

HYDRAULICS

CONTINENTAL HYDRAULICS **POWERFLOW TM POWERFLOW CONTINENTAL HYDRAULICS**

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POWERFLOWTM 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

- I 500 PSI Rated at Full Rated Flow
- 4 to 70 Gallon Sizes
- 100% Tested
- Three Year Warranty

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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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.





GENERAL SPECIFICATIONS

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 warmup 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.

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 directoperated, 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**



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

Recommended Operating Range



VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



Manifold Mounted

OVERALL EFFICIENCY

1750 rpm at Full Displacement



TYPICAL SOUND LEVEL @ 1750 rpm



TYPICAL PERFORMANCE SPECIFICATIONS

			PU	IMP SI	ZE	
			4B	6B	8B	
VOLUMETRIC	in./rev.	0.7	0.9	1.2		
DISPLACEMENT*	DISPLACEMENT* ml/rev.					
	91.5 psi	gpm	5	7	9.5	
PUMP DELIVERY	6.3 bar	lpm	19	26.5	36	
AT 1750 RPM*	rated	gpm	4	6	8	
	pressure	lpm	15.1	22.8	30.5	
	Max	psi	1500	1000	1000	
	Wax.	bar	103	69	69	
	Patad	psi	1500	1000	1000	
DANCES	naleu	bar	103	69	69	
hANGL3	Min	psi	400	100	100	
	IVIII I.	bar	28	7	7	
	N	Min. rpm				
	Rat	Rated rpm				
SPEEDS	M	Max. rpm 3600				
POWER INPUT AT RA	TED (1750 rp	m) hp	5	5	6	
FLOW & PRESSURE		kW	3.7	3.7	4.4	
	Max	psi		10		
_	wax.	bar				
	Min.	in./Hg	Hg 7			
E FRESSURE Spec	cific Gravity <	1 bar	-0.25			
9	Min.	in./Hg		5		
ភ <u></u> Spec	cific Gravity >	1 bar	-0.17			
FLUID	Max	ft./sec.		5		
VELOCITY	Max.	m/sec.		1.5		
	Max.	cipm	65	36	55	
	Pressure	mlpm	1065	600	900	
	Min.	cipm	25	10	24	
	Pressure	mlpm	410	170	390	
😤 MAXIMUM CASE		psi		10		
PRESSURE		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).

Q₂ = 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 SIZ	E 4	4B		6B			8B		
		PRESSURE COD	E 10	15	03	06	10	03	06	10	
PRESSURE	Press Cha	nge/Turn psi (ba	ar) 255 (17.8)	270 (18.6	115 (7.9)	210 (14.5)	240 (16.5)	115 (7.9)	210 (14.5)	240 (16.6)	
ADJUSTMENT	Max.Torqu	ie ft./lbs.(kg/i	n) 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)	
Flow Change/Turn gpm (lpm)		n) 3.4	(12.5)		4.6 (17.4)			4.6 (17.4)			
ADJUSTMENT Min. Flow Adjust. gpm Max. Torque ft./lbs.		Adjust. gpm (lpi	n) 1.25	(4.7)		1.25 (4.7)			1.25 (4.7)		
		ue ft./lbs. (kg/ı	n) 2.5	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.

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.

4B10 (at 1750 rpm)



6B03 (at 1750 rpm)



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

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4B15 (at 1750 rpm)



6B06 (at 1750 rpm)





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)



VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

PUMP DIMENSIONS

Dimensions shown in: Inches (millimeters)

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MECHANICAL OPTIONS



SIDE LOAD DRIVES

i.e. Belt, Chain, Gear



VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

ORDERING INFORMATION

Right Hand (CW) Rotation



TYPICAL ORDERING CODE: **PVR1-6B10-RM-0-1-I**

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

/DRAIII I/



OVERALL EFFICIENCY

1750 rpm at Full Displacement



TYPICAL SOUND LEVEL @ 1750 rpm



TYPICAL PERFORMANCE SPECIFICATIONS

			PUMP SIZE			
			4B	6B	8B	10B
VOLUMETRIC	IMETRIC cu. in./rev.				1.2	1.4
DISPLACEMENT*	r	nl/rev.	11.5	14.8	19.7	23.1
	91.5 psi	gpm	5.2	7	9	11
PUMP DELIVERY	6.3 bar	lpm	19.7	26.5	34	41
AT 1750 RPM*	rated	gpm	4	6	8	10
	pressure	lpm	15.1	22.7	30.3	38
	Mox	psi	2000	2000	2000	1000
	IVIAX.	bar	138	138	138	69
	Patod	psi	2000	2000	2000	1000
DANGES	naleu	bar	138	138	138	69
HANGLS	Min	psi	500	300	200	300
	IVIIII.	bar	35	20	14	20
	Mir	n. rpm	800 800			800
	Rate	Rated rpm		1750		
SFLLD3	Max. r			3600		
POWER INPUT AT	RATED	hp	7	9	11	8
FLOW & PRESSUR	RE (1750 rpm	ו) kW	5.2	6.7	8.2	5.9
	Max	psi	20		10	
DRESSURE	Iviax.	bar	1.4			0.70
Z	Min.	Min. in./Hg 7				
Spe	cific Grav. <	1 bar		-0.2	25	
2	Min.	in./Hg	5			
ത് Spe	cific Grav. >	1 bar		-0.1	17	
FLUID	Max f	t./sec.		Ę	5	
VELOCITY	ritiax. r	n/sec.		1	.5	
Z NOMINAL FLO	Max.	cipm	31	31	3	37
	Pressure	mlpm	500	500	60	0
	′ Min.	cipm	10	10	2	4
	Pressure	mlpm	170	170	39	0
K MAXIMUM CA	SE	psi		1	0	
^O PRESSURE		bar		0	.7	
WEIGHT		lbs.		2	0	
		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).

Q₂ = Flow (gpm) at N rpm.

M = rpm at which Q_2 is to be determined. When operating above 1500 psi (103 bar), it is recommended that a directacting 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 Ipm) 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 Ipm) 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 Ipm) maximum.

PRESSURE and VOLUME ADJUSTMENT SENSITIVITY

		PUMP IZE	S 4B	6B	6B	8B	8B	10B	6B	8B
		PRESSURE CODE	20	06	15	06	15	10	20	20
PRESSURE	Press Cha	inge/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)
ADJUSTMENT	Max.Torqu	Je 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	Flow Char	nge/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)
ADJUST WENT	Max. Torq	ue 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)



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.

4B20 (at 1750 rpm)



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

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.

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

YDRAULI

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.

6B3L (at 1750 rpm)



8B06 (at 1750 rpm)



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

6B5L(at 1750 rpm)









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.

8B20 (at 1750 rpm)







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

8B3L (at 1750 rpm)



10B10* (at 1750 rpm)



 $^{\ast}\,$ NOTE: Not to be used with water, glycol or emulsion fluids.

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

YDRAULIC

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.

10B3L (at 1750 rpm)



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

10B5L(at 1750 rpm)





VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

PUMP DIMENSIONS







VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

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VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

MECHANICAL OPTIONS

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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



VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

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ORDERING INFORMATION

Right Hand (CW) Rotation



fluids with the PVR6-10B pump.

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

CONTROL

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

HYDRAULICS.

PVR-15 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



OVERALL EFFICIENCY

1750 rpm at Full Displacement



TYPICAL SOUND LEVEL @ 1750 rpm



TYPICAL PERFORMANCE SPECIFICATIONS

					PUMP SIZE		
					15B	20B	30B
VOLUN	METRIC	in./rev.	2.4	2.8	4.3		
DISPLACEMENT* ml/rev.					39.3	46	70.5
			91.5 psi	gpm	18.7	21.6	32.0
PUMP DELIVERY AT 1750 RPM*			6.3 bar	lpm	70.8	81.8	121.0
			rated	gpm	15	19	30
			pressure	lpm	56.8	72	114
			Max	psi	2000	1500	1000
COMP			IVIAX.	bar	160	103	69
			Patod	psi	2000	1500	1000
RANG			naleu	bar	138	103	69
RANGES		Min	psi	400	400	500	
			IVIII I.	bar	28	28	35
			N	lin. rpm		1400	
	ATING 02**		Rat	ed rpm		1750	
SFLLL	13		M	ax. rpm	2400	2400	1800
POWER INPUT AT RATED				hp	20	19	20
FLOW & PRESSURE (1750 rpm)				kW	15	14	15
MAXIN	IUM POWE	ER INPL	JT	hp	40		
TO DR	IVE SHAFT			kW	30		
			Max	psi	2	0	10
			Max.	bar	1.4	40	0.7
			Min.	in./Hg	7	7	5
IË '''	LOGONE	Specif	i <u>c Gravity</u> <	1 bar	-0.25	-0.25	-0.17
19			Min.	in./Hg	5	5	4
<u></u>		Specif	ic Gravity >	1 bar	-0.17	-0.17	-0.13
FLU	JID		Max	ft./sec.	5		
VEL	LOCITY		Max.	m/sec.		1.5	
			1000 psi	gpm	0.5	0.5	0.7
IZ NO	MINAL FLO	N//	69 bar	lpm	1.9	1.9	2.7
		ייי ר	1500 psi	gpm		0.8	
	ESSURE	<u> </u>	103 bar	lpm		3.0	
8	U FRESSURE		2000 psi	gpm	1.2	1.2	\boxtimes
8			138 bar	lpm	4.5	4.5	
∣ ⊂ ма	XIMUM CA	SE		psi		10	
PR	ESSURE			bar		0.7	
WEIGH	IT			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:

 $\rm G_2 = \rm Q_1$ (N-142)/1667 where $\rm Q_1$ = Flow (gpm) at rated rpm at 91.5 psi (6.3 bar).

Q₂ = 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 directacting 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	Press Change/Turr	n psi (bar)	230 (16.0)	310 (21.0)	230 (16.0)
ADJUSTMENT	Max.Torque	ft./lbs.(kg/m)	15.0 (2.0)	15.0 (2.0)	9.0 (1.2)
VOLUME	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)
ADJUST WIENT	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.

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.

15B15 (at 1750 rpm)



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

VORAULT

15B20 (at 1750 rpm)



15B3L (at 1750 rpm)



15B5L (at 1750 rpm)





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.

20B15 (at 1750 rpm)



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

20B3L (at 1750 rpm)



20B4L (at 1750 rpm)



30B10 (at 1750 rpm)



VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

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VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

PUMP DIMENSIONS

NTINENTA

Manifold Mounted - Code RM

Dimensions shown in: Inches (millimeters)

9.78





VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

MECHANICAL OPTIONS

Flange Mounted Pump - Code RF

Dimensions shown in: Inches (millimeters)

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MECHANICAL OPTIONS

Manifold Mounted Pump - Code RM





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		
	A	В	С	D	E	F	G	Н	SPLINE*
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

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

YDRAULICS



Flange Mounted - Code RF



CONTINENTAL HYDRAULICS.

PVR-15 SERIES VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

ORDERING INFORMATION

Manifold Mounted - Code RM



TYPICAL ORDERING CODE: PVR15-15B15-RM-O-17-J

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

/DRAIII I/



OVERALL EFFICIENCY

At Maximum Displacement, Fluid Viscosity 130 SUS



TYPICAL SOUND LEVEL



TYPICAL PERFORMANCE SPECIFICATIONS

				PUMP SIZE				
				32A15	42A15	50B15	70B15	
VC	LUMETRIC	u. in./rev.	7.7	9.9	7.7	9.9		
DIS	SPLACEMENT	*	ml/rev.		162	126	162	
		91.5 p	si <u>g</u> pm	39	48	59	75	
PU	IMP DELIVERY	6.3 ba	r lpm	148	182	223	284	
AT	1750 RPM*	rated	gpm	32	42	50	70	
		pressu	re lpm	121	159	189	265	
		Mox	psi	1500	1500	1500	1500	
0		IVIAX.	bar	103	103	103	103	
		Patad	psi	1500	1500	1500	1500	
	NCES	naleu	bar	103	103	103	103	
	INGL5	Min	psi	350	400	350	400	
		IVIII I.	bar	24	27.6	24	27.6	
			Min. rpm		80	00		
		F	Rated rpm	1200	1200	1800	1800	
SF	LLDS		Max. rpm	2200	1500	2200	1800	
PC	WER INPUT A	T RATED	36	42	50	60		
FL	OW & PRESSL	JRE (1750	rpm) kW	27	31	37	45	
MA	AXIMUM POWI	ER	Max hp		10	00		
INF	PUT TO DRIVE	SHAFT	Wax. kW		7	5		
		Max	in./Hg	5			3	
	DRESSLIDE	Max.	bar		-0.17		-0.10	
S	THEODONE	Min.	psi	20	10	20	10	
Ĕ	Sp	ecific Grav	<i>.</i> < 1 bar	1.4	1.4 .07		0.7	
19		Min.	in./Hg	5		3		
S	Sp	ecific Grav	. > 1 bar	-0.17 -		-0.10		
	FLUID	Max	ft./sec.	5				
	VELOCITY	Max.	m/sec.	1.5				
Z		JW Max.	gpm			3		
A		Pressu	ire mlpm	11				
1 D	PRESSURE	Min.	gpm	2.5				
SЕ		Pressu	ire mlpm	9.5				
X	MAXIMUM CA	ASE	psi	10				
Ľ	PRESSURE		bar	0.7				
	WEIGHT Ibs			119				
ka				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).

Q₂ = 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 directacting 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	Press Change/Tur	n psi (bar)	115	(8.0)	135	(9.4)
ADJUSTMENT	Max.Torque	ft./lbs.(kg/m)		26.5	(13.7)	
VOLUME	Flow Change/Turn	gpm (lpm)	14 (53.0)	22 (8	33.0)
	Min. Flow Adjust.	gpm (lpm)	6.0 (22.7)	8.0 (30.3)	9.5 (36.0)	12.5 (47.0)
ADJUSTNIENT	Max. Torque	ft./lbs. (kg/m)	28 (3.9)	16 (2.2)	28 (3.9)	16 (2.2)



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.

32A15 (at 1175 rpm)



50B15 (at 1750 rpm)



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

42A15 (at 1175 rpm)



50B3L (at 1750 rpm)



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.

50B5L (at 1750 rpm)



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

/DRAIII I

70B15 (at 1750 rpm)



70B3L (at 1750 rpm)



70B5L (at 1750 rpm)



VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

NTINENTA

IYDRAULIC



VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

NTINENTAI

HYDRAULICS





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)





VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

CONTINENTA

HYDRAULIC

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
	F	Α	В	С	D	E Thread		SPLINE*
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

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED


CONTROL OPTIONS



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.

CONTROL OPTIONS

NTINENTA

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_{u}) must be maintained to hold pump in low volume, output where $P_{u} = 55\%$ of P_{c} (maximum compensated pressure).



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



NORMAL HIGH VOLUME -ENERGIZE TO LOW VOLUME (INTEGRAL OR REMOTE OPERATION)

CONTROL OPTIONS

HYDRAULIC



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

(CODE 9)

CONTROL OPTIONS

DNTINENTA

CONTROL PILOT PRESSURES



PUMP	CONTROL	PILOT	CURVE SOURCE
	DDECOUDE	REMOTE	В
15	PRESSURE	INTEGRAL	-
15	VOLUME	REMOTE	А
	VOLUME	INTEGRAL	A
	DDESSUDE	REMOTE	А
50	FRESSURE	INTEGRAL	-
50	VOLUME	REMOTE	A
	VOLUIVIE	INTEGRAL	A

CONTROL OPTIONS

HYDRAULICS

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 14.50 (368.3) MAX.



Integral Operator Control* - Code 18



CONTROL OPTIONS

DNTINENTAL

IYDRAULIC

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



CONTROL OPTIONS

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HYDRAULICS



CONTROL OPTIONS

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HYDRAULIC

DUAL PRESSURE CONTROL DIMENSIONS

Code RM Pump

Remote Operator Control - Code 17



CONTROL OPTIONS

VORAULIC

ORDERING INFORMATION

Flange Mounted - Code RF Only



rating includes surges.

TYPICAL ORDERING CODE:

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

CONTROL OPTIONS

NTINENTA

IVDRAIILL

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



CONTROL OPTIONS

NTINENTA

HYDRAULICS

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



CONTROL OPTIONS

DNTINENTAL

IVDRAIILL



Integral Operator Control* - Code 25



CONTROL OPTIONS

HYDRAULICS





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)







						DIMENSIONS			lı (mil	Inches (millimeters)								
FOOT BRACKET SERIES	SAE FLANGE	A	в	с	D	Е	F	G	н	J	к	L	м	N	ο	Р	R THREAD	S BOLT SIZE
FPVR6	Α	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 ln.
FPVR15	В	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 ln.

