

# Choosing the right pump

## Pump selection basics

- Step 1:** Select the hydraulic cylinder that best suits the application. See pages 175-180.
- Step 2:** Select the series of hydraulic pump with adequate oil output and reservoir capacity to power cylinder. See page 184. Check speed/selection chart on page 178.
- Step 3:** Select pump within series with the valve option that is best suited to the cylinder and application. See pages 190-191.

### Hydraulic pump considerations:

- 1 What **maximum** system **operating pressure** (psi) is required?
- 2 What **volume of oil** delivery is required? (For manual pumps, cu. in. of oil per handle stroke; for powered pumps, cu. in./min. of oil).
- 3 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 the high pressure, low volume stage under load).
- 4 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.
- 5 Is **portability** of the pump a factor to consider?
- 6 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?
- 7 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.
- 8 Will the application require **large displacement or multiple cylinders**? Reservoir size and pump output levels will be factors to consider.
- 9 Does the working environment require a pump having a **low operating noise** (dBA) level?
- 10 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. **See page 22**

**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. **See pages 23-24.**

**P157D, P159D, P300D, P460D.** These 2-speed pumps are used with double-acting cylinders. **See page 24.**



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### 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. **See pages 26-29.**

**PA9 Series.** These new single-speed pumps drive single-acting cylinders and are ideal for powering portable hydraulic tools. **See pages 30-31.**

**PA50 Series.** These single-speed pumps drive single- or double-acting low pressure (3,200 psi) cylinders. **See pages 34-35.**

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

**See pages 32-33.**

**PA64.** Similar to PA60, this 2-speed pump drives single- or double-acting cylinders. **See pages 32-33.**

**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. **See pages 36-37.**

**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. **See pages 38-39.**

**PA554.** This 2-speed pump drives single- or double-acting cylinders, delivering a high volume of oil. **See pages 38-39.**



### 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 1/4 hp electric motor. A battery-powered version is available. Having a low noise level and weighing just 20 lbs., they are ideal for powering portable hydraulic spreaders, nut splitters, pipe flange spreaders and other tools. **See pages 40-41.**

**PE17 Series.** CSA rated for intermittent duty, these feature a 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 42-43.**

**PE46 Series.** Powered by a 1 1/2 hp, single phase induction motor, operate at a moderate noise level of 77-81 dBA. CSA rated for intermittent duty. **See pages 54-55.**

**PE18 Series.** CSA rated for intermittent duty, these feature a 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 44-45.**

**PE30 Series.** Equipped with a 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. **See pages 50-51.**

**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 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 1/2 hp induction motor. **See pages 48-49, 56-57.**



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**PE60 Series.** The Vanguard® Supreme® pumps provide trouble-free service in the most severe working environments. Powered by a 1 $\frac{1}{8}$  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.

See pages 58-59.

**“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. See pages 70-73.

**PE21 Series.** Ideal for heavy-duty, extended-cycle applications. Powered by a 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 46-47. **“Quiet” Pumps.** Our PQ60 and PQ120 series operate at a very low noise level of between 73-78 dBA. The PQ60 has a 2 hp (single phase) motor; the PQ120 has a 3 hp (3-phase) motor. These pumps are designed for heavy-duty, extended cycle operations. CSA rated for intermittent duty. See pages 60-63.

**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 10 hp, 3-phase motor. Low noise rating of 73-80 dBA. See pages 64-65.



## 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, 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. See pages 66-67.

**PG55 Series.** With a 4-cycle, 4 hp Briggs & Stratton engine, this pump is based on our popular Vanguard® Series. It has a generous five gallon reservoir capacity. See pages 66-67.

**PG120 Series.** Powered by a 4-cycle, 5.5 hp Honda engine. Has a five gallon reservoir; capable of handling multiple-cylinder lifting tasks. Ideal for the structure moving, pier setting, bridge lifting and concrete contracting industries. See pages 68-69.

**PG4004.** Featuring a 4-cycle, 18 hp Briggs & Stratton engine, this unit has a big 20 gallon reservoir. Rugged steel “roll cage” has a hook on top and swivel casters for ease of mobility. Popular for concrete stressing applications.

See pages 68-69.



## 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. See pages 52-53.



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## Selection by application

