

# Hi-Force®

HYDRAULIC TOOLS



PRODUCT  
CATALOG





## OUR MISSION STATEMENT

To support our valued customers through the design, manufacture and supply of first class products and services of exceptional quality, to assist them to gain competitive advantage in their markets.

To sustain our vision and mission by constantly seeking improvement via continuous education and learning, and the application of the best available technology and business practices.

To provide a pleasant, nurturing and growth orientated environment, which encourages our employees to be highly productive and to grow both personally and professionally.

To develop diversified markets, that provide stability, and adequate financial returns and allow us to achieve our vision and provide opportunities for existing and future employees.

**[www.hi-force.com](http://www.hi-force.com)**

# TABLE OF CONTENTS

|                                      |                                                                                                                       |            |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------|------------|
| <b>CYLINDER &amp; SETS</b>           | Low height, multi-purpose, hollow piston, double acting and high tonnage cylinders, sets and saddles                  | <b>5</b>   |
| <b>PUMPS</b>                         | Manual, electric, air, gasoline engine driven, split flow electric pumps, synchronous lifting systems and accessories | <b>27</b>  |
| <b>SYSTEM COMPONENTS</b>             | Hoses, oil, pressure gauges, manifolds, couplers, fittings and control valves                                         | <b>55</b>  |
| <b>JACKS</b>                         | Multi-purpose, compact and machine lift low height jacks                                                              | <b>67</b>  |
| <b>TOUGHLIFT</b>                     | ToughLift jacking systems and accessories                                                                             | <b>73</b>  |
| <b>TORQUE TOOLS</b>                  | Manual, pneumatic and hydraulic torque wrenches, multipliers, pumps and accessories                                   | <b>79</b>  |
| <b>BOLT TENSIONERS</b>               | Hydraulic tensioners and tensioner nuts, manual and air driven pumps and accessories                                  | <b>101</b> |
| <b>NUT SPLITTERS &amp; SPREADERS</b> | Hydraulic and self-contained nut splitters, hydraulic and mechanical flange spreaders and kits                        | <b>117</b> |
| <b>HYDROTEST PUMPS</b>               | Manually operated and air driven hydrotest pumps and accessories                                                      | <b>127</b> |
| <b>PULLER KITS</b>                   | Self-contained and heavy duty hydraulic pullers, pin and bush replacement tool kits                                   | <b>137</b> |
| <b>CRIMPERS &amp; CUTTERS</b>        | Hydraulic crimping tools, cable cutters, chain cutters and wire rope cutters                                          | <b>145</b> |
| <b>SKATES</b>                        | Multi-purpose and heavy duty skates and skate kits                                                                    | <b>157</b> |
| <b>PRESSES</b>                       | Heavy duty workshop presses with wide choice of hydraulic systems and load capacities                                 | <b>165</b> |
| <b>SPECIALITY TOOLS</b>              | Hole punchers, pipe benders and tool storage boxes                                                                    | <b>169</b> |



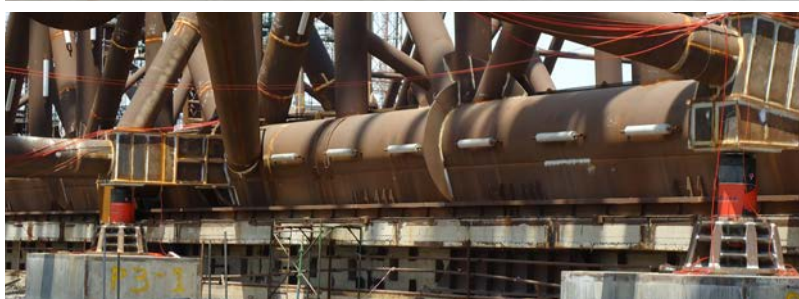
## HI-FORCE HYDRAULIC CYLINDERS

The extensive range of Hi-Force hydraulic cylinders includes a wide choice of options related to capacity, stroke length, single or double acting operation, steel or aluminum construction, hollow piston center hole and mechanical failsafe lock ring designs. All models are 10000 psi maximum working pressure and standard capacities range from 5 tons to 1115 tons. Hi-Force also offers custom designed and manufactured cylinders, meeting specific and unique customer requirements.

There is a Hi-Force hydraulic cylinder to suit every application and the high quality design and construction of all models, using the best available materials, ensures that Hi-Force hydraulic cylinders can cope with the most demanding applications in the harshest working conditions. Suitable manual and powered pumps for use with Hi-Force cylinders can be found on pages 26 to 53.







# HYDRAULIC CYLINDERS

|                                                                                                   |           |
|---------------------------------------------------------------------------------------------------|-----------|
| <b>SELECTION TABLE</b>                                                                            | <b>6</b>  |
| <b>HVL RANGE</b><br>Single acting very low height pancake cylinders                               | <b>7</b>  |
| <b>HPS RANGE</b><br>Single acting low height pad cylinders                                        | <b>8</b>  |
| <b>HLS RANGE</b><br>Single acting low height cylinders                                            | <b>9</b>  |
| <b>HSS RANGE</b><br>Single acting multi-purpose cylinders                                         | <b>10</b> |
| <b>HHS RANGE</b><br>Single acting hollow piston cylinders                                         | <b>11</b> |
| <b>HHR RANGE</b><br>Double acting hollow piston cylinders                                         | <b>12</b> |
| <b>HDA RANGE</b><br>Double acting high tonnage cylinders                                          | <b>13</b> |
| <b>HFL RANGE</b><br>Single acting low height failsafe lock ring cylinders                         | <b>14</b> |
| <b>HFG RANGE</b><br>Single acting failsafe lock ring cylinders                                    | <b>15</b> |
| <b>HAS RANGE</b><br>Single acting solid piston aluminum cylinders                                 | <b>16</b> |
| <b>HHA RANGE</b><br>Single acting hollow piston aluminum cylinders                                | <b>17</b> |
| <b>HFA RANGE</b><br>Single acting failsafe lock ring aluminum cylinders                           | <b>18</b> |
| <b>HRA RANGE</b><br>Double acting high tonnage aluminum cylinders                                 | <b>19</b> |
| <b>HGG RANGE</b><br>Single acting load return high tonnage industrial cylinders                   | <b>20</b> |
| <b>HSG RANGE</b><br>Single acting load return high tonnage construction cylinders                 | <b>21</b> |
| <b>HPC RANGE</b><br>Single acting pull cylinders                                                  | <b>22</b> |
| <b>PUMP AND CYLINDER SETS</b><br>Pump and cylinder sets                                           | <b>23</b> |
| <b>CYLINDER SADDLES &amp; PISTON ROD</b><br>Cylinder saddles and piston rod thread specifications | <b>24</b> |
| <b>CYLINDER SADDLES &amp; PISTON ROD</b><br>Saddles and piston rod drawings                       | <b>25</b> |

**SELECTION TABLE FOR HI-FORCE STANDARD RANGE CYLINDERS**

| Cylinder stroke (in) | Maximum lifting capacity of cylinders (tons) |                  |         |                                      |                  |                                                          |                  |                                                     |                    |                                          |                               |                                          |                      |
|----------------------|----------------------------------------------|------------------|---------|--------------------------------------|------------------|----------------------------------------------------------|------------------|-----------------------------------------------------|--------------------|------------------------------------------|-------------------------------|------------------------------------------|----------------------|
|                      | 5                                            | 11-12            | 16-22   | 25-35                                | 36-41            | 55-57                                                    | 67-80            | 112-121                                             | 162-167            | 220-287                                  | 353-439                       | 573-892                                  | 1115                 |
| 0.24                 | HPS50                                        | HVL10            | HVL20   | HVL30                                |                  | HVL50                                                    |                  | HVL100                                              |                    |                                          |                               |                                          |                      |
| 0.39                 |                                              | HPS100           |         |                                      |                  |                                                          |                  |                                                     |                    |                                          |                               |                                          |                      |
| 0.43                 |                                              |                  | HPS200  |                                      |                  |                                                          |                  |                                                     |                    |                                          |                               |                                          |                      |
| 0.47                 |                                              |                  |         | HPS300                               |                  |                                                          |                  |                                                     |                    |                                          |                               |                                          |                      |
| 0.59                 |                                              |                  |         |                                      |                  | HPS500                                                   |                  |                                                     |                    |                                          |                               |                                          |                      |
| 0.63                 | HPS51                                        |                  |         |                                      |                  |                                                          | HPS750           | HPS1000                                             | HPS1500            |                                          |                               |                                          |                      |
| 0.99                 | HSS51                                        | HSS101<br>HHS101 |         | HLS301                               |                  | HLS501                                                   |                  | HLS1001                                             | HLS1501            |                                          |                               |                                          |                      |
| 1.58                 |                                              | HLS101           |         |                                      |                  |                                                          |                  |                                                     |                    |                                          |                               |                                          |                      |
| 1.73                 |                                              |                  | HLS201  |                                      |                  |                                                          |                  |                                                     |                    |                                          |                               |                                          |                      |
| 1.77                 |                                              |                  |         |                                      |                  |                                                          |                  |                                                     | HFL1502            | HFL2002<br>HFL2502                       | HFL4002                       | HFL5002                                  |                      |
| 1.97                 | HSS52                                        | HHS102           | HSS152  | HHS202                               | HHS302           |                                                          |                  | HFL1002                                             | HLS1502            | HFG2002                                  |                               |                                          |                      |
| 2.01                 |                                              |                  | HHA182  | HSS252<br>HAS302<br>HFA302<br>HRA302 | HHR302<br>HHA372 | HSS502<br>HFL502<br>HFG502<br>HAS502<br>HFA502<br>HRA502 |                  | HFG1002<br>HAS1002<br>HFA1002<br>HRA1002            | HFG1502            |                                          |                               |                                          |                      |
| 2.21                 |                                              | HSS102           |         |                                      |                  |                                                          |                  |                                                     |                    |                                          |                               |                                          |                      |
| 2.36                 |                                              |                  |         | HLS302                               |                  | HLS502                                                   |                  | HLS1002                                             |                    |                                          |                               |                                          |                      |
| 2.96                 | HSS53                                        |                  |         |                                      |                  |                                                          |                  |                                                     |                    |                                          |                               |                                          |                      |
| 2.99                 |                                              |                  |         |                                      |                  |                                                          | HHS603<br>HHR603 | HHS1003<br>HHR1003                                  |                    |                                          |                               |                                          |                      |
| 3.94                 | HSS54                                        | HSS104           | HSS154  |                                      |                  |                                                          |                  | HFG1004                                             | HFG1504            |                                          |                               |                                          |                      |
| 4.02                 |                                              |                  |         | HSS254                               |                  | HSS504<br>HFG504                                         |                  | HSS1004                                             |                    |                                          |                               |                                          |                      |
| 4.14                 |                                              |                  |         |                                      |                  | HHA504                                                   |                  |                                                     |                    |                                          |                               |                                          |                      |
| 4.93                 | HSS55                                        |                  |         |                                      |                  |                                                          |                  |                                                     |                    |                                          |                               |                                          |                      |
| 5.91                 |                                              | HSS106           | HSS156  | HHS206<br>HSS256                     | HHR306           | HFG506                                                   | HHS606           | HFG1006<br>HHS1006                                  | HFG1506            |                                          | HFG3006                       |                                          |                      |
| 5.95                 |                                              |                  |         |                                      |                  |                                                          |                  |                                                     |                    |                                          | HFG4006                       |                                          |                      |
| 5.99                 |                                              | HHS106           |         | HDA256<br>HAS306<br>HFA306<br>HRA306 | HHS306           | HSS506<br>HDA506<br>HAS506<br>HFA506<br>HRA506           | HSS756<br>HHR606 | HDA1006<br>HHR1006<br>HAS1006<br>HFA1006<br>HRA1006 | HDA1506<br>HSG1506 | HDA2006<br>HFG2006<br>HSG2006<br>HFG2506 | HDA3006<br>HDA4006<br>HSG3006 | HDA5006<br>HFG5006<br>HDA8006<br>HFG8006 | HDA10006<br>HFG10006 |
| 6.03                 |                                              |                  |         |                                      |                  |                                                          |                  | HSS1006                                             |                    |                                          |                               |                                          |                      |
| 6.11                 |                                              |                  |         |                                      |                  |                                                          |                  |                                                     | HGG1506            | HGG2006                                  | HGG3006                       |                                          |                      |
| 6.93                 | HSS57                                        |                  |         |                                      |                  |                                                          |                  |                                                     |                    |                                          |                               |                                          |                      |
| 8                    |                                              |                  |         | HSS258                               |                  | HSS508                                                   |                  |                                                     | HHR1508            | HHR2508                                  |                               |                                          |                      |
| 8.08                 |                                              |                  |         | HSS308                               |                  |                                                          |                  |                                                     |                    |                                          |                               |                                          |                      |
| 8.12                 |                                              | HSS108           |         |                                      |                  |                                                          |                  |                                                     |                    |                                          |                               |                                          |                      |
| 8.94                 | HSS59                                        |                  |         |                                      |                  |                                                          |                  |                                                     |                    |                                          |                               |                                          |                      |
| 9.85                 |                                              | HSS1010          | HSS1510 | HSS2510                              |                  |                                                          |                  |                                                     |                    |                                          |                               |                                          |                      |
| 10.01                |                                              |                  |         |                                      |                  |                                                          | HHR6010          | HSS10010                                            |                    |                                          |                               |                                          |                      |
| 12.02                |                                              | HSS1012          |         | HAS3012<br>HFA3012<br>HRA3012        | HHR3012          | HAS5012<br>HFA5012<br>HRA5012                            |                  | HAS10012<br>HFA10012<br>HRA10012                    | HDA15012           | HDA20012                                 | HDA30012<br>HDA40012          | HDA50012                                 |                      |
| 13                   |                                              |                  |         |                                      |                  | HDA5013<br>HSS5013                                       |                  | HDA10013                                            |                    |                                          |                               |                                          |                      |
| 14.03                |                                              |                  |         | HSS2514                              |                  |                                                          |                  |                                                     |                    |                                          |                               |                                          |                      |
| 18.01                |                                              |                  |         | HSS2518                              |                  |                                                          |                  |                                                     |                    |                                          |                               |                                          |                      |
| 20.02                |                                              |                  |         |                                      |                  | HDA5020                                                  |                  |                                                     |                    |                                          |                               |                                          |                      |

| Cylinder range | Main characteristics of Hi-Force cylinder range |                    |                        |                             |                           |                        |
|----------------|-------------------------------------------------|--------------------|------------------------|-----------------------------|---------------------------|------------------------|
|                | Page                                            | Cylinder principle | Return action          | Piston feature              | Saddle                    | Stroke limiting device |
| HVL            | 7                                               | single acting      | load/gravity return    | solid piston                | integrated                | stop ring              |
| HPS            | 8                                               | single acting      | spring assisted return | solid piston                | integrated                | stop ring              |
| HLS            | 9                                               | single acting      | spring assisted return | solid piston                | integrated                | stop ring              |
| HSS            | 10                                              | single acting      | spring assisted return | solid piston                | several options available | stop ring              |
| HHS            | 11                                              | single acting      | spring assisted return | hollow piston               | several options available | stop ring              |
| HHR            | 12                                              | double acting      | hydraulic return       | hollow piston               | several options available | stop ring              |
| HDA            | 13                                              | double acting      | hydraulic return       | solid piston                | several options available | stop ring              |
| HFL            | 14                                              | single acting      | load/gravity return    | threaded piston & lock ring | tilting saddle            | restriction port       |
| HFG            | 15                                              | single acting      | load/gravity return    | threaded piston & lock ring | tilting saddle            | restriction port       |
| HAS            | 16                                              | single acting      | spring assisted return | solid piston                | flat saddle               | stop ring              |
| HHA            | 17                                              | single acting      | spring assisted return | hollow piston               | several options available | stop ring              |
| HFA            | 18                                              | single acting      | spring assisted return | threaded piston & lock ring | tilting saddle            | stop ring              |
| HRA            | 19                                              | double acting      | hydraulic return       | solid piston                | flat saddle               | stop ring              |
| HGG            | 20                                              | single acting      | load/gravity return    | solid piston                | tilting saddle            | stop ring              |
| HSG            | 21                                              | single acting      | load/gravity return    | solid piston                | tilting saddle            | restriction port       |



## HVL | SINGLE ACTING VERY LOW HEIGHT PANCAKE CYLINDERS

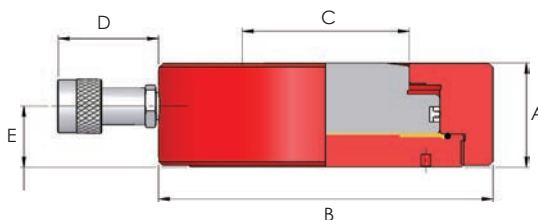


Capacities from 11 to 115 tons

Stroke length 0.24 inches

Working pressure 10000 psi

- ▶ Single acting, load return
- ▶ Compact, very low height design for access in narrow spaces
- ▶ Nitrocarburized piston rod for corrosion resistance
- ▶ Low friction bearing surfaces
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Customized and special design cylinders are available on request



**Note:** All models, excluding HVL100, are fitted with extension nipple for required coupling clearance (drawing is without coupling extension nipple).  
HVL10 also available with 16 inches extension hose and coupling. Please add suffix 'H' to model number.  
Base of all HVL cylinders must be fully supported during use.

| Model number | Capacity (tons) | Stroke (in) | Oil capacity (in <sup>3</sup> ) | Cylinder eff. area (in <sup>2</sup> ) | Weight (lbs) | Dimensions (in) |      |      |      |      |
|--------------|-----------------|-------------|---------------------------------|---------------------------------------|--------------|-----------------|------|------|------|------|
|              |                 |             |                                 |                                       |              | A               | B    | C    | D    | E    |
| HVL10        | 11              | 0.24        | 0.55                            | 2.23                                  | 3.5          | 1.1             | 3.43 | 1.5  | 4.37 | 0.63 |
| HVL20        | 22              | 0.24        | 1.04                            | 4.43                                  | 5.7          | 1.26            | 4.1  | 2.05 | 4.37 | 0.75 |
| HVL30        | 35              | 0.24        | 1.65                            | 7.07                                  | 6.6          | 1.34            | 4.73 | 2.36 | 4.37 | 0.77 |
| HVL50        | 55              | 0.24        | 2.62                            | 11.05                                 | 15.9         | 1.77            | 6.23 | 2.96 | 4.37 | 1.14 |
| HVL100       | 115             | 0.24        | 5.37                            | 22.71                                 | 34.4         | 2.56            | 7.88 | 3.94 | 2.99 | 1.46 |

**HPS | SINGLE ACTING LOW HEIGHT PAD CYLINDERS**

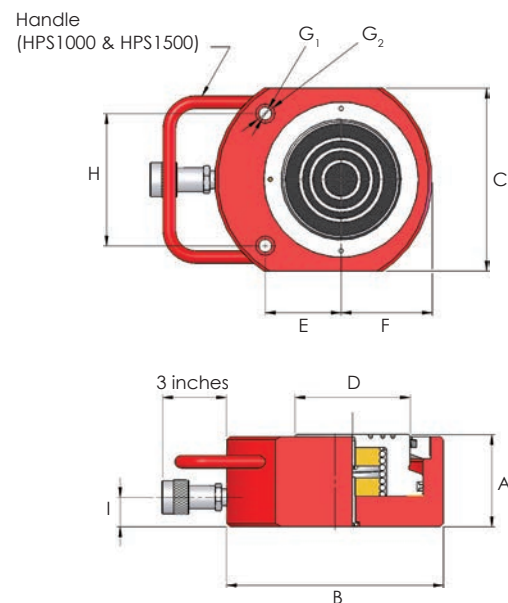


**Capacities from 5 to 162 tons**

**Stroke lengths from 0.24 to 0.63 inches**

**Working pressure 10000 psi**

- ▶ Single acting, spring assisted return
- ▶ Low closed height design for use in confined work areas
- ▶ Nitrocarburized piston rod for corrosion resistance
- ▶ Low friction bearing surfaces
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Customized and special design cylinders are available on request



| Model number | Capacity (tons) | Stroke (in) | Oil capacity (in <sup>3</sup> ) | Cylinder eff. area (in <sup>2</sup> ) | Weight (lbs) | Dimensions (in) |      |      |      |      |      |                |                |      |      |
|--------------|-----------------|-------------|---------------------------------|---------------------------------------|--------------|-----------------|------|------|------|------|------|----------------|----------------|------|------|
|              |                 |             |                                 |                                       |              | A               | B    | C    | D    | E    | F    | G <sub>1</sub> | G <sub>2</sub> | H    | I    |
| HPS50        | 5               | 0.24        | 0.24                            | 0.99                                  | 1.8          | 1.26            | 2.36 | 1.5  | 0.95 | 0.79 | 0.75 | 0.22           | 0.38           | 1.02 | 0.75 |
| HPS51        | 5               | 0.63        | 0.61                            | 0.99                                  | 2.0          | 1.65            | 2.36 | 1.5  | 0.95 | 0.79 | 0.75 | 0.22           | 0.38           | 1.02 | 0.75 |
| HPS100       | 11              | 0.39        | 0.85                            | 2.23                                  | 3.5          | 1.81            | 3.19 | 2.21 | 1.5  | 1.34 | 1.1  | 0.27           | 0.44           | 1.46 | 0.75 |
| HPS200       | 22              | 0.43        | 1.89                            | 4.43                                  | 5.7          | 2.05            | 3.94 | 2.99 | 2.01 | 1.58 | 1.54 | 0.35           | 0.56           | 1.97 | 0.75 |
| HPS300       | 35              | 0.47        | 3.36                            | 7.07                                  | 9.3          | 2.32            | 4.53 | 3.74 | 2.36 | 1.81 | 1.89 | 0.35           | 0.56           | 2.05 | 0.75 |
| HPS500       | 55              | 0.59        | 6.53                            | 11.05                                 | 14.6         | 2.64            | 5.52 | 4.49 | 2.76 | 2.13 | 2.36 | 0.43           | 0.68           | 2.64 | 0.79 |
| HPS750       | 80              | 0.63        | 10                              | 15.92                                 | 22.9         | 3.19            | 6.5  | 5.52 | 3.23 | 2.64 | 2.76 | 0.51           | 0.75           | 2.99 | 0.83 |
| HPS1000      | 120             | 0.63        | 14.95                           | 23.78                                 | 51.1         | 3.59            | 8.47 | 7.09 | 4.49 | 2.96 | 3.55 | 0.5            | 0.75           | 5.12 | 1.14 |
| HPS1500      | 162             | 0.63        | 20.13                           | 31.96                                 | 62.8         | 3.94            | 8.47 | 7.53 | 4.49 | 3.27 | 3.74 | 0.51           | 0.75           | 4.61 | 1.14 |



## HLS | SINGLE ACTING LOW HEIGHT CYLINDERS

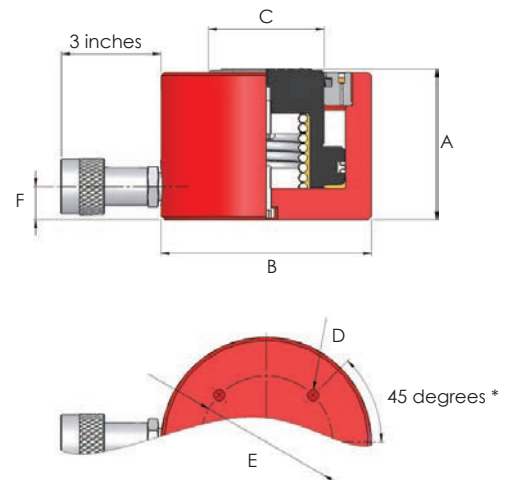


- ▶ Single acting, spring assisted return
- ▶ Compact design with optimum stroke lengths
- ▶ Nitrocarburized piston rod for corrosion resistance
- ▶ Low friction bearing surfaces
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Customized and special design cylinders are available on request

Capacities from 11 to 162 tons

Stroke lengths from 0.99 to 2.36 inches

Working pressure 10000 psi



\*HLS101 features 2 base mounting holes at 90° from coupler

| Model number | Capacity (tons) | Stroke (in) | Oil capacity (in <sup>3</sup> ) | Cylinder eff. area (in <sup>2</sup> ) | Weight (lbs) | Dimensions (in) <small>(unless otherwise stated)</small> |      |      |     |      |      |
|--------------|-----------------|-------------|---------------------------------|---------------------------------------|--------------|----------------------------------------------------------|------|------|-----|------|------|
|              |                 |             |                                 |                                       |              | A                                                        | B    | C    | D   | E    | F    |
| HLS101       | 11              | 1.58        | 3.54                            | 2.23                                  | 5.3          | 3.74                                                     | 2.76 | 1.5  | M8  | 1.58 | 0.75 |
| HLS201       | 22              | 1.73        | 7.69                            | 4.43                                  | 10.6         | 4.02                                                     | 3.55 | 2.01 | M8  | 2.36 | 0.75 |
| HLS301       | 35              | 0.99        | 6.95                            | 7.07                                  | 11.0         | 3.27                                                     | 4.02 | 2.36 | M8  | 3.15 | 0.75 |
| HLS302       | 35              | 2.36        | 16.71                           | 7.07                                  | 15.4         | 4.69                                                     | 4.02 | 2.36 | M8  | 3.15 | 0.75 |
| HLS501       | 55              | 0.99        | 10.86                           | 11.05                                 | 18.5         | 3.59                                                     | 5    | 2.76 | M8  | 3.15 | 0.79 |
| HLS502       | 55              | 2.36        | 26.11                           | 11.05                                 | 22.9         | 4.96                                                     | 5    | 2.76 | M8  | 3.15 | 0.79 |
| HLS1001      | 120             | 0.99        | 23.42                           | 23.78                                 | 43.7         | 4.26                                                     | 7.01 | 4.49 | M12 | 5.52 | 1.18 |
| HLS1002      | 120             | 2.36        | 56.18                           | 23.78                                 | 52.9         | 5.63                                                     | 7.01 | 4.49 | M12 | 5.52 | 1.18 |
| HLS1501      | 162             | 0.99        | 31.48                           | 31.96                                 | 81.6         | 5.12                                                     | 8.51 | 4.49 | M12 | 6.5  | 1.62 |
| HLS1502      | 162             | 1.97        | 62.89                           | 31.96                                 | 92.6         | 6.11                                                     | 8.51 | 4.49 | M12 | 6.5  | 1.62 |

## HSS | SINGLE ACTING MULTI-PURPOSE CYLINDERS



- ▶ Single acting, spring assisted return
- ▶ Nitrocarburized piston rod for corrosion resistance
- ▶ Low friction bearing surfaces
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Collar threads withstand full load
- ▶ Grooved saddles fitted as standard on all models
- ▶ Optional piston rod saddles listed on pages 24 and 25
- ▶ Customized and special design cylinders are available on request

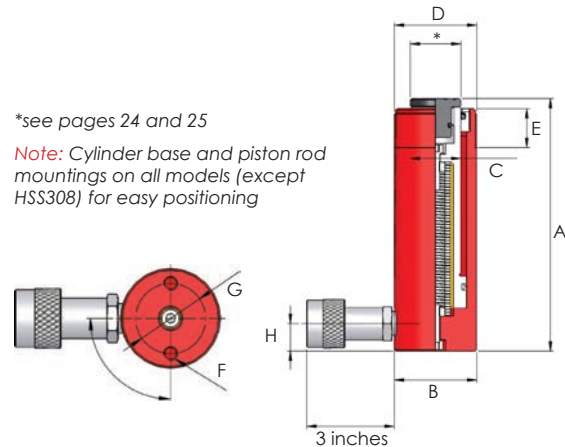
Capacities from 5 to 120 tons

Stroke lengths from 0.99 to 18.01 inches

Working pressure 10000 psi

\*see pages 24 and 25

**Note:** Cylinder base and piston rod mountings on all models (except HSS308) for easy positioning



| Model number | Capacity (tons) | Stroke (in) | Oil capacity (in³) | Cylinder eff. area (in²) | Weight (lbs) | Dimensions (in) (unless otherwise stated) |      |      |              |      |     |      |      |
|--------------|-----------------|-------------|--------------------|--------------------------|--------------|-------------------------------------------|------|------|--------------|------|-----|------|------|
|              |                 |             |                    |                          |              | A                                         | B    | C    | D            | E    | F   | G    | H    |
| HSS51        | 5               | 0.99        | 0.98               | 0.99                     | 2.2          | 4.22                                      | 1.5  | 0.95 | 1 1/2"-16 UN | 1.1  | M6  | 0.99 | 0.75 |
| HSS52        | 5               | 1.97        | 1.95               | 0.99                     | 2.6          | 5.2                                       | 1.5  | 0.95 | 1 1/2"-16 UN | 1.1  | M6  | 0.99 | 0.75 |
| HSS53        | 5               | 2.96        | 2.93               | 0.99                     | 3.1          | 6.19                                      | 1.5  | 0.95 | 1 1/2"-16 UN | 1.1  | M6  | 0.99 | 0.75 |
| HSS54        | 5               | 3.94        | 3.9                | 0.99                     | 3.3          | 7.17                                      | 1.5  | 0.95 | 1 1/2"-16 UN | 1.1  | M6  | 0.99 | 0.75 |
| HSS55        | 5               | 4.93        | 4.88               | 0.99                     | 4.0          | 8.16                                      | 1.5  | 0.95 | 1 1/2"-16 UN | 1.1  | M6  | 0.99 | 0.75 |
| HSS57        | 5               | 6.93        | 6.89               | 0.99                     | 4.4          | 10.17                                     | 1.5  | 0.95 | 1 1/2"-16 UN | 1.1  | M6  | 0.99 | 0.75 |
| HSS59        | 5               | 8.94        | 8.91               | 0.99                     | 5.3          | 12.14                                     | 1.5  | 0.95 | 1 1/2"-16 UN | 1.1  | M6  | 0.99 | 0.75 |
| HSS101       | 11              | 0.99        | 2.2                | 2.23                     | 4.0          | 3.94                                      | 2.25 | 1.38 | 2 1/4"-14 UN | 1.06 | M8  | 1.58 | 0.75 |
| HSS102       | 11              | 2.21        | 4.94               | 2.23                     | 5.3          | 5.16                                      | 2.25 | 1.38 | 2 1/4"-14 UN | 1.06 | M8  | 1.58 | 0.75 |
| HSS104       | 11              | 3.94        | 8.78               | 2.23                     | 6.6          | 6.9                                       | 2.25 | 1.38 | 2 1/4"-14 UN | 1.06 | M8  | 1.58 | 0.75 |
| HSS106       | 11              | 5.91        | 13.24              | 2.23                     | 9.3          | 8.87                                      | 2.25 | 1.38 | 2 1/4"-14 UN | 1.06 | M8  | 1.58 | 0.75 |
| HSS108       | 11              | 8.12        | 18.12              | 2.23                     | 11.0         | 11.07                                     | 2.25 | 1.38 | 2 1/4"-14 UN | 1.06 | M8  | 1.58 | 0.75 |
| HSS1010      | 11              | 9.85        | 22.02              | 2.23                     | 11.9         | 12.81                                     | 2.25 | 1.38 | 2 1/4"-14 UN | 1.06 | M8  | 1.58 | 0.75 |
| HSS1012      | 11              | 12.02       | 26.84              | 2.23                     | 13.7         | 14.93                                     | 2.25 | 1.38 | 2 1/4"-14 UN | 1.06 | M8  | 1.58 | 0.75 |
| HSS152       | 16              | 1.97        | 6.16               | 3.15                     | 7.5          | 6.07                                      | 2.76 | 1.62 | 2 3/4"-16 UN | 1.54 | M10 | 1.89 | 0.75 |
| HSS154       | 16              | 3.94        | 12.38              | 3.15                     | 11.0         | 8.04                                      | 2.76 | 1.62 | 2 3/4"-16 UN | 1.54 | M10 | 1.89 | 0.75 |
| HSS156       | 16              | 5.91        | 18.54              | 3.15                     | 14.6         | 10.01                                     | 2.76 | 1.62 | 2 3/4"-16 UN | 1.54 | M10 | 1.89 | 0.75 |
| HSS1510      | 16              | 9.85        | 30.93              | 3.15                     | 19.4         | 13.95                                     | 2.76 | 1.62 | 2 3/4"-16 UN | 1.54 | M10 | 1.89 | 0.75 |
| HSS252       | 28              | 2.01        | 10.86              | 5.41                     | 14.3         | 6.86                                      | 3.39 | 2.13 | 3 3/8"-12 UN | 1.93 | M12 | 2.36 | 0.99 |
| HSS254       | 28              | 4.02        | 21.72              | 5.41                     | 17.6         | 8.87                                      | 3.39 | 2.13 | 3 3/8"-12 UN | 1.93 | M12 | 2.36 | 0.99 |
| HSS256       | 28              | 5.91        | 31.96              | 5.41                     | 21.2         | 10.76                                     | 3.39 | 2.13 | 3 3/8"-12 UN | 1.93 | M12 | 2.36 | 0.99 |
| HSS258       | 28              | 8           | 43.25              | 5.41                     | 24.7         | 12.77                                     | 3.39 | 2.13 | 3 3/8"-12 UN | 1.93 | M12 | 2.36 | 0.99 |
| HSS2510      | 28              | 9.85        | 53.31              | 5.41                     | 27.8         | 14.74                                     | 3.39 | 2.13 | 3 3/8"-12 UN | 1.93 | M12 | 2.36 | 0.99 |
| HSS2514      | 28              | 14.03       | 75.76              | 5.41                     | 37.0         | 18.91                                     | 3.39 | 2.13 | 3 3/8"-12 UN | 1.93 | M12 | 2.36 | 0.99 |
| HSS2518      | 28              | 18.01       | 97.42              | 5.41                     | 47.2         | 24.07                                     | 3.39 | 2.13 | 3 3/8"-12 UN | 1.93 | M12 | 2.36 | 0.99 |
| HSS308       | 32              | 8.08        | 52.46              | 6.49                     | 41.0         | 14.74                                     | 4.02 | 2.25 | 3 3/8"-12 UN | 1.97 | -   | -    | 1.97 |
| HSS502       | 55              | 2.01        | 22.2               | 11.05                    | 28.7         | 5.91                                      | 5    | 3.11 | 5"-12 UN     | 2.17 | M12 | 3.35 | 0.79 |
| HSS504       | 55              | 4.02        | 44.41              | 11.05                    | 37.0         | 7.92                                      | 5    | 3.11 | 5"-12 UN     | 2.17 | M12 | 3.35 | 0.79 |
| HSS506       | 55              | 5.99        | 66.12              | 11.05                    | 44.1         | 9.89                                      | 5    | 3.11 | 5"-12 UN     | 2.17 | M12 | 3.35 | 0.79 |
| HSS508       | 55              | 8           | 88.33              | 11.05                    | 51.1         | 11.9                                      | 5    | 3.11 | 5"-12 UN     | 2.17 | M12 | 3.35 | 0.79 |
| HSS5013      | 55              | 13          | 143.59             | 11.05                    | 74.1         | 16.9                                      | 5    | 3.11 | 5"-12 UN     | 2.17 | M12 | 3.35 | 0.79 |
| HSS756       | 80              | 5.99        | 95.22              | 15.92                    | 68.3         | 10.72                                     | 5.75 | 3.74 | 5 3/4"-12 UN | 1.77 | M12 | 4.53 | 1.26 |
| HSS1004      | 120             | 4.02        | 95.47              | 23.78                    | 91.7         | 8.79                                      | 7.29 | 4.49 | 6 7/8"-12 UN | 1.97 | M12 | 5.75 | 1.26 |
| HSS1006      | 120             | 6.03        | 143.17             | 23.78                    | 109.8        | 10.8                                      | 7.29 | 4.49 | 6 7/8"-12 UN | 1.97 | M12 | 5.75 | 1.26 |
| HSS10010     | 120             | 10.01       | 237.66             | 23.78                    | 144.4        | 14.78                                     | 7.29 | 4.49 | 6 7/8"-12 UN | 1.97 | M12 | 5.75 | 1.26 |

**Note:** If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 44 and 48.

**HHS | SINGLE ACTING HOLLOW PISTON CYLINDERS**

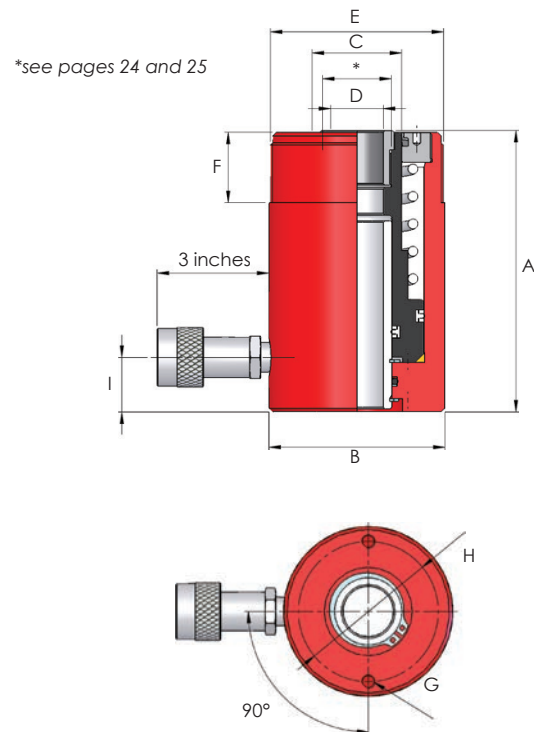


- ▶ Single acting, spring assisted return
- ▶ Hollow piston design for tooling, maintenance and tensioning applications
- ▶ Nitrocarburized piston rod for corrosion resistance
- ▶ Low friction bearing surfaces
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Collar threads withstand full load
- ▶ Optional piston rod saddles listed on pages 24 and 25
- ▶ Customized and special design cylinders are available on request

**Capacities from 12 to 112 tons**

**Stroke lengths from 0.99 to 5.99 inches**

**Working pressure 10000 psi**



| Model number | Capacity (tons) | Stroke (in) | Oil capacity (in <sup>3</sup> ) | Cylinder eff. area (in <sup>2</sup> ) | Weight (lbs) |
|--------------|-----------------|-------------|---------------------------------|---------------------------------------|--------------|
| HHS101       | 12              | 0.99        | 2.38                            | 2.45                                  | 6.2          |
| HHS102       | 12              | 1.97        | 4.82                            | 2.45                                  | 6.6          |
| HHS106       | 12              | 5.99        | 14.64                           | 2.45                                  | 22.5         |
| HHS202       | 25              | 1.97        | 10.19                           | 5.16                                  | 15.4         |
| HHS206       | 25              | 5.91        | 30.5                            | 5.16                                  | 30.4         |
| HHS302       | 36              | 1.97        | 14.21                           | 7.24                                  | 23.4         |
| HHS306       | 36              | 5.99        | 43.31                           | 7.24                                  | 42.3         |
| HHS603       | 67              | 2.99        | 39.71                           | 13.28                                 | 61.7         |
| HHS606       | 67              | 5.91        | 78.39                           | 13.28                                 | 89.5         |
| HHS1003      | 112             | 2.99        | 66.37                           | 22.18                                 | 141.1        |
| HHS1006      | 112             | 5.91        | 130.97                          | 22.18                                 | 165.3        |

| Dimensions (in) (unless otherwise stated) |      |      |      |              |      |     |      |      |
|-------------------------------------------|------|------|------|--------------|------|-----|------|------|
| A                                         | B    | C    | D    | E            | F    | G   | H    | I    |
| 4.33                                      | 2.76 | 1.5  | 0.79 | 2 3/4"-16 UN | 1.18 | M8  | 2.01 | 0.75 |
| 5.52                                      | 2.76 | 1.5  | 0.79 | 2 3/4"-16 UN | 1.18 | M8  | 2.01 | 0.75 |
| 11.7                                      | 2.76 | 1.5  | 0.79 | 2 3/4"-16 UN | 1.18 | M8  | 2.01 | 0.75 |
| 6.3                                       | 3.94 | 2.01 | 1.18 | 3 7/8"-12 UN | 1.58 | M8  | 3.25 | 1.22 |
| 12.06                                     | 3.94 | 2.01 | 1.18 | 3 7/8"-12 UN | 1.58 | M8  | 3.25 | 1.22 |
| 6.5                                       | 4.53 | 2.36 | 1.38 | 4 1/2"-12 UN | 1.58 | M8  | 3.62 | 1.22 |
| 12.61                                     | 4.53 | 2.36 | 1.38 | 4 1/2"-12 UN | 1.58 | M8  | 3.62 | 1.22 |
| 8.9                                       | 6.3  | 3.62 | 2.17 | 6 1/4"-12 UN | 2.32 | M12 | 5.12 | 1.22 |
| 12.41                                     | 6.3  | 3.62 | 2.17 | 6 1/4"-12 UN | 2.32 | M12 | 5.12 | 1.22 |
| 10.87                                     | 8.39 | 5    | 3.19 | 8 3/8"-12 UN | 2.36 | M16 | 7.01 | 1.77 |
| 13.79                                     | 8.39 | 5    | 3.19 | 8 3/8"-12 UN | 2.36 | M16 | 7.01 | 1.77 |

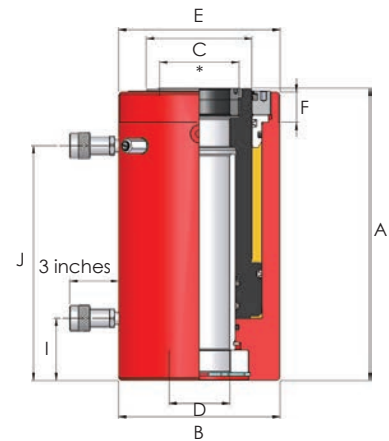
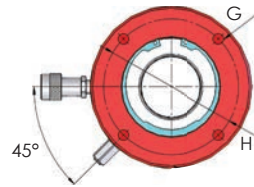
**Note:** If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 44 and 48.



## HHR | DOUBLE ACTING HOLLOW PISTON CYLINDERS



- ▶ Double acting design for enhanced operating stages
- ▶ Hollow piston design for tooling, maintenance and tensioning applications
- ▶ Nitrocarburized piston rod for corrosion resistance
- ▶ Low friction bearing surfaces
- ▶ Annular area overload protection valve
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Collar threads withstand full load
- ▶ Optional piston rod saddles listed on pages 24 and 25
- ▶ Customized and special design cylinders are available on request



*Note: 36 & 67 ton models feature 2 base mounting holes at 90° from coupler.  
\*see pages 24 and 25*

| Model number | Capacity (tons) |      | Stroke (in) | Oil capacity (in³) | Cylinder eff. area (in²) | Weight (lbs) | Dimensions (in) (unless otherwise stated) |       |       |      |            |      |     |      |      |       |
|--------------|-----------------|------|-------------|--------------------|--------------------------|--------------|-------------------------------------------|-------|-------|------|------------|------|-----|------|------|-------|
|              | Push            | Pull |             |                    |                          |              | A                                         | B     | C     | D    | E          | F    | G   | H    | I    | J     |
| HHR302       | 36              | 26   | 2.01        | 14.52              | 7.24                     | 26.9         | 7.09                                      | 4.53  | 2.38  | 1.38 | 4 ½"-12 UN | 1.58 | M8  | 3.62 | 1.1  | 4.69  |
| HHR306       | 36              | 26   | 5.91        | 42.76              | 7.24                     | 38.8         | 10.99                                     | 4.53  | 2.38  | 1.38 | 4 ½"-12 UN | 1.58 | M8  | 3.62 | 1.1  | 8.59  |
| HHR3012      | 36              | 26   | 12.02       | 86.86              | 7.24                     | 56.7         | 17.1                                      | 4.53  | 2.38  | 1.38 | 4 ½"-12 UN | 1.58 | M8  | 3.62 | 1.1  | 14.7  |
| HHR603       | 67              | 42   | 2.99        | 39.77              | 13.28                    | 67.5         | 9.42                                      | 6.3   | 3.62  | 2.17 | 6 ¼"-12 UN | 1.77 | M12 | 5.12 | 1.22 | 6.54  |
| HHR606       | 67              | 42   | 5.99        | 79.54              | 13.28                    | 91.7         | 12.41                                     | 6.3   | 3.62  | 2.17 | 6 ¼"-12 UN | 1.77 | M12 | 5.12 | 1.22 | 9.53  |
| HHR6010      | 67              | 42   | 10.01       | 132.92             | 13.28                    | 115.7        | 16.43                                     | 6.3   | 3.62  | 2.17 | 6 ¼"-12 UN | 1.77 | M12 | 5.12 | 1.22 | 13.55 |
| HHR1003      | 112             | 47   | 2.99        | 66.31              | 22.18                    | 151.0        | 12.21                                     | 8.39  | 5.52  | 3.15 | 8 ⅝"-12 UN | 1.58 | M16 | 7.01 | 3.23 | 9.22  |
| HHR1006      | 112             | 47   | 5.99        | 132.61             | 22.18                    | 198.4        | 15.21                                     | 8.39  | 5.52  | 3.15 | 8 ⅝"-12 UN | 1.58 | M16 | 7.01 | 3.23 | 12.21 |
| HHR1508      | 168             | 78   | 8           | 263.52             | 32.98                    | 374.8        | 19.82                                     | 10.64 | 7.25  | 4.02 | n/a        | n/a  | n/a | na   | 3.86 | 15.33 |
| HHR2508      | 272             | 84   | 8           | 429.38             | 53.71                    | 593.0        | 19.9                                      | 13.79 | 10.01 | 5.91 | n/a        | n/a  | n/a | na   | 3.86 | 15.33 |

*Note: If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 44 and 48.*

## HDA | DOUBLE ACTING HIGH TONNAGE CYLINDERS

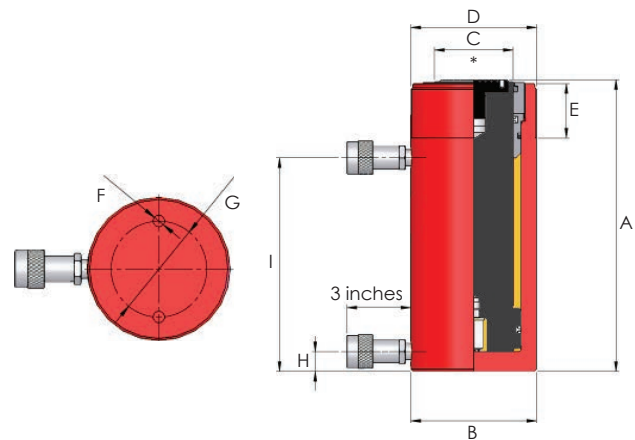


Capacities from 28 to 1115 tons

Stroke lengths from 5.99 to 20.02 inches

Working pressure 10000 psi

- ▶ Double acting design offers higher work output with improved performance and efficiency
- ▶ Substantial pulling force in the piston retraction mode provides increased versatility
- ▶ Nitrocarburized piston rod for corrosion protection
- ▶ Low friction bearing surfaces
- ▶ Internal annular area overload protection valve
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Flat saddle, collar thread and piston rod thread as standard on all models up to 224 tons
- ▶ Replaceable tilting saddle fitted as standard on models from 359 tons and upwards
- ▶ Lifting ring as standard on models from 55 to 120 tons
- ▶ Eyebolts as standard on models from 168 to 1115 tons
- ▶ Optional piston rod saddles listed on pages 24 and 25
- ▶ Customized and special design cylinders are available on request



*Note:* Base mounting holes (F) will not withstand full load.  
 Base mounting holes for easy positioning.  
 Base mounting holes on model HDA5020 are at a random angular orientation to the cylinder ports.

\*see pages 24 and 25

| Model number | Capacity (tons) |      | Stroke (in) | Oil capacity (in³) | Cylinder eff. area (in²) | Weight (lbs) |
|--------------|-----------------|------|-------------|--------------------|--------------------------|--------------|
|              | Push            | Pull |             |                    |                          |              |
| HDA256       | 28              | 11   | 5.99        | 32.34              | 5.41                     | 33.1         |
| HDA506       | 55              | 17   | 5.99        | 65.91              | 11.05                    | 62.6         |
| HDA5013      | 55              | 17   | 13          | 143.41             | 11.05                    | 93.9         |
| HDA5020      | 55              | 17   | 20.02       | 220.91             | 11.05                    | 138.4        |
| HDA1006      | 120             | 40   | 5.99        | 142.19             | 23.76                    | 142.2        |
| HDA10013     | 120             | 40   | 13          | 308.78             | 23.76                    | 196.2        |
| HDA1506      | 168             | 87   | 5.99        | 198.94             | 33.2                     | 198.4        |
| HDA15012     | 168             | 87   | 12.02       | 398.48             | 33.2                     | 265.7        |
| HDA2006      | 224             | 104  | 5.99        | 264.23             | 44.21                    | 286.2        |
| HDA20012     | 224             | 104  | 12.02       | 530.3              | 44.21                    | 369.1        |
| HDA3006      | 359             | -    | 5.99        | 424.11             | 70.9                     | 425.5        |
| HDA30012     | 359             | -    | 12.02       | 851.28             | 70.9                     | 551.2        |
| HDA4006      | 439             | -    | 5.99        | 518.09             | 86.63                    | 630.5        |
| HDA40012     | 439             | -    | 12.02       | 1039.84            | 86.63                    | 853.2        |
| HDA5006      | 573             | -    | 5.99        | 676.75             | 113.13                   | 820.1        |
| HDA50012     | 573             | -    | 12.02       | 1358.39            | 113.13                   | 1042.8       |
| HDA8006      | 892             | -    | 5.99        | 1054.49            | 175.79                   | 1433.0       |
| HDA10006     | 1115            | -    | 5.99        | 1319.33            | 220                      | 1984.1       |

| Dimensions (in) (unless otherwise stated) |       |       |              |          |          |          |      |       |     |  |
|-------------------------------------------|-------|-------|--------------|----------|----------|----------|------|-------|-----|--|
| A                                         | B     | C     | D            | E        | F        | G        | H    | I     | J   |  |
| 11.31                                     | 3.62  | 1.97  | 3 5/8"-12 UN | 2.09     | M10      | 2.36     | 1.18 | 8.35  | 40° |  |
| 11.62                                     | 5     | 3.11  | 5"-12 UN     | 2.17     | M12      | 3.35     | 0.79 | 8.51  | 30° |  |
| 18.64                                     | 5     | 3.11  | 5"-12 UN     | 2.17     | M12      | 3.35     | 0.79 | 15.52 | 30° |  |
| 28.76                                     | 5     | 3.11  | 5"-12 UN     | 2.17     | M12      | 3.35     | 2.68 | 25.06 | 30° |  |
| 11.98                                     | 7.29  | 4.49  | 6 7/8"-12 UN | 2.01     | M12      | 5.75     | 1.18 | 8.9   | 30° |  |
| 18.99                                     | 7.29  | 4.49  | 6 7/8"-12 UN | 2.01     | M12      | 5.75     | 1.18 | 15.92 | 30° |  |
| 12.21                                     | 8.27  | 4.49  | 8"-12 UN     | 2.17     | M16      | 6.3      | 1.38 | 9.1   | 30° |  |
| 18.24                                     | 8.27  | 4.49  | 8"-12 UN     | 2.17     | M16      | 6.3      | 1.38 | 15.13 | 30° |  |
| 12.88                                     | 10.01 | 5.52  | 9 3/4"-12 UN | 2.56     | M20      | 7.29     | 1.69 | 9.38  | 30° |  |
| 18.91                                     | 10.01 | 5.52  | 9 3/4"-12 UN | 2.56     | M20      | 7.29     | 1.69 | 15.41 | 30° |  |
| 16.11                                     | 12.29 | 6.5   | Optional     | Optional | M20      | 6.23     | 1.97 | 10.32 | 30° |  |
| 22.14                                     | 12.29 | 6.5   | Optional     | Optional | M20      | 6.23     | 1.97 | 16.35 | 30° |  |
| 16.98                                     | 14.18 | 8.51  | Optional     | Optional | M24      | 8        | 2.17 | 10.91 | 30° |  |
| 23.01                                     | 14.18 | 8.51  | Optional     | Optional | M24      | 8        | 2.17 | 16.94 | 30° |  |
| 18.52                                     | 15.64 | 8     | Optional     | Optional | M24      | 8        | 2.56 | 11.82 | 30° |  |
| 24.55                                     | 15.68 | 8     | Optional     | Optional | M24      | 8        | 2.56 | 17.85 | 30° |  |
| 21.08                                     | 19.70 | 11.82 | Optional     | Optional | Optional | Optional | 2.76 | 12.53 | 30° |  |
| 23.25                                     | 21.28 | 12.61 | Optional     | Optional | Optional | Optional | 3.9  | 14.07 | 30° |  |

*Note:* If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 44 and 48.

## HFL | SINGLE ACTING LOW HEIGHT FAILSAFE LOCK RING CYLINDERS

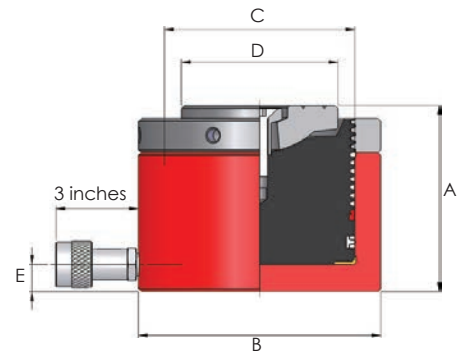


- ▶ Single acting, load return
- ▶ Mechanical lock ring feature allows for load holding for extended periods
- ▶ Compact, low height design suitable for vertical lifting applications only
- ▶ Threaded piston with tilting saddle fitted as standard to reduce the risk of side loading
- ▶ Nitrocarburized cylinder and piston rod for corrosion resistance
- ▶ Low friction bearing surfaces
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Overstroke restrictor port to prevent over extension of piston
- ▶ Tommy bars for easy rotation of the load holding lock ring are listed in the below table
- ▶ Saddle and piston rod details are listed on pages 24 and 25
- ▶ Customized and special design cylinders are available on request

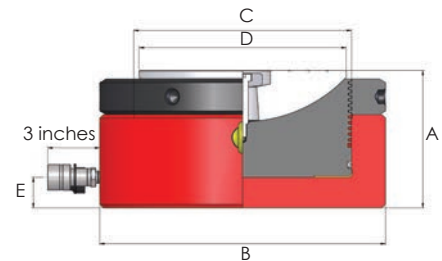
Capacities from 55 to 573 tons

Stroke lengths from 1.77 to 2.01 inches

Working pressure 10000 psi



HFL502, HFL1002, HFL1502



HFL2002, HFL2502, HFL4002, HFL5002

| Model number | Capacity (tons) | Stroke (in) | Oil capacity (in <sup>3</sup> ) | Cylinder eff. area (in <sup>2</sup> ) | Weight (lbs) | Tommy bar | Dimensions (in) |       |       |       |      |
|--------------|-----------------|-------------|---------------------------------|---------------------------------------|--------------|-----------|-----------------|-------|-------|-------|------|
|              |                 |             |                                 |                                       |              |           | A               | B     | C     | D     | E    |
| HFL502       | 55              | 2.01        | 21.97                           | 11.05                                 | 31.3         | TTB10     | 4.93            | 5     | 3.74  | 2.76  | 0.75 |
| HFL1002      | 120             | 1.97        | 46.99                           | 23.78                                 | 61.5         | TTB10     | 5.4             | 7.29  | 5.52  | 4.53  | 0.79 |
| HFL1502      | 168             | 1.77        | 65.3                            | 33.22                                 | 97.0         | TTB10     | 5.91            | 8.51  | 6.5   | 5.32  | 1.1  |
| HFL2002      | 224             | 1.77        | 86.65                           | 44.19                                 | 125.2        | TTB14     | 6.11            | 10.01 | 7.49  | 5.32  | 1.18 |
| HFL2502      | 287             | 1.77        | 100.69                          | 56.75                                 | 153.0        | TTB14     | 6.26            | 10.76 | 8.51  | 7.88  | 1.22 |
| HFL4002      | 439             | 1.77        | 153.17                          | 86.65                                 | 266.8        | TTB16     | 7.01            | 14.18 | 10.52 | 10.24 | 1.42 |
| HFL5002      | 573             | 1.77        | 200.77                          | 113.13                                | 410.1        | TTB20     | 7.56            | 15.76 | 12.02 | 11.43 | 1.69 |

**Note:** If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 44 and 48.



**HFG | SINGLE ACTING FAILSAFE LOCK RING CYLINDERS**

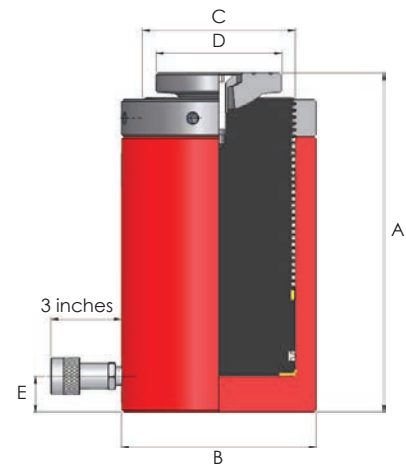


**Capacities from 55 to 1115 tons**

**Stroke lengths from 1.97 to 5.99 inches**

**Working pressure 10000 psi**

- ▶ Single acting, load return
- ▶ Mechanical lock ring feature allows for load holding for extended periods
- ▶ Suitable for vertical lifting applications only
- ▶ Threaded piston with tilting saddle fitted as standard to reduce the risk of side loading
- ▶ Nitrocarburized cylinder and piston rod for corrosion resistance
- ▶ Low friction bearing surfaces
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Overstroke restrictor port to prevent over extension of piston
- ▶ Tommy bars for easy rotation of the load holding lock ring are listed in the below table
- ▶ Saddle and piston rod details are listed on pages 24 and 25
- ▶ Customized and special design cylinders are available on request



| Model number | Capacity (tons) | Stroke (in) | Oil capacity (in <sup>3</sup> ) | Cylinder eff. area (in <sup>2</sup> ) | Weight (lbs) | Tommy bar | Dimensions (in) |       |       |       |      |
|--------------|-----------------|-------------|---------------------------------|---------------------------------------|--------------|-----------|-----------------|-------|-------|-------|------|
|              |                 |             |                                 |                                       |              |           | A               | B     | C     | D     | E    |
| HFG502       | 55              | 2.01        | 21.97                           | 11.05                                 | 35.7         | TTB10     | 6.82            | 5     | 3.74  | 2.76  | 0.99 |
| HFG504       | 55              | 4.02        | 44.55                           | 11.05                                 | 45.4         | TTB10     | 8.83            | 5     | 3.74  | 2.76  | 0.99 |
| HFG506       | 55              | 5.91        | 65.3                            | 11.05                                 | 55.1         | TTB10     | 10.72           | 5     | 3.74  | 2.76  | 0.99 |
| HFG1002      | 120             | 2.01        | 46.38                           | 23.78                                 | 77.2         | TTB10     | 7.45            | 7.29  | 5.52  | 4.53  | 1.08 |
| HFG1004      | 120             | 3.94        | 93.37                           | 23.78                                 | 110.9        | TTB10     | 9.46            | 7.29  | 5.52  | 4.53  | 1.08 |
| HFG1006      | 120             | 5.91        | 140.35                          | 23.78                                 | 144.2        | TTB10     | 12.25           | 7.29  | 5.52  | 4.53  | 1.08 |
| HFG1502      | 168             | 2.01        | 65.3                            | 33.22                                 | 172.0        | TTB10     | 9.34            | 8.51  | 6.5   | 5.32  | 1.65 |
| HFG1504      | 168             | 3.94        | 130.59                          | 33.22                                 | 185.2        | TTB10     | 11.35           | 8.51  | 6.5   | 5.32  | 1.65 |
| HFG1506      | 168             | 5.91        | 195.89                          | 33.22                                 | 197.3        | TTB10     | 13.32           | 8.51  | 6.5   | 5.32  | 1.65 |
| HFG2002      | 224             | 1.97        | 86.65                           | 44.19                                 | 210.3        | TTB14     | 10.28           | 10.01 | 7.49  | 5.32  | 1.97 |
| HFG2006      | 224             | 5.99        | 264.23                          | 44.19                                 | 302.0        | TTB14     | 14.26           | 10.01 | 7.49  | 5.32  | 1.97 |
| HFG2506      | 282             | 5.99        | 335.63                          | 56.81                                 | 377.0        | TTB14     | 15.8            | 10.76 | 8.51  | 5.91  | 1.97 |
| HFG3006      | 359             | 5.91        | 419.23                          | 70.94                                 | 503.8        | TTB14     | 16.43           | 12.21 | 9.5   | 5.91  | 1.97 |
| HFG4006      | 439             | 5.95        | 515.04                          | 86.65                                 | 680.1        | TTB14     | 18.08           | 14.18 | 10.52 | 7.09  | 2.76 |
| HFG5006      | 573             | 5.99        | 677.36                          | 113.13                                | 1007.5       | TTB16     | 19.62           | 15.76 | 12.02 | 7.09  | 3.15 |
| HFG8006      | 892             | 5.99        | 1066.15                         | 175.79                                | 1620.4       | TTB16     | 22.26           | 18.91 | 14.97 | 13.4  | 3.15 |
| HFG10006     | 1115            | 5.99        | 1318.8                          | 220                                   | 2239.9       | TTB20     | 24.43           | 21.28 | 16.75 | 14.96 | 3.55 |

**Note:** If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 44 and 48.

## HAS | SINGLE ACTING SOLID PISTON ALUMINUM CYLINDERS



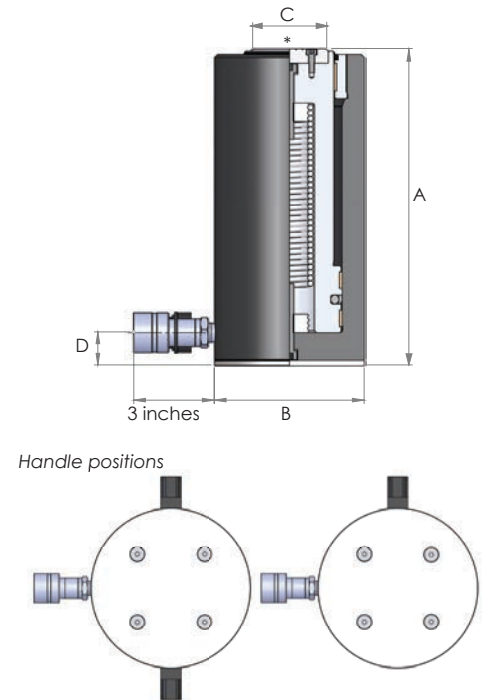
Capacities from 35 to 121 tons

Stroke lengths from 2.01 to 12.02 inches

Working pressure 10000 psi

\*see pages 24 and 25

- ▶ Lightweight aluminum cylinders for applications where weight and portability are of prime importance
- ▶ Single acting, spring assisted return
- ▶ Hard anodized piston rod and cylinder for corrosion resistance and increased durability
- ▶ Steel base plate to protect cylinder body
- ▶ Low friction bearing surfaces
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Grooved saddles fitted as standard on all models
- ▶ Optional piston rod saddles listed on pages 24 and 25
- ▶ Customized and special design cylinders are available on request



| Model number | Capacity (tons) | Stroke (in) | Oil capacity (in <sup>3</sup> ) | Cylinder eff. area (in <sup>2</sup> ) | Weight (lbs) | Handles | Dimensions (in) |      |      |      |
|--------------|-----------------|-------------|---------------------------------|---------------------------------------|--------------|---------|-----------------|------|------|------|
|              |                 |             |                                 |                                       |              |         | A               | B    | C    | D    |
| HAS302       | 35              | 2.01        | 13.73                           | 6.85                                  | 8.8          | -       | 7.13            | 4.14 | 1.97 | 0.99 |
| HAS306       | 35              | 5.99        | 40.99                           | 6.85                                  | 13.2         | -       | 11.11           | 4.14 | 1.97 | 0.99 |
| HAS3012      | 35              | 12.02       | 82.23                           | 6.85                                  | 17.6         | 1       | 17.14           | 4.14 | 1.97 | 0.99 |
| HAS502       | 56              | 2.01        | 69.3                            | 10.99                                 | 17.6         | 1       | 7.33            | 5.32 | 2.76 | 1.18 |
| HAS506       | 56              | 5.99        | 65.7                            | 10.99                                 | 24.3         | 1       | 11.31           | 5.32 | 2.76 | 1.18 |
| HAS5012      | 56              | 12.02       | 131.88                          | 10.99                                 | 35.3         | 1       | 17.34           | 5.32 | 2.76 | 1.18 |
| HAS1002      | 121             | 2.01        | 47.89                           | 23.85                                 | 41.9         | 2       | 8.51            | 7.68 | 3.94 | 1.62 |
| HAS1006      | 121             | 5.99        | 142.74                          | 23.85                                 | 50.7         | 2       | 12.49           | 7.68 | 3.94 | 1.62 |
| HAS10012     | 121             | 12.02       | 286.4                           | 23.85                                 | 75.0         | 2       | 18.52           | 7.68 | 3.94 | 1.62 |

**Note:** If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 44 and 48.

**HHA | SINGLE ACTING HOLLOW PISTON ALUMINUM CYLINDERS**



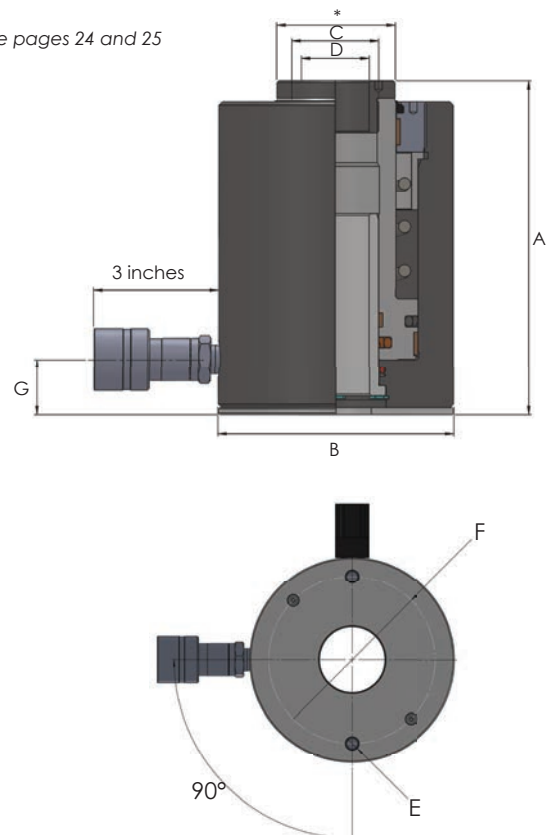
- ▶ Lightweight aluminum cylinders for applications where weight and portability are of prime importance
- ▶ Single acting, spring assisted return
- ▶ Hollow piston design for pulling, pressing and tensioning applications
- ▶ Hard anodized piston rod and cylinder for corrosion resistance and increased durability
- ▶ Steel base plate to protect cylinder body
- ▶ Low friction bearing surfaces
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Grooved saddles fitted as standard on all models.
- ▶ Optional piston rod saddles listed on pages 24 and 25
- ▶ Customized and special design cylinders are available on request

**Capacities from 20 to 57 tons**

**Stroke lengths from 2.01 to 4.14 inches**

**Working pressure 10000 psi**

\*see pages 24 and 25



| Model number | Capacity (tons) | Stroke (in) | Oil capacity (in³) | Cylinder eff. area (in²) | Weight (lbs) | Handles |
|--------------|-----------------|-------------|--------------------|--------------------------|--------------|---------|
| HHA182       | 20              | 2.01        | 7.87               | 3.91                     | 7.9          | -       |
| HHA372       | 41              | 2.01        | 16.23              | 8.08                     | 15.9         | -       |
| HHA504       | 57              | 4.14        | 46.67              | 11.28                    | 29.5         | 1       |

| Dimensions (in) (unless otherwise stated) |      |      |      |        |      |      |
|-------------------------------------------|------|------|------|--------|------|------|
| A                                         | B    | C    | D    | E      | F    | G    |
| 6.9                                       | 3.86 | 1.42 | 1.02 | M8x10  | 2.6  | 1.02 |
| 7.6                                       | 5.36 | 1.97 | 1.54 | M10x15 | 4.14 | 1.26 |
| 11.03                                     | 6.3  | 2.56 | 2.01 | M10x15 | 5.12 | 1.54 |

**Note:** If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 44 and 48.

**HFA | SINGLE ACTING FAILSAFE LOCK RING ALUMINUM CYLINDERS**



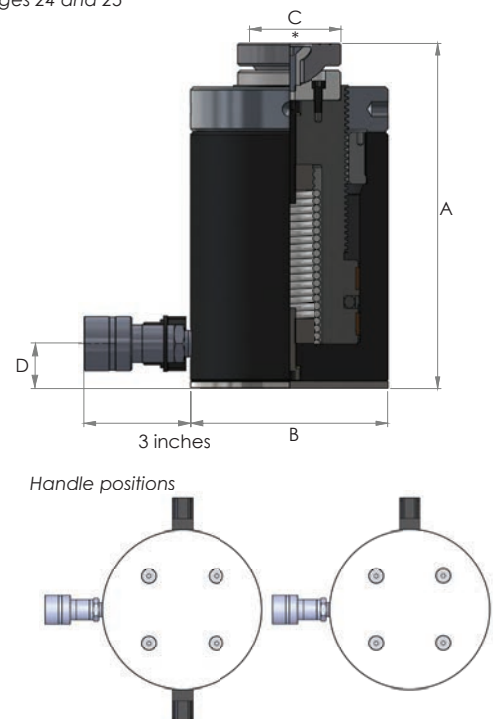
**Capacities from 35 to 121 tons**

**Stroke lengths from 2.01 to 12.02 inches**

**Working pressure 10000 psi**

*\*see pages 24 and 25*

- ▶ Lightweight aluminum cylinders for applications where weight and portability are of prime importance
- ▶ Single acting, spring assisted return
- ▶ Mechanical lock ring feature allows for load holding for extended periods
- ▶ Hard anodized piston rod and cylinder for corrosion resistance and increased durability
- ▶ Low friction bearing surfaces
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Tilting saddle fitted as standard on all models
- ▶ Steel base plate fitted as standard
- ▶ Integral stop ring
- ▶ Optional piston rod saddles listed on pages 24 and 25
- ▶ Customized and special design cylinders are available on request



| Model number | Capacity (tons) | Stroke (in) | Oil capacity (in³) | Cylinder eff. area (in²) | Weight (lbs) | Tommy bar | Handles | Dimensions (in) |      |      |      |
|--------------|-----------------|-------------|--------------------|--------------------------|--------------|-----------|---------|-----------------|------|------|------|
|              |                 |             |                    |                          |              |           |         | A               | B    | C    | D    |
| HFA302       | 35              | 2.01        | 14.15              | 7.04                     | 13.2         | TTB10     | -       | 8.94            | 4.26 | 1.97 | 0.99 |
| HFA306       | 35              | 5.99        | 42.15              | 7.04                     | 17.6         | TTB10     | -       | 12.92           | 4.26 | 1.97 | 0.99 |
| HFA3012      | 35              | 12.02       | 84.55              | 7.04                     | 24.3         | TTB10     | 1       | 18.95           | 4.26 | 1.97 | 0.99 |
| HFA502       | 56              | 2.01        | 22.2               | 11.05                    | 19.8         | TTB10     | 1       | 9.1             | 5.24 | 2.76 | 1.18 |
| HFA506       | 56              | 5.99        | 66.12              | 11.05                    | 24.3         | TTB10     | 1       | 13.08           | 5.24 | 2.76 | 1.18 |
| HFA5012      | 56              | 12.02       | 132.68             | 11.05                    | 37.5         | TTB10     | 1       | 19.11           | 5.24 | 2.76 | 1.18 |
| HFA1002      | 121             | 2.01        | 47.89              | 23.85                    | 52.9         | TTB10     | 2       | 10.91           | 7.96 | 3.94 | 1.62 |
| HFA1006      | 121             | 5.99        | 142.74             | 23.85                    | 66.1         | TTB10     | 2       | 14.89           | 7.96 | 3.94 | 1.62 |
| HFA10012     | 121             | 12.02       | 286.4              | 23.85                    | 86.0         | TTB10     | 2       | 20.92           | 7.96 | 3.94 | 1.62 |

**Note:** If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 44 and 48.



**HRA | DOUBLE ACTING HIGH TONNAGE ALUMINUM CYLINDERS**



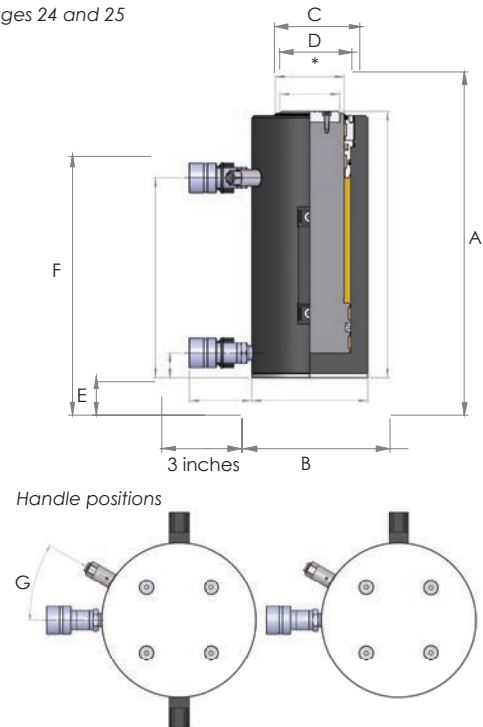
**Capacities from 35 to 121 tons**

**Stroke lengths from 2.01 to 12.02 inches**

**Working pressure 10000 psi**

*\*see pages 24 and 25*

- ▶ Lightweight aluminum cylinders for applications where weight and portability are of prime importance
- ▶ Double acting design offers higher work output with improved performance and efficiency
- ▶ Hard anodized piston rod and cylinder for corrosion resistance and increased durability
- ▶ Low friction bearing surfaces
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Steel base plate fitted as standard on models
- ▶ Pressure relief valve on annulus side
- ▶ Optional piston rod saddles listed on pages 24 and 25
- ▶ Customized and special design cylinders are available on request



| Model number | Capacity (tons) | Stroke (in) | Oil capacity (in <sup>3</sup> ) | Cylinder eff. area (in <sup>2</sup> ) | Weight (lbs) | Handles | Dimensions (in) |      |      |      |      |       |      |
|--------------|-----------------|-------------|---------------------------------|---------------------------------------|--------------|---------|-----------------|------|------|------|------|-------|------|
|              |                 |             |                                 |                                       |              |         | A               | B    | C    | D    | E    | F     | G    |
| HRA302       | 35              | 2.01        | 13.74                           | 6.85                                  | 11.0         | -       | 8.04            | 4.14 | 2.36 | 1.97 | 0.99 | 5.36  | 1.38 |
| HRA306       | 35              | 5.99        | 40.96                           | 6.85                                  | 15.4         | -       | 12.02           | 4.14 | 2.36 | 1.97 | 0.99 | 9.34  | 1.38 |
| HRA3012      | 35              | 12.02       | 82.2                            | 6.85                                  | 22.0         | 1       | 18.05           | 4.14 | 2.36 | 1.97 | 0.99 | 15.37 | 1.38 |
| HRA502       | 56              | 2.01        | 22.05                           | 10.99                                 | 22.0         | 1       | 8.71            | 5.32 | 3.11 | 2.76 | 1.18 | 5.56  | 1.18 |
| HRA506       | 56              | 5.99        | 65.72                           | 10.99                                 | 28.7         | 1       | 12.69           | 5.32 | 3.11 | 2.76 | 1.18 | 9.53  | 1.18 |
| HRA5012      | 56              | 12.02       | 131.88                          | 10.99                                 | 41.9         | 1       | 18.72           | 5.32 | 3.11 | 2.76 | 1.18 | 15.56 | 1.18 |
| HRA1002      | 121             | 2.01        | 47.89                           | 23.85                                 | 48.5         | 2       | 10.17           | 7.96 | 4.33 | 3.94 | 1.62 | 6.78  | 1.18 |
| HRA1006      | 121             | 5.99        | 142.73                          | 23.85                                 | 63.9         | 2       | 14.14           | 7.96 | 4.33 | 3.94 | 1.62 | 10.76 | 1.18 |
| HRA10012     | 121             | 12.02       | 286.4                           | 23.85                                 | 86.0         | 2       | 20.17           | 7.96 | 4.33 | 3.94 | 1.62 | 16.78 | 1.18 |

**Note:** If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 44 and 48.

## HGG | SINGLE ACTING LOAD RETURN HIGH TONNAGE INDUSTRIAL CYLINDERS

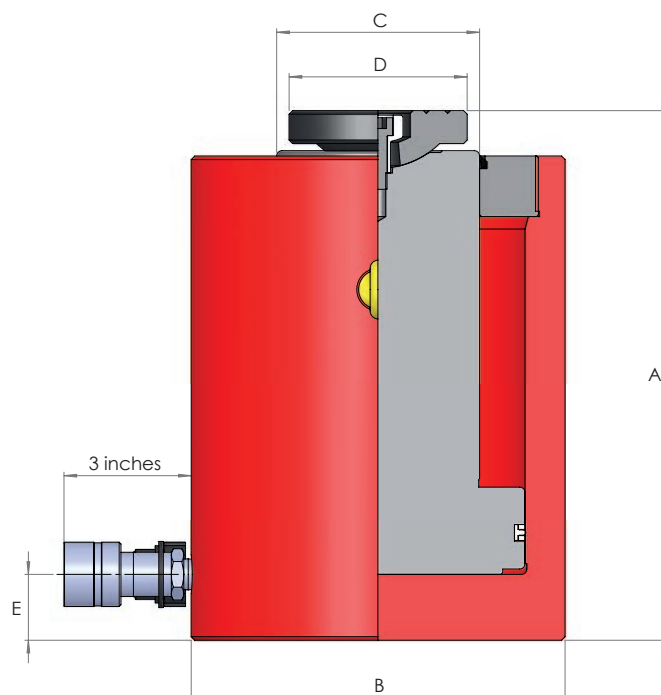


Capacities from 168 to 359 tons

Stroke length 6.11 inches

Working pressure 10000 psi

- ▶ Single acting, load return
- ▶ Heavy duty design for lifting and maintenance applications
- ▶ Integral stop ring for piston stroke limitation
- ▶ Tilting saddle fitted as standard to reduce the risk of side loading
- ▶ Low friction bearing surfaces
- ▶ Nitrocarburized piston rod for corrosion resistance
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Saddle and piston rod details are listed on pages 24 and 25
- ▶ Customized and special design cylinders are available on request



| Model number | Capacity (tons) | Stroke (in) | Oil capacity (in <sup>3</sup> ) | Cylinder eff. area (in <sup>2</sup> ) | Weight (lbs) | Dimensions (in) |       |      |      |      |
|--------------|-----------------|-------------|---------------------------------|---------------------------------------|--------------|-----------------|-------|------|------|------|
|              |                 |             |                                 |                                       |              | A               | B     | C    | D    | E    |
| HGG1506      | 168             | 6.11        | 202.6                           | 33.22                                 | 128.5        | 11.7            | 8.27  | 4.49 | 3.94 | 1.46 |
| HGG2006      | 224             | 6.11        | 282.54                          | 44.19                                 | 210.1        | 12.06           | 10.01 | 5.52 | 5.32 | 1.97 |
| HGG3006      | 359             | 6.11        | 433.27                          | 70.94                                 | 338.4        | 13.51           | 12.29 | 6.5  | 5.91 | 1.97 |

**Note:** If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 44 and 48.

**HSG | SINGLE ACTING LOAD RETURN HIGH TONNAGE CONSTRUCTION CYLINDERS**

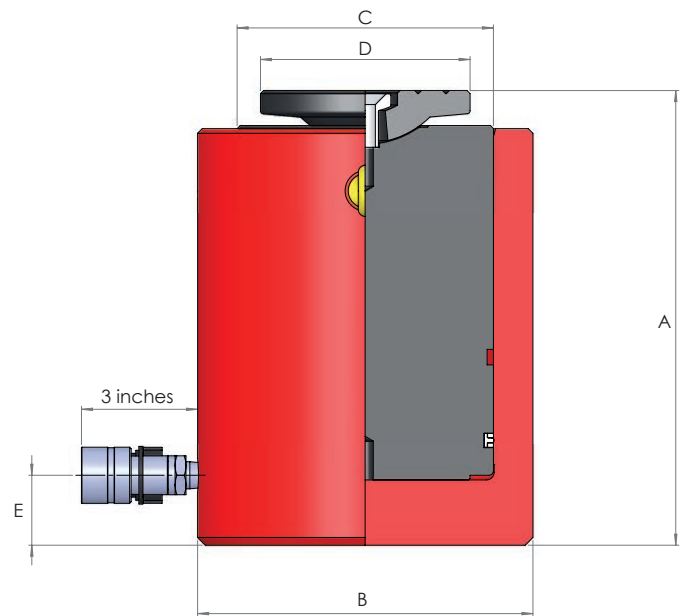


**Capacities from 168 to 359 tons**

**Stroke length 5.99 inches**

**Working pressure 10000 psi**

- ▶ Single acting, load return
- ▶ Heavy duty design for construction, civil engineering and heavy fabrication applications
- ▶ Overstroke restrictor port to prevent over extension of piston
- ▶ Tilting saddle fitted as standard to reduce the risk of side loading
- ▶ Nitrocarburized cylinder and piston rod for corrosion resistance
- ▶ Low friction bearing surfaces
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Saddle and piston rod details are listed on pages 24 and 25
- ▶ Customized and special design cylinders are available on request



| Model number | Capacity (tons) | Stroke (in) | Oil capacity (in³) | Cylinder eff. area (in²) | Weight (lbs) | Dimensions (in) |       |      |      |      |
|--------------|-----------------|-------------|--------------------|--------------------------|--------------|-----------------|-------|------|------|------|
|              |                 |             |                    |                          |              | A               | B     | C    | D    | E    |
| HSG1506      | 168             | 5.99        | 195.89             | 33.22                    | 170.9        | 11.54           | 8.51  | 6.5  | 5.32 | 1.77 |
| HSG2006      | 224             | 5.99        | 264.84             | 44.19                    | 237.4        | 11.66           | 10.01 | 7.51 | 5.32 | 1.77 |
| HSG3006      | 359             | 5.99        | 426.56             | 70.94                    | 386.2        | 12.84           | 12.29 | 9.51 | 5.91 | 1.97 |

**Note:** If specifying this cylinder for use with the SLF and SLV synchronous lifting systems and associated mounting kit, please consider the increase in dimension A (closed height), see pages 44 and 48.