MOUNTING ACCESSORIES

CONTINENTAL

HYDRAULICS

FPVR50 FOOT MOUNTING BRACKET DIMENSIONS

Dimensions shown in: Inches (millimeters)







MOUNTING ACCESSORIES

DNTINENTAL

IYDRAULIC

FPVR50D FOOT MOUNTING BRACKET DIMENSIONS SAE D Mounting

Dimensions shown in: Inches (millimeters)



MOUNTING ACCESSORIES

CONTINENTAL

HYDRAULICS

ORDERING INFORMATION SELECT DESIGN Foot Mounting Brackets SELECT DESIGN ONE ONE LETTER											
				FPV	′R 🛛		-	-	-		
									*NOTE:	Foot Bracket	t Spacers mount pump to
SIZE				м	DTOR S	SIZE	KIT INCLUDES		25 H.P. moto	•r, 1800 rpm, 284 1 frame. -1T	
	CODE	USE	D WITH ODEL	CODE	NE FRAM	EMA IE SIZE	MOTO SPACERS	R 6 (In.)	BRACKET SPACERS (In.)	lbs. / I	kg
	6	F	PVR6	143 182 213	143 182 213	3/145 2/183 3/215	1.74 0.75 NONE		NONE	10.1 / 4 8.8 / 4 7.9 / 3	6 .0 .6
	15	P	VR15	254 254 284 324	254 254 284 324	1/256 1/256 1/286	NONE		1.00 NONE 0.75	9.8 / 4 16.8 / 7 18.8 / 8 21.5 / 9	.4 7.6 3.5
	1524	PV DUAI	R15 W/ VOLUME	254 284	254	1/256 1/286	1.75		1.75	24.5 / 1	1.1 0.5
	1524	PV DUAL	R15 W/ VOLUME	284 324 364	284 324 364	1/286 1/326 1/365	NONE	<u> </u>	NONE 1.00 2.00	22.8 / 1 26.7 / 1 30.6 / 1	0.3 2.1 3.9
	50D	P S MO	VR50 SAE D UNTING	254 284 324 364	254 284 324 364	1/256 1/286 1/326 1/365	0.75 NONE		NONE 1.00 2.00	24.5 / 1 22.8 / 1 26.7 / 1 30.6 / 1	1.1 0.3 2.1 3.9
	5024	PV DUAL	R50 W/ . VOLUME	254 284 324	254 284 324	1/256 1/286 1/326	3.50 2.75 1.75		2.75 2.75 2.75	35.7 / 1 33.8 / 1 32.7 / 1	6.2 5.3 4.8
			TYPIC	AL OF	DERI	NG CC	DDE: F	PV	/R15-28	4-	
Bolt Kits for	or Mo	unting	PVR Ser	ies Pu	mps	SELE ON	CT E	SELECT ONE	- -	DESIGN LETTER	
				В	PVF				– U –		
									NOTE:	to a MPVR15	5-XX-C-21 manifold.
		CODE	USED W MODE		CODE*	BOL	T SIZE	BOL	QTY. of TS/WASHERS	WEIGHT Ibs. / kg	
		1	PVR6		1	3/8-16 l	JNC 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 l	JNC x 1.25		2	.22/.10	
		50	PVR50		2	5/8-11 l	JNC x 1.75		4	.90/.40	
		50D	PVR50 SAE D M) TG.	3	3/4-10 l	JNC 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-

HYDRAULICS.

PVR-1 SERIES VANE PUMPS

MOUNTING ACCESSORIES

MANIFOLD DIMENSIONS for PVR1 Pump

Dimensions shown in: Inches (millimeters)



ORDERING INFORMATION



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

MOUNTING ACCESSORIES

HYDRAULIC

MANIFOLD DIMENSIONS for PVR15 Pump - Code RM

Dimensions shown in: Inches (millimeters)



ORDERING INFORMATION



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

MOUNTING ACCESSORIES

NTINENTA

STRAIGHT FLANGES DIMENSIONS

Flange Codes 9 through 33

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



FLANGE						DI	MENSIC	ONS	Inches (millimete	rs)	
SIZE	CODE	Α	В	С	D	E	F	G	Н	J	K
4.1m	9	.97	1.38	2.75	2.31	1.03	.52	1.03	2.06		1' NPTF
I In.	11	(24.6)	(35.1)	(69.9)	(58.7)	(26.2)	(13.2)	(26.2)	(52.3)	3/6-10 UNC X 1.75	1-5/16-12 UN SAE #16
	21	1.00	1 00	2.60	2.05	1 /1	70	1 20	0.75		1-1/4" NPTF
1-1/2 In.	25	(07.7)	1.02	(00.7)	3.20	(25.0)	.70	(05 1)	2.75	1/2-13 UNC x 2.00	1-1/2" NPTF
	27	(27.7)	(40.2)	(93.7)	(02.0)	(33.6)	(17.0)	(35.1)	(69.9)		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	$1/2_{-}13 INC \times 1_{-}3/4$	2" NPTE
2 111.	55	(27.7)	(46.2)	(101.6)	(96.8)	(42.7)	(21.3)	(38.9)	(78.2)	1/2-10 UNO X 1-0/4	Z INFIT

90° SUCTION FLANGE DIMENSIONS PVR50 Pump - Flange Code 37

Dimensions shown in: Inches (millimeters)



MOUNTING ACCESSORIES

YDRAULIC

ORDERING INFORMATION

Flanges



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

TYPICAL ORDERING CODE: SPVR-9-G

ORDERING INFORMATION

Pump Mechanical Accessories



	PU		L (DESIGN	LETTER IN		*		
CODE	DESCRIPTION	PVR1	PVR6	PVR15 - RF 15 & 20B	PVR15 - RF 30B	PVR15 - RM	PVR50	WEIGHT Ibs. / kg
6	Volume Screw Assembly	I	А	Standard	Standard	Standard	Standard	0.3 / 0.14
15	Handwheel Pressure Assembly	N/A	N/A	А	А	А	А	0.8 / 0.36
1536	Handwheel Pressure Assembly	н	А	N/A	N/A	N/A	N/A	0.9 / 0.41
1536	Handwheel Volume Assembly	I	А	D	В	Note 1	Note 1	0.9 / 0.41
17	Remote Dual Pressure Control	Note 1	Note 1	С	А	I	I	3.6 / 1.63
24	Remote Dual Volume Control	Note 1	Note 1	А	А	Note 1	Note 1	1.9 / 0.86
there T				1			1	

*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.

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.

IMPORTANT !

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

TYPICAL ORDERING CODE: PMA-17-

HYDRAULICS.

PVR SERIES VANE PUMPS

MOUNTING ACCESSORIES

TRANSITION PLATE

Dimensions shown in: Inches (millimeters)

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





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



MOUNTING ACCESSORIES

NTINENTAI

HYDRAULICS

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.



HYDRAULICS.

PVR SERIES VANE PUMPS

MOUNTING ACCESSORIES

AIR BLEED VALVE



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		150 poi
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

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



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.

MOUNTING ACCESSORIES

NTINENTAI

HYDRAULICS

VALVE DIMENSIONS

Dimensions shown in: Inches (millimeters)



ORDERING INFORMATION



TYPICAL ORDERING CODE:

AB-1-

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

	FRON	T PUMP		REAR PUMP WITH OPTION CODE 12								
BAS		OPTION	MAXIMUM	VA	ANE	PISTON						
BAO		CODE*	H.P.**	PVR6	PVR15	HPV6	HPV10	HPV15	HPV20	HPV29		
	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		
VANE		31	30	N/A	N/A		N/A	N/A	N/A	N/A		
		21	7.5		N/A	N/A	N/A	N/A	N/A	N/A		
	DVD50	22	20	N/A		N/A			N/A	N/A		
	FVR30	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		

TANDEM PUMP COMBINATIONS

*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.

POWRFLOWTM 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.



POWERFLOWTM PVR SERIES VANE PUMPS





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-inhand 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.

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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6

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POWERFLOWTM PVX VANE PUMPS

YOUR SOURCE FOR VANE PUMPS FOR THE MOST DEMANDING APPLICATIONS

What Makes PowrFlow^{**} PVX Vane Pumps Your Best Buy?

Continental Hydraulics PowrFlow™ PVX 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. PVX Vane Pumps deliver faster response, and require less external compensation compared to fixed

displacement designs.





Use PVX Vane pumps in tough applications such as on machine tools, in steel mills and mines, in shipyards and foundries, in automobile plants and textile mills, in pulp and paper mills, or any place else where reliable and economical hydraulic power is needed.

Features and Benefits

- 3000 PSI Rated at Full Rated Flow on most models
 8 to 75 GPM Sizes
- Compact Design saves valuable space on your product, or in your power room.
- Pressure Compensation adjusts pump delivery to demand to save energy.
- Fast Response 20 to 50 ms depending on model.
- Fast Recovery 70 to 500 ms at minimum flow, depending on model.
- 100% Tested
- Quiet Operation
- Three Year Warranty

Compensator Options for All Kinds of Applications

- Single Stage
- Two Stage
- Load Sensing
- Two Pressure
- Torque Limiting

Hydraulic Centering Pads

Hydraulic pressure operated pistons keep the pressure ring centered to reduce wear and noise.

Tandem Pump Capability

Available with splined shaft and tandem mount cover.

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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1

INTRODUCTION AND BENEFITS

This catalog introduces a new line of enhanced performance variable displacement pressure compensated vane pumps from Continental Hydraulics. Sizes range from 8 to 36 gpm; 3000 psi in "A", "B", or "C" SAE mounts and 46 to 75 gpm; 2500 psi in "D" SAE mount.

The pumps are designed to meet requirements of the machine tool, general machinery and other markets where low noise, high performance and competitive pricing are needed.

Note these improvements and features:

- Continuous duty ratings.
- Speed range 1150, 1450 and 1750 rpm.
- High efficiency at full flow.
- Quiet operation.
- Modern appearance.
- Improved ring and vane wear.
- Fast response and recovery times.
- Reduced envelope size.
- Improved controls with shock clipper.
- Conforms to the latest SAE, ISO, NFPA and ANSI standards.
- Allows full horsepower transference to pump 2 on tandem mounted pumps.
- 3 year warranty.

Benefits include:

- Competitively priced with other manufacturers of vane and axial piston pumps.
- Reduced sound levels help meet government and purchased sound requirements.
- High performance and long life design.
- Fast reaction time for critical system demands.
- Pressure compensated pumps controls delivery to circuit demands thereby conserving energy.
- Hydrodynamic journal bearings provide long life and quiet operation.
- Repair kits are available from local distributor or the factory.
- Control option include single stage, two stage; load sensing, and torque limiting on most models.
- Shock clipper reduces shock pressure increasing system component life and stability.

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PVX-8 VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



PERFORMANCE SPECIFICATIONS

Displaceme	ent (Nominal)		1 in ³ /rev. (16 cm ³ /rev.)		
Displaceme	ent (Actual)		1.06 in ³ /rev.(16.8 cm ³ /rev.)		
Flow at 175	i0 rpm*		7.57 gpm (28.6 l/min.)		
Maximum c	ontinuous pre	essure	3000 psi (210 bar)		
		Single stage	200-3000 psi (14-210 bar)		
Pressure co	ompensating		Minimum 190 psi (13 bar)		
range		Two stage	300-3000 psi (21-210 bar)		
		Two stage	Minimum 290 psi (19 bar)		
Maximum ti	ransient spike	pressure	3800 psi (260 bar)		
Maximum c	ase pressure	10 psi (0.7 bar)			
Speed rang	e	1150 - 1800 rpm			
Direction of	rotation (view	Right hand (clockwise)			
Case drain	flow 100	0 psi (70 bar)	0.6 gpm (2.3 l/min.)		
while comp	ensating 2000	psi (140 bar)	0.9 gpm (3.4 l/min.)		
at 1800 rpm	n 3000	psi (210 bar)	1.26 gpm (4.8 l/min.)		
Maximum ir	nlet vacuum a	t sea level	6 inches Hg (152 mm Hg)		
Mounting -	SAE 2 bolt fla (ISO 3019/1)	nge	S.A.E 'A' - 2 bolt flange		
Mounting p	osition		Unrestricted		
		Inlet	#16 S.A.E.		
		Outlet	#12 S.A.E.		
Port sizes		Case drain	#8 S.A.E.		
	Clipper contr	ol drain (opt.)	#6 S.A.E.		
	Remote	#4 S.A.E.			
		Minimum	100 SUS (21 cSt)		

Response time (Circuit dependent)	Full flow to minimum flow	20-35 ms		
Response time	Minimum flow	50-135 ms -		
(Circuit dependent)	to full flow	single stage compensator		
Woight	Single stage	34 lbs. (16.5 kg)		
weight	Two stage	38 lbs. (17.3 kg)		

* Flows are actual. Volumetric efficiencies shown in technical data are taken into account.

OTHER SPECIFICATIONS

• **DRIVE** - Pump to be connected to prime mover by means of a flexible coupling that is aligned to a maximum of .006" (.152 mm) total indicator reading. No overhung or side loads permitted. Alignments greater than .006" (.152 mm) indicator reading could cause increased noise and vibration as well as premature shaft seal wear resulting in leakage.

• FLUID RECOMMENDATIONS - A premium quality hydraulic oil with anti-wear additives is recommended, but not required. Consult factory for use with water base fire resistant fluids.

• FLUID TEMPERATURE - Normal inlet fluid temperature should not exceed 140° F. (60° C.). Always select a fluid for optimum viscosity at operating temperature. Consult factory for applications assistance when inlet fluid temperatures over 140° F. (60° C.) are expected.

• FILTRATION - Fluid cleanliness per ISO/DIS 4406 should be 18/15 or better for pressures of 2000 psi (140 bar) or less. For

3

PVX-8 VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED





EFFICIENCY @ 1800 rpm





PVX-8 VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

S.A.E. 'A' Flange, RH Rotation

INCHES (millimeters)


PVX-8 VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

S.A.E. 'A' Flange, RH Rotation



INCHES

6

PVX-8 VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



NOTE: See pages 12 thru 14 for PVX-11 dimensions.

PERFORMANCE SPECIFICATIONS

Displacement (Nominal)		1.5 in ³ /rev. (25 cm ³ /rev.)
Displacement (Actual)		1.66 in ³ /rev.(27.4 cm ³ /rev.)
Flow at 1750 rpm*		11.36 gpm (43.0 l/min.)
Maximum continuous pre	essure	3000 psi (210 bar)
	Single stage	200-3000 psi (14-210 bar)
Pressure compensating		Minimum 190 psi (13 bar)
range	Two stage	300-3000 psi (21-210 bar)
	. no olugo	Minimum 290 psi (19 bar)
Maximum transient spike	pressure	4000 psi (280 bar)
Maximum case pressure		10 psi (0.7 bar)
Speed range		1150 - 1800 rpm
Direction of rotation (view	ed shaft end)	Right hand (clockwise)
Case drain flow _1000 psi (70 bar)		0.6 gpm (2.3 l/min.)
while compensating 2000 psi (140 bar)		1.1 gpm (4.2 l/min.)
at 1800 rpm 3000 psi (210 bar)		1.4 gpm (5.3 l/min.)
Maximum inlet vacuum at sea level		6 inches Hg (152 mm Hg)
Mounting - SAE 2 bolt flange (ISO 3019/1)		S.A.E 'B' - 2 bolt flange
Mounting position		Unrestricted
	Inlet	#24 S.A.E.
	Outlet	#16 S.A.E.
Port sizes	Case drain	#8 S.A.E.
Clipper control drain (opt.)		#6 S.A.E.
Remote control (opt.)		#4 S.A.E.
	Minimum	100 SUS (21 cSt)
Fluid viscosity at	Maximum	1000 SUS (216 cSt)
operating temperature Optimum		150-250 SUS (32-54 cSt)
Maximum start-up		4000 SUS (864 cSt)
Seals		Standard fluorocarbon

Response time (Circuit dependent)	Full flow to minimum flow	20-35 ms
Response time (Circuit dependent)	Minimum flow to full flow	70-185 ms - single stage compensator
Weight	Single stage Two stage	61 lbs. (27.7 kg) 65 lbs. (29.4 kg)

* Flows are actual. Volumetric efficiencies shown in technical data are taken into account.

