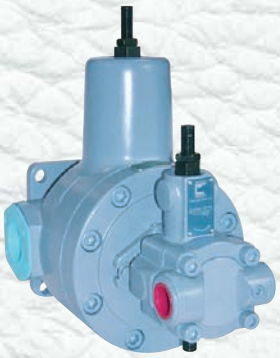
CONTINENTAL HYDRAULICS™

PowrFlow™ PVR Series Vane Pumps



POWRFLOW™ PVR SERIES VANE PUMPS

PRESSURE COMPENSATED VANE PUMPS FOR THE MOST DEMANDING APPLICATIONS

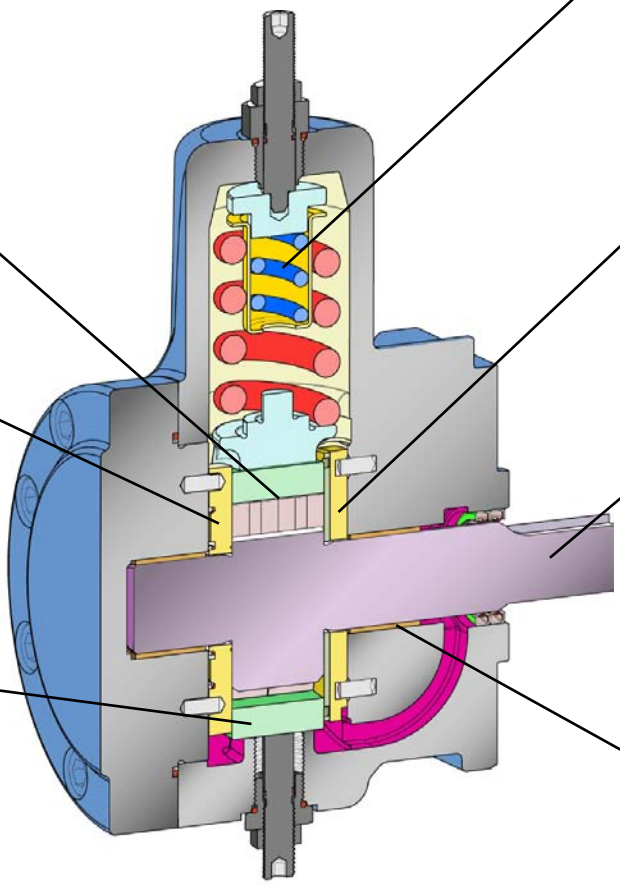
What Makes PowrFlow™ PVR Vane Pumps Your Best Buy?

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.

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

Features and Benefits

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



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

Balanced Vane Tip Loading
Acts through the entire pumping cycle to extend ring and vane life.

Patented Pressure Balanced Thrust Plates
Precision machining results in pump efficiencies up to 90%, eliminates shims and spacers, simplifies maintenance.

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.

Heavy Forged One-Piece Rotor Shaft
Built strong and rigid to take system loads with minimal deflection, for increased pump life.

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.

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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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.

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.

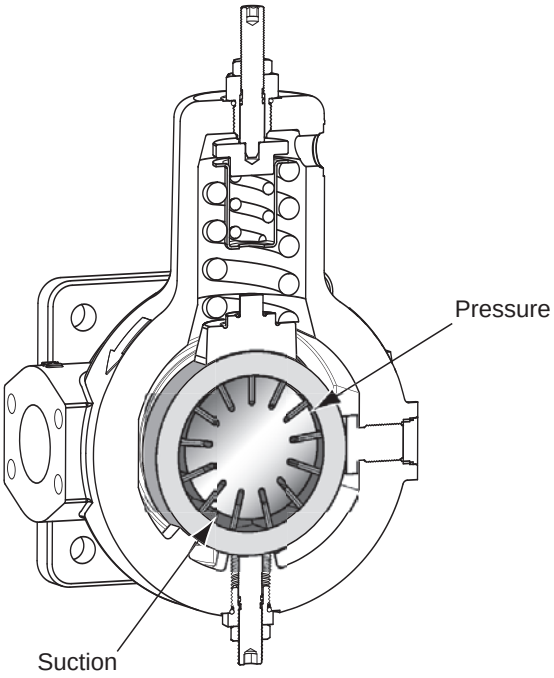


Figure 1

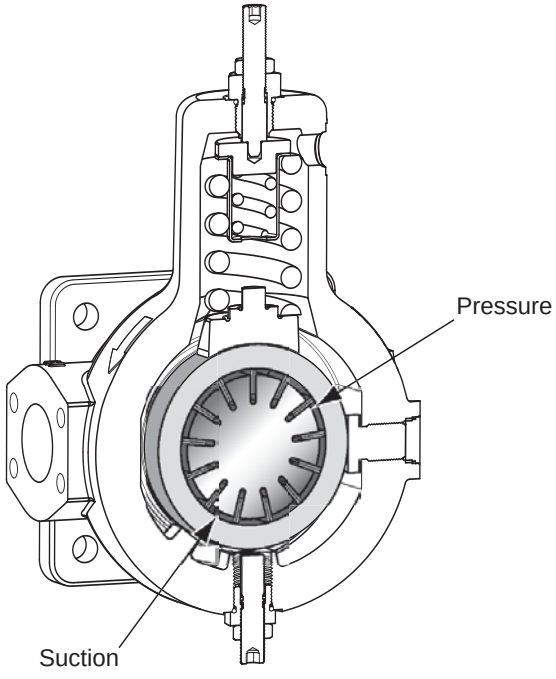


Figure 2

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)

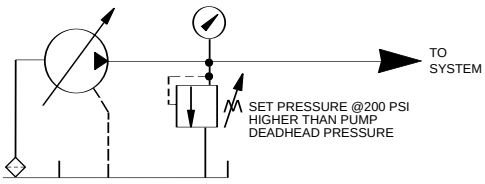
ISO 16/13/11 (10 micron) to 2000 psi (138 bar)

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.

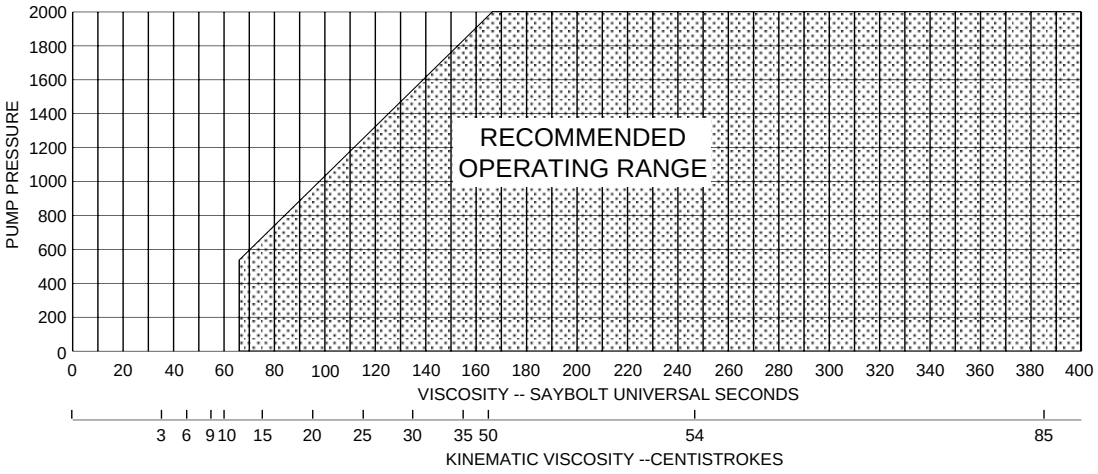
Drive Shaft Alignment
Pump and motor shaft alignment must be within .003" (.08 mm) TIR for maximum bearing life.

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



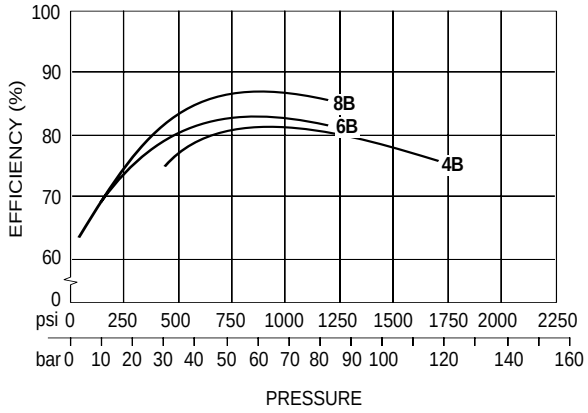
PVR-1 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

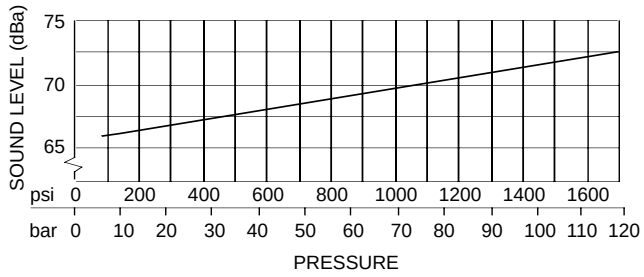
Manifold Mounted

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		
	Min. Specific Gravity < 1	in./Hg	7		
		bar	-0.25		
	Min. Specific Gravity > 1	in./Hg	5		
		bar	-0.17		
SUCTION FLUID VELOCITY	Max.	ft./sec.	5		
		m/sec.	1.5		
CASE DRAIN NOMINAL FLOW AT DEADHEAD PRESSURE	Max. Pressure	cipm	65	36	55
		mlpm	1065	600	900
	Min. Pressure	cipm	25	10	24
		mlpm	410	170	390
CASE DRAIN 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

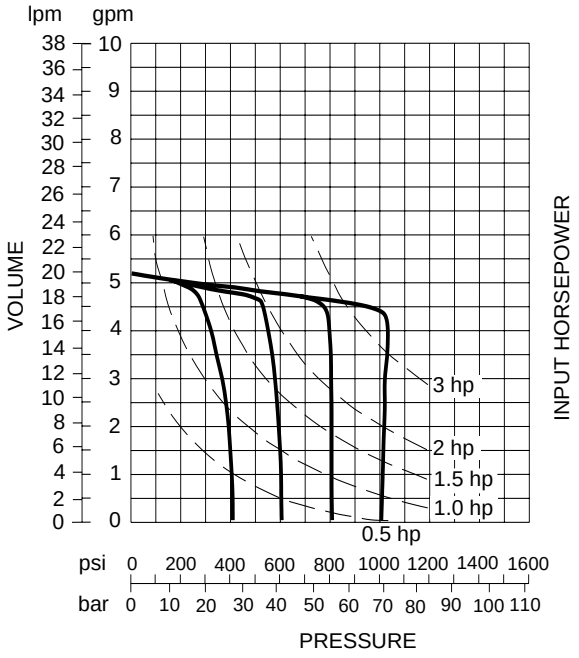
	PUMP SIZE	4B		6B			8B		
	PRESSURE CODE	10	15	03	06	10	03	06	10
PRESSURE ADJUSTMENT	Press Change/Turn psi (bar)	255 (17.8)	270 (18.6	115 (7.9)	210 (14.5)	240 (16.5)	115 (7.9)	210 (14.5)	240 (16.6)
	Max.Torque ft./lbs.(kg/m)	4.0 (0.55)	6.0 (0.83)	1.4 (0.19)	2.6 (0.36)	4.0 (0.55)	1.4 (0.19)	2.6 (0.36)	4.0 (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.

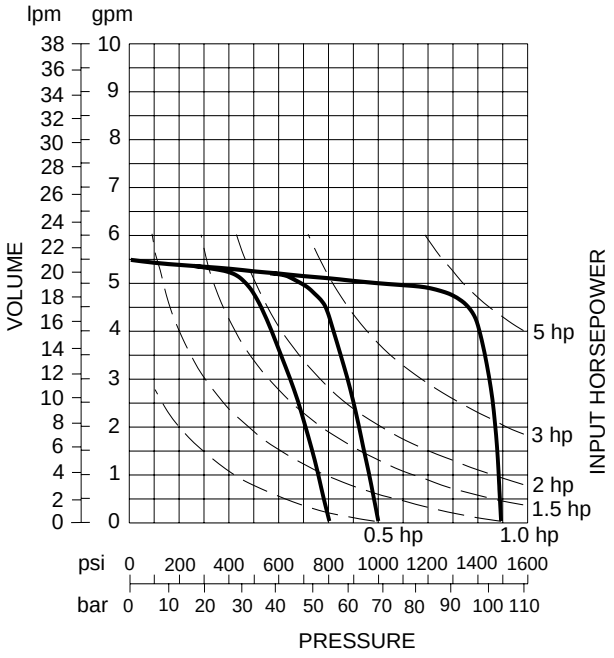
NOTE: Typical performance curves are based on ISO VG46 oil at 120° F. (49° C.). Above 400 SUS (84 CS), add 2% hp/100 SUS.

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

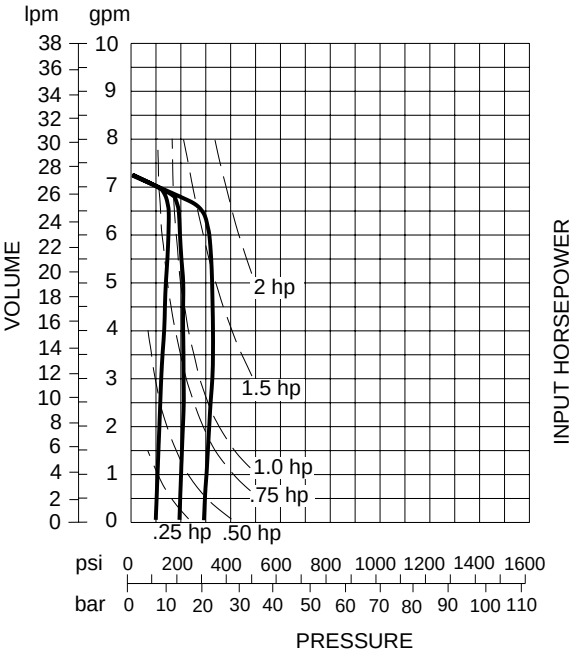
4B10 (at 1750 rpm)



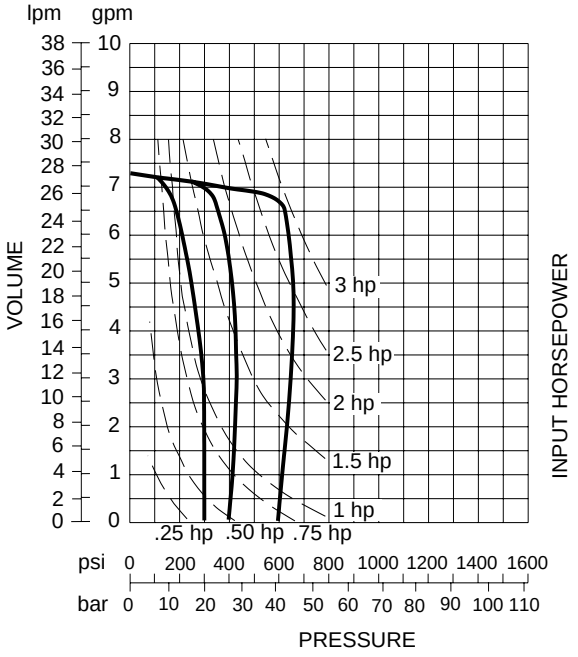
4B15 (at 1750 rpm)



6B03 (at 1750 rpm)



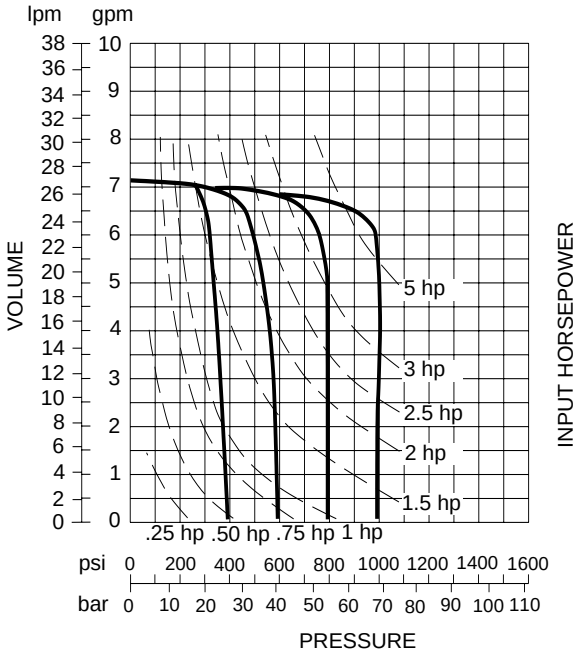
6B06 (at 1750 rpm)



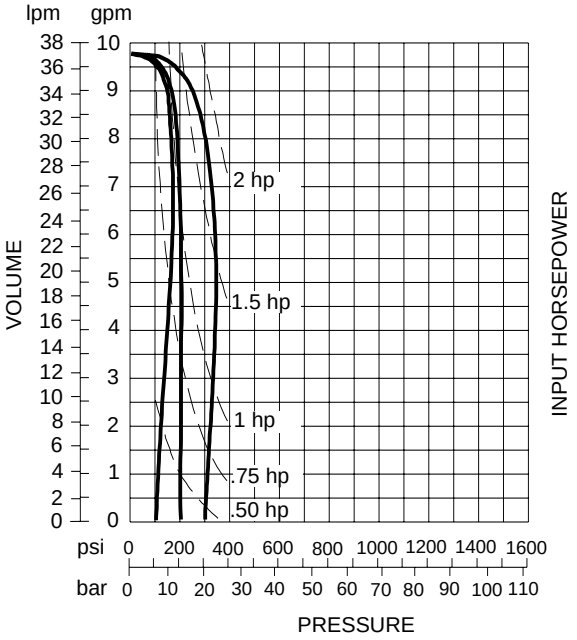
NOTE: Typical performance curves are based on ISO VG46 oil at 120° F. (49° C.). Above 400 SUS (84 CS), add 2% hp/100 SUS.

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

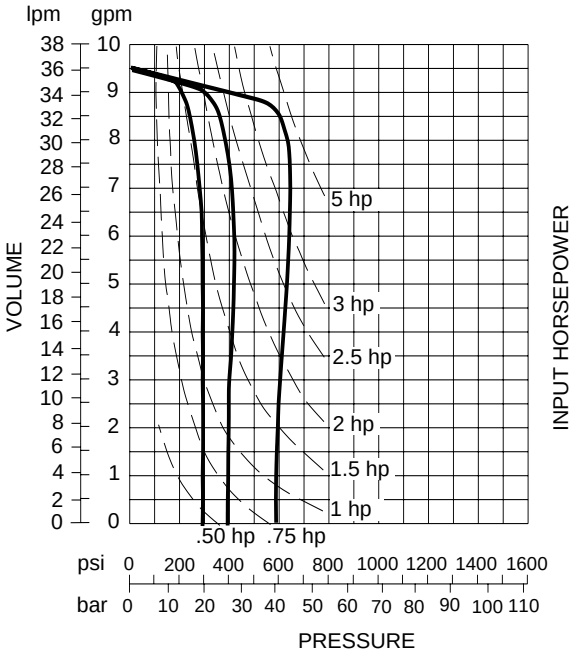
6B10 (at 1750 rpm)



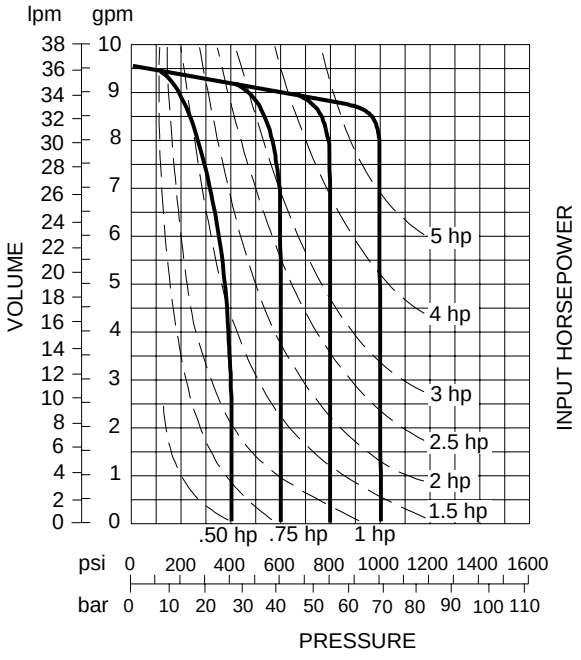
8B03 (at 1750 rpm)



8B06 (at 1750 rpm)

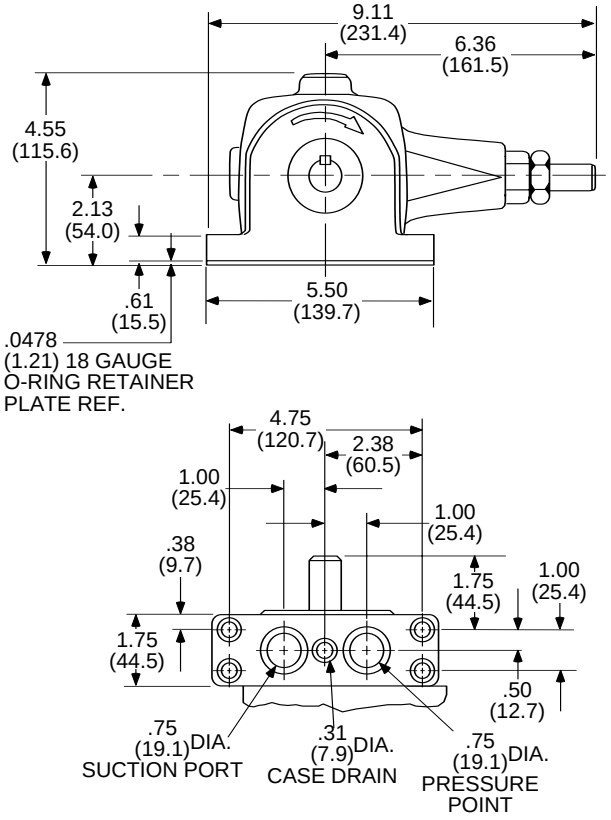


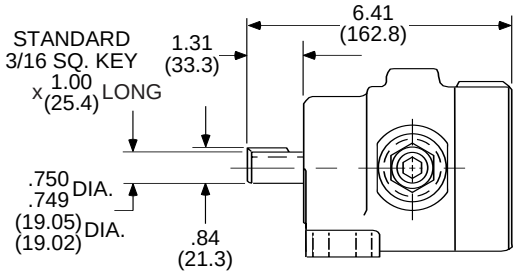
8B10 (at 1750 rpm)



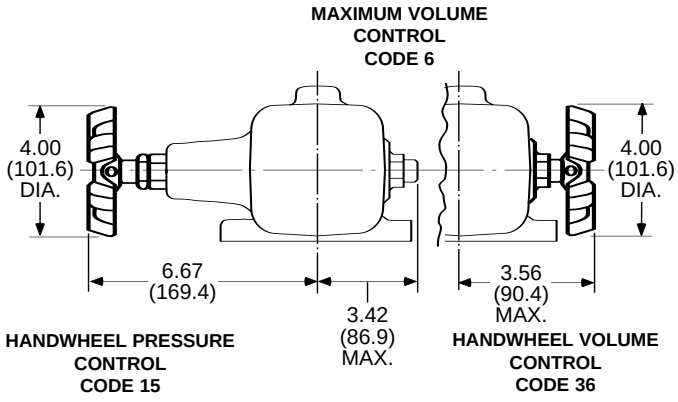
PUMP DIMENSIONS

Dimensions shown in: Inches
(millimeters)



