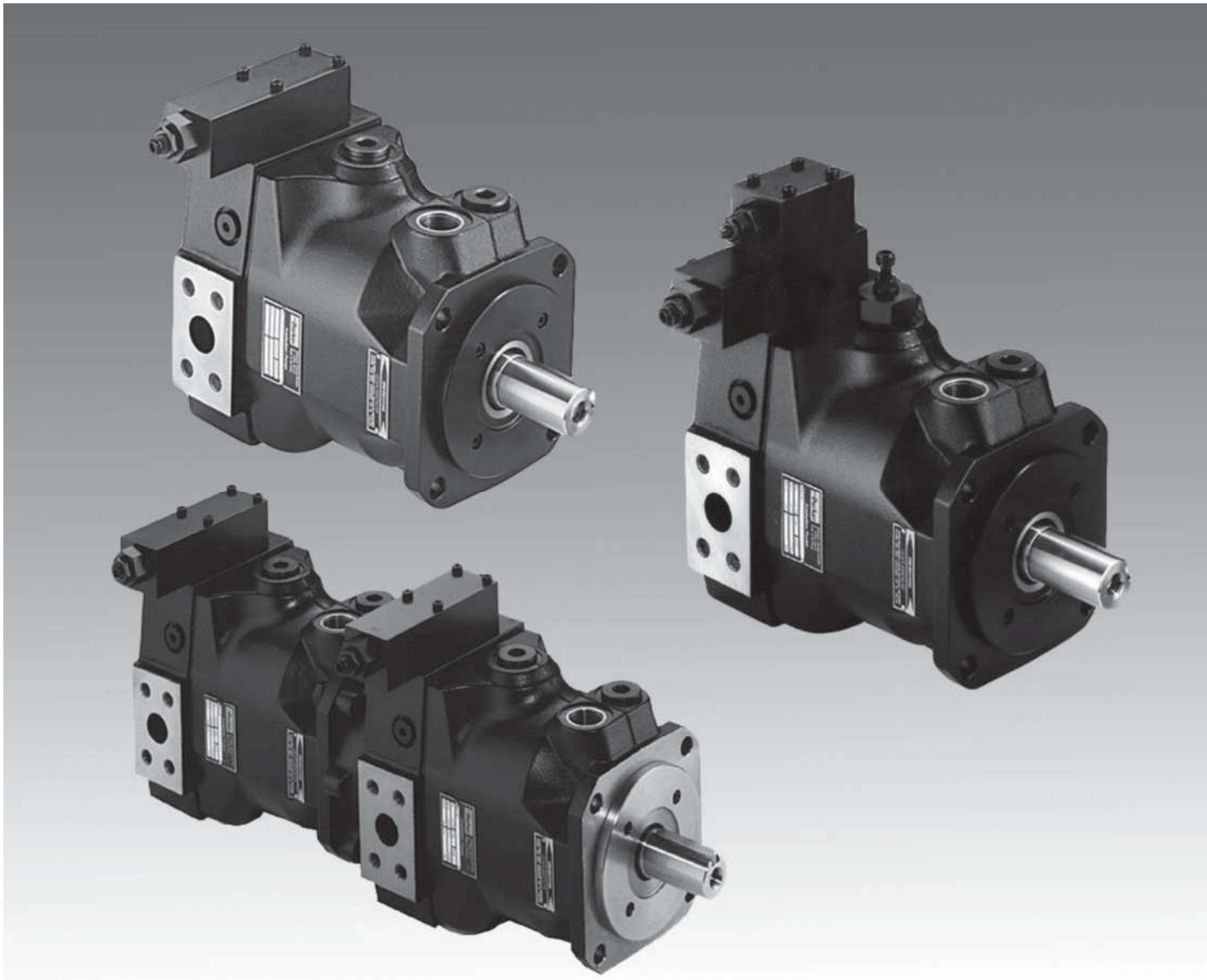
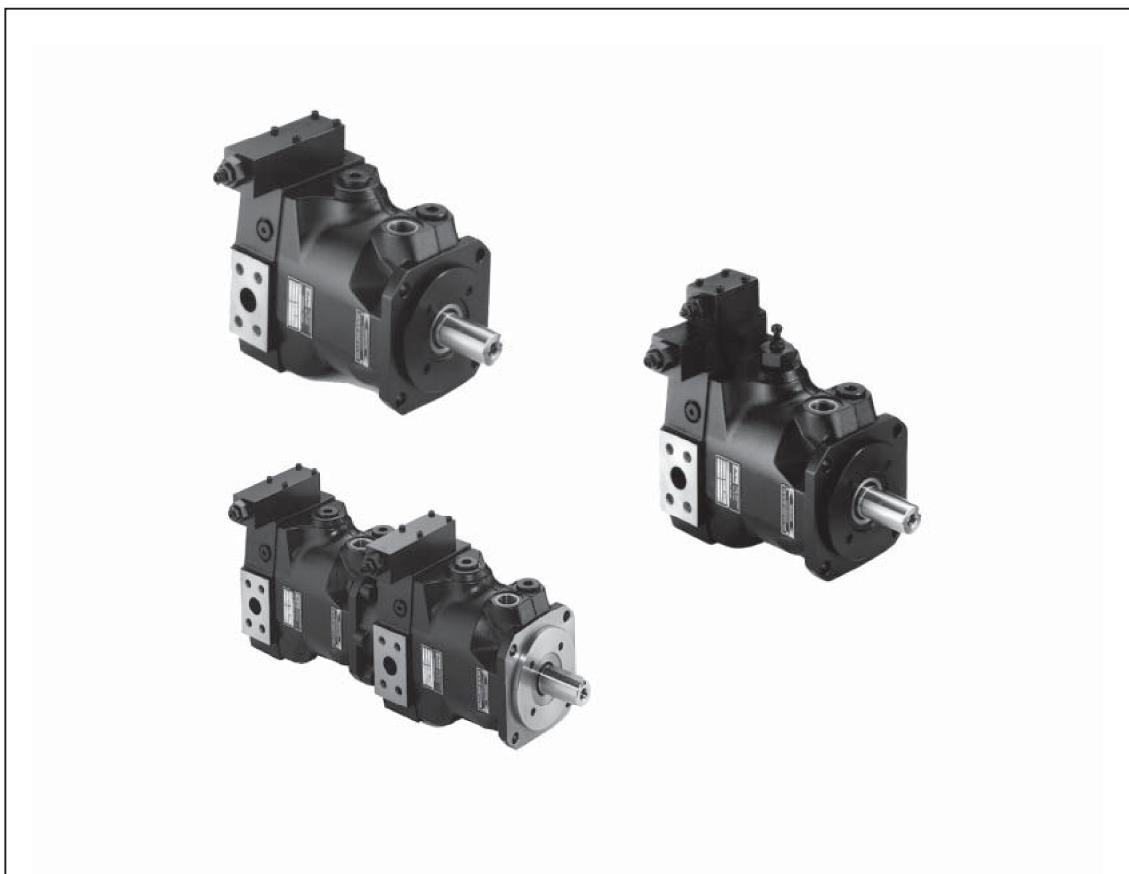




Series PV Variable Volume Piston Pumps

Catalog HY28-2661-CD/US

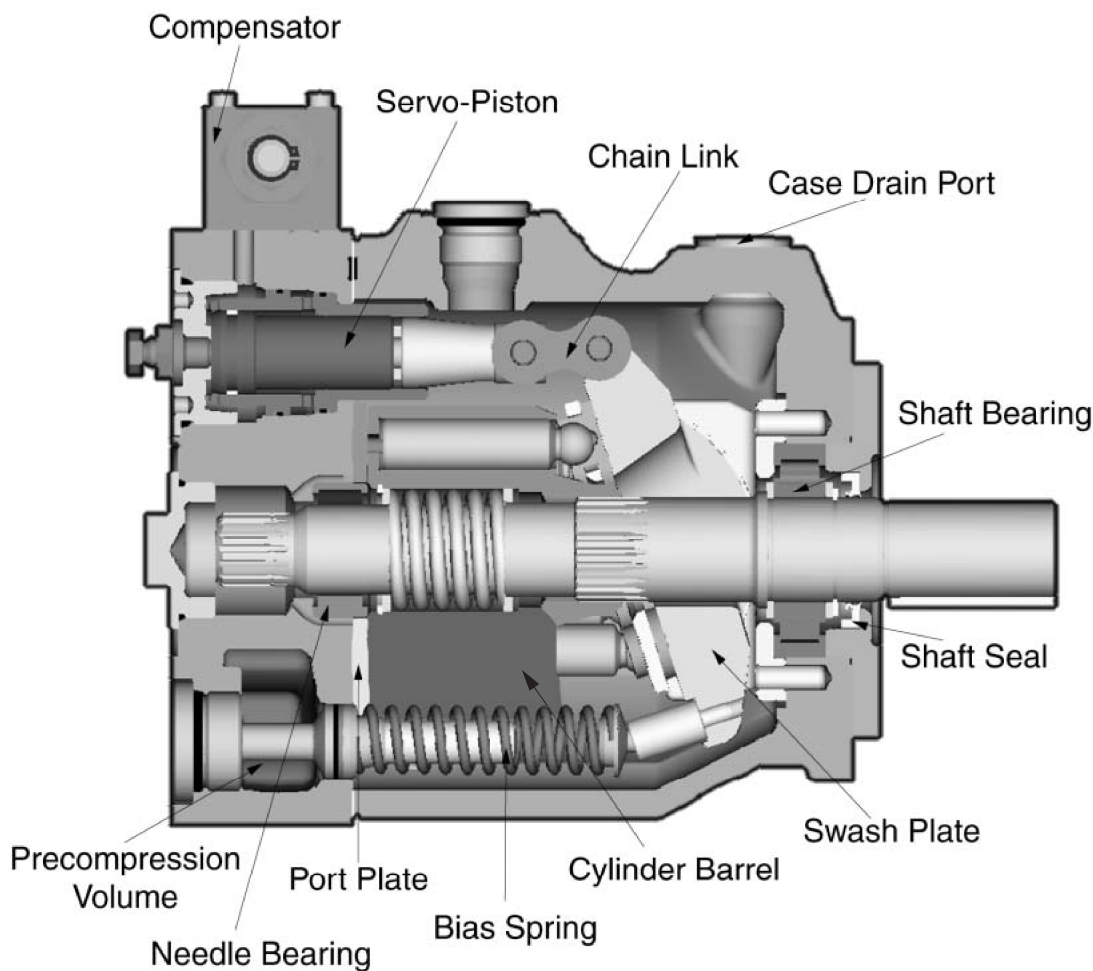


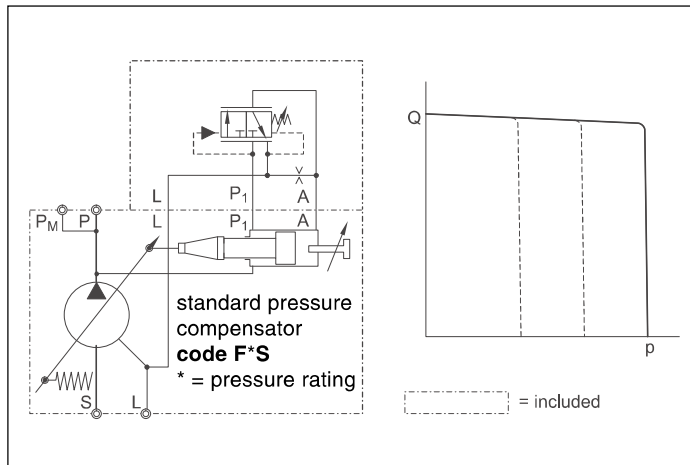


Quick Reference Data Chart

Pump Model	Displacement cc/rev (In ³ /rev)	Pump Delivery @ (7 bar) 100 PSI in LPM (GPM)		*Approx. Noise Levels dB(A) @ Full Flow and 1500 RPM			Power at 1800 RPM, Max. Displacement & 345 bar (5000 PSI)	Max. Operating Speed (RPM)
		1200 RPM	1800 RPM	70 bar (1000 PSI)	207 bar (3000 PSI)	343 bar (5000 PSI)		
PV016	16 (.98)	19.2 (5.1)	28.8 (7.6)	56	60	68	18.5 kw (24.8 hp)	3000
PV020	20 (1.2)	24.0 (6.3)	36.0 (9.5)	56	60	68	23.4 kw (31.4 hp)	3000
PV023	23 (1.4)	27.6 (7.3)	41.4 (10.9)	56	60	68	25.1 kw (33.6 hp)	3000
PV032	32 (1.9)	38.4 (10.1)	57.6 (15.2)	59	62	69	35.1 kw (47.0 hp)	2800
PV040	40 (2.4)	48.0 (12.7)	72.0 (19.0)	59	62	69	46.5 kw (62.4 hp)	2800
PV046	46 (2.8)	55.2 (14.6)	82.8 (21.9)	59	62	69	50.2 kw (67.3 hp)	2800
PV063	63 (3.8)	75.6 (20.0)	113.4 (30.0)	66	70	74	70.1 kw (94.0 hp)	2800
PV080	80 (4.8)	96.0 (25.4)	144.0 (38.0)	66	70	74	89.2 kw (119.6 hp)	2500
PV092	92 (5.6)	110.4 (29.2)	165.6 (43.8)	66	70	74	136.8 kw (183.5 hp)	2300
PV140	140 (8.5)	168.0 (44.4)	252.1 (66.6)	70	74	76	149.4 kw (200.4 hp)	2800
PV180	180 (10.9)	216.0 (57.1)	324.0 (85.6)	71	75	77	210.0 kw (282.0 hp)	2300
PV270	270 (16.5)	324.0 (85.6)	486.0 (128.4)	77	79	81	298.0 kw (400.0 hp)	1800

* The noise level values are based on anechoic room measurements at a distance of 1 meter in accordance with DIN 45645.

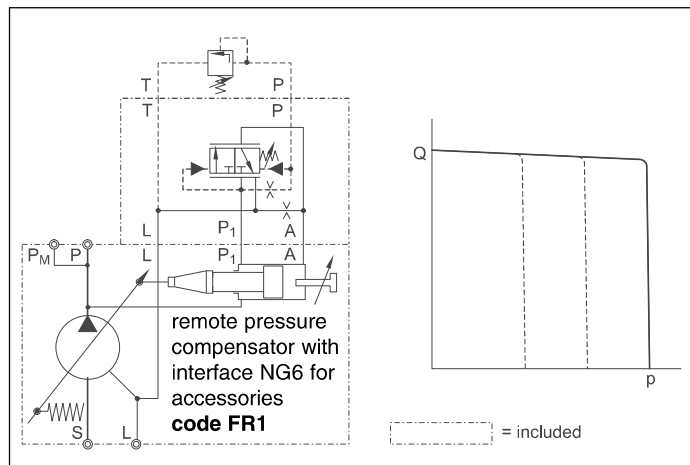


**Standard pressure compensator code F*S**

The standard pressure compensator adjusts the pump displacement according to the actual need of the system in order to keep the pressure constant.

As long as the system pressure at outlet port P is lower than the set pressure (set as spring preload of the compensator spring) the working port A of the compensator valve is connected to the case drain and the piston area is unloaded. Bias spring and system pressure on the annulus area keep the pump at full displacement.

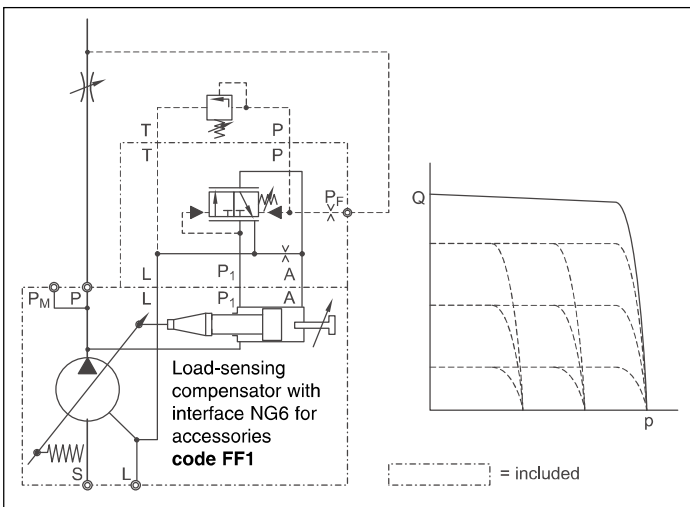
When the system pressure reaches the set pressure the compensator valve spool connects port P₁ to A and builds up a pressure at the servo piston resulting in a downstroking of the pump. The displacement of the pump is controlled in order to match the flow requirement of the system.

**Remote pressure compensator code FR1**

Version FR1 of the remote pressure compensator provides on its top side an interface NG6, DIN 24340 (CETOP 03 at RP35H, NFPA D03).

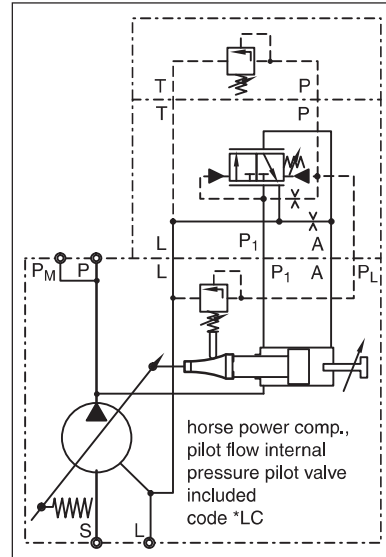
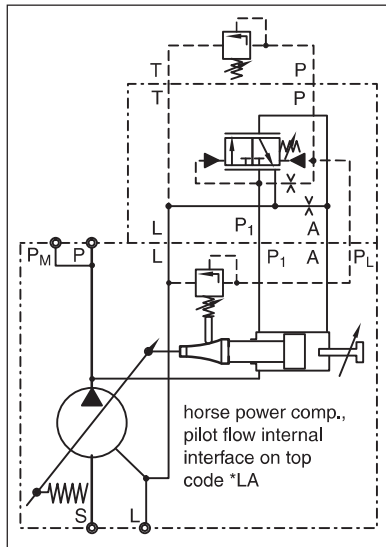
This interface allows a direct mounting of a pilot valve. Besides manual or electrohydraulic operated valves it is also possible to mount complete multiple pressure circuits directly on the compensator body. Parker offers a variety of these compensator accessories ready to install. See page 38 of this catalog.

All remote pressure compensators have a factory setting of 15 bar (217 PSI) differential pressure. With this setting, the controlled pressure at the pump outlet is higher than the pressure controlled by the pilot valve.

**Shown is load sensing compensator code**

FF1 with an NG6 interface on top of the control valve. That allows direct mounting of a pilot valve for pressure compensation. This version includes the pilot orifice. Due to the interaction of flow and pressure compensation this package is not the "ideal" control characteristic. The deviation is caused by the pilot valves characteristic.

Horsepower Compensators



Hydraulic-mechanical horsepower compensator

The hydraulic-mechanical horsepower compensator consists of a modified remote pressure compensator (**Code *L***) and a pilot valve. This pilot valve is integrated into the pump and is adjusted by a cam sleeve. The cam sleeve has a contour that is designed and machined for the individual displacement and the nominal horsepower setting.

At a large displacement the opening pressure (given by the cam sleeve diameter) is lower than at small displacements. This makes the pump compensate along a constant horsepower (torque) curve.

For all nominal powers of standard electric motors Parker offers a dedicated cam sleeve. The exchange of this cam sleeve (e. g.: to change horsepower setting) can easily be done without disassembly of the pump.

On top of that an adjustment of the horsepower setting can be done within certain limits by adjusting the preload of the pilot control cartridge spring. That allows an adjustment of a constant horsepower setting for other than the nominal speeds (1500 RPM) or for other horsepower.

The ordering code for the horse power option is as follows:

The first digit designates the horsepower setting:

Code B = 5 HP etc. up to

Code 3 = 200 HP

The second digit designates the pilot flow source:

Code L internal pilot pressure, remote pressure function.

The third digit designates the possibility to adjust the overriding pressure compensation:

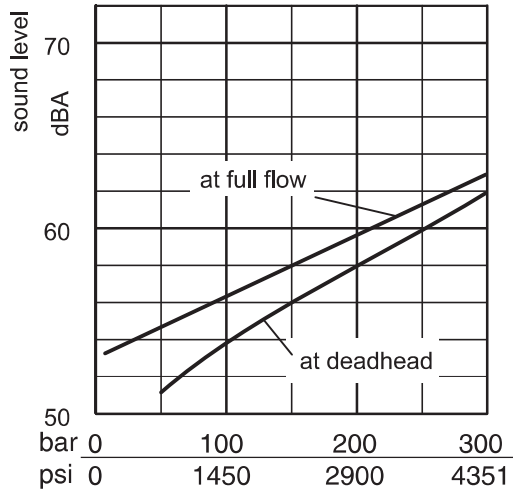
Code A comes with a top side NG6/D03 interface on the control valve to mount any suitable pilot valve or Parker pump accessories.

Code C includes a pilot valve for manual pressure adjustment. Max. setting: 350 bar (5075 PSI).

