       | ●          | ●    |                | XA12G         | 114 | ● |             | 159                | RC506   | 6     |
|                            | 980                   | 990        | XLP506ZES *        |              | ●     |            |      | ●              | ZE4410SE-E050 | 104 |   | ●           | 156                | RR506   | 40    |
|                            | 980                   | 990        | XLP5013ZES *       |              | ●     |            |      | ●              | ZE4410SE-E050 | 104 |   | ●           | 334                | RR5013  | 40    |
| 75 (718)                   | 970                   | 990        | XLP756XA12G *      |              |       | ●          | ●    |                | XA12G         | 114 | ● |             | 156                | RC756   | 6     |
| 100 (933)                  | 989                   | 990        | VLP1006ZES         |              | ●     |            |      | ●              | ZE5420SW-E050 | 104 |   | ●           | 168                | RR1006  | 40    |
|                            | 989                   | 990        | VLP10013ZES        |              | ●     |            |      | ●              | ZE5420SW-E050 | 104 |   | ●           | 333                | RR10013 | 40    |
| 200 (1995)                 | 1340                  | 1220       | VLP20013ZES        |              | ●     |            |      | ●              | ZE6420SW      | 104 |   | ●           | 330                | RR20013 | 40    |

\* 50 and 75 ton XLP-Series presses can be ordered as factory assembled press frame. Add suffix "M" to press model number. Example: XLP506XA12GM.



= Single-Acting



= Double-Acting

# Bench and Workshop Presses

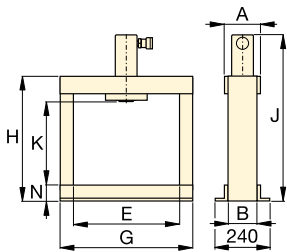


## Optional V-Blocks

To facilitate positioning of pipes and bars, or placed upside-down, to serve as a convenient worktable. Featuring precise fit into the press bolster. Each model number includes two V-blocks.

press bolster. Each model number includes two V-blocks.

| To be used with press (ton) | V-Blocks Model Number |
|-----------------------------|-----------------------|
| 10                          | VB10                  |
| 25                          | VB25                  |
| 50                          | VB501                 |
| 75, 100                     | VB101                 |
| 200                         | A200                  |



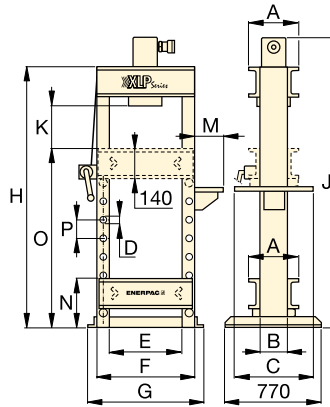
VLP 10 ton

## "Hydrajust" Bed Positioning

Allows vertical adjustment of the lower bed on 100 and 200 ton VLP presses.

**IMPORTANT:** The "Hydrajust" bed positioning is not designed to withstand full cylinder capacity, only to be used for bed adjustment.

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XLP 25 ton

## XLP, VLP Series



Capacity:

**10 - 200 ton**

Maximum Daylight x Width:

**1340 x 1220 mm**

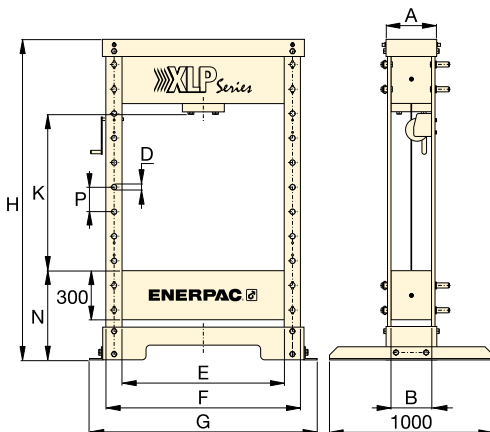
Maximum Operating Pressure:

**700 bar**

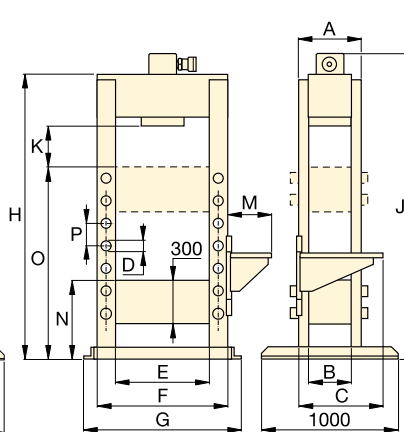


### IMPORTANT!

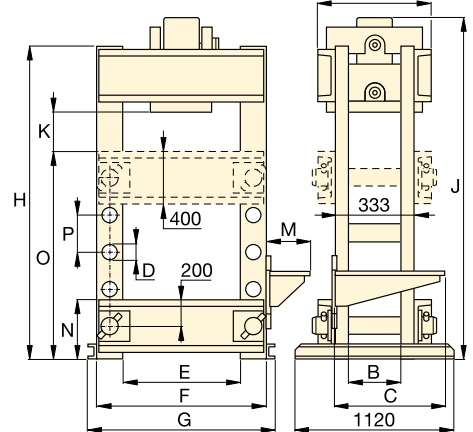
The pressframe of the workshop presses are exclusively designed for pressing operations, not for pulling. For pulling applications please contact Enerpac.



XLP 50 and 75 ton



VLP 100 ton



VLP 200 ton

| Speed (mm/s) ** |          | Dimensions (mm) |     |     |    |      |      |      |      |      |          |     |     |      |     |      | Press Model Number |
|-----------------|----------|-----------------|-----|-----|----|------|------|------|------|------|----------|-----|-----|------|-----|------|--------------------|
| Rapid Advance   | Pressing | A               | B   | C   | D  | E    | F    | G    | H    | J    | K        | M   | N   | O    | P   | (kg) |                    |
| {2,5} **        | {0,6} ** | 110             | 80  | -   | -  | 435  | -    | 542  | 620  | 748  | 430      | -   | 80  | -    | -   | 49   | VLP106P142         |
| 10,0            | 1,8      | 110             | 80  | -   | -  | 435  | -    | 542  | 620  | 748  | 430      | -   | 80  | -    | -   | 54   | VLP106PAT1         |
| {3,4} **        | {0,7} ** | 260             | 140 | 510 | 32 | 510  | 630  | 700  | 1622 | 1740 | 370-1265 | 140 | 212 | 1070 | 122 | 165  | XLP256P392         |
| 10,0            | 1,3      | 260             | 140 | 610 | 32 | 510  | 630  | 700  | 1622 | 1740 | 370-1265 | 323 | 212 | 1070 | 122 | 170  | XLP256XA11G        |
| {5,5} **        | {0,3} ** | 310             | 240 | -   | 32 | 990  | 1190 | 1390 | 1995 | -    | 210-980  | -   | 540 | -    | 150 | 595  | XLP506P802 *       |
| 4,7             | 0,6      | 310             | 240 | -   | 32 | 990  | 1190 | 1390 | 1995 | -    | 210-980  | -   | 540 | -    | 150 | 600  | XLP506XA12G *      |
| 10,0            | 2,0      | 310             | 240 | -   | 32 | 990  | 1190 | 1390 | 1995 | -    | 210-980  | -   | 540 | -    | 150 | 660  | XLP506ZES *        |
| 10,0            | 2,0      | 310             | 240 | -   | 32 | 990  | 1190 | 1390 | 1995 | -    | 210-980  | -   | 540 | -    | 150 | 700  | XLP5013ZES *       |
| 3,2             | 0,4      | 420             | 330 | -   | 40 | 990  | 1240 | 1430 | 1995 | -    | 210-970  | -   | 540 | -    | 150 | 900  | XLP756XA12G *      |
| 10,0            | 2,1      | 400             | 340 | 560 | 40 | 990  | 1240 | 1400 | 1879 | 1885 | 239      | 425 | 540 | 1290 | 150 | 970  | VLP1006ZES         |
| 10,0            | 2,1      | 400             | 340 | 560 | 40 | 990  | 1240 | 1400 | 1879 | 2050 | 239      | 425 | 540 | 1290 | 150 | 993  | VLP10013ZES        |
| 6,6             | 1,6      | 553             | 233 | 560 | 76 | 1220 | 1620 | 1740 | 2285 | 2370 | 377      | 425 | 453 | 1415 | 254 | 1992 | VLP20013ZES        |

\*\* {...} = advance speed in mm per handpump stroke.

▼ Shown: BPR5075



## Expert Designed Versatility

- Quality welded frame for maximum strength and long life
- Frame rolls easily on 4 steel roller bearings
- Exclusive 'Hydra-Lift' bolster for effortless adjustment of the vertical daylight
- Standard roller head design allows lateral movement and locking of the cylinder up to 300 mm left or right of centre
- All models in the quick selection chart have been matched to an electric pump, double-acting cylinder, hose and gauge, offering the complete package
- Roll-Frame design features a stationary bed with the ability to support heavy loads
- Hydraulic clamp cylinder locks roll-frame into position.



### Cylinder adjustment

Cylinder adjustment allows horizontal side to side cylinder positioning.



### Hydra-Lift

Allows easy, effortless daylight adjustment. Standard on all Roll-Frame presses.

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### Optional V-Blocks

These V-Blocks are designed for easy fixturing of round stock and other non-uniform materials. Featuring precise fit into the press bolster.

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### ▼ SELECTION CHART

| Press Capacity<br>ton (kN) | Vertical Daylight A (mm) |      | Maximum Bed Width E (mm) | Electric Pump |      | Press Model Number | Double-Acting Cylinder |              |      | Speed (mm/sec) |          |
|----------------------------|--------------------------|------|--------------------------|---------------|------|--------------------|------------------------|--------------|------|----------------|----------|
|                            | min.                     | max. |                          | Model Number  | Page |                    | Stroke (mm)            | Model Number | Page | Rapid Advance  | Pressing |
| 50 (498)                   | 152                      | 942  | 730                      | ZE5420SW-S    | 104  | BPR5075            | 334                    | RR5013       | 40   | 4,1            | 3,9      |
| 100 (933)                  | 159                      | 1048 | 889                      | ZE3420SW      | 104  | BPR10075           | 333                    | RR10013      | 40   | 7,7            | 0,7      |
| 200 (1995)                 | 279                      | 1295 | 1219                     | ZE4420SW      | 104  | BPR20075           | 330                    | RR20013      | 40   | 5,2            | 0,5      |

# Roll-Frame Presses

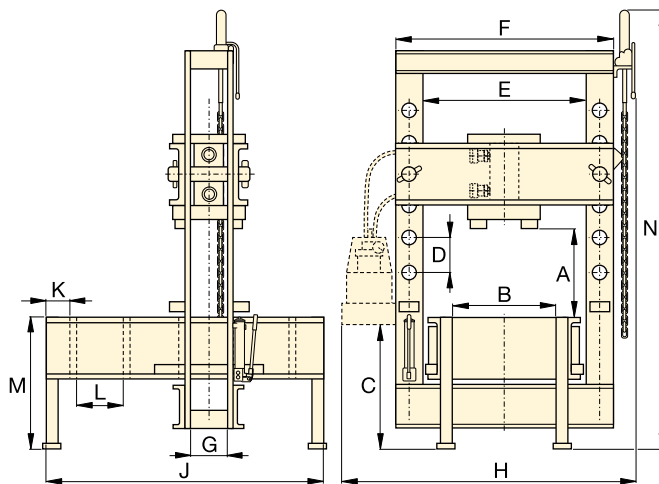


▲ For offshore application high capacity spring loaded cylinders need to be assembled and tested. A special 100 ton roll frame press, with long stroke cylinder has been constructed. All movements are operated and monitored through a PLC controlled pendant.



### IMPORTANT!

The frameworks of the presses are exclusively designed for pressing operations, not for pulling. For pulling applications please contact Enerpac.



## BPR Series



Capacity:

**50 - 200 ton**

Maximum Daylight x Width:

**1295 x 1222 mm**

Maximum Operating Pressure:

**700 bar**



### Gauges

All press models include a gauge and gauge adaptor, matching the press capacity:

| Press Capacity | Gauge Model Number | Adaptor Model Number |
|----------------|--------------------|----------------------|
| ton            |                    |                      |
| 50             | <b>GF50B</b>       | <b>GA2</b>           |
| 100            | <b>GF871B</b>      | <b>GA3</b>           |
| 200            | <b>GF200B</b>      | <b>GA3</b>           |

For more information on gauges, please refer to the System Components section.

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### Spring Centred Valves

Manual valves on electric and air pumps of Enerpac presses are Spring Centred Valves. The handle will automatically move into the neutral valve position when released.

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### Roll-Frame Press Dimensions (mm)

| Roll-Frame Press Dimensions (mm) |     |     |     |      |      |     |      |      |     |     |     |      | Press Model Number |                 |
|----------------------------------|-----|-----|-----|------|------|-----|------|------|-----|-----|-----|------|--------------------|-----------------|
| A (min.-max.)                    | B   | C   | D   | E    | F    | G   | H    | J    | K   | L   | M   | N    |                    | (kg)            |
| 152 - 942                        | 526 | 971 | 264 | 730  | 933  | 127 | 1420 | 1626 | 203 | 270 | 762 | 2870 | 917                | <b>BPR5075</b>  |
| 159 - 1048                       | 673 | 965 | 222 | 889  | 1143 | 146 | 1605 | 1676 | 203 | 270 | 813 | 3021 | 1767               | <b>BPR10075</b> |
| 279 - 1295                       | 984 | 933 | 254 | 1219 | 1626 | 232 | 2150 | 2197 | 203 | 381 | 915 | 3200 | 4186               | <b>BPR20075</b> |



▼ Shown from left to right: A220, A330, A310



## The Standard Workshop Tools



### Push Pin A183

For applications requiring precision pressing, such as shaft removal and insertion. This attachment fits 10 ton cylinders and requires the use of a threaded adaptor saddle (A13).

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### Smooth Saddle A185

For pressing applications of delicate parts, such as aluminium castings, this saddle decreases surface marks during the pressing application. Requires 10 ton cylinder and threaded adaptor saddle (A13).

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### 10 ton Bench Presses

For 10 ton VLP-Series Bench Presses selection see:

Page: 148

### C-Clamp Press

- 5, 10 and 20 ton capacity
- Operational in all positions.

### Arbor Press

- 10 and 30 ton capacity
- Foot mounting holes for horizontal or vertical positioning
- Machined working surfaces for easier fixturing
- Slotted back to simplify loading and unloading of longer parts.

▼ A310 Arbor Press



### ▼ SELECTION CHART

| Press Type | Press Capacity<br>ton (kN) | Maximum Vertical Daylight<br>(mm) | Maximum Bed Width<br>(mm) | Press Model Number | Cylinder Model Number * | Page: |
|------------|----------------------------|-----------------------------------|---------------------------|--------------------|-------------------------|-------|
| C-Clamp    | 5 (45)                     | 165                               | 51                        | A205               | 5 ton RC-cylinder *     | 6     |
|            | 10 (101)                   | 228                               | 57                        | A210               | 10 ton RC-cylinder *    | 6     |
|            | 20 (178)                   | 305                               | 69                        | A220               | 25 ton RC-cylinder **   | 6     |
| Arbor      | 10 (101)                   | 230                               | 135                       | A310               | 10 ton RC-cylinder *    | 6     |
|            | 30 (295)                   | 254                               | 178                       | A330               | RC308 *                 | 6     |

\* Recommended cylinder must be ordered separately.

\*\* Must be limited to 20 ton.

# C-Clamp and Arbor Presses



▲ RC308 cylinder mounted in A330 Arbor Press powered by a PATG-Turbo Air pump for controlled pressing of bearings for sprockets of weaving machines. The V152 Pressure Relief Valve controls the pressing force.

## A Series



Capacity:

**5 - 30 ton**

Maximum Daylight x Width:

**305 x 178 mm**

Maximum Operating Pressure:

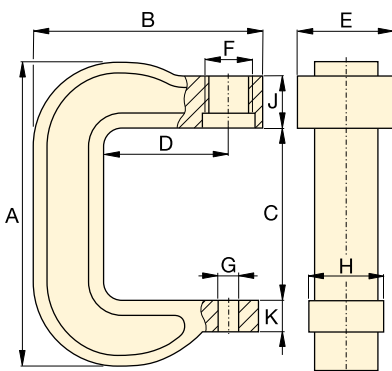
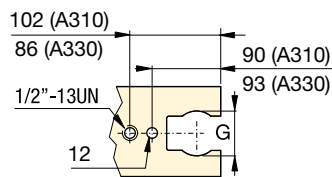
**700 bar**



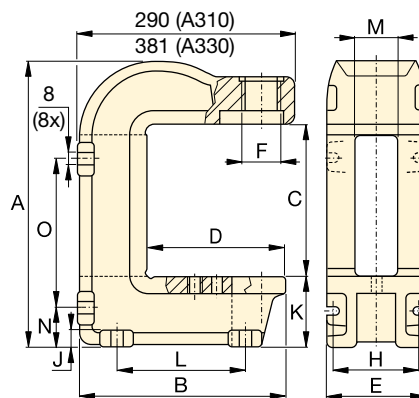
### IMPORTANT!

For high-cycle production applications, the C-Clamp and Arbor presses should be limited to 50% of their capacity.

Top View Working Surface



A205, A210, A220



A310, A330



### Hydraulic Cylinders

Cylinders for C-Clamps and Arbor Presses must be ordered separately.


Page: 6



### Hydraulic Pumps

Pumps for C-Clamps and Arbor Presses must be ordered separately.

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| Press Dimensions (mm) |     |     |     |     |             |    |     |    |     |     |    |    |     |      |  | Press Model Number |
|-----------------------|-----|-----|-----|-----|-------------|----|-----|----|-----|-----|----|----|-----|------|---|--------------------|
| A                     | B   | C   | D   | E   | F           | G  | H   | J  | K   | L   | M  | N  | O   | (kg) |   |                    |
| 291                   | 203 | 165 | 95  | 73  | 1½" -16 UNS | 26 | 51  | 66 | 25  | -   | -  | -  | -   | 7    | A205  |                    |
| 406                   | 283 | 228 | 152 | 83  | 2¼" -14 UNS | 26 | 76  | 64 | 41  | -   | -  | -  | -   | 17   | A210  |                    |
| 540                   | 346 | 305 | 152 | 121 | 3⅝" -12 UNS | 26 | 95  | 70 | 44  | -   | -  | -  | -   | 38   | A220  |                    |
| 414                   | 281 | 230 | 184 | 151 | 2¼" -14 UNS | 63 | 122 | 19 | 95  | 175 | 65 | 54 | 219 | 28   | A310  |                    |
| 563                   | 356 | 254 | 188 | 178 | 3⅝" -12 UNS | 63 | 140 | 28 | 168 | 203 | 67 | 99 | 276 | 100  | A330  |                    |

| Description                      | Press Capacity and Press Series                                    | Model Number    |  | Features  |
|----------------------------------|--|-----------------|--|---|
| <b>V-Blocks</b>                  | 10 ton Bench VLP-Presses   | <b>VB10</b>     |  | <ul style="list-style-type: none"> <li>Facilitate positioning of pipes and bars</li> <li>All V-Block model numbers include 2 V-blocks.</li> </ul>   |
|                                  | 25 ton Workshop XLP-Presses  | <b>VB25</b>     |  |   |
|                                  | 50 ton Workshop XLP-Presses  | <b>VB501</b>    |  |   |
|                                  | 75 ton XLP- and 100 ton VLP-Presses                                | <b>VB101</b>    |  |   |
|                                  | 200 ton Workshop VLP-Press   | <b>A200</b>     |  |   |
|                                  | 200 ton BPR-Roll-Frame Press                                       | <b>A200R</b>    |  |   |
| <b>Hydra-Lift</b>                | 50 ton BPR-Roll-Frame Press  | <b>IPLR100</b>  |  | <ul style="list-style-type: none"> <li>Allows easy, effortless daylight adjustments</li> <li>Includes accessory chain.</li> </ul>   |
|                                  | 100 ton BPR-Roll-Frame Press                                       | <b>IPLR100</b>  |  |   |
|                                  | 200 ton BPR-Roll-Frame Press                                       | <b>IPLR200</b>  |  |   |
| <b>Hydrajust Bed Positioning</b> | 100 ton Workshop VLP-Presses                                       | <b>VHJ100</b>   |  | <ul style="list-style-type: none"> <li>Allowing effortless daylight adjustment by moving the lower bed up and down</li> <li>Can be used with presses equipped with double-acting cylinder.</li> </ul> |
|                                  | 200 ton Workshop VLP-Press   | <b>BSS5380</b>  |  |   |
| <b>Safety Cage</b>               | Front door for XLP25 ton press                                     | <b>XLP25SC1</b> |  | <ul style="list-style-type: none"> <li>Aluminium safety cage with polycarbonate glass for additional operator protection</li> <li>Front and rear door for easy access to press bed</li> </ul>         |
|                                  | Front + rear door for XLP25 ton press                              | <b>XLP25SC2</b> |  |   |
|                                  | Front door for XLP50 ton press                                     | <b>XLP50SC1</b> |  |   |
|                                  | Front + rear door for XLP50 ton press                              | <b>XLP50SC2</b> |  |   |
|                                  | Front door for XLP75ton press                                      | <b>XLP75SC1</b> |  |   |
|                                  | Front + rear door for XLP50 ton press                              | <b>XLP75SC2</b> |  |   |
| <b>Safety Screen</b>             | Universal moveable safety screen to be positioned before any press | <b>XLPSS1</b>   |  | <ul style="list-style-type: none"> <li>Aluminium safety screen with polycarbonate glass</li> <li>Versatile use and protection</li> <li>Lockable wheels for easy positioning</li> </ul>                |



### IMPORTANT!

**The pressframe of the workshop presses are exclusively designed for pressing operations, not for pulling. For pulling applications please contact Enerpac.**

In order to fully comply with CE regulations, some presses must be equipped with specific safety components, such as spring centered valves, two-hand control devices, guards or others.

Enerpac standard general purpose presses are supplied without guards, and have a plunger speed of less than 10 mm/second.

However, your application may require that measures should be taken to reduce the risk of injury to operators and other personnel by providing appropriate safeguarding, training and conducting a risk assessment, which eliminates or reduces danger.

Health & safety within your workplace is your responsibility, not that of Enerpac.

Advice on such matters is available from your local enforcement agency. If you require any further information on Enerpac accessories that may help you conform to the Machinery Directive or European legislation contact Enerpac.



### Press Frame

Press frames include features like workpiece side-loading and height adjustment of the upper bed and lower bed.

**Power Source:** Depending on the production requirements, Enerpac presses can be powered by manual, air-hydraulic and electric-drive power sources.

**Cylinder:** Depending on the application, double-acting cylinders offer increased efficiency. Check out the Selection Charts for the press best suited for your needs.

**Gauge:** All Workshop presses and Roll-Frame Presses feature an easy to monitor pressure/force gauge for increased safety.

# Tension Meter and Load Cells

▼ Shown: LH102 and TM5 (in middle)



## TM LH Series



Capacity:

**900 - 90.000 kg**

Accuracy, % of full scale:

**± 2%**



TM and LH models are 100% tested to verify accuracy within a ± 2% range.

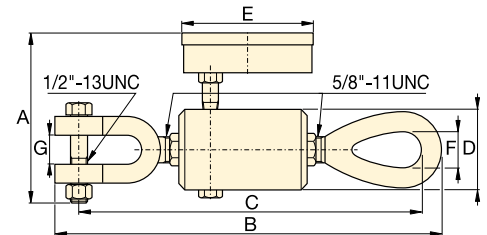
If your application requires a calibrated tool, it must be submitted for certification testing. Certification is NOT available from Enerpac.

### Tension Meter TM5

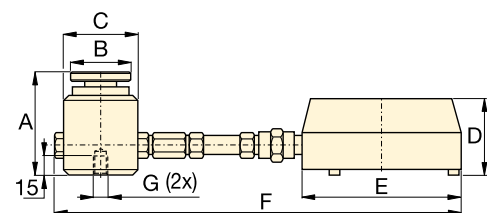
- Accuracy ± 2% of full scale
- Zinc and bronze plated to resist corrosion
- Dual-range readout in kilograms and pounds
- Maximum indicating pointer reading for pre-selected forces or to maintain force readings
- Cushioned metal case provides safe storage and transport.

### Load Cells LH-Series

- Accuracy ± 2% of full scale
- Swivel loading pad reduces eccentric loading for improved accuracy
- Maximum indicating pointer reading pre-selected forces or to maintain maximum force readings
- Dual-range readout in kilograms and pounds.



TM5



LH-Series

### ▼ SELECTION CHART

| Type                           | Gauge Capacity |         | Model Number   | Minimum Reading |        | Gauge Scale Increments |       | Dimensions (mm) |     |     |    |     |      |                 |
|--------------------------------|----------------|---------|----------------|-----------------|--------|------------------------|-------|-----------------|-----|-----|----|-----|------|-----------------|
|                                | (kg)           | (lbs)   |                | (kg)            | (lbs)  | (kg)                   | (lbs) | A               | B   | C   | D  | E   | F    | G*              |
| Direct Mounted                 | 4.500          | 10.000  | <b>TM5</b>     | 500             | 1.000  | 100                    | 100   | 120             | 247 | 236 | 50 | 93  | 22   | 19              |
| Direct Mounted Load Cell       | 900            | 2.000   | <b>LH10</b>    | 100             | 200    | 20                     | 20    | 77              | 44  | 57  | 60 | 101 | 215  | ¼"- 20, 44,5 BC |
|                                | 4.500          | 10.000  | <b>LH50</b>    | 500             | 1.000  | 100                    | 100   | 77              | 44  | 57  | 60 | 101 | 215  | ¼"- 20, 44,5 BC |
| Remote Mounted with 0,6 m Hose | 900            | 2.000   | <b>LH102</b>   | 100             | 200    | 20                     | 20    | 77              | 44  | 57  | 60 | 147 | 846  | ¼"- 20, 44,5 BC |
|                                | 4.500          | 10.000  | <b>LH502</b>   | 500             | 1.000  | 100                    | 100   | 77              | 44  | 57  | 60 | 147 | 846  | ¼"- 20, 44,5 BC |
|                                | 9.000          | 20.000  | <b>LH1002</b>  | 1.000           | 2.000  | 200                    | 200   | 77              | 44  | 57  | 60 | 147 | 846  | ¼"- 20, 44,5 BC |
| Remote Mounted with 1,8 m Hose | 21.000         | 50.000  | <b>LH2506</b>  | 3.000           | 5.000  | 500                    | 500   | 101             | 69  | 85  | 60 | 147 | 2094 | ¾"- 24, 63 BC   |
|                                | 45.000         | 100.000 | <b>LH5006</b>  | 5.000           | 5.000  | 1.000                  | 1.000 | 132             | 101 | 127 | 60 | 147 | 2135 | ¾"- 24, 89 BC   |
|                                | 90.000         | 200.000 | <b>LH10006</b> | 10.000          | 10.000 | 1.000                  | 2.500 | 158             | 127 | 158 | 60 | 147 | 2166 | ¾"- 24, 102 BC  |

\* BC = Bolt Circle



Enerpac offers a complete line of pullers with the widest range of sizes, capacities and styles. Whether your application requires mechanical, hydraulic or the patented Lock-Grip system, Enerpac can satisfy your requirements.

Made of high strength steel alloys, you can depend on Enerpac pullers to provide years of trouble-free operation, even in the harshest environments.



### Hydraulic Pullers

These hydraulic pullers eliminate time-consuming and unsafe hammering, heating or prying. Damage to parts is minimized through the use of controlled hydraulic power.



### Lock-Grip Pullers

The puller's self-centering closing system allows all jaws to move simultaneously, making it easy for a single operator to mount the puller and to perform the application.



### CAUTION!

Not all puller components and configurations are rated at the set capacity. Please contact Enerpac for details.



### IMPORTANT!

Always wear Safety Goggles and Gloves while using pullers.



# Puller Section Overview

When selecting a puller it is important to consider 3 basic specifications:

## 1. The Capacity:

is the amount of force the puller is capable of producing.

Typically, the capacity required for a job can be determined by using the shaft diameter of the part being pulled.

For manual pullers, the center bolt diameter of the puller should be at least half the diameter of the shaft being pulled from.

For hydraulic pullers, the capacity in tons should be 0,28 to 0,4 times the shaft diameter in mm. Use the following chart:

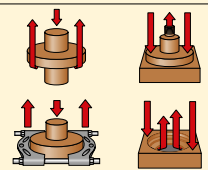

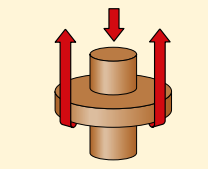

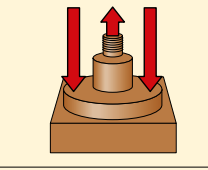

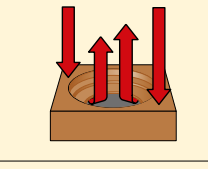

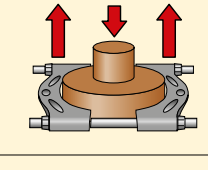

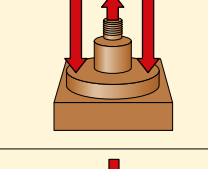

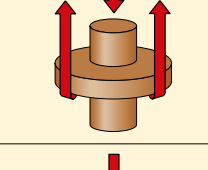

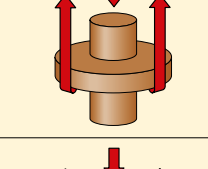

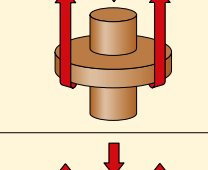

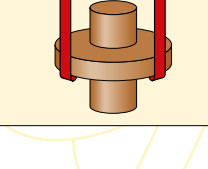

| Shaft Diameter | Puller Capacity |
|----------------|-----------------|
| 0 - 25 mm      | 13 ton          |
| 25 - 50 mm     | 22 ton          |
| 50 - 89 mm     | 33 ton          |
| 89 - 140 mm    | 45 ton          |

## 2. The Reach:

is the distance between the bottom of the base and the jaw flats. The puller's reach must equal or exceed the same distance of the part being pulled.

## 3. The Spread:

is the distance between the jaws. The puller's spread needs to be greater than the width of the part being pulled.

| Puller Function   | Capacity ton | Puller Type  | Series         | Page   |
|---|--------------|--|----------------|--|
|    | 13-45        | <b>Master Puller Sets</b><br>Max. Reach: 252 - 700 mm<br>Max. Spread: 247 - 1100 mm          | <b>BHP</b>     |  <b>158</b> ▶   |
|    | 13-45        | <b>Grip Puller Sets</b><br>Max. Reach: 252 - 700 mm<br>Max. Spread: 249 - 1100 mm            | <b>BHP</b>     |  <b>159</b> ▶   |
|    | 6-22         | <b>Cross Bearing Puller Sets</b><br>Max. Reach: 357 - 864 mm<br>Max. Spread: 260 - 580 mm    | <b>BHP</b>     |  <b>160</b> ▶   |
|    | 6-22         | <b>Bearing Cup Pullers</b><br>Max. Reach: 115 - 150 mm<br>Max. Spread: 145 - 240 mm          | <b>BHP</b>     |  <b>161</b> ▶   |
|  | 6-22         | <b>Bearing Separators</b><br>Max. Width: 110 - 260 mm<br>Max. Spread: 110 - 250 mm           | <b>BHP</b>     |  <b>161</b> ▶ |
|  | 3-40         | <b>Mechanical Lock-Grip Pullers</b><br>Max. Reach: 102 - 335 mm<br>Max. Spread: 132 - 635 mm | <b>LGM</b>     |  <b>162</b> ▶ |
|  | 10-64        | <b>Hydraulic Lock-Grip Pullers</b><br>Max. Reach: 215 - 408 mm<br>Max. Spread: 300 - 660 mm  | <b>LGH</b>     |  <b>166</b> ▶ |
|  | —            | <b>Internal Mechanical Puller</b><br>Max. Reach: 45 - 79 mm<br>Max. Spread: 25 - 100 mm      | <b>IPM</b>     |  <b>168</b> ▶ |
|  | 100          | <b>Hydraulic Sync-Grip Pullers</b><br>Max. Reach: 1000 mm<br>Max. Spread: 1600 mm            | <b>SGH GPS</b> |  <b>169</b> ▶ |
|  | 100          | <b>Posi Lock® Hydraulic Pullers</b><br>Max. Reach: 1219 mm<br>Max. Spread: 190 - 1778 mm     | <b>EPH</b>     |  <b>170</b> ▶ |

▼ Shown: Master Puller Set BHP3751G



## Multi Purpose Puller Set



### WARNING

Do not exceed 50% of the rated puller capacity when using two jaw configurations, a double crosshead (2 grip arms) or when using puller legs in combination with bearing puller attachments.

- Supplied with a full hydraulic set including pump, hose, cylinder, gauge, gauge adaptor and wooden case
- High quality, forged steel components provide superior reliability and service
- Sets include speed crank and adjusting screw for fast contact to work before hydraulics are applied
- All Master Puller Sets include a Grip Puller, a Cross Bearing Puller, a Bearing Cup Puller and a Bearing Separator, which can be ordered separately, see items nr. 10, 20, 30 and 40.

▼ Maintenance engineers throughout the industry greatly appreciate the Enerpac Master Puller sets.



### ▼ SELECTION CHART

| Master Puller Set Capacity * |                            | 13 ton                       | 22 ton          | 33 ton          | 45 ton **       | Page:          |
|------------------------------|----------------------------|------------------------------|-----------------|-----------------|-----------------|----------------|
|                              | <b>Model Number ►</b>      | <b>BHP1752 <sup>1)</sup></b> | <b>BHP2751G</b> | <b>BHP3751G</b> | <b>BHP5751G</b> |                |
|                              | <b>Included Hydraulics</b> |                              |                 |                 |                 |                |
|                              | <b>Set Weight ►</b>        | 37 kg                        | 90 kg           | 172 kg          | 298 kg          |                |
|                              | • Hand Pump                | P142                         | P392            | P392            | P80             | <b>76-79 ►</b> |
|                              | • Cylinder                 | RWH121900                    | RCH202          | RCH302          | RCH603          | <b>34 ►</b>    |
|                              | • Saddle                   | –                            | HP2015          | HP3015          | HP5016          | <b>35 ►</b>    |
|                              | • Hose                     | HC7206C                      | HC7206C         | HC7206C         | HC7206C         | <b>128 ►</b>   |
|                              | • Gauge + Adaptor          | GA45GC                       | GA45GC          | GA45GC          | GA45GC          | <b>142 ►</b>   |
|                              | <b>Included Pullers</b>    |                              |                 |                 |                 |                |
| <b>10</b>                    | Grip Puller                | BHP1762                      | BHP252          | BHP352          | BHP552          | <b>159 ►</b>   |
| <b>20</b>                    | Cross Bearing Puller       | BHP1772                      | BHP262          | BHP362          | BHP562          | <b>160 ►</b>   |
| <b>30</b>                    | Bearing Cup Puller         | BHP180                       | BHP280          | BHP380          | BHP580          | <b>161 ►</b>   |
| <b>40</b>                    | Bearing Separator          | BHP181                       | BHP282          | BHP382          | BHP582          | <b>161 ►</b>   |
|                              | • Case                     | CM6                          | CW350           | CW350           | CW750           |                |

\* See warning on this page.

\*\* Puller capacity at 540 bar; maximum cylinder capacity at 700 bar is 60 ton.

<sup>1)</sup> Includes Adaptor FZ1055.

▼ Shown: Grip Puller Set BHP351G



- Precise hydraulic control allows fast, efficient and safe pulling
- High quality, forged steel components provide superior reliability and service
- Available with and without full hydraulic set.

## BHP Series



Capacity:

**13, 22, 33 and 45 ton**

Reach:

**252 - 700 mm**

Spread:

**249 - 1100 mm**

Maximum Operating Pressure:

**700 bar**

### Ordering Example

#### Model Number BHP251G:

includes Grip Puller BHP252 and a full hydraulic set. (Hand pump, cylinder, saddle, hose, gauge and gauge adaptor).

#### Model Number BHP252:

includes Grip Puller mechanical parts only, for use with your existing hydraulics.

## ▼ SELECTION CHART

| Grip Puller Set Capacity ** |                | 13 ton               | 22 ton          | 33 ton          | 45 ton ***      |
|-----------------------------|----------------|----------------------|-----------------|-----------------|-----------------|
| Model Number ►              |                | BHP152 <sup>1)</sup> | BHP251G         | BHP351G         | BHP551G         |
| Included Hydraulics         |                | Set Weight ►         |                 |                 |                 |
|                             |                | 22 kg                | 56 kg           | 91 kg           | 160 kg          |
| • Hand Pump                 |                | P142                 | P392            | P392            | P80             |
| • Cylinder                  |                | RWH121900            | RCH202          | RCH302          | RCH603          |
| • Saddle                    |                | -                    | HP2015          | HP3015          | HP5016          |
| • Hose                      |                | HC7206C              | HC7206C         | HC7206C         | HC7206C         |
| • Gauge + Adaptor           |                | GA45GC               | GA45GC          | GA45GC          | GA45GC          |
| <b>10</b> Grip Puller       | Model Number ► | <b>BHP1762 *</b>     | <b>BHP252 *</b> | <b>BHP352 *</b> | <b>BHP552 *</b> |
| Maximum Spread (mm)         | 2-jaw          | 249                  | 400             | 593             | 899             |
|                             | 3-jaw          | 249                  | 499             | 800             | 1100            |
| Maximum Reach (mm)          | 2-jaw          | 252                  | 300             | 387             | 700             |
|                             | 3-jaw          | 252                  | 300             | 387             | 700             |
| Jaw (mm)                    | Thickness      | 15                   | 20              | 24              | 30              |
|                             | Width          | 23                   | 27              | 38              | 39              |
| Adjusting Screw (mm)        | Thread         | ¾" - 16 UNF          | 1" - 8 UNC      | 1¼" - 7 UNC     | 1½" - 5.5 UNS   |
|                             | Length         | 400                  | 670             | 790             | 975             |
| • Case                      |                | CW166                | CW166           | CW350           | CW750           |

<sup>1)</sup> Includes Adaptor FZ1055.

\* Grip Puller order number without hydraulics.

\*\* See warning on page 158.

\*\*\* Puller capacity at 540 bar; maximum cylinder capacity at 700 bar is 60 ton.



▼ Shown: Cross Bearing Puller Set BHP361G



- Precise hydraulic control allows fast, efficient and safe pulling
- High quality, forged steel components provide superior reliability and service.

## BHP Series

Capacity:

**6, 11, 16 and 22 ton**

Reach:

**357 - 864 mm**

Spread:

**260 - 580 mm**

Maximum Operating Pressure:

**350 bar**



**CAUTION!** Not all puller components and configurations are rated at the set capacity. Please contact Enerpac for details.

### Cross Bearing Puller Sets

| Hand Pump | XA11G<br>Air Pump | PUD1300<br>Electric Pump | XC1201M<br>Cordless Pump |  |
|-----------|-------------------|--------------------------|--------------------------|--|
| BHP162    | BHP162A           | BHP162EE *               | BHP162CE *               |  |
| BHP261G   | BHP261GA          | BHP261GEE *              | BHP261GCE *              |  |
| BHP361G   | BHP361GA          | BHP361GEE *              | BHP361GCE *              |  |
| BHP561G   | BHP561GA          | BHP561GEE *              | BHP561GCE *              |  |

\* E = 230 V pump. For 115 V change "E" suffix into "B".

### ▼ SELECTION CHART

| Cross Bearing Puller Set Capacity |                                    | 6 ton                | 11 ton      | 16 ton      | 22 ton      |               |
|-----------------------------------|------------------------------------|----------------------|-------------|-------------|-------------|---------------|
|                                   | Model Number ▶                     | BHP162 <sup>1)</sup> | BHP261G     | BHP361G     | BHP561G     |               |
|                                   | Set Weight ▶                       | 26 kg                | 62 kg       | 121 kg      | 185 kg      |               |
|                                   | Included Hydraulics                |                      |             |             |             |               |
|                                   | • Hand Pump                        | P142                 | P392        | P392        | P80         |               |
|                                   | • Cylinder                         | RWH121900            | RCH202      | RCH302      | RCH603      |               |
|                                   | • Saddle                           | –                    | HP2015      | HP3015      | HP5016      |               |
|                                   | • Hose                             | HC7206C              | HC7206C     | HC7206C     | HC7206C     |               |
|                                   | • Gauge + Adaptor                  | GA45GC               | GA45GC      | GA45GC      | GA45GC      |               |
| <b>20</b>                         | Cross Bearing Puller <sup>2)</sup> | Model Number ▶       | BHP1772     | BHP262      | BHP362      | BHP562        |
|                                   | Spread (mm)                        | Maximum              | 260         | 345         | 440         | 580           |
|                                   |                                    | Minimum              | 115         | 140         | 180         | 220           |
|                                   | Reach (mm)                         | Maximum              | 357         | 570         | 710         | 864           |
|                                   | Adjusting Screw (mm)               | Diameter             | ¾" - 16 UNF | 1" - 8 UNC  | 1¼" - 7 UNC | 1½" - 5.5 UNS |
|                                   |                                    | Length               | 400         | 675         | 795         | 975           |
|                                   | Leg (mm)                           | Length               | 105         | 239         | 203         | 609           |
|                                   |                                    | Length               | 357         | 419         | 457         | 863           |
|                                   |                                    | Length               | –           | 571         | 711         | –             |
|                                   |                                    | Length               | –           | 114         | –           | –             |
|                                   | Upper Leg Ends (mm)                | Thread               | ¾" - 16 UNF | ¾" - 16 UNF | 1-14 UNS    | 1¼" - 12 UNF  |
|                                   | Lower Leg Ends (mm)                | Thread               | ⅝" - 18 UNF | ⅝" - 18 UNF | 1-14 UNS    | 1¼" - 12 UNF  |
| <b>30</b>                         | Bearing Cup Puller <sup>2)</sup>   | Model Number ▶       | BHP180      | BHP280      | BHP380      | BHP580        |
| <b>40</b>                         | Bearing Separator <sup>2)</sup>    | Model Number ▶       | BHP181      | BHP282      | BHP382      | BHP582        |
|                                   | • Wooden Case                      |                      | CM6         | CW187       | CW350       | CW750         |

<sup>1)</sup> Includes Adaptor FZ1055.

<sup>2)</sup> Can be ordered separately without hydraulic components, see next page.

# Bearing Cup Pullers and Bearing Separators

▼ Shown: BHP380



## Bearing Cup Puller

- Made of high strength steel alloy
- Easily adapted to Cross Bearing Pullers for fast and efficient removal of the most difficult parts
- Adjustable to fit a variety of bearings and seals.

## BHP Series



Capacity:

**6, 11, 16 and 22 ton**

Maximum Reach:

**115 - 150 mm**

Spread Range:

**145 - 240 mm**

Maximum Operating Pressure:

**350 bar**

### ▼ SELECTION CHART

| Capacity *                   |        | 6 ton         | 11 ton     | 16 ton         | 22 ton           |
|------------------------------|--------|---------------|------------|----------------|------------------|
| <b>30 Bearing Cup Puller</b> |        |               |            |                |                  |
| Model Number ▶               |        | BHP180        | BHP280     | BHP380         | BHP580           |
| Spread (mm)                  | Max.   | 145           | 160        | 240            | 240              |
|                              | Min.   | 40            | 32         | 60             | 60               |
| Reach (mm)                   | Max.   | 115           | 140        | 150            | 150              |
| Center Screw                 | Thread | 3/4" - 16 UNF | 1" - 8 UNC | 1 1/4" - 7 UNC | 1 5/8" - 5.5 UNS |

\* Puller capacity, not attachment capacity. See warning on this page.



### WARNING

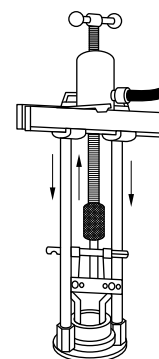
Do not exceed 50% of the rated puller capacity when using a double crosshead (2 grip arms) or when using puller legs in combination with bearing puller attachments.

▼ Shown: BHP382

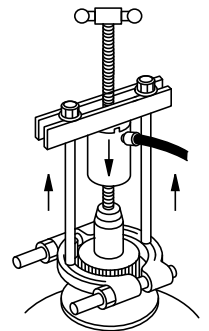


## Bearing Separator

- Made of high strength steel alloy
- Wedge-shaped edges allow removal of the most hard-to-grip components
- Easily adapted to Cross Bearing Pullers for fast and efficient removal of the most difficult parts.



◀ Bearing Cup Puller shown with Crosshead Puller Attachment.



Bearing Separator shown with Crosshead Puller Attachment. ▶

### ▼ SELECTION CHART

| Capacity *               |      | 6 ton         | 11 ton        | 16 ton      | 22 ton          |
|--------------------------|------|---------------|---------------|-------------|-----------------|
| <b>40 Bearing Puller</b> |      |               |               |             |                 |
| Model Number ▶           |      | BHP181        | BHP282        | BHP382      | BHP582          |
| Spread (mm)              | Max. | 110           | 134           | 250         | 250             |
|                          | Min. | 10            | 12            | 17          | 17              |
| Width (mm)               |      | 110           | 155           | 260         | 260             |
| Thread                   |      | 5/8" - 18 UNF | 3/4" - 18 UNF | 1" - 14 UNS | 1 1/4" - 12 UNF |

\* Bearing Separator rated at 50% of puller capacity. See warning on this page.



### Bearing Separator

Bearing Separator has wedge shaped edges for placing puller behind hard to reach bearings, gears, etc., where clearance prevents direct application of grip puller arms.

The Bearing Separator can be used with the Cross Bearing Puller or the Grip Puller.

▼ 2 and 3-Jaw Mechanical Lock-Grip Pullers

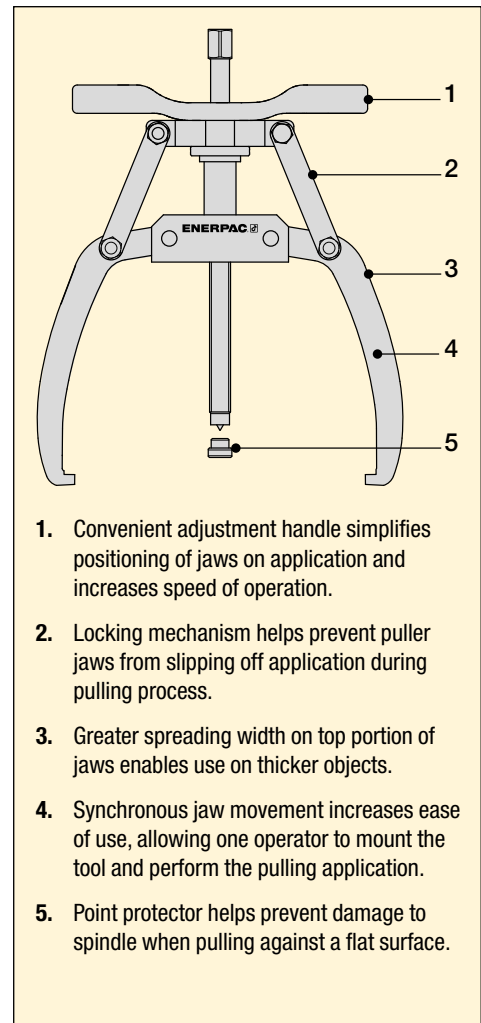


- Quickly and easily mount on a wide range of applications
- Lock-on jaws offer a secure grip for safe and easy operation
- Synchronous jaw movement enables entire pulling job to be performed by a single operator
- Available in 2 and 3-jaw configurations.

▼ Lock-Grip Pullers – the simple, safe and cost-effective way to remove shaft-mounted parts.



**The simple, safe and cost-effective way to remove shaft-mounted parts**



# LGM-Series, Mechanical Lock-Grip Pullers



## LGM-Series, Lock-Grip Pullers

LGM-Series pullers are an ideal solution for pulling small to medium-size wheels, sprockets, bearings and other similar shaft-mounted parts. The puller's self-centering closing system allows all jaws to move simultaneously, making it easy for a single operator to mount the puller and to perform the application.

Turning the puller handle locks the jaws onto the application, allowing the desired object to be pulled free when the spindle is turned.

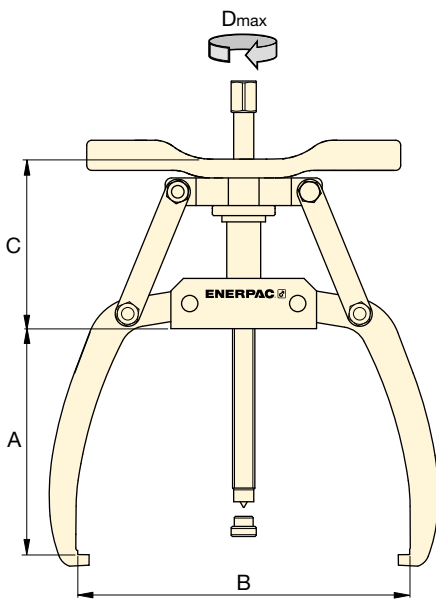
## LGM Series



Puller Capacity:  
**3 - 40 ton**

Maximum Reach:  
**102 - 335 mm**

Maximum Spread:  
**132 - 635 mm**



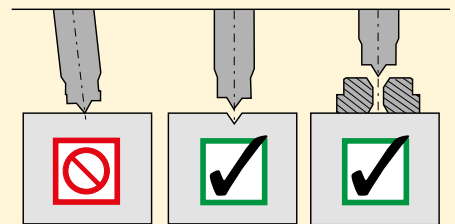
### IMPORTANT!

Always wear safety goggles and gloves while using pullers.



### Point Protector

LGM-Series Pullers MUST be used with a point protector if the shaft end does not contain a drilled center hole. One point protector is included with every puller.



## ▼ SELECTION CHART

| Mechanical Puller Model Number | Maximum Reach<br>A | Dimensions (mm)              |                              |     | Number of Jaws | Puller Capacity<br>US ton (kN) | Maximum Torque<br>Dmax (Nm) | Weight (kg) | Replacement Point Protector Part Number |
|--------------------------------|--------------------|------------------------------|------------------------------|-----|----------------|--------------------------------|-----------------------------|-------------|---|
|                                |                    | Minimum Spread Diameter<br>B | Maximum Spread Diameter<br>B | C   |                |                                |                             |             |   |
| LGM203                         | 102                | 28                           | 132                          | 60  | 2              | 3 (27)                         | 41                          | 1,7         | SGM0404                                 |
| LGM305                         | 102                | 28                           | 132                          | 60  | 3              | 5 (45)                         | 68                          | 2,1         |   |
| LGM204                         | 142                | 30                           | 186                          | 90  | 2              | 4 (36)                         | 68                          | 2,5         |   |
| LGM306                         | 142                | 30                           | 186                          | 90  | 3              | 6 (49)                         | 100                         | 3,1         |   |
| LGM207                         | 177                | 35                           | 260                          | 134 | 2              | 7 (62)                         | 117                         | 4,9         | SGM0704                                 |
| LGM308                         | 177                | 35                           | 260                          | 134 | 3              | 8 (71)                         | 134                         | 6,9         |   |
| LGM211                         | 215                | 84                           | 300                          | 126 | 2              | 11 (98)                        | 203                         | 6,7         |   |
| LGM318                         | 215                | 110                          | 390                          | 140 | 3              | 18 (160)                       | 332                         | 9,9         |   |
| LGM324                         | 265                | 90                           | 460                          | 140 | 3              | 24 (214)                       | 443                         | 13,9        | LGH14K6                                 |
| LGM340                         | 335                | 100                          | 635                          | 210 | 3              | 40 (356)                       | 996                         | 36,0        | LGH24K6                                 |



▼ 2 and 3-Jaw Hydraulic Lock-Grip Pullers



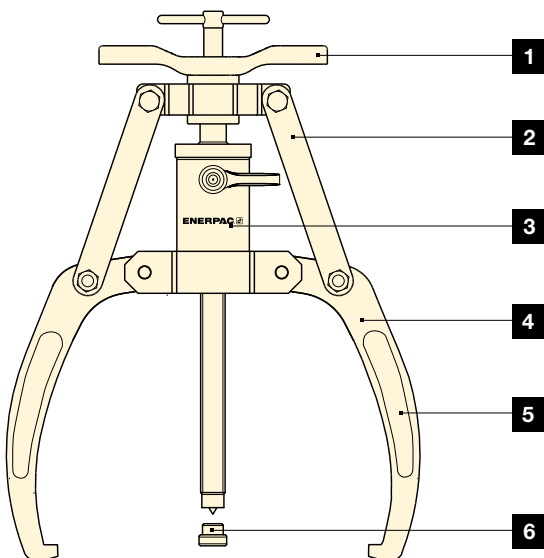
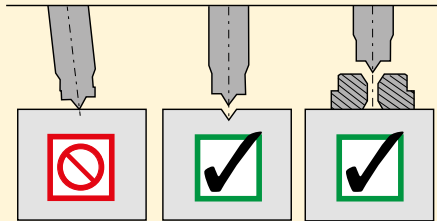
**The simple, safe and cost-effective way to remove shaft-mounted parts**

- Quickly and easily mount on a wide range of applications
- Hydraulically applied pulling force increases pulling capacity, reducing operator fatigue
- Lock-on jaws offer a secure grip for safe and easy operation
- Synchronous jaw movement enables entire pulling job to be performed by a single operator
- Available in 2 and 3-jaw configurations with or without a detachable hollow cylinder.



**Point Protector**

LGH-Series Pullers **MUST** be used with a point protector if the shaft end does not contain a drilled center hole. One point protector is included with every puller.



1. Convenient adjustment handle simplifies positioning of jaws on application and increases speed of operation.
2. Locking mechanism helps prevent jaws from slipping off application during pulling process.
3. Detachable hollow cylinder offers increased pulling capacity compared to mechanical alternatives.
4. Greater spreading width on jaws enables use on thicker objects.
5. Synchronous jaw movement increases ease of use, allowing one operator to mount the tool and perform the pulling application.
6. Point protector helps prevent damage to spindle when pulling against a flat surface.

# Hydraulic Lock-Grip Pullers



## LGH-Series, Lock-Grip Pullers

LGH-Series pullers provide the same safety and ease of use as their mechanical counterparts, with the pulling force applied by a standard 700 bar hydraulic cylinder.

LGH-Series pullers can apply up to 64 tons of force and are perfect for removing larger shaft-mounted objects up to 660 mm diameter.

Turning the puller handle locks the jaws onto the application, allowing the desired object to be pulled free when the spindle is turned.

## LGH Series



Puller Capacity:

**10 - 64 ton**

Maximum Reach:

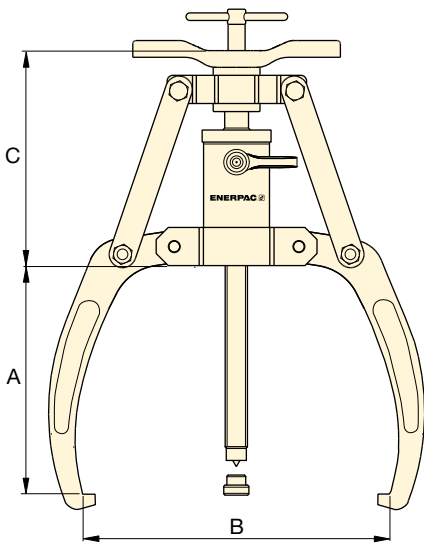
**215 - 408 mm**

Maximum Spread:

**300 - 660 mm**

Maximum Operating Pressure:

**700 bar**



### IMPORTANT!

Always wear safety goggles and gloves while using pullers.



### Hydraulic Pullers

LGH-Series Hydraulic Pullers include puller and hydraulic cylinder.

### Hydraulic Puller Sets

LGHS-Series Hydraulic Pullers Sets include hydraulic puller, pump, gauge and HC7206C hydraulic hose.

Choose pump options below.

## ▼ SELECTION CHART

| Hydraulic Puller Model Nr <sup>1)</sup> | Dimensions (mm) |                         |                         |     | Number of Jaws | Puller Capacity | Replacement Point Protector Part Number | Hydraulic Puller Sets Model Number |                  |                          |                          |             |
|---|-----------------|-------------------------|-------------------------|-----|----------------|-----------------|---|------------------------------------|------------------|--------------------------|--------------------------|-------------|
|   | Max. Reach      | Minimum Spread Diameter | Maximum Spread Diameter |     |                |                 |   | Hand Pump P392                     | Air Pump XA11G   | Electric Pump PUD1300E * | Cordless Pump XC1201ME * |             |
|   | A               | B                       | B                       | C   |                | US ton (kN)     | (kg)                                    | Gauge Ass'y GA45GC                 | Integrated Gauge | Gauge G2535L             | Gauge Ass'y GA45GC       |             |
| LGH210                                  | 215             | 84                      | 300                     | 192 | 2              | 10 (92)         | 10                                      | SGM0704                            | —                | —                        | —                        | —           |
| LGH310                                  | 215             | 84                      | 300                     | 192 | 3              | 10 (92)         | 13                                      | SGM0704                            | LGHS310H         | LGHS310A                 | LGHS310EE *              | LGHS310CE * |
| LGH214                                  | 260             | 125                     | 380                     | 186 | 2              | 14 (125)        | 14                                      | LGH14K6                            | —                | —                        | —                        | —           |
| LGH314                                  | 260             | 125                     | 380                     | 186 | 3              | 14 (125)        | 18                                      | LGH14K6                            | LGHS314H         | LGHS314A                 | LGHS314EE *              | LGHS314CE * |
| LGH224                                  | 336             | 165                     | 480                     | 325 | 2              | 24 (215)        | 37                                      | LGH24K6                            | —                | —                        | —                        | —           |
| LGH324                                  | 336             | 165                     | 480                     | 325 | 3              | 24 (215)        | 47                                      | LGH24K6                            | LGHS324H         | LGHS324A                 | LGHS324EE *              | LGHS324CE * |
| LGH253                                  | 408             | 230                     | 660                     | 473 | 2              | 53 (467)        | 111                                     | LGH253K6                           | —                | —                        | —                        | —           |
| LGH364                                  | 408             | 230                     | 660                     | 473 | 3              | 64 (576)        | 139                                     | LGH253K6                           | LGHS364H         | LGHS364A                 | LGHS364EE *              | LGHS364CE * |

<sup>1)</sup> Hydraulic puller models include cylinder. To receive puller without cylinder add "NC" after LGH (Example: **LGHNC210**).

\* E = for 230V applications. For 115V applications change last suffix from E into B. Example **LGHS310EB**.

Master Puller Sets include a hydraulic puller, cylinder, a pump with hose and gauge for standard pulling applications, as well as a selection of accessories designed for work environments where clearance prevents a direct application of the puller jaws.



### Lock-Grip Pullers:

All sets come with a hydraulic LGH-Series Puller. Both two jaw and three jaw versions are available.



### Detachable Hollow Cylinder:

Provided with all hydraulic pullers as well as the Cross Bearing Puller.



### Pump with Hose and Gauge:

Hydraulic Puller Sets and Master Puller Sets are supplied with a hose, gauge, and your choice of a hand, air, electric or battery-powered cordless pump.



### Cross Puller:

Hydraulically powered via a detachable hydraulic cylinder and pump. The Cross Puller can be used individually as a 'push' puller, or in conjunction with the Bearing Separator or Bearing Cup Puller.



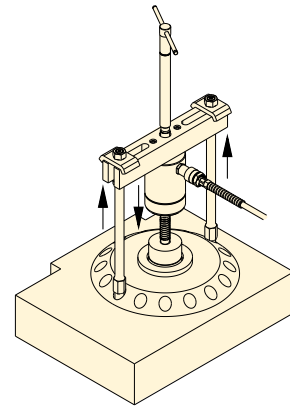
### Bearing-Cup Puller:

Specifically designed to pull cup style bearings and other applications requiring an internal style puller.

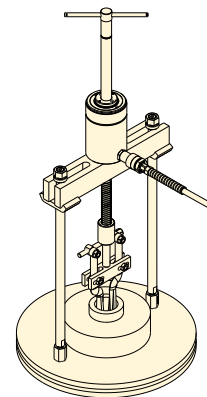


### Bearing Separator (used with Cross Bearing Puller):

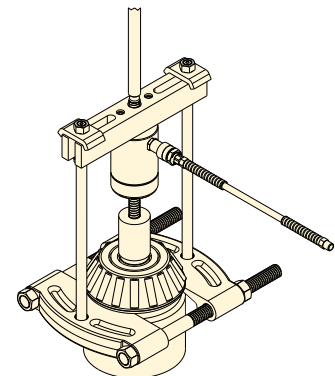
Features narrow edges, which enable puller to be placed behind hard to reach bearings, gears, etc., where limited clearance prevents the direct application of puller arms.



▲ Cross Bearing puller on application



▲ Cross Bearing Puller with Bearing Cup Puller on application



▲ Cross Bearing Puller with Bearing Separator on application

## ▼ DIMENSIONAL INFORMATION

| Model Number | Cross Bearing Puller (mm) |        |               |  | (kg) * |
|--------------|---------------------------|--------|---------------|--|--------|
|              | A                         | B min. | Thread Size C |  |        |
| BHP112       | 280                       | 115    | 5/8"-18 UNF   |  | 2,0    |
| BHP172       | 280                       | 115    | 5/8"-18 UNF   |  | 2,1    |
| BHP272       | 370                       | 140    | 5/8"-18 UNF   |  | 2,4    |
| BHP672       | 615                       | 220    | 1 1/4"-12 UNF |  | 6,4    |

| Model Number | Bearing Separator (mm) |        |        |               |  | (kg) |
|--------------|------------------------|--------|--------|---------------|--|------|
|              | A                      | B min. | B max. | Thread Size C |  |      |
| BHP181       | 110                    | 10     | 110    | 5/8"-18 UNF   |  | 2,8  |
| BHP282       | 156                    | 12     | 134    | 5/8"-18 UNF   |  | 5,7  |
| BHP292       | 182                    | 13     | 210    | 5/8"-18 UNF   |  | 12,5 |
| BHP682       | 300                    | 20     | 300    | 1 1/4"-12 UNF |  | 43,5 |

| Model Number | Bearing Cup Puller (mm) |     |        |        |  | (kg) |
|--------------|-------------------------|-----|--------|--------|--|------|
|              | A                       | B   | C min. | C max. |  |      |
| BHP180       | 135                     | 236 | 40     | 145    |  | 2,0  |
| BHP190       | 164                     | 265 | 40     | 145    |  | 2,0  |
| BHP280       | 164                     | 265 | 40     | 145    |  | 2,4  |
| BHP580       | 150                     | 310 | 60     | 240    |  | 6,4  |

\* With slotted crosshead, cylinder and spindle.

# Hydraulic Lock-Grip Master Puller Sets

## ▼ LGHMS Master Puller Set with Hand Pump Option



## LGHMS Series

Puller Capacity:  
**10 - 64 ton**

Maximum Reach:  
**215 - 408 mm**

Maximum Spread:  
**300 - 660 mm**

Maximum Operating Pressure:  
**700 bar**



### Puller Dimensions

See dimensional information for LGH-pullers on page 165. For dimensions of BHP-puller attachments, see page 166.



### LGH-Series, Hydraulic Pullers

Hydraulic Pullers include puller and hydraulic cylinder.

### LGHMS-Series, Hydraulic Master Puller Sets

Hydraulic Master Pullers Sets include LGH-hydraulic puller, pump, gauge and HC7206C hydraulic hose. Choose pump options below.

- All LGHMS-Series Master Puller Sets include an LGH-Series Hydraulic Puller with 3 jaws, a Cross Puller, a Bearing Separator, a Bearing Cup Puller, a detachable Hollow Cylinder, a hose, a gauge and a pump
- Set options include hand, air, electric or battery-powered pump for an optimal solution to every application.



### WARNING!

Enerpac hydraulic pullers can be operated upto 700 bar. When using accessories, hydraulic pressure **MUST BE LIMITED** to maximum capacities below.

## ▼ SELECTION CHART

| Hydraulic Puller Capacity | Hydraulic Master Puller Sets Model Numbers |                                    |   |   | Master Puller Sets include following components |                         |                              |                        |                             |                              |
|---------------------------|--|------------------------------------|---|---|---|-------------------------|------------------------------|------------------------|-----------------------------|------------------------------|
|                           |  |                                    |   |   |   | Hydraulic 3-Jaws Puller | Maximum Capacity Accessories | Cross Puller Model Nr. | Bearing Separator Model Nr. | Bearing Cup Puller Model Nr. |
|                           | Hand Pump P392<br>Gauge Ass'y GA45GC       | Air Pump XA11G<br>Integrated Gauge | Electric Pump PUD1300E*<br>Gauge G2535L | Cordless Pump XC1201ME*<br>Gauge Ass'y GA45GC | Hydraulic Hose Model Nr.                        |                         | US-ton (kN)                  |                        |                             |                              |
| 10 (92)                   | LGHMS310H                                  | LGHMS310A                          | LGHMS310EE*                             | LGHMS310CE*                                   | HC7206C   | LGH310                  | 7 (75)                       | BHP112                 | BHP181                      | BHP180                       |
| 14 (125)                  | LGHMS314H                                  | LGHMS314A                          | LGHMS314EE*                             | LGHMS314CE*                                   | HC7206C   | LGH314                  | 7 (75)                       | BHP172                 | BHP282                      | BHP190                       |
| 24 (215)                  | LGHMS324H                                  | LGHMS324A                          | LGHMS324EE*                             | LGHMS324CE*                                   | HC7206C   | LGH324                  | 12 (107)                     | BHP272                 | BHP292                      | BHP280                       |
| 64 (576)                  | LGHMS364H                                  | LGHMS364A                          | LGHMS364EE*                             | LGHMS364CE*                                   | HC7206C   | LGH364                  | 25 (227)                     | BHP672                 | BHP682                      | BHP580                       |

\* E = for 230V applications. For 115V applications change last suffix from E into B. Example: LGHMS310CB.



▼ IPM3 Internal Mechanical Puller



## IPM Series

Maximum Reach:

**45 - 79 mm**

Spread Range:

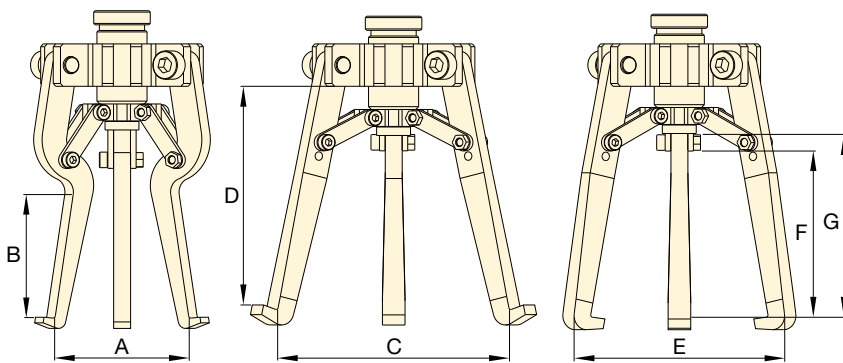
**25 - 100 mm**



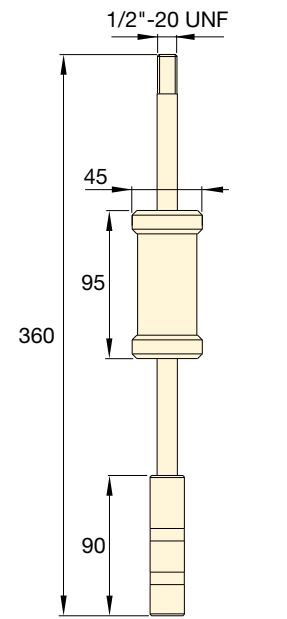
**IMPORTANT!**

Always wear Safety Goggles and Gloves while using pullers.

- Remove bearings or other shaft-mounted parts where no spindle support is available
- Slide hammer allows for application of safe, high-impact force
- Jaw design provides secure grip
- Includes two sets of jaws for internal and external pulling applications.



IPM3



Slide Hammer Dimensions (mm)

▼ DIMENSIONAL DATA

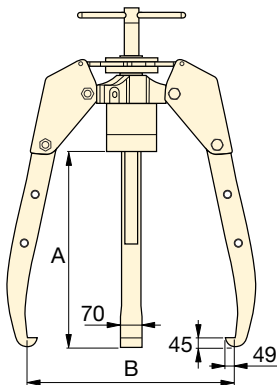
| Model Number | Internal Jaw Dimensions (mm) |                         |               | Standard Jaw Dimensions (mm) |                         |               |                         |                         |               |   | (kg) |
|--------------|------------------------------|-------------------------|---------------|------------------------------|-------------------------|---------------|-------------------------|-------------------------|---------------|---|------|
|              | Minimum Spread Diameter      | Maximum Spread Diameter | Maximum Reach | Internal Configuration       |                         |               | External Configuration  |                         |               |   |      |
|              |                              |                         |               | Minimum Spread Diameter      | Maximum Spread Diameter | Maximum Reach | Minimum Spread Diameter | Maximum Spread Diameter | Maximum Reach |   |      |
| IPM3         | A                            | A                       | B             | C                            | C                       | D             | E                       | E                       | F             | G | 1,9  |


# 100 ton Hydraulic Sync-Grip Puller

▼ SGH100



- Sync Grip mechanism synchronizes movement of all jaws, providing enhanced control of pulling process
- No need to cut, heat or torch components for removal, resulting in safer environment for operator, and preventing damage to equipment
- A hydraulically applied pulling force of up to 100 ton allows a traditionally strenuous task to be completed at the push of a button
- Provides 100 ton pulling force at a fraction of the price of alternative solutions
- One SGH10004 point protector is included with each SGH100.



| Number of Jaws | Capacity<br>ton<br>(kN) | Model Number * | Maximum Reach<br>A<br>(mm) | Maximum Spread<br>B<br>(mm) | Cylinder Stroke<br>(RCH1003)<br>(mm) | <br>(kg) |
|----------------|-------------------------|----------------|----------------------------|-----------------------------|--------------------------------------|---|
| 3              | 100 (980)               | SGH100         | 1000                       | 1600                        | 76                                   | 322   |

\* Available as complete set. Total set weight 459 kg.

## SGH Series

Capacity:  
**100 ton**

Maximum Reach:  
**1000 mm**

Spread Range:  
**1600 mm**

Maximum Operating Pressure:  
**700 bar**



### Sync-Grip Puller – Simple, synchronous movement

The Sync Grip mechanism synchronizes movement of all jaws for simultaneous engagement, allowing one operator to mount the tool and perform the pulling application. Hydraulically applied pulling force increases pulling capacity and reduces operator fatigue, enabling quicker and easier set up.



### Sync-Grip Puller Sets

For ordering convenience the SGH100 is available as complete set with HC7206C hose, GA45GC gauge adapter assembly and ZE3304S electric pump.

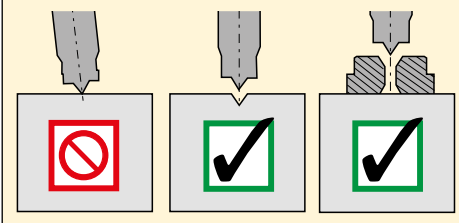
| Model Nr. | Description         |
|-----------|---------------------|
| GPS100EB  | Set with 120 V pump |
| GPS100EE  | Set with 240 V pump |



### Point Protector

To prevent damage a point protector must be used if the shaft end does not have a drilled center hole.

| Model Nr. | Description                |
|-----------|----------------------------|
| SGH10004  | Point protector for SGH100 |



▼ EPH1003E



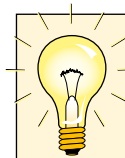
- **Roller cart with power lift**
- **Hydraulically actuated lift cylinder on cart extends puller from ground to a height of 1,69 m**
- **Adjustable jaw tips**
- **Includes ZE3-Series 230 Volt electric one stage pump with remote pendant for fingertip control of the removal process.**

## High-Tech Pulling



### Posi Lock® Pullers

The puller that meets the safety challenge. A control cage holds the pulling jaws securely in working position. This patented feature reduces the possibility of the puller jaws slipping off the work surface, thereby increasing productivity and tool life and reducing dangerous situations for the user.



### Pushing Adaptors

All Posi Lock® 100 Ton Hydraulic Pullers include following pushing adaptors.

| Diameter (mm) | Length (mm) | Model Number |
|---------------|-------------|--------------|
| 89            | 737         | EPHT1162     |
| 89            | 483         | EPHT1163     |
| 89            | 229         | EPHT1164     |



◀ EPH1003E used in maintenance on mining equipment.

# Posi Lock® 100 ton Hydraulic Grip Pullers

## EPH Series



Capacity:  
**100 ton**

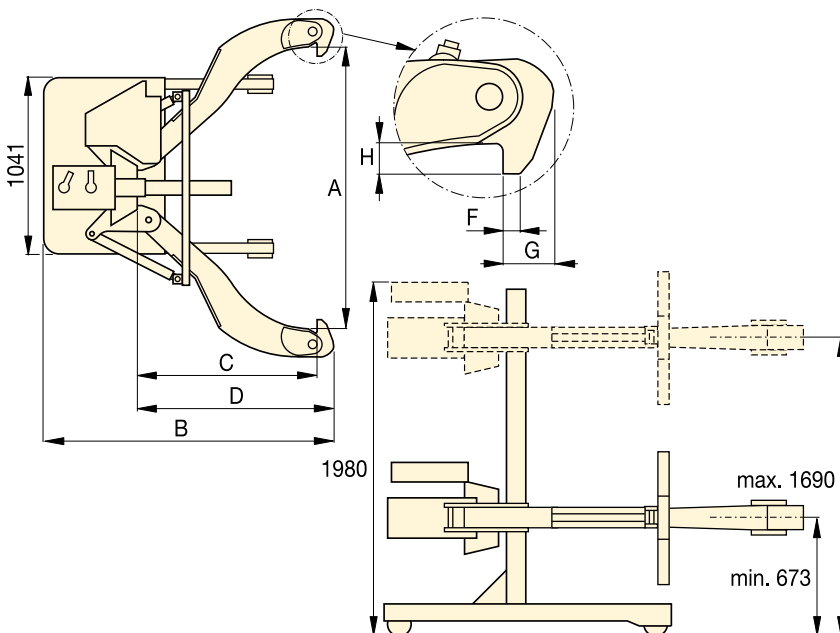
Maximum Reach:  
**1219 mm**

Spread Range:  
**190 - 1778 mm**

Maximum Operating Pressure:  
**700 bar**




**IMPORTANT!**  
Always wear safety goggles and gloves while using pullers.



▼ The EPH1002E quickly and easily removes this drive coupler from its shaft.



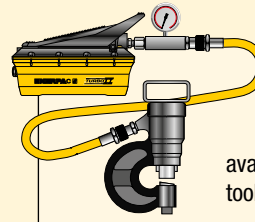
| Number of Jaws | Spread Range<br>∅ A<br>(mm) | Capacity<br>ton<br>(kN) | Model Number | Cylinder Stroke<br>(mm) | Overall Length<br>B<br>(mm) | Reach<br>C<br>(mm) | Jaw Length<br>D<br>(mm) | Jaw Width<br>F<br>(mm) | Tip Clearance<br>G<br>(mm) | Tip Depth<br>H<br>(mm) |  (kg) |
|----------------|-----------------------------|-------------------------|--------------|-------------------------|-----------------------------|--------------------|-------------------------|------------------------|----------------------------|------------------------|--|
| 2              | 190 - 1778                  | 100 (980)               | EPH1002E     | 250                     | 1955                        | 1219               | 1346                    | 32                     | 89                         | 89                     | 771  |
| 3              | 190 - 1778                  | 100 (980)               | EPH1003E     | 250                     | 1955                        | 1219               | 1346                    | 32                     | 89                         | 89                     | 907  |



Enerpac offers an extensive range of dedicated tools for a variety of specific and flexible applications.

Whatever your requirement... cutting, punching, spreading or bending... you can be sure that Enerpac has the correct tool to do your job safely and efficiently.

Featuring maintenance sets, machine lifts and load skates, as well as hole punches, pipe benders, rail stressor and cable cutters, Enerpac has the tools to ensure that even your most demanding applications can be undertaken with the highest degree of safety and accuracy.



### Tool-Pump Sets

Most hydraulic tools in this section are available in sets, for a perfect tool-pump match.



### Hydraulic System Set-up

Check out our 'Yellow Pages' section for help on system set-ups and valving configurations.

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### Hydraulic, Electric and Manual Cutters

Enerpac Cutters can be found in the Cutter section of this catalog.

Page: 192












### Bolting Tools

More Enerpac Tools you will find in our Bolting Tools section in this catalog.

Page: 210



# Specialty Tools Section Overview

| Capacity<br>ton (kN)                   | Tool type and functions                            | Series                                  |   | Page                         |
|--|--|---|---|------------------------------|
| <b>2,5 - 12,5</b><br>(22 - 116)        | <b>Maintenance Sets</b>                            | <b>MS</b>                               |    | <b>174</b> ▶                 |
| <b>35 - 50</b><br>(311 - 498)          | <b>Punches</b><br><b>Punch-Pump Sets</b>           | <b>SP,</b><br><b>MSP,</b><br><b>STP</b> |    | <b>178</b> ▶<br><b>180</b> ▶ |
| <b>16</b><br>(157)                     | <b>Lifting Wedge</b>                               | <b>LW</b>                               |    | <b>182</b> ▶                 |
| <b>8,5 - 20</b><br>(75 - 178)          | <b>Machine Lifts</b>                               | <b>SOH</b>                              |    | <b>183</b> ▶                 |
| <b>1 - 80</b><br>(8,9 - 712)           | <b>Heavy-Duty Load Skates</b>                      | <b>ER, ES</b><br><b>ELP</b>             |    | <b>184</b> ▶                 |
| <b>19 - 453 litres</b>                 | <b>Industrial Storage Cases</b>                    | <b>CM</b>                               |   | <b>186</b> ▶                 |
| <b>0,75 - 1,0</b><br>(6 - 8,9)         | <b>Hydraulic Wedgie</b><br><b>Spread Cylinders</b> | <b>A</b><br><b>WR</b>                   |  | <b>187</b> ▶                 |
| <b>Nominal Pipe Bore</b><br>½ - 4 inch | <b>Pipe Bender Sets</b>                            | <b>STB</b>                              |  | <b>188</b> ▶                 |
| <b>70</b><br>(683)                     | <b>Hydraulic Rail Stressor</b>                     | <b>RP</b>                               |  | <b>190</b> ▶                 |

▼ Shown: MS210



- All sets include Enerpac pump, hose, cylinder and gauge
- Lock-on or threaded connectors
- Complete maintenance set for almost every maintenance application.

## The Universal Hydraulic Tool Box



### Maintenance Sets

Enerpac Maintenance sets are a complete assortment of hydraulic powered tools. Using these sets allows you to quickly configure a unique tool to meet your most difficult jobs.

Built around the Enerpac lightweight hand pump, hose and cylinder, these sets enable you to push, pull, lift, press, straighten, spread and clamp with forces up to 12,5 ton.



### More Information

For detailed information on all included attachments, see the next pages.

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*Clamping a workpiece is just one of the many applications for the Enerpac maintenance sets.*

### ▼ QUICK SELECTION CHART

| Capacity using attachments*<br>ton (kN) | Set Model Number |      |        |                 |        |     | Number of Attachment Components | <br>(kg) |
|---|------------------|------|--------|-----------------|--------|-----|---------------------------------|----------|
| 2,5 (22)                                | MS24             | P142 | HC7206 | RC55            | GP10S  | GA4 | 33                              | 26       |
| 2,5 (22)                                | MSFP5            | P142 | HC7206 | RC55            | GP10S  | GA4 | 24                              | 20       |
| 5,0 (50)                                | MSFP10           | P392 | HC7206 | RC106           | G2535L | GA3 | 23                              | 48       |
| 5,0 (50)                                | MS210            | P392 | HC7206 | RC106           | GP10S  | GA2 | 35                              | 63       |
| 12,5 (116)                              | MS220            | P392 | HC7206 | RC256           | GP10S  | GA2 | 13                              | 95       |
| 5,0-12,5 (50-116)                       | MS21020          | P392 | HC7206 | RC102, 106, 256 | GP10S  | GA2 | 53                              | 158      |

\* If no attachments are being used, capacity is double these values. Maximum operating pressure is then 700 bar.

# Universal Maintenance Sets



## CAUTION!

When cylinders are used with maintenance set attachments or components, the maximum system pressure must be limited to half the rated pressure (350 bar).



## WARNING!

Only use attachments provided with set. Non-Enerpac attachments and longer extension tubes will reduce column strength, potentially creating unsafe conditions.

## MS Series



Capacity (using attachments):

**2,5 - 12,5 ton**

Maximum Operating Pressure:

**350 bar**

### ▼ APPLICATION EXAMPLES







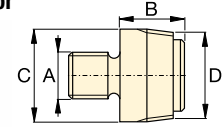
**CAUTION!** When cylinders are used with maintenance set attachments or components, the maximum system pressure must be limited to half the rated pressure (350 bar).

Note: All dimensions in millimetres.

| Set Model Number                                       | MS24           | MSFP5          | MSFP10         | MS210          | MS220           | MS21020                |
|--|----------------|----------------|----------------|----------------|-----------------|------------------------|
| <b>Base, Collar and Plunger Attachments</b>            | <b>2,5 ton</b> | <b>2,5 ton</b> | <b>5,0 ton</b> | <b>5,0 ton</b> | <b>12,5 ton</b> | <b>5,0 - 12,5 ton</b>  |
| <b>Cylinder Model(s)</b>                               | <b>RC55</b>    | <b>RC55</b>    | <b>RC106</b>   | <b>RC106</b>   | <b>RC256</b>    | <b>RC102, 106, 256</b> |
| <b>1</b>   | A23            | A23            | A13            | A13            | A-28            | A13, A28               |
| <b>2</b>   | A25            | A25            | A21            | A21            | A-27            | A21, A27               |
| <b>3</b>   | A1034          | A1034          | A20            | A20            | A-595           | A20, A595              |
| <b>4</b>   | MZ4010         | MZ4010         | A14            | A14            | A-243           | A14, A243              |
| <b>5</b>   | A545           | A545           | A10            | A10            | -               | A10 (2x)               |
| <b>6</b>   | -              | -              | -              | A8             | -               | A8                     |
| <b>7</b>   | A530           | A530           | A6             | A6             | -               | A6                     |
| <b>8</b>   | MZ4011         | -              | -              | A192           | -               | A192                   |
| <b>9</b>   | -              | -              | -              | A305           | -               | A305                   |
| <b>10</b>  | A531           | A531           | A18            | A18            | -               | A18                    |
| <b>11</b>  | -              | -              | -              | A185           | -               | A185                   |
| <b>12</b>  | A532           | A532           | A15            | A15            | -               | A15                    |
| <b>13</b>  | -              | -              | -              | -              | A-607           | A607                   |
| <b>14</b>  | A629           | A629           | A129           | A129           | -               | A129                   |
| <b>15</b>  | A539           | A539           | A128           | A128           | -               | A128                   |
| <b>Chains and Attachments for Pulling Applications</b> | <b>2,5 ton</b> | <b>2,5 ton</b> | <b>5,0 ton</b> | <b>5,0 ton</b> | <b>12,5 ton</b> | <b>5,0 - 12,5 ton</b>  |
| <b>16</b>  | A558           | -              | -              | A132           | A238            | A132, A238             |
| <b>17</b>  | -              | -              | -              | A5 (2x)        | -               | A5 (2x)                |
| <b>18</b>  | A557 (2x)      | -              | -              | A141 (2x)      | A218 (2x)       | A141 (2x),<br>A18 (2x) |
| <b>Extension Tubes, Connectors and Adaptors</b>        | <b>2,5 ton</b> | <b>2,5 ton</b> | <b>5,0 ton</b> | <b>5,0 ton</b> | <b>12,5 ton</b> | <b>5,0 - 12,5 ton</b>  |
| <b>19</b>  | A544           | -              | -              | A19 (2x)       | A242 (2x)       | A19 (2x)<br>A242 (2x)  |
| <b>20</b>  | WR5            | WR5            | WR5            | A92            | -               | A92                    |
| <b>21</b>  | MZ4013 (4x)    | MZ4013 (4x)    | A16 (4x)       | A16 (4x)       | -               | A16 (4x)               |
| <b>22</b>  | MZ4007 (3x)    | MZ4007 (3x)    | MZ1050 (3x)    | MZ1050 (2x)    | -               | MZ1050 (3x)            |
| <b>23</b>  | MZ4008 (2x)    | -              | -              | MZ1051         | -               | MZ1051 (2x)            |
| <b>24</b>  | MZ4009         | MZ4009         | MZ1052         | MZ1052         | -               | MZ1052                 |
| <b>25</b>  | -              | -              | -              | A285           | -               | A285                   |
| <b>26</b>  | A650           | -              | -              | -              | -               | -                      |
| <b>27 Length (mm)</b>                                  | 76             | MZ4002         | MZ4002         | -              | -               | -                      |
|  | 127            | MZ4003         | MZ4003         | MZ1002         | MZ1002          | -                      |
|  | 254            | MZ4004         | MZ4004         | MZ1003         | MZ1003          | A239                   |
|  | 254            | -              | -              | -              | -               | A239                   |
|  | 457            | MZ4005 (2x)    | MZ4005         | MZ1004         | MZ1004          | A240                   |
|  | 457            | -              | -              | -              | -               | A240                   |
|  | 584            | MZ4006         | MZ4006         | -              | -               | -                      |
| 762  | -              | -              | MZ1005         | MZ1005         | A241            | MZ1005 (2x)            |
| 762  | -              | -              | -              | -              | -               | A241                   |
| <b>28 Storage Case</b>                                 | CM6            | CM6            | CW350          | CW350          | CW350           | CW750                  |
| <b>Set Weight (kg)</b>                                 | 26             | 20             | 48             | 63             | 95              | 158                    |

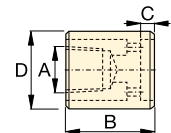
## Base, Collar and Plunger Attachments

### 1 Threaded Adaptor



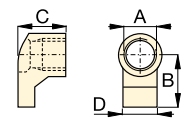
| ton  | Model Nr. | A              | B  | C  | D                   |
|------|-----------|----------------|----|----|---------------------|
| 2,5  | A23       | 3/4" - 16 UN   | 28 | 26 | 3/4" - 14 NPT       |
| 5,0  | A13       | 1" - 8 UN      | 31 | 42 | 1 1/4" - 11 1/2 NPT |
| 12,5 | A28       | 1 1/2" - 16 UN | 47 | 69 | 2" - 11 1/2 NPT     |

### 2 Base Attachment



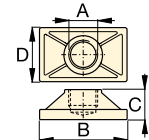
| ton  | Model Nr. | A                   | B  | C  | D  |
|------|-----------|---------------------|----|----|----|
| 2,5  | A25       | 3/4" - 14 NPT       | 50 | 12 | 44 |
| 5,0  | A21       | 1 1/4" - 11 1/2 NPT | 57 | 12 | 65 |
| 12,5 | A27       | 2" - 11 1/2 NPT     | 63 | 12 | 98 |

### 3 Collar Toe



| ton  | Model Nr. | A               | B   | C  | D  |
|------|-----------|-----------------|-----|----|----|
| 2,5  | A1034     | 1 1/2" - 16 UN  | 54  | 50 | 31 |
| 5,0  | A20       | 2 1/4" - 14 UN  | 80  | 57 | 57 |
| 12,5 | A595      | 3 5/16" - 12 UN | 103 | 51 | 80 |

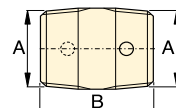
### 4 Flat Base



| ton  | Model Nr. | A                   | B   | C  | D   |
|------|-----------|---------------------|-----|----|-----|
| 2,5  | MZ4010    | 3/4" - 14 NPT       | 114 | 31 | 63  |
| 5,0  | A14       | 1 1/4" - 11 1/2 NPT | 165 | 35 | 88  |
| 12,5 | A243 *    | 2" - 11 1/2 NPT     | 165 | 58 | 165 |

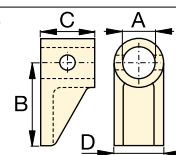
\* A243 is a round base model.

### 5 Threaded Connector



| ton | Model Nr. | A                   | B  |
|-----|-----------|---------------------|----|
| 2,5 | A545      | 3/4" - 14 NPT       | 35 |
| 5,0 | A10       | 1 1/4" - 11 1/2 NPT | 41 |

### 6 Lock-on Clamp Toe



| ton | Model Nr. | A  | B   | C  | D  |
|-----|-----------|----|-----|----|----|
| 5,0 | A8        | 43 | 105 | 50 | 57 |

# Universal Maintenance Sets, MS-Series

**7 Threaded Plunger Toe**

| ton | Model Nr.   | A             | B  | C  | D  |
|-----|-------------|---------------|----|----|----|
| 2,5 | <b>A530</b> | ¾" - 14 NPT   | 57 | 25 | 33 |
| 5,0 | <b>A6</b>   | 1¼" - 11½ NPT | 82 | 31 | 57 |

**14 Wedge Head**

| ton | Model Nr.   | A             | B   | C  | D  |
|-----|-------------|---------------|-----|----|----|
| 2,5 | <b>A629</b> | ¾" - 14 NPT   | 69  | 33 | 28 |
| 5,0 | <b>A129</b> | 1¼" - 11½ NPT | 101 | 50 | 44 |

**20 Spreader**

| ton | Model Nr.  | A           | B   | C    | D   |
|-----|------------|-------------|-----|------|-----|
| 1,0 | <b>WR5</b> | —           | 223 | 12,8 | 94  |
| 1,0 | <b>A92</b> | 2¼" - 14 UN | 244 | 35   | 158 |

**8 Collar Clamp Head**

| ton | Model Nr.     | A           | B  | C  | D           |
|-----|---------------|-------------|----|----|-------------|
| 2,5 | <b>MZ4011</b> | ¾" - 14 NPT | 49 | 76 | 1½" - 16 UN |
| 5,0 | <b>A192</b>   | —           | 42 | 63 | 2¼" - 14 UN |

**15 Rubber Flex Head**

| ton | Model Nr.   | A             | B  | C  |
|-----|-------------|---------------|----|----|
| 2,5 | <b>A539</b> | ¾" - 14 NPT   | 44 | 69 |
| 5,0 | <b>A128</b> | 1¼" - 11½ NPT | 86 | 86 |

**21 Lock Pin**

| ton | Model Nr.     | A    | B  |
|-----|---------------|------|----|
| 2,5 | <b>MZ4013</b> | 7,9  | 41 |
| 5,0 | <b>A16</b>    | 11,2 | 82 |

**9 Spreader Toe**

| ton | Model Nr.   | A             | B   | C  | D  |
|-----|-------------|---------------|-----|----|----|
| 5,0 | <b>A305</b> | 1¼" - 11½ NPT | 114 | 25 | 50 |

## Chains and Attachments for Pulling

**16 Single Chain Plate**

| ton  | Model Nr.   | A           | B   | C   | D   |
|------|-------------|-------------|-----|-----|-----|
| 2,5  | <b>A558</b> | 1½" - 16 UN | 196 | 39  | 44  |
| 5,0  | <b>A132</b> | 2¼" - 14 UN | 307 | 63  | 79  |
| 12,5 | <b>A238</b> | 3⅝" - 12 UN | 450 | 102 | 125 |

**22 Lock-on Connector**

| ton | Model Nr.     | A  | B   |
|-----|---------------|----|-----|
| 2,5 | <b>MZ4007</b> | 19 | 79  |
| 5,0 | <b>MZ1050</b> | 33 | 127 |

**10 Serrated Saddle**

| ton | Model Nr.   | A             | B  | C  |
|-----|-------------|---------------|----|----|
| 2,5 | <b>A531</b> | ¾" - 14 NPT   | 27 | 31 |
| 5,0 | <b>A18</b>  | 1¼" - 11½ NPT | 38 | 50 |

**17 Double Chain Plate**

| ton | Model Nr. | A             | B   | C  | D   |
|-----|-----------|---------------|-----|----|-----|
| 5,0 | <b>A5</b> | 1¼" - 11½ NPT | 130 | 50 | 126 |

**23 Male Lock-on Adaptor**

| ton | Model Nr.     | A             | B  | C  |
|-----|---------------|---------------|----|----|
| 2,5 | <b>MZ4008</b> | ¾" - 14 NPT   | 60 | 19 |
| 5,0 | <b>MZ1051</b> | 1¼" - 11½ NPT | 90 | 33 |

**11 Smooth Saddle**

| ton | Model Nr.   | A             | B  | C  |
|-----|-------------|---------------|----|----|
| 5,0 | <b>A185</b> | 1¼" - 11½ NPT | 38 | 50 |

**18 Chain with Hook**

| ton  | Model Nr.   | Chain Length |
|------|-------------|--------------|
| 2,5  | <b>A557</b> | 1,5 metres   |
| 5,0  | <b>A141</b> | 1,8 metres   |
| 12,5 | <b>A218</b> | 2,4 metres   |

**24 Female Lock-on Adaptor**

| ton | Model Nr.     | A             | B  | C  |
|-----|---------------|---------------|----|----|
| 2,5 | <b>MZ4009</b> | ¾" - 14 NPT   | 65 | 19 |
| 5,0 | <b>MZ1052</b> | 1¼" - 11½ NPT | 96 | 33 |

**12 90° V-Base**

| ton | Model Nr.   | A             | B  | C  | D  |
|-----|-------------|---------------|----|----|----|
| 2,5 | <b>A532</b> | ¾" - 14 NPT   | 38 | 47 | 25 |
| 5,0 | <b>A15</b>  | 1¼" - 11½ NPT | 54 | 57 | 54 |

## Tubes, Connectors and Adaptors

**19 Pipe Coupling**

| ton  | Model Nr.   | A             | B  | C  |
|------|-------------|---------------|----|----|
| 2,5  | <b>A544</b> | ¾" - 14 NPT   | 42 | 33 |
| 5,0  | <b>A19</b>  | 1¼" - 11½ NPT | 49 | 54 |
| 12,5 | <b>A242</b> | 2" - 11½ NPT  | 88 | 82 |

**25 Adjustable Extension**

| ton | Model Nr.   | A             | B   | C   | D  |
|-----|-------------|---------------|-----|-----|----|
| 5,0 | <b>A285</b> | 1¼" - 11½ NPT | 335 | 441 | 33 |

**13 Plunger Base**

| ton  | Model Nr.   | A            | B   | C  |
|------|-------------|--------------|-----|----|
| 12,5 | <b>A607</b> | 2" - 11½ NPT | 166 | 38 |

**26 Slip-on Extension**

| ton | Model Nr.   | A           | B   | C   |
|-----|-------------|-------------|-----|-----|
| 2,5 | <b>A650</b> | ¾" - 14 NPT | 200 | 365 |

▼ Shown: SP35S



- 12,7 mm thick capacity through mild steel
- Round, oblong and square punches and dies are available to solve your punching applications
- Long life Enerpac single-acting, spring return design
- Durable steel case keeps tools and dies together and provides for easy carrying and storage
- CR400 coupler included.

▼ SP-Series, Lightweight Hydraulic Punch – Much Faster than Drilling.



## Much Faster than Drilling



### Tool Kit SPK10

Included with all 35 Ton punches, this tool kit is used to remove and install the punch into the head. Can be ordered as a replacement under model number **SPK10**.



### Ordering Information

The 35 ton hydraulic Punch may be ordered by itself or as a set, including a pump. A punch or die may also be ordered separately or as a matched set. Please refer to the Quick Selection Chart information on top of the next page.



### ▼ STANDARD PUNCHES AND DIES SELECTION CHART

| Hole Shape | Imperial <sup>1)</sup> (inch) |           | Metric <sup>1)</sup> (mm) |           |
|------------|-------------------------------|-----------|---------------------------|-----------|
|            | Hole Size                     | Bolt Size | Hole Size                 | Bolt Size |
| ●          | 0,31                          | 1/4       | 7,9                       | –         |
| ●          | 0,38                          | 5/16      | 9,5                       | M8        |
| ●          | 0,44                          | 3/8       | 11,1                      | M10       |
| ●          | 0,53                          | 7/16      | 13,5                      | M12       |
| ●          | 0,56                          | 1/2       | 14,3                      | –         |
| ●          | 0,69                          | 5/8       | 17,5                      | M16       |
| ●          | 0,78                          | –         | 19,8                      | M18       |
| ●          | 0,81                          | 3/4       | 20,6                      | –         |
| ■          | 0,31                          | 1/4       | 7,9                       | –         |
| ■          | 0,38                          | 5/16      | 9,5                       | M8        |
| ■          | 0,44                          | 3/8       | 11,1                      | M10       |
| ■          | 0,50                          | 7/16      | 12,7                      | M12       |
| ■          | .31 x .75                     | 1/4       | 7,9 x 19                  | –         |
| ■          | .38 x .75                     | 5/16      | 9,5 x 19                  | M8        |
| ■          | .44 x .75                     | 3/8       | 11,1 x 19                 | M10       |
| ■          | .50 x .75                     | 7/16      | 12,7 x 19                 | M12       |

<sup>1)</sup> Material thickness should not exceed hole diameter

# Single-Acting, Spring Return Hydraulic Punch

## ▼ QUICK SELECTION CHART

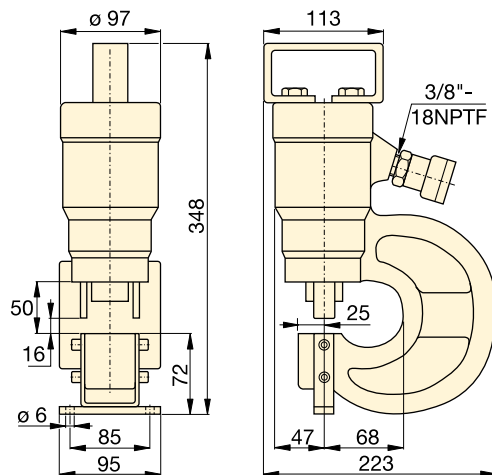
| *  | Punch & Die Set | Included  |        |       |               | Model Number    | <br>(kg) |
|---|-----------------|-----------|--------|-------|---------------|-----------------|---|
|   |                 | Pump      | Hose   | Gauge | Gauge Adaptor |                 |   |
| SP35  | Standard**      | P392      | HC7206 | GP10S | GA2           | <b>STP35H</b>   | 25  |
| SP35  | Standard**      | PATG1102N | HC7206 | GP10S | GA2           | <b>STP35A</b>   | 29  |
| SP35  | -               | -         | -      | -     | -             | <b>SP35</b>     | 16  |
| SP35  | Standard**      | -         | -      | -     | -             | <b>SP35S</b>    | 18  |
| SP35  | Standard**      | PUD1100E  | HC7206 | -     | -             | <b>SP35SPE</b>  | 29  |
| SP35  | Metric***       | -         | -      | -     | -             | <b>MSP351</b>   | 21  |
| SP35  | Metric***       | PUD1100E  | HC7206 | -     | -             | <b>MSP351PE</b> | 32  |

\* Punch oil capacity: 76 cm<sup>3</sup>

Includes the following punch and die sets:

\*\* SPD438, SPD688, SPD563 and SPD813

\*\*\* SPD375, SPD531, SPD438 and SPD688



## MSP SP STP Series



Capacity:

**35 ton**

Hole Sizes:

**7,9 - 20,6 mm**

Maximum Operating Pressure:

**700 bar**



### CAUTION!

The chart below is for reference only! Maximum allowable material thickness to be punched varies with set wear.




### CAUTION!

Material thickness should not exceed hole diameter.

### Steel Qualities (see table):

- 1) Mild A-7
- 2) Boiler Plate
- 3) Structural A-36
- 4) Struct Corten (ASTM A242)
- 5) Cold Rolled C-1018
- 6) Hot Rolled C-1050
- 7) Hot Rolled C-1095
- 8) Hot Rolled C-1095 Annealed
- 9) Stainless Annealed
- 10) Stainless 304 Hot Rolled
- 11) Stainless 316 Cold Rolled

| Model Nr.<br>Standard<br>Punch & Die Set  | Maximum allowable material thickness to be punched (mm)<br>Material thickness should not exceed hole diameter |      |      |      |      |      |     |     |      |      |      |
|---|---|------|------|------|------|------|-----|-----|------|------|------|
|   | 1)  | 2)   | 3)   | 4)   | 5)   | 6)   | 7)  | 8)  | 9)   | 10)  | 11)  |
|  <b>SPD313</b> | 7,9   | 7,9  | 6,4  | 6,4  | 6,4  | 6,4  | 3,3 | 4,8 | 6,4  | 6,4  | 6,4  |
| <b>SPD375</b>   | 9,7   | 9,7  | 7,9  | 7,9  | 7,9  | 7,9  | 4,8 | 6,4 | 7,9  | 7,9  | 7,9  |
| <b>SPD438</b>   | 11,2  | 11,2 | 9,7  | 9,7  | 9,7  | 7,9  | 4,8 | 7,9 | 7,9  | 7,9  | 7,9  |
| <b>SPD531</b>   | 12,7  | 12,7 | 11,2 | 11,2 | 11,2 | 9,7  | 6,4 | 7,9 | 9,7  | 9,7  | 9,7  |
| <b>SPD563</b>   | 12,7  | 12,7 | 12,7 | 11,2 | 12,7 | 11,2 | 6,4 | 9,7 | 11,2 | 11,2 | 11,2 |
| <b>SPD688</b>   | 12,7  | 12,7 | 12,7 | 11,2 | 12,7 | 10,2 | 6,4 | 7,9 | 10,2 | 10,2 | 10,2 |
| <b>SPD781</b>   | 12,7  | 12,7 | 12,7 | 11,2 | 12,7 | 9,7  | 6,4 | 7,9 | 9,7  | 9,9  | 9,7  |
| <b>SPD813</b>   | 12,7  | 12,7 | 12,7 | 11,2 | 12,7 | 7,9  | 4,8 | 7,9 | 7,9  | 7,9  | 7,9  |
| <b>SPD458</b>   | 7,9   | 7,9  | 6,4  | 6,4  | 6,4  | 6,4  | 3,3 | 4,8 | 6,4  | 6,4  | 6,4  |
| <b>SPD549</b>   | 9,7   | 9,7  | 7,9  | 7,9  | 7,9  | 7,9  | 4,8 | 6,4 | 7,9  | 7,9  | 7,9  |
| <b>SPD639</b>   | 11,2  | 11,2 | 9,7  | 9,7  | 9,7  | 7,9  | 4,8 | 7,9 | 7,9  | 7,9  | 7,9  |
| <b>SPD728</b>   | 12,7  | 12,7 | 11,2 | 11,2 | 11,2 | 9,7  | 6,4 | 7,9 | 9,7  | 9,7  | 8,6  |
| <b>SPD106</b>   | 7,9   | 7,9  | 6,4  | 6,4  | 6,4  | 6,4  | 3,3 | 4,8 | 6,4  | 6,4  | 6,4  |
| <b>SPD125</b>   | 9,7   | 9,7  | 7,9  | 7,9  | 7,9  | 7,9  | 4,8 | 6,4 | 7,9  | 7,9  | 7,9  |
| <b>SPD188</b>   | 11,2  | 11,2 | 9,7  | 9,7  | 9,7  | 7,9  | 4,8 | 7,9 | 7,9  | 7,9  | 7,9  |
| <b>SPD250</b>   | 12,7  | 12,7 | 11,2 | 11,2 | 11,2 | 9,7  | 6,4 | 7,9 | 9,7  | 9,7  | 9,7  |

▼ The hydraulic punch cuts the time spent forming holes.





▼ Shown: SP50100



- Available as a complete set including electric pump and hoses
- Double-acting cylinder design for fast cycle times
- Punch and die changeover tools included
- Lifting bracket included
- Adjustable power stripper prevents movement of the metal during stripping
- CR400 female couplers included.

## Cuts the Time Spent Forming Holes



### Depth Stop

For simplified repetitive punching applications an adjustable Depth Stop is available. Order model number: **SP110**.



### Foot Mounting Kit

A foot mounting kit for easy mounting of the 50 ton punch to workbench or fixture is available. Order model number: **SP120**.



### Ordering Information

The 50-ton Hydraulic Punch may be ordered by itself or as a set with an electric pump. A punch and die may be ordered as a matched set.

Please refer to the selection chart information.




◀ Save time using the 50-ton Enerpac Punch.

▼ Shown below is the 50 ton punch with SP120 and SP110 assembled.



# 50 Ton Double-Acting Hydraulic Punch

## ▼ QUICK SELECTION CHART PUNCH SETS

| Included            |                  |               |                     | Set Model Number | <br>(kg) |
|---------------------|------------------|---------------|---------------------|------------------|---|
| Model Number Punch* | Punch & Die Sets | Electric Pump | Hydraulic Hose (2x) |                  |   |
| SP50                | All **           | -             | -                   | <b>SP50100</b>   | 116   |
| SP50                | All **           | ZE4410SE      | HC7206              | <b>SP5000E</b>   | 174   |

\* Punch Oil Capacity:

Advance: 278 cm<sup>3</sup>

Retract: 229 cm<sup>3</sup>

\*\* All standard sets from chart below.

## SP Series



Capacity:

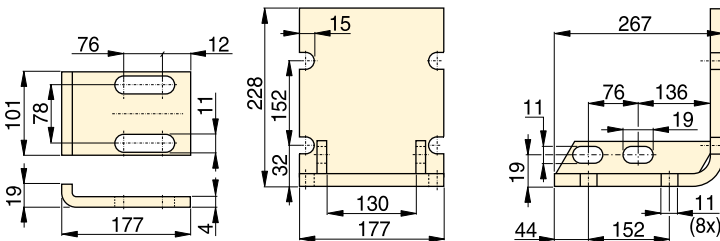
**50 ton (490 kN)**

Hole Sizes:

**13,5 - 26,2 mm**

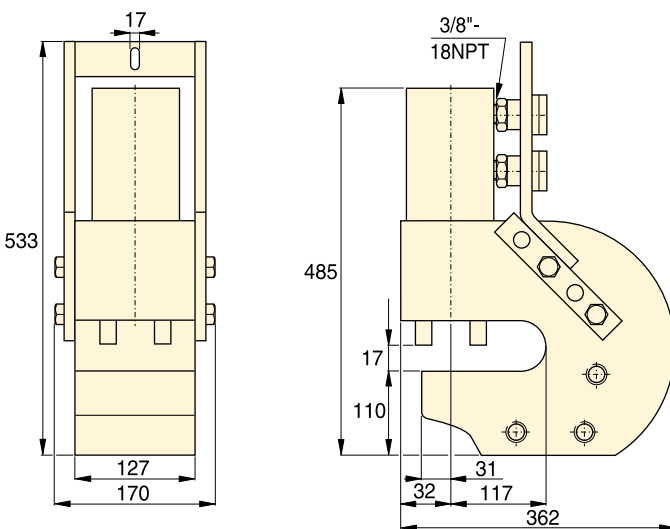
Maximum Operating Pressure:

**700 bar**



SP110

SP120



SP50



### CAUTION!

Material thickness should not exceed hole diameter.




### CAUTION!

Chart below is for reference only! Maximum allowable material thickness to be punched varies with set wear.

### Steel Qualities (see table below):

- 1) Mild A-7
- 2) Boiler Plate
- 3) Structural A-36
- 4) Struct Corten (ASTM A242)
- 5) Cold Rolled C-1018
- 6) Hot Rolled C-1050
- 7) Hot Rolled C-1095
- 8) Hot Rolled C-1095 Annealed
- 9) Stainless Annealed
- 10) Stainless 304 Hot Rolled
- 11) Stainless 316 Cold Rolled

## ▼ STANDARD PUNCH AND DIE SELECTION CHART

| Hole Shape | Hole Size<br>(mm) | Bolt Size<br>(mm) | Model Numbers Standard Punch and Die Set<br> | Maximum Allowable Material Thickness To Be Punched (mm) |      |      |      |      |      |     |      |      |      |      |
|------------|-------------------|-------------------|---|---|------|------|------|------|------|-----|------|------|------|------|
|            |                   |                   |   | 1)  | 2)   | 3)   | 4)   | 5)   | 6)   | 7)  | 8)   | 9)   | 10)  | 11)  |
| ●          | 13,5              | M12               | <b>SP150</b>  | 13,5  | 13,5 | 13,5 | 13,5 | 13,5 | 12,4 | 8,1 | 10,2 | 12,4 | 12,4 | 12,4 |
| ●          | 16,7              | M16               | <b>SP170</b>  | -   | -    | -    | -    | -    | 13,0 | 8,1 | 10,2 | 13,0 | 13,0 | 13,0 |
| ●          | 19,8              | M18               | <b>SP190</b>  | -   | -    | -    | -    | -    | 12,4 | 8,1 | 10,2 | 12,4 | 12,7 | 12,4 |
| ●          | 23,1              | M20               | <b>SP121</b>  | 14,2  | 14,2 | 14,2 | 12,7 | 14,2 | 8,9  | 5,6 | 8,9  | 8,9  | 8,9  | 8,9  |
| ●          | 26,2              | M24               | <b>SP123</b>  | 14,2  | 14,2 | 14,2 | 11,2 | 14,2 | 7,9  | 4,8 | 7,9  | 7,9  | 7,9  | 7,9  |

# LW-Series, Hydraulic Vertical Lifting Wedges



▼ Shown: LWC16, LW16 with SB2 and optional LWB1



- Integrated hand pump offers greater maneuverability (LWC16 only)
- Minimized access gap for greater accessibility on applications with limited insertion space
- Secure, stable lifting and lowering motion with no slippage
- Single-acting spring return cylinder allows for automatic, mechanical retraction
- Includes safety block SB2
- LW16 can be used in multiple set-up.

## LW Series

Maximum Lifting Force:

**16 ton (157 kN)**

Minimum Clearance:

**10 mm**

Maximum Lift Height \*:

**51 - 69 mm**

Maximum Operating Pressure:

**700 bar**

\* Using Stepped Block LWB1



### Power Box

Tool box with hand pump, gauge adaptor assembly, hose and LW16.

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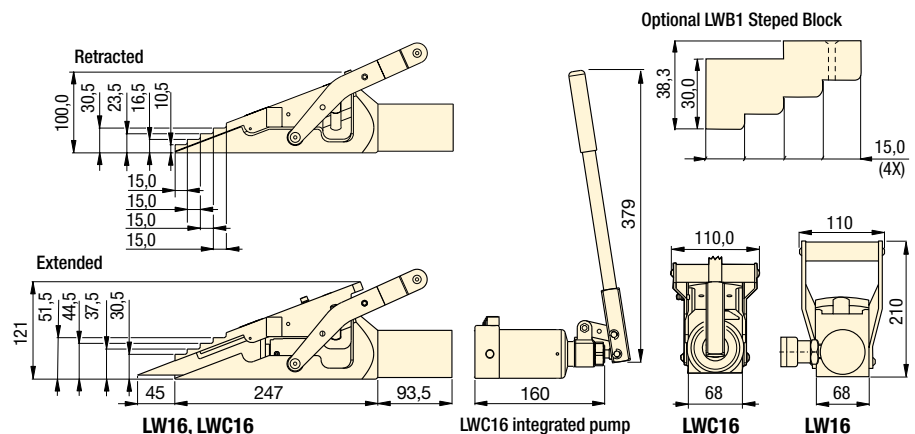
### Control Manifolds


Control Manifold to control two or four LW16 lifting wedges simultaneously.

AM21 with 3 ports 3/8" NPTF  
AM41 with 5 ports 3/8" NPTF.

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▼ For lifting heavy equipment with minimum floor clearance the LW16 is the ideal tool.



| Max. Lifting Force | Model Number        | Minimum Clearance Gap | Max. Lift per Stage | Max. Lifting Height | Max. Lifting Height using Stepped Block LWB1 | Oil Capacity       | Pump Power Source |  |
|--------------------|---------------------|-----------------------|---------------------|---------------------|--|--------------------|-------------------|---|
| ton (kN)           |                     | (mm)                  | (mm)                | (mm)                | (mm)   | (cm <sup>3</sup> ) |                   | (kg)  |
| <b>16</b><br>(157) | LW16 <sup>1)</sup>  | 10                    | 21                  | 51,5                | 69   | 78                 | External          | 7,0   |
|                    | LWC16 <sup>2)</sup> |                       |                     |                     |  | –                  | Integrated        | 10,0  |

<sup>1)</sup> Includes SB2

<sup>2)</sup> Includes SB2, LWB1, and carrying case.

▼ SOH10-6



- For lifting heavy equipment with minimum available access
- Remote hydraulic pump enhances safety
- Low height lifting toe
- Precision guided to reduce friction and isolate cylinder from side-loads
- Two extendable support feet provide extra stability
- Includes RC-Series cylinder with CR400 coupler.

## SOH Series

Lifting Capacity:

**8,5 - 20 ton**

Stroke:

**136 - 157 mm**

Toe Clearance:

**20 mm**

Maximum Operating Pressure:

**700 bar**



### RSM-Series, Low-Height Cylinders

Low height, single-acting spring-return cylinders are ideal for space restricted applications.

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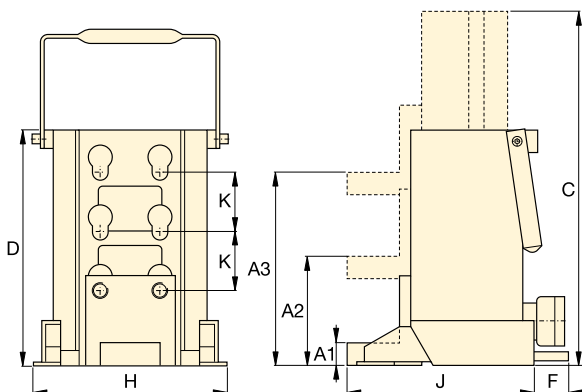


### Load Skates

In combination with the Enerpac Machine Lifts we recommend Load Skates for moving heavy loads.

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▼ Limited access under this machine makes the Enerpac hydraulic machine lift the perfect solution.



| Capacity | Toe Clearance (mm) |            |            | Stroke | Model Number | Oil Capacity | Dimensions (mm)     |                     |    |     |     |    | 🏋️ (kg) |
|----------|--------------------|------------|------------|--------|--------------|--------------|---------------------|---------------------|----|-----|-----|----|---------|
|          | Minimum A1         | Central A2 | Maximum A3 |        |              |              | Total Ext. Height C | Total Body Height D | F  | H   | J   | K  |         |
| 8,5 (75) | 20                 | 95         | 169        | 136    | SOH10-6      | 224          | 430                 | 294                 | –  | 190 | 214 | 74 | 26      |
| 20 (178) | 30                 | 110        | 190        | 157    | SOH23-6      | 525          | 472                 | 320                 | 65 | 265 | 250 | 80 | 45      |



▼ Shown: Set ERS20



- Rugged and sturdy construction for long life
- Low profile construction for increased stability
- Low rolling-resistance allows for easy transportation
- Attachable load leveling plates and swivel turntables for turning corners.

## Move Heavy Loads Easily and Safely



Sets (see table) include all components necessary to handle a variety of applications.

Two **ELB1** link-up bars, two **ERH1** handles (875 mm long) and one **EMB1** metal box are included.

Optional long handle **ERH2** (1180 mm) available for 60 and 80 ton only.



### Lifting Wedges and Machine Lifts

To place the Load Skates, the load must first be lifted. This can be done easily and safely using the Enerpac Lifting Wedge or Machine Lifts.

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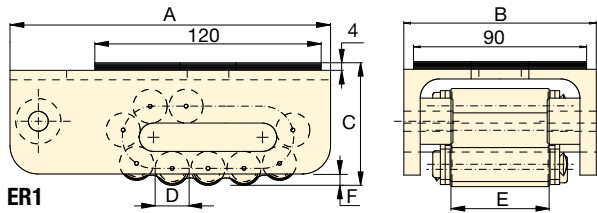
▼ Heavy transport using Load Skates. The machine is first lifted, using SOH-Series Enerpac Machine Lifts.



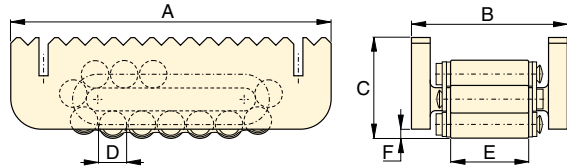
▼ Chemical tank transportation: The first few centimetres the load was lifted with RCS-Series low height cylinders and then moved on to load skates for transportation.



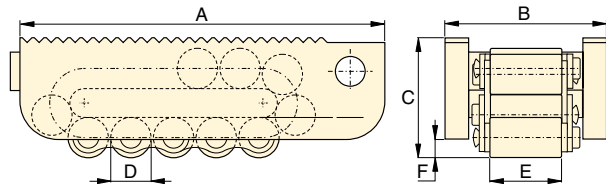
# Heavy Duty Caterroller™ Load Skates



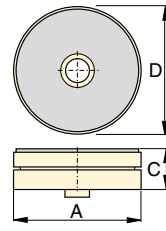
ER1



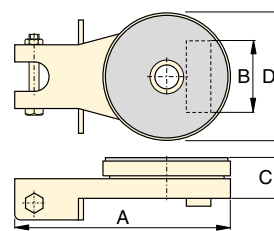
ER10, ER15, ER30



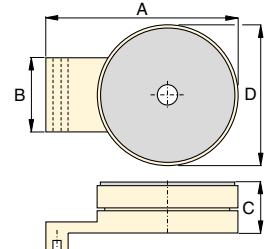
ER60, ER80



ES1, Turntable Swivel



ES10, ES15, ES30 Turntable Swivel



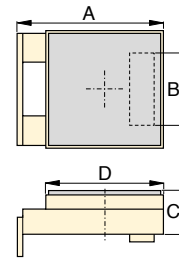
ES60, ES80, Turntable Swivel

**EL  
ER  
ES  
Series**

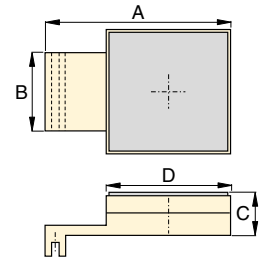


Maximum Carrying Capacity:  
**80 ton (711 kN)**

| Load Skates may be ordered separately or as a matched set. |                  |                  |                        |                      |   |
|--|------------------|------------------|------------------------|----------------------|---|
| Set Capacity *   | Set Model Number | Load Skates (4x) | Turntable Swivels (2x) | Leveling Plates (2x) | Weight including handles and metal box (kg) |
| 20 (178)   | <b>ERS20</b>     | ER10             | ES10                   | ELP10                | 49  |
| 30 (267)   | <b>ERS30</b>     | ER15             | ES15                   | ELP15                | 55  |
| 60 (533)   | <b>ERS60</b>     | ER30             | ES30                   | ELP30                | 75  |



ELP10, ELP15, ELP30 Levelling Plate



ELP60, ELP80 Levelling Plate

\* Sets are designed to enable two skates to take full load for extra safety on uneven floor surfaces

|                                 | Capacity<br>ton (kN) | Model Number | Dimensions (mm) |     |     |     |    |    | Contact Rolls per Skate | Rollers per Skate | Weight (kg) |
|---------------------------------|----------------------|--------------|-----------------|-----|-----|-----|----|----|-------------------------|-------------------|-------------|
|                                 |                      |              | A               | B   | C   | D   | E  | F  |                         |                   |             |
| <b>Load Skates</b><br><br>      | <b>1</b> (8,9)       | <b>ER1</b>   | 170             | 100 | 65  | 18  | 51 | 6  | 4                       | 11                | 3,8         |
|                                 | <b>10</b> (89)       | <b>ER10</b>  | 210             | 102 | 66  | 18  | 51 | 6  | 5                       | 15                | 5,2         |
|                                 | <b>15</b> (133)      | <b>ER15</b>  | 220             | 115 | 75  | 24  | 60 | 10 | 4                       | 13                | 7,3         |
|                                 | <b>30</b> (267)      | <b>ER30</b>  | 270             | 130 | 92  | 30  | 68 | 10 | 4                       | 13                | 13,0        |
|                                 | <b>60</b> (533)      | <b>ER60</b>  | 380             | 168 | 125 | 42  | 76 | 16 | 4                       | 13                | 31,9        |
| <b>Turntable Swivel</b><br><br> | <b>1</b> (8,9)       | <b>ES1</b>   | 207             | –   | 26  | 90  | –  | –  | –                       | –                 | 1,1         |
|                                 | <b>10</b> (89)       | <b>ES10</b>  | 220             | 73  | 42  | 130 | –  | –  | –                       | –                 | 3,7         |
|                                 | <b>15</b> (133)      | <b>ES15</b>  | 220             | 86  | 42  | 130 | –  | –  | –                       | –                 | 3,7         |
|                                 | <b>30</b> (267)      | <b>ES30</b>  | 250             | 96  | 48  | 150 | –  | –  | –                       | –                 | 5,3         |
|                                 | <b>60</b> (533)      | <b>ES60</b>  | 275             | 114 | 61  | 190 | –  | –  | –                       | –                 | 13,7        |
| <b>Levelling Plate</b><br><br>  | <b>10</b> (89)       | <b>ELP10</b> | 149             | 73  | 42  | 120 | –  | –  | –                       | –                 | 3,7         |
|                                 | <b>15</b> (133)      | <b>ELP15</b> | 149             | 86  | 42  | 120 | –  | –  | –                       | –                 | 3,7         |
|                                 | <b>30</b> (267)      | <b>ELP30</b> | 178             | 96  | 48  | 130 | –  | –  | –                       | –                 | 5,3         |
|                                 | <b>60</b> (533)      | <b>ELP60</b> | 270             | 114 | 61  | 180 | –  | –  | –                       | –                 | 13,8        |
|                                 | <b>80</b> (711)      | <b>ELP80</b> | 350             | 128 | 61  | 200 | –  | –  | –                       | –                 | 18,8        |

▼ CM16



- Protect your equipment from dust, water, grease and dirt
- Reduce losses on the jobsite, maintenance area or shop
- Durable steel, painted with rust-resistant primer and finished in durable enamel
- Heavy duty hinges and lifting handles
- Lockable.

▼ When not storing the lifting system, this heavy-duty storage case doubles as a work station.



## CM Series

Case Size:

**19 - 453 litres**

## Protect your Equipment



### Maintenance Sets

Enerpac Maintenance sets are a complete assortment of hydraulic powered tools.

Using these sets allows you to quickly configure a unique tool to meet your most difficult jobs.

Built around the Enerpac lightweight hand pump, hose and cylinder, these sets enable you to push, pull, lift, press, straighten, spread and clamp with forces up to 12,5 ton.

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### Hydraulic Pullers

These hydraulic pullers eliminate time-consuming and unsafe hammering, heating or prying.

Damage to parts is minimized through the use of controlled hydraulic power.

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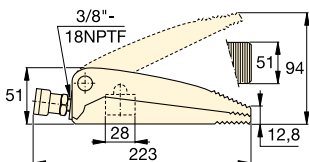
| Case Size<br>(litres) | Model Number | Inside Dimensions<br>L x W x H<br>(mm) | Thickness<br>(mm) | <br>(kg) |
|-----------------------|--------------|--|-------------------|---|
| 19                    | <b>CM6</b>   | 597 x 178 x 203                        | 0,9               | 7   |
| 32                    | <b>CM1</b>   | 622 x 282 x 165                        | 0,9               | 8   |
| 127                   | <b>CM4</b>   | 778 x 454 x 354                        | 1,5               | 16  |
| 212                   | <b>CM7</b>   | 1210 x 387 x 457                       | 1,9               | 57  |
| 453                   | <b>CM16</b>  | 1216 x 606 x 557                       | 1,5               | 55  |

# Hydraulic Wedgie and Spread Cylinders

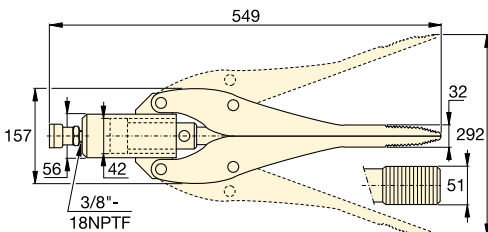
▼ Shown clockwise from top: **WR15, WR5, A92**



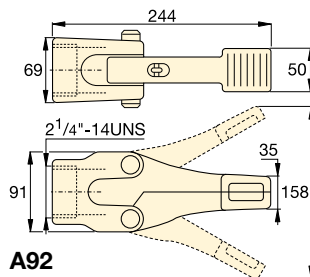
- **WR5:** For use in very confined work areas
- **WR15:** For long stroke spreading applications
- **Single-acting, spring return**
- **A92:** Spreader attachment; threads on 10 ton RC-Series cylinders \* (except RC101).




**WR5**



**WR15**



**A92**

| Cylinder Capacity | Tip Clearance | Model Number | Maximum Spread | Cylinder Effective Area | Oil Capacity       |  |
|-------------------|---------------|--------------|----------------|-------------------------|--------------------|---|
| ton (kN)          | (mm)          |              | (mm)           | (cm <sup>2</sup> )      | (cm <sup>3</sup> ) | (kg)  |
| 1,0 (8,9)         | 12,8          | <b>WR5</b>   | 94             | 6,5                     | 10                 | 2,3   |
| 0,75 (6)          | 32,0          | <b>WR15</b>  | 292            | 14,5                    | 64                 | 11,3  |
| 1,0 (8,9)         | 35,0          | <b>A92 *</b> | 158            | –                       | –                  | 3,6   |

\* Maximum system pressure must be limited to half the rated pressure (350 bar).

## A WR Series



Capacity:

**0,75 - 1,0 ton**

Tip Clearance:

**12,8 - 35 mm**

Maximum Spread:

**94 - 292 mm**

Maximum Operating Pressure:

**700 bar**



### RC-Series Cylinders

10 ton RC-Series cylinders (except RC-101) fit into A92 Spreader Attachment.

Page: **6**



### Power Box

Tool box with **P392** hand pump, gauge adaptor assembly, hose and **WR5**.

Page: **65**

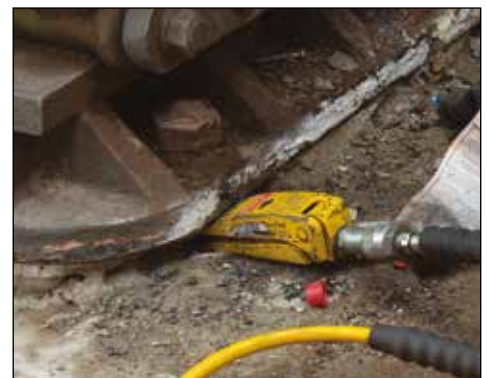


### Best Match Hand Pump

To power your WR5 and WR15 the **P392** hand pump is an ideal choice. Use Enerpac H700-Series hose (page 128) for hydraulic connection.

Page: **76**

▼ A WR5 wedgie cylinder is used to loosen a bridge bearing.





▼ Shown: STB101H



## Quick, Safe and Wrinkle-free Bending

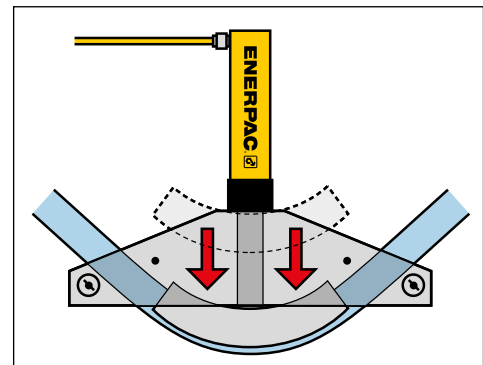


### 'One Shot' and 'Sweep'

**One shot shoes** give up to a 90° bend without resetting.









**Sweep shoes** are used where increasing radii are required for multiple parallel pipe installations.

- Makes smooth, wrinkle-free bends
- Sets include genuine Enerpac cylinder, hose, air, electric or hand pump
- Sets are also available without hydraulics
- Bending shoes and frame are lightweight, heat-treated aluminium
- All sets include sturdy steel storage case
- All sets include BZ12091 angle indicator for accurate bending
- BZ12377 Shoe Lock Pin included in every set
- Eject-O-Matic™ benders (STB202 models) have double-acting cylinder to eject pipe from the bending shoe.



▲ Typical one shot bending operation.

### ▼ SELECTION CHART

| Pipe Range<br>Nominal Size<br>(inch) |        | Bender Set<br>Model<br>Number | Hand Pump *   | Air Pump *  | Electric Pump *   |   | Cylinder *  | Hose *  | Saddle *  | <br>(kg) |
|--------------------------------------|--------|-------------------------------|---|---|---|---|---|---|---|---|
| One Shot                             | Sweep  |                               |  |  |  |  |  |  |  |   |
| ½ - 2                                | -      | STB101X                       | -   | -   | -   | -   | -   | -   | A12   | 40  |
|                                      |        | STB101N                       | -   | -   | -   | -   | RC1010  | HC7206  | A12   | 48  |
|                                      |        | STB101H                       | P392  | -   | -   | -   | RC1010  | HC7206  | A12   | 52  |
|                                      |        | STB101A                       | -   | PATG1102N   | -   | -   | RC1010  | HC7206  | A12   | 54  |
|                                      |        | STB101E                       | -   | -   | PUJ1200E <sup>2)</sup>  | -   | RC1010  | HC7206  | A12   | 57  |
| 1 - 2                                | 2½ - 4 | STB221X                       | -   | -   | -   | -   | -   | -   | A29   | 104   |
|                                      |        | STB221N                       | -   | -   | -   | -   | RC2510  | HC7206  | A29   | 119   |
|                                      |        | STB221H                       | P80   | -   | -   | -   | RC2510  | HC7206  | A29   | 130   |
| 1¼ - 4                               | -      | STB202X <sup>1)</sup>         | -   | -   | -   | -   | -   | -   | A29   | 143   |
|                                      |        | STB202N <sup>1)</sup>         | -   | -   | -   | -   | RR3014  | HC7206 (2x)   | A29   | 174   |
|                                      |        | STB202E <sup>1)</sup>         | -   | -   | -   | ZU4408SE <sup>2)</sup>  | RR3014  | HC7206 (2x)   | A29   | 212   |

\* See corresponding sections in this catalog for more detailed specifications.

<sup>1)</sup> Eject-O-Matic™

<sup>2)</sup> For 115 volt applications replace the last digit of Set Model Number and pump from 'E' to 'B'.

# Pipe Bender Sets

| Nominal Pipe Size<br>(inch) | Wall Thickness<br>(mm) | Schedule Pipe * | Pipe Bend Inside Radius<br>(inch) | STB101               | STB221<br>ø 1 - 2"<br>One Shot | STB202                | One Shot Bending Shoe Model Number | Sweep Bending Shoe Model Number |
|-----------------------------|------------------------|-----------------|-----------------------------------|----------------------|--------------------------------|-----------------------|------------------------------------|---------------------------------|
|                             |                        |                 |                                   | ø ½ - 2"<br>One Shot | ø 2¼ - 4"<br>Sweep             | ø 1¼ - 4"<br>One Shot |                                    |                                 |
| ½                           | 2,8                    | 40              | 27/8                              | Yes                  | -                              | -                     | BZ12011                            | -                               |
|                             | 3,7                    | 80              |                                   | Yes                  | -                              | -                     |                                    |                                 |
|                             | 4,7                    | 160             |                                   | WS *                 | -                              | -                     |                                    |                                 |
|                             | 7,5                    | DEH             |                                   | WS *                 | -                              | -                     |                                    |                                 |
| ¾                           | 2,9                    | 40              | 4                                 | Yes                  | -                              | -                     | BZ12021                            | -                               |
|                             | 3,9                    | 80              |                                   | Yes                  | -                              | -                     |                                    |                                 |
|                             | 5,5                    | 160             |                                   | WS *                 | -                              | -                     |                                    |                                 |
|                             | 7,8                    | DEH             |                                   | WS *                 | -                              | -                     |                                    |                                 |
| 1                           | 3,4                    | 40              | 5½                                | Yes                  | Yes                            | -                     | BZ12031                            | -                               |
|                             | 4,5                    | 80              |                                   | Yes                  | Yes                            | -                     |                                    |                                 |
|                             | 6,4                    | 160             |                                   | WS *                 | WS *                           | -                     |                                    |                                 |
|                             | 9,1                    | DEH             |                                   | -                    | WS *                           | -                     |                                    |                                 |
| 1¼                          | 3,6                    | 40              | 67/16                             | Yes                  | Yes                            | Yes                   | BZ12041                            | -                               |
|                             | 4,9                    | 80              |                                   | Yes                  | Yes                            | Yes                   |                                    |                                 |
|                             | 6,4                    | 160             |                                   | WS *                 | WS *                           | Yes                   |                                    |                                 |
|                             | 8,7                    | DEH             |                                   | -                    | WS *                           | WS *                  |                                    |                                 |
| 1½                          | 3,7                    | 40              | 7 5/16                            | Yes                  | Yes                            | Yes                   | BZ12051                            | -                               |
|                             | 5,1                    | 80              |                                   | Yes                  | Yes                            | Yes                   |                                    |                                 |
|                             | 7,1                    | 160             |                                   | WS *                 | WS *                           | Yes                   |                                    |                                 |
|                             | 10,2                   | DEH             |                                   | -                    | WS *                           | WS *                  |                                    |                                 |
| 2                           | 3,9                    | 40              | 8 5/16                            | -                    | Yes                            | Yes                   | BZ12061                            | -                               |
|                             | 5,5                    | 80              |                                   | -                    | Yes                            | Yes                   |                                    |                                 |
|                             | 8,7                    | 160             |                                   | -                    | WS *                           | Yes                   |                                    |                                 |
| 2½                          | 5,2                    | 40              | 9½                                | -                    | Yes                            | Yes                   | BZ12341                            | BZ12382                         |
|                             | 7,0                    | 80              |                                   | -                    | WS *                           | Yes                   |                                    |                                 |
|                             | 9,5                    | 160             |                                   | -                    | WS *                           | Yes                   |                                    |                                 |
| 3                           | 5,5                    | 40              | 11¼                               | -                    | Yes                            | Yes                   | BZ12351                            | BZ12383                         |
|                             | 7,6                    | 80              |                                   | -                    | WS *                           | Yes                   |                                    |                                 |
| 3½                          | 5,7                    | 40              | 15½                               | -                    | Yes                            | Yes                   | BZ12391                            | BZ12384                         |
|                             | 8,1                    | 80              |                                   | -                    | WS *                           | Yes                   |                                    |                                 |
| 4                           | 6,0                    | 40              | 17¾                               | -                    | Yes                            | Yes                   | BZ12392                            | BZ12385                         |
|                             | 8,6                    | 80              |                                   | -                    | -                              | Yes                   |                                    |                                 |

## STB Series



Nominal Pipe Size:

**ø ½ - 4 inch**

Maximum Bending:

**90°**

Maximum Operating Pressure:

**700 bar**



### \* Schedule Pipe

All bender sets are designed to bend mild steel pipe. For other material please consult Enerpac.

