SPX®

# Power Team


# Tough Products for Tough Applications

**Hydraulic Pumps**
- Electric and Air Powered
- Electric, Air, and Gas Powered
- Hand Pumps
- Valves, Hoses and Accessories

**Hydraulic Cylinders**
- Rams
- Standard
- Construction
- Industrial
- High Tonnage
- Pancake
- Aluminum
- Pulling

**Jacks**
- Lifting Jacks
- Inflatable Jacks
- Post-Tensioning Jacks

**Tools**
- Hydraulic Presses
- Flange Spreaders
- Nut Splitters
- Gear Pushers/Pullers
- Bearing Maintenance Pushers/Pullers

**Shop Equipment**
- Shop Presses
- Floor Cranes
- Spread Tilters

**Power Team. 90 years experience in supplying Professional Grade high-pressure Hydraulic Pumps, Cylinders, Jacks, Pullers & Tools.**

## A Heritage of Innovation

Since 1924, we've been instrumental in the development of innovative high force hydraulic power products, systems and tools. And many of our products are known as the industry standard for rugged construction, reliability, and long service life. Today, we provide a full range of professional grade products and services around the globe.

## Power Team Quality

Power Team Products are built tough with strict ISO 9001 manufacturing processes and are covered by a Lifetime Powerthon Warranty*.

## Global Distribution and Service

Wherever your job is in the world, the Power Team network of distributors and service centers assures local product, parts and service availability.

# Selection Chart

**Choose the right pump:** This chart helps you calculating the time required for a cylinder to lift a load when powered by a 700 bar Power Team pump. For the hand pumps the number indicates the number of strokes to extend 25 mm. For the electric/air/gas pumps the number indicates the number of seconds to extend 25 mm.

- Generally Recommended
- Marginal Check
- Not Recommended for most applications

Speed * number of strokes to extend 25 mm
** number of seconds to extend 25 mm

| | | | Cylinder Capacity (Tons) | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | STAGE | 5 | 10 | 15 | 20 | 25 | 30 | 55 | 75 | 100 | 150 | 200 | 300 | 400 | 500 |
| **Hand Pumps *** | P12 | Single | 14 | 32 | 44 | 65 | 72 | 93 | | | | | | | | |
| | P55 | Single | 6 | 14 | 19 | 28 | 31 | 40 | 71 | | | | | | | |
| | P19/ | Low | 4 | 8 | 10 | 15 | 17 | 21 | | | | | | | | |
| | P19L | High | 13 | 30 | 42 | 59 | 68 | 86 | | | | | | | | |
| | P59F | Low | 1,8 | 4,1 | 5,7 | 8 | 9 | 12 | 20 | 29 | | | | | | |
| | | High | 8 | 17 | 24 | 34 | 48 | 50 | 85 | 122 | | | | | | |
| | P59(L) | Low | 1,5 | 3,2 | 4,7 | 7 | 7,7 | 9,7 | 16,7 | 23,9 | | | | | | |
| | P157 | High | 6 | 14 | 19 | 28 | 31 | 40 | 71 | 101 | | | | | | |
| | P159 | Low | 0,5 | 1 | 1,3 | 1,9 | 2,2 | 2,8 | 5 | 7 | 9 | 13 | 18 | | | |
| | P300 | High | 7 | 15 | 21 | 30 | 34 | 43 | 77 | 110 | 143 | 200 | 250 | | | |
| | P460 | Low | 0,1 | 0,3 | 0,6 | 0,6 | 0,7 | 0,9 | 1,5 | 2,2 | 2,8 | 4,2 | 5,6 | 8,4 | 11,2 | |
| | | High | 3,3 | 7,7 | 9 | 14 | 17,5 | 22 | 37 | 55 | 71 | 105 | 143 | 213 | 284 | |
| **Electric Hydraulic Pumps **** | PE10 | Low | 0,5 | 1,2 | 1,6 | 2,2 | 2,6 | 3,2 | 5,5 | | | | | | | |
| | | High | 6 | 13,4 | 18,9 | 27 | 31 | 39 | 66,2 | | | | | | | |
| | PE17 | Low | 0,2 | 0,5 | 0,7 | 0,9 | 1,1 | 1,4 | 2,3 | 3,3 | 4,3 | 6,5 | 8,7 | | | |
| | | High | 3,5 | 7,9 | 10,9 | 16 | 18 | 23 | 39 | 56,3 | 73 | 109 | 146 | | | |
| | PE18 | Low | 0,4 | 0,8 | 1,2 | 1,6 | 1,8 | 2,3 | 3,9 | 5,7 | 7,3 | 10,8 | 14,6 | 21,9 | 29,2 | |
| | | High | 3,3 | 7,5 | 10,3 | 15 | 17 | 21 | 37 | 53 | 69 | 102 | 136 | 207 | 276 | |
| | PE21 | Low | 0,2 | 0,5 | 0,7 | 1 | 1,1 | 1,4 | 2,5 | 3,6 | 4,6 | 6,8 | 9,2 | 13,8 | 18,4 | |
| | | High | 2,8 | 6,4 | 9 | 13 | 15 | 19 | 32 | 45,5 | 59 | 88 | 118 | 177 | 236 | |
| | PED25 | Low | 0,2 | 0,4 | 0,6 | 0,9 | 1 | 1,3 | 2,2 | 3,2 | 4,1 | 6,1 | 8,3 | 12 | 15,7 | 19,9 |
| | | High | 2,4 | 5,4 | 7,5 | 10,6 | 12,4 | 15,6 | 26,5 | 38,2 | 49,5 | 73,6 | 99,1 | 144,3 | 188,5 | 238,6 |
| | PE30 | Low | 0,2 | 0,45 | 0,6 | 0,9 | 1 | 1,3 | 2,2 | 3,2 | 4,1 | 6 | | | | |
| | | High | 2 | 4,5 | 6 | 9 | 10 | 13 | 22 | 32 | 41 | 60 | | | | |
| | PE46 | Low | 0,1 | 0,3 | 0,4 | 0,5 | 0,6 | 0,7 | 1,3 | 1,8 | 2,4 | 3,5 | 4,7 | 7,2 | 9,6 | |
| | | High | 1,3 | 2,9 | 4,1 | 5,9 | 6,8 | 8,6 | 14 | 22 | 28 | 42 | 56 | 84 | 112 | |
| | PE55/ | Low | 0,1 | 0,2 | 0,3 | 0,4 | 0,4 | 0,6 | 0,9 | 1,4 | 1,8 | 2,6 | 3,5 | 5,4 | 7,2 | |
| | PE60 | High | 1,1 | 2,4 | 3,4 | 4,8 | 5,6 | 7,1 | 12 | 17,8 | 23 | 34 | 45 | 69 | 92 | |
| | PQ60 | Low | 0,1 | 0,2 | 0,3 | 0,4 | 0,4 | 0,5 | 0,9 | 1,3 | 1,7 | 2,5 | 3,4 | 5,1 | 6,8 | 8,5 |
| | | High | 1 | 2,2 | 3,3 | 4,4 | 5,2 | 6,5 | 11 | 16,2 | 21 | 31 | 41 | 63 | 84 | 105 |
| | PQ120 | Low | 0,1 | 0,2 | 0,3 | 0,4 | 0,4 | 0,5 | 0,9 | 1,3 | 1,7 | 2,5 | 3,4 | 5,1 | 6,8 | 8,5 |
| | | High | 0,5 | 1,1 | 1,6 | 2,2 | 2,6 | 3,2 | 5,5 | 7,7 | 10 | 15 | 21 | 30 | 40 | 50 |
| | PE400 | Low | 0,1 | 0,1 | 0,2 | 0,2 | 0,3 | 0,3 | 0,6 | 0,8 | 1 | 1,5 | 2,1 | 3 | 4 | 5 |
| | | High | 0,1 | 0,3 | 0,4 | 0,6 | 0,7 | 0,9 | 1,6 | 2,2 | 2,9 | 4,4 | 5,9 | 8,7 | 11,6 | 14,5 |
| **Air Hydraulic Pumps **** | PA6/ | Single | 10 | 22,4 | 31 | 44,4 | 51,3 | 65,2 | - | - | - | - | - | | | |
| | PA9 | Single | 10 | 22,4 | 31 | 44,4 | 51,3 | 65,2 | - | - | - | - | - | | | |
| | PA17 | Low | 0,2 | 0,5 | 0,7 | 0,9 | 1,1 | 1,4 | 2,3 | 3,3 | 4,3 | 6,5 | 8,7 | - | - | |
| | | High | 3,5 | 7,9 | 10,9 | 16 | 18 | 23 | 39 | 56 | 73 | 109 | 146 | | | |
| | PA46 | Low | 0,1 | 0,3 | 0,4 | 0,5 | 0,6 | 0,7 | 1,3 | 2 | 2,4 | 3,5 | 4,7 | 7,2 | 9,6 | |
| | | High | 1,3 | 2,9 | 4,1 | 5,9 | 6,8 | 8,6 | 14 | 22 | 28 | 56 | 42 | 84 | 112 | |
| | PA55 | Low | 0,1 | 0,3 | 0,4 | 0,6 | 0,7 | 0,9 | 1,5 | 2,2 | 2,8 | 4,1 | 5,5 | 8,4 | 11,2 | |
| | | High | 1,1 | 2,4 | 3,4 | 4,8 | 5,6 | 7,1 | 12 | 18 | 23 | 34 | 45 | 69 | 92 | |
| **Gas Hydraulic Pumps **** | PG30 | Low | 0,3 | 0,7 | 1 | 1,3 | 1,6 | 2 | 3,3 | 4,8 | 6,2 | 9,3 | 12,4 | 18,1 | - | |
| | | High | 2 | 4,5 | 6,3 | 8,9 | 10,3 | 13 | 22 | 31,8 | 41,3 | 61,4 | 83 | 121 | - | |
| | PG55 | Low | 0,1 | 0,3 | 0,4 | 0,6 | 0,7 | 0,8 | 1,4 | 2 | 2,6 | 3,9 | 5,2 | 7,6 | 9,9 | 12,5 |
| | | High | 1,1 | 2,5 | 3,5 | 4,9 | 5,6 | 7,1 | 12,1 | 17,3 | 22,5 | 33,5 | 45 | 66 | 86 | 109 |
| | PG120 | Low | 0,1 | 0,3 | 0,4 | 0,6 | 0,7 | 0,8 | 1,4 | 2 | 2,6 | 3,9 | 5,2 | 7,6 | 9,9 | 12,5 |
| | | High | 0,5 | 1 | 1,5 | 2 | 2,4 | 3 | 5,1 | 7,3 | 9,5 | 14,2 | 19,1 | 27,8 | 36,3 | 46 |
| | PG400 | Low | 0,1 | 0,1 | 0,2 | 0,2 | 0,3 | 0,3 | 0,6 | 0,8 | 1 | 1,5 | 2 | 3 | 3,8 | 4,9 |
| | | High | 0,2 | 0,3 | 0,5 | 0,7 | 0,8 | 1 | 1,7 | 2,4 | 3,1 | 4,6 | 6,2 | 9 | 11,8 | 15 |

# Selection

## Choosing The Right Cylinder

**Step 1** Select the hydraulic cylinder that best suits the application.

**Step 2** Select the hydraulic pump, with valve option, that best matches the cylinder and application.

**Step 3** Select the hydraulic accessories you need.

### WHAT TYPE OF CYLINDER DO YOU NEED?

1. **To determine a cylinder's force capacity:**

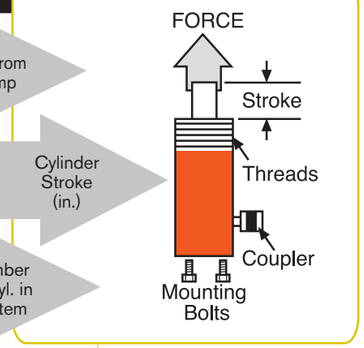
   Force pounds = Cylinder Effective Area ($cm^2$) X PSI from Pump

2. **To determine oil capacity of a cylinder:**

   Oil Capacity (cu. in.) = Cylinder Effective Area ($cm^2$) X Cylinder Stroke (in.)

3. **To determine reservoir capacity needed for a multiple cylinder system:**

   Usable Oil = Oil Cap. of Cyl. ($cm^3$) X Number of Cyl. in System




## CONSIDERATIONS:

1. What push or pull tonnage is required per cylinder in your application? (Rule of thumb; Always choose a cylinder with a tonnage rating of 20% or more than what is required to lift the load.)
2. What is the push or pull stroke length required?
3. Does the cylinder need to push, pull or both? (Single-acting cylinders extend the piston under hydraulic pressure; double-acting cylinders extend and retract the piston under pressure.)
4. Does the application require multiple cylinders?
5. Is the application stationary, or must the components be light in weight for easy portability?
6. Do you need to extend a rod or cable through the center of the cylinder for the application, as in a tensioning operation?
7. Does the application require that the cylinder fit within limited-clearance work areas?
8. Does the application require that the cylinder be "dead-ended" at the end of it's work stroke?
9. Will the cylinder need to withstand off-center loads? Cylinders with swivel caps are available.
10. Does the application require that the lifted load be supported for extended periods of time? Locking collars are ideal for such jobs, as are cribbing blocks.
11. Is corrosion resistance required? Our unique "Power Tech" surface treatment is standard on many Power Team cylinders, and optional on many of our cylinders which feature steel construction.
12. Will the application involve high cycles (over 2,500 in the cylinder's lifetime)? Our "RD," "RH," "RP" and "C" series cylinders are ideal choices.

# Torque & Cable

## Choosing the Right Tool

## ONLY POWER TEAM PROVIDES THE *POWER TECH* SURFACE TREATMENT:

- High corrosion and wear resistance, anti-galling properties.
- Significantly increases the life expectancy of a cylinder.
- Retains lubricants, prevents bronze and other materials from sticking to surface.
- Increases fatigue and impact strength.
- Increases surface yield and tensile strength.
- Provides improved abrasion and scratch resistance.
- Causes no appreciable dimensional change.
- 56 RC minimum surface hardness.
- Passes ASTM B117-85 100 hour salt spray corrosion resistance tests.

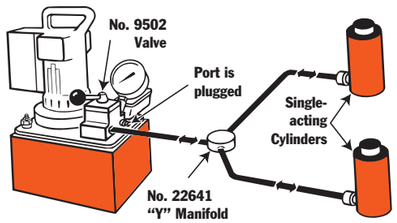
The **"Power Tech"** surface treatment is standard on the gland nut, cylinder body and piston/piston rod of the following cylinders: RLS50, RLS100, RLS200, RLS300, RLS500S, RLS750S, RLS1000S, RLS1500S, and RSS1002. NOTE: Bronze plating may be used in place of the "Power Tech" surface finish for the piston/piston rod of any of the above cylinders. The **"Power Tech"** surface treatment is standard on the standpipe of all "RH" series single and double-acting cylinders. The **"Power Tech"** surface treatment is standard on the piston/piston rod of the RT172, RT302 and RT503 cylinders.

# Hydraulic CIRCUITS

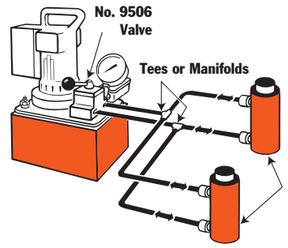
## Pumps, Cylinders, Controls

These are just a few basic systems possible with Power Team hydraulic components. Countless applications are possible: In presses, for lifting or jacking applications or in production or maintenance setups. The pump shown is a typical electric/hydraulic unit. Electric, air or gas driven pumps are available.

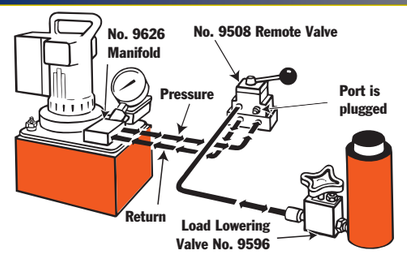
### 1 Single-acting cylinder or cylinders in the circuit, controlled by a pump mounted valve.



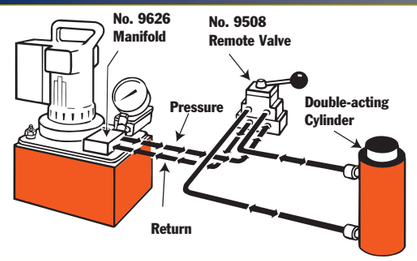

### 2 Double-acting cylinder or cylinders in the circuit, controlled by a pump mounted valve.



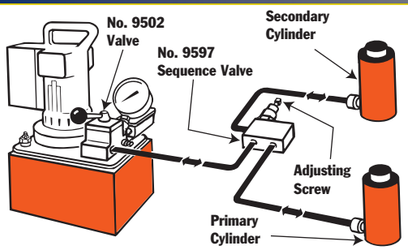

### 3 Single-acting cylinder controlled by a remote mounted valve.



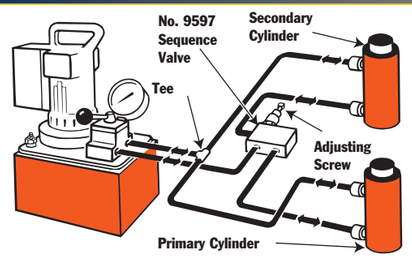

### 4 Double-acting cylinders controlled by a remote mounted valve



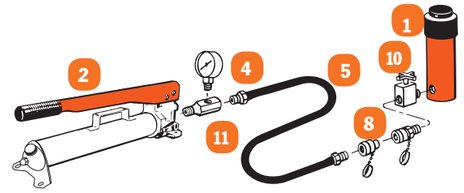

### 5 Single-acting cylinders with a sequence valve which controls the primary and secondary cylinder circuits.




### 6 Double-acting cylinder with a sequence valve which controls the primary and secondary cylinder circuits.

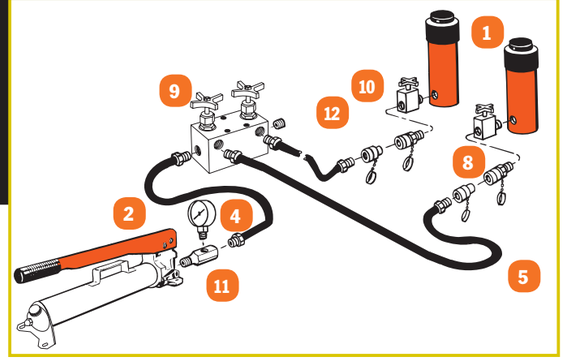



### Basic single-acting system with a hand pump, gauge, hose and single-acting cylinder.

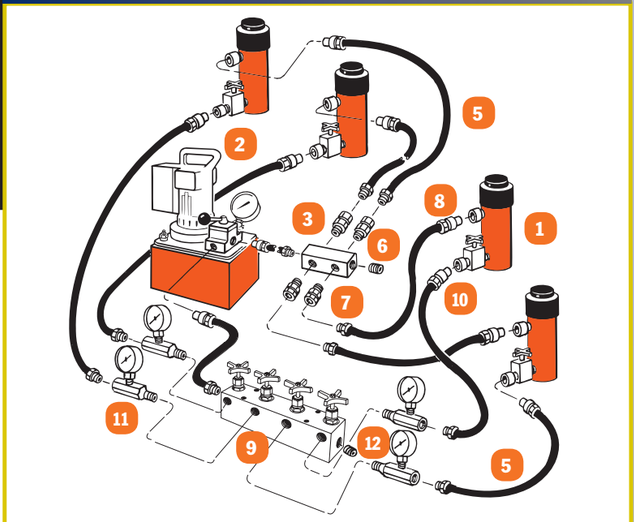



1. Cylinder – applies hydraulic force.
2. Pump – a device for converting mechanical energy to fluid energy.
3. Directional valve – controls the direction of hydraulic fluid in the system.
4. Gauge – measures bar pressure and/or force.
5. Hose – transports hydraulic fluid.
6. Manifold – allows distribution of hydraulic fluid from one source to several cylinders. (No. 9617)
7. Swivel Connector – allows proper alignment of valves and/or gauges. Used when units being connected cannot be rotated. (No. 10469)
8. Quick Coupling – "hose half" and "cylinder half" couplings are used for quick connection and fluid flow check when separated. (No. 9797 and 9798)
9. Shut-Off Valve – regulates the flow of hydraulic fluid to or from cylinders. (No. 9642 or 9644)
10. Load-Lowering Valve – allows metered lowering of cylinder and provides safety when prolonged load holding is required. (No. 9596)
11. Tee Gauge Adapter – allows for installation of pressure/tonnage gauge anywhere in the hydraulic system. (No. 9670)
12. Pipe Plug – for blocking unused ports within the system. (No. 9687)

### Basic single-acting system with a hand pump, gauge, hose, multiple shut-off valves, load-lowering valves and multiple cylinders.




### Basic double-acting system with an electric/hydraulic pump,shut-off valves, load-lowering valves and multiple double-acting cylinders.



# CYLINDERS

## SUPERIOR FEATURES OF POWER TEAM HYDRAULIC CYLINDERS:

We build our own cylinders in our ISO 9001 registered manufacturing facility. All Power Team cylinders are date-coded. Maximum pressure rating and capacity are stamped on the cylinder. All cylinders comply to the demanding ASME B30.1 standard and are proof tested to 125% of capacity before leaving our factory. Cylinder bores are roller burnished to harden the surface and make it smoother, increasing seal life by 30%. Base mounting holes withstand full capacity of the cylinder. Typical cylinder burst pressures range from 700 to 2400 bar. Cylinders with gland nuts may be “dead-ended” at 700 bar. Cylinders are assembled and tested by certified assemblers. Eddy current and mag particle inspection detects flaws in the steel. Cylinder bodies are solid steel, not welded like some competitive cylinders. Material is removed from surface, to assure that any flaws are removed.





FROM 2 TO 1220 TONS!

| Series | Description | Action | TONNAGE 2 | 5 | 10 | 12 | 15 | 17.5 | 20 | 25 | 30 | 50 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C | General Purpose | Single/Spring | | X | X | | X | | | X | | |
| CBT | Threaded End Cylinders | Single/Spring | | X | X | | | | | X | | |
| RA | Aluminum Cylinders | Single/Spring | | | | | | | X | | X | |
| RLS | Low Profile Cylinders | Single/Spring | | X | X | | | | X | | X | X |
| RSS | Shorty Cylinders | Single/Spring/Double Act | | | X | | | | X | | X | X |
| RH | Center Hole Cylinders | Single/Spring/Double Act | | | X | X | | | X | | X | X |
| RT | Center Hole Power Twin Cylinders 24 | Single/Spring/Double Act | | | | | | X | | | X | X |
| RP | Pull Cylinders | Single/Spring | X | X | | | | | | | | |
| RD | Double Acting Cylinders | Double Acting | | | X | | | | | X | | |
| R | High Tonnage Cylinder | Single Acting/Load Return/ Double Acting | | | | | | | | | | |
| RL | Locking Collar Cylinders | Single Acting/Load Return | | | | | | | | | | |
| RC | Pancake Cylinders | Single Acting/Load Return | | | | | | | | | | |

| Series | TONNAGE 55 | 60 | 75 | 80 | 100 | 150 | 200 | 250 | 280 | 300 | 355 | 400 | 430 | 500 | 565 | 740 TO 1220 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C | X | | X | | X | | | | | | | | | | | |
| CBT | | | | | | | | | | | | | | | | |
| RA | X | | | | X | | | | | | | | | | | |
| RLS | | | X | | X | X | | | | | | | | | | |
| RSS | | | | | X | | | X | | | | | | | | |
| RH | | X | | | X | X | X | | | | | | | | | |
| RT | | | | | X | | | | | | | | | | | |
| RP | | | | | | | | | | | | | | | | |
| RD | X | | | X | X | X | X | | | X | | X | | X | | |
| R | X | | | | X | X | X | | X | | X | | X | | X | X |
| RL | X† | | | | X† | X | X | | X | | X | | X | | X | X |
| RC | X | | | | X | X | | 240 | | | X | | | | 620 | |

† LOCKING COLLAR AVAILABLE IN ALUMINUM.

# General Purpose
## CYLINDERS C SERIES

## 5-100 TONS
General Purpose, Single Acting, Spring-Return

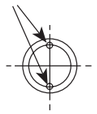
Rugged, high quality cylinder used for lifting and pressing

CYLINDERS

### RUGGED, HIGH QUALITY CYLINDER USED FOR LIFTING AND PRESSING

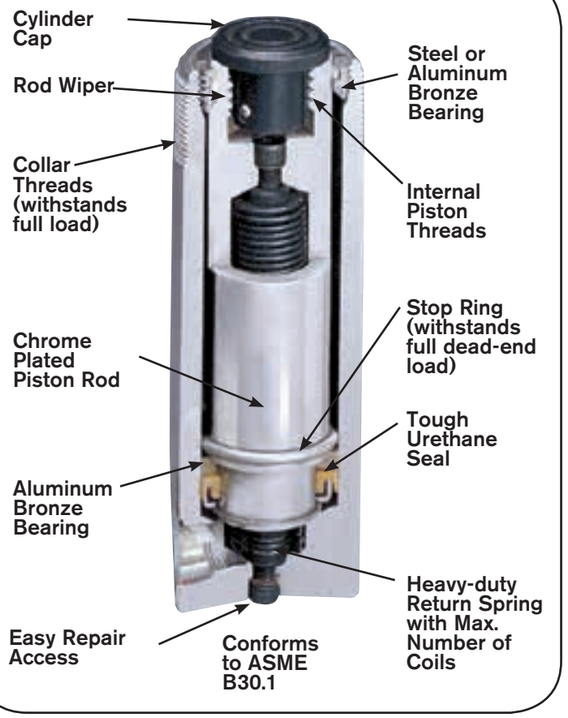
- Aluminum bronze bearing reduces wear caused by off-center loads.
- Maximum sized springs speed piston return and increase spring life.
- Solid steel cylinder body for durability.
- Chrome plated piston rod resists wear and corrosion.
- Wide range of accessories available to thread onto piston rod, collar, or onto cylinder base.
- Base mounting holes standard on 5 through 55 ton cylinders; optional on 75 and 100 ton cylinders.
- A 3/8" NPTF female half coupler is standard.

BASE MOUNTING HOLES

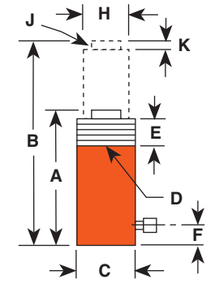



| Cylinder Tonnage | No. Holes | Thread Size | Thread Depth | Bolt Circle Diameter (mm) |
|---|---|---|---|---|
| 5 | 2† | 1/4–20 | 9.5 | 25.4 |
| 10 | | 5/16–18 | 12.7 | 39.7 |
| 15 | | 3/8–16 | | 47.6 |
| 25 | | 1/2–13 | 19.1 | 58.7 |
| 55 | | | | 95.3 |
| *Optional 75 | 4 | 3/4–10 | 25.4 | 114.3 |
| *Optional 100 | | 1–8 | | 120.7 |

* Consult Factory (45° from coupler) † 90° from coupler.








Base mounting holes

| Cyl Cap Tons | Stroke (mm) | Order No. | Oil Cap. (cm³) | A Retracted Height (mm) | B Extended Height (mm) | C Outside Dia. (mm) | D Collar Thread (in.) | E Piston Collar Thread Length (mm) | F Base to Port (mm) | H Piston Rod Dia. (mm) | J Piston Rod Int. Thread and Depth (mm) | K Rod Protrusion (mm) | Bore Dia. (mm) | Cylinder Effective Area (cm²) | Metric Tons at 700 (bar) | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 25,4 | C51C | 18 | 110,3 | 138,1 | 38,1 | 1 1/2-16 | 28,6 | 19,1 | 25,4 | 3/4-16 x 15,9 | 6,4 | 28,6 | 6,4 | 4,5 | 1,0 |
| | 82,6 | C53C | 52 | 165,1 | 247,7 | 38,1 | 1 1/2-16 | 28,6 | 19,1 | 25,4 | 3/4-16 x 15,9 | 6,4 | 28,6 | 6,4 | 4,5 | 1,5 |
| | 133,4 | C55C | 85 | 215,9 | 349,3 | 38,1 | 1 1/2-16 | 28,6 | 19,1 | 25,4 | 3/4-16 x 15,9 | 6,4 | 28,6 | 6,4 | 4,5 | 1,8 |
| | 184,2 | C57C | 118 | 273,1 | 457,2 | 38,1 | 1 1/2-16 | 28,6 | 19,1 | 25,4 | 3/4-16 x 15,9 | 6,4 | 28,6 | 6,4 | 4,5 | 2,3 |
| | 235,0 | C59C | 151 | 323,9 | 558,8 | 38,1 | 1 1/2-16 | 28,6 | 19,1 | 25,4 | 3/4-16 x 15,9 | 6,4 | 28,6 | 6,4 | 4,5 | 2,6 |
| 10 | 25,4 | C101C | 36 | 92,1 | 117,5 | 57,2 | 2 1/4-14 | 28,6 | 19,1 | 38,1 | 1-8 x 19,1 | 6,4 | 42,8 | 14,4 | 10,2 | 1,8 |
| | 50,8 | C102C | 79 | 122,0 | 172,8 | 57,2 | 2 1/4-14 | 28,6 | 19,1 | 38,1 | 1-8 x 19,1 | 6,4 | 42,8 | 14,4 | 10,2 | 2,3 |
| | 104,8 | C104C | 151 | 171,5 | 276,2 | 57,2 | 2 1/4-14 | 28,6 | 19,1 | 38,1 | 1-8 x 19,1 | 6,4 | 42,8 | 14,4 | 10,2 | 3,0 |
| | 155,6 | C106C | 225 | 247,7 | 403,2 | 57,2 | 2 1/4-14 | 28,6 | 19,1 | 38,1 | 1-8 x 19,1 | 6,4 | 42,8 | 14,4 | 10,2 | 4,3 |
| | 206,4 | C108C | 362 | 298,5 | 504,8 | 57,2 | 2 1/4-14 | 28,6 | 19,1 | 38,1 | 1-8 x 19,1 | 6,4 | 42,8 | 14,4 | 10,2 | 5,0 |
| | 257,2 | C1010C | 370 | 349,3 | 606,4 | 57,2 | 2 1/4-14 | 28,6 | 19,1 | 38,1 | 1-8 x 19,1 | 6,4 | 42,8 | 14,4 | 10,2 | 5,9 |
| | 308,0 | C1012C | 444 | 400,1 | 708 ,0 | 57,2 | 2 1/4-14 | 28,6 | 19,1 | 38,1 | 1-8 x 19,1 | 6,4 | 42,8 | 14,4 | 10,2 | 6,6 |
| | 358,8 | C1014C | 518 | 450,9 | 809,6 | 57,2 | 2 1/4-14 | 28,6 | 19,1 | 38,1 | 1-8 x 19,1 | 6,4 | 42,8 | 14,4 | 10,2 | 7,3 |
| | 406,4 | C1016C | 592 | 520,7 | 927,1 | 57,2 | 2 1/4-14 | 28,6 | 19,1 | 38,1 | 1-8 x 19,1 | 6,4 | 42,8 | 14,4 | 10,2 | 8,4 |
| 15 | 25,4 | C151C | 51 | 123,8 | 149,2 | 69,9 | 2 3/4-16 | 28,6 | 19,1 | 44,5 | 1-8 x 19,1 | 6,4 | 50,8 | 20,3 | 14,2 | 3,4 |
| | 54,0 | C152C | 110 | 149,2 | 203,2 | 69,9 | 2 3/4-16 | 28,6 | 19,1 | 44,5 | 1-8 x 19,1 | 6,4 | 50,8 | 20,3 | 14,2 | 4,0 |
| | 104,8 | C154C | 211 | 200 ,0 | 304,8 | 69,9 | 2 3/4-16 | 28,6 | 19,1 | 44,5 | 1-8 x 19,1 | 6,4 | 50,8 | 20,3 | 14,2 | 5,2 |
| | 155,6 | C156C | 315 | 271,4 | 427,0 | 69,9 | 2 3/4-16 | 28,6 | 19,1 | 44,5 | 1-8 x 19,1 | 6,4 | 50,8 | 20,3 | 14,2 | 6,9 |
| | 206,4 | C158C | 418 | 322,2 | 528,6 | 69,9 | 2 3/4-16 | 28,6 | 19,1 | 44,5 | 1-8 x 19,1 | 6,4 | 50,8 | 20,3 | 14,2 | 8,1 |
| | 257,2 | C1510C | 521 | 373 ,0 | 630,2 | 69,9 | 2 3/4-16 | 28,6 | 19,1 | 44,5 | 1-8 x 19,1 | 6,4 | 50,8 | 20,3 | 14,2 | 9,4 |
| | 308,0 | C1512C | 625 | 423,8 | 731,8 | 69,9 | 2 3/4-16 | 28,6 | 19,1 | 44,5 | 1-8 x 19,1 | 6,4 | 50,8 | 20,3 | 14,2 | 10,5 |
| | 358,8 | C1514C | 728 | 474,6 | 833,4 | 69,9 | 2 3/4-16 | 28,6 | 19,1 | 44,5 | 1-8 x 19,1 | 6,4 | 50,8 | 20,3 | 14,2 | 11,8 |
| | 406,4 | C1516C | 824 | 522,3 | 928,7 | 69,9 | 2 3/4-16 | 28,6 | 19,1 | 44,5 | 1-8 x 19,1 | 6,4 | 50,8 | 20,3 | 14,2 | 12,8 |
| 25 | 25,4 | C251C | 84 | 139,7 | 165,1 | 85,7 | 3 5/16-12 | 49,2 | 25,4 | 57,2 | 1 1/2-16 x 25,4 | 9,5 | 65,1 | 33,2 | 23,4 | 5,4 |
| | 50,8 | C252C | 169 | 164,5 | 215,3 | 85,7 | 3 5/16-12 | 49,2 | 25,4 | 57,2 | 1 1/2-16 x 25,4 | 9,5 | 65,1 | 33,2 | 23,4 | 6,3 |
| | 101,6 | C254C | 338 | 215,9 | 317,5 | 85,7 | 3 5/16-12 | 49,2 | 25,4 | 57,2 | 1 1/2-16 x 25,4 | 9,5 | 65,1 | 33,2 | 23,4 | 8,0 |
| | 158,8 | C256C | 528 | 273,1 | 431,8 | 85,7 | 3 5/16-12 | 49,2 | 25,4 | 57,2 | 1 1/2-16 x 25,4 | 9,5 | 65,1 | 33,2 | 23,4 | 9,8 |
| | 209,6 | C258C | 697 | 323,9 | 533,4 | 85,7 | 3 5/16-12 | 49,2 | 25,4 | 57,2 | 1 1/2-16 x 25,4 | 9,5 | 65,1 | 33,2 | 23,4 | 11,6 |
| | 260,4 | C2510C | 865 | 374,4 | 635,0 | 85,7 | 3 5/16-12 | 49,2 | 25,4 | 57,2 | 1 1/2-16 x 25,4 | 9,5 | 65,1 | 33,2 | 23,4 | 13,3 |
| | 311,2 | C2512C | 1.036 | 425,5 | 736,0 | 85,7 | 3 5/16-12 | 49,2 | 25,4 | 57,2 | 1 1/2-16 x 25,4 | 9,5 | 65,1 | 33,2 | 23,4 | 15,0 |
| | 362,0 | C2514C | 1.205 | 476,3 | 838,2 | 85,7 | 3 5/16-12 | 49,2 | 25,4 | 57,2 | 1 1/2-16 x 25,4 | 9,5 | 65,1 | 33,2 | 23,4 | 16,7 |
| 55 | 50,8 | C552C | 362 | 174,6 | 225,4 | 127,0 | 5-12 | 55,6 | 34,9 | 79,4 | - | 3,2 | 95,3 | 71,2 | 50,1 | 14,7 |
| | 108,0 | C554C | 769 | 231,8 | 339,7 | 127,0 | 5-12 | 55,6 | 34,9 | 79,4 | - | 3,2 | 95,3 | 71,2 | 50,1 | 18,7 |
| | 158,8 | C556C | 1.131 | 282,6 | 441,3 | 127,0 | 5-12 | 55,6 | 34,9 | 79,4 | - | 3,2 | 95,3 | 71,2 | 50,1 | 23,1 |
| | 260,4 | C5510C | 1.853 | 384,2 | 644,5 | 127,0 | 5-12 | 55,6 | 34,9 | 79,4 | - | 3,2 | 95,3 | 71,2 | 50,1 | 30,4 |
| | 336,6 | C5513C | 2.398 | 460,4 | 796,9 | 127,0 | 5-12 | 55,6 | 34,9 | 79,4 | - | 3,2 | 95,3 | 71,2 | 50,1 | 35,3 |
| 75 | 155,6 | C756C | 1.596 | 314,3 | 469,9 | 146,1 | 5 3/4-12 | 44,5 | 31,8 | 95,3 | - | 3,2 | 114,3 | 102,6 | 72,1 | 33,3 |
| | 333,4 | C7513C | 3.421 | 492,1 | 825,5 | 146,1 | 5 3/4-12 | 44,5 | 31,8 | 95,3 | - | 3,2 | 114,3 | 102,6 | 72,1 | 49,6 |
| 100 | 50,8 | C1002C | 675 | 219,1 | 269,9 | 158,8 | 6 1/4-12 | 57,2 | 41,3 | 104,8 | - | 3,2 | 130,2 | 133,0 | 93,6 | 28,5 |
| | 168,3 | C1006C | 2.245 | 336,6 | 504,8 | 158,8 | 6 1/4-12 | 57,2 | 41,3 | 104,8 | - | 3,2 | 130,2 | 133,0 | 93,6 | 41,2 |
| | 260,4 | C10010C | 3.467 | 428,6 | 689,0 | 158,8 | 6 1/4-12 | 57,2 | 41,3 | 104,8 | - | 3,2 | 130,2 | 133,0 | 93,6 | 51,2 |

# Threaded End
## CYLINDERS CBT SERIES

**5-25 TONS**
Single Acting,
Spring-Return

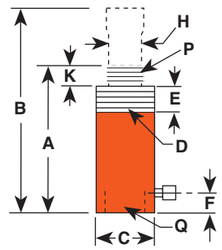
Threaded piston rod end and base threads accommodate accessories and adapters.

- Threaded cylinder collars, piston rod ends, and internal base threads simplify mounting.
- A 9796 3/8" NPTF female half coupler is standard with each cylinder; oil port threads are 3/8" NPTF.

C55CBT

C2514CBT


ASME B30.1
700 BAR




| Cyl. Cap. (tons) | Stroke (mm) | Order No. | Oil Cap. (cm³) | A Retracted Height (mm) | B Extended Height (mm) | C Outside Dia. (mm) | D Collar Thread (in.) | E Collar Thread Length (mm) | F Base to Port (mm) | H Piston Rod Dia. (in.) | K Piston Rod Protrusion (mm) | P Piston Rod Thread (NPT) | Q Internal Base Thread (NPSM) (in.) | Bore Dia. (mm) | Cyl. Eff. Area (cm²) | Metric Tons at 700 bar | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 133,4 | **C55CBT** | 85 | 266,7 | 400,1 | 38,1 | 1 1/2–16 | 28,6 | 47,6 | 25,4 | 28,6 | 3/4–14 | 3/4–14 | 28,6 | 6,4 | 4,5 | 2,0 |
| 10 | 155,6 | **C106CBT** | 228 | 292,1 | 447,7 | 57,2 | 2 1/4–14 | 28,6 | 42,9 | 38,1 | 27,0 | 1 1/4–11 1/2 | 1 1/4–11 1/2 | 27,0 | 14,4 | 10,2 | 4,7 |
| | 257,2 | **C1010CBT** | 375 | 393,7 | 650,9 | 57,2 | 2 1/4–14 | 28,6 | 42,9 | 38,1 | 27,0 | 1 1/4–11 1/2 | 1 1/4–11 1/2 | 27,0 | 14,4 | 10,2 | 6,3 |
| 25 | 158,8 | **C256CBT** | 528 | 339,7 | 498,5 | 85,7 | 3 5/16–12 | 49,2 | 47,6 | 57,2 | 47,6 | 2–11 1/2 | 2–11 1/2 | 47,6 | 33,3 | 23,4 | 11,1 |
| | 362,0 | **C2514CBT** | 1205 | 542,9 | 904,9 | 85,7 | 3 5/16–12 | 49,2 | 47,6 | 57,2 | 47,6 | 2–11 1/2 | 2–11 1/2 | 47, 6 | 33,3 | 23,4 | 18,2 |

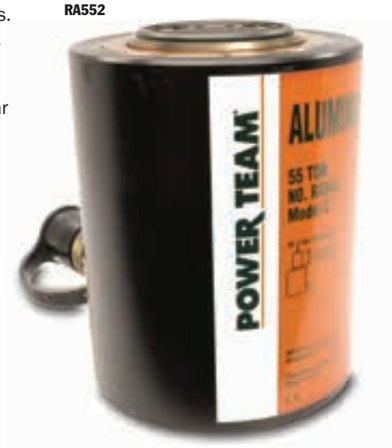
# ALUMINUM
## CYLINDERS RA-SERIES

**20-200 TONS**
Single Acting,
Spring-Return

Half the weight of equal capacity steel cylinders.

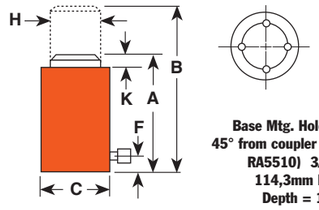
- Half the weight of steel cylinders.
- Aluminum body resists sparking in explosive environments.
- Hard coated aluminum piston rod and cylinder bore resist wear and corrosion.
- Grooved piston top helps keep the load from sliding on top of piston.
- Designed for jacking and other non- production operations.

RA552




ASME B30.1
700 BAR

RA1006


Base Mtg. Holes (4) at 45° from coupler (RA556, RA5510) 3/8"-16 x 114,3mm Dia. B.C. Depth = 12,7 mm

| Cyl. Cap. (tons) | Stroke (mm) | Order No. | Oil Cap. (cm³) | A Retracted Ht. (mm) | B Extended Ht. (mm) | C Outside Dia. (mm) | F Base to Port (mm) | H Piston Rod Dia. (mm) | K Piston Rod Protrusion (mm) | Bore Dia. (mm) | Cylinder Effective Area (cm²) | Metric Tons at 700 bar | Weight. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | 54,0 | RA202 | 154 | 161,9 | 215,9 | 95,3 | 31,8 | 50,8 | 7,9 | 60,3 | 28,6 | 20,1 | 3,5 |
| | 104,8 | RA204 | 300 | 212,7 | 317,5 | 95,3 | 31,8 | 50,8 | 7,9 | 60,3 | 28,6 | 20,1 | 4.2 |
| | 155,6 | RA206 | 445 | 263,5 | 419,1 | 95,3 | 31,8 | 50,8 | 7,9 | 60,3 | 28,6 | 20,1 | 5.1 |
| 30 | 54,0 | RA302 | 226 | 187,3 | 241,3 | 108,0 | 31,8 | 63,5 | 9,5 | 73,0 | 41,9 | 29,4 | 5,0 |
| | 104,8 | RA304 | 439 | 238,1 | 342,9 | 108,0 | 31,8 | 63,5 | 9,5 | 73,0 | 41,9 | 29,4 | 5,9 |
| | 155,6 | RA306 | 652 | 288,9 | 444,5 | 108,0 | 31,8 | 63,5 | 9,5 | 73,0 | 41,9 | 29,4 | 6,8 |
| 55 | 54,0 | RA552 | 386 | 171,5 | 225,4 | 133,4 | 34,9 | 79,4 | 6,4 | 95,3 | 71,2 | 50,1 | 7,3 |
| | 104,8 | RA554 | 746 | 222,3 | 327,0 | 133,4 | 34,9 | 79,4 | 6,4 | 95,3 | 71,2 | 50,1 | 8,9 |
| | 155,6 | RA556* | 1.109 | 273,1 | 428,6 | 133,4 | 34,9 | 79,4 | 6,4 | 95,3 | 71,2 | 50,1 | 10,9 |
| | 254,0 | RA5510* | 1.811 | 384,2 | 638,2 | 133,4 | 34,9 | 79,4 | 6,4 | 95,3 | 71,2 | 50,1 | 14,4 |
| 100 | 54,0 | RA1002 | 718 | 196,9 | 250,8 | 187,3 | 30,2 | 104,8 | 3,2 | 130,2 | 133,0 | 93,5 | 15,1 |
| | 158,8 | RA1006* | 2.116 | 298,5 | 457,2 | 187,3 | 30,2 | 104,8 | 3,2 | 130,2 | 133,0 | 93,5 | 22,6 |

* Equipped with carrying handles.


CYLINDERS

# Selection Chart - Choose the right cylinder

| Tons | SA and DA action | Retracted Stroke mm. | Retracted Height mm. | Type of return | Duty | Base Mount. hole | Base Collar Thread | Order No. |
|---|---|---|---|---|---|---|---|---|
| 2 | | 127 | 233 | Spring | High | - | ✔ | RP25 |
| 5 pull | | 139,7 | 302 | Spring | High | - | ✔ | RP55 |
| 5 | | 25,4 | 111 | Spring | High | ✔ | ✔ | C51C |
| | | 82,6 | 165 | Spring | High | ✔ | ✔ | C53C |
| | | 133,4 | 216 | Spring | High | ✔ | ✔ | C55C |
| | | 133,4 | 267 | Spring | High | - | ✔ | C55CBT |
| | | 184,2 | 273 | Spring | High | ✔ | ✔ | C57C |
| | | 235 | 324 | Spring | High | ✔ | ✔ | C59C |
| | | 14,3 | 41 | Spring | High | ✔ | - | RLS50 |
| 10 | | 257,2 | 349 | Spring | High | ✔ | ✔ | C1010C |
| | | 257,2 | 394 | Spring | High | - | ✔ | C1010CBT |
| | | 308 | 400 | Spring | High | ✔ | ✔ | C1012C |
| | | 358,8 | 451 | Spring | High | ✔ | ✔ | C1014C |
| | | 25,4 | 92 | Spring | High | ✔ | ✔ | C101C |
| | | 54 | 121 | Spring | High | ✔ | ✔ | C102C |
| | | 104,8 | 172 | Spring | High | ✔ | ✔ | C104C |
| | | 155,6 | 248 | Spring | High | ✔ | ✔ | C106C |
| | | 155,6 | 292 | Spring | High | - | ✔ | C106CBT |
| | | 206,4 | 299 | Spring | High | ✔ | ✔ | C108C |
| | | 254 | 391 | ♦ | High | ✔ | ✔ | RD1010 |
| | | 158,8 | 297 | ♦ | High | ✔ | ✔ | RD106 |
| | | 63,5 | 133 | Load | High | ✔ | - | RH102 |
| | | 203,2 | 287 | Load | High | ✔ | - | RH108 |
| | | 11,1 | 45 | Load | High | ✔ | - | RLS100 |
| | | 38,1 | 89 | Load | High | - | - | RSS101 |
| 12 | | 7,9 | 56 | Load | High | ✔ | ✔ | RH120 |
| | | 41,3 | 122 | Load | High | - | ✔ | RH121 |
| | | 41,3 | 122 | Load | High | - | ✔ | RH121T |
| | | 76,2 | 184 | Load | High | - | ✔ | RH123 |
| 15 | | 257,2 | 373 | Spring | High | ✔ | ✔ | C1510C |
| | | 308 | 424 | Spring | High | ✔ | ✔ | C1512C |
| | | 358,8 | 475 | Spring | High | ✔ | ✔ | C1514C |
| | | 406,4 | 522 | Spring | High | ✔ | ✔ | C1516C |
| | | 25,4 | 124 | Spring | High | ✔ | ✔ | C151C |
| | | 54 | 149 | Spring | High | ✔ | ✔ | C152C |
| | | 104,8 | 200 | Spring | High | ✔ | ✔ | C154C |
| | | 155,6 | 271 | Spring | High | ✔ | ✔ | C156C |
| | | 206,4 | 322 | Spring | High | ✔ | ✔ | C158C |
| 17,5 | | 50,8 | 175 | Spring | High | ✔ | - | RT172 |
| 20 | | 54 | 162 | Spring | High | - | - | RA202 |
| | | 104,8 | 213 | Spring | High | - | - | RA204 |
| | | 155,6 | 264 | Spring | High | - | - | RA206 |
| | | 50,8 | 156 | Spring | High | ✔ | ✔ | RH202 |
| | | 76,2 | 154 | Spring | High | ✔ | - | RH203 |
| | | 152,4 | 308 | Spring | High | ✔ | ✔ | RH206 |
| | | 11,1 | 51 | Spring | High | ✔ | - | RLS200 |
| | | 44,5 | 95 | Spring | High | - | - | RSS202 |
| 25 | | 260,4 | 375 | Spring | High | ✔ | ✔ | C2510C |
| | | 311,2 | 425 | Spring | High | ✔ | ✔ | C2512C |
| | | 362 | 476 | Spring | High | ✔ | ✔ | C2514C |
| | | 362 | 543 | Spring | High | - | ✔ | C2514CBT |
| | | 25,4 | 140 | Spring | High | ✔ | ✔ | C251C |
| | | 50,8 | 165 | Spring | High | ✔ | ✔ | C252C |
| | | 101,6 | 216 | Spring | High | ✔ | ✔ | C254C |
| | | 158,8 | 273 | Spring | High | ✔ | ✔ | C256C |
| | | 158,8 | 314 | Spring | High | - | ✔ | C256CBT |
| | | 209,6 | 324 | Spring | High | ✔ | ✔ | C258C |
| | | 362 | 518 | ♦ | High | ✔ | ✔ | RD2514 |
| | | 158,8 | 340 | ♦ | High | ✔ | ✔ | RD256 |

| Tons | SA and DA action | Retracted Stroke mm. | Retracted Height mm. | Type of return | Duty | Base Mount. hole | Base Collar Thread | Order No. |
|---|---|---|---|---|---|---|---|---|
| 30 | | 54 | 187 | Spring | High | - | - | RA302 |
| | | 104,8 | 238 | Spring | High | - | - | RA304 |
| | | 155,6 | 289 | Spring | High | - | - | RA306 |
| | | 257,2 | 438 | ♦ | High | - | ✔ | RH3010 |
| | | 63,5 | 159 | Spring | High | ✔ | ✔ | RH302 |
| | | 76,2 | 179 | ♦ | High | ✔ | - | RH303 |
| | | 152,4 | 248 | Spring | High | ✔ | ✔ | RH306 |
| | | 152,4 | 281 | ♦ | High | ✔ | - | RH306D |
| | | 149,2 | 283 | Spring | High | - | - | RHA306 |
| 50 | | 12,7 | 59 | Spring | High | ✔ | - | RLS300 |
| | | 61,9 | 117 | Spring | High | - | - | RSS302 |
| | | 63,5 | 214 | Spring | High | ✔ | - | RT302 |
| | | 76,2 | 181 | Spring | High | ✔ | ✔ | RH503 |
| | | 15,9 | 67 | Spring | High | ✔ | - | RLS500S |
| | | 60,3 | 127 | Spring | High | - | - | RSS502 |
| | | 76,2 | 268 | Spring | High | ✔ | - | RT503 |
| 55 | | 260,4 | 384 | Spring | High | ✔ | ✔ | C5510C |
| | | 336,6 | 460 | Spring | High | ✔ | ✔ | C5513C |
| | | 50,8 | 175 | Spring | High | ✔ | ✔ | C552C |
| | | 108 | 232 | Spring | High | ✔ | ✔ | C554C |
| | | 158,8 | 283 | Spring | High | ✔ | ✔ | C556C |
| | | 254 | 329 | Load | - | - | - | R5510C |
| | | 254 | 365 | Load | - | - | - | R5510L |
| | | 50,8 | 125 | Load | - | - | - | R552C |
| | | 50,8 | 162 | Load | - | - | - | R552L |
| | | 152,4 | 264 | Load | - | - | - | R556C |
| | | 152,4 | 321 | Load | - | - | - | R556L |
| | | 254 | 384 | Spring | High | ✔ | - | RA5510 |
| | | 54 | 171 | Spring | High | - | - | RA552 |
| | | 104,8 | 222 | Spring | High | - | - | RA554 |
| | | 155,6 | 273 | Spring | High | ✔ | - | RA556 |
| | | 155,6 | 318 | Spring | High | - | - | RA556L |
| | | 50 | 125 | Load | High | - | - | RC0552P |
| | | 333,4 | 504 | ♦ | High | ✔ | ✔ | RD5513 |
| | | 463,6 | 657 | ♦ | High | ✔ | ✔ | RD5518 |
| | | 158,8 | 329 | ♦ | High | ✔ | ✔ | RD556 |
| 60 | | 257,2 | 459 | ♦ | High | - | ✔ | RH6010 |
| | | 76,2 | 235 | Spring | High | ✔ | ✔ | RH603 |
| | | 127 | 241 | ♦ | High | ✔ | - | RH605 |
| | | 152,4 | 318 | Spring | High | ✔ | ✔ | RH606 |
| | | 101,6 | 241 | ♦ | High | ✔ | - | RHA604D |
| 75 | | 333,4 | 492 | Spring | High | - | ✔ | C7513C |
| | | 155,6 | 314 | Spring | High | - | ✔ | C756C |
| | | 15,9 | 79 | Spring | High | ✔ | - | RLS750S |
| 80 | | 333,4 | 518 | ♦ | High | ✔ | ✔ | RD8013 |
| 100 | | 260,4 | 429 | Spring | High | - | ✔ | C10010C |
| | | 50,8 | 219 | Spring | High | - | ✔ | C1002C |
| | | 168,3 | 337 | Spring | High | - | ✔ | C1006C |
| | | 254 | 343 | Load | - | - | - | R10010C |
| | | 254 | 372 | ♦ | - | - | - | R10010D |
| | | 254 | 387 | Load | - | - | - | R10010L |
| | | 50,8 | 140 | Load | - | - | - | R1002C |
| | | 50,8 | 169 | ♦ | - | - | - | R1002D |
| | | 50,8 | 184 | Load | - | - | - | R1002L |
| | | 152,4 | 241 | Load | - | - | - | R1006C |
| | | 152,4 | 270 | Load | - | - | - | R1006D |
| | | 152,4 | 286 | Load | - | - | - | R1006L |
| | | 54 | 197 | Spring | High | - | - | RA1002 |
| | | 158,8 | 298 | Spring | High | - | - | RA1006 |

| Tons | SA and DA action | Retracted Stroke mm. | Retracted Height mm. | Type of return | Duty | Base Mount. hole | Base Collar Thread | Order No. |
|---|---|---|---|---|---|---|---|---|
| 100 | | 158,8 | 340 | Load | High | - | - | RA1006L |
| | | 45 | 137 | Load | High | - | - | RC1002P |
| | | 333,4 | 515 | ♦ | High | ✔ | ✔ | RD10013 |
| | | 511,2 | 718 | ♦ | High | ✔ | ✔ | RD10020 |
| | | 168,3 | 350 | ♦ | High | ✔ | ✔ | RD1006 |
| | | 38,1 | 165 | ♦ | High | - | - | RH1001 |
| | | 260,4 | 503 | ♦ | High | - | ✔ | RH10010 |
| | | 76,2 | 254 | Spring | High | - | - | RH1003 |
| | | 152,4 | 314 | ♦ | High | ✔ | - | RH1006 |
| | | 15,9 | 86 | Spring | High | ✔ | - | RLS1000S |
| | | 57,2 | 140 | Spring | High | - | - | RSS1002 |
| | | 38,1 | 144 | ♦ | High | - | - | RSS1002D |
| | | 123,8 | 384 | ♦ | High | ✔ | - | RT1004 |
| 150 | | 254 | 365 | Load | - | - | - | R15010C |
| | | 254 | 392 | ♦ | - | - | - | R15010D |
| | | 254 | 410 | Load | - | - | - | R15010L |
| | | 50,8 | 162 | Load | - | - | - | R1502C |
| | | 50,8 | 189 | ♦ | - | - | - | R1502D |
| | | 50,8 | 206 | Load | - | - | - | R1502L |
| | | 152,4 | 264 | Load | - | - | - | R1506C |
| | | 152,4 | 291 | ♦ | - | - | - | R1506D |
| | | 152,4 | 308 | Load | - | - | - | R1506L |
| | | 333,4 | 543 | ♦ | High | ✔ | ✔ | RD15013 |
| | | 460,4 | 674 | ♦ | High | ✔ | ✔ | RD15018 |
| | | 168,3 | 378 | ♦ | High | ✔ | ✔ | RD1506 |
| | | 127 | 308 | ♦ | High | - | - | RH1505 |
| | | 203,2 | 349 | ♦ | High | - | - | RH1508 |
| | | 14,3 | 102 | Spring | High | ✔ | - | RLS1500S |
| 155 | | 45 | 148 | Load | High | - | - | RC1552P |
| 200 | | 254 | 394 | Load | - | - | - | R20010C |
| | | 254 | 410 | ♦ | - | - | - | R20010D |
| | | 254 | 445 | Load | - | - | - | R20010L |
| | | 50,8 | 191 | Load | - | - | - | R2002C |
| | | 50,8 | 207 | ♦ | - | - | - | R2002D |
| | | 50,8 | 241 | Load | - | - | - | R2002L |
| | | 152,4 | 292 | Load | - | - | - | R2006C |
| | | 152,4 | 308 | ♦ | - | - | - | R2006D |
| | | 152,4 | 343 | Load | - | - | - | R2006L |
| | | 333,4 | 572 | ♦ | High | ✔ | ✔ | RD20013 |
| | | 460,4 | 724 | ♦ | High | ✔ | ✔ | RD20018 |
| | | 168,3 | 406 | ♦ | High | ✔ | ✔ | RD2006 |
| | | 203,2 | 408 | Spring | High | ✔ | - | RH2008 |
| 240 | | 45 | 155 | Load | High | - | - | RC2402P |
| 250 | | 76,2 | 290 | Spring | High | - | - | RSS2503 |
| 280 | | 254 | 394 | Load | - | - | - | R28010C |
| | | 254 | 437 | ♦ | - | - | - | R28010D |
| | | 254 | 451 | Load | - | - | - | R28010L |
| | | 50,8 | 191 | Load | - | - | - | R2802C |
| | | 50,8 | 234 | ♦ | - | - | - | R2802D |
| | | 50,8 | 248 | Load | - | - | - | R2802L |
| | | 152,4 | 292 | Load | - | - | - | R2806C |
| | | 152,4 | 335 | ♦ | - | - | - | R2806D |
| | | 152,4 | 349 | Load | - | - | - | R2806L |
| 300 | | 330,2 | 617 | ♦ | High | ✔ | ✔ | RD30013 |
| 300 | | 152,4 | 439 | ♦ | High | ✔ | ✔ | RD3006 |
| 355 | | 254 | 435 | Load | - | - | - | R35510C |
| | | 254 | 550 | ♦ | - | - | - | R35510D |
| | | 254 | 495 | Load | - | - | - | R35510L |
| | | 50,8 | 232 | Load | - | - | - | R3552C |

| Tons | SA and DA action | Retracted Stroke mm. | Retracted Height mm. | Type of return | Duty | Base Mount. hole | Base Collar Thread | Order No. |
|---|---|---|---|---|---|---|---|---|
| 355 | | 50,8 | 290 | ♦ | - | - | - | R3552D |
| | | 50,8 | 292 | Load | - | - | - | R3552L |
| | | 152,4 | 333 | Load | - | - | - | R3556C |
| | | 152,4 | 448 | ♦ | - | - | - | R3556D |
| | | 152,4 | 394 | Load | - | - | - | R3556L |
| 380 | | 45 | 178 | Load | High | - | - | RC3802P |
| 400 | | 330,2 | 651 | ♦ | High | ✔ | ✔ | RD40013 |
| | | 152,4 | 473 | ♦ | High | ✔ | ✔ | RD4006 |
| 430 | | 254 | 467 | Load | - | - | - | R43010C |
| | | 254 | 516 | ♦ | - | - | - | R43010D |
| | | 254 | 537 | Load | - | - | - | R43010L |
| | | 50,8 | 264 | Load | - | - | - | R4302C |
| | | 50,8 | 313 | ♦ | - | - | - | R4302D |
| | | 50,8 | 333 | Load | - | - | - | R4302L |
| | | 152,4 | 365 | Load | - | - | - | R4306C |
| | | 152,4 | 413 | ♦ | - | - | - | R4306D |
| | | 152,4 | 435 | Load | - | - | - | R4306L |
| 500 | | 330,2 | 677 | ♦ | High | ✔ | ✔ | RD50013 |
| | | 152,4 | 499 | ♦ | High | ✔ | ✔ | RD5006 |
| 565 | | 254 | 495 | Load | - | - | - | R56510C |
| | | 254 | 548 | ♦ | - | - | - | R56510D |
| | | 254 | 575 | Load | - | - | - | R56510L |
| | | 50,8 | 292 | Load | - | - | - | R5652C |
| | | 50,8 | 345 | ♦ | - | - | - | R5652D |
| | | 50,8 | 371 | Load | - | - | - | R5652L |
| | | 152,4 | 394 | Load | - | - | - | R5656C |
| | | 152,4 | 447 | ♦ | - | - | - | R5656D |
| | | 152,4 | 473 | Load | - | - | - | R5656L |
| 620 | | 45 | 192 | Load | High | - | - | RC6202P |
| 740 | | 250 | 465 | Load | - | - | - | RC74010C |
| | | 250 | 508 | ♦ | High | - | - | RC74010D |
| | | 250 | 595 | Load | High | - | - | RC74010L |
| | | 50 | 265 | Load | - | - | - | RC7402C |
| | | 50 | 283 | ♦ | High | - | - | RC7402D |
| | | 50 | 395 | Load | High | - | - | RC7402L |
| | | 150 | 365 | Load | - | - | - | RC7406C |
| | | 150 | 398 | ♦ | High | - | - | RC7406D |
| | | 150 | 495 | Load | High | - | - | RC7406L |
| 965 | | 250 | 390 | Load | - | - | - | RC96510C |
| | | 250 | 530 | ♦ | High | - | - | RC96510D |
| | | 250 | 635 | Load | High | - | - | RC96510L |
| | | 50 | 290 | Load | - | - | - | RC9652C |
| | | 50 | 310 | ♦ | High | - | - | RC9652D |
| | | 50 | 455 | Load | High | - | - | RC9652L |
| | | 150 | 390 | Load | - | - | - | RC9656C |
| | | 150 | 420 | ♦ | High | - | - | RC9656D |
| | | 150 | 555 | Load | High | - | - | RC9656L |
| 1220 | | 250 | 615 | Load | - | - | - | RC122010C |
| | | 250 | 550 | ♦ | High | - | - | RC122010D |
| | | 250 | 698 | Load | High | - | - | RC122010L |
| | | 50 | 415 | Load | - | - | - | RC12202C |
| | | 50 | 330 | ♦ | High | - | - | RC12202D |
| | | 50 | 443 | Load | High | - | - | RC12202L |
| | | 150 | 440 | Load | - | - | - | RC12206C |
| | | 150 | 440 | ♦ | High | - | - | RC12206D |
| | | 150 | 598 | Load | High | - | - | RC12206L |

Single Action — Spring Return
Double Action — ♦ Hydraulic Return

# Low profile
## CYLINDERS RLS SERIES

**5-150 Ton**
Single-Acting,
Spring-Return

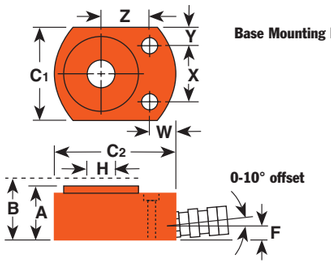
Ideal for confined areas from 41 to 101,6 mm clearance.


RLS100

- Cylinder body, piston and gland nut "Power Tech" treated for corrosion and abrasion resistance
- Standard domed piston rod (5-30 ton) or swivel cap (50-150 ton) minimize effects of off-center loading.
- Unique heavy duty spring provides fast piston return.
- A 9796 3/8" NPTF female half coupler is standard with each cylinder (the RLS50 has a 3/8" coupler which is not angled). Oil ports are 3/8" NPTF (except the RLS50).
- Couplers on all cylinders, except RLS50, are angled upward for extra clearance.


RLS1000S

**ASME B30.1**
**700 BAR**




Base Mounting Holes

| Cyl. Cap. (tons) | Stroke (mm) | Order No. | Oil Cap. (cm³) | A Retracted Height (mm) | B Extended Height (mm) | C1 & C2 Outside Dia. (mm) | F Base to Port (mm) | H Piston Rod Prod. Dia. (mm) | W | X | Y | Z | Bore Dia. (mm) | Cyl. Eff. Area (cm²) | Metric Tons at 700 bar | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Mounting Hole Location (mm) | | | | | | | |
| **5** | 14,3 | **RLS50** | 10 | 41,3 | 55,6 | 41,3x65,1 | 19,1 | 15,9 | 19,1 | 28,6 | 6,4 | 25,4 | 28,6 | 6,4 | 4,5 | 1,0 |
| **10** | 11,1 | **RLS100** | 17 | 44,5 | 55,6 | 55,6x82,6 | 15,9 | 19,1 | 17,5 | 36,5 | 9,5 | 33,3 | 42,9 | 14,4 | 10,1 | 1,5 |
| **20** | 11,1 | **RLS200** | 33 | 50,8 | 61,9 | 76,2x101,6 | 16,7 | 28,6 | 18,3 | 49,2 | 13,5 | 39,7 | 60,3 | 28,6 | 20,1 | 2,5 |
| **30** | 12,7 | **RLS300** | 53 | 58,7 | 71,4 | 95,3x114,3 | 18,3 | 34,9 | 20,6 | 52,4 | 21,4 | 44,5 | 73,0 | 41,9 | 29,5 | 3,9 |
| **50** | 15,9 | **RLS500S** | 99 | 66,7 | 82,6 | 114,3x139,7 | 21,4 | 44,5 | 23,8 | 66,7 | 23,8 | 54,0 | 88,9 | 62,1 | 43,6 | 6,3 |
| **75** | 15,9 | **RLS750S** | 163 | 79,4 | 95,3 | 140,5x165,1 | 25,4 | 54,0 | 23,8 | 76,2 | 32,1 | 65,9 | 114,3 | 102,6 | 72,2 | 10,6 |
| **100** | 15,9 | **RLS1000S** | 202 | 85,7 | 101,6 | 152,4x177,8 | 25,4 | 63,5 | 20,6 | 76,2 | 38,1 | 71,4 | 127,0 | 126,6 | 89,1 | 13,6 |
| **150** | 14,3 | **RLS1500S** | 282 | 101,6 | 115,9 | 190,5x215,9 | 33,3 | 76,2 | 33,3 | 117,5 | 36,5 | 79,4 | 158,8 | 197,9 | 139,2 | 23,6 |

# Shorty
## CYLINDERS RSS SERIES

**10-250 Ton**
Single-Acting, Spring-Return & Double-Acting

Ideal for confined areas from 89 to 290,5 mm clearance.

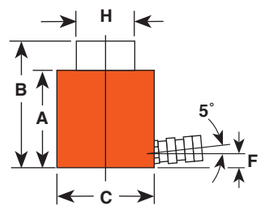
- Power Tech plated piston rods and gland nuts resist scoring and corrosion.
- Heavy duty return spring (except for double-acting models) provides fast piston return & low collapsed height.
- Coupler on 10 thru 50 ton models is angled upward 5° for added clearance.
- Grooved piston top keeps load from sliding.
- Cylinders can be "dead-ended" at full capacity.
- Removable carrying handles on 100 ton and 250 ton models.


RSS2503

RSS302

**ASME B30.1**
**700 BAR**

Cribbing blocks are shown in a 30 ton RSS302 "Shorty" cylinder.




| Cyl Capacity (Tons) | Stroke (mm) | Order No. | Oil Cap. (cm³) Push | Oil Cap. (cm³) Return | A Retracted Height (mm) | B Extended Height (mm) | C Outside Dia. (mm) | F Base to Port (mm) | H Piston Rod Dia. (mm) | Bore Dia. (mm) | Cylinder Effective Area (cm²) | Metric Tons at 700 (bar) | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **10** | 38,1 | **RSS101** | 56 | – | 88,9 | 127,0 | 69,9 | 15,9 | 38,1 | 42,9 | 14,4 | 10,2 | 2,7 |
| **20** | 44,5 | **RSS202** | 126 | – | 95,3 | 139,7 | 90,5 | 15,9 | 54,8 | 60,3 | 28,6 | 20,0 | 4,5 |
| **30** | 61,9 | **RSS302** | 259 | – | 117,5 | 179,4 | 101,6 | 15,9 | 63,5 | 73,0 | 41,9 | 29,5 | 6,7 |
| **50** | 60,3 | **RSS502** | 374 | – | 127,0 | 187,3 | 123,8 | 19,1 | 79,4 | 88,9 | 62,0 | 43,6 | 10,5 |
| **100** | 57,2 | **RSS1002** | 725 | – | 139,7 | 196,9 | 168,3 | 23,8 | 111,1 | 127,0 | 126,6 | 89,1 | 21,4 |
| **100** | 38,1 | **RSS1002D** | 482 | 212 | 144,5 | 182,6 | 174,6 | 23,8 * | 95,3 | 127,0 | 126,6 | 89,1 | 24,7 |
| **250** | 76,2 | **RSS2503** | 2.469 | – | 290,5 | 366,7 | 250,8 | 46,0 | 139,7 | 203,2 | 323,9 | 227,8 | 99,7 |


CYLINDERS

# Center Hole
## CYLINDERS RH SERIES

**10-100 Ton**
Single-Acting,
Spring-Return

Ideal for pulling and tensioning of cables, anchor bolts, forcing screws, etc.

CYLINDERS

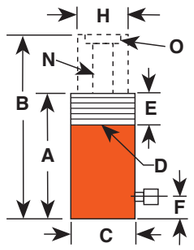
- Interchangeable piston head inserts provide versatility of application.
- 12, 20*, 30*, 50, 60 Ton Single-Acting Models Feature Threaded Collar
- Withstands full “dead-end” loads.
- Corrosion resistant standpipe has “Power Tech” treatment.
- All cylinders except RH120 are furnished with a 9796 3/8” NPT female half coupler.
- Aluminum cylinder body and piston are featured on the RHA306 cylinder.

* Model RH203 and RHA306 do not feature the collar thread. See the chart below.



ASME B30.1
700 BAR

**10, 20, 100 Ton Single-Acting Models Feature Plain Collar**




| Cyl. Cap. (tons) Push | Pull | Stroke (mm) | Order No. | Oil Cap. (cm³) Push | Pull | A Retracted Height (mm) | B Extended Height (mm) | C Outside Dia. (mm) | D Collar Thread (in.) | E Collar Thread Length (mm) | F Base to Port (mm) | H Piston Rod Dia. (mm) | N Center Hole Dia. (mm) | O Insert Thread and Size (in.) | Mount. Holes Bolt Circle | Cylinder Effective Area (cm²) | Metric Tons at 700 bar | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | | 63,5 | **RH102** | 91 | | 134,9 | 198,4 | 76,2 | - | - | 25,4 | 52,4 | 19,4 | 1 3/4-12 | 1/4-20 x 60,3 | 14,3 | 10,0 | 4,1 |
| 10 | | 203,2 | **RH108** | 290 | | 287,3 | 490,5 | 76,2 | - | - | 25,4 | 52,4 | 19,4 | 1 3/4-12 | 1/4-20 x 60,3 | 14,3 | 10,0 | 8,5 |
| 12 | | 7,9 | **RH120**** | 14 | | 55,6 | 63,5 | 69,9 | 2 3/4-16 | 31,8 | 9,5 | 34,9 | 17,5 | 3/4-16 | 5/16-18 x 50,8 | 17,8 | 12,5 | 1,4 |
| 12 | | 41,3 | **RH121** | 74 | | 122,2 | 163,5 | 69,9 | 2 3/4-16 | 31,8 | 25,4 | 34,9 | 20,2 | - | | 17,8 | 12,5 | 3,0 |
| 12 | | 41,3 | **RH121T**** | 74 | | 122,2 | 163,5 | 69,9 | 2 3/4-16 | 31,8 | 25,4 | 34,9 | 17,5 | 3/4-16 | 5/16-18 x 50,8 | 17,8 | 12,5 | 3,0 |
| 12 | | 76,2 | **RH123** | 136 | | 184,2 | 260,4 | 69,9 | 2 3/4-16 | 20,6 | 25,4 | 34,9 | 20,6 | - | | 17,8 | 12,5 | 4,0 |
| 20 | | 50,8 | **RH202** | 155 | | 155,6 | 206,4 | 98,4 | 3 7/8-12 | 38,1 | 25,4 | 54,0 | 27,4 | 1 9/16-16 | 3/8-16 x 82,6 | 30,4 | 21,4 | 7,3 |
| 20 | | 76,2 | **RH203** | 193 | | 154,0 | 230,2 | 101,6 | - | - | 25,4 | 69,9 | 26,6 | 2 1/4-12 | 3/8-16 x 82,6 | 25,3 | 17,8 | 9,1 |
| 20 | | 152,4 | **RH206** | 465 | | 308,0 | 460,4 | 98,4 | 3 7/8-12 | 38,1 | 25,4 | 54,0 | 27,4 | 1 9/16-16 | 3/8-16 x 82,6 | 30,4 | 21,4 | 13,7 |
| 30 | | 63,5 | **RH302** | 260 | | 158,8 | 222,3 | 120,7 | 4 3/4-12 | 38,1 | 29,4 | 82,6 | 32,9 | 2 3/4-12 | 7/16-20 x 92,1 | 40,9 | 28,8 | 11,6 |
| 30 | | 149,2 | **RHA306** | 625 | | 283,4 | 432,6 | 130,2 | - | - | 31,8 | 82,6 | 32,5 | 2 5/8-8 | 7/16-20 x 92,1 | 40,9 | 28,8 | 9,9 |
| 30 | | 152,4 | **RH306** | 625 | | 247,7 | 400,1 | 120,7 | 4 3/4-12 | 38,1 | 29,4 | 82,6 | 32,5 | 2 3/4-12 | | 40,9 | 28,8 | 17,7 |
| 50 | | 76,2 | **RH503** | 534 | | 181,0 | 257,2 | 152,4 | 6-12 | 50,8 | 31,8 | 104,8 | 42,5 | 3 1/4-12 | 5/8-18 x 120,7 | 70,0 | 49,3 | 21,2 |
| 60 | | 76,2 | **RH603*** | 607 | | 235,0 | 311,2 | 158,8 | 6 1/4-12 | 63,5 | 25,4 | 91,3 | 54,0 | 3-12 | 1/2-13 x 130,2 | 79,4 | 55,9 | 27,2 |
| 60 | | 152,4 | **RH606*** | 1.211 | | 311,2 | 463,6 | 158,8 | 6 1/4-12 | 63,5 | 25,4 | 91,3 | 54,0 | 3-12 | 1/2-13 x 130,2 | 79,4 | 55,9 | 35,4 |
| 100 | | 76,2 | **RH1003*** | 1.014 | | 254,0 | 330,2 | 212,7 | - | - | 31,8 | 127,0 | 79,4 | 4 1/8-12 | | 133,0 | 93,5 | 52,2 |

*Supplied with carrying handles.

Aluminum

** RH120 and RH121T do not have an internal threaded insert, but do have a 3/4-16 internal thread. The RH120 inlet port is 1/4” NPTF.

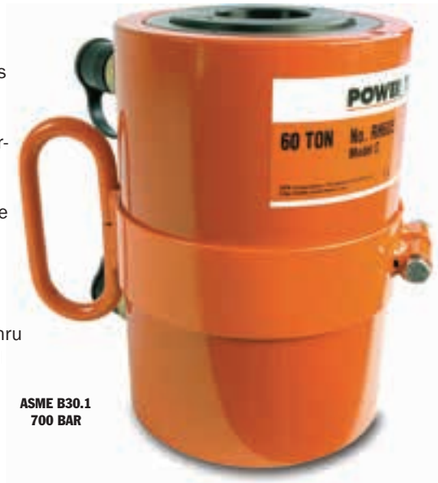
# Center Hole
## CYLINDERS RH SERIES

**30-200 Ton**
Double-Acting

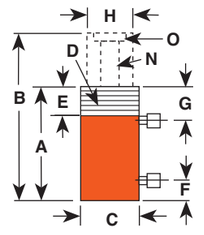
Ideal for pulling and tensioning of cables, anchor bolts, forcing screws.

CYLINDERS

- Interchangeable piston head inserts provide versatility of application.
- Built-in safety feature prevents over-pressurization of the retract circuit.
- Plated piston rod resists wear; superior packings provide high cycle life without leakage.
- Corrosion-resistant standpipe has “Power Tech” treatment
- Each cylinder has 9796 3/8” NPTF female half couplers. The 60 ton thru 200 ton steel models are equipped with removable carrying handles.




ASME B30.1
700 BAR


| Cyl. Cap. (tons) Push | Pull | Stroke (mm) | Order No. | Oil Cap. (cm³) Push | Pull | A Retracted Height (mm) | B Extended Height (mm) | C Outside Dia. (mm) | D Collar Thread (in.) | E Collar Thread Length (mm) | F Base to Port (mm) | G Cylinder Top to Port (mm) | H Piston Rod Dia. (mm) | N Center Hole Dia. (mm) | Insert Thread Size (in.) | Mounting Holes (in.) and Bolt Circle (mm) | Cylinder Effective Area (cm²) Push | Pull | Metric Tons at 700 bar Push | Pull | Weight kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | 15 | 76,2 | **RH303** | 289 | 167 | 179,4 | 255,6 | 120,7 | - | - | 25,4 | 41,3 | 63,5 | 32,5 | 2-12 | 3/8-16 x 92,1 | 38,0 | 21,8 | 26,8 | 15,3 | 13,5 |
| 30 | 15 | 152,4 | **RH306D** | 580 | 333 | 281,0 | 433,4 | 120,7 | - | - | 25,4 | 41,3 | 63,5 | 32,5 | 2-12 | 7/16-20 x 92,1 | 38,0 | 21,8 | 26,8 | 15,3 | 20,4 |
| 30 | 20 | 257,2 | **RH3010** | 1.082 | 672 | 438,2 | 695,3 | 114,3 | 4 1/2-12 | 41 | 44,5 | 81,0 | 60,3 | 33,3 | 1 7/8-16 | - | 42,2 | 26,1 | 29,7 | 18,3 | 27,7 |
| 60 | 25 | 101,6 | **RHA604D** | 807 | 338 | 241,3 | 342,9 | 177,8 | - | - | 39,7 | 57,2 | 101,6 | 54,0 | 3-12 | 1/2-13 x 130,2 | 79,4 | 33,2 | 55,8 | 25,1 | 16,2 |
| 60 | 25 | 127,0 | **RH605*** | 1.009 | 423 | 241,3 | 368,3 | 165,9 | - | - | 25,4 | 44,5 | 101,6 | 54,0 | 3-12 | 1/2-13 x 130,2 | 79,4 | 33,2 | 55,8 | 25,1 | 33,1 |
| 60 | 40 | 257,2 | **RH6010*** | 2.181 | 1.427 | 458,8 | 716,0 | 158,8 | 6 1/4-12 | 47,6 | 54,0 | 81,8 | 92,1 | 54,4 | 3-16 | - | 84,8 | 55,4 | 59,6 | 38,9 | 54,5 |
| 100 | 45 | 38,1 | **RH1001*** | 526 | 233 | 165,1 | 203,2 | 212,7 | - | - | 31,8 | 58,7 | 127,0 | 79,8 | 4-16 | 5/8-11 x 177,8 | 138,0 | 60,8 | 97,0 | 42,7 | 38,6 |
| 100 | 50 | 152,4 | **RH1006*** | 1.971 | 1.076 | 314,3 | 466,7 | 184,2 | - | - | 37,3 | 59,1 | 111,1 | 52,4 | - | 1/2-13 x 139,7 | 129,2 | 70,5 | 90,8 | 49,6 | 43,1 |
| 100 | 45 | 257,2 | **RH10010*** | 3.552 | 1.556 | 495,3 | 752,5 | 215,9 | 8 1/2-12 | 57 | 63,5 | 91,7 | 139,7 | 79,8 | 4 1/2-12 | - | 138,0 | 60,8 | 97,0 | 42,7 | 109,0 |
| 150 | 70 | 127,0 | **RH1505*** | 2.475 | 1.207 | 311,2† | 438,2 | 215,9 | - | - | 37,3 | 68,3 | 139,7 | 65,1 | - | - | 194,1 | 94,8 | 136,9 | 66,8 | 67,2 |
| 150 | 75 | 203,2 | **RH1508*** | 3.929 | 2.086 | 349,3 | 552,5 | 247,7 | - | - | 39,3 | 61,1 | 152,4 | 80,2 | 5-12 | - | 193,2 | 102,6 | 135,9 | 72,1 | 103,1 |
| 200 | 75 | 203,2 | **RH2008*** | 5.307 | 2.093 | 408,0 | 611,2 | 273,1 | - | - | 57,2 | 81,8 | 190,5 | 103,2 | 6-12 | 1 1/4-12 x 198,1 | 260,9 | 102,9 | 183,5 | 72,4 | 142,0 |

* Supplied with carrying handles.

† Measured with 19 mm high serrated insert installed.

Aluminum

# Center Hole
## CYLINDERS RT SERIES

**17½-100 Ton**
Single- Acting, Spring-Return & Double-Acting

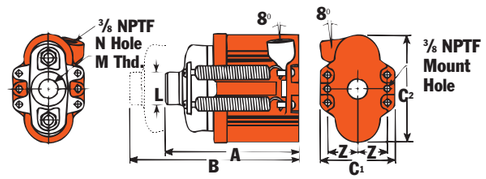
Ideal for pulling and pressing.


ASME B30.1
700 BAR

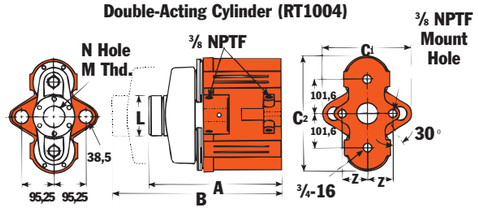
- A proven design; used throughout industry for over 40 years.
- Cylinders withstand full "dead-end" loads.
- Compact design; ideal for applications in which space is limited.
- Basic head can be changed from a tapped hole to plain hole by simply changing insert.
- Pistons have "Power Tech" treatment for corrosion and abrasion resistance.

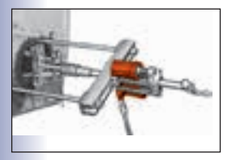
RT 302

**Dimensions for reference only.**
**Single-Acting, Spring-Return Cylinders**




**Double-Acting Cylinder (RT1004)**



RT 302


| Cyl. Capacity (Tons) Push | Stroke (mm) | Order No. | Oil Cap. (cm³) Push | Oil Cap. (cm³) Return | A Retracted Height (mm) | B Extended Height (mm) | C1 Outside Dia. (mm) | C2 Outside Dia. (mm) | L Load Cap Dia. (mm) | M Load Cap Thread (in.) | N Center Hole Dia. (mm) | Z Mounting Hole Location (mm) | Mounting Hole (mm) | Cyl. Eff. Area (cm²) | Metric Tons at 700 bar | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17,5 | 50,8 | RT172 | 116 | - | 174,6 | 225,4 | 95,3 | 146,1 | 44,5 | 1-8 | 27,0 | 38,1 | 8,7 | 22,8 | 16,1 | 6,6 |
| 30 | 63,5 | RT302 | 258 | - | 214,3 | 277,8 | 108,0 | 190,5 | 57,2 | 1 ¼-7 | 32,9 | 46,0 | 11,9 | 40,5 | 28,5 | 12,8 |
| 50 | 76,2 | RT503 | 482 | - | 268,3 | 344,5 | 149,2 | 238,1 | 73,0 | 1 ⅝-5 ½ | 42,5 | 60,3 | 16,7 | 63,3 | 44,5 | 25,4 |
| 100 | 123,8 | RT1004** | 1.583 | 1.037 | 384,2 | 508,0 | 266,7 | 336,6 | 120,7 | 2 ½-8 | 65,1 | 73,0 | 19,8 | 124,1* | 87,3 | 72,6 |

* Push side only.
** The RT1004 has a bypass when full stroke is reached, preventing over-pressurization of the cylinder.

**NOTE: Each cylinder complete with threaded cylinder head insert, cylinder half coupler and cylinder attaching screws.**

# Pulling
## CYLINDERS RP SERIES

**2 & 5 Ton**
Single-Acting, Spring-Return

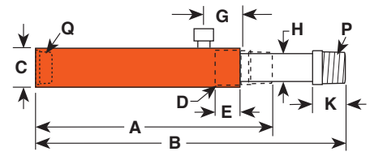
Designed for pulling and tensioning.


RP55


RP25

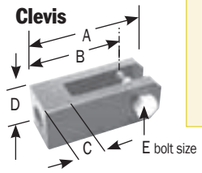
- Heavy duty compression spring provides long cycle life and rapid extension of piston.
- Spring automatically extends piston rod when pump pressure is released.

ASME B30.1
700 BAR




| Cyl. Cap. (Tons) Pull | Stroke (mm) | Order No. | Oil Cap. (cm³) | A Retracted Height (mm) | B Extended Height (mm) | C Outside Dia. (mm) | D Collar Thread (in.) | E Collar Thread Length (mm) | G Cylinder Top to Port (mm) | H Piston Rod Dia. (mm) | K Piston Rod Protrusion (mm) | P Piston Rod Thread (NPTF) | Q Base Thread (NPTF) | Bore Dia. (mm) | Cyl. Eff. Area (cm²) Pull | Metric Tons at 700 bar Pull | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 127,0 | **RP25** | 45 | 242,9 | 379,9 | 44,5 | 1 ½-16 | 25,4 | 42,9 | 19,1 | 25,4 | ¾-14 | ¾-14 | 28,6 | 3,5 | 2,5 | 1,8 |
| 5 | 139,7 | **RP55** | 102 | 301,6 | 441,3 | 57,2 | 2 ¼-14 | 25,4 | 42,9 | 30,2 | 34,9 | 1¼-11½ | 1¼-11½ | 42,9 | 7,3 | 5,1 | 5 |

**Clevis**




**Clevis ORDERING INFORMATION**

| Use with Cyl No. | Order No. | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) |
|---|---|---|---|---|---|---|
| RP25 | 421057* | 130,3 | 109,5 | 33,3 | 50,8 | 19,1 |
| RP55 | 421056** | 152,4 | 127,0 | 38,1 | 63,5 | 22,4 |

* For base mounting, extension rod 351106 is required.
** For base mounting, extension rod 351075 is required.


CYLINDERS

# Double Acting
## CYLINDERS RD SERIES

### 10-500 Ton
Double Acting,
Hydraulic-Return

High tonnage premium design
for high cycle life.

- Perfect for bridge lifting, building reconstruction, shipyard, utility and mining equipment maintenance.
- Aluminum bronze overlay bearings provide long life, chrome plated piston rod resist corrosion.
- Load cap snaps out to expose internal piston rod threads for pulling applications; threads withstand full tonnage.
- Grooved ring pattern in load cap helps guard against load slippage.
- Each cylinder has two 9796 3/8" NPTF female half couplers.
- Built-in safety relief valve prevents over-pressurization of the retract circuit.
- Feature mounting holes and collar threads.




RD556

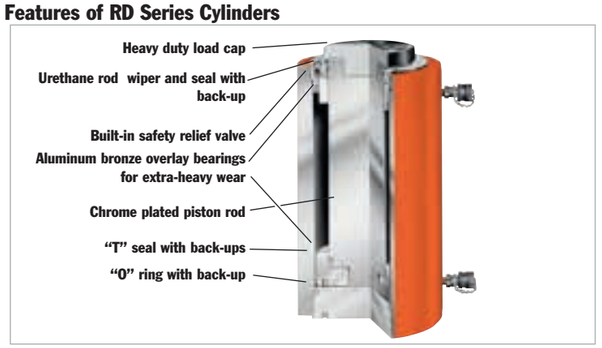

RD10013

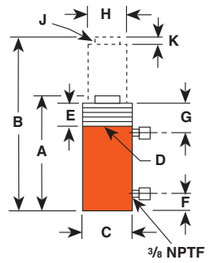
ASME B30.1
700 BAR

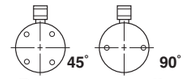

RD30013

**Four special ordered 500 ton, 610 mm stroke cylinders used in a swaging press for crimping 89 mm wire rope.**

### Features of RD Series Cylinders

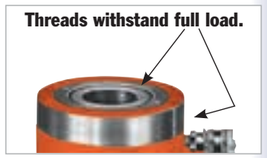



Base mounting holes .

