

CONTINENTAL



HYDRAULICS™

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# POWERFLOW™ HPV SERIES AXIAL PISTON PUMPS

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# HPV SERIES AXIAL PISTON PUMPS

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.



## 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.

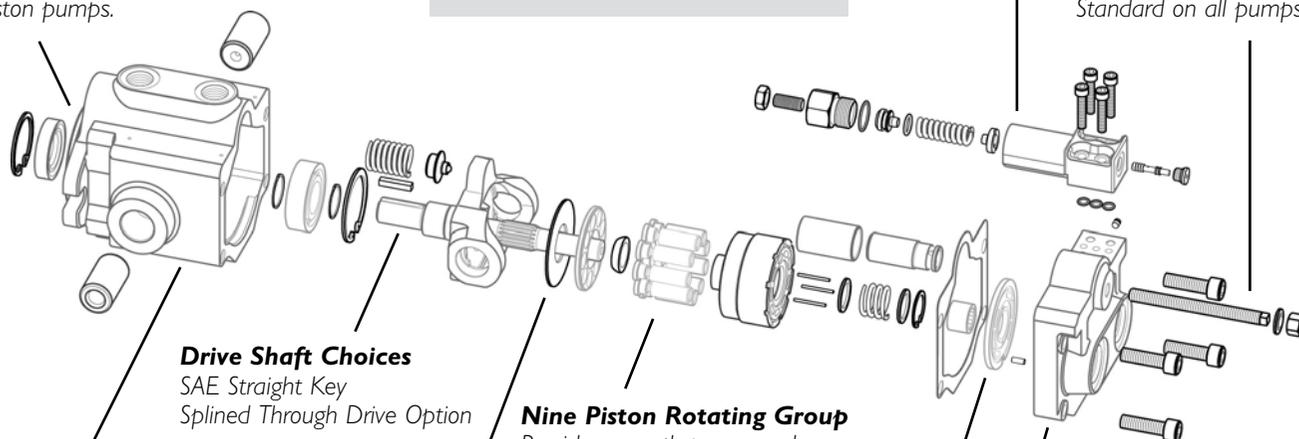
## Features and Benefits

- 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.

## PowrFlow Piston Pumps

### Standard SAE 2-Bolt Flange Mount

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



**Drive Shaft Choices**  
SAE Straight Key  
Splined Through Drive Option

**Nine Piston Rotating Group**  
Provides smooth power and quiet operation. Individually replaceable pistons.

**Replaceable Thrust Plate**  
Simplifies servicing.

**Replaceable Port Plate**  
Simplifies servicing. Ports are designed to reduce noise.

**Cover Options**  
Porting - available with either SAE straight thread or BSPP British standard pipe thread. Tandem Drive Cover Rear or side ports

**Maximum Volume Control**  
Standard on all pumps

**Heavy Duty Construction**  
Designed for rugged use in industrial and mobile applications. Beefed up case also contributes to reduced sound levels for quiet operation.

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# HPV SERIES AXIAL PISTON PUMPS

## 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

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)

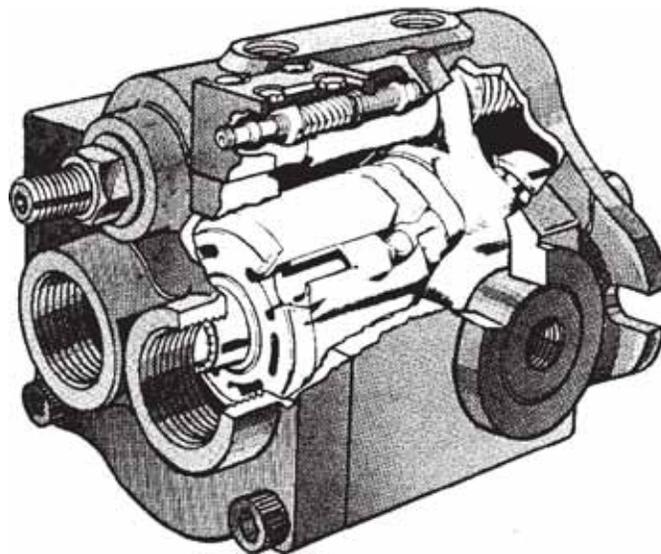
Includes all the features of the standard pressure compensator with the added feature of remote control. This option allows you to adjust or vent the pump control from a remote location for multiple pressure operations.

### 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.



### 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

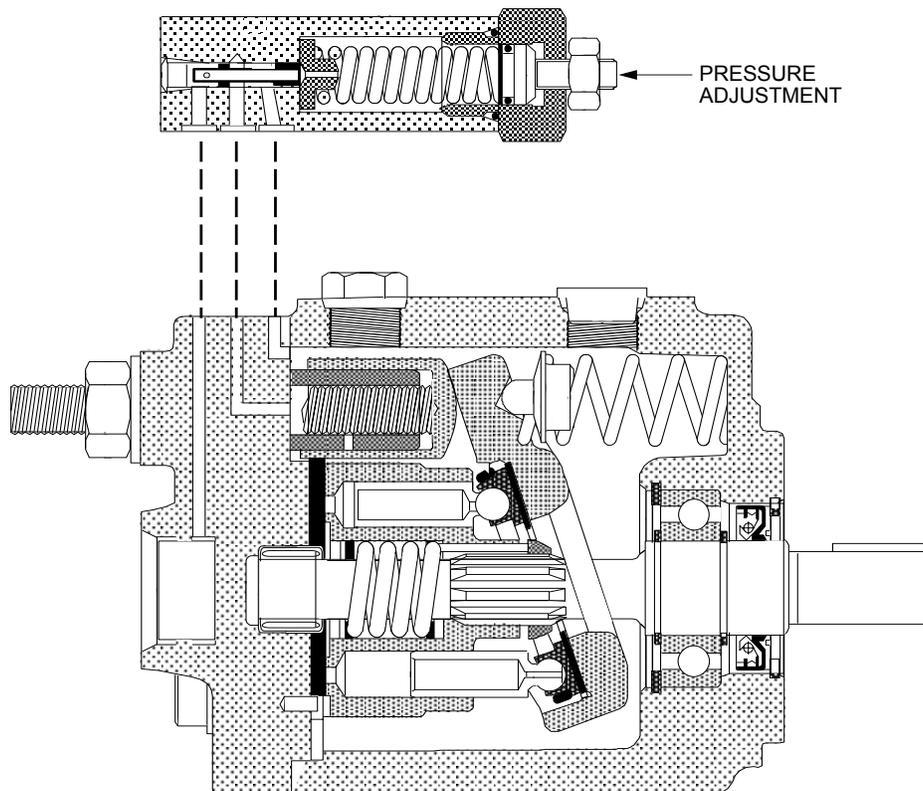
**PRESSURE COMPENSATED CONTROL  
(Standard)**

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.



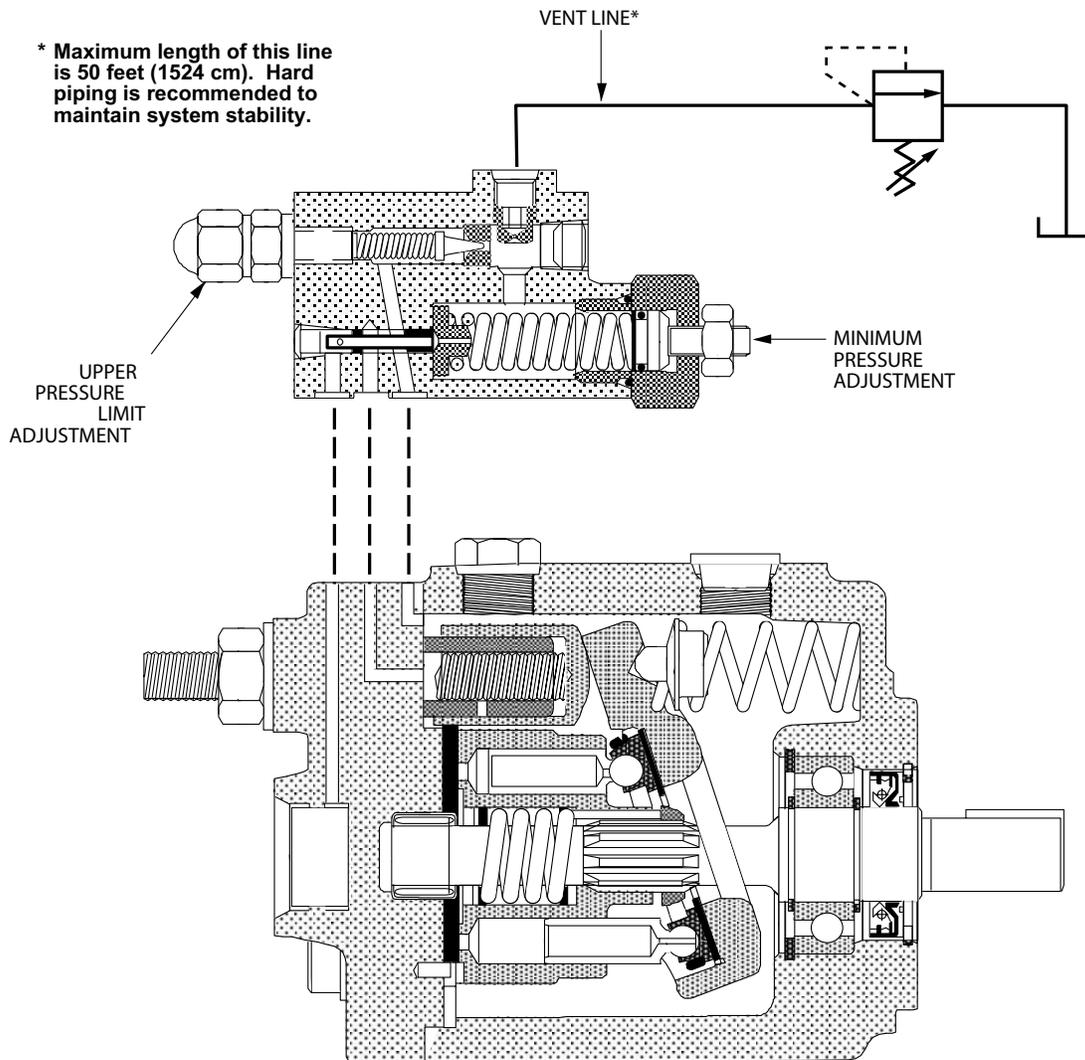
## REMOTE PRESSURE CONTROL (Code 7)

The remote pressure control works similar to the standard pressure compensated control, but with some added features. This is 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

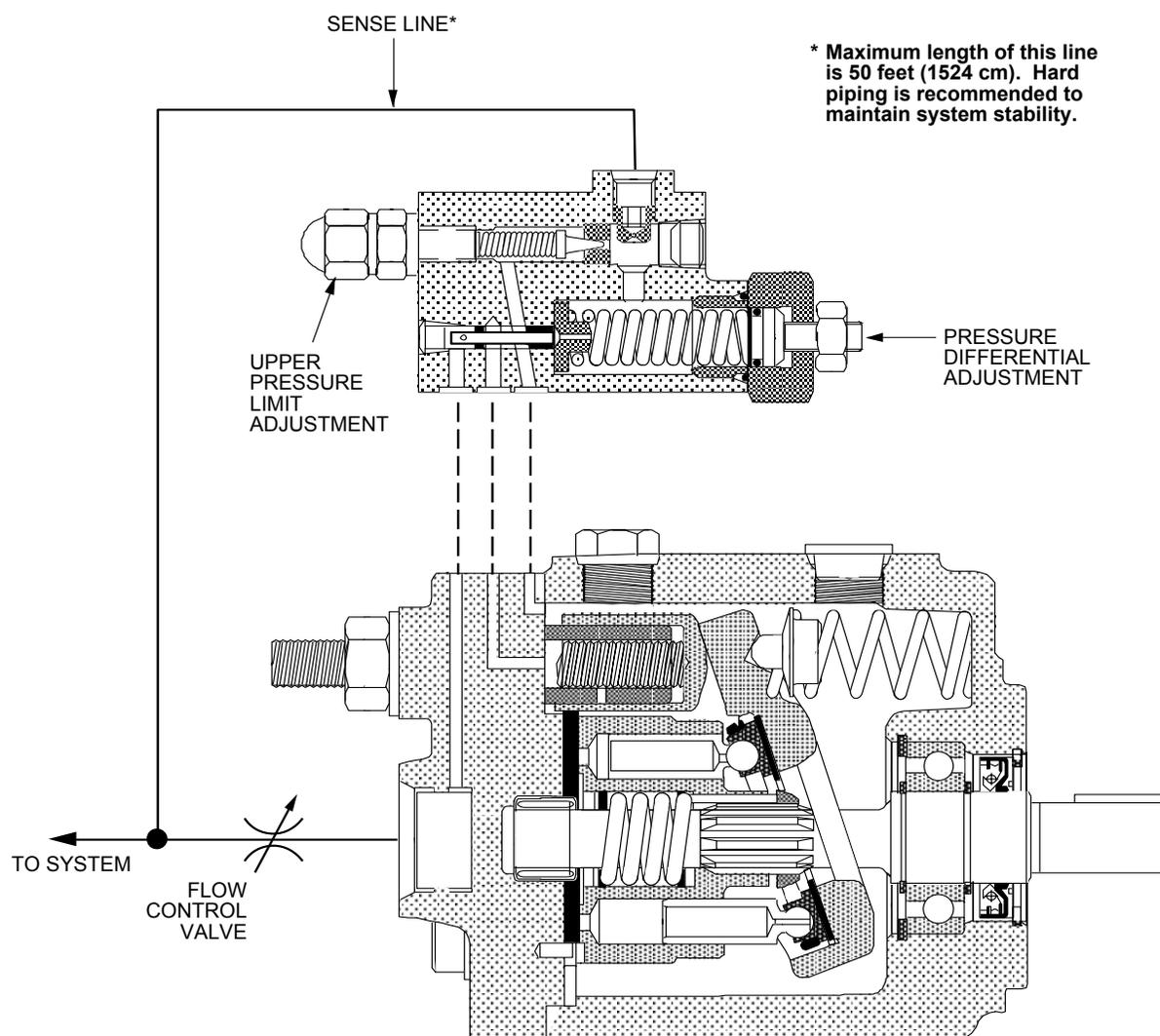
**LOAD SENSING CONTROL  
(Code 19)**

The load sensing control is designed to deliver constant flow across an orifice, and to adjust pressure to meet the system's demands. This is 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.



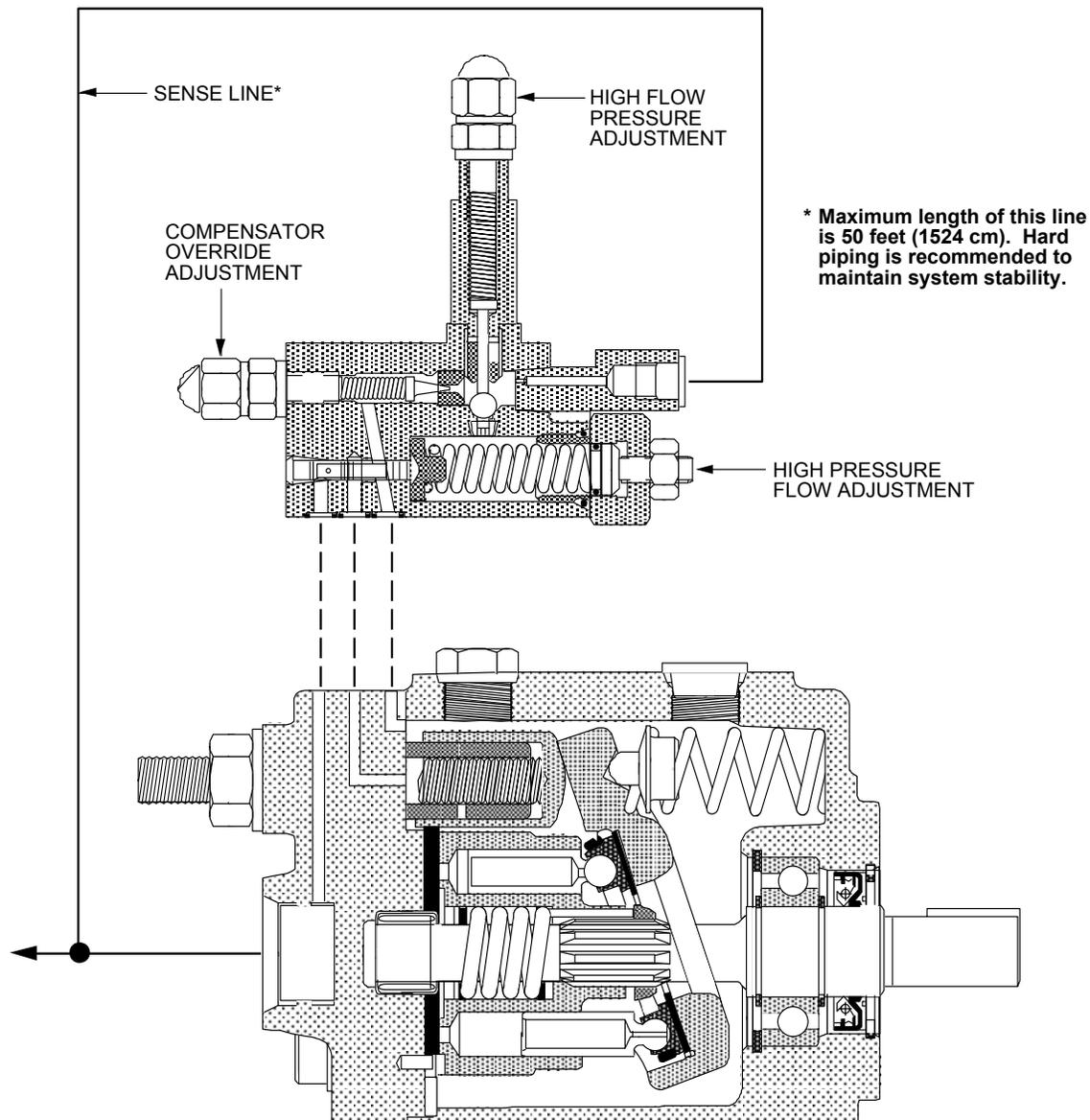
## HORSEPOWER LIMITING CONTROL (Code 26)

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.

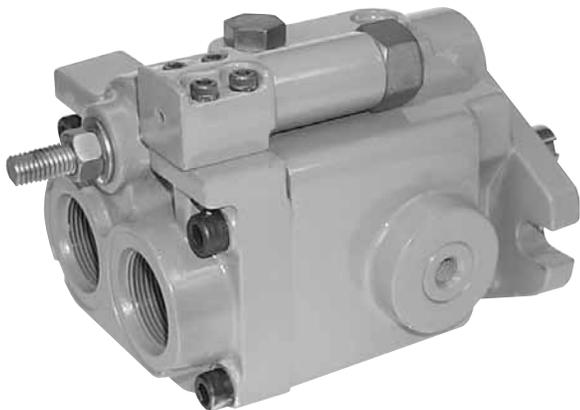
This control is used in limited horsepower systems requiring high pressure and low flow, or low pressure and high flow.



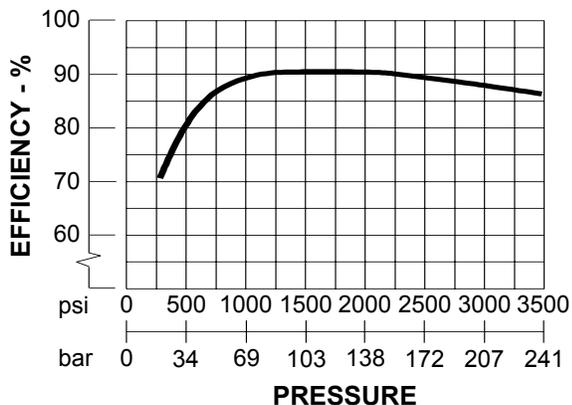
# HPV-6 AXIAL PISTON PUMPS

## SPECIFICATIONS

### Variable Displacement, Pressure Compensated



### OVERALL EFFICIENCY



### TYPICAL PERFORMANCE SPECIFICATIONS

VOLUMETRIC DISPLACEMENT	cu. in./rev.	0.88
	ml/rev.	14.4
PUMP DELIVERY @ 1750 rpm	Theoretical	gpm 6.67
		lpm 25.20
OPERATING PRESSURES	Intermittent*	psi 4000
		bar 276
	Continuous	psi 3500
		bar 241
	Minimum**	psi 200
		bar 14
OPERATING SPEEDS	Maximum rpm	see below
	Rated rpm	1750
	Minimum rpm	500
POWER INPUT @ 1750 rpm	hp	15
Rated Flow & Pressure	kw	11
CASE DRAIN FLOW @ Deadhead & Rated Pressure	gpm	0.3
	lpm	1.1
MOUNTING FLANGE	Keyed Shaft SAE Type	"A" 2-Bolt
	Spline Shaft SAE Type	"A/B" 2-Bolt †
SHIPPING WEIGHT	Rear Ports	lbs. 27
		kg 12.4
	Side Ports	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.

### CASE DRAIN AND INLET PORT SPECIFICATIONS

SPEED rpm	MINIMUM INLET PRESSURE					MAXIMUM CASE PRESSURE		
	Pressure Gage		Absolute Pressure			CASE PRESSURE		
	psi	bar	in.-Hg	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

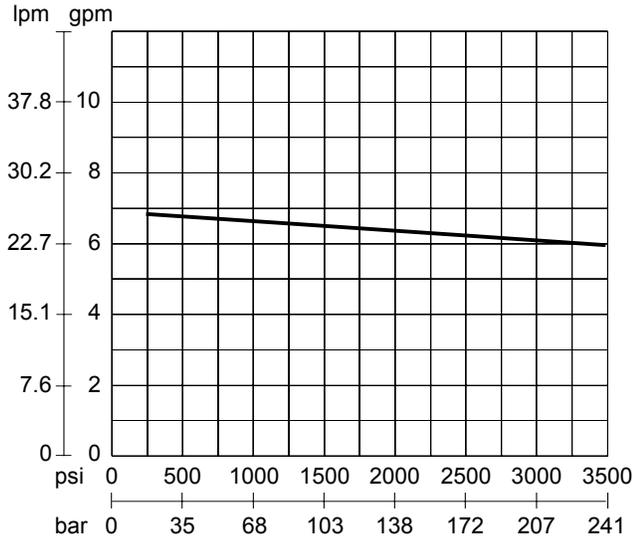
Pressure Adjustment	Pressure Change/Turn	650 psi	44.8 bar
Volume Adjustment	Flow Change/Turn	.7 gpm	2.6 lpm
	Maximum Torque	28 in.-lbs.	3.2 Nm

# HPV-6 AXIAL PISTON PUMPS

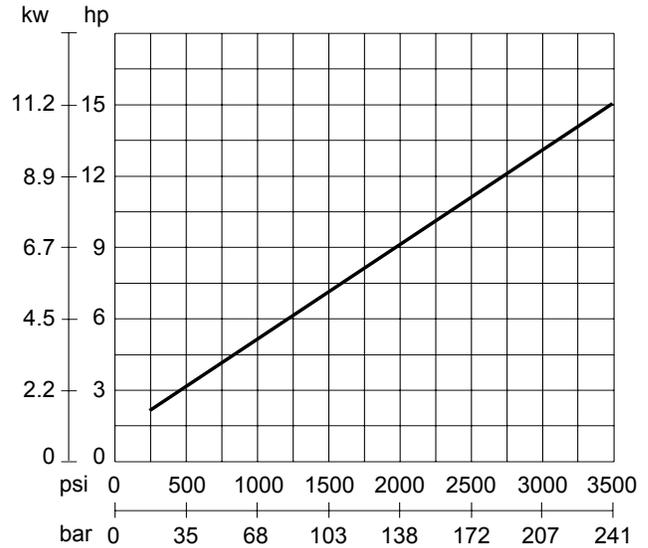
## PERFORMANCE GRAPHS

The data below is typical performance at 1750 rpm.

