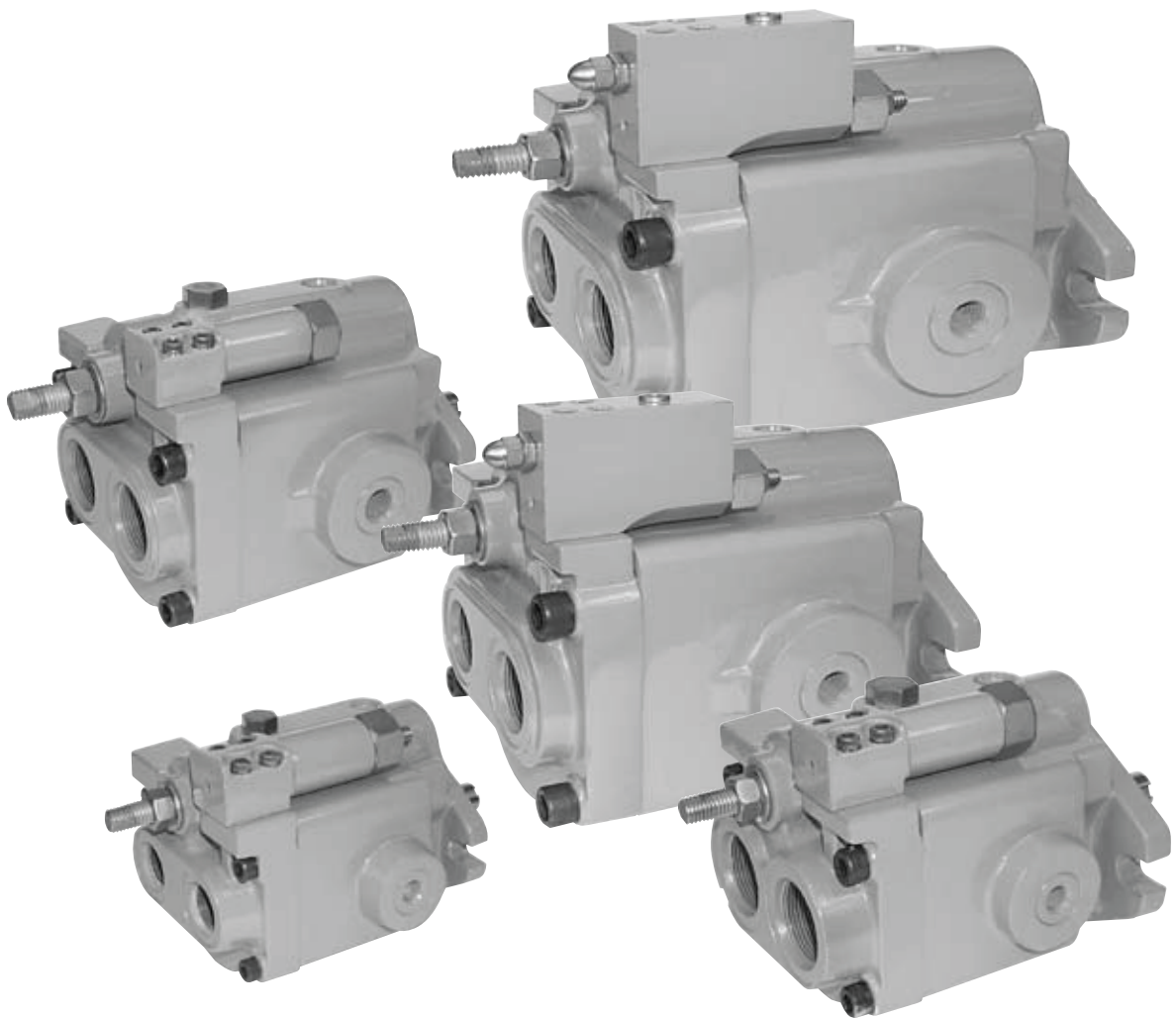




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HPV SERIES
AXIAL PISTON PUMPS



INDEX

HPV SERIES AXIAL PISTON PUMPS

PRESSURE COMPENSATED AXIAL PISTON PUMPS

VOLUMETRIC DISPLACEMENT	THEORETICAL FLOW @ 1750 RPM	MODEL SERIES	MAXIMUM CONTINUOUS PRESSURE	FLANGE MOUNTING	PAGES
.88 CU. IN./REV .	6.67 GP M	HPV-6B3 5	3500 PSI	SAE A 2-BOLT *	9 - 15
1.26 CU. IN./REV .	9.55 GP M	HPV-10B3 5	3500 PSI	SAE B 2-BOLT	16 - 23
2.09 CU. IN./REV .	15.83 GP M	HPV-15B3 5	3500 PSI	SAE B 2-BOLT	24 - 31
2.62 CU. IN./REV .	19.85 GP M	HPV-20B3 5	3500 PSI	SAE C 2-BOLT	32 - 39
3.78 CU. IN./REV .	28.64 GP M	HPV-29B3 0	3000 PSI	SAE C 2-BOLT	40 - 47

*Spline Shaft Option Conforms to SAE B Dimensions.

