

CONTINENTAL



HYDRAULICS

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POWERFLOW™ PVR SERIES VANE PUMPS

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POWERFLOW™ PVR SERIES VANE PUMPS

PRESSURE COMPENSATED VANE PUMPS FOR THE MOST DEMANDING APPLICATIONS

What Makes PowrFlow™ PVR Vane Pumps Your Best Buy?

Continental Hydraulics PowrFlow™ PVR Vane Pumps deliver the rugged, reliable performance and value you've come to expect in all our products. They outperform sensitive piston pumps in harsh environments. PVR Vane Pumps deliver faster response, and require less external compensation compared to fixed displacement designs.



Features and Benefits

- 1500 PSI Rated at Full Rated Flow
- 4 to 70 Gallon Sizes
- 100% Tested
- Three Year Warranty

Use PVR Vane pumps in tough applications such as brick and block plants, poultry processing systems, foundries, and mines.

Balanced Vane Tip Loading

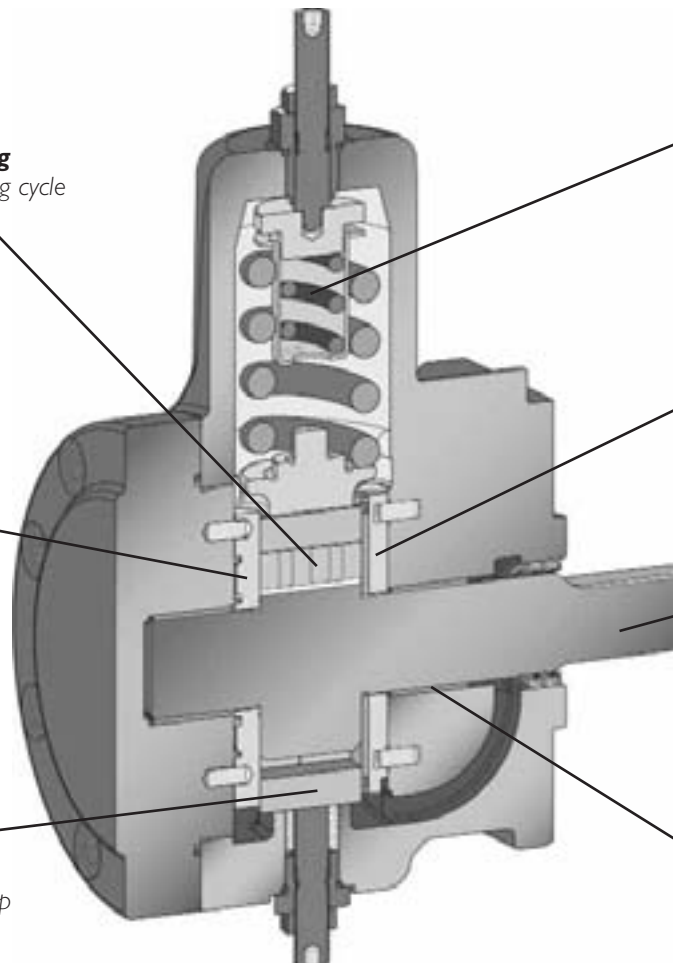
Acts through the entire pumping cycle to extend ring and vane life.

Quiet Operation

Computer-designed porting reduces noise at all pressure and flow levels. With noise levels as low as 68 dBA (NFPA T3.9.12M-1970 (R1981) tested) there's little or no need for noise enclosures.

Patented Walking Ring

A unique indexing cam ring rotates slightly every time output changes. Wear is distributed evenly around the entire ring inside surface. You get up to 10 times longer pump life than with conventional fixed-ring designs.



Direct Spring Operated Compensator

Provides fast pressure compensation for variable system demands. Eliminates sensitive hydraulic assist passages or valves that are prone to clogging.

Patented Pressure Balanced Thrust Plates

Precision machining results in pump efficiencies up to 90%, eliminates shims and spacers, simplifies maintenance.

Heavy Forged One-Piece Rotor Shaft

Built strong and rigid to take system loads with minimal deflection, for increased pump life.

Hydrodynamic Journal Bearings

There's no shaft-to-bearing contact, so pump life is virtually unlimited - not determined by B-10 rating.

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PVR SERIES VANE PUMPS

HOW A VANE PUMP WORKS

How It Works

Continental Hydraulics' variable volume, pressure displacement, pressure compensated vane pumps are highly efficient and reliable sources of hydraulic power. Figures 1 and 2 show how the moving cam ring provides variable volume and constant pressure.

As the rotor turns clockwise, the volume between two adjacent vanes (segment) increases at the suction porting. When these segments enter the pressure port area, the volume is reduced and forces the fluid out through the pressure port.

Maximum output occurs when the cam is in the extreme eccentric position (Figure 1). When system requirements are less than maximum pump output, system pressure forces the ring up (against the spring), reducing eccentricity and resulting in less flow.

Constant pressure from zero to full displacement is maintained by the spring. When system volume demand falls to zero, the system pressure drives the ring to a concentric position (Figure 2). This changes the displacement to zero while system pressure is maintained.

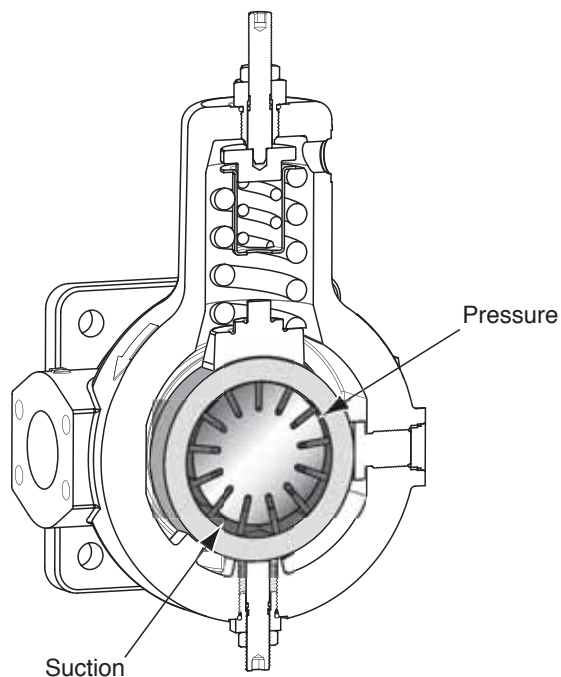


Figure 1

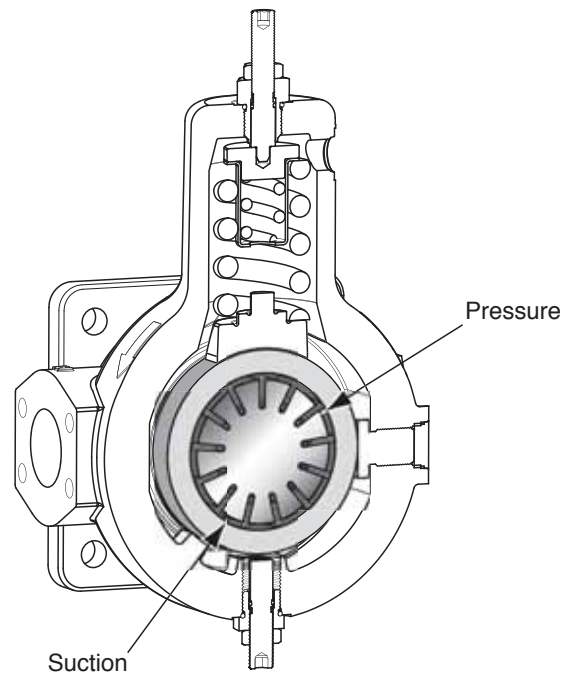


Figure 2

Quiet Operation

Geometry of porting combined with precision-fitting vanes and moving parts make Continental pumps among the most quiet in the industry. Sound levels range from below 68 dBA for 6 gpm models when tested in accordance with NFPA Recommended Standard T3.9.1M-1970 (R1981).

A More Efficient Pump

Continental pumps produce only the flow the system demands at any one time. This results in less heat generation, fewer system components, smaller or no heat exchanger and does not require a high pressure bypass. The result is a simpler, more energy efficient system that accurately and efficiently matches fluid power volume to the task while maintaining constant pressure in the system.

Options and Accessories

Continental pumps may be tandem mounted to achieve multiple pump operation from a single power source for separate or auxiliary circuits. Pump options include handwheel pressure and volume controls; dual volume and dual pressure control combinations, plus a variety of mounting arrangements.

GENERAL SPECIFICATIONS

Recommended Fluids

Petroleum base and most phosphate ester fluids, water glycols and emulsions with water content not exceeding 40%. Consult the factory for other fluids.

Viscosity

Maximum at
Start-Up..... 1000 SUS (220 CS)
Optimal 175 SUS (40 CS)
Limits..... See Chart Below

Start-up at 1000 SUS (220 CS) is intended to be used for warm-up only. Actual hydraulic circuit should not be attempted above 400 SUS (90 CS). Be certain the entire hydraulic circuit has been warmed up before full flow, full pressure application begins.

Operating Temperature

Fluid temperatures up to 160° F. (71° C.) will not appreciably affect pump performance as long as fluid viscosity is not allowed to drop too low. However, from a safety standpoint, temperatures above 130° F. (54° C.) are not recommended.

Specified operating viscosities must be followed for optimum life and performance. For continuous operating temperatures above 140° (60° C.), consult the fluid manufacturer for correct fluid at elevated temperatures.

Filtration

The following recommendations are for maximum service life. Consult with your fluid and filter manufacturer for concurrence.

Suction

Petroleum
Fluids 100 Mesh Screen
Water Base
Fluids 60 Mesh Screen
Phosphate
Esters 60 Mesh Screen

Return

ISO 18/15/13 (25 micron) to 1000 psi (69 bar)
ISO 16/13/11 (10 micron) to 2000 psi (138 bar)

Drive Coupling

Jaw-type with flexible web is recommended. Tire-type flexing elements and chain-type are **NOT** recommended. For belt, chain and gear drives, consult the factory.

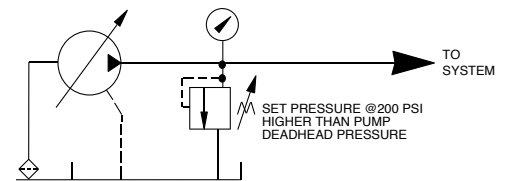
Drive Shaft Alignment

Pump and motor shaft alignment must be within .003" (.08 mm) TIR for maximum bearing life.

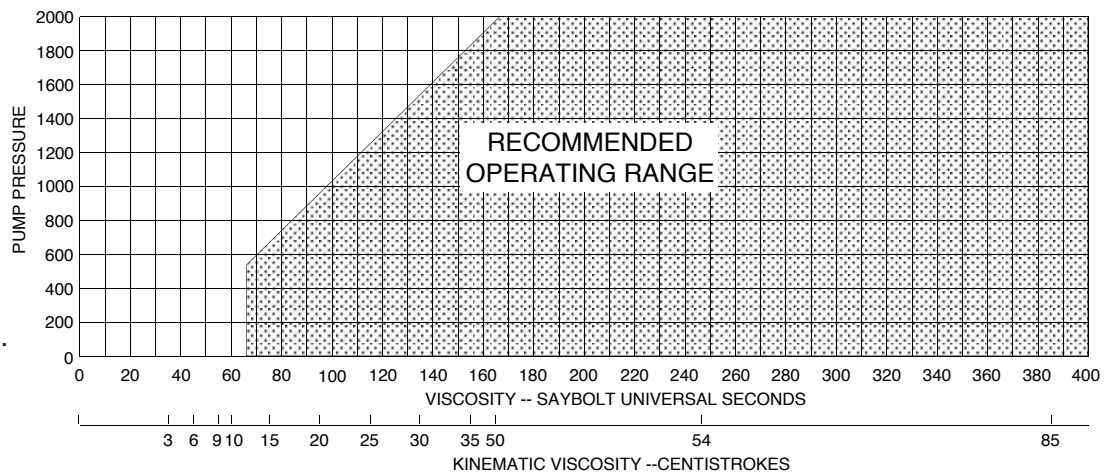
Relief Valves

A relief valve is not required or necessary for pump outlet pressures less than 1500 psi (103 bar). For pressures greater than 1500 psi (103 bar), it is recommended that a direct-operated, rapid response differential piston relief valve be used to relieve pressure spikes and/or surges. Set the relief valve approximately 200 psi (14 bar) higher than the pump setting.

Typical Relief Valve Application Schematic



Recommended Operating Range



PVR-1 SERIES VANE PUMPS

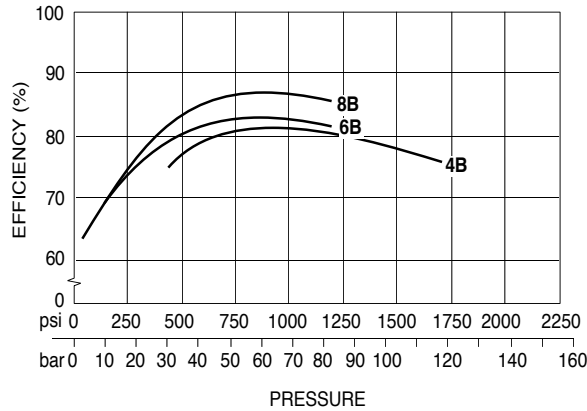
VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



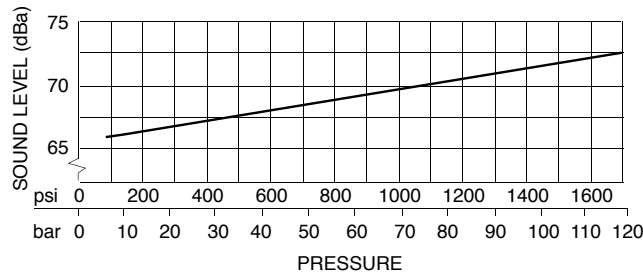
Manifold Mounted

OVERALL EFFICIENCY

1750 rpm at Full Displacement



TYPICAL SOUND LEVEL @ 1750 rpm



TYPICAL PERFORMANCE SPECIFICATIONS

		PUMP SIZE			
		4B	6B	8B	
VOLUMETRIC DISPLACEMENT*	cu. in./rev.	0.7	0.9	1.2	
	ml/rev.	11.5	14.8	19.7	
PUMP DELIVERY AT 1750 RPM*	91.5 psi	gpm	5	7	9.5
	6.3 bar	lpm	19	26.5	36
	rated	gpm	4	6	8
	pressure	lpm	15.1	22.8	30.5
COMPENSATED PRESSURE RANGES	Max.	psi	1500	1000	1000
		bar	103	69	69
	Rated	psi	1500	1000	1000
		bar	103	69	69
	Min.	psi	400	100	100
		bar	28	7	7
OPERATING SPEEDS**	Min. rpm	800			
	Rated rpm	1750			
	Max. rpm	3600			
POWER INPUT AT RATED FLOW & PRESSURE (1750 rpm)	hp	5	5	6	
	kW	3.7	3.7	4.4	
SUCTION	PRESSURE	Max. psi	10		
		bar	0.7		
		in./Hg	7		
	Specific Gravity < 1	Min. bar	-0.25		
		in./Hg	5		
		bar	-0.17		
FLUID VELOCITY	Max. ft./sec.	5			
	m/sec.	1.5			
CASE DRAIN	NOMINAL FLOW AT DEADHEAD PRESSURE	Max. cipm	65	36	55
		mlpm	1065	600	900
	Pressure	Min. cipm	25	10	24
		mlpm	410	170	390
MAXIMUM CASE PRESSURE	psi	10			
	bar	0.7			
WEIGHT	lbs.	20			
	kg	9			

NOTES:

- * Volumetric displacement is measured displacement at 91.5 psi (6.3 bar) and rated rpm. Volumetric displacement varies with both pressure and rpm. Flow rates at any rpm other than the rated rpm may be approximated as follows:
 $Q_2 = Q_1 (N-142)/1667$ where Q_1 = Flow (gpm) at rated rpm at 91.5 psi (6.3 bar).
 Q_2 = Flow (gpm) at N rpm.
 N = rpm at which Q_2 is to be determined.
- ** **6B** - Maximum rpm at full displacement - 2800 rpm. For higher rpms up to 3600 rpm, pump displacement must be reduced to limit flow to 9.5 gpm (36 lpm) maximum.
8B - Maximum rpm at full displacement - 2100 rpm. For higher rpms up to 3600 rpm, pump displacement must be reduced to limit flow to 9.5 gpm (36 lpm) maximum.

PRESSURE and VOLUME ADJUSTMENT SENSITIVITY

		PUMP SIZE		4B			6B			8B	
		PRESSURE CODE		10	15	03	06	10	03	06	10
PRESSURE ADJUSTMENT	Press Change/Turn	psi (bar)		255 (17.8)	270 (18.6)	115 (7.9)	210 (14.5)	240 (16.5)	115 (7.9)	210 (14.5)	240 (16.6)
	Max. Torque	ft./lbs. (kg/m)		4.0 (0.55)	6.0 (0.83)	1.4 (0.19)	2.6 (0.36)	4.0 (0.55)	1.4 (0.19)	2.6 (0.36)	4.0 (0.55)
VOLUME ADJUSTMENT	Flow Change/Turn	gpm (lpm)		3.4 (12.5)			4.6 (17.4)			4.6 (17.4)	
	Min. Flow Adjust.	gpm (lpm)		1.25 (4.7)			1.25 (4.7)			1.25 (4.7)	
	Max. Torque	ft./lbs. (kg/m)		2.5 (0.34)			1.0 (0.14)			1.0 (0.14)	

CAUTION: Turning the Maximum Volume Control in too far can force the cam ring over-center, causing damage.

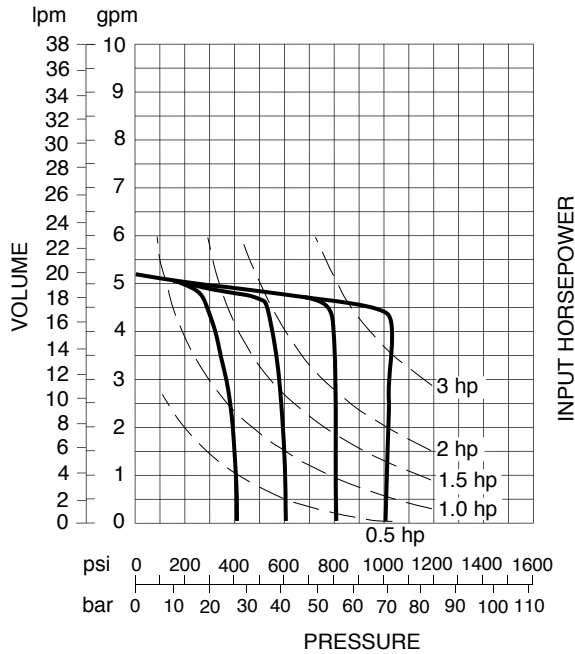
PVR-1 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

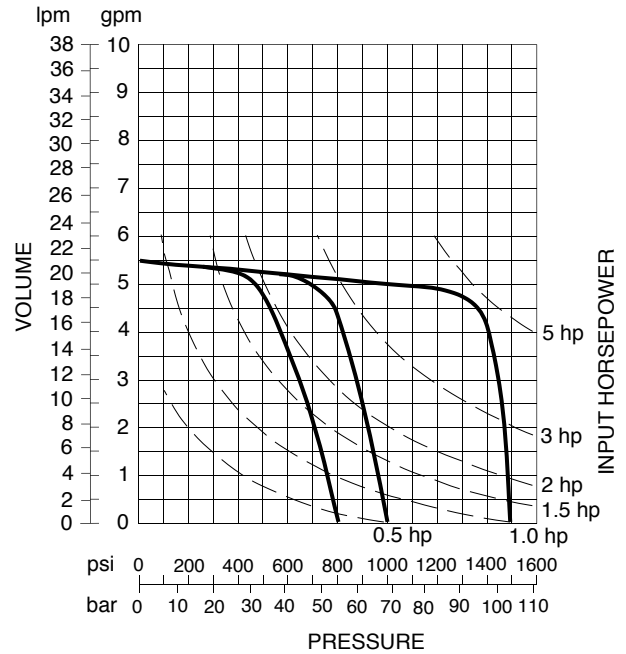
NOTE: Typical performance curves are based on ISO VG46 oil at 120° F. (49° C.). Above 400 SUS (84 CS), add 2% hp/100 SUS.

NOTE: Deadhead horsepower is read from curves at 0 gpm flow and pressure compensator setting psi.

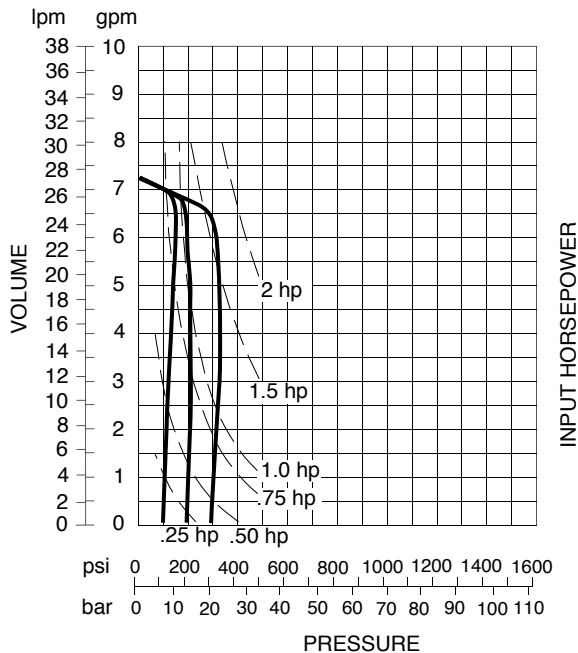
4B10 (at 1750 rpm)



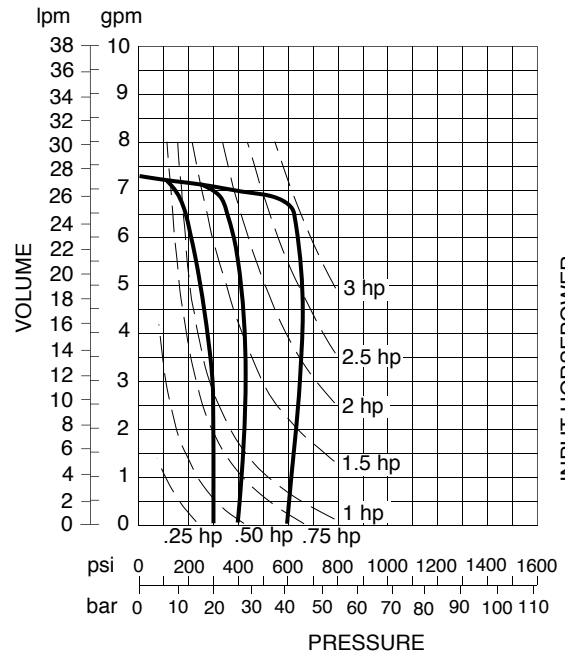
4B15 (at 1750 rpm)



6B03 (at 1750 rpm)



6B06 (at 1750 rpm)



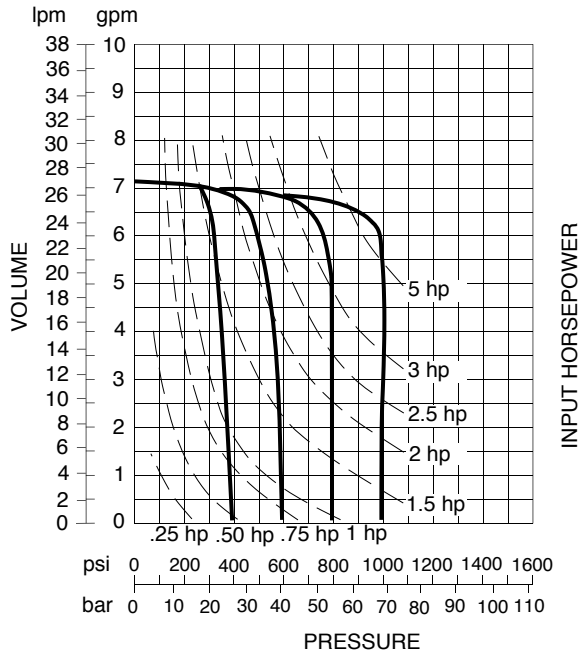
PVR-1 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

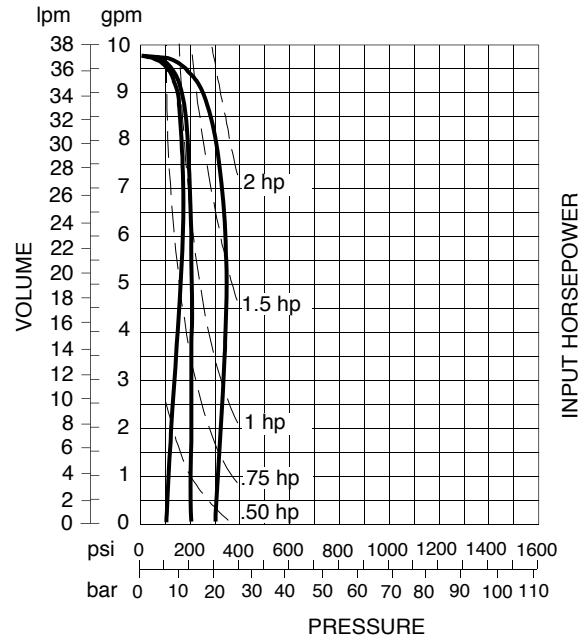
NOTE: Typical performance curves are based on ISO VG46 oil at 120° F. (49° C.). Above 400 SUS (84 CS), add 2% hp/100 SUS.

NOTE: Deadhead horsepower is read from curves at 0 gpm flow and pressure compensator setting psi.

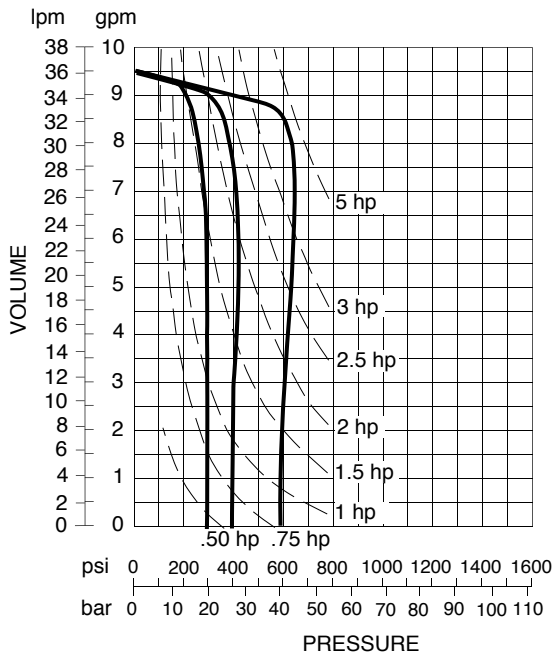
6B10 (at 1750 rpm)



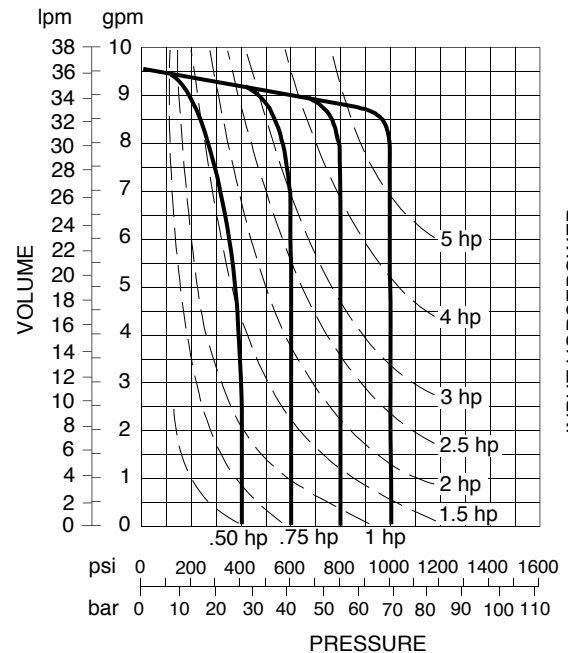
8B03 (at 1750 rpm)



8B06 (at 1750 rpm)



8B10 (at 1750 rpm)

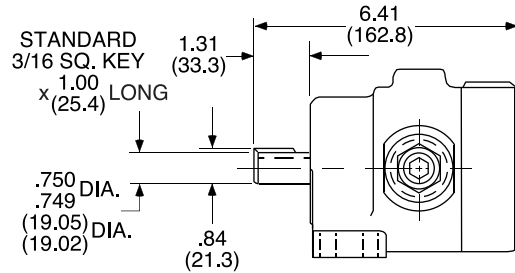
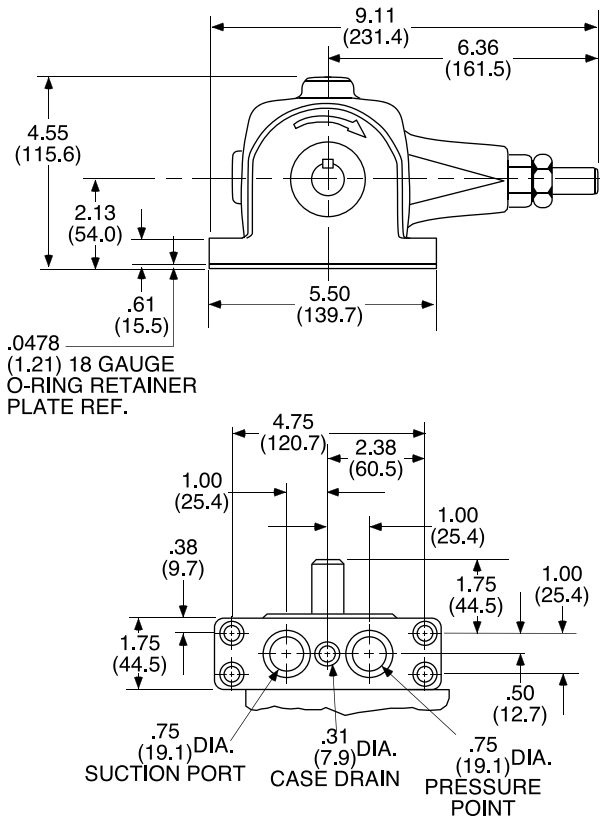