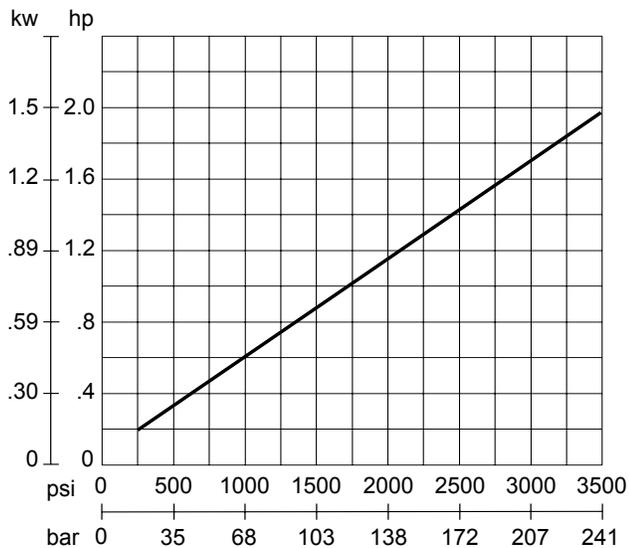
### FLOW VS PRESSURE



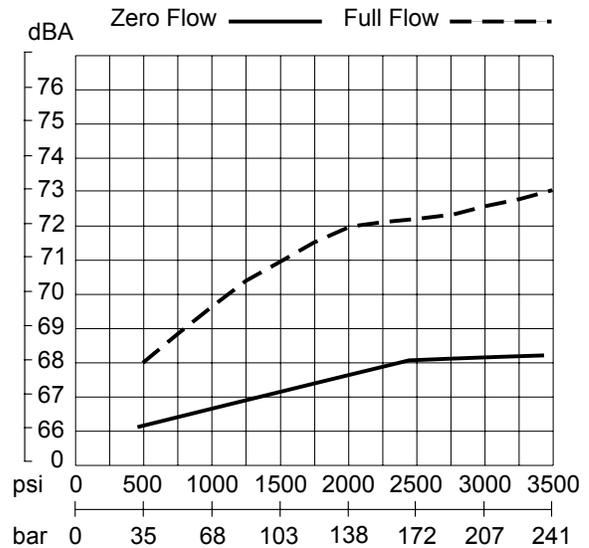
### INPUT POWER @ FULL FLOW



### INPUT POWER @ ZERO FLOW



### NOISE LEVEL

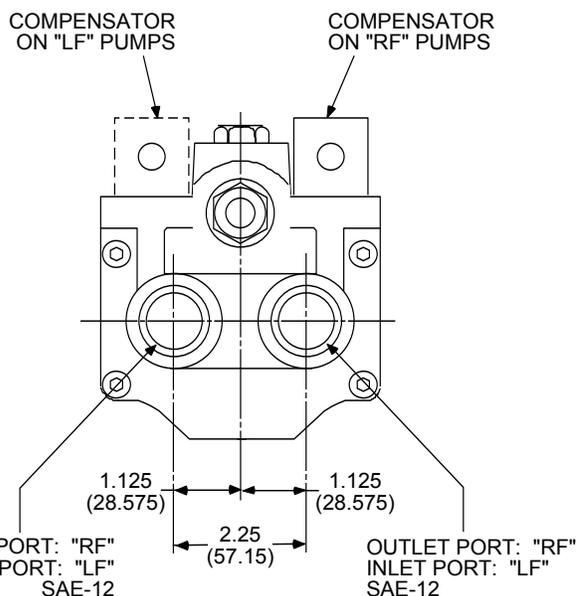
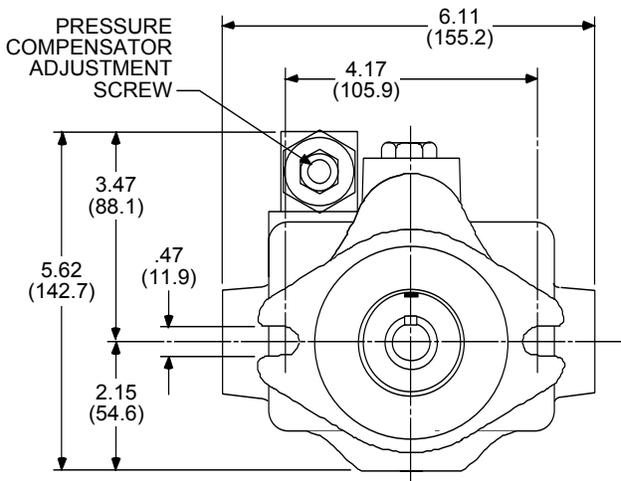


# HPV-6 AXIAL PISTON PUMPS

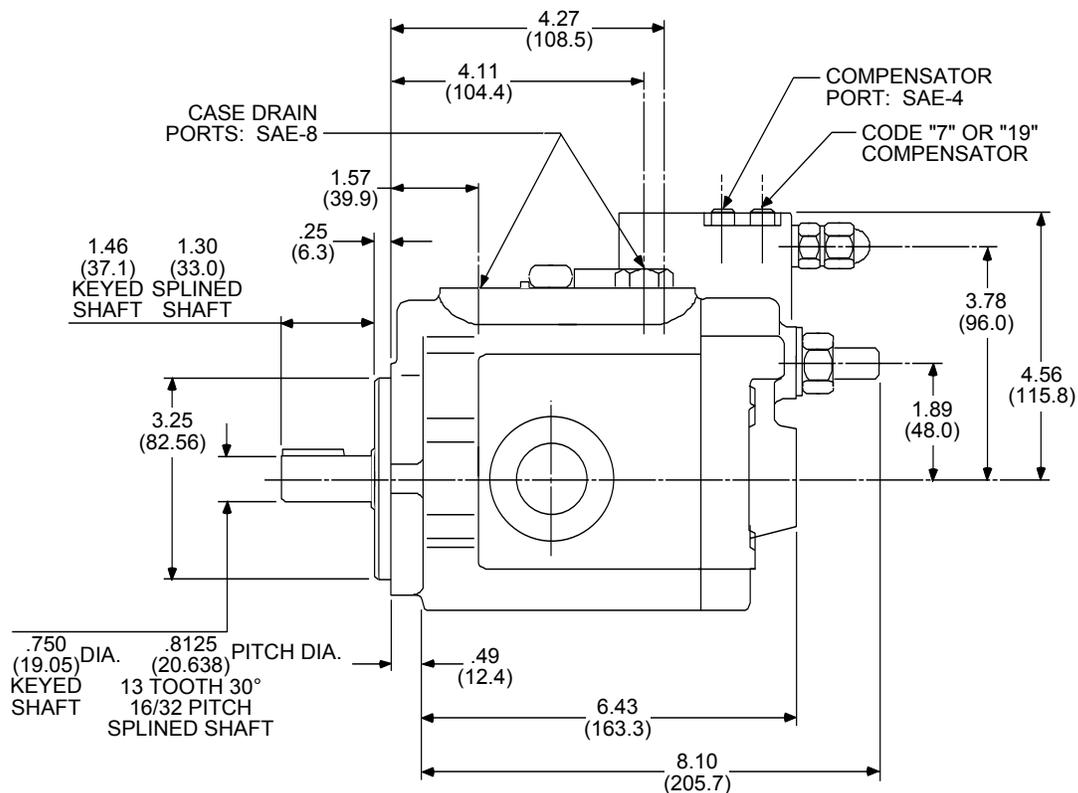
## DIMENSION DRAWINGS

### REAR PORTS

Dimension shown in: INCHES  
(MILLIMETERS)



NOTE: KEY SIZE .187 x 1.00  
(4.8 x 25.4)

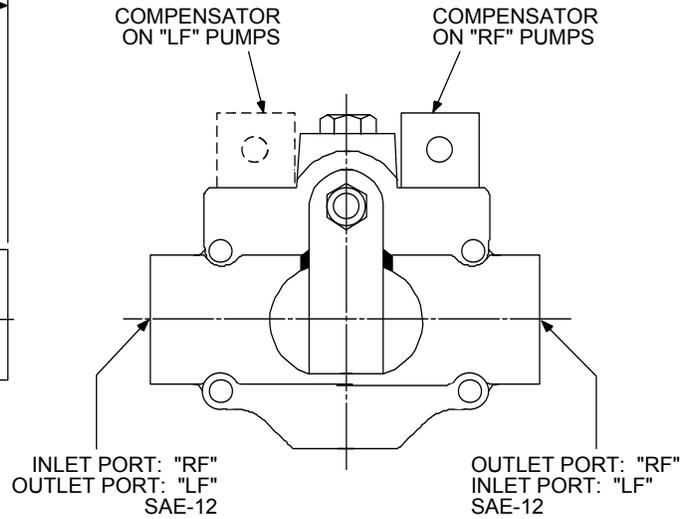
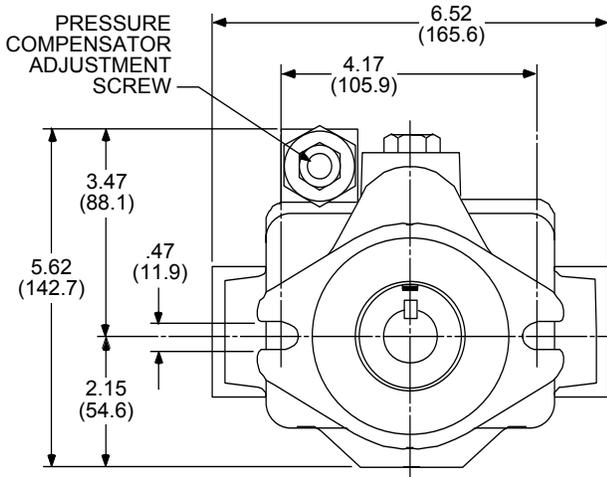


# HPV-6 AXIAL PISTON PUMPS

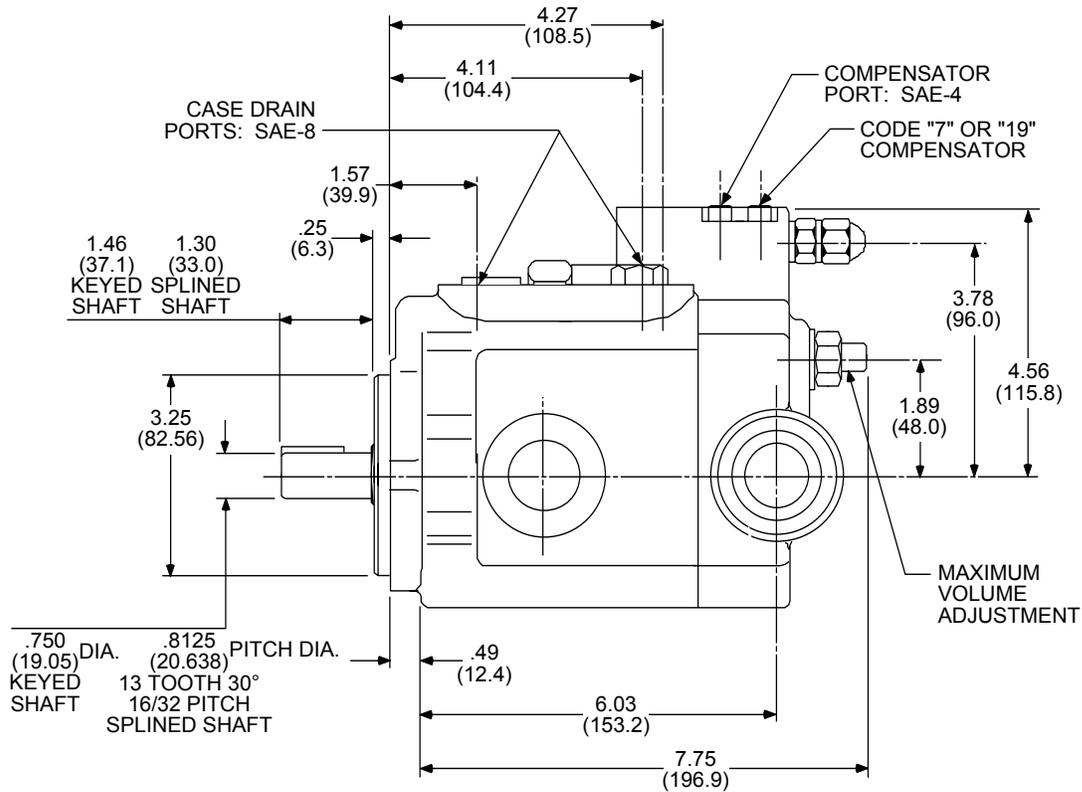
## DIMENSION DRAWINGS

### SIDE PORTS

Dimension shown in: INCHES  
(MILLIMETERS)



**NOTE:** KEY SIZE .187 x 1.00  
(4.8 x 25.4)

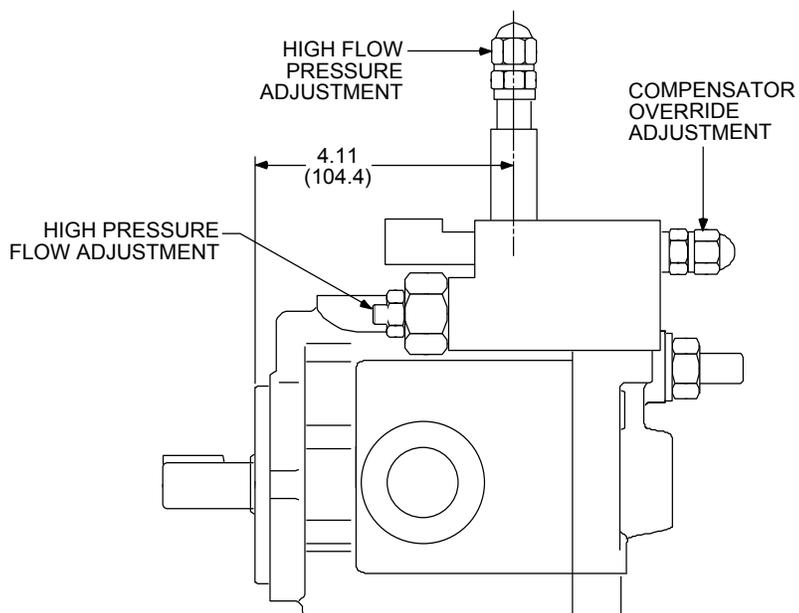
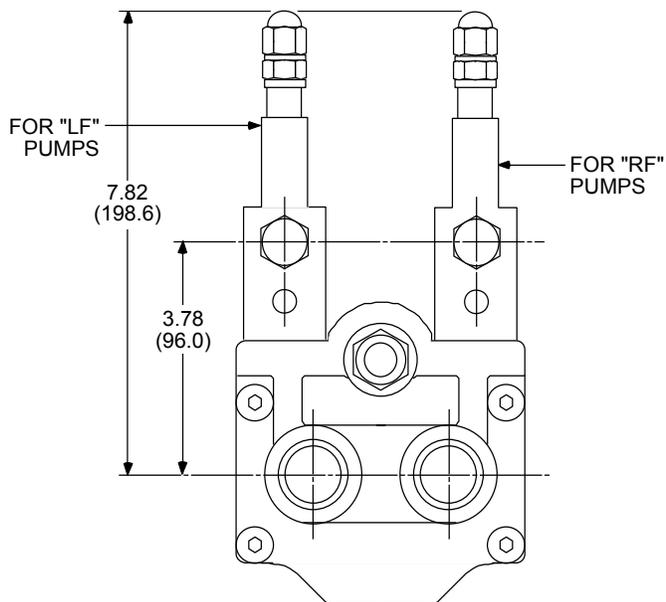
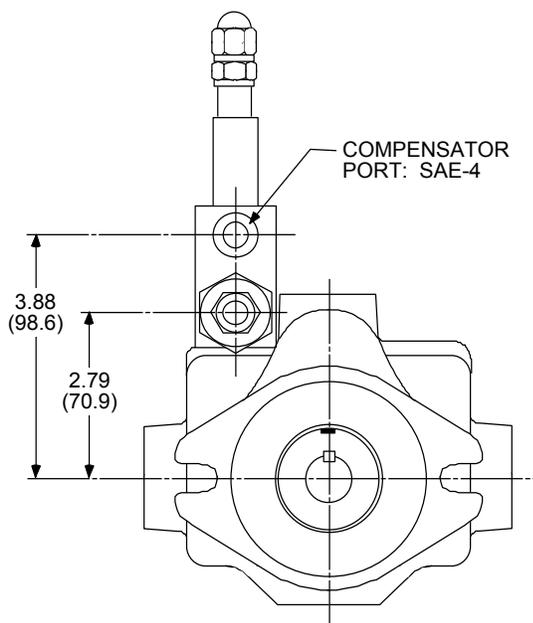


# HPV-6 AXIAL PISTON PUMPS

## DIMENSION DRAWINGS

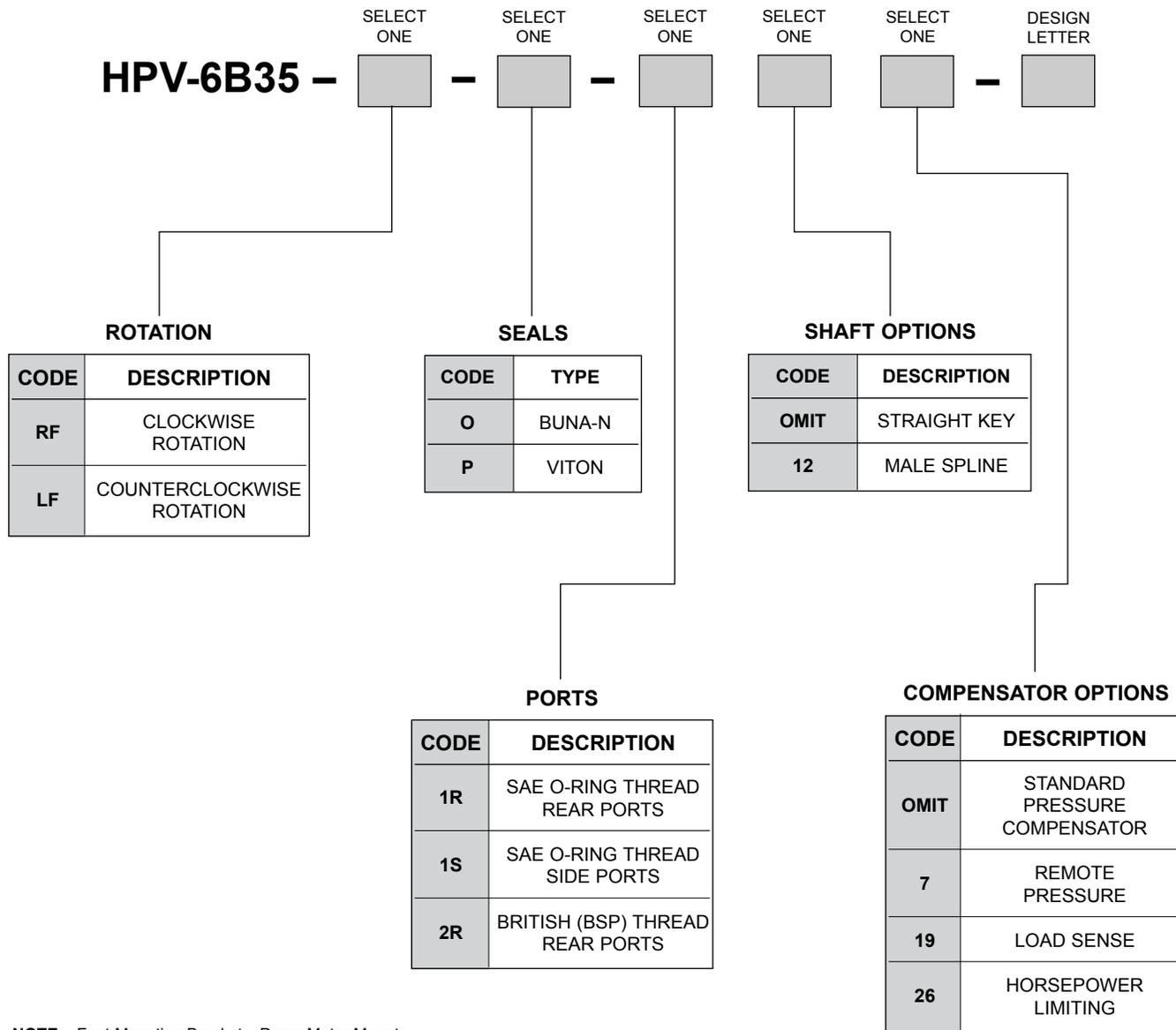
### HORSEPOWER LIMITING CONTROL (Code 26)

Dimension shown in: INCHES  
(MILLIMETERS)



# HPV-6 AXIAL PISTON PUMPS

## ORDERING INFORMATION



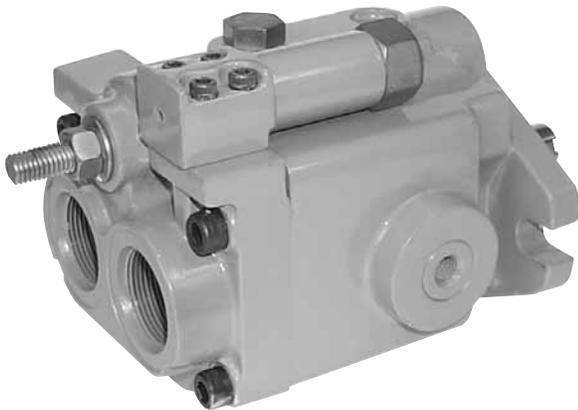
**NOTE:** Foot Mounting Brackets, Pump Motor Mounts and SAE Flanges can be found later in this catalog. See Table of Contents for location.

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

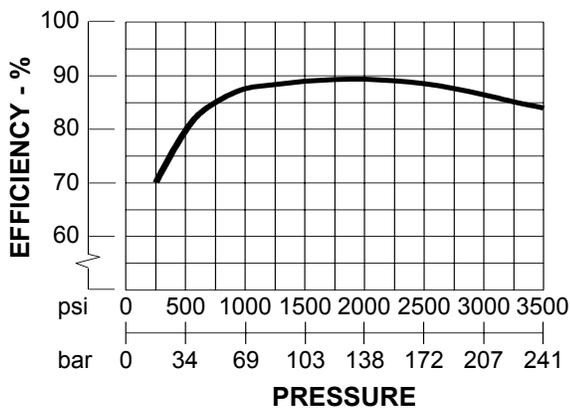
# HPV-10 AXIAL PISTON PUMPS

## SPECIFICATIONS

Variable Displacement, Pressure Compensated



### OVERALL EFFICIENCY



### TYPICAL PERFORMANCE SPECIFICATIONS

VOLUMETRIC DISPLACEMENT	cu. in./rev.	1.26
	ml/rev.	21.1
PUMP DELIVERY @ 1750 rpm	Theoretical	gpm 9.55
		lpm 36.08
OPERATING PRESSURES	Intermittent*	psi 4000
		bar 276
	Continuous	psi 3500
		bar 241
	Minimum**	psi 200
		bar 14
OPERATING SPEEDS	Maximum rpm	see below
	Rated rpm	1750
	Minimum rpm	500
POWER INPUT @ 1750 rpm	hp	23
Rated Flow & Pressure	kw	17
CASE DRAIN FLOW @ Deadhead & Rated Pressure	gpm	0.3
	lpm	1.1
MOUNTING FLANGE	Keyed Shaft SAE Type	"B" 2-Bolt
	Spline Shaft SAE Type	"B" 2-Bolt
SHIPPING WEIGHT	Rear Ports	lbs. 37
		kg 16.7
	Side Ports	lbs. 48
		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

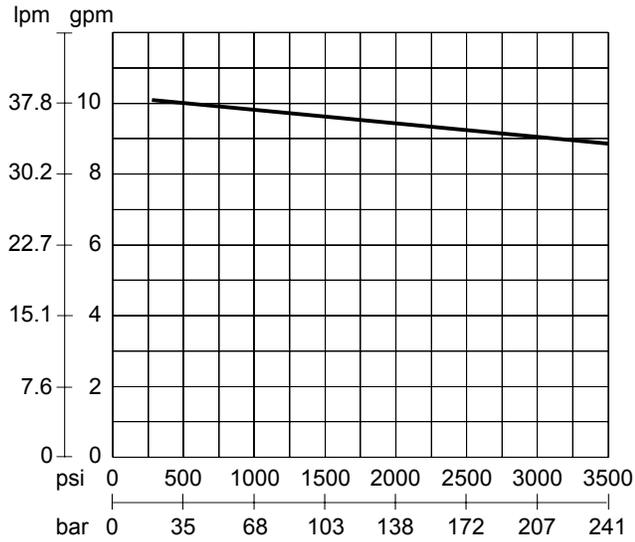
SPEED rpm	MINIMUM INLET PRESSURE				MAXIMUM CASE PRESSURE			
	Pressure Gage psi	Pressure Gage bar	in.-Hg	mm-Hg	Absolute Pressure psi	Absolute Pressure bar		
1800	-3.00	-0.21	-6.12	-155.46	11.70	0.80	10	.69
2100	-3.00	-0.21	-6.12	-155.46	11.70	0.80	7	.48
2500	-3.00	-0.21	-6.12	-155.46	11.70	0.81	5	.34
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

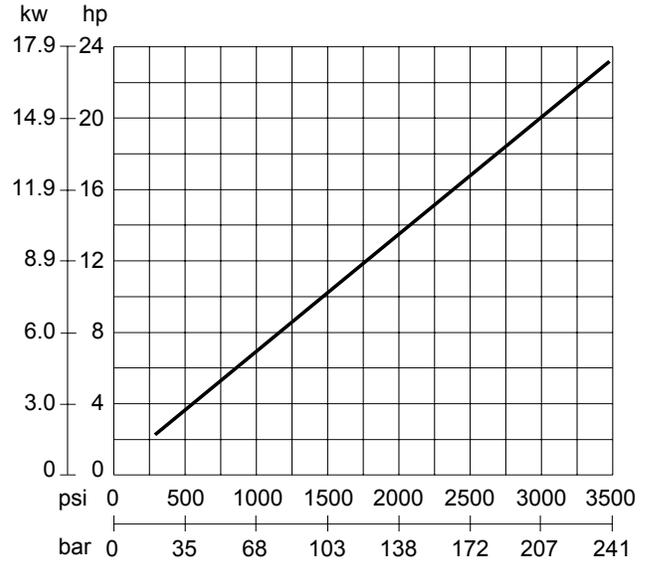
Pressure Adjustment	Pressure Change/Turn	650 psi	44.8 bar
Volume Adjustment	Flow Change/Turn	1.2 gpm	4.5 lpm
	Maximum Torque	25 in.-lbs.	2.8 Nm

The data below is typical performance at 1750 rpm.