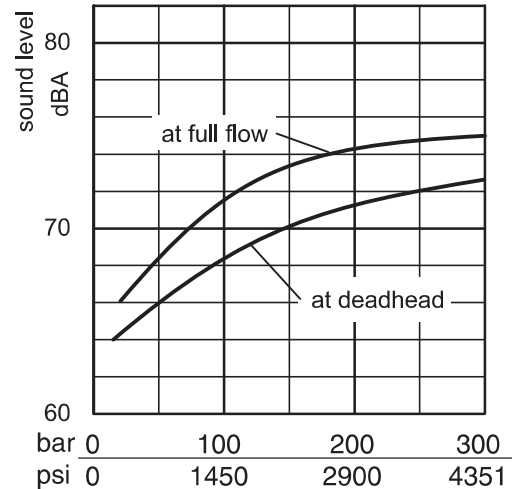
[] = included

Noise Levels

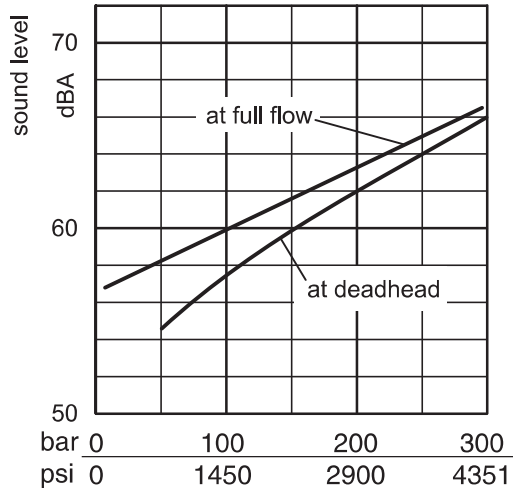
PV016 - PV023



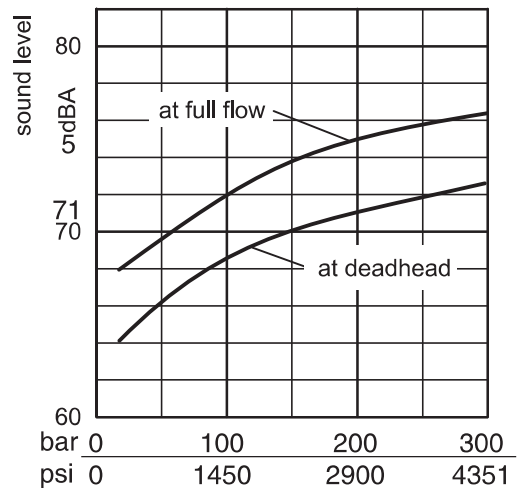
PV140



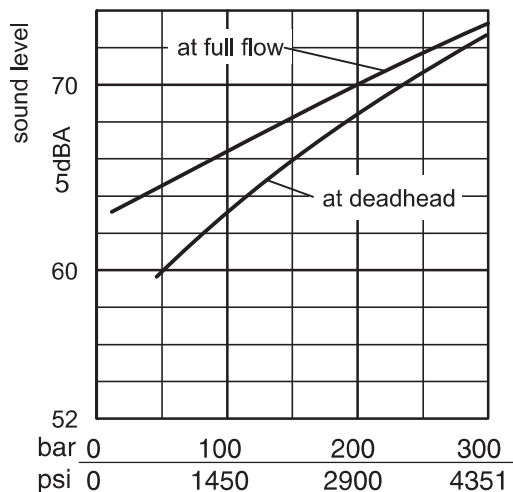
PV032 - PV046



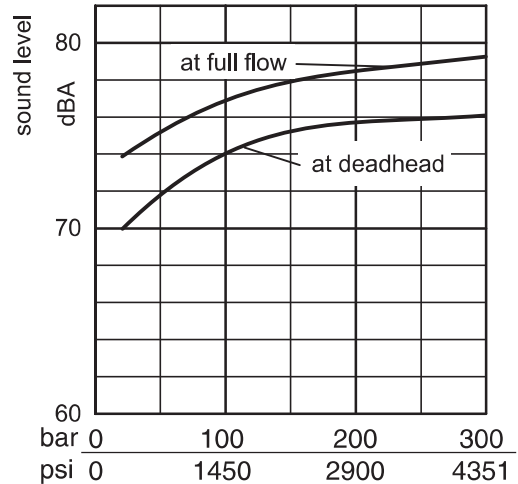
PV180



PV063 - PV092



PV270



Typical sound level for single pumps, measured in anechoic chamber according to DIN 45 635, part 1 and 26. microphone distance 1 m. speed: $n = 1500 \text{ min}^{-1}$.

All data measured with mineral oil viscosity $30 \text{ mm}^2/\text{s}$ (cSt) at 50°C .

Noise reduction measures

Operating noise of pumps

The normal operating noise of a pump and consequently the operating noise of the entire hydraulic system is largely determined by **where** and **how** the pump is mounted and how it is connected to the downstream hydraulic system. Also size, style and installation of the hydraulic tubing have a major influence on the overall noise emitted by a hydraulic system.

Noise reduction measures

Talking about operating noise of a hydraulic pump, primary and secondary pump noise has to be taken into consideration.

Primary pump noise is caused by vibrations of the pump body due to internal alternating forces stressing the body structure.

Flexible elements help to prevent pump body vibration being transmitted to other construction elements, where possible amplification may occur. Such elements can be:

Bell housing with elastic dampening flange with vulcanized labyrinth (1)

Floating and flexible coupling (2)

Damping rails (3) or silent blocks for mounting the electric motor or the foot mounting flange

Flexible tube connections (compensators) or hoses on inlet, outlet and drain port of the pump.

Exclusive use of gas tight tube fittings for inlet connections to avoid ingress of air causing cavitation and excessive noise.

Secondary pump noise is caused by vibration induced into all connected hydraulic components by the flow and pressure pulsation of the pump. This secondary noise adds typical 7 - 10 dBA to the noise of a pump measured in the sound chamber according to DIN 45 635. Therefore pipework, its mounting and the mounting of all hydraulic components like pressure filters and control elements has a major influence to the overall system noise level.

Pulsation reduction with precompression volume: the PV is equipped with a new technology for flow ripple reduction. This method reduces the pulsation at the pump outlet by 40 - 60 %. That leads to a significant reduction of the overall system noise without additional cost and without additional components (silencers etc.). The typical reduction reaches 2 - 4 dBA. That means: with a pump of the PV series the secondary noise adds only some 5 - 7 dBA to the pump noise instead of the usually found 7 - 10 dBA.

Figure 2 compares the measured pulsation of a system with 6 pumps of 180 cm³/rev each.

Last, but not least the connection between pump and driving motor can be the cause of an unacceptably high noise emission.

Even when the mounting space is limited there are suitable means and components to reduce the noise significantly.

The vibration of the pump body, created by high alternating forces in the rotating group and the pulsation of the output flow excite every part of the system connected to the pump mechanically or hydraulically .

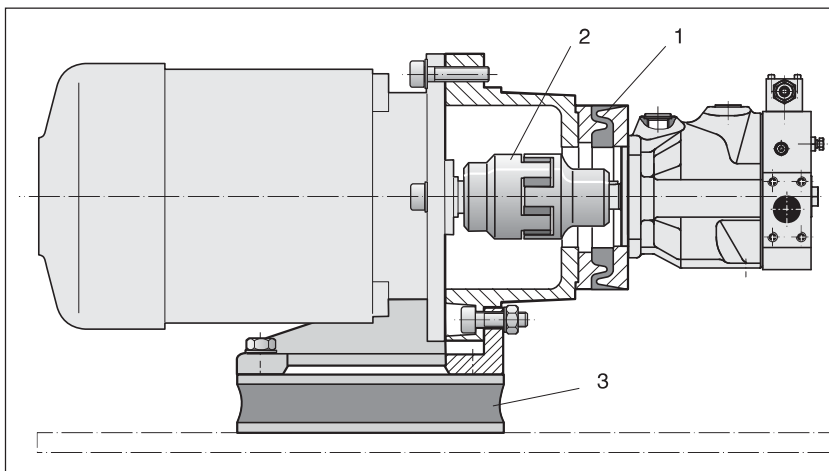


Figure 1: components to avoid vibration transfer from the pump to the drive/installation and their position in the power unit (numbers refer to the text on the left)

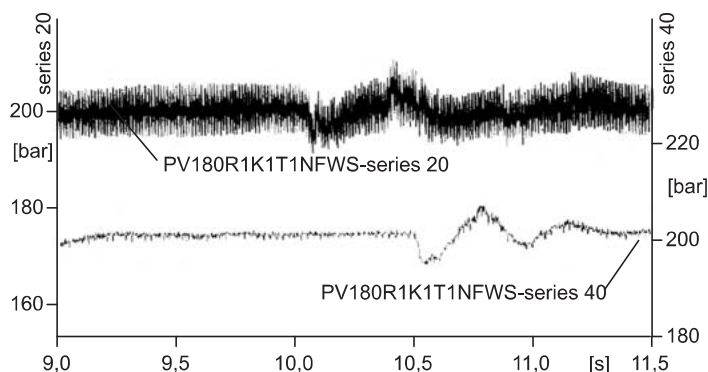


Figure 2: comparison of the pressure pulsation in a system with 6 old PV pumps versus the same system with 6 PVplus pumps. The pulsation reduction effect of the precompression volume is evident.

Other measures

Small diameter tubes do not only cause high flow speeds, turbulences inside the tubes and cavitation in the pump, they also produce noise.

Only correctly sized connections of the largest possible diameter according to the port size of the pump should be used.

Performance Information

Series PV, Pressure Compensated, Variable Volume, Piston Pumps

Features

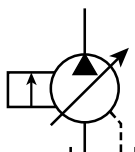
- High Strength Cast-Iron Housing for high reliability and quiet operation
- Modular Controls for field convertability
- Large Control Piston for fast response
- Thru-Shaft Option with 100% thru torque capability
- Multiple Pressure Control with valves mounted directly on pump
- Pre-Compression chamber to minimize over-all system noise

Controls

- Pressure Compensation
- Remote Pressure Compensation
- Load Sensing
- Adjustable Maximum Volume Stop
- Electrohydraulic Pressure
- Dual and Tri-Pressure Control
- Low Pressure Standby
- Horsepower Limiting

Schematic Symbol

(Basic Pump)



Installation Data

See Installation Information on page 44 of this catalog 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 products.



Specifications

Pressure Ratings: 5000 PSI (350 bar) Continuous
 6000 PSI (420 bar) Peak

Speed Ratings: 600 to 3000 RPM

Inlet Condition: 230 PSI (16 bar)
 Maximum Inlet Charge
 5 In. Hg. Max. Vacuum at
 1800 RPM

Case Drain Conditions: 7 PSI (0.5 bar) Maximum

Operating Temp. Range: -40°F to 160°F
 (-40°C to 70°C)

Housing Material: Cast Iron

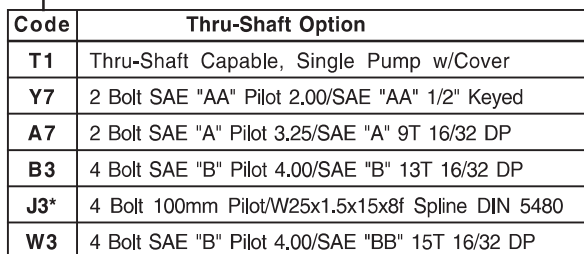
Filtration: Maintain SAE Class 4 (ISO 16/13)

Mounting: SAE "B" 4-Bolt Flange

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 and 1500 RPM			Input Power At 1800 RPM, Max. Displacement & 343 bar (5000 PSI)	Max. Operating Speed (RPM)
		1200 RPM	1800 RPM	70 bar (1000 PSI)	207 Bar (3000 PSI)	343 bar (5000 PSI)		
PV016	16 (.98)	19.2 (5.1)	28.8 (7.6)	56	60	68	18.5 kw (24.8 hp)	3000
PV020	20 (1.2)	24.0 (6.3)	36.0 (9.5)	56	60	68	23.4 kw (31.4 hp)	3000
PV023	23 (1.4)	27.6 (7.3)	41.4 (10.9)	56	60	68	25.1 kw (33.6 hp)	3000

* The noise level values are based on anechoic room measurements at a distance of 1 meter in accordance with DIN 45645.

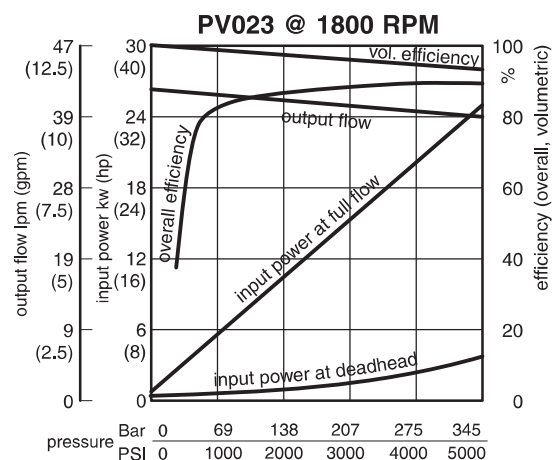
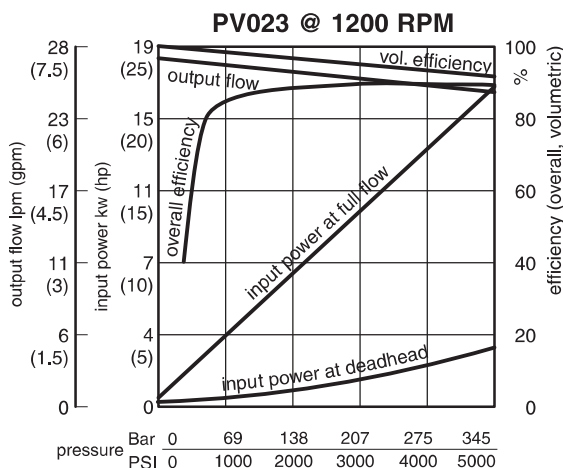
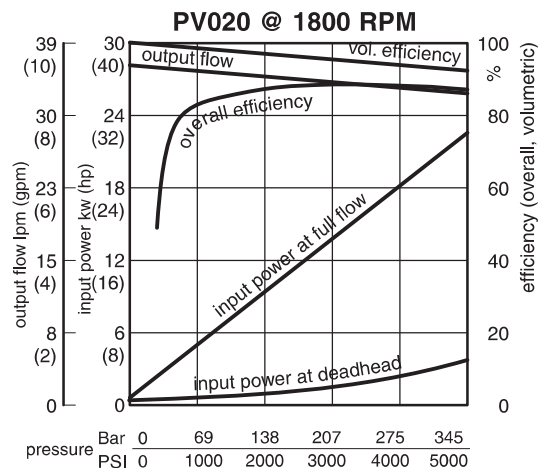
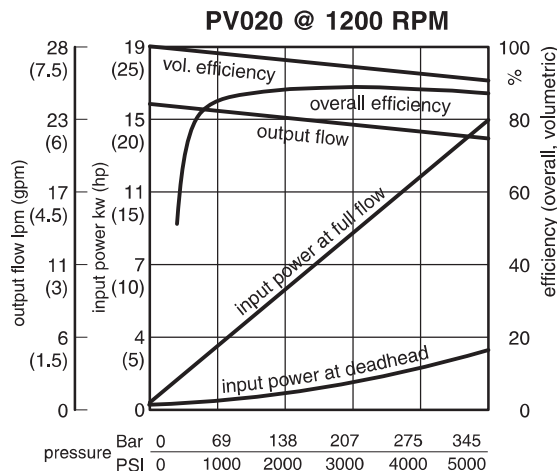
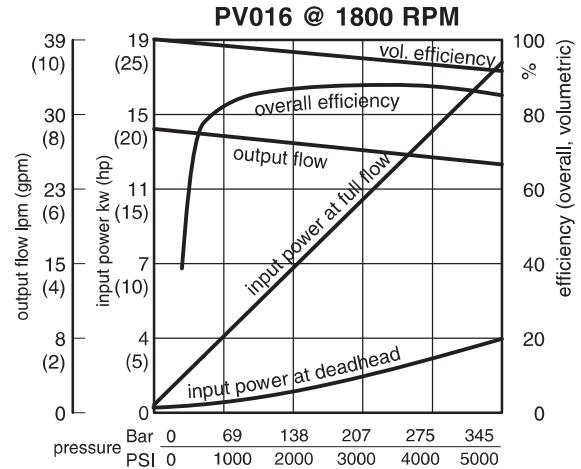
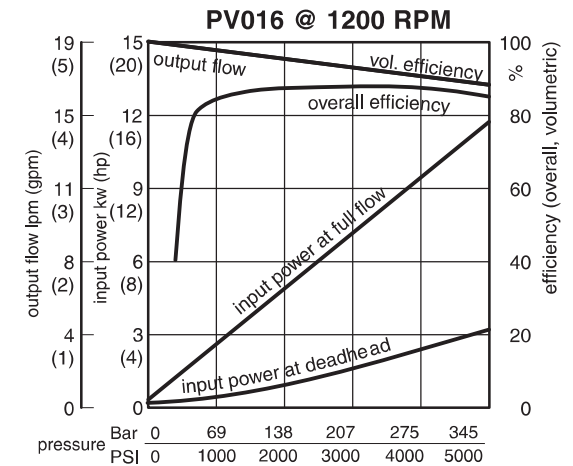


Code		Control Options	
F	●		Standard Pressure Compensator
	●		Adjustment Type
	S		Screw With Nut
	●		Pressure Range
	W		70-350 bar (1015-5075 PSI)
H	40-210 bar (580-3050 PSI)		
D	10-140 bar (150-2050 PSI)		
F	●		Remote/Load Sense Compensator
	●		Control Port
	1		NG6/Cetop3 (D1VW) Pattern *
	P		With PVAC1PC**S** Max Pressure Valve Mounted
	Z		NG6 with Pressure Valve Mnt'd**
	●		Compensator Control Type
	R		Remote Pressure
F	Load Sensing		
● L ●	●		Horsepower Compensator Control
	●		Control Port
	A		NG6/Cetop3 (DIVW) Pattern*
	C		NG6 with PVAC1PCS*S** Valve Mounted
	Z		NG6 with Pressure Valve Mounted**
	●		Input Horsepower at 1800 RPM
	B		5.0 (175 in-lb Torque)
	C		7.5 (262 in-lb Torque)
	D		10.0 (350 in-lb Torque)
E	15.0 (525 in-lb Torque)		
G	20.0 (700 in-lb Torque)		

** Valve to be mounted at factory must be ordered as a separate line item. Consult factory. See PVAC section for pressure valve options.

Performance Curves

Fluid: Standard Hydraulic Oil 100 SSU @ 120°F (49°C)



NOTE: The efficiencies and data in the graphs are good only for pumps running at speeds shown and stroked to maximum. To calculate approximate horsepower for the other conditions, use the following formula:

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

Actual GPM is directly proportional to drive speed and

maximum volume setting. Flow loss, however, is a function of pressure only.

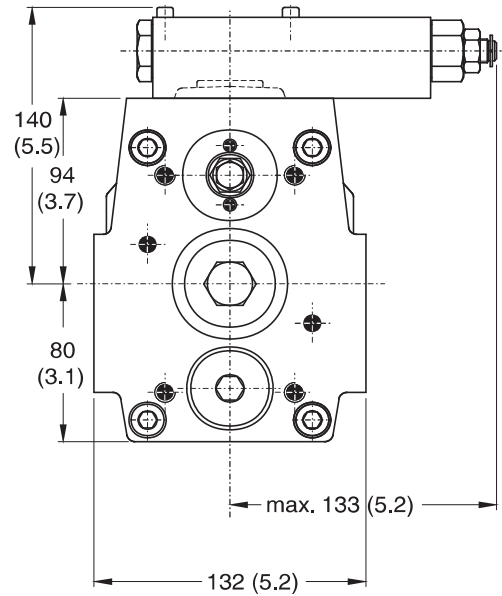
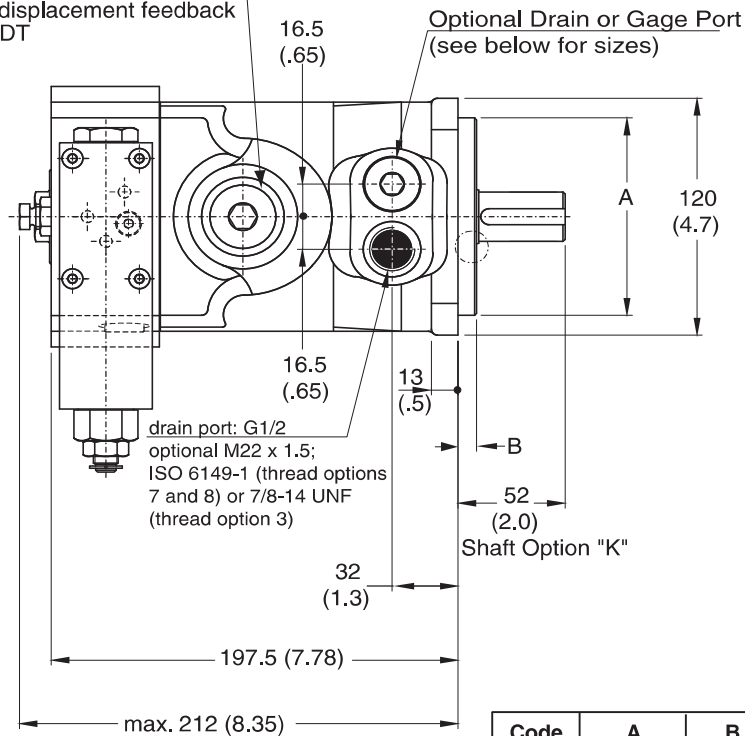
WHERE:

Q = Actual Output Flow in GPM

PSI = Pressure At Pump Outlet

CHp = Input Horsepower @ Full compensation
 @ 1800 RPM (from graph read at
 operating pressure)

mounting hole for horse
 power compensator pilot
 or displacement feedback
 LVDT



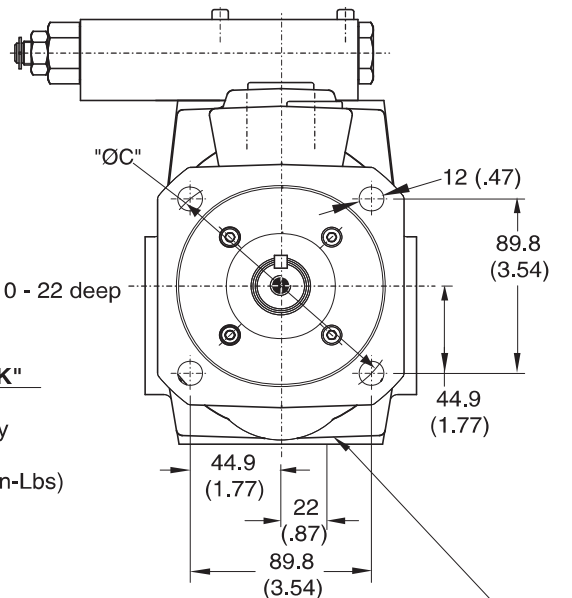
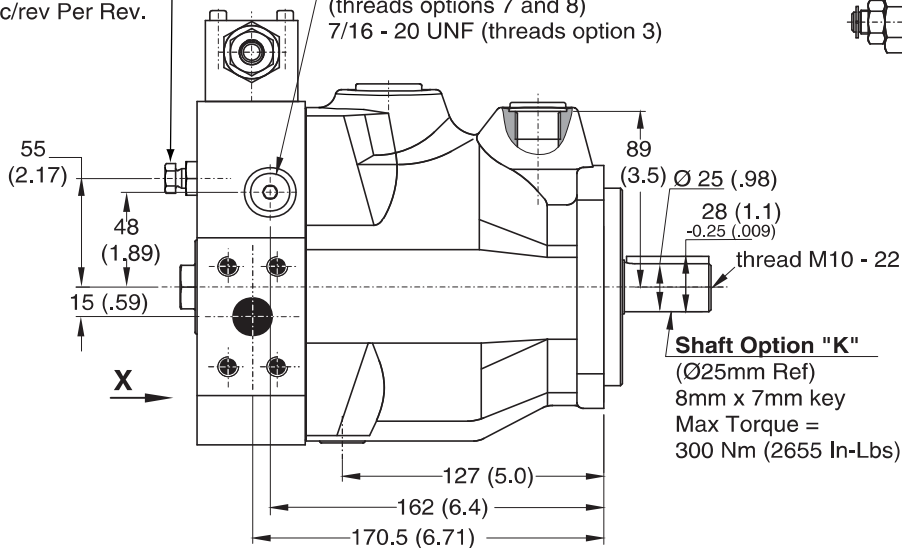
View X

Shown with standard pressure compensator

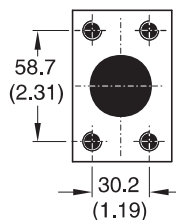
Code	A	B	ØC
D,E	4.0"	.37"	5.0"
K,L	100mm	9mm	125mm

Adjustable Vol. Stop
 1.5 cc/rev Per Rev.