PVR-1 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

PUMP DIMENSIONS

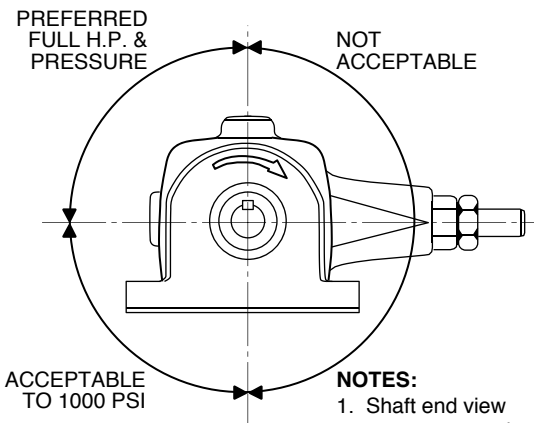
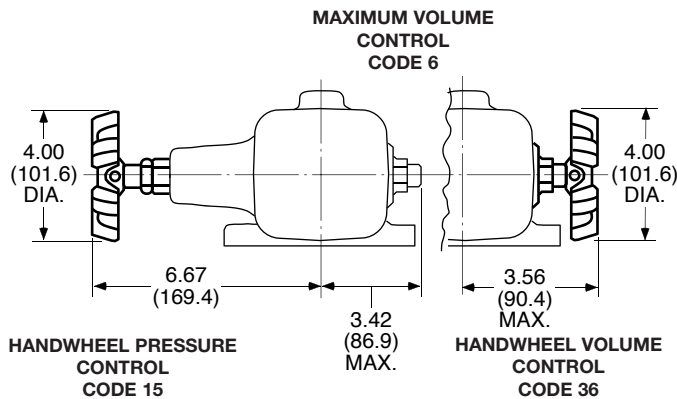
Dimensions shown in: Inches
(millimeters)



MECHANICAL OPTIONS

SIDE LOAD DRIVES

i.e. Belt, Chain, Gear



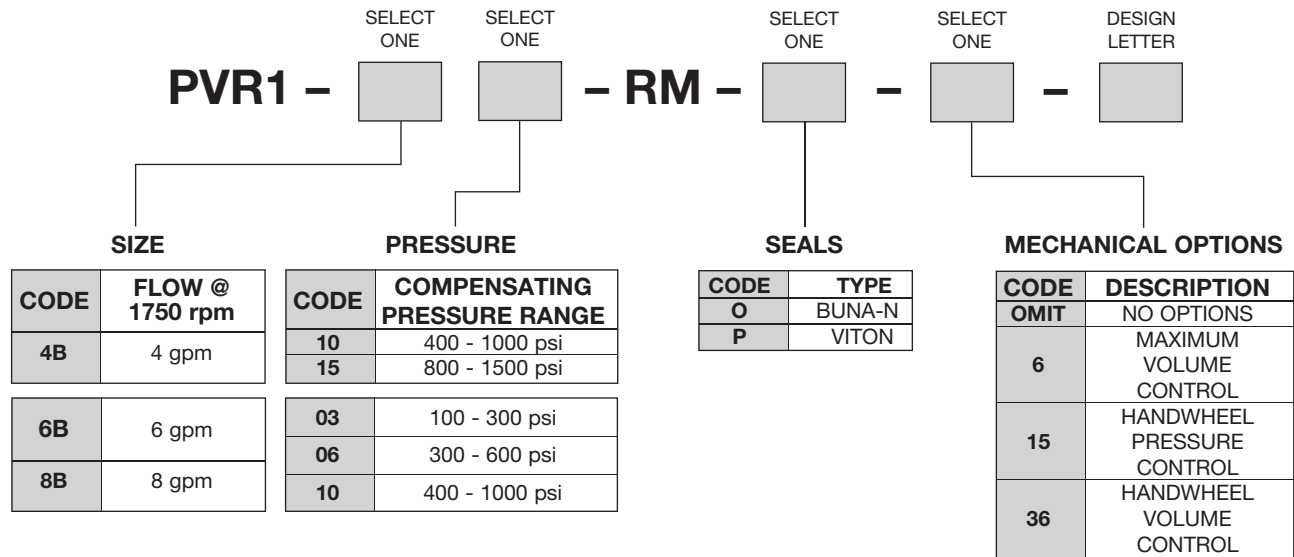
- NOTES:**
1. Shaft end view
 2. 1750 rpm rated
 3. Capable of full pump horsepower (load to radiate out from shaft)

PVR-1 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

ORDERING INFORMATION

Right Hand (CW) Rotation



TYPICAL ORDERING CODE:
PVR1-6B10-RM-O-1-I

PVR-6 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



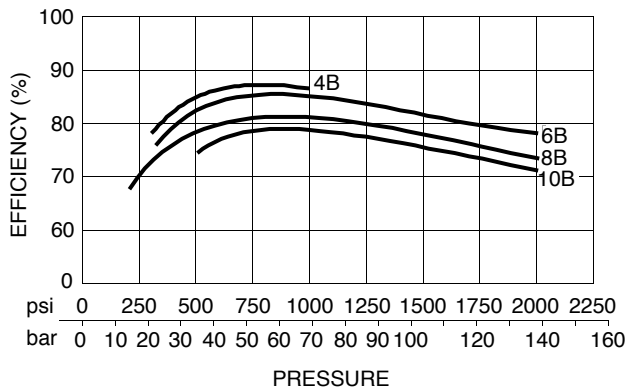
Flanged Mounted
SAE "A" 2-Bolt

TYPICAL PERFORMANCE SPECIFICATIONS

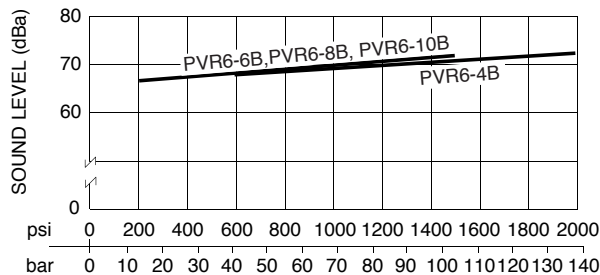
		PUMP SIZE				
		4B	6B	8B	10B	
VOLUMETRIC DISPLACEMENT*	cu. in./rev.	0.7	0.9	1.2	1.4	
	ml/rev.	11.5	14.8	19.7	23.1	
PUMP DELIVERY AT 1750 RPM*	91.5 psi	gpm	5.2	7	9	11
	6.3 bar	lpm	19.7	26.5	34	41
	rated pressure	gpm	4	6	8	10
COMPENSATED PRESSURE RANGES	Max.	psi	2000	2000	2000	1000
		bar	138	138	138	69
	Rated	psi	2000	2000	2000	1000
		bar	138	138	138	69
	Min.	psi	500	300	200	300
		bar	35	20	14	20
OPERATING SPEEDS**	Min. rpm	800		800		
	Rated rpm	1750		1750		
	Max. rpm	3600		1800		
POWER INPUT AT RATED FLOW & PRESSURE (1750 rpm)	hp	7	9	11	8	
	kW	5.2	6.7	8.2	5.9	
SUCTION PRESSURE	Max.	psi	20		10	
		bar	1.4		0.70	
	Min.	in./Hg	7			
		Specific Grav. < 1 bar	-0.25			
Min.	in./Hg	5				
	Specific Grav. > 1 bar	-0.17				
CASE DRAIN FLUID VELOCITY	Max.	ft./sec.	5			
		m/sec.	1.5			
NOMINAL FLOW AT DEADHEAD PRESSURE	Max.	cipm	31	31	37	
		mlpm	500	500	600	
	Min.	cipm	10	10	24	
MAXIMUM CASE PRESSURE	Pressure	mlpm	170	170	390	
		psi	10			
WEIGHT	lbs.	20				
		kg	9			

OVERALL EFFICIENCY

1750 rpm at Full Displacement



TYPICAL SOUND LEVEL @ 1750 rpm



NOTES:

* Volumetric displacement is measured displacement at 91.5 psi (6.3 bar) and rated rpm. Volumetric displacement varies with both pressure and rpm. Flow rates at any rpm other than the rated rpm may be approximated as follows:

$$Q_2 = Q_1 (N-142)/1667 \text{ where } Q_1 = \text{Flow (gpm) at rated rpm at 91.5 psi (6.3 bar).}$$

$$Q_2 = \text{Flow (gpm) at N rpm.}$$

N = rpm at which Q_2 is to be determined.

** When operating above 1500 psi (103 bar), it is recommended that a direct-acting differential relief valve be used at the pump to relieve pressure spikes and surges.

6B - Maximum rpm at full displacement - 2800 rpm. For higher rpms up to 3600 rpm, pump displacement must be reduced to limit flow to 9.5 gpm (36 lpm) maximum.

8B - Maximum rpm at full displacement - 2100 rpm. For higher rpms up to 3600 rpm, pump displacement must be reduced to limit flow to 9.5 gpm (36 lpm) maximum.

10B - Maximum rpm at full displacement - 1800 rpm. For higher rpms up to 3600 rpm, pump displacement must be reduced to limit flow to 9.5 gpm (36 lpm) maximum.

PRESSURE and VOLUME ADJUSTMENT SENSITIVITY

		PUMP SIZE		S 4B	6B	6B	8B	8B	10B	6B	8B
		20	06								
PRESSURE ADJUSTMENT		PRESSURE CODE	20	06	15	06	15	10	20	20	
PRESSURE ADJUSTMENT	Press Change/Turn	psi (bar)	275 (19.0)	200 (13.7)	260 (17.9)	200 (13.7)	260 (17.9)	235 (16.2)	360 (24.9)	250 (17.2)	
	Max. Torque	ft./lbs.(kg/m)	8.0 (1.10)	4.01 (0.55)	6.0 (0.83)	4.0 (0.55)	6.8 (0.83)	5.0 (0.89)	6.0 (0.83)	6.0 (0.83)	
VOLUME ADJUSTMENT	Flow Change/Turn	gpm (lpm)	3.4 (12.9)	4.6 (17.4)	4.6 (17.4)	4.6 (17.4)	4.6 (17.4)	4.6 (17.4)	4.6 (17.4)	4.6 (17.4)	
	Min. Flow Adjust.	gpm (lpm)	1.25 (3.78)	1.25 (3.78)	1.25 (3.78)	1.25 (3.78)	1.25 (3.78)	1.25 (3.78)	1.25 (3.78)	1.25 (3.78)	
	Max. Torque	ft./lbs. (kg/m)	4.0 (0.55)	2.5 (0.34)	2.5 (0.34)	2.5 (0.34)	2.5 (0.34)	1.0 (0.34)	1.0 (0.34)	1.0 (0.34)	

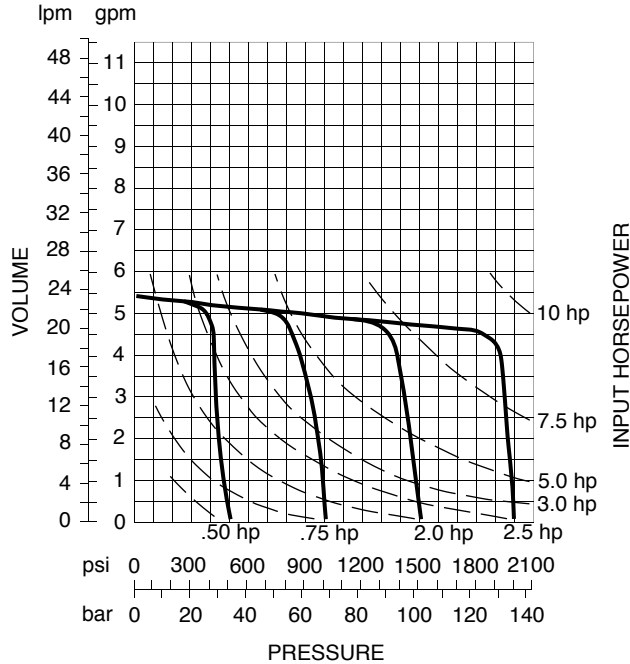
PVR-6 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

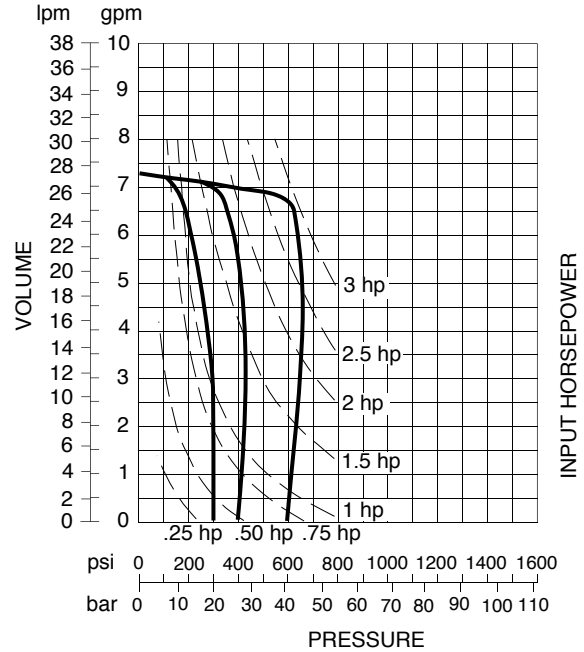
NOTE: Typical performance curves are based on ISO VG46 oil at 120° F. (49° C.). Above 400 SUS (84 CS), add 2% hp/100 SUS.

NOTE: Deadhead horsepower is read from curves at 0 gpm flow and pressure compensator setting psi.

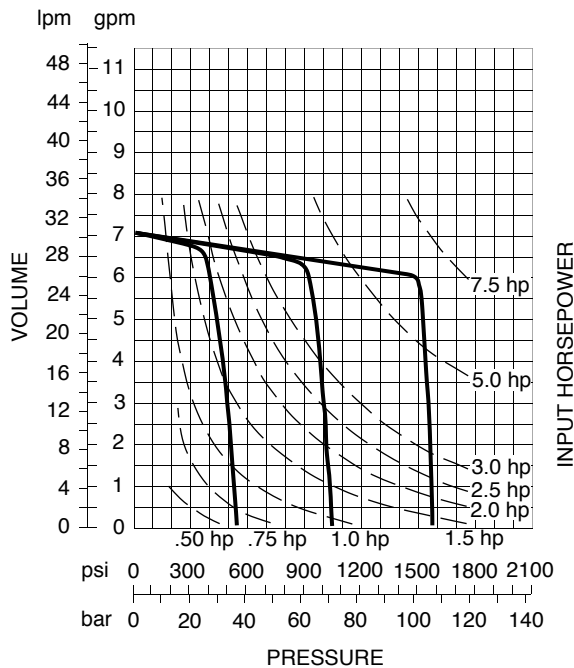
4B20 (at 1750 rpm)



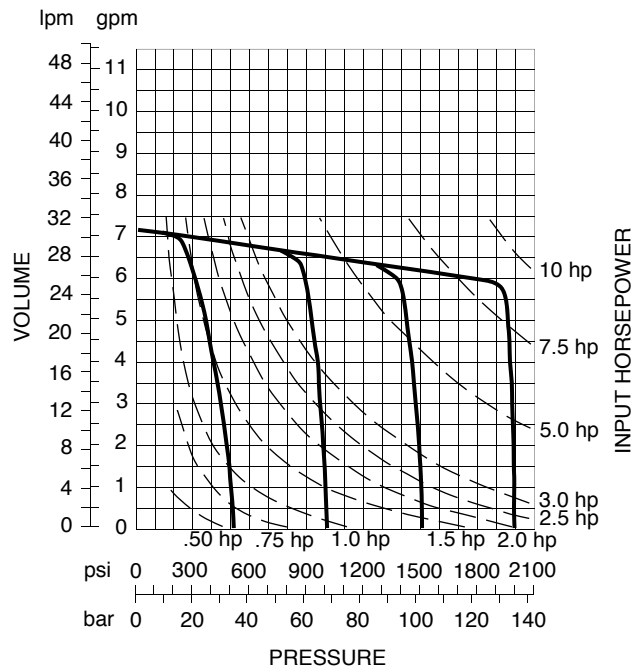
6B06 (at 1750 rpm)



6B15 (at 1750 rpm)



6B20 (at 1750 rpm)



CAUTION: Turning the Maximum Volume Control in too far can force the cam ring over-center, causing damage.

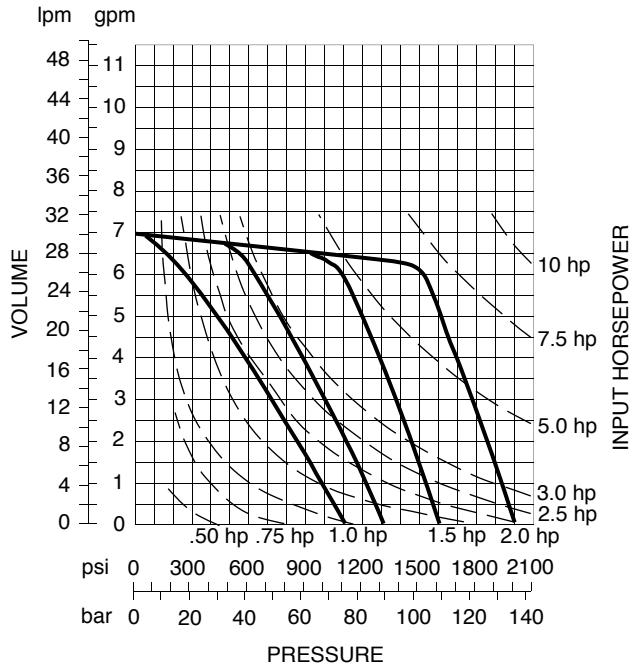
PVR-6 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

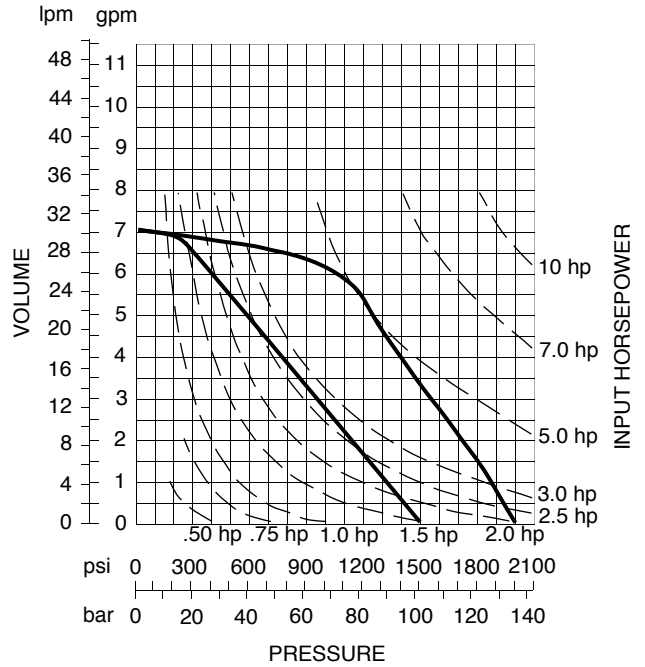
NOTE: Typical performance curves are based on ISO VG46 oil at 120° F. (49° C.). Above 400 SUS (84 CS), add 2% hp/100 SUS.

NOTE: Deadhead horsepower is read from curves at 0 gpm flow and pressure compensator setting psi.

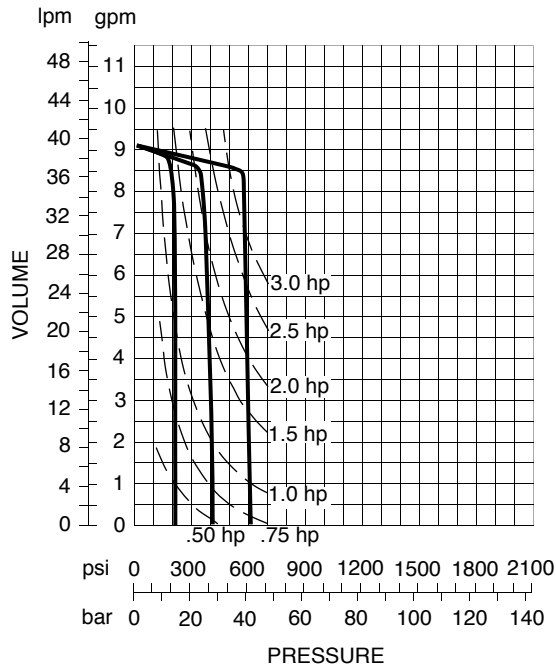
6B3L (at 1750 rpm)



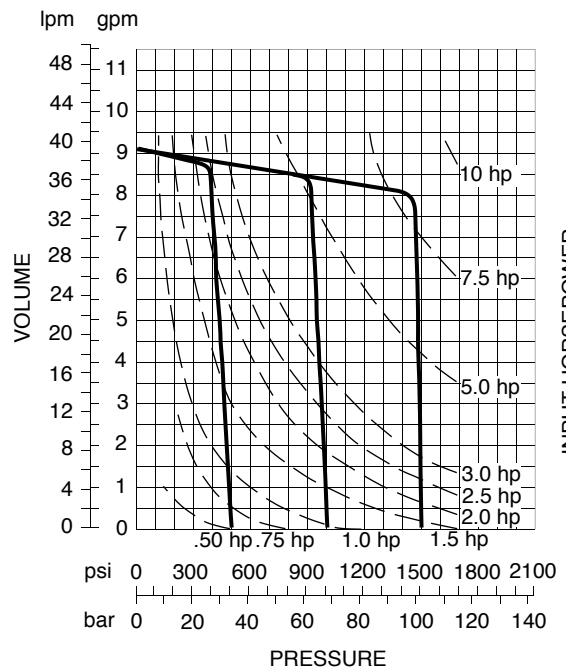
6B5L (at 1750 rpm)



8B06 (at 1750 rpm)



8B15 (at 1750 rpm)



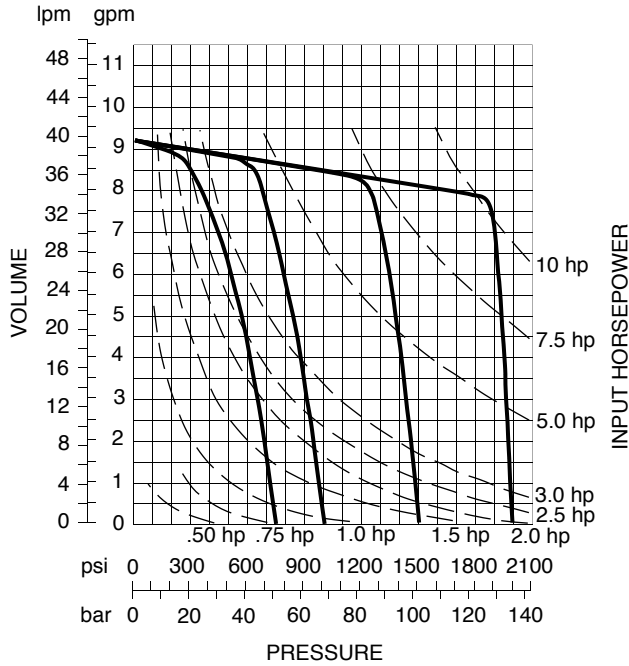
PVR-6 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

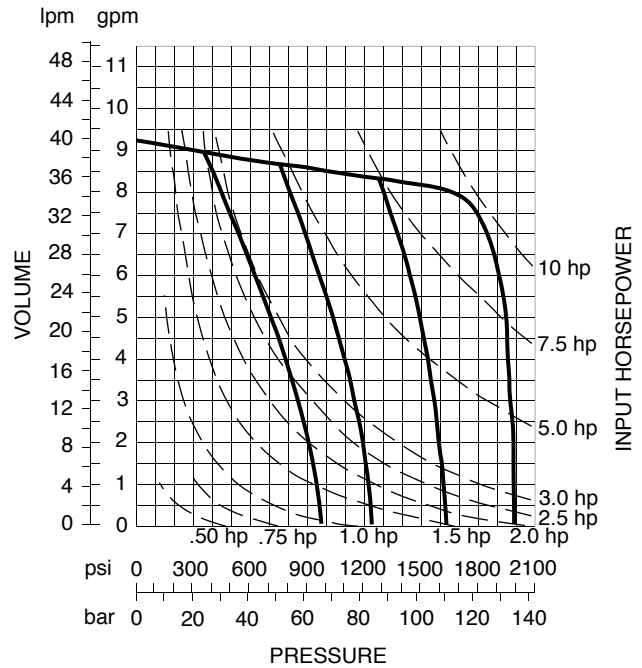
NOTE: Typical performance curves are based on ISO VG46 oil at 120° F. (49° C.). Above 400 SUS (84 CS), add 2% hp/100 SUS.

NOTE: Deadhead horsepower is read from curves at 0 gpm flow and pressure compensator setting psi.

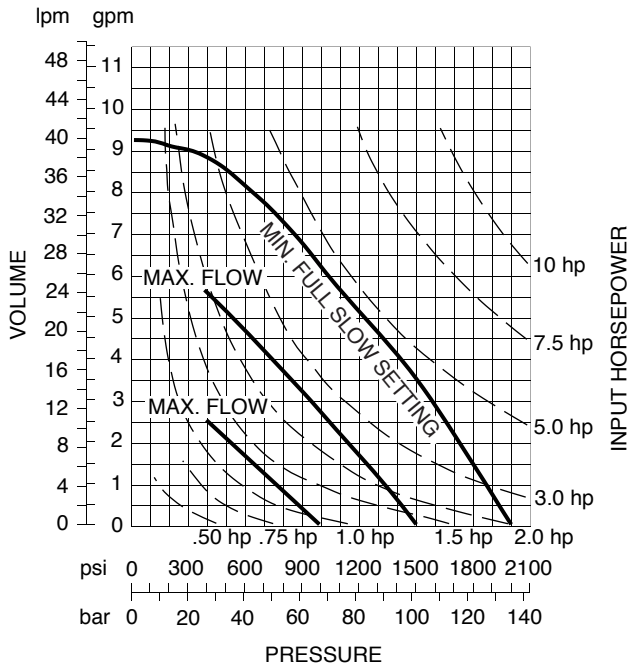
8B20 (at 1750 rpm)



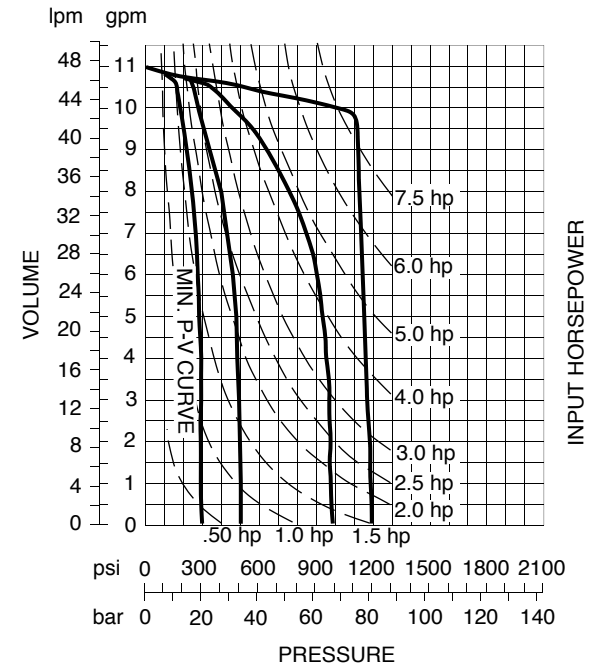
8B3L (at 1750 rpm)



8B5L (at 1750 rpm)



10B10* (at 1750 rpm)



* **NOTE:** Not to be used with water, glycol or emulsion fluids.

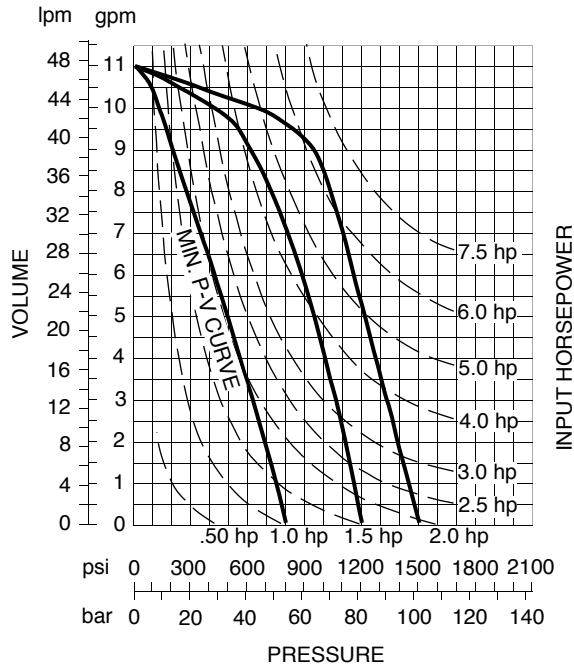
PVR-6 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

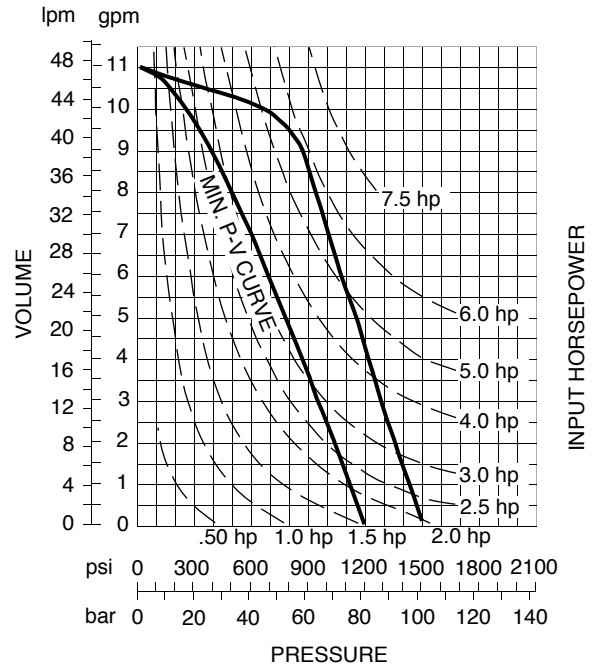
NOTE: Typical performance curves are based on ISO VG46 oil at 120° F. (49° C.). Above 400 SUS (84 CS), add 2% hp/100 SUS.

NOTE: Deadhead horsepower is read from curves at 0 gpm flow and pressure compensator setting psi.