**Threads withstand full load.**



| Cyl. Cap. (tons) Push | Cyl. Cap. (tons) Pull | Stroke (mm) | Order No. | Oil Capacity (cm³) Push | Oil Capacity (cm³) Pull | A Retracted Height (mm) | B Extended Height (mm) | C Outside Dia. (mm) | D Collar Thread Size (in.) | E Thread Length Thread (mm) | F Base to Port trusion (mm) | G Cylinder Piston Top to Port (mm) | H Piston Rod Dia. (mm) | J Rod Int. (in) and Depth (mm) | K Piston Rod Pro-trusion (mm) | Load Cap Dia. (mm) | Bore Dia. (mm) | Cyl. Eff. Area (cm²) Push | Cyl. Eff. Area (cm²) Pull | Metric Tons at 700 bar Push | Metric Tons at 700 bar Pull | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 4 | 158,8 | **RD106** | 228 | 90 | 296,9 | 455,6 | 76,2 | 2 3/4-12 | 41,3 | 25,4 | 63,5 | 33,3 | 1-8 x 25,4 | 6,4 | 34,9 | 42,9 | 14,4 | 5,7 | 10,2 | 4,0 | 10,0 |
| 10 | 4 | 254,0 | **RD1010** | 366 | 144 | 398,5 | 652,5 | 76,2 | 2 3/4-12 | 41,3 | 25,4 | 63,5 | 33,3 | 1-8 x 25,4 | 6,4 | 34,9 | 42,9 | 14,4 | 5,7 | 10,2 | 4,0 | 12,7 |
| 25 | 8 | 158,8 | **RD256** | 528 | 166 | 314,3 | 473,1 | 101,6 | 4-12 | 41,3 | 25,4 | 63,5 | 54,0 | 1 1/2-16 x 25,4 | 9,5 | 54,0 | 65,1 | 33,2 | 10,4 | 23,4 | 7,3 | 18,1 |
| 25 | 8 | 362,0 | **RD2514** | 1.205 | 376 | 517,5 | 879,5 | 101,6 | 4-12 | 41,3 | 25,4 | 63,5 | 54,0 | 1 1/2-16 x 25,4 | 9,5 | 54,0 | 65,1 | 33,2 | 10,4 | 23,4 | 7,3 | 29,5 |
| 55 | 28 | 158,8 | **RD556** | 1.132 | 577 | 329,4 | 488,2 | 127,0 | 5-12 | 41,3 | 33,3 | 63,5 | 66,7 | 1 11/16-8 x 30,2 | 15,9 | 66,7 | 95,3 | 71,2 | 36,3 | 50,1 | 25,6 | 27,9 |
| 55 | 28 | 333,4 | **RD5513** | 2.376 | 1.212 | 504,0 | 837,4 | 127,0 | 5-12 | 41,3 | 33,3 | 63,5 | 66,7 | 1 11/16-8 x 30,2 | 15,9 | 66,7 | 95,3 | 71,2 | 36,3 | 50,1 | 25,6 | 40,9 |
| 55 | 28 | 460,4 | **RD5518** | 3280 | 1.673 | 657,2 | 1.117,6 | 127,0 | 5-12 | 41,3 | 33,3 | 63,5 | 66,7 | 1 11/16-8 x 30,2 | 15,9 | 66,7 | 95,3 | 71,2 | 36,3 | 50,1 | 25,6 | 64,5 |
| 80 | 44 | 333,4 | **RD8013** | 3421 | 1.901 | 517,5 | 850,9 | 146,1 | 5 3/4-12 | 41,3 | 38,1 | 63,5 | 76,2 | 2-4 1/2 x 38,1 | 14,3 | 73,0 | 114,3 | 102,6 | 57,0 | 72,1 | 40,1 | 53,6 |
| 100 | 44 | 168,3 | **RD1006** | 2.242 | 959 | 350,0 | 518,3 | 174,6 | 6 7/8-12 | 41,3 | 38,1 | 63,5 | 98,4 | 2 3/4-12 x 29,4 | 15,9 | 98,4 | 130,2 | 133,1 | 57,0 | 93,5 | 40,1 | 57,2 |
| 100 | 44 | 333,4 | **RD10013** | 4.440 | 1.902 | 515,1 | 848,5 | 174,6 | 6 7/8-12 | 41,3 | 38,1 | 63,5 | 98,4 | 2 3/4-12 x 29,4 | 15,9 | 98,4 | 130,2 | 133,1 | 57,0 | 93,5 | 40,1 | 82,2 |
| 100 | 44 | 511,2 | **RD10020** | 6.809 | 2.919 | 718,3 | 1.229,5 | 174,6 | 6 7/8-12 | 41,3 | 38,1 | 63,5 | 98,4 | 2 3/4-12 x 29,4 | 15,9 | 98,4 | 130,2 | 133,1 | 57,0 | 93,5 | 40,1 | 118,0 |
| 150 | 73 | 168,3 | **RD1506** | 3.334 | 1.606 | 377,8 | 546,1 | 209,6 | 8 1/4-12 | 41,3 | 50,8 | 63,5 | 114,3 | 3 1/4-8 x 38,1 | 20,6 | 114,3 | 158,8 | 197,9 | 95,3 | 139,1 | 66,9 | 85,4 |
| 150 | 73 | 333,4 | **RD15013** | 6.604 | 3.180 | 542,9 | 876,3 | 209,6 | 8 1/4-12 | 41,3 | 50,8 | 63,5 | 114,3 | 3 1/4-8 x 38,1 | 20,6 | 114,3 | 158,8 | 197,9 | 95,3 | 139,1 | 66,9 | 123,5 |
| 150 | 73 | 460,4 | **RD15018** | 9.132 | 4.392 | 673,9 | 1.134,3 | 209,6 | 8 1/4-12 | 41,3 | 50,8 | 63,5 | 114,3 | 3 1/4-8 x 38,1 | 19,1 | 114,3 | 158,8 | 197,9 | 95,3 | 139,1 | 66,9 | 170,7 |
| 200 | 113 | 168,3 | **RD2006** | 4.485 | 2.457 | 406,4 | 574,7 | 241,3 | 9 1/2-12 | 41,3 | 63,5 | 68,3 | 123,8 | 3 1/4-8 x 57,1 | 27,0 | 114,3 | 184,2 | 266,3 | 145,9 | 187,2 | 102,6 | 118,9 |
| 200 | 113 | 333,4 | **RD20013** | 8.886 | 4.869 | 571,5 | 904,9 | 241,3 | 9 1/2-12 | 41,3 | 63,5 | 68,3 | 123,8 | 3 1/4-8 x 57,1 | 27,0 | 114,3 | 184,2 | 266,3 | 145,9 | 187,2 | 102,6 | 161,6 |
| 200 | 113 | 460,4 | **RD20018** | 12.270 | 6.722 | 723,9 | 1.184,3 | 241,3 | 9 1/2-12 | 41,3 | 63,5 | 68,3 | 123,8 | 3 1/4-8 x 57,1 | 27,0 | 114,3 | 184,2 | 266,3 | 145,9 | 187,2 | 102,6 | 200,7 |
| 300 | 147 | 152,4 | **RD3006** | 5.920 | 2.903 | 488,9 | 591,3 | 273,1 | 10 1/2-12 | 60,3 | 85,7 | 85,7 | 158,8 | 2 1/2-12 x 82,5 | 28,6 | 174,6 | 222,3 | 387,8 | 190,0 | 272,7 | 133,6 | 172,5 |
| 300 | 147 | 330,2 | **RD30013** | 12.825 | 6.281 | 630,2 | 960,4 | 273,1 | 10 1/2-12 | 60,3 | 85,7 | 85,7 | 158,8 | 2 1/2-12 x 82,5 | 28,6 | 174,6 | 222,3 | 387,8 | 190,0 | 272,7 | 133,6 | 296,9 |
| 400 | 186 | 152,4 | **RD4006** | 7.724 | 4.051 | 489,7 | 642,1 | 320,7 | 12 1/2-8 | 69,9 | 97,6 | 97,6 | 184,2 | 3-12 x 92,2 | 31,8 | 198,4 | 254,0 | 506,6 | 240,3 | 356,2 | 169,0 | 265,6 |
| 400 | 186 | 330,2 | **RD40013** | 16.744 | 8.790 | 667,5 | 997,7 | 320,7 | 12 1/2-8 | 69,9 | 97,6 | 97,6 | 184,2 | 3-12 x 92,2 | 31,8 | 198,4 | 254,0 | 506,6 | 240,3 | 356,2 | 169,0 | 349,6 |
| 500 | 245 | 152,4 | **RD5006** | 9.774 | 4.838 | 522,3 | 674,7 | 374,7 | 14 3/4-8 | 79,4 | 105,6 | 105,6 | 203,2 | 3 1/4-12 x 107,9 | 38,1 | 215,9 | 285,8 | 641,1 | 317,0 | 450,8 | 222,8 | 371,8 |
| 500 | 245 | 330,2 | **RD50013** | 21.189 | 10.480 | 700,1 | 1.030,3 | 374,7 | 14 3/4-8 | 79,4 | 105,6 | 105,6 | 203,2 | 3 1/4-12 x 107,9 | 38,1 | 215,9 | 285,8 | 641,1 | 317,0 | 450,8 | 222,8 | 495,8 |

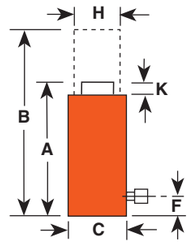
# High Tonnage
## CYLINDERS R SERIES

**55-565 Ton**
Single-Acting
Load-Return

High-tonnage, low cycle, gravity return.


R2802C

**ASME B30.1**
**700 BAR**



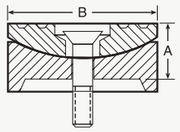

- Visible indicator band alerts when stroke limit is reached; overflow port ("weep hole") stroke limiter prevents piston from being overextended.
- Alloy heat treated piston and body for reliability and strength.
- Plated piston rod increase corrosion resistance and give superior bearing qualities.

| Cyl. Cap. (tons) | Stroke (mm) | Order No. | Oil Cap. (cm³) | A Retracted Ht. (mm) | B Extended Ht. (mm) | C Outside Dia. (mm) | F Base to Port (mm) | H Piston Rod Dia. (mm) | K Rod Protrusion (mm) | Piston Bore Dia. (mm) | Effective Area (cm²) | Metric Tons at 700 bar | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 50,8 | **R552C** | 362 | 125,4 | 176,2 | 127,0 | 25,4 | 95,3 | 3,2 | 95,3 | 71,2 | 50,1 | 12,3 |
| 55 | 152,4 | **R556C** | 1.087 | 227,0 | 379,4 | 127,0 | 25,4 | 95,3 | 3,2 | 95,3 | 71,2 | 50,1 | 22,7 |
| 55 | 254,0 | **R5510C** | 1.811 | 328,6 | 582,6 | 127,0 | 25,4 | 95,3 | 3,2 | 95,3 | 71,2 | 50,1 | 32,7 |
| 100 | 50,8 | **R1002C** | 677 | 139,7 | 190,5 | 165,1 | 25,4 | 130,2 | 3,2 | 130,2 | 133,1 | 93,6 | 23,6 |
| 100 | 152,4 | **R1006C** | 2.030 | 241,3 | 393,7 | 165,1 | 25,4 | 130,2 | 3,2 | 130,2 | 133,1 | 93,6 | 40,4 |
| 150 | 50,8 | **R1502C** | 1.007 | 161,9 | 212,7 | 204,8 | 31,8 | 158,8 | 3,2 | 158,8 | 197,9 | 139,1 | 41,8 |
| 150 | 152,4 | **R1506C** | 3.019 | 263,5 | 415,9 | 204,8 | 31,8 | 158,8 | 3,2 | 158,8 | 197,9 | 139,1 | 68,6 |
| 150 | 254,0 | **R15010C** | 5.032 | 365,1 | 619,1 | 204,8 | 31,8 | 158,8 | 3,2 | 158,8 | 197,9 | 139,1 | 95,3 |
| 200 | 50,8 | **R2002C** | 1.355 | 190,5 | 241,3 | 235,0 | 41,3 | 184,2 | 3,2 | 184,2 | 266,3 | 187,2 | 65,8 |
| 200 | 152,4 | **R2006C** | 4.062 | 292,1 | 444,5 | 235,0 | 41,3 | 184,2 | 3,2 | 184,2 | 266,3 | 187,2 | 100,3 |
| 280 | 50,8 | **R2802C** | 1861 | 190,5 | 241,3 | 260,4 | 41,3 | 215,9 | 3,2 | 215,9 | 365,9 | 257,5 | 91,6 |
| 280 | 152,4 | **R2806C** | 5583 | 292,1 | 444,5 | 276,2 | 41,3 | 215,9 | 3,2 | 215,9 | 365,9 | 257,5 | 136,7 |
| 355 | 50,8 | **R3552C** | 2.326 | 231,8 | 282,6 | 298,5 | 54,0 | 241,3 | 3,2 | 241,3 | 457,2 | 321,4 | 137,1 |
| 355 | 152,4 | **R3556C** | 6.975 | 333,4 | 485,8 | 298,5 | 54,0 | 241,3 | 3,2 | 241,3 | 457,2 | 321,4 | 197,0 |
| 355 | 254,0 | **R35510C** | 11.624 | 435,0 | 689,0 | 298,5 | 54,0 | 241,3 | 3,2 | 241,3 | 457,2 | 321,4 | 256,5 |
| 430 | 50,8 | **R4302C** | 2.841 | 263,5 | 314,3 | 330,2 | 63,5 | 266,7 | 3,2 | 266,7 | 558,5 | 392,7 | 199,8 |
| 430 | 152,4 | **R4306C** | 8.520 | 365,1 | 517,5 | 330,2 | 63,5 | 266,7 | 3,2 | 266,7 | 558,5 | 392,7 | 276,5 |
| 565 | 50,8 | **R5652C** | 3.710 | 292,1 | 342,9 | 377,8 | 69,9 | 304,8 | 3,2 | 304,8 | 729,5 | 512,9 | 289,7 |
| 565 | 152,4 | **R5656C** | 11.129 | 393,7 | 546,1 | 377,8 | 69,9 | 304,8 | 3,2 | 304,8 | 729,5 | 512,9 | 389,5 |
| 565 | 254,0 | **R56510C** | 18.548 | 495,3 | 749,3 | 377,8 | 69,9 | 304,8 | 3,2 | 304,8 | 729,5 | 512,9 | 489,4 |

**For use with "RC" cylinders**

**SWIVEL CAPS**
**Reduce the effects of off center loading. Tilts up to 5 degrees. Radial grooves on top of cap reduce load slippage.**

| Use with Cyl. No. | Swivel Cap Order No. | Weight (kg) | A (mm) | B (mm) |
|---|---|---|---|---|
| 150-200 ton | 420867 | 4,0 | 38,1 | 130,2 |
| 280 ton | 420868 | 6,1 | 44,5 | 149,2 |
| 355 ton | 420869 | 16,8 | 69,9 | 195,3 |
| 430 ton | 420870 | 23,6 | 79,4 | 225,4 |
| 565 ton | 420871 | 35,4 | 92,1 | 250,8 |




**Reduce the effects of off center loading. Tilts up to 5 degrees. Radial grooves on top of cap reduce load slippage. Notch across face of each cap helps keep loads having a protruding or round shaped centered.**

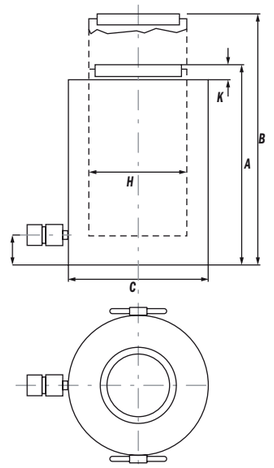
# High Tonnage
## CYLINDER RC SERIES

**740 - 1220 Ton**
Single-Acting,
Load Return

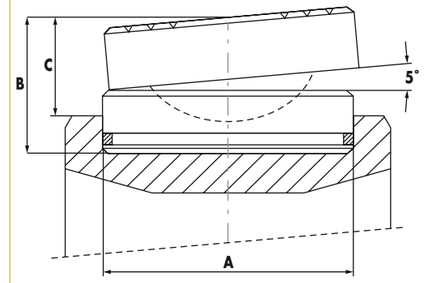
High-tonnage, low cycle, gravity return.

- Overflow port ("weep hole") prevents piston from being overextended under load.
- Alloy heat treated piston and body for reliability and strength.
- Plated piston rod increase corrosion resistance and give superior bearing qualities.

***Single-Acting High Tonnage Cylinders***




**Swivel Cap**




| Order No. | Used with Cyl. Order No. | A mm | B mm | C mm | Product Wt. kg |
|---|---|---|---|---|---|
| 2000824 | **RC740*C, RC965*C** | 290 | 140 | 99 | 72 |
| 2000825 | **RC1220*C** | 323 | 175 | 124 | 113 |

| In mm Cyl. Cap. (tons) | Stroke (mm) | Order No. | Oil Cap. (cm³) | A Retracted Height (mm) | B Extended Height (mm) | C Outside Dia. (mm) | F Base to Port (mm) | H Piston Rod Dia. (mm) | K Piston Rod Protrusion (mm) | Bore Dia. (mm) | Cyl. Effective Area (cm²) | Tons @ 700 bar | Product Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 740 | 50 | **RC7402C** | 4.811 | 265 | 315 | 430 | 65 | 350 | 9 | 350 | 962 | 673,5 | 300 |
| 740 | 150 | **RC7406C** | 14.132 | 365 | 515 | 430 | 65 | 350 | 9 | 350 | 962 | 673,5 | 416 |
| 740 | 250 | **RC74010C** | 24.053 | 465 | 715 | 430 | 65 | 350 | 9 | 350 | 962 | 673,5 | 530 |
| 965 | 50 | **RC9652C** | 6.283 | 290 | 340 | 490 | 70 | 400 | 10 | 400 | 1.256,6 | 879,7 | 423 |
| 965 | 150 | **RC9656C** | 18.850 | 390 | 540 | 490 | 70 | 400 | 10 | 400 | 1.256,6 | 879,7 | 577 |
| 965 | 250 | **RC96510C** | 31.416 | 490 | 740 | 490 | 70 | 400 | 10 | 400 | 1.256,6 | 879,7 | 725 |
| 1220 | 50 | **RC12202C** | 7.952 | 415 | 465 | 550 | 80 | 450 | 10 | 450 | 1.590,4 | 1.113,3 | 766 |
| 1220 | 150 | **RC12206C** | 23.856 | 440 | 665 | 550 | 80 | 450 | 10 | 450 | 1.590,4 | 1.113,3 | 960 |
| 1220 | 250 | **RC122010C** | 39.761 | 615 | 865 | 550 | 80 | 450 | 10 | 450 | 1.590,4 | 1.113,3 | 1.147 |


CYLINDERS

# High Tonnage
## CYLINDERS R SERIES

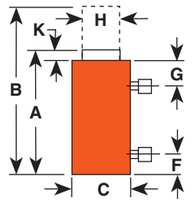
**100-565 Ton**
Double-Acting,
Hydraulic-Return

High-tonnage, low cycle, hydraulic return.

- Cylinders come standard with swivel caps to reduce the effects of off-center loading.
- Cylinders may be “dead-ended” without damage.
- Hard chrome plated, heat treated piston rod reduces wear on piston and gland nut.
- Built-in safety relief valve prevents over-pressurization of the retract circuit.
- Each cylinder has two 9796 38” NPTF female half couplers.

R1502D

R2806D




| Cyl. Cap. (tons) | Stroke (mm) | Order No. | Oil Capacity (cm³) Push | Oil Capacity (cm³) Return | A Retracted Height (mm) | B Extended Height (mm) | C Outside Dia. (mm) | F Base to Port (mm) | G Cylinder Top to Port (mm) | H Piston Rod Dia. (mm) | K Piston Rod Protrusion (mm) | Bore Dia. (mm) | Cylinder Effective Area (cm²) Push | Metric Tons at 700 bar Push | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 100 | 50,8 | **R1002D** | 676 | 315 | 168,7 | 219,5 | 165,1 | 25,4 | 56,0 | 95,3 | 7,1 | 130,2 | 132,9 | 93,4 | 24,5 |
| 100 | 152,4 | **R1006D** | 2.027 | 945 | 270,3 | 422,7 | 165,1 | 25,4 | 56,0 | 95,3 | 7,1 | 130,2 | 132,9 | 93,4 | 36,8 |
| 100 | 254,0 | **R10010D** | 3.378 | 1.574 | 371,9 | 625,9 | 165,1 | 25,4 | 56,0 | 95,3 | 7,1 | 130,2 | 132,9 | 93,4 | 49,0 |
| 150 | 50,8 | **R1502D** | 1.007 | 485 | 188,9 | 239,7 | 204,8 | 31,8 | 57,2 | 114,3 | 7,5 | 158,8 | 198,0 | 139,1 | 43,1 |
| 150 | 152,4 | **R1506D** | 3.021 | 1.456 | 290,5 | 442,9 | 204,8 | 31,8 | 57,2 | 114,3 | 7,5 | 158,8 | 198,0 | 139,1 | 61,7 |
| 200 | 50,8 | **R2002D** | 1.355 | 643 | 206,8 | 257,6 | 235,0 | 41,3 | 58,7 | 133,4 | 8,7 | 184,2 | 266,4 | 187,2 | 61,7 |
| 200 | 152,4 | **R2006D** | 4.064 | 1.929 | 308,4 | 460,8 | 235,0 | 41,3 | 58,7 | 133,4 | 8,7 | 184,2 | 266,4 | 187,2 | 84,9 |
| 200 | 254,0 | **R20010D** | 6.773 | 3.214 | 410,0 | 664,0 | 235,0 | 41,3 | 58,7 | 133,4 | 8,7 | 184,2 | 266,4 | 187,2 | 108,5 |
| 280 | 50,8 | **R2802D** | 1861 | 774 | 233,8 | 284,6 | 276,2 | 47,6 | 65,5 | 165,1 | 10,3 | 215,9 | 365,7 | 257,3 | 99,4 |
| 280 | 152,4 | **R2806D** | 5.579 | 2.322 | 335,4 | 447,8 | 276,2 | 47,6 | 65,5 | 165,1 | 10,3 | 215,9 | 365,7 | 257,3 | 134,8 |
| 280 | 254,0 | **R28010D** | 9.299 | 3.870 | 437,0 | 691,0 | 276,2 | 47,6 | 65,5 | 165,1 | 10,3 | 215,9 | 365,7 | 257,3 | 170,7 |
| 355 | 50,8 | **R3552D** | 2.326 | 777 | 288,9 | 339,7 | 298,5 | 54,0 | 69,9 | 196,9 | 11,1 | 241,3 | 457,3 | 321,4 | 147,0 |
| 355 | 152,4 | **R3556D** | 6.977 | 2.332 | 390,5 | 542,9 | 298,5 | 54,0 | 69,9 | 196,9 | 11,1 | 241,3 | 457,3 | 321,4 | 191,1 |
| 430 | 50,8 | **R4302D** | 2.840 | 977 | 312,7 | 363,5 | 330,2 | 63,5 | 75,0 | 215,9 | 11,9 | 266,7 | 558,6 | 392,7 | 199,3 |
| 430 | 152,4 | **R4306D** | 8.521 | 2.932 | 414,3 | 566,7 | 330,2 | 63,5 | 75,0 | 215,9 | 11,9 | 266,7 | 558,6 | 392,7 | 253,3 |
| 430 | 254,0 | **R43010D** | 14.202 | 4.887 | 515,9 | 769,9 | 330,2 | 63,5 | 75,0 | 215,9 | 11,9 | 266,7 | 558,6 | 392,7 | 305,5 |
| 565 | 50,8 | **R5652D** | 3.710 | 1.260 | 345,3 | 396,1 | 377,8 | 69,9 | 81,4 | 247,7 | 13,9 | 304,8 | 729,5 | 512,9 | 281,0 |
| 565 | 152,4 | **R5656D** | 11.129 | 3.779 | 446,9 | 599,3 | 377,8 | 69,9 | 81,4 | 247,7 | 13,9 | 304,8 | 729,5 | 512,9 | 350,4 |
| 565 | 254,0 | **R56510D** | 18.548 | 6.298 | 548,5 | 802,5 | 377,8 | 69,9 | 81,4 | 247,7 | 13,9 | 304,8 | 729,5 | 512,9 | 420,4 |

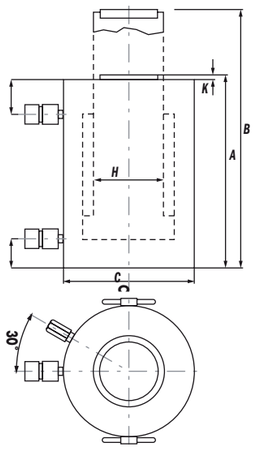
# High Tonnage
## CYLINDER RC SERIES

**740 & 1220**
Double-Acting,
Hydraulic Return

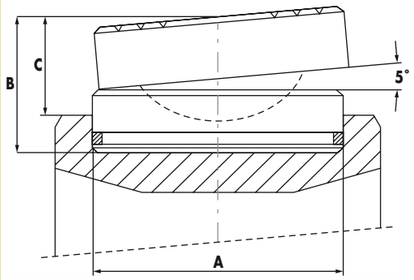
High Tonnage Cylinders
Rugged And Reliable!

- Cylinders come standard with hardened caps.
- Otional swivel caps to reduce the effects of off-center loading.
- Cylinders may be “dead-ended” without damage.
- Safety relief valve prevents over-pressurization of the retract circuit.
- Each cylinder has two 9796 38” NPTF female half couplers.


***Double-Acting High Tonnage Cylinders***




**Swivel Cap**




| Order No. | Used with Cyl. Order No. | A mm | B mm | C mm | Product Wt. kg |
|---|---|---|---|---|---|
| 2000822 | **RC740*D** | 200,1 | 78,7 | 55,9 | 19,3 |
| 2000823 | **RC965*D** | 248,9 | 104,1 | 76,2 | 40 |
| 2000825 | **RC1220*D** | 322,6 | 175,3 | 124,5 | 113 |

| In mm Cyl. Cap. (tons) | Stroke (mm) | Order No. | Oil Cap. (cm³) | A Retracted Height (mm) | B Extended Height (mm) | C Outside Dia. (mm) | F Base to Port (mm) | G Cyl. Top to Port (mm) | H Piston Rod Dia. (mm) | K Piston Rod Protrusion (mm) | Cyl. Effective Area (cm²) | 700 bar | Product Wt. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 740 | 50 | **RC7402D** | 4.811 | 283 | 333 | 430 | 65 | 100 | 280 | 9 | 962,0 | 673,5 | 304 |
| 740 | 150 | **RC7406D** | 14.132 | 398 | 548 | 430 | 65 | 100 | 280 | 9 | 962,0 | 673,5 | 398 |
| 740 | 250 | **RC74010D** | 24.053 | 508 | 758 | 430 | 65 | 100 | 280 | 9 | 962,0 | 673,5 | 490 |
| 965 | 50 | **RC9652D** | 6.283 | 310 | 360 | 490 | 70 | 115 | 320 | 10 | 1.256,6 | 879,7 | 434 |
| 965 | 150 | **RC9656D** | 18.850 | 420 | 570 | 490 | 70 | 115 | 320 | 10 | 1.256,6 | 879,7 | 551 |
| 965 | 250 | **RC96510D** | 31.416 | 530 | 780 | 490 | 70 | 115 | 320 | 10 | 1.256,6 | 879,7 | 668 |
| 1220 | 50 | **RC12202D** | 7.952 | 330 | 380 | 550 | 80 | 135 | 360 | 10 | 1.590,4 | 1.113,3 | 584 |
| 1220 | 150 | **RC12206D** | 23.856 | 440 | 590 | 550 | 80 | 135 | 360 | 10 | 1.590,4 | 1.113,3 | 731 |
| 1220 | 250 | **RC122010D** | 39.761 | 550 | 800 | 550 | 80 | 135 | 360 | 10 | 1.590,4 | 1.113,3 | 878 |


CYLINDERS

# Locking Collar
## CYLINDER RL SERIES– ALUMINUM

**55 & 100 Ton**
Single- Acting,
Spring-Return

Positive mechanical lock to support load.

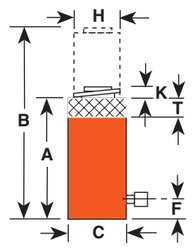
Locking collar feature permits non-hydraulic support of load.


RA1006L

- Support lifted load for extended periods of time with hydraulic pressure released.
- At half the weight of steel cylinders of comparable capacity, aluminum cylinders are ideal when portability is a key factor.
- Feature carrying handle.

**ASME B30.1**
**700 BAR**


RA556L




| Cyl. Cap. (tons) | Stroke (mm) | Order No. | Oil Cap. ($cm^3$) | A Retracted Ht. (mm) | B Extended Ht. (mm) | C Outside Dia. (mm) | F Base to Port (mm) | H Piston Rod Dia. (mm) | K Piston Rod Protrusion (mm) | T Nut Thickness (mm) | T Bore Dia. (mm) | Cylinder Effective Area ($cm^2$) | Metric Tons at 700 bar | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 155,5 | **RA556L** | 1.109 | 317,5 | 473,1 | 133,4 | 34,9 | 82,6 | 12,7 | 38,1 | 95,3 | 71,2 | 50,1 | 13,4 |
| 100 | 158,8 | **RA1006L** | 2.116 | 339,7 | 498,5 | 187,3 | 30,2 | 114,3 | 6,4 | 38,1 | 130,2 | 133,0 | 93,5 | 29,1 |

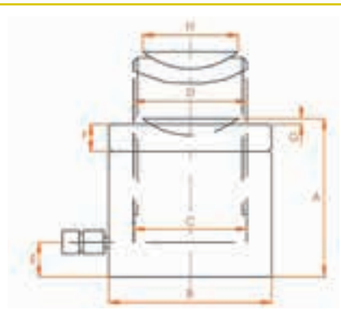
**Note: Supported loads not to exceed the rated capacity of the cylinders. Not intended to support additional dynamic loads, such as those applied by moving vehicles.**

# Pancake Cylinders
## LOCKING COLLAR RC SERIES

**55 & 620 Ton**
Single- Acting,
Load-Return

Positive mechanical lock to support load.

- Compact design - for use where space is limited
- Locking collar designed to support lifted load for extended periods of time with hydraulic pressure relesed
- Integral tilt saddle standard improves performance under side load
- Overflow port ("weep hole") prevents piston from being overextended under load.
- Special coating improves corrosion and abrasion resistance.
- Cylinders come standard with hardened caps. Optional swivel caps reduce the effects of off-center loading Single-Acting Locking Collar Cylinders
- Equipped with 3⁄8" NPTF female half couplers

| Cyl. Cap. (tons) | Stroke (mm) | Order No. | Oil Cap. ($cm^3$) | A Retracted Height (mm) | B Outside Dia. (mm) | C Piston Rod Dia. (mm) | D Bore Dia. (mm) | E Base to Port (mm) | F Nut Thickness (mm) | G Swivel Cap Protrusion (mm) | H Swivel Cap Dia. (mm) | Weight. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 50 | RC0552P | 355 | 125 | 120 | 95 | 95 | 19 | 21 | 6 | 92 | 11 |
| 100 | 45 | RC1002P | 597 | 137 | 165 | 130 | 130 | 21 | 31 | 8 | 126 | 22 |
| 155 | 45 | RC1552P | 905 | 148 | 205 | 160 | 160 | 27 | 38 | 9 | 148 | 39 |
| 240 | 45 | RC24022P | 1.413 | 155 | 255 | 200 | 200 | 28 | 40 | 10 | 157 | 59 |
| 380 | 45 | RC3802P | 2.208 | 178 | 320 | 250 | 250 | 35 | 50 | 11 | 240 | 110 |
| 620 | 45 | RC6202P | 3.618 | 192 | 405 | 320 | 320 | 38 | 60 | 10 | 295 | 193 |

# Locking Collar
## CYLINDER RL SERIES STEEL

**55 -565 Ton**
Single- Acting,
Load-Return

Positive mechanical lock to support load.

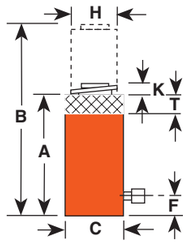
CYLINDERS

Locking collar feature permits non-hydraulic support of load.

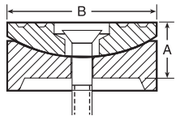
- Support lifted load for extended periods of time with hydraulic pressure released.
- Visible indicator band alerts when stroke limit is reached; overflow port ("weep hole") stroke limiter prevents piston from being overextended.
- All cylinders feature coated pistons to resist corrosion and abrasion.

**ASME B30.1**
**10,000 PSI**

R556L




**SWIVEL CAPS - For use with "RL" cylinders Reduce the effects of off center loading. Tilts up to 5 degrees. Radial grooves on top of cap reduce load slippage. Notch across face of each cap helps keep loads having a protruding or round shaped centered.**




| A (mm) | B (mm) | Use with Cyl. No. | Swivel Cap Order No. | Wt. (kg) |
|---|---|---|---|---|
| 25,4 | 71,4 | 55-100 ton | 420866 | 0,8 |
| 38,1 | 130,2 | 150-200 ton | 420867 | 4,8 |
| 44,5 | 149,2 | 280 ton | 420868 | 6,1 |
| 69,9 | 195,3 | 355 ton | 420869 | 16,8 |
| 79,4 | 225,4 | 435 ton | 420870 | 23,6 |
| 92,1 | 250,8 | 565 ton | 420871 | 35,4 |

| Cyl. Cap. (tons) | Stroke (mm) | Order No. | Oil Cap. ($cm^3$) | A Retracted Ht. (mm) | B Extended Ht. (mm) | C Outside Dia. (mm) | F Base to Port (mm) | H Piston Rod Dia. (mm) | K Piston Rod Protrusion (mm) | T Nut Thickness (mm) | Bore Dia. (mm) | Cylinder Effective Area ($cm^2$) | Metric Tons at 700 bar | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 55 | 50,8 | **R552L** | 362 | 161,9 | 212,7 | 125,4 | 25,4 | 95,3 | 3,2 | 36,5 | 95,3 | 71,2 | 50,1 | 15,3 |
| 55 | 152,4 | **R556L** | 1.087 | 263,5 | 415,9 | 125,4 | 25,4 | 95,3 | 3,2 | 36,5 | 95,3 | 71,2 | 50,1 | 26,3 |
| 55 | 254,0 | **R5510L** | 1.811 | 365,1 | 619,1 | 125,4 | 25,4 | 95,3 | 3,2 | 36,5 | 95,3 | 71,2 | 50,1 | 36,3 |
| 100 | 50,8 | **R1002L** | 677 | 184,2 | 235,0 | 165,1 | 25,4 | 130,2 | 3,2 | 44,5 | 130,2 | 133,1 | 93,4 | 30,0 |
| 100 | 152,4 | **R1006L** | 2.030 | 285,8 | 438,2 | 165,1 | 25,4 | 130,2 | 3,2 | 44,5 | 130,2 | 133,1 | 93,4 | 46,8 |
| 100 | 254,0 | **R10010L** | 3.383 | 387,4 | 641,4 | 165,1 | 25,4 | 130,2 | 3,2 | 44,5 | 130,2 | 133,1 | 93,4 | 64,5 |
| 150 | 50,8 | **R1502L** | 1.007 | 206,4 | 257,2 | 204,8 | 31,8 | 158,8 | 3,2 | 44,5 | 158,8 | 197,9 | 139,1 | 53,0 |
| 150 | 152,4 | **R1506L** | 3.019 | 308,0 | 460,4 | 204,8 | 31,8 | 158,8 | 3,2 | 44,5 | 158,8 | 197,9 | 139,1 | 80,4 |
| 200 | 50,8 | **R2002L** | 1.355 | 241,3 | 292,1 | 235,0 | 41,3 | 184,2 | 3,2 | 50,8 | 184,2 | 266,3 | 187,2 | 83,1 |
| 200 | 152,4 | **R2006L** | 4.062 | 342,9 | 495,3 | 235,0 | 41,3 | 184,2 | 3,2 | 50,8 | 184,2 | 266,3 | 187,2 | 117,6 |
| 280 | 50,8 | **R2802L** | 1.861 | 247,7 | 298,5 | 276,2 | 41,3 | 215,9 | 3,2 | 57,2 | 215,9 | 366,0 | 257,3 | 118,5 |
| 280 | 152,4 | **R2806L** | 5.583 | 349,3 | 501,7 | 276,2 | 41,3 | 215,9 | 3,2 | 57,2 | 215,9 | 366,0 | 257,3 | 163,0 |
| 280 | 254,0 | **R28010L** | 9.305 | 450,9 | 704,9 | 276,2 | 41,3 | 215,9 | 3,2 | 57,2 | 215,9 | 366,0 | 257,3 | 208,1 |
| 355 | 50,8 | **R3552L** | 2.326 | 292,1 | 342,9 | 298,5 | 54,0 | 241,3 | 3,2 | 60,3 | 214,3 | 457,2 | 321,4 | 173,0 |
| 355 | 152,4 | **R3556L** | 6.975 | 393,7 | 546,1 | 298,5 | 54,0 | 241,3 | 3,2 | 60,3 | 241,3 | 457,2 | 321,4 | 232,5 |
| 430 | 50,8 | **R4302L** | 2.841 | 333,4 | 384,2 | 330,2 | 63,5 | 266,7 | 3,2 | 69,9 | 266,7 | 558,5 | 392,7 | 252,4 |
| 430 | 152,4 | **R4306L** | 8.520 | 435,0 | 587,4 | 330,2 | 63,5 | 266,7 | 3,2 | 69,9 | 266,7 | 558,5 | 392,7 | 329,2 |
| 430 | 254,0 | **R4310L** | 14.201 | 536,6 | 790,6 | 330,2 | 63,5 | 266,7 | 3,2 | 69,9 | 266,7 | 558,5 | 392,7 | 405,9 |
| 565 | 50,8 | **R5652L** | 3.710 | 371,2 | 422,3 | 377,8 | 69,9 | 304,8 | 3,2 | 79,4 | 304,8 | 729,5 | 512,9 | 368,2 |
| 565 | 152,4 | **R5656L** | 11.129 | 473,1 | 625,5 | 377,8 | 69,9 | 304,8 | 3,2 | 79,4 | 304,8 | 729,5 | 512,9 | 468,0 |
| 565 | 254,0 | **R56510L** | 18.548 | 574,7 | 828,7 | 377,8 | 69,9 | 304,8 | 3,2 | 79,4 | 304,8 | 729,5 | 512,9 | 568,0 |

- **NOTE: Supported loads not to exceed the rated capacity of the cylinders. Not intended to support additional dynamic loads, such as those applied by moving vehicles.**

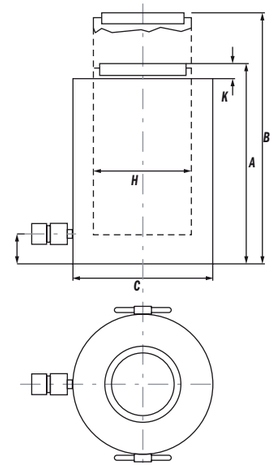
# Locking Collar
## CYLINDER RC SERIES

**740 & 1220**
Single-Acting,
Load Return

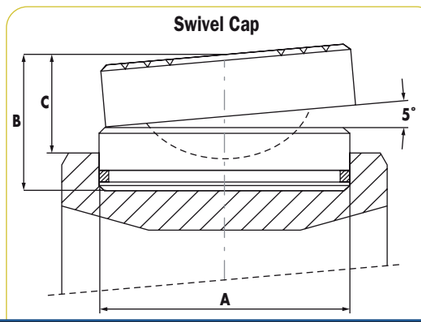
Positive mechanical lock to support load.

CYLINDERS


***Single-Acting Locking Collar Cylinders***




**Swivel Cap**



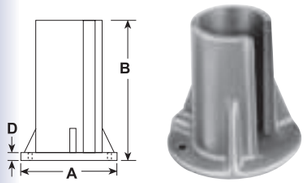

| Order No. | | A mm | B mm | C mm | Product Wt. kg |
|---|---|---|---|---|---|
| 2000824 | **RC740*L, RC965*L** | 290 | 140 | 99 | 72 |
| 2000825 | **RC1220*L** | 323 | 175 | 124 | 113 |

| Cyl. Cap. (tons) | Stroke (mm) | Order No. | Oil Cap. ($mm^3$) | A Retracted Height (mm) | B Extended Height (mm) | C Outside Dia. (mm) | F Base to Port (mm) | H Piston Rod Dia. (mm) | K Piston Rod Protrusion (mm) | Bore Dia. (mm) | Cyl. Effective Area ($mm^2$) | Tons @ 700 bar | Product Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 740 | 50 | **RC7402L** | 4.811 | 395 | 445 | 475 | 90 | TR350X6 | 5 | 350 | 962,0 | 673,5 | 545 |
| 740 | 150 | **RC7406L** | 14.432 | 495 | 645 | 475 | 90 | TR350X6 | 5 | 350 | 962,0 | 673,5 | 683 |
| 740 | 250 | **RC74010L** | 24.053 | 595 | 845 | 475 | 90 | TR350X6 | 5 | 350 | 962,0 | 673,5 | 821 |
| 965 | 50 | **RC9652L** | 6.280 | 455 | 505 | 540 | 100 | TR400X6 | 5 | 400 | 1.256,6 | 879,7 | 714 |
| 962 | 150 | **RC9656L** | 18.849 | 555 | 705 | 540 | 100 | TR400X6 | 5 | 400 | 1.256,6 | 879,7 | 990 |
| 962 | 250 | **RC96510L** | 31.400 | 635 | 885 | 540 | 100 | TR400X6 | 5 | 400 | 1.256,6 | 879,7 | 1.170 |
| 1220 | 50 | **RC12202L** | 7.949 | 443 | 493 | 600 | 110 | TR450X6 | 5 | 450 | 1.590,4 | 1.113,3 | 969 |
| 1220 | 150 | **RC12206L** | 23.856,5 | 598 | 748 | 600 | 110 | TR450X6 | 5 | 450 | 1.590,4 | 1.113,3 | 1.310 |
| 1220 | 250 | **RC122010L** | 39.741 | 698 | 948 | 600 | 110 | TR450X6 | 5 | 450 | 1.590,4 | 1.113,3 | 1.530 |

# Accessories
## C SERIES

## Mounting accessories
C Series

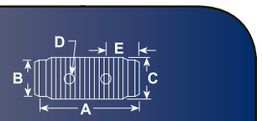
CYLINDERS




### Support Base

| Cylinder | Order | A (mm) | B (mm) | C (mm) |
|---|---|---|---|---|
| 10 | 420062 | 177,8 | 127 | 11,2 |
| 25 | 420063 | 177,8 | 127 | 11,2 |

### Threaded Connector




| Cylinder Tons | Part No. | A (mm) | B (mm) | C (in) | D (mm) | E |
|---|---|---|---|---|---|---|
| 5 | **25748** | 44,5 | 22,4 | 3/4-14 NSPM | 4,8 | 12,7 |
| 10 | **25664** | 41,4 | 36,6 | 1 1/4-11 1/2 NSPM | 7,9 | 14,2 |
| 25 | **25654** | 57,2 | 54,1 | 2-11 1/2 NSPM | 9,7 | 16 |

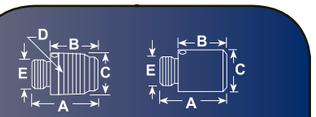
### Piston Clevis


| Cylinder Tons | Part No. | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) |
|---|---|---|---|---|---|---|---|
| 5** | **350095** | 44,5 | 28,7 | 16 | 36,6 | 16 | 14,2 |
| 10 or 15** | **350094** | 65 | 42,9 | 22,4 | 58,7 | 25,4 | 25,4 |
| 25** | **420059** | 74,7 | 57,2 | 31,8 | 68,3 | 31,8 | 38,1 |

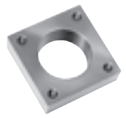
** Can be used with RD106, RD1010 Cylinder.

### Threaded Adapter

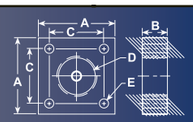
### Plain Adapter




| Cylinder Tons | Part No. | A (mm) | B (mm) | C (mm) | D (in) | E |
|---|---|---|---|---|---|---|
| 5 | **202178** (threaded) | 41,4 | 28,7 | 26,9 | 3/4-14 NPT | 3/4-16UNF-2A |
| 10 or 15 | **202179** ( threaded) | 46,0 | 26,9 | 41,4 | 1 1/4-11 1/2-NPT | 1-8UNC-2A |
| 25 | **202180** ( threaded) | 69,9 | 47,8 | 60,5 | 2-11 1/2-NPT | 1 1/2-16UN-2A |
| 10 or 15 | **350724** (plain) | 50,8 | 31,8 | 37,6 | - | 1-8UNC-2A |
| 25 | **350723** (plain) | 54,1 | 31,8 | 57,2 | - | 1 1/2-16UN-2A |

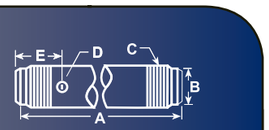


### Cylinder Mounting Plate



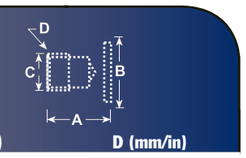

| Cylinder Tons | Part No. | A (mm) | B (mm) | C (mm) | D (in) | E (mm) |
|---|---|---|---|---|---|---|
| 5 | **350099** | 76,2 | 25,4 | 54,1 | 1 1/2-16UN-2B | 8,6 |
| 10 | **350100** | 88,9 | 25,4 | 66,8 | 2 1/4-14UNS-2B | 8,6 |
| 15 | **350184** | 88,9 | 25,4 | 66,8 | 2 3/4-16UN-2B | 8,6 |
| 25 | **420064** | 127 | 50,8 | 93 | 3 5/16-12UN-2B | 16,8 |

### Extension Rod



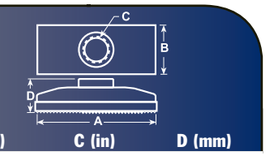

| Cylinder Tons | Part No. | A (mm) | B (mm) | C (in) | D (mm) | E (mm) |
|---|---|---|---|---|---|---|
| 5 | **350895** | 127 | 22,4 | 3/4-14 NPT | 8,4 | 50,8 |
| 5 | **38908** | 254 | 22,4 | 3/4-14 NPT | 8,4 | 50,8 |
| 5 | **350896** | 457,2 | 22,4 | 3/4-14 NPT | 8,4 | 50,8 |
| 10 | **350897** | 127 | 36,6 | 1 1/4-11 1/2-NPT | 8,4 | 50,8 |
| 10 | **38909** | 254 | 36,6 | 1 1/4-11 1/2-NPT | 8,4 | 50,8 |
| 10 | **350898** | 457,2 | 36,6 | 1 1/4-11 1/2-NPT | 8,4 | 50,8 |

### Cylinder Base Attachment




| Cylinder Tons | Part No. | A (mm) | B (mm) | C (in) | D (mm/in) |
|---|---|---|---|---|---|
| 5† | 208380 | 41,4 | 44,5 | 3/4-14NPSM | 7,1Dia.( No.2) 1/4-20 UNC x3/4" Lg.Socket Head Cap Srews |
| 10† | 208381 | 47,8 | 63,5 | 1 1/4-11 1/2-NPSM | 8,6 Dia.( No.2) 5/16-18 UNC x1" Lg. Socket Head Cap Screws |
| 25† | 208382 | 60,5 | 98,6 | 2-11 1/2-NPSM | 13,5 Dia. ( No.2) 1/2-13 UNC x 1" Lg. Socket Head Cap Screws |

### Cylinder Flat Base



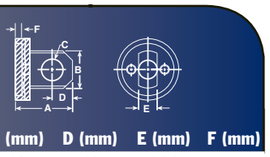

| Cylinder Tons | Part No. | A (mm) | B (mm) | C (in) | D (mm) |
|---|---|---|---|---|---|
| 5 | **25750*** | 114,3 | 63,5 | 3/4-14-NPSM | 34 |
| 10 | **32325*** | 166,6 | 88,9 | 1 1/4-11 1/2-NPSM | 36,6 |

### Smooth Saddle

### Serrated Saddle


| Cylinder Tons | Part No. | A (mm) | B (mm) | C (in) |
|---|---|---|---|---|
| 5 | **25746*** (serrated) | 28,7 | 33,3 | 3/4-14NPSM |
| 10 or 15 | **31772*** ( serrated) | 28,7 | 50,8 | 1 1/4-11 1/2-NPSM |
| 25 | **31776*** ( serrated) | 33,3 | 76,2 | 2-11 1/2-NPSM |
| 5 | **351575*** (plain) | 28,7 | 33,3 | 3/4-14-NPSM |
| 10 | **24016*** ( plain) | 28,7 | 50,8 | 1 1/4-11 1/2-NPSM |
| 25 | **351576*** ( plain) | 33,3 | 76,2 | 2-11 1/2-NPSM |

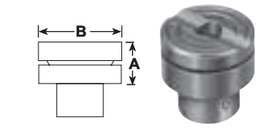
### Body Clevis†




| Cylinder Tons | Part No. | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) |
|---|---|---|---|---|---|---|---|
| 5 | 350096 | 52,3 | 28,7 | 16 | 16 | 14,2 | 6,4 |
| 10 | 350097 | 76,2 | 42,9 | 22,4 | 25,4 | 25,4 | 6,4 |
| 15 | 350098 | 77,7 | 42,9 | 22,4 | 25,4 | 25,4 | 6,4 |
| 25 | 420061 | 90,4 | 57,2 | 31,8 | 31,8 | 38,1 | 6,4 |

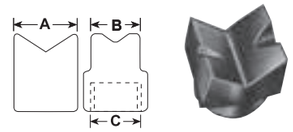
*** Items require threaded adapter when used with "C" series cylinders. They may be used on threaded "CBT" cylinders without the use of an adapter.**

**† Mounting screws are included.**



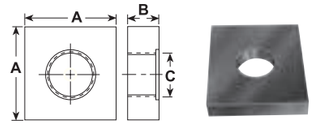

### Swivel Cap

| Cylinder Tons | Part No. | A (mm) | B (mm) |
|---|---|---|---|
| 10 or 15 | 350144 | 22,4 | 30,1 |
| 25 | 350145 | 28,7 | 50,8 |
| 55 or 75 | 350376 | 31,8 | 71,4 |
| 100 | 351574 | 48,5 | 88,1 |




### 90° "V" Base

| Cylinder Tons | Part No. | A (mm) | B (mm) | C (in) |
|---|---|---|---|---|
| 5 | **25388*** | 35,1 | 26,9 | 3/4-14-NPSM |
| 10 | **25395*** | 54,1 | 54,1 | 1 1/4-11 1/2-NPSM |

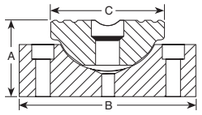


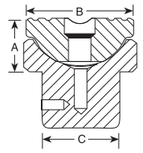

### Plunger Base

| Cylinder Tons | Part No. | A (mm) | B (mm) | C |
|---|---|---|---|---|
| 25 | 25652 | 152,4 | 31,8 | 2-11 1/2-NPSM |

CYLINDERS

## Swivel Caps
Center Hole Accessories



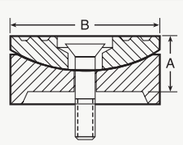




| Use with Cyl. No. | Swivel Cap Order No. | Weight (kg) | A (mm) | B (mm) | C (mm) |
|---|---|---|---|---|---|
| **SWIVEL CAPS FOR "RSS",** | | | | | |
| RSS101 | **350320** | 0,2 | 25,4 | 36,5 | 36,5 |
| RSS202 | **350321** | 0,6 | 34,9 | 54 | 54 |
| RSS302 | **350322** | 0,7 | 34,9 | 63,5 | 54 |
| RSS502 | **350331** | 1,2 | 36,5 | 82,6 | 54 |
| RSS1002 | **350332** | 3,0 | 46 | 111,1 | 85,7 |
| **Tonnage** | | **"RA" Cylinders** | | | |
| 55 | **350376** | 0,9 | 31,8 | 71,4 | 71,4 |
| 100 | **350984** | 2,5 | 49,2 | 95,3 | 79,4 |

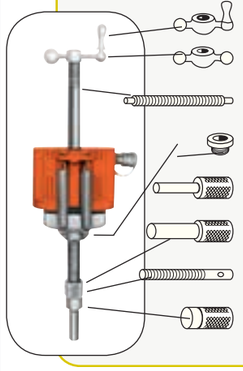
| Cylinder | Swivel Cap | Weight | A | B | C |
|---|---|---|---|---|---|
| **SWIVEL CAPS FOR "RD" CYLINDERS** | | | | | |
| 10 | **350144** | 0,4 | 22,2 | 36,5 | 21,8 |
| 25 | **350145** | 0,6 | 28,6 | 54 | 36,5 |
| 55 | **351325** | 1,9 | 61,9 | 63,5 | 39,3 |
| 100 | **351324** | 5,1 | 75,0 | 95,3 | 67,5 |
| 150 | **351334** | 5,8 | 66,7 | 111,1 | 77,8 |

**SWIVEL CAPS**
**Reduce the effects of off center loading. Tilts up to 5 degrees. Radial grooves on top of cap reduce load slippage.**

| For use with "RC" cylinders | | | | | For use with "RL" cylinders | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Use with Cyl. No. | Swivel Cap Order No. | Weight (kg) | A (mm) | B (mm) | A (mm) | B (mm) | Use with Cyl. No. | Swivel Cap Order No. | Wt. (kg) |
| 150-200 ton | 420867 | 4,0 | 38,1 | 130,2 | 25,4 | 71,4 | 55-100 ton | 420866 | 0,8 |
| 280 ton | 420868 | 6,1 | 44,5 | 149,2 | 38,1 | 130,2 | 150-200 ton | 420867 | 4,8 |
| 355 ton | 420869 | 16,8 | 69,9 | 195,3 | 44,5 | 149,2 | 280 ton | 420868 | 6,1 |
| 435 ton | 420870 | 23,6 | 79,4 | 225,4 | 69,9 | 195,3 | 355 ton | 420869 | 16,8 |
| 565 ton | 420871 | 35,4 | 92,1 | 250,8 | 79,4 | 225,4 | 435 ton | 420870 | 23,6 |
| | | | | | 92,1 | 250,8 | 565 ton | 420871 | 35,4 |




**Reduce the effects of off center loading. Tilts up to 5 degrees. Radial grooves on top of cap reduce load slippage.**
**Notch across face of each cap helps keep loads having a protruding or round shaped centered.**



| To use with Cyl. No | | RT172, RH203 | RT302, RH302 RH303, RH306 | RT503, RH503, RH603 RH605, RH606 | RT1004 |
|---|---|---|---|---|---|
| | Order Set No. | RHA20 | RHA30 | RHA50 | RHA100 |
| 1 Speed Crank | 1 | **24814** | **27198** | **29595** | **303785** |
| 2 Speed Nut | 2 | **302482** 1"-8 | **302483** 1 1/4"-7 | **33439** 1 5/8"-5 _" | **34136** 2 1/2"-8 |
| 3 Adjusting Screw | 3 | **32118** 1"-8 508 mm Lg. | **34758** 1 1/4"-7 x 609,6 mm Lg. | **32698** 1 5/8"-5 1/2"x 762 mm Lg. | **32699** 2 1/2 "-8 x 869,9 mm Lg. |
| 4 Threaded Insert | 4 | **Order threaded insert for RH series cylinders with the accessory set. Threaded insert supplied with RT series cylinders.** | | | |
| 5 Pushing Adapter | 5 | **201923** 1"-8, 12,7 mm dia. shank | **34510** 1 1/4"-7 x 19,1mm dia. shank | **34755** 1 5/8"-5 1/2" x 25,4 mm dia. shank | - |
| 6 Pushing Adapter | 6 | **201454** 1"-8, 19,5 mm dia. shank | **34511** 1 1/4"-7 x 25,4 mm dia. shank | **34756** 1 5/8"-5 1/2" x 31,7 mm dia. shank | - |
| 7 Jack Screw | 7 | **24813** 1"-8 x 177,8 mm Lg. | **25931** 1 1/4"-7 x 228,6 mm Lg. | **32701** 1 5/8"-5 1/2" x 279,4 mm Lg. | **32702** 2 1/2"-8 x 406,4 mm lg. |
| 8 Screw Cap | 8 | **28228** 1"-8 x 38,1 mm dia. | **28229** 1 1/4"-7 x 44,4 mm dia | **28230** 1 5/8"-5 1/2" x 57,2 mm Lg. | - |



## Seal Kits

| Cylinder Order No. | Seal Kit* | Viton Seal Kit |
|---|---|---|
| C51C | 300404 | 300210 |
| C53C | 300404 | 300210 |
| C55C | 300404 | 300210 |
| C57C | 300404 | 300210 |
| C59C | 300404 | 300210 |
| C101C | 300116 | 300211 |
| C102C | 300116 | 300211 |
| C104C | 300116 | 300211 |
| C106C | 300116 | 300211 |
| C108C | 300116 | 300211 |
| C1010C | 300116 | 300211 |
| C1012C | 300116 | 300211 |
| C1014C | 300116 | 300211 |
| C1016C | 300116 | 300211 |
| C151C | 300453 | 300471 |
| C152C | 300453 | 300471 |
| C154C | 300453 | 300471 |
| C156C | 300453 | 300471 |
| C158C | 300453 | 300471 |
| C1510C | 300453 | 300471 |
| C1512C | 300453 | 300471 |
| C1514C | 300453 | 300471 |
| C1516C | 300453 | 300471 |
| C251C | 300147 | 300213 |
| C252C | 300147 | 300213 |
| C254C | 300147 | 300213 |
| C256C | 300147 | 300213 |
| C258C | 300147 | 300213 |
| C2510C | 300147 | 300213 |
| C2512C | 300147 | 300213 |
| C2514C | 300147 | 300213 |
| C552C | 300114 | 300215 |
| C554C | 300114 | 300215 |
| C556C | 300114 | 300215 |
| C5510C | 300114 | 300215 |
| C5513C | 300114 | 300215 |
| C756C | 300647 | 300846 |
| C7513C | 300647 | 300846 |
| C1002C | 300112 | 300216 |
| C1006C | 300112 | 300216 |
| C10010C | 300112 | 300216 |
| C55CBT | 300404 | 300210 |
| C106CBT | 300116 | 300211 |
| C1010CBT | 300116 | 300211 |
| C256CBT | 300147 | 300213 |
| C2514CBT | 300147 | 300213 |
| R1502C | 300676 | – |
| R1506C | 300676 | – |
| R15010C | 300676 | – |
| R2002C | 300677 | – |
| R2006C | 300677 | – |

| Cylinder Order No. | Seal Kit* | Viton Seal Kit |
|---|---|---|
| R20010C | 300677 | – |
| R2802C | 300678 | – |
| R2806C | 300678 | – |
| R28010C | 300678 | – |
| R3552C | 300679 | – |
| R3556C | 300679 | – |
| R35510C | 300679 | – |
| R4302C | 300680 | – |
| R4306C | 300680 | – |
| R43010C | 300680 | – |
| R5652C | 300681 | – |
| R5656C | 300681 | – |
| R56510C | 300681 | – |
| R1002D | 300928 | – |
| R1006D | 300928 | – |
| R10010D | 300928 | – |
| R1502D | 300929 | – |
| R1506D | 300929 | – |
| R15010D | 300929 | – |
| R2002D | 300930 | – |
| R2006D | 300930 | – |
| R20010D | 300930 | – |
| R2802D | 300931 | – |
| R2806D | 300931 | – |
| R28010D | 300931 | – |
| R3552D | 300932 | – |
| R3556D | 300932 | – |
| R35510D | 300932 | – |
| R4302D | 300933 | – |
| R4306D | 300933 | – |
| R43010D | 300933 | – |
| R5652D | 300934 | – |
| R5656D | 300934 | – |
| R56510D | 300934 | – |
| R552L | 300674 | – |
| R556L | 300674 | – |
| R5510L | 300674 | – |
| R1002L | 300675 | – |
| R1006L | 300675 | – |
| R10010L | 300675 | – |
| R1502L | 300676 | – |
| R1506L | 300676 | – |
| R15010L | 300676 | – |
| R2002L | 300677 | – |
| R2006L | 300677 | – |
| R20010L | 300677 | – |
| R2802L | 300678 | – |
| R2806L | 300678 | – |
| R28010L | 300678 | – |
| R3552L | 300679 | – |
| R3556L | 300679 | – |

| Cylinder Order No. | Seal Kit* | Viton Seal Kit |
|---|---|---|
| R35510L | 300679 | – |
| R4302L | 300680 | – |
| R4306L | 300680 | – |
| R43010L | 300680 | – |
| R5652L | 300681 | – |
| R5656L | 300681 | – |
| R56510L | 300681 | – |
| RA202 | 300631 | – |
| RA204 | 300631 | – |
| RA206 | 300631 | – |
| RA302 | 300632 | – |
| RA304 | 300632 | – |
| RA306 | 300632 | – |
| RA552 | 300391 | – |
| RA554 | 300391 | – |
| RA556 | 300391 | – |
| RA5510 | 300391 | – |
| RA1002 | 300444 | – |
| RA1006 | 300444 | – |
| RA556L | 300395 | – |
| RA1006L | 300396 | – |
| RD106 | 300017 | – |
| RD1010 | 300017 | – |
| RD256 | 300118 | – |
| RD2514 | 300118 | – |
| RD556 | 300005 | – |
| RD5513 | 300005 | – |
| RD5518 | 300005 | – |
| RD8013 | 300410 | – |
| RD1006 | 300006 | – |
| RD10013 | 300006 | – |
| RD10020 | 300006 | – |
| RD1506 | 300007 | – |
| RD15013 | 300007 | – |
| RD15018 | 300007 | – |
| RD2006 | 300008 | – |
| RD20013 | 300008 | – |
| RD3006 | 300466 | – |
| RD30013 | 300466 | – |
| RD4006 | 300467 | – |
| RD40013 | 300467 | – |
| RD5006 | 300468 | – |
| RD50013 | 300468 | – |
| RH102 | 300071 | 300221 |
| RH108 | 300071 | 300221 |
| RH120 | 300657 | – |

| Cylinder Order No. | Seal Kit* | Viton Seal Kit |
|---|---|---|
| RH121 | 300576 | – |
| RH121T | 300576 | – |
| RH123 | 300576 | – |
| RH202 | 300615 | – |
| RH203 | 300069 | 300222 |
| RH206 | 300615 | – |
| RH302 | 300037 | 300223 |
| RH306 | 300037 | 300223 |
| RH503 | 300059 | 300225 |
| RH603 | 300477 | 300476 |
| RH606 | 300477 | 300476 |
| RH1003 | 300485 | 300585 |
| RH303 | 300077 | 300224 |
| RH306D | 300822 | 300224 |
| RH3010 | 300625 | – |
| RH605 | 300269 | 300226 |
| RH6010 | 300626 | – |
| RH1001 | 300927 | – |
| RH1006 | 300295 | 300227 |
| RH10010 | 300629 | – |
| RH1505 | 300154 | 300228 |
| RH1508 | 300583 | – |
| RH2008 | 300582 | – |
| RHA306 | 300867 | 300868 |
| RHA604D | 300269 | 300226 |
| RLS50 | 300454 | – |
| RLS100 | 300455 | – |
| RLS200 | 300456 | – |
| RLS300 | 300457 | – |
| RLS500S | 300458 | – |
| RLS750S | 300459 | – |
| RLS1000S | 300460 | – |
| RLS1500S | 300461 | – |
| RP25 | 300628 | – |
| RP55 | 300627 | – |
| RSS101 | 300010 | – |
| RSS202 | 300011 | – |
| RSS302 | 300297 | – |
| RSS502 | 300292 | – |
| RSS1002 | 300293 | – |
| RSS2503 | – | – |
| RSS1002D | 300578 | – |
| RT172 | 300358 | – |
| RT302 | 300359 | – |
| RT503 | 300360 | – |
| RT1004 | 300024 | – |

*** Nitrile seals come standard on all cylinders.**

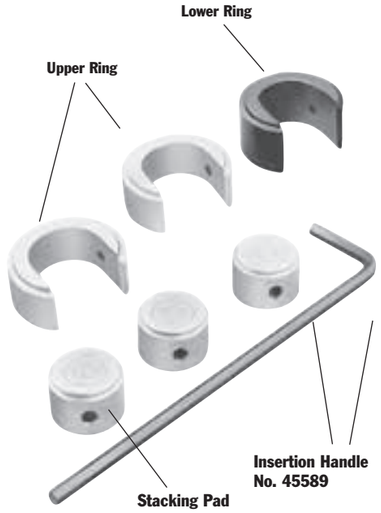

CYLINDERS

# Accessories

## Cribbing Blocks

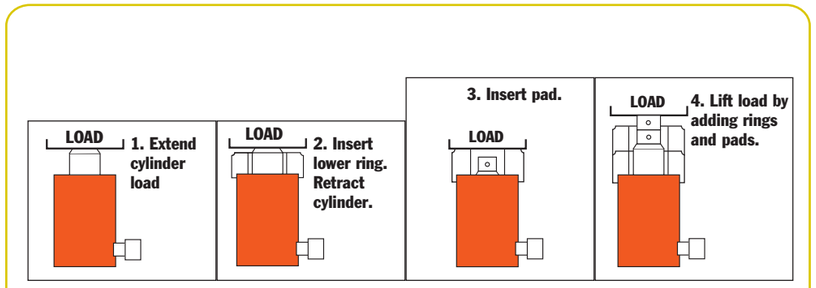
Convert Power Team "Shorty" cylinders to mechanical cribbing devices; more stable than timber or other awkward, makeshift methods. Ideal for lifting applications such as structure moving. Reduce cribbing time dramatically. In effect, increases the stroke of the cylinder; stacking pads act as cylinder extensions:

1. Extend cylinder and insert lower supporting ring.
2. Retract cylinder, insert a stacking pad.
3. Extend cylinder again; pad increases cylinder stroke.
4. Repeat process until all rings and pads are used.




Each cribbing block set includes rings, pads and insertion handle.

No. CB30 — Cribbing block set for use with No. RSS302; 30 ton cylinder.
No. CB50 — Cribbing block set for use with No. RSS502; 50 ton cylinder.
No. CB100 — Cribbing block set for use with No. RSS1002; 100 ton cylinder.
No. 45589 — Insertion handle is used for inserting rings and pads.




| FOR USE WITH → / ORDER NUMBER → | 30 TON CYLINDER NO. RSS302<br>30 TON SET NO. CB30 | | | 50 TON CYLINDER NO. RSS502<br>50 TON SET NO. CB50 | | | 100 TON CYLINDER NO. RSS1002<br>100 TON SET NO. CB100 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Lower Ring | Upper Ring | Stacking Pad | Lower Ring | Upper Ring | Stacking Pad | Lower Ring | Upper Ring | Stacking Pad |
| No. included in set | 1 | 2 | 3 | 1 | 2 | 3 | 1 | 2 | 3 |
| Outside Diameter (mm) | 114,3 | 114,3 | 69,9 | 139,7 | 139,7 | 85,7 | 187,7 | 187,7 | 120,7 |
| Inside Diameter (mm) | 71,4 | 71,4 | -- | 87,7 | 87,7 | -- | 122,2 | 122,2 | |
| Height, each (mm) | 57,9 | 45,6 | 45,2 | 56,4 | 43,7 | 42,8 | 54 | 44,5 | 43,7 |
| Total stacked height of rings in Set (mm) | | 138,1 | | | 131,7 | | | 174,6 | |
| Weight of Set (kg) | | 9,1 | | | 12,7 | | | 29 | |

**Each set includes one Insertion Handle No. 45589 - ½" Hex. x 18" Long, 4" Bend**



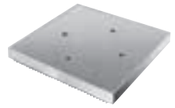
# Accessories

## Cylinder

**CYLINDER LIFTING HANDLE**

| | |
|---|---|
| **No. 4206550R9** | — Lifting handle for "C" series, 25 ton cylinders. |
| **No. 4213120R9** | — Lifting handle for RH302, RH303, RH306 and RH306D, cylinders. |
| **No. 252215** | — Lifting handle RHA306, 30 ton cylinder. |
| **No. 420496BK2** | — Lifting handle RA552 and RA554, 55 ton cylinders. |
| **No. 420498BK2** | — Lifting handle RA1002, 100 ton cylinder. |

**ALUMINUM CYLINDER BASE**



**Aluminum Cylinder Base – For use when an enlarged cylinder base is needed or advantageous. Attaches to bottom of RA556, RA556L and RA5510 with four ⅜"–16 screws (included). Serrated base for extra stability.**

**No. 208406 – Aluminum cylinder base, 317 cm². For use with RA556, RA556L and RA5510 cylinders.**

**HEAD INSERTS FOR RH SERIES CYLINDERS**

| For Use With: | Threaded Insert Order No. |
|---|---|
| RH102, RH108 | 28632 ¾"–16 |
| RH203 | 28612 1"–8 |
| RH302, RH306 | 38904 1¼"–7 |
| RH303 | 28644 1¼"–7 |
| RH503 | 38855 1⅝"–5½ |
| RH603, RH605 RH606 | 34251 1⅝"–5½ |

**Quick-Change Inserts**

**"QUICK CHANGE" HEAD INSERTS FOR RT SERIES CYLINDERS**

| For Use With: | Threaded Order No.* | Plain Order No. |
|---|---|---|
| RT172 | 21669 | 21714 |
| RT302 | 21873 | 21872 |
| RT503 | 22274 | 22275 |
| RT1004 | 24197 | 24196 |

Switch from a tapped hole to a plain hole quickly with these cylinder head inserts. They are held in place with a socket screw. Plain hole permits use of a speed nut for readjusting cylinder after extension.

*** Provided with cylinder**

# PUMPS

## HIGH PERFORMANCE PUMPS


# Pump Selection
## HIGH PERFORMANCE

## Choosing the Right Pump


**Step 1 –** Select the hydraulic cylinder that best suits the application.

**Step 2 –** Select the series of hydraulic pump with adequate oil output and reservoir capacity to power cylinder.

**Step 3 –** Select pump within series with the valve option that is best suited to the cylinder and application.

### CONSIDERATIONS:

What maximum system operating pressure (bar) is required?

What volume of oil delivery is required? (For manual pumps, $cm^3$ of oil per handle stroke; for powered pumps, l./min. of oil).

Is a single- or 2-speed pump required? (2-speed pumps deliver high oil volume at low pressure for rapid cylinder piston advance, then shift to to the high pressure, low volume stage under load).

What is the preferred source of power?

a) Manual (hand or foot operated). Provides portability, can be used where electricity or shop air are not available.

b) Air/Hydraulic. Uses shop air or a portable air compressor.

c) Electric /Hydraulic. What voltage is available? Is a battery operated pump preferred?

d) Gasoline Engine/Hydraulic. Powers high-output pumps at remote job sites where air or electricity are unavailable.

Is portability of the pump a factor to consider?

Will the pump be used intermittently, or will it need to provide high-cycle operation? Does the application require that the pump be capable of starting under load?

Is fluid heat build-up a factor in your application? High cycle applications may require a larger capacity oil reservoir for cooling. Also, if you are using large displacement cylinders, the reservoir capacity must be sufficient to fully extend the piston of the cylinder.

Will the application require large displacement or multiple cylinders? Reservoir size and pump output levels will be factors to consider.

Does the working environment require a pump having a low operating noise (dBA) level?

Must the pump operate in a spark-free environment?

### MANUALLY-OPERATED HYDRAULIC PUMPS:

**P12, P23, P55 –** These single-speed pumps are for use with single-acting cylinders.

**P19, P59, P59F, P157, P159, P300, P460 –** These 2-speed pumps are used with single-acting cylinders. The 2-speed feature provides high oil volume for fast cylinder piston approach to the work; pump automatically shifts to the high pressure stage. This reduces the number of pump handle strokes required.

**P157D, P159D, P300D, P460D –** These 2-speed pumps are used with double-acting cylinders.


### AIR/HYDRAULIC PUMPS

Used where air is the preferred energy source or where electricity is not available. Ideal for use in petrochemical, mines or other inflammable or explosive environments.

**PA6 Series –** These single-speed pumps drive single- or double-acting cylinders.

**PA9 Series –** These new single-speed pumps drive single-acting cylinders and are ideal for powering portable hydraulic tools.

**PA50 Series –** These single-speed pumps drive single- or double-acting low pressure (225 bar) cylinders.

**PA60 –** This 2-speed pump is equipped with a manifold to operate multiple cylinders, and provides a 7,6 liter reservoir capacity.

**PA64 –** Similar to PA60, this 2-speed pump drives single- or double-acting cylinders.

**PA172 and PA174 –** These "economy" 2-speed pumps drive single- or double-acting cylinders, depending on the model chosen. Provide a low weight to output ratio.

**PA462 and PA464 Series –** These 2-speed pumps drive single or double-acting cylinders, depending on the model selected. They offer high speed cylinder piston advance.

**PA554 –** This 2-speed pump drives single- or double-acting cylinders, delivering a high volume of oil.


### ELECTRIC/HYDRAULIC PUMPS

All of the following pumps are 2-speed models, and can be used to drive single- or double-acting cylinders.

**"Quarter Horse" Series –** As their name implies, these pumps feature a 0,18Kw (1/4 hp) electric motor. A battery-powered version is available. Having a low noise level and weighing just 9 kg, they are ideal for powering portable hydraulic spreaders, nut splitters, pipe flange spreaders and other tools.

**PE17 Series –** CSA rated for intermittent duty, these feature a 0,37Kw (1/2 hp), single phase induction motor with a low noise level (67-81 dBA). Smaller generators and low amperage circuits can be used as a power source. See pages 82-83.

**PE46 Series –** Powered by a 1,1Kw (1 1/2 hp), single phase induction motor, operate at a moderate noise level of 77-81 dBA. CSA rated for intermittent duty.

**PE18 Series –** CSA rated for intermittent duty, these feature a 0,37Kw (1/2 hp), single phase universal motor with a noise level of 85-90 dBA. Provide high performance at a low price. Has low amperage draw. See pages 84-85.

**PE30 Series –** Equipped with a 0,75Kw (1 hp), single phase permanent magnet motor, have a noise level of only 82-87 dBA. CSA rated for intermittent duty, and require a relatively low voltage; ideal for use in general construction applications. Roll cage/handle protects the motor and controls.

**PE55 and PED25 Series –** The famous Vanguard® pumps have been continually upgraded for 40 years; some of the originals are still in service! Equipped with a 0,83Kw (1 1/8 hp), single phase universal motor, have a high noise level (90-95 dBA). Offer the best weight to performance ratio of any Power Team electric/hydraulic pump. CSA rated for intermittent duty. The PED25 versions are "dual flow" pumps which deliver the same low and high pressures to both valves, and have a noise level of 80-85 dBA. They have a 1,1Kw (1 1/2 hp) induction motor.

# Pump Selection
## HIGH PERFORMANCE

## Choosing the Right Pump


**PE60 Series –** The Vanguard® Supreme® pumps provide trouble-free service in the most severe working environments. Powered by a 0,82Kw (1⅛ hp), single phase motor, has a moderate noise level of 80-85 dBA. Start well under load even at the reduced voltages encountered on construction sites. High-output pumps, ideal for use with post-tensioning/pre-stressing jacks and other high-pressure hydraulic tools.

**"Custom-built" pumps –** Power Team offers you "assemble to order" electric/hydraulic pumps to suit unique applications. You can choose from pre-engineered, off the-shelf components to customize your pump.

**PE21 Series –** Ideal for heavy-duty, extended-cycle applications. Powered by a 0,75Kw (1 hp), single phase motor, pump operates a very low noise level of 70 dBA. Pump automatically shuts down in the event of a power failure. CSA rated for intermittent duty. See pages 86-87. "Quiet" Pumps. Our PQ60 and PQ120 series operate at a very low noise level of between 73-78 dBA. The PQ60 has a 1,5Kw (2 hp) (single phase) motor; the PQ120 has a 2,2Kw (3 hp) (3-phase) motor. These pumps are designed for heavy-duty, extended cycle operations. CSA rated for intermittent duty.

**PE400 Series –** High-flow units deliver a large volume of high pressure oil for heavy construction and maintenance operations employing high tonnage cylinders. The PE400 is powered by a 7,5Kw (10 hp), 3-phase motor. Low noise rating of 73-80 dBA.

### GASOLINE-DRIVEN HYDRAULIC PUMPS

These two-speed pumps are ideal for use in remote applications, such as construction sites. May be used with single- or double-acting cylinders.

**PG30 Series –** Powered by a 2-cycle, 1,5Kw (2 hp) Tecumseh engine, these have an integral, protective "roll cage" and adequate reservoir capacity for cylinders up to 100 tons capacity or more. Readily portable; popular in the railroad, rescue and construction markets.

**PG55 Series –** With a 4-cycle, 3Kw (4 hp) Briggs & Stratton engine, this pump is based on our popular Vanguard® Series. It has a generous five gallon reservoir capacity.

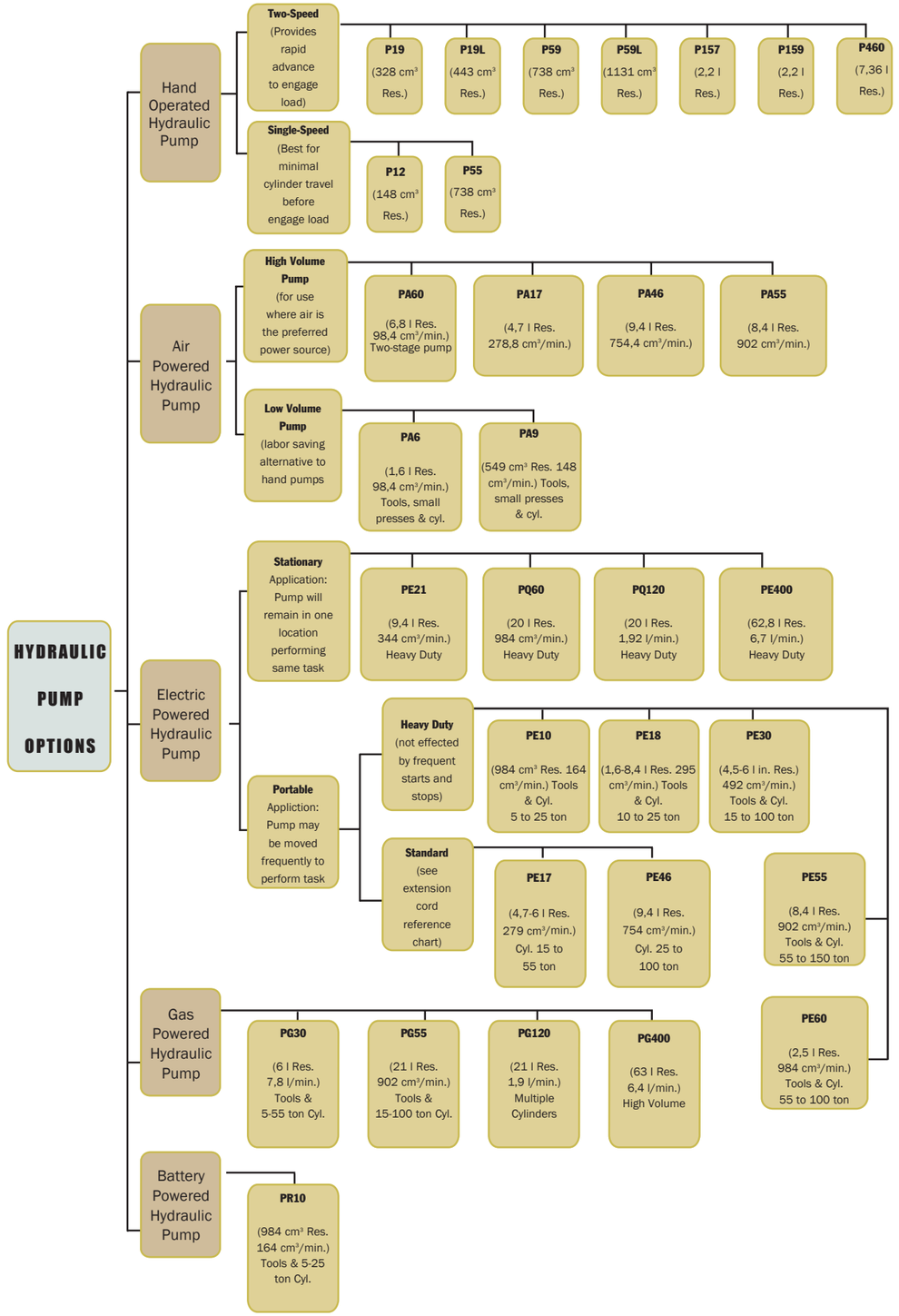

**PG120 Series –** Powered by a 4-cycle, 4,1Kw (5.5 hp) Honda engine. Has a 19 liter reservoir; capable of handling multiple-cylinder lifting tasks. Ideal for the structure moving, pier setting, bridge lifting and concrete contracting industries.

**PG4004 –** Featuring a 4-cycle, 13,5Kw (18 hp) Briggs & Stratton engine, this unit has a big 76 liter reservoir. Rugged steel "roll cage" has a hook on top and swivel casters for ease of mobility. Popular for concrete stressing applications.

### HYDRAULIC INTENSIFIER

**HB Series –** Turns low pressure hydraulic pumps into high pressure power sources to operate single-acting or double-acting cylinders and tools such as crimpers, spreaders, cutters, etc. Compact and portable for use inside a utility vehicle aerial bucket or stowing in a vehicle.

### PUMP SELECTION



# Valve Selection

## Choosing the Right Valve

**Step 1 -** Select the hydraulic cylinder that best suits the application. See pages 6-8.

**Step 2 -** Select the series of hydraulic pump with adequate oil output and reservoir capacity to power cylinder. See pages 42-45.

**Step 3 -** Select pump within series with the valve option that best matches cylinder, pump and application.

### CONSIDERATIONS:

- Will the valve be used with single or double-acting cylinders?
- Will the valve be mounted on the pump, away from the pump or directly into the hydraulic lines?
- Will the valve be manually operated or is remote control preferred?
- Is independent control of multiple cylinders, or hydraulic tools preferred?
- What directional control and pressure control valve functions are needed for the application?

Basic valve types includemanually operated, air orsolenoidoperated and pilotoperated. Special application valves for pre-stressing and post-tensioning are also offered.

### IN-LINE HYDRAULIC VALVES

Load Lowering Valve – Provides precision metering for controlled return of the cylinder piston.

Sequence Valve – Used when a cylinder in a multiple cylinder application must advance before any other.

Pressure Reducing Valve – Permits independent pressure control to two or more clamping systems operated by a single power source.

Shut-off Valve – For fine metering of hydraulic oil. Several may be used to control multiple single-acting cylinders.

Check Valve – Permits flow of hydraulic oil in one direction only.

Pressure Relief Valve – Used at remote locations in a hydraulic circuit where maximum pressure requirements are less than the setting of the basic overload valve in the pump. Protects a hydraulic system against over pressurization.

Metering Valve – Restricts surges by restricting flow to a certain level; when flow subsides, valve reopens automatically. For systems using large cylinders or extended lengths of hose.

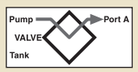
Pressure Regulator Valve – Permits external adjustment of operating pressures at various values below the internal relief valve setting of the pump.

## DIRECTIONAL CONTROL VALVES

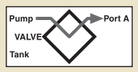
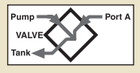
### 2-WAY, 2-POSITION
(FOR CONTROL OF SINGLE-ACTING CYLINDERS):

| POSITION 1 | CENTER POSITION | POSITION 2 |
|---|---|---|
|   Oil goes from pump to cylinder; pressure is held from valve to cylinder when pump is shut off. | None |   Oil goes from cylinder to pump; pressure is released to reservoir when motor is turned off. |

### 3-WAY, 2-POSITION
(FOR CONTROL OF SINGLE-ACTING CYLINDERS)

| POSITION 1 | CENTER POSITION | POSITION 2 |
|---|---|---|
|   Oil goes from pump to cylinder and holds when pump is shut off. Return line to reservoir is blocked. | None |   Cylinder retracts, oil returns to reservoir. |

### 3-WAY, 3-POSITION
(FOR CONTROL OF SINGLE-ACTING CYLINDERS)

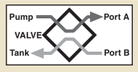
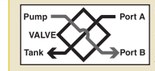
| POSITION 1 | CENTER POSITION | POSITION 2 |
|---|---|---|
|   Oil goes from pump to cylinder and holds when pump is shut off. Return line to reservoir is blocked. |   Cylinder pressure is held; pump can remain running and oil returns to reservoir. |   All oil is open to reservoir through return line. |

## DIRECTIONAL CONTROL VALVES

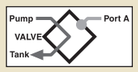
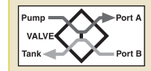
### 4-WAY, 2-POSITION
(FOR CONTROL OF SINGLE OR DOUBLE-ACTING CYLINDERS):

| POSITION 1 | CENTER POSITION | POSITION 2 |
|---|---|---|
|   Oil goes to the “extend” side of the cylinder. The oil from the “retract” side returns to reservoir. Cylinder holds with pump shut off. | None |   Oil goes to the “retract” side of the cylinder, oil from the “extend” side returns to reservoir. |

### 4-WAY, 3-POSITION
(FOR CONTROL OF DOUBLE-ACTING CYLINDERS)

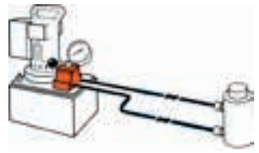
| POSITION 1 | CENTER POSITION | POSITION 2 |
|---|---|---|
|   Oil goes to the “extend” side of the cylinder, oil from the “retract” side returns to reservoir. Cylinder holds with pump shut off. |   Holds pressure even if pump is running. Oil from pump goes through valve, back to reservoir. |   Oil goes to “retract” side of cylinder. Oil from “extend” side returns to the reservoir. |

### TYPICAL CENTERS

| TANDEM CENTER | CLOSED CENTER | OPEN CENTER |
|---|---|---|
|   Cylinder ports are blocked, oil from pump goes to reservoir. Used when pump remains running. Example: gasoline-driven pumps. |   Generally used when running multiple valves in series from one pump. |   Open Center used when holding is not a requirement, as when running two separate hydraulic tools such as cutters and crimpers. |

# Valves
## SELECTION INFORMATION

## Pump Mounted Valves



**PUMP MOUNTED VALVES**

| Order No. | *Cylinder Application | Operation | Valve Type | Volt | Advance/ Return | Advance/ Hold Return | Posi-Check® Feature |
|---|---|---|---|---|---|---|---|
| **9500** | S.A & D.A. | Manual | 4-way, 3 Pos. Tandem Center | — | no | yes | no |
| **9501** | S.A. & D.A. | Manual | 4-way, 3 Pos. Closed Center | — | no | yes | no |
| **9502** | S.A. | Manual | 3-way, 3 Pos. Closed Ctr. | — | no | yes | yes |
| **9504** | S.A. & D.A. | Manual | 3/4-way, 2 Pos. | — | yes | yes | no |
| **9506** | D.A. | Manual | 4-way, 3 Pos. Tandem Center | — | no | yes | yes |
| **9507** | D.A. | Manual | 4-way, 3 Pos. Closed Center | — | no | yes | yes |
| **9511** | S.A. & D.A. | Manual | 4-way, 3 Pos. Open Center | — | yes | yes | no |
| **9512** | D.A. | Solenoid | 4-way, 3 Pos. Tandem Center | 24 | no | yes | yes |
| **9513** | D.A. | Solenoid | 4-way, 3 Pos. Tandem Center | 115 | no | yes | yes |
| **9516** | D.A. | Solenoid | 4-way, 3 Pos. Tandem Center | 12DC | no | yes | yes |
| **9517** | S.A. | Manual | 2-way, 2 Pos. | — | no | yes | no |
| **9519** | D.A. | Solenoid | 4-way, 3 Pos. Tandem Center | 230 | no | yes | yes |
| **9520** | S.A. | Manual | 4-way, 3 Pos. Tandem Center | — | no | yes | yes |
| **9522** | D.A. | Solenoid | 4-way, 3 Pos. Open Center | 230 | yes | no | no |
| **9523** | S.A. | Pilot Operated Solenoid | 3-way, 2 Pos. | 230 | yes | no | no |
| **9552** | S.A. & D.A. | Solenoid | 3/4-way, 2 Pos. | 230 | yes | no | no |
| **9553** | S.A. | Pilot Operated Solenoid | 3-way, 2 Pos. | 24 | yes | no | no |
| **9569** | S.A. | Solenoid | 3-way, 2 Pos. | 24 | no | yes | no |
| **9570** | S.A. | Solenoid | 3-way, 2 Pos. | 230 | no | yes | no |
| **9572** | S.A. & D.A. | Solenoid | 3/4-way, 2 Pos. | 24 | yes | no | no |
| **9576** | S.A. | Manual | 3-way, 3 Pos. Metering Tandem Ctr. | — | no | yes | no |
| **9579** | S.A. | Solenoid | 3-way, 2 Pos. | 115 | no | yes | no |
| **9582** | S.A. | Manual | 3-way, 2 Pos. | — | no | yes | no |
| **9584** | S.A. | Manual | 3-way, 2 Pos. | — | no | yes | no |
| **9589** | S.A. | Pilot Operated Solenoid | 3-way, 2 Pos. | 115 | yes | no | no |
| **9590** | D.A. | Solenoid | 4-way, 3 Pos. Open Center | 115 | yes | no | no |
| **9592** | S.A. & D.A. | Solenoid | 3/4-way, 2 Pos. | 115 | yes | no | no |
| **9594** | S.A. & D.A. | Air | 3/4-way, 2 Pos. | — | no | yes | yes |
| **9599** | S.A. | Pilot Operated Solenoid | 3-way, 3 Pos. Tandem Center | 24 | no | yes | yes |
| **9605** | S.A. | Pilot Operated Solenoid | 3-way, 3 Pos. Tandem Center | 115 | no | yes | yes |
| **9609** | S.A. | Manual | 3-way, 3 Pos. Tandem Center | — | no | yes | no |
| **9610** | S.A. | Auto Pilot Operated | 3-way, 2 Pos. | — | yes | no | no |
| **9610A** | S.A. | Manual | 2/3-way, 2 Pos. | — | no | yes | no |
| **9615** | D.A. | Solenoid | 4-way, 3 Pos. Open Center | 24 | yes | no | no |
| **9628** | S.A. & D.A. | Manual | Post Tensioning | — | special | no | no |
| **9632** | S.A. & D.A. | Manual | Post Tensioning | — | special | no | no |

* "S.A." represents single-acting cylinders, "D.A." represents double-acting cylinders



# Valves
## HYDRAULIC PUMP MOUNTED

Manual and Pilot Operated

700 bar, 3/8" ports, 19 l/min max flow rate.

### 3-WAY/2-POSITION MANUAL VALVES

**Applications –** Single-acting cylinders.
**Actuation –** Lever operated.
**Functions –** Cylinder piston "advance", "hold" and "return".
**Used on these pumps –** P460, PE17, PE21, PE30, PE46, PE55, PE84, PE90, and PE120 series.
**No. 9582 –** 3-way/2-position manual valve. Wt. 1,13 kg.
**No. 9584 –** Same as 9582, but has "flipper" control. Wt., 0,8 kg.

### 3-WAY/2-POSITION, PILOT OPERATED AUTOMATIC VALVE

**Application –** Single-acting cylinders. Actuation: Pilot oil.
**Functions –** When pump is started, pilot oil automatically closes valve and directs oil to cylinder; when pump is stopped, valve automatically opens and oil returns to reservoir.
**Used on these pumps –** Furnished with pilot lines and adapters for PA55, PA90, PE30, PE55, PE90 and PE120 series.
**No. 9610 –** 3-way/2-position pilot operated automatic valve. Wt., 1,9 kg.

### 2/3-WAY/2-POSITION MANUAL/PILOT OPERATED AUTOMATIC VALVE

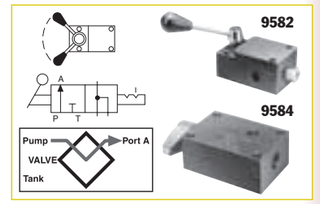
**Application –** Manual operation for load lifting and holding with single-acting cylinders; automatic "dump" for operating hydraulic tools.
**Actuation –** Flipper lever/pilot oil.
**Functions –** With lever in closed position, valve will hold the load. When lever is "open", valve functions as a true automatic "dump" valve.
**Used on these pumps –** Furnished with pilot lines and adapters for PA55, PA90, PE30, PE55, PE90 and PE120 series. For application on other pumps, consult factory.
**No. 9610A –** 2/3-way/2-position manual/pilot operated automatic valve. Wt., 2 kg.

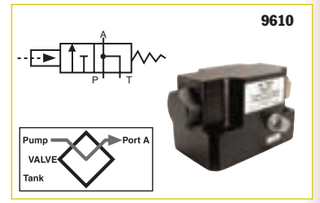
### 2-WAY/2-POSITION MANUAL VALVE

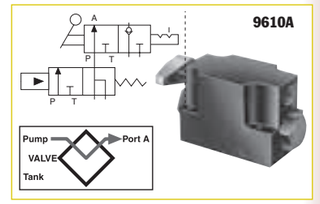
**Application –** Single-acting cylinders.
**Actuation –** Flipper lever operated.
**Functions –** Cylinder piston "advance", "hold" and "retract".
**Used on these pumps –** PE172, PA172 and PE84 series.
**No. 9517 –** 2-way/2-position manual valve. Wt., 1,45 kg.

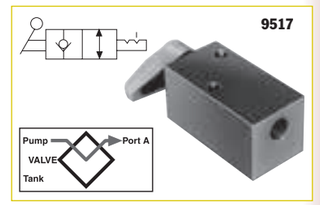
### 3/4-WAY/2-POSITION MANUAL VALVE

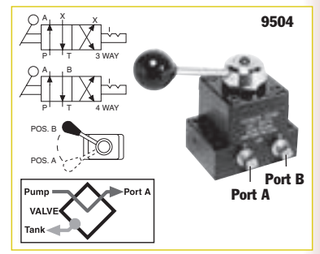
**Application –** Single- or double-acting cylinders.
**Actuation –** Lever operated, detent positioned.
**Functions –** Pos. 1 – Oil is directed to "advance" side of cylinder, oil from "retract" side goes to reservoir; cylinder "holds" with pump shut off. Pos. 2 – Oil goes to "retract" side of cylinder; cylinder "holds" with pump shut off. When using as a 3-way valve for single-acting cylinders, port "A" or "B" is plugged.
**Used on these pumps –** P460, PA6D, PA17, PA46, PA55, PA60, PE17, PE21, PE30, PE46, PE55, PE84, PE90, PE120, PE200, PE400, PQ60 and PQ120 series.
**No. 9504 –** 3/4-way/2-position manual valve. Wt., 1,9 kg.
**NOTE:** 9504 can be remote mounted with a 9510 subplate



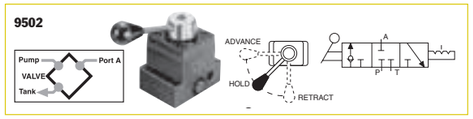

**⚠CAUTION:** To prevent sudden, uncontrolled descent of a load as it is being lowered, use a No. 9596 Load Lowering Valve or No. 9720 Counter Balance Valvein conjunction with the directional valve used in your application.
**IMPORTANT:** Conversion kit 251528 must be used when mounting any of the valves on this page on PA17 or PE17 pumps.
**IMPORTANT:** When ordering any valve for a PE30 or PG30 series pump, 1/2" longer mounting screws are required. For valves 9504, 9584, 9610 and 9610A, order four 12001 cap screws. For valve 9582, order two 12001 and two 10856 cap screws.

# Valves
## HYDRAULIC PUMP MOUNTED

3 Way/3 Position
Manual

700 bar, 3/8" ports, 19 l/min
max flow rate.

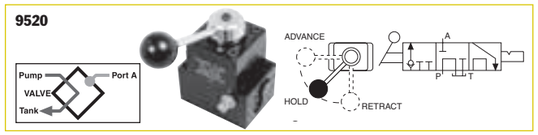
PUMPS/VALVES




### 3-WAY/3-POSITION (CLOSED CENTER) NON-INTERFLOW MANUAL VALVE WITH "POSI-CHECK®"

**Application** – Single-acting cylinders.
**Actuation** – Lever operated, detent positioned.
**Functions –** Pos. 1 – Oil is directed from pump to cylinder and "holds" with pump shut off; line to reservoir is blocked. Pos. 2 – All oil is open to reservoir through tank line.
**Center pos.** – Cylinder pressure is held; pump should be shut off.
**Used on these pumps** – P460, PA17, PA46, PA55, PA60, PE17, PE21, PE30, PE46, PE55, PE84, PE90, PE120, PE200, PE400, PQ60 and PQ120 series.
**NOTE:** A pressure switch and/or gauge may be attached if desired (see pages 124-125, 117). Also, the 9502 can be remote mounted if a 9510 subplate is used .