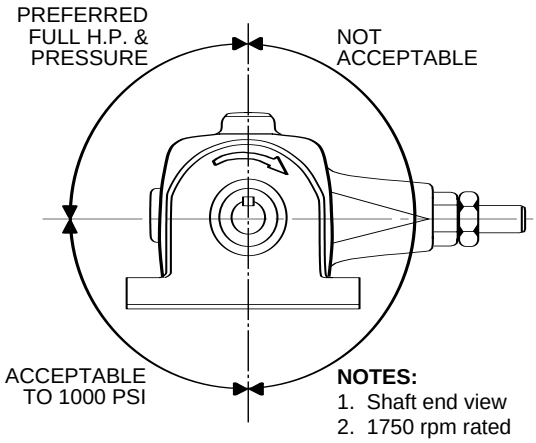


MECHANICAL OPTIONS



SIDE LOAD DRIVES

i.e. Belt, Chain, Gear

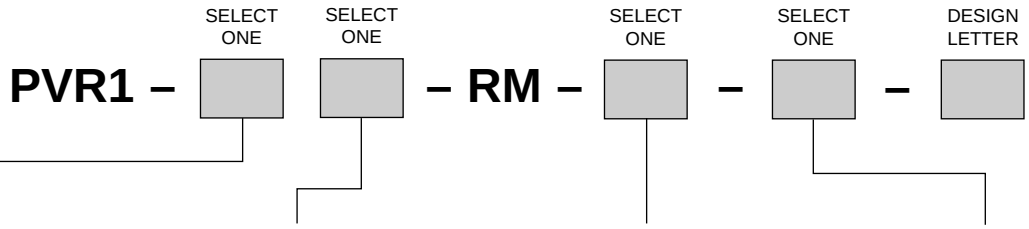


NOTES:

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

ORDERING INFORMATION

Right Hand (CW) Rotation



SIZE

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

PRESSURE

CODE	COMPENSATING PRESSURE RANGE
10	400 - 1000 psi
15	800 - 1500 psi
03	100 - 300 psi
06	300 - 600 psi
10	400 - 1000 psi

SEALS

CODE	TYPE
O	BUNA-N
P	VITON

MECHANICAL OPTIONS

CODE	DESCRIPTION
OMIT	NO OPTIONS
6	MAXIMUM VOLUME CONTROL
15	HANDWHEEL PRESSURE CONTROL
36	HANDWHEEL VOLUME CONTROL

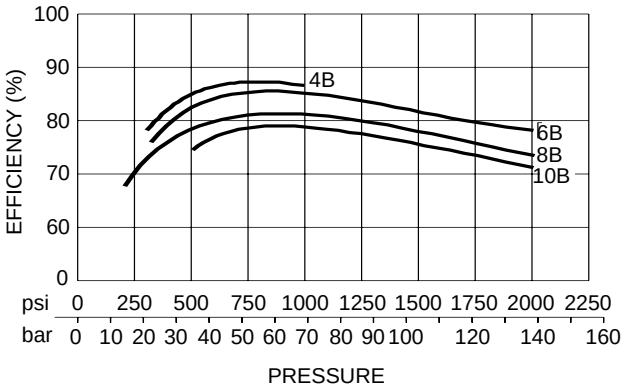
TYPICAL ORDERING CODE:

PVR1-6B10-RM-0-1-I

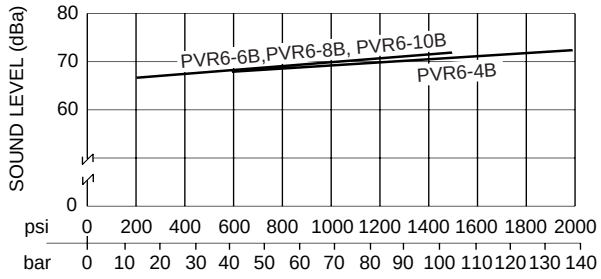
Flanged Mounted
SAE "A" 2-Bolt

OVERALL EFFICIENCY

1750 rpm at Full Displacement



TYPICAL SOUND LEVEL @ 1750 rpm



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 6.3 bar rated pressure	gpm	5.2	7	9	11
		lpm	19.7	26.5	34	41
		gpm	4	6	8	10
		lpm	15.1	22.7	30.3	38
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			
SUCTION FLUID VELOCITY	Max.	ft./sec.	5			
		m/sec.	1.5			
CASE CRAIN NOMINAL FLOW AT DEADHEAD PRESSURE	Max. Pressure	cipm	31	31	37	
		mlpm	500	500	600	
	Min. Pressure	cipm	10	10	24	
		mlpm	170	170	390	
CASE CRAIN 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.

** 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.

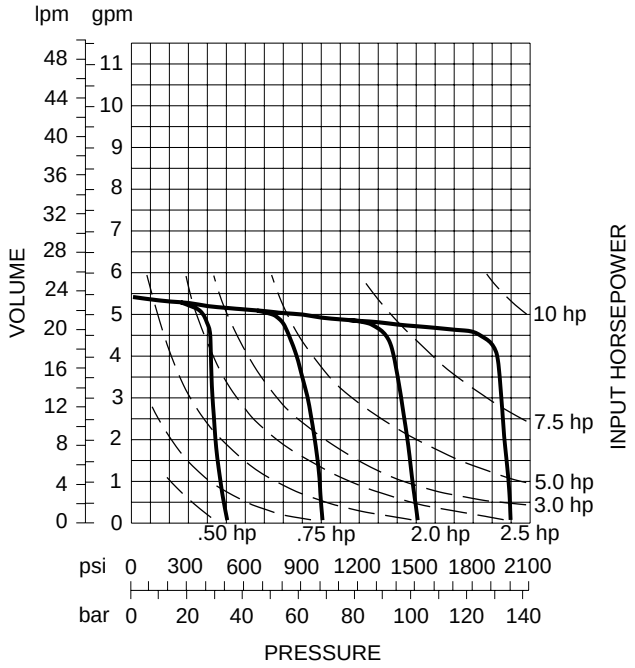
PRESSURE and VOLUME ADJUSTMENT SENSITIVITY

		PUMP SIZE	4B	6B	6B	8B	8B	10B	6B	8B
		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)
	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)
	Max. Torque	ft./lbs. (kg/m)	4.0 (0.55)	2.5 (0.34)		2.5 (0.34)		1.0 (0.34)	1.0 (0.34)	1.0 (0.34)

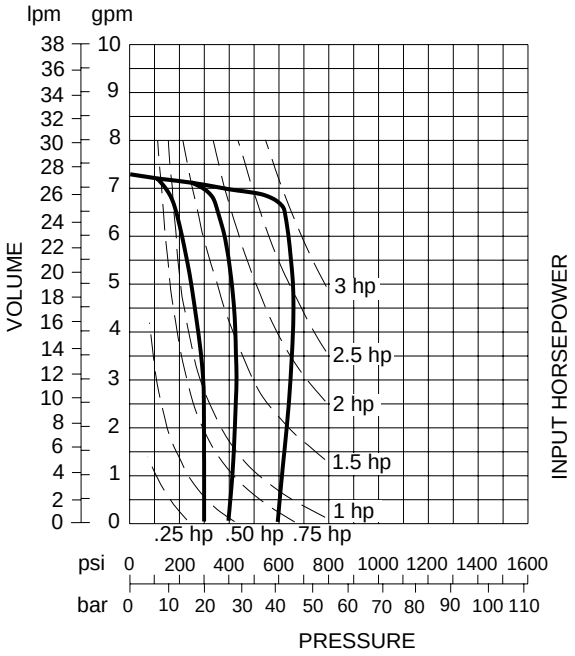
NOTE: Typical performance curves are based on ISO VG46 oil at 120° F. (49° C.). Above 400 SUS (84 CS), add 2% hp/100 SUS.

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

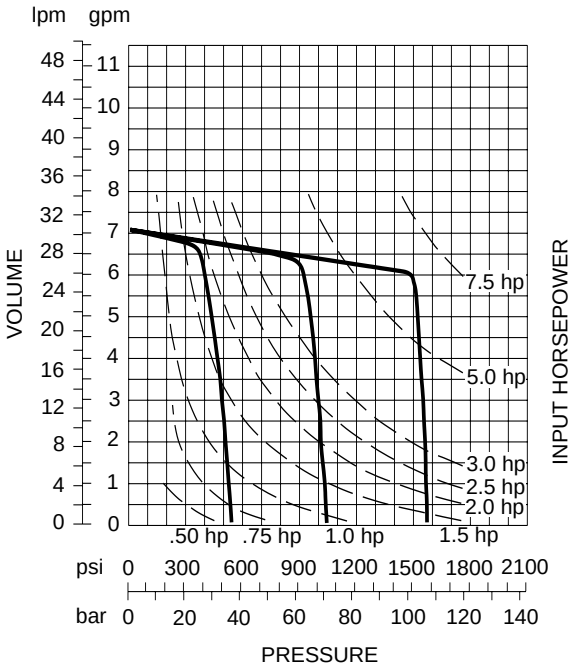
4B20 (at 1750 rpm)



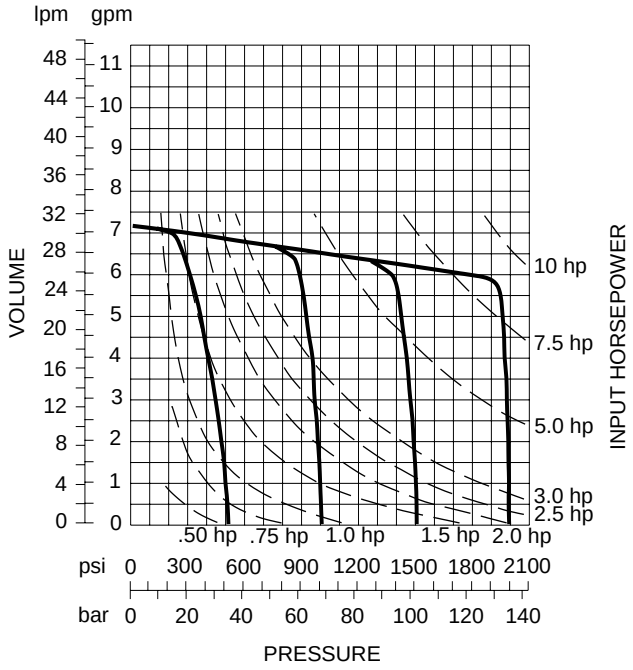
6B06 (at 1750 rpm)



6B15 (at 1750 rpm)



6B20 (at 1750 rpm)

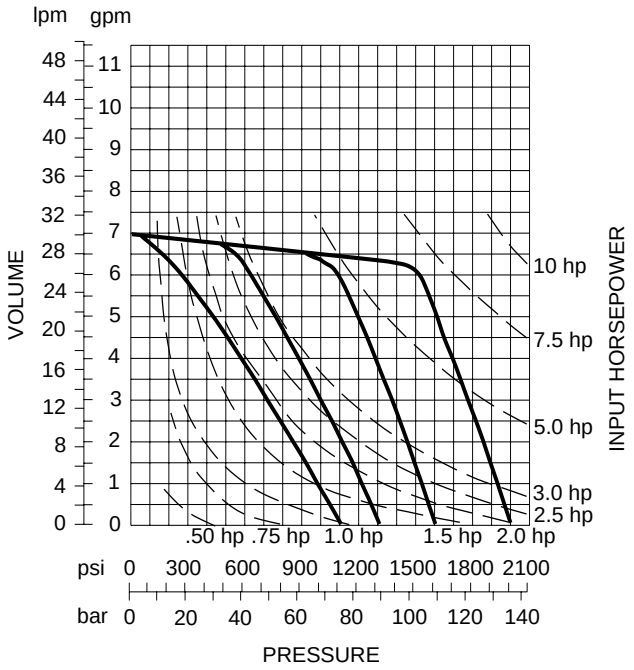


CAUTION: Turning the Maximum Volume Control in too far can force the cam ring over-center, causing damage.

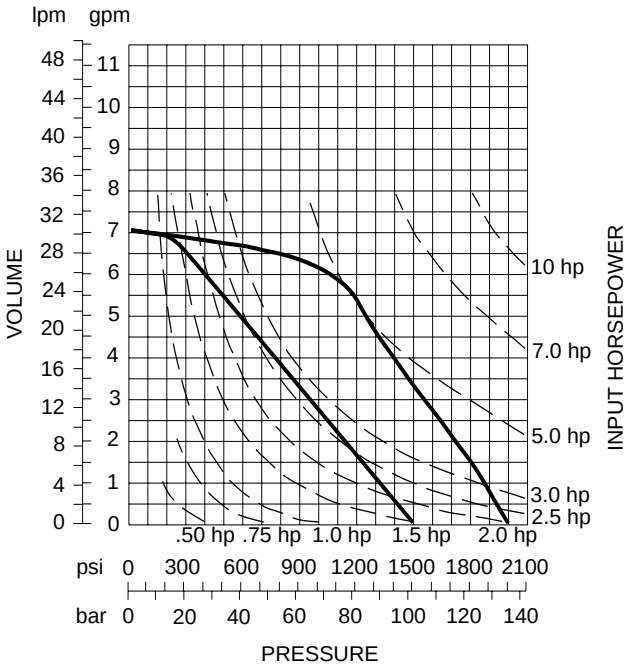
NOTE: Typical performance curves are based on ISO VG46 oil at 120° F. (49° C.). Above 400 SUS (84 CS), add 2% hp/100 SUS.

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

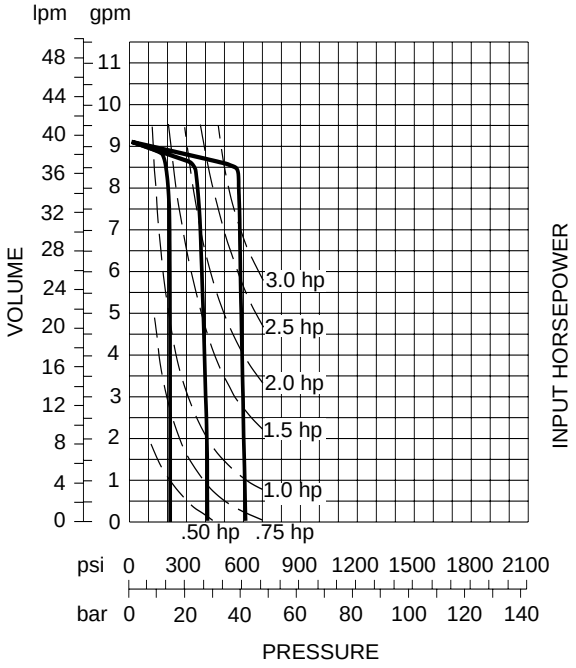
6B3L (at 1750 rpm)



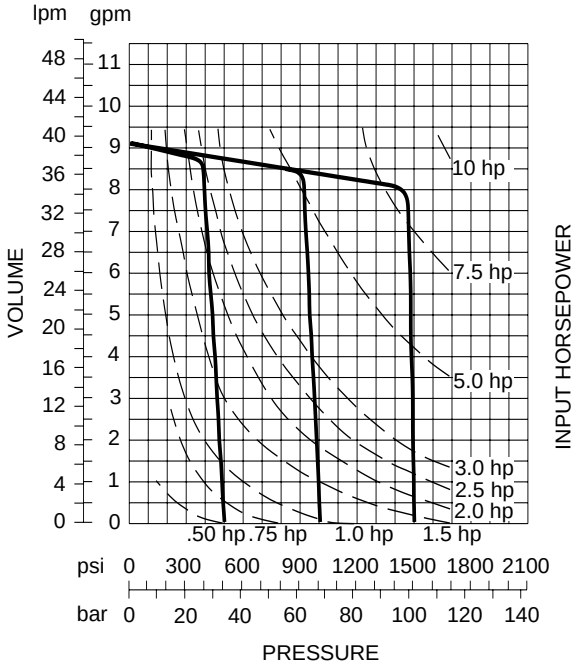
6B5L(at 1750 rpm)



8B06 (at 1750 rpm)



8B15 (at 1750 rpm)



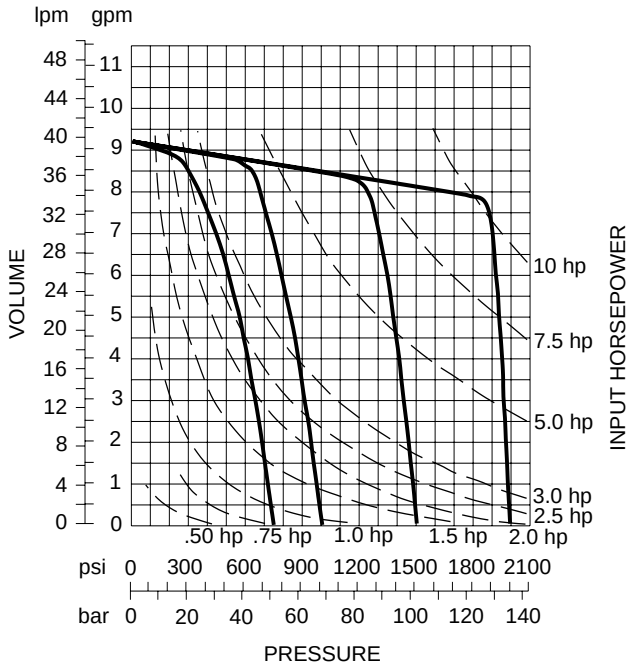
PVR-6 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

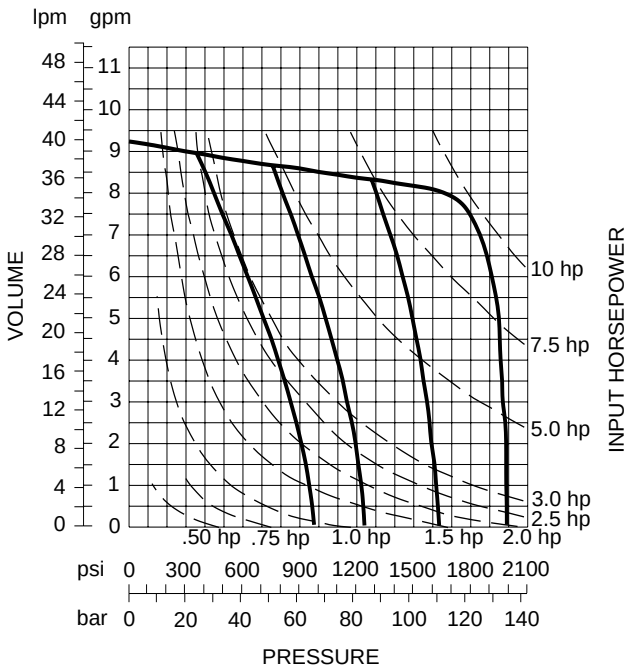
NOTE: Typical performance curves are based on ISO VG46 oil at 120° F. (49° C.). Above 400 SUS (84 CS), add 2% hp/100 SUS.

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

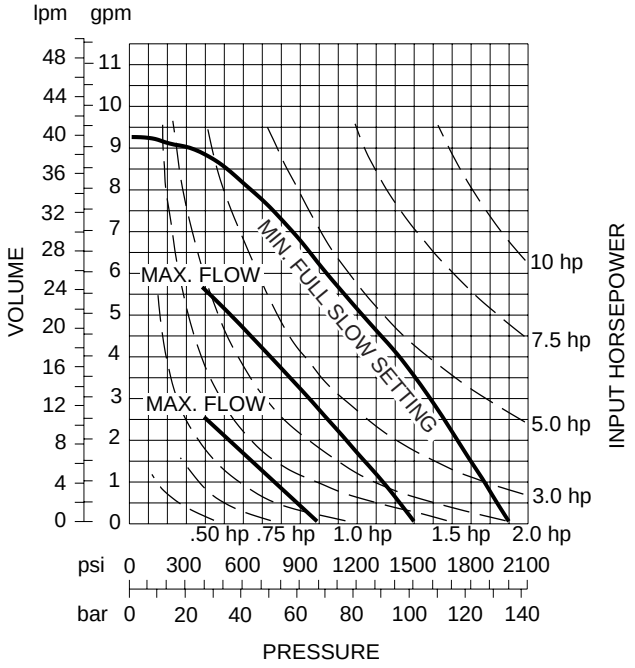
8B20 (at 1750 rpm)



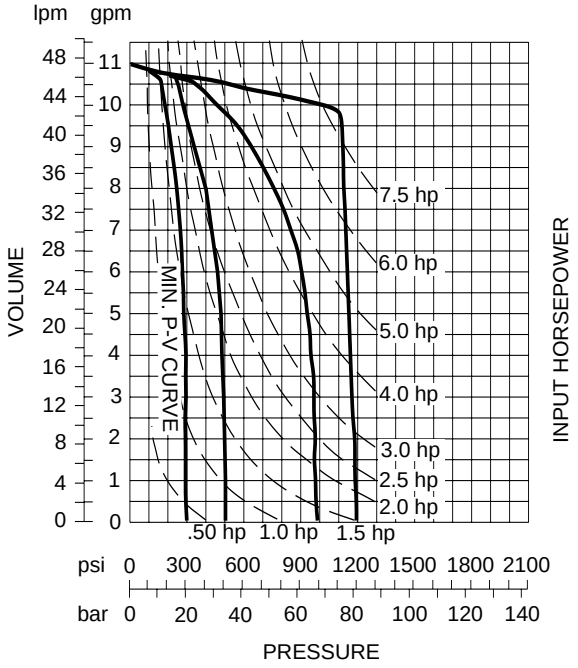
8B3L (at 1750 rpm)



8B5L (at 1750 rpm)



10B10* (at 1750 rpm)

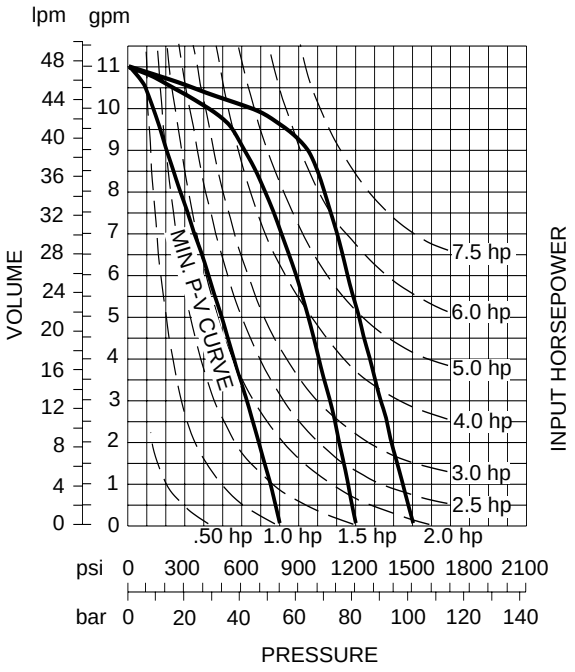


* **NOTE:** Not to be used with water, glycol or emulsion fluids.

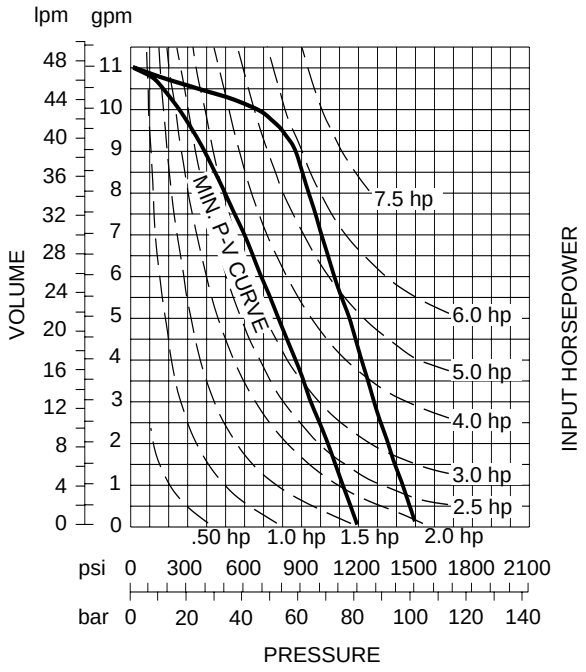
NOTE: Typical performance curves are based on ISO VG46 oil at 120° F. (49° C.). Above 400 SUS (84 CS), add 2% hp/100 SUS.

