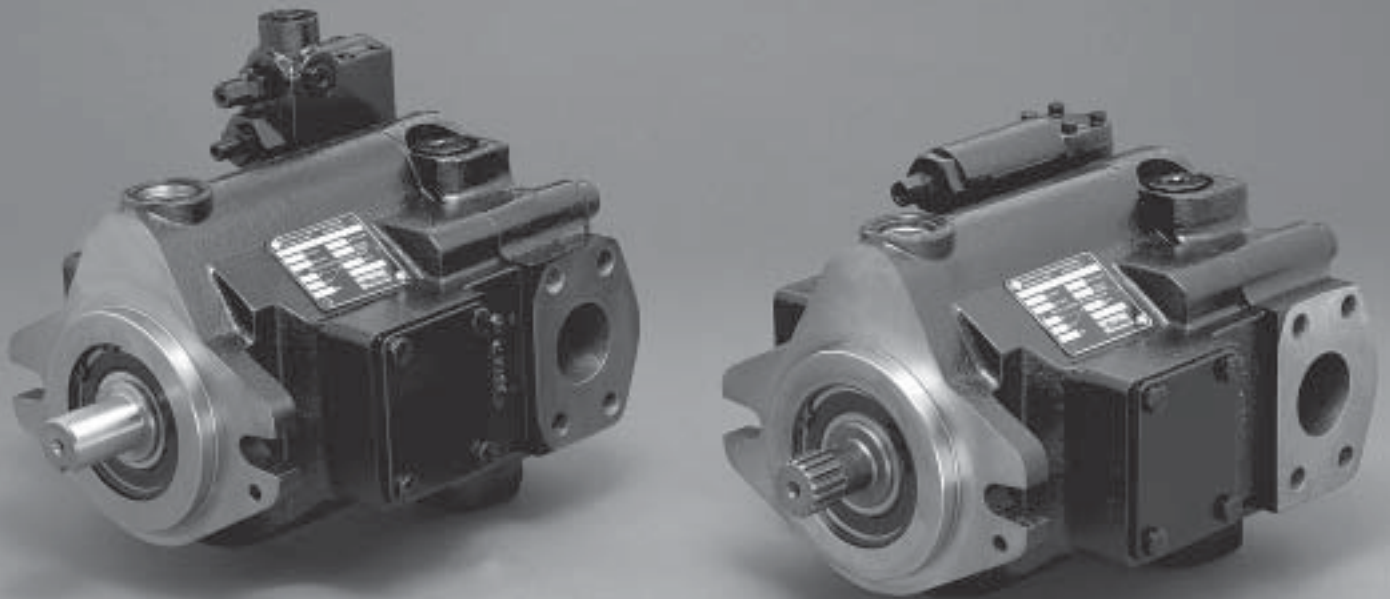


Series PHP40 Variable Volume, Piston Pumps

A

Bulletin 2600-112-B1/USA
November 1999



Performance Information
Series PHP40 Pressure
Compensated, Variable Volume,
Piston Pumps

Features

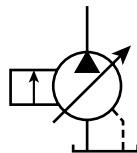
- High Strength Cast-Iron Housing for Reliability and Quiet Operation
- Replaceable Bronze Port Plate to Allow Easy Field Serviceability
- Replaceable Piston Slipper Plate
- Thru-Shaft Capability SAE A and B Pilots Available
- Low Noise Levels
- Fast Response Times
- Metric Pilot, Shaft, and Ports Available
- Low Control Pressures for Reduced Power Draw (Energy Efficient)

Controls

- Pressure Compensation
- Remote Pressure Compensation
- Load Sensing
- Hi/Lo Torque (Power) Limiting
- Adjustable Maximum Volume Stop
- Low Pressure Standby

Schematic Symbol

(Basic Pump)



Special Installation or Fluids

Consult your Parker representative on applications requiring higher than rated pressure, over-speed conditions, indirect drive, fluids other than mineral base fluid, and operation at temperatures above 71°C (160°F).