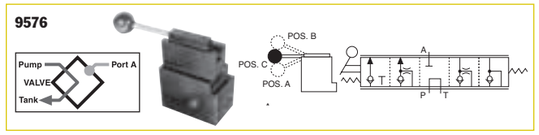
**No. 9502** – 3-way/3-position (closed center) manual valve. Wt., 1,9 kg.




### 3-WAY/3-POSITION (TANDEM CENTER) MANUAL VALVE WITH "POSI-CHECK®"

**Application –** Single-acting cylinders.
**Actuation –** Lever operated, detent positioned.
**Functions –** "Advance" "hold" and "return". When shifted to "return" position, pump and cylinder return oil through their own separate return lines, allowing faster retraction of piston. The "Posi-Check®" feature guards against pressure loss when shifting from "advance" to "hold" position.
**Used on these pumps –** P460, PA17, PA46, PA55, PE17, PE21, PE30, PE46, PE55, PE84, PE90, PE120, PQ60, PQ120, PE200, PE400, PG30, PG55, PG120 and PG400 series.
**No. 9520 –** 3-way/3-position (tandem center) manual valve. Wt., 2,3 kg.

### 3-WAY/3-POSITION (TANDEM CENTER) METERING VALVE




**Application –** Single-acting cylinders.
**Actuation –** Lever operated.
**Functions –** Cylinder piston metered "advance", "hold" and metered "return".
**Used on these pumps –** PA17, PA46, PA55, PE17, PE21, PE30, PE46, PE55, PE84, PE90, PE120, PQ60, PQ120, PE200, PE400, PG30, PG55, PG120 and PG400 series.
**NOTE:** A pressure switch and/or gauge may be attached if desired see pages 124-125, 117). Also, the 9576 can be remote mounted with a 9510 subplate .
**No. 9576 –** 3-way/3-position (tandem center) metering valve. Wt., 3,9 kg.

⚠ **CAUTION:** To prevent sudden, uncontrolled descent of a load as it is being lowered, use a No. 9596 Load Lowering Valve or No. 9720 Counter Balance Valve in conjunction with the directional valve used in your application.
**NOTE:** Valves 9501, 9502, 9504 and 9507 can have a port blocked or have a closed center position. When a port is blocked and the valve is shifted to the blocked port, the pump will generate excessive heat. An electric or rotary air pump can either be turned off manually or with a pressure switch. Reciprocating air pumps may be adjusted to stall out and stop.
**NOTE:** Gauge ports monitor pump pressure only, not pressure to the hydraulic cylinder(s).
**IMPORTANT:** Conversion kit 251528 must be used when mounting any of the valves on this page on PA17 or PE17 pumps.
**IMPORTANT:** When ordering any valve for a PE30 or PG30 series pump, 1/2" longer mounting screws are required. For valves 9502 and 9520, order four 12001 cap screws. For valve 9576, order four 17428 cap screws.


# Valves
## HYDRAULIC PUMP MOUNTED

4 Way/3 Position
Manual

700 bar, 3/8" ports, 19 l/min
max flow rate.

PUMPS/VALVES


### 4-WAY/3-POSITION (TANDEM CENTER) VALVE WITH "POSI-CHECK®"

**Application –** Double-acting cylinders.
**Actuation –** Lever operated, detent positioned.
**Functions –** "Advance", "hold" and "return". The "Posi-Check®" feature guards against pressure loss when shifting from "advance" to "hold" position.
**Used on these pumps –** P460, PA6D, PA17, PA46, PA55, PE17, PE21, PE30, PE46, PE55, PE84, PE90, PE120, PE200, PE400, PED, PG30, PG55, PG120, PG400, PQ60 and PQ120 series
**No. 9506 –** 4-way/3-position (tandem center) manual valve. Wt., 2,3 kg.

### 4-WAY/3-POSITION (TANDEM CENTER) AND (OPEN-CENTER) MANUAL VALVES

**Application –** Single- or double-acting cylinders.
**Actuation –** Lever operated, detent positioned.
**Functions –** The 9500 provides "advance", "hold" and "return". The 9511 (open center) valve can be used if holding is not a requirement, as when running two separate hydraulic tools. Provides "advance" and "return" only.
**Used on these pumps –** P460, PA17, PA46, PA55, PE17*, PE21, PE30, PE46, PE55, PE84, PE90, PE120, PE200, PE400, PG30, PG55, PG120, PG400, PQ60 and PQ120 series. *Does not mount without 251528
**No. 9500 –** 4-way/3-position (tandem center) manual valve. Wt., 1,9 kg.
**No. 9511 –** Same as 9500, except has an open center.

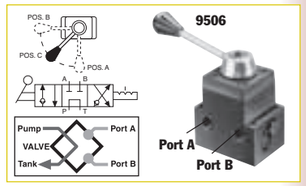
### 4-WAY/3-POSITION (CLOSED CENTER) MANUAL VALVE WITH "POSI-CHECK®"

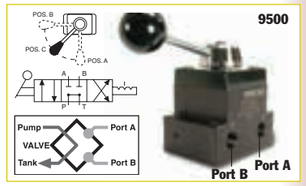
**Application –** Single- or double-acting cylinders.
**Actuation –** Lever operated, detent positioned.
**Functions –** Similar to 9506, but is a closed center valve with "Posi-Check®". Generally used to operate multiple cylinders with a single pump. Provides "advance", "hold" and "return". The "Posi-Check®" feature guards against pressure loss when shifting from the "advance" to "hold" position.
**Used on these pumps –** P460, PA17, PA46, PA55, PA60, PA6D, PE17, PE21, PE30, PE46, PE55, PE84, PE90, PE120, PE200, PE400, PQ60 and PQ120 series.
**No. 9507 –** 4-way/3-position (closed center) manual valve. Wt., 2,3 kg.

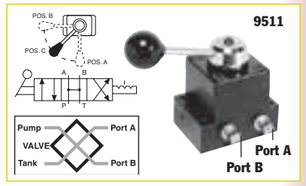
### 4-WAY/3-POSITION (CLOSED CENTER) MANUAL VALVE

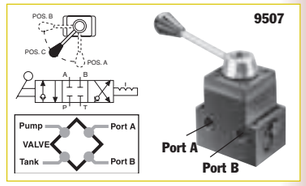
**Application –** Single- or double-acting cylinders.
**Actuation –** Lever operated, detent positioned.
**Functions –** "Advance", "hold" and "return". Closed center design makes valve suitable for operating multiple cylinders from a single pump.
**Used on these pumps –** P460, PA17, PA46, PA55, PA60, PE17, PE21, PE30, PE46, PE55, PE84, PE90, PE120, PE200, PE400, PQ60 and P120 series.
**No. 9501 –** 4-way/3-position (closed center) valve. Wt., 1,9 kg.

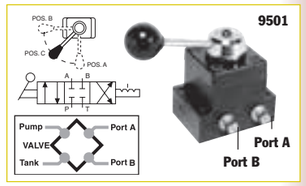
**NOTE:** A pressure switch and/or gauge may be attached to valves 9500, 9501, 9506, 9511 if desired (see pages 124-125, 117). Also, all valves on this page may be remote mounted with a 9510 subplate



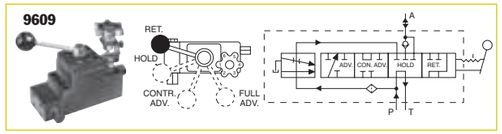



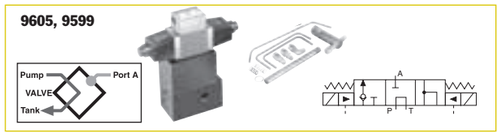
# Valves
## HYDRAULIC PUMP MOUNTED

Manual and
Pilot Operated

700 bar, 3/8" ports, 19 l/min
max flow rate.

PUMPS/VALVES




### 3-WAY/3-POSITION (TANDEM CENTER) SOLENOID VALVES WITH "POSI-CHECK®"

**Application –** Single-acting cylinders.
**Actuation –** Solenoid operated: 9605 is 115 volt, 50/60 Hz; 9599 is 24 volt, 50 Hz.
**Functions –** "Advance", "hold" and "return" positions. When in "advance", solenoid "B" is energized and oil goes from pump to cylinder through pressure port. In "return" position, solenoid "A" is energized and oil is directed from cylinder and pump to reservoir. With both solenoids de-energized, in "hold" position, oil from pump is directed back to reservoir while oil is checked in cylinder. The "Posi-Check®" feature holds load when shifting from "advance" to "hold" position.
**Used on these pumps –** Furnished with pilot lines and adapters for PE55, PE30 (carrying handles must be removed) and PE120 series. For application on other models, consult factory.
**No. 9605 –** 3-way/3-position (tandem center) solenoid valve, 115 volt, 50 Hz. Wt., 6,4 kg.
**No. 9599 –** Same as 9605 except for 24 volt, 50 Hz circuits.
**NOTE:** Valves above are shipped without controls. Use 202777 remote hand control . Consult factory for field installation.

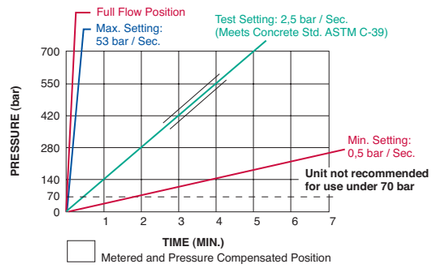
### 3-WAY/4-POSITION MANUAL PRESSURE COMPENSATED VALVE

**Application –** Single-acting cylinders. Primarily for use in testing soil, rock, concrete, asphalt and related engineering materials.
**Actuation –** Lever and adjustable, pressure compensated flow control valve.
**Functions –** Cylinder piston "return", "hold", "controlled advance" (pressure compensated) and "advance" (full flow). Will deliver a relatively constant flow regardless of pressure between 70 and 700 bar.
**Used on these pumps –** PA17, PA46, PA55, PE17, PE21, PE30*, PE46, PE55, PE90, PE200, PE400, PG30*, PG55, PG120, PG400, PQ60 and PQ120 series.
* **NOTE:** Adapter kit 252161 is required for mounting this valve to a PE30 or PG30 series pump.
**NOTE:** This valve can be remote mounted with a 9510 subplate
**No. 9609 –** 3-way/4-position manual pressure compensated valve. Wt., 4 kg.

⚠ **CAUTION:** To prevent sudden, uncontrolled descent of a load as it is being lowered, use a No. 9596 Load Lowering Valve or No. 9720 Counter Balance Valve in conjunction with the directional valve used in your application.

**IMPORTANT:** Conversion kit 251528 must be used when mounting the 9609 valve on PA17 or PE17 pumps.

**IMPORTANT:** When ordering any valve for a PE30 or PG30 series pump, 1/2" longer mounting screws are required. For valves 9500, 9501 and 9511, order four 12001 cap screws. For valve 9552, 9506, and 9507, order four 11956 cap screws. For valves 9599 and 9605, order four 251078 cap screws. For valve 9609, order four 10855 cap screws.




FLOW

Full flow position - 19 l (Ref.)
Metered advance position
1 l/min. (Max.)

PRESSURE

Min. working pressure - 70 bar.
Max. working pressure- -700 bar.
Max. valve case pressure - 35 bar.

### 3-WAY/2-POSITION SOLENOID VALVE

**Application –** Single-acting cylinders.
**Actuation –** Solenoid operated, 115 volt, 50 Hz.
**Functions –** Cylinder piston advances when solenoid is de-energized and pump is running. When solenoid is energized, oil is directed to reservoir, and piston returns. For "hold" position, pump is stopped with solenoid de-energized.
**Used on these pumps –** PE17, PE21, PE30, PE46, PE55, PE84, PE90, PE120, PE200, PE400, PQ60 and PQ120 series.
**No. 9579 –** 3-way/2-position solenoid valve, 115 volt, 50 Hz. Wt., 4,4 kg.
**No. 9569 –** Same as 9579, except with 24 volt, 50 Hz solenoid.
**No. 9570 –** Same as 9579 except with 230 volt, 50 Hz solenoid.
**NOTES:** Valves above are shipped without control switch. Use 202777 remote hand switch . When this valve is mounted, the pump must be equipped with an outlet check valve.

### 3/4-WAY/2-POSITION SOLENOID VALVES

**Application –** Single- or double-acting cylinders. When used with single-acting cylinders, one port should be plugged.
**Actuation –** Solenoid operated.
**Functions –** Oil is directed to "extend" side of cylinder, oil from "retract" side goes to reservoir; cylinder "holds" with pump shut off. Oil is directed to "retract" side of cylinder; oil from "extend" side goes to reservoir.
**NOTE:** Cylinder will not "hold" in the "return" position with motor running or shut off.
**Used on these pumps –** 9552, 9572 and 9592 are used with PE17, PE30 (with carrying handles removed), PE46, PE55, PE84, PE90, PE200, PE400, PQ60 and PQ120 series.
**No. 9592 –** 3/4-way/2-position solenoid valve, 115 volt, 50 Hz. Wt., 6,6 kg.
**No. 9552 –** Same as 9592, except with 230 volt, 50 Hz solenoid.
**No. 9572 –** Same as 9592, except with 24 volt, 50 Hz solenoid.
**NOTE:** Valves above are shipped without controls. The 9552, 9572 and 9592 can be used with the 304718 remote hand control.

Note: Ports are 1/4" NPTF.

### AIR ACTUATED VALVE

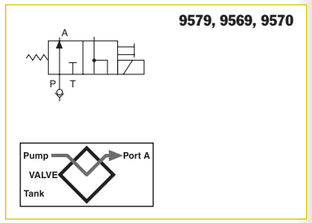
**Application –** Single- or double-acting cylinders. When used with single-acting cylinders, one port should be plugged.
**Actuation –** Air operated.
**Functions –** Oil is directed to "extend" side of cylinder, oil from "retract" side goes to reservoir; cylinder "holds" with pump shut off. Oil is directed to "retract" side of cylinder; oil from "extend" side goes to reservoir.
**NOTE:** Cylinder will not "hold" in the "return" position with motor running or shut off.
**Used on these pumps –** PA17, PA46 and PA55 series.
**No. 9594 –** 3/4-way/2-position solenoid valve, air operated (minimum of 4 bar air pressure required). Wt., 5 kg.
**NOTES:** Valve above is shipped without controls. 9594 can be used with the 209593 remote hand control

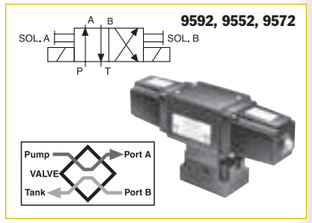

# Valves
## HYDRAULIC PUMP MOUNTED

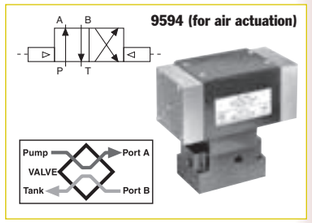
Solenoid or
Air Operated

700 bar, 3/8" ports, 19 l/min
max flow rate.

PUMPS/VALVES

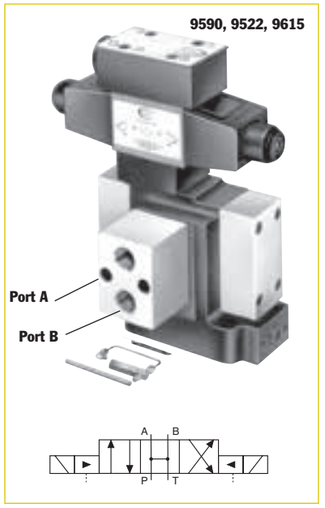
# Valves
## HYDRAULIC PUMP MOUNTED

Solenoid or Air Operated

700 bar, 3/8" ports, 19 l/min max flow rate.



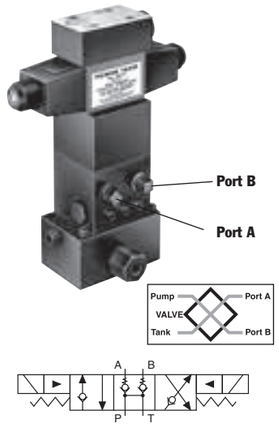
9590, 9522, 9615




### 4-WAY/3-POSITION (OPEN CENTER) SOLENOID VALVE

**Application –** Double-acting cylinders.
**Actuation –** Solenoid operated, 115 volt, 50 Hz.
**Functions –** "Advance", open center and "return" positions. Cylinder ports and pump port are open to reservoir in "neutral".
**Used on these pumps –** Furnished with pilot lines and adapters for PE30 (with carrying handles removed), PE55, PE90 and PE120 series. For other pump models, consult factory.
**NOTE:** A pressure switch and/or gauge may be attached if desired (see pages 117, 124-125).
**No. 9590 –** 4-way/3-position (open center) solenoid valve, 115 volt, 50 Hz.
Wt., 7 kg.
**No. 9522 –** Same as 9590 except for 230 volt, 50 Hz.
**No. 9615 –** Same as 9590 except for 24 volt, 50 Hz.

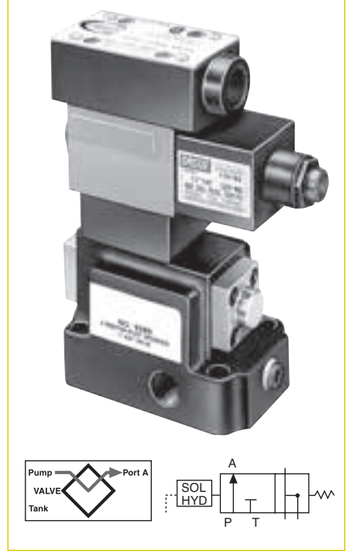
9513, 9512, 9516, 9519




### 4-WAY/3-POSITION (TANDEM CENTER) PILOT OPERATED SOLENOID VALVE

**Application –** Double-acting cylinders.
**Actuation –** Solenoid operated, 115 volt, 50 Hz.
**Functions –** "Advance", "hold" and "return". The "Posi-Check®" feature holds the load when shifting from the "advance" to the "hold" position.
**Used on these pumps –** PE17, PE21, PE30 (with carrying handles removed), PE46, PE55, PE84, PE90, PE120, PE200, PE400, PQ60 and PQ120 series.
**NOTE:** A gauge may be attached if desired (see pages 124-125).
**No. 9513 –** 4-way/3-position (tandem center) solenoid valve, 115 volt, 50Hz.
Wt., 8,2 kg.
**No. 9512 –** Same as 9513 except for 24 volt, 50 Hz circuits.
**No. 9516 –** Same as 9513 except for 12 volt DC. For use on the PG1204S and PG400 series pumps only.
**No. 9519 –** Same as 9513 except for 230 volt, 50 Hz circuits. Consult factory for field installation.

9589, 9523, 9553




### 3-WAY/2-POSITION (PILOT OPERATED) SOLENOID VALVE

**Application:** Single-acting cylinders.
**Actuation:** Solenoid operated, 115 volt, 50 Hz.
**Function:** "Advance" and "return".
**Used on these pumps:** Furnished with pilot lines and adapters for PE30 (with carrying handles removed), PE55, PE90 and PE120 series. For other pump models, consult factory. **NOTE:** A pressure switch and/or gauge may be attached if desired (see pages 117, 124-125).
**No. 9589 –** 3-way/2-position (pilot operated) solenoid valve, 115 volt, 50Hz.
Wt., 3,7 kg.
**No. 9523 –** Same as 9589 except for 230 volt, 50 Hz.
**No. 9553 –** Same as 9589 except for 24 volt, 50 Hz.

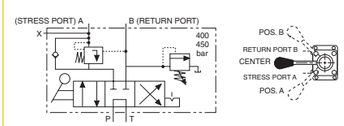
⚠ **CAUTION:** To prevent sudden, uncontrolled descent of a load as it is being lowered, use a No. 9596 Load Lowering Valve or No. 9720 Counter Balance Valve in conjunction with the directional valve used in your application.
**IMPORTANT:** Conversion kit 251528 must be used when mounting the 9609 valve on PA17 or PE17 pumps.
**IMPORTANT:** When ordering any valve for a PE30 or PG30 series pump, 1/2" longer mounting screws are required. For valves 9513 and 9519, order four 11956 cap screws. For valves 9523, 9553 and 9589, order four 10855 cap screws. For valves 9522, 9590 and 9615, order four 10854 cap screws.

# Valves
## HYDRAULIC PUMP MOUNTED

Manual

700 bar, 3/8" ports, 19 l/min max flow rate.






9628

**Designed for use with Power Team air, gasoline and electric powered hydraulic pumps.**

### 4-WAY/3-POSITION (TANDEM CENTER) MANUAL VALVE

**Application –** Single strand, double-acting stressing jacks with Power Wedge seater.
**Actuation –** Lever operated, detent positioned.
**Operation –**
1. With valve in center position, pump is started.
2. Cable is inserted into stressing tool, valve is placed in "A" position. "Pull" portion of stressing tool is pressurized to specified level for proper cable tensioning ("A" port is checked internally, can only be released by building pressure in "B" position).
3. Valve is placed in "B" position, which is pressure controlled and will not exceed 440 bar. "Return" portion of stressing tool is pressurized and will release "A" port when pressure reaches approximately one-half the "A" port pressure. "A" port remains open as long as this pressure differential is maintained.
4. Pump is stopped, valve is placed in "A" position, releasing "B" port pressure.

**Used on these pumps:** PA17*, PA46*, PA55, PE17*, PE21*, PE30, PE46*, PE55, PE60, PE84, PE120, PE200, PE400, PG30*, PG55, PG120, PG400, PQ60 and PQ120 series.

* These pumps may have reduced first flow stage characteristics due to internal valve restrictions.
**No. 9628** – Post tensioning valve for 700 bar (max.) single-acting/Power Wedge seater.
Wt., 2,5 kg.

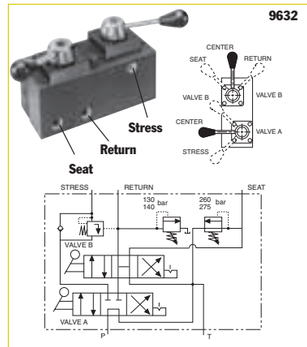
### "TWIN" 4-WAY/3-POSITION (TANDEM CENTER) MANUAL VALVE

**Application –** Multi-strand, double-acting stressing jacks with an auxiliary seating cylinder.
**Actuation –** Dual lever operated, detent positioned.
**Operation –**
1. With valves "A" and "B" in center position, pump is started; cable is inserted into stressing tool.
2. Valve "A" is placed in "Stress" position; cylinder extends to tension cable. Pump pressure controls force exerted by tensioning cylinder in this position. "Stress" port is checked internally, and can only be released by building pressure in the valve "B" return position.
3. When desired cable tension is achieved, valve "A" is placed in valve "B" position and valve "B" in "Seat" position. Seating portion of cylinder will be pressurized to seating pressure controlled by "Seat" relief valve (factory set to 275 bar).
4. Valve "B" is shifted to "Return" position, which is pressure controlled and will not exceed 155 bar. "Return" portion of stressing tool should be pressurized and will release "Stress" port when pressure reaches 15% of "Stress" port pressure.
5. "Stress" port will remain open and cylinder will return as long as pressure differential is maintained. "Stress" and "Seat" ports are open to reservoir.
6. When cylinder has fully returned, both valves are shifted to "Center" position and oil will be directed to reservoir. Maximum pressure setting for the "Seat" relief valve is 420 bar.

**Used on these pumps:** PA17*, PA46*, PA55, PE17*, PE21*, PE30, PE46*, PE55, PE84, PE120, PE200, PE400, PG30*, PG55, PG120, PG400, PQ60 and PQ120 series.*

* These pumps may have reduced first flow stage characteristics due to internal valve restrictions.
**No. 9632** – Post tensioning valve for 700 bar (max.) double-acting systems.
Wt., 6,2 kg.

9632




**Pump mounted, 6-position detented 5-way manual dual valve. Rated pressure to valve "A" is 700 bar and valve "B" is 420 bar. Case pressure is 35 bar max.**

# Hand Pump
## HYDRAULIC P SERIES

**197 to 738 cm³ reservoir**
Single-Speed
Single-Acting

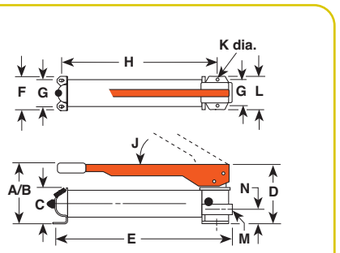
Best suited for applications where there is little or no free travel.

- All metal construction, won't burn through in welding environments.
- Formed metal handle provides less flex, and reduces operator fatigue.
- Convenient fill port on P23 and P55 allows pumps to be filled in a horizontal or vertical position.
- Fill cap seal acts as safety valve preventing over-pressurizing of reservoir.
- Relief valve inboard of check valve prevents loads from drifting down.
- Large valve knob gives added control for slowly metering loads down.

P12

P23

700 bar
P55

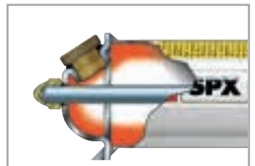



| Pump No. | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | H (mm) | J (deg.) | K (mm) | L (mm) | M (in) | N (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **P12** | 101,6 | – | – | 101,6 | 342,9 | 85,7 | 55,6 | – | 45° | 4,8 | 85,7 | 3/8-NPTF | 28,6 |
| * **P23** | 158,8 | 330,2 | 88,9 | 141,3 | 346,1 | 108,0 | 82,6 | 261,6 | 38° | 7,9 | 120,7 | 3/8-NPTF | 41,3 |
| * The P23 pump maximum pressure is 210 bar only. | | | | | | | | | | | | | |
| **P55** | 165,1 | 533,4 | 88,9 | 141,3 | 584,2 | 108,0 | 82,6 | 501,7 | 38° | 7,9 | 120,7 | 3/8-NPTF | 41,3 |

| For Use With | Order No. | Volume & Pressure: Speed | Volume per Stroke (cm³) LP | Volume per Stroke (cm³) HP | Maximum Pressure (bar) LP | Maximum Pressure (bar) HP | Handle Effort (kg) | Reservoir: Oil Capacity (cm³) | Reservoir: Usable Oil Capacity (cm³) | Oil Port (in) | Product Weight (kg)) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Single Acting Cylinders* | **P12** | 1 | – | 1,1 | – | 700 | 34 | 197 | 148 | 3/8-NPTF | 2,6 |
| | **P23** | 1 | – | 2,6 | – | 210 | 32 | 390 | 333 | 3/8-NPTF | 5,5 |
| | **P55** | 1 | – | 2,6 | – | 700 | 66 | 902 | 738 | 3/8-NPTF | 7,2 |

LP = Low Pressure
HP = High Pressure

* Pump includes 2-Way Valve



Power Team hand pumps, with the angled fill port, have a built in "relief valve" protection system. This system is designed to protect over-pressurization of the reservoir from sudden back pressure. This system also works as a seal to prevent oil leaks.

PUMPS

# Hand Pump
## HYDRAULIC P SERIES

**400 to 1131 cm³ reservoir**
Two-Speed
Single-Acting

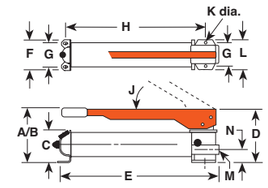
Pump automatically shifts into the high pressure lift stage upon contact with the load.

700 bar
P59L

- All metal construction won't burn through in welding environments.
- Two-speed reduces handle strokes so you work faster and easier.
- Formed metal handle provides less flex, and reduces operator fatigue.
- Convenient fill port allows pumps to be filled in a horizontal or vertical position.
- Relief valve inboard of check valve prevents loads from drifting down.
- Large valve knob gives added control for slowly metering loads down.

**P19L/P59L**
- More usable oil volume — use with larger or longer stroke cylinders.
- True unloading valve set for 850 PSI (59 Bar) provides more efficiency and lower handle force.
- Link design reduces handle effort by 40%.
- Durable aluminum reservoir, manifold, and end cap.
- Ergonomic non-slip handle grip provides more comfort.
- Spring loaded handle lock incorporated into handle.

P19




| Pump No.. | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | H (mm) | J (deg.) | K (mm) | L (mm) | M (in) | N (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **P19** | 139,7 | 371,5 | 73,0 | 115,9 | 347,7 | 101,6 | 82,6 | 281,0 | 53° | 7,9 | 101,6 | 3/8-NPTF | 35,7 |
| **P19L** | 141,5 | ---- | ------ | ------- | 347,7 | 104,1 | 82,6 | 281,0 | 40° | 7,9 | 104,1 | 3/8-NPTF | ------ |
| **P59** | 177,8 | 533,4 | 88,9 | 127,0 | 584,2 | 108,0 | 82,6 | 501,7 | 38° | 7,9 | 120,7 | 3/8-NPTF | 41,3 |
| **P59L** | 177,8 | ----- | ------ | ------- | 533,4 | 120,7 | 82,6 | 501,7 | 50° | 7,9 | 120,7 | 3/8-NPTF | ------ |
| **P59F** | 88,9 | 425,5 | 88,9 | 152,4 | 590,6 | 108,0 | 82,6 | 514,4 | – | 7,9 | 114,3 | 3/8-NPTF | 42,9 |

| For Use With | Order No. | Volume & Pressure: Speed | Volume per Stroke (cm³) LP | Volume per Stroke (cm³) HP | Maximum Pressure (bar) LP | Maximum Pressure (bar) HP | Handle Effort (kg) | Reservoir: Oil Capacity (cm³) | Reservoir: Usable Oil Capacity (cm³) | Oil Port (in) | Product Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Single Acting Cylinders* | **P19** | 2 | 5,0 | 1,2 | 22 | 700 | 45 | 400 | 328 | 3/8-NPTF | 3,0 |
| | **P19L** | 2 | 4,1 | 0,9 | 70 | 700 | 37 | 475 | 443 | 3/8-NPTF | 2,3 |
| | **P59** | 2 | 10,9 | 2,6 | 22 | 700 | 66 | 902 | 738 | 3/8-NPTF | 7,8 |
| | **P59L** | 2 | 12 | 2,6 | 59 | 700 | 44 | 1131 | 1082 | 3/8-NPTF | 4,1 |
| | **P59F** | 2 | 9,0 | 2,1 | 22 | 700 | 55 | 902 | 738 | 3/8-NPTF | 6,4 |

LP = Low Pressure
HP = High Pressure

*Pump includes 2-Way Valve

PUMPS

# Hand Pump
## HYDRAULIC P SERIES

**9,5 liter reservoir**
Two-Speed Single- and Double-Acting

Best suited for applications where there is little or no free travel.

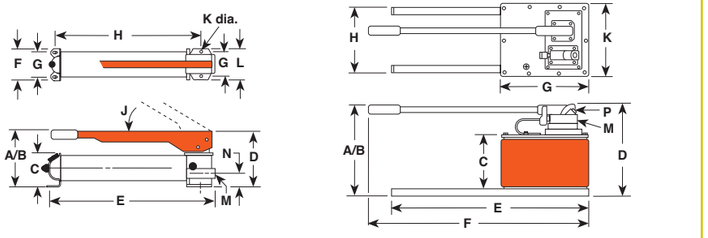
- Rugged all metal construction for strength and durability that won't burn through in welding environments.
- Heavy-duty, formed metal handle provides less flex, and less operator fatigue than round or composite handles.
- Convenient fill port on P23 and P55 allows pumps to be filled in a horizontal or vertical position.
- Fill cap seal acts as safety valve to prevent over-pressurizing of reservoir.
- Relief valve inboard of check valve prevents loads from drifting down.
- Large valve knob gives added control for slowly metering loads down.

**P300 hand pump and 10 ton cylinders used for a vehicle lift.**

P157/P159


P300


P460




| Pump No. | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | H (mm) | J (deg.) | K (mm) | L (mm) | M (in) | N (mm) | P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P157/ P159 | 197 | 521 | 123,8 | 175 | 578 | 98,4 | 76,2 | 502 | 39° | 7,9 | 95,3 | 3/8-NPTF | 57,2 | — |
| P300 | 210 | 533 | 114,3 | 175 | 575 | 215,9 | 190,5 | 526 | 39° | 7,9 | 95,3 | 3/8-NPTF | 57,2 | — |
| P460 | 283 | 787 | 171,5 | 289 | 610 | 743 | 279,4 | 229 | 80° | 241,3 | — | 3/8-NPTF | — | 1/4 NPTF |

FK59
FK159B

**Foot pump conversion kit**

**No. FK59 -** Foot pump conversion kit for use on P55/P59 pumps. Wt., 2,7 kg.

**No. FK159B –** Foot pump conversion kit for use on P157/P159 and P300/P300D pumps. Wt., 2,7 kg.

| For Use With | Order No. | Volume & Pressure Volume per Stroke (cm³) Speed | LP | HP | Maximum Pressure (bar) LP | HP | Reservoir Handle Effort (kg) | Oil Capacity (cm³) | Usable Oil Capacity (cm³) | Oil Port (in) | Product Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Single- | **P157** | 2 | 10,7 | 2,6 | 97 | 700 | 64 | 2491 | 2245 | 3/8-NPTF | 11,8 |
| Acting | **P159** | 2 | 42,6 | 2,6 | 22 | 700 | 64 | 2491 | 2245 | 3/8-NPTF | 11,8 |
| Cylinders* | **P300** | 2 | 42,6 | 2,6 | 22 | 700 | 64 | 5.700 | 5081 | 3/8-NPTF | 25,1 |
| | **P460** | 2 | 120,5 | 4,6 | 22 | 700 | 41 | 9.500 | 7539 | 3/8-NPTF | 24,9 |
| Double- | **P157D** | 2 | 10,7 | 2,6 | 97 | 700 | 64 | 2491 | 2245 | 3/8-NPTF | 13,1 |
| Acting | **P159D** | 2 | 42,6 | 2,6 | 22 | 700 | 64 | 2491 | 2245 | 3/8-NPTF | 12,7 |
| Cylinders** | **P300D** | 2 | 42,6 | 2,6 | 22 | 700 | 64 | 5.700 | 5081 | 3/8-NPTF | 25,9 |
| | **P460D** | 2 | 120,5 | 4,6 | 22 | 700 | 41 | 9.500 | 7539 | 3/8-NPTF | 26,3 |

LP = Low Pressure
HP = High Pressure

* Pump includes 2-Way Valve
** Pump includes 4-Way Valve

PUMPS

# Cylinder/Pump
## HYDRAULIC RPS SERIES

**Cylinder and pump combinations**

Precision-matched cylinder and pump combinations for wide range of applications.

- Four styles of cylinders to choose from.
- Sets feature single- or two-speed hydraulic hand pumps.
- Cylinders of various tonnages with long, medium or short stroke.
- Includes necessary fittings, couplers and 1,8m hose.
- Gauge and gauge mounting adapter is recommended.

RPS1006

RPS55

700 bar
ASMEB30-1

RPS203H

Note: Actual product may differ from photo.

**Optional Storage Box** Storage box for hydraulic cylinder and pump sets. Rugged industrial strength material, strong as steel, never needs painting, won't rust, dent or chip. Weatherproof lid is self sealing and lockable. Molded-in handles, water-tight, one piece bottom and side construction. Strong enough to stand on.
**No. 350722** – 890mmL x 356mmH x 343mmW, storage box.

| Style Of Cyl. | Cyl. Cap. (Tons) | Stroke (mm) | Order No. | Retracted Height (mm) | Handle Strokes Required to Fully Extended Cylinder | Cyl.- No. | Pump No. | Hose No. | Coupler No. | Pump Speed | Prod. Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5 | 133,4 | **RPS55** | 216 | 75 | C55C | P12 | 9756 | 9798 | Single | 5,4 |
| | 10 | 54,0 | **RPS102**** | 121 | 32 | C102C | P55 | 9756 | 9798 | Single | 11,8 |
| | 10 | 155,6 | **RPS106**** | 248 | 93 | C106C | P55 | 9756 | 9798 | Single | 14,5 |
| | 10 | 257,2 | **RPS1010**** | 349 | 154 | C1010C | P55 | 9756 | 9798 | Single | 16,1 |
| "C"- | 15 | 104,8 | **RPS154**** | 200 | 81 | C154C | P55 | 9756 | 9798 | Single | 13,1 |
| Series | 15 | 155,6 | **RPS156**** | 271 | 118 | C156C | P55 | 9756 | 9798 | Single | 15,4 |
| | 25 | 158,8 | **RPS256**** | 273 | 219 | C256C | P55 | 9756 | 9798 | Single | 19,3 |
| | 25 | 362,0 | **RPS2514**** | 476 | 285* | C2514C | P159 | 9756 | 9798 | Two | 28,4 |
| | 55 | 158,8 | **RPS556**** | 283 | 268* | C556C | P159 | 9756 | 9798 | Two | 37,5 |
| | 100 | 168,3 | **RPS1006** | 337 | 428* | C1006C | P460 | 9756 | 9798 | Two | 58,3 |
| "Shorty" | 30 | 61,9 | **RPS302**** | 117 | 61* | RSS302 | P59 | 9756 | 9798 | Two | 18,1 |
| | 50 | 60,3 | **RPS552**** | 127 | 89* | RSS502 | P59 | 9756 | 9798 | Two | 22,7 |
| | 100 | 57,2 | **RPS1002**** | 140 | 172* | RSS1002 | P59 | 9756 | 9798 | Two | 36,7 |
| "Center-Hole" | 20 | 76,2 | **RPS203H**** | 154 | 80 | RH203 | P55 | 9756 | 9798 | Single | 18,3 |
| Alum. | 55 | 155,6 | **RPS556A**** | 273 | 262* | RA556 | P159 | 9756 | 9798 | Two | 21,3 |

* Base on 50% if the stroke being made at low-pressure and 50% of the strokes at high pressure.
** Add suffix "B" (example: RPS102B, RPS203HB, etc.) to order set with optional storage box shown above.

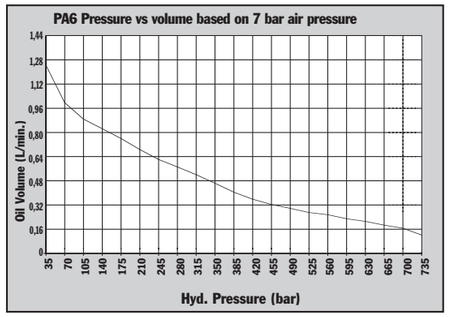
PUMPS

# Air Pump
## HYDRAULIC PA6 SERIES

Single-Acting

Compact, lightweight and portable. Single-Speed pumps designed to drive single-acting cylinders.

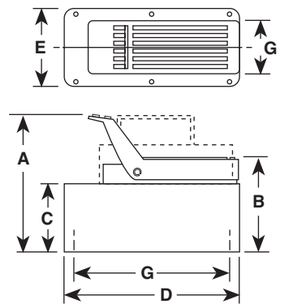
- The power unit of choice for major manufacturers of auto body, frame straighteners and other equipment.
- Operate at 3-8 bar shop air pressure at the pump.
- dBA 85 at 700 bar.
- Serviceable pump motor is not a “throw away”, providing economical repair.
- Permanently vented reservoir cap.
- Internal relief valve protects circuit components, air inlet filter protects motor.





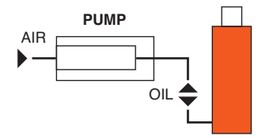

PA6M-1


PA6-2




| Pump No. | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | G (mm) |
|---|---|---|---|---|---|---|
| **PA6** | 197 | 149 | 111 | 241 | 127 | 102 x 229 |
| **PA6A** | 197 | 149 | 111 | 241 | 127 | 102 x 229 |
| **PA6AM** | 197 | 149 | 111 | 241 | 127 | 102 x 229 |
| **PA6M** | 197 | 149 | 111 | 241 | 127 | 102 x 229 |
| **PA6R** | 197 | 149 | 111 | 241 | 127 | 102 x 229 |
| **PA6RM** | 197 | 149 | 111 | 241 | 127 | 102 x 229 |
| **PA6M-1** | 200 | 152 | 111 | 321 | 187 | – |
| **PA6AM-2** | 254 | 197 | 171 | 292 | 241 | 203 x 254 |
| **PA6-2** | 260 | 203 | 178 | 292 | 241 | 130 x 181 |

**Typical Set-up**
**Hook-up for single-acting cylinders**




| Description | Order No. | Air Supply Req'd (bar) | Reservoir Cap. (l) | Reservoir Usable (l) | Oil Port (in) | Prod. Wt. (kg) |
|---|---|---|---|---|---|---|
| Base model pump with high density polyethylene reservoir. | **PA6** | 3-8 | 1,7 | 1,6 | 3/8-NPTF | 6,3 |
| PA6 with externally adjustable relief valve. | **PA6A** | 3-8 | 1,7 | 1,6 | 3/8-NPTF | 6,8 |
| PA6A with metal reservoir. | **PA6AM** | 3-8 | 1,7 | 1,6 | 3/8-NPTF | 7,7 |
| PA6, except has metal reservoir. | **PA6M** | 3-8 | 1,7 | 1,6 | 3/8-NPTF | 8,2 |
| PA6 with 3,7m remote control. | **PA6R** | 3-8 | 1,7 | 1,6 | 3/8-NPTF | 9,3 |
| PA6R, except has metal reservoir. | **PA6RM** | 3-8 | 1,7 | 1,6 | 3/8-NPTF | 9,8 |
| PA6, except has 3,8 l metal reservoir. | **PA6M-1** | 3-8 | 3,8 | 3,0 | 3/8-NPTF | 10,7 |
| PA6, except has 7,6 l high density polyethylene reservoir. | **PA6-2** | 3-8 | 7,6 | 7,3 | 3/8-NPTF | 11,1 |
| PA6, except has 9,5 l metal reservoir. | **PA6M-2** | 3-8 | 9,5 | 9,1 | 3/8-NPTF | 14,5 |

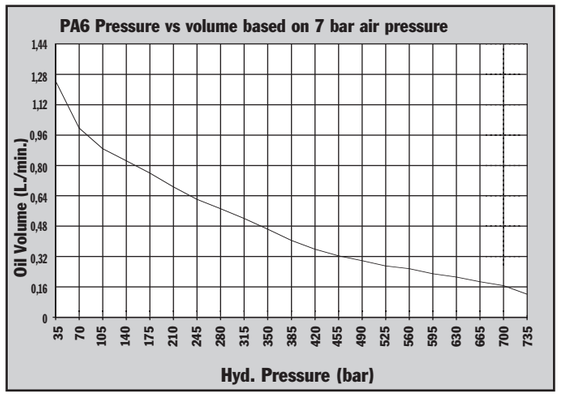
PUMPS

# Air Pump
## HYDRAULIC PA6D SERIES

**98 cm³/min.**
Double-Acting

Compact, lightweight and portable single-speed pump for driving double-acting cylinders.

- Operate at 3-8 bar shop air pressure at the pump.
- Internal relief valve protects circuit components, air inlet filter protects motor.
- Serviceable pump motor is not a “throw away”, providing economical repair.
- Permanently vented reservoir cap.
- dBA 85 at 700 bar for all PA6 pumps.





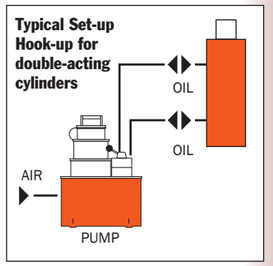
PA6D

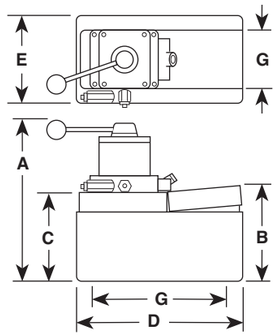
700 bar


PA6DM-1


PA6D2

**PA6D pump, DG100 digital pressure gauge and 25 ton cylinder used in a test fixture.**




| Pump No. | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | G (mm) |
|---|---|---|---|---|---|---|
| **PA6D** | 264 | 149 | 111 | 241 | 127 | 102 x 229 |
| **PA6DM** | 264 | 149 | 111 | 241 | 127 | 102 x 229 |
| **PA6DM-1** | 279 | 146 | 111 | 321 | 187 | — |
| **PA6D2** | 324 | 203 | 178 | 287 | 235 | 130 x 181 |
| **PA6DM-2** | 318 | 197 | 171 | 292 | 241 | 203 x 254 |

| Description | Order No. | Valve No. | Air Supply Req'd (bar) | Reservoir Cap. (l) | Reservoir Usable (l) | Oil Port (in) | Prod. Wt (kg) |
|---|---|---|---|---|---|---|---|
| Base model pump with high density polyethylene reservoir. | **PA6D** | 9504, 3-way/ 4-way | 3 - 8 | 1,7 | 1,6 | 3/8-NPTF | 8,3 |
| PA6D, except has metal reservoir. | **PA6DM** | 9504, 3-way/ 4-way | 3 – 8 | 1,7 | 1,6 | 3/8-NPTF | 9,2 |
| PA6D, except has 3,8 l metal reservoir. | **PA6DM-1** | 9504, 3-way/ 4-way | 3 – 8 | 3,8 | 3,0 | 3/8-NPTF | 12,7 |
| PA6D, except has 7,6 l, high density polyethylene reservoir. | **PA6D2** | 9504, 3-way/ 4-way | 3 – 8 | 7,6 | 7,3 | 3/8-NPTF | 13,0 |
| PA6D, except has 9,5 l metal reservoir. | **PA6DM-2** | 9504, 3-way/ 4-way | 3 – 8 | 9,5 | 9,1 | 3/8-NPTF | 16,4 |

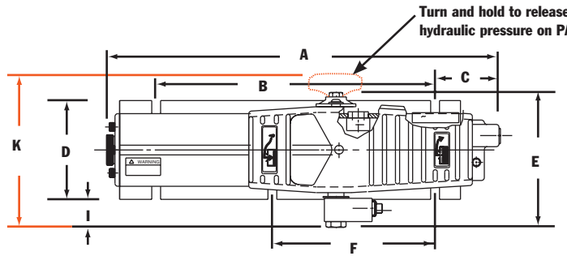
# Air Pump
## HYDRAULIC PA9 SERIES

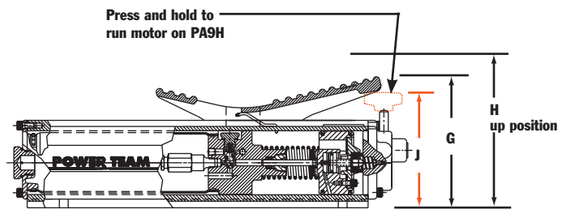
**148 cm³/min.**
Single-Acting

Ideal for powering single-acting cylinders and portable hydraulic tools.

- Easier to operate than a hand pump, giving you the speed you need at an affordable price.
- Easy and economical to service; not a “throw away” unit.
- Unique bladder design for all-position operation and storage.
- Operates on 3-8 bar shop air, at 570 l.
- Hard-coat anodized aluminum housing.
- Oil filler with integral safety relief minimizes chance of damage to reservoir bladder if overfilling occurs.

**PA9 Foot Control**


Relief valve settings: up to 700 bar
Mounting holes (standard): ⅜” slots

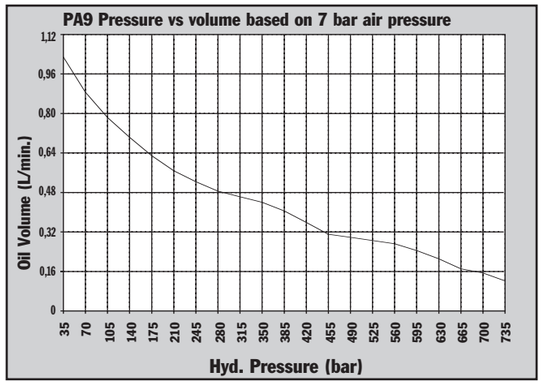
| Pump No. | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | H (mm) | I (mm) | J (mm) | K (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PA9** | 432 | 305 | 71,4 | 108 | 149 | 178 | 142 | 178 | 28,2 | – | – |
| **PA9H** | 432 | 305 | 71,4 | 108 | – | 178 | – | 178 | 28,2 | 122 | 170 |


**PA9**
**Foot Control**

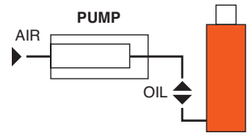
**PA9H Hand Control Pump as used in a straightening press.**


**PA9H**
**Hand Control**

**700 bar**




**Typical Set-up**
**Hook-up for single-acting cylinders**




| For Use with Cyl. Type | Order No. | Air Supply Req'd (bar) | Reservoir Cap. (cm³) | Reservoir Usable (cm³) | Oil Port (in) | Max. Pressure Output (bar) | Prod. Wt. (kg) |
|---|---|---|---|---|---|---|---|
| Single-Acting | **PA9** | 3 – 8 | 574 | 549 | ³/₈-NPTF | 700 | 6,8 |
| Single-Acting | **PA9H** | 3 – 8 | 574 | 549 | ³/₈-NPTF | 700 | 6,8 |

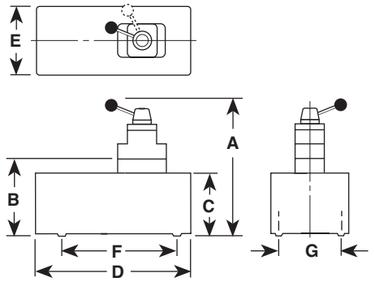
# Air Pump
## HYDRAULIC PA60 SERIES

**98 cm³/min.**
Two-Speed

Two-speed pump for rapid oil delivery at low pressure quickly advances cylinder or tool.

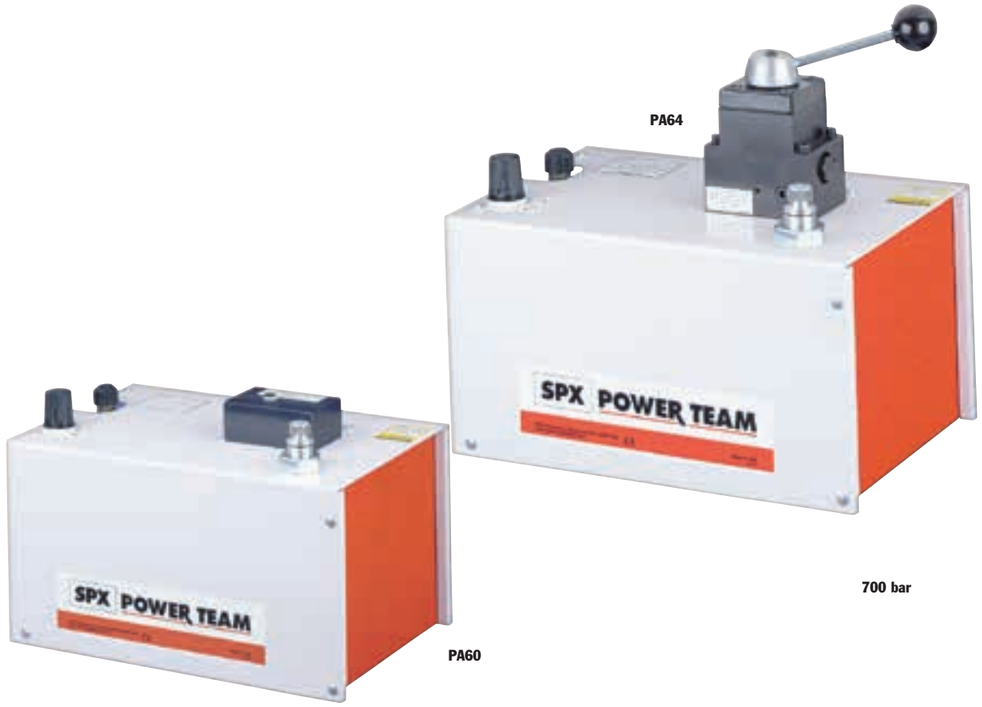
- Equipped with air pressure regulator, air filter and lubricator.
- Serviceable air motor for economical repair.
- Internal relief valve protects circuit components.
- Permanently vented reservoir cap.

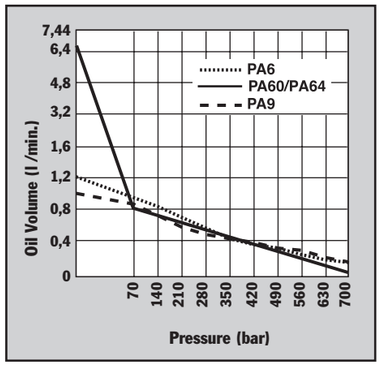

The PA60 used in a workholding environment.

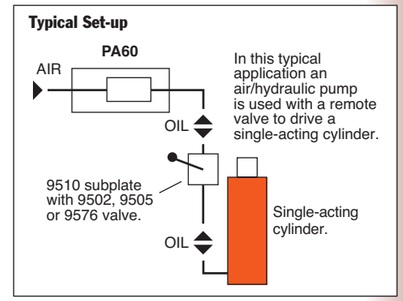



| Pump No. | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | Max. Pressure Output bar | Oil Del. * (l/min) 0 bar | 7 bar | 70 bar | 350 bar | 700 bar |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PA60** | – | 240 | 206 | 362 | 244 | 181 | 130 | 700 | 6,24 | 5,6 | 0,8 | 0,19 | 0,1 |
| **PA64** | 362 | – | 206 | 362 | 244 | 181 | 130 | 700 | 6,24 | 5,6 | 0,8 | 0,19 | 0,1 |

* Typical delivery. Actual flow will vary with field conditions.



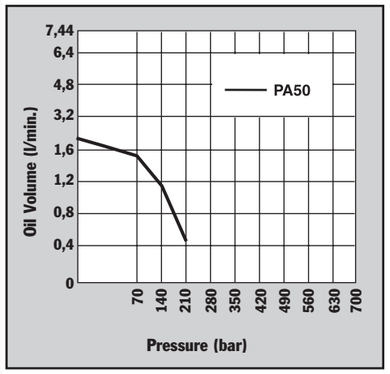

| Description | Order No. | Valve No. | Valve Function | Air Supply Req'd bar | Reservoir Cap. (l) | Reservoir Usable (l) | Oil Port (in) | Prod. Wt (kg) |
|---|---|---|---|---|---|---|---|---|
| For use with remote valves. | **PA60** | Manifold | – | 3 - 8 | 7,6 | 6,8 | 3/8-NPTF | 24,5 |
| For use with single- or double-acting cylinders. | **PA64** | 9507, 3-way/ 4-way | Advance Hold Return | 3 –8 | 7,6 | 6,8 | 3/8-NPTF | 24,5 |

**Notes:** Air inlet port 1/4" NPTF. Requires 570 l at 7 bar shop air pressure at the pump.

# Air Pump
## HYDRAULIC PA50 SERIES

**460 cm³/min.**
Low Pressure

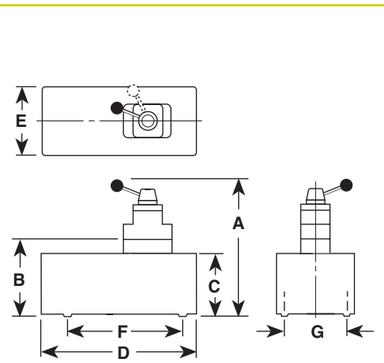
Single-speed, low pressure (220 bar) output pumps.




220 bar


PA50D


PA50M

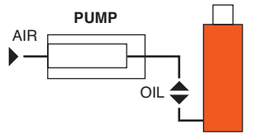



| Pump No. | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | Max. Pressure Output bar | Oil Del. * (l/min) 0 bar | 7 bar | 70 bar | 220 bar |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PA50, PS50R PA50M, PA50RM** | 197 | 149 | 111 | 241 | 127 | — | 102 x 229 | 220 | 2,05 | 1,76 | 1,41 | 0,45 † |
| **PA50R2** | 260 | 203 | 178 | 292 | 241 | — | 130 x 181 | 220 | 2,05 | 1,76 | 1,41 | 0,45 † |
| **PA50D** | 264 | 149 | 111 | 241 | 127 | 229 | 102 | 220 | 2,05 | 1,76 | 1,41 | 0,45 † |

* Typical delivery. Actual flow will vary with field conditions.
† PA50 Series measured at 220 bar.

- Serviceable air motor for economical repair.
- Air inlet filter protects motor. Filter in outlet port protects against contaminated systems.
- Assorted reservoirs to suit your application's requirements.

**Typical Set-up**
**Hook-up for single-acting cylinders**





PA50R2

| For use with Cyl. Type | Description | Order No. | Valve No. | Air Supply Req'd bar | Reservoir Cap. (l) | Reservoir Usable (l) | Oil Port (in) | Prod. Wt (kg) |
|---|---|---|---|---|---|---|---|---|
| Single-Acting | Base model pump with high density polyethlene reservoir. | **PA50** | — | 3 - 8 | 1,7 | 1,6 | ³/₈-NPTF | 6,4 |
| Single-Acting | PA50, except has metal reservoir. | **PA50M** | — | 3 – 8 | 1,7 | 1,6 | ³/₈-NPTF | 7,3 |
| Single-Acting | PA50, except has 3.7 meter 12 foot remote control. | **PA50R** | — | 3 - 8 | 1,7 | 1,6 | ³/₈-NPTF | 8,4 |
| Single-Acting | PA50R, except has metal reservoir. | **PA50RM** | — | 3 - 8 | 1,7 | 1,6 | ³/₈-NPTF | 9,3 |
| Single-Acting | PA50R, except has 7.6 liter reservoir 2 gallon reservoir. | **PA50R2** | — | 3 - 8 | 7,6 | 7,3 | ³/₈-NPTF | 12,9 |
| Single- and Double Acting | PA50, except designed to operate either single- or double-acting systems. Valve function: Advance/Return. | **PA50D** | 9504, 3-way/ 4-way | 3 - 8 | 1,7 | 1,6 | ³/₈-NPTF | 8,3 |

**Notes:** Air inlet port ¹/₄" NPTF. Requires 570 l at 7 bar shop air pressure at the pump.

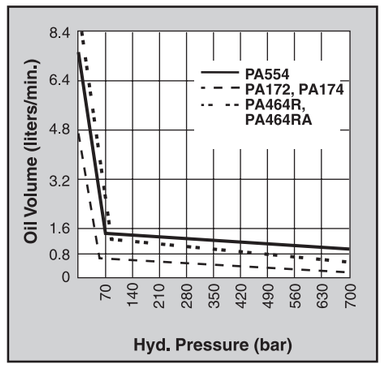
PUMPS

# Air Pump
## HYDRAULIC PA17 SERIES

**279 cm³/min.**
Two Speed

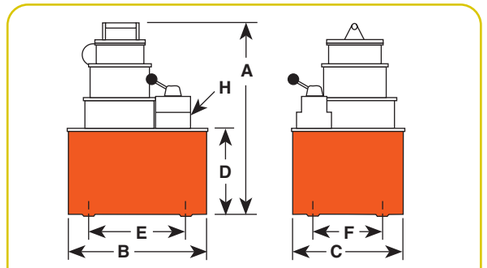
Rotary-style air motor. Use where air is preferred source of energy, where electricity is unavailable or sparks are a concern.

- Two-speed operation for high speed cylinder advance.
- Durable 7,6 liter thermoplastic reservoir. (Metal reservoir conversion kits are available.)
- Features air motor capable of starting under full load.



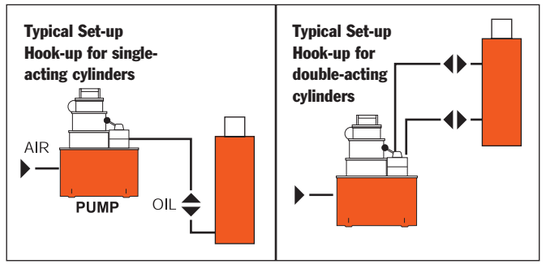

The PA17 used with a flange spreader


PA172




| Pump No. | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | H (mm) | Max. Pressure Output bar | Oil Del. * (l/min) 0 bar | 7 bar | 70 bar | 350 bar | 700 bar |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PA172** | 359 | 289 | 235 | 178 | 181 | 130 | 3/8-NPTF | 700 | 4,6 | 3,8 | 0,4 | 0,4 | 0,3 |
| **PA174** | 359 | 289 | 235 | 178 | 181 | 130 | 3/8-NPTF | 700 | 4,6 | 3,8 | 0,4 | 0,4 | 0,3 |

* Typical delivery. Actual flow will vary with field conditions.





PA174

| For use with Cyl. Type | Description | Order No. | Valve No. | Valve Function | Air Supply Req'd bar | Reservoir Cap. (l) | Reservoir Usable (l) | Prod. Wt (kg) |
|---|---|---|---|---|---|---|---|---|
| Single-Acting | Base model pump with 7.6 liter 2 gallon thermoplastic reservoir. | **PA172** | 9517, 2-way | Advance/Return* | 3 - 8 | 7,6 | 4,7 | 18,1 |
| Single- and Double Acting | PA172, except has 9500 valve for use with single- or double-acting cylinders. | **PA174** | 9500, 4-way | Advance Hold Return* | 3 - 8 | 7,6 | 4,7 | 18,6 |

**Note:** Requires 570 l at 6 bar shop air pressure at the pump. dBA 85/90 at 700 bar.

* Holds pressure in advance position when valve motor is shut off, in return position with motor running. Pump will build pressure when motor is shut off, oil returns to reservoir.

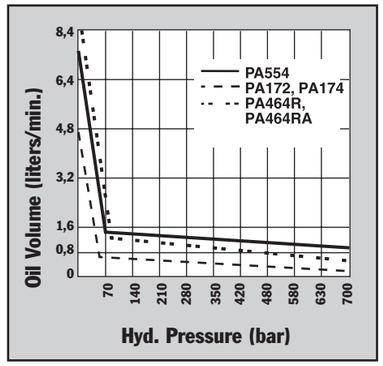
PUMPS

# Air Pump
## HYDRAULIC PA46/55 SERIES

**Up to 150 ton Cylinders**
**754-902 cm³/min.**
Two Speed

Rotary-style air motor.
Use where air is the preferred source of energy.

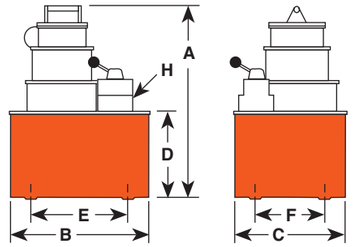
- 2,2 kW motor starting under full load.
- Two-speed operation for rapid cylinder advance.
- Models available with full remote control over advance and return, (except PA554).
- Tandem center valve holds the load when pump is shut off.




700 bar


PA462

**PA554 pump and RH2008 Center Hole cylinder used to tension cables.**

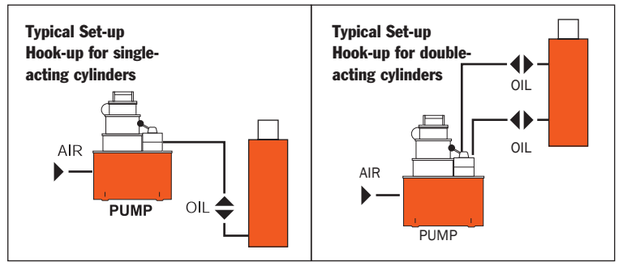



| Pump No. | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | H (mm) | Max. Pressure Output bar | Oil Del. * (l/min) 0 bar | 7 bar | 70 bar | 350 bar | 700 bar |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PA462** | 381 | 292 | 241 | 178 | 254 | 203 | ³/₈ NPTF | 700 | 7,4 | 7,2 | 0,8 | 0,8 | 0.7 |
| **PA464** | 381 | 292 | 241 | 178 | 254 | 203 | ³/₈ NPTF | 700 | 7,4 | 7,2 | 0,8 | 0,8 | 0,7 |
| **PA464R** | 381 | 292 | 241 | 178 | 254 | 203 | ³/₈ NPTF | 700 | 7,4 | 7,2 | 0,8 | 0,8 | 0,7 |
| **PA464RA** | 381 | 292 | 241 | 178 | 254 | 203 | ³/₈ NPTF | 700 | 7,4 | 7,2 | 0,8 | 0.8 | 0,7 |
| **PA554** | 483 | 292 | 241 | 178 | 254 | 203 | ³/₈ NPTF | 700 | 7,4 | 7,2 | 1,3 | 1,1 | 0,7 |

* Typical delivery. Actual flow will vary with field conditions.
**Note:** Four mounting holes ½" - 20


PA464R


PA554




| For use with Cyl. Type | Description | Order No. | Valve No. | Valve Function | Air Supply Req'd bar | Reservoir Cap. (l) | Reservoir Usable (l) | Prod. Wt (kg) |
|---|---|---|---|---|---|---|---|---|
| Single-Acting | Base model pump with 9,5 l steel reservoir. | **PA462** | 9584, 2-way | Advance/Hold/ Return | 3 – 8 | 9,5 | 9,4 | 27,2 |
| Single- and Double Acting | PA462, except has 9500 valve capable of running 2 single-acting cylinders or one double-acting cylinder. | **PA464** | 9500, 4-way | Advance/Hold/ Return* | 3 – 8 | 9,5 | 9,4 | 27,6 |
| Single- and Double Acting | PA462 with air actuated valve for full remote control over advance and return. Includes 3,7m remote control. | **PA464R†** | 9594, 4-way | Advance/Hold/ Return | 3 – 8 | 9,5 | 9,4 | 35,3 |
| Single- and Double Acting | PA464R except, has automatic dump feature. 7,6 m remote control. | **PA464RA****† | 9594, 4-way | Advance/Hold/ Return* | 3 – 8 | 9,5 | 9,4 | 35,8 |
| Single- and Double Acting | High performance pump with 9,5 l steel reservoir. | **PA554** | 9500, 4-way | Advance/Hold/ Return* | 3 - 8 | 9,5 | 8,4 | 32,0 |

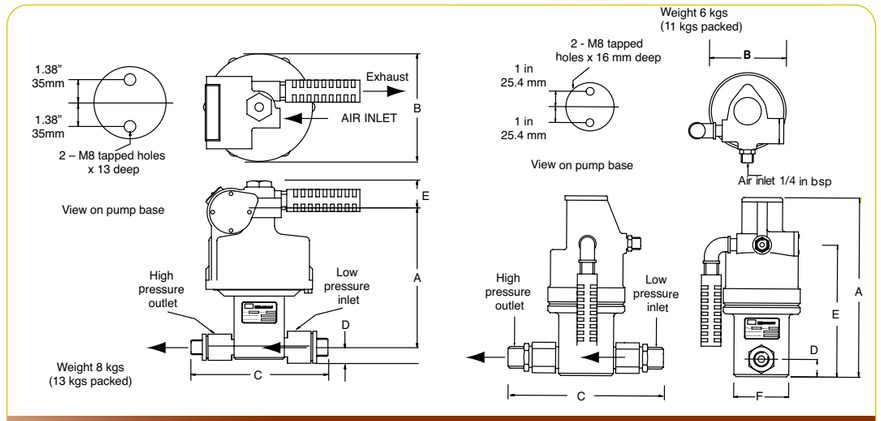
**Note:** Requires 570 l at 6 bar shop air pressure at the pump. dBA 85/90 at 700 bar.
* Holds when motor is shut-off and valve is in "advance" position.
† The PA464RA has an "automatic dump" feature. Pressure is not held when operator releases "advance" or "return" button. PA464R will "hold" only in the "advance" position with the motor shut off.
** Not to be used for lifting.

PUMPS

# Air Operated
## PUA & PMA SERIES

# 2410 bar

Suitable for pumping a wide range of fluids at pressures up to 35,000 psi (2,410 bar).




| CAT # | RAM/DIAMETER (mm) | (in) | | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|---|---|
| PUA26(B/U) | 31.75 | 1 1/4 | in | 9.17 | 4.02 | 6.61 | .87 | 6.69 | 2.87 |
| | | | mm | 233 | 102 | 168 | 22.2 | 170 | 73 |
| PUA70(B/U) | 19 | 3/4 | in | 8.74 | 4.02 | 6.61 | .87 | 6.22 | 2.87 |
| | | | mm | 222 | 102 | 168 | 22.2 | 158 | 73 |
| PUA157(B/U) | 12.7 | 1/2 | in | 8.74 | 4.02 | 6.61 | .87 | 6.22 | 2.87 |
| | | | mm | 222 | 102 | 168 | 22.2 | 158 | 73 |
| PUA275(B/U) | 9.53 | 3/8 | in | 8.74 | 4.02 | 6.61 | .87 | 6.22 | 2.87 |
| | | | mm | 222 | 102 | 168 | 22.2 | 158 | 73 |
| PUA430(B/U) | 7.94 | 5/16 | in | 8.74 | 4.02 | 6.61 | .87 | 6.22 | 2.87 |
| | | | mm | 222 | 102 | 168 | 22.2 | 158 | 73 |
| PUA655(B/U) | 6.35 | 1/4 | in | 8.74 | 4.02 | 6.61 | .87 | 6.22 | 2.87 |
| | | | mm | 222 | 102 | 168 | 22.2 | 158 | 73 |
| PUA982(B/U) | 5.13 | .202 | in | 8.74 | 4.02 | 6.61 | .87 | 6.22 | 2.87 |
| | | | mm | 222 | 102 | 168 | 22.2 | 158 | 73 |
| PMA27(B/U) | 76.2 | 3 | in | 8.66 | 7.01 | 9.06 | 1.5 | 1.89 | |
| | | | mm | 220 | 178 | 230 | 38 | 48 | |
| PMA60(B/U) | 50.8 | 2 | in | 8.27 | 7.01 | 9.06 | 1.5 | 1.89 | |
| | | | mm | 210 | 178 | 230 | 38 | 48 | |
| PMA90(B/U) | 41.3 | 1 5/8 | in | 8.27 | 7.01 | 9.06 | 1.5 | 1.89 | |
| | | | mm | 210 | 178 | 230 | 38 | 48 | |

| CAT # | RAM/DIAMETER (mm) | (in) | | A | B | C | D | E | F |
|---|---|---|---|---|---|---|---|---|---|
| PMA130(B/U) | 35 | 1 3/8 | in | 7.99 | 7.01 | 7.68 | .87 | 1.89 | |
| | | | mm | 203 | 178 | 195 | 22 | 48 | |
| PMA190(B/U) | 28.5 | 1 1/8 | in | 7.99 | 7.01 | 7.68 | .87 | 1.89 | |
| | | | mm | 203 | 178 | 195 | 22 | 48 | |
| PMA240(B/U) | 25.4 | 1 | in | 7.99 | 7.01 | 7.68 | .87 | 1.89 | |
| | | | mm | 203 | 178 | 195 | 22 | 48 | |
| PMA370(B/U) | 20.6 | 13/16 | in | 7.99 | 7.01 | 7.01 | .87 | 1.89 | |
| | | | mm | 203 | 178 | 178 | 22 | 48 | |
| PMA520(B/U) | 17.5 | 11/16 | in | 7.99 | 7.01 | 7.01 | .87 | 1.89 | |
| | | | mm | 203 | 178 | 178 | 22 | 48 | |
| PMA770(B/U) | 14.3 | 9/16 | in | 7.99 | 7.01 | 7.01 | .87 | 1.89 | |
| | | | mm | 203 | 178 | 178 | 22 | 48 | |
| PMA980(B/U) | 12.7 | 1/2 | in | 7.99 | 7.01 | 7.01 | .87 | 1.89 | |
| | | | mm | 203 | 178 | 178 | 22 | 48 | |
| PMA1740(B/U) | 9.5 | 3/8 | in | 7.99 | 7.01 | 10.08 | .87 | 1.89 | |
| | | | mm | 203 | 178 | 256 | 22 | 48 | |
| PMA2410(B/U) | 8 | 5/16 | in | 7.99 | 7.01 | 10.08 | .87 | 1.89 | |
| | | | mm | 203 | 178 | 256 | 22 | 48 | |

- Provides infinitely variable capacity and discharge pressure
- Suitable for continuous start/stop applications
- Pumps oil, water, and other fluids
- Stainless steel pump and check valves standard
- Maintains pressure with minimal power consumption (Non-load holding)
- Usable in hazardous areas: per ATEX II, CAT. 2 GDcT5
- Quiet operation
- Can operate on gases other than air
- Simple to install and maintain
- Compact, rugged design
- Only 15psi (1bar) air pressure required to start pump

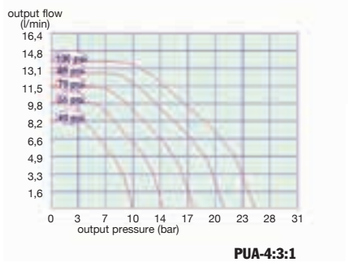

| BSP FITTINGS | NPT FITTINGS | RATIO 1: | OUTLET PRESSURE (BAR) | (PSI) | OUTPUT PER CYCLE (LITRES) | (IN³) | MAXIMUM FLOW AT ZERO PRESSURE (LITRES/MIN) | (IN³/MIN) | INLET | OUTLET |
|---|---|---|---|---|---|---|---|---|---|---|
| PUA26B | PUA26U | 4.3 | 26 | 380 | 0.028 | 1.68 | 14 | 850 | 1/2" BSP/NPT | 1/2" BSP/NPT |
| PUA70B | PUA70U | 11.9 | 70 | 1,010 | 0.01 | 0.607 | 5 | 305 | 1/2" BSP/NPT | 1/2" BSP/NPT |
| PUA157B | PUA157U | 26.7 | 157 | 2,280 | 0.004 | 5.269 | 2.4 | 146 | 1/2" BSP/NPT | 1/2" BSP/NPT |
| PUA275B | PUA275U | 47.5 | 275 | 3,990 | 0.0025 | 0.151 | 1.4 | 85 | 1/2" BSP/NPT | 1/2" BSP/NPT |
| PUA430B | PUA430U | 68.4 | 430 | 6,230 | 0.0017 | 0.105 | 0.9 | 55 | 1/2" BSP/NPT | 1/2" BSP/NPT |
| PUA655B | PUA655U | 107 | 655 | 9,500 | 0.0011 | 0.67 | 0.6 | 36 | 1/2" BSP/NPT | 1/2" BSP/NPT |
| PUA982B | PUA982U | 163.8 | 982 | 14,250 | 0.0007 | 0.044 | 0.4 | 24 | 1/2" BSP/NPT | 1/2" BSP/NPT |
| PMA27B | PMA27U | 4 | 27 | 390 | 0.16 | 9.72 | 37 | 2260 | 1" BSP/NPT | 3/4" BSP/NPT |
| PMA60B | PMA60U | 9 | 60 | 870 | 0.07 | 4.32 | 23 | 1400 | 1" BSP/NPT | 3/4" BSP/NPT |
| PMA90B | PMA90U | 13.6 | 90 | 1,300 | 0.05 | 2.85 | 15 | 915 | 1" BSP/NPT | 3/4" BSP/NPT |
| PMA130B | PMA130U | 19 | 130 | 1,880 | 0.034 | 2.04 | 11 | 670 | 3/4" BSP/NPT | 1/2" BSP/NPT |
| PMA190B | PMA190U | 28.4 | 190 | 2,750 | 0.023 | 1.37 | 7.3 | 455 | 3/4" BSP/NPT | 1/2" BSP/NPT |
| PMA240B | PMA240U | 36 | 240 | 3,480 | 0.018 | 1.08 | 5.8 | 354 | 3/4" BSP/NPT | 1/2" BSP/NPT |
| PMA370B | PMA370U | 54.5 | 370 | 5,360 | 0.012 | 0.71 | 3.8 | 230 | 1/2" BSP/NPT | 1/2" BSP/NPT |
| PMA520B | PMA520U | 76.5 | 520 | 7,540 | 0.008 | .51 | 2.8 | 170 | 1/2" BSP/NPT | 1/2" BSP/NPT |
| PMA770B | PMA770U | 113 | 770 | 11,160 | 0.006 | 0.34 | 1.8 | 110 | 1/2" BSP/NPT | 1/2" BSP/NPT |
| PMA980B | PMA980U | 145 | 980 | 14,210 | 0.004 | 0.27 | 1.5 | 91 | 1/2" BSP/NPT | 1/2" BSP/NPT |
| PMA1740B | PMA1740U | 256 | 1,740 | 25,230 | 0.0025 | 0.15 | 0.84 | 51 | 1/2" BSP/NPT | 1/2" HP |
| PMA2410B | PMA2410U | 368 | 2,410 | 35,000 | 0.0017 | 0.104 | 0.58 | 35 | 1/2" BSP/NPT | 1/2" HP |

# Air Operated
## PUA & PMA SERIES

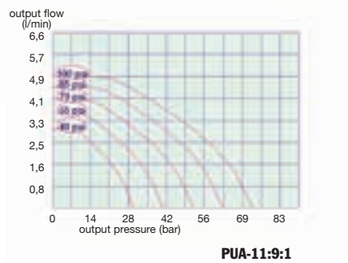
# Performance charts

Suitable for pumping a wide range of fluids at pressures up to 35,000 psi (2,410 bar).

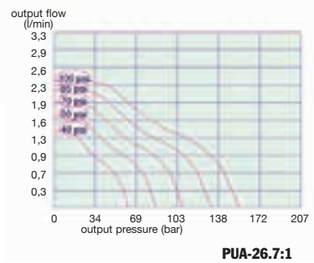
PUMPS




**PUA-4:3:1**




**PUA-11:9:1**

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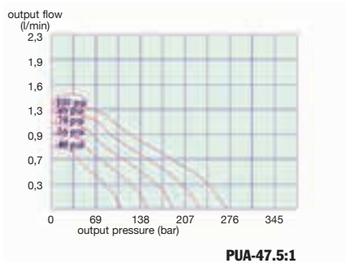
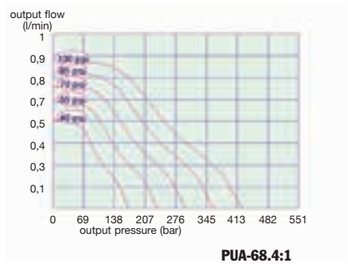
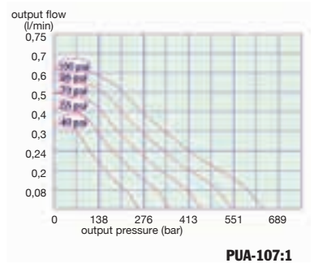


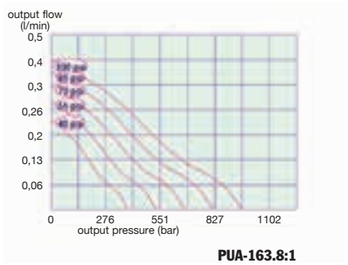

**PUA-47.5:1**




**PUA-68.4:1**

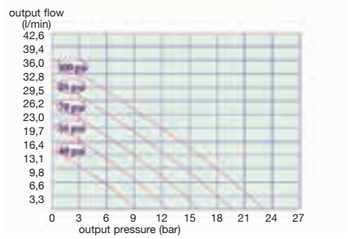



**PUA-107:1**

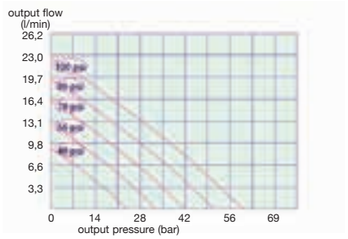



**PUA-163.8:1**

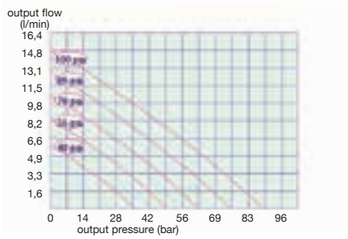
| | | |
|---|---|---|
| 100 psi | = | 6,89 bar |
| 85 psi | = | 5,85 bar |
| 70 psi | = | 4,82 bar |
| 55 psi | = | 3,79 bar |
| 40 psi | = | 2,76 bar |




**PMA-4:1**




**PMA-9:1**

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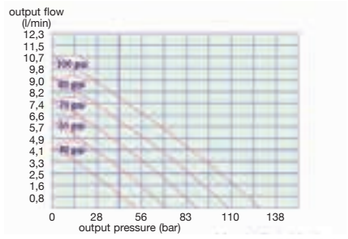
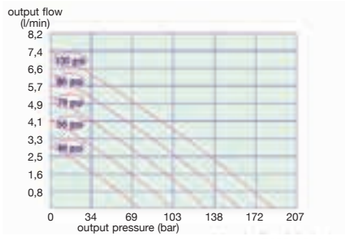
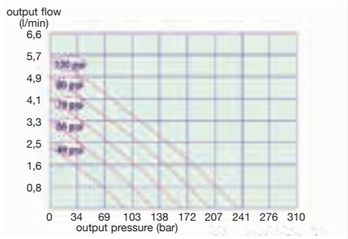


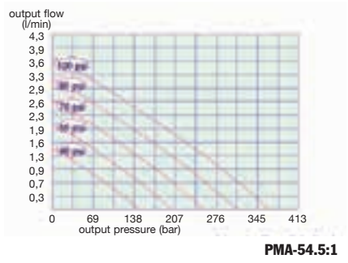

**PMA-19:1**



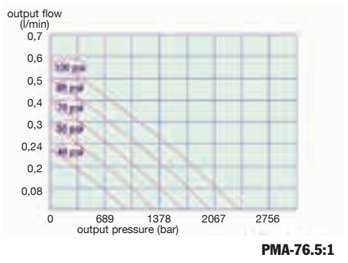

**PMA-28.4:1**




**PMA-36:1**




**PMA-54.5:1**

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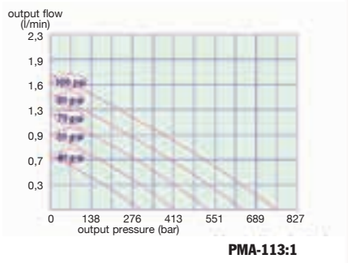


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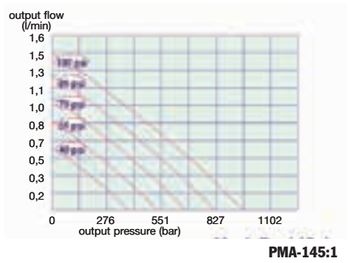
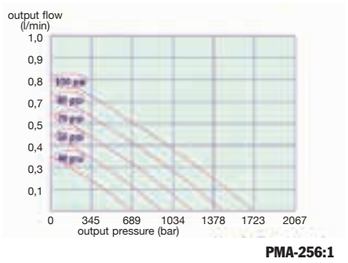



**PMA-145:1**

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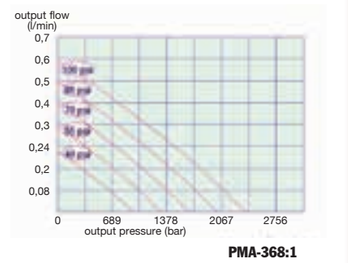



**PMA-368:1**

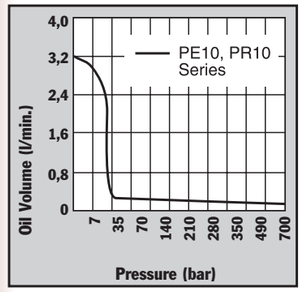
PUMPS

# Electric/Battery Pump
## HYDRAULIC PE10 SERIES

# Up to 25 Ton Quarter Horse®
## Two Speed

High performance in compact package. Electric and battery powered models for powering tools and cylinders up to 25 ton.

LR19814


- Portable power source for hydraulic cylinders, and tools.
- Permanent magnet motor starts easily under load, even with reduced voltage conditions.
- Battery-operated models have 2,4 m power cord with alligator clips to connect to any 12 volt battery.
- Optional rechargeable battery pack with shoulder strap for maximum portability.
- Pump typically delivers 15 minutes of continuous operation at 700 bar on a single battery.
- Pump can be operated in any position.
- 24 volt hand and foot switches available for all AC powered models.
- High-impact housing with flame-retardant construction.
- Base mounting holes for fixed installations.

| For use with Cyl. Type | Description | Order No. | Valve Type | Valve No. | Valve Function | Control Switch | Motor | Reservoir Usable Cap. (l) |
|---|---|---|---|---|---|---|---|---|
| Single-Acting | Base model pump with 0,19 KW motor. Bladder type reservoir, 110 volt power required. | **PE102** | 2-Way/ Auto. Dump | 9561 | Advance Return (Auto.)* | Rocker Type off, Momentary on | 0,19 KW, 110/115V 50/60 Hz, Single Phase | 1 |
| Single-Acting | PE102, except has automatic dump valve. | **PE102A** | Auto. Dump | 9562 | Advance Return** | Rocker Type off, Momentary on | 0,19 KW, 110/115V 50/60 Hz, Single Phase | 1 |
| Single-Acting | PE102, except requires 220 volt. | **PE102-220** | 2-Way/ Auto. Dump | 9561 | Advance Return (Auto.)* | Rocker Type off, Momentary on | 0,19 KW, 110/115V 50/60 Hz, Single Phase | 1 |
| Single-Acting | PE102A, except requires 220 volt. | **PE102A-220** | Auto. Dump | 9562 | Advance Return | Rocker Type off, Momentary on | 0,19 KW, 220/230V 50/60 Hz, Single Phase | 1 |
| Single-Acting | PE102, except requires 12 volt DC. | **PR102** | 2-Way/ Auto. Dump | 9561 | Advance Return (Auto.)* | Rocker Type off, Momentary on | 0,19 KW, 12V† | 1 |
| Single-Acting | PE102A, except requires 12 volt DC. | **PR102A** | Auto. Dump | 9562 | Advance Return** | Rocker Type off, Momentary on | 0,19 KW, 12V† | 1 |
| Single-Acting/ Double-Acting | Base model pump has 4-way valve for operating double-acting systems. 110 volt power required. | **PE104** | 4-Way | 9563 | Advance Hold Return | Rocker Type off, Momentary on | 0,19 KW, 110/115V 50/60 Hz, Single Phase | 1 |
| Single-Acting/ Double-Acting | PE104, except requires 220 volt. | **PE104-220** | 4-Way | 9563 | Advance Hold Return | Rocker Type off, Momentary on | 0,19 KW, 220/230V 50/60 Hz, Single Phase | 1 |
| Single-Acting/ Double-Acting | PE104, except requires 12 volt DC. | **PR104** | 4-Way | 9563 | Advance Hold Return | Rocker Type off, Momentary on | 0,19 KW, 12V† | 1 |

* "Advance" position holds pressure with motor shut off. "Return" position advances cylinder with motor running and returns cylinder with motor shut off.

** Cylinder advances with motor running and automatically returns with motor shut off.

† Comes with an 2,4 m. alligator clip cord for 12 volt DC use.


**PR104**

700 bar

**The Quarter Horse pump has a maximum operating pressure of 700 bar, which handles a wide variety of hand held hydraulic tools.**

| Max. Pump No. | Pressure Output (bar) | dBa @ Idle and 700 (bar) | Oil Del. (l/min at..) 0 (bar) | 700 (bar) | Overall Dimensions (mm) | Prod. Wt. with Oil (kg) |
|---|---|---|---|---|---|---|
| **PE10 Series PR10 Series** | 700 | 68-74* | 1,9 | 0,16 | 330 L x 197 W x 203 H | 9,1 |

* Measured at 0,9 m distance, all sides.

**NOTE:** PR10 rechargeable model is equipped with 2,4 m cord with alligator clips. Order optional battery pack (No. BP212VQ) or use with any 12 volt battery.

**NOTE:** Amp draw at 700 bar; 6 amp at 115 volt, 3 amp at 230 volt, and 35 amp at 12 volt.

## Accessories

**BP212VQ**

**BP212VQ –** Optional 12 volt battery pack. Includes sealed lead acid battery, 115V charger, 1,2 m cord, carrying case and shoulder strap. Wt., 8 kg.

**RB12V –** Battery only.
**BP12INT –** Battery with cord and carrying case. Wt., 5 kg.
**RC12V –** Replacement 1,2 m battery cord only. Wt., 0,2 kg.

**BC 212**

**BC212 –** Battery charger for U.S.A. Wt., 3 kg.
**BC212EUR –** Battery charger for Europe. Wt., 3 kg.
**25017 –** Remote hand control with 3 m cord. Wt., 0,4 kg.

**9560 –** Pressure regulator. Adjustable from 70 to 700 bar. All mounting hardware included. Wt., 1,4 kg.

**251660 –** Foot switch with 3 m cord. Single pole, double throw, 15 amp @ 125-250 VAC. Wt., 0,45 kg.

PUMPS

# Electric Pump
## HYDRAULIC PE17 SERIES

## Up to 55 Ton
279 cm³/min.
2 Speed

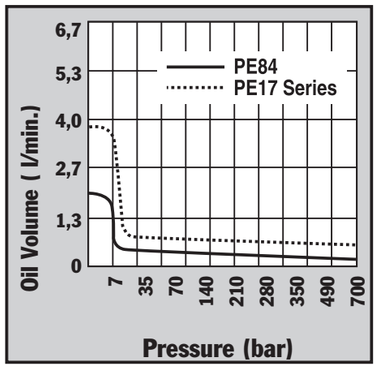
For maintenance and construction applications.

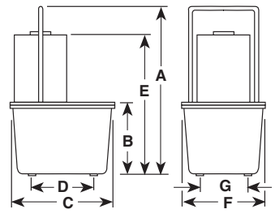
- For use with single-acting or double-acting cylinders at operating pressures to 700 bar.
- For intermittent duty; starts under full load.
- Equipped with 0,37Kw (½ hp), 3,450 rpm, single-phase, thermal protected induction motor; 3 m remote control cord (PE172S has 7,6 m cord)
- Low amperage draw; small generators and low amperage circuits can be used as power source.
- Extremely quiet noise level (67-81 dBA).


PE172

700 bar

LR19814




| Pump No. | Max. Pressure Output bar | rpm | dBA at Idle and 700 bar | Amp Draw 220 V – at 700 bar | Oil Del. (liters./min. @) † 0 bar | 7 bar | 350 bar | 700 bar | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | Prod. Wt. with Oil (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PE17 Series** | 700 | 2850 | 67/81* | 5 | 3,9 | 2,5 | 0,3 | 0,2 | 470 | 178 | 289 | 181 | 378 | 235 | 130 | 20,4 |
| **PE17M Series** | 700 | 2850 | 67/81* | 5 | 3,9 | 2,5 | 0,3 | 0,2 | 460 | 168 | 292 | — | 368 | 241 | — | 24,0 |

* Measured at 0,9 m distance, all sides.
† Typical delivery. Actual flow will vary with field conditions.