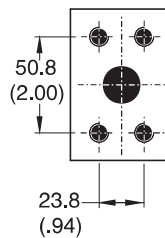
gage port G 1/4
 optional M 12 x 1.5; ISO 6149-1
 (threads options 7 and 8)
 7/16 - 20 UNF (threads option 3)



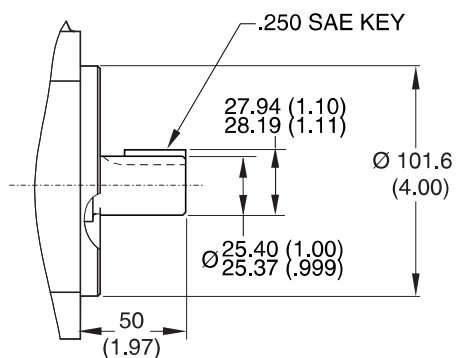
flushing port: G 3/8
 optional M 18 x 1.5; ISO 6149-1
 (threads options 7 and 8)
 or 3/4 - 16 UNF (thread option)



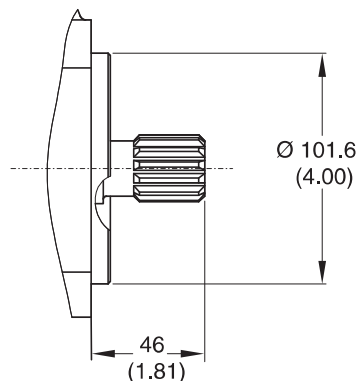
Inlet:
Option 3 & 7
 1-1/4" 4 Bolt Flange
 7/16-14 UNC-2B Threads
Option 1 & 8
 32mm 4 Bolt Flange
 M10 Threads
 Standard Pressure Series
 (Code 61)



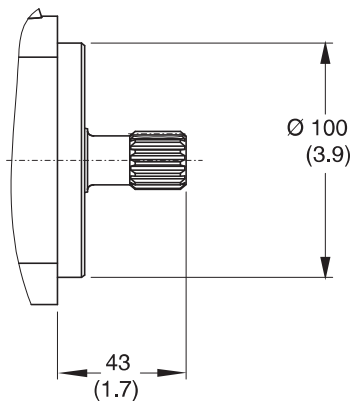
Outlet:
Option 3 & 7
 3/4" 4 Bolt Flange
 3/8-16 UNC-2B Threads
Option 1 & 8
 19mm 4 Bolt Flange
 M10 Threads
 High Pressure Series (Code 62)



Shaft Option "D"
 (SAE "BB")
 Max Torque= 300 Nm (2655 In-Lbs)

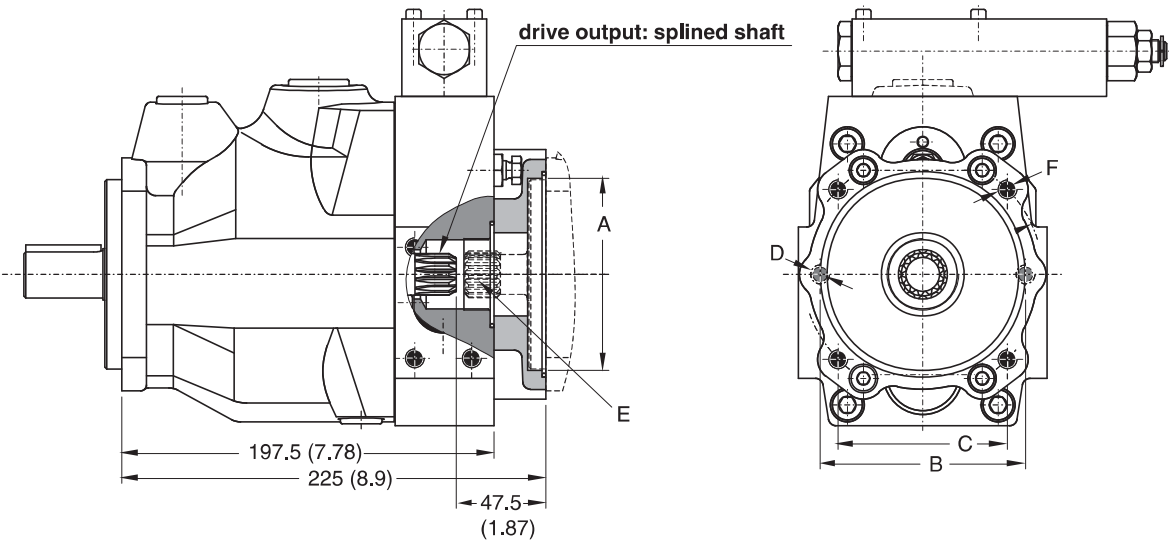


Shaft Option "E"
 (SAE "BB")
 15 Teeth 16/32 Pitch
 30° Involute Spline
 Max Torque= 300 Nm (2655 In-Lbs)



Shaft Option "L"
 W25mm x 1.5mm x 15mm x 8f
 DIN 5480
 Max Torque = 405 Nm (3584 In-Lbs)

Thru-Shaft Options



Thru-Shaft Load Limitations

The maximum allowable torque of the individual shaft must not be exceeded. For 2-pump combinations there is no problem because the PV series offers 100% thru torque capabilities. For 3-pump combinations or more the limit torque could be reached or exceeded. Therefore it is necessary to calculate the torque factor and compare the sum of each pumps torque factor to the table to make sure it does not exceed the torque limit factor.

Pump	Shaft	Torque Limit Factor
PV016-023	D	17700
	E	17700
	K	17700
	L	20130

Required: Sum of all calculated torque factors must be <torque limit factor.

Torque factor of any pump =
Pressure (bar) x Displacement (cc/rev)

Code	A	B	C	D	E*	F
A7	Ø3.25"	4.188"	-	3/8"-16	SAE "A" 9T 16/32 DP SPLINE	-
B3	Ø4.00"	-	3.536"	-	SAE "B" 13T 16/32 DP SPLINE	1/2"-13
J3	Ø100mm	-	44mm	-	W25 X 1.5 X 8f SPLINE	M10
W3	Ø4.00"	-	3.536"	-	SAE "BB" 15T 16/32 DP SPLINE	1/2"-13
Y7	Ø2.00"	3.250"	-	5/16-18	SAE "AA" 1/2" KEYED	-

*Coupling included with pump when ordered from Greeneville, TN.

Performance Information

Series PV, Pressure Compensated, Variable Volume, Piston Pumps

Features

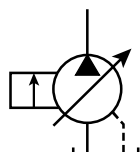
- High Strength Cast-Iron Housing for high reliability and quiet operation
- Modular Controls for field convertability
- Large Control Piston for fast response
- Thru-Shaft Option with 100% thru torque capability
- Multiple Pressure Control with valves mounted directly on pump
- Pre-Compression chamber built in to minimize over-all system noise

Controls

- Pressure Compensation
- Remote Pressure Compensation
- Load Sensing
- Adjustable Maximum Volume Stop
- Electrohydraulic Pressure
- Dual and Tri-Pressure Control
- Low Pressure Standby
- Horsepower Limiting

Schematic Symbol

(Basic Pump)



Installation Data

See Installation Information on page 44 of this catalog for specific recommendations pertaining to a 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 products.



Specifications

Pressure Ratings: 5000 PSI (350 bar) Continuous
 6000 PSI (420 bar) Peak

Speed Ratings: 600 to 2800 RPM

Inlet Condition: 230 PSI (16 bar)
 Maximum Inlet Charge
 5 In. Hg. Max. Vacuum at
 1800 RPM

Case Drain Conditions: 7 PSI (0.5 bar) Maximum

Operating Temp. Range: -40°F to 160°F
 (-40°C to 70°C)

Housing Material: Cast Iron

Filtration: Maintain SAE Class 4 (ISO 16/13)

Mounting: SAE "C" 4-Bolt Flange

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 and 1500 RPM			Input Power At 1800 RPM, Max. Displacement & 343 bar (5000 PSI)	Max. Operating Speed (RPM)
		1200 RPM	1800 RPM	70 bar (1000 PSI)	207 bar (3000 PSI)	343 bar (5000 PSI)		
PV032	32 (1.9)	38.4 (10.1)	57.6 (15.2)	59	62	69	35.1 kw (47.0 hp)	2800
PV040	40 (2.4)	48.0 (12.7)	72.0 (19.0)	59	62	69	46.5 kw (62.4 hp)	2800
PV046	46 (2.8)	55.2 (14.6)	82.8 (21.9)	59	62	69	50.2 kw (67.3 hp)	2800

* The noise level values are based on anechoic room measurements at a distance of 1 meter in accordance with DIN 45645.

Ordering Information

Variable Volume Piston Pumps

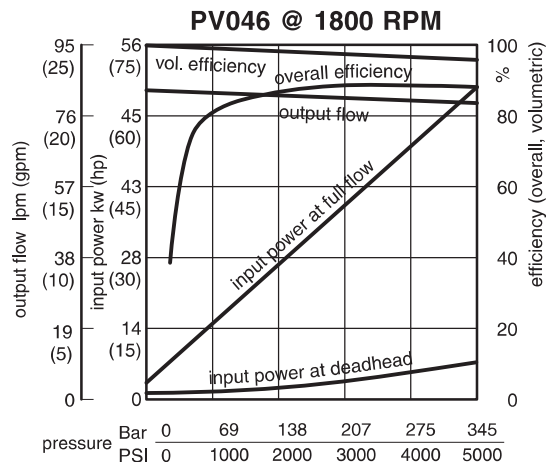
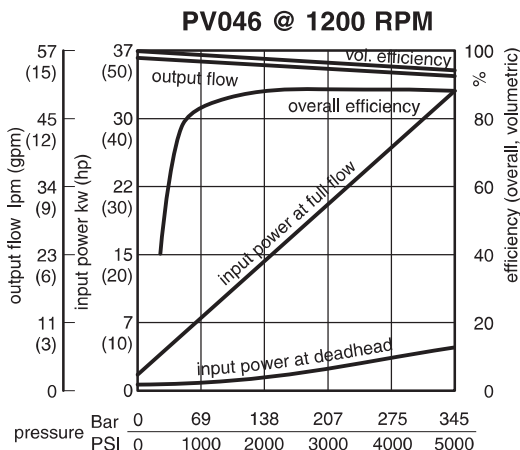
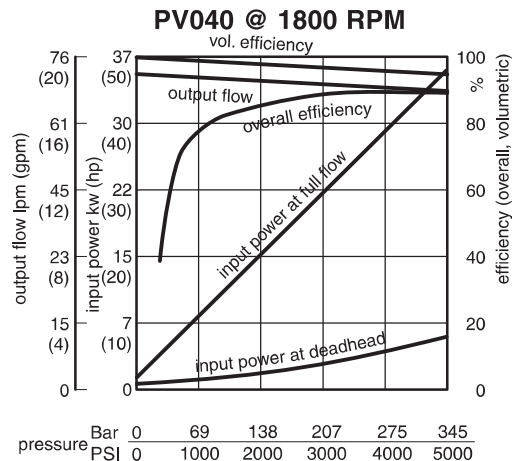
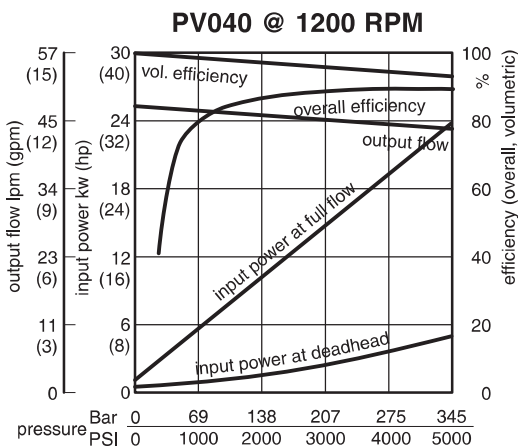
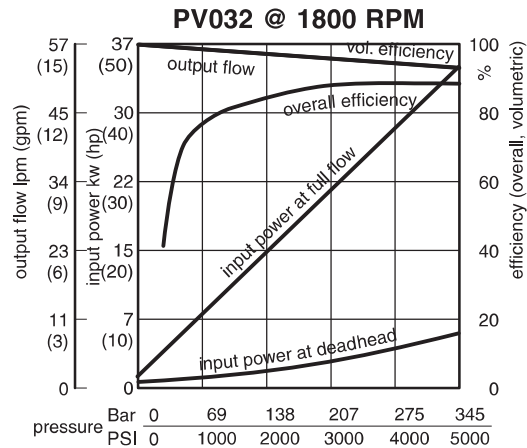
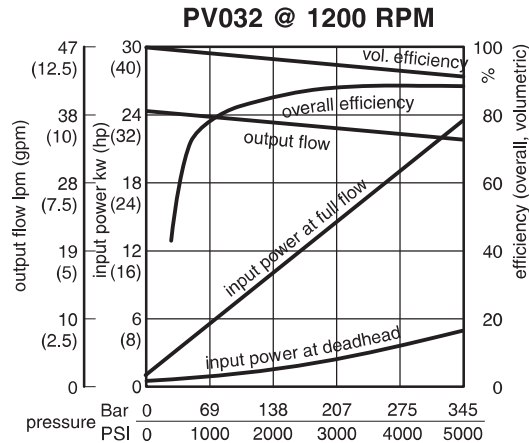
Series PV 032/040/046

Multiple Pumps	PV Pump Variable Piston	Displacement	Rotation	Variations	Shaft & Mounting	Threads	Thru-Shaft Option	Seals	Control Options	Paint	Multiple Pumps																																																						
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* Maximum pressure adjustment for pump not included, but necessary. See PVAC section for pressure valve options.

** Valve to be mounted at factory must be ordered as a separate line item. Consult factory. See PVAC section for pressure valve options.

Performance Curves Fluid: Standard Hydraulic Oil 100 SSU @ 120°F (49°C)



NOTE: The efficiencies and data in the graphs are good only for pumps running at speeds shown and stroked to maximum. To calculate approximate horsepower for the other conditions, use the following formula:

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

maximum volume setting. Flow loss, however, is a function of pressure only.

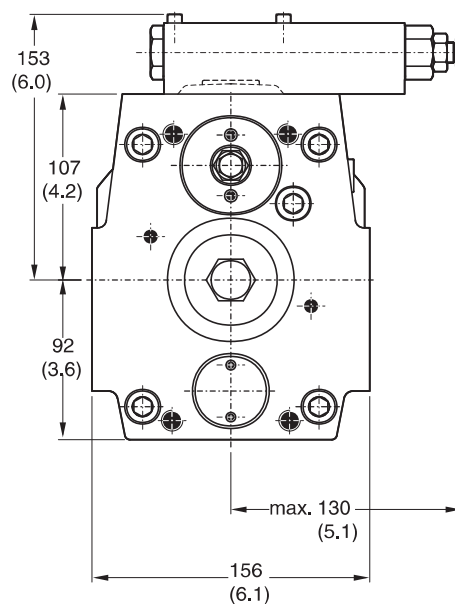
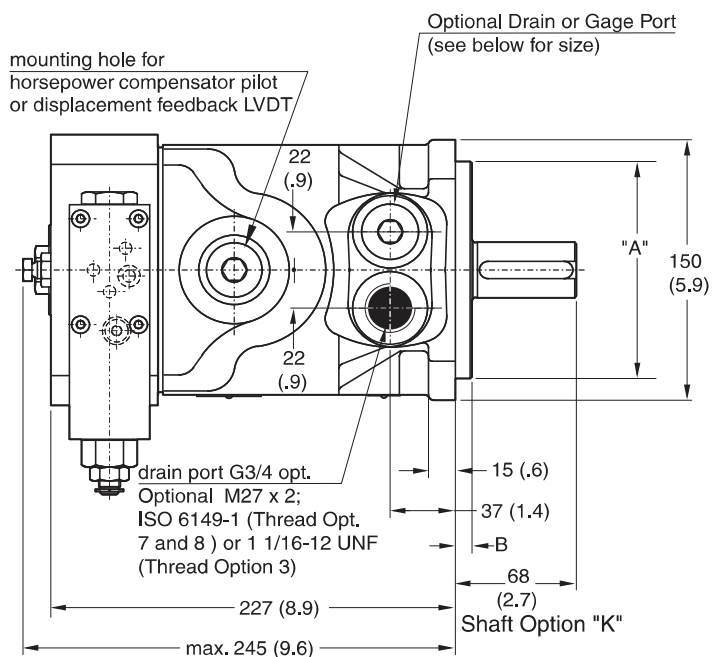
WHERE:

Q = Actual Output Flow in GPM

PSI = Pressure At Pump Outlet

CHp = Input Horsepower @ Full compensation
 @ 1800 RPM (from graph read at
 operating pressure)

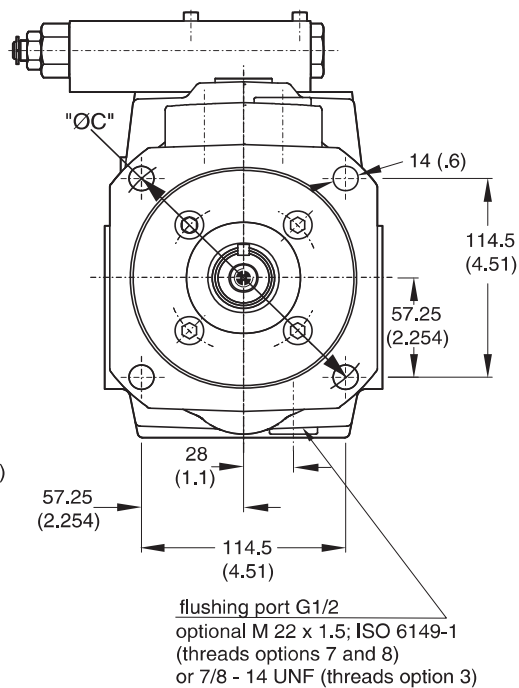
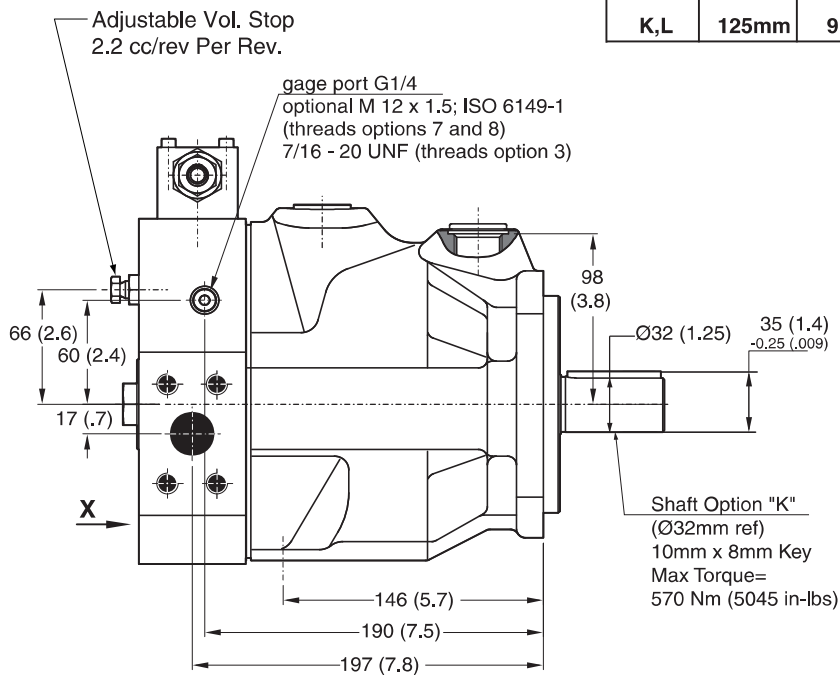
Actual GPM is directly proportional to drive speed and

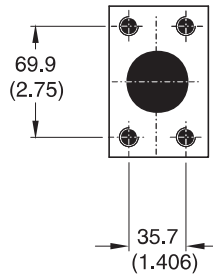


View X

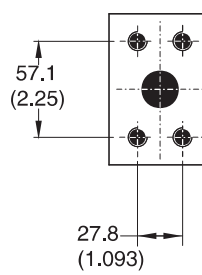
Shown with standard pressure compensator