Specifications

Pressure Ratings

Outlet Port: 345 bar (5000 PSI) Continuous (P1)
 380 bar (5500 PSI) Peak (P3)

Inlet Port: 1.72 bar (25 PSI) Maximum
 .17 bar (5 In. Hg.) Vacuum
 Minimum @ 1800 RPM

Case Drain: .3 bar (5 PSI) Maximum
 Differential Over Inlet Port.
 1.0 bar (15 PSI) Maximum

Speed Ratings: 600 to 2800 RPM

Operating Temperature Range: - 40°C to 71°C
 (- 40°F to 160°F)

Housing Material: Cast-Iron

Filtration: ISO 16/13 Recommended,
 ISO 18/15 Maximum

Mounting: SAE "B" 2-Bolt or Metric

Installation Data:

See "Installation Information" on page A116 of Catalog 2600-102-1/USA for specific recommendations pertaining to system cleanliness, fluids, start-up, inlet conditions, shaft alignment, drain line restrictions and other important factors relative to the proper installation and use of these pumps.

Quick Reference Data Chart

Pump Model	Displacement cc/rev (In ³ /rev)	Pump Delivery @ 7 bar (100 PSI) in LPM (GPM)		*Approx. Noise Levels dB(A) @ Full Flow 1800 RPM (1200 RPM)						Input Power At 1800 RPM, Maximum Displacement & 345 bar (5000 PSI)
		1200 RPM	1800 RPM	34 bar (500 PSI)	69 bar (1000 PSI)	138 bar (2000 PSI)	207 bar (3000 PSI)	275 bar (4000 PSI)	345 bar (5000 PSI)	
				49.2 (13.0)	73.8 (19.5)	77 (68)	79 (72)	78 (75)	79 (76)	
PHP40	40 (2.44)	49.2 (13.0)	73.8 (19.5)	77 (68)	79 (72)	78 (75)	79 (76)	81 (76)	82 (76)	46.2 kw (62.0 hp)

* Since many variables such as mounting, tank style, plant layout, etc., effect noise levels, it cannot be assumed that the above readings will be equal to those in the field. The above values are for guidance in selecting the proper pump. Noise levels are A-weighted, mean sound pressure levels at 1 meter from the pump, measured and recorded in accordance with applicable ISO and NFPA standards.

Dimensions - Standard Pressure Compensator Pump

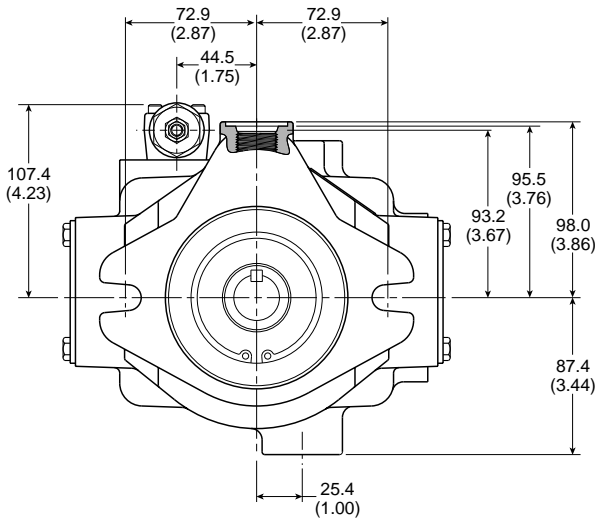
* Inch equivalents for millimeter dimensions are shown in (**).