**40** = Standard;

**80** = Extra Heavy;

**160** = Double Extra Heavy;

**DEH** = Double Extra Heavy (slightly thicker than 160);

**WS** = Can be bent using wider spacing for swivel shoes.

| Frame Assembly | Pivot Pins (2x) | Pivot Shoes (2x) | Bending Shoes included<br>(Shoes with <sup>3)</sup> are Sweep, all other shoes are One Shot) |         |         |         |                       |                       |                       |                       |                       | Bender Set Model Number |         |
|----------------|-----------------|------------------|--|---------|---------|---------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-------------------------|---------|
|                |                 |                  |  |         |         |         |                       |                       |                       |                       |                       |                         |         |
| BZ12371        | BZ12375         | BZ12071          | BZ12011  | BZ12021 | BZ12031 | BZ12041 | BZ12051               | BZ12061               | -                     | -                     | STB101X               |                         |         |
|                |                 |                  |  |         |         |         |                       |                       |                       |                       |                       | STB101N                 |         |
|                |                 |                  |  |         |         |         |                       |                       |                       |                       |                       |                         | STB101H |
|                |                 |                  |  |         |         |         |                       |                       |                       |                       |                       |                         | STB101A |
|                |                 |                  |  |         |         |         |                       |                       |                       |                       |                       |                         | STB101E |
| BZ12372        | BZ12376         | BZ13401          | BZ12031  | BZ12041 | BZ12051 | BZ12061 | BZ12382 <sup>3)</sup> | BZ12383 <sup>3)</sup> | BZ12384 <sup>3)</sup> | BZ12385 <sup>3)</sup> | STB221X               |                         |         |
|                |                 |                  |  |         |         |         |                       |                       |                       |                       | STB221N               |                         |         |
|                |                 |                  |  |         |         |         |                       |                       |                       |                       |                       | STB221H                 |         |
| BZ12374        | BZ12376         | BZ13401          |  | BZ12041 | BZ12051 | BZ12061 | BZ12341               | BZ12351               | BZ12391               | BZ12392               | STB202X <sup>1)</sup> |                         |         |
|                |                 |                  |  |         |         |         |                       |                       |                       |                       | STB202N <sup>1)</sup> |                         |         |
|                |                 |                  |  |         |         |         |                       |                       |                       |                       | STB202E <sup>1)</sup> |                         |         |

▼ RP70A, Hydraulic Rail Stressor



## Hydraulic Rail Stressor

- Modular 70 ton stressor and holds the rail in neutral length during the welding process
- Easy to assemble in less than 2 minutes
- The RP70A stressor can be safely transported in a special designed steel transport frame together with pump and hose set
- Certified lifting eyes mounted directly on the clamps for easy and safe lifting
- Designed with new aluminum lightweight cylinders including protection sleeves over the rods to extend durability

## ZC3-Series, Battery Powered Stressing Pumps *(see page 191)*

- Zero emission hydraulic power pack
- Advanced brushless motor and Lithium-ion battery
- Steel manual operating valve with pressure hold function
- Safety key to safely leave the pump unattended during breaks
- Pressure release valve V182 included.



## Lightweight & Modular Rail Stressing System



### RP70A Rail Stressor

The Enerpac RP70A is a lightweight rail stressing kit for railway maintenance crews who assemble and install the rail puller directly on site.

The durable, easy-to-assemble components, stored and protected in a specially designed steel cage during transport, are up to 3 times lighter than similar tools.

The less physically demanding Enerpac RP70A is compatible with the cordless Enerpac ZC3-Series pump for a complete clean energy solution.



### Certificate of Acceptance PA05-06958

Both RP70A Hydraulic Rail Stressor and ZC3 Stressing Pump are certified by Network Rail.



### Durability

Double-acting aluminium cylinders are enclosed within steel sleeves protecting the cylinder rods from damage, particularly weld splatter and extends the life of the unit.



▲ RP70A rail stressor can be safely transported by forklift truck or manually in a special designed steel transport frame.

◀ Complete system with RP70A Hydraulic Rail Stressor and ZC3 cordless stressing pump.

# Hydraulic Rail Stressor & Cordless Powerpack

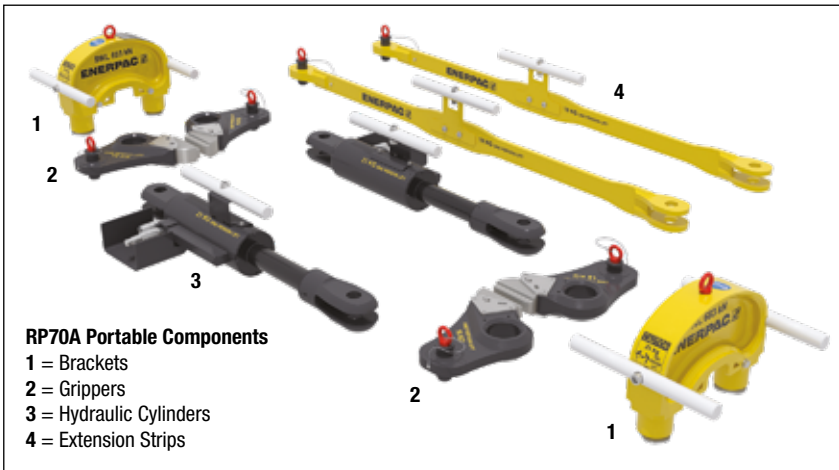


## RP70A Rail Stressor

The RP70A Hydraulic Rail Stressor is used to pull together heavy railroad tracks for stressing and thermite welding.

In the rail industry ergonomic managers specify that tools over 29 kg should be modular and be able to be manually assembled/transported on site.

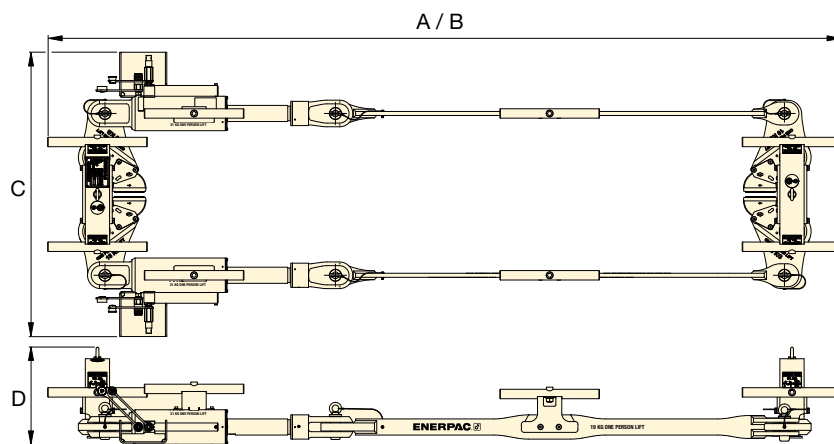
The RP70A can be used with the battery powered pump and optional transportation and storage frame for easy mobilisation/demobilisation. The stressor is interchangeable with other type of powerpacks. The RP70A adjusts the gap between rail ends for rail stressing, rail welding, repairing rail failures and servicing insulators.



▲ Modular 70 ton stressor and holds the rail in neutral length during the welding process.



▲ Storage and transport frame RP70ATF together with stressor, pump and possibility to safely store the hose set in a lockable storage space under the frame.



| Capacity ton (kN) |          | Stroke (mm) | Model Number | Dimensions (mm) |      |      |     | Weight (kg) |
|-------------------|----------|-------------|--------------|-----------------|------|------|-----|-------------|
| Pull              | Push     |             |              | A               | B    | C    | D   |             |
| 70 (683)          | 35 (440) | 205         | RP70A        | 2950            | 3155 | 1056 | 361 | 205         |

A = Closed length. B = Extended length

## RP Series



Rated Pulling/Pushing Capacity:

**70 / 35 ton**

Stroke:

**205 mm**

Maximum Operating Pressure:

**580 bar**



## Hydraulic Hoses

Use Enerpac hose model number H9210-RS 3,0 metres hydraulic hoses to ensure the integrity of your Rail Stressor system.



## Battery Powered Stressing Pumps

- Cordless, zero emission pump
- 82V 4Ah Lithium-ion battery
- Roll cage and pressure gauge
- 3-stage: 0,52 l/min at 580 bar
- 4,0 litres useable oil capacity
- Pump weight 34,8 kg (excluding battery)
- Reduced Noise Level 80 dBA max
- Advanced brushless 1,0 kW motor.

| Model Number | Battery Charger (Volts) | Maximum Pressure (bar) |
|--------------|-------------------------|------------------------|
| ZC3404JE-RS  | 230                     | 700                    |
| ZC3404JB-RS  | 115                     | 700                    |

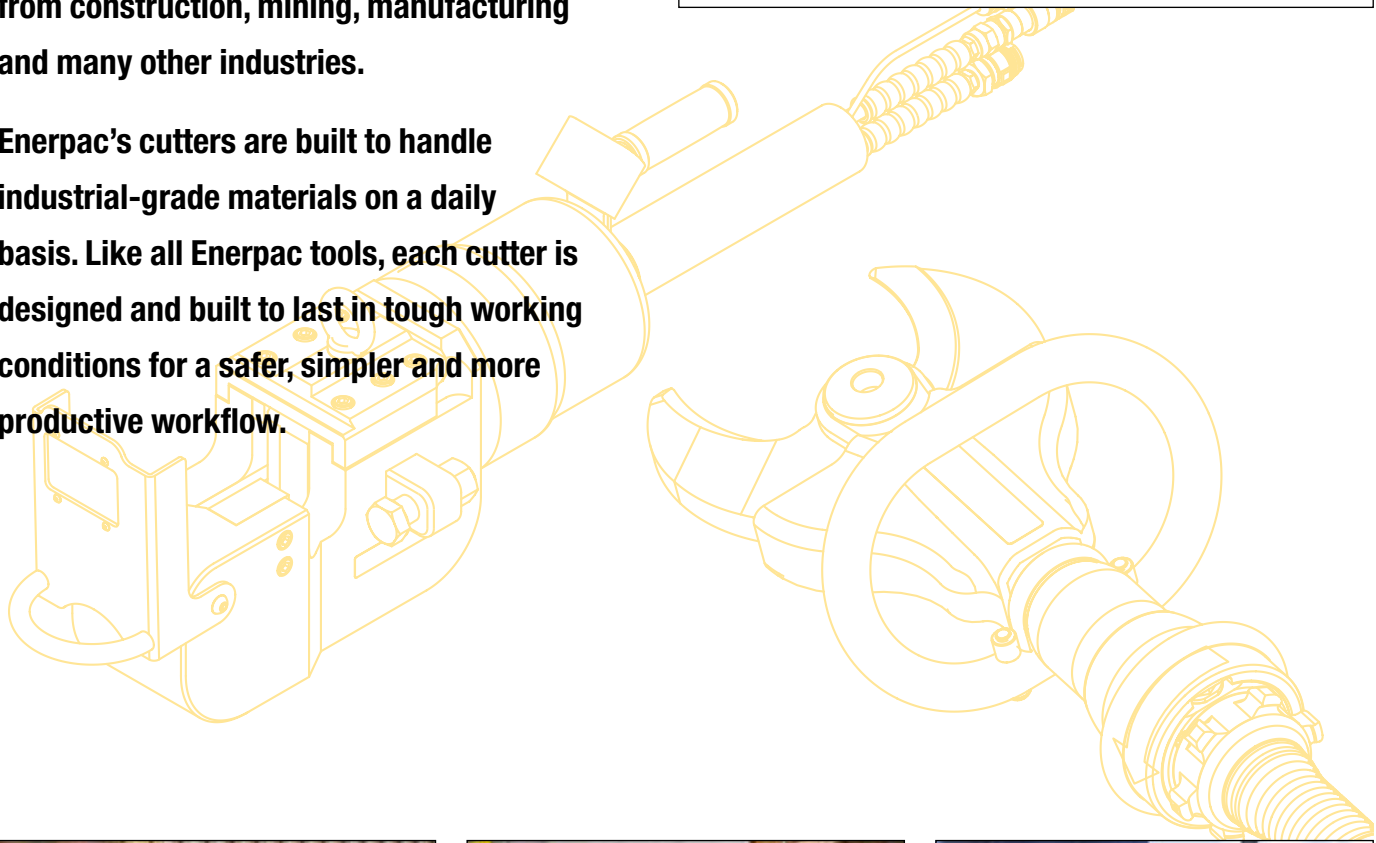














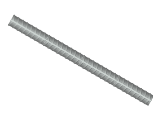







## World-Class Cutters

When you need to make cuts through heavy-duty bar, chain, cable and similar materials, look no further than Enerpac's broad range of cutters.

An extensive line-up of hydraulic, electric and manual cutters provides a quick, safe and cost-effective solution for technicians from construction, mining, manufacturing and many other industries.

Enerpac's cutters are built to handle industrial-grade materials on a daily basis. Like all Enerpac tools, each cutter is designed and built to last in tough working conditions for a safer, simpler and more productive workflow.



| Cutter Type                                |   | Maximum Tool Capacity *                              | Series                     |   | Power Source                         | Page         |
|--|---|--|----------------------------|---|--------------------------------------|--------------|
| <b>Bar Cutters</b>                         |    | 52 mm<br>(max. material cutting diameter)            | <b>EBH<br/>EBE<br/>EBC</b> |    | Hydraulic,<br>Electric &<br>Cordless | <b>194</b> ▶ |
| <b>Decommissioning Cutters</b>             |    | 170 mm<br>(max. blade aperture)                      | <b>EDCH</b>                |    | Hydraulic                            | <b>198</b> ▶ |
| <b>Flat Bar Cutters</b>                    |    | 70 x 15 mm<br>(max. material cutting Height x Width) | <b>EFBE</b>                |    | Electric                             | <b>199</b> ▶ |
| <b>Chain Cutters</b>                       |    | 32 mm<br>(max. link cutting diameter)                | <b>ECCE</b>                |    | Electric                             | <b>200</b> ▶ |
| <b>Wire Rope and Cable Cutters</b>         |   | 180 mm<br>(max. material cutting diameter)           | <b>EWCH<br/>EWCE</b>       |   | Hydraulic<br>& Electric              | <b>202</b> ▶ |
| <b>Cutter / Spreader Combination Tools</b> |  | 300 mm<br>(max. blade aperture)                      | <b>ECSE</b>                |  | Electric                             | <b>205</b> ▶ |
| <b>Hydraulic Cutterheads</b>               |  | 101 mm<br>(max. material cutting diameter)           | <b>WHC<br/>WHR<br/>STC</b> |  | Hydraulic                            | <b>206</b> ▶ |
| <b>Self-Contained Hydraulic Cutters</b>    |  | 85 mm<br>(max. material cutting diameter)            | <b>WMC</b>                 |  | Manual                               | <b>207</b> ▶ |
| <b>ZE-Series Pumps and Accessories</b>     |  | 1,1 - 5,6 kW   | <b>EBH<br/>EWCH</b>        |  | Electric                             | <b>208</b> ▶ |
| <b>ZC, ZE-Series Pumps and Accessories</b> |  | 1,0 - 1,1 - 5,6 kW                                   | <b>EDCH</b>                |  | Cordless &<br>Electric               | <b>209</b> ▶ |

\* Actual cutting capacities may vary depending on material being cut.

▼ Shown from left to right: EBC20E, EBH30 and EBE22E



## Your Fast, Safe and Simple Solution for Cutting Metal Bar



### Internal Mechanics

**EBH-Series:** Cylinder is driven by an external Enerpac pump.

**EBC and EBE-Series:** Cylinder are driven by a radial pump powered by an electric motor.



### Typical Bar Cutting Applications

- Commercial and residential construction
- Concrete and masonry
- Metal fabrication
- Industrial manufacturing

### Productivity

- A broad range of hydraulic and electric tools quickly and easily cut through heavy-duty bar
- Highly durable, long-lasting blades outlast angle grinder or saw blades.

### Safety

- Controlled cutting process enhances user safety compared with use of cut-off blades
- Minimal spark risk compared to torching, grinding and sawing methods
- Cutters produce minimal vibration, helping prevent HAVS (Hand Arm Vibration Syndrome).

▼ Enerpac's bar cutters are built to handle tough cutting applications.



# EBH-Series, Hydraulic Bar Cutters



## EBH-Series Hydraulic Bar Cutters

EBH-Series Hydraulic Bar Cutters are driven by a specialized external hydraulic pump for optimal power and a higher duty cycle compared with other cutter types.

These cutters are ideal for use in production or manufacturing facilities with demanding, high-volume cutting applications.

- ① Highly durable blades maintain effectiveness throughout rigorous use.
- ② Safety guard helps protect hands from injury.
- ③ Heavy-duty cutting head provides a longer operational life.
- ④ Lifting handle enables easier positioning and transport.
- ⑤ Double-acting cylinder with advance and retract buttons improves control and reduces jamming
- ⑥ External hydraulic pump helps keep the tool cool, improving operational time (pump and hose sold separately).



## EBH Series



Maximum Material Hardness:

**HRC 43**

Maximum Material Diameter:

**30 - 35 - 52 mm**

Maximum Operating Pressure:

**700 bar**



### Electric Pumps and Accessories

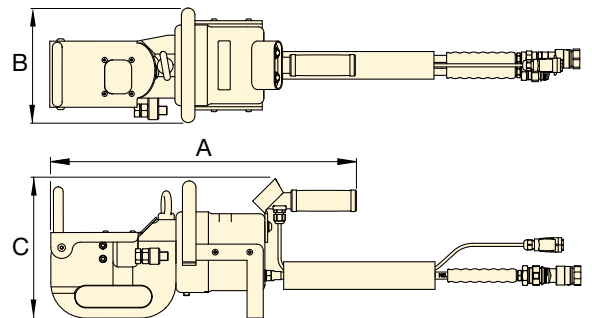
The EBH-Series Hydraulic Cutters are designed to work with specialized ZE4 and ZE6-Series pumps. Pump models vary by voltage type. Pump and hoses are sold separately. Both are required for the system to function. See page 208 for complete details on required pump and accessories

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### Optional Gauge Kit GKHC

Optional gauge and accessories can be used to monitor pressure in the hydraulic system. Enerpac recommends **GKHC Gauge Kit** for use with Enerpac hydraulic cutters.



| Maximum Material Diameter *<br>(mm) | Model Number | Maximum Material Tensile Strength<br>(daN/mm <sup>2</sup> ) | Maximum Material Hardness *<br>(HRC) | Maximum Cutting Force<br>(kN) | Maximum Hydraulic Operating Pressure<br>(bar) | Dimensions<br>(mm) |     |     | Replacement Blade Kit Model Number |                 |
|-------------------------------------|--------------|---|--------------------------------------|-------------------------------|---|--------------------|-----|-----|------------------------------------|-----------------|
|                                     |              |   |                                      |                               |   | A                  | B   | C   |                                    |                 |
| 30                                  | <b>EBH30</b> | 60  | 43                                   | 445                           | 700   | 480                | 183 | 221 | 21                                 | <b>EBH3001K</b> |
| 35                                  | <b>EBH35</b> | 62  | 43                                   | 606                           | 700   | 566                | 213 | 259 | 48                                 | <b>EBH3501K</b> |
| 52                                  | <b>EBH52</b> | 50  | 43                                   | 1078                          | 700   | 765                | 264 | 311 | 136                                | <b>EBH5201K</b> |

\* Maximum material properties indicated refer to the material to be cut.



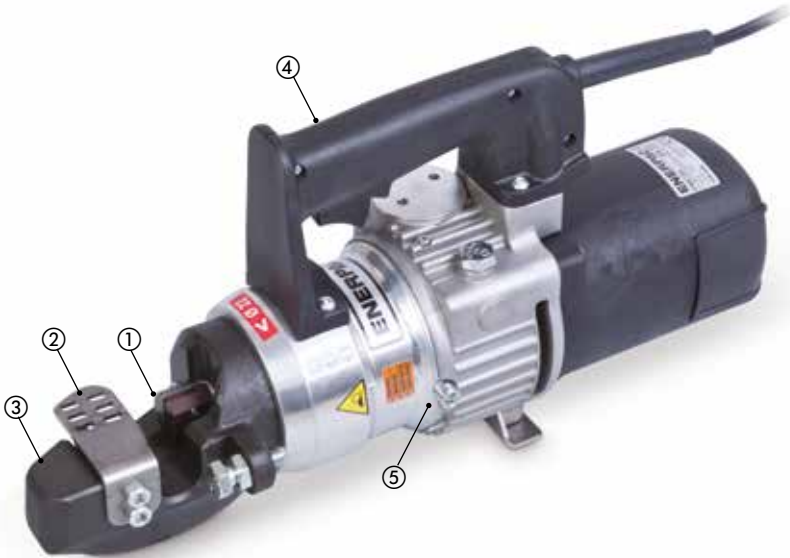


## EBE-Series, Electric Bar Cutters

The versatile EBE-Series Electric Bar Cutters quickly cut through heavy duty bar up to 26 mm in diameter without the need for an external hydraulic pump.

Their compact size and low weight enable them to be easily transported and used wherever an external power source is available.

- ① Highly durable blades maintain effectiveness throughout rigorous use.
- ② Safety guard helps protect hands from injury.
- ③ Heavy-duty cutting head provides a longer operational life.
- ④ Lifting handle enables easy positioning and transport.
- ⑤ Piston-release mechanism allows blade to be reset, reducing jamming and providing a controlled cutting process.



## EBE Series



Maximum Material Hardness:

**HRc 43**

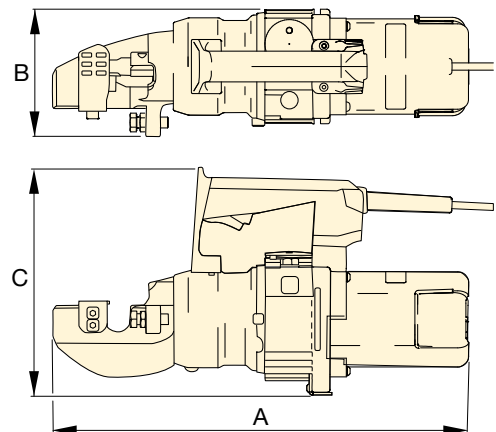
Maximum Material Diameter:

**22 - 26 mm**

Voltage\*:

**120 and 230 Volt**

\* ETL certification applies to 120 Volt tools only.



**Voltage: (Model Number ending with suffix)**

**B = 120V, 60 Hz (with American-style NEMA 1-15 plug)**

**E = 230V, 50 Hz (with European-style SCHUKO plug)**

| Maximum Material Diameter <sup>1)</sup><br>(mm) | Power Specifications |    |      |     | Model Number  | Maximum Material Tensile Strength<br>(daN/mm <sup>2</sup> ) | Maximum Material Hardness <sup>1)</sup><br>(HRc) | Maximum Cutting Force<br>(kN) | Dimensions (mm) |     |     | Cord Length<br>(m) | Replacement Blade Kit<br>Model Number |                 |
|---|----------------------|----|------|-----|---------------|---|--|-------------------------------|-----------------|-----|-----|--------------------|---------------------------------------|-----------------|
|   | Volt                 | Hz | Amps | kW  |               |   |  |                               | A               | B   | C   |                    |                                       |                 |
| 22  | 120                  | 60 | 11   | 1,3 | <b>EBE22B</b> | 65  | 43   | 223                           | 460             | 140 | 249 | 1,8                | 13,2                                  | <b>EBE2201K</b> |
| 22  | 230                  | 50 | 6,8  | 1,4 | <b>EBE22E</b> | 65  | 43   | 223                           | 460             | 140 | 249 | 3,0                | 13,2                                  | <b>EBE2201K</b> |
| 26  | 120                  | 60 | 11   | 1,3 | <b>EBE26B</b> | 65  | 43   | 329                           | 468             | 140 | 259 | 1,8                | 15,9                                  | <b>EBE2601K</b> |
| 26  | 230                  | 50 | 6,8  | 1,4 | <b>EBE26E</b> | 65  | 43   | 329                           | 468             | 140 | 259 | 3,0                | 15,9                                  | <b>EBE2601K</b> |

<sup>1)</sup> Maximum material properties indicated refer to the material to be cut.

# EBC-Series, Cordless Bar Cutters

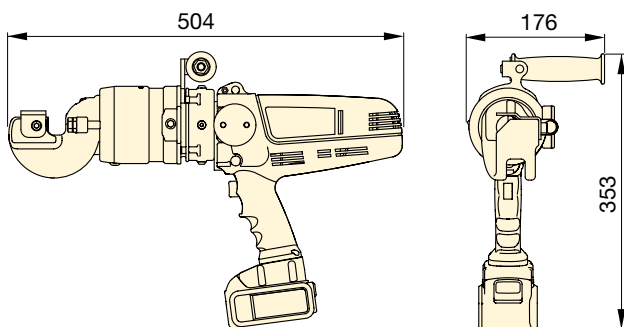


## Cordless Bar Cutters

The highly portable EBC-Series Cordless Bar Cutters quickly and easily slice through up to number 6 rebar, or similar metal bar up to 20 mm in diameter.

A powerful 18V Lithium-ion battery provides mobility and long lasting performance, making these tools the perfect go-to solution for the jobsite, including remote locations, or anywhere an external power source is not available.

- ① Highly durable blades maintain effectiveness throughout rigorous use.
- ② Safety guard helps protect hands from injury.
- ③ Highly durable cutting head can be rotated 360 degrees to aid in the positioning of the blades on the application.
- ④ Lifting handle enables easy positioning and transport.
- ⑤ Piston-release mechanism allows blade to be reset, providing a controlled cutting process and reducing jamming.
- ⑥ Powerful 18V battery provides high performance and complete mobility.



## EBC Series



Maximum Material Hardness:

**HRc 43**

Maximum Material Diameter:

**20 mm**

Battery:

**12 and 18 Volt**

\* ETL certification applies to 120 Volt tools only.



## Batteries and Chargers

EBC-Series Cutters come standard with two DeWALT® 18V-5Ah lithium-ion batteries and one DeWALT® 12V or 18V charger. Additional batteries and chargers are sold separately.

EBC-Series Cutters work with DeWALT® 18V XR batteries. DeWALT® is a registered trademark of DeWALT Industrial Tool Co., which has not manufactured, licensed, approved, or endorsed this cutter product.

| For Cutter Model Nr. | DeWALT® Lithium-ion Battery | Li-ion Battery Charger 12V and 18V |
|----------------------|-----------------------------|------------------------------------|
| EBC20B               | B205                        | BC1220B                            |
| EBC20E               | B185                        | BC1220E                            |

**Voltage: (Model Number ending with suffix)**

**B** = 120V, 60 Hz (with American-style NEMA 1-15 plug)

**E** = 230V, 50 Hz (with European-style SCHUKO plug)

| Maximum Material Diameter <sup>1)</sup><br>(mm) | Power Specifications      |      |      | Model Number <sup>2)</sup> | Maximum Material Tensile Strength <sup>1)</sup><br>(daN/mm <sup>2</sup> ) | Maximum Material Hardness <sup>1)</sup><br>(HRc) | Maximum Cutting Force<br>(kN) | Replacement Blade Kit Model Number<br>(without battery)<br>(kg) | Replacement Blade Kit Model Number |
|---|---------------------------|------|------|----------------------------|---|--|-------------------------------|---|------------------------------------|
|   | Battery Input Voltage (V) | Amps | kW   |                            |   |  |                               |   |                                    |
| 20  | 18 - 20                   | 46   | 0,83 | <b>EBC20B</b>              | 65  | 43   | 190                           | 8,7   | <b>EBC2001K</b>                    |
| 20  | 18 - 20                   | 46   | 0,83 | <b>EBC20E</b>              | 65  | 43   | 190                           | 8,7   | <b>EBC2001K</b>                    |

<sup>1)</sup> Maximum material properties indicated refer to the material to be cut.

<sup>2)</sup> To order an EBC-Series Cutter without batteries or a charger, remove the "B" or "E" from the Model Number, e.g. "EBC20".

▼ EDCH130, Decommissioning Cutter



### Productivity

- Powerful jaws and an exceptionally large blade aperture enable use on a large variety of applications including metal tubes, communication cables, profiles and similar materials \*
- Multiple pump options provide power, speed and mobility for all your applications.

### Safety

- Minimal spark risk compared with torching, grinding and sawing methods
- Cutters produce minimal vibration, helping prevent HAVS (Hand Arm Vibration Syndrome).



- ① Durable blades maintain efficiency throughout rigorous use
- ② Double-acting cylinder improves control and reduces jamming
- ③ Control knob immediately stops the tool when released, improving operator safety
- ④ External hydraulic pump helps keep tool cooler and working longer (pump and hose sold separately).

## EDCH Series



Maximum Material Hardness:

**HRc 41**

Maximum Blade Aperture:

**130 - 145 - 170 mm**

Maximum Operating Pressure:

**700 bar**



### Electric Pumps and Accessories

The EDCH-Series Hydraulic Cutters are designed to work with specialized ZC3, ZE4 and ZE6-Series electric pumps. Pump models vary by voltage type. Pump and hose are all sold separately, and all are required for the system to function. See page 209 for complete details on required pumps and accessories.

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### \* IMPORTANT

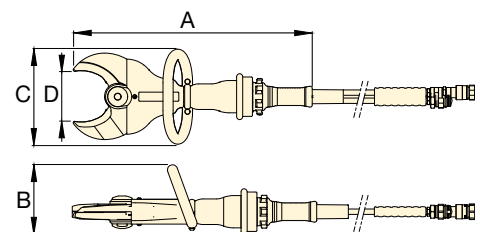
Do not use to cut wire rope. Use instead the EWCH-Series wire and rope cutter.

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### Optional Gauge Kit GKHC

Optional gauge and accessories can be used to monitor pressure in the hydraulic system. Enerpac recommends **GKHC Gauge Kit** for use with Enerpac hydraulic cutters.



| Maximum Blade Aperture * (mm) | Model Number   | Maximum Material Tensile Strength (daN/mm <sup>2</sup> ) | Maximum Material Hardness * (HRc) | Maximum Operating Pressure (bar) | Dimensions (mm) |     |     |     | Replacement Blade Kit Model Number |                   |
|-------------------------------|----------------|--|-----------------------------------|----------------------------------|-----------------|-----|-----|-----|------------------------------------|-------------------|
|                               |                |  |                                   |                                  | A               | B   | C   | D   |                                    |                   |
| 130                           | <b>EDCH130</b> | 65   | 41                                | 700                              | 589             | 170 | 234 | 130 | 11,5                               | <b>EDCH13001K</b> |
| 145                           | <b>EDCH145</b> | 65   | 41                                | 700                              | 687             | 206 | 246 | 145 | 16,9                               | <b>EDCH14501K</b> |
| 170                           | <b>EDCH170</b> | 65   | 41                                | 700                              | 733             | 172 | 249 | 170 | 24,2                               | <b>EDCH17001K</b> |

\* Maximum material properties indicated refer to the material to be cut.  
Do not use to cut wire rope. Use instead the EWCH-Series wire and rope cutter.

# Electric Flat Bar Cutters



## EFBE-Series Electric Flat Bar Cutters

EFBE-Series Electric Flat Bar Cutters enhance workplace safety by replacing unsafe cutting methods with a precise, controlled cutting solution. Unlike standard bar cutters, the deep cutting head design accommodates metal bar up to 70 mm (2¾ inch) high and over 15 mm (0.59 inch) thick.

A piston release mechanism allows the blade to be stopped and reset at any time, providing the operator with a high degree of cutting precision and control. EFBE-Series Cutters are perfect for use in industrial manufacturing facilities as well as steel and metal fabrication shops.

- ① Highly durable blades cut through flat bar, maintaining effectiveness throughout rigorous use
- ② Heavy-duty cutting head provides a longer operational life
- ③ Robust handle enables easy positioning and transport
- ④ Piston-release mechanism allows blade to be retracted, providing a controlled cutting process and reducing jamming



**Voltage: (Model Number ending with suffix)**

**B** = 120V, 60 Hz (with American-style NEMA 1-15 plug)

**E** = 230V, 50 Hz (with European-style SCHUKO plug)

## EFBE Series



Maximum Material Hardness:

**HRc 33**

Maximum Material Height x Width:

**50 x 17 mm / 70 x 15 mm**

Voltage\*:

**120 and 230 Volt**

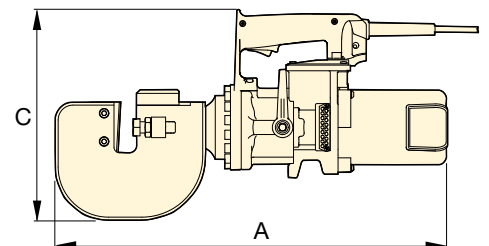
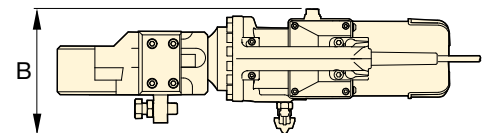
\* ETL certification applies to 120 Volt tools only.



### Replacement Blade Kits

To order replacement parts use one of the model numbers shown below.

| For Cutter Model Number | Blade Kit Model Number |
|-------------------------|------------------------|
| EFBE5017B               | EFBE501701K            |
| EFBE5017E               |                        |
| EFBE7015B               | EFBE701501K            |
| EFBE7015E               |                        |



| Maximum Material Dimensions <sup>1)</sup> (mm) |       | Power Specifications |    |      |     | Model Number     | Maximum Material Tensile Strength <sup>1)</sup> (daN/mm <sup>2</sup> ) | Maximum Material Hardness <sup>1)</sup> (HRc) | Maximum Cutting Force (kN) | Dimensions (mm) |     |     | Cord Length (m) | Weight (kg) |
|--|-------|----------------------|----|------|-----|------------------|--|---|----------------------------|-----------------|-----|-----|-----------------|-------------|
| Height   | Width | Volt                 | Hz | Amps | kW  |                  |  |   |                            | A               | B   | C   |                 |             |
| 50   | 17    | 120                  | 60 | 11   | 1,3 | <b>EFBE5017B</b> | 45   | 33  | 265                        | 483             | 175 | 272 | 1,8             | 21          |
| 50   | 17    | 230                  | 50 | 6,8  | 1,4 | <b>EFBE5017E</b> | 45   | 33  | 265                        | 483             | 175 | 272 | 3,0             | 21          |
| 70   | 15    | 120                  | 60 | 11   | 1,3 | <b>EFBE7015B</b> | 45   | 33  | 265                        | 555             | 175 | 298 | 1,8             | 30          |
| 70   | 15    | 230                  | 50 | 6,8  | 1,4 | <b>EFBE7015E</b> | 45   | 33  | 265                        | 555             | 175 | 298 | 3,0             | 30          |

<sup>1)</sup> Maximum material properties indicated refer to the material to be cut.



▼ ECCE32E Electric Chain Cutter



## Your Simple Solution for Cutting High-Strength Industrial Chain



### Internal Mechanics

**ECCE-Series:** Cylinder is driven by a radial pump powered by an electric motor.



### Typical Chain Cutting Applications

- Chain manufacturing
- Mining
- Rigging / material handling for transport
- Oil and gas
- Marine

### Productivity

- Quickly cut through heavy-duty chain links with minimal effort
- Highly durable blades outlast angle grinder or saw blades.

### Safety

- Controlled cutting process behind a protective shield enhances safety
- Precisely cut only selected link, helping prevent damage to adjacent links and weakening of chain
- Minimal spark risk compared to torching, grinding and sawing methods
- Cutters produce minimal vibration, helping prevent HAVS (Hand Arm Vibration Syndrome).



◀ Cut through chain links with ease using Enerpac's chain cutters.

# ECCE-Series, Electric Chain Cutters

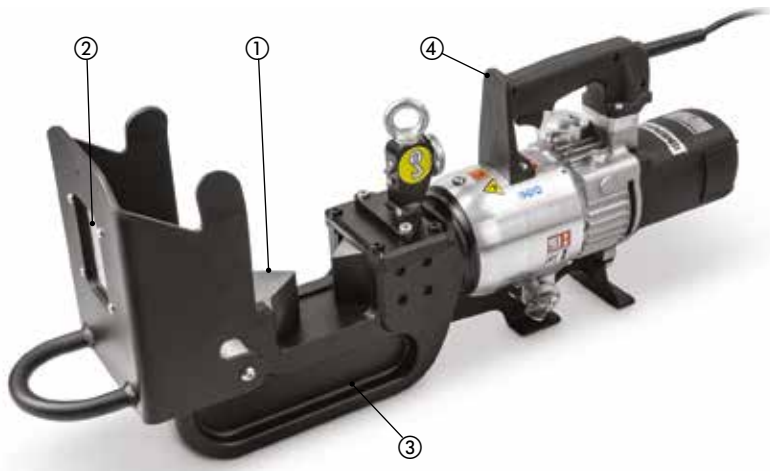


## ECCE-Series Electric Chain Cutters

ECCE-Series Electric Chain Cutters are ideal for applications where safety is paramount. Unlike other cutting methods, Enerpac's chain cutters precisely cut selected chain links behind an enclosed, transparent safety guard.

This not only protects the operator's hands, it also helps prevent damage to adjacent links, which often results from using alternative cutting methods like torches or cut-off tools.

- ① Highly durable blades maintain effectiveness throughout rigorous use.
- ② Transparent safety guard protects hands and allows continuous monitoring for better management of cutting process.
- ③ Heavy-duty cutting head provides a longer operational life.
- ④ Lifting handle and eyebolt enable easy positioning and transport.



## ECCE Series



Maximum Material Hardness:

**HRc 46**

Maximum Material Diameter:

**25 - 32 mm**

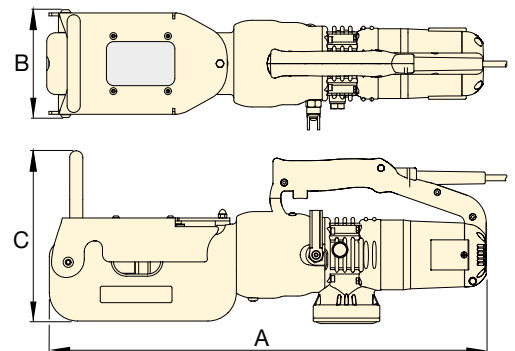
Maximum Grade of Chain:

**100**

Voltage \*:

**120 and 230 V**

\* ETL certification applies to 120 Volt tools only.



**Voltage: (Model Number ending with suffix)**

**B = 120V, 60 Hz (with American-style NEMA 1-15 plug)**

**E = 230V, 50 Hz (with European-style SCHUKO plug)**

| Grade <sup>1)</sup> and Maximum Material Diameter <sup>2)</sup> (mm) |          |           | Power Specifications |    |      |     | Model Number   | Maximum Material Hardness <sup>1)</sup> (HRc) | Maximum Cutting Force (kN) | Dimensions (mm) |     |     | Cord Length (m) | Weight (kg) | Replacement Blade Kit Model Number |
|--|----------|-----------|----------------------|----|------|-----|----------------|---|----------------------------|-----------------|-----|-----|-----------------|-------------|------------------------------------|
| Grade 70   | Grade 80 | Grade 100 | Volt                 | Hz | Amps | kW  |                |   |                            | A               | B   | C   |                 |             |                                    |
| 25   | 25       | 13        | 120                  | 60 | 10   | 1,2 | <b>ECCE26B</b> | 46  | 312                        | 600             | 154 | 235 | 1,8             | 25          | <b>ECCE2601K</b>                   |
| 25   | 25       | 13        | 230                  | 50 | 5,3  | 1,1 | <b>ECCE26E</b> | 46  | 312                        | 600             | 154 | 235 | 3,0             | 25          | <b>ECCE2601K</b>                   |
| 32   | 25       | 19        | 120                  | 60 | 11   | 1,3 | <b>ECCE32B</b> | 46  | 471                        | 700             | 192 | 321 | 1,8             | 48          | <b>ECCE3201K</b>                   |
| 32   | 25       | 19        | 230                  | 50 | 6,8  | 1,4 | <b>ECCE32E</b> | 46  | 471                        | 700             | 192 | 321 | 3,0             | 48          | <b>ECCE3201K</b>                   |

<sup>1)</sup> Cutting larger chains or those of a grade higher than those recommended will result in increased wear, and may damage the tool.

<sup>2)</sup> All links over 1/2" (12,7 mm) must be cut in two passes, with each pass cutting one side of the link.

▼ Shown from left to right: EWCH90 and EWCE55E



## The Quick and Clean Way to Cut Cable and Wire Rope



### Internal Mechanics

**EWCH-Series:** Cylinder is driven by an external Enerpac hydraulic pump.

**EWCE-Series:** Cylinder is driven by a radial pump powered by an electric motor.

### Productivity

- A broad range of hydraulic and electric tools quickly and easily cut through cable and wire rope.

### Safety

- Controlled cutting process enhances operator safety
- Minimal spark risk compared with torching, grinding and sawing methods
- Cutters produce minimal vibration, helping prevent HAVS (Hand Arm Vibration Syndrome).



### Typical Wire and Cable Cutting Applications

- Telecommunications
- Electrical installation and maintenance
- Power generation and transmission
- Shipbuilding

▼ Guillotine-style blades make quick work of electrical cables and rope.



# EWCH-Series, Hydraulic Wire and Cable Cutters



## EWCH-Series Hydraulic Wire and Cable Cutters

EWCH-Series Hydraulic Wire and Cable Cutters are ideal for use in production facilities where demanding, high volume cutting applications are often encountered.

Each tool is driven by a specialized external hydraulic pump, which provides greater cutting force and allows for higher duty cycles compared with other cutter types.

- ① Guillotine-style blades maintain effectiveness throughout rigorous use.
- ② Cutting head can be opened and closed to help position material to be cut.
- ③ Eyebolt facilitates easy lifting.
- ④ Double-acting cylinder with advance and retract buttons improves control and reduces jamming.
- ⑤ External hydraulic pump helps keep tool cooler and working longer (pump and hose are sold separately).



## EWCH Series



Maximum Material Hardness:

**HRc 43**

Maximum Material Diameter:

**90 - 140 - 180 mm**

Maximum Operating Pressure:

**700 bar**



### Electric Pumps and Accessories

The EWCH-Series Hydraulic Cutters are designed to work with specialized ZE6-Series electric pumps. Pump models

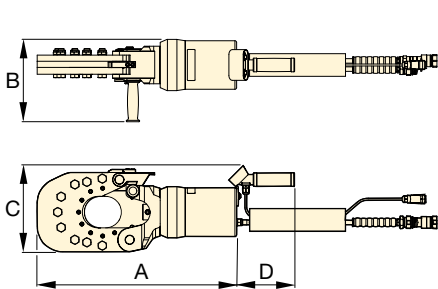
vary by voltage type. Pump and hoses are sold separately. Both are required for the system to function. See page 208 for complete details on required pump and accessories

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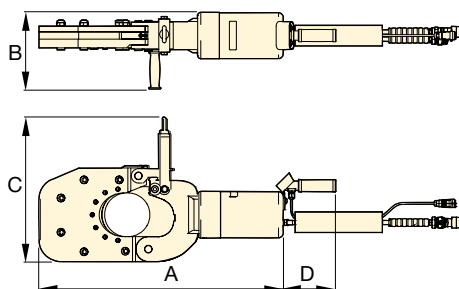


### Optional Gauge Kit GKHC

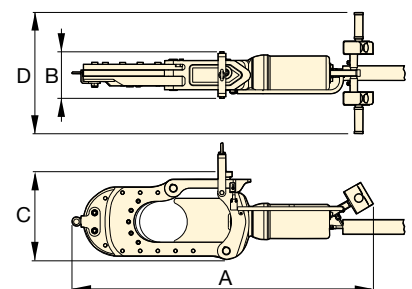
Optional gauge and accessories can be used to monitor pressure in the hydraulic system. Enerpac recommends **GKHC Gauge Kit** for use with Enerpac hydraulic cutters.



**EWCH90**



**EWCH140**



**EWCH180**

| Maximum Material Diameter *<br>(mm) | Model Number   | Maximum Material Tensile Strength<br>(daN/mm <sup>2</sup> ) | Maximum Material Hardness *<br>(HRc) | Maximum Cutting Force<br>(kN) | Maximum Hydraulic Operating Pressure<br>(bar) | Dimensions (mm) |     |     |     | Replacement Blade Kit Model Number |                   |
|-------------------------------------|----------------|---|--------------------------------------|-------------------------------|---|-----------------|-----|-----|-----|------------------------------------|-------------------|
|                                     |                |   |                                      |                               |   | A               | B   | C   | D   |                                    |                   |
| 90                                  | <b>EWCH90</b>  | 65  | 43                                   | 550                           | 700   | 582             | 282 | 251 | 169 | 54                                 | <b>EWCH9001K</b>  |
| 140                                 | <b>EWCH140</b> | 65  | 43                                   | 550                           | 700   | 782             | 246 | 309 | 169 | 90                                 | <b>EWCH14001K</b> |
| 180                                 | <b>EWCH180</b> | 65  | 43                                   | 774                           | 700   | 1364            | 211 | 401 | 551 | 150                                | <b>EWCH18001K</b> |

\* Maximum material properties indicated refer to the material to be cut.



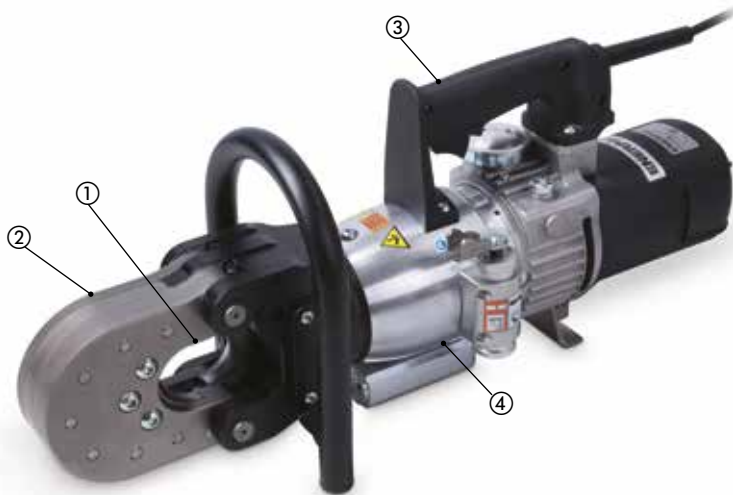


## EWCE-Series Electric Wire and Cable Cutters

EWCE-Series Electric Wire and Cable Cutters combine the efficiency and safety of their hydraulic counterparts with the greater portability of electric tools.

Their lighter weight allows for easier carrying and positioning. Available in 120V and 230V versions.

- ① Durable, guillotine-style blades maintain effectiveness throughout rigorous use.
- ② Cutting head opens wide for easy positioning of wire or cable.
- ③ Robust handles enable easy positioning and transport.
- ④ Double-acting cylinder with directional control improves handling and reduces jamming.



◀ Cut through wire rope and cables with ease.

## EWCE Series



Maximum Material Hardness:

**HRc 48**

Maximum Material Diameter:

**42 - 55 mm**

Voltage\*:

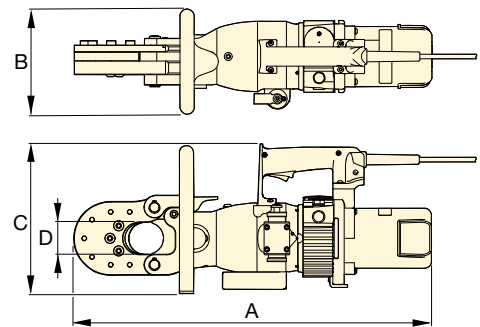
**120 and 230 V**

\* ETL certification applies to 120 Volt tools only.

### Voltage: (Model Number ending with suffix)

**B** = 120V, 60 Hz (with American-style NEMA 1-15 plug)

**E** = 230V, 50 Hz (with European-style SCHUKO plug)



| Maximum Material Diameter* (mm) |           | Power Specifications |    |      |     | Model Number   | Maximum Material Hardness* (HRc) | Maximum Cutting Force (kN) | Dimensions (mm) |     |     |    | Cord Length (m) | Replacement Blade Kit Model Number |                  |
|---------------------------------|-----------|----------------------|----|------|-----|----------------|----------------------------------|----------------------------|-----------------|-----|-----|----|-----------------|------------------------------------|------------------|
| Electric Cable                  | Wire Rope | Volt                 | Hz | Amps | kW  |                |                                  |                            | A               | B   | C   | D  |                 |                                    |                  |
| 55                              | 42        | 120                  | 60 | 11   | 1,3 | <b>EWCE55B</b> | 48                               | 380                        | 627             | 183 | 264 | 56 | 1,8             | 25                                 | <b>EWCE5501K</b> |
| 55                              | 42        | 230                  | 50 | 6,8  | 1,4 | <b>EWCE55E</b> | 48                               | 380                        | 627             | 183 | 264 | 56 | 3,0             | 25                                 | <b>EWCE5501K</b> |

\* Maximum material properties indicated refer to the material to be cut.

# ECS-Series, Cutter / Spreader Combination Tools

▼ ECSE300E



## ECSE Series



Maximum Material Hardness:

**HRc 41**

Maximum Blade Aperture:

**300 mm**

Voltage\*:

**120 and 230 V**

\* ETL certification applies to 120 Volt tools only.



### Internal Mechanics

**ECSE-Series:** Cylinder is driven by a radial pump powered by an electric motor.



### Typical Chain Cutting Applications

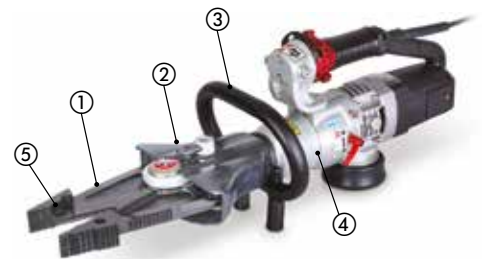
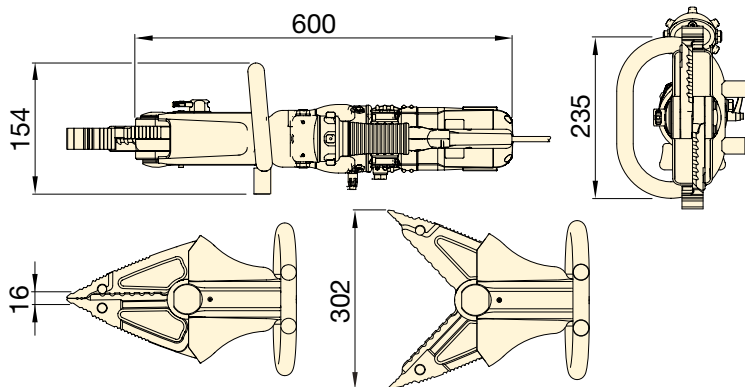
- Industrial manufacturing
- Recycling
- Demolition

### Productivity

- Blades easily cut through metal profiles, pipes, rods and other obstructions
- Wedges on tips of blades provide powerful spreading force

### Safety

- Controlled cutting process creates minimal spark risk compared with torching, grinding and sawing methods



- ① Highly durable blades grip and cut through metal obstructions with ease
- ② Cutting head can be rotated 180 degrees in each direction for easier access to the application
- ③ Robust handle enables easy positioning and transport
- ④ Double-acting cylinder improves control and reduces jamming
- ⑤ Wedges provide powerful spreading force

### Voltage: (Model Number ending with suffix)

**B** = 120V, 60 Hz (with American-style NEMA 1-15 plug)

**E** = 230V, 50 Hz (with European-style SCHUKO plug)

| Maximum Blade Aperture<br>(mm) | Power Specifications |    |      |     | Model Number    | Maximum Material Tensile Strength <sup>1)</sup><br>(daN/mm <sup>2</sup> ) | Maximum Material Hardness <sup>1)</sup><br>(HRc) | Maximum Spreading Force <sup>2)</sup><br>(kN) | Cord Length<br>(m) | Replacement Jaws Kit<br>Model Number<br>(kg) | Replacement Jaws Kit<br>Model Number |
|--------------------------------|----------------------|----|------|-----|-----------------|---|--|---|--------------------|--|--------------------------------------|
|                                | Volt                 | Hz | Amps | kW  |                 |   |  |   |                    |  |                                      |
| 300                            | 120                  | 60 | 10,0 | 1,2 | <b>ECSE300B</b> | 65  | 41   | 46  | 1,8                | 15   | <b>ECSE30001K</b>                    |
| 300                            | 230                  | 50 | 5,3  | 1,1 | <b>ECSE300E</b> | 65  | 41   | 46  | 3,0                | 15   | <b>ECSE30001K</b>                    |

<sup>1)</sup> Maximum material properties indicated refer to the material to be cut.

<sup>2)</sup> 25 mm from jaw tips with jaws closed.

▼ Shown from left to right: WHC4000, WHC750

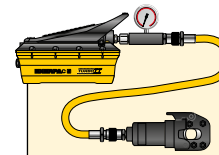


## WHC, WHR, STC Series

Capacity:  
**3 - 20 ton**

Cutting Capacity:  
**Ø 13 - 101 mm**

Maximum Operating Pressure:  
**700 bar**



### Tool-Pump Sets

Cutterheads marked with an \* are available as sets (pump, tool, gauge, couplers and hose) for your ordering convenience.

| Cutterhead Model Nr. | Pump Model Nr. | Set Model Number * |
|----------------------|----------------|--------------------|
| WHC750               | P392           | <b>STC750H</b>     |
| WHC750               | P392FP         | <b>STC750FP</b>    |
| WHC750               | PATG1102N      | <b>STC750A</b>     |
| WHC1250              | P392           | <b>STC1250H</b>    |
| WHC1250              | P392FP         | <b>STC1250FP</b>   |
| WHC1250              | PATG1102N      | <b>STC1250A</b>    |

\* H = Hand Pump, FP = Foot Pump, A = Air Pump

- Single-acting, spring return on all models, except WHR1250
- Guillotine action for smooth cutting operation
- Lifting handles on larger models for easy transport
- Carrying bag included for easy carrying and tool protection
- Ideal for use with most Enerpac pumps featuring 3-way valve or dump valve and 700 bar pressure rating (except WHR1250, which requires 4-way valve)
- CR400 coupler and dust cap included on all models.

*Steel rope is easily cut with the smooth guillotine action of an Enerpac cutterhead. ▶*



### ▼ Selection Chart Maximum Cutting Capacities (Ø in mm)

| Cutter Head Operation | Capacity<br>ton | Model Number    | Oil Capacity<br>(cm³) | Length<br>(mm) | Steel Wire Rope, Hemp-core or IWRC<br>6x7<br>6x12<br>6x19 | Round Bar          |                      |                  |                 | Wire Strand              |                            |      |                        | Cable               |                           | Replacement Blades<br>(kg) |                |
|-----------------------|-----------------|-----------------|-----------------------|----------------|---|--------------------|----------------------|------------------|-----------------|--------------------------|----------------------------|------|------------------------|---------------------|---------------------------|----------------------------|----------------|
|                       |                 |                 |                       |                |   | Copper Wire or Bar | Aluminum Wire or Bar | Soft Steel Bolts | Reinforcing Bar | Bare Copper Wire Strands | Bare Aluminum Wire Strands | ACSR | Guy Steel Wire Strands | Telephone Cable CPP | Underground Cable (Power) |                            |                |
| Single-Acting         | 4               | <b>WHC750*</b>  | 19,7                  | 127            | 16  | 19                 | 19                   | 19               | 13              | 19                       | 19                         | 19   | 16                     | ☆                   | ☆                         | 3,2                        | <b>WCB750</b>  |
|                       | 20              | <b>WHC1250*</b> | 134,4                 | 279            | 31  | 31                 | 31                   | 31               | 25              | 31                       | 31                         | 31   | 22                     | ☆                   | ☆                         | 11,3                       | <b>WCB1250</b> |
|                       | 13              | <b>WHC2000</b>  | 119,6                 | 381            | 25  | 31                 | 31                   | 22               | ☆               | 51                       | 51                         | 51   | 19                     | ☆                   | ☆                         | 10,4                       | <b>WCB2000</b> |
|                       | 3               | <b>WHC3380</b>  | 65,5                  | 482            | ☆   | ☆                  | ☆                    | ☆                | ☆               | 76                       | 76                         | ☆    | ☆                      | 85                  | 85                        | 9,1                        | <b>WCB3380</b> |
|                       | 8               | <b>WHC4000</b>  | 137,7                 | 609            | ☆   | ☆                  | ☆                    | ☆                | ☆               | 89                       | 89                         | ☆    | ☆                      | 101                 | 101                       | 14,5                       | <b>WCB4000</b> |
| Dbl.-Act.             | 20              | <b>WHR1250</b>  | 122,9                 | 419            | 31  | 31                 | 31                   | 31               | 25              | 31                       | 31                         | 31   | 22                     | ☆                   | ☆                         | 11,8                       | <b>WCB1250</b> |

\* Available in sets with P392 Hand Pump, P392FP Foot Pump or PATG1102N Turbo Air Pump.

☆ Will not cut designated material.

# WMC-Series, Self-Contained Hydraulic Cutters

▼ Shown from left to right: WMC2000, WMC750



## WMC Series

Capacity:

**3 - 20 ton**

Cutting Capacity:

**∅ 14 - 85 mm**



### Replacement Blades

60-62 HRC hardened replacement blades.

| For Cutter Model Number | Order Blades Model Number |
|-------------------------|---------------------------|
| WMC580                  | WCB750                    |
| WMC750                  | WCB750                    |
| WMC1000                 | WCB1000                   |
| WMC1250                 | WCB1250                   |
| WMC1580                 | WCB1580                   |
| WMC2000                 | WCB2000                   |
| WMC 3380                | WCB3380                   |

- Rotating heads for operator convenience
- Guillotine action for smooth cutting operation
- Carrying bag included for easy carrying and tool protection
- Velcro straps to secure handles on larger models for easy carry
- Spring return for easy operation
- Light weight self-contained tool, can be used anywhere.



### CAUTION !:

A "☆" in the charts on these pages means that this hydraulic cutter is not designed to cut this size or type of material. Any attempt to do so may result in personal injury and damage to the unit and will void the warranty.

### ▼ Selection Chart

Maximum Cutting Capacities (∅ in mm)

| Capacity<br>ton | Model Number | Length<br>(mm) | Steel Wire Rope, Hempcore or IWRC<br><br>6x7<br>6x12<br>6x19 | Round Bar          |                      |                  |                 | Wire Strand              |                            |                   |                        |                        | Cable               |                           | ⚖️<br>(kg) |
|-----------------|--------------|----------------|--|--------------------|----------------------|------------------|-----------------|--------------------------|----------------------------|-------------------|------------------------|------------------------|---------------------|---------------------------|------------|
|                 |              |                |  | Copper Wire or Bar | Aluminum Wire or Bar | Soft Steel Bolts | Reinforcing Bar | Bare Copper Wire Strands | Bare Aluminum Wire Strands | ACSR Wire Strands | Guy Steel Wire Strands | Guy Steel Wire Strands | Telephone Cable CPP | Underground Cable (Power) |            |
| 4               | WMC580       | 381            | 16   | 16                 | 16                   | 16               | 10              | 16                       | 16                         | 16                | 14                     | 14                     | ☆                   | ☆                         | 3,6        |
| 4               | WMC750       | 381            | 19   | 19                 | 19                   | 17               | 13 **           | 19                       | 19                         | 19                | 14                     | 14                     | ☆                   | ☆                         | 3,6        |
| 20              | WMC1000 *    | 679            | ☆  | 19                 | 19                   | 19               | 19              | ☆                        | ☆                          | ☆                 | ☆                      | ☆                      | ☆                   | ☆                         | 11,3       |
| 20              | WMC1250      | 679            | 31   | 31                 | 31                   | 31               | 22              | 31                       | 31                         | 31                | 22                     | 22                     | ☆                   | ☆                         | 10,4       |
| 6               | WMC1580      | 558            | 19   | 19                 | 19                   | 19               | ☆               | 38                       | 38                         | 38                | 16                     | 16                     | ☆                   | ☆                         | 6,8        |
| 13              | WMC2000      | 628            | 25   | 31                 | 31                   | 22               | ☆               | 51                       | 51                         | 51                | 19                     | 19                     | ☆                   | ☆                         | 10,9       |
| 3               | WMC3380      | 660            | ☆  | ☆                  | ☆                    | ☆                | ☆               | 76                       | 76                         | ☆                 | ☆                      | ☆                      | 85                  | 85                        | 10,0       |

\* Cuts 12 mm alloy chain grade 70 (type G7 transport or tie-down) or grade 80 (for overhead lifting applications).

\*\* Low Alloy.

☆ Will not cut designated material.





## Pumps & Accessories for EBH & EWCH-Cutters

EBH-Series Bar Cutters and EWCH-Series Wire and Cable Cutters are powered by an external pump with an electric valve.

A twin hydraulic hose and electric cable connect the tools to the pump, allowing the user to operate them directly from a control panel located on the cutters.



### ZE4-Series Pumps

Specialized **ZE4-Series** pumps provide a balance of speed and versatility, and are available in 115 and 230 volts. Recommended for use with **EBH30** and **EBH35** cutters when portability, or the convenience of using standard voltage is required.



### ZE6-Series Pumps

Specialized **ZE6-Series** 3-phase pumps offer a high-flow rate that provides fast performance for demanding applications. Recommended for **EBH52** and all **EWCH** cutting applications where speed is critical, or where higher flow rates are required by the application.

## ZE Series



Reservoir Capacity:

**4,6 - 9,8 litres**

Motor Size:

**1,1 - 5,6 kW**

Maximum Operating Pressure:

**700 bar**



### Optional Gauge Kit GKHC

Optional gauge and accessories can be used to monitor pressure in the hydraulic system. Enerpac recommends **GKHC Gauge Kit** for use with Enerpac hydraulic cutters.



### Hoses

EBH- and EWCH-Series Cutters require a twin hose with an electric cable. The hose comes equipped with the appropriate couplers.

Required hoses sold separately.

| Description  | Model Number   |
|--|----------------|
| 6,1 m long, twin hose with couplers, sheath & electric cable | <b>CH720EC</b> |

### Pump Voltage 1-phase: (Model Number ending with suffix)

**B** = 120V, 60 Hz (with American-style NEMA 5-15 plug)

**E** = 230V, 50 Hz (with European-style SCHUKO plug)

**I** = 230V, 50 Hz (with NEMA 6-15 plug)

| Pump Series       | Pump Model Number * | Motor Electrical Specifications<br>(Volt - Phase, 50-60 Hz) | Motor Size<br>(kW) | Reservoir Capacity<br>(litres) | Dimensions (mm) |        |       | Weight<br>(kg) | Required Twin Hose Model Number<br>(Sold separately) | Compatible Cutter Model Number<br>(Sold Separately) |
|-------------------|---------------------|---|--------------------|--------------------------------|-----------------|--------|-------|----------------|--|---|
|                   |                     |   |                    |                                | Height          | Length | Width |                |  |   |
| ZE4               | <b>ZE4404XB</b>     | 115 V - 1 ph  | 1,1                | 4,6                            | 513             | 521    | 279   | 45             | <b>CH720EC</b>                                       | <b>EBH30<br/>EBH35</b>                              |
|                   | <b>ZE4404XE</b>     | 208-240 V - 1 ph  |                    |                                |                 |        |       |                |  |   |
|                   | <b>ZE4404XI</b>     | 208-240 V - 1 ph  |                    |                                |                 |        |       |                |  |   |
| ZE6 <sup>1)</sup> | <b>ZE6410XG-S</b>   | 208-240 V - 3 ph  | 5,6                | 9,8                            | 384             | 559    | 384   | 77             | <b>CH720EC</b>                                       | <b>All EBH and<br/>EWCH-Series<br/>Cutters</b>      |
|                   | <b>ZE6410XJ-S</b>   | 460-480 V - 3 ph  |                    |                                |                 |        |       |                |  |   |
|                   | <b>ZE6410XK-S</b>   | 440 V - 3 ph  |                    |                                |                 |        |       |                |  |   |
|                   | <b>ZE6410XW-S</b>   | 380-415V - 3 ph   |                    |                                |                 |        |       |                |  |   |

\* Indicated pumps come equipped with appropriate configurations to work with indicated cutters.

<sup>1)</sup> ZE6 pumps are available with roll cages. To add a roll cage, add an "R" prior to the "S" in the model number: example **ZE6410XG-RS**.

# Pumps & Accessories for EDCH-Cutters



## Pumps & Accessories for EDCH-Cutters

The EDCH-Decommissioning Cutters are designed to work in a wide variety of environments, from factories to demolition projects.

Enerpac offers multiple pump options to provide power, speed and mobility for all your applications.

## ZC ZE Series



Reservoir Capacity:

**4,6 - 9,8 litres**

Motor Size:

**1,0 - 1,1 - 5,6 kW**

Maximum Operating Pressure:

**700 bar**



### ZC3-Series Cordless Pumps

Specialized **ZC3-Series** Cordless Pumps offer the portability of a cordless tool without the added weight of an integrated motor, combining freedom of movement with ease of use. Recommended for use with the **EDCH130** cutter.



### ZE4-Series Pumps

Specialized **ZE4-Series** Pumps provide a balance of speed and versatility. Recommended for use with all **EDCH** cutters when the convenience of using standard voltage is required.



### ZE6-Series Pumps

Specialized **ZE6-Series** pumps offer a high-flow rate that provides fast performance. Recommended for use with all **EDCH** cutters when 3-phase power is available, and speed is critical.



### Optional Gauge Kit GKHC

Optional gauge and accessories can be used to monitor pressure in the hydraulic system. Enerpac recommends **GKHC Gauge Kit** for use with Enerpac hydraulic cutters.



### Twin Hose

EDCH-Series Cutters require a twin hose for operation. The hose comes equipped with the appropriate couplers.

| Description                         | Model Number   |
|-------------------------------------|----------------|
| 6,1 m long, twin hose with couplers | <b>CH720MC</b> |

### Pump Voltage 1-phase: (Model Number ending with suffix)

**B** = 120V, 60 Hz (with American-style NEMA 5-15 plug);

**E** = 230V, 50 Hz (with European-style SCHUKO plug); **I** = 230V, 50 Hz (with NEMA 6-15 plug)

| Pump Series       | Pump Model Number * | Motor Electrical Specifications<br>(Volt - Phase, Hz) | Motor Size<br>(kW) | Reservoir Capacity<br>(litres) | Dimensions (mm) |        |       | Weight (kg) | Required Twin Hose Model Number<br>(Sold separately) | Compatible Cutter Model Number<br>(Sold Separately) |
|-------------------|---------------------|---|--------------------|--------------------------------|-----------------|--------|-------|-------------|--|---|
|                   |                     |   |                    |                                | Height          | Length | Width |             |  |   |
| ZC3               | <b>ZC3204XB</b>     | <b>Cordless</b> (115 V Charger 60 Hz)                 | 1,0                | 4,6                            | 653             | 472    | 363   | 27          | <b>CH720MC</b>                                       | <b>EDCH130</b>                                      |
|                   | <b>ZC3204XE</b>     | <b>Cordless</b> (230 V Charger 50 Hz)                 |                    |                                |                 |        |       |             |  |   |
| ZE4               | <b>ZE4204XB</b>     | 115 V - 1 ph, 50-60 Hz                                | 1,1                | 4,6                            | 513             | 521    | 279   | 45          | <b>CH720MC</b>                                       | <b>EDCH130</b><br><b>EDCH145</b><br><b>EDCH170</b>  |
|                   | <b>ZE4204XE</b>     | 208-240 V - 1 ph, 50-60 Hz                            |                    |                                |                 |        |       |             |  |   |
|                   | <b>ZE4204XI</b>     | 208-240 V - 1 ph, 50-60 Hz                            |                    |                                |                 |        |       |             |  |   |
| ZE6 <sup>1)</sup> | <b>ZE6210XG-S</b>   | 208-240 V - 3 ph                                      | 5,6                | 9,8                            | 384             | 559    | 384   | 77          | <b>CH720MC</b>                                       | <b>EDCH130</b><br><b>EDCH145</b><br><b>EDCH170</b>  |
|                   | <b>ZE6210XJ-S</b>   | 460-480 V - 3 ph                                      |                    |                                |                 |        |       |             |  |   |
|                   | <b>ZE6210XK-S</b>   | 440 V - 3 ph  |                    |                                |                 |        |       |             |  |   |
|                   | <b>ZE6210XW-S</b>   | 380-415V - 3 ph                                       |                    |                                |                 |        |       |             |  |   |

\* Indicated pumps come equipped with appropriate configurations to work with indicated cutters.

<sup>1)</sup> ZE6 pumps are available with roll cages. To add a roll cage, add an "R" prior to the "S" in the model number: example **ZE6410XG-RS**.

**Enerpac's Bolting Solutions cater to the complete bolting work-flow, ensuring joint integrity in a variety of applications throughout the industry:**

### Joint Assembly

From simple pipe alignment to complex joint positioning of large structural assemblies, our comprehensive line of joint assembly products range from hydraulic and mechanical alignment tools to synchronized PLC-controlled multi-point positioning systems.

### Controlled Tightening – Torque & Tensioning

Enerpac offers a variety of controlled tightening options to best meet the requirements of your application. From mechanical torque multipliers to hydraulic, pneumatic and electric square drive wrenches and from low profile torque wrenches to interconnectable bolt tensioning tools; we offer the products you need for accurate and simultaneous tightening of multiple bolts.

### Joint Separation

Enerpac also provides hydraulic nut splitters and a variety of mechanical and hydraulic spreading tools for joint separation during inspection, maintenance and decommissioning operations.

High quality bolting solutions from the brand you can trust. See how Enerpac can make your bolting work-flow more accurate, safer and efficient.



#### Bolting Integrity Software

Enerpac Bolting Integrity Software Solutions play a key role in implementing and managing an Integrity Program for bolted connections.

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report. Custom Joint information can also be entered.

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#### Torque Tightening & Tensioning

See our 'Yellow Pages' for information on torque tightening. See our Bolting Safety Instructions on [enerpac.com](http://enerpac.com).

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#### Flange Maintenance Tools

The range of patented flange spreading tools have been developed to aid and simplify the maintenance of flange joints.

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# Bolting Tools & Pumps Section Overview

|  | Capacity  | Tool type and functions   | Series  |   | Page           |
|--|---|---|---|---|----------------|
| <b>Controlled Tightening and Loosening – Torque &amp; Tensioning</b> | 1952 - 35.455 Nm<br>1440 - 26.150 Ft.lbs  | <b>Square Drive Hydraulic Torque Wrenches</b><br>Rigid steel design & maximum versatility | S   |    | 212 ▶          |
|  | 19-155 mm   ¾ - 6⅞"<br>27-120 mm   1⅛-4⅝"   | <b>Heavy-Duty Impact Sockets</b><br><b>Back-Up Spanners for Torque Wrenches</b>           | BSH<br>BUS  |    | 216 ▶<br>217 ▶ |
|  | 46 - 75 mm hexagon<br>1⅜ - 3⅛" hexagon  | <b>Safe T™ Torque Lock</b><br>Hands-free torque wrench system                             | STTL  |    | 218 ▶          |
|  | 2766 - 47.454 Nm<br>2040 - 35.000 Ft.lbs  | <b>Hexagon Hydraulic Torque Wrenches</b><br><b>Ultra-Slim Stepped Width Cassettes</b>     | W<br>WSL  |    | 220 ▶          |
|  | 1909 - 37.965 Nm<br>1408 - 28.002 Ft.lbs  | <b>Hexagon and Square Drive Torque Wrenches</b><br>One drive, two tools                   | RSL, RLP<br>RSQ   |    | 234 ▶<br>244 ▶ |
|  | 1913- 32.617 Nm<br>1411- 24.057 Ft.lbs  | <b>Square Drive Aluminum Torque Wrenches</b><br>Setting Industry-First Safety Standards   | DSX   |    | 246 ▶          |
|  | 2089 - 18.289 Nm<br>1541 - 13.489 Ft.lbs  | <b>Drive Units, Hexagon Cassettes &amp; Square Drive Torque Wrenches</b>                  | HMT, HLP<br>HSQ   |    | 250 ▶<br>254 ▶ |
|  | 1015 - 10.845 Nm<br>750 - 8000 Ft.lbs   | <b>Manual Torque Multipliers</b><br><b>Pneumatic Torque Wrenches</b>                      | E<br>PTW  |    | 256 ▶<br>258 ▶ |
|  | 2900 - 21.800 Nm<br>2140 - 16.100 Ft.lbs  | <b>Safe T™ Torque Checker</b><br>Accurate mobile torque system safety testing             | STTC  |    | 262 ▶          |
|  | 200 - 10.000 Nm<br>148 - 7375 Ft.lbs  | <b>Mobile Calibration System</b><br>For continuous rotation tools and hydraulic wrenches  | MCS   |   | 264 ▶          |
|  |   | <b>Selection Matrix Optimum Wrenches - Pump - Hoses</b>                                   |   |  | 265 ▶          |
|  | Flow: 0,25 l/min<br>Power: 0,37 kW  | <b>Battery-Powered Torque Pumps</b><br>Cordless Hydraulic Power                           | XC  |  | 266 ▶          |
|  | Flow: 0,52 l/min<br>Power: 0,63 kW  | <b>E-Pulse® Electric Torque Pumps</b><br>Compact and Portable                             | E-Pulse®  |  | 268 ▶          |
|  | Flow: 0,50 l/min<br>Power: 0,75 kW  | <b>Electric Torque Pumps</b><br>Lightweight   | TQ  |  | 270 ▶          |
|  | Flow: 0,90 l/min<br>Power: 1,25 kW  | <b>Portable Electric Torque Pumps</b><br>Z-Class innovation                               | ZU4T  |  | 272 ▶          |
|  | Flow: 0,82-1,64 l/min<br>Power: 1,1 - 2,2 kW  | <b>Electric Torque Pumps</b><br>Z-Class innovation  | ZE4T<br>ZE5T  |  | 276 ▶          |
|  | Flow: 0,4 l/min<br>Air: 1389 l/min  | <b>Air Hydraulic Torque Pump</b><br>Lightweight and Compact                               | LAT   |  | 278 ▶          |
|  | Flow: 1,0 l/min<br>Air: 2840 l/min  | <b>Air Driven Torque Pumps</b><br>Z-Class innovation                                      | ZA4T  |  | 280 ▶          |
|  | 134 - 4650 kN<br>224 - 3958 kN  | <b>HydraMax® Topside Bolt Tensioners</b><br><b>Topside Bolt Tensioners</b>                | HM<br>GT  |  | 286 ▶<br>290 ▶ |
|  | 151 - 2321 kN   | <b>Aquajack® Subsea Bolt Tensioners</b>   | EAJ   |  | 292 ▶          |
| 203 - 2969 kN<br>373 - 2736 kN                                       | <b>Power Generation Bolt Tensioners</b><br><b>Foundation Bolt Tensioners</b>              | PGT<br>FTR, FTE   |  | 294 ▶<br>296 ▶  |                |
| Flow: 0,61 cm³/stroke<br>1,0 - 270 metres                            | <b>1500 bar High-Pressure Hand Pump</b><br><b>1500 bar Hoses, Hose Reels and Couplers</b> | HPT<br>HT, B  |  | 300 ▶<br>301 ▶  |                |
| Flow: 0,33 l/min<br>Flow: 0,07 l/min                                 | <b>Electric Tensioning Pumps</b><br><b>Ultra-High Pressure Air Pump</b>                   | ZUTP<br>ATP   |  | 302 ▶<br>303 ▶  |                |
| <b>Joint Assembly and Separation</b>                                 | 1 - 9 ton<br>(10 - 90 kN)   | <b>Flange Alignment Tools</b>   | ATM   |  | 306 ▶          |
|  | 8 - 14 ton<br>(72 - 125 kN)   | <b>Step-type Industrial Spreaders</b>   | FSC, FSH<br>FSM   |  | 308 ▶          |
|  | Hexagon: 10 - 130 mm<br>Bolt range: M6 - M90  | <b>Hydraulic Nut Splitters</b>  | NC<br>NSC, NSH  |  | 310 ▶<br>312 ▶ |
|  | ø 1 - 12 inch flanges   | <b>QuickFace – Mechanical Pipe Flange Face Tool</b>                                       | FF  |  | 316 ▶          |



▼ Shown: S3000PX



## Setting New Standards in Safety, Simplicity and Performance

### Safety and Performance

- Compact, high-strength uni-body construction provides a small operating radius without sacrificing endurance
- 35° rotation angle and rapid return stroke for fast operation
- Tough manifold design with added safety feature for enhanced operator safety.

### Simplicity

- 360° click-on reaction arm with quick release lever provides easier handling, even with gloves on
- Includes robust handle or lifting eye which mounts on both sides of tool for extra maneuverability
- Push button square drive release for quickly reversing the square drive for tightening or loosening.

### Versatility

- Available with optional enhanced tilt and swivel TSP300 manifold for horizontal and vertical maneuverability, with greater durability <sup>1)</sup>

### Accuracy

- Constant torque output provides accuracy of ±3% across full stroke
- Optional Angle-of-Turn Indicator provides measurement of rotation.

<sup>1)</sup> TSP300 is designed for X-Edition tools only, and is not compatible with previous edition tools. For replacement components for existing tools, refer to repair sheet on [www.enerpac.com](http://www.enerpac.com)



#### Two Handle Styles

Robust angled positioning handle comes standard with every S-Series (X-Edition) tool. Straight positioning handles are available as accessories.

| Compatible S-Series (X-Edition) wrenches | Model Nr. Angled positioning handles (standard) | Model Nr. Straight positioning handles (optional) |
|--|---|---|
| S1500X, S3000X                           | <b>SWH6A</b>                                    | <b>SWH6S</b>                                      |
| S6000X, S11000X                          | <b>SWH10A</b>                                   | <b>SWH10S</b>                                     |
| S25000X                                  | <b>SWH10EA <sup>2)</sup></b>                    |   |

<sup>2)</sup> SWH10EA is an lifting eye.



#### TSP - Pro Series Swivel

The optional TSP300 tilt and swivel manifold with robust interlocking design provides 360° X-axis rotation and 160° Y-axis rotation.

#### How to Order <sup>1)</sup>

Factory fitted to S-Series (X-Edition) wrenches: Insert a "P" prior to the "X" in the tool model number, example: **S1500PX**.

Order as an accessory using the model number: **TSP300**, which can be fitted to existing S-Series (X-Edition) wrenches. Includes male and female couplers.

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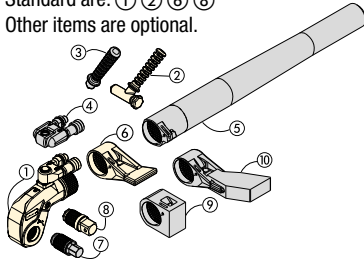


#### ATEX declared. Calibration certificate included.

All X-edition tools are CE - ATEX declared and are shipped complete with a calibration certificate.

# X-Edition, Square Drive Hydraulic Torque Wrenches

Standard are: ① ② ⑥ ⑧  
Other items are optional.



- ① Drive Unit
- ② Angeled Positioning Handle
- ③ Straight Positioning Handle
- ④ Pro Series Swivel
- ⑤ Reaction Tube Extension
- ⑥ Standard Reaction Arm
- ⑦ Allen-Key Drive
- ⑧ Square Drive
- ⑨ Short Reaction Arm
- ⑩ Extended Reaction Arm

**Select the Right Torque**  
Choose your Enerpac Torque Wrench using the untightening rule of thumb:  
Loosening torque equals about 250% of tightening torque.

## S Series X-Edition

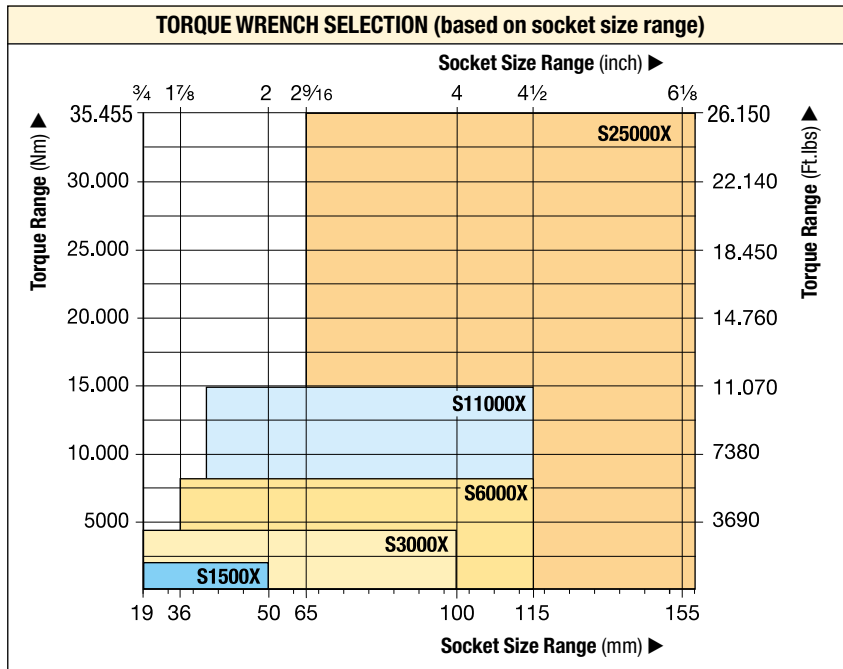


Nominal Torque Output:  
**35.455 Nm**

Square Drive Range:  
**3/4 - 2 1/2 inch**

Nose Radius:  
**25 - 64 mm**

Maximum Operating Pressure:  
**690 bar**

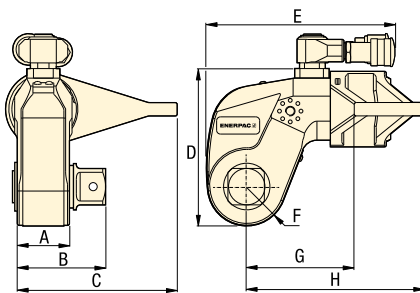


**Back-Up Spanners**  
Hands free tool to be used to stop the back nut from turning during make up or break out.

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**Use only Heavy Duty Impact Sockets**  
For power driven torquing equipment, according to ISO2725 and ISO1174; DIN 3129 and DIN 3121 or ASME-B107.2/1995.

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**Safe™ Torque Lock**  
The Safe™ Torque Lock is suitable for all bolted applications from 190 Nm to 15.000 Nm using a heavy duty impact socket.

The patented mechanical locking system creates a hands-free torque wrench solution suitable for Enerpac only square drive tools.

Suitable for S3000X, S6000X and S11000X.

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| Nominal Torque at 690 bar |          | Minimum Torque at 69 bar |          | Square Drive Size (inch) |                                  | Angle-of-Turn Model Nr. (optional) | Torque Wrench Model Number * | Dimensions (mm) |     |     |     |     |    |     |     |      |
|---------------------------|----------|--------------------------|----------|--------------------------|----------------------------------|------------------------------------|------------------------------|-----------------|-----|-----|-----|-----|----|-----|-----|------|
| (Nm)                      | (Ft.lbs) | (Nm)                     | (Ft.lbs) |                          | Model Nr. (included with wrench) |                                    |                              | A               | B   | C   | D   | E   | F  | G   | H   | (kg) |
| 1952                      | 1440     | 195                      | 144      | 3/4                      | SD15-012                         | AOT15                              | <b>S1500X</b>                | 39              | 65  | 108 | 97  | 136 | 25 | 70  | 129 | 3,2  |
| 4373                      | 3225     | 438                      | 323      | 1                        | SD30-100                         | AOT30                              | <b>S3000X</b>                | 48              | 78  | 135 | 128 | 173 | 33 | 90  | 161 | 5,6  |
| 8338                      | 6150     | 834                      | 615      | 1 1/2                    | SD60-108                         | AOT60                              | <b>S6000X</b>                | 55              | 92  | 169 | 157 | 192 | 40 | 110 | 188 | 9,2  |
| 15.151                    | 11.175   | 1516                     | 1118     | 1 1/2                    | SD110-108                        | AOT110                             | <b>S11000X</b>               | 72              | 114 | 197 | 190 | 228 | 50 | 133 | 229 | 15,8 |
| 35.455                    | 26.150   | 3545                     | 2615     | 2 1/2                    | SD250-208                        | AOT250                             | <b>S25000X</b>               | 89              | 143 | 246 | 244 | 287 | 64 | 182 | 295 | 32,2 |

\* To order a S-Series (X-edition) torque wrench fitted with a TSP300 tilt and swivel manifold, insert a "P" prior to the "X" in the tool model number, example: **S1500PX**.

Maximum Torque at 690 bar:

**35.455 Nm**

Hexagon Size Allen Drive:


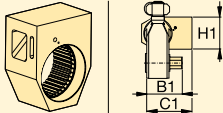
**1/2 - 2 1/4 inch**

Hexagon Size Allen Drive:

**14 - 85 mm**

For  
**S**  
Series



| Torque Wrench<br> | Optional Allen Drives, Imperial      |                        |              |                    | Optional Allen Drives, Metric      |                        |              |                    | Short Reaction Arm for Allen Drives<br> |                               |     |
|---|--------------------------------------|------------------------|--------------|--------------------|------------------------------------|------------------------|--------------|--------------------|--|-------------------------------|-----|
|   | Hexagon Size <sup>1)</sup><br>(inch) | Maximum Torque<br>(Nm) | Model Number | Dim.<br>B1<br>(mm) | Hexagon Size <sup>1)</sup><br>(mm) | Maximum Torque<br>(Nm) | Model Number | Dim.<br>B1<br>(mm) | Model Number   | Dimensions<br>(mm)<br>C1   H1 |     |
| <b>S1500X</b><br>(1952 Nm)  | 1/2                                  | 481                    | SDA15008     | 66                 | 14                                 | 644                    | SDA1514      | 66                 | <b>SRA15X</b>  | 67,5                          | 74  |
|   | 5/8                                  | 936                    | SDA15010     | 67                 | 17                                 | 1152                   | SDA1517      | 68                 |  |                               |     |
|   | 3/4                                  | 1620                   | SDA15012     | 71                 | 19                                 | 1607                   | SDA1519      | 70                 |  |                               |     |
|   | 7/8                                  | 1952                   | SDA15014     | 74                 | 22                                 | 1952                   | SDA1522      | 73                 |  |                               |     |
|   | 1                                    | 1952                   | SDA15100     | 77                 | 24                                 | 1952                   | SDA1524      | 74                 |  |                               |     |
| <b>S3000X</b><br>(4373 Nm)  | 5/8                                  | 936                    | SDA30010     | 77                 | 17                                 | 1152                   | SDA3017      | 77                 | <b>SRA30X</b>  | 80,0                          | 74  |
|   | 3/4                                  | 1620                   | SDA30012     | 80                 | 19                                 | 1607                   | SDA3019      | 79                 |  |                               |     |
|   | 7/8                                  | 2569                   | SDA30014     | 83                 | 22                                 | 2488                   | SDA3022      | 82                 |  |                               |     |
|   | 1                                    | 3830                   | SDA30100     | 86                 | 24                                 | 3234                   | SDA3024      | 84                 |  |                               |     |
|   | 1 1/8                                | 4373                   | SDA30102     | 88                 | 27                                 | 4373                   | SDA3027      | 85                 |  |                               |     |
|   | 1 1/4                                | 4373                   | SDA30104     | 89                 | 30                                 | 4373                   | SDA3030      | 87                 |  |                               |     |
|   | -                                    | -                      | -            | -                  | 32                                 | 4373                   | SDA3032      | 88                 |  |                               |     |
| <b>S6000X</b><br>(8338 Nm)  | 5/8                                  | 936                    | SDA60010     | 85                 | 17                                 | 1152                   | SDA6017      | 86                 | <b>SRA60X</b>  | 91,5                          | 89  |
|   | 3/4                                  | 1620                   | SDA60012     | 89                 | 19                                 | 1607                   | SDA6019      | 88                 |  |                               |     |
|   | 7/8                                  | 2569                   | SDA60014     | 92                 | 22                                 | 2488                   | SDA6022      | 91                 |  |                               |     |
|   | 1                                    | 3830                   | SDA60100     | 95                 | 24                                 | 3234                   | SDA6024      | 93                 |  |                               |     |
|   | 1 1/8                                | 5457                   | SDA60102     | 97                 | 27                                 | 4603                   | SDA6027      | 94                 |  |                               |     |
|   | 1 1/4                                | 7484                   | SDA60104     | 98                 | 30                                 | 6311                   | SDA6030      | 96                 |  |                               |     |
|   | -                                    | -                      | -            | -                  | 32                                 | 7660                   | SDA6032      | 97                 |  |                               |     |
| <b>S11000X</b><br>(15.151 Nm)   | 1 1/4                                | 7484                   | SDA110104    | 115                | 30                                 | 6311                   | SDA11030     | 112                | <b>SRA110X</b>   | 127,5                         | 106 |
|   | 1 3/8                                | 9958                   | SDA110106    | 117                | 32                                 | 7660                   | SDA11032     | 114                |  |                               |     |
|   | 1 1/2                                | 12.928                 | SDA110108    | 118                | 36                                 | 10.901                 | SDA11036     | 117                |  |                               |     |
|   | 1 5/8                                | 15.151                 | SDA110110    | 122                | 41                                 | 15.151                 | SDA11041     | 121                |  |                               |     |
|   | 1 3/4                                | 15.151                 | SDA110112    | 125                | 46                                 | 15.151                 | SDA11046     | 127                |  |                               |     |
| <b>S25000X</b><br>(35.455 Nm)   | 1 1/2                                | 12.928                 | SDA250108    | 141                | 36                                 | 10.901                 | SDA25036     | 140                | <b>SRA250X</b>   | 158,5                         | 135 |
|   | 1 5/8                                | 16.433                 | SDA250110    | 145                | 41                                 | 16.107                 | SDA25041     | 144                |  |                               |     |
|   | 1 3/4                                | 20.520                 | SDA250112    | 148                | 46                                 | 22.744                 | SDA25046     | 148                |  |                               |     |
|   | 1 7/8                                | 25.245                 | SDA250114    | 149                | 50                                 | 29.211                 | SDA25050     | 151                |  |                               |     |
|   | 2                                    | 30.635                 | SDA250200    | 151                | 55                                 | 35.455                 | SDA25055     | 154                |  |                               |     |
|   | 2 1/4                                | 35.455                 | SDA250204    | 154                | 60                                 | 35.455                 | SDA25060     | 158                |  |                               |     |
|   | -                                    | -                      | -            | -                  | 65                                 | 35.455                 | SDA25065     | 161                |  |                               |     |
|   | -                                    | -                      | -            | -                  | 70                                 | 35.455                 | SDA25070     | 164                |  |                               |     |
|   | -                                    | -                      | -            | -                  | 75                                 | 35.455                 | SDA25075     | 168                |  |                               |     |
|   | -                                    | -                      | -            | -                  | 85                                 | 35.455                 | SDA25085     | 175                |  |                               |     |

<sup>1)</sup> See page 407 for table of hexagon sizes of bolts, nuts and related thread diameters.

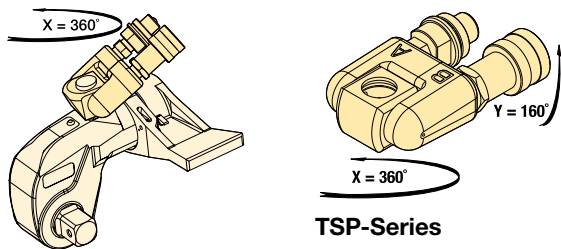
# Accessories for S-Series, X-Edition Wrenches

## TSP RTEX SRSX Series



### TSP-Series, Pro Series Swivel

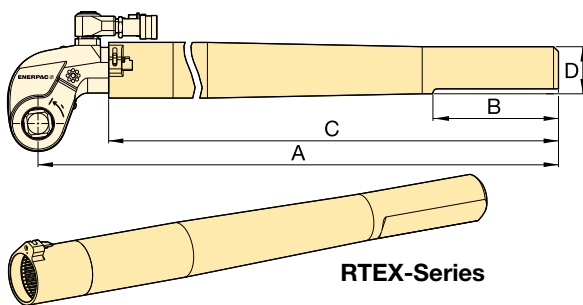
- Robust interlocking design
- 360° X-axis and 160° Y-axis rotation
- Increases tool fit in restricted access areas
- Simplifies hose placement
- Includes male and female couplers



| For Torque Wrench Model Number           | Model Number <sup>1)</sup> | Maximum Pressure (bar) | Weight (kg) |
|--|----------------------------|------------------------|-------------|
| S1500X, S3000X, S6000X, S11000X, S25000X | TSP300                     | 690                    | 0,2         |

<sup>1)</sup> To order a S-Series (X-edition) torque wrench fitted with a TSP300 tilt and swivel manifold, insert a "P" prior to the "X" in the tool model number, example: **S1500PX**. TSP300 is designed for X-Edition tools only, and is not compatible with standard edition tools. For replacement components for existing tools, refer to repair sheet on [www.enerpac.com](http://www.enerpac.com)

### RTEX-Series, Reaction Tube Extensions

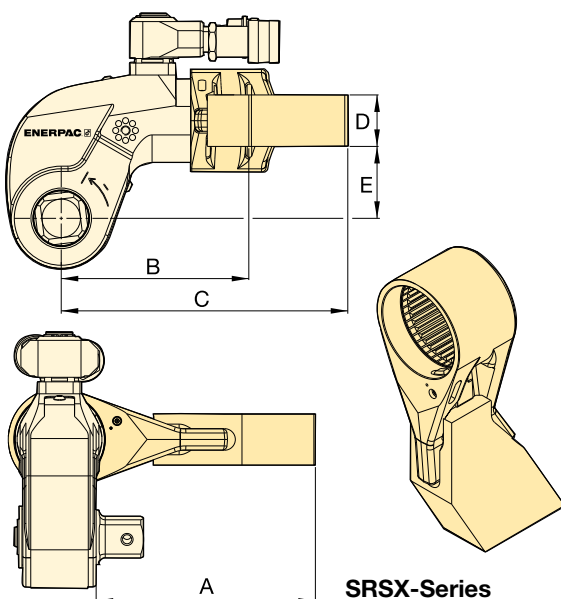


- Full torque rated
- Increases tool fit in restricted access areas

| For Torque Wrench Model Number | Model Number | Dimensions (mm) |     |     |     | Weight (kg) * |
|--------------------------------|--------------|-----------------|-----|-----|-----|---------------|
|                                |              | A               | B   | C   | D   |               |
| S1500X                         | RTE15X       | 706             | 152 | 636 | 58  | 4,6           |
| S3000X                         | RTE30X       | 733             | 152 | 647 | 57  | 5,5           |
| S6000X                         | RTE60X       | 747             | 152 | 659 | 65  | 7,7           |
| S11000X                        | RTE110X      | 769             | 152 | 675 | 76  | 11,2          |
| S25000X                        | RTE250X      | 813             | 152 | 685 | 100 | 17,3          |

\* Weights indicated are for the accessories only and do not include the wrench.

### SRSX-Series, Extended Reaction Arms



- Lightweight interchangeable design

| For Wrench Model | Max. Torque (Nm) | Model Number | Dimensions (mm) |     |     |    |     | Weight (kg) * |
|------------------|------------------|--------------|-----------------|-----|-----|----|-----|---------------|
|                  |                  |              | A               | B   | C   | D  | E   |               |
| S1500X           | 1801             | SRS151X      | 94              | 86  | 127 | 24 | 34  | 0,8           |
|                  | 1641             | SRS152X      | 119             | 97  | 138 | 24 | 34  | 1,0           |
|                  | 1533             | SRS153X      | 145             | 109 | 148 | 24 | 34  | 1,2           |
| S3000X           | 3918             | SRS301X      | 111             | 106 | 168 | 34 | 48  | 1,6           |
|                  | 3712             | SRS302X      | 137             | 117 | 182 | 34 | 48  | 2,0           |
|                  | 3574             | SRS303X      | 162             | 132 | 198 | 34 | 48  | 2,5           |
| S6000X           | 7842             | SRS601X      | 138             | 128 | 192 | 39 | 62  | 2,3           |
|                  | 7454             | SRS602X      | 163             | 144 | 207 | 39 | 62  | 2,7           |
|                  | 7175             | SRS603X      | 189             | 159 | 222 | 39 | 62  | 3,4           |
| S11000X          | 14.650           | SRS1101X     | 149             | 157 | 232 | 46 | 76  | 4,4           |
|                  | 13.957           | SRS1102X     | 175             | 172 | 247 | 46 | 76  | 5,1           |
|                  | 13.391           | SRS1103X     | 200             | 187 | 261 | 46 | 76  | 5,8           |
| S25000X          | 33.538           | SRS2501X     | 183             | 209 | 295 | 50 | 100 | 7,6           |
|                  | 32.049           | SRS2502X     | 208             | 222 | 310 | 50 | 100 | 8,4           |
|                  | 30.750           | SRS2503X     | 233             | 236 | 326 | 50 | 100 | 10,0          |

\* Weights indicated are for the accessories only and do not include the wrench.



- Heavy-duty impact sockets
- Supplied with "Pin and O-Ring"

## BSH Series



Hexagon Sizes (A/F):

**19 - 155 mm | 3/4 - 6 1/8"**

| METRIC SOCKETS    |              |                 |              |                     |              |                     |              |
|-------------------|--------------|-----------------|--------------|---------------------|--------------|---------------------|--------------|
| 3/4" Square Drive |              | 1" Square Drive |              | 1 1/2" Square Drive |              | 2 1/2" Square Drive |              |
| A/F (mm)          | Model Number | A/F (mm)        | Model Number | A/F (mm)            | Model Number | A/F (mm)            | Model Number |
| 19                | BSH7519      | 19              | BSH1019      | 36                  | BSH1536      | 65                  | BSH2565      |
| 24                | BSH7524      | 24              | BSH1024      | 41                  | BSH15163     | 70                  | BSH2570      |
| 27                | BSH7527      | 27              | BSH1027      | 46                  | BSH1546      | 75                  | BSH2575      |
| 30                | BSH7530      | 30              | BSH1030      | 50                  | BSH1550      | 80                  | BSH2580      |
| 32                | BSH7532      | 32              | BSH1032      | 55                  | BSH1555      | 85                  | BSH2585      |
| 36                | BSH7536      | 36              | BSH1036      | 60                  | BSH1560      | 90                  | BSH2590      |
| 41                | BSH75163     | 41              | BSH10163     | 65                  | BSH1565      | 95                  | BSH2595      |
| 46                | BSH7546      | 46              | BSH1046      | 70                  | BSH1570      | 100                 | BSH25100     |
| 50                | BSH7550      | 50              | BSH1050      | 75                  | BSH1575      | 105                 | BSH25105     |
| -                 | -            | 55              | BSH1055      | 80                  | BSH1580      | 110                 | BSH25110     |
| -                 | -            | 60              | BSH1060      | 85                  | BSH1585      | 115                 | BSH25115     |
| -                 | -            | 65              | BSH1065      | 90                  | BSH1590      | 120                 | BSH25120     |
| -                 | -            | 70              | BSH1070      | 95                  | BSH1595      | 125                 | BSH25125     |
| -                 | -            | 75              | BSH1075      | 100                 | BSH15100     | 135                 | BSH25135     |
| -                 | -            | 80              | BSH1080      | 105                 | BSH15105     | 140                 | BSH25140     |
| -                 | -            | 85              | BSH1085      | 110                 | BSH15110     | 145                 | BSH25145     |
| -                 | -            | 90              | BSH1090      | 115                 | BSH15115     | 150                 | BSH25150     |
| -                 | -            | 95              | BSH1095      | -                   | -            | 155                 | BSH25155     |
| -                 | -            | 100             | BSH10100     | -                   | -            | -                   | -            |

**Select the Right Torque**

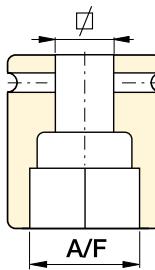
Choose your Enerpac Torque Wrench using the untightening rule of thumb: Loosening torque equals about 250% of tightening torque.

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**Hexagon Bolt and Nut Sizes**

See the table of hexagon sizes of bolts, nuts and related thread diameters.

*Page:* **407**



| IMPERIAL SOCKETS  |              |                 |              |            |              |                     |              |            |              |                     |              |            |              |
|-------------------|--------------|-----------------|--------------|------------|--------------|---------------------|--------------|------------|--------------|---------------------|--------------|------------|--------------|
| 3/4" Square Drive |              | 1" Square Drive |              |            |              | 1 1/2" Square Drive |              |            |              | 2 1/2" Square Drive |              |            |              |
| A/F (inch)        | Model Number | A/F (inch)      | Model Number | A/F (inch) | Model Number | A/F (inch)          | Model Number | A/F (inch) | Model Number | A/F (inch)          | Model Number | A/F (inch) | Model Number |
| 3/4"              | BSH7519      | 3/4"            | BSH1019      | 2 5/16"    | BSH10231     | 1 7/16"             | BSH15144     | 2 13/16"   | BSH15281     | 2 7/16"             | BSH25244     | 4 3/16"    | BSH25419     |
| 7/8"              | BSH75088     | 7/8"            | BSH10088     | 2 3/8"     | BSH10238     | 1 1/2"              | BSH1538      | 2 7/8"     | BSH15288     | 2 1/2"              | BSH25250     | 4 1/4"     | BSH25425     |
| 1 5/16"           | BSH75094     | 1 5/16"         | BSH10094     | 2 7/16"    | BSH10244     | 1 9/16"             | BSH15156     | 2 15/16"   | BSH1575      | 2 13/16"            | BSH2565      | 4 5/16"    | BSH25110     |
| 1 1/16"           | BSH7527      | 1 1/16"         | BSH1027      | 2 1/2"     | BSH10250     | 1 5/8"              | BSH15163     | 3"         | BSH15300     | 2 5/8"              | BSH25263     | 4 3/8"     | BSH25438     |
| 1 3/16"           | BSH7530      | 1 3/16"         | BSH1030      | 2 9/16"    | BSH1065      | 1 11/16"            | BSH1543      | 3 1/16"    | BSH15306     | 2 11/16"            | BSH25269     | 4 1/2"     | BSH25450     |
| 1 1/4"            | BSH75125     | 1 1/4"          | BSH10125     | 2 5/8"     | BSH10263     | 1 3/4"              | BSH15175     | 3 1/8"     | BSH15313     | 2 3/4"              | BSH2570      | 4 5/8"     | BSH25463     |
| 1 5/16"           | BSH75131     | 1 5/16"         | BSH10131     | 2 11/16"   | BSH10269     | 1 13/16"            | BSH1546      | 3 3/16"    | BSH15319     | 2 11/16"            | BSH25281     | 4 3/4"     | BSH25475     |
| 1 3/8"            | BSH7535      | 1 3/8"          | BSH1035      | 2 3/4"     | BSH1070      | 1 7/8"              | BSH15188     | 3 1/4"     | BSH15325     | 2 7/8"              | BSH25288     | 4 7/8"     | BSH25488     |
| 1 7/16"           | BSH75144     | 1 7/16"         | BSH10144     | 2 13/16"   | BSH10281     | 1 15/16"            | BSH15194     | 3 3/8"     | BSH15338     | 2 15/16"            | BSH2575      | 5"         | BSH25500     |
| 1 1/2"            | BSH7538      | 1 1/2"          | BSH1038      | 2 7/8"     | BSH10288     | 2"                  | BSH15200     | 3 1/2"     | BSH15350     | 3"                  | BSH25300     | 5 1/8"     | BSH25513     |
| 1 9/16"           | BSH75156     | 1 9/16"         | BSH10156     | 2 15/16"   | BSH1075      | 2 1/16"             | BSH15206     | 3 5/8"     | BSH15363     | 3 1/16"             | BSH25306     | 5 3/16"    | BSH25519     |
| 1 5/8"            | BSH75163     | 1 5/8"          | BSH10163     | 3"         | BSH10300     | 2 1/8"              | BSH15213     | 3 3/4"     | BSH1595      | 3 1/8"              | BSH25313     | 5 1/4"     | BSH25525     |
| 1 11/16"          | BSH7543      | 1 11/16"        | BSH1043      | 3 1/16"    | BSH10306     | 2 3/16"             | BSH15219     | 3 7/8"     | BSH15388     | 3 3/16"             | BSH25319     | 5 3/8"     | BSH25538     |
| 1 3/4"            | BSH75175     | 1 3/4"          | BSH10175     | 3 1/8"     | BSH10313     | 2 1/4"              | BSH15225     | 3 15/16"   | BSH15100     | 3 1/4"              | BSH25325     | 5 1/2"     | BSH25140     |
| 1 13/16"          | BSH7546      | 1 13/16"        | BSH1046      | 3 3/16"    | BSH10319     | 2 5/16"             | BSH15231     | 4"         | BSH15400     | 3 3/8"              | BSH25338     | 5 3/4"     | BSH25575     |
| 1 7/8"            | BSH75188     | 1 7/8"          | BSH10188     | 3 1/4"     | BSH10325     | 2 3/8"              | BSH15238     | 4 1/8"     | BSH15105     | 3 1/2"              | BSH25350     | 5 7/8"     | BSH25150     |
| 1 15/16"          | BSH75194     | 1 15/16"        | BSH10194     | 3 3/8"     | BSH10338     | 2 7/16"             | BSH15244     | 4 3/16"    | BSH15419     | 3 5/8"              | BSH25363     | 6"         | BSH25600     |
| 2"                | BSH75200     | 2"              | BSH10200     | 3 1/2"     | BSH10350     | 2 1/2"              | BSH15250     | 4 1/4"     | BSH15425     | 3 3/4"              | BSH2595      | 6 1/8"     | BSH25613     |
| -                 | -            | 2 1/16"         | BSH10206     | 3 5/8"     | BSH10363     | 2 9/16"             | BSH1565      | 4 5/16"    | BSH15110     | 3 7/8"              | BSH25388     | -          | -            |
| -                 | -            | 2 1/8"          | BSH10213     | 3 3/4"     | BSH1095      | 2 5/8"              | BSH15263     | 4 3/8"     | BSH15438     | 3 15/16"            | BSH25100     | -          | -            |
| -                 | -            | 2 3/16"         | BSH10219     | 3 7/8"     | BSH10388     | 2 11/16"            | BSH15269     | 4 1/2"     | BSH15450     | 4"                  | BSH25400     | -          | -            |
| -                 | -            | 2 1/4"          | BSH10225     | -          | -            | 2 3/4"              | BSH1570      | 4 5/8"     | BSH15463     | 4 1/8"              | BSH25105     | -          | -            |


# Back-Up Spanners for Torque Wrenches

▼ BUS03 Back-Up Spanner (safety cable not shown)



- Hands free solution – improves operator safety
- Eliminates the need for flogging spanners
- Speeds up the bolting process
- Includes safety cable with quick-connect carabiner's, stainless steel tethers and secure Allen-key fixings
- Won't lock on during operations
- Lightweight, spark-free and non-impact for improved safety and ease of use.
- Two hexagon sizes in one tool, so fewer tools to carry.

## ▼ SELECTION CHART BACK-UP SPANNERS

| Hexagon Sizes (A/F) |   | Model Number | Dimensions (mm) |     |    |     | <br>(kg) |
|---------------------|---|--------------|-----------------|-----|----|-----|---|
| S1 to S2 (mm)       | S1 to S2 (inch)   |              | A               | B   | C  | D   |   |
| 27 - 32             | 1 <sup>1</sup> / <sub>16</sub> - 1 <sup>1</sup> / <sub>4</sub> "  | BUS01        | 51              | 98  | 15 | M8  | 0,3   |
| 36 - 41             | 1 <sup>7</sup> / <sub>16</sub> - 1 <sup>5</sup> / <sub>8</sub> "  | BUS02        | 62              | 119 | 15 | M8  | 0,4   |
| 46 - 50             | 1 <sup>13</sup> / <sub>16</sub> - 2"                              | BUS03        | 75              | 141 | 20 | M8  | 0,6   |
| 55 - 60             | 2 <sup>3</sup> / <sub>16</sub> - 2 <sup>3</sup> / <sub>4</sub> "  | BUS04        | 89              | 166 | 20 | M12 | 0,8   |
| 65 - 70             | 2 <sup>9</sup> / <sub>16</sub> - 2 <sup>3</sup> / <sub>4</sub> "  | BUS05        | 100             | 190 | 25 | M16 | 1,0   |
| 75 - 80             | 2 <sup>15</sup> / <sub>16</sub> - 3 <sup>1</sup> / <sub>8</sub> " | BUS06        | 112             | 213 | 25 | M16 | 1,3   |
| -                   | 3 <sup>1</sup> / <sub>2</sub> - 3 <sup>7</sup> / <sub>8</sub> "   | BUS07        | 135             | 257 | 30 | M20 | 2,2   |
| -                   | 4 <sup>1</sup> / <sub>4</sub> - 4 <sup>5</sup> / <sub>8</sub> "   | BUS08        | 163             | 310 | 30 | M20 | 3,3   |
| 85 - 90             | -   | BUS09        | 126             | 242 | 25 | M16 | 1,7   |
| 95 - 100            | 3 <sup>3</sup> / <sub>4</sub> - 3 <sup>15</sup> / <sub>16</sub> " | BUS10        | 138             | 266 | 30 | M20 | 2,3   |
| 105 - 110           | 4 <sup>1</sup> / <sub>8</sub> - 4 <sup>15</sup> / <sub>16</sub> " | BUS11        | 153             | 297 | 30 | M20 | 3,1   |
| 115 - 120           | -   | BUS12        | 165             | 320 | 30 | M20 | 3,5   |

## BUS Series

Hexagon Sizes (A/F):

**27 - 120 mm**

Hexagon Sizes (A/F):

**1<sup>1</sup>/<sub>16</sub> - 4<sup>15</sup>/<sub>16</sub> inch**

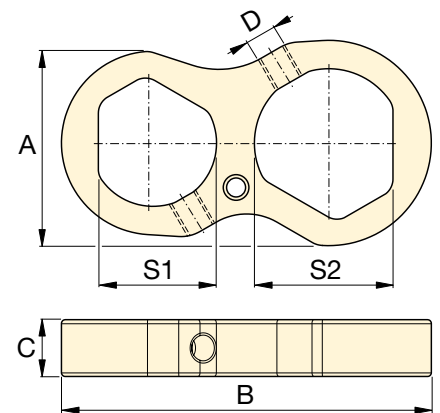


### Back-Up Spanners

Hands free operation of a hydraulic torque wrench improves the safety of the operator significantly.

Enerpac Back-Up Spanners are a hands free tool that eliminates the need to use a flogging spanner as a backing tool.

The Back-Up Spanners have been specifically designed to prevent them from locking onto the nut during bolt torquing operations. They fit easily onto the back nut and prevent it from turning during make up or break out of bolted joints.



▼ Enerpac Back-Up Spanners to be used to stop back nut from turning during make up or break out.



▼ Shown: STTLS31055 Safe T™ Torque Lock



## Hands-free torque wrench system



### Safe T™ Torque Lock

The Safe T™ Torque Lock is suitable for all bolted applications from 190 Nm to 15.000 Nm using a heavy duty impact socket.

The patented mechanical locking system creates a hands-free torque wrench solution suitable for Enerpac only square drive tools.

Suitable for:

| S-Series | RSQ-Series |
|----------|------------|
| S3000X   | RSQ3000    |
| S6000X   | RSQ5000    |
| S11000X  | RSQ11000   |

### Safety – Safe T™ Torque Lock

- Transforming Enerpac S-Series & RSQ-Series wrenches into a dedicated hands-free tool
- Improves operator safety during bolting operations by minimizing exposure to pinch points and high pressure hydraulic connections
- Grips securely to the application in any orientation, including inverted positions
- Minimizes drop hazards of falling tools
- Reduces operator fatigue on overreaching or awkward positioning of the tool.

### Simplicity

- With one twist of the locking collar the Safe T™ Torque Lock grips onto the application, firmly holding the full tool weight in place
- Assembles onto the torque wrench with one push of the square drive quick release button for tightening or loosening
- Locking feature reduces the number of tool lifts dramatically.

### Versatility

- Suitable for both S-Series & RSL-Series square drive wrenches
- Simple twist & lock mechanism is user friendly, easy to operate
- No additional loose components like reaction washers are needed.



▲ Hands-free torque wrench system: STLLS-model with S-Series torque wrench. The square drive of the wrench can easily be exchanged by the Safe T™ Torque Lock model.



### Back-Up Spanners, BUS-Series

To be used to stop back nut from turning during make up or break out. Two hexagon sizes in one tool.

# Safe T™ Torque Lock – Hands-free torque wrench system



## Common Torque Lock Applications:

- Oil & Gas flanges
- Tower Crane installation
- Machine installation/assembly (Mining),
- Wind Tower installation etc.

## Industries

- Oil & Gas, Petrochemical
- Wind Power Generation
- Mining
- Marine
- Manufacturing
- Rail and more

## STTL Series

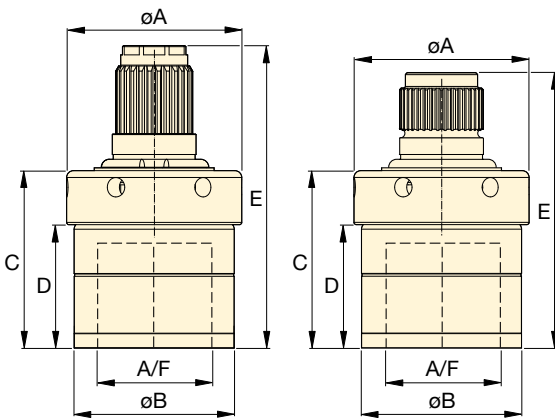


Hexagon Range (A/F):

**46 - 75 mm**

Hexagon Range (A/F):

**1 13/16 - 3 1/8 inch**



STTLS for S-Series Spline Fitting

STTLR for RSQ-Series Spline Fitting



**IMPORTANT:**  
Safe T™ Torque Lock not suitable for use on PTFE coated nuts.



## Bolting Integrity Software

Enerpac Bolting Integrity Software Solutions play a key role in

implementing and managing an Integrity Program for bolted connections.

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report. Custom Joint information can also be entered.

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| Hexagon Sizes A/F |      | For use with torque wrench model | Safe T™ Torque Lock Model Number |                               | Dimensions (inch) |     |     |     |     | ⚖️ (lbs) | Dimensions (mm) |     |     |    |     | ⚖️ (kg) |
|-------------------|------|----------------------------------|----------------------------------|-------------------------------|-------------------|-----|-----|-----|-----|----------|-----------------|-----|-----|----|-----|---------|
| (inch)            | (mm) |                                  | For S-Series Spline Fitting      | For RSQ-Series Spline Fitting | A                 | B   | C   | D   | E   |          | A               | B   | C   | D  | E   |         |
| 1 13/16           | 46   | S3000X                           | STTLS31046                       | -                             | 3.0               | 2.8 | 3.1 | 2.1 | 5.2 | 4.4      | 77              | 71  | 78  | 54 | 133 | 2.0     |
|                   |      | RSQ3000                          | -                                | STTLR31046                    |                   |     |     |     | 4.8 | 4.2      |                 |     |     |    | 121 | 1.9     |
| 2                 | 50   | S3000X                           | STTLS31550                       | -                             | 3.5               | 3.2 | 3.1 | 2.1 | 5.2 | 5.7      | 89              | 82  | 78  | 54 | 133 | 2.6     |
|                   |      | RSQ3000                          | -                                | STTLR31550                    |                   |     |     |     | 4.8 | 5.7      |                 |     |     |    | 123 | 2.6     |
| 2 3/16            | 55   | S3000X                           | STTLS31055                       | -                             | 3.7               | 3.4 | 3.3 | 2.3 | 5.4 | 6.6      | 93              | 86  | 83  | 58 | 138 | 3.0     |
|                   |      | RSQ3000                          | -                                | STTLR31055                    |                   |     |     |     | 5.1 | 6.4      |                 |     |     |    | 130 | 2.9     |
| 2 3/8             | -    | RSQ3000                          | -                                | STTLR315238                   | 3.9               | 3.6 | 3.6 | 2.6 | 5.4 | 7.7      | 99              | 92  | 91  | 67 | 136 | 3.5     |
| 2                 | 50   | RSQ5000                          | -                                | STTLR51550                    | 3.5               | 3.2 | 3.1 | 2.1 | 5.2 | 5.9      | 89              | 82  | 78  | 54 | 132 | 2.7     |
|                   |      | S6000X                           | STTLS61560M                      | -                             |                   |     |     |     | 5.9 | 8.2      |                 |     |     |    | 99  | 92      |
| -                 | 60   | RSQ5000                          | -                                | STTLR51560M                   | 3.9               | 3.6 | 3.4 | 2.5 | 5.7 | 8.2      | 99              | 92  | 86  | 62 | 145 | 3.7     |
|                   |      | S6000X                           | STTLS615238                      | -                             |                   |     |     |     | 6.0 | 8.4      |                 |     |     |    | 99  | 92      |
| 2 3/8             | -    | RSQ5000                          | -                                | STTLR515238                   | 3.9               | 3.6 | 3.6 | 2.6 | 5.9 | 8.4      | 99              | 92  | 91  | 67 | 150 | 3.8     |
|                   |      | S6000X                           | STTLS61565                       | -                             |                   |     |     |     | 6.8 | 11.7     |                 |     |     |    | 107 | 100     |
| 2 9/16            | 65   | RSQ5000                          | -                                | STTLR51565                    | 4.2               | 3.9 | 4.2 | 2.9 | 6.6 | 11.9     | 107             | 100 | 108 | 74 | 168 | 5.4     |
|                   |      | S6000X                           | STTLS61570                       | -                             |                   |     |     |     | 6.8 | 13.0     |                 |     |     |    | 114 | 107     |
| 2 3/4             | 70   | RSQ5000                          | -                                | STTLR51570                    | 4.5               | 4.2 | 4.3 | 3.0 | 6.7 | 13.2     | 114             | 107 | 109 | 76 | 169 | 6.0     |
|                   |      | S6000X                           | STTLS61575                       | -                             |                   |     |     |     | 7.0 | 12.3     |                 |     |     |    | 112 | 105     |
| 2 15/16           | 75   | RSQ5000                          | -                                | STTLR51575                    | 4.4               | 4.1 | 4.4 | 3.1 | 6.9 | 13.2     | 112             | 105 | 113 | 80 | 173 | 5.8     |
|                   |      | S6000X                           | STTLS111560M                     | -                             |                   |     |     |     | 6.6 | 9.3      |                 |     |     |    | 99  | 92      |
| -                 | 60   | RSQ11000                         | -                                | STTLR111560M                  | 3.9               | 3.6 | 3.4 | 2.5 | 6.1 | 9.3      | 99              | 92  | 86  | 62 | 156 | 4.2     |
|                   |      | S11000X                          | STTLS111565                      | -                             |                   |     |     |     | 7.5 | 12.8     |                 |     |     |    | 107 | 100     |
| 2 9/16            | 65   | RSQ11000                         | -                                | STTLR111565                   | 4.2               | 3.9 | 4.2 | 2.9 | 7.0 | 12.8     | 107             | 100 | 107 | 74 | 178 | 5.8     |
|                   |      | S11000X                          | STTLS111570                      | -                             |                   |     |     |     | 7.5 | 14.1     |                 |     |     |    | 114 | 107     |
| 2 3/4             | 70   | RSQ11000                         | -                                | STTLR111570                   | 4.5               | 4.2 | 4.3 | 3.0 | 7.1 | 14.3     | 114             | 107 | 109 | 76 | 181 | 6.5     |
|                   |      | S11000X                          | STTLS111575                      | -                             |                   |     |     |     | 7.7 | 13.2     |                 |     |     |    | 112 | 105     |
| 2 15/16           | 75   | RSQ11000                         | -                                | STTLR111575                   | 4.4               | 4.1 | 4.4 | 3.1 | 7.2 | 13.2     | 112             | 105 | 113 | 80 | 183 | 6.0     |
|                   |      | S11000X                          | STTLS1115318                     | -                             |                   |     |     |     | 7.8 | 16.1     |                 |     |     |    | 122 | 115     |
| 3 1/8             | -    | RSQ11000                         | -                                | STTLR1115318                  | 4.8               | 4.5 | 4.5 | 3.2 | 7.3 | 16.3     | 122             | 115 | 115 | 81 | 185 | 7.4     |



# W-Series, Low Profile Hexagon Torque Wrenches **ENERPAC**

▼ Shown: W4206X hexagon cassette with W4000PX drive unit



 II 2 GD T4

## Safety and Performance

- Superior strength to size ratio provides easy access to difficult to reach applications without sacrificing endurance
- 30° rotation angle and rapid return stroke provide fast operation
- Tough manifold design with added safety feature for enhanced operator safety.

## Simplicity

- Fast release drive unit enables rapid exchange of cassettes, no tools required
- Quick and easy disassembly for maintenance without special tools
- Drive units include robust handle which mounts on both sides of cassettes to allow for extra maneuverability.

## Versatility

- Available with optional enhanced tilt and swivel TSP300 manifold for horizontal and vertical maneuverability, with greater durability <sup>1)</sup>
- X-Edition drive units, cassettes and most accessories are compatible with standard edition tools <sup>1)</sup>
- Drive unit compatible with UltraSlim W-SL cassettes.

## Accuracy

- Constant torque output provides accuracy of  $\pm 3\%$  across full stroke.

<sup>1)</sup> TSP300 is designed for X-Edition tools only, and is not compatible with previous edition tools. For replacement components for existing tools, refer to repair sheet on [www.enerpac.com](http://www.enerpac.com)



### Two Handle Styles

Robust angled positioning handle comes standard with every W-Series (X-Edition) drive unit.

| Compatible with W-Series (X-Edition) Cassettes | Model Nr. Angled positioning handles (standard) | Model Nr. Straight positioning handles (optional) |
|--|---|---|
| W2000X, W4000X                                 | <b>SWH6A</b>                                    | <b>SWH6S</b>                                      |
| W8000X, W15000X                                | <b>SWH10A</b>                                   | <b>SWH10S</b>                                     |
| W22000X, W35000X                               | <b>SWH10EA <sup>2)</sup></b>                    |   |

<sup>2)</sup> SWH10EA is an eyebolt handle.



### TSP - Pro Series Swivel

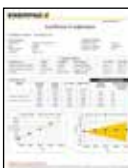
The optional TSP300 tilt and swivel manifold with robust interlocking design provides 360° X-axis rotation and 160° Y-axis rotation.

### How to Order <sup>1)</sup>

Factory fitted to W-Series (X-Edition) drive units: Insert a "P" prior to the "X" in the tool model number, example: **W2000PX**.

Order as an accessory using the model number: **TSP300**, which can be fitted to existing W-Series (X-Edition) drive units. Includes male and female couplers.

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### ATEX declared. Calibration certificate included

All W-Series X-edition hexagon cassettes are CE - ATEX declared and are shipped complete with a calibration certificate.

 II 2 GD T4

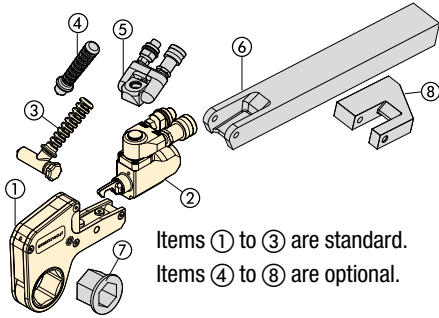


### Back-Up Spanners, BUS-Series

To be used to stop the back nut from turning during make up or break out. Two hexagon sizes in one tool.

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# Double-Acting Hydraulic Hexagon Torque Wrenches, X-Edition



- ① Hexagon Cassette (pages 222-229)
- ② Drive Unit (page 221)
- ③ Angled Positioning Handle (page 220)
- ④ Straight Positioning Handle (page 220)
- ⑤ Pro Series Swivel (page 232)
- ⑥ Extended Reaction Arm (page 232)
- ⑦ Reducer Insert (pages 222-229)
- ⑧ Reaction Paddle (page 232)

Items ① to ③ are standard.  
Items ④ to ⑧ are optional.

## W Series X-Edition



Nominal Torque at 690 bar:

**47.454 Nm**

Hexagon Range:

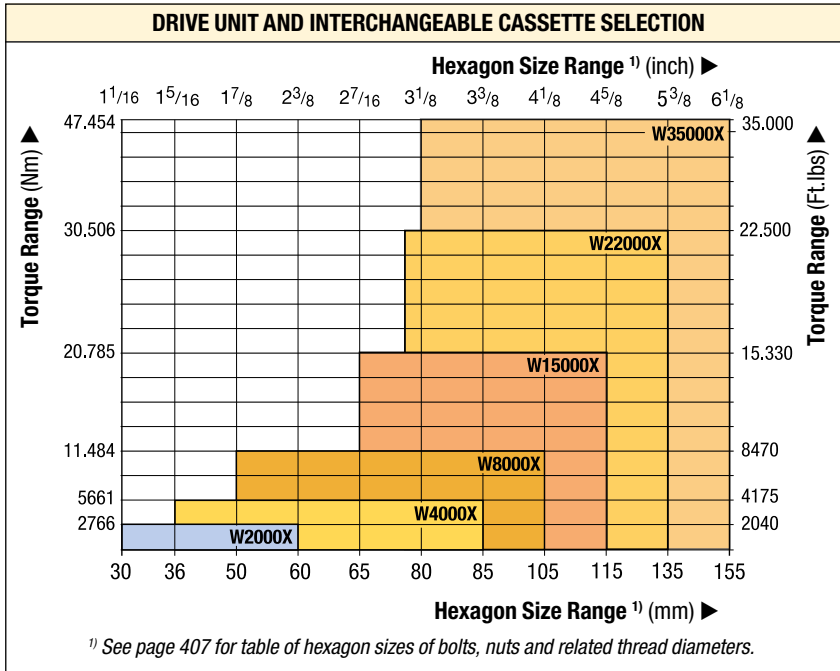
**30 - 155 mm / 1 1/16 - 6 1/8"**

Nose Radius:

**31 - 115 mm**

Maximum Operating Pressure:

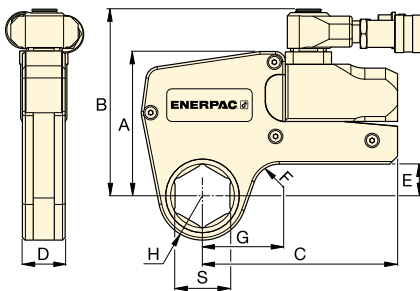
**690 bar**



### Torque Wrench Pump Selection Matrix

For optimum speed and performance see the torque wrench and pump matrix.

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*These rigid steel wrenches with low profile interchangeable hexagon cassettes guarantee durability and maximum versatility in bolting applications. ▶*



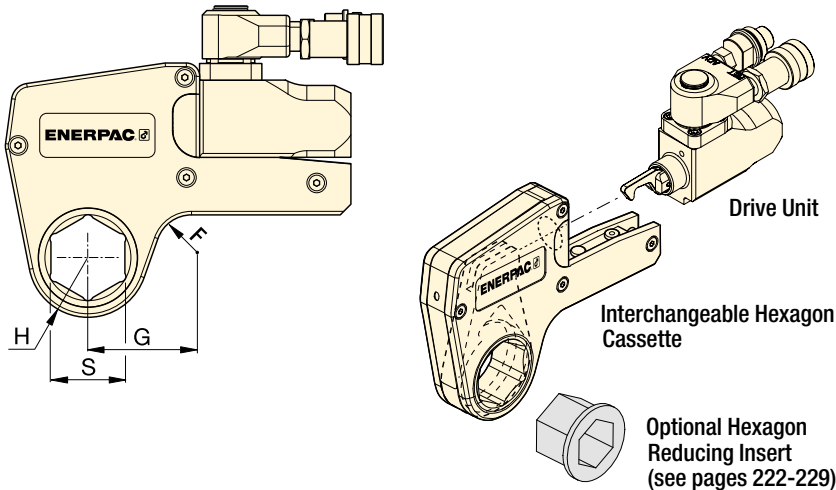
### ▼ SELECTION CHART

| Hexagon Range * |                 | Nominal Torque at 690 bar |          | Drive Unit Model Number ** | Minimum Torque |          | Dimensions (mm) (see pages 222-229 for dimensions G, H and S) |     |     |    |       |    | Weight (drive unit without hexagon cassette) (kg) |
|-----------------|-----------------|---------------------------|----------|----------------------------|----------------|----------|---|-----|-----|----|-------|----|---|
| (mm)            | (inch)          | (Nm)                      | (Ft.lbs) |                            | (Nm)           | (Ft.lbs) | A   | B   | C   | D  | E     | F  |   |
| 30 - 60         | 1 1/16 - 2 3/8  | 2766                      | 2040     | <b>W2000X</b>              | 276            | 204      | 109   | 141 | 148 | 32 | 24    | 20 | 1,4   |
| 36 - 85         | 1 5/16 - 3 3/8  | 5661                      | 4175     | <b>W4000X</b>              | 566            | 417      | 136   | 167 | 178 | 41 | 33    | 20 | 2,0   |
| 50 - 105        | 1 7/8 - 4 1/8   | 11.484                    | 8470     | <b>W8000X</b>              | 1148           | 847      | 172   | 205 | 208 | 53 | 42    | 25 | 3,0   |
| 65 - 115        | 2 7/16 - 4 5/8  | 20.785                    | 15.330   | <b>W15000X</b>             | 2078           | 1533     | 207   | 240 | 253 | 63 | 50    | 20 | 5,0   |
| 75 - 135        | 2 15/16 - 5 3/8 | 30.506                    | 22.500   | <b>W22000X</b>             | 3050           | 2250     | 227   | 266 | 297 | 77 | 48    | 35 | 7,7   |
| 80 - 155        | 3 1/8 - 6 1/8   | 47.454                    | 35.000   | <b>W35000X</b>             | 4745           | 3500     | 268   | 301 | 345 | 91 | 69-73 | 50 | 11,4  |

\* With in-line reaction foot.

\*\* To order a W-series wrench fitted with the TSP swivel, suffix the model number with "P". Example: **W2000PX**.

www.enerpac.com



## W Series X-Edition



Nominal Torque at 690 bar:

**2766 Nm**

Hexagon Range:

**1<sup>1</sup>/<sub>16</sub> - 2<sup>3</sup>/<sub>8</sub> inch**

Maximum Operating Pressure:

**690 bar**



### Metric Sizes

For metric sizes of hexagon cassettes and reducer inserts see:

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### Hexagon Bolt and Nut Sizes

See the table for hexagon sizes of bolts, nuts and related thread diameters.

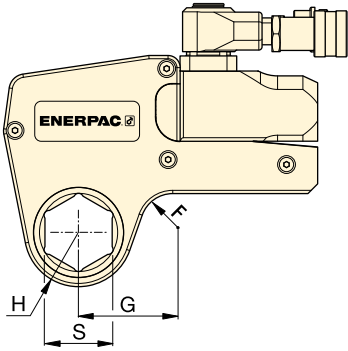
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## ▼ SELECTION CHART

| Drive Unit Model Number        | Hexagon Size <sup>1)</sup>      | Nose Radius | Dim.   | Model Number | Weight (kg)                       | Hexagon Reducer  |   | Hexagon Reducer   |   | Hexagon Reducer   |              |
|--------------------------------|---------------------------------|-------------|--------|--------------|-----------------------------------|--|---|---|---|---|--------------|
|                                |                                 |             |        |              |                                   | Hexagon Reducer (inch)   | Model Number  | Hexagon Reducer (inch)  | Model Number  | Hexagon Reducer (inch)  | Model Number |
| W2000X                         | 1 <sup>1</sup> / <sub>16</sub>  | 31,0        | 53,7   | W2101X       | 2,1                               | -  | -   | -   | -   | -   | -            |
|                                | 1 <sup>1</sup> / <sub>8</sub>   | 31,0        | 53,7   | W2102X       | 2,1                               | -  | -   | -   | -   | -   | -            |
|                                | 1 <sup>3</sup> / <sub>16</sub>  | 31,0        | 53,7   | W2103X       | 2,1                               | -  | -   | -   | -   | -   | -            |
|                                | 1 <sup>1</sup> / <sub>4</sub>   | 31,0        | 53,7   | W2104X       | 2,1                               | -  | -   | -   | -   | -   | -            |
|                                | 1 <sup>5</sup> / <sub>16</sub>  | 31,0        | 53,7   | W2105X       | 2,1                               | -  | -   | -   | -   | -   | -            |
|                                | 1 <sup>3</sup> / <sub>8</sub>   | 31,0        | 53,7   | W2106X       | 2,1                               | -  | -   | -   | -   | -   | -            |
|                                | 1 <sup>7</sup> / <sub>16</sub>  | 31,0        | 53,7   | W2107X       | 2,1                               | 1 <sup>7</sup> / <sub>16</sub> - 1 <sup>1</sup> / <sub>8</sub>   | W2107R102   | -   | -   | -   | -            |
|                                | 1 <sup>1</sup> / <sub>2</sub>   | 33,5        | 58,2   | W2108X       | 2,2                               | -  | -   | -   | -   | -   | -            |
|                                | 1 <sup>9</sup> / <sub>16</sub>  | 33,5        | 58,2   | W2109X       | 2,2                               | -  | -   | -   | -   | -   | -            |
|                                | 1 <sup>5</sup> / <sub>8</sub>   | 33,5        | 58,2   | W2110X       | 2,2                               | 1 <sup>5</sup> / <sub>8</sub> - 1 <sup>1</sup> / <sub>4</sub>    | W2110R104   | 1 <sup>5</sup> / <sub>8</sub> - 1 <sup>3</sup> / <sub>16</sub>  | W2110R103   | -   | -            |
|                                | 1 <sup>11</sup> / <sub>16</sub> | 36,5        | 60,5   | W2111X       | 2,2                               | -  | -   | -   | -   | -   | -            |
|                                | 1 <sup>3</sup> / <sub>4</sub>   | 36,5        | 60,5   | W2112X       | 2,2                               | -  | -   | -   | -   | -   | -            |
|                                | 1 <sup>13</sup> / <sub>16</sub> | 36,5        | 60,5   | W2113X       | 2,2                               | 1 <sup>13</sup> / <sub>16</sub> - 1 <sup>7</sup> / <sub>16</sub> | W2113R107   | 1 <sup>13</sup> / <sub>16</sub> - 1 <sup>1</sup> / <sub>4</sub> | W2113R104   | -   | -            |
|                                | 1 <sup>7</sup> / <sub>8</sub>   | 39,0        | 63,1   | W2114X       | 2,2                               | -  | -   | -   | -   | -   | -            |
|                                | 1 <sup>15</sup> / <sub>16</sub> | 39,0        | 63,1   | W2115X       | 2,2                               | -  | -   | -   | -   | -   | -            |
|                                | 2                               | 39,0        | 63,1   | W2200X       | 2,2                               | 2 - 1 <sup>5</sup> / <sub>8</sub>                                | W2200R110   | 2 - 1 <sup>7</sup> / <sub>16</sub>                              | W2200R107   | -   | -            |
|                                | 2 <sup>1</sup> / <sub>16</sub>  | 41,8        | 68,6   | W2201X       | 2,3                               | -  | -   | -   | -   | -   | -            |
|                                | 2 <sup>1</sup> / <sub>8</sub>   | 41,8        | 68,6   | W2202X       | 2,3                               | -  | -   | -   | -   | -   | -            |
|                                | 2 <sup>3</sup> / <sub>16</sub>  | 41,8        | 68,6   | W2203X       | 2,3                               | 2 <sup>3</sup> / <sub>16</sub> - 1 <sup>13</sup> / <sub>16</sub> | W2203R113   | 2 <sup>3</sup> / <sub>16</sub> - 1 <sup>5</sup> / <sub>8</sub>  | W2203R110   | 2 <sup>3</sup> / <sub>16</sub> - 1 <sup>7</sup> / <sub>16</sub> | W2203R107    |
|                                | 2 <sup>1</sup> / <sub>4</sub>   | 44,5        | 64,8   | W2204X       | 2,2                               | -  | -   | -   | -   | -   | -            |
| 2 <sup>5</sup> / <sub>16</sub> | 44,5                            | 64,8        | W2205X | 2,2          | -                                 | -  | -   | -   | -   | -   |              |
| 2 <sup>3</sup> / <sub>8</sub>  | 44,5                            | 64,8        | W2206X | 2,2          | 2 <sup>3</sup> / <sub>8</sub> - 2 | W2206R200  | 2 <sup>3</sup> / <sub>8</sub> - 1 <sup>7</sup> / <sub>8</sub> | W2206R114   | 2 <sup>3</sup> / <sub>8</sub> - 1 <sup>13</sup> / <sub>16</sub> | W2206R113   |              |
| -                              | -                               | -           | -      | -            | -                                 | 2 <sup>3</sup> / <sub>8</sub> - 1 <sup>1</sup> / <sub>2</sub>    | W2206R108   | 2 <sup>3</sup> / <sub>8</sub> - 1 <sup>7</sup> / <sub>16</sub>  | W2206R107   | 2 <sup>3</sup> / <sub>8</sub> - 1 <sup>5</sup> / <sub>16</sub>  | W2206R110    |

<sup>1)</sup> See page 407 for table of hexagon sizes of bolts, nuts and related thread diameters.