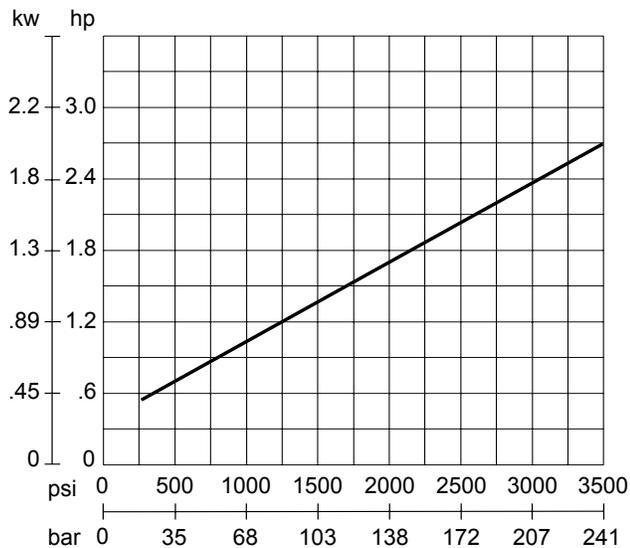
### FLOW VS PRESSURE



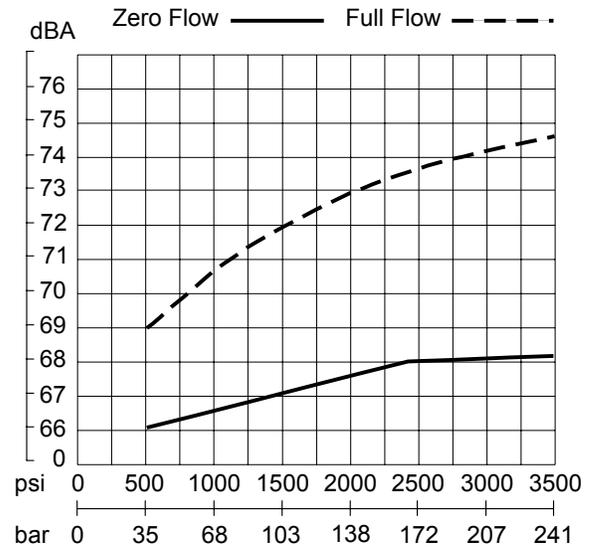
### INPUT POWER @ FULL FLOW



### INPUT POWER @ ZERO FLOW



### NOISE LEVEL

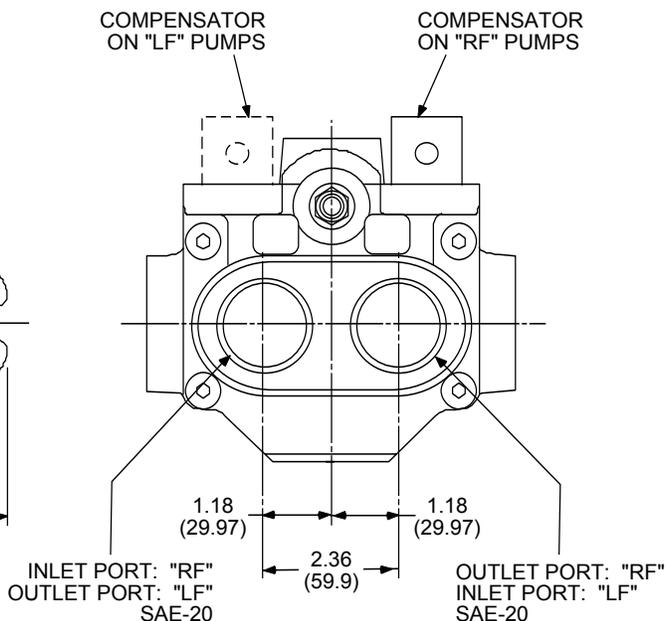
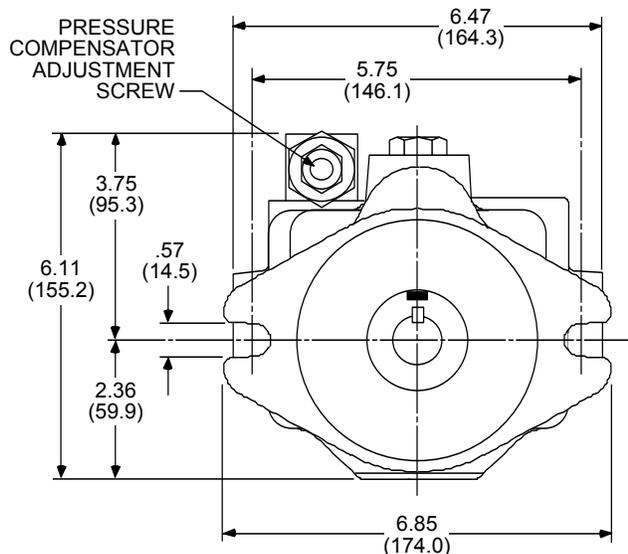


# HPV-10 AXIAL PISTON PUMPS

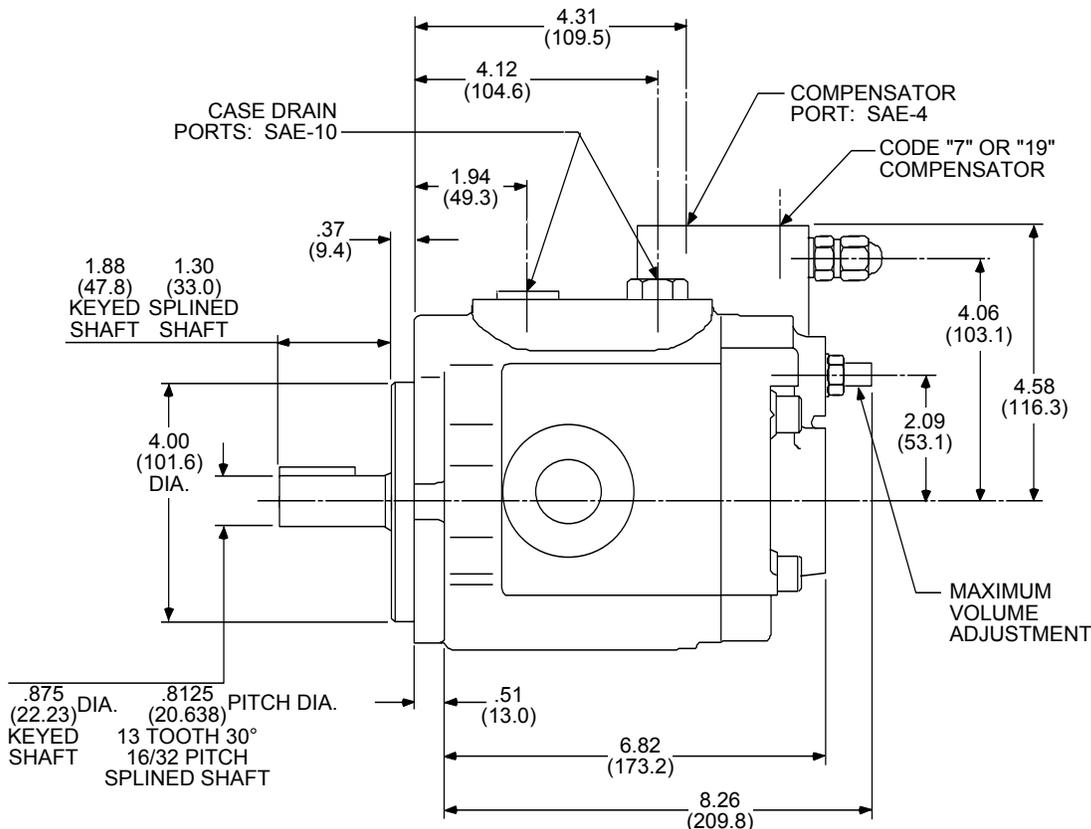
## DIMENSION DRAWINGS

### REAR PORTS

Dimension shown in: INCHES  
(MILLIMETERS)



NOTE: KEY SIZE .250 x 1.25  
(6.3 x 31.7)

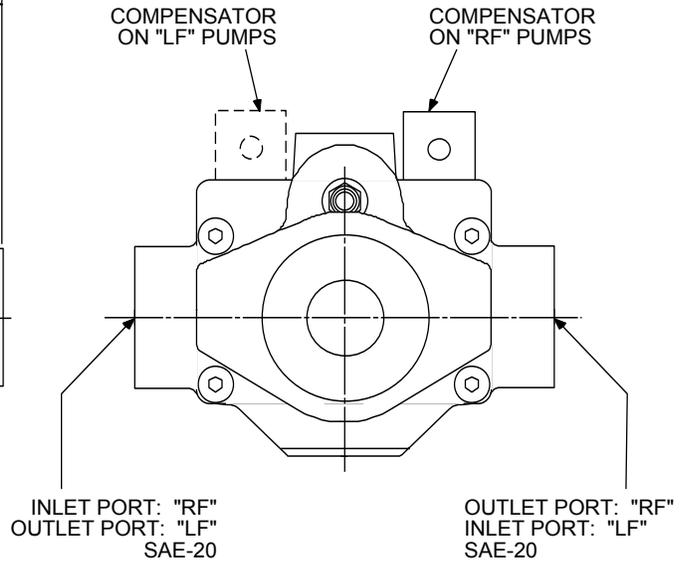
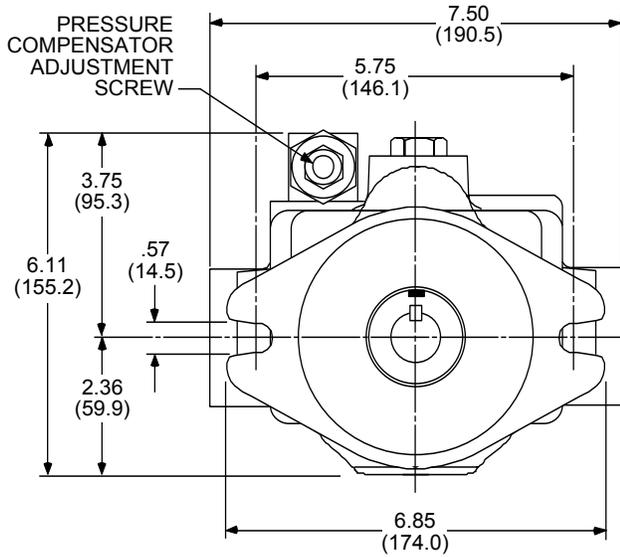


# HPV-10 AXIAL PISTON PUMPS

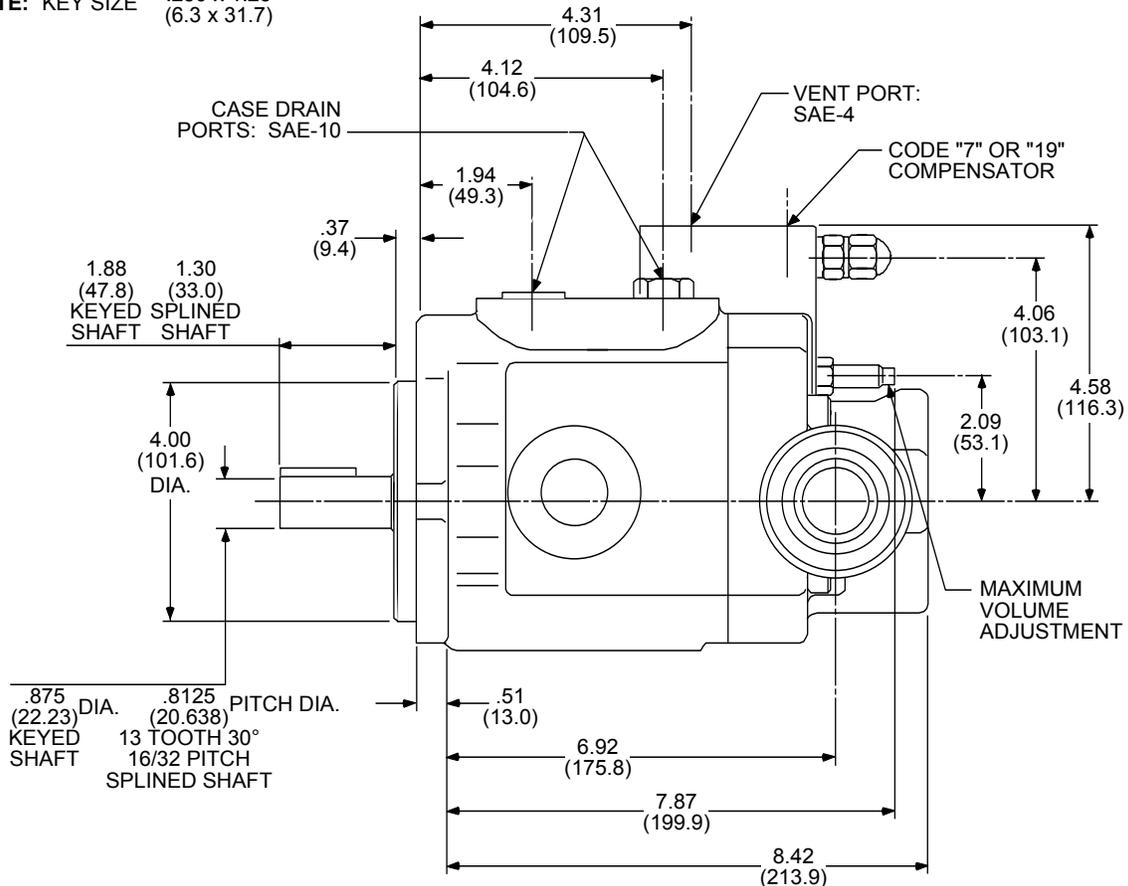
## DIMENSION DRAWINGS

### SIDE PORTS

Dimension shown in: INCHES  
(MILLIMETERS)



NOTE: KEY SIZE .250 x 1.25  
(6.3 x 31.7)

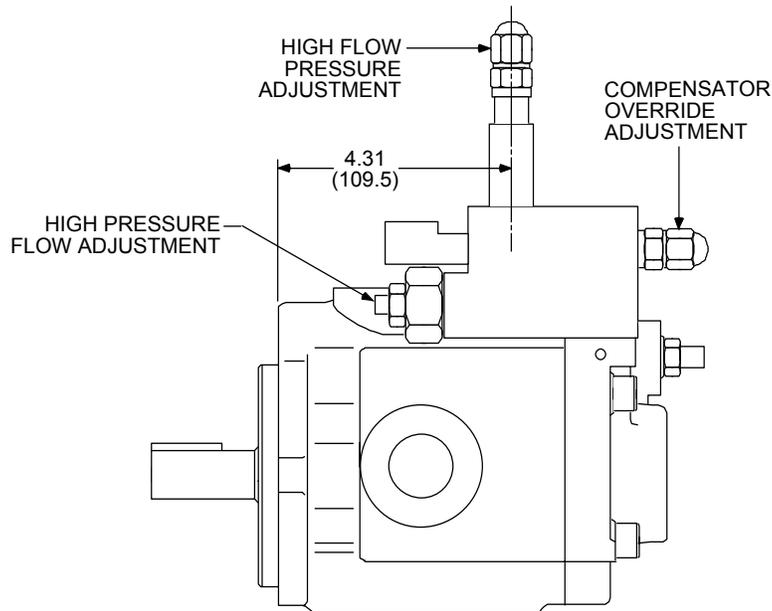
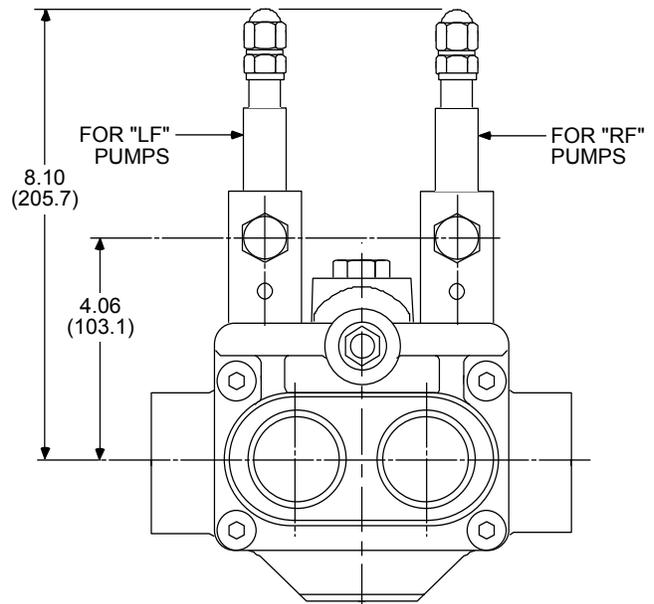
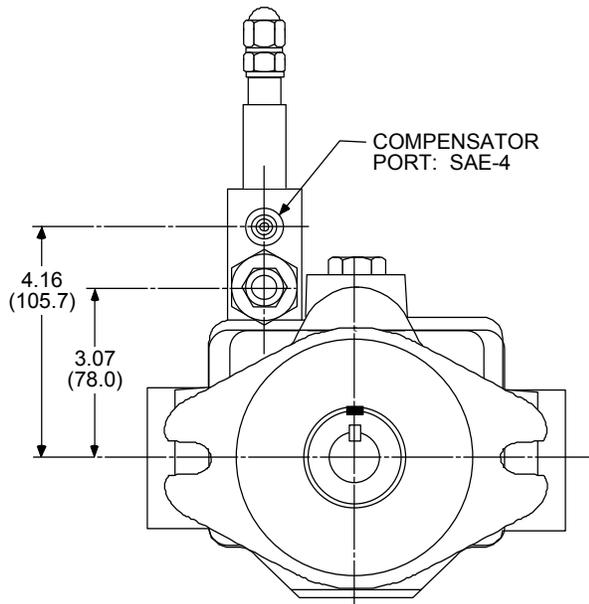


# HPV-10 AXIAL PISTON PUMPS

## SPECIFICATIONS

### HORSEPOWER LIMITING CONTROL (Code 26)

Dimension shown in: INCHES  
(MILLIMETERS)



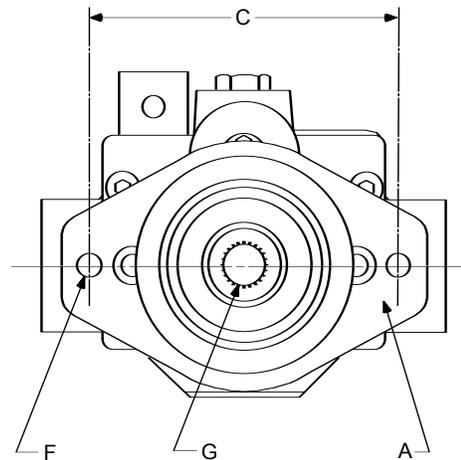
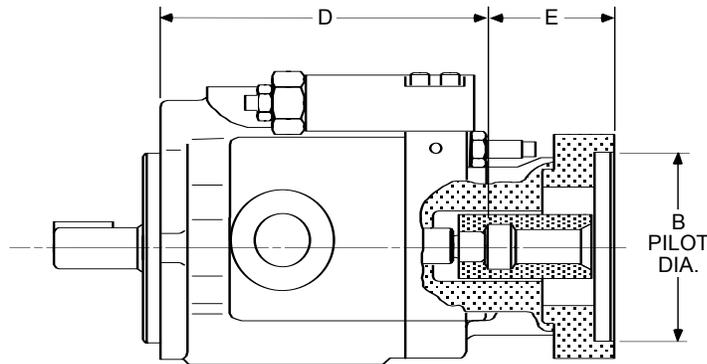
# HPV-10 AXIAL PISTON PUMPS

## DIMENSION DRAWINGS

### TANDEM PUMP MOUNTINGS

(Codes 21, 22, 31)

Dimension shown in: INCHES  
(MILLIMETERS)



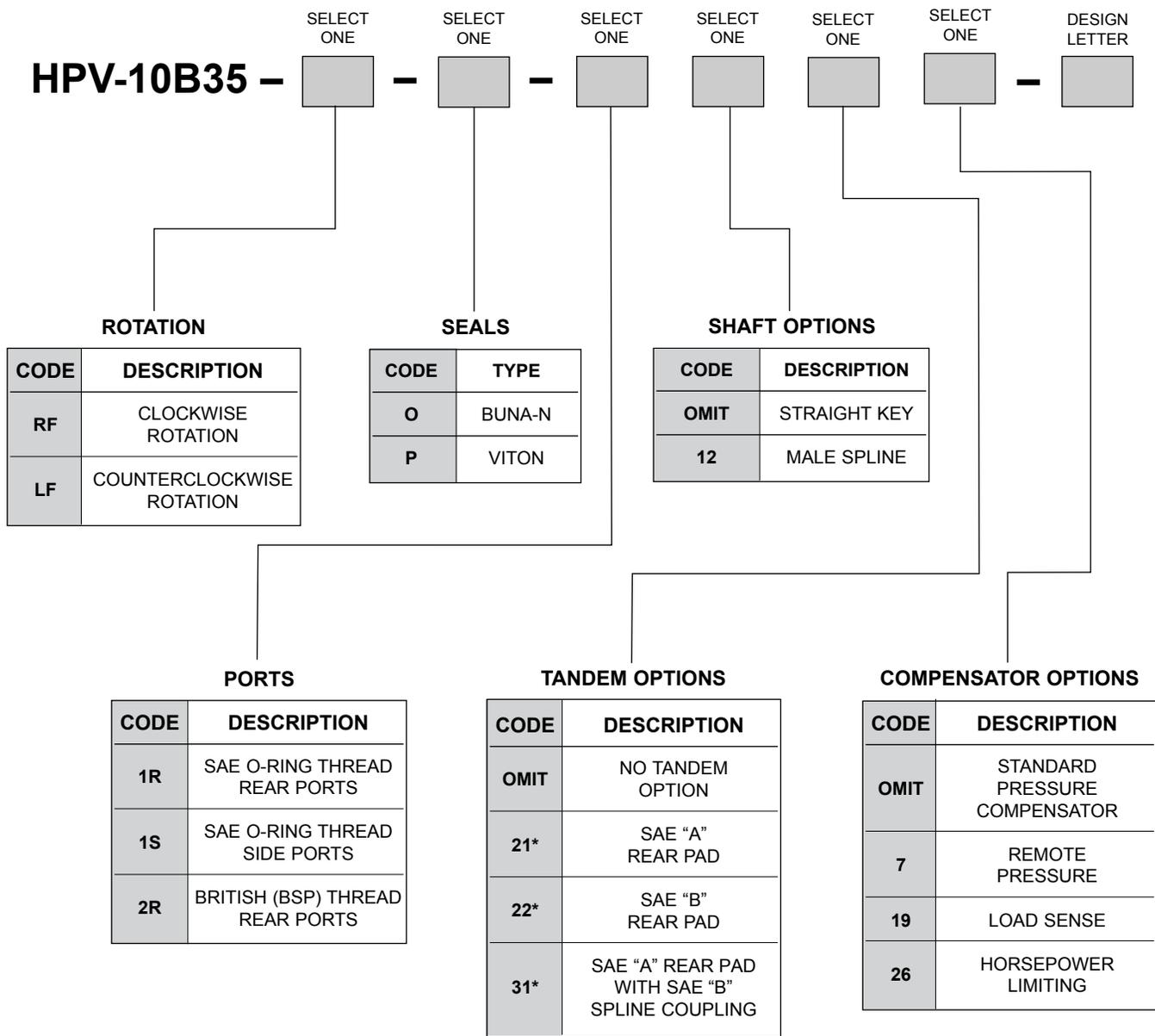
NOTE: Code 22 shown. Other codes will appear differently.