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

10B3L (at 1750 rpm)

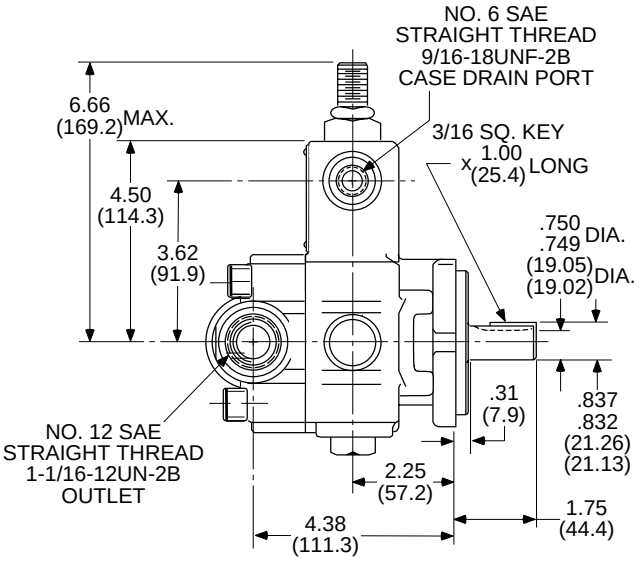


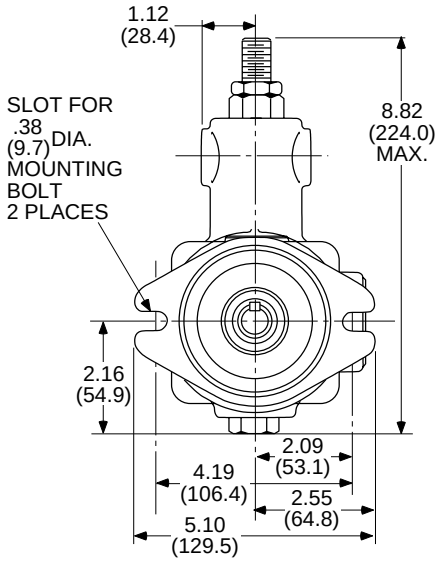
10B5L(at 1750 rpm)

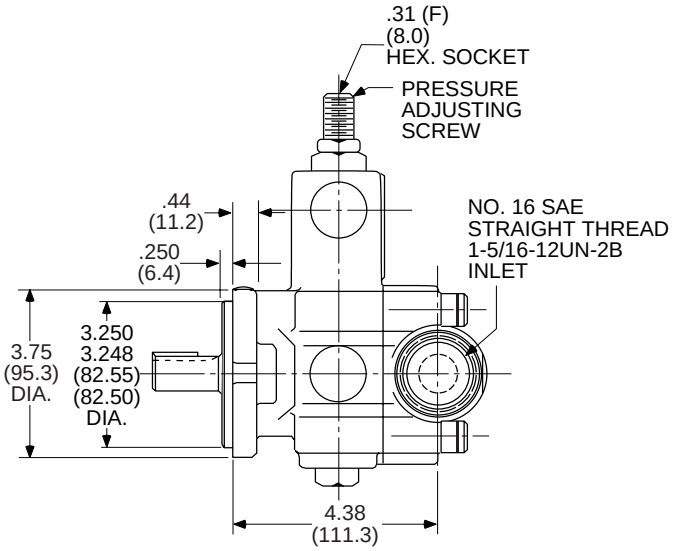


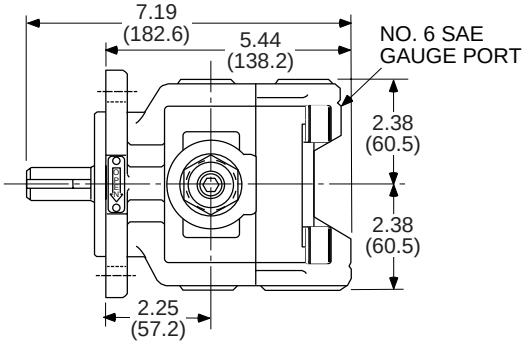
PUMP DIMENSIONS

Dimensions shown in: Inches
(millimeters)





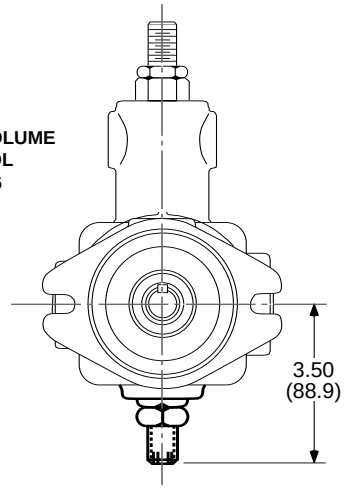


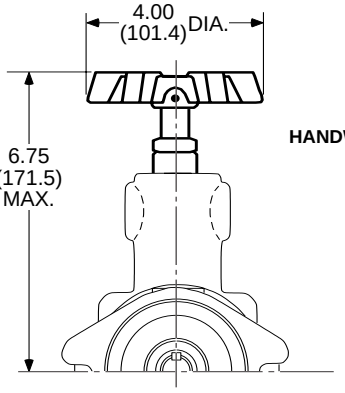


MECHANICAL OPTIONS

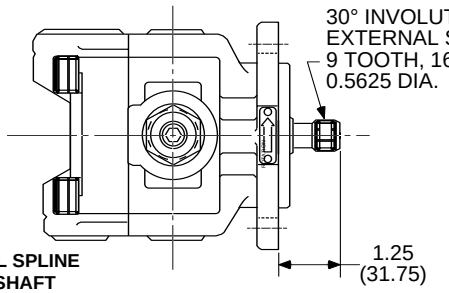
Dimensions shown in: Inches
(millimeters)

MAXIMUM VOLUME CONTROL CODE 6

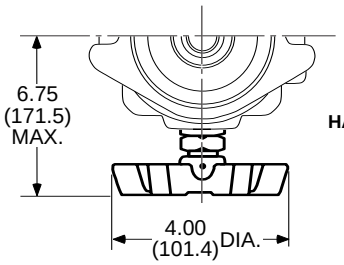




HANDWHEEL PRESSURE CONTROL CODE 15



EXTERNAL SPLINE DRIVE SHAFT CODE 12



HANDWHEEL VOLUME CONTROL CODE 36

NOTE: This includes Maximum Volume Control - Code 6.

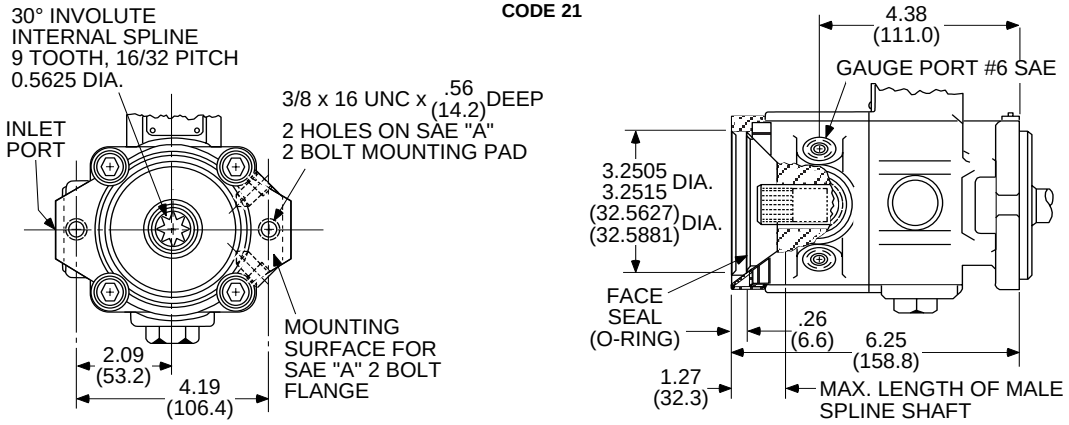
MECHANICAL OPTIONS

Dimensions shown in: Inches (millimeters)

Dual pump operation without additional mounting flanges and couplings.

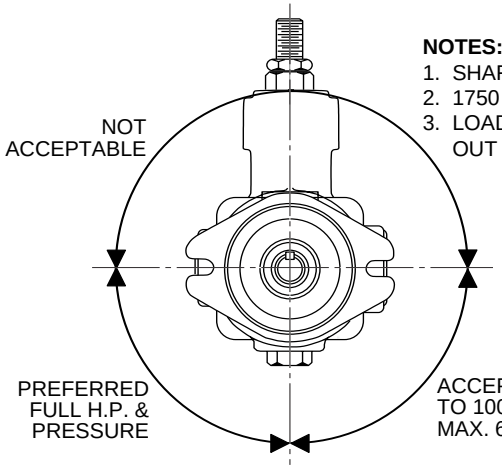
Permits mounting of another PVR6 or PVA6 pump (with Code 12*) or any SAE “A” -bolt flange mount pump incorporating a 30° involute, 16/32 pitch, 9 tooth external spline drive shaft. Maximum rating of internal spline is 8-1/2 hp at 1750 rpm.

TANDEM OPTIONS
CODE 21



SIDE LOAD DRIVES

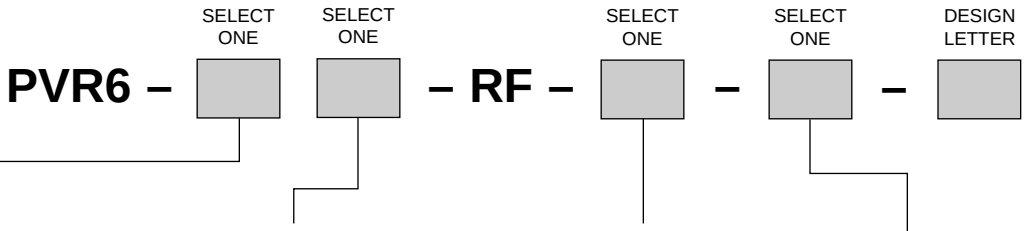
i.e. Belt, Chain, Gear



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

ORDERING INFORMATION

Right Hand (CW) Rotation



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

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

SEALS

CODE	TYPE
O	BUNA-N
P	VITON

MECHANICAL OPTIONS

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

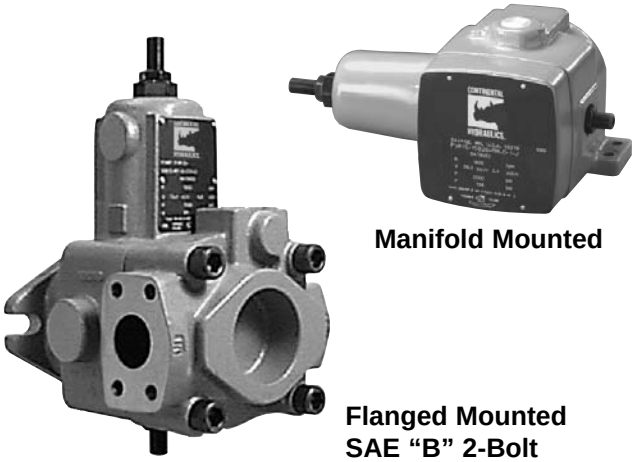
***NOTE:** For PVR6-4B Code 21 or 1221, consult the factory for price and delivery.

TYPICAL ORDERING CODE:

PVR6-8B15-RF-0-1-H

PVR-15 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

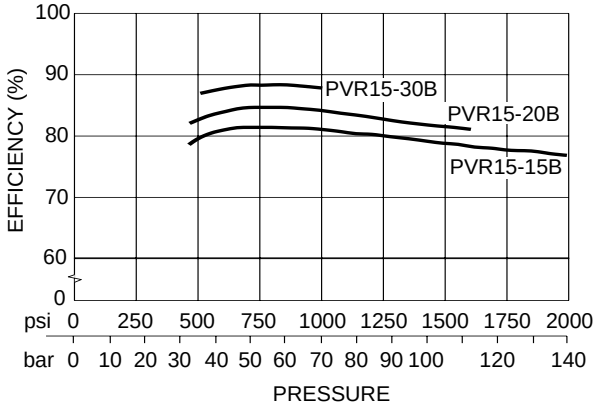


Manifold Mounted

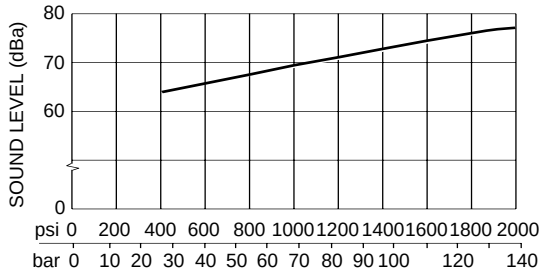
Flanged Mounted SAE "B" 2-Bolt

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 6.3 bar		gpm	18.7	21.6	32.0
			lpm	70.8	81.8	121.0
	rated pressure		gpm	15	19	30
			lpm	56.8	72	114
COMPENSATED PRESSURE RANGES	Max.		psi	2000	1500	1000
			bar	160	103	69
	Rated		psi	2000	1500	1000
			bar	138	103	69
	Min.		psi	400	400	500
			bar	28	28	35
OPERATING SPEEDS**		Min. rpm		1400		
		Rated rpm		1750		
		Max. rpm		2400	2400	1800
POWER INPUT AT RATED FLOW & PRESSURE (1750 rpm)			hp	20	19	20
			kW	15	14	15
MAXIMUM POWER INPUT TO DRIVE SHAFT			hp	40		
			kW	30		
SUCTION PRESSURE	Max.		psi	20		10
			bar	1.40		0.7
	Min. Specific Gravity < 1		in./Hg	7	7	5
			bar	-0.25	-0.25	-0.17
	Min. Specific Gravity > 1		in./Hg	5	5	4
			bar	-0.17	-0.17	-0.13
	FLUID VELOCITY	Max.	ft./sec.	5		
			m/sec.	1.5		
CASE CRAIN NOMINAL FLOW AT DEADHEAD PRESSURE	1000 psi 69 bar		gpm	0.5	0.5	0.7
			lpm	1.9	1.9	2.7
	1500 psi 103 bar		gpm	0.8		
			lpm	3.0		
	2000 psi 138 bar		gpm	1.2	1.2	≈
			lpm	4.5	4.5	≈
	MAXIMUM CASE PRESSURE		psi	10		
			bar	0.7		
WEIGHT			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

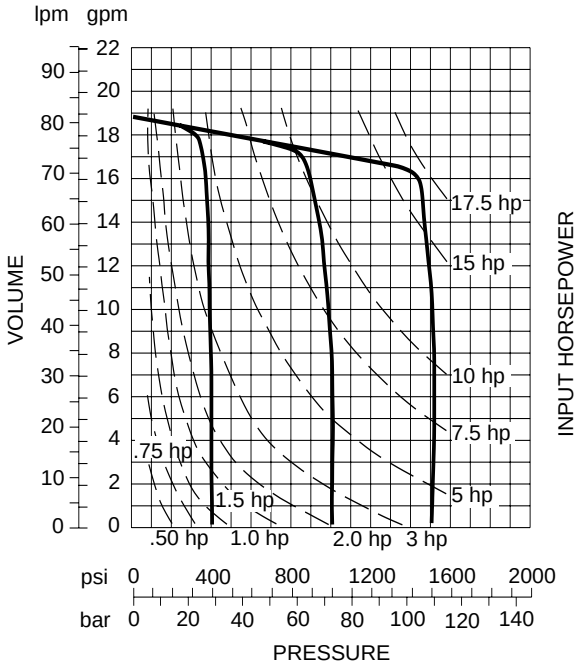
		PUMP SIZE	15B	20B	30B
PRESSURE ADJUSTMENT	**Press Change/Turn**	psi (bar)	230 (16.0)	310 (21.0)	230 (16.0)
	Max.Torque	ft./lbs.(kg/m)	15.0 (2.0)	15.0 (2.0)	9.0 (1.2)
VOLUME ADJUSTMENT	**Flow Change/Turn**	gpm (lpm)	10.0 (38.0)	10.0 (38.0)	13.0 (49.0)
	Min. Flow Adjust.	gpm (lpm)	2.0 (7.5)	2.0 (7.5)	3.5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

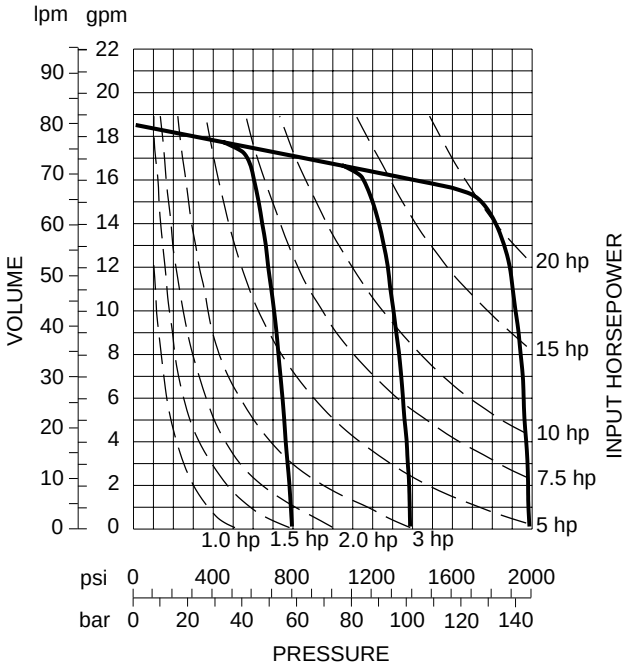
NOTE: Typical performance curves are based on ISO VG46 oil at 120° F. (49° C.). Above 400 SUS (84 CS), add 2% hp/100 SUS.

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

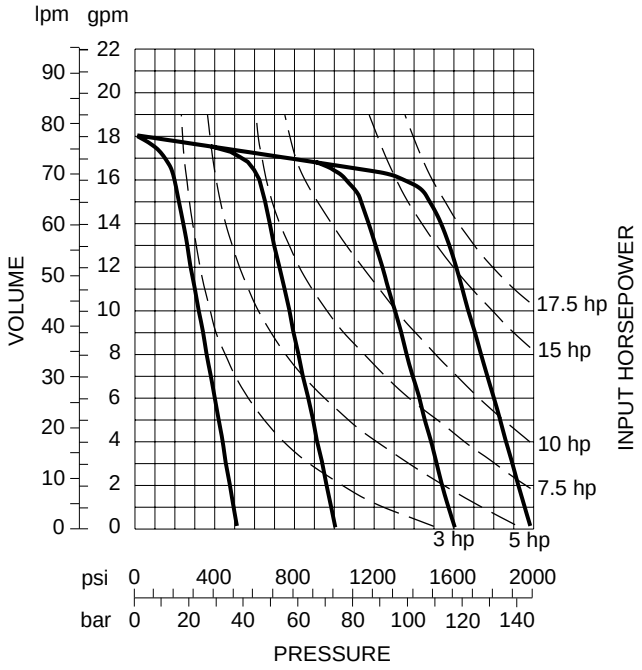
15B15 (at 1750 rpm)



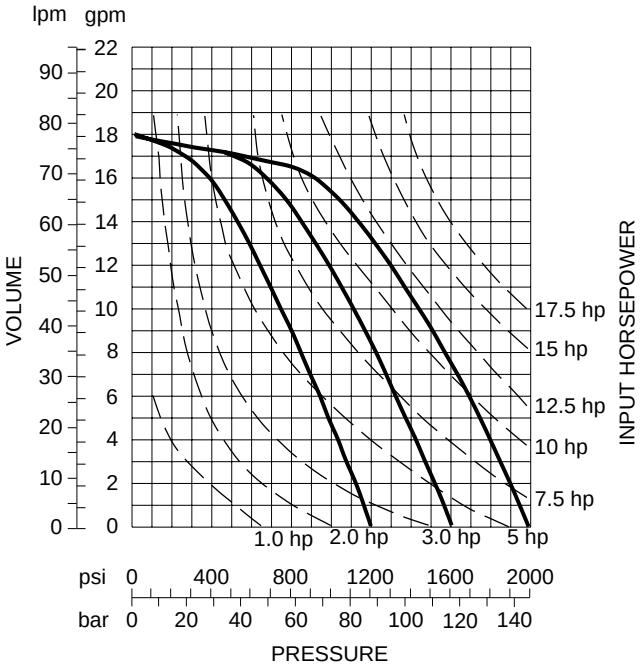
15B20 (at 1750 rpm)



15B3L (at 1750 rpm)



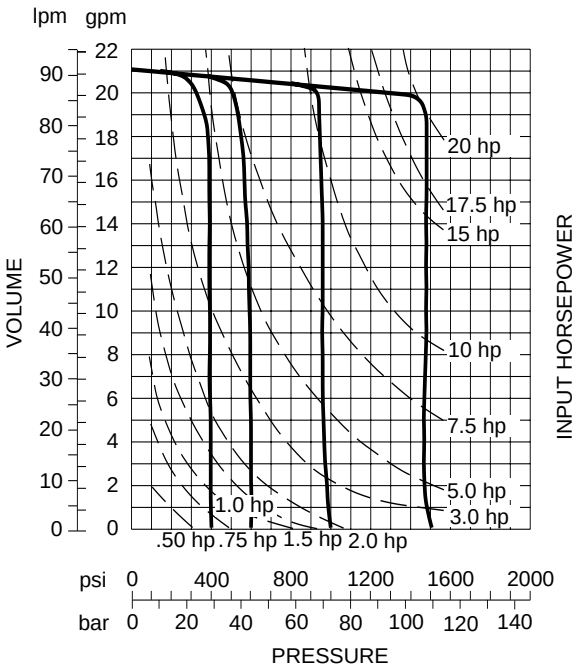
15B5L (at 1750 rpm)



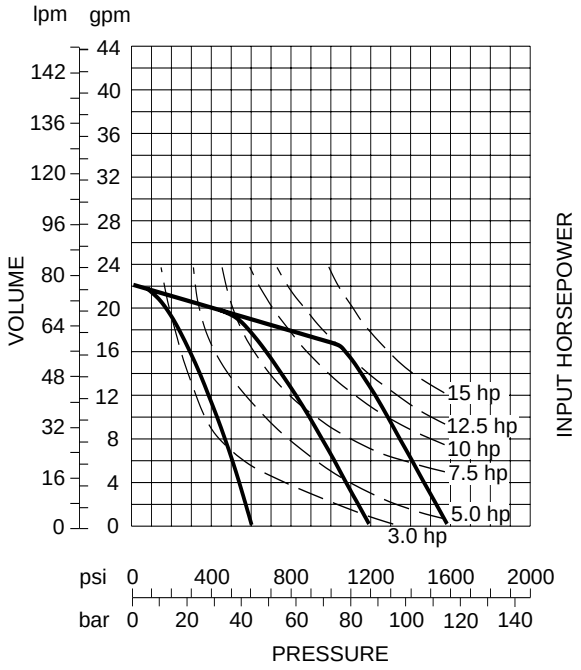
NOTE: Typical performance curves are based on ISO VG46 oil at 120° F. (49° C.). Above 400 SUS (84 CS), add 2% hp/100 SUS.