Code	A	B	ØC
D,E	5.0"	.50"	6.37"
K,L	125mm	9mm	160mm

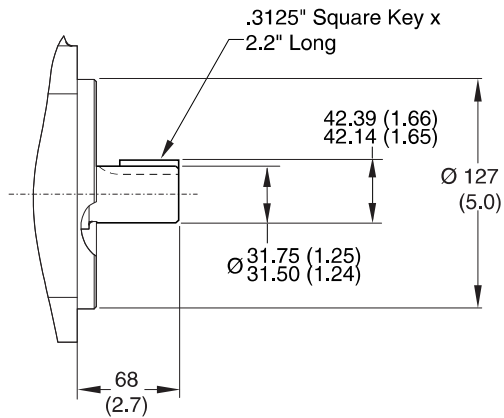




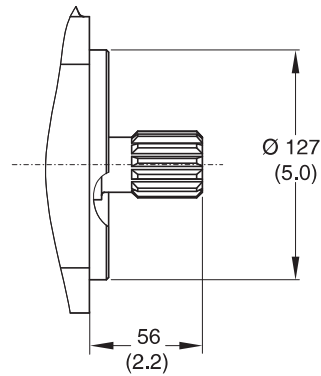
Inlet:
Option 3 & 7
 1-1/2" 4 Bolt Flange
 1/2-13 UNC-2B Threads
Option 1 & 8
 35mm 4 Bolt Flange
 M12 Threads
 Standard Pressure Series
 (Code 61)



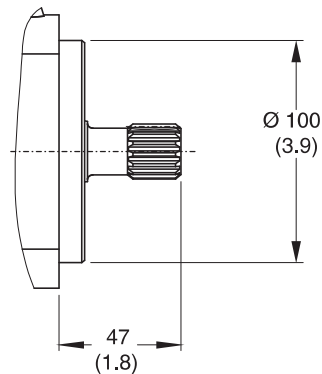
Outlet:
Option 3 & 7
 1" 4 Bolt Flange
 7/16-14 UNC-2B Threads
Option 1 & 8
 25mm 4 Bolt Flange
 M12 Threads
 High Pressure Series (Code 62)



Shaft Option "D"
 (SAE "C")
 Max Torque= 550 Nm (4868 In-Lbs)

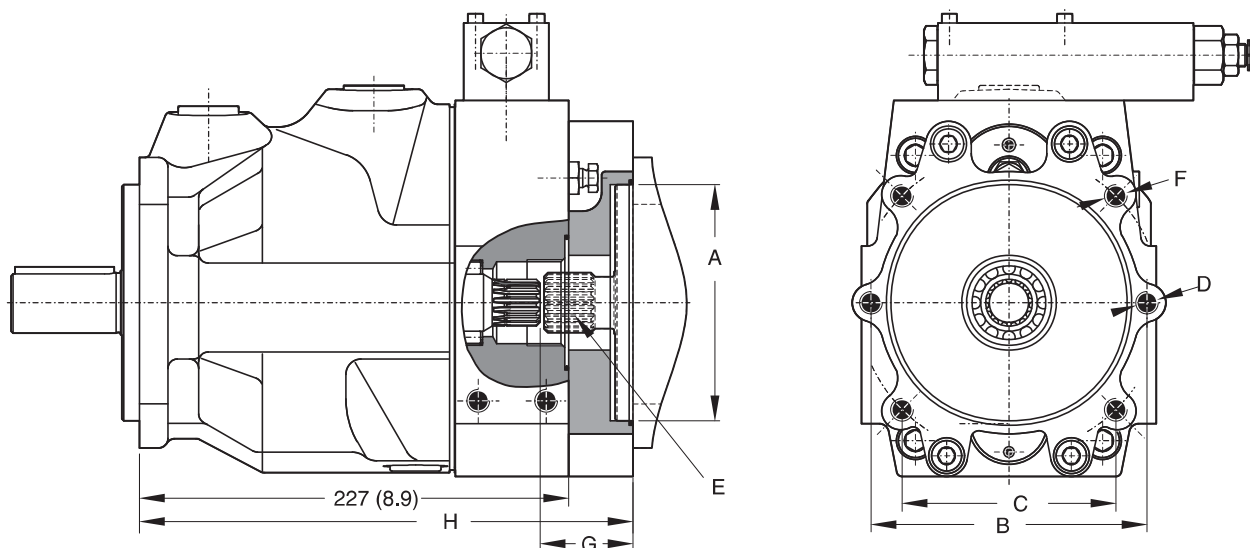


Shaft Option "E"
 (SAE "C")
 14 Teeth 12/24 Pitch
 30° Involute Spline
 Max Torque= 610 Nm (5399 In-Lbs)



Shaft Option "L"
 W32mm x 1.5mm x 20mm x 8f
 DIN 5480
 Max Torque = 675 Nm (5974 In-Lbs)

Thru-Shaft Options



Thru-Shaft Load Limitations

The maximum allowable torque of the individual shaft must not be exceeded. For 2-pump combinations there is no problem because the PV series offers 100% thru torque capabilities. For 3-pump combinations or more the limit torque could be reached or exceeded. Therefore it is necessary to calculate the torque factor and compare the sum of each pumps torque factor to the table to make sure it does not exceed the torque limit factor.

Pump	Shaft	Torque Limit Factor
PV032-046	D	32680
	E	36380
	K	33810
	L	40250

Required: Sum of all calculated torque factors must be <torque limit factor.

Torque factor of any pump =
 Pressure (bar) x Displacement (cc/rev)

Code	A	B	C	D	E*	F	G	H
A7	Ø3.25"	4.188"	-	3/8"-16	SAE "A" 9T 16/32 DP SPLINE	-	1.93"	10.27"
B3	Ø4.00"	-	3.536"	-	SAE "B" 13T 16/32 DP SPLINE	1/2"-13	1.93"	10.27"
B7	Ø4.00"	5.750"	-	1/2"-13	SAE "B" 13T 16/32 DP SPLINE	-	1.93"	10.27"
W3	Ø4.00"	-	3.530"	-	SAE "BB" 15T 16/32 DP SPLINE	1/2"-13	1.93"	10.27"
W7	Ø4.00"	5.750"	-	1/2"-13	SAE "BB" 15T 16/32 DP SPLINE	-	1.93"	10.27"
C3	Ø5.00"	-	4.508"	-	SAE "C" 14T 12/24 DP SPLINE	1/2"-13	2.52"	10.87"
J3	Ø100mm	-	44mm	-	W25 x 1.5 x 15 x 8f SPLINE	M10	1.93"	10.27"
K3	Ø125mm	-	57mm	-	W32 x 1.5 x 20 x 8f SPLINE	M12	1.93"	10.27"

*Coupling included with pump if ordered from Greeneville, TN

Performance Information

Series PV, Pressure Compensated, Variable Volume, Piston Pumps

Features

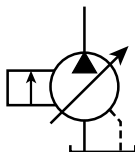
- High Strength Cast-Iron Housing for high reliability and quiet operation
- Modular Controls for field convertability
- Large Control Piston for fast response
- Thru-Shaft Option with 100% thru torque capability
- Multiple Pressure Control with valves mounted directly on pump
- Pre-Compression chamber to minimize over-all system noise

Controls

- Pressure Compensation
- Remote Pressure Compensation
- Load Sensing
- Adjustable Maximum Volume Stop
- Electrohydraulic Pressure Control
- Dual and Tri-Pressure
- Low Pressure Standby
- Horsepower Limiting

Schematic Symbol

(Basic Pump)



Installation Data

See Installation Information on page 44 of this catalog 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 products.



Specifications

Pressure Ratings: 5000 PSI (350 bar) Continuous
 6000 PSI (420 bar) Peak

Speed Ratings: 600 to 2800 RPM (PV063)
 600 to 2500 RPM (PV080)
 600 to 2300 RPM (PV092)

Inlet Conditions: 230 PSI (16 bar)
 Maximum Inlet Charge
 5 In. Hg. Max. Vacuum at
 1800 RPM

Case Drain Conditions: 7 PSI (0.5 bar) Maximum

Operating Temp. Range: -40°F to 160°F
 (-40°C to 70°C)

Housing Material: Cast Iron

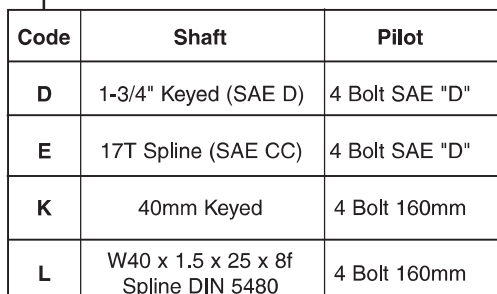
Filtration: Maintain SAE Class 4 (ISO 16/13)

Mounting: SAE "D" 4-Bolt Flange

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 and 1500 RPM			Input Power At 1800 RPM, Max. Displacement & 343 bar (5000 PSI)	Max. Operating Speed (RPM)
		1200 RPM	1800 RPM	70 bar (1000 PSI)	207 bar (3000 PSI)	343 bar (5000 PSI)		
PV063	63 (3.8)	75.6 (20.0)	113.4 (30.0)	66	70	74	70.1 kw (94.0 hp)	2800
PV080	80 (4.8)	96.0 (25.4)	144.0 (38.0)	66	70	74	89.2 kw (119.6 hp)	2500
PV092	92 (5.6)	110.4 (29.2)	165.6 (43.8)	66	70	74	136.8 kw (183.5 hp)	2300

* The noise level values are based on anechoic room measurements at a distance of 1 meter in accordance with DIN 45645.

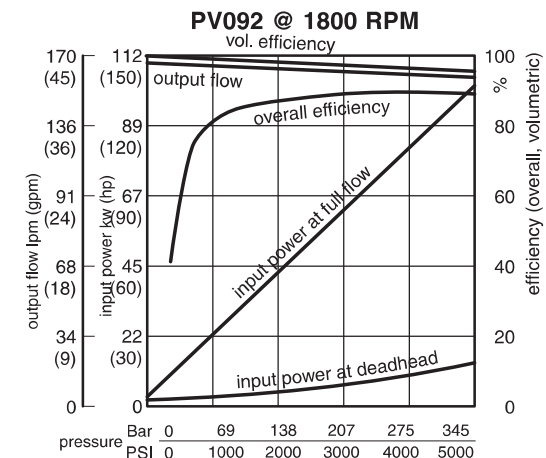
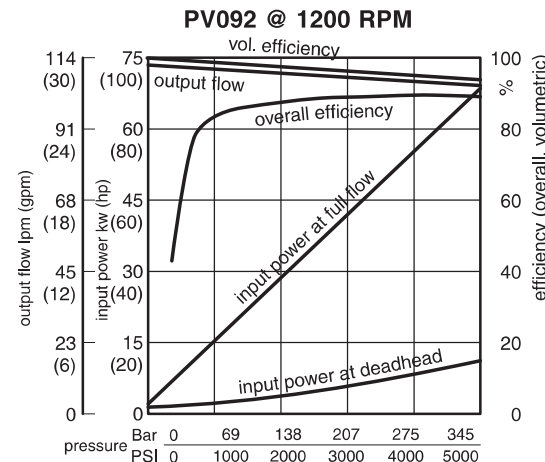
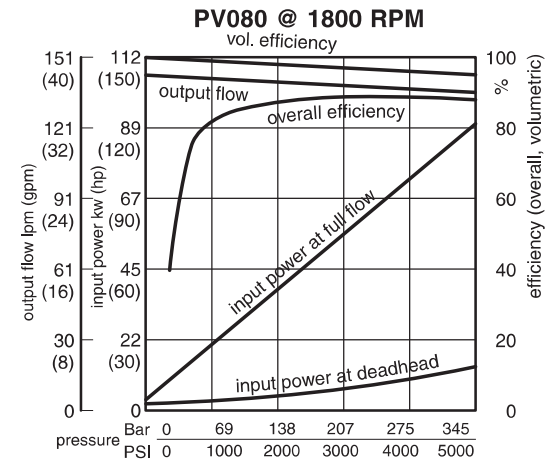
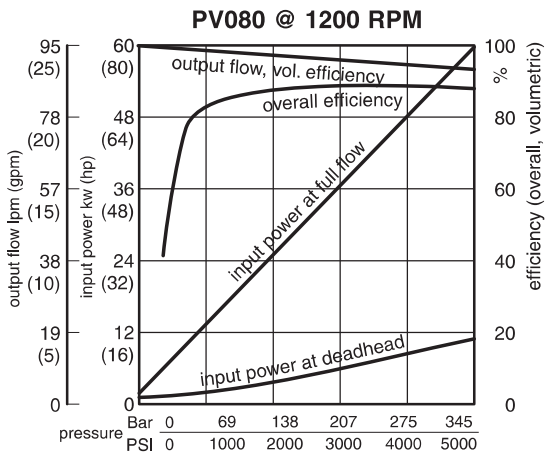
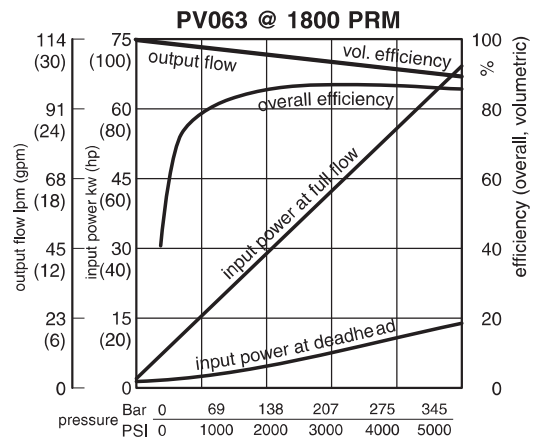
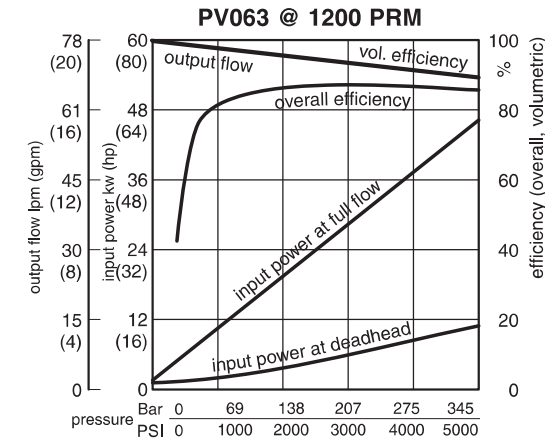


Code		Control Options	
F	●	●	Standard Pressure Compensator
		●	Adjustment Type
		S	Screw With Nut
		●	Pressure Range
	W		70-350 bar (1015-5075 PSI)
	H		40-210 bar (580-3050 PSI)
	D		10-140 bar (150-2050 PSI)
F	●	●	Remote/Load Sense Compensator
		●	Control Port
		1	NG6/Cetop3 (D1VW) Pattern *
		P	With PVAC1PC**S** Max Pressure Valve Mounted
		Z	NG6 with Pressure Valve Mnt'd**
		●	Compensator Control Type
	R		Remote Pressure
	F		Load Sensing
●	L	●	Horsepower Compensator Control
		●	Control Port
		A	NG6 /Cetop3 (DIVW) Pattern*
		C	NG6 with PVAC1PCS*S** Valve Mounted
		Z	NG6 with Pressure Valve Mounted**
		●	Input Horsepower at 1800 RPM
G			20.0 (700 in-lb Torque)
H			25.0 (875 in-lb Torque)
K			30.0 (1050 in-lb Torque)
M			35.0 (1225 in-lb Torque)
S			50.0 (1750 in-lb Torque)
T			60.0 (2100 in-lb Torque)
U			75.0 (2625 in-lb Torque)

* * Valve to be mounted at factory must be ordered as a separate line item. Consult factory. See PVAC section for pressure valve options.

Performance Curves

Fluid: Standard Hydraulic Oil 100 SSU @ 120°F (49°C)



NOTE: The efficiencies and data in the graphs are good only for pumps running at speeds shown and stroked to maximum. To calculate approximate horsepower for the other conditions, use the following formula:

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

Actual GPM is directly proportional to drive speed and

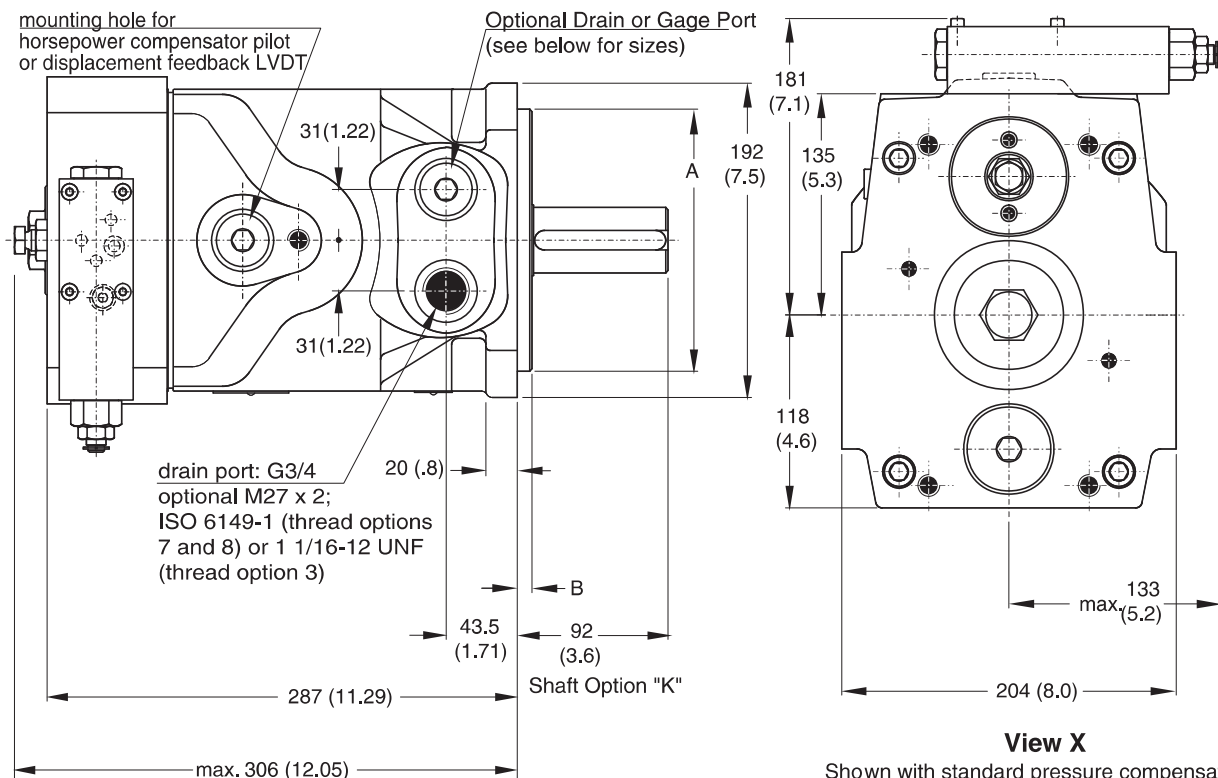
maximum volume setting. Flow loss, however, is a function of pressure only.