CODE	SAE 2-BOLT MOUNTING PAD	DIMENSIONS					Inches (millimeters)	30° INVOLUTE INTERNAL SPLINE	MAXIMUM H.P. RATING* (at 1750 rpm)	MAXIMUM TORQUE RATING*
		A	B	C	D	E	F Thread	G		
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 in.-lbs. (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 in.-lbs. (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 in.-lbs. (114.8 Nm)

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

# HPV-10 AXIAL PISTON PUMPS

## 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.

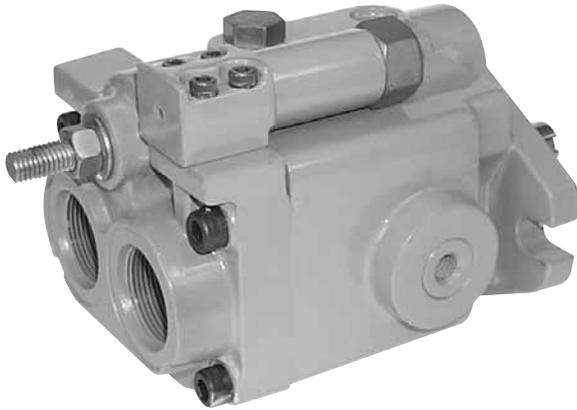
**\*NOTE:** Code 1S Side Port Option must be ordered with all Tandem Options.

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

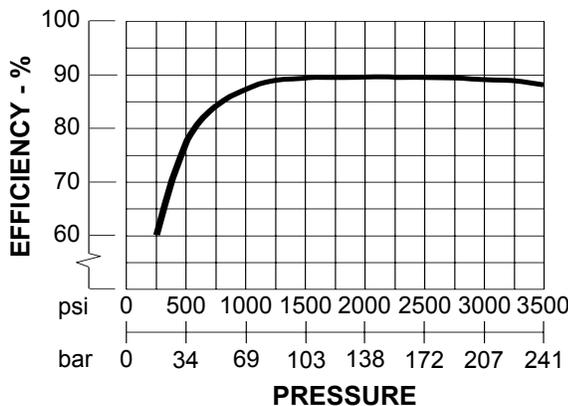
# HPV-15 AXIAL PISTON PUMPS

## SPECIFICATIONS

Variable Displacement, Pressure Compensated



### OVERALL EFFICIENCY



### TYPICAL PERFORMANCE SPECIFICATIONS

VOLUMETRIC DISPLACEMENT	cu. in./rev.	2.09
	ml/rev.	34.2
PUMP DELIVERY @ 1750 rpm	Theoretical	gpm 15.83
		lpm 59.85
OPERATING PRESSURES	Intermittent*	psi 4000
		bar 276
	Continuous	psi 3500
		bar 241
	Minimum**	psi 200
		bar 14
OPERATING SPEEDS	Maximum rpm	see below
	Rated rpm	1750
	Minimum rpm	500
POWER INPUT @ 1750 rpm	hp	34
Rated Flow & Pressure	kw	25
CASE DRAIN FLOW @ Deadhead & Rated Pressure	gpm	0.5
	lpm	1.9
MOUNTING FLANGE	Keyed Shaft SAE Type	"B" 2-Bolt
	Spline Shaft SAE Type	"B" 2-Bolt
SHIPPING WEIGHT	Rear Ports	lbs. 51
		kg 23.3
	Side Ports	lbs. 63
		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.

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

### CASE DRAIN AND INLET PORT SPECIFICATIONS

SPEED rpm	MINIMUM INLET PRESSURE				MAXIMUM CASE PRESSURE			
	Pressure Gage psi	Pressure Gage bar	Pressure Gage in.-Hg	Pressure Gage mm-Hg	Absolute Pressure psi	Absolute Pressure bar	Absolute Pressure psi	Absolute Pressure 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

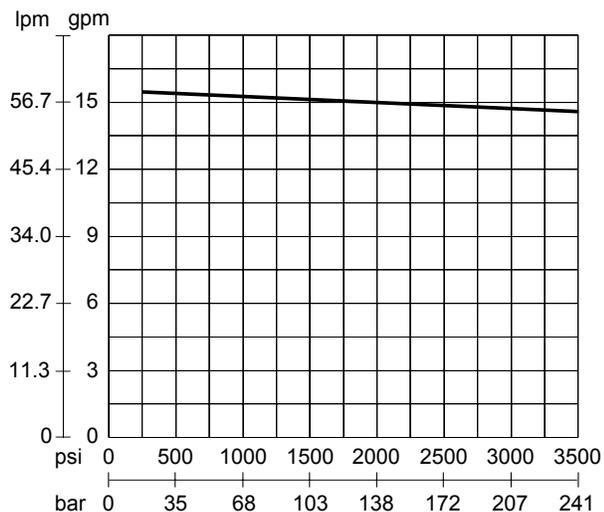
Pressure Adjustment	Pressure Change/Turn	650 psi	44.8 bar
Volume Adjustment	Flow Change/Turn	1.8 gpm	6.8 lpm
	Maximum Torque	41 in.-lbs.	4.6 Nm

# HPV-15 AXIAL PISTON PUMPS

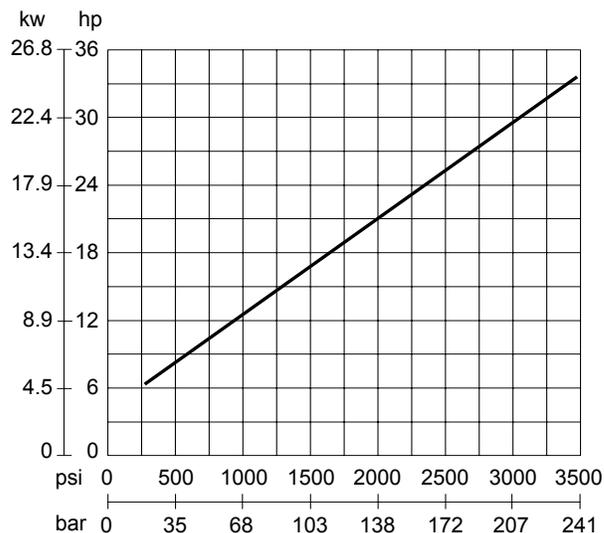
## PERFORMANCE GRAPHS

The data below is typical performance at 1750 rpm.

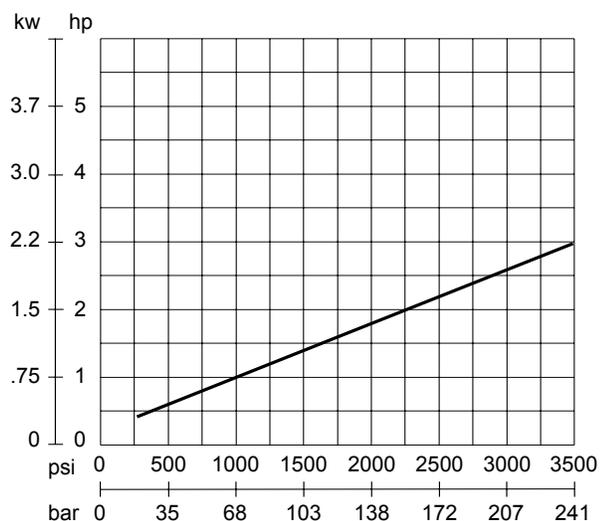
### FLOW VS PRESSURE



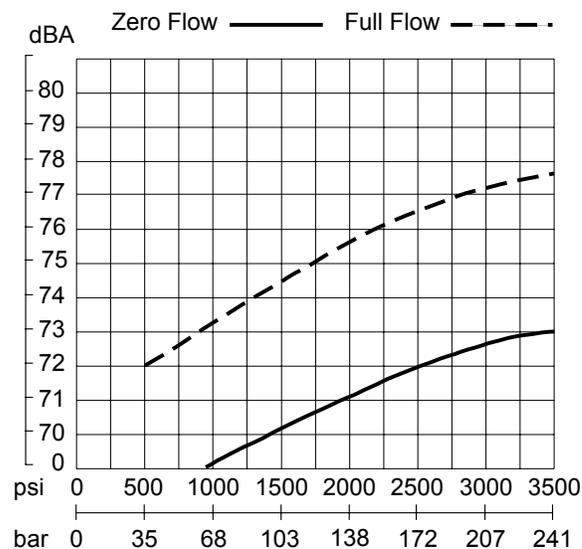
### INPUT POWER @ FULL FLOW



### INPUT POWER @ ZERO FLOW



### NOISE LEVEL

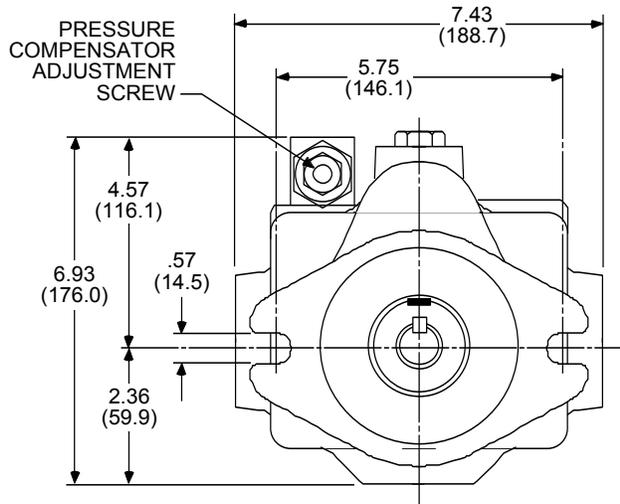


# HPV-15 AXIAL PISTON PUMPS

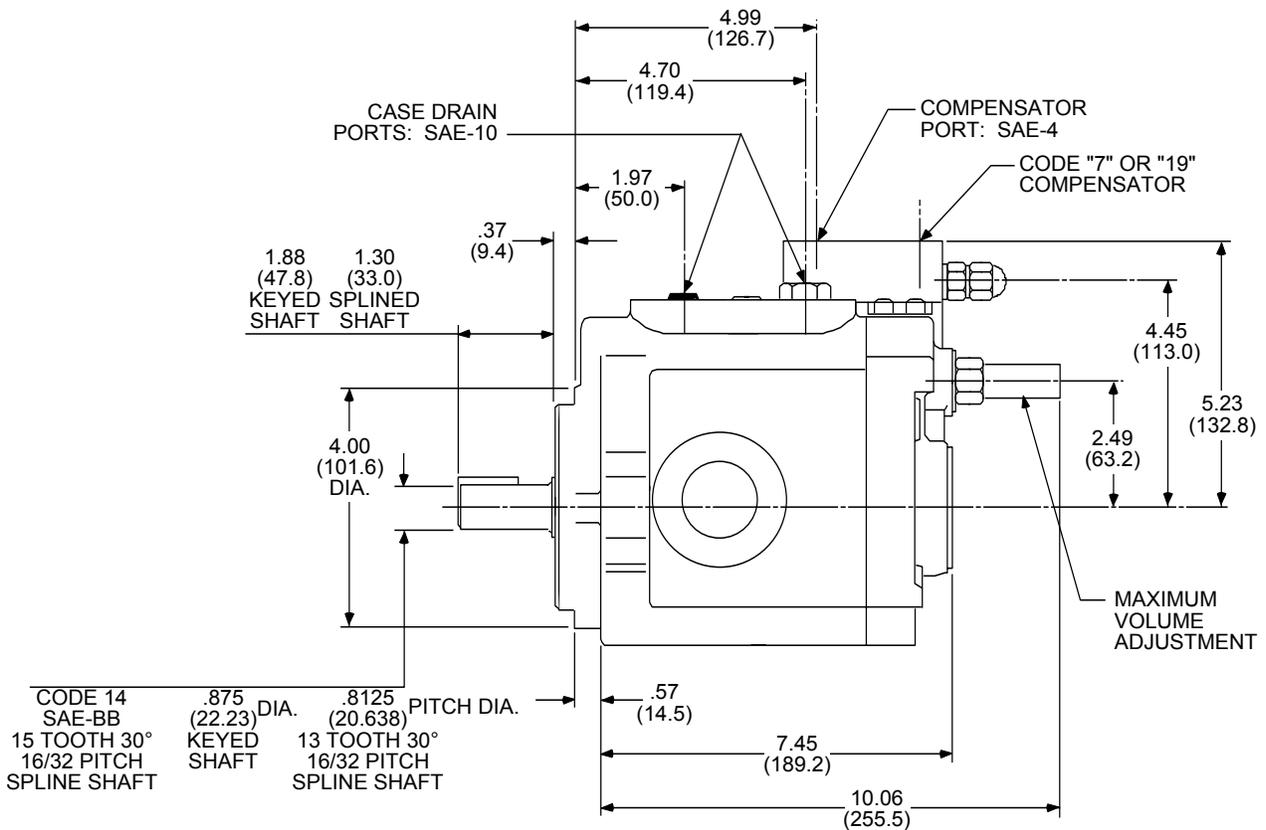
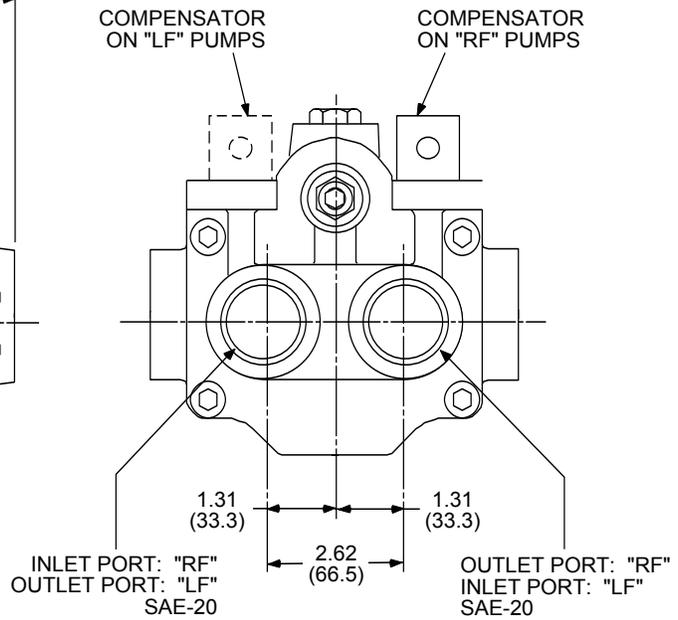
## DIMENSION DRAWINGS

### REAR PORTS

Dimension shown in: INCHES  
(MILLIMETERS)



NOTE: KEY SIZE .250 x 1.25  
(6.3 x 31.7)



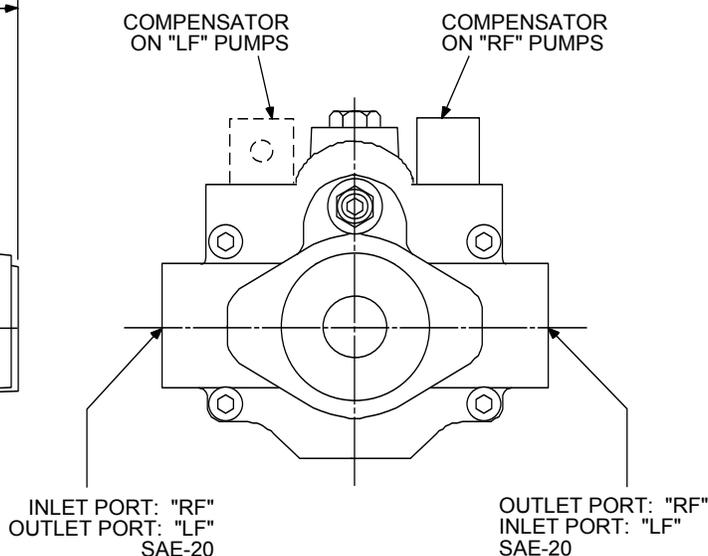
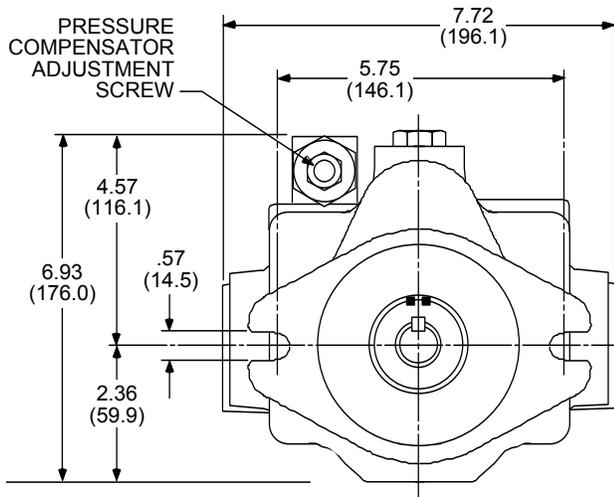
CODE 14 SAE-BB 15 TOOTH 30° 16/32 PITCH SPLINE SHAFT  
 .875 DIA. (22.23) KEYED SHAFT  
 .8125 PITCH DIA. (20.638) 13 TOOTH 30° 16/32 PITCH SPLINE SHAFT

# HPV-15 AXIAL PISTON PUMPS

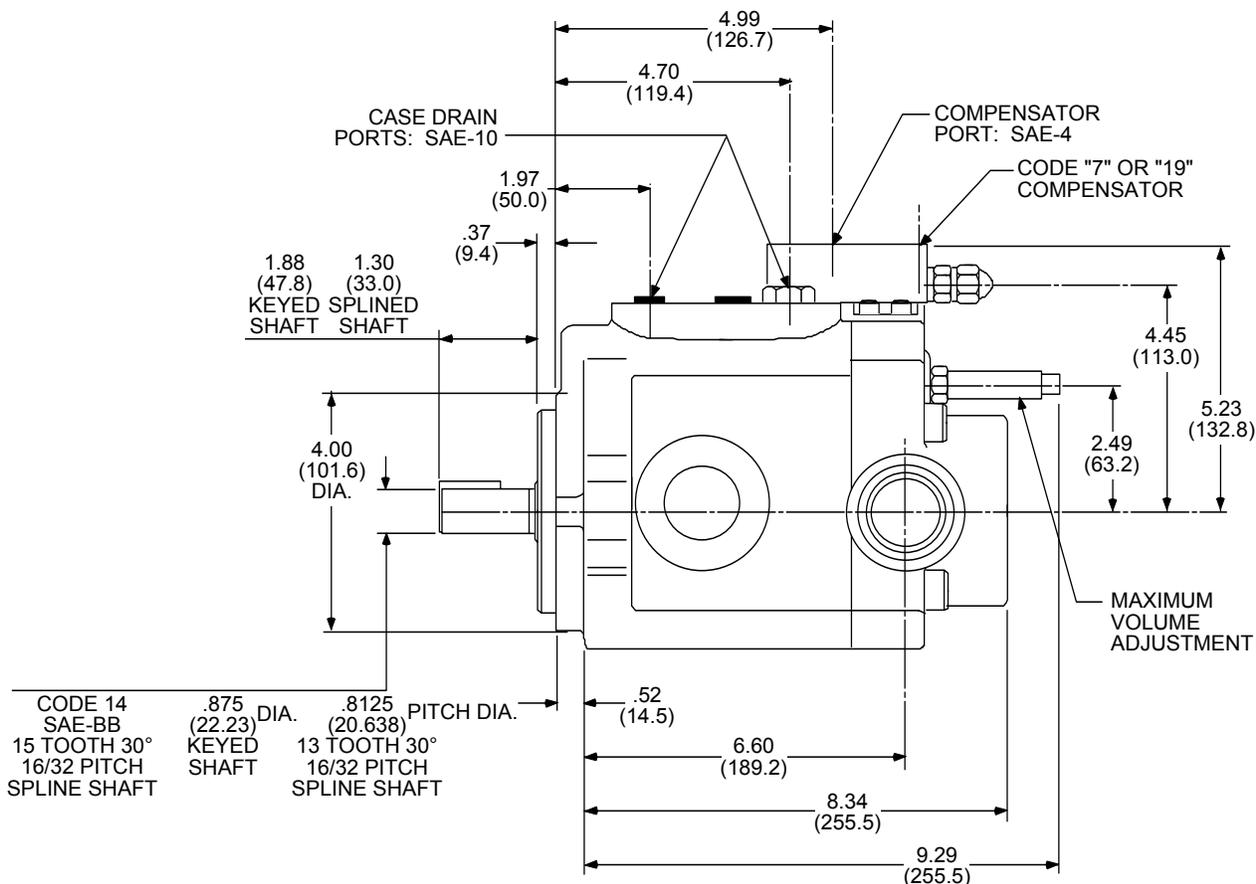
## DIMENSION DRAWINGS

### SIDE PORTS

Dimension shown in: INCHES  
(MILLIMETERS)



**NOTE:** KEY SIZE .250 x 1.25  
(6.3 x 31.7)

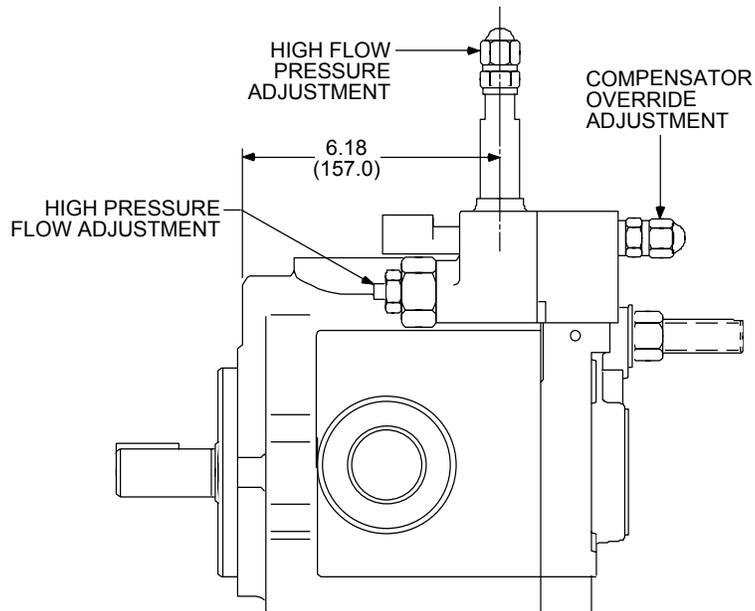
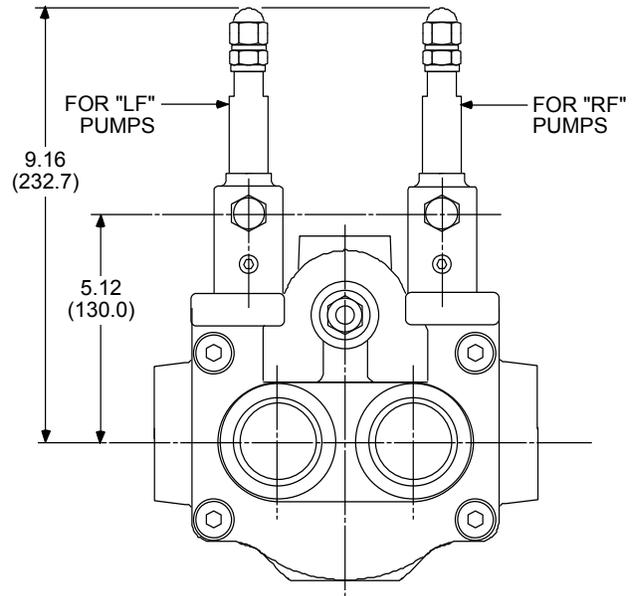
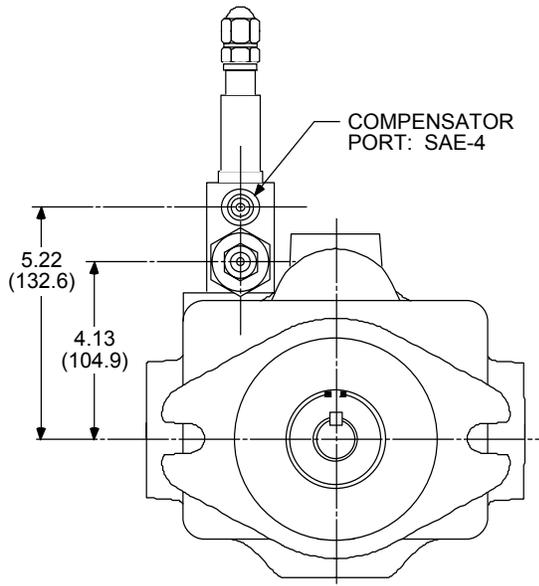