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

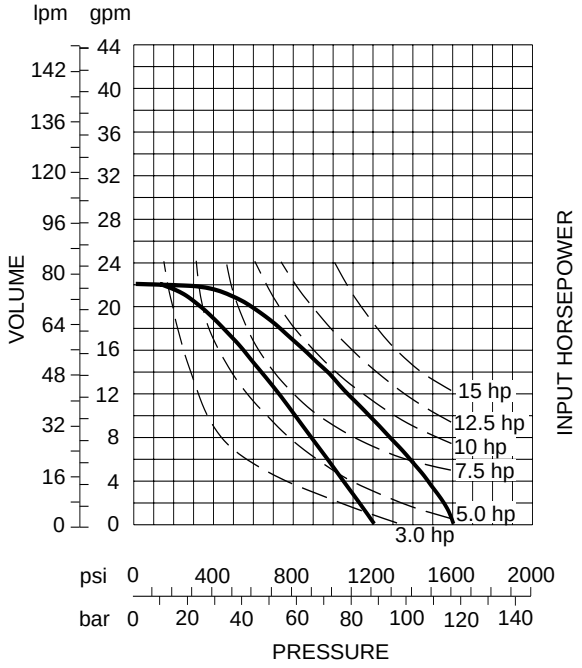
20B15 (at 1750 rpm)



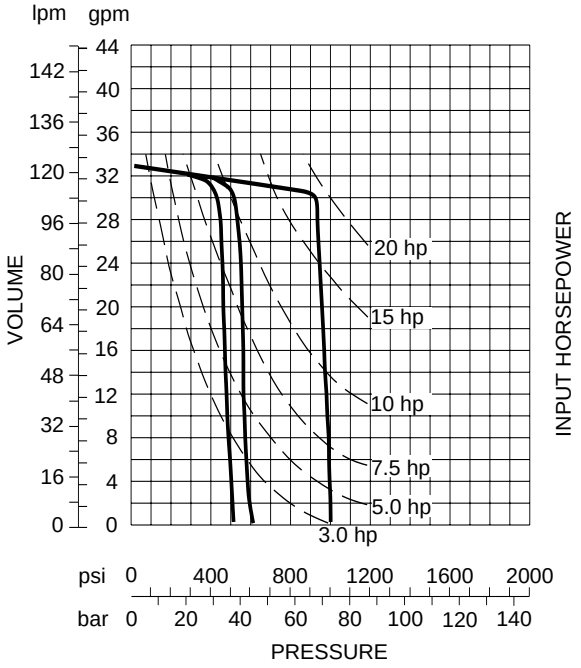
20B3L (at 1750 rpm)



20B4L (at 1750 rpm)



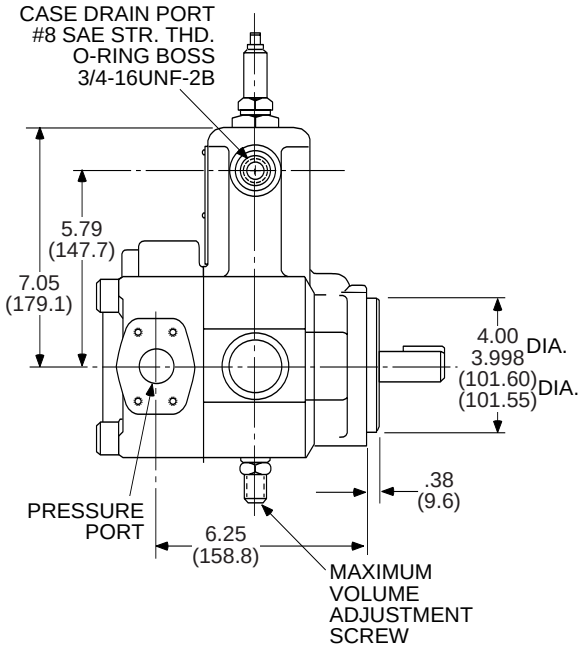
30B10 (at 1750 rpm)

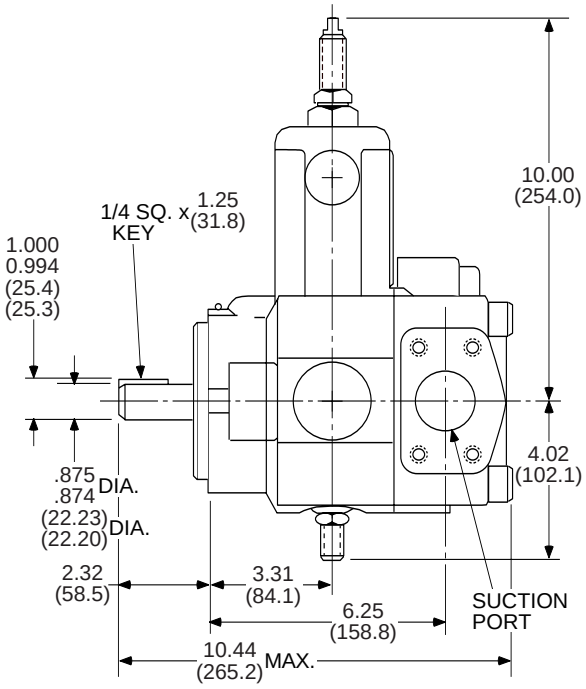


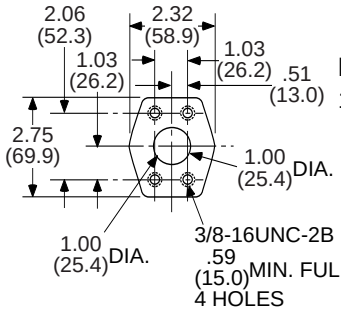
PUMP DIMENSIONS

Flange Mounted - Code RF

Dimensions shown in: Inches (millimeters)

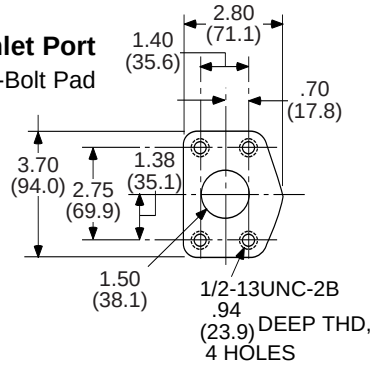


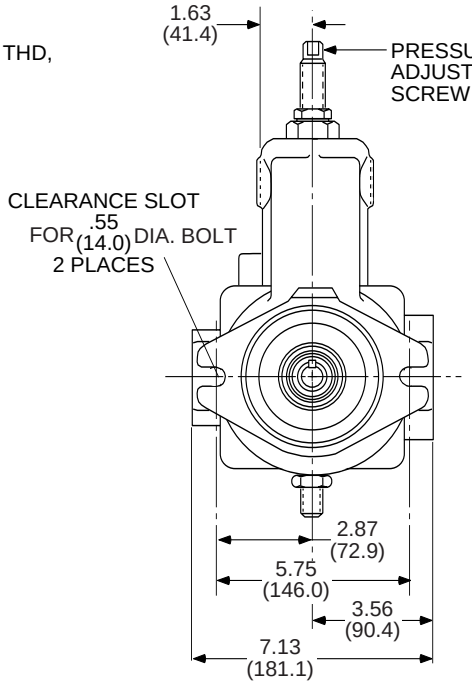


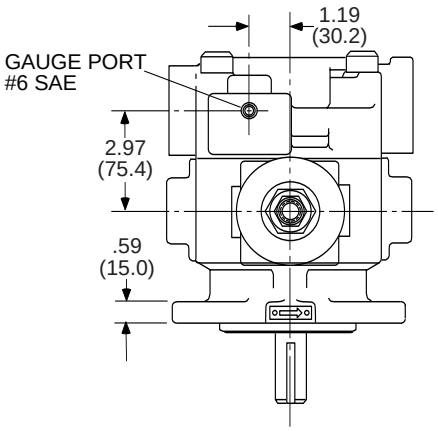


Pressure Port
1 Inch SAE 4-Bolt Pad

Inlet Port
1-1/2 Inch SAE 4-Bolt Pad



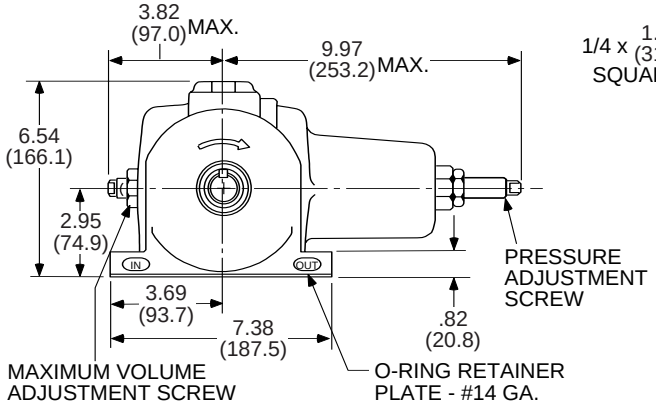


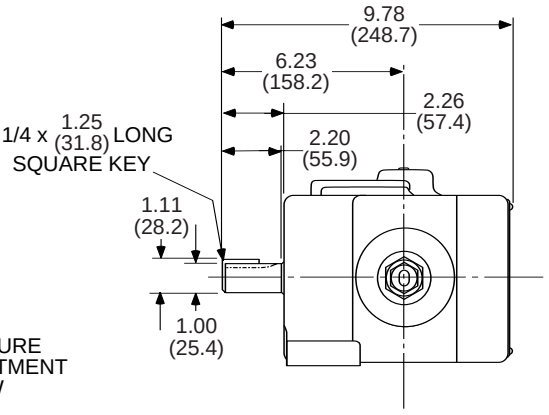


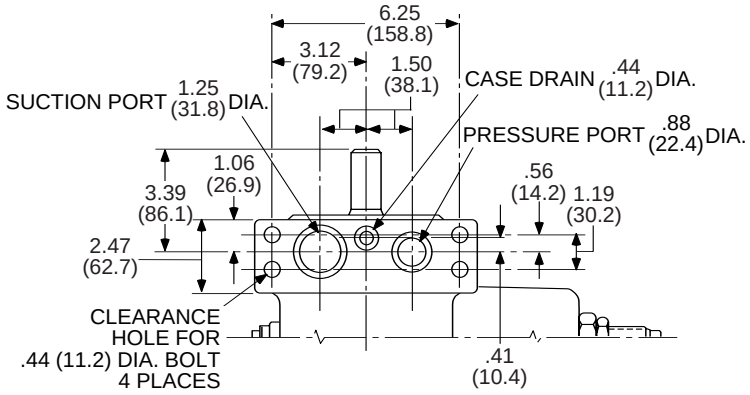
PUMP DIMENSIONS

Manifold Mounted - Code RM

Dimensions shown in: Inches (millimeters)



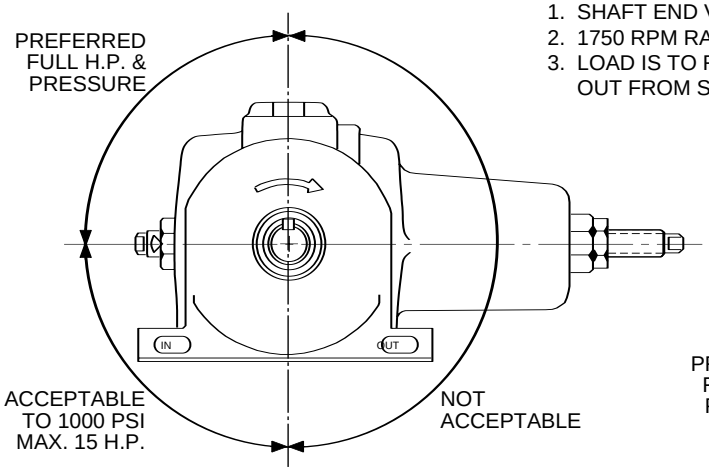


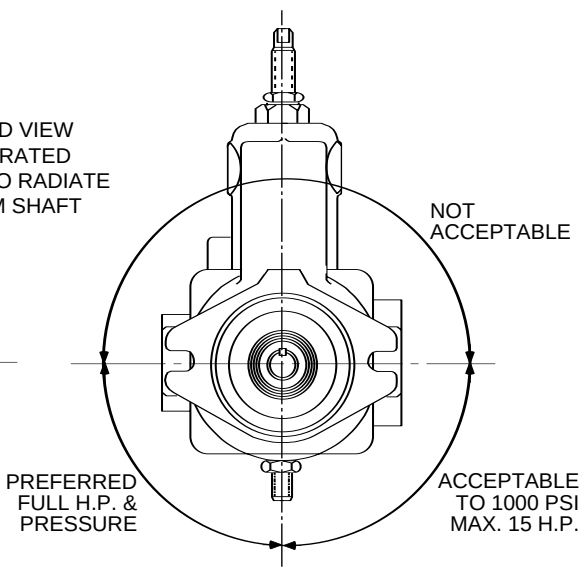


SIDE LOAD DRIVES

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

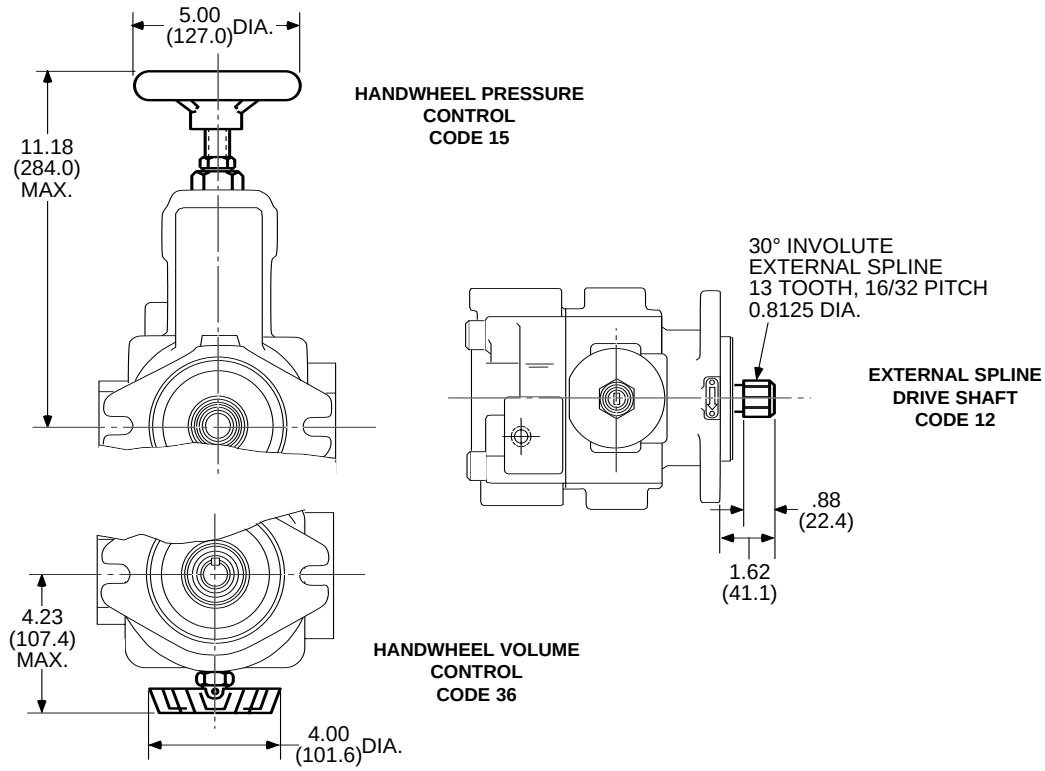




MECHANICAL OPTIONS

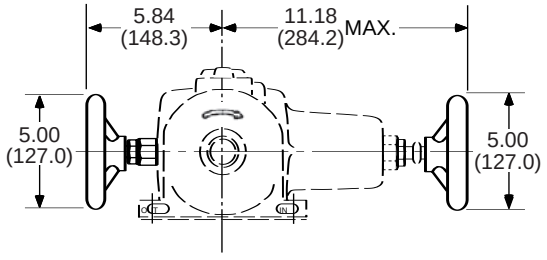
Flange Mounted Pump - Code RF

Dimensions shown in: Inches (millimeters)



MECHANICAL OPTIONS

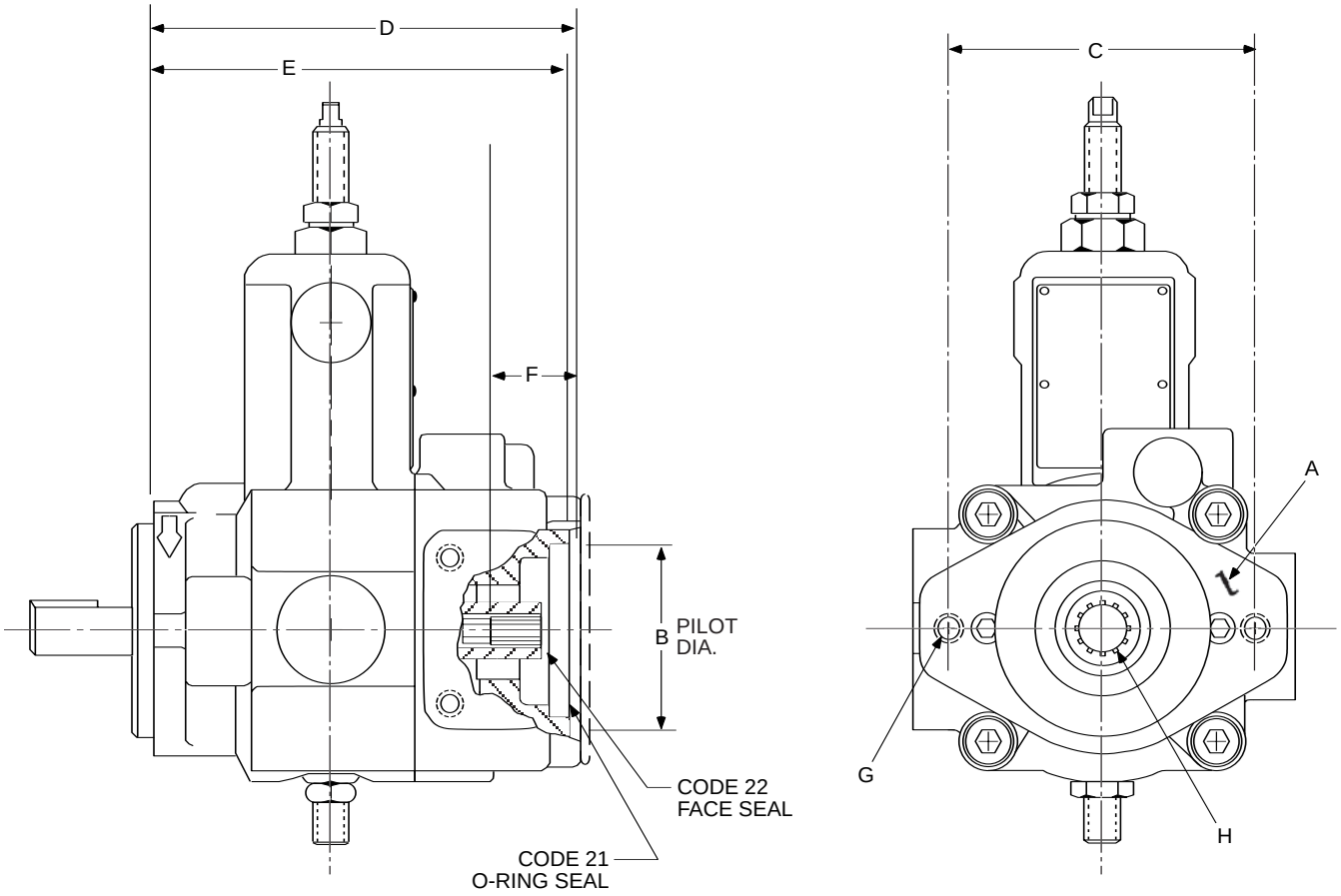
Manifold Mounted Pump - Code RM



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	G	H	
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

ORDERING INFORMATION

Flange Mounted - Code RF

SELECT ONE	SELECT ONE		SELECT ONE		SELECT AS REQUIRED	SELECT AS REQUIRED	SELECT AS REQUIRED		DESIGN LETTER
PVR15 –		**–**		**– RF –**		**– 5**			**–**

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 - 2000 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

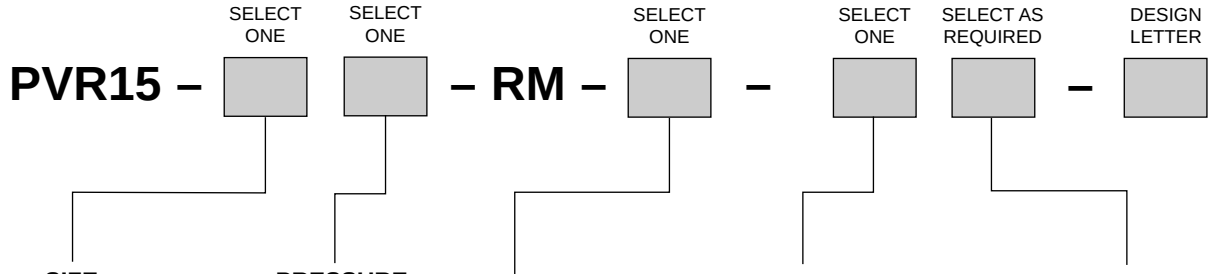
***NOTE:** For detail information, see the PVR Control Options Section later in this catalog.

TYPICAL ORDERING CODE:

PVR15-15B15-RF-0-521-F

ORDERING INFORMATION

Manifold Mounted - Code RM



SIZE

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

PRESSURE

CODE	PRESSURE RANGE
15	400 - 1500 psi
20	800 - 2000 psii
15	400 - 1500 psi

MECHANICAL OPTIONS

CODE	DESCRIPTION
OMIT	NO OPTIONS
15	HANDWHEEL PRESSURE CONTROL
16	50 HZ OPERATION
36	HANDWHEEL VOLUME CONTROL

CONTROL OPTIONS

CODE	DESCRIPTION
8	DUAL PRESSURE RATE CONTROL VALVE
17	DUAL PRESSURE REMOTE OPERATED

SEALS

CODE	TYPE
O	BUNA-N
P	VITON

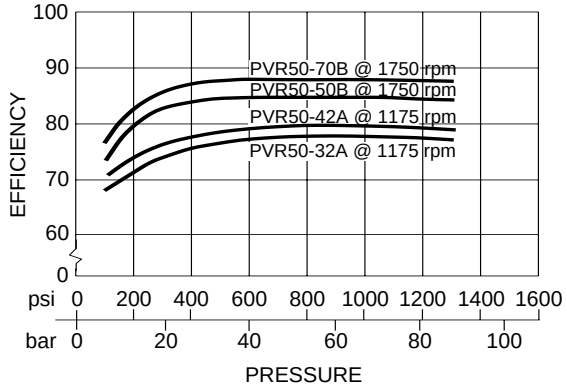
TYPICAL ORDERING CODE:

PVR15-15B15-RM-0-17-J

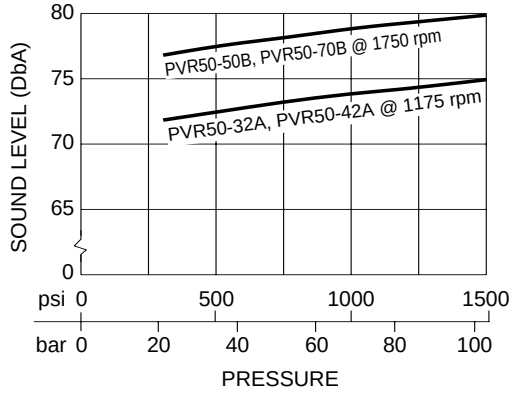
4-Bolt
Flange Mounted

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 6.3 bar	gpm	39	182	223	284
		lpm	148	26.5	34	41
	rated pressure	gpm	32	42	50	70
		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. Specific Grav. < 1	psi	20	10	20	10
		bar	1.4	.07	1.4	0.7
	Min. Specific Grav. > 1	in./Hg	5			3
		bar	-0.17			-0.10
SUCTION FLUID VELOCITY	Max.	ft./sec.	5			
		m/sec.	1.5			
CASE CRAIN NOMINAL FLOW AT DEADHEAD PRESSURE	Max. Pressure	gpm	3			
		mlpm	11			
	Min. Pressure	gpm	2.5			
		mlpm	9.5			
CASE CRAIN 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 rpmper 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 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.
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.