OTHER SPECIFICATIONS

• **DRIVE** - Pump to be connected to prime mover by means of a flexible coupling that is aligned to a maximum of .006" (.152 mm) total indicator reading. No overhung or side loads permitted. Alignments greater than .006" (.152 mm) indicator reading could cause increased noise and vibration as well as premature shaft seal wear resulting in leakage.

• FLUID RECOMMENDATIONS - A premium quality hydraulic oil with anti-wear additives is recommended, but not required. Consult factory for use with water base fire resistant fluids.

• FLUID TEMPERATURE - Normal inlet fluid temperature should not exceed 140° F. (60° C.). Always select a fluid for optimum viscosity at operating temperature. Consult factory for applications assistance when inlet fluid temperatures over 140° F. (60° C.) are expected.

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



Sound pressure levels measured in a hemi-anchoic chamber with microphone placed one (1) meter

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



NOTE: See pages 12 thru 14 for PVX-15 dimensions.

PERFORMANCE SPECIFICATIONS

Displacement (Nominal)		2 in ³ /rev. (32 cm ³ /rev.)
Displacement (Actual)		2.04 in ³ /rev. (32 cm ³ /rev.)
Flow at 1750 rpm*		15.15 gpm (57.3 l/min.)
Maximum continuous pre	essure	3000 psi (210 bar)
Pressure compensating	Single stage	200-3000 psi (14-210 bar) Minimum 190 psi (13 bar)
range	Two stage	300-3000 psi (21-210 bar) Minimum 290 psi (19 bar)
Maximum transient spike	pressure	4000 psi (280 bar)
Maximum case pressure		10 psi (0.7 bar)
Speed range		1150 - 1800 rpm
Direction of rotation (view	ved shaft end)	Right hand (clockwise)
Case drain flow 1000 psi (70 bar) while compensating 2000 psi (140 bar)		0.6 gpm (2.3 l/min.) 1.1 gpm (4.2 l/min.)
Maximum inlet vacuum at sea level		6 inches Hg (152 mm Hg)
Mounting - SAE 2 bolt flange (ISO 3019/1)		S.A.E 'B' - 2 bolt flange
Mounting position		Unrestricted
	Inlet	#24 S.A.E.
Outlet		#16 S.A.E.
Port sizes Case drain		#8 S.A.E.
Clipper control drain (opt.)		#6 S.A.E.
Remote control (opt.)		#4 S.A.E.
	Minimum	100 SUS (21 cSt)
Fluid viscosity at	Maximum	1000 SUS (216 cSt)
operating temperature Optimum		150-250 SUS (32-54 cSt)
Maximum start-up		4000 SUS (864 cSt)
Seals		Standard fluorocarbon

Response time (Circuit dependent)	Full flow to minimum flow	20-35 ms
Response time (Circuit dependent)	Minimum flow to full flow	70-185 ms - single stage compensator
Weight	Single stage Two stage	61 lbs. (27.7 kg) 65 lbs. (29.4 kg)

* Flows are actual. Volumetric efficiencies shown in technical data are taken into account.

OTHER SPECIFICATIONS

• **DRIVE** - Pump to be connected to prime mover by means of a flexible coupling that is aligned to a maximum of .006" (.152 mm) total indicator reading. No overhung or side loads permitted. Alignments greater than .006" (.152 mm) indicator reading could cause increased noise and vibration as well as premature shaft seal wear resulting in leakage.

• FLUID RECOMMENDATIONS - A premium quality hydraulic oil with anti-wear additives is recommended, but not required. Consult factory for use with water base fire resistant fluids.

• FLUID TEMPERATURE - Normal inlet fluid temperature should not exceed 140° F. (60° C.). Always select a fluid for optimum viscosity at operating temperature. Consult factory for applications assistance when inlet fluid temperatures over 140° F. (60° C.) are expected.

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

OUTPUT FLOW & POWER @ 1800 rpm



Sound pressure levels measured in a hemi-anchoic chamber with microphone placed one (1) meter

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

S.A.E. 'B' Flange, RH Rotation

INCHES (millimeters)



VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

S.A.E. 'B' Flange, RH Rotation

INCHES (millimeters)

HYDRAULICS.



VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

S.A.E. 'B' Flange, RH Rotation





VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



* Requires voltage selection.

PVX-20 VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



NOTE: See pages 22 and 23 for PVX-20 dimensions.

PERFORMANCE SPECIFICATIONS

Displacement (Nominal)		2.75 in ³ /rev. (45 cm ³ /rev.)
Displacement (Actual)		2.88 in ³ /rev. (47.3 cm ³ /rev.)
Flow at 1750 rpm*		20.83 gpm (72.8 l/min.)
Maximum continuous pre	essure	3000 psi (210 bar)
Pressure compensating	Two stage	350-3000 psi (24-210 bar)
range	Two stage	Minimum 300 psi (21 bar)
Maximum transient spike	pressure	4000 psi (280 bar)
Maximum case pressure		10 psi (0.7 bar)
Speed range		1150 - 1800 rpm
Direction of rotation (view	ed shaft end)	Right hand (clockwise)
Case drain flow 1000) psi (70 bar)	1.5 gpm (5.7 l/min.)
while compensating 2000	psi (140 bar)	1.9 gpm (7.2 l/min.)
at 1800 rpm 3000	psi (210 bar)	2.5 gpm (9.5 l/min.)
Maximum inlet vacuum at sea level		6 inches Hg (152 mm Hg)
Mounting - SAE 2 bolt flange (ISO 3019/1)		S.A.E 'C' - 2 bolt flange
Mounting position		Unrestricted
	Inlet	2" S.A.E.
Port sizes	Outlet	1-1/4" S.A.E.
1 011 31263	Case drain	#8 S.A.E.
Remote control (optional)		#4 S.A.E.
	Minimum	150 SUS (32 cSt)
Fluid viscosity at	Maximum	1000 SUS (216 cSt)
operating temperature	Optimum	200-300 SUS (43-65 cSt)
Maximum start-up		4000 SUS (864 cSt)
Seals		Standard fluorocarbon

Response time (Circuit dependent)	Full flow to minimum flow	20-40 ms
Response time (Circuit dependent)	Minimum flow to full flow	100-250 ms - two stage compensator
Weight	Single stage Two stage	120 lbs. (55 kg) 128 lbs. (58 kg)

* Flows are actual. Volumetric efficiencies shown in technical data are taken into account.

OTHER SPECIFICATIONS

• **DRIVE** - Pump to be connected to prime mover by means of a flexible coupling that is aligned to a maximum of .006" (.152 mm) total indicator reading. No overhung or side loads permitted. Alignments greater than .006" (.152 mm) indicator reading could cause increased noise and vibration as well as premature shaft seal wear resulting in leakage.

• FLUID RECOMMENDATIONS - A premium quality hydraulic oil with anti-wear additives is recommended, but not required. Consult factory for use with water base fire resistant fluids.

• FLUID TEMPERATURE - Normal inlet fluid temperature should not exceed 140° F. (60° C.). Always select a fluid for optimum viscosity at operating temperature. Consult factory for applications assistance when inlet fluid temperatures over 140° F. (60° C.) are expected.

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



Sound pressure levels measured in a hemi-anchoic chamber with microphone placed one (1) meter away at discrete locations. Sound pressure levels are spacially and time-weighted averaged

PVX-29 VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



NOTE: See pages 22 and 23 for PVX-29 dimensions.

PERFORMANCE SPECIFICATIONS

Displacement (Nominal)		3.84 in ³ /rev. (63 cm ³ /rev.)
Displacement (Actual)		3.93 in ³ /rev. (64.4 cm ³ /rev.)
Flow at 1750 rpm*		29.10 gpm (110.1 l/min.)
Maximum continuous pre	ssure	3000 psi (210 bar)
Pressure compensating	Two stage	350-3000 psi (24-210 bar)
range	Two olage	Minimum 300 psi (21 bar)
Maximum transient spike	pressure	4000 psi (280 bar)
Maximum case pressure		10 psi (0.7 bar)
Speed range		1150 - 1800 rpm
Direction of rotation (viewe	ed shaft end)	Right hand (clockwise)
Case drain flow 1000) psi (70 bar)	1.4 gpm (5.3 l/min.)
while compensating 2000	psi (140 bar)	1.8 gpm (6.8 l/min.)
at 1800 rpm 3000	psi (210 bar)	2.4 gpm (9.1 l/min.)
Maximum inlet vacuum at sea level		6 inches Hg (152 mm Hg)
Mounting - SAE 2 bolt flange (ISO 3019/1)		S.A.E 'C' - 2 bolt flange
Mounting position		Unrestricted
	Inlet	2" S.A.E.
Port sizes	Outlet	1-1/4" S.A.E.
1 011 31203	Case drain	#8 S.A.E.
Remote control (optional)		#4 S.A.E.
	Minimum	150 SUS (32 cSt)
Fluid viscosity at	Maximum	1000 SUS (216 cSt)
operating temperature	Optimum	200-300 SUS (43-65 cSt)
Maximum start-up		4000 SUS (864 cSt)
Seals		Standard fluorocarbon

Response time (Circuit dependent)	Full flow to minimum flow	20-40 ms
Response time (Circuit dependent)	Minimum flow to full flow	100-250 ms - two stage compensator
Weight	Single stage	120 lbs. (55 kg)
Velgin	Two stage	128 lbs. (58 kg)

* Flows are actual. Volumetric efficiencies shown in technical data are taken into account.

OTHER SPECIFICATIONS

• **DRIVE** - Pump to be connected to prime mover by means of a flexible coupling that is aligned to a maximum of .006" (.152 mm) total indicator reading. No overhung or side loads permitted. Alignments greater than .006" (.152 mm) indicator reading could cause increased noise and vibration as well as premature shaft seal wear resulting in leakage.

• FLUID RECOMMENDATIONS - A premium quality hydraulic oil with anti-wear additives is recommended, but not required. Consult factory for use with water base fire resistant fluids.

• FLUID TEMPERATURE - Normal inlet fluid temperature should not exceed 140° F. (60° C.). Always select a fluid for optimum viscosity at operating temperature. Consult factory for applications assistance when inlet fluid temperatures over 140° F. (60° C.) are expected.

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



Sound pressure levels measured in a hemi-anchoic chamber with microphone placed one (1) meter away at discrete locations. Sound pressure levels are spacially and time-weighted averaged

PVX-36 VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



NOTE: See pages 22 and 23 for PVX-36 dimensions.

PERFORMANCE SPECIFICATIONS

Displacement (Nominal)	4.88 in ³ /rev. (80 cm ³ /rev.)
Displacement (Actual)	5.02 in ³ /rev. (82.3 cm ³ /rev.)
Flow at 1750 rpm*	36.97 gpm (139.9 l/min.)
Maximum continuous pressure	3000 psi (210 bar)
Pressure compensating Two stage	350-3000 psi (24-210 bar) Minimum 300 psi (21 bar)
Maximum transient spike pressure	4000 psi (280 bar)
Maximum case pressure	10 psi (0.7 bar)
Speed range	1150 - 1800 rpm
Direction of rotation (viewed shaft end)	Right hand (clockwise)
Case drain flow 1000 psi (70 bar)	1.4 gpm (5.3 l/min.)
while compensating 2000 psi (140 bar)	1.8 gpm (6.8 l/min.)
at 1800 rpm 3000 psi (210 bar)	2.3 gpm (8.7 l/min.)
Maximum inlet vacuum at sea level	6 inches Hg (152 mm Hg)
Mounting - SAE 2 bolt flange (ISO 3019/1)	S.A.E 'C' - 2 bolt flange
Mounting position	Unrestricted
Inlet	2" S.A.E.
Outlet	1-1/4" S.A.E.
Case drain	#8 S.A.E.
Remote control (optional)	#4 S.A.E.
Minimum	150 SUS (32 cSt)
Fluid viscosity at Maximum	1000 SUS (216 cSt)
operating temperature Optimum	200-300 SUS (43-65 cSt)
Maximum start-up	4000 SUS (864 cSt)
Seals	Standard fluorocarbon

Response time (Circuit dependent)	Full flow to minimum flow	20-40 ms
Response time (Circuit dependent)	Minimum flow to full flow	100-250 ms - two stage compensator
Weight	Single stage	120 lbs. (55 kg)
	Two stage	128 lbs. (58 kg)

* Flows are actual. Volumetric efficiencies shown in technical data are taken into account.

OTHER SPECIFICATIONS

• **DRIVE** - Pump to be connected to prime mover by means of a flexible coupling that is aligned to a maximum of .006" (.152 mm) total indicator reading. No overhung or side loads permitted. Alignments greater than .006" (.152 mm) indicator reading could cause increased noise and vibration as well as premature shaft seal wear resulting in leakage.

• FLUID RECOMMENDATIONS - A premium quality hydraulic oil with anti-wear additives is recommended, but not required. Consult factory for use with water base fire resistant fluids.

• FLUID TEMPERATURE - Normal inlet fluid temperature should not exceed 140° F. (60° C.). Always select a fluid for optimum viscosity at operating temperature. Consult factory for applications assistance when inlet fluid temperatures over 140° F. (60° C.) are expected.

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



Sound pressure levels measured in a hemi-anchoic chamber with microphone placed one (1) meter away at discrete locations. Sound pressure levels are spacially and time-weighted averaged

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

S.A.E. 'C' Flange, RH Rotation



PVX-20/29/36 VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

S.A.E. 'C' Flange, RH Rotation

INCHES (millimeters)

HYDRAULICS







PVX-20/29/36 VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



PVX-46 VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



NOTE: See pages 31 and 32 for PVX-46 dimensions.

PERFORMANCE SPECIFICATIONS

Displacement (Nominal)		6.1 in ³ /rev. (100 cm ³ /rev.)
Displacement (Actual)		6.0 in ³ /rev. (99 cm ³ /rev.)
Flow at 1750 rpm*		45.4 gpm (171.8 l/min.)
Maximum pressure		2500 psi (170 bar)
Maximum pressure - high applications	n cycle	2500 psi (170 bar)
Pressure compensating range	Two stage	350-2500 psi (24-170 bar)
Maximum transient spike	pressure	4000 psi (280 bar)
Maximum case pressure		10 psi (0.7 bar)
Speed range		1150 - 1800 rpm
Direction of rotation (view	ved shaft end)	Right hand (clockwise)
Case drain flow 1000 psi (70 bar)		1.5 gpm (5.7 l/min.)
while compensating 2000 psi (140 bar)		2.0 gpm (7.6 l/min.)
at 1800 rpm 3000) psi (210 bar)	2.5 gpm (9.5 l/min.)
Maximum inlet vacuum at sea level		6 inches Hg (152 mm Hg)
Mounting - SAE 2 bolt flange (ISO 3019/1)		S.A.E 'D' - 2 bolt flange
Mounting position		Unrestricted
	Inlet	2-1/2" S.A.E.
Dort oizoo	Outlet	1-1/2" S.A.E.
Fort sizes	Case drain	#8 S.A.E.
Remote control (optional)		#4 S.A.E.
	Minimum	150 SUS (32 cSt)
Fluid viscosity at	Maximum	1000 SUS (216 cSt)
operating temperature	Optimum	200-300 SUS (43-65 cSt)
Maximum start-up		4000 SUS (864 cSt)
Seals		Standard fluorocarbon

Response time (Circuit dependent)	Full flow to minimum flow	20-50 ms
Response time (Circuit dependent)	Minimum flow to full flow	250 - 500 ms - two stage compensator
Waight	Single stage	240 lbs. (109 kg)
weight	Two stage	248 lbs. (112.7 kg)

* Flows are actual. Volumetric efficiencies shown in technical data are taken into account.

OTHER SPECIFICATIONS

• **DRIVE** - Pump to be connected to prime mover by means of a flexible coupling that is aligned to a maximum of .006" (.152 mm) total indicator reading. No overhung or side loads permitted. Alignments greater than .006" (.152 mm) indicator reading could cause increased noise and vibration as well as premature shaft seal wear resulting in leakage.

• FLUID RECOMMENDATIONS - A premium quality hydraulic oil with anti-wear additives is required.* Consult factory for use with water base fire resistant fluids.

* Such as Mobil DTE-26, or similar, for pressures over 2000 psi (140 bar).

• FLUID TEMPERATURE - Normal inlet fluid temperature should not exceed 140° F. (60° C.). Always select a fluid for optimum viscosity at operating temperature. Consult factory for applications assistance when inlet fluid temperatures over 140° F. (60° C.) are expected.