**HPC | SINGLE ACTING PULL CYLINDERS**

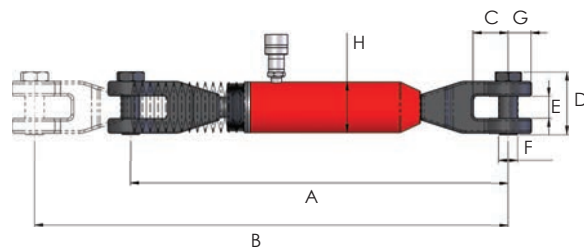


**Capacities from 11 to 55 tons**

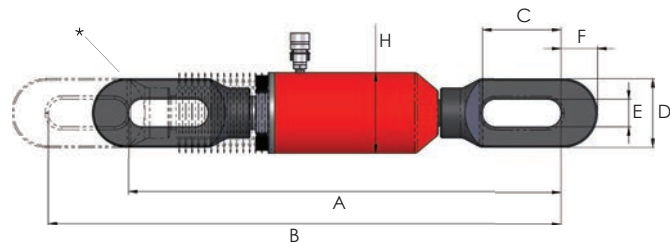
**Stroke length 5.99 inches**

**Working pressure 10000 psi**

- ▶ Single acting, spring assisted return
- ▶ Substantial hydraulic pulling force for steel plate alignment, cable tensioning and general load moving applications
- ▶ Replaceable pulling and clevis eyes fitted on the piston rod and cylinder base
- ▶ Nitrocarburized piston rod for corrosion resistance
- ▶ Anti-extrusion seals for improved performance at high pressures
- ▶ Protective piston rod bellows fitted as standard
- ▶ Customized and special design cylinders are available on request



HPC106C



HPC106, HPC306, HPC506

\* Eye bolt thickness: HPC106 = 0.87", HPC306 = 1.38", HPC506 = 1.58"

| Model number | Capacity (tons) | Stroke (in) | Oil capacity (in <sup>3</sup> ) | Cylinder eff. area (in <sup>2</sup> ) | Weight (lbs) | Dimensions (in) |       |      |      |      |      |      |      |
|--------------|-----------------|-------------|---------------------------------|---------------------------------------|--------------|-----------------|-------|------|------|------|------|------|------|
|              |                 |             |                                 |                                       |              | A               | B     | C    | D    | E    | F    | G    | H    |
| HPC106       | 11              | 5.99        | 13.91                           | 2.33                                  | 26.5         | 23.64           | 29.63 | 4.49 | 2.64 | 1.26 | 1.3  | -    | 3.15 |
| HPC106C      | 11              | 5.99        | 13.91                           | 2.33                                  | 34.2         | 23.72           | 29.71 | 2.29 | 3.9  | 1.38 | 1.18 | 1.42 | 3.15 |
| HPC306       | 33              | 5.99        | 38.8                            | 6.48                                  | 68.3         | 27.38           | 33.37 | 5.71 | 4.14 | 1.65 | 1.97 | -    | 4.81 |
| HPC506       | 55              | 5.99        | 65.76                           | 11.01                                 | 119.0        | 32.27           | 38.26 | 5.87 | 5.12 | 2.05 | 2.72 | -    | 6.03 |



**PCS | PUMP AND CYLINDER SETS**


**Capacities from 5 to 120 tons**

**Stroke lengths from 0.39 to 6.03 inches**

**Working pressure 10000 psi**

- ▶ Choice of 18 models of pump, cylinder & hose set
- ▶ Single acting, spring assisted return cylinders with solid or hollow pistons
- ▶ Manually operated pumps with factory set safety relief valve
- ▶ Standard 6.5 feet length hose with quick connect coupler
- ▶ Optional piston rod saddles available for most models, see pages 24 and 25

| SET          |                          | PUMP         |                | CYLINDER     |             | HOSE               |              |             |              |
|--------------|--------------------------|--------------|----------------|--------------|-------------|--------------------|--------------|-------------|--------------|
| Model number | Cylinder capacity (tons) | Model number | Capacity (in³) | Model number | Stroke (in) | Closed height (in) | Model number | Length (ft) | Weight (lbs) |
| PCS50        | 5                        | HP110        | 61.02          | HPS51        | 0.63        | 1.65               | HC2          | 6.5         | 16.3         |
| PCS53        | 5                        | HP110        | 61.02          | HSS53        | 2.96        | 6.19               | HC2          | 6.5         | 17.6         |
| PCS100       | 11                       | HP110        | 61.02          | HPS100       | 0.39        | 1.81               | HC2          | 6.5         | 18.1         |
| PCS101       | 11                       | HP110        | 61.02          | HLS101       | 1.58        | 3.74               | HC2          | 6.5         | 19.8         |
| PCS102       | 11                       | HP110        | 61.02          | HSS102       | 2.21        | 5.16               | HC2          | 6.5         | 19.8         |
| PCS106       | 11                       | HP110        | 61.02          | HSS106       | 5.91        | 8.87               | HC2          | 6.5         | 23.8         |
| PCS200       | 22                       | HP110        | 61.02          | HPS200       | 0.43        | 2.05               | HC2          | 6.5         | 20.7         |
| PCS201       | 22                       | HP110        | 61.02          | HLS201       | 1.73        | 4.02               | HC2          | 6.5         | 24.9         |
| PCS256       | 28                       | HP110        | 61.02          | HSS256       | 5.91        | 10.76              | HC2          | 6.5         | 35.3         |
| PCS300       | 35                       | HP110        | 61.02          | HPS300       | 0.47        | 2.32               | HC2          | 6.5         | 23.8         |
| PCS302       | 35                       | HP110        | 61.02          | HLS302       | 2.36        | 4.69               | HC2          | 6.5         | 30.0         |
| PCS502       | 55                       | HP110        | 61.02          | HLS502       | 2.36        | 4.96               | HC2          | 6.5         | 37.5         |
| PCS506       | 55                       | HP232        | 122.05         | HSS506       | 5.99        | 9.89               | HC2          | 6.5         | 68.3         |
| PCS1002      | 120                      | HP232        | 122.05         | HLS1002      | 2.36        | 5.63               | HC2          | 6.5         | 78.3         |
| PCS1006      | 120                      | HP252        | 305.12         | HSS1006      | 6.03        | 10.8               | HC2          | 6.5         | 145.5        |
| PCS202H      | 25                       | HP110        | 61.02          | HHS202       | 1.97        | 6.3                | HC2          | 6.5         | 30.6         |
| PCS302H      | 36                       | HP110        | 61.02          | HHS303       | 1.97        | 6.5                | HC2          | 6.5         | 37.9         |
| PCS603H      | 67                       | HP232        | 122.05         | HHS603       | 2.99        | 8.9                | HC2          | 6.5         | 76.3         |

*Note: Models PCS202H, PCS302H & PCS603H are supplied with a hollow piston cylinder*

**CYLINDER SADDLES & PISTON ROD THREAD SPECIFICATIONS**

| Cylinder range | Saddles         |        |                 |                  |                 | Piston rod thread |      |             |             |    |
|----------------|-----------------|--------|-----------------|------------------|-----------------|-------------------|------|-------------|-------------|----|
|                | Standard saddle |        | Optional saddle |                  | Dimensions (in) |                   |      | Thread size | Figure      |    |
|                | Model number    | Figure | Model number    | Figure           | A               | B                 | C    | D           |             |    |
| HAS            | HAS - 30T       | HA30   | 2               | HAT30            | 7               | 1.97              | 0.39 | -           | -           | 10 |
|                | HAS - 50T       | HA50   | 2               | HAT50            | 7               | 2.76              | 0.43 | -           | -           | 10 |
|                | HAS - 100T      | HA100  | 2               | HAT100           | 7               | 3.94              | 0.47 | -           | -           | 10 |
| HDA            | HDA - 25T       | HD25   | 3               | HD25T            | 9               | 1.77              | 0.35 | 1.38        | 1"-12 UNF   | 11 |
|                | HDA - 50T       | HD50   | 3               | HD50T            | 9               | 2.76              | 0.43 | 1.77        | 1"-12 UNF   | 11 |
|                | HDA - 100T      | HD100  | 3               | HD100T           | 9               | 3.94              | 0.47 | 2.17        | 1 ¾"-12 UNF | 11 |
|                | HDA - 150T      | HD200  | 3               | HD200T           | 9               | 3.94              | 0.47 | 2.05        | 2 ½"-12 UNF | 11 |
|                | HDA - 200T      | HD200  | 3               | HD200T           | 9               | 4.33              | 0.47 | 2.76        | 2 ½"-12 UNF | 11 |
|                | HDA - 300T      | HD300T | 7               | HD300            | 2               | 5.91              | 0.99 | -           | -           | -  |
|                | HDA - 400T      | HD400T | 7               | HD400            | 2               | 7.09              | 0.99 | -           | -           | -  |
|                | HDA - 500T      | HD500T | 7               | HD500            | 2               | 7.09              | 0.99 | -           | -           | -  |
|                | HDA - 800T      | TS800  | 8               | -                | -               | 7.09              | -    | 2.01        | M24x3       | 14 |
| HDA - 1000T    | TS1000          | 8      | -               | -                | 7.09            | -                 | 2.01 | M24x3       | 14          |    |
| HFA            | HFA - 30T       | HAT30  | 7               | HA30             | 2               | 1.97              | 0.39 | -           | -           | 10 |
|                | HFA - 50T       | HAT50  | 7               | HA50             | 2               | 2.76              | 0.43 | -           | -           | 10 |
|                | HFA - 100T      | HAT100 | 7               | HA100            | 2               | 3.94              | 0.47 | -           | -           | 10 |
| HFG            | HFG - 50T       | TS50   | 8               | -                | -               | 1.22              | -    | 0.59        | M8x1.25     | 14 |
|                | HFG - 100T      | TS100  | 8               | -                | -               | 2.36              | -    | 0.71        | M12x1.75    | 14 |
|                | HFG - 150T      | TS150  | 8               | -                | -               | 2.36              | -    | 0.71        | M12x1.75    | 14 |
|                | HFG - 200T      | TS200  | 8               | -                | -               | 2.36              | -    | 0.71        | M12x1.75    | 14 |
|                | HFG - 250T      | TS300  | 8               | -                | -               | 2.76              | -    | 0.63        | M10x1.5     | 14 |
|                | HFG - 300T      | TS300  | 8               | -                | -               | 4.93              | -    | 0.67        | M10x1.5     | 14 |
|                | HFG - 400T      | TS400  | 8               | -                | -               | 4.93              | -    | 0.67        | M12x1.75    | 14 |
|                | HFG - 500T      | TS500  | 8               | -                | -               | 4.93              | -    | 0.67        | M12x1.75    | 14 |
|                | HFG - 800T      | TS800  | 8               | -                | -               | 6.9               | -    | 1.97        | M24x3       | 14 |
| HFG - 1000T    | TS1000          | 8      | -               | -                | 6.9             | -                 | 2.01 | M24x3       | 14          |    |
| HFL            | HFL - 50T       | TS50   | 8               | -                | -               | 1.22              | -    | 0.59        | M8x1.25     | 14 |
|                | HFL - 100T      | TS100  | 8               | -                | -               | 2.36              | -    | 0.71        | M12x1.75    | 14 |
|                | HFL - 150T      | TS150  | 8               | -                | -               | 4.73              | -    | 0.71        | M12x1.75    | 14 |
|                | HFL - 250T      | TS250  | 8               | -                | -               | 5.52              | -    | 1.58        | M10x1.5     | 14 |
|                | HFL - 400T      | TS400  | 8               | -                | -               | 7.09              | -    | 1.58        | M12x1.75    | 14 |
|                | HFL - 500T      | TS500  | 8               | -                | -               | 7.88              | -    | 1.58        | M12x1.75    | 14 |
| HGG            | HGG - 150T      | TS150  | 8               | -                | -               | 0.71              | -    | 2.36        | M12x1.75    | 14 |
|                | HGG - 200T      | TS201  | 8               | -                | -               | 0.71              | -    | 4.91        | M12x1.75    | 14 |
|                | HGG - 300T      | TS301  | 8               | -                | -               | 0.83              | -    | 3.74        | M12x1.75    | 14 |
| HHA            | HHA - 18T       | HA18   | 4               | HA18T            | 5               | -                 | -    | 1.1         | M35x1.5     | 12 |
|                | HHA - 37T       | HA37   | 4               | HA37T            | 5               | -                 | -    | 1.38        | M50x1.5     | 12 |
|                | HHA - 50T       | HA504  | 4               | HA50T            | 5               | -                 | -    | 1.46        | M60x1.5     | 12 |
| HHR            | HHR - 30T       | HA302  | 4               | HA302T, HA302G   | 5,6             | 2.05              | 0.39 | 1.26        | M48x1.5     | 13 |
|                | HHR - 60T       | HA603  | 4               | HA603T, HA603G   | 5,6             | 3.15              | 0.39 | 1.26        | M70x1.5     | 13 |
|                | HHR - 100T      | HA1003 | 4               | HA1003T, HA1003G | 5,6             | 4.49              | 0.47 | 1.5         | M105x2      | 13 |
|                | HHR - 150T      | HA1508 | 4               | HA1508G          | 6               | 6.7               | 0.53 | 1.97        | M150x3      | 13 |
|                | HHR - 250T      | HA2508 | 4               | HA2508G          | 6               | 9.53              | 0.53 | 2.92        | M220x3      | 13 |
| HHS            | HHS - 10T       | HA102  | 4               | HA102T, HA102G   | 5,6             | 1.26              | 0.28 | 0.83        | M28x1.5     | 13 |
|                | HHS - 20T       | HA202  | 4               | HA202T, HA202G   | 5,6             | 1.69              | 0.39 | 1.22        | M39x1.5     | 13 |
|                | HHS - 30T       | HA302  | 4               | HA302T, HA302G   | 5,6             | 2.05              | 0.39 | 1.22        | M48x1.5     | 13 |
|                | HHS - 60T       | HA603  | 4               | HA603T, HA603G   | 5,6             | 3.15              | 0.39 | 1.22        | M70x1.5     | 13 |
|                | HHS - 100T      | HA1003 | 4               | HA1003T, HA1003G | 5,6             | 4.49              | 0.47 | 1.5         | M105x2      | 13 |
| HRA            | HRA - 30T       | HA30   | 2               | HAT30            | 7               | 1.97              | 0.39 | -           | -           | 10 |
|                | HRA - 50T       | HA50   | 2               | HAT50            | 7               | 2.76              | 0.43 | -           | -           | 10 |
|                | HRA - 100T      | HA100  | 2               | HAT100           | 7               | 3.94              | 0.47 | -           | -           | 10 |
| HSG            | HSG - 150T      | TS150  | 8               | -                | -               | 0.71              | -    | 2.36        | M12x1.75    | 14 |
|                | HSG - 200T      | TS201  | 8               | -                | -               | 0.71              | -    | 4.91        | M12x1.75    | 14 |
|                | HSG - 300T      | TS302  | 8               | -                | -               | 1.1               | -    | 6.3         | M22x2.5     | 14 |
| HSS            | HSS - 5T        | HA5    | 1               | -                | -               | -                 | -    | 0.79        | ¾"-16 UNF   | 12 |
|                | HSS - 10T       | HA10   | 1               | HAT10            | 9               | -                 | -    | 0.55        | 1"-8 UNC    | 12 |
|                | HSS - 15T       | HA15   | 1               | HAT10            | 9               | -                 | -    | 0.55        | 1"-8 UNC    | 12 |
|                | HSS - 25T       | HA25   | 1               | HAT25            | 9               | -                 | -    | 1.18        | 1 ½"-16 UN  | 12 |
|                | HSS - 30T       | HA25   | 1               | HAT25            | 9               | -                 | -    | 1.18        | 1 ½"-16 UN  | 12 |
|                | HSS - 50T       | HA50   | 2               | HAT50            | 7               | 2.76              | 0.43 | -           | -           | 10 |
|                | HSS - 75T       | HA75   | 2               | HAT75            | 7               | 3.15              | 0.47 | -           | -           | 10 |
|                | HSS - 100T      | HA100  | 2               | HAT100           | 7               | 3.94              | 0.47 | -           | -           | 10 |

## CYLINDER SADDLES & PISTON ROD THREAD SPECIFICATIONS

**SADDLE DRAWINGS** (for specifications, see facing page)

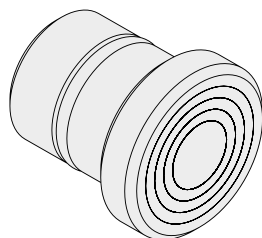


Figure 1

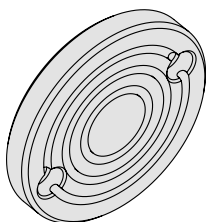


Figure 2

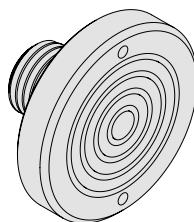


Figure 3

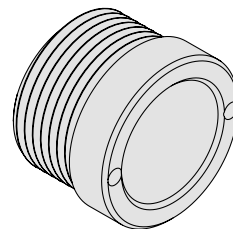


Figure 4

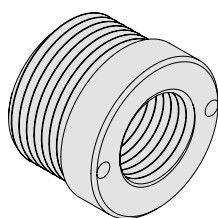


Figure 5

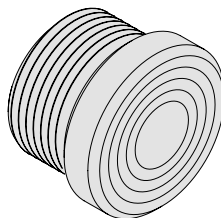


Figure 6

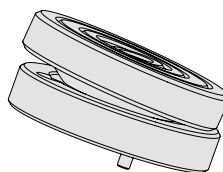


Figure 7

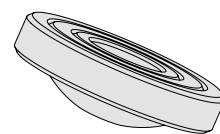


Figure 8

*Note: See below table for details on internal saddle thread*

| Saddle model | Internal saddle thread specification |
|--------------|--------------------------------------|
| HA18T        | M24                                  |
| HA37T        | M36                                  |
| HA50T        | M48                                  |
| HA102T       | ¾"-16 UNF                            |
| HA202T       | 1" x 8 UNC                           |
| HA302T       | 1 ¼" x 7 UNC                         |
| HA603T       | 1 ⅝" x 5 ½" UNS                      |
| HA1003T      | 2 ½" x 8 UN                          |

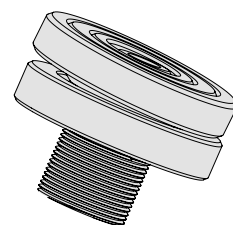


Figure 9

**PISTON ROD DRAWINGS** (for specifications, see facing page)

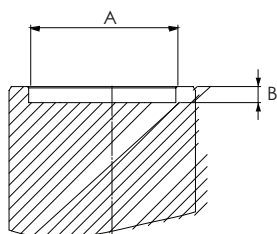


Figure 10

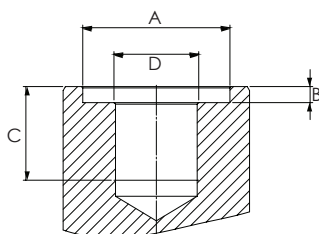


Figure 11

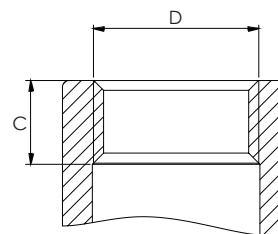


Figure 12

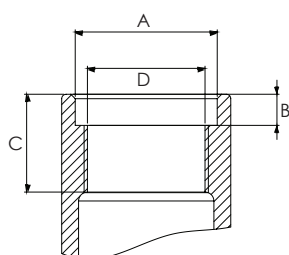


Figure 13

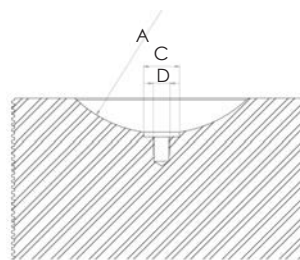


Figure 14

## HI-FORCE HYDRAULIC PUMPS

The Hi-Force range of manual and powered hydraulic pumps comprises of standard models, with additional factory fitted options, of electric solenoid valves and 60 Hz motors, available to order. The range comprises of manual, battery, electric, air and gasoline engine driven options, all suitable for use at pressures up to 10000 psi maximum, excluding the HPX hand pump range on page 32, which offers even greater output pressure options, for specialist ultra-high pressure applications. Both the manual and the powered pump options are available in either single or two stage output flow rates and the extensive range and choice of models available, ensures that the user can select the best Hi-Force pump for the application.







## HYDRAULIC PUMPS

### SELECTION TABLE FOR HYDRAULIC PUMPS 28

#### HP STEEL 29

Manually operated, single or two stage, steel hand pumps

#### HP ALUMINIUM 30

Manually operated, two stage, aluminum hand pumps

#### HP HIGH FLOW 31

Manually operated, two stage, high flow hand pumps

#### HPX RANGE 32

Manually operated, two stage ultra-high pressure hand pumps

#### HP-FP RANGE 33

Manually operated, two stage foot pumps

#### BPP RANGE 34

Battery powered, two stage hydraulic pump

#### HEP1 RANGE 35

Electric driven, two stage mini pumps with carrying strap

#### HEP103 RANGE 36

Electric driven, two stage compact pumps

#### HEP2 RANGE 37

Electric driven, two stage, medium flow, general duty pumps

#### HEP3 RANGE 38

Electric driven, two stage, high flow, general duty pumps

#### HEP4 RANGE 39

Electric driven, two stage, high flow, general duty pumps

#### HEP5 RANGE 40

Electric driven, two stage, ultra-high flow, general duty pumps

#### HSP RANGE 41

Electric driven, split flow, multi-outlet pumps

#### SLF RANGE 42

Synchronous lifting system, fixed speed drive

#### SLV RANGE 46

Synchronous lifting system, variable speed drive

#### AHP11 RANGE 51

Air driven, single stage, hand or foot operated pumps

#### HAP RANGE 52

Air driven, two stage, high flow, general duty pumps

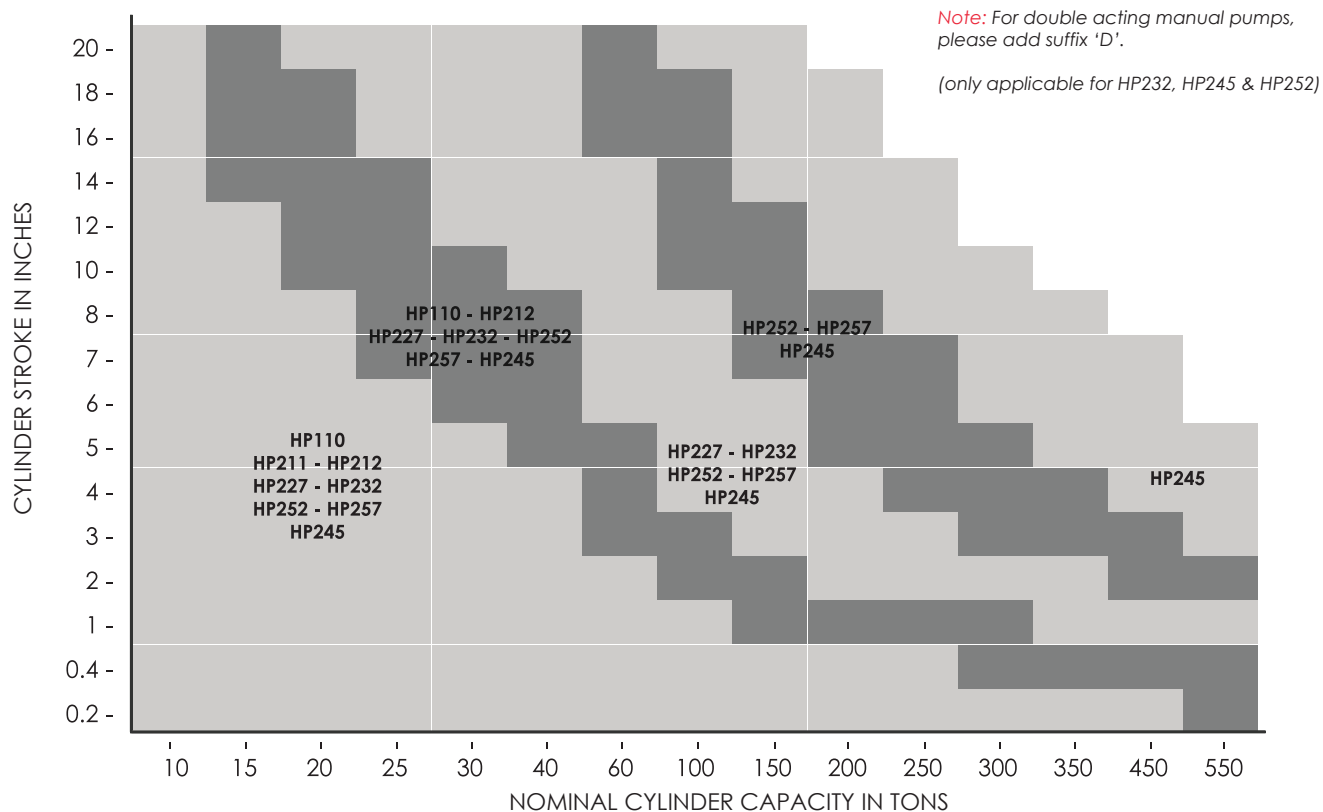
#### HPP RANGE 53

Gasoline engine driven, two stage, high flow, general duty pumps

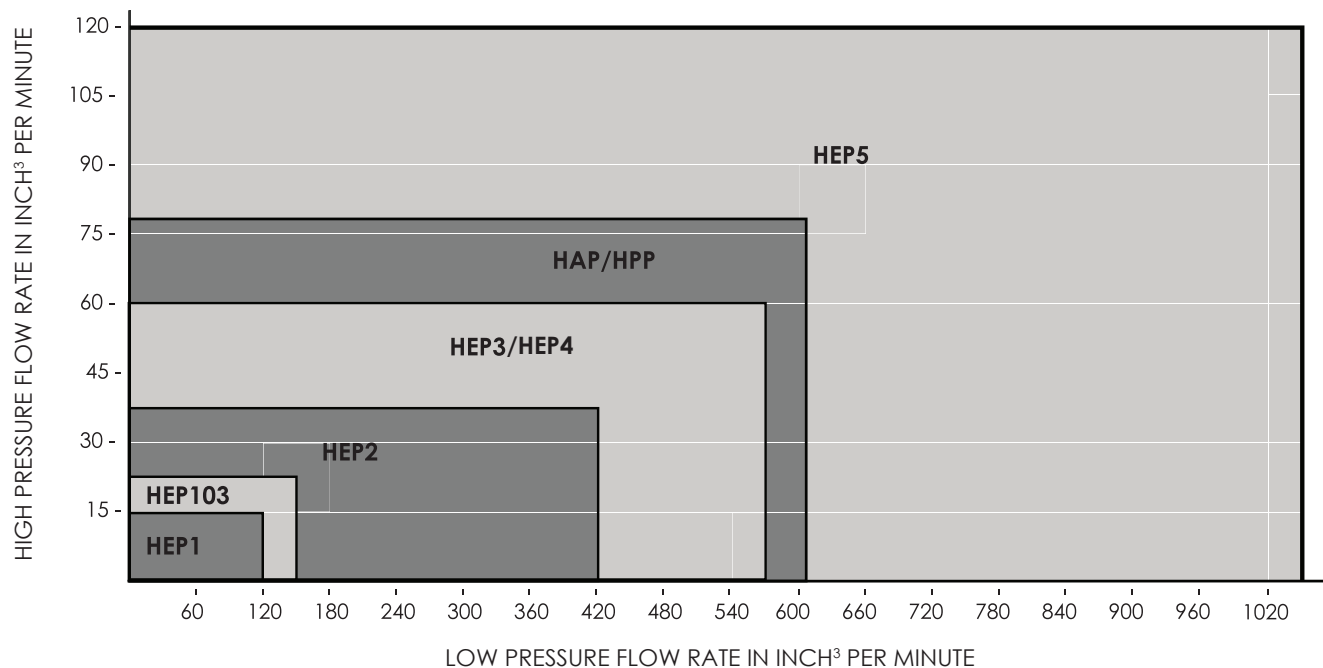


**SELECTION TABLE FOR HI-FORCE HYDRAULIC PUMPS**

**MANUAL PUMPS**



**POWERED PUMPS**



**HP | MANUALLY OPERATED PUMPS - STEEL**

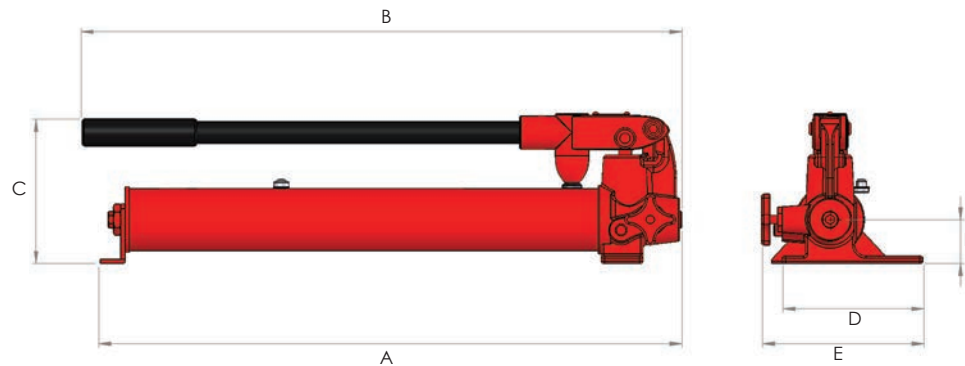


Single or two stage operation

Durable steel construction

Working pressure 10000 psi

- ▶ Oil reservoir capacity up to 250.2 inch<sup>3</sup>
- ▶ External pressure release valve and factory set safety relief valve
- ▶ Low handle effort and ergonomic grip for easy operation
- ▶ Changeover pressure for two stage models is 203 psi



| Model number                                                           | Valve type | Displacement per stroke (in <sup>3</sup> ) |                       | Usable oil capacity (in <sup>3</sup> ) | Handle effort (lbs) | Weight (lbs) | Dimensions (in) |       |      |      |      |      |
|------------------------------------------------------------------------|------------|--------------------------------------------|-----------------------|----------------------------------------|---------------------|--------------|-----------------|-------|------|------|------|------|
|                                                                        |            | 1 <sup>st</sup> stage                      | 2 <sup>nd</sup> stage |                                        |                     |              | A               | B     | C    | D    | E    | F    |
| Single stage hand operated pumps for single acting cylinders and tools |            |                                            |                       |                                        |                     |              |                 |       |      |      |      |      |
| HP110                                                                  | 2-way      | 0.18                                       | -                     | 61.02                                  | 99                  | 12.3         | 21.99           | 22.3  | 5.04 | 5.28 | 5.71 | 1.58 |
| Two stage hand operated pumps for single acting cylinders and tools    |            |                                            |                       |                                        |                     |              |                 |       |      |      |      |      |
| HP227                                                                  | 2-way      | 0.79                                       | 0.14                  | 140.35                                 | 84                  | 23.1         | 21.43           | 23.52 | 6.62 | 5.32 | 5.71 | 2.09 |
| HP257                                                                  | 2-way      | 0.79                                       | 0.14                  | 250.2                                  | 84                  | 33.5         | 21.47           | 23.52 | 6.62 | 5.32 | 5.91 | 2.09 |

**HP | MANUALLY OPERATED PUMPS - ALUMINUM**

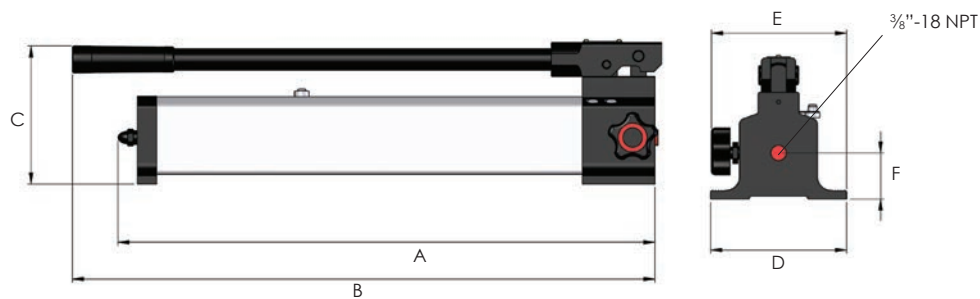


**Two stage operation**

**Working pressure 10000 psi**

**Six models with choice of control valve**

- ▶ Oil reservoir capacity up to 305.12 inch<sup>3</sup>
- ▶ Lightweight aluminum construction with external pressure release valve and factory set safety relief valve
- ▶ Changeover pressure is 203 psi
- ▶ Low handle effort and ergonomic grip for easy operation



| Model number                                                        | Valve type | Displacement per stroke (in <sup>3</sup> ) |                       | Usable oil capacity (in <sup>3</sup> ) | Handle effort (lbs) | Weight (lbs) | Dimensions (in) |       |      |      |      |      |
|---------------------------------------------------------------------|------------|--------------------------------------------|-----------------------|----------------------------------------|---------------------|--------------|-----------------|-------|------|------|------|------|
|                                                                     |            | 1 <sup>st</sup> stage                      | 2 <sup>nd</sup> stage |                                        |                     |              | A               | B     | C    | D    | E    | F    |
| Two stage hand operated pumps for single acting cylinders and tools |            |                                            |                       |                                        |                     |              |                 |       |      |      |      |      |
| HP211                                                               | 2-way      | 0.79                                       | 0.06                  | 30.51                                  | 60                  | 4.4          | 13.2            | 15.29 | 5.32 | 3.94 | 4.93 | 1.58 |
| HP212                                                               | 2-way      | 0.79                                       | 0.14                  | 61.02                                  | 88                  | 8.8          | 22.06           | 24.03 | 5.52 | 3.94 | 4.93 | 1.58 |
| HP232                                                               | 2-way      | 0.79                                       | 0.14                  | 122.05                                 | 88                  | 15.2         | 22.06           | 24.03 | 6.3  | 5.52 | 6.11 | 1.97 |
| HP252                                                               | 2-way      | 0.79                                       | 0.14                  | 305.12                                 | 88                  | 21.2         | 23.05           | 24.03 | 6.3  | 6.62 | 5.71 | 1.97 |
| Two stage hand operated pumps for double acting cylinders and tools |            |                                            |                       |                                        |                     |              |                 |       |      |      |      |      |
| HP232D                                                              | 4-way      | 0.79                                       | 0.14                  | 122.05                                 | 88                  | 19.2         | 22.85           | 24.63 | 6.3  | 5.52 | 6.9  | 1.18 |
| HP252D                                                              | 4-way      | 0.79                                       | 0.14                  | 305.12                                 | 88                  | 30.0         | 23.84           | 24.63 | 6.3  | 6.62 | 6.9  | 1.18 |

**HP | MANUALLY OPERATED PUMPS - HIGH FLOW**

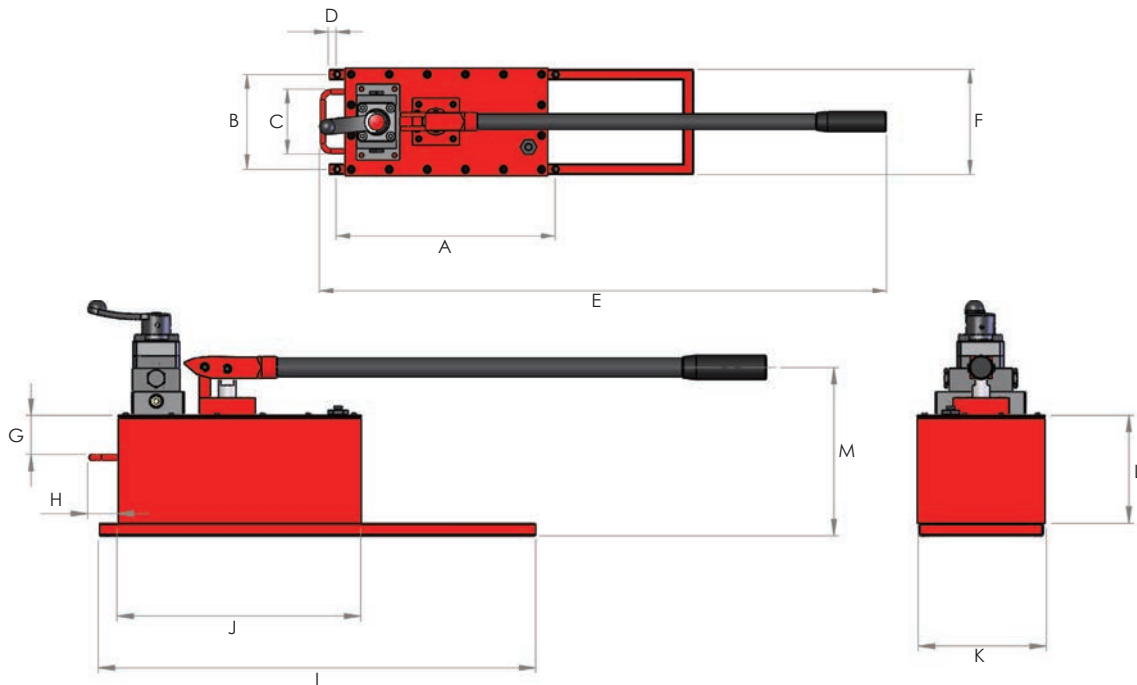


**Heavy duty steel construction**

**Working pressure 10000 psi**

**Two stage with semi automatic changeover**

- ▶ Oil reservoir capacity 2.64 gallons
- ▶ Factory set safety relief valve fitted as standard
- ▶ Available with 2-way valve for use with single acting cylinders and 4-way valve for use with double acting cylinders
- ▶ 1<sup>st</sup> stage flow rate of 6.89 in<sup>3</sup> per handle stroke for faster extension & retraction of piston under no load
- ▶ Changeover pressure is 406 psi
- ▶ Low handle effort and ergonomic grip for easy operation



| Model number                                                       | Valve type | Displacement per stroke (in <sup>3</sup> )<br>1 <sup>st</sup> stage | 2 <sup>nd</sup> stage | Usable oil capacity (gallons) | Handle effort (lbs) | Weight (lbs) |
|--------------------------------------------------------------------|------------|---------------------------------------------------------------------|-----------------------|-------------------------------|---------------------|--------------|
| Two stage hand operated pump for single acting cylinders and tools |            |                                                                     |                       |                               |                     |              |
| HP245                                                              | 2-way      | 6.89                                                                | 0.24                  | 2.64                          | 88                  | 65.0         |
| Two stage hand operated pump for double acting cylinders and tools |            |                                                                     |                       |                               |                     |              |
| HP245D                                                             | 4-way      | 6.89                                                                | 0.24                  | 2.64                          | 88                  | 68.3         |

| Dimensions (in) |      |      |      |       |      |      |      |       |       |      |      |       |
|-----------------|------|------|------|-------|------|------|------|-------|-------|------|------|-------|
| A               | B    | C    | D    | E     | F    | G    | H    | I     | J     | K    | L    | M     |
| 16.55           | 7.09 | 4.89 | 0.59 | 41.37 | 7.88 | 2.48 | 1.85 | 27.58 | 15.37 | 8.08 | 6.82 | 10.64 |



**HPX | MANUALLY OPERATED ULTRA HIGH PRESSURE PUMPS**

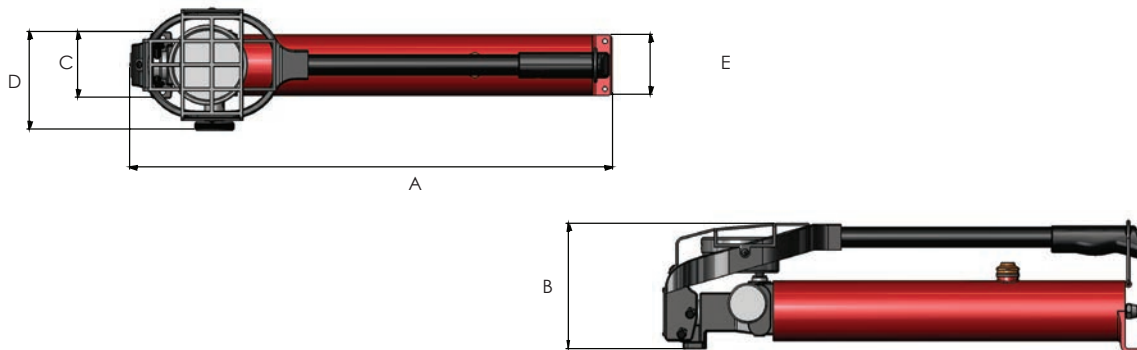


Compact lightweight aluminum construction

Two stage operation

Choice of 21750 or 40600 psi pressure rating

- ▶ Oil reservoir capacity 73.23 inch<sup>3</sup>
- ▶ External pressure release valve and factory set safety valve
- ▶ Specifically designed for high pressure applications
- ▶ Bespoke handle with ergonomic grip and mesh guard to protect pressure gauge



| Model number | Working pressure (psi) | Usable oil capacity (in <sup>3</sup> ) | Displacement per stroke (in <sup>3</sup> ) |                       | Outlet port  | Weight (lbs) | Dimensions (in) |      |      |      |      |
|--------------|------------------------|----------------------------------------|--------------------------------------------|-----------------------|--------------|--------------|-----------------|------|------|------|------|
|              |                        |                                        | 1 <sup>st</sup> stage                      | 2 <sup>nd</sup> stage |              |              | A               | B    | C    | D    | E    |
| HPX1500      | 21750                  | 73.23                                  | 1.22                                       | 0.06                  | 1/4" BSP     | 14.3         | 24.23           | 6.34 | 3.31 | 4.93 | 3.01 |
| HPX2800      | 40600                  | 73.23                                  | 1.22                                       | 0.05                  | 9/16"-18 UNF | 14.3         | 24.23           | 6.34 | 3.31 | 4.93 | 3.01 |

**OPTIONAL HOSES:**

| Model number | Working pressure (psi) | Description                                               | Weight (lbs) |
|--------------|------------------------|-----------------------------------------------------------|--------------|
| XHH3-15      | 21750                  | 10 ft hose with 1/4" BSP male thread each end             | 3.1          |
| XHH5-15      | 21750                  | 16.5 ft hose with 1/4" BSP male thread each end           | 5.7          |
| XHH3-30      | 43500                  | 10 ft hose with 9/16"-18 UNF male coned thread each end   | 7.1          |
| XHH5-30      | 43500                  | 16.5 ft hose with 9/16"-18 UNF male coned thread each end | 11.2         |

HP-FP | MANUALLY OPERATED FOOT PUMPS

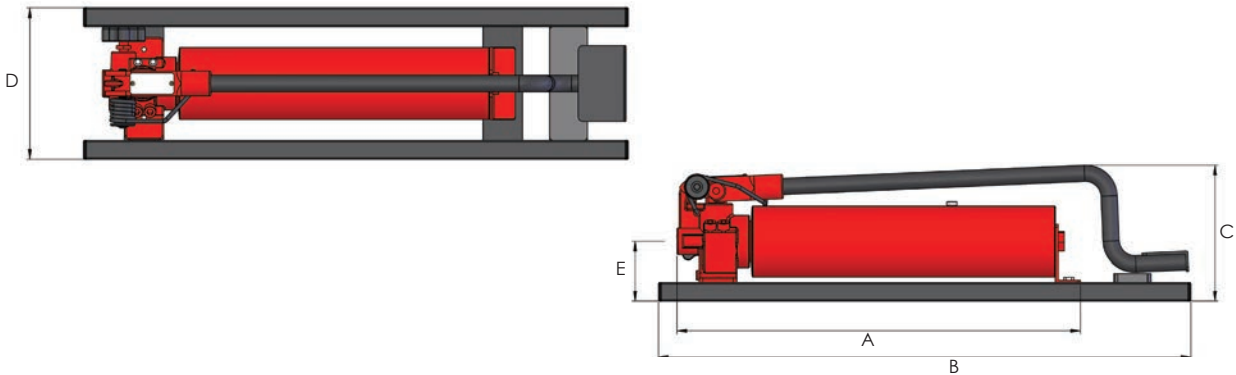


Working pressure 10000 psi

Two stage operation

Durable steel construction

- ▶ Oil reservoir capacity 140.35 inch<sup>3</sup>
- ▶ External pressure release valve and factory set safety relief valve
- ▶ Wide foot pedal for easy and controlled pumping action
- ▶ Steel framework for maximum stability



| Model number | Valve type | Displacement per stroke (in <sup>3</sup> ) |                       | Usable oil capacity (in <sup>3</sup> ) | Handle effort (lbs) | Weight (lbs) | Dimensions (in) |       |      |      |      |
|--------------|------------|--------------------------------------------|-----------------------|----------------------------------------|---------------------|--------------|-----------------|-------|------|------|------|
|              |            | 1 <sup>st</sup> stage                      | 2 <sup>nd</sup> stage |                                        |                     |              | A               | B     | C    | D    | E    |
| HP227FP      | 2-way      | 0.79                                       | 0.14                  | 140.35                                 | 86                  | 27.6         | 21.43           | 28.17 | 7.29 | 7.88 | 3.07 |
| HP227FPC     | 2-way      | 0.79                                       | 0.14                  | 140.35                                 | 86                  | 32.0         | 21.43           | 30.06 | 8.94 | 7.88 | 3.07 |

*Note:* HP227FPC is supplied with pressure gauge, gauge mounting block and 10 ft hose with male coupler

**BPP | BATTERY POWERED HYDRAULIC PUMP**

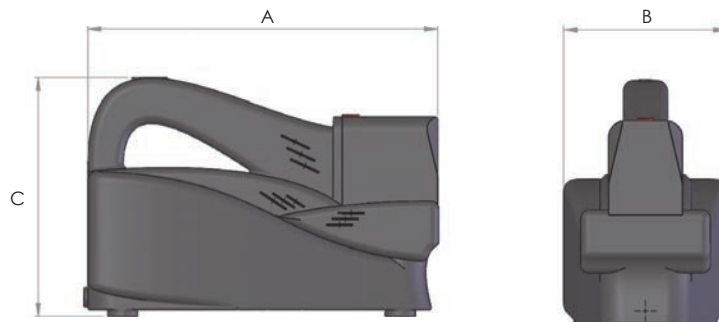


Working pressure 10000 psi

14.4V long life battery

Lightweight design

- ▶ Powerful hydraulic pump driven by 14.4 volt battery
- ▶ Compact and lightweight design with shoulder strap for easy carrying
- ▶ External pressure release valve and factory set safety valve
- ▶ Supplied with battery and charger



| Model number | Oil capacity (in³) | Oil flow (in³/min)    |                       | Weight (lbs) | Dimensions (in) |     |       |
|--------------|--------------------|-----------------------|-----------------------|--------------|-----------------|-----|-------|
|              |                    | 1 <sup>st</sup> stage | 2 <sup>nd</sup> stage |              | A               | B   | C     |
| BPP107       | 42.72              | 30.51                 | 9.15                  | 17.6         | 13.99           | 6.3 | 10.24 |

**BPP ACCESSORIES**



| Model number | Description        |
|--------------|--------------------|
| BP12         | Battery Pack 14.4V |

*Note: Charger supplied separately*



| Model number | Description             |
|--------------|-------------------------|
| CU12         | Mains charger 110V-230V |



| Model number | Voltage  | Description                                      |
|--------------|----------|--------------------------------------------------|
| MP110        | 110V     | Power supply to operate unit directly from mains |
| MP220        | 220/230V |                                                  |

## HEP1 | ELECTRIC DRIVEN LIGHTWEIGHT MINI PUMPS WITH CARRYING STRAP

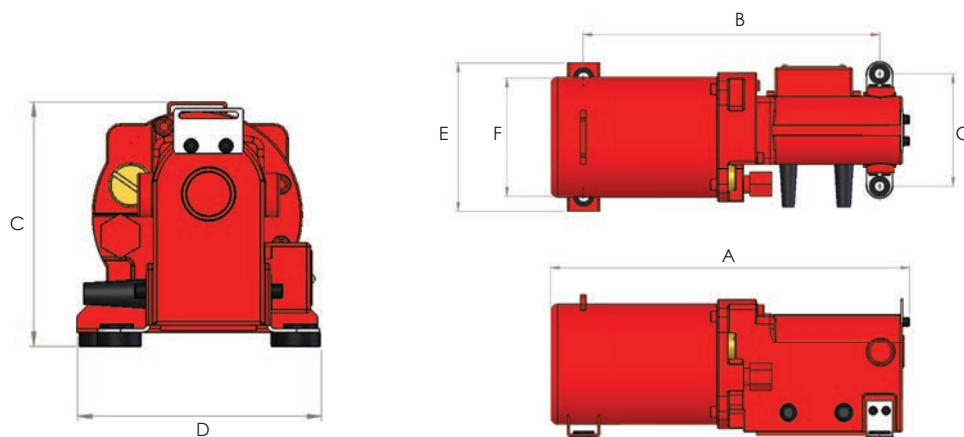


Working pressure 10000 psi

Two stage operation

Lightweight, compact design

- ▶ Oil reservoir capacity 48.82 inch<sup>3</sup>
- ▶ Choice of 110 or 240 volt single phase electric motor with 2-way electric solenoid valve
- ▶ Internal safety overload valve
- ▶ Remote hand pendant controller with 10 feet cable
- ▶ Supplied with handy carrying strap



| Model number | Motor voltage | Maximum flow rate (in <sup>3</sup> /min) |                       | Valve type | Usable oil capacity (in <sup>3</sup> ) | Weight (lbs) | Dimensions (in) |      |      |      |      |      |      |
|--------------|---------------|------------------------------------------|-----------------------|------------|----------------------------------------|--------------|-----------------|------|------|------|------|------|------|
|              |               | 1 <sup>st</sup> stage                    | 2 <sup>nd</sup> stage |            |                                        |              | A               | B    | C    | D    | E    | F    | G    |
| HEP1211S     | 110V-1Ph      | 122.05                                   | 12.2                  | 2-way      | 48.82                                  | 16.5         | 13.12           | 10.6 | 5.52 | 5.48 | 5.44 | 4.33 | 4.14 |
| HEP1212S     | 240V-1Ph      | 122.05                                   | 12.2                  | 2-way      | 48.82                                  | 16.5         | 13.12           | 10.6 | 5.52 | 5.48 | 5.44 | 4.33 | 4.14 |

## HEP103 | ELECTRIC DRIVEN TWO STAGE COMPACT PUMPS

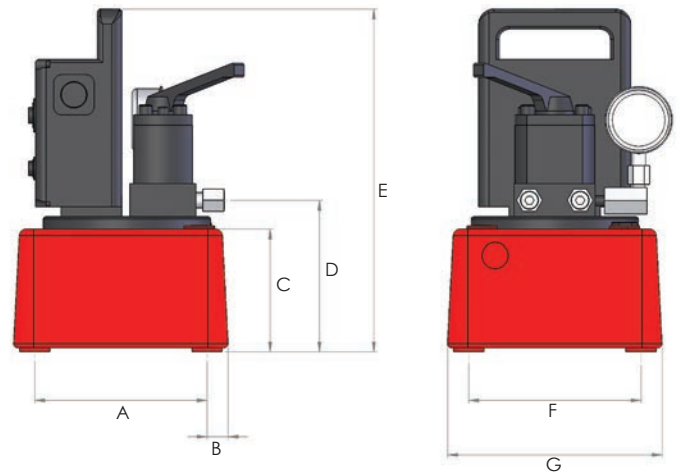


- ▶ Oil reservoir capacity 1.06 gallons
- ▶ Choice of 110 or 240 volt single phase electric motors with 50/60 Hz dual frequency
- ▶ Choice of manual or electric powered control valves in 2, 3 or 4-way configuration
- ▶ Control valves available with open center, closed center or locking valve design
- ▶ Supplied with glycerin filled pressure gauge
- ▶ Integral carrying handle for easy transportation
- ▶ Remote hand pendant controller with 10 feet control cable

Working pressure 10000 psi

Two stage operation

Choice of valve options



| Model number | Motor voltage | Maximum flow rate (in <sup>3</sup> /min)<br>1 <sup>st</sup> stage | 2 <sup>nd</sup> stage | Changeover pressure (psi) | Remote pendant functions | Usable oil capacity (gallons) | Weight (lbs) |
|--------------|---------------|-------------------------------------------------------------------|-----------------------|---------------------------|--------------------------|-------------------------------|--------------|
|--------------|---------------|-------------------------------------------------------------------|-----------------------|---------------------------|--------------------------|-------------------------------|--------------|

Below models feature 2-way solenoid valve, normally closed (hold function), suitable for use with single acting cylinders and tools, requiring load holding.

|             |          |        |       |      |                 |      |      |
|-------------|----------|--------|-------|------|-----------------|------|------|
| HEP103241LS | 110V-1Ph | 152.56 | 21.36 | 2175 | advance/retract | 1.06 | 42.3 |
| HEP103242LS | 240V-1Ph | 152.56 | 21.36 | 2175 | advance/retract | 1.06 | 42.3 |

Below models featuring 2-way solenoid valve, normally open (auto retract function), suitable for use with single acting cylinders and tools, requiring auto retract.

|            |          |        |       |      |                 |      |      |
|------------|----------|--------|-------|------|-----------------|------|------|
| HEP103241S | 110V-1Ph | 152.56 | 21.36 | 2175 | advance/retract | 1.06 | 45.2 |
| HEP103242S | 240V-1Ph | 152.56 | 21.36 | 2175 | advance/retract | 1.06 | 45.2 |

Below models feature 3-way manually operated valve, suitable for use with single acting cylinders and tools.

|           |          |        |       |      |              |      |      |
|-----------|----------|--------|-------|------|--------------|------|------|
| HEP103341 | 110V-1Ph | 152.56 | 21.36 | 2175 | motor on/off | 1.06 | 39.9 |
| HEP103342 | 240V-1Ph | 152.56 | 21.36 | 2175 | motor on/off | 1.06 | 39.9 |

Below models feature 4-way manually operated valve, suitable for use with double acting cylinders and tools.

|           |          |        |       |      |              |      |      |
|-----------|----------|--------|-------|------|--------------|------|------|
| HEP103441 | 110V-1Ph | 152.56 | 21.36 | 2175 | motor on/off | 1.06 | 39.9 |
| HEP103442 | 240V-1Ph | 152.56 | 21.36 | 2175 | motor on/off | 1.06 | 39.9 |

Below models feature 4-way solenoid valve, locking feature on A and B port, suitable for use with double acting cylinders and tools, requiring load holding.

|             |          |        |       |      |                 |      |      |
|-------------|----------|--------|-------|------|-----------------|------|------|
| HEP103441LS | 110V-1Ph | 152.56 | 21.36 | 2175 | advance/retract | 1.06 | 45.2 |
| HEP103442LS | 240V-1Ph | 152.56 | 21.36 | 2175 | advance/retract | 1.06 | 45.2 |

| Model number | A    | B    | C    | Dimensions (in)<br>D | E     | F    | G     |
|--------------|------|------|------|----------------------|-------|------|-------|
| All Models   | 7.68 | 0.99 | 4.63 | 5.58                 | 13.47 | 8.27 | 10.24 |



## HEP2 | ELECTRIC DRIVEN PUMPS - GENERAL DUTY MEDIUM FLOW

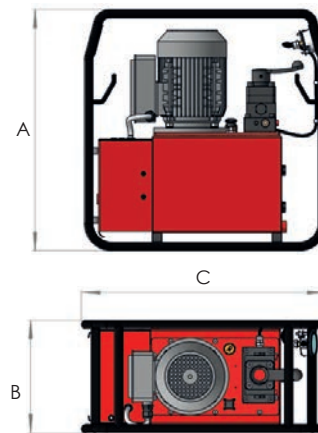


**Working pressure 10000 psi**

**Two stage operation**

**Choice of 2.64 or 6.6 gallon oil reservoir**

- ▶ Choice of 110, 230 or 400/460 volt electric motors available as standard
- ▶ Choice of 2, 3 or 4-way manual control valves with load holding feature on 3 & 4-way versions
- ▶ Externally adjustable pressure relief for pressure settings up to 10000 psi
- ▶ Completely enclosed fan cooled low noise electric motors
- ▶ Cable management features for cable/hose winding and stowage
- ▶ Supplied as standard with pressure gauge and a robust roll frame



| Model number | Valve type | Oil capacity (gallons) | Maximum flow rate (in <sup>3</sup> /min) |                       | Motor voltage             | Model number (60 Hz motor) | Weight (lbs) | Dimensions (in) |       |       |
|--------------|------------|------------------------|------------------------------------------|-----------------------|---------------------------|----------------------------|--------------|-----------------|-------|-------|
|              |            |                        | 1 <sup>st</sup> stage                    | 2 <sup>nd</sup> stage |                           |                            |              | A               | B     | C     |
| HEP207111    | P-T Plate  | 2.64                   | 427.17                                   | 39.67                 | 110V 50 Hz-1Ph            | HEP207111H                 | 114.6        | 24.7            | 11.5  | 24.9  |
| HEP207112    | P-T Plate  | 2.64                   | 427.17                                   | 39.67                 | 230V 50 Hz-1Ph            | HEP207112H                 | 114.6        | 24.7            | 11.5  | 24.9  |
| HEP207114    | P-T Plate  | 2.64                   | 427.17                                   | 39.67                 | 400V 50 Hz/460V 60 Hz-3Ph | -                          | 114.6        | 24.7            | 11.5  | 24.9  |
| HEP207121    | P-T Plate  | 6.6                    | 427.17                                   | 39.67                 | 110V 50 Hz-1Ph            | HEP207121H                 | 149.9        | 24.7            | 13.87 | 29.71 |
| HEP207122    | P-T Plate  | 6.6                    | 427.17                                   | 39.67                 | 230V 50 Hz-1Ph            | HEP207122H                 | 149.9        | 24.7            | 13.87 | 29.71 |
| HEP207124    | P-T Plate  | 6.6                    | 427.17                                   | 39.67                 | 400V 50 Hz/460V 60 Hz-3Ph | -                          | 149.9        | 24.7            | 13.87 | 29.71 |
| HEP207211    | 2-way      | 2.64                   | 427.17                                   | 39.67                 | 110V 50 Hz-1Ph            | HEP207211H                 | 115.7        | 24.7            | 11.5  | 24.9  |
| HEP207212    | 2-way      | 2.64                   | 427.17                                   | 39.67                 | 230V 50 Hz-1Ph            | HEP207212H                 | 115.7        | 24.7            | 11.5  | 24.9  |
| HEP207214    | 2-way      | 2.64                   | 427.17                                   | 39.67                 | 400V 50 Hz/460V 60 Hz-3Ph | -                          | 115.7        | 24.7            | 11.5  | 24.9  |
| HEP207221    | 2-way      | 6.6                    | 427.17                                   | 39.67                 | 110V 50 Hz-1Ph            | HEP207221H                 | 151.0        | 24.7            | 13.87 | 29.71 |
| HEP207222    | 2-way      | 6.6                    | 427.17                                   | 39.67                 | 230V 50 Hz-1Ph            | HEP207222H                 | 151.0        | 24.7            | 13.87 | 29.71 |
| HEP207224    | 2-way      | 6.6                    | 427.17                                   | 39.67                 | 400V 50 Hz/460V 60 Hz-3Ph | -                          | 151.0        | 24.7            | 13.87 | 29.71 |
| HEP207311    | 3-way      | 2.64                   | 427.17                                   | 39.67                 | 110V 50 Hz-1Ph            | HEP207311H                 | 115.7        | 24.7            | 11.5  | 24.9  |
| HEP207312    | 3-way      | 2.64                   | 427.17                                   | 39.67                 | 230V 50 Hz-1Ph            | HEP207312H                 | 115.7        | 24.7            | 11.5  | 24.9  |
| HEP207314    | 3-way      | 2.64                   | 427.17                                   | 39.67                 | 400V 50 Hz/460V 60 Hz-3Ph | -                          | 115.7        | 24.7            | 11.5  | 24.9  |
| HEP207321    | 3-way      | 6.6                    | 427.17                                   | 39.67                 | 110V 50 Hz-1Ph            | HEP207321H                 | 151.0        | 24.7            | 13.87 | 29.71 |
| HEP207322    | 3-way      | 6.6                    | 427.17                                   | 39.67                 | 230V 50 Hz-1Ph            | HEP207322H                 | 151.0        | 24.7            | 13.87 | 29.71 |
| HEP207324    | 3-way      | 6.6                    | 427.17                                   | 39.67                 | 400V 50 Hz/460V 60 Hz-3Ph | -                          | 151.0        | 24.7            | 13.87 | 29.71 |
| HEP207411    | 4-way      | 2.64                   | 427.17                                   | 39.67                 | 110V 50 Hz-1Ph            | HEP207411H                 | 115.7        | 24.7            | 11.5  | 24.9  |
| HEP207412    | 4-way      | 2.64                   | 427.17                                   | 39.67                 | 230V 50 Hz-1Ph            | HEP207412H                 | 115.7        | 24.7            | 11.5  | 24.9  |
| HEP207414    | 4-way      | 2.64                   | 427.17                                   | 39.67                 | 400V 50 Hz/460V 60 Hz-3Ph | -                          | 115.7        | 24.7            | 11.5  | 24.9  |
| HEP207421    | 4-way      | 6.6                    | 427.17                                   | 39.67                 | 110V 50 Hz-1Ph            | HEP207421H                 | 151.0        | 24.7            | 13.87 | 29.71 |
| HEP207422    | 4-way      | 6.6                    | 427.17                                   | 39.67                 | 230V 50 Hz-1Ph            | HEP207422H                 | 151.0        | 24.7            | 13.87 | 29.71 |
| HEP207424    | 4-way      | 6.6                    | 427.17                                   | 39.67                 | 400V 50 Hz/460V 60 Hz-3Ph | -                          | 151.0        | 24.7            | 13.87 | 29.71 |

**Note:** 1) All 400/460V models are suitable for operation at 50 Hz and 60 Hz.

2) All 110V and 230V models are supplied to run at 50 Hz as standard, refer to the table for pumps with 60 Hz motor. 60 Hz models deliver approximately 15-20% higher flow rate.

3) To order pumps with low voltage solenoid valve with hand pendant controller, suffix 'S' to the pump model.

## HEP3 | ELECTRIC DRIVEN PUMPS - GENERAL DUTY HIGH FLOW

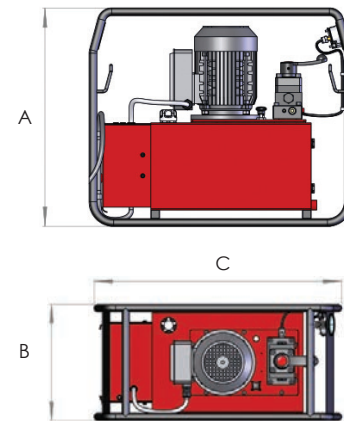


- ▶ Choice of 110, 230 or 400/460 volt electric motors available as standard
- ▶ Choice of 2, 3 or 4-way manual control valves with load holding feature on 3 & 4-way versions
- ▶ Externally adjustable pressure relief for pressure settings up to 10000 psi
- ▶ Completely enclosed fan cooled low noise electric motors
- ▶ Cable management features for cable/ hose winding and stowage
- ▶ Supplied as standard with pressure gauge and a robust roll frame

Working pressure 10000 psi

Two stage operation

6.6 gallon oil reservoir



| Model number | Valve type | Oil capacity (gallons) | Maximum flow rate (in <sup>3</sup> /min) |                       | Motor voltage             | Model number (60 Hz motor) | Weight (lbs) | Dimensions (in) |       |       |
|--------------|------------|------------------------|------------------------------------------|-----------------------|---------------------------|----------------------------|--------------|-----------------|-------|-------|
|              |            |                        | 1 <sup>st</sup> stage                    | 2 <sup>nd</sup> stage |                           |                            |              | A               | B     | C     |
| HEP310121    | P-T Plate  | 6.6                    | 549.21                                   | 61.02                 | 110V 50 Hz-1Ph            | HEP310121H                 | 149.9        | 24.7            | 13.87 | 29.71 |
| HEP310122    | P-T Plate  | 6.6                    | 549.21                                   | 61.02                 | 230V 50 Hz-1Ph            | HEP310122H                 | 149.9        | 24.7            | 13.87 | 29.71 |
| HEP310124    | P-T Plate  | 6.6                    | 549.21                                   | 61.02                 | 400V 50 Hz/460V 60 Hz-3Ph | -                          | 149.9        | 24.7            | 13.87 | 29.71 |
| HEP310221    | 2-way      | 6.6                    | 549.21                                   | 61.02                 | 110V 50 Hz-1Ph            | HEP310221H                 | 151.0        | 24.7            | 13.87 | 29.71 |
| HEP310222    | 2-way      | 6.6                    | 549.21                                   | 61.02                 | 230V 50 Hz-1Ph            | HEP310222H                 | 151.0        | 24.7            | 13.87 | 29.71 |
| HEP310224    | 2-way      | 6.6                    | 549.21                                   | 61.02                 | 400V 50 Hz/460V 60 Hz-3Ph | -                          | 151.0        | 24.7            | 13.87 | 29.71 |
| HEP310321    | 3-way      | 6.6                    | 549.21                                   | 61.02                 | 110V 50 Hz-1Ph            | HEP310321H                 | 151.0        | 24.7            | 13.87 | 29.71 |
| HEP310322    | 3-way      | 6.6                    | 549.21                                   | 61.02                 | 230V 50 Hz-1Ph            | HEP310322H                 | 151.0        | 24.7            | 13.87 | 29.71 |
| HEP310324    | 3-way      | 6.6                    | 549.21                                   | 61.02                 | 400V 50 Hz/460V 60 Hz-3Ph | -                          | 151.0        | 24.7            | 13.87 | 29.71 |
| HEP310421    | 4-way      | 6.6                    | 549.21                                   | 61.02                 | 110V 50 Hz-1Ph            | HEP310421H                 | 151.0        | 24.7            | 13.87 | 29.71 |
| HEP310422    | 4-way      | 6.6                    | 549.21                                   | 61.02                 | 230V 50 Hz-1Ph            | HEP310422H                 | 151.0        | 24.7            | 13.87 | 29.71 |
| HEP310424    | 4-way      | 6.6                    | 549.21                                   | 61.02                 | 400V 50 Hz/460V 60 Hz-3Ph | -                          | 151.0        | 24.7            | 13.87 | 29.71 |

**Note:** 1) All 400/460V models are suitable for operation at 50 Hz and 60 Hz.

2) All 110V and 230V models are supplied to run at 50 Hz as standard, refer to the table for pumps with 60 Hz motor. 60 Hz models deliver approximately 15-20% higher flow rate.

3) To order pumps with low voltage solenoid valve with hand pendant controller, suffix 'S' to the pump model.

## HEP4 | ELECTRIC DRIVEN PUMPS - GENERAL DUTY HIGH FLOW

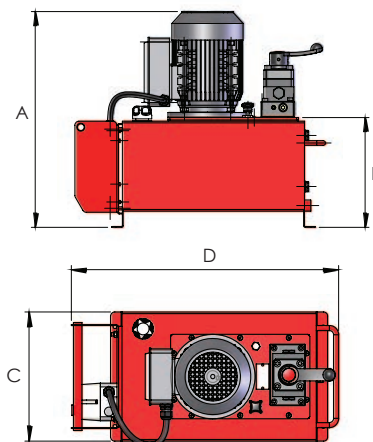


Working pressure 10000 psi

Two stage operation

Choice of 10.56 or 15.84 gallon oil reservoir

- ▶ Choice of 110, 230 or 400/460 volt electric motors available as standard
- ▶ Choice of 2, 3 or 4-way manual control valves with load holding feature on 3 & 4-way versions
- ▶ Externally adjustable pressure relief for pressure settings up to 10000 psi
- ▶ Completely enclosed fan cooled low noise electric motors



| Model number | Valve type | Oil capacity (gallons) | Maximum flow rate (in <sup>3</sup> /min) |                       | Motor voltage             | Model number (60 Hz motor) | Weight (lbs) | Dimensions (in) |       |       |       |
|--------------|------------|------------------------|------------------------------------------|-----------------------|---------------------------|----------------------------|--------------|-----------------|-------|-------|-------|
|              |            |                        | 1 <sup>st</sup> stage                    | 2 <sup>nd</sup> stage |                           |                            |              | A               | B     | C     | D     |
| HEP410141    | P-T Plate  | 10.56                  | 549.21                                   | 61.02                 | 110V 50 Hz-1Ph            | HEP410141H                 | 195.1        | 27.3            | 15.21 | 12.06 | 24.94 |
| HEP410142    | P-T Plate  | 10.56                  | 549.21                                   | 61.02                 | 230V 50 Hz-1Ph            | HEP410142H                 | 195.1        | 27.3            | 15.21 | 12.06 | 24.94 |
| HEP410144    | P-T Plate  | 10.56                  | 549.21                                   | 61.02                 | 400V 50 Hz/460V 60 Hz-3Ph | -                          | 195.1        | 27.3            | 15.21 | 12.06 | 24.94 |
| HEP410161    | P-T Plate  | 15.84                  | 549.21                                   | 61.02                 | 110V 50 Hz-1Ph            | HEP410161H                 | 264.6        | 28.09           | 16.04 | 16    | 25.85 |
| HEP410162    | P-T Plate  | 15.84                  | 549.21                                   | 61.02                 | 230V 50 Hz-1Ph            | HEP410162H                 | 264.6        | 28.09           | 16.04 | 16    | 25.85 |
| HEP410164    | P-T Plate  | 15.84                  | 549.21                                   | 61.02                 | 400V 50 Hz/460V 60 Hz-3Ph | -                          | 264.6        | 28.09           | 16.04 | 16    | 25.85 |
| HEP410241    | 2-way      | 10.56                  | 549.21                                   | 61.02                 | 110V 50 Hz-1Ph            | HEP410241H                 | 196.2        | 27.3            | 15.21 | 12.06 | 24.94 |
| HEP410242    | 2-way      | 10.56                  | 549.21                                   | 61.02                 | 230V 50 Hz-1Ph            | HEP410242H                 | 196.2        | 27.3            | 15.21 | 12.06 | 24.94 |
| HEP410244    | 2-way      | 10.56                  | 549.21                                   | 61.02                 | 400V 50 Hz/460V 60 Hz-3Ph | -                          | 196.2        | 27.3            | 15.21 | 12.06 | 24.94 |
| HEP410261    | 2-way      | 15.84                  | 549.21                                   | 61.02                 | 110V 50 Hz-1Ph            | HEP410261H                 | 265.7        | 28.09           | 16.04 | 16    | 25.85 |
| HEP410262    | 2-way      | 15.84                  | 549.21                                   | 61.02                 | 230V 50 Hz-1Ph            | HEP410262H                 | 265.7        | 28.09           | 16.04 | 16    | 25.85 |
| HEP410264    | 2-way      | 15.84                  | 549.21                                   | 61.02                 | 400V 50 Hz/460V 60 Hz-3Ph | -                          | 265.7        | 28.09           | 16.04 | 16    | 25.85 |
| HEP410341    | 3-way      | 10.56                  | 549.21                                   | 61.02                 | 110V 50 Hz-1Ph            | HEP410341H                 | 196.2        | 27.3            | 15.21 | 12.06 | 24.94 |
| HEP410342    | 3-way      | 10.56                  | 549.21                                   | 61.02                 | 230V 50 Hz-1Ph            | HEP410342H                 | 196.2        | 27.3            | 15.21 | 12.06 | 24.94 |
| HEP410344    | 3-way      | 10.56                  | 549.21                                   | 61.02                 | 400V 50 Hz/460V 60 Hz-3Ph | -                          | 196.2        | 27.3            | 15.21 | 12.06 | 24.94 |
| HEP410361    | 3-way      | 15.84                  | 549.21                                   | 61.02                 | 110V 50 Hz-1Ph            | HEP410361H                 | 265.7        | 28.09           | 16.04 | 16    | 25.85 |
| HEP410362    | 3-way      | 15.84                  | 549.21                                   | 61.02                 | 230V 50 Hz-1Ph            | HEP410362H                 | 265.7        | 28.09           | 16.04 | 16    | 25.85 |
| HEP410364    | 3-way      | 15.84                  | 549.21                                   | 61.02                 | 400V 50 Hz/460V 60 Hz-3Ph | -                          | 265.7        | 28.09           | 16.04 | 16    | 25.85 |
| HEP410441    | 4-way      | 10.56                  | 549.21                                   | 61.02                 | 110V 50 Hz-1Ph            | HEP410441H                 | 196.2        | 27.3            | 15.21 | 12.06 | 24.94 |
| HEP410442    | 4-way      | 10.56                  | 549.21                                   | 61.02                 | 230V 50 Hz-1Ph            | HEP410442H                 | 196.2        | 27.3            | 15.21 | 12.06 | 24.94 |
| HEP410444    | 4-way      | 10.56                  | 549.21                                   | 61.02                 | 400V 50 Hz/460V 60 Hz-3Ph | -                          | 196.2        | 27.3            | 15.21 | 12.06 | 24.94 |
| HEP410461    | 4-way      | 15.84                  | 549.21                                   | 61.02                 | 110V 50 Hz-1Ph            | HEP410461H                 | 265.7        | 28.09           | 16.04 | 16    | 25.85 |
| HEP410462    | 4-way      | 15.84                  | 549.21                                   | 61.02                 | 230V 50 Hz-1Ph            | HEP410462H                 | 265.7        | 28.09           | 16.04 | 16    | 25.85 |
| HEP410464    | 4-way      | 15.84                  | 549.21                                   | 61.02                 | 400V 50 Hz/460V 60 Hz-3Ph | -                          | 265.7        | 28.09           | 16.04 | 16    | 25.85 |

Note: 1) All 400/460V models are suitable for operation at 50 Hz and 60 Hz.

2) All 110V and 230V models are supplied to run at 50 Hz as standard, refer to the table for pumps with 60 Hz motor. 60 Hz models deliver approximately 15-20% higher flow rate.

3) To order pumps with low voltage solenoid valve with hand pendant controller, suffix 'S' to the pump model.

### WHEEL TROLLEY

| Model number | Description                                                  |
|--------------|--------------------------------------------------------------|
| PPA40WT      | Wheel trolley for all pumps with 10.56 gallons oil reservoir |
| PPA60WT      | Wheel trolley for all pumps with 15.84 gallons oil reservoir |

All HEP4 pumps can be supplied with a factory fitted wheel trolley. Please suffix 'WT' to the pump model number.



## HEP5 | ELECTRIC DRIVEN PUMPS - HEAVY DUTY HIGH FLOW

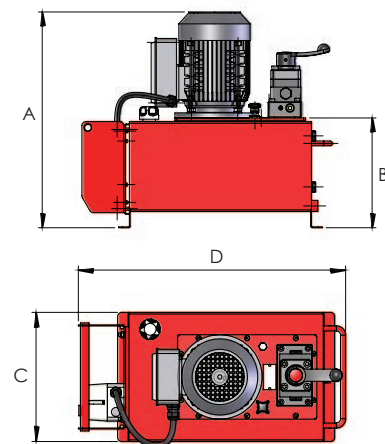


Working pressure 10000 psi

Two stage operation

Choice of 10.56 or 15.84 gallon oil reservoir

- ▶ 400/460 volt electric motors available as standard
- ▶ Choice of 2, 3 or 4-way manual control valves with load holding feature on 3 & 4-way versions
- ▶ Externally adjustable pressure relief for pressure settings up to 10000 psi
- ▶ Completely enclosed fan cooled low noise electric motors



| Model number | Valve type | Oil capacity (gallons) | Maximum flow rate (in <sup>3</sup> /min) |                       | Motor voltage             | Weight (lbs) | Dimensions (in) |       |       |       |
|--------------|------------|------------------------|------------------------------------------|-----------------------|---------------------------|--------------|-----------------|-------|-------|-------|
|              |            |                        | 1 <sup>st</sup> stage                    | 2 <sup>nd</sup> stage |                           |              | A               | B     | C     | D     |
| HEP517144    | P-T Plate  | 10.56                  | 1067.91                                  | 115.95                | 400V 50 Hz/460V 60 Hz-3Ph | 195.1        | 27.3            | 15.21 | 12.06 | 24.94 |
| HEP517164    | P-T Plate  | 15.84                  | 1067.91                                  | 115.95                | 400V 50 Hz/460V 60 Hz-3Ph | 264.6        | 28.09           | 16.04 | 16    | 25.85 |
| HEP517244    | 2-way      | 10.56                  | 1067.91                                  | 115.95                | 400V 50 Hz/460V 60 Hz-3Ph | 196.2        | 27.3            | 15.21 | 12.06 | 24.94 |
| HEP517264    | 2-way      | 15.84                  | 1067.91                                  | 115.95                | 400V 50 Hz/460V 60 Hz-3Ph | 265.7        | 28.09           | 16.04 | 16    | 25.85 |
| HEP517344    | 3-way      | 10.56                  | 1067.91                                  | 115.95                | 400V 50 Hz/460V 60 Hz-3Ph | 196.2        | 27.3            | 15.21 | 12.06 | 24.94 |
| HEP517364    | 3-way      | 15.84                  | 1067.91                                  | 115.95                | 400V 50 Hz/460V 60 Hz-3Ph | 265.7        | 28.09           | 16.04 | 16    | 25.85 |
| HEP517444    | 4-way      | 10.56                  | 1067.91                                  | 115.95                | 400V 50 Hz/460V 60 Hz-3Ph | 196.2        | 27.3            | 15.21 | 12.06 | 24.94 |
| HEP517464    | 4-way      | 15.84                  | 1067.91                                  | 115.95                | 400V 50 Hz/460V 60 Hz-3Ph | 265.7        | 28.09           | 16.04 | 16    | 25.85 |

**Note:** 1) All models are suitable for operation at 50 Hz and 60 Hz. 60 Hz models deliver approximately 15-20% higher flow rate.  
2) To order pumps with low voltage solenoid valve with hand pendant controller, suffix 'S' to the pump model number.

### WHEEL TROLLEY

| Model number | Description                                                  |
|--------------|--------------------------------------------------------------|
| PPA40WT      | Wheel trolley for all pumps with 10.56 gallons oil reservoir |
| PPA60WT      | Wheel trolley for all pumps with 15.84 gallons oil reservoir |

All HEP5 pumps can be supplied with a factory fitted wheel trolley. Please suffix 'WT' to the pump model number.