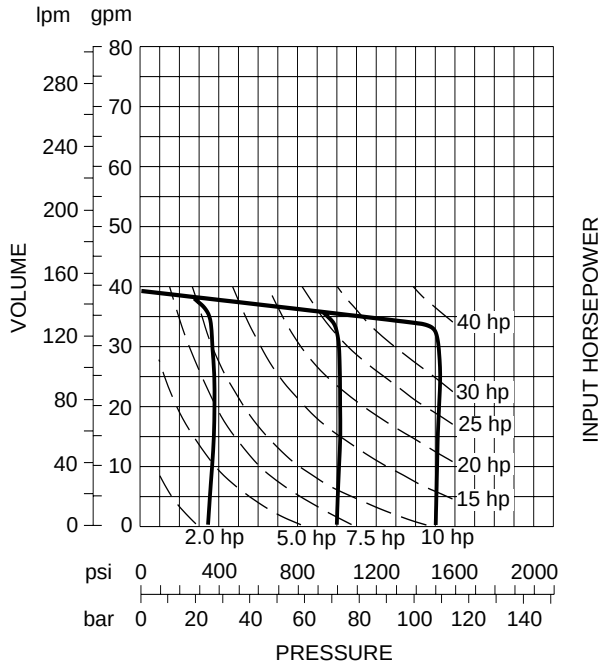
PRESSURE and VOLUME ADJUSTMENT SENSITIVITY

		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)

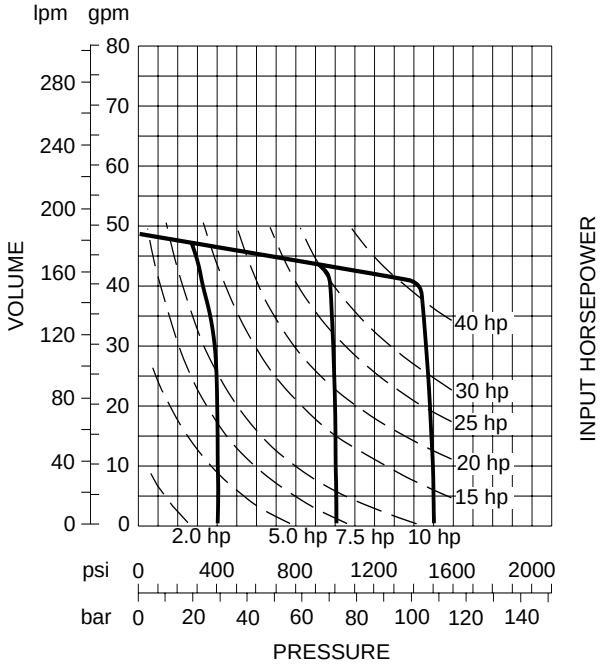
NOTE: Typical performance curves are based on ISO VG46 oil at 120° F. (49° C.). Above 400 SUS (84 CS), add 2% hp/100 SUS.

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

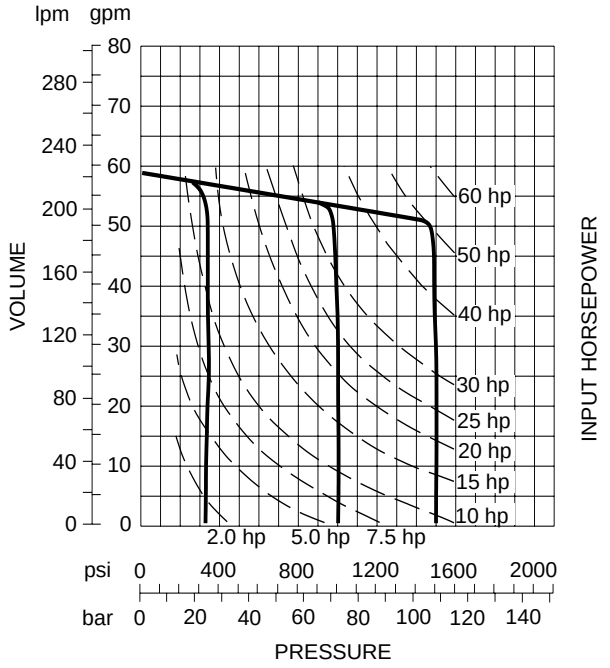
32A15 (at 1175 rpm)



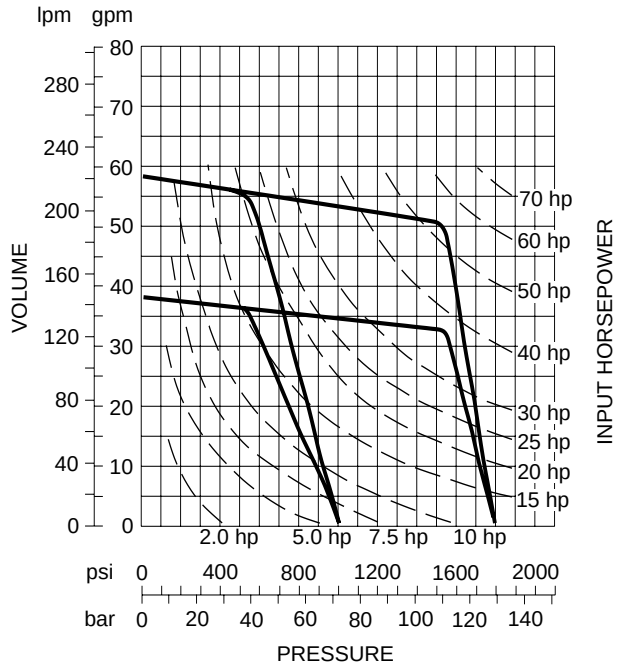
42A15 (at 1175 rpm)



50B15 (at 1750 rpm)



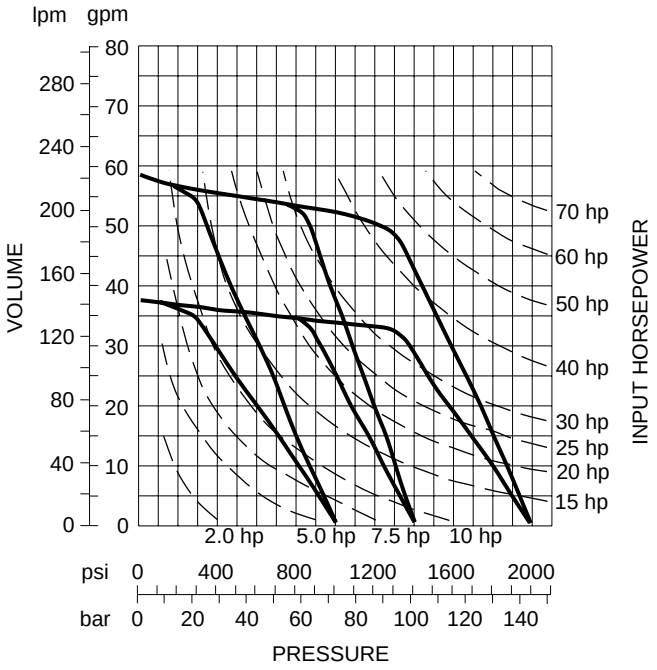
50B3L (at 1750 rpm)



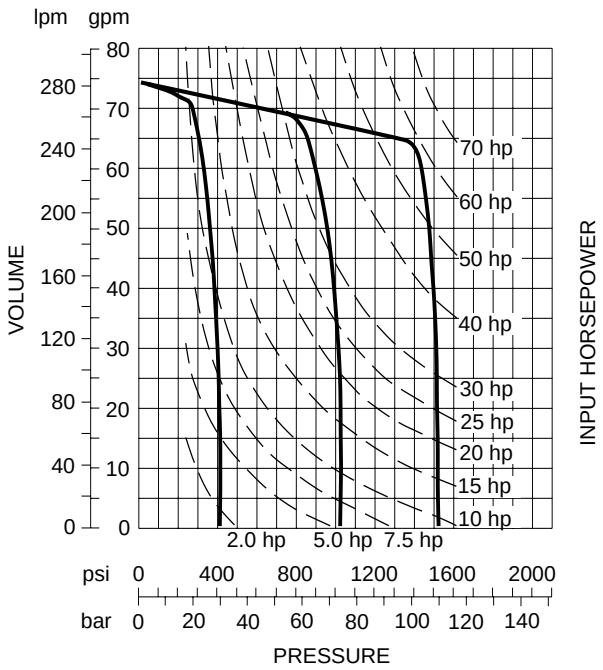
NOTE: Typical performance curves are based on ISO VG46 oil at 120° F. (49° C.). Above 400 SUS (84 CS), add 2% hp/100 SUS.

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

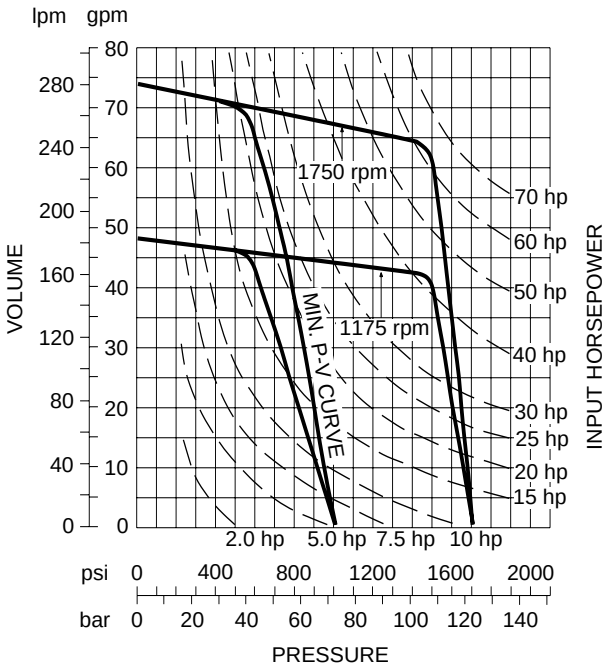
50B5L (at 1750 rpm)



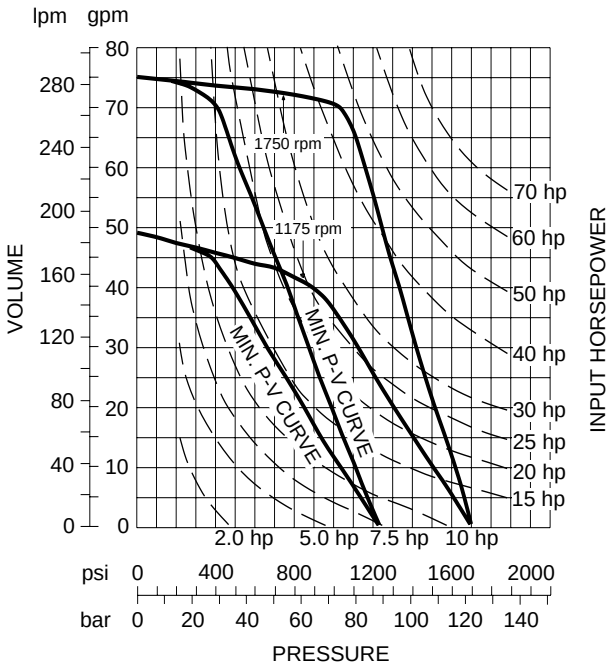
70B15 (at 1750 rpm)



70B3L (at 1750 rpm)



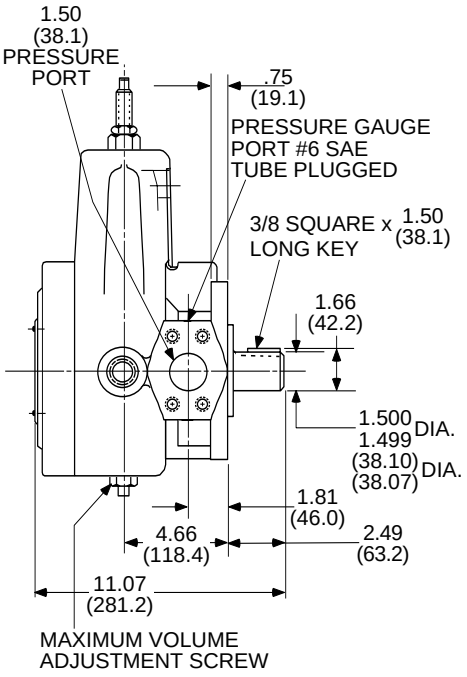
70B5L (at 1750 rpm)

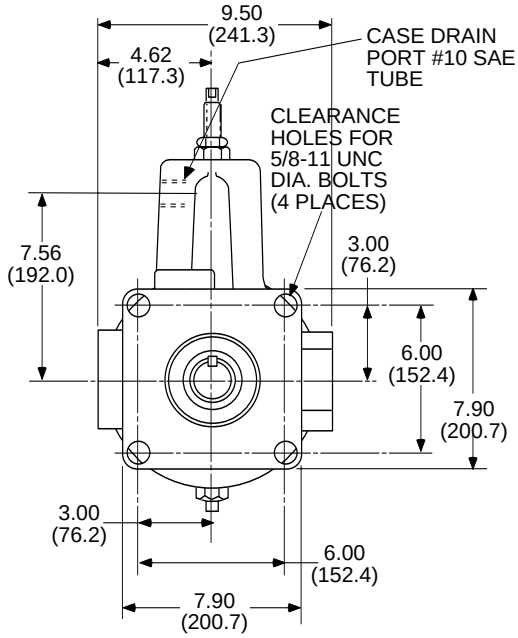


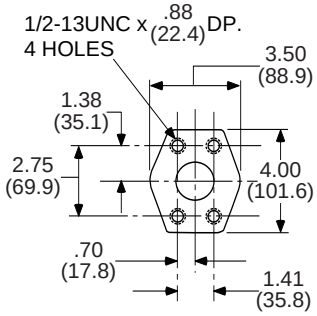
PUMP DIMENSIONS

Right Hand Rotation (CW) - Code RF

Dimensions shown in: Inches (millimeters)

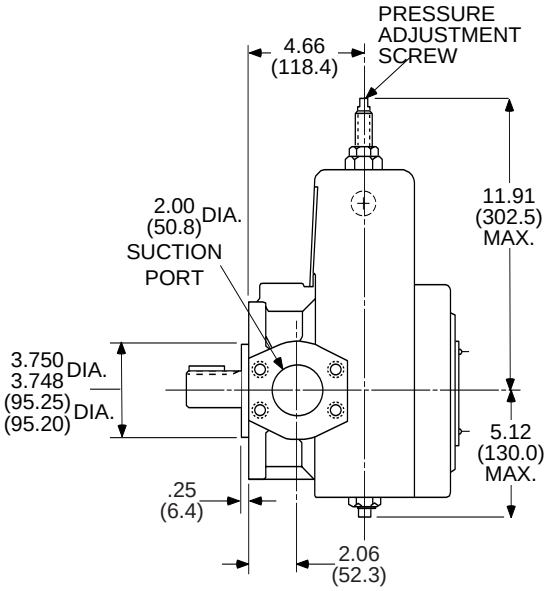


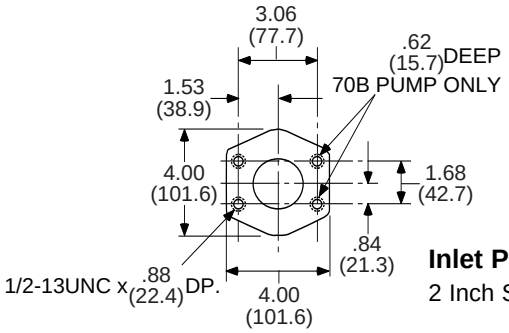




Pressure Port

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





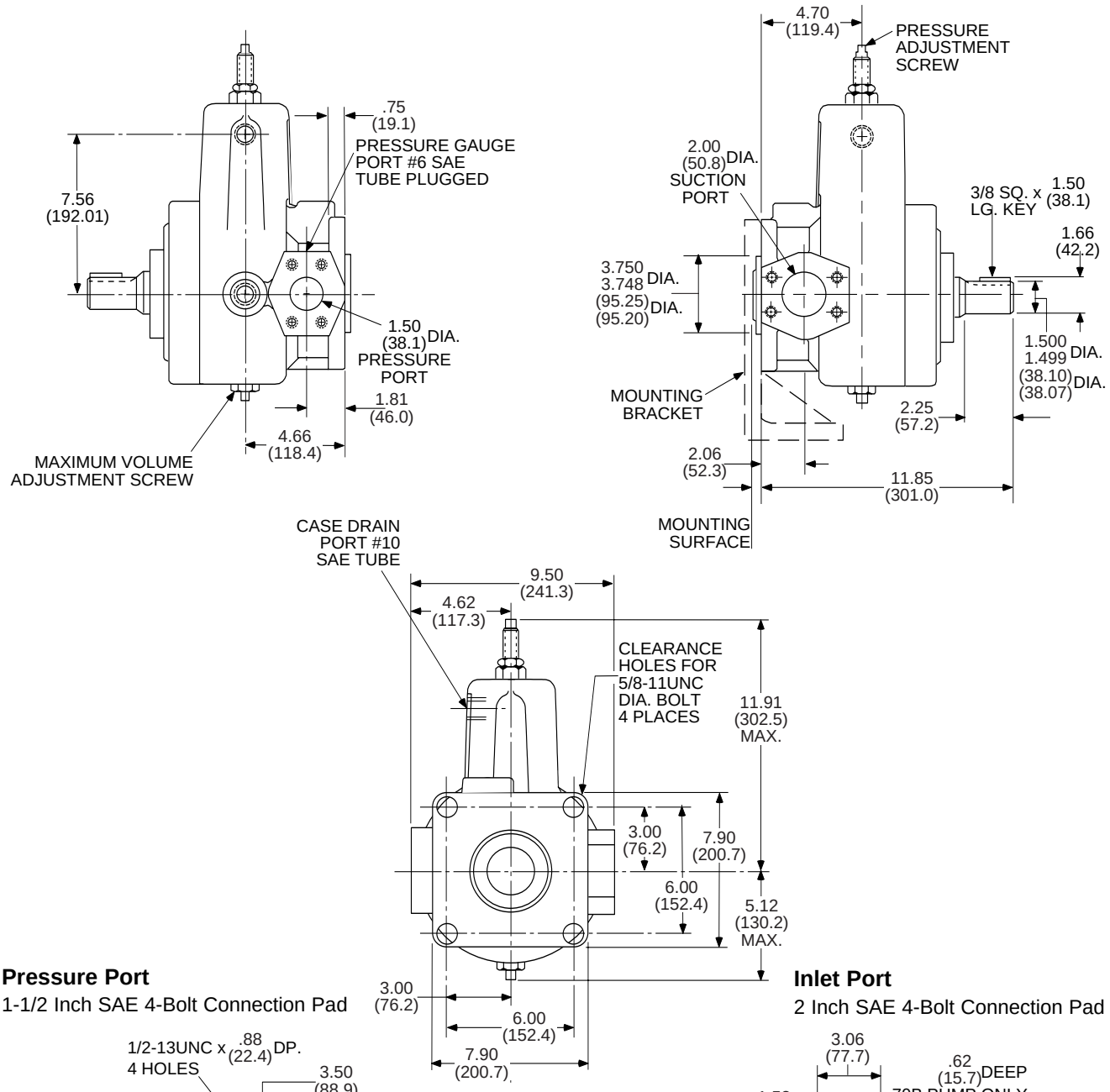
Inlet Port

2 Inch SAE 4-Bolt Connection Pad

PUMP DIMENSIONS

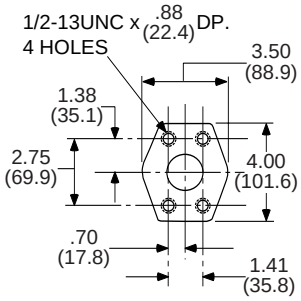
Left Hand Rotation (CCW) - Code LF

Dimensions shown in: Inches (millimeters)



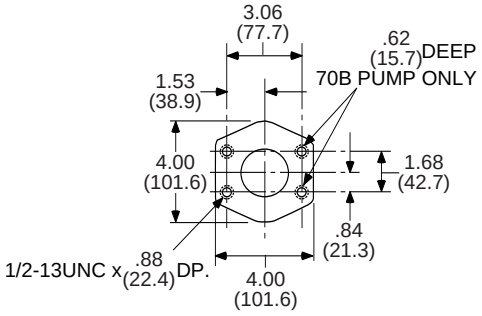
Pressure Port

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



Inlet Port

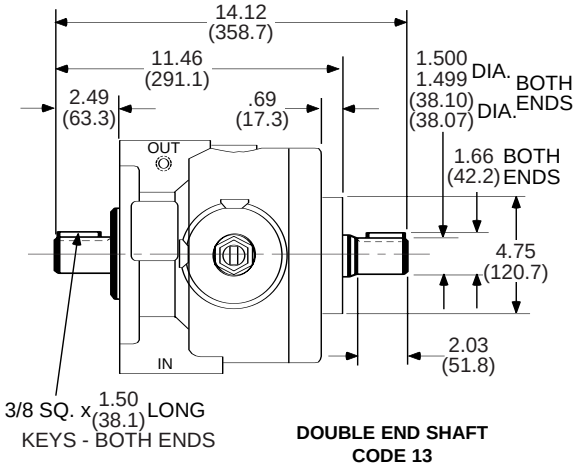
2 Inch SAE 4-Bolt Connection Pad



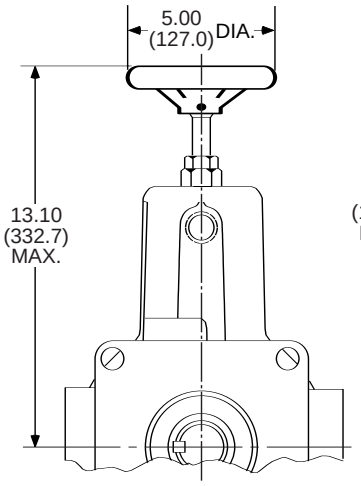
NOTE: Inlet pipe size is 2-1/2" (63.5 mm) dia. minimum; reduce at suction port only.

MECHANICAL OPTIONS

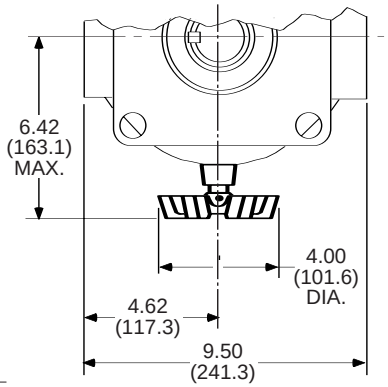
Dimensions shown in: Inches (millimeters)



DOUBLE END SHAFT CODE 13



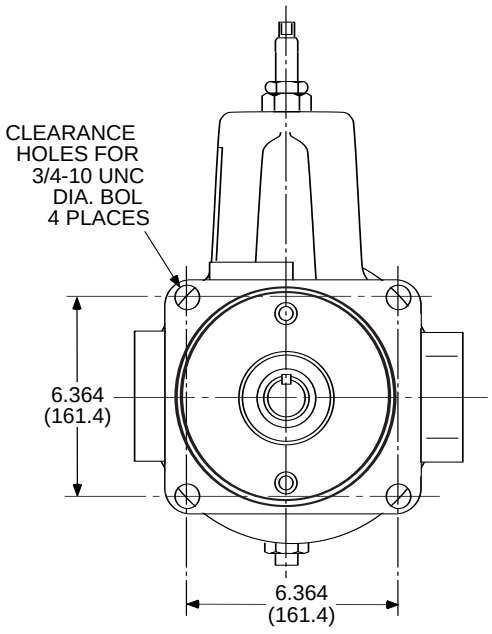
HANDWHEEL PRESSURE CONTROL CODE 15

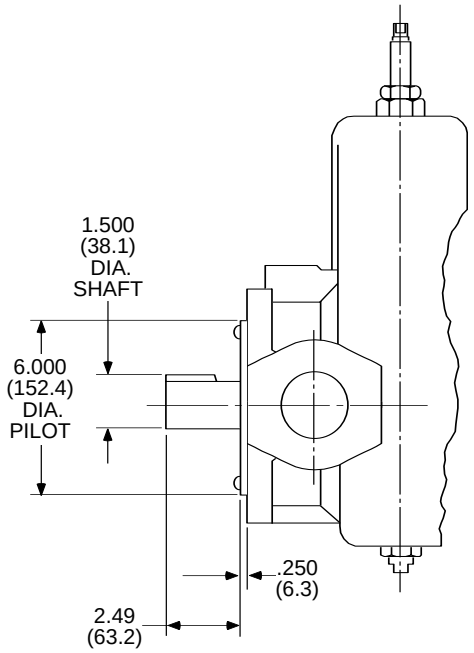


HANDWHEEL VOLUME CONTROL CODE 36

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)

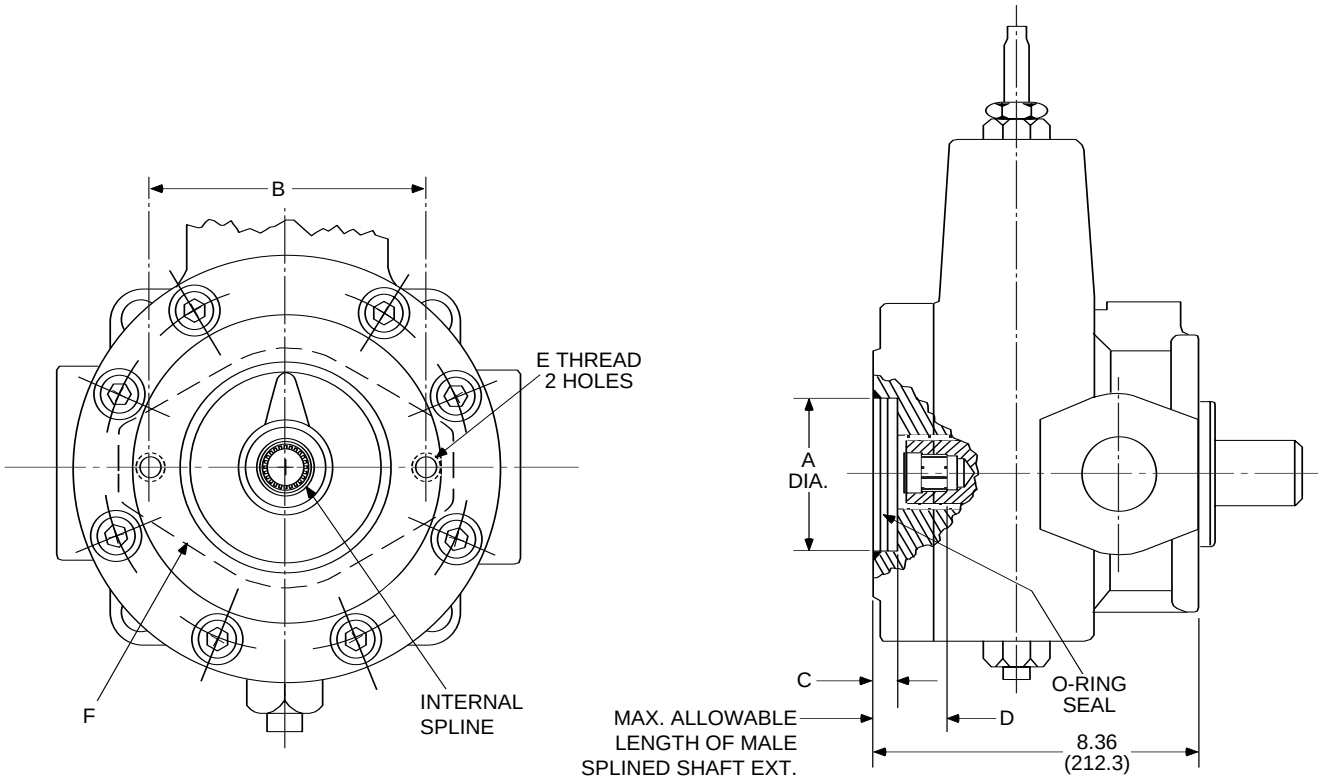




CODES 21, 22, 23 and 31 - TANDEM OPTIONS

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

SELECT ONE	SELECT ONE		SELECT ONE		SELECT ONE		SELECT AS REQUIRED	SELECT AS REQUIRED	SELECT AS REQUIRED		DESIGN LETTER
PVR50 –		**–**		**–**		**– 5**				**–**	

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.