PVX-46 VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED





EFFICIENCY @ 1200 rpm 6.1in³/rev (100cm³/rev) 90% 80% OVERALL





EFFICIENCY @ 1800 rpm





Sound pressure levels measured in a hemi-anchoic chamber with microphone placed one (1) meter away at discrete locations. Sound pressure levels are spacially and time-weighted averaged

PVX-60 VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



NOTE: See pages 31 and 32 for PVX-60 dimensions.

PERFORMANCE SPECIFICATIONS

Displacement (Nominal)		7.9 in ³ /rev. (130 cm ³ /rev.)	
Displacement (Actual)	8.0 in ³ /rev. (131 cm ³ /rev.)		
Flow at 1750 rpm*	59.85 gpm (226.5 l/min.)		
Maximum pressure		2500 psi (170 bar)	
Maximum pressure - high applications	2500 psi (170 bar)		
Pressure compensating range Two stage		350-2500 psi (24-170 bar)	
Maximum transient spike	pressure	4000 psi (280 bar)	
Maximum case pressure		10 psi (0.7 bar)	
Speed range		1150 - 1800 rpm	
Direction of rotation (viewed shaft end)		Right hand (clockwise)	
Case drain flow 1000 psi (70 bar)		1.6 gpm (6.0 l/min.)	
while compensating 2000 psi (140 bar)		2.2 gpm (8.3 l/min.)	
at 1800 rpm 3000 psi (210 bar)		3.0 gpm (11.3 l/min.)	
Maximum inlet vacuum a	t sea level	6 inches Hg (152 mm Hg)	
Mounting - SAE 2 bolt flange (ISO 3019/1)		S.A.E 'D' - 2 bolt flange	
Mounting position		Unrestricted	
	Inlet	2-1/2" S.A.E.	
Dort oizee	Outlet	1-1/2" S.A.E.	
Port sizes	Case drain	#8 S.A.E.	
Remote control (optional)		#4 S.A.E.	
	Minimum	150 SUS (32 cSt)	
Fluid viscosity at	Maximum	1000 SUS (216 cSt)	
operating temperature	Optimum	200-300 SUS (43-65 cSt)	
Max	4000 SUS (864 cSt)		
Seals		Standard fluorocarbon	

Response time (Circuit dependent)	Full flow to minimum flow	20-50 ms
Response timeMinimum flow(Circuit dependent)to full flow		250 - 500 ms - two stage compensator
Waight	Single stage	240 lbs. (109 kg)
weight	Two stage	248 lbs. (112.7 kg)

* Flows are actual. Volumetric efficiencies shown in technical data are taken into account.

OTHER SPECIFICATIONS

• **DRIVE** - Pump to be connected to prime mover by means of a flexible coupling that is aligned to a maximum of .006" (.152 mm) total indicator reading. No overhung or side loads permitted. Alignments greater than .006" (.152 mm) indicator reading could cause increased noise and vibration as well as premature shaft seal wear resulting in leakage.

• FLUID RECOMMENDATIONS - A premium quality hydraulic oil with anti-wear additives is required.* Consult factory for use with water base fire resistant fluids.

* Such as Mobil DTE-26, or similar, for pressures over 2000 psi (140 bar).

• FLUID TEMPERATURE - Normal inlet fluid temperature should not exceed 140° F. (60° C.). Always select a fluid for optimum viscosity at operating temperature. Consult factory for applications assistance when inlet fluid temperatures over 140° F. (60° C.) are expected.

PVX-60 VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



(112) OUTPUT FLOW NPUT POWER HP 120 (90) 90 OWER (67) HORSEP 60 (45) (kw) 30 DEADHEAD HORSEPOWER (22)0 1500 2000 2500 3000 3500 (104) (140) (174) (210) (244)

150

EFFICIENCY @ 1800 rpm





Sound pressure levels measured in a hemi-anchoic chamber with microphone placed one (1) meter away at discrete locations. Sound pressure levels are spacially and time-weighted averaged

PVX-75 VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



NOTE: See pages 31 and 32 for PVX-75 dimensions.

PERFORMANCE SPECIFICATIONS

Displacement (Nominal)	10.0 in ³ /rev. (164 cm ³ /rev.)		
Displacement (Actual)	10.0 in ³ /rev. (164 cm ³ /rev.)		
Flow at 1750 rpm*	75.76 gpm (286.7 l/min.)		
Maximum pressure		2500 psi (170 bar)	
Maximum pressure - high applications	2500 psi (170 bar)		
Pressure compensating Two stage range		350-2500 psi (24-170 bar)	
Maximum transient spike	pressure	4000 psi (280 bar)	
Maximum case pressure		10 psi (0.7 bar)	
Speed range	1150 - 1800 rpm		
Direction of rotation (viewed shaft end)		Right hand (clockwise)	
Case drain flow 1000 psi (70 bar)		1.7 gpm (6.4 l/min.)	
while compensating 2000 psi (140 bar)		2.3 gpm (8.7 l/min.)	
at 1800 rpm 3000	psi (210 bar)	3.1 gpm (11.7 l/min.)	
Maximum inlet vacuum at sea level		6 inches Hg (152 mm Hg)	
Mounting - SAE 2 bolt fla (ISO 3019/1)	S.A.E 'D' - 2 bolt flange		
Mounting position		Unrestricted	
	Inlet	2-1/2" S.A.E.	
Deut einen	Outlet	1-1/2" S.A.E.	
Port sizes	Case drain	#8 S.A.E.	
Remote control (optional)		#4 S.A.E.	
	Minimum	150 SUS (32 cSt)	
Fluid viscosity at	Maximum	1000 SUS (216 cSt)	
operating temperature	operating temperature Optimum		
Maxi	4000 SUS (864 cSt)		
Seals		Standard fluorocarbon	

Response time (Circuit dependent)	Full flow to minimum flow	20-50 ms
Response time Minimum flow Circuit dependent) to full flow		250 - 500 ms - two stage compensator
Weight	Single stage	240 lbs. (109 kg)
5	Two stage	248 lbs. (112.7 kg)

* Flows are actual. Volumetric efficiencies shown in technical data are taken into account.

OTHER SPECIFICATIONS

• **DRIVE** - Pump to be connected to prime mover by means of a flexible coupling that is aligned to a maximum of .006" (.152 mm) total indicator reading. No overhung or side loads permitted. Alignments greater than .006" (.152 mm) indicator reading could cause increased noise and vibration as well as premature shaft seal wear resulting in leakage.

• FLUID RECOMMENDATIONS - A premium quality hydraulic oil with anti-wear additives is required.* Consult factory for use with water base fire resistant fluids.

* Such as Mobil DTE-26, or similar, for pressures over 2000 psi (140 bar).

• FLUID TEMPERATURE - Normal inlet fluid temperature should not exceed 140° F. (60° C.). Always select a fluid for optimum viscosity at operating temperature. Consult factory for applications assistance when inlet fluid temperatures over 140° F. (60° C.) are expected.

PVX-75 VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED





EFFICIENCY @ 1200 rpm



EFFICIENCY @ 1800 rpm





Sound pressure levels measured in a hemi-anchoic chamber with microphone placed one (1) meter away at discrete locations. Sound pressure levels are spacially and time-weighted averaged

30

PVX-46/60/75 VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

S.A.E. 'D' Flange, RH Rotation





VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

S.A.E. 'D' Flange, RH Rotation

INCHES (millimeters)





PVX-46/60/75 VANE PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



* Requires voltage selection.

ADAPTER KITS FOR PVX COMBINATIONS USING "P1" PUMPS



Adapter KITS		
PART NO. DESCRIPTION		
264240	PVX-8 to S.A.E "A"	
264243	PVX-11/15 to S.A.E "A"	
264244	PVX-11/15 to S.A.E "B"	
264248	PVX-20/29/36 to S.A.E "A"	
264249	PVX-20/29/36 to S.A.E "B"	
264250	PVX-20/29/36 to S.A.E "C"	
264257	PVX-46/60/75 to S.A.E "A"	
264258	PVX-46/60/75 to S.A.E "B"	
264259	PVX-46/60/75 to S.A.E "C"	
264260	PVX-46/60/75 to S.A.E "D"	

Torque Note #1		
Torque to 780 lb/in	PVX-8	
(Torque to 88 Nm)	1 1 1 1	
Torque to 1050 lb/in	PVX-11/15	
(Torque to 119 Nm)	1 1 1/13	
Torque to 1800 lb/in	PVX-20/29/36	
(Torque to 204 Nm)	1 477 20/20/00	
Torque to 2000 lb/in	PVX-46/60/75	
(Torque to 225 Nm)	1 177 40/00/10	
Torque Note #2		
Torque to 400 lb/in		
(Torque to 46 Nm)	1 1 1 1	
Torque to 550 lb/in	PVX-11/15	
(Torque to 62 Nm)	1 474-11/10	
Torque to 850 lb/in	PVX-20/29/36	
(Torque to 96 Nm)	1 477 20/20/00	
Torque to 2300 lb/in	PV/X-46/60/75	
(Torque to 260 Nm)	1 177 40/00/10	
Torque Note #3		
Torque to 280 lb/in	DV/V 11/15	
(Torque to 31.5 Nm)	FVA-11/15	
Torque to 330 lb/in	P\/Y_20/20/36	
(Torque to 37 Nm)	1 07-20/29/30	
Torque to 800 lb/in	PVX-46/60/75	
(Torque to 90 Nm)	1 070-40/00/75	

DIMENSIONS FOR PUMP AND ADAPTER

FOR DOUBLE PUMP COMBINATION



	PUMP 1	Adapter
FOSSIBLE SIZE COMBINATIONS	(P1) Inches	(DT) Inches
PVX-8 to S.A.E. "A"	6.10	1.95
PVX-11/15 to S.A.E. "A"	6.94	1.95
PVX-11/15 to S.A.E. "B"	6.94	2.55
PVX-20/29/36 to S.A.E. "A"	9.64	2.60
PVX-20/29/36 to S.A.E. "B"	9.64	3.59
PVX-20/29/36 to S.A.E. "C"	9.64	3.80
PVX-45/60/75 to S.A.E. "A"	12.00	2.61
PVX-45/60/75 to S.A.E. "B"	12.00	3.19
PVX-45/60/75 to S.A.E. "C"	12.00	3.80
PVX-45/60/75 to S.A.E. "D"	12.00	4.83

THROUGH DRIVE HORSEPOWER

The PVX Series pumps can be coupled with other pumps with standard SAE mounting patterns (PVX pumps can be coupled without losing use of stroke limiter). PVX combination pumps are rated to carry the load of an additional pump(s) equal to the maximum load of the lead PVX pump it can generate (see chart).

PUMP	FLOW @ 1750 RPM (GPM)	MAXIMUM PRESSURE (PSIG)	PUMP #1 INPUT HORSEPOWER	MAXIMUM INPUT HORSEPOWER OTHER PUMPS
PVX-8	8.03	3000	17.6	17.6
PVX-11	12.6	3000	25.3	25.3
PVX-15	15.4	3000	30.7	30.7
PVX-20	21.8	3000	43.3	43.3
PVX-29	29.6	3000	58.5	58.5
PVX-36	37.2	3000	74.6	74.6
PVX-46	46.2	3000	88.8	88.8
PVX-60	60.0	3000	117.6	117.6
PVX-75	75.8	3000	156.5	156.5

EXAMPLES:

PVX-46 @ 3045 psig + PVX-29 @ 3045 psig + PVX-11 @ 3045 psig 88.8 HP ≥ 58.5 + 23.3

PVX-8 @ 3045 psig + PVX-8 @ 1500 psig + PVX-8 @ 1500 psig 17.6 HP \geq 8.7 + 8.7

PVX PUMP CONTROLS

Schematics shown illustrate PVX20 - 75 pump controls with shock clipper integrated and no exterior plumbing required. The case drain shows an integrated check valve not present in PVX-8/11/15 pumps. All controls leave the factory preset at 500 psi (34 bar).

SINGLE STAGE COMPENSATOR — CODE 01

The single stage control for normal pressure compensation is a good choice where speed is important and remote capability is not required. This control is available on PVX-8/11/15.





TWO STAGE COMPENSATOR — CODE 17

The two (2) stage pressure compensators are the platform for most PVX controls. A remote port is standard and may, or may not be enabled according to the circuit design. This is the smoothest of the standard pressure controls, and is the standard pressure compensator for PVX-20/29/36/46/60/75.

LOAD SENSE COMPENSATOR — CODE 19

Load sense allows the user to maintain constant flow regardless of changes in load or in pump shaft rotational speed. The load sense compensator accomplishes this by using an external orifice and continually senses a pressure drop of 100 psi (7 bar) across the orifice. The minimum ΔP is 100 psi (7 bar), however, the pressure drop can be adjusted to meet circuit requirements. Consult the factory.



PVX PUMP CONTROLS

TWO PRESSURE COMPENSATOR — CODES 27 & 28

Solenoid two pressure compensators are available in normally open (CODE 27 normally low, energize to high) and normally closed (CODE 28 — normally high, energize to low) versions. These two pressure controls can greatly reduce horsepower demand and heat generation during periods of idle cycle time, or when the machine operating cycle does not require maximum pressure.





TORQUE LIMITING COMPENSATOR — CODE 26

Torque limiting for PVX limits the input torque to the pump shaft, in effect limiting the horsepower transmitted to the load. No torque or horsepower sensing is done on the load, only at the pump itself. Pump output flow rate is linear and proportional to movement of the pressure ring. This compensator is adjustable in the field as torque vs. flow requirements demand. Consult the factory for adjustment procedure.

SOLENOID VENT COMPENSATOR — CODE 29 & 30

Solenoid vented compensators are similar to the two-pressure controls, except that there is no adjustable minimum. By venting the compensator the pump woll go to minimum deadhead.

- CODE 29 Normally vented to minimum, energize to high pressure
- CODE 30 Normally high pressure, energize to vented minimum



REACTION CHARACTERISTICS AND SHOCK CLIPPER FUNCTION



TIME

REPAIR PARTS - PVX-8/11/15

SINGLE STAGE COMPENSATOR



ATTENTION: These compensators are rated for 3000 psi (210 bar) operation. Install only on pumps rated at 3000 psi (210 bar). Activating shock clipper is highly recommended on all applications greater than 2000 psi (140 bar). Install unrestricted line back to the tank.

TWO STAGE COMPENSATOR



TWO STAGE COMPENSATOR		
SAE	264405	
COMPLETE ASSEMBLY FOR		

COMPLETE ASSEMBLY FOR			
LOAD SENSE			
SAE 264406			

REPAIR PARTS - PVX-20/29/36/46/60/75

TWO STAGE COMPENSATOR



ATTENTION: These compensators are rated for 3000 psi (210 bar) operation. Install only on pumps rated at 3000 psi (210 bar).

NOTE: Quantity of 3, M6 socket head cap screw, not shown. Mounts 2nd stage to 1st stage compensator. Torque to 133 - 177 lb/in (15 - 20 Nm)

HYDRAULICS.

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED

STROKE LIMITER ADJUSTMENT



STROKE LIMITER ADJUSTMENT				
PUMP	NOMINAL	DECREASE IN	MINIMUM FLOW	
MODEL	STROKE	FLOW PER TURN	ATTAINABLE	
PVX-8	0.075" (1.9 mm)	53%	<0%	
PVX-11	0.080" (2.0 mm)	50%	0%	
PVX-15	0.099" (2.5 mm)	40%	20%	
PVX-20	0.077" (1.9 mm)	80%	<0%	
PVX-30	0.106" (2.7 mm)	56%	8%	
PVX-36	0.132" (2.4 mm)	44%	26%	
PVX-46	0.117" (3.0 mm)	50%	17%	
PVX-60	0.150" (3.8 mm)	40%	34%	
PVX-75	0.186" (4.7 mm)	32%	47%	

During initial start-up, volume should be at least 50% of maximum flow.