# W4000X-Series, Inch-Cassettes & Reducer Inserts



Nominal Torque at 690 bar:

**5661 Nm**

Hexagon Range:

**1<sup>5</sup>/<sub>16</sub> - 3<sup>3</sup>/<sub>8</sub> inch**

Maximum Operating Pressure:

**690 bar**

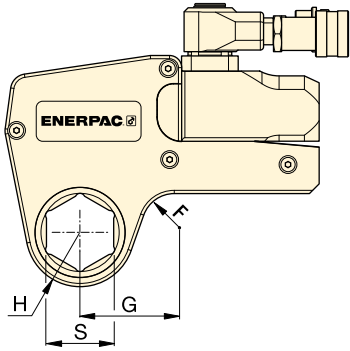
**W**  
Series  
X-Edition



| Drive Unit Model Number        | Hexagon Size <sup>1)</sup>      | Nose Radius | Dim.          | Model Number  | Weight | Hexagon Reducer  |                  | Hexagon Reducer  |                  | Hexagon Reducer  |                  |
|--------------------------------|---------------------------------|-------------|---------------|---------------|--------|--|------------------|--|------------------|--|------------------|
|                                |                                 |             |               |               |        | Hexagon Reducer (inch)   | Model Number     | Hexagon Reducer (inch)   | Model Number     | Hexagon Reducer (inch)   | Model Number     |
| <b>W4000X</b>                  | 1 <sup>5</sup> / <sub>16</sub>  | 37,0        | 61,0          | <b>W4105X</b> | 3,7    | -  | -                | -  | -                | -  | -                |
|                                | 1 <sup>3</sup> / <sub>8</sub>   | 37,0        | 61,0          | <b>W4106X</b> | 3,7    | -  | -                | -  | -                | -  | -                |
|                                | 1 <sup>7</sup> / <sub>16</sub>  | 37,0        | 61,0          | <b>W4107X</b> | 3,7    | -  | -                | -  | -                | -  | -                |
|                                | 1 1/2                           | 37,0        | 61,0          | <b>W4108X</b> | 3,7    | -  | -                | -  | -                | -  | -                |
|                                | 1 <sup>9</sup> / <sub>16</sub>  | 37,0        | 61,0          | <b>W4109X</b> | 3,7    | -  | -                | -  | -                | -  | -                |
|                                | 1 <sup>5</sup> / <sub>8</sub>   | 37,0        | 61,0          | <b>W4110X</b> | 3,7    | -  | -                | -  | -                | -  | -                |
|                                | 1 <sup>11</sup> / <sub>16</sub> | 39,5        | 64,0          | <b>W4111X</b> | 3,8    | -  | -                | -  | -                | -  | -                |
|                                | 1 <sup>3</sup> / <sub>4</sub>   | 39,5        | 64,0          | <b>W4112X</b> | 3,8    | -  | -                | -  | -                | -  | -                |
|                                | 1 <sup>13</sup> / <sub>16</sub> | 39,5        | 64,0          | <b>W4113X</b> | 3,8    | -  | -                | -  | -                | -  | -                |
|                                | 1 <sup>7</sup> / <sub>8</sub>   | 41,5        | 66,7          | <b>W4114X</b> | 3,9    | -  | -                | -  | -                | -  | -                |
|                                | 1 <sup>15</sup> / <sub>16</sub> | 41,5        | 66,7          | <b>W4115X</b> | 3,9    | -  | -                | -  | -                | -  | -                |
|                                | 2                               | 41,5        | 66,7          | <b>W4200X</b> | 3,9    | 2 - 1 <sup>7</sup> / <sub>16</sub>                               | <b>W4200R107</b> | -  | -                | -  | -                |
|                                | 2 <sup>1</sup> / <sub>16</sub>  | 44,0        | 73,4          | <b>W4201X</b> | 4,0    | -  | -                | -  | -                | -  | -                |
|                                | 2 <sup>1</sup> / <sub>8</sub>   | 44,0        | 73,4          | <b>W4202X</b> | 4,0    | -  | -                | -  | -                | -  | -                |
|                                | 2 <sup>3</sup> / <sub>16</sub>  | 44,0        | 73,4          | <b>W4203X</b> | 4,0    | 2 <sup>3</sup> / <sub>16</sub> - 1 <sup>5</sup> / <sub>8</sub>   | <b>W4203R110</b> | 2 <sup>3</sup> / <sub>16</sub> - 1 <sup>7</sup> / <sub>16</sub>  | <b>W4203R107</b> | 2 <sup>3</sup> / <sub>16</sub> - 1 <sup>1</sup> / <sub>4</sub>   | <b>W4203R104</b> |
|                                | 2 <sup>1</sup> / <sub>4</sub>   | 46,5        | 70,6          | <b>W4204X</b> | 4,1    | -  | -                | -  | -                | -  | -                |
|                                | 2 <sup>5</sup> / <sub>16</sub>  | 46,5        | 70,6          | <b>W4205X</b> | 4,1    | -  | -                | -  | -                | -  | -                |
|                                | 2 <sup>3</sup> / <sub>8</sub>   | 46,5        | 70,6          | <b>W4206X</b> | 4,1    | 2 <sup>3</sup> / <sub>8</sub> - 2                                | <b>W4206R200</b> | 2 <sup>3</sup> / <sub>8</sub> - 1 <sup>13</sup> / <sub>16</sub>  | <b>W4206R113</b> | 2 <sup>3</sup> / <sub>8</sub> - 1 <sup>7</sup> / <sub>16</sub>   | <b>W4206R107</b> |
|                                | -                               | -           | -             | -             | -      | 2 <sup>3</sup> / <sub>8</sub> - 1 <sup>3</sup> / <sub>8</sub>    | <b>W4206R106</b> | -  | -                | -  | -                |
|                                | 2 <sup>7</sup> / <sub>16</sub>  | 49,5        | 76,2          | <b>W4207X</b> | 4,1    | 2 <sup>7</sup> / <sub>16</sub> - 2                               | <b>W4207R200</b> | -  | -                | -  | -                |
|                                | 2 1/2                           | 49,5        | 76,2          | <b>W4208X</b> | 4,1    | 2 <sup>1</sup> / <sub>2</sub> - 2                                | <b>W4208R200</b> | 2 <sup>1</sup> / <sub>2</sub> - 1 <sup>7</sup> / <sub>16</sub>   | <b>W4208R113</b> | 2 <sup>1</sup> / <sub>2</sub> - 2 <sup>1</sup> / <sub>16</sub>   | <b>W4208R201</b> |
|                                | 2 <sup>9</sup> / <sub>16</sub>  | 49,5        | 76,2          | <b>W4209X</b> | 4,1    | 2 <sup>9</sup> / <sub>16</sub> - 2 <sup>3</sup> / <sub>16</sub>  | <b>W4209R203</b> | 2 <sup>9</sup> / <sub>16</sub> - 2 <sup>1</sup> / <sub>8</sub>   | <b>W4209R202</b> | 2 <sup>9</sup> / <sub>16</sub> - 2 <sup>1</sup> / <sub>16</sub>  | <b>W4209R201</b> |
|                                | -                               | -           | -             | -             | -      | 2 <sup>9</sup> / <sub>16</sub> - 2                               | <b>W4209R200</b> | 2 <sup>9</sup> / <sub>16</sub> - 1 <sup>13</sup> / <sub>16</sub> | <b>W4209R113</b> | -  | -                |
|                                | 2 <sup>5</sup> / <sub>8</sub>   | 52,5        | 78,3          | <b>W4210X</b> | 4,2    | -  | -                | -  | -                | -  | -                |
|                                | 2 <sup>11</sup> / <sub>16</sub> | 52,5        | 78,3          | <b>W4211X</b> | 4,2    | -  | -                | -  | -                | -  | -                |
|                                | 2 <sup>3</sup> / <sub>4</sub>   | 52,5        | 78,3          | <b>W4212X</b> | 4,2    | 2 <sup>3</sup> / <sub>4</sub> - 2 <sup>3</sup> / <sub>8</sub>    | <b>W4212R206</b> | 2 <sup>3</sup> / <sub>4</sub> - 2 <sup>3</sup> / <sub>16</sub>   | <b>W4212R203</b> | 2 <sup>3</sup> / <sub>4</sub> - 2 <sup>1</sup> / <sub>8</sub>    | <b>W4212R202</b> |
|                                | 2 <sup>13</sup> / <sub>16</sub> | 55,3        | 81,6          | <b>W4213X</b> | 4,3    | -  | -                | -  | -                | -  | -                |
|                                | 2 <sup>7</sup> / <sub>8</sub>   | 55,3        | 81,6          | <b>W4214X</b> | 4,3    | -  | -                | -  | -                | -  | -                |
|                                | 2 <sup>15</sup> / <sub>16</sub> | 55,3        | 81,6          | <b>W4215X</b> | 4,3    | 2 <sup>15</sup> / <sub>16</sub> - 2 <sup>9</sup> / <sub>16</sub> | <b>W4215R209</b> | 2 <sup>15</sup> / <sub>16</sub> - 2 <sup>3</sup> / <sub>8</sub>  | <b>W4215R206</b> | 2 <sup>15</sup> / <sub>16</sub> - 2 <sup>3</sup> / <sub>16</sub> | <b>W4215R203</b> |
|                                | -                               | -           | -             | -             | -      | 2 <sup>15</sup> / <sub>16</sub> - 2                              | <b>W4215R200</b> | -  | -                | -  | -                |
|                                | 3                               | 58,5        | 83,5          | <b>W4300X</b> | 4,4    | 3 - 2 <sup>9</sup> / <sub>16</sub>                               | <b>W4300R203</b> | -  | -                | -  | -                |
|                                | 3 <sup>1</sup> / <sub>16</sub>  | 58,5        | 83,5          | <b>W4301X</b> | 4,4    | -  | -                | -  | -                | -  | -                |
|                                | 3 <sup>1</sup> / <sub>8</sub>   | 58,5        | 83,5          | <b>W4302X</b> | 4,4    | 3 <sup>1</sup> / <sub>8</sub> - 2 <sup>3</sup> / <sub>4</sub>    | <b>W4302R212</b> | 3 <sup>1</sup> / <sub>8</sub> - 2 <sup>9</sup> / <sub>16</sub>   | <b>W4302R209</b> | 3 <sup>1</sup> / <sub>8</sub> - 2 <sup>3</sup> / <sub>8</sub>    | <b>W4302R206</b> |
|                                | -                               | -           | -             | -             | -      | 3 <sup>1</sup> / <sub>8</sub> - 2 <sup>5</sup> / <sub>16</sub>   | <b>W4302R205</b> | 3 <sup>1</sup> / <sub>8</sub> - 2 <sup>1</sup> / <sub>4</sub>    | <b>W4302R204</b> | 3 <sup>1</sup> / <sub>8</sub> - 2 <sup>3</sup> / <sub>16</sub>   | <b>W4302R203</b> |
|                                | -                               | -           | -             | -             | -      | 3 <sup>1</sup> / <sub>8</sub> - 2 <sup>3</sup> / <sub>16</sub>   | <b>W4302R203</b> | 3 <sup>1</sup> / <sub>8</sub> - 2 <sup>1</sup> / <sub>8</sub>    | <b>W4302R202</b> | 3 <sup>1</sup> / <sub>8</sub> - 2                                | <b>W4302R200</b> |
|                                | 3 <sup>3</sup> / <sub>16</sub>  | 62,0        | 85,5          | <b>W4303X</b> | 4,5    | -  | -                | -  | -                | -  | -                |
| 3 <sup>1</sup> / <sub>4</sub>  | 62,0                            | 85,5        | <b>W4304X</b> | 4,5           | -      | -  | -                | -  | -                | -  |                  |
| 3 <sup>5</sup> / <sub>16</sub> | 62,0                            | 85,5        | <b>W4305X</b> | 4,5           | -      | -  | -                | -  | -                | -  |                  |
| 3 <sup>3</sup> / <sub>8</sub>  | 62,0                            | 85,5        | <b>W4306X</b> | 4,5           | -      | -  | -                | -  | -                | -  |                  |

<sup>1)</sup> See page 407 for table of hexagon sizes of bolts, nuts and related thread diameters.





Nominal Torque at 690 bar:

**11.484 Nm**

Hexagon Range:

**1<sup>7</sup>/<sub>8</sub> - 4<sup>1</sup>/<sub>8</sub> inch**

Maximum Operating Pressure:

**690 bar**

**W**  
Series  
X-Edition

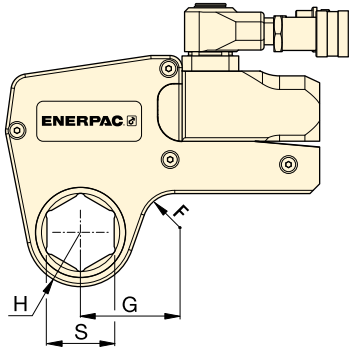


▼ SELECTION CHART

| Drive Unit Model Number         | Hexagon Size <sup>1)</sup>      | Nose Radius | Dim.    | Model Number | Weight (kg)   | Hexagon Reducer   |   | Hexagon Reducer  |              | Hexagon Reducer  |              |
|---------------------------------|---------------------------------|-------------|---------|--------------|---|---|---|--|--------------|--|--------------|
|                                 |                                 |             |         |              |   | Hexagon Reducer (inch)  | Model Number  | Hexagon Reducer (inch)   | Model Number | Hexagon Reducer (inch)   | Model Number |
| W8000X                          | 1 <sup>7</sup> / <sub>8</sub>   | 45,0        | 78,2    | W8114X       | 8,1   | –   | –   | –  | –            | –  | –            |
|                                 | 1 <sup>15</sup> / <sub>16</sub> | 45,0        | 78,2    | W8115X       | 8,1   | –   | –   | –  | –            | –  | –            |
|                                 | 2                               | 45,0        | 78,2    | W8200X       | 8,1   | –   | –   | –  | –            | –  | –            |
|                                 | 2 <sup>1</sup> / <sub>16</sub>  | 48,0        | 80,0    | W8201X       | 8,1   | –   | –   | –  | –            | –  | –            |
|                                 | 2 <sup>1</sup> / <sub>8</sub>   | 48,0        | 80,0    | W8202X       | 8,1   | –   | –   | –  | –            | –  | –            |
|                                 | 2 <sup>3</sup> / <sub>16</sub>  | 48,0        | 80,0    | W8203X       | 8,1   | –   | –   | –  | –            | –  | –            |
|                                 | 2 <sup>1</sup> / <sub>4</sub>   | 51,0        | 82,5    | W8204X       | 8,1   | –   | –   | –  | –            | –  | –            |
|                                 | 2 <sup>5</sup> / <sub>16</sub>  | 51,0        | 82,5    | W8205X       | 8,1   | –   | –   | –  | –            | –  | –            |
|                                 | 2 <sup>3</sup> / <sub>8</sub>   | 51,0        | 82,5    | W8206X       | 8,1   | –   | –   | –  | –            | –  | –            |
|                                 | 2 <sup>7</sup> / <sub>16</sub>  | 52,5        | 85,9    | W8207X       | 8,1   | –   | –   | –  | –            | –  | –            |
|                                 | 2 <sup>1</sup> / <sub>2</sub>   | 52,5        | 85,9    | W8208X       | 8,1   | –   | –   | –  | –            | –  | –            |
|                                 | 2 <sup>9</sup> / <sub>16</sub>  | 52,5        | 85,9    | W8209X       | 8,1   | 2 <sup>9</sup> / <sub>16</sub> - 2                              | W8209R200   | –  | –            | –  | –            |
|                                 | 2 <sup>5</sup> / <sub>8</sub>   | 56,0        | 84,8    | W8210X       | 8,1   | –   | –   | –  | –            | –  | –            |
|                                 | 2 <sup>11</sup> / <sub>16</sub> | 56,0        | 84,8    | W8211X       | 7,9   | –   | –   | –  | –            | –  | –            |
|                                 | 2 <sup>3</sup> / <sub>4</sub>   | 56,0        | 84,8    | W8212X       | 7,9   | 2 <sup>3</sup> / <sub>4</sub> - 2 <sup>3</sup> / <sub>16</sub>  | W8212R203   | –  | –            | –  | –            |
|                                 | 2 <sup>13</sup> / <sub>16</sub> | 58,0        | 85,0    | W8213X       | 7,9   | –   | –   | –  | –            | –  | –            |
|                                 | 2 <sup>7</sup> / <sub>8</sub>   | 58,0        | 85,0    | W8214X       | 7,9   | –   | –   | –  | –            | –  | –            |
|                                 | 2 <sup>15</sup> / <sub>16</sub> | 58,0        | 85,0    | W8215X       | 7,9   | 2 <sup>15</sup> / <sub>16</sub> - 2 <sup>3</sup> / <sub>8</sub> | W8215R206   | 2 <sup>15</sup> / <sub>16</sub> - 2 <sup>3</sup> / <sub>16</sub> | W8215R203    | –  | –            |
|                                 | 3                               | 60,5        | 89,5    | W8300X       | 8,0   | –   | –   | –  | –            | –  | –            |
|                                 | 3 <sup>1</sup> / <sub>16</sub>  | 60,5        | 89,5    | W8301X       | 8,0   | –   | –   | –  | –            | –  | –            |
|                                 | 3 <sup>1</sup> / <sub>8</sub>   | 60,5        | 89,5    | W8302X       | 8,0   | 3 <sup>1</sup> / <sub>8</sub> - 2 <sup>9</sup> / <sub>16</sub>  | W8302R209   | 3 <sup>1</sup> / <sub>8</sub> - 2 <sup>3</sup> / <sub>8</sub>    | W8302R206    | 3 <sup>1</sup> / <sub>8</sub> - 2 <sup>9</sup> / <sub>16</sub> | W8302R203    |
|                                 | –                               | –           | –       | –            | –   | 3 <sup>1</sup> / <sub>8</sub> - 2                               | W8302R200   | –  | –            | –  | –            |
|                                 | 3 <sup>3</sup> / <sub>16</sub>  | 66,0        | 92,2    | W8303X       | 8,2   | –   | –   | –  | –            | –  | –            |
|                                 | 3 <sup>1</sup> / <sub>4</sub>   | 66,0        | 92,2    | W8304X       | 8,2   | –   | –   | –  | –            | –  | –            |
|                                 | 3 <sup>5</sup> / <sub>16</sub>  | 66,0        | 92,2    | W8305X       | 8,2   | –   | –   | –  | –            | –  | –            |
|                                 | 3 <sup>3</sup> / <sub>8</sub>   | 66,0        | 92,2    | W8306X       | 8,2   | –   | –   | –  | –            | –  | –            |
|                                 | 3 <sup>7</sup> / <sub>16</sub>  | 66,0        | 92,2    | W8307IX      | 8,2   | –   | –   | –  | –            | –  | –            |
|                                 | 3 <sup>1</sup> / <sub>2</sub>   | 66,0        | 92,2    | W8308X       | 8,2   | 3 <sup>1</sup> / <sub>2</sub> - 3                               | W8308R300   | 3 <sup>1</sup> / <sub>2</sub> - 2 <sup>15</sup> / <sub>16</sub>  | W8308R215    | 3 <sup>1</sup> / <sub>2</sub> - 2 <sup>3</sup> / <sub>4</sub>  | W8308R212    |
|                                 | 3 <sup>9</sup> / <sub>16</sub>  | 74,0        | 102,9   | W8309X       | 8,8   | –   | –   | –  | –            | –  | –            |
|                                 | 3 <sup>5</sup> / <sub>8</sub>   | 74,0        | 102,9   | W8310X       | 8,8   | –   | –   | –  | –            | –  | –            |
|                                 | 3 <sup>11</sup> / <sub>16</sub> | 74,0        | 102,9   | W8311X       | 8,8   | –   | –   | –  | –            | –  | –            |
|                                 | 3 <sup>3</sup> / <sub>4</sub>   | 74,0        | 102,9   | W8312X       | 8,8   | 3 <sup>3</sup> / <sub>4</sub> - 3 <sup>1</sup> / <sub>8</sub>   | W8312R302   | 3 <sup>3</sup> / <sub>4</sub> - 2 <sup>15</sup> / <sub>16</sub>  | W8312R215    | 3 <sup>3</sup> / <sub>4</sub> - 2 <sup>3</sup> / <sub>4</sub>  | W8312R212    |
| 3 <sup>13</sup> / <sub>16</sub> | 74,0                            | 102,9       | W8313X  | 8,8          | –   | –   | –   | –  | –            | –  |              |
| 3 <sup>7</sup> / <sub>8</sub>   | 74,0                            | 102,9       | W8314X  | 8,8          | 3 <sup>7</sup> / <sub>8</sub> - 3 <sup>1</sup> / <sub>8</sub> | W8314R302   | 3 <sup>7</sup> / <sub>8</sub> - 2 <sup>15</sup> / <sub>16</sub> | W8314R215  | –            | –  |              |
| 3 <sup>15</sup> / <sub>16</sub> | 79,5                            | 110,0       | W8315X  | 9,3          | –   | –   | –   | –  | –            | –  |              |
| 4                               | 79,5                            | 110,0       | W8400X  | 9,3          | –   | –   | –   | –  | –            | –  |              |
| 4 <sup>1</sup> / <sub>16</sub>  | 79,5                            | 110,0       | W8401IX | 9,3          | –   | –   | –   | –  | –            | –  |              |
| 4 <sup>1</sup> / <sub>8</sub>   | 79,5                            | 110,0       | W8402X  | 9,3          | –   | –   | –   | –  | –            | –  |              |

<sup>1)</sup> See page 407 for table of hexagon sizes of bolts, nuts and related thread diameters.

# W15000X-Series, Inch-Cassettes & Reducer Inserts



Nominal Torque at 690 bar:

**20.785 Nm**

Hexagon Range:

**2<sup>1</sup>/<sub>8</sub> - 4<sup>5</sup>/<sub>8</sub> inch**

Maximum Operating Pressure:

**690 bar**

**W**  
Series  
X-Edition



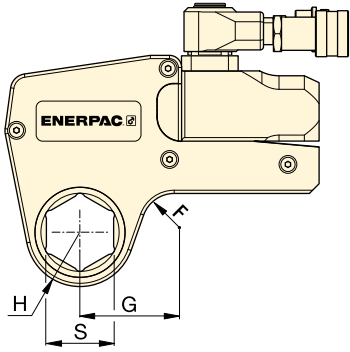
▼ SELECTION CHART

| Drive Unit Model Number        | Hexagon Size <sup>1)</sup>      | Nose Radius | Dim.     | Model Number | Weight  | Hexagon Reducer   |   | Hexagon Reducer   |   | Hexagon Reducer   |              |
|--------------------------------|---------------------------------|-------------|----------|--------------|---|---|---|---|---|---|--------------|
|                                |                                 |             |          |              |   | Hexagon Reducer (inch)  | Model Number  | Hexagon Reducer (inch)  | Model Number  | Hexagon Reducer (inch)  | Model Number |
| W15000X                        | S (inch)                        | H (mm)      | G (mm)   |              | (kg)  |   |   |   |   |   |              |
|                                | 2 <sup>7</sup> / <sub>16</sub>  | 59,0        | 88,6     | W15207X      | 13,6  | -   | -   | -   | -   | -   | -            |
|                                | 2 <sup>1</sup> / <sub>2</sub>   | 59,0        | 88,6     | W15208X      | 13,6  | -   | -   | -   | -   | -   | -            |
|                                | 2 <sup>9</sup> / <sub>16</sub>  | 59,0        | 88,6     | W15209X      | 13,6  | -   | -   | -   | -   | -   | -            |
|                                | 2 <sup>5</sup> / <sub>8</sub>   | 59,0        | 88,6     | W15210X      | 13,6  | -   | -   | -   | -   | -   | -            |
|                                | 2 <sup>11</sup> / <sub>16</sub> | 59,0        | 88,6     | W15211X      | 13,6  | -   | -   | -   | -   | -   | -            |
|                                | 2 <sup>3</sup> / <sub>4</sub>   | 59,0        | 88,6     | W15212X      | 13,6  | -   | -   | -   | -   | -   | -            |
|                                | 2 <sup>13</sup> / <sub>16</sub> | 62,0        | 90,5     | W15213X      | 13,7  | -   | -   | -   | -   | -   | -            |
|                                | 2 <sup>7</sup> / <sub>8</sub>   | 62,0        | 90,5     | W15214X      | 13,7  | -   | -   | -   | -   | -   | -            |
|                                | 2 <sup>15</sup> / <sub>16</sub> | 62,0        | 90,5     | W15215X      | 13,7  | -   | -   | -   | -   | -   | -            |
|                                | 3                               | 64,5        | 92,9     | W15300X      | 13,8  | 3 - 2 <sup>1</sup> / <sub>8</sub>                               | W15300R202  | -   | -   | -   | -            |
|                                | 3 <sup>1</sup> / <sub>16</sub>  | 64,5        | 92,9     | W15301X      | 13,8  | -   | -   | -   | -   | -   | -            |
|                                | 3 <sup>1</sup> / <sub>8</sub>   | 64,5        | 92,9     | W15302X      | 13,8  | 3 <sup>1</sup> / <sub>8</sub> - 2 <sup>9</sup> / <sub>16</sub>  | W15302R209  | -   | -   | -   | -            |
|                                | 3 <sup>3</sup> / <sub>16</sub>  | 69,5        | 96,6     | W15303X      | 14,1  | -   | -   | -   | -   | -   | -            |
|                                | 3 <sup>1</sup> / <sub>4</sub>   | 69,5        | 96,6     | W15304X      | 14,1  | -   | -   | -   | -   | -   | -            |
|                                | 3 <sup>5</sup> / <sub>16</sub>  | 69,5        | 96,6     | W15305X      | 14,1  | -   | -   | -   | -   | -   | -            |
|                                | 3 <sup>3</sup> / <sub>8</sub>   | 69,5        | 96,6     | W15306X      | 14,1  | -   | -   | -   | -   | -   | -            |
|                                | 3 <sup>7</sup> / <sub>16</sub>  | 69,5        | 96,6     | W15307IX     | 14,1  | -   | -   | -   | -   | -   | -            |
|                                | 3 <sup>1</sup> / <sub>2</sub>   | 69,5        | 96,6     | W15308X      | 14,1  | 3 <sup>1</sup> / <sub>2</sub> - 2 <sup>15</sup> / <sub>16</sub> | W15308R215  | 3 <sup>1</sup> / <sub>2</sub> - 2 <sup>3</sup> / <sub>4</sub>   | W15308R212  | -   | -            |
|                                | 3 <sup>9</sup> / <sub>16</sub>  | 75,0        | 101,8    | W15309X      | 14,6  | -   | -   | -   | -   | -   | -            |
|                                | 3 <sup>5</sup> / <sub>8</sub>   | 75,0        | 101,8    | W15310X      | 14,6  | -   | -   | -   | -   | -   | -            |
|                                | 3 <sup>11</sup> / <sub>16</sub> | 75,0        | 101,8    | W15311X      | 14,6  | -   | -   | -   | -   | -   | -            |
|                                | 3 <sup>3</sup> / <sub>4</sub>   | 75,0        | 101,8    | W15312X      | 14,6  | 3 <sup>3</sup> / <sub>4</sub> - 3 <sup>1</sup> / <sub>8</sub>   | W15312R302  | 3 <sup>3</sup> / <sub>4</sub> - 2 <sup>15</sup> / <sub>16</sub> | W15312R215  | -   | -            |
|                                | 3 <sup>13</sup> / <sub>16</sub> | 75,0        | 101,8    | W15313X      | 14,5  | -   | -   | -   | -   | -   | -            |
|                                | 3 <sup>7</sup> / <sub>8</sub>   | 75,0        | 101,8    | W15314X      | 14,5  | 3 <sup>7</sup> / <sub>8</sub> - 3 <sup>1</sup> / <sub>8</sub>   | W15314R302  | 3 <sup>7</sup> / <sub>8</sub> - 2 <sup>15</sup> / <sub>16</sub> | W15314R215  | -   | -            |
|                                | 3 <sup>15</sup> / <sub>16</sub> | 80,5        | 103,1    | W15315X      | 14,8  | -   | -   | -   | -   | -   | -            |
|                                | 4                               | 80,5        | 103,1    | W15400X      | 14,8  | -   | -   | -   | -   | -   | -            |
|                                | 4 <sup>1</sup> / <sub>16</sub>  | 80,5        | 103,1    | W15401IX     | 14,8  | -   | -   | -   | -   | -   | -            |
|                                | 4 <sup>1</sup> / <sub>8</sub>   | 80,5        | 103,1    | W15402X      | 14,8  | 4 <sup>1</sup> / <sub>8</sub> - 3 <sup>1</sup> / <sub>2</sub>   | W15402R308  | 4 <sup>1</sup> / <sub>8</sub> - 3 <sup>5</sup> / <sub>16</sub>  | W15402R305  | 4 <sup>1</sup> / <sub>8</sub> - 3 <sup>1</sup> / <sub>4</sub> | W15402R304   |
|                                | 4 <sup>3</sup> / <sub>16</sub>  | 80,5        | 103,1    | W15403IX     | 14,8  | -   | -   | -   | -   | -   | -            |
|                                | 4 <sup>1</sup> / <sub>4</sub>   | 80,5        | 103,1    | W15404X      | 14,8  | 4 <sup>1</sup> / <sub>4</sub> - 3 <sup>1</sup> / <sub>2</sub>   | W15404R308  | 4 <sup>1</sup> / <sub>4</sub> - 3 <sup>1</sup> / <sub>8</sub>   | W15404R302  | -   | -            |
|                                | 4 <sup>5</sup> / <sub>16</sub>  | 87,5        | 114,8    | W15405X      | 15,1  | -   | -   | -   | -   | -   | -            |
|                                | 4 <sup>3</sup> / <sub>8</sub>   | 87,5        | 114,8    | W15406X      | 15,1  | -   | -   | -   | -   | -   | -            |
|                                | 4 <sup>7</sup> / <sub>16</sub>  | 87,5        | 114,8    | W15407X      | 15,1  | -   | -   | -   | -   | -   | -            |
| 4 <sup>1</sup> / <sub>2</sub>  | 87,5                            | 114,8       | W15408IX | 15,1         | -   | -   | -   | -   | -   | -   |              |
| 4 <sup>9</sup> / <sub>16</sub> | 87,5                            | 114,8       | W15409IX | 15,1         | -   | -   | -   | -   | -   | -   |              |
| 4 <sup>5</sup> / <sub>8</sub>  | 87,5                            | 114,8       | W15410IX | 15,1         | 4 <sup>5</sup> / <sub>8</sub> - 3 <sup>15</sup> / <sub>16</sub> | W15410R315  | 4 <sup>5</sup> / <sub>8</sub> - 3 <sup>7</sup> / <sub>8</sub> | W15410R314  | 4 <sup>5</sup> / <sub>8</sub> - 3 <sup>3</sup> / <sub>4</sub> | W15410R312  |              |
| -                              | -                               | -           | -        | -            | -   | 4 <sup>5</sup> / <sub>8</sub> - 3 <sup>1</sup> / <sub>2</sub>   | W15410R308  | -   | -   | -   |              |
| -                              | -                               | -           | -        | -            | -   | -   | -   | -   | -   | -   |              |

<sup>1)</sup> See page 407 for table of hexagon sizes of bolts, nuts and related thread diameters.

# W22000X, Inch-Cassettes & Reducers

**ENERPAC** 



Nominal Torque at 690 bar:

**30.506 Nm**

Hexagon Range:

**2<sup>15</sup>/<sub>16</sub> - 5<sup>3</sup>/<sub>8</sub> inch**

Maximum Operating Pressure:

**690 bar**

**W**  
Series  
X-Edition

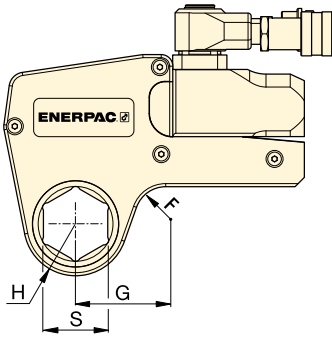


▼ **SELECTION CHART**

| Drive Unit Model Number        | Hexagon Size <sup>1)</sup> S (inch) | Nose Radius H (mm) | G (mm)          | Model Nr. Cassette | Weight (kg)   | Hexagon Reducer   |   | Hexagon Reducer   |   | Hexagon Reducer   |                      |
|--------------------------------|-------------------------------------|--------------------|-----------------|--------------------|---|---|---|---|---|---|----------------------|
|                                |                                     |                    |                 |                    |   | Hexagon Reducer (inch)  | Model Number Reducer  | Hexagon Reducer (inch)  | Model Number Reducer  | Hexagon Reducer (inch)  | Model Number Reducer |
| <b>W22000X</b>                 | 2 <sup>15</sup> / <sub>16</sub>     | 67,0               | 102,1           | <b>W22215X</b>     | 22,1  | -   | -   | -   | -   | -   | -                    |
|                                | 3                                   | 67,0               | 102,1           | <b>W22300X</b>     | 22,0  | -   | -   | -   | -   | -   | -                    |
|                                | 3 <sup>1</sup> / <sub>16</sub>      | 67,0               | 102,1           | <b>W22301X</b>     | 21,9  | -   | -   | -   | -   | -   | -                    |
|                                | 3 <sup>1</sup> / <sub>8</sub>       | 67,0               | 102,1           | <b>W22302X</b>     | 21,6  | 3 <sup>1</sup> / <sub>8</sub> - 2 <sup>3</sup> / <sub>8</sub>   | <b>W22302R206</b>   | 3 <sup>1</sup> / <sub>8</sub> - 2 <sup>3</sup> / <sub>16</sub>  | <b>W22302R203</b>   | -   | -                    |
|                                | 3 <sup>3</sup> / <sub>16</sub>      | 72,4               | 107,4           | <b>W22303X</b>     | 22,9  | -   | -   | -   | -   | -   | -                    |
|                                | 3 <sup>1</sup> / <sub>4</sub>       | 72,4               | 107,4           | <b>W22304X</b>     | 22,8  | -   | -   | -   | -   | -   | -                    |
|                                | 3 <sup>5</sup> / <sub>16</sub>      | 72,4               | 107,4           | <b>W22305X</b>     | 22,6  | -   | -   | -   | -   | -   | -                    |
|                                | 3 <sup>3</sup> / <sub>8</sub>       | 72,4               | 107,4           | <b>W22306X</b>     | 22,5  | -   | -   | -   | -   | -   | -                    |
|                                | 3 <sup>7</sup> / <sub>16</sub>      | 72,4               | 107,4           | <b>W22307IX</b>    | 22,8  | -   | -   | -   | -   | -   | -                    |
|                                | 3 <sup>1</sup> / <sub>2</sub>       | 72,4               | 107,4           | <b>W22308X</b>     | 22,2  | 3 <sup>1</sup> / <sub>2</sub> - 2 <sup>3</sup> / <sub>4</sub>   | <b>W22308R212</b>   | 3 <sup>1</sup> / <sub>2</sub> - 2 <sup>9</sup> / <sub>16</sub>  | <b>W22308R209</b>   | 3 <sup>1</sup> / <sub>2</sub> - 2 <sup>3</sup> / <sub>8</sub>   | <b>W22308R206</b>    |
|                                | 3 <sup>9</sup> / <sub>16</sub>      | 77,9               | 113,0           | <b>W22309X</b>     | 23,4  | -   | -   | -   | -   | -   | -                    |
|                                | 3 <sup>5</sup> / <sub>8</sub>       | 77,9               | 113,0           | <b>W22310X</b>     | 23,3  | -   | -   | -   | -   | -   | -                    |
|                                | 3 <sup>11</sup> / <sub>16</sub>     | 77,9               | 113,0           | <b>W22311X</b>     | 23,1  | -   | -   | -   | -   | -   | -                    |
|                                | 3 <sup>3</sup> / <sub>4</sub>       | 77,9               | 113,0           | <b>W22312X</b>     | 22,9  | 3 <sup>3</sup> / <sub>4</sub> - 2 <sup>15</sup> / <sub>16</sub> | <b>W22312R215</b>   | -   | -   | -   | -                    |
|                                | 3 <sup>13</sup> / <sub>16</sub>     | 77,9               | 113,0           | <b>W22313X</b>     | 22,8  | -   | -   | -   | -   | -   | -                    |
|                                | 3 <sup>7</sup> / <sub>8</sub>       | 77,9               | 113,0           | <b>W22314X</b>     | 22,6  | 3 <sup>7</sup> / <sub>8</sub> - 3 <sup>1</sup> / <sub>8</sub>   | <b>W22314R302</b>   | 3 <sup>7</sup> / <sub>8</sub> - 2 <sup>15</sup> / <sub>16</sub> | <b>W22314R215</b>   | 3 <sup>7</sup> / <sub>8</sub> - 2 <sup>3</sup> / <sub>4</sub>   | <b>W22314R212</b>    |
|                                | 3 <sup>15</sup> / <sub>16</sub>     | 85,1               | 119,9           | <b>W22315X</b>     | 24,3  | -   | -   | -   | -   | -   | -                    |
|                                | 4                                   | 85,1               | 119,9           | <b>W22400X</b>     | 24,1  | -   | -   | -   | -   | -   | -                    |
|                                | 4 <sup>1</sup> / <sub>16</sub>      | 85,1               | 119,9           | <b>W22401IX</b>    | 24,0  | -   | -   | -   | -   | -   | -                    |
|                                | 4 <sup>1</sup> / <sub>8</sub>       | 85,1               | 119,9           | <b>W22402X</b>     | 23,6  | -   | -   | -   | -   | -   | -                    |
|                                | 4 <sup>3</sup> / <sub>16</sub>      | 85,1               | 119,9           | <b>W22403IX</b>    | 23,6  | -   | -   | -   | -   | -   | -                    |
|                                | 4 <sup>1</sup> / <sub>4</sub>       | 85,1               | 119,9           | <b>W22404X</b>     | 24,6  | 4 <sup>1</sup> / <sub>4</sub> - 3 <sup>1</sup> / <sub>2</sub>   | <b>W22404R308</b>   | 4 <sup>1</sup> / <sub>4</sub> - 3 <sup>1</sup> / <sub>8</sub>   | <b>W22404R302</b>   | 4 <sup>1</sup> / <sub>4</sub> - 2 <sup>15</sup> / <sub>16</sub> | <b>W22404R215</b>    |
|                                | 4 <sup>5</sup> / <sub>16</sub>      | 89,9               | 125,0           | <b>W22405X</b>     | 24,6  | -   | -   | -   | -   | -   | -                    |
|                                | 4 <sup>3</sup> / <sub>8</sub>       | 89,9               | 125,0           | <b>W22406X</b>     | 24,5  | -   | -   | -   | -   | -   | -                    |
|                                | 4 <sup>7</sup> / <sub>16</sub>      | 89,9               | 125,0           | <b>W22407X</b>     | 24,3  | -   | -   | -   | -   | -   | -                    |
|                                | 4 <sup>1</sup> / <sub>2</sub>       | 89,9               | 125,0           | <b>W22408IX</b>    | 24,1  | -   | -   | -   | -   | -   | -                    |
|                                | 4 <sup>9</sup> / <sub>16</sub>      | 89,9               | 125,0           | <b>W22409IX</b>    | 23,9  | -   | -   | -   | -   | -   | -                    |
|                                | 4 <sup>5</sup> / <sub>8</sub>       | 89,9               | 125,0           | <b>W22410IX</b>    | 23,6  | 4 <sup>5</sup> / <sub>8</sub> - 3 <sup>7</sup> / <sub>8</sub>   | <b>W22410R314</b>   | 4 <sup>5</sup> / <sub>8</sub> - 3 <sup>3</sup> / <sub>4</sub>   | <b>W22410R312</b>   | 4 <sup>5</sup> / <sub>8</sub> - 3 <sup>1</sup> / <sub>2</sub>   | <b>W22410R308</b>    |
|                                | 4 <sup>3</sup> / <sub>4</sub>       | 95,0               | 130,0           | <b>W22412X</b>     | 24,7  | -   | -   | -   | -   | -   | -                    |
|                                | 4 <sup>7</sup> / <sub>8</sub>       | 95,0               | 130,0           | <b>W22414X</b>     | 24,3  | -   | -   | -   | -   | -   | -                    |
|                                | 5                                   | 95,0               | 130,0           | <b>W22500X</b>     | 23,8  | 5 - 4 <sup>1</sup> / <sub>4</sub>                               | <b>W22500R404</b>   | 5 - 4 <sup>1</sup> / <sub>8</sub>                               | <b>W22500R402</b>   | 5 - 3 <sup>7</sup> / <sub>8</sub>                               | <b>W22500R314</b>    |
|                                | 5 <sup>1</sup> / <sub>8</sub>       | 100,0              | 134,8           | <b>W22502X</b>     | 25,0  | -   | -   | -   | -   | -   | -                    |
| 5 <sup>3</sup> / <sub>16</sub> | 100,0                               | 134,8              | <b>W22503IX</b> | 24,8               | -   | -   | -   | -   | -   | -   |                      |
| 5 <sup>1</sup> / <sub>4</sub>  | 100,0                               | 134,8              | <b>W22504IX</b> | 24,5               | -   | -   | -   | -   | -   | -   |                      |
| 5 <sup>3</sup> / <sub>8</sub>  | 100,0                               | 134,8              | <b>W22506X</b>  | 23,9               | 5 <sup>3</sup> / <sub>8</sub> - 4 <sup>5</sup> / <sub>8</sub> | <b>W22506R410</b>   | 5 <sup>3</sup> / <sub>8</sub> - 4 <sup>1</sup> / <sub>4</sub> | <b>W22506R404</b>   | 5 <sup>3</sup> / <sub>8</sub> - 4 <sup>1</sup> / <sub>8</sub> | <b>W22506R402</b>   |                      |
| -                              | -                                   | -                  | <b>W22506X</b>  | 23,9               | 5 <sup>3</sup> / <sub>8</sub> - 3 <sup>7</sup> / <sub>8</sub> | <b>W22506R314</b>   | -   | -   | -   | -   |                      |

<sup>1)</sup> See page 407 for table of hexagon sizes of bolts, nuts and related thread diameters.

# W35000X, Inch-Cassettes & Reducer Inserts



## ▼ SELECTION CHART

| Drive Unit Model Number        | Hexagon Size S<br>(inch)        | Nose Radius H<br>(mm) | G<br>(mm) | Model Nr. Cassette | Weight (kg)   | Reducer   |                      |
|--------------------------------|---------------------------------|-----------------------|-----------|--------------------|---|---|----------------------|
|                                |                                 |                       |           |                    |   | Hexagon Reducer (inch)  | Model Number Reducer |
| W35000X                        | 3 <sup>1</sup> / <sub>8</sub>   | 76,0                  | 126,8     | W35302X            | 32,8  | 3 <sup>1</sup> / <sub>8</sub> - 2                                 | W35302R200           |
|                                | 3 <sup>3</sup> / <sub>16</sub>  | 76,0                  | 126,8     | W35303X            | 32,7  | -   | -                    |
|                                | 3 <sup>1</sup> / <sub>4</sub>   | 76,0                  | 126,8     | W35304X            | 32,5  | -   | -                    |
|                                | 3 <sup>5</sup> / <sub>16</sub>  | 76,0                  | 126,8     | W35305X            | 32,4  | -   | -                    |
|                                | 3 <sup>3</sup> / <sub>8</sub>   | 76,0                  | 126,8     | W35306X            | 32,2  | -   | -                    |
|                                | 3 <sup>7</sup> / <sub>16</sub>  | 76,0                  | 126,8     | W35307IX           | 32,0  | -   | -                    |
|                                | 3 <sup>1</sup> / <sub>2</sub>   | 76,0                  | 126,8     | W35308X            | 31,8  | 3 <sup>1</sup> / <sub>2</sub> - 2 <sup>5</sup> / <sub>16</sub>    | W35308R205           |
|                                | 3 <sup>9</sup> / <sub>16</sub>  | 81,5                  | 132,5     | W35309X            | 32,4  | -   | -                    |
|                                | 3 <sup>5</sup> / <sub>8</sub>   | 81,5                  | 132,5     | W35310X            | 33,3  | -   | -                    |
|                                | 3 <sup>11</sup> / <sub>16</sub> | 81,5                  | 132,5     | W35311X            | 33,1  | -   | -                    |
|                                | 3 <sup>3</sup> / <sub>4</sub>   | 81,5                  | 132,5     | W35312X            | 32,9  | -   | -                    |
|                                | 3 <sup>13</sup> / <sub>16</sub> | 81,5                  | 132,5     | W35313X            | 32,7  | -   | -                    |
|                                | 3 <sup>7</sup> / <sub>8</sub>   | 81,5                  | 132,5     | W35314X            | 32,4  | 3 <sup>7</sup> / <sub>8</sub> - 2 <sup>11</sup> / <sub>16</sub>   | W35314R211           |
|                                | 3 <sup>15</sup> / <sub>16</sub> | 87,0                  | 137,0     | W35315X            | 34,1  | 3 <sup>15</sup> / <sub>16</sub> - 2 <sup>13</sup> / <sub>16</sub> | W35315R213           |
|                                | 4                               | 87,0                  | 137,0     | W35400X            | 33,9  | -   | -                    |
|                                | 4 <sup>1</sup> / <sub>16</sub>  | 87,0                  | 137,0     | W35401IX           | 33,7  | -   | -                    |
|                                | 4 <sup>1</sup> / <sub>8</sub>   | 87,0                  | 137,0     | W35402X            | 33,5  | -   | -                    |
|                                | 4 <sup>3</sup> / <sub>16</sub>  | 87,0                  | 137,0     | W35403IX           | 33,3  | -   | -                    |
|                                | 4 <sup>1</sup> / <sub>4</sub>   | 87,0                  | 137,0     | W35404X            | 33,0  | 4 <sup>1</sup> / <sub>4</sub> - 3 <sup>1</sup> / <sub>16</sub>    | W35404R301           |
|                                | 4 <sup>5</sup> / <sub>16</sub>  | 93,0                  | 143,0     | W35405X            | 34,9  | -   | -                    |
|                                | 4 <sup>3</sup> / <sub>8</sub>   | 93,0                  | 143,0     | W35406X            | 34,7  | -   | -                    |
|                                | 4 <sup>7</sup> / <sub>16</sub>  | 93,0                  | 143,0     | W35407X            | 34,5  | -   | -                    |
|                                | 4 <sup>1</sup> / <sub>2</sub>   | 93,0                  | 143,0     | W35408IX           | 34,3  | -   | -                    |
|                                | 4 <sup>9</sup> / <sub>16</sub>  | 93,0                  | 143,0     | W35409IX           | 34,1  | -   | -                    |
|                                | 4 <sup>5</sup> / <sub>8</sub>   | 93,0                  | 143,0     | W35410IX           | 33,7  | 4 <sup>5</sup> / <sub>8</sub> - 3 <sup>5</sup> / <sub>8</sub>     | W35410R310           |
|                                | 4 <sup>3</sup> / <sub>4</sub>   | 98,5                  | 148,5     | W35412X            | 35,6  | 4 <sup>3</sup> / <sub>4</sub> - 3 <sup>3</sup> / <sub>4</sub>     | W35412R312           |
|                                | 4 <sup>7</sup> / <sub>8</sub>   | 98,5                  | 148,5     | W35414X            | 34,9  | -   | -                    |
|                                | 5                               | 98,5                  | 148,5     | W35500X            | 34,3  | 5 - 4   | W35500R400           |
|                                | 5 <sup>1</sup> / <sub>8</sub>   | 103,0                 | 153,0     | W35502X            | 35,8  | 5 <sup>1</sup> / <sub>8</sub> - 4 <sup>1</sup> / <sub>8</sub>     | W35502R402           |
|                                | 5 <sup>3</sup> / <sub>16</sub>  | 103,0                 | 153,0     | W35503IX           | 35,6  | -   | -                    |
|                                | 5 <sup>1</sup> / <sub>4</sub>   | 103,0                 | 153,0     | W35504IX           | 35,2  | -   | -                    |
|                                | 5 <sup>3</sup> / <sub>8</sub>   | 103,0                 | 153,0     | W35506X            | 34,6  | 5 <sup>3</sup> / <sub>8</sub> - 4 <sup>5</sup> / <sub>16</sub>    | W35506R405           |
| 5 <sup>1</sup> / <sub>2</sub>  | 108,5                           | 158,5                 | W35508X   | 36,2               | -   | -   |                      |
| 5 <sup>9</sup> / <sub>16</sub> | 108,5                           | 158,5                 | W35509X   | 36,0               | -   | -   |                      |
| 5 <sup>5</sup> / <sub>8</sub>  | 108,5                           | 158,5                 | W35510X   | 35,6               | -   | -   |                      |
| 5 <sup>3</sup> / <sub>4</sub>  | 108,5                           | 164,0                 | W35512X   | 34,9               | 5 <sup>3</sup> / <sub>4</sub> - 4 <sup>3</sup> / <sub>4</sub> | W35512R412  |                      |
| 5 <sup>7</sup> / <sub>8</sub>  | 114,0                           | 164,0                 | W35514X   | 36,7               | 5 <sup>7</sup> / <sub>8</sub> - 4 <sup>7</sup> / <sub>8</sub> | W35514R414  |                      |
| 6                              | 114,0                           | 164,0                 | W35600X   | 36,1               | -   | -   |                      |
| 6 <sup>1</sup> / <sub>8</sub>  | 114,0                           | 164,0                 | W35602X   | 35,3               | 6 <sup>1</sup> / <sub>8</sub> - 5 <sup>1</sup> / <sub>8</sub> | W35602R502  |                      |

## W Series X-Edition



Nominal Torque at 690 bar:

**47.454 Nm**

Hexagon Range:

**3<sup>1</sup>/<sub>8</sub> - 6<sup>1</sup>/<sub>8</sub> inch**

Maximum Operating Pressure:

**690 bar**



### Hexagon Bolt and Nut Sizes

See the table for hexagon sizes of bolts, nuts and related thread diameters.

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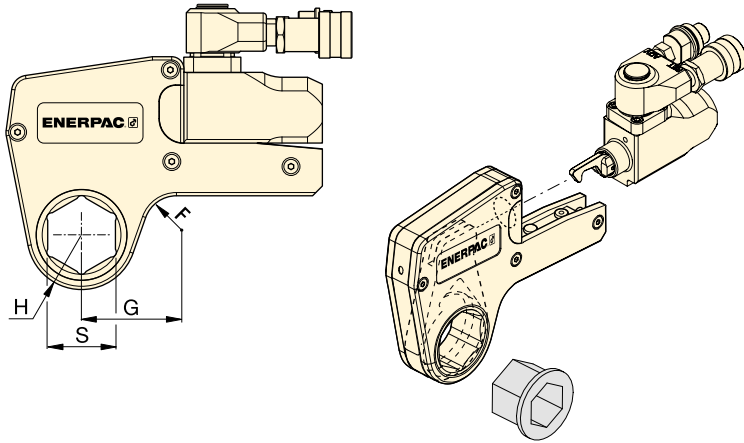


### Back-Up Spanners

To be used to stop the back nut from turning during make up or break out. Two hexagon sizes in one tool.

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## W Series X-Edition



Hexagon Range:

**24 - 105 mm**

Maximum Operating Pressure:

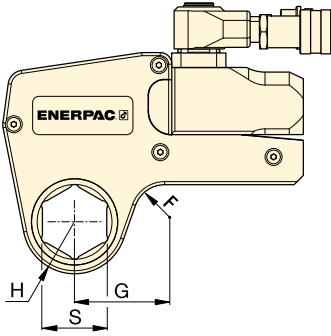
**690 bar**

### ▼ SELECTION CHART

| Drive Unit Model Number    | Hexagon Size <sup>1)</sup> | Nose Radius | Dim.    | Model Nr. Cassette | Weight (kg) | Hexagon Reducer      |                      | Hexagon Reducer      |                      | Hexagon Reducer      |                      |
|----------------------------|----------------------------|-------------|---------|--------------------|-------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
|                            |                            |             |         |                    |             | Hexagon Reducer (mm) | Model Number Reducer | Hexagon Reducer (mm) | Model Number Reducer | Hexagon Reducer (mm) | Model Number Reducer |
| <b>W2000X</b><br>(2766 Nm) | 30                         | 31,0        | 54      | W2103X             | 2,1         | -                    | -                    | -                    | -                    | -                    | -                    |
|                            | 32                         | 31,0        | 54      | W2104X             | 2,1         | -                    | -                    | -                    | -                    | -                    | -                    |
|                            | 36                         | 31,0        | 54      | W2107X             | 2,1         | -                    | -                    | -                    | -                    | -                    | -                    |
|                            | 38                         | 33,5        | 58      | W2108X             | 2,2         | -                    | -                    | -                    | -                    | -                    | -                    |
|                            | 41                         | 33,5        | 58      | W2110X             | 2,2         | 41 - 32              | W2110R104            | 41 - 30              | W2110R103            | 41 - 24              | W2110R024M           |
|                            | 46                         | 33,5        | 61      | W2113X             | 2,2         | 46 - 36              | W2113R107            | 46 - 32              | W2113R104            | -                    | -                    |
|                            | 50                         | 39,0        | 63      | W2200X             | 2,2         | 50 - 41              | W2200R110            | 50 - 36              | W2200R107            | -                    | -                    |
|                            | 55                         | 41,8        | 69      | W2203X             | 2,3         | 55 - 46              | W2203R113            | 55 - 41              | W2203R110            | 55 - 36              | W2203R107            |
|                            | 60                         | 44,5        | 65      | W2206X             | 2,2         | 60 - 50              | W2206R200            | 60 - 46              | W2206R113            | 60 - 41              | W2206R110            |
|                            | -                          | -           | -       | -                  | -           | -                    | 60 - 36              | W2206R107            | -                    | -                    | -                    |
| <b>W4000X</b><br>(5661 Nm) | 36                         | 37,0        | 61      | W4107X             | 3,7         | -                    | -                    | -                    | -                    | -                    | -                    |
|                            | 41                         | 37,0        | 61      | W4110X             | 3,7         | -                    | -                    | -                    | -                    | -                    | -                    |
|                            | 46                         | 39,5        | 64      | W4113X             | 3,8         | -                    | -                    | -                    | -                    | -                    | -                    |
|                            | 50                         | 41,5        | 67      | W4200X             | 3,9         | 50 - 36              | W4200R107            | -                    | -                    | -                    | -                    |
|                            | 55                         | 44,0        | 73      | W4203X             | 4,0         | 55 - 41              | W4203R110            | 55 - 36              | W4203R107            | 55 - 32              | W4203R104            |
|                            | 60                         | 46,5        | 71      | W4206X             | 4,1         | 60 - 50              | W4206R200            | 60 - 46              | W4206R113            | 60 - 36              | W4206R107            |
|                            | 65                         | 49,5        | 76      | W4209X             | 4,1         | 65 - 55              | W4209R203            | 65 - 50              | W4209R200            | 65 - 46              | W4209R113            |
|                            | 70                         | 52,5        | 78      | W4212X             | 4,2         | 70 - 60              | W4212R206            | 70 - 55              | W4212R203            | -                    | -                    |
|                            | 75                         | 55,3        | 82      | W4215X             | 4,3         | 75 - 65              | W4215R209            | 75 - 60              | W4215R206            | -                    | -                    |
|                            | -                          | -           | -       | W4215X             | -           | 75 - 55              | W4215R203            | 75 - 50              | W4215R200            | -                    | -                    |
|                            | 80                         | 58,5        | 84      | W4302X             | -           | -                    | -                    | 80 - 70              | W4302R212            | 80 - 65              | W4302R209            |
|                            | -                          | -           | -       | W4302X             | -           | 80 - 55              | W4302R203            | 80 - 50              | W4302R200            | -                    | -                    |
| 85                         | 62,0                       | 86          | W4085MX | 4,5                | -           | -                    | -                    | -                    | -                    | -                    |                      |
| 50                         | 45,0                       | 78          | W8200X  | 8,1                | -           | -                    | -                    | -                    | -                    | -                    |                      |
| 55                         | 48,0                       | 80          | W8203X  | 8,1                | -           | -                    | -                    | -                    | -                    | -                    |                      |
| 60                         | 51,0                       | 83          | W8206X  | 8,1                | -           | -                    | -                    | -                    | -                    | -                    |                      |
| 65                         | 52,5                       | 85          | W8209X  | 8,1                | 65 - 50     | W8209R200            | -                    | -                    | -                    | -                    |                      |
| 70                         | 56,0                       | 85          | W8212X  | 7,9                | 70 - 55     | W8212R203            | -                    | -                    | -                    | -                    |                      |
| 75                         | 58,0                       | 85          | W8215X  | 7,9                | 75 - 60     | W8215R206            | 75 - 55              | W8215R203            | -                    | -                    |                      |
| 80                         | 60,5                       | 90          | W8302X  | 8                  | 80 - 65     | W8302R209            | 80 - 60              | W8302R206            | 80 - 55              | W8302R203            |                      |
| -                          | -                          | -           | -       | -                  | 80 - 50     | W8302R200            | -                    | -                    | -                    | -                    |                      |
| 85                         | 66,0                       | 92          | W8085MX | 8,2                | 85 - 70     | W8085R070M           | 85 - 65              | W8085R065M           | 85 - 60              | W8085R060M           |                      |
| -                          | -                          | -           | -       | -                  | 85 - 55     | W8085R055M           | -                    | -                    | -                    | -                    |                      |
| 90                         | 74,0                       | 103         | W8090MX | 8,8                | 90 - 75     | W8090R075M           | -                    | -                    | -                    | -                    |                      |
| 95                         | 74,0                       | 103         | W8312X  | 8,8                | 95 - 80     | W8312R302            | 95 - 75              | W8312R215            | -                    | -                    |                      |
| 100                        | 79,5                       | 110         | W8315X  | 9,3                | -           | -                    | -                    | -                    | -                    | -                    |                      |
| 105                        | 79,5                       | 110         | W8402X  | 9,3                | -           | -                    | -                    | -                    | -                    | -                    |                      |

<sup>1)</sup> See page 407 for table of hexagon sizes of bolts, nuts and related thread diameters.

# W-Series, Metric Cassettes and Reducers



Hexagon Range:  
**50 - 155 mm**

Maximum Operating Pressure:  
**690 bar**

**W**  
Series  
X-Edition



## ▼ SELECTION CHART

| Drive Unit Model Number       | Hexagon Size <sup>1)</sup> | Nose Radius | Dim.     | Model Nr. Cassette | Weight (kg) | Hexagon Reducer      |                      | Hexagon Reducer      |                      |
|-------------------------------|----------------------------|-------------|----------|--------------------|-------------|----------------------|----------------------|----------------------|----------------------|
|                               |                            |             |          |                    |             | Hexagon Reducer (mm) | Model Number Reducer | Hexagon Reducer (mm) | Model Number Reducer |
| <b>W15000X</b><br>(20.785 Nm) | 65                         | 59,0        | 89       | W15209X            | 13,6        | -                    | -                    | -                    | -                    |
|                               | 70                         | 59,0        | 89       | W15212X            | 13,6        | -                    | -                    | -                    | -                    |
|                               | 75                         | 62,0        | 91       | W15215X            | 13,7        | -                    | -                    | -                    | -                    |
|                               | 80                         | 64,5        | 93       | W15302X            | 13,8        | 80 - 65              | W15302R209           | -                    | -                    |
|                               | 85                         | 69,5        | 97       | W15085MX           | 14,1        | 85 - 70              | W15085R070M          | -                    | -                    |
|                               | 90                         | 75,0        | 102      | W15090MX           | 14,5        | 90 - 75              | W15090R075M          | -                    | -                    |
|                               | 95                         | 75,0        | 102      | W15312X            | 14,6        | 95 - 80              | W15312R302           | 95 - 75              | W15312R215           |
|                               | 100                        | 80,5        | 103      | W15315X            | 14,8        | -                    | -                    | -                    | -                    |
|                               | 105                        | 80,5        | 103      | W15402X            | 14,8        | 105 - 90             | W15402R090M          | -                    | -                    |
|                               | 110                        | 87,5        | 115      | W15405X            | 15,1        | 110 - 95             | W15110R095M          | -                    | -                    |
|                               | 115                        | 87,5        | 115      | W15115MX           | 15,1        | 115 - 100            | W15115R100M          | -                    | -                    |
| <b>W22000X</b><br>(30.506 Nm) | 75                         | 67,0        | 102      | W22215X            | 22,0        | -                    | -                    | -                    | -                    |
|                               | 80                         | 67,0        | 102      | W22302X            | 21,6        | 80-60                | W22302R206           | 80 - 55              | W22302R203           |
|                               | 85                         | 73,0        | 107      | W22085MX           | 22,5        | 85-65                | W22085MR209          | 85 - 60              | W22085MR206          |
|                               | 90                         | 77,9        | 113      | W22090MX           | 23,4        | 90-70                | W22090MR212          | 90 - 60              | W22090MR206          |
|                               | 95                         | 77,9        | 113      | W22312X            | 22,9        | 95-75                | W22312R215           | -                    | -                    |
|                               | 100                        | 85,1        | 120      | W22315X            | 24,3        | -                    | -                    | -                    | -                    |
|                               | 105                        | 85,1        | 120      | W22402X            | 23,4        | -                    | -                    | -                    | -                    |
|                               | 110                        | 89,9        | 125      | W22405X            | 24,6        | -                    | -                    | -                    | -                    |
|                               | 115                        | 89,9        | 125      | W22115MX           | 24,0        | -                    | -                    | -                    | -                    |
|                               | 120                        | 95,0        | 130      | W22412X            | 24,7        | -                    | -                    | -                    | -                    |
|                               | 123                        | 95,0        | 130      | W22123MX           | 24,4        | -                    | -                    | -                    | -                    |
| <b>W35000X</b><br>(47.454 Nm) | 130                        | 100,0       | 135      | W22502X            | 25,0        | -                    | -                    | -                    | -                    |
|                               | 135                        | 100,0       | 135      | W22506X            | 23,9        | 135 - 105            | W22506R402           | -                    | -                    |
|                               | 80                         | 76,0        | 129      | W35302X            | 32,8        | 80 - 50              | W35302R200           | -                    | -                    |
|                               | 85                         | 76,0        | 129      | W35085MX           | 32,3        | -                    | -                    | -                    | -                    |
|                               | 90                         | 81,5        | 135      | W35090MX           | 33,5        | 90 - 60              | W35090R206           | -                    | -                    |
|                               | 95                         | 81,5        | 135      | W35312X            | 32,9        | -                    | -                    | -                    | -                    |
|                               | 100                        | 87,0        | 139      | W35315X            | 34,1        | -                    | -                    | -                    | -                    |
|                               | 105                        | 87,0        | 139      | W35402X            | 33,5        | -                    | -                    | -                    | -                    |
|                               | 110                        | 93,0        | 146      | W35405X            | 34,9        | 110 - 85             | W35405R085M          | -                    | -                    |
|                               | 115                        | 93,0        | 146      | W35115MX           | 34,2        | -                    | -                    | -                    | -                    |
|                               | 120                        | 100,0       | 153      | W35412X            | 35,6        | 120 - 95             | W35412R312           | -                    | -                    |
|                               | 123                        | 100,0       | 153      | W35123MX           | 35,0        | -                    | -                    | -                    | -                    |
|                               | 130                        | 103,0       | 160      | W35502X            | 35,8        | 130 - 105            | W35502R402           | -                    | -                    |
|                               | 135                        | 103,0       | 160      | W35506X            | 34,6        | 135 - 110            | W35506R405           | -                    | -                    |
|                               | 140                        | 110,0       | 163      | W35508X            | 36,2        | 140 - 115            | W35508R115M          | -                    | -                    |
|                               | 145                        | 110,0       | 163      | W35512X            | 34,9        | 145 - 120            | W35512R412           | -                    | -                    |
|                               | 150                        | 114,0       | 164      | W35514X            | 36,7        | -                    | -                    | -                    | -                    |
| 151                           | 114,0                      | 164         | W35151MX | 36,5               | -           | -                    | -                    | -                    |                      |
| 155                           | 114,0                      | 164         | W35602X  | 35,3               | 155 - 130   | W35602R502           | -                    | -                    |                      |

<sup>1)</sup> See page 407 for table of hexagon sizes of bolts, nuts and related thread diameters.

▼ W4206SL ultraslim bi-hexagonal stepped width cassette with W4000X drive unit



## Versatility

- Lean, stepped width design allows tool to be mounted over bolts where other tools won't fit
- Bi-Hexagonal cassette allows twice as many positioning points on nut or bolt
- Robust top mounted handle stays out of the way, providing safe fastening in hard to reach areas
- Uses same drive unit as standard W-series hexagon cassettes.

## Performance

- Premium components provide best-in-class endurance compared to other limited access tools.

## Ease of Use

- Few moving parts are easily accessible for quick field maintenance
- Fast release drive unit enables rapid exchange of cassettes, no tools required
- Top mounted straight handle for improved tool handling and safety.

## Accuracy

- Constant torque output provides accuracy of  $\pm 3\%$  across the full stroke
- Calibration certificate shipped with every cassette.

## Your easy and long lasting solution to difficult access bolting applications



### UltraSlim: Designed for Tight Spots

Stepped width design provides easy access in confined areas. UltraSlim cassettes fit where standard solutions won't.



### Built to Outperform

High endurance components keep working when others fail.



### Top Mounted Straight Handle

The top mounted straight handle is standard and provides safe and easy positioning and access to hard to reach fasteners.

|                            |              |
|----------------------------|--------------|
| Straight handle (standard) | <b>SWH6S</b> |
| Angled handle (optional)   | <b>SWH6A</b> |



### ATEX declared. Calibration certificate included.

All UltraSlim Series cassettes are CE - ATEX declared and are shipped complete with a calibration certificate.

CE II 2 GD T4



*Slim enough to fit and tough enough to last. This UltraSlim wrench is the perfect controlled bolting solution for this oil and gas flange. ▶*

# UltraSlim Bi-Hexagonal Cassettes

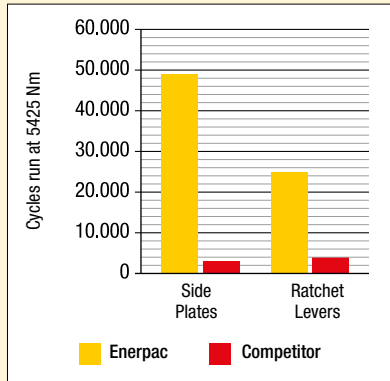


## UltraSlim Cassettes

Accessing narrow spaces normally requires significantly reducing the width of the torque wrench. For the tool operator, this has always meant vastly reduced tool durability, and/or reduced torque output.

By using the highest grade materials, perfecting the geometry, and placing the positioning handle on top of the tool for safe fastening, Enerpac UltraSlim cassettes are able to provide greater torque, get into tighter spaces, and vastly outperform the competition in product durability\*.

## Durability of Key Components\*



\* Average test results, whereby three Enerpac 46 mm UltraSlim cassettes and three competitor 46 mm cassettes were tested at 5425 Nm for 50,000 cycles. The Enerpac side plates never broke for the full duration of the test.

## W-SL Series UltraSlim



Nominal Torque Output:

**5911 Nm**

Bi-Hexagonal Range:

**46 - 75 mm / 1<sup>13</sup>/<sub>16</sub> - 2<sup>15</sup>/<sub>16</sub>"**

Maximum Operating Pressure:

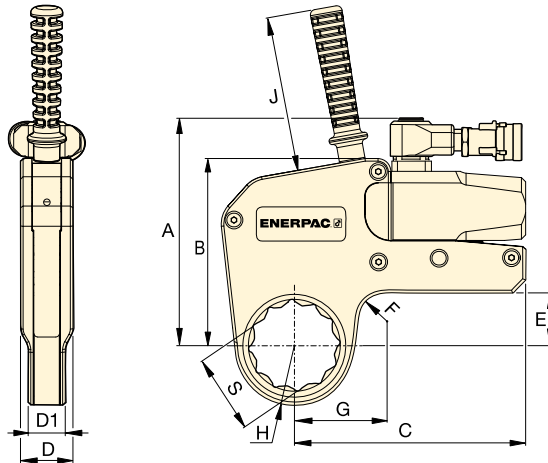
**690 bar**



## Torque Pump Selection Matrix

System matched air and electric torque pumps that are ideal for use with hydraulic wrenches.

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## Torque Wrench Hoses

Use Enerpac THQ-700 Series hoses with W-Series torque wrenches to ensure the integrity of your hydraulic system.

|                         |                |
|-------------------------|----------------|
| 2 meters long, 2 hoses  | <b>THQ702T</b> |
| 6 meters long, 2 hoses  | <b>THQ706T</b> |
| 12 meters long, 2 hoses | <b>THQ712T</b> |

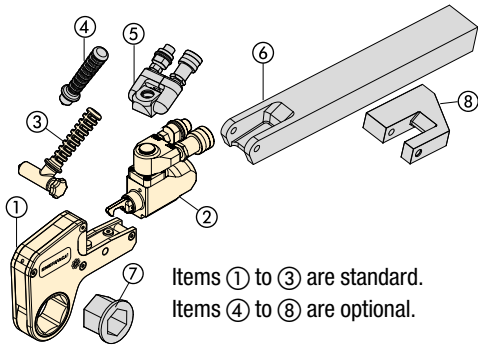
## SELECTION CHART

| Hexagonal Size |                                 | Nominal Torque @ 690 bar (Nm) | UltraSlim Cassette * Model Nr. | Minimum Torque @ 69 bar (Nm) | Nose Radius H (mm) | Dimensions (mm) |       |       |       |      |      |      |      |     | Drive Unit Model Nr. ** (sold separately) |               |
|----------------|---------------------------------|-------------------------------|--------------------------------|------------------------------|--------------------|-----------------|-------|-------|-------|------|------|------|------|-----|---|---------------|
| S (mm)         | S (inch)                        |                               |                                |                              |                    | G               | A     | B     | C     | D    | D1   | E    | F    | J   |   | (kg)          |
| 46             | 1 <sup>13</sup> / <sub>16</sub> | 2685                          | <b>W2113SL</b>                 | 269                          | 36,5               | 59,6            | 140,7 | 109,3 | 147,7 | 32,4 | 25,4 | 24,0 | 20,0 | 120 | 2,2                                       | <b>W2000X</b> |
| 50             | 2                               | 2685                          | <b>W2200SL</b>                 | 269                          | 38,8               | 61,1            |       |       |       |      |      |      |      |     | 2,2                                       |               |
| 55             | 2 <sup>3</sup> / <sub>16</sub>  | 2685                          | <b>W2203SL</b>                 | 269                          | 41,5               | 63,2            |       |       |       |      |      |      |      |     | 2,2                                       |               |
| 60             | 2 <sup>3</sup> / <sub>8</sub>   | 2685                          | <b>W2206SL</b>                 | 269                          | 44,5               | 65,1            |       |       |       |      |      |      |      |     | 2,2                                       |               |
| 46             | 1 <sup>13</sup> / <sub>16</sub> | 5911                          | <b>W4113SL</b>                 | 591                          | 39,5               | 67,2            | 175,6 | 144,5 | 178,5 | 40,5 | 28,6 | 40,8 | 20,0 | 120 | 4,6                                       | <b>W4000X</b> |
| 55             | 2 <sup>3</sup> / <sub>16</sub>  | 5911                          | <b>W4203SL</b>                 | 591                          | 44,0               | 68,7            |       |       |       |      |      |      |      |     | 4,6                                       |               |
| 60             | 2 <sup>3</sup> / <sub>8</sub>   | 5911                          | <b>W4206SL</b>                 | 591                          | 48,0               | 71,6            |       |       |       |      |      |      |      |     | 4,7                                       |               |
| 65             | 2 <sup>9</sup> / <sub>16</sub>  | 5911                          | <b>W4209SL</b>                 | 591                          | 50,5               | 74,1            |       |       |       |      |      |      |      |     | 4,7                                       |               |
| 70             | 2 <sup>3</sup> / <sub>4</sub>   | 5911                          | <b>W4212SL</b>                 | 591                          | 53,5               | 75,6            |       |       |       |      |      |      |      |     | 4,7                                       |               |
| 75             | 2 <sup>15</sup> / <sub>16</sub> | 5911                          | <b>W4215SL</b>                 | 591                          | 56,0               | 76,0            | 4,7   |       |       |      |      |      |      |     |   |               |

\* Bi-Hexagonal Cassette includes top mounted straight handle.

\*\* Cassette may also be used with W2000PX and W4000PX drive units, featuring double-swivel manifolds. Weight of drive units: W2000X = 1,4 kg; W4000X = 2,0 kg.





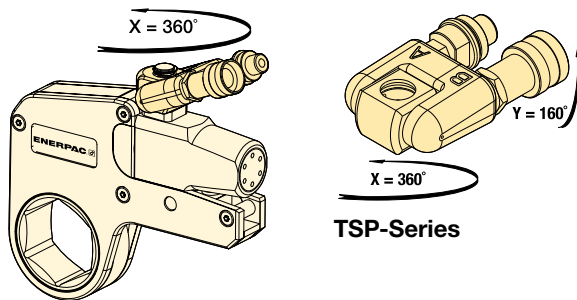
- ① Hexagon Cassette
- ② Drive Unit
- ③ Angled Positioning Handle
- ④ Straight Positioning Handle
- ⑤ Pro Series Swivel
- ⑥ Extended Reaction Arm
- ⑦ Reducer Insert
- ⑧ Reaction Paddle

Items ① to ③ are standard.  
Items ④ to ⑧ are optional.

## TSP WTE WRP Series



### TSP-Series, Pro Series Swivel

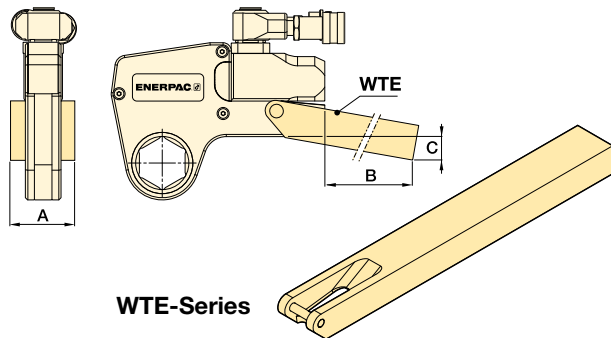


- Robust interlocking design
- 360° X-axis and 160° Y-axis rotation
- Increases tool fit in restricted access areas
- Simplifies hose placement
- Includes male and female couplers.

| For Torque Wrench Model Number                    | Model Number <sup>1)</sup> | Maximum Pressure (bar) | Weight (kg) |
|---|----------------------------|------------------------|-------------|
| W2000X, W4000X, W8000X, W15000X, W22000X, W35000X | TSP300                     | 690                    | 0,2         |

<sup>1)</sup> To order a W-Series (X-edition) drive unit fitted with a TSP300 tilt and swivel manifold, insert a "P" prior to the "X" in the tool model number, example: **W2000PX**. TSP300 is designed for X-Edition tools only, and is not compatible with standard edition tools. For replacement components for existing tools, refer to repair sheet on [www.enerpac.com](http://www.enerpac.com)

### WTE-Series, Extended Reaction Arm

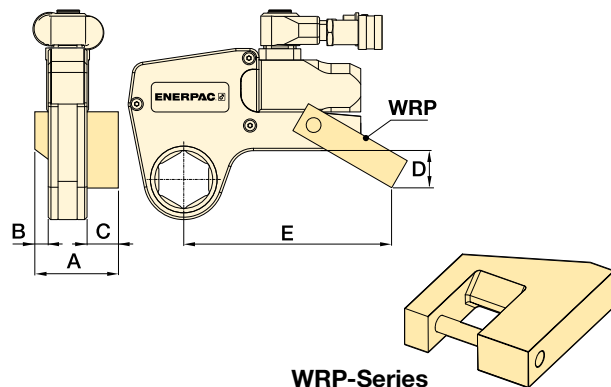


- Full torque rated
- Increases tool fit in restricted access areas.

| For Torque Wrench Model Number | Model Number | Dimensions (mm) |     |     | Weight (kg) * |
|--------------------------------|--------------|-----------------|-----|-----|---------------|
|                                |              | A               | B   | C   |               |
| W2000X                         | WTE20        | 56              | 398 | 76  | 2,6           |
| W4000X                         | WTE40        | 66              | 436 | 74  | 4,6           |
| W8000X                         | WTE80        | 85              | 449 | 55  | 7,6           |
| W15000X                        | WTE150       | 102             | 498 | 72  | 12,0          |
| W22000X                        | WTE220       | 114             | 524 | 77  | 17,3          |
| W35000X                        | WTE350       | 127             | 419 | 133 | 17,8          |

\* Weights indicated are for the accessories only and do not include the wrench.

### WRP-Series, Low Profile Reaction Paddles



- Lightweight interchangeable design
- Allows for offset reaction when in-line reaction is not available.

| For Torque Wrench Model Nr. | Model Number | Dimensions (mm) |    |    |     |     | Weight (kg) * |
|-----------------------------|--------------|-----------------|----|----|-----|-----|---------------|
|                             |              | A               | B  | C  | D   | E   |               |
| W2000X                      | WRP20        | 84              | 16 | 35 | 45  | 148 | 0,4           |
| W4000X                      | WRP40        | 109             | 21 | 47 | 59  | 190 | 0,8           |
| W8000X                      | WRP80        | 137             | 26 | 57 | 69  | 223 | 2,0           |
| W15000X                     | WRP150       | 165             | 32 | 69 | 87  | 257 | 3,9           |
| W22000X                     | WRP220       | 207             | 37 | 91 | 134 | 317 | 7,2           |
| W35000X                     | WRP350       | 225             | 42 | 91 | 182 | 367 | 10,6          |

\* Weights indicated are for the accessories only and do not include the wrench.

# Custom Torque Wrenches and Bolt Tensioners

Looking for customized components to help solve your torquing problems? Enerpac has the experience and capabilities to help find solutions to your problems.

Enerpac hydraulic torque wrenches are designed to accommodate most bolting applications. However, due to space constraints, location of reaction points or need for special sockets and adapters, there is often a need for customized components.



◀ Custom S6000X hydraulic torque wrench fitted with a custom reaction arm/socket.



◀ Enerpac Multi Stud Tensioning (MST) system capable of tensioning every single stud in a joint simultaneously.



◀ Custom hydraulic tensioners to suit 5 inch studs load output 4200 kN.

## Overview Custom Torque Wrenches and Bolt Tensioners



▲ Custom S11000X torque wrench with a custom torque link and reaction roller.

### Customizable features on torque wrenches:

- Reaction Arms
- Torque Links (split or layered for extremely space restricted applications)
- Reaction Roller Assemblies
- Sockets (direct drive, castellated, peg-drive, stacked)
- Drives (direct Allen, spline, square drive size)
- Hexagon Reducing and Square Drive Inserts.

### Customizable features on bolt tensioners:

- Adaptor kits with puller sleeves to suit different thread and/or pitch sizes
- Nut rotating sockets to accommodate different nut A/F (across flats) sizes
- Bridges to suit round or non-standard nuts or clear obstructions
- Sockets (direct drive, castellated, peg-drive, stacked)
- Load cells with various capacities
- Screw-on tensioners to overcome space restrictions.

▼ RSL-Drive Units with interchangeable RLP-Hexagon Cassette and RSQ-Square Drive Cassette



## Safety and Performance

- Innovative design that completely encloses all moving parts and minimizes pinch points
- 30-35° rotation angle provides added productivity while avoiding “tool lock on” which is common with some torque wrench designs.

## Simplicity

- Simple robust alloy steel design with just three moving parts for reduced maintenance
- Robust handles are available for both sides and the tops of cassettes to allow for extra maneuverability
- Designed to give optimum strength to weight and torque to weight ratios
- Minimum nose radius for trouble-free tool fit.

## Versatility

- Interchangeable cassette design
- Wide range of hexagon sizes available for all applications
- Reaction arm has a simple dial lock for rapid change
- For use in multiple industrial, energy, and oil and gas applications.

## Accuracy

- Constant torque output provides accuracy of  $\pm 3\%$  across the full stroke.

## Setting New Standards in Safety, Simplicity and Performance



### RLP-Low Profile Hexagon Cassettes

For the metric and imperial sizes of hexagon cassettes see pages 236 - 243.



### RSQ-Square Drive Cassettes

RSQ-Square Drive Cassettes are interchangeable with the RLP-Hexagon Cassettes. They all use the same RSL-drive unit.

Page: 244



### Back-Up Spanners, BUS-Series

To be used to stop the back nut from turning during make up or break out. Two hexagon sizes in one tool.

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### Torque Pumps

Visit [enerpac.com](http://enerpac.com) for system matched air and electric torque pumps that are ideal for use with hydraulic torque wrenches.

Page: 265



### Torque Wrench Hoses

Use Enerpac THQ700-Series torque wrench hoses with RSL-Series torque wrenches to ensure the integrity of your hydraulic system.

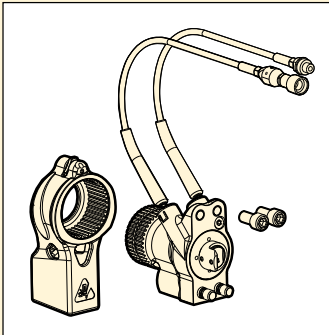
|                         |                |
|-------------------------|----------------|
| 2 meters long, 2 hoses  | <b>THQ702T</b> |
| 6 meters long, 2 hoses  | <b>THQ706T</b> |
| 12 meters long, 2 hoses | <b>THQ712T</b> |

# Drive Units for Hexagon & Square Drive Cassettes

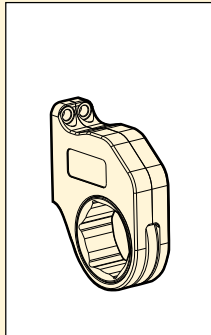


## One Drive, Two Tools

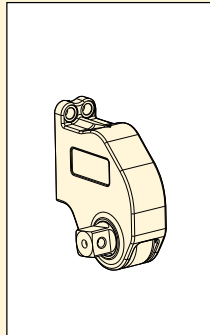
One RSL-Hydraulic Drive Unit fits RLP-Hexagon Cassette or RSQ-Square Drive Cassette.



RSL



RLP... / RLP...SL



RSQ

## RSL Series



Maximum Torque at 690 bar:

**1909 - 37.965 Nm**

Hexagon Range:

**7/8 - 6 1/8 inch**

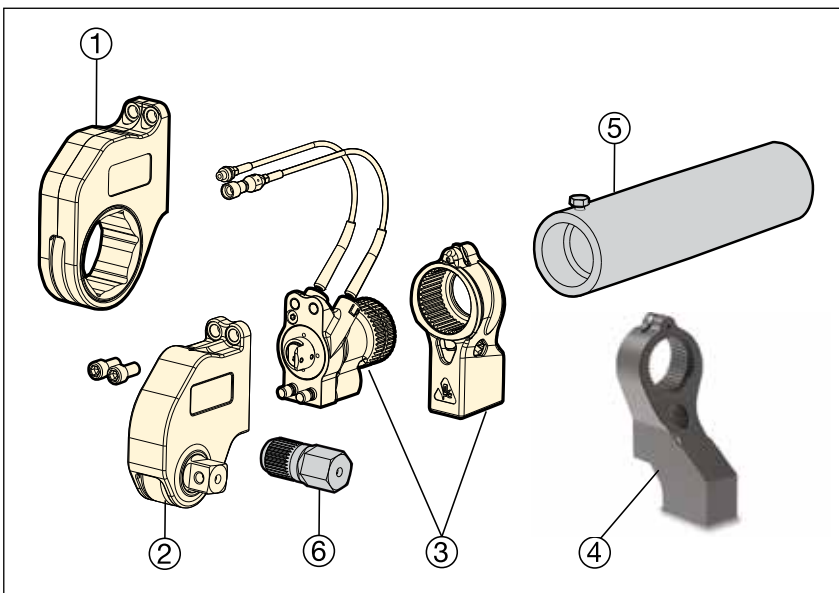
Hexagon Range:

**26 - 155 mm**

Maximum Operating Pressure:

**690 bar**

## ▼ TORQUE WRENCH OPTIONS AND ACCESSORIES



- ① RLP-Hexagon Cassette (pages 236-240)  
RLP-SL-Slimline Hexagon Cassette (pages 242-243)
- ② RSQ-Square Drive Cassette (pages 244-245)
- ③ RSL-Drive Unit and Reaction Arm (page 235)

### Optional Parts (page 241)

- ④ ERA-Extended Reaction Arm, for RSQ only
- ⑤ ERT-Extended Reaction Tube, for RLP only

### Optional Parts (only available per request)

- ⑥ Hexagon Bit

## ▼ SELECTION CHART

| Hexagon Cassette Range (A/F)<br>(see pages 236 - 243 for sizes and model numbers) |          | Maximum Torque Output at 690 bar |        | Drive Unit Model Number | Minimum Torque Output at 69 bar |      | (kg) |
|---|----------|----------------------------------|--------|-------------------------|---------------------------------|------|------|
| (inch)  | (mm)     | (Ft.lbs)                         | (Nm)   |                         | (Ft.lbs)                        | (Nm) |      |
| 7/8 - 2 3/8   | 26 - 60  | 1408                             | 1909   | <b>RSL1500</b>          | 141                             | 191  | 1,6  |
| 1 5/16 - 2 15/16  | 33 - 75  | 3080                             | 4176   | <b>RSL3000</b>          | 308                             | 417  | 2,6  |
| 1 11/16 - 3 1/8   | 46 - 80  | 5303                             | 7190   | <b>RSL5000</b>          | 530                             | 719  | 4,1  |
| 2 3/8 - 3 1/8   | 60 - 80  | 7862                             | 10.659 | <b>RSL8000</b>          | 786                             | 1066 | 4,9  |
| 2 7/16 - 4 5/8  | 62 - 110 | 11.154                           | 15.123 | <b>RSL11000</b>         | 1115                            | 1512 | 5,3  |
| 2 15/16 - 4 5/8   | 75 - 115 | 18.843                           | 25.547 | <b>RSL19000</b>         | 1884                            | 2554 | 9,1  |
| 3 1/8 - 6 1/8   | 80 - 155 | 28.002                           | 37.965 | <b>RSL28000</b>         | 2800                            | 3796 | 10,0 |



## Select the Right Torque: Use Enerpac Bolting Integrity Software Solutions

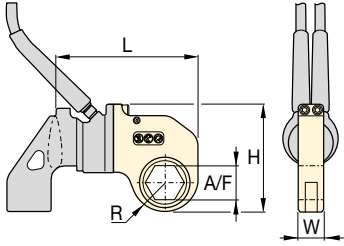
Comprehensive on-line software solutions for Bolted Joint Integrity.

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report. Custom Joint information can also be entered.



# Hexagon Cassettes for RSL-Series

**ENERPAC** 



Hexagon Range:  
**7/8 - 6 1/8 inch**



Hexagon Range:  
**26 - 155 mm**

Maximum Operating Pressure:  
**690 bar**

**RSL  
Series**



▼ **SELECTION CHART**

| Drive Unit Model Number | Hexagon Size A/F |                | Hexagon Cassette Model Number | Maximum Torque |      | Dimensions (inch) |      |      |      |  | Dimensions (mm) |       |       |       |  |
|-------------------------|------------------|----------------|-------------------------------|----------------|------|-------------------|------|------|------|---|-----------------|-------|-------|-------|---|
|                         | (inch)           | (mm)           |                               | (Ft.lbs)       | (Nm) | R                 | L    | W    | H    |   | (lbs)           | R     | L     | W     |   |
| <b>RSL1500</b>          | 7/8              | -              | <b>RLP1014</b>                | 320            | 434  | 0.79              | 6.00 | 1.25 | 4.33 | 2.2   | 20,1            | 152,4 | 31,8  | 110,0 | 1,0   |
|                         | 1 1/16           | <b>26</b>      | <b>RLP1101</b>                | 640            | 868  | 0.95              | 6.05 | 1.25 | 4.50 | 2.2   | 24,1            | 153,7 | 31,8  | 114,3 | 1,0   |
|                         | 1 1/8            | -              | <b>RLP1102</b>                | 640            | 868  | 1.03              | 6.12 | 1.25 | 4.57 | 2.3   | 26,2            | 155,4 | 31,8  | 116,1 | 1,0   |
|                         | 1 3/16           | <b>30</b>      | <b>RLP1103</b>                | 640            | 868  | 1.03              | 6.12 | 1.25 | 4.57 | 2.3   | 26,2            | 155,4 | 31,8  | 116,1 | 1,0   |
|                         | 1 1/4            | <b>32</b>      | <b>RLP1104</b>                | 640            | 868  | 1.03              | 6.12 | 1.25 | 4.57 | 2.3   | 26,2            | 155,4 | 31,8  | 116,1 | 1,0   |
|                         | 1 5/16           | <b>33</b>      | <b>RLP1105</b>                | 900            | 1220 | 1.15              | 6.24 | 1.25 | 4.69 | 2.4   | 29,2            | 158,5 | 31,8  | 119,1 | 1,1   |
|                         | 1 3/8            | <b>35</b>      | <b>RLP1106</b>                | 900            | 1220 | 1.15              | 6.24 | 1.25 | 4.69 | 2.4   | 29,2            | 158,5 | 31,8  | 119,1 | 1,1   |
|                         | 1 7/16           | <b>36</b>      | <b>RLP1107</b>                | 900            | 1220 | 1.15              | 6.24 | 1.25 | 4.69 | 2.4   | 29,2            | 158,5 | 31,8  | 119,1 | 1,1   |
|                         | 1 1/2            | <b>38</b>      | <b>RLP1108</b>                | 1408           | 1909 | 1.31              | 6.41 | 1.25 | 4.86 | 2.7   | 33,3            | 162,8 | 31,8  | 123,4 | 1,2   |
|                         | 1 9/16           | -              | <b>RLP1109</b>                | 1408           | 1909 | 1.31              | 6.41 | 1.25 | 4.86 | 2.7   | 33,3            | 162,8 | 31,8  | 123,4 | 1,2   |
|                         | 1 5/8            | <b>41</b>      | <b>RLP1110</b>                | 1408           | 1909 | 1.31              | 6.41 | 1.25 | 4.86 | 2.7   | 33,3            | 162,8 | 31,8  | 123,4 | 1,2   |
|                         | 1 11/16          | -              | <b>RLP1111</b>                | 1408           | 1909 | 1.40              | 6.49 | 1.25 | 4.94 | 2.7   | 35,6            | 164,8 | 31,8  | 125,5 | 1,2   |
|                         | 1 3/4            | -              | <b>RLP1112</b>                | 1408           | 1909 | 1.40              | 6.49 | 1.25 | 4.94 | 2.7   | 35,6            | 164,8 | 31,8  | 125,5 | 1,2   |
|                         | 1 13/16          | <b>46</b>      | <b>RLP1113</b>                | 1408           | 1909 | 1.40              | 6.49 | 1.25 | 4.94 | 2.7   | 35,6            | 164,8 | 31,8  | 125,5 | 1,2   |
|                         | 1 7/8            | -              | <b>RLP1114</b>                | 1408           | 1909 | 1.48              | 6.58 | 1.25 | 5.03 | 2.7   | 37,6            | 167,1 | 31,8  | 127,8 | 1,2   |
|                         | 1 9/16           | -              | <b>RLP1115</b>                | 1408           | 1909 | 1.48              | 6.58 | 1.25 | 5.03 | 2.7   | 37,6            | 167,1 | 31,8  | 127,8 | 1,2   |
|                         | 2                | <b>50</b>      | <b>RLP1200</b>                | 1408           | 1909 | 1.48              | 6.58 | 1.25 | 5.03 | 2.7   | 37,6            | 167,1 | 31,8  | 127,8 | 1,2   |
|                         | 2 1/16           | -              | <b>RLP1201</b>                | 1408           | 1909 | 1.58              | 6.68 | 1.25 | 5.13 | 2.7   | 40,1            | 169,7 | 31,8  | 130,3 | 1,2   |
|                         | 2 1/8            | -              | <b>RLP1202</b>                | 1408           | 1909 | 1.58              | 6.68 | 1.25 | 5.13 | 2.7   | 40,1            | 169,7 | 31,8  | 130,3 | 1,2   |
|                         | 2 3/16           | <b>55</b>      | <b>RLP1203</b>                | 1408           | 1909 | 1.58              | 6.68 | 1.25 | 5.13 | 2.7   | 40,1            | 169,7 | 31,8  | 130,3 | 1,2   |
| 2 1/4                   | -                | <b>RLP1204</b> | 1408                          | 1909           | 1.70 | 6.79              | 1.25 | 5.24 | 2.8  | 43,2  | 172,5           | 31,8  | 133,1 | 1,3   |   |
| 2 5/16                  | -                | <b>RLP1205</b> | 1408                          | 1909           | 1.70 | 6.79              | 1.25 | 5.24 | 2.8  | 43,2  | 172,5           | 31,8  | 133,1 | 1,3   |   |
| 2 3/8                   | <b>60</b>        | <b>RLP1206</b> | 1408                          | 1909           | 1.70 | 6.79              | 1.25 | 5.24 | 2.8  | 43,2  | 172,5           | 31,8  | 133,1 | 1,3   |   |
| <b>RSL3000</b>          | 1 5/16           | <b>33</b>      | <b>RLP3105</b>                | 900            | 1220 | 1.18              | 7.62 | 1.38 | 5.49 | 3.5   | 30,0            | 193,5 | 35,1  | 139,4 | 1,6   |
|                         | 1 3/8            | <b>35</b>      | <b>RLP3106</b>                | 900            | 1220 | 1.18              | 7.62 | 1.38 | 5.49 | 3.5   | 30,0            | 193,5 | 35,1  | 139,4 | 1,6   |
|                         | 1 7/16           | <b>36</b>      | <b>RLP3107</b>                | 900            | 1220 | 1.18              | 7.62 | 1.38 | 5.49 | 3.5   | 30,0            | 193,5 | 35,1  | 139,4 | 1,6   |
|                         | 1 1/2            | <b>38</b>      | <b>RLP3108</b>                | 1200           | 1627 | 1.32              | 7.77 | 1.38 | 5.63 | 3.9   | 33,5            | 197,4 | 35,1  | 143,0 | 1,8   |
|                         | 1 9/16           | -              | <b>RLP3109</b>                | 1200           | 1627 | 1.32              | 7.77 | 1.38 | 5.63 | 3.9   | 33,5            | 197,4 | 35,1  | 143,0 | 1,8   |
|                         | 1 5/8            | <b>41</b>      | <b>RLP3110</b>                | 1200           | 1627 | 1.32              | 7.77 | 1.38 | 5.63 | 3.9   | 33,5            | 197,4 | 35,1  | 143,0 | 1,8   |
|                         | 1 11/16          | -              | <b>RLP3111</b>                | 1900           | 2576 | 1.47              | 7.87 | 1.38 | 5.78 | 4.0   | 37,3            | 199,9 | 35,1  | 146,8 | 1,8   |
|                         | 1 3/4            | -              | <b>RLP3112</b>                | 1900           | 2576 | 1.47              | 7.87 | 1.38 | 5.78 | 4.0   | 37,3            | 199,9 | 35,1  | 146,8 | 1,8   |
|                         | 1 13/16          | <b>46</b>      | <b>RLP3113</b>                | 1900           | 2576 | 1.47              | 7.87 | 1.38 | 5.78 | 4.0   | 37,3            | 199,9 | 35,1  | 146,8 | 1,8   |
|                         | 1 7/8            | -              | <b>RLP3114</b>                | 2600           | 3526 | 1.60              | 8.04 | 1.38 | 5.92 | 4.5   | 40,6            | 204,2 | 35,1  | 150,4 | 2,0   |
|                         | 1 15/16          | -              | <b>RLP3115</b>                | 2600           | 3526 | 1.60              | 8.04 | 1.38 | 5.92 | 4.5   | 40,6            | 204,2 | 35,1  | 150,4 | 2,0   |
|                         | 2                | <b>50</b>      | <b>RLP3200</b>                | 2600           | 3526 | 1.60              | 8.04 | 1.38 | 5.92 | 4.5   | 40,6            | 204,2 | 35,1  | 150,4 | 2,0   |
|                         | 2 1/16           | -              | <b>RLP3201</b>                | 3080           | 4176 | 1.76              | 8.16 | 1.38 | 6.08 | 4.7   | 44,7            | 207,3 | 35,1  | 154,4 | 2,1   |
|                         | 2 1/8            | -              | <b>RLP3202</b>                | 3080           | 4176 | 1.76              | 8.16 | 1.38 | 6.08 | 4.7   | 44,7            | 207,3 | 35,1  | 154,4 | 2,1   |
|                         | 2 3/16           | <b>55</b>      | <b>RLP3203</b>                | 3080           | 4176 | 1.76              | 8.16 | 1.38 | 6.08 | 4.7   | 44,7            | 207,3 | 35,1  | 154,4 | 2,1   |
|                         | 2 1/4            | -              | <b>RLP3204</b>                | 3080           | 4176 | 1.84              | 8.25 | 1.38 | 6.15 | 4.8   | 46,7            | 209,6 | 35,1  | 156,2 | 2,2   |
|                         | 2 5/16           | -              | <b>RLP3205</b>                | 3080           | 4176 | 1.84              | 8.25 | 1.38 | 6.15 | 4.8   | 46,7            | 209,6 | 35,1  | 156,2 | 2,2   |
|                         | 2 3/8            | <b>60</b>      | <b>RLP3206</b>                | 3080           | 4176 | 1.84              | 8.25 | 1.38 | 6.15 | 4.8   | 46,7            | 209,6 | 35,1  | 156,2 | 2,2   |
|                         | 2 7/16           | <b>62</b>      | <b>RLP3207</b>                | 3080           | 4176 | 1.95              | 8.14 | 1.38 | 6.26 | 4.6   | 49,5            | 206,8 | 35,1  | 159,0 | 2,1   |
|                         | 2 1/2            | <b>63</b>      | <b>RLP3208</b>                | 3080           | 4176 | 1.95              | 8.14 | 1.38 | 6.26 | 4.6   | 49,5            | 206,8 | 35,1  | 159,0 | 2,1   |
|                         | 2 9/16           | <b>65</b>      | <b>RLP3209</b>                | 3080           | 4176 | 1.95              | 8.14 | 1.38 | 6.26 | 4.6   | 49,5            | 206,8 | 35,1  | 159,0 | 2,1   |
|                         | 2 5/8            | -              | <b>RLP3210</b>                | 3080           | 4176 | 2.04              | 8.23 | 1.38 | 6.36 | 4.4   | 51,8            | 209,0 | 35,1  | 161,5 | 2,0   |
|                         | 2 11/16          | -              | <b>RLP3211</b>                | 3080           | 4176 | 2.04              | 8.23 | 1.38 | 6.36 | 4.4   | 51,8            | 209,0 | 35,1  | 161,5 | 2,0   |
|                         | 2 3/4            | <b>70</b>      | <b>RLP3212</b>                | 3080           | 4176 | 2.04              | 8.23 | 1.38 | 6.36 | 4.4   | 51,8            | 209,0 | 35,1  | 161,5 | 2,0   |
| 2 13/16                 | -                | <b>RLP3213</b> | 3080                          | 4176           | 2.16 | 8.34              | 1.38 | 6.54 | 4.7  | 54,9  | 211,8           | 35,1  | 166,1 | 2,1   |   |
| 2 7/8                   | -                | <b>RLP3214</b> | 3080                          | 4176           | 2.16 | 8.34              | 1.38 | 6.54 | 4.7  | 54,9  | 211,8           | 35,1  | 166,1 | 2,1   |   |
| 2 15/16                 | <b>75</b>        | <b>RLP3215</b> | 3080                          | 4176           | 2.16 | 8.34              | 1.38 | 6.54 | 4.7  | 54,9  | 211,8           | 35,1  | 166,1 | 2,1   |   |

**IMPORTANT:** RSL-drive units must be ordered separately to operate the RLP-Hexagon Cassettes.

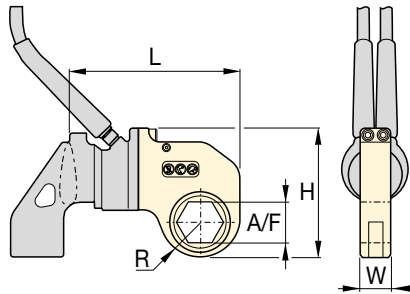
# Hexagon Cassettes for RSL-Series

Hexagon Range:  
**7/8 - 6 1/8 inch**

Hexagon Range:  
**26 - 155 mm**

Maximum Operating Pressure:  
**690 bar**

**RSL  
Series**



### Slimline Stepped-Width Hexagon Cassettes

For accessing narrow spaces RLP...SL Stepped-Width Hexagon Cassettes are available. Slimline cassettes use same drive unit as standard RLP-cassettes.

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## ▼ SELECTION CHART

| Drive Unit Model Number | Hexagon Size A/F |         | Hexagon Cassette Model Number | Maximum Torque |        | Dimensions (inch) |      |      |      | ⚖️ (lbs) | Dimensions (mm) |       |       |       | ⚖️ (kg) |
|-------------------------|------------------|---------|-------------------------------|----------------|--------|-------------------|------|------|------|----------|-----------------|-------|-------|-------|---------|
|                         | (inch)           | (mm)    |                               | (Ft.lbs)       | (Nm)   | R                 | L    | W    | H    |          | R               | L     | W     | H     |         |
| RSL5000                 | 1 11/16          | -       | RLP5111                       | 2600           | 3526   | 1.61              | 9.08 | 1.75 | 6.52 | 6.6      | 40,9            | 230,6 | 44,5  | 165,6 | 3,0     |
|                         | 1 3/4            | -       | RLP5112                       | 2600           | 3526   | 1.61              | 9.08 | 1.75 | 6.52 | 6.6      | 40,9            | 230,6 | 44,5  | 165,6 | 3,0     |
|                         | 1 13/16          | 46      | RLP5113                       | 2600           | 3526   | 1.61              | 9.08 | 1.75 | 6.52 | 6.6      | 40,9            | 230,6 | 44,5  | 165,6 | 3,0     |
|                         | 1 7/8            | -       | RLP5114                       | 2600           | 3526   | 1.61              | 9.08 | 1.75 | 6.52 | 6.6      | 40,9            | 230,6 | 44,5  | 165,6 | 3,0     |
|                         | 1 15/16          | -       | RLP5115                       | 2600           | 3526   | 1.61              | 9.08 | 1.75 | 6.52 | 6.6      | 40,9            | 230,6 | 44,5  | 165,6 | 3,0     |
|                         | 2                | 50      | RLP5200                       | 2600           | 3526   | 1.61              | 9.08 | 1.75 | 6.52 | 6.6      | 40,9            | 230,6 | 44,5  | 165,6 | 3,0     |
|                         | 2 1/16           | -       | RLP5201                       | 3500           | 4746   | 1.71              | 9.18 | 1.75 | 6.62 | 6.5      | 43,4            | 233,2 | 44,5  | 168,1 | 2,9     |
|                         | 2 1/8            | -       | RLP5202                       | 3500           | 4746   | 1.71              | 9.18 | 1.75 | 6.62 | 6.5      | 43,4            | 233,2 | 44,5  | 168,1 | 2,9     |
|                         | 2 3/16           | 55      | RLP5203                       | 3500           | 4746   | 1.71              | 9.18 | 1.75 | 6.62 | 6.5      | 43,4            | 233,2 | 44,5  | 168,1 | 2,9     |
|                         | 2 1/4            | -       | RLP5204                       | 4500           | 6102   | 1.87              | 9.34 | 1.75 | 6.78 | 7.0      | 47,5            | 237,2 | 44,5  | 172,2 | 3,2     |
|                         | 2 5/16           | -       | RLP5205                       | 4500           | 6102   | 1.87              | 9.34 | 1.75 | 6.78 | 7.0      | 47,5            | 237,2 | 44,5  | 172,2 | 3,2     |
|                         | 2 3/8            | 60      | RLP5206                       | 4500           | 6102   | 1.87              | 9.34 | 1.75 | 6.78 | 7.0      | 47,5            | 237,2 | 44,5  | 172,2 | 3,2     |
|                         | 2 7/16           | 62      | RLP5207                       | 5303           | 7191   | 2.01              | 9.48 | 1.75 | 6.92 | 7.0      | 51,1            | 240,8 | 44,5  | 175,8 | 3,2     |
|                         | 2 1/2            | 63      | RLP5208                       | 5303           | 7191   | 2.01              | 9.48 | 1.75 | 6.92 | 7.0      | 51,1            | 240,8 | 44,5  | 175,8 | 3,2     |
|                         | 2 9/16           | 65      | RLP5209                       | 5303           | 7191   | 2.01              | 9.48 | 1.75 | 6.92 | 7.0      | 51,1            | 240,8 | 44,5  | 175,8 | 3,2     |
|                         | 2 5/8            | -       | RLP5210                       | 5303           | 7191   | 2.16              | 9.63 | 1.75 | 7.07 | 7.5      | 54,9            | 244,6 | 44,5  | 179,6 | 3,4     |
|                         | 2 11/16          | -       | RLP5211                       | 5303           | 7191   | 2.16              | 9.63 | 1.75 | 7.07 | 7.5      | 54,9            | 244,6 | 44,5  | 179,6 | 3,4     |
|                         | 2 3/4            | 70      | RLP5212                       | 5303           | 7191   | 2.16              | 9.63 | 1.75 | 7.07 | 7.5      | 54,9            | 244,6 | 44,5  | 179,6 | 3,4     |
|                         | 2 13/16          | -       | RLP5213                       | 5303           | 7191   | 2.24              | 9.71 | 1.75 | 7.15 | 7.5      | 56,9            | 246,6 | 44,5  | 181,6 | 3,4     |
|                         | 2 7/8            | -       | RLP5214                       | 5303           | 7191   | 2.24              | 9.71 | 1.75 | 7.15 | 7.5      | 56,9            | 246,6 | 44,5  | 181,6 | 3,4     |
| 2 15/16                 | 75               | RLP5215 | 5303                          | 7191           | 2.24   | 9.71              | 1.75 | 7.15 | 7.5  | 56,9     | 246,6           | 44,5  | 181,6 | 3,4   |         |
| 3                       | -                | RLP5300 | 5303                          | 7191           | 2.26   | 9.73              | 1.75 | 7.17 | 7.2  | 57,4     | 247,1           | 44,5  | 182,1 | 3,3   |         |
| 3 1/16                  | -                | RLP5301 | 5303                          | 7191           | 2.26   | 9.73              | 1.75 | 7.17 | 7.2  | 57,4     | 247,1           | 44,5  | 182,1 | 3,3   |         |
| 3 1/8                   | 80               | RLP5302 | 5303                          | 7191           | 2.26   | 9.73              | 1.75 | 7.17 | 7.2  | 57,4     | 247,1           | 44,5  | 182,1 | 3,3   |         |
| RSL8000                 | 2 5/8            | 60      | RLP8206                       | 4500           | 6102   | 1.87              | 9.53 | 2.25 | 7.00 | 8.9      | 47,5            | 242,1 | 57,2  | 177,8 | 4,0     |
|                         | 2 7/16           | 62      | RLP8207                       | 5800           | 7865   | 2.01              | 9.67 | 2.25 | 7.13 | 9.0      | 51,1            | 245,6 | 57,2  | 181,1 | 4,1     |
|                         | 2 1/2            | 63      | RLP8208                       | 5800           | 7865   | 2.01              | 9.67 | 2.25 | 7.13 | 9.0      | 51,1            | 245,6 | 57,2  | 181,1 | 4,1     |
|                         | 2 9/16           | 65      | RLP8209                       | 5800           | 7865   | 2.01              | 9.67 | 2.25 | 7.13 | 9.0      | 51,1            | 245,6 | 57,2  | 181,1 | 4,1     |
|                         | 2 5/8            | -       | RLP8210                       | 7862           | 10.661 | 2.16              | 9.82 | 2.25 | 7.28 | 9.6      | 54,9            | 249,4 | 57,2  | 184,9 | 4,4     |
|                         | 2 11/16          | -       | RLP8211                       | 7862           | 10.661 | 2.16              | 9.82 | 2.25 | 7.28 | 9.6      | 54,9            | 249,4 | 57,2  | 184,9 | 4,4     |
|                         | 2 3/4            | 70      | RLP8212                       | 7862           | 10.661 | 2.16              | 9.82 | 2.25 | 7.28 | 9.6      | 54,9            | 249,4 | 57,2  | 184,9 | 4,4     |
|                         | 2 13/16          | -       | RLP8213                       | 7862           | 10.661 | 2.24              | 9.90 | 2.25 | 7.38 | 9.6      | 56,9            | 251,5 | 57,2  | 187,5 | 4,4     |
|                         | 2 7/8            | -       | RLP8214                       | 7862           | 10.661 | 2.24              | 9.90 | 2.25 | 7.38 | 9.6      | 56,9            | 251,5 | 57,2  | 187,5 | 4,4     |
|                         | 2 15/16          | 75      | RLP8215                       | 7862           | 10.661 | 2.24              | 9.90 | 2.25 | 7.38 | 9.6      | 56,9            | 251,5 | 57,2  | 187,5 | 4,4     |
|                         | 3                | -       | RLP8300                       | 7862           | 10.661 | 2.26              | 9.92 | 2.25 | 7.39 | 9.3      | 57,4            | 252,0 | 57,2  | 187,7 | 4,2     |
|                         | 3 1/16           | -       | RLP8301                       | 7862           | 10.661 | 2.26              | 9.92 | 2.25 | 7.39 | 9.3      | 57,4            | 252,0 | 57,2  | 187,7 | 4,2     |
|                         | 3 1/8            | 80      | RLP8302                       | 7862           | 10.661 | 2.26              | 9.92 | 2.25 | 7.39 | 9.3      | 57,4            | 252,0 | 57,2  | 187,7 | 4,2     |

**IMPORTANT:** RSL-drive units must be ordered separately to operate the RLP-Hexagon Cassettes.

# Hexagon Cassettes for RSL-Series

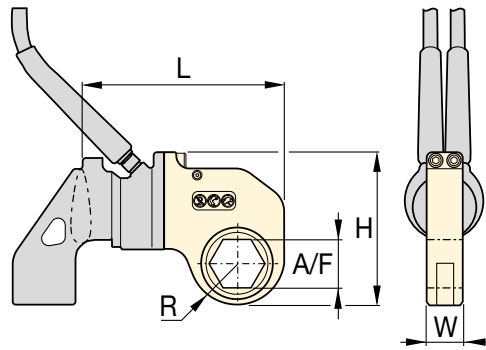
**ENERPAC** 

Hexagon Range:  
**7/8 - 6 1/8 inch**



Hexagon Range:  
**26 - 155 mm**

Maximum Operating Pressure:  
**690 bar**

**RSL**  
Series



▼ **SELECTION CHART**

| Drive Unit Model Number | Hexagon Size A/F |           | Hexagon Cassette Model Number | Maximum Torque |        | Dimensions (inch) |       |      |      |  | Dimensions (mm) |       |       |       |  |
|-------------------------|------------------|-----------|-------------------------------|----------------|--------|-------------------|-------|------|------|---|-----------------|-------|-------|-------|---|
|                         | (inch)           | (mm)      |                               | (Ft.lbs)       | (Nm)   | R                 | L     | W    | H    | (lbs)   | R               | L     | W     | H     | (kg)  |
| RSL11000                | 27/16            | 62        | RLP11207                      | 5800           | 7865   | 1.98              | 10.00 | 2.50 | 8.03 | 14.2  | 50,3            | 254,0 | 63,5  | 204,0 | 6,4   |
|                         | 2 1/2            | -         | RLP11208                      | 5800           | 7865   | 1.98              | 10.00 | 2.50 | 8.03 | 14.2  | 50,3            | 254,0 | 63,5  | 204,0 | 6,4   |
|                         | 29/16            | 65        | RLP11209                      | 5800           | 7865   | 1.98              | 10.00 | 2.50 | 8.03 | 14.2  | 50,3            | 254,0 | 63,5  | 204,0 | 6,4   |
|                         | 25/8             | -         | RLP11210                      | 7300           | 9899   | 2.19              | 11.20 | 2.50 | 8.23 | 14.8  | 55,6            | 284,5 | 63,5  | 209,0 | 6,7   |
|                         | 2 1/16           | -         | RLP11211                      | 7300           | 9899   | 2.19              | 11.20 | 2.50 | 8.23 | 14.8  | 55,6            | 284,5 | 63,5  | 209,0 | 6,7   |
|                         | 2 3/4            | 70        | RLP11212                      | 7300           | 9899   | 2.19              | 11.20 | 2.50 | 8.23 | 14.8  | 55,6            | 284,5 | 63,5  | 209,0 | 6,7   |
|                         | 2 13/16          | -         | RLP11213                      | 9000           | 12.204 | 2.29              | 11.31 | 2.50 | 8.34 | 14.8  | 58,2            | 287,3 | 63,5  | 211,8 | 6,7   |
|                         | 2 7/8            | -         | RLP11214                      | 9000           | 12.204 | 2.29              | 11.31 | 2.50 | 8.34 | 14.8  | 58,2            | 287,3 | 63,5  | 211,8 | 6,7   |
|                         | 2 5/16           | 75        | RLP11215                      | 9000           | 12.204 | 2.29              | 11.31 | 2.50 | 8.34 | 14.8  | 58,2            | 287,3 | 63,5  | 211,8 | 6,7   |
|                         | 3                | -         | RLP11300                      | 11.154         | 15.125 | 2.43              | 11.44 | 2.50 | 8.47 | 15.2  | 61,7            | 290,6 | 63,5  | 215,1 | 6,9   |
|                         | 3 1/16           | -         | RLP11301                      | 11.154         | 15.125 | 2.43              | 11.44 | 2.50 | 8.47 | 15.2  | 61,7            | 290,6 | 63,5  | 215,1 | 6,9   |
|                         | 3 3/8            | 80        | RLP11302                      | 11.154         | 15.125 | 2.43              | 11.44 | 2.50 | 8.47 | 15.2  | 61,7            | 290,6 | 63,5  | 215,1 | 6,9   |
|                         | 3 3/16           | -         | RLP11303                      | 11.154         | 15.125 | 2.60              | 11.71 | 2.50 | 8.64 | 16.6  | 66,0            | 297,4 | 63,5  | 219,5 | 7,5   |
|                         | -                | 85        | RLP11085M                     | 11.154         | 15.125 | 2.60              | 11.71 | 2.50 | 8.64 | 16.6  | 66,0            | 297,4 | 63,5  | 219,5 | 7,5   |
|                         | 3 1/4            | -         | RLP11304                      | 11.154         | 15.125 | 2.60              | 11.71 | 2.50 | 8.64 | 16.6  | 66,0            | 297,4 | 63,5  | 219,5 | 7,5   |
|                         | 3 5/16           | -         | RLP11305                      | 11.154         | 15.125 | 2.60              | 11.71 | 2.50 | 8.64 | 16.6  | 66,0            | 297,4 | 63,5  | 219,5 | 7,5   |
|                         | 3 3/8            | -         | RLP11306                      | 11.154         | 15.125 | 2.60              | 11.71 | 2.50 | 8.64 | 16.6  | 66,0            | 297,4 | 63,5  | 219,5 | 7,5   |
|                         | 3 7/16           | -         | RLP11307                      | 11.154         | 15.125 | 2.60              | 11.71 | 2.50 | 8.64 | 16.6  | 66,0            | 297,4 | 63,5  | 219,5 | 7,5   |
|                         | 3 1/2            | -         | RLP11308                      | 11.154         | 15.125 | 2.60              | 11.71 | 2.50 | 8.64 | 16.6  | 66,0            | 297,4 | 63,5  | 219,5 | 7,5   |
|                         | -                | 90        | RLP11090M                     | 11.154         | 15.125 | 2.88              | 11.89 | 2.50 | 8.92 | 17.2  | 73,2            | 302,0 | 63,5  | 226,6 | 7,8   |
|                         | 3 9/16           | -         | RLP11309                      | 11.154         | 15.125 | 2.88              | 11.89 | 2.50 | 8.92 | 17.2  | 73,2            | 302,0 | 63,5  | 226,6 | 7,8   |
|                         | 3 5/8            | -         | RLP11310                      | 11.154         | 15.125 | 2.88              | 11.89 | 2.50 | 8.92 | 17.2  | 73,2            | 302,0 | 63,5  | 226,6 | 7,8   |
|                         | 3 1 1/16         | -         | RLP11311                      | 11.154         | 15.125 | 2.88              | 11.89 | 2.50 | 8.92 | 17.2  | 73,2            | 302,0 | 63,5  | 226,6 | 7,8   |
|                         | 3 3/4            | 95        | RLP11312                      | 11.154         | 15.125 | 2.88              | 11.89 | 2.50 | 8.92 | 17.2  | 73,2            | 302,0 | 63,5  | 226,6 | 7,8   |
|                         | 3 13/16          | -         | RLP11313                      | 11.154         | 15.125 | 2.88              | 11.89 | 2.50 | 8.92 | 17.2  | 73,2            | 302,0 | 63,5  | 226,6 | 7,8   |
|                         | 3 7/8            | -         | RLP11314                      | 11.154         | 15.125 | 2.88              | 11.89 | 2.50 | 8.92 | 17.2  | 73,2            | 302,0 | 63,5  | 226,6 | 7,8   |
|                         | 3 5/16           | 100       | RLP11315                      | 11.154         | 15.125 | 2.98              | 12.00 | 2.50 | 9.03 | 16.4  | 75,7            | 304,8 | 63,5  | 229,4 | 7,4   |
|                         | 4                | -         | RLP11400                      | 11.154         | 15.125 | 2.98              | 12.00 | 2.50 | 9.03 | 16.4  | 75,7            | 304,8 | 63,5  | 229,4 | 7,4   |
|                         | 4 1/16           | -         | RLP11401                      | 11.154         | 15.125 | 2.98              | 12.00 | 2.50 | 9.03 | 16.4  | 75,7            | 304,8 | 63,5  | 229,4 | 7,4   |
|                         | 4 1/8            | 105       | RLP11402                      | 11.154         | 15.125 | 2.98              | 12.00 | 2.50 | 9.03 | 16.4  | 75,7            | 304,8 | 63,5  | 229,4 | 7,4   |
|                         | 4 1/4            | -         | RLP11404                      | 11.154         | 15.125 | 2.98              | 12.00 | 2.50 | 9.03 | 16.4  | 75,7            | 304,8 | 63,5  | 229,4 | 7,4   |
|                         | 4 5/16           | 110       | RLP11405                      | 11.154         | 15.125 | 3.25              | 12.27 | 2.50 | 9.30 | 17.6  | 82,6            | 311,7 | 63,5  | 236,2 | 8,0   |
| 4 1/2                   | -                | RLP11408  | 11.154                        | 15.125         | 3.25   | 12.27             | 2.50  | 9.30 | 17.6 | 82,6  | 311,7           | 63,5  | 236,2 | 8,0   |   |
| -                       | 115              | RLP11115M | 11.154                        | 15.125         | 3.25   | 12.27             | 2.50  | 9.30 | 17.6 | 82,6  | 311,7           | 63,5  | 236,2 | 8,0   |   |
| 4 5/8                   | -                | RLP11410  | 11.154                        | 15.125         | 3.25   | 12.27             | 2.50  | 9.30 | 17.6 | 82,6  | 311,7           | 63,5  | 236,2 | 8,0   |   |

**IMPORTANT:** RSL-drive units must be ordered separately to operate the RLP-Hexagon Cassettes.

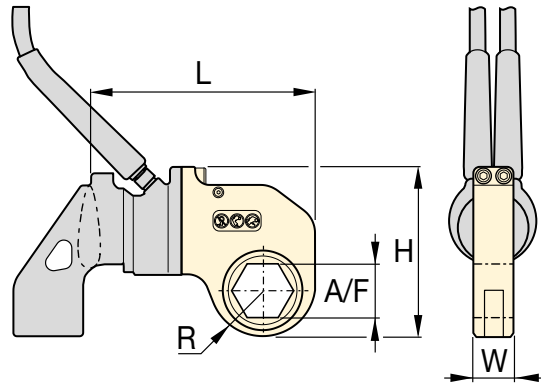
# Hexagon Cassettes for RSL-Series

Hexagon Range:  
**7/8 - 6 1/8 inch**

Hexagon Range:  
**26 - 155 mm**

Maximum Operating Pressure:  
**690 bar**

**RSL  
Series**



## ▼ SELECTION CHART

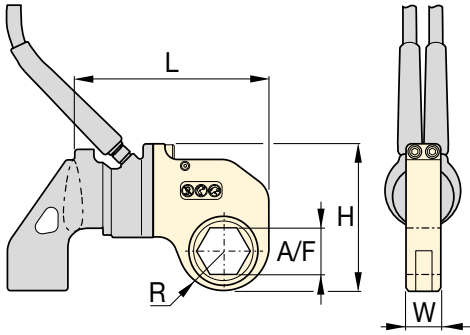
| Drive Unit Model Number       | Hexagon Size A/F                |          | Hexagon Cassette Model Number | Maximum Torque |        | Dimensions (inch) |       |       |       | ⚖️ (lbs) | Dimensions (mm) |       |       |       | ⚖️ (kg) |
|-------------------------------|---------------------------------|----------|-------------------------------|----------------|--------|-------------------|-------|-------|-------|----------|-----------------|-------|-------|-------|---------|
|                               | (inch)                          | (mm)     |                               | (Ft.lbs)       | (Nm)   | R                 | L     | W     | H     |          | R               | L     | W     | H     |         |
| RSL19000                      | 2 <sup>15</sup> / <sub>16</sub> | 75       | RLP19215                      | 11.000         | 14.916 | 2.45              | 12.72 | 2.75  | 9.44  | 21.5     | 62,2            | 323,1 | 69,9  | 239,8 | 9,8     |
|                               | 3                               | -        | RLP19300                      | 11.000         | 14.916 | 2.45              | 12.72 | 2.75  | 9.44  | 21.5     | 62,2            | 323,1 | 69,9  | 239,8 | 9,8     |
|                               | 3 <sup>1</sup> / <sub>16</sub>  | -        | RLP19301                      | 11.000         | 14.916 | 2.45              | 12.72 | 2.75  | 9.44  | 21.5     | 62,2            | 323,1 | 69,9  | 239,8 | 9,8     |
|                               | 3 <sup>1</sup> / <sub>8</sub>   | 80       | RLP19302                      | 11.000         | 14.916 | 2.45              | 12.72 | 2.75  | 9.44  | 21.5     | 62,2            | 323,1 | 69,9  | 239,8 | 9,8     |
|                               | 3 <sup>3</sup> / <sub>16</sub>  | -        | RLP19303                      | 16.000         | 21.696 | 2.77              | 13.04 | 2.75  | 9.76  | 22.6     | 70,4            | 331,2 | 69,9  | 247,9 | 10,3    |
|                               | -                               | 85       | RLP19085M                     | 16.000         | 21.696 | 2.77              | 13.04 | 2.75  | 9.76  | 22.6     | 70,4            | 331,2 | 69,9  | 247,9 | 10,3    |
|                               | 3 <sup>1</sup> / <sub>4</sub>   | -        | RLP19304                      | 16.000         | 21.696 | 2.77              | 13.04 | 2.75  | 9.76  | 22.6     | 70,4            | 331,2 | 69,9  | 247,9 | 10,3    |
|                               | 3 <sup>5</sup> / <sub>16</sub>  | -        | RLP19305                      | 16.000         | 21.696 | 2.77              | 13.04 | 2.75  | 9.76  | 22.6     | 70,4            | 331,2 | 69,9  | 247,9 | 10,3    |
|                               | 3 <sup>3</sup> / <sub>8</sub>   | -        | RLP19306                      | 16.000         | 21.696 | 2.77              | 13.04 | 2.75  | 9.76  | 22.6     | 70,4            | 331,2 | 69,9  | 247,9 | 10,3    |
|                               | 3 <sup>7</sup> / <sub>16</sub>  | -        | RLP19307                      | 16.000         | 21.696 | 2.77              | 13.04 | 2.75  | 9.76  | 22.6     | 70,4            | 331,2 | 69,9  | 247,9 | 10,3    |
|                               | 3 <sup>1</sup> / <sub>2</sub>   | -        | RLP19308                      | 16.000         | 21.696 | 2.77              | 13.04 | 2.75  | 9.76  | 22.6     | 70,4            | 331,2 | 69,9  | 247,9 | 10,3    |
|                               | -                               | 90       | RLP19090M                     | 18.843         | 25.551 | 2.95              | 13.22 | 2.75  | 9.94  | 23.8     | 74,9            | 335,8 | 69,9  | 252,5 | 10,8    |
|                               | 3 <sup>9</sup> / <sub>16</sub>  | -        | RLP19309                      | 18.843         | 25.551 | 2.95              | 13.22 | 2.75  | 9.94  | 23.8     | 74,9            | 335,8 | 69,9  | 252,5 | 10,8    |
|                               | 3 <sup>5</sup> / <sub>8</sub>   | -        | RLP19310                      | 18.843         | 25.551 | 2.95              | 13.22 | 2.75  | 9.94  | 23.8     | 74,9            | 335,8 | 69,9  | 252,5 | 10,8    |
|                               | 3 <sup>11</sup> / <sub>16</sub> | -        | RLP19311                      | 18.843         | 25.551 | 2.95              | 13.22 | 2.75  | 9.94  | 23.8     | 74,9            | 335,8 | 69,9  | 252,5 | 10,8    |
|                               | 3 <sup>3</sup> / <sub>4</sub>   | 95       | RLP19312                      | 18.843         | 25.551 | 2.95              | 13.22 | 2.75  | 9.94  | 23.8     | 74,9            | 335,8 | 69,9  | 252,5 | 10,8    |
|                               | 3 <sup>13</sup> / <sub>16</sub> | -        | RLP19313                      | 18.843         | 25.551 | 2.95              | 13.22 | 2.75  | 9.94  | 23.8     | 74,9            | 335,8 | 69,9  | 252,5 | 10,8    |
|                               | 3 <sup>7</sup> / <sub>8</sub>   | -        | RLP19314                      | 18.843         | 25.551 | 2.95              | 13.22 | 2.75  | 9.94  | 23.8     | 74,9            | 335,8 | 69,9  | 252,5 | 10,8    |
|                               | 3 <sup>15</sup> / <sub>16</sub> | 100      | RLP19315                      | 18.843         | 25.551 | 3.30              | 13.57 | 2.75  | 10.28 | 25.3     | 83,8            | 344,7 | 69,9  | 261,1 | 11,5    |
|                               | 4                               | -        | RLP19400                      | 18.843         | 25.551 | 3.30              | 13.57 | 2.75  | 10.28 | 25.3     | 83,8            | 344,7 | 69,9  | 261,1 | 11,5    |
|                               | 4 <sup>1</sup> / <sub>16</sub>  | -        | RLP19401                      | 18.843         | 25.551 | 3.30              | 13.57 | 2.75  | 10.28 | 25.3     | 83,8            | 344,7 | 69,9  | 261,1 | 11,5    |
|                               | 4 <sup>1</sup> / <sub>8</sub>   | 105      | RLP19402                      | 18.843         | 25.551 | 3.30              | 13.57 | 2.75  | 10.28 | 25.3     | 83,8            | 344,7 | 69,9  | 261,1 | 11,5    |
|                               | 4 <sup>3</sup> / <sub>16</sub>  | -        | RLP19403                      | 18.843         | 25.551 | 3.30              | 13.57 | 2.75  | 10.28 | 25.3     | 83,8            | 344,7 | 69,9  | 261,1 | 11,5    |
|                               | 4 <sup>1</sup> / <sub>4</sub>   | -        | RLP19404                      | 18.843         | 25.551 | 3.30              | 13.57 | 2.75  | 10.28 | 25.3     | 83,8            | 344,7 | 69,9  | 261,1 | 11,5    |
|                               | 4 <sup>5</sup> / <sub>16</sub>  | 110      | RLP19405                      | 18.843         | 25.551 | 3.44              | 13.71 | 2.75  | 10.43 | 25.6     | 87,4            | 348,2 | 69,9  | 264,9 | 11,6    |
|                               | 4 <sup>3</sup> / <sub>8</sub>   | -        | RLP19406                      | 18.843         | 25.551 | 3.44              | 13.71 | 2.75  | 10.43 | 25.6     | 87,4            | 348,2 | 69,9  | 264,9 | 11,6    |
|                               | 4 <sup>7</sup> / <sub>16</sub>  | -        | RLP19407                      | 18.843         | 25.551 | 3.44              | 13.71 | 2.75  | 10.43 | 25.6     | 87,4            | 348,2 | 69,9  | 264,9 | 11,6    |
|                               | 4 <sup>1</sup> / <sub>2</sub>   | -        | RLP19408                      | 18.843         | 25.551 | 3.44              | 13.71 | 2.75  | 10.43 | 25.6     | 87,4            | 348,2 | 69,9  | 264,9 | 11,6    |
|                               | -                               | 115      | RLP19115M                     | 18.843         | 25.551 | 3.44              | 13.71 | 2.75  | 10.43 | 25.6     | 87,4            | 348,2 | 69,9  | 264,9 | 11,6    |
|                               | 4 <sup>9</sup> / <sub>16</sub>  | -        | RLP19409                      | 18.843         | 25.551 | 3.44              | 13.71 | 2.75  | 10.43 | 25.6     | 87,4            | 348,2 | 69,9  | 264,9 | 11,6    |
| 4 <sup>5</sup> / <sub>8</sub> | -                               | RLP19410 | 18.843                        | 25.551         | 3.44   | 13.71             | 2.75  | 10.43 | 25.6  | 87,4     | 348,2           | 69,9  | 264,9 | 11,6  |         |

**IMPORTANT:** RSL-drive units must be ordered separately to operate the RLP-Hexagon Cassettes.



# Hexagon Cassettes for RSL-Series

**ENERPAC** 



Hexagon Range:  
**7/8 - 6 1/8 inch**



Hexagon Range:  
**26 - 155 mm**

Maximum Operating Pressure:  
**690 bar**

**RSL Series**



▼ **SELECTION CHART**

| Drive Unit Model Number | Hexagon Size A/F |           | Hexagon Cassette Model Number | Maximum Torque |        | Dimensions (inch) |       |       |       |  | Dimensions (mm) |       |       |       |  |
|-------------------------|------------------|-----------|-------------------------------|----------------|--------|-------------------|-------|-------|-------|---|-----------------|-------|-------|-------|---|
|                         | (inch)           | (mm)      |                               | (Ft.lbs)       | (Nm)   | R                 | L     | W     | H     | (lbs)   | R               | L     | W     | H     | (kg)  |
| RSL28000                | 3 1/8            | 80        | RLP28302                      | 16.000         | 21.696 | 2.56              | 14.36 | 3.00  | 10.54 | 27.6  | 65,0            | 364,7 | 76,2  | 267,7 | 12,5  |
|                         | 3 3/16           | -         | RLP28303                      | 16.000         | 21.696 | 2.56              | 14.36 | 3.00  | 10.54 | 27.6  | 65,0            | 364,7 | 76,2  | 267,7 | 12,5  |
|                         | -                | 85        | RLP28085M                     | 16.000         | 21.696 | 2.56              | 14.36 | 3.00  | 10.54 | 27.6  | 65,0            | 364,7 | 76,2  | 267,7 | 12,5  |
|                         | 3 1/4            | -         | RLP28304                      | 16.000         | 21.696 | 2.56              | 14.36 | 3.00  | 10.54 | 27.6  | 65,0            | 364,7 | 76,2  | 267,7 | 12,5  |
|                         | 3 5/16           | -         | RLP28305                      | 16.000         | 21.696 | 2.56              | 14.36 | 3.00  | 10.54 | 27.6  | 65,0            | 364,7 | 76,2  | 267,7 | 12,5  |
|                         | 3 3/8            | -         | RLP28306                      | 16.000         | 21.696 | 2.56              | 14.36 | 3.00  | 10.54 | 27.6  | 65,0            | 364,7 | 76,2  | 267,7 | 12,5  |
|                         | 3 7/16           | -         | RLP28307                      | 16.000         | 21.696 | 2.56              | 14.36 | 3.00  | 10.54 | 27.6  | 65,0            | 364,7 | 76,2  | 267,7 | 12,5  |
|                         | 3 1/2            | -         | RLP28308                      | 16.000         | 21.696 | 2.56              | 14.36 | 3.00  | 10.54 | 27.6  | 65,0            | 364,7 | 76,2  | 267,7 | 12,5  |
|                         | -                | 90        | RLP28090M                     | 22.000         | 29.832 | 2.92              | 14.36 | 3.00  | 10.77 | 28.8  | 74,2            | 364,7 | 76,2  | 273,6 | 13,1  |
|                         | 3 9/16           | -         | RLP28309                      | 22.000         | 29.832 | 2.92              | 14.36 | 3.00  | 10.77 | 28.8  | 74,2            | 364,7 | 76,2  | 273,6 | 13,1  |
|                         | 3 5/8            | -         | RLP28310                      | 22.000         | 29.832 | 2.92              | 14.36 | 3.00  | 10.77 | 28.8  | 74,2            | 364,7 | 76,2  | 273,6 | 13,1  |
|                         | 3 11/16          | -         | RLP28311                      | 22.000         | 29.832 | 2.92              | 14.36 | 3.00  | 10.77 | 28.8  | 74,2            | 364,7 | 76,2  | 273,6 | 13,1  |
|                         | 3 3/4            | 95        | RLP28312                      | 22.000         | 29.832 | 2.92              | 14.36 | 3.00  | 10.77 | 28.8  | 74,2            | 364,7 | 76,2  | 273,6 | 13,1  |
|                         | 3 13/16          | -         | RLP28313                      | 22.000         | 29.832 | 2.92              | 14.36 | 3.00  | 10.77 | 28.8  | 74,2            | 364,7 | 76,2  | 273,6 | 13,1  |
|                         | 3 7/8            | -         | RLP28314                      | 22.000         | 29.832 | 2.92              | 14.36 | 3.00  | 10.77 | 28.8  | 74,2            | 364,7 | 76,2  | 273,6 | 13,1  |
|                         | 3 15/16          | 100       | RLP28315                      | 28.002         | 37.971 | 3.29              | 14.47 | 3.00  | 11.14 | 31.7  | 83,6            | 367,5 | 76,2  | 283,0 | 14,4  |
|                         | 4                | -         | RLP28400                      | 28.002         | 37.971 | 3.29              | 14.47 | 3.00  | 11.14 | 31.7  | 83,6            | 367,5 | 76,2  | 283,0 | 14,4  |
|                         | 4 1/16           | -         | RLP28401                      | 28.002         | 37.971 | 3.29              | 14.47 | 3.00  | 11.14 | 31.7  | 83,6            | 367,5 | 76,2  | 283,0 | 14,4  |
|                         | 4 1/8            | 105       | RLP28402                      | 28.002         | 37.971 | 3.29              | 14.47 | 3.00  | 11.14 | 31.7  | 83,6            | 367,5 | 76,2  | 283,0 | 14,4  |
|                         | 4 3/16           | -         | RLP28403                      | 28.002         | 37.971 | 3.29              | 14.47 | 3.00  | 11.14 | 31.7  | 83,6            | 367,5 | 76,2  | 283,0 | 14,4  |
|                         | 4 1/4            | -         | RLP28404                      | 28.002         | 37.971 | 3.29              | 14.47 | 3.00  | 11.14 | 31.7  | 83,6            | 367,5 | 76,2  | 283,0 | 14,4  |
|                         | 4 5/16           | 110       | RLP28405                      | 28.002         | 37.971 | 3.43              | 14.61 | 3.00  | 11.28 | 31.5  | 87,1            | 371,1 | 76,2  | 286,5 | 14,3  |
|                         | 4 3/8            | -         | RLP28406                      | 28.002         | 37.971 | 3.43              | 14.61 | 3.00  | 11.28 | 31.5  | 87,1            | 371,1 | 76,2  | 286,5 | 14,3  |
|                         | 4 7/16           | -         | RLP28407                      | 28.002         | 37.971 | 3.43              | 14.61 | 3.00  | 11.28 | 31.5  | 87,1            | 371,1 | 76,2  | 286,5 | 14,3  |
|                         | 4 1/2            | -         | RLP28408                      | 28.002         | 37.971 | 3.43              | 14.61 | 3.00  | 11.28 | 31.5  | 87,1            | 371,1 | 76,2  | 286,5 | 14,3  |
|                         | -                | 115       | RLP28115M                     | 28.002         | 37.971 | 3.43              | 14.61 | 3.00  | 11.28 | 31.5  | 87,1            | 371,1 | 76,2  | 286,5 | 14,3  |
|                         | 4 9/16           | -         | RLP28409                      | 28.002         | 37.971 | 3.43              | 14.61 | 3.00  | 11.28 | 31.5  | 87,1            | 371,1 | 76,2  | 286,5 | 14,3  |
|                         | 4 5/8            | -         | RLP28410                      | 28.002         | 37.971 | 3.43              | 14.61 | 3.00  | 11.28 | 31.5  | 87,1            | 371,1 | 76,2  | 286,5 | 14,3  |
|                         | 4 3/4            | 120       | RLP28412                      | 28.002         | 37.971 | 3.65              | 14.83 | 3.00  | 11.50 | 33.5  | 92,7            | 376,7 | 76,2  | 292,1 | 15,2  |
|                         | -                | 123       | RLP28123M                     | 28.002         | 37.971 | 3.65              | 14.83 | 3.00  | 11.50 | 33.5  | 92,7            | 376,7 | 76,2  | 292,1 | 15,2  |
|                         | 4 7/8            | -         | RLP28414                      | 28.002         | 37.971 | 3.65              | 14.83 | 3.00  | 11.50 | 33.5  | 92,7            | 376,7 | 76,2  | 292,1 | 15,2  |
|                         | 5                | -         | RLP28500                      | 28.002         | 37.971 | 3.65              | 14.83 | 3.00  | 11.50 | 33.5  | 92,7            | 376,7 | 76,2  | 292,1 | 15,2  |
|                         | 5 1/8            | 130       | RLP28502                      | 28.002         | 37.971 | 3.79              | 14.97 | 3.00  | 11.64 | 33.2  | 96,3            | 380,2 | 76,2  | 295,7 | 15,1  |
|                         | 5 3/16           | -         | RLP28503                      | 28.002         | 37.971 | 3.79              | 14.97 | 3.00  | 11.64 | 33.2  | 96,3            | 380,2 | 76,2  | 295,7 | 15,1  |
|                         | 5 1/4            | -         | RLP28504                      | 28.002         | 37.971 | 3.79              | 14.97 | 3.00  | 11.64 | 33.2  | 96,3            | 380,2 | 76,2  | 295,7 | 15,1  |
|                         | 5 3/8            | 135       | RLP28506                      | 28.002         | 37.971 | 3.79              | 14.97 | 3.00  | 11.64 | 33.2  | 96,3            | 380,2 | 76,2  | 295,7 | 15,1  |
|                         | 5 1/2            | 140       | RLP28508                      | 28.002         | 37.971 | 4.05              | 15.23 | 3.00  | 11.90 | 33.5  | 102,9           | 386,8 | 76,2  | 302,3 | 15,2  |
|                         | 5 9/16           | -         | RLP28509                      | 28.002         | 37.971 | 4.05              | 15.23 | 3.00  | 11.90 | 33.5  | 102,9           | 386,8 | 76,2  | 302,3 | 15,2  |
|                         | 5 5/8            | -         | RLP28510                      | 28.002         | 37.971 | 4.05              | 15.23 | 3.00  | 11.90 | 33.5  | 102,9           | 386,8 | 76,2  | 302,3 | 15,2  |
|                         | 5 3/4            | 145       | RLP28512                      | 28.002         | 37.971 | 4.05              | 15.23 | 3.00  | 11.90 | 33.5  | 102,9           | 386,8 | 76,2  | 302,3 | 15,2  |
| 5 7/8                   | 150              | RLP28514  | 28.002                        | 37.971         | 4.22   | 15.48             | 3.00  | 12.15 | 34.5  | 107,2   | 393,2           | 76,2  | 308,6 | 15,6  |   |
| -                       | 151              | RLP28151M | 28.002                        | 37.971         | 4.22   | 15.48             | 3.00  | 12.15 | 34.5  | 107,2   | 393,2           | 76,2  | 308,6 | 15,6  |   |
| 6                       | -                | RLP28600  | 28.002                        | 37.971         | 4.22   | 15.48             | 3.00  | 12.15 | 34.5  | 107,2   | 393,2           | 76,2  | 308,6 | 15,6  |   |
| 6 1/8                   | 155              | RLP28602  | 28.002                        | 37.971         | 4.22   | 15.48             | 3.00  | 12.15 | 34.5  | 107,2   | 393,2           | 76,2  | 308,6 | 15,6  |   |

**IMPORTANT:** RSL-drive units must be ordered separately to operate the RLP-Hexagon Cassettes.

# Accessories for RSL-Series Torque Wrenches

## TWMP503, Torque Wrench Moly Paste

- Enerpac 503 Moly Paste reduces friction on threaded fasteners – bolts, nuts and studs
- The low and uniform friction coefficient of 0.06 (torque coefficient, K, of 0.10) creates reliable assembly conditions
- This lubricant stays in place through heat, load and vibration to insure trouble-free disassembly from -29 °C to 400 °C (-20 °F to 750 °F)
- Can of 1,8 kg (4 lb).