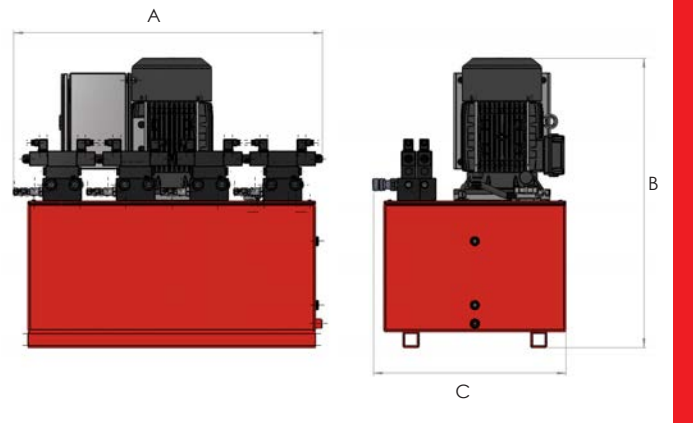
**HSP | ELECTRIC DRIVEN SPLIT FLOW MULTI-OUTLET PUMPS**



**Working pressure 10000 psi**

**Efficient 3 phase motors with DC electric solenoids**

**Both single and double acting cylinder models available**



- ▶ Selection of outlet valve configurations ranging from 4-outlet pump with manual valves to 8-outlet pump with electric solenoid valves
- ▶ Control system with individual outlet selection switches, providing choice of single or multiple synchronized operation
- ▶ Heavy duty completely enclosed, fan cooled three phase electric motor
- ▶ Externally adjustable pressure setting valves on each outlet, for pre-setting pressure up to 10000 psi maximum

| Model number | Valve configuration | Valve type | Oil capacity (gallons) | Oil flow per outlet (in <sup>3</sup> /min) | Motor voltage             | Motor voltage (hp) | Weight (lbs) | Dimensions (in) |       |       |
|--------------|---------------------|------------|------------------------|--------------------------------------------|---------------------------|--------------------|--------------|-----------------|-------|-------|
|              |                     |            |                        |                                            |                           |                    |              | A               | B     | C     |
| HSP4SM       | 4 x 3-way           | manual     | 26.41                  | 67.13                                      | 400V 50 Hz/460V 60 Hz-3Ph | 10.05              | 599.7        | 39.4            | 35.85 | 24.03 |
| HSP4DM       | 4 x 4-way           | manual     | 26.41                  | 67.13                                      | 400V 50 Hz/460V 60 Hz-3Ph | 10.05              | 599.7        | 39.4            | 35.85 | 24.03 |
| HSP4SE       | 4 x 3-way           | electric   | 26.41                  | 67.13                                      | 400V 50 Hz/460V 60 Hz-3Ph | 10.05              | 604.1        | 39.4            | 35.85 | 24.03 |
| HSP4DE       | 4 x 4-way           | electric   | 26.41                  | 67.13                                      | 400V 50 Hz/460V 60 Hz-3Ph | 10.05              | 604.1        | 39.4            | 35.85 | 24.03 |
| HSP6SE       | 6 x 3-way           | electric   | 52.82                  | 54.92                                      | 400V 50 Hz/460V 60 Hz-3Ph | 14.74              | 738.5        | 49.25           | 41.76 | 31.52 |
| HSP6DE       | 6 x 4-way           | electric   | 52.82                  | 54.92                                      | 400V 50 Hz/460V 60 Hz-3Ph | 14.74              | 738.5        | 49.25           | 41.76 | 31.52 |
| HSP8SE       | 8 x 3-way           | electric   | 52.82                  | 54.92                                      | 400V 50 Hz/460V 60 Hz-3Ph | 14.74              | 815.7        | 49.25           | 41.76 | 31.52 |
| HSP8DE       | 8 x 4-way           | electric   | 52.82                  | 54.92                                      | 400V 50 Hz/460V 60 Hz-3Ph | 14.74              | 815.7        | 49.25           | 41.76 | 31.52 |

*Note: All models are suitable for operation at 50 Hz and 60 Hz. 60 Hz models deliver approximately 15-20% higher flow rate.*



**SLF | SYNCHRONOUS LIFTING SYSTEM - FIXED SPEED DRIVE**

---

**Working pressure 10000 psi**

---

---

**Control from 4 to 8 lifting points**

---

---

**For use with standard single or double acting cylinders**

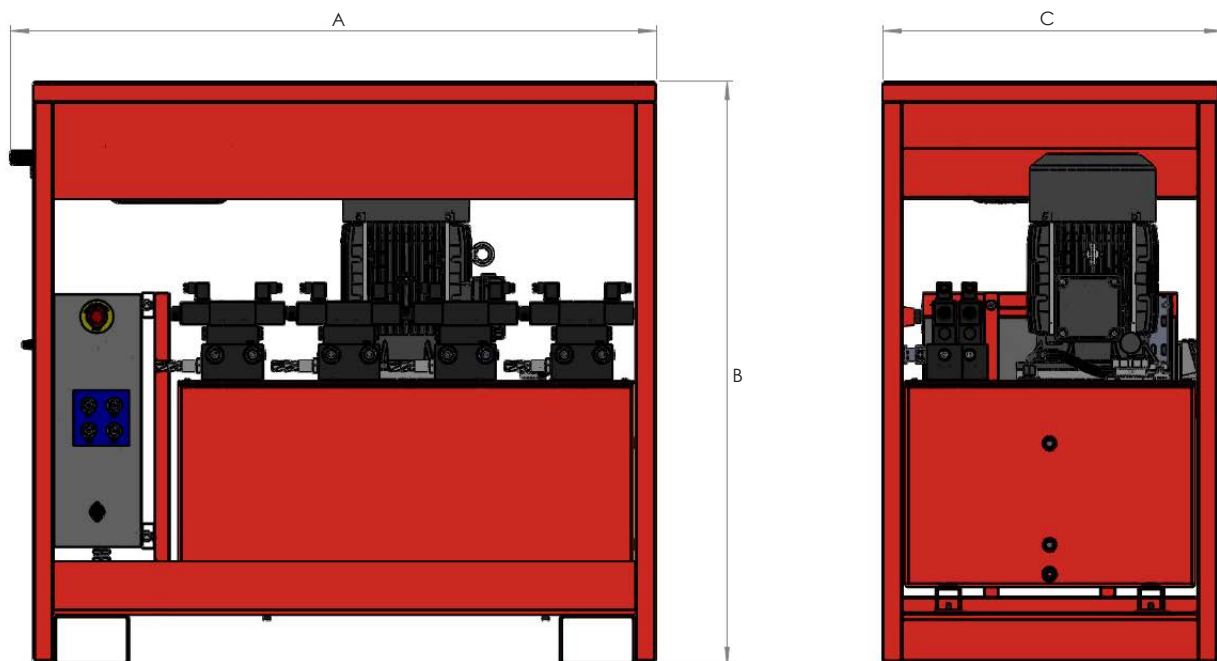
---

Control unit complete with multiple screens (depending on configuration and monitoring requirements) and USB port, supplied on a cable for remote operation.



- ▶ Designed for precise lifting and lowering of heavy loads using multiple synchronized hydraulic cylinders
- ▶ System comprises of heavy duty three phase electric motor, operator control panel to monitor up to 8 channels and a robust framework for transportation and storage of the entire system
- ▶ Selection of outlet valves ranging from 4-outlet pump to 8-outlet pump with options of 3-way and 4-way valve configurations
- ▶ 10000 psi pressure transducers are fitted as standard on each outlet
- ▶ Reservoir capacity of 26.41 gallons on the 4-outlet pump and 52.82 gallons on the 6-outlet and 8-outlet pumps
- ▶ Intuitive touch screen controller with several display options including stroke, cylinder pressure, system pressure and indicative weight of load
- ▶ Specified for string pot displacement sensors as standard. Alternative sensor types available upon request.
- ▶ Operating modes for the SLF include Manual, Pre-load, Automatic control, Depressurization and Indicative weighing
- ▶ System can be adapted to suit customer's special lifting requirements
- ▶ Customized systems can be tailored for unique application requirements

**SLF | SYNCHRONOUS LIFTING SYSTEM - FIXED SPEED DRIVE**



| Model number | Number of outlets | Oil capacity (gallons) | Oil flow per outlet (in <sup>3</sup> /min) | Motor voltage             |
|--------------|-------------------|------------------------|--------------------------------------------|---------------------------|
| SLF4S        | 4                 | 26.41                  | 67.13                                      | 400V 50 Hz/460V 60 Hz-3Ph |
| SLF6S        | 6                 | 52.82                  | 56.75                                      | 400V 50 Hz/460V 60 Hz-3Ph |
| SLF8S        | 8                 | 52.82                  | 56.75                                      | 400V 50 Hz/460V 60 Hz-3Ph |
| SLF4D        | 4                 | 26.41                  | 67.13                                      | 400V 50 Hz/460V 60 Hz-3Ph |
| SLF6D        | 6                 | 52.82                  | 56.75                                      | 400V 50 Hz/460V 60 Hz-3Ph |
| SLF8D        | 8                 | 52.82                  | 56.75                                      | 400V 50 Hz/460V 60 Hz-3Ph |

*Note: All models are suitable for operation at 50 Hz and 60 Hz. 60 Hz models deliver approximately 15-20% higher flow rate.*

| Model number | Dimensions (in) |       |       |
|--------------|-----------------|-------|-------|
|              | A               | B     | C     |
| SLF4S        | 50.24           | 45.51 | 26.6  |
| SLF6S        | 61.07           | 51.22 | 33.88 |
| SLF8S        | 61.07           | 51.22 | 33.88 |
| SLF4D        | 50.24           | 45.51 | 26.6  |
| SLF6D        | 61.07           | 51.22 | 33.88 |
| SLF8D        | 61.07           | 51.22 | 33.88 |

## SLF | SYNCHRONOUS LIFTING SYSTEM - FIXED SPEED DRIVE

Mounting kits to fit single and double acting cylinders are listed below.

| Model number | Mounting kit type | Applicable cylinder | Increase in cylinder height (in) |
|--------------|-------------------|---------------------|----------------------------------|
| SLMK-1       | 1                 | HSS - 25T           | +0.14                            |
|              | 1                 | HSS - 30T           | +0.14                            |
| SLMK-2       | 2                 | HAS - 30T           | +0.39                            |
|              | 2                 | HRA - 30T           | +0.39                            |
| SLMK-3       | 3                 | HSS - 50T           | +0.39                            |
|              | 3                 | HAS - 50T           | +0.39                            |
| SLMK-4       | 4                 | HSS - 75T           | +0.39                            |
|              | 5                 | HSS - 100T          | +0.39                            |
| SLMK-5       | 5                 | HAS - 100T          | +0.39                            |
|              | 5                 | HRA - 100T          | +0.39                            |
| SLMK-6       | 6                 | HDA - 25T           | +0.43                            |
| SLMK-7       | 7                 | HDA - 50T           | +0.39                            |
| SLMK-8       | 8                 | HDA - 100T          | +0.39                            |
| SLMK-9       | 9                 | HDA - 150T          | +0.39                            |
|              | 9                 | HDA - 200T          | +0.39                            |
| SLMK-10      | 10                | HHS - 20T           | +0.43                            |
| SLMK-11      | 11                | HHS - 30T           | +0.47                            |
|              | 11                | HHR - 30T           | +0.47                            |
| SLMK-12      | 12                | HHS - 37T           | +0.04                            |
| SLMK-13      | 13                | HHA - 50T           | +0.04                            |
| SLMK-14      | 14                | HHS - 60T           | +0.47                            |
|              | 14                | HHR - 60T           | +0.47                            |
| SLMK-15      | 15                | HHS - 100T          | +0.39                            |
|              | 15                | HHR - 100T          | +0.39                            |
| SLMK-16      | 16                | HHR - 150T          | +0.39                            |
| SLMK-17      | 17                | HHR - 250T          | +0.39                            |
| SLMK-18      | 18                | HFA - 30T           | 0                                |
| SLMK-19      | 19                | HFA - 50T           | +0.32                            |
| SLMK-20      | 20                | HFA - 100T          | 0                                |
|              | 20                | HGG - 150T          | 0                                |
| SLMK-21      | 21                | HDA - 300T          | 0                                |
| SLMK-22      | 22                | HDA - 400T          | 0                                |
|              | 22                | HDA - 500T          | 0                                |
| SLMK-23      | 23                | HDA - 800T          | 0                                |
|              | 23                | HDA - 1000T         | 0                                |
| SLMK-24      | 24                | HFG - 800T          | 0                                |
|              | 24                | HFL - 50T           | +0.32                            |
| SLMK-25      | 25                | HFG - 50T           | +0.32                            |
|              | 25                | HFG - 400T          | 0                                |
| SLMK-26      | 26                | HFG - 500T          | 0                                |
|              | 26                | HGG - 200T          | 0                                |
| SLMK-27      | 27                | HSG - 200T          | 0                                |
|              | 27                | HFL - 100T          | +0.35                            |
| SLMK-28      | 28                | HFG - 100T          | +0.35                            |
|              | 28                | HFL - 150T          | +0.32                            |
| SLMK-29      | 29                | HFG - 150T          | +0.32                            |
|              | 29                | HFG - 200T          | +0.32                            |
| SLMK-30      | 30                | HSG - 150T          | +0.32                            |
|              | 30                | HFG - 250T          | 0                                |
| SLMK-31      | 31                | HFG - 300T          | 0                                |
|              | 31                | HGG - 300T          | 0                                |
| SLMK-32      | 32                | HFL - 250T          | +0.32                            |
| SLMK-33      | 33                | HFL - 400T          | +0.39                            |
|              |                   | HFL - 500T          | +0.39                            |
|              |                   | HFG - 1000T         | 0                                |

## SLF | SYNCHRONOUS LIFTING SYSTEM - FIXED SPEED DRIVE

The SLF system is designed for use with standard single and double acting cylinders. Below table lists the SLF model and cylinder type that can be used with it.

| Model number            | Applicable cylinder type | Applicable cylinder range | Cylinder stroke (in) | Page reference |
|-------------------------|--------------------------|---------------------------|----------------------|----------------|
| SLF4S<br>SLF6S<br>SLF8S | Single acting            | HSS                       | 2.01 - 18.01         | 10             |
|                         | Single acting            | HHS                       | 0.99 - 5.99          | 11             |
|                         | Single acting            | HFL                       | 1.77 - 2.01          | 14             |
|                         | Single acting            | HFG                       | 1.97 - 5.99          | 15             |
|                         | Single acting            | HAS                       | 2.01 - 12.02         | 16             |
|                         | Single acting            | HHH                       | 2.01 - 4.14          | 17             |
|                         | Single acting            | HFA                       | 2.01 - 12.02         | 18             |
|                         | Single acting            | HGG                       | 6.11                 | 20             |
|                         | Single acting            | HSG                       | 5.99                 | 21             |
| SLF4D<br>SLF6D<br>SLF8D | Double acting            | HHR                       | 2.01 - 12.02         | 12             |
|                         | Double acting            | HDA                       | 5.99 - 20.02         | 13             |
|                         | Double acting            | HRA                       | 2.01 - 12.02         | 19             |

### DISPLACEMENT SENSORS

- ▶ 25 inches (635 mm) string pot
- ▶ Provides stroke feedback to controls
- ▶ Includes magnet for mounting
- ▶ Each lifting point requires one sensor
- ▶ String pot displacement sensors as standard, other displacement sensors available on request

| Model number | Type and stroke (in) |
|--------------|----------------------|
| SLDS650      | 25.61                |



### SENSOR CABLES AND HOSES

- ▶ Each displacement sensor requires one cable
- ▶ Suitable hydraulic hoses available in lengths up to 330 ft (100 m)

| Cable model number | Hose model number | Length (ft) |
|--------------------|-------------------|-------------|
| SLDC10             | HC10C             | 33          |
| SLDC25             | HC25C             | 82          |
| SLDC50             | HC50C             | 164         |
| SLDC75             | HC75C             | 246         |
| SLDC100            | HC100C            | 330         |

**SLV | SYNCHRONOUS LIFTING SYSTEM - VARIABLE SPEED DRIVE**

---

**Working pressure 10000 psi**

---

---

**Control from 8 to 32 lifting points**

---

---

**Variable speed control**

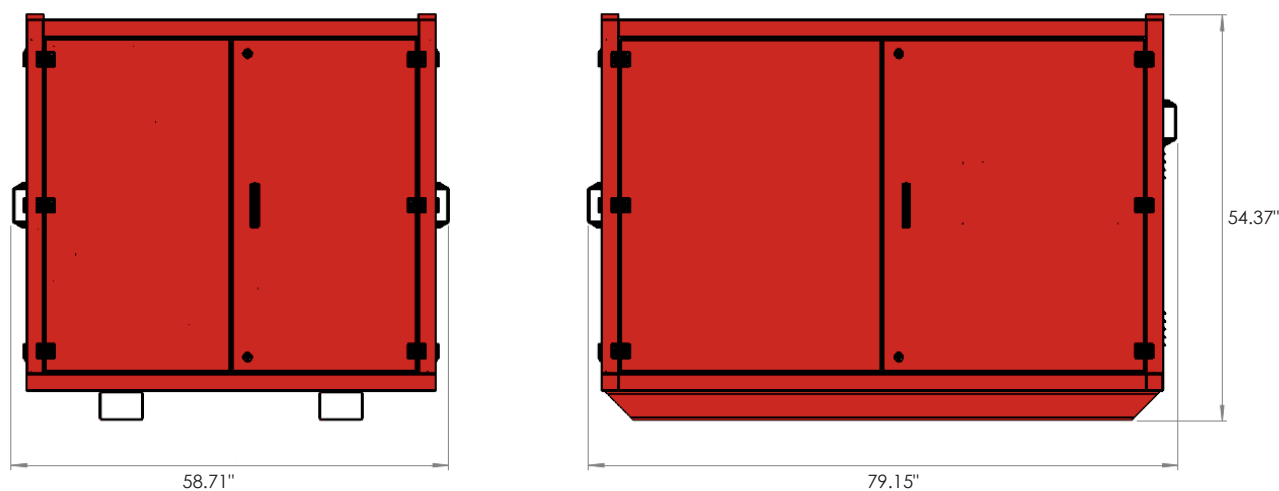
---

Control unit complete with multiple screens (depending on configuration and monitoring requirements) and USB port, supplied on a cable for remote operation.



- ▶ Designed for precise lifting and lowering of heavy loads using multiple synchronized hydraulic cylinders
- ▶ System comprises of heavy duty three phase electric motor, operator control panel to monitor up to 32 channels and a robust framework for transportation and storage of the entire system
- ▶ Selection of outlet valves ranging from 8-outlet pump to 32-outlet pump, with single or double acting controls on each outlet
- ▶ Two stage pump unit offers a maximum low pressure flow rate of 1196.06 inches<sup>3</sup> per minute and a maximum high pressure flow rate of 292.91 inches<sup>3</sup> per minute at 10000 psi, with an option of reducing the flow rate using the variable speed drive controller
- ▶ 10000 psi pressure transducers are fitted as standard on each outlet
- ▶ Reservoir capacity of 52.82 and 105.64 gallons
- ▶ Intuitive touch screen controller with several display options including stroke, cylinder pressure, system pressure and indicative weight of load
- ▶ Includes a system data logging feature which allows operators to obtain a post lift report or end of project technical summary
- ▶ Specified for string pot displacement sensors as standard. Alternative sensor types available upon request.
- ▶ Operating modes for the SLV include Manual, Pre-load, Automatic control, Depressurization, Center of gravity and Indicative weighing
- ▶ System can be adapted to suit customer's special lifting requirements
- ▶ Customized systems can be tailored for unique application requirements



**SLV | SYNCHRONOUS LIFTING SYSTEM - VARIABLE SPEED DRIVE**


| Model number | Number of outlets | Oil capacity (gallons) | Total oil flow per outlet (in <sup>3</sup> /min) |                       | Supply voltage             |
|--------------|-------------------|------------------------|--------------------------------------------------|-----------------------|----------------------------|
|              |                   |                        | 1 <sup>st</sup> stage                            | 2 <sup>nd</sup> stage |                            |
| SLV82        | 8                 | 52.82                  | 1196.06                                          | 292.91                | 380V/480V (50/60 Hz) - 3Ph |
| SLV122       | 12                | 52.82                  | 1196.06                                          | 292.91                | 380V/480V (50/60 Hz) - 3Ph |
| SLV162       | 16                | 52.82                  | 1196.06                                          | 292.91                | 380V/480V (50/60 Hz) - 3Ph |
| SLV202       | 20                | 52.82                  | 1196.06                                          | 292.91                | 380V/480V (50/60 Hz) - 3Ph |
| SLV242       | 24                | 52.82                  | 1196.06                                          | 292.91                | 380V/480V (50/60 Hz) - 3Ph |
| SLV282       | 28                | 52.82                  | 1196.06                                          | 292.91                | 380V/480V (50/60 Hz) - 3Ph |
| SLV322       | 32                | 52.82                  | 1196.06                                          | 292.91                | 380V/480V (50/60 Hz) - 3Ph |
| SLV84        | 8                 | 105.64                 | 1196.06                                          | 292.91                | 380V/480V (50/60 Hz) - 3Ph |
| SLV124       | 12                | 105.64                 | 1196.06                                          | 292.91                | 380V/480V (50/60 Hz) - 3Ph |
| SLV164       | 16                | 105.64                 | 1196.06                                          | 292.91                | 380V/480V (50/60 Hz) - 3Ph |
| SLV204       | 20                | 105.64                 | 1196.06                                          | 292.91                | 380V/480V (50/60 Hz) - 3Ph |
| SLV244       | 24                | 105.64                 | 1196.06                                          | 292.91                | 380V/480V (50/60 Hz) - 3Ph |
| SLV284       | 28                | 105.64                 | 1196.06                                          | 292.91                | 380V/480V (50/60 Hz) - 3Ph |
| SLV324       | 32                | 105.64                 | 1196.06                                          | 292.91                | 380V/480V (50/60 Hz) - 3Ph |

**Note:** All models are suitable for operation at 50 Hz and 60 Hz.

## SLV | SYNCHRONOUS LIFTING SYSTEM - VARIABLE SPEED DRIVE

Mounting kits to fit single and double acting cylinders are listed below.

| Model number | Mounting kit type | Applicable cylinder | Increase in cylinder height (in) |
|--------------|-------------------|---------------------|----------------------------------|
| SLMK-1       | 1                 | HSS - 25T           | +0.14                            |
|              | 1                 | HSS - 30T           | +0.14                            |
| SLMK-2       | 2                 | HAS - 30T           | +0.39                            |
|              | 2                 | HRA - 30T           | +0.39                            |
| SLMK-3       | 3                 | HSS - 50T           | +0.39                            |
|              | 3                 | HAS - 50T           | +0.39                            |
| SLMK-4       | 3                 | HRA - 50T           | +0.39                            |
|              | 4                 | HSS - 75T           | +0.39                            |
| SLMK-5       | 5                 | HSS - 100T          | +0.39                            |
|              | 5                 | HAS - 100T          | +0.39                            |
|              | 5                 | HRA - 100T          | +0.39                            |
| SLMK-6       | 6                 | HDA - 25T           | +0.43                            |
| SLMK-7       | 7                 | HDA - 50T           | +0.39                            |
| SLMK-8       | 8                 | HDA - 100T          | +0.39                            |
| SLMK-9       | 9                 | HDA - 150T          | +0.39                            |
|              | 9                 | HDA - 200T          | +0.39                            |
| SLMK-10      | 10                | HHS - 20T           | +0.43                            |
| SLMK-11      | 11                | HHS - 30T           | +0.47                            |
|              | 11                | HHR - 30T           | +0.47                            |
| SLMK-12      | 12                | HHS - 37T           | +0.04                            |
| SLMK-13      | 13                | HHA - 50T           | +0.04                            |
| SLMK-14      | 14                | HHS - 60T           | +0.47                            |
|              | 14                | HHR - 60T           | +0.47                            |
| SLMK-15      | 15                | HHS - 100T          | +0.39                            |
|              | 15                | HHR - 100T          | +0.39                            |
| SLMK-16      | 16                | HHR - 150T          | +0.39                            |
| SLMK-17      | 17                | HHR - 250T          | +0.39                            |
| SLMK-18      | 18                | HFA - 30T           | 0                                |
| SLMK-19      | 19                | HFA - 50T           | +0.32                            |
| SLMK-20      | 20                | HFA - 100T          | 0                                |
|              | 20                | HGG - 150T          | 0                                |
| SLMK-21      | 21                | HDA - 300T          | 0                                |
| SLMK-22      | 22                | HDA - 400T          | 0                                |
|              | 22                | HDA - 500T          | 0                                |
| SLMK-23      | 23                | HDA - 800T          | 0                                |
|              | 23                | HDA - 1000T         | 0                                |
|              | 23                | HFG - 800T          | 0                                |
| SLMK-24      | 24                | HFL - 50T           | +0.32                            |
|              | 24                | HFG - 50T           | +0.32                            |
| SLMK-25      | 25                | HFG - 400T          | 0                                |
|              | 25                | HFG - 500T          | 0                                |
|              | 25                | HGG - 200T          | 0                                |
|              | 25                | HSG - 200T          | 0                                |
| SLMK-26      | 26                | HFL - 100T          | +0.35                            |
|              | 26                | HFG - 100T          | +0.35                            |
| SLMK-27      | 27                | HFL - 150T          | +0.32                            |
|              | 27                | HFG - 150T          | +0.32                            |
|              | 27                | HFG - 200T          | +0.32                            |
|              | 27                | HSG - 150T          | +0.32                            |
|              | 28                | HFG - 250T          | 0                                |
| SLMK-28      | 28                | HFG - 300T          | 0                                |
|              | 28                | HGG - 300T          | 0                                |
|              | 28                | HGG - 300T          | 0                                |
| SLMK-29      | 29                | HSG - 300T          | 0                                |
| SLMK-30      | 30                | HFL - 250T          | +0.32                            |
| SLMK-31      | 31                | HFL - 400T          | +0.39                            |
| SLMK-32      | 32                | HFL - 500T          | +0.39                            |
| SLMK-33      | 33                | HFG - 1000T         | 0                                |

## SLV | SYNCHRONOUS LIFTING SYSTEM - VARIABLE SPEED DRIVE

The SLV system is designed for use with standard single and double acting cylinders. Below table lists the SLV model and cylinder type that can be used with it.

| Model number                                                                                                                           | Applicable cylinder type | Applicable cylinder range | Cylinder stroke (in) | Page reference |
|----------------------------------------------------------------------------------------------------------------------------------------|--------------------------|---------------------------|----------------------|----------------|
| SLV82<br>SLV122<br>SLV162<br>SLV202<br>SLV242<br>SLV282<br>SLV322<br>SLV84<br>SLV124<br>SLV164<br>SLV204<br>SLV244<br>SLV284<br>SLV324 | Single acting            | HSS                       | 2.01 - 18.01         | 10             |
|                                                                                                                                        | Single acting            | HHS                       | 0.99 - 5.99          | 11             |
|                                                                                                                                        | Single acting            | HFL                       | 1.77 - 2.01          | 14             |
|                                                                                                                                        | Single acting            | HFG                       | 1.97 - 5.99          | 15             |
|                                                                                                                                        | Single acting            | HAS                       | 2.01 - 12.02         | 16             |
|                                                                                                                                        | Single acting            | HHA                       | 2.01 - 4.14          | 17             |
|                                                                                                                                        | Single acting            | HFA                       | 2.01 - 12.02         | 18             |
|                                                                                                                                        | Single acting            | HGG                       | 6.11                 | 20             |
|                                                                                                                                        | Single acting            | HSG                       | 5.99                 | 21             |
|                                                                                                                                        | Double acting            | HHR                       | 2.01 - 12.02         | 12             |
|                                                                                                                                        | Double acting            | HDA                       | 5.99 - 20.02         | 13             |
|                                                                                                                                        | Double acting            | HRA                       | 2.01 - 12.02         | 19             |

### DISPLACEMENT SENSORS

- ▶ 25 inches (635 mm) string pot
- ▶ Provides stroke feedback to controls
- ▶ Includes magnet for mounting
- ▶ Each lifting point requires one sensor
- ▶ String pot displacement sensors as standard, other displacement sensors available on request

| Model number | Type and stroke (in) |
|--------------|----------------------|
| SLDS650      | 25.61                |



### SENSOR CABLES AND HOSES

- ▶ Each displacement sensor requires one cable
- ▶ Suitable hydraulic hoses available in lengths up to 330 ft (100 m)

| Cable model number | Hose model number | Length (ft) |
|--------------------|-------------------|-------------|
| SLDC10             | HC10C             | 33          |
| SLDC25             | HC25C             | 82          |
| SLDC50             | HC50C             | 164         |
| SLDC75             | HC75C             | 246         |
| SLDC100            | HC100C            | 330         |

## SYNCHRONOUS LIFTING SYSTEM FEATURES

| FEATURE                                                                           | SLF                                                                                           | SLV                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PRESSURE TRANSDUCERS SUPPLIED AS STANDARD                                         | ✓                                                                                             | ✓                                                                                                                                                                                                                                                                                                        |
| TOUCH SCREEN DISPLAY TO MONITOR STROKE AND PRESSURE                               | ✓                                                                                             | ✓                                                                                                                                                                                                                                                                                                        |
| CONTROL UNIT COMPLETE WITH TOUCH SCREEN                                           | ✓                                                                                             | ✓                                                                                                                                                                                                                                                                                                        |
| USB PORT FOR SYSTEM DATA LOGGING                                                  | -                                                                                             | ✓                                                                                                                                                                                                                                                                                                        |
| FORKLIFT ACCESS GUIDE CHANNELS                                                    | ✓                                                                                             | ✓                                                                                                                                                                                                                                                                                                        |
| INDIVIDUAL SELECTION OF CYLINDERS                                                 | ✓                                                                                             | ✓                                                                                                                                                                                                                                                                                                        |
| ACCURACY RANGE ADJUSTABLE UP TO +/- 0.04 in BETWEEN LEADING AND LAGGING CYLINDERS | ✓                                                                                             | ✓                                                                                                                                                                                                                                                                                                        |
| FULL SYSTEM DIAGNOSTICS WITH CABLE UNPLUG DETECTION                               | ✓                                                                                             | ✓                                                                                                                                                                                                                                                                                                        |
| CAN PROVIDE INDICATIVE WEIGHT OF LIFT                                             | ✓                                                                                             | ✓                                                                                                                                                                                                                                                                                                        |
| SYSTEM SUITABLE FOR PRELOADING                                                    | ✓                                                                                             | ✓                                                                                                                                                                                                                                                                                                        |
| VARIABLE SPEED DRIVE FOR PRECISE FINE CONTROL                                     | -                                                                                             | ✓                                                                                                                                                                                                                                                                                                        |
| TEMPERATURE MONITORING SYSTEM                                                     | -                                                                                             | ✓                                                                                                                                                                                                                                                                                                        |
| SYSTEM MOUNTED IN ENCLOSED FRAME WITH DOORS                                       | -                                                                                             | ✓                                                                                                                                                                                                                                                                                                        |
| OIL COOLING SYSTEM                                                                | -                                                                                             | ✓                                                                                                                                                                                                                                                                                                        |
| CENTER OF GRAVITY INDICATION                                                      | -                                                                                             | ✓                                                                                                                                                                                                                                                                                                        |
| FOR USE WITH BOTH SINGLE AND DOUBLE ACTING CYLINDERS                              | Defined by model                                                                              | ✓                                                                                                                                                                                                                                                                                                        |
| PUMP UNIT SPEC                                                                    | Flow from 56.75 in <sup>3</sup> /min to 67.13 in <sup>3</sup> /min per outlet up to 10000 psi | Working pressure 10000 psi<br>two stage pump unit:<br>1196.06 in <sup>3</sup> /min total flow up to 1450 psi,<br>292.91 in <sup>3</sup> /min total flow up to 10000 psi<br><br>Option of reducing the flow rate using the variable speed drive controller, which offers an R.P.M. range from 200 to 1800 |
| TANK CAPACITY                                                                     | Up to 52.82 gallons reservoir capacity                                                        | Up to 105.64 gallons reservoir capacity                                                                                                                                                                                                                                                                  |
| INDIVIDUAL CONTROLLABLE LIFTING POINTS                                            | 4 to 8                                                                                        | 8 to 32                                                                                                                                                                                                                                                                                                  |
| DISPLACEMENT SENSOR                                                               | String pot displacement sensors as standard. Other displacement sensors available on request  | String pot displacement sensors as standard. Other displacement sensors available on request                                                                                                                                                                                                             |
| SENSOR CABLES                                                                     | Lengths up to 330 feet                                                                        | Lengths up to 330 feet                                                                                                                                                                                                                                                                                   |

## AHP11 | AIR DRIVEN SINGLE STAGE HAND AND FOOT OPERATED PUMPS



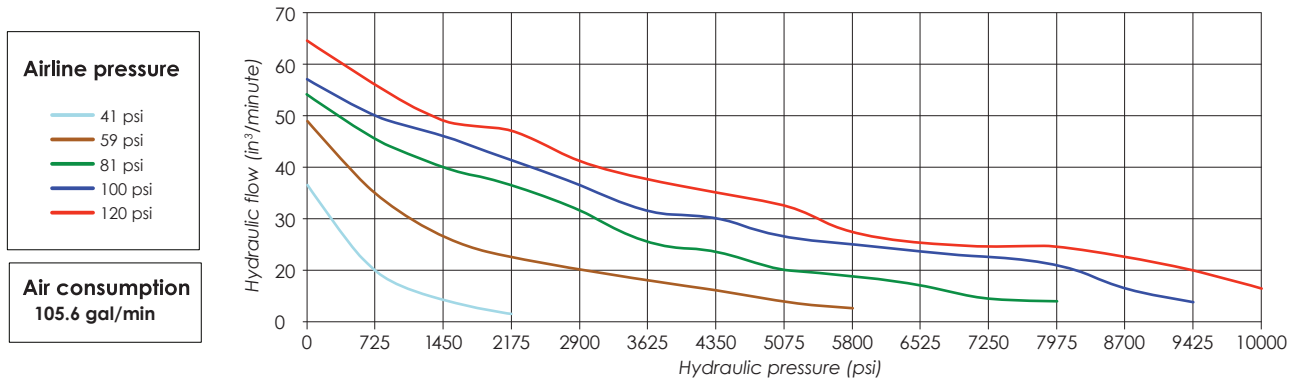
**Working pressure 10000 psi**

**Compact, lightweight & powerful**

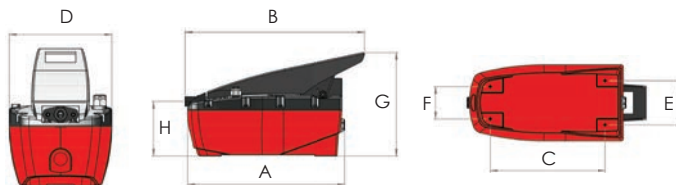
**Choice of 0.55, 1.11 or 2.64 gallon oil reservoir**

- ▶ Choice of 2-way or 4-way control valves
- ▶ Safety overload protection valve fitted as standard
- ▶ All models fitted with steel oil reservoir (excluding AHP1120)
- ▶ Optional remote pendant controller available. Suffix model number with 'R'

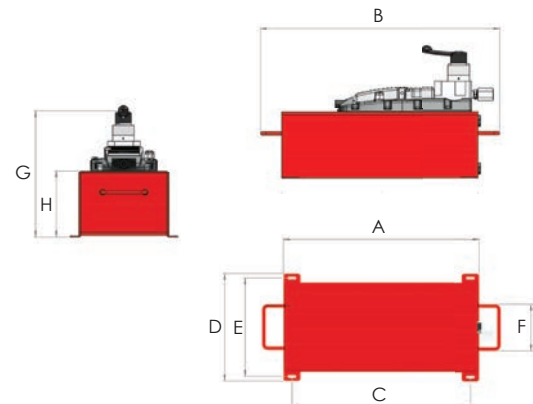
### Oil flow / Pressure chart



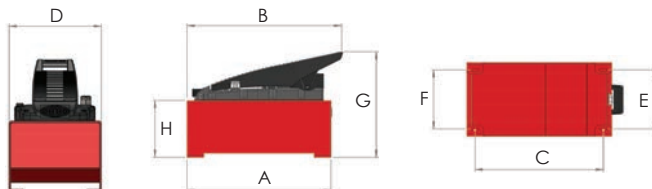
AHP1120 (plastic oil reservoir)



AHP1122, AHP1142 (metal oil reservoir)



AHP1121, AHP1141 (metal oil reservoir)



| Model number | Maximum flow rate (in³/min) | Valve type | Usable oil capacity (gallons) | Air inlet connection G | Oil outlet connection NPTF | Weight (lbs) | Dimensions (in) |       |       |      |      |      |       |      |
|--------------|-----------------------------|------------|-------------------------------|------------------------|----------------------------|--------------|-----------------|-------|-------|------|------|------|-------|------|
|              |                             |            |                               |                        |                            |              | A               | B     | C     | D    | E    | F    | G     | H    |
| AHP1120      | 67.13                       | 2-way      | 0.55                          | 1/4"                   | 3/8"                       | 10.4         | 12.59           | 14.35 | 9.3   | 6.11 | 2.6  | 3.55 | 8.23  | 4.27 |
| AHP1121      | 67.13                       | 2-way      | 1.11                          | 1/4"                   | 3/8"                       | 22.5         | 13.79           | 14.81 | 12.21 | 7.01 | 5.61 | 5.61 | 10.09 | 5.4  |
| AHP1122      | 67.13                       | 2-way      | 2.64                          | 1/4"                   | 3/8"                       | 39.2         | 18.12           | 22.06 | 16.55 | 9.93 | 9.1  | 4.26 | 10.72 | 6.11 |
| AHP1141      | 67.13                       | 4-way      | 1.11                          | 1/4"                   | 3/8"                       | 30.4         | 13.79           | 15.05 | 12.21 | 7.01 | 5.61 | 5.61 | 11.43 | 5.4  |
| AHP1142      | 67.13                       | 4-way      | 2.64                          | 1/4"                   | 3/8"                       | 40.3         | 18.12           | 22.06 | 16.55 | 9.93 | 9.1  | 4.26 | 12.41 | 6.11 |



**HAP | AIR DRIVEN PUMPS - GENERAL DUTY HIGH FLOW**

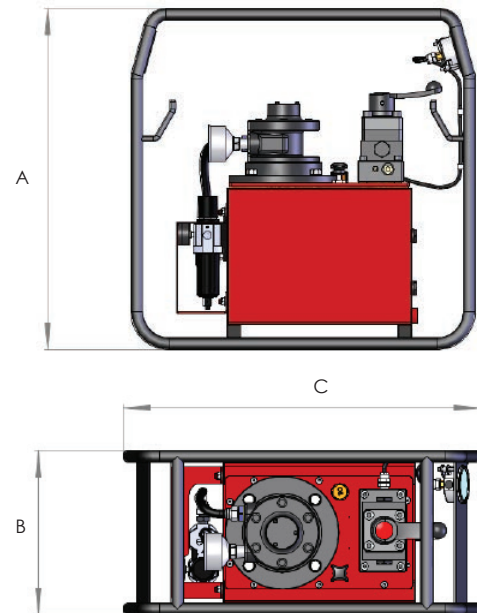


**Working pressure 10000 psi**

**Two stage operation**

**Choice of 2.64 or 6.6 gallons oil reservoir**

- ▶ Driven by a powerful 4.08 kW rotary air motor with a maximum air consumption of 84.75 cubic feet per minute at 100 psi inlet air pressure
- ▶ Choice of 2, 3 or 4-way manual control valves with load holding feature on 3 & 4-way versions
- ▶ Externally adjustable pressure relief valve for pressure setting up to a maximum of 10000 psi
- ▶ Cable management features for cable/hose winding and stowage
- ▶ Supplied as standard with pressure gauge FRL unit and a robust roll frame



| Model number | Valve type | Oil capacity (gallons) | Maximum flow rate (in <sup>3</sup> /min) |                       | Weight (lbs) | Dimensions (in) |       |       |
|--------------|------------|------------------------|------------------------------------------|-----------------------|--------------|-----------------|-------|-------|
|              |            |                        | 1 <sup>st</sup> stage                    | 2 <sup>nd</sup> stage |              | A               | B     | C     |
| HAP21011     | P-T Plate  | 2.64                   | 610.24                                   | 79.33                 | 102.5        | 24.7            | 11.5  | 24.9  |
| HAP21012     | P-T Plate  | 6.6                    | 610.24                                   | 79.33                 | 137.8        | 24.7            | 13.87 | 29.71 |
| HAP21021     | 2-way      | 2.64                   | 610.24                                   | 79.33                 | 103.6        | 24.7            | 11.5  | 24.9  |
| HAP21022     | 2-way      | 6.6                    | 610.24                                   | 79.33                 | 138.9        | 24.7            | 13.87 | 29.71 |
| HAP21031     | 3-way      | 2.64                   | 610.24                                   | 79.33                 | 103.6        | 24.7            | 11.5  | 24.9  |
| HAP21032     | 3-way      | 6.6                    | 610.24                                   | 79.33                 | 138.9        | 24.7            | 13.87 | 29.71 |
| HAP21041     | 4-way      | 2.64                   | 610.24                                   | 79.33                 | 103.6        | 24.7            | 11.5  | 24.9  |
| HAP21042     | 4-way      | 6.6                    | 610.24                                   | 79.33                 | 138.9        | 24.7            | 13.87 | 29.71 |

## HPP | GASOLINE ENGINE DRIVEN PUMPS - GENERAL DUTY HIGH FLOW

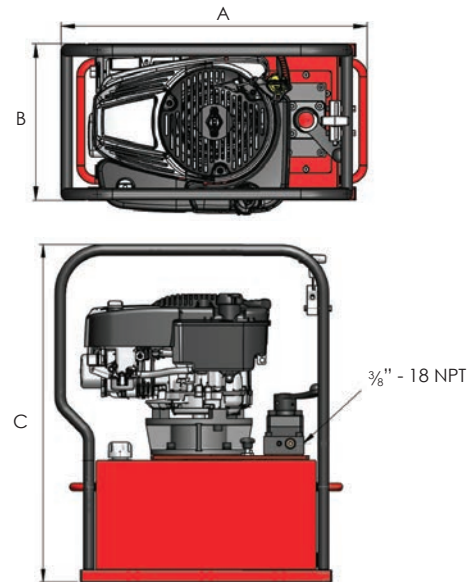


- ▶ Choice of 2, 3 or 4-way manual control valves with load holding feature on 3 & 4-way versions
- ▶ Externally adjustable pressure relief valve for pressure setting up to a maximum of 10000 psi
- ▶ Factory fitted roll bar protection frame included

Working pressure 10000 psi

Two stage operation

Choice of 6.6, 10.56 or 15.84 gallons oil reservoir



| Model number | Valve type | Oil capacity (gallons) | Maximum flow rate (in <sup>3</sup> /minute) |                       | Weight (lbs) | Dimensions (in) |       |       |
|--------------|------------|------------------------|---------------------------------------------|-----------------------|--------------|-----------------|-------|-------|
|              |            |                        | 1 <sup>st</sup> stage                       | 2 <sup>nd</sup> stage |              | A               | B     | C     |
| HPP21012     | P-T Plate  | 6.6                    | 610.24                                      | 79.33                 | 155.4        | 22.46           | 12.06 | 27.03 |
| HPP21014     | P-T Plate  | 10.56                  | 610.24                                      | 79.33                 | 188.5        | 22.46           | 12.06 | 31.32 |
| HPP21016     | P-T Plate  | 15.84                  | 610.24                                      | 79.33                 | 250.2        | 22.97           | 16    | 32.15 |
| HPP21022     | 2-way      | 6.6                    | 610.24                                      | 79.33                 | 156.5        | 22.46           | 12.06 | 27.03 |
| HPP21024     | 2-way      | 10.56                  | 610.24                                      | 79.33                 | 189.6        | 22.46           | 12.06 | 31.32 |
| HPP21026     | 2-way      | 15.84                  | 610.24                                      | 79.33                 | 251.3        | 22.97           | 16    | 32.15 |
| HPP21032     | 3-way      | 6.6                    | 610.24                                      | 79.33                 | 156.5        | 22.46           | 12.06 | 27.03 |
| HPP21034     | 3-way      | 10.56                  | 610.24                                      | 79.33                 | 189.6        | 22.46           | 12.06 | 31.32 |
| HPP21036     | 3-way      | 15.84                  | 610.24                                      | 79.33                 | 251.3        | 22.97           | 16    | 32.15 |
| HPP21042     | 4-way      | 6.6                    | 610.24                                      | 79.33                 | 156.5        | 22.46           | 12.06 | 27.03 |
| HPP21044     | 4-way      | 10.56                  | 610.24                                      | 79.33                 | 189.6        | 22.46           | 12.06 | 31.32 |
| HPP21046     | 4-way      | 15.84                  | 610.24                                      | 79.33                 | 251.3        | 22.97           | 16    | 32.15 |

### WHEEL TROLLEY

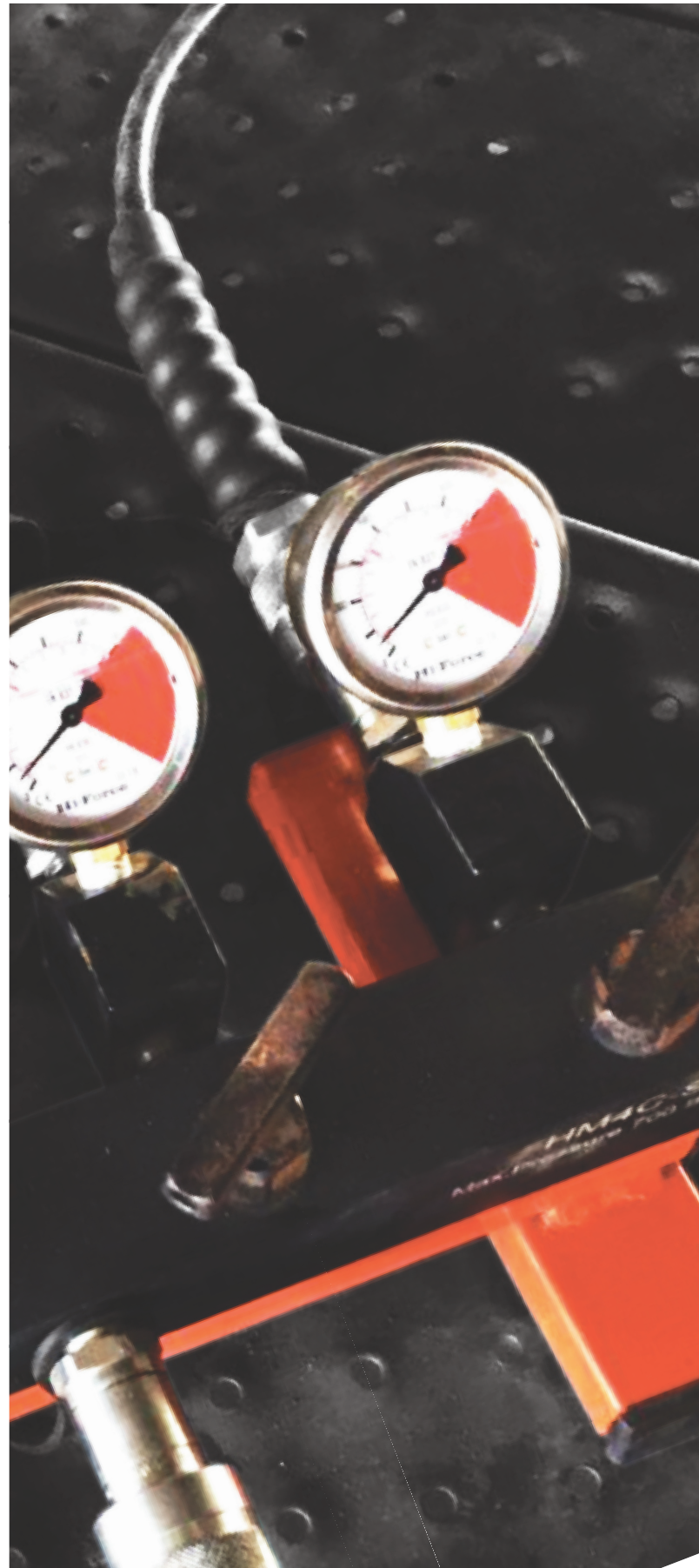
| Model number | Description                                                  |
|--------------|--------------------------------------------------------------|
| PPA40WT      | Wheel trolley for all pumps with 10.56 gallons oil reservoir |
| PPA60WT      | Wheel trolley for all pumps with 15.84 gallons oil reservoir |

All 40L and 60L HPP pumps can be supplied with a factory fitted wheel trolley. Just suffix model number with 'WT'.

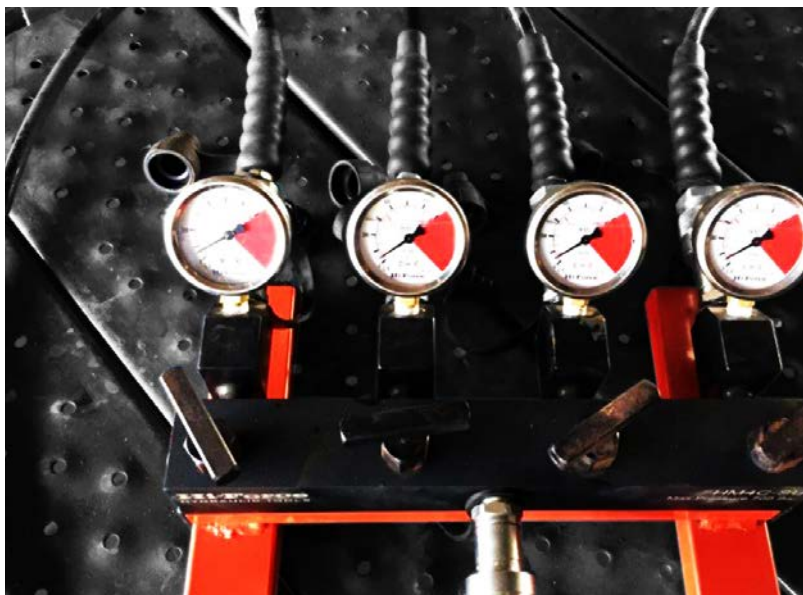


## HI-FORCE SYSTEM COMPONENTS

The Hi-Force range of system components is designed and manufactured to provide all the essential accessory items required to complete the required high pressure hydraulic system. Whether the requirements are for a hose, pressure gauge and gauge block, for a simple hydraulic tool set up using a remote pump, or a more complex system of multiple lifting cylinders with manifolds, control valves, gauges, hoses, couplings and fittings, Hi-Force system components offer the essential high quality performance, to ensure the hydraulic system integrity and safe operation and use of your Hi-Force hydraulic tools, is maintained at all times. Specify Hi-Force system components for use with your Hi-Force hydraulic tools.







## SYSTEM COMPONENTS

### HYDRAULIC HOSES 54

High pressure hydraulic hoses

### PRESSURE GAUGES & MOUNTING BLOCKS 55

Gauges and mounting blocks

### DIGITAL PRESSURE GAUGE 56

Digital gauge with LCD display

### PRESSURE TRANSDUCER & DIGITAL DISPLAY 57

Transducer and digital display

### MANIFOLDS 58

Distribution blocks

### CONTROLLED MANIFOLDS ASSEMBLIES 59

Manifold stations with pressure gauges

### HYDRAULIC OIL 60

Premium grade hydraulic oil

### HIGH PRESSURE COUPLERS & FITTINGS 61

High pressure couplers, fittings and adaptors

### DIRECTIONAL CONTROL VALVES 62

Directional control valves

### FLOW CONTROL VALVES 63

Flow control valves

## HIGH PRESSURE HYDRAULIC HOSES



**Working pressure 10000 psi**

**4:1 Factor of safety**

**Hand grip protective strain relievers**

► Available in black or red outer covering to assist with identifying advance and return lines in double acting hydraulic systems

| Length<br>(ft) | No couplers<br>3/8" - 18 NPT male<br>fitting both ends                             |                                                                                    | Weight<br>(lbs) | 3/8" - 18 NPT male fitting one<br>end with CM1 coupler<br>fitted one end           |                                                                                    | Weight<br>(lbs) | CM1 male couplers<br>fitted both ends                                                |                                                                                      | Weight<br>(lbs) |
|----------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-----------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-----------------|
|                | Model number                                                                       |                                                                                    |                 | Model number                                                                       |                                                                                    |                 | Model number                                                                         |                                                                                      |                 |
|                |   |   |                 |   |   |                 |   |   |                 |
|                |  |  |                 |  |  |                 |  |  |                 |
| 1.5            | HH0.5                                                                              | HH0.5R                                                                             | 0.9             | HC0.5                                                                              | HC0.5R                                                                             | 1.1             | HC0.5C                                                                               | HC0.5CR                                                                              | 1.5             |
| 3.3            | HH1                                                                                | HH1R                                                                               | 1.1             | HC1                                                                                | HC1R                                                                               | 1.5             | HC1C                                                                                 | HC1CR                                                                                | 2.2             |
| 6.5            | HH2                                                                                | HH2R                                                                               | 1.5             | HC2                                                                                | HC2R                                                                               | 2.0             | HC2C                                                                                 | HC2CR                                                                                | 2.4             |
| 10             | HH3                                                                                | HH3R                                                                               | 2.0             | HC3                                                                                | HC3R                                                                               | 2.2             | HC3C                                                                                 | HC3CR                                                                                | 2.6             |
| 13             | HH4                                                                                | HH4R                                                                               | 2.6             | HC4                                                                                | HC4R                                                                               | 2.6             | HC4C                                                                                 | HC4CR                                                                                | 3.3             |
| 16.5           | HH5                                                                                | HH5R                                                                               | 2.9             | HC5                                                                                | HC5R                                                                               | 3.1             | HC5C                                                                                 | HC5CR                                                                                | 3.5             |
| 19.5           | HH6                                                                                | HH6R                                                                               | 3.3             | HC6                                                                                | HC6R                                                                               | 3.5             | HC6C                                                                                 | HC6CR                                                                                | 4.0             |
| 33             | HH10                                                                               | HH10R                                                                              | 4.9             | HC10                                                                               | HC10R                                                                              | 5.3             | HC10C                                                                                | HC10CR                                                                               | 5.7             |
| 39.5           | HH12                                                                               | HH12R                                                                              | 6.2             | HC12                                                                               | HC12R                                                                              | 6.6             | HC12C                                                                                | HC12CR                                                                               | 7.1             |
| 49             | HH15                                                                               | HH15R                                                                              | 6.8             | HC15                                                                               | HC15R                                                                              | 7.3             | HC15C                                                                                | HC15CR                                                                               | 7.7             |
| 65.5           | HH20                                                                               | HH20R                                                                              | 9.0             | HC20                                                                               | HC20R                                                                              | 9.3             | HC20C                                                                                | HC20CR                                                                               | 9.7             |
| 82             | HH25                                                                               | HH25R                                                                              | 11.7            | HC25                                                                               | HC25R                                                                              | 12.1            | HC25C                                                                                | HC25CR                                                                               | 12.3            |
| 98.5           | HH30                                                                               | HH30R                                                                              | 16.1            | HC30                                                                               | HC30R                                                                              | 17.0            | HC30C                                                                                | HC30CR                                                                               | 17.4            |
| 164            | HH50                                                                               | HH50R                                                                              | 25.6            | HC50                                                                               | HC50R                                                                              | 26.0            | HC50C                                                                                | HC50CR                                                                               | 26.5            |
| 246.1          | HH75                                                                               | HH75R                                                                              | 38.6            | HC75                                                                               | HC75R                                                                              | 39.0            | HC75C                                                                                | HC75CR                                                                               | 39.5            |
| 328.1          | HH100                                                                              | HH100R                                                                             | 51.4            | HC100                                                                              | HC100R                                                                             | 51.8            | HC100C                                                                               | HC100CR                                                                              | 51.8            |

*Note: Hose bore is 1/4" and outside diameter is 1/2".*



## PRESSURE GAUGES & GAUGE MOUNTING BLOCKS



**Clear precise dual scale readings**

**Manufactured to EN837-1**

**+/-1% full scale accuracy**

### GAUGES

- ▶ Choice of dry or glycerin filled models available
- ▶ Recommended for use within all hydraulic systems to monitor hydraulic pressure
- ▶ Dual scale reading on all models
- ▶ Gauges scaled to match high tonnage cylinders available on request
- ▶ Individual gauge calibration certificates available at extra cost on request

| Model number | Gauge diameter (in) | Gauge type | Reading inner scale | Reading outer scale | Inlet thread | Compatible Hi-Force cylinders | Weight (lbs) |
|--------------|---------------------|------------|---------------------|---------------------|--------------|-------------------------------|--------------|
| HG63G        | 2.48                | glycerin   | 0-700 bar           | 0-10000 psi         | 1/4"-18 NPT  | All models                    | 0.4          |
| HG1          | 3.94                | dry        | 0-700 bar           | 0-10000 psi         | 1/2"-14 NPT  | All models                    | 2.0          |
| HG1G         | 3.94                | glycerin   | 0-700 bar           | 0-10000 psi         | 1/2"-14 NPT  | All models                    | 2.2          |
| HG2          | 5.91                | dry        | 0-700 bar           | 0-10000 psi         | 1/2"-14 NPT  | All models                    | 3.5          |
| HG2G         | 5.91                | glycerin   | 0-700 bar           | 0-10000 psi         | 1/2"-14 NPT  | All models                    | 3.7          |

### GAUGE MOUNTING BLOCKS

- ▶ For easy "inline" connection of the selected pressure gauge to the hydraulic system

| Model number | Length | Dimensions (in)<br>Width | Height | Gauge thread | Inlet thread     | Outlet thread      | Weight (lbs) |
|--------------|--------|--------------------------|--------|--------------|------------------|--------------------|--------------|
| HGA1         | 2.96   | 1.26                     | 1.26   | 1/2"-14 NPT  | 3/8"-18 NPT male | 3/8"-18 NPT female | 0.6          |
| HGA2         | 6.3    | 1.26                     | 1.26   | 1/2"-14 NPT  | 3/8"-18 NPT male | 3/8"-18 NPT female | 1.9          |
| HGA1-25      | 2.96   | 1.26                     | 1.26   | 1/4"-18 NPT  | 3/8"-18 NPT male | 3/8"-18 NPT female | 0.7          |
| HGA2-25      | 6.3    | 1.26                     | 1.26   | 1/4"-18 NPT  | 3/8"-18 NPT male | 3/8"-18 NPT female | 2.0          |
| AGA1-25      | 2.96   | 1.26                     | 1.97   | 1/4"-18 NPT  | 3/8"-18 NPT male | 3/8"-18 NPT female | 1.2          |

## DIGITAL PRESSURE GAUGE

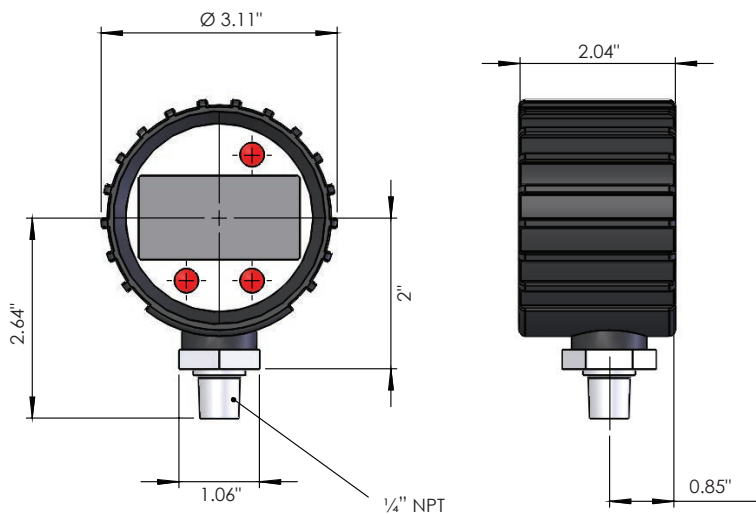


5 digit LCD display

Choice of pressure readings

0.5% full scale accuracy

- ▶ High quality, general purpose gauge to measure pressure up to 14500 psi (1000 bar)
- ▶ Displays readings in psi, psi, mpa and kg/cm<sup>2</sup>
- ▶ LCD display with 0.47 inches, 5 digit upper line pressure reading and 0.24 inches, 5 digit lower line unit reading
- ▶ Blue backlight allows for easy reading in poor visibility conditions
- ▶ Minimum 2000 hours battery life (3 VDC)
- ▶ Supplied with rubber enclosure to help protect against accidental impact
- ▶ Features include tare, min & max memory and IP65 weatherproof enclosure rating
- ▶ Compatible gauge mounting blocks are detailed on page 57



| Model number | Gauge diameter (in) | Pressure reading (psi) | Pressure reading (bar) | Pressure reading (mpa) | Pressure reading (kg/cm <sup>2</sup> ) | Inlet thread | Weight (lbs) |
|--------------|---------------------|------------------------|------------------------|------------------------|----------------------------------------|--------------|--------------|
| HDG1         | 2.76                | 0-14500                | 0-1000                 | 0-100                  | 0-1019.7                               | 1/4"-18 NPT  | 0.4          |

## PRESSURE TRANSDUCER & DIGITAL DISPLAY



Pressure readings in bar and psi

0.5% full scale accuracy

Maximum working pressure 10000 psi

### PRESSURE TRANSDUCER

- ▶ For precise measurement of system pressure up to 10000 psi
- ▶ Supplied complete with a 6.5 foot connecting cable
- ▶ Output 4-20 mA

| Model number | Pressure reading (psi) | Pressure reading (bar) | Connection thread | Accuracy percentage full scale | Weight (lbs) |
|--------------|------------------------|------------------------|-------------------|--------------------------------|--------------|
| HPT1         | 0-10000                | 0-700                  | 1/4"-18 NPT       | 0.5                            | 0.2          |

### DIGITAL DISPLAY UNIT

- ▶ For use with HPT1 transducer to record pressure in applications where remote reading is preferred
- ▶ Compact size with large LCD screen
- ▶ Displays readings in psi or bar
- ▶ Features include minimum and maximum value, average value, tare offset and reset
- ▶ Complete with worldwide power supply unit
- ▶ IP65 enclosure rating
- ▶ For use with 4-20 mA pressure transducer

| Model number | Pressure reading (psi) | Pressure reading (bar) | Screen display size (in) L x H | Overall size (in) L x W x H | Voltage VDC | Weight (lbs) |
|--------------|------------------------|------------------------|--------------------------------|-----------------------------|-------------|--------------|
| HDD1         | 0-10000                | 0-700                  | 3 x 1                          | 4.3 x 4.33 x 1.58           | 18 - 32     | 0.7          |

## MANIFOLDS

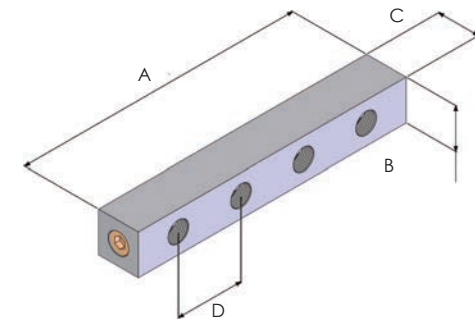


**Working pressure 10000 psi**

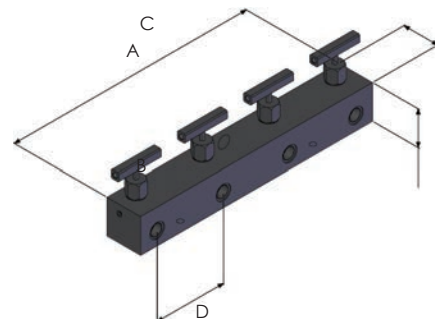
**Choice of open or controlled manifolds**

**2, 4, 6 or 8 outlet port models available**

- Designed for easy control of the direction of flow of the hydraulic fluid within the system
- Available as open manifold blocks or with individual needle type shut off/throttle valves on each outlet



HM\* & HM\*L



HM\*C

| Model number | Type                | Design            | Number of outlets | Connection ports female threads |                 | Weight (lbs) | Dimensions (in) |      |      |      |   |   |
|--------------|---------------------|-------------------|-------------------|---------------------------------|-----------------|--------------|-----------------|------|------|------|---|---|
|              |                     |                   |                   | Inlet                           | Outlet          |              | A               | B    | C    | D    | E | F |
| HM2          | open manifold       | parallel          | 2                 | 3/8"-18 NPT                     | 2 x 3/8"-18 NPT | 2.2          | 4.49            | 1.26 | 1.26 | 1.97 | - | - |
| HM4          | open manifold       | parallel          | 4                 | 3/8"-18 NPT                     | 4 x 3/8"-18 NPT | 3.3          | 8.43            | 1.26 | 1.26 | 1.97 | - | - |
| HM6          | open manifold       | parallel          | 6                 | 3/8"-18 NPT                     | 6 x 3/8"-18 NPT | 4.4          | 12.37           | 1.26 | 1.26 | 1.97 | - | - |
| HM8          | open manifold       | parallel          | 8                 | 3/8"-18 NPT                     | 8 x 3/8"-18 NPT | 5.5          | 16.31           | 1.26 | 1.26 | 1.97 | - | - |
| HM4L         | open manifold       | extended parallel | 4                 | 3/8"-18 NPT                     | 4 x 3/8"-18 NPT | 5.3          | 15.52           | 1.26 | 1.26 | 4.33 | - | - |
| HM6L         | open manifold       | extended parallel | 6                 | 3/8"-18 NPT                     | 6 x 3/8"-18 NPT | 8.2          | 24.19           | 1.26 | 1.26 | 4.33 | - | - |
| HM2C         | controlled manifold | parallel          | 2                 | 3/8"-18 NPT                     | 2 x 3/8"-18 NPT | 4.4          | 5.91            | 2.01 | 1.5  | 3.94 | - | - |
| HM4C         | controlled manifold | parallel          | 4                 | 3/8"-18 NPT                     | 4 x 3/8"-18 NPT | 7.7          | 13.79           | 2.01 | 1.5  | 3.94 | - | - |

## CONTROLLED MANIFOLD ASSEMBLIES

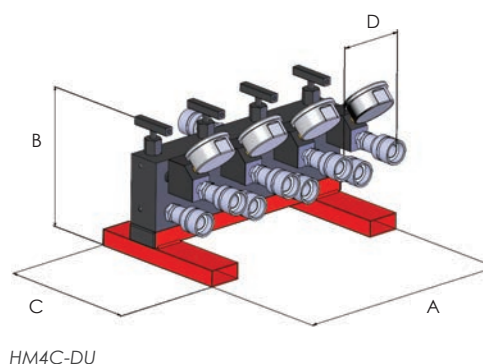
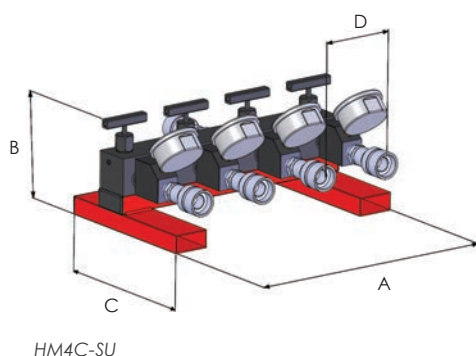
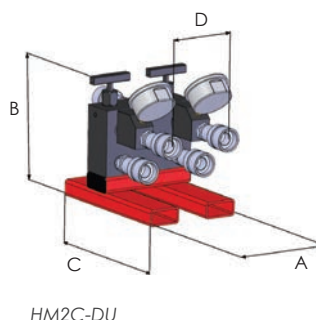
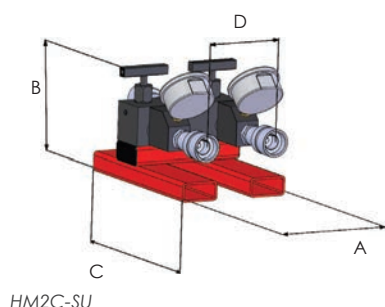


**Working pressure 10000 psi**

**Up to 4 outlets with individual control on each**

**Choice of manifolds for single or double acting systems**

- ▶ Pressure gauges fitted to advance ports on all models
- ▶ Quick connect couplings fitted as standard to all inlet and outlet ports
- ▶ Precise control of oil flow and pressure within the hydraulic system



| Model number | Description                                                        | Weight (lbs) | A     | Dimensions (in) |      |      |  |
|--------------|--------------------------------------------------------------------|--------------|-------|-----------------|------|------|--|
|              |                                                                    |              |       | B               | C    | D    |  |
| HM2C-SU      | 2-way controlled manifold unit, suitable for single acting systems | 4.4          | 5.91  | 2.01            | 2.01 | 3.94 |  |
| HM2C-DU      | 2-way controlled manifold unit, suitable for double acting systems | 6.6          | 5.91  | 4.02            | 2.01 | 3.94 |  |
| HM4C-SU      | 4-way controlled manifold unit, suitable for single acting systems | 7.7          | 13.79 | 2.01            | 2.01 | 3.94 |  |
| HM4C-DU      | 4-way controlled manifold unit, suitable for double acting systems | 13.2         | 13.79 | 4.02            | 2.01 | 3.94 |  |



## HYDRAULIC OIL



Premium grade hydraulic oil

High viscosity index

Supplied in a choice of 0.26, 1.32 or 6.6 gallon containers

- ▶ Effective and reliable lubricant
- ▶ Foaming resistance
- ▶ Provides optimum performance in all high pressure applications
- ▶ Specially formulated for use with all Hi-Force hydraulic tools

| Model number | Contents (gallons) |
|--------------|--------------------|
| HFO15-1      | 0.26               |
| HFO15-5      | 1.32               |
| HFO15-25     | 6.6                |
| HFO46-1      | 0.26               |
| HFO46-5      | 1.32               |
| HFO46-25     | 6.6                |

### OIL TYPE RECOMMENDATION

| Product                      | Oil Type |       |
|------------------------------|----------|-------|
|                              | HFO15    | HFO46 |
| ACP                          | ✓        | •     |
| AHP/AHP-CR/AHP2/AHP2-CR/ATDP | •        | ✓     |
| AHP-BTU                      | •        | ✓     |
| AHP11                        | •        | ✓     |
| BC                           | •        | ✓     |
| BPP                          | •        | ✓     |
| CH                           | •        | ✓     |
| Controlled Manifolds         | ✓        | ✓     |
| Couplers & Fittings          | ✓        | ✓     |
| CT                           | ✓        | •     |
| Digital Gauge                | ✓        | ✓     |
| DNS                          | •        | ✓     |
| Gauge/Blocks                 | ✓        | ✓     |
| HAP                          | •        | ✓     |
| HAS                          | •        | ✓     |
| HCC                          | •        | ✓     |
| HCH                          | •        | ✓     |
| HDA                          | •        | ✓     |
| HEP1                         | •        | ✓     |
| HEP103                       | •        | ✓     |
| HEP2/HEP3/HEP4/HEP5          | -        | ✓     |
| HFA                          | •        | ✓     |
| HFG                          | •        | ✓     |
| HFL                          | •        | ✓     |
| HFS-H                        | •        | ✓     |
| HFV42/HFV66                  | ✓        | ✓     |
| HGG                          | •        | ✓     |

| Product | Oil Type |       |
|---------|----------|-------|
|         | HFO15    | HFO46 |
| HHA     | •        | ✓     |
| HHP     | •        | ✓     |
| HHR     | •        | ✓     |
| HHS     | •        | ✓     |
| HKP     | ✓        | •     |
| HLS     | •        | ✓     |
| HMJ     | •        | ✓     |
| HMNS    | ✓        | •     |
| Hoses   | ✓        | ✓     |
| HP(All) | ✓        | •     |
| HP-FP   | ✓        | •     |
| HPC     | •        | ✓     |
| HPF     | •        | ✓     |
| HPP     | •        | ✓     |
| HPR/HBR | ✓        | •     |
| HPS     | •        | ✓     |
| HPT     | ✓        | ✓     |
| HPX     | ✓        | •     |
| HPX-BTU | ✓        | ✓     |
| HPV152  | ✓        | ✓     |
| HRA     | •        | ✓     |
| HSG     | •        | ✓     |
| HSP     | -        | ✓     |
| HSS     | •        | ✓     |
| HSWC    | ✓        | •     |
| HTN     | •        | ✓     |
| HTWP    | -        | ✓     |
| HTWR1   | •        | ✓     |

| Product    | Oil Type |       |
|------------|----------|-------|
|            | HFO15    | HFO46 |
| HVL        | •        | ✓     |
| HWRC       | •        | ✓     |
| JAH        | ✓        | •     |
| JAS        | ✓        | •     |
| JCS/JCH    | ✓        | ✓     |
| JS         | ✓        | •     |
| Manifolds  | ✓        | ✓     |
| MHX        | ✓        | •     |
| NS         | •        | ✓     |
| PB         | ✓        | •     |
| PKC        | ✓        | •     |
| PKS        | ✓        | •     |
| PMV2       | •        | ✓     |
| PMV3/PMV3L | •        | ✓     |
| PMV4/PMV4L | •        | ✓     |
| RMV3/RMV3L | •        | ✓     |
| RMV4/RMV4L | •        | ✓     |
| SBT        | •        | ✓     |
| SC         | ✓        | •     |
| SCP        | ✓        | •     |
| SJS        | ✓        | •     |
| SLF/SLV    | -        | ✓     |
| STS        | •        | ✓     |
| STU        | •        | ✓     |
| Toughlift  | •        | ✓     |
| TPA        | -        | ✓     |
| TPE        | -        | ✓     |
| XHR1       | •        | ✓     |

**Note:** ✓ Recommended and factory fitted grade  
 • Acceptable alternative  
 - Not recommended

## HIGH PRESSURE COUPLERS AND FITTINGS

- Suitable for working pressures up to 10000 psi
- Designed to ensure easy system connection and assembly

| Model number | See picture | Description                                  | Thread specification               |
|--------------|-------------|----------------------------------------------|------------------------------------|
| HF7          | 1           | Nipple                                       | 1/4" NPT male to 1/4" NPT male     |
| HF8          | 5           | Adaptor                                      | 1/4" NPT female to 1/4" NPT female |
| HF10         | 2           | Elbow                                        | 3/8" NPT female to 3/8" NPT female |
| HF12         | 3           | Equal tee                                    | 3/8" NPT female                    |
| HF13         | 4           | Cross                                        | 3/8" NPT female                    |
| HF14         | 5           | Adaptor                                      | 3/8" NPT female to 3/8" NPT female |
| HF15         | 5           | Reducer                                      | 3/8" NPT female to 1/4" NPT female |
| HF16         | 6           | Elbow                                        | 3/8" NPT female to 3/8" NPT male   |
| HF17         | 1           | Nipple                                       | 3/8" NPT male to 3/8" NPT male     |
| HF19         | 1           | Long nipple                                  | 3/8" NPT male to 3/8" NPT male     |
| HF24         | 7           | Adaptor                                      | 3/8" NPT male to 3/8" BSPP female  |
| HF27         | 1           | Nipple                                       | 1/4" NPT male to 3/8" NPT male     |
| HF30         | 7           | Reducer                                      | 3/8" NPT male to 1/4" NPT female   |
| HF31         | 8           | Tee                                          | 3/8" NPT female to 3/8" NPT male   |
| HF33         | 7           | Reducer                                      | 3/8" NPT male to 1/4" BSPT female  |
| HF55         | 7           | Reducer                                      | 3/8" NPT female to 1/4" NPT male   |
| HF69         | 7           | Adaptor                                      | 1/2" BSPP male to 3/8" NPT female  |
| CF1          | 9           | Female coupler                               | 3/8" NPT male                      |
| CM1          | 10          | Male coupler                                 | 3/8" NPT female                    |
| CMF1         | 9 + 10      | Complete coupler                             | 3/8" NPT                           |
| CF2          | 9           | Female coupler                               | 1/4" NPT male                      |
| CM2          | 10          | Male coupler                                 | 1/4" NPT female                    |
| CMF2         | 9 + 10      | Complete coupler                             | 1/4" NPT                           |
| CFD1         | 11          | Metal dust cap for CF1                       |                                    |
| CMD1         | 12          | Metal dust cap for CM1                       |                                    |
| CFD2         | 11          | Metal dust cap for CF2                       |                                    |
| CMD2         | 12          | Metal dust cap for CM2                       |                                    |
| PPC1         | 13          | Moulded universal dust cap to suit CF1 & CM1 |                                    |



Picture 1



Picture 2



Picture 3



Picture 4



Picture 5



Picture 6



Picture 7



Picture 8



Picture 9



Picture 10



Picture 11



Picture 12



Picture 13

## DIRECTIONAL CONTROL VALVES



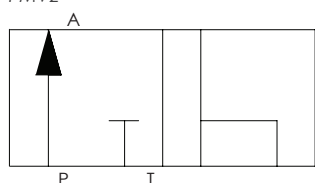
**Working pressure 10000 psi**

**Pump or remote mounted design**

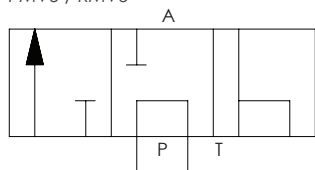
**Manual valve options available**

- ▶ Choice of 2, 3 or 4-way options
- ▶ Designed to provide precise control of oil flow and pressure

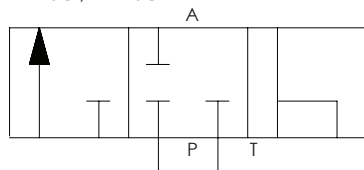
PMV2



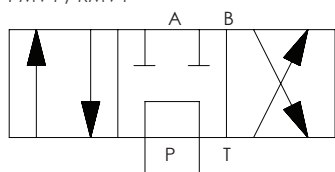
PMV3 / RMV3



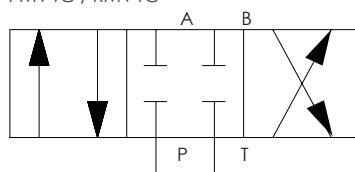
PMV3C / RMV3C



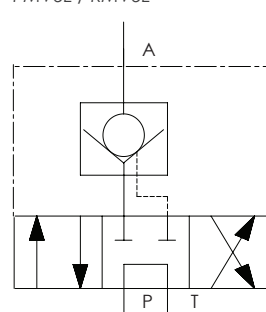
PMV4 / RMV4



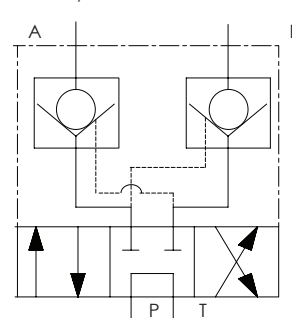
PMV4C / RMV4C



PMV3L / RMV3L



PMV4L / RMV4L



| Description                             | Manual valve<br>no load holding | Model number<br>Manual valve<br>with load holding | Manual valve<br>closed center |
|-----------------------------------------|---------------------------------|---------------------------------------------------|-------------------------------|
| Pump mounted, 2-way, 2 position valve   | PMV2                            | -                                                 | -                             |
| Pump mounted, 3-way, 3 position valve   | PMV3                            | PMV3L                                             | PMV3C                         |
| Pump mounted, 4-way, 3 position valve   | PMV4                            | PMV4L                                             | PMV4C                         |
| Remote mounted, 3-way, 3 position valve | RMV3                            | RMV3L                                             | RMV3C                         |
| Remote mounted, 4-way, 3 position valve | RMV4                            | RMV4L                                             | RMV4C                         |

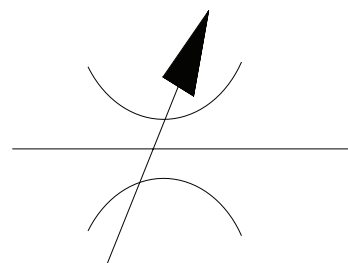
## FLOW CONTROL VALVES



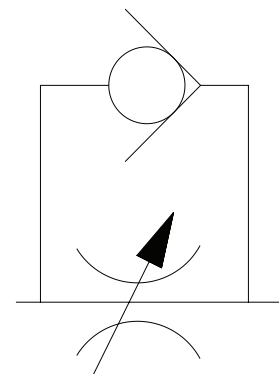
**Working pressure 10000 psi**

**$\frac{3}{8}$ " - 18 NPT female connection ports**

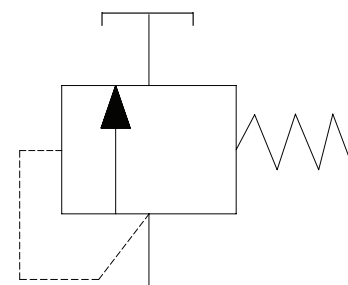
| Model number | Description                                                                                                                                | Dimensions (in) |        |       |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------|-----------------|--------|-------|
|              |                                                                                                                                            | Height          | Length | Width |
| HM1C         | Manual shut off valve with needle type flow control. Used for load holding and throttling functions. Can also be used as a gauge isolator. | 3.23            | 2.52   | 1.5   |



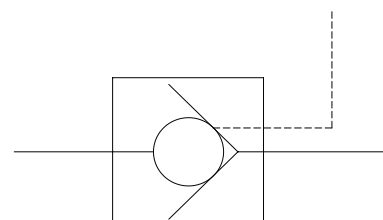
| Model number | Description                                                                                    | Dimensions (in) |        |       |
|--------------|------------------------------------------------------------------------------------------------|-----------------|--------|-------|
|              |                                                                                                | Height          | Length | Width |
| HFV66        | Manual check valve used for automatic load locking, with precise manual load lowering feature. | 3.39            | 2.96   | 1.85  |



| Model number | Description                                                                                                            | Dimensions (in) |        |       |
|--------------|------------------------------------------------------------------------------------------------------------------------|-----------------|--------|-------|
|              |                                                                                                                        | Height          | Length | Width |
| HPV152       | Adjustable pressure relief valve, for pressure setting from 800 to 10000 psi. Supplied complete with return line hose. | 4.02            | 2.52   | 1.26  |

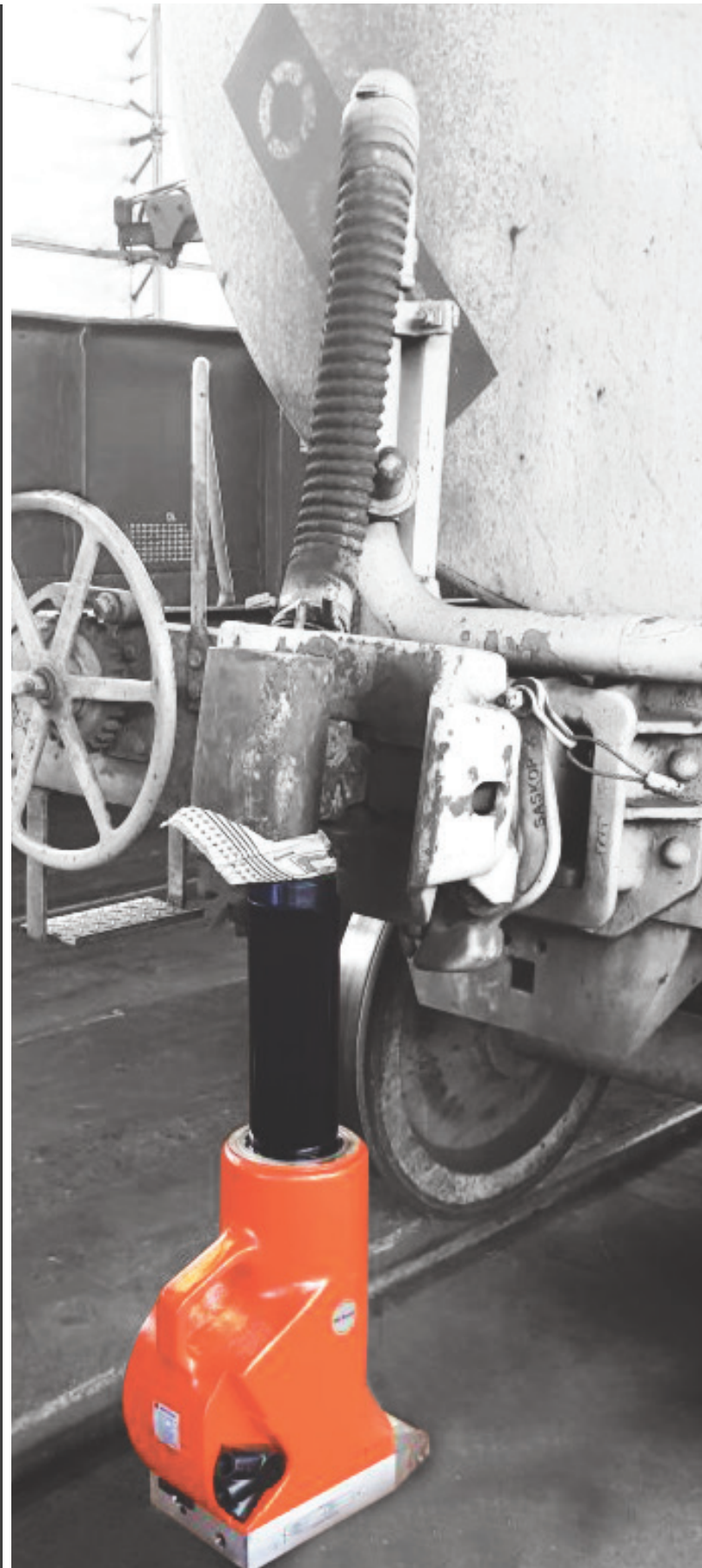


| Model number | Description                                                                                                                  | Dimensions (in) |        |       |
|--------------|------------------------------------------------------------------------------------------------------------------------------|-----------------|--------|-------|
|              |                                                                                                                              | Height          | Length | Width |
| HFV42        | Pilot operated check valve used as a safety valve for double acting cylinders. Pilot port connects to cylinder retract line. | 3.31            | 2.52   | 1.26  |

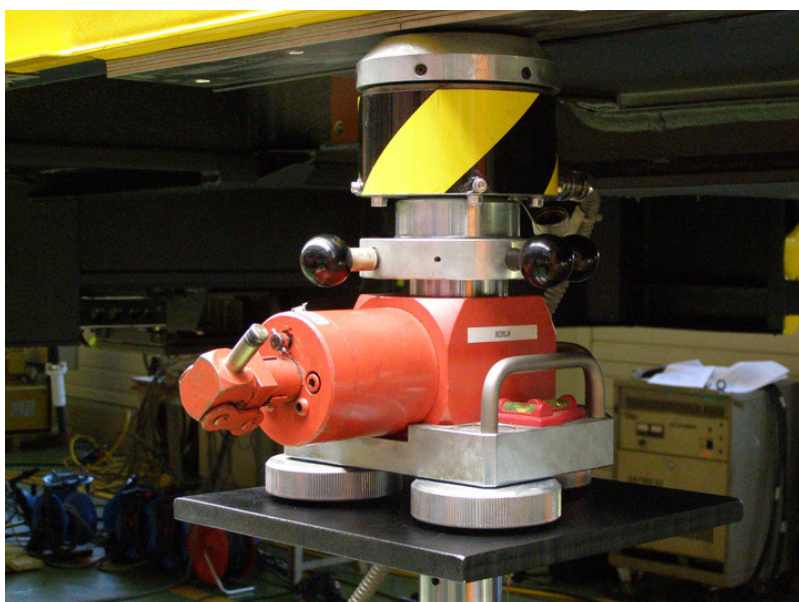


## HI-FORCE HYDRAULIC JACKS

The Hi-Force range of hydraulic jacks offers a wide choice of lifting capacities, closed and extended heights, material construction and design. From self-contained aluminum to remote pump operated, steel toe lift jacks and compact low height jacks for confined space applications, the Hi-Force hydraulic jack range offers the user a wide choice of options, to suit every application. All jacks are supplied prefilled with oil ready to use.