10B3L (at 1750 rpm)



10B5L (at 1750 rpm)

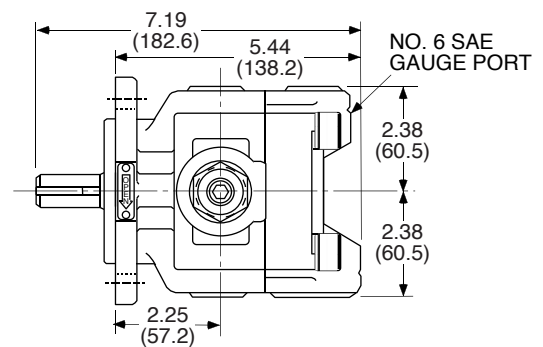
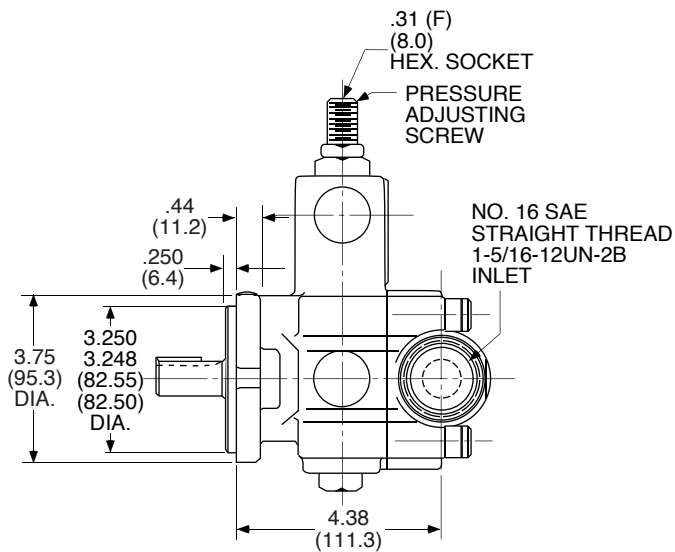
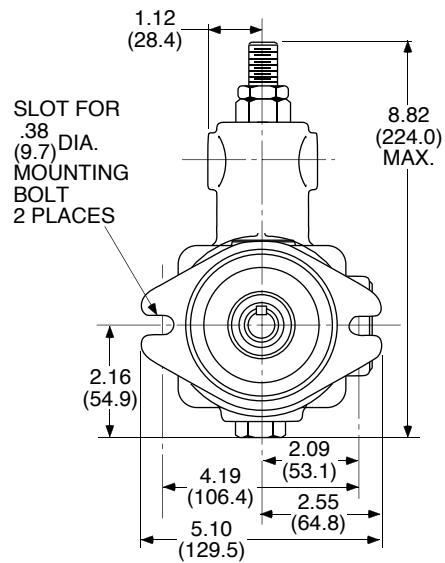
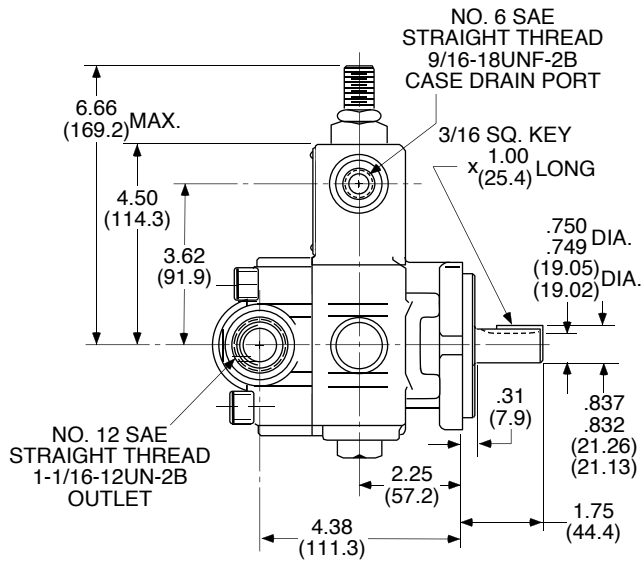


PVR-6 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

PUMP DIMENSIONS

Dimensions shown in: Inches
(millimeters)

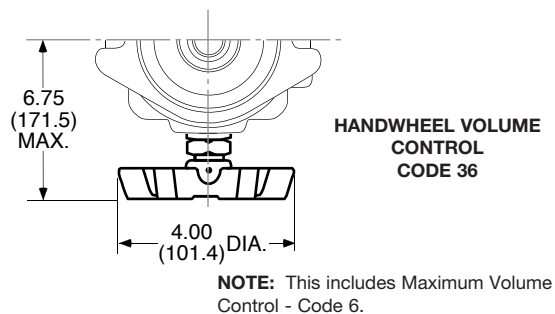
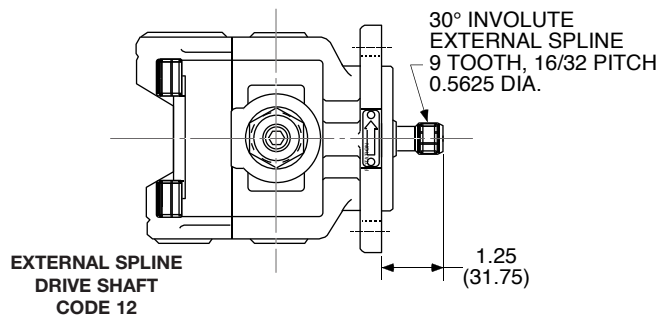
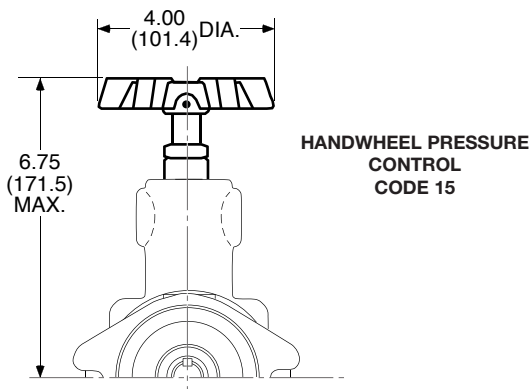
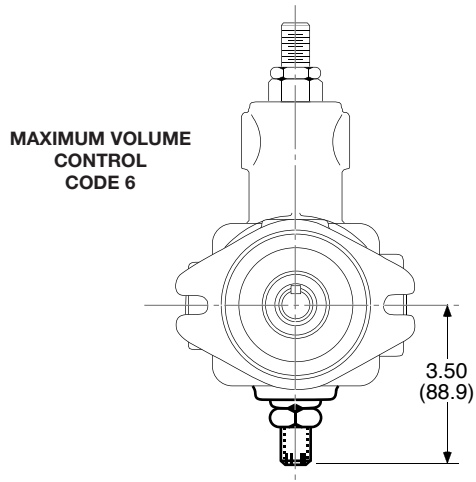


PVR-6 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

MECHANICAL OPTIONS

Dimensions shown in: Inches
(millimeters)



PVR-6 SERIES VANE PUMPS

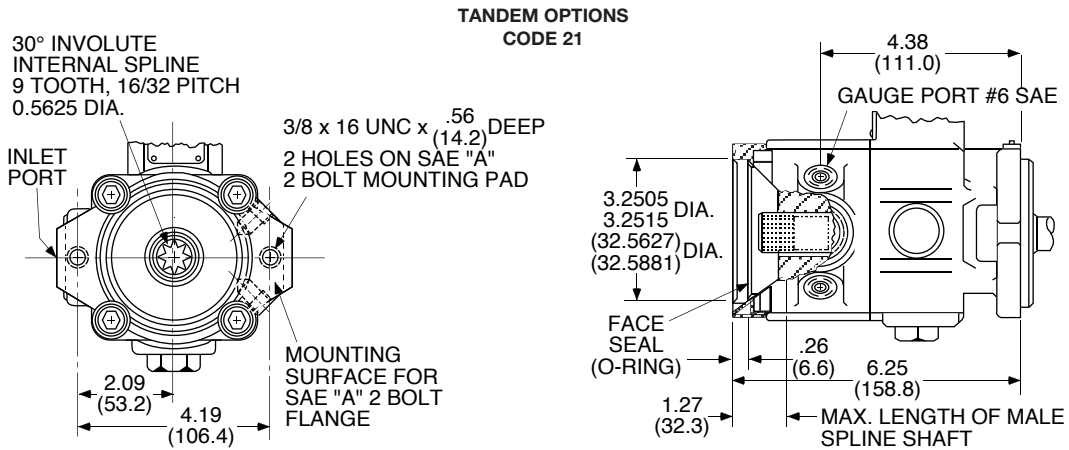
VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

MECHANICAL OPTIONS

Dual pump operation without additional mounting flanges and couplings.

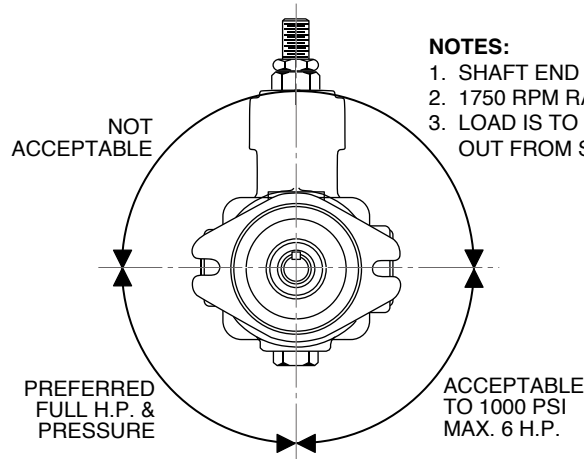
Permits mounting of another PVR6 pump (with Code 12*) or any SAE "A" -bolt flange mount pump incorporating a 30° involute, 16/32 pitch, 9 tooth external spline drive shaft. Maximum rating of internal spline is 8-1/2 hp at 1750 rpm.

Dimensions shown in: Inches
(millimeters)



SIDE LOAD DRIVES

i.e. Belt, Chain, Gear



NOTES:

1. SHAFT END VIEW
2. 1750 RPM RATED
3. LOAD IS TO RADIATE OUT FROM SHAFT

PVR-6 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

ORDERING INFORMATION

Right Hand (CW) Rotation

PVR6 - SELECT ONE SELECT ONE - RF - SELECT ONE - SELECT ONE - DESIGN LETTER

SIZE

CODE	FLOW @ 1750 rpm
4B	4 gpm
6B	6 gpm
8B	8 gpm
10B*	10 gpm

PRESSURE

CODE	COMPENSATING PRESSURE RANGE
20	500 - 2000 psi
06	200 - 600 psi
15	500 - 1500 psi
20	500 - 2000 psi
3L	1100 - 2000 psi
5L	1300 - 2000 psi
06	200 - 600 psi
15	500 - 1500 psi
20	750 - 2000 psi
3L	1000 - 2000 psi
5L	1700 - 2000 psi
10	300 - 1000 psi
3L	800 - 1500 psi
5L	1200 - 1500 psi

SEALS

CODE	TYPE
O	BUNA-N
P	VITON

MECHANICAL OPTIONS

CODE	DESCRIPTION	AVAILABLE ON:
OMIT	NO OPTIONS	
6	MAXIMUM VOLUME CONTROL	ALL MODELS
12*	EXTERNAL SPLINE SHAFT	
15	HANDWHEEL PRESSURE CONTROL	
21*	"A" FLANGE TANDEM PUMP MOUNTING	6B, 8B, 10B ONLY
36	HANDWHEEL VOLUME CONTROL	ALL MODELS

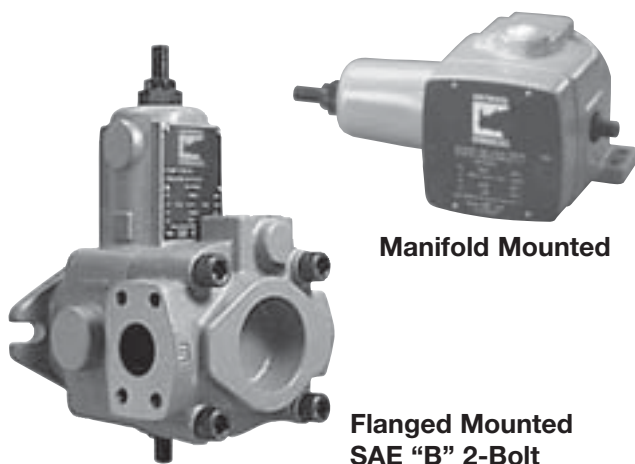
*NOTE: Do not use water, glycol or emulsion fluids with the PVR6-10B pump.

*NOTE: For PVR6-4B Code 21 or 1221, consult the factory for price and delivery.

TYPICAL ORDERING CODE:
PVR6-8B15-RF-O-1-H

PVR-15 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

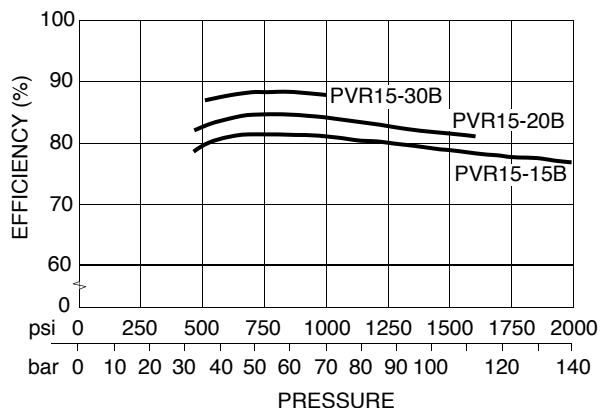


Manifold Mounted

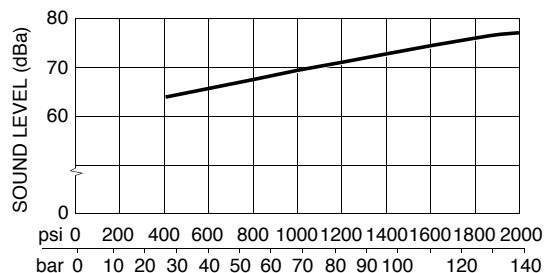
Flanged Mounted
SAE "B" 2-Bolt

OVERALL EFFICIENCY

1750 rpm at Full Displacement



TYPICAL SOUND LEVEL @ 1750 rpm



TYPICAL PERFORMANCE SPECIFICATIONS

		PUMP SIZE			
		15B	20B	30B	
VOLUMETRIC DISPLACEMENT*	cu. in./rev.	2.4	2.8	4.3	
	ml/rev.	39.3	46	70.5	
PUMP DELIVERY AT 1750 RPM*	91.5 psi	gpm	18.7	21.6	32.0
	6.3 bar	lpm	70.8	81.8	121.0
	rated	gpm	15	19	30
COMPENSATED PRESSURE RANGES	pressure	lpm	56.8	72	114
	Max.	psi	2000	1500	1000
		bar	160	103	69
OPERATING SPEEDS**	Rated	psi	2000	1500	1000
		bar	138	103	69
	Min.	psi	400	400	500
POWER INPUT AT RATED FLOW & PRESSURE (1750 rpm)		bar	28	28	35
	Min. rpm		1400		
	Rated rpm		1750		
MAXIMUM POWER INPUT TO DRIVE SHAFT	Max. rpm		2400	2400	1800
	hp		20	19	20
	kW		15	14	15
SUCTION PRESSURE	Max.	psi	20	10	
		bar	1.40	0.7	
	Min.	in./Hg	7	7	5
FLUID VELOCITY	Specific Gravity < 1	bar	-0.25	-0.25	-0.17
	Min.	in./Hg	5	5	4
	Specific Gravity > 1	bar	-0.17	-0.17	-0.13
CASE DRAIN PRESSURE	Max.	ft./sec.	5		
		m/sec.	1.5		
	1000 psi	gpm	0.5	0.5	0.7
MAXIMUM CASE PRESSURE	69 bar	lpm	1.9	1.9	2.7
	1500 psi	gpm	0.8		
	103 bar	lpm	3.0		
WEIGHT	2000 psi	gpm	1.2	1.2	☒
		lpm	4.5	4.5	☒
	138 bar	lpm	4.5	4.5	☒
WEIGHT	Max.	psi	10		
		bar	0.7		
	lbs.		61		
	kg		27.6		

NOTES:

* Volumetric displacement is measured displacement at 91.5 psi (6.3 bar) and rated rpm. Volumetric displacement varies with both pressure and rpm. Flow rates at any rpm other than the rated rpm may be approximated as follows:
 $Q_2 = Q_1 (N-142)/1667$ where Q_1 = Flow (gpm) at rated rpm at 91.5 psi (6.3 bar).
 Q_2 = Flow (gpm) at N rpm.
 N = rpm at which Q_2 is to be determined.

** When operating above 1500 psi (103 bar), it is recommended that a direct-acting differential relief valve be used at the pump to relieve pressure spikes and surges.

PVR15-20B - Maximum rpm at full displacement - 2250 rpm. For higher rpms up to 2400 rpm, pump displacement must be reduced to limit flow to 25 gpm (95 lpm) maximum.

PRESSURE and VOLUME ADJUSTMENT SENSITIVITY

		PUMP IZE	S 15B	20B	30B
PRESSURE ADJUSTMENT	Press Change/Turn	psi (bar)	230 (16.0)	310 (21.0)	230 (16.0)
	Max. Torque	ft./lbs.(kg/m)	15.0 (2.0)	15.0 (2.0)	9.0 (1.2)
VOLUME ADJUSTMENT	Flow Change/Turn	gpm (lpm)	10.0 (38.0)	10.0 (38.0)	13.0 (49.0)
	Min. Flow Adjust.	gpm (lpm)	2.0 (7.5)	2.0 (7.5)	3.5 (13.0)
	Max. Torque	ft./lbs. (kg/m)	21.0 (3.0)	29.0 (4.0)	21.0 (3.0)

CAUTION: Turning the Maximum Volume Control in too far can force the cam ring over-center, causing damage.

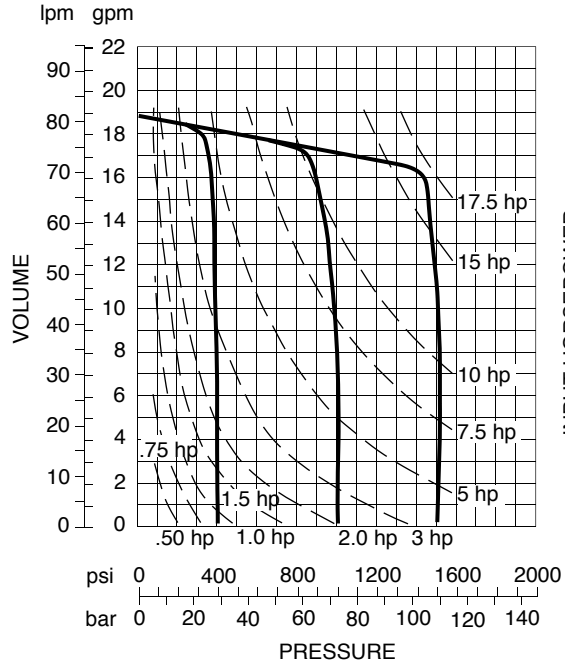
PVR-15 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

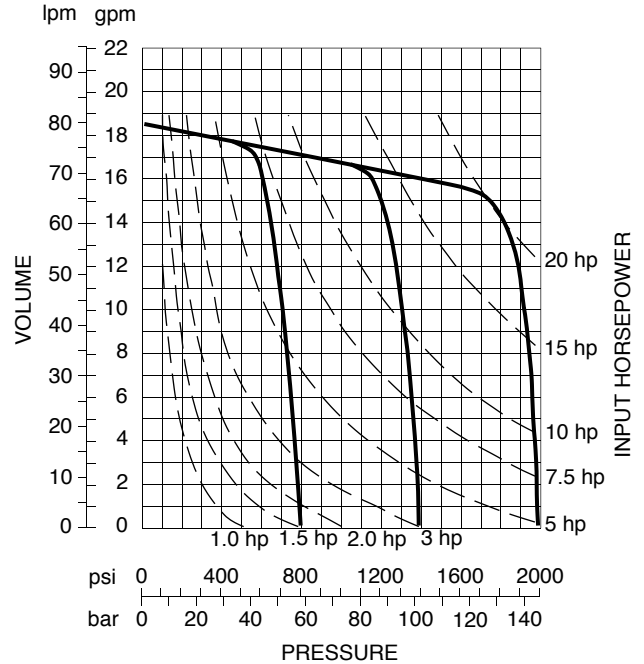
NOTE: Typical performance curves are based on ISO VG46 oil at 120° F. (49° C.). Above 400 SUS (84 CS), add 2% hp/100 SUS.

NOTE: Deadhead horsepower is read from curves at 0 gpm flow and pressure compensator setting psi.

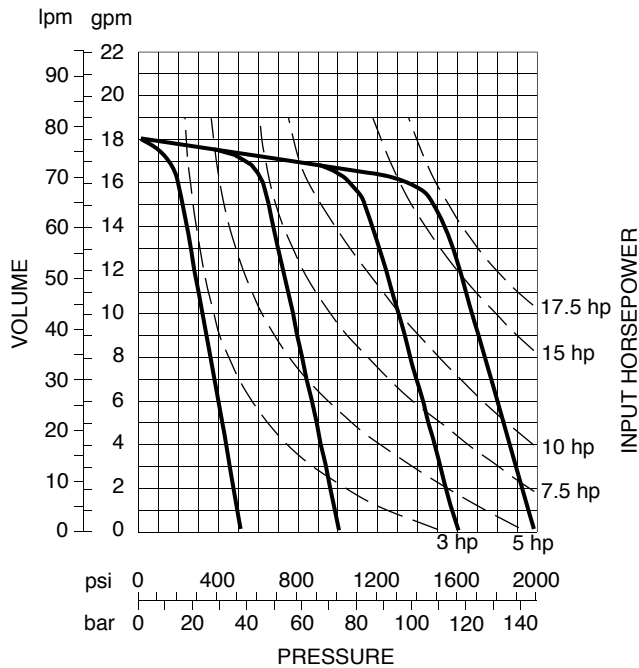
15B15 (at 1750 rpm)



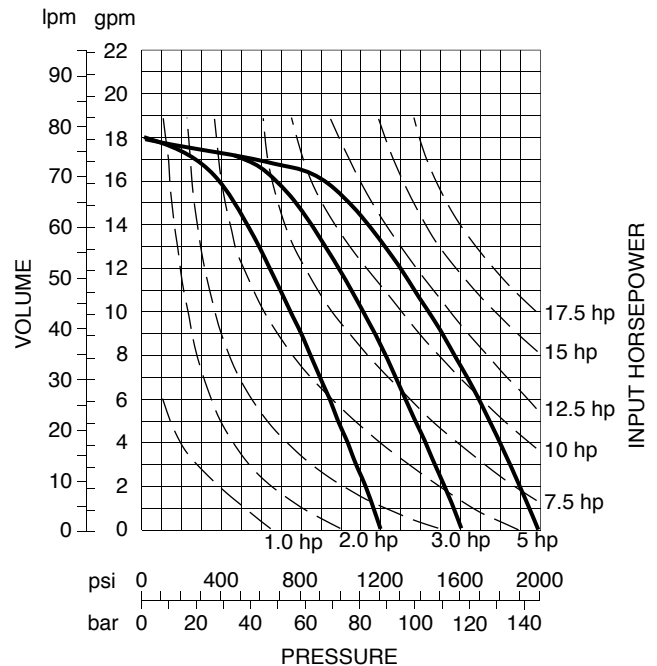
15B20 (at 1750 rpm)



15B3L (at 1750 rpm)



15B5L (at 1750 rpm)



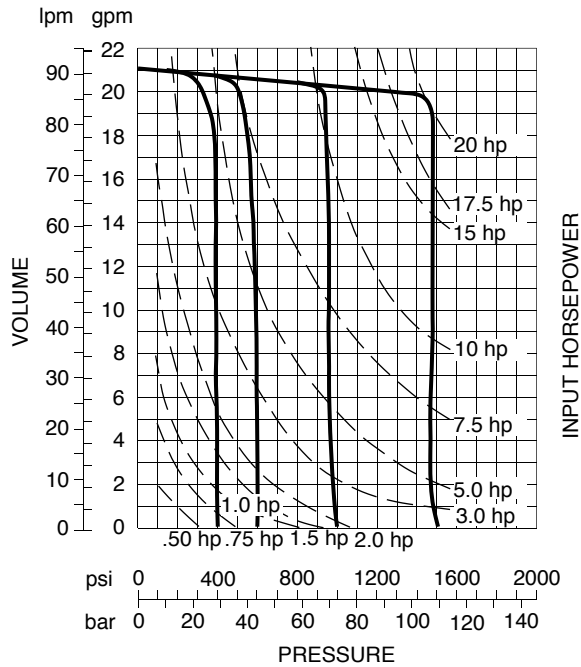
PVR-15 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

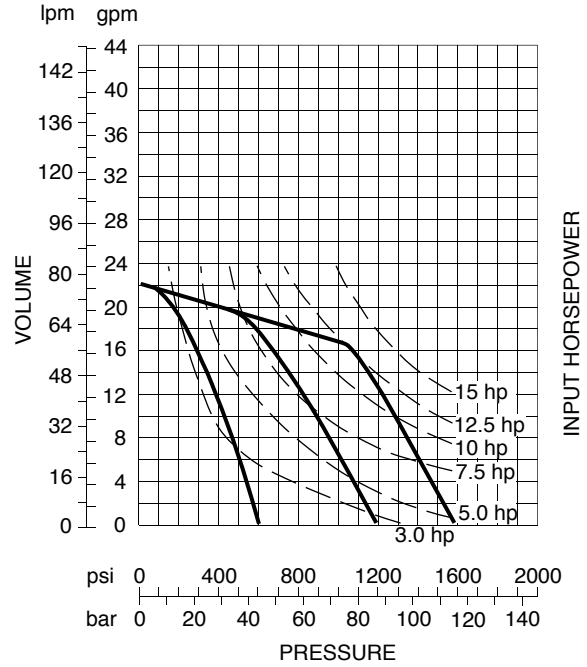
NOTE: Typical performance curves are based on ISO VG46 oil at 120° F. (49° C.). Above 400 SUS (84 CS), add 2% hp/100 SUS.

NOTE: Deadhead horsepower is read from curves at 0 gpm flow and pressure compensator setting psi.