Notes:

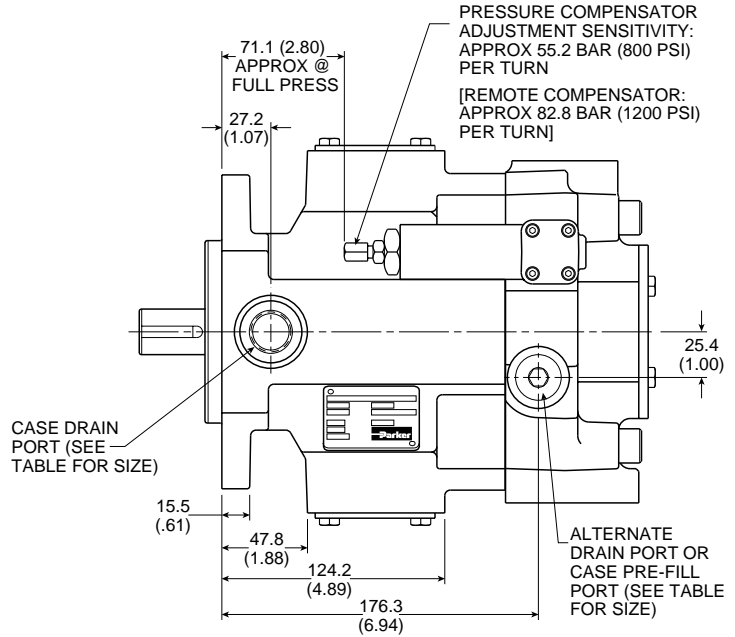
1. Right Hand (CW) rotation shown. Left Hand (CCW) pumps will have inlet and outlet ports reversed.
2. Pump shown with standard pressure compensator (control option "omit").

Option	INLET PORT (Code 61)	OUTLET PORT (Code 62)	Drain Port
2	1-1/2" SAE 4-Bolt Flange 1/2-13 Threaded Standard	1" SAE 4-Bolt Flange 7/16-14 Threaded High Pressure	SAE-10 Straight Thread (7/8-14 UNF)
8	1-1/2" SAE 4-Bolt Flange M12 x 1.75 Threaded Standard	1" SAE 4-Bolt Flange M12 x 1.75 Threaded High Pressure	ISO 6149 M22 x 1.5

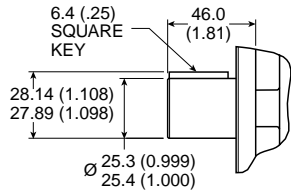
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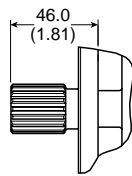
Front View



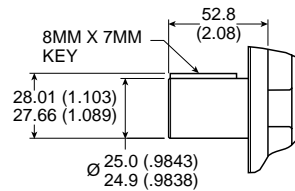
Top View



SHAFT OPTION "C"
 (SAE "B-B")
 MAX TORQUE = 338 N-m (2990 IN-LBS)

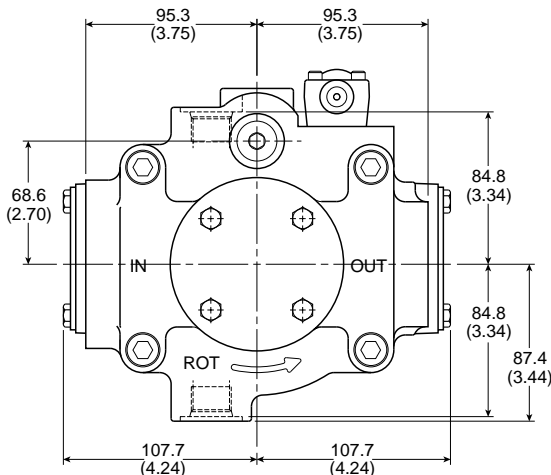


SHAFT OPTION "D"
 (SAE "B-B") 15 TOOTH 16/32 PITCH
 30° INVOLUTE SPLINE
 MAX TORQUE = 338 N-m (2990 IN-LBS)