## JACKS

---

|                  |           |
|------------------|-----------|
| <b>JAS RANGE</b> | <b>66</b> |
|------------------|-----------|

Aluminum jacks, compact multi-purpose design

---

|                  |           |
|------------------|-----------|
| <b>JAH RANGE</b> | <b>67</b> |
|------------------|-----------|

Aluminum jacks plain piston, claw jacks and locking ring design

---

|                            |           |
|----------------------------|-----------|
| <b>JCS &amp; JCH RANGE</b> | <b>68</b> |
|----------------------------|-----------|

Steel & aluminum jacks, compact low height design

---

|                  |           |
|------------------|-----------|
| <b>HMJ RANGE</b> | <b>69</b> |
|------------------|-----------|

Steel jacks, low height access machine lift design

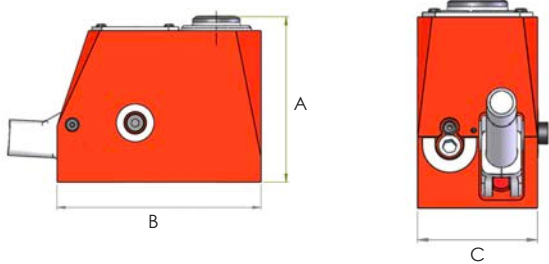
---

JAS | ALUMINUM JACKS



- Maximum capacity 11 tons
- Choice of 2.96 or 4.93 inches hydraulic lift height
- Internal safety overload device

- ▶ Lightweight aluminum jack body
- ▶ Spring assisted piston retraction
- ▶ Nitrocarburized steel piston for increased corrosion resistance
- ▶ Over stroke safety limiting device



| Model number | Capacity (tons) | Stroke (in) | Weight (lbs) | Dimensions (in) |      |      |
|--------------|-----------------|-------------|--------------|-----------------|------|------|
|              |                 |             |              | A               | B    | C    |
| JAS103       | 11              | 2.96        | 9.5          | 5.16            | 6.38 | 2.96 |
| JAS105       | 11              | 4.93        | 12.6         | 7.13            | 6.38 | 2.96 |

## JAH | ALUMINUM JACKS

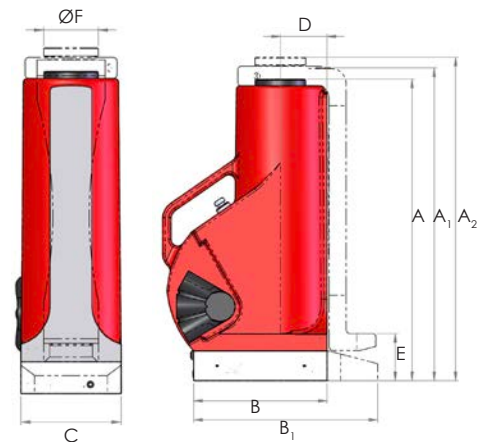


- ▶ Lightweight aluminum construction with critical parts manufactured from high quality steel
- ▶ Available with plain piston, lifting claw or failsafe mechanical lock ring
- ▶ Claw lift capacities from 9 to 26 tons
- ▶ Safety over stroke limiting device

Capacities from 22 to 66 tons

Choice of 5.99 or 12.02 inches stroke lengths

Internal safety overload device



| Model number                                             | Jack capacity (tons) | Claw capacity (tons) | Stroke (in) | Weight (lbs) |
|----------------------------------------------------------|----------------------|----------------------|-------------|--------------|
| Jack with plain piston                                   |                      |                      |             |              |
| JAH620                                                   | 22                   | -                    | 5.99        | 24.3         |
| JAH1220                                                  | 22                   | -                    | 12.02       | 37.5         |
| JAH630                                                   | 33                   | -                    | 5.99        | 35.3         |
| JAH1230                                                  | 33                   | -                    | 12.02       | 52.9         |
| JAH660                                                   | 66                   | -                    | 5.99        | 61.7         |
| JAH1260                                                  | 66                   | -                    | 12.02       | 97.0         |
| Jack with plain piston & lifting claw with extended base |                      |                      |             |              |
| JAH620C                                                  | 22                   | 9                    | 5.99        | 33.1         |
| JAH1220C                                                 | 22                   | 9                    | 12.02       | 50.7         |
| JAH630C                                                  | 33                   | 13                   | 5.99        | 46.3         |
| JAH1230C                                                 | 33                   | 13                   | 12.02       | 70.5         |
| JAH660C                                                  | 66                   | 26                   | 5.99        | 97.0         |
| JAH1260C                                                 | 66                   | 26                   | 12.02       | 143.3        |
| Jack with failsafe mechanical load holding lock ring     |                      |                      |             |              |
| JAH620SR                                                 | 22                   | -                    | 5.99        | 28.7         |
| JAH1220SR                                                | 22                   | -                    | 12.02       | 41.9         |
| JAH630SR                                                 | 33                   | -                    | 5.99        | 37.5         |
| JAH1230SR                                                | 33                   | -                    | 12.02       | 55.1         |
| JAH660SR                                                 | 66                   | -                    | 5.99        | 66.1         |
| JAH1260SR                                                | 66                   | -                    | 12.02       | 101.4        |

| Dimensions (in) |                |                |      |                |      |      |      |      |  |
|-----------------|----------------|----------------|------|----------------|------|------|------|------|--|
| A               | A <sub>1</sub> | A <sub>2</sub> | B    | B <sub>1</sub> | C    | D    | E    | F    |  |
| 10.36           | -              | -              | 7.01 | -              | 4.77 | 2.25 | -    | 2.36 |  |
| 17.26           | -              | -              | -    | 9.69           | 4.77 | 2.25 | -    | 2.36 |  |
| 10.36           | -              | -              | 8    | -              | 5.52 | 2.76 | -    | 2.99 |  |
| 17.77           | -              | -              | -    | 10.76          | 5.52 | 2.76 | -    | 2.99 |  |
| 11.54           | -              | -              | 9.89 | -              | 7.49 | 3.62 | -    | 4.26 |  |
| 19.7            | -              | -              | -    | 13.47          | 7.49 | 3.62 | -    | 4.26 |  |
| -               | 11.03          | -              | -    | 9.69           | 4.77 | 2.25 | 2.64 | -    |  |
| -               | 17.97          | -              | -    | 9.69           | 4.77 | 2.25 | 2.64 | -    |  |
| -               | 11.07          | -              | -    | 10.76          | 5.52 | 2.76 | 3.07 | -    |  |
| -               | 18.6           | -              | -    | 10.76          | 5.52 | 2.76 | 3.07 | -    |  |
| -               | 13.2           | -              | -    | 13.47          | 7.49 | 3.62 | 3.07 | -    |  |
| -               | 21.47          | -              | -    | 13.47          | 7.49 | 3.62 | 3.07 | -    |  |
| -               | -              | 11.39          | 7.01 | -              | 4.77 | 2.25 | -    | 2.36 |  |
| -               | -              | 18.28          | -    | 9.69           | 4.77 | 2.25 | -    | 2.36 |  |
| -               | -              | 11.5           | 8    | -              | 5.52 | 2.76 | -    | 2.99 |  |
| -               | -              | 18.87          | -    | 10.76          | 5.52 | 2.76 | -    | 2.99 |  |
| -               | -              | 13             | 9.89 | -              | 7.49 | 3.62 | -    | 4.26 |  |
| -               | -              | 21.12          | -    | 13.47          | 7.49 | 3.62 | -    | 4.26 |  |

**Note:** Lifting claw capacity on toe is maximum 40% of jack capacity, do not exceed!

## JCS & JCH | COMPACT JACKS

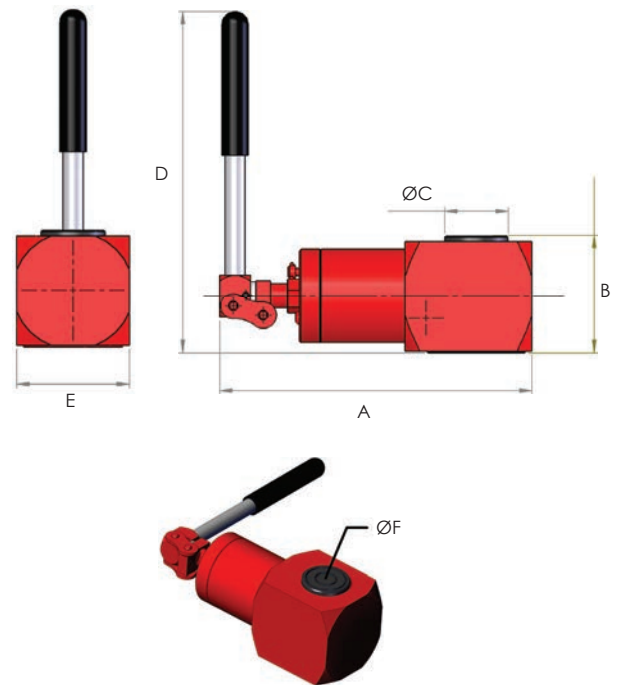


Capacities from 11 to 33 tons

Stroke lengths from 1.38 to 1.77 inches

Lightweight and compact

- ▶ Spring assisted piston retraction (JCS)
- ▶ Load return piston (JCH)
- ▶ Nitrocarburized steel piston rod for corrosion resistance
- ▶ 360 degree positional pumping mechanism for increased versatility
- ▶ Internal safety overload valve



### JCS - SOLID PISTON

| Model number | Capacity (tons) | Body construction | Stroke (in) | Weight (lbs) |
|--------------|-----------------|-------------------|-------------|--------------|
| JCS10        | 11              | Steel             | 1.38        | 9.9          |
| JCS20        | 22              | Aluminum          | 1.62        | 12.1         |
| JCS30        | 33              | Aluminum          | 1.77        | 17.6         |

| Dimensions (in) |      |      |       |      |   |
|-----------------|------|------|-------|------|---|
| A               | B    | C    | D     | E    | F |
| 9.46            | 2.99 | 1.5  | 10.48 | 2.76 | - |
| 10.13           | 4.02 | 2.01 | 11.07 | 4.02 | - |
| 11.07           | 4.41 | 2.36 | 11.23 | 4.93 | - |

### JCH - HOLLOW PISTON

| Model number | Capacity (tons) | Body construction | Stroke (in) | Weight (lbs) |
|--------------|-----------------|-------------------|-------------|--------------|
| JCH13        | 14              | Aluminum          | 1.62        | 12.1         |
| JCH21        | 23              | Aluminum          | 1.77        | 17.6         |

| Dimensions (in) |      |      |       |      |      |
|-----------------|------|------|-------|------|------|
| A               | B    | C    | D     | E    | F    |
| 10.13           | 3.74 | 2.01 | 11.07 | 4.02 | 0.99 |
| 11.07           | 4.49 | 2.36 | 11.23 | 4.93 | 1.38 |

**HMJ | STEEL MACHINE LIFT JACKS**

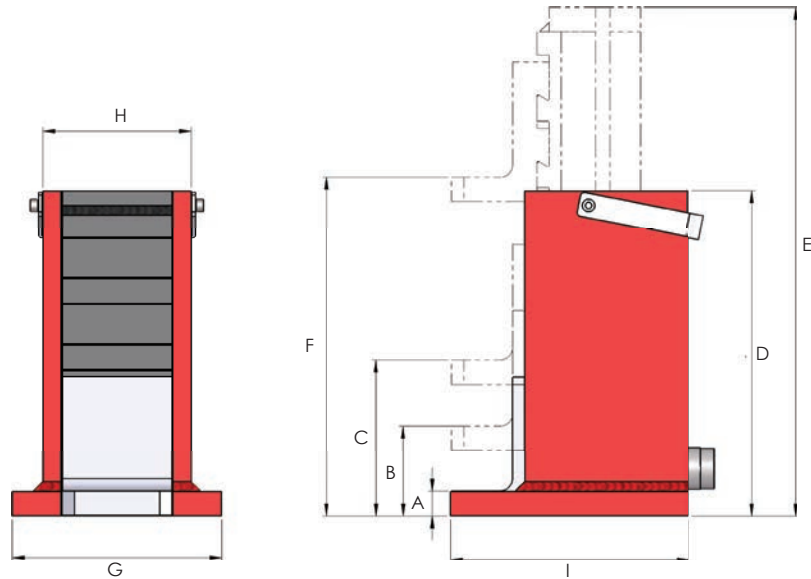


**Capacities of 11 and 28 tons**

**Stroke length 5.91 inches**

**10000 psi maximum working pressure**

- ▶ Lifting toe is precision guided throughout its lifting stroke to reduce friction and prevent potential side loading of the hydraulic cylinder
- ▶ Operated using a remote pump and hose for increased operator safety
- ▶ Lifting toe with minimum height of 1 inch, can be pre-set at three lifting positions
- ▶ Suitable for multiple lift point applications



| Model number | Capacity (tons) |      | Stroke (in) | Weight (lbs) | Dimensions (in) |      |      |       |       |       |      |      |      |
|--------------|-----------------|------|-------------|--------------|-----------------|------|------|-------|-------|-------|------|------|------|
|              | Toe             | Head |             |              | A               | B    | C    | D     | E     | F     | G    | H    | I    |
| HMJ10        | 9               | 11   | 5.91        | 64.4         | 0.99            | 3.11 | 5.24 | 10.72 | 16.63 | 11.15 | 7.96 | 4.81 | 7.37 |
| HMJ25        | 22              | 28   | 5.91        | 121.5        | 1.38            | 4.61 | 7.84 | 13    | 18.91 | 13.75 | 11.5 | 5.99 | 8.31 |

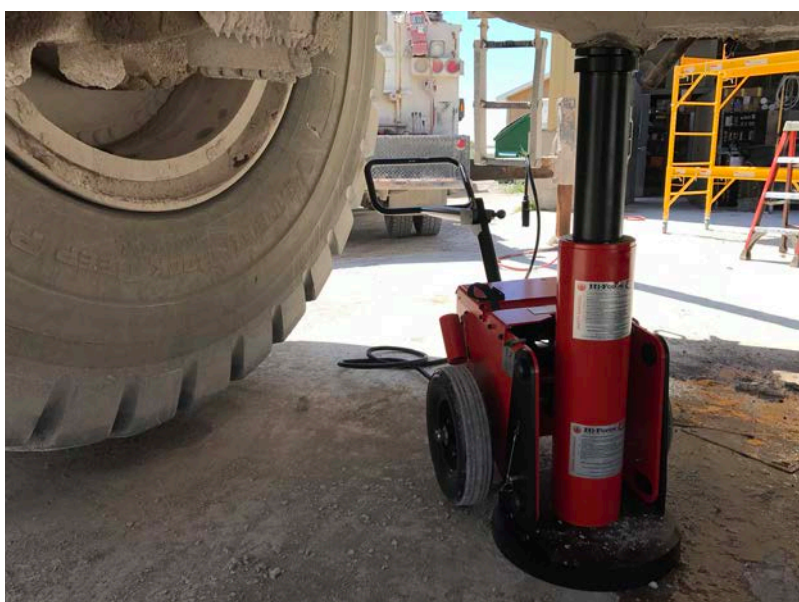
**Note:** Maximum permissible input hydraulic pressure when lifting on the jack toe is 8630 psi for HMJ10 and 8120 psi for HMJ25, do not exceed!



## HI-FORCE TOUGHLIFT JACKING SYSTEM

The Hi-Force Toughlift Jacking System offers users the easiest and safest method of lifting heavy plant and construction vehicles, in the mining and construction industry and railway locomotives, when critical maintenance and breakdown repair work is required. Suitable for lifting, even the largest vehicles, currently in production around the world, the Hi-Force Toughlift is available in 55, 110, 165 & 220 ton lifting capacities.





## TOUGHLIFT

---

|                 |           |
|-----------------|-----------|
| <b>TL RANGE</b> | <b>72</b> |
|-----------------|-----------|

ToughLift jacking systems

---

|                       |           |
|-----------------------|-----------|
| <b>TL ACCESSORIES</b> | <b>73</b> |
|-----------------------|-----------|

Slip lock and load lock extensions

---

|                       |           |
|-----------------------|-----------|
| <b>TL ACCESSORIES</b> | <b>74</b> |
|-----------------------|-----------|

Load block sets and spacers

---

|                       |           |
|-----------------------|-----------|
| <b>TL ACCESSORIES</b> | <b>75</b> |
|-----------------------|-----------|

ToughLift accessories configuration examples



## TL | TOUGHLIFT JACKING SYSTEMS



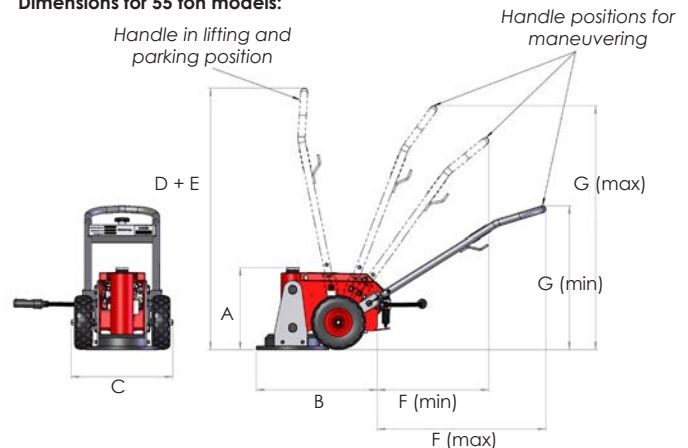
- ▶ Choice of air or electric driven hydraulic system
- ▶ High flow 3-stage pump unit offers faster advance and retract times
- ▶ Solid tyres fitted as standard with option of pneumatic tyres
- ▶ Narrow width wheels and redesigned wheel position for better ground clearance and balance when maneuvering
- ▶ Push button remote hand pendant controller with 16.5 feet control cable
- ▶ Tilting saddles fitted as standard on all models
- ▶ User friendly design with easily accessible maintenance features
- ▶ Wide range of accessories available for even greater versatility see pages 75 and 76

Capacities from 55 to 220 tons

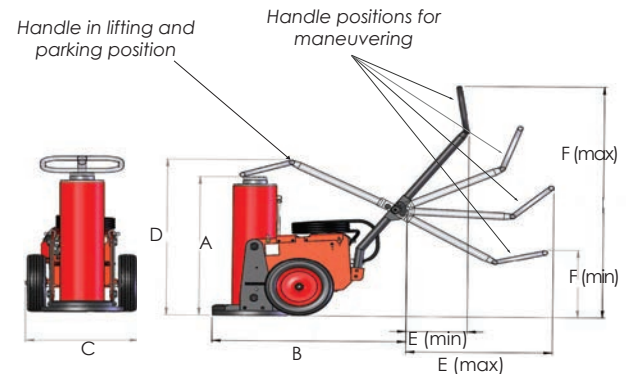
Lifting heights up to 27 inches

Working pressure 10000 psi

Dimensions for 55 ton models:



Dimensions for all other models:



| Model number  | Capacity (tons) | Power supply         | Stroke (in) | Weight (lbs) | Max additional stack (in) | Dimensions (in) |       |       |       |               |               |               |
|---------------|-----------------|----------------------|-------------|--------------|---------------------------|-----------------|-------|-------|-------|---------------|---------------|---------------|
|               |                 |                      |             |              |                           | A               | B     | C     | D     | E (min-max)   | F (min-max)   | G (min-max)   |
| TLA5010       | 55              | 90-psi air driven    | 10.01       | 352.7        | 26.79                     | 17.85           | 26    | 22.06 | 56.74 | 56.74         | 14.97 - 39.4  | 27.58 - 51.22 |
| TLA5014       | 55              | 90-psi air driven    | 13.99       | 374.8        | 26.79                     | 21.83           | 26    | 22.06 | 56.74 | 56.74         | 14.97 - 39.4  | 27.58 - 51.22 |
| TLE5010-110V  | 55              | 110V electric, 50 Hz | 10.01       | 370.4        | 26.79                     | 17.85           | 26    | 22.06 | 56.74 | 56.74         | 14.96 - 39.4  | 27.58 - 51.22 |
| TLE5010H-120V | 55              | 120V electric, 60 Hz | 10.01       | 370.4        | 26.79                     | 17.85           | 26    | 22.06 | 56.74 | 56.74         | 14.96 - 39.4  | 27.58 - 51.22 |
| TLE5010       | 55              | 230V electric, 50 Hz | 10.01       | 370.4        | 26.79                     | 17.85           | 26    | 22.06 | 56.74 | 56.74         | 14.96 - 39.4  | 27.58 - 51.22 |
| TLE5010H      | 55              | 220V electric, 60 Hz | 10.01       | 370.4        | 26.79                     | 17.85           | 26    | 22.06 | 56.74 | 56.74         | 14.96 - 39.4  | 27.58 - 51.22 |
| TLE5014-110V  | 55              | 110V electric, 50 Hz | 13.99       | 392.4        | 26.79                     | 21.83           | 26    | 22.06 | 56.74 | 56.74         | 14.96 - 39.4  | 27.58 - 51.22 |
| TLE5014H-120V | 55              | 120V electric, 60 Hz | 13.99       | 392.4        | 26.79                     | 21.83           | 26    | 22.06 | 56.74 | 56.74         | 14.96 - 39.4  | 27.58 - 51.22 |
| TLE5014       | 55              | 230V electric, 50 Hz | 13.99       | 392.4        | 26.79                     | 21.83           | 26    | 22.06 | 56.74 | 56.74         | 14.96 - 39.4  | 27.58 - 51.22 |
| TLE5014H      | 55              | 220V electric, 60 Hz | 13.99       | 392.4        | 26.79                     | 21.83           | 26    | 22.06 | 56.74 | 56.74         | 14.96 - 39.4  | 27.58 - 51.22 |
| TLA10016      | 110             | 90-psi air driven    | 15.96       | 637.1        | 18.91                     | 26.2            | 44.52 | 25.69 | 32.74 | 14.03 - 33.65 | 18.32 - 63.24 | -             |
| TLA10021      | 110             | 90-psi air driven    | 20.88       | 703.3        | 7.09                      | 33.21           | 44.52 | 25.69 | 37.27 | 14.03 - 33.69 | 18.32 - 63.28 | -             |
| TLA15015      | 165             | 90-psi air driven    | 15.37       | 690.0        | 19.11                     | 26.2            | 44.52 | 25.69 | 32.9  | 14.03 - 33.73 | 18.32 - 63.32 | -             |
| TLA15020      | 165             | 90-psi air driven    | 20.49       | 769.4        | 7.09                      | 33.21           | 44.52 | 25.69 | 37.94 | 14.03 - 33.77 | 18.32 - 63.36 | -             |
| TLA20015      | 220             | 90-psi air driven    | 15.01       | 822.3        | 19.7                      | 26              | 44.52 | 25.69 | 32.7  | 14.03 - 33.81 | 18.32 - 63.39 | -             |
| TLA20027      | 220             | 90-psi air driven    | 27          | 998.7        | 7.09                      | 37.98           | 44.52 | 25.69 | 42.75 | 14.03 - 33.84 | 18.32 - 63.43 | -             |

Note: 110, 165 and 220 ton electric driven Hi-Force ToughLift jacking systems available on request

## TL ACCESSORIES

- ▶ Slip lock extensions can be used in multiples up to the maximum height as specified in the table
- ▶ Load lock extensions can only be used one at a time, and optionally in conjunction with slip lock extensions
- ▶ Both extension options will terminate with a swivel tilting saddle on the top of the extension stack

### SLIP LOCK EXTENSIONS

| Length<br>7.1 in | Length<br>11.8 in | Length<br>15.8 in | Length<br>19.1 in | Length<br>19.7 in | To suit<br>model                                                | Recommended<br>max. extension height (in) |
|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------------------------------------------------|-------------------------------------------|
| SLE180-50        | SLE300-50         | SLE400-50         | *                 | SLE500-50         | TLA5010<br>TLE5010-110V<br>TLE5010H-120V<br>TLE5010<br>TLE5010H | 26.79                                     |
| SLE180-50        | SLE300-50         | *                 | *                 | *                 | TLA5014<br>TLE5014-110V<br>TLE5014H-120V<br>TLE5014<br>TLE5014H | 25.81                                     |
| SLE180-100       | SLE300-100        | *                 | SLE485-100        | *                 | TLA10016                                                        | 19.11                                     |
| SLE180-100       | *                 | *                 | *                 | *                 | TLA10021                                                        | 7.09                                      |
| SLE180-150       | SLE300-150        | *                 | SLE485-150        | *                 | TLA15015                                                        | 19.11                                     |
| SLE180-150       | *                 | *                 | *                 | *                 | TLA15020                                                        | 7.09                                      |
| SLE180-200       | SLE300-200        | SLE400-200        | *                 | SLE500-200        | TLA20015                                                        | 19.7                                      |
| SLE180-200       | *                 | *                 | *                 | *                 | TLA20027                                                        | 7.09                                      |

\*Exceeds recommended maximum extension height



### LOAD LOCK EXTENSIONS

| Length<br>7.1 in | Length<br>11.8 in | Length<br>15.8 in | Length<br>19.1 in | Length<br>19.7 in | To suit<br>model                                                | Recommended<br>max. extension height (in) |
|------------------|-------------------|-------------------|-------------------|-------------------|-----------------------------------------------------------------|-------------------------------------------|
| LLE180-50        | LLE300-50         | LLE400-50         | *                 | LLE500-50         | TLA5010<br>TLE5010-110V<br>TLE5010H-120V<br>TLE5010<br>TLE5010H | 26.79                                     |
| LLE180-50        | LLE300-50         | *                 | *                 | *                 | TLA5014<br>TLE5014-110V<br>TLE5014H-120V<br>TLE5014<br>TLE5014H | 25.81                                     |
| LLE180-100       | LLE300-100        | *                 | LLE485-100        | *                 | TLA10016                                                        | 19.11                                     |
| LLE180-100       | *                 | *                 | *                 | *                 | TLA10021                                                        | 7.09                                      |
| LLE180-150       | LLE300-150        | *                 | LLE485-150        | *                 | TLA15015                                                        | 19.11                                     |
| LLE180-150       | *                 | *                 | *                 | *                 | TLA15020                                                        | 7.09                                      |
| LLE180-200       | LLE300-200        | LLE400-200        | *                 | LLE500-200        | TLA20015                                                        | 19.7                                      |
| LLE180-200       | *                 | *                 | *                 | *                 | TLA20027                                                        | 7.09                                      |

\*Exceeds recommended maximum extension height



## TL ACCESSORIES

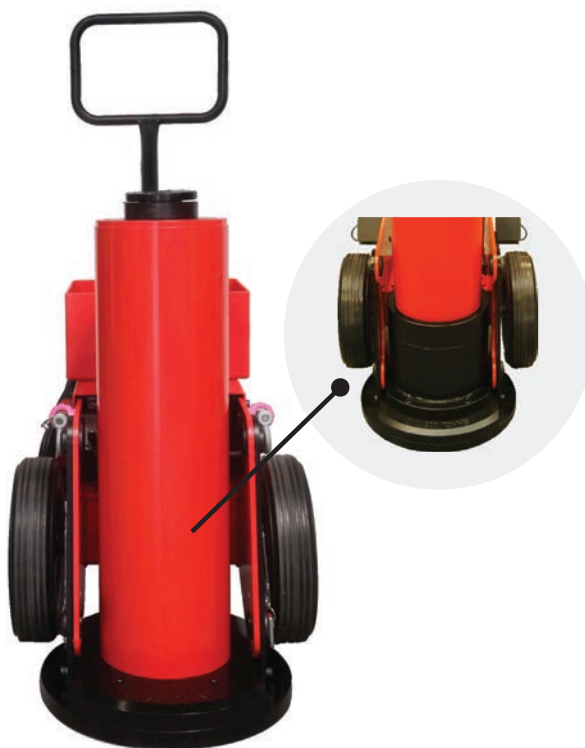
### TROLLEY MOUNTED LOAD BLOCK SETS

| Model number | Capacity (tons) | Lock out height (in) | Load blocks | Adaptor | To suit model                                                   |
|--------------|-----------------|----------------------|-------------|---------|-----------------------------------------------------------------|
| TLB50-250    | 55              | 9.85                 | 3           | 1       | TLA5010<br>TLE5010-110V<br>TLE5010H-120V<br>TLE5010<br>TLE5010H |
| TLB50-330    | 55              | 13                   | 4           | 1       | TLA5014<br>TLE5014-110V<br>TLE5014H-120V<br>TLE5014<br>TLE5014H |
| TLB100-405   | 110             | 15.76                | 5           | 1       | TLA10016                                                        |
| TLB100-530   | 110             | 20.69                | 7           | 1       | TLA10021                                                        |
| TLB150-390   | 165             | 15.17                | 5           | 1       | TLA15015                                                        |
| TLB150-520   | 165             | 20.29                | 7           | 1       | TLA15020                                                        |
| TLB200-380   | 220             | 14.78                | 5           | 1       | TLA20015                                                        |
| TLB200-685   | 220             | 26.6                 | 9           | 1       | TLA20027                                                        |



### SPACERS

- ▶ Base mounted spacer to increase closed height by 11.8 inches
- ▶ Only available for TLA20015 model and weight is increased by an extra 173.1 lbs when fitted
- ▶ Suffix TLA20015 with "E" when ordering with spacer fitted





**TL ACCESSORIES**

**TOUGHLIFT ACCESSORIES CONFIGURATION EXAMPLES**



**Note:** When using a combination of a load lock extension (LLE) with a slip lock extension (SLE), the LLE **must be** inserted into the cylinder first and then the SLE inserted into the LLE. The minimum Load Lock Extension must be 11.8 inches in length to allow the Slip Lock Extension to fully engage. The combination of the two extensions **must not** exceed the maximum recommended extension height for the relevant Toughlift model.

The recommended maximum height for each Toughlift model can be found on page 75 under the LLE and SLE tables. If you are in doubt about the selection, combination and use of both extensions, please contact your Hi-Force regional office.

## HI-FORCE TORQUE TOOLS

The extensive range of Hi-Force torque tools, detailed in this section of the catalog, includes manual, air and hydraulically driven tools, available in a wide variety of accurate and controlled, torque output capacities. The range offers a choice of tool options, suitable for use in almost every bolt torque tightening, or loosening application, that are regularly required in many industrial applications worldwide. From basic, manually operated, calibrated, hand torque wrenches through to the latest generation of high output torque, hydraulic wrenches, Hi-Force torque tools are recognised as a leading brand within the global market for bolting tools. Detailed within this section of the catalog are manual hand torque wrenches, manual and pneumatic torque multipliers, square and hexagon drive hydraulic torque wrenches and all accessory items like extended hydraulic wrench reaction arms, heavy duty torque sockets, hexagon reducer bushes, back up wrenches, hydraulic torque wrench powered pumps, hoses and hose reels, impact wrenches and airline filter, regulator, lubricator unit.

iQ software is an innovative bolted joint integrity software programme designed to assist engineers with the provision of accurate bolt load calculations, based on key input data, related to each specific bolted joint, and is available for purchase through the provider company Asset55 Limited. Hi-Force is able to support our valued clients with bolt load calculations on an hourly chargeable time basis.







## TORQUE TOOLS

|                                                                                                             |           |
|-------------------------------------------------------------------------------------------------------------|-----------|
| <b>TWM RANGE</b><br>Manual torque wrenches - Click type                                                     | <b>80</b> |
| <b>HTW RANGE</b><br>Manual torque wrenches - Break back type                                                | <b>81</b> |
| <b>TWG RANGE</b><br>Manual torque multipliers                                                               | <b>82</b> |
| <b>TWP RANGE</b><br>Pistol grip pneumatic torque multipliers                                                | <b>83</b> |
| <b>TWS-N RANGE</b><br>Hydraulic torque wrenches - Square drive                                              | <b>84</b> |
| <b>IS RANGE</b><br>Imperial hexagon AF size heavy duty sockets                                              | <b>85</b> |
| <b>MS RANGE</b><br>Metric hexagon AF size heavy duty sockets                                                | <b>86</b> |
| <b>TWS-N ACCESSORIES</b><br>Hexagon drive adaptors, extended reaction arms, and removable handle kits       | <b>87</b> |
| <b>TWH-N RANGE</b><br>Hydraulic torque wrenches - Low profile hexagon                                       | <b>88</b> |
| <b>TWH-NRH - IMPERIAL RANGE</b><br>Female hexagon ratchet heads for use with TWH-N torque wrenches          | <b>89</b> |
| <b>TWH-NRH - METRIC RANGE</b><br>Female hexagon ratchet heads for use with TWH-N torque wrenches            | <b>90</b> |
| <b>TWH-N ACCESSORIES</b><br>Square drive conversion kits, extended reaction arms, and removable handle kits | <b>91</b> |
| <b>IB RANGE</b><br>Imperial hexagon AF size reducer bushes                                                  | <b>92</b> |
| <b>MB RANGE</b><br>Metric hexagon AF size reducer bushes                                                    | <b>93</b> |
| <b>BW RANGE</b><br>Backup wrenches                                                                          | <b>94</b> |
| <b>HTWP RANGE</b><br>Torque wrench pumps - standard range                                                   | <b>95</b> |
| <b>TPA RANGE</b><br>Air driven torque wrench pumps - premium range                                          | <b>96</b> |
| <b>TPE RANGE</b><br>Electric driven torque wrench pumps - premium range                                     | <b>97</b> |
| <b>TORQUE WRENCH PUMP ACCESSORIES</b><br>Torque pump hoses, hose reel and couplers                          | <b>98</b> |
| <b>IP RANGE</b><br>Pneumatic impact wrenches                                                                | <b>99</b> |

**TWM | MANUAL TORQUE WRENCHES - CLICK TYPE**


Choice of 7 models with torque range from 7 to 630 lbf.ft (10 to 850 Nm)

Dual scale torque reading adjustment in lbf.ft & Nm

Repeatable accuracy of +/- 3% and supplied with individual calibration certificate

- ▶ Reversible square drives sizes from 3/8" to 3/4"
- ▶ Robust steel construction with corrosion resistant finish
- ▶ Heavy duty ratchet head with audible click when pre-set torque achieved
- ▶ Torque setting lock mechanism to prevent accidental change during use

| Model number | Square drive | Torque range |           | Main scale grad (Nm) | Micro scale grad (Nm) | Overall length (in) | Ratchet head dia (in) | Weight (lbs) |
|--------------|--------------|--------------|-----------|----------------------|-----------------------|---------------------|-----------------------|--------------|
| TWM50        | 3/8"         | 7 - 37       | 10 - 50   | 2.5                  | 0.25                  | 13.16               | 1.38                  | 1.1          |
| TWM100       | 1/2"         | 15 - 75      | 20 - 100  | 5                    | 0.5                   | 15.52               | 1.73                  | 2.0          |
| TWM200       | 1/2"         | 30 - 150     | 40 - 200  | 1                    | 1                     | 19.11               | 1.73                  | 2.4          |
| TWM300       | 1/2"         | 45 - 220     | 60 - 300  | 1                    | 1                     | 22.73               | 1.81                  | 3.1          |
| TWM400       | 3/4"         | 60 - 300     | 80 - 400  | 1                    | 1                     | 27.03               | 2.64                  | 4.4          |
| TWM550       | 3/4"         | 80 - 405     | 110 - 550 | 1                    | 1                     | 37.67               | 2.72                  | 8.4          |
| TWM850       | 3/4"         | 185 - 630    | 250 - 850 | 1                    | 1                     | 54.33               | 2.72                  | 10.4         |

## HTW | MANUAL TORQUE WRENCHES - BREAK BACK TYPE

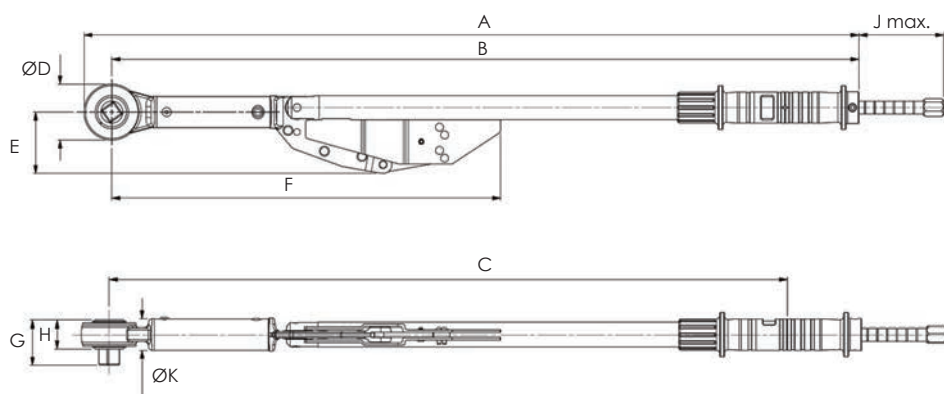


Torque capacities from 220 to 1500 lbf.ft

Repeatable accuracy +/- 4%

Dual scale lbf.ft & Nm

- ▶ Choice of 3/4" or 1" square drive sizes
- ▶ Robust steel construction with corrosion resistant finish
- ▶ Push-through square drive for bi-directional torque control
- ▶ Internal cam control ensures controlled 'break' once preset torque is achieved
- ▶ Large break angle prevents possibility of over torqueing
- ▶ Wrench automatically resets once hand pressure is released
- ▶ Marked with a unique serial number and supplied with calibration certificate
- ▶ Supplied in handy plastic storage case



| Model number | Square drive | Torque range |            | Overall length (in) | Ratchet head dia (in) | Weight (lbs) | Dimensions (in) |       |       |      |      |       |      |      |        |     |
|--------------|--------------|--------------|------------|---------------------|-----------------------|--------------|-----------------|-------|-------|------|------|-------|------|------|--------|-----|
|              |              | lbf.ft       | Nm         |                     |                       |              | A               | B     | C     | ØD   | E    | F     | G    | H    | J max. | ØK  |
| HTW1000B     | ¾"           | 200 - 750    | 300 - 1000 | 61.23               | 2.72                  | 16.3         | 57.09           | 55.75 | 52.17 | 2.72 | 2.96 | 38.38 | 2.17 | 1.38 | 4.14   | 1.5 |
| HTW1500B     | ¾"           | 500 - 1000   | 700 - 1500 | 73.64               | 2.72                  | 21.2         | 69.5            | 68.16 | 64.42 | 2.72 | 2.96 | 54.33 | 2.17 | 1.38 | 4.14   | 1.5 |
| HTW1800B     | 1"           | 500 - 1000   | 700 - 1500 | 73.64               | 2.72                  | 21.2         | 69.5            | 68.16 | 64.42 | 2.72 | 2.96 | 54.33 | 2.48 | 1.38 | 4.14   | 1.5 |
| HTW2000B     | 1"           | 700 - 1500   | 900 - 2000 | 76.44               | 2.72                  | 28.2         | 73.09           | 71.71 | 69.86 | 2.72 | 2.96 | 54.33 | 2.48 | 1.38 | 3.35   | 1.5 |



**TWG | MANUAL TORQUE MULTIPLIERS**

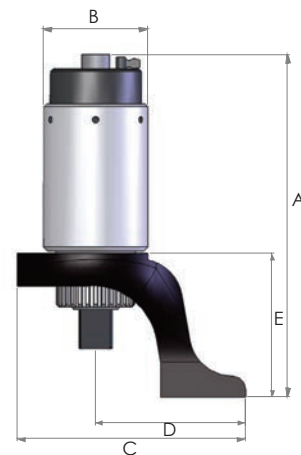


- ▶ Choice of output square drives of ¾", 1" and 1 ½"
- ▶ Suitable for use with Hi-Force TWM range of hand torque wrenches listed on page 80
- ▶ Compact design for easy fitment
- ▶ Single stage planetary gear in models up to 2050 lbf.ft
- ▶ Overload safety mechanism on models TWG40, TWG60, TWG100
- ▶ Multiplication ratios from 4:1 to 28.5:1

**Torque capacities up to 7330 lbf.ft**

**Lightweight aluminum housing**

**Supplied complete with reaction arm**



| Model number | Torque capacity |       | Gearbox ratio | Input square drive | Output square drive | Overload Protection | Rec. torque wrench | Weight (lbs) | Dimensions (in) |      |       |      |      |
|--------------|-----------------|-------|---------------|--------------------|---------------------|---------------------|--------------------|--------------|-----------------|------|-------|------|------|
|              | lbf.ft          | Nm    |               |                    |                     |                     |                    |              | A               | B    | C     | D    | E    |
| TWG13        | 950             | 1300  | 5:1           | ½"                 | ¾"                  | No                  | TWM300             | 2.9          | 5.24            | 3.15 | 4.89  | 3.78 | 3.86 |
| TWG20        | 1500            | 2000  | 4:1           | ¾"                 | 1"                  | No                  | TWM550             | 4.0          | 5.16            | 3.47 | 7.49  | 5.91 | 3.15 |
| TWG28        | 2050            | 2800  | 5.5:1         | ¾"                 | 1"                  | No                  | TWM550             | 5.3          | 5.75            | 4.18 | 8.71  | 6.26 | 3.27 |
| TWG40        | 2930            | 4000  | 16:1          | ½"                 | 1"                  | Yes                 | TWM300             | 9.3          | 8.94            | 3.47 | 6.9   | 5.32 | 4.33 |
| TWG60        | 4400            | 6000  | 18:1          | ¾"                 | 1 ½"                | Yes                 | TWM400             | 14.6         | 10.09           | 4.02 | 9.46  | 7.49 | 5.71 |
| TWG100       | 7330            | 10000 | 28.5:1        | ¾"                 | 1 ½"                | Yes                 | TWM400             | 24.0         | 11.5            | 5.59 | 10.52 | 8.47 | 6.42 |

**TWP | PISTOL GRIP PNEUMATIC TORQUE MULTIPLIERS**

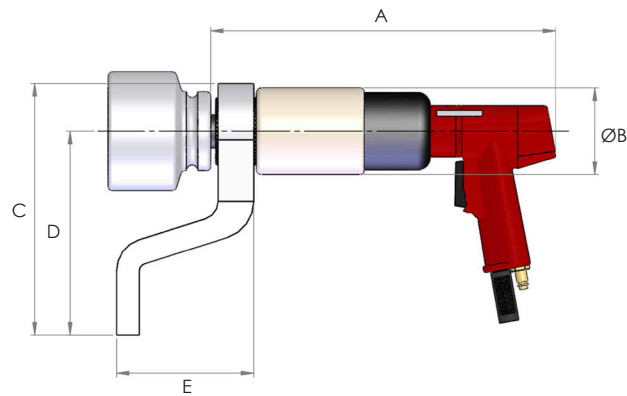


**Torque capacities up to 4400 lbf.ft**

**Repeatable accuracy of +/- 5%**

**Lightweight and durable construction**

- ▶ Air driven, single stage torque multipliers offering torque capacities from 150 to 4400 lbf.ft (200 to 6000 Nm)
- ▶ Ultra lightweight and durable construction with powerful performance for accurate tightening of bolted components
- ▶ Reversible, pistol grip design air motor allows for bi-directional torqueing
- ▶ Smooth, non-impacting design of planetary gears minimizes wear to components
- ▶ Gearbox manufactured from high grade steel and electrogalvanized for increased corrosion protection
- ▶ Slim line design of gearbox allows access in narrow spaces
- ▶ Sensitive trigger control allows for easy reaction arm positioning
- ▶ Average air consumption of 49.5 cubic feet per minute from a standard airline pressure of 116 psi (23 litres per second at 8 bar)
- ▶ Supplied with a FRL filter, regulator and lubricator unit including class 1.0 air inlet pressure gauge and 10 feet long hose (see page 99)



| Model number | Torque capacity * |             | Square drive size | R.P.M. at max pressure | Weight (lbs) | Dimensions (in) |      |      |      |      |
|--------------|-------------------|-------------|-------------------|------------------------|--------------|-----------------|------|------|------|------|
|              | lbf.ft            | Nm          |                   |                        |              | A               | B    | C    | D    | E    |
| TWP09S       | 150 - 670         | 200 - 900   | 3/4"              | 24                     | 7.1          | 12.92           | 3.15 | 4.87 | 3.74 | 3.78 |
| TWP15S       | 220 - 1110        | 300 - 1500  | 1"                | 12                     | 10.4         | 13.51           | 3.47 | 6.8  | 5.24 | 4.33 |
| TWP22S       | 370 - 1620        | 500 - 2200  | 1"                | 7                      | 11.2         | 14.18           | 3.47 | 6.8  | 5.24 | 4.33 |
| TWP32S       | 590 - 2360        | 800 - 3200  | 1"                | 4                      | 12.8         | 15.09           | 3.47 | 6.8  | 5.24 | 4.33 |
| TWP40S       | 620 - 3100        | 850 - 4200  | 1"                | 4                      | 12.8         | 15.09           | 3.47 | 6.8  | 5.24 | 4.33 |
| TWP60S       | 880 - 4400        | 1200 - 6000 | 1 1/2"            | 4                      | 17.0         | 15.76           | 4.02 | 9.69 | 7.64 | 5.83 |

\*Minimum torque value at 22 psi, maximum torque value at 116 psi airline pressure. Weight is without reaction arm.

## TWS-N | HYDRAULIC TORQUE WRENCHES - SQUARE DRIVE

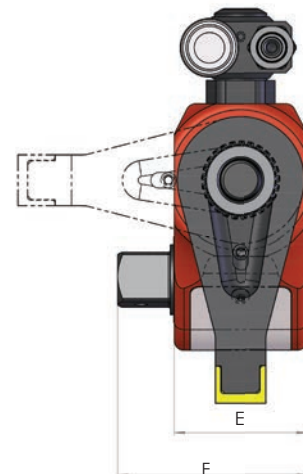
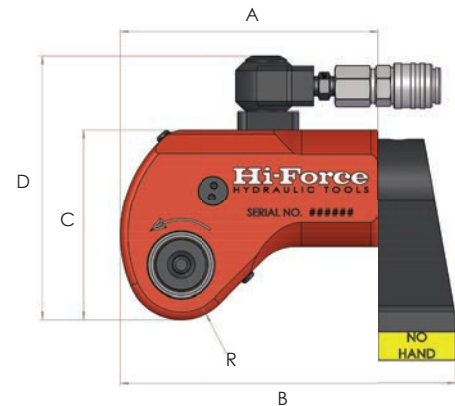


Torque capacities up to 26860 lbf.ft

Torque accuracy of +/- 3%

Working pressure 10000 psi

- ▶ Compact, lightweight aluminum body construction
- ▶ Output torque capacities from 1254 to 26860 lbf.ft (1727 to 36992 Nm)
- ▶ Choice of square drive sizes from ¾" to 2 ½"
- ▶ Reversible square drive for tightening or loosening applications
- ▶ Multi-position reaction arm with safety lock feature
- ▶ Fitted with 360° uni-swivel quick release couplings for easy positioning of hydraulic hoses during operation
- ▶ High quality torque wrench sockets for use with TWS-N range hydraulic wrenches are listed on pages 85 and 86
- ▶ Optional allen hex drives available from ½" to 2 ¼" and 14 to 60 mm (see page 87)



| Model number | Torque capacity     |               | Square drive size | Weight including reaction foot (lbs) | Dimensions (in) |       |      |       |      |      |      |
|--------------|---------------------|---------------|-------------------|--------------------------------------|-----------------|-------|------|-------|------|------|------|
|              | lbf.ft at 10000 psi | Nm at 700 bar |                   |                                      | A               | B     | C    | D     | E    | F    | R    |
| TWS17N       | 1254                | 1727          | ¾"                | 4.2                                  | 5.08            | 6.58  | 3.55 | 5.16  | 2.01 | 2.88 | 1.12 |
| TWS45N       | 3289                | 4529          | 1"                | 10.6                                 | 6.58            | 8.59  | 4.77 | 6.7   | 2.68 | 3.86 | 1.42 |
| TWS100N      | 7427                | 10064         | 1 ½"              | 19.8                                 | 8.79            | 11.54 | 6.42 | 8.31  | 3.62 | 5.32 | 1.81 |
| TWS150N      | 10873               | 14974         | 1 ½"              | 33.1                                 | 9.73            | 12.73 | 7.56 | 9.3   | 3.94 | 5.56 | 2.13 |
| TWS370N      | 26860               | 36992         | 2 ½"              | 71.6                                 | 12.96           | 17.02 | 9.46 | 11.35 | 5.4  | 8.04 | 2.6  |

## IS | IMPERIAL HEXAGON AF SIZE HEAVY DUTY SOCKETS

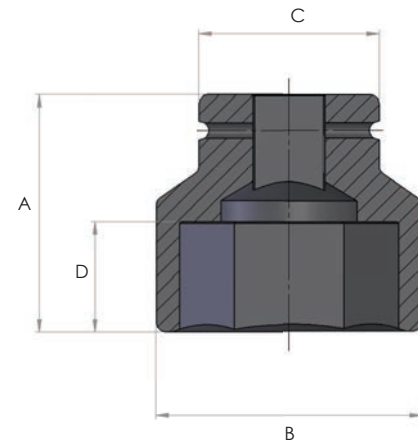


- ▶ High quality, imperial size heavy duty impact sockets
- ▶ Suitable for use with Hi-Force TWS-N hydraulic torque wrenches, TWG and TWP torque multipliers and IP impact wrenches
- ▶ Long length, bi-hexagonal and special sockets available on request

Square drives from  $\frac{3}{4}$ " to  $2\frac{1}{2}$ "

Across flat sizes up to  $6\frac{7}{8}$ "

Supplied complete with retaining ring and pin



| Model number | Square drive     | Nut AF (inches)    | Dimensions (in) |      |      |      |
|--------------|------------------|--------------------|-----------------|------|------|------|
|              |                  |                    | A               | B    | C    | D    |
| IS2-101      | $\frac{3}{4}$ "  | $1\frac{1}{16}$ "  | 2.05            | 1.58 | 1.5  | 0.63 |
| IS2-104      | $\frac{3}{4}$ "  | $1\frac{1}{4}$ "   | 2.05            | 1.73 | 1.73 | 0.79 |
| IS2-107      | $\frac{3}{4}$ "  | $1\frac{7}{16}$ "  | 2.21            | 2.01 | 1.73 | 0.91 |
| IS2-110      | $\frac{3}{4}$ "  | $1\frac{5}{8}$ "   | 2.44            | 2.29 | 1.73 | 1.06 |
| IS2-113      | $\frac{3}{4}$ "  | $1\frac{3}{4}$ "   | 2.68            | 2.64 | 1.73 | 1.26 |
| IS2-200      | $\frac{3}{4}$ "  | 2"                 | 2.84            | 2.8  | 2.13 | 1.38 |
| IS2-203      | $\frac{3}{4}$ "  | $2\frac{3}{16}$ "  | 2.92            | 3.03 | 2.13 | 1.38 |
| IS2-206      | $\frac{3}{4}$ "  | $2\frac{3}{8}$ "   | 2.96            | 3.31 | 2.13 | 1.38 |
| IS9-101      | 1"               | $1\frac{1}{16}$ "  | 2.29            | 1.73 | 2.01 | 0.67 |
| IS9-104      | 1"               | $1\frac{1}{4}$ "   | 2.36            | 2.01 | 2.01 | 0.83 |
| IS9-107      | 1"               | $1\frac{7}{16}$ "  | 2.44            | 2.21 | 2.05 | 1.02 |
| IS9-110      | 1"               | $1\frac{5}{8}$ "   | 2.44            | 2.44 | 2.05 | 1.02 |
| IS9-113      | 1"               | $1\frac{3}{4}$ "   | 2.52            | 2.68 | 2.29 | 1.06 |
| IS9-200      | 1"               | 2"                 | 2.76            | 2.92 | 2.29 | 1.22 |
| IS9-203      | 1"               | $2\frac{3}{16}$ "  | 2.84            | 3.15 | 2.44 | 1.26 |
| IS9-206      | 1"               | $2\frac{3}{8}$ "   | 3.07            | 3.43 | 2.44 | 1.38 |
| IS9-209      | 1"               | $2\frac{1}{2}$ "   | 3.15            | 3.66 | 2.44 | 1.42 |
| IS9-212      | 1"               | $2\frac{3}{4}$ "   | 3.35            | 3.86 | 2.44 | 1.58 |
| IS9-215      | 1"               | $2\frac{15}{16}$ " | 3.74            | 4.1  | 3.39 | 1.89 |
| IS9-302      | 1"               | $3\frac{1}{8}$ "   | 3.94            | 4.29 | 3.39 | 2.05 |
| IS9-308      | 1"               | $3\frac{1}{2}$ "   | 4.14            | 4.93 | 3.39 | 2.05 |
| IS9-314      | 1"               | $3\frac{7}{8}$ "   | 4.14            | 5.36 | 3.74 | 2.05 |
| IS5-113      | $1\frac{1}{2}$ " | $1\frac{3}{16}$ "  | 3.31            | 2.99 | 3.39 | 1.06 |
| IS5-200      | $1\frac{1}{2}$ " | 2"                 | 3.43            | 3.23 | 3.39 | 1.14 |

| Model number | Square drive     | Nut AF (inches)    | Dimensions (in) |      |      |      |
|--------------|------------------|--------------------|-----------------|------|------|------|
|              |                  |                    | A               | B    | C    | D    |
| IS5-203      | $1\frac{1}{2}$ " | $2\frac{3}{16}$ "  | 3.55            | 3.39 | 3.39 | 1.42 |
| IS5-206      | $1\frac{1}{2}$ " | $2\frac{3}{8}$ "   | 3.62            | 3.66 | 3.39 | 1.5  |
| IS5-209      | $1\frac{1}{2}$ " | $2\frac{1}{2}$ "   | 3.74            | 3.82 | 3.39 | 1.58 |
| IS5-212      | $1\frac{1}{2}$ " | $2\frac{3}{4}$ "   | 3.94            | 4.14 | 3.39 | 1.69 |
| IS5-215      | $1\frac{1}{2}$ " | $2\frac{15}{16}$ " | 4.06            | 4.33 | 3.39 | 1.77 |
| IS5-302      | $1\frac{1}{2}$ " | $3\frac{1}{8}$ "   | 4.33            | 4.57 | 3.39 | 1.97 |
| IS5-308      | $1\frac{1}{2}$ " | $3\frac{1}{2}$ "   | 4.65            | 5.12 | 3.39 | 2.17 |
| IS5-314      | $1\frac{1}{2}$ " | $3\frac{7}{8}$ "   | 4.93            | 5.52 | 3.74 | 2.29 |
| IS5-404      | $1\frac{1}{2}$ " | $4\frac{1}{4}$ "   | 4.93            | 5.91 | 3.74 | 2.29 |
| IS5-410      | $1\frac{1}{2}$ " | $4\frac{5}{8}$ "   | 5.32            | 6.5  | 3.74 | 2.56 |
| IS5-500      | $1\frac{1}{2}$ " | 5"                 | 5.52            | 7.05 | 5    | 2.76 |
| IS5-506      | $1\frac{1}{2}$ " | $5\frac{3}{8}$ "   | 5.91            | 7.68 | 5    | 2.96 |
| IS6-302      | $2\frac{1}{2}$ " | $3\frac{1}{8}$ "   | 5.52            | 4.89 | 5    | 2.01 |
| IS6-308      | $2\frac{1}{2}$ " | $3\frac{1}{2}$ "   | 5.52            | 5.32 | 5    | 2.01 |
| IS6-314      | $2\frac{1}{2}$ " | $3\frac{7}{8}$ "   | 5.91            | 5.79 | 5    | 2.25 |
| IS6-404      | $2\frac{1}{2}$ " | $4\frac{1}{4}$ "   | 6.3             | 6.26 | 5    | 2.52 |
| IS6-410      | $2\frac{1}{2}$ " | $4\frac{5}{8}$ "   | 6.7             | 6.78 | 5    | 2.8  |
| IS6-500      | $2\frac{1}{2}$ " | 5"                 | 6.9             | 7.29 | 5    | 2.96 |
| IS6-506      | $2\frac{1}{2}$ " | $5\frac{3}{8}$ "   | 7.09            | 7.76 | 5    | 3.11 |
| IS6-512      | $2\frac{1}{2}$ " | $5\frac{3}{4}$ "   | 7.29            | 8.27 | 5    | 3.27 |
| IS6-602      | $2\frac{1}{2}$ " | $6\frac{1}{8}$ "   | 7.49            | 8.79 | 5    | 3.59 |
| IS6-608      | $2\frac{1}{2}$ " | $6\frac{1}{2}$ "   | 7.68            | 9.26 | 5    | 3.74 |
| IS6-614      | $2\frac{1}{2}$ " | $6\frac{7}{8}$ "   | 7.88            | 9.77 | 5    | 4.14 |

## MS | METRIC HEXAGON AF SIZE HEAVY DUTY SOCKETS

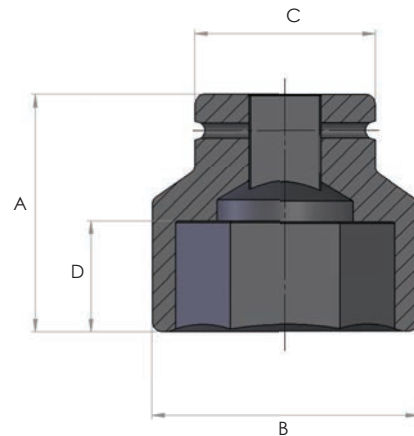


- ▶ High quality, metric size heavy duty impact sockets
- ▶ Suitable for use with Hi-Force TWS-N hydraulic torque wrenches, TWG and TWP torque multipliers and IP impact wrenches
- ▶ Long length, bi-hexagonal and special sockets available on request

Square drives from 3/4" to 2 1/2"

Across flat sizes up to 145 mm

Supplied complete with retaining ring and pin



| Model number | Square drive | Nut AF (mm) | Dimensions (mm) |     |    |    |
|--------------|--------------|-------------|-----------------|-----|----|----|
|              |              |             | A               | B   | C  | D  |
| MS2-24       | 3/4"         | 24          | 50              | 39  | 44 | 16 |
| MS2-27       | 3/4"         | 27          | 54              | 43  | 44 | 16 |
| MS2-30       | 3/4"         | 30          | 54              | 47  | 44 | 23 |
| MS2-32       | 3/4"         | 32          | 56              | 49  | 44 | 23 |
| MS2-36       | 3/4"         | 36          | 56              | 54  | 44 | 23 |
| MS2-41       | 3/4"         | 41          | 58              | 60  | 44 | 24 |
| MS2-46       | 3/4"         | 46          | 63              | 67  | 44 | 30 |
| MS2-50       | 3/4"         | 50          | 72              | 71  | 54 | 32 |
| MS2-55       | 3/4"         | 55          | 74              | 78  | 54 | 35 |
| MS2-60       | 3/4"         | 60          | 75              | 84  | 54 | 37 |
| MS9-24       | 1"           | 24          | 58              | 42  | 54 | 17 |
| MS9-27       | 1"           | 27          | 58              | 46  | 54 | 17 |
| MS9-30       | 1"           | 30          | 60              | 50  | 54 | 21 |
| MS9-32       | 1"           | 32          | 60              | 51  | 54 | 21 |
| MS9-36       | 1"           | 36          | 65              | 56  | 54 | 30 |
| MS9-41       | 1"           | 41          | 67              | 63  | 54 | 31 |
| MS9-46       | 1"           | 46          | 74              | 69  | 54 | 36 |
| MS9-50       | 1"           | 50          | 80              | 74  | 54 | 42 |
| MS9-55       | 1"           | 55          | 84              | 80  | 54 | 44 |
| MS9-60       | 1"           | 60          | 87              | 86  | 54 | 44 |
| MS9-65       | 1"           | 65          | 90              | 92  | 54 | 46 |
| MS9-70       | 1"           | 70          | 96              | 99  | 54 | 51 |
| MS9-75       | 1"           | 75          | 98              | 106 | 86 | 45 |
| MS9-80       | 1"           | 80          | 100             | 112 | 86 | 48 |
| MS9-85       | 1"           | 85          | 105             | 118 | 86 | 52 |
| MS9-90       | 1"           | 90          | 105             | 125 | 86 | 52 |
| MS9-95       | 1"           | 95          | 115             | 131 | 86 | 52 |
| MS9-100      | 1"           | 100         | 115             | 137 | 95 | 58 |

| Model number | Square drive | Nut AF (in) | Dimensions (mm) |     |     |    |
|--------------|--------------|-------------|-----------------|-----|-----|----|
|              |              |             | A               | B   | C   | D  |
| MS5-36       | 1 1/2"       | 36          | 78              | 64  | 86  | 23 |
| MS5-41       | 1 1/2"       | 41          | 80              | 70  | 86  | 26 |
| MS5-46       | 1 1/2"       | 46          | 84              | 76  | 86  | 27 |
| MS5-50       | 1 1/2"       | 50          | 87              | 81  | 86  | 29 |
| MS5-55       | 1 1/2"       | 55          | 90              | 86  | 86  | 36 |
| MS5-60       | 1 1/2"       | 60          | 92              | 93  | 86  | 38 |
| MS5-65       | 1 1/2"       | 65          | 95              | 97  | 86  | 40 |
| MS5-70       | 1 1/2"       | 70          | 100             | 105 | 86  | 43 |
| MS5-75       | 1 1/2"       | 75          | 103             | 110 | 86  | 45 |
| MS5-80       | 1 1/2"       | 80          | 110             | 116 | 86  | 50 |
| MS5-85       | 1 1/2"       | 85          | 118             | 125 | 86  | 55 |
| MS5-90       | 1 1/2"       | 90          | 118             | 130 | 86  | 55 |
| MS5-95       | 1 1/2"       | 95          | 118             | 137 | 95  | 55 |
| MS5-100      | 1 1/2"       | 100         | 125             | 140 | 95  | 58 |
| MS5-105      | 1 1/2"       | 105         | 125             | 150 | 95  | 58 |
| MS5-110      | 1 1/2"       | 110         | 125             | 156 | 95  | 58 |
| MS5-115      | 1 1/2"       | 115         | 135             | 160 | 95  | 65 |
| MS5-130      | 1 1/2"       | 130         | 140             | 185 | 127 | 70 |
| MS6-80       | 2 1/2"       | 80          | 140             | 124 | 127 | 51 |
| MS6-85       | 2 1/2"       | 85          | 140             | 130 | 127 | 51 |
| MS6-90       | 2 1/2"       | 90          | 145             | 136 | 127 | 54 |
| MS6-95       | 2 1/2"       | 95          | 145             | 143 | 127 | 54 |
| MS6-100      | 2 1/2"       | 100         | 150             | 149 | 127 | 57 |
| MS6-105      | 2 1/2"       | 105         | 155             | 155 | 127 | 61 |
| MS6-110      | 2 1/2"       | 110         | 160             | 161 | 127 | 64 |
| MS6-115      | 2 1/2"       | 115         | 165             | 167 | 127 | 67 |
| MS6-130      | 2 1/2"       | 130         | 175             | 188 | 127 | 75 |
| MS6-145      | 2 1/2"       | 145         | 185             | 208 | 127 | 83 |



## TWS-N | ACCESSORIES



Imperial allen hex drives from ½" to 2 ¼" and  
Metric allen hex drives from 14 to 60 mm

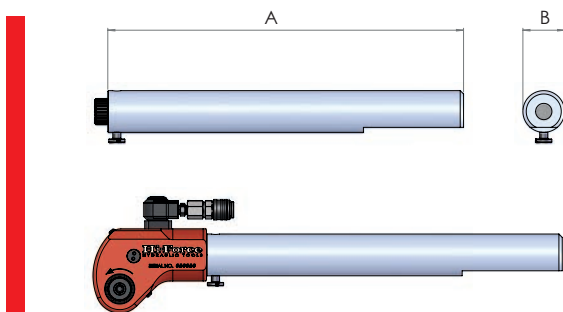
Extended reaction length arms with choice of  
length

Handle kits for TWS-N to allow user to better  
support the tools during operation

| For tool<br>model number | Imperial allen hexagon drive adaptors |              |                              | Metric allen hexagon drive adaptors |              |                              |
|--------------------------|---------------------------------------|--------------|------------------------------|-------------------------------------|--------------|------------------------------|
|                          | Model number                          | Hexagon size | Maximum torque load (lbf.ft) | Model number                        | Hexagon size | Maximum torque load (lbf.ft) |
| TWS17N                   | IH17N-008                             | ½"           | 347                          | MH17N-14                            | 14 mm        | 546                          |
|                          | IH17N-010                             | ¾"           | 686                          | MH17N-17                            | 17 mm        | 996                          |
|                          | IH17N-012                             | ¾"           | 1180                         | MH17N-19                            | 19 mm        | 1189                         |
|                          | IH17N-014                             | ¾"           | 1254                         | MH17N-22                            | 22 mm        | 1254                         |
|                          | IH17N-100                             | 1"           | 1254                         | MH17N-24                            | 24 mm        | 1254                         |
| TWS45N                   | IH45N-010                             | ¾"           | 686                          | MH45N-17                            | 17 mm        | 811                          |
|                          | IH45N-012                             | ¾"           | 1180                         | MH45N-19                            | 19 mm        | 1180                         |
|                          | IH45N-014                             | ¾"           | 1881                         | MH45N-22                            | 22 mm        | 1881                         |
|                          | IH45N-100                             | 1"           | 2803                         | MH45N-24                            | 24 mm        | 2729                         |
|                          | IH45N-102                             | 1 ⅛"         | 3319                         | MH45N-27                            | 27 mm        | 2876                         |
|                          | IH45N-104                             | 1 ¼"         | 3319                         | MH45N-32                            | 32 mm        | 3319                         |
| TWS100N                  | IH100N-014                            | ¾"           | 1394                         | MH100N-22                           | 22 mm        | 1829                         |
|                          | IH100N-100                            | 1"           | 2803                         | MH100N-24                           | 24 mm        | 2729                         |
|                          | IH100N-102                            | 1 ⅛"         | 4012                         | MH100N-27                           | 27 mm        | 3429                         |
|                          | IH100N-104                            | 1 ¼"         | 5458                         | MH100N-30                           | 30 mm        | 4705                         |
|                          | IH100N-106                            | 1 ⅜"         | 7316                         | MH100N-32                           | 32 mm        | 5623                         |
|                          | IH100N-108                            | 1 ½"         | 7375                         | MH100N-36                           | 36 mm        | 7375                         |
| TWS150N                  | IH150N-104                            | 1 ¼"         | 5458                         | MH150N-30                           | 30 mm        | 5163                         |
|                          | IH150N-106                            | 1 ⅜"         | 7301                         | MH150N-32                           | 32 mm        | 5531                         |
|                          | IH150N-108                            | 1 ½"         | 11063                        | MH150N-36                           | 36 mm        | 8039                         |
|                          | IH150N-110                            | 1 ⅝"         | 11063                        | MH150N-41                           | 41 mm        | 11063                        |
|                          | IH150N-112                            | 1 ¾"         | 11063                        | MH150N-46                           | 46 mm        | 11063                        |
| TWS370N                  | IH370N-108                            | 1 ½"         | 9514                         | MH370N-36                           | 36 mm        | 7375                         |
|                          | IH370N-110                            | 1 ⅝"         | 12021                        | MH370N-41                           | 41 mm        | 12021                        |
|                          | IH370N-112                            | 1 ¾"         | 15045                        | MH370N-46                           | 46 mm        | 16594                        |
|                          | IH370N-114                            | 1 ⅞"         | 18511                        | MH370N-50                           | 50 mm        | 22568                        |
|                          | IH370N-200                            | 2"           | 22568                        | MH370N-55                           | 55 mm        | 27288                        |
|                          | IH370N-204                            | 2 ¼"         | 27288                        | MH370N-60                           | 60 mm        | 27288                        |

**Note:** Check the maximum permissible torque load of hexagon drive adaptor before use.

### EXTENDED REACTION ARMS



| For tool<br>model number | Model number | Length A |     | Diameter B |       |
|--------------------------|--------------|----------|-----|------------|-------|
|                          |              | inch     | mm  | inch       | mm    |
| TWS17N                   | ERA17-21     | 21"      | 533 | 1 ¾"       | 44.5  |
|                          | ERA17-24     | 24"      | 610 | 1 ¾"       | 44.5  |
|                          | ERA17-36     | 36"      | 914 | 1 ¾"       | 44.5  |
| TWS45N                   | ERA45-21     | 21"      | 533 | 2 ½"       | 63.5  |
|                          | ERA45-24     | 24"      | 610 | 2 ½"       | 63.5  |
|                          | ERA45-36     | 36"      | 914 | 2 ½"       | 63.5  |
| TWS100N                  | ERA100-21    | 21"      | 533 | 3 ½"       | 88.9  |
|                          | ERA100-24    | 24"      | 610 | 3 ½"       | 88.9  |
|                          | ERA100-36    | 36"      | 914 | 3 ½"       | 88.9  |
| TWS150N                  | ERA150-21    | 21"      | 533 | 3 ½"       | 88.9  |
|                          | ERA150-24    | 24"      | 610 | 3 ½"       | 88.9  |
|                          | ERA150-36    | 36"      | 914 | 3 ½"       | 88.9  |
| TWS370N                  | ERA370-21    | 21"      | 533 | 4 ¾"       | 120.6 |
|                          | ERA370-24    | 24"      | 610 | 4 ¾"       | 120.6 |
|                          | ERA370-36    | 36"      | 914 | 4 ¾"       | 120.6 |

### REMOVABLE HANDLE KITS

| For tool model number | Model number |
|-----------------------|--------------|
| TWS17N                | TSH17        |
| TWS45N                | TSH45        |
| TWS100N               | TSH100       |
| TWS150N               | TSH150       |
| TWS370N               | TSH370       |

**Note:** Standard circlip pliers are required to fit the handle kits.  
A 3 mm hex key is additionally required to fit the TSH17 handle kit.



## TWH-N | HYDRAULIC TORQUE WRENCHES - LOW PROFILE HEXAGON



**Torque capacities up to 34985 lbf.ft**

**Torque accuracy of +/- 3%**

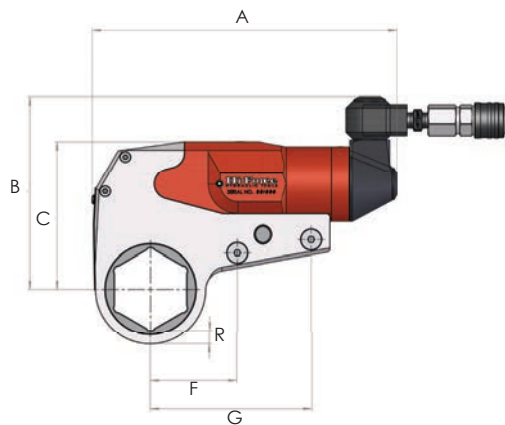
**Working pressure 10000 psi**

- ▶ Lightweight, high grade aluminum body (excluding TWH430N)
- ▶ Output torque capacities from 1906 to 34985 lbf.ft (2625 to 48181 Nm)
- ▶ Low profile design for direct in-line reaction
- ▶ Narrow cassette head design makes it ideal for limited access applications
- ▶ Ratchet head can be easily changed by simply withdrawing/inserting a single pin
- ▶ Imperial ratchet heads available with across flat (AF sizes) sizes from 1 1/16" to 6 7/8" (page 89)
- ▶ Metric ratchet heads available with across flat (AF sizes) sizes from 24 to 175 mm (page 90)
- ▶ Fitted with 360° uni-swivel with quick release couplings for easy positioning of hydraulic hoses

TWH27N, TWH54N, TWH120N, TWH210N  
(aluminum body)

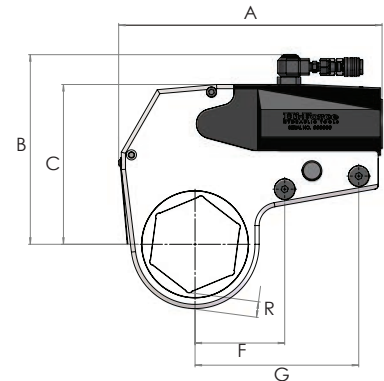
All models

TWH430N (steel body)



*Note:* Drawing shows drive cylinder, including ratchet head as detailed on pages 89 and 90.