▼ TWMP503



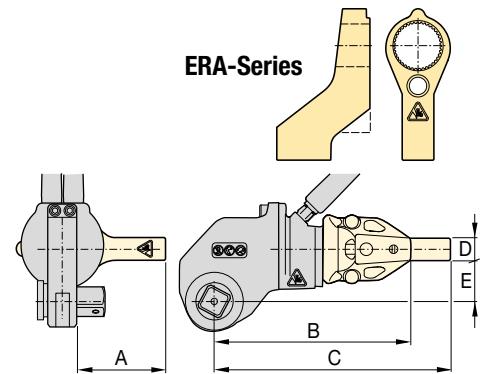
for  
RSL  
Series



## ERA-Series, Extended Reaction Arms

| For Torque Wrench Model Nr. | Model Number | Dimensions (mm) |     |     |    |    | ⚖️ (kg) |
|-----------------------------|--------------|-----------------|-----|-----|----|----|---------|
|                             |              | A               | B   | C   | D  | E  |         |
| RSL1500 + RSQ               | ERA15114     | 87              | 145 | 195 | 29 | 36 | 0,9     |
|                             | ERA15228     | 113             | 181 | 230 | 29 | 36 | 1,8     |
|                             | ERA15342     | 139             | 226 | 276 | 29 | 36 | 2,7     |
|                             | ERA15456     | 164             | 236 | 286 | 29 | 36 | 3,6     |
|                             | ERA15570     | 189             | 287 | 337 | 29 | 36 | 4,5     |
| RSL3000 + RSQ               | ERA30114     | 105             | 195 | 257 | 34 | 41 | 2,7     |
|                             | ERA30228     | 131             | 231 | 293 | 34 | 41 | 3,6     |
|                             | ERA30342     | 156             | 266 | 328 | 34 | 41 | 4,5     |
|                             | ERA30456     | 181             | 302 | 364 | 34 | 41 | 5,4     |
| RSL5000 + RSQ               | ERA50114     | 131             | 208 | 284 | 44 | 48 | 4,1     |
|                             | ERA50228     | 156             | 243 | 320 | 44 | 48 | 5,0     |
|                             | ERA50342     | 181             | 279 | 355 | 44 | 48 | 5,9     |
|                             | ERA50456     | 207             | 314 | 391 | 44 | 48 | 6,8     |
| RSL11000 + RSQ              | ERA110114    | 125             | 219 | 296 | 51 | 59 | 6,3     |
|                             | ERA110228    | 150             | 255 | 331 | 51 | 59 | 7,3     |
|                             | ERA110342    | 176             | 291 | 367 | 51 | 59 | 8,2     |
|                             | ERA110456    | 201             | 326 | 402 | 51 | 59 | 9,1     |
| RSL28000 + RSQ              | ERA280228    | 171             | 335 | 411 | 57 | 85 | 11,3    |
|                             | ERA280342    | 197             | 370 | 447 | 57 | 85 | 13,6    |

- Only to be used on RSL-drive units with RSQ-square drive wrenches
- Used in place of standard reaction arm
- Lightweight interchangeable design
- Full torque rated.

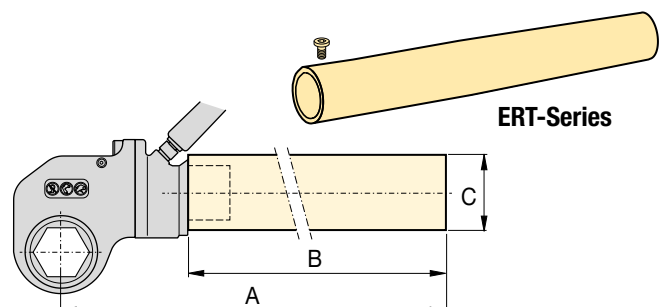


NOTE: Extended Reaction Arms for RSL8000 and RSL19000 are available on request.

## ERT-Series, Extended Reaction Tubes

| For Torque Wrench Model Nr. | Model Number | Dimensions (mm) |     |     | ⚖️ (kg) |
|-----------------------------|--------------|-----------------|-----|-----|---------|
|                             |              | A               | B   | Ø C |         |
| RSL1500 + RLP               | ERT152       | 157             | 51  | 57  | 0,9     |
|                             | ERT156       | 259             | 152 | 57  | 1,6     |
|                             | ERT159       | 335             | 229 | 57  | 2,5     |
|                             | ERT1512      | 411             | 305 | 57  | 3,4     |
|                             | ERT1524      | 716             | 610 | 57  | 6,7     |
| RSL3000 + RLP               | ERT3012      | 429             | 305 | 70  | 3,0     |
|                             | ERT3024      | 734             | 610 | 70  | 5,9     |
| RSL5000 + RLP               | ERT5012      | 451             | 305 | 89  | 5,6     |
|                             | ERT5024      | 756             | 610 | 89  | 11,3    |
| RSL11000 + RLP              | ERT1106      | 330             | 152 | 95  | 2,1     |
|                             | ERT11012     | 483             | 305 | 95  | 4,1     |
|                             | ERT11018     | 635             | 457 | 95  | 6,1     |
|                             | ERT11024     | 787             | 610 | 95  | 8,4     |
| RSL19000 + RLP              | ERT19024     | 800             | 610 | 127 | 16,7    |
| RSL28000 + RLP              | ERT2806      | 351             | 152 | 127 | 3,6     |
|                             | ERT28012     | 503             | 305 | 127 | 7,3     |
|                             | ERT28018     | 655             | 457 | 127 | 10,9    |
|                             | ERT28024     | 808             | 610 | 127 | 16,6    |

- Only to be used on RSL-drive units with RLP-hexagon cassettes
- Used in place of standard reaction arm
- One piece steel design, durable and simple
- Increases tool fit in restricted access areas
- Full torque rated.



NOTE: Extended Reaction Tubes for RSL8000 are available on request.

▼ RSL-Drive Unit with interchangeable RLP...SL Slimline Hexagon Cassette



## Simplicity

- Minimum nose radius for trouble-free tool fit which makes it uniquely equipped to access tight spaces
- Simple robust alloy steel design with three moving parts for reduced maintenance
- Robust handles are available for both sides and the tops of cassettes to allow for extra maneuverability
- Proven to perform even in the harshest environments
- Reaction arm has a simple dial lock for rapid change
- Designed to give optimum strength to weight and torque to weight ratios.

## Versatility

- Interchangeable cassette design
- Drive unit / hexagon cassette combination for limited height in line solutions
- Wide range of hexagon sizes available for all applications.

## Accuracy

- Constant torque output provides accuracy of  $\pm 3\%$  across the full stroke.

## Ease of Use

- Few moving parts are easily accessible for quick field maintenance
- Innovative design that completely encloses all moving parts and minimizes pinch points.

## Setting New Standards in Safety, Simplicity and Performance



### Torque Pumps

Visit [enerpac.com](http://enerpac.com) for system matched air and electric torque pumps that are ideal for use with hydraulic torque wrenches.

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### Torque Wrench Options and Accessories

Optional accessories are available for maximum versatility. Please contact your Enerpac representative to help you select the optimum solution for your application.

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### Back-Up Spanners

To be used to stop the back nut from turning during make up or break out. Two hexagon sizes in one tool.

| Hexagon Sizes (A/F) |   | Back-Up Spanner Model Number |
|---------------------|---|------------------------------|
| mm                  | inch  |                              |
| 27 - 32             | 1 <sup>1</sup> / <sub>16</sub> - 1 <sup>1</sup> / <sub>4</sub> "  | BUS01                        |
| 36 - 41             | 1 <sup>7</sup> / <sub>16</sub> - 1 <sup>5</sup> / <sub>8</sub> "  | BUS02                        |
| 46 - 50             | 1 <sup>13</sup> / <sub>16</sub> - 2"                              | BUS03                        |
| 55 - 60             | 2 <sup>3</sup> / <sub>16</sub> - 2 <sup>3</sup> / <sub>8</sub> "  | BUS04                        |
| 65 - 70             | 2 <sup>9</sup> / <sub>16</sub> - 2 <sup>3</sup> / <sub>4</sub> "  | BUS05                        |
| 75 - 80             | 2 <sup>15</sup> / <sub>16</sub> - 3 <sup>1</sup> / <sub>8</sub> " | BUS06                        |
| -                   | 3 <sup>1</sup> / <sub>2</sub> - 3 <sup>7</sup> / <sub>8</sub> "   | BUS07                        |
| -                   | 4 <sup>1</sup> / <sub>4</sub> - 4 <sup>5</sup> / <sub>8</sub> "   | BUS08                        |
| 85 - 90             | -   | BUS09                        |
| 95 - 100            | 3 <sup>3</sup> / <sub>4</sub> - 3 <sup>15</sup> / <sub>16</sub> " | BUS10                        |
| 105 - 110           | 4 <sup>1</sup> / <sub>8</sub> - 4 <sup>15</sup> / <sub>16</sub> " | BUS11                        |
| 115 - 120           | -   | BUS12                        |

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# Slimline Stepped-Width Hexagon Cassettes for RSL-Series



## Slimline Stepped-Width Hexagon Cassettes

Accessing narrow spaces normally requires significantly reducing the width of the torque wrench. For the tool operator, this has always meant vastly reduced tool durability, and/or reduced torque output.

By using the highest-grade materials and perfecting the geometry, the RSL Slimline cassettes are able to provide greater torque, get into tighter spaces, and vastly outperform the competition in product durability.

## RSL Series



Hexagon Range:

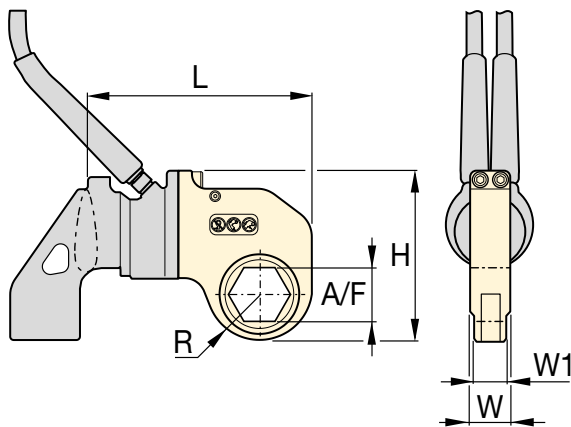
**1 1/4 - 3 3/16 inch**

Hexagon Range:

**32 - 80 mm**

Maximum Operating Pressure:

**690 bar**



### Select the Right Torque

Choose your Enerpac Torque Wrench using the untightening rule of thumb: Loosening torque equals about 250% of tightening torque.

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### Torque Wrench Hoses

Use Enerpac THQ700-Series torque wrench hoses with RSL-Series torque wrenches to ensure the integrity of your hydraulic system.

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## ▼ SELECTION CHART

| Drive Unit Model Number | Hexagon Size A/F |      | Slimline Hexagon Cassette Model Nr. | Maximum Torque * |      | Dimensions (inch) |      |      |      |      | ⚖️ (lbs) | Dimensions (mm) |       |      |      |       | ⚖️ (kg) |
|-------------------------|------------------|------|-------------------------------------|------------------|------|-------------------|------|------|------|------|----------|-----------------|-------|------|------|-------|---------|
|                         | (inch)           | (mm) |                                     | (Ft.lbs)         | (Nm) | R                 | L    | W    | W1   | H    |          | R               | L     | W    | W1   | H     |         |
| RSL1500                 | 1 1/4            | 32   | RLP1104SL                           | 375              | 509  | 1.03              | 6.12 | 1.25 | 1.00 | 4.57 | 2.2      | 26,2            | 155,4 | 31,8 | 25,4 | 116,1 | 1,0     |
|                         | 1 7/16           | 36   | RLP1107SL                           | 658              | 892  | 1.15              | 6.24 | 1.25 | 1.00 | 4.69 | 2.3      | 29,2            | 158,5 | 31,8 | 25,4 | 119,1 | 1,0     |
|                         | 1 5/8            | 41   | RLP1110SL                           | 831              | 1127 | 1.31              | 6.41 | 1.25 | 1.00 | 4.86 | 2.7      | 33,3            | 162,8 | 31,8 | 25,4 | 123,4 | 1,2     |
|                         | 1 13/16          | 46   | RLP1113SL                           | 831              | 1127 | 1.40              | 6.49 | 1.25 | 1.00 | 4.94 | 2.7      | 35,6            | 164,8 | 31,8 | 25,4 | 125,5 | 1,2     |
|                         | 2                | 50   | RLP1200SL                           | 831              | 1127 | 1.48              | 6.58 | 1.25 | 1.00 | 5.03 | 2.7      | 37,6            | 167,1 | 31,8 | 25,4 | 127,8 | 1,2     |
| RSL3000                 | 2                | 50   | RLP3200SL                           | 1354             | 1836 | 1.60              | 8.04 | 1.38 | 1.13 | 5.92 | 4.5      | 40,6            | 204,2 | 35,1 | 28,7 | 150,4 | 2,0     |
|                         | 2 3/16           | 55   | RLP3203SL                           | 1604             | 2175 | 1.76              | 8.16 | 1.38 | 1.13 | 6.08 | 4.7      | 44,7            | 207,3 | 35,1 | 28,7 | 154,4 | 2,1     |
|                         | 2 3/8            | 60   | RLP3206SL                           | 1604             | 2175 | 1.84              | 8.25 | 1.38 | 1.13 | 6.15 | 4.8      | 46,7            | 209,6 | 35,1 | 28,7 | 156,2 | 2,2     |
|                         | 2 9/16           | 65   | RLP3209SL                           | 1604             | 2175 | 1.95              | 8.14 | 1.38 | 1.13 | 6.26 | 4.6      | 49,5            | 206,8 | 35,1 | 28,7 | 159,0 | 2,1     |
|                         | 2 3/4            | 70   | RLP3212SL                           | 1604             | 2175 | 2.04              | 8.23 | 1.38 | 1.13 | 6.36 | 4.4      | 51,8            | 209,0 | 35,1 | 28,7 | 161,5 | 2,0     |
|                         | 2 15/16          | 75   | RLP3215SL                           | 1604             | 2175 | 2.16              | 8.34 | 1.38 | 1.13 | 6.54 | 4.7      | 54,9            | 211,8 | 35,1 | 28,7 | 166,1 | 2,1     |
| RSL5000                 | 2 3/4            | 70   | RLP5212SL                           | 4173             | 5659 | 2.16              | 9.63 | 1.75 | 1.62 | 7.07 | 7.5      | 54,9            | 244,6 | 44,5 | 41,1 | 179,6 | 3,4     |
|                         | 3 1/8            | 80   | RLP5302SL                           | 4173             | 5659 | 2.26              | 9.73 | 1.75 | 1.62 | 7.17 | 7.2      | 57,4            | 247,1 | 44,5 | 41,1 | 182,1 | 3,3     |
| RSL8000                 | 2 3/16           | 55   | RLP8203SL                           | 2487             | 3372 | 1.71              | 9.53 | 2.25 | 2.00 | 6.84 | 8.5      | 43,4            | 242,1 | 57,2 | 50,8 | 173,7 | 3,9     |
|                         | 2 3/8            | 60   | RLP8206SL                           | 3198             | 4336 | 1.87              | 9.67 | 2.25 | 2.00 | 7.00 | 8.9      | 47,5            | 245,6 | 57,2 | 50,8 | 177,8 | 4,0     |
|                         | 2 9/16           | 65   | RLP8209SL                           | 4122             | 5589 | 2.01              | 9.67 | 2.25 | 2.00 | 7.13 | 9.0      | 51,1            | 245,6 | 57,2 | 50,8 | 181,1 | 4,1     |
|                         | 2 3/4            | 70   | RLP8212SL                           | 5587             | 7576 | 2.16              | 9.82 | 2.25 | 2.00 | 7.28 | 9.6      | 54,9            | 249,4 | 57,2 | 50,8 | 184,9 | 4,4     |
|                         | 2 15/16          | 75   | RLP8215SL                           | 5587             | 7576 | 2.24              | 9.90 | 2.25 | 2.00 | 7.36 | 9.6      | 56,9            | 251,5 | 57,2 | 50,8 | 186,9 | 4,4     |
|                         | 3 1/8            | 80   | RLP8302SL                           | 5587             | 7576 | 2.26              | 9.92 | 2.25 | 2.00 | 7.39 | 9.3      | 57,4            | 252,0 | 57,2 | 50,8 | 187,7 | 4,2     |
|                         | 3 3/16           | -    | RLP8303SL                           | 4740             | 6427 | 2.26              | 9.92 | 2.25 | 2.00 | 7.39 | 9.3      | 57,4            | 252,0 | 57,2 | 50,8 | 187,7 | 4,2     |

**IMPORTANT:** RSL-drive units must be ordered separately to operate the RLP-SL-Hexagon Cassettes.

\* Minimum Torque Output at 69 bar: 10%

www.enerpac.com



▼ RSL drive unit with interchangeable RSQ square drive cassette



## Safety and Performance

- Innovative design that completely encloses all moving parts and minimizes pinch points
- 30-35° rotation angle provides added productivity while avoiding “tool lock on” which is common with some torque wrench designs.

## Simplicity

- Simple robust design with just three moving parts for reduced maintenance
- Robust handles are available for both sides and the tops of cassettes to allow for extra maneuverability
- Pull-type square drive release for quickly reversing the square drive for tightening or loosening.

## Versatility

- Square Drive Sets available with Interchangeable Hexagon Cassettes
- Power head / square drive combination for flexible use with standard impact quality sockets
- Reaction arm has a simple dial lock for rapid change.

## Accuracy

- Constant torque output provides accuracy of  $\pm 3\%$  across the full stroke.

## Setting New Standards in Safety, Simplicity and Performance



### Torque Wrench Options and Accessories

Optional accessories are available for maximum versatility. Please contact your Enerpac representative to help you select the optimum solution for your application.

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### BSH-Series Sockets

Heavy-Duty Impact Sockets for power driven torquing equipment.

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### Back-Up Spanners, BUS-Series

To be used to stop the back nut from turning during make up or break out. Two hexagon sizes in one tool.

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### Torque Wrench Hoses

Use Enerpac THQ700-Series torque wrench hoses with RSL-Series torque wrenches to ensure the integrity of your hydraulic system.

|                         |         |
|-------------------------|---------|
| 2 meters long, 2 hoses  | THQ702T |
| 6 meters long, 2 hoses  | THQ706T |
| 12 meters long, 2 hoses | THQ712T |

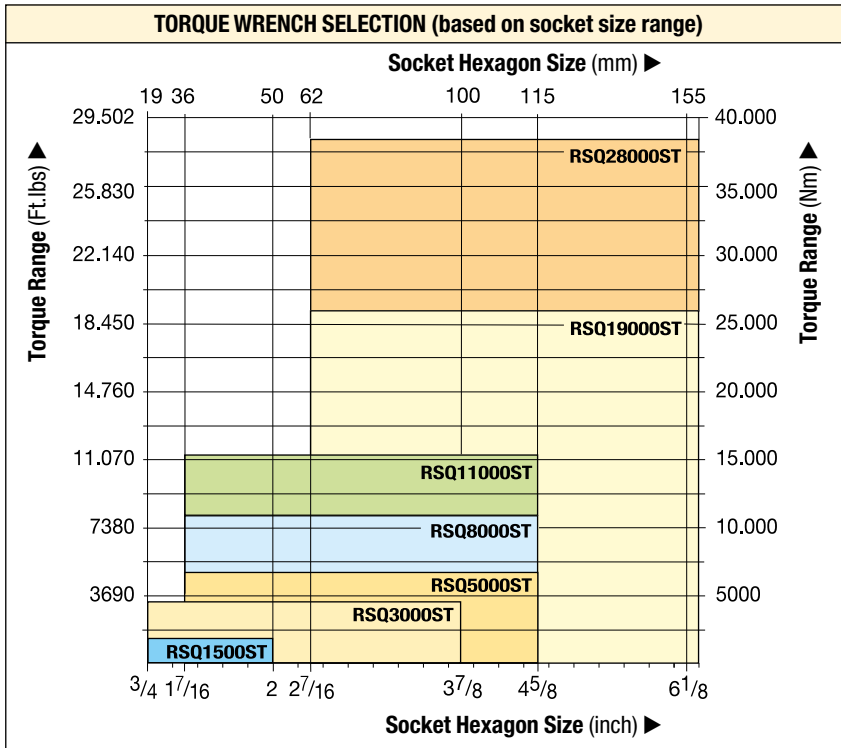


### Torque Pumps

Visit [enerpac.com](http://enerpac.com) for system matched air and electric torque pumps that are ideal for use with hydraulic torque wrenches.

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# Square Drive Hydraulic Torque Wrenches



## RSL Series



Maximum Torque Output:  
**1408 - 28.002 Ft.lbs**

Maximum Torque Output:  
**1909 - 37.965 Nm**

Square Drive Range:  
**3/4 - 2 1/2 inch**

Maximum Operating Pressure:  
**690 bar**



### Select the Right Torque

Choose your Enerpac Torque Wrench using the untightening rule of thumb: Loosening torque equals about 250% of tightening torque.



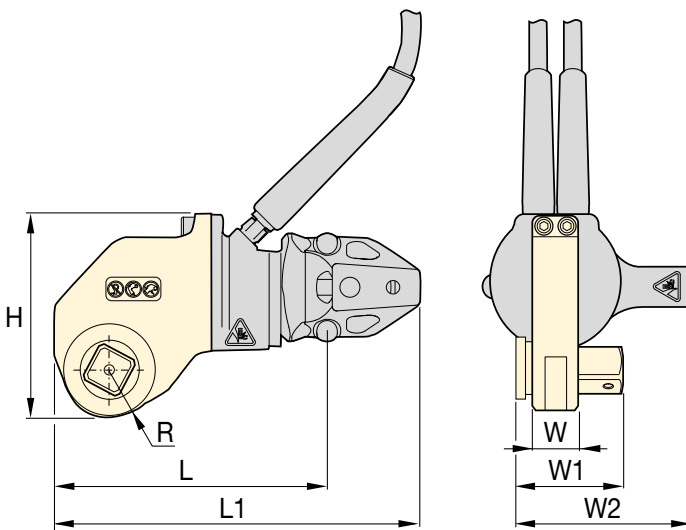
### Safe T™ Torque Lock

The Safe T™ Torque Lock is suitable for all bolted applications from 190 Nm to 15.000 Nm using a heavy duty impact socket.

The patented mechanical locking system creates a hands-free torque wrench solution suitable for Enerpac only square drive tools.

Suitable for RSQ3000, RSQ5000 and RSQ11000.

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## SELECTION CHART

| Maximum Torque Output |        | Square Drive Size (inch) | Square Drive Cassette Model Number <sup>1)</sup> | Square Drive Torque Wrench Set Model Number <sup>2)</sup> | Dimensions (mm) |     |     |     |     |     |    | Weight (kg)                       |              |                       |
|-----------------------|--------|--------------------------|--|---|-----------------|-----|-----|-----|-----|-----|----|-----------------------------------|--------------|-----------------------|
| (Ft.lbs)              | (Nm)   |                          |  |   | W               | W1  | W2  | H   | L   | L1  | R  | Drive Unit (without reaction arm) | Reaction Arm | Square Drive Cassette |
| 1408                  | 1909   | 3/4                      | RSQ1500  | RSQ1500ST   | 32              | 58  | 101 | 114 | 160 | 189 | 24 | 1,6                               | 0,5          | 1,3                   |
| 3080                  | 4176   | 1                        | RSQ3000  | RSQ3000ST   | 38              | 73  | 124 | 141 | 195 | 262 | 32 | 2,6                               | 1,0          | 2,4                   |
| 5303                  | 7190   | 1 1/2                    | RSQ5000  | RSQ5000ST   | 45              | 94  | 160 | 163 | 235 | 296 | 39 | 4,1                               | 1,8          | 4,1                   |
| 7862                  | 10.659 | 1 1/2                    | RSQ8000  | RSQ8000ST   | 61              | 105 | 160 | 169 | 241 | 300 | 39 | 4,8                               | 2,0          | 5,3                   |
| 11.154                | 15.123 | 1 1/2                    | RSQ11000   | RSQ11000ST  | 64              | 118 | 170 | 201 | 284 | 315 | 48 | 5,3                               | 3,0          | 8,4                   |
| 18.843                | 25.547 | 2 1/2                    | RSQ19000   | RSQ19000ST  | 83              | 162 | 265 | 241 | 342 | 482 | 64 | 9,1                               | 7,1          | 13,1                  |
| 28.002                | 37.965 | 2 1/2                    | RSQ28000   | RSQ28000ST  | 89              | 166 | 227 | 263 | 358 | 536 | 64 | 10,0                              | 5,0          | 17,9                  |

<sup>1)</sup> When ordering an RSQ Square Drive Cassette, the RSL-Drive Unit must be ordered separately.

<sup>2)</sup> An RSQ...ST Torque Wrench Set includes RSQ-Square Drive Cassette, RSL-Drive Unit with Hoses and Reaction Arm.

▼ Shown: DSX11000



## Safety and Performance

- High-strength, light-weight aluminium, slimline design suited for complete operator safety
- Fully enclosed drive for maximum safety
- Built-in, work-at-height safety tether connection
- Retained quick release push-button
- Patented, easy-to-use, quick release, retained reaction arm
- Fine tooth ratchet prevents the tool 'locking on'
- High-cycle design with fewer moving parts making it a more efficient tool to operate, maintain or repair
- 35° rotation angle and rapid return stroke for fast operation.

## Simplicity

- Includes a robust handle or handle with lifting eye bolt which mounts on either side of the tool for extra maneuverability and safer operation
- Push-button square drive and reaction arm for fast changes and adjustments
- Easily accessible work-at-height connection point.

## Accuracy

- Constant torque output provides accuracy of  $\pm 3\%$  across the full stroke.

## ATEX declared

- All DSX tools are CE - ATEX declared.

## Setting Industry-First Safety Standards



### Work-at-Height Connection

Built-in, work-at-height safety tether connection.



### Fully Retained Reaction Arm

Patented, fully retained reaction arm with easy-to-use quick release, helps prevent injuries when working-at-height.



### Secured Square Drive

Retained quick release push-button.



### Ergonomic Tool Handle

Robust ergonomic positioning handle comes supplied as standard with every DSX tool. The SHW10EA is a handle with lifting eye for the DSX25000.

| Compatible DSX-Series wrenches | Ergonomic Handle (Standard) |
|--------------------------------|-----------------------------|
| DSX1500, 3000, 5000            | <b>SWH6A</b>                |
| DSX11000                       | <b>SWH10A</b>               |
| DSX25000                       | <b>SWH10EA</b>              |



### Bolting Integrity Software

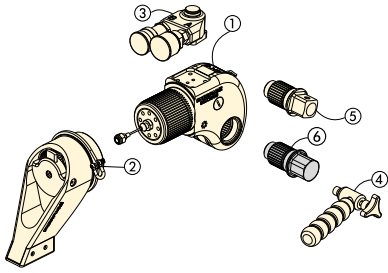
Enerpac Bolting Integrity Software Solutions play a key role in

implementing and managing an Integrity Program for bolted connections.

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as a combined Application Data Sheet and Joint Completion Report.

Custom Joint information can also be entered. See page 412.

# Square Drive Hydraulic Torque Wrenches



Standard are: ① ② ③ ④ ⑤

Item ⑥ is optional.

- ① Drive Unit
- ② Reaction Arm
- ③ Hose Swivel
- ④ Ergonomic Tool Handle
- ⑤ Square Drive
- ⑥ Allen Key-Drive (option)

**Select the Right Torque**  
Choose your Enerpac Torque Wrench using the untightening rule of thumb: Loosening torque equals about 250% of tightening torque.

## DSX Series



Nominal Torque Output:

**32.617 Nm | 24.057 Ft.lbs**

Square Drive Range:

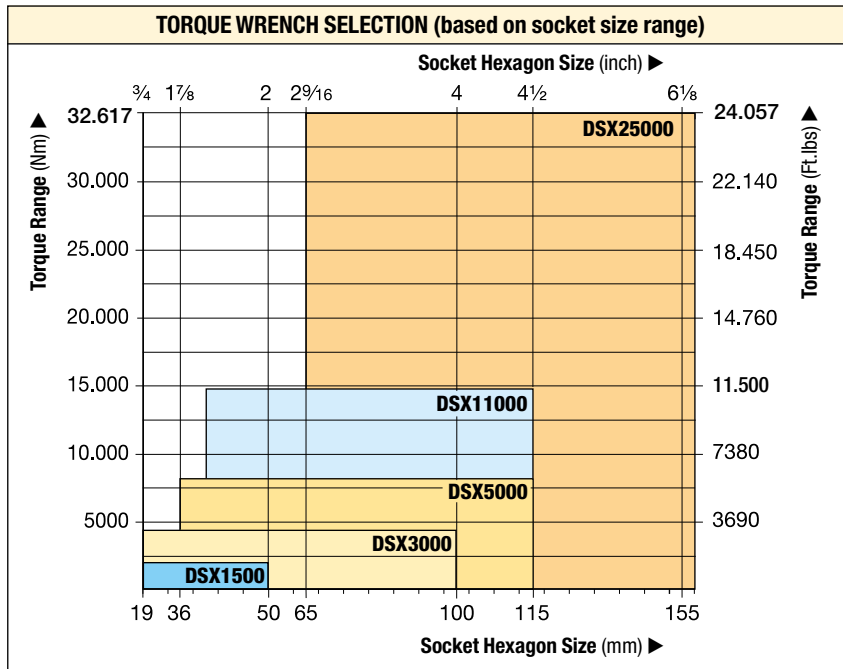
**3/4 - 2 1/2 inch**

Nose Radius:

**24 - 64 mm**

Maximum Operating Pressure:

**690 bar**



### BUS-Series, Back-Up Spanners

Hands-free tool to be used to stop the back nut from turning during make up or break out.

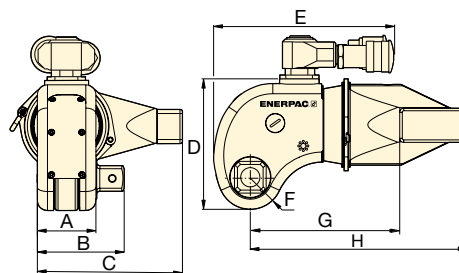
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▼ The rigid design of the DSX-Series torque wrenches provides durability, reliability and safety.



**BSH-Series Sockets**  
Use only Heavy-Duty Impact Sockets for power driven torquing equipment.

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| Nominal Torque at 690 bar |          | Minimum Torque at 69 bar |          | Square Drive Size (inch) | Torque Wrench Model Number | Dimensions (mm)                  |     |     |     |     |    |     |     | (kg) |
|---------------------------|----------|--------------------------|----------|--------------------------|----------------------------|----------------------------------|-----|-----|-----|-----|----|-----|-----|------|
| (Nm)                      | (Ft.lbs) | (Nm)                     | (Ft.lbs) |                          |                            | Model Nr. (included with wrench) | A   | B   | C   | D   | E  | F   | G   |      |
| 1913                      | 1411     | 191                      | 141      | 3/4                      | DSX1500-08                 | 44                               | 67  | 107 | 96  | 145 | 24 | 114 | 163 | 2,2  |
| 4383                      | 3233     | 438                      | 323      | 1                        | DSX3000-08                 | 58                               | 86  | 144 | 129 | 171 | 32 | 148 | 215 | 4,8  |
| 7640                      | 5635     | 764                      | 563      | 1 1/2                    | DSX5000-08                 | 69                               | 112 | 173 | 148 | 192 | 38 | 180 | 260 | 8,1  |
| 14.914                    | 11.000   | 1491                     | 1100     | 1 1/2                    | DSX11000-08                | 87                               | 129 | 215 | 181 | 222 | 48 | 227 | 325 | 14,4 |
| 32.617                    | 24.057   | 3262                     | 2406     | 2 1/2                    | DSX25000-08                | 117                              | 176 | 288 | 244 | 266 | 64 | 281 | 426 | 32,5 |



Maximum Torque Output:

**32.617 Nm**

Hexagon Size Allen Drive:


**1/2 - 2 1/4 inch**

Hexagon Size Allen Drive:

**14 - 85 mm**

For  
**DSX**  
Series



| Torque Wrench   | Optional Allen-Key Drives, Imperial |                |              |         | Optional Allen-Key Drives, Metric |                |              |         |
|---|-------------------------------------|----------------|--------------|---------|-----------------------------------|----------------|--------------|---------|
|   | Hexagon Size                        | Maximum Torque | Model Number | Dim.    | Hexagon Size                      | Maximum Torque | Model Number | Dim.    |
| (max. torque)   | (inch)                              | (Ft.Lbs)       |              | B1 (mm) | (mm)                              | (Nm)           |              | B1 (mm) |
| <br><b>DSX1500</b><br>(1411 Ft.lbs)<br>(1913 Nm) | 1/2                                 | 350            | DDA15008     | 67      | 14                                | 644            | DDA1514      | 67      |
|   | 5/8                                 | 690            | DDA15010     | 67      | 17                                | 1152           | DDA1517      | 67      |
|   | 3/4                                 | 1200           | DDA15012     | 67      | 19                                | 1627           | DDA1519      | 67      |
|   | 7/8                                 | 1411           | DDA15014     | 67      | 22                                | 1913           | DDA1522      | 67      |
|   | 1                                   | 1411           | DDA15100     | 67      | 24                                | 1913           | DDA1524      | 67      |
| <b>DSX3000</b><br>(3233 Ft.lbs)<br>(4383 Nm)  | 5/8                                 | 690            | DDA30010     | 86      | 17                                | 1152           | DDA3017      | 86      |
|   | 3/4                                 | 1200           | DDA30012     | 86      | 19                                | 1627           | DDA3019      | 86      |
|   | 7/8                                 | 1900           | DDA30014     | 86      | 22                                | 2495           | DDA3022      | 86      |
|   | 1                                   | 2830           | DDA30100     | 86      | 24                                | 3376           | DDA3024      | 86      |
|   | 1 1/8                               | 3233           | DDA30102     | 86      | 27                                | 4383           | DDA3027      | 86      |
|   | 1 1/4                               | 3233           | DDA30104     | 86      | 30                                | 4383           | DDA3030      | 86      |
|   | -                                   | -              | -            | 86      | 32                                | 4383           | DDA3032      | 86      |
| <b>DSX5000</b><br>(5635 Ft.lbs)<br>(7640 Nm)  | 5/8                                 | 690            | DDA50010     | 112     | 17                                | 1152           | DDA5017      | 112     |
|   | 3/4                                 | 1200           | DDA50012     | 112     | 19                                | 1627           | DDA5019      | 112     |
|   | 7/8                                 | 1900           | DDA50014     | 112     | 22                                | 2495           | DDA5022      | 112     |
|   | 1                                   | 2830           | DDA50100     | 112     | 24                                | 3376           | DDA5024      | 112     |
|   | 1 1/8                               | 5325           | DDA50102     | 112     | 27                                | 4610           | DDA5027      | 112     |
|   | 1 1/4                               | 5635           | DDA50104     | 112     | 30                                | 7640           | DDA5030      | 112     |
|   | -                                   | -              | -            | -       | 32                                | 7640           | DDA5032      | 112     |
| <b>DSX11000</b><br>(11.000 Ft.lbs)<br>(14.914 Nm)   | 1 1/4                               | 5635           | DDA110104    | 129     | 30                                | 7640           | DDA11030     | 129     |
|   | 1 3/8                               | 9958           | DDA110106    | 129     | 32                                | 7640           | DDA11032     | 129     |
|   | 1 1/2                               | 9958           | DDA110108    | 129     | 36                                | 10.846         | DDA11036     | 129     |
|   | 1 5/8                               | 11.000         | DDA110110    | 129     | 41                                | 14.914         | DDA11041     | 129     |
|   | 1 3/4                               | 11.000         | DDA110112    | 129     | 46                                | 14.914         | DDA11046     | 129     |
| <b>DSX25000</b><br>(24.057 Ft.lbs)<br>(32.617 Nm)   | 1 1/2                               | 9958           | DDA250104    | 176     | 36                                | 10.846         | DDA25036     | 176     |
|   | 1 5/8                               | 16.433         | DDA250106    | 176     | 41                                | 16.107         | DDA25041     | 176     |
|   | 1 3/4                               | 15.200         | DDA250112    | 176     | 46                                | 22.777         | DDA25046     | 176     |
|   | 1 7/8                               | 22.777         | DDA250114    | 176     | 50                                | 29.211         | DDA25050     | 176     |
|   | 2                                   | 24.057         | DDA250200    | 176     | 55                                | 32.617         | DDA25055     | 176     |
|   | 2 1/4                               | 24.057         | DDA250204    | 176     | 60                                | 32.617         | DDA25060     | 176     |
|   | -                                   | -              | -            | -       | 65                                | 32.617         | DDA25065     | 176     |
|   | -                                   | -              | -            | -       | 70                                | 32.617         | DDA25070     | 176     |
|   | -                                   | -              | -            | -       | 75                                | 32.617         | DDA25075     | 176     |
|   | -                                   | -              | -            | -       | 85                                | 32.617         | DDA25085     | 176     |

▼ THQ706T



## THQ Series

Hose Lengths:

**2, 6 and 12 metres**

Maximum Operating Pressure:

**700 bar**

### Twin Torque Wrench Hose

- Thermo-plastic safety dual hoses
- For use S, W, RSL, DSX and HMT-Series torque wrenches and 700 bar torque pumps
- With 1/4" Spin-on Torque Wrench Couplers
- For demanding applications, featuring a 4:1 safety factor
- Maximum working pressure of 700 bar
- Outside jacket is polyurethane, to provide maximum abrasion resistance
- Low volumetric expansion under pressure to enhance overall system efficiency
- Crimped-on vinyl strain relief for improved life and durability on all models.

Use the THQ-Series hoses with Enerpac torque wrenches and pumps to ensure the integrity of your hydraulic system. ▶



### HT, B-Series, 1500 bar Hoses and Fittings for Tensioning

Bolt tensioning equipment require different hoses, couplers and fittings than torque wrenches and pumps.

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### Premium Hydraulic Oil

Use only genuine Enerpac hydraulic oil. Wrong fluid can destroy seals and pump and will render your warranty null and void your guarantee.

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| Internal Diameter<br>(mm) | Hose Length<br>(m) | Model Number | Maximum Operating Pressure<br>(bar) | Hose Ends 1/4" Spin-on Torque Wrench Couplers |                                     | Weight<br>(kg) |
|---------------------------|--------------------|--------------|-------------------------------------|---|-------------------------------------|----------------|
|                           |                    |              |                                     | Hose one                                      | Hose two                            |                |
| 6,4                       | 2,0                | THQ702T      | 700                                 | female half TR630 + male half TH630           | male half TH630 + female half TR630 | 2,2            |
|                           | 6,0                | THQ706T      | 700                                 | female half TR630 + male half TH630           | male half TH630 + female half TR630 | 4,5            |
|                           | 12,0               | THQ712T      | 700                                 | female half TR630 + male half TH630           | male half TH630 + female half TR630 | 7,6            |

▼ HMT-Drive Units with interchangeable HLP-Low Profile Cassette and HSQ-Square Drive Cassette



The HMT-Series is a range of fast, durable and efficient modular hydraulic torque wrenches, enabling you to tackle almost any bolting application. Interchange cassettes with ease, switching the HLP low profile hexagon cassette with the HSQ square drive whenever your application demands.

As an added benefit, tools and cassettes are interchangeable with many other well-known brands, allowing you the freedom to use the tools at your disposal whilst reducing the cost of upgrading your legacy torque wrench inventory to high quality Enerpac equipment.

The tool itself has been carefully designed and manufactured, utilising superior alloys and surface treatments to make it lightweight, up to 25% faster and more than twice as durable as other tools in the same class.

### Safety and Performance

- Supplied with an ergonomic tool safety handle as standard
- The HMT Modular Torque/Tool is also supplied with a link pin retainer as standard.

### Versatility

- Interchangeable with other manufacturers
- HMT is able to solve all of your bolting challenges quickly and safely, with one or more attachment options, making it suitable for any application.

### Simplicity

- The HMT is part of a modular system which is made up of a single power head and one attachment; the HMT-Drive Unit and HLP-Hexagon Cassette or HSQ-Square Drive Cassette.

### Accuracy

- Constant torque output provides accuracy of  $\pm 3\%$  across the full stroke.

## Modular, Durable, Fast and Efficient Torque for Low Profile and Square Drive Applications



### Bolting Integrity Software

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report. Custom Joint information can also be entered.

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### BUS-Series, Back-Up Spanners

To be used to stop the back nut from turning during make up or break out. Two hexagon sizes in one tool.

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### Torque Pumps

Visit [enerpac.com](http://enerpac.com) for system matched air and electric torque pumps that are ideal for use with hydraulic torque wrenches.

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### Torque Wrench Hoses

Use Enerpac THQ-Series hoses with HMT-Series torque wrenches to ensure the integrity of your hydraulic system. See page 249.

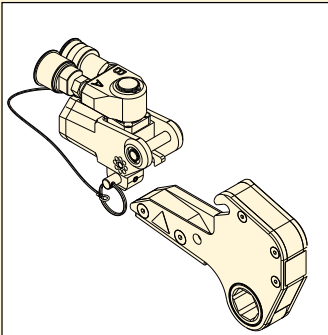
|                    |         |
|--------------------|---------|
| 2 m long, 2 hoses  | THQ702T |
| 6 m long, 2 hoses  | THQ706T |
| 12 m long, 2 hoses | THQ712T |

# Drive Units for Hexagon & Square Drive Cassettes

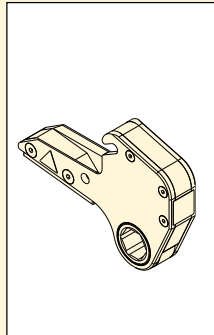


## One Drive, Two Tools

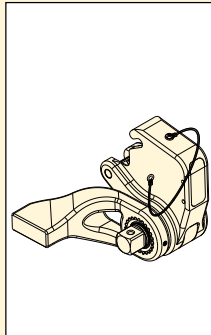
One HMT-Hydraulic Torque Wrench fits HLP-Low Profile or HSQ Square Drive cassette.



HMT...HLP



HLP



HSQ

## HMT Series



Maximum Torque at 10.000 psi:

**1541 - 13.489 Ft.lbs**

Maximum Torque at 690 bar:

**2089 - 18.289 Nm**

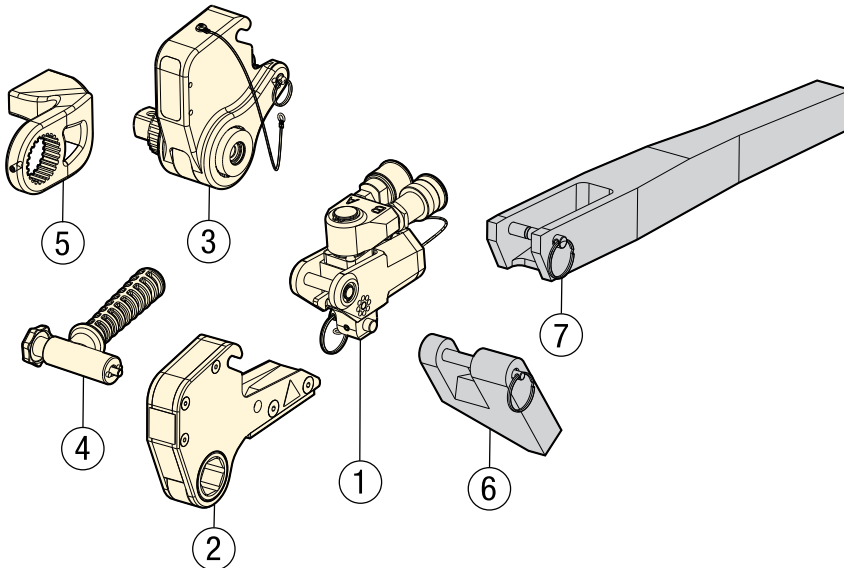
Hexagon Range:

**1 1/16" - 4 5/8" / 26 - 115 mm**

Maximum Operating Pressure:

**690 bar / 10.000 psi**

## HMT-Series, Torque Wrench Options and Accessories



① HMT: Drive Unit (page 251)

② HLP: Hexagon Cassette (page 252-253)

③ HSQ: Square Drive Cassette (page 254-255)

④ SWH: Ergonomic Tool Handle (page 254)

⑤ Reaction Arm for HSQ

### Optional Parts (for HMT with HLP only)

⑥ HRP: Reaction Paddle (page 252)

⑦ HTE: Extended Reaction Arm (page 252)



### Select the Right Torque

Choose your Enerpac Torque Wrench using the untightening rule of thumb: Loosening torque equals about 250% of tightening torque.



### HLP-Low Profile Cassettes

For the metric and imperial Low Profile hexagon cassettes see:

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### HSQ-Square Drive Cassettes

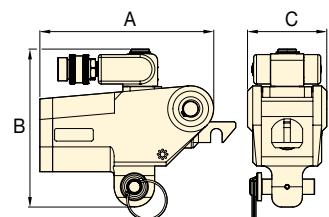
For the metric and inch Square Drive Cassettes see:

Page: 254

## ▼ SELECTION CHART DRIVE UNITS FOR HEXAGON & SQUARE DRIVE CASSETTES

| Maximum Torque Output at 690 bar |        | Minimum Torque Output at 69 bar |      | Drive Unit Model Number<br> | Dimensions (inch) |     |     |  (lbs) | Dimensions (mm) |     |    |  (kg) |
|----------------------------------|--------|---------------------------------|------|--|-------------------|-----|-----|---|-----------------|-----|----|--|
| (Ft.lbs)                         | (Nm)   | (Ft.lbs)                        | (Nm) |  | A                 | B   | C   |   | A               | B   | C  |  |
| 1541                             | 2089   | 154                             | 209  | <b>HMT1500</b>   | 4.3               | 4.1 | 2.0 | 2.20  | 108             | 104 | 49 | 1,0  |
| 3750                             | 5084   | 375                             | 508  | <b>HMT3500</b>   | 5.7               | 5.2 | 2.6 | 3.97  | 146             | 132 | 66 | 1,8  |
| 7562                             | 10.252 | 756                             | 1025 | <b>HMT7500</b>   | 7.1               | 6.4 | 3.2 | 7.05  | 180             | 163 | 82 | 3,2  |
| 13.489                           | 18.289 | 1349                            | 1829 | <b>HMT13000*</b>   | 8.5               | 7.4 | 3.9 | 4.40  | 216             | 187 | 98 | 9,7  |

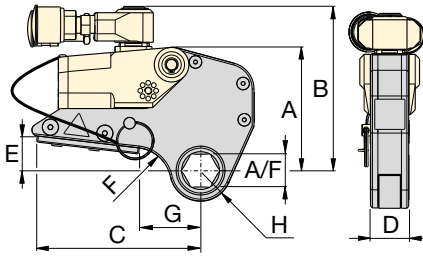
\* Note: HMT13000 only available for HLP-low profile hexagon cassettes.





# Hexagon Cassettes for HMT-Drive Units

**ENERPAC** 



Hexagon Range:  
**1 1/16 - 4 5/8 inch**

Hexagon Range:  
**26 - 115 mm**

Maximum Operating Pressure:  
**690 bar / 10.000 psi**

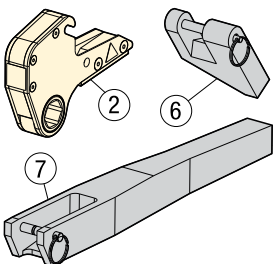
**HLP  
Series**



▼ **SELECTION CHART**

**IMPORTANT:** HMT-drive units must be ordered separately to operate the HLP-Hexagon Cassettes.

| Drive Unit Model Number | Hexagon Size A/F |       | Hexagon Cassette Model Number | Maximum Torque |      | Dimensions (inch) |      |      |      |      |      |      |      |       |      | Dimensions (mm) |     |      |      |    |    |    |      |     |  |
|-------------------------|------------------|-------|-------------------------------|----------------|------|-------------------|------|------|------|------|------|------|------|-------|------|-----------------|-----|------|------|----|----|----|------|-----|--|
|                         | (inch)           | (mm)  |                               | (Ft.lbs)       | (Nm) | A                 | B    | C    | D    | E    | F    | G    | H    | (lbs) | A    | B               | C   | D    | E    | F  | G  | H  | (kg) |     |  |
|                         |                  |       |                               |                |      |                   |      |      |      |      |      |      |      |       |      |                 |     |      |      |    |    |    |      |     |  |
| <b>HMT1500</b>          | 1 1/16           | 26    | HLP1101                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 1.18 | 2.01 | 1.00 | 3.53  | 114  | 135             | 136 | 31,5 | 29   | 30 | 51 | 25 | 1,6  |     |  |
|                         | 1 1/8            | -     | HLP1102                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 1.18 | 2.01 | 1.00 | 3.53  | 114  | 135             | 136 | 31,5 | 29   | 30 | 51 | 25 | 1,6  |     |  |
|                         | 1 3/16           | 30    | HLP1103                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 1.18 | 2.01 | 1.00 | 3.53  | 114  | 135             | 136 | 31,5 | 29   | 30 | 51 | 25 | 1,6  |     |  |
|                         | 1 1/4            | 32    | HLP1104                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 0.95 | 2.01 | 1.08 | 3.53  | 114  | 135             | 136 | 31,5 | 29   | 24 | 51 | 27 | 1,6  |     |  |
|                         | 1 5/16           | 33    | HLP1105                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 0.95 | 2.01 | 1.08 | 3.53  | 114  | 135             | 136 | 31,5 | 29   | 24 | 51 | 27 | 1,6  |     |  |
|                         | 1 3/8            | 35    | HLP1106                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 0.55 | 1.89 | 1.19 | 3.53  | 114  | 135             | 136 | 31,5 | 29   | 14 | 48 | 30 | 1,6  |     |  |
|                         | 1 1/2            | 36    | HLP1107                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 0.55 | 1.89 | 1.19 | 3.53  | 114  | 135             | 136 | 31,5 | 29   | 14 | 48 | 30 | 1,6  |     |  |
|                         | 1 1/2            | 38    | HLP1108                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 0.55 | 2.01 | 1.30 | 3.53  | 114  | 135             | 136 | 31,5 | 29   | 14 | 51 | 33 | 1,6  |     |  |
|                         | 1 3/4            | -     | HLP1109                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 0.55 | 2.01 | 1.30 | 3.53  | 114  | 135             | 136 | 31,5 | 29   | 14 | 51 | 33 | 1,6  |     |  |
|                         | 1 5/8            | 41    | HLP1110                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 0.55 | 2.01 | 1.30 | 3.53  | 114  | 135             | 136 | 31,5 | 29   | 14 | 51 | 33 | 1,6  |     |  |
|                         | 1 11/16          | -     | HLP1111                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 0.55 | 2.01 | 1.30 | 3.53  | 114  | 135             | 136 | 31,5 | 29   | 14 | 51 | 33 | 1,6  |     |  |
|                         | 1 3/4            | -     | HLP1112                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 0.55 | 2.01 | 1.38 | 3.53  | 114  | 135             | 136 | 31,5 | 29   | 14 | 51 | 35 | 1,6  |     |  |
|                         | 1 15/16          | 46    | HLP1113                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 0.55 | 2.01 | 1.38 | 3.53  | 114  | 135             | 136 | 31,5 | 29   | 14 | 51 | 35 | 1,6  |     |  |
|                         | 1 7/8            | -     | HLP1114                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 0.55 | 2.36 | 1.52 | 3.53  | 114  | 135             | 136 | 31,5 | 29   | 14 | 60 | 39 | 1,6  |     |  |
|                         | 1 15/16          | -     | HLP1115                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 0.55 | 2.36 | 1.52 | 3.53  | 114  | 135             | 136 | 31,5 | 29   | 14 | 60 | 39 | 1,6  |     |  |
|                         | 2                | 50    | HLP1200                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 0.55 | 2.36 | 1.52 | 3.75  | 114  | 135             | 136 | 31,5 | 29   | 14 | 60 | 39 | 1,7  |     |  |
|                         | 2 1/16           | -     | HLP1201                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 0.55 | 2.36 | 1.52 | 3.75  | 114  | 135             | 136 | 31,5 | 29   | 14 | 60 | 39 | 1,7  |     |  |
|                         | 2 1/8            | -     | HLP1202                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 0.55 | 2.36 | 1.65 | 3.75  | 114  | 135             | 136 | 31,5 | 29   | 14 | 60 | 42 | 1,7  |     |  |
|                         | 2 3/16           | 55    | HLP1203                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 0.55 | 2.36 | 1.65 | 3.75  | 114  | 135             | 136 | 31,5 | 29   | 14 | 60 | 42 | 1,7  |     |  |
|                         | 2 1/4            | -     | HLP1204                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 0.55 | 2.36 | 1.65 | 3.75  | 114  | 135             | 136 | 31,5 | 29   | 14 | 60 | 42 | 1,7  |     |  |
|                         | 2 5/16           | -     | HLP1205                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 0.55 | 2.36 | 1.65 | 3.75  | 114  | 135             | 136 | 31,5 | 29   | 14 | 60 | 42 | 1,7  |     |  |
|                         | 2 3/8            | 60    | HLP1206                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 0.55 | 2.36 | 1.71 | 3.75  | 114  | 135             | 136 | 31,5 | 29   | 14 | 60 | 44 | 1,7  |     |  |
|                         | 2 7/16           | 62    | HLP1207                       | 1541           | 2089 | 4.48              | 5.32 | 5.35 | 1.2  | 1.13 | 0.55 | 2.36 | 1.71 | 3.75  | 114  | 135             | 136 | 31,5 | 29   | 14 | 60 | 44 | 1,7  |     |  |
|                         | <b>HMT3500</b>   | 1 3/8 | 35                            | HLP3106        | 3750 | 5084              | 6.02 | 6.57 | 7.24 | 1.7  | 1.59 | 1.89 | 3.09 | 1.30  | 8.60 | 153             | 167 | 184  | 42,0 | 41 | 48 | 79 | 33   | 3,9 |  |
| 1 1/2                   |                  | 36    | HLP3107                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 1.89 | 3.09 | 1.30 | 8.60  | 153  | 167             | 184 | 42,0 | 41   | 48 | 79 | 33 | 3,9  |     |  |
| 1 1/2                   |                  | 38    | HLP3108                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 1.81 | 3.16 | 1.42 | 8.60  | 153  | 167             | 184 | 42,0 | 41   | 46 | 80 | 36 | 3,9  |     |  |
| 1 3/4                   |                  | -     | HLP3109                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 1.81 | 3.16 | 1.42 | 8.60  | 153  | 167             | 184 | 42,0 | 41   | 46 | 80 | 36 | 3,9  |     |  |
| 1 5/8                   |                  | 41    | HLP3110                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 1.81 | 3.16 | 1.42 | 8.60  | 153  | 167             | 184 | 42,0 | 41   | 46 | 80 | 36 | 3,9  |     |  |
| 1 11/16                 |                  | -     | HLP3111                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 1.81 | 3.16 | 1.42 | 8.60  | 153  | 167             | 184 | 42,0 | 41   | 46 | 80 | 36 | 3,9  |     |  |
| 1 3/4                   |                  | -     | HLP3112                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 1.58 | 3.08 | 1.52 | 8.60  | 153  | 167             | 184 | 42,0 | 41   | 40 | 78 | 39 | 3,9  |     |  |
| 1 15/16                 |                  | 46    | HLP3113                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 1.58 | 3.08 | 1.52 | 8.60  | 153  | 167             | 184 | 42,0 | 41   | 40 | 78 | 39 | 3,9  |     |  |
| 1 7/8                   |                  | -     | HLP3114                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 1.42 | 3.05 | 1.63 | 8.60  | 153  | 167             | 184 | 42,0 | 41   | 36 | 77 | 41 | 3,9  |     |  |
| 1 15/16                 |                  | -     | HLP3115                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 1.42 | 3.05 | 1.63 | 8.60  | 153  | 167             | 184 | 42,0 | 41   | 36 | 77 | 41 | 3,9  |     |  |
| 2                       |                  | 50    | HLP3200                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 1.42 | 3.05 | 1.63 | 8.60  | 153  | 167             | 184 | 42,0 | 41   | 36 | 77 | 41 | 3,9  |     |  |
| 2 1/16                  |                  | -     | HLP3201                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 1.42 | 3.05 | 1.63 | 8.82  | 153  | 167             | 184 | 42,0 | 41   | 36 | 77 | 41 | 4,0  |     |  |
| 2 1/8                   |                  | -     | HLP3202                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 1.18 | 2.97 | 1.74 | 8.82  | 153  | 167             | 184 | 42,0 | 41   | 30 | 75 | 44 | 4,0  |     |  |
| 2 3/16                  |                  | 55    | HLP3203                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 1.18 | 2.97 | 1.74 | 8.82  | 153  | 167             | 184 | 42,0 | 41   | 30 | 75 | 44 | 4,0  |     |  |
| 2 1/4                   |                  | -     | HLP3204                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 1.18 | 2.97 | 1.74 | 8.82  | 153  | 167             | 184 | 42,0 | 41   | 30 | 75 | 44 | 4,0  |     |  |
| 2 5/16                  |                  | -     | HLP3205                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 0.63 | 2.68 | 1.85 | 9.04  | 153  | 167             | 184 | 42,0 | 41   | 16 | 68 | 47 | 4,1  |     |  |
| 2 3/8                   |                  | 60    | HLP3206                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 0.63 | 2.68 | 1.85 | 9.04  | 153  | 167             | 184 | 42,0 | 41   | 16 | 68 | 47 | 4,1  |     |  |
| 2 7/16                  |                  | 62    | HLP3207                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 0.63 | 2.80 | 1.85 | 9.04  | 153  | 167             | 184 | 42,0 | 41   | 16 | 71 | 47 | 4,1  |     |  |
| 2 1/2                   |                  | 63    | HLP3208                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 0.63 | 2.80 | 1.96 | 9.04  | 153  | 167             | 184 | 42,0 | 41   | 16 | 71 | 50 | 4,1  |     |  |
| 2 9/16                  |                  | 65    | HLP3209                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 0.63 | 2.80 | 1.96 | 9.04  | 153  | 167             | 184 | 42,0 | 41   | 16 | 71 | 50 | 4,1  |     |  |
| 2 5/8                   |                  | -     | HLP3210                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 0.63 | 2.80 | 2.07 | 9.04  | 153  | 167             | 184 | 42,0 | 41   | 16 | 71 | 53 | 4,1  |     |  |
| 2 11/16                 |                  | -     | HLP3211                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 0.63 | 2.80 | 2.07 | 9.04  | 153  | 167             | 184 | 42,0 | 41   | 16 | 71 | 53 | 4,1  |     |  |
| 2 3/4                   |                  | 70    | HLP3212                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 0.63 | 2.80 | 2.07 | 9.04  | 153  | 167             | 184 | 42,0 | 41   | 16 | 71 | 53 | 4,1  |     |  |
| 2 13/16                 |                  | -     | HLP3213                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 0.63 | 2.80 | 2.07 | 9.04  | 153  | 167             | 184 | 42,0 | 41   | 16 | 71 | 53 | 4,1  |     |  |
| 2 7/8                   |                  | -     | HLP3214                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 0.63 | 2.80 | 2.07 | 9.04  | 153  | 167             | 184 | 42,0 | 41   | 16 | 71 | 53 | 4,1  |     |  |
| 2 15/16                 |                  | 75    | HLP3215                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 0.63 | 2.99 | 2.19 | 9.04  | 153  | 167             | 184 | 42,0 | 41   | 16 | 76 | 56 | 4,1  |     |  |
| 3                       |                  | -     | HLP3300                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 0.63 | 2.99 | 2.19 | 9.04  | 153  | 167             | 184 | 42,0 | 41   | 16 | 76 | 56 | 4,1  |     |  |
| 3 1/16                  |                  | -     | HLP3301                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 0.63 | 2.99 | 2.19 | 9.04  | 153  | 167             | 184 | 42,0 | 41   | 16 | 76 | 56 | 4,1  |     |  |
| 3 1/8                   |                  | 80    | HLP3302                       | 3750           | 5084 | 6.02              | 6.57 | 7.24 | 1.7  | 1.59 | 0.63 | 2.99 | 2.19 | 9.04  | 153  | 167             | 184 | 42,0 | 41   | 16 | 76 | 56 | 4,1  |     |  |

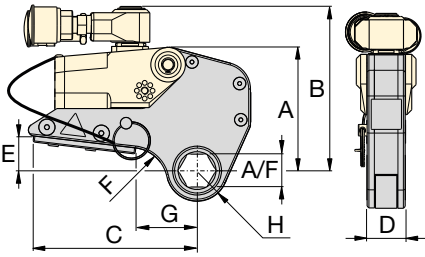


**Optional Parts for HLP-Hexagon Cassettes**

- Full torque rated
- Includes pin to secure onto HLP-cassette
- ⑥ HRP: allows offset reaction when in-line reaction point is not available
- ⑦ HTE: Increases tool fit in restricted areas.

| For HMT with HLP-Series Hexagon Cassettes | Reaction Paddle Model Nr. ⑥ | Extended Reaction Arm Model Nr. ⑦ |
|---|-----------------------------|-----------------------------------|
| HMT1500 + HLP1                            | HRP15                       | HTE15                             |
| HMT3500 + HLP3                            | HRP35                       | HTE35                             |
| HMT7500 + HLP7                            | HRP75                       | HTE75                             |
| HMT13000 + HLP13                          | HRP130                      | HTE130                            |

# Hexagon Cassettes for HMT-Drive Units



Hexagon Range:  
**1 1/16 - 4 5/8 inch**

Hexagon Range:  
**26 - 115 mm**

Maximum Operating Pressure:  
**690 bar / 10.000 psi**

**HLP**  
Series



▼ SELECTION CHART

IMPORTANT: HMT-drive units must be ordered separately to operate the HLP-Hexagon Cassettes.

| Drive Unit Model Number | Hexagon Size A/F |          | Hexagon Cassette Model Number | Maximum Torque |        | Dimensions (inch) |      |       |       |      |      |      |      |       |      | ⚖️ (lbs) | Dimensions (mm) |      |      |    |     |      |      |      | ⚖️ (kg) |
|-------------------------|------------------|----------|-------------------------------|----------------|--------|-------------------|------|-------|-------|------|------|------|------|-------|------|----------|-----------------|------|------|----|-----|------|------|------|---------|
|                         | (inch)           | (mm)     |                               | (Ft.lbs)       | (Nm)   | A                 | B    | C     | D     | E    | F    | G    | H    | A     | B    |          | C               | D    | E    | F  | G   | H    |      |      |         |
| HMT7500                 | 2 3/16           | 55       | HLP7203                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 1.65 | 3.39 | 1.91 | 15.65 | 193  | 203      | 227             | 52,6 | 46   | 42 | 86  | 49   | 7,1  |      |         |
|                         | 2 1/4            | -        | HLP7204                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 1.65 | 3.39 | 1.91 | 15.65 | 193  | 203      | 227             | 52,6 | 46   | 42 | 86  | 49   | 7,1  |      |         |
|                         | 2 5/16           | -        | HLP7205                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 1.65 | 3.39 | 1.91 | 15.65 | 193  | 203      | 227             | 52,6 | 46   | 42 | 86  | 49   | 7,1  |      |         |
|                         | 2 3/8            | 60       | HLP7206                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 1.18 | 3.15 | 1.99 | 15.65 | 193  | 203      | 227             | 52,6 | 46   | 30 | 80  | 51   | 7,1  |      |         |
|                         | 2 7/16           | 62       | HLP7207                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 1.18 | 3.15 | 1.99 | 15.65 | 193  | 203      | 227             | 52,6 | 46   | 30 | 80  | 51   | 7,1  |      |         |
|                         | 2 1/2            | 63       | HLP7208                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 1.18 | 3.15 | 1.99 | 15.65 | 193  | 203      | 227             | 52,6 | 46   | 30 | 80  | 51   | 7,1  |      |         |
|                         | 2 9/16           | 65       | HLP7209                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 0.87 | 3.15 | 2.07 | 15.65 | 193  | 203      | 227             | 52,6 | 46   | 22 | 80  | 53   | 7,1  |      |         |
|                         | 2 5/8            | -        | HLP7210                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 0.79 | 3.15 | 2.19 | 15.65 | 193  | 203      | 227             | 52,6 | 46   | 20 | 80  | 56   | 7,1  |      |         |
|                         | 2 1 1/16         | -        | HLP7211                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 0.79 | 3.15 | 2.19 | 15.65 | 193  | 203      | 227             | 52,6 | 46   | 20 | 80  | 56   | 7,1  |      |         |
|                         | 2 3/4            | 70       | HLP7212                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 0.79 | 3.15 | 2.19 | 17.42 | 193  | 203      | 227             | 52,6 | 46   | 20 | 80  | 56   | 7,9  |      |         |
|                         | 2 13/16          | -        | HLP7213                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 0.79 | 3.15 | 2.19 | 17.42 | 193  | 203      | 227             | 52,6 | 46   | 20 | 80  | 56   | 7,9  |      |         |
|                         | 2 7/8            | -        | HLP7214                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 0.79 | 3.15 | 2.19 | 17.42 | 193  | 203      | 227             | 52,6 | 46   | 20 | 80  | 56   | 7,9  |      |         |
|                         | 2 15/16          | 75       | HLP7215                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 0.67 | 3.15 | 2.26 | 17.42 | 193  | 203      | 227             | 52,6 | 46   | 17 | 80  | 58   | 7,9  |      |         |
|                         | 3                | -        | HLP7300                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 0.67 | 3.39 | 2.38 | 17.42 | 193  | 203      | 227             | 52,6 | 46   | 17 | 86  | 61   | 7,9  |      |         |
|                         | 3 1/16           | -        | HLP7301                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 0.67 | 3.39 | 2.38 | 17.42 | 193  | 203      | 227             | 52,6 | 46   | 17 | 86  | 61   | 7,9  |      |         |
|                         | 3 1/8            | 80       | HLP7302                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 0.67 | 3.39 | 2.38 | 17.42 | 193  | 203      | 227             | 52,6 | 46   | 17 | 86  | 61   | 7,9  |      |         |
|                         | 3 1/4            | -        | HLP7304                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 0.67 | 3.39 | 2.52 | 17.42 | 193  | 203      | 227             | 52,6 | 46   | 17 | 86  | 64   | 7,9  |      |         |
|                         | -                | 85       | HLP7085M                      | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 0.67 | 3.39 | 2.52 | 17.42 | 193  | 203      | 227             | 52,6 | 46   | 17 | 86  | 64   | 7,9  |      |         |
|                         | 3 5/8            | -        | HLP7306                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 0.67 | 3.39 | 2.52 | 17.42 | 193  | 203      | 227             | 52,6 | 46   | 17 | 86  | 64   | 7,9  |      |         |
|                         | 3 7/16           | -        | HLP7307                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 0.67 | 3.50 | 2.52 | 17.64 | 193  | 203      | 227             | 52,6 | 46   | 17 | 89  | 64   | 8,0  |      |         |
|                         | 3 1/2            | -        | HLP7308                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 0.67 | 3.50 | 2.64 | 17.64 | 193  | 203      | 227             | 52,6 | 46   | 17 | 89  | 67   | 8,0  |      |         |
|                         | -                | 90       | HLP7090M                      | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 0.67 | 3.74 | 2.64 | 17.64 | 193  | 203      | 227             | 52,6 | 46   | 17 | 95  | 67   | 8,0  |      |         |
|                         | 3 9/16           | -        | HLP7309                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 0.67 | 3.74 | 2.78 | 17.64 | 193  | 203      | 227             | 52,6 | 46   | 17 | 95  | 71   | 8,0  |      |         |
|                         | 3 3/4            | 95       | HLP7312                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 0.67 | 3.74 | 2.89 | 18.08 | 193  | 203      | 227             | 52,6 | 46   | 17 | 95  | 71   | 8,2  |      |         |
|                         | 3 5/8            | -        | HLP7314                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 0.67 | 3.74 | 2.89 | 18.08 | 193  | 203      | 227             | 52,6 | 46   | 17 | 95  | 74   | 8,2  |      |         |
|                         | 3 15/16          | 100      | HLP7315                       | 7562           | 10.252 | 7.60              | 8.01 | 8.94  | 2.1   | 1.81 | 0.67 | 3.74 | 2.89 | 18.08 | 193  | 203      | 227             | 52,6 | 46   | 17 | 95  | 74   | 8,2  |      |         |
|                         | HMT13000         | 2 7/16   | 62                            | HLP13207       | 13.489 | 18.289            | 8.03 | 9.53  | 10.87 | 2.50 | 2.25 | 2.95 | 4.69 | 2.28  | 24.3 | 204      | 242             | 276  | 63,4 | 57 | 75  | 119  | 58,0 | 11,0 |         |
|                         |                  | 2 1/2    | 63                            | HLP13208       | 13.489 | 18.289            | 8.03 | 9.53  | 10.87 | 2.50 | 2.25 | 2.95 | 4.69 | 2.28  | 24.3 | 204      | 242             | 276  | 63,4 | 57 | 75  | 119  | 58,0 | 11,0 |         |
|                         |                  | 2 9/16   | 65                            | HLP13209       | 13.489 | 18.289            | 8.03 | 9.53  | 10.87 | 2.50 | 2.25 | 2.95 | 4.69 | 2.28  | 24.3 | 204      | 242             | 276  | 63,4 | 57 | 75  | 119  | 58,0 | 11,0 |         |
|                         |                  | 2 5/8    | 67                            | HLP13210       | 13.489 | 18.289            | 8.03 | 9.53  | 10.87 | 2.50 | 2.25 | 2.95 | 4.69 | 2.28  | 24.3 | 204      | 242             | 276  | 63,4 | 57 | 75  | 119  | 58,0 | 11,0 |         |
|                         |                  | 2 1 1/16 | 68                            | HLP13211       | 13.489 | 18.289            | 8.03 | 9.53  | 10.87 | 2.50 | 2.25 | 2.95 | 4.69 | 2.28  | 24.3 | 204      | 242             | 276  | 63,4 | 57 | 75  | 119  | 58,0 | 11,0 |         |
|                         |                  | 2 3/4    | 70                            | HLP13212       | 13.489 | 18.289            | 8.03 | 9.53  | 10.87 | 2.50 | 2.25 | 2.95 | 4.69 | 2.28  | 24.3 | 204      | 242             | 276  | 63,4 | 57 | 75  | 119  | 58,0 | 11,0 |         |
|                         |                  | 2 13/16  | 71                            | HLP13213       | 13.489 | 18.289            | 8.03 | 9.53  | 10.87 | 2.50 | 2.25 | 2.95 | 4.69 | 2.28  | 24.3 | 204      | 242             | 276  | 63,4 | 57 | 75  | 119  | 58,0 | 11,0 |         |
|                         |                  | 2 7/8    | 73                            | HLP13214       | 13.489 | 18.289            | 8.03 | 9.53  | 10.87 | 2.50 | 2.25 | 2.95 | 4.69 | 2.28  | 24.3 | 204      | 242             | 276  | 63,4 | 57 | 75  | 119  | 58,0 | 11,0 |         |
| 2 15/16                 |                  | 75       | HLP13215                      | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 2.76 | 4.69 | 2.40 | 24.3  | 204  | 242      | 276             | 63,4 | 57   | 70 | 119 | 61,0 | 11,0 |      |         |
| 3                       |                  | 77       | HLP13300                      | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 2.76 | 4.88 | 2.56 | 24.3  | 204  | 242      | 276             | 63,4 | 57   | 70 | 124 | 65,0 | 11,0 |      |         |
| 3 1/16                  |                  | 78       | HLP13301                      | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 2.76 | 4.88 | 2.56 | 24.3  | 204  | 242      | 276             | 63,4 | 57   | 70 | 124 | 65,0 | 11,0 |      |         |
| 3 1/8                   |                  | 80       | HLP13302                      | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 2.76 | 4.88 | 2.56 | 24.3  | 204  | 242      | 276             | 63,4 | 57   | 70 | 124 | 65,0 | 11,0 |      |         |
| 3 3/16                  |                  | 81       | HLP13303                      | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 2.76 | 4.88 | 2.58 | 24.3  | 204  | 242      | 276             | 63,4 | 57   | 70 | 124 | 65,5 | 11,0 |      |         |
| 3 1/4                   |                  | 83       | HLP13304                      | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 2.76 | 4.88 | 2.58 | 24.3  | 204  | 242      | 276             | 63,4 | 57   | 70 | 124 | 65,5 | 11,0 |      |         |
| 3 5/16                  |                  | 84       | HLP13305                      | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 2.76 | 4.88 | 2.58 | 24.3  | 204  | 242      | 276             | 63,4 | 57   | 70 | 124 | 65,5 | 11,0 |      |         |
| -                       |                  | 85       | HLP13085M                     | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 2.76 | 4.88 | 2.58 | 24.3  | 204  | 242      | 276             | 63,4 | 57   | 70 | 124 | 65,5 | 11,0 |      |         |
| 3 5/8                   |                  | 86       | HLP13306                      | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 2.76 | 4.88 | 2.58 | 24.3  | 204  | 242      | 276             | 63,4 | 57   | 70 | 124 | 65,5 | 11,0 |      |         |
| 3 7/16                  |                  | -        | HLP13307                      | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 2.36 | 4.88 | 2.76 | 24.3  | 204  | 242      | 276             | 63,4 | 57   | 60 | 124 | 70,0 | 11,0 |      |         |
| 3 1/2                   |                  | 89       | HLP13308                      | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 2.36 | 4.88 | 2.76 | 24.3  | 204  | 242      | 276             | 63,4 | 57   | 60 | 124 | 70,0 | 11,0 |      |         |
| -                       |                  | 90       | HLP13090M                     | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 2.36 | 4.88 | 2.76 | 26.5  | 204  | 242      | 276             | 63,4 | 57   | 60 | 124 | 70,0 | 12,0 |      |         |
| 3 9/16                  |                  | 91       | HLP13309                      | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 1.34 | 4.33 | 2.91 | 26.5  | 204  | 242      | 276             | 63,4 | 57   | 34 | 110 | 74,0 | 12,0 |      |         |
| 3 5/8                   |                  | 92       | HLP13310                      | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 1.34 | 4.33 | 2.91 | 26.5  | 204  | 242      | 276             | 63,4 | 57   | 34 | 110 | 74,0 | 12,0 |      |         |
| 3 1 1/16                |                  | 94       | HLP13311                      | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 1.34 | 4.33 | 2.91 | 26.5  | 204  | 242      | 276             | 63,4 | 57   | 34 | 110 | 74,0 | 12,0 |      |         |
| 3 3/4                   |                  | 95       | HLP13312                      | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 1.34 | 4.33 | 2.91 | 26.5  | 204  | 242      | 276             | 63,4 | 57   | 34 | 110 | 74,0 | 12,0 |      |         |
| 3 13/16                 |                  | 97       | HLP13313                      | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 1.73 | 4.69 | 2.95 | 26.5  | 204  | 242      | 276             | 63,4 | 57   | 44 | 119 | 75,0 | 12,0 |      |         |
| 3 7/8                   |                  | 99       | HLP13314                      | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 1.73 | 4.69 | 2.95 | 26.5  | 204  | 242      | 276             | 63,4 | 57   | 44 | 119 | 75,0 | 12,0 |      |         |
| 3 15/16                 |                  | 100      | HLP13315                      | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 1.73 | 4.69 | 2.95 | 26.5  | 204  | 242      | 276             | 63,4 | 57   | 44 | 119 | 75,0 | 12,0 |      |         |
| 4                       |                  | 102      | HLP13400                      | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 1.73 | 4.88 | 3.11 | 26.5  | 204  | 242      | 276             | 63,4 | 57   | 44 | 124 | 79,0 | 12,0 |      |         |
| 4 1/16                  |                  | -        | HLP13401                      | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 1.73 | 4.88 | 3.11 | 26.5  | 204  | 242      | 276             | 63,4 | 57   | 44 | 124 | 79,0 | 12,0 |      |         |
| 4 1/8                   |                  | 105      | HLP13402                      | 13.489         | 18.289 | 8.03              | 9.53 | 10.87 | 2.50  | 2.25 | 1.73 | 4.88 | 3.11 | 26.5  | 204  | 242      | 276             | 63,4 | 57   | 44 | 124 | 79,0 | 12,0 |      |         |
| 4 3/16                  |                  | -        | HLP13403                      | 13.489         | 18.289 |                   |      |       |       |      |      |      |      |       |      |          |                 |      |      |    |     |      |      |      |         |

▼ HMT drive unit with HSQ square drive cassette



## Modular, Durable, Fast and Efficient Torque for Low Profile and Square Drive Applications

### Safety and Performance

- Innovative design that completely encloses all moving parts and minimizes pinch points
- Supplied reaction arm as standard
- Fully adjustable 360 degree in-line reaction arm
- Fine tooth ratchet prevents locking-on.

### Simplicity

- Simple robust design with just three moving parts for reduced maintenance
- Push button, quick release, reversible square drive.

### Versatility

- The reaction arm, positioned around the square drive instead of the back of the drive unit, provides you with the possibility to turn the drive unit away from an obstacle.

### Accuracy

- Constant torque output provides accuracy of  $\pm 3\%$  across the full stroke.



#### Ergonomic Tool Handle

Robust ergonomic positioning handle comes standard with every HMT Drive Unit.

| Compatible HMT-Series drive units | Ergonomic Handle (Standard) |
|-----------------------------------|-----------------------------|
| HMT1500, 3500, 7500               | <b>SWH6A</b>                |
| HMT13000                          | <b>SWH10A</b>               |



#### BUS-Series, Back-Up Spanners

To be used to stop the back nut from turning during make up or break out. Two hexagon sizes in one tool.

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#### Torque Wrench Hoses

Use Enerpac THQ-Series hoses with HMT-Series torque wrenches to ensure the integrity of your hydraulic system.

|                    |                |
|--------------------|----------------|
| 2 m long, 2 hoses  | <b>THQ702T</b> |
| 6 m long, 2 hoses  | <b>THQ706T</b> |
| 12 m long, 2 hoses | <b>THQ712T</b> |

# HSQ, Square Drive Hydraulic Torque Wrenches



## Bolting Integrity Software

Visit [enerpac.com](http://enerpac.com) to access our free on-line bolting software application. A comprehensive free online software solution for Bolted Joint Integrity.

Integral databases hold data for:

- BS1560, MSS SP44, API 6A and 17D flanged joints
- Common gasket materials and configurations
- Comprehensive range of bolt materials
- Comprehensive range of lubricants

- Enerpac's Controlled Bolting Equipment including: Torque Multipliers, Hydraulic Wrenches and Bolt Tensioning tools.

### Custom Joint information can also be entered

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as a combined Application data sheet and Joint completion report.

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## HSQ Series



Maximum Torque at 10.000 psi:

**1541 - 7562 Ft.lbs**

Maximum Torque at 690 bar:

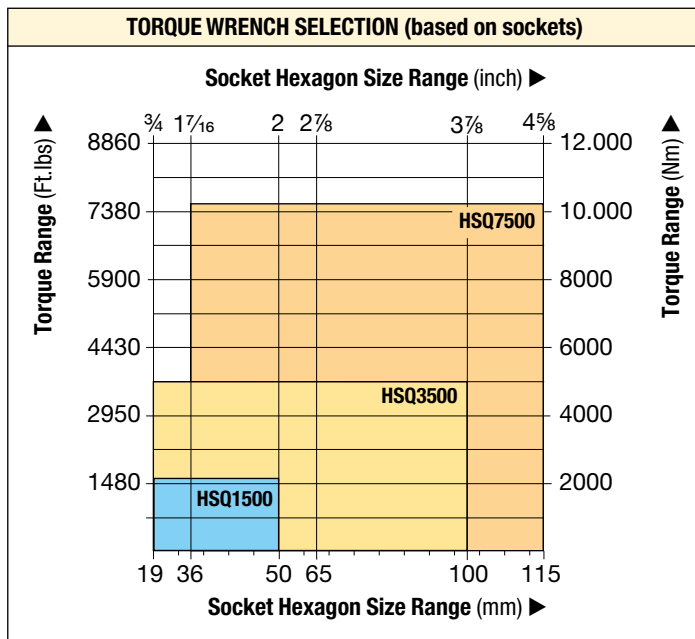
**2089 - 10.252 Nm**

Square Drive Range:

**3/4 - 1 1/2 inch**

Maximum Operating Pressure:

**690 bar / 10.000 psi**



### BSH-Series Sockets

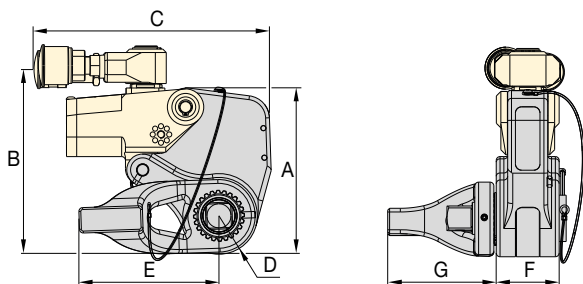
Heavy-Duty Impact Sockets for power driven torquing equipment.

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### Select the Right Torque

Choose your Enerpac Torque Wrench using the untightening rule of thumb: Loosening torque equals about 250% of tightening torque.



### Torque Pumps

Visit [enerpac.com](http://enerpac.com) for system matched air and electric torque wrench pumps that are ideal for use with hydraulic torque wrenches.

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### SELECTION CHART

| Maximum Torque Output |        | Square Drive Size (inch) | Square Drive Cassette * Model Number | Dimensions (inch) |       |      |      |      |      |      | Weight (lbs) | Dimensions (mm) |     |     |    |     |    |     | Weight (kg) |
|-----------------------|--------|--------------------------|--------------------------------------|-------------------|-------|------|------|------|------|------|--------------|-----------------|-----|-----|----|-----|----|-----|-------------|
| (Ft.lbs)              | (Nm)   |                          |                                      | A                 | B     | C    | D    | E    | F    | G    |              | A               | B   | C   | D  | E   | F  | G   |             |
| 1541                  | 2089   | 3/4                      | HSQ1500                              | 5.71              | 6.61  | 6.85 | 1.19 | 2.36 | 1.95 | 3.29 | 8.16         | 145             | 168 | 174 | 30 | 60  | 50 | 84  | 3,7         |
| 3750                  | 5084   | 1                        | HSQ3500                              | 7.54              | 8.23  | 7.95 | 1.52 | 3.07 | 2.58 | 4.35 | 13.01        | 192             | 209 | 202 | 39 | 78  | 66 | 111 | 5,9         |
| 7562                  | 10.252 | 1 1/2                    | HSQ7500                              | 9.60              | 10.08 | 9.25 | 1.99 | 4.33 | 3.23 | 6.32 | 25.13        | 244             | 256 | 235 | 51 | 110 | 82 | 161 | 11,4        |

\* **IMPORTANT:** HMT-drive units must be ordered separately to operate the HSQ-Square Drive Cassettes.



▼ Shown from left to right: E291, E393, E494



- High-efficiency planetary gear sets achieve high output torque from low input torque
- Operator protected by anti-backlash device
- Torque multiplier accuracy  $\pm 5\%$
- Reversible, tighten or loosen bolts
- Reaction bar or reaction plate style
- Angle-of-turn protractor standard on E300-Series models
- Reaction plate models offer increased versatility with reaction point locations
- E300 and E400-Series have replaceable shear drives, providing overload protection of internal power train
- One replacement shear drive is included with each E300 and E400-Series models.



◀ Enerpac Reaction Bar Torque Multiplier E393 used to manually torque bolts up to 4300 Nm.

## Accurate, Efficient Torque Multiplication

When accurate make-up or break-out of stubborn fasteners requires high torque



### Typical Torque Multiplier Applications

- Locomotives
- Power plants
- Pulp and paper mills
- Refineries
- Chemical plants
- Mining and construction
- Off-road equipment
- Shipyards
- Cranes.



### Back-Up Spanners

To be used to stop the back nut from turning during make up or break out. Two hexagon sizes in one tool.

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### ▼ SELECTION CHART

| Torque Multiplier Type    | Nominal Torque Output |          | Model Number |
|---------------------------|-----------------------|----------|--------------|
|                           | (Nm)                  | (Ft.lbs) |              |
| Reaction Bar Multiplier   | 1020                  | 750      | E290PLUS     |
|                           | 1358                  | 1000     | E291         |
|                           | 1627                  | 1200     | E391         |
|                           | 2983                  | 2200     | E392         |
|                           | 4340                  | 3200     | E393         |
| Reaction Plate Multiplier | 2983                  | 2200     | E492         |
|                           | 4339                  | 3200     | E493         |
|                           | 6779                  | 5000     | E494         |
|                           | 10.846                | 8000     | E495         |



## Manual Torque Multipliers

Enerpac manual torque multipliers provide efficient torque multiplication in wide clearance applications and when external power sources are not available.

Manual torque multipliers are used in most industrial, construction, and equipment maintenance applications. Hydraulic torque wrenches are better suited for tight tolerance, flange and repetitive bolting applications.

### Use Reaction Bar Models:

- Where space is limited,
- Where multiple reaction points are available,
- when portability is desirable.

### Use Reaction Plate Models:

- Above 4300 Nm output torque,
- On flanges and applications where neighbouring bolt or nut is available to react against
- When extreme reaction forces are generated.

## E Series



Nominal Torque Output:  
**1020 - 10.846 Nm**

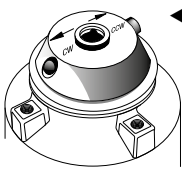
Torque Ratio:  
**3:1 - 52:1**

Output Ratio Accuracy:  
**± 5 %**



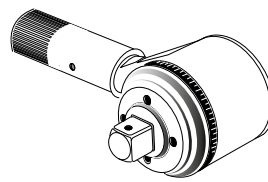
### CAUTION!

Never use impact air tools for power driving torque multipliers. Torque multiplier drive train damage will occur.



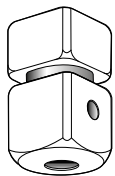
### Selector Pawl

Models with anti-backlash protection have directional selector pawls. Set the pawl for clockwise or counter-clockwise rotation.



### Angle-of-Turn Protractor

E391, E392 and E393 models include an angle-of-turn protractor (scale) to tighten fasteners using a "torque turn" method. Allows accurate measuring a specific number of degrees of rotation.



### Shearable Square Drive

Provides overload protection on E300- and E400-series multiplier's power train by shearing when the rated capacity of the tool is exceeded. Internal shear pin prevents tool from falling off bolt.



### Hydraulic Torque Wrenches

Enerpac offers a complete range of square drive and hexagon cassette torque wrenches.

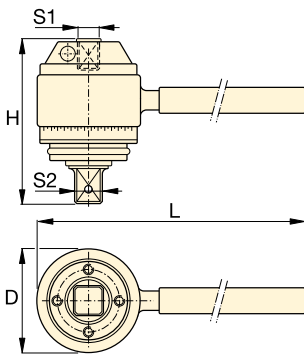
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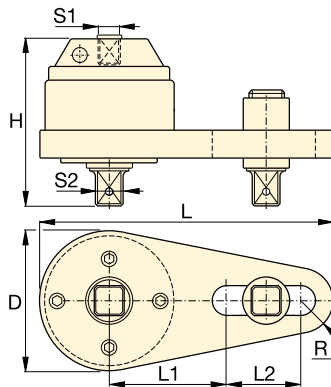
### BSH-Series Sockets

Heavy-Duty Impact Sockets for power driven torquing equipment.

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Reaction Bar Type<sup>1)</sup>



Reaction Plate Type<sup>1)</sup>

| Input Torque <sup>2)</sup> | Torque Ratio (estimate) | Input Female Square Drive | Output Male Square Drive |                                   | Over-load protection | Anti-Backlash | Dimensions (mm) |     |     |     |     |    | Model Number |          |
|----------------------------|-------------------------|---------------------------|--------------------------|-----------------------------------|----------------------|---------------|-----------------|-----|-----|-----|-----|----|--------------|----------|
|                            |                         |                           | S2 (inch)                | Replaceable Shear Drive Model Nr. |                      |               | D               | H   | L   | L1  | L2  | R  |              |          |
| 339 (Nm) / 250 (Ft.lbs)    | 3 : 1                   | 1/2 (inch)                | 3/4 (inch)               | –                                 | No                   | No            | 71              | 83  | 217 | –   | –   | –  | 1,8 (kg)     | E290PLUS |
| 452 (Nm) / 333 (Ft.lbs)    | 3 : 1                   | 1/2 (inch)                | 3/4 (inch)               | –                                 | No                   | No            | 71              | 83  | 443 | –   | –   | –  | 2,5 (kg)     | E291     |
| 271 (Nm) / 200 (Ft.lbs)    | 6 : 1                   | 1/2 (inch)                | 3/4 (inch)               | E391SDK                           | Yes                  | No            | 100             | 102 | 497 | –   | –   | –  | 4,1 (kg)     | E391     |
| 220 (Nm) / 162 (Ft.lbs)    | 13,6 : 1                | 1/2 (inch)                | 1 (inch)                 | E392SDK                           | Yes                  | Yes           | 103             | 146 | 497 | –   | –   | –  | 6,9 (kg)     | E392     |
| 235 (Nm) / 173 (Ft.lbs)    | 18,5 : 1                | 1/2 (inch)                | 1 (inch)                 | E393SDK                           | Yes                  | Yes           | 103             | 165 | 497 | –   | –   | –  | 8,3 (kg)     | E393     |
| 219 (Nm) / 162 (Ft.lbs)    | 13,6 : 1                | 1/2 (inch)                | 1 (inch)                 | E392SDK                           | Yes                  | Yes           | 124             | 140 | 356 | 140 | 124 | 32 | 7,8 (kg)     | E492     |
| 234 (Nm) / 173 (Ft.lbs)    | 18,5 : 1                | 1/2 (inch)                | 1 (inch)                 | E393SDK                           | Yes                  | Yes           | 124             | 163 | 356 | 140 | 124 | 32 | 8,9 (kg)     | E493     |
| 256 (Nm) / 189 (Ft.lbs)    | 26,5 : 1                | 1/2 (inch)                | 1 1/2 (inch)             | E494SDK                           | Yes                  | Yes           | 143             | 222 | 378 | 178 | 89  | 42 | 15,4 (kg)    | E494     |
| 209 (Nm) / 154 (Ft.lbs)    | 52 : 1                  | 1/2 (inch)                | 1 1/2 (inch)             | E495SDK                           | Yes                  | Yes           | 148             | 273 | 387 | 178 | 89  | 48 | 22,8 (kg)    | E495     |

<sup>1)</sup> E200 and E400-series do not have an Angle-of-Turn Protractor (scale).

<sup>2)</sup> User must verify manual torque wrench accuracy prior to use to ensure accurate final output torque.

▼ PTW1000



### Productivity

- High speed continuous rotation for constant torque output
- Low friction planetary gearbox design minimizes wear and extends uptime.

### Safety

- Ergonomic, low vibration design reduces fatigue and the risk of vibration related injuries for the operator
- Low noise air motor provides quiet, consistent performance for indoor and outdoor applications.

### Convenience

- Provided with standard reaction arm; wide assortment of custom arms and accessories are available
- Available with or without Filter-Regulator-Lubricator (FRL)
- Unique calibration certificate provided with each tool.



◀ The PTW1000 makes quick work of this flange maintenance job.

## Continuous Rotation Controlled Torque



### Calibration Certificate

All PTW-Series tools are CE declared and are shipped complete with a calibration certificate.



### FRL120C, Filter-Regulator-Lubricator with air hose

All PTW-Series tools are shipped complete with standard reaction arm, and Filter-Regulator-Lubricator (FRL120C).



### MCS-Series, Mobile Calibration System

To check torque accuracy, run calibration tests and create calibration certificates prior to the use of continuous rotation torque tools in various applications while on a job site.

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▼ PTW-Series Pneumatic Torque Wrenches are ideal for applications where speed and precision are critical, such as track maintenance.



# Pneumatic Torque Wrenches



## PTW-Series, Pneumatic Torque Wrenches

Enerpac PTW-Series Pneumatic Torque Wrenches are designed for applications that require speed and control.

The standard package includes a Torque Wrench with a calibration certificate, an FRL (Filter/Regulator/Lubricator), and a 3 m long, 1/2" inch (13 mm) diameter air hose, which connects the FRL to the wrench.

Once the air hoses are connected, the operator simply adjusts the air pressure on

the FRL to achieve the desired torque using the calibration certificate. After this, the tool is ready to go to work! \*

The air source used with the PTW system must be regulated and/or limited to 8,3 bar, and must be capable of providing a volume of at least (85 m<sup>3</sup>/h) at 6,9 bar. A separate 1/2" inch hose (not included) must be used to connect the FRL to the air supply.

\* See instruction manual for comprehensive instructions.

## PTW Series

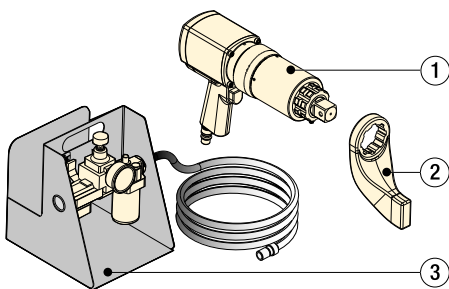


Nominal Torque Output:

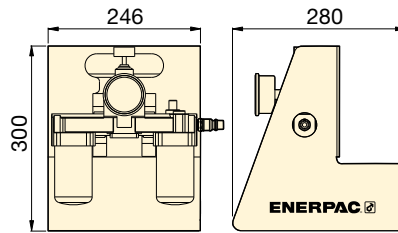
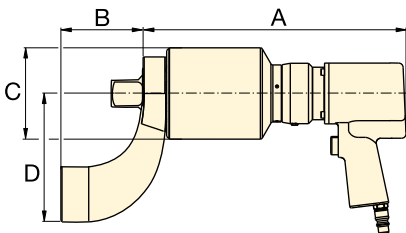
**8135 Nm**

Square Drive Range:

**3/4 - 1 - 1 1/2 inch**



- ① PTW Torque Wrench
- ② Standard Reaction Arm
- ③ FRL120C Filter-Regulator-Lubricator with 3 meters air hose



### Accessories

Enerpac offers a full line of accessories including a range of reaction arms and drives.

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### BSH-Series Sockets

Heavy-Duty Impact Sockets for power driven torquing equipment.

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### Back-Up Spanners

Hands-free tool to be used to stop back nut from turning during make up or break out.

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## ▼ SELECTION CHART

All tools are shipped complete with standard reaction arm and FRL120C.

| Minimum Torque |          | Nominal Torque |          | Square Drive (inch) | Model Number <sup>1)</sup><br>(FRL120C included) | Speed<br>(RPM) | Dimensions (mm) |     |     |     | Weight<br>(kg) <sup>2)</sup> |
|----------------|----------|----------------|----------|---------------------|--|----------------|-----------------|-----|-----|-----|------------------------------|
| (Nm)           | (Ft.lbs) | (Nm)           | (Ft.lbs) |                     |  |                | A               | B   | C   | D   |                              |
| 407            | 300      | 1356           | 1000     | 3/4                 | <b>PTW1000-75C</b>                               | 12,6           | 272             | 83  | 72  | 130 | 7,9                          |
| 407            | 300      | 1356           | 1000     | 1                   | <b>PTW1000C</b>                                  | 12,6           | 272             | 83  | 72  | 130 | 8,2                          |
| 678            | 500      | 2712           | 2000     | 1                   | <b>PTW2000C</b>                                  | 8,0            | 286             | 83  | 79  | 133 | 8,8                          |
| 1220           | 900      | 4067           | 3000     | 1                   | <b>PTW3000C</b>                                  | 3,1            | 343             | 83  | 95  | 133 | 10,4                         |
| 1763           | 1300     | 8135           | 6000     | 1 1/2               | <b>PTW6000C</b>                                  | 2,5            | 366             | 114 | 127 | 178 | 17,7                         |

<sup>1)</sup> To order without FRL120C, remove "C" suffix from model number (example: **PTW3000**).

<sup>2)</sup> Weight does not include reaction arm. Reaction arm weight for PTW1000, PTW2000, PTW3000 is 1,3 kg and for PTW6000 is 3,5 kg.



# Accessories for PTW-Series Torque Wrenches **ENERPAC**

▼ Shown: Accessories for PTW-Series Torque Wrenches



- Accessories for further extending the application range of pneumatic torque wrenches
- Extended drives increases tool fit in restricted access areas.



## PTW-Accessories

Enerpac offers the following accessories to support a wide variety of applications in industries such as mining, power generation and oil & gas. For additional custom accessories not pictured here, please contact Enerpac.



## Applications

PTW-Series Pneumatic Wrenches are designed for applications that require speed and control.

### Mining

- Track maintenance
- Undercarriage maintenance
- Wheel maintenance
- Shovel maintenance

### Power Generation

- Turbine bolts
- Tower segments
- Turbine casings

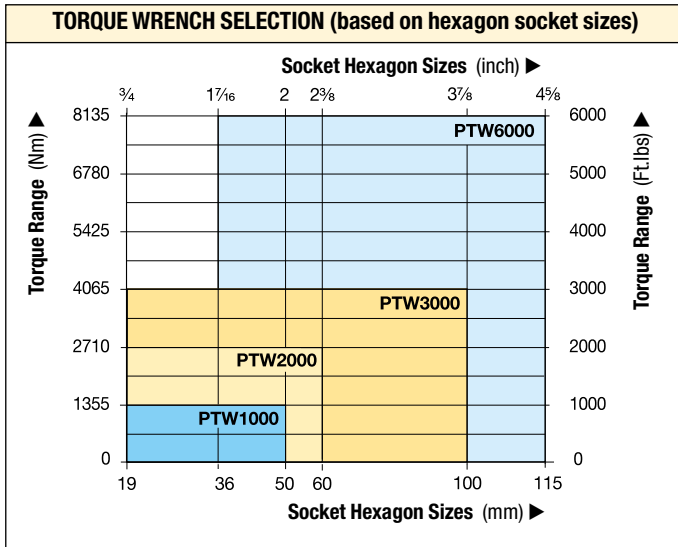
### Oil & Gas

- Pipe flanges
- Valves
- Manway covers
- Pressure vessels

▼ PTW-Wrenches are ideal for applications where speed and precision are critical, such as track or wheel maintenance.



# Accessories for PTW-Series Torque Wrenches



## PTW Series

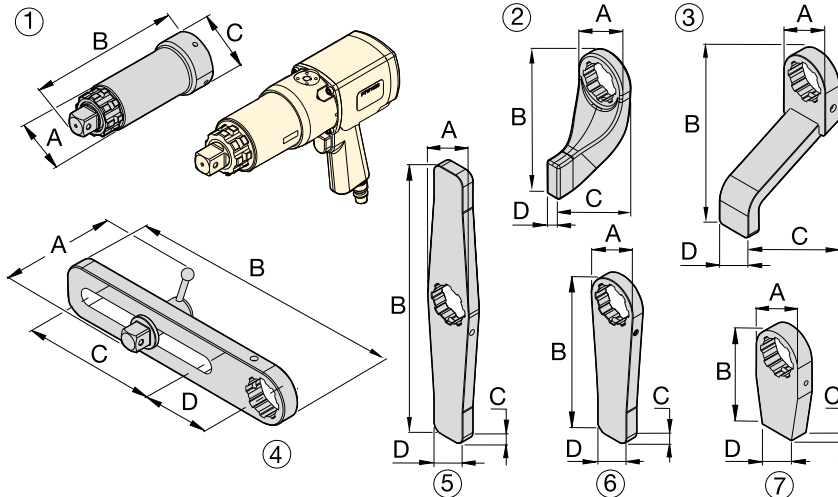


Nominal Torque Output:

**8135 Nm**

Square Drive Range:

**3/4 - 1 - 1 1/2 inch**



### BSH-Series Sockets

Use Heavy-Duty Impact Sockets for power driven torquing equipment.

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### Back-Up Spanners

Hands-free tool to be used to stop back nut from turning during make up or break out.

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## Optional Accessories

### For use with PTW1000, 2000, 3000-models

| Nr. | Description                      | Model Nr. | Application                                     | Dimensions (mm) |     |     |     |
|-----|----------------------------------|-----------|---|-----------------|-----|-----|-----|
|     |                                  |           |   | A               | B   | C   | D   |
| 1   | Extended Drive, 6 inch (152 mm)  | ED6TWS    | Nose extension, primarily for truck wheel bolts | 62              | 206 | 73  | -   |
| 1   | Extended Drive, 12 inch (305 mm) | ED12TWS   | Nose extension, primarily for truck wheel bolts | 62              | 384 | 73  | -   |
| 1   | Extended Drive, 18 inch (457 mm) | ED18TWS   | Nose extension, primarily for truck wheel bolts | 62              | 511 | 73  | -   |
| 2   | Standard Reaction Arm            | RATWS     | Standard arm included with PTW model            | 76              | 172 | 102 | 21  |
| 3   | Extended Reaction Arm            | ERATWS    | Long plate for use with deep well sockets       | 73              | 150 | 202 | 51  |
| 4   | Sliding Reaction Arm             | SLRATWS   | For widely spaced and uneven bolt centers       | 112             | 381 | 203 | 102 |
| 5   | Double Straight Reaction Arm     | DSATWS    | Reduces time to reposition arm *                | 73              | 406 | 19  | 102 |
| 6   | Straight Reaction Arm            | SRATWS    | Long plate for wide spaced reaction points      | 73              | 240 | 19  | 51  |
| 7   | Blank Reaction Arm **            | BLTWS     | Weldable blank for custom applications **       | 72              | 151 | 25  | 51  |

### For use with PTW6000-models

|   |                                 |         |   |     |     |     |     |
|---|---------------------------------|---------|---|-----|-----|-----|-----|
| 1 | Extended Drive 6 inch (152 mm)  | ED6TWL  | Nose extension, primarily for truck wheel bolts | 84  | 232 | 102 | -   |
| 1 | Extended Drive 12 inch (305 mm) | ED12TWL | Nose extension, primarily for truck wheel bolts | 84  | 384 | 102 | -   |
| 2 | Standard Reaction Arm           | RATWL   | Standard arm included with PTW model            | 102 | 229 | 146 | 32  |
| 3 | Extended Reaction Arm           | ERATWL  | Long plate for use with deep well sockets       | 102 | 254 | 184 | 64  |
| 4 | Sliding Reaction Arm            | SLRATWL | For widely spaced and uneven bolt centers       | 152 | 419 | 190 | 114 |
| 5 | Double Straight Arm             | DSATWL  | Reduces time to reposition arm *                | 102 | 508 | 32  | 57  |
| 6 | Straight Reaction Arm           | SRATWL  | Long plate for wide spaced reaction points      | 102 | 305 | 32  | 57  |
| 7 | Blank Reaction Arm **           | BLTWL   | Weldable blank for custom applications **       | 102 | 152 | 32  | 57  |

\* Time to reposition arm when repeatedly moving from tightening to loosening.

\*\* WARNING: Blank reaction arms must be heat treated to HRc 38-42 prior to use.

▼ STTC2000 Safe T™ Torque Checker



**Quick, simple and accurate mobile torque system safety testing device**



**Applications**

All bolted joints from 144 Ft.lbs up to 16.100 Ft.lbs (195 - 21.800 Nm).

- All Enerpac torque wrenches up to the maximum capacity of the Torque Checker. Also for other brands that fit the envelope of the Torque Checker.
- Oil & Gas flanges,
- Tower Crane installation,
- Bigger machine installation/assembly,
- Wind Tower installation etc.

**Industries:**

- Oil & Gas, Petrochemical,
- Wind Power Generation,
- Marine,
- Manufacturing,
- Mining, Rail and more.

**Safety & Accuracy**

- Durable mobile testing device for Enerpac hydraulic torque wrench systems
- Delivering ultimate on site accuracy, testing the entire wrench, pump and hose system to be used on the job
- Consistent and repeatable  $\pm 1\%$  accurate range.

**Durability**

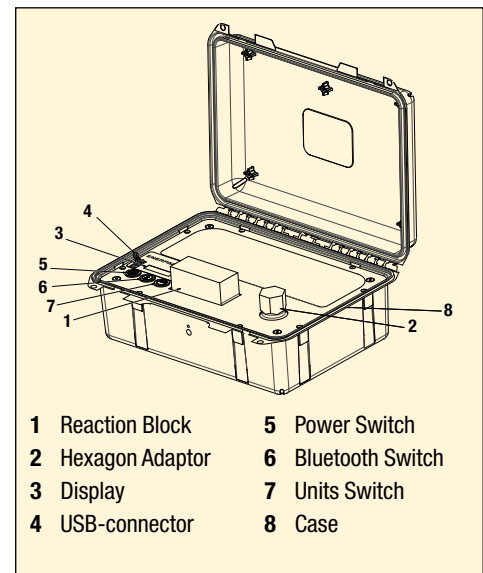
- Durable splash-proof keypad and display for those harsh working environments
- Impact-resistant composite carry case.

**Simplicity**

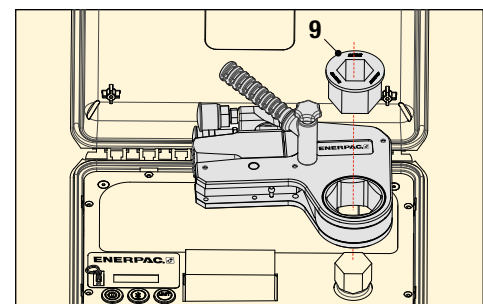
- Allows the user to validate & test the exact system (torque wrench, pump, hose, etc.) to give a digital read out in Ft.lbs or Nm
- Easy to operate: power up and start testing
- Transportable: all in one compact carry case, ideal for use on the road with its durable internal 3,6 V-2,2 Ah Lithium-ion battery.

**Versatility**

- Can test all Enerpac S, W, RSL, HMT and DSX-Series wrenches of both square drive and hexagon cassettes up to 16.100 Ft.lbs (21.800 Nm)
- Hexagon Reducers or Square Drive Sockets to be bought separately.



Hexagon Reducer (nr. 9) must be bought separately: see selection tables on next page. ▶





# Safe T™ Torque Checker



## Safe T™ Torque Checker

Mobile, compact safety device allows the end user to instantly validate the performance of the entire system to be used - not just the wrench only. Allows the user to test the system on-site and in situ.

The user can validate and test the exact torque system (wrench, pump, hose, etc) to give an accurate digital read out.

### Safety

The user can verify if the torque system is safe to operate, functioning correctly and within the desired safety parameters.

## Unique from Enerpac

No need to wait for annual calibration tests to be confident in the performance and safety of your equipment. The Safe T™ Torque Checker equipment can be validated in seconds, saving time and money.

### Hexagon Reducers

The W-Series Hexagon Reducers from the tables below, can be used with all W, RLP and HLP-Series hexagon cassettes.

## STTC Series



Max. Testing Output:

**16.100 Ft.lbs (21.800 Nm)**

Accuracy:

**± 1%**

Battery:

**3,6 V Lithium-ion**

| For use with STTC2000 |                       |  |
|-----------------------|-----------------------|--|
| Hexagon Size          | Cassette Model Number | Hexagon Reducer to 1 1/16" (30 mm) Model Nr. |
| (inch)                | (mm)                  |  |
| 1 1/16                | -                     | W2101X -                                     |
| 1 1/8                 | -                     | W2102X -                                     |
| 1 3/16                | <b>30</b>             | <b>W2103X *</b>                              |
| 1 1/4                 | 32                    | W2104X **                                    |
| 1 1/2                 | -                     | W2105X **                                    |
| 1 5/8                 | -                     | W2106X <b>W2106R103D</b>                     |
| 1 7/8                 | 36                    | W2107X <b>W2107R103D</b>                     |
| 1 1/2                 | 38                    | W2108X <b>W2108R103</b>                      |
| 1 9/16                | -                     | W2109X <b>W2109R103</b>                      |
| 1 5/8                 | 41                    | W2110X <b>W2110R103</b>                      |
| 1 11/16               | -                     | W2111X <b>W2111R103</b>                      |
| 1 3/4                 | -                     | W2112X <b>W2112R103</b>                      |
| 1 13/16               | 46                    | W2113X <b>W2113R103</b>                      |
| 1 7/8                 | -                     | W2114X <b>W2114R103</b>                      |
| 1 15/16               | -                     | W2115X <b>W2115R103</b>                      |
| 2                     | 50                    | W2200X <b>W2200R103</b>                      |
| 2 1/16                | -                     | W2201X <b>W2201R103</b>                      |
| 2 1/8                 | -                     | W2202X <b>W2202R103</b>                      |
| 2 3/16                | 55                    | W2203X <b>W2203R103</b>                      |
| 2 1/4                 | -                     | W2204X <b>W2204R103</b>                      |
| 2 5/16                | -                     | W2205X <b>W2205R103</b>                      |
| 2 3/8                 | 60                    | W2206X <b>W2206R103</b>                      |

| For use with STTC4000 |                       |  |
|-----------------------|-----------------------|--|
| Hexagon Size          | Cassette Model Number | Hexagon Reducer to 1 1/16" (36 mm) Model Nr. |
| (inch)                | (mm)                  |  |
| 1 5/16                | -                     | W4105X -                                     |
| 1 3/8                 | -                     | W4106X -                                     |
| 1 7/16                | <b>36</b>             | <b>W4107X *</b>                              |
| 1 1/2                 | -                     | W4108X **                                    |
| 1 9/16                | -                     | W4109X **                                    |
| 1 5/8                 | 41                    | W4110X <b>W4110R107</b>                      |
| 1 11/16               | -                     | W4111X <b>W4111R107</b>                      |
| 1 3/4                 | -                     | W4112X <b>W4112R107</b>                      |
| 1 13/16               | 46                    | W4113X <b>W4113R107</b>                      |
| 1 7/8                 | -                     | W4114X <b>W4114R107</b>                      |
| 1 15/16               | -                     | W4115X <b>W4115R107</b>                      |
| 2                     | 50                    | W4200X <b>W4200R107</b>                      |
| 2 1/16                | -                     | W4201X <b>W4201R107</b>                      |
| 2 1/8                 | -                     | W4202X <b>W4202R107</b>                      |
| 2 3/16                | 55                    | W4203X <b>W4203R107</b>                      |
| 2 1/4                 | -                     | W4204X <b>W4204R107</b>                      |
| 2 5/16                | -                     | W4205X <b>W4205R107</b>                      |
| 2 3/8                 | 60                    | W4206X <b>W4206R107</b>                      |
| 2 7/16                | -                     | W4207X <b>W4207R107</b>                      |
| 2 1/2                 | -                     | W4208X <b>W4208R107</b>                      |
| 2 9/16                | 65                    | W4209X <b>W4209R107</b>                      |
| 2 5/8                 | -                     | W4210X <b>W4210R107</b>                      |
| 2 11/16               | -                     | W4211X <b>W4211R107</b>                      |
| 2 3/4                 | 70                    | W4212X <b>W4212R107</b>                      |
| 2 13/16               | -                     | W4213X <b>W4213R107</b>                      |
| 2 7/8                 | -                     | W4214X <b>W4214R107</b>                      |
| 2 15/16               | 75                    | W4215X <b>W4215R107</b>                      |
| 3                     | -                     | W4300X <b>W4300R107</b>                      |
| 3 1/16                | -                     | W4301X <b>W4301R107</b>                      |
| 3 1/8                 | 80                    | W4302X <b>W4302R107</b>                      |
| 3 3/16                | -                     | W4303X <b>W4303R107</b>                      |
| 3 1/4                 | -                     | W4304X <b>W4304R107</b>                      |
| 3 5/16                | -                     | W4305X <b>W4305R107</b>                      |
| 3 3/8                 | -                     | W4306X <b>W4306R107</b>                      |
| -                     | 85                    | W4085MX <b>W4085MR107</b>                    |

| For use with STTC8000 |                       |   |
|-----------------------|-----------------------|---|
| Hexagon Size          | Cassette Model Number | Hexagon Reducer to 2 inch (50 mm) Model Nr. |
| (inch)                | (mm)                  |   |
| 1 7/8                 | -                     | W8114X -                                    |
| 1 15/16               | -                     | W8115X -                                    |
| <b>2</b>              | <b>50</b>             | <b>W8200X *</b>                             |
| 2 1/16                | -                     | W8201X **                                   |
| 2 1/8                 | -                     | W8202X **                                   |
| 2 3/16                | 55                    | W8203X <b>W8203R200</b>                     |
| 2 1/4                 | -                     | W8204X <b>W8204R200</b>                     |
| 2 5/16                | -                     | W8205X <b>W8205R200</b>                     |
| 2 3/8                 | 60                    | W8206X <b>W8206R200D</b>                    |
| 2 7/16                | -                     | W8207X <b>W8207R200</b>                     |
| 2 1/2                 | -                     | W8208X <b>W8208R200</b>                     |
| 2 9/16                | 65                    | W8209X <b>W8209R200</b>                     |
| 2 5/8                 | -                     | W8210X <b>W8210R200</b>                     |
| 2 11/16               | -                     | W8211X <b>W8211R200</b>                     |
| 2 3/4                 | 70                    | W8212X <b>W8212R200</b>                     |
| 2 13/16               | -                     | W8213X <b>W8213R200</b>                     |
| 2 7/8                 | -                     | W8214X <b>W8214R200</b>                     |
| 2 15/16               | 75                    | W8215X <b>W8215R200</b>                     |
| 3                     | -                     | W8300X <b>W8300R200</b>                     |
| 3 1/16                | -                     | W8301X <b>W8301R200</b>                     |
| 3 1/8                 | 80                    | W8302X <b>W8302R200</b>                     |
| 3 3/16                | -                     | W8303X <b>W8303R200</b>                     |
| 3 1/4                 | -                     | W8304X <b>W8304R200</b>                     |
| 3 5/16                | -                     | W8305X <b>W8305R200</b>                     |
| -                     | 85                    | W8085MX <b>W8085MR200</b>                   |
| 3 3/8                 | -                     | W8306X <b>W8306R200</b>                     |
| 3 7/16                | -                     | W8307X <b>W8307R200</b>                     |
| 3 1/2                 | -                     | W8308X <b>W8308R200</b>                     |
| -                     | 90                    | W8090MX <b>W8090MR200</b>                   |
| 3 9/16                | -                     | W8309X <b>W8309R200</b>                     |
| 3 5/8                 | -                     | W8310X <b>W8310R200</b>                     |
| 3 11/16               | -                     | W8311X <b>W8311R200</b>                     |
| 3 3/4                 | 95                    | W8312X <b>W8312R200</b>                     |
| 3 13/16               | -                     | W8313X <b>W8313R200</b>                     |
| 3 7/8                 | -                     | W8314X <b>W8314R200</b>                     |
| 3 15/16               | 100                   | W8315X <b>W8315R200</b>                     |
| 4                     | -                     | W8400X <b>W8400R200</b>                     |
| 4 1/16                | -                     | W8401X <b>W8401R200</b>                     |
| 4 1/8                 | 105                   | W8402X <b>W8402R200</b>                     |

| For use with STTC15000 |                       |   |
|------------------------|-----------------------|---|
| Hexagon Size           | Cassette Model Number | Hexagon Reducer to 2 5/8 inch Model Nr. |
| (inch)                 | (mm)                  |   |
| 2 7/16                 | -                     | W15207X -                               |
| 2 1/2                  | -                     | W15208X -                               |
| 2 9/16                 | 65                    | W15209X -                               |
| 2 5/8                  | -                     | <b>W15210X *</b>                        |
| 2 11/16                | -                     | W15211X **                              |
| 2 3/4                  | 70                    | W15212X **                              |
| 2 13/16                | -                     | W15213X **                              |
| 2 7/8                  | -                     | W15214X <b>W15214R210</b>               |
| 2 15/16                | 75                    | W15215X <b>W15215R210</b>               |
| 3                      | -                     | W15300X <b>W15300R210</b>               |
| 3 1/16                 | -                     | W15301X <b>W15301R210</b>               |
| 3 1/8                  | 80                    | W15302X <b>W15302R210</b>               |
| 3 3/16                 | -                     | W15303X <b>W15303R210</b>               |
| 3 1/4                  | -                     | W15304X <b>W15304R210</b>               |
| 3 5/16                 | -                     | W15305X <b>W15305R210</b>               |
| -                      | 85                    | W15085MX <b>W15085MR210</b>             |
| 3 3/8                  | -                     | W15306X <b>W15306R210</b>               |
| 3 7/16                 | -                     | W15307X <b>W15307R210</b>               |
| 3 1/2                  | -                     | W15308X <b>W15308R210</b>               |
| -                      | 90                    | W15090MX <b>W15090MR210</b>             |
| 3 9/16                 | -                     | W15309X <b>W15309R210</b>               |
| 3 5/8                  | -                     | W15310X <b>W15310R210</b>               |
| 3 11/16                | -                     | W15311X <b>W15311R210</b>               |
| 3 3/4                  | 95                    | W15312X <b>W15312R210</b>               |
| 3 13/16                | -                     | W15313X <b>W15313R210</b>               |
| 3 7/8                  | -                     | W15314X <b>W15314R210</b>               |
| 3 15/16                | 100                   | W15315X <b>W15315R210</b>               |
| 4                      | -                     | W15400X <b>W15400R210</b>               |
| 4 1/16                 | -                     | W15401X <b>W15401R210</b>               |
| 4 1/8                  | 105                   | W15402X <b>W15402R210</b>               |
| 4 3/16                 | -                     | W15403X <b>W15403R210</b>               |
| 4 1/4                  | -                     | W15404X <b>W15404R210</b>               |
| 4 5/16                 | 110                   | W15405X <b>W15405R210</b>               |
| 4 3/8                  | -                     | W15406X <b>W15406R210</b>               |
| 4 7/16                 | -                     | W15407X <b>W15407R210</b>               |
| 4 1/2                  | -                     | W15408X <b>W15408R210</b>               |
| -                      | 115                   | W15115MX <b>W15115MR210</b>             |
| 4 9/16                 | -                     | W15409X <b>W15409R210</b>               |
| 4 5/8                  | -                     | W15410X <b>W15410R210</b>               |



### Hexagon Reducers:

Must be bought separately. Can be used with all W, RLP and HLP-Series

hexagon cassettes.

\* Standard hexagon size of adaptor included with STTC-model

\*\* Requires special reaction block.

| Nominal Measurable Torque Output |        | Model Number <sup>1)</sup> | Hexagon Adaptor included |      | Carry Case Size L x B x H |    | Sockets to be used with Square Drive Wrenches <sup>2)</sup> | Hexagon Cassette fits Adaptor. For other hexagon sizes, see table above with Hexagon Reducers sizes <sup>2)</sup> |          |            |
|----------------------------------|--------|----------------------------|--------------------------|------|---------------------------|----|---|---|----------|------------|
| (Ft.lbs)                         | (Nm)   |                            | (inch)                   | (mm) | (mm)                      |    |   | (kg)  | W-Series | RSL-Series |
| 2140                             | 2900   | <b>STTC2000</b>            | 1 3/16                   | 30   | 414 x 328 x 328           | 6  | BSH7530   | W2103X  | RLP1103  | HLP1103    |
| 4383                             | 5950   | <b>STTC4000</b>            | 1 7/16                   | 36   | 414 x 328 x 328           | 8  | BSH1036   | W4107X  | RLP3107  | HLP3107    |
| 8893                             | 12.000 | <b>STT 8000</b>            | 2                        | 50   | 624 x 498 x 168           | 19 | BSH1550   | W8200X  | RLP5200  | HLP3200    |
| 16.100                           | 21.800 | <b>STTC15000</b>           | 2 5/8                    | -    | 624 x 498 x 168           | 26 | BSH15263  | W15210X   | RLP8210  | HLP7210    |

<sup>1)</sup> With 3,6 V-2,2 Ah Lithium-ion battery.

<sup>2)</sup> Square drive sockets, hexagon cassettes and hexagon reducers must be bought separately.



▼ MCS7500C, Mobile Calibration System



## MCS Series

Measurable Output Torque Range:  
**200 - 10.000 Nm**

Measurable Output Torque Range:  
**148 - 7378 Ft.lbs**

Female Square Drive:  
**1½ inch**



### Accuracy

The calibration system is a calibrated instrument qualified in a UKAS certified laboratory. The accuracy of the MCS7500C is calibrated to meet or exceed: 1% of FSD from 2% to 8% of torque range and 1% of reading from 8% to 100% of torque range.

### Versatility

- Accurately measures torque output for continuous rotation tools and square drive hydraulic (\*) torque wrenches from 200 - 10.000 Nm (148 - 7375 Ft.lbs)
- Adaptable design enables use with a large variety of Enerpac and competitive wrenches
- Internal Li-ion battery pack, external power via 5V DC USB power supply.

### Performance

- Certificate Manager feature enables quick and easy creation of calibration certificates
- Tool database feature allows specific wrench data and calibration results to be recorded and saved for future use
- Each MCS comes with a standard ISO17025 calibration certificate.

### Ease of Use

- Compact design in carrying facilitates easy transport, allowing calibration to be carried out in the shop, on jobsites, or even in a vehicle
- Integrated digital interface enables torque values to be displayed, saved, printed or transferred to a computer.



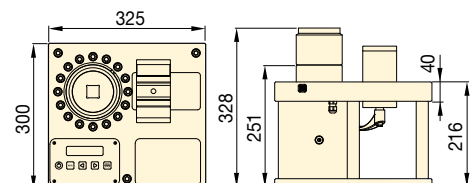
### Female Reducer Set

The Female Reducer Set consists of two reducers: 1½ x 1 inch and 1½ x ¾ inch. To be ordered separately as **MCS7500RS**.



### Additional Reaction Block and Adaptor

A heavy-duty adjustable reaction block in combination with one of the three adaptors is required to facilitate the use with S, RSQ and DSX-Series Square Drive Wrenches as well as most competitive hydraulic wrenches to maximum 10.000 Nm (7375 Ft.lbs). Drawings of additional reaction block and adaptor are available upon request.
































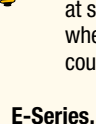
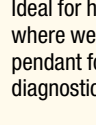

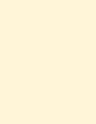

| Minimum Measurable Torque Output |          | Nominal Measurable Torque Output |          | Female Square Drive | Model Number ** | Description            | (kg) |
|----------------------------------|----------|----------------------------------|----------|---------------------|-----------------|------------------------|------|
| (Nm)                             | (Ft.lbs) | (Nm)                             | (Ft.lbs) |                     |                 |                        |      |
| 200                              | 148      | 10.000                           | 7375     | 1½                  | <b>MCS7500C</b> | MCS with carrying case | 40   |

\* Additional Reaction Block and appropriate Adaptor is required with the use of S, RSQ and DSX-Series square drive hydraulic wrenches.

\*\* Not suitable for use with impact tools or low profile torque wrenches.

# Optimum Wrench-Torque Pump Combinations

For optimum speed and performance Enerpac recommends the following system set-up with wrench-pump-hose combinations. For other combinations, consult your Enerpac bolting expert or your authorized Enerpac distributor.

|   |   | ELECTRIC TORQUE PUMPS   |   |   |   |   | AIR DRIVEN TORQUE PUMPS   |   |
|---|---|---|---|---|---|---|---|---|
|   |   | Cordless XC-Series  | E-Pulse® E-Series   | TQ-Series   | ZU4T-Series   | ZE4T-Series ZE5T-Series   | LAT-Series  | ZA4T-Series   |
|   |   |  |  |  |    |  |  |  |
|   |   | Page: 266   | Page: 268   | Page: 270   | Page: 272   | Page: 276   | Page: 278   | Page: 280   |
| Speed:  |  |  |  |  |  |  |  |  |
| Oil Flow at 700 bar:  | 0,25 l/min  | 0,52 l/min  | 0,5 l/min   | 1,0 l/min   | 0,8 - 1,6 l/min   | 0,4 l/min   | 1,0 l/min   |   |
| Reservoir Capacity:   | 2,0 litres  | 3,0 litres  | 4,0 litres  | 4,6 - 6,8 litres  | 4,6 - 39 litres   | 3,0 litres  | 4,6 - 6,8 litres  |   |
| Duty Cycle:   | Intermittent  | Heavy-Duty  | Standard  | Heavy-Duty  | Heavy-Duty  | Standard  | Heavy-Duty  |   |
| Weight:   |  |  |  |  |  |  |  |  |
| Work:   | Field   | Field/Factory   | Field/Factory   | Field   | Factory   | Field   | Field   |   |
|  212   | S1500X  | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   |
|   | S3000X  |   |   |   |   |   |   |   |
|  220  | S6000X  | -   | Acceptable  | Acceptable  | Optimal   | Optimal   | Acceptable  | Optimal   |
|   | S11000X   |   |   |   |   |   |   |   |
|  234 | S25000X   | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   |
|   | W2000X  |   |   |   |   |   |   |   |
|  246 | W4000X  | -   | Acceptable  | Acceptable  | Optimal   | Optimal   | Acceptable  | Optimal   |
|   | W8000X  |   |   |   |   |   |   |   |
|  250 | W15000X   | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   |
|   | W22000X   |   |   |   |   |   |   |   |
|  250 | W35000X   | -   | Acceptable  | Acceptable  | Optimal   | Optimal   | Acceptable  | Optimal   |
|   | RSL1500   |   |   |   |   |   |   |   |
|  250 | RSL3000   | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   |
|   | RSL5000   |   |   |   |   |   |   |   |
|  250 | RSL8000   | -   | Acceptable  | Acceptable  | Optimal   | Optimal   | Acceptable  | Optimal   |
|   | RSL11000  |   |   |   |   |   |   |   |
|  250 | RSL19000  | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   |
|   | RSL28000  |   |   |   |   |   |   |   |
|  250 | DSX1500   | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   |
|   | DSX3000   |   |   |   |   |   |   |   |
|  250 | DSX5000   | -   | Acceptable  | Acceptable  | Optimal   | Optimal   | Acceptable  | Optimal   |
|   | DSX11000  |   |   |   |   |   |   |   |
|  250 | DSX25000  | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   | Optimal   |
|   | HMT1500   |   |   |   |   |   |   |   |
|  250 | HMT3500   | Acceptable  | Acceptable  | Acceptable  | Optimal   | Optimal   | Acceptable  | Optimal   |
|   | HMT7500   |   |   |   |   |   |   |   |
|  250 | HMT13000  | -   | Acceptable  | Acceptable  | Optimal   | Optimal   | Acceptable  | Optimal   |
|   |   |   |   |   |   |   |   |   |



**XC-Series, Portable Cordless Pumps**  
Ideal for maintenance bolting applications at sites that do not have access to power or where having extension cords or air hoses could cause trip hazards.

**E-Series, E-Pulse Portable Torque Pumps**  
Ideal for high volume fastening applications where weight is critical. Feature an interactive pendant for operation, programming and diagnostics.

**TQ700 Series Electric Torque Pumps**  
Designed for both portability and production, to deliver superior bolting speed.

**ZU4T-Series, Electric Torque Pumps**  
Works well with long extension cords or generator driven electrical power supplies. Available in **Pro** and **Classic** formats.  
**ZU4T Pro Pumps** have an LCD feature to display torque or pressure, selectable torque wrench, and self-diagnostics.  
**ZU4T Classic Pumps** feature an analogue gauge and a basic electrical package to deliver durable, safe and efficient hydraulic power.

**ZE-T Series Electric Torque Pumps**  
Features LCD to display torque or pressure values, and self-diagnostics. With induction motor, making the ZE-Series the coolest and quietest pumps in their class.

**LAT-Series, Lightweight Torque Air Pumps**  
Combines compact design and high productivity for bolting applications in areas hard to access with larger air powered pumps.

**ZA4T-Series Air Driven Torque Pumps**  
This air driven pump is best suited to power medium to large size torque wrenches.

**THQ-Series, Torque Wrench Hoses**  
Use Enerpac THQ-Series twin hoses with all torque wrenches to ensure the integrity of your hydraulic system (see page 249).

▼ XC1502TE



- Ideal for maintenance bolting applications requiring portability and convenience
- Interactive pendant provides visual and vibration feedback of pump operation
- Superior run-time with 5Ah, 28V battery
- 6 metres detachable pendant control
- 100 mm glycerine-filled gauge for easy viewing
- Bladder reservoir allows pump to be used in any position
- High-strength fiberglass reinforced composite housing provides superior durability in demanding job site environments
- Integrated handle and carrying strap for portability.

## Portable Battery Pump for Torque Applications



### 28-Volt Battery

The **XC28V5** 5 Amps battery with Lithium-Ion technology for maximum battery performance.



### Battery Charger

1-hour quick charger.

115V battery charger

**XC115VC**

230V battery charger

**XC230VC**



### Roll Cage

Roll cage accessory option for both XC-TW and XC pump. Please order model number **XCRCTK**.



### Torque Wrenches

The following torque wrenches are ideal for use with the XC-Series Cordless Torque Wrench Pumps:

| S      | W      | RSL     | DSX     | HMT     |
|--------|--------|---------|---------|---------|
| S1500X | W2000X | RSL1500 | DSX1500 | HMT1500 |
| S3000X | W4000X | RSL3000 | DSX3000 | HMT3500 |
|        |        | RSL5000 |         | HMT7500 |

Larger torque wrenches will work with the pump, battery run time and application speed will be impacted.

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# XC-Series, Cordless Torque Wrench Pumps



## Battery-Powered Torque Wrench Pumps

The XC-Series Cordless Torque Wrench pump is ideal for maintenance applications in the PowerGen, Oil & Gas and MRO markets. This portable pump is perfect for remote locations, sites that do not have access to power or where trip hazards are a concern.

The interactive pendant allows the user to set and clear pressure and operate in manual or auto-cycle mode. The pump has an easily accessible user adjustable valve for precise pressure control.

| Torque Wrench | Nut A/F (mm) | Stud (mm) | Pressure (bar) | Torque (Nm) | Fasteners torqued |
|---------------|--------------|-----------|----------------|-------------|-------------------|
| S3000X        | 60           | 38        | 330            | 2035        | 32                |
| W2000X        | 60           | 38        | 350            | 1356        | 52                |

## XC Series

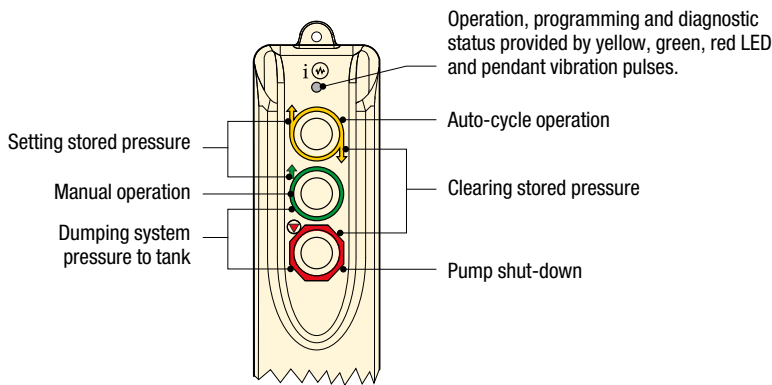


Reservoir Capacity:  
**2,0 litres**

Flow at Rated Pressure:  
**0,25 l/min**

Motor Size:  
**0,37 kW**

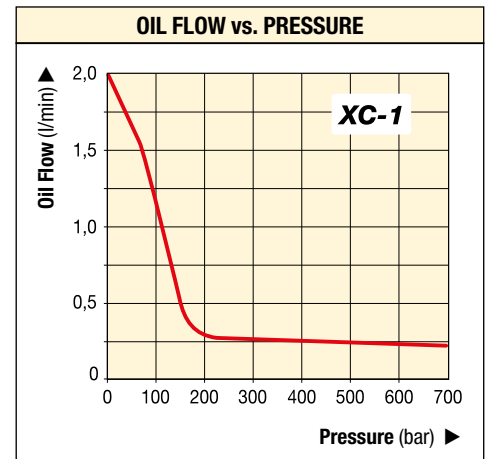
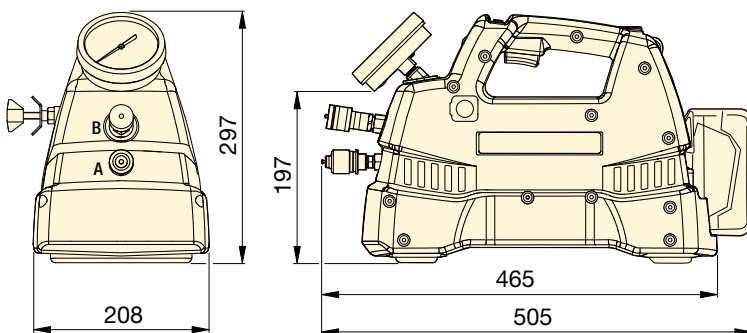
Maximum Operating Pressure:  
**700 bar**



### Torque Wrench Hoses

Use Enerpac 700 bar THQ-Series torque wrench hoses with torque wrenches and pumps. See page 249.

|                    |                |
|--------------------|----------------|
| 2 m long, 2 hoses  | <b>THQ702T</b> |
| 6 m long, 2 hoses  | <b>THQ706T</b> |
| 12 m long, 2 hoses | <b>THQ712T</b> |



### SELECTION CHART

| Description       | Useable Oil Capacity (litres) | Model Number    | Output Flow Rate (l/min) |         |         | Included with pump           | Weight (kg) <sup>1)</sup> |
|-------------------|-------------------------------|-----------------|--------------------------|---------|---------|------------------------------|---------------------------|
|                   |                               |                 | No Load                  | 140 bar | 700 bar |                              |                           |
| Cordless Pump Kit | 2,0                           | <b>XC1502TB</b> | 2,05                     | 0,49    | 0,25    | 2 batteries and 115V charger | 12                        |
| Cordless Pump Kit | 2,0                           | <b>XC1502TE</b> | 2,05                     | 0,49    | 0,25    | 2 batteries and 230V charger | 12                        |
| Cordless Pump     | 2,0                           | <b>XC1502T</b>  | 2,05                     | 0,49    | 0,25    | No batteries or charger      | 12                        |

<sup>1)</sup> Weight includes oil, without battery. battery weight 1,1 kg.