Only make adjustments to the volume control with the pump running at full flow and low pressure while observing output flow.
PVX-8/11/15 VANE PUMPS

REPAIR PARTS KITS

REPAIR KITS

MODEL	SAE	SAE - "P1"
PVX-8	264288	264289
PVX-11/15	264292	264293

Repair kits consists of:

REF	DESCRIPTION	QTY
1	Key	1
2	Roll Pin	4
3	Vane Kit	1
4	Spacer Ring	1
5	Pressure Ring	1
6	Port Plate, Body	1
7	Port Plate, Cover	1
8	Thrust Screw	1
9	Lock Nut	1
10	Shaft	1
11	Retaining Ring (PVX-8)	1
12	Bearing	2

SEAL KITS

MODEL	SAE
PVX-8	264275
PVX-11/15	264276

VANE KITS

MODEL	SAE
PVX-8	264270
PVX-11/15	264271

Seal repair kits consists of:

REF	DESC. PVX-8 (PVX-11/15)	QTY
13	O-Ring ASA-111 (ASA-111)	1
14	O-Ring ASA-110 (ASA-110)	1
15	O-Ring ASA-127 (ASA-136)	2
16	O-Ring ASA-128 (ASA-128)	1
17	O-Ring ASA-026 (ASA-028)	2
18	O-Ring ASA-151 (ASA-152)	2
19	O-Ring ASA-031 (ASA-031)	1
20	O-Ring ASA-156 (ASA-160)	1
21	Back-Up Ring	2
22	Shaft Seal	1
23	O-Ring ASA-011	1
24	Back-Up Ring	1
25	Control Piston	1
26	Bias Piston	1

NOTE: All O-Rings have durometer rating of 75.



PVX-8/11/15 VANE PUMPS

HYDRAULICS.

REPAIR PARTS - BEARING INSTALLATION; TORQUE RATINGS

INSTALLATION NOTES



BOLT TORQUE RATINGS



PVX-20/29/36/46/60/75 VANE PUMPS

REPAIR PARTS KITS

REPAIR KITS

MODEL	SAE	SAE - "P1"
PVX-20	264296	264297
PVX-29	264296	264297
PVX-36	264300	264301
PVX-46	264304	264305
PVX-60	264304	264305
PVX-75	264308	264309

Repair kits consists of:

REF	DESCRIPTION	QTY
1	Key	1
2	Rotor shaft	1
3	Vane Kit	1
4	Port Plate, Cover	1
5	Roll Pin	4
6	Thrust Block Kit	1
7	Bearing	2
8	Spacer Ring	1
9	Pressure Ring	1
10	Port Plate, Body	1

SEAL KITS

MODELSAEPVX-20/29/36264277PVX-46/60/75264278

	VANE	KITS
--	------	------

MODEL	SAE
PVX-20/29/36	264272
PVX-46/60	264273
PVX-75	264274

Seal repair kits consists of:

REF	DESC. PVX-20/36 (PVX-46/60/75)	QTY
13	O-Ring ASA-031 (ASA-035)	2
14	O-Ring ASA-162 (ASA-265)	1
15	O-Ring ASA-130 (ASA-229)	1
16	O-Ring ASA-146 (ASA-146)	1
17	Shaft Seal	1
18	O-Ring ASA-229 (ASA-237)	1
19	O-Ring ASA-110 (ASA-110)	1
20	O-Ring ASA-111 (ASA-111)	3
21	O-Ring ASA-143 (ASA-143)	1
22	O-Ring ASA-157 (ASA-160)	2
23	Back-Up Ring	2
24	O-Ring ASA-139 (ASA-152)	1
25	O-Ring ASA-043 (ASA-043)	2

NOTE: All O-Rings have durometer rating of 75.



PVX SERIES VANE PUMPS

VANE TIP ORIENTATION

HYDRAULICS



Looking into pump body from cover side

PVX SERIES VANE PUMPS

TROUBLE SHOOTING

Some of the most common difficulties that could be experienced in the field are listed here with potential causes and their remedies.

TROUBLE	POTENTIAL CAUSE	REMEDY	
Excessive pump noise	1) Coupling misalignment	 Align the pump and motor shaft to within .006 (.152 an inch total indicator reading. The tighter the align quieter the pump will be. 	mm) of nent, the
	 The continuous pressure is significantly below 300 psi for 210 bar pumps. 	 The pumps have been sound tuned at rated pressur Consult factory or raise minimum pressure 200 psi f stage compensators in 2000 psi rated pumps, or 30 3000 psi rated pumps. 	re. ior single 0 psi for
	 Fluid in the reservoir is low and the pump is sucking air. 	3) Fill the reservoir so that the fluid level is well above of the suction line during all of the working cycle.	the end
	4) Restricted inlet.	4) If a suction strainer is used, check it for obstructions It is not recommend the use of strainers as they to be a leading cause of cavitation which manife excessive noise. Check also for shop rags left in the reservoir.	s or dirt. tend sts as
	5) Air leak in the suction line.	 Tighten all fittings. If it still leaks, smear grease over joints to locate the leak. 	r the
	 Suction line has too many elbows, or is too long. 	6) The suction line should be as short and as straight a possible reduce the resistance to flow.	as
	7) Air in the fluid.	 The return line should terminate below the fluid leve prevent splashing. 	l to
	8) Suction line is too small.	 Suction line should always be equal in size to the su port. Never reduce it. 	uction
	9) Vane does not move freely.	 Contamination in the fluid or a burr in the vane slot cause a vane to bind up. Proper filtration and/or deb the vane slots is required. 	can ourring of
	10) Vane is installed incorrectly.	 Vanes must be mounted with the rounded edge tow ring. 	vard the
	11) A vane is missing.	11) Make sure all vane slots have a vane in them.	
	12) Port plates installed incorrectly.	12) Plates must be installed so that the arrows point in direction as the rotational arrows on the pump body	the same ⁄.
Pump will not prime	1) Shaft rotation in the wrong direction.	 When installing a pump, always jog the electric moto check for proper shaft rotation. Rotation should only clockwise (right hand) for PVX pumps. 	or to ′ be
	Air leak in the suction line.	 Make sure all fittings are tight. 	
	3) Pump is air bound.	 Use an air bleed valve to void the pump and suction air. 	ו line of
	4) Fluid level in the reservoir is too low.	4) Fill the reservoir so that the fluid level is well above of the suction line.	the end
	5) Stroke limiter is turned in too far.	 Flow should not be reduced more than 50% of maximum Turn CW to restrict flow (see chart, page 41). 	imum.
	6) Suction port dust plug left in place.	i) Remove plug.	
Pump is unstable	 Contamination in the compensator. Pressure ring is not moving properly. 	 Thoroughly clean the control orifices and check filtra Control piston should be checked for freedom of mo 	ation. ovement.
Pump is too hot	 Case drain line is installed too close to the pump inlet line. Reservoir is undersized. Rule of thumb is a minimum or 2 to 3 times) The case drain and pump inlet should be separated baffle in the reservoir.2) Add a cooler.	by a
	pump output flow.		

POWRFLOWTM PVX VANE PUMPS

PVX VANE PUMPS ARE DESIGNED TO BE QUIET.

Irreversible Hearing Loss	180 dB	Rocket Launch Pad
	170 dB	
	160 dB	
	150 dB	
Painfully Loud	140 dB	Aircraft Carrier Flight Deck
	130 dB	
Uncomfortably Loud	120 dB	Car Horn at 3 Feet
Extremely Loud	110 dB	Pile Driver
Very Loud	100 dB	Gas Lawn Mower
	90 dB	
Annoying	80 dB	Food Blender at 3 Feet
	76 dl 70 dB	and 3000 psi, Full Flow
Intrusive	60 dB	Conversational Speech
Moderate	50 dB 49 dI	PVX8 at 1200 rpm and 500 psi, Deadhead
Quiet	40 dB	
Very Quiet	30 dB	Quiet Rural Area at Night
	20 dB	
Barely Audible	10 dB	Faint Rustling Leaves
Inaudible	0 dB	

PowrFlow[™] PVX Vane Pumps Are Quiet.

PVX Vane Pumps are designed to be quiet. Using them in your machinery designs makes it easier to meet government mandated or purchaser required sound levels.

And, vane pumps are inherently smooth operating. Piston pumps exert push-pull forces, which can lead to hydraulic line pulsation and hammering. PVX Vane Pumps maintain constant system pressure to eliminate pulsations and associated noise.

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 nc of Continental Hydraulics manufacture or supply.

POWERFLOWTM PVX VANE PUMPS

YOUR SOURCE FOR 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 PVX Vane Pumps shown in this catalog, Continental also offers vane and piston pumps, a full line of control 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-inhand 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 directional control valve, come to Continental.

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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PVER VARIABLE DISPLACEMENT VANE PUMPS DIRECT SPRING

OPERATING PRINCIPLE



- The PVER pumps are variable displacement vane pumps with direct pressure regulator governor spring for fast on/off response.
- The pump group is complete with hydrostatic axial compensation distribution plates that improve the volumetric efficiency and reduce wear of the components.
- The pressure regulator adjustable load spring keeps the pump group cam ring in eccentric position.

When the delivery pressure equals the pressure corresponding to the spring setting, the cam ring is moved so to reduce the displacement, adjusting the flow rate to the values required by the system.

In zero flow demand conditions, the pump delivers oil only to compensate any possible leakage, keeping the circuit pressure constant.

 The PVER pumps are available in four sizes with maximum displacement from 0.4 to 1.42 cu in/rev and with pressure regulator max setting values up to 500 PSI and 1000 PSI (standard).

TECHNICAL SPECIFICATIONS

PUMP SIZE		3B	5B	7B	10B	
Displacement	cu in (cm ³ /rev)	.403 (6,6)	.69 (11,3)	1.01 (16,6)	1.422 (23,3)	
Flow rate (at 1750 rpm and with minimum delivery pressure)	GPM (I/min)	3.0 5.2 (12.0) (20.0)		7.6 (30.0)	10.7 (40.0)	
Operating pressure			see table 3 - F	Performances		
Rotation speed		see table 3 - Performances				
Rotation direction		clockwise (seen from the shaft side)				
Shaft loads:			radial and axial loa	ds are not allowed		
Hydraulic connection			BSPT threa	ding fittings		
Type of mounting		SAE-A flange J744 - 2 holes 4HNA square flange - 4 holes				
Mass	LBS (kg)	11 (5) 11 (5) 20 (9) 20 (9			20 (9)	
Ambient temperature range	°E (°C)	HYDRAULIC SYMBOL				

Ambient temperature range	°F (°C) -4 / +120 (-20 / +50)			
Fluid temperature range	°F (°C) +14 / +160 (-10 / +70			
Fluid viscosity range	see paragraph 2.2			
Fluid contamination degree	see paragraph 2.3			
Recommended viscosity	nded viscosity cSt 25 ÷ 50			



PVER SERIES 10

VARIABLE DISPLACEMENT VANE PUMPS DIRECT SPRING

1 - IDENTIFICATION CODE



2 - HYDRAULIC FLUID

2.1 - Fluid type

Use only HL and HLP mineral oil based hydraulic fluids according to ISO 6743/4.

2.2 - Fluid viscosity

The operating fluid viscosity must be within the following range:

minimum viscosity	16 cSt	80 sus	referred to the maximum drainage fluid temperature of 70 °C
optimum viscosity	25-50 cSt	110-250 sus	referred to the fluid working temperature in the tank
maximum viscosity	220 cSt	1000 sus	limited to only the start-up phase of the pump

When selecting the fluid type, be sure that the true viscosity is within the range specified above at the operating temperature.

2.3 - Degree of fluid contamination

The maximum degree of fluid contamination must be according to ISO 4406:1999 class 20/18/15; therefore, use of a filter with $\beta_{20} \ge 75$ is recommended. A degree of maximum fluid contamination according to ISO 4406:1999 class 18/16/13 is recommended for optimum endurance of the pump. Hence, use of a filter with $\beta_{10} \ge 100$ is recommended.

The filter must be equipped with a by-pass valve and, if possible, with a service indicator.

2.4 - Installation

- The PVER pumps can be installed with the axis oriented in any position.
- The suction line must be suitably sized to facilitate the flow of oil. Bends and restrictions or an excessive line length can impair correct operation of the pump.
- The drainage port must be connected directly to the tank by a line separate from other discharges, located far from the suction line and lengthened to below the minimum oil level so as to avoid formation of foam.
- The pump start up, especially at a cold temperature, should occur with the pump unloading.
- The pumps are normally positioned directly above the oil tank. Flooded suction port installation of the pumps is advisable in the case of circuits with high flow rates and pressures.
- The motor-pump connection must be carried out directly with a flexible coupling. Couplings that generate axial or radial loads on the pump shaft are not allowed.

VARIABLE DISPLACEMENT VANE PUMPS DIRECT SPRING

PUMP	REGULATOR TYPE	DISPLACEMENT cu in [cm³/rev]	MAX FLC [I/m 1500 rev /	LOW RATE PRESSURE ADJ. RANGE PSI [bar] rev / 1800 rev MIN / MAX		MAX ROTATION SPEED [rpm]	MIN ROTATION SPEED [rpm]	
PVER-3B	05	.403	2.6	3.0	217 [15]	507 [35]		800
I VER-0B	10	[6,6]	[10]	[12]	580 [40]	1015 [70]	1800	
PVER-5B	05	.69 [11,3]	4.5 [17]	5.2 [20]	217 [15]	507 [35]		
	10				580 [40]	1015 [70]		
PVER-7B	05	1.01	6.6	7.6 [30]	217 [15]	507 [35]		
	10	[16,6]	[25]		580 [40]	1015 [70]		
PVER-10B	05	1.422	9.3	10.7	217 [15]	507 [35]		
	10	[23,3]	[35]	[40]	580 [40]	1015 [70]		

3 - PERFORMANCES (obtained with viscosity of 46 cSt at 40°C)

Note: Flow rate values are obtained with minimum delivery pressure

4 - NOISE LEVEL

	NOISE LEV	EL dB (A)
FOMF DIMENSION	zero displacement	full displacement
PVER-3B	61	63
PVER-5B	62	65
PVER-7B	64	68
PVER-10B	64	70

The noise pressure levels were measured in a semi-anecoic room, at an axial distance of 1 m from the pump. The values shown must be reduced by 5 dB(A) if they are to be considered in a completely anecoic room.

5 - CASE DRAIN FLOW RATE AT DEAD HEAD

PUMP DIMENSION	DRAINAGE FLOW RATE cu in [l/min]
PVER-3B	25 [0,4]
PVER-5B	50 [0,8]
PVER-7B	75 [1,2]
PVER-10B	75 [1,2]

Medium values obtained at max operating pressure

HYDRAULICS.

VARIABLE DISPLACEMENT VANE PUMPS DIRECT SPRING

6 - PVER-3B CHARACTERISTIC CURVES (values obtained with mineral oil with viscosity of 46 cSt at 40°C)

The diagram curves were measured with a pump rotation speed of 1800 rev/min

FLOW RATE / PRESSURE CURVES **ABSORBED POWER** Flow GPM [l/min] HP / N [kw] 3.96 [15] 2.7 [2] 2.0 [1.5] 2.64 [10] 1.34 [1] 1.32 [5] 0.67 [0.5] 0 [0] 0 [0] [0] [10] [20] [30] [40] [50] [60] [70] p [bar] [10] [20] [30] [40] [50] [60] [0] 1**Ď** 05 580 725 870 0 145 290 435 0 145 290 435 580 725 870 1015 PSI

7 - PVER-5B CHARACTERISTIC CURVES (values obtained with mineral oil with viscosity of 46 cSt at 40°C)

The diagram curves were measured with a pump rotation speed of 1800 rev/min

FLOW RATE / PRESSURE CURVES



ABSORBED POWER



[70]

1015

p [bar]

PSI

PVER SERIES 10

SERIES 10

ER

p [bar]

PSI

VARIABLE DISPLACEMENT VANE PUMPS DIRECT SPRING

8 - PVER-7B CHARACTERISTIC CURVES (values obtained with mineral oil with viscosity of 46 cSt at 40°C)

The diagram curves were measured with a pump rotation speed of 1800 rev/min



9 - PVER-10B CHARACTERISTIC CURVES (values obtained with mineral oil with viscosity of 46 cSt at 40°C)

The diagram curves were measured with a pump rotation speed of 1800 rev/min

FLOW RATE / PRESSURE CURVES



ABSORBED POWER

[20]

290

[30]

435

[40]

580

[50]

725

[60]

870

[70]

1015



PVER SERIES 10

VARIABLE DISPLACEMENT VANE PUMPS DIRECT SPRING

10 - OVERALL AND MOUNTING DIMENSIONS PVER-3B and PVER-5B



Seal Kit Buna PVER 3/5

1009402



VARIABLE DISPLACEMENT VANE PUMPS DIRECT SPRING



11 - OVERALL AND MOUNTING DIMENSIONS PVER-7B and PVER-10B



1009403

CONTINENTAL HYDRAULICS VANE PUMPS 7

IVDRAULICS

PVER SERIES 10

VARIABLE DISPLACEMENT VANE PUMPS DIRECT SPRING



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HYDRAULICS...