WHERE:

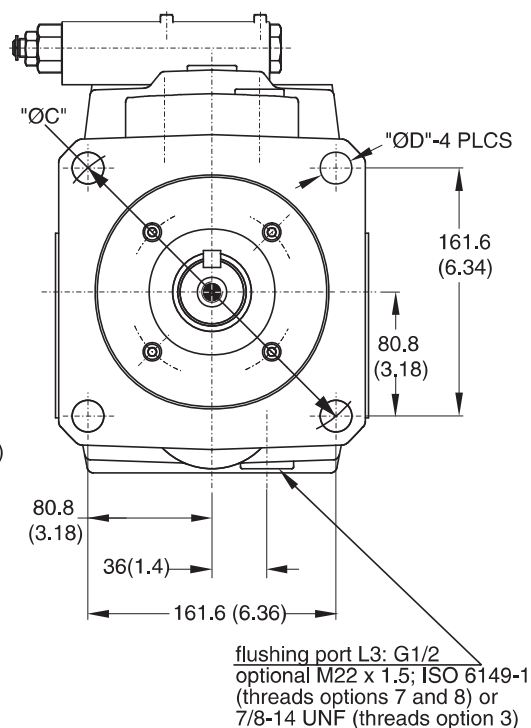
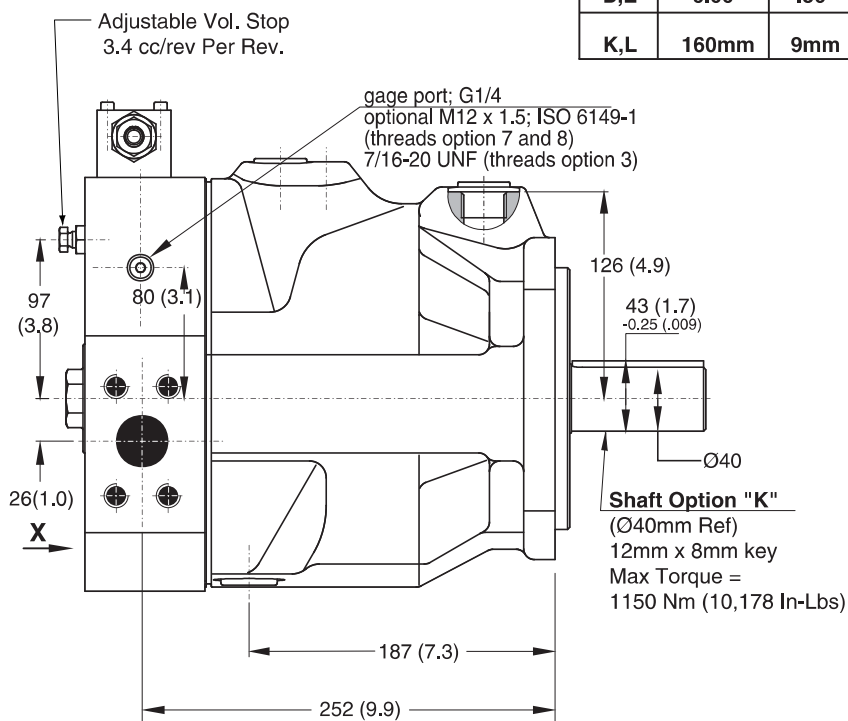
Q = Actual Output Flow in GPM

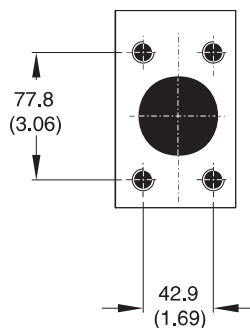
PSI = Pressure At Pump Outlet

CHp = Input Horsepower @ Full compensation
 @ 1800 RPM (from graph read at
 operating pressure)

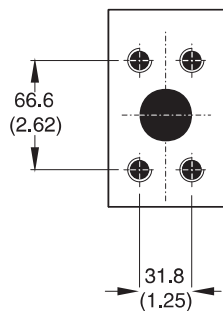


Code	A	B	ØC	ØD
D,E	6.00"	.50"	9.00"	.81"
K,L	160mm	9mm	200mm	18mm

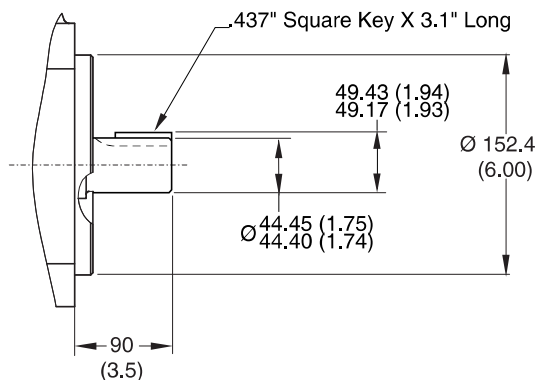




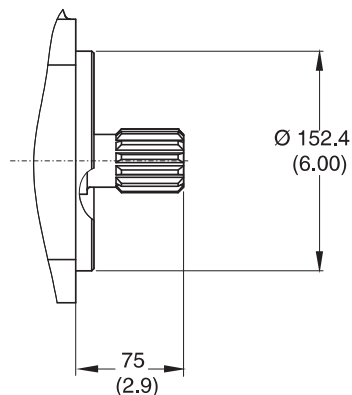
Inlet:
Option 3 & 7
 2" 4 Bolt Flange
 1/2-13 UNC-2B Threads
Option 1 & 8
 50mm 4 Bolt Flange
 M12 Threads
 Standard Pressure Series
 (Code 61)



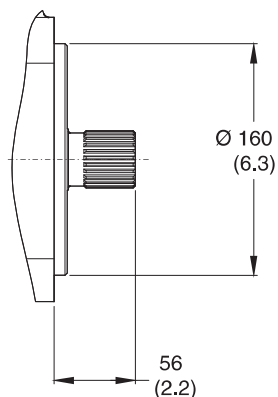
Outlet:
Option 3 & 7
 1-1/4" 4 Bolt Flange
 1/2-13 UNC-2B Threads
Option 1 & 8
 32mm 4 Bolt Flange
 M12 Threads
 High Pressure Series (Code 62)



Shaft Option "D"
 (SAE "D")
 Max Torque= 1320 Nm (11,683 In-Lbs)

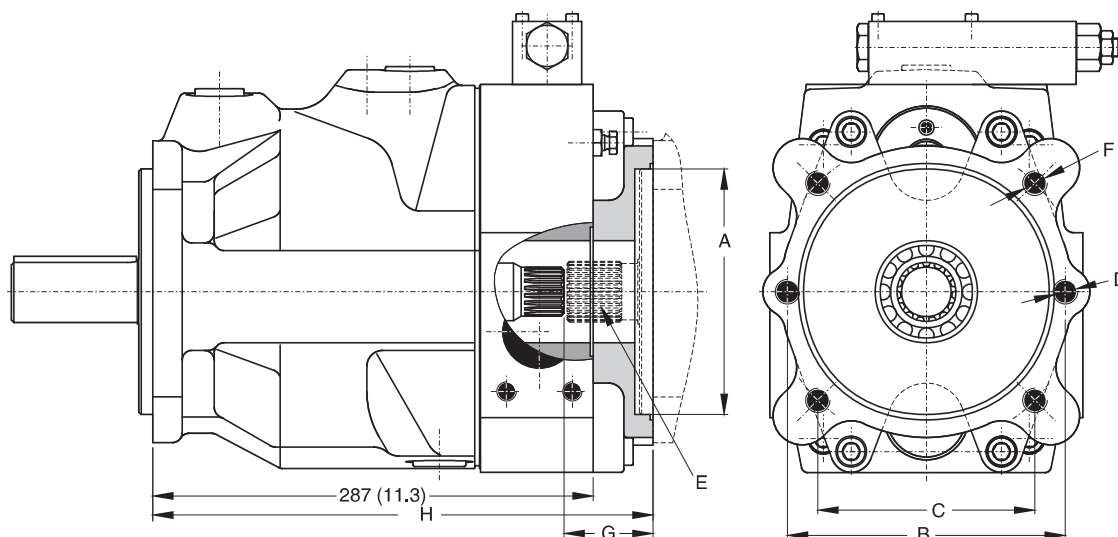


Shaft Option "E"
 (SAE "D")
 13 Tooth, 18/16 DP
 Flat Root, Side Fit
 Max Torque = 1218 Nm (15,080 In-Lbs)



Shaft Option "L"
 W40mm x 1.5mm x 25mm x 8f
 DIN 5480
 Max Torque = 1400 Nm (12,391 In-Lbs)

Thru-Shaft Options



Thru-Shaft Load Limitations

The maximum allowable torque of the individual shaft must not be exceeded. For 2-pump combinations there is no problem because the PV series offers 100% thru torque capabilities. For 3-pump combinations or more the limit torque could be reached or exceeded. Therefore it is necessary to calculate the torque factor and compare the sum of each pumps torque factor to the table to make sure it does not exceed the torque limit factor.

Pump	Shaft	Torque Limit Factor
PV063-092	D	77280
	E	72450
	K	67620
	L	83720

Required: Sum of all calculated torque factors must be <torque limit factor.

Torque factor of any pump =
 Pressure (bar) x Displacement (cc/rev)

Code	A	B	C	D	E*	F	G	H
A7	Ø3.25"	4.188"	-	3/8-16	SAE "A" 9T 16/32 DP SPLINE	-	2.28"	12.83"
B3	Ø4.00"	-	3.536"	-	SAE "B" 13T 16/32 DP SPLINE	1/2-13	2.28"	12.83"
B7	Ø4.00"	5.750"	-	1/2-13	SAE "B" 13T 16/32 DP SPLINE	-	2.28"	12.83"
C3	Ø5.00"	-	4.500"	-	SAE "C" 14T 12/24 DP SPLINE	1/2-13	2.28"	12.83"
C7	Ø5.00"	7.125"	-	5/8-11	SAE "C" 14T 12/24 DP SPLINE	-	2.28"	12.83"
D3	Ø6.00"	-	6.364"	-	SAE "D" 13T 8/16 DP SPLINE	5/8-11	3.07"	13.62"
J3	Ø100mm	-	44mm	-	W25 x 1.5 x 15 x 8f SPLINE	M10	2.28"	12.83"
K3	Ø125mm	-	56mm	-	W32 x 1.5 x 20 x 8f SPLINE	M12	2.28"	12.83"
L3	Ø160mm	-	71mm	-	W40 x 1.5 x 25 x 8f SPLINE	M16	2.28"	12.83"
W3	Ø4.00"	-	3.530"	-	SAE "BB" 15T 16/32 DP SPLINE	1/2-13	2.28"	12.83"
W7	Ø4.00"	5.750"	-	1/2-13	SAE "BB" 15T 16/32 DP SPLINE	-	2.28"	12.83"

*Coupling included with pump if ordered from Greeneville, TN

Performance Information

Series PV 140/180 Pressure Compensated, Variable Volume, Piston Pumps

Features

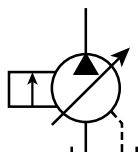
- High Strength Cast-Iron Housing for reliable and quiet operation
- Modular Controls for field convertibility
- Large Control Piston for smooth/fast response
- Multiple Pressure Control with valves mounted directly on pump
- Pre-Compression chamber to minimize over-all system noise

Controls

- Pressure Compensation
- Remote Pressure Compensation
- Load Sensing
- Adjustable Maximum Volume Stop
- Electrohydraulic Pressure
- Dual and Tri-Pressure Control
- Low Pressure Standby
- Horsepower Limiting

Schematic Symbol

(Basic Pump)



Installation Data

See Installation Information on page 44 of this catalog 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 products.



Specifications

Pressure Ratings: 5000 PSI (350 bar) Continuous
 6000 PSI (420 bar) Peak

Speed Ratings: 750 to 2400 RPM

Inlet Condition: 725 PSI (50 bar) Maximum
 3 In-Hg Vacuum at 1500 RPM
 0 In-Hg Vacuum at 1800 RPM

Case Drain Conditions: 7 PSI (.5 bar) Maximum

Operating Temp. Range: -40°F to 160°F
 (-40°C to 70°C)

Housing Material: Cast Iron

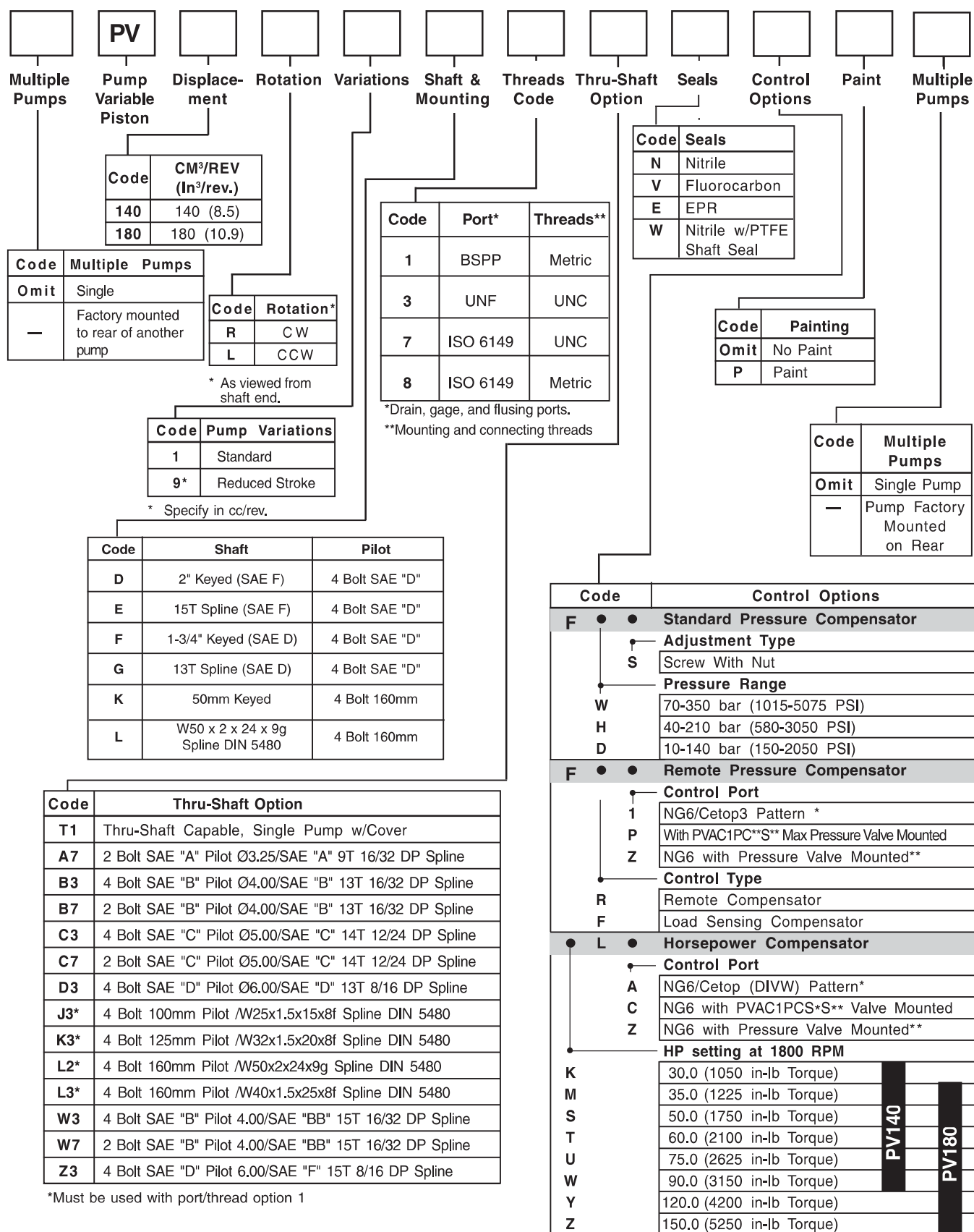
Filtration: Maintain SAE Class 4 (ISO 16/13)

Mounting: SAE "D" 4-Bolt Flange

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 and 1500 RPM			Input Power At 1800 RPM, Max. Displacement & 343 bar (5000 PSI)	Max Operating Speed (RPM)
		1200 RPM	1800 RPM	70 bar (1000 PSI)	207 bar (3000 PSI)	343 bar (5000 PSI)		
PV140	140 (8.59)	168 (44.4)	234 (61.8)	70	74	76	149.4 kw (200.4 hp)	2400
PV180	180 (10.98)	216 (57.1)	324 (85.6)	71	75	77	210.3 kw (282.0 hp)	2200

* The noise level values are based on anechoic room measurements at a distance of 1 meter in accordance with DIN 45645.

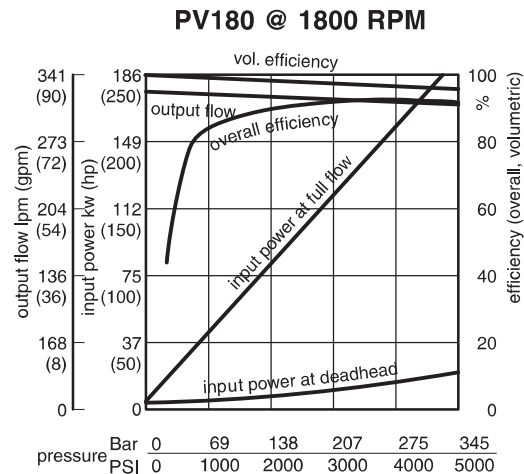
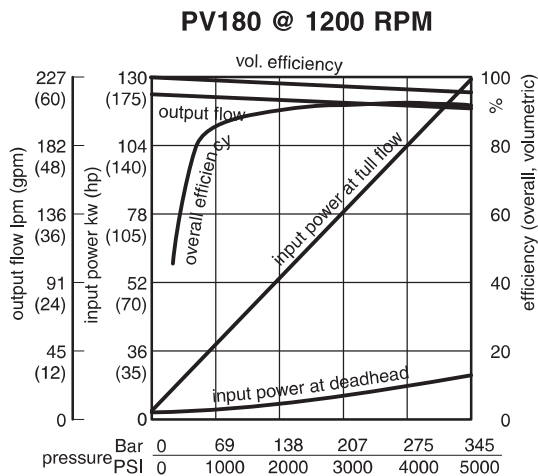
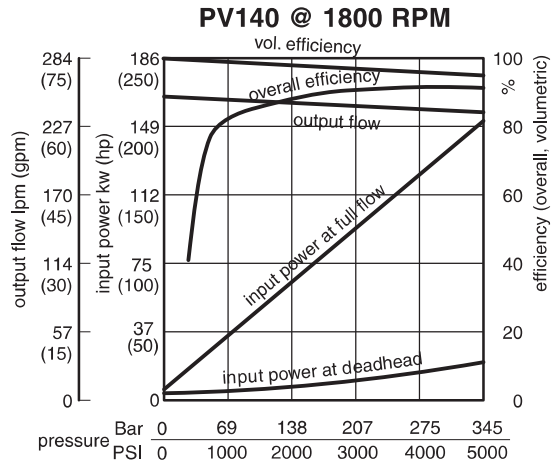
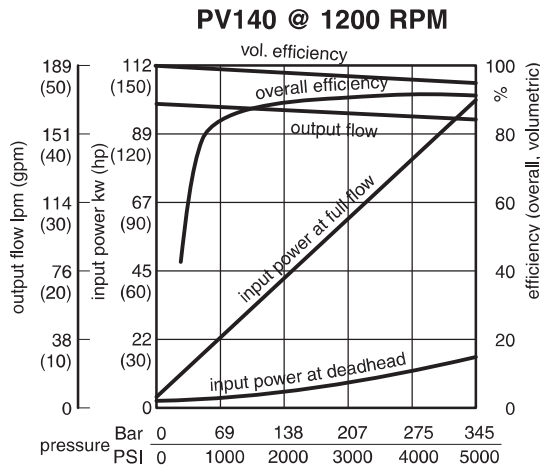


* Maximum pressure adjustment not included, but recommended. (See PVAC Section)

* * Valve to be mounted at factory must be ordered as a separate line item. Consult factory. See PVAC section for pressure valve options.

Performance Curves

Fluid: Standard Hydraulic Oil 100 SSU @ 120°F (49°C)



NOTE: The efficiencies and data in the graphs are good only for pumps running at speeds shown and stroked to maximum. To calculate approximate horsepower for the other conditions, use the following formula:

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

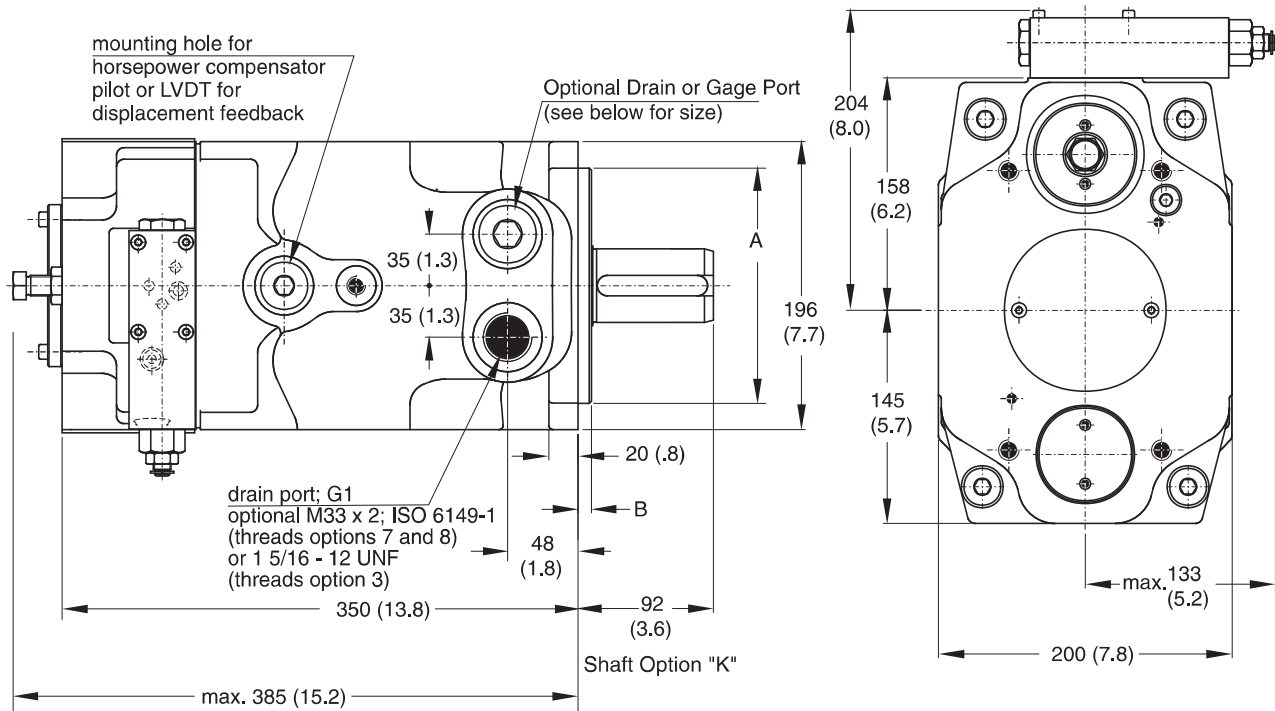
Actual GPM is directly proportional to drive speed and maximum volume setting. Flow loss, however, is a function of pressure only.