PE172SM


PE174

CE

| Description | Order No. | Valve Type | Valve No. | Valve Function | Control Switch †† | Motor | Reservoir Usable (l) |
|---|---|---|---|---|---|---|---|
| Base model pump with 0,37 KW pump with 7,6 l thermoplastic reservoir. | **PE172-50-220** | 2-Way | 9517 | Advance Return (Auto†) | Remote Motor Control (3,1m) on/off | 0,37 kW, 220 V* 50/60 Hz, Single Phase | 4,72 |
| PE172-50-220, except has 9,5 l aluminum reservoir. | **PE172M-50-220** | 2-Way | 9517 | Advance Return (Auto†) | Remote Motor Control (3,1m) on/off | 0,37 kW, 220 V* 50/60 Hz, Single Phase | 6 |
| PE172-50-220, except has solenoid operated valve. | **PE172S-50-220** | 3-Way | 9570 | Advance Hold Return | Remote Motor & Valve (7,6 m) | 0,37 kW, 220 V* 50/60 Hz, Single Phase | 4,72 |
| PE172S-50-220, except has aluminum reservoir. | **PE172SM-50-220** | 3-Way | 9570 | Advance Hold Return | Remote Motor & Valve (7,6 m) | 0,37 kW, 220 V* 50/60 Hz, Single Phase | 6 |
| Best suited for crimping, punching, pressing. Not for lifting.Thermoplastic reservoir. | **PE172A-50-2208** | Auto./Dump Manifold | 45554 | Advance Return | Remote Motor Control (3,1 m) on/off | 0,37 kW, 220 V* 50/60 Hz, Single Phase | 4,72 |
| PE172A, except has aluminum reservoir. | **PE172AM-50-2208** | Auto./Dump Manifold | 45554 | Advance Return | Remote Motor Control (3,1 m) on/off | 0,37 kW, 220 V* 50/60 Hz, Single Phase | 6 |
| 0,37 KW pump with 7,6 l thermoplastic reservoir. Meets CE requirements. | **PE172-E220** | 2-Way | 9517 | Advance Return (Auto+) | Remote Motor Control (3,1 m) on/off | CE | 4,72 |
| PE172-50-220,except has 9,5l aluminium reservoir. Meets CE requirements | **PE172M-E220** | 2-Way | 9517 | Advance Return (Auto+) | Remote Motor Control (3,1 m) on/off | CE | 6 |
| PE172-50-220,except has solenoid operated valve.Meets CE requirements | **PE172S-E220** | 3-Way | 9570 | Advance Hold Return | Remote Motor & Valve (3,1m) | CE | 4,72 |
| PE172S-50-220 except has aluminium reservoir. Meets CE requirement | **PE172SM-E220** | 3-Way | 9570 | Advance Hold Return | Remote Motor & Valve (3,1m) | CE | 6 |
| Best suited for crimping,punching,pressing. Thermoplastic res.Meets CE requirement | **PE172A-E220∞** | Auto./Dump Manifold | 45554 | Advance/Return | Remote Motor Control (3,1 m) on/off | CE | 4,72 |
| PE172A,except has aluminium reservoir. Meets CE requirements | **PE172AM-E220∞** | Auto./Dump Manifold | 45554 | Advance/Return | Remote Motor Control (3,1 m) on/off | CE | 6 |
| PE172-50-220, except has 9500 double-acting valve. | **PE174-50-220** | 4-Way | 9500 | Advance Hold Return** | Remote Motor Control (3,1 m) on/off | 0,37 kW, 220 V* 50/60 Hz, Single Phase | 4,72 |
| Same as PE174-50-220, except has aluminum reservoir. | **PE174M-50-220** | 4-Way | 9500 | Advance Hold Return** | Remote Motor Control (3,1 m) on/off | 0,37 kW, 220 V* 50/60 Hz, Single Phase | 6 |
| PE172-50-220, except has 9500 double-acting Valve. Meets CE requirements | **PE174-E220** | 4-Way | 9500 | Advance Hold Return** | Remote Motor Control (3,1 m) on/off | CE | 4,72 |
| Same as PE174-50-220, except has aluminium Reservoir. Meets CE requirements | **PE174M-E220** | 4-Way | 9500 | Advance Hold Return | Remote Motor Control (3,1 m) on/off | CE | 6 |

* Available with 115V., 60 Hz motor (to order , remove suffix "50-220" behind pump order number).
** "Advance" position holds pressure with motor shut off.
† "Advance" position holds pressure with motor shut off. "Return" position advances cylinder with motor running and returns cylinder with motor shut off.
†† Control switch on PE17 series wired with line voltage.
∞ Not to be used for lifting.

**NOTE:** The remote motor control switch on 220V., 50 cycle PE17 series pumps is 24 volt (non CE).
**NOTE:** Usable oil is calculated with the oil fill at the recommended maximum level of 38 mm below reservoir cover plate.
‡ **Some Power Team pumps are available in special configurations not listed in this catalog. Power Team can "Assemble to Order" pumps with special seals, voltages, valves, relief valve settings, etc. For your special requirements please consult your local distributor or the Power Team factory.**

**Also available in CE | E 110**


PUMPS

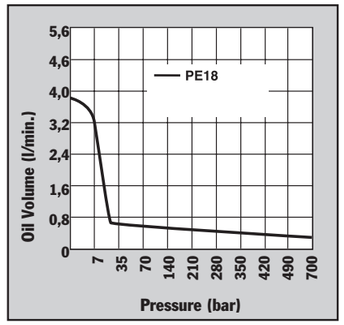
# Electric Pump
## HYDRAULIC PE18 SERIES

## Up to 55 Ton
295 cm³/min.
Vanguard Jr. Series®

Ideal for use with small hydraulically powered tools.

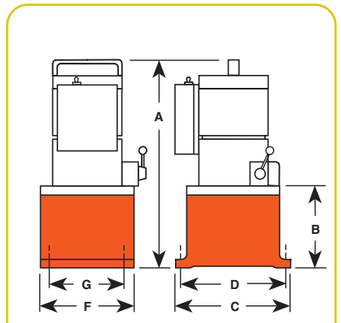
- Vanguard Jr.® pumps provide two-speed high performance in a light-weight, compact package.
- Gauge port provided on pump. Metal reservoir on all models.
- Equipped with a 0,37Kw (½ hp), 220 volt, 50 Hz single phase motor that starts under load, even at reduced voltage.
- Low amperage draw permits use with smaller generators and low amperage circuits.
- All pumps have a 3 m remote control (PE183C has 7,6 m remote control).
- CSA rated for intermittent duty. Noise level of 85-90 dBA.

PE182




For operating hydraulic crimping, cutting or other tools:

- **No. PE183C** - For crimping or pressing applications. Has special electrical circuitry to pulse/advance, hold at full pressure, build to a predetermined pressure, release and reset circuit. Features separate emergency return switch.
- **No. PE184C** - Allows you to alternately operate a spring-return cutting and/or crimping tool without disconnecting either tool. Select port connection with manual 4-way valve, start pump with remote control hand switch and extend connected tool. When hand switch is switched to off, pump stops and automatic valve opens, allowing tool to return. In center (neutral) position, manual control valve holds tool in position at time valve is shifted.




700 bar

LR19814

| Pump No. | Max. Pressure Output bar | rpm | dBA at Idle and 700 bar | Amp Draw 220 V at 700 bar | Oil Del. (liters./min. @) † 0 bar | 7 bar | 350 bar | 700 bar | A (mm) | B (mm) | C (mm) | D (mm) | F (mm) | G (mm) | Prod. Wt. with Oil (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PE182** | 700 | 12.000 | 85/90** | 4,5 Amp. | 3,7 | 3,0 | 0,4 | 0,3 | 406 | 121 | 203 | 181 | 152 | 130 | 13,6 |
| **PE183** | 700 | 12.000 | 85/90** | 4,5 Amp. | 3,7 | 3,0 | 0,4 | 0,3 | 406 | 121 | 203 | 181 | 152 | 130 | 13,6 |
| **PE183A** | 700 | 12.000 | 85/90** | 4,5 Amp. | 3,7 | 3,0 | 0,4 | 0,3 | 406 | 121 | 203 | 181 | 152 | 130 | 13,6 |
| **PE184** | 700 | 12.000 | 85/90** | 4,5 Amp. | 3,7 | 3,0 | 0,4 | 0,3 | 406 | 121 | 203 | 181 | 152 | 130 | 13,6 |
| **PE183-2*** | 700 | 12.000 | 85/90** | 4,5 Amp. | 3,7 | 3,0 | 0,4 | 0,3 | 470 | 184 | 292 | 254 | 241 | 203 | 19,0 |
| **PE184-2*** | 700 | 12.000 | 85/90** | 4,5 Amp. | 3,7 | 3,0 | 0,4 | 0,3 | 470 | 184 | 292 | 254 | 241 | 203 | 19,0 |
| **PE183C ††** | 700 | 12.000 | 85/90** | 4,5 Amp. | 3,7 | 3,0 | 0,4 | 0,3 | 406 | 121 | 203 | 181 | 152 | 130 | 13,6 |
| **PE184C ††** | 700 | 12.000 | 85/90** | 4,5 Amp. | 3,7 | 3,0 | 0,4 | 0,3 | 406 | 121 | 203 | 181 | 152 | 130 | 13,6 |

* 9,5 l reservoir.
** Measured at 0,9 m distance, all sides.
† Typical delivery. Actual flow will vary with field conditions.
†† Special application pumps for cutting, crimping or pressing.

PE183-2

PE183C

| For use with cyl. type | Description | Order No. | Valve Type | Valve Function | Control Switch | Motor | Reservoir Usable (l) |
|---|---|---|---|---|---|---|---|
| Single-acting | Base model pump has 0,37 KW pump with 2-Way valve and 1,9 l reservoir. | **PE182-50-220** | 2-Way | Advance Return† | Remote Motor Control (3,1 m) on/off | 0,37 kW, 220 V** 50 Hz, A.C., Single Phase | 1,7 |
| Single-acting | PE182-50-220, except has 3-way valve. | **PE183-50-220** | 3-Way | Advance Hold Return | Remote Motor Control (3,1 m) on/off | 0,37 kW, 220 V** 50 Hz, A.C., Single Phase | 1,7 |
| Single-acting | PE183-50-220, except has 9,5 l reservoir. | **PE183-2-50-220** | 3-Way | Advance Hold Return | Remote Control (3,1 m) | 0,37 kW, 220 V** 50 Hz, A.C., Single Phase | 8,4†† |
| Single-acting | PE183-50-220, except has "dump valve". | **PE183A-50-220∞** | Auto./Dump Pump | Advance Return | Remote (3,1 m) | 0,37 kW, 220 V** 50 Hz, A.C., Single Phase | 1,7 |
| Single-acting | Special crimping pump. | **PE183C-50-220∞** | Special, for crimping only | Advance Hold Return | Remote Motor Control (7,6 m) on/off | 0,37 kW, 220 V** 50 Hz, A.C., Single Phase | 1,7 |
| Single-acting/ double-acting | Base model pump has 0,37 KW pump for double-acting systems with 1,9 l reservoir. | **PE184-50-220** | 4-Way | Advance Hold Return† | Remote Motor Control (3,1 m) on/off | 0,37 kW, 220 V** 50 Hz, A.C., Single Phase | 1,7 |
| Single-acting/ double-acting | PE184, except with 9,5 l reservoir. | **PE184-2-50-220** | 4-Way | Advance Hold Return† | Remote Motor Control (3,1 m) on/off | 0,37 kW, 220 V** 50 Hz, A.C., Single Phase | 8,4†† |
| Single-acting/ double-acting | Special crimping pump. | **PE184C-50-220*** | 4-Way | Advance Return | Remote Control (3,1 m) on/off | 0,37 kW, 220 V** 50 Hz, A.C., Single Phase | 1,7 |

* Also for use with special single-acting cylinder applications.
** Available with 115 Volt, 50 Hz motor (to order, remove suffix "50-220" behind pump order number). Specify voltage when ordering.
† Holds when motor is shut off and valve is in "advance" position.
†† Pumps supplied with 7,6 l oil (usable oil is 5,7 l), will hold 9,5 l when filled to within 13 mm below reservoir cover plate.
∞ Not to be used for lifting.

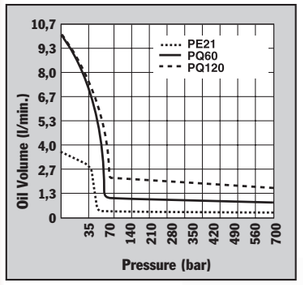

PUMPS

# Electric Pump
## PE21 SERIES

## Up to 75 Ton
361 cm³/min.
Two-Speed

Low-speed, high-torque for heavy-duty, extended-cycle operations.

PUMPS




- Totally enclosed, fan cooled induction motor: 0,75Kw (1 hp), 1,725 rpm, 60 Hz, single phase. Thermal overload protection.
- Remote control, with 3,1 m cord is standard on pumps with solenoid valves. Manual valve pumps have “Stop”, “Start” and “Run/Off/Pulse” switches. Pump controls are moisture and dust resistant.
- Motor drip cover with carrying handles and lifting lug.
- Low noise level of 70 dBA® 700 bar.
- In the event of electrical interruption, pump shuts off and will not start up until operator presses the pump start button.
- 24 volt control circuits on units with remote controls provide additional user/ operator safety.

PE213

PE214

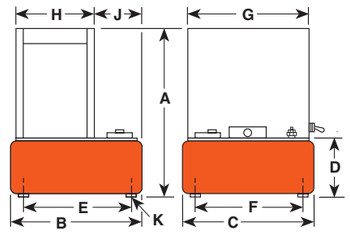
700 bar

LR19814

PE214S

PUMPS

**PE21 series pump and RD5513 cylinder used in a special press that produces pharmaceutical-grade extracts for herbal medicines.**




| Pump No. | Max. Pressure Output bar | rpm | dBA at Idle and 700 bar | Oil Del. (l/min. at.) 7 bar | 70 bar | 350 bar | 700 bar | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | H (mm) | J (mm) | K*** (in) | Prod. Wt. w/Oil (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PE21 Series** | 700 | 1.437 | 70* | 3,6 | 0,4 | 0,4 | 0,3 | 543 | 292 | 241 | 165 | 254 | 203 | 359 | 241 | 82,6 | ½-20 UNF | 44,4† |

* Measured at a 0,9 m distance, all sides.
*** For 50,8 mm dia. swivel casters, order (4) No. 10494.
† Shipping weight with manual valve; add 6,4 kg for pump with solenoid valve.

| For use with cyl.-type | Description | Order No. | Valve Type | Valve No. | Valve Function | Max. Amp Draw at 700 bar | Motor | Reservoir Usable (l) |
|---|---|---|---|---|---|---|---|---|
| Single-acting | 0,75 KW pump with 9,5 l Reservoir and manual valve. | **PE213-50-220** | 3-Way | 9520* | Advance Hold Return | 230 V - 7,5 amps | 0,75 KW, 220 Volt 50 Hz, Single Phase | 590 |
| Single-acting | PE213, except has solenoid operated remote valve. | **PE213S-50-220** | 3-Way | 9599† | Advance Hold Return | 230 V - 7,5 amps | 0,75 KW, 220 Volt 50 Hz, Single Phase | 590 |
| Double-acting | 0,75 KW pump with 9,5 l Reservoir and manual valve. | **PE214-50-220** | 4-Way | 9506* | Advance Hold Return | 230 V - 7,5 amps | 0,75 KW, 220 Volt 50 Hz, Single Phase | 590 |
| Double-acting | PE214, except has solenoid operated remote valve. | **PE214S-50-220** | 4-Way | 9512† | Advance Hold Return | 230 V - 7,5 amps | 0,75 KW, 220 Volt 50 Hz, Single Phase | 590 |

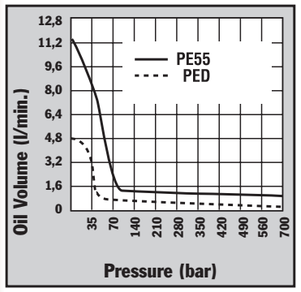
* Manual valve. Pump is equipped with RUN/OFF/PULSE switch for control of motor.
† Solenoid valve. Pump is equipped with a remote control switch with 3,1 m cord.

Some Power Team pumps are available in special configurations not listed in this catalog. Power Team can “Assemble to Order” pumps with special seals, voltages, valves, relief valve settings, etc. For your special requirements please consult your local distributor or the Power Team factory.

# Electric Pump
## HYDRAULIC PED SERIES

## 410 cm³/min.
Two-Speed

Ideal for running multiple tools or cylinders from one power unit. Recommended for cylinders up to 75 tons.



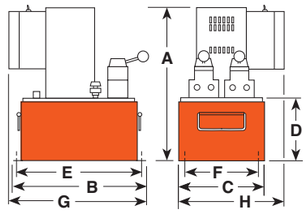

- Two-speed pumps have the same low pressure and high pressure flows from both valves.
- Flows and pressures of each pump are independent.
- Delivers 4,8 l/min. of oil at 7and 0,4 l/ min. at 700 bar from each pump.
- 1,12 KW, 220 volt, 50 Hz induction motor, 3,1 m remote control and 19 l steel reservoir.
- Models available for operating single-acting or double-acting cylinders.
- Each power unit contains two separate pumps and two separate valves allowing operator to control multiple processes with one power unit.
- Both pumps on each power unit are equipped with an externally adjustable pressure relief valve.
- Not recommended for frequent starting and stopping.


PED253

700 bar


PED254


PED254S




| Pump No. | Max. Pressure Output bar | rpm | dBA at Idle and 700 bar | (220 V)** Amp Draw At 700 bar | Oil Del. (l/min at..) 7 bar | 50 bar | 350 bar | 700 bar | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | H (mm) | Prod. Wt. w/Oil (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PED-Series** | 700 | 2.874 | 87/85* | 11 | 4,8 | 0,6 | 0,6 | 0,4 | 527 | 457 | 292 | 216 | 419 | 229 | 457 | 330 | 77 |

* Noise level reading (dBA) measured at a 0,9 m distance, all sides.

** Amp draw at 700 bar, 230 Volts 50 Hz is 15 Amps.

| For use with cyl.-type | Description | Order No. | Valve Type | Valve No. | Valve Function | Control Switch †† | Motor | Reservoir Usable (l) |
|---|---|---|---|---|---|---|---|---|
| Single-acting | 1,12 KW pump with 19 l reservoir. Valve has "Posi-Check®" feature. | **PED253-50-220** | 3-Way | 9520 | Advance Hold Return | Remote Motor | 1,12 KW, 220 VAC 50 Hz††, Single Phase | 16 |
| Double-acting | 1,12 KW pump with 19 l reservoir. Valve has "Posi-Check®" feature. | **PED254-50-220** | 4-Way | 9506 | Advance Hold Return | Remote Motor | 1,12 KW, 220 VAC 50 Hz††, Single Phase | 16 |
| Double-acting | PED254, except has solenoid operated remote valve. | **PED254S-50-220** | 4-Way | 9513 | Advance Hold Return | Remote Valve | 1,12 KW, 220 VAC 50 Hz††, Single Phase | 16 |

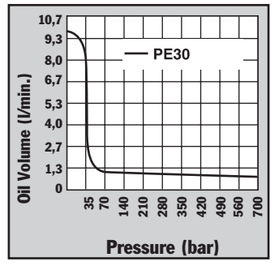
†† Control switch wired with line voltage. All remotes are 3,1 m long.

# Electric Pump
## HYDRAULIC PE30 SERIES

## 0,48 l/min.
Two-Speed
Vanguard® Series

Ideal for maintenance and construction applications

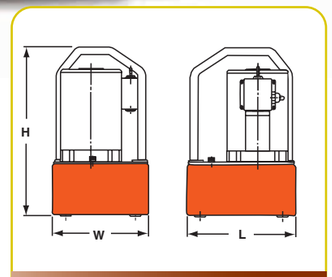
PUMPS




- Deliver a powerful punch to operate single-acting or double-acting cylinders.
- Integral roll cage protects pump from abuse.
- 0,75Kw (1 hp), single phase, permanent magnet motor.
- High performance to weight ratio.
- Starts under full load even when voltage is reduced to 50% of nominal rating.
- Quiet operation: 87 dBA @ 700 bar and 82 dBA @ 0 bar. CSA rated for intermittent duty.
- Remote controls and/or solenoid valves feature 24 volt controls.


PE302S

PE30TWP
Torque Wrench Applications




| Pump No. | Max Pressure Output bar | Noise level at 700 bar (dBA) | Amp.Draw 220V at 700 bar (A) | Oil Del. ( l/min at..) 7 bar | 35 bar | 70 bar | 350 bar | 700 bar | Overall Dimensions (mm) | Prod. Wt. With Oil (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| **PE30 Series** with 4,7 l res. | 700 | 87/82 | 7 | 4,8 | 3,2 | 0,7 | 0,6 | 0,5 | 254L x 229W x 406H | 18,6 |
| **PE30 Series** with 7,6 l res. | 700 | 87/82 | 7 | 4,8 | 3,2 | 0,7 | 0,6 | 0,5 | 343L x 241W x 419H | 22,2 |


PE302

700 bar

LR19814


PE302S

| For use with Cyl.-type | Description | Order No. | Valve Type | Valve No. | Valve Function | Control Switch | Motor (4.000 rpm) | Reservoir Usable (l) |
|---|---|---|---|---|---|---|---|---|
| Single-act. | Base model 0,75 KW pump with 4,7 l Reservoir & 2 position valve. | **PE302-220∞** | 3-Way, 2 Pos. | 9584 | Advance Return | On/Off/ Pulse Switch | 0,75 KW 220/230 VAC, 50 Hz, Single Phase | 4,5** |
| Single-act. | PE302-220, except has 6,6 l reservoir. | **PE302-2-220** | 3-Way, 2 Pos. | 9584 | Advance Return | On/Off/ Pulse Switch | 0,75 KW 220/230 VAC, 50 Hz, Single Phase | 6,1*** |
| Single-act. | PE302-220, except has remote motor control. | **PE302R-220** | 3-Way, 2 Pos. | 9584 | Advance Return | Remote Motor Control (3,1 m) | 0,75 KW 220/230 VAC, 50 Hz, Single Phase | 4,5** |
| Single-act. | PE302R-220, except has 6,6 l reservoir. | **PE302R-2-220** | 3-Way, 2 Pos. | 9584 | Advance Return | Remote Motor Control (3,1 m) | 0,75 KW 220/230 VAC, 50 Hz, Single Phase | 6,1*** |
| Single-act. | PE302R-220, except also has solenoid operated remote valve. | **PE302S-220†** | 3-Way, 2 Pos. | 9570 | Advance Return | Remote Motor Control (3,1 m) | 0,75 KW 220/230 VAC, 50 Hz, Single Phase | 4,5** |
| Single-act. | PE302S-220, except has 6,6 l reservoir. | **PE302S-2-220†** | 3-Way, 2 Pos. | 9570 | Advance Return | Remote Motor Control (3,1 m) | 0,75 KW 220/230 VAC, 50 Hz, Single Phase | 6,1*** |
| Single-act. | PE302-220, except has “Auto Dump” valve | **PE302A-220** | Auto Dump | 9610 | Automatic Pilot Operation | Remote Motor Control (3,1 m) | 0,75 KW 220/230 VAC, 50 Hz, Single Phase | 4,5** |
| Single-act. | Base model 0,75 KW pump with 4,7 l Reservoir & 3 position valve. | **PE303-220** | 3-Way, 3 Pos. | 9520* | Advance Hold Return | On/Off/ Pulse Switch | 0,75 KW 220/230 VAC, 50 Hz, Single Phase | 4,5** |
| Single-act. | PE303-220, except has 6,6 l reservoir. | **PE303-2-220** | 3-Way, 3 Pos. | 9520* | Advance Hold Return | On/Off/ Pulse Switch | 0,75 KW 220/230 VAC, 50 Hz, Single Phase | 6,1*** |
| Single-act. | PE303-220, except has remote motor control. | **PE303R-220** | 3-Way, 3 Pos. | 9520* | Advance Hold Return | Remote Motor Control (3,1 m) | 0,75 KW 220/230 VAC, 50 Hz, Single Phase | 4,5** |
| Single-act. | PE303R, except has 6,6 l reservoir. | **PE303R-2-220** | 3-Way, 3 Pos. | 9520* | Advance Hold Return | Remote Motor Control (3,1 m) | 0,75 KW 220/230 VAC, 50 Hz, Single Phase | 6,1*** |
| Double-act. | Base model 0,75 KW pump with 4,7 l Reservoir & 4-way valve for double-acting systems | **PE304-220** | 4-Way, 3 Pos. Tandem Ctr. | 9506* | Advance Hold Return | On/Off/ Pulse Switch | 0,75 KW 220/230 VAC, 50 Hz, Single Phase | 4,5** |
| Double-act. | PE304-220, except has 6,6 l reservoir. | **PE304-2-220** | 4-Way, 3 Pos. Tandem Ctr. | 9506* | Advance Hold Return | On/Off/ Pulse Switch | 0,75 KW 220/230 VAC, 50 Hz, Single Phase | 6,1*** |
| Double-act. | PE304-220, except has remote motor control. | **PE304R-220** | 4-Way, 3 Pos. Tandem Ctr. | 9506* | Advance Hold Return | Remote Motor Control (3,1 m) | 0,75 KW 220/230 VAC, 50 Hz, Single Phase | 4,5** |
| Double-act. | PE304R-220, except has 6,6 l reservoir. | **PE304R-2-220** | 4-Way, 3 Pos. Tandem Ctr. | 9506* | Advance Hold Return | Remote Motor Control (3,1 m) | 0,75 KW 220/230 VAC, 50 Hz, Single Phase | 6,1*** |

* “Posi-Check®” valve design, “Posi-Check®” guards against pressure loss when valve is shifted from “advance” to “hold” position.

** Shipped with 3,8 l of oil (3,4 l usable).

*** Shipped with 7,6 l of oil.

∞ Not to be used for lifting. Best suited for crimping, pressing & punching applications.

PUMPS

# Electric Pump
## HYDRAULIC PE46 SERIES

**0,6 l/min**
Two-speed

Best suited for under the roof maintenance and production applications.

- Two-speed high performance pump.
- For use with single- or double-acting cylinders at operating pressures to 700 bar.
- Equipped with a 1.12 KW, 2.875 rpm single-phase, 50 Hz thermal protected induction motor that starts under full load. Noise level of 77-81 dBA.
- All equipped with a 3,1 m remote control except PE462S which has a 7,6 m remote control.
- 24 volt control circuit on all units with remote control.
- CSA rated for intermittent duty.

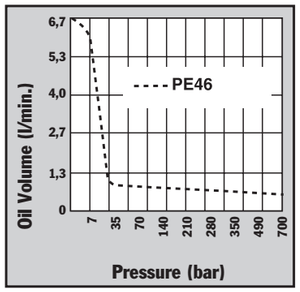

PE462A

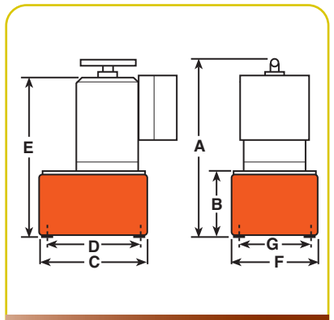
700 bar

LR19814


PE462S


PE464




| Pump No. | Max. Pressure Output bar | rpm | Noise level at Idle and 700 bar (dBA) | Amp Draw 220 V - at 700 bar (A) | Oil Del. (l/min. at..)† 0 bar | 7 bar | 350 bar | 700 bar | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | Prod. Wt. w/Oil (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PE46-Series** | 700 | 2.875 | 77/81 | 13 | 6,7 | 6,0 | 0,7 | 0,6 | 499 | 173 | 292 | 254 | 378 | 241 | 203 | 35,8 |
| **PE46-E220** | 700 | 2.875 | 77/81* | 13 | 6,7 | 6,0 | 0,7 | 0,6 | 499 | 173 | 292 | 254 | 378 | 241 | 203 | 41,3 |

* Measured at 0,9 m distance, all sides.
† Typical delivery. Actual flow will vary with field conditions.

| For use with cyl.-type | Description | Order No. | Valve Type | Valve No. | Valve Function | Control Switch††† | Motor | Reservoir Usable*** (l) |
|---|---|---|---|---|---|---|---|---|
| Single-acting | Base model 1,12 KW pump with 9,5 l metal reservoir. | **PE462-50-220** | 3-Way | **9584** | Advance Return† | Remote Motor Control (3,1 m) on/off | 1,12 KW, 220 VAC* 50 Hz, Single Phase | 9,4 |
| Single-acting | PE462-50- 220, except has solenoid valve. | **PE462S-50-220** | 3-Way | **9570** | Advance Return** | Remote Motor alve (7,6 m) | 1,12 KW, 220 VAC* 50 Hz, Single Phase | 9,4 |
| Single-acting | PE462-50-220, except has "dump valve" | **PE462A-50-220∞** | Auto/Dump 3-Way | **9610** | Advance Return | Remote Motor Control (3,1 m) on/off | 1,12 KW, 220 VAC* 50 Hz, Single Phase | 9,4 |
| Single-acting | 1,12 KW pump with 9,5l metal reservoir. **Meets CE requirement** | **PE462-E220** | 3-Way | **9584** | Advance Return + | Remote Motor Control (3,1 m) on/off | 1,12 KW, 220 VAC* 50 Hz, Single Phase | 9,4 |
| Single-acting | PE462-50-220, except has solenoid valve. **Meets CE requirement** | **PE462S-E220** | 3-Way | **9570** | Advance Return** | Remote Motor/ Valve (7,6 m) | 1,12 KW, 220 VAC* 50 Hz, Single Phase | 9,4 |
| Single-acting | PE462-50-220, Except has "dump valve". **Meets CE requirement** | **PE462A-E220∞** | Auto/Dump 3-Way | **9610** | Advance Return | Remote Motor Control (3,1 m) on/off | 1,12 KW, 220 VAC* 50 Hz, Single Phase | 9,4 |
| Double-acting/ multi-single-act. | PE462-50-220, except has 9500 double-acting valve. | **PE464-50-220** | 4-Way | **9500** | Advance Hold Return† | Remote Motor Control (3,1 m) on/off | 1,12 KW, 220 VAC* 50 Hz, Single Phase | 9,4 |
| Double-acting/ multi-single-act. | Same as PE464-50-220 **Meets CE requirement** | **PE464-E220** | 4-Way | **9500** | Advance Hold Return + | Remote Motor Control (3,1 m) on/off | 1,12 KW, 220 VAC* 50 Hz, Single Phase | 9,4 |
| Double-acting/ multi-single-act. | Same as PE464S-50-220 **Meets CE requirement** | **PE464S-E220** | 3/4-Way | **9552** | Advance Return** | Remote Motor/ Valve (3,1m) | 1,12 KW, 220 VAC* 50 Hz, Single Phase | 9,4 |
| Double-acting/ multi-single-act. | PE462S-50-220, except has 9592 double-acting valve. | **PE464S-50-220** | 3/4-Way | **9552** | Advance Return** | Remote Motor/ Valve (3,1m) | 1,12 KW, 220 VAC* 50 Hz, Single Phase | 9,4 |

* Available with 115 V., 60 Hz motor (to order, remove suffix "50-220" behind pump order number). Specify voltage when ordering.
** "Advance" position holds pressure with motor shut off.
*** Usable oil is calculated with the oil fill at the recommended level of 13 mm below reservoir cover plate.
† "Advance" position holds pressure with motor shut off. "Return" position returns cylinder.
††† The remote motor control switch on PE46 series pumps is 24 volt.
∞ Not to be used for lifting. When pump is shut off, oil returns to reservoir.

PUMPS

# Electric Pump
## HYDRAULIC PE55 VANGUARD®

## 0,9 l/min
For cylinders up to 200 tons.

Heavy duty multiple-applications pump. Heavy construction and concrete stressing. Low voltage starting possible.

PUMPS

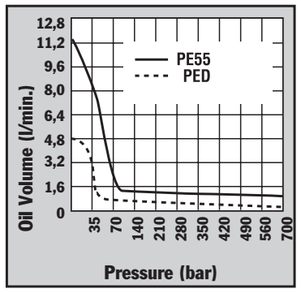
- 0,48Kw, 12,000 rpm, 220 volt, 50 Hz universal motor; draws 25 amps at full load, starts at reduced voltage. CSA rated for intermittent duty.
- 3,1 m remote motor control (except PE552S which has a 7,6 m remote motor and valve control).
- True unloading valve achieves greater pump efficiency, allowing higher flows at maximum pressure.
- Reservoirs available in sizes up to 38 l.

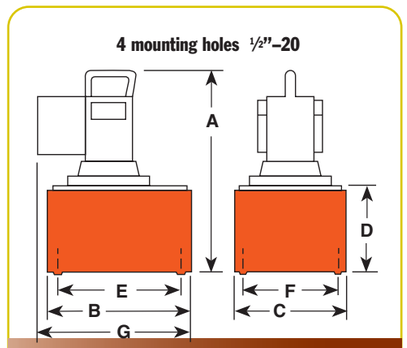
- Light weight and portable. Best weight to performance ratio of all Power Team pumps.

- "Assemble to Order" System: There are times when a custom pump is required. Power Team's "Assemble to Order" system allows you to choose from a wide range of pre-engineered, off-the-shelf components to build a customized pump to fit specific requirements. By selecting standard components you get a "customized" pump without "customized" prices.
All pumps come fully assembled, less oil and ready for work.
See pages 112-115.


**PE55TWP Torque Wrench Applications**

**PE554W The new pump; weather-resistant.**




| Pump No. | Max. Pressure Output bar | rpm | Noise level Idle and at 700 bar (dBA) | Amp Draw at 700 bar (220 V.)" (A) | Oil Del. (l/min at..) 0 bar | 50 bar | 350 bar | 700 bar | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | Prod. Wt. w/Oil (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| PE55-Series<br>PE55-E220 | 700 | 12,000 | 90/89* | 13 | 11,3 | 7,1 | 1,2 | 0,9 | 464<br>520 | 292 | 241 | 178 | 254 | 203 | 356<br>391 | 29,4 |

*Noise level reading (dBA) measured at a 0,9 m distance, all sides.

** Amp draw at 700 bar, 230 Volts 60 Hz is 15 Amps.

**PE554S**

LR19814

**700 bar**


**PE554PT**

CE

**PE552**

| For use with cyl.-type | Description | Order No.*** | Reservoir Valve Type | Valve No. | Valve Function | Control Switch †† | Motor | Usable (l) |
|---|---|---|---|---|---|---|---|---|
| Single-acting | Base model 0,84 KW pump with 9,5 l reservoir, remote motor control & 3-way valve. | **PE552-50-220** | 3-Way | 9582 | Advance Return** | Remote Motor | 0,84 KW*, 220 VAC 50Hz, Single Phase | 8,4 |
| Single-acting | PE552-50-220, except also has solenoid operated remote valve. | **PE552S-50-220** | 3-Way | 9570 | Advance Hold Return | Remote Motor & Valve | 0,84 KW*, 220 VAC 50Hz, Single Phase | 8,4 |
| Single-acting | PE552-50-220, except has "Auto Dump" valve. | **PE552A-50-220** | Auto/Dump | 9610 | Advance Return | Remote Motor | 0,84 KW*, 220 VAC 50Hz, Single Phase | 8,4 |
| Single-acting | 0,84 KW pump with 9,5 l reservoir. Valve has "Posi-check" feature. | **PE553-50-220** | 3-Way† | 9520 | Advance Hold Return | Remote Motor | 0,84 KW*, 220 VAC 50Hz, Single Phase | 8,4 |
| Single-acting | Same as PE552-50-220, but meets also CE requirement | **PE552-E220** | 3-Way | 9584 | Advance Return** | Remote Motor | CE | 8,4 |
| Single-acting | Same as PE552S-50-220, but meets also CE requirement | **PE552S-E220** | 3-Way | 9570 | Advance Return | Remote Motor & Valve | CE | 8,4 |
| Single-acting | Same as PE552A-50-220, but meets also CE requirements | **PE552A-E220**∞ | Auto/Dump | 9610 | Advance Hold Return | Remote Motor | CE | 8,4 |
| Single-acting | Same as PE553-50-220 but needs also CE Requirement | **PE553-E220** | 3-Way | 9520 | Advance Hold Return | Remote Moter | 0,84 KW*, 220 VAC 50Hz, Single Phase | 8,4 |
| Double-acting | Base model 0,84 KW pump with 9,5 l res. and 4-way valve for double-acting systems. | **PE554-50-220** | 4-Way† | 9506 | Advance Hold Return | Remote Motor | 0,84 KW*, 220 VAC 50Hz, Single Phase | 8,4 |
| Double-acting | Same as PE554-50-220 but needs also CE Requirement | **PE554-E220** | 4-Way† | 9506 | Advance Hold Return | Remote Moter | 0,84 KW*, 220 VAC 50Hz, Single Phase | 8,4 |
| Double-acting | PE554-50-220, except has 9500 tandem center valve. | **PE554T-50-220** | 4-Way | 9500 | Advance Hold Return | Remote Motor | 0,84 KW*, 220 VAC 50Hz, Single Phase | 8,4 |
| Double-acting | For use with single-acting Spring Seat, Stressing Jack or double-acting cylinder. | **PE554P-50-220** | 4-Way | 9500 | Advance Hold Return | Remote Motor | 0,84 KW*, 220 VAC 50Hz, Single Phase | 8,4 |
| Double-acting | For use with single- or double-acting Power Seat, Stressing Jacks ONLY. | **PE554PT-50-220** | 4-Way | 9628 | Advance Hold Sequenced Return | Remote Motor | 0,84 KW*, 220 VAC 50Hz, Single Phase | 8,4 |
| Double-acting | Pump suitable to run multiple . spring return tools | **PE554C-50-220** | 4-Way | 9511††† | Advance Hold Return | Remote Motor | 0,84 KW*, 220 VAC 50Hz, Single Phase | 8,4 |
| Double-acting | Pump equipped with 3/4-way solenoid valve. | **PE554S-50-220** | 3/4-Way | 9552 | Advance Hold Return | Remote Motor & Valve | 0,84 KW*, 220 VAC 50Hz, Single Phase | 8,4 |
| Double-acting | Pump suitable to run multiple Spring return cylinder | **PE554C-E220** | 4-Way | 9511 +++ | Advance Hold Return | Remote Motor | CE | 8,4 |
| Double-acting | Pump equipped with 3/4 -way solenoid valve | **PE554S-E220** | 3/4-Way | 9552 | Advance Hold Return | Remote Motor & Valve | CE | 8,4 |

* Pumps available with 115 volt, 50 Hz motors. (to order remove the –50-220 suffix from the order code). See "Assemble to Order" pump options on pages 102-105.

** Holds with motor shut off.

*** To order PE55 series pumps with CSA approval, add "–C" to the Order No.

† Valves have "Posi-Check®" feature.

†† Control switch wired with line voltage. All remotes are 3,1m long except for PE552S which is 7,6m long.

††† Valving allows alternate and independent operation of two different spring return tools. Valve holds pressure only while valve is in "A" or "B" port position with pump motor shut off.

∞ Not to be used for lifting.

**Also available in E 110 CE**

PUMPS

# Electric Pump
## HYDRAULIC PE60 SERIES

## Post Tensioning
## 0,9 l/min
Two-Speed

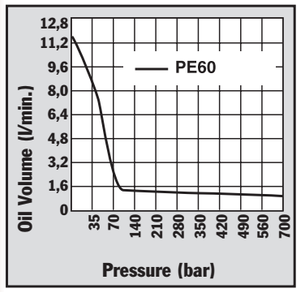
Compact, light weight pump. Excellent choice for rugged applications and low voltage starting.

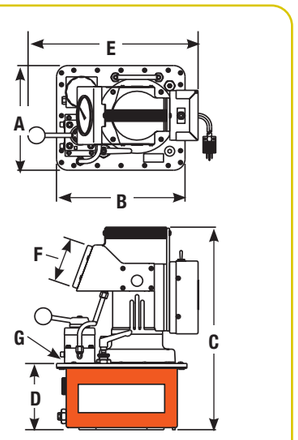
PUMPS

- Long, trouble free life in the most demanding work environments. For operating single- or double-acting cylinders, or stressing jacks.
- Powered by 0,84 KW, 220 volt, 60/50 Hz single phase motor. Starts under load, even at the reduced voltages at construction sites.
- Optional fan-driven external oil cooler includes rollover guard.
- Insulated carrying handle.
- Integral 102 mm fluid-filled pressure gauge with steel bezel complies with ASME B40.1 Grade A. With 0 to 700 bar pressure range in 7 bar increments.
- Sealed 4,34 l (usable) reservoir. Reservoir drain port is standard.
- Standard oil level sight gauge for accurate oil level monitoring.

PE604T w/cooler

- External spin-on filter removes contaminants from circulating oil to maximize pump, valve and cylinder/tool life.




| Pump No. | Max. Pressure Output bar | rpm | Noise level Idle and 700 bar (dBA) | Amp Draw at 700 bar (A) | Oil Del. (l/min at..) 0 bar | 50 (50) | 350 bar | 700 bar | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (in) | Prod. Wt. w/Oil (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PE604T -220** | 700 | 12.000 | 80/85 | 13 | 11,3 | 7,1 | 1,2 | 0,9 | 263,5 | 301,6 | 457,2 | 152,4 | 381 | 101,6 | 3/8 NPTF | 27,2 |
| **PE604PT -220** | 700 | 12.000 | 80/85 | 13 | 11,3 | 7,1 | 1,2 | 0,9 | 263,5 | 301,6 | 457,2 | 152,4 | 381 | 101,6 | 3/8 NPTF | 27,7 |

**NOTE:** Unloading pressure is 70 bar.
Consult factory for PE60 pump models with other control and valve options.

PE604T


700 bar

LR19814

The PE60 used for pre-stressing.

| | Description | Order No. | Valve Type | Valve No. | Valve Function | Control Switch | Motor | Reservoir Usable (l) |
|---|---|---|---|---|---|---|---|---|
| Single-Acting, Spring Seat, Stressing Jack or Double-Acting | 0,84 kW pump with 4,73 l reservoir & valve for double-acting systems. | **PE604T** | 4-Way 3-position | 9500 | Advance Hold Return | On/Off/Pulse | 0,84 kW, 220 VAC 50 Hz, Single Phase | 4,34 |
| Single-Acting or Double-Acting Power Seat, Stressing Jacks Only | PE604T, except has special valve for post tensioning application only. | **PE604PT** | 4-Way 3-position | 9628 Model C | Advance Hold Sequenced Return | On/Off/Pulse | 0,84 kW, 220 VAC 50 Hz, Single Phase | 4,34 |

**OPTIONAL**

**252511:** Oil cooler kit for PE604T or PE604PT, 115 VAC. Weight 2,7 kg.

**252512:** Oil cooler kit for PE604T or PE604PT, 220 VAC. Weight 2,7 kg.

PUMPS

# Electric Pump
## HYDRAULIC PQ60 SERIES

## Up to 200 ton
## 0,8 l/min

Pump designed specifically for heavy duty, extended cycle operation.

- For operating single- or double-acting cylinders.
- Metal shroud keeps dirt and moisture out of motor and electrical components.
- Electrical shut-down feature prevents unintentional restarting of motor following an electrical service interruption.
- Internal relief valve limits pressure to 700 bar. External relief valve is adjustable from 70 to 700 bar.
- Pumps operate below maximum OSHA noise limitation (74-76 dBA).
- Start and operate under full load, even with voltage reduced 10%.


PQ603

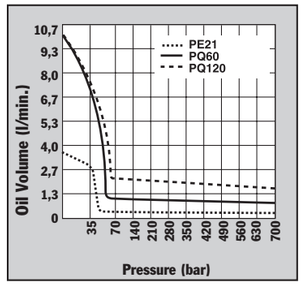
**700 bar**

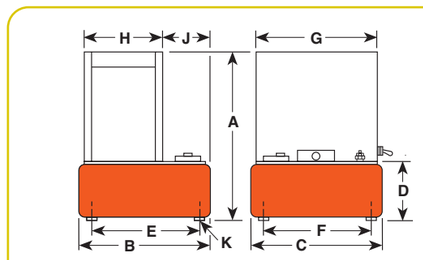
LR19814


PQ604


PQ604S

**Hydraulic Machine Press Operation.**




| Pump No. | Max. Pressure Output bar | rpm | Noise level at Idle and 700 bar (dBA) | Amp Draw at 700 bar (A) | Oil Del. (l/min at..) 7 bar | 70 bar | 350 bar | 700 bar | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | H (mm) | J (mm) | K*** (in) | Prod. Wt. w/Oil (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PQ60 Series** | 700 | 1.437 | 74/76* | See Chart (following page) | 9,7 | 0,9 | 0,9 | 0,8 | 638 | 362 | 394 | 184 | 308 | 338 | 373 | 237 | 122,2 | ½–20 UNF | 76,6** |

* Measured at a 0,9 m distance, all sides.
** Total weight with oil and 3-way solenoid valve. Subtract 4,5 kg to obtain weight of pump with manual valve.
*** For 50,8 mm dia. swivel casters, order (4) No. 10494.

| For use with Cyl. Type | Description | Order No. | Valve Type | Valve No. | Valve Function | Max. Amp Draw at 700 bar (A) | Motor | Reservoir Usable (l) |
|---|---|---|---|---|---|---|---|---|
| Single-Acting | 1,49 KW pump with 21,6 l reservoir and manual valve, | **PQ603-50-220** | 3-Way | 9520* | Advance Hold Return | 115V - 22 amps 230V - 11 amps | 1,49 KW, 220 Volt 50 Hz, Single | 20 |
| Single-Acting | PQ603-50-220, except has solenoid operated remote valve. | **PQ603S-50-220** | 3-Way | 9599† | Advance Hold Return | 115V - 22 amps 230V - 11 amps | 1,49 KW, 220 Volt 50 Hz, Single | 20 |
| Double-Acting | 1,49 KW pump with 21,6 l reservoir and manual valve. | **PQ604-50-220** | 4-Way | 9506* | Advance Hold Return | 115V - 22 amps 230V - 11 amps | 1,49 KW, 220 Volt 50 Hz, Single | 20 |
| Double-Acting | PQ604-50-220, except has solenoid operated remote valve. | **PQ604S-50-220** | 4-Way | 9512† | Advance Hold Return | 115V - 22 amps 230V - 11 amps | 1,49 KW, 220 Volt 50 Hz, Single | 20 |

* Manual valve. Pump is equipped with RUN/OFF/PULSE switch for control of motor.
† Solenoid valve. Pump is equipped with a remote control switch with 3,1 m cord.
‡ Some Power Team pumps are available in special configurations not listed in this catalog. Power Team can “Assemble to Order” pumps with special seals, voltages, valves, relief valve settings, etc. For your special requirements please consult your local distributor or the Power Team factory.


PUMPS

# Electric Pump
## HYDRAULIC PQ120 SERIES

## Up to 400 Ton
## 1,6 l/min

Low speed, high torque pump designed specifically for heavy duty, extended cycle operation. Ideal for press operation.

PUMPS

- Start and operate under full load, even with voltage reduced 10%.
- Electrical shut-down feature prevents unintentional restarting of motor following an electrical service interruption.
- Internal relief valve limits pressure to 700 bar. External relief valve is adjustable from 70 to 700 bar.
- Pump prewired at factory with a 2,24 KW, 380 volt, 50 Hz. 3 Phase motor. Other electrical configurations are available.

- 24 volt control circuits on units with remote controls for added user/operator safety.
- 2,24 KW(3 phase) motor with thermal overload protection. Motor starter and heater element supplied as standard equipment; no hidden charges!
- Metal shroud keeps dirt and moisture out of motor and electrical components.
- Pumps operate below maximum OSHA noise limitation.

PQ1203

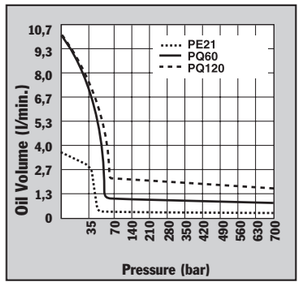
PQ1204

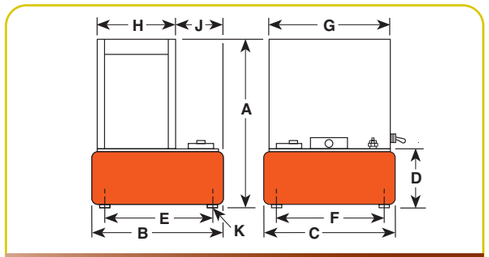
PQ1204S

**700 bar**

LR19814

CE




| Pump No. | Max. Pressure Output bar | rpm | Noise level at Idle and 700 bar (dBA) | Amp Draw at 700 bar (A) | Oil Del. (l/min at..) 7 bar | 70 bar | 350 bar | 700 bar | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | H (mm) | J (mm) | K*** (in) | Prod. Wt. w/Oil (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PQ120-Series** | 700 | 1.437 | 73/78* | See Chart Above | 9,7 | 2,1 | 1,7 | 1,6 | 638 | 362 | 394 | 184 | 308 | 338 | 373 | 237 | 122,2 | ½–20 UNF | 74,3** |

* Measured at a 0,9 m distance, all sides.
** Total weight with oil and 3-way solenoid valve. Subtract 4,5 kg to obtain weight of pump with manual valve.
*** For 50,8 mm dia. swivel casters, order (4) No. 10494.

| For use with cyl.-type | Description | Order No. | Valve Type | Valve No. | Valve Function | Motor | Reservoir Usable (l) |
|---|---|---|---|---|---|---|---|
| Single-acting | 2,24 KW pump with 21,6 l reservoir and manual valve. | **PQ1203-E380** | 3-Way | 9520* | Advance Hold Return | 2,24 KW, 400 Volt 50 Hz, 3 Phase | 20 |
| Single-acting | PQ1203-50-380, except has solenoid operated remote valve. | **PQ1203S-E380** | 3-Way | 9599† | Advance Hold Return | 2,24 KW, 400 Volt 50 Hz, 3 Phase | 20 |
| Double-acting | 2,24 KW pump with 21,6 l reservoir and manual valve. | **PQ1204-E380** | 4-Way | 9506* | Advance Hold Return | 2,24 KW, 400 Volt 50 Hz, 3 Phase | 20 |
| Double-acting | PQ1204-50-380, except has solenoid operated remote valve. | **PQ1204S-E380** | 4-Way | 9512† | Advance Hold Return | 2,24 KW, 400 Volt 50 Hz, 3 Phase | 20 |

* Manual valve. Pump is equipped with RUN/OFF/PULSE switch for control of motor.
† Solenoid valve. Pump is equipped with a remote control switch with 3,1 m cord.
‡ Some Power Team pumps are available in special configurations not listed in this catalog. Power Team can "Assemble to Order" pumps with special seals, voltages, valves, relief valve settings, etc. For your special requirements please consult your local distributor or the Power Team factory.

PUMPS

# Electric Pump
## HYDRAULIC PE400 SERIES

## Up to 1,000 Ton
## 5,6 l/min

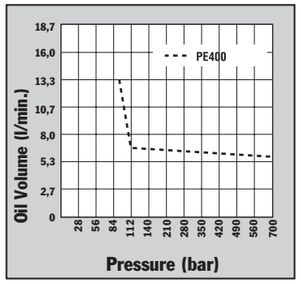
High tonnage double-acting cylinders, Single or multiple cylinder applications. Up to 1,000 Tons

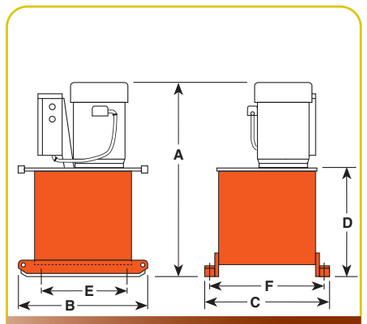
- Two-speed high output pump delivers up to 16 l/min of oil.
- Low noise level of 73-80 dBA.
- Integral electrical shut-down feature prevents unintentional restarting of motor following an electrical service interruption. Over-current protection prevents damage to motor as a result of overheating.
- “Stop” and “Start” control buttons are 24 volt. PE4004 has a 4-way/3-position manual valve. The PE4004S has a 4-way/3-position solenoid valve with a 24 volt remote hand switch.
- External pressure relief valve is adjustable from 100 to 700 bar.
- Heavy duty 50,8 mm dia. casters assure easy maneuvering.
- 75,7 l (62,8 l usable) reservoir has a low oil level sight gauge.
- Powered by a dual voltage 7,46 KW, 3 phase, 1,437 rpm motor.
- 3 phase motor has all the electrical components necessary to operate the pump.The customer has no hidden charges when making purchase.
- Deliver 16 l/min. of oil at 15 bar, 5,6 l/min. of oil at 700 bar.

**PE4004S pump and RD3006 cylinder used in a special press which repairs damaged chain links for the shipping industry.**

**PE4004S**

**700 bar**




| Pump No. | Max. Pressure Output bar | rpm | Noise level at Idle and 700 bar (dBA) | Amp Draw at 700 bar (A) | Oil Del. (l/min at..) 15 bar | 90 bar | 350 bar | 700 bar | A* (mm) | B (mm) | C (mm) | D (mm) | E Caster Mfg. (mm) | F Caster Mfg. (mm) | Prod. Wt. w/Oil (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PE4004-50-380** | 700 | 1.437 | 73/80 | 6 | 16 | 14 | 6 | 5,6 | 924 | 635 | 610 | 540 | 394 | 546 | 223 |
| **PE4004S-50-380** | 700 | 1.437 | 73/80 | 6 | 16 | 14 | 6 | 5,6 | 924 | 635 | 610 | 540 | 394 | 546 | 229 |

* Add 127 mm and 3,6 kg when casters are mounted. (Units are supplied with four 102 mm dia. swivel casters.)

| For use with cyl.-type | Description | Order No. | Valve Type | Valve No. | Valve Function | Motor†† | Reservoir Usable (l) |
|---|---|---|---|---|---|---|---|
| Double-acting | 7,46 KW pump with 75,5 l reservoir and manual valve. | **PE4004-E380** | 4-Way | 9506 | Advance Hold Return | 7,46 KW, 400 volt 50 Hz, 3 Phase | 62,8† |
| Double-acting | PE4004, except has solenoid operated remote valve. | **PE4004S-E380** | 4-Way | 9512** | Advance Hold Return | 7,46 KW, 400 volt 50 Hz, 3 Phase | 62,8† |

** Solenoid valve with remote control.

† Usable oil is calculated with oil fill at recommended level at 57 mm below cover plate.

†† PE400 series available in 220/380V, 50Hz and 460V, 50Hz. Please specify when ordering. Example: PE4004-50-380 or for 460 V PE4004-460.

**NOTE:** Valves for spring return cylinders are available upon request. Consult the factory.

# Crimping Pump
## ELECTRIC HYDRAULIC PE-NUT

## 0,49 l/min
Two-Speed

Extremely durable yet lightweight and operate under low-line voltage conditions.

### PE-NUT PUMP – 115V

- 0,46 KW universal electric motor (50 cycle)
- Two-stage pump for rapid ram advance
- Operational under low-line voltage conditions
- Optional operating pressures available; consult Power Team for details
- Designed for use with spring-returned remote tools
- High-pressure safety relief valve
- Remote hand control with 3,1 m cord
- Carrying handle
- Factory filled oil reservoir
- Pressure matched quick-coupler supplied
- Optional carrying case
- Two-stage pumping system
- Unique, intermittent duty pump
- Piston-type high-pressure pump supercharged by a low-pressure pump.


**⚠ CAUTION: DESIGNED FOR CRIMPING APPLICATIONS ONLY!** This system should not be used for lifting.

| Order No. | Oil Delivery (l/min.) | Oil Reservoir qt. (l) | Usable Oil qt. (l) | Overall Width (mm) | Overall Length (mm) | Overall Depth (mm) | Pump Weight w/Oil (kg) |
|---|---|---|---|---|---|---|---|
| **PE-NUT** | 2,62 at 7 bar | 6 | 2,8 | 165 | 365 | 210 | 12,6 |
| **PE-NUTC*** | 0,49 at 700 bar | | | | | | |

*Includes Case

| Electrical Data | |
|---|---|
| **Electric Motor** | **Electrical Control** |
| 0,46 KW, 10,000 rpm 115V AC, 50 Hz 11 amp current draw (115V at 700 bar) | |

# Crimping Pump
## GAS HYDRAULIC PG120

## Crimping Pump 2,1 l/min
Two-Speed

Two-stage pump for rapid advance

### GASOLINE POWER PUMPS

PG1203-CP
- 4,5 Kw Briggs & Stratton engine
- Manual control valve
- High-pressure safety relief valve
- Protective roll cage
- For use with single acting tools

### PG1203/4S-CP

- 4,1 Kw Honda OHV-type engine
- Remote hand control with 3,1 m cord
- Two-stage pump for rapid advance
- High-pressure safety relief valve
- Protective roll cage
- For use with either single or double acting tools

**⚠ CAUTION: DESIGNED FOR CRIMPING APPLICATIONS ONLY!** This system should not be used for lifting.

| Order No. | Oil Delivery (l/min.) | Oil Reservoir (l) | Usable Oil (l) | Overall Width (mm) | Overall Length (mm) | Overall Height (mm) | Pump Weight w/Oil (kg) |
|---|---|---|---|---|---|---|---|
| **PG1203-CP** | 8 at 7 bar | 11,3 | 7 | 502 | 552 | 622 | 25 |
| **PG1203/4S-CP** | 2,1 at 700 bar | | | | | | |

# Gasoline Pump
## HYDRAULIC PG30/55 SERIES

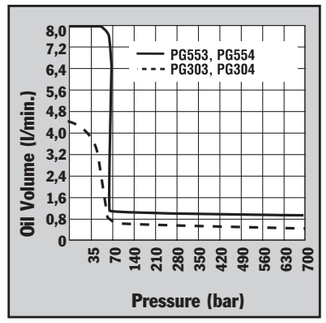
## 0,5 - 0,9 l/min
Gasoline driven

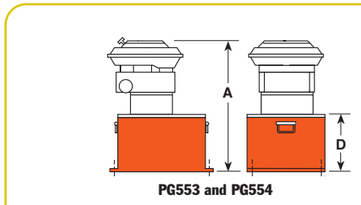
Gasoline power supply ideal for remote locations. PG30 series for to 75 ton cylinders. PG55 series for up to 150 ton cylinders.

- A logical choice at work sites where electricity or compressed air are unavailable. For single- or double-acting cylinders at operating pressures to 700 bar.
- All gasoline engine/hydraulic pumps feature "Posi-Check®" valve to guard against pressure loss when valve is shifted from "advance" to "hold".

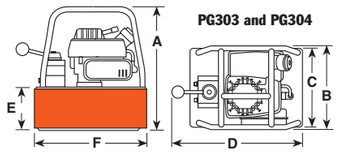
PG303

**PG303 and PG304**
- Powered by a 2-cycle, 1,5 kW Tecumseh engine giving it the lowest weight to horsepower ratio of all gasoline driven pumps. Has an aluminum reservoir with 6 l of usable oil.
- Has same basic pump as PE30 series electric operated pumps.
- PG30 series pumps are equipped with roll cages to protect pump from damage.
- PG30 series pumps weigh in at only 14,5 kg with oil.
- PG303 is for single-acting cylinders, has a 9520 valve with separate internal return line; allows oil from running pump to return to reservoir, independently of cylinder return oil, when valve is in "return" position.
- PG304 is for double-acting cylinders, has a 9506 4-way (tandem center) valve.



PG553 and PG554



PG303 and PG304

| Pump No. | Max. Pressure Output bar | rpm | Oil Del. (l/min at...) 7 bar | 0 bar | 350 bar | 700 bar | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | Prod. Wt. w/Oil (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PG303, PG304** | 700 | 6.000 | 4,4* | 0,6 | 0,6 | 0,5 | 378 | 264 | 241 | 406 | 130 | 343 | 14,5 |
| **PG553, PG554** | 700 | 3.600 | 7,7 | 1,2 | 1,1 | 0,9 | 559 | 457 | 318 | 219 | 422 | 229 | 54,4 |

* First stage oil delivery from 0-28 bar at 3,7 l/min minimum.

**PG553 and PG554**
- 4,5 Kw Intek "Diamond Edge" 4-cycle, by Briggs & Stratton 19 l reservoir.
- Same basic pump as PE55 series electrical Vanguard® pumps.
- PG553 has a 9520 3-way valve for single-acting cylinders.
- PG554 has a 9506 4-way valve for double-acting cylinders.

PG554

700 bar

**Gasoline Powered Hydraulic Pumps like this PG303 help provide hydraulic force at remote locations.**

| For use with cyl.-type | Description | Order No. | Valve Type | Valve No. | Valve Function | Reservoir Usable (l) | Kw | Cycle |
|---|---|---|---|---|---|---|---|---|
| Single-acting | 1,5 Kw pump with 7,6 l reservoir and single-acting valve. | **PG303** | 3-Way | 9520 | Advance Hold Return | 6 | 1,5 | 2 |
| Single-acting | 4,5 Kw pump with 21,6 l Reservoir and single-acting valve. | **PG553** | 3-Way | 9520 | Advance Hold Return | 20,8** | 4,5 | 4 |
| Double-acting | PG303, except has double-acting valve. | **PG304** | 4-Way | 9506 | Advance Hold Return | 6 | 1,5 | 2 |
| Double-acting | PG553, except has double-acting valve. | **PG554** | 4-Way | 9506 | Advance Hold Return | 20,8** | 4,5 | 4 |

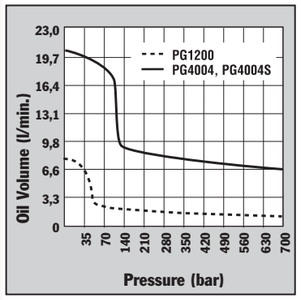
** Usable oil is calculated with oil fill at recommended level at 13 mm below cover plate.

# Gasoline Pump
## PG120-PG400 SERIES

## 2,1 - 6,4 l/min
Max.output gasoline powered pumps.

Large reservoir capacity roll cage equipped. PG120 for up to 300 ton cylinders. PG400 for up to 1,000 ton cylinders.



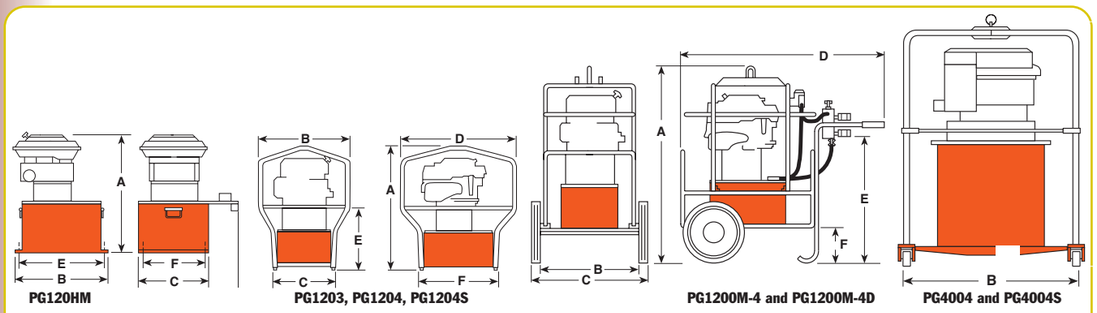



- Two-speed high performance pumps ideal for construction, structure moving and rigging applications.
- A logical choice at work sites where electricity or compressed air are unavailable. For single- or double-acting cylinders at operating pressures to 700 bar.
- All gasoline engine/hydraulic pumps feature “Posi-Check®” valve to guard against pressure loss when valve is shifted from “advance” to “hold”.
- PG1200 Series pumps powered by a Honda 4-cycle, 5.5 hp engine with automatic decompression and electronic ignition. Deliver over 2,1 l/min at 700 bar.
- A 19 liter reservoir means adequate capacity for multi-cylinder applications. Dual element air cleaner protects engine from dusty environments.

700 bar

PG4004S

- Heavy duty “roll cage” provides pick-up points for lifting. Horizontal bars on PG1203, PG1204 and PG1204S protect unit, provide hand holds for carrying.
- Rubber anti-skid insulation on bottom of reservoir resists skidding and dampens vibration. PG1200M-4 and PG1200M-4D include a pump cart with 305 mm wheels.
- Adjustable external pressure regulator.




PG120HM | PG1203, PG1204, PG1204S | PG1200M-4 and PG1200M-4D | PG4004 and PG4004S

| Pump No. | Max. Pressure Output bar | rpm | Oil Del. (l/min @) 7 bar | 70 bar | 350 bar | 700 bar | Prod. A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | Wt. w/Oil (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PG120HM** | 700 | 3,600 | 7,7 | 2,8 | 2,4 | 2,1 | 584 | 394 | 362 | 483 | 338 | 308 | 68 |
| **PG1203** | 700 | 3,600 | 7,7 | 2,8 | 2,4 | 2,1 | 708 | 514 | 362 | 667 | 343 | 464 | 70 |
| **PG1204** | 700 | 3,600 | 7,7 | 2,8 | 2,4 | 2,1 | 708 | 514 | 362 | 667 | 343 | 464 | 70 |
| **PG1204S** | 700 | 3,600 | 7,7 | 2,8 | 2,4 | 2,1 | 708 | 514 | 362 | 667 | 343 | 464 | 73 |
| **PG1200M-4** | 700 | 3,600 | 7,7 | 2,8 | 2,4 | 2,1 | 1070 | 457 | 635 | 1080 | 667 | 184 | 118 |
| **PG1200M-4D** | 700 | 3,600 | 7,7 | 2,8 | 2,4 | 2,1 | 1070 | 457 | 635 | 1080 | 667 | 184 | 127 |
| **PG4004** | 700 | 3,600 | 19,8 | 17,9 | 7,6 | 6,4 | 1276 | 1321 | 1321 | — | — | — | 197 |
| **PG4004S** | 700 | 3,600 | 19,8 | 17,9 | 7,6 | 6,4 | 1276 | 1321 | 1321 | — | — | — | 200 |

PG1204S

**PG1200M-4**
- For single-acting cylinders. Has 9520 3-way/3-position (tandem center) valve, 9596 load lowering valve and 9644 4-port manifold with individual needle valves at each port.
- Has a 9796 coupler and 9797 dust cap at each port. Valving permits precise individual control of up to four cylinders.
- A 9052 heavy duty, fluid filled pressure gauge (0-700 bar) is included.

**PG1200M-4D**
- For single- or double-acting cylinders with precise individual control of up to four cylinders possible.
- Equipped same as PG1200M-4, except has 9506 4-way/3-position (tandem center) valve, and second 4-port manifold without needle valves mounted beneath 9644 manifold for operating double-acting cylinders.

**PG400 Series Maximum output Hydraulic Power Package**
- Ideal for single or multiple cylinder applications. Has a 4-cycle, 15 kW Honda engine and 76 l reservoir (63 l usable) with low oil level sight gauge.
- Steel “roll cage” protects pump, has a lifting hook; 102 mm dia. swivel casters provide mobility.
- Delivers 6,4 l/min of oil at maximum operating pressure.
- Has a 9506 4-way valve. On/off switch and speed control are protected by a panel. Sturdy molded case protects battery (not included).

PG1200M-4D

| For use with cyl.-type | Description | Order No. | Valve Type | Valve No. | Valve Function | Reservoir Usable (l) | Kw | Cycle |
|---|---|---|---|---|---|---|---|---|
| Single-acting | Base model 4,1 Kw gasoline pump with 22 l reservoir. | **PG1203** | 3-Way | 9520 | Advance Hold Return | 20,8 | 4,1 | 4 |
| Single-acting | PG1203 with cart, rollcage, load lowering valve, 4 port manifold & gauge. | **PG1200M-4** | 3-Way Manifold | 9520 9644 | Advance Hold Return** | 20,8 | 4,1 | 4 |
| Single-acting/ double-acting | PG1200M-4D, except without “Roll Cage” and cart. Ideal for house moving industry. | **PG120HM** | 4-Way Manifold | 9506 9642 | Advance Hold Return** | 20,8 | 4,1 | 4 |
| Double-acting | Base model 4,1 Kw gasoline pump, with 22 l reservoir and double-acting valve. | **PG1204** | 4-Way | 9506 | Advance Hold Return | 20,8 | 4,1 | 4 |
| Double-acting | PG1204, except has roll cage, cart, solenoid valve and 7,6 m cord. | **PG1204S** | 4-Way Solenoid*** | 9516 | Advance Hold Return | 20,8 | 4,1 | 4 |
| Double-acting | PG1200M-4, except for double-acting systems. | **PG1200M-4D** | 4-Way Manifold | 9506 9644 | Advance Hold Return** | 20,8 | 4,1 | 4 |
| Double-acting | Base model 15 Kw pump with 76 l reservoir. | **PG4004** | 4-Way | 9506 | Advance Hold Return | 62,8* | 15 | 4 |
| Double-acting | PG4004, except has solenoid operated remote valve. | **PG4004S** | 4-Way Solenoid*** | 9516 | Advance Hold Return | 62,8* | 15 | 4 |

* Usable oil is calculated with oil fill at recommended level at 57 mm below cover plate.

** Control up to 4 cylinders independently.

*** Has 7,6 m remote control cord.

# Intensifier
## HYDRAULIC

Pressure ratio 5:1

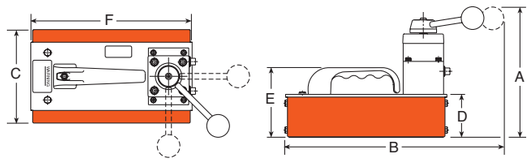
Converts low-pressure portable hydraulic pumps or on-board hydraulic systems, into high pressure power sources.

PUMPS

- Applications include utilities, railroads, construction, riggers and others.
- Operates single- or double-acting cylinders, jacks, and tools such as crimpers, spreaders, cable cutters, or tire tools.
- May be used to operate two separate, single-acting tools (with integral valves) independently, without need for additional manifold.
- Compact and rugged for use inside a utility vehicle aerial bucket or stowing in a vehicle.
- Control valve included. Other Power Team valves available as an option to suit your specific application, if needed; consult factory.
- No reservoir level to maintain; uses low pressure system as oil supply.
- Has 3⁄8" NPTF ports; compatible with standard fittings for low and high pressure systems.


**HB443**

**700 bar**

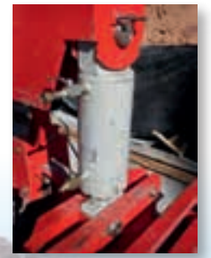


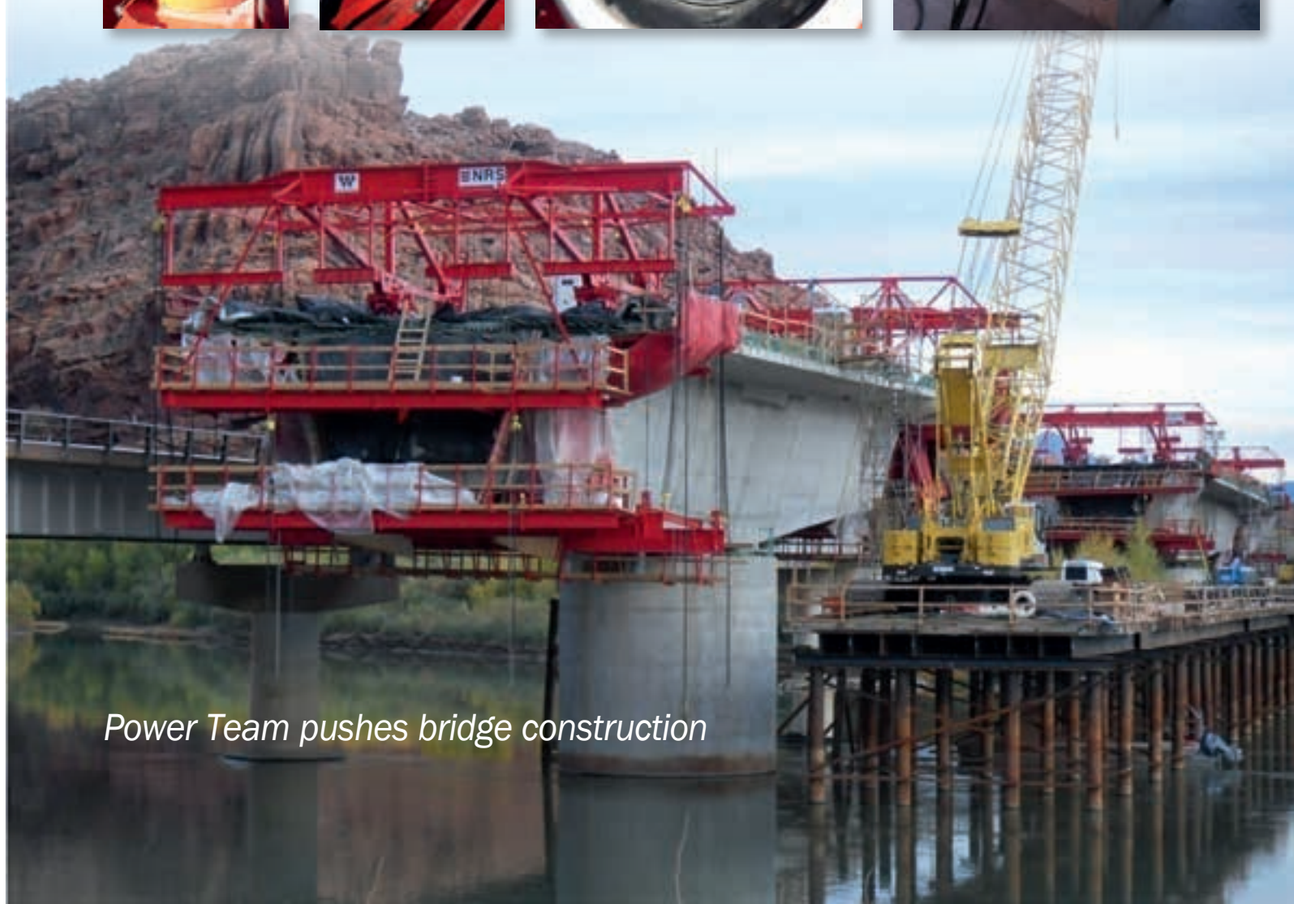

| Pump No. | Output Flow at 700 bar | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | Prod. Wt. (kg) |
|---|---|---|---|---|---|---|---|---|
| **HB44-Series** | 0,7 l/min. | 210 | 368 | 156 | 70 | 114 | 267 | 7,2 |

| For use with Cyl. Type | Description | Order No. | Valve Type | Valve No. | Output Flow Valve Function | Input Flow Range (l/min) | Input Flow Pressure (bar) | Output Flow Range (l/min) |
|---|---|---|---|---|---|---|---|---|
| Single-Acting | Hydraulic intensifier for single-acting systems | **HB443** | 3-Way 3-Position | 9520* | Advance Hold Return | 0 -38 | 20 - 138 | 0 - 9,5 |
| Single-Acting/ Double-Acting | Hydraulic intensifier for double-acting systems | **HB444** | 4-Way 3-Position | 9506* | Advance Hold Return | 0 -38 | 20 - 138 | 0 - 9,5 |
| Double-Acting | Hydraulic intensifier for double-acting torque wrench tools | **HB445-RR** | 4-Way 3-Position | – | Advance Hold Return | 0 -38 | 20 - 138 | 0 - 9,5 |

† For maximum efficiency, recommended input flow is 19 l/min at a maximum pressure of 140 bar. Higher flows and/or pressures must be compensated for at the system pump (e.g., relief valve, variable flow devices, etc.).

* Posi-Check® valve design, "Posi-Check®" guards against pressure loss when valve is shifted from "advance" position to "hold" position.





*Power Team pushes bridge construction*

# Assemble to Order Pumps

## CUSTOM BUILT HYDRAULIC PUMP

Choose your basic pump, make your selections, and we will assemble, test and ship your pump.


1
PE55A
PE55B
PE90A
PE90B


2
PE55C
PE55D
PE55F
PE90C
PE90D
PE90F


3
PE120M

700 bar


4
PA55A
PA90A


5
PG55A

### ORDER A "CUSTOM BUILT" HYDRAULIC PUMP

"Assemble to Order" means you can choose a basic pump with gas, air or electric motor. Then select the proper valve, gauge, pressure control, motor control and reservoir. You get a two-stage pump that gives high oil volume for fast cylinder approach (and return with double-acting cylinders) in the first stage and high pressure in the second stage.

### 1 0,83 KW UNIVERSAL MOTOR

These motors start under full load and are suitable for operation up to 350 or 700 bar. The motor is 0,83 KW, 12,000 rpm, 115 or 230 volt, 50 cycle A.C. single phase (25 amp draw at 115V.). With proper valve they can be used with single- or double-acting cylinders. Remote control available.

### 2 1,1 KW JET MOTOR, SINGLE & THREE-PHASE

Feature low noise level, moderate speed for long service and are ideal for fixed applications. Motor is 1,1 KW, 3.450 rpm, 115 or 230 volt, 50 cycle, A.C. single phase with thermal overload switch. Can be used with single- or double-acting cylinders and equipped with remote control. Also available in 230/460 volt, three-phase (specify).

**NOTE:** These do not start under full load unless valve is in "neutral" (requires open or tandem center valve) and are not recommended for frequent starting and stopping.

### 3 2,2 KW JET MOTOR, THREE-PHASE

Gives low noise level and long life due to its moderate operating speed. Ideal for fixed installations. Consists of basic 700 bar pump, jet pump motor: 2,2 KW, 3.450 rpm, 230/460 volt, 50 cycle. A.C. three-phase, with thermal overload switch. Equipped with internal and external relief valve. Will start under load.

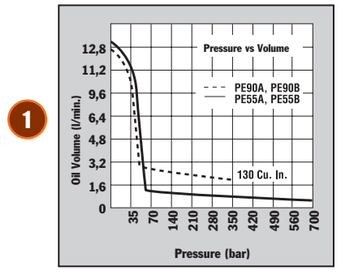
### 4 2,3 KW AIR MOTOR

This pump is ideal for use where electricity is unavailable or cannot be used. The 350 or 700 bar pump has a 2,3 KW air driven motor at 3.000 rpm (optimum performance based on 6 bar air pressure and 1165 l/min 1419 l/min at the pump). You can drive single- or double-acting cylinders with the correct valve.

**NOTE:** 6 bar air supply required to start under full load.

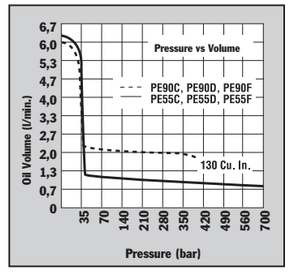
### 5 GASOLINE ENGINE

This version is perfect when electricity and air are unavailable. It is capable of continuous operation at full pressure. Consists of basic 700 bar pump, 4-cycle Briggs & Stratton "Diamond Edge" gasoline engine, developing 4,5 KW. As with all these pumps, this unit can be valved for use with either single- or double-acting cylinders.



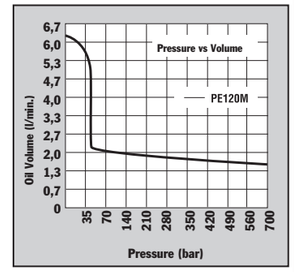

1

dBA @ idle and 700 bar- 90/95
dBA @ idle and 350 bar - 90/95



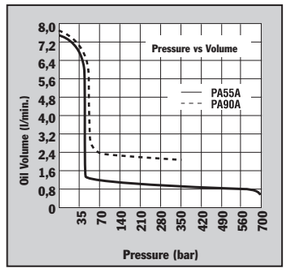

2

dBA @ idle and 700 bar - 80/85



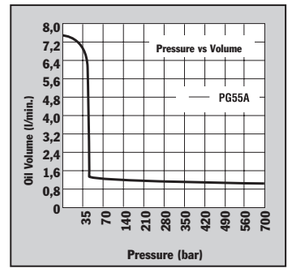

3

dBA @ idle and 700 bar - 80/85




4

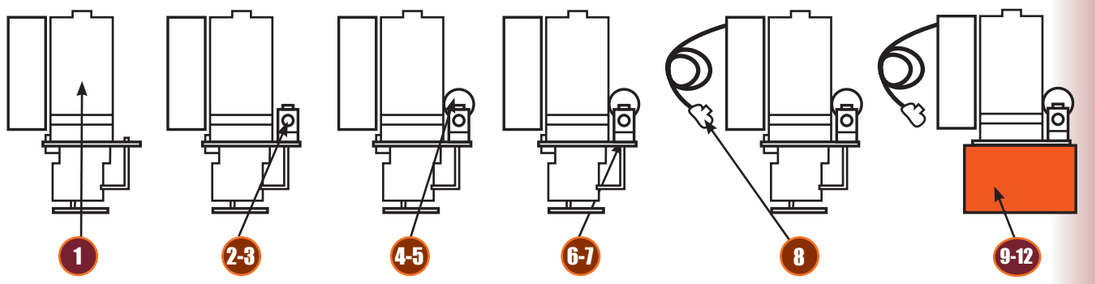
dBA @ idle and 700 bar - 83/88
dBA @ idle and 350 bar - 83/88




5

## "ASSEMBLE TO ORDER" SYSTEM
## HOW TO ORDER YOUR "CUSTOM" HYDRAULIC PUMP. . .

You can choose from pre-engineered, off-the-shelf components to customize your pump. All the components are listed in table form, with key letters or numbers on pages 114-115. Complete instructions guide you through so you can determine what is needed to complete a pump assembly. Shown below is an example of a custom-built pump.




**Pump No. PE55A–VV–Z–G–A–A–A–A–D–BB–C–2F** is a 700 bar two-speed pump with a 115 volt, 50Hz, single phase, 1,12 KW, 12,000 rpm motor;
a 9512
4-way solenoid valve with a 202778 remote hand control, a 9041 pressure gauge, no gauge accessories, standard pressure control, standard On-Off-Pulse motor control, 40063OR9 7,6 liter reservoir, a 350431 oil level/temperature gauge, 10494 casters, and 7,6 liter of standard hydraulic oil.

# Assemble to Order System

## PUMP COMPONENT SPECIFICATION CHART

### TO BUILD YOUR PUMP, FILL IN KEY LETTERS FROM CHARTS

| 1 Basic Pump | 2 Select Valve | 3 Select Valve Control | 4 Select Gauge | 5 Select Gauge Accessories | 6 Pressure Control |
|---|---|---|---|---|---|
| | | | | | |
| **7 Pressure Switch** | **8 Motor Control** | **9 Reservoir** | **10 Level/Temp Gauge** | **11 Choose Casters** | **12 Select Oil** |
| | | | | | |

Use the charts numbered from 1-12 below to select the pump, valve, gauge and other miscellaneous accessories to suit your needs. For the pump, fill in the basic number plus key letter in block 1 above and the key letter only in the blocks 2-12 above for any of the other items. Refer to the appropriate pages in this catalog for more specific information on the products you need.

## 1 BASIC PUMP

| BASIC PUMP NUMBERS | | | | | | SPECIFICATIONS | | |
|---|---|---|---|---|---|---|---|---|
| PE55 (700 bar) | PE90 (350 bar) | PE120 (700 bar) | PA55 (700 bar) | PA90 (350 bar) | PG55 (700 bar) | NOTE: Customer must specify voltage required. Power Source | rpm | KW |
| A or AC* | A or AC* | | | | | 115V-60 Hz, 1Ø | 12,000 | 0,84 |
| | | | | | | 110V-50 Hz, 1Ø | 12,000 | 0,84 |
| B or BC* | B or BC* | | | | | 230V-60 Hz, 1Ø | 12,000 | 0,84 |
| | | | | | | 220V-50 Hz, 1Ø | 12,000 | 0,84 |
| † C or CC* | † C or CC* | | | | | 115V-60 Hz, 1Ø | 3,450 | 1,12 |
| † C50 | † C50 | | | | | 110V-50 Hz, 1Ø | 2,850 | 1,12 |
| † D or DC* | † D or DC* | | | | | 230V-60 Hz, 1Ø | 3,450 | 1,12 |
| † D50 | † D50 | | | | | 220V-50 Hz, 1Ø | 2,850 | 1,12 |
| † F60 ** | † F60** | | | | | 208, 230/460V-60 Hz, 3Ø | 3,450 | 1,12 |
| † F50 ** | † F50** | | | | | 220/380V-50 Hz, 3Ø | 2,850 | 1,12 |
| | | M60 ** | | | | 208, 230/460V-60 Hz, 3Ø | 3,450 | 2,24 |
| | | M50 ** | | | | 220/380V-50 Hz, 3Ø | 2,850 | 2,24 |
| | | | A | A | | Air Motor | 3,000 | 2,24 |
| | | | | | A | Gas Engine | 3,600 | 4,47 |

*Suffixes AC, BC, CC & DC indicate pumps for Canadian orders only.
**NOTE:** All electric units have 24 volt secondary circuit.
**Specify voltage required.

† These pumps do not start under full load unless valve is in "neutral" position (requires open or tandem center valve) and are not recommended for frequent starting and stopping.

## VALVE

| | Manifold/Manual/Air Operated Directional Valves | Function |
|---|---|---|
| AB | 9628 manual, tandem center | 4-way, 3 pos. valves |
| AC | 9632 manual "twin" tandem and open center | |
| A | None | — |
| B | 9626 manifold | Manifold |
| C | 9584 manual | 3-way, 2 pos. valves |
| D | 9582 manual | |
| E | 9610 automatic, pilot operated | |
| G | 9504 manual | 3/4-way, 2 pos. valves |
| JJ | 9594 air operated | |
| L | 9502 manual, closed center "non-interflow" | 3-way, 3 pos. valves |
| M | 9520 manual, tandem center "Posi-Check®" | |
| N | 9576 manual, metering tandem center | |

| | Manifold/Manual/Air Operated Directional Valves | Function |
|---|---|---|
| O | 9609 manual, pressure compensated flow control | 3-way, 4 pos. |
| R | 9506 manual, tandem center "Posi-Check®" | 4-way, 3 pos. valves |
| RR | 9511 manual, open center | |
| S | 9500 manual, tandem center | |
| T | 9507 manual, closed center "Posi-Check®" | |
| U | 9501 manual, closed center | |
| | **Solenoid Operated Directional Valves** | **Function** |
| FF | 9569 solenoid operated - 24 volt | 3-way, 2 pos. |
| HH | 9572 solenoid operated - 24 volt | 3/4-way, 2 pos. |
| PP | 9599 solenoid operated - 24 volt | 3-way, 3 pos. |
| VV | 9512 solenoid operated - 24 volt | 4-way, 3 pos. valves |
| WW | 9615 solenoid operated - 24 volt | |

## 3 VALVE CONTROL

| | Valve Remote Control | Use with Valve |
|---|---|---|
| A | None | – |
| X | 304718 remote hand control, 3,1 m | 9572 |
| XF | 309652 remote foot control, 3,1 m | 9572 |
| Y | 202777 remote hand control, 3,1 m | 9569 or 9599 |

| | Valve Remote Control | Use with Valve |
|---|---|---|
| Z | 202778 remote hand control, 3,1 m | 9512 or 9615 |
| ZF | 309653 remote foot control, 3,1 m | 9512, 9615, 9569 or 9599 |
| ZZ | 209593 remote hand control, 3,7 m | 9594 |

## 4 GAUGE

| | Pressure Gauges |
|---|---|
| A | None |
| B | Other – Specify |
| G | 9041 0-10.000 psi – 0-700 Bar (63 mm dia.) |
| H | 9040 0-10.000 psi – 0-700 Bar (Liquid) (63 mm dia.) |
| J | 9051 0-10.000 psi – 0-700 Bar (100 mm dia.) |
| M | 9052 0-10.000 psi – 0-700 Bar (Liquid) (100 mm dia.) |

## 6 PRESSURE CONTROL

| | Pressure Controls |
|---|---|
| A | With standard external pressure regulator |
| C | Other – specify |
| D | 350199 premium external pressure regulator. See Power Team Catalog product No. 9633 for details. |

**NOTE:** Pressure controls are factory pre-set at 700 bar unless otherwise specified.

## 8 MOTOR CONTROL

| | Electric Motor Controls |
|---|---|
| A | Standard On/Off/Pulse control (does not include remote switch) for A, B, C, D, F and M electric pumps. Also used for remote controlled solenoid valves. |
| B | None |
| C | 25017 remote motor hand switch, 3,1 m. |
| D | 203225 remote motor hand switch, 3,1 m. (heavy duty) |
| E | 10461 remote motor foot switch, 3,1 m. |
| | **Air Motor Controls** |
| AA | Other |
| B | None |
| P | 27876 hand motor control (for PA55 & PA90 series) |
| Q | 27877 foot motor control (for PA55 & PA90 series) |

## 10 OIL LEVEL/TEMP. GAUGE

| | Oil Level/Temperature Gauge |
|---|---|
| A | None |
| BB | 350431 oil level/temperature gauge |

## 11 CASTERS

| | Casters |
|---|---|
| A | None |
| C | 10494 caster for use with 400630R9 reservoir (Specify quantity of four) |

## 5 GAUGE ACCESSORY

| | Gauge Accessories |
|---|---|
| A | None |
| N | 9049 pulsation dampener – All dry gauges |

## 7 PRESSURE SWITCH

| | Pressure Switch |
|---|---|
| A | None |
| B | 9625 electric pressure switch (35-700 bar) |
| | **NOTE:** Pressure switch is factory pre-set at 700 bar unless otherwise specified. |
| C | 9641 pilot operated air control valve – N.C. |
| D | 9643 pilot operated air control valve – N.O. |

## 9 RESERVOIR

| | Reservoirs | Capacity |
|---|---|---|
| A | None | – |
| B | Other – Specify | – |
| D | 400630R9 – PE55, PE90, PE120, PA55 and PA90 series | 9,5 l |
| E | 61165† – PE55, PE90, PE120, PA55 and PA90 series (Oil temperatures in excess of 65.5˚ C. may cause permanent failure of the thermoplastic reservoir) | 7,6 l |
| F | RP22‡ – PE55, PE90, PE120, PA55 and PA90 series | 9,5 l |
| H | 617990R9 Same as D except with drain port | 9,5 l |
| J | RP50 – PE55, PE90, PE120, PA55 and PA90 series | 19 l |
| K | 401370R9 – PG55 series | 19 l |
| P | 209124 - PE55, PE90, PE120, PA55 and PA90 series | 26,5 l |
| V | RP100 - PE55, PE90, PE120, PA55 and PA90 series | 37,9 l |
| W | RP101 – PG55 series | 37,9 l |

**NOTE:** Includes cover adapter and misc. accessories when applicable.
†High density polyethylene.
‡Aluminum.

## 12 OIL

| | Oil |
|---|---|
| E | Ship pump without oil |
| F | 9637 3,8l. standard hydraulic oil |
| G | 9638 9,5l. standard hydraulic oil |
| Q | 9639 3,8l. Flame-Out hydraulic oil |
| R | 9640 9,5l. Flame-Out hydraulic oil |
| U | 9645 3,8l. biodegradable hydraulic oil |
| V | 9646 9,5l. biodegradable hydraulic oil |

**NOTE:** Select type of hydraulic oil and specify quantity.

# Hydraulic Pump
## ACCESSORIES



25017
202777
202778
304718

203225

10461

251660

309652
309653

209593

17627
216209

### ON/OFF MOTOR CONTROL

The following remote control switches will give you momentary "ON" control of your hydraulic pump. These switches are deadman type, spring loaded to the "OFF" position. They can be used with any Power Team electric hydraulic pumps.

**No. 25017 -** Remote hand control. Has a push button switch, with a 3,1 m cord. Wt., 0.4 kg.

**No. 203225 -** Remote hand control. Heavy-duty with single push button switch in a neoprene housing with 3,1 m cord. Housing seals out dust, lint and liquids (unit is not submersible). Wt., 0,4 kg.

**No. 10461 -** Remote foot control, with 3,1 m cord. Wt., 1,4 kg.

**No. 251660 -** Remote foot control, with 3,1 m cord. For use with the PE10 style pumps. Wt., 0,4 kg.

### SOLENOID & MOTOR CONTROL

For use on solenoid valves that are used on single-acting cylinders:

**No. 202777 -** Remote hand control. Has rocker style switch that is momentary advance, spring center hold and detented retract. It comes with a 3,1 m cord, for use with 3-way/2 or 3-position valves. Wt.,0,4 kg. For use on solenoid valves that are used on double-acting cylinders:

**No. 202778 -** Remote hand control. Has rocker style switch that is momentary advance, spring center hold and momentary retract. It comes with a 3,1 m cord, for use with 4-way/3-position valves. Wt., 0,4 kg

**No. 309653 –** Remote foot control. Can be used in place of either of the above hand controls to control the same type of valves. The switch is momentary on both the advance and retract position and is spring centered to the hold position. This foot switch comes with 3,1 m cord. Wt., 1,8 kg.

**No. 17627 –** Remote foot control. Same as the No. 309653 but without a cord. Wt., 0,9 kg.

**No. 304718 -** Remote hand control. Has a rocker style switch that is momentary advance, spring center hold and momentary retract. The switch is wired to start and stop the motor when the valve is energized. It comes with a 3,1 m cord. To be used with 4-way/2-position valves. Wt., 0.4 kg.

**No. 309652 –** Remote foot control. Has same functions as No. 304718. Supplied with a 3,1 m cord. To be used with 4-way/2-position valves. Wt., 1,8 kg.

**No. 216209 –** Remote foot control. Same as the No. 309652, but without a cord. Wt., 0,9 kg.

NOTE: See valves listing to determine which remote to use.

### REMOTE AIR MOTOR CONTROLS

This remote hand control has two momentary push buttons, one for advance and one for retract with spring offset to hold. To be used with 4-way/2-position air pilot valves.

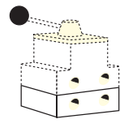
**No. 209593 –** Remote hand control with 3,7 m cord. Wt., 0,9 kg.

### SUBPLATES

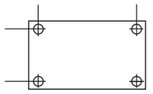
For remote mounting of control valves. They convert pump mounted valves to remote mounted valves quickly and easily.

**No. 9510 -** Subplate for remote mounting the following valves; 9500, 9501, 9502, 9504, 9506, 9507, 9511, 9552, 9572, 9575, 9576, 9592, 9594 and 9609. Wt., 1 kg.

**No. 9620 -** For use with 9500, 9501, 9502, 9552, 9572, 9592 and 9594. Same as No. 9510 but has integral pressure regulating valve. Wt., 1,7 kg.