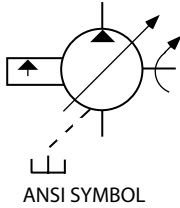
PUMP ACCESSORIES

DESCRIPTION DISPLACEMENT	MODEL SERIES	PAGE
.88 CU. IN./REV .	FPV R	49
1.26 CU. IN./REV .	AB	50

HPV SERIES

AXIAL PISTON PUMPS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



SAE FLANGE MOUNTING

Uses standard SAE industrial mounting for easy interchangeability.

5 DISPLACEMENTS

.88, 1.26, 2.09, 2.62, 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 has reduced noise to very low levels.

MAXIMUM VOLUME ADJUSTMENT

Allows you to set the pump displacement to match the maximum system flow requirements and prevents overloading of the system.

PRESSURE COMPENSATED

Delivers only the flow required by the system, while maintaining the set pressure. This will save horsepower and unnecessary wear on the system.

Pressure compensation ranges from 200 to 3500 PSI continuous duty and up to 4000 PSI 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

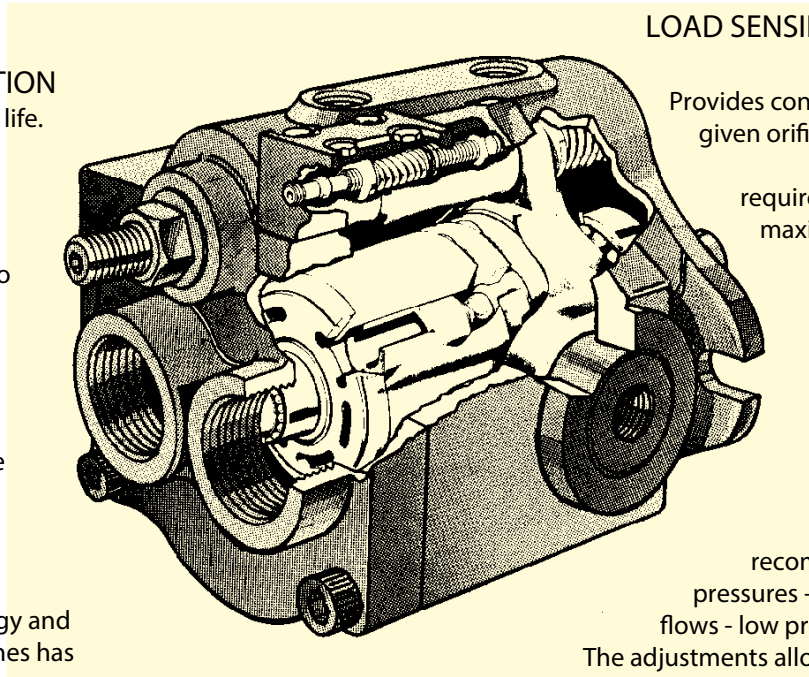
CODE 19

Provides constant flow through a given orifice and pressure that varies with the 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 - low pressures are needed. The adjustments allow for exact tailoring to system requirements.



DESIGNED TO BE REBUILDABLE

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

HPV SERIES

AXIAL PISTON PUMPS

GENERAL SPECIFICATIONS

Recommended Fluids

Fluids for use in the 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. For other fluid types, 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

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

Fluid Cleanliness

- ISO 16/13.

Filtration

Return line: To maintain the 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 fluid is highly recommended. The data collected from these tests will tell if the current filter system is maintaining the cleanliness of the fluid to the ISO 16/13 level.

Maximum Inlet Pressure

The maximum inlet pressure is 50 PSI 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 (Total Indicated Runout) 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 reduction in size. The routing of the case drain line 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 surface of the fluid in the reservoir. 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 the maximum flow of the pump and set approximately 200 psi above the pump compensator setting.