SEALS

CODE	TYPE
O	BUNA-N
P	VITON

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.

TYPICAL ORDERING CODE:

PVR50-50B15-RF-0-521-L

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

FEATURES

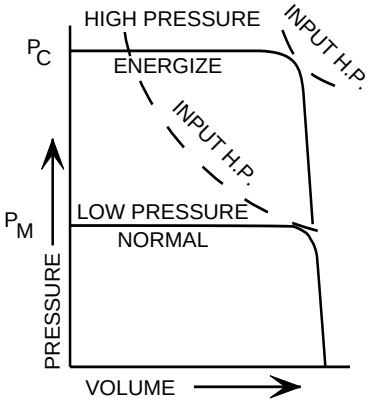
- High and low field-adjustable pressure levels.
- High and low field-adjustable volume levels.
- Field-adjustable pressure rate change between high and low levels.
- Field-adjustable acceleration and deceleration rates between high and low volume levels.
- Pump mounted control valve, or pilot signal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

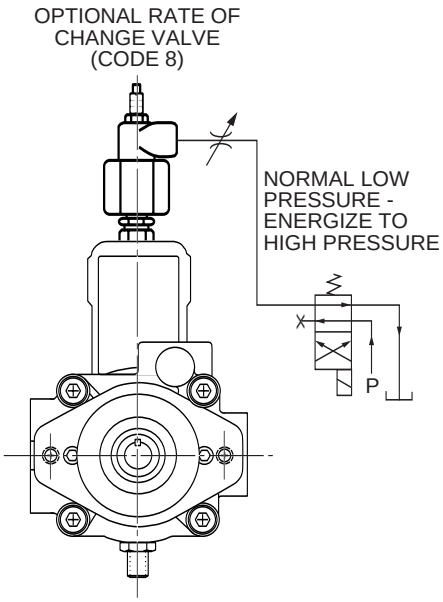
BENEFITS

- 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.

DUAL PRESSURE CONTROL

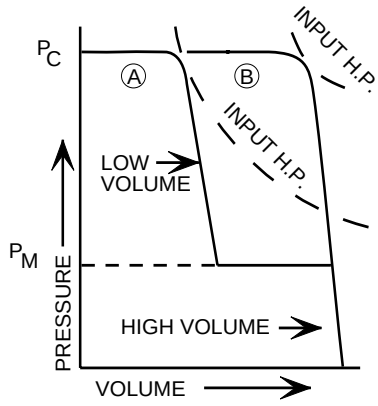
- Two constant pressure levels; field adjustable to meet system requirements.
- Pressure compensated variable flow; zero to maximum gpm.
- Pump mounted control valve or remote pilot signal.

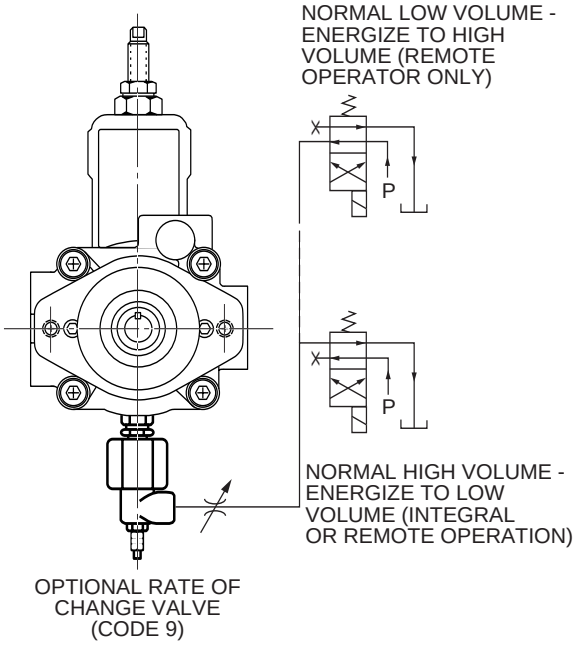




DUAL VOLUME CONTROL

- 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.



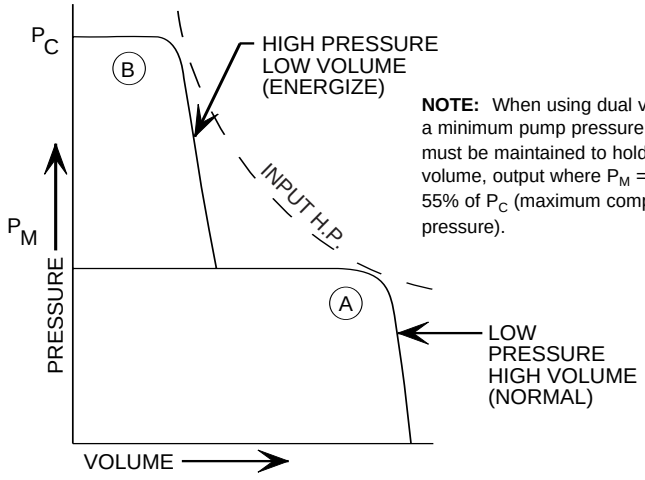


NOTE: When using dual volume control, a minimum pump pressure (P_M) must be maintained to hold pump in low volume, output where P_M = 55% of P_C (maximum compensated pressure).

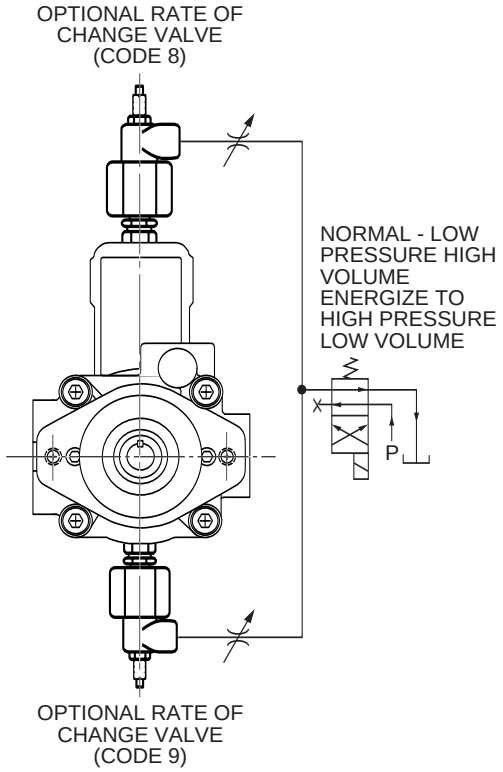
DUAL PRESSURE/DUAL VOLUME CONTROL

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.

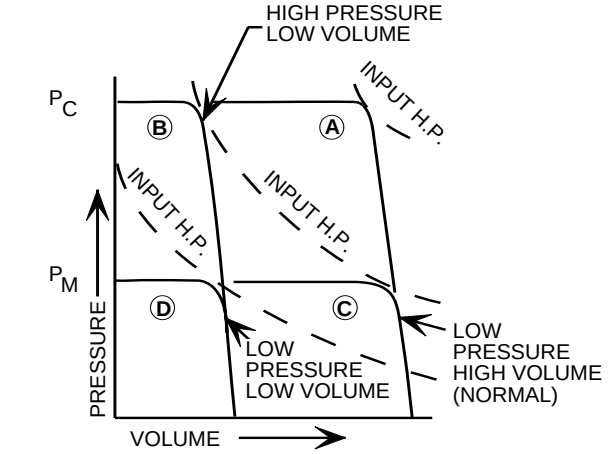


NOTE: When using dual volume control, a minimum pump pressure (P_M) must be maintained to hold pump in low volume, output where P_M = 55% of P_C (maximum compensated pressure).

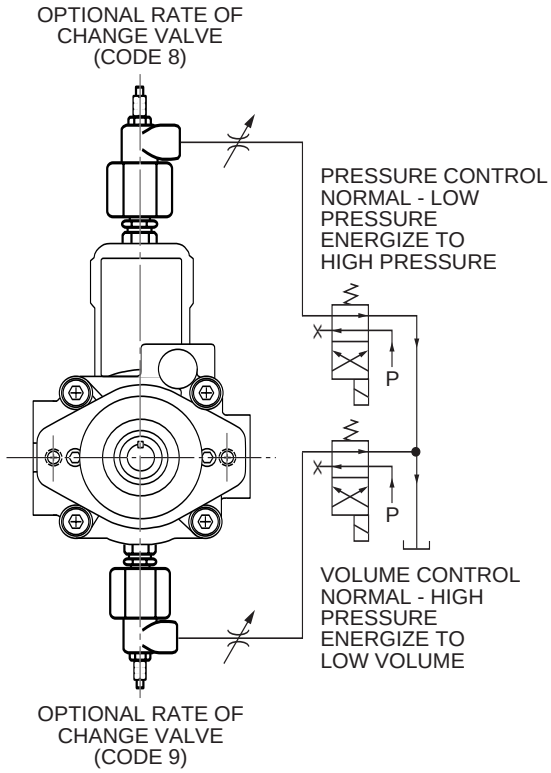


Independent Control Valves or Signal

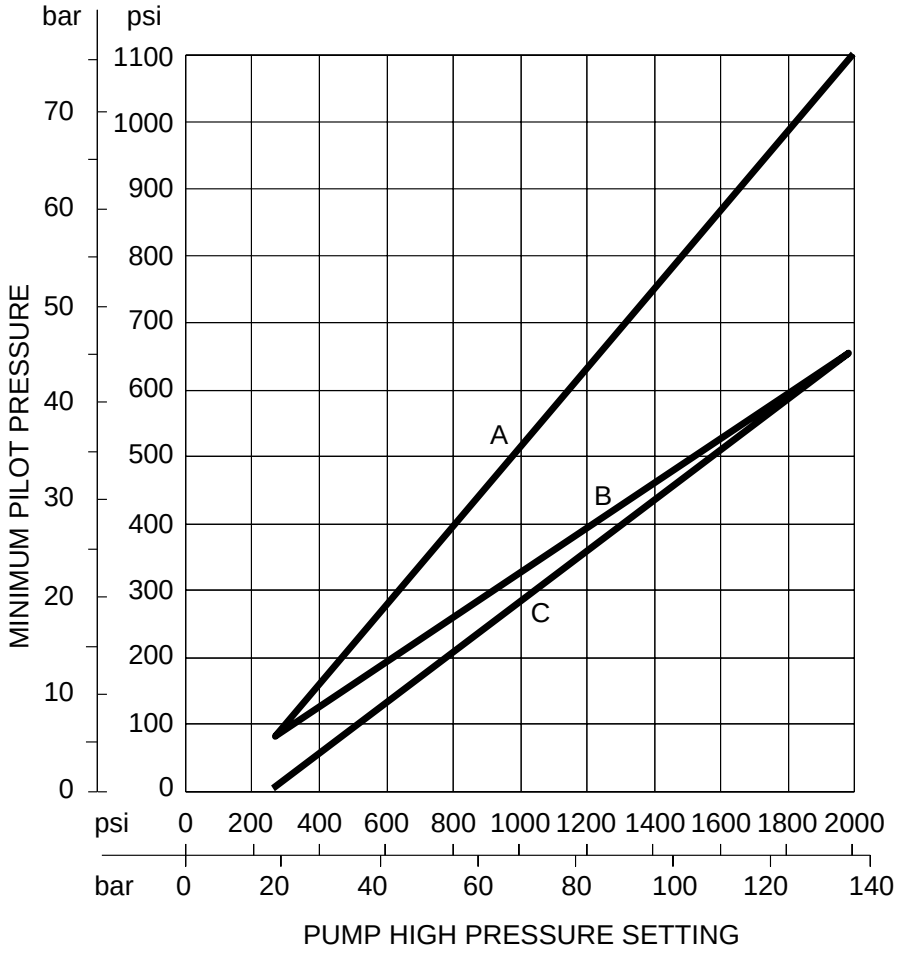
- Two field constant pressure levels and adjustable flow limits provide:
  -- High pressure, high flow (A)
  -- High pressure, low flow (B)
  -- Low pressure, high flow (C)
  -- Low pressure, low flow (D)
- Remote mounted control valves for pilot signs only.



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).



CONTROL PILOT PRESSURES



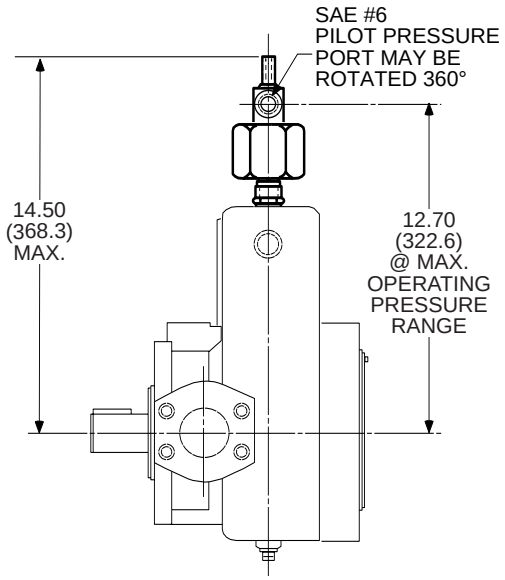
PUMP	CONTROL	PILOT	CURVE SOURCE
6	PRESSURE	REMOTE	C
15	PRESSURE	REMOTE	B
		INTEGRAL	–
	VOLUME	REMOTE	A
		INTEGRAL	A
50	PRESSURE	REMOTE	A
		INTEGRAL	–
	VOLUME	REMOTE	A
		INTEGRAL	A

DUAL PRESSURE CONTROL DIMENSIONS

Dimensions shown in: Inches (millimeters)

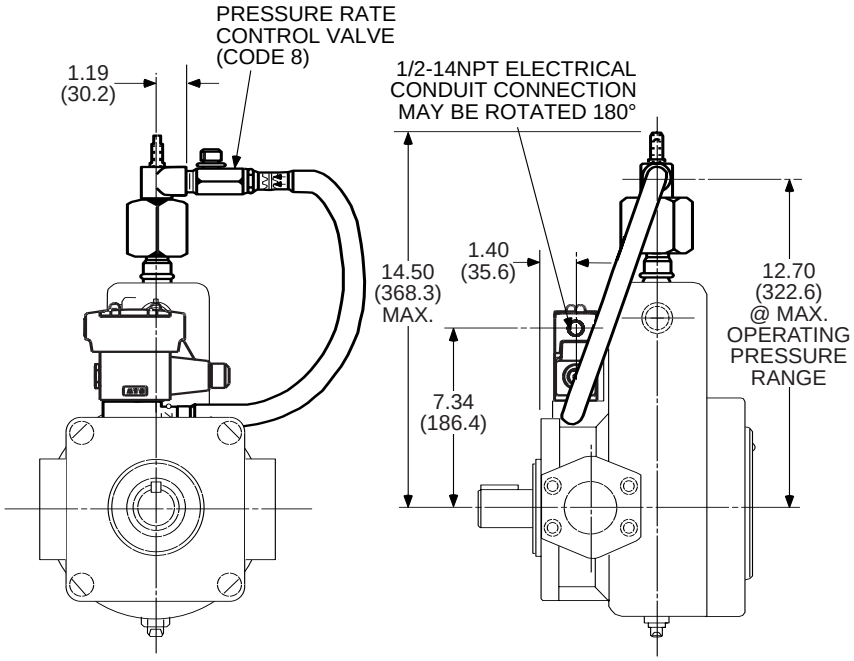
Code RF Pump
Remote Operator Control - Code 17

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.

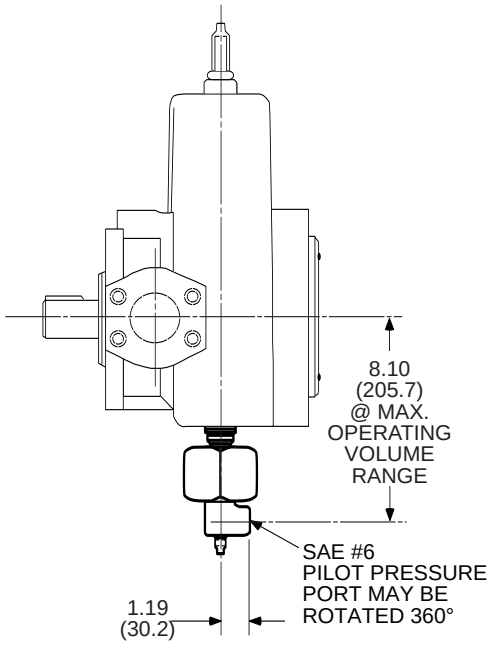


DUAL VOLUME CONTROL DIMENSIONS

Dimensions shown in: Inches (millimeters)

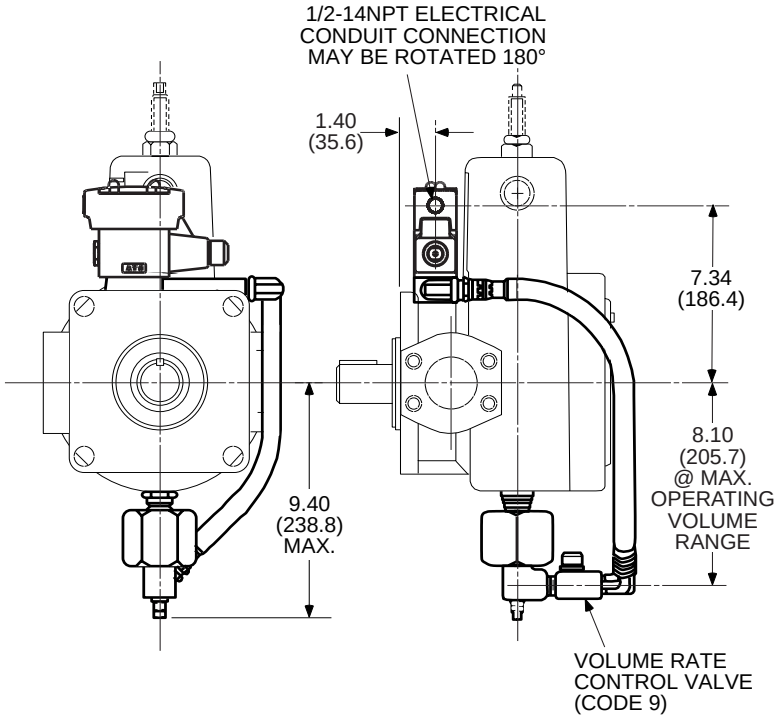
Code RF Pump
Remote Operator Control - Code 2400

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.