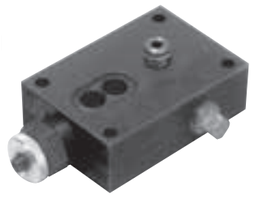
**9510 and 9620 attach to the bottom of valve for remote mounting. The 9515 and 9521 mount between the pump cover plate and valve.**



9510
9515

9620

9521



### PUMP-MOUNTED SUBPLATES

When fitted between pump cover plate valve mounting flange and control valve, provides a separate 3/8" NPTF female port, open to "return" regardless of position of valve. Also provides a separate 3/8" NPTF female pressure port. This subplate can be useful when you desire to use one pump with a deck-mounted control valve, plus a separate remote-mounted valve to control another function. For use with the following valves: 9500, 9501, 9502, 9504, 9506, 9507, 9511, 9552, 9572, 9575, 9576, 9592, 9594 and 9609.

**No. 9515 -** Subplate, Wt., 0,6 kg.

**No. 9521 -** Subplate for use under most pump mounted valves to provide adjustable pressure control on units not equipped with an external pressure regulator. Wt., 1,7 kg.

### AIR FILTER/REGULATOR/LUBRICATOR

Recommended for use with single-speed air/hydraulic pumps found on pages 55-69.

**No. 9531 -** Filter/regulator. 1/4" NPTF inlet and outlet. Wt., 0,4kg.

9531

### PRESSURE SWITCH

**Application:** Used in a hydraulic circuit where system pressure must be "held". Automatically (electrically) turns off pump motor when predetermined system pressure is reached. Attaches directly to control valve manifold or can be mounted "in-line" to read system pressure. Has a 1/4" NPTF male thread, and a 1/4" NPTF fitting for gauge mounting if required. Adjustable from 70 to 700 bar. Can also be used to actuate other electrical devices in the system. Wired "normally open" and held closed by spring pressure.

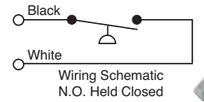
**IMPORTANT: Electrical rating of switch is 5 amps at 250 volts max. To prevent permanent damage to switch, a control relay must be installed to handle currents or voltage exceeding these limits. Pressure switch should never be used to directly actuate the electrical motor.**

**No. 9625 -** In-line pressure switch with 1/4" NPTF gauge port. Wt., 0,5 kg.

9625

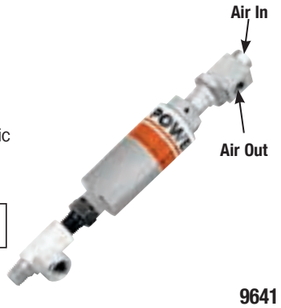
### PILOT OPERATED AIR CONTROL VALVES

**Application:** For use when an air pilot signal is required at a set hydraulic pressure. Can be used to shift valves, and start or stop pneumatic pumps. Attaches directly to control manifold or can be mounted "in-line" to read system hydraulic pressure. Automatically turns on an air pilot signal when a predetermined system pressure is reached. Has 1/4" NPTF male thread and 1/4" NPTF fitting for gauge mounting if required. Adjustable from 35-700 bar. Maximum rating of 700 l at 7 bar.




**No. 9641 -** Pilot operated control valve, normally closed, with 1/4" NPTF male thread. Wt., 0,4 kg.

**No. 9643 -** Same as 9641 except normally open. Wt., 0,4 kg.




9641
9643

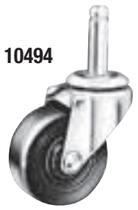
# Hydraulic Pump
## ACCESSORIES

252511
252512

206767
250175

350431

10494



207762

16339

### OIL COOLER KITS
**No. 252511 -** Oil cooler kit designed for use with PE604T or PE604PT pumps with 115 VAC. Wt.,2,2Kg.
**No. 252512 -** Oil cooler kit designed for use with PE604T or PE604PT pumps with 220 VAC. Wt.,2,2 kg.

### RESERVOIR BREATHER KITS
**No. 206767 -** Reservoir breather kit designed for use on PA17, PA55, PE17, PE55, PE84, PE90, PE120, PG55, PG120, PQ60 and PQ120 series pumps. Wt., 0,6 kg.
**No. 250175 -** Reservoir breather kit designed for use on PE21 and PE46 series pumps. These kits replace the reservoir filler cap when the pump is used in dusty and dirty environments. Wt., 0,6 kg.

### CASTERS
50,8 mm diameter casters attach to the bottom of large reservoir for portability. Sold individually; order the amount you need.
**No. 10494 -** Single caster wheel. Wt., 0,1kg.

### FLUID LEVEL/TEMPERATURE GAUGE
Displays fluid level and temperature of hydraulic oil in reservoir. 32°-212°F, 0°-100°C. 32 mm wide and 162 mm high.
**No. 350431 -** Fluid level/temperature gauge.

### FOOT CONTROL GUARD
Guard for use with 10461 and 251660 foot controls.
**No. 16339 -** Wt., 2 kg.

### MAGNETIC STRIP
Magnetic strip with adhesive back can be added to No. 25017, 202777, 202778 and 304718 hand controls. Provides 2,7 kg. of holding force.
**No. 207762 -** Wt., 0,1 kg.

### VITON* SEAL KITS

| Order Number | Use With | Model |
|---|---|---|
| **300507** | P12 | All |
| **300472** | P23, P55 | All |
| **300510** | P59 | All |
| **300508** | P157, P159, P300 | A |
| **300690** | P157, P159 | B |
| **300696** | P300 | B |
| **300508** | P157D, P159D, P300D | A |
| **300693** | P157D, P159D | B |
| **300699** | P300D | B |

Viton* seal kits

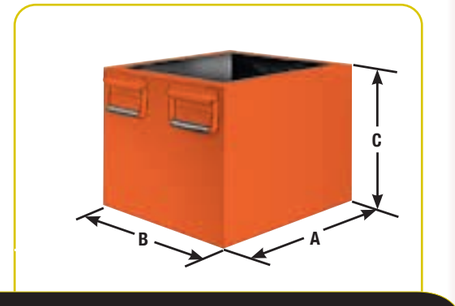
**VITON* SEAL KITS** Can be used in all "C" and "RH" series cylinders (see pages 14-15 and 22-23), as well as the P12, P55, P59, P157/P159, P157D/P159D and P300/P300D series of hand pumps. These seals are required when fire resistant hydraulic fluids are used. For use with phosphate ester fluids. Not required with Flame-Out fluid.

*** Viton is the E.I. duPont De Nemours & Co., Inc, trade name for flouroelastomers.**



### UNIVERSAL PUMP CART
Mobilize your hydraulic pumps with the PC200. The rugged tubular frame can easily handle pumps weighing up to 90 kg. With 305 mm wheels, the cart rolls easily. Just load the pump onto the cart and wheel it right to the job. The universal mounting hole pattern lets you handle a wide variety of Power Team pumps.
**No. PC200 -** Universal pump cart with 305 mm wheels. Cart can be used with the following pumps: PA60, PA64 and PA554 air/hydraulic pumps; PE55 series, PE183-2 and PE184-2 electric/hydraulic pumps; PE21, PQ60 and PQ120 series "Quiet" pumps; PG55 series gas engine/hydraulic pumps; and pumps with optional 19- and 38 l - reservoirs; Nos. RP50, RP51, RP101 and RP103. Wt., 12,3 kg (Shown with pump, pump not included)

### PROTECTIVE PUMP ROLL CAGE
Safeguards pump, gas engine and valves on the job site. Horizontal bars provide convenient hand holds for carrying pump, a pick-up point permits lifting unit with an overhead crane or other device. Standard equipment on PG1203 and PG1204. Can be ordered as an option with any other gas, air, or electrically driven hydraulic pump equipped with a 38 l reservoir.
**Note: Refer to PG1203/PG1204 specification chart (pages 108-109) for dimensions of roll cage.**
**No. PC200RC -** Roll cage for use with PC200. (Cannot be used on pumps with 38 liter reservoirs.) Wt., 16 kg.
**No. RC5 -** Roll cage. Wt., 9 kg.




### LARGE CAPACITY RESERVOIRS

| Capacity (liter) | Order Number | Usable Oil (l/min) | Use With | Size (mm) A | B | C |
|---|---|---|---|---|---|---|
| 7,6 | **RP20**** | 7,1 | PA6, PA50 series (models A-E) | 292 | 241 | 165 |
| 7,6 | **RP20-F**** | 7,1 | PA6 series (model F), PA 50 series (model F & G) | 292 | 241 | 165 |
| 9,5 | **RP20M*** | 7,2 | PA6, PA50 series (models A-E) | 292 | 241 | 165 |
| 9,5 | **RP20M-F*** | 7,2 | PA6 series (model F), PA50 series (model F & G) | 292 | 241 | 165 |
| 9,5 | **RP21*** | 7,2 | PE18 series | 292 | 241 | 165 |
| 9,5 | **RP22†** | 7,1 | PE55, PE90, PE120, PA55 | 292 | 241 | 165 |
| 19 | **RP50** | 18,4 | PE55, PE90, PE120, PA55 | 381 | 318 | 203 |
| 19 | **RP51** | 18,4 | PA46, PE46, PE21 | 381 | 318 | 203 |
| 37,9 | **RP100** | 35,1 | PE55, PE90, PE120, PA55 | 381 | 318 | 356 |
| 37,9 | **RP101** | 35,1 | PG55, PG120 | 381 | 318 | 356 |
| 37,9 | **RP103*** | 37,0 | PQ60, PQ120 | 392 | 362 | 313 |
| 37,9 | **RP104** | 35,1 | PA46, PE46, PE21 | 381 | 318 | 356 |

* **Four mounting holes: 1/2"-20, for 50.8 mm diameter swivel casters (No. 10494)**
** High density polyethylene reservoir. † Aluminum reservoir.

### METAL RESERVOIR CONVERSION KITS FOR PUMPS *INCLUDES GASKETS AND FASTENERS.

| Metal Pump Number | Res. Order Number | Metal Reservoir Capacity (l) | Reservoir Weight (kg) | Metal Pump Number | Res. Order Number | Metal Reservoir Capacity (l) | Reservoir Weight (kg) | Metal Pump Number | Res. Order Number | Metal Reservoir Capacity (l) | Reservoir Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PA6** | 213896 | 1,7 | 1,4 | **PA50** | 213896 | 1,7 | 1,4 | **PA174** | 213895 | 9,5 | 4,1 |
| **PA6A** | 213896 | 1,7 | 1,4 | **PA50R** | 213896 | 1,7 | 1,4 | **PE172** | 213895 | 9,5 | 4,1 |
| **PA6D** | 213896 | 1,7 | 1,4 | **PA6R** | 213896 | 1,7 | 1,4 | **PE172A** | 213895 | 9,5 | 4,1 |
| **PA6-2** | 213895 | 9,5 | 4,1 | **PA50R2** | 213895 | 9,5 | 4,1 | **PE172S** | 213895 | 9,5 | 4,1 |
| **PA6D2** | 213895 | 9,5 | 4,1 | **PA172** | 213895 | 9,5 | 4,1 | **PE174** | 213895 | 9,5 | 4,1 |

# HYDRAULIC ACCESSORIES



# Hoses

## Polyurethane Rubber Non-Conductive

- **3/8" NPTF fittings on both ends.**
- **Operating pressure is 700 bar. All comply with SAE 100R10 standard.**

**A** **Non-conductive hose**
For applications requiring electrical isolation by the hose, non-conductive hose has a leakage factor of less than 50 microamperes, considered a safe level of conductivity by SAE standards. The covering is polyurethane and colored orange for easy identification as non-conductive hose. The covering is not perforated, preventing moisture from entering the hose and affecting its overall conductivity. All non-conductive hoses have a minimum burst pressure of 2.800 bar.

**B** **Rubber hose**
6 spiral (R13 specification) rated hose reinforced with two braids of high tensile steel wire and have a tool 4:1 safety factor. The rubber covering is oil and weather resistant.

**C** **Polyurethane hose**
Made with Nylon core and then one braid of Aramid and one braid of wire reinforcement with a orange polyurethane cover (Conductive). 4:1 safety factor standard 700 bar WP / 2800 bar BP.

**D** **Hydraulic hose assembly**
**No. 9764E** – Hose assembly consisting of 9767E (1,8 m hose), 6,4mm I.D. polyurethane with 9798 hose half coupler and 9800 dust cap.
**No. 9754** – Hose assembly consisting of 9756 (1,8 m hose), 6,4 mm I.D. rubber with 9798 hose half coupler and 9800 dust cap.

**The figures show the relative effect two styles of hose can have on return time. Actual times may vary.**

**CYLINDER RETURN TIME**

| Cylinder | No. 9769E 3,1 m Hose 6,4 mm I.D. | No. 9781E 3,1 m Hose 9,5 mm I.D |
|---|---|---|
| C2514C | 51 sec. | 14 sec. |
| C556C | 1 min., 30 sec. | 24 sec. |
| C5513C | 4 min., 12 sec. | 59 sec. |
| C10010C | 6 min., 56 sec. | 1 min., 3 sec. |

**ORDERING INFORMATION**

| Hose Type | Hose I.D. | Hose Length | Burst Rating | Order No. |
|---|---|---|---|---|
| Polyurethane | 6,4 mm | 0,6 m | 2 800 bar | **9765E** |
| Polyurethane | 6,4 mm | 0,9 m | 2 800 bar | **9766E** |
| Polyurethane | 6,4 mm | 1,8 m | 2 800 bar | **9767E** |
| Polyurethane | 6,4 mm | 1,8 m | 2 800 bar | **9764E*** |
| Polyurethane | 6,4 mm | 2,4 m | 2 800 bar | **9768E** |
| Polyurethane | 6,4 mm | 3,1 m | 2 800 bar | **9769E** |
| Polyurethane | 6,4 mm | 3,7 m | 2 800 bar | **9770E** |
| Polyurethane | 6,4 mm | 6,1 m | 2 800 bar | **9771E** |
| Polyurethane | 6,4 mm | 15,3 m | 2 800 bar | **9772E** |
| Polyurethane | 6,4 mm | 22,9 m | 2 800 bar | **9750E** |
| Polyurethane | 6,4 mm | 30,5 | 2 800 bar | **9751E** |
| Polyurethane | 9,5 mm High Flow | 1,8 m | 2 100 bar | **9780E** |
| Polyurethane | 9,5 mm High Flow | 3,1 m | 2 100 bar | **9781E** |
| Polyurethane | 9,5 mm High Flow | 6,1 m | 2 100 bar | **9782E** |
| Polyurethane | 9,5 mm High Flow | 15,3 m | 2 100 bar | **9783E** |
| Rubber, Wire-braid | 6,5 mm | 0,9 m | 2 800 bar | **9755E** |
| Rubber, Wire-braid | 6,5 mm | 1,8 m | 2 800 bar | **9756E** |
| Rubber, Wire-braid | 6,5 mm | 1,8 m | 2 800 bar | **9754E*** |
| Rubber, Wire-braid | 6,4 mm | 2,4 m | 2 800 bar | **9757E** |
| Rubber, Wire-braid | 6,4 mm | 3,1 m | 2 800 bar | **9758E** |
| Rubber, Wire-braid | 6,4 mm | 3,7 m | 2 800 bar | **9759E** |
| Rubber, Wire-braid | 6,4 mm | 6,1 m | 2 800 bar | **9760E** |
| Rubber, Wire-braid | 6,4 mm | 9,1 m | 2 800 bar | **9761E** |
| Rubber, Wire-braid | 6,4 mm | 15,3 m | 2 800 bar | **9762E** |
| Rubber, Wire-braid | 9,5 mm High Flow | 0,9 m | 2 800 bar | **9733E** |
| Rubber, Wire-braid | 9,5 mm High Flow | 1,8 m | 2 800 bar | **9776E** |
| Rubber, Wire-braid | 9,5 mm High Flow | 3,1 m | 2 800 bar | **9777E** |
| Rubber, Wire-braid | 9,5 mm High Flow | 4,6 m | 2 800 bar | **9734E** |
| Rubber, Wire-braid | 9,5 mm High Flow | 6,1 m | 2 800 bar | **9778E** |
| Rubber, Wire-braid | 9,5 mm High Flow | 9,1 m | 2 800 bar | **9735E** |
| Rubber, Wire-braid | 9,5 mm High Flow | 12,2 m | 2 800 bar | **9736E** |
| Rubber, Wire-braid | 9,5 mm High Flow | 15,3 m | 2 800 bar | **9779E** |
| Non-Conductive | 6,4 mm | 1,8 m | 2 800 bar | **9773** |
| Non-Conductive | 6,4 mm | 3,1 m | 2 800 bar | **9774** |
| Non-Conductive | 6,4 mm | 6,1 m | 2 800 bar | **9775** |

CE

NOTE: Polyurethane hoses not recommended for use where heat or weld splatter conditions exist. *Furnished with 9798 hose half coupler and 9800 dust cap.

# Couplers

## Standard & Flush-Face

**9795 Cylinder and Hose Couplers**

**9794 No-Spill Hose Couplers**

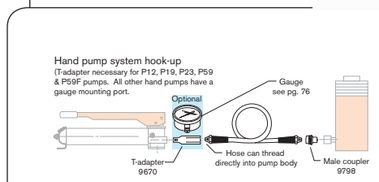
**9796**

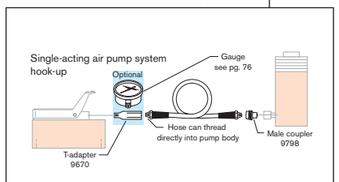
**9798**

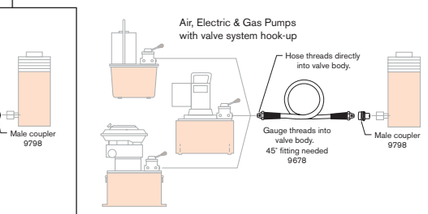
**9792** **9793**

**9797** **9799**

**9800**




**CYLINDER AND HOSE COUPLERS**
Designed for use up to 700 bar with hydraulic jacks, cylinders, etc. They are the threaded union type for interchanging cylinders in seconds. Each half is valved with a precision ball for a tight shutoff when disconnected. These couplers also permit the separation of cylinders or hose from pump when at 0 psi with minimal oil loss.
**No. 9795** – Complete quick coupler, 3/8" NPTF. (Includes two 9800 dust caps.)
**No. 9798** – Male (hose) half coupler (less hose half dust cap), 3/8" NPTF.
**No. 9796** – Female (cylinder) half coupler with No. 9800 dust cap, 3/8" NPTF.
**No. 9796-V** – Same as 9796, but with Viton seals.
**No. 9796-E** – Same as 9796, but with EPR seals.

**No. 9799** – Optional metal dust cap (hose half).

**No. 9797** – Optional metal dust cap (cylinder half).

**NO-SPILL, PUSH-TO-CONNECT HYDRAULIC HOSE COUPLERS**
High flow, no-spill, push-to-connect couplers with locking collar and flush face designed for high pressure applications. The flush-face concept makes it easy to clean both coupler ends before connecting. Our unique push-to-connect, "dry-break" design eliminates oil spillage. The locking collar makes accidental disconnects a thing of the past. For 700 bar operation. Designed to permit high oil flow.
**No. 9792** – Female (cylinder) half quick coupler only. Wt., 0.1 kg.
**No. 9793** – Male (hose) half quick coupler only. Wt., 0,1 kg.
**No. 9794** – Complete quick coupler (male and female). Dust caps not included. Wt.,0,2 kg.

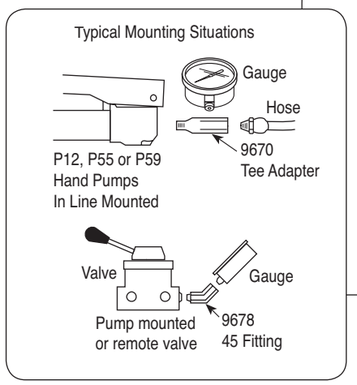
**HYDRAULIC COUPLER DUST CAP**
Dust cap fits either male or female half couplers.
**No. 9800** – Dust cap. For male or female 3/8" NPTF half couplers. Wt., 0,1 kg.

# Gauges

## Analog & Digital



ASME B40.1
GRADE B





**Heavy-duty Hydraulic Pressure Gauges**

- Gauges feature an easily readable and highly visible, red day-glo needle.
- High strength steel bourdon tube ensures high cycle life.
- Have ¼" NPT connections.

**Digital Pressure Gauges**

- Accurate to within 1%.
- Larger display characters than ordinary digital gauges.
- Long-life pressure transducer.
- ¼" NPTF male threads for the pressure connection.
- 1,8 m signal input cable connects to back of display unit.

**FEATURES**

- Pressure values are displayed on large red LEDs in 0,7 bar or bar increments.
- "Peak" hold feature with reset toggle switch and "Peak On" indicator; Hi/Low set point feature with relay outputs for Hi/Low alarms and/or control signals.
- A slow flashing display indicates pressure below the low limit; fast blinking display alerts if limit is exceeded.
- High and low limit relays are rated to 5 amps at 115 volts.
- Operating temperature of -18 to 60°C for the electronic display and -29 to 82°C for the transducer. Gauge housings are extruded aluminum ⅛ DIN enclosures (NEMA 1 rating).
- When power cable is connected to gauge, display will scroll all characters, performing a self-diagnostic routine.

Gauges

Analog & Digital

**Digital Pressure Gauge**

**No. DG100** – Digital pressure gauge, pressure range 0-700 bar. Note: Serviced only at factory. Wt.,1 kg.

**No. DG100B** – Digital pressure gauge, pressure range 0-700 bar. Note: Serviced only at factory. Wt., 1 kg.

**Digital Pressure Gauge Accessories**

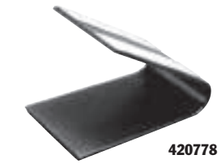
**No. 420778** – Gauge stand for DG100. Has angled base mounting to hold gauge at a convenient viewing angle. Wt., 0,5 kg.

**No. 37045** – Auxiliary power cord for use with any 12 or 24V battery. Wt., 0,1 kg. Caution: For use on negative ground systems only.

**Standard Pressure Gauge Accessories**

**No. 9046** – Silicone fill kit. 0,2 kg Requires one bottle to fill 100 mm gauge; four bottles to fill 150 mm gauge.

**No. 9049** – High performance pulsation dampener. 1/4 " NPTF male x 1/4" NPTF female.







**STANDARD PRESSURE GAUGE ORDERING INFORMATION**

| Face Dia. | psi/Bar | Tons | Major Graduations | Minor Graduations | Silicone Filled | Use With Cylinder Series | Gauge No. |
|---|---|---|---|---|---|---|---|
| 63,5 mm | 0-10,000 /.0-690 | – | 2000 psi, 100 Bar | 200 psi, 20 Bar | Yes | All | **9040E** |
| 100 mm | 0-10,000 /.0-690 | – | 1000 psi, 100 Bar | 100 psi, 10 Bar | Yes | All | **9052E** |
| 100 mm | 0-10,000 /.0-690 | 0-17.5, 0-30 and 0-50 | 2000 psi, 5 Ton | 200 psi, .5 Ton on 30, 50 Ton Scales; .2 Ton on 17.5 Ton Scale | Yes | RT172, RT302, RT503 | **9059E** |
| 100 mm | 0-10,000 /.0-690 | 0-5 | 2000 psi, 1 Ton | 200 psi, .1 Ton | Yes | C & RLS | **9053E** |
| 100 mm | 0-10,000 /.0-690 | 0-10 | 2000 psi, 1 Ton | 200 psi, .1 Ton | Yes | C, RD, RH, RLS & RSS | **9055E** |
| 100 mm | 0-10,000 /.0-690 | 0-25 | 2000 psi, 5 Ton | 200 psi, .5 Ton | Yes | C & RD | **9063E** |
| 100 mm | 0-10,000 /.0-690 | 0-30 | 2000 psi, 5 Ton | 200 psi, .5 Ton | Yes | RH†, RLS & RSS | **9065E** |
| 100 mm | 0-10,000 /.0-690 | 0-50 | 2000 psi, 5 Ton | 200 psi, .5 Ton | Yes | RH†, RLS & RSS | **9067E** |
| 100 mm | 0-10,000 /.0-690 | 0-55 | 2000 psi, 5 Ton | 200 psi, .5 Ton | Yes | C, R, RA & RD | **9069E** |
| 100 mm | 0-10,000 /.0-690 | 0-60 | 2000 psi, 5 Ton | 200 psi, 1 Ton | Yes | RH | **9071E** |
| 100 mm | 0-10,000 /.0-690 | 0-75 | 2000 psi, 5 Ton | 200 psi, 1 Ton | Yes | C, RLS & RD8013 | **9073E** |
| 100 mm | 0-10,000 /.0-690 | 0-100 | 2000 psi, 10 Ton | 200 psi, 1 Ton | Yes | C, R, RA, RD, RH, RLS†, RSS† & RT1004† | **9075E** |
| 100 mm | 0-10,000 /.0-690 | 0-150 | 2000 psi, Initial 10 Then 20 Ton | 200 psi, 2 Ton | Yes | C, R, RD & RLS | **9077E** |
| 100 mm | 0-10,000 /.0-690 | 0-200 | 2000 psi, 20 Ton 10 Then 20 Ton | 200 psi, 2 Ton | Yes | R, RD & RH† | **9079E** |
| 150 mm | 0-10,000 /.0-690 | 0-690 | 1000 psi, 100 Bar | 100 psi, 10 Bar | No | All | **9089** |

† The tonnage scale on the gauge is based on a different effective area.
A slight error in tonnage reading will occur relative to the different effective area.

Note: Gauge 9040-9079 are available with readings in bar. To order, add the letter "E" to the part number (example 9075E).

# Fluids
## HYDRAULIC

Standard, Flame Out®, Biodegradable and Low Temp.


| Oil Description | Qty. | Order No. |
|---|---|---|
| Standard Oil | 0,9 l | **9636** |
| Standard Oil | 3,8 l | **9637** |
| Standard Oil | 9,5 l | **9638** |
| Standard Oil | 208 l | **9616** |
| Flame-Out® | 3,8 l | **9639** |
| Flame-Out® | 9,5 l | **9640** |
| Biodegradable | 3,8 l | **9645** |
| Biodegradable | 9,5 l | **9646** |
| Low Temp. | 3,8 l | **9647** |

**SPECIFICATIONS**

| Description | Grade (ASTM) | Spec. Gravity at 16°C (kg / l) | Color (ASTM) | Flash Point | Fire Point | Pour Point | Viscosity SUS @ (38°C) | Viscosity SUS @ (99°C) | Viscosity Index | Foam Test (ASTM) |
|---|---|---|---|---|---|---|---|---|---|---|
| Standard Oil | 215 | 0.88 | 2.0 | 204°C | 221°C | -34°C | 215 | 48 | 100 min. | Pass |
| Flame-Out® | 220 | 0.91 | Light Amber | 260°C | 288°C | -26°C | 220 | 55 | 140 min. | Pass |
| Biodegradable | — | 0.92 | 2.0 | 224°C | NA* | -30°C | 183 | 53 | 213 min. | Pass |
| Low Temp. | — | 0.87 | 6.5 (Red) | 180°C | 204°C | -45°C | 183 | 52 | 190 min. | Pass |

*Not available.

**Standard Hydraulic Oil**
- For dependable performance of all your hydraulic pumps and cylinders.
- Contains foam suppressant additives and has a high viscosity index.

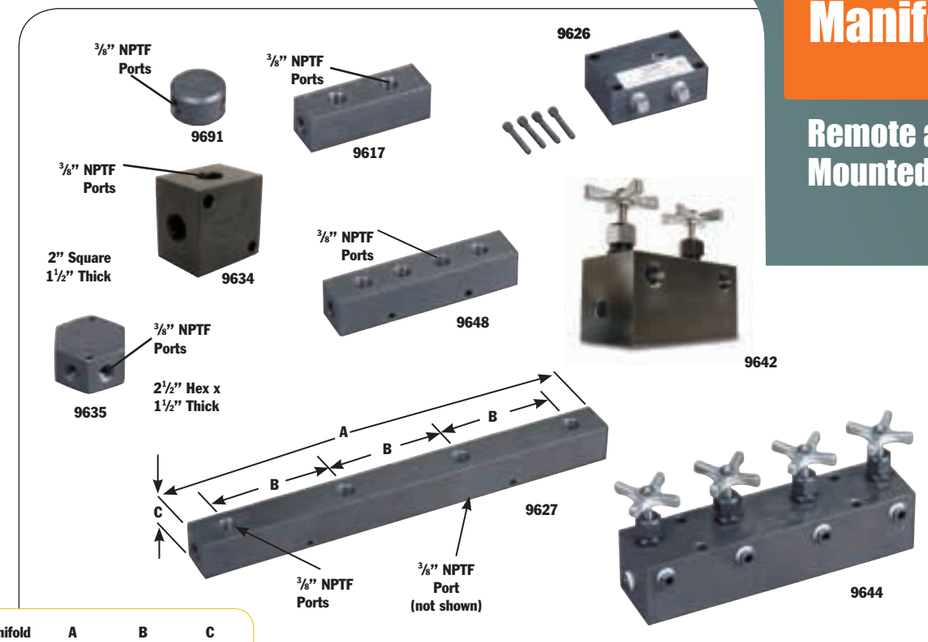
**Flame-Out® 220 fire resistant hydraulic fluid**
- Contains anti-rust, anti-foam and anti-sludge additives.
- Provides fire resistant protection.
- Provides maximum lubrication and heat transfer.
- Offers a wider operating temperature range.
- No need to change seals in your Power Team equipment. Just drain the standard oil and replace it with Flame-Out 220.

**Biodegradable Hydraulic Fluid**
- Biodegradable, non-toxic fluid withstands moderate to severe operating conditions; provides excellent protection against rust.
- Offers superior anti-wear properties, has excellent multi-metal compatibility.

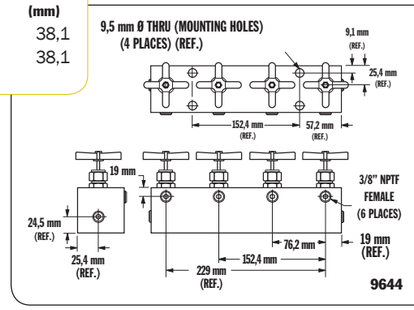
Developed to meet stringent performance requirements and satisfy growing environmental needs for hydraulic fluids which are readily biodegradable and non-toxic. Can be used with all Power Team pumps, cylinders, valves and other accessories using standard seals. Depending on the contamination or degradation levels which might be present in used fluid, small amounts of this substance, if spilled, will not affect ground water or the environment. Acceptable methods of disposal include use as a fuel supplement. Since this fluid will not typically be hazardous waste, additional disposal options may be available, including land farming or processing through sewage treatment facilities, if necessary approvals are obtained from appropriate regulatory authorities. This fluid has been tested against EPA 560/6-82-003 and OECD 301 for biodegradability, and toxicity has been tested against EPA 560/ 6-82-002 and OECD 203: 1-12. Not recommended for operation in temperatures below -7°C or above 71°C. Recommended storage temperatures not below -23°C or above 77°C.

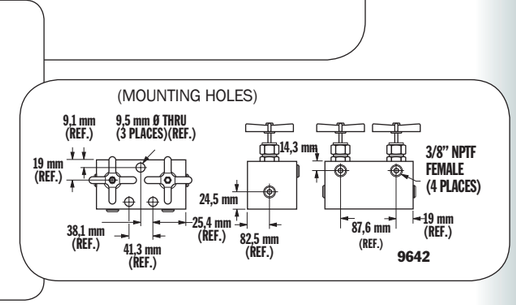
(Note: Will burn if heat source is extreme enough. Will not, however, propagate the flame and is self-extinguishing when there is no ignition source.)

# Manifolds
## Remote and Pump Mounted




| Manifold No. | A (mm) | B (mm) | C (mm) |
|---|---|---|---|
| **9627** | 406,4 | 114,3 | 38,1 |
| **9648** | 177,8 | 38,1 | 38,1 |




**No. 9691 – "Y" Manifold**
Extremely useful when connecting two hydraulic cylinders to a single line. Has three 3/8" NPTF ports.
Wt. 0,45 kg.

**No. 9634 – Manifold block**
This manifold is for multiple-cylinder installations, has four 3/8" NPTF ports and two 1/4" mounting holes. Wt. 0,7 kg.

**No. 9635 – Manifold block**
This hex-shaped manifold offers extra versatility with six 3/8" NPTF ports and two 1/4" mounting holes.
Wt. 0,9 kg.

**No. 9617 – Manifold block**
When a multiple-cylinder installation is required, this manifold is invaluable. Has six 3/8" NPTF ports to handle larger multiple-cylinder systems.
Wt. 1.4 kg.

**No. 9648 – Manifold block**
This 178 mm long manifold block has seven 3/8" NPTF ports and two 6,4 mm mounting holes. Wt.1,2 kg.

**No. 9627 – Manifold block**
This 406,4 mm long manifold block allows you to mount the 9575 or 9596 valves without interference. Has seven 3/8" NPTF ports and two 6,4 mm mounting holes. Wt. 2,7 kg.

**No. 9626 – Pump mounted manifold block**
Converts pumps with pump mounted valves for use with remote mounted valves. This manifold block is subplate mounted on the pump cover plate and provides 3/8" NPTF pressure and return ports. Maximum recommended flow rate is 19 l/min. Note: If used on PE30 or PG30 series pump, 12,7mm longer mounting screws are required. Order four (4) No. 11956 screws separately.

**9642 AND 9644 MANIFOLD BLOCKS WITH NEEDLE VALVES**
For independent multiple-cylinder operation, feature needle valves for precise manual control. Designed for remote-mounted applications. Can be used with all Power Team pumps.

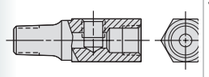
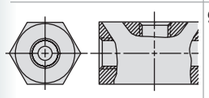
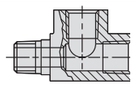
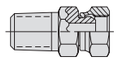
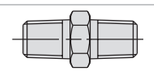
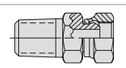
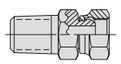
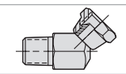
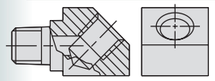
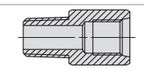
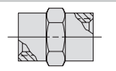
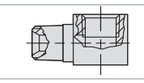
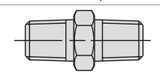
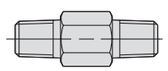
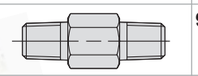
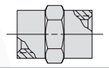
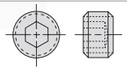
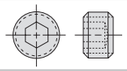
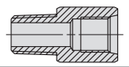
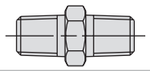
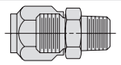
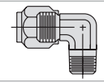
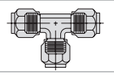
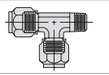
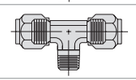
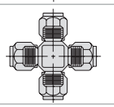
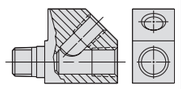
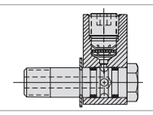
**No. 9642** – Manifold with two needle valves for control of two cylinders. Has four 3/8" NPTF ports. Wt. 3,7 kg

**No. 9644** – Manifold with four needle valves for control of four cylinders. Has six 3/8" NPTF ports. Wt. 7,4 kg

# Fittings

## 700 bar

Power Team fittings:
All applications.

| | | |
|---|---|---|
|  | **9190** | Hyd. tubing. 3/8" O.D. x .065" wall, 15,3 m. (10 pieces 1,53 m long.) Wt. 5,5 kg. |
|  | **9670** | Tee adapter. For installing gauge between pump and hose coupling. Has 1/4" and 3/8" NPTF female and 3/8" NPTF male ports. Wt. 0,2 kg. |
|  | **9671** | Double tee adapter. Permits use of more than one cylinder in series with one pump. Three 3/8" NPTF female ports. Wt. 0,5 kg. |
|  | **9672** | Service tee. Two 3/8" NPTF female internal, one 3/8" NPTF male external. Wt. 0.3 kg. |
|  | **9673*** | Swivel connector. 3/8" NPSM male, 1/4" NPSM female. Wt. 0,1 kg. |
|  | **9674** | Male connector. 43 mm long, 1/4" x 3/8" NPTF. Wt. 0,1 kg. |
|  | **9675*** | Swivel connector. 3/8" NPTF male, 3/8" NPSM female. Wt. 0,1 kg. |
|  | **9676*** | Swivel connector. 1/4" NPTF male, 3/8" NPSM female. Wt. 0,1 kg. |
|  | **9677*** | 45° swivel connector. 3/8" NPTF male, 3/8" NPSM female. Wt. 0,1 kg. |
|  | **9678** | 45° fitting. Used when mounting gauge at an angle on connection such as 9670. Male and female 1/4" NPTF ends. Wt. 0,1 kg. |
|  | **9679** | Connector. 1/4" NPTF female and 3/8" NPTF male. Wt. 0.1 kg. |
|  | **9680** | Coupling. Both ends 3/8" NPTF female. Wt. 0.1 kg. |
|  | **9681** | Street elbow. Male and female 3/8" NPTF ends. Wt. 0,1 kg. |
|  | **9682** | Male connector. 43 mm long, 3/8" NPTF male ends. Wt. 0,1 kg. |
|  | **9683** | Male connector. 57 mm long, 3/8" NPTF male ends. Wt. 0,1 kg. |
|  | **9684** | Male connector. 57 mm long, 1/4" NPTF male ends. Wt. 0,1 kg |
|  | **9685** | Coupling. 1/4" NPTF female and 3/8" NPTF female. Wt. 0.1 kg. |
|  | **9686** | 90° elbow. 3/8" NPTF female ends. Wt. 0.2 kg. |
|  | **9687** | Pipe plug. Heat-treated, 3/8" NPTF. Wt. 0.1 kg. |
|  | **9688** | Pipe plug. Heat-treated, 1/4" NPTF. Wt. 0.1 kg. |
|  | **9689** | Connector. 1/4" NPTF male and 3/8" NPTF female. Wt. 0.1 kg. |
|  | **9690** | Male connector. 43 mm long, 1/4" NPTF male ends. Wt. 0.1 kg. |
|  | **9692** | Straight connector. 3/8" tube x 3/8" male NPTF. Wt. 0.1 kg. |
|  | **9693** | 90° elbow. 3/8" tube x 3/8" male NPTF. Wt. 0.1 kg. |
|  | **9694** | 45° elbow. 3/8" tube x 1/4" male NPTF. Wt. 0.1kg. |
|  | **9695** | Tee. 3/8" tube. Wt. 0.1 kg. |
|  | **9696** | Male run tee. 3/8" tube x 1/4" male NPTF. Wt. 0.1 kg. |
|  | **9697** | Male branch tee. 3/8" tube x 1/4" male NPTF. Wt. 0.1 kg. |
|  | **9698** | Cross. 3/8" tube. Wt. 0.2 kg. |
|  | **9699** | 45° gauge fitting. 3/8" NPTF male and female, and 1/4" NPTF female at 45°. Wt. 0.3 kg. |
|  | **9705** | Fitting, swivel. 3/8" NPTF male to 3/8" NPTF female. 90° fitting with internal 370 micron screen. May be rotated 360° about male thread axis. |

NOTE: Power Team hydraulic fittings are intended for use with our high pressure hydraulic products and are suitable for use at max. working pressures of 700 bar unless otherwise noted.

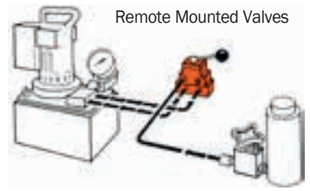
*** ⚠ CAUTION: On part numbers 9673, 9675, 9676 and 9677 the female swivel end of these adapters is a straight pipe thread (NPSM) with a 30° seat. All male pipe fittings that are used with these female swivel adapters must have an internal 30° seat in order to effect a proper seal. All Power Team male fittings are manufactured with a 30° seat except 9687 and 9688.**

# Valves

## HYDRAULIC REMOTE/IN-LINE

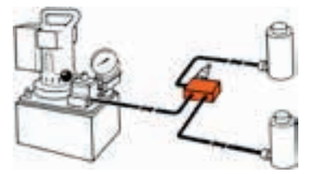
## Valve selection chart

Remote Mounted Valves



| Order No. | *Cylinder Application | Operation | Valve Type | Volt | Advance/ Return | Advance/ Hold Return | Posi-Check® Feature |
|---|---|---|---|---|---|---|---|
| **9508** | S.A & D.A. | Manual | 4-way, 3 Pos. Closed Center | — | no | yes | yes |
| **9509** | S.A. & D.A. | Manual | 4-way, 3 Pos. Tandem Center | — | no | yes | yes |
| **9514** | D.A. | Solenoid | 4-way, 3 Pos. Tandem Center | 115 | no | yes | yes |
| **9524** | S.A. & D.A. | Solenoid | 3/4-way, 2 Pos. | 230 | no | yes | no |
| **9525** | D.A. | Solenoid | 4-way, 3 Pos. Tandem Center | 230 | no | yes | yes |
| **9526** | S.A. | Solenoid | 3-way, 2 Pos. | 230 | no | yes | no |
| **9554** | S.A. & D.A. | Solenoid | 3/4-way, 2 Pos. | 24 | no | yes | no |
| **9555** | D.A. | Solenoid | 4-way, 3 Pos. Tandem Center | 24 | no | yes | yes |
| **9556** | S.A. | Solenoid | 3-way, 2 Pos. | 24 | no | yes | no |
| **9559** | S.A. | Solenoid | 3-way, 2 Pos. | 115 | no | yes | no |
| **9593** | S.A. & D.A. | Solenoid | 3/4-way, 2 Pos. | 115 | no | yes | no |
| **9595** | S.A. & D.A. | Air | 3/4-way, 2 Pos. | — | no | yes | no |

In-Line Valves



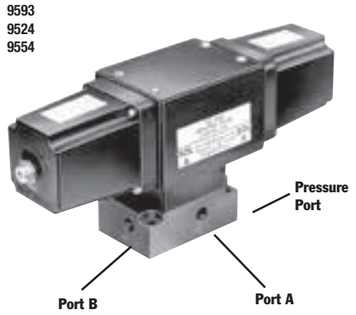
| Order No. | *Cylinder Application | Operation | Valve Type | Volt | Advance/ Return | Advance/ Hold Return | Posi-Check® Feature |
|---|---|---|---|---|---|---|---|
| **9575** | S.A. | Manual | Shut-Off Valve | — | — | — | — |
| **9580** | S.A. | Automatic | One-way Check Valve | — | — | — | — |
| **9581** | S.A. & D.A. | Automatic | Pilot Op. Check Valve | — | — | — | — |
| **9596** | S.A. | Manual | Load Lowering Valve | — | — | — | — |
| **9597** | S.A. & D.A. | Automatic | Sequence Valve | — | — | — | — |
| **9608** | S.A. & D.A. | Automatic | Pressure Reducing Valve | — | — | — | — |
| **9623** | S.A. & D.A. | Automatic | Pressure Relief Valve | — | — | — | — |
| **9631** | S.A. & D.A. | Automatic | Metering Valve | — | — | — | — |
| **9633** | S.A. & D.A. | Automatic | Pressure Regulator Valve | — | — | — | — |
| **9720** | S.A. & D.A. | Automatic | Counter Balance Valve | — | special | — | — |
| **9721** | S.A. & D.A. | Automatic | Counter Balance Valve | — | special | — | — |
| **RV21278** | — | Automatic | Relief Valve | — | — | — | — |

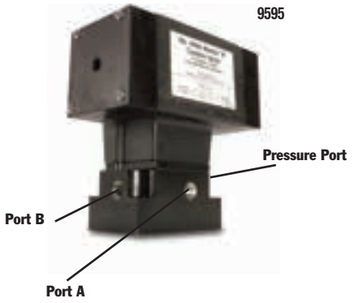
**"S.A." represents single-acting cylinders, "D.A." represents double-acting cylinders.**
**For pump-mounted valves, see pages 51-57.**

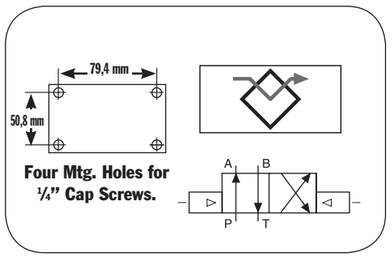
# Valves
## HYDRAULIC REMOTE MOUNTED

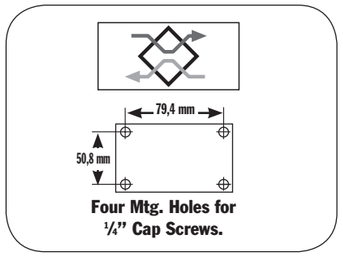
**700 bar,**
**1/4" ports**
19 l / min max flow

3/4-way/2-position solenoid and air actuated valves




**Application: Single- or double-acting cylinders.**
**Actuation:** 9593, 9524 and 9554 are solenoid operated, 9595 is air operated.
**Operation with single-acting cylinder:** Either oil port "A" or "B" must be plugged on valve. With port "B" plugged, solenoid is energized to position "A," oil port "A" becomes pressurized. When solenoid is energized to position "B," oil port "A" becomes the return port.
**Operation with multiple single-acting cylinders:** A pressure line from one bank can be connected to oil port "A" and the other to oil port "B" on the valve. Sequence: When energized to position "A," oil port "A" becomes pressurized and clamps the fixture connected to oil port "A"; oil port "B" becomes a "return" port for cylinder connected to oil port "B," and retracts it. The opposite happens when solenoid "B" is energized.

**Operation with double-acting cylinder:** Port "A" is connected to "advance" port of cylinder, oil port "B" connects to cylinder "return" port. Solenoid is energized to position "A," oil port "A" becomes pressurized to extend cylinder piston. The opposite happens when solenoid "B" is energized. Valve does not hold in "retract" position.

**NOTE:** When using more than one valve on a pump, the tank port may require a check valve to permit inadvertent, momentary extension of a retracted cylinder.

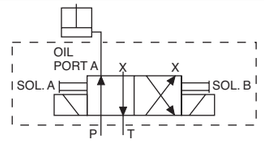
**NOTE:** If pump is equipped with an internal outlet check, a "hold" position can be maintained with the pump shut off.

**No. 9593** – 3/4-way/2-position, remote mounted solenoid valve, 115 volt, 50/60 Hz. Wt., 7 kg.
**No. 9524** – Same as 9593 except with 230 volt, 50/60 Hz.
**No. 9554** – Same as 9593 except with 24 volt, 50/60 Hz.
**No. 9595** – Same as 9593 except is air operated (minimum of 3,5 bar air pressure required). Wt.,5,2 kg.

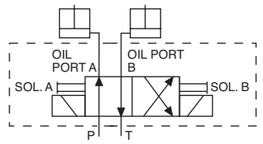
**NOTE:** Valves above are shipped without controls. The 9524, 9554 and 9593 can be used with the 304718 remote hand control . The 9595 can be used with the 209593 remote hand control

**NOTE:** Valves have 1/4" NPTF ports. 3/8" to 1/4" adapters are included.

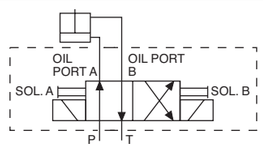
**NOTE:** Maximum tank line pressure for remote mounted valves is 35 bar.



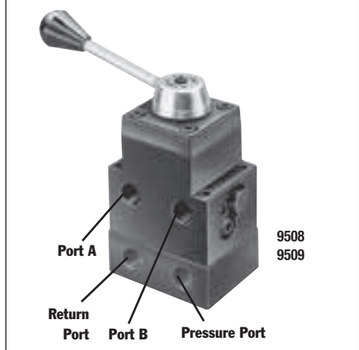

**1. To actuate one single-acting cylinder.**



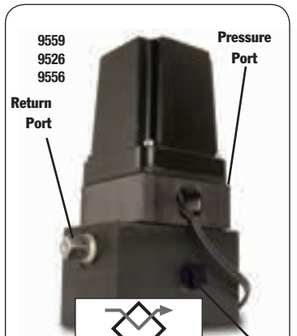

**2. To actuate two single-acting cylinders.**




**3. To actuate one double-acting cylinder.**




**4-way/3-position (closed center) and (tandem center) manual valves with Posi-Check®**
**Application: Single- or double-acting cylinder.** When used with single-acting cylinders, one port must be plugged. For double-acting cylinders, either port can be used for "advance" or "return."
**Actuation:** Lever-operated, detent positioned.
**Functions:** The 9508 provides "advance," "hold" and "return" positions with all ports blocked (closed center) in the "hold" position. The 9509 has "advance," "hold" and "return" with tandem center (cylinder ports are blocked, pump remains running). Both valves have "Posi-Check®" feature to guard against pressure loss when shifting from "advance" to "hold."
**No. 9508** – 4-way/3-position (closed center) manual valve, including subplate for remote mounting. Wt., 2,9 kg.
**No. 9509** – Same as 9508, except is tandem center.




**3-WAY/2-POSITION SOLENOID VALVE**
**Application:** Single-acting cylinders.
**Actuation:** Solenoid operated, 115 volt, 50/60 Hz.
**Function:** Advances cylinder piston when solenoid is de-energized, and pump is running. When solenoid is energized, oil is directed back through valve "return" port and cylinder piston returns. To place cylinder in "hold" position, pump must be stopped or its flow held at the valve "pressure" port with the solenoid de-energized.
**NOTE:** Valve is equipped with a 9631 snubber valve in port "A." The line from the "return" port of the valve must be unrestricted (7 bar back pressure maximum) back to the reservoir.
**IMPORTANT:** A 9580 in-line check valve must be installed in the "pressure" port if the supply pump is not equipped with an outlet check valve.
**No. 9559** – 3-way/2-position solenoid valve, 115 volt 50/60 Hz. Includes a remote mounting subplate. Wt., 4,4 kg.
**No. 9526** – Same as 9559 except for 230 volt, 50/60 Hz.
**No. 9556** – Same as 9559 except for 24 volt, 50/60 Hz.
**NOTE:** Valves above are shipped without control switch. Use 202777 remote hand switch


**4-way/3-position (tandem center) solenoid valve with Posi-CHeck®**
**Application:** Double-acting cylinders.
**Actuation:** Solenoid operated, 115 volt, 50/60 Hz.
**Functions:** Push button control of "advance," "hold" and "return." The "Posi-Check®" feature guards against pressure loss when shifting from "advance" to "hold." With valve in "hold" position, cylinder ports are blocked and oil is directed from pump to reservoir.
**NOTE:** Do not allow return tank pressure to exceed 35 bar at the valve.
**No. 9514** – 4-way/3-position (tandem center) solenoid valve, 115 volt, 50/60 Hz. Remote hand control included. Wt., 4,6 kg.
**No. 9525** – Same as 9514 except for 230 volt, 50/60 Hz.
**No. 9555** – Same as 9514 except for 24 volt, 50/60 Hz.
**NOTE:** Consult factory before installing a pressure switch on any of these valves.

**⚠ CAUTION: To prevent sudden, uncontrolled descent of a load as it is being lowered, use a No. 9596 Load Lowering Valve or No. 9720 Counter Balance Valve in conjunction with the directional valve used in your application.**

**⚠ CAUTION: The Posi-Check® feature will not hold the load when shifted directly A to B-B to A or from hold to A or B.**

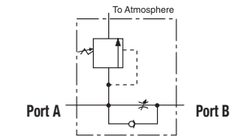
NOTE: Maximum tank line pressure for remote mounted valves is 35 bar.

Valves
HYDRAULIC REMOTE MOUNTED

700 bar,
3/8" ports
19 l / min max flow

# Valves
## HYDRAULIC IN-LINE

**700 bar,**
19 l / min max flow rate




9596

### LOAD LOWERING VALVE

**Application:** Precision metering for controlled cylinder piston return.
**Operation:** Permits free flow when extending cylinder, built-in pressure relief and "Posi-Check®" locks and holds load in raised position until operator opens valve. May be pre-set to provide consistent metered return, or operator may select rate of return with each actuation. Has 3/8" NPTF ports.
NOTE: Pressure relief valve setting is 830 bar. Operating pressure is 700 bar and max. flow rate is 19 l /min.
**No. 9596** – Load lowering valve. Wt., 1 kg.

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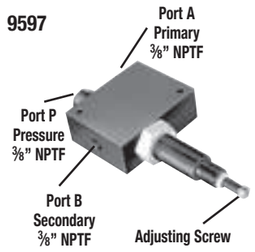
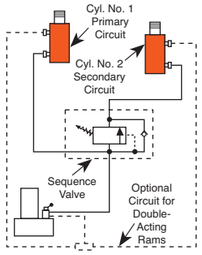
9597




### SEQUENCE VALVE

**Application:** Used when one cylinder in a multi-cylinder application must advance before any other.
**Operation:** Pump is connected to port "P" and separate cylinders to ports "A" and "B". When pressure is applied to port "P", cylinder "A" advances. Cylinder "B" will not advance until a predetermined pressure setting is reached in cylinder "A". Pressure setting is adjustable from 35 to 550 bar with adjustment screw; factory preset at 70 bar. Has 3/8" NPTF ports.
**No. 9597** – Pressure control sequencing valve. Wt., 2,5 kg.

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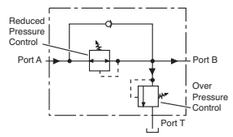
9608




### PRESSURE REDUCING VALVE

**Application:** Provides complete, independent pressure control to two or more clamping systems operated by a single power source.
**Operation:** Can be used to provide different pressures in various stages of a single system. Virtually zero leakage across valve means each system can be operated by a single continuous pressure source. Adjustable from 70 to 350 bar at outlet port "B" (secondary). Has 1/4" NPTF ports.
**No. 9608** – Pressure reducing valve. Wt., 2,6 kg.

⚠ **CAUTION:** Over Pressure control must be set at a higher value than operating pressure.

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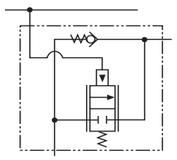
9720
9721



### COUNTER BALANCE VALVE

**Application:** : Double-acting cylinders. Provides positive holding and controlled, "chatter-free" lowering of a load.
**Operation:** Load is raised at flow rate of pump, and held when pump is shut off. When the pump is shifted to "retract", the counter balance valve will continue to hold the load until system pressure exceeds pressure caused by load. The load can then be lowered smoothly to the flow rate of the pump. The counter balance valve is designed to operate with pumps having a high pressure flow rate of up to 1,9 l /min. and cylinder ratios of 3 to 1.
**No. 9720** – Counter balance valve, including two male and two female half two hydraulic hoses, fittings and dust caps. Wt., 4,5 kg.
**No. 9721** – Same as 9720, but does not include couplers, hoses, fittings and dust caps. Wt.,4,2 kg.

⚠ **CAUTION:** The 9720 patented counter balance valve has a pilot pressure as high as 210 bar. Because this pressure is applied to the rod end of the cylinder while it is already under load, the system should not be sized for loads greater than 80% of cylinder rated capacity.

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**Shut-off valve**
**Application:** This needle valve permits fine metering of hydraulic oil.
**Operation:** Can be used for controlling multiple single-acting cylinders.
**No. 9575** – Shut off valve with 3/8" NPTF ports. Wt., 0,6 kg.

9575

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**Check valve**
**Application:** Permits flow of hydraulic oil in one direction only.
**Operation:** Installs right in hydraulic line.
**No. 9580** – Check valve with 3/8" NPTF male ends. Wt., 0,2 kg.

9580

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**Pilot operated check valve**
**Application:** For use with open or tandem center valves. Permits free flow of fluid in one direction.
**Operation:** Flow is blocked in opposite direction until pilot oil pressure is applied. This prevents the loss of pressure if the valve is inadvertently shifted or the pump line is broken. Minimum cracking pressure is 4,1 bar. Required pilot pressure is approximately 16% of checked system pressure.
**No. 9581** – Pilot operated check valve with 3/8" NPTF ports. Wt., 1,7 kg.

9581

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**"In-line" pressure relief valve**
**Application:** Single- or double-acting cylinders. For remote locations in a hydraulic circuit where maximum pressure requirements are less than basic overload valve setting in pump.
**Operation:** Adjustable from 70 to 700 bar. Valve is spring-loaded and direct-acting.
**No. 9623** – Pressure relief valve with 3/8" NPTF ports. Wt., 0,9 kg.

9623

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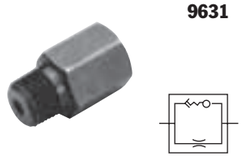
**Metering valve**
**Application:** For systems using large cylinders or extended lengths of hydraulic hose.
**Operation:** Controls surges by restricting flow if it exceeds 26,5 l / min. When flow subsides, valve reopens automatically. Has 3/8" NPTF male end to thread into return port of system control valve, and a 3/8" NPTF female end, permitting return hose to be directly connected.
**No. 9631** – Metering valve. Wt., 0.1 kg.



9631

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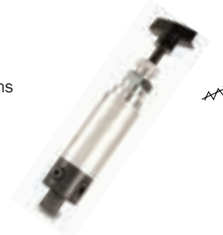
**"In-line" pressure regulator valve**
**Application:** Single- or double-acting cylinders. Permits adjusting operating pressures at various values below relief valve setting of pump.
**Operation:** Regulator valve is easily adjusted to maintain pressures between 20 and 700 bar. Maintains a given pressure setting within 3% over repeated cycles. Flow range is 0,3 l/ min to 23 l / min.
**No. 9633** – In-line pressure regulator valve with two 3/8" NPTF inlet ports, one 1/8" NPTF tank port and 1 m drain line kit. Wt., 0,9 kg.
**Simply turn the handle clockwise to increase the pressure setting, counter-clockwise to reduce pressure.**
**Note: 1 m Drain Line Kit is included.**



9633

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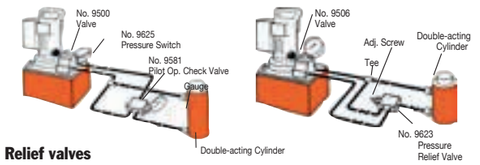



**Relief valves**
**Application:** Provide an economical means of protecting an hydraulic circuit against over pressurization.
**Operation:** These factory preset valves are designed for maximum flow rate of 19 l / min. Furnished with 1/8" NPTF male port. All valves weigh 0.1 kg. See chart to the right for ordering information.

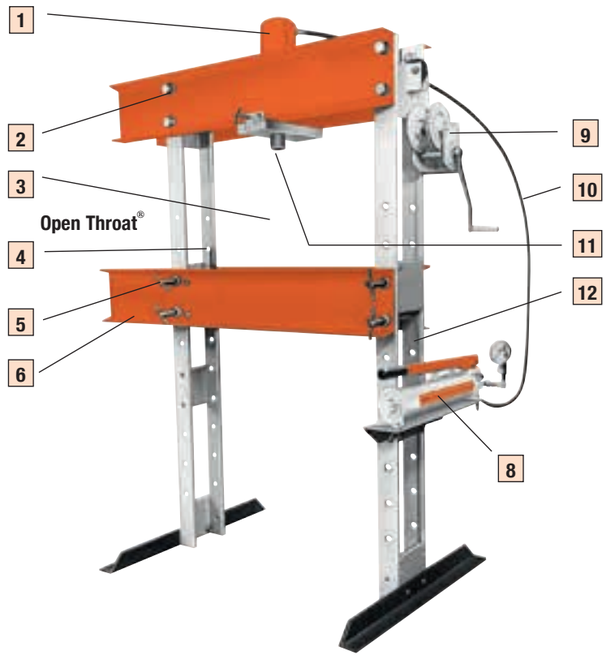

**RV21278 Series**

| Valve Order No. | Pressure Setting (bar) | Valve Order No. | Pressure Setting (bar) |
|---|---|---|---|
| **RV21278** | 697/738 | **RV21278-52** | 366/407 |
| **RV21278-6** | 41/44 | **RV21278-55** | 386/428 |
| **RV21278-10** | 62/69 | **RV21278-57** | 400/442 |
| **RV21278-15** | 103/117 | **RV21278-60** | 421/462 |
| **RV21278-20** | 131/152 | **RV21278-65** | 455/497 |
| **RV21278-28** | 186/207 | **RV21278-70** | 490/531 |
| **RV21278-30** | 207/235 | **RV21278-75** | 524/566 |
| **RV21278-32** | 214/228 | **RV21278-80** | 559/600 |
| **RV21278-35** | 241/262 | **RV21278-83** | 580/621 |
| **RV21278-40** | 283/310 | **RV21278-86** | 600/642 |
| **RV21278-43** | 304/331 | **RV21278-88** | 614/662 |
| **RV21278-48** | 338/366 | **RV21278-90** | 628/669 |
| **RV21278-50** | 352/393 | | |

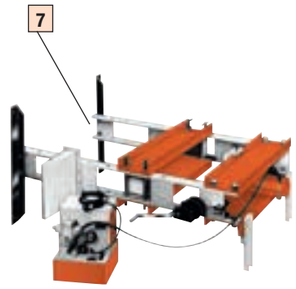
Preset — Non-Serviceable

**NOTE: Care should be exercised to protect workers from hot, pressurized hydraulic oil. Install these valves only in an enclosed or shielded area.**

# SHOP MAINTENANCE




**Horizontal pressing capabilities**




THE UNIQUE BENEFITS OF THE POWER TEAM PRESS

## ALL SHOP PRESSES AVAILABLE IN CE

1 **2 TO 1 SAFETY FACTOR** on hydraulic cylinders and they meet ASME B30.1 standards. Cylinders are easily removed for other applications. Single- or double-acting cylinders are available; built-in relief valve on double-acting cylinders.

2 **FULL RATED CAPACITY** across width of upper frame, even with workhead moved to one side. (Heavy-duty presses only.)

3 **LARGER WORK AREA** than most competitors' models.

4 **ALIGNMENT LEVER** for simple pin replacement after raising or lowering the bed.

5 **CLOSE MANUFACTURING TOLERANCE** allows even load distribution over four alloy steel pins; not two, like some competitors. (Heavy-duty presses only.)

6 **OPEN THROAT® FEATURE** on 25 ton press provides additional work area by mounting cylinder on outside for C-frame advantage.

7 **FRAMES CAN BE USED HORIZONTALLY** for pressing jobs on extra-long shafts (see photo on next page).

8 **ELECTRIC, AIR OR HAND HYDRAULIC PUMPS** are available. All are standard Power Team pumps.
**CE approved electric pumps are standard on all presses.**
**Externally adjustable relief valve** for precise operator control of working pressure is standard on all electric pumps except PE10 and PE17 series.
**24 volt hand switch** for remote control on pumps equipped with solenoid valves.

9 **ONE-MAN OPERATION** for bed adjustment. Winch unit quickly raises or lowers bed to desired height. Self-locking winch mechanism prevents bed from dropping when handle is released.

10 **9,5 MM I.D. HOSE** on spring return cylinders on heavy-duty presses provides up to six times faster cylinder return than standard 6,4 mm I.D. hose.

11 **FAST CYLINDER APPROACH** to work provided by 2-speed hand, air or electric pumps.

12 **RUGGED UPRIGHTS,** 50 percent stronger than channel iron. Four post design means open side for easy loading of long material.

**NOTE:** Certain features do not apply to Power Team 10 ton, Roll-Bed, or economy presses.

**NOTE: Certain press applications may require guarding. Because of the multitude of possible press uses, it is impossible to design a guard that will meet every customer need. The end user must provide their own guarding where the situations dictate.**

# Shop Press
## C FRAME

### 25 Tons
Press

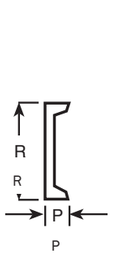
SPM256C



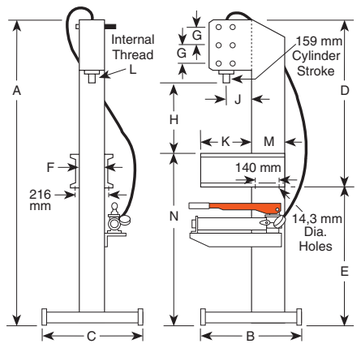


60846

- Can be bench mounted or on optional pedestal base.
- Bench mount requires less than 1.4 sq. m. of space; on optional pedestal, only 4 sq.m. of floor space is needed.
- "Open Throat" design makes loading and unloading of work easy.
- Cylinder head adjusts to three convenient working positions, providing up to 514 mm of "daylight."
- Hydraulic cylinder delivers a 159 mm stroke, is driven by a P59 two-speed hand pump.
- **Pedestal Base No. 60846** – Provides a stable base for SPM256C. Includes a bracket for mounting the pump on the side of pedestal press. Wt., 34,5 kg.




Lower Bolster




**DIMENSIONS**

| A Space | B | C | D | E | F | G | H (Cyl. Retracted) | J | K | L | M | N | P | R | Floor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.972 | 622 | 610 | 1.057 | 914 | 152 | 127 | 260, 387, 514 | 165 | 318 | 1½ – 16 | 203 | 1.092 | 51 | 178 | 610 x 622 |

CE

**ORDERING INFORMATION**

| Capacity (tons) | Type Cyl. Used | Stroke (mm) | Cyl. Model | Order No. | Speed** Advance | Pressing | Type Pump | Pump Model | Prod.Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|
| 25 | Single-Acting | 159 | C256C | **SPM256C*** | 3,3 mm/stroke | 0,8 mm/stroke | Hand | P59 | 108 |

* SPM256C does not include No. 60846 pedestal base.
** Typical performance based on pump specifications. Actual speeds may vary with operating conditions.

# Shop Press
## H FRAME

### 10 Tons
Bench/Floor Press

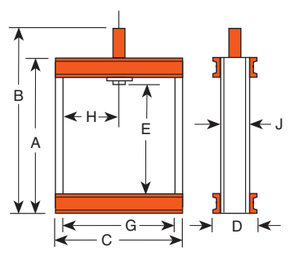
- Ideal for small pressing jobs; repairing small motors, armatures, removing and installing gears, bearings, other press-fit parts.
- Bench press has 391 x 457 mm work area; floor press bed height is adjustable from 127 mm to 1.041 mm with horizontal "daylight" of 553 mm.
- Choices of power sources: single-speed hand pump, electric/hydraulic or air/hydraulic.
- Hydraulic gauges, hoses and fittings included.

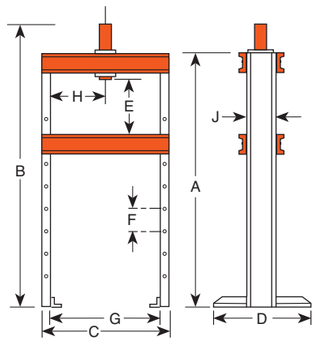
**PUMP ELECTRICAL SPECIFICATIONS**
PE10 Series – 220 volt, 50 cycle, single phase.

CE

SP1010A

SPM1010




**DIMENSIONS**

| Frame | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | H (mm) | J (mm) | K (mm) | L (mm) | Bench Space (mm) | Floor Space (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Bench** | 622 | 841 | 641 | 182 | 391 | -- | 559 | 279 | 102 | 40 | 102 | 182 x 641 | -- |
| **Floor** | 1.499 | 1.718 | 641 | 711 | 127-1.041 | 152 | 559 | 63,5-470* | 102 | 40 | 102 | -- | 711 x 730 |

*Lateral head movement

**ORDERING INFORMATION**

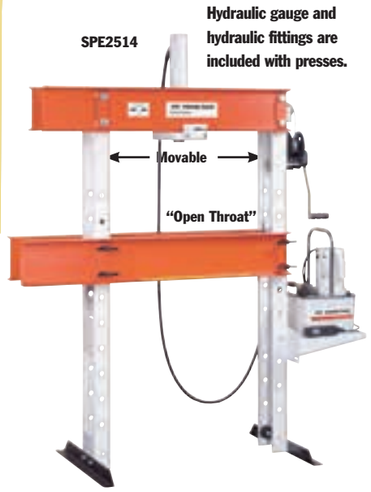
| Frame | Cap. (tons) | Type of Cyl. Used | Stroke | Cylinder Model | Order No. | Speed (mm./min.)††† Advance | Pressing | Type Pump | Pump Model † | Prod. Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| 222481 Bench | 10 | Single-Acting | 257 | C1010C | **SPM1010** | 1,5 mm/stroke | | Hand | P55 | 41,2 |
| 222480 Floor | 10 | Single-Acting | 257 | C1010C | **SPH1010** | 1,5 mm/stroke | | Hand | P55 | 77,5 |
| 222480 Floor | 10 | Single-Acting | 257 | C1010C | **SPE1010** | 55,7 | 5,1 | Elec. †† | PE172-E220 | 79,3 |
| 222480 Floor | 10 | Single-Acting | 257 | C1010C | **SP1010A** | 93,7 | 7,6 | Air | PA9H | 78,1 |
| 222480 Floor | 10 | Double-Acting | 254 | RD1010 | **SPE1010D** | 55,7 | 5,1 | Elec. †† | PE174-E220 | 87,0 |

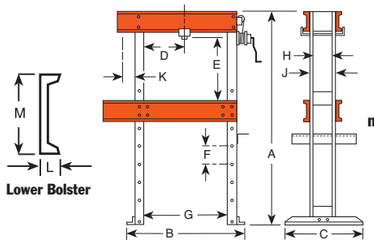
† Optional air/hydraulic pumps available on request.
†† "Advance" position holds pressure with motor shut off. "Return" position advances cylinder with motor running and returns cylinder with motor shut off.
††† Typical performance based on 7 bar and 700 bar pump specifications. Actual speeds may vary with operating conditions.

# Press
## H FRAME

## Open Throat & Economy Press 25 Ton
Presses

SHOP EQUIPMENT


Open Throat feature enables cylinder to be mounted on outside of press frame for fast bearing removal and more.

**OPEN THROAT PRESSES**
- Design permits use as both "H" frame and "C" frame press; cylinder can be mounted on frame extension to handle jobs which won't fit between uprights.
- Open throat press models are also available with remote control to enable the operator to view work from all sides with fingertip control of cylinder piston travel.
- Off-center pressing loads of full capacity can be applied across entire width of frame.

**ECONOMY PRESSES**
- Rugged, yet reasonably priced. Handles many "big press" tasks, and perfect for many of the "in-between" jobs you see almost daily. (Note: stroke length limited to 159 mm on economy models.)

**FEATURES OF BOTH OPEN THROAT AND ECONOMY PRESSES**
- Press bed height easily adjustable with winch. Bed will not drop when handle is released.
- Choice of power sources for rapid cylinder advance: two-speed hydraulic hand pump, electric/hydraulic or air/hydraulic.

**PUMP ELECTRICAL SPECIFICATIONS**

**PE17 Series –** 0,37 KW, 220 volt, 50 cycle, single phase.

CE

**DIMENSIONS**

| A (mm) | B (mm) | C (mm) | D* (mm) | E (mm) | F (mm) | G (mm) | H (mm) | J (mm) | K (mm) | L (mm) | M (mm) | Floor Space (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.727 | 1.092 | 711 | 76-737 | 175-1.102 | 114 | 813 | 140 | 165 | 178 | 64 | 203 | 1.092 x 711 |

*Lateral head movement

**ORDERING INFORMATION**

| Cap. (tons) | Type of Cylinder Used | Stroke (mm) | Cylinder Model | Order No. | Speed (mm/min.)††† Advance | Pressing | Type Pump | Valve Type | Pump‡ Model | Prod.Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| **"Open Throat" presses** | | | | | | | | | | |
| 25 | Single-Acting | 362 | C2514C | **SPA2514** | 249 | 30 | Air | 2-Way Foot | PA6 | 309 |
| 25 | Single-Acting | 362 | C2514C | **SPM2514** | 12,4 mm/ stroke | 0,8 mm/ stroke | Hand | Load - Release | P159 | 314 |
| 25 | Single-Acting | 362 | C2514C | **SPE2514** | 1.184 | 84 | Elec. | 2-Way†† | PE172-E220 | 301 |
| 25 | Single-Acting | 362 | C2514C | **SPE2514S** | 1.321 | 102 | Elec. | 3-Way† | PE172S-E220 | 344 |
| 25 | Double-Acting | 362 | RD2514 | **SPE2514DS** | 1.321 | 102 | Elec. | 4-Way† | PE174S-E220 | 357 |
| **"Economy" presses** | | | | | | | | | | |
| 25 | Single-Acting | 159 | C256C | **SPA256** | 249 | 30 | Air | 2-Way Foot | PA6 | 197 |
| 25 | Single-Acting | 159 | C256C | **SPM256** | 3,0 mm/ stroke | 0,8 mm/ stroke | Hand | Load - Release | P59 | 205 |
| 25 | Single-Acting | 159 | C256C | **SPE256** | 1.184 | 84 | Elec. | 2-Way†† | PE172-E220 | 210 |

† Solenoid valve with 12 volt remote control hand switch.
†† Holds pressure with motor shut off. Also has an automatic dump setting. Furnished with a 3.1m remote motor control.
††† Typical performance based on 7 bar and 700 bar pump specifications. Actual speeds may vary under operating conditions.
‡ Pump standard with press. Other Power Team pumps can be substituted.
dBA at idle and 700 bar: PE172–67/81 dBA; measured at 0,9 m distance, all sides.

# Press
## H FRAME

## 55 Ton
Presses

SHOP EQUIPMENT

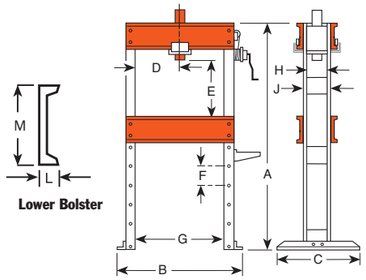
- Full off-center pressing at full rated capacity across width of upper frame without buckling or bending.
- Maximum "daylight" is 1067 x 914 mm, making positioning of even bulky work pieces easy.
- Height of press bed is easily adjusted with winch; friction brake prevents bed from dropping and handle from spinning upon release.
- Presses with single-acting cylinder offer choice of 2-speed hand operated, electric/ hydraulic, or air/hydraulic pump. Models with double-acting cylinder have an electric/ hydraulic pump.
- Press models equipped with remote control enable operator to view work from all sides with fingertip control of cylinder piston travel.
- Press can be used horizontally for special applications with user-supplied support legs.

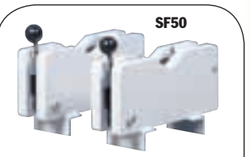
**PUMP ELECTRICAL SPECIFICATIONS**

**PE17 Series** – 0,4 Kw, 220 volt, 50 cycle, single phase.


Hydraulic gauge and hydraulic fittings are included with presses.

CE




**No. SF50** – Straightening fixtures for use with 55-ton shop or 80-ton Roll-Bed® presses (2 ea.). Wt., 47,2 kg. **Not part of press, order separately.**

**DIMENSIONS**

| A (mm) | B (mm) | C (mm) | D* (mm) | E (mm) | F (mm) | G (mm) | H (mm) | J (mm) | L (mm) | M (mm) | Floor Space (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.829 | 1.232 | 914 | 83-832 | 152-1.067 | 152 | 914 | 171 | 203 | 76 | 305 | 1.232 x 914 |

*Lateral head movement

**ORDERING INFORMATION**

| Cap. (tons)† | Type of Cylinder Used | Stroke (mm) | Cylinder Model | Order No. | Speed (mm/min.)†† Advance | Pressing | Type Pump | Valve Type | Pump‡ Model | Prod.Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| 55 | Single-Acting | 159 | C556C | **SPA556** | 114 | 12,7 | Air | 2-Way Foot | PA6 | 318 |
| 55 | Single-Acting | 159 | C556C | **SPM556** | 5,8 mm/ stroke | 0,4 mm/ stroke | Hand | Load-Release | P159 | 323 |
| 55 | Single-Acting | 337 | C5513C | **SPM5513** | 18,9 mm/ stroke | 0,7 mm/ stroke | Hand | 2-Way | P460 | 435 |
| 55 | Single-Acting | 159 | C556C | **SPE556** | 551 | 38 | Elec. | 2-Way†† | PE172-E220 | 333 |
| 55 | Single-Acting | 337 | C5513C | **SPE5513** | 551 | 38 | Elec. | 2-Way†† | PE172-E220 | 444 |
| 55 | Single-Acting | 337 | C5513C | **SPE5513S** | 620 | 48 | Elec. | 3-Way† | PE172S-E220 | 478 |
| 55 | Double-Acting | 333 | RD5513 | **SPE5513D** | 551 | 38 | Elec. | 4-Way | PE174-E220 | 450 |
| 55 | Double-Acting | 333 | RD5513 | **SPE5513DS** | 1.679 | 137 | Elec. | 4-Way† | PE554S-E220 | 505 |

* Frame is shipped assembled.
† Solenoid valve with 24 volt remote control hand switch.
†† Holds pressure with motor shut off. Also has an automatic dump setting. Furnished with a 3,1 m remote motor control.
††† Typical performance based on 7 bar and 700 bar pump specifications. Actual speeds may vary with operating conditions.
‡ Pump standard with press. Other Power Team pumps can be substituted. dBA at idle and 700 bar: PE172—67/81; measured at 0,9 m distance, all sides.

# H Frame Presses

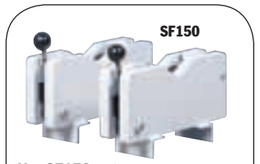
## 100 Ton
Presses

- Cylinder workhead glides across upper frame on rollers, locks in place for off-center pressing jobs. May be used horizontally for special pressing applications with user-supplied supports.
- Press bed is raised and lowered by winch which locks in place for insertion of bed retaining pins. Upper bolster can be lowered 203 mm for convenient positioning on repetitive jobs.
- Generous "daylight" of 1.067 x 1.270 mm accommodates bulky work pieces, uprights are placed for easy side entry of bars or shafts for straightening or bending.
- Choice of single- or double-acting cylinder. Hydraulic pump options include: 2-speed hand pump with large 7,6 l reservoir, PE172 electric/hydraulic pump or "PQ" series "Quiet" electric/hydraulic pump with low noise level.

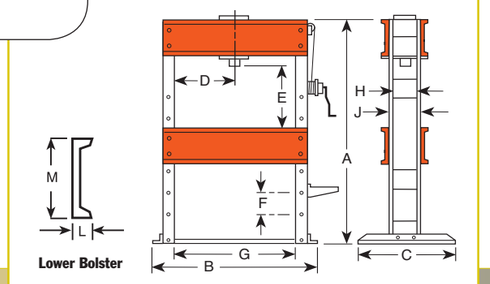

Hydraulic gauge and hydraulic fittings are included with presses.

### PUMP ELECTRICAL SPECIFICATIONS

**PE17 Series** – 0,4 KW, 220 volt, 50 cycle, single phase.
**PQ120 Series –** 2,2 kW, 380 V, 50 cycle, three phase.




**No. SF150** – Straightening fixtures for use with 100-ton shop press and 100-, 150-, and 200-ton RollBed® presses (2 ea.). Wt., 89 kg. **Not part of press, order separately.**




### DIMENSIONS

| A (mm) | B (mm) | C (mm) | D* (mm) | E (mm) | F (mm) | G (mm) | H (mm) | J (mm) | L (mm) | M (mm) | Floor Space (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1.962 | 1.626 | 914 | 178-1.092 | 51-1.067 | 203 | 1.270 | 203 | 254 | 86 | 381 | 914 x 1.988 |

*Lateral head movement

### ORDERING INFORMATION

| Cap. (tons)† | Type of Cyl. Used | Stroke (mm) | Cylinder Model | Order No. | Speed (mm/min.)†† Advance | Speed (mm/min.)†† Pressing | Type Pump | Valve Type | Pump‡ Model | Prod. Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| 100 | Single-Acting | 260 | C10010C | **SPM10010** | 9,0 mm/ stroke | 0,3 mm/ stroke | Hand | 3-way | P460 | 769 |
| 100 | Single-Acting | 260 | C10010C | **SPE10010** | 889 | 74 | Elec. | 3-way | PE552-E220 | 813 |
| 100 | Single-Acting | 260 | C10010C | **SPE10010R** | 292 | 20 | Elec. | 2-way | PE172-E220 | 766 |
| 100 | Double-Acting | 333 | RD10013 | **SPE10013DS** | 889 | 147 | Elec. | 4-way* | PQ1204S-E380 | 854 |

† Frame is shipped assembled. *Solenoid valve with 24 volt remote control hand switch.
†† Typical performance based on 7 bar and 700 bar pump specifications. Actual speeds may vary under operating conditions.
‡ Pump standard with press. Other Power Team pumps can be substituted.
dBA at idle and 700 bar: PE172—67/81; PQ120—73/78. Measured at 0,9 m distance, all sides.



# H Frame Presses

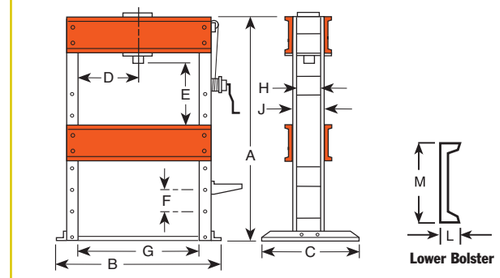
## 150-200 Ton
Presses

- Standing 2,3 m tall, these giants handle the really big jobs. May be used horizontally for special pressing applications with user-supplied supports.
- Workhead has wide horizontal travel; rugged press frame withstands load of rated capacity across full width of frame.
- Winch mechanism provides easy positioning of press bed, locks in place for insertion of retaining pins. Upper bolster can be lowered 279 mm for convenient positioning on repetitive jobs.
- Uprights are placed for easy side entry of bars or shafts for straightening or bending.
- Fast cylinder approach is provided by PQ1204S "Quiet" electric/hydraulic pump. Has remote control hand switch, enabling operator to view work from all sides with fingertip control of cylinder piston travel.

### PUMP ELECTRICAL SPECIFICATIONS

**PQ120 Series** – 2,24 KW, 380 volt, 50 cycle, three phase.


Hydraulic gauge and hydraulic fittings are included with presses.




### DIMENSIONS

| A (mm) | B (mm) | C (mm) | D* (mm) | E (mm) | F (mm) | G (mm) | H (mm) | J (mm) | L (mm) | M (mm) | Floor Space (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2.286 | 1.803 | 1,118 | 279-991 | 228-1.111 | 279 | 1.270 | 318 | 381 | 105 | 457 | 1.117 x 1.803 |

*Lateral head movement

### ORDERING INFORMATION

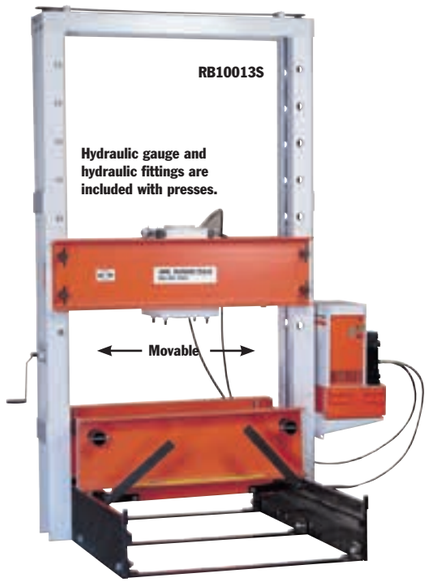
| Capacity (tons)† | Type of Cylinder Used | Stroke (mm) | Cylinder Model | Order No. | Speed (mm/min.)†† Advance | Speed (mm/min.)†† Pressing | Type Pump | Valve Type | Pump Model*** | Prod. Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| 150 | Double-Acting | 333 | RD15013 | **SPE15013DS** | 610 | 99 | Electric | 4-way** | PQ1204S-E380 | 1.366 |
| 200 | Double-Acting | 333 | RD20013 | **SPE20013DS** | 457 | 74 | Electric | 4-way** | PQ1204S-E380 | 1.484 |

† Frame is shipped assembled.
†† Typical performance based on 7 bar and 700 bar pump specifications. Actual speeds may vary under operating conditions.
** Solenoid valve with 24 volt remote control hand switch.
*** Pump standard with press. Other Power Team pumps can be substituted. dBA at idle and 700 bar: 73/78, measured at 0,9 m foot distance, all sides.

# Roll-Bed® Press

## 80-200 Ton
H Frame

CE




### Heavy-Duty Straightening Fixtures

**No. SF50** – Fixtures for use with 80-ton Roll-Bed® presses or 55-ton heavy-duty shop presses. (2 ea.). Wt. 47,2 kg. **Not part of press, order separately.**

**No. SF150** – Fixtures for use with 100-, 150- and 200-ton Roll-Bed® presses and 100-ton shop presses only (1 pr.). Wt.89 kg. **Not part of press, order separately.**

- The original, patented Roll-Bed® design. Bed rolls out for easy loading and unloading with a crane or other lifting device.
- Movable workhead glides easily side-to-side for full off-center load capacity across width of upper frame.
- "Daylight" is 1.283 x 1.524 mm for 80- and 100-ton models; 1.302 x 1.625 mm on 150- and 200-ton presses.
- Fast approach of double-acting, 334 mm stroke cylinder is provided by PQ1204S "Quiet" electric/ hydraulic pump with remote control hand switch. Operator can view work from all sides with fingertip control of cylinder piston travel.

**PRESS FEATURES:**

- **Roll-Bed® design** – Bed glides in or out on bearings to make loading and unloading fast and easy.
- Adjustable lower bed width – For secure balancing and centering of heavy jobs. Loosen adjusting bolts to adjust bed from 102 to more than 686 mm. See dimension "H."
- **Movable workhead** – For off-center pressing jobs, workhead moves on bearings across upper bolster. Presses can be used at full capacity, regardless of where workhead is placed.
- **Lifting mechanism** – Simply turn crank handle to raise or lower upper bolster. Screw mechanism raises or lowers both sides evenly (a heavy-duty 1/2" drill motor can replace handle for automatic adjustment). Four locking pins hold bolster in place for pressing.
- **Optional heavy-duty straightening fixtures** – Make straightening jobs easy and accurate to within 0.1 mm! Rollers are ball bearing mounted and handle raises or lowers for easy turning of the work.

**PUMP ELECTRICAL SPECIFICATIONS**

**PQ120 Series** – 2,24 KW, 380 volt, 50 cycle, three phase.

**NOTE:** Different voltage and valve options can be obtained by substituting certain PA, PE or PQ series pumps. Consult the factory.

Lifting screw and locking pins make bolster raising a one-man job.

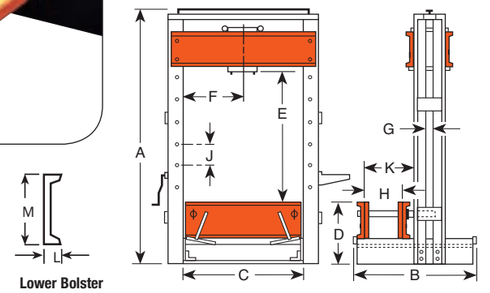
Bearings make bed positioning smooth and easy.

Lever lowers bed for pressing, raises it for rolling.


Cylinder is easily moved across width of upper bolster.

Width adjusts from 102 mm to over 686 mm; is secured with locking bolts.

CE




### DIMENSIONS

| Cap (Tons) | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | H (mm) | J (mm) | K (mm) | L (mm) | M (mm) | Floor Space (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 80 | 2.861 | 1.632 | 1.283 | 686 | 305-1.524 | 368-914 | 76,2 | 102-692 | 203 | 927 | 86 | 381 | 1.632-1.537 |
| 100 | 2.861 | 1.632 | 1.283 | 686 | 305-1.524 | 368-914 | 76,2 | 102-692 | 203 | 927 | 86 | 381 | 1.632-1.537 |
| 150 | 3.131 | 1.734 | 1.302 | 762 | 229-1.626 | 352-949 | 76,2 | 102-689 | 279 | 946 | 105 | 457 | 1.734-1.607 |
| 200 | 3.131 | 1.734 | 1.302 | 762 | 229-1.626 | 352-949 | 76,2 | 102-689 | 279 | 946 | 105 | 457 | 1.734-1.607 |

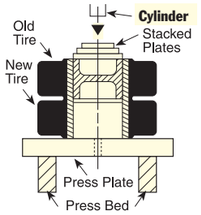
### ORDERING INFORMATION

| Capacity (tons)† | Type of Cylinder Used | Stroke (mm) | Cylinder Model | Order No. | Speed (mm/min.)†† Advance | Pressing | Type Pump | Valve Type | Pump‡ Model | Prod. Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| 80 | Double Acting | 333 | RD8013 | **RB8013S** | 1.168 | 190 | Elec. | 4-way* | PQ1204S-E380 | 1.307 |
| 100 | Double Acting | 333 | RD10013 | **RB10013S** | 889 | 147 | Elec. | 4-way* | PQ1204S-E380 | 1.334 |
| 150 | Double Acting | 333 | RD15013 | **RB15013S** | 610 | 99 | Elec. | 4-way* | PQ1204S-E380 | 2.019 |
| 200 | Double Acting | 333 | RD20013 | **RB20013S** | 457 | 74 | Elec. | 4-way* | PQ1204S-E380 | 2.059 |

* Solenoid valve with 24 volt remote control hand switch.
† Frame is shipped assembled.
‡ Pump standard with press. Other Power Team pumps can be substituted. dBA at idle and 700 bar: PQ120-73/78; measured at 0,9 mdistance, all sides.
†† Typical performance based on 7 bar and 700 bar pump specifications. Actual speeds may vary with operating conditions.

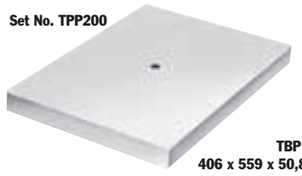
**Rubber Tire Removing/Installing set**
Now an easy way to press solid rubber tires. The TPP200 uses plates instead of combination rings to press a rim from an old tire into a new one. Plates are stacked so none is more than 50,8 mm smaller than the one under it to keep the plates from bending. They can be used on any Power Team press with 55-ton capacity or more. NOTE: Many tires require 100 tons of force or more, depending on tire size and condition. These plates withstand max. force of 150 tons.

**No. TPP200** – Tire press plate set. Includes 13 press plates, spacer pushing adapter and press bed plate. For use on solid rubber tires from 102 mm to 451 mm I.D.




**Pressing rim into new tire on Power Team Press.**

**Set No. TPP200**



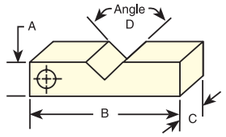
**TBP1622**
**406 x 559 x 50,8 mm**

**TPP1 – TPP13**
**98,4 x 448 x 19,1 mm**

**TPS6**
**95,3 x 152,4 mm**

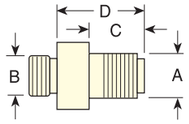
| Order No. | Set No. TPP200 Tire Size I.D. (mm) | Plate O.D. (mm) |
|---|---|---|
| TPP1 | 102 | 98,4 |
| TPP2 | 127 | 123,8 |
| TPP3 | 152,159 | 149,2 |
| TPP4 | 165 | 161,9 |
| TPP5 | 203 | 200 |
| TPP6 | 254 | 250,8 |
| TPP7 | 267 | 263,5 |
| TPP8 | 286 | 282,6 |
| TPP9 | 305,308 | 301,6 |
| TPP10 | 356 | 352,4 |
| TPP11 | 381 | 377,8 |
| TPP12 | 406 | 403,2 |
| TPP13 | 451 | 447,7 |
| TPS6 | Spacer/Pushing Adapter | 82,6 x 152,4 |
| TBP1622 | Bed Plate | 406 x 559 x51 |

## PRESS ACCESSORIES, "V" BLOCKS & THREADED ADAPTERS




**V-BLOCKS (mm)**

| Order No. | Width A (mm) | Length B (mm) | Thick C (mm) | Angle D |
|---|---|---|---|---|
| 1890 | 50,8 | 228,6 | 31,8 | 120° |
| 1891 | 63,5 | 292,1 | 44,5 | 120° |
| 1892 | 88,9 | 355,6 | 50,8 | 120° |
| 1893 | 127 | 355,6 | 38,1 | 120° |
| 207395 | 146,1 | 584,2 | 63,5 | 120° |



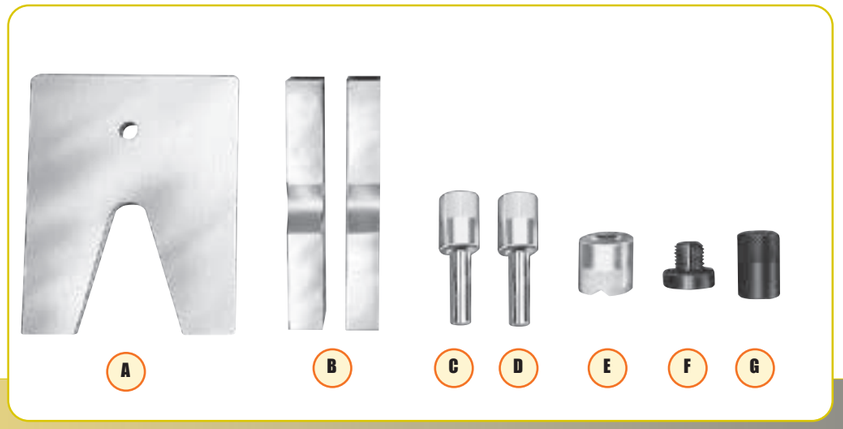

**THREADED ADAPTER DIMENSIONS**

| Adapter No. | A | B | C (mm) | D (mm) |
|---|---|---|---|---|
| 38597 | 1- 8 | 1- 8 | 19,1 | 33,3 |
| 38953 | 1 1/4 - 7 | 1 1/2 -16 | 69,9 | 111,1 |
| 37368 | 1 5/8 – 5 1/2 | – | 42,9 | 63,5 |
| 43562 | 2 1/4 - 12 | -- | 57,2 | 76,2 |
| 38954 | 1 5/8 – 5 1/2 | 1 1/2 - 8 | 82,6 | 106,4 |
| 43563 | 2 1/4 - 12 | 2 3/4 -12 | 57,2 | 81 |
| 46070 | 2 1/4 - 12 | 2 – 4 1/2 | 57,2 | 81 |

Shop Press
ACCESSORIES

SHOP EQUIPMENT

**Press Accessory Kit**
Make your Power Team press even more versatile with one of these accessory sets. These sets will eliminate makeshift set-ups. Many of these items can be used with pullers you already have.