▼ EP3504TE, E-Pulse Torque Wrench Pump



## Performance

- Two-stage pump with high by-pass pressure: 1,0 l/min at 200 bar, 0,52 l/min at 700 bar
- Smart controls enable motor to maintain constant power across the pressure range
- 24VDC power regulator minimizes effects of poor power supply
- Six-piston block design provides even flow for smooth operation.

## Durability

- Durable aluminium housing
- Integrated heat exchanger minimizes heat buildup
- High-efficiency permanent magnet, direct drive motor enables continuous use and long service life
- Built-in thermal protection
- IP Rating: IP54 on the pump, IP67 on the pendant.

## Convenience

- Integrated calibrated pressure gauge
- Interactive pendant with smart controls
- Pendant and cord management system
- Intelligent Auto-Cycle enables press and release actuation to cycle torque wrench until final torque is achieved
- User can set pressure and operate in manual or auto-cycle mode
- Convenient oil fill port, oil level indicator and automatic breather.

## Productivity through innovation



### Bolting Integrity Software

A comprehensive on-line software solutions for Bolted Joint Integrity. The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report. Custom Joint information can also be entered.

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### Torque Wrenches

The following torque wrenches are ideal for use with the E-Pulse Torque Wrench Pumps:

| S      | W      | RSL     | DSX     | HMT     |
|--------|--------|---------|---------|---------|
| S1500X | W2000X | RSL1500 | DSX1500 | HMT1500 |
| S3000X | W4000X | RSL3000 | DSX3000 | HMT3500 |
|        |        | RSL5000 | DSX5000 | HMT7500 |

Larger torque wrenches will work with the pump, but application speed will be impacted.

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### Torque Wrench Hoses

Use Enerpac 700 bar THQ-Series torque wrench hoses with torque wrenches and pumps. See page 249.

|                    |         |
|--------------------|---------|
| 2 m long, 2 hoses  | THQ702T |
| 6 m long, 2 hoses  | THQ706T |
| 12 m long, 2 hoses | THQ712T |

# E-Pulse®, Electric Torque Wrench Pumps



## E-Pulse Torque Wrench Pumps

The Enerpac E-Pulse Electric Torque Wrench Pump, through its innovative design, is ideal for high volume fastening applications where weight is a critical factor. Smart controls enable the motor to maintain constant power providing higher flow than traditional pumps.

The durable aluminum housing, integrated heat exchanger and highly efficient permanent magnet motor minimize heat buildup in the toughest environments. The interactive pendant provides the operator a number of usage options for optimal efficiency. The E-Pulse Torque Wrench Pump is the pinnacle of bolting equipment.

## E Series



Reservoir Capacity:

**3,0 litres**

Flow at Rated Pressure:

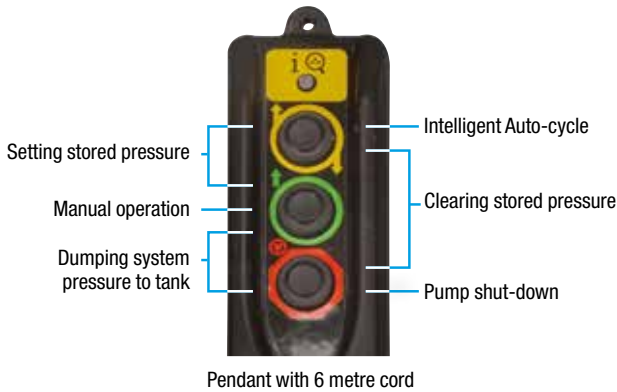
**0,52 l/min**

Motor Size:

**0,63 kW**

Maximum Operating Pressure:

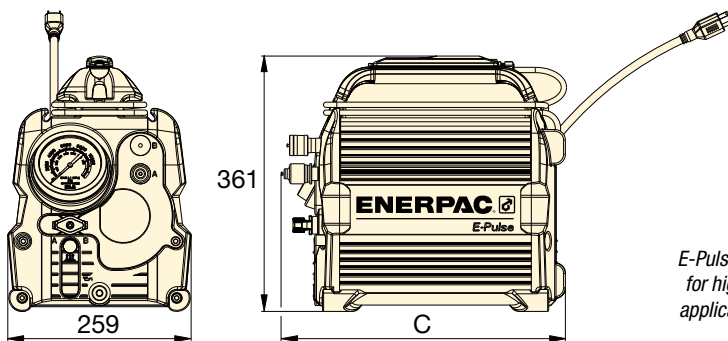
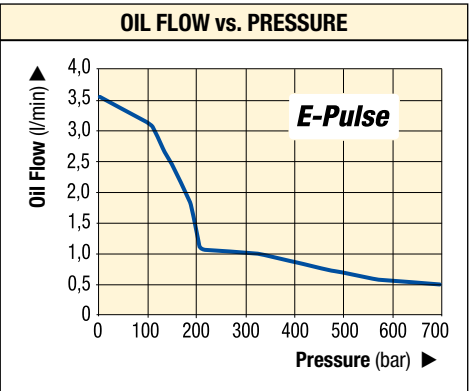
**700 bar**



Pendant with 6 metre cord

### Interactive Torque Wrench Pendant

- User can set pressure and operate in manual or auto-cycle mode
- Intelligent Auto-Cycle enables press and release actuation to cycle torque wrench until final torque is achieved.



E-Pulse torque pump used for high volume fastening applications where weight is a critical factor. ▶



### ▼ SELECTION CHART

| Number of Wrenches pump can operate | Useable Oil Capacity (litres) | Model Number | Output Flow Rate (l/min) |         |         |         | Motor Voltage (VAC) | Current Draw (Amps) | Plug Type      | Sound Level (dBA) | Dimension C (mm) | Weight (kg) <sup>1)</sup> |
|-------------------------------------|-------------------------------|--------------|--------------------------|---------|---------|---------|---------------------|---------------------|----------------|-------------------|------------------|---------------------------|
|                                     |                               |              | 1 bar                    | 175 bar | 350 bar | 700 bar |                     |                     |                |                   |                  |                           |
| 1                                   | 3,0                           | EP3504TB     | 3,61                     | 2,13    | 0,95    | 0,52    | 100-120             | 12                  | NEMA 5-15      | 70-85             | 401              | 20,4                      |
|                                     |                               | EP3504TI     | 3,61                     | 2,13    | 0,95    | 0,52    | 200-250             | 7                   | NEMA 6-15      | 70-85             | 401              | 20,4                      |
|                                     |                               | EP3504TE     | 3,61                     | 2,13    | 0,95    | 0,52    | 200-250             | 7                   | Schuko CEE 7/7 | 70-85             | 401              | 20,4                      |
| 2                                   | 3,0                           | EP3504TB-M * | 3,61                     | 2,13    | 0,95    | 0,52    | 100-120             | 12                  | NEMA 5-15      | 70-85             | 429              | 21,7                      |
|                                     |                               | EP3504TI-M * | 3,61                     | 2,13    | 0,95    | 0,52    | 200-250             | 7                   | NEMA 6-15      | 70-85             | 429              | 21,7                      |
|                                     |                               | EP3504TE-M * | 3,61                     | 2,13    | 0,95    | 0,52    | 200-250             | 7                   | Schuko CEE 7/7 | 70-85             | 429              | 21,7                      |

\* Pump model with multi-port manifold.

<sup>1)</sup> with oil

▼ TQ700E



- Optimized flow technology – three stage pump maximizes productivity of the pump and tool while minimizing heat build-up and down time
- Heat exchanger is standard included
- A quiet (<85 dBA), lightweight pump with a compact footprint – easy to move around and through the work site
- Durable roll cage with an ergonomically sized handle and shielded gauge – a pump that is easy to put into position and safe from on site operational hazards
- Maintenance made simple with a brushless motor designed for continuous usage
- Straightforward operation with a simple pressure set and convenient to use 6 m pendant control – immediate productivity for crews operating the pump
- IP55 Rating for Superior Dust and Water Protection
- Transparent gauge overlays in Nm and Ft.lbs for all Enerpac torque wrenches provide a quick torque reference.



The TQ700E and the W-Series wrenches are a productive combination in wind applications.

## Lightweight Torque Wrench Pumps



### Four Port Manifold

The TQ700 offers an optional four wrench manifold as an accessory factory installed. (Add suffix "M" at the end of the model number.

For example: **TQ700EM**).



### Torque Wrench Hoses

Use Enerpac 700 bar THQ-Series torque wrench hoses with torque wrenches and pumps.

|                    |                |
|--------------------|----------------|
| 2 m long, 2 hoses  | <b>THQ702T</b> |
| 6 m long, 2 hoses  | <b>THQ706T</b> |
| 12 m long, 2 hoses | <b>THQ712T</b> |



### Hydraulic Torque Wrenches

Enerpac offers a complete range of square drive and hexagon cassette torque wrenches.

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### Overlay Kit with Gauge

Available separately for use with TQ-Series: **GT4015Q** includes gauge and torque overlays for all Enerpac torque wrenches.

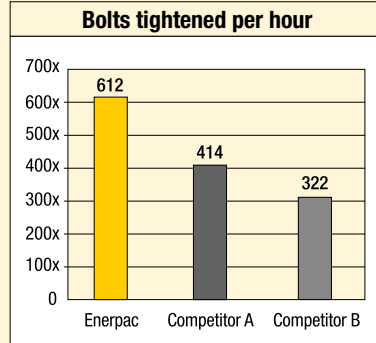


## TQ700 Applications

The TQ700 Series pump is ideal for powering hydraulic wrenches for the Power Generation and Wind Markets.

Bolting speed is more complex than how much flow per minute the pump produces. The key is optimising the flow rate across the entire bolting cycle. With more oil flowing at the right time and at the right volume, you achieve the optimized flow for a hydraulic bolting system.

The result of this optimized flow is more bolts tightened faster and a more productive work team.



Internal laboratory testing based on standard torquing procedure on a pipe flange with 14, 1 1/2" bolts.

## TQ Series



Reservoir Capacity:

**4,0 litres**

Flow at Rated Pressure:

**0,5 l/min**

Motor Size:

**0,75 kW**

Maximum Operating Pressure:

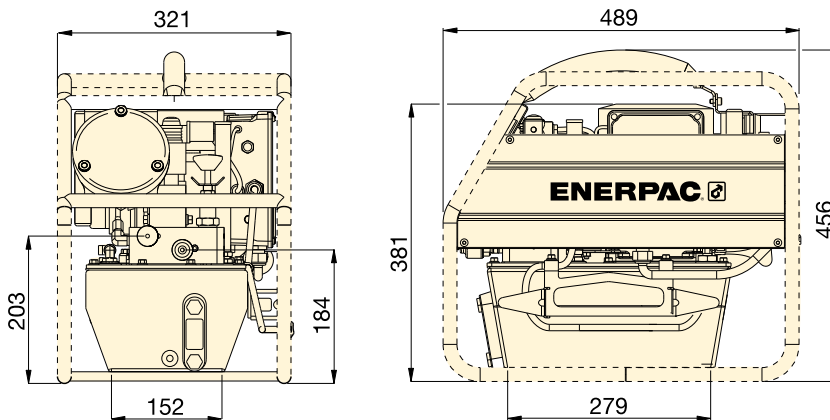
**700 bar**



## Torque Pump Selection Matrix

For optimum speed and performance see the torque pump and hose selection matrix.

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| For Use with Torque Wrenches | Pressure Rating (bar) | Model Number <sup>1)</sup>  | Useable Oil Capacity (litres) | Motor Size (kW) | Motor Electrical Specifications (Volt - Ph - Hz) | Sound Level (dBA) | Weight (kg) |
|------------------------------|-----------------------|-----------------------------|-------------------------------|-----------------|--|-------------------|-------------|
| All Series                   | 700                   | <b>TQ700B</b>               | 4,0                           | 0,75            | 115 - 1 - 50/60                                  | 82 - 85           | 31          |
|                              | 700                   | <b>TQ700E</b> <sup>2)</sup> | 4,0                           | 0,75            | 230 - 1 - 50                                     | 82 - 85           | 30          |
|                              | 700                   | <b>TQ700I</b> <sup>3)</sup> | 4,0                           | 0,75            | 230 - 1 - 60                                     | 82 - 85           | 30          |

<sup>1)</sup> All models meet CE safety requirements and all TÜV requirements.

<sup>2)</sup> TQ700E with European plug and CE EMC directive compliant.

<sup>3)</sup> TQ700I with NEMA 6-15 plug.

▼ The TQ700E and the W-Series wrenches are a productive combination.





▼ ZU4204TE-Q (Pro), ZU4204BE-Q (Classic)



## Z Tough, Dependable Innovative CLASS



### Classic Electrical

Basic electrical package includes mechanical contactor, ON/OFF toggle switch, pendant with electro-mechanical push buttons, 24V transformer timer and operator accessible circuit breaker.

- Features Z-Class high-efficiency pump design; higher oil flow and bypass pressure, cooler running and requires 18% less current draw than comparable pumps
- Powerful 1,25 kW universal electric motor provides high power-to-weight ratio and excellent low-voltage operating characteristics
- High-strength, molded composite shroud protects motor and electrical components, while providing an ergonomic, non-conductive handle for easy transport
- Low-voltage pendant provides additional safety for the operator.

### Pro Series pump only

- LCD readout provides pressure display and a number of diagnostic and readout capabilities never before offered on a portable electric pump
- AutoCycle feature provides continuous cycle operation of the torque wrench as long as the advance button is pressed (pump can be used with or without auto cycle feature).



### Pro-Series

Back-lit LCD and Pressure Transducer featuring Auto-Cycle Technology.

- Torque wrench model is selectable
- "Auto cycle" setting easily programmable.
- Digital read-out and "Autocycle" setting
- Pump usage information, hour and cycle counts
- Low-voltage warning and recording
- Self-test and diagnostic capabilities
- Information can be displayed in English, French, German, Italian, Spanish and Portuguese
- Pressure transducer is more accurate and durable than analog gauges
- Easy-viewing variable rate display
- Display pressure in bar, MPa or psi.



◀ Any brand of hydraulic torque wrench can be powered by the portable ZU4T-Series torque pump.



## Z-Class – A Pump For Every Application

Patented Z-Class pump technology provides high by-pass pressures for increased productivity – important in applications using long hose runs and high pressure-drop circuits, like heavy lifting or certain double-acting tools.

Enerpac ZU4T-Series pumps are built to power small to large torque wrenches. Choosing the right ZU4T-Series torque wrench pump for your application is easy.

### Classic Electric Torque Wrench Pump

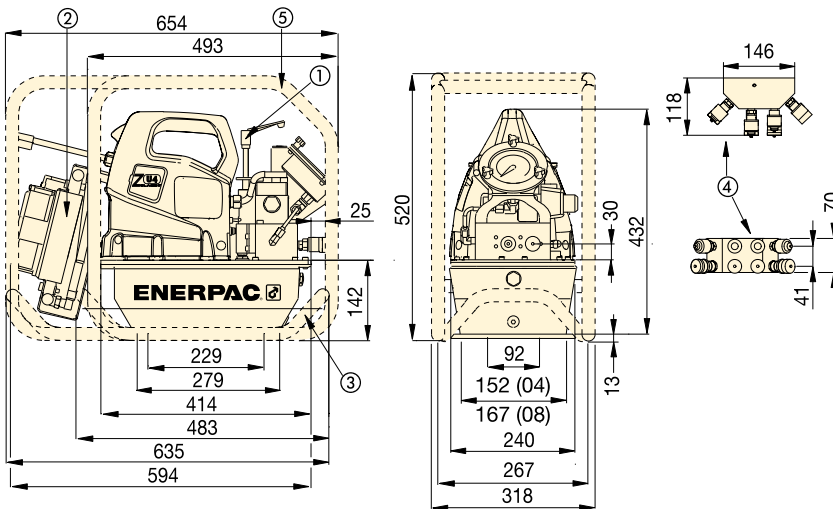
- The Classic has traditional electro-mechanical components (transformers, relays and switches) in place of solid-state electronics. The Classic delivers durable, safe and efficient hydraulic power.

### Pro Series Electric Torque Wrench Pump

- Digital (LCD) display features a built-in hour meter, pressure display and shows self-diagnostic, cycle-count and low voltage warning information. These premium features are not available on any other pump – anywhere!
- Auto-Cycle feature provides continuous cycle operation of the torque wrench as long as the advance button is pressed (pump can be used with or without Auto-Cycle feature).

### ZU4T-Series, Torque Pump Ordering Guide

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- ① User adjustable relief valve
- ② Heat Exchanger (optional)
- ③ Skidbar (optional)
- ④ 4-wrench manifold (optional)
- ⑤ Roll cage (optional)

### ZU4T-Series Torque Pumps

| ZU4T-Series Performance Chart |                             |        |         |         |   |                      |  |  |  |
|-------------------------------|-----------------------------|--------|---------|---------|---|----------------------|--|--|--|
| Motor Size<br>(kW)            | Output Flow Rate<br>(l/min) |        |         |         | Motor Electrical Specification<br>(Volt - Phase - Hz) | Sound Level<br>(dBA) | Relief Valve Adjustment Range<br>(bar) |  |  |
|                               | 7 bar                       | 50 bar | 350 bar | 700 bar |   |                      |  |  |  |
| 1,25                          | 11,5                        | 8,8    | 1,2     | 1,0     | 115 - 1 - 50/60<br>208-240 - 1 - 50/60                | 85-90                | 124-700                                |  |  |

## ZU4T Series



Reservoir Capacity:

**4,6 - 6,8 litres**

Flow at Rated Pressure:

**1,0 l/min**

Motor Size:

**1,25 kW**

Maximum Operating Pressure:

**700 bar**



### Bolting Integrity Software

Enerpac Bolting Integrity Software Solutions play a key role in implementing and managing an Integrity Program for bolted connections. The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report. Custom Joint information can also be entered.

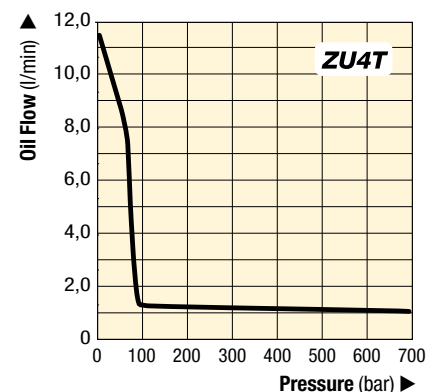
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### Overlay Kit with Gauge

Available separately for use with ZU4T-Series Classic: **GT4015Q** includes gauge and torque overlays for all Enerpac torque wrenches.

### OIL FLOW VERSUS PRESSURE





### 4-Wrench Manifold

- For simultaneous operation of multiple torque wrenches.

| Accessory Kit * Model Nr. | Can be used on ZU4T-Series torque pumps |
|---------------------------|---|
| ZTM-Q *                   | for 700 bar torque wrenches             |

\* 4-Wrench Manifold adds 2,7 kg to pump weight.



### Skid Bar

- Provides greater pump stability on soft or uneven surfaces
- Provides easy two-handed lift.

| Accessory Kit Model Nr. | Can be used on ZU4T-Series torque pumps    |
|-------------------------|--|
| SBZ-4                   | 4,6 and 6,8 litres reservoir <sup>1)</sup> |
| SBZ-4L                  | 4,6 and 6,8 litres reservoir <sup>2)</sup> |

<sup>1)</sup> Without heat exchanger 2,2 kg.

<sup>2)</sup> With heat exchanger 3,2 kg.



### Heat Exchanger

- Removes heat from the bypass oil to provide cooler operation
- Stabilizes oil viscosity, increasing oil life and reduces wear of pump and other hydraulic components.

| Accessory Kit * Model Nr. | Can be used on ZU4T-Series torque pumps |
|---------------------------|---|
| ZHE-U115                  | 115 V pumps                             |
| ZHE-U230                  | 230 V pumps                             |

\* Heat Exchanger adds 4,1 kg to pump weight.



### Roll Cage

- Protects pump
- Provides greater pump stability.

| Thermal Transfer * | Max. Pressure | Max. Oil Flow | Voltage |
|--------------------|---------------|---------------|---------|
| (Btu/h)            | (bar)         | (l/min)       | (VDC)   |
| 900                | 20,7          | 26,5          | 12      |

\* At 1,9 l/min at 21 °C ambient temperature. Do not exceed maximum oil flow and pressure ratings. Heat exchanger is not suitable for water-glycol or high water-based fluids.

▼ These rigid steel wrenches with low profile interchangeable hexagon cassettes guarantee durability and maximum versatility in bolting applications.



| Accessory Kit Model Nr. | Can be used on ZU4T-Series torque pumps    |
|-------------------------|--|
| ZRC-04                  | 4,6 and 6,8 litres reservoir <sup>1)</sup> |
| ZRC-04H                 | 4,6 and 6,8 litres reservoir <sup>2)</sup> |

<sup>1)</sup> Without heat exchanger 4,3 kg.

<sup>2)</sup> With heat exchanger 4,3 kg.



### Torque Wrench Hoses

Use Enerpac twin safety hoses to connect your torque wrench to the pump.

| For 700 bar        | Model-Nr. |
|--------------------|-----------|
| 2 m long, 2 hoses  | THQ702T   |
| 6 m long, 2 hoses  | THQ706T   |
| 12 m long, 2 hoses | THQ712T   |

# ZU4T-Series, Torque Pump Ordering Guide

## ▼ Select a pump from the model matrix at the bottom of the page.

The functionality of the pump can be determined by the model number. Utilize the guide below to select the best pump for the application.

|                   |                 |                 |                 |                     |                      |              |                |                                    |          |          |
|-------------------|-----------------|-----------------|-----------------|---------------------|----------------------|--------------|----------------|------------------------------------|----------|----------|
| <b>Z</b>          | <b>U</b>        | <b>4</b>        | <b>2</b>        | <b>08</b>           | <b>T</b>             | <b>E</b>     | <b>-</b>       | <b>Q</b>                           | <b>H</b> | <b>M</b> |
| 1<br>Product Type | 2<br>Motor Type | 3<br>Flow Group | 4<br>Valve Type | 5<br>Reservoir Size | 6<br>Valve Operation | 7<br>Voltage | 8<br>Must be Q | 8<br>Factory Installed Accessories |          |          |

### 1 Product Type

**Z** = Pump series

### 2 Motor Type

**U** = Universal electric motor

### 3 Flow Group

**4** = 1,0 l/min @ 700 bar

### 4 Valve Type

**2** = Torque wrench valve

### 5 Reservoir Size

**04** = 4,6 litres

**08** = 6,8 litres

### 6 Valve Operation

**T** = **Pro Series pump** with solenoid valve and pendant, LCD Electric and pressure transducer

**B** = **Classic pump** with solenoid valve and pendant.

### 7 Voltage

**B** = 115V, 1 ph, 50/60 Hz

**E** = 208-240V, 1 ph, 50/60 Hz (with European plug CE RF compliant)

**I** = 208-240V, 1 ph, 50/60 Hz (with NEMA 6-15 plug)

### 8 Factory installed accessories

**H** = Heat exchanger

**K** = Skid bar

**M** = 4-wrench manifold

**R** = Roll cage

## ZU4T Series



Reservoir Capacity:

**4,6 - 6,8 litres**

Flow at Rated Pressure:

**1,0 l/min**

Motor Size:

**1,25 kW**

Maximum Operating Pressure:

**700 bar**



### Torque Pump Selection Matrix

For optimum speed and performance see the torque pump and hose selection matrix.

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## ▼ ZU4T-SERIES CLASSIC TORQUE PUMP MODELS

| ZU4T Classic <sup>1)</sup><br>Model Numbers<br>230 VAC, 1 ph <sup>2)</sup> | Reservoir Capacity<br>(litres) | Factory Installed Accessories |           |          |                   |           | Weight<br>(kg) |
|--|--------------------------------|-------------------------------|-----------|----------|-------------------|-----------|----------------|
|  |                                | Heat Exchanger                | Roll Cage | Skid Bar | 4-Wrench Manifold | Roll Cage |                |
| ZU4204BE-Q (B, I)  | 4,6                            |                               |           |          |                   |           | 33             |
| ZU4208BE-Q (B, I)  | 6,8                            |                               |           |          |                   |           | 35             |
| ZU4204BE-QH (B, I)   | 4,6                            | ●                             |           |          |                   |           | 40             |
| ZU4208BE-QH (B, I)   | 6,8                            | ●                             |           |          |                   |           | 39             |
| ZU4204BE-QR (B)  | 4,6                            |                               | ●         |          |                   |           | 37             |
| ZU4208BE-QR (B)  | 6,8                            |                               | ●         |          |                   |           | 39             |
| ZU4204BE-QHR (B)   | 4,6                            | ●                             | ●         |          |                   |           | 41             |
| ZU4208BE-QHR (B, I)  | 6,8                            | ●                             | ●         |          |                   |           | 44             |
| ZU4208BE-QHK (B, I)  | 6,8                            | ●                             |           | ●        |                   |           | 42             |
| ZU4208BE-QHM (B, I)  | 6,8                            | ●                             |           |          | ●                 |           | 42             |
| ZU4208BE-QMR (B)   | 6,8                            |                               | ●         |          | ●                 |           | 42             |
| ZU4208BE-QHMR (B, I)   | 6,8                            | ●                             | ●         |          | ●                 |           | 46             |

## ▼ ZU4T-SERIES PRO TORQUE PUMP MODELS

| ZU4T Pro<br>Model Numbers<br>230 VAC, 1 ph <sup>3)</sup> | Reservoir Capacity<br>(litres) | Factory Installed Accessories |           |          |                   |           | Weight<br>(kg) |
|--|--------------------------------|-------------------------------|-----------|----------|-------------------|-----------|----------------|
|  |                                | Heat Exchanger                | Roll Cage | Skid Bar | 4-Wrench Manifold | Roll Cage |                |
| ZU4204TE-Q (B, I)  | 4,6                            |                               |           |          |                   |           | 31             |
| ZU4208TE-Q (B, I)  | 6,8                            |                               |           |          |                   |           | 34             |
| ZU4204TE-QH (B, I)                                       | 4,6                            | ●                             |           |          |                   |           | 35             |
| ZU4208TE-QH (B, I)                                       | 6,8                            | ●                             |           |          |                   |           | 38             |
| ZU4204TE-QR (B)  | 4,6                            |                               | ●         |          |                   |           | 35             |
| ZU4208TE-QR (B)  | 6,8                            |                               | ●         |          |                   |           | 38             |
| ZU4204TE-QHR (B)   | 4,6                            | ●                             | ●         |          |                   |           | 40             |
| ZU4208TE-QHR (B, I)                                      | 6,8                            | ●                             | ●         |          |                   |           | 42             |
| ZU4208TE-QHK (B, I)                                      | 6,8                            | ●                             |           | ●        |                   |           | 41             |
| ZU4208TE-QHM (B, I)                                      | 6,8                            | ●                             |           |          | ●                 |           | 41             |
| ZU4208TE-QMR (B)   | 6,8                            |                               | ●         |          | ●                 |           | 41             |
| ZU4208TE-QHMR (B, I)                                     | 6,8                            | ●                             | ●         |          | ●                 |           | 45             |

<sup>1)</sup> Classic Electric Pump has traditional electro-mechanical components (transformers, relays, switches) in place of solid-state electronics.

<sup>2)</sup> "B" indicates pump is 115V, 1-phase, 50/60 Hz. Model number example: **ZU4204BB-QHR**.

"I" indicates pump is 208-240V, 1-phase, 50/60 Hz with NEMA 6-15 plug. Model number example: **ZU4208BI-QHR**.

<sup>3)</sup> "B" indicates pump is 115V, 1-phase, 50/60 Hz. Model number example: **ZU4204TB-QHR**.

"I" indicates pump is 208-240V, 1-phase, 50/60 Hz with NEMA 6-15 plug. Model number example: **ZU4204TI-QHR**.



▼ ZE4204TE-QHR



- **Auto-Cycle feature provides continuous cycle operation of the torque wrench as long as the advance button is pressed (pump can be used with or without auto cycle feature)**
- **LCD readout provides pressure and torque display and a number of diagnostic and readout capabilities never before offered on a portable electric pump**
- **Totally enclosed, fan-cooled industrial electric motors supply extended life and stand up to harsh industrial environments**
- **High-strength, molded electrical enclosure protects electronics, power supplies and LCD readout from harsh environments.**

# Z

**Tough,  
Dependable  
Innovative  
CLASS**



### Pro-Series

Back-lit LCD and Pressure Transducer featuring Auto-Cycle Technology.

- Torque wrench model is selectable
- "Auto cycle" setting easily programmable.
- Digital read-out and "Autocycle" setting
- Pump usage information, hour and cycle counts
- Low-voltage warning and recording
- Self-test and diagnostic capabilities
- Information can be displayed in English, French, German, Italian, Spanish and Portuguese
- Pressure transducer is more accurate and durable than analog gauges
- Easy-viewing variable rate display
- Display pressure in bar, MPa or psi.



◀ The ZE4T-Series torque wrench pumps are perfectly matched for this W2000X wrench.



### Bolting Integrity Software

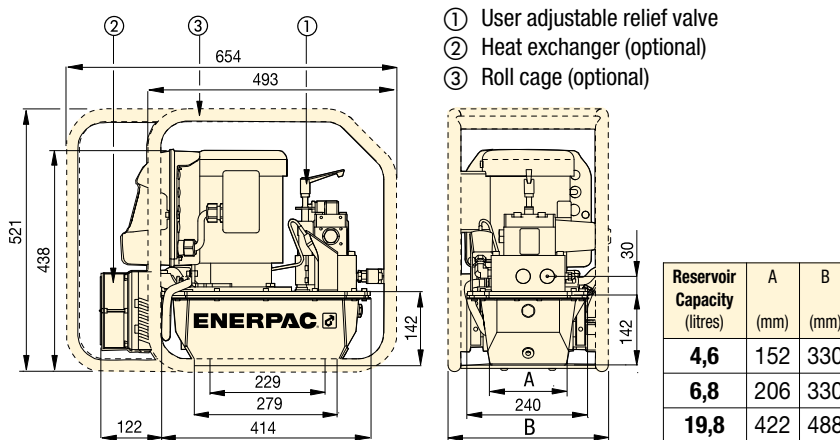
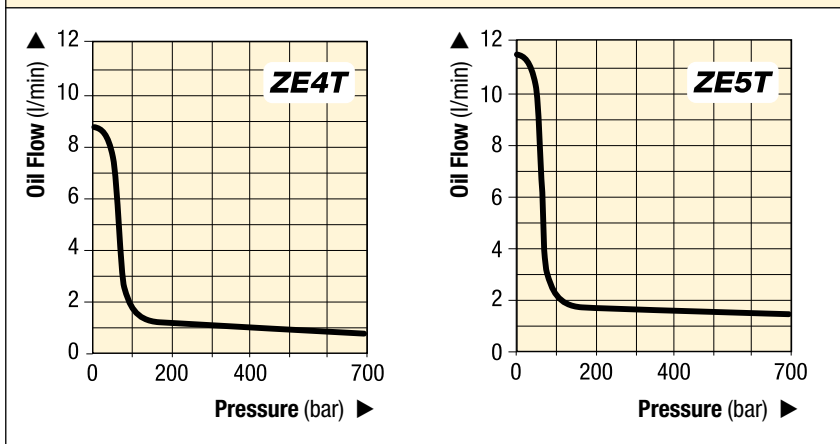
Enerpac Bolting Integrity Software Solutions play a key role in

implementing and managing an Integrity Program for bolted connections.

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report.

Custom Joint information can also be entered.

ZE4T AND ZE5T-SERIES OIL FLOW VERSUS PRESSURE



## ZE4T and ZE5T-Series

### ▼ PERFORMANCE CHART

| Pump Series | Output Flow Rate at 50 Hz (l/min) |        |         |         | Motor Size (kW) | Relief Valve Adjustment Range (bar) | Sound Level (dBA) |
|-------------|-----------------------------------|--------|---------|---------|-----------------|-------------------------------------|-------------------|
|             | 7 bar                             | 50 bar | 350 bar | 700 bar |                 |                                     |                   |
| ZE4T        | 8,8                               | 8,1    | 0,9     | 0,8     | 1,1             | 70 - 700                            | 75                |
| ZE5T        | 11,8                              | 11,2   | 1,7     | 1,6     | 2,2             | 70 - 700                            | 75                |

| For Use With Wrenches | Model Number <sup>1)</sup> | Reservoir Capacity (litres) | Factory Installed Accessories |           |                   | Weight (kg) |
|-----------------------|----------------------------|-----------------------------|-------------------------------|-----------|-------------------|-------------|
|                       |                            |                             | Heat Exchanger                | Roll Cage | 4-Wrench Manifold |             |
| All Series            | ZE4204TE-QR (B)            | 4,6                         |                               | ●         |                   | 54          |
|                       | ZE4204TE-QHR (B)           | 4,6                         | ●                             | ●         |                   | 59          |
|                       | ZE4208TE-QHR (B)           | 6,8                         | ●                             | ●         |                   | 61          |
|                       | ZE4208TE-QHMR (B)          | 6,8                         | ●                             | ●         | ●                 | 64          |
| All Series            | ZE5204TW-QHR (G, J)        | 4,6                         | ●                             | ●         |                   | 64          |
|                       | ZE5208TW-QHR (G, J)        | 6,8                         | ●                             | ●         |                   | 67          |
|                       | ZE5208TW-QHMR (G, J)       | 6,8                         | ●                             | ●         | ●                 | 70          |
|                       | ZE5220TW-QHR (G, J)        | 19,8                        | ●                             | ●         |                   | 88          |

<sup>1)</sup> "B" suffix model numbers shown are 115 VAC, 1-phase, 50/60 Hz. Model number order example: **ZE4204TB-QR**.  
 "E" indicates pump available in 208-240 VAC, 1 phase, 50/60 Hz with European plug and CE EMC compliant.  
 "J" indicates pump available in 460-480 VAC, 3-phase, 50/60 Hz. Model number order example: **ZE5208TJ-QHR**.  
 "G" indicates pump available in 208-240 VAC, 3-phase, 50/60 Hz. Model number order example: **ZE5208TG-QHR**.  
 "W" indicates pump available in 380-415 VAC, 3-phase, 50/60 Hz. Model number order example: **ZE5208TW-QHR**.

## ZE4T ZE5T Series



Reservoir Capacity:

**4,6 - 19,8 litres**

Flow at Rated Pressure:

**0,82 - 1,64 l/min**

Motor Size:

**1,1 - 2,2 kW**

Maximum Operating Pressure:

**700 bar**



### Torque Wrench Pump Selection Matrix

For optimum speed and performance see the torque wrench pump and hose selection matrix.

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### Accessories

Descriptions can be found in the ZU4T-Series pump section.

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### Torque Wrench Hoses

Use Enerpac 700 bar THQ-Series torque wrench hoses with torque wrenches and pumps.

|                    |                |
|--------------------|----------------|
| 2 m long, 2 hoses  | <b>THQ702T</b> |
| 6 m long, 2 hoses  | <b>THQ706T</b> |
| 12 m long, 2 hoses | <b>THQ712T</b> |

▼ LA2504TX-QR, Air-Driven Hydraulic Torque Pump

**Ex** IIC T4 Gc  
IIIC T135°C Dc



### Improved Operator Efficiency and Ergonomics

- Easy to lift, transport and maneuver
- Hand carry where no crane, hoist or elevator is available
- One person transport up ladders and stairs
- Ideal for use on narrow or constrained scaffolding, catwalks, pipe racks and lifts.

### High Productivity

- Proven 3 piston design provides leading fastening and breakout speed to stay on time and under budget
- ATEX certified to meet worksite compliance requirements.

### Reduce Equipment Downtime

- Roll cage with reinforcement to support and protect FRL
- Rugged 1/2" NPTF air supply connection with integrated roll cage support
- Key components are easy to access and service.

### Standard Features

- 4,5 m pendant cord for mobility around work site
- 100 mm calibrated gauge with certificate, scale in bar and psi
- Roll cage and Filter-Regulator-Lubricator (FRL).

## Lightweight and Compact



### Torque Pump Selection Matrix

For optimum speed and performance see the torque wrench and pump matrix.

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### Torque Wrench Hoses

Use Enerpac THQ-Series hoses with torque pumps to ensure the integrity of your hydraulic system.

| For 700 bar        | Model Nr. |
|--------------------|-----------|
| 2 m long, 2 hoses  | THQ702T   |
| 6 m long, 2 hoses  | THQ706T   |
| 12 m long, 2 hoses | THQ712T   |

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### ATEX Certified

The LAT-Series air-driven pumps are tested and certified according to the ATEX Directive 2014/34/EU.

The explosion protection is for Equipment Group II, Equipment Category 2 (Hazardous Area Zone 1), in Gas and/or Dust atmospheres.

Each LAT-Series air-driven pump contains the following markings:

**Ex IIC T4 Gc and Ex IIIC T135°C Dc**

**Ex** IIC T4 Gc  
IIIC T135°C Dc



# Air-Driven Hydraulic Torque Pump



## LAT-Series Air-Driven Torque Pump

The Enerpac LAT Air-Driven Torque Pump combines compact design and high productivity for bolting applications in areas hard to access with larger air powered pumps.

Whether on an offshore platform, refinery or mine anywhere in the world, the pump is built for the toughest worksite environments.

Featuring a proven Enerpac piston design, reinforced FRL support and air supply connection, the LAT-pump will provide years of reliable service with fastening and breakout speeds to keep you on schedule and under budget.

## LAT Series



Reservoir Capacity:

**3,0 litres**

Flow at Rated Pressure:

**0,4 l/min**

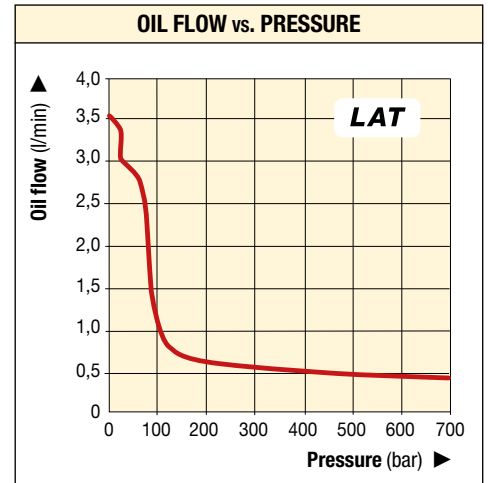
Maximum Operating Pressure:

**700 bar**

- ▼ Rugged 1/2" NPTF air supply connection with integrated roll cage support.



- ▼ Roll cage design supports and protects Filter-Regulator-Lubricator (FRL).



- ▼ Proven 3 piston design provides leading speed.



- ▼ Skid Rail accessory DD8365920K bolts to bottom of reservoir to prevent wear from rough surfaces.



- ▼ LAT-Series, the portable and compact torque pump.



| Usable Oil Capacity<br>(litres) | Model Number * | Output Flow Rate<br>(l/min) |         |         | Valve Type    | Air Pressure Range<br>(bar) | Air Consumption<br>(l/min) | Sound Level<br>(dBA) | Dimensions<br>(mm) |       |        | Weight<br>(kg) |
|---------------------------------|----------------|-----------------------------|---------|---------|---------------|-----------------------------|----------------------------|----------------------|--------------------|-------|--------|----------------|
|                                 |                | No Load                     | 350 bar | 700 bar |               |                             |                            |                      | Length             | Width | Height |                |
| 1,9                             | LA2504TX-QR    | 3,5                         | 0,6     | 0,4     | 4-way, 2-pos. | 4,5 - 6,9                   | 1389                       | 87 - 90              | 435                | 250   | 375    | 18,0           |

\* Enerpac Spin-On couplers are included. Pump hydraulic port thread size is 1/4"-18 NPTF.



▼ ZA4204TX-QR



**Ex** II 2 GD ck T4  
DEKRA 0602

## Z Tough, Dependable Innovative CLASS

### ZA4208TX-QRU105 Complete Set with Pump, Hose THQ706T and Roll Cage:

- Fine air pressure adjustment for very accurate torque control
- High bypass pressure (180 bar) for faster torque cycles
- Improved wrench performance at low pressure

### Standard ZA4T-pump models:

- Two-speed operation and 100 bar by-pass pressure reduces cycle time for improved productivity
- Glycerin filled pressure gauge with transparent overlays in Nm and Ft.lbs for Enerpac torque wrenches provide a quick torque reference
- Standard Regulator-Filter-Lubricator with removable bowls and auto drain
- Heat exchanger warms exhaust air to prevent freezing and cools the oil
- Ergonomic pendant allows remote operation up to 6 m.



◀ Most hydraulic torque wrenches can be powered by the Enerpac ZA4T-Series torque pumps.



#### Gauge with Overlay Kit

Gauge Overlay Kits are available separately for use with ZA4T-Series pumps:

**GT4015Q** includes gauge and overlays for all Enerpac all S, W, RSL, DSX and HMT-Series torque wrenches.



#### Torque Pump Selection Matrix

For optimum speed and performance see the torque pump selection matrix.

Page: 265



#### Torque Wrench Hoses

Use Enerpac THQ-Series hoses with torque pumps to ensure the integrity of your hydraulic system.

| For 700 bar        | Model Nr.      |
|--------------------|----------------|
| 2 m long, 2 hoses  | <b>THQ702T</b> |
| 6 m long, 2 hoses  | <b>THQ706T</b> |
| 12 m long, 2 hoses | <b>THQ712T</b> |

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# Air Driven Torque Pumps



## ZA4T-Pump Applications

The ZA4T-Series pump is best suited to power medium to large size torque wrenches.

Patent-pending Z-Class technology provides high by-pass pressures for increased productivity.

Its high power to weight ratio and compact design make it ideal for applications which require easy transport of the pump.

All ZA4T-Series pump models meet CE, CSA and TÜV safety requirements. For further application assistance contact your local Enerpac office.

## ATEX 95 Certified

The ZA4T-Series pumps are tested and certified according to the Equipment Directive 94 / 9 / EC "ATEX Directive".

The explosion protection is for Equipment Group II, Equipment Category 2 (Hazardous Area Zone 1), in Gas and/or Dust atmospheres. The ZA4T-Series pumps are marked with: **Ex II 2 GD ck T4**.



## ZA4T Series



Reservoir Capacity:

**4,6 - 6,8 litres**

Flow at Rated Pressure:

**1,0 l/min**

Air Consumption:

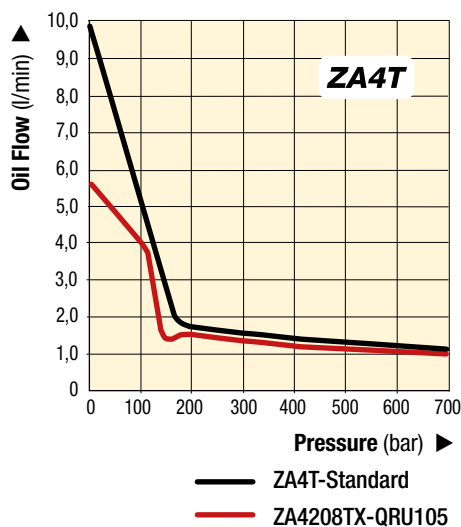
**600 - 2840 l/min**

Maximum Operating Pressure:

**700 bar**

## OIL FLOW VERSUS PRESSURE

6,9 bar dynamic air pressure at 2840 l/min



## Accessory Options

Available by placing the following additional suffix at the end of the model number:

- K** = Skid bar
- M** = 4-wrench manifold
- R** = Roll cage.

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▼ ZA4208TX-QRU105 for improved wrench performance and torque control at low pressure.



## COMMON PUMP MODELS

| For Use With Torque Wrenches      | Maximum Operating Pressure (bar) | Model Number      | Reservoir Capacity (litres) | Weight (kg) |
|-----------------------------------|----------------------------------|-------------------|-----------------------------|-------------|
| all S, W, RSL, DSX and HMT-Series | 700                              | ZA4208TX-QRU105 * | 6,8                         | 45          |
|                                   | 700                              | ZA4204TX-Q        | 4,6                         | 42          |
|                                   | 700                              | ZA4208TX-Q        | 6,8                         | 47          |
|                                   | 700                              | ZA4204TX-QR **    | 4,6                         | 46          |
|                                   | 700                              | ZA4208TX-QR **    | 6,8                         | 51          |

\* Standard with roll cage, with THQ706T hose and fine air pressure adjustment for very accurate torque control. Pump weight 45 kg, complete set including hose weight 58 kg.

\*\* With Roll Cage.



### Skid Bar

- Provides greater pump stability on soft or uneven surfaces
- Provides easy two-handed lift.

| Accessory Kit *<br>Model Nr. | Can be used on ZA4T-Series torque pumps |
|------------------------------|---|
| <b>SBZ-4</b>                 | Reservoir 04 and 08                     |

\* Add suffix **K** for factory installation. Weight skid bar 2,2 kg.  
**Ordering Example: ZA4208TX-QK**



### 4-Wrench Manifold

- For simultaneous operation of multiple torque wrenches
- Can be factory installed or ordered separately.

| Accessory Kit *<br>Model Nr. | Can be used on ZA4T-Series torque pumps |
|------------------------------|---|
| <b>ZTM-Q</b>                 | for 700 bar torque wrenches             |

\* Add suffix **M** for factory installation. This option cannot be installed onto the ZA4208TX-QRU105 pump, as the valve manifold is different. Weight manifold 4,5 kg.  
**Ordering Example: ZA4208TX-QM**



### Roll Cage

- Protects pump
- Provides greater pump stability.

| Accessory Kit *<br>Model Nr. | Can be used on ZA4T-Series torque pumps |
|------------------------------|---|
| <b>ZRC-04</b>                | Reservoir 04 and 08                     |

\* Add suffix **R** for factory installation. Roll cage weight 3,4 kg.  
**Ordering Example: ZA4208TX-QR**



### Torque Wrench Couplers

For Enerpac torque wrench couplers see our "System Components" section in this catalogue.

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### PowaPak™ Air Torque Pump

**ZA4208TX-QR0P** Pump with Stainless Steel Roll Cage and Certified Lifting Eye.

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### Torque Wrench Hoses

Use Enerpac twin safety hoses to connect your torque wrench to the pump.

| For 700 bar        | Model-Nr.      |
|--------------------|----------------|
| 2 m long, 2 hoses  | <b>THQ702T</b> |
| 6 m long, 2 hoses  | <b>THQ706T</b> |
| 12 m long, 2 hoses | <b>THQ712T</b> |

# Ordering Matrix and Specifications

▼ This is how a ZA4T-Series pump model number is built up:

|                      |                    |                    |                    |                        |                         |              |          |                   |              |              |
|----------------------|--------------------|--------------------|--------------------|------------------------|-------------------------|--------------|----------|-------------------|--------------|--------------|
| <b>Z</b>             | <b>A</b>           | <b>4</b>           | <b>2</b>           | <b>08</b>              | <b>T</b>                | <b>X</b>     | <b>-</b> | <b>Q</b>          | <b>M</b>     | <b>R</b>     |
| 1<br>Product<br>Type | 2<br>Motor<br>Type | 3<br>Flow<br>Group | 4<br>Valve<br>Type | 5<br>Reservoir<br>Size | 6<br>Valve<br>Operation | 7<br>Voltage |          | 8<br>Must<br>be Q | 8<br>Options | 8<br>Options |

### 1 Product Type

Z = Pump series

### 2 Motor Type

A = Air motor

### 3 Flow Group

4 = 1,0 l/min @ 700 bar

### 4 Valve Type

2 = Torque Wrench Valve

### 5 Reservoir Size

04 = 4,6 litres

08 = 6,8 litres

### 6 Valve Operation

T = Air operated valve with pendant

### 7 Voltage

X = Not applicable

### 8 Options

Q = 700 bar couplers for use with Enerpac or other torque wrenches

K = Skid bar

M = 4-wrench manifold

R = Roll cage

## ZA4T Series



Reservoir Capacity:

**4,6 - 6,8 litres**

Flow at Rated Pressure:

**1,0 l/min**

Air Consumption:

**600 - 2840 l/min**

Maximum Operating Pressure:

**700 bar**



How to order your ZA4T-Series torque pump

### Model No. ZA4208TX-QMR

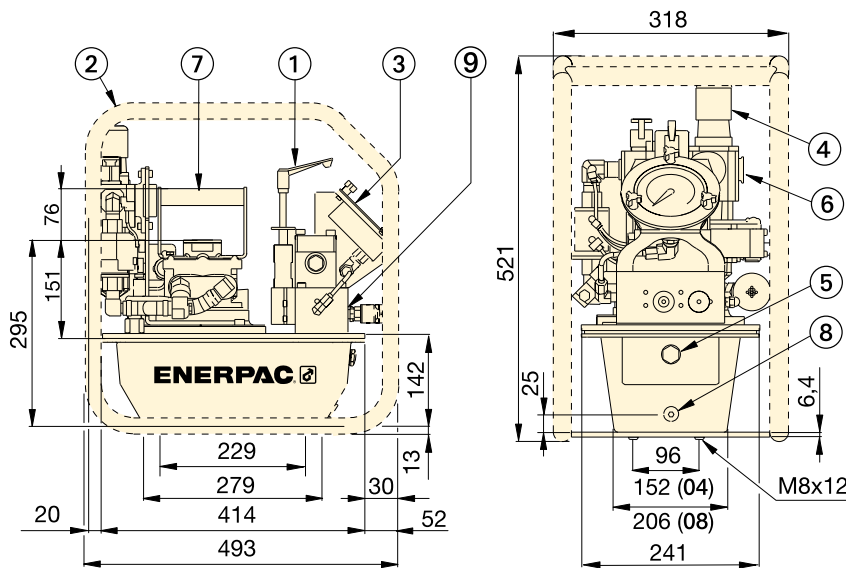
700 bar pump for use with Enerpac S-, W-, RSL, DSX and HMT-Series and other 700 bar torque wrenches, 6,8 litres reservoir, 4-wrench manifold, and roll cage.



### Torque Pump Selection Matrix

For optimum speed and performance see the torque wrench and pump matrix.

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- ① User adjustable relief valve
- ② Roll Cage (optional)
- ③ Gauge with overlays
- ④ Filter/lubricator/regulator
- ⑤ Oil level sight gauge
- ⑥ Air input 1/2" NPTF
- ⑦ Standard handle
- ⑧ Oil drain
- ⑨ 1/4"-18 NPTF Oil outlet

### ZA4T-Series Performance

| Pump Model             | Output Flow Rate (l/min) |        |         |         | By-pass pressure (bar) | Dynamic Air Pressure Range (bar) | Air Consumption (l/min) | Sound Level (dBA) | Relief Valve Adjustment Range (bar) |
|------------------------|--------------------------|--------|---------|---------|------------------------|----------------------------------|-------------------------|-------------------|-------------------------------------|
|                        | 7 bar                    | 50 bar | 350 bar | 700 bar |                        |                                  |                         |                   |                                     |
| <b>ZA4208TX-QRU105</b> | 5,7                      | 4,5    | 1,4     | 1,0     | 180                    | 7,0                              | 600 - 2840              | 85-90             | 124 - 700                           |
| <b>ZA4T Standard</b>   | 9,8                      | 8,2    | 1,4     | 1,0     | 100                    | 4,0 - 6,9                        | 600 - 2840              | 85-90             | 124 - 700                           |



▼ ZA4208TX-QR0P



**Ex** IIC T4 Gc  
IIIC T135°C Dc

## New ZA4T with Stainless Steel Roll Cage and Certified Lifting Eye

- **Stainless-Steel Roll Cage** resists corrosion
- **Certified Lifting Eye** for transporting pump between levels
- **Two-speed operation** and high by-pass pressure reduces cycle time for improved productivity
- **Integrated heat exchanger** warms exhaust air to prevent freezing and cools the oil
- **Fine hydraulic pressure adjustment** for accurate torque control
- **Improved wrench speed** at low hydraulic pressure due to the expanded 1st stage bypass setting
- **Pendant** allows operation up to 6 metres (20 ft)
- **Filter-Regulator-Lubricator** with removable bowls and auto drain is standard
- **Calibrated, glycerin filled gauge** with display in bar and psi
- **ATEX-tested and certified.**



### Torque Pump Selection Matrix

For optimum speed and performance see the torque wrench pump selection matrix.

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### Torque Wrench Hoses

Use Enerpac THQ700-Series hoses with torque wrenches to ensure the integrity of your hydraulic system.

| For 700 bar        | Model-Nr.      |
|--------------------|----------------|
| 2 m long, 2 hoses  | <b>THQ702T</b> |
| 6 m long, 2 hoses  | <b>THQ706T</b> |
| 12 m long, 2 hoses | <b>THQ712T</b> |

▼ Certified lifting eye.



# PowaPak™ Air Torque Pump



## PowaPak™ Air Torque Pump

The ZA4208TX-QROP was developed for the high demands of the oil and gas, chemical processing, rental and other industrial markets.

The stainless-steel roll cage resists corrosion and surface damage reducing the maintenance required to prepare the pump for the next job.

The certified lifting eye enables the pump to be transported between levels with a lifting hook avoiding time consuming strapping.

## ATEX-Certified

The ZA4T air-driven torque pump is tested and certified according to the ATEX Directive 2014/34/EU.

The explosion protection is for Equipment Group II, Equipment Category 2 (Hazardous Area Zone 1), in Gas and /or Dust atmospheres.

Each pump contains the following markings:

**Ex IIC T4 Gc**

**Ex IIIC T135°C Dc**



## ZA4T Series



Reservoir Capacity:

**6,8 litres**

Flow at Rated Pressure:

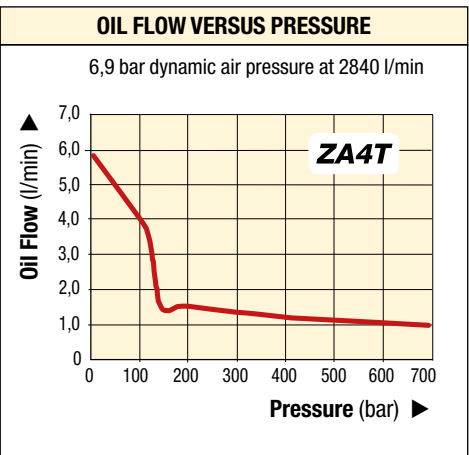
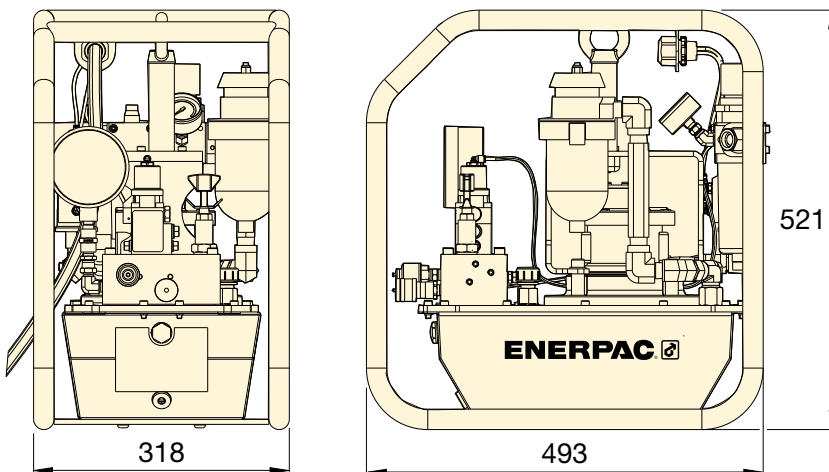
**1,0 l/min**

Air Consumption:

**600 - 2840 l/min**

Maximum Operating Pressure:

**700 bar**



## Bolting Integrity Software

Enerpac Bolting Integrity Software Solutions play a key role in implementing and managing an Integrity Program for bolted connections.

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application Data Sheet and Joint Completion Report.

Custom Joint information can also be entered.

| Maximum Operating Pressure (bar) | Model Number  | Reservoir Capacity (litres) | Output Flow Rate (l/min) |         |         | Dynamic Air Pressure Range (bar) | Air Consumption (l/min) | Weight (kg) |
|----------------------------------|---------------|-----------------------------|--------------------------|---------|---------|----------------------------------|-------------------------|-------------|
|                                  |               |                             | 7 bar                    | 350 bar | 700 bar |                                  |                         |             |
| 700                              | ZA4208TX-QROP | 6,8                         | 5,7                      | 1,3     | 1,0     | 4,1-6,9                          | 600-2840                | 52          |

▼ HM10 Hydramax® Topside Tensioner



- Fifteen load cells from ¾" to 4" / M20 to M100
- Twin ports for quick connection of multiple tools
- High bolt load capacity at max. 1500 bar (21.750 psi)
- Long stroke capability of 15 mm (9/16 inch) with over stroke elimination
- HM01 to HM05: mechanical over-stroke prevention, no spring assist; HM06 to HM15: relief valve for over-stroke prevention, spring assist
- Quick release bridge
- Stroke indicator
- Captive socket – eliminates falling object risk
- Interchangeable adaptor kits available
- Anti-slip grip for more secure handling
- HM-Series HydraMax® Tensioners comply to following: Machine Directive 2006/42/EC, ASME B30.1, EN-ISO 4413:2010 and EN-ISO 12100:2010.



◀ Enerpac HM-Series HydraMax® tensioners have been designed to generate high bolt loads associated with compact flanges, while providing versatility for maximum bolt coverage,

## High Bolt Load Capacities, Superior Performance



### HydraMax® Topside Tensioners

The HM-Series tensioners have been designed to fit all standard flanges, including ANSI, API and Compact flanges based on Norsok L005 and generates 30% more load capacity than traditional tensioners.



### Tensioning Pumps, Hoses and Couplers

High pressure pumps, hoses and fittings matched for use with the Enerpac Bolt Tensioners.

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### Ultra-high Pressure

This tool operates at ultra-high pressure, use only the specified fittings and hoses designed for these pressures.

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### How to Order HydraMax® Tensioners

To provide maximum flexibility Load Cells are ordered separately from Adaptor and Bridge Kits.

Example, to order a complete tensioner for a M24 x 3 threaded bolt order:

- 1 x Load Cell with tommy bar: **HM03-LC**
- 1 x Adaptor and Bridge Kit: **HM03BPM-NRS02430**



### Bolting Integrity Software

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application data sheet and Joint completion report. Custom Joint information can also be entered.

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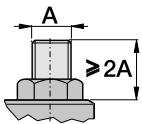
# HydraMax® Topside Tensioners



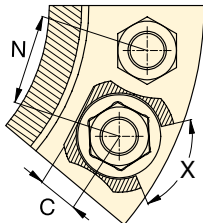
## Thread and Pitch Sizes

Contact Enerpac for different thread or pitch sizes.

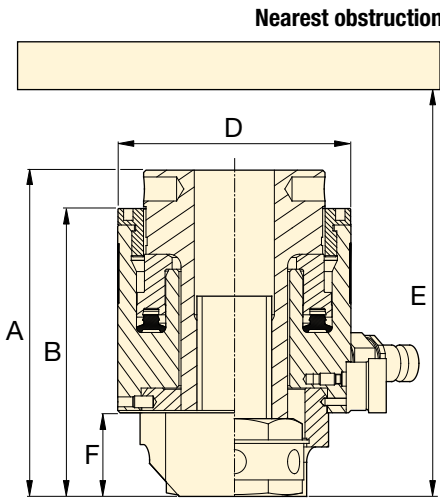
Alternative size adaptor kits can be supplied upon request.



Minimum Stud Protrusion



X = Minimum socket rotation 60°



## HM Series



Bolt Range:

**M20 - M39, 3/4" - 1 1/2"**

Maximum Load Capacity:

**134 - 624 kN**

Stroke:

**10 - 15 mm \***

Maximum Operating Pressure:

**1500 bar**

\* Stroke HM01 models 10 mm

Strokes all other HM-models 15 mm.

| Load Cell Model Number * | Thread Size  | Adaptor and Bridge Kit Model Number | Cylinder Effective Area (mm <sup>2</sup> ) | Maximum Load Capacity (kN) | Dimensions (mm) |     |    |     |        |    |        | Load Cell Weight (kg) | Adaptor and Bridge Kit Weight (kg) |
|--------------------------|--------------|-------------------------------------|--|----------------------------|-----------------|-----|----|-----|--------|----|--------|-----------------------|------------------------------------|
|                          |              |                                     |  |                            | A               | B   | C  | D   | E min. | F  | N min. |                       |                                    |
| HM01-LC                  | M20 x 2,5    | HM01BPM-NRS02025                    | 894  | 134,0                      | 112             | 96  | 15 | 61  | 208    | 28 | 51     | 1,6                   | 0,6                                |
|                          | 3/4" - 10UN  | HM01BP-NRS0750U10                   | 894  | 134,0                      | 112             | 96  | 15 | 61  | 208    | 28 | 51     | 1,6                   | 0,6                                |
| HM02-LC                  | M20 x 2,5    | HM02BPM-NRS02025                    | 1240                                       | 186,0                      | 119             | 103 | 15 | 69  | 227    | 28 | 53     | 1,8                   | 0,9                                |
|                          | M22 x 2,5    | HM02BPM-NRS02225                    | 1240                                       | 186,0                      | 119             | 103 | 18 | 69  | 225    | 28 | 54     | 1,8                   | 0,9                                |
|                          | 3/4" - 10UN  | HM02BP-NRS0750U10                   | 1240                                       | 186,0                      | 119             | 103 | 15 | 69  | 227    | 28 | 52     | 1,8                   | 0,9                                |
|                          | 7/8" - 9UN   | HM02BP-NRS0875U09                   | 1240                                       | 186,0                      | 119             | 103 | 18 | 69  | 225    | 28 | 56     | 1,8                   | 0,8                                |
| HM03-LC                  | M20 x 2,5    | HM03BPM-NRS02025                    | 1628                                       | 244,1                      | 120             | 105 | 15 | 77  | 230    | 28 | 57     | 2,2                   | 1,1                                |
|                          | M22 x 2,5    | HM03BPM-NRS02225                    | 1628                                       | 244,1                      | 120             | 105 | 18 | 77  | 228    | 28 | 58     | 2,2                   | 1,1                                |
|                          | M24 x 3      | HM03BPM-NRS02430                    | 1628                                       | 244,1                      | 120             | 110 | 20 | 77  | 232    | 33 | 59     | 2,2                   | 1,1                                |
|                          | 3/4" - 10UN  | HM03BP-NRS0750U10                   | 1628                                       | 244,1                      | 120             | 105 | 15 | 77  | 230    | 28 | 56     | 2,2                   | 1,1                                |
|                          | 7/8" - 9UN   | HM03BP-NRS0875U09                   | 1628                                       | 244,1                      | 120             | 105 | 18 | 77  | 228    | 28 | 58     | 2,2                   | 1,1                                |
|                          | 1" - 8UN     | HM03BP-NRS1000U08                   | 1628                                       | 244,1                      | 125             | 110 | 20 | 77  | 232    | 33 | 60     | 2,2                   | 1,1                                |
| HM04-LC                  | M22 x 2,5    | HM04BPM-NRS02225                    | 2159                                       | 323,8                      | 128             | 112 | 18 | 90  | 250    | 28 | 62     | 2,7                   | 1,6                                |
|                          | M24 x 3      | HM04BPM-NRS02430                    | 2159                                       | 323,8                      | 129             | 117 | 20 | 90  | 255    | 33 | 63     | 2,7                   | 1,6                                |
|                          | M27 x 3      | HM04BPM-NRS02730                    | 2159                                       | 323,8                      | 134             | 117 | 20 | 90  | 256    | 34 | 65     | 2,7                   | 1,7                                |
|                          | M30 x 3,5    | HM04BPM-NRS03035                    | 2159                                       | 323,8                      | 137             | 120 | 23 | 90  | 257    | 36 | 66     | 2,7                   | 1,7                                |
|                          | 7/8" - 9UN   | HM04BP-NRS0875U09                   | 2159                                       | 323,8                      | 129             | 112 | 18 | 90  | 250    | 28 | 62     | 2,7                   | 1,6                                |
|                          | 1" - 8UN     | HM04BP-NRS1000U08                   | 2159                                       | 323,8                      | 134             | 117 | 20 | 90  | 255    | 33 | 64     | 2,7                   | 1,7                                |
|                          | 1 1/8" - 8UN | HM04BP-NRS1125U08                   | 2159                                       | 323,8                      | 137             | 120 | 23 | 90  | 257    | 36 | 65     | 2,7                   | 1,7                                |
| HM05-LC                  | M24 x 3      | HM05BPM-NRS02430                    | 2752                                       | 412,7                      | 131             | 119 | 20 | 99  | 263    | 33 | 68     | 3,3                   | 1,9                                |
|                          | M27 x 3      | HM05BPM-NRS02730                    | 2752                                       | 412,7                      | 136             | 119 | 20 | 99  | 263    | 34 | 69     | 3,3                   | 2,0                                |
|                          | M30 x 3,5    | HM05BPM-NRS03035                    | 2752                                       | 412,7                      | 139             | 122 | 23 | 99  | 261    | 36 | 71     | 3,3                   | 2,0                                |
|                          | M33 x 3,5    | HM05BPM-NRS03335                    | 2752                                       | 412,7                      | 142             | 125 | 27 | 99  | 262    | 39 | 72     | 3,3                   | 2,1                                |
|                          | 1" - 8UN     | HM05BP-NRS1000U08                   | 2752                                       | 412,7                      | 136             | 119 | 20 | 99  | 263    | 33 | 68     | 3,3                   | 2,1                                |
|                          | 1 1/8" - 8UN | HM05BP-NRS1125U08                   | 2752                                       | 412,7                      | 139             | 122 | 23 | 99  | 261    | 36 | 70     | 3,3                   | 2,1                                |
|                          | 1 1/4" - 8UN | HM05BP-NRS1250U08                   | 2752                                       | 412,7                      | 142             | 125 | 27 | 99  | 262    | 39 | 71     | 3,3                   | 2,1                                |
| HM06-LC                  | M30 x 3,5    | HM06BPM-NRS03035                    | 4162                                       | 624,1                      | 143             | 125 | 23 | 118 | 266    | 36 | 80     | 4,5                   | 2,8                                |
|                          | M33 x 3,5    | HM06BPM-NRS03335                    | 4162                                       | 624,1                      | 146             | 128 | 27 | 118 | 269    | 39 | 82     | 4,5                   | 2,9                                |
|                          | M36 x 4      | HM06BPM-NRS03640                    | 4162                                       | 624,1                      | 149             | 131 | 32 | 118 | 273    | 42 | 83     | 4,5                   | 3,0                                |
|                          | M39 x 4      | HM06BPM-NRS03940                    | 4162                                       | 624,1                      | 152             | 134 | 33 | 118 | 277    | 45 | 85     | 4,5                   | 3,1                                |
|                          | 1 1/8" - 8UN | HM06BP-NRS1125U08                   | 4162                                       | 624,1                      | 143             | 125 | 23 | 118 | 266    | 36 | 79     | 4,5                   | 2,8                                |
|                          | 1 1/4" - 8UN | HM06BP-NRS1250U08                   | 4162                                       | 624,1                      | 146             | 128 | 27 | 118 | 269    | 39 | 81     | 4,5                   | 2,9                                |
|                          | 1 3/8" - 8UN | HM06BP-NRS1375U08                   | 4162                                       | 624,1                      | 149             | 131 | 32 | 118 | 273    | 32 | 82     | 4,5                   | 3,0                                |
|                          | 1 1/2" - 8UN | HM06BP-NRS1500U08                   | 4162                                       | 624,1                      | 152             | 134 | 33 | 118 | 277    | 45 | 84     | 4,5                   | 3,1                                |

\* Tommy Bar is included with Load Cell.





### Thread and Pitch Sizes

Contact Enerpac for different thread or pitch sizes. Alternative size adaptor kits can be supplied upon request.

## HM Series



Bolt Range:

**M33 - M52, 1¼ - 2"**

Maximum Load Capacity:

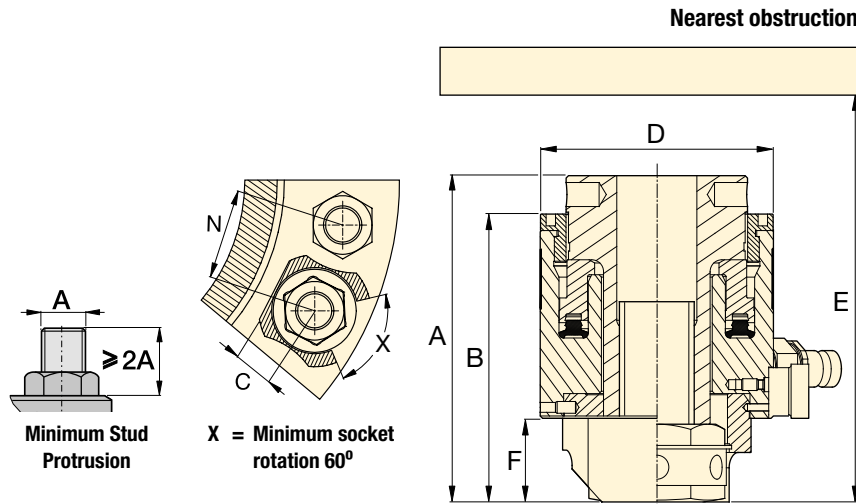
**746 - 1179 kN**

Stroke:

**15 mm**

Maximum Operating Pressure:

**1500 bar**



| Load Cell Model Number * | Thread Size       | Adaptor and Bridge Kit Model Number | Cylinder Effective Area (mm <sup>2</sup> ) | Maximum Load Capacity (kN) | Dimensions (mm) |     |     |     |        |     |        | Load Cell Weight (kg) | Adaptor and Bridge Kit Weight (kg) |
|--------------------------|-------------------|-------------------------------------|--|----------------------------|-----------------|-----|-----|-----|--------|-----|--------|-----------------------|------------------------------------|
|                          |                   |                                     |  |                            | A               | B   | C   | D   | E min. | F   | N min. |                       |                                    |
| HM07-LC                  | M33 x 3,5         | HM07BPM-NRS03335                    | 4980                                       | 746,8                      | 145             | 128 | 27  | 127 | 278    | 39  | 86     | 5,2                   | 3,4                                |
|                          | M36 x 4           | HM07BPM-NRS03640                    | 4980                                       | 746,8                      | 148             | 131 | 32  | 127 | 279    | 42  | 88     | 5,2                   | 3,5                                |
|                          | M39 x 4           | HM07BPM-NRS03940                    | 4980                                       | 746,8                      | 151             | 134 | 33  | 127 | 280    | 45  | 89     | 5,2                   | 3,6                                |
|                          | M42 x 4,5         | HM07BPM-NRS04245                    | 4980                                       | 746,8                      | 154             | 137 | 34  | 127 | 280    | 48  | 91     | 5,2                   | 3,7                                |
|                          | 1¼" - 8UN         | HM07BP-NRS1250U08                   | 4980                                       | 746,8                      | 145             | 128 | 27  | 127 | 278    | 39  | 85     | 5,2                   | 3,4                                |
|                          | 1⅝" - 8UN         | HM07BP-NRS1375U08                   | 4980                                       | 746,8                      | 148             | 131 | 32  | 127 | 279    | 42  | 87     | 5,2                   | 3,5                                |
|                          | 1½" - 8UN         | HM07BP-NRS1500U08                   | 4980                                       | 746,8                      | 151             | 134 | 33  | 127 | 280    | 45  | 89     | 5,2                   | 3,6                                |
| 1⅞" - 8UN                | HM07BP-NRS1625U08 | 4980                                | 746,8                                      | 154                        | 137             | 34  | 127 | 280 | 48     | 90  | 5,2    | 3,7                   |                                    |
| HM08-LC                  | M36 x 4           | HM08BPM-NRS03640                    | 5869                                       | 880,1                      | 149             | 133 | 32  | 137 | 283    | 42  | 93     | 6,3                   | 3,9                                |
|                          | M39 x 4           | HM08BPM-NRS03940                    | 5869                                       | 880,1                      | 152             | 136 | 33  | 137 | 284    | 45  | 94     | 6,3                   | 4,0                                |
|                          | M42 x 4,5         | HM08BPM-NRS04245                    | 5869                                       | 880,1                      | 155             | 139 | 34  | 137 | 284    | 48  | 96     | 6,3                   | 4,1                                |
|                          | M45 x 4,5         | HM08BPM-NRS04545                    | 5869                                       | 880,1                      | 158             | 142 | 39  | 137 | 285    | 51  | 97     | 6,3                   | 4,4                                |
|                          | 1⅝" - 8UN         | HM08BP-NRS1375U08                   | 5869                                       | 880,1                      | 149             | 133 | 32  | 137 | 283    | 42  | 92     | 6,3                   | 3,9                                |
|                          | 1½" - 8UN         | HM08BP-NRS1500U08                   | 5869                                       | 880,1                      | 152             | 136 | 33  | 137 | 284    | 45  | 94     | 6,3                   | 4,0                                |
|                          | 1⅞" - 8UN         | HM08BP-NRS1625U08                   | 5869                                       | 880,1                      | 155             | 139 | 34  | 137 | 284    | 48  | 95     | 6,3                   | 4,1                                |
| 1¾" - 8UN                | HM08BP-NRS1750U08 | 5869                                | 880,1                                      | 158                        | 142             | 39  | 137 | 285 | 51     | 97  | 6,3    | 4,4                   |                                    |
| HM09-LC                  | M39 x 4           | HM09BPM-NRS03940                    | 6834                                       | 1024,9                     | 152             | 136 | 33  | 145 | 278    | 45  | 98     | 6,5                   | 5,0                                |
|                          | M42 x 4,5         | HM09BPM-NRS04245                    | 6834                                       | 1024,9                     | 155             | 139 | 34  | 145 | 281    | 48  | 100    | 6,5                   | 6,1                                |
|                          | M45 x 4,5         | HM09BPM-NRS04545                    | 6834                                       | 1024,9                     | 158             | 142 | 39  | 145 | 285    | 51  | 101    | 6,5                   | 5,1                                |
|                          | M48 x 5           | HM09BPM-NRS04850                    | 6834                                       | 1024,9                     | 161             | 145 | 43  | 145 | 288    | 54  | 103    | 6,5                   | 5,5                                |
|                          | 1½" - 8UN         | HM09BP-NRS1500U08                   | 6834                                       | 1024,9                     | 152             | 136 | 33  | 145 | 278    | 45  | 98     | 6,5                   | 5,1                                |
|                          | 1⅝" - 8UN         | HM09BP-NRS1625U08                   | 6834                                       | 1024,9                     | 155             | 139 | 34  | 145 | 281    | 48  | 99     | 6,5                   | 5,1                                |
|                          | 1¾" - 8UN         | HM09BP-NRS1750U08                   | 6834                                       | 1024,9                     | 158             | 142 | 39  | 145 | 285    | 51  | 101    | 6,5                   | 5,0                                |
| 1⅞" - 8UN                | HM09BP-NRS1875U08 | 6834                                | 1024,9                                     | 161                        | 145             | 43  | 145 | 288 | 54     | 102 | 6,5    | 5,4                   |                                    |
| HM10-LC                  | M42 x 4,5         | HM10BPM-NRS04245                    | 7868                                       | 1179,8                     | 159             | 143 | 34  | 156 | 289    | 48  | 105    | 8,3                   | 5,7                                |
|                          | M45 x 4,5         | HM10BPM-NRS04545                    | 7868                                       | 1179,8                     | 162             | 146 | 39  | 156 | 293    | 51  | 107    | 8,3                   | 5,7                                |
|                          | M48 x 5           | HM10BPM-NRS04850                    | 7868                                       | 1179,8                     | 165             | 149 | 43  | 156 | 296    | 54  | 108    | 8,3                   | 6,1                                |
|                          | M52 x 5           | HM10BPM-NRS05250                    | 7868                                       | 1179,8                     | 169             | 153 | 44  | 156 | 301    | 58  | 110    | 8,3                   | 6,3                                |
|                          | 1⅝" - 8UN         | HM10BP-NRS1625U08                   | 7868                                       | 1179,8                     | 159             | 143 | 34  | 156 | 289    | 48  | 105    | 8,3                   | 5,7                                |
|                          | 1¾" - 8UN         | HM10BP-NRS1750U08                   | 7868                                       | 1179,8                     | 162             | 146 | 39  | 156 | 293    | 51  | 106    | 8,3                   | 5,6                                |
|                          | 1⅞" - 8UN         | HM10BP-NRS1875U08                   | 7868                                       | 1179,8                     | 165             | 149 | 43  | 156 | 296    | 54  | 108    | 8,3                   | 6,0                                |
| 2" - 8UN                 | HM10BP-NRS2000U08 | 7868                                | 1179,8                                     | 169                        | 153             | 44  | 156 | 301 | 58     | 109 | 8,3    | 6,3                   |                                    |

\* Load Cell with Tommy Bar.

# HydraMax® Topside Tensioners

## HM Series



Bolt Range:

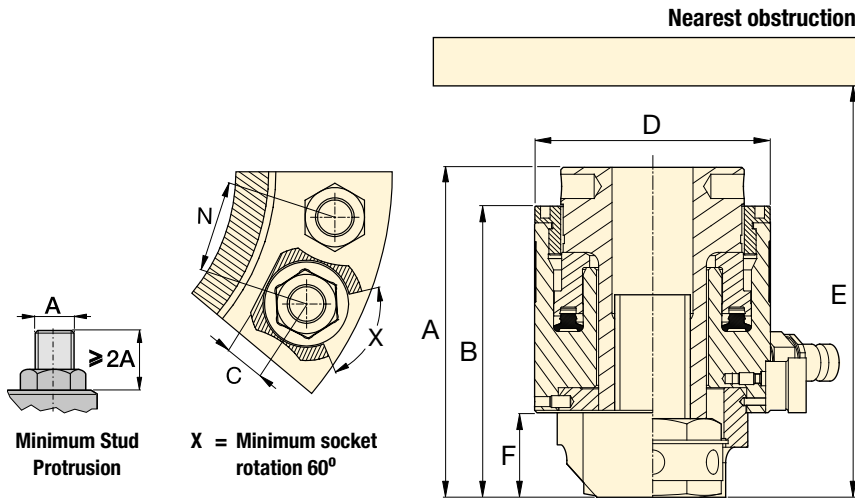
**M45 - M100, 1 3/4" - 4"**

Maximum Load Capacity at 1500 bar:

**1522 - 4650 kN**

Stroke:

**15 mm**



| Load Cell Model Number * | Thread Size **    | Adaptor and Bridge Kit Model Number | Cylinder Effective Area (mm <sup>2</sup> ) | Maximum Load Capacity (kN) | Dimensions (mm) |     |     |     |        |     |        | Load Cell Weight (kg) | Adaptor and Bridge Kit Weight (kg) |
|--------------------------|-------------------|-------------------------------------|--|----------------------------|-----------------|-----|-----|-----|--------|-----|--------|-----------------------|------------------------------------|
|                          |                   |                                     |  |                            | A               | B   | C   | D   | E min. | F   | N min. |                       |                                    |
| HM11-LC                  | M45 x 4,5         | HM11BPM-NRS04545                    | 10152                                      | 1522,5                     | 167             | 146 | 39  | 175 | 297    | 51  | 116    | 10,5                  | 7,4                                |
|                          | M48 x 5           | HM11BPM-NRS04850                    | 10152                                      | 1522,5                     | 170             | 149 | 43  | 175 | 301    | 54  | 118    | 10,5                  | 7,9                                |
|                          | M52 x 5           | HM11BPM-NRS05250                    | 10152                                      | 1522,5                     | 174             | 153 | 44  | 175 | 306    | 58  | 120    | 10,5                  | 8,1                                |
|                          | M56 x 5,5         | HM11BPM-NRS05655                    | 10152                                      | 1522,5                     | 182             | 161 | 50  | 175 | 318    | 66  | 122    | 10,5                  | 9,1                                |
|                          | M60 x 5,5         | HM11BPM-NRS06055                    | 10152                                      | 1522,5                     | 182             | 161 | 50  | 175 | 323    | 66  | 124    | 10,5                  | 8,7                                |
|                          | 1 3/8" - 8UN      | HM11BP-NRS1750U08                   | 10152                                      | 1522,5                     | 167             | 146 | 39  | 175 | 297    | 51  | 116    | 10,5                  | 7,5                                |
|                          | 1 7/8" - 8UN      | HM11BP-NRS1875U08                   | 10152                                      | 1522,5                     | 170             | 149 | 43  | 175 | 301    | 54  | 117    | 10,5                  | 7,9                                |
|                          | 2" - 8UN          | HM11BP-NRS2000U08                   | 10152                                      | 1522,5                     | 174             | 153 | 44  | 175 | 306    | 58  | 119    | 10,5                  | 8,1                                |
| 2 1/4" - 8UN             | HM11BP-NRS2250U08 | 10152                               | 1522,5                                     | 182                        | 161             | 50  | 175 | 318 | 66     | 122 | 10,5   | 8,8                   |                                    |
| HM12-LC                  | M48 x 5           | HM12BPM-NRS04850                    | 12722                                      | 1907,7                     | 170             | 149 | 43  | 194 | 301    | 54  | 127    | 13,3                  | 9,7                                |
|                          | M52 x 5           | HM12BPM-NRS05250                    | 12722                                      | 1907,7                     | 174             | 153 | 44  | 194 | 306    | 58  | 129    | 13,3                  | 9,8                                |
|                          | M56 x 5,5         | HM12BPM-NRS05655                    | 12722                                      | 1907,7                     | 182             | 161 | 50  | 194 | 318    | 66  | 131    | 13,3                  | 10,7                               |
|                          | M60 x 5,5         | HM12BPM-NRS06055                    | 12722                                      | 1907,7                     | 182             | 161 | 50  | 194 | 323    | 66  | 133    | 13,3                  | 10,4                               |
|                          | M64 x 6           | HM12BPM-NRS06460                    | 12722                                      | 1907,7                     | 186             | 165 | 56  | 194 | 320    | 70  | 135    | 13,3                  | 11,1                               |
|                          | 1 7/8" - 8UN      | HM12BP-NRS1875U08                   | 12722                                      | 1907,7                     | 170             | 149 | 43  | 194 | 301    | 54  | 127    | 13,3                  | 9,6                                |
|                          | 2" - 8UN          | HM12BP-NRS2000U08                   | 12722                                      | 1907,7                     | 174             | 153 | 44  | 194 | 306    | 58  | 128    | 13,3                  | 9,8                                |
|                          | 2 1/4" - 8UN      | HM12BP-NRS2250U08                   | 12722                                      | 1907,7                     | 182             | 161 | 50  | 194 | 318    | 66  | 132    | 13,3                  | 10,4                               |
| 2 1/2" - 8UN             | HM12BP-NRS2500U08 | 12722                               | 1907,7                                     | 186                        | 165             | 56  | 194 | 320 | 70     | 135 | 13,3   | 10,8                  |                                    |
| HM13-LC                  | M64 x 6           | HM13BPM-NRS06460                    | 16964                                      | 2544,0                     | 195             | 172 | 56  | 219 | 337    | 70  | 148    | 17,6                  | 14,5                               |
|                          | M68 x 6           | HM13BPM-NRS06860                    | 16964                                      | 2544,0                     | 195             | 180 | 63  | 219 | 350    | 78  | 150    | 17,6                  | 16,5                               |
|                          | M72 x 6           | HM13BPM-NRS07260                    | 16964                                      | 2544,0                     | 203             | 185 | 69  | 219 | 347    | 82  | 152    | 17,6                  | 16,0                               |
|                          | M76 x 6           | HM13BPM-NRS07660                    | 16964                                      | 2544,0                     | 207             | 185 | 69  | 219 | 352    | 82  | 154    | 17,6                  | 16,3                               |
|                          | 2 1/2" - 8UN      | HM13BP-NRS2500U08                   | 16964                                      | 2544,0                     | 195             | 172 | 56  | 219 | 337    | 70  | 147    | 17,6                  | 14,2                               |
|                          | 2 3/4" - 8UN      | HM13BP-NRS2750U08                   | 16964                                      | 2544,0                     | 203             | 180 | 63  | 219 | 350    | 78  | 150    | 17,6                  | 15,8                               |
| 3" - 8UN                 | HM13BP-NRS3000U08 | 16964                               | 2544,0                                     | 207                        | 185             | 69  | 219 | 352 | 82     | 161 | 17,6   | 15,8                  |                                    |
| HM14-LC                  | M72 x 6           | HM14BPM-NRS07260                    | 23451                                      | 3516,7                     | 203             | 185 | 69  | 259 | 351    | 82  | 172    | 25,8                  | 20,8                               |
|                          | M76 x 6           | HM14BPM-NRS07660                    | 23451                                      | 3516,7                     | 207             | 185 | 69  | 259 | 352    | 82  | 174    | 25,8                  | 21,3                               |
|                          | M80 x 6           | HM14BPM-NRS08060                    | 23451                                      | 3516,7                     | 207             | 193 | 70  | 259 | 367    | 91  | 176    | 25,8                  | 21,2                               |
|                          | M85 x 6           | HM14BPM-NRS08560                    | 23451                                      | 3516,7                     | 216             | 193 | 70  | 259 | 374    | 91  | 178    | 25,8                  | 22,9                               |
|                          | M90 x 6           | HM14BPM-NRS09060                    | 23451                                      | 3516,7                     | 221             | 198 | 79  | 259 | 389    | 96  | 181    | 25,8                  | 23,3                               |
|                          | 3" - 8UN          | HM14BP-NRS3000U08                   | 23451                                      | 3516,7                     | 207             | 185 | 69  | 259 | 352    | 82  | 174    | 25,8                  | 20,4                               |
|                          | 3 1/4" - 8UN      | HM14BP-NRS3250U08                   | 23451                                      | 3516,7                     | 216             | 193 | 70  | 259 | 374    | 91  | 177    | 25,8                  | 22,7                               |
| 3 1/2" - 8UN             | HM14BP-NRS3500U08 | 23451                               | 3516,7                                     | 221                        | 198             | 79  | 259 | 389 | 96     | 184 | 25,8   | 23,9                  |                                    |
| HM15-LC                  | M90 x 6           | HM15BPM-NRS09060                    | 31008                                      | 4650,0                     | 221             | 199 | 79  | 296 | 389    | 96  | 199    | 32,5                  | 30,0                               |
|                          | M95 x 6           | HM15BPM-NRS09560                    | 31008                                      | 4650,0                     | 226             | 205 | 81  | 296 | 405    | 101 | 202    | 32,5                  | 33,7                               |
|                          | M100 x 6          | HM15BPM-NRS10060                    | 31008                                      | 4650,0                     | 232             | 211 | 90  | 296 | 421    | 107 | 204    | 32,5                  | 35,1                               |
|                          | 3 1/2" - 8UN      | HM15BP-NRS3500U08                   | 31008                                      | 4650,0                     | 221             | 199 | 79  | 296 | 389    | 96  | 198    | 32,5                  | 29,5                               |
|                          | 3 3/4" - 8UN      | HM15BP-NRS3750U08                   | 31008                                      | 4650,0                     | 226             | 205 | 81  | 296 | 405    | 101 | 202    | 32,5                  | 32,8                               |
|                          | 4" - 8UN          | HM15BP-NRS4000U08                   | 31008                                      | 4650,0                     | 232             | 211 | 90  | 296 | 421    | 107 | 210    | 32,5                  | 34,0                               |

\* Load Cell with Tommy Bar.

\*\* Contact Enerpac for different thread or pitch sizes. Alternative size adaptor kits can be supplied upon request.

▼ Shown: GT-Series Topside Bolt Tensioners



- Seven load cells from M16 to M105 or from 5/8" to 4"
- Twin ports for quick connection of multiple tools
- Only one size of bridge per size of load cell
- Detachable and rotational bridge simplifies tool positioning
- Full bridge window – increased access to socket
- Captive socket – eliminates falling object risk
- Piston stroke indicator
- Black surface treatment protects against corrosion
- Anti-slip grip for more secure handling
- Universal and multi-use tool
- GT-Series Tensioners comply to Machine Directive 2006/42/CE, ASME B30.1, EN-ISO 4413:2010 and EN-ISO 12100:2010.

## Accurate & Reliable Extreme Performance Bolt Tensioners



### Tensioning Pumps, Hoses and Couplers

High pressure pumps, hoses and fittings matched for use with the Enerpac Bolt Tensioners.

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### Bolting Integrity Software

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application data sheet and Joint completion report. Custom Joint information can also be entered.

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### How to Order

To provide maximum flexibility Load Cell and Bridges are ordered separately from Adaptor Kits.

Example, to order a complete tensioner for a M36 x 4 threaded bolt order:

1 x Load Cell and Bridge: **GT2-LCB**

1 x Adaptor Kit: **GT2PM-NRS03640**

| Load Cell * and Bridge Model Number | Thread Size     | Adaptor Kit Model Number | Cylinder Effective Area (mm <sup>2</sup> ) | Maximum Load Capacity (kN) | Dimensions (mm) |     |    |     |        |    |        | Load Cell and Bridge Weight (kg) | Adaptor Kit Weight (kg) |
|-------------------------------------|-----------------|--------------------------|--|----------------------------|-----------------|-----|----|-----|--------|----|--------|----------------------------------|-------------------------|
|                                     |                 |                          |  |                            | A               | B   | C  | D   | E min. | F  | N min. |                                  |                         |
| GT1-LCB                             | M16 x 2         | GT1PM-NRS01620           | 1495,4                                     | 224,3                      | 135             | 113 | 27 | 86  | 243    | 44 | 57     | 3,0                              | 1,6                     |
|                                     | M18 x 2,5       | GT1PM-NRS01825           | 1495,4                                     | 224,3                      | 135             | 113 | 27 | 86  | 243    | 44 | 58     | 3,0                              | 1,5                     |
|                                     | M20 x 2,5       | GT1PM-NRS02025           | 1495,4                                     | 224,3                      | 135             | 113 | 27 | 86  | 243    | 44 | 59     | 3,0                              | 1,4                     |
|                                     | M24 x 3         | GT1PM-NRS02430           | 1495,4                                     | 224,3                      | 135             | 113 | 27 | 86  | 243    | 44 | 61     | 3,0                              | 1,3                     |
|                                     | M27 x 3         | GT1PM-NRS02730           | 1495,4                                     | 224,3                      | 135             | 113 | 27 | 86  | 243    | 44 | 64     | 3,0                              | 1,2                     |
|                                     | M30 x 3,5       | GT1PM-NRS03035           | 1495,4                                     | 224,3                      | 135             | 113 | 27 | 86  | 243    | 44 | 66     | 3,0                              | 1,0                     |
|                                     | 5/8" - 11UN     | GT1P-NRS0625U11          | 1495,4                                     | 224,3                      | 135             | 113 | 27 | 86  | 243    | 44 | 57     | 3,0                              | 1,6                     |
|                                     | 3/4" - 10UN     | GT1P-NRS0750U10          | 1495,4                                     | 224,3                      | 135             | 113 | 27 | 86  | 243    | 44 | 59     | 3,0                              | 1,4                     |
|                                     | 7/8" - 9UN      | GT1P-NRS0875U09          | 1495,4                                     | 224,3                      | 135             | 113 | 27 | 86  | 243    | 44 | 62     | 3,0                              | 1,3                     |
| 1" - 8UN                            | GT1P-NRS1000U08 | 1495,4                   | 224,3                                      | 135                        | 113             | 27  | 86 | 243 | 44     | 64 | 3,0    | 1,2                              |                         |
| 1 1/8" - 8UN                        | GT1P-NRS1125U08 | 1495,4                   | 224,3                                      | 135                        | 113             | 27  | 86 | 243 | 44     | 66 | 3,0    | 1,0                              |                         |
| GT2-LCB                             | M30 x 3,5       | GT2PM-NRS03035           | 2677,2                                     | 401,5                      | 136             | 111 | 35 | 107 | 226    | 41 | 75     | 4,1                              | 2,6                     |
|                                     | M33 x 3,5       | GT2PM-NRS03335           | 2677,2                                     | 401,5                      | 136             | 111 | 35 | 107 | 226    | 41 | 76     | 4,1                              | 2,4                     |
|                                     | M36 x 4         | GT2PM-NRS03640           | 2677,2                                     | 401,5                      | 136             | 111 | 35 | 107 | 226    | 41 | 79     | 4,1                              | 2,2                     |
|                                     | M39 x 4         | GT2PM-NRS03940           | 2677,2                                     | 401,5                      | 136             | 111 | 35 | 107 | 226    | 41 | 82     | 4,1                              | 1,9                     |
|                                     | 1 1/8" - 8UN    | GT2P-NRS1125U08          | 2677,2                                     | 401,5                      | 136             | 111 | 35 | 107 | 226    | 41 | 74     | 4,1                              | 2,6                     |
|                                     | 1 1/4" - 8UN    | GT2P-NRS1250U08          | 2677,2                                     | 401,5                      | 136             | 111 | 35 | 107 | 226    | 41 | 76     | 4,1                              | 2,4                     |
|                                     | 1 3/8" - 8UN    | GT2P-NRS1375U08          | 2677,2                                     | 401,5                      | 136             | 111 | 35 | 107 | 226    | 41 | 79     | 4,1                              | 2,2                     |
|                                     | 1 1/2" - 8UN    | GT2P-NRS1500U08          | 2677,2                                     | 401,5                      | 136             | 111 | 35 | 107 | 226    | 41 | 82     | 4,1                              | 2,0                     |

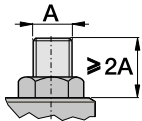
\* Load Cell with tommy bar.

# Topside Bolt Tensioners

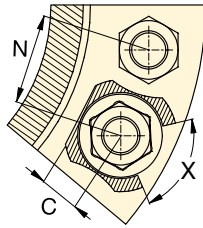


## Thread and Pitch Sizes

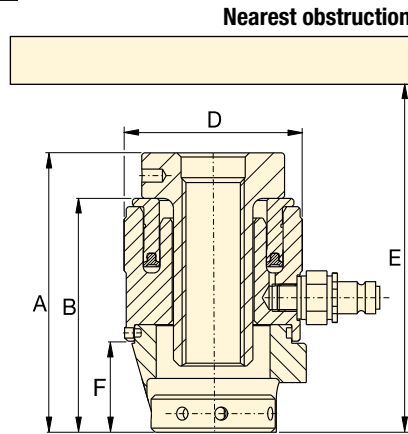
Contact Enerpac for different thread or pitch sizes. Alternative size adaptor kits can be supplied upon request.



Minimum Stud Protrusion



X = Minimum socket rotation 60°



## GT Series



Bolt Range:

**M16 - M105, 5/8" - 4"**

Maximum Load Capacity at 1500 bar:

**224 - 3958 kN**

Stroke:

**10 mm**

Maximum Operating Pressure:

**1500 bar**

| Load Cell * and Bridge Model Number | Thread Size     | Adaptor Kit Model Number | Cylinder Effective Area (mm <sup>2</sup> ) | Maximum Load Capacity (kN) | Dimensions (mm) |     |     |     |        |     |        | Load Cell and Bridge Weight (kg) | Adaptor Kit Weight (kg) |
|-------------------------------------|-----------------|--------------------------|--|----------------------------|-----------------|-----|-----|-----|--------|-----|--------|----------------------------------|-------------------------|
|                                     |                 |                          |  |                            | A               | B   | C   | D   | E min. | F   | N min. |                                  |                         |
| GT3-LCB                             | M39 x 4         | GT3PM-NRS03940           | 5127,1                                     | 768,9                      | 160             | 126 | 46  | 138 | 256    | 56  | 96     | 7,0                              | 5,7                     |
|                                     | M42 x 4,5       | GT3PM-NRS04245           | 5127,1                                     | 768,9                      | 160             | 126 | 46  | 138 | 256    | 56  | 98     | 7,0                              | 5,4                     |
|                                     | M45 x 4,5       | GT3PM-NRS04545           | 5127,1                                     | 768,9                      | 160             | 126 | 46  | 138 | 256    | 56  | 101    | 7,0                              | 5,0                     |
|                                     | M48 x 5         | GT3PM-NRS04850           | 5127,1                                     | 768,9                      | 160             | 126 | 46  | 138 | 256    | 56  | 104    | 7,0                              | 4,7                     |
|                                     | M52 x 5         | GT3PM-NRS05250           | 5127,1                                     | 768,9                      | 160             | 126 | 46  | 138 | 256    | 56  | 107    | 7,0                              | 4,2                     |
|                                     | 1½" - 8UN       | GT3P-NRS1500U08          | 5127,1                                     | 768,9                      | 160             | 126 | 46  | 138 | 256    | 56  | 95     | 7,0                              | 5,7                     |
|                                     | 1⅝" - 8UN       | GT3P-NRS1625U08          | 5127,1                                     | 768,9                      | 160             | 126 | 46  | 138 | 256    | 56  | 98     | 7,0                              | 5,3                     |
|                                     | 1¾" - 8UN       | GT3P-NRS1750U08          | 5127,1                                     | 768,9                      | 160             | 126 | 46  | 138 | 256    | 56  | 101    | 7,0                              | 5,0                     |
| 1⅞" - 8UN                           | GT3P-NRS1875U08 | 5127,1                   | 768,9                                      | 160                        | 126             | 46  | 138 | 256 | 56     | 104 | 7,0    | 4,6                              |                         |
| 2" - 8UN                            | GT3P-NRS2000U08 | 5127,1                   | 768,9                                      | 160                        | 126             | 46  | 138 | 256 | 56     | 106 | 7,0    | 4,2                              |                         |
| GT4-LCB                             | M52 x 5         | GT4PM-NRS05250           | 9782,1                                     | 1466,9                     | 180             | 141 | 62  | 174 | 281    | 71  | 121    | 12,2                             | 10,7                    |
|                                     | M56 x 5,5       | GT4PM-NRS05655           | 9782,1                                     | 1466,9                     | 180             | 141 | 62  | 174 | 281    | 71  | 124    | 12,2                             | 10,1                    |
|                                     | M60 x 5,5       | GT4PM-NRS06055           | 9782,1                                     | 1466,9                     | 180             | 141 | 62  | 174 | 281    | 71  | 127    | 12,2                             | 9,4                     |
|                                     | M64 x 6         | GT4PM-NRS06460           | 9782,1                                     | 1466,9                     | 180             | 141 | 62  | 174 | 281    | 71  | 129    | 12,2                             | 8,8                     |
|                                     | M68 x 6         | GT4PM-NRS06860           | 9782,1                                     | 1466,9                     | 180             | 141 | 62  | 174 | 281    | 71  | 132    | 12,2                             | 8,1                     |
|                                     | 2" - 8UN        | GT4P-NRS2000U08          | 9782,1                                     | 1466,9                     | 180             | 141 | 62  | 174 | 281    | 71  | 120    | 12,2                             | 10,7                    |
|                                     | 2¼" - 8UN       | GT4P-NRS2250U08          | 9782,1                                     | 1466,9                     | 180             | 141 | 62  | 174 | 281    | 71  | 126    | 12,2                             | 9,7                     |
| 2½" - 8UN                           | GT4P-NRS2500U08 | 9782,1                   | 1466,9                                     | 180                        | 141             | 62  | 174 | 281 | 71     | 132 | 12,2   | 8,5                              |                         |
| GT5-LCB                             | M68 x 6         | GT5PM-NRS06860           | 15079,7                                    | 2261,4                     | 202             | 157 | 78  | 210 | 302    | 86  | 148    | 18,7                             | 17,3                    |
|                                     | M72 x 6         | GT5PM-NRS07260           | 15079,7                                    | 2261,4                     | 202             | 157 | 78  | 210 | 302    | 86  | 149    | 18,7                             | 16,4                    |
|                                     | M76 x 6         | GT5PM-NRS07660           | 15079,7                                    | 2261,4                     | 202             | 157 | 78  | 210 | 302    | 86  | 152    | 18,7                             | 15,5                    |
|                                     | M80 x 6         | GT5PM-NRS08060           | 15079,7                                    | 2261,4                     | 202             | 157 | 78  | 210 | 302    | 86  | 155    | 18,7                             | 14,6                    |
|                                     | 2½" - 8UN       | GT5P-NRS2500U08          | 15079,7                                    | 2261,4                     | 202             | 157 | 78  | 210 | 302    | 86  | 148    | 18,7                             | 17,8                    |
|                                     | 2¾" - 8UN       | GT5P-NRS2750U08          | 15079,7                                    | 2261,4                     | 202             | 157 | 78  | 210 | 302    | 86  | 153    | 18,7                             | 16,3                    |
|                                     | 3" - 8UN        | GT5P-NRS3000U08          | 15079,7                                    | 2261,4                     | 202             | 157 | 78  | 210 | 302    | 86  | 158    | 18,7                             | 14,8                    |
| 3¼" - 8UN                           | GT5P-NRS3250U08 | 15079,7                  | 2261,4                                     | 202                        | 157             | 78  | 210 | 302 | 86     | 161 | 18,7   | 13,1                             |                         |
| GT6-LCB                             | M80 x 6         | GT6PM-NRS08060           | 18972,1                                    | 2845,1                     | 219             | 173 | 82  | 240 | 323    | 95  | 167    | 27,8                             | 22,3                    |
|                                     | M85 x 6         | GT6PM-NRS08560           | 18972,1                                    | 2845,1                     | 219             | 173 | 82  | 240 | 323    | 95  | 170    | 27,8                             | 21,0                    |
|                                     | M90 x 6         | GT6PM-NRS09060           | 18972,1                                    | 2845,1                     | 219             | 173 | 82  | 240 | 323    | 95  | 175    | 27,8                             | 19,4                    |
|                                     | M95 x 6         | GT6PM-NRS09560           | 18972,1                                    | 2845,1                     | 219             | 173 | 82  | 240 | 323    | 95  | 179    | 27,8                             | 18,0                    |
|                                     | 3¼" - 8UN       | GT6P-NRS3250U08          | 18972,1                                    | 2845,1                     | 219             | 173 | 82  | 240 | 323    | 95  | 173    | 27,8                             | 20,7                    |
|                                     | 3½" - 8UN       | GT6P-NRS3500U08          | 18972,1                                    | 2845,1                     | 219             | 173 | 82  | 240 | 323    | 95  | 181    | 27,8                             | 18,8                    |
| GT7-LCB                             | M100 x 6        | GT7PM-NRS10060           | 26389,4                                    | 3958,4                     | 243             | 182 | 89  | 277 | 332    | 110 | 196    | 38,2                             | 28,5                    |
|                                     | M105 x 6        | GT7PM-NRS10560           | 26389,4                                    | 3958,4                     | 243             | 182 | 89  | 277 | 332    | 110 | 199    | 38,2                             | 27,3                    |
|                                     | 4" - 8UN        | GT7P-NRS4000U08          | 26389,4                                    | 3958,4                     | 243             | 182 | 89  | 277 | 332    | 110 | 204    | 38,2                             | 27,3                    |

\* Load Cell with tommy bar.



▼ Aquajack® Tensioner EAJ2LC with Quick Fastening Nut



- Compact design
- Long piston stroke
- Misalignment compensation
- Quick, simple hose connection
- Visible piston stroke indication
- 'No spill' overstroke elimination
- Quick fastening or solid reaction nut.

▼ Guaranteed to save time and increase efficiency, Aquajack® tensioners improve diver safety, productivity and reduce diver fatigue.



## The most cost effective solution to subsea bolt or stud tightening



### Quick Fastening Nut Design

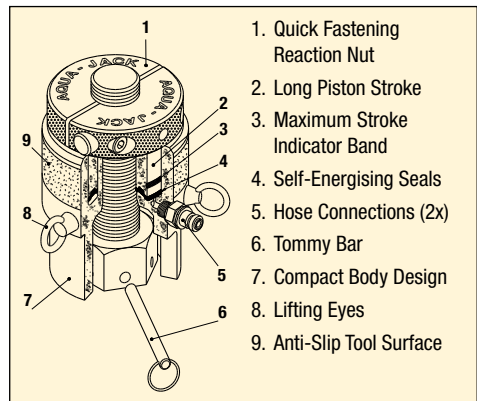
Easily positioned in poor visibility conditions, Aquajack® subsea tensioners feature a compact design and long piston stroke.

The unique Split Nut® design of these tools allows rapid application to long bolts and damaged threads, and rapid tool removal.



### No Oil Spillage or Over-Stroking

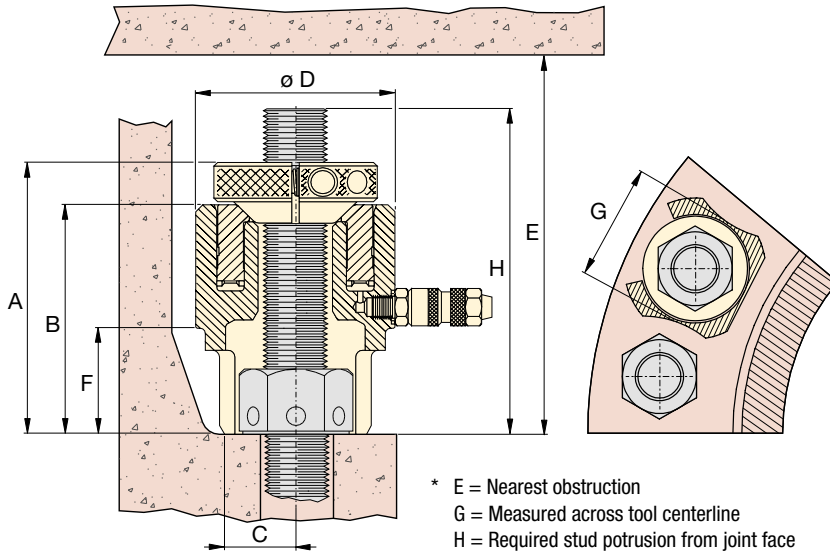
Innovative tool design ensures maximum tool strokes can be used without over stroking the piston or oil spillage. Guaranteed to save time and increase efficiency, Aquajack® subsea tensioners improve diver safety, productivity and reduce diver fatigue.



### Hose Reels and Stand

Stainless steel stand with 1500 bar hoses from 30 upto 270 metres lengths. All hose reels are built up with multiple 30 metre length hoses.

# Aquajack® Subsea Tensioners



## EAJ Series



Bolt Range:

**M20 - M90 | 3/4 - 3 1/2 inch**

Maximum Load Capacity:

**151,3 - 2320,9 kN**

Maximum Operating Pressure:

**1500 bar**

| Load Cell Model Number ** | Thread Size   | Quick Fastening Nut Model Number | Cylinder Effective Area<br>(mm <sup>2</sup> ) | Maximum Load Capacity<br>(kN) | Stroke<br>(mm) | Dimensions<br>(mm) |     |    |     |     |     |     |     | Tool Weight<br>(kg) |
|---------------------------|---------------|----------------------------------|---|-------------------------------|----------------|--------------------|-----|----|-----|-----|-----|-----|-----|---------------------|
|                           |               |                                  |   |                               |                | A                  | B   | C  | D   | E*  | F   | G*  | H*  |                     |
| EAJ1LC                    | 3/4" - 10 UN  | EAJ1QFN0750U10                   | 1008,7  | 151,3                         | 20             | 114                | 91  | 19 | 66  | 217 | 35  | 53  | 119 | 1,5                 |
|                           | 7/8" - 9 UN   | EAJ1QFN0875U09                   |   |                               |                |                    |     |    |     |     |     |     |     |                     |
|                           | M20 x 2,5     | EAJ1QFNM02025                    |   |                               |                |                    |     |    |     |     |     |     |     |                     |
|                           | M22 x 2,5     | EAJ1QFNM02225                    |   |                               |                |                    |     |    |     |     |     |     |     |                     |
| EAJ2LC                    | 1" - 8 UN     | EAJ2QFN1000U08                   | 1658,4  | 248,7                         | 30             | 147                | 120 | 25 | 82  | 289 | 50  | 62  | 152 | 3,0                 |
|                           | M24 x 2,5     | EAJ2QFNM02425                    |   |                               |                |                    |     |    |     |     |     |     |     |                     |
|                           | M27 x 3,0     | EAJ2QFNM02730                    |   |                               |                |                    |     |    |     |     |     |     |     |                     |
|                           | 1 1/8" - 8 UN | EAJ2QFN1125U08                   |   |                               |                |                    |     |    |     |     |     |     |     |                     |
| EAJ3LC                    | M30 x 3,5     | EAJ2QFNM03035                    | 2524,3  | 378,6                         | 30             | 158                | 131 | 28 | 98  | 307 | 58  | 78  | 163 | 4,5                 |
|                           | 1 1/4" 8 UN   | EAJ3QFN1250U08                   |   |                               |                |                    |     |    |     |     |     |     |     |                     |
|                           | M33 x 3,5     | EAJ3QFNM03335                    |   |                               |                |                    |     |    |     |     |     |     |     |                     |
|                           | 1 3/8" - 8 UN | EAJ3QFN1375U08                   |   |                               |                |                    |     |    |     |     |     |     |     |                     |
| EAJ4LC                    | M36 x 4,0     | EAJ3QFNM03640                    | 3686,7  | 553,0                         | 30             | 171                | 136 | 33 | 114 | 319 | 63  | 91  | 176 | 6,0                 |
|                           | 1 1/2" - 8 UN | EAJ4QFN1500U08                   |   |                               |                |                    |     |    |     |     |     |     |     |                     |
|                           | M39 x 4,0     | EAJ4QFNM03940                    |   |                               |                |                    |     |    |     |     |     |     |     |                     |
|                           | 1 5/8" - 8 UN | EAJ4QFN1625U08                   |   |                               |                |                    |     |    |     |     |     |     |     |                     |
| EAJ5LC                    | M42 x 4,5     | EAJ4QFNM04245                    | 5908,7  | 886,3                         | 30             | 184                | 146 | 40 | 139 | 342 | 70  | 114 | 189 | 9,0                 |
|                           | 1 3/4" - 8 UN | EAJ5QFN1750U08                   |   |                               |                |                    |     |    |     |     |     |     |     |                     |
|                           | M45 x 4,5     | EAJ5QFNM04545                    |   |                               |                |                    |     |    |     |     |     |     |     |                     |
|                           | 1 7/8" - 8 UN | EAJ5QFN1875U08                   |   |                               |                |                    |     |    |     |     |     |     |     |                     |
|                           | M48 x 5,0     | EAJ5QFNM04850                    |   |                               |                |                    |     |    |     |     |     |     |     |                     |
| EAJ6LC                    | 2" - 8 UN     | EAJ5QFN2000U08                   | 8312,8  | 1246,9                        | 30             | 201                | 161 | 49 | 164 | 367 | 82  | 138 | 206 | 13,0                |
|                           | M52 x 5,0     | EAJ5QFNM05250                    |   |                               |                |                    |     |    |     |     |     |     |     |                     |
|                           | M56 x 5,5     | EAJ6QFNM05655                    |   |                               |                |                    |     |    |     |     |     |     |     |                     |
|                           | 2 1/4" - 8 UN | EAJ6QFN2250U08                   |   |                               |                |                    |     |    |     |     |     |     |     |                     |
|                           | M60 x 5,5     | EAJ6QFNM06055                    |   |                               |                |                    |     |    |     |     |     |     |     |                     |
| EAJ7LC                    | 2 1/2" - 8 UN | EAJ6QFN2500U08                   | 12.369,0                                      | 1855,4                        | 30             | 230                | 178 | 75 | 192 | 400 | 95  | 154 | 235 | 19,0                |
|                           | M64 x 6,0     | EAJ6QFNM06460                    |   |                               |                |                    |     |    |     |     |     |     |     |                     |
|                           | M68 x 6,0     | EAJ7QFNM06860                    |   |                               |                |                    |     |    |     |     |     |     |     |                     |
|                           | 2 3/4" - 8 UN | EAJ7QFN2750U08                   |   |                               |                |                    |     |    |     |     |     |     |     |                     |
| EAJ8LC                    | M72 x 6,0     | EAJ7QFNM07260                    | 15.473,0                                      | 2320,9                        | 30             | 247                | 193 | 68 | 216 | 412 | 109 | 182 | 252 | 24,5                |
|                           | M76 x 6,0     | EAJ7QFNM07660                    |   |                               |                |                    |     |    |     |     |     |     |     |                     |
|                           | 3" - 8 UN     | EAJ7QFN3000U08                   |   |                               |                |                    |     |    |     |     |     |     |     |                     |
|                           | M80 x 6,0     | EAJ8QFNM08060                    |   |                               |                |                    |     |    |     |     |     |     |     |                     |
|                           | 3 1/4" - 8 UN | EAJ8QFN3250U08                   |   |                               |                |                    |     |    |     |     |     |     |     |                     |
| M85 x 6,0                 | EAJ8QFNM08560 |                                  |   |                               |                |                    |     |    |     |     |     |     |     |                     |
| M90 x 6,0                 | EAJ8QFNM09060 |                                  |   |                               |                |                    |     |    |     |     |     |     |     |                     |

\*\* Tommy Bar included with Load Cell.

▼ PGT-Series Single Stage and Double Deck Tensioners



## High Precision, Low Maintenance



### Tensioning Pumps

Electric, pneumatic and manual high-pressure tensioning pumps are available for use with Enerpac hydraulic tensioners.



### Hoses and Fittings

High-pressure hoses and fittings for use with Enerpac tensioning systems are available.

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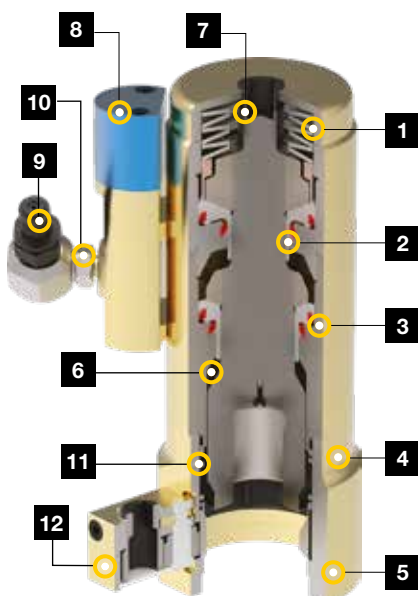
- PGT-Series Bolt Tensioners are designed for critical fastening applications in wind, steam and gas turbines
- A broad range of single stage and double deck tensioners provide high performance in tight spaces associated with Power Generation applications
- PGT-Series Bolt Tensioners are loaded with performance enhancing features such as Auto-Retract Pistons, Cycle Counters and a premium coating to offer the ultimate in efficiency, durability and ease of use.

| Description           | PGTS Single Stage | PGTD Double Deck |
|-----------------------|-------------------|------------------|
| Auto-Retract Piston   | ✓                 | ✓                |
| Zinc Coating          | ✓                 | ✓                |
| Geared Nut-Run-down   | ✓                 | ✓                |
| Over-stroke Indicator | ✓                 | ✓                |
| Over-stroke Preventer | ✓                 | ✓                |
| Single Male Fitting   | ✓                 | ✓                |
| Swivel Manifold       | +                 | +                |
| Cycle Counter         | -                 | +                |

✓ = Standard on tensioner

⊕ = Possible option

- = Option not available



1. **Auto-retract piston:** Simplifies use and improves speed of operation.
2. **Long-life puller:** For maximum durability.
3. **Long-life seals:** For maximum durability and extended service life intervals.
4. **Corrosion protection:** Zinc coating provides best-in-class corrosion resistance.
5. **Interchangeable bridge:** For optimal application fit.
6. **Over-stroke preventer:** Mechanically prevents over-stroke, extending cylinder life.
7. **Over-stroke indicator:** Extends cylinder life by helping to prevent over-stroking of cylinder.
8. **Optional counter:** Helps indicate when maintenance is due to maximize uptime.
9. **Quick-disconnect coupler:** For safe, simple hydraulic connection.
10. **Optional 360° swivel:** available for additional hose positioning flexibility.
11. **Spring-loaded nut engagement:** Keeps socket positioned on nut for faster and easier seating process.
12. **Gearbox:** for nut run down. Easy and quick nut run down back to the flange

▲ The model above illustrates a typical tool configuration. Actual model configurations vary.

# Power Generation Bolt Tensioners



## Options

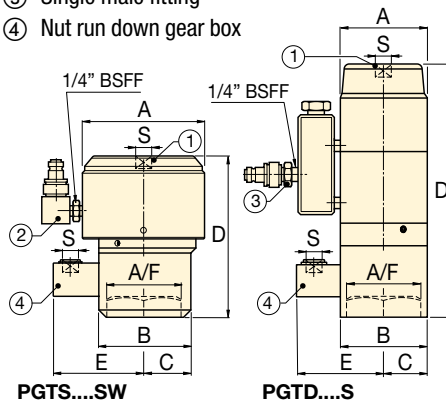
### Fitting Type

**SW** = Swivel manifold with single male fitting  
Example: **PGTS2436SW**

### Cycle-Counter

**C** = Cycle Counter (not available on PGTS-models)  
Example: **PGTD3655SWC**

- ① Puller bar square drive
- ② Swivel manifold with single male fitting
- ③ Single male fitting
- ④ Nut run down gear box



## PGT Series



Bolt Range:

**M20 - M72**

Maximum Load Capacity:

**203,7 - 2969,6 kN**

Maximum Operating Pressure <sup>1)</sup>:

**1350 - 1500 bar**

<sup>1)</sup> Max. pressure varies, see specifications table for details.

| Tensioner Type | Thread Diameter<br>(mm) | Model Number with single male fitting | Nut Size<br>A/F (mm) | Maximum Pressure<br>(bar) | Hydraulic Pressure Area<br>(mm <sup>2</sup> ) | Maximum Load Capacity<br>(kN) | Stroke<br>(mm) | Dimensions (mm) |      |      |       |      |           | Bolt Potrusion (mm) |       |       |
|----------------|-------------------------|---------------------------------------|----------------------|---------------------------|---|-------------------------------|----------------|-----------------|------|------|-------|------|-----------|---------------------|-------|-------|
|                |                         |                                       |                      |                           |   |                               |                | A               | B    | C    | D     | E    | S* (inch) |                     | min.  | max.  |
| Single Stage   | M20 x 2,5               | PGTS2030S                             | 30                   | 1500                      | 1358  | 203,7                         | 7,0            | 64              | 64   | 32   | 81    | 78   | 3/8       | 2,0                 | 44    | 55    |
|                | M24 x 3,0               | PGTS2436S                             | 36                   | 1500                      | 1947  | 292,1                         | 7,0            | 77              | 77   | 31   | 98    | 81   | 3/8       | 2,9                 | 49    | 62    |
|                | M27 x 3,0               | PGTS2742S                             | 42                   | 1500                      | 2646  | 396,9                         | 8,0            | 92              | 75   | 34   | 129   | 83   | 3/8       | 4,8                 | 60    | 70    |
|                | M30 x 3,5               | PGTS3046S                             | 46                   | 1500                      | 3204  | 480,7                         | 8,0            | 99              | 85   | 38   | 134   | 88   | 3/8       | 5,8                 | 68    | 73    |
|                | M33 x 3,5               | PGTS3350S                             | 50                   | 1500                      | 3960  | 594,0                         | 8,0            | 106             | 90   | 40   | 142   | 90   | 3/8       | 6,8                 | 75    | 100   |
|                | M36 x 4,0               | PGTS3655S                             | 55                   | 1500                      | 4467  | 670,1                         | 9,0            | 111             | 90   | 56   | 128   | 95   | 1/2       | 6,4                 | 71    | 95    |
|                | M39 x 4,0               | PGTS3960S                             | 60                   | 1500                      | 5561  | 834,1                         | 10,0           | 123,5           | 104  | 46   | 160   | 96   | 3/8       | 9,8                 | 89    | 115   |
|                | M42 x 4,5               | PGTS4265S                             | 65                   | 1500                      | 6259  | 938,8                         | 10,0           | 134             | 115  | 67   | 177   | 99   | 1/2       | 9,5                 | 79    | 115   |
|                | M45 x 4,5               | PGTS4570S                             | 70                   | 1500                      | 7505  | 1125,8                        | 10,0           | 143             | 119  | 53   | 168   | 102  | 3/8       | 13,2                | 98    | 116   |
|                | M48 x 5,0               | PGTS4875S                             | 75                   | 1500                      | 8390  | 1258,4                        | 10,0           | 152             | 125  | 56   | 158   | 106  | 3/8       | 13,3                | 103   | 119   |
|                | M52 x 5,0               | PGTS5280S                             | 80                   | 1500                      | 10.094  | 1514,1                        | 10,0           | 165             | 134  | 59   | 171   | 108  | 3/8       | 17,9                | 106   | 118   |
|                | M56 x 5,5               | PGTS5685S                             | 85                   | 1500                      | 11.663  | 1749,5                        | 10,0           | 177             | 142  | 62   | 170   | 112  | 3/8       | 20,4                | 116   | 128   |
|                | M60 x 5,5               | PGTS6090S                             | 90                   | 1500                      | 13.474  | 2021,2                        | 10,0           | 190             | 152  | 66   | 186   | 115  | 3/8       | 24,8                | 123,5 | 137   |
|                | M64 x 6,0               | PGTS6495S                             | 95                   | 1500                      | 15.315  | 2297,3                        | 10,0           | 200             | 159  | 69   | 207   | 118  | 1/2       | 30,7                | 137   | 150   |
| M68 x 6,0      | PGTS68100S              | 100                                   | 1500                 | 17.493                    | 2623,9  | 10,0                          | 213,5          | 169             | 73   | 206  | 123   | 1/2  | 34,3      | 136                 | 148   |       |
| M72 x 6,0      | PGTS72105S              | 105                                   | 1500                 | 19.797                    | 2969,6  | 10,0                          | 225            | 178             | 76   | 223  | 126   | 1/2  | 40,3      | 151                 | 167   |       |
| Double Deck    | M24 x 3,0               | PGTD2436S                             | 36                   | 1350                      | 2293  | 309,6                         | 6,0            | 61,5            | 77   | 31   | 185   | 81   | 3/8       | 4,6                 | 53    | 59,5  |
|                | M27 x 3,0               | PGTD2742S                             | 42                   | 1350                      | 2939  | 396,8                         | 6,0            | 68              | 75   | 34   | 196   | 83,4 | 3/8       | 5,3                 | 60    | 68    |
|                | M30 x 3,5               | PGTD3046S                             | 46                   | 1350                      | 3426  | 462,6                         | 7,0            | 73              | 85   | 37   | 195   | 88   | 3/8       | 5,8                 | 60    | 70    |
|                | M33 x 3,5               | PGTD3350S                             | 50                   | 1350                      | 4272  | 576,7                         | 7,0            | 78              | 77   | 38,5 | 208   | 90   | 3/8       | 6,7                 | 65    | 77    |
|                | M36 x 4,0               | PGTD3655S                             | 55                   | 1350                      | 4995  | 674,3                         | 8,0            | 84              | 83   | 41   | 218   | 93   | 1/2       | 7,7                 | 70    | 87    |
|                | M39 x 4,0               | PGTD3960S                             | 60                   | 1350                      | 6260  | 845,0                         | 10,0           | 95              | 104  | 48   | 266   | 96   | 3/8       | 12,5                | 84    | 93    |
|                | M42 x 4,5               | PGTD4265S                             | 65                   | 1350                      | 6865  | 926,8                         | 10,0           | 98              | 104  | 52   | 248,4 | 99   | 1/2       | 11,4                | 82    | 91    |
|                | M45 x 4,5               | PGTD4570S                             | 70                   | 1350                      | 8339  | 1125,8                        | 10,0           | 108             | 119  | 53   | 294   | 104  | 3/8       | 17,7                | 97    | 107   |
|                | M48 x 5,0               | PGTD4875S                             | 75                   | 1350                      | 9430  | 1273,1                        | 10,0           | 115             | 125  | 57,5 | 304   | 106  | 3/8       | 20,1                | 103   | 113   |
|                | M52 x 5,0               | PGTD5280S                             | 80                   | 1350                      | 11.288  | 1523,8                        | 10,0           | 124             | 134  | 61   | 328   | 108  | 3/8       | 26,1                | 110   | 125,5 |
|                | M56 x 5,5               | PGTD5685S                             | 85                   | 1350                      | 12.942  | 1747,1                        | 10,0           | 132             | 142  | 65   | 346   | 112  | 3/8       | 30,0                | 117   | 132,5 |
|                | M60 x 5,5               | PGTD6090S                             | 90                   | 1350                      | 15.032  | 2029,3                        | 10,0           | 141             | 152  | 70,5 | 372   | 115  | 3/8       | 37,2                | 125   | 143   |
|                | M64 x 6,0               | PGTD6495S                             | 95                   | 1350                      | 17.123  | 2311,6                        | 10,0           | 151             | 159  | 76   | 386   | 119  | 1/2       | 43,0                | 133   | 152,5 |
|                | M68 x 6,0               | PGTD68100S                            | 100                  | 1350                      | 19.514  | 2634,4                        | 10,0           | 160             | 170  | 80   | 398   | 123  | 1/2       | 49,5                | 138   | 160   |
| M72 x 6,0      | PGTD72105S              | 105                                   | 1350                 | 21.977                    | 2966,9  | 10,0                          | 171            | 177             | 88,5 | 429  | 126   | 1/2  | 60,1      | 146                 | 171   |       |

\* Dimension S = Square Drive of Puller Bar and Gear Box.



▼ FTR-Series, Foundation Bolt Tensioners Round



- FTR-Series Foundation Bolt Tensioners provide fast, accurate and easy tightening of external or internal-ring wind tower foundations
- Standard models are available for 75, 150 ksi and metric style Williams, Dyson and Macalloy® bar types
- Long-stroke options accelerate process with single-pull tensioning.

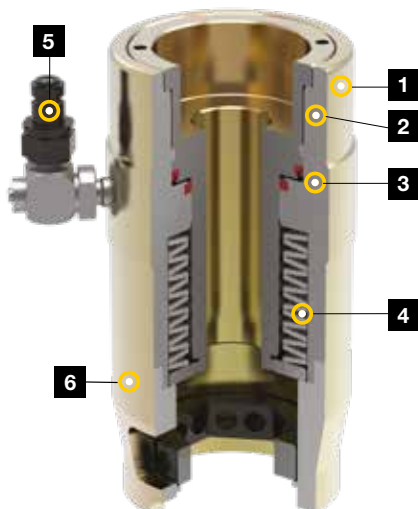
## High Precision, Low Maintenance



### FTR-Series Foundation Bolt Tensioners

FTR-Series Foundation Bolt Tensioners are designed specifically for tensioning wind tower foundation bolts. These tensioners provide the speed and precision required by this critical application. Potential thread fit problems are eliminated through the use of existing rebar hex nuts as a reaction point.

The FTR-Series includes long-stroke models, which provide greater speed and ease of use by enabling applications to be completed in a single pull.



1. **Corrosion protection:** Zinc coating provides best-in-class corrosion resistance.
2. **Over-stroke indicator:** Extends life by helping to prevent over-stroking of cylinder.
3. **Long-life seals:** For maximum durability and extended service life intervals.
4. **Auto-retract piston:** Simplifies use and improves speed of operation.
5. **Quick-disconnect coupler:** For safe, simple hydraulic connection. Optional 360° swivel available for additional hose positioning flexibility.
6. **Interchangeable bridge:** For optimal application fit.

▼ FTR-Series Foundation Bolt Tensioner. Manual wrench (not included) required to apply up to 30 Nm of torque during installation of models that feature run down gears.



# Foundation Bolt Tensioners

▼ This is how a FTR-Series Foundation Bolt Tensioner model number is built up:



### 1 Product Type

**FTR** = Foundation Tensioner, Round

### 2 Bar Grade

**75** = 75 ksi  
**150** = 150 ksi  
 (or metric designation)

### 3 Bar Size Designation

Example  
**14** = No. 14 bar size

### 4 Maximum Stroke

Example:  
**20** = 20 mm max. stroke

### 5 Fitting Type

**SW** = Includes swivel manifold with single male fitting

### 6 Run Down Gear

**G** = Includes Nut Run Down Gear  
 \* available in select models

## FTR Series



Maximum Load Capacity:

**2736 kN**

Maximum Operating Pressure <sup>1)</sup>:

**1500 bar**

<sup>1)</sup> Max. pressure varies, see specifications table for details.



### Tensioning Pumps

Electric, pneumatic and manual high-pressure tensioning pumps are available for use with Enerpac hydraulic tensioners.



### Hoses and Fittings

High-pressure hoses and fittings for use with Enerpac tensioning systems are available.

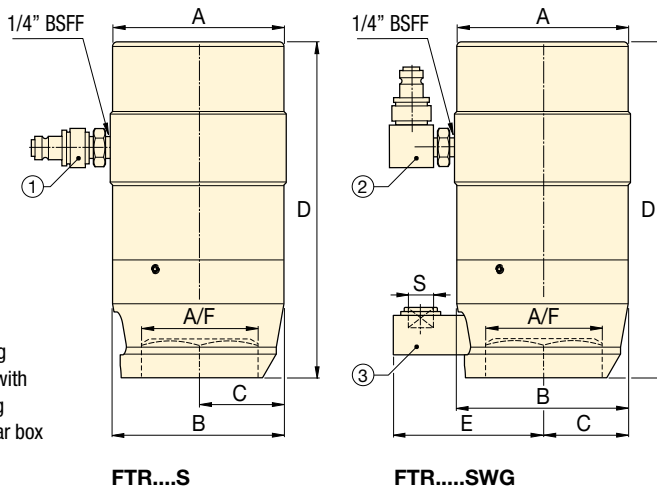
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### Bolting Integrity Software

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application data sheet and Joint completion report. Custom Joint information can also be entered.

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- ① Single male fitting
- ② Swivel manifold with single male fitting
- ③ Nut run down gear box

FTR...S

FTR.....SWG

## ▼ SPECIFICATION TABLE

| Bar Grade | Bolt Diameter |        | Bar Size Designation | Model Number with single male fitting | Nut Size A/F | Max. Pressure | Hydraulic Pressure Area | Max. Load Capacity | Stroke | Dimensions (mm) |      |      |     |    | Minimum Bolt Potrusion |      |
|-----------|---------------|--------|----------------------|---------------------------------------|--------------|---------------|-------------------------|--------------------|--------|-----------------|------|------|-----|----|------------------------|------|
|           | (mm)          | (inch) |                      |                                       |              |               |                         |                    |        | A               | B    | C    | D   | E  |                        | (kg) |
| 75 ksi    | 35            | 1.38   | #10                  | FTR751010S                            | 51           | 1200          | 3134                    | 376,1              | 10,0   | 99              | 88,5 | 44,3 | 163 | –  | 5,8                    | 200  |
|           | 35            | 1.38   | #10                  | FTR751025S                            | 51           | 1200          | 3123                    | 374,8              | 25,0   | 115             | 102  | 42   | 220 | –  | 10,9                   | 250  |
|           | 38            | 1.50   | #11                  | FTR751110S                            | 57           | 1500          | 3134                    | 470,1              | 10,0   | 99              | 98   | 38   | 178 | –  | 5,5                    | 220  |
|           | 38            | 1.50   | #11                  | FTR751125SG                           | 57           | 1500          | 3123                    | 468,5              | 25,0   | 115             | 102  | 51   | 226 | 96 | 11,5                   | 260  |
|           | 48            | 1.88   | #14                  | FTR751420S                            | 70           | 1170          | 6093                    | 712,9              | 20,0   | 132             | 132  | 66   | 268 | –  | 18,2                   | 315  |
| 150 ksi   | 37            | 1.44   | 1.25                 | FTR15012510S                          | 57           | 1170          | 5383                    | 629,8              | 10,0   | 111             | 110  | 40   | 178 | –  | 8,2                    | 220  |
|           | 40            | 1.56   | 1.37                 | FTR15013810S                          | 64           | 1500          | 5383                    | 807,5              | 10,0   | 111             | 110  | 38   | 178 | –  | 8,1                    | 225  |
|           | 70            | 2.75   | 2.50                 | FTR15025025S                          | 108          | 1500          | 18.238                  | 2736,0             | 25,4   | 215             | 212  | 86   | 348 | –  | 58,0                   | 450  |
| 10.9      | 36            | 1.42   | 36                   | FTR1093610SG                          | 60           | 1500          | 3820                    | 573,0              | 10,0   | 102             | 99   | 40   | 176 | 95 | 8,6                    | 195  |

Gear box square drive dimension S = 1/2 inch.

▼ FTE-Series, Foundation Bolt Tensioner Elliptical



- **FTE-Series Foundation Bolt Tensioners provide fast and accurate performance in difficult, narrow access foundation tensioning applications**
- **Standard models are available for 75, 150 ksi and metric style Williams, Dyson and Macalloy® bar types**
- **Ideal universal solution that fits both standard and narrow access applications.**

## High Precision, Low Maintenance



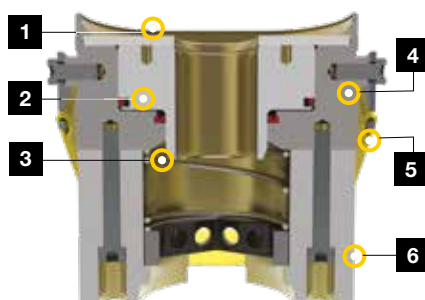
### FTE-Series, Foundation Bolt Tensioners

Similar to Standard Foundation Tensioners, Elliptical tensioners were designed specifically for foundation fastening applications on wind towers, and utilize the existing hex nut as a reaction point in order to eliminate thread fit misalignment.

Unlike standard FTR-Series Tensioners, the FTE-Series Tensioners feature an elliptical geometry, which enables fit in narrow access foundation applications, without reducing load capabilities.

Operators may access the nut with a Tommy bar rather than employing the use of an offset rundown gear.

Elliptical tensioners are ideal for close clearance applications, or as a universal tool that will work in nearly any foundation application, whether standard or narrow access.



1. **Maximum stroke Indicator:** Extends life by helping to prevent over-stroking of cylinder.
2. **Long-life seals:** For maximum durability and extended service life intervals.
3. **Auto-retract piston:** Simplifies use and improves speed of operation.
4. **Elliptical form:** Provides access to close clearance applications.
5. **Corrosion protection:** Zinc coating provides best-in-class corrosion resistance.
6. **Quick-disconnect coupler:** (*not shown*) For safe, simple hydraulic connection. Optional 360° swivel available for additional hose positioning flexibility.

▼ *FTE-Series, Foundation Bolt Tensioner, designed to fit both standard and narrow access foundation applications.*



# Foundation Bolt Tensioners, Elliptical

▼ This is how a FTE-Series Foundation Bolt Tensioner model number is built up:



## 1 Product Type

**FTE** = Foundation Tensioner, Elliptical

## 2 Bar Grade

**75** = 75 ksi  
**150** = 150 ksi  
 (or metric designation)

## 3 Bar Size Designation

Example  
**10** = No. 10 bar size

## 4 Fitting Type

**SW** = Includes swivel manifold with single male fitting

## FTE Series



Maximum Load Capacity:

**761,1 kN**

Maximum Operating Pressure <sup>1)</sup>:

**1500 bar**

<sup>1)</sup> Max. pressure varies, see specifications table for details.