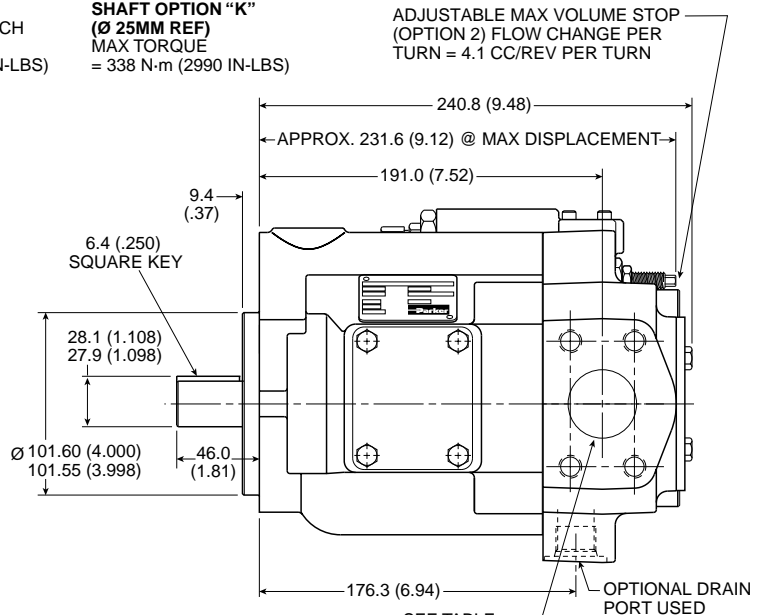


SHAFT OPTION "K"
 (Ø 25MM REF)
 MAX TORQUE = 338 N-m (2990 IN-LBS)

ADJUSTABLE MAX VOLUME STOP (OPTION 2) FLOW CHANGE PER TURN = 4.1 CC/REV PER TURN



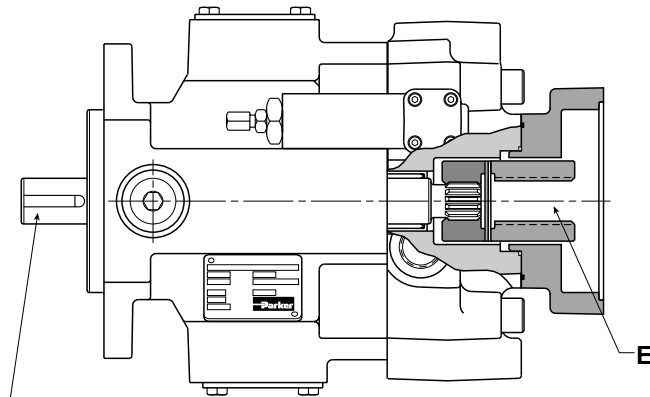
Rear View



Side View

Dimensions - Thru-Shaft Pump

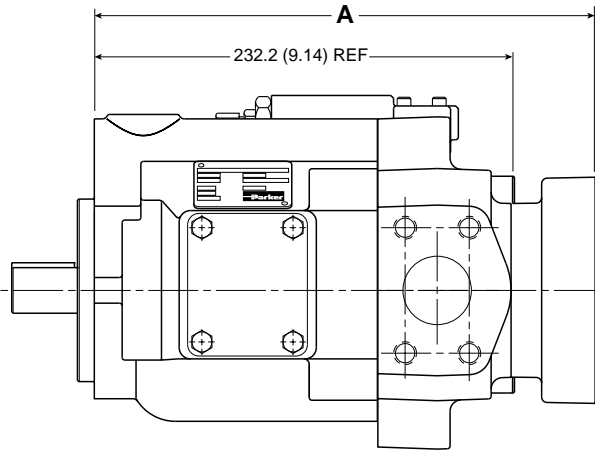
* Inch equivalents for millimeter dimensions are shown in (**).



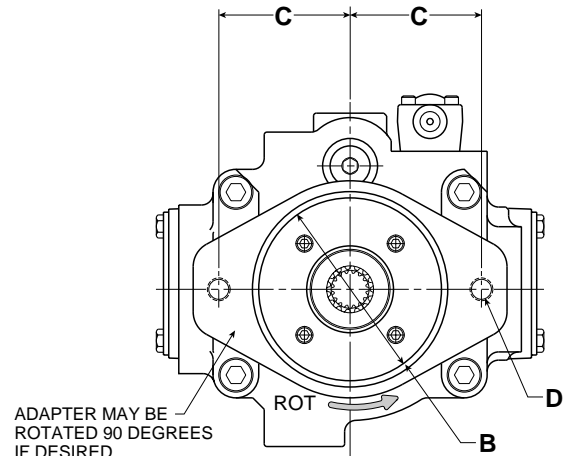
NOTE: INPUT TORQUE RATINGS SHOWN ON PAGE 2 INCLUDE COMBINED TORQUE OF BOTH PUMPS.