**ORDERING INFORMATION**

| Use With Press: | Order No. | A V-Throat Press Plate | B V-Blocks | C Pushing Adapter ⚠ | D Pushing Adapter ⚠ | E V-Pushing Adapter | F Threaded Adapter Single-Acting Cyl. | F Threaded Adapter Double-Acting Cyl. | G Pushing Adapter |
|---|---|---|---|---|---|---|---|---|---|
| 10 Ton | **SPA10** | 1888 | 1890 (Pr.) | **201923** 12,7 mm dia. shank | **201454** 19 mm dia. shank | 34806 | Included in Set 38597 | 38597 | – |
| 25 Ton | **SPA25** | 1889 | 1891 (Pr.) | **34510** 19 mm dia. shank | **34511** 25,4 mm dia. shank | 34807 | Included in Set 38953 | 38953 | – |
| 55 Ton | **SPA55** | – | 1892 (Pr.) | **34755** 25,4 mm dia. shank | **34756** 31,8 mm dia. shank | 34808 | Not Included Order Separately 37368 | 38954 | – |
| 80/100 Ton | **SPA100** | – | 1893 **(Pr.) | – | – 43562 | 36469 43563 | Not Included Order Separately 43562 46070 *** | 43563 46070 | 21332 |
| 150/200 Ton | **SPA200** | – | 207395 (Pr.) | – | **44458** 57,1 mm dia. shank | 44457 | None* – | – | – |

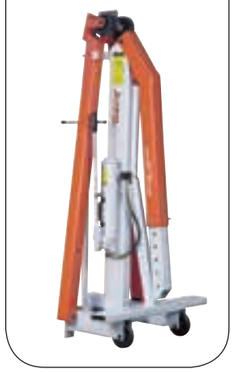
* Pushing adapters thread directly into RD15013 and RD20013 cylinders.
** V-blocks, No. 1893, are recommended for use with 80-ton Roll-Bed® press. Not recommended for use with 100-ton Roll-Bed®.
*** For 80-ton Roll-Bed® press.
NOTE: Individual press accessories may be ordered separately.

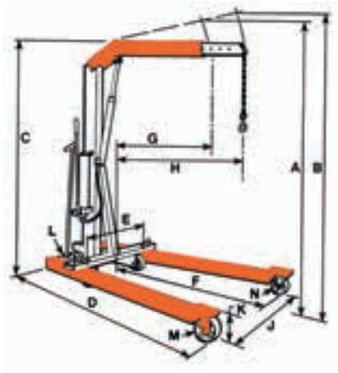
⚠ **CAUTION: Pushing adapters are designed for use with specific shaft sizes, and depending on the condition of the shaft ends, the adapter may not withstand the full press tonnage. Always use a protective blanket or other suitable guard when pressing.**

# Mobile Floor Cranes

## 1000- 2000 kg


1000 kg and 2000 kg capacity with space-saving fold-away feature






- Adjustable legs spread to clear obstacles, telescoping boom for extra reach. Rugged construction, reliable hydraulics.
- Boom collapses completely and legs fold for compact storage.
- 2-speed hydraulic hand pump provides fast boom travel and precise operator controlled descent.
- Roller bearing wheels and a steering dolly provide ease of mobility. Lifting chain is included.

**No. FC4400** – 2000 kg cap. crane with fold-away feature, adj. leg spread, lifting chain and 2-speed hand pump. Wt. 293 kg.

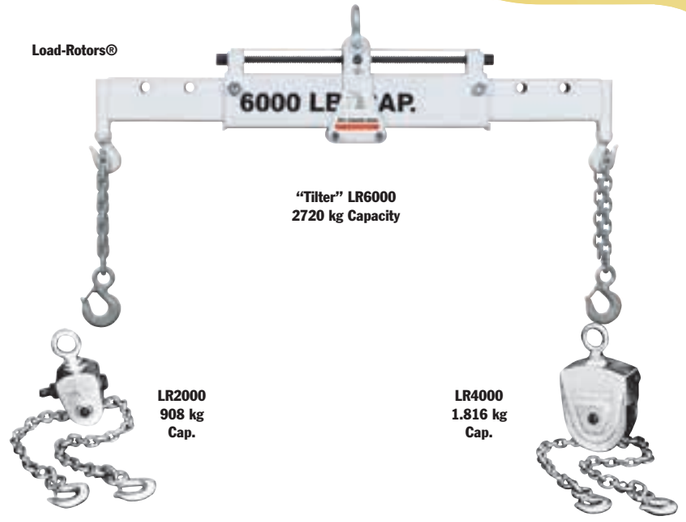
### DIMENSIONS

| | FC2200* | FC4400* |
|---|---|---|
| Cap., boom ret. (kg) | 1.000 | 2.000 |
| Cap., boom ext. (kg) | 750 | 1.500 |
| A Max. boom hgt., ret (mm) | 2,718 | 2.819 |
| B Max. boom hgt., ext.(mm) | 2.972 | 3.099 |
| C Overall hgt., boom horiz.(mm) | 2.032 | 2.083 |
| D Overall length (mm) | 2.108 | 2.261 |
| E Min. throat width (mm) | 610 | 635 |
| F Inside leg length (mm) | 1.372 | 1.461 |
| G Eff. boom reach -ret.(mm) | 838 | 902 |
| H Eff. boom reach -ext. (mm) | 1.219 | 1.238 |
| J Inside leg width (mm) | 610-914-1.219 | 660-1.016-1.333 |
| **(3 –position)** | **(3 –position)** | |
| K Leg height (mm) | 203 | 241 |
| L Dolly wheel diameter(mm) | 127 | 127 |
| M Wheel diameter (mm) | 152 | 203 |
| N Caster diameter (mm) | 152 | 152 |
| space, folded (mm) | 686 x 965 | 787 x 1.067 |
| Height, folded (mm) | 2.007 | 2.184 |

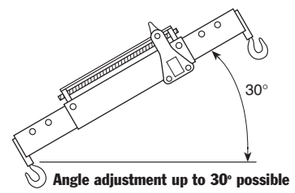
*** Frame shipped unassembled.**

# Load-Rotors®
## TILTERS

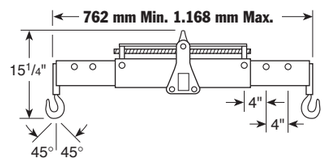
## 908-2720 kg




- For lifting or positioning components, Power Team's heavy duty lifting slings are just right.
- The heavy-duty Load-Rotors®, when used with a crane or hoist, greatly reduce time and effort.
- A self-locking worm and gear set in the Load-Rotor® head permits rapid angle adjustment of the component being handled.
- Whenever you have big, heavy components to move or position, nothing helps you get the job done easier and faster than the 2.720 kg "Tilter."




**Angle adjustment up to 30° possible**




**The working length is adjustable in three positions from 762 mm to 1.168 mm. Maximum chain angle is 45°.**

### ORDERING INFORMATION

| Capacity (kg) | Order No. | Chain Size (mm) | Chain Lg. W/ Swivel Hooks (mm) | Lifting Eye Opening (mm) | Hex Drive End (in) | Gear Ratio | Product Wt. (kg) |
|---|---|---|---|---|---|---|---|
| 2000 | **LR2000** | 6,4 | 1.422 | 31,8 | 5/8 | 34:1 | 4,1 |
| 4000 | **LR4000** | 7,9 | 1.650 | 44,5 | 5/8 | 82:1 | 10,4 |
| 6000 | **LR6000** | 7,9 | 1.650 | 41,3 | 5/8 | 82:1 | 33,1 |

# JACKS

**ECONOMY TOE JACKS...153**
2-10 Ton

**STROKE (MM)**

| Series | Description | Pg | 1,1 Ton | 2 Ton | 3 Ton | 3,6 Ton | 5 Ton | 5,5 Ton | 6 Ton | 7 Ton | 8 Ton | 10 Ton | 11 Ton | 12 Ton | 13 Ton | 15 Ton | 20 Ton | 22 Ton | 23,8 Ton | 27,5 Ton | 30 Ton | 33 Ton | 34 Ton | 46,3 Ton | 50 Ton | 55 Ton | 60 Ton | 74,6 Ton | 100 Ton | 110 Ton | 150 Ton |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Bottle Jack Std | 140 | | 114 | 114 | | 120 | | | | 120 | | | 149 | | 156 | 159 | 156 | | | 159 | 143 | | | 171 | | | | | 155 | |
| | Bottle Jack Low Profile | 141 | | | | | | | | | | | | 95 | | | 86 | | | | 79 | | | | | | | | | | |
| | Toe Jacks Std | 142 | | | | | | 210 | | | | | 235 | | | | | | | 233 | | | | | | | | | | | |
| | Toe Jacks Economy | 143 | | 124 | | | 124 | | | | | 149 | | | | | | | | | | | | | | | | | | | |
| | Bottle Jacks Telescoping | 144 | | | | | | | 305 | | | | 262 | | 254 | 181 | | | | | | | | | | | | | | | |
| | Bottle Jacks Sidewinder | 145 | | | | | 19/38 | | | | | 30 | | | | | 30 | | | | | | | | | | | | | | |
| SJ | Post Tension/Stressing Jacks | 147 | | | | | | | | | | | | | | | 216/254 | | | | 216/254 | | | | | | | | | | |
| IJ | Inflatable Jacks | 148 | 68 | | | 119 | | | | 160 | | | | 224 | | | | | 305 | | | | 355 | 416 | | | | 521 | | | |
| PL | High Tonnage Portable Jack RR | 150 | | | | | | | | | | | | | | | | | | | | | | | | | 355 | | 355 | | |
| PM | High Tonnage Portable Jack | 152 | | | | | | | | | | | | | | | | | | | | | | | | 333 | | | 333 | | 333 |

# Bottle Jacks

## 2-110 Ton
Portable
hydraulic power

Industrial lifting and pushing applications.


- Choose from this complete line of premium–quality, standard bottle jacks. Ideal for use in any number of industrial lifting and pushing applications.
- The 9110B, 9015B, 9022B and 9033B feature a beveled base which allows the jack to “follow” the load, reducing the chance of dangerous side-loading.
- Many jacks feature screw extensions and all can be used in the vertical, angled or horizontal positions.
- Serrated or contoured saddles help stabilize the load for a safer lift.
- All jacks meet ASME B30.1 standards and carry the Power Team Marathon Lifetime Warranty.
- 110-ton jack features dual pumps for time-saving two-speed operation.

**ORDERING INFORMATION**

| Cap. Tons | Stroke (mm) | Order Number | Retracted Height Min. (mm) | Length of Screw Ext. (mm) | Height w/Screw Ext. (mm) | No. Pump Strokes to Ext. Piston completly | Saddle Dia. (mm) | Base Size (mm) | Pump Handle Length (mm) | Handle Effort at Rated Cap. (kg) | Carry Handle | Metric tons at 700 (bar) | Product Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 114 | **9002A** | 181 | 49 | 344 | 5 | 25 | 110x65 | 311 | 34 | No | 1,8 | 2,2 |
| 3 | 114 | **9003A** | 191 | 60 | 365 | 10 | 29 | 114x72 | 489 | 20,4 | No | 2,7 | 2,6 |
| 5 | 121 | **9005A** | 200 | 70 | 391 | 12 | 35 | 132x76 | 545 | 24,9 | No | 4,5 | 3,6 |
| 8 | 121 | **9008A** | 200 | 70 | 391 | 18 | 38 | 152x89 | 605 | 34 | No | 7,3 | 5,5 |
| 12 | 149 | **9112A** | 241 | 79 | 470 | 26 | 48 | 165x106 | 605 | 27,2 | Yes | 10,9 | 7,9 |
| 15 | 156 | **9015B** | 230 | 110 | 495 | 27 | 60 | 130x140† | 700 | 40,8 | No | 13,6 | 8,3 |
| 20 | 159 | **9120A** | 270 | 40 | 429 | 22 | 51 | 183x129 | 800 | 31,7 | Yes | 18,1 | 12,9 |
| 22 | 156 | **9022B** | 240 | 110 | 505 | 36 | 60 | 165x160† | 700 | 40,8 | Yes | 20,0 | 10,7 |
| 30 | 159 | **9030A** | 279 | -- | 438 | 35 | 60 | 192x141 | 1.000 | 22,7 | Yes | 27,2 | 18,7 |
| 33 | 143 | **9033B** | 240 | 100 | 483 | 56 | 65 | 184x176† | 700 | 39,9 | No | 29,9 | 14,5 |
| 50 | 171 | **9050A** | 305 | -- | 476 | 35 | 76 | 237x187 | 1.000 | 38,6 | Yes | 45,4 | 35,4 |
| 110 | 156 | **9110B** | 300 | -- | 456 | 40/160‡ | 111 | 339x291 | 700 | 35,8 | Yes | 99,8 | 70 |

† Comes with a Beveled Base
‡ 2 Speed: Rapid advance≈40 strokes; Lift mode≈160 strokes

# Low Profile
## BOTTLE JACKS

## 12, 20 & 30 Ton

The right choice for those lower clearance jobs.




- All the quality, features and lifting capacity of the standard jacks in short form. The 12-ton and 20-ton models feature screw extensions for added versatility.
- All jacks meet ASME B30.1 standards and carry the Power Team Marathon Lifetime Warranty.
- All jacks operate both vertically and horizontally for use in a variety of lifting, pushing and spreading applications.

**ORDERING INFORMATION**

| Product Cap. | Stroke | Order | Retracted Height Min. | Length of Screw Ext. | Height w/Screw Ext. | No. Pump Strokes to Ext. Piston | Saddle Dia. | Base Size | Pump Handle Length | Handle Effort at Rated Cap. | Carry | Metric tons at 700 | Weight |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | 95 | **9012A** | 171 | 76 | 343 | 26 | 48 | 165x106 | 605 | 27 | Yes | 10,9 | 6,4 |
| 20 | 86 | **9020A** | 181 | 40 | 305 | 22 | 51 | 183x129 | 800 | 32 | Yes | 18,1 | 10,1 |
| 30 | 79 | **9130A** | 181 | -- | 260 | 35 | 60 | 192x141 | 1.000 | 23 | Yes | 27,2 | 13,7 |

‡ 2 Speed: Rapid advance≈40 strokes; Lift mode≈160 stroke

# Toe Jacks

## 5.5, 11 & 27.5 Ton

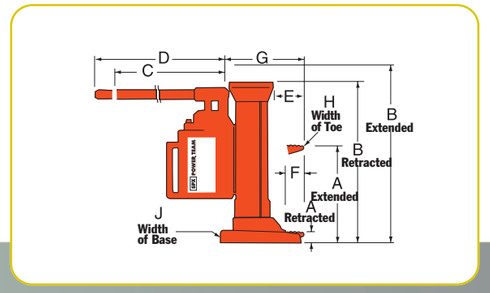
Get under equipment with only 27 mm of ground clearance.




ASME B30.1

- With lifting points on the toe and on the top, these extremely rugged jacks are ideal for machine lifting, rigging, lift truck service and much more.
- Choose from 5.5-ton, 11-ton, and now, an amazing 27.5-ton lifting capacity.
- All jacks operate both vertically and horizontally.
- Base, toe and pumping assembly swivel independently, allowing the jack to work in confined areas.

**The J Series Toe Jack is an extremely rugged jack used here for lift truck service.**




**DIMENSIONS**

| Order Number | A Ret. (mm) | A Ext. (mm) | B Ret. (mm) | B Ext. (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | H (mm) | J (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **J58T** | 30 | 238 | 375 | 584 | 368 | 451 | 71 | 56 | 176 | 41 | 130 |
| **J109T** | 30 | 264 | 419 | 654 | 368 | 451 | 76 | 56 | 183 | 64 | 171 |
| **J259T** | 54 | 289 | 505 | 738 | 210 | 756 | 146 | 102 | 267 | 89 | 270 |

**ORDERING INFORMATION**

| Cap. Tons | Max Lift Stroke (mm) | Order Number | Strokes to Extend Piston 25,4 mm | Handle Effort at Max Load (kg) | Carry Handle | Metric tons at 700 bar | Product Wt. (kg) |
|---|---|---|---|---|---|---|---|
| 5½ | 210 | **J58T** | 8 | 38,1 | Yes | 5,0 | 19,5 |
| 11 | 235 | **J109T** | 13 | 40 | Yes | 10,0 | 29 |
| 27½ | 233 | **J259T** | 21 | 40 | Yes | 24,9 | 92,1 |

# Economy

## TOE JACKS

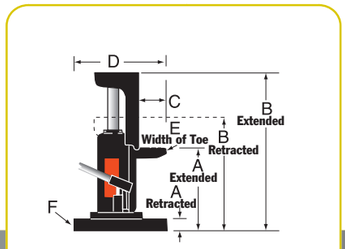
## 2, 5 & 10 Ton

Just the power you need at a price you can afford.




ASME B30.1

- These bottle jack-style toe jacks are loaded with many of the same features as our standard bottle jacks, but the toe-lift feature and swiveling pump handle socket make them ideal for machinery lifting and positioning.
- An internal pressure relief provides added safety by limiting the jack's lifting capability to the capacity of the toe.
- Spring return is an added feature on the larger jacks.
- Swiveling pump handle assembly available on the 5- and 10-ton models. The swiveling jack assembly allows you to access and pump the unit from numerous positions.




**DIMENSIONS**

| Order Number | A Ret. (mm) | A Ext. (mm) | B Ret. (mm) | B Ext. (mm) | C (mm) | D (mm) | E (mm) | F (mm) |
|---|---|---|---|---|---|---|---|---|
| **J24T** | 16 | 140 | 232 | 356 | 47,5 | 181 | 51 | 125 |
| **J55T** | 25 | 149 | 292 | 476 | 47,5 | 257 | 76,2 | 184,2 |
| **J106T** | 32 | 181 | 327 | 476 | 64 | 292 | 100 | 241 |

**ORDERING INFORMATION**

| Cap. Tons | Max Lift Stroke (mm) | Order Number | Strokes to Extend Piston 25 mm | Handle Effort at Max Load (kg) | Carry Handle | Metric tons at 700 bar | Product Wt. (kg) |
|---|---|---|---|---|---|---|---|
| 2 | 121 | **J24T** | 14 | 19 | Yes | 1,8 | 8,3 |
| 5 | 121 | **J55T** | 22 | 27 | Yes | 4,5 | 24 |
| 10 | 146 | **J106T** | 31 | 33 | Yes | 9,1 | 38 |

# Bottle Jacks
## TELESCOPING

### 6-15 Ton

These jacks offer greater extended lifting capability.




9006X Beveled BASE

9011X Beveled BASE

9013X Beveled BASE

ASME B30.1

- Telescoping jacks offer all of the quality features and capabilities of the standard bottle jack line with a bonus. The super-long stroke of these jacks saves time and effort by eliminating the need to lift, crib, lift, etc. In most applications, the user can place the jack once and complete the lift.
- The 9015X offers very low clearance capability, making it the ideal choice for forklift maintenance or machine lifting.
- The taller 9006X, 9011X and 9013X all feature a unique beveled base that allows the jack to “follow” the load laterally as it is raised, greatly reducing side-loading of the piston.

**ORDERING INFORMATION**

| Cap. Tons | Stroke (mm) | Order Number | Retracted Height Min. (mm) | Length of Screw Ext. (mm) | Height w/Screw Ext. (mm) | No. Pump Strokes to Ext. Piston 25,4 mm | Saddle Dia. (mm) | Base Size Beveled Base (mm) | Pump Handle Length (mm) | Handle Effort at Rated Cap. (kg) | Carry Handle | Metric tons at 700 bar | Product Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 305 | **9006X** | 216 | -- | 521 | 14 | 44 | 121 x 133 | 700 | 36 | No | 5,4 | 6,4 |
| 11 | 262 | **9011X** | 200 | 68 | 530 | 25 | 41 | 160 x 165 | 700 | 40 | No | 10,0 | 8,8 |
| 13 | 254 | **9013X** | 230 | 84 | 570 | 35 | 48 | 176 x 186 | 700 | 36 | Yes | 11,8 | 11,3 |
| 15 | 181 | **9015X** | 170 | 70 | 419 | 32 | 52 | 143 x 194 | 600 | 43 | Yes | 13,6 | 12 |

# Sidewinder Jacks
## MINI JACKS

### 5-20 Ton

Compact Sidewinder Mini Jack fits in your palm and delivers 5, 10 & 20 tons of lifting force.




9220A

9210A


9105A

9205A

ASME B30.1

- Retracted height of just 63,5 mm for the smallest jack and 130,2 mm for the 20 ton, allows you to slip this jack into the narrowest of crevices.
- Jacks operate either horizontally or vertically. Handles function in line with base for easier use in confined spaces.
- The perfect addition to any toolbox, this remarkable little jack has multiple uses that are limited only by your imagination. Use it as a jack or a spreader. Use it to turn your mechanical gear puller (puller capacity must match jack capacity) into a hydraulic puller. Use it vertically or horizontally in limited clearance.

**ORDERING INFORMATION**

| Cap. Tons | Stroke (mm) | Order Number | Retracted Height Min. (mm) | Max Height (mm) | No. Pump Strokes to Ext. Piston 25 mm | Saddle Dia. (mm) | Base Size Dia. (mm) | Pump Handle Length (mm) | Handle Effort at Rated Cap. (kg) | Carry Handle | Metric tons at 700 bar | Product Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 19 | **9105A** | 63,5 | 85,7 | 30 | 29 | 73,8 | 240 | 26 | No | 4,5 | 1,9 |
| 5 | 38 | **9205A** | 88,9 | 130,2 | 38 | 29 | 73,8 | 240 | 26 | No | 4,5 | 2,4 |
| 10 | 30 | **9210A** | 120,7 | 149,2 | 36 | 42,1 | 109,9 | 440 | 28 | No | 9,1 | 5,5 |
| 20 | 30 | **9220A** | 130,2 | 160,3 | 46 | 52,8 | 119,9 | 605 | 35 | No | 18,1 | 8,0 |

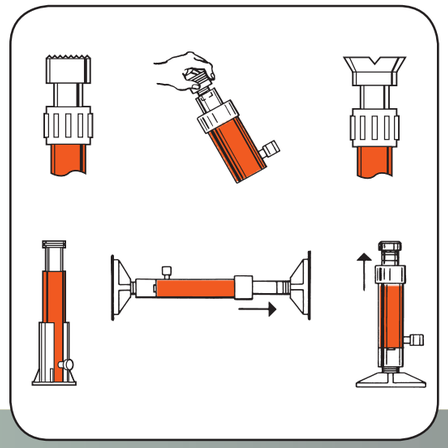
# Maintenance Sets

## Hydraulic system components

IM10E

IM10H

### APPLICATION FLEXIBILITY



- Matched hydraulic system components, adapters and hydraulic spreader, contained in a rugged carrying and storage case.
- Portable sets are ideal for pushing, pulling, lifting, straightening, or clamping at remote job sites.
- Cylinders in set are rated at 10 tons at 700 bar. Set components are designed for full rated capacity of cylinders.
- Set IM10H includes hand operated pump. Set IM10E includes the Quarter Horse® electrically driven portable power unit.

### ORDERING INFORMATION

| Description | CONTENTS OF SET | NO. IM10E Order No. |
|---|---|---|
| Hydraulic spreader | HS2000 | |
| Hand pump (electric) | | PE102 |
| 700 bar hyd. gauge | | 9041 |
| Tee adapter | | 9670 |
| Hose & coupler assembly | | 9754 |
| 90° V base | | 25395 |
| Threaded coupler | | 25664 |
| Serrated saddle | | 31772 |
| Flat base | | 32325 |
| Extension rod – 127mm length | | 350897 |
| Extension rod – 254 mmlength | | 38909 |
| Extension rod – 457 mm length | | 350898 |
| Cyl. support base | | 420062 |
| Cyl. ass'y, 10 ton, 257 mm stroke | | C1010CBT |
| Cyl. ass'y, 10 ton, 156 mm stroke | | C106CBT |
| Storage box | | 350722 |
| Prod. Weight – 48,1 kg. | | |

| Description | CONTENTS OF SET | NO. IM10H Order No. | NO. IM10L Order No. |
|---|---|---|---|
| Hydraulic spreader | HS2000 | HS2000 | HS2000 |
| Hand pump | | P59 | P59L |
| 700 bar hyd. gauge | | 9041 | 9041 |
| Tee adapter | | 9670 | 9670 |
| Hose & coupler assembly | | 9754 | 9754 |
| 90° V base | | 25395 | 25395 |
| Threaded coupler | | 25664 | 25664 |
| Serrated saddle | | 31772 | 31772 |
| Flat base | | 32325 | 32325 |
| Extension rod - 127mm length | | 350897 | 350897 |
| Extension rod - 254mm length | | 38909 | 38909 |
| Extension rod - 457mm length | | 350898 | 350898 |
| Cyl. support base | | 420062 | 420062 |
| Cyl. ass'y, 10 ton, 156mm stroke | | C106CBT | C106CBT |
| Storage box | | 350722 | 350722 |
| | | Prod. Weight 40,4 kg. | Prod. Weight 36,8 kg. |



# Post Tension
## & STRESSING JACKS

## 20 & 30 Ton

SJ2010
SJ3010


SJ2010DA
SJ3010DA

- Power Team Monostrand Stressing Jacks are the most durable in the industry.
- Ideally suited for work on slab-on-grade where dirt, heat and high volume use take their toll.
- Available in single- or double-acting models.
- Standard single-acting units have a 254 mm stroke. Other stroke lengths are available on special order.
- Dead-end seaters for production work and field work available on special order.
- Service repair is simple; components are long lasting and easily replaced.
- 76,2 mm detachable seater nose assembly easily replaced with optional 152,4 mm nose assembly.
- The jack of choice for high-rise and elevated work, thanks to fast return time and light weight.
- All hydraulic fluid controls are interior designed; more efficient and safer operation during tensioning and retraction.
- Standard double-acting units have an 216 mm stroke; others available on special order.
- Specially designed Power Team Control Valves are available for post tensioning jacks. See pages 51.

### ORDERING INFORMATION

| Description | Cyl. Cap. Tons | Stroke (mm) | Order Number | Recommended Pumps for this Stressing Jack | Oil Capacity (l) | Strand Diameter (mm) | Seater Type | Tons at 700 bar | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|
| Post tension jack with spring seater, 12,7 mm strand. | 20 | 254 | **SJ2010** | PE554T/PE604T | 0,72 | 11,1-12,7 | Spring | 20,3 | 25 |
| Post tension jack with power seater, 12,7 mm strand. | 20 | 254 | **SJ2010P** | PE604PT | 0,72 | 11,1-12,7 | Power | 20,3 | 25 |
| Double-acting post tension jack with power seater, 12,7 mm strand. | 20 | 215 | **SJ2010DA** | PE554PT/PE604PT | 0,85 | 11,1-12,7 | Power | 23,9 | 19 |
| Post tension jack with spring seater, 15,2 mm strand. | 30 | 254 | **SJ3010** | PE554T/PE604T | 1 | 11,1-15,2 | Spring | 28,5 | 34,5 |
| Post tension jack with power seater, 15,2 mm strand. | 30 | 254 | **SJ3010P** | PE604PT | 1 | 11,1-15,2 | Power | 28,5 | 34,5 |
| Double-acting post tension jack with power seater, 15,2 mm strand. | 30 | 215 | **SJ3010DA** | PE554PT/PE604PT | 1,1 | 11,1-15,2 | Power | 36,0 | 23,5 |

### STRESSING JACK ACCESSORIES AND HOSES–ORDERING INFORMATION

| Used with Stressing Jack | 76,2 mm Nose Piece | 76,2 mm Wedge Seater | 152,4 mm Nose Piece | 152,4 mm Wedge Seater | 9,5 mm Diameter Gripper Set | 11,1 mm Diameter Gripper Set | 12,7 mm Diameter Gripper Set | 15,2 mm Diameter Gripper Set | Replacement Gripper Handle | Gripper Retainer Plate (2 used) |
|---|---|---|---|---|---|---|---|---|---|---|
| SJ2010 | 252564 | 252562 | 252759 | 252763 | 252568 | 252761 | 252567 | NA | 252570 | 252565 |
| SJ2010P | 252564 | 252562 | 252759 | 252763 | 252568 | 252761 | 252567 | NA | 252570 | 252565 |
| SJ2010DA | 252543 | 252542 | 252760 | 252764 | 252650 | 252762 | 252555 | NA | 252556 | 252544 |
| SJ3010 | 252564 | 252562 | 252759 | 252763 | 252568 | 252761 | 252567 | 252569 | 252570 | 252565 |
| SJ3010P | 252564 | 252562 | 252759 | 252763 | 252568 | 252761 | 252567 | 252569 | 252570 | 252565 |
| SJ3010DA | 253363 | 253361 | 253364 | 253362 | 253390 | NA | 253391 | 253365 | 252556 | 252544 |

No. 9758E Hose – 3,1 m rubber, wire-braid (2-ply, 2.800 bar burst rating) 3/8" NPTF male hose ends
No. 9763E Hose – 3,1 m rubber, wire-braid (2-ply, 2.800 bar burst rating) 3/8" x 1/4" NPTF male hose ends

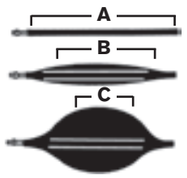
# Inflatable Jacks

## 1-74 Ton


The non-skid space-age reinforced inflatable jack is perfect for many applications.

**BE SAFE!**
- **INSPECT BEFORE AND AFTER EACH USE.**
- **REPLACE IF ANY SIGNS OF DEGRADATION OR WEAR THAT MAY AFFECT SAFETY OR PERFORMANCE.**
- **KEEP THE PRODUCT CLEAN.**
- **STORE PROPERLY.**

- Uninflated jacks are less than 25mm thick, making lifting tasks in small spaces seem routine.
- Constructed of non-conducting, high quality rubber material with multi-layer aramid fiber reinforcement.
- Samples of jacks are pressure tested to 20 bar and cycle tested (10,000 inflate/deflate cycles at 8 bar).
- The controller, shut-off and air hoses are all equipped with an industrial interchange style quick disconnect air coupler. Female half coupler bodies have a locking collar to help the operator avoid accidentally disconnecting the jack while under load.
- The top and bottom surface of the jack has a skid resistant, interlocking pattern to assist in alignment of two jacks being used together.
- Single jack controller with “dead man” control (part no. 350090) can be used individually or in multiples to regulate the number of jacks desired.
- Heavy attachment handles are provided on the two largest jacks for attachment of a rope or hook to help in positioning the jack.
- Inflation hose system is color-coded (red and yellow) for easy recognition when using more than one jack.
- The jacks can be used at ambient temperatures of -20°C to + 50°C

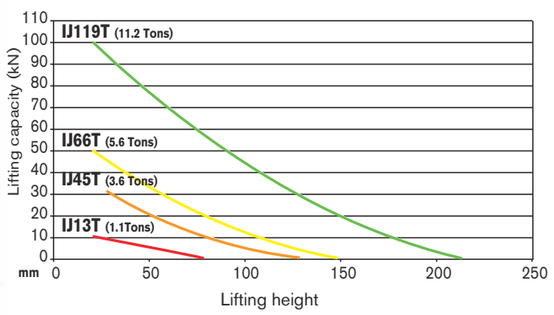


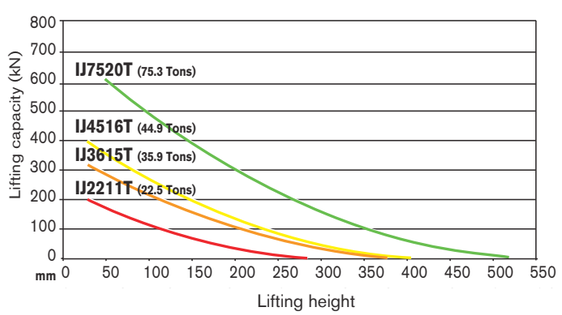

**Maximum Effective Lifting Area**

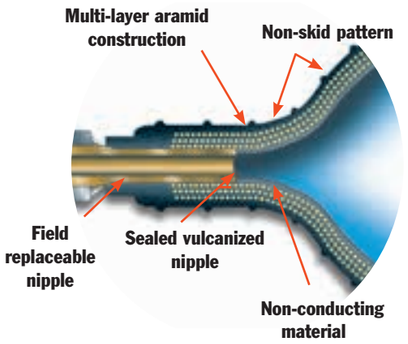
All lifting capacities mentioned in the charts are measured at the maximum effective lifting area (A). As the jack is inflated (B), this effective area decreases (C) due to the rounded shape of the jack. Lifting capacity also decreases (see performance chart).

**Stack up to two jacks together to increase effective lifting height.**

## PERFORMANCE




* NOTE: 350090 air controller may be used individually to control one jack (see single line system), or in multiples to control additional jacks (see dual line system).


**No. 307159** – Pressure reducing valve. Allows use of bottled gases to operate jacks (works on CGA-580 Nitrogen/Argon/Helium bottles). Contains standard bottle fitting on inlet and 1/4” industrial interchange (female) outlet. Wt., 1.8 kg

**No. 350090** – Air controller for single jack. Equipped with relief valve and pressure gauge. Wt., 0.9 kg

**No. 350207** – Shut-off hose with shut-off valve and pressure relief valve. Includes a female and male quick coupler. Wt., 0.3kg

**No. 350208** – Air hose. Red, 9m long. Includes No. 250341 female and No. 250342 male quick coupler. Wt., 2.7kg

**No. 350209** – Air hose. Same as 350208, except blue in color. Wt., 2.7kg

**No. 250343** – Female quick coupler. 1/4” industrial interchange x 1/8” NPT female. Wt., 0.05kg

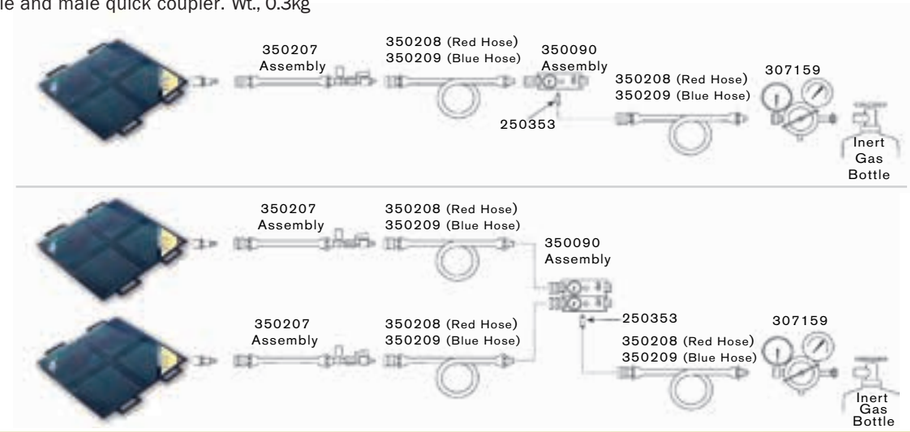
**No. 250353** – Male quick coupler. 1/4” industrial interchange x 1/8” NPT male. Wt., 0.05kg

**No. 250682** – Female quick coupler. 1/4” industrial interchange x 1/4” NPT male. Wt., 0.05kg

**No. 15235** – Connector 1/8” NPT male x 1/4” NPT female. Wt., 0.05kg

**No. 250341** – Female quick coupler. 1/4” industrial x 3/8” I.D. hose. Wt., 0.23kg

**No. 250342** – Male Quick coupler. 3/8” I.D. Hose. Wt., 0.05kg




**ORDERING INFORMATION***

| Lifting Cap. (Metric Tons) | Lifting Height (mm) | Order Number | Air Volume (liter) | Water Volume (liter) | Length (mm) | Width (mm) | Thickness (mm) | Product Weight (kg) |
|---|---|---|---|---|---|---|---|---|
| 1,0 | 80 | **IJ 13T** | 3.3 | 0.7 | 150 | 150 | 22 | 0.6 |
| 3,3 | 130 | **IJ 45T** | 16.2 | 1.8 | 228 | 228 | 22 | 1.5 |
| 5,1 | 150 | **IJ 66T** | 22.5 | 2.5 | 270 | 270 | 22 | 2 |
| 10,2 | 215 | **IJ 119T** | 76.5 | 8.5 | 380 | 380 | 25 | 4 |
| 20,4 | 290 | **IJ 2211T** | 189 | 21 | 508 | 508 | 25 | 7 |
| 32,7 | 380 | **IJ 3615T** | 450 | 50 | 658 | 658 | 25 | 13 |
| 40,8 | 405 | **IJ 4516T** | 558 | 62 | 708 | 708 | 25 | 15 |
| 68,4 | 520 | **IJ 7520T** | 1,206 | 134 | 908 | 908 | 25 | 24 |

*See current price list for shipping weights.

# Portable
## HIGH TONNAGE JACKS

## 60-100 Ton
Railroad Edition

Portable & compact, ideal for locomotive and railcar maintenance.




- Patented load lowering valve. Lowers load smoothly and safely. Eliminates dangerous chatter and bounce.
- Full range of rod extensions. Jack comes fully equipped with extensions to match lifting pad heights on most rolling stock. Max. lifting height to 1 778 mm .
- Low collapsed height, long stroke. 610 mm collapsed height for low-clearance lift pads.360 mm stroke for maximum lift.
- Adjustable, ergonomic handle. Handle tilts to start the job and is easily locked/unlocked without moving from operating position.
- NEMA 4 electrical box and rain hood. Pump motor and controls protected from water. Quiet operation.
- Cribbing block set with handles and convenient storage rack. Provides solid mechanical load holding.
- High-profile, low rolling resistance, foam-filled tires. Jack can be moved and positioned with minimal effort. No chance of downtime due to punctured tires.
- Electric and air motor options. Quiet, powerful air and electric motor powered units available.

**POWER UNIT SPECIFICATIONS**

| Order No. | Motor | Power Req. | Motor Control | Valve Function | Power Cord | dBa at 700 bar |
|---|---|---|---|---|---|---|
| **PLE6014-220** | 0,84 kW, 220 VAC***, 50 Hz Single Phase | 12 amps | 6,1 m Remote Control | Lift Hold Lower Manual | Pigtail | 80/95 |
| **PLA6014** | Rotary Air Powered | 1,4 cu.m at 6 bar | 6,1 m Remote Air Control | Lift Hold Lower Manual | NA | 82 |

*** For 110/115V-50/60 Hz order PLE6014


Electric Model (PLE6014K)


Air Model (PLA6014K)

**ORDER INFORMATION**

| Capacity (Tons) | Stroke (mm) | Order Number | Retracted Height (mm) | Extended Ht. w/Extensions (mm) | Product Wt. Less Cribbing & Ext. (kg) |
|---|---|---|---|---|---|
| 60 | 356 | ***PLE6014K** | 610 | 1.778 | 237 |
| 60 | 356 | ***PLA6014K** | 610 | 1.778 | 237 |
| 60 | 356 | ***PLE6014K-220** | 610 | 1.778 | 237 |
| 100 | 356 | **Consult Factory** | 610 | 1.499 | 237 |

*Includes cribbing block set stored on jack handle rack, and 7 extensions (25,4; 50,8; 76,2; 101,6; 127; 254 and 308 mm)

**PLE6014 = Jack, Electric, includes: Cart, Pump & Cylinder**
**PLE6014-220 = Jack, Electric (220 V.)**
**PLA6014 = Jack, Air, includes: Cart, Pump & Cylinder**
**CBS60 = Cribbing Block Set (5 cribbing blocks)**
**PL60EXT = Extension Set (Consists of 7 extensions)**

**CRIBBING BLOCKS (CBS60, INCLUDED)**

| Qty. | Height (mm) | Order Number |
|---|---|---|
| 1 | 38,1 | **351954** |
| 4 | 76,2 | **351953** |

**EXTENSIONS (PL60 EXT, INCLUDED)**

| Extension Length (mm) | Order Number | Extension Weight (kg) |
|---|---|---|
| 25,4 | **351931** | 2,2 |
| 50,8 | **351927** | 4,0 |
| 76,2 | **351928** | 6,4 |
| 101,6 | **351929** | 8,7 |
| 127 | **66053** | 9,5 |
| 254 | **66054** | 13,8 |
| 508 | **66055** | 22,1 |

LIFTING RANGE

Lifting range (in 25,4 mm increments): 610 mm- 1.778 mm.

Only 3 extensions are needed to provide this range.

Do NOT exceed 1.778 mm lifting range on 60-ton unit or 1.489 mm on 100-ton unit.

JACKS

# Portable
## HIGH TONNAGE

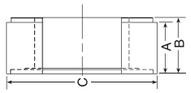
## 55, 100 & 150 Ton

Portable and compact, ideal for locomotive/railcar, mining and heavy equipment maintenance.

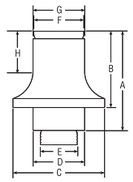

- Modular design - pump and cart separate from cylinder and base.
- Three tonnage capacity options - 55-ton, 100-ton and 150-ton.
- Three collapsed height options – 660, 838 and 1,143 mm.
- Two standard power options - air (PA55) and electric (PE55).
- Two control options - remote motor control and remote valve/motor control.
- Accessory options – 168 mm extension, load-holding rings.
- Select the collapsed height to fit your most frequent application - add jacking modules to suit your needs.
- Remote operation for maximum operator safety and control - choose “motor only” or “motor and valve” control in the hand.
- Easy to maneuver - large tires and small “footprint” make it easy to scoot into the tightest quarters, then locate the exact lifting position.
- Adjustable, heavy-duty handle - makes this jack easy to move, position under vehicles. Can also be used to transport jack on site with a forklift.
- Load-holding rings (optional) - provide full rated mechanical load-holding capability.
- Cylinder extension (optional) - adds more versatility by extending your jack’s reach.
- Low-temperature oil (optional) - provides smooth, reliable operation in the coldest climate conditions.
- Modular design - allows you to change lifting modules to suit your tonnage or height requirements. Use the pump module as a portable power station for your other double-acting cylinders (700 bar ).
- Exclusive load-control system - provides positive, chatter-free control when lowering the load.
- Shielded and sheltered hydraulic lines - for safer, longer, trouble-free service.

### ORDER INFORMATION
### CRIBBING BLOCK SETS - INCLUDES ONE JACK MODULE EXTENSION

| Order No.‡ | 55 Ton CBS55 | | 100 Ton CBS100 | | 150 Ton CBS150 | | 200 Ton CBS200 | |
|---|---|---|---|---|---|---|---|---|
| No. in Set | 1 | 4 | 1 | 4 | 1 | 4 | 1 | 4 |
| A | 38,1 | 76,2 | 38,1 | 76,2 | 38,1 | 76,2 | 38,1 | 76,2 |
| B | 44,5 | 82,5 | 44,5 | 82,5 | 44,5 | 82,5 | 44,5 | 82,5 |
| C | 139,7 | 139,7 | 139,7 | 139,7 | 222,2 | 222,2 | 254 | 254 |
| Jack Module Ext. | 173 | | 177,8 | | 168,3 | | 168,3 | |
| Total Stack Ht. | 515,9 | | 520,7 | | 512,2 | | 512,2 | |
| Product Wt. (kg.) | 16,3 | | 30,9 | | 38,6 | | 47,7 | |




- Convert jack module into stable mechanical cribbing device.
- Increase retracted height up to 521 mm.




### ORDER INFORMATION
### JACK MODULE EXTENSIONS

| (Tons) | No. | A (mm) | B (mm) | C (mm) | D (mm) | E (in.) | F (mm) | G (mm) | H (mm) | Prod. Wt. (kg) |
|---|---|---|---|---|---|---|---|---|---|---|
| 55 | **58945** | 223,8 | 173 | 127 | 66,8 | 1 11/16–8UN | 63,5 | 66,8 | 92,2 | 9,5 |
| 100 | **58943** | 228,6 | 177,8 | 174,7 | 98,6 | 2 3/4–12UN | 95,3 | 98,6 | 95,3 | 18,2 |
| 150 | **58944** | 219,2 | 168,4 | 203,2 | 114,3 | 3 1/4–8UNC | 111,3 | 114,3 | 88,9 | 22,7 |

- Increases jack’s reach.

**Air pump and cart module.**

**Electric pump and cart module.**

**Pump & cart modules**

Pump and cart modules contain hydraulic pump, cart, remote control and all hoses and fittings required to connect to a jack module. Contact factory on folding handle cart option.

| Remote Control | | |
|---|---|---|
| Pump | Motor Only | Motor & Valve |
| Air | PMA55 | PMA55S |
| Electric | Consult Factory | PME55S |

**660 mm Jack Module**

**838 mm Jack Module**

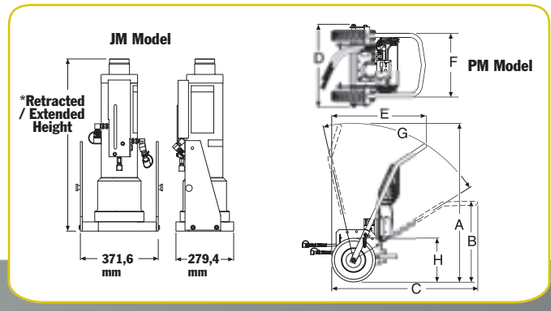
**1143 mm Jack Module**

**Jack modules**

Jack modules easily separate from the pump and cart module.

| Tonnage | Cylinder Stroke | Collapsed Height mm) 660,4 | 838,2 | 1.143 |
|---|---|---|---|---|
| 55 | 333 | JM25 | JM35 | JM45 |
| 100 | 333 | JM210 | JM310 | JM410 |
| 150 | 460 | JM215† | JM315 | JM415 |
| 200 | 333 | JM220* | JM320 | JM420 |

* collapsed height; 711 mm and stroke 333 mm.
† stroke 333 mm.




| Model Series | Dimensions A | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|
| **PMA & PME** | 1.464 | 752 | 1.353 | 762 | 872 | 594 | *70° | 406 mm Tire Dia. |

* Total range with varying degree increments.

### ORDER INFORMATION – Pump and Cart Modules with Assembled Jack Module

| Capacity (tons) | Ret. Height (mm) | Ext. Height (mm) | Stroke (mm) | Pump Type | Power Required | Valve Type | Remote Control | Order No. |
|---|---|---|---|---|---|---|---|---|
| 55 | 660,4 | 994 | 333 | Electric | 13/25 amps | Manual | M | **JEM5526** |
| 100 | 838,2 | 1.172 | 333 | Air | 1,4 cu m /min at 6 bar | Manual | M | **JAM10033** |
| 100 | 838,2 | 1.172 | 333 | Air | 1,4 cu m /min at 6 bar | Air Pilot | M & V | **JAR10033** |
| 150 | 660,4 | 994 | 333 | Electric | 25 amps | Manual | M | **JEM15026** |
| 150 | 838,2 | 1.172 | 333 | Air | 1,4 cu m/min at 6 bar | Manual | M | **JAM15033** |

# HYDRAULIC
## & MECHANICAL
# TOOLS

Power Team continues to expand its line of high-force industrial tools by offering a line of hydraulic torque wrenches. These tools, combined with Power Team's torque wrench pumps, are the standard in the market.

Power Team Cable Tools, originally known as the Brock Equipment Company, were first developed in 1945. In 2000, SPX acquired Brock. We are pleased to offer this time-tested line of tools under the Power Team brand name.

Today, as we prepare to celebrate our 80th anniversary in the industrial tool market, we continue to extend our offering of industrial tools and commitment to excellence in our desire to ensure complete satisfaction with our products. Like all Power Team products, these tools are covered by the Power Team Lifetime Marathon Warranty, protecting our customers from possible defects in materials and workmanship. (Contact factory for details.)

# Torque Wrench
## SQUARE DRIVE

**MAX TORQUE 33496 Nm**
700 bar

Heavy duty simple-to-use. Accuracy and speed under load. Breaking nuts loose and torquing.

### SQUARE DRIVE TORQUE WRENCHES

The TWSD Series Square Drive Torque Wrenches are designed with the following:

- Low Weight, High Strength Design
- Superior Torsional Strength
- Fast Operation Cycle
- Fine Tooth Pawl
- Floating Piston Design
- Internal Swivel Manifold Relief
- Rigid Steel Body Construction
- Compact Frame Size
- Push Button Reversal of Square Drive
- Corrosion Resistant Finish
- 360˚ Reaction Arm
- Push to Click Reaction Arms
- Multi-Axis High Flow Swivel Manifold
- Simple Design
- Consistent Torque Output
- Fully Enclosed Drive Mechanism
- Accurate Torque Output
- Marathon Lifetime Warranty


# Torque Wrench
## LOW CLEARANCE

**MAX TORQUE 39024 Nm**
700 bar

The lightweight, heavy-duty tool features a long neck, short height, and small radius for inaccessible bolting areas found in industry.

### LOW CLEARANCE TORQUE WRENCHES

The TWLC Wrench was designed for the most inaccessible bolting areas found in industry. Its long neck, short height and small radius have all added to its great success

- Low Weight, High Strength Design
- Superior Torsional Strength
- Fast Operation Cycle
- Fine Tooth Pawl
- Floating Piston Design
- Auto-Connect Drive Piston
- Compact Frame Size
- Rigid Steel Body Construction
- Internal SwivelManifold Relief
- Built-in Reaction Pad
- Small Nose Radius
- Tool Free Link Change
- Corrosion Resistant Finish
- Multi-Axis High Flow Swivel Manifold
- Simple Design
- Consistent Torque Output
- Marathon Lifetime Warranty





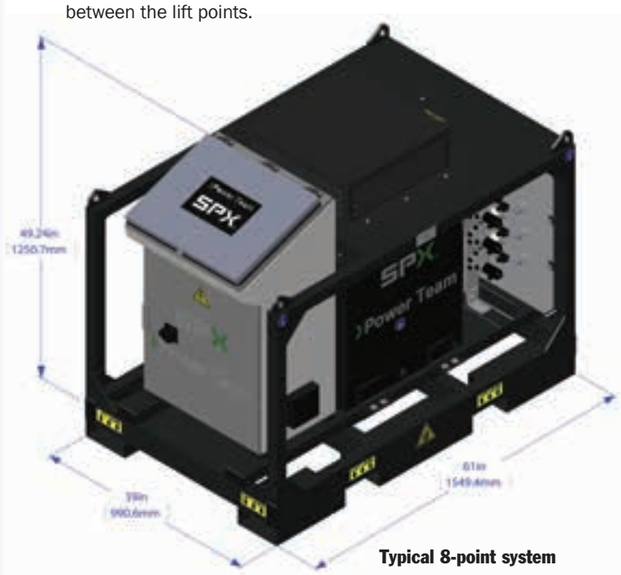
# Motion Control System (MCS)

Power Team® Synchronized Lifting and Lowering System


MCS-PE554-8 shown.

**POWER TEAM® SYNCHRONIZED LIFTING AND LOWERING SYSTEM**

The Power Team ® Motion Control System provides position control of a load in motion with high precision trough a combination of accurate measurements, digital processing and sophisticated hydraulics. The PLC-controlled system is a combination of digital actuation and digital control providing significant advantages such as time savings, repeatability and extremely low internal stress in the moving object. Synchronized lifting reduces the risk of bending, twisting or tilting due to uneven weight distribution or load-shifts between the lift points.




Typical 8-point system

**THE SYSTEM CONSISTS OF:**

1. PLC controller, pump, and oil reservoir.
2. Displacement sensors to monitor the position of the load.
3. Electrically controlled valves to control the distribution of oil into the hydraulic circuits.
4. Pressure sensors to monitor hydraulic pressures in each hydraulic circuit.

**FEATURES:**

- Load Capacity: only limited by the choice of cylinders (use with single or double acting cylinders).
- Intuitive graphic, touch screen control.
- Basic systems start at 8 jacking points, also available 16 or 24 points.
- Safety features include: full stop due to power failure, sensor failure, pressure overload, tolerance error, uncontrolled load movement, etc.
- Displayed information includes:
  - —Startup diagnostics.
  - —Position of lift points relative to starting position.
  - —Pressure and load in kN at each lift point.
  - —Status of each cylinder.
  - —Status of alarms.
- Lifting / lowering accuracy of +/- 1 mm.
- Operating Pressure (up to) 700 bar.
- Standard system has a 151 liter tank.
- Standard system has a PE554 pump unit.
- Suitable for single acting and double acting cylinders.
- Suitable for standard cylinders and telescopic cylinders.

**Ordering info: Please contact Power Team for technical support and optimal configuration of your system**

Motion Control System (MCS)

Power Team® Synchronized Lifting and Lowering System

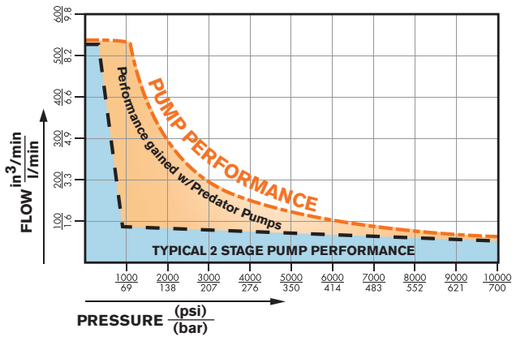

## TYPICAL MOVING AND WEIGHING APPLICATIONS:

- **Bridges**
- **Oil rig platforms**
- **Steel structures**
- **Vessels and heat exchangers**
- **Stadium roofs**
- **Ships**
- **Heavy vehicles**
- **Buildings**

# Air Pump
## TORQUE WRENCH PUMP

## Air/Hydraulic
700 bar


Faster, quieter and lighter than typical 2-stage portable pumps – the Air/Hydraulic Pump is a constant horsepower pump that provides consistently high hydraulic flow and pressure for faster tool operation. A typical two stage pump flow curve transitions high to low flow around 48 bar. The Air Pump has much higher, smoother flow throughout the pressure curve and the hydraulic flow continually changes based on pressure - making maximum horsepower and flow at all pressures. The largest flow increase is between 69 & 414 bar, where torque wrenches normally operate - dramatically increasing productivity. As a result, tools operate up to twice as fast vs. two-stage pumps, getting tasks done in much less time.




Constantly variable flow also allows continuous operation and eliminates the need for external heat exchangers and cool-off downtime.

The Air pump is designed to be rugged, but light weight for ease of transporting it to a job site. It is engineered for low sound levels to reduce operator fatigue and increase productivity. A roll cage option allows users to customize the Air Pump to suit their needs.

The Pump also comes in an electric/hydraulic model. For a complete high force hydraulic package, Power Team offers a full range of cylinders, tools, and torque wrenches to match the pump hydraulic power source.

## Technical Data

**REQUIRED AIR PRESSURE**
2,3 m3/min à 5,5 bar
2,5 m3/min à 6 bar
2,8 m3/min à 7 bar

**MAXIMUM HYDRAULIC PRESSURE OUTPUT**
700 bar

**SOUND LEVEL**
75 dB A

**HYDRAULIC OIL RESERVOIR CAPACITY**
5,68 l utile min. réservoir standard

**HYDRAULIC OIL DELIVERY**

| | 7 bar | 6 bar | 5,5 bar |
|---|---|---|---|
| **50 bar** | 9,4 l/min | 9,3 l/min | 8,9 l/min |
| **172 bar** | 3,8 l/min | 3,7 l/min | 3,4 l/min |
| **345 bar** | 1,9 l/min | 1,8 l/min | 1,7 l/min |
| **700 bar** | 0,9 l/min | 0,9 l/min | 0,8 l/min |

* Values shown are with filter/regulator/lubricator, values will increase without FRL

**SIZE**
HEIGHT = 51 cm | WIDTH = 46 cm | LENGTH = 30 cm

**WEIGHT**
36 kg with 4,7 L hydraulic oil

### Features & Benefits
- Quiet operation
- Light weight for easy portability
- Cool operation without add-on heat exchanger
- Rugged construction for durability in tough environments
- Fewer parts for lower service costs
- CE
- ATEX Ex II 2 GDc T4

## Part Numbers
**PA60APF5FP** – standard with handle and guard
**PA60APF5FPR-CR** – with roll cage

# Electric Pump
## HYDRAULIC TORQUE WRENCH PUMP

## PE30 Series
## 5 l/min Max Flow
700 bar

**VANGUARD® ELECTRIC HYDRAULIC TORQUE WRENCH PUMPS**

- Two-speed general duty pump
- External adjustable pressure regulator
- Retract side internal relief valve protects tool
- Hand remote
- Use for double or single acting tools


**CAUTION:** This system should not be used for lifting applications.

| Pump Model | Oil Delivery | Oil Reservoir ( l) | Usable Oil ( l) | Overall Width (mm) | Overall Length (mm) | Overall Height (mm) | Pump Weight w/Oil (kg) |
|---|---|---|---|---|---|---|---|
| **PE30TWP-E110*** | 5 l/min. at 7 bar | 4,75 | 4,5 | 356 | 331 | 458 | 30,9 |
| **PE30TWP-E220*** | 0,5 l/min. at 700 bar | 4,75 | 4,5 | 356 | 331 | 458 | 33 |

**Electrical Data**

| Electric Motor | Electrical Control |
|---|---|
| 4,000 rpm<br>0,75 KW, 115V/50Hz, 13 A<br>0,75 KW220V/50Hz, 7 A | 24 Volt remote control with 3 m cord |

*CE Approved - designed for 50 Hz applications

# Electric Pump
## HYDRAULIC TORQUE WRENCH PUMP

**PE55 Series**
**11,5 l/min MAX FLOW**
700 bar


**VANGUARD® ELECTRIC HYDRAULIC TORQUE WRENCH PUMPS**

- Two-speed high performance pump
- External adjustable pressure regulator
- Retract side internal relief valve protects tool
- Hand remote
- Use for double or single acting tools
- Four-tool manifold (-4 model only) allows use of up to four tools simultaneously

⚠ **CAUTION:** This system should not be used for lifting applications.

| Pump Model | Oil Delivery (l/min) | Oil Reservoir (l) | Usable Oil (l) | Overall Width (mm) | Overall Length (mm) | Overall Height (mm) | Pump Weight w/Oil (kg) |
|---|---|---|---|---|---|---|---|
| **PE55TWP**<br>**PE55TWP-E110***<br>**PE55TWP-E220*** | 11,5 at 7 bar<br>0,9 at 700 bar | 9,5 | 8,4 | 435 | 241 | 460 | 34 |
| **PE55TWP4**<br>**PE55TWP4-E110*** | 11,5 at 7 bar | 9,5 | 8,4 | 470 | 241 | 486 | 35,4 |
| **PE55TWP4-E220*** | 0,9 at 700 bar | | | | | | |

| Electrical Data | |
|---|---|
| **Electric Motor** | **Electrical Control** |
| 0,84 KW, 12000 rpm<br>115V, 25 amps<br>110V/50Hz, 25 amps<br>220V/50Hz, 13 amps | Remote control with 3m cord |

* CE Approved-designed for 50Hz. applications.

# Air Pump
## HYDRAULIC TORQUE WRENCH

**RWP55 SERIES**
**Max. flow 7,6 l/min**
700 bar

**AIR HYDRAULIC TORQUE WRENCH PUMP**

- Use where air is the preferred source of power
- Powerful 2,2 Kw motor starts under load
- External adjustable pressure regulator
- Retract side internal relief valve protects tool
- Use for double or single acting tools

⚠ **CAUTION:** This system should not be used for lifting applications.

| Pump Model | Oil Delivery (l/min) | Oil Reservoir (l) | Usable Oil (l) | Overall Width (mm) | Overall Length (mm) | Overall Height (mm) | Pump Weight w/Oil (kg) |
|---|---|---|---|---|---|---|---|
| **RWP55** | 7,6 l/min at 7 bar<br>0,9 l/min at 700 bar | 9,5 | 8,4 | 450 | 280 | 483 | 44 |
| **RWP55-4**<br>(4-tool manifold) | 7,6 l/min at 7 bar<br>0,9 l/min at 700 bar | 9,5 | 8,4 | 450 | 280 | 483 | 44 |

| Motor Data | |
|---|---|
| **Air Motor** | **Air Control** |
| 2,25 KW<br>1,4 $m^3$ / min @ 6 bar | Pneumatic remote control with 3,6 m cord |


HYDRAULIC TOOLS

# Nut Splitters
## HYDRAULIC

### 15 & 25 Ton Capacity

**HYDRAULIC NUT SPLITTERS –**
**15- & 25-TON CAPACITY**

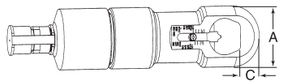
- "Dial-in" feature on HNS150 makes adjustment of splitter simple, without the worry of damaging the bolt
- Specially designed "tool steel" cutter blade penetrates the nut to the precise point where it cracks, stopping short of the bolt threads
- Nut splitter features a dramatically improved cutter blade with an 800% greater resistance to chipping and breaking over previous models
- All models feature a rugged one-piece cutting frame coupled to a heavy-duty hydraulic cylinder
- Compact size allows you to use it in confined areas where it will deliver enough force to split the toughest "fused" or rusted-on grade 2H nuts
- Simply split nut on one side, spin nut splitter 1/2 turn and make second cut on opposite side; nut separates into halves for easy removal

HNS150

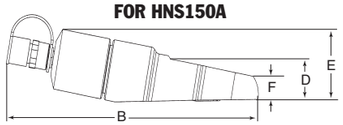
HNS225

**Align mark on cutter blade with scale.**

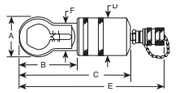
**For HNS150A**




**FOR HNS150A**




**FOR HNS150 & HNS225**




| Tool Model | FOR HNS150 & HNS225 A | B | C | D | E | F | HEAD THICKNESS (mm) | REPLACEMENT BLADE | TOOL WEIGHT (kg) |
|---|---|---|---|---|---|---|---|---|---|
| HNS150 | 73 | 86 | 200 | 70 | 264 | 53 | 25,4 | 308840 | 3,7 |
| HNS150A | 77 | 361 | 27 | 54 | 94 | 30 | 25,4 | 351985 | 7,2 |
| HNS225 | 108 | 153 | 366 | 99 | C | 82 | 38,1 | 308022 | 13,2 |

**CAPACITIES**

| Tool Model | 5 (2 or A) | Nut Grade 9 (5 or B) | 10 (8 or C) | 12 (2 or H) |
|---|---|---|---|---|
| HNS150 | 1/2 - 1-1/2" (12,7-38,1mm) hex | 1/2 - 1-1/2" (12,7-38,1mm) hex | 1/2 - 1-5/16" (12,7-33mm) hex | 1/2 - 1-1/8" (12,7-29mm) hex |
| HNS150A | 1/2 - 1-1/2" (12,7-36mm) hex | 1/2 - 1-1/2" (12,7-36mm) hex | 1/2 - 1-5/16" (12,7-33mm) hex | 1/2 - 1-1/8" (12,7-29mm) hex |
| HNS225 | 1-1/8 - 2-1/4" (29-57mm) hex | 1-1/8 - 2-1/4" (54-57mm ) hex | 1-1/8 - 2-1/8" (29-55 mm) hex | 1-1/8 - 1-21/16" (29-43mm) hex |



# Pipe Flange
## HYDRAULIC SPREADERS

### 5 & 10 Ton


HFS3A

- You'll never again have to resort to "hammer and chisel" methods that waste time and effort. Flange spreaders should be used in pairs to provide even spreading force.
- Standard 60° wedge is suitable for most flanges; 30° "thin" and 60° "blunt" wedges are optional.
- The HFS3A is designed for applications where total thickness of flanges and max. spread gap is 76,2 mm or less and flange bolts are a min. of 17,5 mm dia.
- Use HFS6A if total thickness of flanges and max. spread gap is 152,4 mm or less, and flange bolts are a min. of 20,7 mm dia.



350823

350822

350549

350550

| Capacity (tons) | Order Number | Standard Wedge Type | Optional Wedges 30° Thin | 60° Blunt | Min. Flange Opening (mm) 60° Std. | 60° Blunt | 30° | Max. Flange Opening (mm) 60° Std. | 60° Blunt | 30° | Combined Flange Opening (mm) | Max. Pin Dia. (mm) | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | HFS3A | 60˚ Sharp | 350823 | 350822 | 1,6 | 25,4 | 1,6 | 38,1 | 38,1 | 18,3 | 76,2 | 17,4 | 4,1 |
| 10 | HFS6A | 60˚ Sharp | 350549 | 350550 | 1,6 | 38,1 | 1,6 | 50,8 | 50,8 | 24,6 | 152,4 | 20,6 | 8,2 |

HYDRAULIC TOOLS

# Spreaders
## HYDRAULIC

## 1-1½ Ton

It's a hydraulic pry bar!

**HS2000**
**(Forged Steel)**

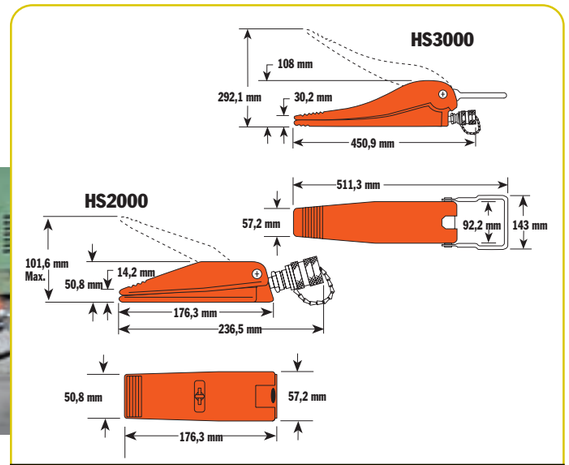
- Use to lift machines or as a clamp; spread concrete forms or rebar or perform straightening jobs.
- Conforms to ASME B30.1 standard.
- High strength alloy steel forged upper and lower jaws on HS2000.
- Jaws are spring-return; retract automatically when pressure is released.

**No. HS2000** – 1-ton capacity spreader. Full 908 kg capacity at 700 bar with 102mm spread. Can be "dead-ended" at 102mm spread under full load. Needs only 14,2mm clearance to engage jaws.

**No. HS3000** – 1½-ton capacity spreader. Full 1.362 kg capacity at 700 bar with 292 mm spread. Greater than competitive units. Needs only 30,2 mm clearance to engage jaws. Can be "dead-ended" at 292 mm spread at full load.

**HS3000**
**(High Grade Ductile Iron)**

Tested to conform to ASME B30.1 standard




| Capacity (tons) | Max. Spread (mm) | Order Number | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (mm) | H (mm) | I (mm) | Oil Capacity (cm³) | Min. Clearance Required (mm) | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 101,6 | **HS2000** | 101,6 | 50,4 | 14,3 | 252,52 | 236,5 | 50,8 | 176 | 57 | – | 4 | 14,2 | 2,2 |
| 1½ | 292 | **HS3000** | 292 | 108 | 30,2 | – | 451 | 57,2 | 511 | 143 | 92 | 20 | 30.2 | 10 |

**HS2000 SPECIFICATIONS**

Maximum rated capacity.....1 ton at 700 bar
Maximum spread.....101,6 mm
Minimum clearance required.....14,2 mm
Cm³ oil required.....4

**HS3000 SPECIFICATIONS**

Maximum rated capacity.....1½-ton at 700 bar
Maximum spread.....292 mm
Minimum clearance required.....30,2 mm
Cm³ oil required.....20

HYDRAULIC TOOLS

# C-Clamps
## HYDRAULIC

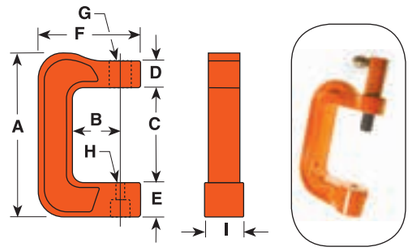
## Accessories

**"C" CLAMPS**

**5, 10 & 25 TONS**

**CC10**

- In 5, 10 and 25 ton capacities. For use with Power Team general purpose single-acting series cylinders of comparable capacity.
- For clamping, pressing and bending. Ideal for welding and metal fabrication for fit-up of sheet or plate steel.
- Clamps withstand full rated capacity of the cylinders for which they are intended.
- To minimize the effects of off-center loading, the CC5, CC10 and CC25 should be used with the optional 350144 and 350145 swivel caps.




**Items pictured at left are:**
**CC10**
**C104C**
**201923**

| Cap. (tons) | Order Number (C-Clamp only) | Use With Cyl. No. | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | G (in.) | H (mm) | I (mm) | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | **CC5** | C51C-C57C | 314 | 95,3 | 186 | 50,8 | 63,5 | 197 | 1½"-16 UN | 22,2 | 76,2 | 11,3 |
| 10 | **CC10** | C101C-C1010C | 403 | 152,4 | 240 | 50,8 | 85,8 | 273 | 2 ¼"-14 UNS | 22,2 | 88,9 | 20,9 |
| 25 | **CC25** | C251C-C2514C | 533 | 152,4 | 319 | 76,2 | 114,3 | 313 | 3 5/16"-12 UNS | 36,5 | 117,5 | 41,3 |

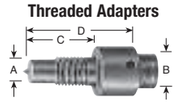
**OPTIONAL ACCESSORIES FOR USE WITH CC5, CC10 & CC25 HYDRAULIC CLAMPS**

**Swivel Caps**

**10 ton**
**350144***
**A**–35 mm
**B**–19 mm

**25 ton**
**350145**
**A**–50,8 mm
**B**–25,4 mm

**Threaded Adapters**



**10 ton**
**38597**
**A**–1 - 8
**B**–1 - 8
**C**–19 mm
**D**–50,8 mm

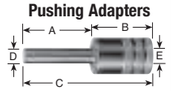
**25 ton**
**38953**
**A**–1¼-7
**B**–1½-16
**C**–70 mm
**D**–111 mm

**Pushing Adapters**

**10 ton**
**28228****
**A**–60,3 mm
**B**–1 - 8
**C**–38,1 mm

**25 ton**
**28229****
**A**–73 mm
**B**–1¼-7
**C**–44,5 mm

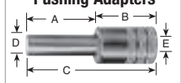
**Pushing Adapters**



**10 ton**
**201923****
**A**–79,4 mm
**B**–57,2 mm
**C**–136,5 mm
**D**–12,7 mm
**E**–1 - 8

**25 ton**
**34510****
**A**–82,6 mm
**B**–66,7 mm
**C**–149 mm
**D**–19 mm
**E**–1¼-7

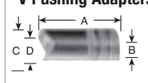
**Pushing Adapters**



**10 ton**
**201454****
**A**–79,4 mm
**B**–57,2 mm
**C**–137 mm
**D**–19 mm
**E**–1 - 8

**25 ton**
**34511****
**A**–82,6 mm
**B**–66,7 mm
**C**–149 mm
**D**–25,4 mm
**E**–1¼-7

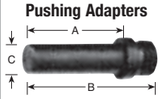
**V Pushing Adapters**



**10 ton**
**34806****
**A**–66,7 mm
**B**–1 - 8
**C**–38,1 mm
**D**–25,4 mm

**25 ton**
**34807****
**A**–79,4 mm
**B**–1¼-7
**C**–44,5 mm
**D**–31,8 mm

**Pushing Adapters**



**5 ton**
**309874***
**A**–51.6 mm
**B**–562,8 mm
**C**–15,9 mm

* May be used with CC5
** Must be used with a threaded adapter.

HYDRAULIC TOOLS

# Tire Removing
## BB SERIES TOOL

## 10 Ton Hydraulic

Unseat tire beads hydraulically on 25” to 49” diameter earth mover rims with pry bar pockets.

### TIRE REMOVING TOOL

- Made to fit into the pry bar pocket
- Hydraulic pressure does all the unseating.
- Lightweight and portable.
- P55 hydraulic hand pump and 9764 hose recommended to be used with BB1600.


| Tool Model | Tool Weight kg. | Rim Size | Cylinder Capacity | Stroke (mm) |
|---|---|---|---|---|
| **BB-1600** | 10,25 | 25”–49” | 10 | 101,6 |
| **BB1601** | 10,9 | 25”–49” Single, two, three piece rims | 10 | 101,6 |
| **Contact Factory** | 13,65 | 25”–51” | 12,3 | 107,9 |

### POWER TEAM GIVES MUSEUM PROJECT A LIFT

*Challenge:*
*To lower the basement floor by 1.4 meters, removing the basement walls to open up space for the new facilities and street-level entrance and with control and maximum flexibility for a very restricted budget.*

*Solution:*
*Using several Power Team hand pumps and sets of cylinders that would be spread out along each beam.*
*Cylinders were selected that could fit in the very tight gaps available to accommodate the lifting equipment*

# FLS
## HYDRAULIC FLANGE SPREADER

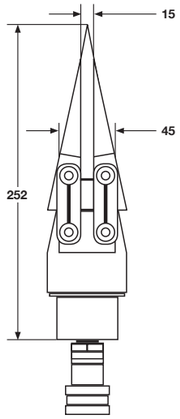


**Basic FLS15 Unit With Serrated Shoes**

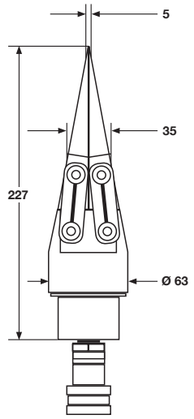
### FEATURES AND BENEFITS:

- 15 Metric Ton Wedge-Driven Spreader
- Jaws Fully Supported by Wedge for Excellent Durability
- Low Friction Provided by Heavy-Duty Extended-Life Lubricant
- Ideal for Flanges With Narrow Gaps - Only 5 mm Required for Entry
- Very High Strength due to Special Alloy Used
- Compact and Lightweight Design - Only 252 mm Long at a Weight of 3.2 kg
- Easy to use - Ergonomically Balanced Handle and Gripping Tape
- Suitable for the Offshore Environment due to Superior Corrosion Resistance
- Quick Adjustments for Various Tasks due to Interchangeable Shoes (Both Stepped and Serrated)
- Easy and Quick Maintenance - No Special Tools Required
- Includes female half coupler - mates to standard 9798 male half coupler.

### WEDGE FULLY OPENED




### WEDGE CLOSED




| Item Order Number | Maximum Spreading Force | Tip Clearance | Maximum Spread | Spreader Type | Oil Capacity | Weight | Maximum Operating Pressure |
|---|---|---|---|---|---|---|---|
| **FLS15** | 15 Metric Tons | 5 mm | 10 mm | Hydraulic | 16 cc | 3.2 kg | 700 bar |

FLS
HYDRAULIC FLANGE SPREADER

HYDRAULIC TOOLS

### HYDRAULIC SPREADER FLS15

This hydraulic spreader operates using the integrated wedge concept. It is ideal for creating space for flange surface cleaning and repair, and for gasket replacement. The spreader is single-acting, and requires a hydraulic pump with a three-way valve for actuation. Maximum operating pressure is 700 bar.

### SPREADING FORCE:

Maximum 15 metric tons per tool at 700 bar. It is recommended that the tools be used in pairs, providing a maximum combined force of 30 metric tons.

### TYPICAL APPLICATIONS:

- Pipe and flange repair
- Removing elbows
- Couplers - gasket and metal seal Replacement
- Heavy equipment maintenance

### "RECOMMENDED COMPONENTS FOR A COMPLETE HYDRAULIC CIRCUIT

**Optional handle**
**Part Number 2008410**

**Optional Stepped Shoe**
**Part Number 2008083***

**Note: Part number is for one shoe only.**
**Two shoes required per spreader.**
**Two stepped shoes shown.**

**Optional Stepped Block**
**Part Number SB15 (1 pc)**

### WE RECOMMEND USE OF THE FOLLOWING POWER TEAM COMPONENTS:

**Pump**

**Coupler**


| Description | Part Number |
|---|---|
| Two Speed, Single-Acting Hand Pump | **P19L** |
| Hydraulic Hose Assembly | **9764E** |
| Pressure Gauge | **9040E** |
| Gauge Adapter | **9670** |
| Coupler (male half coupler) | **9798** |

**Note: Torque wrench tools use smaller couplers. Do not attempt to use torque wrench hoses with this tool.**

HYDRAULIC TOOLS

# Hydraulic
## PUNCHES
## 20 & 35 Ton

- Punch smooth, precise holes in seconds; much faster than drilling.
- Fully portable for construction, maintenance and service applications, or can be mounted on a workbench for production jobs. Has carrying handle for precise locating.
- Rugged, forged steel “C” frame for great strength and durability.
- Dual action, spring loaded stripper holds material during punching operation, strips material from punch on return. Scribe lines on stripper aid in locating the punch (HP 35 only).
- Double Acting prevents binding and speeds retraction (HP20 only).
- The PE172 electric/hydraulic pump is an ideal power source.

**No. HP35** – Punch only, includes metal case and die change tools. Wt., 19 kg.

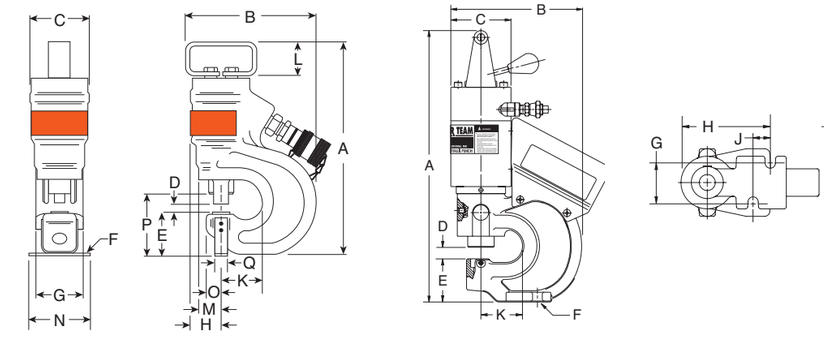
**No. HP35S** – Punch with punches and dies. Includes HP35 punch, metal case and 250459 punch/die set. Wt.,20 kg.

**No. HP35P** – Punch set with pump. Same as HP35SP, but does not include punch/die set. Wt., 39 kg. NOTE: Available in 220 volt, 50 Hz. Order with suffix “-220”.

**HP35**

**No. HP35SP** – Punch set with pump. Includes HP35 punch, PE172 electric/hydraulic pump, 9756 hose, 9798 hose half coupler, 250459 punch/die set, metal case. Wt., 40 kg. NOTE: 220 volt, 50 Hz. Order with suffix “-220”.

**No. 250459** – Punch/die set for round holes. Includes one each: PD437 11,1 mm punch/die, PD562 14,3 mm punch/die, PD688 17,5 mm punch/die, PD812 20,6 mm punch/die. Wt., 0,7 kg.




| Cap. | Order Number | Max. Oper. Press. (bar) | Oil Cap. ($cm^3$) | Max. Material thickness (mm) | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | Mtng. Holes F (mm) | G (mm) | H (mm) | Max. Throat Depth J (mm) | K (mm) | L (mm) | M (mm) | N (mm) | O (mm) | P (mm) | Q (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 20 | **HP20** | 700 | 64 | 12,7 | 419 | 202 | 93 | 16 | 66 | 14 | 54 | 124 | 24 | 57 | – | – | – | – | – | – |
| 35 | **HP35** | 700 | 75 | 12,7 | 349 | 229 | 95 | 14 | 73 | 6 | 76 | 46 | – | 71 | 57 | 38 | 89 | 22 | 102 | 19 |

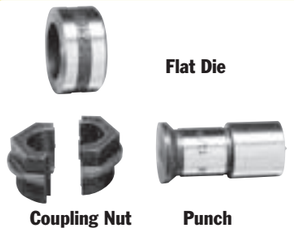
**No. HP20** – Basic punch. Wt., 15 kg.

**No. HP20S** – Punch frame with cylinder, valve, handle, two coupling nuts, plus five punch and die sets in 6,4 7,9 ,9,5 ,11,1 and 13,5mm dia.Wt. 15,9 kg .

**No. HP20SP*** – Complete punch set with PE102AR pump (115/230V, 50/60 Hz), HP20HS hand switch, 9682 nipple, two 9792 female couplers and two 9793 male couplers. Also includes two 9758 3 m hoses, 9680 coupling, and same punch and die sets as in HP20S (above). Tool is completely assembled and pre-filled with oil. In storage box. Wt., 15,9 kg.

**HP20**


**Punch Set HP20SP**
**Includes the PE102AR pump, HP20HS hand switch, hoses, couplers, punch and die sets in sizes 6,4, 7,9 ,9,5 ,11,1 , and 13,5 mm diameter, with storage box Wt.15,9 kg.**




### PUNCH/DIE SETS FOR HP20 & HP35 HYDRAULIC PUNCHES

| Punch Size (mm) | Punch Style | For use with HP20 Hydraulic Punch: Punch No. | Flat Die No. | Bevel Die No. | Coupling Nut No. | For use with HP35 Hyd. Punch: Punch/w Flat Die Set | Punch/w Bevel Die Set |
|---|---|---|---|---|---|---|---|
| 6,4 | ○ Round | 251970 | 251983 | -- | 252001 | -- | -- |
| 7,9 | | 251971 | 251984 | -- | 252001 | PD313 | -- |
| 9,5 | | 251972 | 251985 | 251996 | 252001 | PD375 | PD375B |
| 11,1 | | 251973 | 251986 | 251997 | 252001 | PD437 | PD437B |
| 13,5 | | 251974 | 251987 | 251998 | 252001 | PD531 | PD531B |
| 14,3 | | 251975 | 251988 | 251999 | 252001 | PD562 | PD562B |
| 17,5 | | 251976 | 251989 | -- | 252001 | PD688 | -- |
| 19,8 | | 251977 | 251990 | -- | 252002 | PD781 | -- |
| 20,6 | | 251978 | 251991 | -- | 252002 | PD812 | -- |
| 12,7 | □ Square | 251979 | 251992 | -- | 252002 | -- | -- |
| 13,5 | | 251980 | 251993 | -- | 252002 | -- | -- |
| 6,4 x 19 | ▭ Obround | 251981 | 251994 | -- | 252002 | -- | -- |
| 9,5 x 19 | | 251982 | 251995 | -- | 252002 | -- | -- |

### TYPICAL 20 TON STYLE TOOLING

| Punch Size (mm) | INCHES Hole Dia. | INCHES Bolt | MM Hole Dia. | MM Bolt |
|---|---|---|---|---|
| 6,4 | 1/4 | #10 | 6.3 | — |
| 8,0 | 5/16 | 1/4 | 7.9 | — |
| 9,5 | 3/8 | 5/16 | 9.5 | M8 |
| 11,1 | 7/16 | 3/8 | 11.2 | M10 |
| 13,5 | 17/32 | 7/16 | 13.5 | M12 |
| 14,3 | 9/16 | 1/2 | 14.3 | – |
| 17,5 | 11/16 | 5/8 | 17.5 | M16 |
| 19,8 | 25/32 | – | 19.8 | M18 |
| 20,6 | 13/16 | 3/4 | 20.6 | — |

**HP20FS**

**HP20HS**

**252000**

### ACCESSORIES FOR HP20 HYDRAULIC PUNCH

No. HP20FS – Optional foot switch mounted in foot switch guard. Supplied with 3 m cord and male remote connector. Wt., 0,9 kg.
No. HP20HS – Replacement handswitch. Supplied with 3 m cord and male remote connector. Wt., 0,9 kg.
No. 252000 – Optional coupling nut wrench. Makes punch/die changes easier without “rounding- off” coupling nuts. Wt., 0,3 kg.

# Testers
## HYDRAULIC

## 200, 300 and 750 l/min

**HT50A**

**HT200**

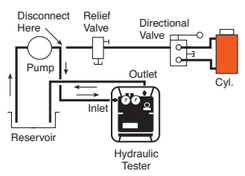
**200 , 300 AND 750 L/MIN IN-LINE HYDRAULIC TESTERS**

- Accurately measure oil flow, pressure and temperature on in-plant equipment, forklifts, machine tools and more.
- Temperature and flow readings are in Metric and English, accurate to within ±2% of full scale.
- Dual pressure gauges for high and low pressure readings; low pressure gauge is automatically shut off and protected as pressure rises beyond its maximum reading.
- Automatic pressure compensating feature lets you increase flow without affecting pressure setting.
- Reverse flow through tester will not cause damage; replaceable safety disc ruptures if pressure exceeds upper limit.
- Solid state voltage regulator eliminates errors caused by voltage change during testing.
- Troubleshoots systems with capacities to 750 l/min at pressures less than 350 bar. Accurately measure oil flow to ±5%, pressure to within 2% and temperature readings within 1%.
- Pressure gauge is liquid filled to dampen system pulsation.

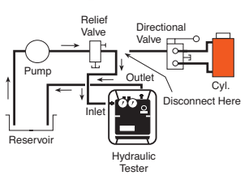
For more precise low pressure readings, an optional dual pressure gauge kit is available.

**No. HT50A** – Hydraulic circuit tester with single liquid filled pressure gauge, 0-5000 psi, 0-350 bar. Includes two adapter unions for 3/4" male NPTF fittings. Wt., 16,8 kg.

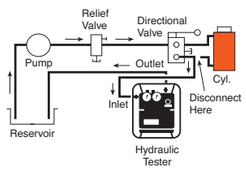
**Testing a pump**

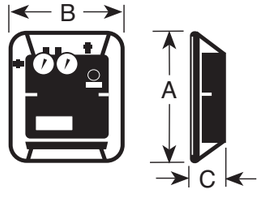



**Testing a relief valve**




**Testing a directional valve**




| Order Number | Max Flow (l/min) | Scale | Flow Ranges (gpm) | (l/min) | Max. Oper. Pressure psi | (bar) | Temp. Scale Range °F | °C | Port Sizes | Weight lbs. | kg. | A in. (mm) | B in. (mm) | C in. (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **HT50A** | 200 | – | 0-50 | 0-200 | 5,000 | 345 | 20-240 | -6 to 114 | 1 5/16-12UN Female "O" Ring with Union Adapt. 3/4" Female NPTF | 30.3 | 16.8 | 12 1/4 (311) | 6 1/4 (159) | 10 (255) |
| **HT75** | 300 | High | 15-75 | 50-300 | 5,000 | 345 | 100-250 | 40-120 | 3/4" NPT Swivel | 18.2 | 8.6 | 13 3/4 (349.25) | 11 7/8 (301.62) | 5 3/4 (146.05) |
| | | Low | 3-15 | 10-60 | | | | | | | | | | |
| **HT200** | 750 | High | 25-200 | 100-750 | 5,000 | 345 | 100-250 | 40-120 | 1 1/2"* SAE Split Flange | 28.2 | 13.6 | 15 7/8 (403.47) | 13 1/4 (336.55) | 6 3/4 (171.45) |
| | | Low | 5-40 | 20-150 | | | | | | | | | | |

# Service Accessories
## HYDRAULIC TESTER

**DUAL GAUGE CONVERSION KIT FOR 50 GPM TESTER.**

Provides more precise low pressure readings. Remove pressure gauge block and gauge from tester and replace it with this block. Install high pressure gauge from tester (350 bar) onto this new block.

**No. 307281** – Dual gauge conversion kit. Consists of gauge mounting block, pulsation dampener, thermal overload protector, low pressure gauge and gauge protector. Wt. 0,45 kg.

**307281**

**307281** Low pressure gauge calibrated 0-600 psi 0-42 bar.

**37045**

**Auxiliary power cord for use with 300 and 750 l/min testers**

**No. 37045** – Auxiliary power cord. For use with any 12 or 24 volt battery to remotely power tester. Wt. 0,5 Kg. CAUTION: For use on negative ground systems only.

**9785**
**9786**
**8987**
**9788**

**Hoses**

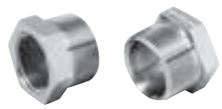
**No. 9785** – Hose, 19,1 mm I.D. x 3/4" NPTF male both ends. 3 m length. 155 bar working pressure. (2 req'd on 200 and 300 l/min testers) Wt., 3kg.
The following hose assemblies are all 4-ply spiral wound wire, 3 m long. For use with 750 l/min testers.

**No. 9786** – Hose, 25,4 mm I.D. x 11/4" NPT male both ends. Recommended max. flow 340 l/min, with a working pressure of 280 bar. Wt., 6,3 kg.

**No. 9787** – Hose, 31,8 mm I.D. x 11/4" NPT male both ends. Recommended max. flow 530 l/min, with a working pressure of 210 bar. Wt., 6,4 kg.

**No. 9788** – Hose, 38,1 mm I.D. x 11/2" NPT male both ends. Recommended max. flow 750 l/min, with a working pressure of 175 bar. Wt., 11,4 kg.

**203264**



**Hose reducer bushings**

**No. 203264** – Consists of two hose reducer bushings, 11/4" NPT female x 11/2" NPT male end. Needed to adapt No. 9786 25,4 mm I.D. hose and No. 9787 31,8 mm I.D. hose to tester. Wt., 1 kg.


HYDRAULIC TOOLS

# Hydraulic Tester
## SERVICE ACCESSORIES

## Fittings/adapters For the 750 l/min hydraulic tester

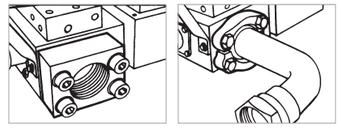
Attach to the HT200 hydraulic tester by the use of flanged-head adapters and split flanges, or by a set of female straight adapters.

203154 203155 203156

203017 203003

### FLANGED HEAD ADAPTER UNIONS AND SPLIT FLANGE KIT

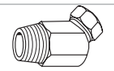
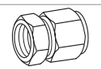
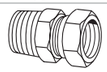
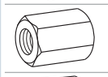
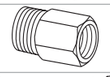
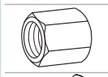
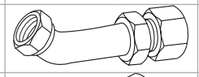
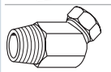
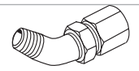
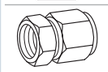
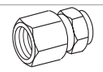
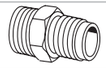
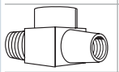
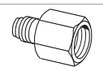
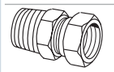
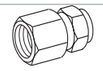
**No. 203154** – Straight flange adapter. 38,1 mm flanged-head to 11/2" NPSM female swivel. Wt.,1 kg.
**No. 203155** – 45° flange adapter. 38,1 mm flanged-head by 11/2" NPSM female swivel. Wt., 1,5 kg.
**No. 203156** – 90° flange adapter. 38,1 mm flanged-head by 11/2" NPSM female swivel. Wt., 1,9 kg.
**No. 203017** – Split flange kit. Consists of four flange halves and attaching bolts to permit use of 38,1 mm I.D. flange adapters listed at left. Wt., 1.3 kg.



### FEMALE STRAIGHT FLANGE ADAPTER

**No. 203003** – Consists of two female straight flange adapters with attaching bolts. When attached to inlet/outlet ports, allows connection of 11/2" NPT male hose ends to tester. Wt., 3.9 kg.