# HPV-15 AXIAL PISTON PUMPS

## DIMENSION DRAWINGS

### HORSEPOWER LIMITING CONTROL (Code 26)

Dimension shown in: INCHES  
(MILLIMETERS)



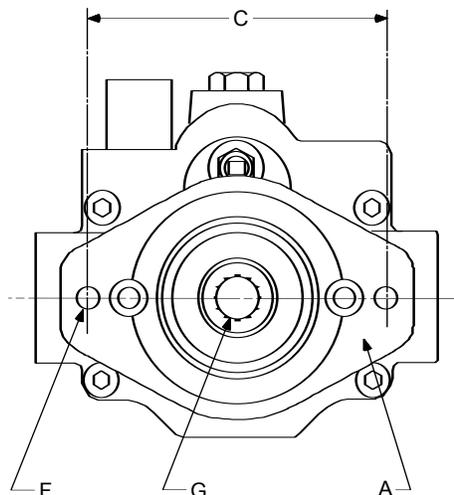
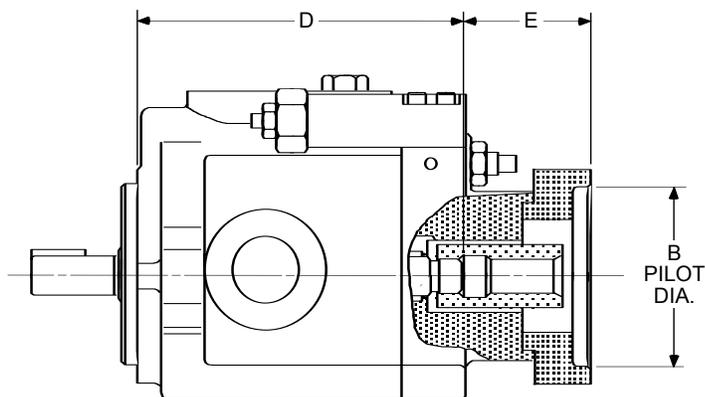
# HPV-15 AXIAL PISTON PUMPS

## DIMENSION DRAWINGS

### 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* (at 1750 rpm)	MAXIMUM TORQUE RATING*
		A	B	C	D	E	F Thread	G		
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 in.-lbs. (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 in.-lbs. (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 in.-lbs. (114.8 Nm)

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

# HPV-15 AXIAL PISTON PUMPS

## ORDERING INFORMATION

**HPV-15B35** –  –  –      –

### ROTATION

CODE	DESCRIPTION
RF	CLOCKWISE ROTATION
LF	COUNTERCLOCKWISE ROTATION

### SEALS

CODE	TYPE
O	BUNA-N
P	VITON

### SHAFT OPTIONS

CODE	DESCRIPTION
OMIT	STRAIGHT KEY
12	MALE SPLINE 13 TOOTH
14	MALE SPLINE 15 TOOTH SAE BB

### PORTS

CODE	DESCRIPTION
1R	SAE O-RING THREAD REAR PORTS
1S	SAE O-RING THREAD SIDE PORTS
2R	BRITISH (BSP) THREAD REAR PORTS

### TANDEM OPTIONS

CODE	DESCRIPTION
OMIT	NO TANDEM OPTION
21*	SAE "A" REAR PAD
22*	SAE "B" REAR PAD
31*	SAE "A" REAR PAD WITH SAE "B" SPLINE COUPLING

### COMPENSATOR OPTIONS

CODE	DESCRIPTION
OMIT	STANDARD PRESSURE COMPENSATOR
7	REMOTE PRESSURE
19	LOAD SENSE
26	HORSEPOWER LIMITING

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

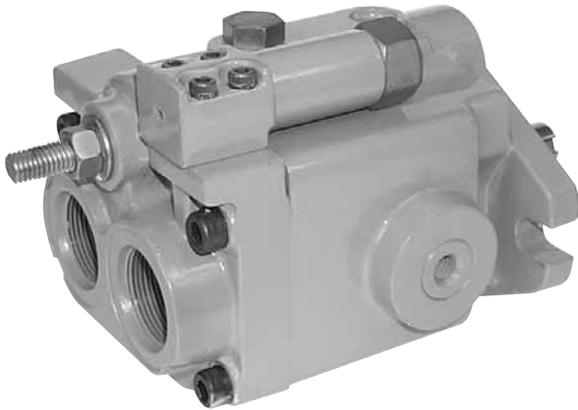
**\*NOTE:** Code 1S Side Port Option must be ordered with all Tandem Options.

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

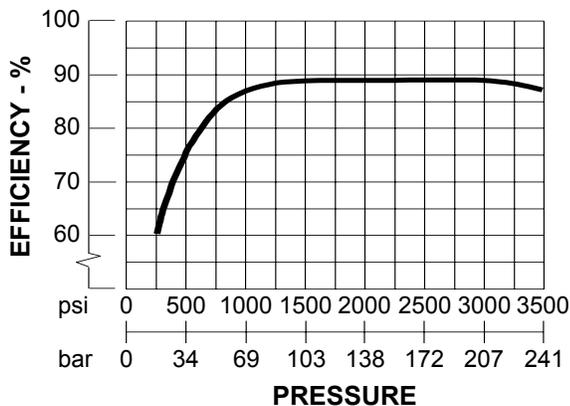
# HPV-20 AXIAL PISTON PUMPS

## SPECIFICATIONS

### Variable Displacement, Pressure Compensated



### OVERALL EFFICIENCY



### TYPICAL PERFORMANCE SPECIFICATIONS

VOLUMETRIC DISPLACEMENT		cu. in./rev.	2.62
		ml/rev.	42.9
PUMP DELIVERY @ 1750 rpm	Theoretical	gpm	19.85
		lpm	75.03
OPERATING PRESSURES	Intermittent*	psi	4000
		bar	276
	Continuous	psi	3500
		bar	241
	Minimum**	psi	200
		bar	14
OPERATING SPEEDS	Maximum rpm	see below	
	Rated rpm	1750	
	Minimum rpm	500	
POWER INPUT @ 1750 rpm		hp	47
Rated Flow & Pressure		kw	35
CASE DRAIN FLOW @		gpm	0.8
Deadhead & Rated Pressure		lpm	3.0
MOUNTING FLANGE	Keyed Shaft SAE Type	"C" 2-Bolt	
	Spline Shaft SAE Type	"C" 2-Bolt	
SHIPPING WEIGHT	Rear Ports	lbs.	67
		kg	30.5
	Side Ports	lbs.	84
		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

SPEED rpm	MINIMUM INLET PRESSURE				ABSOLUTE PRESSURE		MAXIMUM CASE PRESSURE	
	psi	bar	in.-Hg	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

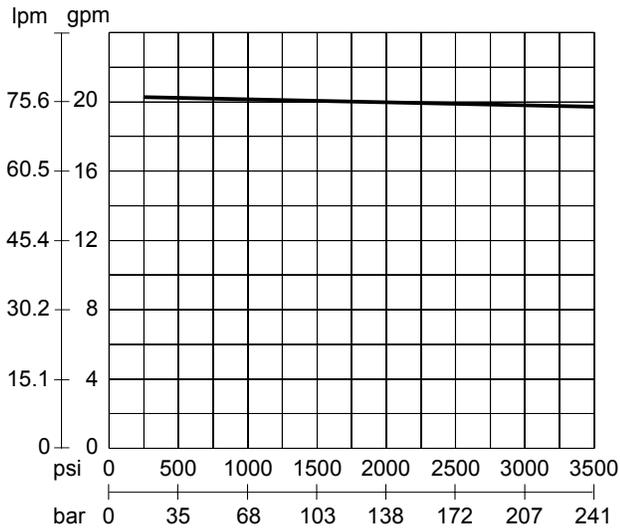
Pressure Adjustment	Pressure Change/Turn	650 psi	44.8 bar
Volume Adjustment	Flow Change/Turn	2.1 gpm	7.9 lpm
	Maximum Torque	49 in.-lbs.	5.5 Nm

# HPV-20 AXIAL PISTON PUMPS

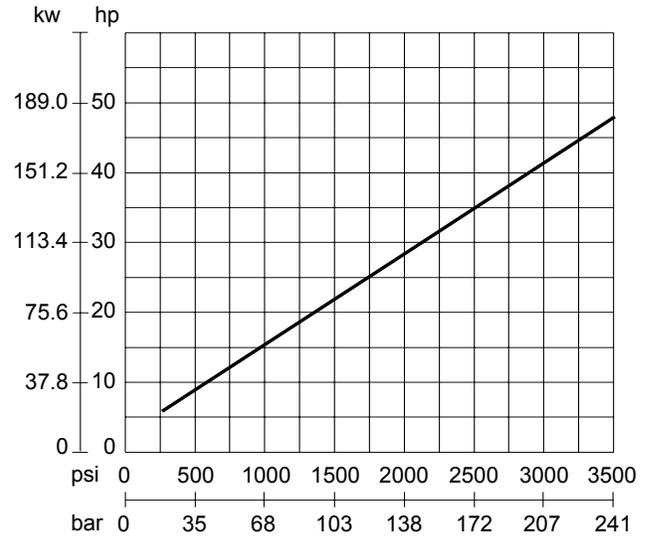
## PERFORMANCE GRAPHS

The data below is typical performance at 1750 rpm.

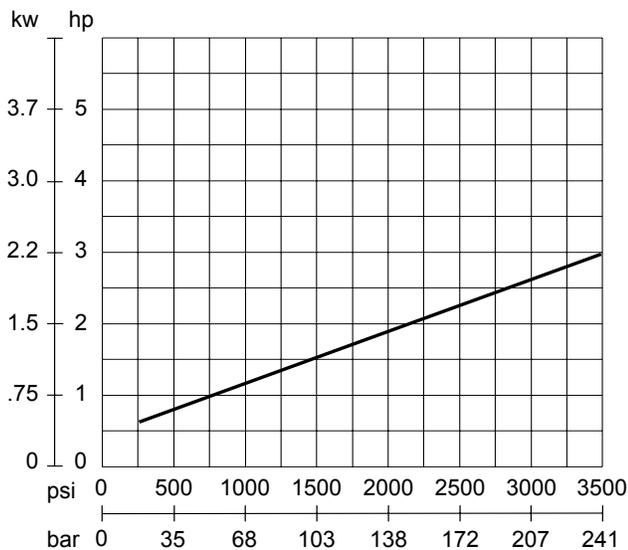
### FLOW VS PRESSURE



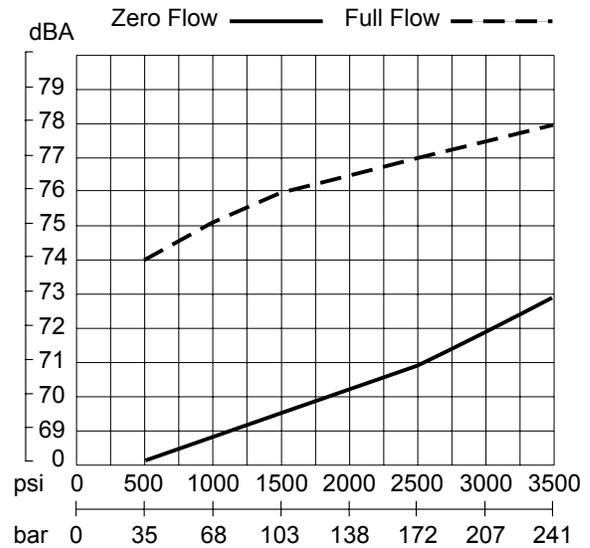
### INPUT POWER @ FULL FLOW



### INPUT POWER @ ZERO FLOW



### NOISE LEVEL

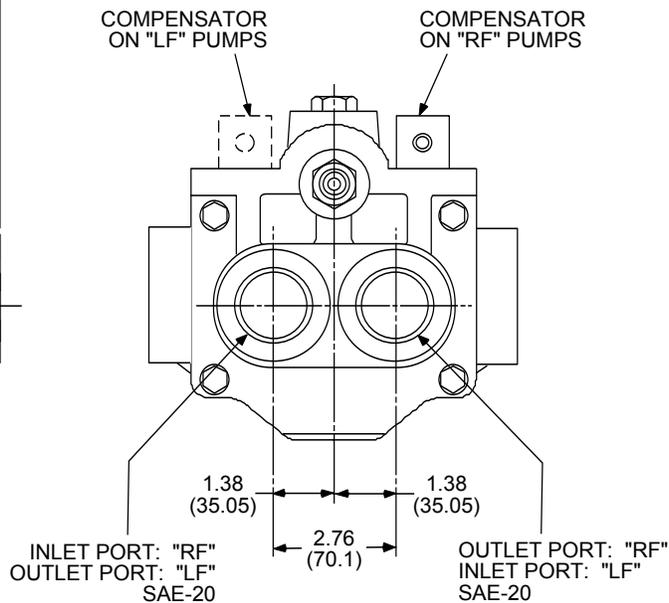
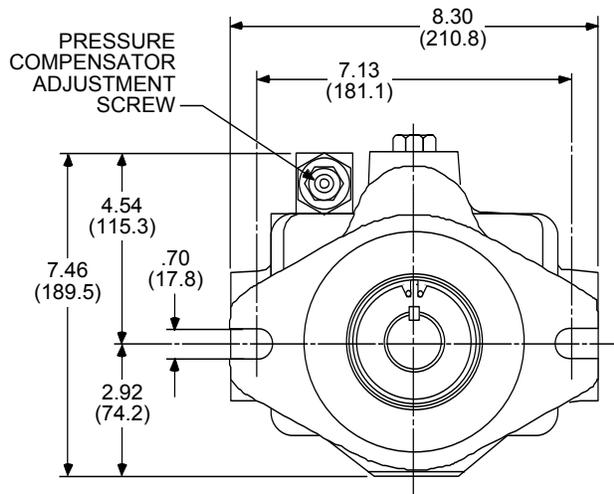


# HPV-20 AXIAL PISTON PUMPS

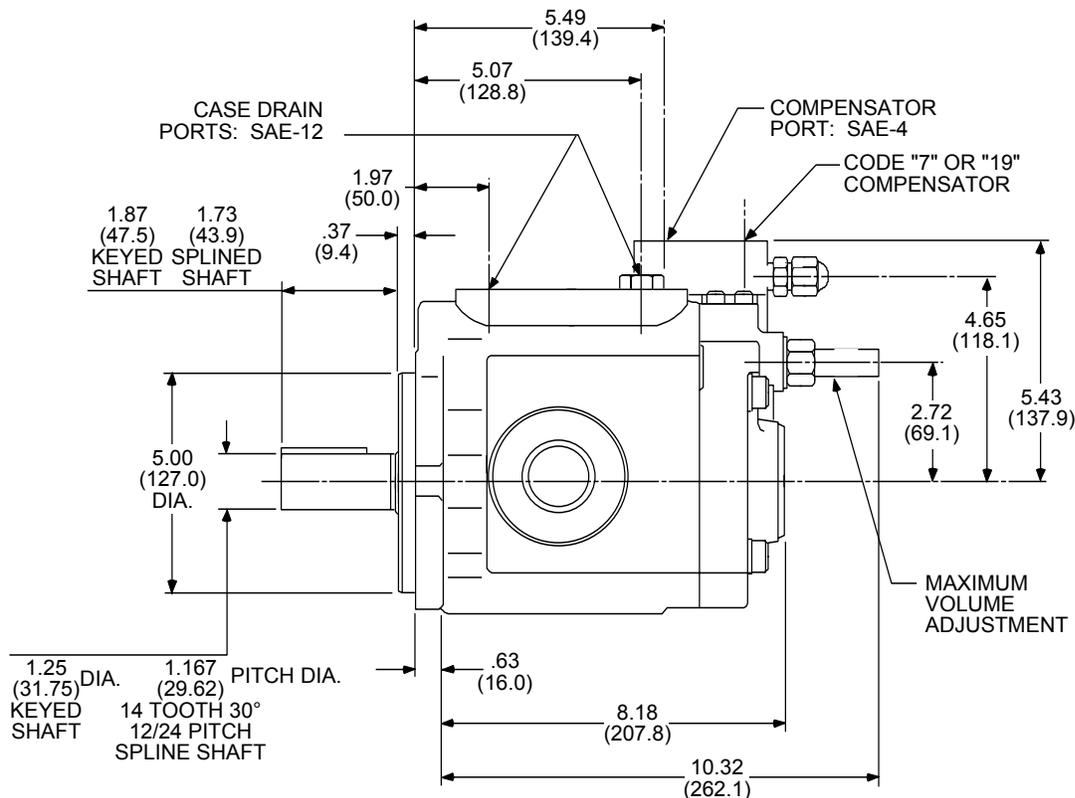
## DIMENSION DRAWINGS

### REAR PORTS

Dimension shown in: INCHES  
(MILLIMETERS)



NOTE: KEY SIZE .312 x 1.25  
(7.9 x 31.7)

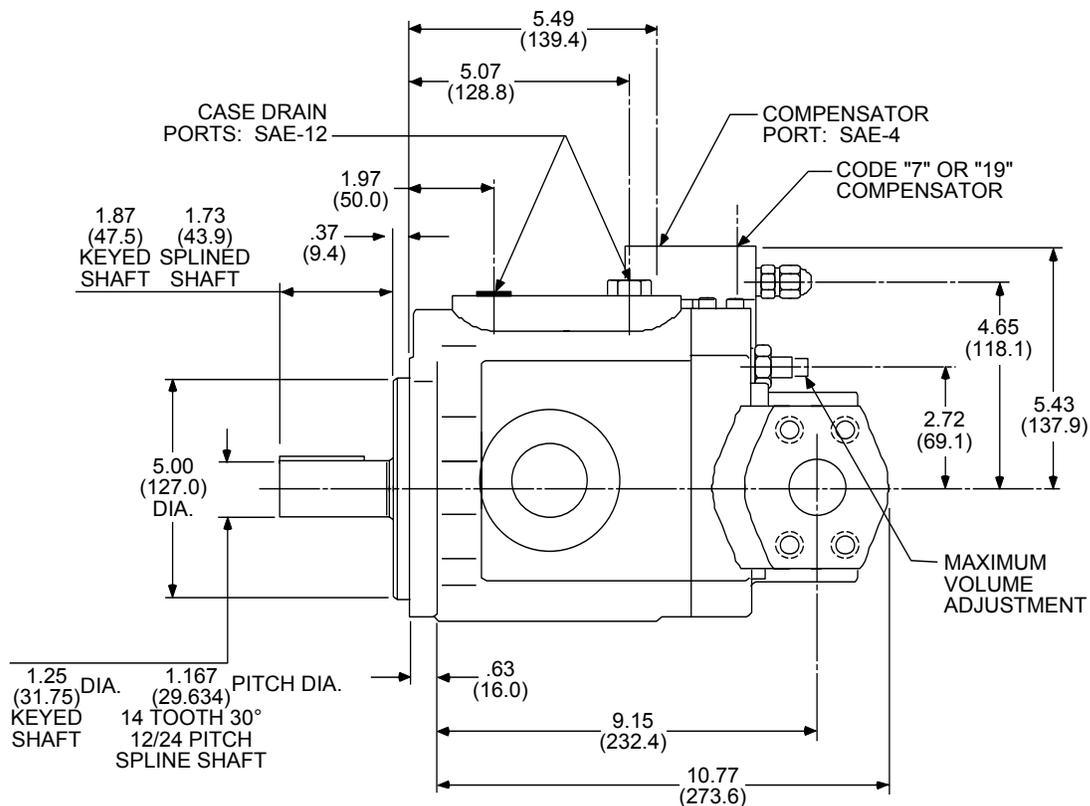
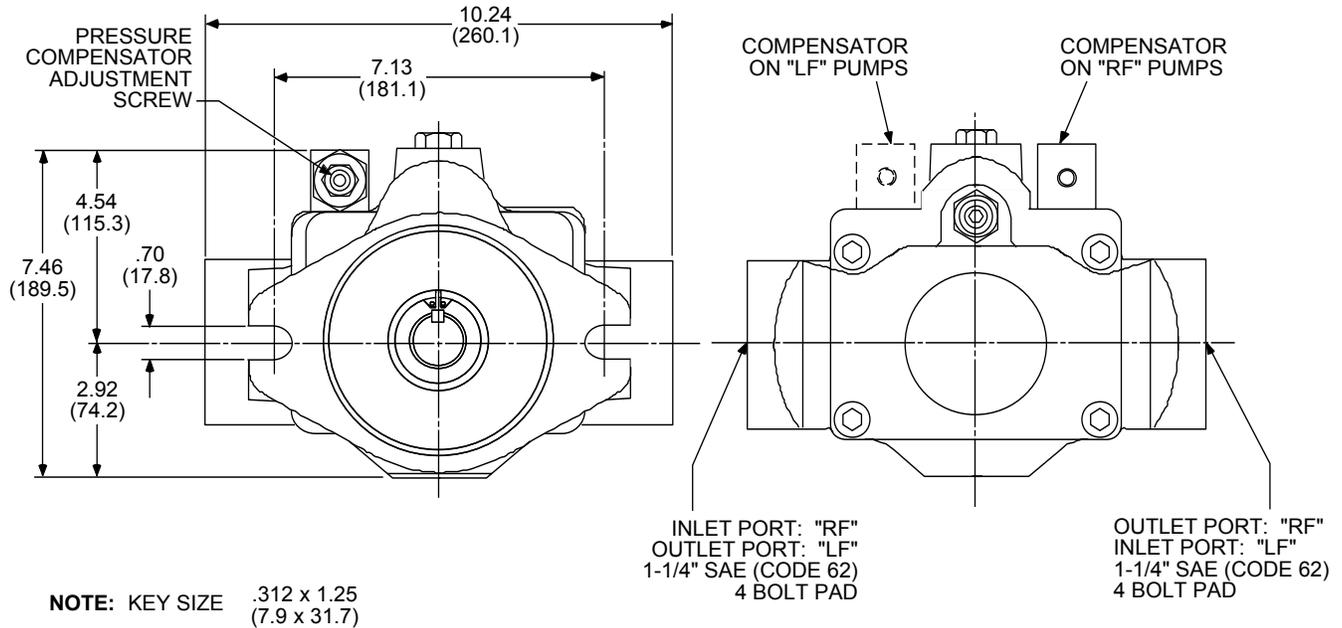


# HPV-20 AXIAL PISTON PUMPS

## DIMENSION DRAWINGS

### SIDE PORTS

Dimension shown in: INCHES  
(MILLIMETERS)