Drive cylinder and ratchet head are separate items and must be ordered separately.



| Model number | Torque capacity |                     | Hexagon AF Size |            |              |              | Weight (lbs) |
|--------------|-----------------|---------------------|-----------------|------------|--------------|--------------|--------------|
|              | Nm at 10000 psi | lbf.ft at 10000 psi | Metric min      | Metric max | Imperial min | Imperial max |              |
| TWH27N       | 2625            | 1906                | 24              | 46         | 1 1/16"      | 1 13/16"     | 3.1          |
|              | 3068            | 2228                | 50              | 60         | 2"           | 2 3/8"       | 3.1          |
| TWH54N       | 5372            | 3901                | 36              | 65         | 1 7/16"      | 2 1/16"      | 5.1          |
|              | 6037            | 4384                | 70              | 80         | 2 3/4"       | 3 1/8"       | 5.1          |
| TWH120N      | 11737           | 8522                | 50              | 80         | 2 3/16"      | 3 1/8"       | 8.4          |
|              | 14349           | 10419               | 85              | 100        | 3 1/2"       | 3 7/8"       | 8.4          |
| TWH210N      | 21216           | 15405               | 70              | 100        | 2 3/4"       | 3 7/8"       | 14.1         |
|              | 23124           | 16791               | 105             | 115        | 4 1/4"       | 4 5/8"       | 14.1         |
| TWH430N      | 43792           | 31798               | 80              | 115        | 3 1/8"       | 4 5/8"       | 35.5         |
|              | 48181           | 34985               | 130             | 175        | 5"           | 6 7/8"       | 35.5         |

| Dimensions (in) |       |       |      |      |      |       |        |        |
|-----------------|-------|-------|------|------|------|-------|--------|--------|
| A               | B     | C     | D    | E    | F    | G     | R(min) | R(max) |
| 7.6             | 4.93  | 3.82  | 1.26 | 2.01 | 2.13 | 4.29  | 0.37   | 0.48   |
| 7.6             | 5.36  | 4.26  | 1.26 | 2.01 | 2.13 | 4.29  | 0.4    | 0.41   |
| 9.85            | 6.23  | 4.93  | 1.62 | 2.52 | 2.88 | 5.4   | 0.42   | 0.54   |
| 9.85            | 6.66  | 5.36  | 1.62 | 2.52 | 2.88 | 5.4   | 0.46   | 0.58   |
| 12.21           | 7.45  | 6.19  | 2.05 | 3.07 | 3.62 | 6.78  | 0.58   | 0.6    |
| 12.21           | 8.43  | 7.17  | 2.05 | 3.07 | 3.62 | 6.78  | 0.63   | 0.74   |
| 14.89           | 8.79  | 7.53  | 2.52 | 3.82 | 4.49 | 8.39  | 0.71   | 0.73   |
| 14.89           | 9.3   | 8.04  | 2.52 | 3.82 | 4.49 | 8.39  | 0.72   | 0.82   |
| 15.96           | 11.47 | 9.53  | 3.27 | 3.66 | 5.75 | 10.52 | 1.01   | 1.23   |
| 16.75           | 12.06 | 10.24 | 3.27 | 3.66 | 5.75 | 10.52 | 0.98   | 1.08   |

*Note:* Above selection table is for drive unit only. Ratchet head(s) to be ordered separately see pages 89 and 90. Weight as stated is drive cylinder only, exact radius size (R) varies according to ratchet AF size selected.

## TWH-NRH | IMPERIAL HEXAGON AF SIZE RATCHET HEADS

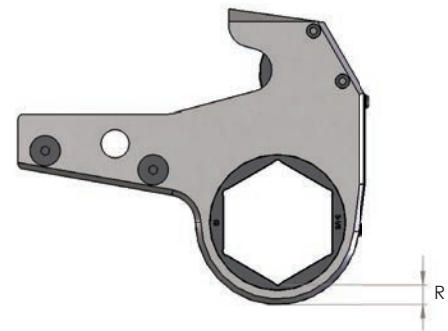


Choice of standard imperial sizes

Easily fitted to TWH-N drive units

High grade steel construction

- ▶ Imperial hexagon ratchet heads suitable for across flat (AF sizes) from 1 1/8" to 6 7/8"
- ▶ Easily fitted to TWH-N drive units by simply withdrawing/inserting a single pin
- ▶ Low profile design and minimum nose radius allows for fitment in confined spaces
- ▶ Imperial hexagon reducer bushes and square drive conversion kits also available (see pages 92 and 93)
- ▶ Special design ratchet heads made to order



| IMPERIAL RATCHET HEAD SELECTION TABLE |             |              |      |        |              |      |        |               |      |        |               |      |        |               |      |        |
|---------------------------------------|-------------|--------------|------|--------|--------------|------|--------|---------------|------|--------|---------------|------|--------|---------------|------|--------|
| Bolt size                             | Nut AF size | For TWH27N   |      |        | For TWH54N   |      |        | For TWH120N   |      |        | For TWH210N   |      |        | For TWH430N   |      |        |
|                                       |             | Model number | R in | Wt lbs | Model number | R in | Wt lbs | Model number  | R in | Wt lbs | Model number  | R in | Wt lbs | Model number  | R in | Wt lbs |
| 5⁄8"                                  | 1 1⁄8"      | TWH27NRH-101 | 0.41 | 3.3    |              |      |        |               |      |        |               |      |        |               |      |        |
| 3⁄4"                                  | 1 1⁄4"      | TWH27NRH-104 | 0.39 | 3.5    |              |      |        |               |      |        |               |      |        |               |      |        |
| 7⁄8"                                  | 1 3⁄8"      | TWH27NRH-107 | 0.39 | 3.5    | TWH54NRH-107 | 0.53 | 6.4    |               |      |        |               |      |        |               |      |        |
| 1"                                    | 1 5⁄8"      | TWH27NRH-110 | 0.39 | 3.5    | TWH54NRH-110 | 0.43 | 6.2    |               |      |        |               |      |        |               |      |        |
| 1 1⁄8"                                | 1 3⁄4"      | TWH27NRH-113 | 0.41 | 3.7    | TWH54NRH-113 | 0.42 | 6.4    |               |      |        |               |      |        |               |      |        |
| 1 1⁄4"                                | 2"          | TWH27NRH-200 | 0.39 | 3.7    | TWH54NRH-200 | 0.46 | 6.6    | TWH120NRH-200 | 0.58 | 12.8   |               |      |        |               |      |        |
| 1 3⁄8"                                | 2 3⁄8"      | TWH27NRH-203 | 0.39 | 4.0    | TWH54NRH-203 | 0.46 | 6.8    | TWH120NRH-203 | 0.58 | 13.4   |               |      |        |               |      |        |
| 1 1⁄2"                                | 2 3⁄4"      | TWH27NRH-206 | 0.41 | 4.0    | TWH54NRH-206 | 0.46 | 7.1    | TWH120NRH-206 | 0.58 | 14.1   |               |      |        |               |      |        |
| 1 5⁄8"                                | 2 5⁄8"      |              |      |        | TWH54NRH-209 | 0.46 | 7.3    | TWH120NRH-209 | 0.58 | 14.1   |               |      |        |               |      |        |
| 1 3⁄4"                                | 2 3⁄4"      |              |      |        | TWH54NRH-212 | 0.46 | 7.5    | TWH120NRH-212 | 0.59 | 14.3   | TWH210NRH-212 | 0.72 | 26.7   |               |      |        |
| 1 7⁄8"                                | 2 15⁄16"    |              |      |        | TWH54NRH-215 | 0.58 | 7.7    | TWH120NRH-215 | 0.59 | 14.3   | TWH210NRH-215 | 0.72 | 26.9   |               |      |        |
| 2"                                    | 3 1⁄8"      |              |      |        | TWH54NRH-302 | 0.48 | 7.7    | TWH120NRH-302 | 0.59 | 14.3   | TWH210NRH-302 | 0.73 | 27.1   | TWH430NRH-302 | 1.02 | 51.1   |
| 2 1⁄4"                                | 3 1⁄2"      |              |      |        |              |      |        | TWH120NRH-308 | 0.67 | 17.4   | TWH210NRH-308 | 0.76 | 27.3   | TWH430NRH-308 | 1.06 | 52.7   |
| 2 1⁄2"                                | 3 7⁄8"      |              |      |        |              |      |        | TWH120NRH-314 | 0.77 | 18.7   | TWH210NRH-314 | 0.77 | 27.6   | TWH430NRH-314 | 1.04 | 56.7   |
| 2 3⁄4"                                | 4 1⁄4"      |              |      |        |              |      |        |               |      |        | TWH210NRH-404 | 0.77 | 29.3   | TWH430NRH-404 | 1.06 | 57.5   |
| 3"                                    | 4 5⁄8"      |              |      |        |              |      |        |               |      |        | TWH210NRH-410 | 0.76 | 30.4   | TWH430NRH-410 | 1.02 | 58.0   |
| 3 1⁄4"                                | 5"          |              |      |        |              |      |        |               |      |        |               |      |        | TWH430NRH-500 | 1.08 | 61.5   |
| 3 1⁄2"                                | 5 3⁄8"      |              |      |        |              |      |        |               |      |        |               |      |        | TWH430NRH-506 | 1.02 | 62.4   |
| 3 3⁄4"                                | 5 3⁄4"      |              |      |        |              |      |        |               |      |        |               |      |        | TWH430NRH-512 | 0.98 | 64.6   |
| 4"                                    | 6 1⁄8"      |              |      |        |              |      |        |               |      |        |               |      |        | TWH430NRH-602 | 0.99 | 66.4   |
| 4 1⁄4"                                | 6 1⁄2"      |              |      |        |              |      |        |               |      |        |               |      |        | TWH430NRH-608 | 0.99 | 68.3   |
| 4 1⁄2"                                | 6 7⁄8"      |              |      |        |              |      |        |               |      |        |               |      |        | TWH430NRH-614 | 1.08 | 70.1   |

## TWH-NRH | METRIC HEXAGON AF SIZE RATCHET HEADS

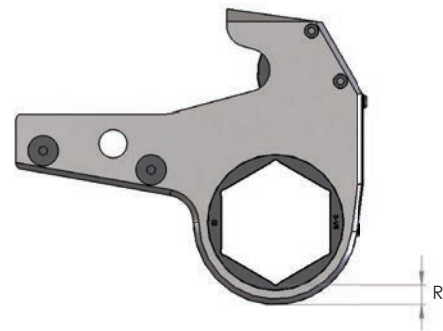


Choice of standard metric sizes

Easily fitted to TWH-N drive units

High grade steel construction

- ▶ Metric hexagon ratchet heads suitable for across flat (AF sizes) from 24 to 175 mm
- ▶ Easily fitted to TWH-N drive units by simply withdrawing/inserting a single pin
- ▶ Low profile design and minimum nose radius allows for fitment in confined spaces
- ▶ Imperial hexagon reducer bushes and square drive conversion kits also available (see pages 92 and 93)
- ▶ Special design ratchet heads made to order



| METRIC RATCHET HEAD SELECTION TABLE |             |              |      |        |              |      |        |               |      |        |               |      |        |               |      |        |
|-------------------------------------|-------------|--------------|------|--------|--------------|------|--------|---------------|------|--------|---------------|------|--------|---------------|------|--------|
| Bolt size                           | Nut AF size | For TWH27N   |      |        | For TWH54N   |      |        | For TWH120N   |      |        | For TWH210N   |      |        | For TWH430N   |      |        |
|                                     |             | Model number | R mm | Wt lbs | Model number | R mm | Wt lbs | Model number  | R mm | Wt lbs | Model number  | R mm | Wt lbs | Model number  | R mm | Wt lbs |
| 16                                  | 24          | TWH27NRH-24  | 12.2 | 3.3    |              |      |        |               |      |        |               |      |        |               |      |        |
| 18                                  | 27          | TWH27NRH-101 | 10.5 | 3.3    |              |      |        |               |      |        |               |      |        |               |      |        |
| 20                                  | 30          | TWH27NRH-30  | 10.8 | 3.5    |              |      |        |               |      |        |               |      |        |               |      |        |
| 22                                  | 32          | TWH27NRH-32  | 9.6  | 3.5    |              |      |        |               |      |        |               |      |        |               |      |        |
| 24                                  | 36          | TWH27NRH-36  | 10.1 | 3.5    | TWH54NRH-36  | 13.8 | 6.4    |               |      |        |               |      |        |               |      |        |
| -                                   | 38          |              |      |        | TWH54NRH-38  | 12.7 | 6.2    |               |      |        |               |      |        |               |      |        |
| 27                                  | 41          | TWH27NRH-110 | 10.1 | 3.5    | TWH54NRH-110 | 10.9 | 6.2    |               |      |        |               |      |        |               |      |        |
| 30                                  | 46          | TWH27NRH-113 | 10.5 | 3.7    | TWH54NRH-113 | 10.7 | 6.4    |               |      |        |               |      |        |               |      |        |
| 33                                  | 50          | TWH27NRH-200 | 10.4 | 3.7    | TWH54NRH-200 | 12.1 | 6.6    | TWH120NRH-200 | 15.2 | 12.8   |               |      |        |               |      |        |
| 36                                  | 55          | TWH27NRH-203 | 10.1 | 4.0    | TWH54NRH-203 | 12.1 | 6.8    | TWH120NRH-203 | 15   | 13.4   |               |      |        |               |      |        |
| 39                                  | 60          | TWH27NRH-206 | 10.5 | 4.0    | TWH54NRH-206 | 12   | 7.1    | TWH120NRH-206 | 15   | 14.1   |               |      |        |               |      |        |
| 42                                  | 65          |              |      |        | TWH54NRH-209 | 11.7 | 7.3    | TWH120NRH-209 | 14.9 | 14.1   |               |      |        |               |      |        |
| 45                                  | 70          |              |      |        | TWH54NRH-212 | 11.7 | 7.5    | TWH120NRH-212 | 14.8 | 14.3   | TWH210NRH-212 | 18.2 | 26.7   |               |      |        |
| 48                                  | 75          |              |      |        | TWH54NRH-215 | 14.6 | 7.7    | TWH120NRH-215 | 14.7 | 14.3   | TWH210NRH-215 | 18.1 | 26.9   |               |      |        |
| 52                                  | 80          |              |      |        | TWH54NRH-302 | 11.7 | 7.7    | TWH120NRH-302 | 14.7 | 14.3   | TWH210NRH-302 | 18.1 | 27.1   | TWH430NRH-302 | 25.6 | 51.1   |
| 56                                  | 85          |              |      |        |              |      |        | TWH120NRH-85  | 16.4 | 17.2   | TWH210NRH-85  | 18.2 | 27.3   | TWH430NRH-85  | 29   | 52.9   |
| 60                                  | 90          |              |      |        |              |      |        | TWH120NRH-90  | 16.2 | 17.4   | TWH210NRH-90  | 18.6 | 27.3   | TWH430NRH-90  | 31.3 | 57.3   |
| 64                                  | 95          |              |      |        |              |      |        | TWH120NRH-95  | 15.9 | 17.4   | TWH210NRH-95  | 18.6 | 27.6   | TWH430NRH-95  | 28.5 | 56.9   |
| 68                                  | 100         |              |      |        |              |      |        | TWH120NRH-100 | 18.7 | 18.7   | TWH210NRH-100 | 18.6 | 27.6   | TWH430NRH-100 | 25.6 | 56.4   |
| 72                                  | 105         |              |      |        |              |      |        |               |      |        | TWH210NRH-105 | 18.4 | 28.4   | TWH430NRH-105 | 28.6 | 58.4   |
| 76                                  | 110         |              |      |        |              |      |        |               |      |        | TWH210NRH-110 | 18.3 | 29.3   | TWH430NRH-110 | 25.7 | 57.8   |
| 80                                  | 115         |              |      |        |              |      |        |               |      |        | TWH210NRH-115 | 20.7 | 30.4   | TWH430NRH-115 | 27.3 | 58.2   |
| 90                                  | 130         |              |      |        |              |      |        |               |      |        |               |      |        | TWH430NRH-130 | 25.6 | 60.2   |
| -                                   | 135         |              |      |        |              |      |        |               |      |        |               |      |        | TWH430NRH-135 | 26.7 | 62.4   |
| 100                                 | 145         |              |      |        |              |      |        |               |      |        |               |      |        | TWH430NRH-145 | 25.4 | 64.8   |
| 110                                 | 155         |              |      |        |              |      |        |               |      |        |               |      |        | TWH430NRH-602 | 25.3 | 66.4   |
| 115                                 | 165         |              |      |        |              |      |        |               |      |        |               |      |        | TWH430NRH-608 | 25   | 68.3   |
| -                                   | 175         |              |      |        |              |      |        |               |      |        |               |      |        | TWH430NRH-614 | 27.1 | 70.1   |

## TWH-N | ACCESSORIES



Choice of 1", 1 ½" or 2 ½" square drive sizes

Extended reaction length arms with choice of length

Handle kits for TWH-N to allow user to better support the tools during operation

### SQUARE DRIVE CONVERSION KITS

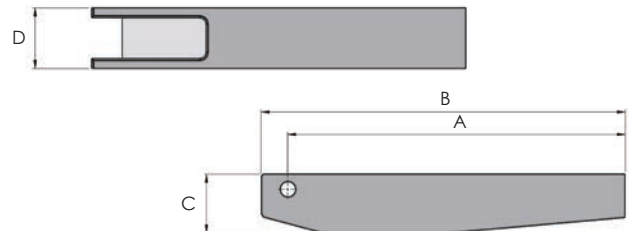
| Model number | Square drive | Hexagon AF size |     | Maximum torque (lbf.ft) | Maximum torque (Nm) | Suitable for   |               | Weight (lbs) |
|--------------|--------------|-----------------|-----|-------------------------|---------------------|----------------|---------------|--------------|
|              |              | in              | mm  |                         |                     | drive cylinder | ratchet head  |              |
| SDC27        | 1"           | 1 ¼"            | 46  | 1906                    | 2625                | TWH27N         | TWH27NRH-113  | 2.4          |
| SDC54        | 1 ½"         | 2 ⅞"            | 65  | 3901                    | 5372                | TWH54N         | TWH54NRH-209  | 6.6          |
| SDC120       | 1 ½"         | 3 ⅞"            | 80  | 8522                    | 11737               | TWH120N        | TWH120NRH-302 | 9.7          |
| SDC210-I     | 2 ½"         | 3 7/8"          | -   | 15405                   | 21216               | TWH210N        | TWH210NRH-314 | 20.1         |
| SDC210-M     | 2 ½"         | -               | 100 | 15405                   | 21216               | TWH210N        | TWH210NRH-100 | 20.1         |

*Note:* When ordering SDC conversion kits, check to ensure that you already have the required size of ratchet head.

### EXTENDED REACTION ARMS



TWH-N fitted with extended reaction arm



| Model number | Dimensions (in) |            |            |           |
|--------------|-----------------|------------|------------|-----------|
|              | Length (A)      | Length (B) | Height (C) | Width (D) |
| ERA27-20     | 19.66           | 20.69      | 1.77       | 1.97      |
| ERA54-20     | 20.21           | 21.08      | 2.17       | 2.56      |
| ERA120-21    | 20.76           | 21.67      | 2.96       | 3.35      |
| ERA210-21    | 21.47           | 23.17      | 3.74       | 3.74      |
| ERA430-22    | 22.26           | 24.74      | 4.73       | 4.73      |

### REMOVABLE HANDLE KITS

| For tool model number | Model number | Hex key to fit handle kit |
|-----------------------|--------------|---------------------------|
| TWH27N                | TSH27        | 3 mm                      |
| TWH54N                | TSH54        | 4 mm                      |
| TWH120N               | TSH120       | 5 mm                      |
| TWH210N               | TSH210       | 6 mm                      |
| TWH430N               | TSH430       | 8 mm                      |



Handle kits for TWH27N, TWH54N, TWH120N and TWH210N



Handle kits for TWH430N



## IB | IMPERIAL HEXAGON AF SIZE REDUCER BUSHES



- Economical solution of reducing female hexagon AF size of TWH-NRH imperial ratchet head
- Select the outside AF size (i.e. ratchet head AF size) and required inside AF size to determine the IB model number
- Note that wall thickness 'W' dimension of reducer bush must be added to the minimum radius dimension of the ratchet head

| Outside AF size | Inside AF size | For TWH27NRH |      | For TWH54NRH |      | For TWH120NRH |      | For TWH210NRH |      | For TWH430NRH |      |
|-----------------|----------------|--------------|------|--------------|------|---------------|------|---------------|------|---------------|------|
|                 |                | Model number | W in | Model number | W in | Model number  | W in | Model number  | W in | Model number  | W in |
| 1 1/4"          | 1 1/16"        | IB27-104-101 | 0.09 |              |      |               |      |               |      |               |      |
| 1 7/16"         | 1 1/16"        | IB27-107-101 | 0.19 |              |      |               |      |               |      |               |      |
| 1 7/16"         | 1 1/4"         | IB27-107-104 | 0.09 |              |      |               |      |               |      |               |      |
| 1 5/8"          | 1 1/4"         | IB27-110-104 | 0.19 | IB54-110-104 | 0.19 |               |      |               |      |               |      |
| 1 5/8"          | 1 7/16"        | IB27-110-107 | 0.09 | IB54-110-107 | 0.09 |               |      |               |      |               |      |
| 1 13/16"        | 1 7/16"        | IB27-113-107 | 0.19 | IB54-113-107 | 0.19 |               |      |               |      |               |      |
| 1 13/16"        | 1 5/8"         | IB27-113-110 | 0.09 | IB54-113-110 | 0.09 |               |      |               |      |               |      |
| 2"              | 1 5/8"         | IB27-200-110 | 0.19 | IB54-200-110 | 0.19 |               |      |               |      |               |      |
| 2"              | 1 13/16"       | IB27-200-113 | 0.09 | IB54-200-113 | 0.09 |               |      |               |      |               |      |
| 2 3/16"         | 1 5/8"         | IB27-203-110 | 0.28 | IB54-203-110 | 0.28 |               |      |               |      |               |      |
| 2 3/16"         | 1 13/16"       | IB27-203-113 | 0.19 | IB54-203-113 | 0.19 |               |      |               |      |               |      |
| 2 3/16"         | 2"             | IB27-203-200 | 0.09 | IB54-203-200 | 0.09 |               |      |               |      |               |      |
| 2 3/8"          | 1 13/16"       | IB27-206-113 | 0.28 | IB54-206-113 | 0.28 |               |      |               |      |               |      |
| 2 3/8"          | 2"             | IB27-206-200 | 0.19 | IB54-206-200 | 0.19 |               |      |               |      |               |      |
| 2 3/8"          | 2 3/16"        | IB27-206-203 | 0.09 | IB54-206-203 | 0.09 | IB120-206-203 | 0.09 |               |      |               |      |
| 2 9/16"         | 2"             |              |      | IB54-209-200 | 0.28 | not available | -    |               |      |               |      |
| 2 9/16"         | 2 3/16"        |              |      | IB54-209-203 | 0.19 | IB120-209-203 | 0.19 |               |      |               |      |
| 2 9/16"         | 2 3/8"         |              |      | IB54-209-206 | 0.09 | IB120-209-206 | 0.09 |               |      |               |      |
| 2 3/4"          | 2 3/16"        |              |      | IB54-212-203 | 0.28 | IB120-212-203 | 0.28 |               |      |               |      |
| 2 3/4"          | 2 3/8"         |              |      | IB54-212-206 | 0.19 | IB120-212-206 | 0.19 |               |      |               |      |
| 2 3/4"          | 2 9/16"        |              |      | IB54-212-209 | 0.09 | IB120-212-209 | 0.09 |               |      |               |      |
| 2 15/16"        | 2 3/8"         |              |      | IB54-215-206 | 0.28 | IB120-215-206 | 0.28 |               |      |               |      |
| 2 15/16"        | 2 9/16"        |              |      | IB54-215-209 | 0.19 | IB120-215-209 | 0.19 |               |      |               |      |
| 2 15/16"        | 2 3/4"         |              |      | IB54-215-212 | 0.09 | IB120-215-212 | 0.09 | IB210-215-212 | 0.09 |               |      |
| 3 1/8"          | 2 9/16"        |              |      | IB54-302-209 | 0.28 | IB120-302-209 | 0.28 | not available | -    |               |      |
| 3 1/8"          | 2 3/4"         |              |      | IB54-302-212 | 0.19 | IB120-302-212 | 0.19 | IB210-302-212 | 0.19 |               |      |
| 3 1/8"          | 2 15/16"       |              |      | IB54-302-215 | 0.09 | IB120-302-215 | 0.09 | IB210-302-215 | 0.09 |               |      |
| 3 1/2"          | 2 15/16"       |              |      |              |      | IB120-308-215 | 0.28 | IB210-308-215 | 0.28 |               |      |
| 3 1/2"          | 3 1/8"         |              |      |              |      | IB120-308-302 | 0.19 | IB210-308-302 | 0.19 | IB430-308-302 | 0.19 |
| 3 7/8"          | 3 1/8"         |              |      |              |      | IB120-314-302 | 0.37 | IB210-314-302 | 0.37 | IB430-314-302 | 0.37 |
| 3 7/8"          | 3 1/2"         |              |      |              |      | IB120-314-308 | 0.19 | IB210-314-308 | 0.19 | IB430-314-308 | 0.19 |
| 4 1/4"          | 3 1/2"         |              |      |              |      |               |      | IB210-404-308 | 0.37 | IB430-404-308 | 0.37 |
| 4 1/4"          | 3 7/8"         |              |      |              |      |               |      | IB210-404-314 | 0.19 | IB430-404-314 | 0.19 |
| 4 5/8"          | 3 7/8"         |              |      |              |      |               |      | IB210-410-314 | 0.37 | IB430-410-314 | 0.37 |
| 4 5/8"          | 4 1/4"         |              |      |              |      |               |      | IB210-410-404 | 0.19 | IB430-410-404 | 0.19 |
| 5"              | 4 1/4"         |              |      |              |      |               |      |               |      | IB430-500-404 | 0.37 |
| 5"              | 4 5/8"         |              |      |              |      |               |      |               |      | IB430-500-410 | 0.19 |
| 5 3/8"          | 4 5/8"         |              |      |              |      |               |      |               |      | IB430-506-410 | 0.37 |
| 5 3/8"          | 5"             |              |      |              |      |               |      |               |      | IB430-506-500 | 0.19 |
| 5 3/4"          | 5"             |              |      |              |      |               |      |               |      | IB430-512-500 | 0.37 |
| 5 3/4"          | 5 3/8"         |              |      |              |      |               |      |               |      | IB430-512-506 | 0.19 |
| 6 1/8"          | 5 3/8"         |              |      |              |      |               |      |               |      | IB430-602-506 | 0.37 |
| 6 1/8"          | 5 3/4"         |              |      |              |      |               |      |               |      | IB430-602-512 | 0.19 |
| 6 1/2"          | 5 3/4"         |              |      |              |      |               |      |               |      | IB430-608-512 | 0.37 |
| 6 1/2"          | 6 1/8"         |              |      |              |      |               |      |               |      | IB430-608-602 | 0.19 |
| 6 7/8"          | 6 1/8"         |              |      |              |      |               |      |               |      | IB430-614-602 | 0.37 |
| 6 7/8"          | 6 1/2"         |              |      |              |      |               |      |               |      | IB430-614-608 | 0.19 |

**MB | METRIC HEXAGON AF SIZE REDUCER BUSHES**


- ▶ Economical solution of reducing female hexagon AF size of TWH-NRH metric ratchet head
- ▶ Select the outside AF size (i.e. ratchet head AF size) and required inside AF size to determine the MB model number
- ▶ Note that wall thickness 'W' dimension of reducer bush must be added to the minimum radius dimension of the ratchet head

| Outside AF size | Inside AF size | For TWH27NRH |      | For TWH54NRH |      | For TWH120NRH |      | For TWH210NRH |      | For TWH430NRH |      |
|-----------------|----------------|--------------|------|--------------|------|---------------|------|---------------|------|---------------|------|
|                 |                | Model number | W mm | Model number | W mm | Model number  | W mm | Model number  | W mm | Model number  | W mm |
| 30              | 24             | MB27-30-24   | 3    |              |      |               |      |               |      |               |      |
| 32              | 24             | MB27-32-24   | 3    |              |      |               |      |               |      |               |      |
| 32              | 27             | MB27-32-27   | 3    |              |      |               |      |               |      |               |      |
| 36              | 30             | MB27-36-30   | 3    | MB54-36-30   | 3    |               |      |               |      |               |      |
| 41              | 36             | MB27-41-36   | 2.5  | MB54-41-36   | 2.5  |               |      |               |      |               |      |
| 46              | 36             | MB27-46-36   | 5    | MB54-46-36   | 5    |               |      |               |      |               |      |
| 46              | 41             | MB27-46-41   | 2.5  | MB54-46-41   | 2.5  |               |      |               |      |               |      |
| 50              | 41             | MB27-50-41   | 4.5  | MB54-50-41   | 4.5  |               |      |               |      |               |      |
| 50              | 46             | MB27-50-46   | 2    | MB54-50-46   | 2    |               |      |               |      |               |      |
| 55              | 41             | MB27-55-41   | 7    | MB54-55-41   | 7    |               |      |               |      |               |      |
| 55              | 46             | MB27-55-46   | 4.5  | MB54-55-46   | 4.5  |               |      |               |      |               |      |
| 55              | 50             | MB27-55-50   | 2.5  | MB54-55-50   | 2.5  | MB120-55-50   | 2.5  |               |      |               |      |
| 60              | 46             | MB27-60-46   | 7    | MB54-60-46   | 7    | not available | -    |               |      |               |      |
| 60              | 50             | MB27-60-50   | 5    | MB54-60-50   | 5    | MB120-60-50   | 5    |               |      |               |      |
| 60              | 55             | MB27-60-55   | 2.5  | MB54-60-55   | 2.5  | MB120-60-55   | 2.5  |               |      |               |      |
| 65              | 50             |              |      | MB54-65-50   | 7.5  | MB120-65-50   | 7.5  |               |      |               |      |
| 65              | 55             |              |      | MB54-65-55   | 5    | MB120-65-55   | 5    |               |      |               |      |
| 65              | 60             |              |      | MB54-65-60   | 2.5  | MB120-65-60   | 2.5  |               |      |               |      |
| 70              | 55             |              |      | MB54-70-55   | 7.5  | MB120-70-55   | 7.5  |               |      |               |      |
| 70              | 60             |              |      | MB54-70-60   | 5    | MB120-70-60   | 5    |               |      |               |      |
| 70              | 65             |              |      | MB54-70-65   | 2.5  | MB120-70-65   | 2.5  |               |      |               |      |
| 75              | 60             |              |      | MB54-75-60   | 7.5  | MB120-75-60   | 7.5  |               |      |               |      |
| 75              | 65             |              |      | MB54-75-65   | 5    | MB120-75-65   | 5    |               |      |               |      |
| 75              | 70             |              |      | MB54-75-70   | 2.5  | MB120-75-70   | 2.5  | MB210-75-70   | 2.5  |               |      |
| 80              | 65             |              |      | MB54-80-65   | 7.5  | MB120-80-65   | 7.5  | not available | -    |               |      |
| 80              | 70             |              |      | MB54-80-70   | 5    | MB120-80-70   | 5    | MB210-80-70   | 5    |               |      |
| 80              | 75             |              |      | MB54-80-75   | 2.5  | MB120-80-75   | 2.5  | MB210-80-75   | 2.5  |               |      |
| 85              | 70             |              |      |              |      | MB120-85-70   | 7.5  | MB210-85-70   | 7.5  |               |      |
| 85              | 75             |              |      |              |      | MB120-85-75   | 5    | MB210-85-75   | 5    |               |      |
| 85              | 80             |              |      |              |      | MB120-85-80   | 2.5  | MB210-85-80   | 2.5  | MB430-85-80   | 2.5  |
| 90              | 75             |              |      |              |      | MB120-90-75   | 7.5  | MB210-90-75   | 7.5  | not available | -    |
| 90              | 80             |              |      |              |      | MB120-90-80   | 5    | MB210-90-80   | 5    | MB430-90-80   | 5    |
| 90              | 85             |              |      |              |      | MB120-90-85   | 2.5  | MB210-90-85   | 2.5  | MB430-90-85   | 2.5  |
| 95              | 80             |              |      |              |      | MB120-95-80   | 7.5  | MB210-95-80   | 7.5  | MB430-95-80   | 7.5  |
| 95              | 85             |              |      |              |      | MB120-95-85   | 5    | MB210-95-85   | 5    | MB430-95-85   | 5    |
| 95              | 90             |              |      |              |      | MB120-95-90   | 2.5  | MB210-95-90   | 2.5  | MB430-95-90   | 2.5  |
| 100             | 85             |              |      |              |      | MB120-100-85  | 7.5  | MB210-100-85  | 7.5  | MB430-100-85  | 7.5  |
| 100             | 90             |              |      |              |      | MB120-100-90  | 5    | MB210-100-90  | 5    | MB430-100-90  | 5    |
| 100             | 95             |              |      |              |      | MB120-100-95  | 2.5  | MB210-100-95  | 2.5  | MB430-100-95  | 2.5  |
| 105             | 90             |              |      |              |      |               |      | MB210-105-90  | 7.5  | MB430-105-90  | 7.5  |
| 105             | 95             |              |      |              |      |               |      | MB210-105-95  | 5    | MB430-105-95  | 5    |
| 105             | 100            |              |      |              |      |               |      | MB210-105-100 | 2.5  | MB430-105-100 | 2.5  |
| 110             | 95             |              |      |              |      |               |      | MB210-110-95  | 7.5  | MB430-110-95  | 7.5  |
| 110             | 100            |              |      |              |      |               |      | MB210-110-100 | 5    | MB430-110-100 | 5    |
| 110             | 105            |              |      |              |      |               |      | MB210-110-105 | 2.5  | MB430-110-105 | 2.5  |
| 115             | 100            |              |      |              |      |               |      | MB210-115-100 | 7.5  | MB430-115-100 | 7.5  |
| 115             | 105            |              |      |              |      |               |      | MB210-115-105 | 5    | MB430-115-105 | 5    |
| 115             | 110            |              |      |              |      |               |      | MB210-115-110 | 2.5  | MB430-115-110 | 2.5  |
| 130             | 105            |              |      |              |      |               |      |               |      | MB430-130-105 | 12.5 |
| 130             | 110            |              |      |              |      |               |      |               |      | MB430-130-110 | 10   |
| 130             | 115            |              |      |              |      |               |      |               |      | MB430-130-115 | 7.5  |
| 145             | 110            |              |      |              |      |               |      |               |      | MB430-145-110 | 17.5 |
| 145             | 115            |              |      |              |      |               |      |               |      | MB430-145-115 | 15   |
| 145             | 130            |              |      |              |      |               |      |               |      | MB430-145-130 | 7.5  |

**BW | BACKUP WRENCHES**

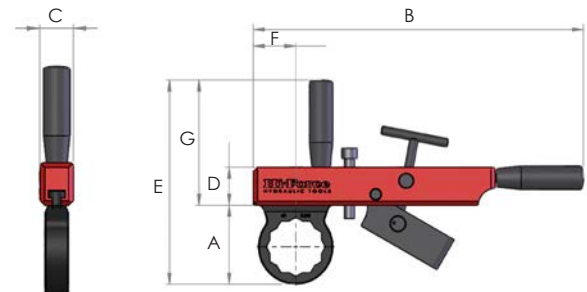


Suitable for use with TWS-N & TWH-N Wrenches

Interchangeable hexagon links

Positive release mechanism

- ▶ Prevents back nut rotation during torque tightening applications
- ▶ Heavy duty industrial construction with ergonomic grip for safe and easy operation
- ▶ 'T-Bar' design adjustable reaction point prevents lock up once tightening is completed
- ▶ Standard imperial and metric female hexagon links available



**IMPERIAL**

**COMPLETE SET:**

| Model number | Description                                     | BWH incl. set of links: |        |
|--------------|-------------------------------------------------|-------------------------|--------|
|              |                                                 | From                    | To     |
| BWI-SET      | Holder complete with imperial link set (12 pcs) | 1 1/8"                  | 3 7/8" |

**HOLDER AND IMPERIAL HEXAGON LINKS:**

| Model number  | Description          | Hexagon<br>AF size | A    | B     | Dimensions (in) |      |       |      |      |
|---------------|----------------------|--------------------|------|-------|-----------------|------|-------|------|------|
|               |                      |                    | C    | D     | E               | F    | G     |      |      |
| Holder        |                      |                    |      |       |                 |      |       |      |      |
| BWH           | Backup wrench holder | -                  |      |       |                 |      |       |      |      |
| Hexagon links |                      |                    |      |       |                 |      |       |      |      |
| BWI-107       | Hexagon link         | 1 7/16"            | 2.54 | 15.37 | 1.42            | 1.77 | 8.33  | 1.97 | 5.79 |
| BWI-110       | Hexagon link         | 1 3/8"             | 2.9  | 15.37 | 1.42            | 1.77 | 8.69  | 1.97 | 5.79 |
| BWI-113       | Hexagon link         | 1 13/16"           | 3.09 | 15.37 | 1.42            | 1.77 | 8.88  | 1.97 | 5.79 |
| BWI-200       | Hexagon link         | 2"                 | 3.35 | 15.37 | 1.42            | 1.77 | 9.14  | 1.97 | 5.79 |
| BWI-203       | Hexagon link         | 2 3/16"            | 3.45 | 15.37 | 1.42            | 1.77 | 9.24  | 1.97 | 5.79 |
| BWI-206       | Hexagon link         | 2 3/8"             | 3.66 | 15.37 | 1.42            | 1.77 | 9.46  | 1.97 | 5.79 |
| BWI-209       | Hexagon link         | 2 7/16"            | 3.84 | 15.37 | 1.42            | 1.77 | 9.63  | 1.97 | 5.79 |
| BWI-212       | Hexagon link         | 2 3/4"             | 4.12 | 15.37 | 1.42            | 1.77 | 9.91  | 1.97 | 5.79 |
| BWI-215       | Hexagon link         | 2 15/16"           | 4.45 | 15.37 | 1.42            | 1.77 | 10.24 | 1.97 | 5.79 |
| BWI-302       | Hexagon link         | 3 1/8"             | 4.71 | 15.37 | 1.42            | 1.77 | 10.5  | 1.97 | 5.79 |
| BWI-308       | Hexagon link         | 3 1/2"             | 5.22 | 15.37 | 1.42            | 1.77 | 11.01 | 1.97 | 5.79 |
| BWI-314       | Hexagon link         | 3 7/8"             | 5.81 | 15.37 | 1.42            | 1.77 | 11.6  | 1.97 | 5.79 |

**METRIC**

**COMPLETE SET:**

| Model number | Description                                   | BWH incl. set of links: |        |
|--------------|-----------------------------------------------|-------------------------|--------|
|              |                                               | From                    | To     |
| BWM-SET      | Holder complete with metric link set (14 pcs) | 36 mm                   | 100 mm |

**HOLDER AND METRIC HEXAGON LINKS:**

| Model number  | Description          | Hexagon<br>AF size | A    | B     | Dimensions (mm) |      |       |      |      |  |
|---------------|----------------------|--------------------|------|-------|-----------------|------|-------|------|------|--|
|               |                      |                    | C    | D     | E               | F    | G     |      |      |  |
| Holder        |                      |                    |      |       |                 |      |       |      |      |  |
| BWH           | Backup wrench holder | -                  |      |       |                 |      |       |      |      |  |
| Hexagon links |                      |                    |      |       |                 |      |       |      |      |  |
| BWM-36        | Hexagon link         | 36 mm              | 2.54 | 15.37 | 1.42            | 1.77 | 8.33  | 1.97 | 5.79 |  |
| BWM-41        | Hexagon link         | 41 mm              | 2.9  | 15.37 | 1.42            | 1.77 | 8.69  | 1.97 | 5.79 |  |
| BWM-46        | Hexagon link         | 46 mm              | 3.09 | 15.37 | 1.42            | 1.77 | 8.88  | 1.97 | 5.79 |  |
| BWM-50        | Hexagon link         | 50 mm              | 3.35 | 15.37 | 1.42            | 1.77 | 9.14  | 1.97 | 5.79 |  |
| BWM-55        | Hexagon link         | 55 mm              | 3.45 | 15.37 | 1.42            | 1.77 | 9.24  | 1.97 | 5.79 |  |
| BWM-60        | Hexagon link         | 60 mm              | 3.66 | 15.37 | 1.42            | 1.77 | 9.46  | 1.97 | 5.79 |  |
| BWM-65        | Hexagon link         | 65 mm              | 3.84 | 15.37 | 1.42            | 1.77 | 9.63  | 1.97 | 5.79 |  |
| BWM-70        | Hexagon link         | 70 mm              | 4.12 | 15.37 | 1.42            | 1.77 | 9.91  | 1.97 | 5.79 |  |
| BWM-75        | Hexagon link         | 75 mm              | 4.45 | 15.37 | 1.42            | 1.77 | 10.24 | 1.97 | 5.79 |  |
| BWM-80        | Hexagon link         | 80 mm              | 4.71 | 15.37 | 1.42            | 1.77 | 10.5  | 1.97 | 5.79 |  |
| BWM-85        | Hexagon link         | 85 mm              | 5.22 | 15.37 | 1.42            | 1.77 | 11.01 | 1.97 | 5.79 |  |
| BWM-90        | Hexagon link         | 90 mm              | 5.81 | 15.37 | 1.42            | 1.77 | 11.6  | 1.97 | 5.79 |  |
| BWM-95        | Hexagon link         | 95 mm              | 5.63 | 15.37 | 1.42            | 1.77 | 11.43 | 1.97 | 5.79 |  |
| BWM-100       | Hexagon link         | 100 mm             | 5.83 | 15.37 | 1.42            | 1.77 | 11.62 | 1.97 | 5.79 |  |

## HTWP | TORQUE WRENCH PUMPS - STANDARD LINE

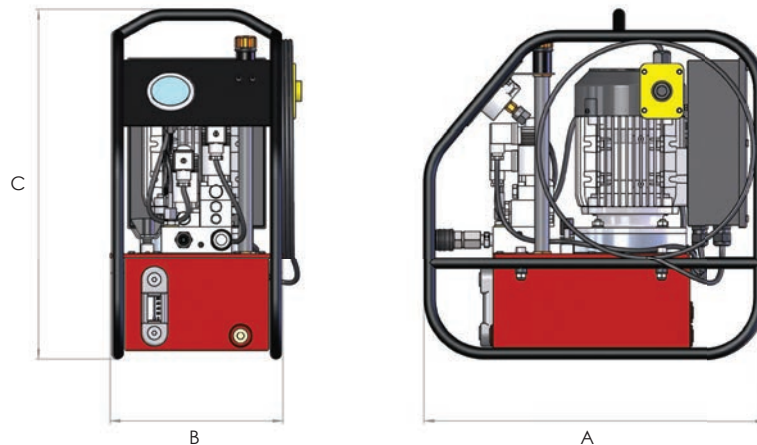


Working pressure 10000 psi

Two stage operation

Air or electric driven options

- ▶ Compatible for use with TWS-N and TWH-N series hydraulic torque wrenches
- ▶ Two stage operation with low pressure flow rate of up to 372.24 inch<sup>3</sup> per minute
- ▶ 110, 120, 220 or 230 volt single phase electric motor with auto retract function
- ▶ Integral oil cooling system in air driven models
- ▶ Dual scale (psi/bar) glycerin filled pressure gauge
- ▶ Easily adjustable torque setting pressure relief valve
- ▶ Reservoir oil sight level gauge fitted on all models
- ▶ Air pressure gauge and filter, regulator and lubricator unit fitted on air driven models
- ▶ Oil reservoir capacity 1.32 gallons
- ▶ Remote hand pendant controller with 10 feet control line cable for easy operation
- ▶ Factory fitted roll bar protection frame included



| Model number | Power supply | Motor rating (hp) | Flow rate (in <sup>3</sup> /min) |               | Changeover pressure (psi) | Weight (lbs) | Dimensions (in) |      |       |
|--------------|--------------|-------------------|----------------------------------|---------------|---------------------------|--------------|-----------------|------|-------|
|              |              |                   | low pressure                     | high pressure |                           |              | A               | B    | C     |
| HTWP2140P    | 100 psi      | 2.01              | 372.24                           | 31.12         | 870                       | 61.7         | 18.44           | 8.08 | 17.53 |
| HTWP2141AR   | 110 volt     | 1.01              | 237.99                           | 21.97         | 870                       | 75.0         | 19.15           | 9.65 | 19.62 |
| HTWP2141ARH  | 120 volt     | 1.01              | 237.99                           | 21.97         | 870                       | 75.0         | 19.15           | 9.65 | 19.62 |
| HTWP2142AR   | 230 volt     | 1.01              | 237.99                           | 21.97         | 870                       | 75.0         | 19.15           | 9.65 | 19.62 |
| HTWP2142ARH  | 220 volt     | 1.01              | 237.99                           | 21.97         | 870                       | 75.0         | 19.15           | 9.65 | 19.62 |

**Note:** Pumps with suffix 'H' in the model number are supplied with 60 Hz electric motor.

**TPA | AIR DRIVEN TORQUE WRENCH PUMPS - PREMIUM LINE**

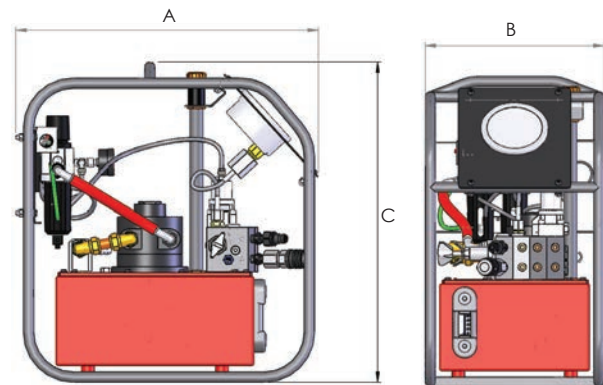


**Working pressure 10000 psi**

**High flow 3-stage pump unit**

**Compact and lightweight**

- ▶ Low noise operation (<90 db)
- ▶ Supplied fitted with one set of quick connect couplers
- ▶ Exhaust air radiator cooling system fitted as standard
- ▶ Adjustable torque setting pressure relief valve with locking nut
- ▶ Remote hand pendant controller with 16.5 feet cable for easy operation
- ▶ Multi-outlet 4-way split block for simultaneous operation of up to 4 torque wrenches
- ▶ Factory fitted roll bar protection and carrying frame



| Model number | Power supply | Pressure gauge | Gauge reading | 1 <sup>st</sup> stage<br>(0-943 psi) | Flow rate (in <sup>3</sup> /min)        |                                           |  | Oil capacity<br>(gallons) | Max. oil temp<br>(°C) | Weight incl. oil (lbs) | Dimensions (in) |       |       |
|--------------|--------------|----------------|---------------|--------------------------------------|-----------------------------------------|-------------------------------------------|--|---------------------------|-----------------------|------------------------|-----------------|-------|-------|
|              |              |                |               |                                      | 2 <sup>nd</sup> stage<br>(943-4713 psi) | 3 <sup>rd</sup> stage<br>(4713-10000 psi) |  |                           |                       |                        | A               | B     | C     |
| TPA07A       | 100 psi air  | analog         | psi/bar       | 427.17                               | 97.64                                   | 48.82                                     |  | 1.85                      | 80°                   | 66.1                   | 18.68           | 11.27 | 19.74 |

Optional coupler sets for simultaneous operation of multiple torque wrenches (one set supplied fitted as standard)

| Model number | Description                                                                                          |
|--------------|------------------------------------------------------------------------------------------------------|
| TP-CS1       | Single set of male/female flat face couplers, for simultaneous operation of two hydraulic wrenches   |
| TP-CS2       | Double set of male/female flat face couplers, for simultaneous operation of three hydraulic wrenches |
| TP-CS3       | Triple set of male/female flat face couplers, for simultaneous operation of four hydraulic wrenches  |



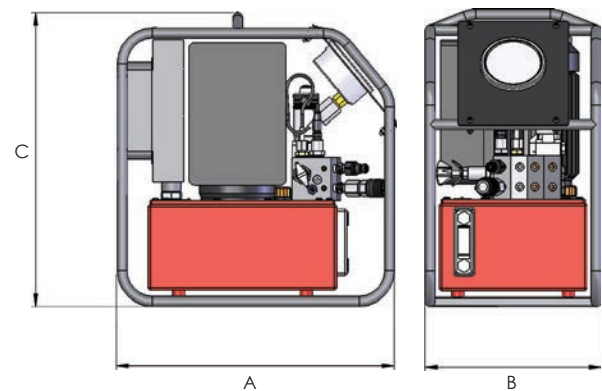
**TPE | ELECTRIC DRIVEN TORQUE WRENCH PUMPS - PREMIUM LINE**


**Working pressure 10000 psi**

**High flow 3-stage pump unit**

**Compact and lightweight**

- ▶ Low noise operation (<88 db)
- ▶ Supplied fitted with one set of quick connect couplers
- ▶ Automatically activated oil cooling heat exchanger fitted as standard
- ▶ Adjustable torque setting pressure relief valve with locking nut
- ▶ Analog or digital gauge options
- ▶ Remote hand pendant controller with 16.5 feet cable for easy operation
- ▶ Choice of manual operation with auto retract or fully automatic operation
- ▶ Multi-outlet 4-way split block for simultaneous operation of up to 4 torque wrenches
- ▶ Factory fitted roll bar protection and carrying frame



| Model number | Power supply   | Pressure gauge | Gauge reading     | Flow rate (in <sup>3</sup> /min)  |                                      |                                        | Oil capacity (gallons) | Max. oil temp (°C) | Weight incl. oil (lbs) | Dimensions (in) |       |       |
|--------------|----------------|----------------|-------------------|-----------------------------------|--------------------------------------|----------------------------------------|------------------------|--------------------|------------------------|-----------------|-------|-------|
|              |                |                |                   | 1 <sup>st</sup> stage (0-943 psi) | 2 <sup>nd</sup> stage (943-4713 psi) | 3 <sup>rd</sup> stage (4713-10000 psi) |                        |                    |                        | A               | B     | C     |
| TPE15A       | 110V-1Ph-50 Hz | analog         | psi/bar           | 396.65                            | 91.54                                | 45.77                                  | 1.85                   | 80°                | 86.0                   | 17.97           | 11.27 | 18.75 |
| TPE15D       | 110V-1Ph-50 Hz | digital        | psi/bar/Nm/lbf.ft | 396.65                            | 91.54                                | 45.77                                  | 1.85                   | 80°                | 86.0                   | 17.97           | 11.27 | 18.75 |
| TPE16A       | 120V-1Ph-60 Hz | analog         | psi/bar           | 475.98                            | 109.84                               | 54.92                                  | 1.85                   | 80°                | 86.0                   | 17.97           | 11.27 | 18.75 |
| TPE16D       | 120V-1Ph-60 Hz | digital        | psi/bar/Nm/lbf.ft | 475.98                            | 109.84                               | 54.92                                  | 1.85                   | 80°                | 86.0                   | 17.97           | 11.27 | 18.75 |
| TPE25A       | 230V-1Ph-50 Hz | analog         | psi/bar           | 396.65                            | 91.54                                | 45.77                                  | 1.85                   | 80°                | 86.0                   | 17.97           | 11.27 | 18.75 |
| TPE25D       | 230V-1Ph-50 Hz | digital        | psi/bar/Nm/lbf.ft | 396.65                            | 91.54                                | 45.77                                  | 1.85                   | 80°                | 86.0                   | 17.97           | 11.27 | 18.75 |
| TPE26A       | 230V-1Ph-60 Hz | analog         | psi/bar           | 475.98                            | 109.84                               | 54.92                                  | 1.85                   | 80°                | 86.0                   | 17.97           | 11.27 | 18.75 |
| TPE26D       | 230V-1Ph-60 Hz | digital        | psi/bar/Nm/lbf.ft | 475.98                            | 109.84                               | 54.92                                  | 1.85                   | 80°                | 86.0                   | 17.97           | 11.27 | 18.75 |
| TPE45A       | 400V-3Ph-50 Hz | analog         | psi/bar           | 396.65                            | 91.54                                | 45.77                                  | 1.85                   | 80°                | 86.0                   | 17.97           | 11.27 | 18.75 |
| TPE45D       | 400V-3Ph-50 Hz | digital        | psi/bar/Nm/lbf.ft | 396.65                            | 91.54                                | 45.77                                  | 1.85                   | 80°                | 86.0                   | 17.97           | 11.27 | 18.75 |
| TPE46A       | 480V-3Ph-60 Hz | analog         | psi/bar           | 475.98                            | 109.84                               | 54.92                                  | 1.85                   | 80°                | 86.0                   | 17.97           | 11.27 | 18.75 |
| TPE46D       | 480V-3Ph-60 Hz | digital        | psi/bar/Nm/lbf.ft | 475.98                            | 109.84                               | 54.92                                  | 1.85                   | 80°                | 86.0                   | 17.97           | 11.27 | 18.75 |

Optional coupler sets for simultaneous operation of multiple torque wrenches (one set supplied fitted as standard)

| Model number | Description                                                                                          |
|--------------|------------------------------------------------------------------------------------------------------|
| TP-CS1       | Single set of male/female flat face couplers, for simultaneous operation of two hydraulic wrenches   |
| TP-CS2       | Double set of male/female flat face couplers, for simultaneous operation of three hydraulic wrenches |
| TP-CS3       | Triple set of male/female flat face couplers, for simultaneous operation of four hydraulic wrenches  |

## TORQUE WRENCH PUMP ACCESSORIES



Hose lengths up to 330 feet

Supplied with quick connect couplers

Working pressure 10000 psi

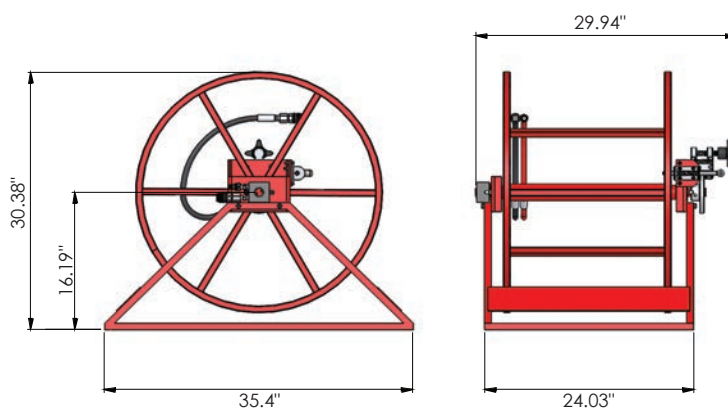
### TORQUE WRENCH HOSES AND COUPLERS

- ▶ High quality hydraulic torque wrench bonded twin hose sets
- ▶ Maximum working pressure of 10000 psi with 4:1 safety factor
- ▶ Ergonomically designed protective, strain reliever hand grips on both ends

| Model number | Description                                                   | Weight (lbs) |
|--------------|---------------------------------------------------------------|--------------|
| HTWH4        | Bonded twin hoses with quick connect couplers, length 13 ft   | 7.7          |
| HTWH5        | Bonded twin hoses with quick connect couplers, length 16.5 ft | 8.4          |
| HTWH6        | Bonded twin hoses with quick connect couplers, length 19.5 ft | 10.1         |
| HTWH8        | Bonded twin hoses with quick connect couplers, length 26 ft   | 11.7         |
| HTWH10       | Bonded twin hoses with quick connect couplers, length 32 ft   | 15.0         |
| HTWH50       | Bonded twin hoses with quick connect couplers, length 164 ft  | 68.8         |
| HTWH75       | Bonded twin hoses with quick connect couplers, length 246 ft  | 102.7        |
| HTWH100      | Bonded twin hoses with quick connect couplers, length 330 ft  | 136.0        |
| CF4F         | Female half coupler, 1/4" NPT Female                          | 0.7          |
| CM4F         | Male half coupler, 1/4" NPT Female                            | 0.7          |

### HTWR1 TORQUE WRENCH HOSE REEL

- ▶ Accommodates twin line hoses up to 330 feet long
- ▶ Supplied with twin 1.5 feet long lead hose for easy connection to main line hoses
- ▶ Disc brake allows for hose release speed control
- ▶ Fixing holes at the base of frame
- ▶ Weight 84 lbs



*Note: We recommend the use of HTWR1 hose reel with hose lengths of 164 ft or more*

## IP | PNEUMATIC IMPACT WRENCHES



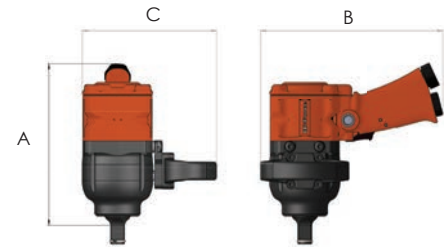
- ▶ Lightweight and compact design impact wrenches offering durability and reliability during operation
- ▶ Features twin hammer and 3-jaw hammer mechanism which offers increased power and balanced impact during bolt tightening
- ▶ Quiet operation and low vibration levels for reduced operator fatigue
- ▶ Ideal for use in applications in the automotive, construction, railways and heavy engineering industries as well as in tyre and mechanical workshops
- ▶ High quality impact sockets for use with IP range are listed on pages 85 and 86
- ▶ Filter, regulator & lubricator unit is recommended for use with IP impact wrenches

Industrial heavy duty design

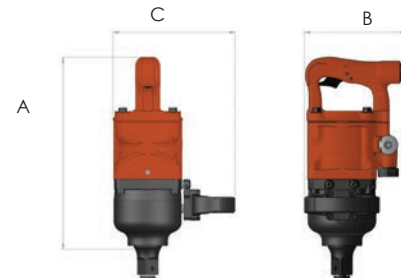
Square drive sizes from ½" to 1 ½"

Torque capacities up to 4376 lbf.ft

IP650 &  
IP1700



IP3200 &  
IP5950



| Model number              | Square drive size | Bolt range |         | Free speed | Maximum torque |      | Working pressure |     | Air flow (cfm) | Air inlet type | Vibration lvl (m/s²) | Sound pressure lvl db(a) | Weight (lbs) | Dimensions (in) |      |      |                  |
|---------------------------|-------------------|------------|---------|------------|----------------|------|------------------|-----|----------------|----------------|----------------------|--------------------------|--------------|-----------------|------|------|------------------|
|                           |                   | Imperial   | Metric  | R.P.M.     | lbf.ft         | Nm   | psi              | bar |                |                |                      |                          |              | A               | B    | C    | C Handle removed |
| Pistol grip versions      |                   |            |         |            |                |      |                  |     |                |                |                      |                          |              |                 |      |      |                  |
| IP650                     | ½"                | ⅝" - ⅞"    | M10-M16 | 5600       | 480            | 650  | 92               | 6.3 | 18             | ¼" BSP         | 5.0                  | 97                       | 5.1          | 6.93            | 7.21 | 2.44 | No Handle        |
| IP1700                    | ¾"                | 9/16" - 1" | M14-M24 | 5400       | 1254           | 1700 | 92               | 6.3 | 32             | ½" BSP         | 9.4                  | 102                      | 13.0         | 8.71            | 9.85 | 7.25 | 3.78             |
| IP1700X                   | ¾"                | 9/16" - 1" | M14-M24 | 5400       | 1254           | 1700 | 92               | 6.3 | 32             | ½" BSP         | 9.4                  | 102                      | 14.6         | 8.71            | 9.85 | 7.25 | 3.78             |
| Back handle grip versions |                   |            |         |            |                |      |                  |     |                |                |                      |                          |              |                 |      |      |                  |
| IP3200                    | 1"                | ¾" - 1 ½"  | M18-M39 | 3200       | 2350           | 3185 | 92               | 6.3 | 53             | ½" BSP         | 4.9                  | 101                      | 20.9         | 12.21           | 6.5  | 7.84 | 4.41             |
| IP3200X                   | 1"                | ¾" - 1 ½"  | M18-M39 | 3200       | 2350           | 3185 | 92               | 6.3 | 53             | ½" BSP         | 4.9                  | 101                      | 23.4         | 12.21           | 6.5  | 7.84 | 4.41             |
| IP5950                    | 1 ½"              | 1" - 2"    | M24-M56 | 3200       | 4376           | 5933 | 92               | 6.3 | 63             | ½" BSP         | 12.3                 | 104                      | 32.0         | 14.62           | 6.54 | 8.39 | 4.89             |

Note: 1) Models with suffix 'X' are fitted with extended anvil  
 2) Air flow measured at maximum supply pressure

| Model number | Increase in anvil length (in) |
|--------------|-------------------------------|
| IP1700X      | 4.68                          |
| IP3200X      | 5.4                           |



## FILTER REGULATOR LUBRICATOR (FRL) UNIT



- ▶ Allows for easy adjustment of air pressure to suit tool requirements
- ▶ Prevents entry of contaminants and water into the air supply
- ▶ Supplied with dual scale air inlet pressure gauge and 10 feet air hose with swivel end fittings

| Model number | Air inlet connection | Air outlet connection | Weight (lbs) | Length | Dimensions (in)<br>Width | Height |
|--------------|----------------------|-----------------------|--------------|--------|--------------------------|--------|
| FRL11        | ½" NPT               | ½" NPT                | 6.6          | 7.88   | 7.88                     | 12.21  |

## HI-FORCE HYDRAULIC STUD BOLT TENSIONERS

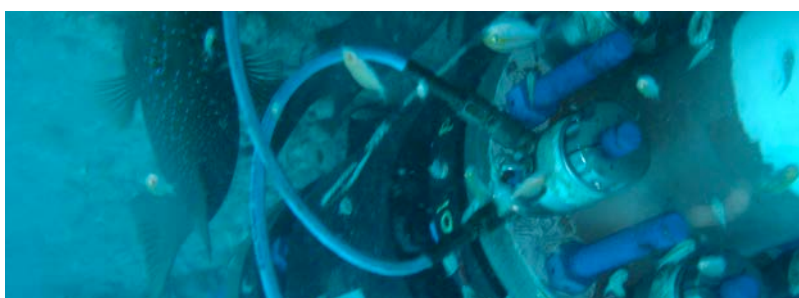
Hydraulic stud bolt tensioners are generally accepted as the preferred and most efficient method of accurately tightening bolts, to a predetermined and known bolt load, to ensure an even clamping force on all stud bolts within the joint. This is particularly critical for bolted joints, on pipelines and pressure vessels, in the oil, gas and petrochemical industries, where correctly sealed joints are essential for the safe movement and processing of hydrocarbons, usually under high pressure. Multiple use of hydraulic stud bolt tensioners, to tension 25, 33, 50 or in some cases 100% of the bolts simultaneously, ensures an even pull down of the joint faces onto the gasket, ensuring the correct gasket compression to achieve a leak free joint, first time every time.

The extensive range of Hi-Force hydraulic stud bolt tensioners, detailed in this section of the catalog, includes both spring assisted and manual piston retraction, topside tensioners, subsea tensioners, hydraulic tensioning nuts, along with a range of manual and air driven bolt tensioner hydraulic pumps, hoses and accessories. The modular design of Hi-Force hydraulic stud bolt tensioners enables the user to adapt each model, to cover more than one stud bolt size, by simply ordering additional accessories. This greatly reduces investment costs, for users, that require to tension multiple sizes of stud bolts, whilst optimizing their investment costs. Hi-Force also offers custom designed bolt tensioners, meeting specific and unique customer requirements.

iQ software is an innovative bolted joint integrity software programme designed to assist engineers with the provision of accurate bolt load calculations, based on key input data, related to each specific bolted joint, and is available for purchase through the provider company Asset55 Limited. Hi-Force is able to support our valued clients with bolt load calculations on an hourly chargeable time basis.







# BOLT TENSIONERS

## SBT IMPERIAL RANGE 100

Spring return topside bolt tensioners

## SBT COMPONENTS - IMPERIAL RANGE 101

Bolt tensioner components

## SBT METRIC RANGE 102

Spring return topside bolt tensioners

## SBT COMPONENTS - METRIC RANGE 103

Bolt tensioner components

## STS IMPERIAL RANGE 104

Topside bolt tensioners

## STS COMPONENTS - IMPERIAL RANGE 105

Bolt tensioner components

## STS METRIC RANGE 106

Topside bolt tensioners

## STS COMPONENTS - METRIC RANGE 107

Bolt tensioner components

## STU IMPERIAL RANGE 108

Sub-sea bolt tensioners

## STU METRIC RANGE 109

Sub-sea bolt tensioners

## HTN IMPERIAL RANGE 110

Hydraulic tensioner nuts

## HTN METRIC RANGE 111

Hydraulic tensioner nuts

## BOLT TENSIONER PUMPS 112

Air driven and manually operated pumps for bolt tensioners

## BOLT TENSIONER ACCESSORIES 113

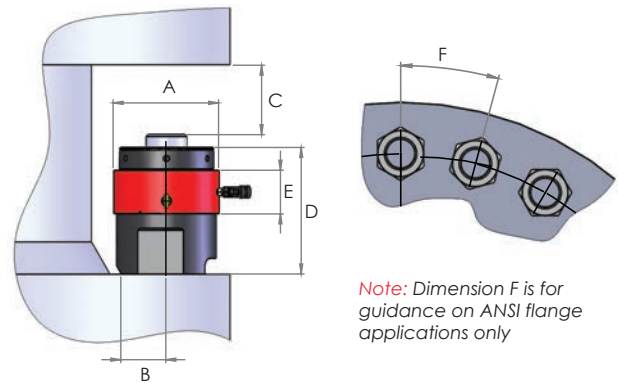
Hoses, couplers and hose reel



**SBT | SPRING RETURN BOLT TENSIONERS - IMPERIAL**

**Capacities from 51.4 to 297.6 tons**
**Bolt sizes from 1 ¼" to 4" diameter**
**Maximum working pressure 21750 psi**

- ▶ Single acting design with spring assisted piston retraction
- ▶ High grade alloy steel construction with nitrocarburized, corrosion resistant, piston
- ▶ Maximum stroke indicator to warn against piston over extension
- ▶ Safety over stroke device to protect operator from injury
- ▶ Self-energizing seals for improved performance and longevity at high pressure
- ▶ Dual quick connect inlet and outlet couplings for easy multiple tensioner connection
- ▶ Designed to fit most sizes of ANSI and API flanges and some Compact flanges
- ▶ Interchangeable accessories to cover multiple stud bolt sizes using same tensioner
- ▶ Non-standard size threaded pullers available to order on short delivery lead time
- ▶ Customized and special design tensioners are available on request



| Model number | Bolt thread size | Threads per inch | Capacity tons | Capacity kN | Effective area (in²) | Stroke (in) | Weight (lbs) | Dimensions (in) |      |         |       |      |      |
|--------------|------------------|------------------|---------------|-------------|----------------------|-------------|--------------|-----------------|------|---------|-------|------|------|
|              |                  |                  |               |             |                      |             |              | A               | B    | C (min) | D     | E    | F    |
| SBT2-125B1   | 1 ¼"             | 8                | 51.4          | 457         | 4.73                 | 0.59        | 8.8          | 4.02            | 1.54 | 5       | 6.46  | 3.59 | 2.92 |
| SBT2-137B1   | 1 ⅜"             | 8                | 51.4          | 457         | 4.73                 | 0.59        | 8.8          | 4.02            | 1.54 | 5       | 6.46  | 3.59 | 3.03 |
| SBT2-150B1   | 1 ½"             | 8                | 51.4          | 457         | 4.73                 | 0.59        | 8.8          | 4.02            | 1.54 | 4.85    | 6.46  | 3.59 | 3.15 |
| SBT3-162B1   | 1 ⅝"             | 8                | 92.4          | 822         | 8.49                 | 0.59        | 14.8         | 5.4             | 1.85 | 5.75    | 7.41  | 3.7  | 3.62 |
| SBT3-175B1   | 1 ¾"             | 8                | 92.4          | 822         | 8.49                 | 0.59        | 14.8         | 5.4             | 1.85 | 5.63    | 7.41  | 3.7  | 3.66 |
| SBT3-175B2   | 1 ¾"             | 8                | 92.4          | 822         | 8.49                 | 0.59        | 15.9         | 5.4             | 1.97 | 5.83    | 7.6   | 3.7  | 3.7  |
| SBT3-187B1   | 1 ⅞"             | 8                | 92.4          | 822         | 8.49                 | 0.59        | 14.8         | 5.4             | 1.85 | 5.48    | 7.41  | 3.7  | 3.82 |
| SBT3-187B2   | 1 ⅞"             | 8                | 92.4          | 822         | 8.49                 | 0.59        | 15.9         | 5.4             | 1.97 | 5.67    | 7.6   | 3.7  | 4.1  |
| SBT3-200B2   | 2"               | 8                | 92.4          | 822         | 8.49                 | 0.59        | 15.9         | 5.4             | 1.97 | 5.56    | 7.6   | 3.7  | 4.1  |
| SBT4-187B1   | 1 ⅞"             | 8                | 142.1         | 1264        | 13.07                | 0.59        | 24.3         | 6.58            | 1.97 | 5.79    | 7.76  | 3.82 | 4.1  |
| SBT4-200B1   | 2"               | 8                | 142.1         | 1264        | 13.07                | 0.59        | 24.3         | 6.58            | 1.97 | 5.63    | 7.76  | 3.82 | 4.1  |
| SBT4-200B2   | 2"               | 8                | 142.1         | 1264        | 13.07                | 0.59        | 26.9         | 6.58            | 2.44 | 6.11    | 8.39  | 3.82 | 4.18 |
| SBT4-225B2   | 2 ¼"             | 8                | 142.1         | 1264        | 13.07                | 0.59        | 26.9         | 6.58            | 2.44 | 5.91    | 8.39  | 3.82 | 4.77 |
| SBT4-250B2   | 2 ½"             | 8                | 142.1         | 1264        | 13.07                | 0.59        | 26.9         | 6.58            | 2.44 | 5.71    | 8.39  | 3.82 | 5    |
| SBT5-250B1   | 2 ½"             | 8                | 206           | 1833        | 18.94                | 0.59        | 36.4         | 8.23            | 2.88 | 6.38    | 9.02  | 4.02 | 5.28 |
| SBT5-275B1   | 2 ¾"             | 8                | 206           | 1833        | 18.94                | 0.59        | 36.4         | 8.23            | 2.88 | 6.15    | 9.02  | 4.02 | 5.52 |
| SBT5-300B1   | 3"               | 8                | 206           | 1833        | 18.94                | 0.59        | 36.4         | 8.23            | 2.88 | 5.87    | 9.02  | 4.02 | 5.79 |
| SBT6-300B1   | 3"               | 8                | 297.6         | 2649        | 27.37                | 0.59        | 52.9         | 9.69            | 3.31 | 6.86    | 10.01 | 4.06 | 6.34 |
| SBT6-325B1   | 3 ¼"             | 8                | 297.6         | 2649        | 27.37                | 0.59        | 52.9         | 9.69            | 3.31 | 6.66    | 10.01 | 4.06 | 6.58 |
| SBT6-350B1   | 3 ½"             | 8                | 297.6         | 2649        | 27.37                | 0.59        | 52.9         | 9.69            | 3.31 | 6.38    | 10.01 | 4.06 | 6.78 |
| SBT6-375B3   | 3 ¾"             | 8                | 297.6         | 2649        | 27.37                | 0.59        | 65.3         | 9.69            | 4.14 | 7.64    | 11.62 | 4.06 | 7.53 |
| SBT6-400B3   | 4"               | 8                | 297.6         | 2649        | 27.37                | 0.59        | 65.3         | 9.69            | 4.14 | 7.45    | 11.62 | 4.06 | 7.72 |

*Note: Weight is for load cell and bridge only. Total weight of complete assembly depends on size of puller and nut rotating socket selected. Tommy bars are not included. Hi-Force recommends one tommy bar for every four tensioners.*

**SBT | BOLT TENSIONER COMPONENTS - IMPERIAL**


Use with SBT Imperial Spring Return Tensioners

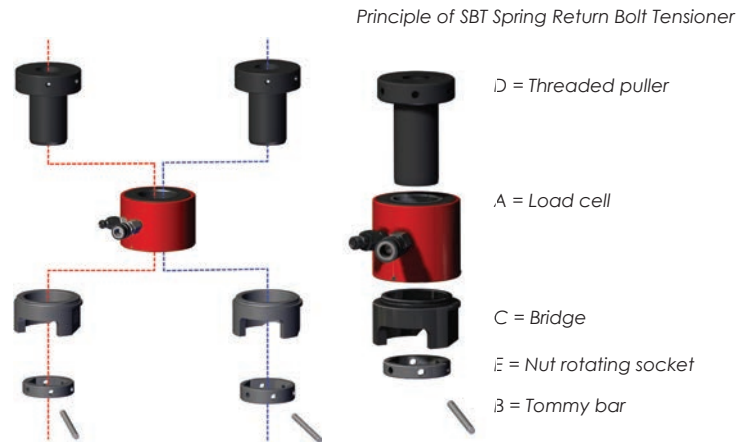
Modular design for greater flexibility

Versatile cost effective option

- Modify existing SBT tensioner assembly to another thread size, within the tensioner range
- All components or selected conversion kits must have the same suffix as the target tensioner size

Examples:

- To change from SBT3-162B1 to SBT3-187B1 would require conversion kit CKS3-187B1 only.
- To change from SBT3-187B1 to SBT3-200B2 would require conversion kit CKS3-200B2 and bridge STS3-B2.



- Denotes smaller bridge size within tensioner range
- Denotes larger bridge size within tensioner range
- Denotes one bridge size within tensioner range

DO NOT mix components from different colour lines, SBT2 & SBT5 models have only one size of tensioner bridge (B1)

| Complete tensioner       |             | Individual components |                |             |                      |                      | D&E<br>Complete<br>conversion kit |
|--------------------------|-------------|-----------------------|----------------|-------------|----------------------|----------------------|-----------------------------------|
| Model number             | Bolt thread | A<br>Load cell        | B<br>Tommy bar | C<br>Bridge | D<br>Threaded puller | E<br>Rotating socket |                                   |
| For tensioner range SBT2 |             |                       |                |             |                      |                      |                                   |
| SBT2-125B1               | 1 ¼"        | SBT2-LC               | TTB08          | STS2-B1     | TPS2-125B1           | RS2-51B1             | CKS2-125B1                        |
| SBT2-137B1               | 1 ⅜"        |                       |                |             | TPS2-137B1           | RS2-56B1             | CKS2-137B1                        |
| SBT2-150B1               | 1 ½"        |                       |                |             | TPS2-150B1           | RS2-60B1             | CKS2-150B1                        |
| For tensioner range SBT3 |             |                       |                |             |                      |                      |                                   |
| SBT3-162B1               | 1 ⅝"        | SBT3-LC               | TTB10          | STS3-B1     | TPS3-162B1           | RS3-65B1             | CKS3-162B1                        |
| SBT3-175B1               | 1 ¾"        |                       |                |             | TPS3-175B1           | RS3-70B1             | CKS3-175B1                        |
| SBT3-187B1               | 1 ⅞"        |                       |                |             | TPS3-187B1           | RS3-75B1             | CKS3-187B1                        |
| SBT3-175B2               | 1 ¾"        |                       |                | TPS3-175B2  | RS3-70B2             | CKS3-175B2           |                                   |
| SBT3-187B2               | 1 ⅞"        |                       |                | STS3-B2     | TPS3-187B2           | RS3-75B2             | CKS3-187B2                        |
| SBT3-200B2               | 2"          |                       |                | TPS3-200B2  | RS3-80B2             | CKS3-200B2           |                                   |
| For tensioner range SBT4 |             |                       |                |             |                      |                      |                                   |
| SBT4-187B1               | 1 ⅞"        | SBT4-LC               | TTB10          | STS4-B1     | TPS4-187B1           | RS4-75B1             | CKS4-187B1                        |
| SBT4-200B1               | 2"          |                       |                |             | TPS4-200B1           | RS4-80B1             | CKS4-200B1                        |
| SBT4-200B2               | 2"          |                       |                | TPS4-200B2  | RS4-80B2             | CKS4-200B2           |                                   |
| SBT4-225B2               | 2 ¼"        |                       |                | STS4-B2     | TPS4-225B2           | RS4-90B2             | CKS4-225B2                        |
| SBT4-250B2               | 2 ½"        |                       |                | TPS4-250B2  | RS4-98B2             | CKS4-250B2           |                                   |
| For tensioner range SBT5 |             |                       |                |             |                      |                      |                                   |
| SBT5-250B1               | 2 ½"        | SBT5-LC               | TTB14          | STS5-B1     | TPS5-250B1           | RS5-100B1            | CKS5-250B1                        |
| SBT5-275B1               | 2 ¾"        |                       |                |             | TPS5-275B1           | RS5-108B1            | CKS5-275B1                        |
| SBT5-300B1               | 3"          |                       |                |             | TPS5-300B1           | RS5-118B1            | CKS5-300B1                        |
| For tensioner range SBT6 |             |                       |                |             |                      |                      |                                   |
| SBT6-300B1               | 3"          | SBT6-LC               | TTB14          | STS6-B1     | TPS6-300B1           | RS6-118B1            | CKS6-300B1                        |
| SBT6-325B1               | 3 ¼"        |                       |                |             | TPS6-325B1           | RS6-127B1            | CKS6-325B1                        |
| SBT6-350B1               | 3 ½"        |                       |                |             | TPS6-350B1           | RS6-137B1            | CKS6-350B1                        |
| SBT6-375B3               | 3 ¾"        |                       |                | STS6-B3     | TPS6-375B3           | RS6-146B3            | CKS6-375B3                        |
| SBT6-400B3               | 4"          |                       |                |             | TPS6-400B3           | RS6-156B3            | CKS6-400B3                        |

**Note:** Remember to check bridge compatibility for SBT3, SBT4 and SBT6 models when ordering components.

**SBT | SPRING RETURN BOLT TENSIONERS - METRIC**

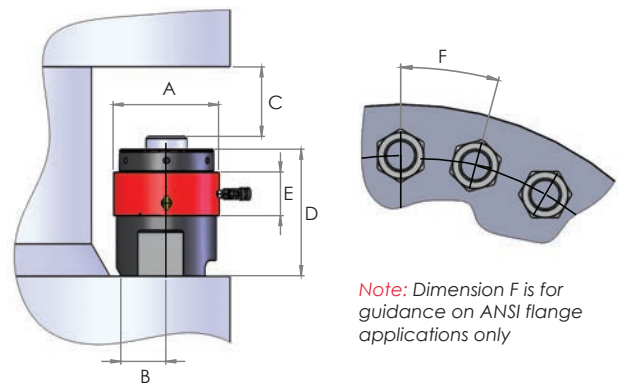


**Capacities from 51.4 to 297.6 tons**

**Bolt sizes from M30 to M100 diameter**

**Maximum working pressure 21750 psi**

- ▶ Single acting design with spring assisted piston retraction
- ▶ High grade alloy steel construction with nitrocarburized, corrosion resistant, piston
- ▶ Maximum stroke indicator to warn against piston over extension
- ▶ Safety over stroke device to protect operator from injury
- ▶ Self-energizing seals for improved performance and longevity at high pressure
- ▶ Dual quick connect inlet and outlet couplings for easy multiple tensioner connection
- ▶ Designed to fit most sizes of ANSI and API flanges and some Compact flanges
- ▶ Interchangeable accessories to cover multiple stud bolt sizes using same tensioner
- ▶ Non-standard size threaded pullers available to order on short delivery lead time
- ▶ Customized and special design tensioners are available on request



| Model number | Bolt thread size | Thread pitch | Capacity |      | Effective area (in <sup>2</sup> ) | Stroke (in) | Weight (lbs) | Dimensions (in) |      |         |       |      |      |
|--------------|------------------|--------------|----------|------|-----------------------------------|-------------|--------------|-----------------|------|---------|-------|------|------|
|              |                  |              | tons     | kN   |                                   |             |              | A               | B    | C (min) | D     | E    | F    |
| SBT2-M30B1   | M30              | 3.5          | 51.4     | 457  | 4.73                              | 0.59        | 8.8          | 4.02            | 1.54 | 5.2     | 6.46  | 3.59 | 2.8  |
| SBT2-M33B1   | M33              | 3.5          | 51.4     | 457  | 4.73                              | 0.59        | 8.8          | 4.02            | 1.54 | 5       | 6.46  | 3.59 | 2.92 |
| SBT2-M36B1   | M36              | 4            | 51.4     | 457  | 4.73                              | 0.59        | 8.8          | 4.02            | 1.54 | 4.85    | 6.46  | 3.59 | 3.03 |
| SBT2-M39B1   | M39              | 4            | 51.4     | 457  | 4.73                              | 0.59        | 8.8          | 4.02            | 1.54 | 4.85    | 6.46  | 3.59 | 3.15 |
| SBT3-M42B1   | M42              | 4.5          | 92.4     | 822  | 8.49                              | 0.59        | 14.8         | 5.4             | 1.85 | 5.71    | 7.41  | 3.7  | 3.59 |
| SBT3-M45B1   | M45              | 4.5          | 92.4     | 822  | 8.49                              | 0.59        | 14.8         | 5.4             | 1.85 | 5.59    | 7.41  | 3.7  | 4.14 |
| SBT3-M45B2   | M45              | 4.5          | 92.4     | 822  | 8.49                              | 0.59        | 14.8         | 5.4             | 1.85 | 5.79    | 7.6   | 3.7  | 3.82 |
| SBT3-M48B1   | M48              | 5            | 92.4     | 822  | 8.49                              | 0.59        | 14.8         | 5.4             | 1.85 | 5.48    | 7.41  | 3.7  | 4.14 |
| SBT3-M48B2   | M48              | 5            | 92.4     | 822  | 8.49                              | 0.59        | 14.8         | 5.4             | 1.85 | 5.67    | 7.6   | 3.7  | 4.14 |
| SBT3-M52B2   | M52              | 5            | 92.4     | 822  | 8.49                              | 0.59        | 14.8         | 5.4             | 1.85 | 5.52    | 7.6   | 3.7  | 3.82 |
| SBT4-M48B1   | M48              | 5            | 142.1    | 1264 | 13.07                             | 0.59        | 24.3         | 6.58            | 1.97 | 5.91    | 7.76  | 3.82 | 4.14 |
| SBT4-M52B1   | M52              | 5            | 142.1    | 1264 | 13.07                             | 0.59        | 24.3         | 6.58            | 1.97 | 5.71    | 7.76  | 3.82 | 4.26 |
| SBT4-M52B2   | M52              | 5            | 142.1    | 1264 | 13.07                             | 0.59        | 24.3         | 6.58            | 2.44 | 6.3     | 8.39  | 3.82 | 4.73 |
| SBT4-M56B2   | M56              | 5.5          | 142.1    | 1264 | 13.07                             | 0.59        | 24.3         | 6.58            | 2.44 | 6.11    | 8.39  | 3.82 | 4.73 |
| SBT4-M60B2   | M60              | 5.5          | 142.1    | 1264 | 13.07                             | 0.59        | 24.3         | 6.58            | 2.44 | 5.91    | 8.39  | 3.82 | 4.89 |
| SBT4-M64B2   | M64              | 6            | 142.1    | 1264 | 13.07                             | 0.59        | 24.3         | 6.58            | 2.44 | 5.71    | 8.39  | 3.82 | 4.96 |
| SBT5-M64B1   | M64              | 6            | 206      | 1833 | 18.94                             | 0.59        | 36.4         | 8.23            | 2.88 | 6.46    | 9.02  | 4.02 | 5.28 |
| SBT5-M68B1   | M68              | 6            | 206      | 1833 | 18.94                             | 0.59        | 36.4         | 8.23            | 2.88 | 6.26    | 9.02  | 4.02 | 5.36 |
| SBT5-M72B1   | M72              | 6            | 206      | 1833 | 18.94                             | 0.59        | 36.4         | 8.23            | 2.88 | 6.15    | 9.02  | 4.02 | 5.48 |
| SBT5-M76B1   | M76              | 6            | 206      | 1833 | 18.94                             | 0.59        | 36.4         | 8.23            | 2.88 | 5.87    | 9.02  | 4.02 | 5.59 |
| SBT6-M76B1   | M76              | 6            | 297.6    | 2649 | 27.37                             | 0.59        | 52.9         | 9.69            | 3.31 | 6.93    | 10.01 | 4.06 | 6.23 |
| SBT6-M80B1   | M80              | 6            | 297.6    | 2649 | 27.37                             | 0.59        | 52.9         | 9.69            | 3.31 | 6.78    | 10.01 | 4.06 | 6.3  |
| SBT6-M85B1   | M85              | 6            | 297.6    | 2649 | 27.37                             | 0.59        | 52.9         | 9.69            | 3.31 | 6.66    | 10.01 | 4.06 | 6.38 |
| SBT6-M90B1   | M90              | 6            | 297.6    | 2649 | 27.37                             | 0.59        | 52.9         | 9.69            | 3.31 | 6.38    | 10.01 | 4.06 | 6.7  |
| SBT6-M95B3   | M95              | 6            | 297.6    | 2649 | 27.37                             | 0.59        | 65.3         | 9.69            | 3.78 | 7.64    | 11.62 | 4.06 | 7.25 |
| SBT6-M100B3  | M100             | 6            | 297.6    | 2649 | 27.37                             | 0.59        | 65.3         | 9.69            | 3.78 | 7.45    | 11.62 | 4.06 | 7.49 |

*Note: Weight is for load cell and bridge only. Total weight of complete assembly depends on size of puller and nut rotating socket selected. Tommy bars are not included. Hi-Force recommends one tommy bar for every four tensioners.*

## SBT | BOLT TENSIONER COMPONENTS - METRIC



Use with SBT Metric Spring Return Tensioners

Modular design for greater flexibility

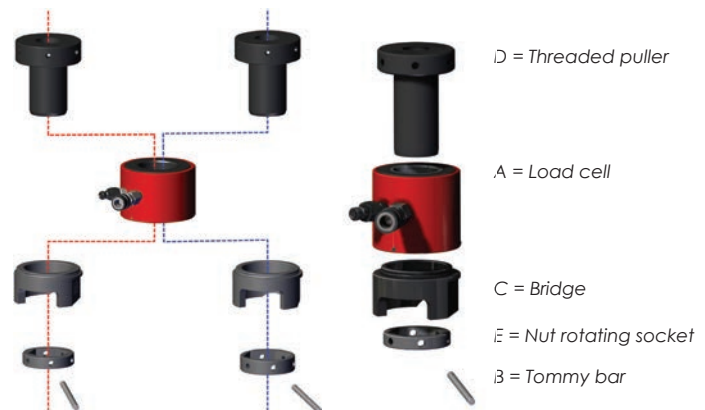
Versatile cost effective option

- Modify existing SBT tensioner assembly to another thread size, within the tensioner range
- All components or selected conversion kits must have the same suffix as the target tensioner size

Examples:

- To change from SBT3-M42B1 to SBT3-M48B1 would require conversion kit CKS3-M48B1 only.
- To change from SBT3-M48B1 to SBT3-M52B2 would require conversion kit CKS3-M52B2 and bridge STS3-B2.