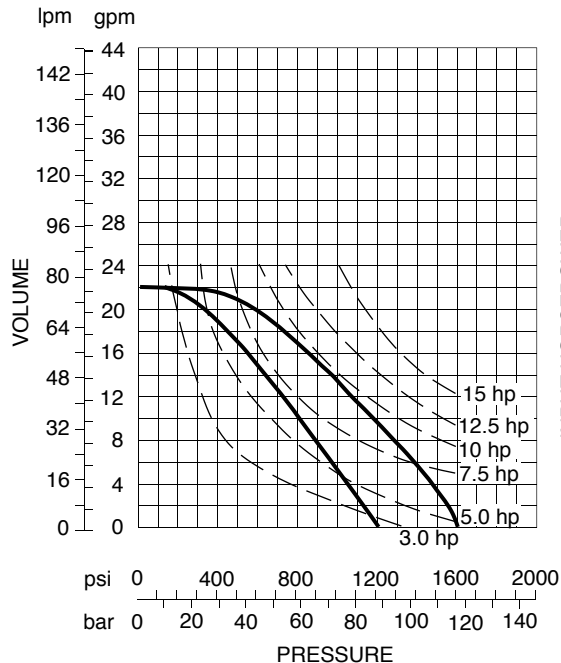
20B15 (at 1750 rpm)



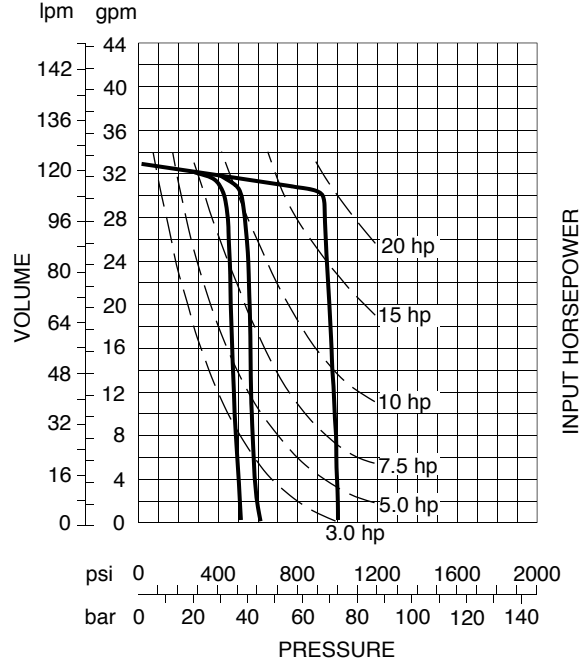
20B3L (at 1750 rpm)



20B4L (at 1750 rpm)



30B10 (at 1750 rpm)



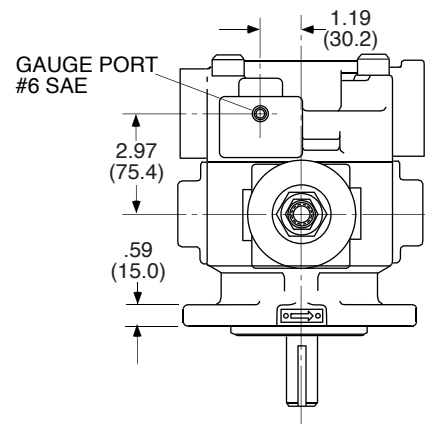
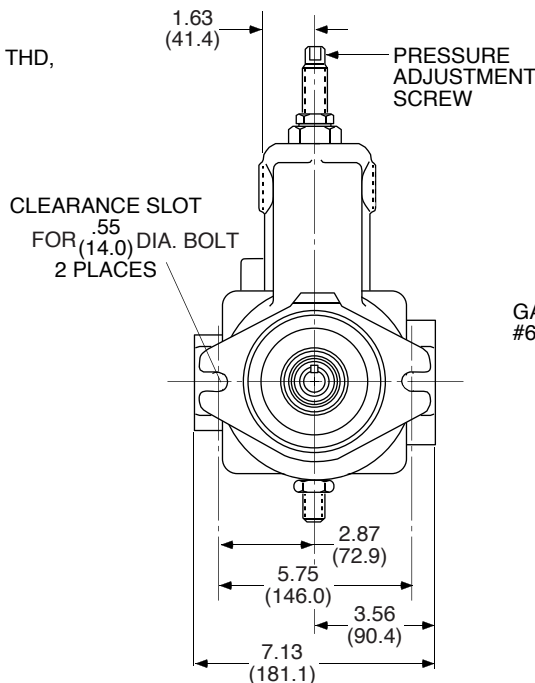
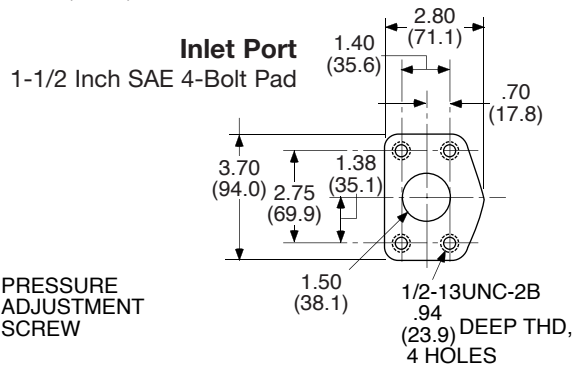
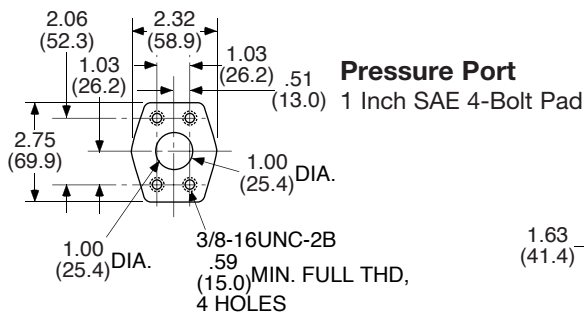
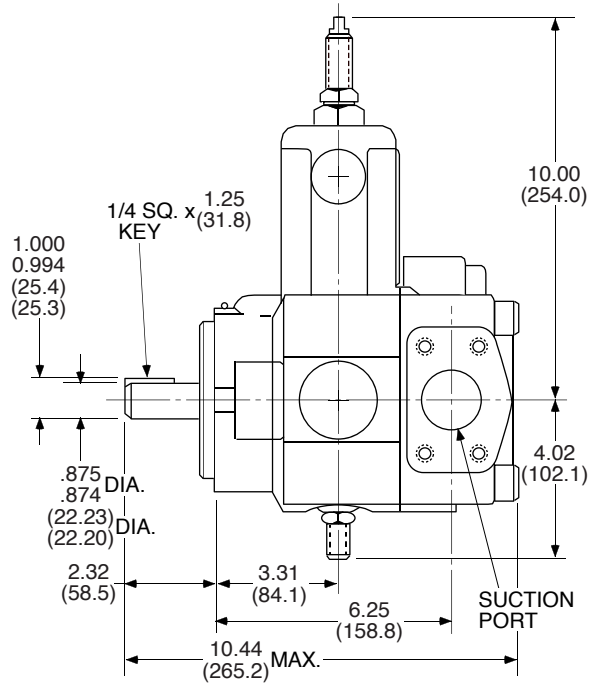
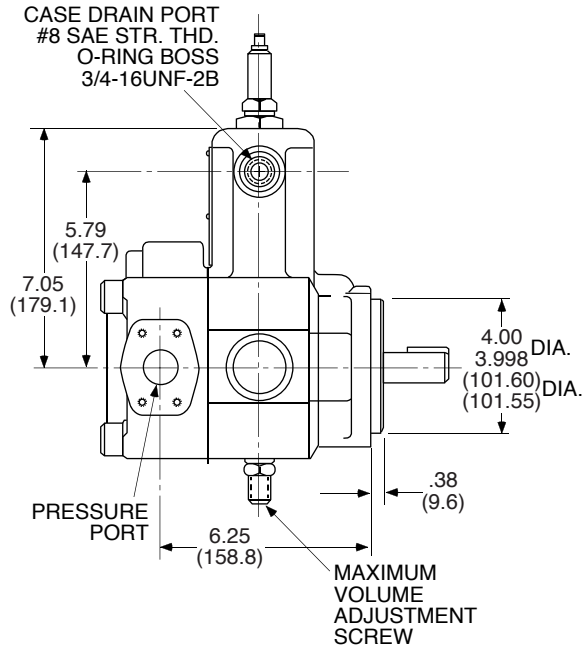
PVR-15 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

PUMP DIMENSIONS

Flange Mounted - Code RF

Dimensions shown in: Inches
(millimeters)



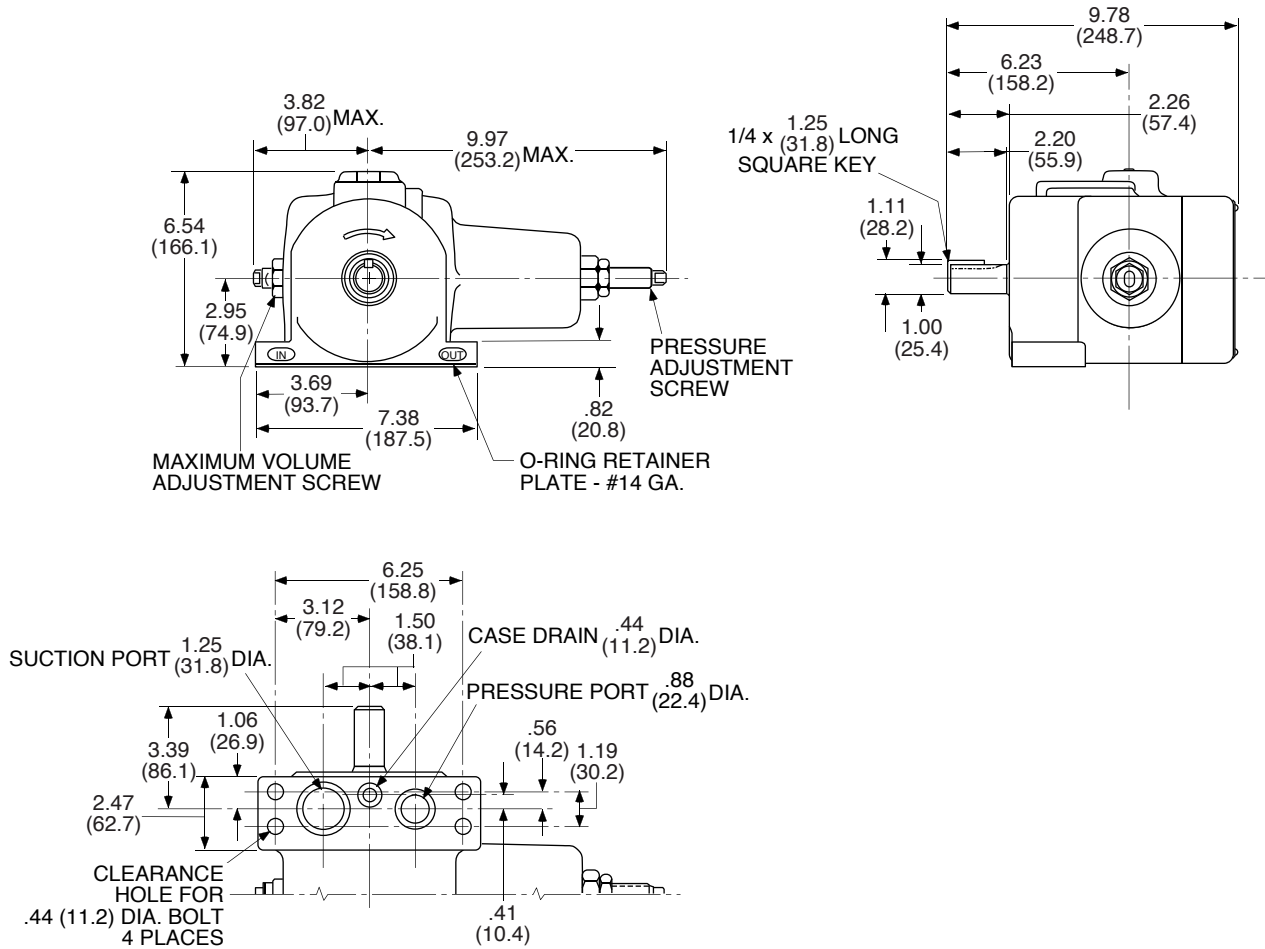
PVR-15 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

PUMP DIMENSIONS

Manifold Mounted - Code RM

Dimensions shown in: Inches
(millimeters)

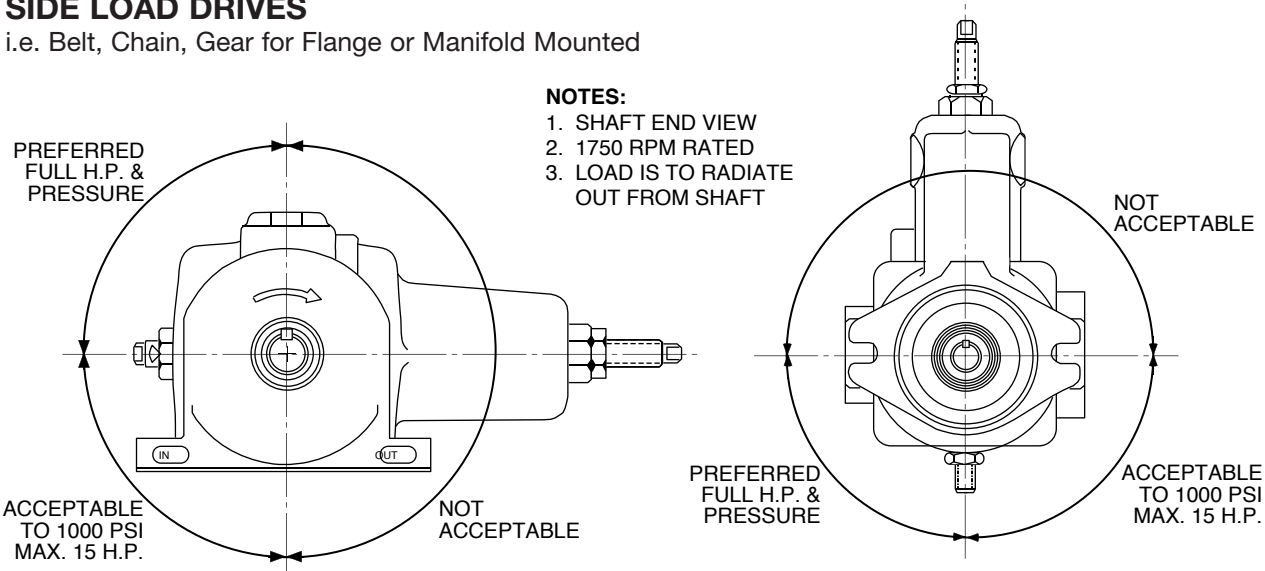


SIDE LOAD DRIVES

i.e. Belt, Chain, Gear for Flange or Manifold Mounted

NOTES:

1. SHAFT END VIEW
2. 1750 RPM RATED
3. LOAD IS TO RADIATE OUT FROM SHAFT



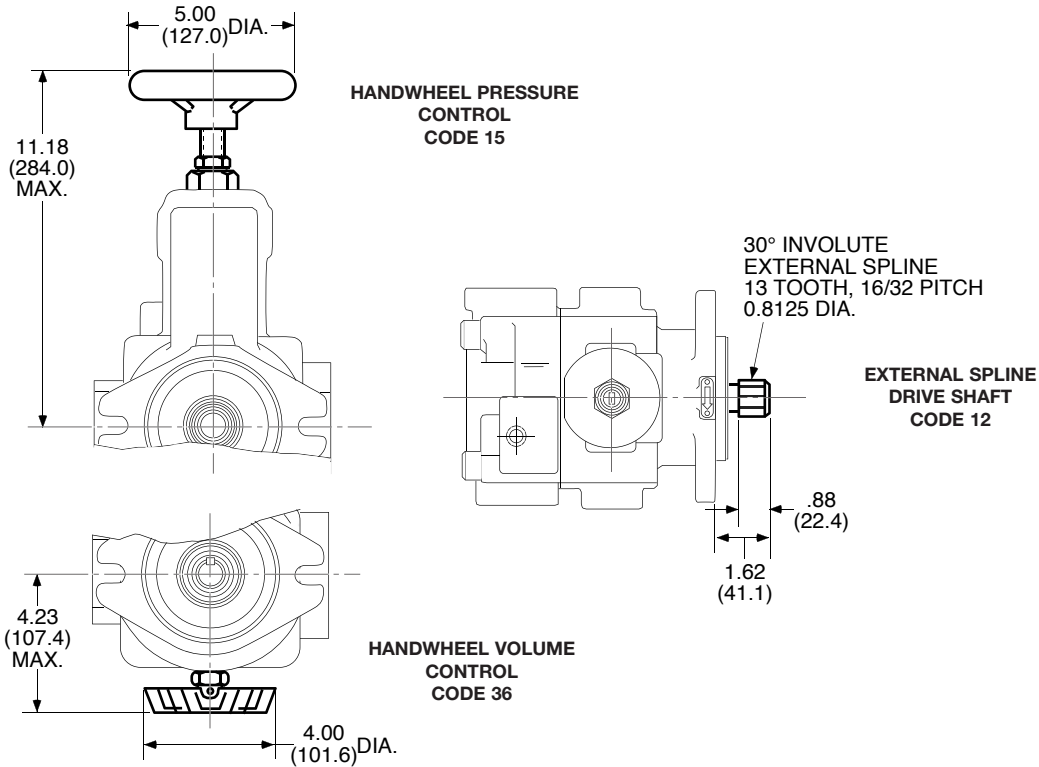
PVR-15 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

MECHANICAL OPTIONS

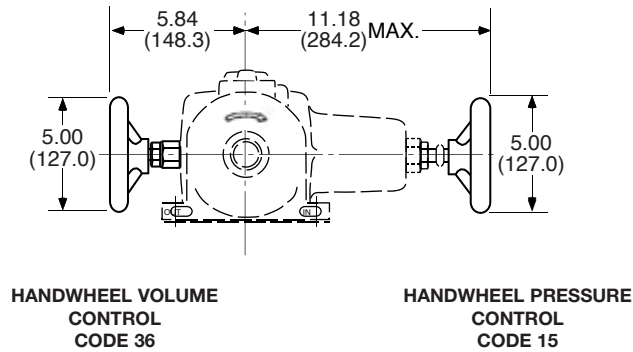
Flange Mounted Pump - Code RF

Dimensions shown in: Inches
(millimeters)



MECHANICAL OPTIONS

Manifold Mounted Pump - Code RM



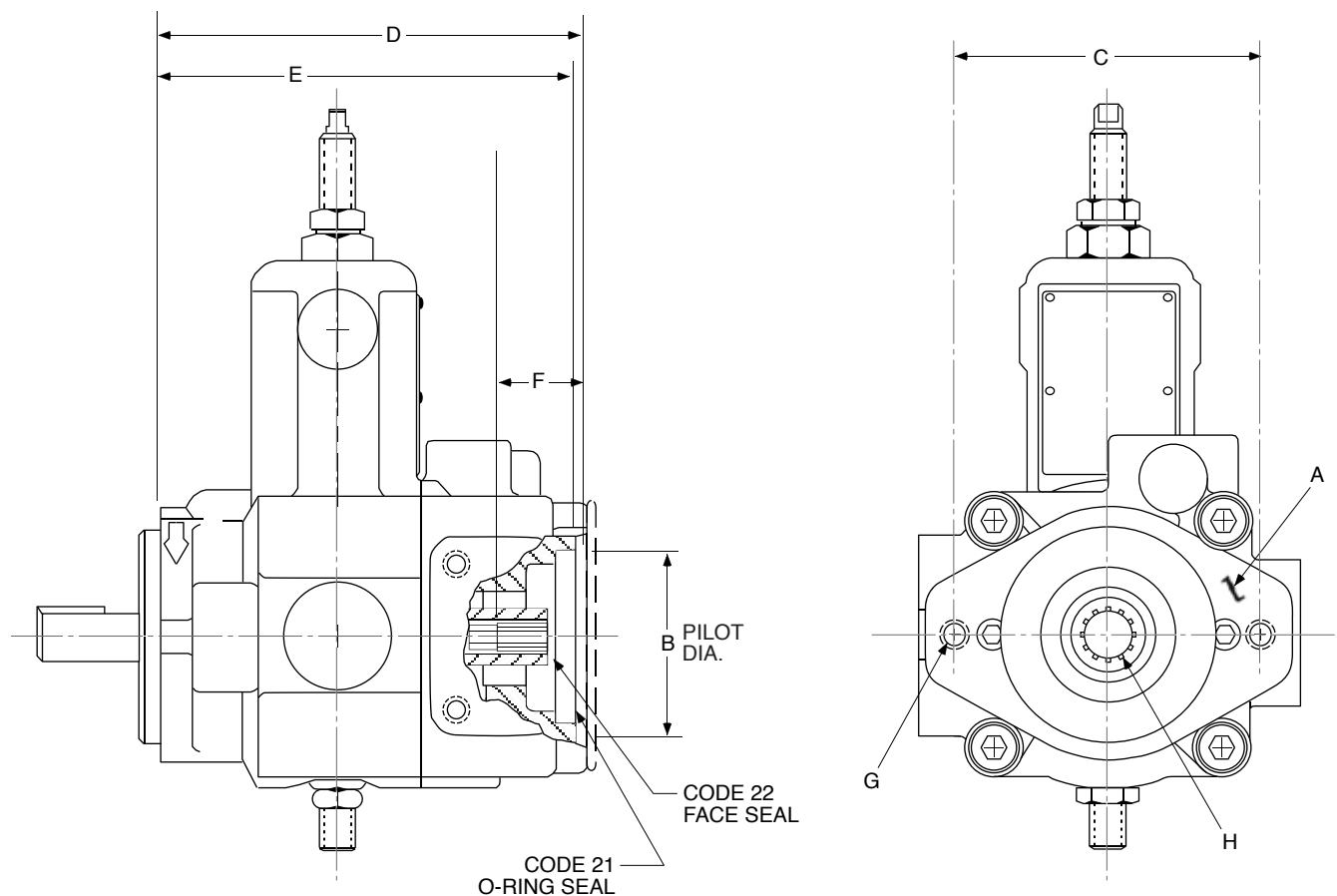
PVR-15 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

CODES 21 and 22 - TANDEM OPTIONS

Flange Mounted Pump - Code RF Only

Dual Pump Operation Without Additional Mounting Flanges and couplings.



CODE	SAE 2-BOLT MOUNTING PAD	DIMENSIONS					Inches (millimeters)	30° INVOLUTE INTERNAL SPLINE 16/32 PITCH	MAXIMUM H.P. RATING OF INTERNAL SPLINE*
		A	B	C	D	E	F		
21	"A" Flange	3.25 (82.6)	4.18 (106.2)	8.12 (206.2)	7.80 (198.1)	1.27 (32.3)	3/8-16 UNC x .56 (14.3)	9 Tooth 0.5625 Dia.	8.5
22	"B" Flange	4.00 (101.8)	5.75 (146.1)	9.06 (230.1)	9.06 (230.1)	1.79 (45.5)	1/2-13 UNC x 1.00 (25.4)	13 Tooth 0.8125 Dia.	30
31	"A" Flange	3.25 (82.6)	4.18 (106.2)	8.90 (226.1)	8.90 (226.1)	1.63 (41.4)	3/8-16 UNC x .56 (14.3)	13 Tooth 0.8125 Dia.	30

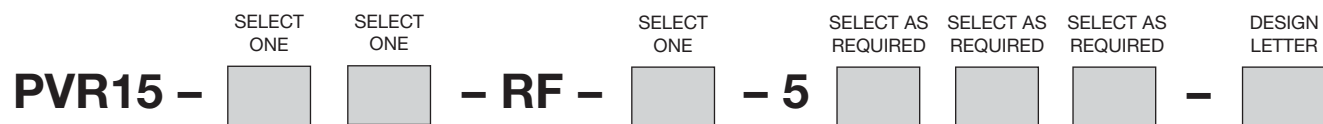
*Rating at 1750 rpm

PVR-15 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

ORDERING INFORMATION

Flange Mounted - Code RF



SIZE

CODE	FLOW @ 1750 rpm
15B	15 gpm
20B	20 gpm
30B	30 gpm

PRESSURE

CODE	PRESSURE RANGE
15	400 - 1500 psi
20	800 - 2000 psi
3L	500 - 1600 psi
5L	1200 - 2000 psi
15	400 - 1500 psi
3L	600 - 1600 psi
4L	1200 - 1600 psi
10	500 - 1000 psi

SEALS

CODE	TYPE
O	BUNA-N
P	VITON

MECHANICAL OPTIONS

CODE	DESCRIPTION
OMIT	KEYED SHAFT (STANDARD)
12	EXTERNAL SPLINE SHAFT
15	HANDWHEEL PRESSURE CONTROL
16	50 HZ OPERATION
21*	"A" FLANGE TANDEM PUMP MOUNTING
22*	"B" FLANGE TANDEM PUMP MOUNTING
31	"A" - "B" FLANGE TANDEM PUMP MOUNTING (HPV-6)
36	HANDWHEEL VOLUME CONTROL

***NOTE:** Consult the factory for a Code 12 pump with:

- Code 21 or 22 on a 30B pump
- Code 22 on all pumps

INTEGRAL OPERATOR

CODE	DESCRIPTION
OMIT	NO OPTIONS

***NOTE:** For electrical options, see the PVR Control Options Section later in this catalog.

CONTROL OPTIONS

CODE	DESCRIPTION
OMIT	NO OPTIONS
8	DUAL PRESSURE RATE CONTROL VALVE
9	DUAL VOLUME RATE CONTROL VALVE
17	DUAL PRESSURE REMOTE OPERATED
18	DUAL PRESSURE WITH INTEGRAL OPERATOR
24	DUAL VOLUME WITH INTEGRAL OPERATOR
25	DUAL PRESSURE/ DUAL VOLUME WITH INTEGRAL OPERATOR
2400	DUAL VOLUME REMOTE OPERATED
2500	DUAL PRESSURE/ DUAL VOLUME REMOTE OPERATED

***NOTE:** For detail information, see the PVR Control Options Section later in this catalog.

TYPICAL ORDERING CODE:

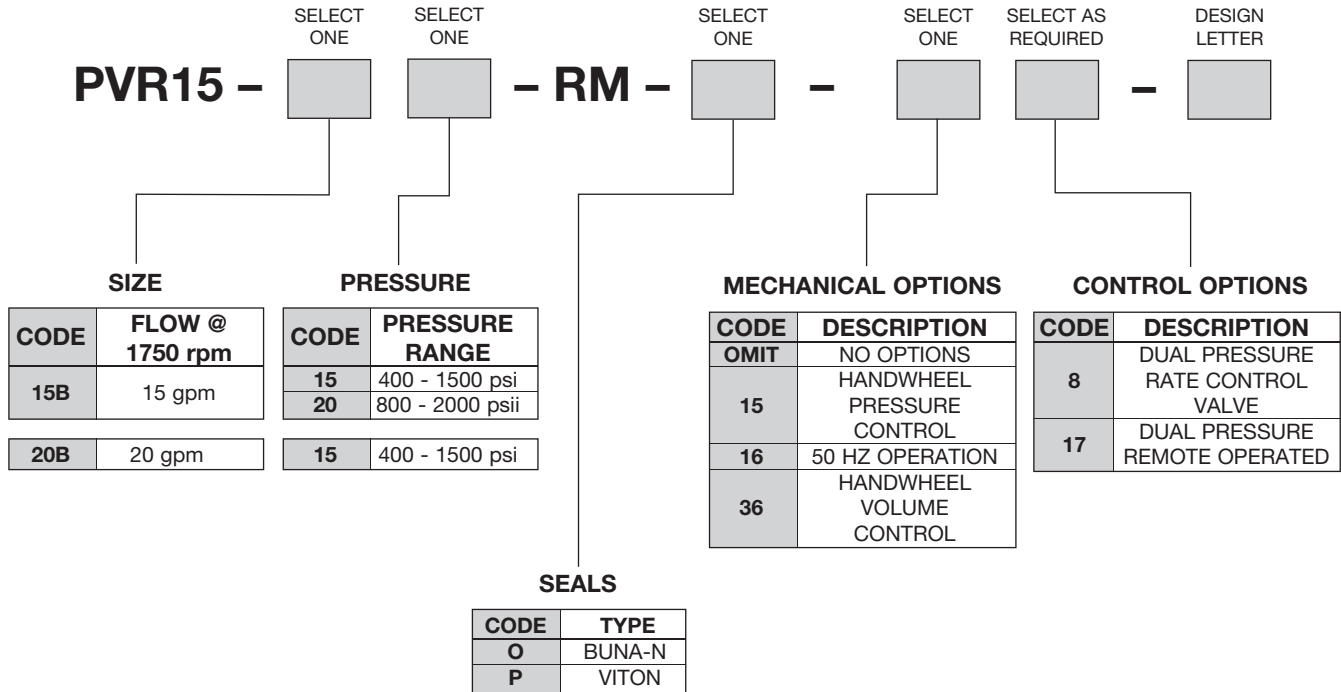
PVR15-15B15-RF-O-521-F

PVR-15 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

ORDERING INFORMATION

Manifold Mounted - Code RM



TYPICAL ORDERING CODE:

PVR15-15B15-RM-O-17-J

PVR-50 SERIES VANE PUMPS

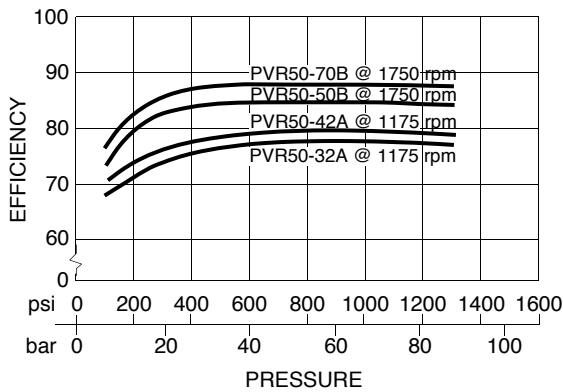
VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



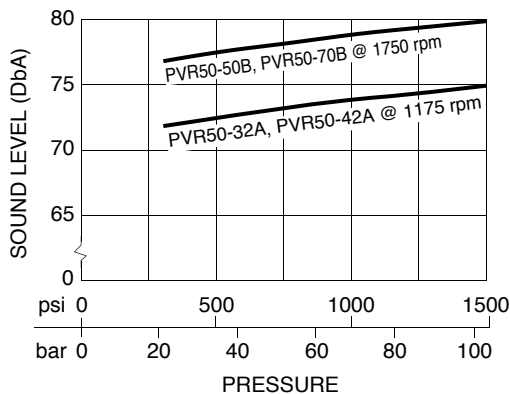
**4-Bolt
Flange Mounted**

OVERALL EFFICIENCY

At Maximum Displacement, Fluid Viscosity 130 SUS



TYPICAL SOUND LEVEL



TYPICAL PERFORMANCE SPECIFICATIONS

		PUMP SIZE				
		32A15	42A15	50B15	70B15	
VOLUMETRIC DISPLACEMENT*	cu. in./rev.	7.7	9.9	7.7	9.9	
	ml/rev.	126	162	126	162	
PUMP DELIVERY AT 1750 RPM*	91.5 psi gpm	39	48	59	75	
	6.3 bar lpm	148	182	223	284	
	rated gpm	32	42	50	70	
	pressure lpm	121	159	189	265	
COMPENSATED PRESSURE RANGES	Max.	psi	1500	1500	1500	1500
		bar	103	103	103	103
	Rated	psi	1500	1500	1500	1500
		bar	103	103	103	103
	Min.	psi	350	400	350	400
		bar	24	27.6	24	27.6
OPERATING SPEEDS**	Min. rpm	800				
	Rated rpm	1200	1200	1800	1800	
	Max. rpm	2200	1500	2200	1800	
POWER INPUT AT RATED FLOW & PRESSURE (1750 rpm)	hp	36	42	50	60	
	kW	27	31	37	45	
MAXIMUM POWER INPUT TO DRIVE SHAFT	Max. hp	100				
	kW	75				
SUCTION PRESSURE	Max.	in./Hg	5		3	
		bar	-0.17		-0.10	
	Min.	psi	20	10	20	10
		Specific Grav. < 1 bar	1.4	.07	1.4	0.7
	Min.	in./Hg	5		3	
		Specific Grav. > 1 bar	-0.17		-0.10	
FLUID VELOCITY	Max. ft./sec.	5				
	m/sec.	1.5				
CASE DRAIN NOMINAL FLOW AT DEADHEAD PRESSURE	Max. gpm	3				
	Pressure mlpm	11				
	Min. gpm	2.5				
	Pressure mlpm	9.5				
MAXIMUM CASE PRESSURE	psi	10				
	bar	0.7				
WEIGHT	lbs.	119				
	kg	54				

NOTES:

* Volumetric displacement is measured displacement at 91.5 psi (6.3 bar) and rated rpm per ANSI specification. Volumetric displacement varies with both pressure and rpm. Flow rates at any rpm other than the rated rpm may be approximated as follows:

$$Q_2 = Q_1 (N-142)/1667 \text{ where } Q_1 = \text{Flow (gpm) at rated rpm at 91.5 psi (6.3 bar).}$$

$$Q_2 = \text{Flow (gpm) at N rpm.}$$

$$N = \text{rpm at which } Q_2 \text{ is to be determined.}$$

** When operating above 1500 psi (103 bar), it is recommended that a direct-acting differential relief valve be used at the pump to relieve pressure spikes and surges.

Maximum rpm at full displacement - 1900 rpm. For higher rpms up to 2000 rpm, pump displacement must be reduced to limit flow to 60 gpm (227 lpm) maximum.