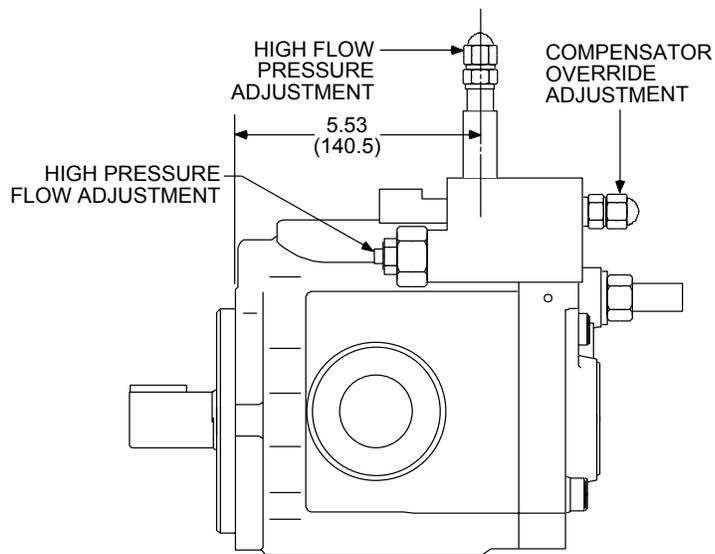
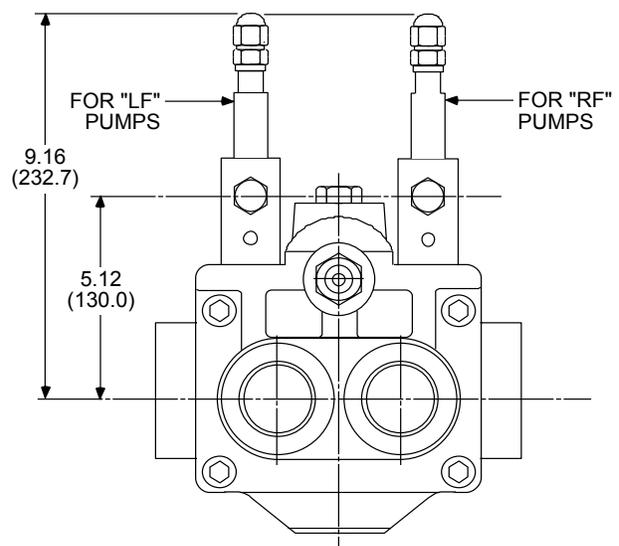
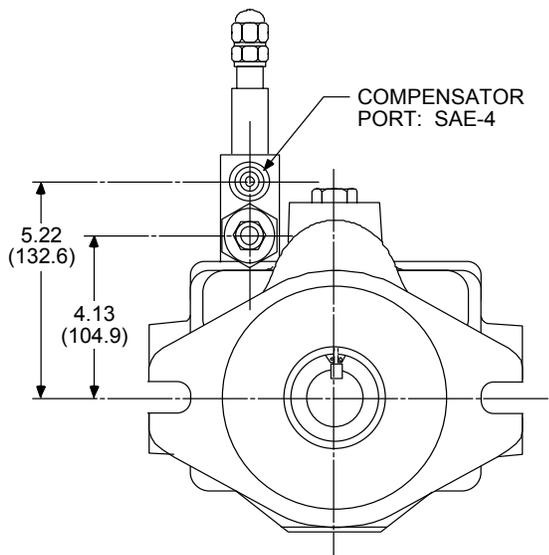


# HPV-20 AXIAL PISTON PUMPS

## DIMENSION DRAWINGS

### HORSEPOWER LIMITING CONTROL (Code 26)

Dimension shown in: INCHES  
(MILLIMETERS)



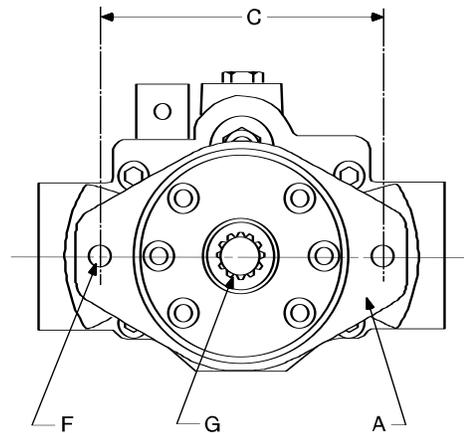
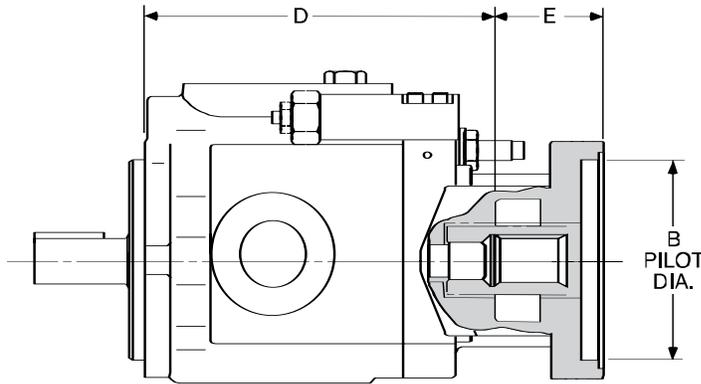
# HPV-20 AXIAL PISTON PUMPS

## 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					Inches (millimeters)	30° INVOLUTE INTERNAL SPLINE	MAXIMUM H.P. RATING* (at 1750 rpm)	MAXIMUM TORQUE RATING*
		A	B	C	D	E	F Thread			
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 in.-lbs. (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 in.-lbs. (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 in.-lbs. (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 in.-lbs. (114.8 Nm)

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

# HPV-20 AXIAL PISTON PUMPS

## ORDERING INFORMATION

HPV-20B35 -  -  -      -

### ROTATION

CODE	DESCRIPTION
RF	CLOCKWISE ROTATION
LF	COUNTERCLOCKWISE ROTATION

### SEALS

CODE	TYPE
O	BUNA-N
P	VITON

### SHAFT OPTIONS

CODE	DESCRIPTION
OMIT	STRAIGHT KEY
12	MALE SPLINE

### PORTS

CODE	DESCRIPTION
1R	SAE O-RING THREAD REAR PORTS
5S	SAE 4 BOLT FLANGE SIDE PORTS
2R	BRITISH (BSP) THREAD REAR PORTS

### TANDEM OPTIONS

CODE	DESCRIPTION
OMIT	NO TANDEM OPTION
21*	SAE "A" REAR PAD
22*	SAE "B" REAR PAD
23*	SAE "C" REAR PAD
31*	SAE "A" REAR PAD WITH SAE "B" SPLINE COUPLING

### COMPENSATOR OPTIONS

CODE	DESCRIPTION
OMIT	STANDARD PRESSURE COMPENSATOR
7	REMOTE PRESSURE
19	LOAD SENSE
26	HORSEPOWER LIMITING

**NOTE:** Foot Mounting Brackets, Pump Motor Mounts 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.

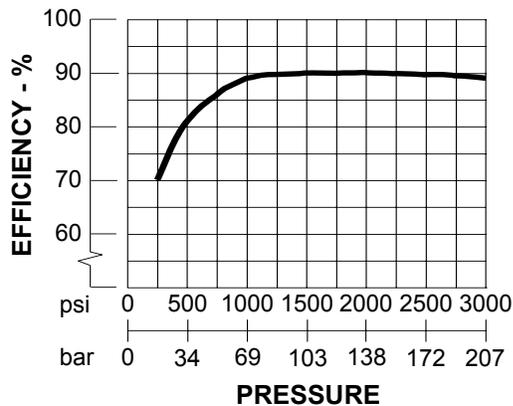
TYPICAL ORDERING CODE:  
**HPV-20B35-RF-O-1R-B**

# HPV-29 AXIAL PISTON PUMPS

## SPECIFICATIONS



### OVERALL EFFICIENCY



VOLUMETRIC DISPLACEMENT		cu. in./rev.	3.78
		ml/rev.	61.9
PUMP DELIVERY @ 1750 rpm	Theoretical	gpm	28.64
		lpm	108.25
OPERATING PRESSURES	Intermittent*	psi	3500
		bar	241
	Continuous	psi	3000
		bar	207
	Minimum**	psi	200
		bar	14
OPERATING SPEEDS	Maximum rpm	see below	
	Rated rpm	1750	
	Minimum rpm	500	
POWER INPUT @ 1750 rpm		hp	64
Rated Flow & Pressure		kw	48
CASE DRAIN FLOW @ Deadhead & Rated Pressure		gpm	1.0
		lpm	3.8
MOUNTING FLANGE	Keyed Shaft SAE Type	"C" 2-Bolt	
	Spline Shaft SAE Type	"C" 2-Bolt	
SHIPPING WEIGHT	Rear Ports	lbs.	86
		kg	39.1
	Side Ports	lbs.	102
		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

SPEED rpm	MINIMUM INLET PRESSURE				Absolute Pressure		MAXIMUM CASE PRESSURE	
	psi	bar	in.-Hg	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

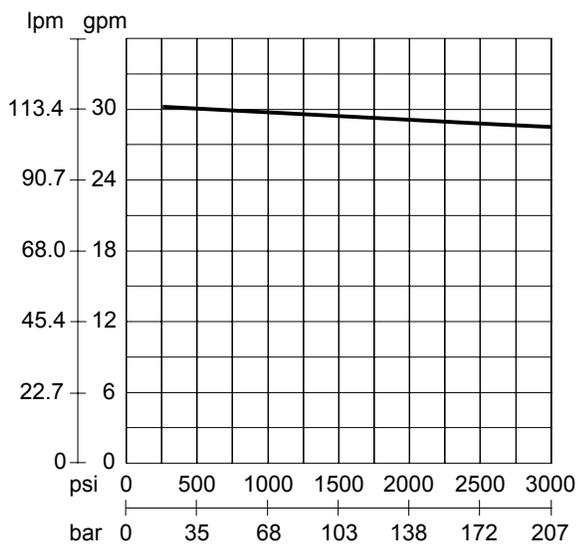
Pressure Adjustment	Pressure Change/Turn	650 psi	44.8 bar
Volume Adjustment	Flow Change/Turn	2.8 gpm	10.6 lpm
	Maximum Torque	45 in.-lbs.	5.1 Nm

# HPV-29 AXIAL PISTON PUMPS

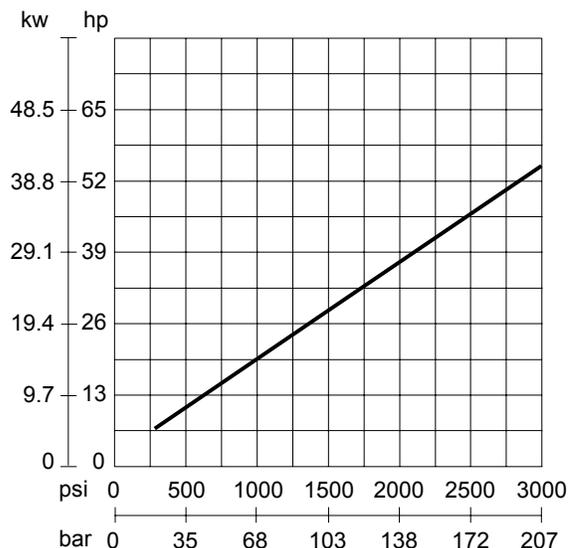
## PERFORMANCE GRAPHS

The data below is typical performance at 1750 rpm.

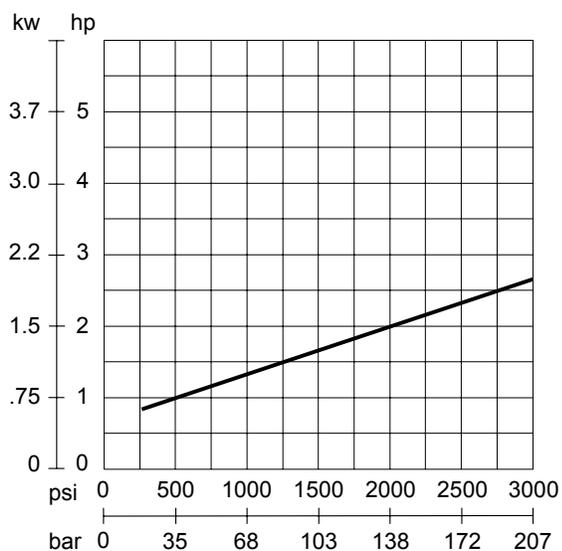
### FLOW VS PRESSURE



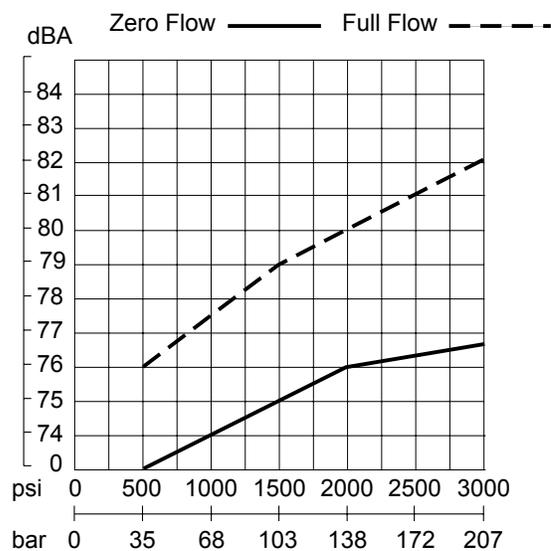
### INPUT POWER @ FULL FLOW



### INPUT POWER @ ZERO FLOW



### NOISE LEVEL

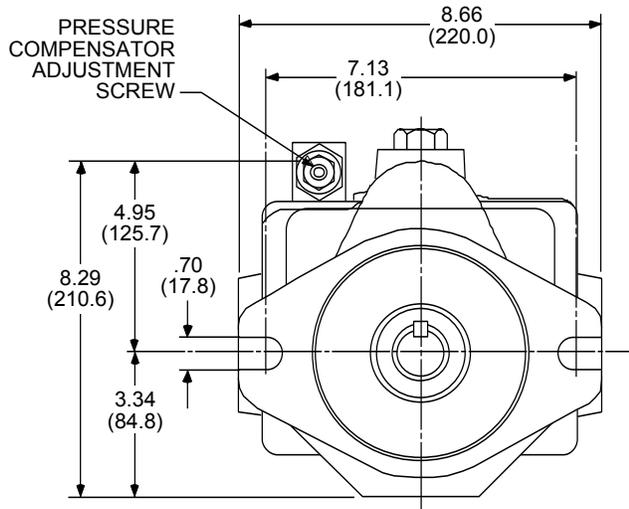


# HPV-29 AXIAL PISTON PUMPS

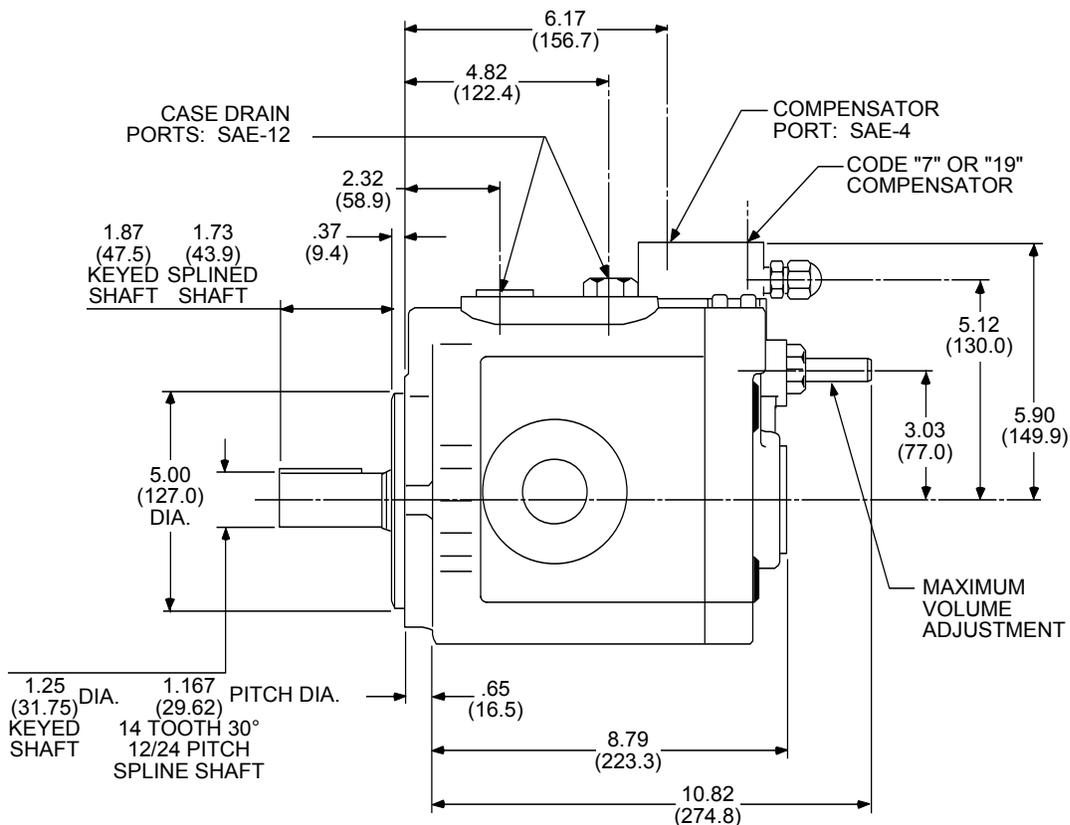
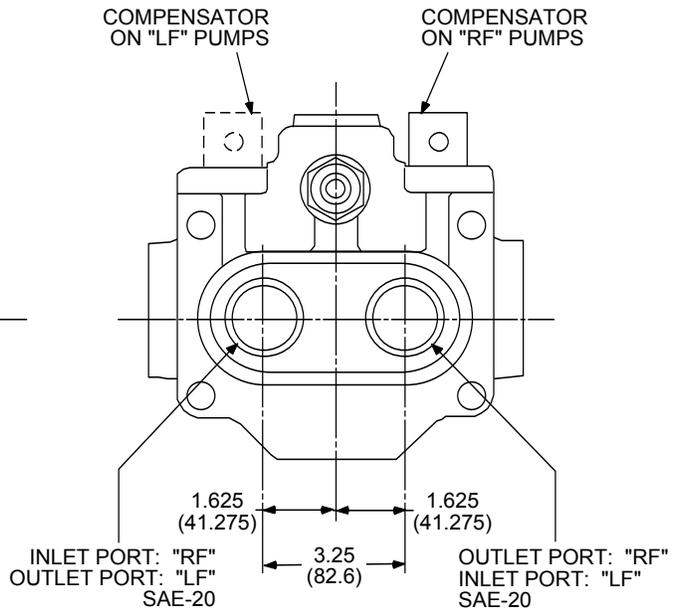
## DIMENSION DRAWINGS

### REAR PORTS

Dimension shown in: INCHES  
(MILLIMETERS)



NOTE: KEY SIZE .312 x 1.25  
(7.9 x 31.7)

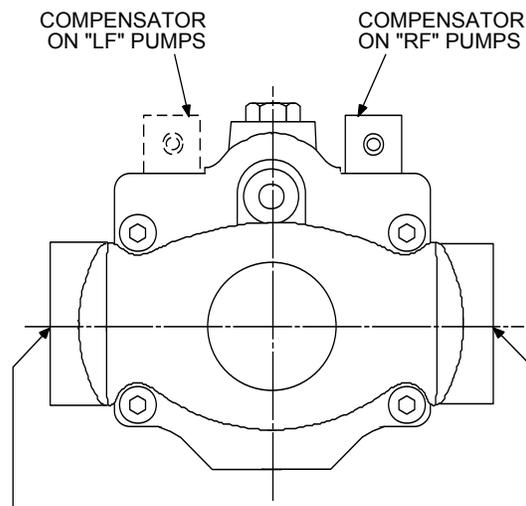
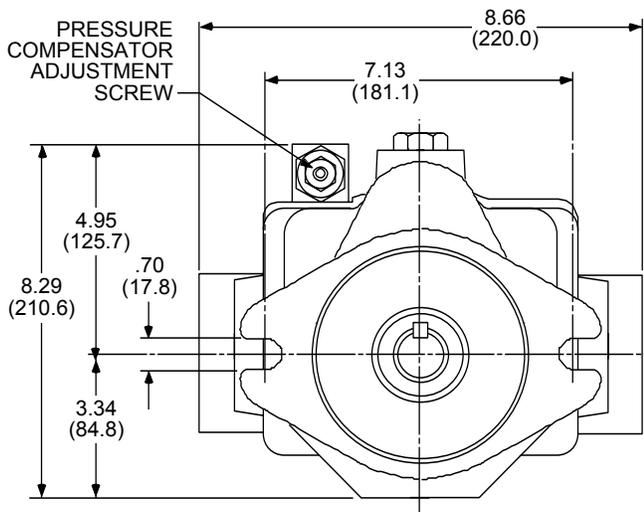


# HPV-29 AXIAL PISTON PUMPS

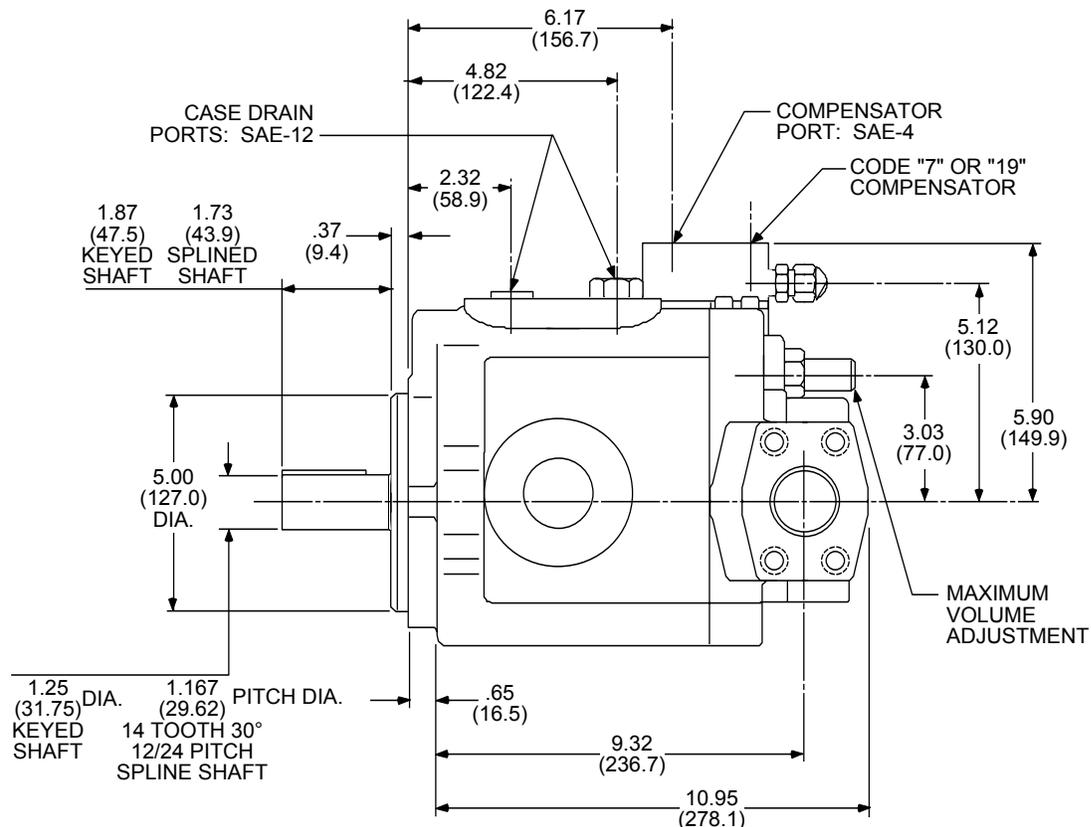
## DIMENSION DRAWINGS

### SIDE PORTS

Dimension shown in: INCHES  
(MILLIMETERS)