## Tensioning Pumps

Electric, pneumatic and manual high-pressure tensioning pumps are available for use with Enerpac hydraulic tensioners.



## Hoses and Fittings

High-pressure hoses and fittings for use with Enerpac tensioning systems are available.

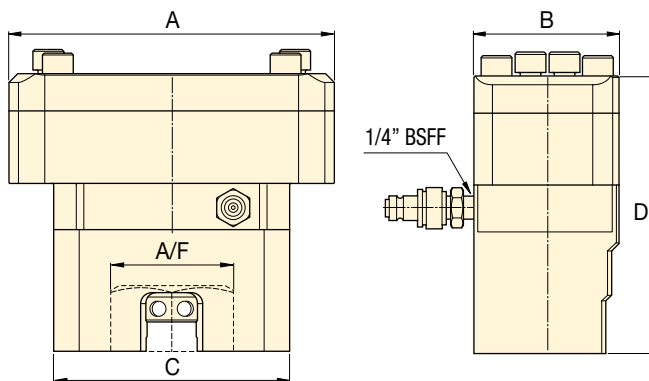
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## Bolting Integrity Software

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application data sheet and Joint completion report. Custom Joint information can also be entered.

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## ▼ SPECIFICATION TABLE

| Bar Grade | Bolt Diameter |        | Bar Size Designation | Model Number with single male fitting | Nut Size A/F | Max. Pressure | Hydraulic Pressure Area | Max. Load Capacity | Stroke | Dimensions (mm) |    |     |       | Minimum Bolt Potrusion |      |
|-----------|---------------|--------|----------------------|---------------------------------------|--------------|---------------|-------------------------|--------------------|--------|-----------------|----|-----|-------|------------------------|------|
|           | (mm)          | (inch) |                      |                                       |              |               |                         |                    |        | A               | B  | C   | D     |                        | (kg) |
| 75 ksi    | 35            | 1.38   | #10                  | <b>FTE7510S</b>                       | 51           | 1200          | 3108                    | 373,0              | 10,0   | 170             | 82 | 142 | 147,5 | 8,3                    | 200  |
|           | 38            | 1.50   | #11                  | <b>FTE7511S</b>                       | 57           | 1500          | 3108                    | 466,2              | 10,0   | 170             | 82 | 142 | 147,5 | 8,3                    | 200  |
| 150 ksi   | 40            | 1.56   | 1.375                | <b>FTE150138S</b>                     | 64           | 1500          | 5074                    | 761,1              | 10,0   | 222             | 99 | 161 | 203,4 | 18,5                   | 230  |
|           | 37            | 1.44   | 1.250                | <b>FTE150125S</b>                     | 57           | 1200          | 5074                    | 608,9              | 10,0   | 222             | 99 | 161 | 203,4 | 18,9                   | 240  |
| 8.8       | 36            | 1.42   | 36                   | <b>FTE8836S</b>                       | 60           | 1500          | 3108                    | 466,2              | 10,0   | 142             | 82 | 142 | 147,5 | 9,7                    | 180  |



▼ HPT1500



## HPT Series

Reservoir Capacity:

**2,5 litres**

Flow at Rated Pressure:

**0,61 cm<sup>3</sup>/stroke**

Maximum Operating Pressure:

**1500 bar**



### Applications

The hand pump is ideally suited for use with hydraulic bolt tensioning tools and hydraulic nuts.

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- Lightweight and portable high-pressure hand pump
- Two-speed operation displaces a larger volume of oil per stroke, reducing cycle times for many testing applications
- Includes a pressure gauge and coupler for direct connection to Enerpac Bolt Tensioners
- Integrated relief valve set at 1500 bar.



### Ultra-high pressure

This pump operates at ultra-high pressure, use only the specified fittings and hoses designed for these pressures.

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### Bolt Tensioning Theory

See more on tensioning operation and procedures in our "Yellow Pages".

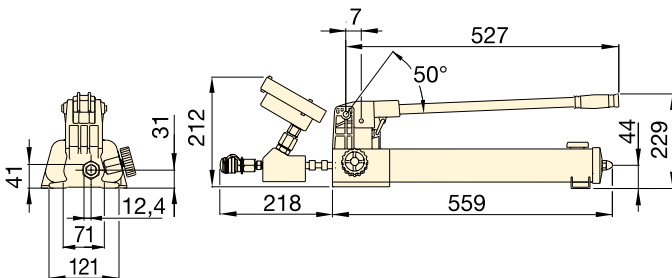
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### Bolting Integrity Software

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application data sheet and Joint completion report. Custom Joint information can also be entered.

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### 1500 BAR ULTRA-HIGH PRESSURE PUMP

| Pump Type | Useable Oil Capacity<br>(litres) | Model Number | Pressure Rating<br>(bar) |           | Oil Displacement per Stroke<br>(cm <sup>3</sup> ) |           | High Pressure Oil Port with female coupler | (kg) |
|-----------|----------------------------------|--------------|--------------------------|-----------|---|-----------|--|------|
|           |                                  |              | 1st stage                | 2nd stage | 1st stage   | 2nd stage |  |      |
| Two Speed | 2,54                             | HPT1500      | 14                       | 1500      | 16,22   | 0,61      | 1/4" BSPP + BR-150                         | 9,0  |

# Ultra-High Pressure Hoses & Couplers

- **Hose Reel and Stand:** Stainless steel stand with 1500 bar hoses from 30 upto 270 metres lengths
- All hose reels are built up with multiple 30 metres length hoses
- Wide offering of hoses and system components to complete your tensioning system
- Can be used for subsea fastening systems
- Hoses can be inter-connected in multi-tool set-ups using nipples, couplers, T-pieces and Y-Pipe assemblies.

## HT, B Series



Hose Lengths:

**1 - 30 metres**

Hose Reel & Stand:

**30 - 270 metres**

Maximum Operating Pressure:

**1500 bar**

### 1500 BAR HOSE REEL & STANDS

| Model Number |  | Stainless Steel Hose Reels with Stand<br>(Hose with Female Half BR150 and Male Half BH150 couplers) |
|--------------|--|---|
| HT1500RS     |  | Reel & Stand Assembly, No Fittings  |
| HT1500HRS    |  | Hose Reel & Stand, No Hose  |
| HT1510HRS    |  | Hose Reel & Stand, with 30 m hose   |
| HT1520HRS    |  | Hose Reel & Stand, with 60 m hose   |
| HT1530HRS    |  | Hose Reel & Stand, with 90 m hose   |
| HT1540HRS    |  | Hose Reel & Stand, with 120 m hose  |
| HT1550HRS    |  | Hose Reel & Stand, with 150 m hose  |
| HT1560HRS    |  | Hose Reel & Stand, with 180 m hose  |
| HT1570HRS    |  | Hose Reel & Stand, with 210 m hose  |
| HT1590HRS    |  | Hose Reel & Stand, with 270 m hose  |



▲ Inter-connected with HT-Series hoses Enerpac subsea tensioners apply uniform bolt load.

### 1500 BAR HOSES

| Model Number |  | Hose End 1             | Hose End 2             | Length (m) |
|--------------|--|------------------------|------------------------|------------|
| HT1503       |  | 1/4" BSPM<br>120° Cone | 1/4" BSPM<br>120° Cone | 1,0        |
| HT1510       |  | 1/4" BSPM<br>120° Cone | 1/4" BSPM<br>120° Cone | 3,0        |
| HT15100      |  | 1/4" BSPM<br>120° Cone | 1/4" BSPM<br>120° Cone | 30,0       |
| HT1503HR *   |  | BH150                  | BR150                  | 1,0        |
| HT1506HR *   |  | BH150                  | BR150                  | 1,8        |
| HT1510HR *   |  | BH150                  | BR150                  | 3,0        |
| HT1520HR *   |  | BH150                  | BR150                  | 6,1        |
| HT15100HR *  |  | BH150                  | BR150                  | 30,0       |
| HT1503RR *   |  | BR150                  | BR150                  | 1,0        |
| HT1506RR *   |  | BR150                  | BR150                  | 1,8        |
| HT1510RR *   |  | BR150                  | BR150                  | 3,0        |
| HT1520RR *   |  | BR150                  | BR150                  | 6,1        |

\* Includes dust caps.

H = Male Nipple (BH150); R = Female Coupling (BR150)

### 1500 BAR COUPLERS

| Description<br>(includes dust caps)    |  | Complete Set | Female Half | Male Half |
|--|--|--------------|-------------|-----------|
| Quick Disconnect Coupler               |  | B150         | BR150       | BH150     |
| Quick Disconnect Coupler & Adaptor Kit |  | BW150AW      | -           | -         |
| Quick Disconnect Blanking Coupler Set  |  | B150B        | BR150B      | BH150B    |

### 1500 BAR T-PIECES

| Model Number | shown<br>HT15TPMMF | End 1    | End 2    | End 3    |
|--------------|--------------------|----------|----------|----------|
| HT15TPMMF    |                    | 1x BH150 | 1x BH150 | 1x BR150 |
| HT15TPMMM    |                    | 1x BH150 | 1x BH150 | 1x BH150 |

### 1500 BAR Y-PIPE ASSEMBLIES

| Model Number | shown<br>HT1506YTPMMF | End 1<br>Hose | End 2<br>Hose | End 3<br>T-Piece |
|--------------|-----------------------|---------------|---------------|------------------|
| HT1506YTPMMF |                       | HT1506HR      | HT1506HR      | HT15TPMMF        |
| HT1510YTPMMF |                       | HT1510HR      | HT1510HR      | HT15TPMMF        |
| HT1506YTPFMF |                       | HT1506RR      | HT1506RR      | HT15TPMMM        |
| HT1510YTPFMF |                       | HT1510RR      | HT1510RR      | HT15TPMMM        |

Y-Pipe Assembly: 1+2 = adaptor; 3 = stainless steel T with 1/4" BSPM  
4 = Male Nipple (BH150); 5 = Female Coupling (BR150); 6 = Hose

▼ ZUTP1500SE-H



- Solenoid-operated valve with 6 m pendant for remote control of valve and one-man operation
- Easily accessible manual override valve to release pressure if power is lost
- Safety relief valve limits output pressure
- Two-stage pump design provides high flow at low pressure for fast system fills and controlled flow at high pressure for accurate operation
- 1,25 kW heavy-duty universal motor provides the best performance-to-weight ratio
- Replaceable 10 micron reservoir breather and inline high pressure filter helps maintain oil cleanliness for optimum performance
- Panel-mounted 153 mm pressure gauge, with polycarbonate cover, is set into the protective metal shroud for improved visibility.

## ZUTP Series

Reservoir Capacity:

**4,0 litres**

Flow at Rated Pressure:

**0,33 l/min**

Motor Size:

**1,25 kW**

Maximum Operating Pressure:

**1500 bar**



### ZUTP-Tensioning Pumps

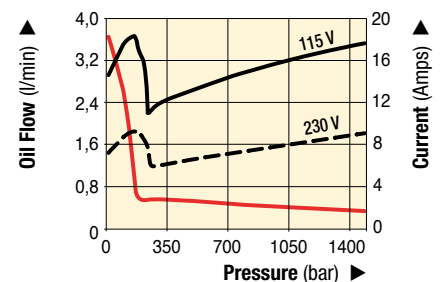
ZUTP-pumps achieve high pressure without the need for an intensifier.

This allows for low maintenance, resulting in less cost for the end-user.

### ZUTP-S with Solenoid Valve

The ZUTP1500S with pendant-operated solenoid valve is ideal for multiple bolt tensioning applications as it allows for single-person operation. The operator can pressurize and depressurize the tensioner directly from the pendant.

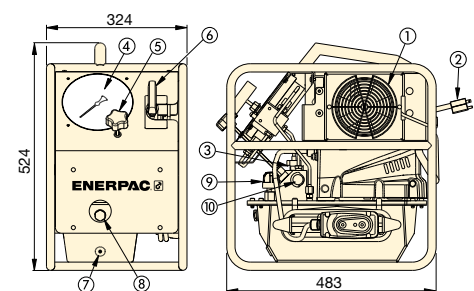
### OIL FLOW VERSUS PRESSURE



### 1500 bar HIGH PRESSURE PUMP

| Useable Oil Capacity (litres) | Valve Type | Model Number <sup>1)</sup>    | Pressure Rating (bar) | Output Flow Rate (l/min) |          | 1,25 kW Motor <sup>5)</sup> (VAC, 1-ph, 50 Hz) | Weight (kg) |
|-------------------------------|------------|-------------------------------|-----------------------|--------------------------|----------|--|-------------|
|                               |            |                               |                       | 0 bar                    | 1500 bar |  |             |
| 4,0                           | Solenoid   | ZUTP1500SB                    | 1500                  | 3,80                     | 0,33     | 115  | 29,5        |
|                               |            | ZUTP1500SE <sup>2)</sup>      |                       |                          |          | 230 <sup>2)</sup>                              |             |
|                               |            | ZUTP1500SI <sup>3)</sup>      |                       |                          |          | 230 <sup>3)</sup>                              |             |
| 4,0                           | Solenoid   | ZUTP1500SB-H <sup>4)</sup>    | 1500                  | 3,80                     | 0,33     | 115  | 34,0        |
|                               |            | ZUTP1500SE-H <sup>2) 4)</sup> |                       |                          |          | 230 <sup>2)</sup>                              |             |
|                               |            | ZUTP1500SI-H <sup>3) 4)</sup> |                       |                          |          | 230 <sup>3)</sup>                              |             |
| 4,0                           | Jog        | ZUTP1500B                     | 1500                  | 3,80                     | 0,33     | 115  | 29,5        |
|                               |            | ZUTP1500E <sup>2)</sup>       |                       |                          |          | 230 <sup>2)</sup>                              |             |
|                               |            | ZUTP1500I <sup>3)</sup>       |                       |                          |          | 230 <sup>3)</sup>                              |             |

<sup>1)</sup> All models meet CE safety requirements and all TÜV requirements.  
<sup>2)</sup> European plug and CE EMC directive compliant.  
<sup>3)</sup> With NEMA 6-15 plug. <sup>4)</sup> H = with heat exchanger.  
<sup>5)</sup> Sound level 89 dBA.



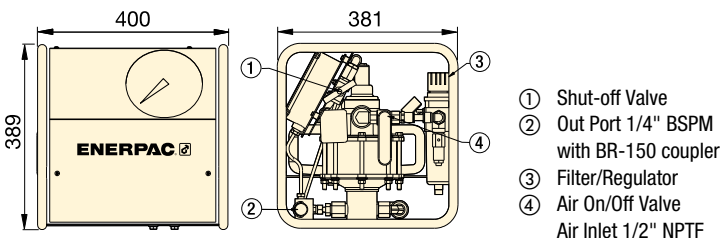
- ① Heat Exchanger (optional)
- ② Power Cord
- ③ Solenoid Dump Valve
- ④ Pressure Gauge
- ⑤ User Adjustable Relief Valve
- ⑥ Manual Release Valve
- ⑦ Oil Drain
- ⑧ Oil Level Sight Glass
- ⑨ Breather
- ⑩ Outlet Port with CEJN Coupler (116 Series)

# Ultra-High Pressure Air Pump


▼ ATP1500



- General purpose, high pressure air driven two speed pump unit for products requiring up to 1500 bar hydraulic pressure
- Compact, lightweight, rugged steel frame for protection and easy handling
- Prelubricated pump element, does not require an airline lubricator
- Easily adjustable output pressure control
- Integrated and protected easy to read glycerin filled gauge
- Safety relief valve limits output pressure.



## 1500 bar HIGH PRESSURE AIR PUMP

| Pump Type | Useable Oil Capacity<br>(litres) | Pressure Rating<br>(bar) | Model Number   | Output Flow Rate at 0 bar<br>(l/min) | Output Flow Rate at 1500 bar<br>(l/min) | Air Pressure Range<br>(bar) | Air Consumption<br>(l/min) | Sound Level<br>(dBA) | <br>(kg) |
|-----------|----------------------------------|--------------------------|----------------|--------------------------------------|---|-----------------------------|----------------------------|----------------------|---|
| Two speed | 3,8                              | 1500                     | <b>ATP1500</b> | 0,43                                 | 0,07                                    | 5,5 - 6,2                   | 594                        | 70                   | 32  |

## ATP Series

Reservoir Capacity:  
**3,8 litres**

Flow at Rated Pressure:  
**0,07 l/min**

Maximum Operating Pressure:  
**1500 bar**



This pump operates at ultra-high pressure, use only the specified fittings and hoses designed for these pressures.

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### Applications

The ATP-pump is ideally suited for use with hydraulic bolt tensioning tools and hydraulic nuts.



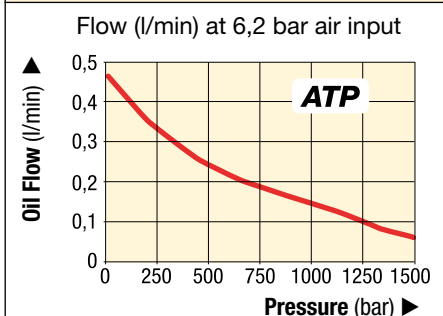
### ATEX Certified

The ATP-Pump is tested and certified according ATEX.

**Ex** II 2 GD ck T4

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### OIL FLOW VERSUS PRESSURE





## Tensioning every single stud in a joint simultaneously



▲ *Multi Stud Tensioning Set-Up.*

### MULTI STUD TENSIONERS

Enerpac Multi Stud Tensioning (MST) systems are capable of tensioning every single stud in a joint simultaneously. By applying a predictable and accurate pre-load to all studs, problems associated with conventional bolt tightening techniques are avoided. Typical Enerpac Multi Stud Tensioning applications include:

#### Manway, Hand Hole & Inspection Covers

MST systems are the fastest and most accurate means of loosening and tightening studs on Primary & Secondary Manway Covers, Hand-Hole and Inspection Ports in nuclear facilities. Using special ram areas and strong lightweight materials, the MST's reduce bolting time by as much as 75%.

#### Coolant Pump

A custom slimline tensioning system for a Nuclear Reactor Coolant Pump, using six equally spaced tensioners and tightening studs in four passes, has reduced bolting times by 25% and significantly increased tensioning accuracy.

#### Wind Turbine Blade Assembly

Using an Enerpac MST has allowed wind turbine blade assembly times to be reduced by approx. 65% while bolt load accuracy and consistency have improved, resulting in better joint life and reduced maintenance requirements. The MST, comprising four tool segments, is capable of simultaneously tensioning up to 88 bolts connecting a 125 ft long blade to a bearing slew ring.

## MST - Multi Stud Tensioners

This tool can be custom-designed, and built, for virtually any nuclear facility. We specialise in addressing difficult projects that demand accurate loads within tight space envelopes, while also seeking ease of operation and performance.

- Designed in segments enabling the operator to easily and quickly connect each segment to the joint and link together to provide simultaneous loading.
- Very accurate and fast closure system for large tensioning applications on pumps, valves, and steam-generators, for example.
- For ease of handling on-site, Enerpac MST systems can be supplied with an integral lifting frame and trolley.



▲ *Multi Stud Tensioner.*



▲ *Multi Stud Tensioning application.*

## A simple and effective method of tensioning large bolts in difficult to access areas



▲ Tensioning with hydraulic nuts.

### HYDRAULIC NUTS

Enerpac hydraulic nuts are used in many process-critical bolting applications where the ease of installation and manpower time savings are substantial and on-going. Moreover, they eliminate many of the uncertainties of torque arising from friction, point loading and load scatter.

Enerpac Hydraulic Nuts are a simple and effective method of tensioning large bolts in difficult to access areas with insufficient space for standard tensioners. Typically used when installing and maintaining bolting systems, hydraulic nuts can replace both conventional hexagon nuts and standard round nuts providing a high and predictable degree of tensioning accuracy.

Threaded directly onto the stud, Enerpac hydraulic nuts apply a direct axial elongation by means of hydraulic force generated via the nut's integral hydraulic cylinder. The nut is held in place either by means of a top or bottom load retaining collar externally located on the nut or by the insertion of mechanical shims. Enerpac hydraulic nuts can be retrofitted to existing plant providing an accurate solution to mechanical jointing problems.

### Benefits of Enerpac Hydraulic Nuts

- Highly Accurate & Repeatable Bolt Loads
- Ideal where space limitations prevent use of standard detachable tensioners
- Direct Axial Loading - No nut rotation required
- Multiple Nuts can be connected and tightened / loosened simultaneously
- Eliminates issues with friction
- Substantial time savings due to the quick set-up and hydraulic nuts remaining in-situ
- No stud or flange damage (Galling, Seizure)
- No need to change joint hardware – system works with existing studs
- Ideal when the tension in bolts needs to be checked regularly such as vibration loosening.

## Enerpac hydraulic nut applications have included:

The Hydraulic Nut is a permanent fixture, replacing the conventional nut and retaining the high bolt load and extension in small space envelopes where there may not be sufficient space to use tensioners.

- Flange Clamps: Pipeline, Structural
- Turbines: Gas, Wind, Steam
- Pressure & Reactor Vessels
- Diesel Engines
- Nuclear Applications: Steam Generators
- Hydraulic and Mechanical Presses
- Heat Exchangers
- Pipeline Flanges, Valves and Control Systems
- Valves & Pumps
- Cranes – Slew Ring Bolts, Tower Cranes
- Shaft Couplings
- Mining: Grinders, Cutters, Earth Moving Equipment.



▲ Hydraulic nuts on a diesel engine.

▼ From left to right: **ATM4, ATM9, ATM2** (ATM9 shown without pump and hose)



- Enerpac ATM-Series tools rectify twist and rotational misalignment quickly, safely and without the need for an external power source
- Appropriate for use on most ANSI, API, BS and DIN flanges
- Reduces set-up time: no need for chains, pulleys or rigs
- Safety strap helps provide secure operation
- Can be installed and used in any position
- Stays stable in position under full load
- Portable, lightweight design enables easy transport and use, even in remote locations
- Each ATM-model contains a tool and kit box.

▼ The compact ATM2 is actuated by simply hand turning the crank.



## The faster, simpler and safer way to align flanges



### Adjustable Reach

The highly adjustable reach of the wing and drop leg on ATM4 and ATM9 allow precise alignment.



### Gauge and Adaptor

The ATM9 includes P142 hand pump and HC7206C 1,8 m long hose. Enerpac recommend the use of the pressure gauge **GP10S** and gauge adaptor **GA4** for easy mounting of the gauge onto your system or use **GA45GC** Gauge Adaptor Assembly.

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### TFA-Series Wind Turbine Tower Flange Alignment Tools

The TFA Wind Turbine Tower Flange Alignment Tools have been developed to aid the alignment of large flanges on the inside of wind turbine towers during their assembly or installation.

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▼ The ATM9 is shown here with optional pressure gauge and gauge adaptor.





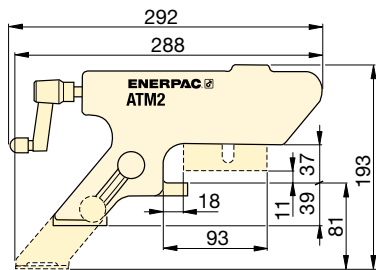
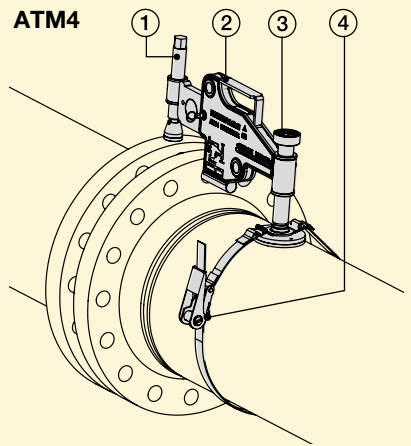


## Applications

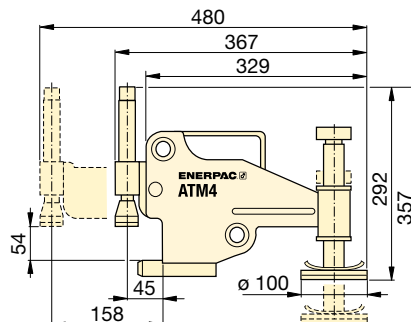
Enerpac ATM-Series Tools help correct flange misalignment, and allow bolts to be placed into joints. This alignment takes place during pipework construction, or maintenance.

These tools provide pipe installers and maintenance personnel with some of the simplest, safest and most productive solutions available for flange alignment in the market today.

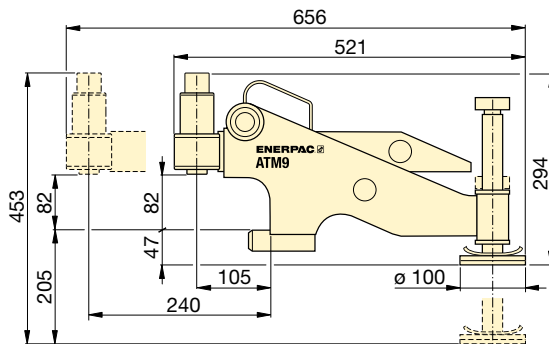
- ① Extendable wing provides usage on wide variety of flanges.
- ② Portable, light weight design enables easy transport and use.
- ③ Hand-adjustable base for easy positioning by a single operator.
- ④ Safety strap helps provide secure operation from a horizontal or vertical position.



ATM2



ATM4



ATM9

| Maximum Lifting Force |      | Model Number | Minimum Bolt Size |        | Flange Wall Thickness |             | Weight (kg) |
|-----------------------|------|--------------|-------------------|--------|-----------------------|-------------|-------------|
| (ton)                 | (kN) |              | (mm)              | (inch) | (mm)                  | (inch)      |             |
| 1                     | 10   | ATM2         | 16                | .63    | 14 - 82               | .55 - 3.29  | 1,6         |
| 4                     | 40   | ATM4         | 24                | .95    | 30 - 133              | 1.18 - 5.23 | 8,6         |
| 9                     | 90   | ATM9 *       | 35,5              | 1.40   | 93 - 228              | 3.66 - 9.00 | 14,5        |

\* ATM9 includes an Enerpac hand pump and hydraulic hose (gauge and adaptor sold separately). ATM9 weight includes tool only.

## ATM Series



Minimum Bolt Size:

**16 - 35,5 mm**

Flange Wall Thickness:

**14 - 228 mm**

Maximum Lifting Force:

**1 - 9 ton (10 - 90 kN)**



## Cylinder-Pump Sets

Hydraulic cylinders, jacks and lifting wedges can also be used to assist in pipe line positioning and aligning.

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## Pipe Flange Face Tool

The portable, hand powered tool FF120 makes even the hardest to reach pipe flanges resurfaceable in a safe and convenient way.

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▼ The ATM-Series – the faster, simpler and safer way to align flanges.





▼ FSC14, FSM8 and FSH14 with safety blocks SB1



- **Unique interlocking wedge design** no first step bending and risk of slipping out of joint
- **Requires very small access gap of only 6 mm**
- **Few moving parts mean durability and low maintenance**
- **Safety block SB1 included with FSC14, FSH14 and FSM8**
- **Ratchet spanner SW22 included with FSM8 mechanical spreader**
- **Singleacting cylinder included with FSH14 hydraulic spreader.**

▼ Two FSH14 spreaders used simultaneously with Enerpac handpump, hoses and AM21 control manifold.



## Practical, portable and lightweight



### FSC14 with integrated hand pump

Powered by a builtin hydraulic hand pump, the FSC14 is a readytouse tool – no making or breaking hydraulic connections. This compact tool delivers 14 US tons of force and requires a clearance gap as small as 6 mm.



### Stepped Blocks FSB1

Use stepped blocks to increase wedge opening up to 80 mm. Fits both FSC, FSH and FSM models.



### AM-Series Control Manifolds

For simultaneously and even spreading of flange joints, 180° apart with FSH14.

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### Flange Maintenance Tools

Secure-Grip and Zero-Gap flange spreading tools for application on flanges with a zero or small gap.

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# Flange Spreading Wedges



## Flange Spreading Wedges

The flange spreading tools have been developed to aid and simplify the maintenance of flange joints. No longer will those tasked with separating flanges have to rely on using ropes and pulleys, podgers, tiffors, come-alongs or hammers – there is a safe, quick and effective alternative, the Enerpac range of spreaders.

These spreaders use mechanical and hydraulic principles for separating flanges and can spread small, medium or large flange joints. Tool selection is made on the basis of the access gap between the flange faces, the flange size and the required scope of work.

## FSC, FSH, FSM, Series



Tip Clearance / Maximum Spread <sup>1)</sup>:

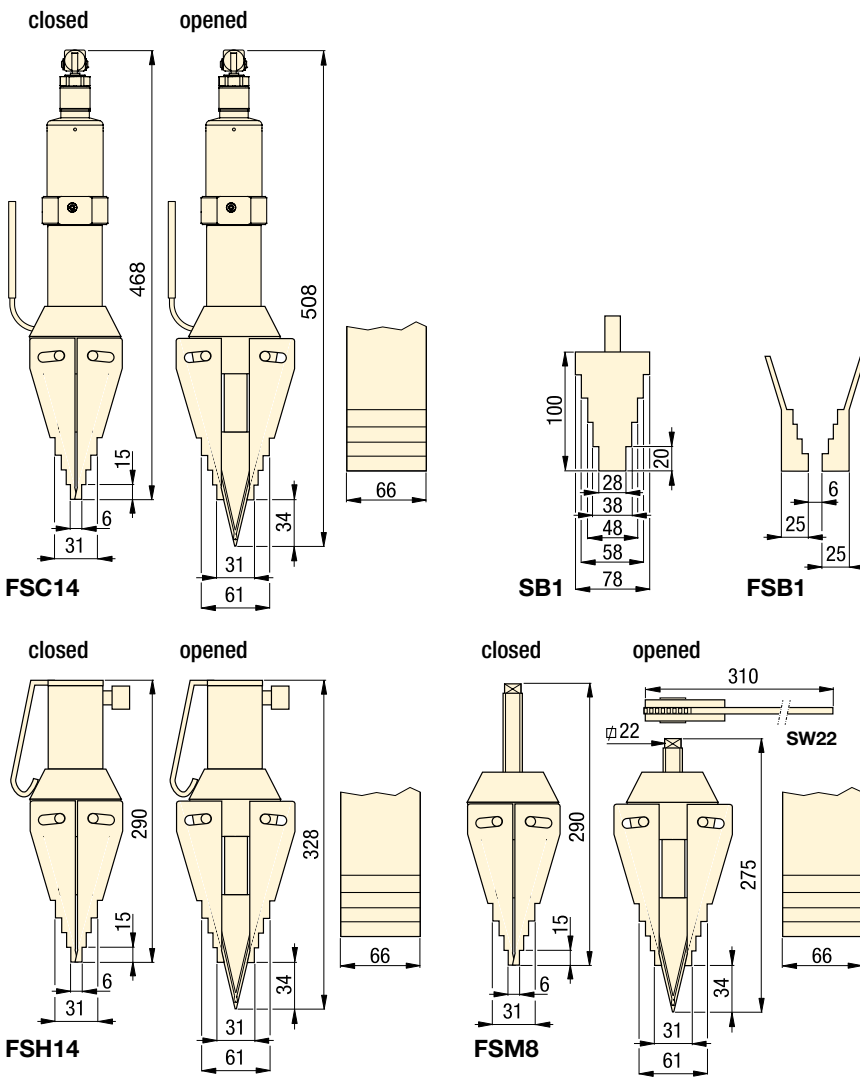
**6 mm / 80 mm**

Maximum Spread Force:

**8 - 14 US tons**

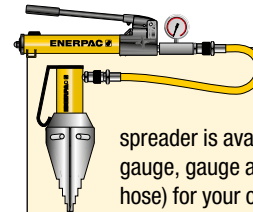
Maximum Operating Pressure:

**700 bar (FSH14)**



### Safety Lanyard FSC1

Recommended safety accessory to compliment bolting applications. Includes steel cable with carabiners.



### Tool-Pump Sets

The hydraulic flange spreader is available as set (pump, tool, gauge, gauge adaptor, couplers and hose) for your ordering convenience.

| Spreader Model Nr. | Handpump Model Nr. | Set Model Number |
|--------------------|--------------------|------------------|
| FSH14              | P392               | STF14H           |

▼ Flange maintenance and joint separation with FSH14 Hydraulic Wedge Spreader.



| Maximum Spreading Force<br>US tons (kN) | Model Number | Tip Clearance<br>(mm) | Maximum Spread <sup>1)</sup><br>(mm) | Spreader Type       | Oil Capacity<br>(cm <sup>3</sup> ) | Weight<br>(kg) |
|---|--------------|-----------------------|--------------------------------------|---------------------|------------------------------------|----------------|
| 14 (118)                                | FSC14        | 6                     | 80                                   | Integral hydraulics | –                                  | 9,0            |
| 14 (125)                                | FSH14 *      | 6                     | 80                                   | External hydraulics | 78                                 | 7,1            |
| 8 (72)                                  | FSM8         | 6                     | 80                                   | Mechanical          | –                                  | 6,5            |

<sup>1)</sup> Using stepped blocks FSB1.

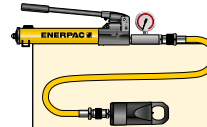
\* Available as pump-tool set, see note on this page.

▼ Shown from left to right: NC3241, NC1019, NC1924



- Compact and ergonomic design, easy to use
- Unique angled head design
- Two blade design (NC-D models) for time saving operation – nuts are split from two sides in one action
- Single-acting, spring return cylinder
- Heavy duty chisels can be reground
- Nut splitters include spare chisel, spare set screw and wrench used to secure the chisel.
- CR400 female half coupler is standard.

## The safest and easiest way to remove corroded and frozen nuts



### Tool-Pump Sets

Hydraulic Nut Splitters are available as sets (pump, tool, gauge, gauge adaptor, couplers and hose) for your ordering convenience.

| Nut Splitter Model Nr. | Hand Pump Model Nr. | Nut Splitter Set Model Number |
|------------------------|---------------------|-------------------------------|
| NC1924                 | P392                | STN1924H                      |
| NC2432                 | P392                | STN2432H                      |
| NC3241                 | P392                | STN3241H                      |



### High Pressure Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

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▼ Enerpac hydraulic nut splitters – the safest and easiest way to remove corroded and frozen nuts.



### GA45GC Gauge Adaptor Assembly

Protect yourself from system overloading by simply ordering one part number for a pre-assembled gauge, adaptor block and coupler.

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# Single-Acting Hydraulic Nut Splitters



## Frozen or Corroded Nuts

Often nuts are difficult to remove, while loosening using tightening tools is possible, it generally requires larger equipment and is time consuming. The use of cutting torches or hammers and chisels can cause damage to the joint components, requires significantly longer setup and operational time, and can present a potential safety risk.

## Hydraulic Nut Splitters

Nut splitting with the Enerpac Hydraulic Nut Splitters is the safest method. It takes less time and avoids costly damage to joint components. The head design fitted with heavy-duty chisels permits the splitting of nuts on a wide variety of applications. With the two blades models nuts are split from two side in one action.

## NC STN Series



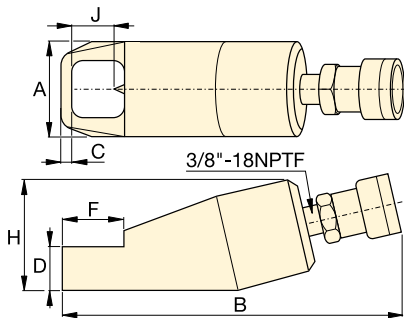
Bolt Range:  
**M6 - M48**

Hexagon Nut Range:  
**10 - 75 mm**

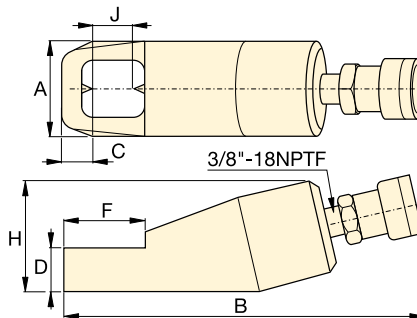
Capacity:  
**49 - 882 kN**

Maximum Operating Pressure:  
**700 bar**

| For Nut Splitter Model Nr. | Replacement Chisel Model Numbers |          |
|----------------------------|----------------------------------|----------|
|                            | Moving                           | Static   |
| NC1019                     | NCB1019                          | -        |
| NC1924                     | NCB1924                          | -        |
| NC2432                     | NCB2432                          | -        |
| NC3241                     | NCB3241                          | -        |
| NC4150                     | NCB4150                          | -        |
| NC5060                     | NCB5060                          | -        |
| NC6075                     | NCB6075                          | -        |
| NC1924D                    | NCB1924                          | NCB1924D |
| NC2432D                    | NCB2432                          | NCB2432D |
| NC3241D                    | NCB3241                          | NCB3241D |



Single Blade Models (NC)



Double Blade Models (NC-D)



| Bolt Range (mm) | Hexagon Nut Range (mm) | Maximum Cutting Force ton (kN) | Oil Capacity (cm <sup>3</sup> ) | Model Number | Dimensions (mm) |     |     |    |    |     |     | Weight (kg) |      |
|-----------------|------------------------|--------------------------------|---------------------------------|--------------|-----------------|-----|-----|----|----|-----|-----|-------------|------|
|                 |                        |                                |                                 |              | A               | B   | C   | D  | F  | H   | J   |             |      |
|                 | M6 - M12               | 10 - 19                        | 5 (49)                          | 15           | NC1019          | 40  | 170 | 7  | 19 | 28  | 48  | 21          | 1,2  |
|                 | M12 - M16              | 19 - 24                        | 10 (98)                         | 20           | NC1924 *        | 54  | 191 | 10 | 26 | 40  | 62  | 25          | 2,0  |
|                 | M16 - M22              | 24 - 32                        | 15 (147)                        | 60           | NC2432 *        | 64  | 222 | 13 | 29 | 51  | 72  | 33          | 3,0  |
|                 | M22 - M27              | 32 - 41                        | 20 (196)                        | 80           | NC3241 *        | 75  | 244 | 17 | 36 | 66  | 88  | 43          | 4,4  |
|                 | M27 - M33              | 41 - 50                        | 35 (343)                        | 155          | NC4150          | 94  | 288 | 21 | 45 | 74  | 105 | 54          | 8,2  |
|                 | M33 - M39              | 50 - 60                        | 50 (490)                        | 240          | NC5060          | 106 | 318 | 23 | 54 | 90  | 128 | 60          | 11,8 |
|                 | M39 - M48              | 60 - 75                        | 90 (882)                        | 492          | NC6075          | 156 | 393 | 26 | 72 | 110 | 181 | 80          | 34,1 |
|                 | M12 - M16              | 19 - 24                        | 10 (98)                         | 20           | NC1924D         | 54  | 168 | 22 | 25 | 50  | 66  | 26          | 3,8  |
|                 | M16 - M22              | 24 - 32                        | 15 (147)                        | 60           | NC2432D         | 64  | 275 | 25 | 31 | 65  | 78  | 33          | 5,4  |
|                 | M22 - M27              | 32 - 41                        | 20 (196)                        | 80           | NC3241D         | 77  | 305 | 31 | 37 | 80  | 90  | 43          | 7,2  |

Ordering Notes: Maximum allowable hardness to split is 44HRc. Not to be used on square nuts or stainless steel.

\* Available as Tool-Pump Set, see note on page 310.

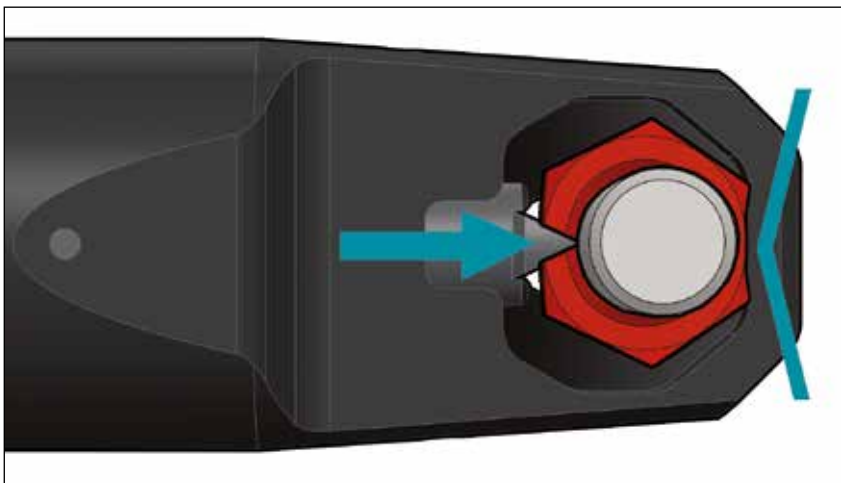


▼ Shown from left to right: NSH1927, NSC1927



- **NSC-Series with built-in small hand pump** – useful for subsea applications and working at heights
- **Quick and easy cutting tip replacement**
- **Drop-tested revolving anchor point and safety lanyard**
- **Revolving composite handle for vibration and shock isolation**
- **Nut Splitters include set of hexagon keys and following spare parts:**
  - cutting tip,
  - tip retention screw,
  - spare alignment screw
- **CR400 female half coupler is standard (NSH).**

▼ *The sharp cutting tip and opposing convex reaction point encourages more efficient splitting by spreading the nut open rather than squashing the nut onto the stud. This makes it easier to rotate the nut for the second cut.*



## Designed to meet the challenges of bolted pipe-line flange joints



### **NSC-Series Nut Splitters with integral hand pump**

Powered by a built-in hydraulic hand pump, the NSC-Series are a ready-to-use tool – no need for hose, separate hand pump or couplings.



### **Carry Case**

Nut splitters (up to NSH6575) come in a carry case for portability and easy storage.



### **Safety Lanyard FSC1**

Standard Safety Lanyard with each nut splitter. Includes steel cable with carabiners.



# Single-Acting Integral & Hydraulic Nut Splitters



## Frozen or Corroded Nuts

Often nuts are difficult to remove, while loosening using tightening tools is possible, it generally requires larger equipment and is time consuming.

The use of cutting torches or hammers and chisels can cause damage to the joint components, requires significantly longer setup and operational time, and can present a potential safety risk.

## Hydraulic Nut Splitters

Nut splitting with the Enerpac Hydraulic Nut Splitters is the safest method. It takes less time and avoids costly damage to joint components. The head design fitted with heavy-duty chisels permits the splitting of nuts on a wide variety of applications.

## NSC NSH Series



Bolt Range:

**M12 - M48**

Hexagon Nut Range:

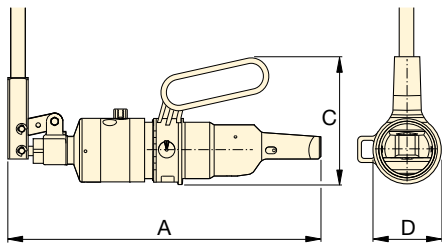
**19 - 75 mm**

Capacity:

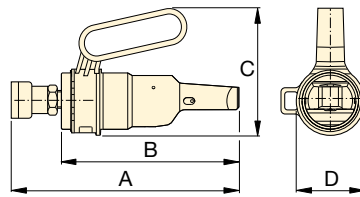
**120 - 500 kN (12 - 50 ton)**

Maximum Operating Pressure:

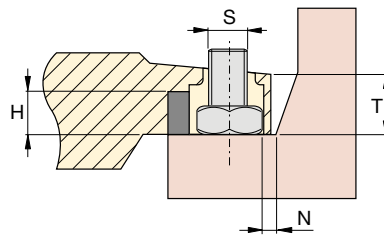
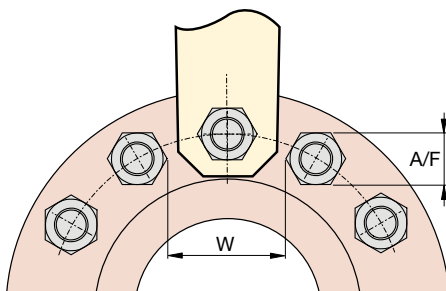
**700 bar (NSH-Series)**



NSC



NSH



## High Pressure Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

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## Joint Separation Tools

Flange Spreading Wedges (FSC, FSH, FSM-Serie) provide quick and easy joint separation using hydraulic or mechanical force.

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## ▼ NUT SPLITTER SPECIFICATIONS

| Bolt Range | Hexagon Nut Range | Maximum Cutting Force | Oil Capacity | Model Number | Nut Splitter Type | Dimensions (mm) |     |     |     |        |        |        |      |        |      | Cutting Tip Service Kit Model Nr. |
|------------|-------------------|-----------------------|--------------|--------------|-------------------|-----------------|-----|-----|-----|--------|--------|--------|------|--------|------|-----------------------------------|
|            |                   |                       |              |              |                   | A               | B   | C   | D   | H max. | N min. | S max. | T    | W min. | (kg) |                                   |
| M12 - M18  | 19 - 27           | 12 (120)              | –            | NSC1927      | Integral pump     | 353             | –   | 152 | 81  | 18     | 11,5   | 24,5   | 26,5 | 53,5   | 5,8  | NSH1927CTK                        |
| M16 - M22  | 24 - 32           | 15 (150)              | –            | NSC2432      | Integral pump     | 370             | –   | 152 | 81  | 25     | 9,0    | 26,6   | 32,0 | 57,5   | 6,3  | NSH2432CTK                        |
| M12 - M18  | 19 - 27           | 12 (120)              | 46           | NSH1927      | Hydraulic         | 258             | 213 | 152 | 81  | 18     | 11,5   | 24,5   | 26,5 | 53,5   | 3,5  | NSH1927CTK                        |
| M16 - M22  | 24 - 32           | 15 (150)              | 46           | NSH2432      |                   | 265             | 220 | 152 | 81  | 25     | 9,0    | 26,5   | 32,0 | 57,5   | 4,0  | NSH2432CTK                        |
| M24 - M30  | 36 - 46           | 20 (200)              | 80           | NSH3646      |                   | 290             | 239 | 169 | 93  | 34     | 16,0   | 39,0   | 44,0 | 83,5   | 6,9  | NSH3646CTK                        |
| M33 - M42  | 50 - 65           | 36 (360)              | 230          | NSH5065      |                   | 377             | 322 | 210 | 185 | 45     | 23,0   | 49,5   | 52,0 | 108,0  | 10,9 | NSH5065CTK                        |
| M42 - M48  | 65 - 75           | 50 (500)              | 328          | NSH6575      |                   | 396             | 345 | 220 | 202 | 54     | 27,0   | 61,0   | 65,0 | 135,0  | 24,5 | NSH6575CTK                        |

Ordering Notes: Maximum allowable hardness to split is ASTM A194 Gr 2H. Not to be used on square nuts or stainless steel.

▼ Shown: NSH31 with NSPH3, NSH41 with NSPH4



- Designed to fit standard BS/ANSI flanges
- Blade positioning scale to eliminate bolt damage
- Adjustable cutting depth
- Ergonomically designed and positioned handle
- Interchangeable power heads with cutting blade
- Single-acting spring return power head (NSPH)
- Double-acting power head (NSPH-D) for subsea operation
- Nut splitters include spare chisel, spare set screw and wrench used to secure the chisel
- CR400 female half coupler standard on NSPH
- CR400 + CH604 couplers standard on NSPH-D.

#### ATEX certified

- All NSH-tools are CE - ATEX certified.

## Versatile, reliable and trouble free operation



#### Blade Positioning Scale

The power head can be adjusted to preset the blade cutting distance in order to prevent damage to the bolt thread as the nut is cut.

The blade positioning scale can be used with the following bolt and nut forms:

- Unified bolt threads (UN) with heavy series hexagon nuts;
- Metric bolt threads (M) with standard series hexagon nuts.



#### Steel Hand Pumps

The **P80** and **P84** two speed hand pumps are ideal to operate nut splitters. The P84 can be used to power the double-acting tools.

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#### High Pressure Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

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# Single- and Double-Acting Hydraulic Nut Splitters



## Hydraulic Nut Splitters

These Hydraulic Nut Splitters are the ideal tools for removing seized and corroded nuts, eradicating the need for unsafe grinding or flame cutting.

They are designed with a single acting spring return cylinder and boast a 360 degree rotation, lockable handle improving operator safety.

The heavy duty blades can also be easily removed to enable replacement blades to be fitted.

## Operator Safety

To improve operator safety an ergonomic, adjustable handle is available which can be easily fitted to the Nut Splitter.

This lightweight, durable accessory can prevent injuries such as trapped fingers by eliminating the need to hold the tool itself.

## ATEX Certified: Ex II 2 G c T6

These Nut Splitters are tested and certified to conform to the 94/9/EC "ATEX Directive". The explosion protection is for Equipment Group II, Equipment Category 2 (Hazardous Zone Area 1) in Gas and/or Dust atmospheres.

## NSH Series



Bolt Range:

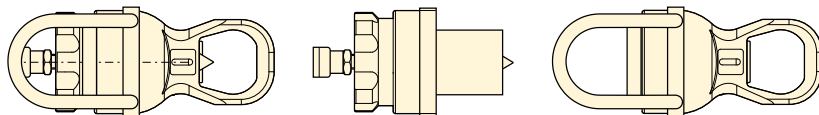
**M45 - M90**

Hexagon Nut Range:

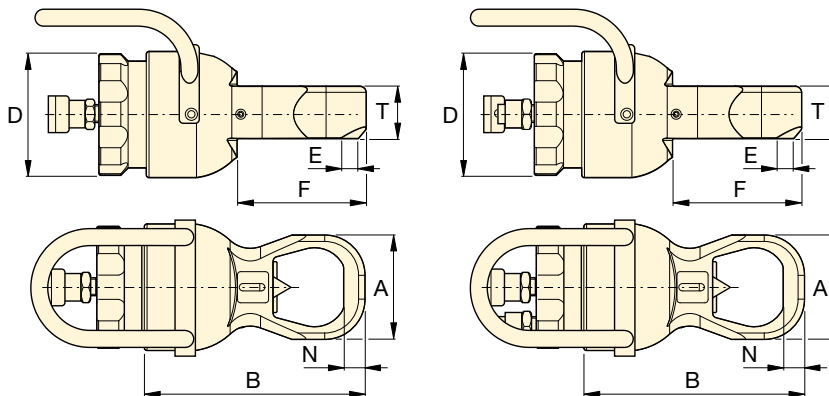
**70 - 130 mm**

Maximum Operating Pressure:

**700 bar**



Complete Nut Splitter = Power Head (NSPH) + Cutting Head (NSH)



NSPH + NSH

NSPH-D + NSH



## Joint Separation Tools

Flange Spreading Wedges (FSC, FSH, FSM-Series) provide quick and easy joint separation using hydraulic or mechanical force.

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| For Power Head Model Nr. |        | Cutting Tip Service Kit Model Nr. |
|--------------------------|--------|-----------------------------------|
| NSPH3                    | NSPH3D | NSPH3CTK                          |
| NSPH4                    | NSPH4D | NSPH4CTK                          |

## ▼ NUT SPLITTER SPECIFICATIONS

| Bolt Range<br>(mm) | Hexagon Nut Range<br>(mm) | Maximum Cutting Force<br>ton (kN) | Oil Capacity<br>(cm <sup>3</sup> ) | Model Numbers<br>Nut Splitter Components |             |               |               | Dimensions (mm) |     |     |     |     |     |    | Cutting + Power Head<br>(kg) |    |
|--------------------|---------------------------|-----------------------------------|------------------------------------|--|-------------|---------------|---------------|-----------------|-----|-----|-----|-----|-----|----|------------------------------|----|
|                    |                           |                                   |                                    | Cutting Head                             | Power Heads | Single-acting | Double-acting | A               | B   | D   | E   | F   | N   | T  |                              |    |
| M45 - M52          | 70 - 80                   | 105 (1025)                        | 550                                | NSH31                                    | 20          | NSPH3         | NSPH3D        | 22              | 132 | 308 | 190 | 7   | 189 | 28 | 81                           | 42 |
| M45 - M56          | 70 - 85                   | 105 (1025)                        | 550                                | NSH32                                    | 21          | NSPH3         | NSPH3D        | 22              | 145 | 323 | 190 | 15  | 200 | 30 | 81                           | 43 |
| M45 - M64          | 70 - 95                   | 105 (1025)                        | 550                                | NSH33                                    | 22          | NSPH3         | NSPH3D        | 22              | 160 | 331 | 190 | 11  | 200 | 32 | 81                           | 44 |
| M45 - M70          | 70 - 100                  | 105 (1025)                        | 550                                | NSH34                                    | 22          | NSPH3         | NSPH3D        | 22              | 174 | 342 | 190 | 11  | 204 | 35 | 81                           | 44 |
| M76 - M80          | 110 - 115                 | 178 (1733)                        | 1100                               | NSH41                                    | 32          | NSPH4         | NSPH4D        | 38              | 189 | 365 | 235 | 4,5 | 230 | 36 | 111                          | 70 |
| M76 - M90          | 110 - 130                 | 178 (1733)                        | 1100                               | NSH42                                    | 44          | NSPH4         | NSPH4D        | 38              | 219 | 393 | 235 | 3   | 246 | 36 | 111                          | 82 |

Ordering Notes: Maximum allowable hardness to split is ASTM A194 Gr 2H. Not to be used on square nuts or stainless steel.



▼ FF120



- Makes refacing easy – hand operated machine tool can be set up anywhere without the need for air, electric or hydraulic power
- Lightweight and portable (15 kg in storage box)
- Adjustable cutting head for reface of flat flange surfaces of pipes with flange outside diameter facing range 25,4 - 304,8 mm [1 - 12 inch]
- Interchangeable collets for ID mounting range 25,4 - 152,4 mm [1-6 inch] allow the user to work on many different flanges with minimal time between set-ups
- Interchangeable lead screws suitable for refacing damaged raised-face (RF) or flat-face (FF) joint flanges
- Tool body with expanding collets centers itself providing real concentric operation.

▼ The Enerpac FF120 used to face a pipe flange.



## Safe, efficient and accurate refacing of flat pipe flange surfaces



### Complete in Wheeled Carrying Case

The FF120 comes as portable set (15 kg). Can be transported, easy set-up and operated by a single

technician. Set includes:

**FFL-kit** with locators, O-Rings and extensions;  
**FSS-kit** with feed screw and nut ½”-20 UN for surface roughness Ra 1,6 - 2,4 μ.

**FSF-kit** with feed screw and nut ½”-11 UNF for surface roughness Ra 3,2 - 6,3 μ.



### Joint Separation Tools

FSC, FSH, FSM-Series parallel wedge spreaders provide quick and easy joint separation using hydraulic or mechanical force.

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### Flange Alignment Tools

The ATM-Series provide safe and high-precision flange alignment tools that fit most commonly used ANSI, API, BS and DIN flanges.

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### Controlled Tightening and Loosening

Use Enerpac Bolting Tools to seal the joint to the precise torque or tension required: torque

multipliers, torque wrenches and hydraulic bolt tensioners.

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# QuickFace – Mechanical Pipe Flange Face Tool



## Mechanical Flange Face Tool

Portable, hand powered tool makes even the hardest to reach pipe flanges resurfaceable in a safe and convenient way.

### Makes refacing easy

A simple and cost effective solution – the FF120 turns a two man operation with heavy equipment, compressors and portable generators into a one man job.

The FF120 has interchangeable lead screws that make it suitable for resurfacing damaged flat-faced or raised-face joint flanges to the high safety standards required. FF120 is not suitable for lens-ring joint flanges or ring type joint (RTJ) flanges.

After selecting the correct lead screw for the operation, the tool body is inserted in the pipe end and centres itself with adjustable locators to provide real concentric operation.

The tool arm is then rotated by hand using a worm-gear mechanism to provide a perfect spiral “gramophone” finish. The tool can be adjusted with a calibrated slide to define cut depth and the correct finish.

### Surface finish & accuracy

A serrated finish with 30-55 grooves per inch and a resultant roughness of between Ra 3,2-12,5 µ (125-500 micro inches). The FF-120 has same precision and quality of finish as a lathe.

### Cost effective solution

Small and portable enough to be a permanent addition to your equipment range, Enerpac’s FF120 is the perfect solution to all of your small diameter facing problems.

**For more Flange Facing Machines, see page 375.**

## FF Series



Pipe Flange Cutting Diameter Range:

**Ø 25 - 305 mm / 1 - 12"**

Internal Pipe Mounting Range:

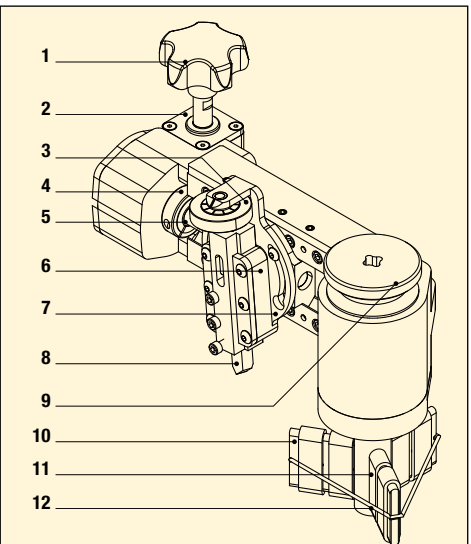
**Ø 25 - 152 mm / 1 - 6"**

Cutting Resultant Roughness:

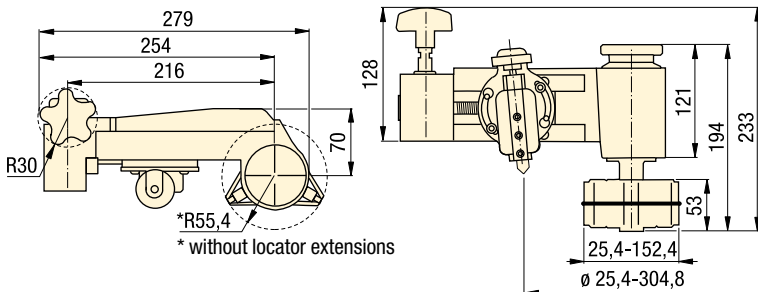
**Ra 3,2 - 12,5 µ**



- 1 Hand-operated cold work tool – no need for external power and hot work permits.
- 2 Calibrated cross slide for accurate cutting control.
- 3 Adjustable cutting head for reface of flat flange surfaces of pipes with flange OD facing range Ø 25,4-304,8 mm [1-12 inch].
- 4 Interchangeable lead screws enable selection of surface finish between Ra 3,2-12,5 µ.
- 5 Utilizes standard 3/8 inch or 10 mm tool steel.
- 6 Range of interchangeable collets allow the tool to accommodate Ø 25,4 - 152,4 mm (1 - 6 inch) pipe ID.
- 7 Tool body with expanding collets centers in the bore ensuring concentric and accurate set-up.



- |  |                        |
|--|------------------------|
| 1 Feed Knob  | 6 Tool Block           |
| 2 Gear Box   | 7 Swivel Slide         |
| 3 Cutting Depth Adjustment with indicator: 0,127 mm (.005 inch) per mark | 8 HSS 3/8" Tool Bits   |
| 4 Locking Collar   | 9 Mandrel Locking Knob |
| 5 Lead/Feed Screw  | 10 Locator Extensions  |
|  | 11 Adjustable Locators |
|  | 12 O-Ring              |



### SELECTION CHART

| Pipe Flange Cutting Diameter Range |            | Internal Pipe Mounting Diameter Range |           | Cutting Resultant Roughness | Model Number | Weight (kg) |
|------------------------------------|------------|---------------------------------------|-----------|-----------------------------|--------------|-------------|
| (mm)                               | (inch)     | (mm)                                  | (inch)    |                             |              |             |
| 25,4 - 304,8                       | 1,0 - 12,0 | 25,4 - 152,4                          | 1,0 - 6,0 | 3,2 - 12,5                  | FF120        | 6,8         |

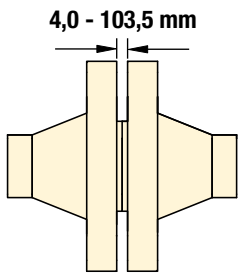
▼ The Enerpac FF120 QuickFace has same precision and quality of finish as a lathe.



The Equalizer™ range of patented flange spreading tools have been developed to aid and simplify the maintenance of flange joints. No longer will those tasked with separating flanges have to rely on using ropes and pulleys, podgers, tirsors, come-alongs or hammers – there is a safe, quick and effective alternative, the

Equalizer™ range of spreaders. These spreaders use mechanical and hydraulic principles for separating flanges and can spread small, medium or large flange joints. Tool selection is made on the basis of the access gap between the flange faces, the flange size and the required scope of work.

## SWi Flange Spreading Wedges:

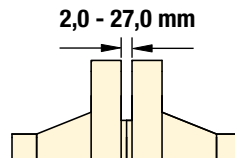


An innovative flange spreading wedge for use on small, medium or large flange joints with a minimum access gap of 4 mm. The SWi range includes ATEX approved options.

The SWi range has set the new standard for spreading flange joints powerfully, efficiently, effectively and safely. The tools offer the following features and benefits:

- Wider spreading - using the Standard Stepped Block accessories means the SWi range offers up to 30% more flange spreading distance than a traditional SW tool.
- Unrivalled power - the tools now offer up to 240 kN of spreading force when used in pairs, which provides additional confidence when spreading.
- Narrower jaws - the SWi5T tools are only 50 mm wide to help them fit more easily between flange bolts.
- Fully rotational handle – the handle swivels 360-degrees around the wedge head, so that the SWi tools can be used comfortably in all orientations.
- Easier maintenance – end-users will appreciate the ease with which the tools can be maintained. The supplied hex-key and a two step-process is all that's required to disassemble and reassemble the tools.
- No pinch points – the SWi range of tools has been engineered to overcome finger pinch-points.

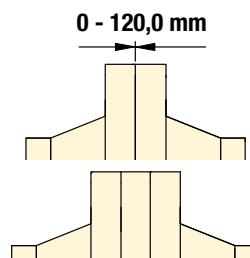
## MG Flange Spreading Tool:



A mechanical tool for small diameter, low pressure flanges with a minimum access gap of 2 mm.

For use on smaller, lower pressure flange joints, this portable and flexible tool can be assembled in two alternative configurations that gives it twice the application range from one tool. The tool is locked onto the flange joint by the spreading bar preventing the risk of it falling from the flange joint.

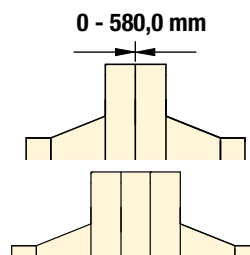
## SG Flange Spreading Tools:



A unique flange spreader, ideal for situations where there is no access gap, or where there is a spacer, a wafer or butterfly valve positioned between the flanges.

Equalizer's unique Secure-Grip tools spread by locking into the flange bolt holes and pulling the mating flanges away from each other, the Secure Grip flange spreaders are locked on to the flanges when under load making them arguably the world's safest flange spreading tools.











## VC Valve Change-Out Tools:



Using the same technology as the SG flange spreaders the VC range has been developed for valve removal applications.

The Equalizer™ VC Range of Valve Change-Out tools has been developed to assist in the removal of valves, spades/spacers or gaskets from large flange joints. The span of the tool is longer than a standard Secure-Grip Flange Spreader and is adjustable to enable the tool to operate in a range of applications.

# Flange Maintenance Tools – Overview

| Capacity<br>(kN)         | Spreading<br>Distance<br>(mm) | Tool Type and Function  | Series     | Image   | Page  |
|--------------------------|-------------------------------|---|------------|---|-------|
| 77 - 240                 | 4 - 103                       | <b>Flange Spreading Tools and Kits</b><br>Flange Spreading Wedges   | SWi        |    | 320 ▶ |
| 140 - 240                | 6 - 103                       | <b>Flange Spreading Tools and Kits</b><br>Flange Spreading Wedges, ATEX-Certified                               | SWi        |    | 322 ▶ |
| 37 - 150                 | 0 - 115                       | <b>Flange Spreading Tools and Kits</b><br>Hydraulic and Mechanical  | SG         |    | 324 ▶ |
| 180 - 250                | 0 - 120                       | <b>Flange Spreading Tools and Kits</b><br>Hydraulic   | SG         |    | 326 ▶ |
| 100                      | 0 - 580                       | <b>Flange Spreading Tools and Kits</b><br>Secure-Grip Valve Change-Out Tools, Hydraulic                         | VC         |    | 328 ▶ |
| 68                       | 2 - 27                        | <b>Flange Spreading Tool and Kit</b><br>Mechanical  | MG         |    | 330 ▶ |
| 100                      | 570 - 0                       | <b>Flange Pulling Tool</b><br>Hydraulic   | FC         |  | 331 ▶ |
| 40 - 270                 | 42 - 65                       | <b>Flange Alignment Tools and Kits</b><br>Wind Turbine Tower Flange Alignment Tools<br>Hydraulic and Mechanical | TFA        |  | 332 ▶ |
| 0,3 - 1,0 ltr<br>2-Speed | –                             | <b>Hydraulic Sealed Hand Pumps</b><br>Standard and ATEX-Certified   | HP         |  | 333 ▶ |
| 2 - 6 m                  | –                             | <b>Hydraulic Hoses</b><br>Standard and ATEX-Certified   | 144<br>302 |  | 333 ▶ |



▼ SWi5TI-S



## SWi Series

### FLANGE SPREADING WEDGES

Spreading Force:

**77,0 - 240,0 kN**

Spreading Distance:

**4,0 - 103,5 mm**

Maximum Operating Pressure:

**700 bar \***

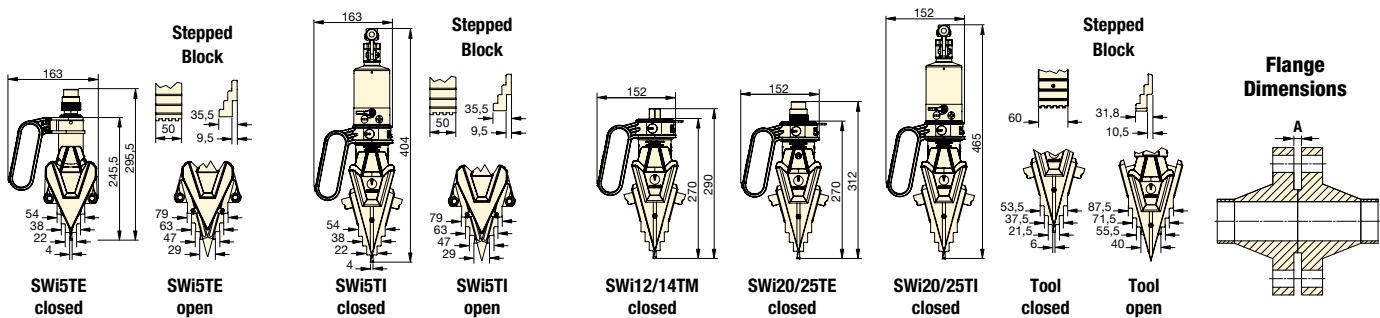
\* Only relevant for hydraulic tools

- Practical, portable and lightweight
- Revolving handle to aid horizontal or vertical spreading
- Removable handle for improved access
- No finger pinch-point
- Increased step-depth on upper steps
- Safety lanyard – 1,0 m length
- Forged key components for strength and reliability
- Rapid disassembly and assembly
- Narrow jaw teeth – improved tool wear.



#### Caution

A minimum of two Flange Spreading Tools must be used when opening flange joints. This will enable the operator to maintain an equal spreading distance across the flange faces.



| Model Number<br>Tool Kit | Type               | Maximum Spreading Force Per Tool (kN) | Spreading Distance Maximum * (mm) | Flange Dimensions Minimum Access Gap A (mm) | Jaw Width (mm) | Tool Weight (kg) | Kit Weight (kg) | Case Dimensions (mm) | Tool Number |
|--------------------------|--------------------|---------------------------------------|-----------------------------------|---|----------------|------------------|-----------------|----------------------|-------------|
| SWi5TE-S                 | External Hydraulic | 77,0                                  | 101,0                             | 4,0   | 50,0           | 5,2              | 8,7             | 580 x 340 x 180      | SWi5TE      |
| SWi5TE-T                 | External Hydraulic | 77,0                                  | 101,0                             | 4,0   | 50,0           | 5,2              | 14,4            | 580 x 340 x 180      | SWi5TE      |
| SWi5TI-S                 | Integral Hydraulic | 77,0                                  | 101,0                             | 4,0   | 50,0           | 7,0              | 10,5            | 580 x 330 x 180      | SWi5TI      |
| SWi1214TMSTDSPB          | Mechanical         | 140,0                                 | 103,5                             | 6,0   | 60,0           | 6,2              | 13,0            | 580 x 330 x 165      | SWi12/14TM  |
| SWi2025TEMINSPB          | External Hydraulic | 240,0                                 | 103,5                             | 6,0   | 60,0           | 6,4              | 11,6            | 580 x 330 x 165      | SWi20/25TE  |
| SWi2025TESTDSPB          | External Hydraulic | 240,0                                 | 103,5                             | 6,0   | 60,0           | 6,4              | 20,7            | 920 x 500 x 205      | SWi20/25TE  |
| SWi2025EMAXSPB           | External Hydraulic | 240,0                                 | 103,5                             | 6,0   | 60,0           | 6,4              | 33,0            | 920 x 500 x 205      | SWi20/25TE  |
| SWi2025TISTDSPB          | Integral Hydraulic | 240,0                                 | 103,5                             | 6,0   | 60,0           | 8,5              | 13,8            | 580 x 330 x 165      | SWi20/25TI  |

\* Using stepped blocks.

# Flange Spreading Tools

## SWi5TE - Hydraulic Flange Spreading Wedge

### SWi5TE-S - SWi5TE S Kit



- 1 x SWi5TE Flange Spreading Tool
- 1 x Standard Safety Block
- 1 x Lanyard
- 1 x Moulded Plastic Carry Case with Protective Foam Inserts

### SWi5TE-T - SWi5TE T Kit



- 2 x SWi5TE Flange Spreading Tools
- 2 x Standard Safety Blocks
- 2 x Lanyards
- 1 x Moulded Plastic Carry Case with Protective Foam Inserts

### 1640016-01 - SWi5TE Stepped Block Kit



- 1 x Pair of SWi5TE Stepped Blocks
- 2 x M6 CSK Hex Screw
- 2 x Retaining Washer
- 1 x SWi5TE Large Safety Block
- 2 x Hex Key

## SWi12/14TM - Mechanical Flange Spreading Wedge

### SWi1214TMSTDSPB - SWi12/14TM STD Kit



- 1 x SWi12/14TM Flange Spreading Tool
- 1 x Torque Wrench with 22 mm Socket
- 1 x Set of Safety Blocks
- 1 x Pair of Stepped Blocks
- 1 x Lanyard
- 1 x Hex Key
- 1 x Moulded Plastic Carry Case

## SWi20/25TE - Hydraulic Flange Spreading Wedge

### SWi2025TEMINSPB - SWi20/25TE MIN Kit



- 1 x SWi20/25TE Flange Spreading Tool
- 1 x Set Safety Blocks
- 1 x Pair of Stepped Blocks
- 1 x Lanyard
- 1 x Hex Key
- 1 x Moulded Plastic Carry Case

### SWi2025TESTDSPB - SWi20/25TE STD Kit



- 1 x SWi20/25TE Flange Spreading Tool
- 1 x 700 bar Hydraulic Hose, 2 m with 90° Elbow
- 1 x 700 bar HP350S Single-Port Sealed Hand Pump with Gauge
- 1 x Set Safety Blocks
- 1 x Pair of Stepped Blocks
- 1 x Lanyard
- 1 x Hex Key
- 1 x Moulded Plastic Carry Case

### SWi2025TEMAXSPB - SWi20/25TE MAX Kit



- 2 x SWi20/25TE Flange Spreading Tools
- 2 x 700 bar Hydraulic Hoses, 2 m with 90° Elbow
- 1 x 700 bar HP550D Twin-Port Sealed Hand Pump with Gauge
- 2 x Set Safety Blocks
- 2 x Pair of Stepped Blocks
- 2 x Lanyards
- 2 x Hex Keys
- 1 x Moulded Plastic Carry Case

## SWi5TI - Integral Hydraulic Flange Spreading Wedge

### SWi5TI-S - SWi5TI S Kit



- 1 x SWi5TI Flange Spreading Tool
- 1 x Standard Safety Block
- 1 x Lanyard
- 1 x Moulded Plastic Carry Case with Protective Foam Inserts

### 1640016-01 - SWi5TE Stepped Block Kit



- 1 x Pair of SWi5TE Stepped Blocks
- 2 x M6 CSK Hex Screw
- 2 x Retaining Washer
- 1 x SWi5TE Large Safety Block
- 2 x Hex Key

## SWi20/25TI - Integral Hydraulic Flange Spreading Wedge

### SWi2025TISTDSPB - SWi20/25TI STD Kit



- 1 x SWi20/25TI Flange Spreading Tool
- 1 x Set of Safety Blocks
- 1 x Pair of Stepped Blocks
- 1 x Lanyard
- 1 x Hex Key
- 1 x Carry-Strap
- 1 x Moulded Plastic Carry Case

▼ SWi20/25TEEX



## SWi Series



**ATEX CERTIFIED FLANGE SPREADING WEDGES**

Spreading Force:

**140,0 - 240 kN**

Spreading Distance:

**6,0 - 103,5 mm**

Maximum Operating Pressure:

**700 bar \***

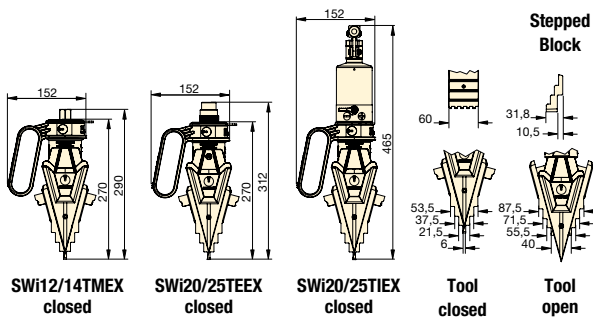
\* Only relevant for hydraulic tools

- ATEX certified
- Practical, portable and lightweight
- Revolving handle to aid horizontal or vertical spreading
- Removable handle for improved access
- No finger pinch-point
- Increased step-depth on upper steps
- Safety lanyard – 1,0 m length
- Forged key components for strength and reliability
- Rapid disassembly and assembly
- Narrow jaw teeth – improved tool wear.

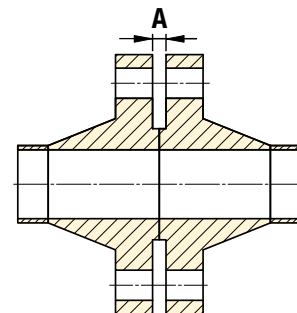


### Caution

A minimum of two Flange Spreading Tools must be used when opening flange joints. This will enable the operator to maintain an equal spreading distance across the flange faces.



### Flange Dimensions



| Model Number<br>Tool Kit | Type               | Maximum Spreading Force Per Tool (kN) | Spreading Distance Maximum * (mm) | Flange Dimensions Minimum Access Gap A (mm) | Jaw Width (mm) | Tool Weight (kg) | Kit Weight (kg) | Case Dimensions (mm) | Tool Number  |
|--------------------------|--------------------|---------------------------------------|-----------------------------------|---|----------------|------------------|-----------------|----------------------|--------------|
| SWi1214TMSTDEX           | Mechanical         | 140,0                                 | 103,5                             | 6,0   | 60,0           | 6,2              | 17,0            | 580 x 400 x 180      | SWi12/14TMEX |
| SWi2025TEMINEX           | External Hydraulic | 240,0                                 | 103,5                             | 6,0   | 60,0           | 6,4              | 15,0            | 580 x 400 x 180      | SWi20/25TEEX |
| SWi2025TESTDEX           | External Hydraulic | 240,0                                 | 103,5                             | 6,0   | 60,0           | 6,4              | 27,5            | 680 x 560 x 180      | SWi20/25TEEX |
| SWi2025TEMAXEX           | External Hydraulic | 240,0                                 | 103,5                             | 6,0   | 60,0           | 6,4              | 38,8            | 930 x 600 x 180      | SWi20/25TEEX |
| SWi2025TISTDEX           | Integral Hydraulic | 240,0                                 | 103,5                             | 6,0   | 60,0           | 8,5              | 17,5            | 580 x 400 x 180      | SWi20/25TIEX |

\* Using stepped blocks.

# Flange Spreading Tools

**SWi12/14TMEX -**  
ATEX Certified Mechanical  
Flange Spreading Wedge



II 2G Ex h IIB T5 Gb  
II 2D Ex h IIIC T85°C Db

**SWi1214TMSTDEX - SWi12/14TMEX STD Kit**



1 x SWi12/14TMEX Flange Spreading Tool  
1 x ATEX Torque Wrench with 22 mm Socket  
1 x Set of Safety Blocks  
1 x Pair of Stepped Blocks  
1 x Lanyard  
1 x Hex Key  
1 x Aluminium Carry Case with Protective Foam Inserts

**SWi20/25TEEX -**  
ATEX Certified Hydraulic  
Flange Spreading Wedge



II 2G Ex h IIB T5 Gb  
II 2D Ex h IIIC T100°C Db

**SWi2025TEMINEX - SWi20/25TEEX MIN Kit**



1 x SWi20/25TEEX Flange Spreading Tool  
1 x Set Safety Blocks  
1 x Pair of Stepped Blocks  
1 x Lanyard  
1 x Hex Key  
1 x Aluminium Carry Case with Protective Foam Inserts

**SWi20/25TIEX -**  
ATEX Certified Integral Hydraulic  
Flange Spreading Wedge



II 2G Ex h IIB T5 Gb  
II 2D Ex h IIIC T100°C Db

**SWi2025TISTDEX - SWi20/25TIEX STD Kit**



1 x SWi20/25TIEX Flange Spreading Tool  
1 x Set of Safety Blocks  
1 x Pair of Stepped Blocks  
1 x Lanyard  
1 x Hex Key  
1 x Carry-Strap  
1 x Aluminium Carry Case with Protective Foam Inserts

**SWi2025TESTDEX - SWi20/25TEEX STD Kit**



1 x SWi20/25TEEX Flange Spreading Tool  
1 x 700 bar ATEX Hydraulic Hose, 2 m with 90° Elbow  
1 x 700 bar HP350S ATEX Single-Port Sealed Hand Pump with Gauge  
1 x Set Safety Blocks  
1 x Pair of Stepped Blocks  
1 x Lanyard  
1 x Hex Key  
1 x Aluminium Carry Case with Protective Foam Inserts

**SWi2025TEMAXEX - SWi20/25TEEX MAX Kit**



2 x SWi20/25TEEX Flange Spreading Tools  
2 x 700 bar ATEX Hydraulic Hose, 2 m with 90° Elbow  
1 x 700 bar HP550D ATEX Twin-Port Sealed Hand Pump with Gauge  
2 x Set Safety Blocks  
2 x Pair of Stepped Blocks  
2 x Lanyards  
2 x Hex Keys  
1 x Aluminium Carry Case with Protective Foam Inserts



**These tools have been designed for use in potentially explosive atmospheres which is:**

- Group II (Non-mining equipment)
- Equipment **category 2** where explosive atmosphere is likely to occur in normal operation
- Can be applied in **zones 1 and 2** of gaseous explosive atmospheres and in **zones 21 and 22** of dust explosive atmosphere
- **Gas G** or **Dust D** with type of protection **Ex h** for non-electrical equipment
- Suitable for use with **Group IIB** of a gases and vapours (Ethylene group) and **Group IIIC** of dust (conductive dust)
- For hydraulic tools **T5** means that minimum ignition temperature of gas or vapor **>100°C**; **T100°C** means that minimum ignition temperature of a dust cloud  $\geq 150^\circ\text{C}$  and minimum ignition temperature of a 5mm dust layer  $\geq 175^\circ\text{C}$
- For mechanical tools **T6** means that minimum ignition temperature of gas or vapor **>85°C**; **T85°C** means that minimum ignition temperature of a dust cloud  $\geq 127,5^\circ\text{C}$  and minimum ignition temperature of a 5mm dust layer  $\geq 160^\circ\text{C}$ .

**These tools have been designed and manufactured in accordance with the following transposed harmonized European standards:**

- **EN ISO 80079-36:2016** Explosive atmospheres - Part 36: Non-electrical equipment for explosive atmospheres - Basic method and requirements;
- **EN ISO 80079-37:2016** Explosive atmospheres - Part 37: Non-electrical equipment for explosive atmospheres - Non-electrical type of protection constructional safety "c", control of ignition sources "b", liquid immersion "k":



▼ SG11TM



- For use on all flange types with bolt-hole sizes ranging from 17,5 mm to 62,0 mm
- Unique expanding collet technology
- Little or no access gap required
- Secure bolt-hole locking mechanism.

### OPERATING BENEFITS

- Time-saving, simple operation
- Measurable, controlled flange spreading force
- Virtually universal, the Secure-Grip Flange Spreader range covers ANSI, DIN, SPO, ASME, API and BS flanges.



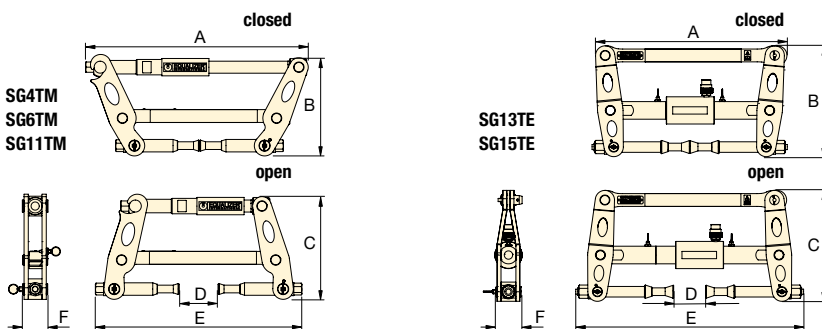
#### Range of Application

For a detailed range of application please request the Secure-Grip Mechanical or Hydraulic Operator Instruction Sheet.

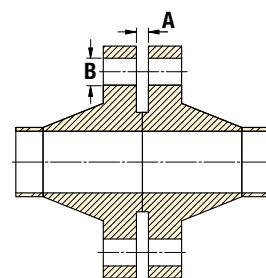


#### Caution

A minimum of two Flange Spreading Tools must be used when opening flange joints. This will enable the operator to maintain an equal spreading distance across the flange faces.



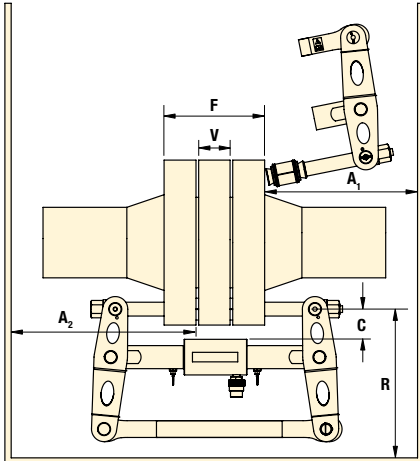
### Flange Dimensions



| Model Number<br>Tool Kit | Type* | Maximum Spreading Force Per Tool (kN) | Spreading Distance Maximum (mm) | Flange Dimensions (mm) |                      | Tool Dimensions (mm) |     |     |     |     |    | Tool Weight (kg) | Kit Weight (kg) | Case Dimensions (mm) | Tool Number |
|--------------------------|-------|---------------------------------------|---------------------------------|------------------------|----------------------|----------------------|-----|-----|-----|-----|----|------------------|-----------------|----------------------|-------------|
|                          |       |                                       |                                 | Minimum Access Gap A   | Bolt-hole Diameter B | A                    | B   | C   | D   | E   | F  |                  |                 |                      |             |
| SG4TMSTD                 | M     | 37,0                                  | 75                              | 0                      | 17,5 - 23            | 398                  | 190 | 182 | 75  | 385 | 48 | 4,5              | 12,8            | 520x375x165          | SG4TM       |
| SG6TMSTD                 | M     | 60,0                                  | 80                              | 0                      | 24 - 30              | 468                  | 245 | 252 | 80  | 444 | 52 | 7,5              | 16,0            | 640x540x165          | SG6TM       |
| SG11TMSTD                | M     | 110,0                                 | 90                              | 0                      | 30 - 39              | 516                  | 250 | 263 | 90  | 462 | 60 | 10,5             | 20,0            | 640x540x165          | SG11TM      |
| SG13TESTD                | H     | 130,0                                 | 115                             | 0                      | 38 - 49              | 516                  | 303 | 314 | 115 | 630 | 72 | 21,5             | 40,5            | 890x570x165          | SG13TE      |
| SG15TESTD                | H     | 150,0                                 | 100                             | 0                      | 47,5 - 62            | 600                  | 346 | 380 | 100 | 720 | 80 | 26,0             | 45,0            | 890x570x165          | SG15TE      |

\* M = Mechanical  
H = Hydraulic

# Flange Spreading Tools



Spreading Force:  
**37,0 - 150,0 kN**

Spreading Distance:  
**0 - 115 mm**

Maximum Operating Pressure:  
**700 bar \***

\* Only relevant for hydraulic tools

**SG Series**



| Model Number     | Flange Joint Thickness<br>F |           |   | Valve / Spacer Thickness<br>V |           |   | Flange Clearance<br>C |   | Radial Space<br>R |  | Axial Space<br>(for installation)<br>A <sub>1</sub> |  | Axial Space<br>(installed)<br>A <sub>2</sub> |  | Tool Number |
|------------------|-----------------------------|-----------|---|-------------------------------|-----------|---|-----------------------|---|-------------------|--|---|--|--|--|-------------|
|                  | Min. (mm)                   | Max. (mm) | Measured: From / To                             | Min. (mm)                     | Max. (mm) | Measured: From / To                           | Max. (mm)             | Measured: From / To                           | Min. (mm)         | Measured: From / To                    | Min. (mm)   | Measured: From / To                          | Min. (mm)                                    | Measured: From / To                        |             |
| <b>SG4TMSTD</b>  | 60                          | 185       | Outside face of flange / Outside face of flange | 0*                            | 45*       | Inside face of flange / Inside face of flange | 50                    | Bolt-hole circle / Largest OD of valve/spacer | 170               | Bolt-hole circle / Closest obstruction | 170   | Outside face of flange / Closest obstruction | 200  | Inner face of flange / Closest obstruction | SG4TM       |
| <b>SG6TMSTD</b>  | 60                          | 210       |   | 0*                            | 50*       |   | 55                    |   | 230               |  | 200   |  | 234  |  |             |
| <b>SG11TMSTD</b> | 96                          | 240       |   | 0*                            | 60*       |   | 60                    |   | 240               |  | 223   |  | 258  |  |             |
| <b>SG13TESTD</b> | 120                         | 310       |   | 0*                            | 95*       |   | 70                    |   | 280               |  | 310   |  | 260  |  |             |
| <b>SG15TESTD</b> | 140                         | 400       |   | 0*                            | 80*       |   | 80                    |   | 370               |  | 380   |  | 315  |  |             |

\* Short Collet Holder Kits (SCH) are available which can offer improved range of application.

## SG4TM MECHANICAL TOOL KIT



- 1 X SG4TM Tool
- 1 X 150 mm Vernier Calliper
- 1 X 3/8" Drive Torque Wrench and 16 mm Socket
- 1 X Safety Block
- 2 X M16 (5/8") Collets
- 2 X M20 (3/4") Collets
- 1 x Aluminium Carry Case with Protective Foam Inserts

## SG6TM MECHANICAL TOOL KIT



- 1 X SG6TM Tool
- 1 X 150 mm Vernier Calliper
- 1 X 3/8" Drive Torque Wrench and 21 mm Socket
- 1 X Safety Block
- 2 x M24 (7/8") Collets
- 2 x M27 (1") Collets
- 1 x Aluminium Carry Case with Protective Foam Inserts

## SG11TM MECHANICAL TOOL KIT



- 1 X SG11TM Tool
- 1 X 150 mm Vernier calliper
- 1 X 1/2" Drive torque wrench and 24 mm socket
- 1 X Safety block
- 2 x M30 (1-1/8") Collets
- 2 x M33 (1-1/4") Collets
- 2 x M36 (1-3/8") Collets
- 1 x Aluminium Carry Case with Protective Foam Inserts

## SG13TE HYDRAULIC TOOL KIT



- 1 x SG13TE Tool
- 1 x 700 bar HP550S Single Port Sealed Hand Pump with Gauge
- 1 x 700 bar Hydraulic Hose, 2 m
- 1 x 150 mm Vernier Calliper
- 1 x 1/2" Square Drive Flexible Handle
- 1 x 30 mm Socket
- 1 x Safety Block
- 2 x M39 (1-1/2") Collets
- 2 x M42 (1-5/8") Collets
- 2 x M45 (1-3/4") Collets
- 1 x Aluminium Carry Case with Protective Foam Inserts

## SG15TE HYDRAULIC TOOL KIT



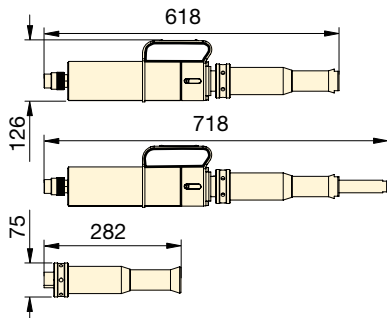
- 1 x SG15TE Tool
- 1 x 700 bar HP550S Single Port Sealed Hand Pump with Gauge
- 1 x 700 bar Hydraulic Hose, 2 m
- 1 x 300 mm Vernier Calliper
- 1 x 1/2" Square Drive Flexible Handle
- 1 x 36 mm Socket
- 1 x Safety Block
- 2 x M48 (1-7/8") Collets
- 2 x M52 (2") Collets
- 2 x M56 (2-1/4") Collets
- 1 x Aluminium Carry Case with Protective Foam Inserts

▼ SG18TE & SG25TE

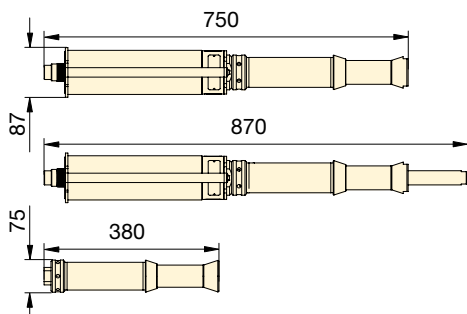


- Applicable for larger-sized flanges
- Actuated by an external hand pump
- Suitable for bolt holes from 59,5 mm to 108 mm.

SG18TE



SG25TE



**Range of Application**

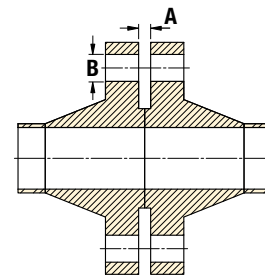
For a detailed range of application please request the Secure-Grip In-Line Hydraulic Operator Instruction Sheet.



**Caution**

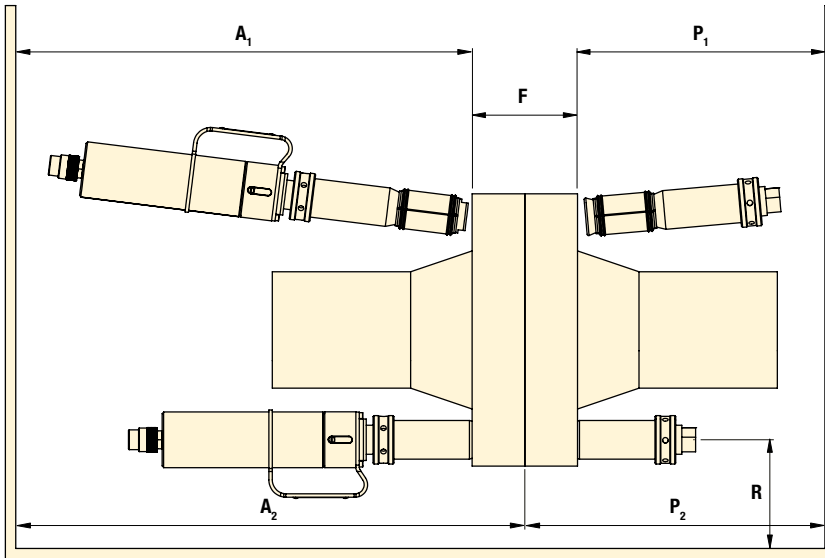
A minimum of two Flange Spreading Tools must be used when opening flange joints. This will enable the operator to maintain an equal spreading distance across the flange faces.

**Flange Dimensions**



| Model Number<br>Tool Kit | Type      | Maximum Spreading<br>Force<br>Per Tool<br>(kN) | Spreading<br>Distance<br>Maximum<br>(mm) | Flange Dimensions<br>(mm)  |                            | Tool<br>Weight<br>(kg) | Kit<br>Weight<br>(kg) | Case<br>Dimensions<br>(mm) | Tool<br>Number |
|--------------------------|-----------|--|--|----------------------------|----------------------------|------------------------|-----------------------|----------------------------|----------------|
|                          |           |  |  | Minimum<br>Access<br>Gap A | Bolt-hole<br>Diameter<br>B |                        |                       |                            |                |
| SG18TESTD                | Hydraulic | 180,0  | 100                                      | 0                          | 59,5 - 75                  | 14                     | 45                    | 890 x 570 x 165            | SG18TE         |
| SG25TESTD                | Hydraulic | 250,0  | 120                                      | 0                          | 75 - 108                   | 24                     | 50                    | 890 x 570 x 165            | SG25TE         |

# Flange Spreading Tools



## SG Series



Spreading Force:

**180,0 - 250,0 kN**

Spreading Distance:

**0 - 120 mm**

Maximum Operating Pressure:

**700 bar**

| Model Number<br>Tool Kit | Flange Joint<br>Thickness<br>F |              |  | Radial<br>Space<br>R |  | Axial Space<br>(for installation)<br>A1 |   | Axial Space<br>(installed)<br>A2 |   | Axial Plug Space<br>(for installation)<br>P1 |   | Axial Plug Space<br>(installed)<br>P2 |   | Tool<br>Number |
|--------------------------|--------------------------------|--------------|--|----------------------|--|---|---|----------------------------------|---|--|---|---------------------------------------|---|----------------|
|                          | Min.<br>(mm)                   | Max.<br>(mm) | Measured:<br>From / To                               | Min.<br>(mm)         | Measured:<br>From / To                       | Min.<br>(mm)                            | Measured:<br>From / To                            | Min.<br>(mm)                     | Measured:<br>From / To                          | Min.<br>(mm)                                 | Measured:<br>From / To                            | Min.<br>(mm)                          | Measured:<br>From / To                          |                |
| <b>SG18TESTD</b>         | 190                            | 450          | Outside face of<br>flange/ Outside<br>face of flange | 55                   | Bolt-hole circle /<br>Closest<br>obstruction | 620                                     | Outside face of<br>flange/ Closest<br>obstruction | 900                              | Inner face of<br>flange/ Closest<br>obstruction | 283  | Outside face of<br>flange/ Closest<br>obstruction | 283                                   | Inner face of<br>flange/ Closest<br>obstruction | SG18TE         |
| <b>SG25TESTD</b>         | 210                            | 570          | Outside face of<br>flange/ Outside<br>face of flange | 55                   | Bolt-hole circle /<br>Closest<br>obstruction | 750                                     | Outside face of<br>flange/ Closest<br>obstruction | 1100                             | Inner face of<br>flange/ Closest<br>obstruction | 380  | Outside face of<br>flange/ Closest<br>obstruction | 380                                   | Inner face of<br>flange/ Closest<br>obstruction | SG25TE         |

### SG18TE HYDRAULIC TOOL KIT



- 1 x SG18TE Tool
- 1 x Spreading Plug
- 1 x 700 bar HP550S Single Port Sealed Hand Pump with Gauge
- 1 x 700 bar Hydraulic Hose, 2 m
- 1 x 300 mm Vernier Calliper
- 1 x 12.5 mm Spacer Plate
- 1 x 5mm Allen Key
- 1 x 50 mm Spacer
- 1 x Safety Block
- 2 x M60 (2-3/8") Collets
- 2 x M64 (2-1/2") Collets
- 2 x M70 (2-3/4") Collets
- 1 x Aluminium Carry Case with Protective Foam Inserts

### SG25TE HYDRAULIC TOOL KIT



- 1 x SG25TE Tool
- 1 x Spreading Plug
- 1 x 700 bar HP550S Single Port Sealed Hand Pump with Gauge
- 1 x 700 bar Hydraulic Hose, 2 m
- 1 x 300 mm Vernier Calliper
- 1 x 12.5 mm Spacer Plate
- 1 x Safety Block
- 1 x Aluminium Carry Case with Protective Foam Inserts

### SG25TE COLLETS (AVAILABLE SEPARATELY)

| Model Number     | Description              |
|------------------|--------------------------|
| <b>673601-01</b> | 2 x M76 (3") Collets     |
| <b>674801-01</b> | 2 x M90 (3-1/2") Collets |
| <b>673901-01</b> | 2 x M80 (3-1/4") Collets |
| <b>675101-01</b> | 2 x M95 (3-3/4") Collets |
| <b>674501-01</b> | 2 x M84 (3-3/8") Collets |
| <b>675601-01</b> | 2 x M100 (4") Collets    |



▼ VC10TE



## Secure-Grip Valve Change-Out Tools



### Caution

A minimum of two Flange Spreading Tools must be used when opening flange joints. This will enable the operator to maintain an equal spreading distance across the flange faces.

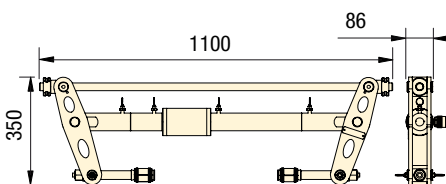
- Assists in the removal of wafer/butterfly valves, spades/spacers or gaskets from large flange joints
- Tool span is longer than a standard Secure-Grip Flange Spreader
- Adjustable to enable the tool to operate in a range of situations.



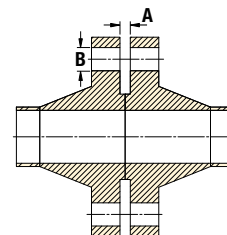
The Actuator and Extension Subassembly can be assembled into 4 different configurations to suit a variety of applications. For a detailed range of application please request the VC10 Operator Instruction Sheet.

### PATENTED SECURE-GRIP SYSTEM:

- Unique expanding collet technology
- Secure bolt-hole locking mechanism
- Unique technology makes the Secure-Grip arguably the safest flange spreader available in the world today
- Virtually universal, the Secure-Grip Flange Spreader range will cover ANSI, DIN, Norsok L005, ASME, API and BS Flanges
- Time-saving, simple operation.



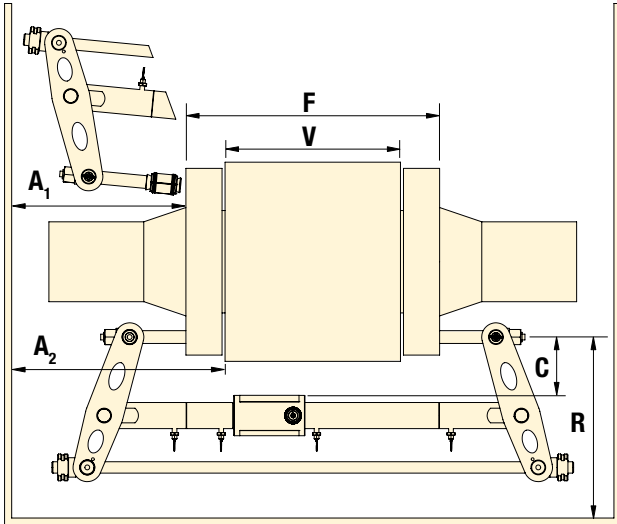
### Flange Dimensions



| Model Number<br>Tool Kit | Type* | Maximum Spreading Force Per Tool (kN) | Spreading Distance Maximum (mm) | Flange Dimensions (mm) |                      | Tool Kit Weight (kg)<br>(2 per Maxi Kit) | Pump Kit Weight (kg) | Gross Kit Weight (kg) | Tool Case Dimensions (mm) | Pump Case Dimensions (mm) | Tool Number |
|--------------------------|-------|---------------------------------------|---------------------------------|------------------------|----------------------|--|----------------------|-----------------------|---------------------------|---------------------------|-------------|
|                          |       |                                       |                                 | Minimum Access Gap A   | Bolt-hole Diameter B |  |                      |                       |                           |                           |             |
| VC10/13TESTD             | H     | 100                                   | 580                             | 0                      | 38 - 49              | 50                                       | 27                   | 77                    | 550x1200x170              | 550x1200x170              | VC10/13TE   |
| VC10/13TEMAX             | H     | 100                                   | 580                             | 0                      | 38 - 49              | 50                                       | 30                   | 130                   | 550x1200x170              | 550x1200x170              | VC10/13TE   |
| VC10/15TESTD             | H     | 100                                   | 560                             | 0                      | 47,5 - 62            | 53                                       | 27                   | 80                    | 550x1200x170              | 550x1200x170              | VC10/15TE   |
| VC10/15TEMAX             | H     | 100                                   | 560                             | 0                      | 47,5 - 62            | 53                                       | 30                   | 136                   | 550x1200x170              | 550x1200x170              | VC10/15TE   |
| VC10/18TESTD             | H     | 100                                   | 514                             | 0                      | 59,5 - 75            | 58                                       | 27                   | 85                    | 550x1200x170              | 550x1200x170              | VC10/18TE   |
| VC10/18TEMAX             | H     | 100                                   | 514                             | 0                      | 59,5 - 75            | 58                                       | 30                   | 146                   | 550x1200x170              | 550x1200x170              | VC10/18TE   |
| VC10/25TESTD             | H     | 100                                   | 490                             | 0                      | 75 - 108             | 58                                       | 27                   | 85                    | 550x1200x170              | 550x1200x170              | VC10/25TE   |
| VC10/25TEMAX             | H     | 100                                   | 490                             | 0                      | 75 - 108             | 58                                       | 30                   | 146                   | 550x1200x170              | 550x1200x170              | VC10/25TE   |

\* H = Hydraulic

# Flange Spreading Tools



## VC Series



Spreading Force:  
**100 kN**

Spreading Distance:  
**0 - 580 mm**

Maximum Operating Pressure:  
**700 bar**

| Model Number<br>Tool Kit | Flange Joint Thickness<br>F |           |  | Valve / Spacer Thickness<br>V |           |  | Flange Clearance<br>C   | Radial Space<br>R  | Axial Space<br>(for installation)<br>A <sub>1</sub>              | Axial Space<br>(installed)<br>A <sub>2</sub>                   | Tool Number |
|--------------------------|-----------------------------|-----------|--|-------------------------------|-----------|--|---|--|--|--|-------------|
|                          | Min. (mm)                   | Max. (mm) | Measured: From / To                                | Min. (mm)                     | Max. (mm) | Measured: From / To                              |   |  |  |  |             |
| VC10/13TESTD             | 110                         | 690       | Outside face of flange /<br>Outside face of flange | 0*                            | 580*      | Inside face of flange /<br>Inside face of flange | Bolt-hole circle /<br>Largest OD of valve/spacer -<br>max. 130 mm | Bolt-hole circle /<br>Closest obstruction -<br>min. 360 mm | Outside face of flange /<br>Closest obstruction -<br>min. 300 mm | Inner face of flange /<br>Closest obstruction -<br>min. 370 mm | VC10/13TE   |
| VC10/13TEMAX             | 110                         | 690       |  | 0*                            | 580*      |  |   |  |  |  | VC10/13TE   |
| VC10/15TESTD             | 130                         | 690       |  | 0*                            | 560*      |  |   |  |  |  | VC10/15TE   |
| VC10/15TEMAX             | 130                         | 690       |  | 0*                            | 560*      |  |   |  |  |  | VC10/15TE   |
| VC10/18TESTD             | 176                         | 690       |  | 0*                            | 514*      |  |   |  |  |  | VC10/18TE   |
| VC10/18TEMAX             | 176                         | 690       |  | 0*                            | 514*      |  |   |  |  |  | VC10/18TE   |
| VC10/25TESTD             | 200                         | 690       |  | 0*                            | 490*      |  |   |  |  |  | VC10/25TE   |
| VC10/25TEMAX             | 200                         | 690       |  | 0*                            | 490*      |  |   |  |  |  | VC10/25TE   |

\* Short Collet Holder Kits (SCH) are available which can offer improved range of application.

### TOOL KITS (1 PER STD KIT, 2 PER MAX KIT)



#### VC10/13TE

1 x VC10/13TE Tool  
2 x M39 (1-1/2") Collets  
2 x M42 (1-5/8") Collets  
2 x M45 (1-3/4") Collets  
1 x Aluminium Carry Case with Protective Foam Inserts

#### VC10/15TE

1 x VC10/15TE Tool  
2 x M48 (1-7/8") Collets  
2 x M52 (2") Collets  
2 x M56 (2-1/4") Collets  
1 x Aluminium Carry Case with Protective Foam Inserts

#### VC10/18TE

1 x VC10/18TE Tool  
2 x M60 (2-3/8") Collets  
2 x M64 (2-1/2") Collets  
2 x M70 (2-3/4") Collets  
1 x Aluminium Carry Case with Protective Foam Inserts

#### VC10/25TE

1 x VC10/25TE Tool  
1 x Aluminium Carry Case with Protective Foam Inserts

### PUMP KITS



#### For STD Tool Kits

1 x 700 bar HP550S Single Port Hydraulic Hand Pump  
1 x Hydraulic Gauge with Manifold  
1 x 700 bar Hydraulic Hose, 2,0 m  
1 x Secure Grip Safety Block  
1 x Square Drive Flexible Handle  
1 x Vernier Calliper  
1 x Aluminium Carry Case with Protective Foam Inserts

#### For MAX Tool Kits

1 x 700 bar HP1000D Twin Port Hydraulic Hand Pump  
2 x Hydraulic Gauges with Manifolds  
2 x 700 bar Hydraulic Hoses, 2,0 m  
2 x Secure Grip Safety Blocks  
1 x Square Drive Flexible Handle  
1 x Vernier Calliper  
1 x Aluminium Carry Case with Protective Foam Inserts



### Collet Sizing

It is important that the correct size of collet is used. An undersized collet could allow the collet holder to pull through its bore. An oversized collet has the potential to become jammed in the bolt-hole.



### Range of Application

For a detailed range of application please request the Hydraulic Secure-Grip Valve Change-Out Tool Operator Instruction Sheet.

### VC10/25TE COLLETS (AVAILABLE SEPARATELY)

| Model Number | Description              |
|--------------|--------------------------|
| 673601-01    | 2 x M76 (3") Collets     |
| 673901-01    | 2 x M80 (3-1/4") Collets |
| 674501-01    | 2 x M84 (3-3/8") Collets |
| 674801-01    | 2 x M90 (3-1/2") Collets |
| 675101-01    | 2 x M95 (3-3/4") Collets |
| 675601-01    | 2 x M100 (4") Collets    |

▼ MG7TM



- Reversible leg design giving greater range of applications
- Unique double-angled wedge produces a greater spreading force without reducing spreading distance
- Robust lightweight tool
- Spreading force of 68,0 kN.

### OPERATING BENEFITS

- Locks on to flange joint
- Safe, quick and easy operation
- Saves time and cost.

## MG Series

**FLANGE SPREADING TOOL**

Spreading Force:

**68,0 kN**

Spreading Distance:

**2,0 - 27,0 mm**



### Range of Application

For a detailed range of application please request the MG7TM Operator Instruction Sheet.



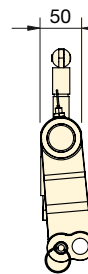
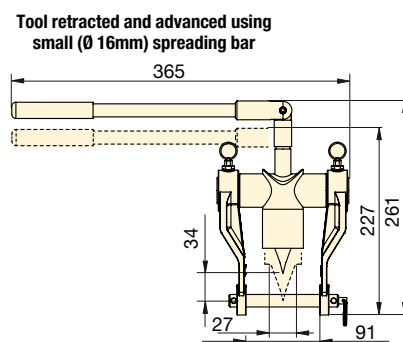
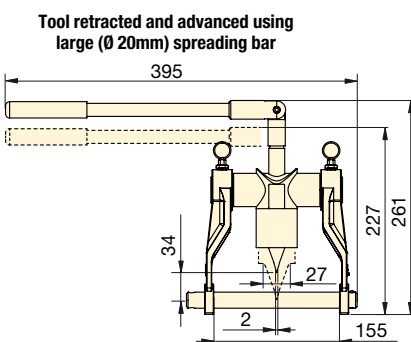
### Caution

A minimum of two Flange Spreading Tools must be used when opening flange joints. This will enable the operator to maintain an equal spreading distance across the flange faces.

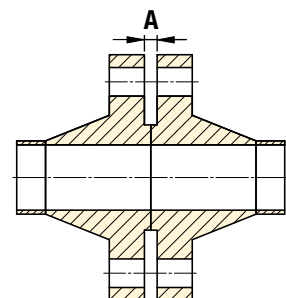
### MG7TMSTD Standard Kit



- 1 x MG7TM Tool
- 2 x Spreading Bar
- 1 x Moulded Plastic Carry Case



### Flange Dimensions



| Model Number<br>Tool Kit | Type       | Maximum Spreading Force Per Tool (kN) | Spreading Distance Maximum (mm) | Flange Dimensions<br>Minimum Access Gap A (mm) | Wedge Width (mm) | Tool Weight (kg) | Kit Weight (kg) | Case Dimensions (mm) | Tool Number |
|--------------------------|------------|---------------------------------------|---------------------------------|--|------------------|------------------|-----------------|----------------------|-------------|
| MG7TMSTD                 | Mechanical | 68,0                                  | 27,0                            | 2,0  | 45,0             | 5,0              | 5,5             | 360 x 300 x 90       | MG7TM       |

# Flange Pulling Tools

▼ FC10TE

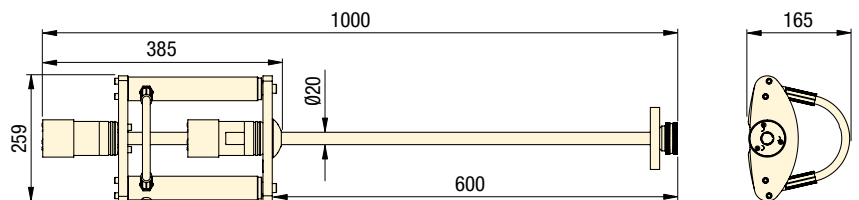
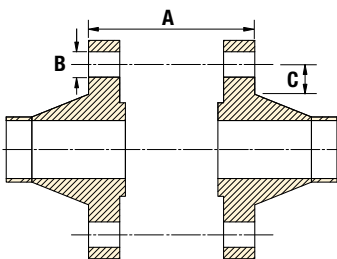


- Applicable to all flanges with a bolt-hole diameter of 1 inch or greater, including ANSI, DIN, Norsok L005, ASME and BS flanges
- Slide and lock collet system
- Low profile tool
- Can be used on all vertical and horizontal flanges including ANSI, API, BS, DIN & Norsok L005
- Robust yet light weight
- Subsea compatible
- Reciprocating hydraulic action.

## OPERATING BENEFITS

- Reduction in operator fatigue
- Reduction in pinch point
- Quick and easy to use.

Flange Dimensions



## FC Series

### FLANGE CLOSING TOOLS

Closing Force:  
**100 kN**

Closing Distance:  
**570 - 0 mm**

Maximum Operating Pressure:  
**700 bar**



#### Caution

A minimum of two flange closing tools must be used when flange pulling. This will enable the operator to maintain an even gap between flange faces and prevent flange / gasket damage.

#### FC10TESTD STD Kit



- 1 x FC10TE Tool
- 1 x 700 bar Hydraulic Hose, 2 m long
- 1 x 700 bar HP550S Single Port Sealed Hand Pump with Gauge
- 1 x Aluminium Carry Case with Protective Foam Inserts

#### FC10TEMAX MAX Kit



- 2 x FC10TE Tool
- 2 x 700 bar Hydraulic Hoses, 2 m long
- 1 x 700 bar HP550D Twin Port Sealed Hand Pump with Gauge
- 1 x Aluminium Carry Case with Protective Foam Inserts

| Model Number<br>Tool Kit | Type      | Maximum Closing Force Per Tool (kN) | Closing Distance (mm) | Flange Dimensions (mm) |       |       | Tool Weight (kg) | Kit Weight (kg) | Box/Case Dimensions (mm) | Tool Number |
|--------------------------|-----------|-------------------------------------|-----------------------|------------------------|-------|-------|------------------|-----------------|--------------------------|-------------|
|                          |           |                                     |                       | A                      | B min | C min |                  |                 |                          |             |
| FC10TESTD                | Hydraulic | 100                                 | 570                   | 16-570                 | 25,4* | 32    | 11               | 23,5            | 890 x 570 x 165          | FC10TE      |
| FC10TEMAX                | Hydraulic | 100                                 | 570                   | 16-570                 | 25,4* | 32    | 11               | 36,5            | 890 x 570 x 165          | FC10TE      |

\* For hole diameter greater than 45mm, please contact Enerpac.



▼ TFA15TI



## TFA Series

**WIND TURBINE TOWER  
FLANGE ALIGNMENT TOOLS**

Hook Force:

**40 - 270 kN**

Aligning Distance:

**42 - 65 mm**

### TFA4TM Mechanical Tool Kit



- 1 x TFA4TM Tool
- 1 x Torque Wrench
- 1 x Moulded Plastic Carry Case

### TFA12TE / TFA15TE External Hydraulic Tool Kit



- 1 x TFA12TE or TFA15TE Tool
- 1 x Safety Lanyard
- 1 x Aluminium Carry Case with Protective Foam Inserts

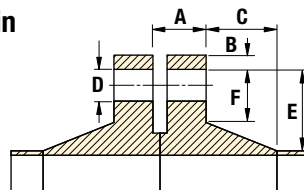
### TFA12TI / TFA15TI Internal Hydraulic Tool Kit



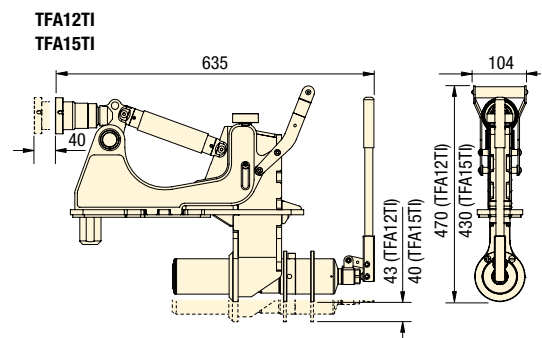
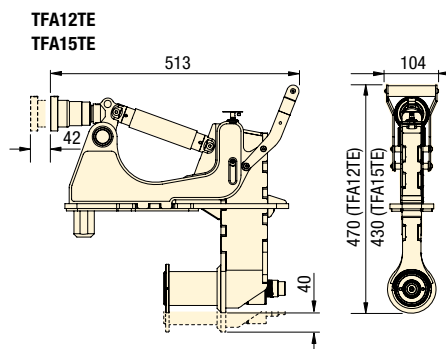
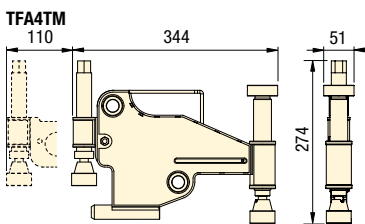
- 1 x TFA12TI or TFA15TI Tool
- 1 x Aluminium Carry Case with Protective Foam Inserts

The TFA Wind Turbine Tower Flange Alignment Tools have been developed to aid the alignment of large flanges on the inside of wind turbine towers during their assembly or installation.

- Assists in aligning / de-ovalizing large internal pipe flanges
- Helps resolve bolt-hole misalignment within tower sections of wind turbine towers
- Can be used both on and offshore.



**Flange Dimensions**



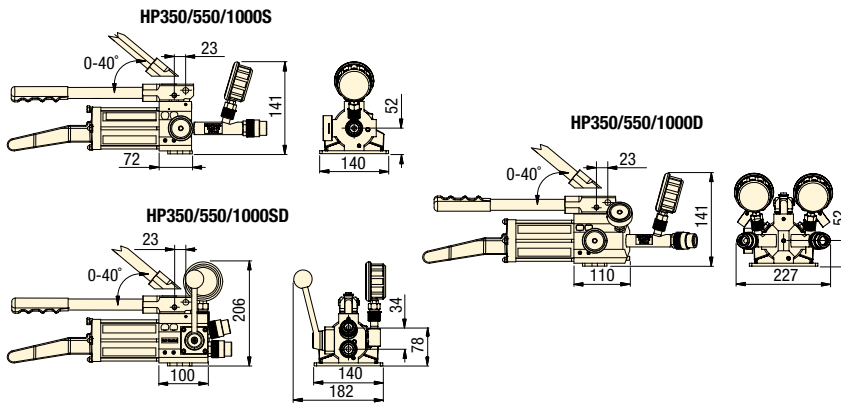
| Model Number<br>Tool Kit | Type* | Maximum<br>Hook<br>Force<br>Per Tool<br>(kN) | Maximum<br>Aligning<br>Distance<br>(mm) | Maximum<br>Operating<br>Pressure<br>(bar) | Flange Dimensions<br>(mm) |         |       |          |        |          | Tool<br>Weight<br>(kg) | Kit<br>Weight<br>(kg) | Box/Case<br>Dimensions<br>(mm) | Tool<br>Number |
|--------------------------|-------|--|---|---|---------------------------|---------|-------|----------|--------|----------|------------------------|-----------------------|--------------------------------|----------------|
|                          |       |  |   |   | A                         | B       | C     | D<br>min | E      | F<br>min |                        |                       |                                |                |
| TFA4TMSTD                | M     | 40   | 42                                      | -   | 36-135                    | 0-55    | 0-231 | 25       | 0-105  | 24       | 8,1                    | 18,0                  | 600x370x200                    | TFA4TM         |
| TFA12TEMIN               | H     | 240  | 65                                      | 510                                       | 129-178                   | 110-241 | 0-167 | 45       | 87-125 | 62       | 19,3                   | 28,4                  | 640x540x165                    | TFA12TE        |
| TFA15TEMIN               | H     | 270  | 65                                      | 700                                       | 89-138                    | 110-241 | 0-167 | 45       | 87-125 | 62       | 18,9                   | 28,0                  | 640x540x165                    | TFA15TE        |
| TFA12TIMIN               | H     | 240  | 65                                      | -   | 129-178                   | 113-241 | 0-167 | 45       | 87-125 | 62       | 21,9                   | 31,0                  | 585x900x160                    | TFA12TI        |
| TFA15TIMIN               | H     | 270  | 65                                      | -   | 89-138                    | 113-241 | 0-167 | 45       | 87-125 | 62       | 21,5                   | 30,6                  | 585x900x160                    | TFA15TI        |

\* M = Mechanical  
H = Hydraulic

▼ HP350DMIN



- HP-S , HP-D and HP-SD pump ranges are operable at all angles and are highly resistant to accidental spillage of hydraulic fluid. (certified)
- The Single-Port and Twin-Port Hand Pumps are also available with ATEX rating, which are certified for use in hazardous areas II 2G Ex h IIB T5 Gb, II 2D Ex h IIIC T100°C Db.



## HP Series



**HYDRAULIC SEALED  
HAND PUMPS**

Maximum Pressure Rating:

**1st Stage: 13,8 bar  
2nd Stage: 700 bar**

Pump Type:

**2-Speed**



### Pump Ratings

The Hydraulic Single Port, Twin Port and Double-Acting Hand-Pump (and hoses) are tailored for use with hydraulic equipment. Each pump's output is regulated to 700 bar and is delivered from threaded 3/8" NPT output ports. The pumps and hoses can be used with any 700 bar rated hydraulic equipment within their oil capacity specification. The HP range of hydraulic hand-pumps have been designed with a seal oil reservoir, which allows the pumps to be used in any orientation without the risk of oil spills or air contamination

### 700 BAR HOSES

AVAILABLE TO PURCHASE SEPARATELY

| Model Number | Description            |
|--------------|------------------------|
| 302701-01    | HYDRAULIC HOSE 2M      |
| 302702-01    | HYDRAULIC HOSE 4M      |
| 302705-01    | HYDRAULIC HOSE 3M      |
| 302706-01    | HYDRAULIC HOSE 5M      |
| 302707-01    | HYDRAULIC HOSE 6M      |
| 1440008-01   | ATEX HYDRAULIC HOSE 2M |
| 1440013-01   | ATEX HYDRAULIC HOSE 4M |
| 1440014-01   | ATEX HYDRAULIC HOSE 6M |

| Model Number<br>Hand Pump Kit |              | Type*  | Nominal Oil Capacity<br>(cc) | Useable Oil Capacity<br>(cc) | Oil Volume<br>per Stroke<br>(cc) |           | Max. Handle Effort<br>(kgf) | Piston Stroke<br>(mm) | Overall Length<br>(mm) | Box Dimensions<br>(mm) | Pump Weight<br>(kg) | Kit Weight<br>(kg) | Tool Number |
|-------------------------------|--------------|--------|------------------------------|------------------------------|----------------------------------|-----------|-----------------------------|-----------------------|------------------------|------------------------|---------------------|--------------------|-------------|
| Standard                      | ATEX         |        |                              |                              | 1st Stage                        | 2nd Stage |                             |                       |                        |                        |                     |                    |             |
| HP350SMIN                     | HP350SMINEX  | SA, SP | 350                          | 300                          | 3,62                             | 0,77      | 33                          | 18                    | 554                    | 250 x 180 x 600        | 4,4                 | 4,9                | HP350S      |
| HP550SMIN                     | HP550SMINEX  | SA, SP | 550                          | 580                          | 3,62                             | 0,77      | 25                          | 18                    | 643                    | 250 x 180 x 700        | 5,1                 | 5,9                | HP550S      |
| HP1000SMIN                    | HP1000SMINEX | SA, SP | 1000                         | 1110                         | 3,62                             | 0,77      | 21                          | 18                    | 867                    | 250 x 180 x 900        | 6,1                 | 7,1                | HP1000S     |
| HP350DMIN                     | HP350DMINEX  | SA, TP | 350                          | 300                          | 3,62                             | 0,77      | 33                          | 18                    | 580                    | 250 x 180 x 600        | 6,5                 | 7,2                | HP350D      |
| HP550DMIN                     | HP550DMINEX  | SA, TP | 550                          | 580                          | 3,62                             | 0,77      | 25                          | 18                    | 669                    | 250 x 180 x 700        | 7,2                 | 8,1                | HP550D      |
| HP1000DMIN                    | HP1000DMINEX | SA, TP | 1000                         | 1110                         | 3,62                             | 0,77      | 21                          | 18                    | 893                    | 250 x 180 x 900        | 7,1                 | 9,3                | HP1000D     |
| HP350SDMIN                    | -            | DA     | 350                          | 300                          | 3,62                             | 0,77      | 33                          | 18                    | 456                    | 250 x 180 x 600        | 5,3                 | 5,7                | HP350SD     |
| HP550SDMIN                    | -            | DA     | 550                          | 580                          | 3,62                             | 0,77      | 25                          | 18                    | 579                    | 250 x 180 x 700        | 5,7                 | 6,0                | HP550SD     |
| HP1000SDMIN                   | -            | DA     | 1000                         | 1110                         | 3,62                             | 0,77      | 31                          | 18                    | 769                    | 250 x 180 x 900        | 5,9                 | 6,3                | HP1000SD    |

\* SA = Single Acting    DA = Double Acting  
SP = Single Port      TP = Twin Port

Enerpac Heavy Lifting Technology provides customers with tailored solutions, combining hydraulics, steel fabrication and electronic control technology. Global Leader providing best in class solutions for safe and precise positioning of heavy loads.

With more than 50 years supporting industrial markets, Enerpac has gained the unique and in-depth expertise that is respected by industrial professionals around the world. Across every continent, Enerpac's network of application engineers, authorized distributors and technical service centers can reach any location, and deliver innovative solutions, technical assistance and quality products.

Enerpac's complete line of standard and customized products and a unique systems approach offers the benefits of safety and efficiency to applications where high forces are required.

Whether constructing a signature bridge across a deep valley, lifting a national landmark for seismic retrofit or simultaneously testing hundreds of foundation pilings to support a new building, Enerpac will supply the hydraulic solutions to get the job done safely and efficiently.



Precision lift and position of heavy loads



Synchronous superlift and launch



Bridge lifting and launching



Jacking with high capacity precision control



Synchronous hoisting and load positioning



Incremental bridge lifting
















Transportation



Special high tonnage cylinders for the Pioneering Spirit lifting beams

# Heavy Lifting Technology - Section Overview

| Capacity<br>ton (kN)   | Type and Capabilities   | Series                      | Image   | Page                         |
|--|---|-----------------------------|---|------------------------------|
| <b>Flow: 0,27 - 2,10 l/min</b><br><b>Power: 0,75 - 15 kW</b> | <b>Split-Flow Hydraulic Pumps</b><br>Multiple Outlets with Equal Flow for Lifting and Lowering              | <b>SFP</b>                  |    | <b>336</b> ▶                 |
| <b>Flow: 0,75 - 4,80 l/min</b><br><b>Power: 3,5 - 7,5 kW</b> | <b>Synchronous Lifting Systems, standard pump models</b><br>The multi-functional synchronous lifting system | <b>EVO</b>                  |    | <b>340</b> ▶                 |
| <b>50 -100</b><br>(500 - 1000)                               | <b>Self-Locking Cube Jack</b><br>Incremental lifting, automated mechanical locking                          | <b>SCJ</b>                  |    | <b>342</b> ▶                 |
| <b>50 - 200</b><br>(498 - 1995)                              | <b>Climbing Jacks</b><br>A simple solution to incremental lifting   | <b>BLS</b>                  |    | <b>346</b> ▶                 |
| <b>125 - 750</b><br>(1250 - 7500)                            | <b>Jack-Up Systems</b><br>Synchronously lift, mechanically hold, incremental lifting                        | <b>JS</b>                   |    | <b>348</b> ▶                 |
| <b>15 - 1250</b><br>(147 - 12.250)                           | <b>Heavy Lifting Strand Jacks</b><br>High capacity precision control  | <b>HSL</b>                  |    | <b>350</b> ▶                 |
| <b>55 - 225</b><br>(539 - 2204)                              | <b>Synchronous Hoisting Systems - SyncHoist</b><br>Precision positioning jacks                              | <b>SHS</b><br><b>SHAS</b>   |  | <b>352</b> ▶                 |
| <b>40 - 1100</b><br>(400 - 10.484)                           | <b>Telescopic Hydraulic Gantries</b><br>Precision lift and position of heavy loads                          | <b>ML</b><br><b>SL, SBL</b> |  | <b>354</b> ▶<br><b>356</b> ▶ |
| <b>100 - 250</b><br>(860- 2500)                              | <b>Skidding Systems</b><br>The ideal jack and slide solution  | <b>LH</b><br><b>HSK</b>     |  | <b>358</b> ▶<br><b>362</b> ▶ |
| <b>127 (1250)</b><br><b>25 - 50 m/hr</b>                     | <b>Trolley System</b><br>Synchronized travel  | <b>ETR</b>                  |  | <b>364</b> ▶                 |
| <b>200 - 400</b><br>(2000- 4000)                             | <b>Turntables</b><br>Controlled rotation of heavy loads   | <b>ETT</b>                  |  | <b>366</b> ▶                 |
| <b>60 (600)</b><br><b>Speed: 3 - 1,5 km/hr</b>               | <b>Self-Propelled Modular Transporters</b><br>Hydraulic strength in a linear drive transport system         | <b>SPMT</b>                 |  | <b>367</b> ▶                 |
| –  | <b>Custom Heavy Lifting Solutions</b><br><b>Solution Consultations, On-Demand Support</b>                   | –                           |  | <b>368</b> ▶<br><b>370</b> ▶ |



▼ SFP414SW and SFP403SW (Gauges and retract valves not shown)



- 2, 4, 6 or 8 split-flow outlets
- Individual or simultaneously operation of valves, with advance/hold/retract function
- Joystick (manual) controlled or pendant (solenoid) controlled valves
- Flow per outlet ranging from 0,27 to 2,10 l/min at 700 bar
- For double- and single-acting cylinders
- Adjustable pressure relief valve per circuit
- Reservoir: 20, 40 or 150 litres
- All models include pressure gauges.

▼ Step-by-step stage lifting an old windmill using double-acting RR506 cylinders powered by a split-flow pump.



## Multiple Outlets with Equal Flow for Lifting and Lowering



### Typical Split-Flow Pump Applications

For lifting and lowering applications on multiple points, Split-Flow Pumps are a far better alternative than using independently operated pumps. Where synchronization of maximum 4% is acceptable, Split-Flow Pumps are a safe and economical solution.

The SFP-Series pumps feature both single and synchronized multiple outlet control either through joystick or pendant operation.

#### Application examples:

- Bridge deck lifting for bearing maintenance
- Stage lifting in construction and shipbuilding
- Skidding to move structures and buildings
- Levelling of constructions such as wind turbines.



### Remote Control Pendant

Split-Flow pumps with solenoid valves include a remote pendant with selector switches for each individual outlet, allowing single or multiple cylinder operation.



### High Pressure Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

# Split-Flow Hydraulic Pumps

## SFP Series



Reservoir Capacity:

**20 - 40 - 150 litres**

Split-Flow Outlets:

**2, 4, 6 and 8 outlets**

Flow at Rated Pressure:

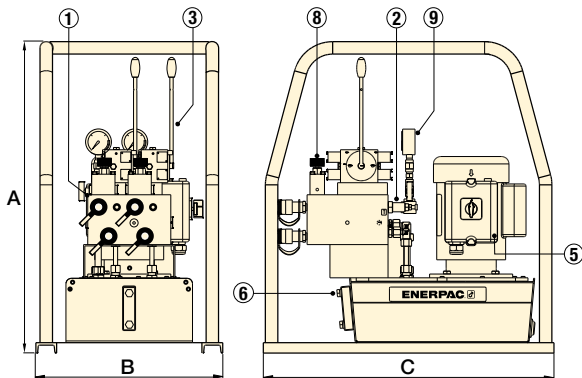
**0,27 - 2,10 l/min**

Motor Size:

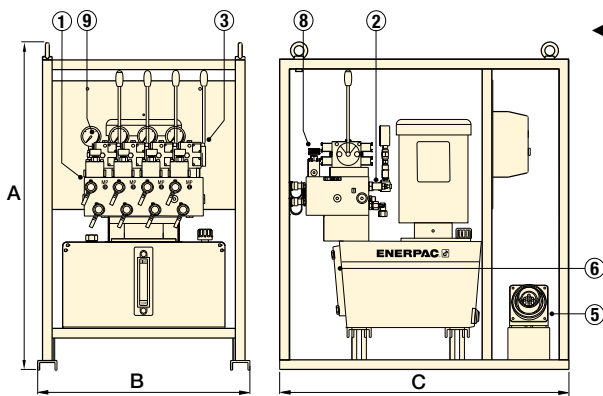
**0,75 - 15 kW**

Maximum Operating Pressure:

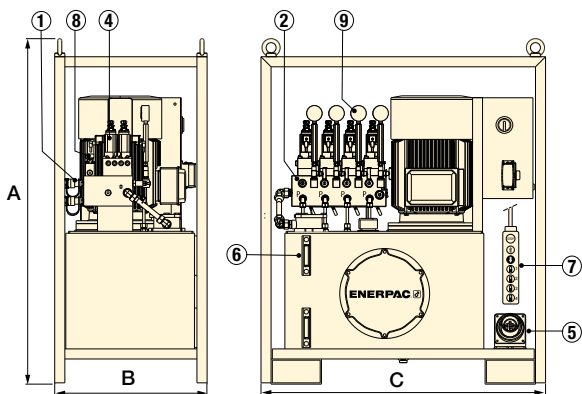
**700 bar**



◀ SFP-Series with 20 litres reservoir (shown with 2 split-flow outlets)



◀ SFP-Series with 40 litres reservoir (shown with 4 split-flow outlets)



◀ SFP-Series with 150 litres reservoir (shown with 4 split-flow outlets)



### Lifting Cylinders

For a complete line of Enerpac cylinders, see the Cylinder and Lifting Products in our catalogue.

Page: 5

- ① Manifold with split-flow outlets and CR400 couplers
- ② Adjustable pressure relief valve per circuit
- ③ Manual 4/3 control valves with joysticks
- ④ Solenoid 4/3 control valves (24 VDC)
- ⑤ Power socket
- ⑥ Oil sight gauge(s)
- ⑦ Remote control pendant with 5 m cord
- ⑧ Return flow control valve in each circuit
- ⑨ Hydraulic pressure gauge in each circuit

| Number of Split-Flow Outlets | Usable Oil Capacity (litres) | Oil Flow per Outlet @ 700 bar (l/min) | Pump Model Number 4/3 Valve Operation Advance/Hold/Retract |                         | Motor Size 400 V, 3ph 50 Hz (kW) | Dimensions (mm) |     |      | ⚖️ (kg) |
|------------------------------|------------------------------|---------------------------------------|--|-------------------------|----------------------------------|-----------------|-----|------|---------|
|                              |                              |                                       | Manual (Joystick)  | 24 V Solenoid (Pendant) |                                  | A               | B   | C    |         |
| 2                            | 20                           | 0,27                                  | SFP202MW   | —                       | 0,75                             | 748             | 450 | 700  | 115     |
|                              | 40                           | 0,30                                  | SFP403MW   | SFP403SW                | 2,2                              | 1016            | 640 | 970  | 257     |
| 4                            | 135                          | 0,90                                  | SFP409MW   | SFP409SW                | 5,5                              | 1356            | 605 | 1160 | 475     |
|                              | 135                          | 1,40                                  | SFP414MW   | SFP414SW                | 7,5                              | 1356            | 605 | 1160 | 490     |
|                              | 135                          | 2,10                                  | SFP421MW   | SFP421SW                | 10                               | 1356            | 605 | 1160 | 596     |
| 6                            | 135                          | 1,30                                  | —  | SFP613SW                | 10                               | 1356            | 805 | 1200 | 562     |
| 8                            | 40                           | 0,30                                  | —  | SFP803SW                | 5,5                              | 1163            | 830 | 1113 | 450     |
|                              | 135                          | 1,30                                  | —  | SFP813SW                | 15                               | 1356            | 805 | 1200 | 620     |



### Motor Voltage

Motor voltage is specified by the last letter in the model number.

Other motor voltages are available from Enerpac. Change "W" in the model as follows for other options:

**J** = 460-480V, 3 ph, 50-60 Hz

**G** = 208-240V, 3 ph, 50-60 Hz

▼ SFP-Series Split-Flow Pump Kit Components



## Connecting Split-Flow Pumps for more lift points and greater accuracy

- Control multiple Split-Flow Pumps with one control unit
- Pumps can be closer to the lifting points, requiring shorter hoses and increasing accuracy
- Synchronize all lift points to within 1,0 mm (0.04 inch)
- Network control boxes expand the number of lifting points by combining up to four split-flow pumps together, simplifying lifting operations by using a single operator station
- Plug and play synchronous lift upgrade kits limit initial investment and provide everyday flexibility to tailor the controls to the applications needs.



### Split-Flow Pumps Kits

SFP-Series kits are customized from standard components to meet the needs of your unique applications. On the next page is the guide to help you choose the right components to upgrade or expand your equipment based on your application needs.

Contact your regional Enerpac representative / territory manager for support with your specific project.

### Split-Flow Pump Network Kits

Split-Flow Pump Network Kits connect multiple Split-Flow Pumps under one control system.

### Split-Flow Pump Synchro Kits

Split-Flow Pump Synchro Kits connect and electronically synchronize each lift point of a single Split-Flow Pump or multiple Split-Flow Pumps under one control system.



### Junction Box

**SFPKSS4** and **SFPKSS8** junction boxes consolidate the signals from pressure and stroke sensors, allowing the master control box to synchronize the lifting operation.



### SFPKMN, Master Control Box

All SFP-Series Synchro Kits include a master control box to allow the operator to easily monitor and control a multi-point

synchronized lift and adjust individual lift points as needed.

All master control boxes feature an industrial grade touch screen and a user-friendly interface.