CONTINENTAL HYDRAULICS POWERFLOW[™] HPV SERIES AXIAL PISTON PUMPS

5505 WEST 123RD STREET · SAVAGE, MN 55378-1299 / PH: 952.895.6400 / WWW.CONTINENTALHYDRAULICS.COM

RELIABLE POWER FOR ANY HYDRAULIC SYSTEM

Product Description What Makes PowrFlow™ HPV Series Axial Piston Pumps Your Best Buy?

Variable volume pressure compensated piston pumps match flow to system demand. Your system will generate less heat, and may not need a heat exchanger. Your system can be kept simpler too, with fewer valves and regulators, while still maintaining constant pressure.

For long term reliability, and optimum performance,

PowrFlow[™] HPV Axial Piston Pumps are your best value.

PowrFlow Piston Pumps

Standard SAE 2-Bolt Flange Mount

Available in right or left-hand rotation. Readily interchangeable with other piston pumps.





Features and Benefits

- Simple Construction for long, dependable service.
- More contamination-tolerant than competitive pumps to improve dependability and reduce maintenance costs.
- Quiet operation simplifies meeting system sound level standards.
- Economical low overall cost for a high performance variable volume pump.
- Efficient, energy-saving design.

Four Compensator Options

Standard Compensator - designed for quick response. On stroke response less than 120 ms., Off stroke response 50 ms. Remote Compensator - provides the same pressure compensated performance with the added flexibility and convenience of remote pressure adjustment or multiple pressure levels.Load Sensing Compensator - allows the pump to maintain constant flow to the system regardless of fluctuating loads to maintain maximum system efficiency and minimum heat loss.

Horsepower Limit Compensator -Matches pump output to available input horsepower by varying system pressure as system flow demand varies.

> **Maximum** Volume Control Standard on all pump



Simplifies servicing.

designed to reduce noise.

side ports

CONTINENTAL HYDRAULICS AXIAL PISTON PUMPS

sound levels for quiet operation.



CONTINENTAL HYDRAULICS.

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FEATURES

SAE FLANGE MOUNTING

Uses standard SAE industrial mounting for easy interchangeability.

5 DISPLACEMENTS

.88, 1.26, 2.09, 2.62 A and 3.78 cubic inches per revolution.

SIMPLE CONSTRUCTION

For a long and productive life.

RUGGED CONSTRUCTION

Cast iron body designed to deliver years of reliable performance.

COMPACT SIZE

Designed to maximize the use of valuable space.

QUIET OPERATION

Combining new technology and strict engineering disciplines reduces noise to very low levels.

MAXIMUM VOLUME ADJUSTMENT

Allows you to set pump displacement to match maximum system flow requirements and prevent overloading.

REBUILDABLE

2

Great care was taken in the design of this pump to ensure that when service is needed, it can be disassembled and brought back into service.

PRESSURE COMPENSATED

Delivers only the flow required by the system, while maintaining set pressure. This will save horsepower and unnecessary wear on the system. Pressure compensation ranges from 200 to 3500 psi (13.8 to 241 bar) continuous duty and up to 4000 psi (276 bar) intermittently.

REMOTE PRESSURE CONTROL (Code 7)

Includes all the features of the standard pressure compensator with the added feature of remote control. This option allows you to adjust or vent the pump control from a remote location for multiple pressure operations.

LOAD SENSING CONTROL (Code 19)

Provides constant flow

through a given orifice and pressure that varies with load requirements. This control maximizes efficiency and minimizes heat generation.

HORSEPOWER LIMITING CONTROL (Code 26)

This control is highly recommended where high pressures - low flows, and high flows - high pressures are needed. The adjustment allow exact tailoring to system requirements.

GENERAL SPECIFICATIONS

RECOMMENDED FLUIDS

Fluids for use in HPV series piston pumps should be petroleum based and designated by the fluid manufacturer for use in hydraulic systems. These fluids should contain rust and oxidation inhibition, anti-wear, anti-foam and deaerating agents. Water Glycol fluids are NOT recommended. For other type fluids, please contact your Continental Application Engineer.

RECOMMENDED OPERATING VISCOSITIES

For petroleum based fluids:

- Optimum -- 140 SUS (30 Cst)
- Continuous Minimum -- 60 SUS (10 Cst)
- Continuous Maximum -- 750 SUS (160 Cst)

OPERATING TEMPERATURE

Operating temperature should be determined by viscosity characteristics of the fluid used. Because high temperatures degrade seals, reduce service life of the fluid and create hazards, fluid temperatures should not exceed 180° F. (82° C.) at the case drain.

FLUID CLEANLINESS

ISO 18/16/13 is recommended.

FILTRATION

Return line: To maintain minimum prescribed cleanliness levels, a high quality return line filter should be used. A filter with a 10 micron rating is normally sufficient to start up a system. Because every system has unique characteristics, this rating may need to be changed. Periodic testing of the fluid is highly recommended. Data collected from these tests, will tell if the current filter system is maintaining fluid cleanliness at the ISO 18/16/13 level.

MAXIMUM INLET PRESSURE

Maximum inlet pressure is 50 psi (3.4 bar) at all speeds.

MOUNTING POSITION

Unrestricted, however, horizontal mounting is preferred.

DRIVE SHAFT ALIGNMENT

Pump and motor must be within .003 inches (0.8 mm) TIR for maximum bearing life.

DRIVE COUPLING

Jaw type with a flexible web is recommended. Tire and chain type couplings are **NOT** recommended.

CASE DRAIN

All HPV series piston pumps have two case drain ports. It is only necessary to connect a case drain line to one of these ports. The other port is provided to fill the case with fluid on start-up. All case drain lines should be as short as possible with no restrictions or size reduction. The case drain line routing back to the reservoir must not allow the fluid in the case to drain back into the reservoir while the pump is not in use. This line should terminate below the reservoir surface. Please refer to Continental Hydraulics HPV series installation and service literature for further explanation.

RELIEF VALVES

System relief valves are recommended for all applications to protect personnel and the system from potentially damaging overloads. These valves should be sized for maximum pump flow and be set approximately 200 psi (14 bar) above the pump compensator setting. CONTROLS

PRESSURE COMPENSATED CONTROL (Standard)

By controlling the system pressure, the standard pressure compensated control changes pump displacement to match the system's flow requirement. Simply stated: a pressure compensated pump will provide variable flow at a constant pressure setting.

Pump displacement is mechanically controlled by the

angle of the swash plate. The swash plate angle is controlled by the extension of the compensator plunger working against the swash plate bias spring. The compensator senses downstream pressure and adjusts displacement to maintain the set pressure.

The control would be used on systems requiring variable flow but unchanging pressure.



REMOTE PRESSURE CONTROL (Code 7)

The remote pressure control works similar to the standard pressure compensated control, but with some added features. This ia a two stage compensator with two pressure adjustments: one for the lower pressure limit and one for the upper pressure limit.

A vent line* is required to run back to the reservoir. When this line is vented, the pump will go to the lower pressure setting. When this line is blocked, the pump will go to the upper pressure limit. Pressure in this line may be controlled by one or more relief valves. These valves should be direct acting and capable of pressures up to 3500 psi (241 bar). The setting of these relief valves will control the pump's pressure setting.

The control would be used on systems where flow requirements are variable and multiple pressures are desirable.



CONTROLS

LOAD SENSING CONTROL

(Code 19)

The load sensing control is designed to deliver constant flow across an orifice, and to adjust pressure to meet the system's demands. This accomplished by using a flow control valve between the pump outlet and actuator. This type of control is often called "flow compensating".

A sense line* must be connected between the downstream side of the flow control valve and the

pump compensator. Through this line, the compensator senses fluctuations in system pressure requirements. There are two adjustments on this compensator: (a) Back side adjustment sets the upper pressure limit; (b) front adjustment sets the pressure differential of the flow control valve. This setting comes preset to 250 psi (17.2 bar).

When this control is combined with a variable flow control (like a proportional valve), it will deliver both variable flow and variable pressure.



6

HORSEPOWER LIMITING CONTROL (Code 26)

The horsepower limiting control is adjustable down to 35% of the maximum horsepower requirements of a normally pressure compensated pump. This control has three adjustments that tailor the performance curve to system requirements.

A sense line* is required to be connected to the line

between the pump and actuator. A calibrated orifice is installed in the pump outlet so there is no need to add additional components to achieve this type of control.

This control is used in limited horsepower systems requiring high pressure and low flow, or low pressure and high flow.



SPECIFICATIONS

Variable Displacement, Pressure Compensated



OVERALL EFFICIENCY



TYPICAL PERFORMANCE SPECIFICATIONS

VOLUMETRIC		cu. in./rev.	0.88
DISPLACEMENT		ml/rev.	14.4
PUMP DELIVERY	Theoretial	gpm	6.67
@ 1750 rpm	meorellar	lpm	25.20
	Intermittent*	psi	4000
		bar	276
OPERATING	Continuous	psi	3500
PRESSURES	Continuous	bar	241
	Minimum**	psi	200
	Withintian	bar	14
OPERATING	Ma	ximum rpm	see below
SPEEDS		1750	
	Mii	nimum rpm	500
POWER INPUT @	1750 rpm	_hp	15
Rated Flow & Pres	sure	kw	11
CASE DRAIN FLO	W @	gpm	0.3
Deadhead & Rated	Pressure	lpm	1.1
MOUNTING	Keyed Shaf	SAE Type	"A" 2-Bolt
FLANGE	Spline Shaft	SAE Type	"A/B" 2-Bolt †
	Rear Ports	lbs.	27
SHIPPING		kg	12.4
WEIGHT	Side Porte	lbs.	35
		kg	15.9

This pressure should comprise 10% or less of the total duty cycle and not exceed 6 consecutive seconds.

Pumps operating at less than 150 psi (10.3 bar) may overheat and shorten pump life. "A" size pilot with a "B" size shaft.

t

CASE DRAIN AND INLET PORT SPECIFICATIONS

	MINIMUM INLET PRESSURE					MAXI	МОМ	
SPEED		Pressur	e Gage		Absolute	Pressure	CASE PR	ESSURE
rpm	psi	bar	inHg	mm-Hg	psi	bar	psi	bar
1800	-3.00	-0.21	-6.12	-155.46	11.70	0.80	10	.69
2050	-3.00	-0.21	-6.12	-155.46	11.70	0.80	7	.48
2100	-3.00	-0.21	-6.12	-155.46	11.70	0.80	5	.34
2750	-2.35	-0.16	-4.79	-121.67	12.35	0.80	5	.34
2900	-0.96	-0.07	-1.97	-49.94	13.74	0.90	5	.34
3000	0.00	0.00	0.00	0.00	14.70	1.00	5	.34

PRESSURE AND VOLUME ADJUSTMENT SENSITIVITY

Pressure Adjustment	Pressure Change/Turn	650 psi	44.8 bar
Volume	Flow Change/Turn	.7 gpm	2.6 lpm
Adjustment	Maximum Torque	28 inlbs.	3.2 Nm

8

PERFORMANCE GRAPHS

The data below is typical performance at 1750 rpm.



FLOW VS PRESSURE





INPUT POWER @ZERO FLOW



NOISE LEVEL



DIMENSION DRAWINGS

REAR PORTS

VORAULICS



DIMENSION DRAWINGS

HYDRAULICS

SIDE PORTS



DIMENSION DRAWINGS

HORSEPOWER LIMITING CONTROL

(Code 26)

VORAULICS







ORDERING INFORMATION

HYDRAULICS



NOTE: Foot Mounting Brackets, Pump Motor Mounts and SAE Flanges can be found later in this catalog. See Table of Contents for location.

TYPICAL ORDERING CODE: HPV-6B35-RF-O-1R-B

SPECIFICATIONS

Variable Displacement, Pressure Compensated



OVERALL EFFICIENCY



TYPICAL PERFORMANCE SPECIFICATIONS

VOLUMETRIC	C	u. in./rev.	1.26
DISPLACEMENT	_	ml/rev.	21.1
PUMP DELIVERY	, Theoretial	gpm	9.55
@ 1750 rpm	meorellar	lpm	36.08
	Intermittent*	psi	4000
		bar	276
OPERATING	Continuous	psi	3500
PRESSURES	Continuous	bar	241
	Minimum**	psi	200
	winning	bar	14
	Maxi	mum rpm	see below
SPEEDS	R	Rated rpm	1750
	Mini	mum rpm	500
POWER INPUT @	🕑 1750 rpm	hp	23
Rated Flow & Pre	ssure	kw	17
CASE DRAIN FLO	DW @	gpm	0.3
Deadhead & Rate	d Pressure	lpm	1.1
MOUNTING	Keyed Shaft S	SAE Type	"B" 2-Bolt
FLANGE	Spline Shaft S	SAE Type	"B" 2-Bolt
	Pear Ports	lbs.	37
	ited i foits	kg	16.7
SHIPPING	Side Porte	lbs.	48
WEIGHT	Side Ports	kg	21.8
	Tandem Ports	lbs.	51
		kg	23.1

* This pressure should comprise 10% or less of the total duty cycle and not exceed 6 consecutive seconds.

** Pumps operating at less than 150 psi (10.3 bar) may overheat and shorten pump life.

CASE DRAIN AND INLET PORT SPECIFICATIONS

	MINIMUM INLET PRESSURE					MAXI	МИМ	
SPEED		Pressur	e Gage		Absolute	Pressure	CASE PR	RESSURE
rpm	psi	bar	inHg	mm-Hg	psi	bar	psi	bar
1800	-3.00	-0.21	-6.12	-155.46	11.70	0.80	10	.69
2100	-3.00	-0.21	-6.12	-155.46	11.70	0.80	7	.48
2500	-3.00	-0.21	-6.12	-155.46	11.70	0.81	5	.34
2550	-2.51	-0.17	-5.12	-129.95	12.19	0.80	5	.34
2700	-1.03	-0.07	-2.10	-53.44	13.67	0.90	5	.34
2800	0.00	0.00	0.00	0.00	14.70	1.00	5	.34
3000	2.18	0.15	4.44	112.71	16.88	1.20	5	.34

PRESSURE AND VOLUME ADJUSTMENT SENSITIVITY

Pressure Adjustment	Pressure Change/Turn	650 psi	44.8 bar
Volume	Flow Change/Turn	1.2 gpm	4.5 lpm
Adjustment	Maximum Torque	25 inlbs.	2.8 Nm

14

PERFORMANCE GRAPHS

The data below is typical performance at 1750 rpm.



FLOW VS PRESSURE

INPUT POWER @ FULL FLOW



INPUT POWER @ZERO FLOW



NOISE LEVEL



DIMENSION DRAWINGS

REAR PORTS

VENTO

VORAULICS

Dimension shown in: INCHES (MILLIMETERS)



DIMENSION DRAWINGS

HYDRAULICS.

SIDE PORTS


SPECIFICATIONS

VENTO

VORAILLICS

HORSEPOWER LIMITING CONTROL

(Code 26)

Dimension shown in: INCHES (MILLIMETERS)







DIMENSION DRAWINGS

HYDRAULICS.

TANDEM PUMP MOUNTINGS

(Codes 21, 22, 31)

Dimension shown in: INCHES (MILLIMETERS)





NOTE: Code 22 shown. Other codes will appear differently.

CODE	SAE 2-BOLT MOUNTING PAD	DIMENSIONS				Inches (millimeters)	30° INVOLUTE INTERNAL SPLINE	MAXIMUM H.P. RATING*	MAXIMUM TORQUE RATING*
	Α	В	С	D	E	F Thread	G	(at 1750 rpm)	
21	"A" Flange	3.25 (82.6)	4.18 (106.2)	9.41 (239.0)	2.07 (58.6)	3/8-16 UNC	9 Tooth 16/32 Pitch 0.5625 Dia.	8.5	306 inlbs. (34.7 Nm)
22	"B" Flange	4.00 (101.6)	5.75 (146.1)	9.03 (229.4)	2.23 (56.6)	1/2-13 UNC	13 Tooth 16/32 Pitch 0.8125 Dia.	28.1	1013 inlbs. (114.8 Nm)
31	"A-B" Flange	3.25 (82.6)	4.18 (106.2)	9.41 (239.0)	2.07 (58.6)	3/8-16 UNC	13 Tooth 16/32 Pitch 0.8125 Dia.	28.1	1013 inIbs. (114.8 Nm)

* This is the maximum horsepower or torque that can be transmitted through the shaft coupling to the rear pump.