**NOTE:** KEY SIZE .312 x 1.25  
(7.9 x 31.7)

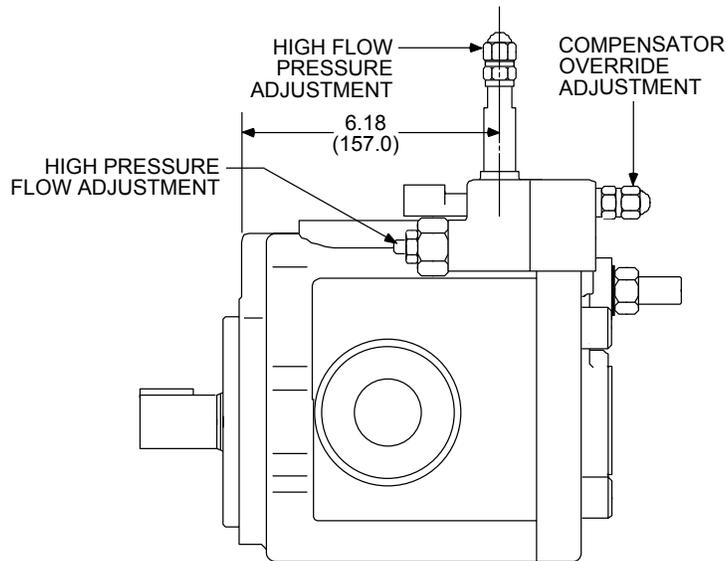
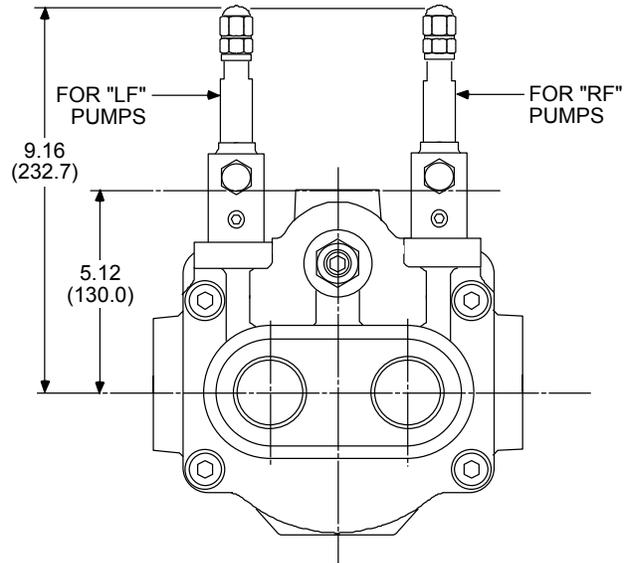
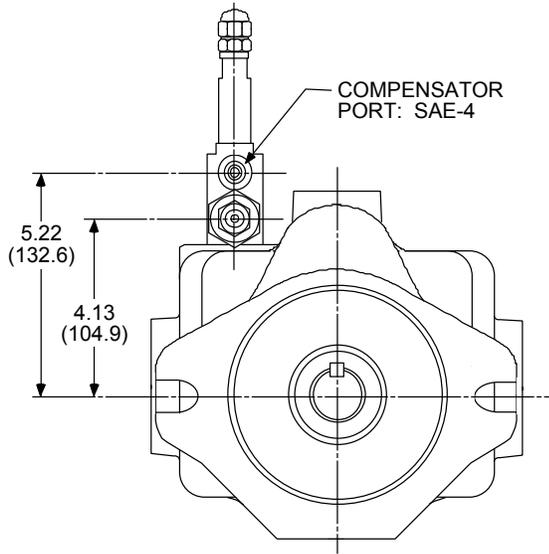


# HPV-29 AXIAL PISTON PUMPS

## DIMENSION DRAWINGS

### HORSEPOWER LIMITING CONTROL (Code 26)

Dimension shown in: INCHES  
(MILLIMETERS)

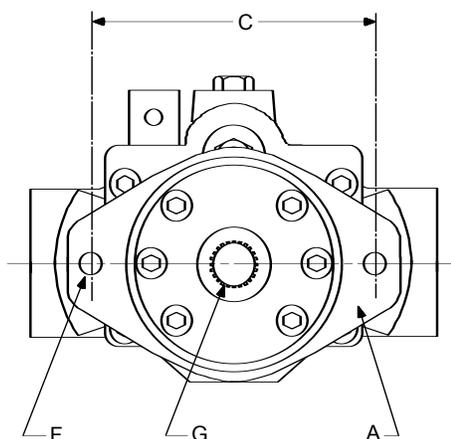
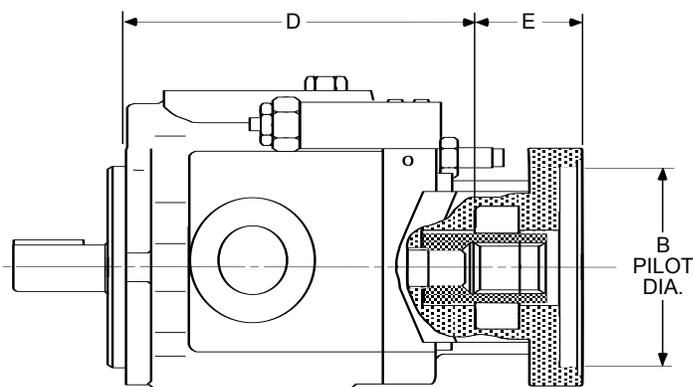


# HPV-29 AXIAL PISTON PUMPS

## DIMENSION DRAWINGS

### TANDEM PUMP MOUNTINGS (Codes 21, 22, 23, 31)

Dimension shown in: INCHES  
(MILLIMETERS)



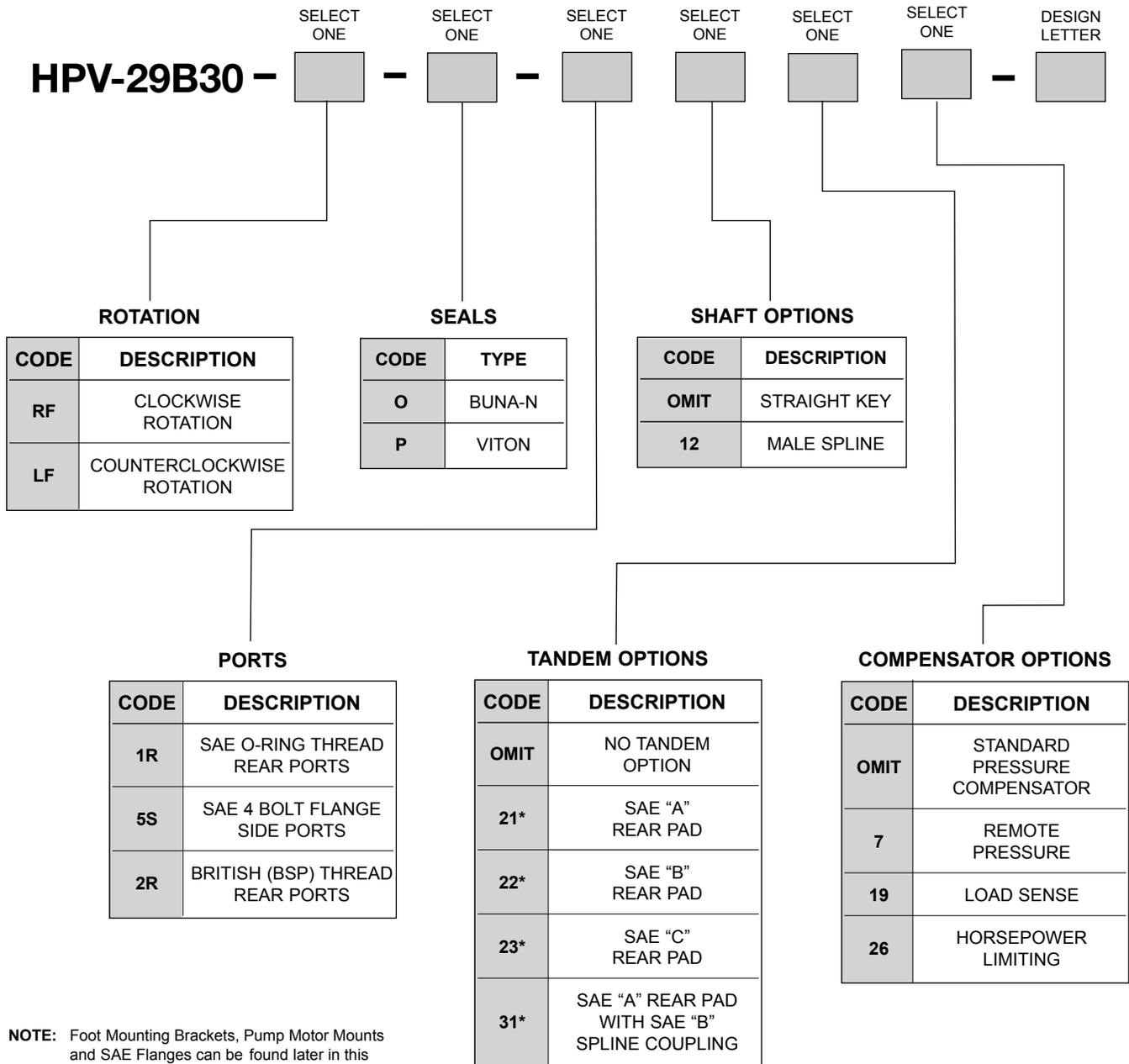
NOTE: Code 23 shown. Other codes will appear differently.

CODE	SAE 2-BOLT MOUNTING PAD	DIMENSIONS					Inches (millimeters)	30° INVOLUTE INTERNAL SPLINE	MAXIMUM H.P. RATING* (at 1750 rpm)	MAXIMUM TORQUE RATING*
		A	B	C	D	E	F Thread			
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 in.-lbs. (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 in.-lbs. (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 in.-lbs. (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 in.-lbs. (114.8 Nm)

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

# HPV-29 AXIAL PISTON PUMPS

## 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.

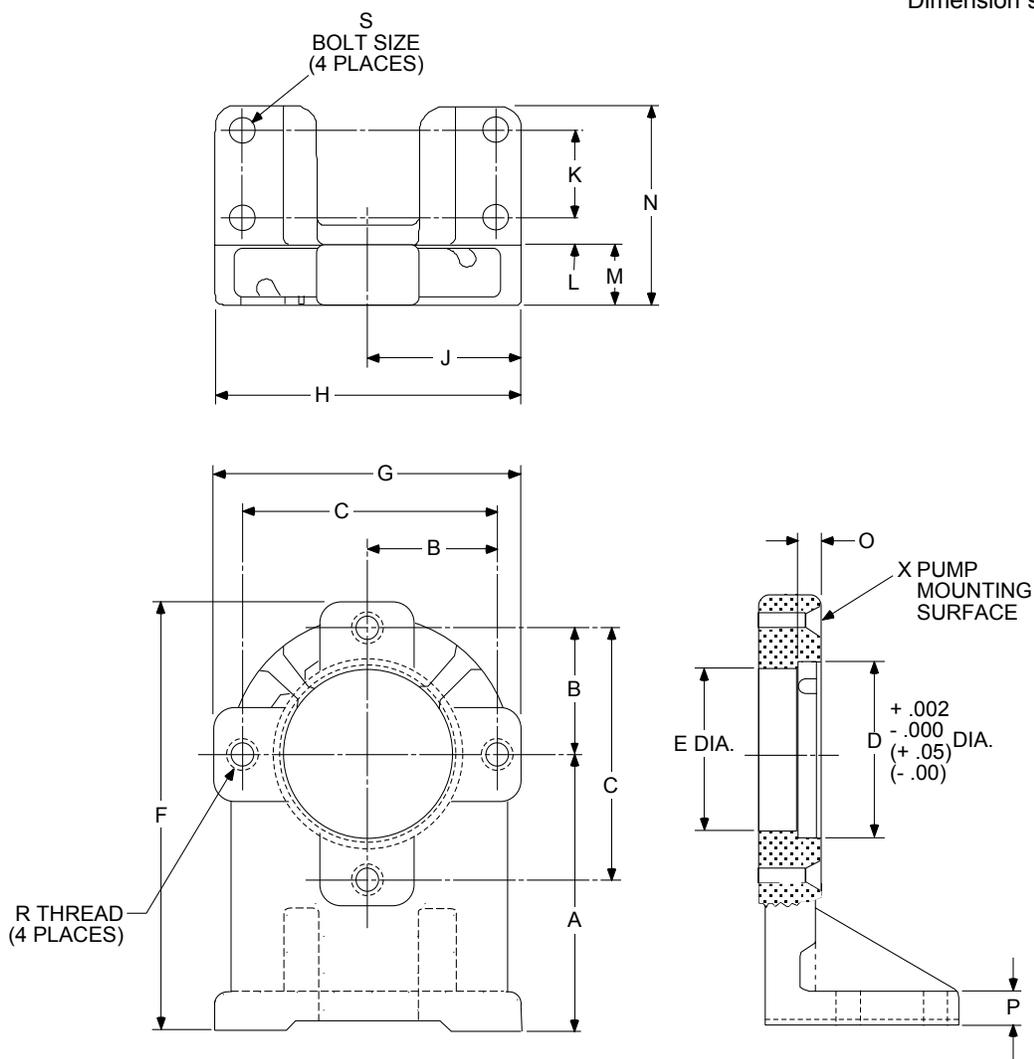
**\*NOTE:** Code 5S Side Port Option must be ordered with all Tandem Options.

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

# HPV SERIES AXIAL PISTON PUMPS

## FOOT MOUNTING BRACKET DIMENSIONS

Dimension shown in: INCHES  
(MILLIMETERS)



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

# HPV SERIES AXIAL PISTON PUMPS

## FOOT MOUNTING BRACKET/BOLTS ORDERING INFORMATION

SELECT ONE      SELECT ONE      DESIGN LETTER  
**FPVR**  -  -

SIZE                      MOTOR SIZE                      KIT INCLUDES

CODE	USED WITH MODEL	CODE	NEMA FRAME SIZE	MOTOR SPACERS (In.)	BRACKET* SPACERS (In.)
6	HPV-6	143	143/145	1.74	
		182	182/183	0.75	
		213	213/215		
		254	254/256		1.00
15	HPV-10 HPV-15	254	254/256		
		284	284/286		0.75
		324	324/326		1.75
30	HPV-20 HPV-29	284	284/286	1.00	
		324	324/326		
		364	364/365		1.00

\*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

SELECT ONE      SELECT ONE      DESIGN LETTER  
**BPVR**  -  - U -

CODE	USED WITH MODEL	CODE	BOLT SIZE	QUANTITY BOLTS/WASHERS
6	HPV-6	2	3/8-16 UNC x .88	2
15	HPV-10 HPV-15	2	1/2-13 UNC x 1.25	2
30	HPV-20 HPV-29	2	5/8-11 UNC x 1.75	4

NOTE: Code 2 = Pump to Foot Bracket, Flange or Front Tandem Pump.

TYPICAL ORDERING CODE:

**BPVR15-1-U-A**

# HPV SERIES AXIAL PISTON PUMPS

## SAE STANDARD J518 FLANGE DIMENSIONS

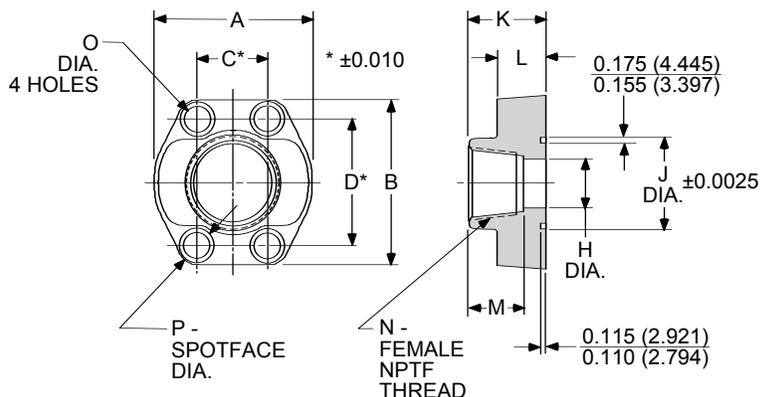
### SAE CODE 61

NOMINAL FLANGE SIZE: 1-1/2"

DASH SIZE: -24

Δ3000 PSIG RECOMMENDED WORKING PRESSURE

Dimension shown in: INCHES  
(MILLIMETERS)



### DIMENSIONS

	Inch	mm		Inch	mm
<b>A</b>	3.25	82.6	<b>J</b>	2.120	53.85
<b>B</b>	3.69	93.7	<b>K</b>	1.62	41.2
<b>C</b>	1.406	35.71	<b>L</b>	1.09	27.7
<b>D</b>	2.750	69.85	<b>M</b>	1.12	28.4
<b>E</b>	1.19	30.2	<b>N</b>	1-1/2 NPTF	
<b>F</b>	0.44	11.2	<b>O</b>	0.531	13.49
<b>G</b>	1.923	48.84	<b>P</b>	0.781	19.84
<b>H</b>	1.50	38.1	<b>R</b>	1/2-13 UNC-2B	

SOC. HD. CAP SCREW (THREADED FLANGE) SIZE & LENGTH (In.)	HEX. or SOC. HD. CAP SCREW (SOCKET WELD) SIZE & LENGTH (In.)	O-RING ARP-568 UNIFORM DASH NO.	BOLT TORQUE* lbs.(F)-In. (Nm)
1/2-13UNC x 2.00	1/2-13UNC X 2.75	-225 2.125 X 1.875 X .125 (54.0 X 47.6 X 3.2)	550 - 700 (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.

# HPV SERIES AXIAL PISTON PUMPS

## SAE STANDARD J518 FLANGE DIMENSIONS

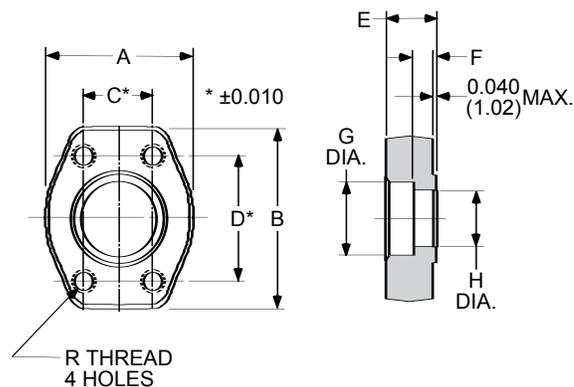
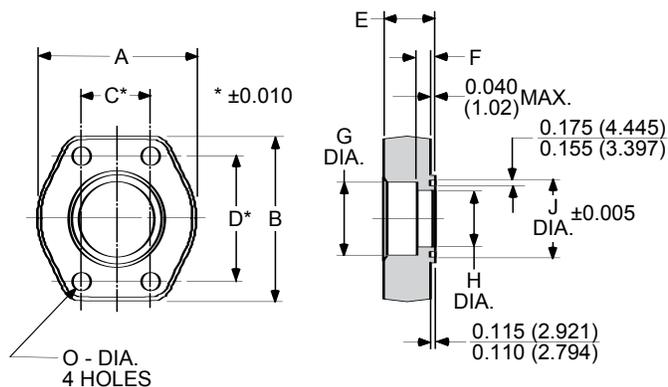
### SAE CODE 61 or 62

NOMINAL FLANGE SIZE: 1-1/4"

DASH SIZE: -20

Δ6000 PSIG RECOMMENDED WORKING PRESSURE

Dimension shown in: INCHES  
(MILLIMETERS)



### DIMENSIONS

	Inch	mm		Inch	mm
<b>A</b>	3.06	77.7	<b>J</b>	1.7525	44.51
<b>B</b>	3.75	95.3	<b>K</b>	--	--
<b>C</b>	1.250	31.75	<b>L</b>	--	--
<b>D</b>	2.625	66.68	<b>M</b>	--	--
<b>E</b>	1.25	31.8	<b>N</b>	----	
<b>F</b>	0.56	14.2	<b>O</b>	0.531	13.49
<b>G</b>	1.672	42.47	<b>P</b>	--	--
<b>H</b>	1.25	31.75	<b>R</b>	1/2-13 UNC-2B	

SOC. HD. CAP SCREW (THREADED FLANGE) SIZE & LENGTH (In.)	HEX. or SOC. HD. CAP SCREW (SOCKET WELD) SIZE & LENGTH (In.)	O-RING ARP-568 UNIFORM DASH NO.	BOLT TORQUE* lbs.(F)-In. (Nm)
----	1/2-13UNC X 2.25	-222 2.750 X 1.500 X .125 (44.4 X 38.1 X 3.2)	750 - 900 (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.

# HPV SERIES AXIAL PISTON PUMPS

## AIR BLEED VALVE



### TYPICAL PERFORMANCE SPECIFICATIONS

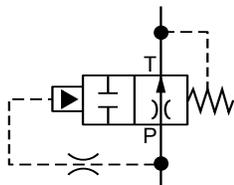
MINIMUM FLOW RATE	8 gpm	30.3 lpm
MINIMUM OPERATING PRESSURE	@8 gpm (30.3 lpm)	500 psi 35 bar
OPERATING PRESSURE	@15 gpm (56.8 lpm)	350 psi 24 bar
OPERATING PRESSURE	@50 gpm (189.2 lpm)	200 psi 14 bar
MAX. OPERATING PRESSURE		3500 psi 241 bar
MINIMUM PRESSURE TO HOLD CLOSE	150 psi	10 bar
TYPICAL CLOSING TIMES	@500 psi (35 bar)	30 sec.
	@1500 psi (103 bar)	10 sec.
SEALS	VITON	

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

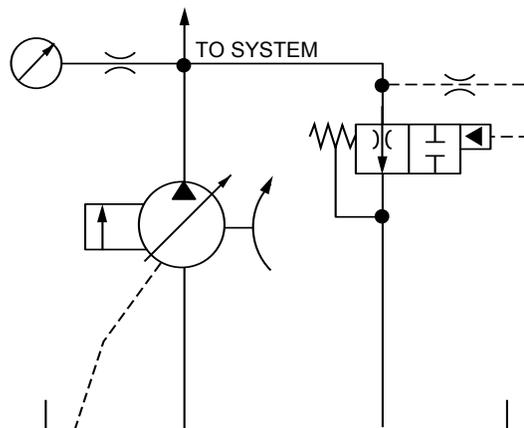
### DESCRIPTION

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.

### VALVE SCHEMATIC



### TYPICAL APPLICATIONS SCHEMATIC



#### ELECTRIC MOTOR PRIME MOVER

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

#### ENGINE PRIME MOVER

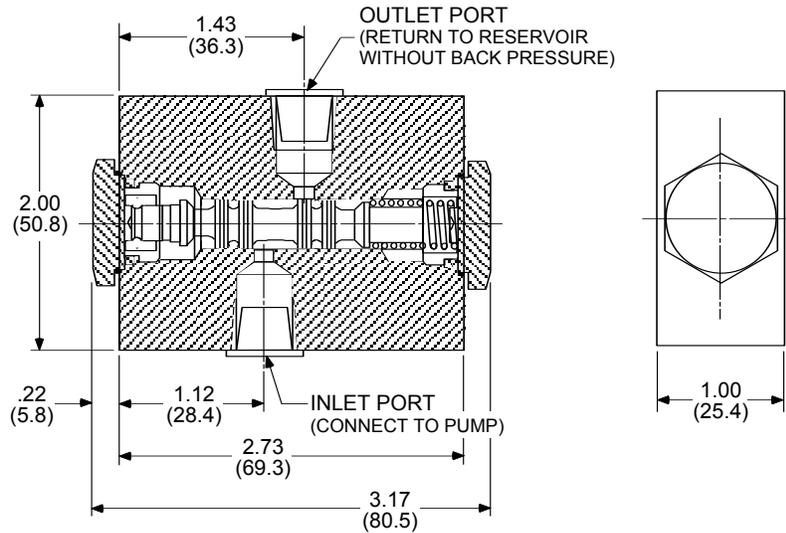
Here the valve passes flow for a short time allowing an internal combustion engine to come up to speed. This would eliminate using a separate open center valve for this purpose.