### EVO-SC, Stroke Sensor Cables

Can be connected together for additional length. Ordered separately, requires one for each stroke sensor.

| Model Number | Length (m) | Model Number | Length (m) |
|--------------|------------|--------------|------------|
| EVO-SC-6     | 6          | EVO-SC-25    | 25         |



### EVO-WSS, Wire Stroke Sensors

Provides stroke feedback to controls. Includes magnets for mounting. Ordered separately, requires one sensor for each

lifting point. Available in measuring range from 375 to 1000 mm.

| Model Number | Range (mm) | Model Number | Range (mm) |
|--------------|------------|--------------|------------|
| EVO-WSS-375  | 375        | EVO-WSS-1000 | 1000       |
| EVO-WSS-500  | 500        | -            | -          |



### Communication Cables

EVO-COMM-Series communication cables transfer information about the synchronized lift operation

from the master control panel to each of the connected split-flow pumps.

| Model Number | Length (m) | Model Number | Length (m) |
|--------------|------------|--------------|------------|
| EVO-COMM-25  | 25         | EVO-COMM-75  | 75         |
| EVO-COMM-50  | 50         | EVO-COMM-100 | 100        |

# Split-Flow Pump Network Kits



## Upgrading Split-Flow Pumps

To network multiple SFP-pumps together with standard function see drawing and table ①.

To upgrade a single SFP-pump to synchronous lift capability, see drawing and table ②.

To upgrade and network multiple SFP-pumps together with synchronous lift capabilities, see drawing and table ③.

## SFP Series



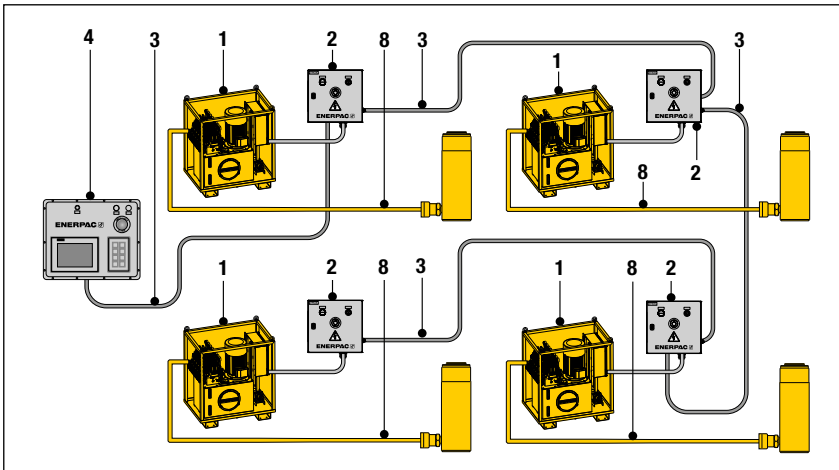
Multiple Pumps in Network System:

**1 - 4 pumps**

Maximum Lifting Points:

**32x cylinders**

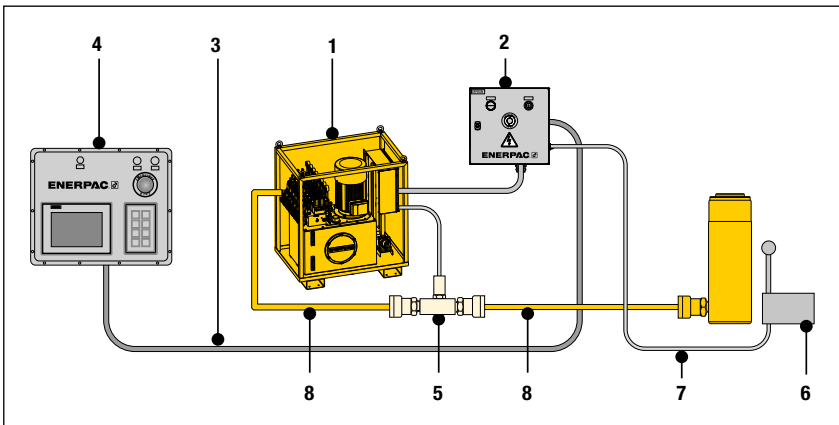
### ① Networked SFP-Pumps in Standard Operation



### ① Networked SFP-Pumps in Standard Operation

| Nr. | Qty | Model Nr. & Description                     |
|-----|-----|---|
| 1   | 4x  | SFP...SW Pumps with solenoid valves         |
| 2   | 4x  | SFPKSN Junction Box, 1x per pump            |
| 3   | 4x  | SFPCOMM-25 Communication Cable, 1x per pump |
| 4   | 1x  | SFPKMN Master Control Box                   |
| 8   |     | HC-700-Series, Hydraulic Hoses              |

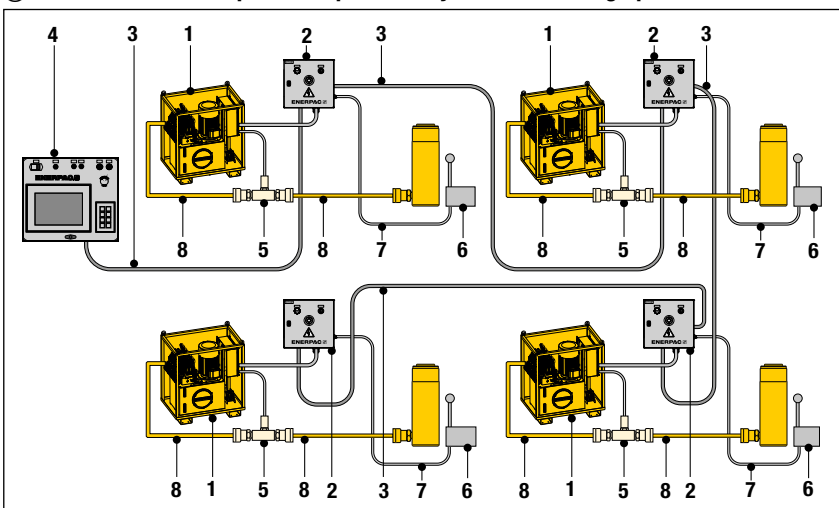
### ② Single SFP-Pump in Multiple-Point Synchronous Lifting Operation



### ② Single SFP-Pump in Multiple-Point Synchronous Lifting Operation

| Nr. | Qty | Model Nr. & Description   |
|-----|-----|---|
| 1   | 1x  | SFP...SW Pump with solenoid valves  |
| 2   | 1x  | SFPKSS4 Junction Box for 2-4 lifting points or SFPKSS8 for 6-8 lifting points |
| 3   | 1x  | SFPCOMM-25 Communication Cables   |
| 4   | 1x  | SFPSSC Single Slave Control Box   |
| 5   |     | SFPKPT Pressure Transducer Kit (1x per cylinder A-port)                       |
| 6   |     | EVO-WSS-XXX Stroke Sensor, 1x per cylinder                                    |
| 7   |     | EVO-SC-25 Stroke Sensor Cable, 1x per cylinder                                |
| 8   |     | HC-700-Series, Hydraulic Hoses  |

### ③ Networked SFP-Pumps in Multiple-Point Synchronous Lifting Operation



### ③ Networked SFP-Pumps in Multiple-Point Synchronous Lifting Operation

| Nr. | Qty | Model Nr. & Description  |
|-----|-----|--|
| 1   | 4x  | SFP...SW Pump with solenoid valves   |
| 2   | 4x  | SFPKSS4 Junction Box, 1x per pump, for 2-4 lifting points or SFPKSS8 Junction Box for 6-8 lifting points |
| 3   | 4x  | EVO-COMM-XXX Communication Cable, 1x per pump  |
| 4   | 1x  | EVOMASTER Master Control Box   |
| 5   |     | SFPKPT Pressure Transducer Kit, 1x per cylinder A-port)  |
| 6   |     | EVO-WSS-XXX Stroke Sensor, 1x per cylinder   |
| 7   |     | EVO-SC-25 Stroke Sensor Cable, 1x per cylinder   |
| 8   |     | HC-700-Series, Hydraulic Hoses   |



▼ EVO 841460W



- **Modular lifting pumps to control 4, 8 or 12 lifting points**
- **Can be connected to single- or double-acting cylinders with the same or different lifting capacities**
- **PLC-controlled system with integrated 700 bar hydraulic power unit and 250 litres reservoir**
- **Network capability to link up to 4 EVO-units (HPUs) to a separate network controller via wireless control**
- **Intuitive user interface providing easy set up, control and navigation**
- **Data storage and recording capabilities**
- **Variable frequency drive motor (VFDM) and PLC for precise synchronization and oil flow control.**



## The multi-functional synchronous lifting systems



### EVO-System Work Modes

The application possibilities are infinite with the standard EVO-System, powering interlinked hydraulic cylinders – single or double-acting, push or pull, stage lift, hollow plunger or lock nut cylinders. The EVO-System has 9 work modes. The operator can navigate to any of these menus:

1. Manual
2. Pre-Load
3. Automatic
4. Retract Fast
5. Depressurize
6. Tilting
7. Stage Lift
8. Weighing \*
9. Center of Gravity determination \*

\* Available in the **EVO-W-models**.



### Typical Synchronous Lifting Applications

- Bridge lifting and repositioning
- Bridge launching
- Bridge maintenance
- Incremental launching and box jacking
- Lifting and lowering of heavy equipment
- Lifting, lowering, levelling and weighing of heavy structures and buildings
- Structural and pile testing
- Lifting and weighing of oil platforms
- Foundation levelling of onshore and offshore wind turbines
- De-propping/load transfer from temporary steel work
- Foundation shoring.

◀ *The superlifting and launch of a 43.000-ton floating oil production system in Malaysia for the Gumusut-Kakap offshore field has set high benchmarks for safety through its use of sophisticated EVO-Series synchronous hydraulics to lift, balance, weigh and smoothly launch massive resource structures.*



## Benefits of the EVO-Series System

### Precise control of multiple lift points

- Comprehensive understanding and management of a lifting operation from a central control system improves safety and operational productivity.
- Programmable synchronized lifting.
- Automatic stop at pre-set cylinder stroke or load limit.

### Safe and efficient movement of loads

- System secured with warning and stop features to realize optimal safety.

### High accuracy

- Variable frequency drive (VDFM) and PLC for precise synchronization and control of oil flow, stroke and speed.
- Depending the cylinder capacities used, an accuracy of 1,0 mm between lifting points is achieved.

### Ease of operation

- User friendly interface: visual screens, icons, symbols and color coding.
- A single operator controls the entire operation.

### Monitoring and Data Recording

- Displays data of the operation.
- Data recording at user-defined intervals.
- Data storage and read-out for reporting.

### Network capability

- Ethernet IP protocol for communication between hydraulic power units, allow easy "plug and play".

### EVO-W Weighing System

#### Weighing applications with 1% accuracy

- Includes calibrated sensors and auto-calibration of external load cells.
- Center of gravity determination functionality.
- Parameters for "waiting time for stabilization" and "number of cycles".

### Global standardized system

- Enerpac global coverage ensures local support.

## EVO Series



Number of Lifting Points:

**4 - 8 -12 (up to 48)**

Reservoir Capacity:

**250 litres**

Flow at Rated Pressure:

**0,75 - 4,80 l/min**

Motor Size:

**3,50 - 7,50 kW**

Maximum Operating Pressure:

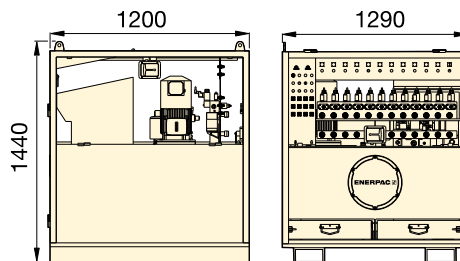
**700 bar**



### Stroke Sensors and Cables

Optional accessories required for each lifting point and stroke sensor.

Page: **338**



### CLNC12 Network Controller

Required to link up to 4 standard EVO-pumps together to achieve a maximum of 48 lifting points. Contact Enerpac for more information.

## EVO-Series (Standard)

| Lifting Points | Variable Oil Flow at 50 Hz <sup>1)</sup><br>(l/min) |             | Model Number <sup>2)</sup><br>380-415 V,<br>3ph, 50-60Hz | Usable Oil Capacity<br>(litres) | Motor Size<br>(kW) | Motor Speed <sup>4)</sup> | (kg) |
|----------------|---|-------------|--|---------------------------------|--------------------|---------------------------|------|
|                | (< 125 bar)   | (> 125 bar) |  |                                 |                    |                           |      |
| 4              | 4,0 - 13,3  | 0,75 - 2,51 | <b>EVO421380</b>   | 250                             | 3,5                | VFDM                      | 910  |
| 4              | 4,0 - 13,3  | 0,75 - 2,51 | <b>EVO421380 W <sup>3)</sup></b>                         | 250                             | 3,5                | VFDM                      | 910  |
| 4              | 4,7 - 15,6  | 1,44 - 4,80 | <b>EVO440380</b>   | 250                             | 7,5                | VFDM                      | 1005 |
| 4              | 4,7 - 15,6  | 1,44 - 4,80 | <b>EVO440380 W <sup>3)</sup></b>                         | 250                             | 7,5                | VFDM                      | 1005 |
| 8              | 4,0 - 13,3  | 0,75 - 2,51 | <b>EVO821380</b>   | 250                             | 3,5                | VFDM                      | 910  |
| 8              | 4,0 - 13,3  | 0,75 - 2,51 | <b>EVO821380 W <sup>3)</sup></b>                         | 250                             | 3,5                | VFDM                      | 910  |
| 8              | 4,7 - 15,6  | 1,44 - 4,80 | <b>EVO840380</b>   | 250                             | 7,5                | VFDM                      | 910  |
| 8              | 4,7 - 15,6  | 1,44 - 4,80 | <b>EVO840380 W <sup>3)</sup></b>                         | 250                             | 7,5                | VFDM                      | 910  |
| 12             | 4,0 - 13,3  | 0,75 - 2,51 | <b>EVO1221380</b>  | 250                             | 3,5                | VFDM                      | 920  |
| 12             | 4,0 - 13,3  | 0,75 - 2,51 | <b>EVO1221380 W <sup>3)</sup></b>                        | 250                             | 3,5                | VFDM                      | 920  |
| 12             | 4,7 - 15,6  | 1,44 - 4,80 | <b>EVO1240380</b>  | 250                             | 7,5                | VFDM                      | 1025 |
| 12             | 4,7 - 15,6  | 1,44 - 4,80 | <b>EVO1240380 W <sup>3)</sup></b>                        | 250                             | 7,5                | VFDM                      | 1025 |

<sup>1)</sup> Oil flow will be approximately 6/5 of these values at 60 Hz.

<sup>2)</sup> For 460-480 VAC, 3 phase, 50-60 Hz change 380 in model number into 460. Example **EVO421460**.

<sup>3)</sup> Model numbers with suffix **W** are pumps for weighing systems. <sup>4)</sup> VFDM = Variable Frequency Drive 15-50 Hz.

▼ Precision levelling caisson pier box: 3 EVO-Systems connected with 32 jacks lowered the 1100 ton bascule pier box.



▼ SCJ50, Enerpac Self-Locking Cube Jack



- System is automatically mechanically locked after the lifting or lowering stroke
- Self-aligning steel cribbing blocks save time, improve side load, and eliminate the need for wooden cribbing materials
- Jobs are completed more efficiently due to simplified operation sequence with 50% less cycles than climbing jacks
- End block with adjustable swivel saddle allows fine adjustment during set-up: 50 mm screw extension
- Can be operated with Enerpac's 700 bar hydraulic power units
- Lloyds witness tested to 125% of maximum working load.

## Incremental lifting system with automated mechanical locking



### Why use Self-Locking Cube Jacks?

The Self-Locking Cube Jack is a safer, more efficient alternative to the jack-and-pack method with wooden cribbing. The Self-Locking Cube Jack is derived from the proven Enerpac Jack-up System.

The Cube Jack has a small footprint and is useable in confined spaces, providing heavy lift contractors with a stable lift up to 3 metres. The cribbing blocks are lightweight and can be handled manually.



### Markets & Applications

Applications with a minimum starting height of 494 or 558 mm and requirement to lift up to

2067 or 3006 mm.

- Power Generation - transformer jacking
- Mining - equipment maintenance
- Heavy Transport - vehicle unloading
- Oil & Gas - module jacking
- Construction - bridge jacking
- Industrial Movers - lifting, lowering and levelling of heavy equipment.



◀ Completed in just over one hour, the 160 ton 50 x 7 meters steel racking system was lifted synchronously to a height of 2,2 meters using 16 Enerpac SCJ50 Cube Jacks powered by a single SFP-Series Split-Flow Pump. Lifting large racking systems can be hazardous, complex and difficult involving forklift trucks and chain blocks. Photo by courtesy of PHL Hydraulics Ireland Ltd.

▼ Forklift tabs on Cube Jacks for easy transportation and positioning with a pallet truck. See dimensions D and I to select the right pallet truck size.







## Self-Locking Cube Jack

Easy-to-use, compact and portable jacking system that utilizes base lifting frames and self-aligning, lightweight steel cribbing blocks, instead of wooden cribbing materials.

### Operation is simple:

1. Connect the Cube Jacks to the Enerpac Split-Flow Pump and select lifting mode on each base lifting frame.
2. Insert a cribbing block and actuate the Cube Jack until the cribbing block engages the lock mechanism.
3. Retract the jack and repeat the process until the desired lifting height is reached. For the lowering operation select lowering mode on each base lifting frame and reverse the process.

The Cube Jack End Block is equipped with an adjustable saddle for initial alignment with the load.

All controls except for the main directional valve, which is on the hydraulic power unit, are included on the Cube Jack.

### Manual cribbing block insertion

Cribbing blocks are easily managed by hand and the Cube Jack includes integrated fork pockets and lifting rings for effortless positioning.

### Synchronous Lifting & Lowering

Enerpac recommends using the SFP-Series Split-Flow Pumps with multiple outlets with equal oil flow. For lifting and lowering applications on multiple points, Split-Flow Pumps are a far better alternative than using separately operated pumps.

If synchronous lifting & lowering is required, the SFP-Series Pumps can be configured to accommodate stroke sensors and provide accurate computer controlled lifting function.

## SCJ Series



Capacity Per Cube Jack:

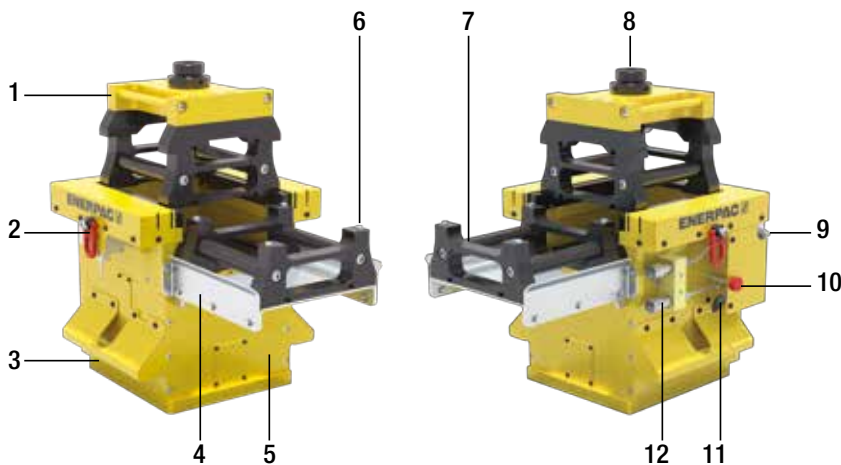
**500 - 1000 kN**

Maximum Lifting Height:

**2067 - 3006 mm**

Maximum Operating Pressure:

**700 bar**



### Self-Locking Cube Jack

- |                                 |   |
|---------------------------------|---|
| 1 End block with tilting saddle | 7 Steel cribbing blocks                         |
| 2 Eye-bolts for hoisting        | 8 Adjustable tilting saddle                     |
| 3 Forklift tabs                 | 9 Flow control                                  |
| 4 Removable insert table        | 10 Mode locking pin                             |
| 5 Cube Jack base frame          | 11 Mode selector lever                          |
| 6 Locating pins                 | 12 Hydraulic connections<br>(Advance / Retract) |

▼ Cube Jack close-up of lifting and lowering valving mode and lock handle.



▼ Optional wire stroke sensor can provide stroke feedback to pump control.





▼ SCJ100, Enerpac Self-Locking Cube Jack



**Included with the Cube Jack are:**

- Cube Jack Basic Unit
- End Block with adjustable swivel saddle
- Multiple cribbing blocks: **11x on SCJ50**  
**18x on SCJ100**
- Transportation Frame
- Cribbing blocks can be manually inserted into the Cube Jack by one person.



◀ Heat exchanger maintenance job on the piping and condensers at a refinery using a combination of Enerpac Heavy Lifting Technology: SCJ-Series Cube Jacks, the ETT-Series Hydraulic Turntable and LH-Series Low-Height Skidding Systems.

## Incremental lifting system with automated mechanical locking



**Transport Frame**

Provided with purchase of each Cube Jack. Provides storage and transport for base unit, end block, and all included cribbing blocks.



**Lightweight Cribbing Blocks**

Provided with purchase of each Cube Jack. Cribbing blocks can be manually inserted into the Cube Jack by one person. Spare cribbing blocks can be ordered separately.

| Description                | Model Nr.     |
|----------------------------|---------------|
| 1x Cribbing Block, 50 ton  | <b>SCJ5B</b>  |
| 1x Cribbing Block, 100 ton | <b>SCJ10B</b> |



**Split-Flow Pumps**

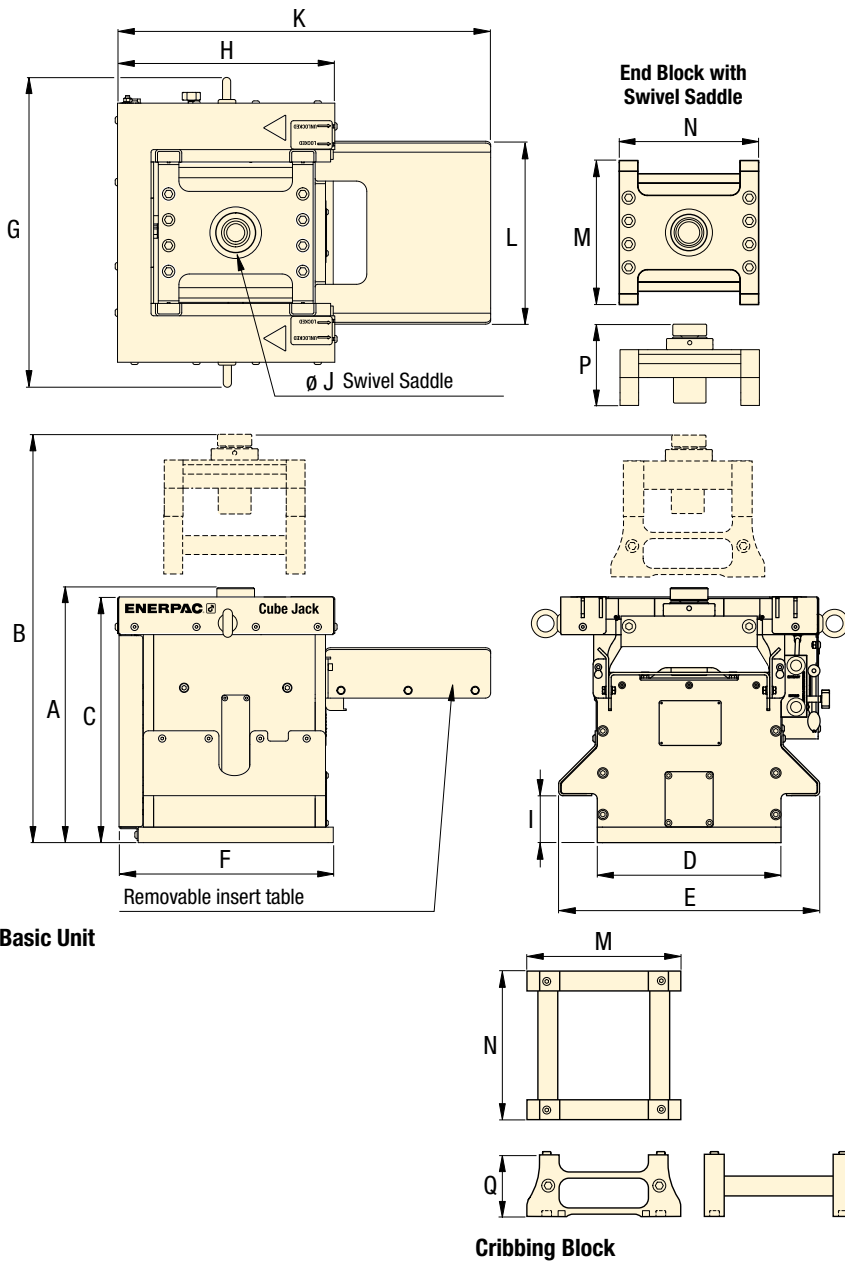
Enerpac recommend to use the **SFP-Series Pumps** with multiple outlets with equal oil flow.

For lifting and lowering applications on multiple points, Split-Flow Pumps are a far better alternative than using separately operated pumps.

**Self-Locking Cube Jacks**

| Lifting Capacity per Base Unit<br>ton (kN) | Lifting Stroke (mm) | Model Number  | Maximum Sideload at full extension | Maximum Pump Oil Flow Rate (l/min) | Oil Capacity per Base Unit (cm <sup>3</sup> ) |         |
|--|---------------------|---------------|------------------------------------|------------------------------------|---|---------|
|  |                     |               |                                    |                                    | Advance                                       | Retract |
| <b>50 (500)</b>                            | 156                 | <b>SCJ50</b>  | 1,5%                               | 0,9                                | 1229  | 623     |
| <b>100 (1000)</b>                          | 156                 | <b>SCJ100</b> | 1,5%                               | 1,8                                | 2500  | 1400    |

# Self-Locking Cube Jack and Accessories



## SCJ Series



Capacity Per Cube Jack:

**500 - 1000 kN**

Maximum Lifting Height:

**2067 - 3006 mm**

Maximum Operating Pressure:

**700 bar**

Basic Unit

Cribbing Block

▼ Typical set-up with 4 Self-Locking Cube Jacks and cribbing blocks in a Factory Acceptance Test (FAT). Enerpac recommends to power the Cube Jack using SFP-Series Split-Flow Pump.



| Base Unit    |      | End Block    |      | Cribbing Block |      | Transport Frame * |      |
|--------------|------|--------------|------|----------------|------|-------------------|------|
| Model Number | (kg) | Model Number | (kg) | Model Number   | (kg) | Model Number      | (kg) |
| SCJ50        | 360  | SCJ5EB       | 40   | SCJ5B          | 16   | SCJ5F             | 110  |
| SCJ100       | 820  | SCJ10EB      | 100  | SCJ10B         | 23,5 | SCJ10F            | 250  |

| Dimensions (mm) |      |     |     |     |     |     |     |     |     |      |     |     |     |        |        |     | Model Number |
|-----------------|------|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|--------|--------|-----|--------------|
| A               | B    | C   | D   | E   | F   | G   | H   | I   | J   | K    | L   | M   | N   | Min. P | Max. P | Q   |              |
| 494             | 2067 | 476 | 356 | 505 | 443 | 556 | 428 | 91  | 125 | 726  | 351 | 300 | 310 | 175    | 225    | 125 | SCJ50        |
| 558             | 3006 | 526 | 506 | 655 | 636 | 772 | 598 | 101 | 170 | 1046 | 504 | 450 | 460 | 189    | 239    | 125 | SCJ100       |

\* Dimensions Transport Frame L x W x H: **SCF5F:** 920 x 850 x 860 mm  
**SCF10F:** 1600 x 1200 x 1500 mm

▼ BLS1006



- Climbing jacks include integral tilt saddles with maximum tilt angles up to 5 degree
- Large base plate with anti-rotation rod for stability and safety
- Built-in safety valve prevents accidental over-pressurization
- Ideal in combination with the stage lift work mode of the EVO-Series synchronous lifting system
- Baked enamel finish for increased corrosion resistance
- CR400 couplers included on all models.

▼ Synchronous Stage Lifting: 48 double-acting jacks (25 and 50 ton) are networked in to a 16 points synchronous system to lift this 50 metres long, 1000 ton building up to a height of 2,5 metres to construct a new floor level.



## A Simple Solution to Incremental Lifting



### Lifting Height

Climbing Jacks overcome the usual limitation of lifting height imposed by the cylinder's plunger stroke length. Large objects, such as oil tanks, can be lifted, held and lowered for maintenance without sending for a crane.



### Split-Flow Pumps

SFP-Series Pumps with multiple outlets with equal oil flow. For lifting and lowering applications on multiple points Split-Flow Pumps are a far better alternative than using separately operated pumps.

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### Synchronous Lifting System

The standard EVO-Series System is ideal for stage lifting, powering interlinked hydraulic cylinders. The EVO-system has 9 work modes including the stage lift work mode.

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### Jack-Up Systems

For incremental lifting with higher lifting capacities and up to 20 m lifting height, see our JS-Series Jack-Up Systems.

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| Cylinder Capacity | Stroke | Model Number | Max. Cylinder Capacity (kN) |      |
|-------------------|--------|--------------|-----------------------------|------|
|                   |        |              | Push                        | Pull |
| ton               | (mm)   |              |                             |      |
| 50                | 150    | BLS506       | 498                         | 103  |
| 95                | 161    | BLS1006      | 933                         | 435  |
| 140               | 151    | BLS1506      | 1386                        | 668  |
| 200               | 151    | BLS2006      | 1995                        | 1017 |

# Double-Acting Climbing Jacks



◀ Typical stage-lift application using a custom built Enerpac system to lift the 360 ton Akkerwinde wooden bridge in the Netherlands.

## BLS Series



Capacity per Lifting Point:

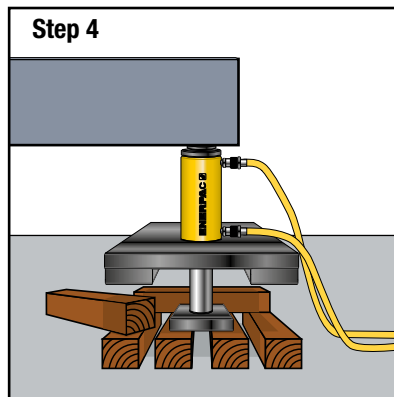
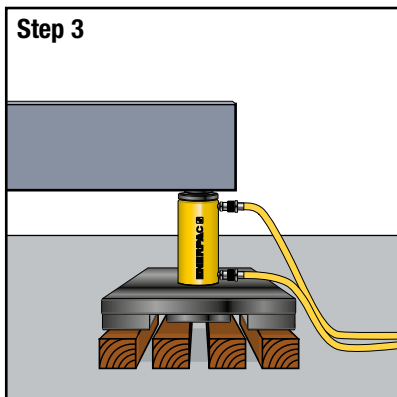
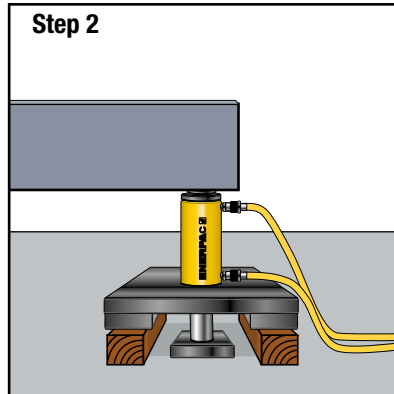
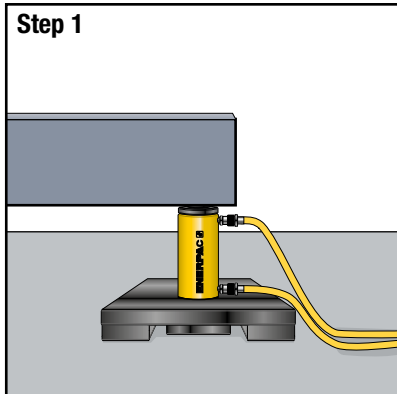
**50 - 200 ton**

Stroke per Stage:

**150 - 161 mm**

Maximum Operating Pressure:

**700 bar**



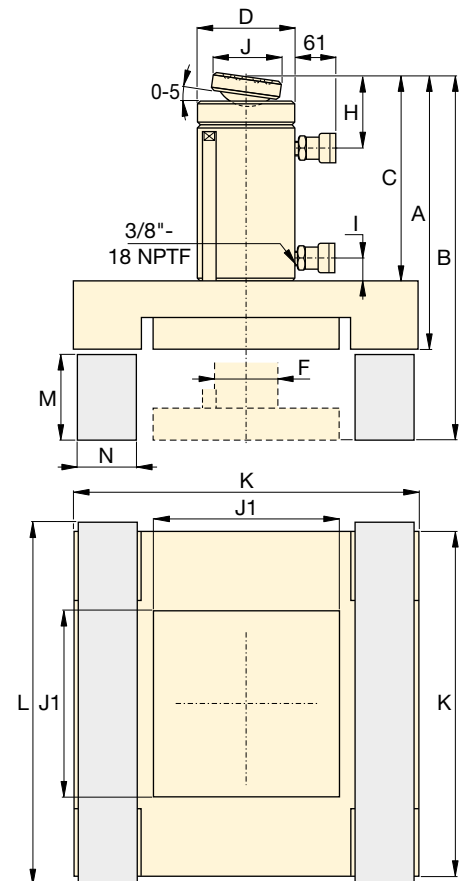
### ▲ Stage Lifting Sequence

**Step 1:** The climbing jack is placed on a solid support under the load (retracted plunger).

**Step 2:** Plunger extends, lifting the load and giving clearance to insert two outer blocks under the spreading plate.

**Step 3:** Plunger retracts, giving clearance to position the central blocks which will support the plunger plate for the next extension.

**Step 4:** Plunger extends, lifting the load, giving clearance to insert two new blocks, placed crosswise under the spreading plate.



| Cylinder Effective Area (cm <sup>2</sup> ) |       | Oil Capacity (cm <sup>3</sup> ) |      | Dimensions (mm) |     |     |     |     |     |    |     |     |     | Cribbing Blocks * and Dimensions (mm) |     |     | Model Number |     |                |
|--|-------|---------------------------------|------|-----------------|-----|-----|-----|-----|-----|----|-----|-----|-----|---------------------------------------|-----|-----|--------------|-----|----------------|
| Push                                       | Pull  | Push                            | Pull | A               | B   | C   | D   | F   | H   | I  | J   | J1  | K   | Material                              | L   | M   |              | N   | (kg)           |
| 71,2                                       | 21,5  | 1111                            | 335  | 406             | 556 | 318 | 127 | 79  | 56  | 36 | 50  | 240 | 515 | Azobe                                 | 565 | 140 | 120          | 170 | <b>BLS506</b>  |
| 133,3                                      | 62,2  | 2238                            | 1045 | 445             | 606 | 343 | 177 | 95  | 76  | 24 | 71  | 330 | 670 | Wood                                  | 720 | 150 | 160          | 315 | <b>BLS1006</b> |
| 198,1                                      | 95,4  | 3090                            | 1488 | 472             | 624 | 370 | 203 | 114 | 94  | 39 | 130 | 230 | 475 | Solid Aluminium or Steel              | 500 | 140 | 115          | 322 | <b>BLS1506</b> |
| 285,6                                      | 145,6 | 4332                            | 2209 | 510             | 661 | 387 | 248 | 133 | 102 | 37 | 130 | 270 | 550 |                                       | 575 | 140 | 135          | 373 | <b>BLS2006</b> |

\* Cribbing blocks are not supplied by Enerpac.



▼ JS125, JS250, JS500, JS750, Enerpac Jack-Up System (one lifting tower shown)



- Self-contained hydraulics in each jack-up unit for uncluttered work area
- Synchronously lift loads with multiple jack-up units. The most common system set-up includes 4 jack-up units
- Lifting barrels are stacked together to mechanically hold the load
- Up to 5% side load capacity depending on lifting height
- Computer controls for operating the jack-up system with automatic and manual lifting settings.

## Incremental Lifting System – Synchronously Lift and Mechanically Hold



### Typical Applications

- Bridge maintenance
- Lifting and lowering of heavy equipment
- Lifting, lowering and levelling of heavy structures and buildings
- De-propping/load transfer from temporary steel work.



### Computer Controls

- Enerpac Jack-up Systems provide precision control suitable for many demanding lifting/lowering applications. The comprehensive self-contained design features simple to use software.
- Automatic synchronization of multiple networked lift points.
  - Overload and stroke alarms
  - Emergency stop switch at jack-up units and controls.

▼ Enerpac has been awarded a contract by Burkhalter to extend the height of Enerpac's 2000 ton (500 ton per tower) jack-up system from 20m to 36m for future projects.



▼ Enerpac Jack-Up System lifts 1500 ton span on Fore River Bridge.



▼ Undecking an 1500 ton Electric Rope Shovel in a Copper Mine with a JS500 Jack-Up System for bearing inspection and maintenance.



# Enerpac Jack-Up Systems



## Enerpac Jack Up Systems

The jack up system is a custom developed multi-point lifting system. A typical system setup includes four jack up units positioned under each corner of a load.

Example: A four unit setup with JS250 has a lifting capacity of 1000 ton (250 ton per unit). The lifting frame of a jack up unit contains four hydraulic lifting cylinders, one in each corner, which lift the load using the stacked steel barrels.

A load is lifted in increments as barrels are slid into the system, lifted, and stacked; forming 'lifting towers'. A jack up system is operated and controlled by a computer control unit.

Each unit's lifting and lowering operations occur simultaneously; the computer control unit's synchronous technology maintains the balance of the load.

## JS Series

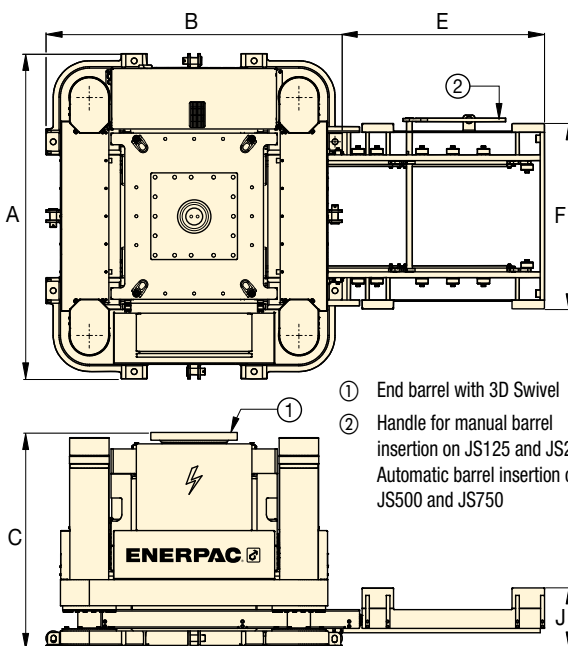


Capacity Per Lifting Tower:

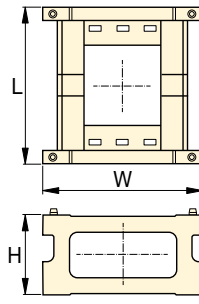
**125 - 750 ton**

Lifting Height:

**6 - 20 metres**



Jack-Up System (JS)



Steel Barrel (BLJS)

### Steel Barrels

| For use with Jack-Up System | Barrel Set Model Number | Number of Barrels per Set | Barrel Dimensions (mm) |      |      | Weight per Barrel (kg) |
|-----------------------------|-------------------------|---------------------------|------------------------|------|------|------------------------|
|                             |                         |                           | L                      | W    | H    |                        |
| JS125                       | <b>BLJS125</b>          | 4                         | 600                    | 600  | 300  | 105                    |
| JS250                       | <b>BLJS250</b>          | 4                         | 1150                   | 1150 | 500  | 360                    |
| JS500                       | <b>BLJS500</b>          | 4                         | 1700                   | 1700 | 700  | 950                    |
| JS750                       | <b>BLJS750</b>          | 4                         | 2300                   | 2300 | 1000 | 2350                   |

### Jack-Up Systems

| Capacity per Tower |      | Model Number | Maximum Sideload | Maximum Lifting Speed (m/hr) | Base Frame Dimensions (mm) |      |      | Barrel Loading System (mm) |      |     | Electric Power Pack (kW) | Weight per Jack-Up Unit * (kg) | Weight End Barrel (3D Swivel) (kg) |
|--------------------|------|--------------|------------------|------------------------------|----------------------------|------|------|----------------------------|------|-----|--------------------------|--------------------------------|------------------------------------|
| ton                | kN   |              |                  |                              | A                          | B    | C    | E                          | F    | J   |                          |                                |                                    |
| 125                | 1250 | <b>JS125</b> | 3% @ 6m          | 5                            | 1200                       | 1100 | 955  | 750                        | 700  | 205 | 8,8                      | 2400                           | 570                                |
| 250                | 2500 | <b>JS250</b> | 3% @ 10m         | 4                            | 2250                       | 2050 | 1475 | 1400                       | 1341 | 418 | 15                       | 7500                           | 2400                               |
| 500                | 5000 | <b>JS500</b> | 4% @ 15m         | 4                            | 2800                       | 2300 | 1700 | 1980                       | 1771 | 458 | 30                       | 13.750                         | 3850                               |
| 750                | 7500 | <b>JS750</b> | 5% @ 20m         | 4                            | 3670                       | 3250 | 2375 | 2850                       | 2495 | 744 | 30                       | 24.000                         | 9000                               |

\* Weight per jack-up tower, excluding end barrel or barrel sets.



## Jack-up System Smart Box

The **Smart Box SBJS-V4** is Enerpac's proprietary control platform. It allows an operator to control up to 8 jack up towers simultaneously with one **SBLT1** standard laptop.

- Single operator control from a central location provides safe and reliable operation
- Synchronous lift /lower and load control between the lifting positions
- Automatic lifting and lowering cycles
- Displays individual and accumulative stroke/load
- Simple graphical user interface.



## Adjustable Top Barrel

Includes double-acting lock nut cylinder with swivel saddle. Cylinder can be extended to contact the load. Provides ability to adjust starting height of each leg, ensuring safe and stable lifting. Must be operated with separate pump.



## Trolleys & Skid Tracks

Allows horizontal travel of jack-up systems.

▼ Shown: HSL50006 Strand Jack



- Precision control of synchronous lifting and lowering
- Can be controlled by a single operator from a central location for increased safety
- Automated locking - unlocking operation
- Two strand sizes: 15,7 mm and 18 mm (0.62 and 0.71 inch)
- Telescopic strand guide pipes prevent bird caging
- Internal components are coated with Lunac, an anti-corrosion coating, making it suitable for marine environments
- Lifting anchor included with all strand jacks
- Lloyd's witness tested to 125% of maximum working load.

▼ HSL85007 Strand Jack System used on Enerpac custom Self Erecting Tower.



## High Capacity Precision Control



### Heavy Lifting Strand Jacks

Enerpac strand jacks are the strand jacks of choice for customers seeking precise synchronous control with heavy-lifting capacity in an economical, compact, and reliable foot print.

Enerpac strand jacks are powered by electrical or diesel driven hydraulic power packs and controlled by Enerpac's proprietary SCC-Smart Cylinder Control System to ensure full control of lifting and lowering operations.

Enerpac continually improves reliability, durability, and safety of their strand jacks, making them an industry standard for heavy lifting.

▼ Enerpac's SCC-Smart Cylinder Control System simplifies synchronous operation with intuitive controls and a user-friendly graphical interface.



# Heavy Lifting Strand Jacks



## Strand Jacks

A strand jack can be considered a linear winch. In a strand jack, a bundle of steel strands are guided through a main "lifting" jack.

Above and below the cylinder are anchor systems with wedges that grip the strand bundle simultaneously. Lifting and lowering a load is achieved by hydraulically controlling the main jack and both mini jacks alternately.

In the case of system pressure loss, the wedges are mechanically closed automatically, holding the suspended load in place.

Today strand jacks are widely recognized as the most sophisticated heavy lifting solution. They are used all over the world to erect bridges, load out offshore structures, and lift/lower heavy loads where the use of conventional cranes is neither economical nor practical.

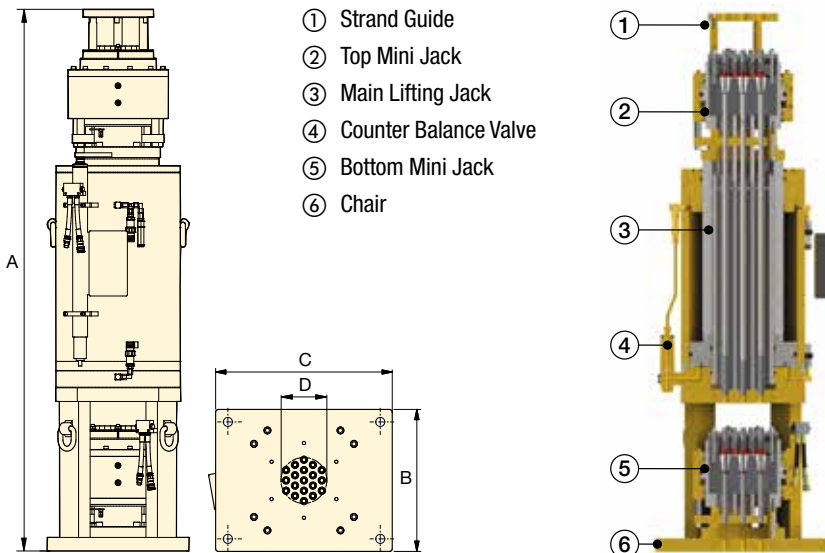
## HSL Series



Capacity:  
**15 - 1250 ton**

Stroke:  
**250 - 600 mm**

Maximum Operating Pressure:  
**350 bar**



### ▼ Strand Jack Accessories

Contact Enerpac for assistance at [enerpac.com/contact-us](http://enerpac.com/contact-us)



#### SLPP-Series Hydraulic Power Packs

Enerpac offers a comprehensive range of hydraulic power packs that are optimized for use with their industry leading heavy lifting strand jacks.



#### SG-Series Strand Guides

Provides a guide for the strand as a strand jack lifts the load.



#### SR-Series Strand Recoilers

Passively pays in or pays out strands while jacking and lowering.



#### SD1 Strand Dispenser

Essential to safely unbundle a new strand coil.



#### Lifting Anchor

Each Strand Jack includes a lifting anchor for attaching strand to the load.

| Strand Diameter<br>mm (inch) | Capacity * |           | Model Number | Number of Strands | Stroke (mm) | Dimensions (mm) |      |      |      | ⚖️ (kg) |
|------------------------------|------------|-----------|--------------|-------------------|-------------|-----------------|------|------|------|---------|
|                              | ton        | (kN)      |              |                   |             | A               | B    | C    | D    |         |
| 15,7<br>(.62)                | 30         | (300)     | HSL3006      | 3                 | 480         | 1851            | 350  | 500  | 59   | 500     |
|                              | 70         | (700)     | HSL7006      | 7                 | 480         | 1915            | 360  | 575  | 93   | 640     |
|                              | 200        | (2000)    | HSL20006     | 19                | 480         | 1992            | 522  | 650  | 169  | 1300    |
|                              | 300        | (3000)    | HSL30006     | 31                | 480         | 2046            | 673  | 673  | 216  | 2180    |
|                              | 500        | (5000)    | HSL50006     | 48                | 480         | 2136            | 733  | 733  | 273  | 3150    |
| 18<br>(.71)                  | 15         | (150)     | HSL1507      | 1                 | 250         | 1242            | 220  | 220  | 20   | 100     |
|                              | 45         | (450)     | HSL4507      | 3                 | 480         | 1728            | 350  | 500  | 73   | 500     |
|                              | 60         | (600)     | HSL6007      | 4                 | 480         | 1752            | 400  | 625  | 88   | 650     |
|                              | 100        | (1000)    | HSL10007     | 7                 | 480         | 1926            | 408  | 625  | 116  | 850     |
|                              | 200        | (2000)    | HSL20007     | 12                | 480         | 2001            | 522  | 650  | 165  | 1400    |
|                              | 300        | (3000)    | HSL30007     | 19                | 480         | 2055            | 673  | 673  | 210  | 2180    |
|                              | 450        | (4500)    | HSL45007     | 31                | 480         | 2223            | 733  | 733  | 272  | 3050    |
|                              | 650        | (6500)    | HSL65007     | 43                | 480         | 2237            | 850  | 850  | 351  | 3950    |
|                              | 850        | (8500)    | HSL85007     | 55                | 480         | 2402            | 900  | 900  | 364  | 5000    |
|                              | 1000       | (10.000)  | HSL100007    | 66                | 480         | 2558            | 1092 | 1092 | 436  | 7650    |
| 1250                         | (12.500)   | HSL125007 | 84           | 600               | 2658        | 1100            | 1100 | 458  | 8300 |         |

\* Capacity is based on 2,5 minimum safety factor over strand breaking load.



▼ SHS-Series 4-Point SyncHoist System



- High precision load manoeuvring, vertically and horizontally – using one crane
- Reduces the risk of damage from oscillations of wire rope due to crane joggling and sudden starts/stops
- Vastly improving worker safety, operating speed and control
- Weather conditions play less critical role
- PLC-controlled hydraulics turn lifting into high accuracy hoisting and load positioning system
- Double-acting push/pull cylinders with load holding valves for added safety in case of hose rupture or coupler damage
- Cost reduction compared to conventional load positioning methods.

**Options for system management & control:**

- Manual control: system warning functions
- Automatic control: fully PLC-monitored system with programmable functions using touch screen and system warning functions
- SHAS-Series: Wireless control – self-contained hydraulics with hand-held control. Integrated PLC-controlled hydraulics in each lifting device – no need for external powerpack and hydraulic hoses.

▼ Bridge segments are hoisted from the ground, being positioned with a 4-point SyncHoist system with fully monitored cylinders.



▼ Rigging engineers used the SyncHoist system to precisely monitor and adjust each lifting point independently, or together in a synchronized manner to position the 1140 ton nuclear plant module.



## Accurate Hoisting and Load Positioning Enhancing a Crane's Capability



**Synchronous Hoisting**

Enerpac SyncHoist is a unique crane product for below-the-hook positioning of heavy loads that require precision placement. The SyncHoist system may reduce the number of cranes needed and reduce the costs of multiple picks.

**Functions**

- High precision horizontal and vertical load positioning
- Pre-programmed positioning, tilting and aligning.

**Applications**

- Positioning of rotor, stator and propeller blades of wind turbines
- Positioning of roof sections, concrete elements, steel structures
- Positioning of turbines, transformers, fuel rods
- Precise machinery loading, mill rod changes, bearing changes
- Precise positioning of pipe lines, blow out valves
- Positioning and aligning of ship segments prior to assembly.

▼ Offshore wind turbine base foundations installed with a wireless SHAS-SyncHoist System to ensure the foundation remained vertical during lowering and positioning.



# SyncHoist - High Precision Load Positioning



## What is SyncHoist?

Enerpac SyncHoist is a hydraulically operated auxiliary attachment for high precision load positioning for cranes.

The automatic version with PLC-controlled hydraulic pump monitors and guides the powerful double-acting push-pull cylinders integrated into the lifting points above the load. The SyncHoist system can be used for pre-programmed positioning, tilting and aligning of loads.

- Patented system
- Complete system tested in compliance with European lifting directive and safety requirements

### SyncHoist improves safety, operating speed and control of load movement

Geometric positioning of heavy loads in a horizontal and vertical plane are frequently done using more than one crane.

Synchronising movements between cranes are difficult and risky. The lifting inaccuracy can result in damage to the load and support structures and puts workers at risks.

The SyncHoist system can be used for controlled hydraulic horizontal and vertical material handling.

## System management and control

Contact Enerpac for the following options, or other customised stroke, capacity and control configurations.

### 1. Manual control

- Valves with manual levers
- Warnings for thermal motor protection
- Visual check: oil level, filter indicator.

### 2. Automatic control

- Load and stroke monitoring, and stroke control
- PLC-control and touch screen
- Solenoid valves with pendant
- Pre-programmable motions and data recording
- System warnings for:
  - maximum cylinder load control setting
  - stroke and position control
  - thermal motor protection
  - oil level and filter indicator.

### Autonomous SHAS- wireless system

- Wireless remote control
- Only one electric power connection per lifting point
- Integrated hydraulics, PLC and controls
- No need for hydraulic hoses and cables
- No need for mid-hoist disconnection of hoses and movement of pump.

## SHS, SHAS Series



Capacity Per Lifting Point:

**55 - 225 ton**

Maximum Stroke:

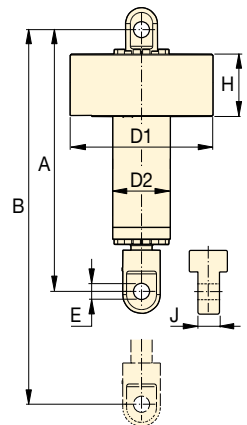
**500 - 1000 - 1500 mm**

Accuracy Over Full Stroke:

**± 1,0 mm**

Maximum Operating Pressure:

**700 bar**



| Capacity<br>ton (kN)  | Total Load<br>ton (kN) | Cylinder Stroke<br>(mm) | Model Number<br>SHS = 400 VAC-3 ph, 50 Hz<br>SHAS = 400-500 VAC,<br>3 ph, 50-60 Hz | Control System | Motor Size<br>(kW) | Number of Pump Outlets and Oil Flow <sup>3)</sup><br>(l/min) | Cylinder Dimensions (mm) |      |      |     |     |     | Weight (kg) <sup>4)</sup> |      |
|-----------------------|------------------------|-------------------------|--|----------------|--------------------|--|--------------------------|------|------|-----|-----|-----|---------------------------|------|
|                       |                        |                         |  |                |                    |  | A                        | B    | D1   | D2  | E   | H   |                           | J    |
| 4 x 55<br>(4 x 539)   | 220<br>(2156)          | 500                     | SHS45520MW <sup>1)</sup>   | Manual         | 7,5                | 4 x 1,4  | 1300                     | 1800 | 690  | 245 | 59  | 385 | 80                        | 450  |
|                       |                        | 1000                    | SHS45540MW <sup>1)</sup>   |                |                    |  | 1800                     | 2800 |      |     |     |     |                           | 625  |
|                       |                        | 1500                    | SHS45560MW <sup>1)</sup>   |                |                    |  | 2300                     | 3800 |      |     |     |     |                           | 800  |
|                       |                        | 500                     | SHS45520AW <sup>1)</sup>   | Automatic      | 15                 | 4 x 2,1  | 1300                     | 1800 | 450  |     |     |     |                           |      |
|                       |                        | 1000                    | SHS45540AW <sup>1)</sup>   |                |                    |  | 1800                     | 2800 | 625  |     |     |     |                           |      |
|                       |                        | 1500                    | SHS45560AW <sup>1)</sup>   |                |                    |  | 2300                     | 3800 | 800  |     |     |     |                           |      |
| 4 x 85<br>(4 x 833)   | 340<br>(3332)          | 500                     | SHS48520MW <sup>1)</sup>   | Manual         | 11                 | 4 x 2,1  | 1330                     | 1830 | 690  | 265 | 72  | 385 | 100                       | 500  |
|                       |                        | 1000                    | SHS48540MW <sup>1)</sup>   |                |                    |  | 1830                     | 2830 |      |     |     |     |                           | 700  |
|                       |                        | 1500                    | SHS48560MW <sup>1)</sup>   |                |                    |  | 2330                     | 3830 |      |     |     |     |                           | 900  |
|                       |                        | 500                     | SHS48520AW <sup>1)</sup>   | Automatic      | 15                 | 4 x 2,1  | 1330                     | 1830 | 500  |     |     |     |                           |      |
|                       |                        | 1000                    | SHS48540AW <sup>1)</sup>   |                |                    |  | 1830                     | 2830 | 700  |     |     |     |                           |      |
|                       |                        | 1500                    | SHS48560AW <sup>1)</sup>   |                |                    |  | 2330                     | 3830 | 900  |     |     |     |                           |      |
| 4 x 110<br>(4 x 1078) | 440<br>(4312)          | 1000                    | SHS411040MW <sup>1)</sup>  | Manual         | 11                 | 4 x 2,1  | 1855                     | 2855 | 780  | 315 | 85  | 395 | 124                       | 970  |
|                       |                        | 1500                    | SHS411060MW <sup>1)</sup>  |                |                    |  | 2355                     | 3855 |      |     |     |     |                           | 1235 |
|                       |                        | 1000                    | SHS411040AW <sup>1)</sup>  | Automatic      | 15                 | 4 x 2,1  | 1855                     | 2855 |      |     |     |     |                           | 970  |
|                       |                        | 1500                    | SHS411060AW <sup>1)</sup>  |                |                    |  | 2355                     | 3855 |      |     |     |     |                           | 1235 |
| 4 x 110<br>(4 x 1078) | 440<br>(4312)          | 1000                    | SHAS411040WE <sup>2)</sup>   | Wireless       | 4 x 4,0            | -  | 1855                     | 2855 | 1063 | 315 | 85  | 540 | 124                       | 1183 |
|                       |                        | 1500                    | SHAS411060WE <sup>2)</sup>   |                |                    |  | 2355                     | 3855 |      |     |     |     |                           | 1448 |
| 4 x 225<br>(4 x 2204) | 900<br>(8816)          | 1000                    | SHAS422540WE <sup>2)</sup>   | Wireless       | 4 x 8,0            | -  | 2140                     | 3140 | 1235 | 420 | 142 | 580 | 190                       | 3219 |
|                       |                        | 1500                    | SHAS422560WE <sup>2)</sup>   |                |                    |  | 2640                     | 3640 |      |     |     |     |                           | 3414 |

<sup>1)</sup> SHS: With 4 cylinders and one 400 VAC-3 phase-50 Hz Powerpack (suffix W). For 460-480 VAC-3 phase-60 Hz Powerpack change suffix W into J. Example: SHS45560MJ.

<sup>2)</sup> SHAS: WE = 400-500 VAC, 3ph, 50-60 Hz with European electrical wiring. Change into suffix "WU" for US-market. Example: SHAS411060WU.

<sup>3)</sup> SHS: Pump and cylinders include 4x 25 meters hydraulic hoses with couplers.

<sup>4)</sup> Weight per cylinder.

▼ One leg of ML40 Mini-Lift Hydraulic Gantry



- Compact design for use in areas with limited space
- Self-contained hydraulics with synchronized lifting for enhanced safety
- Powered travel, under load, standard on all models for ultimate utilization
- Three-stage, double-acting cylinder provides extended lifting capacity
- Easy-to-use handheld pendant control can operate four legs simultaneously
- Compatible with standard Enerpac gantry accessories
- Operates on 115, 230 VAC 1-phase or 380-415 VAC 3-phase power (1 circuit per leg)
- ASME B30.1 compliant and load tested under witness of Lloyd's Register.

▼ SL400 gantry used to offload and install new forming press.



▼ SBL1100 gantry offloading a large generator for installation in a power plant.



## Lift Heavy Machinery Safely

### Portable design with precision control



#### Header Beams

Sold in pairs and includes lifting points and fork pockets for easy positioning on gantry towers.

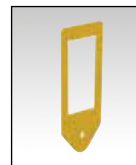
| Description     | Model Number |
|-----------------|--------------|
| 6 metres length | <b>HBH6</b>  |
| 8 metres length | <b>HBH8</b>  |



#### Skid Tracks

Skid tracks used for leveling and load distribution to reduce ground bearing pressure. Available in two standard lengths.

| Description     | Model Number    |
|-----------------|-----------------|
| 3 metres length | <b>GST100-3</b> |
| 6 metres length | <b>GST100-6</b> |



#### Lifting Anchors

Designed to transfer the load to the top of the header beam. Can accommodate a 250-ton shackle or attach directly to the lifted load.



#### Higher Capacities SL and SBL-Series Hydraulic Gantries

When the ML-Series Mini Gantry isn't quite enough capacity or height for your application,

Enerpac offers a full range of safe-to-operate full featured telescopic hydraulic gantries, up to 10.484 kN capacity and lifting heights up to 12 metres. Contact Enerpac for more details.

# Mini-Lift Hydraulic Gantry



## ML-Series, Mini-Lift Gantry

The cost-effective, compact ML40 Mini-Lift Hydraulic Gantry System, with wireless controls offers several key features:

### Safety:

Stroke synchronization ensures a level lift regardless of load distribution. PLC-controlled lifting using feedback from a stroke encoder maintains even height on all legs and will stop the lift if necessary to prevent issues.

### Capacity:

400 kN lifting capacity at full extended lift height. Even with its compact size, the ML40 can lift full capacity to full height of 5,5 metres (18 ft), making it the most versatile portable gantry in the market.

### Compact:

Fits through standard doorway and is easily moved and set up. The ML40 gantry can be moved through the tightest spaces imaginable in all industrial settings. Easy to push, pull and maneuver, the ML40 can get into spaces that no other gantry can.

## ML Series



Capacity (with 4 legs):

**400 kN**

Maximum Lifting Height:

**5,5 metres**



### Wireless Pendant

- Stroke measurement and closed loop synchronization ensure level lifting and lowering
- Integrated 1.8 inch color display provides load and stroke information for all four lift points.



### Mini-Lift Gantry Transport Frame

Galvanized steel transport frames to allow shipment of mini gantry legs via standard truck lines. Two legs mount on each frame

which includes storage for controls and accessories.

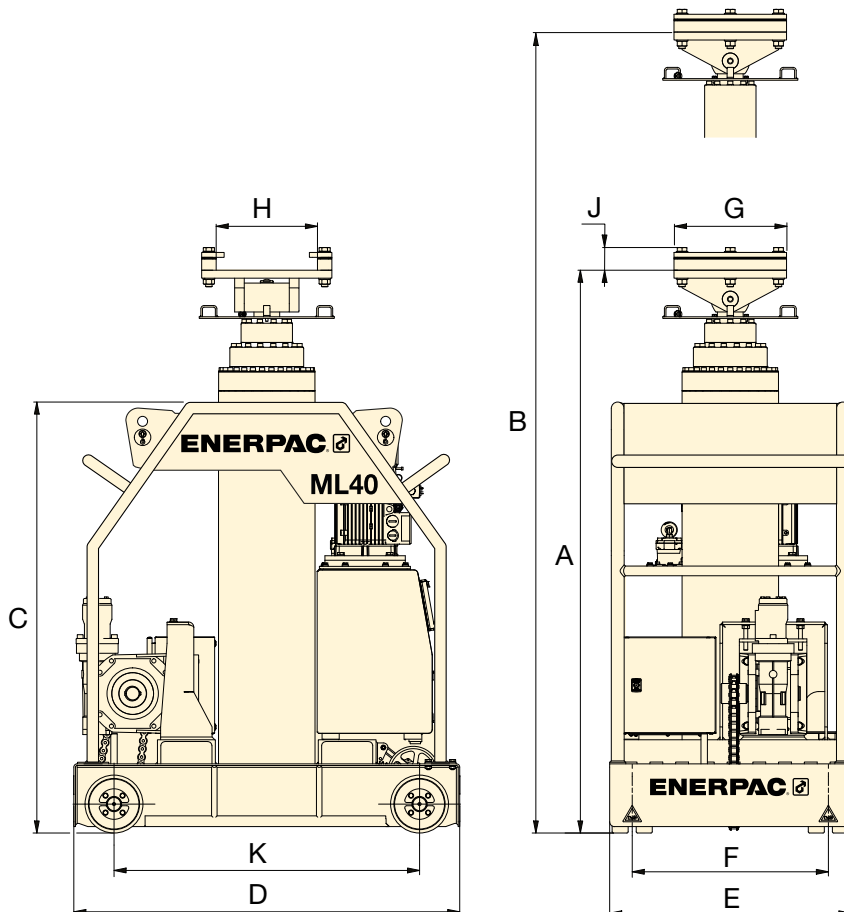
| Description       | Model Number  |
|-------------------|---------------|
| Set of two frames | <b>ML40TF</b> |



### Operating Voltages

ML40 is available in three voltages. 1 circuit per leg.

| Voltage                 | Model Number |
|-------------------------|--------------|
| 115 V, 1 phase, 16 A    | <b>ML40B</b> |
| 208-240 V, 1 phase, 8 A | <b>ML40E</b> |
| 380-415 V, 3 phase, 2 A | <b>ML40W</b> |



| Max. Capacity * | Model Number (4 legs) | Retracted Height<br>A<br>(mm) | Stage 1                  |                 | Stage 2                  |                 | Stage 3                  |                 | Base Height<br>C<br>(mm) | Base Length<br>D<br>(mm) | Base Width<br>E<br>(mm) | Track Gauge<br>F<br>(mm) | Beam Plate          |                    |                     | Wheel Base<br>K<br>(mm) | Wheel **<br>(kg) |
|-----------------|-----------------------|-------------------------------|--------------------------|-----------------|--------------------------|-----------------|--------------------------|-----------------|--------------------------|--------------------------|-------------------------|--------------------------|---------------------|--------------------|---------------------|-------------------------|------------------|
|                 |                       |                               | Max. Height<br>B<br>(mm) | Max. Capacity * | Max. Height<br>B<br>(mm) | Max. Capacity * | Max. Height<br>B<br>(mm) | Max. Capacity * |                          |                          |                         |                          | Length<br>G<br>(mm) | Width<br>H<br>(mm) | Height<br>J<br>(mm) |                         |                  |
| 400             | <b>ML40</b>           | 1900                          | 3000                     | 400             | 4200                     | 400             | 5500                     | 400             | 1390                     | 1200                     | 750                     | 610                      | 350                 | 315                | 71                  | 950                     | 1350             |

\* Capacity with 4 legs.

\*\* Weight per leg including oil.



# SL, SBL-Series, Telescopic Hydraulic Gantries **ENERPAC**

▼ SBL1100 with optional skid tracks, header beams, powered side shifts and lifting anchors



- Self-contained hydraulics and electronics
- Intelli-Lift wireless control system
- Self-propelled wheels or tank rollers
- Foldable boom on SBL600, SBL900 and SBL1100 to enable easy transport and set-up
- Full range of supplementary equipment: header beams, lifting anchors, side shifts and skid tracks
- All gantries comply to ASME B30.1, CE, UKCA and other safety standards
- Lloyds witness tested to 125% of maximum working load.

## Precision Lift and Position of Heavy Loads

The Ultimate in Safety and Control



### Intelli-Lift Wireless Control

The Intelli-Lift wireless control system is included with all Enerpac hydraulic gantries.

The Intelli-Lift controller offers superior safety and control and includes the following features:

- Encrypted bi-directional communication that eliminates interference from other devices
- Remote operation using multi channel wireless (2.4 GHz) or wired (RS-485) control
- High and low speed settings
- Automatic synchronization of lifting with an accuracy of 24 mm (0.95 inch)
- Automatic synchronization of travelling with an accuracy of 15 mm (0.60 inch)
- Overload and stroke alarms
- Remote side shift control
- Emergency stop switch.



### ML40, Mini-Lift Hydraulic Gantry

400 kN lifting capacity at full extended lift height. Even with its compact size, the ML40 can lift full capacity to full height of 5,5 metres (18 ft), making it the most versatile portable gantry in the market.

Page: **354**

▼ Enerpac SBL-Series hydraulic gantries are used in a variety of applications to install turbines, transformers and other power generation equipment all over the world.



| Maximum Capacity<br>(with 4 towers) | Model Number<br>(4 towers) | Retracted Height |
|-------------------------------------|----------------------------|------------------|
| (kN)                                |                            | A<br>(mm)        |
| 1000                                | SL100                      | 2050             |
| 2000                                | SL200                      | 2731             |
| 3000                                | SL300                      | 2715             |
| 4000                                | SL400N                     | 2725             |
| 4000                                | SL400                      | 3166             |
| 5200                                | SBL500                     | 3028             |
| 6000                                | SBL600                     | 4300             |
| 8976                                | SBL900                     | 5004             |
| 10.484                              | SBL1100                    | 4370             |

# Telescopic Hydraulic Gantries



## Hydraulic Gantries

Telescopic Hydraulic Gantries are a safe, efficient way to lift and position heavy loads in applications where traditional cranes will not fit and permanent overhead structures for job cranes are not an option.

Hydraulic Gantries are placed on skid tracks to provide a means for moving and placing heavy loads, many times with only one pick.

### Enerpac Hydraulic Gantry Systems:

- **ML-Series Mini-Lift**

Fits through standard doorway and is easily moved and set up. The ML40 gantry can be moved through the tightest spaces imaginable in all industrial settings.

- **SL-Series Super Lift**

The cost-effective SL-Series Super Lift offer control and stability for everyday lifting applications below 4000 kN up to 9 metres.

- **SBL-Series Super Boom Lift**

The heavy-duty SBL-Series Super Boom Lift boom style gantries offer increased lifting capacity of over 4000 kN to heights of 12 metres.

All Enerpac gantries are delivered with specific properties and control systems to ensure optimum stability and safety.

## SL, SBL Series



Capacity with 4 towers:

**1000 - 10.484 kN**

Lift Height:

**3,5 - 12 meters**

### ▼ Optional Gantry Accessories

Contact Enerpac for assistance by email at [enerpac.com/contact-us](mailto:enerpac.com/contact-us)



#### Skid Tracks

Allows for easy levelling of the gantry tower and reduce ground bearing pressure, available in two standard lengths, 3 and 6 m.



#### Header Beams

Sold in pairs and includes lifting points and fork pockets for easy positioning on gantry towers. Available in standard lengths of 8, 10 and 12 meters



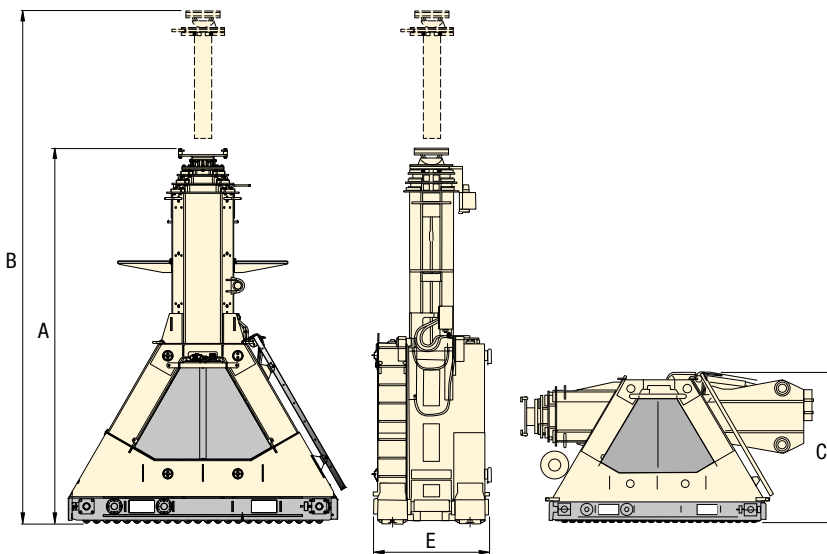
#### Powered Side Shift

Electric propulsion controlled by standard gantry controls. Each set consists of 4 units.



#### Lifting Anchors

Designed to transfer the load to the top of the header beam. Can accommodate a 250 ton shackle or attach directly to the lifted load.



| Stage 1     |                 | Stage 2     |                 | Stage 3     |                 | Transport Height | Skid Track Width | Model Number (4 towers) |                |
|-------------|-----------------|-------------|-----------------|-------------|-----------------|------------------|------------------|-------------------------|----------------|
| Max. Height | Max. Capacity * | Max. Height | Max. Capacity * | Max. Height | Max. Capacity * |                  |                  |                         |                |
| B (mm)      | (kN)            | B (mm)      | (kN)            | B (mm)      | (kN)            | C (mm)           | E (mm)           | (kg) <sup>1)</sup>      |                |
| 3400        | 1000            | 4750        | 600             | -           | -               | 1930             | 812              | 1735                    | <b>SL100</b>   |
| 4716        | 2000            | 6700        | 1360            | -           | -               | 2611             | 812              | 2200                    | <b>SL200</b>   |
| 4615        | 3000            | 6710        | 2000            | -           | -               | 2900             | 812              | 3250                    | <b>SL300</b>   |
| 4365        | 4000            | 6025        | 3000            | 7700        | 2000            | 2725             | 812              | 3600                    | <b>SL400N</b>  |
| 5224        | 4000            | 7232        | 4000            | 9140        | 1840            | 3170             | 1218             | 4600                    | <b>SL400</b>   |
| 4998        | 5200            | 6908        | 5200            | 8618        | 3000            | 3028             | 1218             | 6300                    | <b>SBL500</b>  |
| 6500        | 6000            | 8600        | 5000            | 10.600      | 3700            | 2250             | 1218             | 9000                    | <b>SBL600</b>  |
| 8304        | 8976            | 11.304      | 5924            | -           | -               | 2243             | 1218             | 13.350                  | <b>SBL900</b>  |
| 7004        | 10.484          | 9668        | 6756            | 12.002      | 3780            | 2244             | 1218             | 11.950                  | <b>SBL1100</b> |

\* Maximum capacity with 4 towers.

<sup>1)</sup> Weight per tower

▼ LH-Series, Low-Height Skidding System



- **Low starting height saves time and increases versatility**
- **Portable design allows for easy transport and setup**
- **System can push or pull load without relocating skidding cylinder**
- **Skid track sections bolt together to allow each setup to be customized as needed**
- **Replaceable PTFE skid pads lower the total cost of ownership.**

▼ *LH400, Low-Height Skidding System provides the service team with the ability to maneuver and transport a press frame.*



## Low-Height Skidding System for Heavy Loads

The Ideal Low-Height Jack & Slide Solution



### Skidding Systems

The Skidding System is comprised of a series of skid beams moved by hydraulic push-pull cylinders, travelling over a pre-constructed skid track.

A series of special PTFE-coated Teflon® pads are placed on the skid tracks to reduce friction. The push-pull cylinders are then connected by hydraulic hoses to our Split-Flow Pump. The Split-Flow Pump can be mounted on an optional pump cart for easy transport.

An optional storage and transport frame easily holds the equipment in between use.

▼ *LH400 Skidding used to remove an old press from a facility to make room for new equipment.*



# Low-Height Skidding System



## Low-Height Skidding Jack Starter Kit - LH400SK

A complete starter kit is available to fit the needs of any jack and slide application. This system comes with two skidding units that will support up to 3560 kN in total.

This kit will get the job done, but there are optional accessories available in addition (see page 360-361).

Each skidding unit will have 1 push-pull unit, 2 skid beams and 5 skid tracks.

| LH400SK Starter Kit includes: | Model Numbers | Qty |
|-------------------------------|---------------|-----|
| Push-Pull Unit (1780 kN)      | LHPP25        | 2x  |
| Skid Beam A (1 meter)         | LHSB1A        | 2x  |
| Skid Beam B (1 meter)         | LHSB1B        | 2x  |
| Skid Track (1 meter)          | LHST1         | 10x |
| Storage/Transport Frame       | LHSF          | 1x  |

The Split-Flow Pump (to be ordered separately) has 2 outlets and can be easily towed on the pump cart. After the job is complete, components can be stowed on the included storage frame.

## LH Series



Skidding Capacity with two push-pull units:

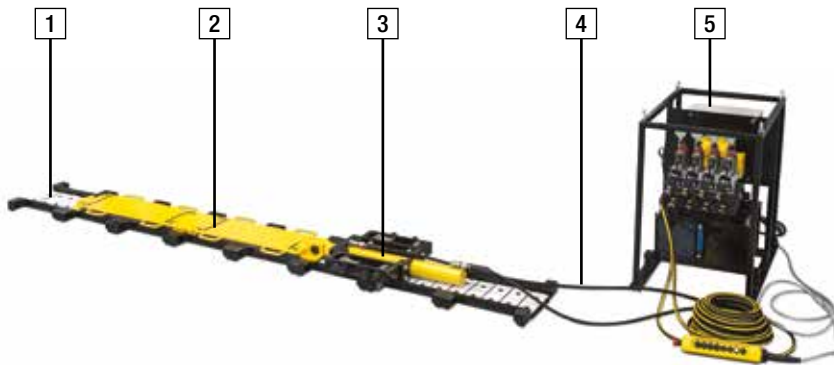
**3560 kN**

Push-Pull Stroke:

**600 mm**

Maximum Operating Pressure:

**700 bar**

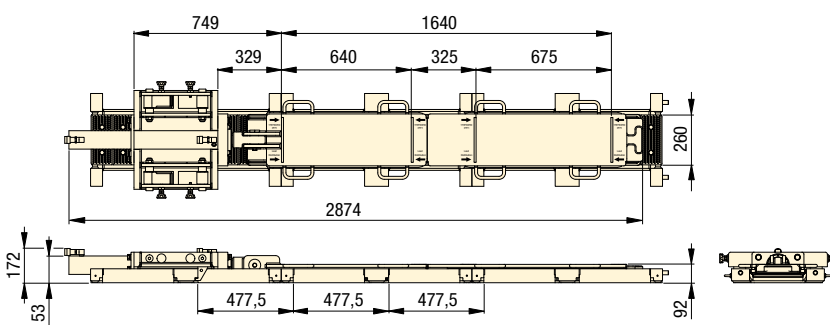


### LH-Series, Low-Height Skidding System Requirements

|     |                                       |                       |
|-----|---------------------------------------|-----------------------|
| 1   | Skid Track <b>LHST1</b>               | Required              |
| 2   | Skid Beam <b>LHSB1A + LHSB1B</b>      | Required              |
| 3   | Push-Pull Cylinder Unit <b>LHPP25</b> | Required              |
| 4   | Hydraulic Hoses                       | Required              |
| 5   | Split-Flow Electric Pump <b>SFP</b>   | Required              |
| 6 * | Track Support                         | Application dependant |
| 7 * | Storage-Transport Frame <b>LHSF</b>   | Optional              |
| 8 * | Pump Cart <b>LHPC</b>                 | Optional              |

\* not shown

### LH400, Low-Height Skidding System (dimensions in mm)



### SFP-Series, Split-Flow Pump

Split-Flow pumps distribute an equal amount of hydraulic oil to a maximum of 8 outlets. Smart valve technology allows both controlled lifting and lowering of heavy loads.

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### LHPC Pump Cart

The LHPC pump cart easily tows pump around jobsite and can be used with all models of SFP-Series Split-Flow Pumps.



### Hydraulic Power Packs

Enerpac offers a comprehensive range of hydraulic power packs that are optimized for use with Skidding Systems.



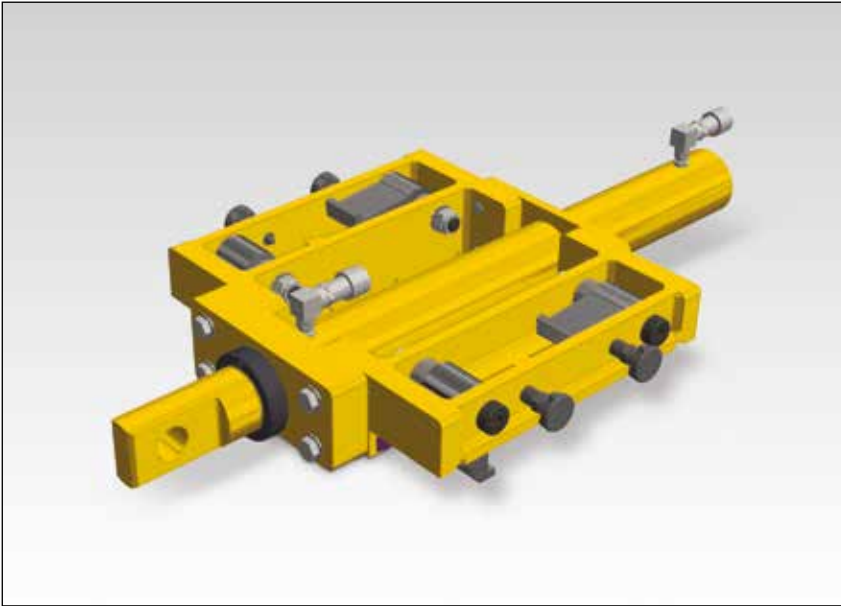
### Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

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▼ LHPP25 Low-Height Push-Pull Unit



**Push-Pull Unit**

- Connects to first skid beam to push or pull load along skid track
- Easily reverse direction by switching reaction tabs
- Complies to ASME B30.1 and other safety standards.

▼ Low-Height Push-Pull Unit

| Maximum Capacity (kN) |      | Model Number  | Stroke (mm) | Weight (kg) |
|-----------------------|------|---------------|-------------|-------------|
| Push                  | Pull |               |             |             |
| 222                   | 97,8 | <b>LHPP25</b> | 600         | 111         |

▼ LHSB1A and LHSB1B Skid Beams



**Skid Beams**

- Interlocks without any fasteners to slide load over skid track;  
skid beam A (LHSB1A) attaches to the push-pull unit  
skid beam B (LHSB1B) attaches to skid beam A
- Polished stainless steel skid surface
- Carrying handles for easy transport.

▼ Skid Beams

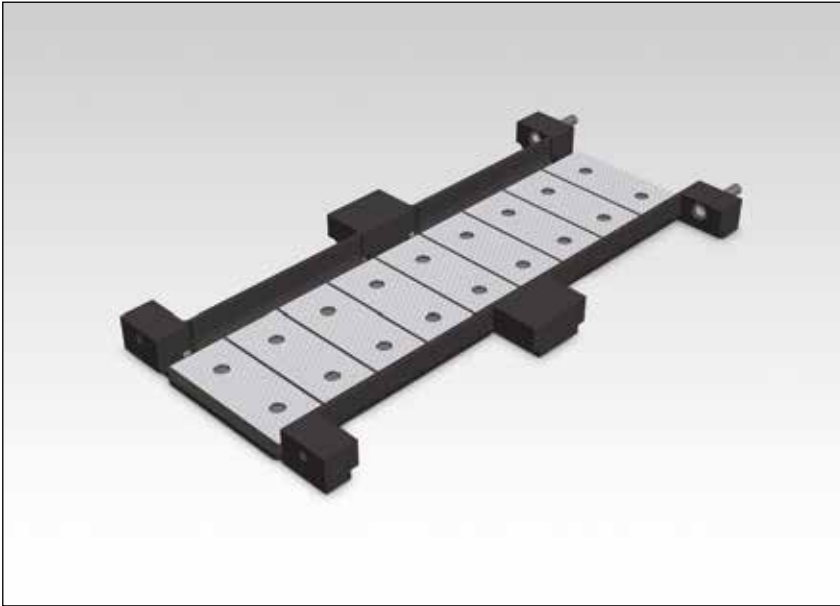
| Capacity (kN) | Model Number  | Weight (kg) |
|---------------|---------------|-------------|
| 890           | <b>LHSB1A</b> | 66          |
| 890           | <b>LHSB1B</b> | 63          |



◀ Details of push-pull unit of LH400.

# Low-Height Skidding Components

## ▼ LHST1 Skid Track



### Skid Track

- Support the load for skidding operations
- Track sections bolt together
- Includes 9 pieces easily replaceable PTFE skid pads.

### ▼ Skid Track

| Maximum Capacity (per skid track) (kN) | Model Number | Track Length (mm) | Weight (incl. pads) (kg) |
|--|--------------|-------------------|--------------------------|
| 890                                    | <b>LHST1</b> | 955               | 67                       |

▼ An LH400 Skidding System allows the maintenance team to transport transformers with access limitations.



▼ Low-Height Skidding System assembly (LH400).



## LH Series



Skidding Capacity with two push-pull units:

**3560 kN**

Push-Pull Stroke:

**600 mm**

Maximum Operating Pressure:

**700 bar**



### Teflon® Pads

A series of special PTFE coated Teflon® pads are placed on the skid tracks. The PTFE surface is matched with the skid beam and designed to achieve minimum friction coefficients.

Replacement Teflon® Pads come in packs of 12 pieces. Order model number **HSKSPS1**.



### Storage and Transport Frame

For easy storage and transport of all low-height skidding components.

Fits following components:

2x LLPP25 Push-Pull Unit

2x LHBS1A Skid Beam A

2x LHBS1B Skid Beam B

10x LHST1 Skid Tracks

| Model Number | Overall Dimensions L x W x H (mm) | Weight (kg) |
|--------------|-----------------------------------|-------------|
| <b>LHSF</b>  | 1080 x 935 x 895                  | 200         |

With all components stored dimensions are: 1080 x 935 x 1003 mm, and total weight 1350 kg.

▼ Shown: HSK1250 Skidding System



## HSK-Series, Skidding System

- PTFE skid pads with dimpled surface for low friction and long lifetime
- Easy to replace skid pads, no tools necessary
- Bi-directional operation using push-pull cylinders avoid the need to reposition cylinders for switching direction
- Large load support surface on the skid beams for distributing load
- Bottom of skid shoes equipped with stainless steel sliding plates.

## LH-Series, Low-Height Skidding System

- 2-in-1 track design for added support
- Intuitive pump controls (SFP-Series Split-Flow Pump)
- Easily reversible to change skidding direction
- Portable design for quick setup.

▼ A custom hydraulic Low-Height Skidding System will provide the maintenance team with the ability to maneuver and transport transformers with physical access limitations.



## The Ideal Jack and Slide Solution



### Skidding Systems

The skidding system is comprised of a series of skid beams moved by hydraulic push-pull cylinders, travelling over a pre-constructed track.

A series of special PTFE coated pads are placed on the skid tracks. The PTFE surface is matched with a sliding plate under the Enerpac skid beams, designed to achieve minimum friction coefficients. The skid beams are connected by hoses to a hydraulic electric or diesel driven power pack.

In addition to our standard skidding systems, we have the capability to create customized skidding systems to meet your specific requirements.



### Controls

Enerpac offers several options for controlling our skidding systems. Wireless Controls allows the operator the freedom to view the skidding operation from multiple locations while providing complete control of all system functions.

Manual controls offer a cost-effective solution by utilizing manual hydraulic valves mounted directly on the skidding system power unit.

▼ HSKJ2500 Skid Shoe Jack.





## Skidding Systems

Enerpac Skidding Systems are available in several versions:

- **B-Series (Skid Beam)** utilizes a tall skid beam with built-in push-pull cylinders. Skidding direction can be easily switched by flipping a lever on the attached gripper box.
- **J-Series (Skid Jack)** provides the same functionality as the B-Series with the added benefit of having a built-in cylinder for lifting or leveling the load.

- **LH-Series (Low-Height)** includes low-height skid beams that can fit in tight spaces while still offering high capacity. We also offer a track support for added rigidity when the surface is not fully supported.

## HSK LH Series



Capacity:

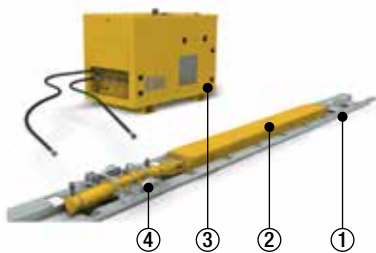
**125 - 250 ton**

Push/Pull Stroke:

**600 mm**

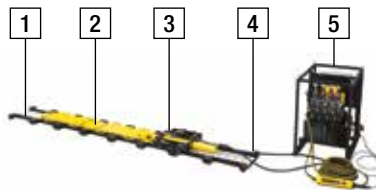
Lifting Stroke:

**175 mm**



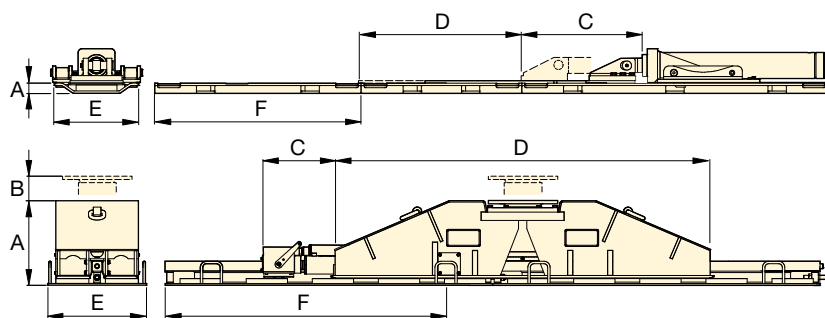
### HSK-Series Skidding System Requirements

- ① Skid Track
- ② Skid Beam
- ③ Hydraulic Power Pack
- ④ Hydraulic Push-Pull Unit



### LH-Series Skidding System Requirements

- 1 Skid Track (required)
- 2 Skid Beam (required)
- 3 Push-Pull Cylinder Unit (required)
- 4 Hydraulic Hoses (required)
- 5 Split-Flow Electric Pump (required)
- 6 Track Support (optional, not shown)
- 7 Storage/Transport Frame (optional, not shown)
- 8 Pump Cart (optional, not shown)



## Skidding Systems

| Maximum Capacity (per beam) | Maximum Push-Pull Capacity ton (kN) |          | Model Number | Skid Beam Height (with track) | Lifting Stroke | Push-Pull Stroke | Skid Beam Length | Skid Beam Weight | Skid Track Width | Skid Track Length | Skid Track Weight |
|-----------------------------|-------------------------------------|----------|--------------|-------------------------------|----------------|------------------|------------------|------------------|------------------|-------------------|-------------------|
|                             | ton (kN)                            | Push     |              |                               |                |                  |                  |                  |                  |                   |                   |
| 125 (1250)                  | 22 (220)                            | 16 (160) | HSKB1250     | 309                           | –              | 600              | 2500             | 740              | 400              | 1983              | 120               |
| 125 (1250)                  | 22 (220)                            | 16 (160) | HSKJ1250     | 502                           | 175            | 600              | 1690             | 790              | 400              | 1983              | 120               |
| 200 (2000)                  | 25 (255)                            | 14 (141) | HSKLNH2000   | 204                           | –              | 600              | 2902             | 340              | 540              | 1998              | 120               |
| 250 (2500)                  | 40 (400)                            | 26 (260) | HSKB2500     | 374                           | –              | 600              | 3000             | 1020             | 600              | 1946              | 290               |
| 250 (2500)                  | 40 (400)                            | 26 (260) | HSKJ2500     | 600                           | 175            | 600              | 1784             | 1450             | 600              | 1946              | 290               |
| 180 (1780)                  | 25 (255)                            | 11 (98)  | LH400 *      | 92                            | –              | 600              | 1080             | 63               | 250              | 955               | 67                |

\* Low-Height Skidding System, see pages 358 - 361 for detailed and technical information.



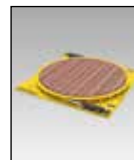
### Skid Tracks

Include specially constructed and easily replaceable PTFE coated pads. Skid track is sold separately.



### Hydraulic Power Packs

Enerpac offers a comprehensive range of hydraulic power packs that are optimized for use with Skidding Systems.



### ETT-Series Turntables, Safe and controlled rotation

The ETT-Series Turntables is your solution for rotating heavy loads during, before or after a lifting and skidding operation.



▼ ETR50H, Enerpac Trolley System (shown with Trolley Track Plates)



- **High transport speed:**  
25 - 50 m/hour loaded,  
100 m/hour unloaded
- **Suited for repetitive movements**
- **Runs on simple flat steel plate**
- **Ease of maintenance:**  
– long maintenance intervals  
– no consumables
- **Clean usage – electric driven**
- **Built-in synchronization – no need for forced external mechanical connection to synchronize movements**
- **Easy transport - compact design**
- **Hydraulic lifting cylinder option available**
- **Kits to accommodate other lifting options also available.**

▼ The trolley system speeds up offshore wind transition piece load out: the transition pieces are positioned in the clamping frames and moved along the track.



▼ ETR-Series electric trolley undergoing factory acceptance testing prior to shipment.



## Safe & Synchronized Travel



### Product Overview

The ETR-Series Trolley System is comprised of electrically-driven trolleys which can carry heavy loads along a fixed track system.

The entire system is controlled by a hand held wireless control system.

A typical system is comprised of 4 Trolleys, 2 Tracks and one Controller. Trolley Tracks and Wireless Control must be ordered separately.



### Control Panel and Cables

Operate up to 8 trolleys (same capacity each) using control panel with included wireless controller:

- Automatic synchronization of traveling with an accuracy of 10 mm (0.39 inch)
- Dual-band radio with automatic frequency search
- Wireless remote operation
- High and low speed settings
- Emergency stop switch
- Control cables operate trolley and provide feedback to controller.

### Control Panel

| Model Number<br>(380-415 VAC, 32A) | Dimensions<br>(mm) |     |      | <br>(kg) |
|------------------------------------|--------------------|-----|------|----------|
|                                    | L                  | W   | H    |          |
| <b>ETR-CPW8</b>                    | 1290               | 600 | 1100 | 250      |

### Control Cables

| Model Number      | Description             |
|-------------------|-------------------------|
| <b>ETR-CBL-15</b> | 15 metres control cable |
| <b>ETR-CBL-25</b> | 25 metres control cable |



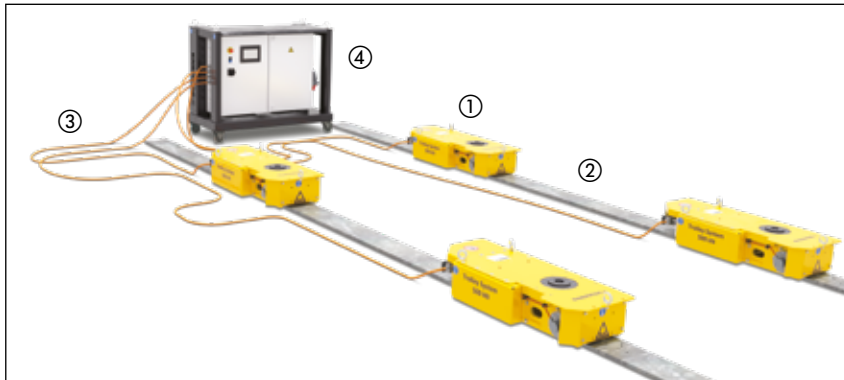
## ETR-Trolley System

The Enerpac Trolley System provides an alternative method with increased benefits over traditional skidding methods.

Load movements are more stable due to the continuous movement and ability to precisely control travel speed including acceleration and deceleration.

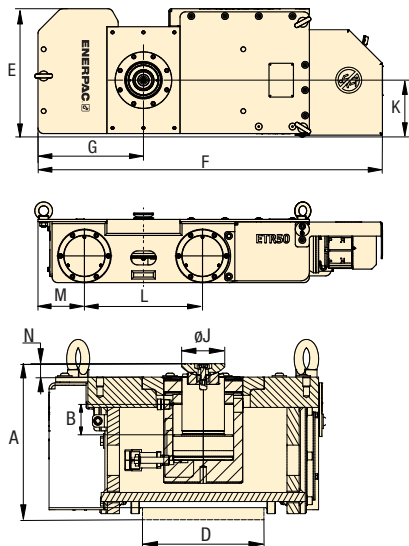
### Key features:

|                        |                 |
|------------------------|-----------------|
| Low speed (loaded):    | 25 m/hr         |
| High speed (loaded):   | 50 m/hr         |
| Travel speed unloaded: | 100 m/hr        |
| Accuracy:              | 10 mm           |
| Sideload:              | 1,5% rated load |
| Sound Level:           | < 80 dBA        |

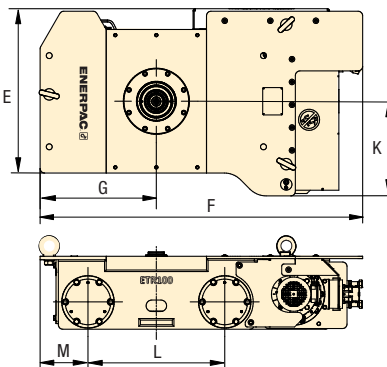


- ① Electric Trolley ETR-Series
- ② Track Plate ETR-TP-015 or ETR-TP-030
- ③ Control Cable ETR-CBL-15 or ETR-CBL-25
- ④ Control Panel ETR-CPW8 (including wireless remote)
- ⑤ Split-Flow Electric Pump - SFP-Series Not shown. Optional for units with hydraulic cylinders

### ETR50



### ETR100



## ETR Series



Capacity Per Trolley:

**500 - 1000 kN**

Travel Speed (loaded):

**25 - 50 m/hr**

Motor Power:

**0,38 - 0,75 kW**



### Trolley Track Plates

Track plates provide level guidance and support for the trolley. Two plates placed side-by-side are used for operation of

ETR100-Series Trolleys. Maximum inclination of tracks is 0,2 degree.

| Model Number | Description               |
|--------------|---------------------------|
| ETR-TP-015   | 1,5 m Trolley track plate |
| ETR-TP-030   | 3,0 m Trolley track plate |



### Additional Mounting Options

Mounting kits are available to accommodate other lifting and rigging solutions.

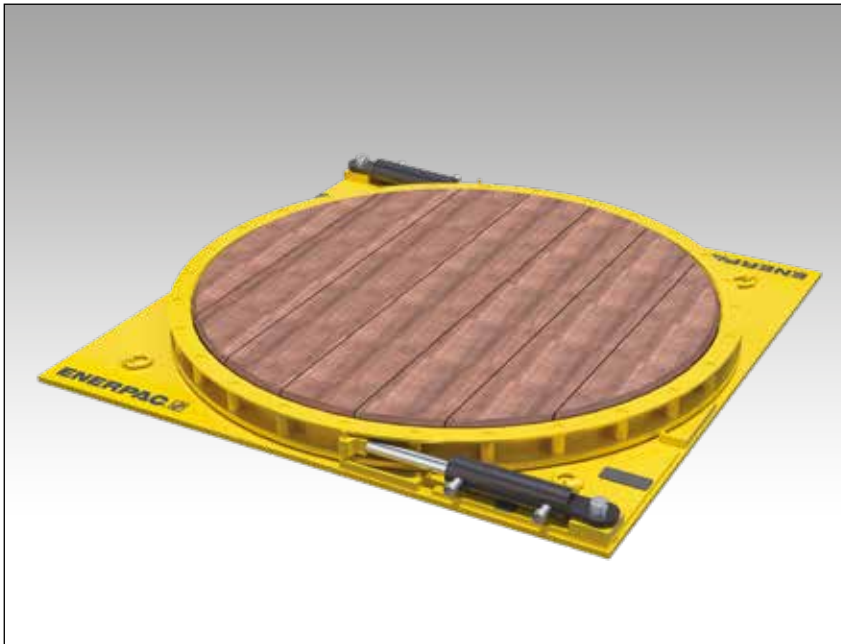
| Model Number | Description                 |
|--------------|-----------------------------|
| ETR50-SMK    | Enerpac SCJ50 on ETR50      |
| ETR100-SMK   | Enerpac SCJ100 on ETR100    |
| ETR50-BMK    | Swivel beam mount on ETR50  |
| ETR100-BMK   | Swivel beam mount on ETR100 |

| Capacity per Trolley Unit<br>ton (kN) | Model Number<br>(one unit) | Motor Power<br>(kW) | Dimensions (mm) |                                |                           |     |      |     |     |     |     |     |    | (kg) |
|---------------------------------------|----------------------------|---------------------|-----------------|--------------------------------|---------------------------|-----|------|-----|-----|-----|-----|-----|----|------|
|                                       |                            |                     | A               | Hydraulic Stroke <sup>1)</sup> | Track Width <sup>2)</sup> | E   | F    | G   | J   | K   | L   | M   | N  |      |
| 50 (500)                              | ETR50                      | 0,38                | 245             | –                              | 200                       | 456 | 1225 | 375 | 125 | 202 | 420 | 165 | 10 | 310  |
|                                       | ETR50H                     |                     | 257             | 50                             |                           |     |      |     | 71  |     |     |     | 22 |      |
| 100 (1000)                            | ETR100                     | 0,75                | 346             | –                              | 400                       | 821 | 1415 | 510 | 170 | 415 | 600 | 210 | 15 | 850  |
|                                       | ETR100H                    |                     | 349             | 100                            |                           |     |      |     | 71  |     |     |     | 19 |      |

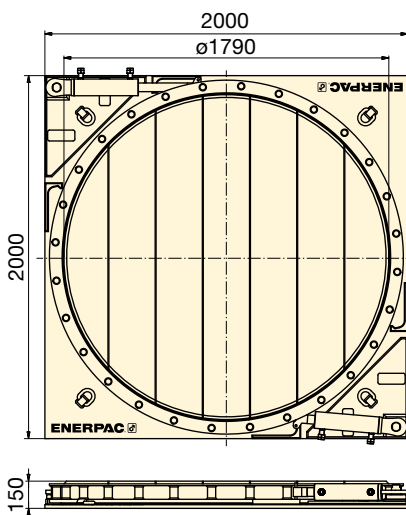
<sup>1)</sup> ETR50H includes HCG502 Cylinder with CATS50 Swivel Saddle. ETR100H includes HCG1004 Cylinder with CATS101 Swivel Saddle.

<sup>2)</sup> ETR100 series uses two track plates side-by-side.

▼ ETT400 Turntable



- Safe and controlled rotation of heavy loads
- Easily change rotation direction
- Dual capacity: 200 ton with one cylinder, 400 ton with two cylinders
- Compact size for use in applications with limited space
- Compatible with standard Enerpac pumps
- Hardwood surface.



▼ SELECTION CHART

| Maximum Load Capacity<br>(kN) | Model Number  | Cylinder Capacity *<br>(kN) | Cylinder Oil Capacity *<br>(cm <sup>3</sup> ) |         | No. of Cylinders * | Rotation per Stroke<br>(degrees) | Platform Diameter<br>(mm) | (kg) |
|-------------------------------|---------------|-----------------------------|---|---------|--------------------|----------------------------------|---------------------------|------|
|                               |               |                             | advance                                       | retract |                    |                                  |                           |      |
| 2000                          | <b>ETT200</b> | 222                         | 792   | 344     | 1                  | 12,5                             | 1790                      | 1700 |
| 4000                          | <b>ETT400</b> | 222                         | 792   | 344     | 2                  | 12,5                             | 1790                      | 1725 |

\* Per cylinder. Cylinder modelnumber: **BRD259-ETT**

## ETT Series

Maximum Capacity:  
**200 - 400 ton**

Cylinder Capacity:  
**25 ton (222 kN)**

Maximum Operating Pressure:  
**700 bar**



### Safe and controlled rotation

The ETT-Series is your solution for rotating heavy loads during, before or after a lifting and skidding operation.



### SFP-Series, Split-Flow Pump

Split-Flow pumps distribute an equal amount of hydraulic oil to a maximum of 8 outlets. Smart valve technology allows both controlled lifting and lowering of heavy loads.

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### LH-Series, Low-Height Skidding

The ETT-Series are ideal in combination with our skidding systems, particular the LH-Series. Skidding and rotating in confined spaces is simplified.

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### Telescopic Hydraulic Gantries

The ETT-Series in combination with our hydraulic gantry SL-Series makes load handling in the most demanding situations easy.

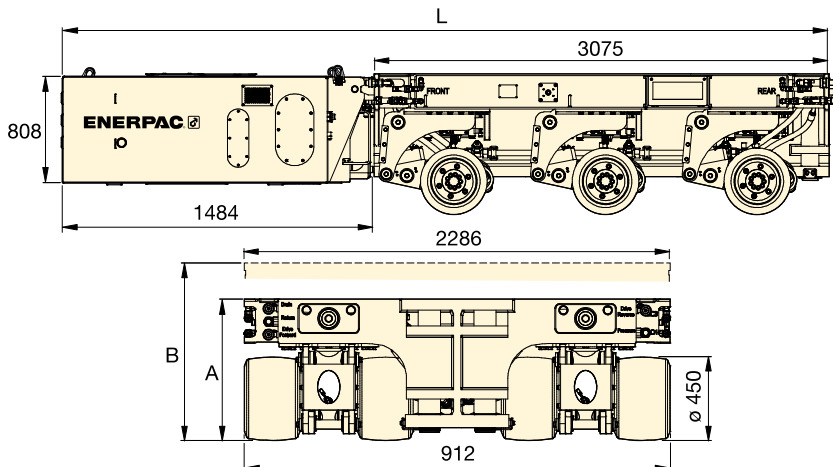
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# SPMT, Self-Propelled Modular Transporter

▼ SPMT600-360 with MTPP360 hydraulic power unit (HPU)



- Modular design for multiple configurations.
- Minimized height and slim design are ideal for in-plant operation
- Intelli-Drive wireless control system is intuitive and easy to use
- One power pack can operate 2-3 trailers maximum depending on model
- Two trailers and power pack can be shipped inside a 20 ft. container
- Hydraulic power unit is tier-4 diesel engine for reduced emissions.



## SPMT Series

Capacity:

**60 ton (600 kN)**

Transport Speed (unloaded - loaded):

**3 - 1,5 km/h**

Motor Size:

**54 kW**



### Self-Propelled Modular Transporter

The Enerpac Self-Propelled Modular Transporter (SPMT) features a minimized height and slim design, which makes it very easy to operate in confined spaces. Each wheel unit has a steering function as well as a lifting cylinder at its disposal. Two axles are driven, the centre axle is non-driven. Wheel propulsion is established by wheel drives.

The SPMT is operated by the Intelli-Drive Remote Controller. This remote controller can be used both hard wired and wireless (based on radio frequency).

The SPMT is a modular system and can be built up to a maximum configuration of six transporters in a row and two in the width. This is the maximum setup of units that can work together on just one Intelli-Drive Remote Controller.





The SPMT is a modular system comprised of trailers with 3 axle lines each and diesel hydraulic power units (HPU). Depending on the model number, the trailers and HPUs can be configured to a maximum of 4 trailers in 2 rows (4x2) or 6 trailers in 2 rows (6x2).



Crab



Carousel

| Capacity<br>(per transporter)<br><br>ton (kN) | Transporter<br>Model Number | Maximum<br>Configuration<br>(transporters<br>in rows) | Steering<br>Range<br><br>(degrees) | Steering Mode  |  | Retracted<br>Height<br><br>A<br>(mm) | Average<br>Travel<br>Height<br>B<br>(mm) | Overall<br>Length<br><br>L<br>(mm) | Lifting<br>Stroke<br><br>(mm) |  SPMT<br>(kg) | HPU *<br>Model<br>Number |  HPU *<br>(kg) |
|---|-----------------------------|---|------------------------------------|--|--|--------------------------------------|--|------------------------------------|-------------------------------|--|--------------------------|---|
|   |                             |   |                                    |  crab |  carousel |                                      |  |                                    |                               |  |                          |   |
| 60 (600)                                      | SPMT600-100                 | 4 x 2   | +/- 50                             | ●  | —  | 767                                  | 959                                      | 4560                               | 384                           | 8000   | MTPP-100                 | 2500  |
|   | SPMT600-360                 | 6 x 2   | +/- 179                            | ●  | ●  | 764                                  | 956                                      | 5188                               | 384                           | 8300   | MTPP-360                 | 2800  |

\* HPU = 54 kW Power Pack Diesel is sold separately.





### OFFSHORE GANTRY CRANE

The Enerpac Over Head Travel Crane (OHTC) comprises two pairs of lifting beams, with an overall width of 30m, and a lifting capacity of 4800 ton for lifting, moving and lowering the concrete blocks for the offshore highway.



### STRAND JACK GANTRY

The strand jack gantry is a steel structure to facilitate erection and skidding back, forth and sideways of heavy loads. The Enerpac strand jack gantry can be used with either skidding systems or hydraulic gantries on top.



### TRAVEL GANTRY

The travel gantry combines the safety and efficiency of a hydraulic gantry with the ease of use of SPMT (self-propelled modular transporter) technology. With a lifting capacity of 67 ton, the travel gantry sets a new standard in equipment and container handling.



### BRIDGE LAUNCHING SYSTEMS

**Spindle Bar System:** group of in-line hollow plunger cylinders. The hollow plungers allow the steel bars to be inserted through the cylinders, which are used for pushing, pulling and braking. **Enerpac Enerlauncher** is an automatic and synchronous incremental hydraulic tandem launching system with a 800 ton lifting section and an 300 ton push/pull section.



### JACK-UP SYSTEMS

The jack-up system is a custom developed multipoint lifting system – synchronically lift and mechanically hold. A typical system setup includes four jack-up units positioned under each corner of a load.



### ROTOR REMOVAL AND INSTALLATION SYSTEM

The generator rotor removal and installation system is a custom developed product for removing and installing the rotor (field) in a power plant's generator. The system is designed to comply with the varying dimensions and challenging accessibility of a plant's generator.



### CUSTOM HYDRAULIC PRESSES

Our hydraulic presses can be configured to fulfill a broad range of applications. Each press is designed and manufactured according to customer specifications and in cooperation with our engineering team.



### SELF-ERECTING TOWER

The Enerpac Self Erecting Tower (ESET) is a self-erecting tower lift system that enables you to build a free standing gantry from ground level. The ESET can be supplied in various capacities and lifting heights and is built with standard modular components, enabling a flexible solution to future project demands.



### LAS VEGAS WHEEL

Our expertise has been acknowledged by the world's leading industrial professionals and has contributed to the successful movement of a number of the most recognizable structures on earth. At the time of construction the Las Vegas High Roller was the largest observation wheel in the world. A custom hydraulic drive system was developed to propel the wheel for daily use and was also used to construct the wheel in sections.

## FROM SIMPLE TO COMPLEX – LIFTING SOLUTIONS FOR YOUR APPLICATION

For those who do the heavy lifting today, the stakes are high and the challenges complex. We know our customers put their reputations and physical well-being on the line to get the job done right. We take that very seriously.

Backed by a global legacy of ultra-reliable quality and superior precision, Enerpac Heavy Lifting Technology is pushing the industry forward with a wide range of advanced solutions that first and foremost ensure our customers operate safely and productively every day. It isn't about being compliant, or "as good" as the next guy; we outpace the competition by delivering technically superior solutions that are easy to design, safe to use and built to outlast.

### CONSULTATIVE APPROACH TO HEAVY LIFTING

From the very first discussion to gain an understanding of your application to solution design, training and ongoing field support of your operators, you will find a structured process and a team of application experts who will advise you towards a successful solution.



### SOLUTION CONSULTATION

- Requirements Specifications
- Selecting the Right Solution for Your Application

### DESIGN & MANUFACTURING

- Design & Engineering
- Manufacturing Excellence

### TESTING & TRAINING

- Quality Assurance
- Operation & Safety Training

### ON-DEMAND SUPPORT

- On-the-job Application Engineer Support
- Routine Maintenance & Repair Services

## SOLUTION CONSULTATION

- Requirements Specifications
- Selecting the Right Solution for Your Application

Since the late 1950's, Enerpac has been steadfast in their commitment to work closely with customers to understand their lift needs and work-site environment. Not all lifts are the same. There are several factors that must be taken into consideration before recommending the best solution.

## APPLICATION CONSIDERATIONS

### LOAD CAPACITY

How much weight needs to be lifted, moved and/or positioned?

### LIFT HEIGHT

How high does the load need to be lifted? Are there restrictions above or below the load?

### TYPE OF LIFT

Will you lift from above or below?

### SPACE

How much space is available to complete the task?

### TIME

How the job needs to be completed within a set timeframe due to operational or environmental factors.

### TRANSPORTATION

Does the load need to be transported as well as being lifted? How far and how often?

### TOTAL COST OF OWNERSHIP

What productivity, labor or training costs need to be factored into the solution to make it the best long-term investment.

Because Enerpac engineers have designed solutions for a variety of applications over the years, they are well-equipped to minimize risks and to recommend a simpler solution that others may overlook. Built on a world-class reputation for developing products that meet the most common lifting applications,

once your specifications are in the hands of the Enerpac experts, you are sure to receive a comprehensive recommendation that will save time and money while ensuring safety above all else.





Enerpac has the most complete offering of standard heavy lifting and positioning tools in the market. These products are designed to highest standards of performance and offer great flexibility to meet the demands of even the most challenging applications. Our manufacturing facility adheres to world-class production planning and inventory management to ensure your product arrives at your facility on time as specified.

## DESIGN & MANUFACTURING

- Design & Engineering
- Manufacturing Excellence



### Design & Engineering

Enerpac engineers are experienced in the latest software, rapid prototyping, failure analysis methods and engineering standards. This allows us to continuously improve and expand our product offering to meet ever changing needs of the market.

- CE, Machinery Directive 2006/42/E
- ASME: B30.1



### Assembly & Quality Assurance

All Enerpac products are assembled by highly trained individuals, working safely and efficiently from start to finish. The Hengelo, NL facility that manufactures the Enerpac heavy-lifting equipment holds several quality certifications.

- ISO 9001: 2015
- ISO 3834-2: 2005
- ISO 14001: 2015
- ISO 45001: 2018



### Fabrication & Machining

A dedicated steel fabrication and certified welding facility manufactures product components and support structures for the most demanding heavy-lifting applications. Complete in-house production is delivered using the latest CNC and conventional turning machines plus a full range of milling and boring equipment.





## TESTING & TRAINING

- Quality Assurance
- Operation & Safety Training

The Enerpac facility, that makes and builds your heavy-lifting equipment, holds several quality system certifications giving you extra confidence in the safety and reliability of your heavy-lifting equipment. Whether your first lift or move is scheduled upon taking delivery of your new equipment or months later, you will have access to the dedicated Heavy-Lifting team to support your training or troubleshooting needs.



### Factory Acceptance Testing (FAT)

Customers are invited to witness FAT, often combined with operator training. Under witness of Lloyd's Register, all equipment is functionally tested to maximum capacity, and in many cases up to 125% of rated load. Additional testing to meet standards compliance, government regulations or specific customer requirements are performed and documented at the same time.



### Documentation

Upon delivery of your new heavy-lifting equipment, an operator's manual outlines the configuration of your system, detailed operating instructions with safety guidelines, and maintenance recommendations.



### Training

Customers who attend factory acceptance training at Enerpac's facility can also receive a day of training on their heavy lifting equipment. Additional training or on-site custom training can also be arranged.



Once you take possession of your new heavy-lifting equipment, you have on-demand access to our field support team. And support continues with ongoing maintenance or system upgrades throughout the life of your assets.

## ON-DEMAND SUPPORT

- On-the-job Application Engineer Support
- Routine Maintenance & Repair Services



### On-the-Job Field Support

Should you ever require extra support while using your Enerpac Heavy-Lifting system on the job, our dedicated application engineers will work closely to guide your operators on appropriate use of our equipment. And to ensure job safety, they will travel to your job site as needed to ensure your project is completed timely and without incident.



### Product Warranty

All Enerpac Heavy-Lifting equipment is built to stringent specifications and built to last. Should you ever encounter a defect in materials or workmanship under normal use, it will be remedied through our standard one-year warranty program.



### Maintenance & Repair

Downtime is minimized with fast delivery of repair parts and consumables stocked at several locations worldwide. For those that want the added confidence of specialized technicians, the Enerpac Maintenance & Repair team are ready to perform your maintenance or repair services for you.





Since joining the Enerpac portfolio, the design innovation of Mirage machines has continued to deliver new products that help get the job done faster, safer, and smarter. Explore the full Mirage product line from flange facing machines, milling machines, hot tapping, drilling and tapping machines to clamshell pipe cutters, decommissioning and band saws. All backed by Enerpac training, application support and service.

### Design & Innovation

On-site Machine Tools are the result of over 25 years of expertise and innovation. The pioneering spirit continues under Enerpac ownership through our commitment to new product development. Watch out for more new tools being launched in the near future!

### Continuous Improvement

Our specialist manufacturing operation is ISO9001 certified. This means we drive a culture of continuous improvement. Our team members are encouraged to find ways to improve today, tomorrow, and long into the future.

### Specialist Support, Experience & Expertise

Each machining project presents difficult and unique challenges. Making the right choice for your next and any future projects can be complex. That is why our team is eager to support you through every step on your journey. Whether it is choosing the right specification, commissioning your machine, or maintenance - we're with you all the way.



Specialist Support, Experience & Expertise



Utilities



Nuclear



Oil & Gas



Petrochemicals



Power Generation



Ship Building, Maintenance and Repair






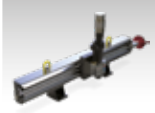

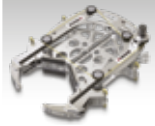





Wind Power



Construction and Mining

# On-site Machining Tools – Overview

| Machining Capacities                          | On-site Machining Tools   | Series                                      |   | Page                |
|---|---|---|---|---------------------|
| <p>ø 1 - 161 inches<br/>ø 25,4 - 4100 mm</p>  | <p><b>Internal Mount Flange Facing Machines</b><br/>Create the right flange sealing surface</p>                           | <p><b>FF<br/>MM-I</b></p>                   |    | <p><b>376</b> ▶</p> |
| <p>ø 0 - 80 inches<br/>ø 0 - 2032 mm</p>      | <p><b>External Mount Flange Facing Machines</b><br/>Create the right flange sealing surface</p>                           | <p><b>MM-E</b></p>                          |    | <p><b>377</b> ▶</p> |
| <p>ø 2 - 86 inches<br/>ø 51 - 2184 mm</p>     | <p><b>DL RICCI Clamshell Pipe Cutting and Beveling Machines</b><br/>Narrow Body, Mid-Size and Heavy-Duty</p>              | <p><b>DLR</b></p>                           |    | <p><b>378</b> ▶</p> |
| <p>ø 98 - 315 inches<br/>ø 2500 - 8000 mm</p> | <p><b>General Orbital Milling Machines</b><br/>Machine large flanges accurately and efficiently</p>                       | <p><b>OM</b></p>                            |    | <p><b>380</b> ▶</p> |
| <p>ø 70 - 181 inches<br/>ø 1800 - 4600 mm</p> | <p><b>Wind Power Orbital Milling Machines</b><br/>Machine large flanges accurately and efficiently</p>                    | <p><b>WP</b></p>                            |    | <p><b>381</b> ▶</p> |
| <p>40 - 120 inches<br/>100 - 3000 mm</p>      | <p><b>Linear Milling Machines</b><br/>On-site milling with workshop precision<br/>2 and 3-Axis Configuration</p>          | <p><b>LMR<br/>MR, MRY<br/>GMRF</b></p>      |  | <p><b>382</b> ▶</p> |
| <p>ø 1/2 - 60 inches<br/>ø 12,7 - 1524 mm</p> | <p><b>Hot Tapping Machines &amp; Line Stopping Actuators</b><br/>Built to deliver power where it matters most</p>         | <p><b>HTM, LPH<br/>MHT, CHT<br/>LSA</b></p> |  | <p><b>384</b> ▶</p> |
| <p>ø 6 - 60 inches<br/>ø 152 - 1524 mm</p>    | <p><b>Decommissioning Diamond Wire &amp; Band Saws</b><br/>Cutting the toughest materials</p>                             | <p><b>MDWS<br/>BS</b></p>                   |  | <p><b>386</b> ▶</p> |
| <p>ø 2 - 12 inches<br/>ø 51 - 305 mm</p>      | <p><b>Drilling &amp; Tapping Machines</b><br/>Make light work of the toughest applications</p>                            | <p><b>HT<br/>T<br/>DDU</b></p>              |  | <p><b>388</b> ▶</p> |
| <p>ø 7/8 - 11 inch<br/>ø 22 - 279 mm</p>      | <p><b>GeniSYS™ IV 3-axis CNC Mill</b><br/>Removal of cracked or broken studs and<br/>refurbishment of damaged threads</p> | <p><b>GeniSYS™</b></p>                      |  | <p><b>390</b> ▶</p> |
| <p>ø 3/4 - 40 inch<br/>ø 19 - 1016 mm</p>     | <p><b>Inline Isolation &amp; Test Tools</b><br/>Piping Isolation and Pressure Testing</p>                                 | <p><b>MITT</b></p>                          |  | <p><b>392</b> ▶</p> |



## Internal Mount Flange Facing Machines



### FF120

- Mechanical tool manually operated
- Simple to operate
- Lightweight - only 15 lbs (6,8kg)
- Multiple leadscrew options allow for manually driven continuous fixed feeds for ASME standard surface finishes
- Calibrated slide to define cut depth and correct finish.



### MM305I and MM610I

- Swivel toolpost for groove details, reduces the need for separate accessories
- Supplied with a range of 2 quick set base sizes for improved onto site operation
- Collet base allows for efficient machine mounting and centering.



### MM860I and MM1000I

- 360 swivel toolpost for groove details, reduces the need for separate accessories (power feed on MM1000I)
- Supplied with a range of 3 quick set base sizes for improved onto site operation
- Adjustable height clamping jaws for efficient machine setting.



### MM1500I

- Power feed 360 swivel toolpost for groove details, reduces the need for separate accessories
- Supplied with a range of 3 quick set base sizes for improved onto site operation
- Adjustable height clamping jaws for efficient machine setting.



### MM2000I

- Power feed 360 swivel toolpost for groove details, reduces the need for separate accessories
- Supplied with a range of 2 quick set base sizes for improved onto site operation
- Adjustable height clamping jaws for efficient machine setting.



### MM3000I and MM4500I

- Power feed 360 swivel toolpost for groove details, reduces the need for separate accessories
- Supplied with a range of 3 quick set base sizes for improved onto site operation
- Adjustable height clamping jaws for efficient machine setting
- Milling accessories available with the Hydraulic drive version.



### Flange Facing Machines

Flange Facers are known for precision construction, the results they deliver, and how easy they are to set-up on-site. These high-performing machines produce continuous groove facing feeds to ASME standards for the oil & gas, power generation and petrochemical industries.

#### MM-I Series feature

- Hardened slideways for long term accuracy
- High torque low noise drive
- Heat exchanger machining accessories available on most models.

#### Applications

- Heat exchanger flanges
- Hub profiles
- Lens ring joints & Raised face flanges
- Recessed gaskets and spigots
- Ring type joint grooves (RTJ)
- SPO compact flanges
- Swivel ring & TECHLOK flanges
- Welding preparations.

▼ MM860I machine to ensure flange joint integrity.



### Internal Mount Flange Facing Machines

| Flange Facing Diameter Range |             | Machine Model Number | Drive Power Options |       |
|------------------------------|-------------|----------------------|---------------------|-------|
| (inch)                       | (mm)        |                      | Pneum.              | Hydr. |
| 1 – 12                       | 25 – 305    | FF120 *              |                     |       |
| 2 – 12                       | 51 – 305    | MM305I               | •                   |       |
| 2 – 24                       | 51 – 610    | MM610I               | •                   |       |
| 6 – 34                       | 152 – 864   | MM860I               | •                   |       |
| 6 – 40                       | 152 – 1016  | MM1000I              | •                   | •     |
| 12 – 60                      | 305 – 1524  | MM1500I              | •                   | •     |
| 24 – 80                      | 610 – 2032  | MM2000I              | •                   | •     |
| 5 – 120                      | 127 – 3048  | MM3000I              | •                   | •     |
| 83 – 161                     | 2100 – 4100 | MM4500I              |                     | •     |

\* FF120 is not suitable for lens-ring joint flanges or ring type joint (RTJ) flanges.

# Flange Facing Machines

## External Mount Flange Facing Machines



### MM200E

- Preloaded cross roller bearing drive, ensuring robust, accurate, repeatable machining
- Hardened slideways for long term accuracy
- Swivel toolpost for groove details, reduces the need for separate accessories
- Continuous fixed feed for ASME standard surface finish
- Quick set integrated clamping jaws.



### MM300E

- Preloaded cross roller bearing drive, ensuring robust, accurate, repeatable machining
- Hardened slideways for long term accuracy
- Swivel toolpost for groove details, reduces the need for separate accessories
- Multiple continuous fixed feeds for ASME standard surface finishes
- Quick set intergrated clamping jaws.



### MM600E

- Preloaded cross roller bearing drive, ensuring robust, accurate, repeatable machining
- Hardened slideways for long term accuracy
- Power feed 360 swivel toolpost for groove details, reduces the need for separate accessories
- Multiple continuous fixed feeds for ASME standard surface finishes
- Quick set intergrated clamping jaws.



### MM760E, MM1000E, MM1250E, MM1500E, MM1775E, MM2000E

- Continuous variable auto-feed for ASME standard finishes
- Choice of pneumatic and hydraulic drive motors
- Quick-set radial clamping adjustment
- Quick-set axial adjustment jaws
- Heavy duty bearing construction for high metal removal rates and accuracy
- Heat exchanger kits for back facing and slot machining in one operation.

## External Mount Flange Facing Machines

| Flange Facing Diameter Range |          | Machine Model Number | Drive Power Options |       |
|------------------------------|----------|----------------------|---------------------|-------|
| (inch)                       | (mm)     |                      | Pneum.              | Hydr. |
| 0 - 8                        | 0 - 203  | MM200E               | •                   |       |
| 0 - 12                       | 0 - 305  | MM300E               | •                   |       |
| 0 - 24                       | 0 - 610  | MM600E               | •                   |       |
| 0 - 30                       | 0 - 762  | MM760E               | •                   | •     |
| 0 - 40                       | 0 - 1016 | MM1000E              | •                   | •     |
| 0 - 50                       | 0 - 1270 | MM1250E              | •                   | •     |
| 0 - 60                       | 0 - 1524 | MM1500E              | •                   | •     |
| 0 - 70                       | 0 - 1778 | MM1775E              | •                   | •     |
| 0 - 80                       | 0 - 2032 | MM2000E              | •                   | •     |

## FF MM Series



Internal Mount Facing Diameter:

**1 - 161" / 25,4 - 4100 mm**

External Mount Facing Diameter:

**0 - 80" / 0 - 2032 mm**

Cutting Resultant Roughness:

**Ra 125-492 μin / 3,2-12,5 μ**



### Surface finish & accuracy

All flange facing machines provide a serrated finish with 30-55 grooves per inch and a resultant roughness of between Ra 3,2-12,5μ (125-492 micro inches). Geared multiple continuous groove facing feeds for a gramophone finish (ASME Standard).

▼ MM600E external mount flange facing machine to ensure flange joint integrity.



## Narrow Body & Mid-Size Clamshell Cutters



### DLR-NB12, NARROW BODY CLAMSHELL CUTTER

- NB or "Narrow Body" portable clamshells are ideal when space is at a premium
- Standard NB-series cover a range from 2 to 36" outside diameter (51 to 914 mm)
- Narrow body design: ideal when space is at a premium or obstructions present
- Pneumatic, hydraulic, and electric drive options
- Several different drive options are available to best position the motor for a specific machining application
- Accepts a wide range of accessories to increase performance and expand capabilities
- Full range of bevel and sever tools available.

### DLR-MS30, MID-SIZE CLAMSHELL CUTTER

- Mid-size machines weigh less than the HD heavy-duty series, but provide greater rigidity than the NB-narrow body series
- Standard MS-series cover a range from 4 1/8 to 48 1/4" outside diameter (105 to 1226 mm)
- Increased manoeuvrability and greater clearance than the HD series
- Several different drive options are available to best position the motor for a specific machining application
- Accepts a wide range of accessories to increase performance and expand capabilities
- Full range of bevel and sever tools available.



◀ NB-model narrow body clamshell cutter.

### NB Narrow Body Series Clamshell Cutters

| Mounting Outside Diameter (min. - max.) |           | Machine Model Number | Drive Power Options |           |          |
|---|-----------|----------------------|---------------------|-----------|----------|
| (inch)                                  | (mm)      |                      | Pneumatic           | Hydraulic | Electric |
| 2 - 4 1/2                               | 51 - 114  | <b>DLR-NB4</b>       | •                   | •         |          |
| 2 3/8 - 6 5/8                           | 60 - 168  | <b>DLR-NB6</b>       | •                   | •         |          |
| 3 1/2 - 8 5/8                           | 89 - 219  | <b>DLR-NB8</b>       | •                   | •         | •        |
| 4 1/2 - 10 3/4                          | 114 - 273 | <b>DLR-NB10</b>      | •                   | •         | •        |
| 6 5/8 - 12 3/4                          | 168 - 324 | <b>DLR-NB12</b>      | •                   | •         | •        |
| 8 5/8 - 14                              | 219 - 356 | <b>DLR-NB14</b>      | •                   | •         | •        |
| 10 5/8 - 16                             | 219 - 406 | <b>DLR-NB16</b>      | •                   | •         | •        |
| 12 3/4 - 18                             | 324 - 457 | <b>DLR-NB18</b>      | •                   | •         | •        |
| 14 - 20                                 | 356 - 508 | <b>DLR-NB20</b>      | •                   | •         | •        |
| 18 - 24                                 | 457 - 609 | <b>DLR-NB24</b>      | •                   | •         | •        |
| 20 - 26                                 | 508 - 660 | <b>DLR-NB26</b>      | •                   | •         | •        |
| 22 - 28                                 | 559 - 711 | <b>DLR-NB28</b>      | •                   | •         | •        |
| 24 - 30                                 | 610 - 762 | <b>DLR-NB30</b>      | •                   | •         | •        |
| 26 - 32                                 | 661 - 813 | <b>DLR-NB32</b>      | •                   | •         | •        |
| 30 - 36                                 | 762 - 914 | <b>DLR-NB36</b>      | •                   | •         | •        |

### MS Mid-Size Series Clamshell Cutters

| Mounting Outside Diameter (min. - max.) |             | Machine Model Number | Drive Power Options |           |
|---|-------------|----------------------|---------------------|-----------|
| (inch)                                  | (mm)        |                      | Pneumatic           | Hydraulic |
| 4 1/8 - 13                              | 105 - 330   | <b>DLR-MS12</b>      | •                   | •         |
| 7 3/8 - 16 1/4                          | 187 - 413   | <b>DLR-MS16</b>      | •                   | •         |
| 9 3/8 - 18 1/4                          | 238 - 464   | <b>DLR-MS18</b>      | •                   | •         |
| 11 3/8 - 20 1/4                         | 289 - 514   | <b>DLR-MS20</b>      | •                   | •         |
| 15 3/8 - 24 1/4                         | 391 - 616   | <b>DLR-MS24</b>      | •                   | •         |
| 19 3/8 - 28 1/4                         | 492 - 718   | <b>DLR-MS28</b>      | •                   | •         |
| 21 3/8 - 30 1/4                         | 543 - 769   | <b>DLR-MS30</b>      | •                   | •         |
| 23 3/8 - 32 1/4                         | 594 - 819   | <b>DLR-MS32</b>      | •                   | •         |
| 27 3/8 - 36 1/4                         | 695 - 921   | <b>DLR-MS36</b>      | •                   | •         |
| 27 3/8 - 36 3/4                         | 708 - 934   | <b>DLR-MS365</b>     | •                   | •         |
| 33 3/8 - 42 1/4                         | 848 - 1073  | <b>DLR-MS42</b>      | •                   | •         |
| 39 3/8 - 48 1/4                         | 1000 - 1226 | <b>DLR-MS48</b>      | •                   | •         |



### DL Ricci Clamshell Cutters

Clamshell cutters in the Enerpac range remain true to the pioneering designs that made DL Ricci the 'go-to' brand for machinists worldwide. Outstanding performance and a comprehensive choice has seen them used widely for applications in new construction, decommissioning, component replacement, fabrication, and maintenance.

### Robust and efficient pipe cutting and bevelling

Designed for any industry that needs pipe or tube cutting, or any pipe end preparation weld repair. This may be in oil and gas sector, power generation, ship building/dock yards, or processing plants during maintenance and shut downs.

### Applications

- Pipe cutting
- Weld preparation
- Cutting materials, including super duplex, carbon steel, stainless steel, hastelloy and incolloy
- For pipe diameters up to 86 inch (2184 mm)
- Ideal for projects beyond the usual clamshell configuration – using a wide range of purpose designed accessories.

### Included as Standard with Each Machine

- Clamshell body
- Locators & extensions covering the full range
- Slides
- Motor & Mounting
- Air Caddy
- Tool Kit
- Manual
- Shipping crate.

# Clamshell Pipe Cutting & Beveling Machines

## HD Heavy-Duty Clamshell Cutters



### DLR-HD54, HEAVY-DUTY CLAMSHELL CUTTER

- Robust body design - ideal for large diameter heavy wall pipe applications
- 16 HD-models cover a range of 20 - 86" outside diameter (508 - 2184 mm)
- Pneumatic and hydraulic drive options
- Fully adjustable heavy duty bearing design provides greater serviceability
- Stepped and keyed gear clamps equipped with a through bolt provide a positive fit at each assembly joint
- Accepts a wide range of accessories to increase performance and expand capabilities
- Full range of bevel and sever tools available.

### HD Heavy-Duty Series Clamshell Cutters

| Mounting Outside Diameter<br>(min. - max.) |             | Machine<br>Model<br>Number | Drive Power Options |           |
|--|-------------|----------------------------|---------------------|-----------|
| (inch)                                     | (mm)        |                            | Pneumatic           | Hydraulic |
| 20 - 32                                    | 508 - 813   | <b>DLR-HD32</b>            | •                   | •         |
| 24 - 36                                    | 610 - 914   | <b>DLR-HD36</b>            | •                   | •         |
| 27 - 39                                    | 686 - 990   | <b>DLR-HD39</b>            | •                   | •         |
| 31 - 43                                    | 787 - 1092  | <b>DLR-HD43</b>            | •                   | •         |
| 33 - 45                                    | 838 - 1143  | <b>DLR-HD45</b>            | •                   | •         |
| 36 - 48                                    | 915 - 1219  | <b>DLR-HD49</b>            | •                   | •         |
| 38 - 50                                    | 966 - 1270  | <b>DLR-HD50</b>            | •                   | •         |
| 41 - 53                                    | 1042 - 1346 | <b>DLR-HD53</b>            | •                   | •         |
| 42 - 54                                    | 1067 - 1360 | <b>DLR-HD54</b>            | •                   | •         |
| 43 - 55                                    | 1092 - 1397 | <b>DLR-HD55</b>            | •                   | •         |
| 45 - 57                                    | 1143 - 1448 | <b>DLR-HD57</b>            | •                   | •         |
| 48 - 60                                    | 1220 - 1524 | <b>DLR-HD60</b>            | •                   | •         |
| 54 - 66                                    | 1372 - 1676 | <b>DLR-HD66</b>            | •                   | •         |
| 60 - 72                                    | 1524 - 1828 | <b>DLR-HD72</b>            | •                   | •         |
| 68 - 80                                    | 1728 - 2032 | <b>DLR-HD80</b>            | •                   | •         |
| 74 - 86                                    | 1880 - 2184 | <b>DLR-HD86</b>            | •                   | •         |

## DLR Series



Outside Mounting Diameter Range:

**2 - 86 inches**

Outside Mounting Diameter Range:

**51 - 2184 mm**



### Recommended Accessories for Clamshell Cutters

Other clamshell accessories available. Details available on request.

#### Counter-bore Swivel Head Modules

- 10 inch size available
- Match boring applications
- Up to 60 degree adjustability in the head
- Internal diameter bevelling.

| Description   | Part Number            |
|---------------|------------------------|
| 2 inch travel | <b>F0108A1224AA-SK</b> |
| 6 inch travel | <b>F0108A1224AB-SK</b> |

#### Low Profile Tool Slide

- Brings cut line closer to the back of machine
- Allows cutting & bevelling on short pipe sections
- Use for facing, RTJ grooves and compound angle weld preparations.

| Description       | Part Number         |
|-------------------|---------------------|
| Low profile slide | <b>F0130A0016XX</b> |

#### Out-of-round Tool Block Slide

- Dual compensating Spring Assembly
- Rides on OD of pipe and tracks the contour
- For up to 1 inch out-of-round.

| Description            | Part Number         |
|------------------------|---------------------|
| Out of round slide     | <b>F0130A0022XX</b> |
| Trippler for NB models | <b>F0145A0019XX</b> |
| Trippler for MS models | <b>F0145A0020XX</b> |
| Trippler for HD models | <b>F0145A0028XX</b> |



▼ OM6000 Orbital Milling Machine



### Machine large flanges accurately and efficiently

- Precision flatness tolerances across large diameters
- Hydraulic high-torque anti-backlash drive
- Precision preloaded linear rotary drive
- Adjustable fast-set hydraulic chuck
- Rigid and adjustable mounting base.

## OM Series

Cutting Diameter Range:

**98 - 315 inches**

Cutting Diameter Range:

**2500 - 8000 mm**



### General Orbital Milling Machines

Orbital milling machines are designed to deliver fast material removal and achieve high accuracy across large flange diameters.

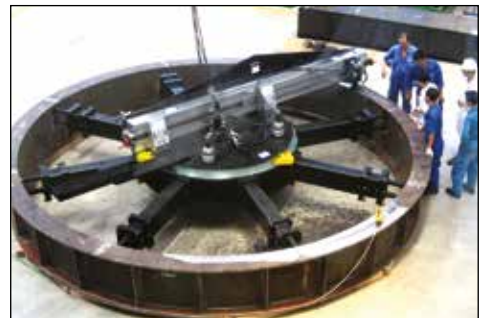
### Applications

- Machining crane bearing faces
- Repairing drag lines
- Machining large flanges
- Machining ship thruster flanges.