### HYDRAULIC FITTINGS FOR USE WITH ALL TESTERS.

| | | | |
|---|---|---|---|
|  | **No. 16954** – 90° swivel adapter, 3/4" NPTF male x 3/4" NPSM female. Wt., 0.4 kg. |  | **No. 26073** – Swivel adapter, 3/4" NPTF female x 1/2" NPSM female. Wt., 0.1 kg. |
|  | **No. 22041** – Coupler, 3/4" NPTF male x 3/4"–16 female ORB. Wt., 0.2kg. |  | **No. 26074** – 45° swivel adapter, 3/4" NPSM female x 3/4" NPTF male. Wt., 0.3kg. |
| | **No. 22042** – Coupler, 3/4" –16 female ORB x 1 1/16"–12 female 37° JIC. Wt., 0.2kg. |  | **No. 26075** – Swivel adapter, 3/4" NPSM female x 3/4" NPTF female. Wt., 0.2 kg. |
|  | **No. 22043** – Coupler, 3/4" –16 female ORB x 9/16"–18 female 37° JIC. Wt.,0,2kg. |  | **No. 26076** – Swivel adapter, 3/4" NPTF male x 3/4" NPSM female. Wt., 0.2kg. |
| | **No. 22044** – Coupler, 3/4" –16 female ORB x 1/2"– 20 female 37° JIC. Wt., 0,2 kg. |  | **No. 26077** – Cap, 3/4" NPTF. Wt., 0.3kg. |
|  | **No. 27737** – Swivel adapter, 3/4" –16 male x 3/4" NPSM female. For use with No. 9785 hose, which has 3/4" NPTF male thread. Wt., 0.1kg. |  | **No. 26078** – Plug, 3/4" NPTF. Wt., 0.1 kg. |
|  | **No. 27287** – Coupler, 3/4" –16 UNF female ORB x 7/8"–14 UNF female 37° JIC. Wt., 0.2kg |  | **No. 26079** – Adapter, 3/4" NPTF female x 1 1/16" –12 male ORB. Wt., 0.2 kg. |
|  | **No. 13449** – Cap, 1 1/16"–12 UNF female, 3/4" O.D. tube, 37° flare. Wt., 0.1kg. |  | **No. 208402** – 45° union adapter, 7/8"–14 UNF male 37° JIC x 3/4" NPTF female. 210 bar working pressure. Wt., 0,3 kg. |
|  | **No. 26068** – 45° swivel adapter, 1" NPTF male x 3/4" NPSM female. Wt., 0,4 kg. |  | **No. 208401** – 45° union adapter, 7/8"–14 UNF male 37° JIC x 3/4" NPTF female. Wt., 0,4kg. |
|  | **No. 26069** – Swivel adapter, 1" NPTF female x 3/4" NPSM female. Wt., 0.2 kg. |  | **No. 206753** – Coupler, 1 15/16"–12 UNF female 37° JIC x 3/4" NPTF female. Wt., 0,5 kg. |
|  | **No. 26070** – Adapter, 1" NPTF male x 3/4" NPTF female. Wt., 0.1kg. |  | **No. 26666** – Connector, 1 5/16"–12 UNF male 37° JIC x 3/4" NPTF male. Wt., 0.2 kg. |
|  | **No. 26071** – Service tee, 3/4" NPTF female (2) x 3/4" NPTF male. Wt., 0.4 kg. |  | **No. 28984** – Straight adapter, 3/4" NPTF female x 1 3/16" –12 UN male 37° JIC. Wt., 0.3 kg. |
|  | **No. 26072** – Swivel adapter, 3/4" NPSM female x 1/2" NPTF male. Wt., 0,2kg. |  | **No. 28985** – Straight adapter union, 1 3/16"–12 UN female 37° JIC x 3/4" NPTF female. Wt., 0,6 kg. |

NOTE: The recommended maximum working pressure on the above fittings is 5,000 psi except the 208402.

# Retaining Ring
## PLIERS

## Internal and External

7313

714
Fed. Spec.: GGG-P-480

### HORSESHOE LOCK RING PLIER

- For removing horseshoe lock rings used on hydraulic brakes, differentials, etc. Plier is 203mm long; max. spread: 23,8mm

**No. 714** – Horseshoe lock ring plier. Wt., 0.2 kg.
**No. 7313** – External snap ring plier easily removes snap rings used to retain bearings on shafts. Max. spread: 27mm.

RETAINING RING PLIER KITS

- Choose from four sets; internal ring, external ring and convertible pliers for either internal or external rings.

**No. 7053K** – Replaceable tip pliers kit. This versatile kit contains (1) internal and (1) external pliers with (8) tip sets. Two sets each: 0,9 mm dia. 90° bend, 1,2 mm dia. straight, 1,2 mm dia. 90° bend, 1,8mm dia. straight. Recommended for 6,4 –51 mm rings. Packaged in plastic storage case.
Wt., 0.3 kg.

**No. 15702** – Replaceable tip kit (only) for No. 7053K.
**No. 7123K** – Convertible pliers kit. Contains **No. 1120** (1mm dia./straight tip) and No. 1340 (1,8mm dia./ straight tip). Each pliers "converts" to handle both internal and external rings. Packaged in a reusable plastic storage case. Wt., 0,4Kg.
**No. 7125K** – Convertible pliers kit. Contains **No. 1125** (1 mm dia./45° bent tip) and No. 1345 (1,8 mm dia./45° bent tip). Each pliers "converts" to handle both internal and external rings. Packaged in a reusable plastic storage case. Wt., 0.4kg.
**No. 7406K** – Professional pliers kit. Contains (6) retaining convertible pliers to handle both internal and external rings from 6,4–51 mm. Includes straight and 90° off-set pliers with 1, 1,2, and 1,8 mm tip diameters. Includes Nos. 1120, 1131, 1320, 1329, 1340 and 1349. Packaged in an impact resistant storage case. Wt., 0,9 kg.

### REPLACEMENT TIPS FOR 7300 AND 7301 PLIERS

**No. 209201** – Replacement tips (pr.) for the 7300 and 7301 pliers.
Wt., 0.1 kg.

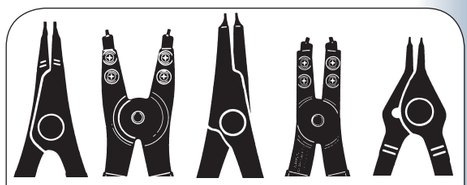
**7053K internal & external plier, 4 sizes of tips.**

7123K

7406K

### RETAINING RING PLIERS SELECTION GUIDE

| Plier No | Tip .Bend | Tip Size Dia. (mm) | For Int'l Rings* Bore Dia. (mm) | For External Rings* Shaft Dia. (mm) |
|---|---|---|---|---|
| 0100 | Str. | 1 | 9,5 – 26 | -- |
| 0200 | Str. | 1 | -- | 6,4 – 22 |
| 0300 | Str. | 1,8 | 27 – 44,5 | -- |
| 0400 | Str. | 1,8 | -- | 24 – 36,5 |
| 0500 | Str. | 2,3 | 46 – 89 | -- |
| 0600 | Str. | 2,9 | -- | 38 – 89 |
| 7300 | Str. | 3 | 78 – 152 | -- |
| 7301 | Str. | 3 | -- | 38 – 165 |
| | | **Convertible Pliers** | | |
| 1120 | Str. | 1 | 9,5 – 14 | 6,4 – 17 |
| 1125 | 45° | 1 | 9,5 – 14 | 6,4 – 17 |
| 1131 | 90° | 1 | 9,5 – 14 | 6,4 – 17 |
| 1320 | Str. | 1,2 | 16 – 26 | 17 – 22 |
| 1329 | 90° | 1,2 | 16– 26 | 17 – 22 |
| 1340 | Str. | 1,8 | 27 – 44,5 | 24 – 36,5 |
| 1345 | 45° | 1,8 | 27 – 44,5 | 24 –36,5 |
| 1349 | 90° | 1,8 | 27 – 44,5 | 24 – 36,5 |



| External | | Internal | | Convertible |
|---|---|---|---|---|
| No. 0200 | No. 7301 | No. 0100 | No. 7300 | No. 1120 |
| No. 0400 | | No. 0300 | | No. 1320 |
| No. 0600 | | No. 0500 | | No. 1340 |
| | | | | No. 1125* |
| | | | | No. 1345* |
| | | | | No. 1131** |
| | | | | No. 1329** |
| | | | | No. 1349** |

Fed. Spec.: GGG-P-480-E
* 45° Angled Tips ** 90° Angled Tips

Always wear safety goggles when using pliers
*Capacities are shown for basic style rings.

# Service Tools
## ACCESSORIES

3344A

### PHOTO TACHOMETER

- Infrared light source, micro-processor controlled crystal display.
- Strong magnetic base is included.

Machine speed: It is critical for proper machining operations. Speeds too fast or too slow can shorten tool life and cause expensive, unnecessary machine downtime. This digital photo tach can take readings from revolving shafts on drill presses, grinders, lathes and other machines. It can also be used to check engine operation on in-plant vehicles like forklifts. The 3344A is accurate to within ± 1 rpm. The 10mm high liquid crystal display is easily visible even in high ambient light areas.

**No. 3344A** – Digital Photo Tachometer. With memory, photo probe assembly, magnetic base, 2,75 m of reflective tape and plastic case. Wt., 2 kg.
**No. 39811** – Replacement magnetic base assembly. Wt. 0,1kg.
**No. 45329** – Replacement photo probe assembly. Wt., 0.2 kg.
**No. 204666** – Replacement retro-reflective indicator tape, 2,75 m long x 12,7mm wide. Wt., 0.1 kg.

### SPECIFICATIONS

**Readout:** Liquid crystal display: 4 (10mm high) digits, low battery indicator, memory mode indicator, high and low RPM memory mode indicator.
**Range:** 200 to 9999 rpm. Accuracy: ± .25%, ± 1 rpm. Update time: 3/4 second.
**Power switch:** Membrane switch (automatic shut-off after one minute of no signal input).
**Power source:** 9 volt alkaline battery. Light source: Infrared with 4,6m plug-in cable.
**Light holder assembly:** 13,6 kg rated magnet; 50,8 mm dia. x 6,4 mm high (102 mm high overall with post).
**Size:** 86 w, 152 h x 38 mm d.
**Carrying case:** 343 w, 254 h x 102 mm d.

### HTS50 HEAVY-DUTY PIPE SEALANT WITH TEFLON®

- Seals new or damaged threads; resists water, chemicals and oils.
- Replaces conventional tape methods; forms a clog-free seal. Effective at 700 bar.

When "plumbing" a hydraulic system, there's now a better answer than tapes which can tear or shred, possibly plugging filters, valves or gauges. This compound combines the lubricating qualities of Teflon® with a fast curing anaerobic sealant. Seals all metal fittings, plugs and threaded joints quickly and easily. Cures to form a permanent seal which is inert to hydrocarbons, most acids, chemicals, solvents and steam. Allows adjustment up to 16 hours after assembly; cannot loosen under vibration. Prevents galling of mating parts upon disassembly. Withstands temperatures from -54° to + 190° C.

**No. HTS50** – Sealant, 50 ml. tube. Wt., 0.2 kg. (Teflon® is a registered trademark of duPont Co.)

HTS50


### "O" RING SEAL PICKS

Even the seemingly simple job of removing and installing "O" ring seals can be difficult without the aid of the proper tool. The 7312 all metal "O" ring seal pick does the job with ease. Two special picks in set No. 7103 get right to the trouble areas.

**No. 7312** – "O" ring seal pick. Wt., 0.1 kg.
**No. 7103** – Set of two "O" ring seal picks. Wt., 0.1 kg.

7312

7103

### UNIVERSAL OUTSIDE THREAD CHASER

Restore damaged threads on shafts, housings, cages, etc., for re-assembly of matching parts. Eliminates need for thread-cutting equipment. Will not harm threads. V-pads and dies can be replaced. Cap. 32 to 127 mm O.D.

**No. 7402** – Thread chaser, complete (with 6 dies: threads per inch – 4, 5, 6, 7, 7½, 8, 9, 10, 11, 11½, 12, 14, 16, 18, 20 and 24). Wt., 0,2 kg.
**No. 202817** – Metric die set (3 dies: mm per thread: 1, 1¼, 1½, 1¾, 2, 2½, 3, 3½, and 4). Wt., 0.1 kg.

7402

### MAGNETIC PICK-UP TOOL

Has permanent magnetic head for retrieving parts from otherwise inaccessible places.

**No. 7395** – Pick-up tool with pocket clip. 152 mm lg. Wt., 0.1 kg.

7395

# Wrenches
## AND PRY BARS

### RATCHETING CHAIN WRENCHES

Special head design allows you to turn wrench in either direction. Ratcheting action makes it possible to re-grip without removal. For parts of most any size and shape.

**No. 7400** – Chain wrench, cap. 12,7 to 121 mm O.D. (Capacity= 450 Nm) Wt., 0,9kg

**No. 7401** – Chain wrench, cap. 76 to 171 mm O.D. (Capacity= 900 Nm ) Wt., 2,3 kg.

**No. 209199** – Replacement chain with pin for No. 7400 chain wrench (406 mm long).

**No. 209200** – Replacement chain with pin for No. 7401 chain wrench (610 mm long).

### ADJUSTABLE HOOK SPANNER WRENCH

Needed wherever turret adjusting nuts or packing gland nuts are used. Cap.: 38 to 102 mm. Handle overall length: 483 mm.

**No. 885** – Adjustable hook spanner wrench. Wt., 1,4 kg.

### ADJUSTABLE HOOK SPANNER WRENCHES

Replace many fixed-size wrenches... cover range of capacities needed to service industrial tractors and other equipment. Drop-forged jaws adjust to eleven positions for a capacity of 121 to 324 mm O.D. Handle overall length: 610 mm; diameter: 25,4 mm.

**No. 7307** – Spanner wrench with one 9,5 mm thick jaw. Wt., 3,3 kg.

**No. 7308** – Spanner wrench with two interchangeable jaws: one 9,5 mm thick, one 19 mm thick. Wt., 5 kg

### HEAVY-DUTY ADJUSTABLE SPANNER

Extra heavy construction. Has one 19 mm thick, eleven-position hook-jaw for a capacity of 131 to 324 mm O.D. Drop-forged. Handle length: 654 mm; handle dia.: 33.3 mm

**No. 7309** – Heavy duty adjustable hook spanner wrench. Wt., 5 kg.

### ADJUSTABLE GLAND NUT WRENCH

Designed to handle 51 to 152 mm dia. hydraulic cylinder gland nuts on many construction vehicles. Fits 6,4 and 7,9 mm dia. pin holes; features a 3/4" sq. drive.

**No. 1266** – Adjustable gland nut wrench. Wt., 1,4 kg.

**No. 204928** – Replacement pin for No. 1266

### PRY BARS

Our rolling head pry bars are an extremely popular and useful tool. Head may be used for almost any prying job since a great deal of leverage can be obtained. Long tapered body may be used as a lining-up drift.

**No. 7162** – Pry bar; 9,5 mm round, 152 mm long. Wt., 0,1 kg.

**No. 7163** – Pry bar; 11,1 mm round, 305 mm long. Wt., 0,3 kg.

**No. 7164** – Pry bar; 14,3 mm round, 406 mm long. Wt., 0,5 kg.

**No. 7165** – Pry bar; 19 mm round, 457 mm long. Wt., 1 kg.

### JIMMY BARS

Ideal for general lifting or prying. Heat treated chrome alloy steel to resist bending or breaking.

**No. 7166** – Jimmy bar; 15,9 mm round, 457 mm long. Wt., 0,6 kg.

**No. 7167** – Jimmy bar; 19 mm round, 610mm long. Wt., 1,1 kg.

**No. 7168** – Jimmy bar; 22,2 mm round, 762 mm long. Wt., 1 kg.

### "MAJOR PERSUADER" JIMMY BARS

Two big jimmy bars for big jobs. Forged from chrome alloy steel.

**No. 7420** – Jimmy bar; 22,2 mm round, 1.168 mm long. Wt., 3,4 kg.

**No. 7421** – Jimmy bar; 25,4 mm round, 1.372 mm long. Wt., 1,9 kg.

# PULLERS

# Basics

## Puller selection
3 Basic Puller Problems

### CONSIDERATIONS:

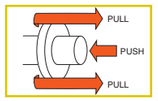
Determine the type of puller or puller combination. Which puller type is best suited for gripping the part?

Is a combination of puller types required?

Determine the reach needed for your particular pulling problem. The puller you select must have a reach equal or greater than the corresponding sizes of the part to be pulled.

Determine the spread need. The spread is determined by the width of the part being pulled. The puller's spread should be greater than the width of the part to be pulled.

Estimate the force needed to solve your pulling problem. A puller with the proper reach and spread will usually have enough capacity to remove the corresponding part. When in doubt, always use a puller with a larger capacity than what may be needed. Rusted parts or parts with a large area of resistance may need more pulling force.




## 1

### PULLING A GEAR, BEARING, WHEEL, PULLEY, ETC., FROM A SHAFT

**In order to perform a proper pull, be certain that you firmly grip the gear, bearing, wheel, pulley, etc., and apply force to the shaft. Use a 3-jaw puller, instead of a 2-jaw, whenever possible for better gripping power and a more uniform displacement of pulling force.**

### RECOMMENDED TOOLS:

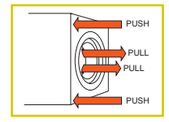
**Jaw-type pullers:** Either manual or hydraulic. For extra force and convenience, use a hydraulic puller. Both are available in 2 or 3 jaw configurations and are used to grip the outer circumference of a part or can be used with a pulling attachment, such as a bearing/pulley attachment.

**Push-Pullers** can thread directly into a threaded part for easy and secure removal. Push-Pullers can be used in conjunction with bearing/pulley attachments which grip the part from behind. A wide assortment of male and female threaded adapters are available as well as metric adapters.

**Slide hammers** are best suited forlight-duty tasks. Slide hammers can be used for multiple-with pulling problems when combined pulling attachments.

**Bearing/pulley attachments** provide a "knife-like" edge to get behind parts for added versatility and secure removal of parts. Great for parts that don't offer adequate grip with jaw-type pullers.

**Adapters** Whether you need an adapter compatible with any number of threaded hole sizes, protection of part to be pulled or for assisting the installation of a component; Power Team offers a variety of adapters to assist in the removal or installation of parts.




## 2

### PULLING INTERNAL BEARING RACES, RETAINER, SEALS, ETC.

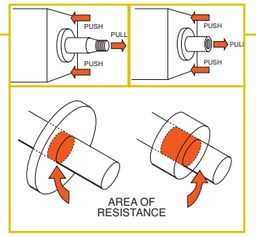
**By extending the narrow jaws of an internal pulling attachment through the center of the part to be pulled, a straight pull is insured, and damage to the housing is avoided. While parts within a "blind hole" in a housing do present a problem, Power Team has the internal pulling attachment or a combination of an internal pulling attachment and puller to handle the situation.**

### RECOMMENDED TOOLS:

**Internal pulling attachments** have narrow jaws which extend through the center of the part to be pulled. They provide a straight pull and avoid damaging housings. Internal attachments feature adjustable jaws to fit various diameter parts.

**Slide hammer with internal attachment** is ideal for removing parts from blind holes, especially where there is no housing to brace puller legs against.

**Push-puller with internal attachment.** Push-puller is available in both manual and hydraulic versions.




## 3

### PULLING A PRESS-FITTED SHAFT FROM A HOUSING

Note: Manual pullers require that the shaft being pulled is no more than twice the diameter of the puller's forcing screw. To determine the recommended tonnage for hydraulic pullers, multiply the diameter of the shaft to be pulled by ten. Example: For a 1" shaft, we recommend 10 tons of pulling force.

**A shaft with a threaded end can be removed without damage by using one of our slide hammer, manual Push-puller or hydraulic Push-pullers, in conjunction with the proper threaded adapter. Removal is easy! If the shaft to be removed has external threads, simply choose one of our female threaded adapters of proper size/thread. If the shaft has internal threads, simply choose the correct size male threaded adapter.**

### RECOMMENDED TOOLS:

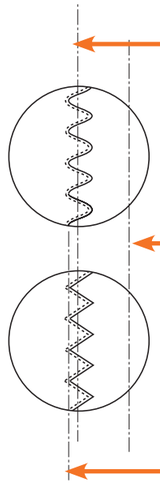
**Slide hammer puller** matched with a set of threaded adapters is a perfect tool for light duty pulling needs.

**Push-pullers** matched with a set of threaded adapters make for an extra versatile pulling tool.

# Basics

## Puller selection
Choosing the Right Puller

### WHY OUR ROLLED PULLER THREADS ARE SUPERIOR:




Rolled threads start with a material O.D. equal to the pitch diameter of the thread. The rolling process moves material from below the pitch diameter and creates a smoother and stronger thread.

Cut threads start with a material O.D. equal to the thread O.D.. Cutting can cause tears on the thread surface which can make it rough and can cause minute cracks at root of thread which can open up during heat treat and lessen the capacity of the screw.

**Puller with a bearing pulling attachment was used to take a bearing off a utilities well pump motor.**

| Features | Benefits |
|---|---|
| • Grip-O-Matic® feature on jaw type pullers<br>• 2-way, 3-way and 2/3-way combination pullers<br>1 to 37 ton mechanical pullers<br>5 to 50 ton hydraulic pullers<br>2 1/8" (54 mm) to 27 5/8" (702 mm) reach<br>3 1/4" (83 mm) to 44" (1,118 mm) of spread<br>• Forged alloy steel jaws<br>• Machined puller jaw toes<br>• Alloy steel heads (forged or flame cut)<br>• Rolled "V" threads<br>• Special coating on threads<br>• Heat treated alloy steel cross bolts<br>• Standard hydraulic cylinders on Grip-O-Matic® series<br>• Adjusting nut on Super Grip-O-Matic® series | • The harder the pulling force, the tighter the jaws grip<br>• A wide variety of pullers; select a specific puller for a specific application or select one or more pullers for general applications<br>• Strongest possible part; the grain of the material follows the contour of the part.<br>• Larger and stronger pulling toe than most competitors<br>• Heat treated and designed for maximum strength<br>• Stronger and smoother than cut threads<br>• Resists corrosion, traps lubrication better than black oxide<br>• Designed for max. shear strength<br>• Cylinder can be removed from puller and used in other hydraulic applications<br>• Allows for controlled jaw spread adjustment |




**NOTE:** The puller application photos shown in this catalog are shown without protective blankets for clarity of photos. Power Team strongly recommends you always make your pull with a protective device in place.

### Operator safety comes first!
Tons of force are being exerted with your Pulling System. You must respect this force, and observe safety precautions at all times

**⚠ CAUTION**

It is impossible to predict the exact force required for every pulling job: setup requirements and the size, shape and condition of the parts being pulled vary a great deal. In addition, the Power Team Pulling System is so versatile, it is possible that components in a pulling setup may have different tonnage ratings.

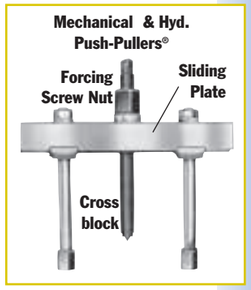
The lowest "capacity" component, then, determines the capacity of the setup. For example: When an accessory with a 1 ton capacity is used with a 10 ton capacity puller, the setup can be used only at a force of one ton.

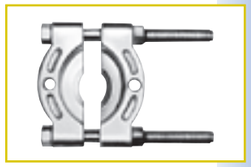
These tools should be used only by trained personnel familiar with them.

Always wear eye protection during a job since work parts, or the pulling tool itself, may break and parts may fly. It is recommended to cover the work with a Power Team Protective Blanket or use a shield while force is being applied. If you are at all unsure which tool or attachment to select, contact the Power Team factory.

### A few easy tips to remember:

1. **Wear safety glasses at all times!** You have only one pair of eyes, so protect them from possible flying parts.
2. **Keep your pulling tools in shape!** Clean and lubricate the puller's forcing screw frequently, from threads to tip, to assure long service life and proper operation.
3. **Cover work with a protective blanket!** With high forces being exerted on the part being pulled, breakage may sometimes result. By covering the work with a protective blanket, the mechanic reduces the danger of flying parts.
4. **Apply force gradually!** The component should give a little at a time. Do not try speed removal by using an impact wrench on the puller screw.
5. **Use the right size puller!** If you have applied maximum force and the part has not moved, go to a larger capacity puller. Resist sledging.
6. **Align puller legs and jaws!** Be sure the setup is rigid and that the puller is square with the work.
7. **Mount puller so grip is tight!** Tighten the adjusting strap-bolts when using a jaw type puller. Always use a 3-jaw puller whenever possible. A 3-jaw puller gives a more secure grip, more even pulling power. Apply force gradually. — Never use an extension on a wrench. — Never use an impact wrench. — Never strike the end of the forcing screw. Always cover work with a protective blanket.
8. **Do not couple puller legs!** The tonnage capacity of a Push-Puller® is reduced when longer than standard legs are used, or when legs are in compression. The chance of breaking, bending or misaligning legs increases. Keep reach to a minimum. Use shortest legs possible to reach workpiece. Thread legs into workpiece, pulling attachment or adapters evenly. Uneven legs will cause greater pull or push on one side, creating a bending action which could cause damage to work piece or cause a leg to break. The sliding plates must always be on the opposite side of the cross block from the forcing screw nut or hydraulic cylinder. Always cover work with a protective blanket.



### Bearing pulling attachments:
These attachments may not withstand the full tonnage of the pullers with which they are used. The shape and condition of the part being pulled affects the tonnage at which the puller blocks and/or studs may bend or break. Always select the largest attachment which will fit the part to be pulled.screw. Always cover work with a protective blanket

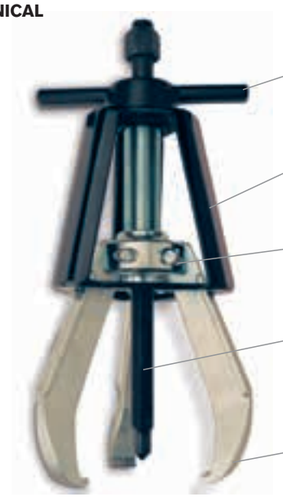
# Pullers
## POSI-LOCK®




### FEATURES & BENEFITS

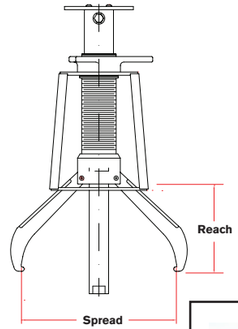
- Pullers are used whenever there are tough maintenance challenges: Railroads, Steel & Paper Mills, Mines, Oil Fields, Wind Farms, Factories, Power Plants, Shipyards, etc.
- Used to pull a variety of press fit parts from gears to wheels, pulleys to bearings, with minimum effort and without damaging the components or machinery.
- Conventional pullers use manual floppy jaws often require two operators to use and can be time-consuming and slow. Traditional jaws slip off work surfaces or snap back making the pulling operation frustrating and difficult.
- With Power Team - Posi Lock, pulling bearings is a one-man operation. The T-handle and “Safety Cage®” control the jaws at all times. This means that the opening, closing, locking and aligning of the jaws is all done automatically by simply turning the T-handle.
- Hydraulic pullers come with a lift plate for ease of transport and lifting. In addition, ram points of different sizes are available for a variety of applications
- Using a hydraulic puller system adds efficiency and eliminates unsafe practices such as hammering,heating, or prying components to be removed. The cylinder replaces the center bolt function of a manual puller.

**MECHANICAL**




**HYDRAULIC**

Posi Lock® is a registered trademark of Posi Lock Puller, Inc.




## ORDERING INFO

### MECHANICAL PULLERS

| SPX Part # | Cap (Ton) | # of Jaws | Puller Weight kg | Reach mm | Spread mm | Accessories: Long Jaws SPX Part # | Long Jaws Reach mm | Long Jaws Spread mm | Tip Protector | Bolt Extender |
|---|---|---|---|---|---|---|---|---|---|---|
| **PT202** | 1 | 2 | 0,3 | 57 | 82.6 | | | | | |
| **PT204** | 2 | 2 | 1.4 | 102 | 127 | | | | PTP4 | PTX4 |
| **PT206** | 6 | 2 | 3.2 | 152 | 178 | | | | PTP6 | PTX6 |
| **PT208** | 12 | 2 | 5 | 203 | 305 | PT11054 / PT11054L | 249/406 | 401/559 | PTP10 | PTX10 |
| **PT210** | 14 | 2 | 6.4 | 246 | 381 | PT11054L | 406 | 559 | PTP10 | PTX10 |
| **PT213** | 25 | 2 | 13.6 | 305 | 457 | PT11354L | 508 | 762 | PTP13 / PTP16 | |
| **PT216** | 35 | 2 | 22.7 | 356 | 635 | PT11654L | 2660 | 965 | PTP13 / PTP16 | |
| **PT102** | 1 | 3 | 0.3 | 57 | 82.6 | | | | | |
| **PT103** | 2 | 3 | 0.6 | 76.2 | 114.3 | | | | | |
| **PT104** | 5 | 3 | 1.8 | 102 | 127 | | | | PTP4 | PTX4 |
| **PT106** | 10 | 3 | 3.6 | 152 | 178 | | | | PTP6 | PTX6 |
| **PT108** | 17 | 3 | 5.9 | 203 | 305 | PT11054 / PT11054L | 249/406 | 401/559 | PTP10 | PTX10 |
| **PT110** | 20 | 3 | 8.2 | 246 | 381 | PT11054L | 406 | 559 | PTP10 | PTX10 |
| **PT113** | 30 | 3 | 18.2 | 305 | 457 | PT11354L | 508 | 762 | PTP13 / PTP16 | |
| **PT116** | 40 | 3 | 29.5 | 356 | 635 | PT11654L | 660 | 965 | PTP13 / PTP16 | |

### HYDRAULIC PULLERS

| SPX Part # | Cap (Ton) | # of Jaws | Puller Weight kg | Reach mm | Spread mm | Accessories: Long Jaws SPX Part # | Long Jaws Reach mm | Long Jaws Spread mm | Leveling Arm Bracket Set | Hydraulic Lift Cart | Storage Transport Cart |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PTPHA-206** | 5 | 2 | 5.8 | 152.4 | 203.2 | | | | | | |
| **PTPHA-208** | 10 | 2 | 6.4 | 203 | 305 | PT11054 / PT11054L | 249/406 | 401/559 | | | |
| **PTPHA-210** | 15 | 2 | 10 | 254 | 381 | PTPH-11054L | 406 | 559 | PTPH-1210* | | |
| **PTPHA-213** | 25 | 2 | 21.3 | 305 | 457 | PT11354L | 508 | 62 | PTPH-1213 | PTPT-3050 | PTPT-2550 |
| **PTPHA-216** | 50 | 2 | 40.9 | 356 | 635 | PTPH-21654L | 660 | 965 | PTPH-1216 | PTPT-3050 | PTPT-2550 |
| **PTPHA-106** | 5 | 3 | 6.5 | 152.4 | 203.2 | | | | | | |
| **PTPHA-108** | 10 | 3 | 7.3 | 203 | 305 | PT11054 / PT11054L | 249/406 | 401/559 | | | |
| **PTPHA-110** | 15 | 3 | 11.4 | 254 | 381 | PTPH-11054L | 406 | 559 | PTPH-1110* | | |
| **PTPHA-113** | 25 | 3 | 25 | 305 | 457 | PT11354L | 508 | 762 | PTPH-1113 | PTPT-3050 | PTPT-2550 |
| **PTPHA-116** | 50 | 3 | 45 | 356 | 635 | PTPH-11654L | 660 | 965 | PTPH-1116 | PTPT-3050 | PTPT-2550 |

* Brackets Only

**Leveling Arm Bracket**

# Bundles
## POSI-LOCK®
## Hydraulic Bundles

### PTPHB-110


### PTPHC-110E


### PTPHD-110-E220

Also available in E110


## HYDRAULIC BUNDLES †

| SPX Part # | Cap (Ton) | # of Jaws | Cylinder Part # | Pump Part # | Gauge Part # | Hose Part # | T Adapter Part # | Coupler | Dust Cap |
|---|---|---|---|---|---|---|---|---|---|
| PTPHB-206 | 5 | 2 | C55C | | | | | | |
| PTPHC-206E | 5 | 2 | C55C | P19L | 9040E | 9767E | 9670 | 9798 | 9800 |
| PTPHD-206-E220 | 5 | 2 | C55C | PE172-E220 | 9040E | 9769E | 9670 | 9798 | 9800 |
| PTPHD-206-E110 | 5 | 2 | C55C | PE172-E110 | 9040E | 9769E | 9670 | 9798 | 9800 |
| PTPHB-208 | 10 | 2 | C106C | | | | | | |
| PTPHC-208E | 10 | 2 | C106C | P19L | 9040E | 9767E | 9670 | 9798 | 9800 |
| PTPHD-208-E220 | 10 | 2 | C106C | PE172-E220 | 9040E | 9769E | 9670 | 9798 | 9800 |
| PTPHD-208-E110 | 10 | 2 | C106C | PE172-E110 | 9040E | 9769E | 9670 | 9798 | 9800 |
| PTPHB-210 | 15 | 2 | C1510C | | | | | | |
| PTPHC-210E | 15 | 2 | C1510C | P59L | 9040E | 9767E | 9670 | 9798 | 9800 |
| PTPHD-210-E220 | 15 | 2 | C1510C | PE172-E220 | 9040E | 9769E | 9670 | 9798 | 9800 |
| PTPHD-210-E110 | 15 | 2 | C1510C | PE172-E110 | 9040E | 9769E | 9670 | 9798 | 9800 |
| PTPHB-213 | 25 | 2 | C2514C | | | | | | |
| PTPHC-213E | 25 | 2 | C2514C | P159 | 9040E | 9767E | 9670 | 9798 | 9800 |
| PTPHD-213-E220 | 25 | 2 | C2514C | PE172-E220 | 9040E | 9769E | 9670 | 9798 | 9800 |
| PTPHD-213-E110 | 25 | 2 | C2514C | PE172-E110 | 9040E | 9769E | 9670 | 9798 | 9800 |
| PTPHB-216 | 50 | 2 | C5513C | | | | | | |
| PTPHC-216E | 50 | 2 | C5513C | P460 | 9040E | 9767E | 9670 | 9798 | 9800 |
| PTPHD-216-E220 | 50 | 2 | C5513C | PE172-E220 | 9040E | 9769E | 9670 | 9798 | 9800 |
| PTPHD-216-E110 | 50 | 2 | C5513C | PE172-E110 | 9040E | 9769E | 9670 | 9798 | |

| SPX Part # | Cap (Ton) | # of Jaws | Cylinder Part # | Pump Part # | Gauge Part # | Hose Part # | T Adapter Part # | Coupler | Dust Cap |
|---|---|---|---|---|---|---|---|---|---|
| PTPHB-106 | 5 | 3 | C55C | | | | | | |
| PTPHC-106E | 5 | 3 | C55C | P19L | 9040E | 9767E | 9670 | 9798 | 9800 |
| PTPHD-106-E220 | 5 | 3 | C55C | PE172 -E220 | 9040E | 9769E | 9670 | 9798 | 9800 |
| PTPHD-106-E110 | 5 | 3 | C55C | PE172-E110 | 9040E | 9769E | 9670 | 9798 | 9800 |
| PTPHB-108 | 10 | 3 | C106C | | | | | | |
| PTPHC-108E | 10 | 3 | C106C | P19L | 9040E | 9767E | 9670 | 9798 | 9800 |
| PTPHD-108-E220 | 10 | 3 | C106C | PE172 -E220 | 9040E | 9769E | 9670 | 9798 | 9800 |
| PTPHD-108-E110 | 10 | 3 | C106C | PE172-E110 | 9040E | 9769E | 9670 | 9798 | 9800 |
| PTPHB-110 | 15 | 3 | C1510C | | | | | | |
| PTPHC-110E | 15 | 3 | C1510C | P59L | 9040E | 9767E | 9670 | 9798 | 9800 |
| PTPHD-110-E220 | 15 | 3 | C1510C | PE172-E220 | 9040E | 9769E | 9670 | 9798 | 9800 |
| PTPHD-110-E110 | 15 | 3 | C1510C | PE172-E110 | 9040E | 9769E | 9670 | 9798 | 9800 |
| PTPHB-113 | 25 | 3 | C2514C | | | | | | |
| PTPHC-113E | 25 | 3 | C2514C | P159 | 9040E | 9767E | 9670 | 9798 | 9800 |
| PTPHD-113-E220 | 25 | 3 | C2514C | PE172 -E220 | 9040E | 9769E | 9670 | 9798 | 9800 |
| PTPHD-113-E110 | 25 | 3 | C2514C | PE172-E110 | 9040E | 9769E | 9670 | 9798 | 9800 |
| PTPHB-116 | 50 | 3 | C5513C | | | | | | |
| PTPHC-116E | 50 | 3 | C5513C | P460 | 9040E | 9767E | 9670 | 9798 | 9800 |
| PTPHD-116-E220 | 50 | 3 | C5513C | PE172 -E220 | 9040E | 9769E | 9670 | 9798 | 9800 |
| PTPHD-116-E110 | 50 | 3 | C5513C | PE172-E110 | 9040E | 9769E | 9670 | 9798 | 980 |

† C & D Bundles will include 25599 fitting.

# High Tonnage
## POSI-LOCK®
## Hydrauic Pullers

### PTPH-100TDA

**Features and Benefits:**

- 700 bar electric 2 stage pump
- Remote jog switch with 3m cord
- 100 ton cylinder 700 bar with spring return (260.4 mm stroke)
- Hydraulic-actuated lift cart extends puller from ground to a height of 1.5m.
- Jaws are hydraulically controlled with cylinders
- Multiple pushing adapters:
  (1) 89mm diameter X 228.6mm
  (1) 89mm diameter X 482.6mm
  (1) 89mm diameter X 736.6mm
- Removable transport cart
- Puller can be used in horizontal and/or suspended vertical positions
- Adjustable jaw tips
- Adjustable jaw guides

## HIGH TONNAGE HYDRAULIC PULLERS

| SPX Part # | Cap (Ton) | # of Jaws | Puller Weight (kg) | Reach mm | Spread mm | Jaw Tip Width mm | Tip Clearance mm | Tip Depth | Cylinder Part # | Pump Part # | Gauge Part # | Hose Part # |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Single Acting** | | | | | | | | | | | | |
| PTPH-102T-E220 | 100 | 2 | 772 | 1270 | 1778 | 32 | 89 | 89 | C10010C | PE552-E220 | 9040E | 9769E |
| PTPH-102T-E110 | 100 | 2 | 772 | 1270 | 1778 | 32 | 89 | 89 | C10010C | PE552-E110 | 9040E | 9769E |
| PTPH-100T-E220 | 100 | 3 | 885 | 1270 | 1778 | 32 | 89 | 89 | C10010C | PE552-E220 | 9040E | 9769E |
| PTPH-100T-E110 | 100 | 3 | 885 | 1270 | 1778 | 32 | 89 | 89 | C10010C | PE552-E110 | 9040E | 9769E |
| PTPH-123T-E220 | 100 | 2/3 | 908 | 1270 | 1778 | 32 | 89 | 89 | C10010C | PE552-E220 | 9040E | 9769E |
| PTPH-123T-E110 | 100 | 2/3 | 908 | 1270 | 1778 | 32 | 89 | 89 | C10010C | PE552-E110 | 9040E | 9769E |
| PTPH-102TV-E220* | 100 | 2 | 817 | 1270 | 1778 | 32 | 89 | 89 | C10010C | PE552-E220 | 9040E | 9769E |
| PTPH-102TV-E110* | 100 | 2 | 817 | 1270 | 1778 | 32 | 89 | 89 | C10010C | PE552-E110 | 9040E | 9769E |
| **Double Acting** | | | | | | | | | | | | |
| PTPH-102TDA-E220 | 100 | 2 | 817 | 1270 | 1778 | 32 | 89 | 89 | RD10013 | PE554-E220 | 9040E | 9769E |
| PTPH-102TDA-E110 | 100 | 2 | 817 | 1270 | 1778 | 32 | 89 | 89 | RD10013 | PE554-E110 | 9040E | 9769E |
| PTPH-100TDA-E220 | 100 | 3 | 931 | 1270 | 1778 | 32 | 89 | 89 | RD10013 | PE554-E220 | 9040E | 9769E |
| PTPH-100TDA-E110 | 100 | 3 | 931 | 1270 | 1778 | 32 | 89 | 89 | RD10013 | PE554-E110 | 9040E | 9769E |
| PTPH-123TDA-E220 | 100 | 2/3 | 953 | 1270 | 1778 | 32 | 89 | 89 | RD10013 | PE554-E220 | 9040E | 9769E |
| PTPH-123TDA-E110 | 100 | 2/3 | 953 | 1270 | 1778 | 32 | 89 | 89 | RD10013 | PE554-E110 | 9040E | 9769E |
| PTPH-102DATV-E220* | 100 | 2 | 817 | 1270 | 1778 | 32 | 89 | 89 | RD10013 | PE554-E220 | 9040E | 9769E |
| PTPH-102DATV-E110* | 100 | 2 | 817 | 1270 | 1778 | 32 | 89 | 89 | RD10013 | PE554-E110 | 9040E | 9769E |
| PTPH-200T-E220** | 200 | 4 | 1884 | 1219 | 1778 | 32 | 89 | 89 | CONTACT FACTORY | | | |
| PTPH-200T-E110** | 200 | 4 | 1884 | 1219 | 1778 | 32 | 89 | 89 | CONTACT FACTORY | | | |
| PTPH-200T-E380** | 200 | 4 | 1884 | 1219 | 1778 | 32 | 89 | 89 | CONTACT FACTORY | | | |

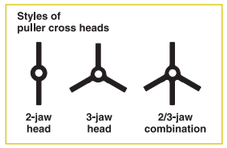
* Vertical Puller.
** Contact Factory for 200T Hydraulic Puller.

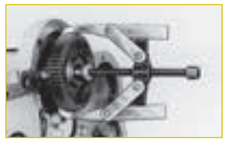
PULLERS

# Jaw Pullers
## MECHANICAL

## 2 & 3 Jaw Pullers

**Choosing the right size puller:** Compare the "reach" and "spread" of the pulling job with that of the pullers listed. The puller selected must have dimensions greater than those of the job.



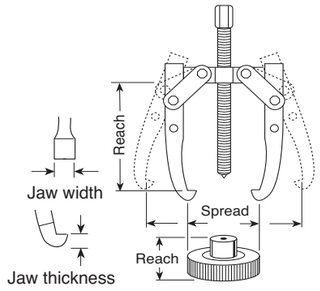




Pulling attachment


Shaft protector

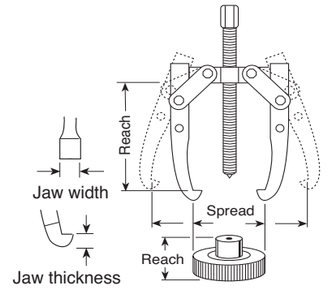
- Lock-Jaw™ feature on all pullers. The harder the pull, the tighter the grip for removing gears, bearings and countless other press fitted parts.
- 2-way, 3-way and 2/3 way combination pullers make it easy to select a specific puller for a specific application.
- Forged from high quality steel, heat treated and subjected to rigorous tests which exceed rated puller capacity.
- Meets Fed. Spec.: GGG-P-00781-D


Step plate




| | Order No. | Max. Reach (in.) | Max. Spread (in.) | Screw Size (in.) | Jaw Thickness (in.) | Jaw Width (in.) | Capacity, Style and Weight |
|---|---|---|---|---|---|---|---|
| 1020 1021 | 1020 | 2 1/8 | 3 1/4 | 5/16–24 x 3 7/8 | 9/64 | 1/4 | 1-Ton, 2-Jaw; 5 oz. |
| | 1021 | 2 1/8 | 3 1/4 | 5/16–24 x 3 7/8 | 9/64 | 1/4 | 1-Ton, 3-Jaw; 8 oz. |
| 1022 1023 | 1022 | 3 3/8 | 4 | 3/8–24 x 4 7/8 | Upper 3/16 Lower 1/8 | Upper 1/4 Lower 1/2 | 2-ton, 2-Jaw; 14 oz. (Reversible Jaws) |
| | 1023 | 3 3/8 | 4 3/4 | 3/8–24 x 4 7/8 | Upper 3/16 Lower 1/8 | Upper 1/4 Lower 1/2 | 2-ton, 2/3-Jaw; 1 lb., 5 oz. (Reversible Jaws) |
| 1024 1026 | 1024 | 3 1/4 | 6 | 9/16–20 x 6 15/16 | Upper 5/16 Lower 1/4 | Upper 3/8 Lower 3/4 | 5-Ton, 2-Jaw; 1 lb., 12 oz. (Reversible Jaws) |
| | 1026 | 3 1/4 | 7 | 9/16–20 x 6 15/16 | Upper 5/16 Lower 1/4 | Upper 3/8 Lower 3/4 | 5-Ton, 2/3-Jaw; 2 lbs., 12 oz. (Reversible Jaws) |

- Alloy steel heads are forged for maximum strength.
- Forcing screw threads are rolled, not cut. This process creates a smoother and stronger thread.
- Heat treated alloy steel cross bolts for maximum shear strength.
- Machined puller jaw toes produce larger and stronger pulling toes.




| | Order No. | Max. Reach (in.) | Max. Spread (in.) | Screw Size (in.) | Jaw Thickness (in.) | Jaw Width (in.) | Capacity, Style and Weight |
|---|---|---|---|---|---|---|---|
| 1025 1027 | 1025 | 5 1/2 | 6 | 9/16–20 x 6 15/16 | Upper 5/16 Lower 1/4 | Upper 3/8 Lower 3/4 | 5-Ton, Long 2-Jaw; 2 lbs. (Reversible Jaws) |
| | 1027 | 5 1/2 | 7 | 9/16–20 x 6 15/16 | Upper 5/16 Lower 1/4 | Upper 3/8 Lower 3/4 | 5-Ton, Long 2/3-Jaw; 3 lbs., 10 oz. (Rev. Jaws) |
| 1035 1037 | 1035 | 5 | 9 | 11/16–18 x 9 | Upper 5/16 Lower 11/32 | Upper 1 Lower 1 | 7-Ton, 2-Jaw; 4 lbs., 8 oz. (Reversible Jaws) |
| | 1037 | 5 | 10 1/2 | 11/16–18 x 9 | Upper 5/16 Lower 11/32 | Upper 1 Lower 1 | 7-Ton, 2/3-Jaw; 6 lbs., 2 oz. (Rev. Jaws) |
| 1036 1038 | 1036 | 8 3/4 | 9 1/2 | 11/16–18 x 9 | 11/32 | 1 | 7-Ton, Long 2-Jaw; 5 lbs., 6 oz. |
| | 1038 | 8 3/4 | 11 | 11/16–18 x 9 | 11/32 | 1 | 7-Ton, Long 2/3-Jaw; 8 lbs., 2 oz. |
| 1039/1040 1041/1042 | 1039 | 11 | 12 | 13/16–16 x 12 | 9/16 | 1 | 13-Ton, 2-Jaw; 10 lbs., 13 oz. |
| | 1040 | 15 1/4 | 15 1/2 | 13/16–16 x 12 | 9/16 | 1 | 13-Ton, Long 2-Jaw; 13 lbs. |
| | 1041 | 11 | 12 | 13/16–16 x 12 | 9/16 | 1 | 13-Ton, 2/3-Jaw; 16 lbs., 4 oz. |
| | 1042 | 15 1/4 | 17 | 13/16–16 x 12 | 9/16 | 1 | 13-Ton, Long 2/3-Jaw; 18 lbs., 12 oz. |
| 1043/1044 1045/1046 | 1043 | 14 1/2 | 14 | 1-14 x 13 1/2" | 9/16 | 1 | 17 1/2-Ton, Long 2-Jaw; 23 lbs. |
| | 1044 | 18 3/4 | 16 | 1–14 x 13 1/2" lg. | 13/16 | 1 9/32 | 17 1/2-Ton, Long 2-Jaw; 26 lbs. |
| | 1045 | 14 1/2 | 14 | 1–14 x 13 1/2 | 13/16 | 1 9/32 | 17 1/2-Ton, 3-Jaw; 33 lbs. |
| | 1046 | 18 3/4 | 16 | 1–14 x 13 1/2 | 13/16 | 1 9/32 | 17 1/2-Ton, Long 3-Jaw; 37 lbs. |
| 1048 1050 | 1048 | 22 1/4 | 20 | 1 1/4–12 x 16 5/8 | 1 1/16 | 1 1/2 | 25-Ton, Long 2-Jaw; 42 lbs., 12 oz. |
| | 1050 | 22 1/4 | 20 | 1 1/4–12 x 16 5/8 | 1 1/16 | 1 1/2 | 25-Ton, Long 3-Jaw; 60 lbs. |

For puller piece part identification, order Power Team parts catalog PC97

PULLERS

# Mechanical
## PUSH PULLERS

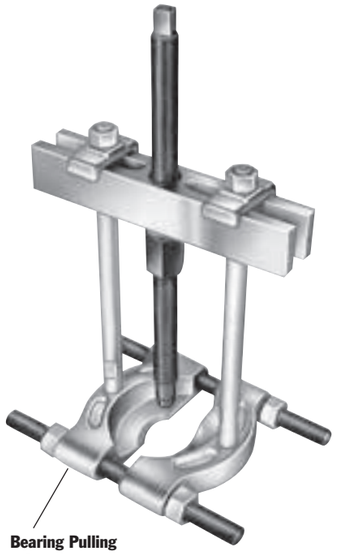
## 10, 17½, & 30 Ton Cap.

For removing and installing gears, bearings, pulleys and other press-fitted parts.

**Fed. Spec.: GGG-P-00781-D**

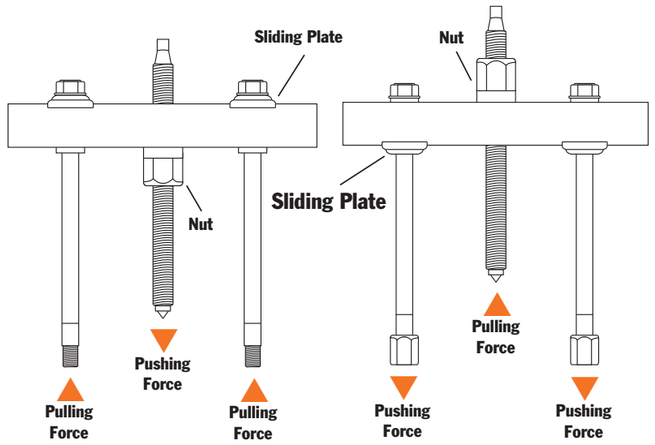
- Can apply a pushing or pulling force, depending on how the puller is set up.
- Optional leg kits adapt your Push-Puller® to extra long or extra short reach.
- A wide variety of threaded adapters, bearing pulling attachments and internal pulling attachments can be used in combination with our Push-Pullers.®

**Selection and capacity rating –** Each Push-Puller's specified tonnage "capacity" is determined using its standard legs in tension. Using longer legs, or a setup in which the legs are in compression, will reduce the "capacity". Always select the largest "capacity" puller and the shortest legs that will fit the job.




## ASSEMBLING THE TOOL TO APPLY PUSHING OR PULLING FORCE:

1. Determine if you want the tool's forcing screw to push or pull.
2. To exert pushing force, the forcing nut is installed beneath the cross block, as shown on left.
3. To cause the forcing screw to pull, the forcing nut is placed on top of the cross block.
4. The sliding plates must always be placed on the opposite side of the cross block from the forcing nut.



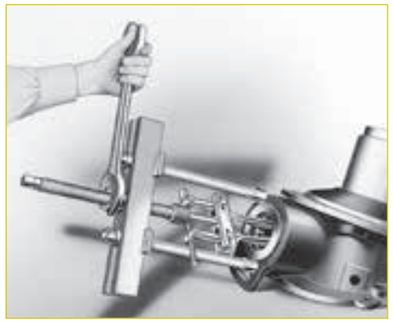


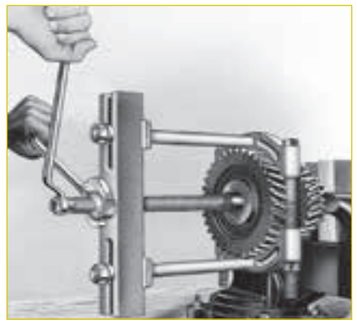
Male/Female

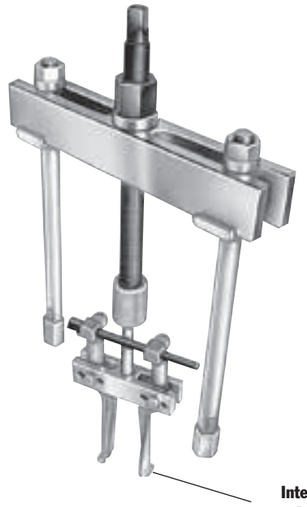

Step Plate


Shaft Protector


Female








**No. 927 – 10-Ton Capacity** can be used with No. 1123 bearing pulling attachment or No. 679 pulley pulling attachment. May also be used with Nos. 1150, 1151, 1152, or 1153 internal pulling attachments.

**No. 938 – 17½-Ton Capacity** can be used with Nos. 1124 and 1130 bearing pulling attachments or Nos. 679 and 680 pulley pulling attachments. May also be used with Nos. 1150, 1151, 1153, 1165, or 1166 internal pulling attachments.

**No. 939 – 30-Ton Capacity** can be used with Nos. 1126 and 1127 bearing pulling attachments or No. 680 pulley pulling attachment (two 8012 adapters are required to connect 680 to puller). Can be used with No. 1165 internal pulling attachment.

### 927

| Reach | Spread | Screw | Max. Size | Notes / Weight |
|---|---|---|---|---|
| 210 mm | 54 - 184 mm | ¾"–16 x 305 mm | ½" of forcing screw tip end is threaded ⅝"–18. No. 1100 legs and No. 24827 leg ends included. Wt., 3,2 kg. | |


| Order No. | Leg Length & Wt. | Order No. | Leg Length & Wt. |
|---|---|---|---|
| 1103 | 121 mm, 0,45 kg | 1102 | 298 mm, 1 kg |
| 1100 | 171 mm, 0,7 kg | 1101 | 400 mm, 1,5 kg |

Extra Legs (pair) for No. 927 Push-Puller (Reach equals leg length plus 50,8 mm with leg end caps.)

### 938

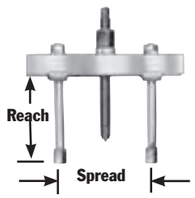
| Reach | Spread | Screw | Max. Size | Notes / Weight |
|---|---|---|---|---|
| 282 mm | 79–298 mm | 1"–14 x 336 mm | | Leg ends threaded ⅝"–18. No. 1106 legs and No. 24827 leg ends included. Wt., 9,4 kg |


| Order No. | Leg Length & Wt. | Order No. | Leg Length & Wt. |
|---|---|---|---|
| 1107 | 114 mm 1,1 kg | 1105 | 572 mm 4,1 kg |
| 1106 | 241 mm 2 kg. | 1108 | 762 mm 5,2 kg |
| 1104 | 419 mm 3 kg | | |

Extra Legs (pair) for No. 938 Push-Puller (Reach equals leg length plus 50,8 mm with leg end caps.)

### 939

| Reach | Spread | Screw | Max. Size | Notes / Weight |
|---|---|---|---|---|
| 267 mm | 178–413 mm | 1½"–12 x 438 mm | | Leg ends threaded 1"–14. No. 1109 legs and No. 28390 leg ends included. Wt., 20 kg |




| Order No. | Leg Length & Wt. | Order No. | Leg Length & Wt. |
|---|---|---|---|
| 1109 | 203 mm 3,6 kg | 1111 | 711 mm 10 kg |
| 1110 | 457 mm 6,8 kg | | |

Extra Legs (pair) for No. 939 Push-Puller (Reach equals leg length plus 66,7 mm with leg end caps.)

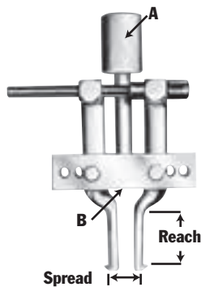
# Pulling
## ATTACHMENTS

## 38,1 - 228 mm Jaw Spreads

Recommended for the removal of bearings, bearing cups, bushings and oil seals.

- Handles internal pulling jobs, such as, bearing/bearing cup removal, bushing removal, oil seals, etc.
- Remove hard to get at parts easily and without damage!
- Use with corresponding Power Team Slide Hammer or Push-Puller.®
- Adjustable jaws fit various diameters

**Fed. Spec.: GGG-P-00781-D**




⚠ **CAUTION –** These attachments may not withstand the full tonnage of the pullers they are used with. The shape and condition of the part being pulled affects the tonnage at which the jaws may slip off. Always select the largest attachment which will fit behind the part being pulled.

| Order No. | Jaw Spread (mm) | Reach (mm) | A (in. – thd.) | B (in. – thd.) | Wt. (kg) | Application |
|---|---|---|---|---|---|---|
| **1153** | 38,1–127 | 54 | 1–14 | 5/8–18 | 1,9 | Use with Nos. 927 and 938 Push-Pullers, |
| **1150** | 38,1–152 | 102 | 1–14 | 5/8–18 | 2 | |
| **1151** | 38,1–178 | 133 | 1–14 | 5/8–18 | 2 | |
| **1152** | 38,1–152 | 102 | – | 5/8–18 | 1,6 | Use with Nos. 927 and 938 Push-Pullers, 1155 and 1156 slide hammer pullers, or 24832 and 24833 puller screw. |
| **1154** | 38,1–152 | 102 | 1–8 | 5/8–18 | 2 | Use with No. PPH17. |
| **1165** | 76,7–229 | 149 | 1 1/2–12 | 1–14 | 6,1 | Use with No. 939 Push-Puller. |
| **1166** | 76,2–229 | 149 | 1 1/4–7 | 1–14 | 6,1 | Use with No. PPH30. |
| | **Puller Screws** | | | | | |
| **24832** | 349 mm long | | 5/8–18 | 0,5 | | Use with Nos. 1150, 1151, 1152, and 1153. Acts as a regular forcing screw when threaded directly into block of pulling attachment. |
| **24833** | 140 mm long | | 5/8–18 | 0,2 | | Use with Nos. 1150, 1152, and 1153. Acts as a regular forcing screw when threaded directly into block of pulling attachment. |

PULLERS

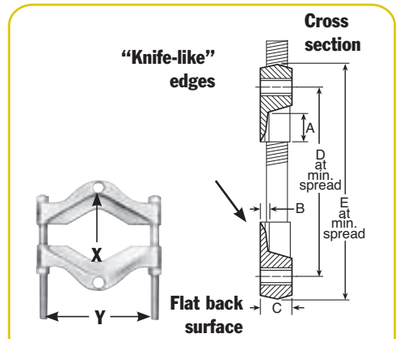
# Pulling
## ATTACHMENTS

## Bearing & Pulley

Used where space does not permit hooking puller jaws directly on part to be pulled.

- "Knife-like" edges fit behind bearings and other hard-to-grip parts for easy removal, even where clearance is limited.
- Usable with both Grip-O-Matic® jaw type pullers and Push-Pullers®.
- All puller blocks are made from forged alloy steel

**Fed. Spec.: GGG-P-00781-D**

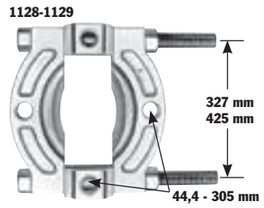



**Attachment clamps down into V-groove to distribute load. Use with Grip-O-Matic® pullers or Push-Pullers.**

**X =** Thread of tapped hole in adapter.
**Y =** Distance between adjusting screws.

| Order No. | Max. Spread (mm) | X (in.) | Y (mm) | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | Wt. (kg) | Application - (Use with Puller Nos.) |
|---|---|---|---|---|---|---|---|---|---|---|
| **1121** | 6,4-22,2 | 5/16–18 | 43 | 11,1 | 3,2 | 12,7 | 34,9 | 50,8 | 0,3 | 1020, 1022, and 1023. |
| **1122** | 3,2-51 | 3/8–16 | 62 | 11,1 | 4,0 | 15,9 | 50,8 | 69,9 | 0,6 | 1024, 1025, 1026, 1027, 7392 and 7393. |
| **1123** | 9,5-117 | 5/8–18 | 111 | 22,2 | 9,5 | 25,4 | 88,9 | 114,3 | 2.3 | 1035, 1036, 1037, 1038, and 927. |
| **1124** | 12,7-133 | 5/8–18 | 152 | 34,9 | 11,1 | 31,8 | 127 | 158,8 | 5,4 | 1039, 1040, 1041, 1042, PH172, PPH17, and 938. |
| **1126** | 16-203 | 1–14 | 181 | 34,9 | 17,5 | 34,9 | 146,1 | 190,5 | 9 | 1047, 1043, and 939. |
| **1127** | 19-340 | 1–14 | 260 | 44,5 | 17,5 | 44,5 | 158,8 | 215,9 | 18,8 | 1047, 1073, and 939. |
| **1128** | 127-327 | 1 3/4–12 | 330 | 44,5 | 19,1 | 57,2 | 327 | 406 | 45,4 | PH553C and PPH50. (When using 1128 with PPH50, two 8024 adapters are required to connect PPH50 to the puller tees.) |
| **1129** | 152-425 | 1 3/4–12 | 425 | 47,6 | 26,2 | 69,9 | 400,1 | 495,3 | 89,5 | 1079 and 1077. (see No.8024 adapter to connect legs of 1077 to puller tees of 1129). |
| **1130** | 12,7-219 | 5/8–18 | 152 | 34,9 | 11,1 | 31,8 | 127 | 158,8 | 5,4 | 1039, 1040, 1041, 1042, PH172, PPH17, and 938. |
| | | | | | **V-belt pulley pulling attachments** | | | | | |
| **679** | 45-149 | 5/8–18 | 152 | | | | | | 2 | 1035, 1036, 1037, 1038, and 927. |
| **680** | 42,3-254 | 5/8–18 | 257 | | | | | | 10,1 | 1039, 1040, 1041, 1042, 1047, PH172, PPH30* and 938. (When using 680 with PPH30, two 8012 adapters are required.) |

**Pulling attachment accessory –** "Knife-like" edges of attachment fit behind bearings or other parts for easy removal with "Enforcer 55", even if space does not permit hooking puller jaws directly to part being pulled.
**No. 1128 –** Spread: 127 to 327 mm. Wt., 45,5 kg.



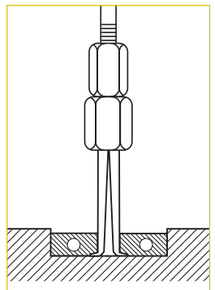
# Pullers
## SLIDE HAMMER



Set No. 981

**Blind hole puller set –** Removal of bearings, bushings, sleeves and other friction-fitted parts from blind holes can now be accomplished with ease. Set provides selection of expanding collets 8 to 44,5 mm I.D. Collet is placed through bore of part to be removed, then expanded with actuator pin so that lips of collet secure a positive grip for pulling. Pulling force is exerted by means of a forcing screw and bridge assembly or with a slide hammer.

**No. 981** – Blind-hole puller set with slide hammer, forcing screw, bridge, actuator pins, collets, and storage box. Wt., 9,5 kg.



blind hole puller example

| Order No. | Description | Order No. | Description |
|---|---|---|---|
| 24835 | Forcing Screw | 28253 | Actuator Pin (5 mm dia.) |
| 24836 | Forcing Screw Nut | 28256 | Actuator Pin (12,7 mm dia.) |
| 22185 | Hammer 1,1 kg. | 41331 | Bridge |
| 208627 | Shank & Tee Bar Assembly | 28323GY8 | Metal Box |
| 28250 | Actuator Pin (3,2 mm dia.) | 10419 | Metal Box |

| Order No. | Inch Range | MM Range | Order No. | Inc Range | MM Range |
|---|---|---|---|---|---|
| 33856* | 5/16" to 3/8" | 8 to 9.5 | 33861** | 3/4" to 7/8" | 19.1 to 22.2 |
| 33857* | 3/8" to 7/16" | 9.5 to 11.1 | 33862** | 7/8" to 1" | 22.2 to 25.4 |
| 33858** | 7/16" to 1/2" | 11.1 to 12.7 | 33863*** | 1" to 1 1/4" | 25.4 to 31.7 |
| 33859** | 1/2" to 5/8" | 12.7 to 15.9 | 33864** | 1 1/4" to 1 1/2" | 31.7 to 38.1 |
| 33860** | 5/8" to 3/4" | 15.9 to 19.1 | 33865*** | 1 1/2" to 1 3/4 | 38.1 to 44.4 |

*Use with 3 mm actuator pin. **Use with 4,8 mm actuator pin. ***Use with 12,7 mm actuator pin

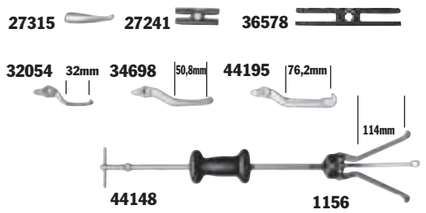
**Slide hammer puller set –** This very handy set is ideal for those close-quarter, inside pulling jobs. Very practical for pulling motor, generator, and magneto bearings. Also good for removing small-bore bushings, bearings, and oil seals.

**No. SS2** – Slide hammer puller set. Wt., 2,6 kg.

| Jaw Set | Inside Spread Min. (mm) | Inside Spread Max. (mm) |
|---|---|---|
| 1172 | 12,7 | 50,8 |
| 1174 | 12,7 | 34,9 |

**Slide hammer puller set –** This useful set contains a reversible-jaw slide hammer puller with a 1,1 kg sliding hammer plus an assortment of special jaws (3 of each size) and adapters. In this set, you get all the versatility you demand of a slide hammer puller.

**No. 1178** – Slide hammer puller set with 1,1 kg. sliding hammer. Wt., 6,3 kg.




| Jaw | 2-Jaw Spread Inside Min. (mm) | 2-Jaw Spread Inside Max. (mm) | 2-Jaw Spread Outside Min. (mm) | 2-Jaw Spread Outside Max. (mm) | 3-Jaw Spread Inside Min. (mm) | 3-Jaw Spread Inside Max. (mm) | 3-Jaw Spread Outside Min. (mm) | 3-Jaw Spread Outside Max. (mm) |
|---|---|---|---|---|---|---|---|---|
| 44195 | 38,1 | 114,3 | 19,1 | 127 | 38,1 | 120,7 | 25,4 | 114 |
| 32054 | 19,1 | 60.3 | – | – | 25,4 | 69.9 | – | – |
| 44148 | 69,9 | 139.7 | 19,1 | 191 | 82,6 | 158,8 | 25,4 | 159 |
| 34698 | 31,8 | 88,9 | 25,4 | 114 | 38,1 | 108 | 38,1 | 114 |

**Sliding hammers only** -

**No. 22185** – 1,1 kg sliding hammer.

**No. 34331** – 2,3 kg sliding hammer.

22185

34331

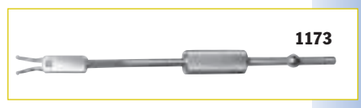
**Bearing cup remover –** The 7136 is perfect for pulling internal bearing cups, seals, bushings, etc. Jaw spread – 23,8 to 82,6 mm, reach to 88,9 mm.
Use with any slide hammer having 5/8"-18 thread (Power Team 1155, 1156 or 927 Push-Puller®).


**No. 7136** – Universal bearing cup remover. Wt., 0,7 kg.

**Pilot bearing pullers** -These very versatile pullers are built especially for inside pulling jobs, and particularly for removing flywheel pilot bearings on machines and construction vehicles. Also very practical for pulling motor, generator and magneto bearings.

**Special slide hammer puller –** Ideal for pulling jobs in very close quarters, as in removal of small-bore bushings, bearings, oil seals, etc. Internal pulling attachment has jaw spread of 12,7 to 35 mm. Handle end has a 1/2"– 20 thread.

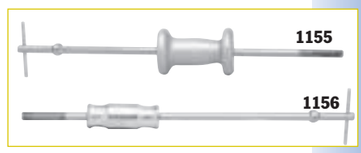
| Order | Reach | I.D. Spread Min. | I.D. Spread Max. | Wt. |
|---|---|---|---|---|
| 1170 | 19,1 | 12,7 | 38,1 | 2,2 |
| 1171 | 25,4 | 22,2 | 54 | 2,2 |
| 1172 | 44,5 | 12,7 | 50,8 | 2,2 |


**No. 1173** – Slide hammer puller. Wt., 1,6 kg.

**No. 1174** – Puller head, less slide hammer.

**Basic slide hammer units –** Compatible with internal pulling attachment
Compatible with threaded adapters . 610 mm length, 5/8"–18 threaded end.



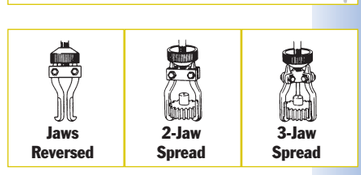

**No. 1155** – Basic slide hammer unit with 2,3 kg hammer. Wt., 3,3 kg.

**No. 1156** – Basic slide hammer unit with 1,1 kg hammer. Wt., 2,2 kg.

**Reversible-jaw slide hammer pullers –** Ideal for pulling gears, bearings, outer races, grease retainers, oil seals, etc. Two or three jaws may be used and positioned for "inside" or "outside" pulling jobs. Both have 5/8"– 18 threaded end so attachments and adapters may be used.

**No. 1176** – Slide hammer puller with 1,1 kg hammer, 27241 two-way head and 34698 jaws. Wt., 3,3 kg

**No. 1177** – Same as 1176 but with 2,2 kg hammer. Wt., 4,8 kg




| Order No. | 2 Jaw Spread Inside Min. (mm) | 2 Jaw Spread Inside Max. (mm) | 2 Jaw Spread Outside Min. (mm) | 2 Jaw Spread Outside Max. (mm) | 3 Jaw Spread Inside Min. (mm) | 3 Jaw Spread Inside Max. (mm) | 3 Jaw Spread Outside Min. (mm) | 3 Jaw Spread Outside Max. (mm) | Prod. Wt. (kg) | Overall Length (mm) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1176 | 31,8 | 88,9 | 25,4 | 114 | 38,1 | 108 | 38,1 | 114 | 3,6 | 686 |
| 1177 | 31,8 | 88,9 | 25,4 | 114 | 38,1 | 108 | 38,1 | 114 | 4,8 | 686 |



**Slide hammer pullers with cup pulling attachments –** These combine a basic slide hammer with No. 1152 internal pulling attachment for removing oil seals, outer races, and bearing cups from blind holes.

**No. 1157 –** Slide hammer puller consisting of 1156 slide hammer and 1152 internal pulling attachment.

**No. 1158 –** Same as 1157 but with 1155 slide hammer.

| Order No. | Reach Max. (mm) | Spread Min. (mm) | Spread Max. (mm) | Prod. Wt. (kg) | Overall Length (mm) |
|---|---|---|---|---|---|
| 1157 | 102 | 38,1 | 152 | 4,5 | 711 |
| 1158 | 102 | 38,1 | 152 | 5,6 | 711 |

# Puller Sets

Convenient, portable puller sets that go where you do.



**10 ton capacity Push-Puller® set –** Contains three popular Power Team bar-type pullers in one versatile set, packed in a handy plastic storage case. Tools included permit damage-free pulling of gears, bearings, harmonic balancers, and other parts having tapped holes. Ideal for servicing off-road construction equipment and machinery.

**Multi-purpose puller set –** This new assortment of pulling tools gives you a wide range of job versatility. You get a 2,2 kg slide hammer puller, hub puller, two sizes of Power Team Grip-O-Matic® jaw-type pullers, a bearing pulling attachment plus a cross-bar gear and pulley puller, all contained in a handy plastic storage case.

**Lock-on, jaw-type puller set –** Components can be assembled to create several versatile puller versions. The puller head is turned to securely lock the jaws onto the part being removed. Both a 2-way and 3-way puller head are included, plus three long-reach and three short-reach puller jaws in a plastic storage box. Easily removes gears, bearings and other press-fitted parts.

| Order No. | | Set Contents | Description |
|---|---|---|---|
| 1180 | 10 ton Push-Puller® set, in plastic storage case. Wt., 11,4 kg. | 927 | 10 Ton Push-Puller®; 213 mm reach, 54 to 184 mm spread. Comes with 171 mm puller legs, other leg sizes are available separately |
| | | 522 | Gear and pulley puller; spread range when used with 12,7 mm cap screws: 50,8 to 197 mm. Cap screws not included. |
| | | 7393 | Gear and pulley puller with standard 140 mm forcing screw, plus special 330 mm forcing screw. Includes two hex head cap screws, 3/8 "-16 x 76,2 mm long. Spread range: 38 to 180 mm. |
| 1181 | Multi-purpose puller set. Wt., 11,4 kg. | 1177 | Slide hammer puller with 2,2 kg hammer, 2-way and 3-way heads. Reversible: either two or three jaws may be used to handle both "inside" and "outside" pulling jobs. |
| | | 7208 | Hub puller. Includes a spare locknut which permits use with No. 1177 slide hammer. |
| | | 1023 | 2 ton combination 2- or 3-jaw Grip-O-Matic® puller. Has 86 mm max. reach, 121 mm max. |
| | | 1027 | 5 ton combination 2- or 3-jaw Grip-O-Matic® puller. Has 140 mm max. reach, 178 mm max. spread. |
| | | 7393 | Bar-type gear and pulley puller with 140 mm long screw. Includes two hex head cap screws, 3/8"-16 x 76 mm long. Spread range: 38 to 108 mm. |
| | | 1122 | Bearing pulling attachment for use with No. 1027 and No. 7393 pullers. Has 50,8 mm max. spread, 3 mm min. spread. |

**1182** Jaw-type puller set. Wt., 3,1 kg

| Puller Jaws Order | 2-Jaw Inside* Min. (mm) | 2-Jaw Inside* Max. (mm) | 2-Jaw Outside Min. (mm) | 2-Jaw Outside Max. (mm) | 3-Jaw Spread Inside* Min. (mm) | 3-Jaw Spread Inside* Max. (mm) | 3-Jaw Spread Outside Min. (mm) | 3-Jaw Spread Outside Max. (mm) |
|---|---|---|---|---|---|---|---|---|
| 44195 | 38 | 114 | 19 | 127 | 38,1 | 121 | 25,4 | 114 |
| 44148 | 70 | 140 | 19 | 191 | 83 | 159 | 25,4 | 159 |

* Can be used for internal pulling tasks when used with a slide hammer.

# Puller Sets
## STRONG BOX

### 10 Ton Cap
Push-Pullers®, 2/3 Jaw Pullers & Specialty Pullers

Have the puller you need on hand, when you need it, protected from unauthorized users.



IPS10B

**10 ton capacity Strong Box puller set –** Here's a set of pullers that gives you almost unheard of versatility. This rugged, lockable metal storage cabinet contains pullers, attachments and extra puller jaws good for a variety of applications. Cabinet may be mounted on a wall, stand, or workbench.

IPS10HB

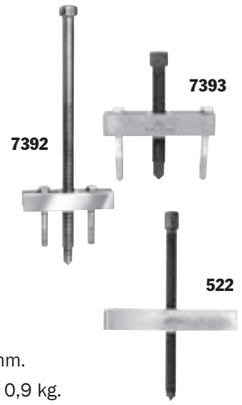
**10 ton capacity hydraulic/manual puller set in Strong Box –** This lockable metal Strong Box contains both hydraulic and manual pullers, plus attachments. The rugged storage cabinet keeps the tools organized and secure from unauthorized borrowers!

- Have the puller you need on hand, when you need it, protected from unauthorized or casual borrowers.
- Almost unheard of versatility
- Rugged, lockable storage cabinet.
- Wall, stand or workbench mountable.

| Order No. | Set Contents | Description |
|---|---|---|
| IPS10B<br>Cabinet (654 x 749 x 254 mm) with tool board, adapter board, and tool set. Wt., 44,5 kg. | 927 | 10 ton capacity Push-Puller® with 172 mm legs |
| | 1027 | 5 ton combination 2/3-jaw puller |
| | 1037 | 7 ton combination 2/3-jaw puller |
| | 1101 | 400 mm puller legs (pair) |
| | 1122 | Bearing pulling attachment |
| | 1123 | Bearing pulling attachment |
| | 1152 | Internal pulling attachment |
| | 7393 | Gear and pulley puller |
| | 8005, 8006, 8007, 8010 8013, 8015, 8019 | Male/female threaded Adapters (2 ea.) |
| | 8035, 8037, 8038, 8039, 8040 | Female threaded adapters |
| | 8050 thru 8053 | Shaft protectors |
| | 8057 thru 8062 | Step plate adapters |
| | 43892 | Long jaws for 1037 (3) |
| | 212867 | Cabinet, tool board and adapter board |
| IPS10HB<br>Cabinet (654 x749 x 254 mm) with tool board, pullers, and hydraulics. Wt., 44,5 kg. | *PH103C | 10 ton combination 2/3-jaw hydraulic puller |
| | 1027 | 5 ton combination 2/3-jaw puller |
| | 1042 | 13 ton combination 2/3-jaw puller |
| | 1177 | Slide hammer puller |
| | 44148 | 3 jaws for slide hammer puller (114 mm) |
| | 44195 | 3 jaws for slide hammer puller (76 mm) |
| | 36578 | Slotted cross head for slide hammer puller |
| | 27315 | Seal hook for slide hammer puller |
| | 1152 | Internal pulling attachment (38 to152 mm spread) |
| | 24832 | Forcing screw for 1152 |
| | 215315 | Cabinet and tool board |

# Adapters

## Specialty Pullers & Metric




**Gear and pulley pullers –** Ideal for pulling many small parts having tapped holes. The Nos. 7392 and 7393 may be used with the No. 1122 pulling attachment to remove bearings, etc. Pullers include two hex head cap screws, 3/8" – 16 NC x 76 mm long. Spread: 38 – 108 mm. Width of puller block is 124 mm. Cap screws are not included with the No. 522, but any cap screws up to 12,7 mm diameter may be used. No. 522 spread, when used with 12,7 mm dia. cap screws, is 51–197 mm. Width of the No. 522 puller block is 209 mm.

**No. 7392** – Puller with 5/8"-18 x 330 mm long screw. Wt., 0,9 kg.

**No. 7393** – Puller with 5/8"-18 x 140 mm long screw. Wt., 0,7 kg

**No. 522** – Puller with 3/4"-16 x 295 mm long screw. Wt., 2 kg


**4-in-1 puller set –** You can quickly assemble a 2- or 3-jaw puller with standard or long reach jaws.

**No. PA7** – Four-In-One puller set, 7 ton capacity. Standard jaw max. reach is 127 mm. Maximum spread is 267 mm. Long jaw maximum reach is 222 mm. Maximum spread is 279 mm., 4,9 kg


**Flange type puller –** Slotted holes in puller body permit cap screws to be positioned to handle bolt-circle diameters from 38 –117 mm.

**No. 518** – Flange type puller. Includes 3 cap screws, 3/8" – 24 NF x 76 mm long and 3 cap screws 3/8" – 16 NC x 76 mm long. Forcing screw is 5/8"-18 x 127 mm long Wt., 1,5 kg.

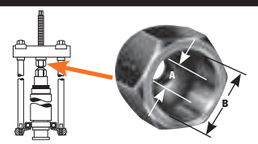
**Metric adapters –** Add metric capability to your Push-Puller® legs or forcing screws! Four separate metric kits available with a variety of sizes for your Push-Puller® legs or forcing screws! Each packaged in a convenient plastic organizer case.

| Order No. | Kit Contents | Female End | Male End | Length (mm) | Order No. | Kit Contents | Female End | Male End | Length (mm) |
|---|---|---|---|---|---|---|---|---|---|
| **No. 8110** Male Metric Wt., 1,4 kg | 8111 | 5/8"-18 | M6 x 1.0 | 57,2 | **No. 8120** Male Metric Wt., 1,3 kg | 8121 | 5/8"-18 | M14 x 1.5 | 57 |
| | 8112 | 5/8"-18 | M8 x 1.0 | 57,2 | | 8122 | 5/8"-18 | M14 x 2.0 | 57 |
| | 8113 | 5/8"-18 | M8 x 1.25 | 57,2 | | 8123 | 5/8"-18 | M16 x 1.5 | 70 |
| | 8114 | 5/8"-18 | M10 x 1.25 | 57,2 | | 8124 | 5/8"-18 | M16 x 2.0 | 70 |
| | 8115 | 5/8"-18 | M10 x 1.50 | 57,2 | | 8125 | 5/8"-18 | M20 x 1.5 | 70 |
| | 8116 | 5/8"-18 | M12 x 1.25 | 57,2 | | 8126 | 5/8"-18 | M20 x 2.5 | 70 |
| | 8117 | 5/8"-18 | M12 x 1.75 | 57,2 | | | | | |

**Note:** The adapters in each of these sets are also available separately.

**Female threaded adapters -** Use these adapters on the ends of Push-Puller® forcing screws, legs, or slide hammers in the removal and installation of shafts, axles, and housings.

**Set No. 8044 –** consists of a set of 6 adapters (Nos. 8037-8042)

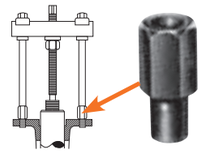



| Order No. | Female End "A" | Female End "B" | Order No. | Female End "A" | Female End "B" |
|---|---|---|---|---|---|
| 8035* | 1/2"-20 | 5/8"-18 | 8040 | 5/8"-18 | 1"-14 |
| 8036* | 1"-14 | 1"-14 | 8041 | 5/8"-18 | 1 1/8"-12 |
| 8037 | 5/8"-18 | 5/8"-18 | 8042 | 5/8"-18 | 1 1/4"-12 |
| 8038 | 5/8"-18 | 3/4"-16 | 8043* | 5/8"-18 | 1 1/2"-12 |
| 8039 | 5/8"-18 | 7/8"-14 | | | |

**Note:** All adapters available separately.

*Not included in set No. 8044. Order separately.

**Male-female threaded adapters –** These adapters are used on ends of Push-Puller® legs, with forcing screws or slide hammers to assist in pulling shafts, bearing caps, pinions, and many other parts.



**Fed. Spec.: GGG-P-00781-D**

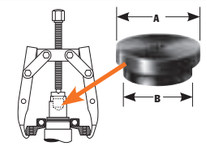
| Order No. | Female End | Male End | Length (mm) | Order No. | Female End | Male End | Length (mm) |
|---|---|---|---|---|---|---|---|
| **8000** | 5/8"-18 | 1/4"-20 | 57,2 | **8015** | 5/8"-18 | 3/4"-10 | 57,2 |
| **8001** | 5/8"-18 | 5/16"-18 | 57,2 | **8016** | 1"-14 | 3/4"-10 | 63,5 |
| **8002** | 5/8"-18 | 7/16"-14 | 57,2 | **8017** | 5/8"-18 | 7/8"-14 | 57,2 |
| **8003** | 5/8"-18 | 7/16"-20 | 57,2 | **8018** | 5/8"-18 | 7/8"-9 | 57,2 |
| **8004** | 5/8"-18 | 3/8"-24 | 57,2 | **8019** | 5/8"-18 | 1"-14 | 57,2 |
| **8005** | 5/8"-18 | 3/8"-16 | 57,2 | **8020** | 1"-8 | 5/8"-18 | 76,2 |
| **8006** | 5/8"-18 | 1/2"-20 | 57,2 | **8021** | 1"-8 | 1"-14 | 76,2 |
| **8007** | 5/8"-18 | 1/2"-13 | 57,2 | **8022** | 5/8"-18 | 1/8" pipe | 57,2 |
| **8008** | 5/8"-18 | 9/16"-18 | 57,2 | **8023** | 1 1/4"-12 | 1"-14 | 114,3 |
| **8009** | 5/8"-18 | 9/16"-12 | 57,2 | **8024** | 1 1/4"-12 | 1 3/4"-12 | 114,3 |
| **8010** | 5/8"-18 | 5/8"-11 | 57,2 | **8025** | 1 1/4"-7 | 5/8"-18 | 101,6 |
| **8011** | 1"-14 | 5/16"-11 | 63,5 | **8027** | 1 1/4"-7 | 1"-14 | 101,6 |
| **8012** | 1"-14 | 5/8"-18 | 81 | **8028** | 1 5/8"-5 1/2 | 1"-8 | 101,6 |
| **8013** | 5/8"-18 | 3/4"-16 | 57,2 | **8029** | 1 5/8"-5 1/2 | 1"-14 | 101,6 |
| **8014** | 1"-14 | 3/4"-16 | 63,5 | | | | |

**Note:** Nos. 8000–8029 – each sold individually.

**Step plate adapter sets –** Power Team step plate adapters are necessary for pulling and installing bearings, gears, or other parts on hollow shafts or housings. Puller screw forces against step plate adapter, as shown at right. May be used with Power Team jaw-type pullers, Push-Pullers® and shop presses.

**Set No. 8075** – set of 11 adapters (Nos. 8057-8067).

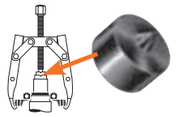
**Set No. 8076** – set of 6 adapters (Nos. 8068-8073).



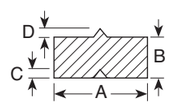

| Order No. | Set No. 8075 Dia."A" (mm) | Set No. 8075 Dia."B" (mm) | Order No. | Set No. 8075 Dia."A" (mm) | Set No. 8075 Dia."B" (mm) | Order No. | Set No. 8076 Dia."A" (mm) | Set No. 8076 Dia."B" (mm) |
|---|---|---|---|---|---|---|---|---|
| **8057** | 25,4 | 19,1 | **8063** | 47,5 | 38,1 | **8068** | 66,5 | 53,8 |
| **8058** | 28,4 | 22,1 | **8064** | 50,8 | 41,1 | **8069** | 69,9 | 57,2 |
| **8059** | 31,8 | 25,4 | **8065** | 53,8 | 44,5 | **8070** | 72,9 | 60,3 |
| **8060** | 34,8 | 28,4 | **8066** | 60,2 | 47,5 | **8071** | 76,2 | 63,5 |
| **8061** | 41,1 | 31,8 | **8067** | 63,5 | 50,8 | **8072** | 82,6 | 69,9 |
| **8062** | 44,5 | 34,8 | | | | **8073** | 88,9 | 76,2 |

**Shaft protector set --** Power Team shaft protectors are designed to protect shaft centers from distortion when extreme pressures are applied with jaw-type pullers or Push-Pullers®. Shaft protectors are inserted between the end of the puller screw and the shaft.

**Set No. 8056** – Set of 6 shaft protectors (Nos. 8050 thru 8055).



| Order No. | "A" (mm) | "B" (mm) | "C" (60°) (mm) | "D" (60°) (mm) | Order No. | "A" (mm) | "B" (mm) | "C" (60°) (mm) | "D" (60°) (mm) |
|---|---|---|---|---|---|---|---|---|---|
| **8050** | 38,1 | 19,1 | 9,4 | 11,1 | **8053** | 19,1 | 19,1 | 6,4 | 6,4 |
| **8051** | 31,8 | 19,1 | 9,4 | 9,4 | **8054** | 15,7 | 15,7 | 6,4 | 6,4 |
| **8052** | 25,4 | 19,1 | 9,4 | 7,9 | **8055** | 15,7 | 15,7 | 4,8 | 4,8 |

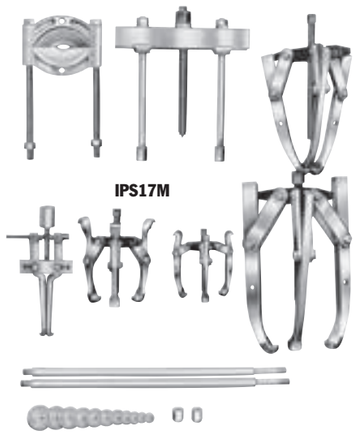


# Puller Sets
## MANUAL

## 10 & 17½ Ton

**10 ton manual puller set –** This puller set is just what you need for removing gears, bearings, etc. Includes pullers, attachments, and many accessories.

IPS10M



IPS17M

**17½ ton manual puller set –** The pullers and accessories in this set can be used for hundreds of applications including quick and easy maintenance involving removal and replacement of press-fit parts.

| Manual Puller Set No. Order No. | Set Contents | Pullers | Set Contents | Accessories |
|---|---|---|---|---|
| **IPS10M** 10 ton capacity Wt., 24 kg. | **927** | 10 ton capacity Push-Puller® with 171 mm legs | **8075** | Step plate adapter set |
| | **1023** | 2 ton combination 2/3-jaw puller | **8044** | Female threaded adapter set |
| | **1026** | 5 ton combination 2/3-jaw puller | **8035** | Female threaded adapter: ½"–20 x ⅝"–18 |
| | **1027** | 5 ton combination 2/3-jaw puller | **1151** | Bearing cup pulling attachment |
| | **1037** | 7 ton combination 2/3-jaw puller | **1121** | Bearing pulling attachment |
| | **1178** | Slide hammer set | **1122** | Bearing pulling attachment |
| | | | **1123** | Bearing pulling attachment |
| | | | **1101** | 400 mm long puller legs for 927 (pr.) |
| **IPS17M** 17½ ton capacity Wt., 52,7 kg. | **938** | 17½ ton capacity Push-Puller® with 241 mm legs | **8075** | Step plate adapter set |
| | **1027** | 5 ton combo 2/3-jaw puller, with long jaws | **1105** | 572 mm legs for 938 |
| | **1037** | 7 ton combination 2/3-jaw puller | **1130** | Bearing pulling attachment |
| | **1041** | 13 ton combination 2/3 jaw puller | **1151** | Bearing cup pulling attachment |
| | **1045** | 17½ ton 3-jaw puller | **8038** | Female adapter: ⅝"–18 F. x ¾"–16 F. (2) |

# Protective Blankets
## and Security Chests

PB1230C

**Power Team protective blanket –** Our blankets are designed to contain broken or flying parts from the most extreme forces, thus resulting in a much safer work environment.

**Testing results –** In our lab, this style of blanket held the parts of a necked-down grade 8 bolt, which shattered in a 100 ton center-hole hydraulic cylinder. The blanket sustained no visible damage when shot with a force and impact that shattered safety glasses!

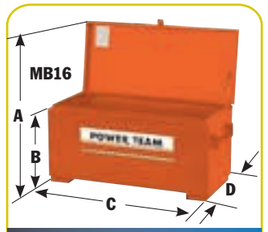
- Effectively contain broken or flying parts from the most extreme pulling, pressing, pushing or stressing forces.
- Ideal for use with pullers and forcing presses.
- Made of see-through, high-tensile, tear resistant material.
- Unlike rigid, fixed guards, these blankets can be wrapped and strapped around a job.
- The clear protective blankets allow you to visually monitor the job from start to finish.
- Protective blankets come in a carrying/storage pouch to reduce aging caused by prolonged exposure to light.

Protect yourself and your equipment.

| Order No. | Size (mm) | Number of Straps | Wt. (kg) |
|---|---|---|---|
| **PB1230C** | 305 x 762 | 2 | 1,3 |
| **PB2036C** | 508 x 914 | 2 | 1,9 |
| **PB2860** | 711 x 1.524 | 3 | 4,2 |
| **PB3372C** | 838 x 1.829 | 3 | 5,3 |
| **PB44120C** | 1.118 x 3.048 | 4 | 10,9 |
| **PB51156C** | 1.295 x 3.962 | 4 | 15,5 |

**Note:** Custom sizes are available on a special order basis. Please consult factory.

**Job-site and maintenance security chests –** Protect your valuable tools and equipment from theft and weather. When the day's work is finished, you want to rest assured that your tools and equipment will be present the next day. In these times, security is a real concern. These rugged, lockable chests are the answer that many of our customers have been asking for.




- Rugged, 1,6 mm steel construction with fully arc welded seams for extra strength and weather protection.
- Full length piano hinges, mating cover to body, protect against weather and theft.
- Single or double latch security tabs for padlocks.
- Mechanical cover supports, two 57 mm high skids.
- Fold-down 19 mm pipe handles on each end of chest.
- Pre-drilled for optional casters, which enhance mobility.
- Durable baked enamel finish.

| Order No. | Dimensions A (mm) | B (mm) | C (mm) | D (mm) | Cap. (cu. m) | Storage Wt. (kg) | Optional Caster Wheels |
|---|---|---|---|---|---|---|---|
| **MB5** | 883 | 356 | 813 | 483 | 0,14 | 30 | **No. 251646–** Set of four 102 mm casters (two swivel and two rigid). Furnished with mounting screws. Wt., 5,7 kg. |
| **MB8** | 1.010 | 483 | 1.670 | 483 | 0,25 | 40,9 | |
| **MB16** | 1264 | 610 | 1.219 | 610 | 0,45 | 57,2 | **No. 251647 –** Set of four 152 mm casters (two swivel and two rigid). Furnished with mounting screws. Wt., 7 kg. |

# Hydra Grip-O-Matic®
## USE WITH 2/3 JAW PULLERS

## 6, 8, 11 & 30 Ton

A self contained pulling system in a compact package



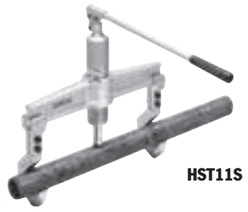
PH82K

PH303C

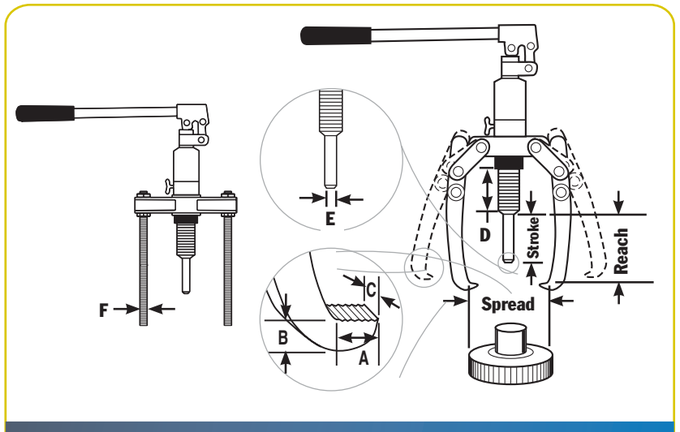
PH63C

- You get the world's most copied puller design; the harder the pulling force, the tighter the jaws grip for secure holding force.
- Power Team pullers are tested for top performance and reliability at maximum capacity and jaw spread.
- Removing a wide variety of gears, bearings, bushings, pulleys and other press-fitted parts becomes a routine task.
- Easily metered release valve control knob.
- Spring loaded live centering cone.
- Bladder type oil reservoir.
- Rapid adjustment.
- Use with 2 or 3 jaws.
- Supplied with a sturdy storage/carrying case.
- Features Power Team's exclusive Marathon Limited Lifetime Warranty

**Hydra Grip-O-Matic® pulling system -** These pullers are ideal for pulling a wide variety of press-fitted parts including bushings, bearings, wheels, gears and pulleys. Applications can be found in a wide variety of industries as well. Grip-O-Matic® pullers have been rigorously tested for top performance and reliability. PH82K is a complete pulling system which includes a hydraulic power module, 2-way puller head, jaws, legs and bearing splitter attachment; all contained in a convenient carrying case.