ORDERING INFORMATION



and SAE Flanges can be found later in this catalog. See Table of Contents for location.

TYPICAL ORDERING CODE: HPV-10B35-RF-O-1R-C

Options.

SPECIFICATIONS

Variable Displacement, Pressure Compensated



OVERALL EFFICIENCY



TYPICAL PERFORMANCE SPECIFICATIONS

VOLUMETRIC	С	u. in./rev.	2.09	
DISPLACEMENT	_	ml/rev.	34.2	
PUMP DELIVERY	Theoretial	gpm	15.83	
@ 1750 rpm	medicital	lpm	59.85	
	Intermittent*	psi	4000	
		bar	276	
OPERATING	Continuous	psi	3500	
PRESSURES	Continuous	bar	241	
	Minimum**	psi	200	
	Winning	bar	14	
	Maxir	num rpm	see below	
SPEEDS	R	Rated rpm		
	Minir	num rpm	500	
POWER INPUT @) 1750 rpm	hp	34	
Rated Flow & Pres	sure	kw	25	
CASE DRAIN FLC)W @	gpm	0.5	
Deadhead & Rate	d Pressure	lpm	1.9	
MOUNTING	Keyed Shaft S	SAE Type	"B" 2-Bolt	
FLANGE	Spline Shaft S	SAE Type	"B" 2-Bolt	
	Rear Ports	lbs.	51	
_	itear i onto	kg	23.3	
SHIPPING	Side Ports	lbs.	63	
WEIGHT		kg	28.6	
-	Tandem Ports	lbs.	69	
		kg	31.3	

* This pressure should comprise 10% or less of the total duty cycle and not exceed 6 consecutive seconds.

 $^{\star\star}~$ Pumps operating at less than 150 psi (10.3 bar) may overheat and shorten pump life.

CASE DRAIN AND INLET PORT SPECIFICATIONS

				MAXI	мим			
SPEED		Pressur	e Gage		Absolute	Pressure	CASE PRESSURE	
rpm	psi	bar	inHg	mm-Hg	psi	bar	psi	bar
1800	-3.00	-0.21	-6.12	-155.46	11.70	0.81	10	.69
2100	-3.00	-0.21	-6.12	-155.46	11.70	0.81	7	.48
2230	-3.00	-0.21	-6.12	-155.46	11.70	0.81	5	.34
2275	-2.53	-0.17	-5.16	-130.95	12.17	0.84	5	.34
2350	-1.71	-0.12	-3.49	-88.67	12.99	0.90	5	.34
2500	0.00	0.00	0.00	0.00	14.70	1.01	5	.34

PRESSURE AND VOLUME ADJUSTMENT SENSITIVITY

Pressure Adjustment	Pressure Change/Turn	650 psi	44.8 bar
Volume	Flow Change/Turn	1.8 gpm	6.8 lpm
Adjustment	Maximum Torque	41 inlbs.	4.6 Nm

PERFORMANCE GRAPHS

lpm gpm 56.7 + 15 45.4 + 12 34.0 - 9 22.7 + 611.3 - 3 o⊥ o 500 1000 1500 2000 2500 3000 3500 psi 0 103 138 172 207 241 bar 0 35 68

FLOW VS PRESSURE





The data below is typical performance at 1750 rpm.

INPUT POWER @ZERO FLOW



NOISE LEVEL



DIMENSION DRAWINGS

HYDRAULICS.

REAR PORTS

Dimension shown in: INCHES (MILLIMETERS)



DIMENSION DRAWINGS

SIDE PORTS

VORAULICS

Dimension shown in: INCHES (MILLIMETERS)



DIMENSION DRAWINGS

HYDRAULICS.

HORSEPOWER LIMITING CONTROL

Dimension shown in: INCHES (MILLIMETERS)

(Code 26)







DIMENSION DRAWINGS

TANDEM PUMP MOUNTINGS

(Codes 21, 22, 31)



NOTE: Code 22 shown. Other codes will appear differently.



Dimension shown in:

INCHES

CODE	SAE 2-BOLT MOUNTING PAD	DIMENSIONS			NS	Inches (millimeters)	30° INVOLUTE INTERNAL SPLINE	MAXIMUM H.P. RATING*	MAXIMUM TORQUE RATING*
	A	В	С	D	Е	F Thread	G	(at 1750 rpm)	
21	"A" Flange	3.25 (82.6)	4.18 (106.2)	9.41 (239.0)	2.07 (58.6)	3/8-16 UNC	9 Tooth 16/32 Pitch 0.5625 Dia.	8.5	306 inIbs. (34.7 Nm)
22	"B" Flange	4.00 (101.6)	5.75 (146.1)	9.03 (229.4)	2.23 (56.6)	1/2-13 UNC	13 Tooth 16/32 Pitch 0.8125 Dia.	28.1	1013 inlbs. (114.8 Nm)
31	"A-B" Flange	3.25 (82.6)	4.18 (106.2)	9.41 (239.0)	2.07 (58.6)	3/8-16 UNC	13 Tooth 16/32 Pitch 0.8125 Dia.	28.1	1013 inIbs. (114.8 Nm)

* This is the maximum horsepower or torque that can be transmitted through the shaft coupling to the rear pump.

ORDERING INFORMATION



NOTE: Foot Mounting Brackets, Pump Motor Mounts and SAE Flanges can be found later in this catalog. See Table of Contents for location.

TYPICAL ORDERING CODE: **HPV-15B35-RF-O-1R-B**

Options.

SPECIFICATIONS

Variable Displacement, Pressure Compensated



OVERALL EFFICIENCY



TYPICAL PERFORMANCE SPECIFICATIONS

VOLUMETRIC	C	u. in./rev.	2.62
DISPLACEMENT	_	ml/rev.	42.9
PUMP DELIVERY	, Theoretial	gpm	19.85
@ 1750 rpm	meorellar	lpm	75.03
	Intermittent*	psi	4000
		bar	276
OPERATING	Continuous	psi	3500
PRESSURES	Continuous	bar	241
	Minimum**	psi	200
	Withingth	bar	14
	Maxir	num rpm	see below
SPEEDS	R	ated rpm	1750
	Minir	num rpm	500
POWER INPUT @	🕑 1750 rpm	hp	47
Rated Flow & Pre	ssure	kw	35
CASE DRAIN FLO	DW @	gpm	0.8
Deadhead & Rate	d Pressure	lpm	3.0
MOUNTING	Keyed Shaft S	SAE Type	"C" 2-Bolt
FLANGE	Spline Shaft S	SAE Type	"C" 2-Bolt
	Rear Ports	lbs.	67
		kg	30.5
SHIPPING	Side Porte	lbs.	84
WEIGHT		kg	38.2
	Tandem Ports	lbs.	93
		kg	42.3

* This pressure should comprise 10% or less of the total duty cycle and not exceed 6 consecutive seconds.

** Pumps operating at less than 150 psi (10.3 bar) may overheat and shorten pump life.

CASE DRAIN AND INLET PORT SPECIFICATIONS

				MAXIMUM CASE PRESSURE				
SPEED	Pressure Gage					Absolute	Pressure	
rpm	psi	bar	inHg	mm-Hg	psi	bar	psi	bar
1800	-3.00	-0.21	-6.12	-155.46	11.70	0.80	10	.69
2050	-3.00	-0.21	-6.12	-155.46	11.70	0.81	7	.48
2100	-2.45	-0.17	-6.12	-126.72	12.25	0.80	5	.34
2200	-1.25	-0.09	-5.16	-64.80	13.45	0.90	5	.34
2300	0.00	0.00	0.00	0.00	14.70	1.00	5	.34
2400	1.31	0.09	2.66	67.88	16.01	1.10	5	.34

PRESSURE AND VOLUME ADJUSTMENT SENSITIVITY

Pressure Adjustment	Pressure Change/Turn	650 psi	44.8 bar
Volume	Flow Change/Turn	2.1 gpm	7.9 lpm
Adjustment	Maximum Torque	49 inIbs.	5.5 Nm

PERFORMANCE GRAPHS

The data below is typical performance at 1750 rpm.



FLOW VS PRESSURE

INPUT POWER @ FULL FLOW



INPUT POWER @ZERO FLOW



NOISE LEVEL



DIMENSION DRAWINGS

REAR PORTS

VENTO

VORAULICS

Dimension shown in: INCHES (MILLIMETERS)



DIMENSION DRAWINGS

HYDRAULICS.

SIDE PORTS

Dimension shown in: INCHES (MILLIMETERS)



DIMENSION DRAWINGS

HORSEPOWER LIMITING CONTROL

(Code 26)

NENTA

VORAILLICS







Dimension shown in: INCHES (MILLIMETERS)

DIMENSION DRAWINGS

HYDRAULICS.

TANDEM PUMP MOUNTINGS

(Codes 21, 22, 23, 31)

Dimension shown in: INCHES (MILLIMETERS)





NOTE: Code 23 shown. Other codes will appear differently.

CODE	SAE 2-BOLT MOUNTING PAD		DIMENSIONS			Inches (millimeters)	30° INVOLUTE INTERNAL SPLINE	MAXIMUM H.P. RATING*	MAXIMUM TORQUE RATING*
	A	В	С	D	E	F Thread	G	(at 1750 rpm)	
21	"A" Flange	3.25 (82.6)	4.18 (106.2)	9.41 (239.0)	2.07 (58.6)	3/8-16 UNC	9 Tooth 16/32 Pitch 0.5625 Dia.	8.5	306 inlbs. (34.7 Nm)
22	"B" Flange	4.00 (101.6)	5.75 (146.1)	9.03 (229.4)	2.23 (56.6)	1/2-13 UNC	13 Tooth 16/32 Pitch 0.8125 Dia.	28.1	1013 inlbs. (114.8 Nm)
23	"C" Flange	5.00 (127.0)	7.13 (181.1)	8.73 (221.7)	2.53 (64.3)	5/8-11 UNC	14 Tooth 12/24 Pitch 1.1667 Dia.	43.8	1576 inlbs. (178.6 Nm)
31	"A-B" Flange	3.25 (82.6)	4.18 (106.2)	9.41 (239.0)	2.07 (58.6)	3/8-16 UNC	13 Tooth 16/32 Pitch 0.8125 Dia.	28.1	1013 inIbs. (114.8 Nm)

* This is the maximum horsepower or torque that can be

transmitted through the shaft coupling to the rear pump.

ORDERING INFORMATION



and SAE Flanges can be found later in this catalog. See Table of Contents for location.

*NOTE: Code 5S Side Port Option must be ordered with all Tandem Options.

TYPICAL ORDERING CODE: HPV-20B35-RF-O-1R-B

SPECIFICATIONS



OVERALL EFFICIENCY



VOLUMETRIC		cu. in./rev.	3.78
DISPLACEMENT		ml/rev.	61.9
PUMP DELIVERY	/ Theoretial	gpm	28.64
@ 1750 rpm	THEOTELIAI	lpm	108.25
	Intermittent*	psi	3500
		bar	241
OPERATING	Continuous	psi	3000
PRESSURES		bar	207
	Minimum**	psi	200
	Willinnun	bar	14
	Max	timum rpm	see below
SPEEDS		Rated rpm	1750
	Min	imum rpm	500
POWER INPUT	🕑 1750 rpm	hp	64
Rated Flow & Pre	ssure	kw	48
CASE DRAIN FLO	OW @	gpm	1.0
Deadhead & Rate	d Pressure	lpm	3.8
MOUNTING	Keyed Shaft	SAE Type	"C" 2-Bolt
FLANGE	Spline Shaft	SAE Type	"C" 2-Bolt
	Rear Ports	lbs.	86
		kg	39.1
SHIPPING	Side Porte	lbs.	102
WEIGHT		kg	46.3
	Tandem Ports	lbs.	111
		kg	50.3

* This pressure should comprise 10% or less of the total duty cycle and not exceed 6 consecutive seconds.

** Pumps operating at less than 150 psi (10.3 bar) may overheat and shorten pump life.

CASE DRAIN AND INLET PORT SPECIFICATIONS

				MAXIMUM				
SPEED		Pressur	e Gage		Absolute	Pressure	CASE PRESSURE	
rpm	psi	bar	inHg	mm-Hg	psi	bar	psi	bar
1800	-3.00	-0.21	-6.12	-155.46	11.70	0.80	10	.69
2050	-3.00	-0.21	-6.12	-155.46	11.70	0.81	7	.48
2100	-2.45	-0.17	-4.99	-126.72	12.25	0.80	5	.34
2200	-1.25	-0.09	-2.55	-64.80	13.45	0.90	5	.34
2300	0.00	0.00	0.00	0.00	14.70	1.00	5	.34
2400	1.31	0.09	2.66	67.88	16.01	1.10	5	.34

PRESSURE AND VOLUME ADJUSTMENT SENSITIVITY

Pressure Adjustment	Pressure Change/Turn	650 psi	44.8 bar
Volume	Flow Change/Turn	2.8 gpm	10.6 lpm
Adjustment	Maximum Torque	45 inlbs.	5.1 Nm

PERFORMANCE GRAPHS

The data below is typical performance at 1750 rpm.



FLOW VS PRESSURE

INPUT POWER @ FULL FLOW



INPUT POWER @ZERO FLOW



NOISE LEVEL



DIMENSION DRAWINGS

HYDRAULICS.

REAR PORTS

Dimension shown in: INCHES (MILLIMETERS)



DIMENSION DRAWINGS

SIDE PORTS

NENTO

VORAILLICS

Dimension shown in: INCHES (MILLIMETERS)



DIMENSION DRAWINGS

HYDRAULICS.

HORSEPOWER LIMITING CONTROL

(Code 26)

Dimension shown in: INCHES (MILLIMETERS)

COMPENSATOR PORT: SAE-4





DIMENSION DRAWINGS

TANDEM PUMP MOUNTINGS

(Codes 21, 22, 23, 31)





Dimension shown in:

INCHES

(MILLIMETERS)

NOTE: Code 23 shown. Other codes will appear differently.

CODE	SAE 2-BOLT MOUNTING PAD	DIMENSIONS			NS	Inches (millimeters)	30° INVOLUTE INTERNAL SPLINE	MAXIMUM H.P. RATING*	MAXIMUM TORQUE RATING*
	A	В	С	D	Е	F Thread	G	(at 1750 rpm)	
21	"A" Flange	3.25 (82.6)	4.18 (106.2)	11.26 (286.0)	2.30 (58.4)	3/8-16 UNC	9 Tooth 16/32 Pitch 0.5625 Dia.	8.5	306 inlbs. (34.7 Nm)
22	"B" Flange	4.00 (101.6)	5.75 (146.1)	11.42 (290.1)	2.46 (62.5)	1/2-13 UNC	13 Tooth 16/32 Pitch 0.8125 Dia.	28.1	1013 inlbs. (114.8 Nm)
23	"C" Flange	5.00 (127.0)	7.13 (181.1)	11.42 (290.1)	2.46 (62.5)	5/8-11 UNC	14 Tooth 12/24 Pitch 1.1667 Dia.	43.8	1576 inlbs. (178.6 Nm)
31	"A-B" Flange	3.25 (82.6)	4.18 (106.2)	11.26 (286.0)	2.30 (58.4)	3/8-16 UNC	13 Tooth 16/32 Pitch 0.8125 Dia.	28.1	1013 inIbs. (114.8 Nm)

 * This is the maximum horsepower or torque that can be

transmitted through the shaft coupling to the rear pump.

ORDERING INFORMATION



and SAE Flanges can be found later in this catalog. See Table of Contents for location.

*NOTE: Code 5S Side Port Option must be ordered with all Tandem Options.

TYPICAL ORDERING CODE: HPV-29B30-RF-9-0-1R-B

FOOT MOUNTING BRACKET DIMENSIONS



		DIMENSIONS Inches (millimeters)																
FOOT BRACKET SERIES	SAE FLANGE	A	в	с	D	E	F	G	н	J	к	L	м	N	ο	Р	R THREAD	S BOLT SIZE
FPVR6	Α	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 ln.
FPVR15	В	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.

FOOT MOUNTING BRACKET/BOLTS ORDERING INFORMATION



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

TYPICAL ORDERING CODE: FPVR15-284-B

Bolt Kits for Mounting HPV Series Pumps



TE: Code 2 = Pump to Foot Bracket, Flange or From Tandem Pump.