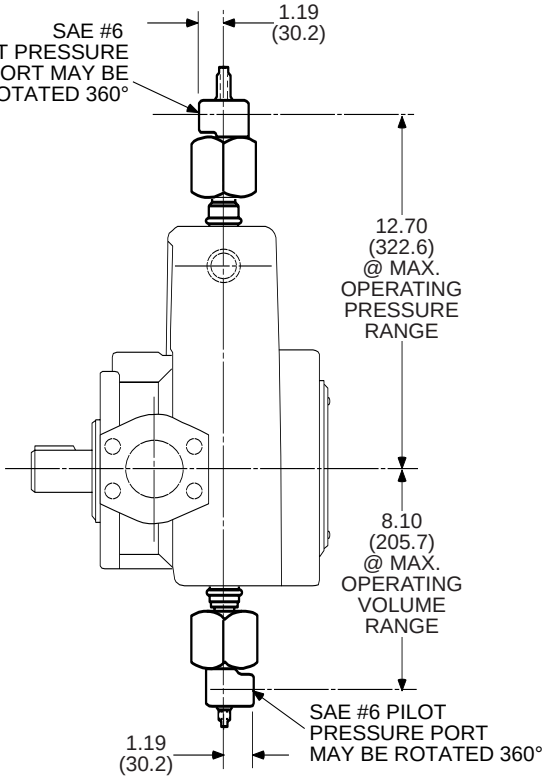


DUAL PRESSURE/DUAL VOLUME CONTROL DIMENSIONS

Dimensions shown in: Inches (millimeters)

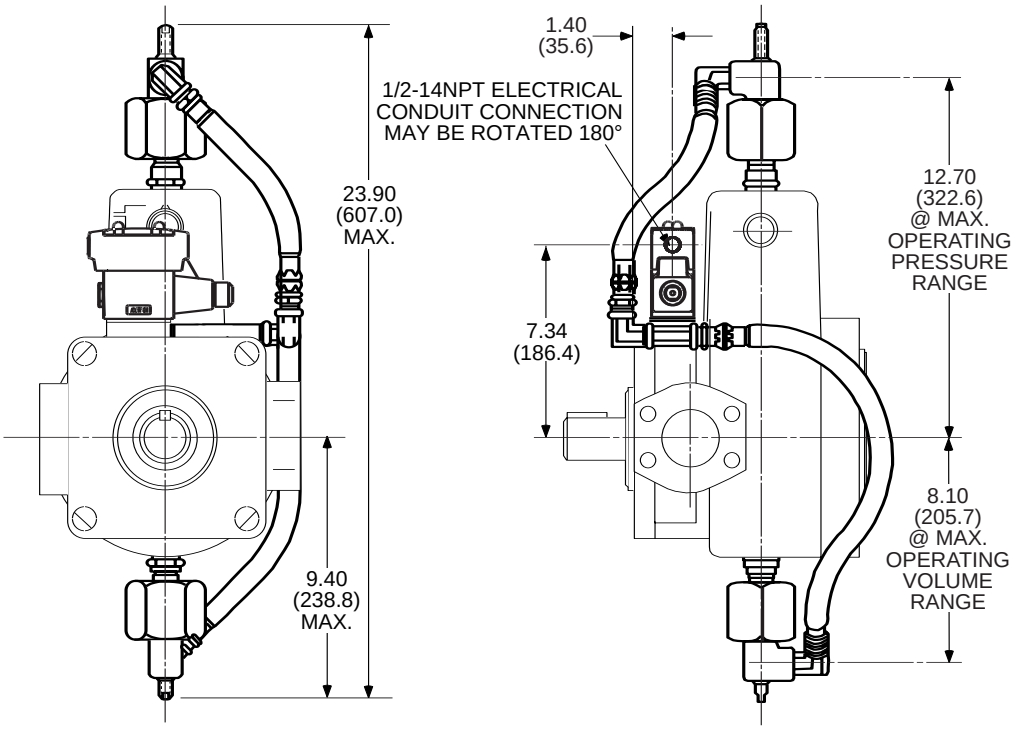
Code RF Pump
Remote Operator Control - Code 2500

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



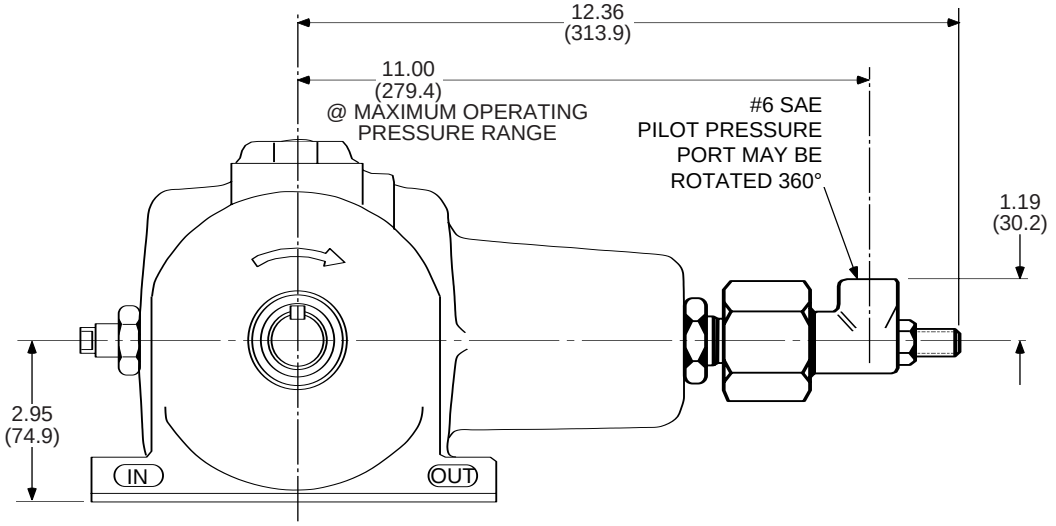
Integral Operator Control* - Code 25

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



DUAL PRESSURE CONTROL DIMENSIONS

Code RM Pump
Remote Operator Control - Code 17



ORDERING INFORMATION

Flange Mounted - Code RF Only

TO COMPLETE CODE, REFER TO PVR SECTION, ORDERING INFORMATION

	SIZE AND PRESS. RANGE		MOUNTING		SEALS		MECHANICAL OPTIONS	SELECT AS REQUIRED	SELECT AS REQUIRED		DESIGN LETTER
PVR15 –		**–**		**–**		**– 5**				**–**	

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

CODE	DESCRIPTION
OMIT	NOT REQUIRED
Z	MANUAL OVERRIDE ON NON-SOLENOID END

Top Electrical Box

CODE	DESCRIPTION
LEAD WIRE CONNECTIONS	
B	TOP ELECT. BOX WITHOUT TERMINAL POSTS
B5H	TOP ELECT. BOX WITH 5 PIN MALE RECEPTACLE FOR 1 OR 2 SOLENOIDS
DIN 43650 CONNECTIONS	
OMIT	NOT AVAILABLE

Sol. Indicator Lights

CODE	DESCRIPTION
OMIT	NOT REQUIRED
OMIT	NOT AVAILABLE

Solenoid

CODE	DESCRIPTION
60L	110/120V 50/60 HZ
61L	220/240V 50/60 HZ
68L	110/120V 50/60 HZ (LOW AMPS)
70L	24 VDT
75L	12 VDT
33L	110/120V 50/60 HZ
34L	220/240V 50/60 HZ
42L	24 VDT
44L	12 VDT

TYPICAL ORDERING CODE:

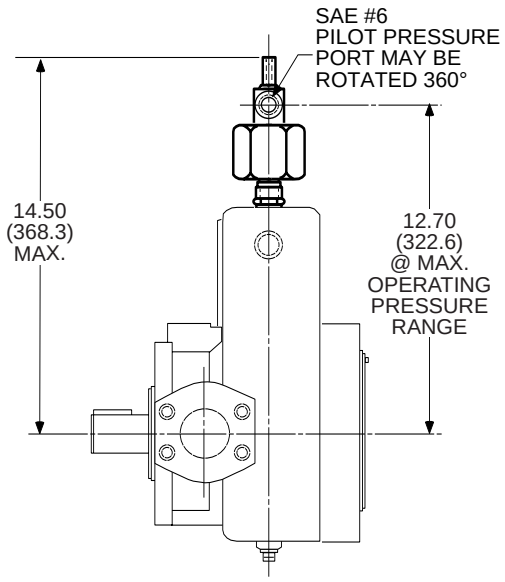
PVR15-15B15-RF-O-5818B60L-F

DUAL PRESSURE CONTROL DIMENSIONS

Remote Operator Control - Code 17

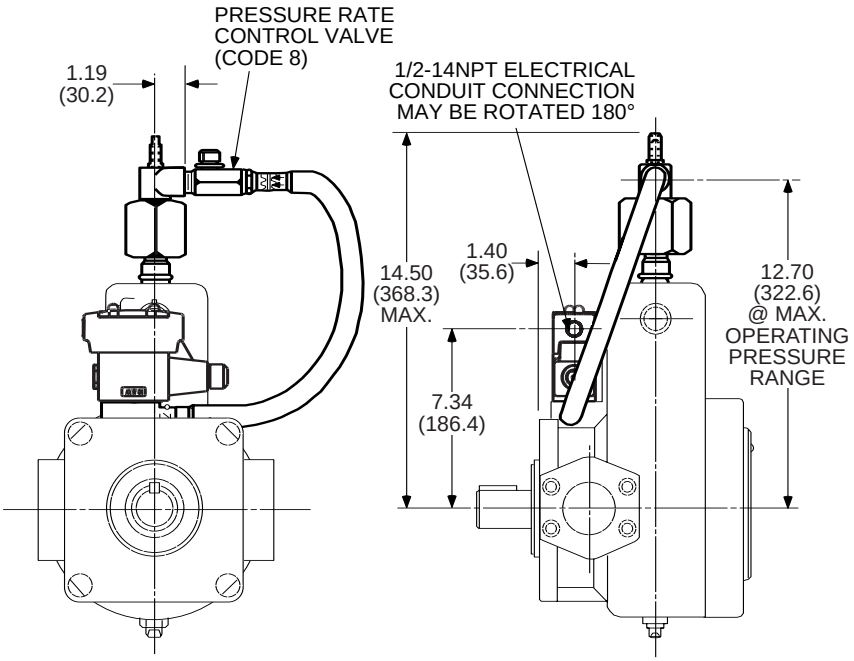
Dimensions shown in: Inches (millimeters)

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.



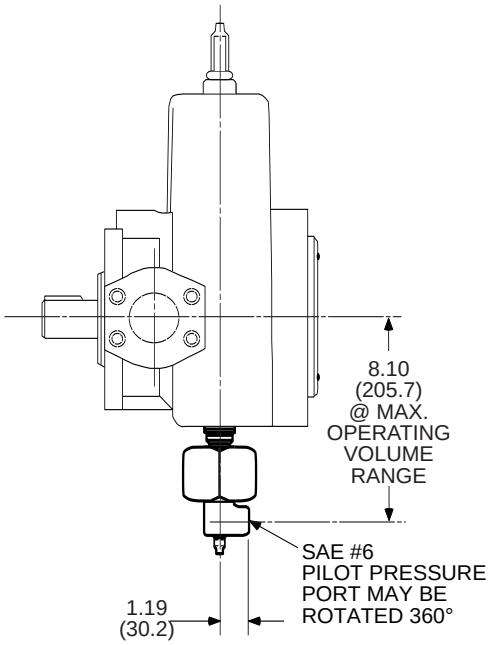
DUAL VOLUME CONTROL DIMENSIONS

Remote Operator Control - Code 2400

Dimensions shown in: Inches (millimeters)

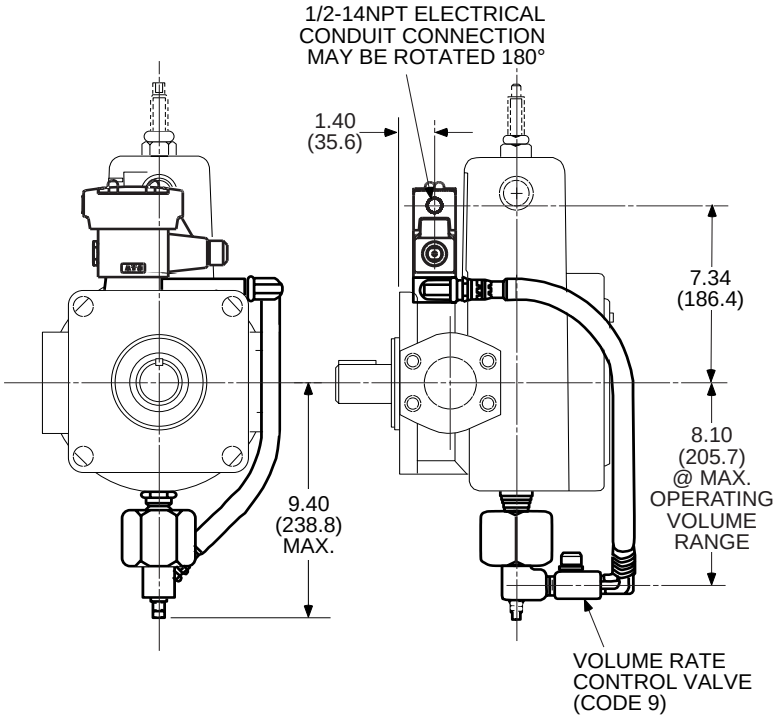
RF (CW) Rotation Shown ...
LF (CCW) Dimensions Are The Same

REMOTE OPERATOR CODE 17



Integral Operator Control* - Code 24

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

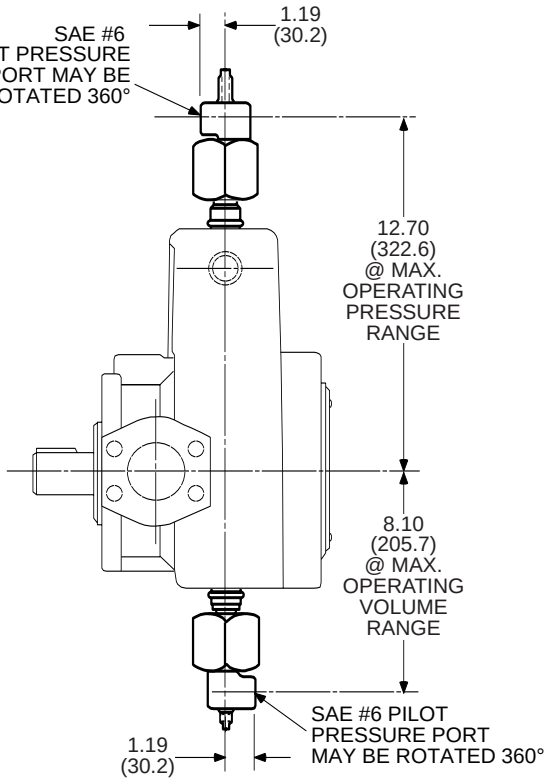


DUAL PRESSURE/DUAL VOLUME CONTROL DIMENSIONS

Dimensions shown in: Inches (millimeters)

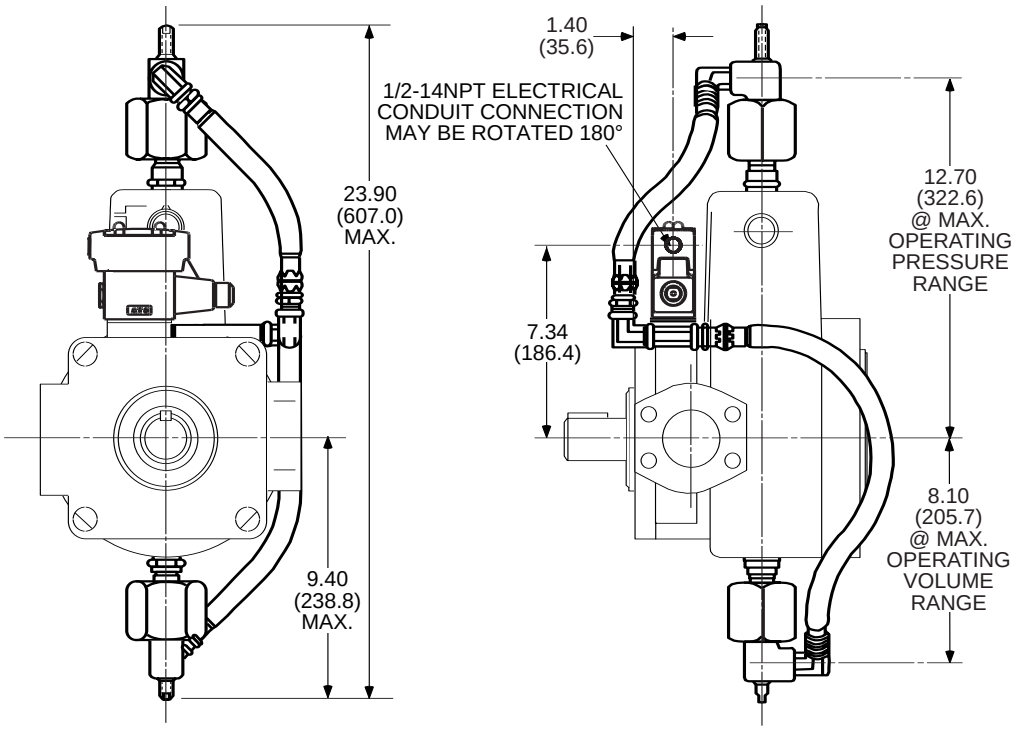
Remote Operator Control - Code 2500

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.



ORDERING INFORMATION

TO COMPLETE CODE, REFER TO PVR SECTION, ORDERING INFORMATION

	SIZE AND PRESS. RANGE		MOUNTING		SEALS		MECHANICAL OPTIONS		SELECT AS REQUIRED	SELECT AS REQUIRED		DESIGN LETTER
PVR50		**–**		**–**		**– 5**					**–**	

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
Z	MANUAL OVERRIDE ON NON-SOLENOID END

Top Electrical Box / Sol. Indicator Lights / Solenoid

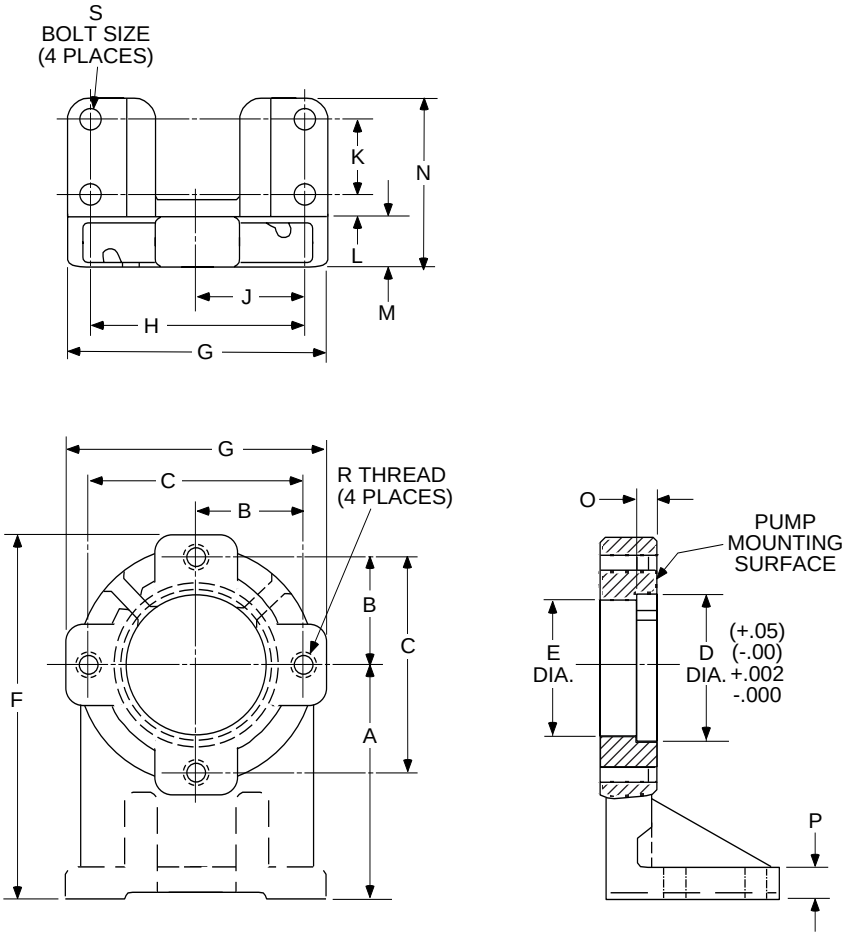
Top Electrical Box CODE	Top Electrical Box DESCRIPTION	Sol. Indicator Lights CODE	Sol. Indicator Lights DESCRIPTION	Solenoid CODE	Solenoid DESCRIPTION
LEAD WIRE CONNECTIONS					
B	TOP ELECT. BOX WITHOUT TERMINAL POSTS	OMIT	NOT REQUIRED	60L	110/120V 50/60 HZ
				61L	220/240V 50/60 HZ
B5H	TOP ELECT. BOX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

TYPICAL ORDERING CODE:

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

FPVR FOOT MOUNTING BRACKETS DIMENSIONS

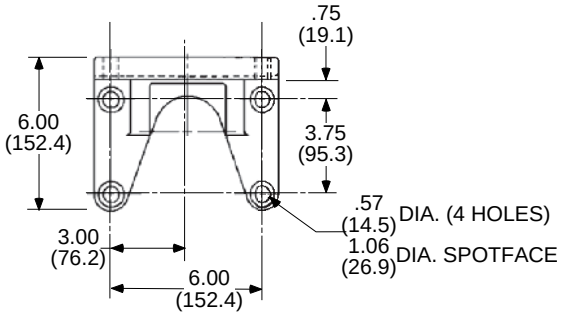
Dimensions shown in: Inches (millimeters)

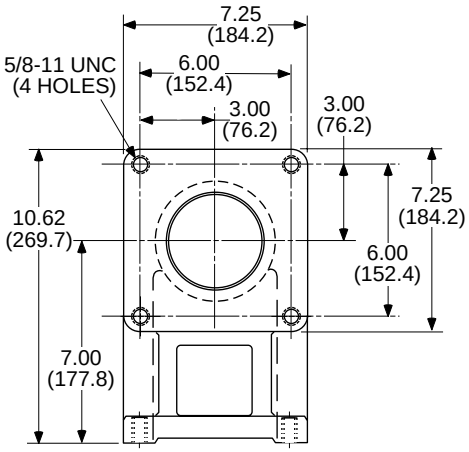


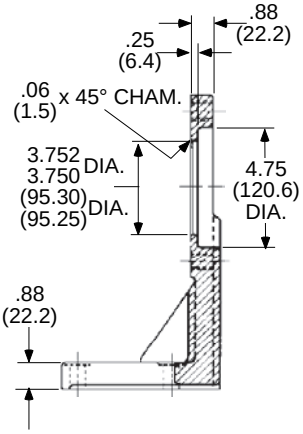
FOOT BRACKET SERIES	SAE FLANGE	DIMENSIONS Inches (millimeters)																	
		A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R THREAD	S BOLT SIZE
FPVR6	A	5.25 (133.4)	2.09 (53.1)	4.19 (106.4)	3.252 (82.6)	3.00 (76.2)	7.81 (198.4)	5.12 (130.0)	3.50 (88.9)	1.75 (44.4)	2.00 (50.8)	.48 (12.2)	1.00 (25.4)	3.98 (101.1)	.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.

FPVR50 FOOT MOUNTING BRACKET DIMENSIONS

Dimensions shown in: Inches
(millimeters)



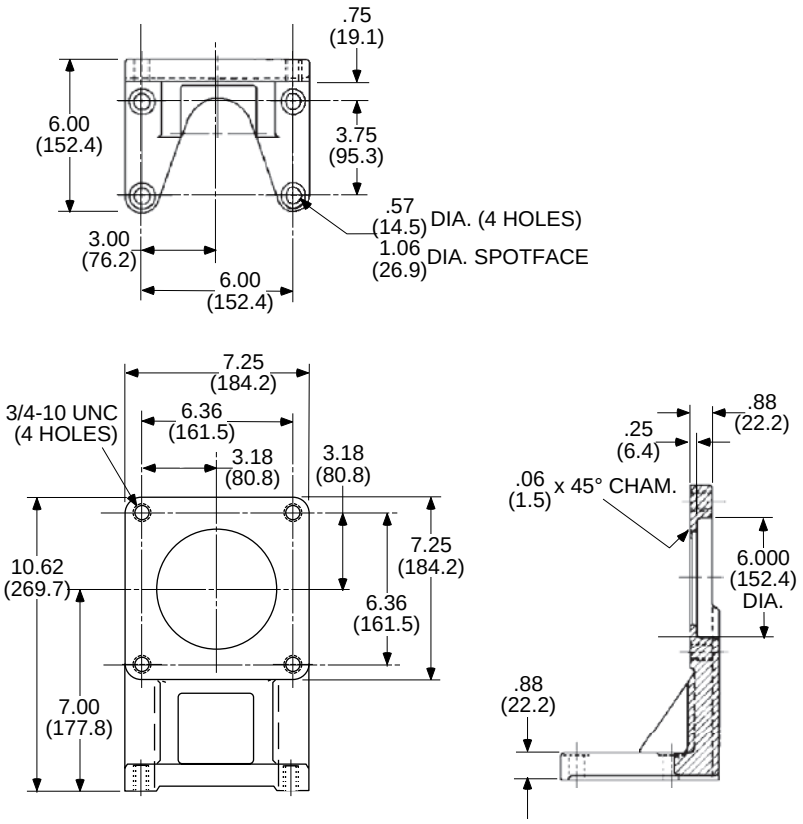




FPVR50D FOOT MOUNTING BRACKET DIMENSIONS

SAE D Mounting

Dimensions shown in: Inches (millimeters)



ORDERING INFORMATION

Foot Mounting Brackets

SELECT ONE — SELECT ONE — DESIGN LETTER

FPVR [ ] – [ ] – [ ]

***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
50	PVR50	**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

SELECT ONE — SELECT ONE — DESIGN LETTER

BPVR [ ] – [ ] – **U** – [ ]

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

CODE	USED WITH MODEL
1	PVR6
6	PVR6
15	PVR15 - RF
	PVR15 - RM
50	PVR50
50D	PVR50 SAE D MTG.