Principle of SBT Spring Return Bolt Tensioner



- Denotes smaller bridge size within tensioner range
- Denotes larger bridge size within tensioner range
- Denotes one bridge size within tensioner range

DO NOT mix components from different colour lines, SBT2 & SBT5 models have only one size of tensioner bridge (B1)

| Complete tensioner       |             | Individual components |                |             |                      |                      | D&E                        |
|--------------------------|-------------|-----------------------|----------------|-------------|----------------------|----------------------|----------------------------|
| Model number             | Bolt thread | A<br>Load cell        | B<br>Tommy bar | C<br>Bridge | D<br>Threaded puller | E<br>Rotating socket | Complete<br>conversion kit |
| For tensioner range SBT2 |             |                       |                |             |                      |                      |                            |
| SBT2-M30B1               | M30         | SBT2-LC               | TTB08          | STS2-B1     | TPS2-M30B1           | RS2-46B1             | CKS2-M30B1                 |
| SBT2-M33B1               | M33         |                       |                |             | TPS2-M33B1           | RS2-51B1             | CKS2-M33B1                 |
| SBT2-M36B1               | M36         |                       |                |             | TPS2-M36B1           | RS2-56B1             | CKS2-M36B1                 |
| SBT2-M39B1               | M39         |                       |                |             | TPS2-M39B1           | RS2-60B1             | CKS2-M39B1                 |
| For tensioner range SBT3 |             |                       |                |             |                      |                      |                            |
| SBT3-M42B1               | M42         | SBT3-LC               | TTB10          | STS3-B1     | TPS3-M42B1           | RS3-65B1             | CKS3-M42B1                 |
| SBT3-M45B1               | M45         |                       |                |             | TPS3-M45B1           | RS3-70B1             | CKS3-M45B1                 |
| SBT3-M48B1               | M48         |                       |                |             | TPS3-M48B1           | RS3-75B1             | CKS3-M48B1                 |
| SBT3-M45B2               | M45         |                       |                | STS3-B2     | TPS3-M45B2           | RS3-70B2             | CKS3-M45B2                 |
| SBT3-M48B2               | M48         |                       |                |             | TPS3-M48B2           | RS3-75B2             | CKS3-M48B2                 |
| SBT3-M52B2               | M52         |                       |                |             | TPS3-M52B2           | RS3-80B2             | CKS3-M52B2                 |
| For tensioner range SBT4 |             |                       |                |             |                      |                      |                            |
| SBT4-M48B1               | M48         | SBT4-LC               | TTB10          | STS4-B1     | TPS4-M48B1           | RS4-75B1             | CKS4-M48B1                 |
| SBT4-M52B1               | M52         |                       |                |             | TPS4-M52B1           | RS4-80B1             | CKS4-M52B1                 |
| SBT4-M52B2               | M52         |                       |                | STS4-B2     | TPS4-M52B2           | RS4-80B2             | CKS4-M52B2                 |
| SBT4-M56B2               | M56         |                       |                |             | TPS4-M56B2           | RS4-85B2             | CKS4-M56B2                 |
| SBT4-M60B2               | M60         |                       |                |             | TPS4-M60B2           | RS4-90B2             | CKS4-M60B2                 |
| SBT4-M64B2               | M64         |                       |                |             | TPS4-M64B2           | RS4-95B2             | CKS4-M64B2                 |
| For tensioner range SBT5 |             |                       |                |             |                      |                      |                            |
| SBT5-M64B1               | M64         | SBT5-LC               | TTB14          | STS5-B1     | TPS5-M64B1           | RS5-95B1             | CKS5-M64B1                 |
| SBT5-M68B1               | M68         |                       |                |             | TPS5-M68B1           | RS5-100B1            | CKS5-M68B1                 |
| SBT5-M72B1               | M72         |                       |                |             | TPS5-M72B1           | RS5-105B1            | CKS5-M72B1                 |
| SBT5-M76B1               | M76         |                       |                |             | TPS5-M76B1           | RS5-110B1            | CKS5-M76B1                 |
| For tensioner range SBT6 |             |                       |                |             |                      |                      |                            |
| SBT6-M76B1               | M76         | SBT6-LC               | TTB14          | STS6-B1     | TPS6-M76B1           | RS6-110B1            | CKS6-M76B1                 |
| SBT6-M80B1               | M80         |                       |                |             | TPS6-M80B1           | RS6-115B1            | CKS6-M80B1                 |
| SBT6-M85B1               | M85         |                       |                |             | TPS6-M85B1           | RS6-120B1            | CKS6-M85B1                 |
| SBT6-M90B1               | M90         |                       |                | STS6-B3     | TPS6-M90B1           | RS6-130B1            | CKS6-M90B1                 |
| SBT6-M95B3               | M95         |                       |                |             | TPS6-M95B3           | RS6-135B3            | CKS6-M95B3                 |
| SBT6-M100B3              | M100        |                       |                |             | TPS6-M100B3          | RS6-146B3            | CKS6-M100B3                |

Note: Remember to check bridge compatibility for SBT3, SBT4 and SBT6 models when ordering components.

**STS | TOPSIDE BOLT TENSIONERS - IMPERIAL**

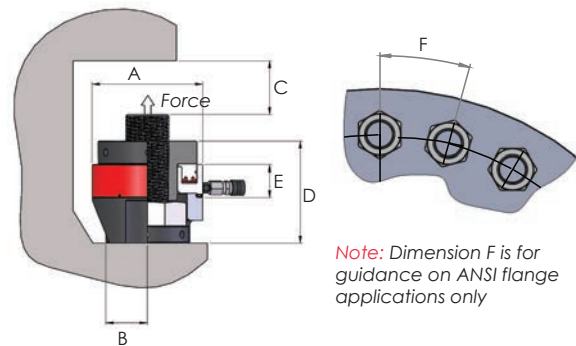


**Capacities from 26.3 to 297.6 tons**

**Bolt sizes from 3/4" to 4" diameter**

**Maximum working pressure 21750 psi**

- ▶ Single acting design with manual piston retraction
- ▶ High grade alloy steel construction with nitrocarburized, corrosion resistant, piston
- ▶ Maximum stroke indicator to warn against piston over extension
- ▶ Self-energizing seals for improved performance and longevity of use at high pressure
- ▶ Dual quick connect inlet and outlet couplers for easy multiple tensioner connection
- ▶ Designed to fit most sizes of ANSI and API flanges and some Compact flanges
- ▶ Interchangeable accessories to cover multiple stud bolt sizes using same tensioner
- ▶ Non-standard size threaded pullers available to order on short delivery lead time
- ▶ Customized and special design tensioners are available on request



| Model number | Bolt thread size | Threads per inch | Capacity tons | Capacity kN | Effective area (in <sup>2</sup> ) | Stroke (in) | Weight (lbs) | Dimensions (in) |      |         |       |      |      |
|--------------|------------------|------------------|---------------|-------------|-----------------------------------|-------------|--------------|-----------------|------|---------|-------|------|------|
|              |                  |                  |               |             |                                   |             |              | A               | B    | C (min) | D     | E    | F    |
| STS1-075B1   | 3/4"             | 10               | 26.3          | 234         | 2.42                              | 0.39        | 3.7          | 2.92            | 1.1  | 2.92    | 3.55  | 1.77 | 2.01 |
| STS1-087B1   | 7/8"             | 9                | 26.3          | 234         | 2.42                              | 0.39        | 3.7          | 2.92            | 1.1  | 2.92    | 3.55  | 1.77 | 2.13 |
| STS1-100B2   | 1"               | 8                | 26.3          | 234         | 2.42                              | 0.39        | 3.7          | 2.92            | 1.18 | 3.15    | 3.86  | 1.77 | 2.4  |
| STS1-112B2   | 1 1/8"           | 8                | 26.3          | 234         | 2.42                              | 0.39        | 3.7          | 2.92            | 1.18 | 3.15    | 3.86  | 1.77 | 2.52 |
| STS2-125B1   | 1 1/4"           | 8                | 51.4          | 457         | 4.73                              | 0.59        | 7.7          | 4.02            | 1.54 | 4.06    | 5.04  | 2.13 | 2.92 |
| STS2-137B1   | 1 3/8"           | 8                | 51.4          | 457         | 4.73                              | 0.59        | 7.7          | 4.02            | 1.54 | 4.06    | 5.04  | 2.13 | 3.03 |
| STS2-150B1   | 1 1/2"           | 8                | 51.4          | 457         | 4.73                              | 0.59        | 7.7          | 4.02            | 1.54 | 4.06    | 5.04  | 2.13 | 3.15 |
| STS3-162B1   | 1 5/8"           | 8                | 92.4          | 822         | 8.49                              | 0.59        | 13.4         | 5.24            | 1.85 | 4.53    | 5.91  | 2.21 | 3.62 |
| STS3-175B1   | 1 3/4"           | 8                | 92.4          | 822         | 8.49                              | 0.59        | 13.4         | 5.24            | 1.85 | 4.53    | 5.91  | 2.21 | 3.66 |
| STS3-175B2   | 1 3/4"           | 8                | 92.4          | 822         | 8.49                              | 0.59        | 13.4         | 5.24            | 1.97 | 4.61    | 6.11  | 2.21 | 4.1  |
| STS3-187B1   | 1 7/8"           | 8                | 92.4          | 822         | 8.49                              | 0.59        | 13.4         | 5.24            | 1.85 | 4.53    | 5.91  | 2.21 | 3.82 |
| STS3-187B2   | 1 7/8"           | 8                | 92.4          | 822         | 8.49                              | 0.59        | 13.9         | 5.24            | 1.97 | 4.61    | 6.11  | 2.21 | 4.1  |
| STS3-200B2   | 2"               | 8                | 92.4          | 822         | 8.49                              | 0.59        | 13.9         | 5.24            | 1.97 | 4.61    | 6.11  | 2.21 | 4.1  |
| STS4-187B1   | 1 7/8"           | 8                | 142.1         | 1264        | 13.07                             | 0.59        | 23.4         | 6.42            | 1.97 | 4.69    | 5.87  | 2.25 | 4.1  |
| STS4-200B1   | 2"               | 8                | 142.1         | 1264        | 13.07                             | 0.59        | 23.4         | 6.42            | 1.97 | 4.69    | 5.87  | 2.25 | 4.1  |
| STS4-200B2   | 2"               | 8                | 142.1         | 1264        | 13.07                             | 0.59        | 26.0         | 6.42            | 2.44 | 4.69    | 5.87  | 2.25 | 4.18 |
| STS4-225B2   | 2 1/4"           | 8                | 142.1         | 1264        | 13.07                             | 0.59        | 26.0         | 6.42            | 2.44 | 5.32    | 6.5   | 2.25 | 4.77 |
| STS4-250B2   | 2 1/2"           | 8                | 142.1         | 1264        | 13.07                             | 0.59        | 23.4         | 6.42            | 2.44 | 5.32    | 6.5   | 2.25 | 5    |
| STS5-250B1   | 2 1/2"           | 8                | 206           | 1833        | 18.94                             | 0.59        | 35.3         | 7.6             | 2.88 | 5.71    | 7.37  | 2.36 | 5.28 |
| STS5-275B1   | 2 3/4"           | 8                | 206           | 1833        | 18.94                             | 0.59        | 35.3         | 7.6             | 2.88 | 5.71    | 7.37  | 2.36 | 5.52 |
| STS5-300B1   | 3"               | 8                | 206           | 1833        | 18.94                             | 0.59        | 35.3         | 7.6             | 2.88 | 5.71    | 7.37  | 2.36 | 5.79 |
| STS6-300B1   | 3"               | 8                | 297.6         | 2649        | 27.37                             | 0.59        | 51.8         | 9.18            | 3.31 | 7.01    | 8.51  | 2.52 | 6.34 |
| STS6-325B1   | 3 1/4"           | 8                | 297.6         | 2649        | 27.37                             | 0.59        | 51.8         | 9.18            | 3.31 | 7.01    | 8.51  | 2.52 | 6.58 |
| STS6-350B1   | 3 1/2"           | 8                | 297.6         | 2649        | 27.37                             | 0.59        | 51.8         | 9.18            | 3.31 | 7.01    | 8.51  | 2.52 | 6.78 |
| STS6-375B3   | 3 3/4"           | 8                | 297.6         | 2649        | 27.37                             | 0.59        | 64.2         | 9.18            | 4.14 | 8.08    | 10.13 | 2.52 | 7.53 |
| STS6-400B3   | 4"               | 8                | 297.6         | 2649        | 27.37                             | 0.59        | 64.2         | 9.18            | 4.14 | 8.08    | 10.13 | 2.52 | 7.72 |

**Note:** Weight is for load cell and bridge only. Total weight of complete assembly depends on size of puller and nut rotating socket selected. Tommy bars are not included. Hi-Force recommends one tommy bar for every four tensioners.



## STS | BOLT TENSIONER COMPONENTS - IMPERIAL



Use with STS Imperial Tensioners

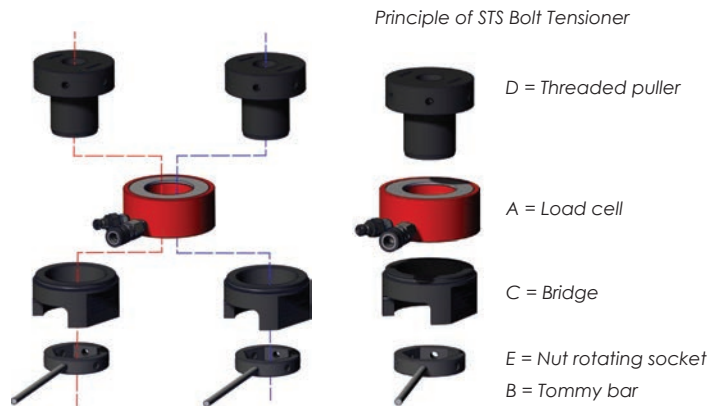
Modular design for greater flexibility

Versatile cost effective option

- Modify existing STS tensioner assembly to another thread size, within the tensioner range
- All components or selected conversion kits must have the same suffix as the target tensioner size

Examples:

- To change from STS3-162B1 to STS3-187B1 would require conversion kit CK3-187B1 only.
- To change from STS3-187B1 to STS3-200B2 would require conversion kit CK3-200B2 and bridge STS3-B2.



- Denotes smaller bridge size within tensioner range
- Denotes larger bridge size within tensioner range
- Denotes one bridge size within tensioner range

DO NOT mix components from different colour lines, STS2 & STS5 models have only one size of tensioner bridge (B1)

| Complete tensioner       |             | Individual components |             |          |                   |                   | D&E Complete conversion kit |
|--------------------------|-------------|-----------------------|-------------|----------|-------------------|-------------------|-----------------------------|
| Model number             | Bolt thread | A Load cell           | B Tommy bar | C Bridge | D Threaded puller | E Rotating socket |                             |
| For tensioner range STS1 |             |                       |             |          |                   |                   |                             |
| STS1-075B1               | ¾"          | STS1-LC               | TTB06       | STS1-B1  | TP1-075B1         | RS1-32B1          | CK1-075B1                   |
| STS1-087B1               | ⅞"          |                       |             |          | TP1-087B1         | RS1-37B1          | CK1-087B1                   |
| STS1-100B2               | 1"          |                       |             | STS1-B2  | TP1-100B2         | RS1-41B2          | CK1-100B2                   |
| STS1-112B2               | 1 ⅛"        |                       |             |          | TP1-112B2         | RS1-46B2          | CK1-112B2                   |
| For tensioner range STS2 |             |                       |             |          |                   |                   |                             |
| STS2-125B1               | 1 ¼"        | STS2-LC               | TTB08       | STS2-B1  | TP2-125B1         | RS2-51B1          | CK2-125B1                   |
| STS2-137B1               | 1 ⅜"        |                       |             |          | TP2-137B1         | RS2-56B1          | CK2-137B1                   |
| STS2-150B1               | 1 ½"        |                       |             |          | TP2-150B1         | RS2-60B1          | CK2-150B1                   |
| For tensioner range STS3 |             |                       |             |          |                   |                   |                             |
| STS3-162B1               | 1 ⅝"        | STS3-LC               | TTB10       | STS3-B1  | TP3-162B1         | RS3-65B1          | CK3-162B1                   |
| STS3-175B1               | 1 ¾"        |                       |             |          | TP3-175B1         | RS3-70B1          | CK3-175B1                   |
| STS3-187B1               | 1 ⅞"        |                       |             |          | TP3-187B1         | RS3-75B1          | CK3-187B1                   |
| STS3-175B2               | 1 ¾"        |                       |             | STS3-B2  | TP3-175B2         | RS3-70B2          | CK3-175B2                   |
| STS3-187B2               | 1 ⅞"        |                       |             |          | TP3-187B2         | RS3-75B2          | CK3-187B2                   |
| STS3-200B2               | 2"          |                       |             |          | TP3-200B2         | RS3-80B2          | CK3-200B2                   |
| For tensioner range STS4 |             |                       |             |          |                   |                   |                             |
| STS4-187B1               | 1 ⅞"        | STS4-LC               | TTB10       | STS4-B1  | TP4-187B1         | RS4-75B1          | CK4-187B1                   |
| STS4-200B1               | 2"          |                       |             |          | TP4-200B1         | RS4-80B1          | CK4-200B1                   |
| STS4-200B2               | 2"          |                       |             | STS4-B2  | TP4-200B2         | RS4-80B2          | CK4-200B2                   |
| STS4-225B2               | 2 ¼"        |                       |             |          | TP4-225B2         | RS4-90B2          | CK4-225B2                   |
| STS4-250B2               | 2 ½"        |                       |             |          | TP4-250B2         | RS4-98B2          | CK4-250B2                   |
| For tensioner range STS5 |             |                       |             |          |                   |                   |                             |
| STS5-250B1               | 2 ½"        | STS5-LC               | TTB14       | STS5-B1  | TP5-250B1         | RS5-100B1         | CK5-250B1                   |
| STS5-275B1               | 2 ¾"        |                       |             |          | TP5-275B1         | RS5-108B1         | CK5-275B1                   |
| STS5-300B1               | 3"          |                       |             |          | TP5-300B1         | RS5-118B1         | CK5-300B1                   |
| For tensioner range STS6 |             |                       |             |          |                   |                   |                             |
| STS6-300B1               | 3"          | STS6-LC               | TTB14       | STS6-B1  | TP6-300B1         | RS6-118B1         | CK6-300B1                   |
| STS6-325B1               | 3 ¼"        |                       |             |          | TP6-325B1         | RS6-127B1         | CK6-325B1                   |
| STS6-350B1               | 3 ½"        |                       |             |          | TP6-350B1         | RS6-137B1         | CK6-350B1                   |
| STS6-375B3               | 3 ¾"        |                       |             | STS6-B3  | TP6-375B3         | RS6-146B3         | CK6-375B3                   |
| STS6-400B3               | 4"          |                       |             |          | TP6-400B3         | RS6-156B3         | CK6-400B3                   |

Note: Remember to check bridge compatibility for STS1, STS3, STS4 and STS6 models when ordering components.

**STS | TOPSIDE BOLT TENSIONERS - METRIC**

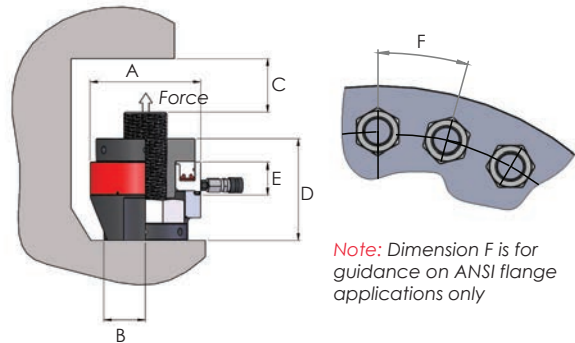


**Capacities from 26.3 to 297.6 tons**

**Bolt sizes from M16 to M100 diameter**

**Maximum working pressure 21750 psi**

- ▶ Single acting design with manual piston retraction
- ▶ High grade alloy steel construction with nitrocarburized, corrosion resistant, piston
- ▶ Maximum stroke indicator to warn against piston over extension
- ▶ Self-energizing seals for improved performance and longevity of use at high pressure
- ▶ Dual quick connect inlet and outlet couplers for easy multiple tensioner connection
- ▶ Designed to fit most sizes of ANSI and API flanges and some Compact flanges
- ▶ Interchangeable accessories to cover multiple stud bolt sizes using same tensioner
- ▶ Non-standard size threaded pullers available to order on short delivery lead time
- ▶ Customized and special design tensioners are available on request



| Model number | Bolt thread size | Thread pitch | Capacity tons | kN   | Effective area (in <sup>2</sup> ) | Stroke (in) | Weight (lbs) | Dimensions (in) |      |         |       |      |      |
|--------------|------------------|--------------|---------------|------|-----------------------------------|-------------|--------------|-----------------|------|---------|-------|------|------|
|              |                  |              |               |      |                                   |             |              | A               | B    | C (min) | D     | E    | F    |
| STS1-M16B1   | M16              | 2            | 26.3          | 234  | 2.42                              | 0.39        | 3.7          | 2.92            | 1.1  | 2.92    | 3.55  | 1.77 | 1.85 |
| STS1-M18B1   | M18              | 2.5          | 26.3          | 234  | 2.42                              | 0.39        | 3.7          | 2.92            | 1.1  | 2.92    | 3.55  | 1.77 | 1.93 |
| STS1-M20B1   | M20              | 2.5          | 26.3          | 234  | 2.42                              | 0.39        | 3.7          | 2.92            | 1.1  | 2.92    | 3.55  | 1.77 | 2.01 |
| STS1-M22B2   | M22              | 2.5          | 26.3          | 234  | 2.42                              | 0.39        | 4.2          | 2.92            | 1.18 | 3.15    | 3.86  | 1.77 | 2.21 |
| STS1-M24B2   | M24              | 3            | 26.3          | 234  | 2.42                              | 0.39        | 4.2          | 2.92            | 1.18 | 3.15    | 3.86  | 1.77 | 2.32 |
| STS1-M27B2   | M27              | 3            | 26.3          | 234  | 2.42                              | 0.39        | 4.2          | 2.92            | 1.18 | 3.15    | 3.86  | 1.77 | 2.4  |
| STS2-M30B1   | M30              | 3.5          | 51.4          | 457  | 4.73                              | 0.59        | 7.7          | 4.02            | 1.54 | 4.06    | 5.04  | 2.13 | 2.8  |
| STS2-M33B1   | M33              | 3.5          | 51.4          | 457  | 4.73                              | 0.59        | 7.7          | 4.02            | 1.54 | 4.06    | 5.04  | 2.13 | 2.92 |
| STS2-M36B1   | M36              | 4            | 51.4          | 457  | 4.73                              | 0.59        | 7.7          | 4.02            | 1.54 | 4.06    | 5.04  | 2.13 | 3.03 |
| STS2-M39B1   | M39              | 4            | 51.4          | 457  | 4.73                              | 0.59        | 7.7          | 4.02            | 1.54 | 4.06    | 5.04  | 2.13 | 3.15 |
| STS3-M42B1   | M42              | 4.5          | 92.4          | 822  | 8.49                              | 0.59        | 13.4         | 5.24            | 1.85 | 4.53    | 5.91  | 2.21 | 3.59 |
| STS3-M45B1   | M45              | 4.5          | 92.4          | 822  | 8.49                              | 0.59        | 13.4         | 5.24            | 1.85 | 4.53    | 5.91  | 2.21 | 3.7  |
| STS3-M45B2   | M45              | 4.5          | 92.4          | 822  | 8.49                              | 0.59        | 13.9         | 5.24            | 1.97 | 4.61    | 6.11  | 2.21 | 4.14 |
| STS3-M48B1   | M48              | 5            | 92.4          | 822  | 8.49                              | 0.59        | 13.4         | 5.24            | 1.85 | 4.53    | 5.91  | 2.21 | 3.82 |
| STS3-M48B2   | M48              | 5            | 92.4          | 822  | 8.49                              | 0.59        | 13.9         | 5.24            | 1.97 | 4.61    | 6.11  | 2.21 | 4.14 |
| STS3-M52B2   | M52              | 5            | 92.4          | 822  | 8.49                              | 0.59        | 13.9         | 5.24            | 1.97 | 4.61    | 6.11  | 2.21 | 4.14 |
| STS4-M48B1   | M48              | 5            | 142.1         | 1264 | 13.07                             | 0.59        | 23.4         | 6.42            | 1.97 | 4.69    | 5.87  | 2.25 | 4.14 |
| STS4-M52B1   | M52              | 5            | 142.1         | 1264 | 13.07                             | 0.59        | 23.4         | 6.42            | 1.97 | 4.69    | 5.87  | 2.25 | 4.26 |
| STS4-M52B2   | M52              | 5            | 142.1         | 1264 | 13.07                             | 0.59        | 26.0         | 6.42            | 2.44 | 5.32    | 6.5   | 2.25 | 4.73 |
| STS4-M56B2   | M56              | 5.5          | 142.1         | 1264 | 13.07                             | 0.59        | 26.0         | 6.42            | 2.44 | 5.32    | 6.5   | 2.25 | 4.73 |
| STS4-M60B2   | M60              | 5.5          | 142.1         | 1264 | 13.07                             | 0.59        | 26.0         | 6.42            | 2.44 | 5.32    | 6.5   | 2.25 | 4.89 |
| STS4-M64B2   | M64              | 6            | 142.1         | 1264 | 13.07                             | 0.59        | 26.0         | 6.42            | 2.44 | 5.32    | 6.5   | 2.25 | 4.96 |
| STS5-M64B1   | M64              | 6            | 206           | 1833 | 18.94                             | 0.59        | 35.3         | 7.6             | 2.88 | 5.71    | 7.37  | 2.36 | 5.28 |
| STS5-M68B1   | M68              | 6            | 206           | 1833 | 18.94                             | 0.59        | 35.3         | 7.6             | 2.88 | 5.71    | 7.37  | 2.36 | 5.36 |
| STS5-M72B1   | M72              | 6            | 206           | 1833 | 18.94                             | 0.59        | 35.3         | 7.6             | 2.88 | 5.71    | 7.37  | 2.36 | 5.48 |
| STS5-M76B1   | M76              | 6            | 206           | 1833 | 18.94                             | 0.59        | 35.3         | 7.6             | 2.88 | 5.71    | 7.37  | 2.36 | 5.59 |
| STS6-M76B1   | M76              | 6            | 297.6         | 2649 | 27.37                             | 0.59        | 51.8         | 9.18            | 3.31 | 7.01    | 8.51  | 2.52 | 6.23 |
| STS6-M80B1   | M80              | 6            | 297.6         | 2649 | 27.37                             | 0.59        | 51.8         | 9.18            | 3.31 | 7.01    | 8.51  | 2.52 | 6.3  |
| STS6-M85B1   | M85              | 6            | 297.6         | 2649 | 27.37                             | 0.59        | 51.8         | 9.18            | 3.31 | 7.01    | 8.51  | 2.52 | 6.38 |
| STS6-M90B1   | M90              | 6            | 297.6         | 2649 | 27.37                             | 0.59        | 51.8         | 9.18            | 3.31 | 7.01    | 8.51  | 2.52 | 6.7  |
| STS6-M95B3   | M95              | 6            | 297.6         | 2649 | 27.37                             | 0.59        | 64.2         | 9.18            | 4.14 | 8.08    | 10.13 | 2.52 | 7.25 |
| STS6-M100B3  | M100             | 6            | 297.6         | 2649 | 27.37                             | 0.59        | 64.2         | 9.18            | 4.14 | 8.08    | 10.13 | 2.52 | 7.49 |

Note: Weight is for load cell and bridge only. Total weight of complete assembly depends on size of puller and nut rotating socket selected. Tommy bars are not included. Hi-Force recommends one tommy bar for every four tensioners.

## STS | BOLT TENSIONER COMPONENTS - METRIC



### Use with STS Metric Tensioners

### Modular design for greater flexibility

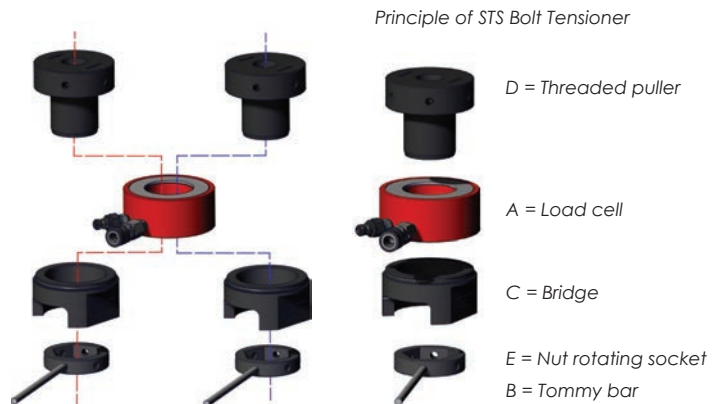
### Versatile cost saving option

- Modify existing STS tensioner assembly to another thread size, within the tensioner range
- All components or selected conversion kits must have the same suffix as the target tensioner size

Examples:

- To change from STS3-M42B1 to STS3-M48B1 would require conversion kit CK3-M48B1 only.
- To change from STS3-M48B1 to STS3-M52B2 would require conversion kit CK3-M52B2 and bridge STS3-B2.

- Denotes smaller bridge size within tensioner range
- Denotes larger bridge size within tensioner range
- Denotes one bridge size within tensioner range



DO NOT mix components from different colour lines, STS2 & STS5 models have only one size of tensioner bridge (B1)

| Complete tensioner       |             | Individual components |                |             |                      |                      | D&E                        |
|--------------------------|-------------|-----------------------|----------------|-------------|----------------------|----------------------|----------------------------|
| Model number             | Bolt thread | A<br>Load cell        | B<br>Tommy bar | C<br>Bridge | D<br>Threaded puller | E<br>Rotating socket | Complete<br>conversion kit |
| For tensioner range STS1 |             |                       |                |             |                      |                      |                            |
| STS1-M16B1               | M16         | STS1-LC               | TTB06          | STS1-B1     | TP1-M16B1            | RS1-24B1             | CK1-M16B1                  |
| STS1-M18B1               | M18         |                       |                |             | TP1-M18B1            | RS1-27B1             | CK1-M18B1                  |
| STS1-M20B1               | M20         |                       |                |             | TP1-M20B1            | RS1-30B1             | CK1-M20B1                  |
| STS1-M22B2               | M22         |                       |                | STS1-B2     | TP1-M22B2            | RS1-32B2             | CK1-M22B2                  |
| STS1-M24B2               | M24         |                       |                |             | TP1-M24B2            | RS1-37B2             | CK1-M24B2                  |
| STS1-M27B2               | M27         |                       |                |             | TP1-M27B2            | RS1-41B2             | CK1-M27B2                  |
| For tensioner range STS2 |             |                       |                |             |                      |                      |                            |
| STS2-M30B1               | M30         | STS2-LC               | TTB08          | STS2-B1     | TP2-M30B1            | RS2-46B1             | CK2-M30B1                  |
| STS2-M33B1               | M33         |                       |                |             | TP2-M33B1            | RS2-51B1             | CK2-M33B1                  |
| STS2-M36B1               | M36         |                       |                |             | TP2-M36B1            | RS2-56B1             | CK2-M36B1                  |
| STS2-M39B1               | M39         |                       |                |             | TP2-M39B1            | RS2-60B1             | CK2-M39B1                  |
| For tensioner range STS3 |             |                       |                |             |                      |                      |                            |
| STS3-M42B1               | M42         | STS3-LC               | TTB10          | STS3-B1     | TP3-M42B1            | RS3-65B1             | CK3-M42B1                  |
| STS3-M45B1               | M45         |                       |                |             | TP3-M45B1            | RS3-70B1             | CK3-M45B1                  |
| STS3-M48B1               | M48         |                       |                |             | TP3-M48B1            | RS3-75B1             | CK3-M48B1                  |
| STS3-M45B2               | M45         |                       |                | STS3-B2     | TP3-M45B2            | RS3-70B2             | CK3-M45B2                  |
| STS3-M48B2               | M48         |                       |                |             | TP3-M48B2            | RS3-75B2             | CK3-M48B2                  |
| STS3-M52B2               | M52         |                       |                |             | TP3-M52B2            | RS3-80B2             | CK3-M52B2                  |
| For tensioner range STS4 |             |                       |                |             |                      |                      |                            |
| STS4-M48B1               | M48         | STS4-LC               | TTB10          | STS4-B1     | TP4-M48B1            | RS4-75B1             | CK4-M48B1                  |
| STS4-M52B1               | M52         |                       |                |             | TP4-M52B1            | RS4-80B1             | CK4-M52B1                  |
| STS4-M52B2               | M52         |                       |                |             | TP4-M52B2            | RS4-80B2             | CK4-M52B2                  |
| STS4-M56B2               | M56         |                       |                | STS4-B2     | TP4-M56B2            | RS4-85B2             | CK4-M56B2                  |
| STS4-M60B2               | M60         |                       |                |             | TP4-M60B2            | RS4-90B2             | CK4-M60B2                  |
| STS4-M64B2               | M64         |                       |                |             | TP4-M64B2            | RS4-95B2             | CK4-M64B2                  |
| For tensioner range STS5 |             |                       |                |             |                      |                      |                            |
| STS5-M64B1               | M64         | STS5-LC               | TTB14          | STS5-B1     | TP5-M64B1            | RS5-95B1             | CK5-M64B1                  |
| STS5-M68B1               | M68         |                       |                |             | TP5-M68B1            | RS5-100B1            | CK5-M68B1                  |
| STS5-M72B1               | M72         |                       |                |             | TP5-M72B1            | RS5-105B1            | CK5-M72B1                  |
| STS5-M76B1               | M76         |                       |                |             | TP5-M76B1            | RS5-110B1            | CK5-M76B1                  |
| For tensioner range STS6 |             |                       |                |             |                      |                      |                            |
| STS6-M76B1               | M76         | STS6-LC               | TTB14          | STS6-B1     | TP6-M76B1            | RS6-110B1            | CK6-M76B1                  |
| STS6-M80B1               | M80         |                       |                |             | TP6-M80B1            | RS6-115B1            | CK6-M80B1                  |
| STS6-M85B1               | M85         |                       |                |             | TP6-M85B1            | RS6-120B1            | CK6-M85B1                  |
| STS6-M90B1               | M90         |                       |                | STS6-B3     | TP6-M90B1            | RS6-130B1            | CK6-M90B1                  |
| STS6-M95B3               | M95         |                       |                |             | TP6-M95B3            | RS6-135B3            | CK6-M95B3                  |
| STS6-M100B3              | M100        |                       |                |             | TP6-M100B3           | RS6-146B3            | CK6-M100B3                 |

Note: Remember to check bridge compatibility for STS1, STS3, STS4 and STS6 models when ordering components.

**STU | SUB-SEA BOLT TENSIONERS - IMPERIAL**

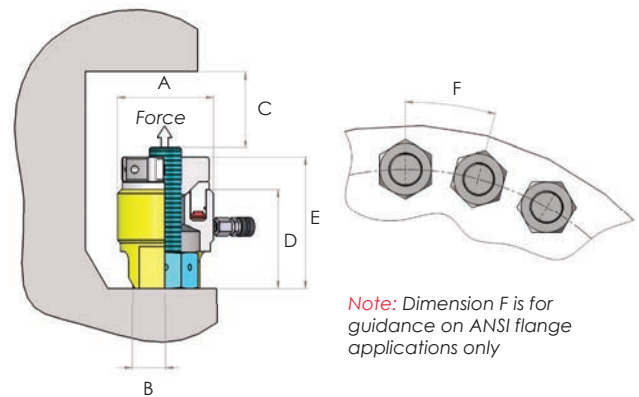


- ▶ Single acting design with manual piston retraction
- ▶ Manufactured from high grade alloy steel with added corrosion protection
- ▶ Extra-long piston stroke on all models, to save valuable diver time subsea
- ▶ Simple two piece design for easy operation by divers subsea
- ▶ Visible maximum stroke indicator to warn operator against piston over extension
- ▶ Safety over stroke device to protect operator from injury
- ▶ Self-energizing seals for improved performance and longevity of use at high pressure
- ▶ Dual quick connect inlet and outlet couplings for easy multiple tensioner connection
- ▶ Designed to fit most sizes of ANSI and API flanges and some Compact flanges
- ▶ Interchangeable quick fit pullers, to cover secondary bolt size, for each STU model, are available as accessories for even greater versatility (see table below)
- ▶ Customized and special design tensioners are available on request

**Capacities from 28.8 to 279 tons**

**Bolt sizes from 1" to 3 1/2" diameter**

**Maximum working pressure 21750 psi**



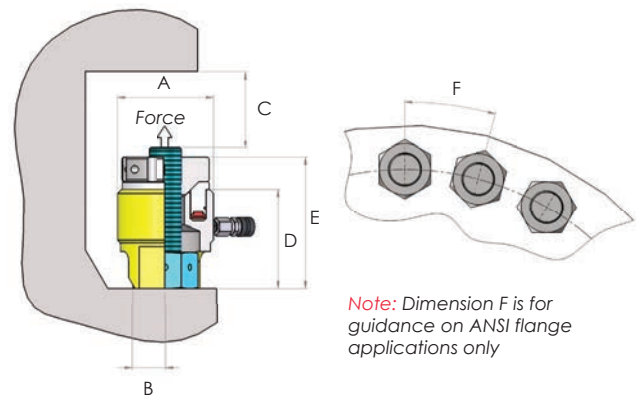
| Model number | Quick Fit Pullers | Bolt thread size | Capacity tons | Capacity kN | Effective area (in <sup>2</sup> ) | Stroke (in) | Weight (lbs) | Tommy bar | Dimensions (in) |      |      |      |       |      |
|--------------|-------------------|------------------|---------------|-------------|-----------------------------------|-------------|--------------|-----------|-----------------|------|------|------|-------|------|
|              |                   |                  |               |             |                                   |             |              |           | A               | B    | C    | D    | E     | F    |
| STU1-100     | QFP1-100          | 1"-8 UN          | 28.8          | 256         | 2.65                              | 0.79        | 7.5          | TTB06     | 3.23            | 0.87 | 4.69 | 4.69 | 5.52  | 2.4  |
| STU1-112     | QFP1-112          | 1 1/8"-8 UN      | 28.8          | 256         | 2.65                              | 0.79        | 7.5          | TTB06     | 3.23            | 0.87 | 4.69 | 4.69 | 5.52  | 2.52 |
| STU2-125     | QFP2-125          | 1 1/4"-8 UN      | 48.4          | 430         | 4.45                              | 1.18        | 13.2         | TTB08     | 4.02            | 1.18 | 5.52 | 5.52 | 6.46  | 2.88 |
| STU2-137     | QFP2-137          | 1 3/8"-8 UN      | 48.4          | 430         | 4.45                              | 1.18        | 13.2         | TTB08     | 4.02            | 1.18 | 5.52 | 5.52 | 6.46  | 2.96 |
| STU3-150     | QFP3-150          | 1 1/2"-8 UN      | 62.2          | 553         | 5.72                              | 1.18        | 16.5         | TTB10     | 4.49            | 1.38 | 5.59 | 5.59 | 6.66  | 3.23 |
| STU3-162     | QFP3-162          | 1 5/8"-8 UN      | 62.2          | 553         | 5.72                              | 1.18        | 16.5         | TTB10     | 4.49            | 1.38 | 5.59 | 5.59 | 6.66  | 3.35 |
| STU4-175     | QFP4-175          | 1 3/4"-8 UN      | 85            | 756         | 7.82                              | 1.18        | 21.6         | TTB10     | 5.04            | 1.62 | 5.95 | 5.95 | 7.13  | 3.7  |
| STU4-187     | QFP4-187          | 1 7/8"-8 UN      | 85            | 756         | 7.82                              | 1.18        | 21.6         | TTB10     | 5.04            | 1.62 | 5.95 | 5.95 | 7.13  | 3.86 |
| STU5-200     | QFP5-200          | 2"-8 UN          | 131.3         | 1168        | 12.07                             | 1.18        | 32.0         | TTB12     | 5.91            | 1.89 | 6.46 | 6.46 | 7.96  | 4.41 |
| STU5-225     | QFP5-225          | 2 1/4"-8 UN      | 131.3         | 1168        | 12.07                             | 1.18        | 32.0         | TTB12     | 5.91            | 1.89 | 6.46 | 6.46 | 7.96  | 4.57 |
| STU6-250     | QFP6-250          | 2 1/2"-8 UN      | 185.3         | 1649        | 17.04                             | 1.18        | 50.3         | TTB14     | 6.93            | 2.36 | 7.21 | 7.21 | 9.1   | 5.36 |
| STU6-275     | QFP6-275          | 2 3/4"-8 UN      | 185.3         | 1649        | 17.04                             | 1.18        | 50.3         | TTB14     | 6.93            | 2.36 | 7.21 | 7.21 | 9.1   | 5.56 |
| STU7-300     | QFP7-300          | 3"-8 UN          | 279           | 2483        | 25.66                             | 1.18        | 78.5         | TTB16     | 8.47            | 3.51 | 8.47 | 8.47 | 10.24 | 6.38 |
| STU7-325     | QFP7-325          | 3 1/4"-8 UN      | 279           | 2483        | 25.66                             | 1.18        | 78.5         | TTB16     | 8.47            | 3.51 | 8.47 | 8.47 | 10.24 | 6.82 |
| STU7-350     | QFP7-350          | 3 1/2"-8 UN      | 279           | 2483        | 25.66                             | 1.18        | 78.5         | TTB16     | 8.47            | 3.51 | 8.47 | 8.47 | 10.24 | 6.9  |

**Note:** Tommy bars are not included. Hi-Force recommends one tommy bar for every four tensioners. Please note that the tommy bar listed will fit related quick fit puller; a different size may be required for the drilled hexagon nut.

**STU | SUB-SEA BOLT TENSIONERS - METRIC**

**Capacities from 28.8 to 279 tons**
**Bolt sizes from M24 to M90 diameter**
**Maximum working pressure 21750 psi**

- ▶ Single acting design with manual piston retraction
- ▶ Manufactured from high grade alloy steel with added corrosion protection
- ▶ Extra-long piston stroke on all models, to save valuable diver time
- ▶ Simple two piece design for easy operation by divers subsea
- ▶ Visible maximum stroke indicator to warn operator against piston over extension
- ▶ Safety over stroke device to protect operator from injury
- ▶ Self-energizing seals for improved performance and longevity of use at high pressure
- ▶ Dual quick connect inlet and outlet couplings for easy multiple tensioner connection
- ▶ Designed to fit most sizes of ANSI and API flanges and some Compact flanges
- ▶ Interchangeable quick fit pullers, to cover multiple bolt sizes, for each STU model, are available as accessories for even greater versatility (see table below)
- ▶ Customized and special design tensioners are available on request



| Model number | Quick Fit Pullers | Bolt thread size | Capacity tons | Capacity kN | Effective area (in²) | Stroke (in) | Weight (lbs) | Tommy bar | Dimensions (in) |      |      |      |       |      |
|--------------|-------------------|------------------|---------------|-------------|----------------------|-------------|--------------|-----------|-----------------|------|------|------|-------|------|
|              |                   |                  |               |             |                      |             |              |           | A               | B    | C    | D    | E     | F    |
| STU1-24      | QFP1-24           | M24x3            | 28.8          | 256         | 2.65                 | 0.79        | 7.5          | TTB06     | 3.23            | 0.87 | 4.69 | 4.69 | 5.52  | 2.4  |
| STU1-27      | QFP1-27           | M27x3            | 28.8          | 256         | 4.45                 | 1.18        | 13.2         | TTB06     | 3.23            | 0.87 | 4.69 | 4.69 | 5.52  | 2.52 |
| STU2-30      | QFP2-30           | M30x3.5          | 48.4          | 430         | 4.45                 | 1.18        | 13.2         | TTB08     | 4.02            | 1.18 | 5.52 | 5.52 | 6.46  | 2.88 |
| STU2-33      | QFP2-33           | M33x3.5          | 48.4          | 430         | 4.45                 | 1.18        | 13.2         | TTB08     | 4.02            | 1.18 | 5.52 | 5.52 | 6.46  | 2.96 |
| STU2-36      | QFP2-36           | M36x4            | 48.4          | 430         | 5.72                 | 1.18        | 16.5         | TTB10     | 4.02            | 1.18 | 5.52 | 5.52 | 6.46  | 3.07 |
| STU3-39      | QFP3-39           | M39x4            | 62.2          | 553         | 5.72                 | 1.18        | 16.5         | TTB10     | 4.49            | 1.38 | 5.59 | 5.59 | 6.66  | 3.23 |
| STU3-42      | QFP3-42           | M42x4.5          | 62.2          | 553         | 7.82                 | 1.18        | 21.6         | TTB10     | 4.49            | 1.38 | 5.59 | 5.59 | 6.66  | 3.35 |
| STU4-45      | QFP4-45           | M45x4.5          | 85            | 756         | 7.82                 | 1.18        | 21.6         | TTB10     | 5.04            | 1.62 | 5.95 | 5.95 | 7.13  | 3.7  |
| STU4-48      | QFP4-48           | M48x5            | 85            | 756         | 12.07                | 1.18        | 32.0         | TTB12     | 5.04            | 1.62 | 5.95 | 5.95 | 7.13  | 3.86 |
| STU5-52      | QFP5-52           | M52x5            | 131.3         | 1168        | 12.07                | 1.18        | 32.0         | TTB12     | 5.91            | 1.89 | 6.46 | 6.46 | 7.96  | 4.41 |
| STU5-56      | QFP5-56           | M56x5.5          | 131.3         | 1168        | 17.04                | 1.18        | 50.3         | TTB14     | 5.91            | 1.89 | 6.46 | 6.46 | 7.96  | 4.57 |
| STU6-60      | QFP6-60           | M60x5.5          | 185.3         | 1649        | 17.04                | 1.18        | 50.3         | TTB14     | 6.93            | 2.36 | 7.21 | 7.21 | 9.1   | 5.36 |
| STU6-64      | QFP6-64           | M64x6            | 185.3         | 1649        | 17.04                | 1.18        | 50.3         | TTB16     | 6.93            | 2.36 | 7.21 | 7.21 | 9.1   | 5.36 |
| STU6-68      | QFP6-68           | M68x6            | 185.3         | 1649        | 17.04                | 1.18        | 50.3         | TTB16     | 6.93            | 2.36 | 7.21 | 7.21 | 9.1   | 5.36 |
| STU6-72      | QFP6-72           | M72x6            | 185.3         | 1649        | 25.66                | 1.18        | 78.5         | TTB16     | 6.93            | 2.36 | 7.21 | 7.21 | 9.1   | 5.56 |
| STU7-76      | QFP7-76           | M76x6            | 279           | 2483        | 25.66                | 1.18        | 78.5         | TTB16     | 8.47            | 3.51 | 8.47 | 8.47 | 10.24 | 6.46 |
| STU7-80      | QFP7-80           | M80x6            | 279           | 2483        | 25.66                | 1.18        | 78.5         | TTB16     | 8.47            | 3.51 | 8.47 | 8.47 | 10.24 | 6.46 |
| STU7-85      | QFP7-85           | M85x6            | 279           | 2483        | 25.66                | 1.18        | 78.5         | TTB16     | 8.47            | 3.51 | 8.47 | 8.47 | 10.24 | 6.9  |
| STU7-90      | QFP7-90           | M90x6            | 279           | 2483        | 165.56               | 30          | 35.6         | TTB16     | 8.47            | 3.51 | 8.47 | 8.47 | 10.24 | 6.9  |

*Note: Tommy bars are not included. Hi-Force recommends one tommy bar for every four tensioners. Please note that the tommy bar listed will fit related quick fit puller; a different size may be required for the drilled hexagon nut.*



## HTN | HYDRAULIC TENSIONER NUTS - IMPERIAL

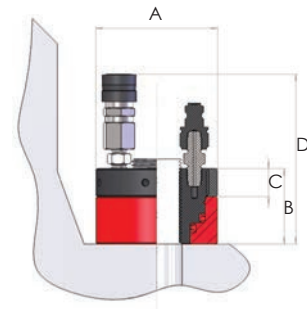


Capacities from 22.3 to 214.8 tons

Bolt sizes from 1" to 4" diameter

Maximum working pressure 21750 psi

- ▶ Single acting design with integral load holding lock nut
- ▶ Designed to permanently replace regular nuts on one side of the joint
- ▶ Ideally suited for bolted joints that need opening and closing, during maintenance, on a regular basis
- ▶ High grade alloy steel construction with nitrocarburized corrosion resistant piston
- ▶ Self-energizing seals for improved performance at high temperatures and pressures
- ▶ Dual quick connect inlet and outlet couplings for easy multiple tensioner nut connection
- ▶ Visible maximum stroke indicator to warn operator of potential over extension
- ▶ Customized and special design tensioners are available on request



| Model number | Bolt size   | Capacity |      | Effective area (in²) | Stroke (in) | Weight (lbs) | Tommy bar | Dimensions (in) |      |      |      |
|--------------|-------------|----------|------|----------------------|-------------|--------------|-----------|-----------------|------|------|------|
|              |             | tons     | kN   |                      |             |              |           | A               | B    | C    | D    |
| HTN1-100     | 1"-8 UN     | 22.3     | 198  | 2.05                 | 0.2         | 4.2          | TTB06     | 2.84            | 2.17 | 0.71 | 5.2  |
| HTN2-112     | 1 1/8"-8 UN | 24.3     | 216  | 2.24                 | 0.2         | 4.4          | TTB06     | 2.96            | 2.17 | 0.71 | 5.2  |
| HTN3-125     | 1 1/4"-8 UN | 28.4     | 253  | 2.61                 | 0.2         | 5.3          | TTB06     | 3.23            | 2.25 | 0.83 | 5.28 |
| HTN4-137     | 1 3/8"-8 UN | 34.4     | 306  | 3.16                 | 0.2         | 6.0          | TTB06     | 3.47            | 2.25 | 0.87 | 5.32 |
| HTN5-150     | 1 1/2"-8 UN | 38.7     | 344  | 3.56                 | 0.24        | 6.4          | TTB06     | 3.66            | 2.29 | 0.83 | 5.32 |
| HTN6-162     | 1 5/8"-8 UN | 44.7     | 398  | 4.11                 | 0.24        | 7.7          | TTB06     | 3.94            | 2.44 | 0.91 | 5.59 |
| HTN7-175     | 1 3/4"-8 UN | 53.4     | 475  | 4.91                 | 0.24        | 8.8          | TTB06     | 4.18            | 2.52 | 0.95 | 5.56 |
| HTN8-187     | 1 7/8"-8 UN | 56.3     | 501  | 5.18                 | 0.24        | 9.3          | TTB06     | 4.33            | 2.52 | 0.99 | 5.59 |
| HTN9-200     | 2"-8 UN     | 63.3     | 564  | 5.82                 | 0.24        | 10.8         | TTB06     | 4.61            | 2.64 | 1.26 | 5.71 |
| HTN10-225    | 2 1/4"-8 UN | 83.9     | 746  | 7.71                 | 0.32        | 14.1         | TTB06     | 5.04            | 2.92 | 1.1  | 5.99 |
| HTN11-250    | 2 1/2"-8 UN | 101.7    | 905  | 9.35                 | 0.32        | 17.6         | TTB06     | 5.56            | 3.03 | 1.14 | 6.11 |
| HTN12-275    | 2 3/4"-8 UN | 112.3    | 1000 | 10.33                | 0.32        | 19.4         | TTB08     | 5.91            | 3.07 | 1.18 | 6.15 |
| HTN13-300    | 3"-8 UN     | 135.2    | 1203 | 12.44                | 0.32        | 23.4         | TTB08     | 6.38            | 3.19 | 1.22 | 6.26 |
| HTN14-325    | 3 1/4"-8 UN | 158.9    | 1414 | 14.61                | 0.39        | 28.4         | TTB08     | 6.86            | 3.43 | 1.38 | 6.5  |
| HTN15-350    | 3 1/2"-8 UN | 180.3    | 1605 | 16.59                | 0.39        | 35.7         | TTB10     | 7.37            | 3.74 | 1.46 | 6.82 |
| HTN16-375    | 3 3/4"-8 UN | 191.5    | 1705 | 17.61                | 0.39        | 40.3         | TTB10     | 7.64            | 4.02 | 1.54 | 7.05 |
| HTN17-400    | 4"-8 UN     | 214.8    | 1911 | 19.75                | 0.39        | 48.3         | TTB10     | 8.08            | 4.33 | 1.62 | 7.41 |

*Note: Tommy bars are not included. Hi-Force recommends one tommy bar for every four tensioner nuts.*

**HTN | HYDRAULIC TENSIONER NUTS - METRIC**

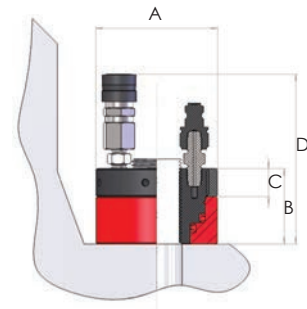


**Capacities from 22.3 to 214.8 tons**

**Bolt sizes from M24 to M100 diameter**

**Maximum working pressure 21750 psi**

- ▶ Single acting design with integral load holding lock nut
- ▶ Designed to permanently replace regular nuts on one side of the joint
- ▶ Ideally suited for bolted joints that need opening and closing, during maintenance, on a regular basis
- ▶ High grade alloy steel construction with nitrocarburized corrosion resistant piston
- ▶ Self-energizing seals for improved performance at high temperatures and pressures
- ▶ Dual quick connect inlet and outlet couplings for easy multiple tensioner nut connection
- ▶ Visible maximum stroke indicator to warn operator of potential over extension
- ▶ Customized and special design tensioners are available on request



| Model number | Bolt size | Capacity |      | Effective area (in²) | Stroke (in) | Weight (lbs) | Tommy bar | Dimensions (in) |      |      |      |
|--------------|-----------|----------|------|----------------------|-------------|--------------|-----------|-----------------|------|------|------|
|              |           | tons     | kN   |                      |             |              |           | A               | B    | C    | D    |
| HTN1-M24     | M24x3     | 22.3     | 198  | 2.05                 | 0.2         | 4.2          | TTB06     | 2.84            | 2.17 | 0.71 | 5.2  |
| HTN2-M27     | M27x3     | 24.3     | 216  | 2.24                 | 0.2         | 4.4          | TTB06     | 2.96            | 2.17 | 0.71 | 5.2  |
| HTN3-M30     | M30x3.5   | 28.4     | 253  | 2.61                 | 0.2         | 5.3          | TTB06     | 3.23            | 2.25 | 0.83 | 5.28 |
| HTN3-M33     | M33x3.5   | 28.4     | 253  | 2.61                 | 0.2         | 5.3          | TTB06     | 3.23            | 2.25 | 0.83 | 5.28 |
| HTN4-M36     | M36x4     | 34.4     | 306  | 3.16                 | 0.2         | 6.0          | TTB06     | 3.47            | 2.25 | 0.87 | 5.32 |
| HTN5-M39     | M39x4     | 38.7     | 344  | 3.56                 | 0.24        | 6.4          | TTB06     | 3.66            | 2.29 | 0.83 | 5.32 |
| HTN6-M42     | M42x4.5   | 44.7     | 398  | 4.11                 | 0.24        | 7.7          | TTB06     | 3.94            | 2.44 | 0.91 | 5.59 |
| HTN7-M45     | M45x4.5   | 53.4     | 475  | 4.91                 | 0.24        | 8.8          | TTB06     | 4.18            | 2.52 | 0.95 | 5.56 |
| HTN8-M48     | M48x5     | 56.3     | 501  | 5.18                 | 0.24        | 9.3          | TTB06     | 4.33            | 2.52 | 0.99 | 5.59 |
| HTN9-M52     | M52x5     | 63.3     | 564  | 5.82                 | 0.24        | 10.8         | TTB06     | 4.61            | 2.64 | 1.26 | 5.71 |
| HTN10-M56    | M56x5.5   | 83.9     | 746  | 7.71                 | 0.32        | 14.1         | TTB06     | 5.04            | 2.92 | 1.1  | 5.99 |
| HTN11-M60    | M60x5.5   | 101.7    | 905  | 9.35                 | 0.32        | 17.6         | TTB06     | 5.56            | 3.03 | 1.14 | 6.11 |
| HTN11-M64    | M64x6     | 101.7    | 905  | 9.35                 | 0.32        | 17.6         | TTB06     | 5.56            | 3.03 | 1.14 | 6.11 |
| HTN12-M68    | M68x6     | 112.3    | 1000 | 10.33                | 0.32        | 19.4         | TTB08     | 5.91            | 3.07 | 1.18 | 6.15 |
| HTN13-M72    | M72x6     | 135.2    | 1203 | 12.44                | 0.32        | 23.4         | TTB08     | 6.38            | 3.19 | 1.22 | 6.26 |
| HTN13-M76    | M76x6     | 135.2    | 1203 | 12.44                | 0.32        | 23.4         | TTB08     | 6.38            | 3.19 | 1.22 | 6.26 |
| HTN14-M80    | M80x6     | 158.9    | 1414 | 14.61                | 0.39        | 28.4         | TTB08     | 6.86            | 3.43 | 1.38 | 6.5  |
| HTN15-M85    | M85x6     | 180.3    | 1605 | 16.59                | 0.39        | 35.7         | TTB10     | 7.37            | 3.74 | 1.46 | 6.82 |
| HTN15-M90    | M90x6     | 180.3    | 1605 | 16.59                | 0.39        | 35.7         | TTB10     | 7.37            | 3.74 | 1.46 | 6.82 |
| HTN16-M95    | M95x6     | 191.5    | 1705 | 17.61                | 0.39        | 40.3         | TTB10     | 7.64            | 4.02 | 1.54 | 7.05 |
| HTN17-M100   | M100x6    | 214.8    | 1911 | 19.75                | 0.39        | 48.3         | TTB10     | 8.08            | 4.33 | 1.62 | 7.41 |

*Note: Tommy bars are not included. Hi-Force recommends one tommy bar for every four tensioner nuts.*

## BOLT TENSIONER PUMPS



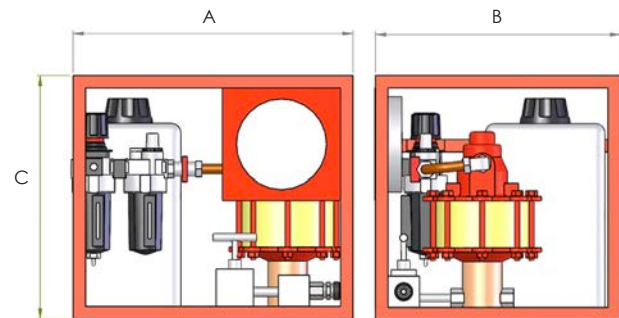
Operates from standard 7 bar air supply

Air consumption up to 1.59 m³/minute (56 scfm)

Working pressure 21750 psi

### AHP-BTU

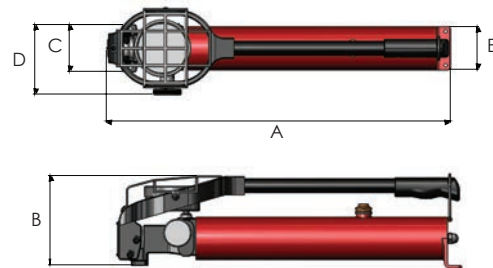
- ▶ Air driven hydraulic bolt tensioner pump operates from standard 100 psi air supply
- ▶ Lightweight stainless steel protective frame for easy storage and transportation
- ▶ Infinitely variable output pressure and flow rate
- ▶ Fitted with glycerin filled vibra-gauge and quick connect high pressure outlet coupling
- ▶ Airline filter regulator lubricator unit fitted as standard



| Model number | Usable oil capacity (gallons) | Oil flow per stroke (in³) | Outlet coupler | Air consumption       | Weight (lbs) | Dimensions (in) |       |       |
|--------------|-------------------------------|---------------------------|----------------|-----------------------|--------------|-----------------|-------|-------|
|              |                               |                           |                |                       |              | A               | B     | C     |
| AHP275BTU    | 1.98                          | 0.1                       | STFC4          | 28 scfm (0.79 m³/min) | 44.1         | 17.73           | 15.56 | 15.56 |
| AHP2-237BTU  | 1.98                          | 0.37                      | STFC4          | 56 scfm (1.59 m³/min) | 52.9         | 17.73           | 15.37 | 18.32 |

### HPX-BTU

- ▶ Manually operated high pressure bolt tensioning pump
- ▶ Usable oil capacity 73.23 in³
- ▶ Fitted with external pressure release valve and factory set safety valve
- ▶ Bespoke handle with ergonomic grip and mesh guard to protect gauge from accidental damage



| Model number | Usable oil capacity (in³) | Displacement per stroke (in³) |                       | Outlet coupler | Weight (lbs) | Dimensions (in) |      |      |      |      |
|--------------|---------------------------|-------------------------------|-----------------------|----------------|--------------|-----------------|------|------|------|------|
|              |                           | 1 <sup>st</sup> stage         | 2 <sup>nd</sup> stage |                |              | A               | B    | C    | D    | E    |
| HPX1500BTU   | 73.23                     | 1.22                          | 0.06                  | STFC4          | 14.3         | 24.23           | 6.34 | 3.31 | 4.93 | 3.01 |

**BOLT TENSIONER ACCESSORIES | HOSES, COUPLERS & HOSE REEL**



**Hose lengths up to 984 feet**

**Supplied with quick connect couplings**

**Design pressure 21750 psi with 3:1 safety factor**

**XHR1 HOSE REEL**

- ▶ Designed for sub-sea main line hose connection between the pump and the first tensioner
- ▶ Accommodates up to 984 ft of XHC bolt tensioner hydraulic hose
- ▶ Complete with quick connect couplings, integrated brake and a spring loaded locking bolt



Dimensions  
Length 31.5" x Width 23.6" x Height 34.2"

| Model number | Description                                                         | Weight (lbs) |
|--------------|---------------------------------------------------------------------|--------------|
| XHC1.5B      | Link hose complete with quick connect couplings, length 5 ft        | 2.2          |
| XHC3B        | Link hose complete with quick connect couplings, length 10 ft       | 3.7          |
| XHC5B        | Mainline hose complete with quick connect couplings, length 16.5 ft | 5.7          |
| XHC10B       | Mainline hose complete with quick connect couplings, length 33 ft   | 9.9          |
| XHC25B       | Mainline hose complete with quick connect couplings, length 82 ft   | 18.7         |
| XHC50B       | Mainline hose complete with quick connect couplings, length 164 ft  | 37.3         |
| XHC100B      | Mainline hose complete with quick connect couplings, length 330 ft  | 74.1         |
| XHC150B      | Mainline hose complete with quick connect couplings, length 492 ft  | 111.6        |
| XHC200B      | Mainline hose complete with quick connect couplings, length 656 ft  | 147.7        |
| XHC250B      | Mainline hose complete with quick connect couplings, length 820 ft  | 184.5        |
| XHC300B      | Mainline hose complete with quick connect couplings, length 984 ft  | 221.3        |
| XHR1         | Hose reel, suitable for up to 984 feet of XHC high pressure hose    | 61.7         |
| STFC4        | Female coupling                                                     | 0.9          |
| STMC4        | Male coupling                                                       | 0.4          |
| STN1P2       | 1/8" x 1/4" BSP nipple for current model STS1 only                  | 0.9          |
| STN1P4-C     | 1/4" BSP nipple with cone seat seal (current design - not for STS1) | 1.5          |

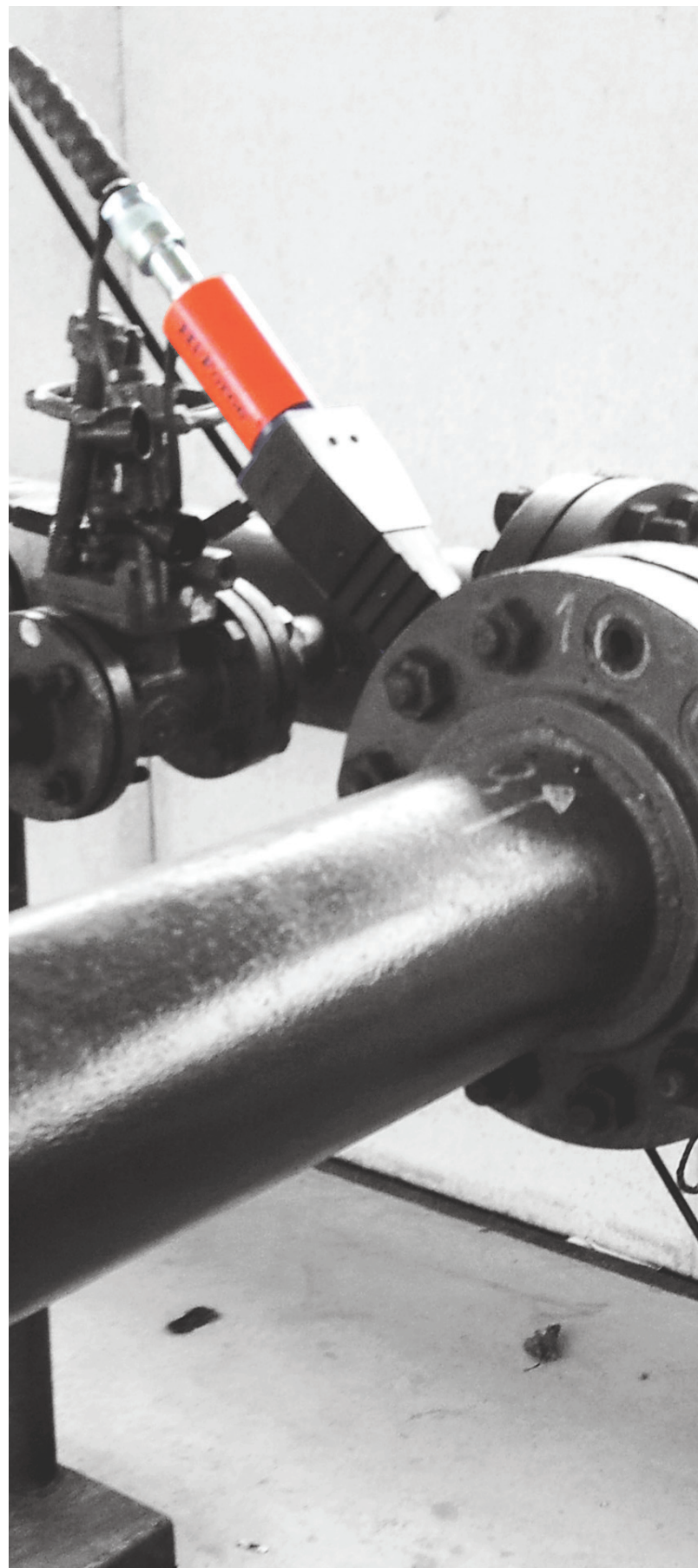
*Note: XHC high pressure bolt tensioner hoses up to 49 ft in length are supplied with a clear protective sleeve.*



## HI-FORCE NUT SPLITTERS AND SPREADERS

The Hi-Force range of hydraulic nut splitters provides the perfect answer for removal of worn, damaged or corroded fasteners. Manufactured from high quality steel, the range includes single acting and double acting versions, designed for splitting hexagon nuts from  $1\frac{1}{16}$ " to  $5\frac{3}{8}$ " AF sizes.

The flange spreader range offers mechanical and hydraulic spreader options and provides the ideal solution for opening flanges safely in the marine and oil & gas industries. The hydraulic flange spreaders are available as a single unit complete with pump and accessories or as a twin spreader arrangement which enables the operator to achieve parallel flange separation all around the joint.







## NUT SPLITTERS AND SPREADERS

### NS RANGE 118

Single acting nut splitters

### HMNS RANGE 119

Self-contained nut splitters

### DNS RANGE 120

Double acting nut splitters

### HFS-H RANGE 121

Hydraulic flange spreaders

### HFS & HFS-TK RANGE 122

Hydraulic flange spreader kits

### MFS RANGE 123

Mechanical flange spreaders

### JS RANGE 124

Jaw spreader

### SJS & SJS-TK RANGE 125

Stepped jaw spreaders and jaw spreader kits

## NS | SINGLE ACTING NUT SPLITTERS

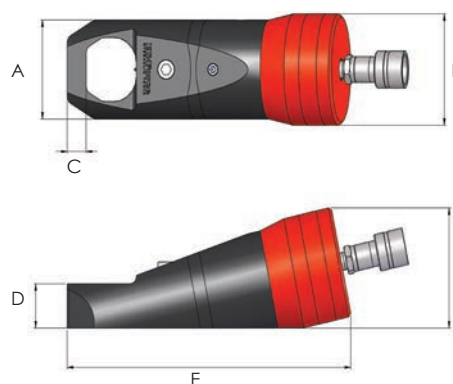


Nut AF sizes from  $1\frac{1}{16}"$  to  $2\frac{15}{16}"$

Bolt sizes from  $\frac{1}{2}"$  to  $1\frac{7}{8}"$

Working pressure 10000 psi

- ▶ Single acting, spring assisted return
- ▶ Angled body design for increased clearance on flanges and flat surfaces
- ▶ High quality steel construction
- ▶ Suitable for splitting nuts up to RC44 hardness
- ▶ Designed to fit on most API and ANSI flanges
- ▶ Offers ideal 'cold cut' solution for applications where 'hot work' permits are not allowed
- ▶ Steel linkage keeps blade cutting edge parallel to the nut throughout the splitting process
- ▶ Compact and easy to use
- ▶ Optional 360° positional swivel coupling for fitment in confined spaces, available for use with NS104 and NS110 models only



| Model number | Capacity (tons) | Oil capacity (in³) | Hexagon AF sizes inch             | Hexagon AF sizes mm | Stud bolt thread sizes          |           | Weight (lbs) | Dimensions (in) |      |      |      |       |      |
|--------------|-----------------|--------------------|-----------------------------------|---------------------|---------------------------------|-----------|--------------|-----------------|------|------|------|-------|------|
|              |                 |                    |                                   |                     | imperial                        | metric    |              | A               | B    | C    | D    | E     | F    |
| NS104        | 18              | 2.81               | $1\frac{1}{16}" - 1\frac{1}{4}"$  | 17 - 32             | $\frac{1}{2}" - \frac{3}{4}"$   | M10 - M22 | 8.8          | 2.52            | 3.03 | 0.49 | 1.18 | 8.27  | 2.64 |
| NS110        | 27.4            | 3.78               | $1\frac{1}{4}" - 1\frac{5}{8}"$   | 32 - 41             | $\frac{3}{4}" - 1"$             | M22 - M27 | 16.3         | 3.07            | 3.78 | 0.79 | 1.46 | 11.27 | 2.68 |
| NS200        | 45.4            | 7.44               | $1\frac{5}{8}" - 2"$              | 41 - 50             | $1" - 1\frac{1}{4}"$            | M27 - M33 | 23.4         | 3.78            | 4.57 | 0.83 | 1.69 | 12.41 | 4.26 |
| NS206        | 63.7            | 11.9               | $2" - 2\frac{3}{8}"$              | 50 - 60             | $1\frac{1}{4}" - 1\frac{1}{2}"$ | M33 - M39 | 34.8         | 4.53            | 5.44 | 0.95 | 2.05 | 13.24 | 4.96 |
| NS215        | 99.6            | 24.77              | $2\frac{3}{8}" - 2\frac{15}{16}"$ | 60 - 75             | $1\frac{1}{2}" - 1\frac{7}{8}"$ | M39 - M48 | 86.6         | 6.15            | 6.9  | 1.06 | 2.96 | 16.78 | 6.38 |

**Note:** NS nut splitters are for use on heavy duty nuts, where the nut height is equal to or greater than two-thirds of the blade length of the tool being used. Please check dimension 'C' to confirm the tool will fit in the space between the edge of the nut and the neck of the flange.

### Replacement blades for NS nut splitters

| Blade part number | For nut splitter |
|-------------------|------------------|
| NS104-B           | NS104            |
| NS110-B           | NS110            |
| NS200-B           | NS200            |
| NS206-B           | NS206            |
| NS215-B           | NS215            |

**HMNS | SELF-CONTAINED NUT SPLITTERS**

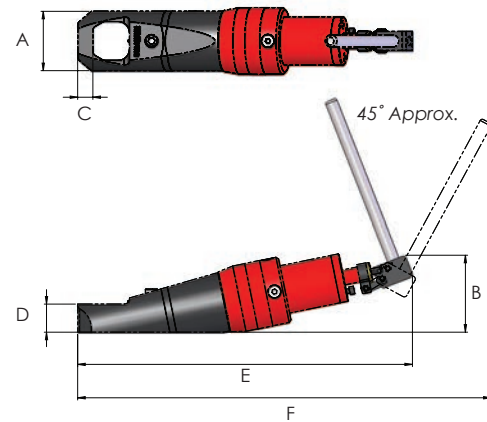


**Nut AF sizes from  $1\frac{1}{16}$ " to 2"**

**Bolt sizes from  $\frac{1}{2}$ " to  $1\frac{1}{4}$ "**

**Working pressure 10000 psi**

- ▶ Single acting, spring assisted return
- ▶ Incorporates an integral hydraulic pump with multi-positional lever
- ▶ Angled body design for increased clearance on flanges and flat surfaces
- ▶ High quality steel construction
- ▶ Suitable for splitting nuts up to RC44 hardness
- ▶ Designed to fit on most API and ANSI flanges
- ▶ Offers ideal 'cold cut' solution for applications where 'hot work' permits are not allowed
- ▶ Steel linkage keeps blade cutting edge parallel to the nut throughout the splitting process
- ▶ Compact and easy to use



| Model number | Capacity (tons) | Hexagon AF sizes                     |         | Stud bolt thread sizes            |           | Weight (lbs) | Dimensions (in) |      |      |      |       |       |
|--------------|-----------------|--------------------------------------|---------|-----------------------------------|-----------|--------------|-----------------|------|------|------|-------|-------|
|              |                 | inch                                 | mm      | imperial                          | metric    |              | A               | B    | C    | D    | E     | F     |
| HMNS104      | 18              | $1\frac{1}{16}$ " - $1\frac{1}{4}$ " | 17 - 32 | $\frac{1}{2}$ " - $\frac{3}{4}$ " | M10 - M22 | 12.8         | 2.52            | 3.47 | 0.49 | 1.18 | 14.97 | 17.93 |
| HMNS110      | 27.4            | $1\frac{1}{4}$ " - $1\frac{5}{8}$ "  | 32 - 41 | $\frac{3}{4}$ " - 1"              | M22 - M27 | 17.4         | 3.07            | 3.98 | 0.79 | 1.46 | 17.34 | 21.28 |
| HMNS200      | 45.4            | $1\frac{5}{8}$ " - 2"                | 41 - 50 | 1" - $1\frac{1}{4}$ "             | M27 - M33 | 30.0         | 3.7             | 4.41 | 0.83 | 1.69 | 18.56 | 22.3  |

**Note:** HMNS nut splitters are for use on heavy duty nuts, where the nut height is equal to or greater than two-thirds of the blade length of the tool being used. Please check dimension 'C' to confirm the tool will fit in the space between the edge of the nut and the neck of the flange.