#### NOTE:

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

### VALVE DIMENSIONS

Dimension shown in: INCHES  
(MILLIMETERS)



### ORDERING INFORMATION

SELECT ONE      DESIGN LETTER

**AB** -  -

**PORTS**

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

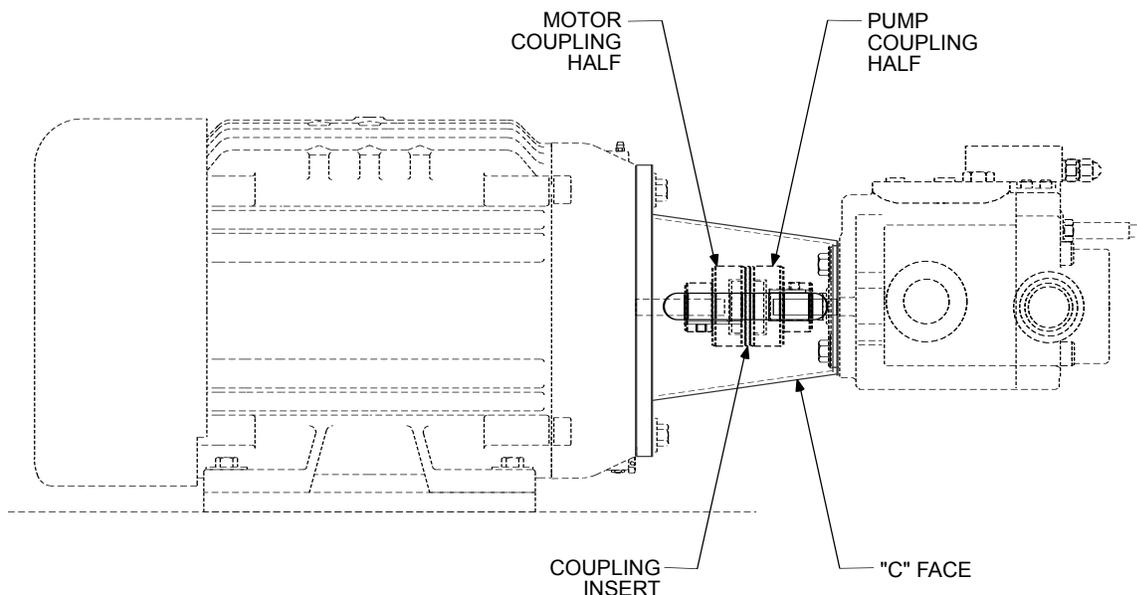
WEIGHT: 0.6 lbs. / 0.27 kg

TYPICAL ORDERING CODE:

**AB-1-B**

# HPV SERIES AXIAL PISTON PUMPS

## PUMP MOTOR MOUNTS AND COUPLINGS



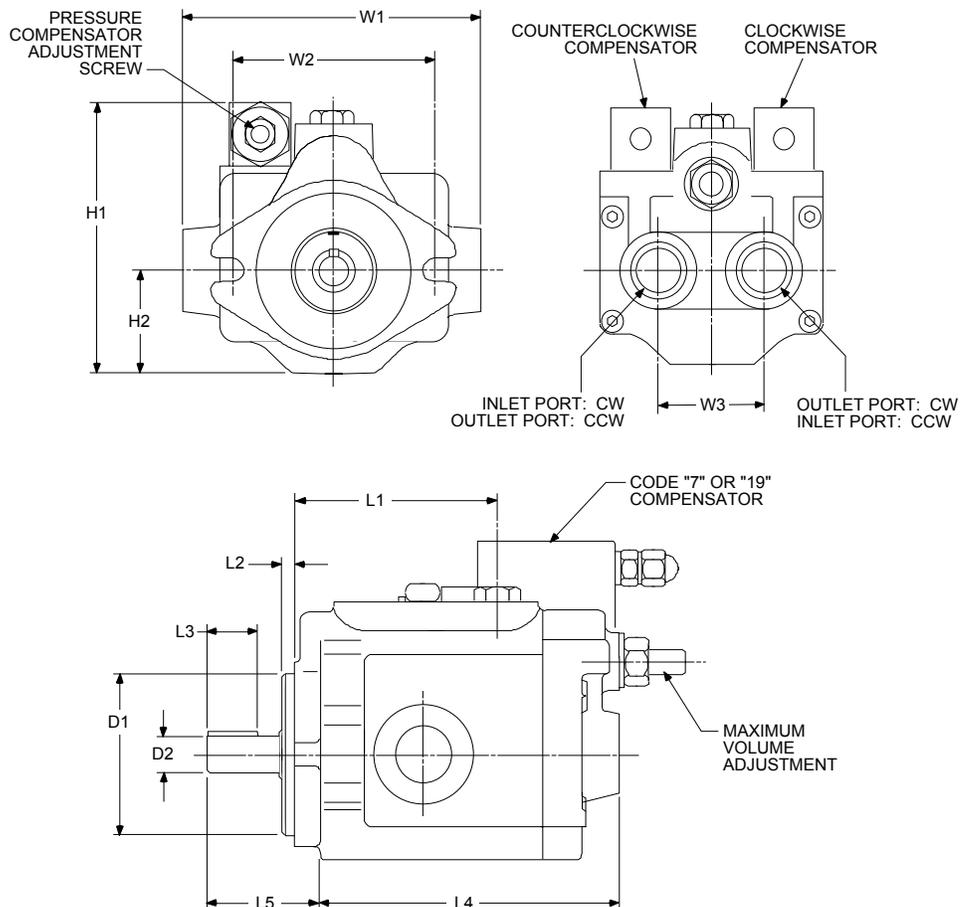
PUMP SAE	ADAPTER AND COUPLINGS	HPV-6	HPV-10	HPV-15	HPV-20	HPV-29	COUPLING SERIES
		SAE "A"	SAE "B"	SAE "B"	SAE "C"	SAE "C"	
<b>SHAFT DIA.</b>		<b>3/4 x 3/16</b>	<b>7/8 x 1/4</b>	<b>7/8 x 1/4</b>	<b>1-1/4 x 5/16</b>	<b>1-1/4 x 5/16</b>	
<b>1.0 - 2.0 HP</b>	"C"-FACE	902497					PM90
<b>143TC/145TC</b>	MOTOR COUPLING	954847					
<b>7/8" BORE</b>	PUMP COUPLING	954848					
<b>3/16" KEY</b>	INSERT	954874					
<b>3.0 HP, 5.0 HP</b>	"C"-FACE	954856	954858	954858			PM90
<b>182TC/184TC</b>	MOTOR COUPLING	954849	954849	954849			
<b>1-1/8" BORE</b>	PUMP COUPLING	954848	954848	954848			
<b>1/4" KEY</b>	INSERT	954874	954874	954874			
<b>7.5 HP, 10.0 HP</b>	"C"-FACE	903606	166719	166719	600616	600616	M200
<b>213TC/215TC</b>	MOTOR COUPLING	954850	954850	954850	954850	954850	
<b>1-3/8" BORE</b>	PUMP COUPLING	914072	914072	914072	914078	914078	
<b>5/16" KEY</b>	INSERT	914216	914216	914216	914216	914216	
<b>15.0 HP, 20.0 HP</b>	"C"-FACE	148618	166616	166616	934788	934788	M300
<b>254TC/256TC</b>	MOTOR COUPLING	954851	954851	954851	954851	954851	
<b>1-5/8" BORE</b>	PUMP COUPLING	914087	914087	914087	914094	914094	
<b>3/8" KEY</b>	INSERT	914217	914217	914217	914217	914217	
<b>25.0 HP, 30.0 HP</b>	"C"-FACE		934782	934782	974817	974817	M400
<b>284TC/286TC</b>	MOTOR COUPLING		954852	954852	954852	954852	
<b>1-7/8" BORE</b>	PUMP COUPLING		914104	914104	934254	934254	
<b>1/2" KEY</b>	INSERT		914218	914218	914218	914218	
<b>40.0 HP, 50.0 HP</b>	"C"-FACE		600574	600574	934791	934791	M500
<b>324TC/326TC</b>	MOTOR COUPLING		914134	914134	914134	914134	
<b>2-1/8" BORE</b>	PUMP COUPLING		914118	914118	914123	914123	
<b>1/2" KEY</b>	INSERT		914219	914219	914219	914219	
<b>60.0 HP, 75.0 HP</b>	"C"-FACE				934792	934792	M500
<b>364TC/365TC</b>	MOTOR COUPLING				954853	954853	
<b>2-3/8" BORE</b>	PUMP COUPLING				914123	914123	
<b>5/8" KEY</b>	INSERT				914219	914219	

# HPV SERIES AXIAL PISTON PUMPS

## HPV-6 PUMP INTERCHANGE INFORMATION

### CONTINENTAL HYDRAULICS HPV-6 to REPLACE VICKERS PVB6

Dimension shown in: INCHES  
(MILLIMETERS)



**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
<b>Continental Hyd. HPV-6</b>	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)
<b>Vickers PVB6</b>	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  
Difference

\*

\*

\*

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

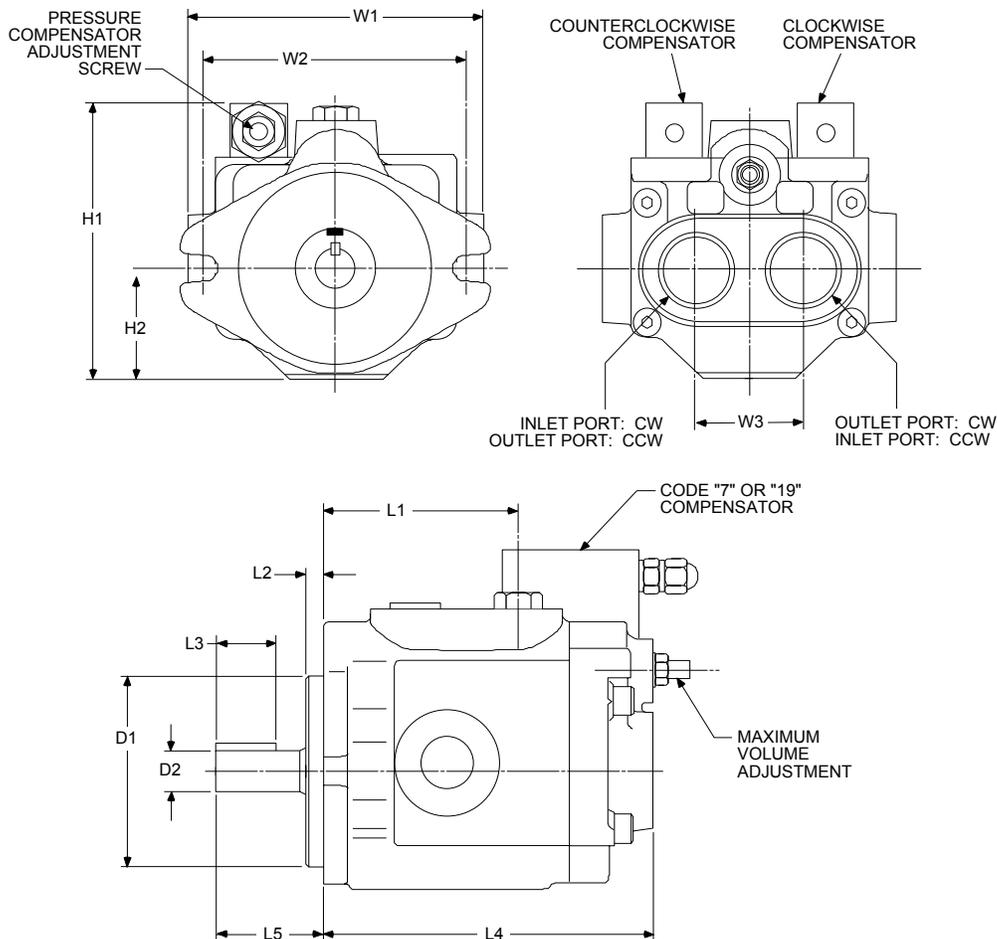
\* @ -5 in-Hg inlet.

# HPV SERIES AXIAL PISTON PUMPS

## HPV-10 PUMP INTERCHANGE INFORMATION

### CONTINENTAL HYDRAULICS HPV-10 to REPLACE VICKERS PVB10

Dimension shown in: INCHES  
(MILLIMETERS)



**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
<b>Continental Hyd. HPV-10</b>	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)
<b>Vickers PVB10</b>	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

	DISPLACEMENT cu. in./rev.	THEORETICAL FLOW @ 1750 rpm	CONTINUOUS		INTERMITTENT	PORTS	
			Speed rpm*	psi (bar)	psi (bar)	Inlet/Outlet	Fill/Drain
<b>Continental Hyd. HPV-10</b>	1.260	9.5	2550	3000 (207)	4000 (276)	SAE-20	SAE-10
<b>Vickers PVB10</b>	1.290	9.8	2250	3000 (207)	---	SAE-20	SAE-8

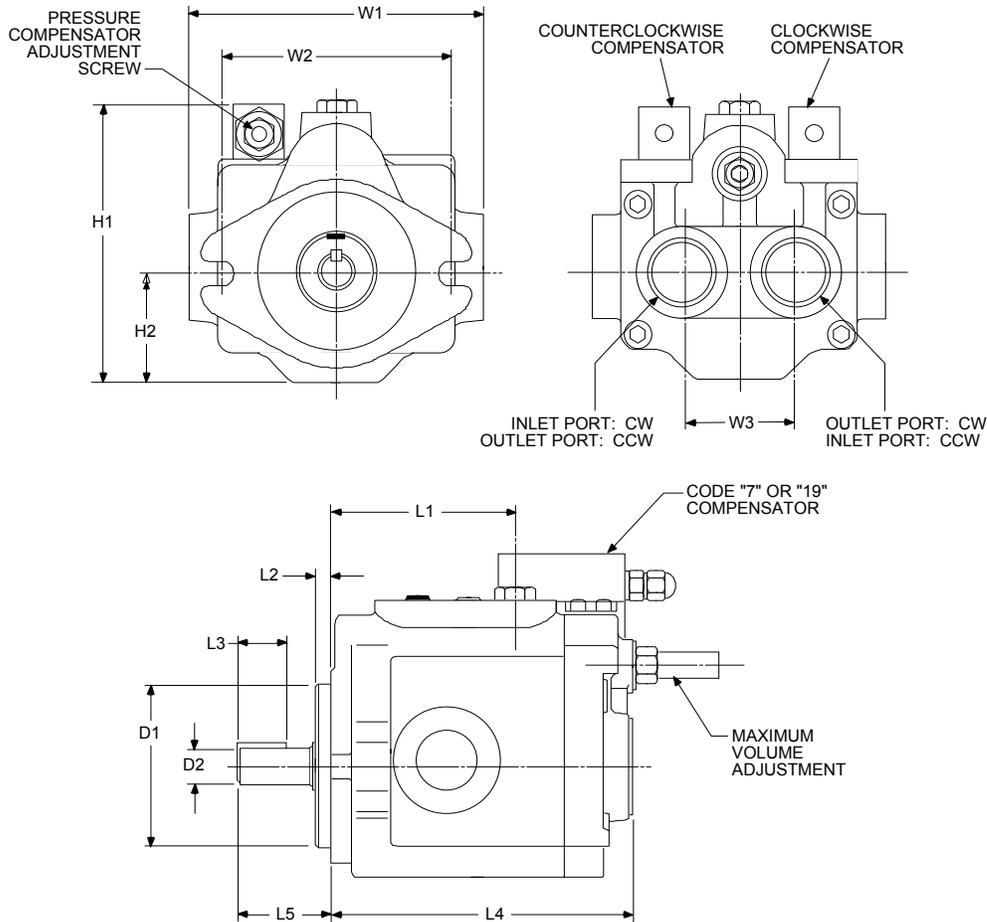
\* @ -5 in-Hg inlet.

# HPV SERIES AXIAL PISTON PUMPS

## HPV-15 PUMP INTERCHANGE INFORMATION

### CONTINENTAL HYDRAULICS HPV-15 to REPLACE VICKERS PVB15

Dimension shown in: INCHES  
(MILLIMETERS)



**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
<b>Continental Hyd. HPV-15</b>	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)
<b>Vickers PVB15</b>	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

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	DISPLACEMENT cu. in./rev.	THEORETICAL FLOW @ 1750 rpm	CONTINUOUS		INTERMITTENT	PORTS	
			Speed rpm*	psi (bar)	psi (bar)	Inlet/Outlet	Fill/Drain
<b>Continental Hyd. HPV-15</b>	2.090	15.8	2275	3000 (207)	4000 (276)	SAE-20	SAE-10
<b>Vickers PVB15</b>	2.010	15.2	1800	3000 (207)	---	SAE-20	SAE-8

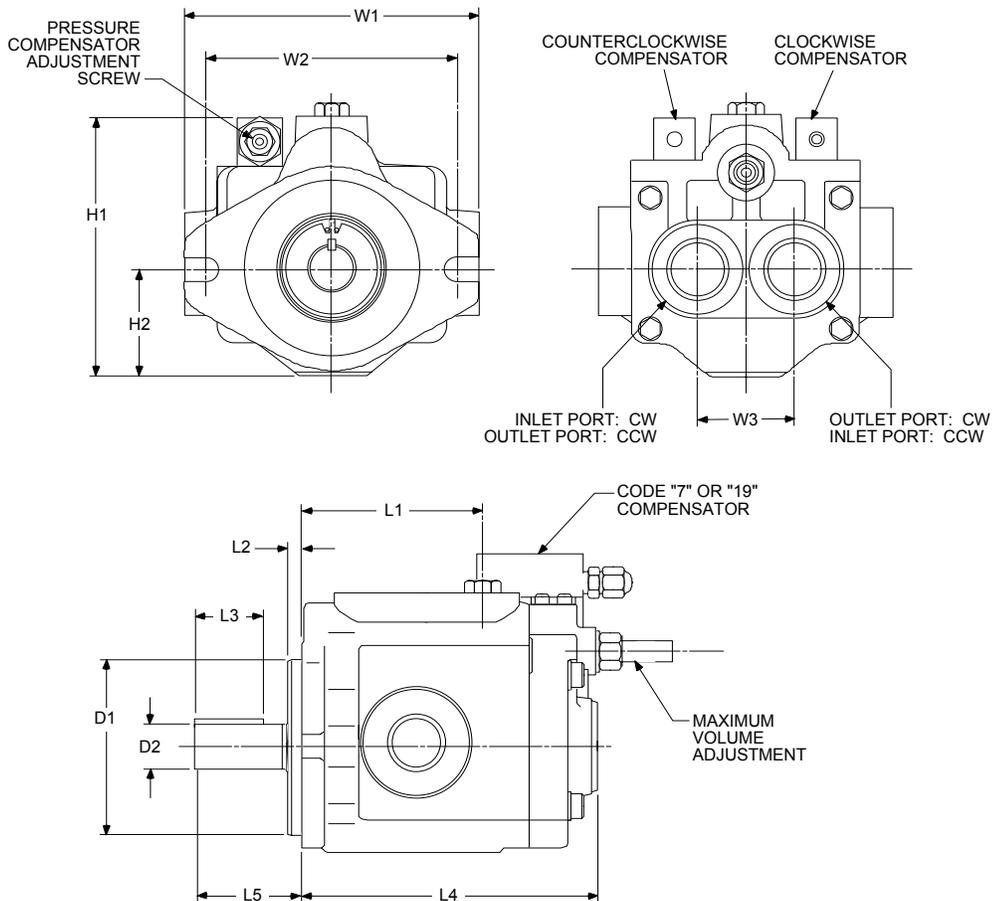
\* @ -5 in-Hg inlet.

# HPV SERIES AXIAL PISTON PUMPS

## HPV-20 PUMP INTERCHANGE INFORMATION

### CONTINENTAL HYDRAULICS HPV-20 to REPLACE VICKERS PVB20

Dimension shown in: INCHES (MILLIMETERS)



**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
<b>Continental Hyd. HPV-20</b>	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)
<b>Vickers PVB20</b>	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

	DISPLACEMENT cu. in./rev.	THEORETICAL FLOW @ 1750 rpm	CONTINUOUS		INTERMITTENT	PORTS	
			Speed rpm*	psi (bar)	psi (bar)	Inlet/Outlet	Fill/Drain
<b>Continental Hyd. HPV-20</b>	2.620	19.8	2200	3500 (241)	4000 (276)	SAE-20	SAE-12
<b>Vickers PVB20</b>	2.610	19.8	1800	3000 (207)	---	SAE-20	SAE-8

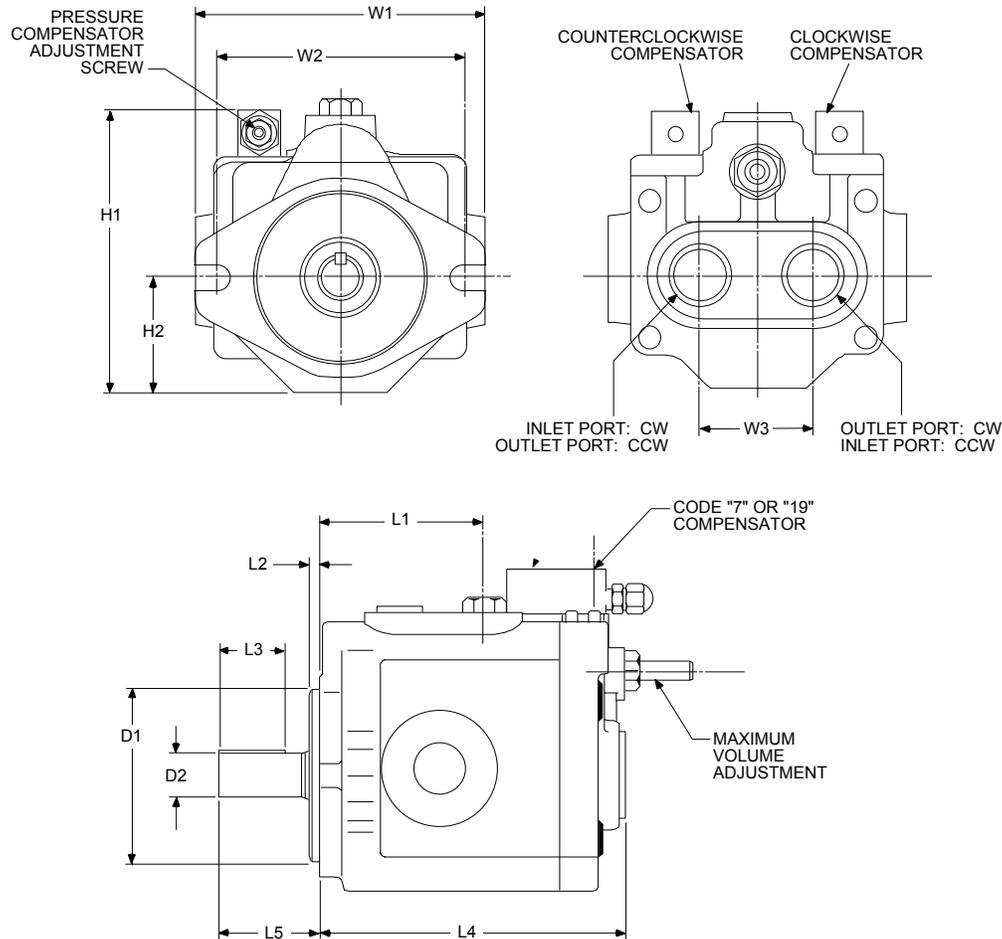
\* @ -5 in-Hg inlet.

# HPV SERIES AXIAL PISTON PUMPS

## HPV-29 PUMP INTERCHANGE INFORMATION

### CONTINENTAL HYDRAULICS HPV-29 to REPLACE VICKERS PVB29

Dimension shown in: INCHES  
(MILLIMETERS)



**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
<b>Continental Hyd. HPV-29</b>	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)
<b>Vickers PVB29</b>	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

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

\* @ -5 in-Hg inlet.

# HPV SERIES AXIAL PISTON PUMPS

## TYPICAL PERFORMANCE SPECIFICATIONS

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

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.





# HPV SERIES AXIAL PISTON PUMPS

RELIABLE POWER FOR ANY HYDRAULIC SYSTEM

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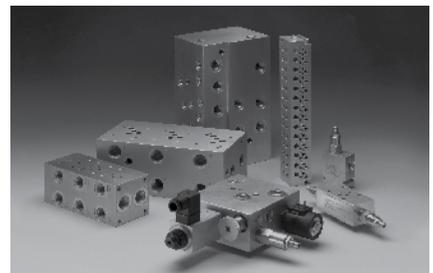
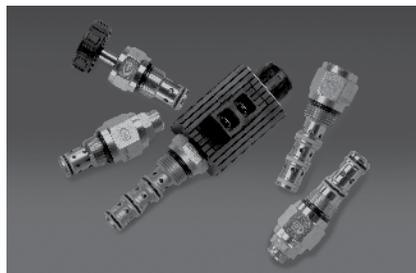
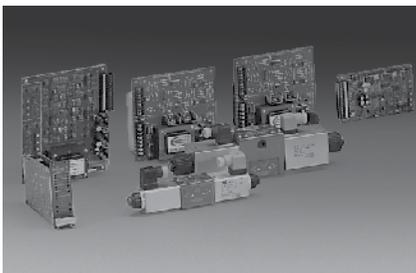
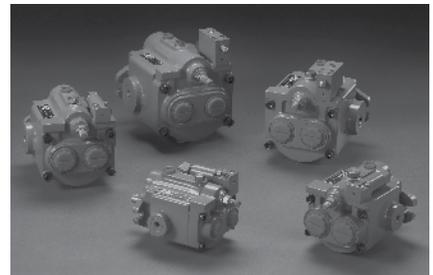
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