PRESSURE and VOLUME ADJUSTMENT SENSITIVITY

		PUMP SIZE	32A15	42A15	50B15	70B15
PRESSURE ADJUSTMENT	Press Change/Turn	psi (bar)	115 (8.0)		135 (9.4)	
	Max. Torque	ft./lbs.(kg/m)	26.5 (13.7)			
VOLUME ADJUSTMENT	Flow Change/Turn	gpm (lpm)	14 (53.0)		22 (83.0)	
	Min. Flow Adjust.	gpm (lpm)	6.0 (22.7)	8.0 (30.3)	9.5 (36.0)	12.5 (47.0)
	Max. Torque	ft./lbs. (kg/m)	28 (3.9)	16 (2.2)	28 (3.9)	16 (2.2)

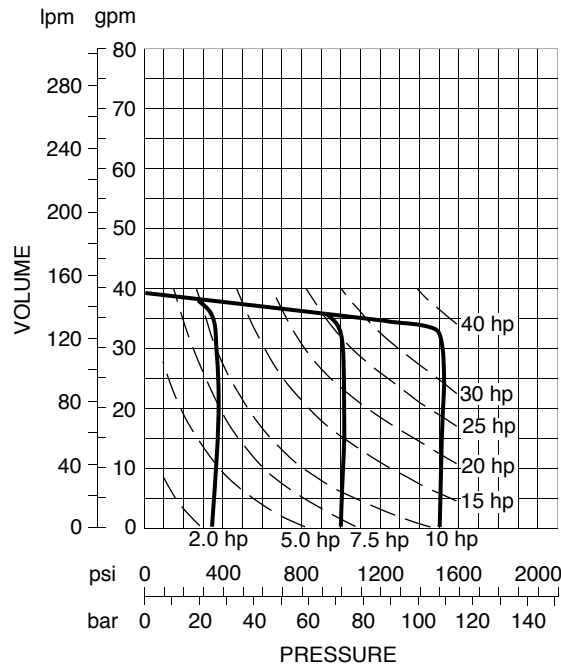
PVR-50 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

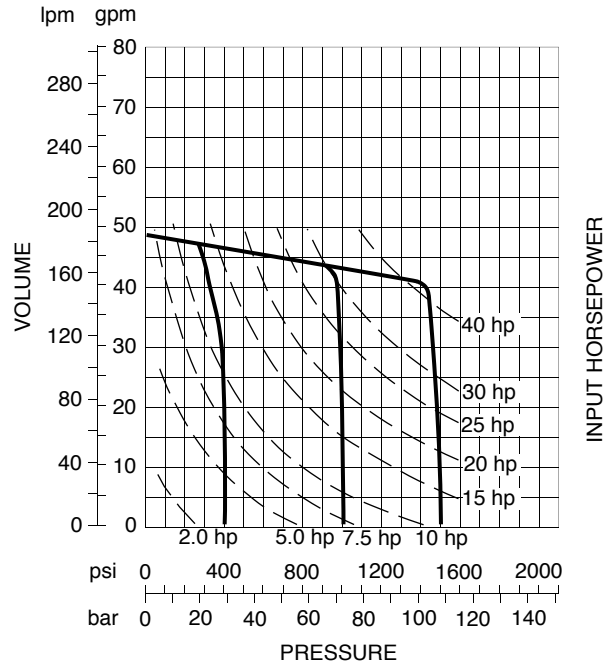
NOTE: Typical performance curves are based on ISO VG46 oil at 120° F. (49° C.). Above 400 SUS (84 CS), add 2% hp/100 SUS.

NOTE: Deadhead horsepower is read from curves at 0 gpm flow and pressure compensator setting psi.

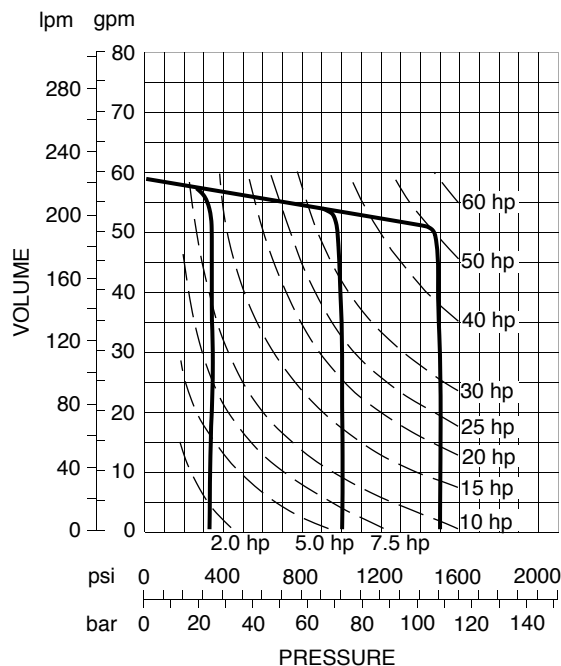
32A15 (at 1175 rpm)



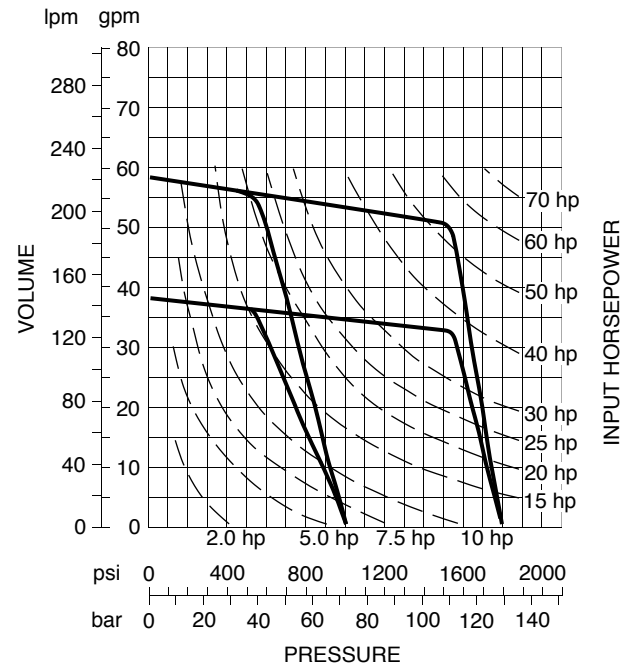
42A15 (at 1175 rpm)



50B15 (at 1750 rpm)



50B3L (at 1750 rpm)



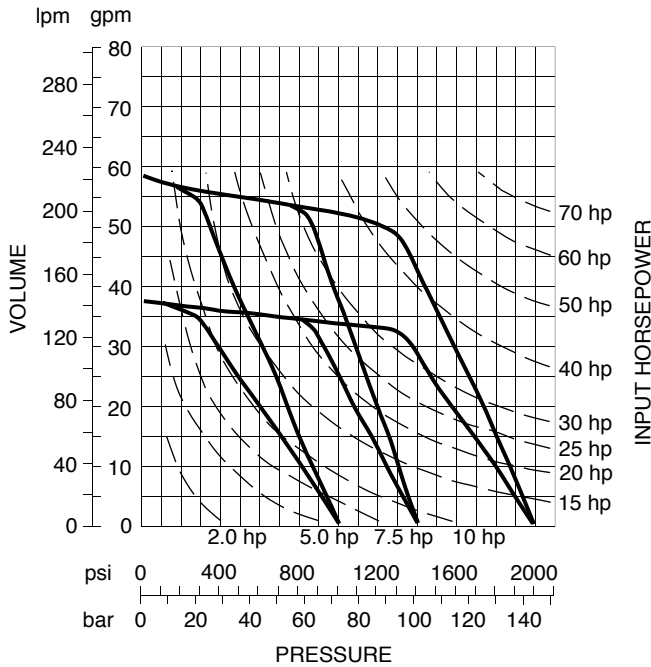
PVR-50 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

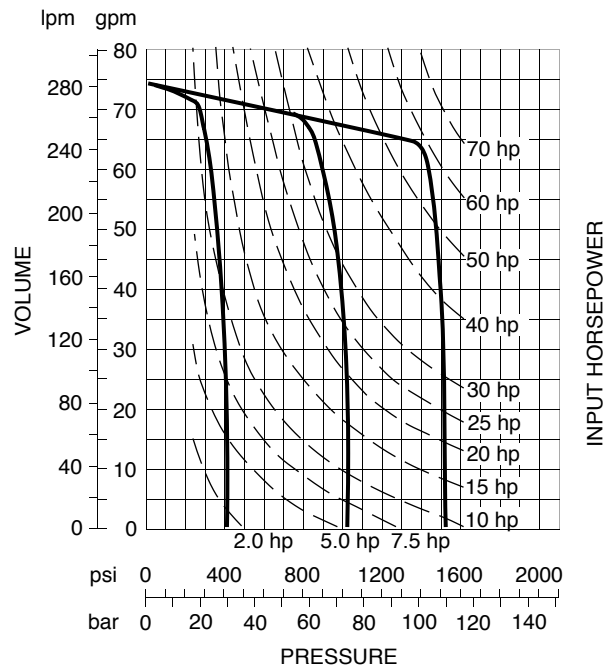
NOTE: Typical performance curves are based on ISO VG46 oil at 120° F. (49° C.). Above 400 SUS (84 CS), add 2% hp/100 SUS.

NOTE: Deadhead horsepower is read from curves at 0 gpm flow and pressure compensator setting psi.

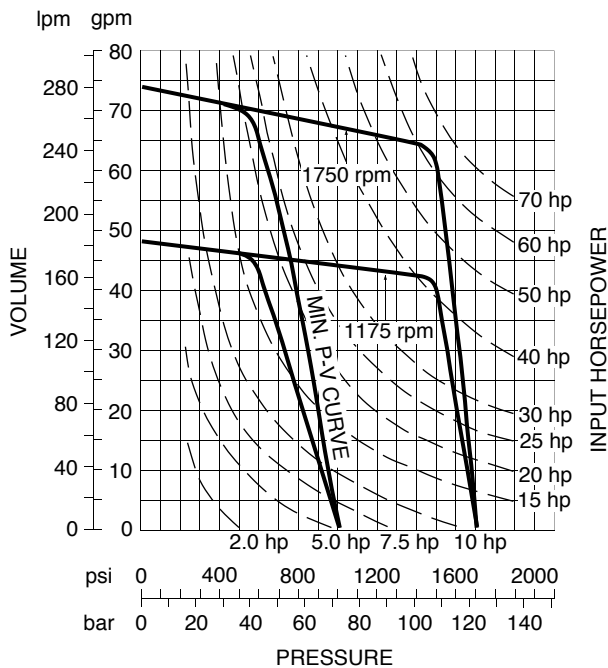
50B5L (at 1750 rpm)



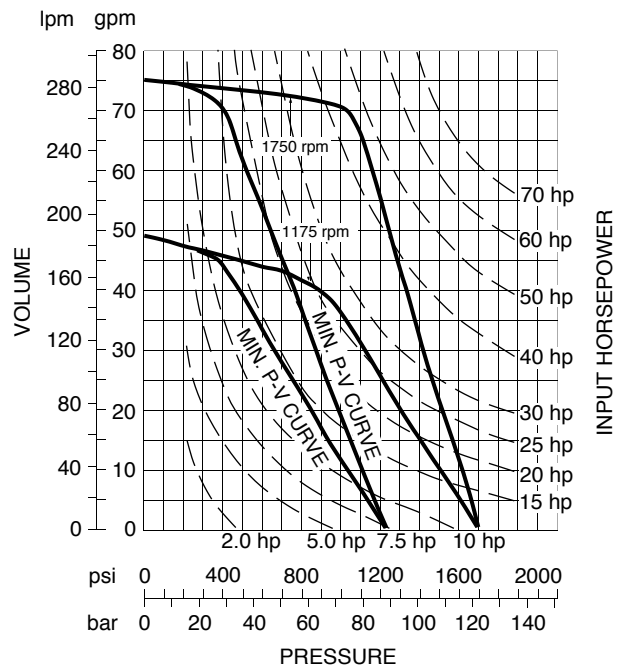
70B15 (at 1750 rpm)



70B3L (at 1750 rpm)



70B5L (at 1750 rpm)



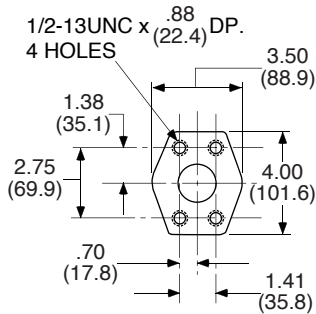
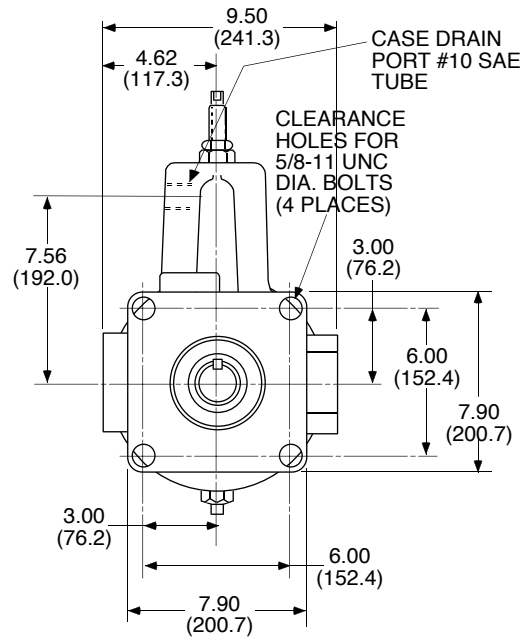
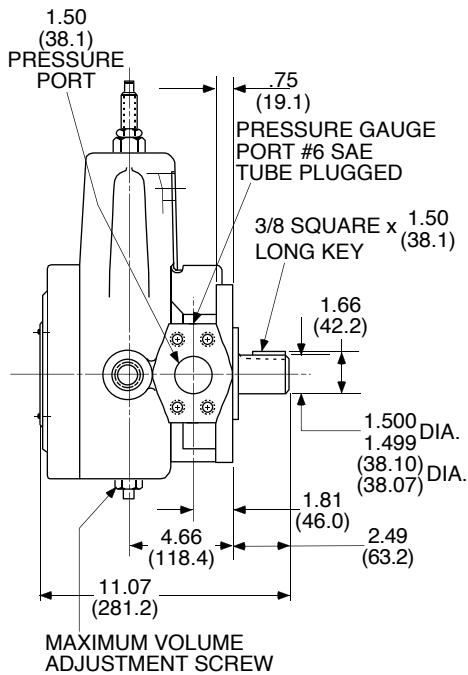
PVR-50 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

PUMP DIMENSIONS

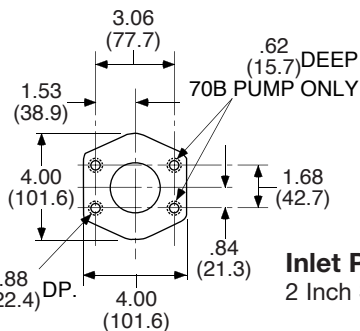
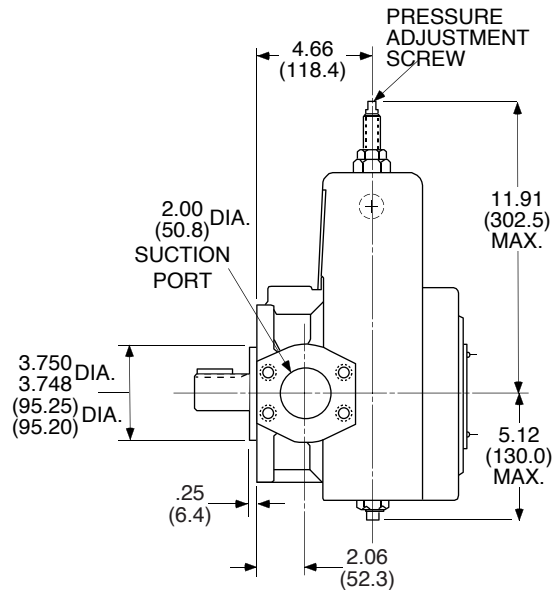
Right Hand Rotation (CW) - Code RF

Dimensions shown in: Inches
(millimeters)



Pressure Port

1-1/2 Inch SAE 4-Bolt Connection Pad



Inlet Port

2 Inch SAE 4-Bolt Connection Pad

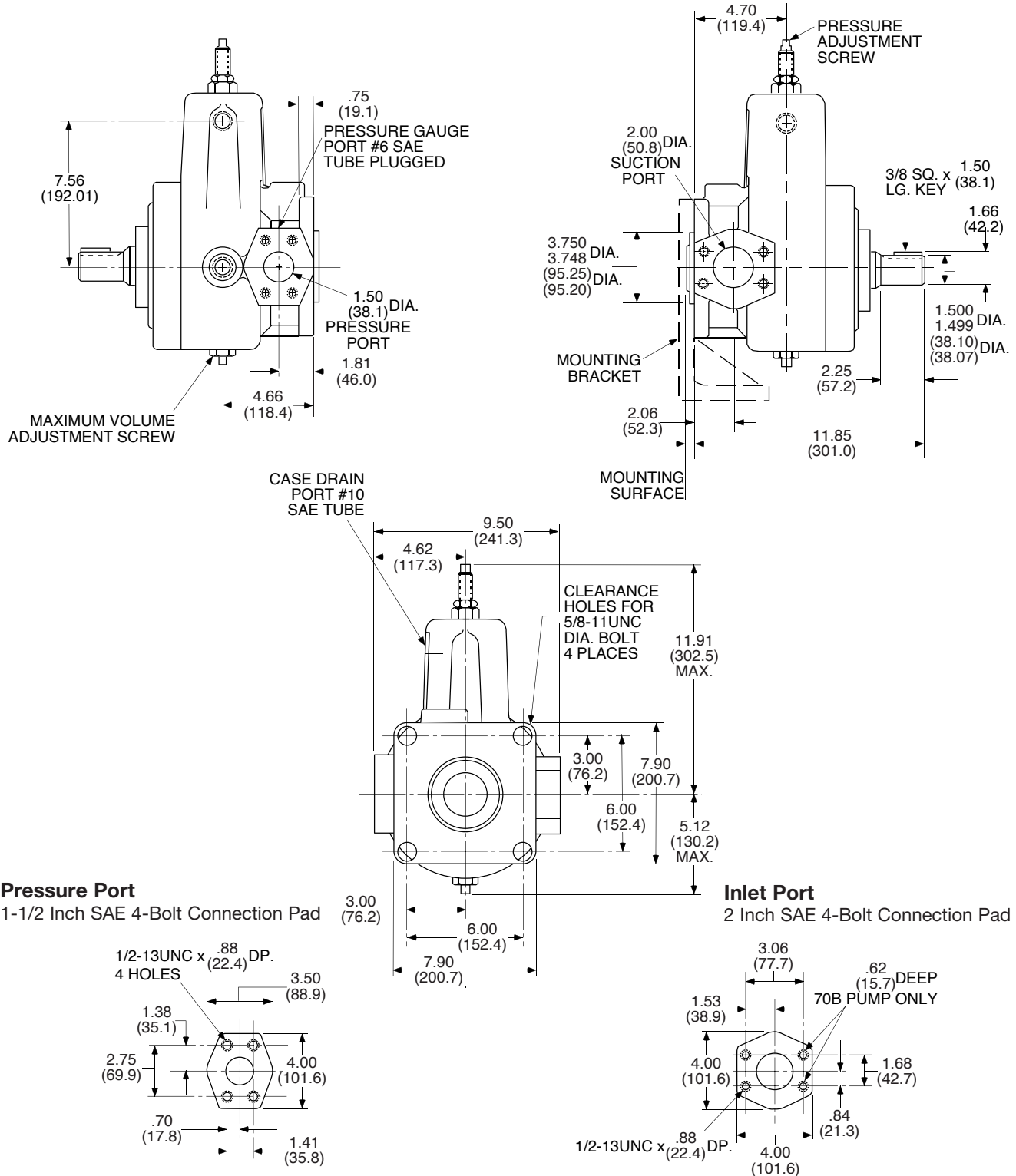
PVR-50 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

PUMP DIMENSIONS

Left Hand Rotation (CCW) - Code LF

Dimensions shown in: Inches
(millimeters)



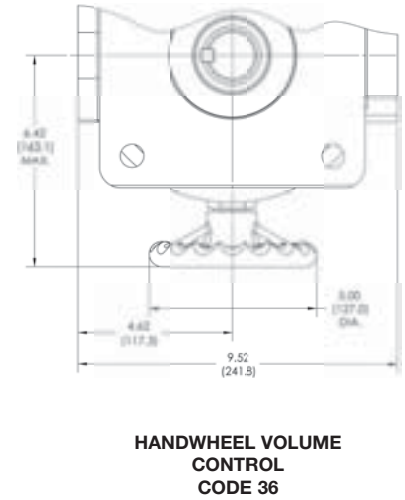
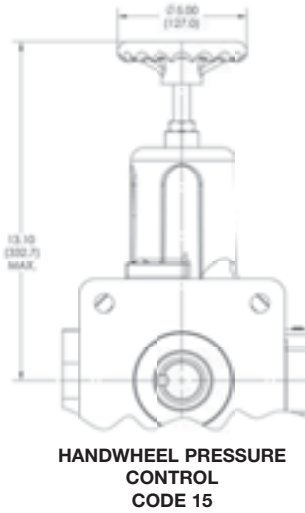
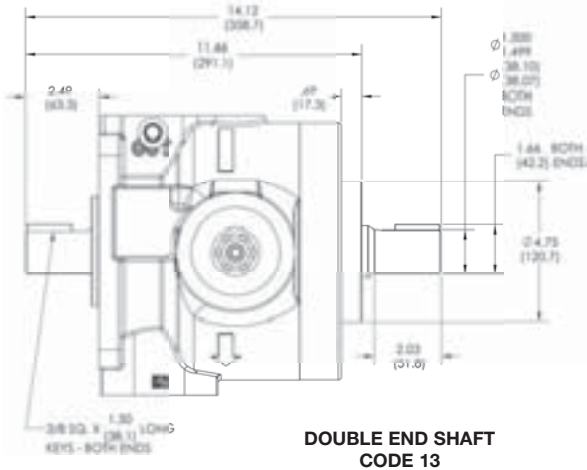
NOTE: Inlet pipe size is 2-1/2" (63.5 mm) dia. minimum; reduce at suction port only.

PVR-50 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

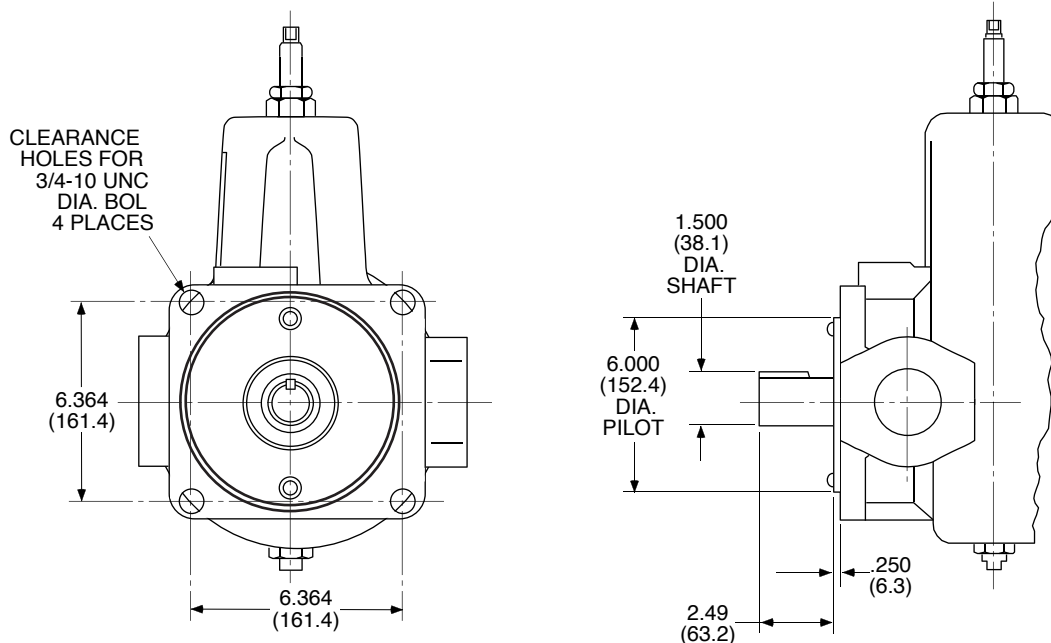
MECHANICAL OPTIONS

Dimensions shown in: Inches
(millimeters)



NOTE: Maximum input horsepower for double end shaft:
Primary pump: 100 hp at rated rpm.
Secondary pump: 50 hp at rated rpm.

SAE D Mount - Code RFD (Right Hand Rotation Only)



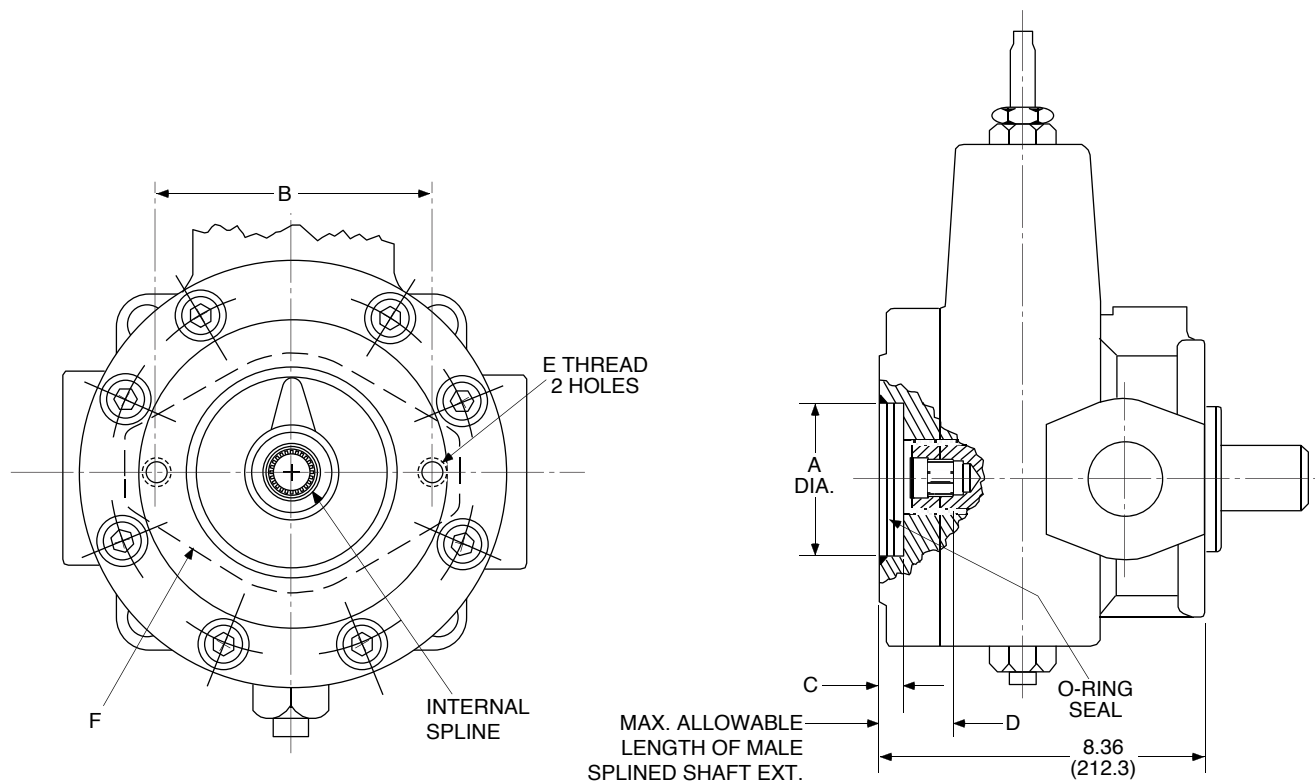
PVR-50 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

CODES 21, 22, 23 and 31 - TANDEM OPTIONS

Flange Mounted Pump - Code RF Only

Dual Pump Operation Without Additional Mounting Flanges and Couplings.

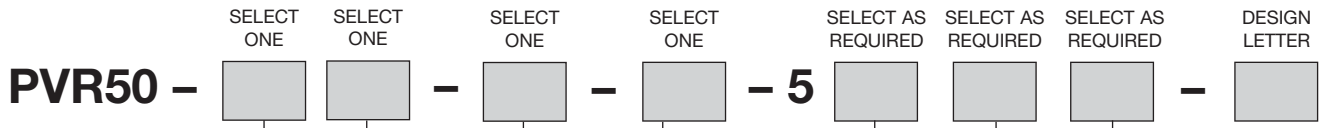


CODE	SAE 2-BOLT MOUNTING PAD	DIMENSIONS					Inches (millimeters)	30° INVOLUTE INTERNAL SPLINE	MAXIMUM H.P. RATING OF INTERNAL SPLINE*
		F	A	B	C	D	E Thread		
21	"A" Flange	3.25 (82.6)	4.18 (106.2)	.291 (7.4)	1.27 (32.3)	3/8-16 UNC x .81 (20.6)	9 Tooth 16/32 Pitch 0.5625 Dia.	8.5	
22	"B" Flange	4.00 (101.6)	5.75 (146.1)	.50 (12.7)	1.64 (41.7)	1/2-13 UNC x .88 (22.4)	9 Tooth 16/32 Pitch 0.5625 Dia.	30	
23	"C" Flange	5.00 (127.0)	7.13 (181.1)	.55 (14.0)	1.65 (41.9)	5/8-11 UNC	14 Tooth 12/24 Pitch 1.1667 Dia.	43	
31	"A" Flange	3.25 (82.6)	4.18 (106.2)	.50 (12.7)	1.64 (41.7)	3/8-16 UNC x .81 (20.6)	13 Tooth 16/32 Pitch 0.8125 Dia.	30	

*Rating at 1750 rpm

PVR-50 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



SIZE

CODE	FLOW RATED rpm
32A	32 gpm
42A	42 gpm
50B	50 gpm
70B	70 gpm

ROTATION & MOUNTING

CODE	DESCRIPTION
RF	RIGHT HAND ROTATION (CW) FLANGE MOUNT
LF	LEFT HAND ROTATION (CCW) FLANGE MOUNT
RFD	RIGHT HAND ROTATION (CW) SAE D 4-BOLT FLANGE MOUNT

MECHANICAL OPTIONS

CODE	DESCRIPTION
13	DOUBLE END DRIVE SHAFT
15	HANDWHEEL PRESSURE CONTROL
16	50 HZ OPERATION
21	"A" FLANGE TANDEM PUMP MOUNTING
22	"B" FLANGE TANDEM PUMP MOUNTING
23	"C" FLANGE TANDEM PUMP MOUNTING
31	"A" - "B" FLANGE TANDEM PUMP MOUNTING (HPV-6)
36	HANDWHEEL VOLUME CONTROL

INTEGRAL OPERATOR*

CODE	DESCRIPTION
OMIT	NO OPTIONS

*NOTE: For electrical options, see the PVR Control Options Section later in this catalog.