TYPICAL ORDERING CODE: BPVR15-1-U-A

SAE STANDARD J518 FLANGE DIMENSIONS

SAE CODE 61

NOMINAL FLANGE SIZE: 1-1/2" DASH SIZE: -24 ∆3000 PSIG RECOMMENDED WORKING PRESSURE Dimension shown in: INCHES (MILLIMETERS)



DIMENSIONS

	Inch	mm		Inch	mm	
Α	3.25	82.6	J	2.120	53.85	
В	3.69	93.7	Κ	1.62	41.2	
С	1.406	35.71	L	1.09	27.7	
D	2.750	69.85	Μ	1.12	28.4	
Е	1.19	30.2	Ν	1-1/2	NPTF	
F	0.44	11.2	0	0.531	13.49	
G	1.923	48.84	Ρ	0.781	19.84	
Н	1.50	38.1	R	1/2-13 UNC-2B		

SOC. HD. CAP SCREW	HEX. or SOC. HD. CAP SCREW	O-RING	BOLT
(IREADED FLANGE)	(SUCKET WELD)	ARP-300	IURQUE
SIZE & LENGTH (In.)	SIZE & LENGTH (In.)	UNIFORM DASH NO.	lbs.(F)-In. (Nm)
1/2-13LINC x 2.00	1/2-13UNC X 2 75	2.125 X 1.875 X .125	550 - 700
1/2-150NC x 2:00	1/2-150NC X 2.75	(54.0 X 47.6 X 3.2)	(62.3 - 79.3)

Torque value is based on dry assembly using SAE grade 5 bolts or better or socket head cap screws of grade 5 or better with insertion length into steel surfaces as provided by the specific bolt lengths.

Bolt torque for split flanges that have clearance between split flange and the mounting surface may need special evaluation to prevent split flange distortion.

SAE STANDARD J518 FLANGE DIMENSIONS

Dimension shown in:

INCHES

(MILLIMETERS)

HYDRAULICS

SAE CODE 61 or 62

NOMINAL FLANGE SIZE: 1-1/4" DASH SIZE: -20 ∆6000 PSIG RECOMMENDED WORKING PRESSURE





DIMENSIONS

	Inch	mm		Inch	mm		
Α	3.06	77.7	J	1.7525	44.51		
В	3.75	95.3	Κ				
С	1.250	31.75	L				
D	2.625	66.68	М				
Е	1.25	31.8	Ν				
F	0.56	14.2	0	0.531	13.49		
G	1.672	42.47	Р				
Н	1.25	31.75	R	1/2-13 UNC-2B			

	HEX. or SOC. HD.		
SOC. HD. CAP SCREW	CAP SCREW	O-RING	BOLT
(THREADED FLANGE)	(SOCKET WELD)	ARP-568	TORQUE*
SIZE & LENGTH (In.)	SIZE & LENGTH (In.)	UNIFORM DASH NO.	lbs.(F)-In. (Nm)
	1/2 131 INC X 2 25	2.750 X 1.500 X .125	750 - 900
	1/2-130NC X 2.25	(44.4 X 38.1 X 3.2)	(85.0 - 102.0)

Torque value is based on dry assembly using SAE grade 5 bolts or better or socket head cap screws of grade 5 or better with insertion length into steel surfaces as provided by the specific bolt lengths.

Bolt torque for split flanges that have clearance between split flange and the mounting surface may need special evaluation to prevent split flange distortion.

AIR BLEED VALVE



TYPICAL PERFORMANCE SPECIFICATIONS

MINIMUM FLOV	V RATE	8 gpm	30.3 lpm
MINIMUM	@8 gpm (30.3 lpm)	500 psi	35 bar
OPERATING	@15 gpm (56.8 lpm)	350 psi	24 bar
PRESSURE	@50 gpm (189.2 lpm)	200 psi	14 bar
MAX. OPERATII	NG PRESSURE	3500 psi	241 bar
MINIMUM PRES	SURE	150 noi	10 hor
TO HOLD CLOS	E	150 psi	TO Dai
TYPICAL	@500 psi (35 bar)	30	sec.
CLOSING TIME	10	sec.	
SEALS	VI	ΓΟΝ	

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

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.

TYPICAL APPLICATIONS SCHEMATIC



VALVE 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.

AIR BLEED VALVE

HYDRAULICS.

VALVE DIMENSIONS

Dimension shown in: INCHES (MILLIMETERS)



ORDERING INFORMATION



TYPICAL ORDERING CODE: **AB-1-B**

PUMP MOTOR MOUNTS AND COUPLINGS

NENTA

VORAULICS



PUMP	ADAPTER	HPV-6	HPV-10	HPV-15	HPV-20	HPV-29	
SAE	AND	SAE "A"	SAE "B"	SAE "B"	SAE "C"	SAE "C"	SEDIES
SHAFT DIA.	COUPLINGS	3/4 x 3/16	7/8 x 1/4	7/8 x 1/4	1-1/4 x 5/16	1-1/4 x 5/16	JERIES
1.0 - 2.0 HP	"C"-FACE	902497					
143TC/145TC	MOTOR COUPLING	954847					DMOO
7/8" BORE	PUMP COUPLING	954848					1 10190
3/16" KEY	INSERT	954874					
3.0 HP, 5.0 HP	"C"-FACE	954856	954858	954858			
182TC/184TC	MOTOR COUPLING	954849	954849	954849			DMOO
1-1/8" BORE	PUMP COUPLING	954848	954848	954848			1 10190
1/4" KEY	INSERT	954874	954874	954874			
7.5 HP, 10.0 HP	"C"-FACE	903606	166719	166719	600616	600616	
213TC/215TC	MOTOR COUPLING	954850	954850	954850	954850	954850	M200
1-3/8" BORE	PUMP COUPLING	914072	914072	914072	914078	914078	101200
5/16" KEY	INSERT	914216	914216	914216	914216	914216	
15.0 HP, 20.0 HP	"C"-FACE	148618	166616	166616	934788	934788	
254TC/256TC	MOTOR COUPLING	954851	954851	954851	954851	954851	M300
1-5/8" BORE	PUMP COUPLING	914087	914087	914087	914094	914094	101300
3/8" KEY	INSERT	914217	914217	914217	914217	914217	
25.0 HP, 30.0 HP	"C"-FACE		934782	934782	974817	974817	
284TC/286TC	MOTOR COUPLING		954852	954852	954852	954852	M400
1-7/8" BORE	PUMP COUPLING		914104	914104	934254	934254	101400
1/2" KEY	INSERT		914218	914218	914218	914218	
40.0 HP, 50.0 HP	"C"-FACE		600574	600574	934791	934791	
324TC/326TC	MOTOR COUPLING		914134	914134	914134	914134	M500
2-1/8" BORE	PUMP COUPLING		914118	914118	914123	914123	101500
1/2" KEY	INSERT		914219	914219	914219	914219	
60.0 HP, 75.0 HP	"C"-FACE				934792	934792	
364TC/365TC	MOTOR COUPLING				954853	954853	M500
2-3/8" BORE	PUMP COUPLING				914123	914123	MOOD
5/8" KEY	INSERT				914219	914219	

HPV-6 PUMP INTERCHANGE INFORMATION

HYDRAULICS.



NOTE	To be used as a		and the fam.		and the second s
NOTE:	To be used as a	preliminary	guide for	comparison	purposes only.

		DIMENSIONS										
	L1	L2	L3	L4	L5	W1	W2	W3	H1	H2	D1	D2
Continental Hyd. HPV-6	4.27 (108.5)	0.24 (6.1)	1.00 (25.4)	6.43 (163.3)	1.79 (45.5)	6.11 (155.2)	4.17 (105.9)	2.25 (57.2)	5.62 (142.7)	2.15 (54.6)	3.250 (82.6)	0.75 (19.0)
Vickers PVB6	4.28 (108.7)	0.24 (6.1)	1.00 (25.4)	6.44 (163.6)	1.75 (44.5)	7.13 (181.1)	4.18 (106.2)	2.25 (57.2)	5.18 (131.6)	2.06 (52.3)	3.250 (82.6)	0.75 (19.0)
* Noteworthy						*			*	*		

* Noteworthy Difference

		THEORETICAL	CONTI	NUOUS	INTERMITTENT		
	DISPLACEMENT	FLOW @	Speed	psi	psi	POF	RTS
	cu. in./rev.	1750 rpm	rpm*	(bar)	(bar)	Inlet/Outlet	Fill/Drain
Continental Hyd. HPV-6	.880	6.7	2700	3000 (207)	4000 (276)	SAE-12	SAE-8
Vickers PVB6	.843	6.4	2200	2000 (138)		SAE-12	SAE-6

HPV-10 PUMP INTERCHANGE INFORMATION

VENTO

VORAULICS



NOTE:	To be used as a	a preliminary	guide for	comparison	purposes only.
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	DIMENSIONS												
	L1	L2	L3	L4	L5	W1	W2	W3	H1	H2	D1	D2	
Continental Hyd. HPV-10	4.31 (109.5)	0.37 (9.4)	1.25 (31.7)	6.82 (173.2)	2.31 (58.7)	6.47 (164.3)	5.75 (146.1)	2.36 (59.9)	6.11 (155.2)	2.36 (59.9)	4.00 (101.6)	0.875 (22.22)	
Vickers PVB10	4.87 (123.7)	0.37 (9.4)	1.00 (25.4)	7.44 (189.0)	2.31 (58.7)	7.36 (186.9)	5.75 (146.1)	2.62 (66.5)	5.81 (147.6)	2.56 (65.0)	4.00 (101.6)	0.875 (22.22)	
★ Noteworthy Difference	*		*	*	*	*		*	*	*			

		THEORETICAL	CONTI	NUOUS	INTERMITTENT			
	DISPLACEMENT	FLOW @	Speed	psi	psi	PORTS		
	cu. in./rev.	1750 rpm	rpm*	(bar)	(bar)	Inlet/Outlet	Fill/Drain	
Continental Hyd.	1 260	0.5	2550	3000	4000	SVE 20	SAE 10	
HPV-10	1.200	9.0	2000	(207)	(276)	3AE-20	3AE-10	
Vickers PVB10	1.290	9.8	2250	3000 (207)		SAE-20	SAE-8	

HPV-15 PUMP INTERCHANGE INFORMATION

INCHES

HYDRAULICS.



NOTE:	To be used as a	preliminary	auide for	comparison	purposes only.
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	DIMENSIONS											
	L1	L2	L3	L4	L5	W1	W2	W3	H1	H2	D1	D2
Continental Hyd. HPV-15	5.00 (127.0)	0.37 (9.4)	1.25 (31.7)	7.45 (189.2)	2.30 (58.4)	7.51 (190.8)	5.75 (146.1)	2.62 (66.5)	6.93 (176.0)	2.72 (69.1)	4.00 (101.6)	0.875 (22.22)
Vickers PVB15	4.87 (123.7)	0.37 (9.4)	1.00 (25.4)	7.44 (189.0)	2.31 (58.7)	7.36 (186.9)	5.75 (146.1)	2.62 (66.5)	5.81 (147.6)	2.56 (65.0)	4.00 (101.6)	0.875 (22.22)
★ Noteworthy	*		*			*			*	*		

Difference

		THEORETICAL	CONTI	NUOUS	INTERMITTENT			
	DISPLACEMENT	FLOW @	Speed	psi	psi	PORTS		
	cu. in./rev.	1750 rpm	rpm*	(bar)	(bar)	Inlet/Outlet	Fill/Drain	
Continental Hyd.	2 090	15.8	2275	3000	4000	SAF-20	SAF-10	
HPV-15	2.000	10.0	2210	(207)	(276)	0/12 20	0,10	
Vickers	2 010	15.2	1800	3000		SAE-20	SAE-8	
PVB15	2.010	10.2	1000	(207)		072-20		



HPV-20 PUMP INTERCHANGE INFORMATION

ORALILICS



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	DIMENSIONS												
	L1	L2	L3	L4	L5	W1	W2	W3	H1	H2	D1	D2	
Continental Hyd. HPV-20	5.53 (140.5)	0.375 (9.5)	1.25 (31.7)	8.18 (207.8)	2.32 (58.9)	8.28 (210.3)	7.13 (181.1)	2.76 (70.1)	7.46 (189.5)	2.92 (74.2)	5.00 (127.0)	1.250 (31.75)	
Vickers PVB20	4.86 (123.4)	0.375 (9.5)	1.25 (31.7)	8.73 (221.7)	2.32 (58.9)	8.88 (225.6)	7.13 (181.1)	3.25 (82.6)	7.44 (189.0)	3.69 (93.7)	5.00 (127.0)	1.250 (31.75)	
★ Noteworthy Difference	*			*		*		*		*			

		THEORETICAL	CONTI	NUOUS	INTERMITTENT			
	DISPLACEMENT	FLOW @	Speed	psi	psi	PORTS		
	cu. in./rev.	1750 rpm	rpm*	(bar)	(bar)	Inlet/Outlet	Fill/Drain	
Continental Hyd.	2.620	19.8	2200	3500 (241)	4000	SAE-20	SAE-12	
Vickers PVB20	2.610	19.8	1800	3000 (207)		SAE-20	SAE-8	

HPV-29 PUMP INTERCHANGE INFORMATION

HYDRAULICS.



NOTE: To be used as a preliminary guide for comparison purposes only.

	DIMENSIONS												
	L1	L2	L3	L4	L5	W1	W2	W3	H1	H2	D1	D2	
Continental Hyd. HPV-29	6.18 (157.0)	0.375 (9.5)	1.25 (31.7)	8.79 (223.3)	2.32 (58.9)	8.66 (220.0)	7.13 (181.1)	3.25 (82.6)	8.29 (210.6)	3.34 (84.4)	5.00 (127.0)	1.250 (31.75)	
Vickers PVB29	4.86 (123.4)	0.375 (9.5)	1.25 (31.7)	8.73 (221.7)	2.32 (58.9)	8.88 (225.6)	7.13 (181.1)	3.25 (82.6)	7.44 (189.0)	3.69 (93.7)	5.00 (127.0)	1.250 (31.75)	
\star Noteworthy	*			*		*			*	*			

Difference

		THEORETICAL	CONTI	NUOUS	INTERMITTENT			
	DISPLACEMENT	FLOW @	Speed	psi	psi	PORTS		
	cu. in./rev.	1750 rpm	rpm*	(bar)	(bar)	Inlet/Outlet	Fill/Drain	
Continental Hyd.	3.780	28.6	2100	3000	3500	SAE-20	SAE-12	
HPV-29				(207)	(241)			
Vickers PVB29	3.760	28.5	1800	2000 (138)		SAE-20	SAE-8	
TYPICAL PERFORMANCE SPECIFICATIONS

MODEL			HPV6	HPV10	HPV15	HPV20	HPV29
Volumetric		cu. in. /rev.	0.88	1.26	2.09	2.62	3.78
Displacement		ml./rev.	14.4	21.1	34.2	42.9	61.9
Pump Delivery	Theoretical	GPM	6.67	9.55	15.83	19.85	28.64
@ 1750 RPM		LPM	25.20	36.08	59.85	75.03	108.25
Maximum Operating	Intermittent*	PSI Bar PSI	4000 276 3500	4000 276 3500	4000 276 3500	4000 276 3500	3500 241 3000
Pressures	Minimum	Bar PSI Bar	241 200 14	241 200 14	241 200 14	241 200 14	207 200 14
Noise (readings taken @ 3000 psi)	Full Flow @ 1750 RPM Full Flow @ 1500 RPM Deadhead @ 1750 RPM Deadhead @ 1500 RPM	dBA dBA dBA dBA	72 70 70 67	74 71 68 67	77 76 72 71	78 76 72 71	82 77 77 74
Operating Speed	Maximum	RPM	3000***	3000***	2500***	2400***	2400***
	s Rated	RPM	1750	1750	1750	1750	1750
	Minimum	RPM	500	500	500	500	500
Power Input At Rated 1750 RPM		Horsepower	15	23	34	47	64
Flow and Pressure		Kilowatts	11	17	25	35	48
Mounting Flange Keyed Shaft		SAE Type	"A" 2-bolt	"B" 2-bolt	"B" 2-bolt	"C" 2-bolt	"C" 2-bolt
Spline Shaft		SAE Type	"A/B" 2-bolt**	"B" 2-bolt	"B" 2-bolt	"C" 2-bolt	"C" 2-bolt
Shipping Weight		Pounds Kilograms	24 11	36 16	43 20	57 26	73 33

* 10% duty cycle, not to exceed 6 consecutive seconds

** "A" size pilot, with a "B" size shaft

*** See catalog for minimum inlet pressures for operation at speeds higher than 1750 RPM

Exclusive 3 Year Warranty

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

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