Top View

Note: Maximum torque transmitting capacity for rear mounting of pumps = 209 N*m (1850 IN-LBS). Lower allowables may apply based on pump mounted on rear.



Side View

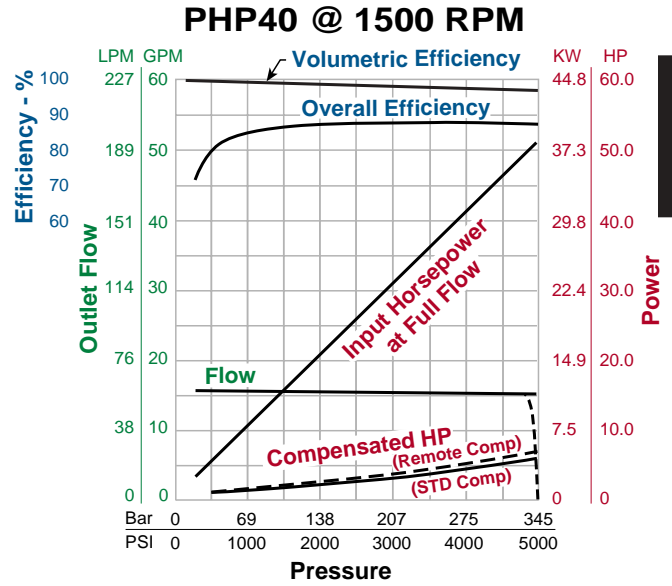
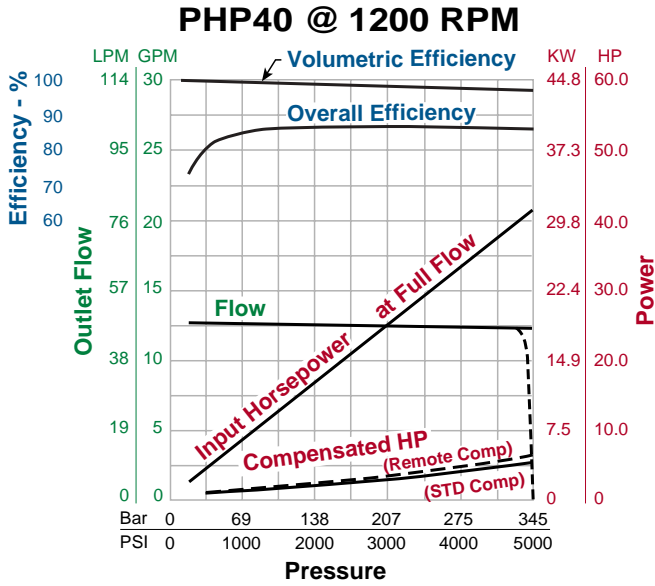