PRESSURE

CODE	PRESSURE RANGE	USED ON MODEL
15	300 - 1500 psi	ALL
3L*	1000 - 1800 psi	50B
	1000 - 1700 psi	70B
5L*	1000 - 2000 psi	50B
	1000 - 1700 psi	70B

NOTE: Power limiting curves.

CONTROL OPTIONS*

CODE	DESCRIPTION
OMIT	NO OPTIONS
8	RATE CONTROL VALVE FOR DUAL PRESSURE
9	RATE CONTROL VALVE FOR DUAL VOLUME
17	DUAL PRESSURE REMOTE OPERATED
18	DUAL PRESSURE WITH INTEGRAL OPERATOR
24	DUAL VOLUME WITH INTEGRAL OPERATOR
25	DUAL PRESSURE/ DUAL VOLUME WITH INTEGRAL OPERATOR
2400	DUAL VOLUME REMOTE OPERATED
2500	DUAL PRESSURE/ DUAL VOLUME REMOTE OPERATED

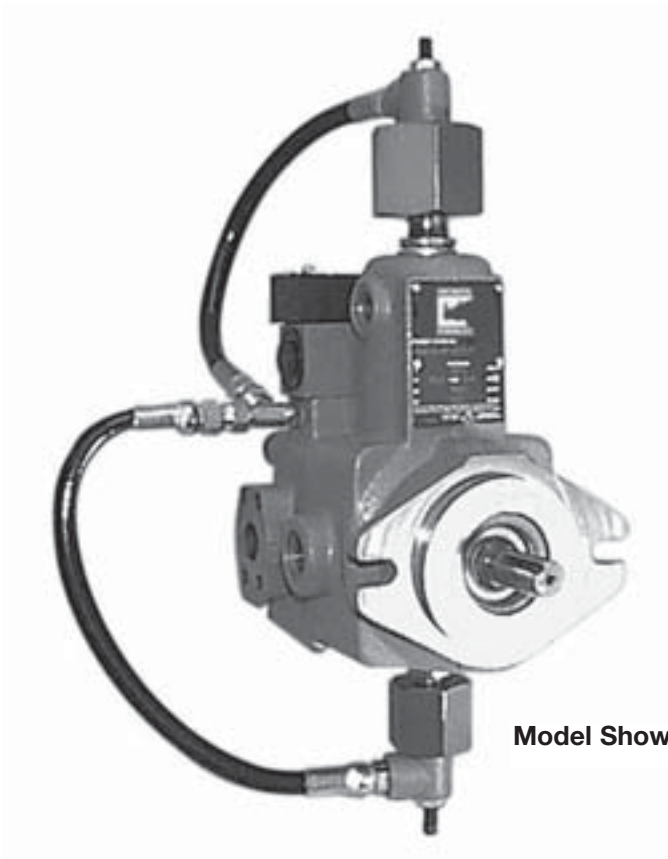
*NOTE: For detail information, see the PVR Control Options Section later in this catalog.

SEALS

CODE	TYPE
O	BUNA-N
P	VITON

TYPICAL ORDERING CODE:

PVR50-50B15-RF-O-521-L



Model Shown: PVR15-15B15-RF-0-525B60L

FEATURES

- High and low field-adjustable pressure levels.
- High and low field-adjustable volume levels.
- Field-adjustable pressure rate change between high and low levels.
- Field-adjustable acceleration and deceleration rates between high and low volume levels.
- Pump mounted control valve, or pilot signal from a remote source.
- All combinations of two pressure levels and two volume levels possible.

BENEFITS

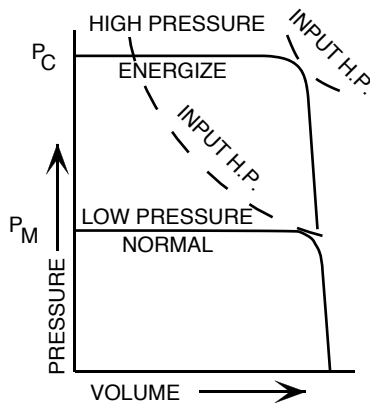
- Replace dual flow valve circuits ... reduce overall valve count.
- Replace high-low pressure circuits ... eliminate multiple pumps and pressure intensifiers.
- Reduce system shock by smoothly accelerating and decelerating loads and gradually increasing and decreasing pressures.
- Reduce overall system costs.
- Energy efficient ... use only the power required for the job.
- Available as a field installed option.

PVR SERIES VANE PUMPS

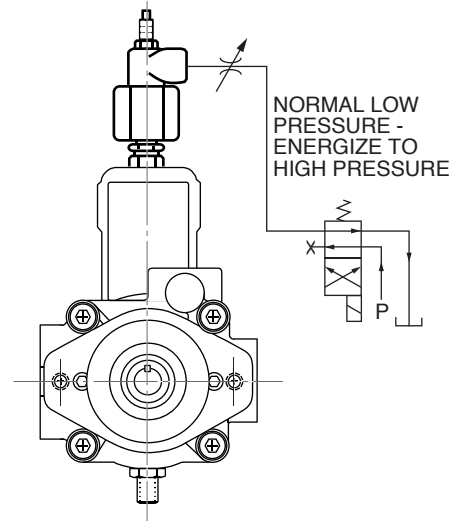
CONTROL OPTIONS

DUAL PRESSURE CONTROL

- Two constant pressure levels; field adjustable to meet system requirements.
- Pressure compensated variable flow; zero to maximum gpm.
- Pump mounted control valve or remote pilot signal.

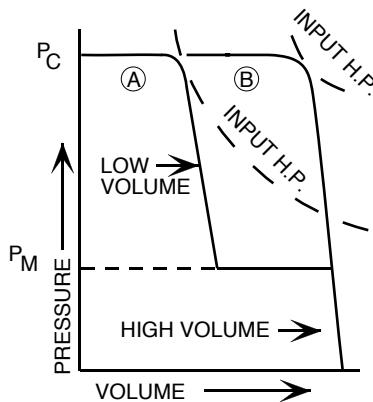


OPTIONAL RATE OF CHANGE VALVE (CODE 8)

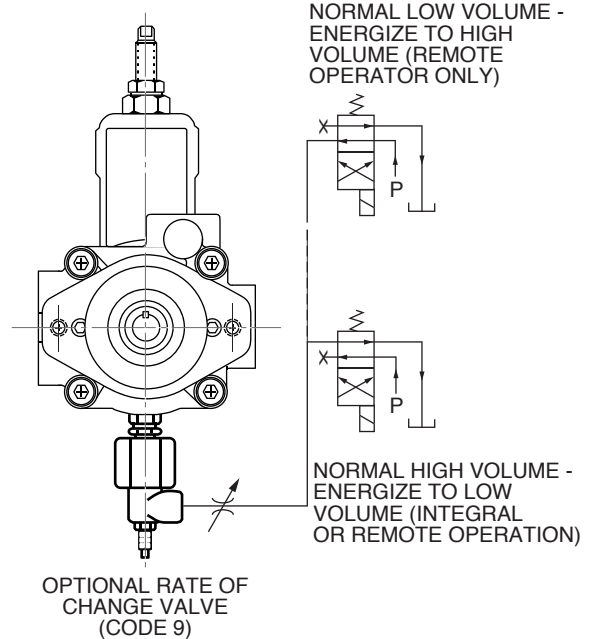


DUAL VOLUME CONTROL

- Constant pressure; field adjustable to meet system requirements.
- Two field adjustable flow limits;
 - Low limit (A)
 - High limit (B)
- Pump mounted control valve or remote pilot signal.



NORMAL LOW VOLUME - ENERGIZE TO HIGH VOLUME (REMOTE OPERATOR ONLY)

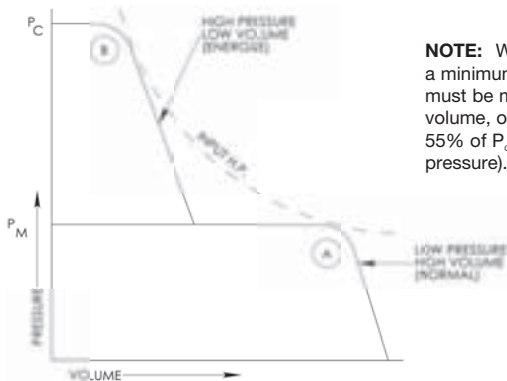


NOTE: When using dual volume control, a minimum pump pressure (P_M) must be maintained to hold pump in low volume, output where $P_M = 55\%$ of P_C (maximum compensated pressure).

DUAL PRESSURE/DUAL VOLUME CONTROL

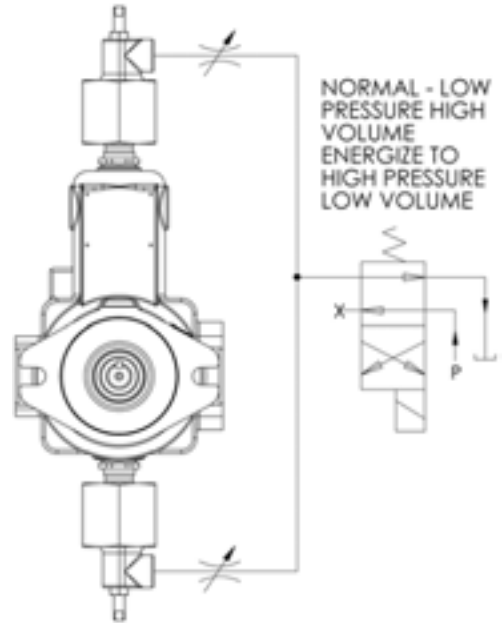
Common Control Valve

- Two field adjustable pressure levels and flow limits provide:
 - Low pressure, high flow (A)
 - High pressure, low flow (B)
- Pump mounted control valve or remote pilot signal.



NOTE: When using dual volume control, a minimum pump pressure (P_M) must be maintained to hold pump in low volume, output where $P_M = 55\%$ of P_C (maximum compensated pressure).

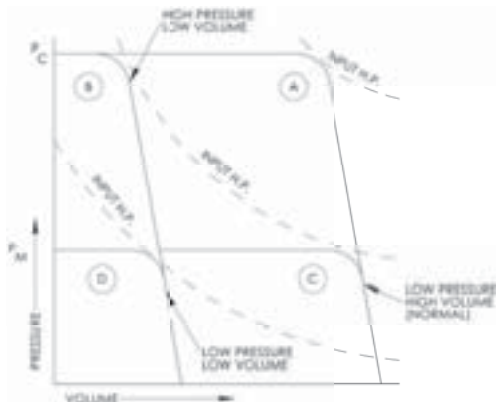
OPTIONAL RATE OF CHANGE VALVE (CODE 8)



OPTIONAL RATE OF CHANGE VALVE (CODE 9)

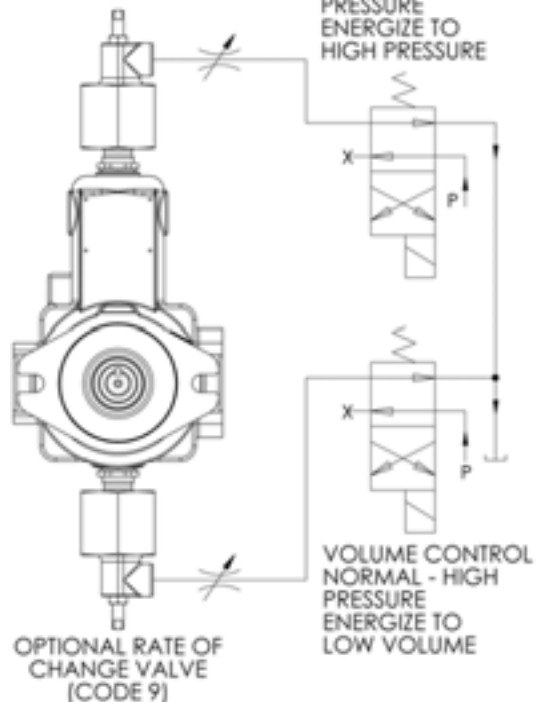
Independent Control Valves or Signal

- Two field constant pressure levels and adjustable flow limits provide:
 - High pressure, high flow (A)
 - High pressure, low flow (B)
 - Low pressure, high flow (C)
 - Low pressure, low flow (D)
- Remote mounted control valves for pilot signals only.

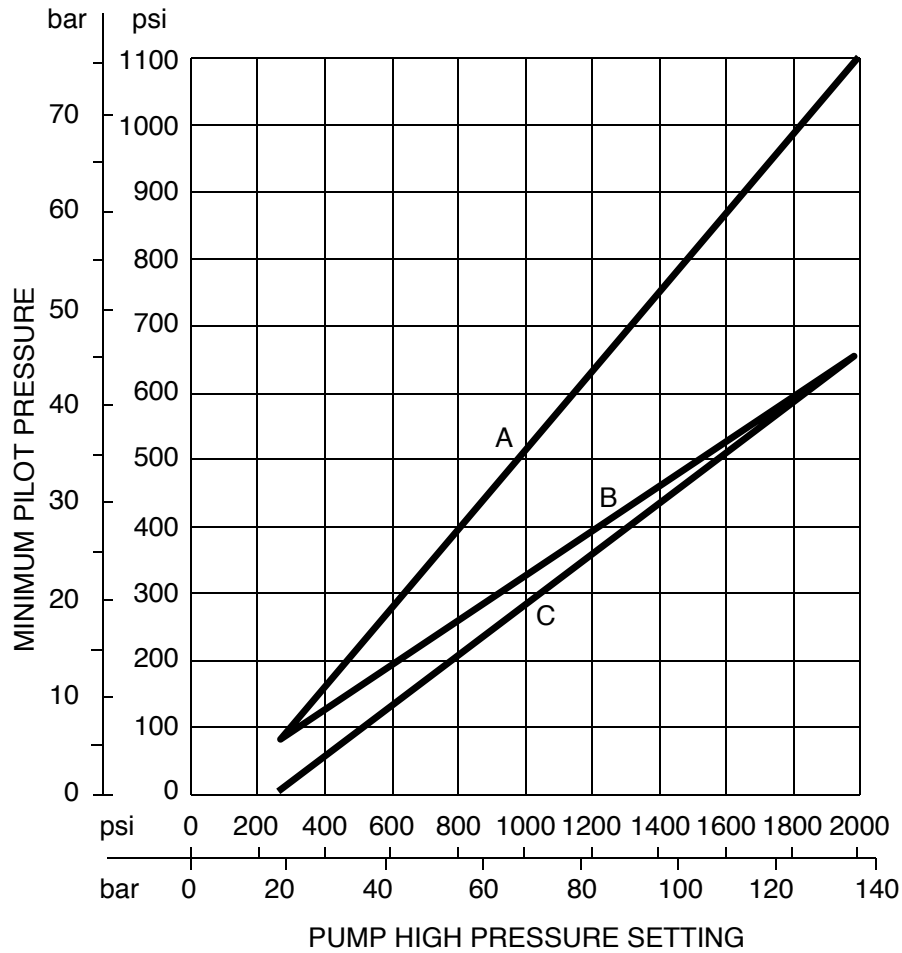


NOTE: When using dual volume control, a minimum pump pressure (P_M) must be maintained to hold pump in low volume, output where $P_M = 55\%$ of P_C (maximum compensated pressure).

OPTIONAL RATE OF CHANGE VALVE (CODE 8)



CONTROL PILOT PRESSURES



PUMP	CONTROL	PILOT	CURVE SOURCE
15	PRESSURE	REMOTE	B
		INTEGRAL	-
	VOLUME	REMOTE	A
		INTEGRAL	A
50	PRESSURE	REMOTE	A
		INTEGRAL	-
	VOLUME	REMOTE	A
		INTEGRAL	A

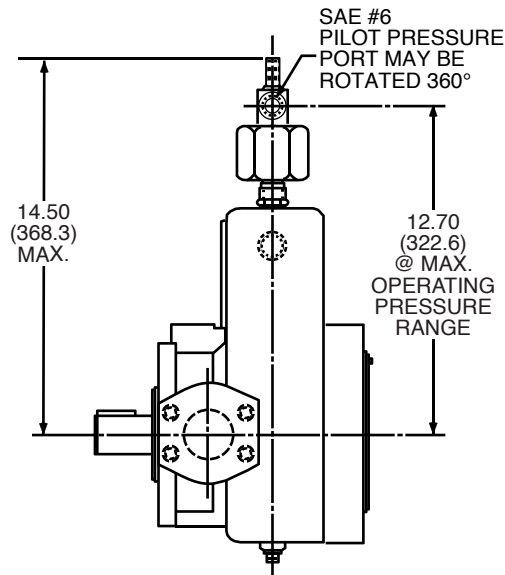
DUAL PRESSURE CONTROL DIMENSIONS

Code RF Pump

Remote Operator Control - Code 17

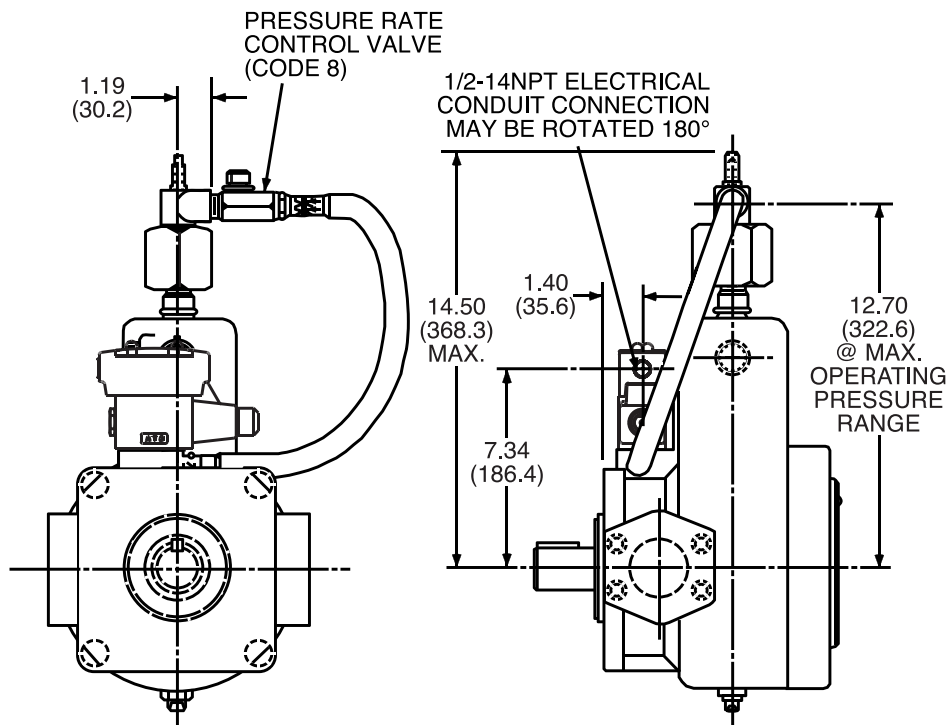
Dimensions shown in: Inches
(millimeters)

RF (CW) Rotation Shown ...
LF (CCW) Dimensions Are
The Same



Integral Operator Control* - Code 18

*NOTE: Requires choice of operator electrical option codes from Control Valve Options.



PVR-15 SERIES VANE PUMPS

CONTROL OPTIONS

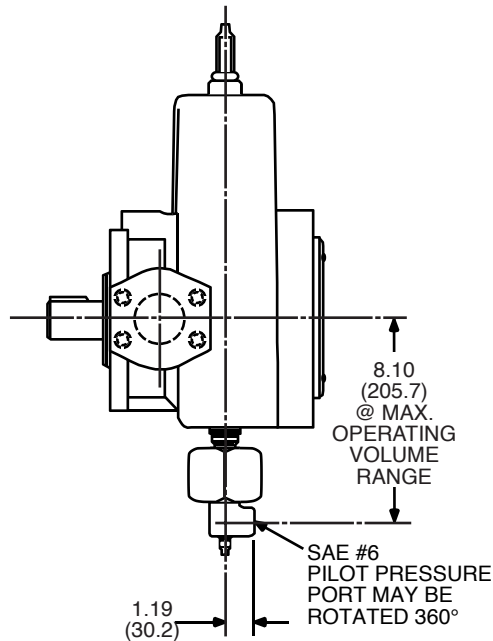
DUAL VOLUME CONTROL DIMENSIONS

Code RF Pump

Remote Operator Control - Code 2400

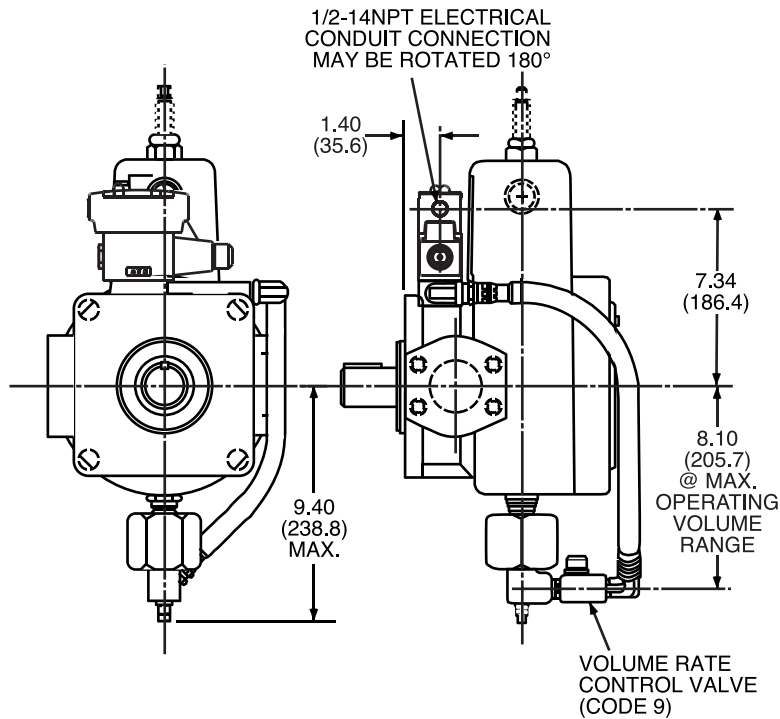
Dimensions shown in: Inches
(millimeters)

RF (CW) Rotation Shown ...
LF (CCW) Dimensions Are
The Same



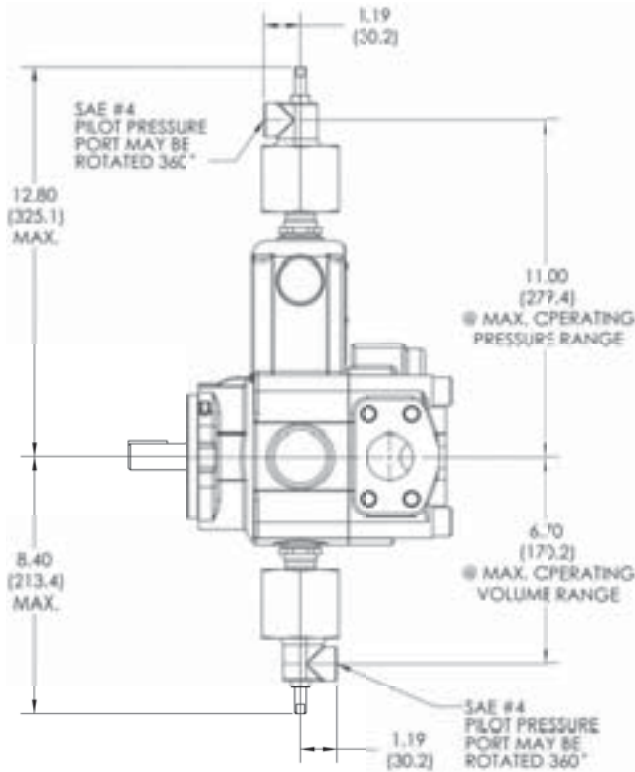
Integral Operator Control* - Code 24

*NOTE: Requires choice of operator electrical option codes from Control Valve Options.



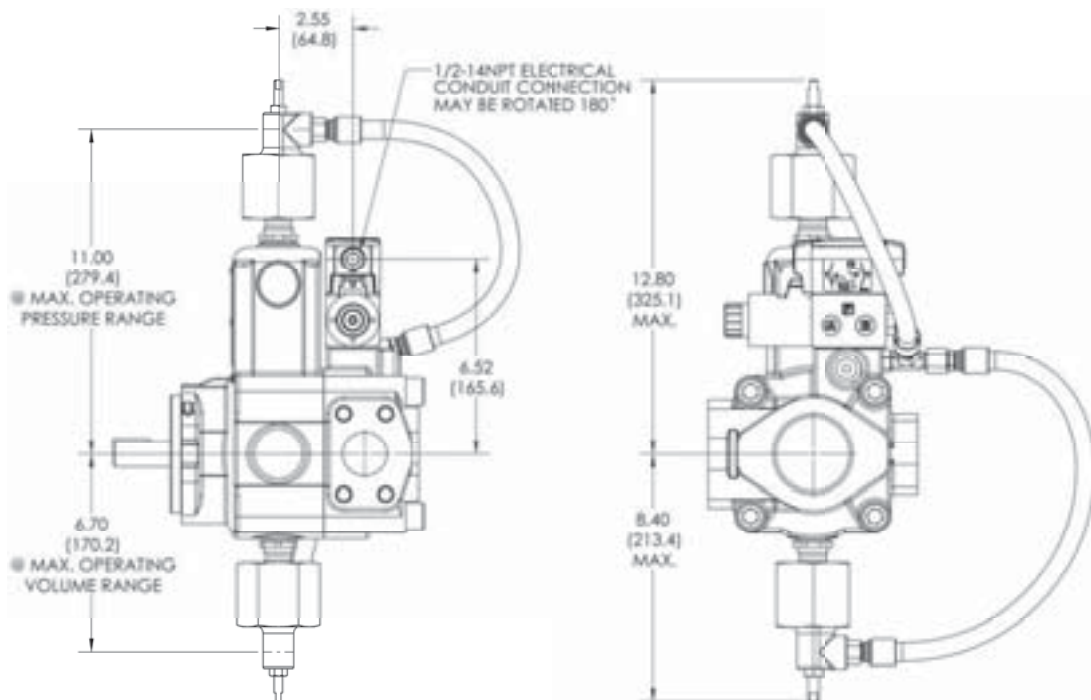
DUAL PRESSURE/DUAL VOLUME CONTROL DIMENSIONS Dimensions shown in: Inches (millimeters)
Code RF Pump
Remote Operator Control - Code 2500

RF (CW) Rotation Shown ...
 LF (CCW) Dimensions Are
 The Same



Integral Operator Control* - Code 25

*NOTE: Requires choice of operator electrical option codes from Control Valve Options.



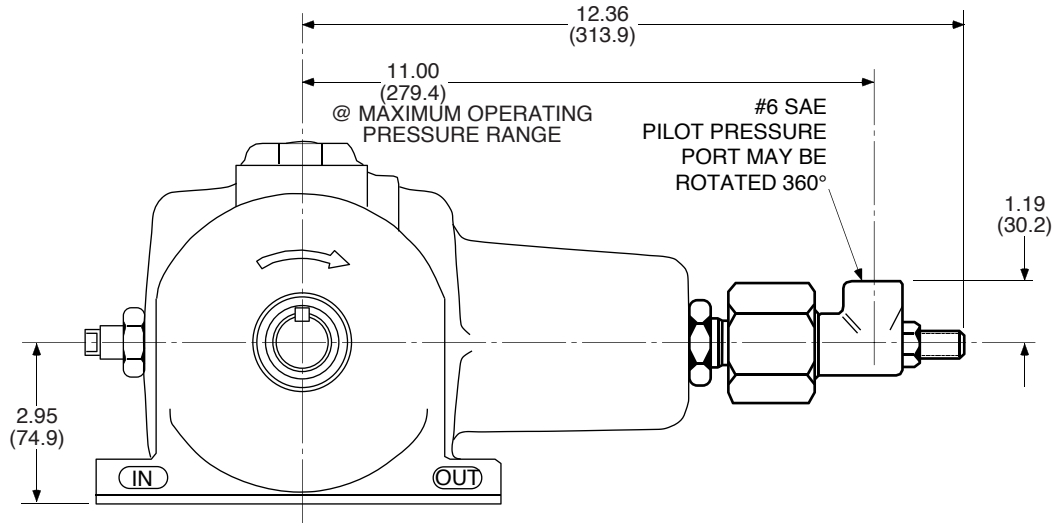
PVR-15 SERIES VANE PUMPS

CONTROL OPTIONS

DUAL PRESSURE CONTROL DIMENSIONS

Code RM Pump

Remote Operator Control - Code 17



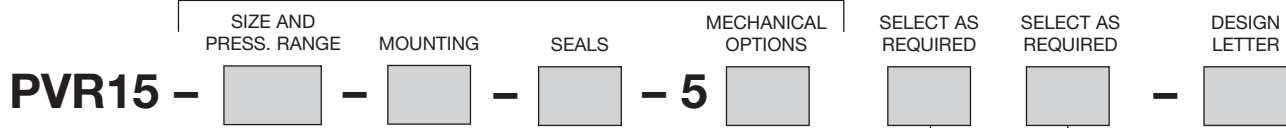
PVR-15 SERIES VANE PUMPS

CONTROL OPTIONS

ORDERING INFORMATION

Flange Mounted - Code RF Only

TO COMPLETE CODE, REFER TO PVR SECTION, ORDERING INFORMATION



CONTROL OPTIONS

CODE	DESCRIPTION
OMIT	NO OPTIONS
8*	DUAL PRESSURE RATE CONTROL VALVE
9	DUAL VOLUME RATE CONTROL VALVE
17*	DUAL PRESSURE REMOTE OPERATED
18†	DUAL PRESSURE WITH INTEGRAL OPERATOR
24†	DUAL VOLUME WITH INTEGRAL OPERATOR
25†	DUAL PRESSURE/ DUAL VOLUME WITH INTEGRAL OPERATOR
2400	DUAL VOLUME REMOTE OPERATED
2500	DUAL PRESSURE/ DUAL VOLUME REMOTE OPERATED

*NOTE: Only controls options 8 and 17 are available on "RM" mounting.

†NOTE: Maximum pressure rating includes surges.