Replacement blades for HMNS nut splitters

| Blade part number | For nut splitter |
|-------------------|------------------|
| NS104-B           | HMNS104          |
| NS110-B           | HMNS110          |
| NS200-B           | HMNS200          |

**DNS | DOUBLE ACTING NUT SPLITTERS**

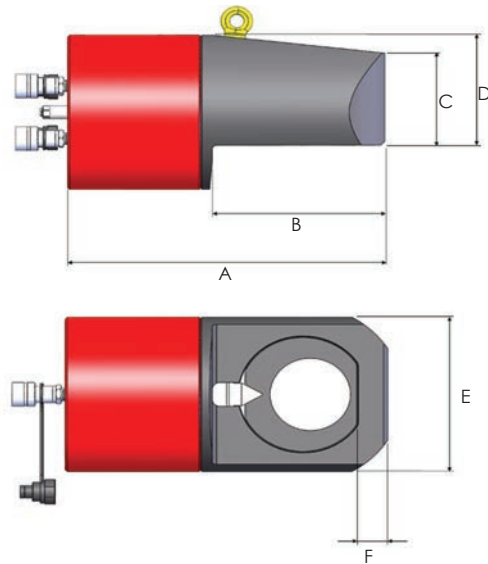


- ▶ Double acting hydraulic piston for easy extension and retraction of the blade
- ▶ Angled body design for increased clearance on flanges and flat surfaces
- ▶ High quality steel construction
- ▶ Pressure relief valve on annulus side
- ▶ Suitable for splitting nuts up to RC44 hardness
- ▶ Designed to fit on most API and ANSI flanges
- ▶ Steel linkage keeps blade cutting edge parallel to the nut throughout the splitting process

**Nut AF sizes from 2 15/16" to 5 3/8"**

**Bolt sizes from 1 7/8" to 3 1/2"**

**Working pressure 10000 psi**



| Model number | Capacity (tons) | Oil capacity (in³) | Hexagon AF sizes inch | Hexagon AF sizes mm | Stud bolt thread sizes |           | Weight (lbs) | Dimensions (in) |      |      |      |      |      |
|--------------|-----------------|--------------------|-----------------------|---------------------|------------------------|-----------|--------------|-----------------|------|------|------|------|------|
|              |                 |                    |                       |                     | imperial               | metric    |              | A               | B    | C    | D    | E    | F    |
| DNS404       | 131.8           | 48.56              | 2 15/16" - 4 1/4"     | 75 - 105            | 1 7/8" - 2 3/4"        | M48 - M72 | 110.2        | 14.93           | 7.56 | 3.92 | 5.14 | 7.21 | 1.34 |
| DNS506       | 224.2           | 92.11              | 4 1/4" - 5 3/8"       | 105 - 136           | 2 3/4" - 3 1/2"        | M72 - M95 | 211.6        | 17.77           | 9.46 | 5.52 | 6.6  | 9.26 | 1.62 |

**Note:** DNS nut splitters are for use on heavy duty nuts, where the nut height is equal to or greater than two-thirds of the blade length of the tool being used. Please check dimension 'F' to confirm the tool will fit in the space between the edge of the nut and the neck of the flange.

Replacement blades for DNS nut splitters

| Blade part number | For nut splitter |
|-------------------|------------------|
| DNS404-B          | DNS404           |
| DNS506-B          | DNS506           |

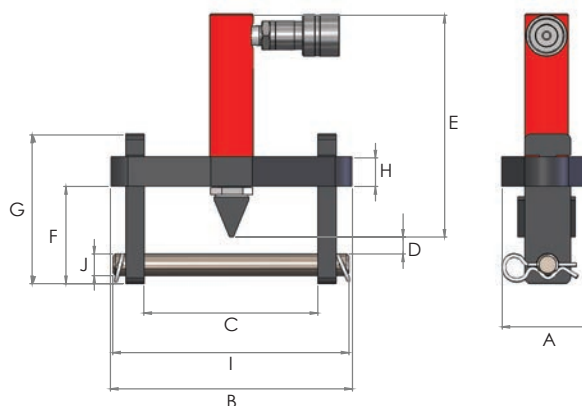
**HFS-H | HYDRAULIC FLANGE SPREADERS**


**Capacities from 5 to 11 tons**

**Quick and easy to assemble on flange**

**Working pressure 10000 psi**

- ▶ Single acting, spring assisted return cylinder for fast and safe operation
- ▶ Capable of opening flanges up to 2 x 2 1/4" thick
- ▶ Suitable for fitment on flanges with maximum bolt size of 1 5/8" (41 mm)
- ▶ Spreading range from 2.4 to 8.83 inches
- ▶ Lightweight ergonomic design for ease of use



| Model number | Capacity (tons) | Stroke (in) | Oil capacity (in³) | Maximum flange thickness (in) | Stud size (in)  | Standard wedge (in) | Weight (lbs) |
|--------------|-----------------|-------------|--------------------|-------------------------------|-----------------|---------------------|--------------|
| HFS50H       | 5               | 2.96        | 2.93               | 2 x 2 1/4"                    | 3/4" - 1 1/8"   | 1/8" - 1 1/8"       | 11.0         |
| HFS100H      | 11              | 2.21        | 4.94               | 2 x 3 5/8"                    | 1 1/4" - 1 5/8" | 1/8" - 1 1/8"       | 25.6         |

| Model number | A    | B     | C (min) | C (max) | D    | Dimensions (in)<br>E | F    | G    | H    | I     | J    |
|--------------|------|-------|---------|---------|------|----------------------|------|------|------|-------|------|
| HFS50H       | 2.99 | 8.27  | 2.4     | 6.11    | 0.39 | 7.56                 | 2.72 | 5.08 | 0.99 | 8.12  | 0.71 |
| HFS100H      | 4.26 | 11.43 | 2.4     | 8.83    | 1.18 | 6.5                  | 3.51 | 7.01 | 1.5  | 10.76 | 1.22 |



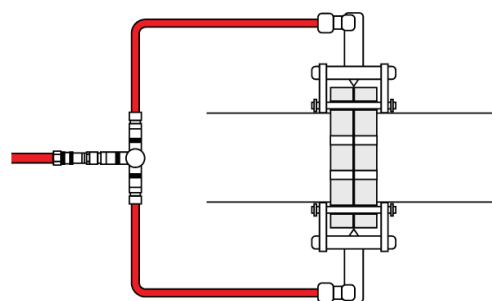
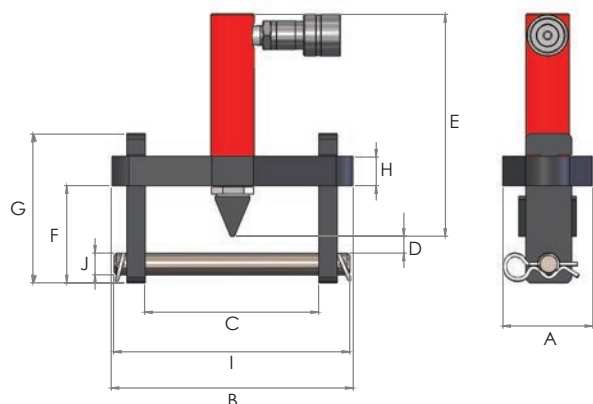
**HFS & HFS-TK | HYDRAULIC FLANGE SPREADER KITS**


Capacities from 5 to 11 tons per spreader

Complete with manual hydraulic pump

Working pressure 10000 psi

- ▶ Single acting, spring assisted return for fast and safe operation
- ▶ Capable of opening flanges up to  $2 \times 3 \frac{5}{8}$ " thick
- ▶ Suitable for fitment on flanges with maximum bolt size of  $1 \frac{5}{8}$ " (41 mm)
- ▶ Spreading range from 2.4 to 8.83 inches
- ▶ Lightweight ergonomic design for ease of use
- ▶ Available as single spreader or twin spreader arrangement
- ▶ Supplied complete with manually operated pump and hose assembly



Twin kit offers parallel flange separation on larger size flanges

| Model number | Capacity (tons) | Stroke (in) | Oil capacity (in³) | Maximum flange thickness (in) | Stud size (in)                        | Standard wedge (in)                 | Weight (lbs) |
|--------------|-----------------|-------------|--------------------|-------------------------------|---------------------------------------|-------------------------------------|--------------|
| HFS50        | 5               | 2.96        | 2.93               | $2 \times 2 \frac{1}{4}$ "    | $\frac{3}{4}$ " - $1 \frac{1}{8}$ "   | $\frac{1}{8}$ " - $1 \frac{1}{8}$ " | 49.6         |
| HFS100       | 11              | 2.21        | 4.94               | $2 \times 3 \frac{5}{8}$ "    | $1 \frac{1}{4}$ " - $1 \frac{5}{8}$ " | $\frac{1}{8}$ " - $1 \frac{1}{8}$ " | 64.2         |
| HFS50-TK     | $2 \times 5$    | 2.96        | $2 \times 2.93$    | $2 \times 2 \frac{1}{4}$ "    | $\frac{3}{4}$ " - $1 \frac{1}{8}$ "   | $\frac{1}{8}$ " - $1 \frac{1}{8}$ " | 60.6         |
| HFS100-TK    | $2 \times 11$   | 2.21        | $2 \times 4.94$    | $2 \times 3 \frac{5}{8}$ "    | $1 \frac{1}{4}$ " - $1 \frac{5}{8}$ " | $\frac{1}{8}$ " - $1 \frac{1}{8}$ " | 78.7         |

| Model number | Dimensions (in) |       |         |         |      |      |      |      |      |       |      |
|--------------|-----------------|-------|---------|---------|------|------|------|------|------|-------|------|
|              | A               | B     | C (min) | C (max) | D    | E    | F    | G    | H    | I     | J    |
| HFS50        | 2.99            | 8.27  | 2.4     | 6.11    | 0.39 | 7.56 | 2.72 | 5.08 | 0.99 | 8.12  | 0.71 |
| HFS100       | 4.26            | 11.43 | 2.4     | 8.83    | 1.18 | 6.5  | 3.51 | 7.01 | 1.5  | 10.76 | 1.22 |
| HFS50-TK     | 2.99            | 8.27  | 2.4     | 6.11    | 0.39 | 7.56 | 2.72 | 5.08 | 0.99 | 8.12  | 0.71 |
| HFS100-TK    | 4.26            | 11.43 | 2.4     | 8.83    | 1.18 | 6.5  | 3.51 | 7.01 | 1.5  | 10.76 | 1.22 |

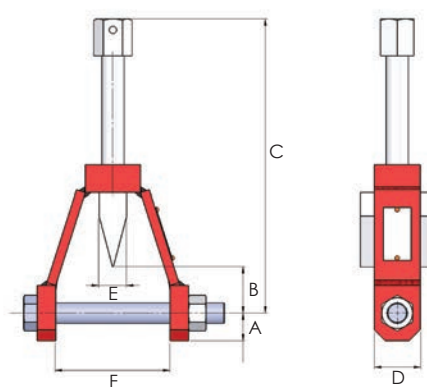
**MFS | MECHANICAL FLANGE SPREADERS**


Suitable for bolt diameters up to 1 1/4"

Maximum spread 9.1 inches

No external power source required

- ▶ Manually operated mechanical feed screw design
- ▶ Capable of opening flanges up to 2 x 3 3/4" thickness
- ▶ Economical and safe operation
- ▶ High grade steel construction with high tensile cross bolt
- ▶ Case hardened spreading wedge
- ▶ Compact, portable and easy to use



| Model number | Pin diameter |    | Min flange bolt hole diameter | Maximum flange thickness |        | Weight (lbs) | Dimensions (in) |         |         |         |      |      |      |
|--------------|--------------|----|-------------------------------|--------------------------|--------|--------------|-----------------|---------|---------|---------|------|------|------|
|              | inch         | mm |                               | inch                     | mm     |              | A               | B (max) | C (min) | C (max) | D    | E    | F    |
| MFS16        | 5/8"         | 16 | 1 1/16"                       | 2 x 7/8"                 | 2 x 22 | 4.9          | 0.99            | 1.1     | 7.29    | 9.14    | 1.58 | 0.99 | 2.76 |
| MFS19        | 3/4"         | 19 | 1 3/16"                       | 2 x 1 3/8"               | 2 x 35 | 6.0          | 1.18            | 1.97    | 7.29    | 10.01   | 1.97 | 0.99 | 3.74 |
| MFS22        | 7/8"         | 22 | 1 5/16"                       | 2 x 1 13/16"             | 2 x 47 | 9.0          | 1.18            | 1.97    | 9.73    | 12.53   | 1.97 | 1.18 | 4.89 |
| MFS25        | 1"           | 25 | 1"                            | 2 x 2 7/16"              | 2 x 62 | 14.1         | 1.18            | 3.35    | 9.73    | 13.91   | 1.97 | 1.18 | 6.11 |
| MFS28        | 1 1/8"       | 28 | 1 1/8"                        | 2 x 2 3/4"               | 2 x 70 | 18.1         | 1.18            | 3.15    | 10.84   | 15.05   | 2.36 | 1.58 | 7.13 |
| MFS31        | 1 1/4"       | 31 | 1 1/4"                        | 2 x 3 3/4"               | 2 x 95 | 21.2         | 1.26            | 3.31    | 10.84   | 15.17   | 2.36 | 1.58 | 9.1  |

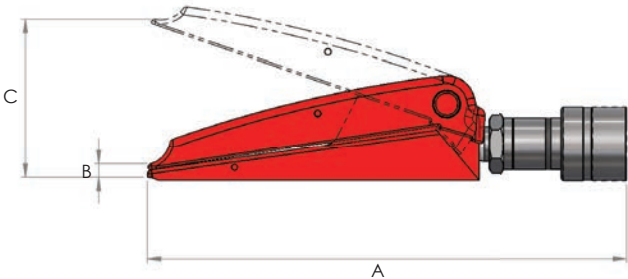


**Capacity 1 ton**

**Maximum spread 3.31 inches**

**Working pressure 10000 psi**

- ▶ Single acting, spring assisted return
- ▶ Narrow design requires access gap of only 0.51 inches
- ▶ High strength forged steel construction
- ▶ Easy connection to hydraulic pump and hose using supplied quick connect coupling
- ▶ Compact, lightweight and easy to use



| Model number | Capacity (tons) | Oil capacity (in³) | Weight (lbs) | Dimensions (in) |      |      |
|--------------|-----------------|--------------------|--------------|-----------------|------|------|
|              |                 |                    |              | A               | B    | C    |
| JS4          | 1               | 0.61               | 4.9          | 9.22            | 0.51 | 3.31 |

**SJS | STEPPED JAW SPREADERS**

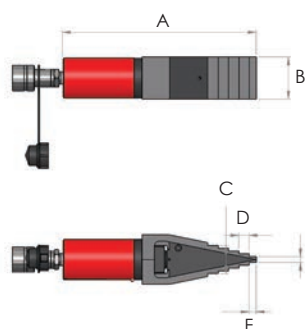


**Capacity 14 tons per spreader unit**

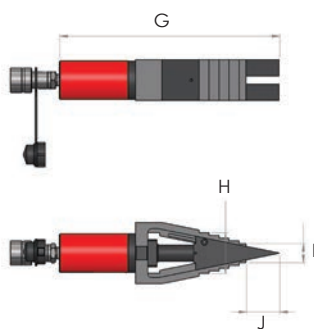
**Maximum spread 2.36 inches**

**Supplied with safety block & stepped blocks**

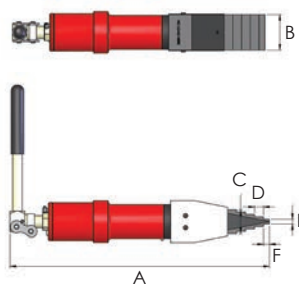
- ▶ Single acting, spring assisted return
- ▶ High strength steel construction
- ▶ Compact, lightweight and easy to use
- ▶ Low height jaw tips can easily fit into an 0.32 inches gap
- ▶ Maximum spreading distance 2.36 inches when using the supplied step blocks
- ▶ Self-contained spreader unit (SJS10-M) incorporates an integral manual hydraulic pump with multi-position operating lever



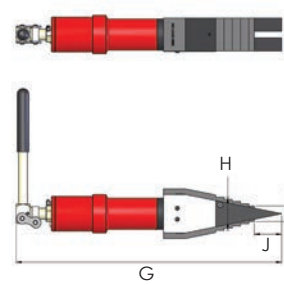
SJS10 Retracted



SJS10 Extended



SJS10-M Retracted



SJS10-M Extended

| Model number | Capacity (tons) | Stroke (in) | Minimum height (in) | Maximum spread (in) | Oil capacity (in <sup>3</sup> ) | Weight (lbs) |
|--------------|-----------------|-------------|---------------------|---------------------|---------------------------------|--------------|
| SJS10        | 14              | 1.97        | 0.32                | 2.36                | 4.51                            | 12.1         |
| SJS10-M      | 14              | 1.97        | 0.32                | 2.36                | 4.51                            | 16.5         |

| Dimensions (in) |      |      |      |      |      |       |      |     |      |
|-----------------|------|------|------|------|------|-------|------|-----|------|
| A               | B    | C    | D    | E    | F    | G     | H    | I   | J    |
| 10.99           | 2.36 | 1.58 | 0.59 | 0.32 | 0.39 | 12.92 | 2.36 | 1.1 | 1.93 |
| 17.06           | 2.36 | 1.58 | 0.59 | 0.32 | 0.39 | 19.03 | 2.36 | 1.1 | 1.93 |

**TWIN KIT:**

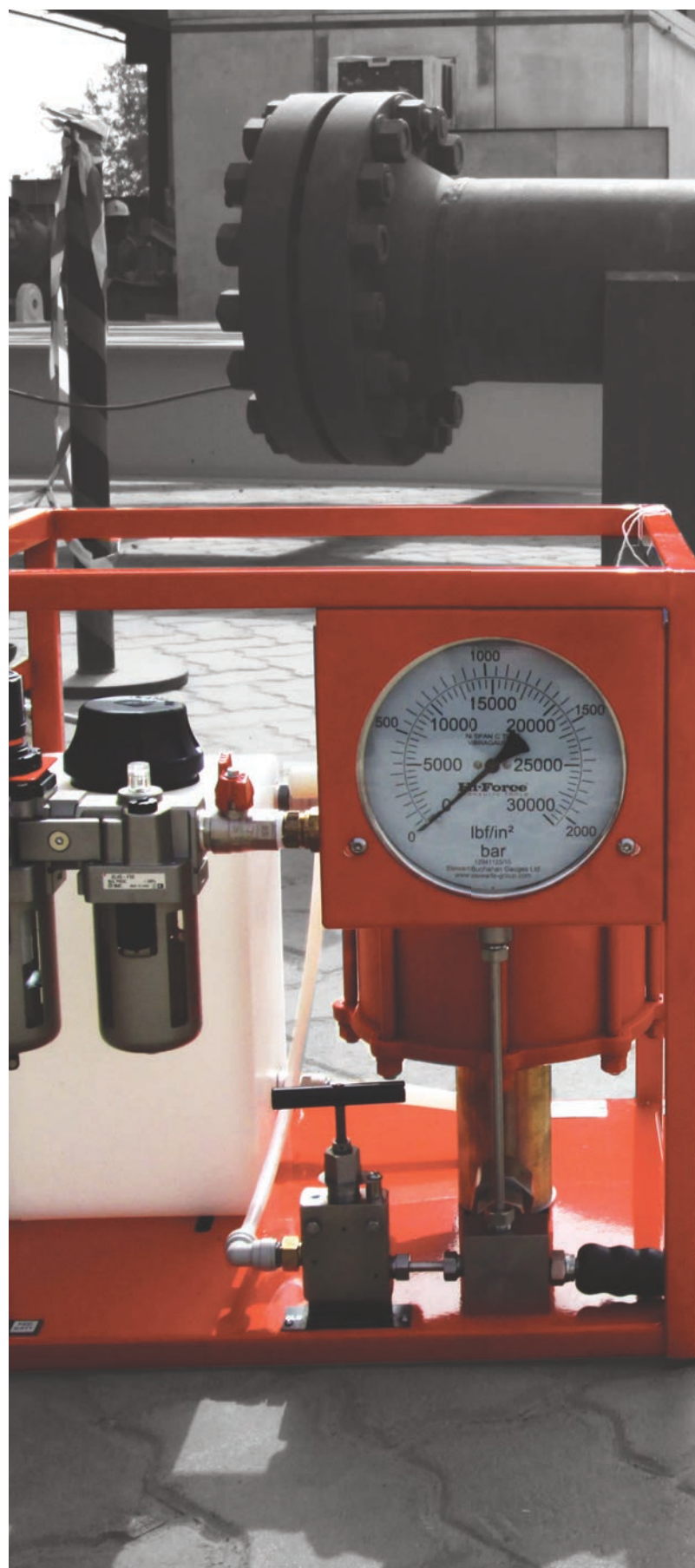
- ▶ Twin spreader kit is ideal for applications requiring two tools to be operated simultaneously
- ▶ Offers an even spread of the flange joint during gasket replacement

| Model number | Spreaders 2 x | Pump 1 x | Hoses 2 x | Manifold 1 x | Gauges 2 x | Gauge blocks 2 x | Metal box 1x | Weight (lbs) |
|--------------|---------------|----------|-----------|--------------|------------|------------------|--------------|--------------|
| SJS10-TK     | SJS10         | HP212    | HC3C      | HM2C         | HG63G      | AGA1-25          | MSB4         | 76.1         |

## HI-FORCE HYDROTEST PUMPS

The Hi-Force range of hydrotest pumps is specifically designed for applications requiring pressure testing using water as a fluid medium. Extensively used for pressure testing valves, pipelines and pressure vessels, in various industries including oil and gas, petrochemical and food processing. The range offers a choice of two speed manually operated versions, with maximum output pressures up to 14500 psi, through to an extensive range of air driven options, offering a wide variety of piston displacement outputs and pressure outputs up to 40000 psi. All air driven versions also offer a factory fitted, integral chart recorder if required. All models can be factory fitted with special seals, manufactured from viton and ethylene propylene for use with special fluids or chemicals on request.

For a full list of fluids approved for use with Hi-Force hydrotest pumps please contact your Hi-Force Regional Office or approved Hi-Force Distributor.







## HYDROTEST PUMPS

### **MHX RANGE** 128

Manually operated hydrotest pumps

### **MHX-PU RANGE** 129

Manually operated hydrotest pump units

### **AHP RANGE** 130

Air driven hydrotest pumps - Standard flow

### **AHP-CR RANGE** 131

Air driven hydrotest pumps - Standard flow with chart recorder

### **AHP2 RANGE** 132

Air driven hydrotest pumps - Medium flow

### **AHP2-CR RANGE** 133

Air driven hydrotest pumps - Medium flow with chart recorder

### **ATDP RANGE** 134

Air driven hydrotest pumps - High flow, twin double acting design

### **HYDROTEST PUMP ACCESSORIES** 135

Spare recorder charts & pen for chart recorder

## MHX | MANUALLY OPERATED HYDROTEST PUMPS

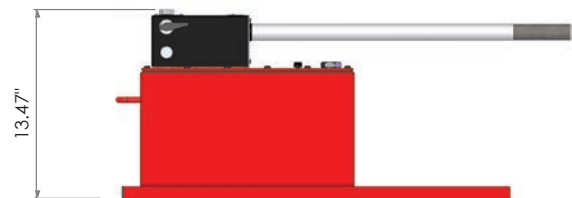
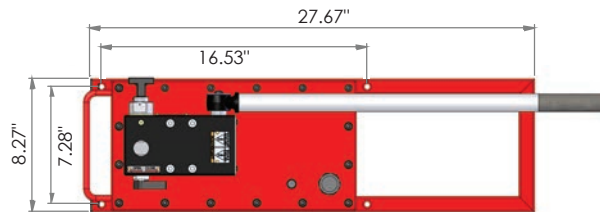


Choice of 5 models available

Maximum output pressures up to 14500 psi

Two stage displacement with manual T-Handle changeover plunger

- ▶ Lightweight aluminum alloy pump unit with integral factory set safety relief valve
- ▶ High grade stainless steel pistons for increased resistance to corrosion
- ▶ Smooth manually operated 2-way pressure and release valve with precise control
- ▶ Stainless steel powder coated 4 gallons capacity reservoir with extended foot reaction bar
- ▶ Multi-positional 24 inches length operating lever with retaining washer and bolt
- ▶ Optional 4 inches diameter hydraulic pressure gauges with fixing kit
- ▶ Standard 10 feet length hose with swivel end fittings available as optional extra
- ▶ Suitable for use with hydraulic mineral oil; demineralized, distilled and 'filtered mains supplied'
- ▶ For use with other fluids, consult Hi-Force as special seals may be required



| Model number<br>(with reservoir) | Working pressure (psi) | Displacement per stroke (in <sup>3</sup> ) |                       | Changeover pressure (psi) | Outlet port | *Weight with reservoir (lbs) |
|----------------------------------|------------------------|--------------------------------------------|-----------------------|---------------------------|-------------|------------------------------|
|                                  |                        | 1 <sup>st</sup> stage                      | 2 <sup>nd</sup> stage |                           |             |                              |
| MHX100                           | 1450                   | 3.05                                       | 1.34                  | 725                       | 3/8" NPT    | 44.1                         |
| MHX300                           | 4350                   | 3.05                                       | 0.49                  | 725                       | 3/8" NPT    | 44.1                         |
| MHX500                           | 7250                   | 3.05                                       | 0.24                  | 725                       | 3/8" NPT    | 44.1                         |
| MHX700                           | 10150                  | 3.05                                       | 0.18                  | 725                       | 3/8" NPT    | 44.1                         |
| MHX1000                          | 14500                  | 3.05                                       | 0.12                  | 725                       | 3/8" BSP    | 44.1                         |

\*Weight excluding fluid

### ACCESSORIES

#### PRESSURE GAUGES



| Model number | Pressure range (psi) |
|--------------|----------------------|
| MHX100GK     | 1600                 |
| MHX300GK     | 4500                 |
| MHX500GK     | 8000                 |
| MHX700GK     | 10000                |
| MHX1000GK    | 14500                |

#### HOSES



| Model number | Max WP (psi) | Length (ft) | Weight (lbs) | End fitting          | For model number |
|--------------|--------------|-------------|--------------|----------------------|------------------|
| HH3-6NMS-1   | up to 4350   | 10          | 1.8          | 3/8" NPT Male Swivel | MHX100 & MXH300  |
| HH3-6NMS-2   | up to 10000  | 10          | 2.0          | 3/8" NPT Male Swivel | MHX500 & MXH700  |
| HH3-6NMS-3   | 14500        | 10          | 3.3          | 3/8" BSP Male Swivel | MHX1000          |

## MHX-PU | MANUALLY OPERATED HYDROTEST PUMP UNITS

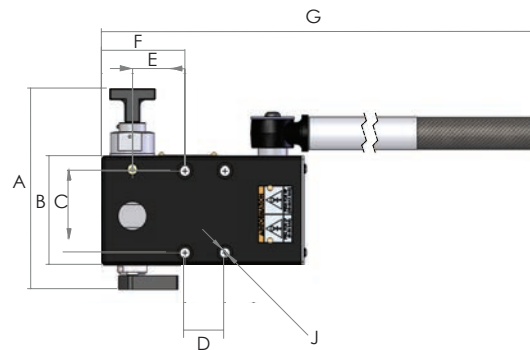
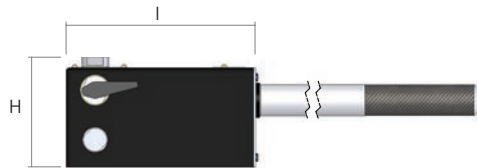


Choice of 5 models available

Maximum output pressures up to 14500 psi

Two stage displacement with manual T-Handle changeover plunger

- ▶ Supplied as pump unit and operating lever only, reservoir not included
- ▶ Includes four bolt fixing kit with gasket for easy mounting on fluid reservoir
- ▶ All other features are as specified for the MHX pumps



| Model number<br>(pump only) | Working pressure (psi) | Valve type | Displacement per stroke (in <sup>3</sup> ) |                       | Changeover pressure (psi) | Outlet port | Suction port | Weight (lbs) |
|-----------------------------|------------------------|------------|--------------------------------------------|-----------------------|---------------------------|-------------|--------------|--------------|
|                             |                        |            | 1 <sup>st</sup> stage                      | 2 <sup>nd</sup> stage |                           |             |              |              |
| MHX100PU                    | 1450                   | 2-way      | 3.05                                       | 1.34                  | 725                       | 3/8" NPT    | 3/8" NPT     | 11           |
| MHX300PU                    | 4350                   | 2-way      | 3.05                                       | 0.49                  | 725                       | 3/8" NPT    | 3/8" NPT     | 11           |
| MHX500PU                    | 7250                   | 2-way      | 3.05                                       | 0.24                  | 725                       | 3/8" NPT    | 3/8" NPT     | 11           |
| MHX700PU                    | 10150                  | 2-way      | 3.05                                       | 0.18                  | 725                       | 3/8" NPT    | 3/8" NPT     | 11           |
| MHX1000PU                   | 14500                  | 2-way      | 3.05                                       | 0.12                  | 725                       | 3/8" BSP    | 3/8" NPT     | 11           |

| Model number | Dimensions (in) |      |      |      |      |      |       |      |      |        |
|--------------|-----------------|------|------|------|------|------|-------|------|------|--------|
|              | A               | B    | C    | D    | E    | F    | G     | H    | I    | J      |
| All models   | 7.09            | 3.74 | 2.82 | 1.38 | 1.81 | 2.72 | 29.94 | 4.14 | 6.97 | 4 x M8 |

### RESERVOIR



| Model number | Description                  |
|--------------|------------------------------|
| MHR15        | 4 gallons standard reservoir |

## AHP | AIR DRIVEN HYDROTEST PUMPS - STANDARD FLOW

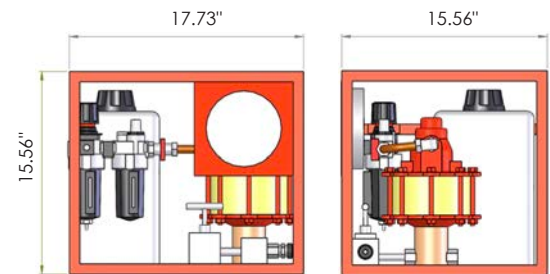


Output pressures up to 42500 psi

Suitable for use with various fluids

6 inches dual scale vibra pressure gauge

- ▶ Infinitely variable output pressure and fluid displacement speed
- ▶ Integral inlet air filtration and lubrication unit with air pressure gauge
- ▶ Airline regulator for easy setting of input air and output hydraulic pressure
- ▶ Maximum air consumption of 28 scfm (0.79 m³) per minute at 100 psi
- ▶ Smooth and easily operated hydraulic pressure hold and release valve
- ▶ Fitted with input air pump start/stop valve for easy and fast pressure shut off
- ▶ Robust powder coated stainless steel protective framework
- ▶ Lightweight plastic, 2 gallons capacity, fluid reservoir
- ▶ Optional stainless steel reservoir, stroke counter system and pressure isolation valve available on request

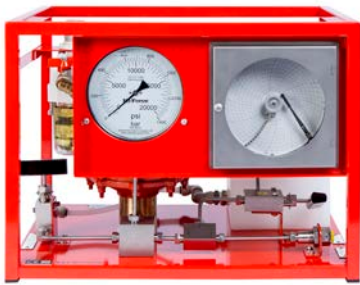


| Model number | Max output pressure (psi) at airline input pressure |                    |                    | Fluid volume displacement per stroke (in³) | Outlet port thread | Weight (lbs) |
|--------------|-----------------------------------------------------|--------------------|--------------------|--------------------------------------------|--------------------|--------------|
|              | 10 psi<br>0.69 bar                                  | 50 psi<br>3.45 bar | 100 psi<br>6.9 bar |                                            |                    |              |
| AHP10        | 87                                                  | 493                | 1000               | 2.58                                       | ½" NPT             | 50.7         |
| AHP26        | 203                                                 | 1305               | 2625               | 0.98                                       | ½" NPT             | 46.3         |
| AHP36        | 247                                                 | 1769               | 3625               | 0.75                                       | ½" NPT             | 44.1         |
| AHP58        | 406                                                 | 2900               | 5800               | 0.46                                       | ½" NPT             | 44.1         |
| AHP107       | 899                                                 | 5409               | 10701              | 0.24                                       | ½" NPT             | 44.1         |
| AHP187       | 1407                                                | 9251               | 18749              | 0.13                                       | ⅝"-18 UNF          | 44.1         |
| AHP275       | 2248                                                | 13500              | 27507              | 0.1                                        | ⅝"-18 UNF          | 44.1         |
| AHP425       | 5503                                                | 20996              | 42500              | 0.06                                       | ⅝"-18 UNF          | 44.1         |

| Hydraulic pressure |      | Approximate rate of discharge (gallons/min) at air input pressure 100 psi (7 bar) |       |       |       |        |        |        |        |
|--------------------|------|-----------------------------------------------------------------------------------|-------|-------|-------|--------|--------|--------|--------|
| psi                | bar  | AHP10                                                                             | AHP26 | AHP36 | AHP58 | AHP107 | AHP187 | AHP275 | AHP425 |
| 0                  | 0    | 6.1                                                                               | 2.32  | 1.58  | 0.94  | 0.52   | 0.3    | 0.19   | 0.11   |
| 500                | 35   | 3.17                                                                              | 1.54  | 1.16  | 0.81  | 0.4    | 0.28   | 0.18   | 0.11   |
| 1000               | 69   | *                                                                                 | 1.25  | 1     | 0.66  | 0.34   | 0.26   | 0.17   | 0.1    |
| 1500               | 104  | *                                                                                 | 1.03  | 0.88  | 0.63  | 0.33   | 0.24   | 0.16   | 0.1    |
| 2000               | 138  | *                                                                                 | 0.79  | 0.79  | 0.59  | 0.32   | 0.21   | 0.15   | 0.09   |
| 2500               | 173  | *                                                                                 | 0.32  | 0.68  | 0.54  | 0.31   | 0.2    | 0.13   | 0.09   |
| 3000               | 207  | *                                                                                 | *     | 0.51  | 0.49  | 0.31   | 0.19   | 0.13   | 0.08   |
| 4000               | 276  | *                                                                                 | *     | *     | 0.41  | 0.27   | 0.18   | 0.12   | 0.08   |
| 5000               | 345  | *                                                                                 | *     | *     | 0.27  | 0.25   | 0.18   | 0.11   | 0.07   |
| 7500               | 517  | *                                                                                 | *     | *     | *     | 0.2    | 0.16   | 0.11   | 0.07   |
| 10000              | 690  | *                                                                                 | *     | *     | *     | 0.12   | 0.14   | 0.1    | 0.06   |
| 15000              | 1034 | *                                                                                 | *     | *     | *     | *      | 0.1    | 0.09   | 0.06   |
| 20000              | 1379 | *                                                                                 | *     | *     | *     | *      | *      | 0.08   | 0.05   |
| 25000              | 1724 | *                                                                                 | *     | *     | *     | *      | *      | 0.06   | 0.04   |
| 30000              | 2069 | *                                                                                 | *     | *     | *     | *      | *      | *      | 0.03   |
| 40000              | 2760 | *                                                                                 | *     | *     | *     | *      | *      | *      | 0.01   |

\* Pressure exceeds pump capacity



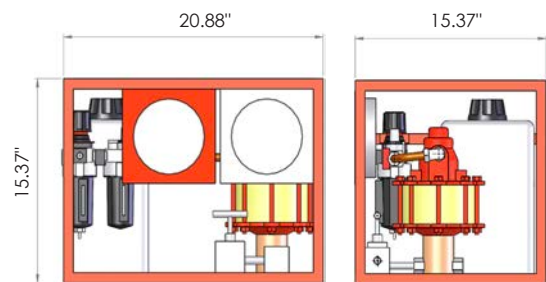
**AHP-CR | AIR DRIVEN HYDROTEST PUMPS - STANDARD FLOW WITH CHART RECORDER**


**Output pressures up to 42500 psi**

**Suitable for use with various fluids**

**6 inches dual scale vibra pressure gauge**

- ▶ Fitted with integral single pen chart recorder with isolation valve
- ▶ Supplied with 50 recorder charts and one black chart recorder pen
- ▶ Infinitely variable output pressure and fluid displacement speed
- ▶ Integral inlet air filtration and lubrication unit with air pressure gauge
- ▶ Airline regulator for easy setting of input air and output hydraulic pressure
- ▶ Maximum air consumption of 28 scfm (0.79 m³) per minute at 100 psi
- ▶ Smooth and easily operated hydraulic pressure hold and release valve
- ▶ Fitted with input air pump start/stop valve for easy and fast pressure shut off
- ▶ Robust powder coated stainless steel protective framework
- ▶ Lightweight plastic, 2 gallons capacity, fluid reservoir
- ▶ Optional stainless steel reservoir, stroke counter system and pressure isolation valve available on request



| Model number | Max output pressure (psi) at airline input pressure |                    |                    | Fluid volume displacement per stroke (in³) | Outlet port thread | Weight (lbs) |
|--------------|-----------------------------------------------------|--------------------|--------------------|--------------------------------------------|--------------------|--------------|
|              | 10 psi<br>0.69 bar                                  | 50 psi<br>3.45 bar | 100 psi<br>6.9 bar |                                            |                    |              |
| AHP10-CR     | 87                                                  | 493                | 1000               | 2.58                                       | ½" NPT             | 68.3         |
| AHP26-CR     | 203                                                 | 1305               | 2625               | 0.98                                       | ½" NPT             | 63.9         |
| AHP36-CR     | 247                                                 | 1769               | 3625               | 0.75                                       | ½" NPT             | 61.7         |
| AHP58-CR     | 406                                                 | 2900               | 5800               | 0.46                                       | ½" NPT             | 61.7         |
| AHP107-CR    | 899                                                 | 5409               | 10701              | 0.24                                       | ½" NPT             | 61.7         |
| AHP187-CR    | 1407                                                | 9251               | 18749              | 0.13                                       | ⅝" -18 UNF         | 61.7         |
| AHP275-CR    | 2248                                                | 13500              | 27507              | 0.1                                        | ⅝" -18 UNF         | 61.7         |
| AHP425-CR    | 5503                                                | 20996              | 42500              | 0.06                                       | ⅝" -18 UNF         | 61.7         |

| Hydraulic pressure |      | Approximate rate of discharge (gallons/min) at air input pressure 100 psi (7 bar) |          |          |          |           |           |           |           |
|--------------------|------|-----------------------------------------------------------------------------------|----------|----------|----------|-----------|-----------|-----------|-----------|
| psi                | bar  | AHP10-CR                                                                          | AHP26-CR | AHP36-CR | AHP58-CR | AHP107-CR | AHP187-CR | AHP275-CR | AHP425-CR |
| 0                  | 0    | 6.1                                                                               | 2.32     | 1.58     | 0.94     | 0.52      | 0.3       | 0.19      | 0.11      |
| 500                | 35   | 3.17                                                                              | 1.54     | 1.16     | 0.81     | 0.4       | 0.28      | 0.18      | 0.11      |
| 1000               | 69   | *                                                                                 | 1.25     | 1        | 0.66     | 0.34      | 0.26      | 0.17      | 0.1       |
| 1500               | 104  | *                                                                                 | 1.03     | 0.88     | 0.63     | 0.33      | 0.24      | 0.16      | 0.1       |
| 2000               | 138  | *                                                                                 | 0.79     | 0.79     | 0.59     | 0.32      | 0.21      | 0.15      | 0.09      |
| 2500               | 173  | *                                                                                 | 0.32     | 0.68     | 0.54     | 0.31      | 0.2       | 0.13      | 0.09      |
| 3000               | 207  | *                                                                                 | *        | 0.51     | 0.49     | 0.31      | 0.19      | 0.13      | 0.08      |
| 4000               | 276  | *                                                                                 | *        | *        | 0.41     | 0.27      | 0.18      | 0.12      | 0.08      |
| 5000               | 345  | *                                                                                 | *        | *        | 0.27     | 0.25      | 0.18      | 0.11      | 0.07      |
| 7500               | 517  | *                                                                                 | *        | *        | *        | 0.2       | 0.16      | 0.11      | 0.07      |
| 10000              | 690  | *                                                                                 | *        | *        | *        | 0.12      | 0.14      | 0.1       | 0.06      |
| 15000              | 1034 | *                                                                                 | *        | *        | *        | *         | 0.1       | 0.08      | 0.06      |
| 20000              | 1379 | *                                                                                 | *        | *        | *        | *         | *         | 0.06      | 0.05      |
| 25000              | 1724 | *                                                                                 | *        | *        | *        | *         | *         | 0.21      | 0.04      |
| 30000              | 2069 | *                                                                                 | *        | *        | *        | *         | *         | *         | 0.03      |
| 40000              | 2760 | *                                                                                 | *        | *        | *        | *         | *         | *         | 0.01      |

\* Pressure exceeds pump capacity



## AHP2 | AIR DRIVEN HYDROTEST PUMPS - MEDIUM FLOW

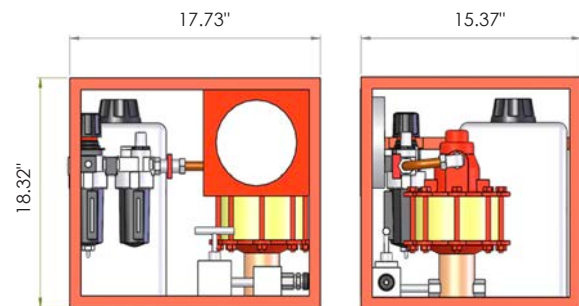


Output pressures up to 23700 psi

Suitable for use with various fluids

6 inches dual scale vibra pressure gauge

- ▶ Infinitely variable output pressure and fluid displacement speed
- ▶ Integral inlet air filtration and lubrication unit with air pressure gauge
- ▶ Airline regulator for easy setting of input air and output hydraulic pressure
- ▶ Maximum air consumption of 56 scfm (1.59 m³) per minute at 100 psi
- ▶ Smooth and easily operated hydraulic pressure hold and release valve
- ▶ Fitted with input air pump start/stop valve for easy and fast pressure shut off
- ▶ Robust powder coated stainless steel protective framework
- ▶ Lightweight plastic, 2 gallons capacity, fluid reservoir
- ▶ Optional stainless steel reservoir, stroke counter system and pressure isolation valve available on request

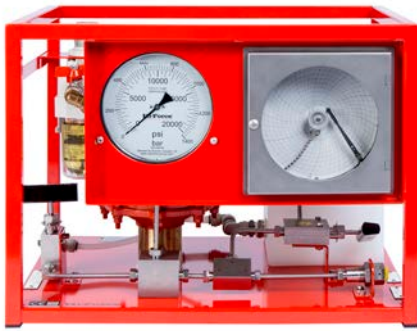


| Model number | Max output pressure (psi) at airline input pressure |                    |                    | Fluid volume displacement per stroke (in³) | Outlet port thread | Weight (lbs) |
|--------------|-----------------------------------------------------|--------------------|--------------------|--------------------------------------------|--------------------|--------------|
|              | 10 psi<br>0.69 bar                                  | 50 psi<br>3.45 bar | 100 psi<br>6.9 bar |                                            |                    |              |
| AHP2-036     | 249                                                 | 1799               | 3600               | 2.49                                       | ½" NPT             | 52.9         |
| AHP2-060     | 450                                                 | 2899               | 6000               | 1.5                                        | ½" NPT             | 52.9         |
| AHP2-097     | 750                                                 | 4749               | 9700               | 0.93                                       | ½" NPT             | 52.9         |
| AHP2-144     | 1099                                                | 7098               | 14400              | 0.62                                       | ½" NPT             | 52.9         |
| AHP2-237     | 1900                                                | 11597              | 23700              | 0.37                                       | ⅝" -18 UNF         | 52.9         |

| Hydraulic pressure |      | Approximate rate of discharge (gallons/min) at air input pressure 100 psi (7 bar) |          |          |          |          |
|--------------------|------|-----------------------------------------------------------------------------------|----------|----------|----------|----------|
| psi                | bar  | AHP2-036                                                                          | AHP2-060 | AHP2-097 | AHP2-144 | AHP2-237 |
| 0                  | 0    | 2.69                                                                              | 1.64     | 1.03     | 0.71     | 0.41     |
| 500                | 35   | 2.27                                                                              | 1.45     | 0.94     | 0.66     | 0.4      |
| 1000               | 69   | 1.91                                                                              | 1.27     | 0.84     | 0.62     | 0.39     |
| 1500               | 104  | 1.62                                                                              | 1.19     | 0.79     | 0.57     | 0.37     |
| 2000               | 138  | 1.43                                                                              | 1.11     | 0.76     | 0.57     | 0.36     |
| 3000               | 207  | 0.81                                                                              | 0.92     | 0.67     | 0.5      | 0.34     |
| 4000               | 276  | *                                                                                 | 0.73     | 0.6      | 0.46     | 0.32     |
| 5000               | 345  | *                                                                                 | 0.57     | 0.55     | 0.43     | 0.32     |
| 7500               | 517  | *                                                                                 | *        | 0.38     | 0.36     | 0.29     |
| 10000              | 690  | *                                                                                 | *        | *        | 0.3      | 0.26     |
| 15000              | 1034 | *                                                                                 | *        | *        | *        | 0.21     |
| 20000              | 1379 | *                                                                                 | *        | *        | *        | 0.13     |
| 23700              | 1634 | *                                                                                 | *        | *        | *        | 0.09     |

\* Pressure exceeds pump capacity

## AHP2-CR | AIR DRIVEN HYDROTEST PUMPS - MEDIUM FLOW WITH CHART RECORDER

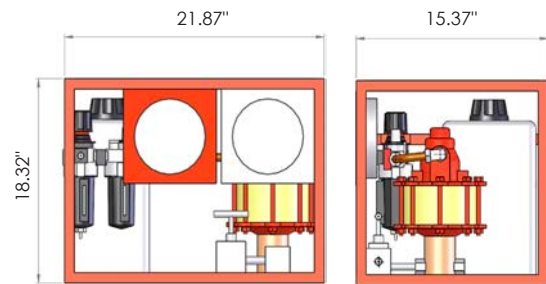


Output pressures up to 23700 psi

Suitable for use with various fluids

6 inches dual scale vibra pressure gauge

- ▶ Fitted with integral single pen chart recorder with isolation valve
- ▶ Supplied with 50 recorder charts and one black chart recorder pen
- ▶ Infinitely variable output pressure and fluid displacement speed
- ▶ Integral inlet air filtration and lubrication unit with air pressure gauge
- ▶ Airline regulator for easy setting of input air and output hydraulic pressure
- ▶ Maximum air consumption of 56 scfm (1.59 m³) per minute at 100 psi
- ▶ Smooth and easily operated hydraulic pressure hold and release valve
- ▶ Fitted with input air pump start/stop valve for easy and fast pressure shut off
- ▶ Robust powder coated stainless steel protective framework
- ▶ Lightweight plastic, 2 gallons capacity, fluid reservoir
- ▶ Optional stainless steel reservoir, stroke counter system and pressure isolation valve available on request



| Model number | Max output pressure (psi) at airline input pressure |                    |                    | Fluid volume displacement per stroke (in³) | Outlet port thread | Weight (lbs) |
|--------------|-----------------------------------------------------|--------------------|--------------------|--------------------------------------------|--------------------|--------------|
|              | 10 psi<br>0.69 bar                                  | 50 psi<br>3.45 bar | 100 psi<br>6.9 bar |                                            |                    |              |
| AHP2-036CR   | 249                                                 | 1799               | 3600               | 2.49                                       | ½" NPT             | 70.5         |
| AHP2-060CR   | 450                                                 | 2899               | 6000               | 1.5                                        | ½" NPT             | 70.5         |
| AHP2-097CR   | 750                                                 | 4749               | 9700               | 0.93                                       | ½" NPT             | 70.5         |
| AHP2-144CR   | 1099                                                | 7098               | 1440               | 0.62                                       | ½" NPT             | 70.5         |
| AHP2-237CR   | 1900                                                | 11597              | 23700              | 0.37                                       | ¾" -18 UNF         | 70.5         |

| Hydraulic pressure |      | Approximate rate of discharge (gallons/min) at air input pressure 100 psi (7 bar) |            |            |            |            |
|--------------------|------|-----------------------------------------------------------------------------------|------------|------------|------------|------------|
| psi                | bar  | AHP2-036CR                                                                        | AHP2-060CR | AHP2-097CR | AHP2-144CR | AHP2-237CR |
| 0                  | 0    | 2.69                                                                              | 1.64       | 1.03       | 0.71       | 0.41       |
| 500                | 35   | 2.27                                                                              | 1.45       | 0.94       | 0.66       | 0.4        |
| 1000               | 69   | 1.91                                                                              | 1.24       | 0.84       | 0.62       | 0.39       |
| 1500               | 104  | 1.62                                                                              | 1.19       | 0.79       | 0.57       | 0.37       |
| 2000               | 138  | 1.43                                                                              | 1.11       | 0.76       | 0.57       | 0.36       |
| 3000               | 207  | 0.81                                                                              | 0.92       | 0.67       | 0.5        | 0.34       |
| 4000               | 276  | *                                                                                 | 0.73       | 0.6        | 0.46       | 0.32       |
| 5000               | 345  | *                                                                                 | 0.57       | 0.55       | 0.43       | 0.32       |
| 7500               | 517  | *                                                                                 | *          | 0.38       | 0.36       | 0.29       |
| 10000              | 690  | *                                                                                 | *          | *          | 0.3        | 0.26       |
| 15000              | 1034 | *                                                                                 | *          | *          | *          | 0.21       |
| 20000              | 1379 | *                                                                                 | *          | *          | *          | 0.13       |
| 23700              | 1634 | *                                                                                 | *          | *          | *          | 0.09       |

\* Pressure exceeds pump capacity

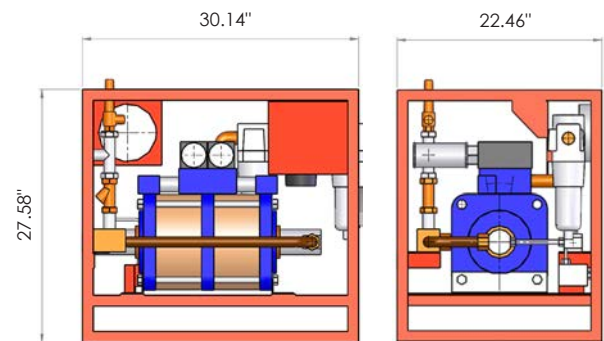
**ATDP | AIR DRIVEN TWIN DOUBLE ACTING HYDROTEST PUMPS**


**Output pressures up to 21600 psi**

**Suitable for use with various fluids**

**6 inches dual scale vibra pressure gauge**

- ▶ Infinitely variable output pressure and fluid displacement speed
- ▶ Integral inlet air filtration and lubrication unit with air pressure gauge
- ▶ Airline regulator for easy setting of input air and output hydraulic pressure
- ▶ Maximum air consumption of 212 scfm (6 m³) per minute at 100 psi
- ▶ Smooth and easily operated hydraulic pressure hold and release valve
- ▶ Fluid inlet port of 1" BSPF with integral Y-type fluid strainer
- ▶ Fitted with input air pump start/stop valve for easy and fast pressure shut off
- ▶ Robust powder coated stainless steel protective framework
- ▶ Optional stroke counter system, chart recorder and isolation section for chemical duty available on request



| Model number | Max output pressure (psi) at airline input pressure |                    |                    | Fluid volume displacement per stroke (in³) | Outlet port thread | Weight (lbs) |
|--------------|-----------------------------------------------------|--------------------|--------------------|--------------------------------------------|--------------------|--------------|
|              | 20 psi<br>1.38 bar                                  | 60 psi<br>4.14 bar | 100 psi<br>6.9 bar |                                            |                    |              |
| ATDP63       | 1260                                                | 3770               | 6300               | 16.78                                      | ½" NPT             | 211.6        |
| ATDP125      | 2494                                                | 7497               | 12500              | 8.54                                       | ½" NPT             | 211.6        |
| ATDP216      | 4321                                                | 12963              | 21600              | 4.82                                       | 1 ⅝"-12 UNF        | 211.6        |

| Hydraulic pressure |      | Approximate rate of discharge (gallons/min) at air input pressure 100 psi (7 bar) |         |         |
|--------------------|------|-----------------------------------------------------------------------------------|---------|---------|
| psi                | bar  | ATDP63                                                                            | ATDP125 | ATDP216 |
| 0                  | 0    | 8.5                                                                               | 4.46    | 2.51    |
| 1000               | 69   | 6.78                                                                              | 3.7     | 2.32    |
| 2000               | 138  | 5.41                                                                              | 3.25    | 2.11    |
| 3000               | 207  | 4.28                                                                              | 2.8     | 1.95    |
| 4000               | 276  | 3.3                                                                               | 2.48    | 1.82    |
| 5000               | 345  | 2.11                                                                              | 2.19    | 1.69    |
| 6000               | 414  | 0.74                                                                              | 1.93    | 1.61    |
| 8000               | 552  | *                                                                                 | 1.27    | 1.45    |
| 10000              | 690  | *                                                                                 | 0.79    | 1.29    |
| 12000              | 828  | *                                                                                 | 0.11    | 1.14    |
| 16000              | 1103 | *                                                                                 | *       | 0.84    |
| 20000              | 1379 | *                                                                                 | *       | 0.42    |

\* Pressure exceeds pump capacity

## HYDROTEST PUMP ACCESSORIES

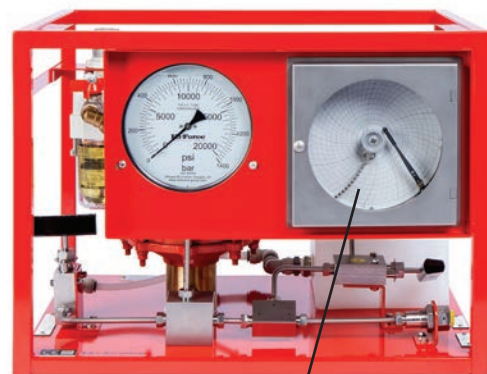
### SPARE RECORDER CHARTS

Pack of 100 spare charts, diameter 6.5 inches, 4-hour time scale

| Model number | Chart reading (psi) | Suitable for hydrotest pump unit |
|--------------|---------------------|----------------------------------|
| AHP-C01      | 0 - 1500            | AHP10-CR                         |
| AHP-C03      | 0 - 3000            | AHP26-CR                         |
| AHP-C05      | 0 - 5000            | AHP36-CR<br>AHP2-036CR           |
| AHP-C10      | 0 - 10000           | AHP58-CR<br>AHP2-060CR           |
| AHP-C15      | 0 - 15000           | AHP107-CR<br>AHP2-097CR          |
| AHP-C20      | 0 - 20000           | AHP187-CR<br>AHP2-144CR          |
| AHP-C30      | 0 - 30000           | AHP275-CR<br>AHP2-237CR          |
| AHP-C45      | 0 - 45000           | AHP425-CR                        |

### REPLACEMENT PEN FOR CHART RECORDER

| Model number | Colour | Description                                                                   |
|--------------|--------|-------------------------------------------------------------------------------|
| AHP-PB       | Black  | Suitable for pressure recording on all Hi-Force AHP pumps with chart recorder |





## HI-FORCE HYDRAULIC PULLER KITS

The Hi-Force range of hydraulic puller kits comprises of self-contained and remote operation, manually operated, 2 and 3-way jaw type pullers, with or without auto-centre option, bearing pullers, bearing cup pullers and cross head pullers, with pulling capacities up to 50 tonnes. All components are manufactured from high strength alloy and drop forged steel.

Additionally, within this section of the catalog Hi-Force also offers hydraulic pin and bush puller and instalment tool kits, ideally suited for use on heavy duty trucks, earth moving equipment and crane and jib arm lifting equipment, the range offers capacities up to 55 tons, at 10000 psi maximum working pressure.







## PULLER KITS

---

|                  |            |
|------------------|------------|
| <b>SCP RANGE</b> | <b>138</b> |
|------------------|------------|

Self-contained hydraulic pullers

---

|                  |            |
|------------------|------------|
| <b>ACP RANGE</b> | <b>139</b> |
|------------------|------------|

Auto-center hydraulic puller kits

---

|                  |            |
|------------------|------------|
| <b>PKS RANGE</b> | <b>140</b> |
|------------------|------------|

Hydraulic 2 and 3-way puller kits

---

|                  |            |
|------------------|------------|
| <b>PKC RANGE</b> | <b>141</b> |
|------------------|------------|

Comprehensive hydraulic puller kits

---

|                  |            |
|------------------|------------|
| <b>HBR RANGE</b> | <b>142</b> |
|------------------|------------|

Spring eye bush replacement tool kit

---

|                  |            |
|------------------|------------|
| <b>HPR RANGE</b> | <b>143</b> |
|------------------|------------|

Pin & bush replacement tool kits

---

## SCP | SELF-CONTAINED HYDRAULIC PULLERS

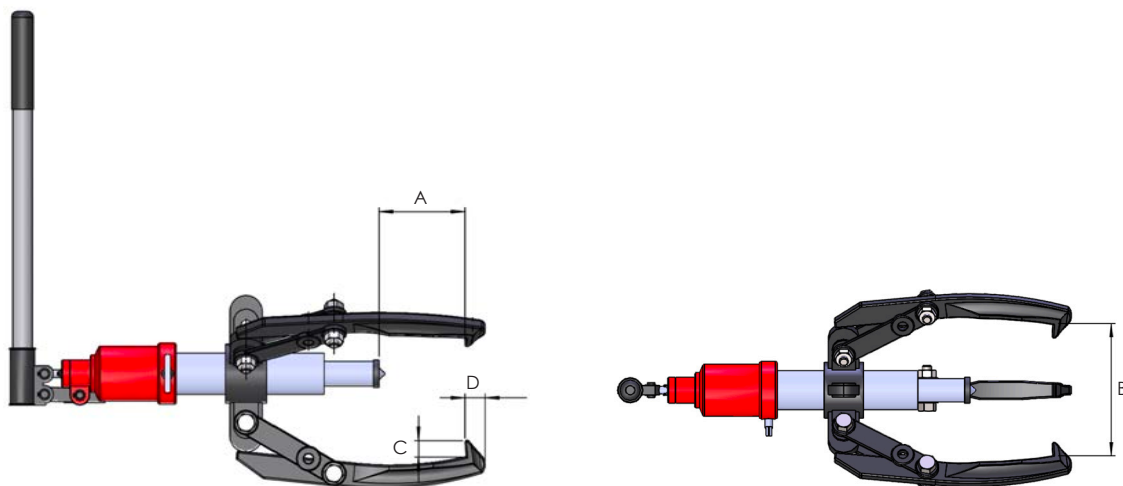


Capacities from 9 to 29 tons

Self-contained hydraulic system

Operates in any position

- ▶ Available in 3-jaw configuration only
- ▶ Integrated hydraulic cylinder, pump and puller assembly for easy operation
- ▶ Ergonomic 360° rotating handle for easy positioning during use
- ▶ Incorporates safety valve to minimize the risk of puller overload
- ▶ Spring-loaded center point for easy centering of the puller to the shaft
- ▶ Supplied complete with piston rod extension piece and storage case



| Model number | Capacity (tons) | Type of puller | Hydraulic stroke (in) | Piston rod extension (in) | Weight (lbs) | Dimensions (in) |         |         |      |      |
|--------------|-----------------|----------------|-----------------------|---------------------------|--------------|-----------------|---------|---------|------|------|
|              |                 |                |                       |                           |              | A               | B (min) | B (max) | C    | D    |
| SCP103       | 9               | 3-way jaw      | 3.23                  | 1.97                      | 25.6         | 7.68            | 1.18    | 12.21   | 0.87 | 0.24 |
| SCP203       | 19              | 3-way jaw      | 3.23                  | 3.94                      | 52.2         | 10.84           | 1.97    | 16.94   | 1.14 | 0.39 |
| SCP303       | 29              | 3-way jaw      | 4.33                  | 5.91                      | 110.2        | 15.96           | 3.94    | 24.03   | 1.5  | 1.42 |

## ACP | AUTO-CENTER HYDRAULIC PULLER KITS

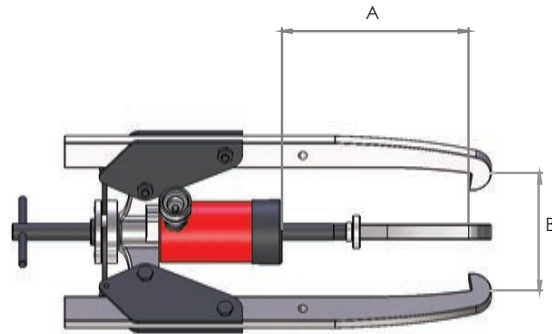


Capacities from 11 to 55 tons

Quick set-up time, easy to use

High quality, drop forged steel components

- ▶ Self-centering design allows secure positioning of jaws
- ▶ Incorporates safety overload prevention valve within hydraulic pump
- ▶ Supplied as a complete set with all necessary hydraulic components in handy storage case
- ▶ Model ACP10 offers choice of either 2-way or 3-way puller operation



| Model number | Capacity (tons) | Type of puller | Cylinder model | Pump model | Weight (lbs) | Dimensions (in) |         |         |
|--------------|-----------------|----------------|----------------|------------|--------------|-----------------|---------|---------|
|              |                 |                |                |            |              | A               | B (min) | B (max) |
| ACP10        | 11              | 2 & 3-way jaw  | HHS102         | PK10-HP    | 54.0         | 11.66           | 1.97    | 13.79   |
| ACP20        | 22              | 3-way jaw      | HHS202         | PK20-HP    | 97.0         | 12.61           | 2.76    | 18.91   |
| ACP30        | 33              | 3-way jaw      | HHS302         | PK30-HP    | 168.7        | 16.04           | 3.55    | 22.85   |
| ACP50        | 55              | 3-way jaw      | HHS603         | PK50-HP    | 399.0        | 28.64           | 4.73    | 36.25   |

## PKS | HYDRAULIC 2 & 3 WAY PULLER KITS

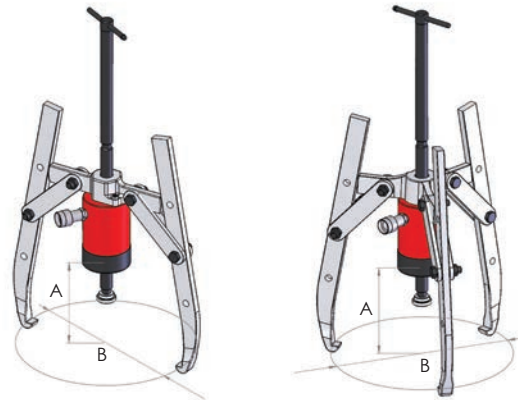


- ▶ Available in choice of 2 or 3-way puller configurations with 5 ton and 11 ton models offering a combination of both options
- ▶ Incorporates safety overload prevention valve within hydraulic pump
- ▶ Supplied as a complete set with all necessary hydraulic components in handy storage case (see Note 3)

Capacities from 5 to 55 tons

Quick set-up time, easy to use

High quality, drop forged steel components



| Model number | Capacity (tons) | Type of puller | Cylinder model | Pump model | Weight (lbs) | Dimensions (in) |         |         |
|--------------|-----------------|----------------|----------------|------------|--------------|-----------------|---------|---------|
|              |                 |                |                |            |              | A               | B (min) | B (max) |
| PKS5-2-3     | 5               | 2 & 3-way jaw  | HSS53          | HP110      | 29.5         | 8.87            | *       | 9.46    |
| PKS10-2-3    | 11              | 2 & 3-way jaw  | HHS102         | PK10-HP    | 45.9         | 11.66           | 1.97    | 13.79   |
| PKS20-2      | 22              | 2-way jaw      | HHS202         | PK20-HP    | 67.9         | 12.61           | 2.76    | 18.91   |
| PKS20-3      | 22              | 3-way jaw      | HHS202         | PK20-HP    | 78.7         | 12.61           | 2.76    | 18.91   |
| PKS30-2      | 33              | 2-way jaw      | HHS302         | PK30-HP    | 98.8         | 16.04           | 3.55    | 22.85   |
| PKS30-3      | 33              | 3-way jaw      | HHS302         | PK30-HP    | 119.9        | 16.04           | 3.55    | 22.85   |
| PKS50-2      | 55              | 2-way jaw      | HHS603         | PK50-HP    | 218.3        | 28.64           | 4.73    | 36.25   |
| PKS50-3      | 55              | 3-way jaw      | HHS603         | PK50-HP    | 268.3        | 28.64           | 4.73    | 36.25   |
| PK202        | 22              | 2-way jaw beam | *              | *          | 6.6          | *               | *       | *       |
| PK302        | 33              | 2-way jaw beam | *              | *          | 8.8          | *               | *       | *       |
| PK502        | 55              | 2-way jaw beam | *              | *          | 15.4         | *               | *       | *       |

**Note:** 1) PK202, PK302 & PK502 are 2-way jaw beam only for modifying applicable capacity 3-way jaw pullers to 2-way jaw operation.

2) Dimensions calculated with 15° outward angled puller legs.

3) All PKS puller kits are supplied in a metal storage box with the exception of PKS50-2 and PKS50-3, which are supplied in an alternate storage case.



**PKC | COMPREHENSIVE HYDRAULIC PULLER KITS**

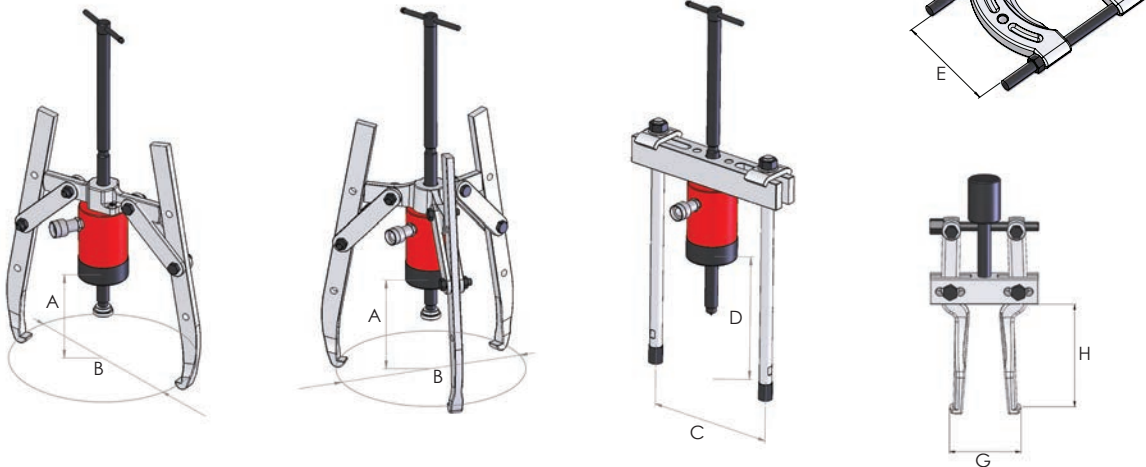


**Capacities from 11 to 55 tons**

**Combination of 4 different pullers in one set**

**High quality, drop forged steel components**

- ▶ Multi-purpose puller kit comprising of grip puller, bearing puller, bearing cup puller and cross head puller
- ▶ Choice of 2-way or 3-way jaw pulling options
- ▶ Incorporates safety overload prevention valve within hydraulic pump
- ▶ Supplied as a complete set with all necessary hydraulic components in handy storage case (see Note 2)



| Model number | Capacity (tons) | Cylinder model | Pump model | Weight (lbs) | Dimensions (in) |         |         |         |         |       |       |         |         |         |         |      |
|--------------|-----------------|----------------|------------|--------------|-----------------|---------|---------|---------|---------|-------|-------|---------|---------|---------|---------|------|
|              |                 |                |            |              | A               | B (min) | B (max) | C (min) | C (max) | D     | E     | F (min) | F (max) | G (min) | G (max) | H    |
| PKC10        | 11              | HHS102         | PK10-HP    | 72.3         | 11.66           | 1.97    | 13.79   | 4.53    | 10.24   | 11.82 | 4.33  | 0.39    | 4.33    | 1.58    | 5.71    | 4.53 |
| PKC20        | 22              | HHS202         | PK20-HP    | 130.7        | 12.61           | 2.76    | 18.91   | 5.32    | 13.59   | 10.44 | 6.11  | 0.47    | 5.28    | 1.58    | 5.71    | 4.53 |
| PKC30        | 33              | HHS302         | PK30-HP    | 257.9        | 16.04           | 3.55    | 22.85   | 7.09    | 17.34   | 11.19 | 10.24 | 0.67    | 10.05   | 2.36    | 9.46    | 5.91 |
| PKC50        | 55              | HHS603         | PK50-HP    | 518.1        | 28.64           | 4.73    | 36.25   | 9.06    | 22.85   | 17.61 | 11.82 | 0.79    | 11.82   | 2.36    | 9.46    | 5.91 |

**Note:** 1) Dimensions A & B calculated with 15° outward angled puller legs

2) All PKC puller kits are supplied in a metal storage box with the exception of PKC50, which is supplied in an alternate storage case.



## HBR | SPRING EYE BUSH REPLACEMENT TOOL KIT



Powerful 20 tons output capacity

Maximum working pressure 10000 psi

Lightweight and compact design

- ▶ Choice of manual or air driven hydraulic pump
- ▶ Kit includes a lightweight aluminum alloy hollow bore cylinder
- ▶ Supplied complete with wide range of standard tooling accessories
- ▶ Handy storage and transportation box included with each kit

| Model number | Capacity (tons) | Stroke (in) | Cylinder | Pump    | Hose | Base plate | Threaded rods | Dolleys | Pull sleeves | Weight (lbs) |
|--------------|-----------------|-------------|----------|---------|------|------------|---------------|---------|--------------|--------------|
| HBR-1        | 20              | 2.01        | HHA182   | n/a     | n/a  | 1          | 3             | 5       | 2            | 59.5         |
| HBR-1H       | 20              | 2.01        | HHA182   | HP212   | HC2  | 1          | 3             | 5       | 2            | 72.8         |
| HBR-1A       | 20              | 2.01        | HHA182   | AHP1120 | HC2  | 1          | 3             | 5       | 2            | 77.2         |

*Note:* Model HBR-1 does not include pump and hose assembly.

### PUMP OPTIONS

The HBR-1 hydraulic spring eye bush replacement tool kit can be operated by either the AHP1120 air driven foot pump or the HP212 lightweight aluminum hand pump.



## HPR | PIN & BUSH REPLACEMENT TOOL KITS



Capacities up to 55 tons

Maximum working pressure 10000 psi

Lightweight and compact design

- ▶ Choice of manual or air driven hydraulic pump
- ▶ Kit includes a lightweight aluminum alloy hollow bore cylinder
- ▶ Supplied complete with wide range of standard tooling accessories
- ▶ Handy storage and transportation box included with each kit

| Model number | Capacity (tons) | Stroke (in) | Cylinder | Pump    | Hose | Base plate | Threaded rods | Pull sleeves | Adaptors | Reducer sleeves | Weight (lbs) |
|--------------|-----------------|-------------|----------|---------|------|------------|---------------|--------------|----------|-----------------|--------------|
| HPR-1        | 41              | 2.01        | HHA372   | n/a     | n/a  | 1          | 1             | 2            | 2        | 1               | 83.8         |
| HPR-1H       | 41              | 2.01        | HHA372   | HP212   | HC2  | 1          | 1             | 2            | 2        | 1               | 97.0         |
| HPR-1A       | 41              | 2.01        | HHA372   | AHP1120 | HC2  | 1          | 1             | 2            | 2        | 1               | 101.4        |
| HPR-2        | 55              | 4.1         | HHA504   | n/a     | n/a  | 2          | 1             | 4            | 1        | 1               | 145.5        |
| HPR-2H       | 55              | 4.1         | HHA504   | HP212   | HC2  | 2          | 1             | 4            | 1        | 1               | 158.7        |
| HPR-2A       | 55              | 4.1         | HHA504   | AHP1120 | HC2  | 2          | 1             | 4            | 1        | 1               | 163.1        |

*Note:* Model numbers HPR-1 and HPR-2 do not include pump and hose assembly.

### PUMP OPTIONS

The HPR hydraulic pin and bush replacement tool kits can be operated by either the AHP1120 air driven foot pump or the HP212 lightweight aluminum hand pump.



## HI-FORCE CRIMPERS AND CUTTERS

Hi-Force hydraulic cable crimping tools are designed and manufactured for crimping un-insulated compression and mechanical connectors, in copper and aluminum, to a wide range of electrical power cables including distribution and transmission lines. Offering a choice of self-contained operation with inbuilt manually operated hydraulic pump mechanism, separate remote operation crimping head for use with a separate hydraulic pump and hose assembly, or battery operated which offers all the versatility of our self-contained and manually operated tools but, with the added speed and ease of use associated with a battery powered tool.

The Hi-Force hydraulic crimping tools range offers the most optimum choice to suit the widest range of electrical cable crimping applications. All models are designed and manufactured for use at 10000 psi maximum working pressure, supplied complete with all applicable die sets, compatible for use with the selected tool and include a convenient carrying and storage case. Self-contained manually operated and battery powered crimper tools are fitted with an automatic pump pressure relief valve, which activates and releases the hydraulic pressure immediately, once the compression (crimping) process has been successfully achieved. All remote operation crimper heads must be operated with a compatible Hi-Force 10000 psi hydraulic pump unit, fitted with an inbuilt pump safety overload, pressure relief valve, 10000 psi pressure gauge and 10000 psi rated hydraulic hose assembly.

Also detailed in this section of the catalogue, is the cutter range from Hi-Force which offers hydraulic, manual and self-contained options that are suitable for cutting steel wire ropes, round bars, wire strands, cables and heavy duty steel chains in many applications across several industries.







## CRIMPERS & CUTTERS

### CH RANGE 146

Cable crimping heads

### SC RANGE 147

Self-contained cable crimping tools

### BC RANGE 148

Battery operated cable crimping tools

### BC ACCESSORIES 149

Accessories for battery operated cable crimping tools

### HCH RANGE 150

Cutter heads

### CT RANGE 151

Self-contained cutters

### HWC RANGE 152

Hammer blow, wire rope and cable cutters

### HSWC RANGE 153

Self-contained wire rope cutters

### HWRC RANGE 154

Double acting wire rope cutters

### HCC RANGE 155

Chain cutters

## CH | CABLE CRIMPING HEADS



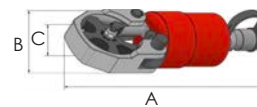
Choice of 7 models available

180 degree rotating head for easy fitment

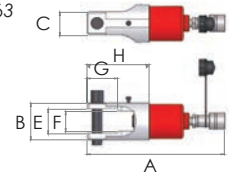
Working pressure 10000 psi

- Open 'C' jaw or parallel guide design
- 180° rotating head for easy access in confined spaces
- Fitted with quick connect coupling for easy connection to 10000 psi rated hydraulic pump
- Supplied with standard die sets and carrying case
- Suitable foot operated pump assembly detailed on page 33
- Model CH21 is suitable for crimping non-insulated terminals up to 240 mm<sup>2</sup>
- Models CH30, CH32 & CH40 are suitable for crimping connectors up to 400 mm<sup>2</sup>
- Models CH63 & CH80 are suitable for crimping connectors up to 630 mm<sup>2</sup>
- Model CH1000N is suitable for crimping distribution and transmission lines up to 1000 mm<sup>2</sup>

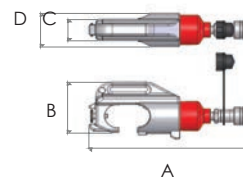
CH21



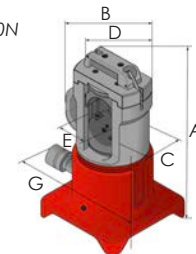
CH32/CH63



CH30/CH40/CH80



CH1000N



Crimping heads complete with die sets:

| Model number | Output (tons) | C-Jaw opening  | Applicable range DIN (mm <sup>2</sup> ) | Standard dies (mm <sup>2</sup> )                                                                              | Length (in) | Weight (lbs) | Dimensions (in) |      |      |      |      |      |      |      |
|--------------|---------------|----------------|-----------------------------------------|---------------------------------------------------------------------------------------------------------------|-------------|--------------|-----------------|------|------|------|------|------|------|------|
|              |               |                |                                         |                                                                                                               |             |              | A               | B    | C    | D    | E    | F    | G    | H    |
| CH21         | 11            | not applicable | 16-240                                  | With die (4pcs) 16-25, 35-70, 70-185, 240<br>Female die (1pc) 25-35, 50-70, 95-120, 150-185, 240              | 8.27        | 6.6          | 10.95           | 3.47 | 1.1  | -    | -    | -    | -    | -    |
| CH30         | 11            | 1.18 in        | 35-400                                  | With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400                                                         | 8.67        | 8.8          | 11.58           | 4.14 | 1.69 | 2.68 | -    | -    | -    | -    |
| CH32         | 18            | not applicable | 16-400                                  | With die (4pcs) 16, 25-35, 50-120, 150-400<br>Female die (8pcs) 16-25, 35-70, 95-120, 150, 185, 240, 300, 400 | 8.27        | 7.9          | 11.19           | 3.07 | 1.97 | -    | 2.09 | 1.69 | 2.48 | 3.78 |
| CH40         | 11            | 1.65 in        | 35-400                                  | With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400                                                         | 9.65        | 10.6         | 12.84           | 4.45 | 1.69 | 2.92 | -    | -    | -    | -    |
| CH63         | 18            | not applicable | 35-630                                  | With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400, 500, 630                                               | 9.46        | 10.6         | 12.57           | 3.07 | 1.97 | -    | 1.93 | -    | 6.42 | -    |
| CH80         | 14            | 1.97 in        | 35-630                                  | With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400, 500, 630                                               | 11.82       | 15.4         | 14.58           | 4.18 | 2.48 | 2.48 | -    | -    | -    | -    |
| CH1000N      | 58            | not applicable | 500-1000                                | With die 500, 630, 800, 1000                                                                                  | 17.73       | 67.7         | 15.56           | 8.27 | 3.55 | 6.7  | 3.23 | -    | 9.26 | -    |

Complete set:

| Model number | Description                                                                                                 |
|--------------|-------------------------------------------------------------------------------------------------------------|
| CHP21        | Comprehensive kit, comprising of crimper head CH21, manually operated foot pump HP227FPC and steel box CSB1 |
| CHP30        | Comprehensive kit, comprising of crimper head CH30, manually operated foot pump HP227FPC and steel box CSB1 |
| CHP32        | Comprehensive kit, comprising of crimper head CH32, manually operated foot pump HP227FPC and steel box CSB1 |
| CHP40        | Comprehensive kit, comprising of crimper head CH40, manually operated foot pump HP227FPC and steel box CSB1 |
| CHP63        | Comprehensive kit, comprising of crimper head CH63, manually operated foot pump HP227FPC and steel box CSB1 |
| CHP80        | Comprehensive kit, comprising of crimper head CH80, manually operated foot pump HP227FPC and steel box CSB1 |

**Note:** Models CH21 & CH32 are supplied with single indent dies, all other models are supplied with hexagonal dies. Please refer to page 149 for the mm<sup>2</sup> to AWG/mcm conversions.