▼ Milling a ship thruster flange.



▼ Machining crane bearing face.

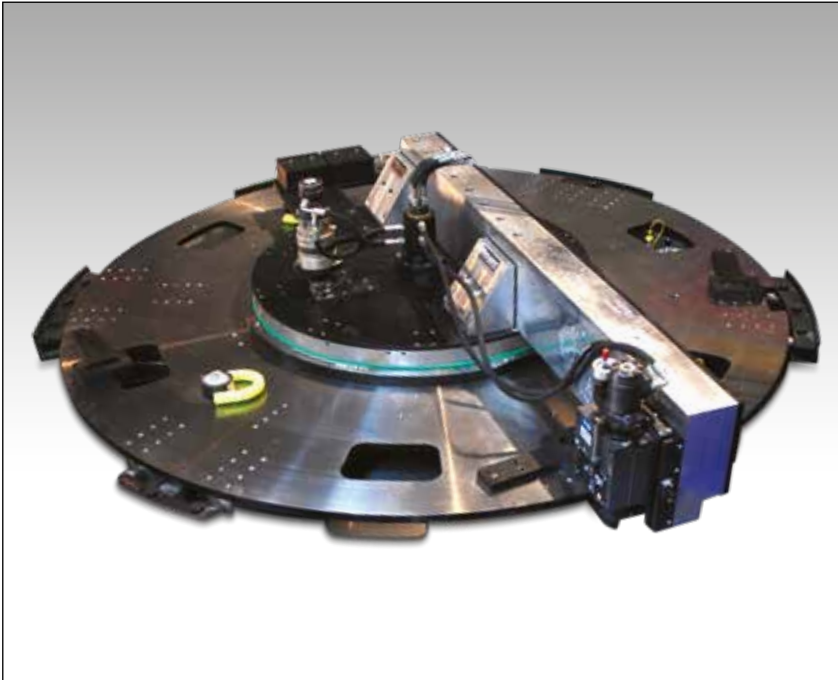


General Orbital Milling Machines

| Cutting Diameter Range<br>(min. - max.) |             | Machine Model Number | Hydraulic Power Drive |
|---|-------------|----------------------|-----------------------|
| (inch)                                  | (mm)        |                      |                       |
| 98 - 178                                | 2500 - 4500 | <b>OM4500</b>        | •                     |
| 98 - 237                                | 2500 - 6000 | <b>OM6000</b>        | •                     |
| 138 - 315                               | 3500 - 8000 | <b>OM8000</b>        | •                     |

# Wind Power Orbital Milling Machines

▼ WP3500 Wind Power Orbital Milling Machine



## WP Series

Cutting Diameter Range:  
**70 - 181 inches**

Cutting Diameter Range:  
**1800 - 4600 mm**



### Wind Power Orbital Milling Machines

The wind power orbital milling range is designed especially for companies manufacturing wind turbine rotor blades and towers.

#### Applications

- Wind turbine blade root end milling
- Wind tower flange machining.

### Machine large flanges accurately and efficiently

- Fully packaged system; includes trolley, power unit and base
- Accurate and repeatable process time
- Minimum distortion fast mount hydraulic base
- Adjustable arm for different diameters
- Patented hydraulic mounting system for blade and tower production
- Direct drive spindle
- High torque anti-backlash drive.

▼ Wind tower machining with WP4600.



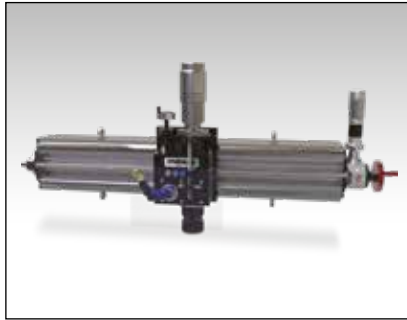
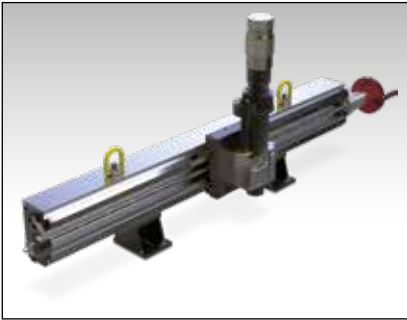
▼ WP3500 milling turbine blade end.



### Wind Power Orbital Milling Machines

| Cutting Diameter Range<br>(min. - max.) |             | Machine<br>Model<br>Number | Hydraulic<br>Power Drive |
|---|-------------|----------------------------|--------------------------|
| (inch)                                  | (mm)        |                            |                          |
| 70 - 96                                 | 1800 - 2450 | WP2500                     | •                        |
| 90 - 137                                | 2300 - 3500 | WP3500                     | •                        |
| 110 - 181                               | 2800 - 4600 | WP4600                     | •                        |

## 2-Axis Milling Machines



### LMR1000, 2-AXIS MILLING MACHINE

- Ideal for lightweight applications
- Hand feed to main axis; auto feed optional
- Features ER40 Collet with ISO30 spindle option
- Choice of Pneumatic and Hydraulic drive.

### MR1000, 2-AXIS MILLING MACHINE

- Induction hardened 'V' rails ensure accuracy and durability
- Ball-screw feed
- Hand & auto feed to main axis
- Direct drive ISO 40 spindle
- Choice of Pneumatic and Hydraulic drive
- Variety of mounting options including; bolting, switch magnets, pipe chain clamps and gantry.

## LMR, MR, MRY Series

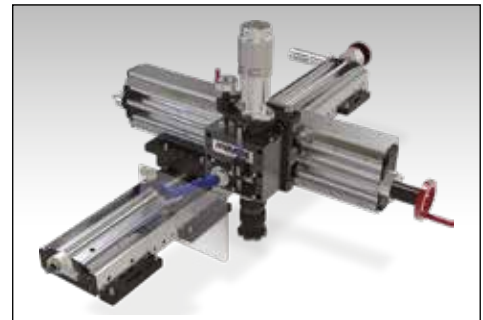
X-Axis Maximum Stroke:

**40 - 120" / 1,0 - 3,0 m**

Y-Axis Maximum Stroke (MRY-Series only):

**12 inches / 305 mm**

## 3-Axis Milling Machines



### MRY1500, 3-AXIS MILLING MACHINE

- Induction hardened 'V' rails ensure accuracy and durability
- Ball-screw feed
- Hand & auto feed to main axis
- Direct drive ISO 40 spindle
- Choice of Pneumatic and Hydraulic drive
- Variety of mounting options including; bolting, switch magnets, chain clamps and gantry.

▼ MRY Milling machine on a heat exchanger.



### 2-Axis Linear Milling Machines

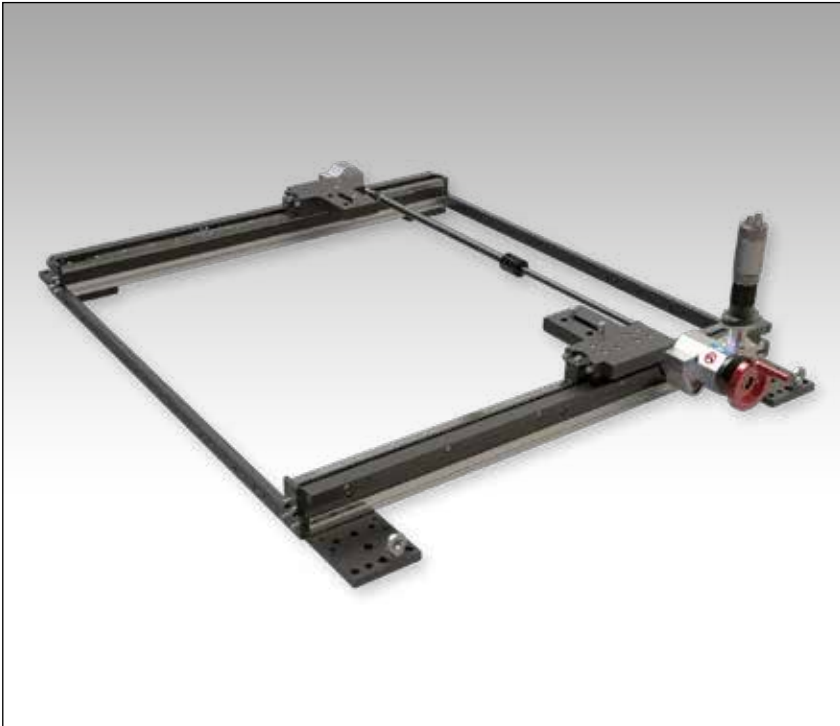
| X-Axis Maximum Stroke |      | Machine Model Number | Drive Power Options |           |
|-----------------------|------|----------------------|---------------------|-----------|
| (inch)                | (mm) |                      | Pneumatic           | Hydraulic |
| 40                    | 1000 | <b>LMR1000</b>       | •                   | •         |
| 60                    | 1500 | <b>LMR1500</b>       | •                   | •         |
| 80                    | 2000 | <b>LMR2000</b>       | •                   | •         |
| 40                    | 1000 | <b>MR1000</b>        | •                   | •         |
| 60                    | 1500 | <b>MR1500</b>        | •                   | •         |
| 80                    | 2000 | <b>MR2000</b>        | •                   | •         |
| 120                   | 3000 | <b>MR3000</b>        | •                   | •         |

### 3-Axis Linear Milling Machines

| X-Axis Maximum Stroke |      | Y-Axis Maximum Stroke |      | Machine Model Number | Drive Power Options |           |
|-----------------------|------|-----------------------|------|----------------------|---------------------|-----------|
| (inch)                | (mm) | (inch)                | (mm) |                      | Pneumatic           | Hydraulic |
| 60                    | 1500 | 12                    | 305  | <b>MRY1500</b>       | •                   | •         |
| 80                    | 2000 | 12                    | 305  | <b>MRY2000</b>       | •                   | •         |
| 120                   | 3000 | 12                    | 305  | <b>MRY3000</b>       | •                   | •         |

# Linear Milling Machines

## Gantry Milling Machine



### GMRF1000, GANTRY RAIL KIT

- Modular jointing system for lengths up to 10 m
- Linear rail and precision carriages
- Quick set up with jacking system
- Auto and manual feed
- Optional quick-set magnets for mounting.

## GMRF Series

X-Axis Maximum Stroke:

**40 - 394" / 1,0 - 10,0 m**

Y-Axis Maximum Stroke:

**40 - 118" / 1,0 - 3,0 m**



**Linear Milling Machines – Take workshop precision to your next on-site milling project**

These precise and robust milling machines are available in 2 and 3 axis configurations. Each includes the latest workshop tool technology in a portable format. For a fast and efficient set-up, you can choose our optional switch magnets.

### Applications

- Motor and pump mounting pads
- Aerospace machining
- Crane pedestals
- Heat exchanger repair
- Shaft keyways
- Steel mill housings
- Turbine split line machining.



*I-Beam end face milling with a GMRF1000. ▶*

### Gantry Milling Machine

| Feed Type | X-Axis Max. Stroke Options <sup>1)</sup> |            | Y-Axis Max. Stroke Options <sup>2)</sup> |           | Machine Model Number | Drive Power Options |           |
|-----------|--|------------|--|-----------|----------------------|---------------------|-----------|
|           | (inch)                                   | (m)        | (inch)                                   | (m)       |                      | Pneumatic           | Hydraulic |
| Rack Feed | 40 - 394                                 | 1,0 - 10,0 | 40 - 118                                 | 1,0 - 3,0 | GMRF1000             | •                   | •         |

<sup>1)</sup> Common base module 1000 mm.

<sup>2)</sup> MR milling rail required. Extension kits available.



▼ **HTM100**



**HTM, MANUAL HOT TAPPING**

- Operates to 1480 psi (102 bar)
- Versatile hot taps, bypass lines and completion plugs
- Manual rotation & feed
- Optional pneumatic feed
- 2" NPT connection
- Lightweight construction.

▼ **LPHT312**



▼ **MHT312**



**LPHT312, LOW PRESSURE HOT TAPPING**

- Operates up to 285 psi (20 bar)
- Pneumatic or hydraulic drive
- Depth stop to ensure correct hot tap distance.

**MHT, HOT TAPPING MACHINES**

- Pressure rating up to 1480 psi (102 bar)
- Helical geared drive situated close to the cutter
- Hydraulic and pneumatic drive options
- Industry standard connection flanges
- Compatible with industry standard tooling
- Fast traverse feed motors available
- Cutter holders included
- Interchangeable seal cartridge.

## HTM, LPHT MHT Series



Tapping Diameters:

**1/2 - 60" / 12,7 - 1524 mm**

Maximum Stroke:

**18 - 150" / 457 - 3810 mm**

Maximum Operating Pressure:

**285-1480 psi / 20-102 bar**



**Hot Tapping – Built to deliver power where it matters most**

Hot tapping is a high-pressure intervention and our range of hot tapping machines can help towards a safe and effective solution. Industry-leading innovations used include a helical gear drive located as close to the cutting head as possible for maximum efficiency, rotary pressure seals, and four fixed feeds.

**Applications**

- Construction tie-ins
- Gas distribution
- Petrochemical pipelines
- Subsea pipelines
- Temporary installation
- Transmission pipelines
- Valve installation and repair
- Water mains pipelines
- Wellhead maintenance.

▼ *On-site hot tapping with MHT312.*



**Hot Tapping Machines**

| Tapping Diameters (Min. - Max.) |             | Maximum Stroke |      | Max. Operating Pressure |       | Machine Model Number | Drive Power Options |           |
|---------------------------------|-------------|----------------|------|-------------------------|-------|----------------------|---------------------|-----------|
| (inch)                          | (mm)        | (inch)         | (mm) | (psi)                   | (bar) |                      | Pneumatic           | Hydraulic |
| 1/2 - 4                         | 12,7 - 102  | 18             | 457  | 1480                    | 102   | <b>HTM100</b>        | *                   | *         |
| 1/2 - 6                         | 12,7 - 152  | 32             | 813  | 1480                    | 102   | <b>HTM150XL</b>      | *                   | *         |
| 3 - 12                          | 76,2 - 305  | 30             | 762  | 285                     | 20    | <b>LPHT312</b>       | •                   | •         |
| 3 - 12                          | 76,2 - 305  | 42             | 1067 | 1480                    | 102   | <b>MHT312</b>        | •                   |           |
| 4 - 20                          | 102 - 508   | 72             | 1829 | 1480                    | 102   | <b>MHT420</b>        |                     | •         |
| 8 - 24                          | 203 - 609   | 80             | 2032 | 1480                    | 102   | <b>MHT824</b>        |                     | •         |
| 12 - 36                         | 76,2 - 914  | 110            | 2794 | 1480                    | 102   | <b>MHT1236</b>       |                     | •         |
| 12 - 42                         | 76,2 - 1066 | 132            | 3353 | 1480                    | 102   | <b>MHT1242</b>       |                     | •         |
| 24 - 60                         | 203 - 1524  | 150            | 3810 | 1480                    | 102   | <b>MHT2460</b>       |                     | •         |

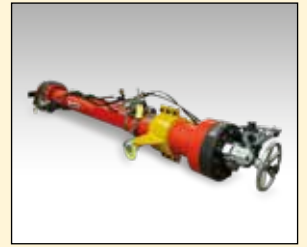
\* HTM has manual rotation & feed.

# Hot Tapping Machines & Line Stop Actuators

## ▼ CHT3000



## CHT LSA Series



Tapping Diameters:

**3 - 48" / 76 - 1219 mm**

Maximum Stroke:

**43 - 150" / 1092 - 3810 mm**

Maximum Operating Pressure:

**1480-5000 psi / 102-350 bar**

## ▼ LSA1420-H



### LSA-Series Line Stop Actuators

Line Stop Actuators (LSA) are used in conjunction with the required line stop head and housings to carry out line stops in surface or subsea environments.

The range is designed for easy use on pipelines in various materials and differing wall thickness. Their use provides temporary pipeline isolation, temporary or permanent bypass and no costly interruption of service.

### CHT, HOT TAPPING MACHINES

- Working pressure capacity up to 5000 psi (350 bar)
- Drive as close to the cut enhances cut efficiency
- Auto feed - infinitely variable for differing cut conditions
- Constant pressure seal monitoring ports
- Internally pressure balanced for higher pressure applications
- Industry standard connection flanges
- Compatible with standard industry tooling.

### LSA, LINE STOP ACTUATORS

- Series of four hydraulic line stop actuators covering a plugging head size range of 4 to 48 inches (102 - 1219 mm)
- Maximum working pressure of 1480 psi (102 bar) at 181 °F (83 °C)
- Failsafe mechanical lock prevents control rod movement
- Anti-rotation feature to ensure aligned plugging head deployment
- Hydraulic control situated at the working end of the cylinder for ease of use
- Visible control bar depth control.

### CHT-Hot Tapping Machines & LSA-Line Stop Actuators

| Tapping Diameters<br>(Min. - Max.) |            | Maximum Stroke |      | Max. Operating Pressure |       | Machine Model Number | Drive Power |
|------------------------------------|------------|----------------|------|-------------------------|-------|----------------------|-------------|
| (inch)                             | (mm)       | (inch)         | (mm) | (psi)                   | (bar) |                      |             |
| 3 - 12                             | 76 - 305   | 43             | 1092 | 5000                    | 350   | <b>CHT1000</b>       | •           |
| 3 - 16                             | 76 - 406   | 66             | 1676 | 5000                    | 350   | <b>CHT1675</b>       | •           |
| 6 - 24                             | 152 - 609  | 80             | 2032 | 5000                    | 350   | <b>CHT2000</b>       | •           |
| 12 - 48                            | 305 - 1219 | 150            | 3810 | 5000                    | 350   | <b>CHT3000</b>       | •           |
| 4 - 12                             | 102 - 305  | 72             | 1829 | 1480                    | 102   | <b>LSA412-H</b>      | •           |
| 14 - 20                            | 356 - 508  | 102            | 2591 | 1480                    | 102   | <b>LSA1420-H</b>     | •           |
| 22 - 36                            | 559 - 914  | 140            | 3556 | 1480                    | 102   | <b>LSA2236-H</b>     | •           |
| 38 - 48                            | 965 - 1219 | 140            | 3556 | 1480                    | 102   | <b>LSA3848-H</b>     | •           |



▲ CHT3000 hot tapping application for petrochemical pipeline installation.

▼ CHT2000 hot tapping offshore application.



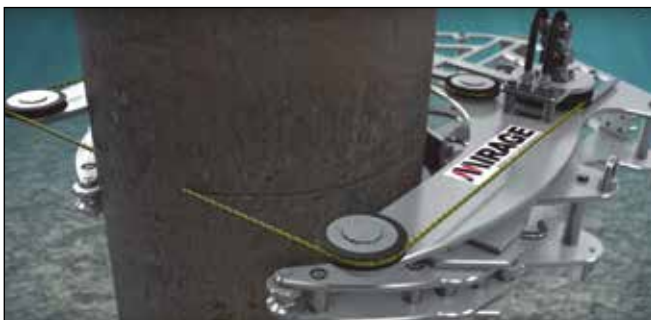
▼ MDWS1638-H



## Cutting the toughest materials in the most challenging environments

- Strong aluminum frame
- Overload clutch for bow damage prevention
- Hydraulic Auto Clamp and auto-feed
- Diver and ROV compatible
- Available with optional flotation modules for deep water use
- User replaceable clamp contact pads, wheels, and wheel liners
- Crimped or continuous loop wires available.

▼ Subsea pile cutting.



## MDWS Series

Cutting Diameters:

**6 - 60" / 152 - 1524 mm**



### Decommissioning Saws

A range of portable saws for a diverse range of tubular severance projects.

The band saw range delivers a cost-effective solution to cold cutting requirements in either surface or subsea situations. Diamond wire saws are ideal for cutting through dissimilar materials quickly.

### Applications

- Offshore platform decommissioning
- Conductors, caissons, piles
- Multiple grouted strings
- Subsea ROV-applications
- Subsea structures
- Pipes, casings and risers.

### Items included with each machine;

- Diamond wire rope
- Toolkit
- Storage / shipping crate
- CE Certificate
- Packing list and manual.



▲ MDWS Diamond Wire Saw lowered into sea.

### Decommissioning Diamond Wire Saws

| Cutting Diameters<br>(Min. - Max.) |            | Machine<br>Model<br>Number | Main<br>Application | Hydraulic<br>Drive<br>Power |
|------------------------------------|------------|----------------------------|---------------------|-----------------------------|
| (inch)                             | (mm)       |                            |                     |                             |
| 6 - 20                             | 152 - 508  | MDWS620-H                  | Subsea              | •                           |
| 16 - 38                            | 406 - 965  | MDWS1638-H                 | Subsea              | •                           |
| 36 - 60                            | 914 - 1524 | MDWS3660-H                 | Subsea              | •                           |



▼ BS1636-H



## Cutting the toughest materials in the most challenging environments

- Fast, efficient and cost effective cold cutting
- Cuts grouted multiple casings
- Fast mounting system
- Vertical or parallel operation
- Fast clamping and set up
- Low height design for minimum clearances
- Extensive blade selection for all materials.

## BS Series

Cutting Diameters:

**9 - 36" / 228 - 914 mm**



### On-site Band Saws

Hydraulically powered portable band saws designed for tubular severance. Designed primarily for topside use, but also suitable for subsea applications.

### Applications

- Offshore platform decommissioning
- Conductors, caissons, piles
- Multiple grouted strings
- Subsea ROV-applications
- Subsea structures
- Pipes, casings and risers.

### Items included with each machine:

- Band Saw blade (2-3TP carbide tipped)
- Toolkit
- Storage / shipping crate
- CE Certificate
- Packing list and manual.



▲ Pipe cutting with BS portable band saw.

▼ Decommissioning job with band saw.



### On-site Band Saws

| Cutting Diameters<br>(Min. - Max.) |           | Machine<br>Model<br>Number | Main<br>Application | Hydraulic<br>Drive<br>Power |
|------------------------------------|-----------|----------------------------|---------------------|-----------------------------|
| (inch)                             | (mm)      |                            |                     |                             |
| 9 - 24                             | 228 - 610 | BS924-H                    | Topside             | •                           |
| 16 - 36                            | 406 - 914 | BS1636-H                   | Topside             | •                           |



## Drilling Machines



### HT20

- 4MT spindle accepts standard tooling
- Linear rails & guides provide accuracy and high load carrying capacity
- Direct spindle drive
- Manual and variable auto feed.



### HT50

- ISO50 geared spindle
- Linear rails & guides provide accuracy and high load carrying capacity
- Geared reduction spindle drive
- Manual and variable auto feed.



### HT40

- ISO40 geared spindle
- Linear rails & guides provide accuracy and high load carrying capacity
- Geared reduction spindle drive
- Manual and variable feed.

▼ HT40 portable drilling machine.



## HT Series

Drilling Capability:

**Up to 5" / 127 mm**

Maximum Stroke:

**11 - 17" / 279 - 432 mm**



### Drilling & Tapping

**Make light work of the toughest drilling and tapping applications**

Drilling and tapping projects on-site require powerful and stable machines that deliver precise results first time.

Our machines are designed to do exactly this - giving you reassurance that the job will be done efficiently and to the right specification. They offer high torque and easy operation through their heavy-duty spindles with ISO standard tapers.

Optional switch magnet mounts and chain clamps are also available for a quick and easy setup.

For large scale offshore decommissioning projects, casing pin drills provide an effective solution for creating lift holes into casings - especially in the most challenging of working environments.

### Applications

- Drilling through armour plate
- Bulkhead hole cutting
- Flange stud drilling
- Flange stud re-threading
- Motor pump stud removal
- Short stroke line boring
- Turbine case stud removal
- Turbine pin drilling
- Casing pin drilling.

### Drilling Machines

| Maximum Diameter with Standard Drills |       | Maximum Standard Stroke |      | Machine Model Number | Drive Power Options |           |
|---------------------------------------|-------|-------------------------|------|----------------------|---------------------|-----------|
| (inch)                                | (mm)  | (inch)                  | (mm) |                      | Pneumatic           | Hydraulic |
| 2                                     | 50,8  | 11                      | 279  | HT20                 | •                   | •         |
| 4                                     | 101,6 | 16                      | 406  | HT40                 | •                   | •         |
| 5                                     | 127,0 | 17                      | 432  | HT50                 | •                   | •         |

# On-site Drilling & Tapping Machines

## Tapping Machines



### T30

- Rigid 3 pillar construction
- Quick key hole mounting
- Capable of tapping blind and through holes
- High torque reduction drive
- Hydraulic drive
- Pressure relief self feed system.



### T725

- Heavy duty 4 pillar construction
- Quick key hole mounting system
- Capable of tapping blind and through holes
- High torque reduction drive
- Hydraulic drive
- Pressure relief self feed system.

## T, DDU Series

Tapping Capability:

**Up to 7¼" / 184 mm**

Case Pin Drilling Diameter:

**Up to 12" / 305 mm**

Maximum Stroke:

**12 - 16" / 305 - 406 mm**



### GeniSYS IV CNC Mill

Ideal for removal of cracked or broken studs and refurbishment of damaged threads. For hole diameters up to 11 inch and maximum 15.1 inch depths.

Page: 390

## Casing Pin Drilling Machine



### DDU1636

- Efficient pin drilling cold cut method
- Horseshoe mount options
- Helical drive spindle
- 4 inch (102 mm) cutter assembly supplied as standard
- Alternative cutter kits available up to 12 inch (305 mm).



### Included as Standard with Each Machine

- Toolkit
- All required mounting legs and connections
- Storage/shipping box
- CE certificate
- Operator's Manual.
- Packing list.

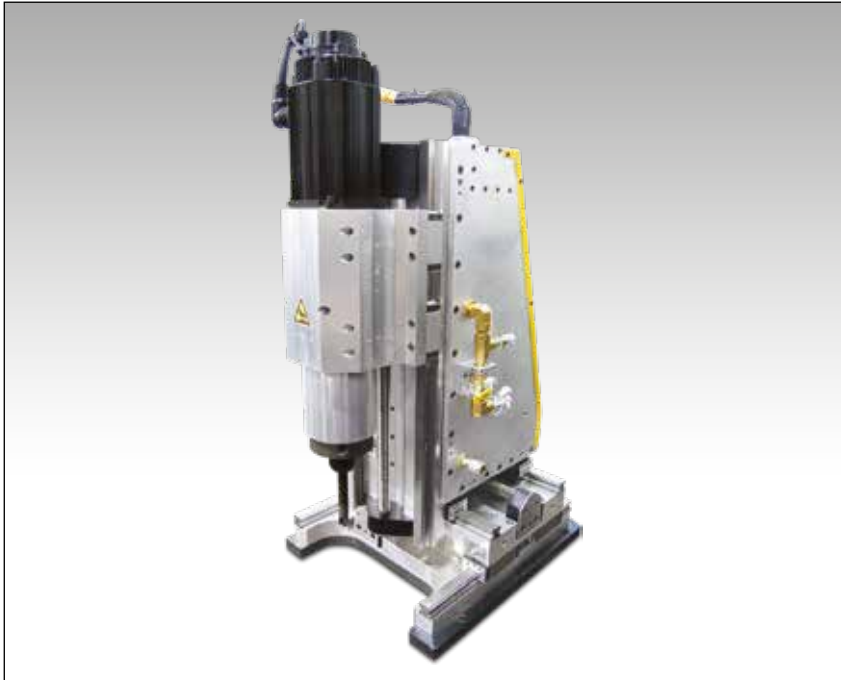
### Tapping & Casing Pin Drilling Machines

| Maximum Diameter with Standard Drills |      | Maximum Standard Stroke |      | Casing Pin Drill Clamping Diameter |           | Machine Model Number | Drive Power Options |           |
|---------------------------------------|------|-------------------------|------|------------------------------------|-----------|----------------------|---------------------|-----------|
| (inch)                                | (mm) | (inch)                  | (mm) | (inch)                             | (mm)      |                      | Pneumatic           | Hydraulic |
| 3                                     | 76   | 12                      | 305  | -                                  | -         | T30                  | •                   | •         |
| 7¼                                    | 184  | 13                      | 330  | -                                  | -         | T725                 | •                   | •         |
| 12                                    | 305  | 16                      | 406  | 9 - 24                             | 228 - 609 | DDU924               |                     | •         |
| 12                                    | 305  | 16                      | 406  | 16 - 36                            | 406 - 914 | DDU1636              |                     | •         |

▼ DDU1636 casing pin drilling.



## ▼ GeniSYS™ IV CNC Mill



### Removal of cracked or broken studs, refurbishment of damaged threads

- CNC software allows the geniSYS to be programmed to perform multiple tasks within its working envelope
- Can create bore and thread hole diameters ranging from 22,2 mm – 279,4 mm (0.875 – 11 inches)
- Hole depths up to 384 mm (15.12 inches)
- High tolerance profile rails produce consistent results
- All three axes utilize precision ground ball screws, providing precise movement of the milling head
- Accurate and repeatable machining
- A cold cutting operation
- Ejects chips during operation
- Single machine capable of drilling, threading and general milling applications.

## ▼ Thread cutting



### GeniSYS IV On-site CNC Mill

The GeniSYS™ IV is a highly portable 3-axis CNC milling machine.

The motion control command center provides the ultimate in performance monitoring and technician safety.

Designed for the accurate removal of cracked or broken studs up to 11 inch diameter and the precise refurbishment of damaged threads. This is achieved without the need for manually controlled drilling or metal disintegration techniques.

Can be used for automated general profile milling applications.

#### Typical examples

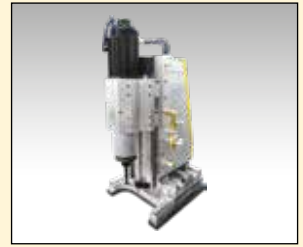
- Manway covers
- Reactor studs
- Bolt extraction and threading applications
- Recirculation pumps
- Turbine cases
- Heat exchangers
- Motor bases and many more high impact assets.

## ▼ GeniSYS IV CNC Milling Machine.



# GeniSYS™ IV On-site 3-axis CNC Milling Machine

## GeniSYS



Hole Diameter:

**7/8 - 11" / 22 - 279 mm**

Hole Depths:

**Up to 15.12" / 384 mm**



▲ A typical thread before refurbishment



▲ New machined thread



▲ Enlarging a hole



▲ Coring out the centre of a bolt (minor diameter).



### Included as Standard

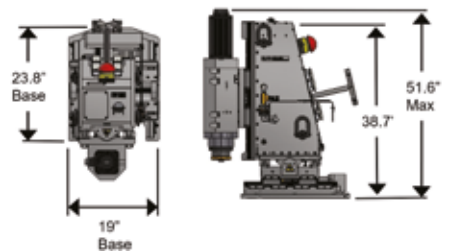
The machine is supplied complete with the following items:

- GeniSYS IV milling machine
- Control System
- Laptop
- Motor and Cables
- Storage / Shipping Boxes
- Operator's Manual.



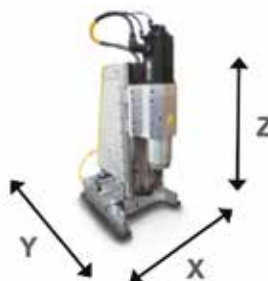
### Tooling

Standard tooling packages available to support general milling and thread milling applications.



### Dimensions GeniSYS IV

| Base Length |      | Base Width |      | Total Height |      | Weight |      |
|-------------|------|------------|------|--------------|------|--------|------|
| (inch)      | (mm) | (inch)     | (mm) | (inch)       | (mm) | (lbs)  | (kg) |
| 23.8        | 605  | 19         | 483  | 51.6         | 1311 | 1100   | 499  |



### Specifications GeniSYS IV 3-axis CNC Milling Machine

| Hole Diameters (Min. - Max.) |              | Machine Model Number | Maximum Hole Depth |      | Milling Head Maximum Travel |       |        |       |        |       | Spindle Speed (RPM) | Spindle Motor |      | Motor Voltage (Volt, 3 phase) |
|------------------------------|--------------|----------------------|--------------------|------|-----------------------------|-------|--------|-------|--------|-------|---------------------|---------------|------|-------------------------------|
| (inch)                       | (mm)         |                      | (inch)             | (mm) | X-axis                      |       | Y-axis |       | Z-axis |       |                     | (hp)          | (kW) |                               |
| 7/8 - 11                     | 22,2 - 279,4 | <b>GeniSYS IV</b>    | 15.12              | 384  | 8                           | 203,2 | 8      | 203,2 | 17     | 431,8 | 3000                | 6.7           | 5,0  | 380 - 440                     |



▼ Shown: MITT6A, MITT16A, MITT2A, MITT1A Isolation & Test Tools



## Ultimate Versatility in Piping Isolation and Pressure Testing



### Inline Isolation & Test Tools

MITT series tools obsolete traditional pipe cleaning and hydrotesting methods used for maintenance and construction operations.

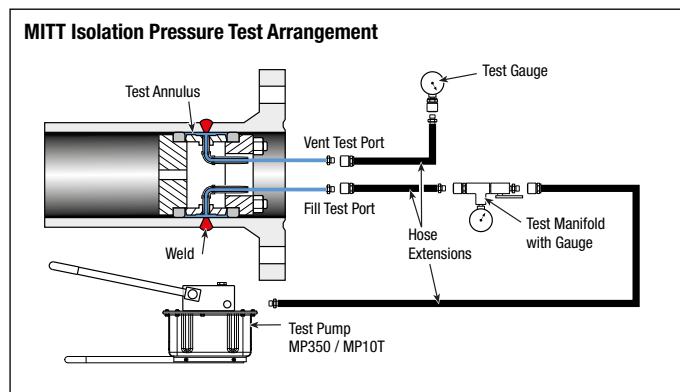
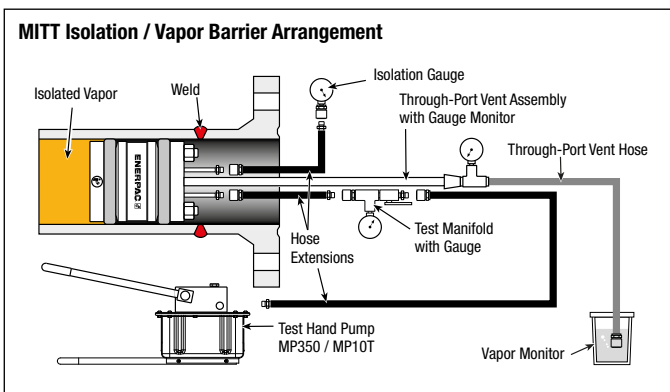
Improve operator safety and reduce system downtime by eliminating cleaning requirements and limiting test pressure volume.


The MITT series tools improve safety by limiting the test pressure volume and reduce downtime by eliminating cleaning requirements.

Key benefits of the tools include:

- Significantly reduce maintenance project timelines
- Safely perform welding on hydrocarbon lines with the peace of mind of a positive pressurized hydrostatic isolation
- Achieve significant reduction in wastewater (<1,0 litres of water required for a 24 inch test)
- Patent Pending.

- **Combination Isolation and Test Tool assures vapor-free isolation for hot work and high-pressure capability between seals for testing welds with one tool**
- **Multi-schedule capability – up to 6 schedules covered per tool, 40 tools cover 154 pipe diameter / schedule combinations**
- **Lightweight, slim and versatile design – no crane required, able to mount in elbows and tees, able to test mismatched schedules**
- **High-pressure capability – test welds with relative ease up to 310 bar**
- **Self-centering tools are user-friendly and require minimal training**
- **Hydrodynamic capability for heat treating.**



| Nominal Pipe Diameter | Model Number | Pipe Schedules Covered    | Max. Tool Pressure Rating | Tool Body Diameter | Overall Length | Stud, Nut, Washer Size | Pressure Port Size |  |
|-----------------------|--------------|---------------------------|---------------------------|--------------------|----------------|------------------------|--------------------|---|
| (inch)                |              |                           | (bar)                     | (mm)               | (mm)           | (inch)                 | (ASME NPT)         | (kg)  |
| 3/4                   | MITT075A     | 5, 10, STD/40             | 310                       | 18                 | 356            | 1/8"                   | Female 1/8"        | 0,7   |
|                       | MITT075B     | XS/80, 160                | 310                       | 15                 | 356            | 1/8"                   | Female 1/8"        | 0,7   |
| 1                     | MITT1A       | 5, 10, STD/40             | 310                       | 23                 | 356            | 1/8"                   | Female 1/8"        | 0,9   |
|                       | MITT1B       | XS/80, 160                | 310                       | 18                 | 356            | 1/8"                   | Female 1/8"        | 0,7   |
| 1 1/4                 | MITT125A     | 5, 10, STD/40 XS/80       | 310                       | 29                 | 356            | 1/4"                   | Female 1/4"        | 1,3   |
| 1 1/2                 | MITT150A     | 5,10, XS/80               | 310                       | 35                 | 356            | 1/4"                   | Female 1/4"        | 1,9   |
|                       | MITT150B     | 160                       | 310                       | 28                 | 356            | 1/4"                   | Female 1/4"        | 1,5   |
| 2                     | MITT2A       | 5,10, STD/40, XS/80       | 310                       | 46                 | 356            | 1/4"                   | Female 1/4"        | 2,4   |
|                       | MITT2B       | 160, XXS                  | 310                       | 37                 | 356            | 1/4"                   | Female 1/4"        | 2,0   |
| 3                     | MITT3A       | 5,10, STD/40, XS/80       | 310                       | 71                 | 178            | 3/8"                   | Male 1/8"          | 2,3   |
|                       | MITT3B       | 160, XXS                  | 310                       | 57                 | 178            | 3/8"                   | Male 1/8"          | 2,0   |
| 4                     | MITT4A       | 5,10, STD/40, 60, XS/80   | 310                       | 94                 | 178            | 5/16"                  | Male 1/8"          | 2,5   |
|                       | MITT4B       | 120, 160                  | 310                       | 81                 | 178            | 5/16"                  | Male 1/8"          | 2,2   |
|                       | MITT4C       | XXS                       | 310                       | 77                 | 178            | 5/16"                  | Male 1/8"          | 1,9   |
| 6                     | MITT6A       | 10, STD/40, 60            | 310                       | 145                | 178            | 5/8"                   | Male 1/4"          | 5,9   |
|                       | MITT6B       | XS / 80, 120              | 310                       | 137                | 178            | 5/8"                   | Male 1/4"          | 5,4   |
|                       | MITT6C       | 160, XXS                  | 310                       | 122                | 178            | 5/8"                   | Male 1/4"          | 4,5   |
| 8                     | MITT8A       | 10, 20, 30, STD/40, XS/80 | 310                       | 189                | 178            | 5/8"                   | Male 1/4"          | 8,6   |
|                       | MITT8B       | 100, 120, 140, XXS, 160   | 310                       | 168                | 178            | 5/8"                   | Male 1/4"          | 7,3   |
| 10                    | MITT10A      | 20, 30, STD/40, XS/60, 80 | 310                       | 238                | 178            | 5/8"                   | Male 1/4"          | 13,2  |
|                       | MITT10B      | 100, 120, XXS/140, 160    | 310                       | 213                | 178            | 5/8"                   | Male 1/4"          | 11,3  |
| 12                    | MITT12A      | 10, 20, 30, STD, 40, XS   | 310                       | 294                | 178            | 5/8"                   | Male 1/4"          | 19,5  |
|                       | MITT12B      | 60, 80, 100, XXS/120      | 310                       | 272                | 178            | 5/8"                   | Male 1/4"          | 18,6  |
|                       | MITT12C      | 140, 160                  | 310                       | 248                | 178            | 5/8"                   | Male 1/4"          | 14,5  |
| 14                    | MITT14A      | 10, 20, STD/30, 40        | 310                       | 324                | 178            | 5/8"                   | Male 1/4"          | 20,4  |
|                       | MITT14B      | XS, 60, 80                | 310                       | 324                | 178            | 5/8"                   | Male 1/4"          | 19,1  |
|                       | MITT14C      | 100, 120, 140, 160        | 310                       | 283                | 178            | 5/8"                   | Male 1/4"          | 17,2  |
| 16                    | MITT16A      | 10, 20, STD/30, XS/40, 60 | 310                       | 372                | 178            | 5/8"                   | Male 1/4"          | 24,5  |
|                       | MITT16B      | 80, 100                   | 310                       | 344                | 178            | 5/8"                   | Male 1/4"          | 21,8  |
|                       | MITT16C      | 120, 140, 160             | 310                       | 324                | 178            | 5/8"                   | Male 1/4"          | 20,4  |
| 18                    | MITT18A      | 10, 20, STD, 30, XS, 40   | 310                       | 419                | 178            | 5/8"                   | Male 1/4"          | 29,0  |
|                       | MITT18B      | 60, 80                    | 310                       | 400                | 178            | 5/8"                   | Male 1/4"          | 27,2  |
|                       | MITT18C      | 100, 120                  | 310                       | 378                | 178            | 5/8"                   | Male 1/4"          | 24,9  |
|                       | MITT18D      | 140, 160                  | 310                       | 357                | 178            | 5/8"                   | Male 1/4"          | 23,6  |
| 20                    | MITT20A      | 10, STD/20, XS / 30       | 310                       | 480                | 178            | 5/8"                   | Male 1/4"          | 36,3  |
|                       | MITT20B      | 40, 60                    | 310                       | 457                | 178            | 5/8"                   | Male 1/4"          | 33,1  |
|                       | MITT20C      | 80, 100                   | 310                       | 433                | 178            | 5/8"                   | Male 1/4"          | 30,4  |
|                       | MITT20D      | 120, 140                  | 310                       | 410                | 178            | 5/8"                   | Male 1/4"          | 27,7  |
|                       | MITT20E      | 160                       | 310                       | 399                | 178            | 5/8"                   | Male 1/4"          | 27,2  |
| 22                    | MITT22A      | STD, XS                   | 310                       | 524                | 178            | 5/8"                   | Male 1/4"          | 40,4  |
|                       | MITT22B      | 60, 80                    | 310                       | 492                | 178            | 5/8"                   | Male 1/4"          | 36,7  |
|                       | MITT22C      | 100, 120                  | 310                       | 467                | 178            | 5/8"                   | Male 1/4"          | 34,0  |
|                       | MITT22D      | 140, 160                  | 310                       | 441                | 178            | 5/8"                   | Male 1/4"          | 31,3  |
| 24                    | MITT24A      | 10, STD/20, XS, 30        | 79                        | 575                | 178            | 5/8"                   | Male 1/4"          | 44,9  |
|                       | MITT24B      | 40, 60                    | 155                       | 551                | 178            | 5/8"                   | Male 1/4"          | 42,6  |
|                       | MITT24C      | 80, 100                   | 232                       | 522                | 178            | 5/8"                   | Male 1/4"          | 39,9  |
|                       | MITT24D      | 120, 140                  | 310                       | 495                | 178            | 5/8"                   | Male 1/4"          | 37,2  |
|                       | MITT24E      | 160                       | 310                       | 480                | 178            | 5/8"                   | Male 1/4"          | 36,3  |
| 26                    | MITT26A      | 10, STD, XS               | 79                        | 626                | 178            | 5/8"                   | Male 1/4"          | 52,2  |
| 30                    | MITT30A      | 10, STD, XS/20, 30        | 79                        | 727                | 178            | 5/8"                   | Male 1/4"          | 66,7  |
|                       | MITT30B      | 40                        | 79                        | 714                | 178            | 5/8"                   | Male 1/4"          | 63,5  |
| 32                    | MITT32A      | 10, STD, XS/20, 30        | 79                        | 778                | 178            | 5/8"                   | Male 1/4"          | 71,7  |
|                       | MITT32B      | 40                        | 79                        | 768                | 178            | 5/8"                   | Male 1/4"          | 70,3  |
| 34                    | MITT34A      | 10, STD, XS/20, 30        | 29                        | 829                | 178            | 5/8"                   | Male 1/4"          | 76,2  |
|                       | MITT34B      | 40                        | 29                        | 819                | 178            | 5/8"                   | Male 1/4"          | 74,8  |
| 36                    | MITT36A      | 10, STD, XS               | 29                        | 879                | 178            | 5/8"                   | Male 1/4"          | 84,8  |
| 38                    | MITT38A      | STD, XS                   | 29                        | 930                | 178            | 5/8"                   | Male 1/4"          | 94,3  |
| 40                    | MITT40A      | STD, XS                   | 29                        | 981                | 178            | 5/8"                   | Male 1/4"          | 104,3   |

## MITT Series



Pipe Diameters:

**3/4 - 40 inch**

Water Capacity per Test:

**0,4 - 3,0 litres**

Maximum Test Pressure:

**310 bar**



### Cost-Effective Spares

Buna 90 shore hardness seals and stainless steel seal backing rings provide additional pressure capacity for a low cost.



### Ancillary Kit – MITTAK

All ancillary components required to safely isolate piping and test new welds (includes manual valves, gauge set, hoses, hand tools, fittings).



### Pump and Reservoir

To match the full capability of the tools, the **MP350** hand pump and **MP10T** reservoir are recommended.

▼ MITT2A tool being torqued in a test stand for high pressure testing.





# Enerpac 'Yellow Pages' stand for Hydraulic Information!

If selecting hydraulic equipment is not your daily routine, then you will appreciate these pages. The 'Yellow Pages' are designed to help you work with hydraulics. They will help you to better understand the basics of hydraulics, of system set-ups and of the most commonly used hydraulic techniques. The better your choice of equipment, the better you will appreciate hydraulics. Take the time to go through these 'Yellow Pages' and you will benefit even more from Enerpac High Pressure Hydraulics.



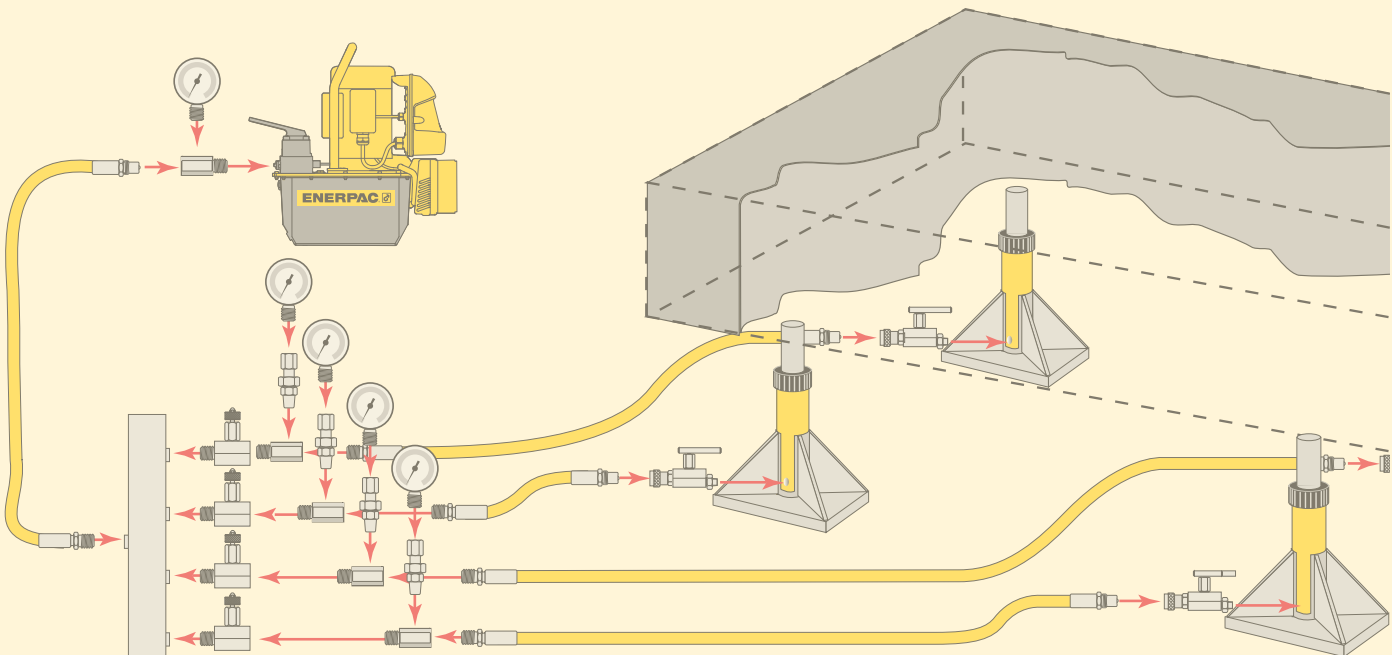
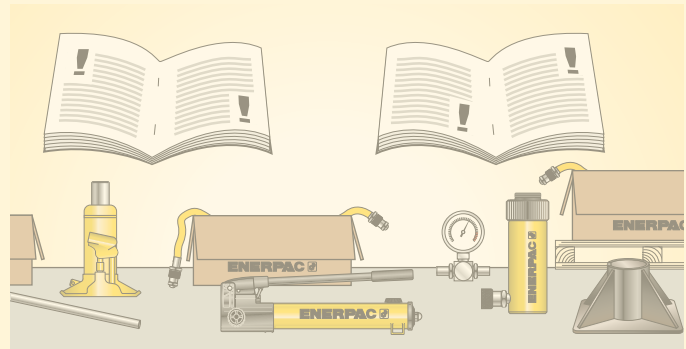
### ENERPAC WARRANTY STATEMENT

Visit our website for the complete Global Lifetime Warranty or call your Authorized Service Center.



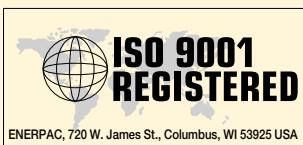
### Learn more about hydraulics

Visit [www.enerpac.com](http://www.enerpac.com) to learn more about hydraulics and system set-ups.





| Section  |  | Page                         |
|--|--|------------------------------|
| <b>Safety Instructions</b>                                   |  | <b>396</b> ▶                 |
| <b>Pump Selection<br/>Selection Worksheet</b>                |  | <b>398</b> ▶<br><b>399</b> ▶ |
| <b>Basic System Set-ups</b>                                  |  | <b>400</b> ▶                 |
| <b>Basic Hydraulics</b>                                      |  | <b>402</b> ▶                 |
| <b>Conversion Tables<br/>Cylinder Speed Charts</b>           |  | <b>404</b> ▶<br><b>405</b> ▶ |
| <b>Valve Information<br/>Hexagon Bolt and Nut Sizes</b>      |  | <b>406</b> ▶<br><b>407</b> ▶ |
| <b>Torque Tightening<br/>Tensioning</b>                      |  | <b>408</b> ▶<br><b>410</b> ▶ |
| <b>INFORMATE Bolting Integrity Software</b>                  |  | <b>412</b> ▶                 |
| <b>Enerpac Academy<br/>Enerpac Maintenance Program (EMP)</b> |  | <b>414</b> ▶<br><b>415</b> ▶ |



Enerpac is certified for several quality standards. These standards require compliance with standards for management, administration, product development and manufacturing. Enerpac worked hard to earn the quality rating ISO 9001, in its ongoing pursuit of excellence.

#### DIN-ISO 1402

Enerpac Thermoplastic and Rubber Hoses have been tested and confirm to this Standard.

#### ASME B30.1-2015

Our cylinders fully comply with the criteria set forth by the American National Standards Institute (except RD, BRD, HCL, LPL, CUSP and JHA-Series).

#### Product Design Criteria

All hydraulic components are designed and tested to be safe for use at max. 700 bar (10.000 psi) pressure unless otherwise specifically noted.



Where specified, Enerpac electric power units meet the design, assembly and test requirements of the Standards Council of Canada (CAN C22.2 No. 68-92), and UL73 for the United States. Units were tested and certified for both USA and Canada by TÜV and by CSA, USA-OSHA-NRTLs., (Nationally Recognised Testing Laboratories).

#### EMC Directive

Where specified, Enerpac electric power pumps meet the requirements for Electromagnetic Compatibility per EMC Directive 2014/30/EU.



#### CE Marking & Conformity

Enerpac provides Declarations of Conformity or Incorporation, as applicable, and CE Marks for products according to the EU Directives.



#### ATEX 95 Certified

The S, W, DSX and HMT-Series torque wrenches, ZA, XA, LAT and ATP-Series air driven pumps, SWi-Ex-flange spreaders, HP-Ex hand pumps and the 144-type hoses are tested and certified to conform to the Directive 2014/34/EU "ATEX Directive".

The explosion protection is for Equipment Group II, Equipment Category 2 (Hazardous Zone Area 1) in Gas and/or Dust atmospheres.

S, W-wrenches: **Ex II 2 GD T4**

DSX, HMT-wrenches: **Ex II 2 G c T6**

NSH-Nut Splitters: **Ex II 2 G c T6**

ZA4, ZA4T-Air Pumps: **Ex II 2 GD ck T4**

ZA4TX-QROP-Pump: **Ex IIC T4 Gc**  
**Ex IIIC T135°C Dc**

ATP, XA-Air Pumps: **Ex II 2 GD ck T4**

LAT-Air Pumps: **Ex IIC T4 Gc** and  
**Ex IIIC T135°C Dc**

SWi-Ex Spreaders: **II 2G Ex h IIB T5 Gb** and  
**II 2D Ex h IIIC T85°C Db**

HP-Ex Hand Pumps: **II 2G Ex h IIB T5 Gb** and  
**II 2D Ex h IIIC T100°C Db**

144-Hoses: **II 2G Ex h IIB T5 Gb** and  
**II 2D Ex h IIIC T100°C Db**





# Safety Instructions



When used correctly, hydraulic power is one of the safest methods of applying force to your work. And to that end we offer some DO's and

DON'Ts, simple common sense points which apply to practically all Enerpac hydraulic products.

- Lift slowly and check the load often
- Avoid standing in the line of force
- Anticipate possible problems and take steps to avoid them.

The line drawings and application photo's of Enerpac products throughout this catalog are used to portray how some of our customers have used hydraulics in industry.

In designing similar systems, care must be taken to select the proper components that provide safe operation and fit your needs.

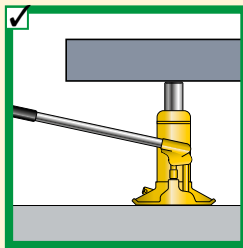
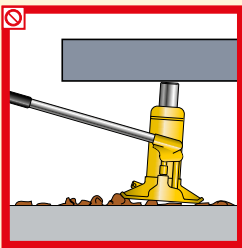
Check to see if all safety measures have been taken to avoid the risk of injury and property damage from your application or system.

Enerpac can not be held responsible for damage or injury, caused by unsafe use, maintenance or application of its products.

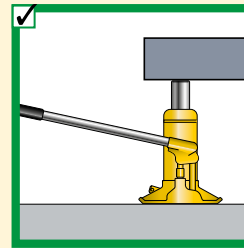
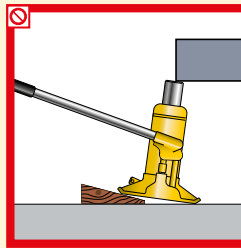
Please contact the Enerpac office or a representative for guidance when you are in doubt as to the proper safety precautions to be taken in designing and setting up your particular system.

In addition to these tips, every Enerpac product comes with instructions spelling out specific safety information. Please read them carefully.

## Jacks



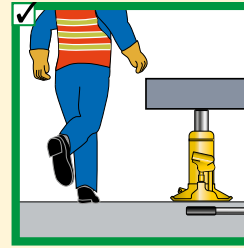
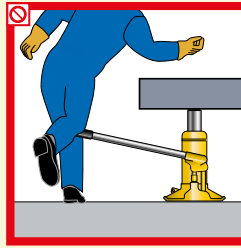
Provide a level and solid support for the entire jack base area.



The entire jack saddle must be in contact with the load. Movement of the load to be in the same direction as jack plunger.

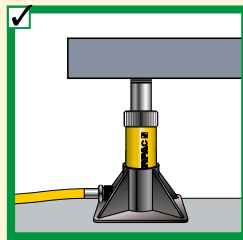
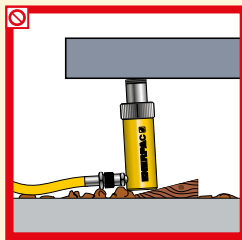


Never place any part of your body under the load. Ensure the load is on a solid support before venturing under.

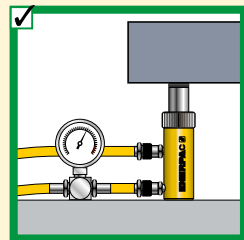
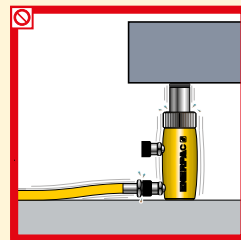


Remove the jack handle when it is not being used.

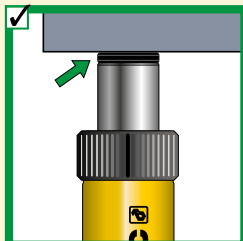
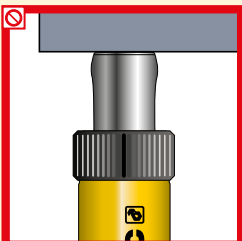
## Cylinders



Provide a solid support for the entire cylinder base area. Use cylinder base attachment for more stability.



Both couplers must be connected when using double-acting cylinders. Ensure return hose is fitted.



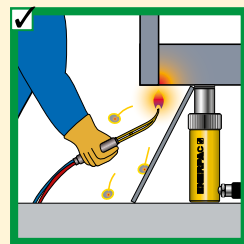
Do not use cylinder without saddle. This will cause plunger to "mushroom". Saddles distribute load evenly on the plunger.



As with jacks, never place any part of your body under the load. Load must be on cribbing before venturing under.



Always protect cylinder threads for use with attachments.

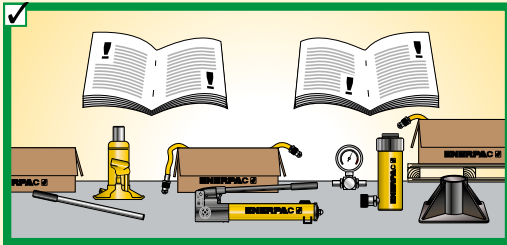


Keep hydraulic equipment away from open fire and temperatures above 65 °C (150 °F).

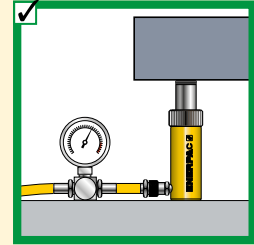
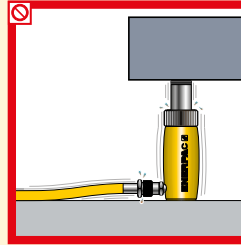


## General

**Manufacturer's rating of load and stroke are maximum safe limits.  
Good practice encourages using only 80% of these ratings!**

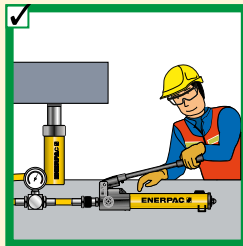
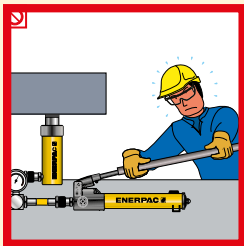


Always read instructions and safety warnings that come with your Enerpac hydraulic equipment.

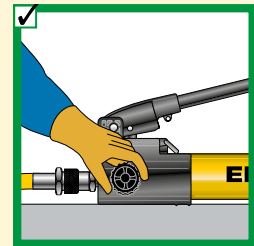
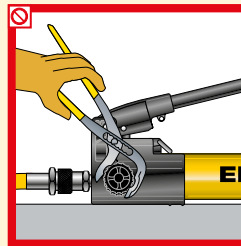


Don't override the factory setting of relief valves. Always use a gauge to check system pressure.

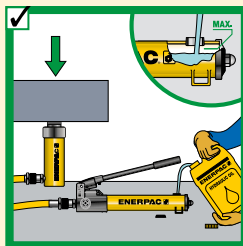
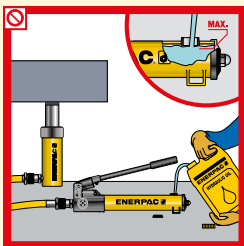
## Pumps



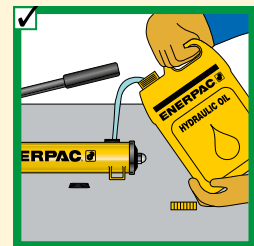
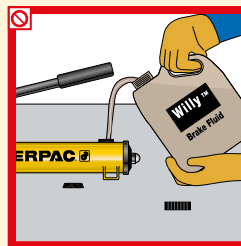
Don't use handle extenders. Hand pumps should be easy to operate when used correctly.



Close release valve finger tight. Using force will ruin the valve.

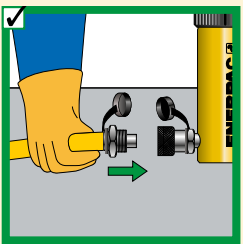
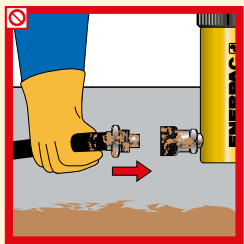


Fill pump only to recommended level. Fill only when connected cylinder is fully retracted.

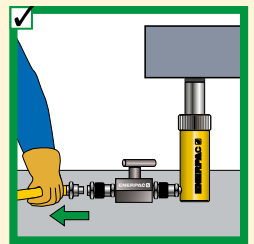
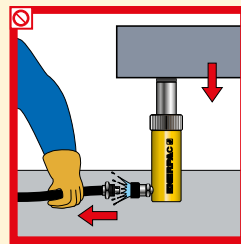


Use only genuine Enerpac hydraulic oil. Wrong fluid can destroy seals and pump and will render your warranty null and void your guarantee.

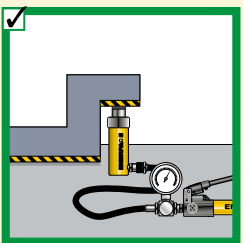
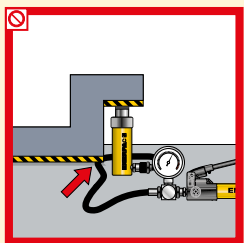
## Hoses and couplers



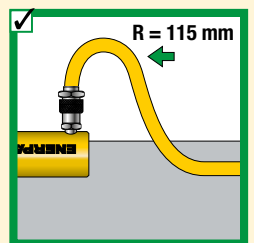
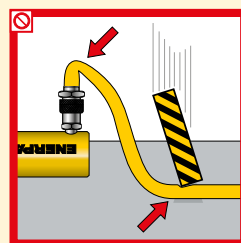
Clean both coupler parts before connecting. Use dust caps when coupler parts are not connected.



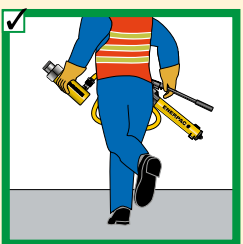
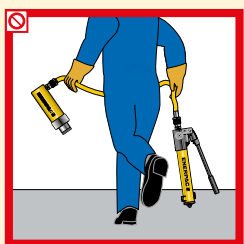
Detach cylinder only when fully retracted or use shut-off valves or safety valves to lock-in cylinder pressure.



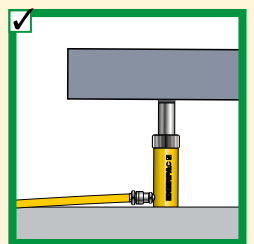
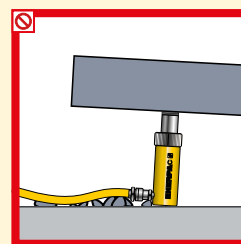
Keep hoses away from the area beneath loads.



Don't kink hoses. Bending radius should be at least 115 millimetres. Don't drive over or drop heavy objects on hoses.



Don't lift hydraulic equipment by the hoses.



Never allow the cylinder to be lifted off of the ground through the couplers.



## ▼ HAND PUMP AND SINGLE-ACTING CYLINDER MATCHING CHART

| Capacity (ton) ▶ | 5 t | 10 t        | 15 t | 25 t | 30 t       | 50 t | 60 t        | 75 t | 100 t | 150 t |
|------------------|-----|-------------|------|------|------------|------|-------------|------|-------|-------|
| ▼ Stroke         |     |             |      |      |            |      |             |      |       |       |
| < 25 mm          |     |             |      |      |            |      |             |      |       |       |
| 25 mm            |     |             |      |      |            |      |             |      |       |       |
| 50 mm            |     |             |      |      |            |      |             |      |       |       |
| 75 mm            |     |             |      |      |            |      |             |      |       |       |
| 100 mm           |     |             |      |      |            |      |             |      |       |       |
| 125 mm           |     |             |      |      |            |      |             |      |       |       |
| 150 mm           |     |             |      |      |            |      |             |      |       |       |
| 175 mm           |     |             |      |      |            |      |             |      |       |       |
| 200 mm           |     |             |      |      |            |      |             |      |       |       |
| 225 mm           |     |             |      |      |            |      |             |      |       |       |
| 250 mm           |     |             |      |      |            |      |             |      |       |       |
| 300 mm           |     |             |      |      |            |      |             |      |       |       |
| 325 mm           |     |             |      |      |            |      |             |      |       |       |
| 350 mm           |     |             |      |      |            |      |             |      |       |       |
|                  |     | <b>P392</b> |      |      | <b>P80</b> |      | <b>P462</b> |      |       |       |
|                  |     | Page: 76    |      |      | Page: 78   |      | Page: 78    |      |       |       |

Note: Selection based on oil capacity requirements of cylinders.

## ▼ POWER PUMP SELECTION CHART

| Oil Flow *                | Low Oil Flow<br>(0,1 - 0,3 l/min) |                              | Medium Oil Flow<br>(0,5 - 2,0 l/min) |                                      | High Oil Flow<br>(2,0 - 4,2 l/min) |                                  |
|---------------------------|-----------------------------------|------------------------------|--------------------------------------|--------------------------------------|------------------------------------|----------------------------------|
| <b>Oil Capacity</b>       | 1,9 - 3,8 litres                  | 3,0 litres                   | 4,6 - 39 litres                      | 4,6 - 39 litres                      | 9,8 - 39 litres                    | 9, 20, 135 litres                |
| <b>Duty Cycle **</b>      | Intermittent                      | Extended                     | Intermittent                         | Extended                             | Extended                           | Extended                         |
| <b>Portability ***</b>    | Portable                          | Portable                     | Portable                             | Stationary                           | Stationary                         | Stationary                       |
| <b>Recommended Series</b> | <b>PU-Series<br/>Economy</b>      | <b>E-Series<br/>E-Pulse®</b> | <b>ZU4-Series</b>                    | <b>ZE3-, ZE4- and<br/>ZE5-Series</b> | <b>ZE6-Series</b>                  | <b>SFP-Series<br/>Split-Flow</b> |
|                           |                                   |                              |                                      |                                      |                                    |                                  |
|                           | Page: 90                          | Page: 94                     | Page: 98                             | Page: 104                            | Page: 104                          | Page: 336                        |

### \* Oil Flow

- Determined by motor size
- Directly affects electrical power requirements
- Determines cylinder or tool speed

### \*\* Duty Cycle

- Extended applications require more than one hour of uninterrupted pump use
- Intermittent would be used less than one hour, depending on reservoir capacity.

### \*\*\* Portability

- |   |   |
|---|---|
| <p><b>Portable</b></p> <ul style="list-style-type: none"> <li>• Ergonomic handles</li> <li>• Flexible power requirements</li> </ul> | <p><b>Stationary</b></p> <ul style="list-style-type: none"> <li>• Mounting options</li> <li>• Normally requires stable power</li> </ul> |
|---|---|



▼ Complete the following information to select the right products:

| Cylinder Selection              | Question:                                | Tips/help  | Data                                      | Model Number                              |
|---------------------------------|--|--|---|---|
|                                 | <b>Total force required (ton):</b>       | Total load   | <input style="width: 100%;" type="text"/> |   |
|                                 | <b>Number of cylinders required:</b>     | Number of lifting points   | <input style="width: 100%;" type="text"/> |   |
|                                 | <b>Force per cylinder (ton):</b>         | Should be 80% of total cylinder capacity                           | <input style="width: 100%;" type="text"/> |   |
|                                 | <b>Stroke required:</b>                  | Plunger travel   | <input style="width: 100%;" type="text"/> |   |
|                                 | <b>Single or double-acting (D/A):</b>    | D/A used when pull force is required, or retract speed is critical | <input style="width: 100%;" type="text"/> |   |
|                                 | <b>Type of plunger required:</b>         | Hollow or solid  | <input style="width: 100%;" type="text"/> |   |
|                                 | <b>Collapsed height required:</b>        |  | <input style="width: 100%;" type="text"/> |   |
|                                 | <b>Optional saddle required:</b>         | Tilt, Grooved, Flat  | <input style="width: 100%;" type="text"/> |   |
|                                 | <b>Cylinder base:</b>                    | Improves stability   | <input style="width: 100%;" type="text"/> |   |
|                                 | <b>Cylinder attachments: (RC-series)</b> | Expanded functions   | <input style="width: 100%;" type="text"/> |   |
| <b>Selected cylinder model:</b> |  |  | ▶   | <input style="width: 100%;" type="text"/> |
| <b>Including coupler model:</b> |  |  | <input style="width: 100%;" type="text"/> |   |

## Pump Selection

The three most commonly selected pumps are hand pumps, electric pumps and air-driven pumps. Gas powered pumps, however can be selected in the same way.

Available power source:  Manual  Battery  Electric  Compressed Air  Petrol

|   |                                      |  |
|---|--------------------------------------|--|
| <b>Hand Pump</b>                          | Not for high cycle applications      | <input style="width: 100%;" type="text"/>                  |
| <b>Single- or double-acting operation</b> | Use 4-way valve for D/A applications | <input style="width: 100%;" type="text"/>                  |
|   |                                      | Check speed chart on page 405 for number of mm per stroke) |

**Selected Hand Pump:** ▶

|   |  |   |
|---|--|---|
| <b>Electric or Compressed Air Pump</b>          |  |   |
| <b>Need for portability:</b>                    |  | <input style="width: 100%;" type="text"/> |
| <b>Duty cycle:</b>                              | Intermittent or extended   | <input style="width: 100%;" type="text"/> |
| <b>Required useable oil capacity:</b>           | Intermittent = 1,2 x oil capacity<br>high cycle = 2 x oil capacity | <input style="width: 100%;" type="text"/> |
| <b>Available Voltage:</b>                       |  | <input style="width: 100%;" type="text"/> |
| <b>Lifting speed (Important/not important):</b> | Use speed chart on page 405  | <input style="width: 100%;" type="text"/> |
| <b>Type of control:</b>                         | Manual / remote pendant  | <input style="width: 100%;" type="text"/> |
| <b>Type of actuation/function:</b>              | Advance / Hold / Retract   | <input style="width: 100%;" type="text"/> |
| <b>Accessories:</b>                             | Filter Kit, Level Switch, Roll Bar ...                             | <input style="width: 100%;" type="text"/> |

**Selected Pump:** ▶

**Including Coupler:** Oil connection

## System Components

**Number of hoses and length required:**

**Selected Hoses:** ▶

|                                      |   |  |   |
|--------------------------------------|---|--|---|
| <b>Manifold or Tee-fitting:</b>      |   |  |   |
| <b>Extra hose per manifold (2):</b>  |   |  | <input style="width: 100%;" type="text"/> |
| <b>Gauge (kN or bar scale):</b>      | GF-series glycerine filled for high cycle |  | <input style="width: 100%;" type="text"/> |
| <b>Gauge Adapter:</b>                |   |  | <input style="width: 100%;" type="text"/> |
| <b>Fittings:</b>                     |   |  | <input style="width: 100%;" type="text"/> |
| <b>Pressure Relief Safety Valve:</b> |   |  | <input style="width: 100%;" type="text"/> |
| <b>Load-holding Valve(s):</b>        |   |  | <input style="width: 100%;" type="text"/> |
| <b>Hydraulic Oil:</b>                |   |  | <input style="width: 100%;" type="text"/> |



**1 Cylinder**

Applies hydraulic force.  
Page 5

**2 Cylinder Base Plate**

For applications like lifting where additional cylinder stability is required.  
Page 10

**3 Pump**

Provides hydraulic flow.  
Page 75

**4 Hose**

Transports hydraulic fluid.  
Page 128-129

**5 Male Coupler**

For quick connection of the hose to system components.  
Page 130-131

**6 Female Coupler**

For quick connection of the hose end to the system components.  
Page 130-131

**7 Gauge**

To monitor pressure of the hydraulic circuit.  
Page 136-142

**8 Gauge Adaptor**

For quick and easy gauge installation.  
Page 142-143

**9 Swivel Connector**

Allows proper alignment of valves and/or gauges. Used when units being connected cannot be rotated.  
Page 143

**10 Auto-Damper Valve V10**

Used to protect gauge from damage due to sudden pressure pulses in the system. Needs no adjustment and allows correct positioning of gauge, prior to tightening.  
Page 144-145

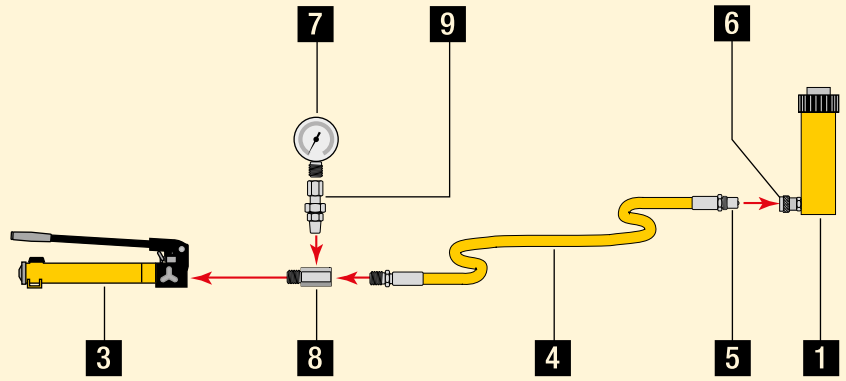
**11 4-Way Directional Control Valve**

Controls the direction of hydraulic fluid in a double-acting system.  
Page 122-123

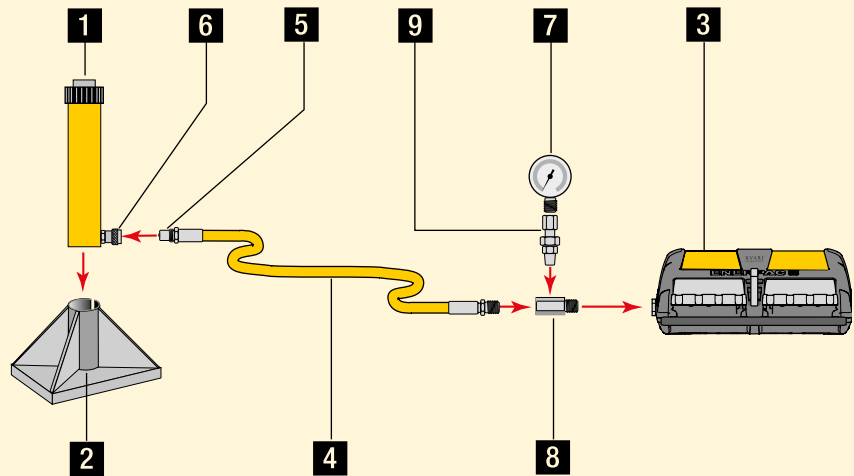
**Single-acting push application**, such as in a press.

The hand pump offers controlled cylinder advance, but may require many hand pump strokes in longer stroke applications when the cylinder capacity is 25 ton or above.

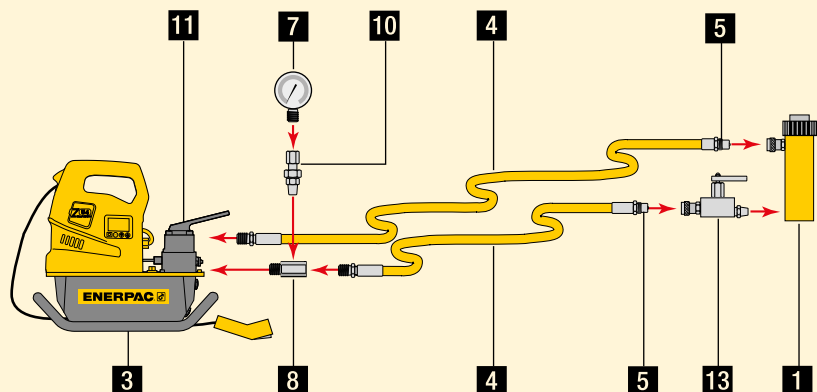
Examples of pump, hose and cylinder sets can be found on pages 62-65.



Single-acting cylinder with longer stroke used for lifting applications.

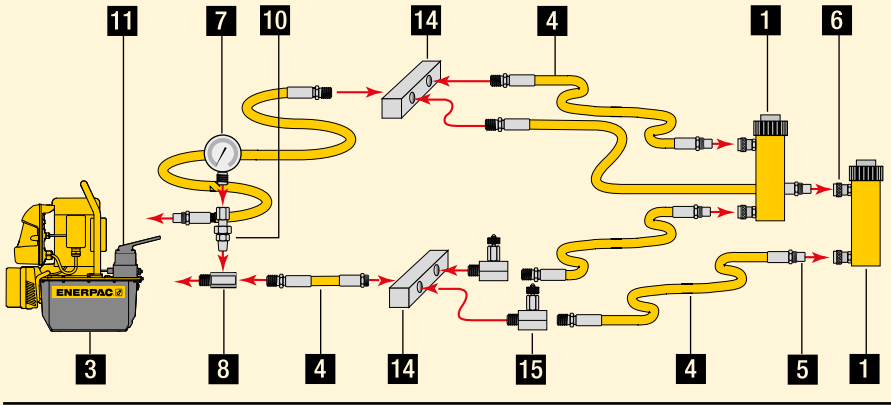


Double-acting cylinder set-up used for lifting applications where a slow controlled descent of the load must be maintained.





**Double-acting cylinder set-up** used in a push/pull application.



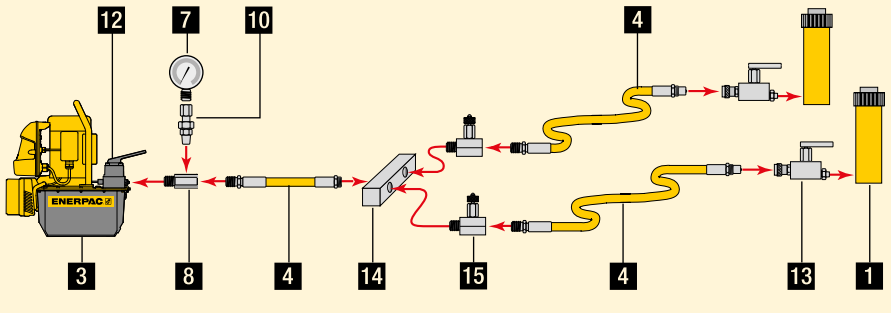
**12 3-Way Directional Control Valve**  
Controls the direction of hydraulic fluid in a single-acting system.  
Page 122-123

**13 Safety Holding Valve V66**  
Controls load descent in lifting applications.  
Page 144-145

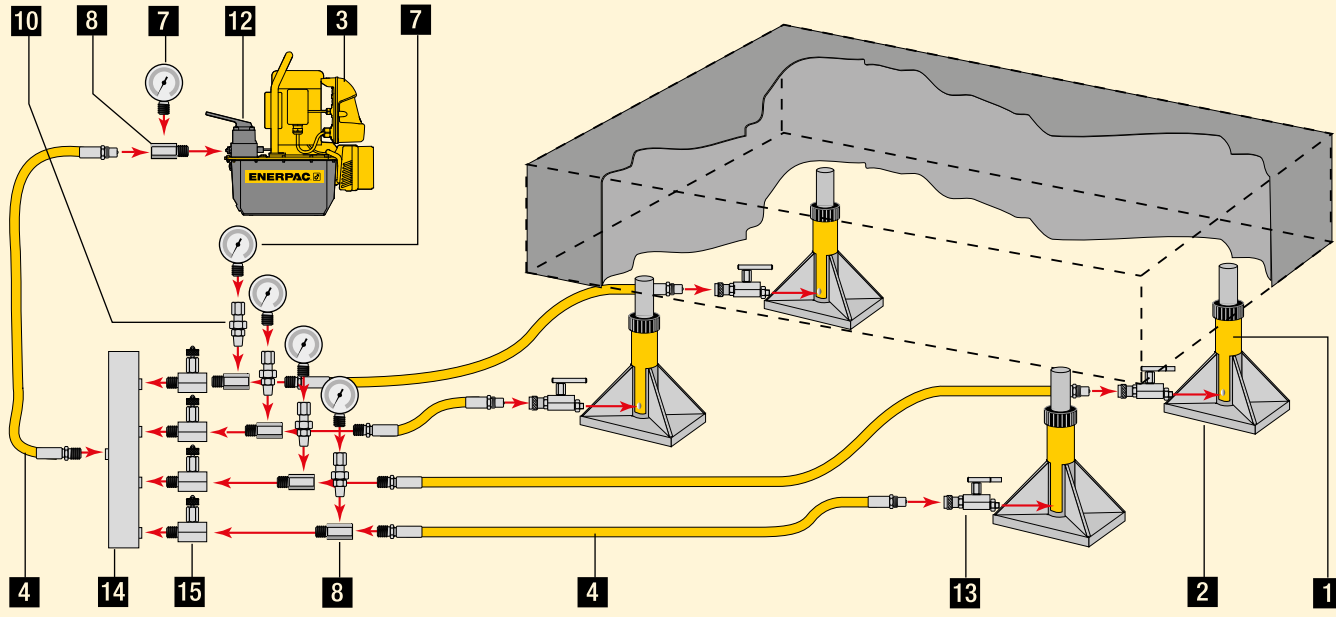
**14 Manifold**  
Allows distribution of hydraulic fluid from one power source to several cylinders.  
Page 132-135


**15 Needle valves V82 and V182**  
Regulates the flow of hydraulic fluid to or from the cylinders.  
Page 144-145

**Two point lifting set-up** using single-acting cylinders.



**Four point lifting set-up, using single-acting cylinders and directional control valves.**



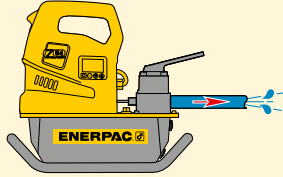


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Visit our web site to learn more about hydraulics and system set-ups.



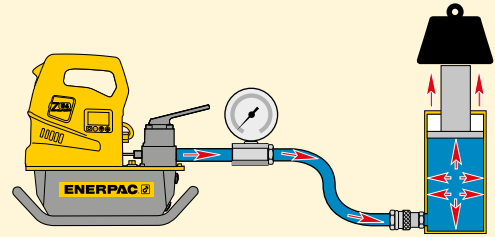
### Flow

A hydraulic pump produces flow.



### Pressure

Pressure occurs when there is resistance to flow.



### Pascal's Law

Pressure applied at any point upon a confined liquid is transmitted undiminished in all directions (Fig.1). This means that when more than one hydraulic cylinder is being used, each cylinder will lift at its own rate, depending on the force required to move the load at that point (Fig. 2).

Cylinders with the lightest load will move first, and cylinders with the heaviest load will move last (Load A), as long as the cylinders have the same capacity.

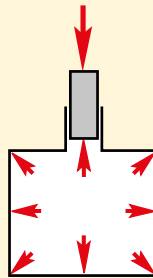
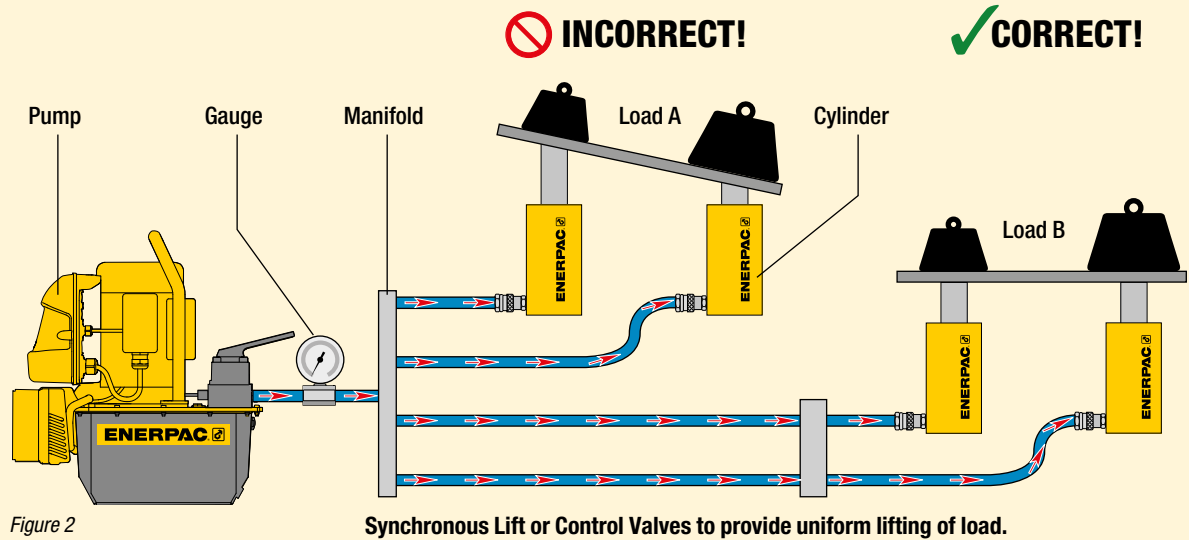


Figure 1

To have all cylinders operate uniformly so that the load is being lifted at the same rate at each point, either control valves (see Valve section) or Synchronous Lift System components (see section Heavy Lifting Technology) must be added to the system (Load B).



**CAUTION!**  
When lifting or pressing, always use a gauge.

A gauge is your 'window' to the system. It lets you see what's going on. You will find the gauges in the System Components section.



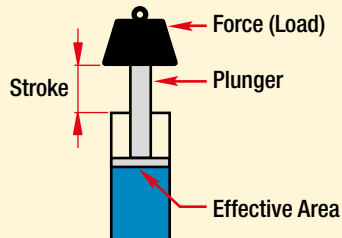
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## Force

The amount of force a hydraulic cylinder can generate is equal to the hydraulic pressure times the “effective area” of the cylinder (see cylinder selection charts).



|              |   |                                   |   |                                |
|--------------|---|-----------------------------------|---|--------------------------------|
| <b>Force</b> | = | <b>Hydraulic Working Pressure</b> | x | <b>Cylinder Effective Area</b> |
| <b>F</b>     | = | <b>P</b>                          | x | <b>A</b>                       |

Use this formula to determine either force, pressure or effective area if two of the variables are known.

### Example 1

An RC106 cylinder with 14,5 cm<sup>2</sup> effective area operating at 700 bar \* will generate what force?

**Force** = 7000 N/cm<sup>2</sup> x 14,5 cm<sup>2</sup> = 101500 N = 101,5 kN

\* Note: 700 bar = 700 x 10<sup>5</sup> N/mm<sup>2</sup> = 7000 N/cm<sup>2</sup>.

### Example 2

An RC106 cylinder lifting 7000 kg will require what pressure?

**Pressure** = 7000 x 9,8 N ÷ 14,5 cm<sup>2</sup> = 4731,0 N/cm<sup>2</sup> = 473 bar.

### Example 3

An RC256 cylinder is required to produce a force of 190.000 N. What pressure is required?

**Pressure** = 190.000 N ÷ 33,2 cm<sup>2</sup> = 5722,9 N/cm<sup>2</sup> = 572 bar.

### Example 4

Four RC308 cylinders are required to produce a force of 800.000 N.

What pressure is required?

**Pressure** = 800.000 N ÷ (4 x 42,1 cm<sup>2</sup>) = 4750,6 N/cm<sup>2</sup> = 476 bar.

*Remember, since four cylinders are used together, the area for one cylinder must be multiplied by the number of cylinders used.*

### Example 5

A HCL2506 cylinder is going to be used with a power source that is capable of 500 bar. What is the theoretical force available from that cylinder?

**Force** = 5000 N/cm<sup>2</sup> x 363,1 cm<sup>2</sup> = 1.815.500 N = 1815 kN.

## Cylinder Oil Capacity

The volume of oil required for a cylinder (cylinder oil capacity) is equal to the effective area of the cylinder times the stroke\*.

|                              |   |                                |   |                        |
|------------------------------|---|--------------------------------|---|------------------------|
| <b>Cylinder Oil Capacity</b> | = | <b>Cylinder Effective Area</b> | x | <b>Cylinder Stroke</b> |
|------------------------------|---|--------------------------------|---|------------------------|

\* Note: these are theoretical examples and do not take into account the compressibility of oil under high pressure.

### Example 1:

An RC158 cylinder with 20,3 cm<sup>2</sup> effective area and 200 mm stroke requires what volume of oil?

**Oil Capacity** = 20,3 cm<sup>2</sup> x 20 cm = 406 cm<sup>3</sup>

### Example 2:

An RC5013 cylinder has an effective area of 71,2 cm<sup>2</sup> and a stroke of 320 mm. How much oil will be required?

**Oil Capacity** = 71,2 cm<sup>2</sup> x 32 cm = 2278,4 cm<sup>3</sup>

### Example 3:

An RC10010 cylinder has an effective area of 133,3 cm<sup>2</sup> and a stroke of 260 mm. How much oil will it require?

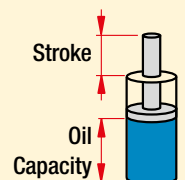
**Oil Capacity** = 133,3 cm<sup>2</sup> x 26 cm = 3466 cm<sup>3</sup>

### Example 4:

Four RC308 cylinders are being used, each with an effective area of 42,1 cm<sup>2</sup> and a stroke of 209 mm. How much oil will be required?

**Oil Capacity** = 42,1 cm<sup>2</sup> x 20,9 cm = 880 cm<sup>3</sup> for one cylinder

Multiply by four to obtain the required capacity: 3520 cm<sup>3</sup>



### CAUTION!

Enerpac oil will compress 2,28% at 350 bar and 4,1% at 700 bar.

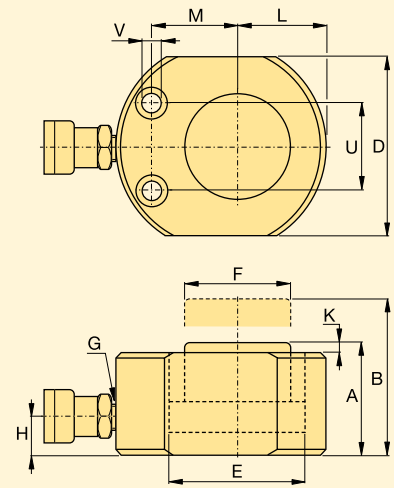
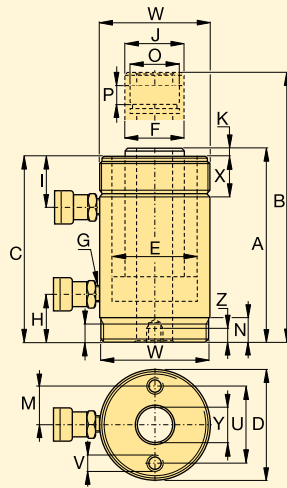




## Key to cylinder dimensions

Dimensions shown in the Selection Charts of the cylinder section are identified on the relevant drawings by the capital letter references listed here: A for collapsed height through Z1 for depth of internal base thread.

- |   |                                       |
|---|---------------------------------------|
| A = Collapsed height                            | L = Plunger centre to side of base    |
| B = Extended height                             | M = Mounting holes to plunger centre  |
| C = Cylinder body length                        | N = Length of smaller cylinder part   |
| D = Cylinder outside diameter                   | O = Plunger hole or thread of saddle  |
| D1 = Cylinder width                             | P = Plunger thread length             |
| E = Cylinder inside diameter                    | Q = Plunger outside thread            |
| F = Plunger rod diameter                        | U = Pitch (BC) of mounting holes      |
| G = Oil inlet thread                            | V = Thread of cylinder mounting holes |
| H = Cylinder bottom to advance port             | W = Collar thread                     |
| I = Cylinder top to retract port                | X = Collar thread length              |
| J = Saddle outside diameter                     | Y = Centre hole diameter              |
| K = Cylinder rod protrusion at collapsed height | Z = Internal base thread              |
|   | Z1 = Depth of internal base thread    |



## Key to measurements

All capacities and measurements in the catalogue are expressed in uniform values.

The conversion chart provides helpful information for their translation into equivalent systems.

All ton values specified in this catalogue are metric tonnes and are for cylinder class identification only.

**Please refer to the kN data for calculations.**

### Free Conversion Calculator

Visit [enerpac.com](http://enerpac.com) and download the free conversion calculator.

### Pressure:

- |       |                         |
|-------|-------------------------|
| 1 psi | = 0,069 bar             |
| 1 bar | = 14,50 psi             |
|       | = 9,8 N/cm <sup>2</sup> |
|       | = 100.000 Pa            |
| 1 kPa | = 0,145 psi             |
| 1 MPa | = 145 psi               |

### Volume:

- |                   |                          |
|-------------------|--------------------------|
| 1 in <sup>3</sup> | = 16,387 cm <sup>3</sup> |
| 1 cm <sup>3</sup> | = 0,061 in <sup>3</sup>  |
| 1 litre           | = 61,02 in <sup>3</sup>  |
|                   | = 0,264 gal              |
| 1 USgal           | = 3785 cm <sup>3</sup>   |
|                   | = 3,785 l                |
|                   | = 231 in <sup>3</sup>    |

### Weight:

- |               |             |
|---------------|-------------|
| 1 pound (lb)  | = 0,4536 kg |
| 1 kg          | = 2,205 lbs |
|               | = 9,806 N   |
| 1 metric ton  | = 2205 lbs  |
|               | = 1000 kg   |
| 1 ton (short) | = 2000 lbs  |
|               | = 907,18 kg |

### Torque:

- |          |                |
|----------|----------------|
| 1 Nm     | = 0,738 Ft.lbs |
|          | = 0,102 kgf.m  |
| 1 Ft.lbs | = 1,356 Nm     |
|          | = 0,138 kgf.m  |

### Temperature:

To Convert °C to °F:

$$T^{\circ F} = (T_{\circ C} \times 1,8) + 32$$

To Convert °F to °C:

$$T^{\circ C} = (T_{\circ F} - 32) \div 1,8$$

### Other measurements:

- |                   |                         |
|-------------------|-------------------------|
| 1 in              | = 25,4 mm               |
| 1 mm              | = 0,039 in              |
| 1 in <sup>2</sup> | = 6,452 cm <sup>2</sup> |
| 1 cm <sup>2</sup> | = 0,155 in <sup>2</sup> |
| 1 hp              | = 0,746 kW              |
| 1 kW              | = 1,359 hp              |
| 1 kN              | = 225 lbs               |

### Imperial to metric

| Inches | Decimal | mm    |
|--------|---------|-------|
| 1/16   | .06     | 1,59  |
| 1/8    | .13     | 3,18  |
| 3/16   | .19     | 4,76  |
| 1/4    | .25     | 6,35  |
| 5/16   | .31     | 7,94  |
| 3/8    | .38     | 9,53  |
| 7/16   | .44     | 11,11 |
| 1/2    | .50     | 12,70 |
| 9/16   | .56     | 14,29 |
| 5/8    | .63     | 15,88 |
| 11/16  | .69     | 17,46 |
| 3/4    | .75     | 19,05 |
| 13/16  | .81     | 20,64 |
| 7/8    | .88     | 22,23 |
| 15/16  | .94     | 23,81 |
| 1      | 1.00    | 25,40 |

# Cylinder Speed Charts



## Cylinder Speed

This chart will help you calculate the time required for an Enerpac cylinder to lift a load when powered by a 700 bar Enerpac hydraulic pump.

The Cylinder Speed Chart can also be used to determine the pump type and model best suited for an application when you know the plunger speed required.

## To determine: Cylinder plunger speed

An RC256 cylinder (25 ton) is powered by a ZE3-Series two stage pump. While lifting the load, the cylinder plunger travels at 2,8 mm per second. While extending towards the load, the cylinder plunger travels at 30,9 mm per second.

## To determine: Best matching pump

Your 25 ton cylinder needs to move a load at a speed of 3,0 mm per second. Simply go down from the top of the chart, to the value of 2,8 mm per second. Follow the chart to the right to find that the ZE3-Series pump is most suitable for your application.

## Millimetres of RC-Series cylinder plunger travel per hand pump plunger stroke

| Cyl. Capacity ▶          | 5 ton   |      | 10 ton  |      | 15 ton  |      | 25 ton  |      | 30 ton  |      | 50 ton  |      | 75 ton  |      | 100 ton |      | Pump Type            | Page:     |
|--------------------------|---------|------|---------|------|---------|------|---------|------|---------|------|---------|------|---------|------|---------|------|----------------------|-----------|
|                          | No Load | Load | No Load | Load | No Load | Load | No Load | Load | No Load | Load | No Load | Load | No Load | Load | No Load | Load |                      |           |
| ▼ Power Source<br>Manual | 1,4     | 1,4  | 0,6     | 0,6  | 0,4     | 0,4  | 0,3     | 0,3  | 0,2     | 0,2  | 0,1     | 0,1  | 0,1     | 0,1  | 0,1     | 0,1  | <b>P141</b>          | <b>76</b> |
|                          | 3,9     | 3,9  | 1,7     | 1,7  | 1,2     | 1,2  | 0,7     | 0,7  | 0,6     | 0,6  | 0,3     | 0,3  | 0,2     | 0,2  | 0,2     | 0,2  | <b>P391</b>          | <b>76</b> |
|                          | 17,6    | 3,9  | 7,8     | 1,7  | 5,5     | 1,2  | 3,4     | 0,7  | 2,6     | 0,6  | 1,6     | 0,3  | 1,0     | 0,2  | 0,8     | 0,2  | <b>P392</b>          | <b>76</b> |
|                          | 25,3    | 3,8  | 11,2    | 1,7  | 7,9     | 1,2  | 4,9     | 0,7  | 3,7     | 0,6  | 2,3     | 0,3  | 1,5     | 0,2  | 1,1     | 0,2  | <b>P77/80/801/84</b> | <b>78</b> |
|                          | 61,4    | 3,9  | 27,1    | 1,7  | 19,3    | 1,2  | 11,8    | 0,7  | 9,0     | 0,6  | 5,5     | 0,3  | 3,5     | 0,2  | 2,8     | 0,2  | <b>P802/842</b>      | <b>78</b> |
|                          | 197     | 7,4  | 87,1    | 3,3  | 61,8    | 2,3  | 37,9    | 1,4  | 29,0    | 1,1  | 17,7    | 0,7  | 11,4    | 0,4  | 8,8     | 0,3  | <b>P462/464</b>      | <b>78</b> |

## Millimetres per Second of RC-Series Cylinder Plunger Travel

| Cyl. Capacity ▶   | 5 ton  |      | 10 ton  |      | 15 ton  |      | 25 ton  |      | 30 ton  |      | 50 ton  |      | 75 ton  |      | 100 ton |      | Pump Type                      | Page:            |
|---|--|------|---------|------|---------|------|---------|------|---------|------|---------|------|---------|------|---------|------|--------------------------------|------------------|
|   | No Load  | Load | No Load | Load | No Load | Load | No Load | Load | No Load | Load | No Load | Load | No Load | Load | No Load | Load |                                |                  |
| ▼ Power Source<br>Electric Pumps<br>(speed based<br>on 50 Hz) | 51,3   | 6,4  | 23,0    | 2,9  | 16,4    | 2,1  | 10,0    | 1,3  | 7,9     | 1,0  | 4,7     | 0,6  | 3,2     | 0,4  | 2,5     | 0,3  | <b>XC Cordless Pump</b>        | <b>86</b>        |
|   | 128,2  | 13,3 | 57,5    | 6,0  | 41,1    | 4,3  | 25,1    | 2,6  | 19,8    | 1,2  | 11,7    | 1,2  | 8,1     | 0,8  | 6,3     | 0,7  | <b>ZC3 Cordless Pump</b>       | <b>88</b>        |
|   | 86   | 8,3  | 38      | 3,7  | 27      | 2,6  | 17      | 1,6  | 13      | 1,3  | 7,7     | 0,7  | 5,4     | 0,5  | 4,1     | 0,4  | <b>PU Economy</b>              | <b>90</b>        |
|   | 92,3   | 12,8 | 41,4    | 5,7  | 29,6    | 4,1  | 18,1    | 2,5  | 14,3    | 2,0  | 8,4     | 1,2  | 5,8     | 0,8  | 4,5     | 0,6  | <b>E-Pulse</b>                 | <b>94</b>        |
|   | 295  | 25,6 | 132     | 11,5 | 94,4    | 8,2  | 57,7    | 5,0  | 45,5    | 4,0  | 26,9    | 2,3  | 18,7    | 1,6  | 14,4    | 1,3  | <b>ZU4-Series</b>              | <b>97-98</b>     |
|   | 15,1   | 14,1 | 6,8     | 6,3  | 4,8     | 4,5  | 3,0     | 2,8  | 2,2     | 1,4  | 1,3     | 1,0  | 0,9     | 0,7  | 0,7     |      | <b>ZE3 one stage</b>           | <b>97, 104</b>   |
|   | 158  | 14,1 | 70,7    | 6,3  | 50,5    | 4,5  | 30,9    | 2,8  | 24,3    | 2,2  | 14,4    | 1,3  | 10,0    | 0,9  | 7,7     | 0,7  | <b>ZE3 two stage</b>           | <b>97, 104</b>   |
|   | 22,3   | 21,0 | 10,0    | 9,4  | 7,1     | 6,7  | 4,4     | 4,1  | 3,4     | 3,2  | 2,0     | 1,9  | 1,4     | 1,3  | 1,1     | 1,0  | <b>ZE4 one stage</b>           | <b>97, 104</b>   |
|   | 228  | 21,0 | 102     | 9,4  | 72,9    | 6,7  | 44,6    | 4,1  | 35,2    | 3,2  | 20,8    | 1,9  | 14,4    | 1,3  | 11,1    | 1,0  | <b>ZE4 two stage</b>           | <b>97, 104</b>   |
|   | 44,9   | 42,1 | 20,1    | 18,9 | 14,4    | 13,5 | 8,8     | 8,2  | 6,9     | 6,5  | 4,1     | 3,8  | 2,8     | 2,7  | 2,2     | 2,1  | <b>ZE5 one stage</b>           | <b>97, 104</b>   |
|   | 298  | 42,1 | 133     | 18,9 | 95,3    | 13,5 | 58,3    | 8,2  | 46,0    | 6,5  | 27,2    | 3,8  | 18,9    | 2,7  | 14,5    | 2,1  | <b>ZE5 two stage</b>           | <b>97, 104</b>   |
|   | 76,9   | 70,0 | 34,5    | 31,4 | 24,6    | 22,4 | 15,1    | 13,7 | 11,9    | 10,8 | 7,0     | 6,4  | 4,9     | 4,4  | 3,8     | 3,4  | <b>ZE6 one stage</b>           | <b>97, 104</b>   |
|   | 315  | 70,0 | 141     | 31,4 | 101     | 22,4 | 61,7    | 13,7 | 48,7    | 10,8 | 28,8    | 6,4  | 20,0    | 4,4  | 15,4    | 3,4  | <b>ZE6 two stage</b>           | <b>97, 104</b>   |
|   | 53,8   | 53,8 | 24,1    | 24,1 | 17,2    | 17,2 | 10,5    | 10,5 | 8,3     | 8,3  | 4,9     | 4,9  | 3,4     | 3,4  | 2,6     | 2,6  | <b>SFP421 (11 kW)</b>          | <b>336</b>       |
|   | Air Driven Pumps<br>(at 6,9 bar air<br>pressure) | 51,3 | 6,4     | 23,0 | 2,9     | 16,4 | 2,1     | 10,0 | 1,3     | 7,9  | 1,0     | 4,7  | 0,6     | 3,2  | 0,4     | 2,5  | 0,3                            | <b>XA-Series</b> |
| 25,9  |  | 4,2  | 11,6    | 1,9  | 8,2     | 1,3  | 5,0     | 0,8  | 4,0     | 0,6  | 2,3     | 0,4  | 1,6     | 0,3  | 1,3     | 0,2  | <b>PATG-serie Turbo II Air</b> | <b>112</b>       |
| 17  |  | 3,4  | 7,6     | 1,5  | 5,4     | 1,1  | 3,3     | 0,7  | 2,6     | 0,5  | 1,5     | 0,3  | 1,1     | 0,2  | 0,8     | 0,2  | <b>PA-Series</b>               | <b>110</b>       |
| 277   |  | 3,8  | 123     | 1,7  | 88      | 1,2  | 53      | 0,7  | 42      | 0,6  | 25      | 0,3  | 17      | 0,2  | 13,0    | 0,2  | <b>PAM-Series</b>              | <b>111</b>       |
| 357   |  | 33,6 | 160     | 15,1 | 114     | 10,8 | 69,9    | 6,6  | 55,1    | 5,2  | 32,6    | 3,1  | 22,6    | 2,1  | 17,4    | 1,6  | <b>ZA-Series</b>               | <b>97, 116</b>   |
| Gasoline Engine   | 295  | 41   | 132     | 18,4 | 94,4    | 13,1 | 57,7    | 8,0  | 45,5    | 6,3  | 26,9    | 3,7  | 18,7    | 2,6  | 14,4    | 2,0  | <b>ZG5-Series 4,1 kW</b>       | <b>97, 118</b>   |
|   | 166  | 41   | 74,7    | 18,4 | 53,4    | 13,1 | 32,6    | 8,0  | 25,7    | 6,3  | 15,2    | 3,7  | 10,6    | 2,6  | 8,1     | 2,0  | <b>ZG5-Series 4,8 kW</b>       | <b>97, 118</b>   |
|   | 376  | 85   | 169     | 37,9 | 121     | 27,1 | 73,8    | 16,6 | 58,2    | 13,1 | 34,4    | 7,7  | 23,9    | 5,4  | 18,4    | 4,1  | <b>ZG6-Series 9,7 kW</b>       | <b>97, 118</b>   |

**No Load** indicates the plunger speed as the plunger extends towards the load (1st stage).

**Load** indicates the plunger speed as the load is lifted at a system pressure of 700 bar (2nd stage).

**Example:** At what speed (V) will the RC256 (25 ton) cylinder move when powered by a ZE3-Series pump?

RC256 Cylinder Effective Area = 33,2 cm<sup>2</sup>

ZE3-Series pump oil Flow (no load) = 6150 cm<sup>3</sup>/min

$$\text{Cylinder Plunger Speed (mm/sec)} = \frac{\text{Pump Oil Flow (cm}^3\text{/min)} \times 10}{\text{Cylinder Effective Area (cm}^2\text{)} \times 60}$$

$$\text{Speed V} = \frac{6150 \text{ cm}^3\text{/min} \times 10}{33,2 \times 60} = 30,9 \text{ mm/sec}$$



### Ways

The (oil) ports on a valve.

A 3-way valve has 3 ports: pressure (P), tank (T), and cylinder (A).

A 4-way valve has 4 ports: pressure (P), tank (T), advance (A) and retract (B).

**Single-Acting** cylinders require at least a 3-way valve, and can, under certain instances, be operated with a 4-way valve.

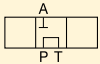
**Double-Acting** cylinders require a 4-way valve, providing control of the flow to each cylinder port.

### Positions

The number of control points a valve can provide. A 2-position valve has the ability to control only the advance or retraction of the cylinder. To be able to control the cylinder with a hold position, the valve requires a 3rd position.

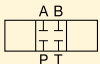
### Centre Configuration

The centre position of a valve is the position at which there is no movement required of the hydraulic component, whether a tool or cylinder.



The most common is the **Tandem**

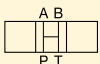
**Centre**. This configuration provides for little to no movement of the cylinder and the unloading of the pump. This provides for minimum heat build-up.



The next most common is the **Closed**

**Centre** configuration, which is used mostly for independent control of multi-cylinder applications. This configuration again provides for little to no movement of the cylinder, but also dead-heads the pump, isolating it from the circuit. Use of this type of valve may require some means of unloading the pump to prevent heat build-up.

There are many more type of valves, such as **Open Centre** and **Float Centre**. These valves are used mostly in complex hydraulic circuits and require other special considerations.



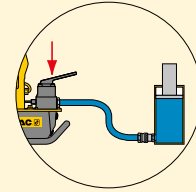
**Open Centre**



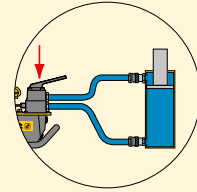
**Float Centre**

### Directional Control Valves

**3-Way Valves** are used with single-acting cylinders.

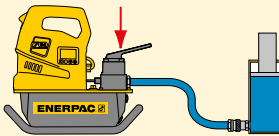


**4-Way Valves** are used with double-acting cylinders.

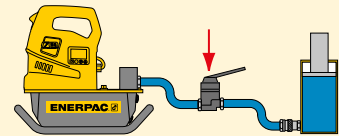


Valves may be either pump mounted or remote mounted.

### Pump Mounted

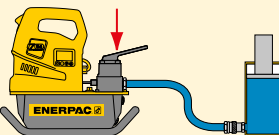


### Remote Mounted

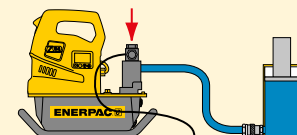


Valves may be either manually or solenoid operated.

### Manually Operated

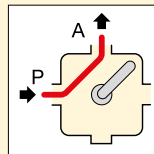


### Solenoid Operated



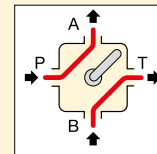
### Advance Hold Retract

**Single-acting cylinder** Controlled by a 3-way, 3-position valve.

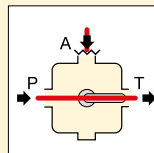


cylinder plunger will extend.

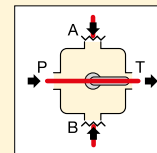
**Double-acting cylinder** Controlled by a 4-way, 3-position valve.



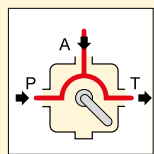
cylinder port B to tank T.



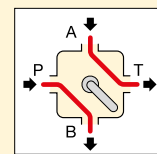
The oil flows from the pump pressure port P to the tank T. The cylinder port A is closed: the cylinder plunger will maintain its position.



The oil flows from the pump pressure port P to the tank T. The cylinder ports A and B are closed: the cylinder plunger will maintain position.



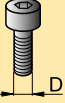
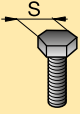

The oil flows from the pump and cylinder port A to the tank T: the cylinder plunger will retract.

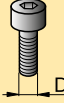
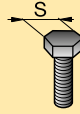
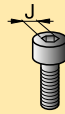


The oil flows from the pump pressure port P to cylinder port B and from cylinder port A to tank T: the cylinder plunger will retract.

# Hexagon Nut and Bolt Sizes



| METRIC SIZES  |   |   |
|---|---|---|
|  |  |  |
| Thread Size D (mm)  | Hexagon Size S (mm)   | Hexagon Size J (mm)   |
| M 10  | 17  | 8   |
| M 12  | 19  | 10  |
| M 14  | 22  | 12  |
| M 16  | 24  | 14  |
| M 18  | 27  | 14  |
| M 20  | 30  | 17  |
| M 22  | 32  | 17  |
| M 24  | 36  | 19  |
| M 27  | 41  | 19  |
| M 30  | 46  | 22  |
| M 33  | 50  | 24  |
| M 36  | 55  | 27  |
| M 39  | 60  | 27 (30)   |
| M 42  | 65  | 32  |
| M 45  | 70  | -   |
| M 48  | 75  | 36  |
| M 52  | 80  | 36  |
| M 56  | 85  | 41  |
| M 60  | 90  | 46  |
| M 64  | 95  | 46  |
| M 68  | 100   | 50  |
| M 72  | 105   | 55  |
| M 76  | 110   | 60  |
| M 80  | 115   | 65  |
| M 85  | 120   | 70  |
| M 90  | 130   | 70 (75)   |
| M 95  | 135   | -   |
| M 100   | 145   | 85  |
| M 105   | 150   | -   |
| M 110   | 155   | -   |
| M 115   | 165   | -   |
| M 120   | 170   | -   |
| M 125   | 180   | -   |
| M 130   | 185   | -   |
| M 140   | 200   | -   |
| M 150   | 210   | -   |

| IMPERIAL SIZES  |   |   |
|---|---|---|
|  |  |  |
| Thread Size D (inch)  | Hexagon Size * S (inch)   | Hexagon Size J (inch)   |
| 5/8"  | 1 1/16"   | 1/2"  |
| 3/4"  | 1 1/4"  | 5/8"  |
| 7/8"  | 1 7/16"   | 3/4"  |
| 1"  | 1 5/8"  | 3/4"  |
| 1 1/8"  | 1 13/16"  | 7/8"  |
| 1 1/4"  | 2"  | 7/8"  |
| 1 3/8"  | 2 3/16"   | 1"  |
| 1 1/2"  | 2 3/8"  | 1"  |
| 1 5/8"  | 2 9/16"   | -   |
| 1 3/4"  | 2 3/4"  | 1 1/4"  |
| 1 7/8"  | 2 15/16"  | 1 3/8"  |
| 2"  | 3 1/8"  | 1 5/8"  |
| 2 1/4"  | 3 1/2"  | 1 3/4"  |
| 2 1/2"  | 3 7/8"  | 1 7/8"  |
| 2 3/4"  | 4 1/4"  | 2"  |
| 3"  | 4 5/8"  | 2 1/4"  |
| 3 1/4"  | 5"  | 2 1/4"  |

\* Heavy hexagon nuts.



Determine the maximum torque according to the bolt (nut) size and grade. Always consult the manufacturers instructions or engineering recommendations when making bolted connections.



### IMPORTANT

The hexagon sizes shown in the tables should be used as a guide only. Individual sizes should be checked before specifying any equipment.



### BSH-Series Heavy Duty Sockets

Use only Heavy Duty Impact Sockets for power driven torquing equipment, according to ISO2725 and ISO1174; DIN3129 and

DIN3121 or ASME-B107.2/1995.





## Tightening Methods

Principally there are two modes of tightening: "Uncontrolled" and "Controlled".

### Uncontrolled tightening

Uses equipment and/or procedures that cannot be measured. Preload is applied to a bolt and nut assembly using a hammer and spanner or other types of impact tools.

### Controlled tightening

Employs calibrated and measurable equipment, follows prescribed procedures and is carried out by trained personnel.

## Advantages of Controlled Tightening

### Known, controllable and accurate bolt loads

Employs tooling with controllable outputs and adopts calculation to determine the required tool settings.

### Uniformity of bolt loading

Especially important on gasketed joints as an even and consistent compression is required for the gasket to be effective.

### Safe operation following prescribed procedures

Eliminates the dangerous activities of manual uncontrolled tightening and requires that the operators be skilled and follow procedures.

### Reduces operational time resulting in increased productivity

Reduces tightening time and operator fatigue by replacing manual effort with the use of controlled tooling.

### Reliable and repeatable results

Using calibrated, tested equipment, following procedures and employing skilled operators achieves known results consistently.

### The right results first time

Many of the uncertainties surrounding in-service joint failures are removed by ensuring the correct assembly and tightening of the joint the first time.



### Bolting Tools

For further information on Torque Tightening or other controlled tightening methods, please visit our website or ask for our **Bolting Tools Catalogue**.

### Bolting Integrity Software

A comprehensive free on-line software solution for Bolted Joint Integrity.

Integral databases hold data for:

- ASME B16.5, ASME B16.47, API 6A and API 17D flanged joints
- Common gasket materials and configurations
- Comprehensive range of bolt materials
- Comprehensive range of lubricants
- Enerpac's Controlled Bolting Equipment including: Torque Multipliers, Hydraulic Wrenches and Bolt Tensioning tools.

Custom Joint information can also be entered.

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as a combined Application data sheet and Joint completion report.

## What is Torque?

It is a measure of how much force acting on an object causes that object to rotate.

## What is Torque Tightening?

The application of preload to a fastener by the turning of the fastener's nut.

## Torque Tightening and Preload

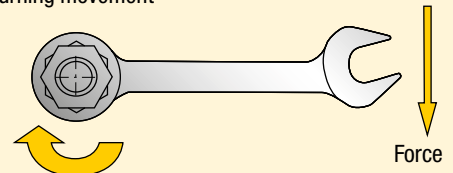
The amount of preload created when torqueing is largely dependant on the effects of friction.

Principally there are three different "torque components":

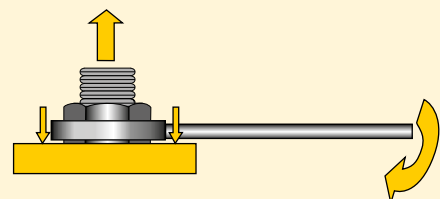
- torque to stretch the bolt
- torque to overcome the friction in bolt and nut threads
- torque to overcome friction at the nut spot face (bearing contact surface).

## Torque Tightening

Turning movement



Stretch of Fastener (Pre-load)





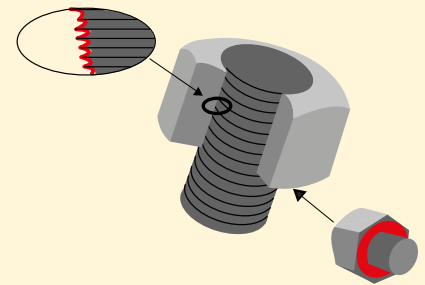
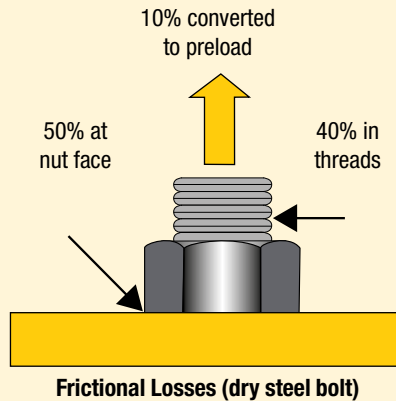
**Preload (residual load) = Applied Torque *minus* Frictional Losses**

## Lubrication Reduces Friction

Lubrication reduces the friction during tightening, decreases bolt failure during installation and increases bolt service life. Variation in friction coefficients affect the amount of preload achieved at a specified torque. Higher friction results in less conversion of torque to preload. The value for the friction coefficient provided by the lubricant manufacturer must be known to accurately establish the required torque value.

Lubricant or anti-seize compounds should be applied to both, the nut bearing surface and the male threads.

## Frictional Losses



*Friction points should always be lubricated when using the torque tightening method.*



## Select the Right Torque Wrench

Choose your Enerpac torque wrench using the untightening rule of thumb:

- When loosening a nut or bolt, more torque is usually required than when tightening.
- For general conditions it can take up to **2½ times** the input torque to breakout.
- Do not apply more than 75% of the maximum torque output of the tool when loosening nuts or bolts.

## Conditions of bolted joints

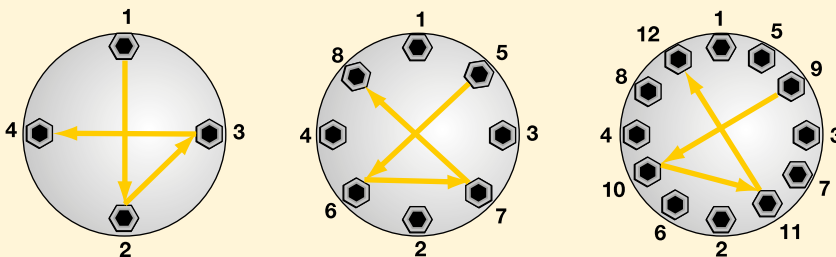
- Humidity corrosion (rust) requires up to **twice** the torque required for tightening.
- Sea water and chemical corrosion requires up to **2½ times** the torque required for tightening.
- Heat corrosion requires up to **3 times** the torque required for tightening.

## Torque Procedure

When torquing it is common to tighten only one bolt at a time, which can result in Point Loading and Load Scatter.

To avoid this, torque is applied in stages following a prescribed pattern:

## Torque Sequence



- Step 1** Spanner tight ensuring that 2 - 3 threads extend above nut.
- Step 2** Tighten each bolt to one-third of the final required torque following the pattern as shown above.
- Step 3** Increase the torque to two-thirds following the pattern shown above.

- Step 4** Increase the torque to full torque following the pattern shown above.
- Step 5** Perform one final pass on each bolt working clockwise from bolt 1, at the full final torque.



## Breakout Torque

When loosening bolts a torque value higher than the tightening torque is normally required. This is mainly due to corrosion and deformations in the bolt and nut threads.

Breakout torque cannot be accurately calculated, however, depending on conditions it can take up to **2½ times** the input torque to breakout.

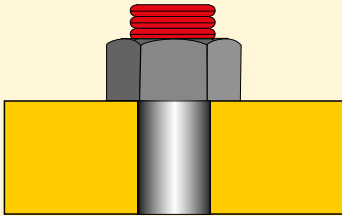
The use of penetrating oils or anti-seize products is always recommended when performing breakout operations.



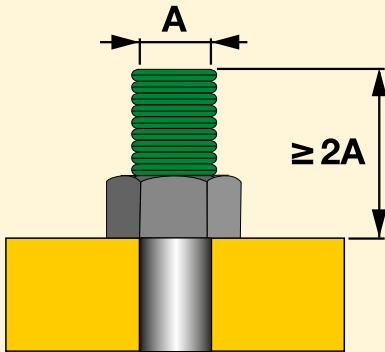
## Tensioning requires longer bolts



**INCORRECT**



**CORRECT**



## What is Bolt Tensioning?

Tensioning is the direct axial stretching of the bolt to achieve preload. Inaccuracies created through friction are eliminated. Massive mechanical effort to create torque is replaced with simple hydraulic pressure. A uniform load can be applied by tensioning multiple studs simultaneously.

Tensioning requires longer bolts, and a seating area on the assembly around the nut. Tensioning can be done using detachable Bolt Tensioners or Hydraulic Nuts.



**Preload (residual load) = Applied Load minus Load Losses**

## What is Load Loss?

Load loss is a loss of bolt elongation depending on factors such as thread deflections, radial expansion of the nut, and embedding of the nut into the contact area of the joint. Load loss is accounted for in calculation and is added to the preload value to determine the initial **Applied Load**.

**The preload depends on Applied Load and Load Loss (load loss factor).**



## GLOSSARY OF TERMS

### Applied Load:

The load applied to a bolt during tensioning which includes an allowance for Load Loss.

### Bolt Tensioning:

A method of controlled tightening which applies preload to a bolt by stretching it axially.

### Breakout Torque:

The amount of torque required to loosen a tightened bolt. (Usually more torque is required to loosen a bolt than was used to tighten it.)

### Elastic Range:

The range on a bolt's stress / strain curve where stress is directionally proportional to strain.

### Plastic Range:

The range on a stress / strain curve where the tensile load applied to a bolt results in permanent deformation.

### Load Loss:

The losses in a bolt which occur on transfer of load from a tensioning device to the bolt assembly (these may arise from phenomena such as thread deflection and embedding of the nut to the contact area of the joint, and is calculated as a factor of the length to diameter ratio of the bolt).

### Load Scatter:

The spread of differing loads in a sequence of bolts after they have been loaded. It is mostly due to the elastic interaction of the bolts and the joint member; as subsequently tightened bolts further compress the joint, previously tightened bolts are subject to some relaxation.

### Preload:

The load in a bolt immediately after it has been tightened.

### Proof Load:

Proof load is often used interchangeably with Yield Strength but is usually measured at 0,2% plastic strain.

### Tensile Point:

The point at which the tensile loading on a bolt causes the bolt to rupture.

### Torque Tightening:

The application of Preload to a bolt by turning of the bolt's nut.

### Ultimate Strength:

The maximum tension which can be created by tensile load on a bolt.

### Yield Strength:

The point at which a bolt begins to plastically deform under tensile loading.

NOTE: Bolt is used as a generic term for a threaded fastener.

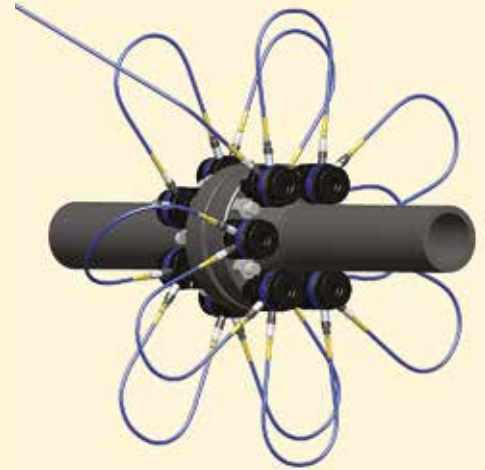


**80%** **Manufacturer's rating of pressure and load are maximum safe limits.** **80%**  
**Good practice encourages using only 80% of these ratings!**

## Tensioning Operation

Tensioning permits the simultaneous tightening of multiple bolts; the tools are connected in sequence via a high-pressure hose assembly to a single pump unit. This ensures each tool develops the exact same load and

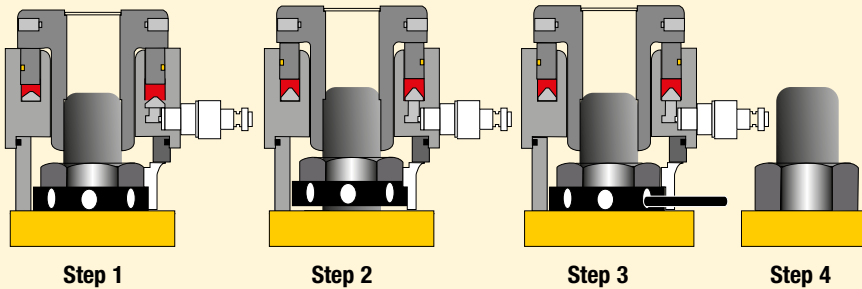
provides a uniform clamping force across the joint. This is especially important for pressure containing vessels requiring even gasket compression to affect a seal.



### Set-up using a 100% tensioning procedure

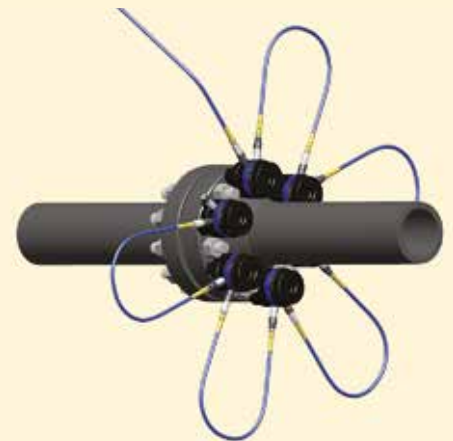
All bolts are tensioned simultaneously.

## General Procedure



- Step 1:** The bolt tensioner is fitted over the stud.
- Step 2:** Hydraulic pressure is applied to the tensioner which then stretches the stud (bolt).
- Step 3:** The stud's nut is wound down against the joint face

- Step 4:** Hydraulic pressure is released and the tensioner removed.  
 The bolt behaves like a spring, when the hydraulic pressure is released the bolt is under tension and attempts to contract, creating the required clamping force across the joint.



### Set-up using a 50% tensioning procedure

Half the bolts are tensioned simultaneously, the tools are relocated on the remaining bolts and they are subsequently tensioned.

## Less than 100% Tensioning

Not all applications allow for the simultaneous fit of a tensioning device on each bolt, in these cases at least two tensioning pressures are applied. This is to account for a load loss in those bolts already tensioned as the next sets are tightened.

The load losses are accounted for in calculation and a higher load is applied to allow the first sets to relax back to the target preload.



### Read Instruction Manuals

Please refer to the product Instruction Sheets for safe use guidelines and detail on the correct set up and operation of the equipment.





Enerpac Bolting Integrity Software Solutions play a key role in implementing and managing an Integrity Programme for bolted connections. The software is used extensively within Enerpac and increasingly by a wide range of clients worldwide often interfacing with maintenance, construction and commissioning management systems.

- First developed over 20 years ago, we have continued to update and enhance the software based on user feedback, technology advances and our roles on Industry standard committees, to produce the most comprehensive suite of joint integrity software available.
- Recommended bolt loads for standard joints are derived from independently verified calculation methods and traceable back to standards

### Integral databases hold data for:

- ASME B16.5, ASME B16.47, API 6A and API 17D flanged joints
- Common gasket materials and configurations
- Comprehensive flange and bolt materials
- Comprehensive range of lubricants
- Enerpac controlled bolting equipment includes torque, multipliers, hydraulic wrenches and bolt tensioners.
- Custom joint information can also be entered.



▲ Standard flange calculation menu (INFORMATE)

### The Enerpac Bolting Software Suite includes:

- **Bolt-Up** - Online bolt load calculator. Free access and use on [www.enerpac.com](http://www.enerpac.com).
- **INFORMATE** - Advanced calculation and procedure software. Contact Enerpac for user licenses and dedicated support.
- **IDMS Integrity Data Management System** - A complete Integrity Assurance project management package for managing bolted joints from cradle to grave. Contact Enerpac for user licenses and dedicated support.

### Bolt-Up

Bolt-Up is a simple to use online calculator, built upon the Informate calculation engine, providing reliable, repeatable bolt loads for:

- Carbon steel weldneck ANSI 16.5 standard flanges, using a limited range of bolt materials; selected gasket options and a fixed lubrication value.
- Inputting basic joint configuration information allows Bolt-Up to determine: bolt load; bolt stress and the required torque. These outputs are displayed alongside basic flange and bolt information e.g. joint thickness and bolt size/quantity.



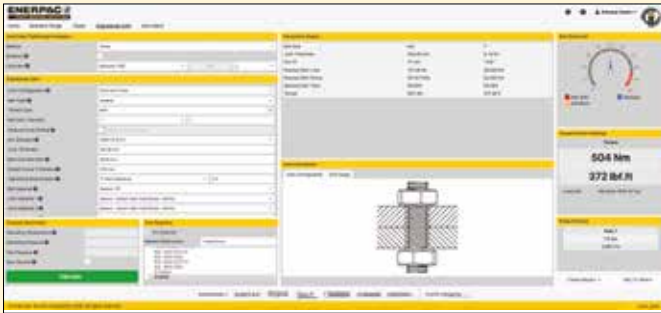
### Bolting Integrity Software

The software offers Tool selection, Bolt Load calculations and Tool pressure settings, as well as, a combined Application data sheet and Joint completion report.

This software includes following hydraulic tools selections:

- S, W, RSL, DSX and HMT-Series Torque Wrenches,
- HM-Series HydraMax®, GT-Series Bolt Tensioners and EAJ-Series AquaJack Subsea Tensioners.

| Software Model Nr. | INFORMATE Subscriptions                  |
|--------------------|--|
| BS01PP             | Bolting Software 1 person purchase       |
| BS01PAS            | Bolting Software 1 person annual support |
| BS05PP             | Bolting Software 5 person purchase       |
| BS05PAS            | Bolting Software 5 person annual support |



▲ Enginered Joint menu (INFORMATE)

## INFORMATE Bolt Load Calculation Software

INFORMATE can be used on a huge range of flanged joints and clamped connections in virtually any situation from process piping to custom-designed flange connections.

- Calculate bolt loads and stresses, determine tooling pressures for Enerpac torque and tensioning equipment; analyse existing connections and test custom designed connections.
- Extensive material database covering all common standards:
  - Common and industry specific lubricants
  - 200+ bolting materials
  - 500+ flange materials
  - 60+ gasket materials
- Enginered Joint Calculation Features - allows for different types of bolted application for non-circular or structural applications.
- Installed direct to the desktop or accessed via the internet, Informate is available in a single version that is configurable to client requirements and includes multiple international standards and the latest and forthcoming regulatory data, when taken with a maintenance package.



▲ Clamp menu (INFORMATE)

## Integrity Data Management System (iDMS)

iDMS is a flexible data management and activity planning system specifically for use on assets featuring bolted connections.

Designed to store the entire lifecycle data relating to every critical bolted joint on an installation, it aids planning, ensures joint integrity, as well as reducing construction and maintenance schedules and costs.

- Provides managers and technicians with essential information about joint components used in assembly, in addition it specifies the tools and the torque or tension values to deliver a leak-free joint.
- Allows planner and maintenance engineers to rapidly build packages of work complete with all documentation and then track them to completion
- Whenever a joint is worked on, all of the previous history and experience of that joint is available, allowing any particular requirements of the joint to be taken into account proactively prior to joint assembly and tightening.

iDMS Custom Tailored Solutions available to meet client needs, for example:

- Embedded Informate bolted joint calculator
- Export and import of data to asset management systems
- Exporting data to populate customer documentation
- Colour coding of the joint provides an instant review of the status.

## Contact Enerpac for User License



The Enerpac Academy is our in-house training program, offering Enerpac product operators and maintenance staff the opportunity to be trained in the safe use and maintenance of high-pressure hydraulic tools.

Operating these tools requires sound knowledge of how they work and how they should be maintained. Correct use of these tools increases safety and reduces risk – both for the operator and the environment in which the tools are used. Having the right training enables the operator to use the tools safely and properly.

- Safety focus for operators, tools and environment
- Dedicated in-house Enerpac training centers
- Both standard training courses and specialized training services
- Highly experienced training staff
- Develops alternative training options such as:
  - eLearning modules
  - vLearning sessions
  - Instructional videos

## In-house Training Centres



Do you work with high-pressure hydraulic tools on a regular basis or even every day? The training courses are designed to be highly interactive with a strong hands-on element. Each training course is led by a qualified trainer, an Enerpac specialist capable of providing high quality training. A written or practical exam is part of certain training courses.

## Training Centre Locations



Enerpac Academy offers a meticulously compiled training program covering tool knowledge, repairs and maintenance, and safe operation of Enerpac hydraulic tools. If you would like to schedule a training course, please contact Enerpac for a training calendar, application form, and brochure at [www.enerpac.com](http://www.enerpac.com).

- Ede (The Netherlands)
- Bangalore (India)
- Columbus, Wisconsin (USA)
- Perth (Australia)
- Singapore

## In-Person Training



- Highly experienced training staff
- Class sizes range from 8 to 20, depending on class and location
- Commercial Sales, Service and Repair Class capabilities
- Most classes consist of theoretical and hands-on training.

# The Power of Knowledge & Enerpac Maintenance Program

## eLearning Modules



- Enerpac Training available on “your” schedule
- Courses available to support New Product Launches, Product Awareness Training and Enerpac Academy Courses
- Available to external viewers through Enerpac’s “LDMS” system.

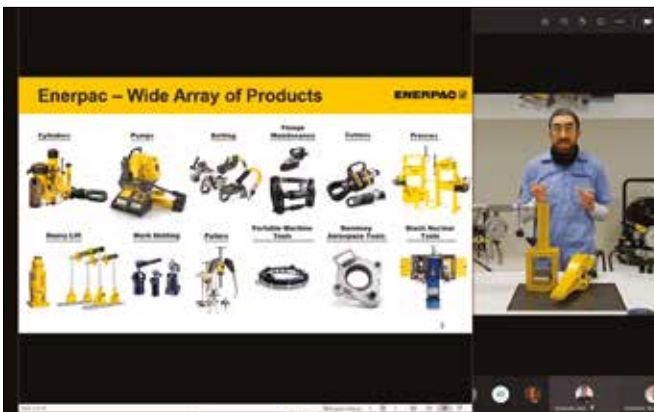


### EMP – Enerpac Maintenance Program

EMP is a preventive maintenance program. Your Enerpac Authorized Service Centre will check the tools on essential points: leaking, oil level and quality, maximum pressure setting, and damage. EMP reduces operational risks, increases safety and minimises extremely expensive delays in your operations. You will be advised about regular maintenance of the Enerpac tools.

- Work more safely
- Minimise operational risk
- Ensure tools are always available and in tip-top shape
- As good as new after repair
- Prevent downtime
- Advice on safe and effective use
- Maintenance when tools are not used.

## vLearning Sessions



- Interactive training available on-line
- Sessions contain Technical Presentations, Hands-on product demos and end with a Q&A session
- Classes cover many topics, such as Product Operational information and Service & Repair Training
- Look for scheduling and registration details on [www.enerpac.com](http://www.enerpac.com)

## Instructional Videos



- Informational videos created with Enerpac Academy Training processes in-mind
- Topics range from product “how-to” videos to application and operational videos
- Videos are available on the Enerpac “You-Tube” channel and other venues, where appropriate.



[www.enerpac.com/en-gb/contact/e/locations](http://www.enerpac.com/en-gb/contact/e/locations)

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