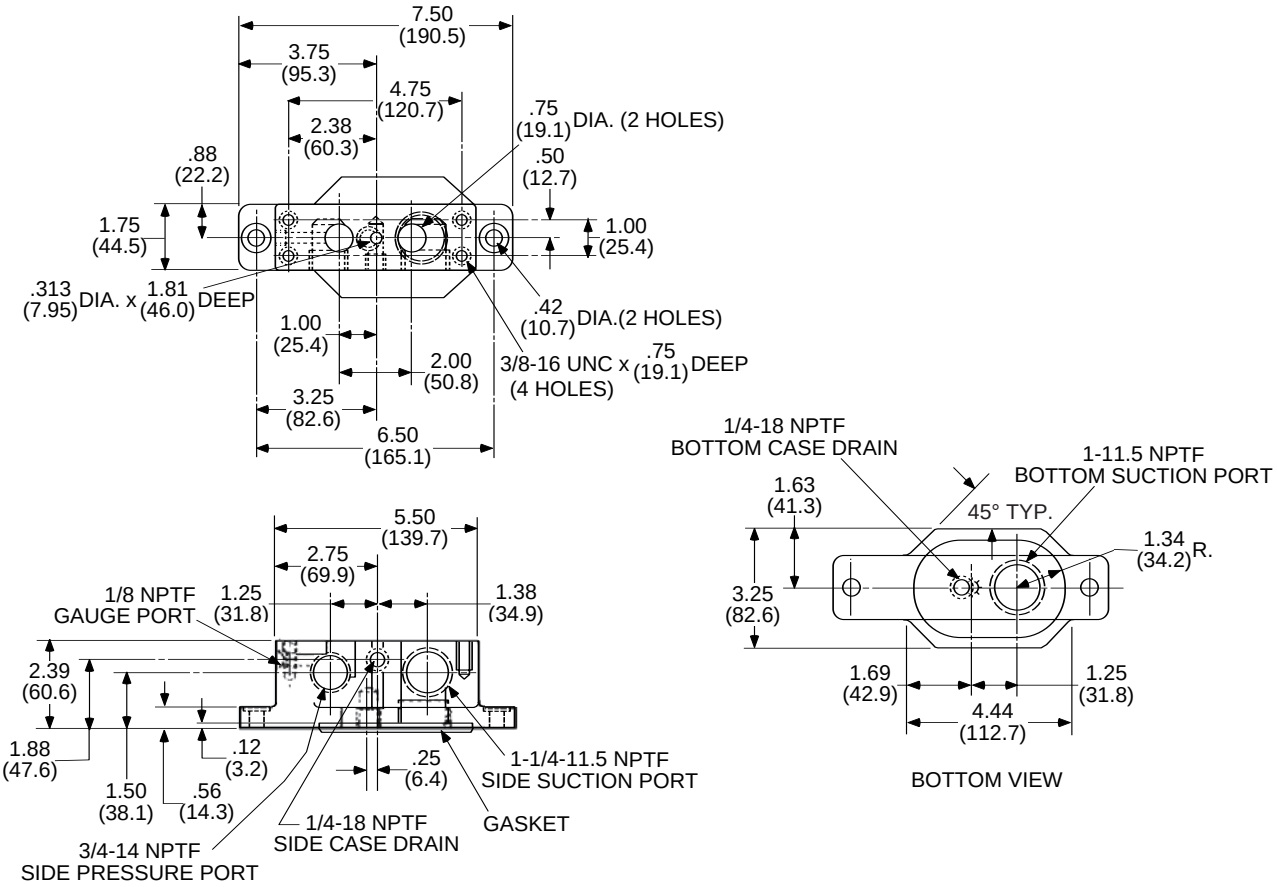
CODE*	BOLT SIZE	QTY. of BOLTS/WASHERS	WEIGHT lbs. / kg
1	3/8-16 UNC x 1.00	4	.21/.10
2	3/8-16 UNC x .88	2	.34/.15
1	7/16-14 UNC x 1.50	4	.10 .05
2	1/2-13 UNC x 1.25	2	.22/.10
2	5/8-11 UNC x 1.75	4	.90/.40
3	3/4-10 UNC x 1.75	4	.90/.40

***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-**

MANIFOLD DIMENSIONS for PVR1 Pump

Dimensions shown in: Inches (millimeters)



ORDERING INFORMATION

SELECT ONE — DESIGN LETTER

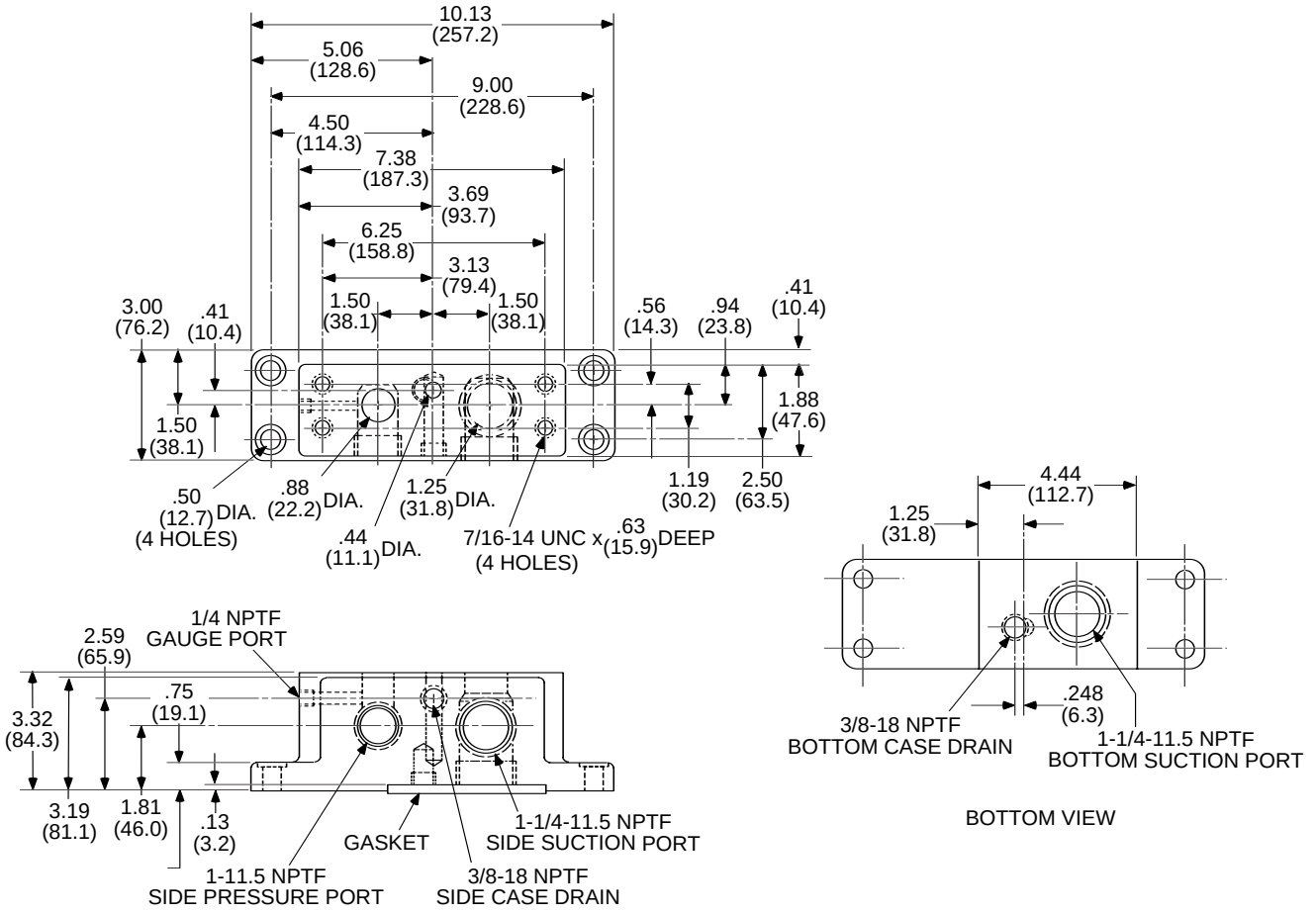
MPVR1 – [ ] – C – 6 – [ ]

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.

MANIFOLD DIMENSIONS for PVR15 Pump - Code RM

Dimensions shown in: Inches (millimeters)



ORDERING INFORMATION

SELECT ONE

DESIGN LETTER

MPVR15 – [ ] – C – 21 – [ ]

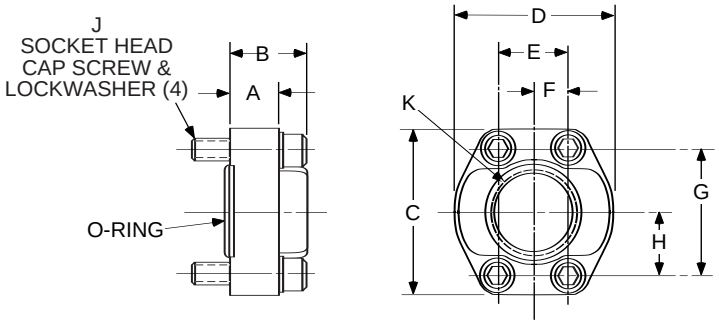
CODE	NEMA MOTOR FRAME	KIT INCLUDES*	WEIGHT lbs. / kg
182	182/184	1.75" MOTOR SPACERS	19.6 / 8.3
213	213/215	1" MOTOR SPACERS	18.4 / 8.3
254	254/256	MANIFOLD ONLY	17.5 / 7.9

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

STRAIGHT FLANGES DIMENSIONS

Flange Codes 9 through 33

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

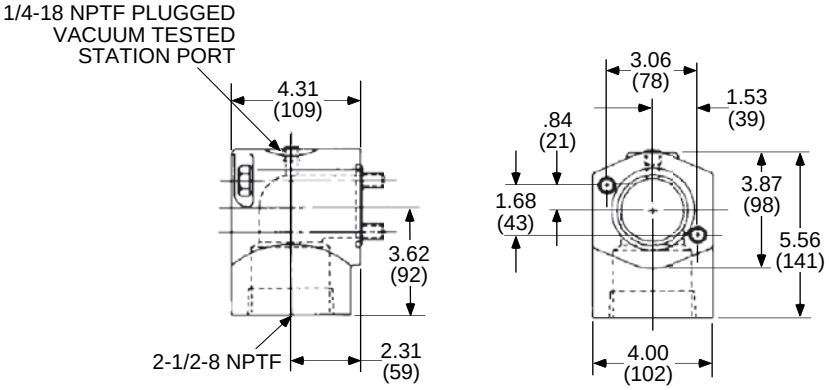


FLANGE SIZE	CODE	DIMENSIONS Inches (millimeters) A	B	C	D	E	F	G	H	J	K
1 In.	9	.97 (24.6)	1.38 (35.1)	2.75 (69.9)	2.31 (58.7)	1.03 (26.2)	.52 (13.2)	1.03 (26.2)	2.06 (52.3)	3/8-16 UNC x 1.75	1' NPTF
	11										1-5/16-12 UN SAE #16
1-1/2 In.	21	1.09 (27.7)	1.82 (46.2)	3.69 (93.7)	3.25 (82.6)	1.41 (35.8)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

90° SUCTION FLANGE DIMENSIONS

PVR50 Pump - Flange Code 37

Dimensions shown in: Inches (millimeters)



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)*						
		PVR1	PVR6	PVR15 - RF 15 & 20B	PVR15 - RF 30B	PVR15 - RM	PVR50	WEIGHT lbs. / kg
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.

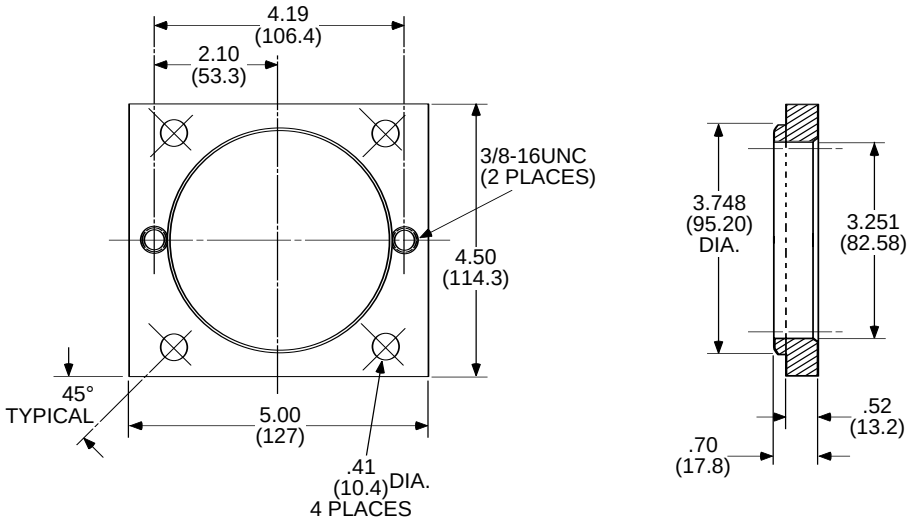
NOTES: **(a)** Handwheel Accessory Kits contain the handwheel and a spring pin for installation on an existing Adjustment Screw. If a pump has a plug only at the volume adjustment screw location, a Volume Screw Assembly must be ordered separately.
(b) For installation dimensions and product references, refer to the appropriate option modification in the PVR Vane Pump Section.

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

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 1Long Step Key

NOTE: PVR6 Pump Bolts are ordered separately.

ORDERING INFORMATION

Transition Plate

DESIGN LETTER

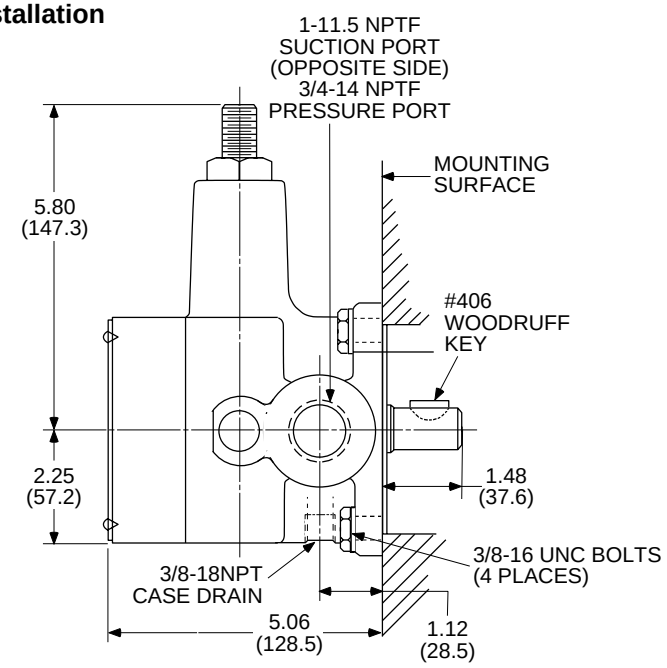
TPVR – 6 – [ ]

Weight: 1.0 lbs. (0.45 kg)

TRANSITION PLATE

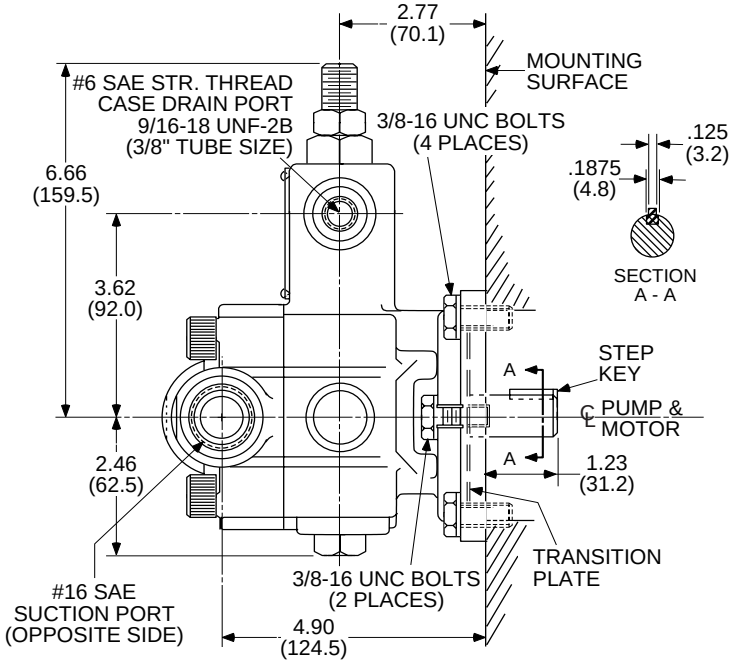
For Mounting a PVR6 SAE 2-Bolt Flange to a PVR1-RF 4-Bolt Flange Pump Existing Mounting Surface.
Existing PVR1-*XXX*-RF-*X*-*X* Installation

Dimensions shown in: Inches (millimeters)



TRANSITION PLATE

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

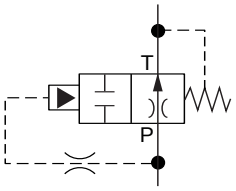


AIR BLEED VALVE

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

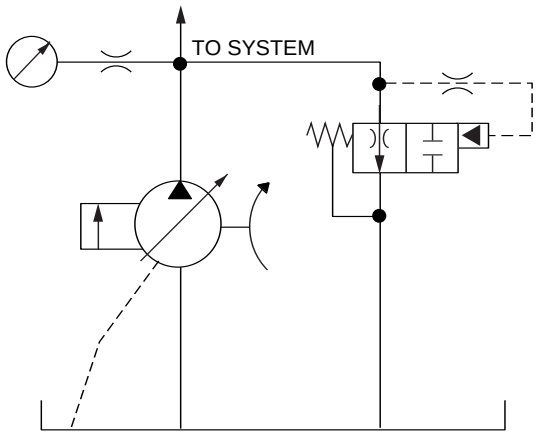


TYPICAL PERFORMANCE SPECIFICATIONS

MINIMUM FLOW RATE		8 gpm
MINIMUM	@ 8 gpm	500 psi
OPERATING	@ 15 gpm	350 psi
PRESSURE	@ 50 gpm	200 psi
MAX. OPERATING PRESSURE		3500 psi
MINIMUM PRESSURE TO HOLD CLOSE		150 psi
TYPICAL	@ 500 psi	30 sec.
CLOSING TIMES	@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

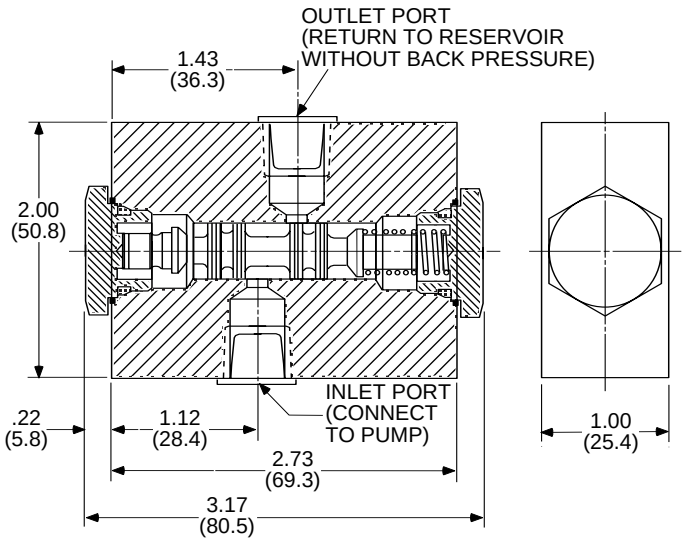
Here the valve passes flow for a short time allowing an internal combustion engine to come up to speed. This would eliminate using a separate open center valve for this purpose.

NOTE:

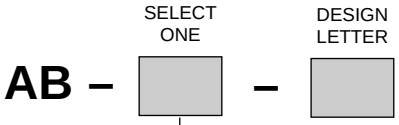
The outlet line should be piped below the oil level to prevent foaming of the oil.

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

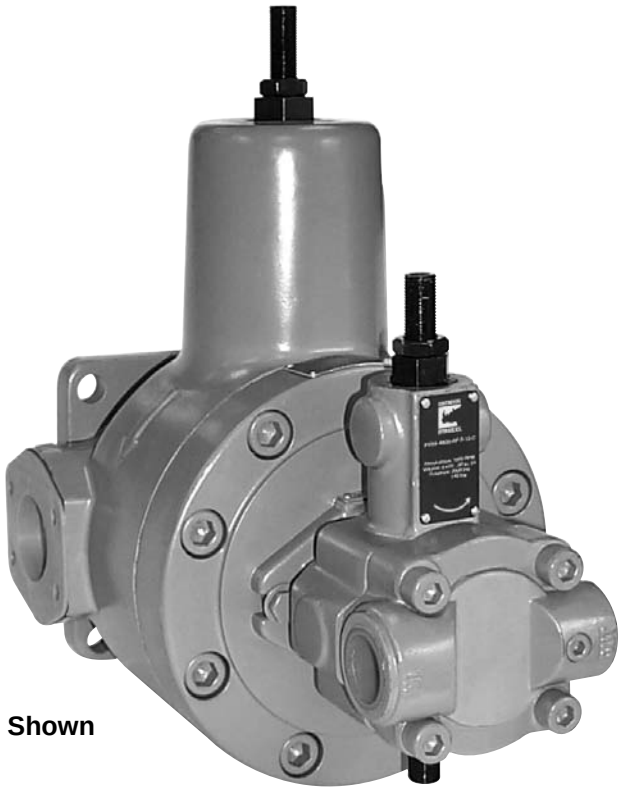
TYPICAL ORDERING CODE:

AB-1-

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
	PVR15-RF	21	8.5		N/A	N/A	N/A	N/A	N/A	N/A
		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:** Maximum horsepower transfer to rear pump at 1750 rpm.

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.

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.

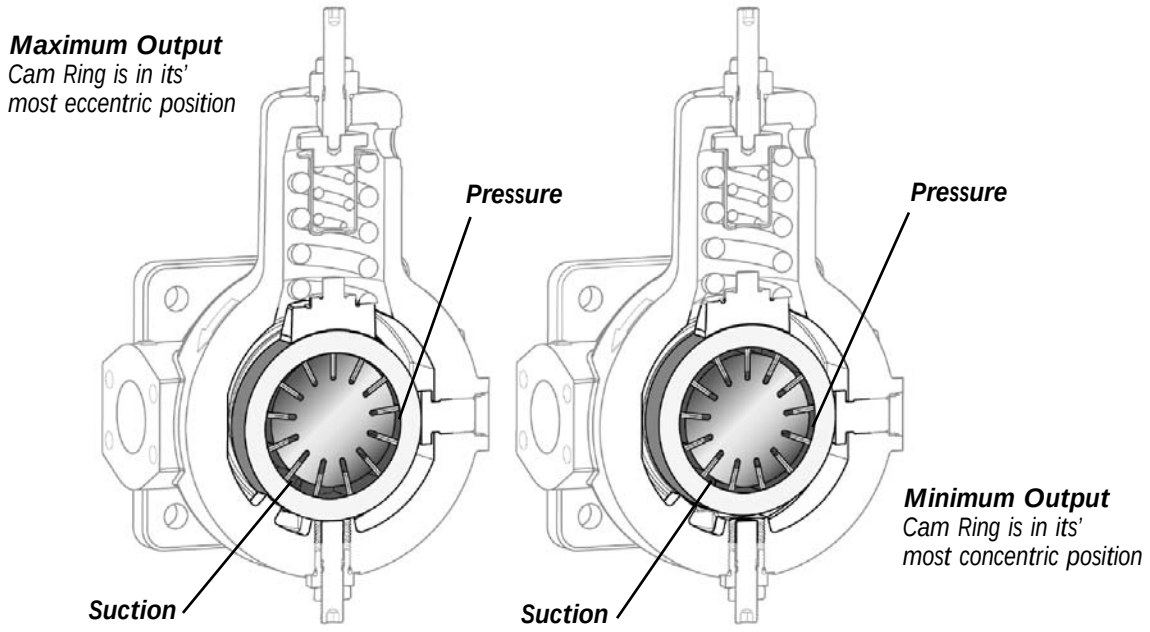
Maximum output occurs when the pressure ring is at its' most eccentric position, as shown in the illustration below. When system requirements are less than maximum pump output, system pressure forces the pressure ring up against the spring, reducing eccentricity, which reduces flow.

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.



POWRFLOW™ 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.

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