### OPTIONAL DIE SETS

| Model number | Description                                                               |
|--------------|---------------------------------------------------------------------------|
| CD10         | Die set 10 mm <sup>2</sup> , suitable for crimping tool CH30, CH40 & CH63 |
| CD16         | Die set 16 mm <sup>2</sup> , suitable for crimping tool CH30, CH40 & CH63 |
| CD25         | Die set 25 mm <sup>2</sup> , suitable for crimping tool CH30, CH40 & CH63 |



## SC | SELF-CONTAINED CABLE CRIMPING TOOLS



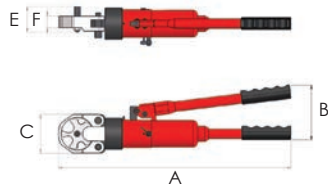
Choice of 6 models available

Supplied complete with die set

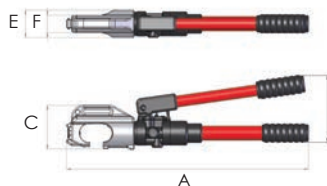
Choice of open jaw or parallel guide design

- ▶ 180° rotating head standard on all open jaw design models
- ▶ Incorporates an integral hydraulic pump for easy operation
- ▶ Automatic pump pressure release valve for correct pre-set crimping force
- ▶ Ergonomic grip handles for reduced operator effort and ease of use
- ▶ Supplied with standard die sets and carrying case
- ▶ Model SC18X is suitable for crimping non-insulated terminals up to 185 mm²
- ▶ Model SC21 is suitable for crimping connectors up to 240 mm²
- ▶ Models SC30, SC32 & SC40 are suitable for crimping connectors up to 400 mm²
- ▶ Model SC60 is suitable for crimping non-insulated terminals up to 630 mm²

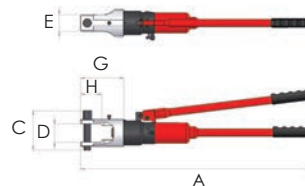
SC21



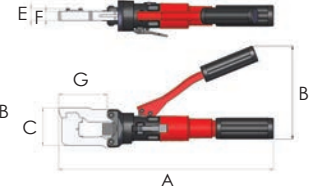
SC30, SC40



SC32, SC60



SC18X



| Model number | Output (tons) | C-Jaw opening  | Applicable range DIN (mm²) | Standard dies (mm²)                                                                                           | Length (in) | Weight (lbs) | Dimensions (in) |      |      |      |      |      |      |      |
|--------------|---------------|----------------|----------------------------|---------------------------------------------------------------------------------------------------------------|-------------|--------------|-----------------|------|------|------|------|------|------|------|
|              |               |                |                            |                                                                                                               |             |              | A               | B    | C    | D    | E    | F    | G    | H    |
| SC18X        | 5.5           | not applicable | 10-185                     | With die 10-16, 25-35, 50-70, 95-120, 150, 185                                                                | 14.58       | 4.4          | 14.97           | 5.59 | 2.76 | -    | 0.83 | 0.63 | 3.39 | -    |
| SC21         | 11            | not applicable | 25-240                     | With die (4pcs) 16-25, 35-70, 70-185, 240<br>Female die (1pc) 25-35, 50-70, 95-120, 150-185, 240              | 20.8        | 11.5         | 20.49           | 4.81 | 3.39 | -    | 2.25 | 1.06 | -    | -    |
| SC30         | 11            | 1.18 in        | 35-400                     | With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400                                                         | 24.03       | 13.9         | 23.72           | 6.54 | 4.57 | -    | 2.68 | 1.69 | -    | -    |
| SC32         | 18            | not applicable | 16-400                     | With die (4pcs) 16, 25-35, 50-120, 150-400<br>Female die (8pcs) 16-25, 35-70, 95-120, 150, 185, 240, 300, 400 | 25.61       | 13.7         | 26.79           | 5.4  | 4.57 | 2.05 | 1.97 | -    | 5.04 | 2.48 |
| SC40         | 11            | 1.65 in        | 35-400                     | With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400                                                         | 25.06       | 17.0         | 24.82           | 6.54 | 4.45 | -    | 2.92 | 1.89 | -    | -    |
| SC60         | 18            | not applicable | 35-630                     | With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400, 500, 630                                               | 25.61       | 14.3         | 27.19           | 5.52 | 4.57 | 2.05 | 1.97 | -    | 6.42 | -    |

**Note:** Models SC21 & SC32 are supplied with single indent dies, all other models are supplied with hexagonal dies. Please refer to page 149 for the mm² to AWG/mcm conversions.

### OPTIONAL DIE SETS

| Model number | Description                                                  |
|--------------|--------------------------------------------------------------|
| CD10         | Die set 10 mm², suitable for crimping tool SC30, SC40 & SC60 |
| CD16         | Die set 16 mm², suitable for crimping tool SC30, SC40 & SC60 |
| CD25         | Die set 25 mm², suitable for crimping tool SC30, SC40 & SC60 |

## BC | BATTERY OPERATED CABLE CRIMPING TOOLS

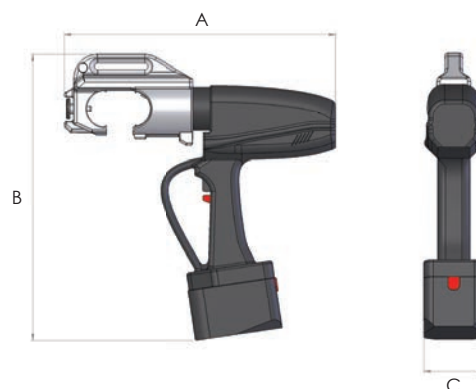


- ▶ Open jaw design with rotating head (excl. BC18X & BC63)
- ▶ Fast and quiet operation with no vibration
- ▶ Built in automatic pump pressure release valve
- ▶ Low battery power warning light
- ▶ Supplied complete with battery, charger, carrying strap and storage case

Fast self-contained battery powered tools

Supplied complete with standard set of dies

Lightweight and easy to operate



| Model number | Output (tons) | C-Jaw opening  | Applicable range DIN (mm²) | Standard dies (mm²)                                             | Weight (lbs) | Dimensions (in) |       |      |
|--------------|---------------|----------------|----------------------------|-----------------------------------------------------------------|--------------|-----------------|-------|------|
|              |               |                |                            |                                                                 |              | A               | B     | C    |
| BC18X        | 5.5           | not applicable | 10-185                     | With die 10-16, 25-35, 50-70, 95-120, 150, 185                  | 8.4          | 14.58           | 11.03 | 2.76 |
| BC30         | 11            | 1.18 in        | 35-400                     | With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400           | 13.0         | 15.76           | 11.03 | 2.76 |
| BC40         | 11            | 1.5 in         | 35-400                     | With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400           | 15.9         | 16.94           | 10.64 | 2.76 |
| BC63         | 18            | not applicable | 35-630                     | With die 35, 50, 70, 95, 120, 150, 185, 240, 300, 400, 500, 630 | 15.2         | 16.55           | 12.61 | 2.96 |

### OPTIONAL DIE SETS

| Model number | Description                                                  |
|--------------|--------------------------------------------------------------|
| CD10         | Die set 10 mm², suitable for crimping tool BC30, BC40 & BC63 |
| CD16         | Die set 16 mm², suitable for crimping tool BC30, BC40 & BC63 |
| CD25         | Die set 25 mm², suitable for crimping tool BC30, BC40 & BC63 |

*Note:* Please refer to page 149 for the mm² to AWG/mcm conversions

BC | ACCESSORIES



BP12

| Model number | Description        |
|--------------|--------------------|
| BP12         | Battery pack 14.4V |

*Note: Charger supplied separately*



CU12

| Model number | Description             |
|--------------|-------------------------|
| CU12         | Mains charger 110V-230V |

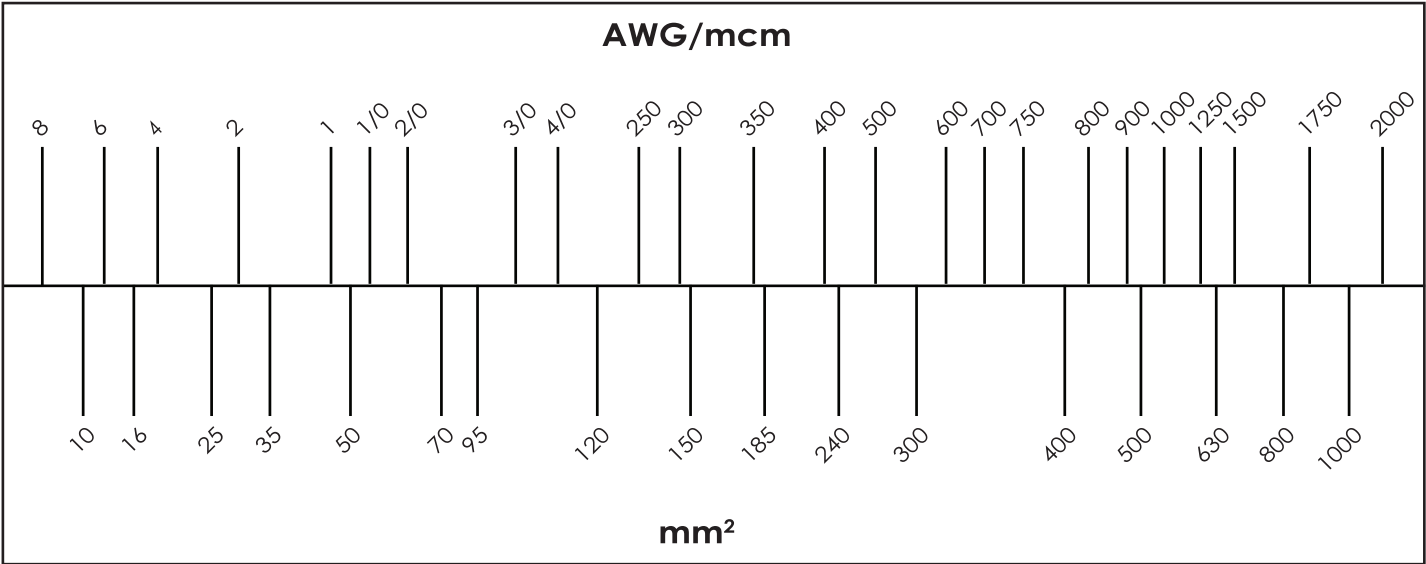


MP220

| Model number                                     | Description |
|--------------------------------------------------|-------------|
| Power supply to operate unit directly from mains |             |
| MP110                                            | 110V        |
| MP220                                            | 220/230V    |

CONVERSION TABLE

The metric die sets supplied with Hi-Force hydraulic crimpers are suitable for crimping non-insulated connectors and terminals to DIN standards only. The standard metric wire sizes do not correspond exactly to AWG/mcm standards. The illustration below provides a cross reference of closest equivalents of metric and AWG/mcm sizes.



## HCH | HYDRAULIC CUTTER HEADS

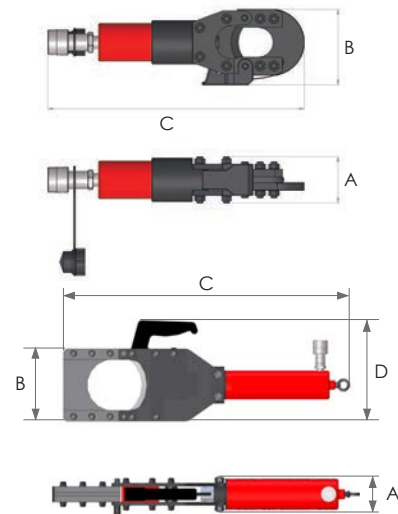


- ▶ High quality tool steel cutting blades
- ▶ Fitted with quick connect coupling for easy connection to hydraulic pump & hose
- ▶ Suitable for cutting copper, aluminum and telephone cables
- ▶ Carrying handle fitted as standard on HCH120 model

Single acting, spring assisted return design

Compact and lightweight

Working pressure 10000 psi



| Model number | Cutting force (tons) | Weight (lbs) | Dimensions (in) |      |       |      |
|--------------|----------------------|--------------|-----------------|------|-------|------|
|              |                      |              | A               | B    | C     | D    |
| HCH40        | 8                    | 6.2          | 2.36            | 3.98 | 13    | -    |
| HCH120       | 13                   | 33.1         | 3.15            | 7.01 | 27.66 | 9.77 |

| Material        | Description                 | Maximum diameter cutting capacity (in) |        |
|-----------------|-----------------------------|----------------------------------------|--------|
|                 |                             | HCH40                                  | HCH120 |
| Steel Wire Rope | 6 x 7 Hempcore              | 0.79                                   | -      |
|                 | 6 x 12 Hempcore             | 0.99                                   | -      |
|                 | 6 x 19 Hempcore             | 0.99                                   | -      |
| Round Bar       | Soft copper bar             | 0.99                                   | -      |
|                 | Soft aluminum bar           | 0.99                                   | -      |
|                 | Soft steel bar (below SS41) | 0.63                                   | -      |
| Wire Strands    | Bare copper strands         | 1.58                                   | 1.65   |
|                 | Bare aluminum strands       | 1.58                                   | 1.81   |
| Cable           | Telephone cable CCP         | -                                      | 4.73   |
|                 | Armored underground cable   | 1.58                                   | 4.73   |

**Note:** The cable of XLPE armored underground cable cannot contain 'PVC cover' and 'steel wire'.

Replacement blades for HCH hydraulic cutter heads:

| Blade part number | Blade type | For cutter |
|-------------------|------------|------------|
| CT40-11           | Moving     | HCH40      |
| CT40-05           | Static     | HCH40      |
| HCH120-01         | Moving     | HCH120     |
| HCH120-02         | Static     | HCH120     |

**CT | SELF-CONTAINED HYDRAULIC CUTTERS**

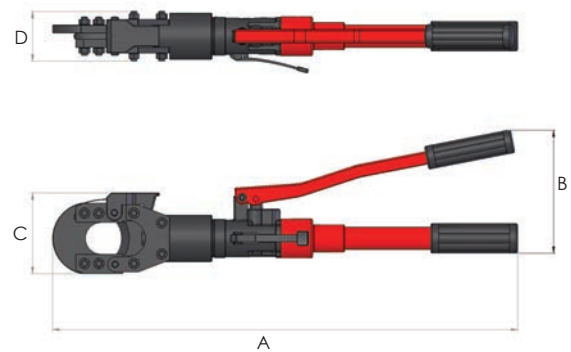


**Cutting capacity up to 1.58 inches diameter**

**Cuts a wide variety of materials**

**Compact and lightweight**

- ▶ High quality tool steel cutting blades
- ▶ Incorporates an integral hydraulic pump for easy operation
- ▶ Ergonomic grip handles for reduced operator effort
- ▶ Suitable for cutting steel wire rope, round bar, wire strands and cable



| Model number | Cutting force (tons) | Weight (lbs) | Dimensions (in) |      |      |      |
|--------------|----------------------|--------------|-----------------|------|------|------|
|              |                      |              | A               | B    | C    | D    |
| CT20         | 5.5                  | 6.2          | 15.37           | 5.71 | 2.99 | 1.58 |
| CT40         | 8                    | 13.2         | 22.06           | 6.11 | 4.06 | 2.56 |

| Material        | Description                 | Maximum diameter cutting capacity (in) |      |
|-----------------|-----------------------------|----------------------------------------|------|
|                 |                             | CT20                                   | CT40 |
| Steel Wire Rope | 6 x 7 Hempcore              | 0.63                                   | 0.79 |
|                 | 6 x 12 Hempcore             | 0.79                                   | 0.99 |
|                 | 6 x 19 Hempcore             | 0.79                                   | 0.99 |
| Round Bar       | Soft copper bar             | 0.79                                   | 0.99 |
|                 | Soft aluminum bar           | 0.79                                   | 0.99 |
|                 | Soft steel bar (below SS41) | 0.63                                   | 0.63 |
| Wire Strands    | Bare copper strands         | 0.79                                   | 1.58 |
|                 | Bare aluminum strands       | 0.79                                   | 1.58 |
| Cable           | Armored underground cable   | 0.79                                   | 1.58 |

Replacement blades for CT self-contained cutter models:

| Blade part number | Blade type | For cutter |
|-------------------|------------|------------|
| CT20-04           | Moving     | CT20       |
| CT20-05           | Static     | CT20       |
| CT40-11           | Moving     | CT40       |
| CT40-05           | Static     | CT40       |



## HWC | HAMMER BLOW WIRE ROPE AND CABLE CUTTERS

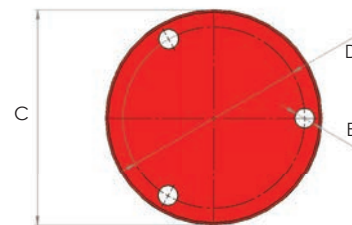
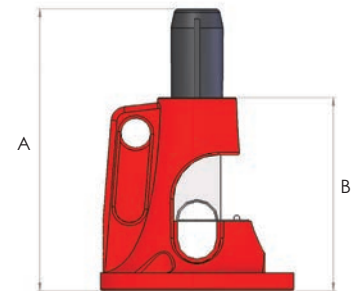


Highly cost efficient impact design

Cutting capacities up to 1.5 inches diameter

Portable and lightweight

- ▶ Manufactured from high quality, shock resistant ductile iron
- ▶ Heat treated, tool steel cutting blade, fully contained within housing for increased safety
- ▶ Suitable for cutting wire ropes and electrical cables



| Model number | Wire rope Ø<br>in | Cutting capacity       |                 | Weight (lbs) |
|--------------|-------------------|------------------------|-----------------|--------------|
|              |                   | Electric cable<br>mcm* | mm <sup>2</sup> |              |
| HWC90        | 0.75              | 250                    | 127             | 7.1          |
| HWC91        | 1.06              | 300                    | 152             | 15.4         |
| HWC92        | 1.5               | 750                    | 380             | 28.7         |

| Dimensions (in) |      |      |      |      |
|-----------------|------|------|------|------|
| A               | B    | C    | D    | E    |
| 8.87            | 5.52 | 3.47 | n/a  | n/a  |
| 9.65            | 6.07 | 6.3  | 5.83 | 0.55 |
| 11.23           | 7.68 | 7.68 | 6.46 | 0.71 |

\*mcm = 1000 circular mils

Replacement blades for HWC hammer blow wire rope and cable cutters:

| Blade part number | For cutter |
|-------------------|------------|
| HWC90-105         | HWC90      |
| HWC91-125         | HWC91      |
| HWC92-135         | HWC92      |

## HSWC | SELF-CONTAINED HYDRAULIC WIRE ROPE CUTTERS

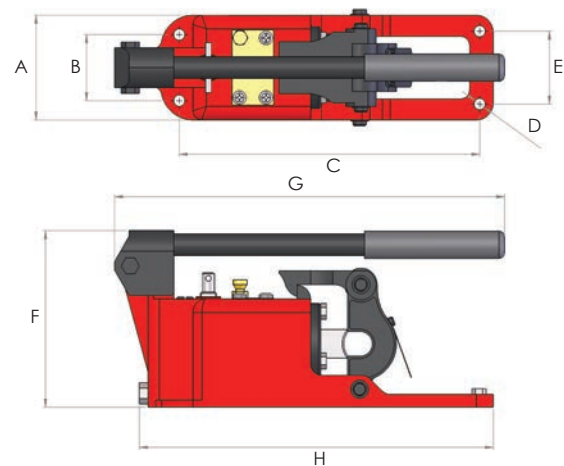


Cutting capacities up to 1.73 inches diameter

Strong rigid steel construction

Easy to use with minimum operator effort

- ▶ Self-contained design for applications where no external power is available
- ▶ Open jaw design cutting head allows easy access for the material to be cut
- ▶ Heat treated, high quality tool steel blade
- ▶ Ergonomic grip handle for low operator effort
- ▶ Smooth guillotine action reduces risk of blade jamming



| Model number | Cutting capacity<br>Wire rope Ø (in) | Weight (lbs) |
|--------------|--------------------------------------|--------------|
| HSWC19       | 0.75                                 | 20.9         |
| HSWC28       | 1.1                                  | 34.2         |
| HSWC44       | 1.75                                 | 66.1         |

| Dimensions (in) |      |       |     |      |      |       |       |  |
|-----------------|------|-------|-----|------|------|-------|-------|--|
| A               | B    | C     | D   | E    | F    | G     | H     |  |
| 3.66            | 2.29 | 10.44 | 0.4 | 2.52 | 6.07 | 13.59 | 12.41 |  |
| 4.14            | 2.52 | 11.58 | 0.4 | 2.64 | 6.86 | 14.74 | 14.07 |  |
| 4.93            | 2.76 | 15.48 | 0.4 | 3.31 | 8    | 19.31 | 18.12 |  |

Replacement blades for HSWC self-contained wire rope cutters:

| Blade part number | For cutter |
|-------------------|------------|
| HSWC19-4          | HSWC19     |
| HSWC28-4          | HSWC28     |
| HSWC44-4          | HSWC44     |

## HWRC | DOUBLE ACTING WIRE ROPE CUTTERS

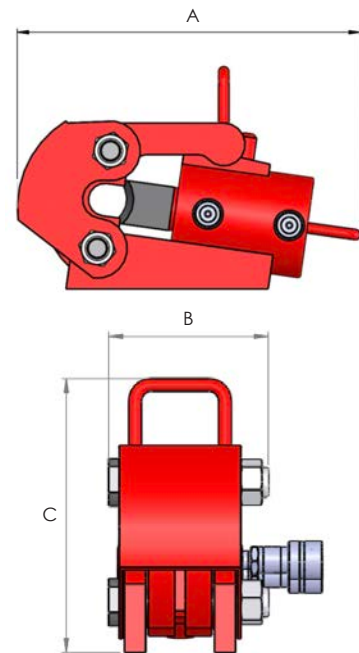


- ▶ Features a double acting cylinder which offers a faster and positive return
- ▶ High grade steel construction
- ▶ Open jaw design cutting head allows easy access for the material to be cut
- ▶ Specially toughened high tensile steel blades and jaws
- ▶ Designed for cutting high tensile locked coil wire ropes and solid steel bars
- ▶ Fitted with quick connect couplings for easy connection to hydraulic pump and hoses

Double acting design

Smooth guillotine cutting action

Working pressure 10000 psi



| Model number | Output (tons) | Cutting capacity (in) |       |                 | Oil capacity (in³) | Weight (lbs) | Dimensions (in) |       |       |
|--------------|---------------|-----------------------|-------|-----------------|--------------------|--------------|-----------------|-------|-------|
|              |               | Wire rope Ø           | Cable | Reinforcing bar |                    |              | A               | B     | C     |
| HWRC1115     | 40            | 1.5                   | 1.5   | 0.79            | 21.35              | 66.1         | 15.76           | 6.11  | 10.64 |
| HWRC1125     | 88            | 2.48                  | 2.48  | 1.26            | 54.9               | 132.3        | 17.73           | 7.88  | 15.37 |
| HWRC1136     | 88            | 3.55                  | 3.55  | 1.26            | 73.23              | 154.3        | 20.29           | 7.88  | 15.37 |
| HWRC1145     | 132           | 4.49                  | 4.49  | 1.58            | 146.46             | 209.4        | 22.46           | 11.03 | 17.53 |

Replacement blades for HWRC wire rope cutter models:

| Blade part number | For cutter |
|-------------------|------------|
| 111511            | HWRC1115   |
| 112511            | HWRC1125   |
| 113611            | HWRC1136   |
| 114511            | HWRC1145   |

**HCC | CHAIN CUTTERS**

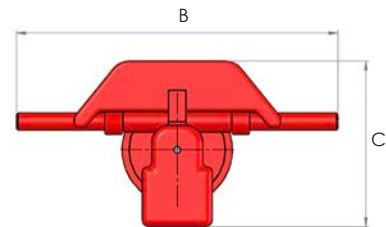
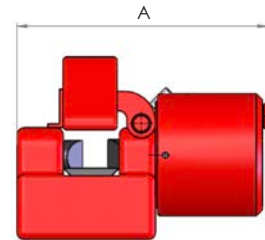


**Cutting capacities up to 1.97 inches diameter**

**Smooth guillotine cutting action**

**Working pressure 10000 psi**

- ▶ Single acting spring assisted return hydraulic piston
- ▶ High grade steel construction
- ▶ Swivel locking safety guard allows easy access for material to be cut
- ▶ Specially toughened high tensile steel blades and jaws
- ▶ Includes quick connect hydraulic coupling for easy connection to pump and hose
- ▶ Designed for cutting grade 100 and 47 HRC high tensile steel chains and reinforcing bars



| Model number | Output (tons) | Cutting capacity Ø (in) | Maximum allowed |                | Oil capacity (in³) | Weight (lbs) | Dimensions (in) |       |       |
|--------------|---------------|-------------------------|-----------------|----------------|--------------------|--------------|-----------------|-------|-------|
|              |               |                         | Chain grade     | Steel hardness |                    |              | A               | B     | C     |
| HCC26-100    | 77            | 1.02                    | 100             | 47 HRC         | 16.84              | 50.7         | 17.34           | 7.09  | 7.09  |
| HCC34-100    | 110           | 1.34                    | 100             | 47 HRC         | 30.01              | 88.2         | 16.15           | 18.12 | 9.85  |
| HCC46-100    | 154           | 1.81                    | 100             | 47 HRC         | 59.78              | 158.7        | 22.26           | 25.02 | 13.59 |
| HCC50-100    | 160           | 1.97                    | 100             | 47 HRC         | 67.1               | 169.8        | 22.26           | 25.02 | 14.18 |

Replacement blades for HCC chain cutter models:

| Blade part number | Blade type | For cutter |
|-------------------|------------|------------|
| HCC26-4M100       | Moving     | HCC26-100  |
| HCC26-4S100       | Static     | HCC26-100  |
| HCC34-5M100       | Moving     | HCC34-100  |
| HCC34-5S100       | Static     | HCC34-100  |
| HCC46-11M100      | Moving     | HCC46-100  |
| HCC46-11S100      | Static     | HCC46-100  |
| HCC50-17M100      | Moving     | HCC50-100  |
| HCC50-17S100      | Static     | HCC50-100  |



## HI-FORCE SKATES

The Hi-Force range of skates are designed for moving, installing and relocating heavy machinery and equipment in a safe and cost effective way. The range comprises of a choice of six different designs, all manufactured to provide a flexible and dependable solution for heavy load movement. All models incorporate an endless hardened roller chain, which revolves around the skate and ensures at least four rollers remain in contact with the load bearing surface, at all times to ensure smooth travel, even over cracked concrete floors. Ideally suited for confined space applications and heavy irregular shaped loads, Hi-Force skates offer a more economical alternative, for moving heavy loads, than most other lifting and positioning devices.

With a range of accessories like turntables, stabilisers, spacer bars and steering handles available, as well as the option of bespoke designs, to customer exact requirements, Hi-Force skates have all your heavy equipment movements covered.

Typical applications for Hi-Force skates include bridge building, oil rig installation, movement of transformers, generators, turbines and heavy machinery.







## SKATES

---

|                  |            |
|------------------|------------|
| <b>RKT RANGE</b> | <b>158</b> |
|------------------|------------|

Roller skate kit - tricycle

---

|                  |            |
|------------------|------------|
| <b>RKF RANGE</b> | <b>159</b> |
|------------------|------------|

Roller skate kits - quad

---

|                  |            |
|------------------|------------|
| <b>RSN RANGE</b> | <b>160</b> |
|------------------|------------|

Multi-purpose skates

---

|                  |            |
|------------------|------------|
| <b>RSA RANGE</b> | <b>161</b> |
|------------------|------------|

Heavy duty skates

---

|                  |            |
|------------------|------------|
| <b>RSG RANGE</b> | <b>162</b> |
|------------------|------------|

Heavy duty skates with grooved guide - single roller

---

|                  |            |
|------------------|------------|
| <b>RSD RANGE</b> | <b>163</b> |
|------------------|------------|

Heavy duty skates with grooved guide - double roller

---

**RKT | ROLLER SKATE KITS - TRICYCLE**



**Capacity 39 tons**

**Available as a complete kit**

**Endless hardened roller chain**

- ▶ Low height design for increased stability and safety
- ▶ Heavy duty construction with minimal maintenance required
- ▶ Kit comprises of three skates with all necessary accessories
- ▶ Center front skate fitted with turntable for easy change of direction
- ▶ Twin rear skates supplied with tie bar for increased stability

| Model number | Cap. per set (tons) | Twin rollers (ø in) | Single rollers (ø in) | Height (in) | Turntable (ø in) | Handle length (in) | Weight (lbs) |
|--------------|---------------------|---------------------|-----------------------|-------------|------------------|--------------------|--------------|
| RKT35        | 39                  | 1.18                | 0.95                  | 4.33        | 9.85             | 34.67              | 149.9        |

**METAL BOX**



| Length | Dimensions (in)<br>Width | Height |
|--------|--------------------------|--------|
| 24.03  | 12.21                    | 6.5    |

*Note: RKT kit is supplied in a metal storage case*

## RKF | ROLLER SKATE KITS - QUAD



Capacities from 22 to 66 tons

Minimum turning circle 10 feet

Endless hardened roller chain

- ▶ Low height design for increased stability and safety
- ▶ Heavy duty construction with minimal maintenance required
- ▶ Kit comprises of four skates with all necessary accessories
- ▶ Includes two turntables for fitment to front steering skates
- ▶ Maximum recommended speed of movement of 16 feet per minute

| Model number | Cap. per set (tons) | Skates Qty: 4 | Turntables Qty: 2 | Levelling plates Qty: 2 | Link bars Qty: 2 | Handles Qty: 2 | Weight (lbs) |
|--------------|---------------------|---------------|-------------------|-------------------------|------------------|----------------|--------------|
| RKF20        | 22                  | RSN10         | RTT10             | RLP10                   | RLB00            | RPH00          | 105.8        |
| RKF30        | 33                  | RSN15         | RTT15             | RLP15                   | RLB00            | RPH00          | 123.5        |
| RKF60        | 66                  | RSN30         | RTT30             | RLP30                   | RLB00            | RPH00          | 198.4        |

*Note:* Each set carrying capacity is calculated taking into consideration that two roller skates are sufficient to support the full load.

Dimensions:

| Model number | Rollers (ø in) | Total height (in) | Turntable (ø in) | Handle length (in) |
|--------------|----------------|-------------------|------------------|--------------------|
| RKF20        | 0.71           | 4.26              | 5.12             | 34.67              |
| RKF30        | 0.95           | 4.61              | 5.12             | 34.67              |
| RKF60        | 1.18           | 5.52              | 5.91             | 34.67              |

### METAL BOX



| Length | Dimensions (in)<br>Width | Height |
|--------|--------------------------|--------|
| 24.03  | 12.21                    | 6.5    |

*Note:* RKF kit is supplied in a metal storage case

## RSN | MULTI-PURPOSE SKATES



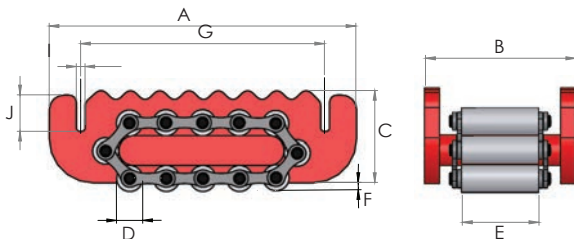
Capacities from 11 to 88 tons

Endless hardened roller chain

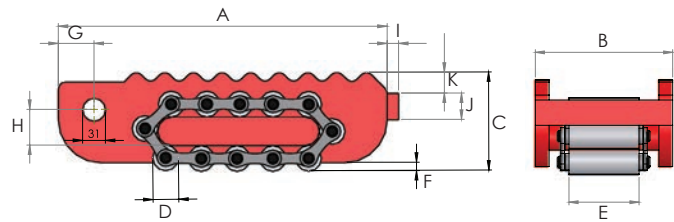
Full range of accessories available

- Low height design for increased stability and safety
- Heavy duty construction with minimal maintenance required
- Turntables and levelling plates available for easy directional change
- Maximum recommended speed of movement of 16 feet per minute

Drawings for models RSN10, RSN15 and RSN30



Drawings for models RSN60 and RSN80



| Model number | Capacity (tons) | Rollers in contact | Rollers total | Weight (lbs) | Dimensions (in) |      |      |      |      |      |      |      |      |      |      |
|--------------|-----------------|--------------------|---------------|--------------|-----------------|------|------|------|------|------|------|------|------|------|------|
|              |                 |                    |               |              | A               | B    | C    | Ø D  | E    | F    | G    | H    | I    | J    | K    |
| RSN10        | 11              | 5                  | 15            | 11.5         | 8.27            | 3.94 | 2.6  | 0.71 | 2.01 | 0.24 | 6.58 | -    | 0.24 | 0.99 | -    |
| RSN15        | 16              | 4                  | 13            | 16.1         | 8.67            | 4.45 | 2.96 | 0.95 | 2.36 | 0.39 | 7.09 | -    | 0.24 | 0.99 | -    |
| RSN30        | 33              | 4                  | 13            | 28.7         | 10.64           | 5.12 | 3.62 | 1.18 | 2.68 | 0.39 | 8.55 | -    | 0.24 | 0.99 | -    |
| RSN60        | 66              | 4                  | 13            | 70.5         | 14.97           | 6.62 | 5    | 1.65 | 2.99 | 0.63 | 1.42 | 1.89 | 0.39 | 1.58 | 0.59 |
| RSN80        | 88              | 6                  | 17            | 134.5        | 20.88           | 7.17 | 5.79 | 1.97 | 3.39 | 0.75 | 1.42 | 2.36 | 0.39 | 1.58 | 0.59 |

### ACCESSORIES

| Model number | Description     | Diameter (in) | Capacity (tons) | Weight (lbs) |
|--------------|-----------------|---------------|-----------------|--------------|
| RTT10        | Turntable       | 5.12          | 11              | 9.9          |
| RTT15        | Turntable       | 5.12          | 16              | 9.9          |
| RTT30        | Turntable       | 5.91          | 33              | 14.8         |
| RTT60        | Turntable       | 7.49          | 66              | 30.2         |
| RTT80        | Turntable       | 8.67          | 88              | 41.7         |
| RLP10        | Levelling plate | n/a           | 11              | 8.2          |
| RLP15        | Levelling plate | n/a           | 16              | 8.2          |
| RLP30        | Levelling plate | n/a           | 33              | 11.7         |
| RLP60        | Levelling plate | n/a           | 66              | 30.4         |
| RLP80        | Levelling plate | n/a           | 88              | 41.4         |

## RSA | HEAVY DUTY SKATES

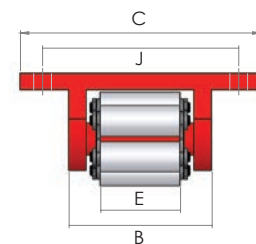
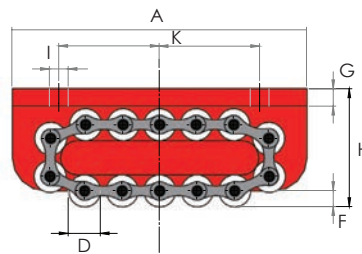


Capacities from 16 to 94 tons

Choice of 6 models available

Fitted with large load bearing top plate

- ▶ Low height design for increased stability and safety
- ▶ Drilled bolt holes (4 nr.) on all models up to 55 tons capacity
- ▶ Specially positioned bolt holes can be included as required
- ▶ Maximum recommended speed of movement of 16 feet per minute
- ▶ Can be used as a conveyor in fixed position under the moving load



| Model number | Capacity (tons) | Rollers in contact | Rollers total | Weight (lbs) |
|--------------|-----------------|--------------------|---------------|--------------|
| RSA15        | 16              | 5                  | 15            | 19.6         |
| RSA20        | 22              | 4                  | 13            | 25.8         |
| RSA40        | 44              | 4                  | 13            | 42.5         |
| RSA50        | 55              | 6                  | 17            | 63.9         |
| RSA65        | 72              | 4                  | 13            | 112.4        |
| RSA85        | 94              | 6                  | 17            | 202.8        |

| Dimensions (in) |      |       |      |      |      |      |      |      |      |      |  |
|-----------------|------|-------|------|------|------|------|------|------|------|------|--|
| A               | B    | C     | Ø D  | E    | F    | G    | H    | Ø I  | J    | K    |  |
| 8.27            | 3.94 | 6.9   | 0.71 | 2.01 | 0.24 | 0.51 | 2.99 | 0.55 | 5.52 | 2.96 |  |
| 8.67            | 4.45 | 7.49  | 0.95 | 2.36 | 0.39 | 0.55 | 3.43 | 0.55 | 6.11 | 2.96 |  |
| 10.64           | 5.12 | 8.27  | 1.18 | 2.68 | 0.39 | 0.55 | 4.1  | 0.71 | 6.9  | 3.74 |  |
| 12.61           | 5.52 | 8.67  | 1.18 | 2.68 | 0.39 | 0.71 | 4.53 | 0.71 | 7.09 | 4.73 |  |
| 14.97           | 6.62 | 10.64 | 1.65 | 2.99 | 0.75 | 0.75 | 5.71 | 0.87 | 8.67 | 5.52 |  |
| 20.88           | 7.17 | 11.82 | 1.97 | 3.39 | 0.75 | 0.75 | 6.5  | 0.87 | 9.46 | 8.08 |  |



## RSG | HEAVY DUTY SKATES WITH GROOVED GUIDE - SINGLE ROLLER

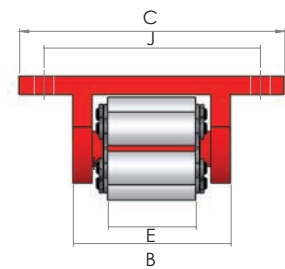
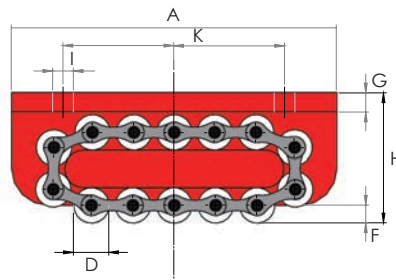


Capacities from 44 to 220 tons

Choice of 7 models available

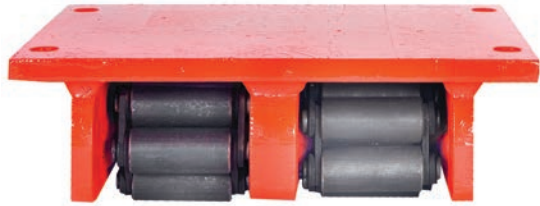
Fitted with large load bearing top plate

- Suitable for use over longer distances and/or permanent loads
- Center plate chain guide reduces wear significantly
- Optional fixing bolt holes available (standard on models RSG40 & RSG50)
- Maximum recommended speed of movement 16 feet per minute
- Can be used as a conveyor in fixed position under the moving load



| Model number | Capacity (tons) | Rollers in contact | Rollers total | Weight (lbs) | Dimensions (in) |      |       |      |      |      |      |      |      |       |       |
|--------------|-----------------|--------------------|---------------|--------------|-----------------|------|-------|------|------|------|------|------|------|-------|-------|
|              |                 |                    |               |              | A               | B    | C     | Ø D  | E    | F    | G    | H    | Ø I  | J     | K     |
| RSG40        | 44              | 4                  | 13            | 43.2         | 10.64           | 5.12 | 8.27  | 1.18 | 2.68 | 0.39 | 0.55 | 4.1  | 0.71 | 6.9   | 3.74  |
| RSG50        | 55              | 6                  | 17            | 65.0         | 12.61           | 5.52 | 8.67  | 1.18 | 2.68 | 0.39 | 0.71 | 4.53 | 0.71 | 7.09  | 4.73  |
| RSG65        | 72              | 4                  | 13            | 114.0        | 14.97           | 6.62 | 10.64 | 1.65 | 2.99 | 0.75 | 0.75 | 5.71 | 0.87 | 8.67  | 5.52  |
| RSG85        | 94              | 6                  | 17            | 205.0        | 20.88           | 7.17 | 11.82 | 1.97 | 3.39 | 0.75 | 0.75 | 6.5  | 0.87 | 9.46  | 8.08  |
| RSG100       | 110             | 8                  | 21            | 240.3        | 22.85           | 7.29 | 11.82 | 1.97 | 3.39 | 0.75 | 0.91 | 6.7  | 1.02 | 9.85  | 9.85  |
| RSG150       | 165             | 9                  | 23            | 357.1        | 25.61           | 8.08 | 13.79 | 1.97 | 3.94 | 0.79 | 1.1  | 7.49 | 1.02 | 11.03 | 9.46  |
| RSG200       | 220             | 13                 | 31            | 586.4        | 35.46           | 8.08 | 14.97 | 1.97 | 3.94 | 0.79 | 1.5  | 7.88 | 1.3  | 11.82 | 14.18 |

## RSD | HEAVY DUTY SKATES WITH GROOVED GUIDE - DOUBLE ROLLER

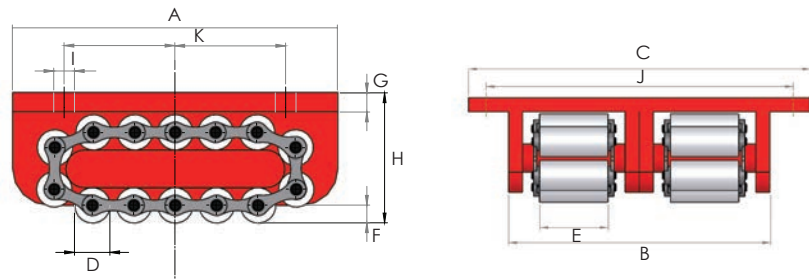


Capacities from 88 to 441 tons

Choice of 7 models available

Fitted with large load bearing top plate

- ▶ Low height double roller design for even greater stability and safety
- ▶ Twin center plate chain guides reduce wear significantly
- ▶ Fixing bolt holes (6 nr.) included as standard feature
- ▶ Maximum recommended speed of movement 16 feet per minute
- ▶ Can be used as a conveyor in fixed position under the moving load



| Model number | Capacity (tons) | Rollers in contact | Rollers total | Weight (lbs) | Dimensions (in) |       |       |      |      |      |      |      |      |       |       |
|--------------|-----------------|--------------------|---------------|--------------|-----------------|-------|-------|------|------|------|------|------|------|-------|-------|
|              |                 |                    |               |              | A               | B     | C     | Ø D  | E    | F    | G    | H    | Ø I  | J     | K     |
| RSD80        | 88              | 2x4                | 2x13          | 79.8         | 10.64           | 10.24 | 13.4  | 1.18 | 2.68 | 0.39 | 0.55 | 4.1  | 0.71 | 12.02 | 3.74  |
| RSD100       | 110             | 2x6                | 2x17          | 126.8        | 12.61           | 11.03 | 14.18 | 1.18 | 2.68 | 0.39 | 0.71 | 4.53 | 0.71 | 12.81 | 4.73  |
| RSD130       | 143             | 2x4                | 2x13          | 211.6        | 14.97           | 13.24 | 15.76 | 1.65 | 2.99 | 0.75 | 0.75 | 5.71 | 0.87 | 15.37 | 5.91  |
| RSD170       | 187             | 2x6                | 2x17          | 385.8        | 20.88           | 14.34 | 18.91 | 1.97 | 3.39 | 0.75 | 0.75 | 6.5  | 0.87 | 16.94 | 8.27  |
| RSD200       | 220             | 2x8                | 2x21          | 456.4        | 22.85           | 14.34 | 18.91 | 1.97 | 3.39 | 0.75 | 0.91 | 6.7  | 1.02 | 16.94 | 9.85  |
| RSD300       | 331             | 2x9                | 2x23          | 672.4        | 25.61           | 16.15 | 22.06 | 1.97 | 3.94 | 0.79 | 1.1  | 7.49 | 1.02 | 19.31 | 9.46  |
| RSD400       | 441             | 2x13               | 2x31          | 1069.2       | 35.46           | 16.15 | 23.25 | 1.97 | 3.94 | 0.79 | 1.5  | 7.88 | 1.3  | 19.7  | 14.18 |

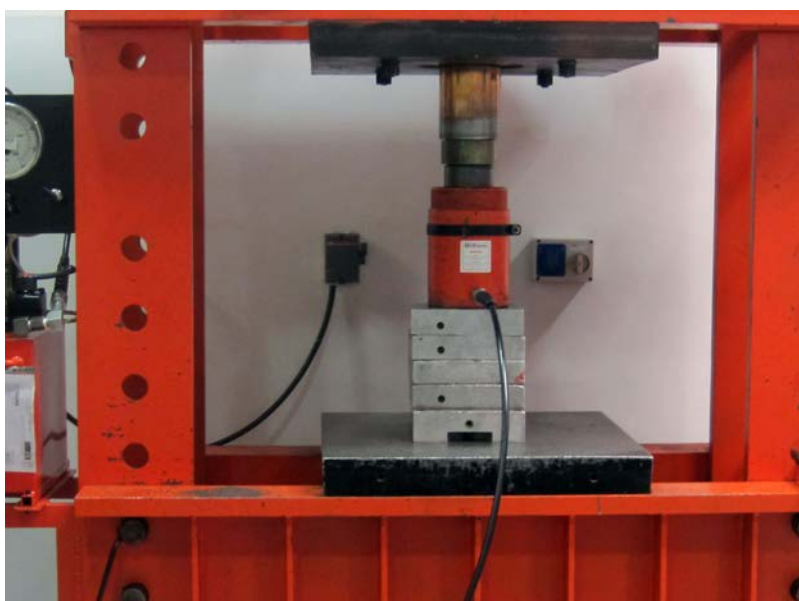
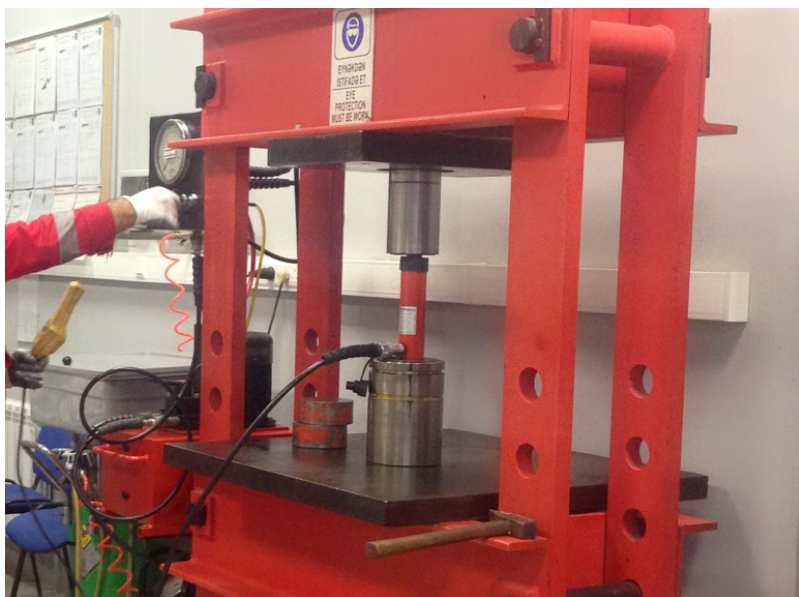
## HI-FORCE HYDRAULIC PRESSES

The HPF workshop presses are designed and manufactured, with maximum strength and durability, to provide years of safe and trouble-free operation. Ideally suited for use in workshop maintenance applications, the range offers capacities from 11 to 220 tons with stroke lengths up to 13 in, operating at maximum pressures of 10,000 psi.

The HPF press models feature a robust steel frame construction and incorporate an adjustable work table with additional adjustable top bed on all models 55 tons capacity and above.

All models are supplied with dual scale, hydraulic pressure gauge for increased safety and load monitoring. Factory fitted optional accessories include multi-positional V-blocks with flat bed and V-shape press surfaces.





# PRESSES

## HPF RANGE

166

Workshop presses



## HPF | WORKSHOP PRESSES



Capacities from 11 to 220 tons

Stroke lengths from 9.85 to 13 inches

Working pressure 10000 psi

- ▶ Strong steel frame construction
- ▶ Easily adjustable work table on all models
- ▶ Adjustable upper bed on all models 55 tons and above

| Model number | Capacity (tons) | Stroke (in) | Cylinder model | Cylinder principle | Pump model | Pump operation               | Weight (lbs) |
|--------------|-----------------|-------------|----------------|--------------------|------------|------------------------------|--------------|
| HPF1020      | 11              | 9.85        | HSS1010        | single acting      | HP110      | hand operated                | 396.8        |
| HPF1030      | 11              | 9.85        | HSS1010        | single acting      | AHP1120    | air powered                  | 396.8        |
| HPF2520      | 28              | 9.85        | HSS2510        | single acting      | HP227      | hand operated                | 396.8        |
| HPF2530      | 28              | 9.85        | HSS2510        | single acting      | AHP1120    | air powered                  | 396.8        |
| HPF2541      | 28              | 9.85        | HSS2510        | single acting      | HPF207311  | 110V 50 Hz, 3-way            | 463.0        |
| HPF2542      | 28              | 9.85        | HSS2510        | single acting      | HPF207312  | 230V 50 Hz, 3-way            | 463.0        |
| HPF2544      | 28              | 9.85        | HSS2510        | single acting      | HPF207314  | 400V 50 Hz/460V 60 Hz, 3-way | 463.0        |
| HPF5020      | 55              | 13          | HDA5013        | double acting      | HP252D     | hand operated                | 1146.4       |
| HPF5041      | 55              | 13          | HDA5013        | double acting      | HPF207411  | 110V 50 Hz, 4-way            | 1212.5       |
| HPF5042      | 55              | 13          | HDA5013        | double acting      | HPF207412  | 230V 50 Hz, 4-way            | 1142.0       |
| HPF5044      | 55              | 13          | HDA5013        | double acting      | HPF207414  | 400V 50 Hz/460V 60 Hz, 4-way | 1142.0       |
| HPF10041     | 110             | 13          | HDA10013       | double acting      | HPF207411  | 110V 50 Hz, 4-way            | 2314.8       |
| HPF10042     | 110             | 13          | HDA10013       | double acting      | HPF207412  | 230V 50 Hz, 4-way            | 2314.8       |
| HPF10044     | 110             | 13          | HDA10013       | double acting      | HPF207414  | 400V 50 Hz/460V 60 Hz, 4-way | 2314.8       |
| HPF20041     | 220             | 12.02       | HDA20012       | double acting      | HPF207411  | 110V 50 Hz, 4-way            | 7165.0       |
| HPF20042     | 220             | 12.02       | HDA20012       | double acting      | HPF207412  | 230V 50 Hz, 4-way            | 7165.0       |
| HPF20044     | 220             | 12.02       | HDA20012       | double acting      | HPF207414  | 400V 50 Hz/460V 60 Hz, 4-way | 7165.0       |

**Note:** 1) All 400/460V models are suitable for operation at 50 Hz and 60 Hz.

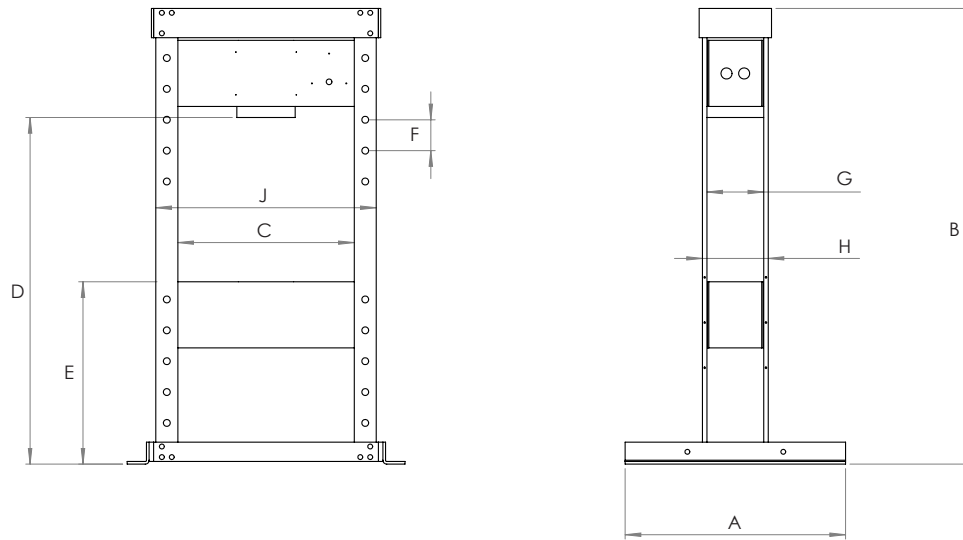
2) All 110V and 230V models are supplied to run at 50 Hz as standard. For 60 Hz requirements, please suffix 'H' to the press model number.

3) To order a press with low voltage solenoid valve and hand pendant controller, please suffix 'S' to the press model number.

4) To order a press suitable for 60 Hz operation with low voltage solenoid valve and hand pendant controller, please suffix 'HS' to the press model number.



## HPF | WORKSHOP PRESSES



| Model          | Dimensions (in) |        |       |               |       |               |       |      |       |       |       |
|----------------|-----------------|--------|-------|---------------|-------|---------------|-------|------|-------|-------|-------|
|                | A               | B      | C     | D (min - max) |       | E (min - max) |       | F    | G     | H     | J     |
| 11 ton models  | 30.02           | 57.25  | 19.7  | 49.72         |       | 10.4          | 39.95 | 5.91 | 7.56  | 9.14  | 26    |
| 28 ton models  | 30.02           | 57.25  | 19.7  | 49.72         |       | 10.4          | 39.95 | 5.91 | 7.56  | 9.14  | 26    |
| 55 ton models  | 39.4            | 81.44  | 31.52 | 45.39         | 61.94 | 16.04         | 32.58 | 5.52 | 10.17 | 11.74 | 39.4  |
| 110 ton models | 39.4            | 78.6   | 39.4  | 43.14         | 54.18 | 22.26         | 33.29 | 5.52 | 13.32 | 15.29 | 48.86 |
| 220 ton models | 47.28           | 110.32 | 49.25 | 71.51         | 83.33 | 24.03         | 71.31 | 5.91 | 13    | 16.15 | 68.95 |

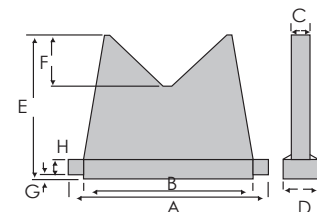
**Note:** Press bed and press head are adjustable in steps of 'F'.

- 1) 28 ton models have a fixed top head and adjustable bottom press bed with 6 positions
- 2) 55 ton models have an adjustable top head and bottom press bed with 4 positions each
- 3) 110 ton models have adjustable top head and bottom press bed with 3 positions each
- 4) 220 ton models have adjustable top head with 3 positions and a bottom press bed with 9 positions

### V-BLOCKS

- Multi-position V-blocks with flat bed and V-shape press surfaces
- Available as standard for 11, 28, 55 and 110 ton presses

| Model number | Capacity per set (tons) | Dimensions (in) |       |      |      |       |      |      |      |
|--------------|-------------------------|-----------------|-------|------|------|-------|------|------|------|
|              |                         | A               | B     | C    | D    | E     | F    | G    | H    |
| HVB2500      | 11 - 28                 | 8.04            | 6.07  | 0.79 | 1.77 | 6.11  | 1.77 | 0.32 | 0.79 |
| HVB5000      | 55                      | 9.69            | 8.12  | 0.99 | 1.97 | 7.49  | 2.36 | 0.39 | 0.99 |
| HVB10000     | 110                     | 12.84           | 10.87 | 1.38 | 2.36 | 10.44 | 3.35 | 0.39 | 1.38 |



## HI-FORCE SPECIALITY TOOLS

Hi-Force speciality tools includes a range of tools for a variety of tool specific applications. The range includes hydraulic hole punchers for heavy duty steel plates, knock out punches for electrical control panels and thin steel plates and hydraulic pipe benders. All tools are 10000 psi maximum working pressure and can be operated using standard range Hi-Force hydraulic pumps and accessories.





## SPECIALITY TOOLS

### HHP RANGE 170

Hole punches

### HKP RANGE 171

Knock out punches

### PB RANGE 172

Pipe bender

### TOOL BOXES 173

Metal storage transport boxes



## HHP | HOLE PUNCHERS

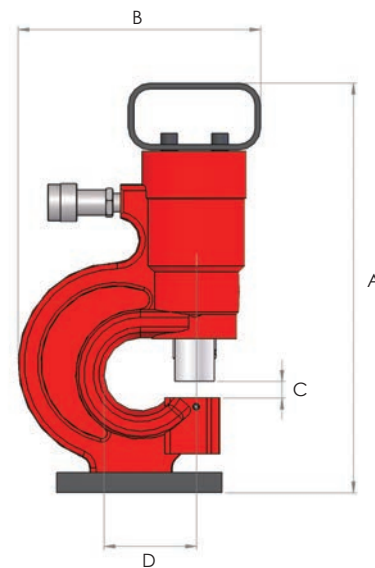


- ▶ Choice of single or double acting models
- ▶ Fitted with integral positioning and carrying handle
- ▶ Supplied with standard set of punches and dies
- ▶ Includes standard quick connect couplings for easy attachment to pump and hose

**Punching force up to 48 tons**

**Throat depth up to 2.96 inches**

**Working pressure 10000 psi**



| Model number | Maximum force (tons) | Throat depth (in) | Punch capacity (in) |                     | Standard punch/die sets included (in) | Weight excluding pump (lbs) | Dimensions (in) |       |      |      |
|--------------|----------------------|-------------------|---------------------|---------------------|---------------------------------------|-----------------------------|-----------------|-------|------|------|
|              |                      |                   | Steel plate         | Hole punch diameter |                                       |                             | A               | B     | C    | D    |
| HHP30        | 29                   | 2.96              | 0.39                | up to 0.81          | 7/16", 1/2", 11/16", 13/16"           | 28.7                        | 14.78           | 8.67  | 0.59 | 2.96 |
| HHP50        | 48                   | 2.56              | 0.59                | up to 1             | 7/16", 1/2", 11/16", 13/16", 1"       | 92.6                        | 16.75           | 11.07 | 0.59 | 2.56 |

| Model number | Recommended pump and hose                 |                                            |
|--------------|-------------------------------------------|--------------------------------------------|
|              | Manually operated                         | Pneumatically operated                     |
| HHP30        | HP232 complete with HC3 10 feet hose      | AHP1120 complete with HC3 10 feet hose     |
| HHP50        | HP232D complete with 2 x HC3 10 feet hose | AHP1141 complete with 2 x HC3 10 feet hose |

*Note: Pumps and hoses supplied separately*

## HKP | KNOCK OUT PUNCHERS

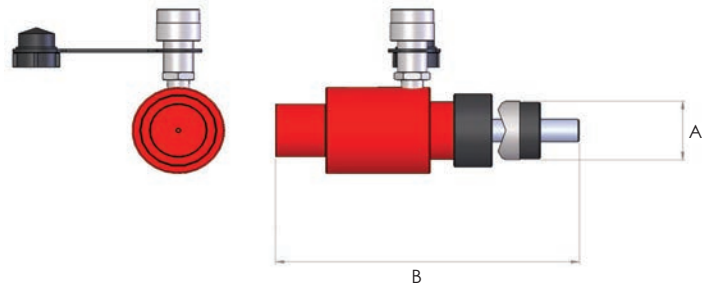


**Capacity 11 tons**

**Standard die sets included**

**Working pressure 10000 psi**

- Incorporates a single acting, spring assisted return cylinder
- Supplied with standard punches/die sets in a carrying case
- Can be supplied with or without manually operated pump and hydraulic hose
- Portable and easy to use
- Ideal for use in several punching applications including on-site hole punching in electric control panels and metal plates



| Model number | Maximum force (tons) | Punch capacity (in) |            | Pump model   | Hose model   | Complete set weight (lbs) |
|--------------|----------------------|---------------------|------------|--------------|--------------|---------------------------|
|              |                      | Stainless steel     | Mild steel |              |              |                           |
| HKP10-2      | 11                   | 0.06                | 0.13       | HP110        | HC2          | 32.2                      |
| HKP10-4      | 11                   | 0.06                | 0.13       | HP110        | HC2          | 57.5                      |
| HKP10-2H     | 11                   | 0.06                | 0.13       | Not included | Not included | 15.4                      |
| HKP10-4H     | 11                   | 0.06                | 0.13       | Not included | Not included | 40.8                      |

| Model number | Description            | Punches / dies included |      |      |      |      |      |      |      |      |      |
|--------------|------------------------|-------------------------|------|------|------|------|------|------|------|------|------|
|              |                        | 0.86                    | 1.09 | 1.34 | 1.68 | 1.92 | 2.38 |      |      |      |      |
| HKP10-2      | Standard punch/die (A) | 0.86                    | 1.09 | 1.34 | 1.68 | 1.92 | 2.38 |      |      |      |      |
|              | Conduit size           | ½"                      | ¾"   | 1"   | 1 ¼" | 1 ½" | 2"   |      |      |      |      |
|              | Length (B)             | 11.43                   | 9.26 | 9.26 | 9.26 | 9.26 | 9.26 |      |      |      |      |
| HKP10-4      | Standard punch/die (A) | 0.86                    | 1.09 | 1.34 | 1.68 | 1.92 | 2.38 | 3    | 3.5  | 4.05 | 4.55 |
|              | Conduit size           | ½"                      | ¾"   | 1"   | 1 ¼" | 1 ½" | 2"   | 2 ½" | 3"   | 3 ½" | 4"   |
|              | Length (B)             | 11.43                   | 9.26 | 9.26 | 9.26 | 9.26 | 9.26 | 9.89 | 9.89 | 9.89 | 9.89 |



## PB | HYDRAULIC PIPE BENDER

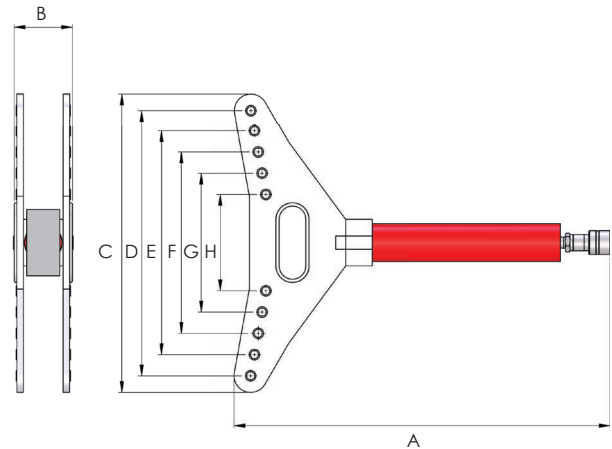


**Capacity 11 tons**

**Bends up to 90 degrees**

**Working pressure 10000 psi**

- ▶ Lightweight aluminum bending frame
- ▶ Designed to offer smooth, wrinkle free bend on various sizes and thicknesses of JIS standardized conduit pipes
- ▶ For use on pipe sizes from ½" to 3" (16 to 82 mm)
- ▶ Can be operated by manual or powered pumps up to 10000 psi
- ▶ Portable and easy to use
- ▶ Bending shoes are available as individual items



| Model number | Max Capacity (tons) | Stroke (in) | Oil capacity (in³) | Weight (lbs) | Applicable range / included bending shoes         | Dimensions (in) |      |       |       |       |      |       |       |
|--------------|---------------------|-------------|--------------------|--------------|---------------------------------------------------|-----------------|------|-------|-------|-------|------|-------|-------|
|              |                     |             |                    |              |                                                   | A               | B    | C     | D     | E     | F    | G     | H     |
| PB10B        | 11                  | 9.85        | 24.41              | 137.8        | Thick steel conduit from ½" (16 mm) to 3" (82 mm) | 28.37           | 5.79 | 29.75 | 27.38 | 23.44 | 19.5 | 15.56 | 11.62 |

*Note: Weight for PB10B includes metal storage box but excludes pump and hose.*

### BENDING SHOES

| Model number | Pipe size (inch) | For thick steel conduit from ½" (16 mm) to 3" (82 mm) |                          |                     |
|--------------|------------------|-------------------------------------------------------|--------------------------|---------------------|
|              |                  | Pipe outer diameter (in)                              | Pipe inner diameter (in) | Bending radius (in) |
| BS-B16       | ½"               | 0.83                                                  | 0.65                     | 2.96                |
| BS-B22       | ¾"               | 1.04                                                  | 0.86                     | 3.55                |
| BS-B28       | 1"               | 1.31                                                  | 1.12                     | 5.12                |
| BS-B36       | 1 ¼"             | 1.65                                                  | 1.45                     | 7.68                |
| BS-B42       | 1 ½"             | 1.88                                                  | 1.69                     | 9.06                |
| BS-B54       | 2"               | 2.35                                                  | 2.13                     | 10.64               |
| BS-B70       | 2 ½"             | 2.96                                                  | 2.74                     | 17.73               |
| BS-B82       | 3"               | 3.46                                                  | 3.24                     | 19.7                |

**TOOL BOXES**



**Metal storage and transport box**

**Width up to 19.7 inches**

**Strong durable steel construction**

- ▶ Choice of 4 sizes
- ▶ Anti-corrosion powder coated surface finish
- ▶ Ideal for storing and transporting Hi-Force products and accessories
- ▶ Maintains and protects tool condition in harsh environments
- ▶ Lockable feature helps control authorized tool usage

| Model number | Weight (lbs) | Length (in) | Width (in) | Height (in) |
|--------------|--------------|-------------|------------|-------------|
| MSB2         | 21.4         | 24.43       | 13.4       | 5.79        |
| MSB4         | 30.4         | 34.48       | 11.03      | 9.85        |
| MSB6         | 35.9         | 28.37       | 19.7       | 9.85        |
| MSB8         | 67.2         | 43.34       | 19.7       | 9.85        |

[illegible]

[illegible]

| MODEL NUMBER | DESCRIPTION                                                    | PAGE NUMBER   |
|--------------|----------------------------------------------------------------|---------------|
| ACP          | Auto-centre hydraulic puller kits                              | 139           |
| AGA          | Gauge mounting block                                           | 57            |
| AHP          | Air driven hydrotest pumps - standard flow                     | 130           |
| AHP-BTU      | Air driven pumps for bolt tensioners                           | 114           |
| AHP-C        | Chart recorder for AHP-CR and AHP2-CR pumps                    | 135           |
| AHP-CR       | Air driven hydrotest pumps - standard flow with chart recorder | 131           |
| AHP-PB       | Replacement pen for AHP-CR and AHP2-CR pumps                   | 135           |
| AHP11        | Air driven single stage hand or foot operated pumps            | 51            |
| AHP2         | Air driven hydrotest pumps - medium flow                       | 132           |
| AHP2-CR      | Air driven hydrotest pumps - medium flow with chart recorder   | 133           |
| ATDP         | Air driven twin double acting hydrotest pumps                  | 134           |
| BC           | Battery operated cable crimping tools                          | 148           |
| BP           | Battery pack for BPP & BC                                      | 34, 149       |
| BPP          | Battery powered hydraulic pump                                 | 34            |
| BS           | Bending shoes for hydraulic pipe bender                        | 172           |
| BWH          | Backup wrench holder                                           | 94            |
| BWI          | Backup wrench imperial hexagon links                           | 94            |
| BWM          | Backup wrench metric hexagon links                             | 94            |
| CD           | Optional die sets for CH, SC & BC range                        | 146, 147, 148 |
| CF           | Female couplers                                                | 63, 98        |
| CFD          | Metal dust cap for CF                                          | 63            |
| CH           | Cable crimping heads                                           | 146           |
| CHP          | Comprehensive crimper and pump kits                            | 146           |
| CK           | Complete conversion kits for STS                               | 107, 109      |
| CKS          | Complete conversion kits for SBT                               | 103, 105      |
| CM           | Male couplers                                                  | 63, 98        |
| CMD          | Metal dust cap for CM                                          | 63            |
| CMF          | Complete coupler                                               | 63            |
| CT           | Self-contained hydraulic cutters                               | 151           |
| CU           | Charger for BPP & BC                                           | 34, 149       |
| DNS          | Double acting nut splitters                                    | 120           |
| ERA          | Extended reaction arms for TWS-N and TWH-N                     | 87, 91        |
| FRL          | Filter/regulator/lubricator unit                               | 99            |
| HA           | Cylinder saddles                                               | 24, 25        |
| HA-G         | Cylinder saddles                                               | 24, 25        |
| HA-T         | Cylinder saddles                                               | 24, 25        |
| HAP          | Air driven two stage general duty pumps                        | 52            |
| HAS          | Single acting solid piston aluminium cylinders                 | 16            |
| HBR          | Bush replacement tool kit                                      | 142           |
| HC           | Black hoses with coupler                                       | 56            |
| HC-C         | Black hoses with couplers                                      | 56            |
| HC-CR        | Red hoses with couplers                                        | 56            |
| HC-R         | Red hoses with coupler                                         | 56            |
| HCC          | Chain cutters                                                  | 155           |
| HCH          | Hydraulic cutter heads                                         | 150           |
| HD           | Cylinder saddles                                               | 24, 25        |
| HD-T         | Cylinder saddles                                               | 24, 25        |
| HDA          | Double acting high tonnage cylinders                           | 13            |
| HDD          | Digital display unit                                           | 59            |
| HDG          | Digital pressure gauge                                         | 58            |
| HEP1         | Electric driven two stage mini pumps                           | 35            |
| HEP103       | Electric driven two stage compact pumps                        | 36            |
| HEP2         | Electric driven two stage pumps - medium flow                  | 37            |
| HEP3         | Electric driven two stage pumps - high flow                    | 38            |



| MODEL NUMBER   | DESCRIPTION                                                         | PAGE NUMBER |
|----------------|---------------------------------------------------------------------|-------------|
| HEP4           | Electric driven two stage pumps - high flow                         | 39          |
| HEP5           | Electric driven two stage pumps - heavy duty high flow              | 40          |
| HF             | Fittings and adaptors                                               | 63          |
| HFA            | Single acting failsafe lock ring aluminium cylinders                | 18          |
| HFG            | Single acting failsafe lock ring cylinders                          | 15          |
| HFL            | Single acting low height failsafe lock ring cylinders               | 14          |
| HFO            | Premium grade hydraulic oil                                         | 62          |
| HFS            | Hydraulic flange spreader kits                                      | 122         |
| HFS-H          | Hydraulic flange spreaders                                          | 121         |
| HFS-TK         | Hydraulic flange spreader twin kits                                 | 122         |
| HFV            | Flow control valves                                                 | 65          |
| HG             | Pressure gauges                                                     | 57          |
| HG-G           | Pressure gauges - glycerine                                         | 57          |
| HGA            | Gauge mounting blocks                                               | 57          |
| HGG            | Single acting load return high tonnage industrial cylinders         | 20          |
| HH             | Black hoses without couplers                                        | 56          |
| HH-NMS         | Hoses for MHX pumps                                                 | 128         |
| HHA            | Single acting hollow piston aluminium cylinders                     | 17          |
| HHP            | Hole punchers                                                       | 170         |
| HH-R           | Red hoses without couplers                                          | 56          |
| HHR            | Double acting hollow piston cylinders                               | 12          |
| HHS            | Single acting hollow piston cylinders                               | 11          |
| HKP            | Knock out punchers                                                  | 171         |
| HLS            | Single acting low height cylinders                                  | 9           |
| HM             | Manifolds                                                           | 60          |
| HM1C           | Manual shut off valve                                               | 65          |
| HM-C           | Controlled manifolds                                                | 60          |
| HM-C-SU        | Controlled manifold assemblies (single)                             | 61          |
| HM-C-DU        | Controlled manifold assemblies (double)                             | 61          |
| HM-L           | Manifolds (extended parallel)                                       | 60          |
| HMJ            | Steel machine lift jacks                                            | 71          |
| HMNS           | Self-contained nut splitters                                        | 119         |
| HP-STEEL       | Manually operated steel hand pumps                                  | 29          |
| HP-ALU         | Manually operated aluminium hand pumps                              | 30          |
| HP-FP          | Manually operated foot pump                                         | 33          |
| HP-FPC         | Manually operated foot pump with gauge, mounting block and hose     | 33          |
| HP-HIGH FLOW   | Manually operated high flow hand pumps                              | 31          |
| HPC            | Single acting pull cylinders                                        | 22          |
| HPF            | Workshop presses                                                    | 166, 167    |
| HPP            | Petrol engine driven pumps                                          | 53          |
| HPR            | Pin and bush replacement tool kits                                  | 143         |
| HPS            | Single acting low height pad cylinders                              | 8           |
| HPT            | Pressure transducer                                                 | 59          |
| HPV            | Adjustable pressure relief valve                                    | 65          |
| HPX            | Manually operated ultra high pressure hand pumps                    | 32          |
| HPX-BTU        | Manually operated ultra high pressure hand pump for bolt tensioners | 114         |
| HRA            | Double acting high tonnage aluminium cylinders                      | 19          |
| HSG            | Single acting load return high tonnage construction cylinders       | 21          |
| HSP            | Electric driven split flow multi-outlet pumps                       | 41          |
| HSS            | Single acting multi-purpose cylinders                               | 10          |
| HSWC           | Self-contained hydraulic wire rope cutters                          | 153         |
| HTN (imperial) | Hydraulic tensioner nuts                                            | 112         |
| HTN (metric)   | Hydraulic tensioner nuts                                            | 113         |
| HTW            | Manual torque wrenches - break back type                            | 81          |

| MODEL NUMBER | DESCRIPTION                                                     | PAGE NUMBER        |
|--------------|-----------------------------------------------------------------|--------------------|
| HTWH         | Torque hose sets including couplers                             | 98                 |
| HTWP         | Torque wrench pumps                                             | 95                 |
| HTWR         | Torque wrench hose reel                                         | 98                 |
| HVB          | Multi-position V-blocks for HPF presses                         | 167                |
| HVL          | Single acting very low height pancake cylinders                 | 7                  |
| HWC          | Hammer blow wire rope cutters                                   | 152                |
| HWRC         | Double acting wire rope cutters                                 | 154                |
| IB           | Imperial hexagon AF size reducer bushes                         | 92                 |
| IH           | Imperial allen hexagon drive adaptors                           | 87                 |
| IP           | Pneumatic impact wrenches                                       | 99                 |
| IS           | Imperial hexagon AF size heavy duty sockets                     | 85                 |
| JAH          | Aluminium jacks                                                 | 69                 |
| JAS          | Aluminium multi-purpose jacks                                   | 68                 |
| JCH          | Compact hollow piston jacks                                     | 70                 |
| JCS          | Compact solid piston jacks                                      | 70                 |
| JS           | Jaw spreader                                                    | 124                |
| LLE          | Load lock extensions for TL                                     | 75                 |
| MB           | Metric hexagon AF size reducer bushes                           | 93                 |
| MFS          | Mechanical flange spreaders                                     | 123                |
| MH           | Metric allen hexagon drive adaptors                             | 87                 |
| MHR          | Reservoir for MHX pump units                                    | 129                |
| MHX          | Manually operated hydrotest pumps                               | 128                |
| MHX-GK       | Pressure gauge kits for MHX pumps                               | 128                |
| MHX-PU       | Manually operated hydrotest pump units                          | 129                |
| MP           | Power supply for BPP & BC                                       | 34, 149            |
| MS           | Metric hexagon AF size heavy duty sockets                       | 86                 |
| MSB          | Metal storage transport boxes                                   | 173                |
| NS           | Single acting nut splitters                                     | 118                |
| PB           | Hydraulic pipe bender                                           | 172                |
| PCS          | Pump and cylinder sets                                          | 23                 |
| PKC          | Comprehensive hydraulic puller kits                             | 141                |
| PKS          | Hydraulic 2 and 3-way puller kits                               | 140                |
| PMV          | Directional control valve, pump mounted                         | 64                 |
| PMV-C        | Directional control valve, pump mounted, closed centre          | 64                 |
| PMV-L        | Directional control valve, pump mounted, load holding feature   | 64                 |
| PPA-WT       | Wheel trolley                                                   | 40, 53             |
| PPC          | Universal dust cap                                              | 63                 |
| QFP          | Quick fit pullers                                               | 110, 111           |
| RKF          | Roller skate kits - quad                                        | 159                |
| RKT          | Roller skate kit - tricycle                                     | 158                |
| RLB          | Link bars for RKF                                               | 159                |
| RLP          | Levelling plates for RKF and RSN                                | 159, 160           |
| RMV          | Directional control valve, remote mounted                       | 64                 |
| RMV-C        | Directional control valve, remote mounted, closed centre        | 64                 |
| RMV-L        | Directional control valve, remote mounted, feature load holding | 64                 |
| RPH          | Handles for RKF                                                 | 159                |
| RS           | Rotating sockets for SBT & STS                                  | 103, 105, 107, 109 |
| RSA          | Heavy duty skates                                               | 161                |
| RSD          | Heavy duty skates with grooved guide - double roller            | 163                |

| MODEL NUMBER   | DESCRIPTION                                          | PAGE NUMBER                            |
|----------------|------------------------------------------------------|----------------------------------------|
| RSG            | Heavy duty skates with grooved guide - single roller | 162                                    |
| RSN            | Multi-purpose skates                                 | 160                                    |
| RTT            | Turntables for RKF and RSN                           | 159, 160                               |
| SBT (imperial) | Spring return topside bolt tensioners                | 102                                    |
| SBT (metric)   | Spring return topside bolt tensioners                | 104                                    |
| SBT-LC         | Tensioner load cell                                  | 103, 105                               |
| SC             | Self-contained crimping tools                        | 147                                    |
| SCP            | Self-contained hydraulic pullers                     | 138                                    |
| SDC            | Square drive conversion kits                         | 91                                     |
| SJS            | Stepped jaw spreader                                 | 125                                    |
| SJS-M          | Self-contained stepped jaw spreader                  | 125                                    |
| SJS-TK         | Stepped jaw spreader twin kit                        | 125                                    |
| SLDC           | Sensor cables                                        | 49, 49                                 |
| SLDS           | Displacement sensors                                 | 45, 49                                 |
| SLE            | Slip lock extensions for TL                          | 75                                     |
| SLF            | Synchronous lifting system, fixed speed drive        | 42-45                                  |
| SLMK           | Sensor cylinder mounting kits                        | 44, 48                                 |
| SLV            | Synchronous lifting system, variable speed drive     | 46-49                                  |
| STFC           | Female tensioner coupler                             | 115                                    |
| STMC           | Male tensioner coupler                               | 115                                    |
| STN            | Nipple                                               | 115                                    |
| STS (imperial) | Topside bolt tensioners                              | 106                                    |
| STS (metric)   | Topside bolt tensioners                              | 108                                    |
| STS-B          | Tensioner bridge for SBT and STS                     | 103, 105, 107, 109                     |
| STS-LC         | Tensioner load cell                                  | 107, 109                               |
| STU (imperial) | Sub-sea bolt tensioners                              | 110                                    |
| STU (metric)   | Sub-sea bolt tensioners                              | 111                                    |
| TL             | ToughLift jacking systems                            | 74-77                                  |
| TLB            | Load block sets for TL                               | 76                                     |
| TP             | Tensioner threaded puller for STS                    | 107, 109                               |
| TP-CS          | Torque coupling sets                                 | 96, 97                                 |
| TPA            | Air driven torque pumps - premium line               | 96                                     |
| TPE            | Electric driven torque pumps - premium line          | 97                                     |
| TPS            | Tensioner threaded puller for SBT                    | 103, 105                               |
| TS             | Cylinder saddles                                     | 24, 25                                 |
| TSH            | Removable handle kits for TWS-N and TWH-N            | 87, 91                                 |
| TTB            | Tommy bar for HFL, HFG and HFA                       | 14, 15, 18                             |
| TTB            | Tensioner tommy bar for SBT, STS, STU and HTN        | 103, 105, 107, 109, 110, 111, 112, 113 |
| TWG            | Manual torque multipliers                            | 82                                     |
| TWH-N          | Hydraulic torque wrenches - hexagon drive            | 88                                     |
| TWH-NRH        | Ratchet heads for TWH-N                              | 89, 90                                 |
| TWM            | Manual torque wrenches - click type                  | 80                                     |
| TWP            | Pneumatic torque multipliers                         | 83                                     |
| TWS-N          | Hydraulic torque wrenches - square drive             | 84                                     |
| XHC            | High pressure bolt tensioner hoses                   | 115                                    |
| XHH            | High pressure hoses for HPX pumps                    | 32                                     |
| XHR            | Hose reel for XHC hoses                              | 115                                    |

# Hi-Force®

## HYDRAULIC TOOLS

Hi-Force Limited  
Prospect Way, Daventry, Northants, NN11 8PL, United Kingdom  
Tel: +44 1327 301 000  
daventry@hi-force.com

### Hi-Force Regional Offices:

#### Azerbaijan

Baku  
Tel: +994 12 447 4100  
Email: baku@hi-force.com

#### Italy

Milan  
Tel: +39 0257 607 174  
Email: italy@hi-force.com

#### Malaysia

Selangor  
Tel: +603 5525 4203  
Email: malaysia@hi-force.com

#### Netherlands

Numansdorp  
Tel: +31 (0)85 9028 111  
Email: holland@hi-force.com

#### Kingdom of Saudi Arabia

Dammam  
Tel: +966 13 802 1338  
Email: saudi@hi-force.com

#### United Arab Emirates

Abu Dhabi  
Tel: +971 2 551 3100  
Email: abu.dhabi@hi-force.com

Dubai  
Tel: +971 4 815 0600  
Email: dubai@hi-force.com

Jebel Ali Industrial Area  
Tel: +971 4 802 7400  
Email: jebel.ali@hi-force.com

[www.hi-force.com](http://www.hi-force.com)