CONTROL VALVE INTEGRAL OPERATOR OPTIONS

USE WITH CODES 18, 24 and 25

Mechanical Options		Top Electrical Box		Solenoid	
CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
OMIT	NOT REQUIRED				
LEAD WIRE CONNECTIONS					
		B	TOP ELECT. BOX WITHOUT TERMINAL POSTS	60L	110/120V 50/60 HZ
			TOP ELECT. BOX WITH 5 PIN MALE RECEPTACLE FOR 1 OR 2 SOLENOIDS	61L	220/240V 50/60 HZ
		B5H		68L	110/120V 50/60 HZ (LOW AMPS)
				70L	24 VDC
				75L	12 VDC
DIN 43650 CONNECTIONS					
		OMIT	NOT AVAILABLE	33L	110/120V 50/60 HZ
				34L	220/240V 50/60 HZ
				42L	24 VDC
				44L	12 VDC

TYPICAL ORDERING CODE:

PVR15-15B15-RF-O-5818B60L-F

PVR-50 SERIES VANE PUMPS

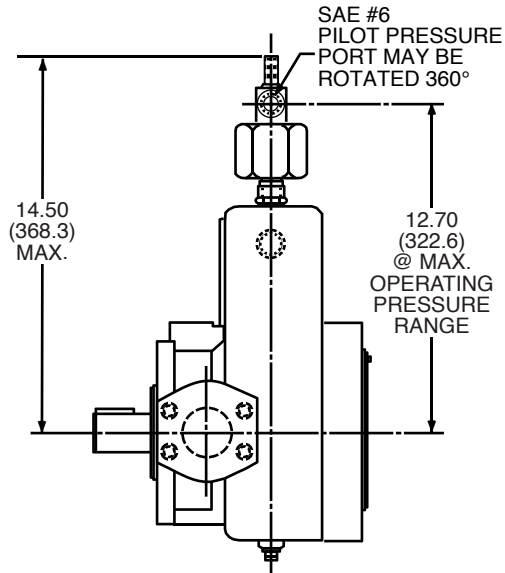
CONTROL OPTIONS

DUAL PRESSURE CONTROL DIMENSIONS

Remote Operator Control - Code 17

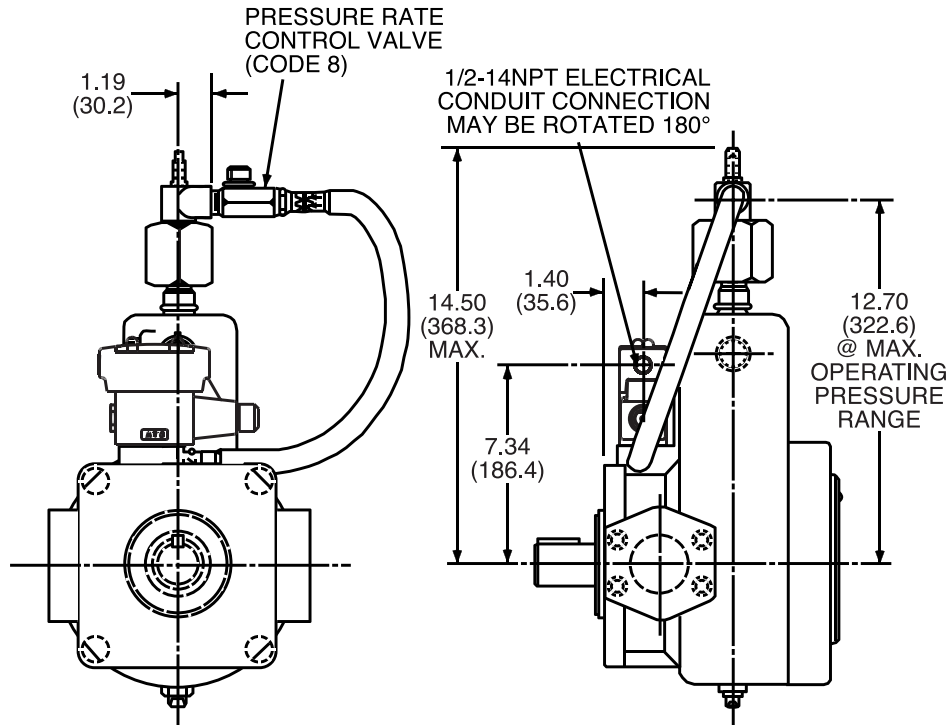
Dimensions shown in: Inches
(millimeters)

RF (CW) Rotation Shown ...
LF (CCW) Dimensions Are
The Same



Integral Operator Control* - Code 18

*NOTE: Requires choice of operator electrical option codes from Control Valve Options.



PVR-50 SERIES VANE PUMPS

CONTROL OPTIONS

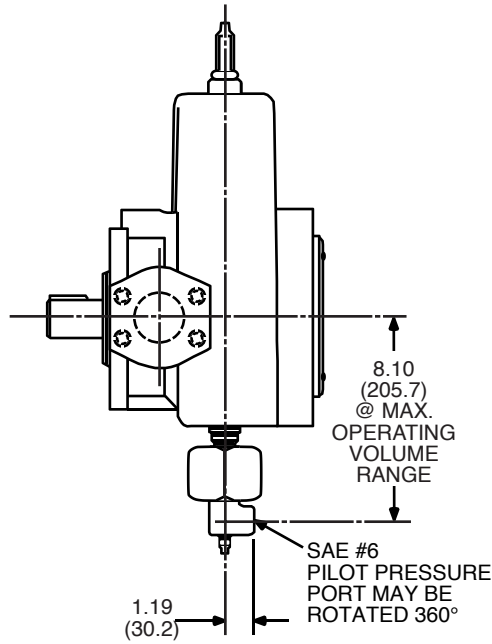
DUAL VOLUME CONTROL DIMENSIONS

Remote Operator Control - Code 2400

Dimensions shown in: Inches
(millimeters)

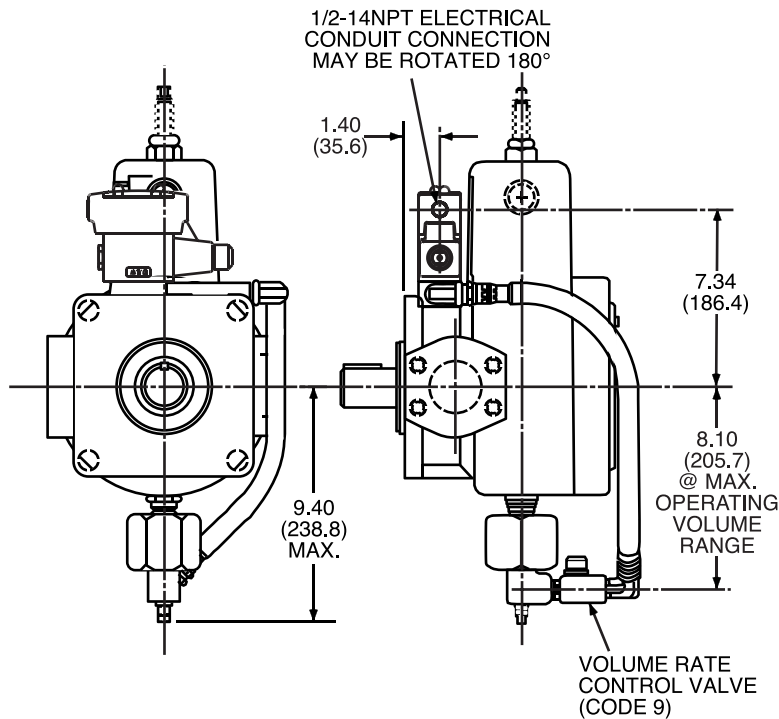
RF (CW) Rotation Shown ...
LF (CCW) Dimensions Are
The Same

REMOTE OPERATOR
CODE 17



Integral Operator Control* - Code 24

*NOTE: Requires choice of operator electrical option codes from Control Valve Options.



PVR-50 SERIES VANE PUMPS

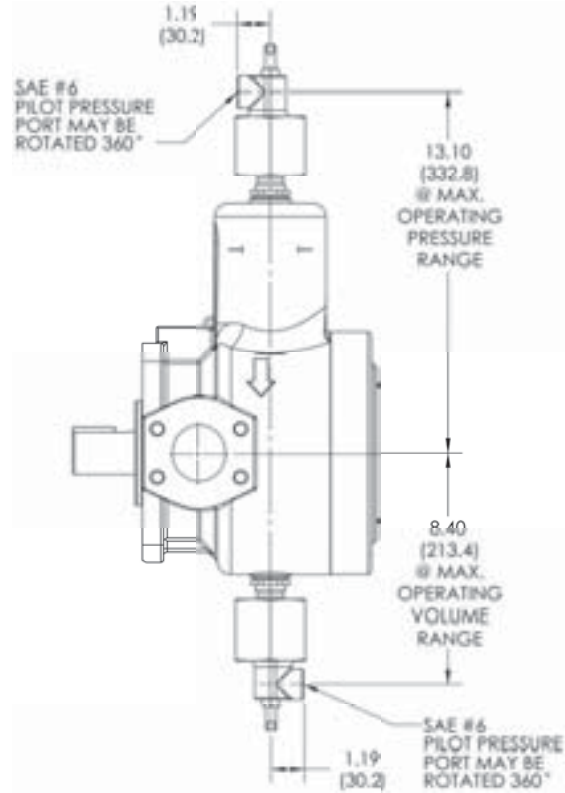
CONTROL OPTIONS

DUAL PRESSURE/DUAL VOLUME CONTROL DIMENSIONS

Remote Operator Control - Code 2500

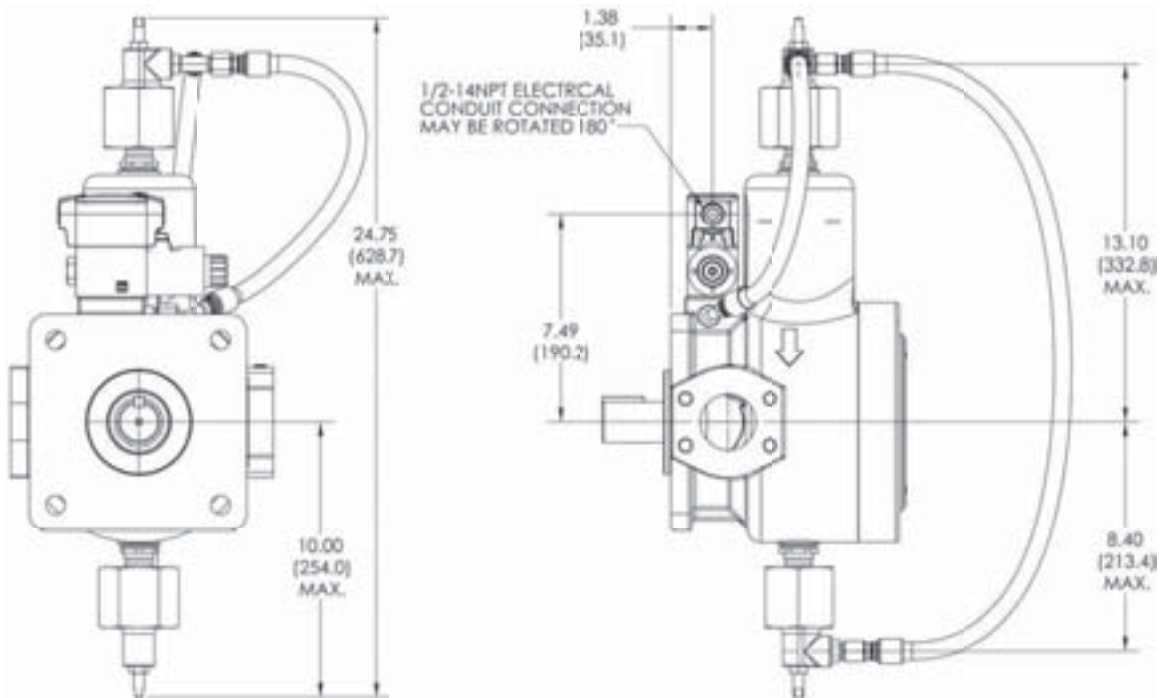
Dimensions shown in: Inches
(millimeters)

RF (CW) Rotation Shown ...
LF (CCW) Dimensions Are
The Same



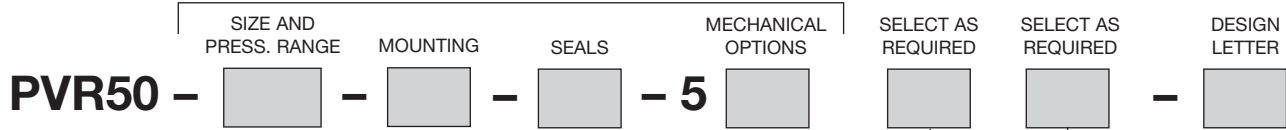
Integral Operator Control* - Code 25

*NOTE: Requires choice of operator electrical option codes from Control Valve Options.



ORDERING INFORMATION

TO COMPLETE CODE, REFER TO PVR SECTION, ORDERING INFORMATION



CONTROL OPTIONS

CODE	DESCRIPTION
OMIT	NO OPTIONS
8	DUAL PRESSURE RATE CONTROL VALVE
9	DUAL VOLUME RATE CONTROL VALVE
17	DUAL PRESSURE REMOTE OPERATED
18	DUAL PRESSURE WITH INTEGRAL OPERATOR
24	DUAL VOLUME WITH INTEGRAL OPERATOR
25	DUAL PRESSURE/ DUAL VOLUME WITH INTEGRAL OPERATOR
2400	DUAL VOLUME REMOTE OPERATED
2500	DUAL PRESSURE/ DUAL VOLUME REMOTE OPERATED

CONTROL VALVE INTEGRAL OPERATOR OPTIONS

USE WITH CODES 18, 24 and 25

Mechanical Options

CODE	DESCRIPTION
OMIT	NOT REQUIRED

Top Electrical Box

CODE	DESCRIPTION	CODE	DESCRIPTION	CODE	DESCRIPTION
LEAD WIRE CONNECTIONS					
B	TOP ELECT. BOX WITHOUT TERMINAL POSTS			60L	110/120V 50/60 HZ
				61L	220/240V 50/60 HZ
B5H	TOP ELECT. BOX WITH 5 PIN MALE RECEPTACLE			68L	110/120V 50/60 HZ (LOW AMPS)
				70L	24 VDC
				75L	12 VDC
DIN 43650 CONNECTIONS					
OMIT	NOT AVAILABLE			33L	110/120V 50/60 HZ
				34L	220/240V 50/60 HZ
				42L	24 VDC
				44L	12 VDC

Solenoid

TYPICAL ORDERING CODE:

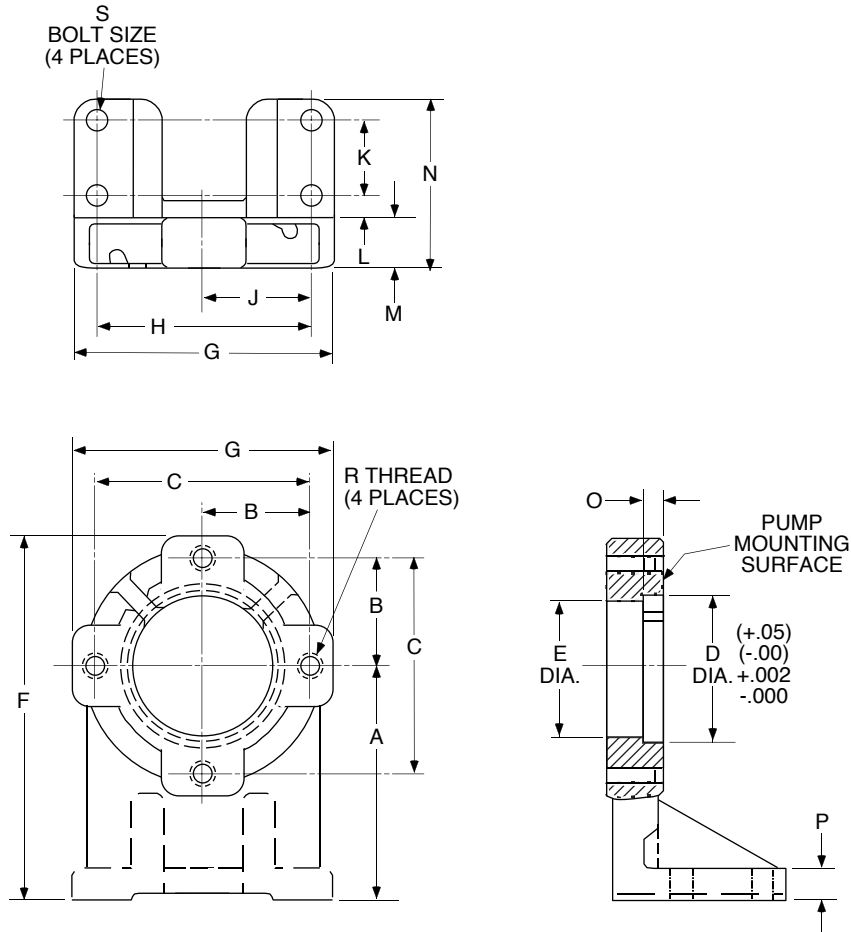
PVR50-50B15-RF-O-5818B60L-L

PVR-6 AND PVR-15 SERIES VANE PUMPS

MOUNTING ACCESSORIES

FPVR FOOT MOUNTING BRACKETS DIMENSIONS

Dimensions shown in: Inches
(millimeters)



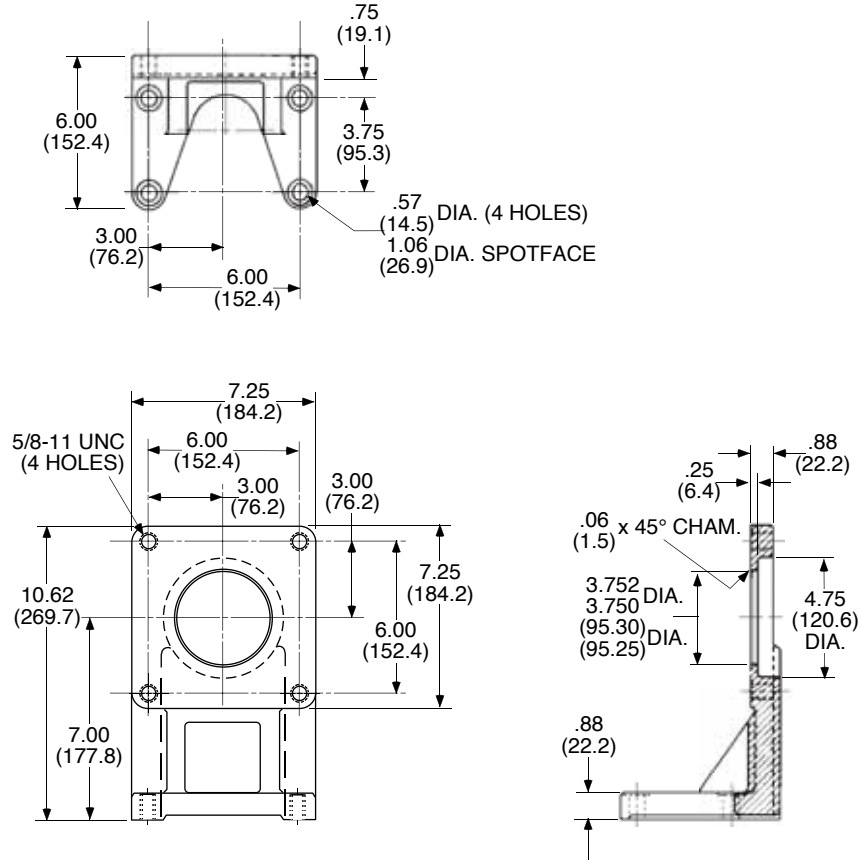
FOOT BRACKET SERIES	SAE FLANGE	DIMENSIONS															R THREAD	S BOLT SIZE
		Inches (millimeters)																
		A	B	C	D	E	F	G	H	J	K	L	M	N	O	P		
FPVR6	A	5.25 (133.4)	2.09 (53.1)	4.19 (106.4)	3.252 (82.6)	3.00 (76.2)	7.81 (198.4)	5.12 (130.0)	3.50 (88.9)	1.75 (44.4)	2.00 (50.8)	.48 (12.2)	1.00 (25.4)	3.98 (101.1)	.31 (7.9)	.81 (20.6)	3/8-16 UNC	3/8 In.
FPVR15	B	6.25 (158.8)	2.87 (73.0)	5.75 (146.1)	4.00 (101.6)	4.25 (108.0)	9.69 (246.1)	6.85 (174.0)	5.75 (146.1)	2.87 (73.0)	2.01 (51.1)	.59 (15.0)	1.26 (32.0)	4.45 (113.0)	.47 (11.9)	.79 (20.1)	1/2-13 UNC	1/2 In.

PVR-50 SERIES VANE PUMPS

MOUNTING ACCESSORIES

FPVR50 FOOT MOUNTING BRACKET DIMENSIONS

Dimensions shown in: Inches
(millimeters)

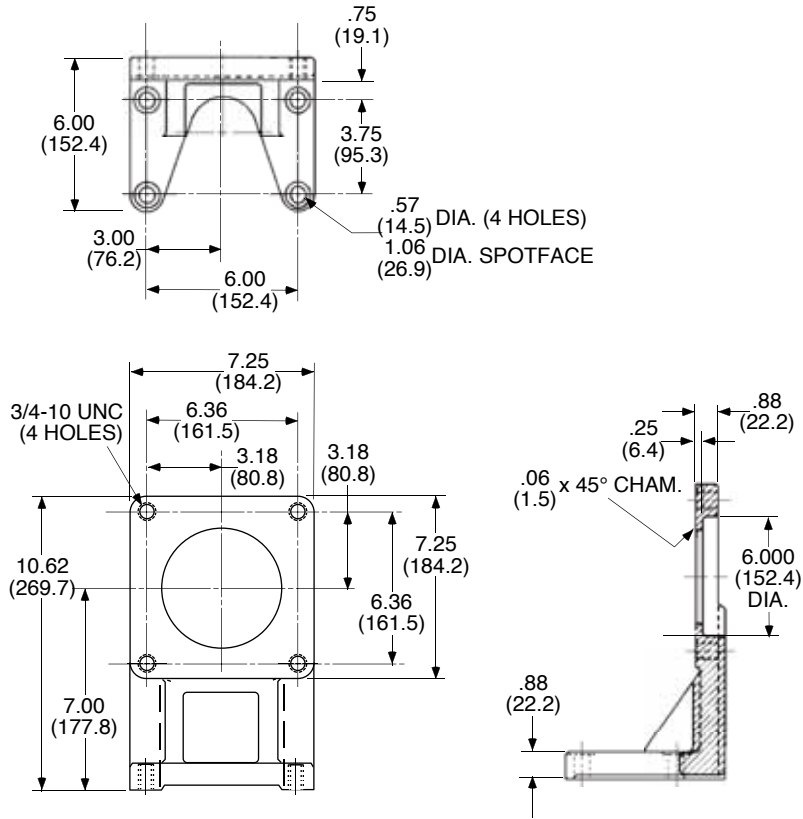


PVR-50 SERIES VANE PUMPS

MOUNTING ACCESSORIES

FPVR50D FOOT MOUNTING BRACKET DIMENSIONS SAE D Mounting

Dimensions shown in: Inches
(millimeters)

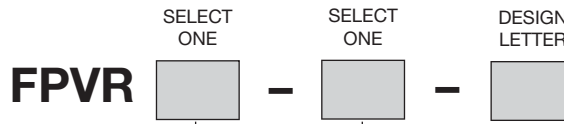


PVR SERIES VANE PUMPS

MOUNTING ACCESSORIES

ORDERING INFORMATION

Foot Mounting Brackets

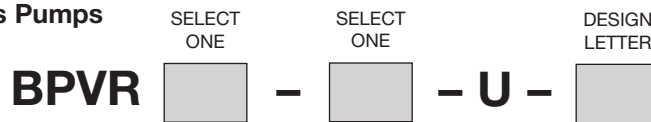


***NOTE:** Foot Bracket Spacers mount pump to 25 H.P. motor, 1800 rpm, 284 T frame.

SIZE		MOTOR SIZE		KIT INCLUDES		WEIGHT
CODE	USED WITH MODEL	CODE	NEMA FRAME SIZE	MOTOR SPACERS (In.)	BRACKET SPACERS (In.)	lbs. / kg
6	PVR6	143	143/145	1.74		10.1 / 4.6
		182	182/183	0.75		8.8 / 4.0
		213	213/215	NONE	NONE	7.9 / 3.6
		254	254/256		1.00	9.8 / 4.4
15	PVR15	254	254/256	NONE	NONE	16.8 / 7.6
		284	284/286		0.75	18.8 / 8.5
		324	324/326		1.75	21.5 / 9.8
1524	PVR15 W/ DUAL VOLUME	254	254/256	1.75	1.75	24.5 / 11.1
		284	284/286	1.00	1.75	23.2 / 10.5
1524	PVR15 W/ DUAL VOLUME	284	284/286	NONE	NONE	22.8 / 10.3
		324	324/326		1.00	26.7 / 12.1
		364	364/365		2.00	30.6 / 13.9
50D	PVR50 SAE D MOUNTING	254	254/256	0.75		24.5 / 11.1
		284	284/286	NONE	NONE	22.8 / 10.3
		324	324/326		1.00	26.7 / 12.1
		364	364/365		2.00	30.6 / 13.9
5024	PVR50 W/ DUAL VOLUME	254	254/256	3.50	2.75	35.7 / 16.2
		284	284/286	2.75	2.75	33.8 / 15.3
		324	324/326	1.75	2.75	32.7 / 14.8

TYPICAL ORDERING CODE: **FPVR15-284-**

Bolt Kits for Mounting PVR Series Pumps



***NOTE:** Mounts a PVR15 manifold pump to a MPVR15-XX-C-21 manifold.

CODE	USED WITH MODEL	CODE*	BOLT SIZE	QTY. of BOLTS/WASHERS	WEIGHT lbs. / kg
1	PVR6	1	3/8-16 UNC x 1.00	4	.21/.10
6	PVR6	2	3/8-16 UNC x .88	2	.34/.15
15	PVR15 - RF	1	7/16-14 UNC x 1.50	4	.10 .05
	PVR15 - RM	2	1/2-13 UNC x 1.25	2	.22/.10
50	PVR50	2	5/8-11 UNC x 1.75	4	.90/.40
50D	PVR50 SAE D MTG.	3	3/4-10 UNC x 1.75	4	.90/.40

***NOTE:** Code 1 = Pump to Manifold.
Code 2 = Pump to Foot Bracket, Flange or Front Tandem Pump.
Code 3 = SAE "D" Flange; Pump to Foot Bracket or Tandem Adapter.