WHERE:

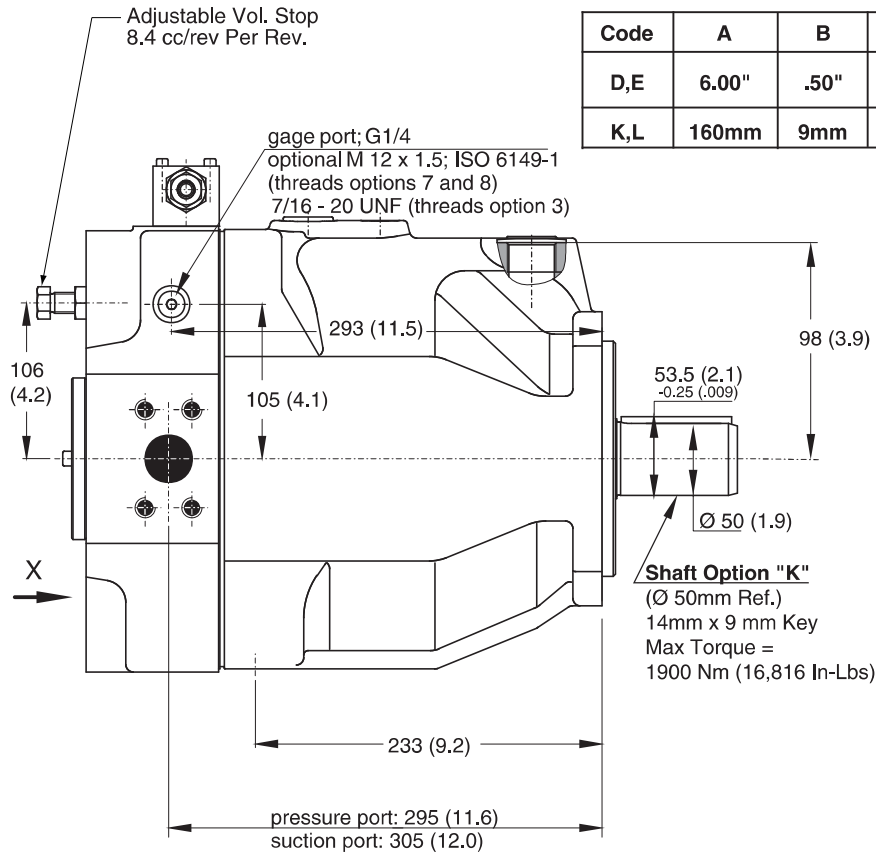
Q = Actual Output Flow in GPM

PSI = Pressure At Pump Outlet

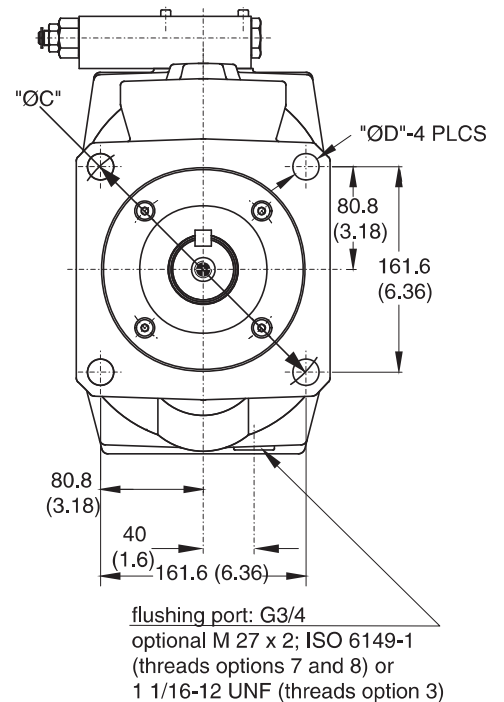
CHp = Input Horsepower @ Full compensation
 @ 1800 RPM (from graph read at
 operating pressure)

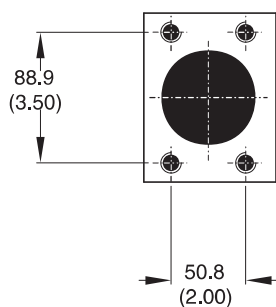


View X
 Shown with standard pressure compensator

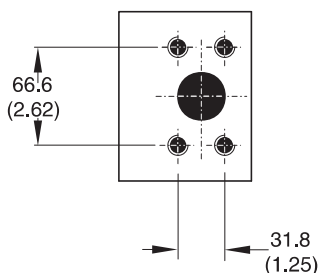


Code	A	B	ØC	ØD
D,E	6.00"	.50"	9.00"	.81"
K,L	160mm	9mm	200mm	18mm

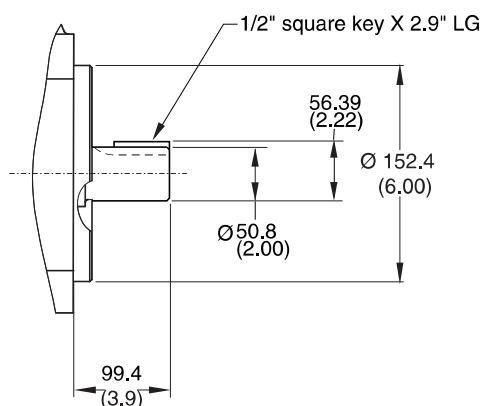




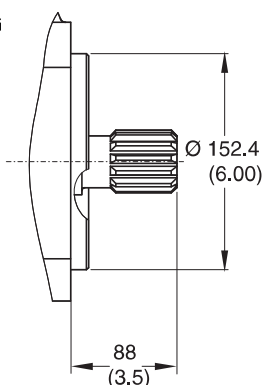
Inlet:
Option 3 & 7
 2-1/2" 4 Bolt Flange
 1/2-13 UNC-2B Threads
Option 1 & 8
 63mm 4 Bolt Flange
 M16 Threads
 Standard Pressure Series
 (Code 61)



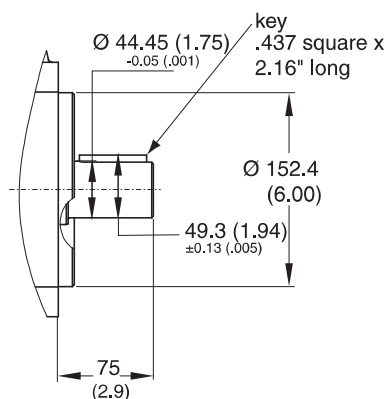
Outlet:
Option 3 & 7
 1-1/4" 4 Bolt Flange
 1/2-13 UNC-2B Threads
Option 1 & 8
 32mm 4 Bolt Flange
 M12 Threads
 High Pressure Series (Code 62)



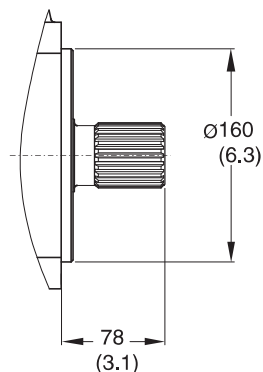
Shaft Option "D"
 (SAE "F")
 Max Torque= 2000 Nm (17,701 In-Lbs)



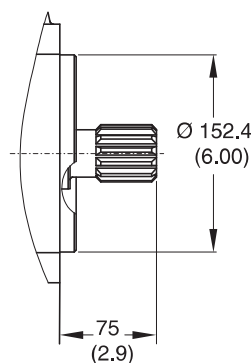
Shaft Option "E"
 (SAE "F")
 15 Teeth, 8/16 Pitch
 30° Involute Spline
 Max Torque = 2680 Nm (23,720 In-Lbs)



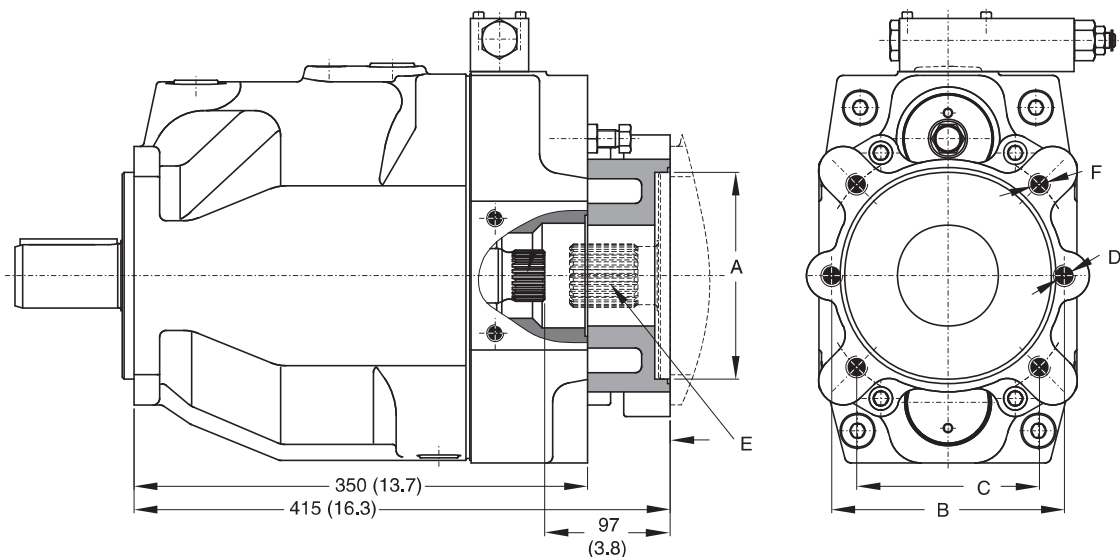
Shaft Option "F"
 (SAE "D")
 Max Torque= 1320 Nm (11,683 In-Lbs)



Shaft Option "L"
 W50mm x 2mm x 24mm x 9g
 DIN 5480
 Max Torque = 2650 Nm (23,454 In-Lbs)



Shaft Option "G"
 (SAE "D")
 13 Teeth 8/16 Pitch
 30° Involute Spline
 Max Torque = 1640 Nm (14,515 In-Lbs)



Thru-Shaft Options

Thru-Shaft Load Limitations

The maximum allowable torque of the individual shaft must not be exceeded. For 2-pump combinations there is no problem because the PV series offers 100% thru torque capabilities. For 3-pump combinations or more the limit torque could be reached or exceeded. Therefore it is necessary to calculate the torque factor and compare the sum of each pumps torque factor to the table to make sure it does not exceed the torque limit factor.

Required: Sum of all calculated torque factors must be <torque limit factor.

Torque factor of any pump =
 Pressure (bar) x Displacement (cc/rev)

Code	A	B	C	D	E*	F
A7	Ø3.25"	4.188"	-	3/8-16	SAE "A" 9T 16/32 DPSPLINE	-
B3	Ø4.00"	-	3.536"	-	SAE "B" 13T 16/32 DP SPLINE	1/2-13
B7	Ø4.00"	5.750"	-	1/2-13	SAE "B" 13T 16/32 DP SPLINE	-
C3	Ø5.00"	-	4.508"	-	SAE "C" 14T 12/24 DP SPLINE	1/2-13
D3	Ø6.00"	-	6.364"	-	SAE "CC" 13T 8/16 DP SPLINE	5/8-11
J3	Ø100mm	-	44mm	-	W25 x 1.5 x 15 x 8f SPLINE	M10
K3	Ø125mm	-	56mm	-	W32 x 1.5 x 20 x 8f SPLINE	M12
L2	Ø160mm	-	71mm	-	W50 x 2 x 24 x 9g SPLINE	M12
L3	Ø160mm	-	71mm	-	W40 x 1.5 x 25 x 8f SPLINE	M17
W3	Ø4.00"	-	3.536"	-	SAE "BB" 15T 16/32 DP SPLINE	1/2-13
W7	Ø4.00"	5.750"	-	1/2-13	SAE "BB" 15T 16/32 DP SPLINE	-
Z3	Ø6.00"	-	6.364"	-	SAE "F" 15T 8/16 DP SPLINE	5/8-11

Pump	Shaft	Torque Limit Factor
PV140-180	D	118400
	E	158760
	F	78750
	G	97650
	K	113400
	L	157500

*Coupling included when ordered from Greeneville, TN

Performance Information

Series PV270 Pressure Compensated, Variable Volume, Piston Pumps

Features

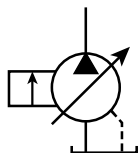
- High Strength Cast-Iron Housing for reliable and quiet operation
- Modular Controls for field convertibility
- Large Control Piston for smooth/fast response
- Multiple Pressure Control with valves mounted directly on pump
- Pre-Compression chamber to minimize over-all system noise.

Controls

- Pressure Compensation
- Remote Pressure Compensation
- Load Sensing
- Adjustable Maximum Volume Control
- Electrohydraulic Pressure Control
- Dual and Tri-Pressure
- Low Pressure Standby
- Horsepower Limiting

Schematic Symbol

(Basic Pump)



Installation Data

See Installation Information on page 44 of this catalog 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 products.



Specifications

Pressure Ratings: 5000 PSI (350 bar) Continuous
6000 PSI (420 bar) Peak

Speed Ratings: 750 to 1800 RPM

Inlet Condition: 725 PSI (50 bar) Maximum
3 In-Hg Vacuum at 1500 RPM
0 In-Hg Vacuum at 1800 RPM

Case Drain Conditions: 7 PSI (.5 bar) Maximum

Operating Temp. Range: -40°F to 160°F
(-40°C to 70°C)

Housing Material: Cast Iron

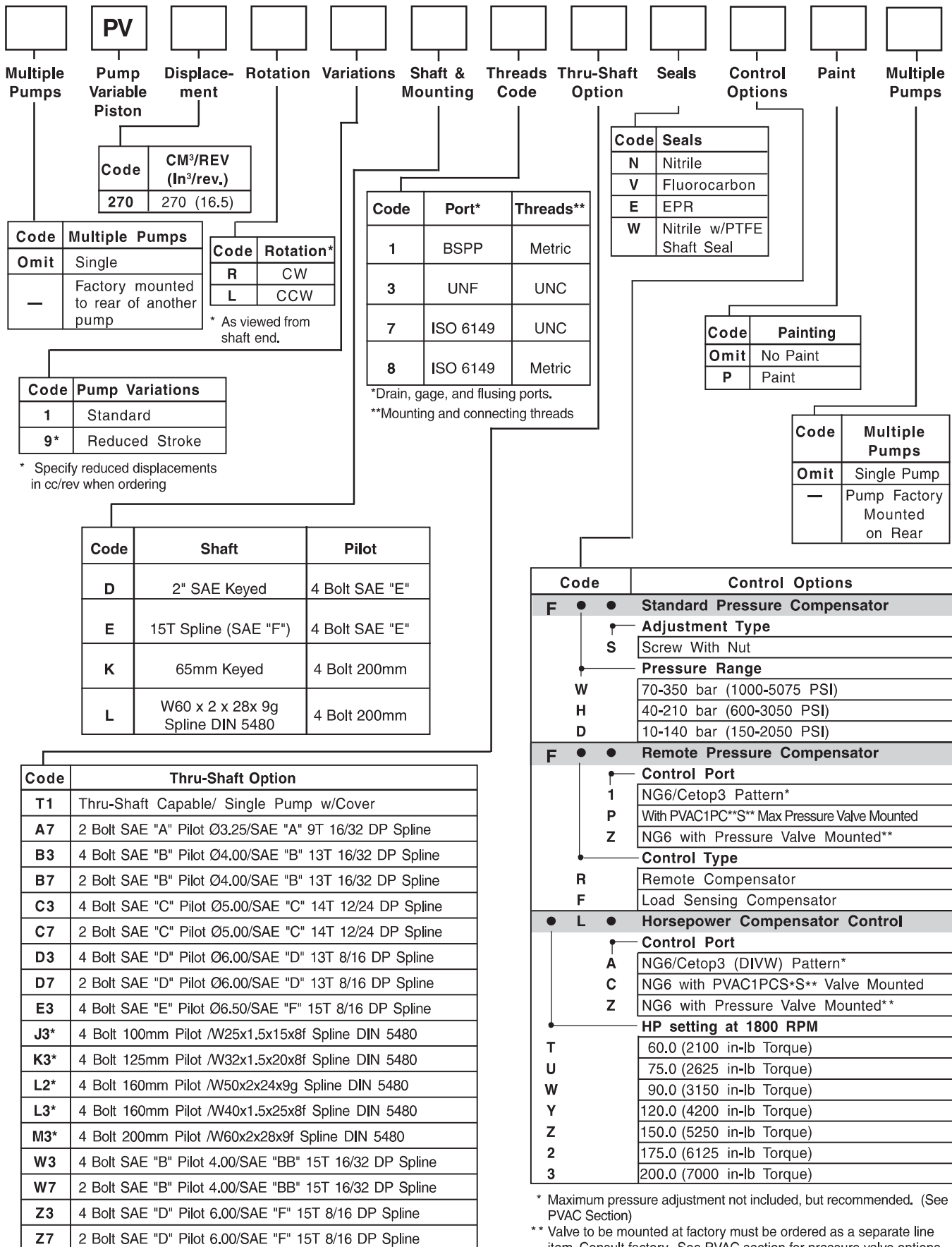
Filtration: Maintain SAE Class 4 (ISO 16/13)

Mounting: SAE "E" 4-Bolt Flange

Quick Reference Data Chart

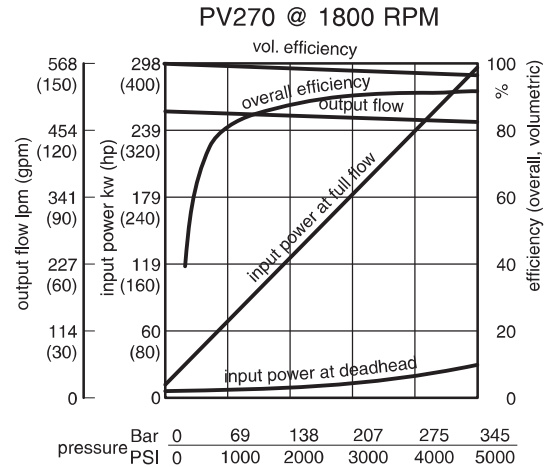
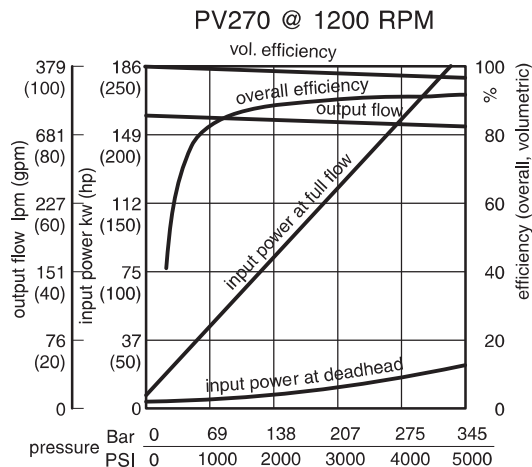
Pump Model	Displacement cc/rev (in ³ /rev)	Pump Delivery @ 7 bar (100 PSI) in LPM (GPM)		*Approx. Noise Levels dB(A) @ Full Flow and 1500 RPM			Input Power At 1800 RPM, Max. Displacement & 343 bar (5000 PSI)	Max Operating Speed (RPM)
		1200 RPM	1800 RPM	70 bar (1000 PSI)	207 bar (3000 PSI)	343 bar (5000 PSI)		
PV270	270 (16.5)	324 (85.6)	486 (128.4)	77	79	81	298 kw (400 hp)	1800

* The noise level values are based on anechoic room measurements at a distance of 1 meter in accordance with DIN 45645.



Performance Curves

Fluid: Standard Hydraulic Oil 100 SSU @ 120°F (49°C)



NOTE: The efficiencies and data in the graphs are good only for pumps running at speeds shown and stroked to maximum. To calculate approximate horsepower for the other conditions, use the following formula:

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

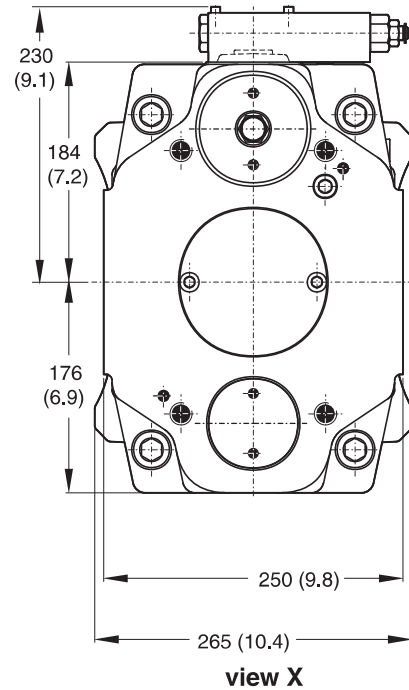
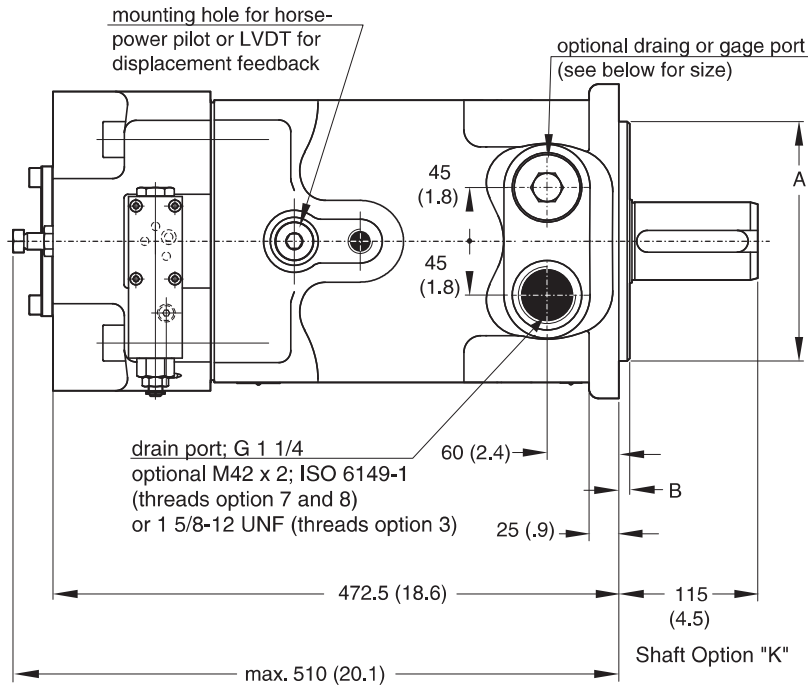
Actual GPM is directly proportional to drive speed and maximum volume setting. Flow loss, however, is a function of pressure only.