HST11S




| Cyl. Cap. (tons) | Order No. | Reach Studs (mm) | Reach Jaws (mm) | Min. Reach (mm) | Max. Studs (mm) | Spread Jaws (mm) | Stroke (mm) | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (in.) | Wt. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | **PH63C** | -- | 152 | -- | -- | 200 | 80 | 11 | 6,4 | 22 | 83 | 22 | — | 4,9 |
| 8 | **PH83C** | -- | 190 | -- | — | 249 | 80 | 11 | 9,5 | 25,4 | 83 | 22 | -- | 6,6 |
| 15 | **PH113C** | — | 229 | -- | — | 280 | 80 | 14,3 | 9,5 | 29 | 83 | 29 | -- | 8,0 |
| 30 | **PH303C** | 266,7 | 375 | -- | -- | 540 | 110 | 27 | 36,5 | 38 | 170 | 54 | 5/8-18 UNF | 32,3 |
| 8 | **PH82K** | 266,7 | 207 | 125 | 300 | 245 | 80 | 52 | 25,4 | 16 | 83 | 22 | 5/8-18 UNF | 9,5 |
| 11 | **HST11S** | — | 150 | -- | — | 102-410 | 80 | — | — | — | 65 | 29 | — | 14,5 |



# Puller
## Accessories

K82

**Hydra Grip-O-Matic® puller accessory kits –** K82 accessory kit for the Hydra-Grip-O-Matic® puller No. PH83C. Includes 2-way puller head, 2 jaws, 2 threaded legs and sturdy carrying/storage case.

**No. K82 –** Accessory kit for PH83C Grip-O-Matic® hydraulic puller. K83 2/3 way head accessories kit for a Hydra Grip-O-Matic® puller No. PH83C. Includes 2/3 way puller head, 3 jaws, 3 threaded legs (5/8-18 thread) and sturdy carrying/ storage case. Also can be used with 1123, 1124, 1130 pulling attachments.

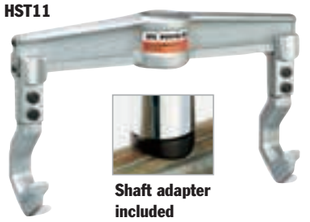
**No. K83 –** Accessory kit for PH83C Grip-O-Matic® hydraulic puller.

K83

**Puller Accessory converts PH113C into a Hydraulic Straightening Tool –** Portable...Good for straightening mechanical shafts, round bars, etc. Simply remove pump and cylinder from puller head and insert them into the straightening tool accessory. This product is widely used in steel mills, wire roll companies, wire extruding companies, textile industry, and any straightening situation where portability and power are required. Contoured heat-treated shaft adapter included.

**No. HST11 –** Spread: 89 to 410 mm, Reach: 150 mm. Wt., 9,5 kg.

HST11



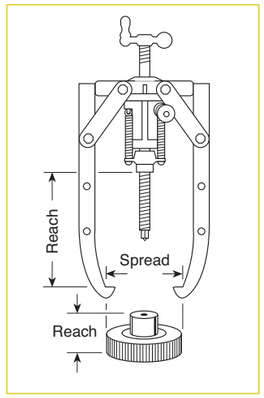
Shaft adapter included

**Long jaw set for PH83C and PH113C Grip-O-Matic® pullers –** This long jaw set is the perfect addition to the PH83C or PH113C Grip-O-Matic® hydraulic pullers. The extra long jaws give you the added capability of pulling a wider variety of parts. Jaw capacity is 8 tons when used with the PH83C puller; 15 tons when used with the PH113C puller.

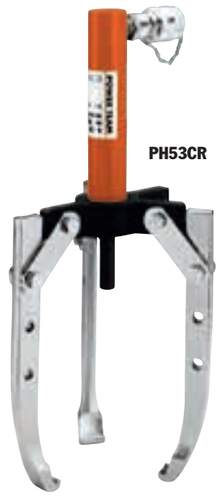
**No. 1188 –** Spread: 280 to 317 mm, Reach: 317 mm.

# Pullers
## HYDRAULIC

## 5, 10, 17½, 30 & 50 Ton




- Remove gears, bearings, and other press-fitted parts with speed and ease.
- Broad capacity range of 5, 10, 17½, 30 and 50 tons.
- 5 and 10 ton sets include: single-acting, spring return hydraulic cylinder with hose, coupler and dust cap; single-speed hydraulic hand pump; puller.
- 17½, 30 and 50 tons sets include: Power-Twin® single acting, spring return hydraulic cylinder with hose, coupler and dust cap; single-speed hydraulic hand pump; puller, adjusting screw and crank.
- Hydraulic cylinder of all models is readily removable from puller for use with pump in other hydraulic applications. You get maximum maintenance versatility for your investment.





**Fed. Spec.: GGG-P-00781-D**

**5 ton capacity, 2/3 jaw puller –**

**No. PH53C** – Combination 2-jaw/3-jaw puller set. Includes 1057 5 ton puller, RPS55 hydraulic set (C55C cylinder, P12 700 bar hand pump, fittings, coupler, and 1,8 m hose), and 309874 pushing adapter. Wt., 9,1 kg.

**No. PH53CR** – Combination 2-jaw/3-jaw puller set. Includes 1057 5 ton puller, C55C cylinder, and 309874 pushing adapter. Wt., 5,5 kg

**No. 1057** – 5 ton cap. 2-jaw/3-jaw puller only. Wt., 3,5 kg.

**Available components -**

**No. 309874** – 15,9 mm diameter pushing adapter. (Included with PH53C and PH53CR hydraulic puller sets.) Wt., 0,3 kg.

**No. 309875** – 22,2 mm diameter pushing adapter. Wt., 0,3 kg.

**No. 47997** – 2-way/3-way puller head. (Can be used to convert No. 1038 7 ton manual puller into a 5 ton hydraulic puller.) Wt., 1,1 kg.

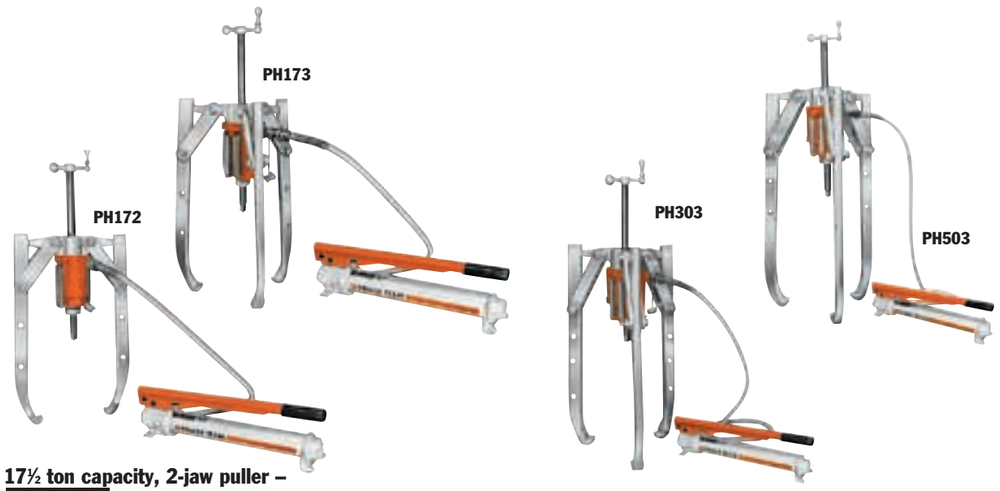
**10 ton capacity, 2/3 jaw puller -**

**No. PH103C** – Combination 2-jaw/3-jaw puller; 10 ton capacity. Set includes 1060 10 ton puller, RPS1010 cylinder and pump set, 202179 threaded adapter, and 34602 pushing adapter. Wt., 23,6 kg.

**No. PH103CR** – Combination 2-jaw/3-jaw puller, 10 ton capacity. Set includes 1060 10 ton puller, 202179 threaded adapter, 34602 pushing adapter, and C1010C cylinder only. (Pump and hose not included.) Wt., 14,5 kg.

**No. 1060** – Combination 2-jaw/3-jaw puller only; 10 ton capacity. (Cylinder and pump set, hose, coupler, and adapter No. 202179 not included.) Wt., 7,7 kg.

**NOTE:** This puller may be used with any 10 ton single-acting cylinder having a 2¼"–14 straight collar thread.




**17½ ton capacity, 2-jaw puller –**

**No. PH172** – 2-jaw puller with RT172 center-hole Power-Twin® cylinder, cylinder half coupler, P55 pump, 1,8 m hose, hose half coupler, 1"– 8 x 508 mm long adjusting screw, and adjusting crank. Wt., 27,7 kg.

**No. 1064** – Puller only. (Cylinder, pump, hose, coupler, screw, and crank not included). Wt.,10 kg.

**17½ ton capacity, 3-jaw puller –**

**No. PH173** – 3-jaw puller with RT172 center-hole Power-Twin® cylinder, cylinder half coupler, P55 pump, 1,8 m hose, hose half coupler, 1"– 8 x 508 mm long adjusting screw, and adjusting crank. Wt., 34 kg.

**No. PH173R** – 3-jaw puller with screw and crank, and RT172 center-hole twin cylinder. Wt.,25,4 kg .

**No. 1066** – Puller only. (Cylinder, pump, hose, coupler, screw, and crank not included). Wt., 16,3 kg.

**30 ton capacity, 3-jaw puller –**

**No. PH303** – 3-jaw puller with RT302 center-hole Power-Twin® cylinder, cylinder half coupler, P55 pump, 1,8 m hose, hose half coupler, 1¼"– 7 x 610 mm lg. adjusting screw, and adjusting crank. Wt., 67,7 kg.

**No. PH303R** – 3-jaw puller with screw and crank, and RT302 center-hole twin cylinder. Wt., 59 kg.

**No. 1074** – Puller only. (Cylinder, pump, hose, coupler, screw, and crank not included). Wt., 40,9 kg.

**50 ton capacity, 3-jaw puller –**

**No. PH503** – 3-jaw puller with RT503 center-hole Power-Twin® cylinder, cylinder half coupler, P55 pump, 1,8 m hose, hose half coupler, 1⅝"– 51/2 x 772 mm long adjusting screw, and adjusting crank. Wt., 130 kg.

**No. 1080** – 3-jaw puller only. (Cylinder, pump, hose, coupler, screw, and crank not included). Wt., 86,7 kg.

**PULLER ONLY**

| Order No. | Cap. (Tons) | Jaws | Jaw Reach (mm) | Jaw Spread (mm) | Jaw Thickness (mm) | Jaw Width (mm) | Wt. (kg) |
|---|---|---|---|---|---|---|---|
| **1057** | 5 | 2/3 | 222 | 292 | 8,7 | 25 | 3,5 |
| **1060** | 10 | 2/3 | 381 | 432 | 14,3 | 25 | 7,7 |
| **1064** | 17½ | 2 | 292 | 406 | 20,6 | 32,5 | 10 |
| **1066** | 17½ | 3 | 292 | 508 | 20,6 | 32,5 | 16,3 |
| **1074** | 30 | 3 | 494 | 864 | 28,6 | 41,3 | 40,9 |
| **1080** | 50 | 3 | 702 | 1.118 | 35,7 | 47,6 | 86,7 |

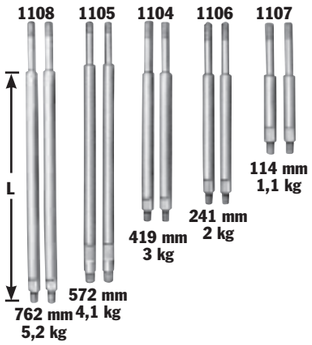
⚠ **CAUTION:** Always use a 3-jaw puller where clearance permits in order to provide a more stable setup and a more even pulling force.

PULLERS

# Push-Pullers®
## HYDRAULIC
## 17½, 30-50 Ton

The power to make impossible jobs become routine.

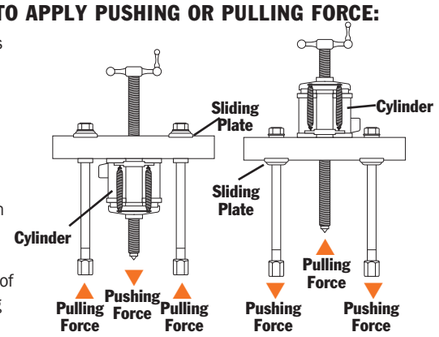
- Can apply a hydraulic pushing or pulling force, depending on how the puller is set up.
- Each unit includes perfectly matched hydraulic components that can be detached from the Push-Puller® for other tasks requiring dependable Power Team power; assuring maximum return on your investment.
- Optional leg kits adapt your Push-Puller® to extra long or extra short reach.
- A wide variety of threaded adapters, bearing pulling attachments and internal pulling attachments can be used in combination with our Push-Pullers®.




**NOTE:** L = leg length: 114; 241; 419; 572 and 762 mm subtract 124 mm from leg length to determine reach when using leg end caps.

### ASSEMBLING THE TOOL TO APPLY PUSHING OR PULLING FORCE:

1. Determine if you want the tool's forcing screw to push or pull.
2. To exert pushing force, the forcing nut is installed beneath the cross block, as shown on left.
3. To cause the forcing screw to pull, the forcing nut is placed on top of the cross block.
4. The sliding plates must always be placed on the opposite side of the cross block from the forcing nut.




**Selection and capacity rating –** Each Push-Puller's specified tonnage "capacity" is determined using its standard legs in tension. Using longer legs, or a setup in which the legs are in compression, will reduce the "capacity". Always select the largest "capacity" puller and the shortest legs that will fit the job.

**Power Twin® cylinder –** This unique center-hole cylinder powers each Push-Puller®. Puller screw runs right between the twin spring cylinder. A basic head allows you to change from a tapped hole to a plain hole by merely changing the head insert.

**17½ ton capacity Push-Puller® –**

**No. PPH17** – Push-Puller® with RT172 center-hole Power Twin® cylinder, cylinder half coupler, P55 pump, 9767 1,8 m. hose, 9798 hose half coupler, 419 mm legs, 24827 leg ends, 1"-8 x 508 mm lg. adjusting screw and adjusting crank. Wt., 26,8 kg.

**No. PPH17R** – Same as above, but without P55pump, 9767 1,8 m. hose and 9798 hose half coupler. Wt., 18,2 kg.

**No. 1062** – Puller only. (Cylinder, pump, hose, coupler, screw and crank not included.) Wt., 9,1 kg.

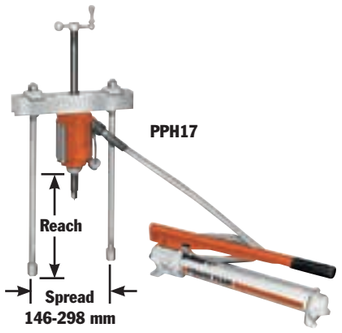
**USE WITH:**

Bearing pulling attachments: **Nos. 1124 and 1130**.

Pulley pulling attachment: **No. 679**.

Internal pulling attachment: **No. 1154**.

Legs: **Nos. 1104, 1105, 1106, 1107 and 1108 -** Pair of legs for 17½-ton "capacity" Push-Puller®.




**Leg Ends –** Upper leg ends are threaded ¾"-16. Lower leg ends are threaded ⅝"-18 x 25 mm lg.

**30 ton capacity Push-Puller® -**

**No. PPH30** – Push-Puller® with RT302 center-hole Power Twin® cylinder, cylinder half coupler, P55 pump, 9767 1,8 m. hose, 9798 hose half coupler, 457 mm legs, 28390 leg ends, 1¼"-7 x 610 mm lg. adjusting screw and adjusting crank. Wt., 46,3 kg.

**No. PPH30R** – Same as above, but without P55 pump, 9767 1,8 m hose and 9798 hose half coupler. Wt., 37,2 kg.

**No. 1070** – Puller only. (Cylinder, pump, hose, coupler, screw and crank not included.) Wt., 19,1 kg.

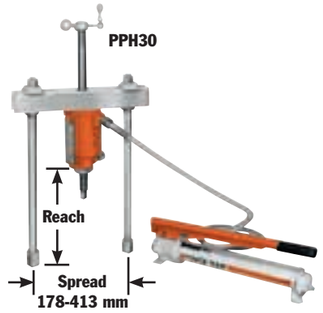
**USE WITH:**

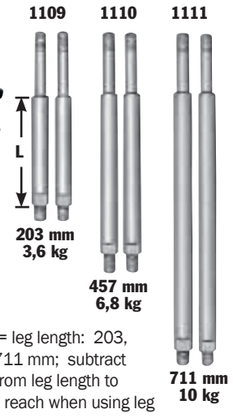
Bearing pulling attachments. **No. 680** (Use two 8012 adapters to connect to puller.)

Pulley pulling attachment: **No. 679**.

Internal pulling attachment: **No. 1166**.

Legs: **Nos. 1109, 1110 and 1111 -** Pair of legs for 30 ton "capacity" Push-Puller®.




**Note:** L = leg length: 203, 457 and 711 mm; subtract 149 mm from leg length to determine reach when using leg end caps.

**Leg ends** are threaded 1"-14 x 32 mm lg.

**50 ton capacity Push-Puller® -**

**No. PPH50** – Push-Puller® with RT503 center-hole Power Twin® cylinder, cylinder half coupler, P55 pump, 9767 1,8 m hose, 9798 hose half coupler, 610 mm legs, 1⅝"-5½ x 722 mm lg. adjusting screw and adjusting crank. Wt., 91,3 kg.

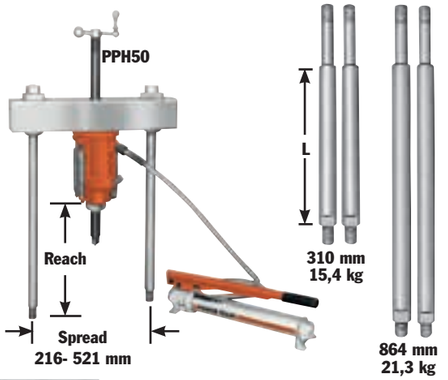
**No. PPH50R** – Same as above, but without P55 pump, 9767 1,8 m hose and 9798 hose half coupler. Wt., 82,2 kg.

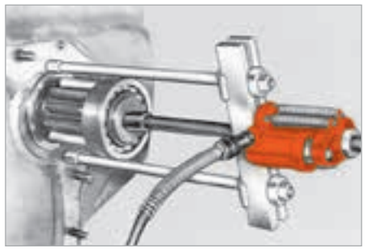
**No. 1076** – Puller only. (Cylinder, pump, hose, coupler, screw and crank not included.) Wt., 48,1 kg.

**USE WITH:**

Bearing pulling attachments: **Nos. 1128 and 1129**.

Legs: **Nos. 1112 and 1113 -** Pair of legs for 50 ton "capacity" Push-Puller®.



**Leg ends** are threaded 1¼"-12 x 44,5 mm lg.


PULLERS

# Puller Sets
## HYDRAULIC

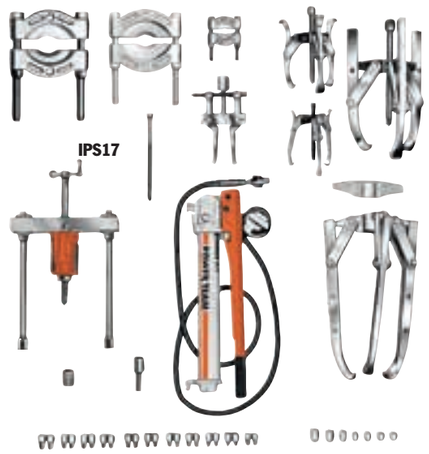
## 17½, 30 & 50 Ton

Wooden storage box No. 3084350R9 is included with the sets listed on this page. 1.016L x 406 W x 406 mmD Metal storage boxes also available

**17½ ton hydraulic master puller sets** – Having this Power Team puller set at your fingertips will not only reduce your downtime, but also increase your profits.

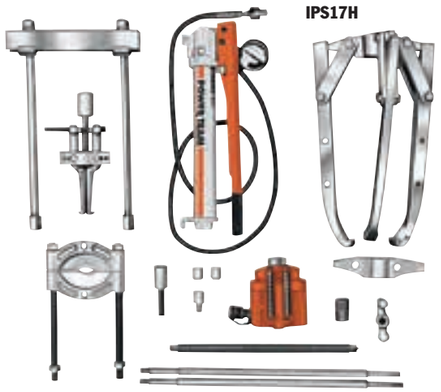
**No. IPS17** – 17½ ton capacity puller set. Includes hydraulics, pullers, wooden storage box and accessories listed below. Wt., 86,7 kg.

**No. IPS17B** – Puller set with MB5 metal box. Wt., 96,7 kg.




| Contents | Hydraulics |
|---|---|
| **P55** | Single-stage hyd. hand Pump assembly |
| **RT172** | 17½ ton cylinder with threaded insert |
| **9798** | Hose half coupler |
| **9767E** | Hydraulic hose – 1,8 m |
| **9670** | Tee adapter |
| **9059E** | Pressure gauge |
| **Pullers** | |
| **1062** | 17½ ton cap. Push-Puller® with 419 mm legs |
| **24814** | Speed crank |
| **32118** | Adjusting screw |
| **201923** | Pushing adapter |
| **1105** | 572 mm legs (pr) |
| **1066** | 17½ ton 3-jaw hyd. puller |
| **1027** | Combination 2/3-jaw puller |
| **41224** | 17½ ton 2-jaw puller head |
| **24832** | Puller screw |
| **1037** | Combination 2/3-jaw puller |
| **1041** | Combination 2/3-jaw puller |
| **28228** | Cylinder cap |

| Set Contents | Accessories |
|---|---|
| **1154** | Bearing cup pulling attach |
| **1122** | Bearing pulling attachment |
| **1123** | Bearing pulling attachment |
| **1130** | Bearing pulling attachment |
| **Threaded Adapters** | |
| **679** | V-belt pulley puling attachment |
| **8005** | 5/8" – 18 F. x 3/8" – 16 M. (2) |
| **8006** | 5/8" – 18 F. x 1/2" – 20 M. (2) |
| **8007** | 5/8" – 18 F. x 1/2" – 13 M. (2 |
| **8010** | 5/8" – 18 F. x 5/8" – 11 M. (2) |
| **8013** | 5/8" – 18 F. x 3/4" – 16 M. (2) |
| **8015** | 5/8" – 18 F. x 3/4" – 10 M. (2) |
| **8017** | 5/8" – 18 F. x 7/8" – 14 M. (2) |
| **8018** | 5/8" – 18 F. x 7/8" – 9 M. (2) |
| **8019** | 5/8" – 18 F. x 1" – 14 M. (2) |
| **8020** | 1" – 8 F. x 5/8" – 18 M. (1) |
| **8021** | 1" – 8 F. x 1" – 14 M. (1) |
| **8044** | Female threaded adapter set |
| **8038** | 5/8" – 18 F.x 3/4"–16 F. (2) |
| **8056** | Set of 6 shaft protectors (8050-8055) |
| **8075** | Set of 11 adaptors (8057-8067) |




**17½ ton hydraulic puller set -** This set includes a 3-jaw puller and a Push-Puller®. Ideal for heavy duty applications; put this set to work wherever large gears, bearings, wheels, pulleys, etc. are found.

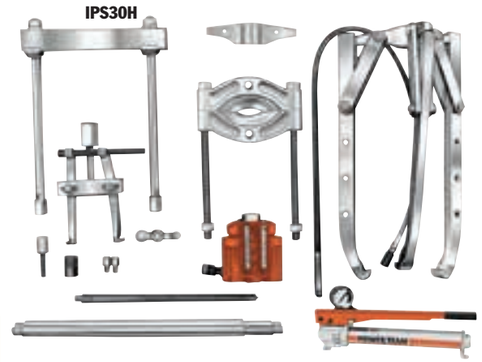
**No. IPS17H** – 17½ ton capacity hydraulic puller set. Includes hydraulics, pullers, wooden storage box and accessories listed below. Wt., 62,2 kg.

| Contents | Hydraulics |
|---|---|
| **P55** | Single-stage hydraulic hand pump assembly |
| **RT172** | 17½ ton cylinder with threaded insert |
| **9798** | Hose half coupler |
| **9767E** | Hydraulic hose – 1,8 m |
| **9670** | Tee adapter |
| **9059E** | Pressure gauge |
| **Pullers** | |
| **1062** | 17½ ton cap. Push-Puller with 419 mm legs |
| **1066** | 17½ ton 3-jaw hyd. puller |

| Contents | Accessories |
|---|---|
| **1154** | Bearing cup pulling attach. |
| **1130** | Bearing pulling attachment |
| **1105** | 572 mm legs (pr) |
| **24814** | Speed crank |
| **28228** | Screw cap |
| **32118** | Adjusting screw |
| **201454** | Pushing adapter |
| **41224** | 2-jaw head for 1066 |
| **Threaded Adapters** | |
| **8020** | 1" – 8 F. x 5/8" – 18 M. (1) |
| **8038** | 5/8" – 8 F. x 3/4" – 16 F. (1) |

**30 ton capacity puller set –** Just what you need for those big jobs. Not only do you get a 30 ton hydraulic Push-Puller®, you also get a 2-jaw and 3-jaw hydraulic puller. Plus, many popular accessories and the hardware to tackle the big jobs right away.

**No. IPS30H** – 30 ton capacity hydraulic maintenance puller set. Includes hydraulics, pullers, wooden storage box and accessories listed below. Wt., 150 kg.

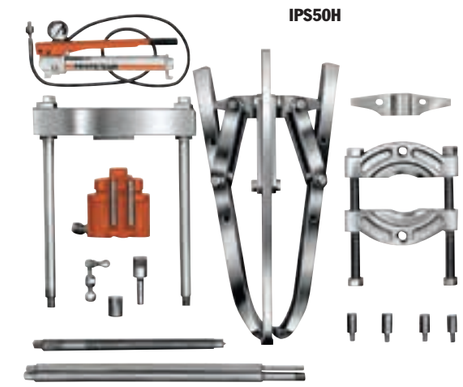



| Contents | Hydraulics |
|---|---|
| **P55** | Single-stage hydraulic hand pump assembly |
| **RT302** | 30 ton cylinder with threaded insert |
| **9798** | Hose half coupler |
| **9767E** | Hydraulic hose – 1,8 m |
| **9670** | Tee adapter |
| **9059E** | Pressure gauge |
| **Accessories** | |
| **8036** | Female threaded adapters 1" – 14F. x 1" – 14F. (2) |
| **1166** | Bearing cup pulling attach. |
| **1127** | Bearing pulling attachment |

| Contents | Pullers |
|---|---|
| **1074** | 30 ton, 3-jaw hyd. puller |
| **41226** | 2-way head for 1074 |
| **1070** | 30 ton cap. hydraulic Push-Puller® with 457 mm legs |
| **1111** | 711 mm legs for 1070 |
| **27198** | Speed crank |
| **28229** | Screw cap |
| **34510** | Pushing adapter |
| **34758** | Adjusting screw |

**50 ton capacity puller set -** For those really big jobs, this 50 ton puller set is what you need. Just think of the jobs you can do with a 50 ton hydraulic Push-Puller®, a 2-jaw and a 3-jaw puller, both with a 50 ton capacity. Of course, you also get many versatile accessories and attachments.

**No. IPS50H** – 50 ton capacity hydraulic maintenance puller set. Includes hydraulics, pullers, wooden storage box and accessories listed below. Wt., 261 kg.




| No. | Hydraulics |
|---|---|
| **P55** | Single-stage hydraulic hand pump assembly |
| **RT503** | 50 ton cylinder with threaded insert |
| **9798** | Hose half coupler |
| **9767E** | Hydraulic hose – 1,8 m |
| **9670** | Tee adapter |
| **9059E** | Pressure gauge |
| **Threaded Adapters** | |
| **8024** (2) | 1¼" – 12F. x 1¾" – 12M. |
| **8028** | 1⅝" – 5½ F. x 1" – 8M. |
| **8029** | 1⅝" – 5½ F. x 1" – 14M. |

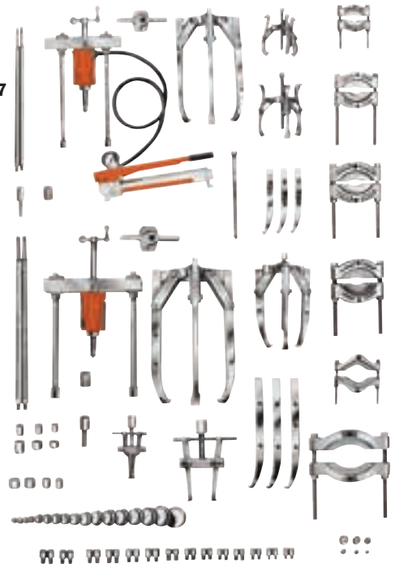
| No. | Pullers |
|---|---|
| **1080** | 50 ton, 3-jaw hyd. puller |
| **50449** | 2-way head for 1080 |
| **1076** | 50 ton cap. hydraulic Push-Puller® with 610 mm legs |
| **1113** | 864 mm legs for 1076 |
| **29595** | Speed crank |
| **28230** | Screw cap |
| **34755** | Pushing adapter |
| **32698** | Adjusting screw |
| **Accessories** | |
| **1128** | Bearing pulling attachment |

⚠ **CAUTION:** All the items shown may not withstand the full tonnage specified. Example: When an accessory with a 1 ton capacity is used with a 7 ton puller, the setup can be used only at a force of 1 ton.

# Puller Sets
## HYDRAULIC

## 17½ & 30 Ton
## 17½ & 50 Ton

IPS3017

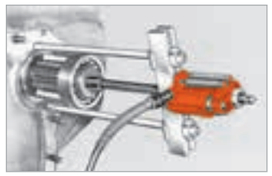


**17½ and 30 ton capacity puller sets –** These heavy-duty maintenance sets will more than pay for themselves, especially in saving you costly damage to parts. This set lets you tackle hundreds of applications where pushing and pulling are required.
**No. IPS3017 –** 17½ and 30 ton capacity manual and hydraulic puller set. Includes hydraulics, pullers, and accessories listed below. Wt., 244 kg.
**No. IPS3017B –** Puller set with MB8 metal box. Wt., 256 kg.

**Note:** Wooden storage box No. 3084360R9 is provided with this set.
1.016 L x 432 H x 610 mm D
Metal storage boxes also available

2-jaw puller reaches through spokes of gear to grip hub. Hand pump supplies hydraulic power.

Flexible coupler is removed from electric motor shaft with 2-jaw puller.



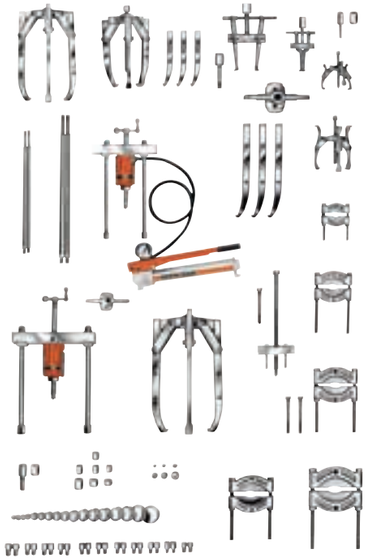
Typical setup for removing sprocket drive pinion shaft. Puller screw is attached to shaft by threaded adapter. Shaft is now ready to be pulled out hydraulically.

| No. | Hydraulics |
|---|---|
| **P55** | Single-stage hyd. hand pump assembly |
| **RT172** | 17½ ton center-hole twin cylinder w/ threaded insert |
| **RT302** | 30 ton center-hole twin cylinder w/ threaded insert |
| **9798** | Hose half coupler |
| **9767E** | Hydraulic hose – 1,8 m |
| **9670** | Tee adapter |
| **9059E** | Pressure gauge |
| | **Pullers** |
| **1062** | 17½ ton cap. hydraulic Push-Puller® w/419 mm legs |
| **1070** | 30 ton cap. hydraulic Push-Puller® w/457 mm legs |
| **1066** | 17½ ton 3-jaw hyd. puller |
| **1074** | 30 ton 3-jaw hyd. puller |
| **41224** | 17½ ton 2-jaw puller head |
| **41226** | 30 ton 2-jaw puller head |
| **1027** | Combination 2/3-jaw puller |
| **1037** | Combination 2/3-jaw puller |
| **1041** | Combination 2/3-jaw puller |
| **43892** | Long jaws (3) for 1037 |
| **30902** | Long jaws (3) for 1041 |
| **1105** | 572 mm legs for 1062 |
| **1111** | 711 mm legs for 1070 |
| **24814** | Speed crank |
| **27198** | Speed crank |
| **28229** | Screw cap |
| **28228** | Cylinder cap |
| **32118** | Adjusting screw |
| **34758** | Adjusting screw |
| **34510** | Pushing adapter |
| **201923** | Pushing adapter |

| No. | Accessories |
|---|---|
| **24832** | Special puller forcing screw |
| **8075** | Step plate adapter set |
| **8076** | Step plate adapter set |
| **8056** | Shaft protector set |
| **679** | Pulley pulling attachment |
| **680** | Pulley pulling attachment |
| **1154** | Bearing cup pulling attach. |
| **1166** | Bearing cup pulling attach. |
| **1122** | Bearing pulling attachment |
| **1123** | Bearing pulling attachment |
| **1126** | Bearing pulling attachment |
| **1130** | Bearing pulling attachment |
| | **Threaded Adapters** |
| **8005** | 5/8" – 18 F. x 3/8" – 16 M. (2) |
| **8006** | 5/8" – 18 F. x 1/2" – 20 M. (2) |
| **8007** | 5/8" – 18 F. x 1/2" – 13 M. (2) |
| **8010** | 5/8" – 18 F. x 5/8" – 11 M. (2) |
| **8012** | 1" – 14 F. x 5/8" – 18 M. (2) |
| **8013** | 5/8" – 18 F. x 3/4" – 16 M. (2) |
| **8015** | 5/8" – 18 F. x 3/4" – 10 M. (2) |
| **8017** | 5/8" – 18 F. x 7/8" – 14 M. (2) |
| **8018** | 5/8" – 18 F. x 7/8" – 9 M. (2) |
| **8019** | 5/8" – 18 F. x 1" – 14 M. (2) |
| **8020** | 1" – 8 F. x 5/8" – 18 M. (1) |
| **8021** | 1" – 8 F. x 1" – 14 M. (1) |
| **8025** | 1¼" – 7 F. x 5/8" – 18 M. (2) |
| **8027** | 1¼" – 7 F. x 1" – 14 M. (2) |
| **8036** | 1" – 14 F. x 1" – 14 F. (2) |
| **8038** | 5/8" – 18 F. x 3/4" – 16 F. (2) |
| **8044** | Female threaded adapter set |

⚠ **CAUTION**: All the items shown may not withstand the full tonnage specified. Example: When an accessory with a 1 ton capacity is used with a 7 ton puller, the setup can be used only at a force of 1 ton.

IPS5017

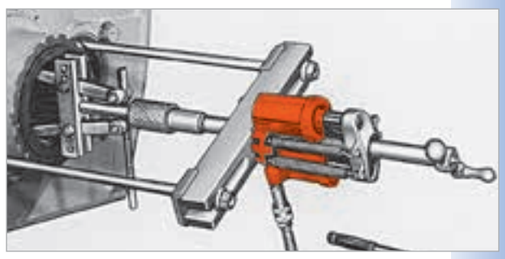


**17½ and 50 ton capacity puller sets –** If your looking for a maintenance puller set that will handle a wide variety of applications, this is the one for you. The mechanical and hydraulic pullers and attachments are designed to handle most removing and installing jobs with a minimal amount of effort.
**No. IPS5017 –** 17½ and 50 ton capacity manual and hydraulic puller set. Includes hydraulics, pullers, wooden storage box and accessories listed below. Wt., 405 kg.
**No. IPS5017B –** Puller set with MB16 metal box.
Wt., 415 kg.

| No. | Hydraulics |
|---|---|
| **P55** | Single-stage hyd. hand pump assembly |
| **RT172** | 17½ ton center-hole twin cylinder w/ threaded insert |
| **RT503** | 50 ton center-hole twin cylinder w/ threaded insert |
| **9798** | Hose half coupler |
| **9767E** | Hydraulic hose – 1,8 m |
| **9670** | Tee adapter |
| **9059E** | Pressure gauge |
| | **Pullers** |
| **1062** | 17½ ton cap. hydraulic Push-Puller® w/419 mm legs |
| **1076** | 50 ton cap. hydraulic Push-Puller® w/610 mm legs |
| **1066** | 17½ ton 3-jaw hyd. puller |
| **1080** | 50 ton 3-jaw hyd. puller |
| **41224** | 17½ ton 2-jaw puller head |
| **50449** | 50 ton 2-jaw puller head |
| **1027** | Combination 2/3-jaw puller |
| **1037** | Combination 2/3-jaw puller |
| **1041** | Combination 2/3-jaw puller |
| **43892** | Long jaws (3) for 1037 |
| **30902** | Long jaws (3) for 1041 |
| **1105** | 572 mm legs for 1062 |
| **1113** | 864 mm legs for 1076 |
| **24814** | Speed crank |
| **29595** | Speed crank |
| **28228** | Screw cap |
| **28230** | Cylinder cap |
| **32118** | Adjusting screw |
| **32698** | Adjusting screw |
| **34755** | Pushing adapter |
| **201923** | Pushing adapter |
| **7392** | Gear and pulley puller |
| **24833** | Forcing screw for 7392 |

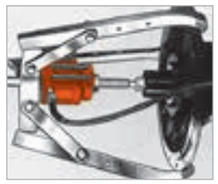
| No. | Accessories |
|---|---|
| **8075** | Step plate adapter set |
| **8076** | Step plate adapter set |
| **8056** | Shaft protector set |
| **1154** | Bearing cup pulling attach. |
| **1166** | Bearing cup pulling attach. |
| **1122** | Bearing pulling attachment |
| **1123** | Bearing pulling attachment |
| **1126** | Bearing pulling attachment |
| **1127** | Bearing pulling attachment |
| **1130** | Bearing pulling attachment |
| **34479** | Reducing adapter for 1166 |
| **10215** | Hex nut; ¾" – 16 (2) |
| **24829** | Short bolt |
| | **Threaded Adapters** |
| **8005** | 5/8" – 18 F. x 3/8" – 16 M. (2) |
| **8006** | 5/8" – 18 F. x 1/2" – 20 M. (2 |
| **8007** | 5/8" – 18 F. x 1/2" – 13 M. (2) |
| **8010** | 5/8" – 18 F. x 5/8" – 11 M. (2) |
| **8013** | 5/8" – 18 F. x 3/4" – 16 M. (2) |
| **8015** | 5/8" – 18 F. x 3/4" – 10 M. (2) |
| **8019** | 5/8" – 18 F. x 1" – 14 M. (2) |
| **8020** | 1" – 8 F. x 5/8" – 18 M. (1) |
| **8021** | 1" – 8 F. x 1" – 14 M. (1) |
| **8023** | 1¼" – 12 F. x 1" – 14 M. (2) |
| **8028** | 1⅝" – 5½ F. x 1" – 8 M. (1) |
| **8029** | 1⅝" – 5½ F. x 1" – 14 M. (1) |
| **8038** | 5/8" – 18 F. x 3/4" – 16 F. (1) |
| **8044** | Female threaded adapter set |

⚠ **CAUTION:** All the items shown may not withstand the full tonnage specified. Example: When an accessory with a 1 ton capacity is used with a 7 ton puller, the setup can be used only at a force of 1 ton.



Combination of 50 ton capacity Push-Puller and cup pulling attachment simplifies the removal of a final drive axle seal.

Hydraulically powered Push-Puller removes drive wheel. Pulling attachment is used to provide gripping surface.



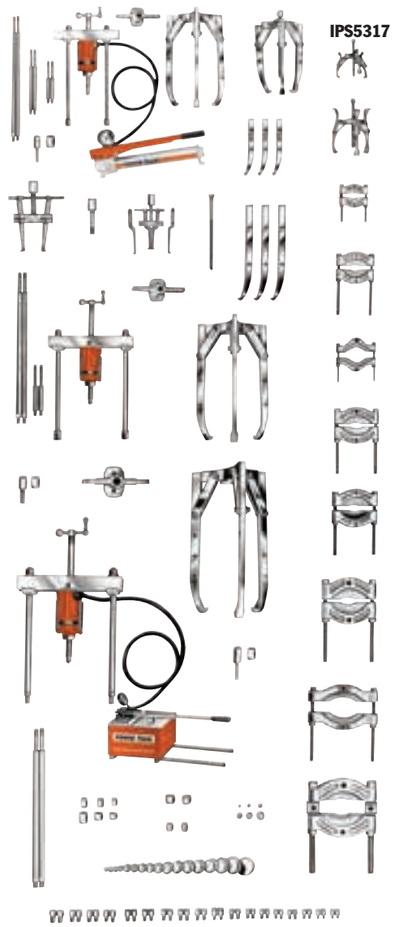
3-jaw puller provides grip while hydraulic hand pump provides power to push shaft from housing. Shaft protector is used on end of puller screw.

# Puller Sets
## HYDRAULIC

## 17½, 30 & 50 Ton

**17½, 30 & 50 ton capacity puller set –** Here's the ultimate in industrial puller sets! You'll find a puller for just about every job. Included in this "master set" are 17½, 30 and 50 ton hydraulics, along with an extensive assortment of pullers, attachments and adapters.

**No. IPS5317 –** 17½, 30 and 50 ton capacity manual and hydraulic puller set. Includes hydraulics, pullers, wooden storage box and accessories listed below. Wt., 572 kg.



IPS5317

| Contents | Hydraulics |
|---|---|
| **P55** | Single-stage hyd. hand pump assembly |
| **P460** | Two-stage hyd. hand pump w/ 3-way control valve |
| **RT172** | 17½ ton center-hole twin cylinder w/ threaded insert |
| **RT302** | 30 ton center-hole twin cylinder w/ threaded insert |
| **RT503** | 50 ton center-hole twin cylinder w/ threaded insert |
| **9798** | Hose half coupler (2) |
| **9767E** | Hydraulic hose – 1,8 m (2) |
| **9670** | Tee adapter |
| **9059E** | Pressure gauge |
| | **Pullers** |
| **1062** | 17½ ton cap. hydraulic Push-Puller® w/419 mm legs |
| **1070** | 30 ton cap. hydraulic Push-Puller® w/457 mm legs |
| **1076** | 50 ton cap. hydraulic Push-Puller® w/610 mm legs |
| **1066** | 17½ ton 3-jaw hyd. puller |
| **1074** | 30 ton 3-jaw hyd. puller |
| **1080** | 50 ton 3-jaw hyd. puller |
| **41224** | 17½ ton 2-jaw puller head |
| **41226** | 30 ton 2-jaw puller head |
| **50449** | 50 ton 2-jaw puller head |
| **1027** | Combination 2/3-jaw puller |
| **1037** | Combination 2/3-jaw puller |
| **1041** | Combination 2/3-jaw puller |
| **43892** | Long jaws (3) for 1037 |
| **30902** | Long jaws (3) for 1041 |
| **32136** | Long jaws (3) for 1154 |
| **1105** | 572 mm legs for 1062 |
| **1106** | 241 mm legs for 1062 |
| **1107** | 114 mm legs for 1062 |
| **1109** | 203 mm legs for 1070 |
| **1111** | 711 mm legs for 1070 |
| **1113** | 864 mm legs for 1070 |
| | **Accessories** |
| **24832** | Special puller forcing screw |
| **24814** | Speed crank |
| **27198** | Speed crank |
| **29595** | Speed crank |
| **28228** | Screw cap |
| **28229** | Screw cap |

| Contents | Accessories |
|---|---|
| **28230** | Screw cap |
| **32118** | Adjusting screw |
| **32698** | Adjusting screw |
| **34758** | Adjusting screw |
| **34510** | Pushing adapter |
| **34755** | Pushing adapter |
| **201923** | Pushing adapter |
| **8075** | Step plate adapter set |
| **8076** | Step plate adapter set |
| **8056** | Shaft protector set |
| **679** | Pulley pulling attachment |
| **680** | Pulley pulling attachment |
| **1154** | Bearing cup pulling attach. |
| **1166** | Bearing cup pulling attach. |
| **1122** | Bearing pulling attachment |
| **1123** | Bearing pulling attachment |
| **1126** | Bearing pulling attachment |
| **1127** | Bearing pulling attachment |
| **1128** | Bearing pulling attachment |
| **1130** | Bearing pulling attachment |
| **34479** | Reducing adapter |
| | **Threaded Adapters** |
| **8005** | 5/8" – 18 F. x 3/8" – 16 M. (2) |
| **8006** | 5/8" – 18 F. x 1/2" – 20 M. (2) |
| **8007** | 5/8" – 18 F. x 1/2" – 13 M. (2) |
| **8010** | 5/8" – 18 F. x 5/8" – 11 M. (2) |
| **8012** | 1" – 14 F. x 5/8" – 18 M. (2) |
| **8013** | 5/8" – 18 F. x 3/4" – 16 M. (2) |
| **8015** | 5/8" – 18 F. x 3/4" – 10 M. (2) |
| **8017** | 5/8" – 18 F. x 7/8" – 14 M. (2) |
| **8018** | 5/8" – 18 F. x 7/8" – 9 M. (2) |
| **8019** | 5/8" – 18 F. x 1" – 14 M. (2) |
| **8020** | 1" – 8 F. x 5/8" – 18 M. (1) |
| **8021** | 1" – 8 F. x 1" – 14 M. (1) |
| **8023** | 1¼" – 12 F. x 1" – 14 M. (2) |
| **8024** | 1¼" – 12 F. x 1¾" – 12 M. (2) |
| **8025** | 1¼" – 7 F. x 5/8" – 18 M. (2) |
| **8027** | 1¼" – 7 F. x 1" – 14 M. (2) |
| **8028** | 1⅝" – 5½ F. x 1" – 8 M. (1) |
| **8029** | 1⅝" – 5½ F. x 1" – 14 M. (1) |
| **8036** | 1" – 14 F. x 1" – 14 F. (2) |
| **8038** | 5/8" – 18 F. x 3/4" – 16 F. (2) |
| **8044** | Female threaded adapter set |

⚠ **CAUTION:** All the items shown may not withstand the full tonnage specified. Example: When an accessory with a 1 ton capacity is used with a 7 ton puller, the setup can be used only at a force of 1 ton.

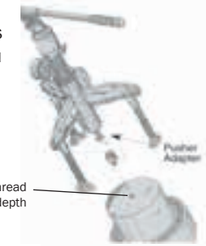


# Bearing
## PUSHERS

## 8 Ton

These pushers are ideal for installing a wide variety of press-fit parts, including bushings, wheels, bearings, gears, and pulleys. Applications for the pushers will be found in motor repair shops, steel mills, mines, quarries, shipyards, utilities, maintenance shops, agricultural machinery repair, and the list goes on.

- Power Team, a leader in hydraulic tools for over 80 years, now adds patented, pushing systems to the world's most complete line of innovative equipment.
- Power Team pushers have been rigorously tested for top performance and reliability at maximum capacity.
- These pushing systems are covered by Power Team's exclusive Lifetime Marathon Warranty — assuring you of the highest quality and reliability.

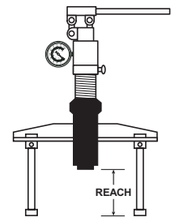


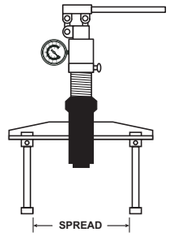


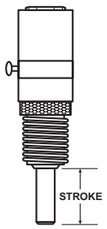
PHP8R

## BEARING PUSHER KITS

- Portable pushing kits include an external Grip-O-Matic puller, an internal puller, hydraulic cylinder, and a tri-section pulling attachment, all in one compact, lightweight unit complete with carrying case.




| Order No. | Description | Cylinder Capacity | Reach (mm) | Spread (mm) | Stroke | Weight with Case (kg) |
|---|---|---|---|---|---|---|
| **PHP8H** | Manual-Hydraulic Pusher | 8 tons | 55-385 | 58-270 | 82 | 33.5 |
| **PHP8R** | Remote Hydraulic Pusher | 8 tons | 55-385 | 58-270 | 82 | 33 |
| **PHP8H-1** | Manual-Hydraulic Pusher/Puller Kit | 8 tons | 55-385 | 58-270 | 82 | 53 |
| **PHP8R-1** | Remote Hydraulic Pusher/Puller Kit | 8 tons | 55-385 | 58-270 | 82 | 52 |

**IMPORTANT SAFETY INFORMATION**: Power Team recommends the use of protective blankets for all pushing operations. For ease of visual clarity, we have shown the pusher application photos without these safeguards.

# Universal Puller

## 55 Ton & 100 TON
"Enforcer 55"
& Enforcer 100

**Note:** Four cylinder extensions (not pictured) are included. The included lifting eyes (not pictured) permit use of an overhead crane to raise entire assembly.

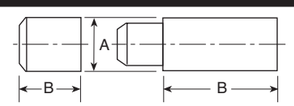

### ENFORCER 55

1. Hydraulic lift system for easy, precise position of puller.
2. Unique dual pump arrangement: Low pressure pump positions, holds and opens jaws. The high pressure pump advances and retracts the pushing cylinder without releasing clamped jaws.
3. Hydraulically-actuated jaws. Cylinder moves in or out to provide a safe, secure grip on workpiece.
4. Puller can be assembled in 2 or 3 jaw configurations.
5. Choice of cylinder with a 159 mm or 337 mm stroke.
6. Self-centering: Center cylinder on work; puller jaws will automatically grip work evenly.
7. Super Grip-O-Matic® feature means the harder the pull, the tighter the puller jaws grip. No chains or cages required to keep puller jaws from slipping or springing off the part being pulled.
8. Guards at pinch points protect operator.
9. Cart's swivel casters give ease of mobility.
10. Large wheels make movement of cart easy.
11. Puller can be mounted on cart 90 degrees to right or left of puller cart centerline, permitting use in tight quarters, such as between machinery.

**Conversion kit No. 251468 –** Kit converts PH553C series to PH5532CL series. Jaws are 305 mm longer. Kit contains three jaws and six straps with guards. Wt., 114 kg.

**Pushing Adapters**

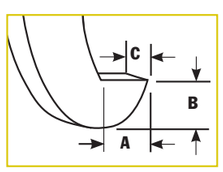
| Order No. | A (mm) | B (mm) | Qty.* |
|---|---|---|---|
| **251002** | 69,9 | 69,9 | 1 |
| **350593** | 69,9 | 152,4 | 2 |
| **350594** | 69,9 | 76,2 | 1 |
| **350637** | 69,9 | 254 | 1 |

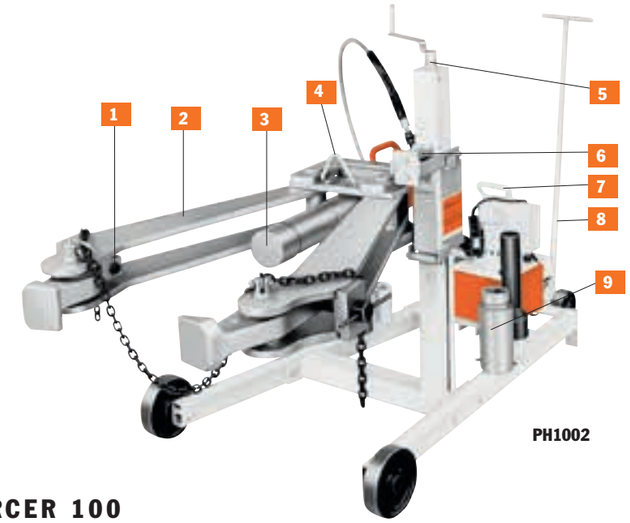



*Number of adapters supplied with each Enforcer.

**(251002)**

| Order No. | Min. Spread (mm) | Reach Min. Spread (mm) | Max. Spread (mm) | Reach Max. Spread (mm) | Overall Length* (mm) | Cyl. Stroke (mm) | Power Source Requirements | Prod. Wt. (kg.) | Puller Jaw Tip Dimensions A (mm) | B (mm) | C (mm) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **PH553C-E220** | 101,6 | 559 | 1.219 | 356 | 2.286 | 159 | 230 V, 50 Hz, 15 Amp Cap. | 339 | | | |
| **PH553C13-E220** | 101,6 | 381 | 1.219 | 178 | 2.286 | 337 | 230 V, 50 Hz, 15 Amp Cap. | 352 | | | |
| **PH553CL-E220** | 63,5 | 829 | 1.149 | 737 | 2.591 | 159 | 230 V, 50 Hz, 15 Amp Cap. | 366 | | | |
| **PH553CL13-E220** | 63,5 | 651 | 1.149 | 559 | 2.591 | 337 | 230 V, 50 Hz, 15 Amp Cap. | 379 | | | |




### ENFORCER 100

1. Adjustable jaws mean they always pull on a flat surface. Retaining chain holds jaws in place during positioning.
2. Grip-O-Matic® feature means jaws grip progressively tighter as more pulling force is applied.
3. 100 ton hydraulic cylinder is single-acting, spring return type with a maximum working pressure of 700 bar.
4. Lifting bracket allows puller to be lifted if the workpiece center is more than 914 mm off the floor.
5. Adjusting screw allows operator to move vertical position of the puller.
6. Spring loaded feature means Enforcer 100 will align itself on uneven pulls.
7. Hydraulic pump is a 2-stage, high pressure unit controlled by remote hand switch with 7,6 m cord.
8. Tow bar provides puller with plenty of mobility.
9. Pushing adapters have a diameter of 105 and 63,5 mm.

An ideal puller for steel mills, mines, oil fields, utility projects, paper mills, construction sites, railroads, airline shops, shipyards or anywhere else where large equipment and machinery pose tough maintenance challenges.

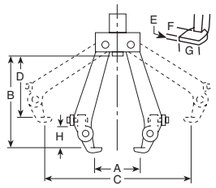
**"Enforcer 100" universal puller –**

**No. PH1002 –** 100 ton, 2-jaw universal hydraulic puller. Includes: 2-jaw Grip-O-Matic® puller, PE552S-E220 2-speed electric/hydraulic power unit, C10010C 100 ton hydraulic cylinder with 260 mm stroke and six adapters. Wt., 404 kg.

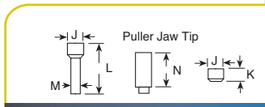
**No. PH1002J –** Same as PH1002-E220, but without hydraulic power unit. Wt., 375 kg.

**PE552S-E220 –** Pump only. 0,84 KW, 220 volt, 50Hz, single phase, draws 13 amps at full load. Also available in 115 volt, 50/60Hz.

**Note:** For 115 volt, 50/60Hz applications, order Part No. PH1002




**Ram extensions**




| Order No. | Adapter Type | Included w/puller | Amount J (mm) | K (mm) | L (mm) | M (mm) | N (mm) |
|---|---|---|---|---|---|---|---|
| **44745** | Push | 1 | 105 | – | 343 | 63,5 | – |
| **44766** | Ext. | 4 | 105 | – | – | – | 203 |
| **303045** | Push | 1 | 105 | 79,4 | – | – | – |

| Order No. | Min. Spread A (mm) | Reach Min. Spread B (mm) | Max. Spread C (mm) | Reach Max. Spread D (mm) | Puller Jaw Tip E (mm) | F (mm) | G (mm) | Cylinder Height H (mm) | Vertical Stroke Adjust. (mm) | Overall Length (mm) | Max. Thickness Workpiece (mm) | Wheel Dia. (mm) | Power Source Requirements |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PH1002-E220** | 381 | 1.067 | 1.219 | 864 | 25,4 | 57,1 | 127 | 260 | 305-914 | 2.388 | 305 | 260 | 220 V, 50 Hz, 13 Amp Cap. |
| **PH1002J** | 381 | 1.067 | 1.219 | 864 | 25,4 | 57,1 | 127 | 260 | 305-914 | 2.388 | 305 | 260 | – |

# Roller Bearing
## PULLER/INSTALLER

## (Railroad Edition)
100 Ton Pulling Capacity

- Quickly remove or install tapered roller bearings.
- Designed with cooperation of major bearing manufacturers.
- It's a fast, simple, one-man operation with 100-tons of pulling force provided.
- Completely portable for easy, convenient positioning and out-of-the-way storage.
- The standard in most wheel shops.

CE

**Universal railroad axle journal roller bearing puller/installer –** For years, the standard in most wheel shops. Power Team now has four models to choose for greater flexibility. With both sling and jack models available and two pumps to choose from, you can tailor the unit to match your needs. With the proper equipment and know-how, removal and installation of axle journal roller bearings takes an absolute minimum of time and effort.

Each unit will service a full line of bearings with rotating end caps, from class B thru GG. No other method can match Power Team's simplicity. Removal is very easy. Simply remove the end caps, slip the pulling shoe between the bearings and the wheel, actuate the pump, and in seconds, 100 tons of pulling force removes the bearing. Installation is just as easy! Each unit is CSA certified (LR19814) and comes complete with a heavy-duty 100-ton hydraulic cylinder, 10,000 P.S.I. (700 bar) pump with remote control solenoid valve, hydraulic pressure gauge (No. 11543), a pulling shoe and installing tube.

Our roller bearing pullers are ideal for replacing tough, worn-out bearings on RR freight cars.

The photo above shows the Universal Puller in position on the roller bearing assembly, which is ready for removal.

| Order No. | | Model Type | Cylinder Type | Valve Type | Pump Information kW | Phase | Voltage |
|---|---|---|---|---|---|---|---|
| **PR2100J-E220** | † | Jack | Double Acting | Solenoid | 1,5** | 1 | 230* |
| **PR3100J-E380** | † | Jack | Double Acting | Solenoid | 2,2 | 3 | 400* |
| **PR2100S-E220** | † | Sling | Double Acting | Solenoid | 1,5 | 1 | 230* |
| **PR3100S-E380** | † | Sling | Double Acting | Solenoid | 2,2 | 3 | 400* |

* Prewired at factory for this voltage. Other voltages available upon request.
** The 1,49 Kw, 115 volt requires 30 amp service.

**Tooling order information -** IMPORTANT...This tooling chart applies only to standard AAR configurations for freight care applications. In order to provide adapters needed to service housing-type locomotive and passenger car bearings, as well as metric bearings, Power Team must be provided with the following information: bearing manufacturer's name and general arrangement drawing number, size of bearing to be serviced, railroad name and location and part numbers of adapters already in your possession if you currently own a Puller/Installer.

| Tool Description | Class and size of bearing assembly TBU & SP "Metric Tooling" 120 | 130 | 140 | 150 |
|---|---|---|---|---|
| Pulling Shoe Insert Adapter | No. 351830 | No. 30512 | No. 30521 | No. 30520 |
| Guide Tube & Cap Screw Assembly | No. 253341 | No. 253342 | No. 253343 | No. 253344 |
| Cap Screw** | No. 253339 | No. 253394 | No. 253339 | No. 253395 |
| Guide Tube Adapter | No. 21247 | No. 21247 | No. 21247 | No. 21247 |
| Installing Tube Adapter Ring | No. 253335 | No. 253336 | No. 253337 | No. 253338 |

** Screws are supplied with the guide tube and should be ordered as replacements only.

PR3100J

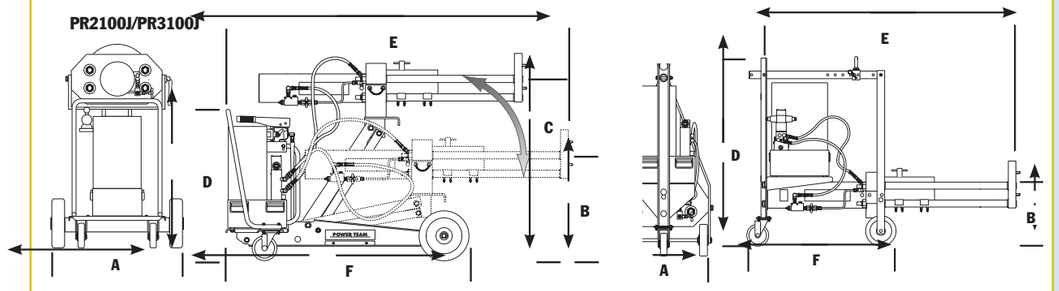
PR3100S

| Tool Description | Class and size of bearing assembly to be serviced: Class B 108 x 203 (No.) | Class C 127 x 229 (No.) | Class D 140 x 254 (No.) | Class E 152 x 279 (No.) | Class EE 140 Axle. (No.) | Class EE 152 Axle. (No.) | Class F 165 x 305 (No.) | Class G 178 x 305 (No.) | Class G 165 Axle. (No.) | Class GG 165 Axle. (No.) |
|---|---|---|---|---|---|---|---|---|---|---|
| Pulling Shoe | No. 420845 is included as part of basic machine – Do Not Order | | | | | | | 420846 | 420846 | 420846 |
| Pulling Shoe Insert Adapter | 30522 | 30512 | 30521 | 30520 | 30520 | 30519 | 30519 | – | – | – |
| Guide Tube & Cap Screw Assembly | 253313 | 253314 | 253317 | 253318 | 253316 | 253327 | 253320 | 253321 | 253319 | 253323 |
| Cap Screw** | 253156 | 253349 | 253308 | 253155 | 253307 | 253308 | 253310 | 253326 | 253309 | 253309 |
| Guide TubeNo. Adapter | 23934 | 21248 | 21248 | 21247 | 21247 | 21247 | 21247 | 21247 | 21247 | 21247 |
| Installing Tube | No. 30416 is included as part of basic machine – Do Not Order | | | | | | | 30417 | 30417 | 30417 |
| Installing Tube Adapter Ring | 21242 | 21258 | 21256-1 | 21255-1 | 21255-1 | 21257-1 | 21257-1 | 30586 | 30585 | 30585 |

**Note:** Adapters listed above are for servicing the following roller bearing assemblies: Brenco "Crown-Taper", New Departure-Hyatt "Hy-Roll Taper", SKF "Expediter" and Timken "AP".

** Screws are supplied with the guide tube and should be ordered as replacements only.

PR2100J/PR3100J



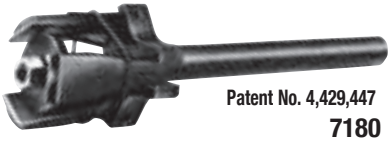

| Order No. | Stroke (mm) | Capacity Pull (Tons) | Inst. (Tons) | Speed Advance (mm/min.) | Pull (mm/min.) | Inst. (mm/min.) | A (mm) | B (mm) | C (mm) | D (mm) | E (mm) | F (mm) | Weight (kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PR2100J** | 394 | 100 | 68 | 900 | 81 | 113 | 813 | 383 | 1.059 | 912 | 1.981 | 1.493 | 528 |
| **PR3100J** | 394 | 100 | 68 | 900 | 81 | 113 | 813 | 383 | 1.059 | 912 | 1.981 | 1.493 | 520 |
| **PR2100S** | 394 | 100 | 68 | 900 | 81 | 113 | 619 | 279 | – | 1.283 | 1.632 | 985 | 455 |
| **PR3100S** | 394 | 100 | 68 | 900 | 81 | 113 | 619 | 279 | – | 1.283 | 1.632 | 985 | 458 |

# Drivers

## Bearing, Bushing And Seal

27797 Master Set
(Board not included)

No. 27793
Starter Set



Patent No. 4,429,447
7180

### Universal bearing cup installer

This installer adjusts to fit bearing cups from 92 to 165 mm O.D. Replaces over two dozen plates and drivers. Simply adjust the jaws to fit the cup I.D., lock the jaws, slip the new cup on and drive it home with a hammer. Will not damage new bearings.

**No. 7180** – Univ. bearing cup installer. Wt., 4,5 kg.

### Assemble your own "custom-made" driver tools

These sets include discs and hand-les for custom seal driver assembly to provide a pilot (to prevent cocking), a spacer (so force is applied on the proper area) and a driver (for even force dist.). Discs range from 12,7 thru 114,3 mm diameters in 1,6 mm increments. Each set includes a handy plastic box with pre-cut tool tray.

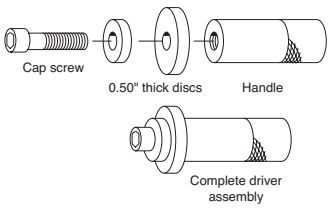
**No. 27793** – Starter Set. Contains handle and discs especially selected to provide the driver sizes most frequently needed. Maximum utility at a modest investment! Wt.,1,8 kg.

**No. 27794** – Basic Set. Wide coverage, low investment! Includes 41 discs and two handles. Size range: 12,7 thru 76,2 mm diameter. Wt., 10 kg.

**No. 27795** – Big Job Set. Used for servicing large components. You get coverage of 77,8 thru 114,3 mm diameter with the 24 discs and handle provided. Wt., 20,4 kg.

**No. 27797** – Master Set. For maximum coverage. Three handle sizes and all 65 discs listed in chart at left are included. Range: 12,7 thru 114,3 mm diameter. Wt., 30,9 kg.

**No. 212377** – Tool organizer board. Will accommodate all components of 27793 Starter Set. Tools not included. Wt., 2,3 kg.




These sets have the proper-size driver for any seal, bearing or bushing installing job. Select the proper-size discs, attach to handle with cap screws and strike with hammer.

| Order No. | DISCS Inch | MM | Order No. | DISCS Inch | MM | Order No. | DISCS Inch | MM |
|---|---|---|---|---|---|---|---|---|
| 27492 | 9/16 | 14.3 | 27513† | 1 7/8 | 47.6 | 27535 | 3 1/4 | 82.6 |
| 27493† | 5/8 | 15.9 | 27514 | 1 15/16 | 49.2 | 27536 | 3 5/16 | 84.1 |
| 27494 | 11/16 | 17.5 | 27515 | 2 | 50.8 | 27537 | 3 3/8 | 85.7 |
| 27495† | 3/4 | 19.0 | 27516 | 2 1/16 | 52.4 | 27538 | 3 7/16 | 87.3 |
| 27496 | 13/16 | 20.6 | 27517 | 2 1/8 | 54.0 | 27539 | 3 1/2 | 88.9 |
| 27497† | 7/8 | 22.2 | 27518 | 2 3/16 | 55.6 | 27540 | 3 9/16 | 90.5 |
| 27498 | 15/16 | 23.8 | 27519 | 2 1/4 | 57.2 | 27541 | 3 5/8 | 92.1 |
| 27499† | 1 | 25.4 | 27520 | 2 5/16 | 58.7 | 27542 | 3 11/16 | 93.7 |
| 27500 | 1 1/16 | 27.0 | 27521 | 2 3/8 | 60.3 | 27543 | 3 3/4 | 95.3 |
| 27501† | 1 1/8 | 28.6 | 27522 | 2 7/16 | 61.9 | 27544 | 3 13/16 | 96.8 |
| 27502 | 1 3/16 | 30.2 | 27523 | 2 1/2 | 63.5 | 27545 | 3 7/8 | 98.4 |
| 27503† | 1 1/4 | 31.8 | 27524 | 2 9/16 | 65.1 | 27546 | 3 15/16 | 100.0 |
| 27504 | 1 5/16 | 33.3 | 27525 | 2 5/8 | 66.7 | 27547 | 4 | 101.6 |
| 27505† | 1 3/8 | 34.9 | 27526 | 2 11/16 | 68.3 | 27548 | 4 1/16 | 103.2 |
| 27506 | 1 7/16 | 36.5 | 27527 | 2 3/4 | 69.8 | 27549 | 4 1/8 | 104.8 |
| 27507† | 1 1/2 | 38.1 | 27528 | 2 13/16 | 71.4 | 27550 | 4 3/16 | 106.4 |
| 27508 | 1 9/16 | 39.7 | 27529 | 2 7/8 | 73.0 | 27551 | 4 1/4 | 108.0 |
| 27509† | 1 5/8 | 41.3 | 27530 | 2 15/16 | 74.6 | 27552 | 4 5/16 | 109.5 |
| 27510 | 1 11/16 | 42.9 | 27531 | 3 | 76.2 | 27553 | 4 3/8 | 111.1 |
| 27511† | 1 3/4 | 44.4 | 27532 | 3 1/16 | 77.8 | 27554 | 4 7/16 | 112.7 |
| | | | 27533 | 3 1/8 | 79.4 | 27555 | 4 1/2 | 114.3 |

† = Items contained in 27793 starter set.

### SET COMPONENTS

| Order No. | Description |
|---|---|
| 10012† | 1/4"-20 UNC X 22,2mm* |
| 10020† | 1/4"-20 UNC X 31,8 mm* |
| 10854† | 1/4"-20 UNC X 44,5 mm |
| 10855† | 1/4"-20 UNC X 70 mm* |
| 12001† | 1/4"-20 UNC X 2 1/4"* |
| 27487† | Small Handle 127 X19mm Dia. |
| 27488 | Med. Handle 152 X 41mm Dia. |
| 27489 | Large Handle 152 X 41mm Dia. |
| 27490 | Extension Tube |
| 7350† | Allen Wrench |

## SELECTING A PUNCH

The following information is provided as a convenient general reference guide for metal punching operations.

## HOLE SIZE VS. MATERIAL THICKNESS

Punching holes in metal is the fast, economical way to get precise hole size, smoothness and minimum burr. Compressive strength of the punch steel determines that the thickness of the metal being punched must not exceed the diameter of the punch. This relationship varies with the type of material. For example: the minimum hole diameter will be 6,4 mm in 6,4 mm mild steel, 6,4 mm in 4,8 mm stainless steel, and 6,4 mm in 7,9 mm aluminum.

## MAXIMUM RATED CAPACITY

All punching tools have their maximum capacity for safe, dependable operation over a long life span. The hydraulic punches listed in this catalog have a “rated capacity” based on their design strength. Before selecting a tool, use the following charts to determine the specific tonnage required to punch the size and shape holes through the type and gauge metal considered.

## DETERMINING TONNAGES FOR ROUND HOLES

To determine tonnages for hot rolled mild steel (typically used in bar size angle iron, channels, tees and zees) with a 3.500 bar shear strength, read directly from chart #1. Example: To punch a 9,5 mm diameter hole thru 9,5 mm thick mild steel, chart #1 shows 11.1 tons are required. For ASTM A-36 steel (typically used for structural size wide flange, H and I beams, tees and zees) with a 4.200 bar shear strength, read direct from chart #2. Example: To punch a 6,4 mm round hole in 6,4 mm thick A-36 steel, chart #2 shows 5.9 tons of force is needed.

**CHART #1 TONS OF PRESSURE REQUIRED TO PUNCH MILD STEEL**

| Material Thickness | | Round Hole Diameter (mm) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gauge | (mm) | 3,2 | 4,8 | 6,4 | 7,9 | 9,5 | 11,1 | 12,7 | 14,3 | 15,9 | 17,5 | 19 | 20,6 |
| 20 | 1/32 | .4 | .5 | .7 | .9 | 1.1 | 1.2 | 1.4 | 1.6 | 1.8 | 1.9 | 2.1 | 2.3 |
| 18 | 3/64 | .5 | .7 | .9 | 1.2 | 1.4 | 1.6 | 1.9 | 2.1 | 2.4 | 2.6 | 2.8 | 3.1 |
| 16 | 1/16 | .6 | .9 | .6 | 1.5 | 1.8 | 2.1 | 2.3 | 2.6 | 2.9 | 3.2 | 3.5 | 3.8 |
| 14 | 5/64 | .7 | 1.1 | 1.2 | 1.8 | 2.2 | 2.6 | 2.9 | 3.3 | 3.7 | 4.0 | 4.4 | 4.8 |
| 12 | 7/64 | 1.0 | 1.5 | 1.5 | 2.6 | 3.1 | 3.6 | 4.1 | 4.6 | 5.1 | 5.7 | 6.2 | 6.7 |
| 11 | 1/8 | 1.2 | 1.8 | 2.1 | 2.9 | 3.5 | 4.1 | 4.7 | 5.1 | 5.9 | 6.2 | 7.1 | 7.6 |
| 10 | 9/64 | 1.3 | 2.0 | 2.4 | 3.3 | 4.0 | 4.6 | 5.3 | 5.9 | 6.6 | 7.3 | 7.9 | 8.6 |
| 3/16” | 3/16 | -- | 2.8 | 2.6 | 4.6 | 5.5 | 6.4 | 7.4 | 8.3 | 9.2 | 10.1 | 11.0 | 12.0 |
| 1/4” | 1/4 | -- | -- | 3.7 | 6.1 | 7.4 | 8.6 | 9.8 | 11.1 | 12.3 | 13.5 | 14.7 | 16.0 |
| 5/16” | 5/16 | -- | -- | 4.9 | 7.8 | 9.2 | 10.7 | 12.3 | 13.9 | 15.4 | 17.0 | 18.5 | 20.0 |
| 3/8” | 3/8 | -- | -- | -- | -- | 11.1 | 12.8 | 14.8 | 16.5 | 18.5 | 20.2 | 22.1 | 23.8 |
| 1/2” | 1/2 | -- | -- | -- | -- | -- | -- | 19.7 | 22.0 | 24.6 | 26.9 | 29.5 | 31.8 |

TONS OF PRESSURE

**CHART #2 TONS OF PRESSURE REQUIRED TO PUNCH ASTM-A36 STRUCTURAL STEEL**

| Material Thickness | | Round Hole Diameter (mm) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gauge | (mm) | 3,2 | 4,8 | 6,4 | 7,9 | 9,5 | 11,1 | 12,7 | 14,3 | 15,9 | 17,5 | 19 | 20,6 |
| 12 | 7/64 | 1.2 | 1.9 | 2.5 | 3.1 | 3.7 | 4.3 | 4.9 | 5.6 | 6.2 | 6.8 | 7.4 | 8.0 |
| 11 | 1/8 | 1.4 | 2.1 | 2.8 | 3.5 | 4.2 | 4.9 | 5.7 | 6.4 | 7.1 | 7.8 | 8.5 | 9.2 |
| 10 | 9/64 | -- | 2.4 | 3.2 | 4.0 | 4.8 | 5.6 | 6.4 | 7.2 | 7.9 | 8.7 | 9.5 | 10.3 |
| 3/16” | 3/16 | -- | 3.3 | 4.4 | 5.5 | 6.6 | 7.7 | 8.8 | 9.9 | 11.0 | 12.1 | 13.2 | 14.3 |
| 1/4” | 1/4 | -- | 4.4 | 5.9 | 7.4 | 8.6 | 10.3 | 11.8 | 13.2 | 14.7 | 16.2 | 17.7 | 19.1 |
| 5/16” | 5/16 | -- | -- | 7.4 | 9.2 | 11.0 | 12.9 | 14.7 | 16.5 | 18.4 | 20.2 | 22.0 | 24.0 |
| 3/8” | 3/8 | -- | -- | 8.8 | 11.0 | 13.3 | 15.5 | 17.7 | 19.9 | 22.1 | 24.3 | 26.5 | 28.7 |
| 1/2” | 1/2 | -- | -- | -- | -- | -- | -- | 23.6 | 26.5 | 29.4 | 32.4 | 35.3 | 38.3 |

TONS OF PRESSURE

## CHART #3 TONS OF PRESSURE REQUIRED TO SHEAR 25,4 MM LENGTH

| Material Thickness | Mild Steel | Stainless Steel | Brass |
|---|---|---|---|
| 4,8 mm | 0,167 | 0,276 | 0,128 |
| 6,4 mm | 0,246 | 0,374 | 0,177 |
| 7,9 mm | 0,314 | 0,472 | 0,216 |
| 9,5 mm | 0,373 | 0,560 | 0,246 |
| 11,1 mm | 0,432 | 0,649 | 0,305 |
| 12,7 mm | 0,491 | 0,737 | 0,344 |

TONS OF PRESSURE

### DETERMINING TONNAGES FOR IRREGULAR SHAPED HOLES

When punching irregular shaped holes (square, obround, etc...) multiply the length of metal to be cut by the multiplier given for a 25,4 mm length of cut in chart #3. Example: The shear length (or total distance around a 12,7 mm square hole) is 50,8 mm. To punch such a hole in 6,4 mm thick mild steel, multiply 50,8 mm x 6.25 (from chart #3) = 12.5 tons. For stainless steel this would be 50,8 mm x 9.5 = 19 tons.

### DIE CLEARANCE

The relationship of the larger die hole size to the punch size is die clearance and is stated as a percentage of the thickness of the material being punched. The range of clearances varies from 10% for thin materials to 20% for thicker materials. For 19 mm material, the total die clearance is 3,8 mm. Clearance should always be specified when there is any reason for doubt.
Effects of die clearance are more noticeable in thicker materials (such as 12,7 mm) than in thinner materials (such as 4,8 mm). When ordering die sets, specify the type and thickness of material being punched (see chart #4).

### CHART #4 CLEARANCE FOR MILD STEEL

| Material Thickness | Approximate Decimal Thickness | Overall Clearance–Add to Punch Size |
|---|---|---|
| 7 Gauge | 4,55 | 0,5 mm |
| 3/16 | 4,76 | 0,58 mm |
| 1/4 | 6,35 | 0,94 mm |
| 5/16 | 7,94 | 1,2 mm |
| 3/8 | 9,5 | 1,45 mm |
| 1/2 | 12,7 | 1,90 mm |

TONS OF PRESSURE

NOTE: Most grades of half hard aluminum use the same clearance as shown above. In many cases, your own experience may dictate that you call for clearances different from the above, especially when punching other materials such as stainless steel. Special clearances may be ordered for that purpose.

### DIE CLEARANCE HAS THE FOLLOWING EFFECTS:

| Too much clearance | Too little clearance | Correct Clearance |
|---|---|---|
| 1. Extra roll-in at top of the hole.<br>2. Too much burr at bottom of the hole. | 1. More punching pressure needed. Can reduce tool life.<br>2. High stripping force causes part distortion and extra punch wear. | 1. Straighter hole thru material.<br>2. Minimum distortion at top of hole.<br>3. Minimum burr at bottom of hole. |

### USE THE 200.300 OR 750 L/MIN TESTER TO SIMULATE ACTUAL OPERATING CONDITIONS OF THE SYSTEM UNDER TEST

Testing the pump: Operator runs engine at a specific rpm and adjusts tester's pressure compensating valve to simulate a work load. By comparing meter readings with manufacturer specs, proper operation of pump can be confirmed. If oil flow and pressure do not meet specs, the pump is faulty. Or, if test results and specifications agree, the operator will know that the problem is elsewhere in the system and that other tests must be performed. Regardless of the component being tested, hook-up and testing is accomplished in minutes. NOTE: These hydraulic testers should always be used with the owner's manual/manufacturers' specifications for the system under test.

Measurements
AND SPECIFICATIONS

RESOURCES

### BASE MOUNTING HOLES FOR "C"CYLINDERS

| Cylinder Tonnage | No. Holes | Thread Size | Thread Depth (mm) | Bolt Circle Diameter (mm) |
|---|---|---|---|---|
| 5 | 2† | 1/4-20 | 9.5 | 25.4 |
| 10 | | 5/16-18 | 12.7 | 39.7 |
| 15 | | 3/8-16 | | 47.6 |
| 25 | | 1/2-13 | 19.1 | 58.7 |
| 55 | | | | 95.3 |
| * Optinonal 75 | 4 | 3/4-10 | 25.4 | 114.3 |
| * Optinonal 100 | | 1-8 | | 120.7 |


* Consult Factory (45° from coupler)
† 90° from coupler.

**Cyl. Caps furnished with "C" Series Cylinders:**

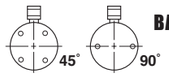
| | |
|---|---|
| 5 ton cylinders | **No. 201375** |
| 10 ton cylinders | **No. 201362** |
| 15 ton cylinders | **No. 201362** |
| 25 ton cylinders | **No. 201412** |
| 55 ton cylinders | **No. 36161** |
| 75 ton cylinders | **No. 36161** |
| 100 ton cylinders | **No. 36161** |

### PERFORMANCE

The table at right gives you an idea of what to expect when coupling RD series cylinders to a Power Team pump. Actual performance will vary according to job conditions.

| Pump | Cylinder | Time to Extend Cylinder 25,4 mm 7 bar | 700 bar |
|---|---|---|---|
| PE55 | RD55 | 1.0 sec. | 12.0 sec. |
| | RD100 | 1.8 sec. | 22.5 sec. |
| | RD200 | 3.5 sec. | 45.0 sec. |
| | RD400 | 7.2 sec. | 85.0 sec. |
| PQ120 Series | RD200 | 3.4 sec. | 20.6 sec. |
| | RD300 | 4.9 sec. | 30.0 sec. |
| | RD400 | 6.4 sec. | 39.0 sec. |
| | RD500 | 8.1 sec. | 49.5 sec. |
| PE400 Series | RD300 | 3.0 sec. | 8.5 sec. |
| | RD400 | 3.9 sec. | 11.1 sec. |
| | RD500 | 4.9 sec. | 14.1 sec. |

NOTE: Base mounting holes are standard on all RD cylinders. Orientation of base mounting holes to coupler. Orientation on RD300, RD400 & RD500 series is random.



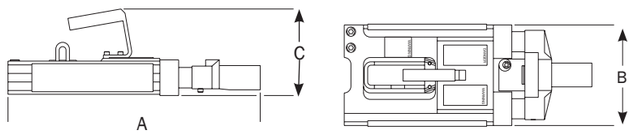

### BASE MOUNTING HOLES FOR "RD" CYLINDERS

| Tonnage | 10 | 25 | 55 | 80 | 100 | 150 | 200 | 300 | 400 | 500 |
|---|---|---|---|---|---|---|---|---|---|---|
| No. of Holes | 2 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 6 |
| Thread Size | 3/8"-16 | 1/2"-13 | 5/8"-11 | 5/8"-11 | 3/4"-10 | 1"-8 | 1 1/4"-7 | 1 1/4"-7 | 1 1/2"-12 | 1 3/8"-12 |
| Depth (mm) | 16 | 19 | 22 | 22 | 25 | 25 | 32 | 44 | 48 | 51 |
| B.C. Dia. | 51 | 70 | 89 | 114 | 140 | 152 | 165 | 159 | 184 | 203 |
| Orientation | 90° | 45° | 45° | 45° | 45° | 45° | 45° | Random | Random | Random |

### MOUNTING HOLES FOR "RLS" CYLINDERS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **RLS50** | 8,6 mm C'bore x 6,4 mm deep, 5,6 mm thru hole | **RLS200** | 15,5 mm C'bore x 10,4 mm deep,10,4 mm thru hole | **RLS500S** | 17,8 mm C'bore x 12,7 mm deep,11,9 mm thru hole | **RLS1000S** | 20,3 mm C'bore x 14,2 mm deep, 13,5 mm thru hole |
| **RLS100** | 10,7 mm C'bore x 8,7 mm deep, 7,1 mm thru hole | **RLS300** | 15,5 mm C'bore x 11,2 mm deep, 10,4 mm thru hole | **RLS750S** | 20,3 mm C'bore x14,2 mm deep, 13,5 mm thru hole | **RLS1500S** | 20,6 mm C'bore x 14,2 mm deep, 13,5 mm thru hole |

### POST TENSION/STRESSING JACK DIMENSIONS




| Order Number | A (mm) | B (mm) | C (mm) | Weight (kg) |
|---|---|---|---|---|
| SJ2010 | 533 | 229 | 165 | 25 |
| SJ2010 | 559 | 259 | 178 | 34 |
| SJ3010 | 559 | 259 | 178 | 34 |
| SJ3010P | 559 | 259 | 178 | 34 |
| SJ2010DA | 470 | 190 | 165 | 19 |
| SJ3010DA | 470 | 216 | 165 | 23 |

# Conversion
## FORMULAS

### DECIMAL & MILLIMETER EQUIVALENTS

| | DECIMALS | MILLIMETERS |
|---|---|---|
| 1/64 | .015625 | – 0.397 |
| 1/32 | .03125 | – 0.794 |
| 3/64 | .046875 | – 1.191 |
| 1/16 | .0625 | – 1.588 |
| 5/64 | .078125 | – 1.984 |
| 3/32 | .09375 | – 2.381 |
| 7/64 | .109375 | – 2.778 |
| 1/8 | .1250 | – 3.175 |
| 9/64 | .140625 | – 3.572 |
| 5/32 | .15625 | – 3.969 |
| 11/64 | .171875 | – 4.366 |
| 3/16 | .1875 | – 4.763 |
| 13/64 | .203125 | – 5.159 |
| 7/32 | .21875 | – 5.556 |
| 15/64 | .234375 | – 5.953 |
| 1/4 | .2500 | – 6.350 |
| 17/64 | .265625 | – 6.747 |
| 9/32 | .28125 | – 7.144 |
| 19/64 | .296875 | – 7.541 |
| 5/16 | .3125 | – 7.938 |
| 21/64 | .328125 | – 8.334 |
| 11/32 | .34375 | – 8.731 |
| | DECIMALS | MILLIMETERS |
| 23/64 | .359375 | – 9.128 |
| 3/8 | .3750 | – 9.525 |
| 25/64 | .390625 | – 9.922 |
| 13/32 | .40625 | – 10.319 |
| 27/64 | .421875 | – 10.716 |
| 7/16 | .4375 | – 11.113 |
| 29/64 | .453125 | – 11.509 |
| 15/32 | .46875 | – 11.906 |
| 31/64 | .484375 | – 12.303 |
| 1/2 | .5000 | – 12.700 |
| 33/64 | .515625 | – 13.097 |
| 17/32 | .53125 | – 13.494 |
| 35/64 | .546875 | – 13.891 |
| 9/16 | .5625 | – 14.288 |
| 37/64 | .578125 | – 14.684 |
| 19/32 | .59375 | – 15.081 |
| 39/64 | .609375 | – 15.478 |
| 5/8 | .6250 | – 15.875 |
| 41/64 | .640625 | – 16.272 |
| 21/32 | .65625 | – 16.669 |
| 43/64 | .671875 | – 17.066 |
| 11/16 | .6875 | – 17.463 |
| | DECIMALS | MILLIMETERS |
| 45/64 | .703125 | – 17.859 |
| 23/32 | .71875 | – 18.256 |
| 47/64 | .734375 | – 18.653 |
| 3/4 | .7500 | – 19.050 |
| 49/64 | .765625 | – 19.447 |
| 25/32 | .78125 | – 19.844 |
| 51/64 | .796875 | – 20.241 |
| 13/16 | .8125 | – 20.638 |
| 53/64 | .828125 | – 21.034 |
| 27/32 | .84375 | – 21.431 |
| 55/64 | .859375 | – 21.828 |
| 7/8 | .8750 | – 22.225 |
| 57/64 | .890625 | – 22.622 |
| 29/32 | .90625 | – 23.019 |
| 59/64 | .921875 | – 23.416 |
| 15/16 | .9375 | – 23.813 |
| 61/64 | .953125 | – 24.209 |
| 31/32 | .96875 | – 24.606 |
| 63/64 | .984375 | – 25.003 |
| 1 | 1.000 | – 25.400 |

1 mm = .03937”
.001” = .0254 mm

### SI* CONVERSION FORMULAS

#### APPROXIMATE CONVERSION

| MULTIPLY SI* UNIT | BY CONV FACTOR | TO GET OR MULTIPLY NON-SI UNIT | BY CONV FACTOR | TO GET SI* UNIT |
|---|---|---|---|---|
| **LENGTH** | | | | |
| millimeter (mm) (1 inch = 25.4 mm exactly) | X 0.03937 | = inch | X 25.4 | = mm |
| centimeter (cm) 10 mm | X 0.3937 | = inch | X 2.54 | = cm |
| meter (m) 1000 mm | X 3.28 | = foot | X 0.305 | = m |
| meter (m) | X 1.09 | = yard | X 0.914 | = m |
| kilometer (km) 1000 m | X 0.62 | = mile | X 1.61 | = km |
| **AREA** | | | | |
| millimeter$^2$ (mm$^2$) | X 0.00155 | = inch$^2$ | X 645 | = mm$^2$ |
| centimeter$^2$ (cm$^2$) | X 0.155 | = inch$^2$ | X 6.45 | = cm$^2$ |
| meter$^2$ (m$^2$) | X 10.8 | = foot$^2$ | X 0.0929 | = m$^2$ |
| meter$^2$ (m$^2$) | X 1.2 | = yard$^2$ | X 0.836 | = m$^2$ |
| hectare (ha) 10,000 m$^2$ | X 2.47 | = acre | X 0.405 | = ha |
| kilometer$^2$ (km$^2$) | X 0.39 | = mile$^2$ | X 2.59 | = km$^2$ |
| **VOLUME** | | | | |
| centimeter$^3$ (cm$^3$) | X 0.061 | = inch$^3$ | X 16.4 | = cm$^3$ |
| liter (l) | X 61 | = inch$^3$ | X 0.016 | = l |
| milliliter (ml) ml = 1 cm$^3$) | X 0.034 | = oz-liq | X 29.6 | = ml (1 |
| liter (l) 1000 ml | X 1.06 | = quart | X 0.946 | = l |
| liter (l) | X 0.26 | = gallon | X 3.79 | = l |
| meter$^3$ (m$^3$) 1000 l | X 1.3 | = yard$^3$ | X 0.76 | = m$^3$ |
| **MASS** | | | | |
| gram (g) | X 0.035 | = ounce | X 28.3 | = g |
| kilogram (kg) 1000 g | X 2.2 | = pound | X 0.454 | = kg |
| metric ton (t) 1000 kg | X 1.1 | = ton (short) | X 0.907 | = t |

#### APPROXIMATE CONVERSION

| MULTIPLY SI* UNIT | BY CONV FACTOR | TO GET OR MULTIPLY NON-SI UNIT | BY CONV FACTOR | TO GET SI* UNIT |
|---|---|---|---|---|
| **FORCE (N = kg • m/s2)** | | | | |
| newton (N) | X 0.225 | = pound | X 4.45 | = N |
| kilonewton (kN) | X 225 | = pound | X 0.00445 | = kN |
| TORQUE | | | | |
| newton meter (N•m) | X 8.9 | = lb. in. | X 0.113 | = N•m |
| newton meter (N•m) | X 0.74 | = lb. ft. | X 1.36 | = N•m |
| **PRESSURE (Pa = N/m2)** | | | | |
| kilopascal (kPa) | X 4.0 | = in. $H_2O$ | X 0.249 | = kPa |
| kilopascal (kPa) | X 0.30 | = in. Hg | X 3.38 | = kPa |
| kilopascal (kPa) | X 0.145 | = p.s.i. | X 6.89 | = kPa |
| megapascal (MPa) | X 145 | = p.s.i. | X 0.00689 | = MPa |
| Bar | X 14.5 | = p.s.i. | X .0689 | = Bar |
| **POWER (w = J/s)** | | | | |
| kilowatt (kw) | X 1.34 | = hp | X 0.746 | = kw |
| kilowatt (kw) | X 0.948 | = Btu/s | X 1.055 | = kw |
| watt (w) | X 0.74 | = ft. lb/s | X 1.36 | = w |
| **TEMPERATURE** | | | | |
| °C = (°F - 32) ÷ 1.8 | °F = (°C X 1.8) + 32 | | | |
| FLOW | | | | |
| cu. cm./min. | X .061 | = cu. in/min. | X 16.4 | = cu. cm./min. |
| liters/min. | X .2642 | = GPM | X 3.785 | = liters/min. |

* System International (Modern Metric System)