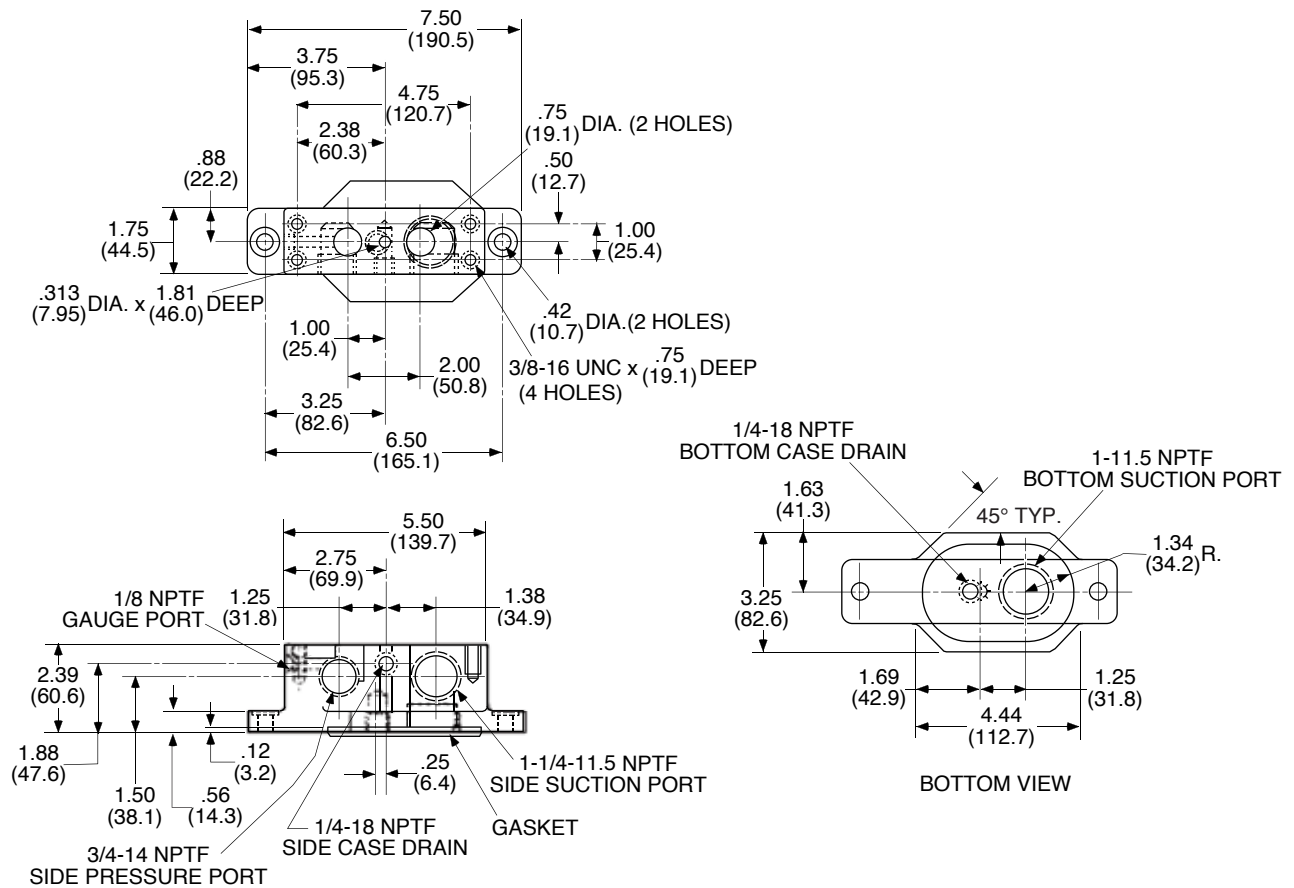
TYPICAL ORDERING CODE: **BPVR15-1-U-**

PVR-1 SERIES VANE PUMPS

MOUNTING ACCESSORIES

MANIFOLD DIMENSIONS for PVR1 Pump

Dimensions shown in: Inches
(millimeters)



ORDERING INFORMATION

MPVR1 - - C - 6 -

SELECT ONE

DESIGN LETTER

CODE	NEMA MOTOR FRAME	KIT INCLUDES*	WEIGHT lbs. / kg
143	143/145	1" MOTOR SPACERS	7.3 / 3.3
182	182/184	MANIFOLD ONLY	6.3 / 2.9

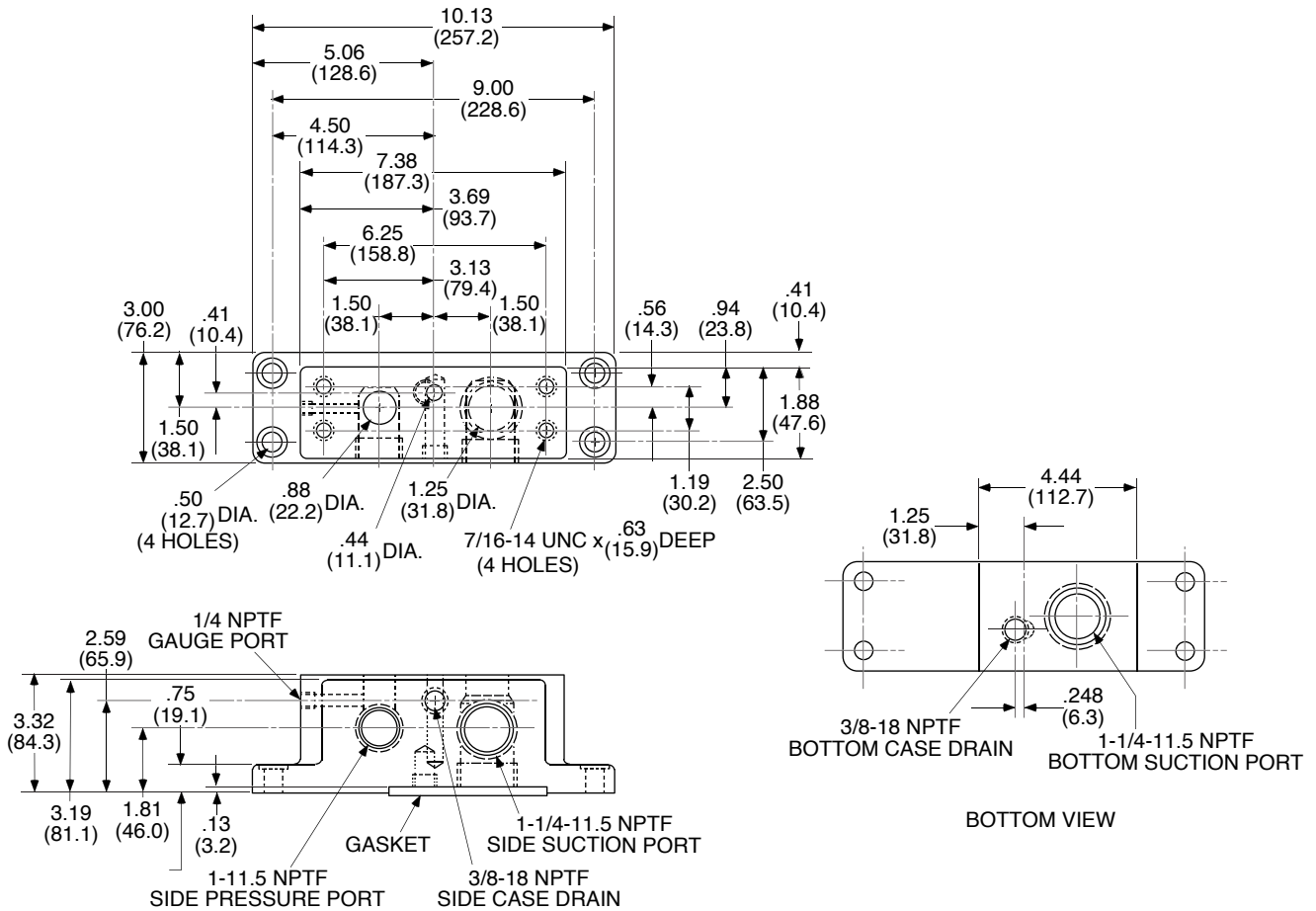
*NOTE: Kit also includes Gasket, and Plugs for gauge, suction and case drain ports.

PVR-15 SERIES VANE PUMPS

MOUNTING ACCESSORIES

MANIFOLD DIMENSIONS for PVR15 Pump - Code RM

Dimensions shown in: Inches
(millimeters)



ORDERING INFORMATION

MPVR15 - - C - 21 -

SELECT ONE DESIGN LETTER

CODE	NEMA MOTOR FRAME	KIT INCLUDES*	WEIGHT lbs. / kg
182	182/184	1.75" MOTOR SPACERS	19.6 / 8.3
213	213/215	1" MOTOR SPACERS	18.4 / 8.3
254	254/256	MANIFOLD ONLY	17.5 / 7.9

*NOTE: Kit also includes Gasket, and Plugs for gauge, suction and case drain ports.

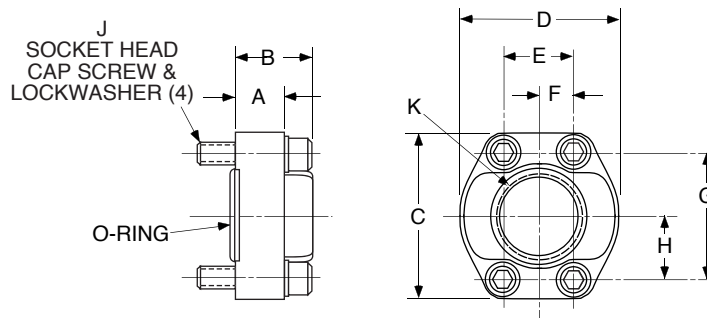
PVR SERIES VANE PUMPS

MOUNTING ACCESSORIES

STRAIGHT FLANGES DIMENSIONS

Flange Codes 9 through 33

For Pumps Requiring SAE 4-Bolt Threaded Flanges
(Mounting Bolts and Viton Seals Includes)

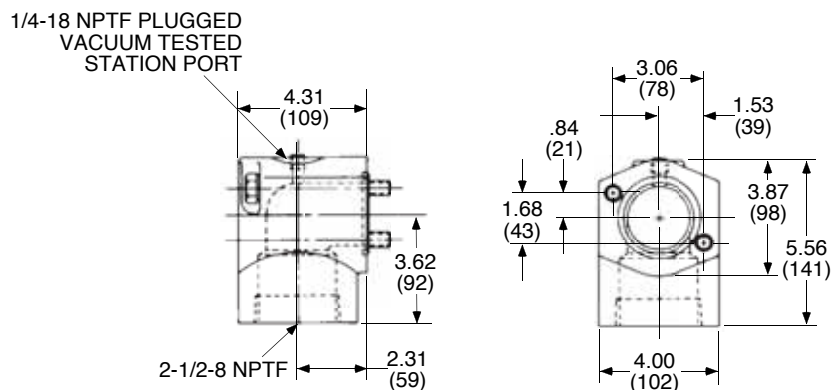


FLANGE SIZE	CODE	DIMENSIONS									Inches (millimeters)	
		A	B	C	D	E	F	G	H	J	K	
1 In.	9	.97	1.38	2.75	2.31	1.03	.52	1.03	2.06	3/8-16 UNC x 1.75	1" NPTF	
	11	(24.6)	(35.1)	(69.9)	(58.7)	(26.2)	(13.2)	(26.2)	(52.3)		1-5/16-12 UN SAE #16	
1-1/2 In.	21	1.09	1.82	3.69	3.25	1.41	.70	1.38	2.75	1/2-13 UNC x 2.00	1-1/4" NPTF	
	25	(27.7)	(46.2)	(93.7)	(82.6)	(35.8)	(17.8)	(35.1)	(69.9)		1-1/2" NPTF	
	27										1-7/8-12 NC SAE #24	
2 In.	33	1.09	1.82	4.00	3.81	1.68	.84	1.53	3.08	1/2-13 UNC x 1-3/4	2" NPTF	
		(27.7)	(46.2)	(101.6)	(96.8)	(42.7)	(21.3)	(38.9)	(78.2)			

90° SUCTION FLANGE DIMENSIONS

PVR50 Pump - Flange Code 37

Dimensions shown in: Inches (millimeters)



PVR SERIES VANE PUMPS

MOUNTING ACCESSORIES

ORDERING INFORMATION

Flanges

SELECT ONE

SPVR – – G

CODE	SAE 4-BOLT PAD	THREAD SIZE	PUMP USED ON	OUTLET	INLET	WEIGHT lbs. / kg
9	1"	1" NPTF	PVR15	X		1.5 / 0.7
11	1"	1-15/16-12 UN 1" TUBE SIZE SAE #16	PVR15	X		
21	1-1/2"	1-1/4" NPTF	PVR50	X		3.0 / 1.4
25	1-1/2"	1-1/2" NPTF	PVR50	X	X	
27	1-1/2"	1-7/8-12 UN 1-1/2" TUBE SIZE SAE #24	PVR15 PVR50	X	X	
33	2"	2" NPTF	PVR50		X	3.6 / 1.6
37	2"	2-1/2" NPTF 30° ANGLE (PVR50 INLET ONLY)	PVR50-70B		X	13.4 / 6.1

TYPICAL ORDERING CODE: **SPVR-9-G**

ORDERING INFORMATION

Pump Mechanical Accessories

SELECT ONE DESIGN LETTER

PMA – –

CODE	DESCRIPTION	PUMP MODEL (DESIGN LETTER INDICATED)*						WEIGHT lbs. / kg
		PVR1	PVR6	PVR15 - RF 15 & 20B	PVR15 - RF 30B	PVR15 - RM	PVR50	
6	Volume Screw Assembly	I	A	Standard	Standard	Standard	Standard	0.3 / 0.14
15	Handwheel Pressure Assembly	N/A	N/A	A	A	A	A	0.8 / 0.36
1536	Handwheel Pressure Assembly	H	A	N/A	N/A	N/A	N/A	0.9 / 0.41
1536	Handwheel Volume Assembly	I	A	D	B	Note 1	Note 1	0.9 / 0.41
17	Remote Dual Pressure Control	Note 1	Note 1	C	A	I	I	3.6 / 1.63
24	Remote Dual Volume Control	Note 1	Note 1	A	A	Note 1	Note 1	1.9 / 0.86

***NOTE:** The Design Letter listed is the earliest version that the assembly is physically compatible with all later models.

N/A Not Applicable.

NOTE 1: Not Available. Please consult the factory.

IMPORTANT !

Check the appropriate pump design code with the above chart list before ordering to insure installation compatibility.

NOTES: (a) Handwheel Accessory Kits contain the handwheel and a spring pin for installation on an existing Adjustment Screw. If a pump has a plug only at the volume adjustment screw location, a Volume Screw Assembly must be ordered separately.

(b) For installation dimensions and product references, refer to the appropriate option modification in the PVR Vane Pump Section.

TYPICAL ORDERING CODE: **PMA-17-**

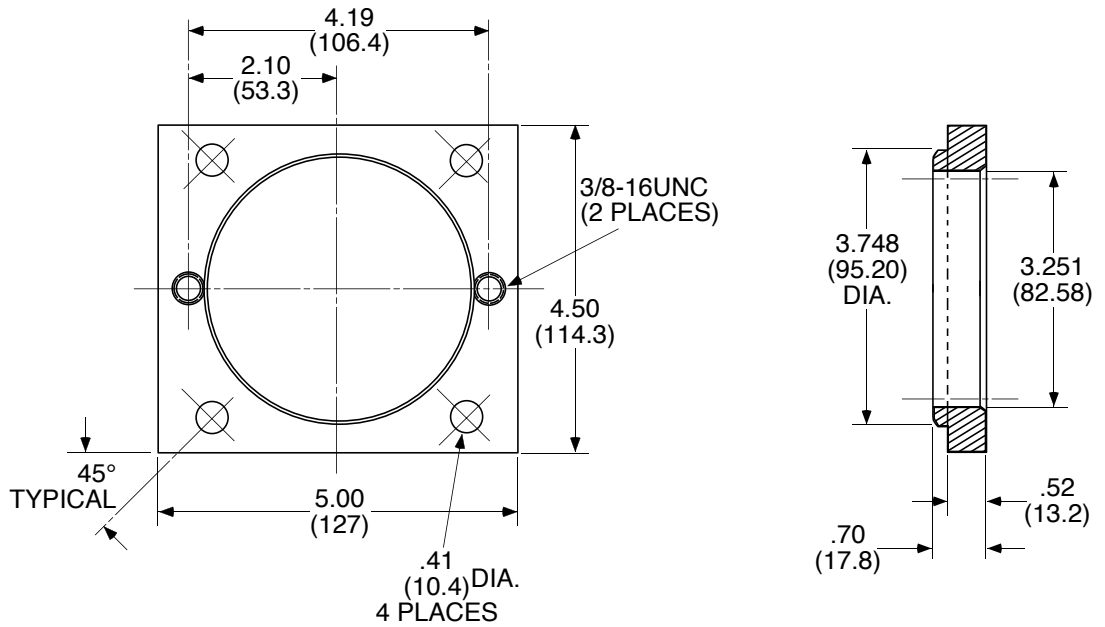
PVR SERIES VANE PUMPS

MOUNTING ACCESSORIES

TRANSITION PLATE

For Mounting a PVR6 SAE 2-Bolt Flange to a PVR1-RF 4-Bolt Flange Pump Existing Mounting Surface.

Dimensions shown in: Inches
(millimeters)



The Kit Includes:

- 1 - Transition Plate
- 4 - Hex. Hd. Bolts 3/8-16UNC x 1-1/4
- 4 - Lockwashers 3/8
- 1 - 3/16 x 1/8 x 1 Long Step Key

NOTE: PVR6 Pump Bolts are ordered separately.

ORDERING INFORMATION

Transition Plate

DESIGN LETTER
TPVR - 6 -

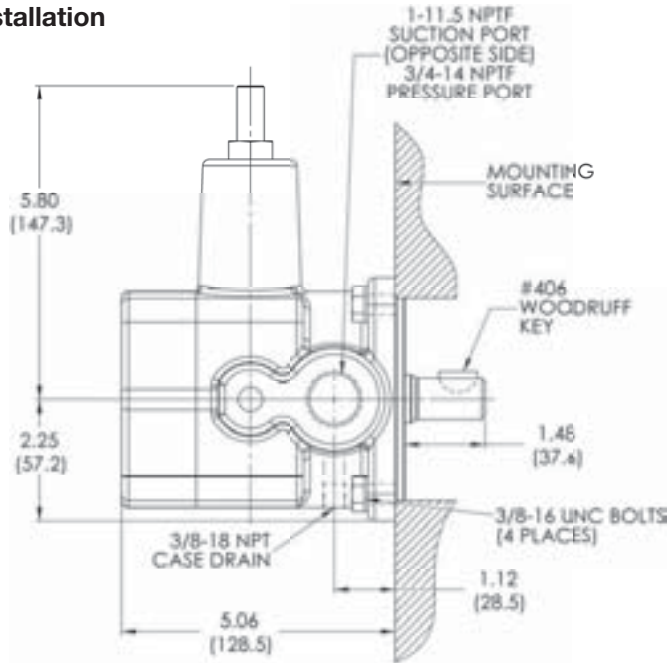
Weight: 1.0 lbs. (0.45 kg)

TRANSITION PLATE

For Mounting a PVR6 SAE 2-Bolt Flange to a PVR1-RF 4-Bolt Flange Pump Existing Mounting Surface.

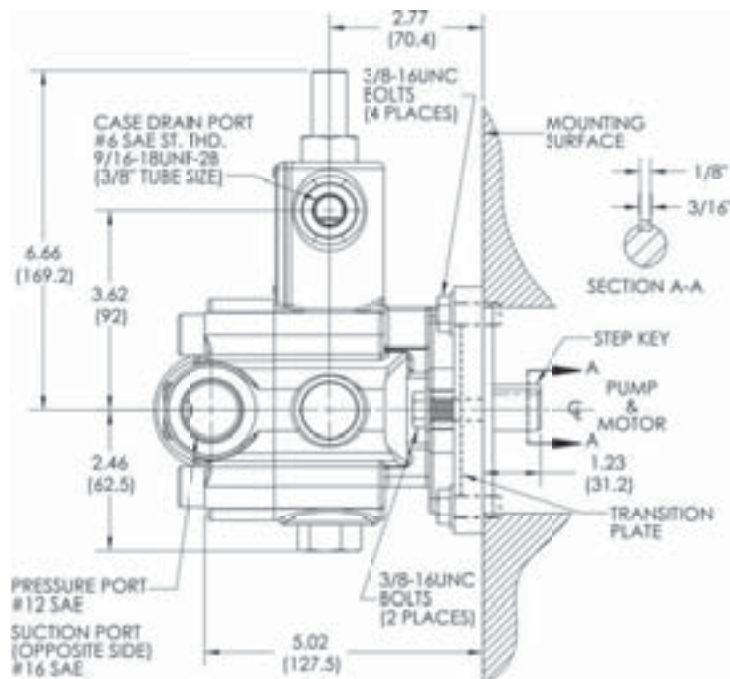
Existing PVR1-XXX-RF-X-X Installation

Dimensions shown in: Inches
(millimeters)



TRANSITION PLATE

Existing PVR6-XXX-RF-X-X Installed With a TPVR Transition Plate on an Existing Mounting Surface.



PVR SERIES VANE PUMPS

MOUNTING ACCESSORIES

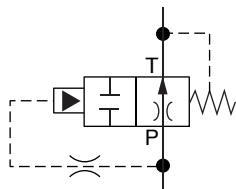
AIR BLEED VALVE



DESCRIPTION

The air bleed valve permits easier pump priming and/or start-up under deadhead conditions. This valve is normally open to permit oil and air (if present) to pass from inlet to outlet and directly back to the tank. Pressure in the spool center section is bled via spool clearance to the no-spring end of the spool. As pressure builds, it overcomes the spring, shifts the spool to close the inlet port and allows full pump flow to the circuit.

VALVE SCHEMATIC

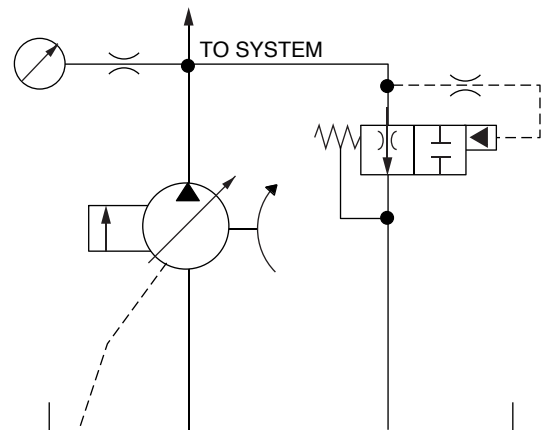


TYPICAL PERFORMANCE SPECIFICATIONS

MINIMUM FLOW RATE		8 gpm
MINIMUM OPERATING PRESSURE	@ 8 gpm	500 psi
OPERATING PRESSURE	@ 15 gpm	350 psi
MAX. OPERATING PRESSURE	@ 50 gpm	200 psi
MINIMUM PRESSURE TO HOLD CLOSE		150 psi
TYPICAL CLOSING TIMES	@ 500 psi	30 sec.
	@ 1500 psi	10 sec.
SEALS		VITON

NOTE: Data is based on ISO VG 46 oil at 120° F. (49° C.).

TYPICAL APPLICATIONS SCHEMATIC



ELECTRIC MOTOR PRIME MOVER

In this circuit, the valve is used to automatically purge the air in the circuit. It will automatically block flow through it in a short period of time.

ENGINE PRIME MOVER

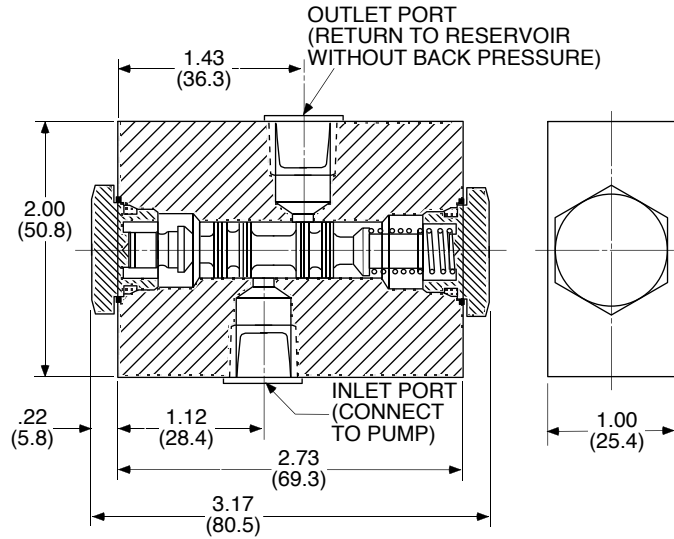
Here the valve passes flow for a short time allowing an internal combustion engine to come up to speed. This would eliminate using a separate open center valve for this purpose.

NOTE:

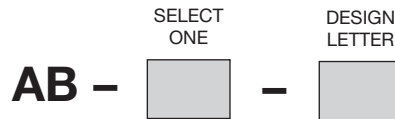
The outlet line should be piped below the oil level to prevent foaming of the oil.

VALVE DIMENSIONS

Dimensions shown in: Inches
(millimeters)



ORDERING INFORMATION



PORTS

CODE	DESCRIPTION
1	1/4" NPTF
2	SAE #6

WEIGHT: 0.6 lbs. / 0.27 kg

TYPICAL ORDERING CODE:

AB-1-

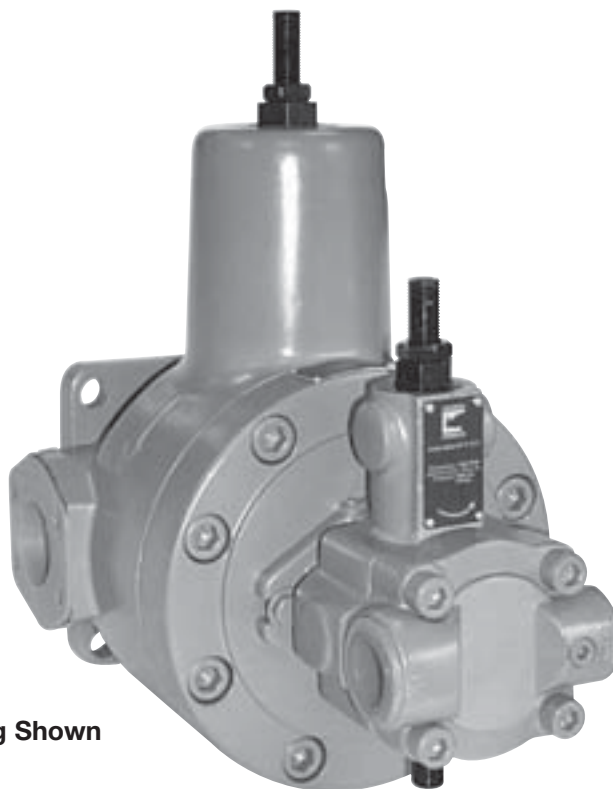
PVR SERIES VANE PUMPS

MOUNTING ACCESSORIES

TANDEM PUMP OPTIONS

BENEFITS

- Permits multiple pump operation without additional mounting flanges and couplings..
- Reduce system costs. Space saver -- one power unit where two or more were necessary. Smaller electric motor.
- Reduce operating costs. More efficient in high-low system than single pressure compensated pump.



PVR50/PVR6 Tandem Mounting Shown

TANDEM PUMP COMBINATIONS

FRONT PUMP				REAR PUMP WITH OPTION CODE 12						
BASIC CODE	OPTION CODE*	MAXIMUM H.P.**	VANE		PISTON					
			PVR6	PVR15	HPV6	HPV10	HPV15	HPV20	HPV29	
VANE	PVR6	21	8.5		N/A	N/A	N/A	N/A	N/A	N/A
		21	8.5		N/A	N/A	N/A	N/A	N/A	N/A
	PVR15-RF	22	30	N/A		N/A			N/A	N/A
		31	30	N/A	N/A		N/A	N/A	N/A	N/A
	PVR50	21	7.5		N/A	N/A	N/A	N/A	N/A	N/A
		22	20	N/A		N/A			N/A	N/A
		23	43	N/A	N/A	N/A	N/A	N/A		
		31	20	N/A	N/A	N/A		N/A	N/A	N/A

***NOTE:** Option Code 12 is a male spline shaft.
 Option Code 21 is a SAE A mounting pad.
 Option Code 22 is a SAE B mounting pad.
 Option Code 23 is a SAE C mounting pad.
 Option Code 31 is a SAE A mounting pad with a SAE B spline shaft.

NOTE: See the PVR Vane Pump section for product information and codes.
 Pump mounting bolts are ordered separately. See the Mounting Accessories section for information and codes.

****NOTE:** Maximum horsepower transfer to rear pump at 1750 rpm.

POWRFLOW™ PVR SERIES VANE PUMPS

PRESSURE COMPENSATED VANE PUMPS FOR THE MOST DEMANDING APPLICATIONS

PowrFlow™ Vane Pumps - Just What You Need!

Continental Hydraulics PowrFlow™ PVR Vane Pumps give you all of what you need, and less of what you don't want - such as heat and complexity.

Variable volume, pressure compensated design maintains constant pressure, while matching system flow demands.

Pressure relief valves are eliminated, which simplifies circuit design. There's less heat build-up, so heat exchangers can be smaller - or eliminated entirely. PVR Vane Pumps use smaller electric motors than fixed displacement vane pumps, which reduces the cost of installation and operation.

The result is a simpler, more energy efficient system, that accurately matches fluid power volume to the job, while maintaining constant pressure.

How Does Pressure Compensation Work?

As the PVR Vane Pump rotor turns clockwise, the volume between two vanes (a segment) increases at the suction porting. When segments enter the pressure port area, volume is reduced, forcing fluid through the pressure port.

Maximum output occurs when the pressure ring is at its' most eccentric position, as shown in the illustration below. When system requirements are less than maximum pump output, system pressure forces the pressure ring up against the spring, reducing eccentricity, which reduces flow.

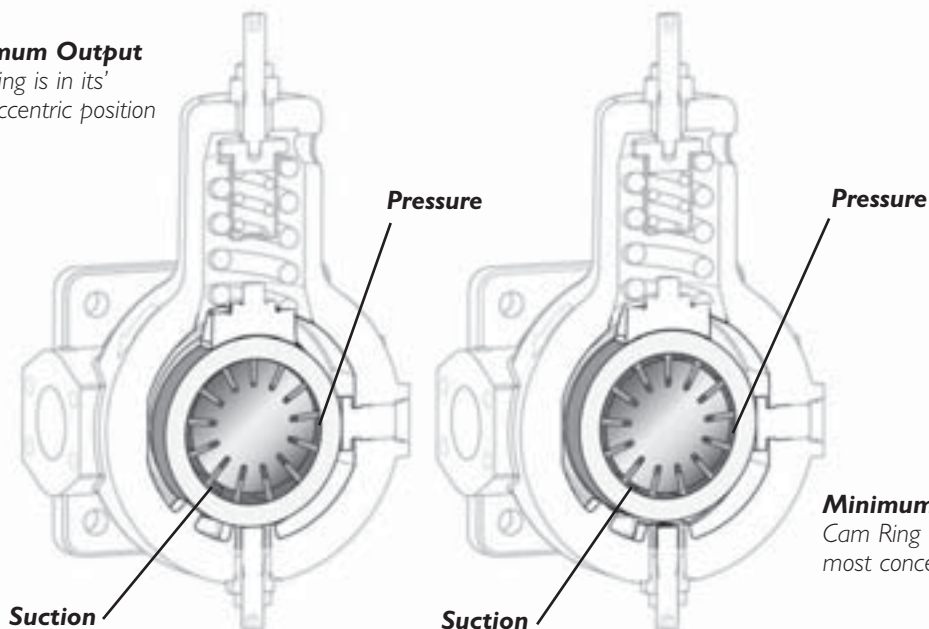
When system volume demand falls to zero, system pressure drives the ring to a concentric position. This changes the displacement to zero, while system pressure is unchanged. Constant pressure is maintained whether at zero or full displacement, so system response is fast.

Exclusive 3 Year Warranty

Continental Hydraulics Division warrants all vane pumps supplied by Continental Hydraulics against defects in material and workmanship under normal use and service for three years from the date of shipment.

This warranty does not cover ordinary wear and tear, abuse, misuse, overloading, altered products, use of improper fluid, or use of materials not of Continental Hydraulics manufacture or supply.

Maximum Output
Cam Ring is in its' most eccentric position



POWERFLOW™ PVR SERIES VANE PUMPS

PRESSURE COMPENSATED VANE PUMPS FOR THE MOST DEMANDING APPLICATIONS



Why settle for “close enough” when you need hydraulics?

Continental Hydraulics offers a complete line of products to meet your need for reliable, precise fluid power. In addition to the Vane Pumps shown in this catalog, Continental also offers piston pumps, a full line of control valves, modular stack valves, integrated hydraulic circuits, and hydraulic power units.

Continental's products are used in diverse applications such as plastic molding machinery, machine tools, pulp and paper machines, marine auxiliary power controls and deck handling equipment, and masonry product production equipment.

Distributors who know how to help — Anyone can say, “Here's our catalog, take your pick.” Continental Distributors work with you to find out what you need, and with our engineers to make sure you get it.

Service and support —To provide maximum service and assistance, Continental Hydraulics maintains a strong distribution network, with representatives throughout North America and around the world. The average Continental Distributor has been with us for 15 years. He's got repair and replacement parts, and

the skill to solve your hydraulics problem.

Our Distributors work hand-in-hand with our Engineers to select components and build systems that will meet your toughest specifications. And they'll suggest creative solutions that can help save money or enhance performance.

Whether you need a complete hydraulic power supply or a single pump, come to Continental.

POWERFUL
ACCURATE
INNOVATIVE
PRECISE
DURABLE
EFFICIENT
VERSATILE

ABOUT CONTINENTAL HYDRAULICS

Rugged, durable, high-performance, efficient—the reason Continental Hydraulics' products are used in some of the most challenging applications across the globe. With a commitment to quality customer support and innovative engineering, Continental's pumps, valves, power units, mobile and custom products deliver what the markets demand. Continental has been serving the food production, brick and block, wood products, automotive and machine tool industries since 1962. Learn how our products survive some of the most harsh environments.

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