Front View

Dimensions – Thru Shaft Options

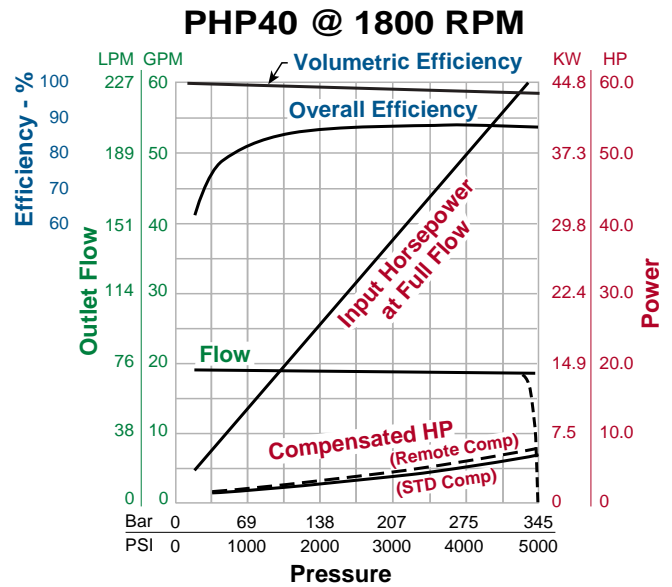
VARIATION	A	B	C	D	E
6A4	263.90 (10.39)	82.58/82.60 (3.251/3.252)	53.19 (2.094)	3/8-16UNC-2B	9 Tooth 16/32 Pitch
6A5	263.90 (10.39)	82.58/82.60 (3.251/3.252)	53.19 (2.094)	3/8-16UNC-2B	11 Tooth 16/32 Pitch
6B3	277.87 (10.94)	101.63/101.65 (4.001/4.002)	73.03 (2.875)	1/2-13UNC-2B	13 Tooth 16/32 Pitch
6B4	277.87 (10.94)	101.63/101.65 (4.001/4.002)	73.03 (2.875)	1/2-13UNC-2B	15 Tooth 16/32 Pitch
9A4	263.90 (10.39)	82.58/82.60 (3.251/3.252)	53.19 (2.094)	M10 X 1.5	9 Tooth 16/32 Pitch
9A5	263.90 (10.39)	82.58/82.60 (3.251/3.252)	53.19 (2.094)	M10 X 1.5	11 Tooth 16/32 Pitch
9B3	277.87 (10.94)	101.63/101.65 (4.001/4.002)	73.03 (2.875)	M12 X 1.75	13 Tooth 16/32 Pitch
9B4	277.87 (10.94)	101.63/101.65 (4.001/4.002)	73.03 (2.875)	M12 X 1.75	15 Tooth 16/32 Pitch

Note: Right Hand (CW) rotation, side ported pump shown. Left Hand (CCW) pumps will have inlet and outlet ports reversed.

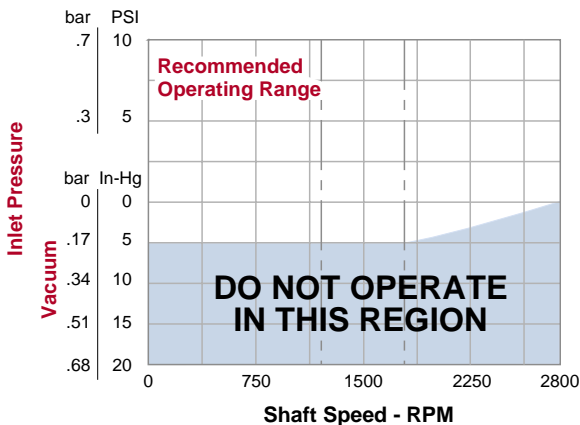


Note: The efficiencies and data in the graphs are accurate for pumps running at speeds shown and maximum stroke. To calculate approximate horsepower for other conditions, use the following formula...

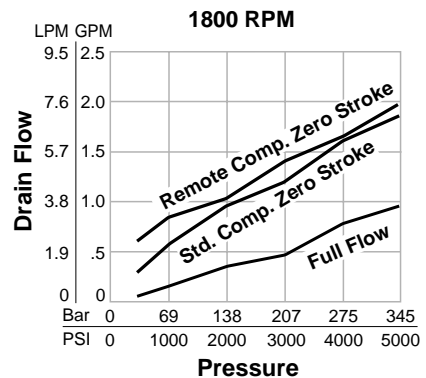
$$HP = \left[\frac{Q \times (PSI)}{1714} \right] + \text{Compensated HP}$$