WHERE:

Q = Actual Output Flow in GPM

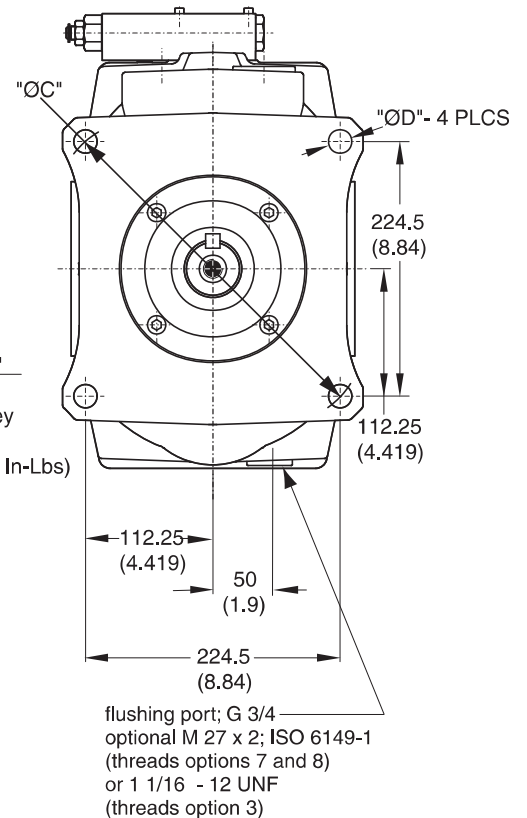
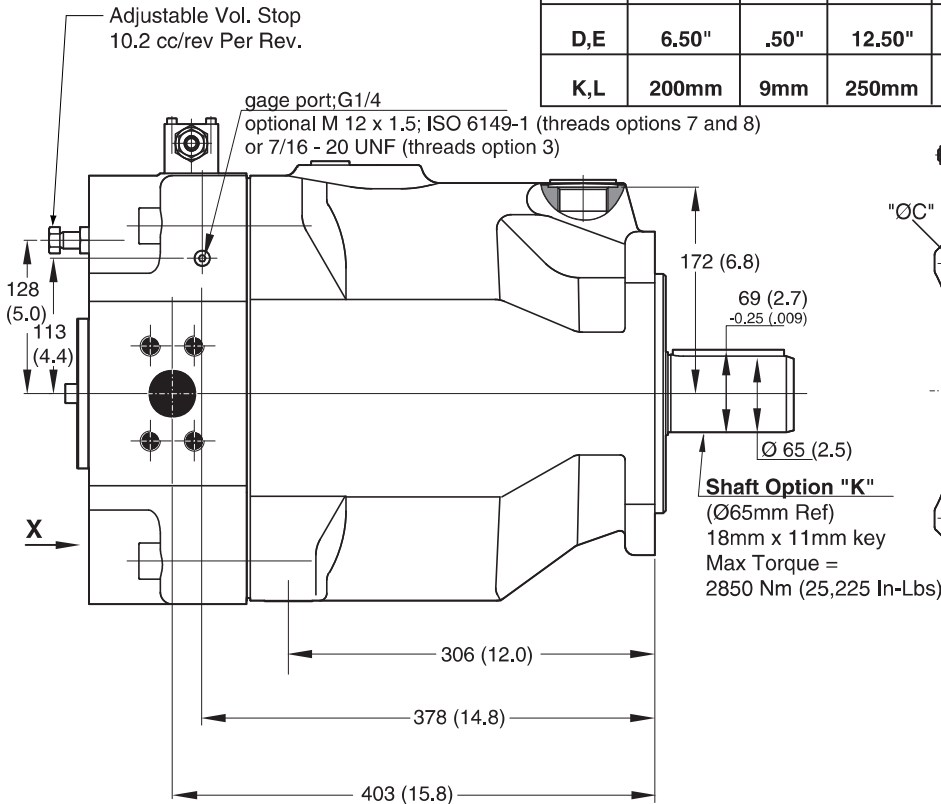
PSI = Pressure At Pump Outlet

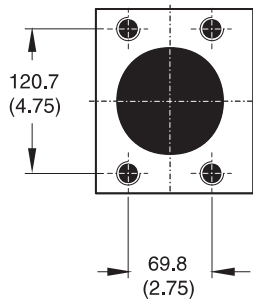
CHp = Input Horsepower @ Full compensation
 @ 1800 RPM (from graph read at
 operating pressure)



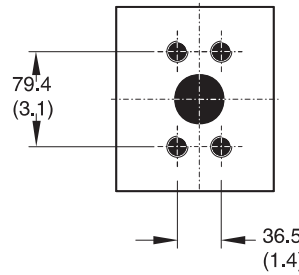
Shown with standard pressure compensator

Code	A	B	ØC	ØD
D,E	6.50"	.50"	12.50"	.81"
K,L	200mm	9mm	250mm	22mm

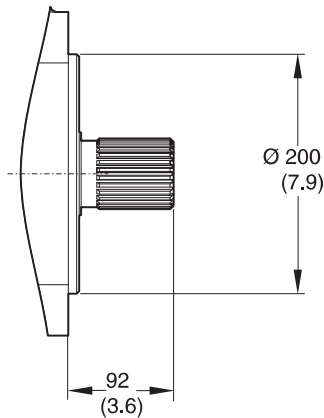




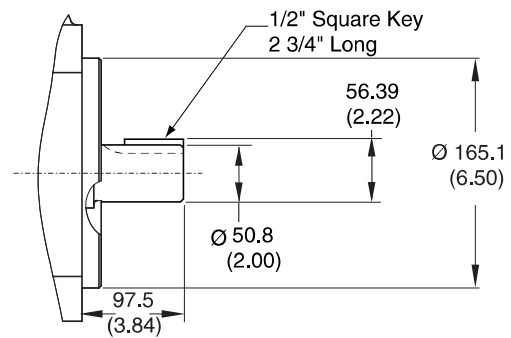
Inlet:
Option 3 & 7
 3-1/2" 4 Bolt Flange
 5/8-11 UNC-2B Threads
Option 1 & 8
 88mm 4 Bolt Flange
 M16 Threads
 Standard Pressure Series
 (Code 61)



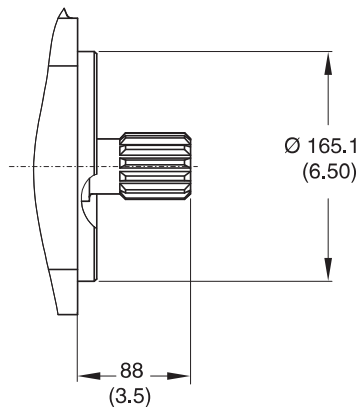
Outlet:
Option 3 & 7
 1-1/2" 4 Bolt Flange
 5/8-11 UNC-2B Threads
Option 1 & 8
 38mm 4 Bolt Flange
 M16 Threads
 High Pressure Series (Code 62)



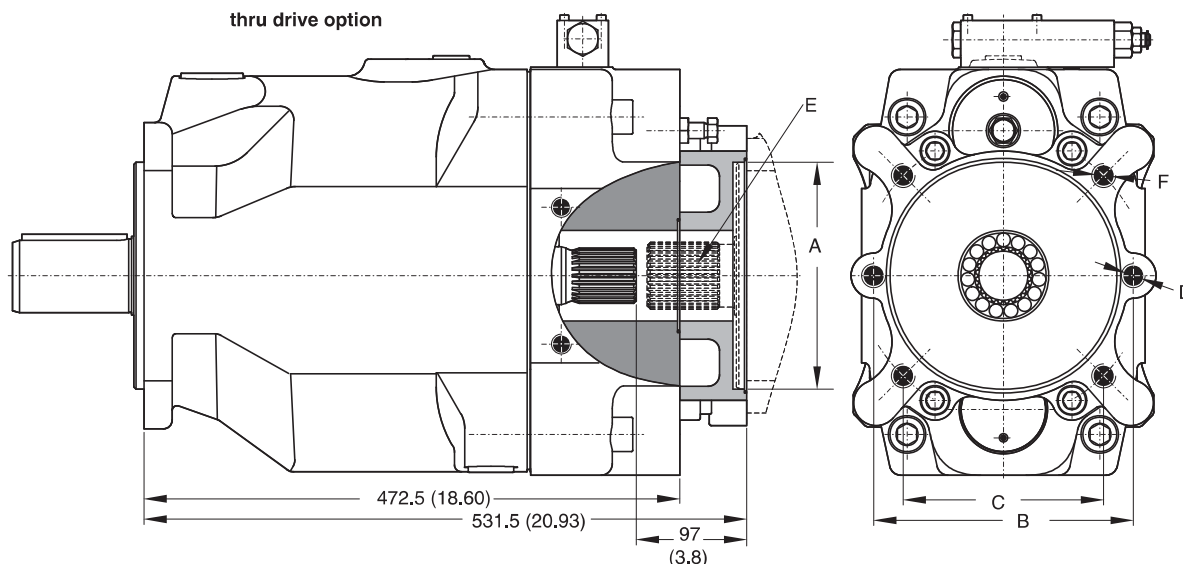
Shaft Option "L"
 W60mm x 2mm x 28mm x 9g
 DIN 5480
 Max Torque = 3980 Nm (35,226 In-Lbs)



Shaft Option "D"
 Max Torque= 2000 Nm (17,701 In-Lbs)



Shaft Option "E"
 (SAE FF)
 15 Teeth 8/16 Pitch
 30° Involute Spline
 Max Torque= 2680 Nm (23,720 In-Lbs)



Thru-Shaft Load Limitations

The maximum allowable torque of the individual shaft must not be exceeded. For 2-pump combinations there is no problem because the PV series offers 100% thru torque capabilities. For 3-pump combinations or more the limit torque could be reached or exceeded. Therefore it is necessary to calculate the torque factor and compare the sum of each pumps torque factor to the table to make sure it does not exceed the torque limit factor.

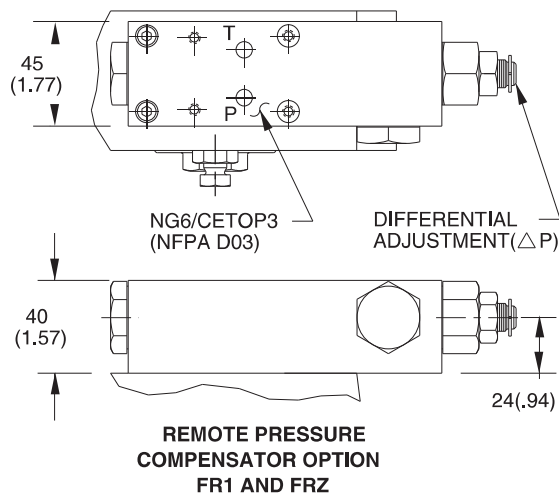
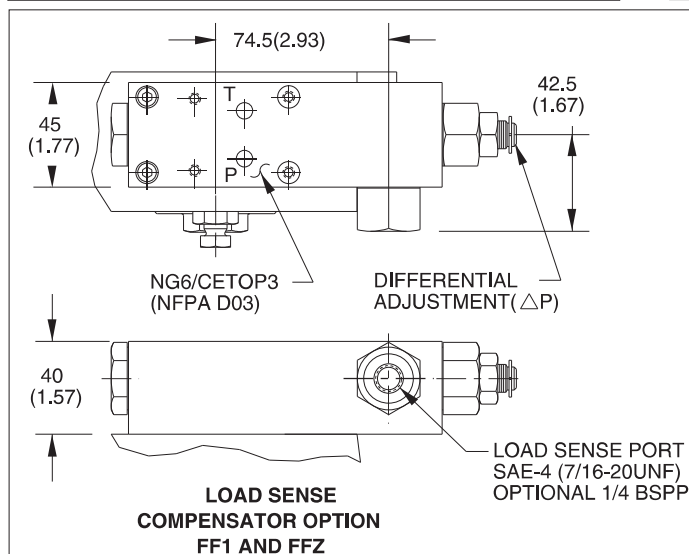
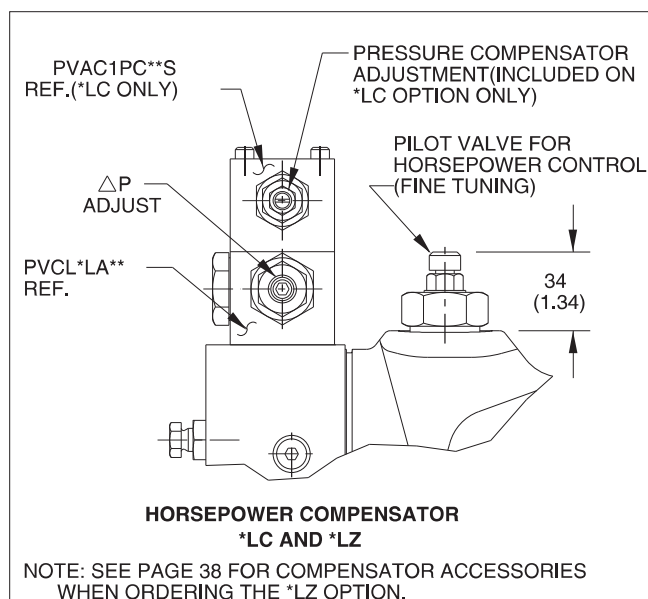
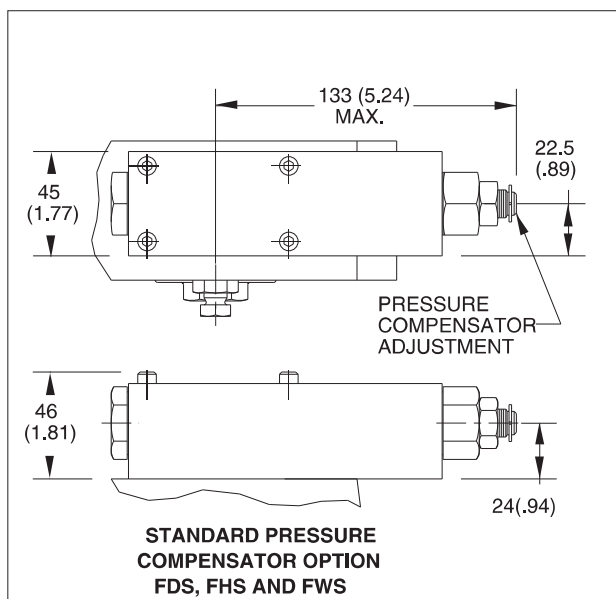
Required: Sum of all calculated torque factors must be <torque limit factor.

Torque factor of any pump =
 Pressure x Displacement (cc/rev) bar

Code	A	B	C	D	E*	F
A7	Ø3.25"	4.188"	-	3/8-16	SAE "A" 9T 16/32 DPSPLINE	-
B3	Ø4.00"	-	3.536"	-	SAE "B" 13T 16/32 DP SPLINE	1/2-13
B7	Ø4.00"	5.750"	-	1/2-13	SAE "B" 13T 16/32 DP SPLINE	-
C3	Ø5.00"	-	4.508"	-	SAE "C" 14T 12/24 DP SPLINE	1/2-13
C7	Ø5.00"	7.125"	-	5/8-11	SAE "C" 14T 12/24 DP SPLINE	-
D3	Ø6.00"	-	6.364"	-	SAE "CC" 13T 8/16 DP SPLINE	5/8-11
D7	Ø6.00"	9.000"	-	5/8-11	SAE "D" 13T 8/16 DP SPLINE	-
E3	Ø6.50"	-	8.839"	-	SAE "F" 15T 8/16 DP SPLINE	3/4-10
J3	Ø100mm	-	44mm	-	W25 x 1.5 x 15 x 8f SPLINE	M10
K3	Ø125mm	-	56mm	-	W32 x 1.5 x 20 x 8f SPLINE	M12
L2	Ø160mm	-	71mm	-	W50 x 2 x 24 x 9g SPLINE	M12
L3	Ø160mm	-	71mm	-	W40 x 1.5 x 25 x 8f SPLINE	M17
M3	Ø200mm	-	88mm	-	W60 x 2 x 28 x 9g SPLINE	M20
W3	Ø4.00"	-	3.536"	-	SAE "BB" 15T 16/32 DP SPLINE	1/2-13
W7	Ø4.00"	5.750"	-	1/2-13	SAE "BB" 15T 16/32 DP SPLINE	-
Z3	Ø6.00"	-	6.364"	-	SAE "F" 15T 8/16 DP SPLINE	5/8-11
Z7	Ø6.00"	9.000"	-	5/8-11	SAE "F" 15T 8/16 DP SPLINE	-

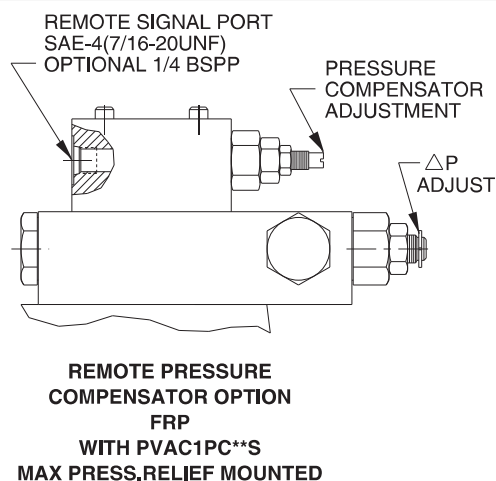
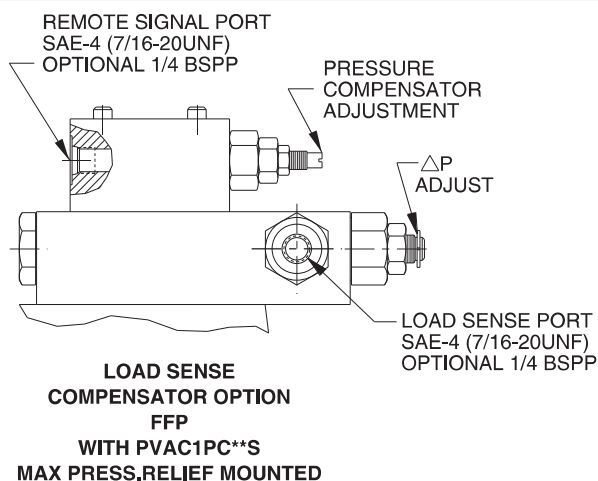
Pump	Shaft	Torque Limit Factor
PV270	D	119,000
	E	159,700
	K	170,100
	L	236,250

*Coupling included when ordered from Greeneville, TN



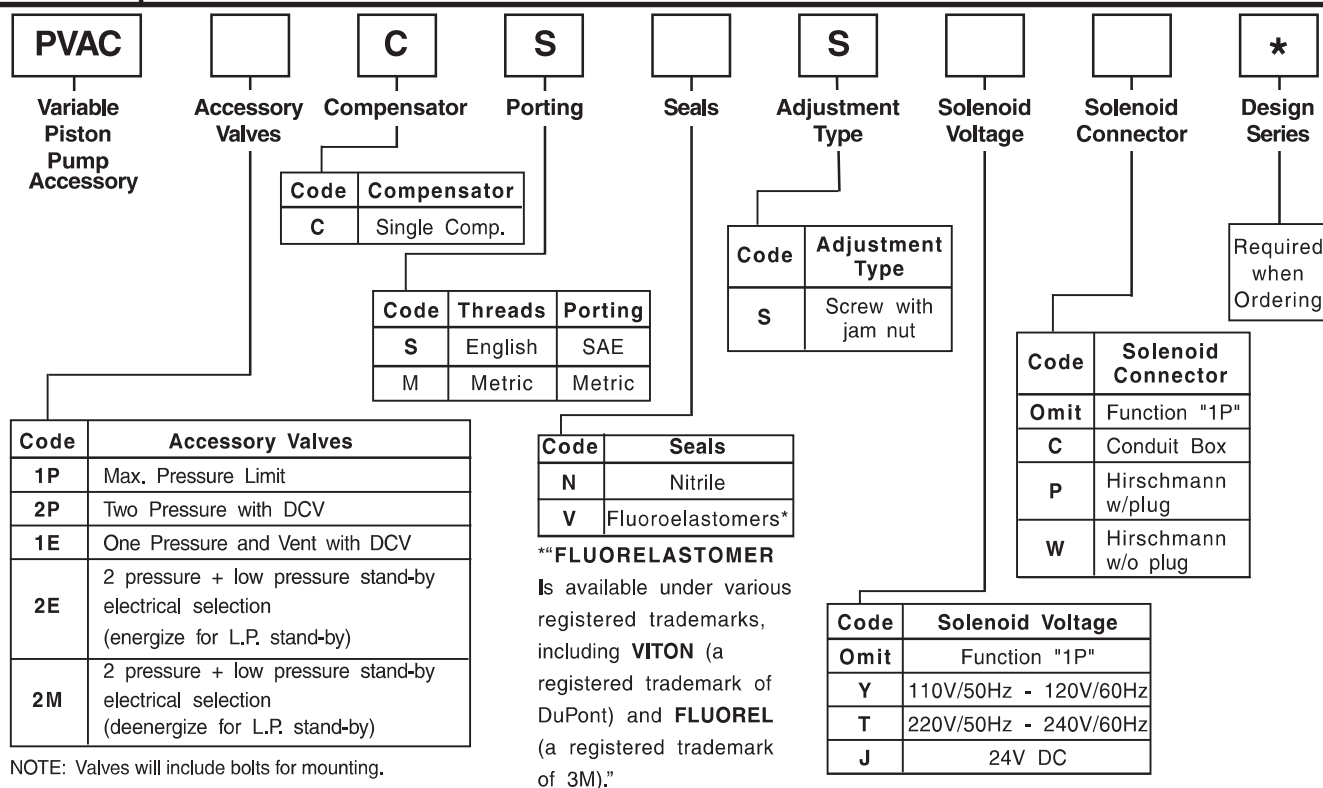
NOTE: SEE PAGE 38 FOR COMPENSATOR ACCESSORIES WHEN ORDERING THE FFZ OR FRZ OPTION.

CAUTION: FF1 & FR1 CONTROL OPTIONS DO NOT HAVE A PUMP MAX. PRESSURE LIMITER (COMPENSATOR) INSTALLED. DO NOT ATTEMPT TO OPERATE PUMP WITHOUT INSTALLING A COMPENSATOR CONTROL.