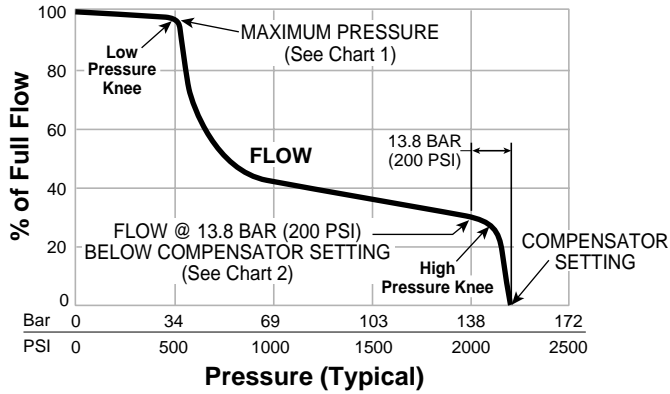
PHP40 Inlet Characteristics



Nominal Case Drain Flow



**Typical Hi-Lo
Flow Characteristics**



Determining how much the pressure will increase at the **Low Pressure Knee** by manually destroying the pump.

1. From "Chart 1" read the maximum obtainable pressure (P1) at the low pressure knee at the input power desired for the desired speed (N).
2. Calculate the theoretical full flow (Q1) of the pump at the desired speed.

$$Q1 \text{ (gpm)} = \frac{\text{(cc/rev)} \times \text{(N)}}{3785}$$

3. Pick a reduced output flow (Q2). This is done by decreasing the output of the pump using the optional volume stop.

4. Approximate the new maximum pressure at the low pressure knee for the input power desired (P2).

$$P2 = \frac{Q1 \times P1}{Q2}$$

Chart 1:

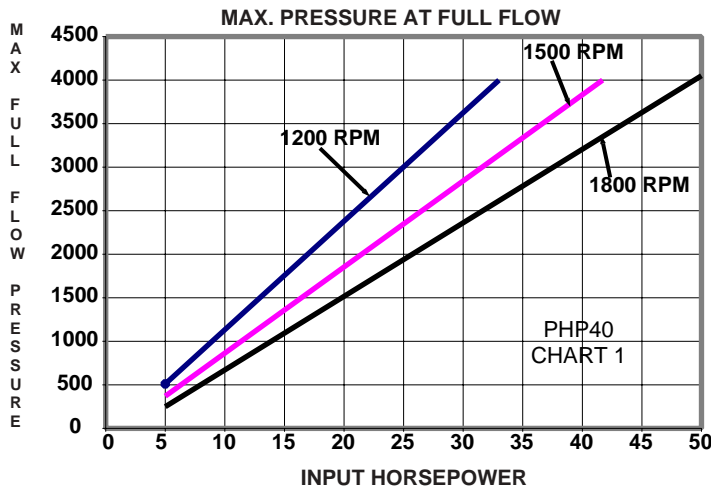
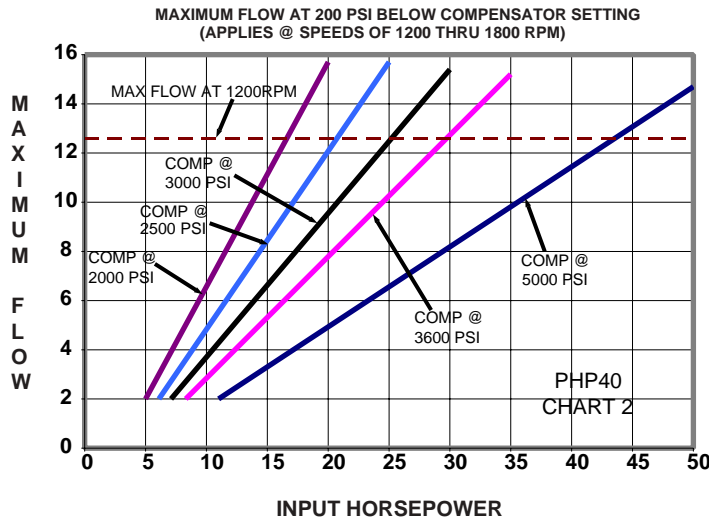
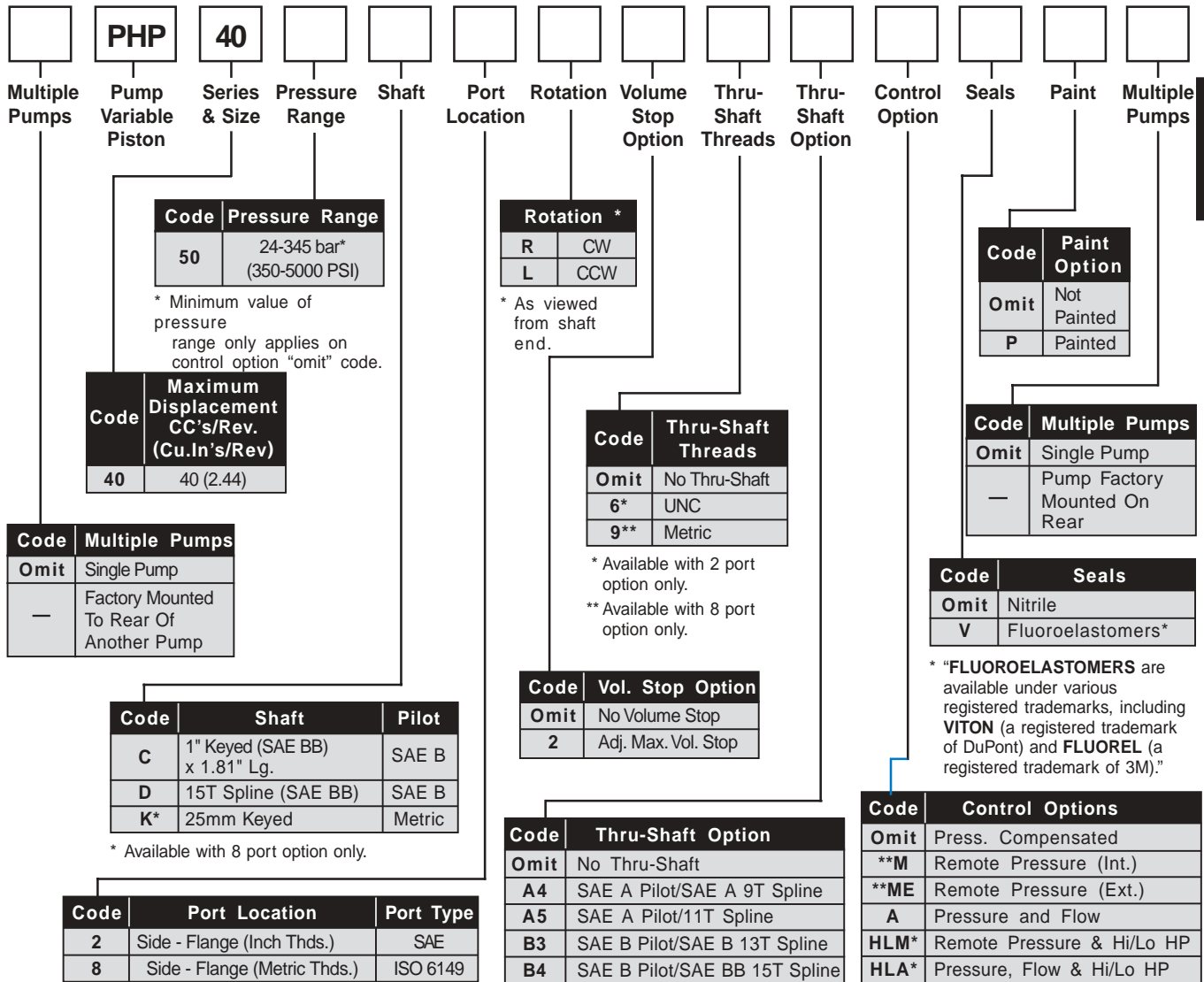


Chart 2:



Variable Volume Piston Pumps Series PHP40

Ordering Information



*Specify HP, RPM, Pressure and Flow when ordering.

** "M" (May be remotely controlled)
"ME" (Requires external pilot)