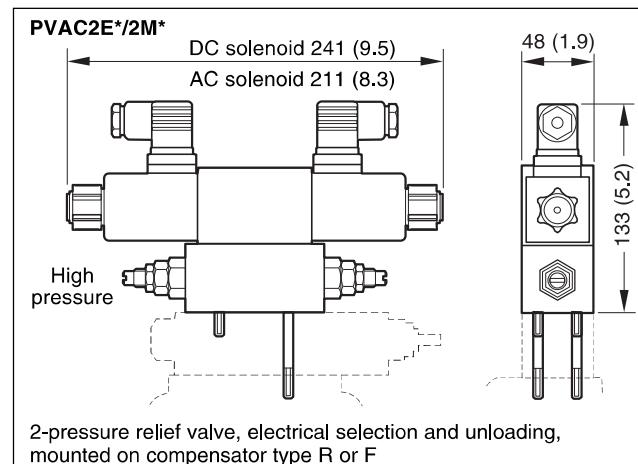
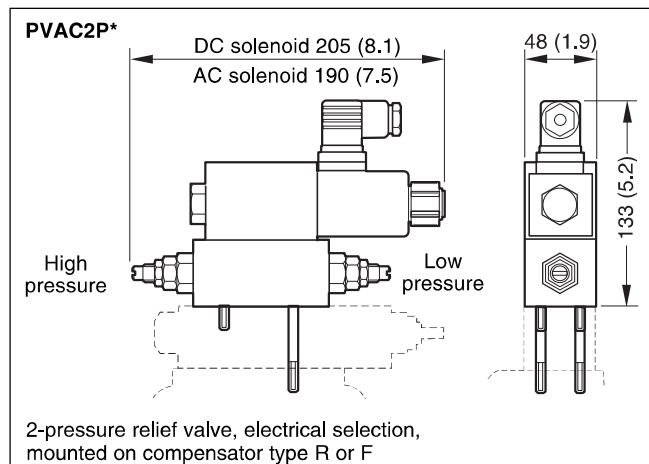
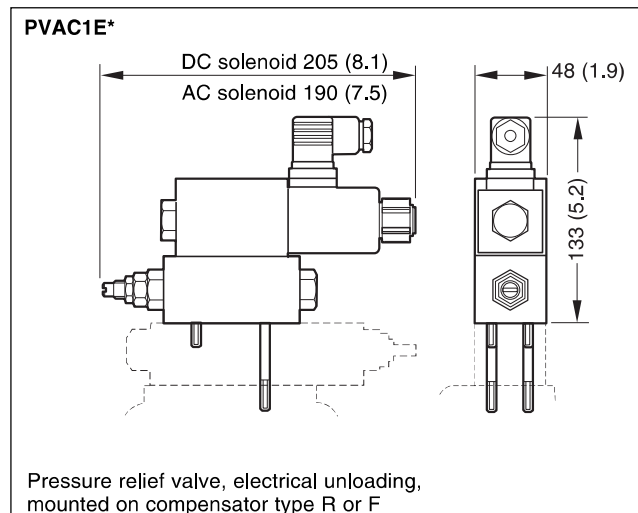
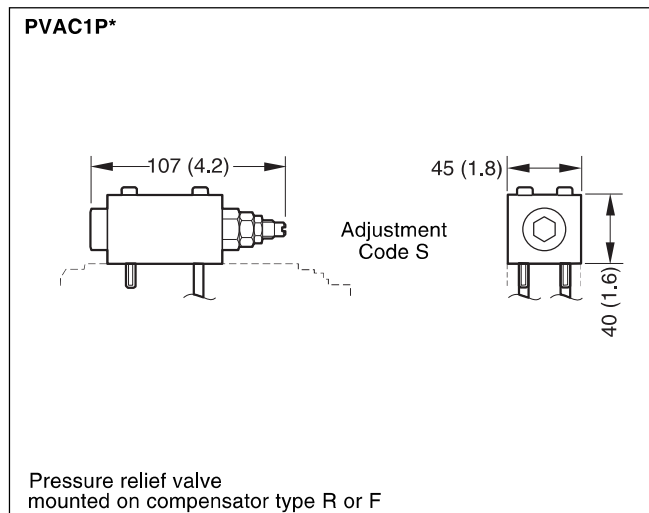


Control Options

General PV Series



Dimensions



Ordering Examples

1. PV pump with remote pressure control, relief valve with 2 pressure stages, electrical pressure selection, nitrile seals, 24 VDC solenoid, plug to DIN 46350 accessories **fitted**:

PV*****FRZ

PVAC2PCMNSJP

2. Same pump accessories **not fitted**:

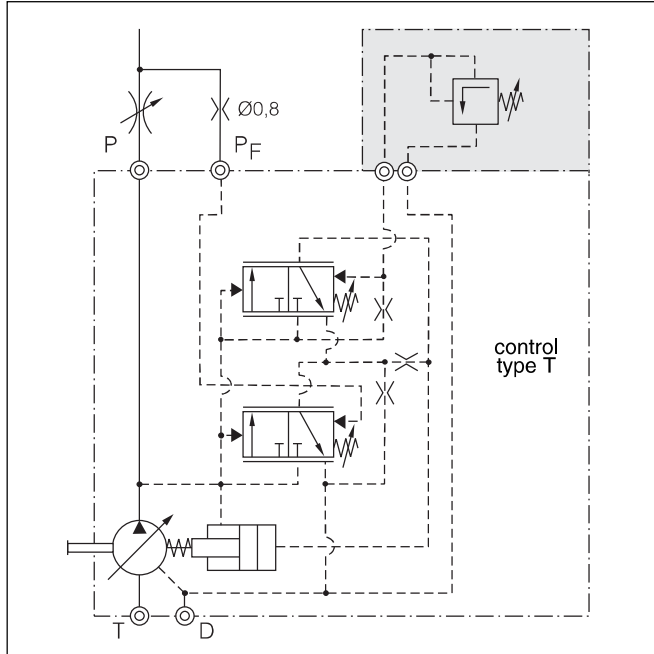
PV*****FR1

PVAC2PCMNSJP

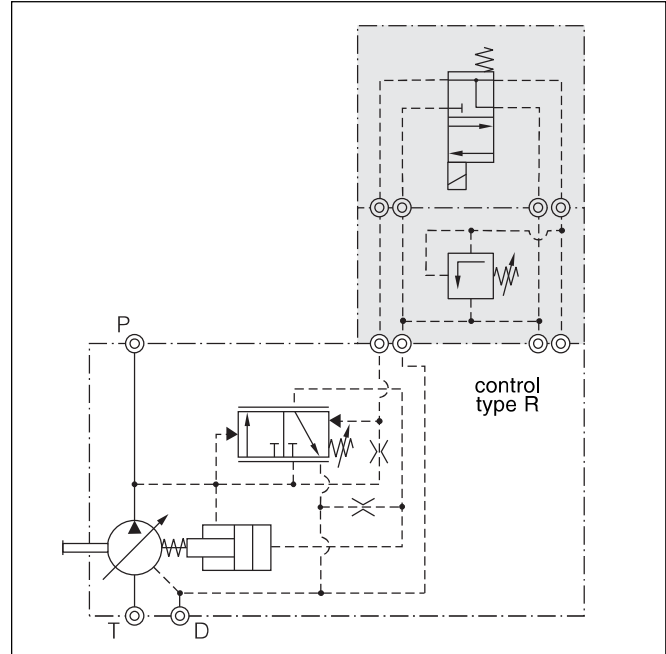
3. Usable for horsepower control.

Symbols

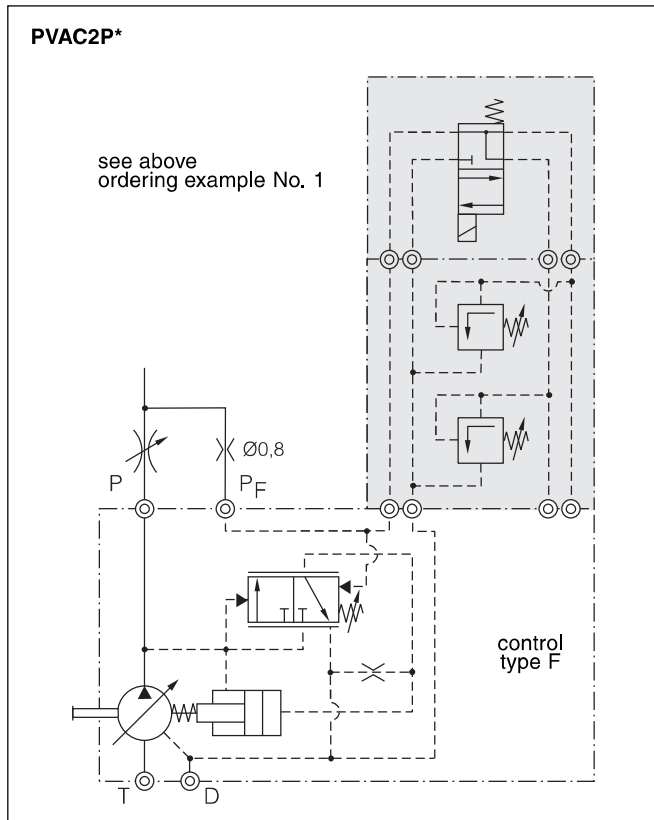
PVAC1P*



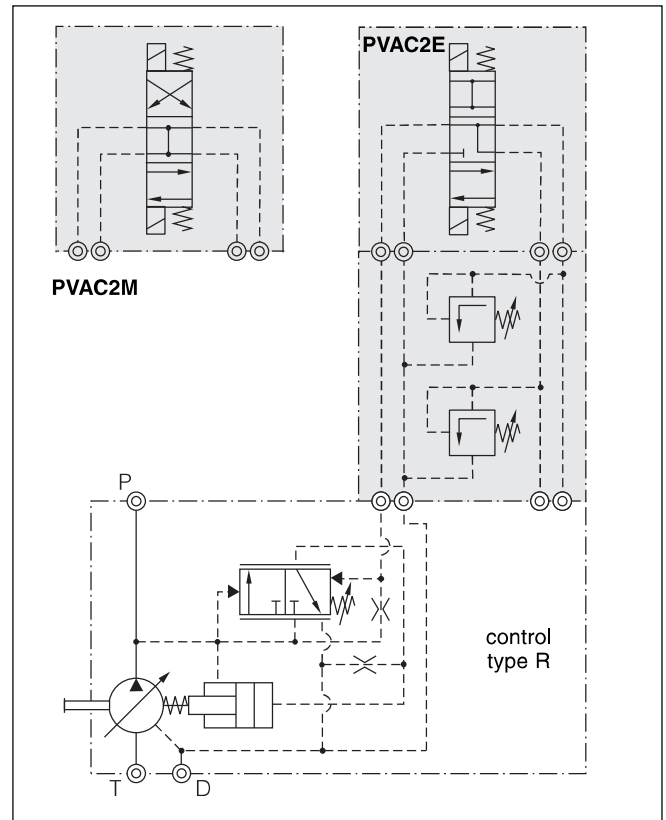
PVAC1E*



PVAC2P*

see above
ordering example No. 1

PVAC2M



Cross reference ordering codes Parker series PV and Parker series PV plus

Code example PV:

code field no.:

PV	046	R	1	A	1	T	1	N	PWS	XX	YY
1	2	3	4	5	6	7	8	9	10	11	12

PV	Description	Remark	PVplus
Field 1	Pump type		Field 1
PV	Axial piston pump, open circuit, swashplate type, variable displacement		PV

PV	Description	Remark	PVplus
Field 2	Nominal size, displacement		Field 2
016	16 cm³/rev displacement		016
020	20 cm³/rev displacement		020
023	23 cm³/rev displacement		023
028	28 cm³/rev displacement	no longer available, in future series PVM up to 250 bar	
032	32 cm³/rev displacement		032
040	40 cm³/rev displacement		040
046	46 cm³/rev displacement		046
063	63 cm³/rev displacement		063
080	80 cm³/rev displacement		080
092	92 cm³/rev displacement		092
130	130 cm³/rev displacement	140 cm³/rev displacement	140
180	180 cm³/rev displacement		180
250	250 cm³/rev displacement	270 cm³/rev displacement	270

PV	Description	Remark	PVplus
Field 3	Rotation		Field 3
R	clockwise (looking on shaft)		R
L	counter-clockwise (looking on shaft)		L

PV	Description	Remark	PVplus
Field 4	Variation		Field 4
1	standard		1
9	displacement adjusted		9

PV	Description	Remark	PVplus
Field 5	Mounting interface, shaft		Field 5
A	SAE, 2/4-hole, keyed shaft	4 Bolt SAE Pilot, SAE Keyed Shaft	D
B	SAE, 2/4-hole, splined shaft	4 Bolt SAE Pilot, SAE Spline Shaft	E
C	SAE, 4-hole, splined shaft, second pump	no longer available	
D	SAE, 4-hole, keyed shaft		D
E	SAE, 4-hole, splined shaft		E
J	metric, splined shaft, second pump	no longer available	
K	metric, keyed shaft		K
L	metric, splined shaft		L

PV	Description	Remark	PVplus
Field 6	Was: displacement adjustment	Now: ports, threads	Field 6
1	with displacement adjustment	metric, BSPP	1
		SAE, UNF	3
		SAE, ISO 6149	7
		metric, ISO 6149	8

Code example PV:

code field no.:

PV	046	R	1	D	3	T	1	N	FWS	XX	YY
1	2	3	4	5	6	7	8	9	10	11	12

Direct Comparison**Variable Volume Piston Pumps****Parker PV plus vs. Parker PV****Cross reference ordering codes Parker series PV and Parker series PV plus**

Code example PV:

code field no.:

PV	046	R	1	A	1	T	1	N	PWS	XX	YY
1	2	3	4	5	6	7	8	9	10	11	12

PV		Thru drive and Second Pump Option								PVplus	
Field										Field	
7	8	Description	Remark								7 8
T	1	Thru shaft Capable with Cover									T 1
A	4	2/4 Bolt SAE "A" Pilot 3.25"/SAE "A" 9T Spline Coupler	2 Bolt SAE "A" Pilot 3.25"/SAE "A" 9T Spline Coupler								A 4
B	7	2/4 Bolt SAE "B" Pilot 4.00"/SAE "B" 13T Spline Coupler	4 Bolt SAE "B" Pilot 4.00"/SAE "B" 13T Spline Coupler								B 3
			2 Bolt SAE "B" Pilot 4.00"/SAE "B" 13T Spline Coupler								B* 7
C	8	2/4 Bolt SAE "C" Pilot 5.00"/SAE "C" 14T Spline Coupler	4 Bolt SAE "C" Pilot 5.00"/SAE "C" 14T Spline Coupler								C** 3
			2 Bolt SAE "C" Pilot 5.00"/SAE "C" 14T Spline Coupler								C*** 7
H	2	4 Bolt 80mm Pilot/W ? x ? x ? x 8f DIN 5480 Coupler									H 3
J	2	4 Bolt 100mm Pilot/W 25 x 1.5 x 15 x 8f DIN 5480 Coupler									J 3
K	2	4 Bolt 125mm Pilot/W 32 x 1.5 x 20 x 8f DIN 5480 Coupler									K**** 3
W	7	2/4 Bolt SAE "B" Pilot 4.00"/SAE "BB" 15T Spline Coupler	4 Bolt SAE "B" Pilot 4.00"/SAE "BB" 15T Spline Coupler								W 3
			2 Bolt SAE "B" Pilot 4.00"/SAE "BB" 15T Spline Coupler								W 7
Y	7	2 Bolt SAE "AA" Pilot 2.00"/SAE "A" 9T Spline									Y# 7

*Not available with size 1

**Size 2 or larger

***Not available with size 1 and 2

****Only available with 032 and larger

#Only available with size 1

PV	Description	Remark	PVplus
Field 9	Seal material		Field 9
N	NBR		N
V	FPM		V

PV	Description	Remark	PVplus
Field 10	Compensator options		Field 10
**S	standard pressure compensator	only fast response option available	F*S
*RC	remote pressure compensator	only fast response option available	FRC
*R1	remote pressure compensator with D03 interface	only fast response option available	FR1
*F1	load-sensing compensator with D03 interface	only fast response option available	FF1
L	horse power compensator	no longer for load sensing	*L*

PV	Description	Remark	PVplus
Field 11	Design series pump		Field 11
	not required on order		
PV	Description	Remark	PVplus
Field 12	Design series compensator		Field 12
	not required on order		

*Consult Factory for assistance in crossing over PV model codes that are not shown.

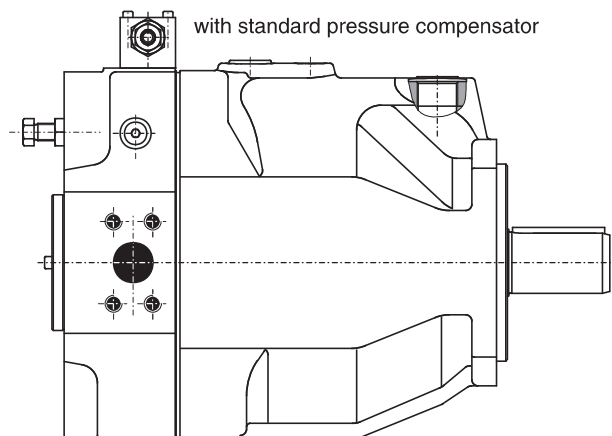
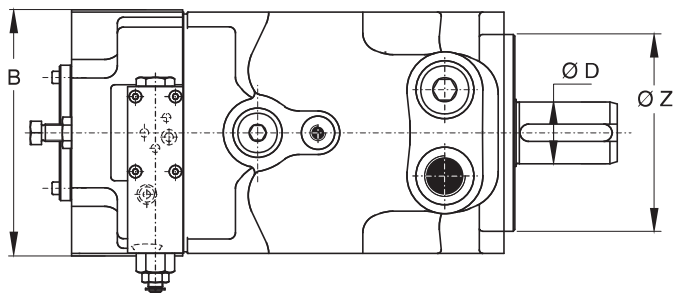
Code example PV:

code field no.:

PV	046	R	1	D	3	T	1	N	FWS	XX	YY
1	2	3	4	5	6	7	8	9	10	11	12

Differences in dimensions

***Dimensional Differences only
evident in PV140, 180 & 270.**



Dimension	PV130, PV180	PV140, PV180	PV250	PV270
Z, metric (mm)	Ø160	Ø 160	Ø 200	Ø 200
D, metr., key (mm)	Ø 50	Ø 50	Ø 65	Ø 65
D, metr., spline	W50x1.25x38	W50x2x24	W62x1.25x48	W60x2x28
Z, SAE (in)	Ø 152.4	Ø 152.4	Ø 165.1	Ø 165.1
D, SAE, key (in)	Ø 50.8	Ø 50.8	Ø 50.8	Ø 50.8
D, SAE, spline (in)	15T8/16DP	15T8/16DP	15T8/16DP	15T8/16DP
B (mm)	200	200	330	250

Series	Model	Displacement cc/rev (in ³ /rev)	Mass kg (lbs)
1	PV016	16 (.98)	19 (42)
	PV020	20 (1.2)	
	PV023	23 (1.4)	
2	PV032	32 (1.9)	30 (66)
	PV040	40 (2.4)	
	PV046	46 (2.8)	
3	PV063	63 (3.8)	60 (132)
	PV080	80 (4.8)	
	PV092	92 (5.6)	
4	PV140	140 (8.5)	90 (198)
	PV180	180 (10.9)	
5	PV270	270 (16.5)	172 (379)

Use of Relief Valve

The use of a relief valve, while not mandatory is recommended in the main circuit to suppress hydraulic shock loads and adds additional system protection.

Fluid Recommendations

Premium quality hydraulic oil with a viscosity range between 150-250 SSU (30-50 cst.) at 100°F (38°C). Normal operating viscosity range between 80-1000 SSU (17-180 cst.). Maximum start-up viscosity is 4000 SSU (1000cst.).

Note: Consult Parker when exceeding 160°F (71°C) operation. Oil should have maximum anti-wear properties, rust and oxidation treatment.

Filtration

For maximum pump and system component life, the system should be protected from contamination at a level not to exceed 125 particles greater than 10 microns per milliliter of fluid. (SAE Class 4/ISO 16/13.) Due to the nature of variable displacement pumps, variations in pump inlet conditions, fluid acceleration losses, system aeration, and duty cycle we do not recommend suction line filters. We do recommend the use of a properly sized, in-tank, suction strainer. Contact your Parker representative for assistance.

Start-Up

On initial start-up, the pump case must be filled with fluid. Pressure adjustments should be reduced and the circuit should be open to permit priming.

Special Installations

Consult your Parker representative for any application requiring the following:

Pressure above rated, drive speed above maximum, indirect drive, fluid other than petroleum oil, fluid temperature above 160°F (71°C)

**Shaft Rotation and Line Up**

Pump and motor shaft alignment must be within .010 TIR maximum, using a standard floating coupling. Please follow coupling manufacturer's recommended installation instructions to prevent end thrust on pump shaft. Turn pump to assure freedom of rotation. Pump and motor must be on a rigid base.

The coupling should be sized to absorb the peak horsepower developed.

Installation and Mounting

When mounting a PV Series Pump, the "case drain" must be on top of the pump. The "case drain" should be a separate line unrestricted to the reservoir and extend below the oil level as far from the inlet as possible. The "case drain" line must not exceed 10 PSI (.69 bar) back pressure.

The "case drain" line should be as large in diameter as possible and as short in length as possible. Suggested maximum line length is 10 ft.

Check that the driving motor rotates in the same direction as indicated by the rotation arrow on the pump.

Wear protection, wear reduction

Wear protection resp. wear reduction

In hydraulic components there are many gliding contacts partly under high (side) loads. Beside the correct viscosity, which on one hand is responsible for the required supply of lubricating fluid to the gap, on the other hand assures a stable lubricating film, the wear reduction capability of the hydraulic fluid is of major importance.

The describing parameter, the, "Schadenskraftstufe" (load carrying capability), is determined in the FZG-normal test A/8, 3/90 according to DIN 51354 part 2 (gear transmission test rig, 12 defined load steps at 90° C start temperature and 8,3 m/s circumference speed).

Depending on the nominal working pressure the following FZG Numbers is recommended!

nominal pressure bar (PSI)	FZG
80 - 125 (1160 - 1812)	≥ 5
125 - 200 (1812 - 2900)	5 - 6
200 - 250 (2900 - 3625)	7 - 9
250 - 320 (3625 - 4641)	≥ 10
> 320 (4641)	≥ 12

Max pressure limit: 1,25 x nominal pressure

Mineral oils are offered according to DIN 51 524 in different fluid types:

- HL-fluids according to DIN 51 524 part 2, normal working load conditions, FZG 6-10.
- HLP-fluids according to DIN 51 524 part 3, higher working load conditions, FZG > 10.

Modern HLP-fluids today usually come with a FZG >12. They are equipped with wear prohibiting additives, which ensure a high safety of operation under severe working conditions.