HPV SERIES

AXIAL PISTON PUMPS

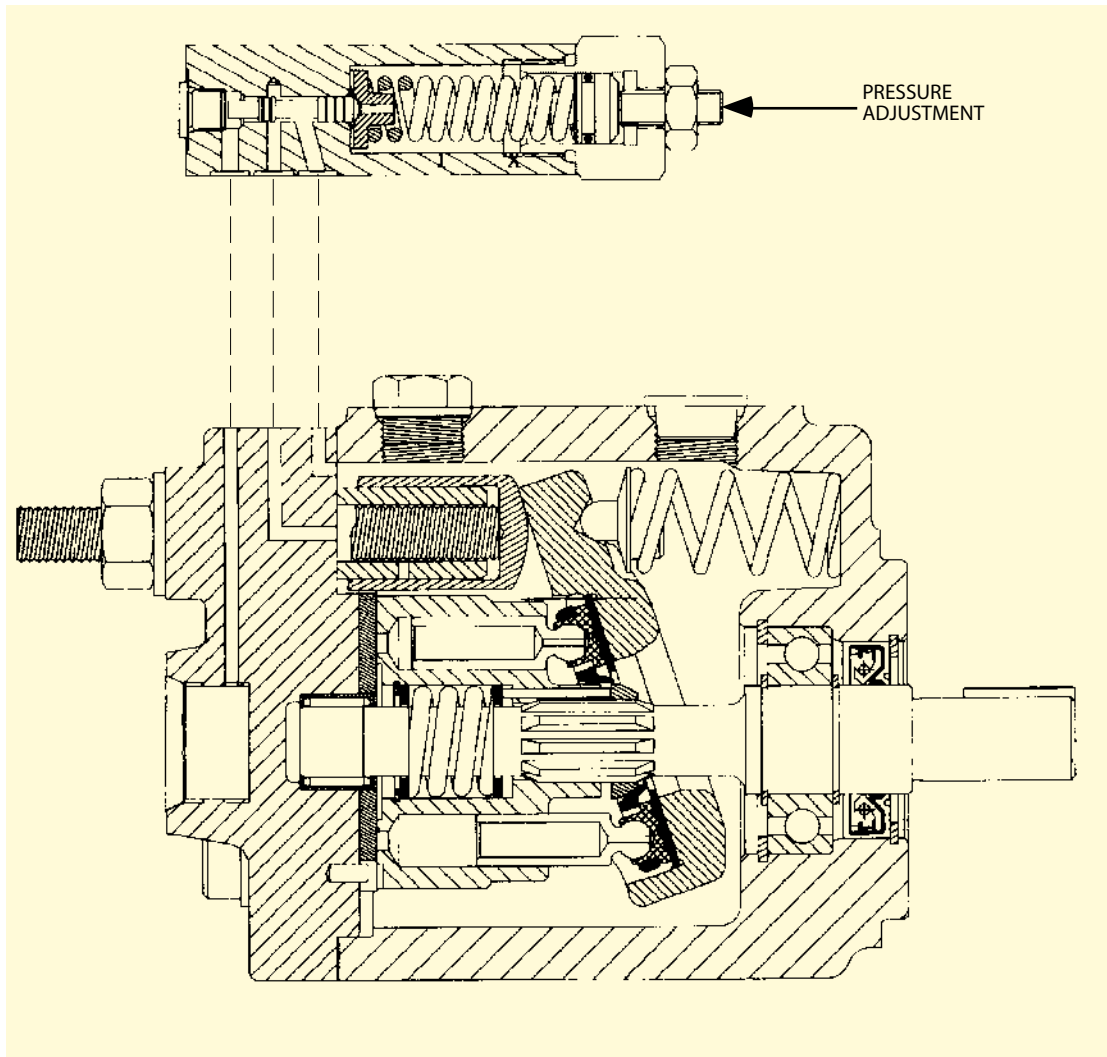
PRESSURE COMPENSATED CONTROL

The standard pressure compensated control changes the displacement of the pump to match the system flow requirement by controlling the system pressure. Simply stated: a pressure compensated pump will provide variable flow at a constant pressure setting.

The displacement of the pump is mechanically controlled by the angle of the swashplate. The swashplate angle is controlled by the extension of the

compensator plunger, which works against the swashplate bias spring. The compensator senses the downstream pressure and adjusts the displacement to maintain the set pressure.

The control would be used on systems where the flow requirements are variable but the pressure requirements are unchanging.



HPV SERIES AXIAL PISTON PUMPS

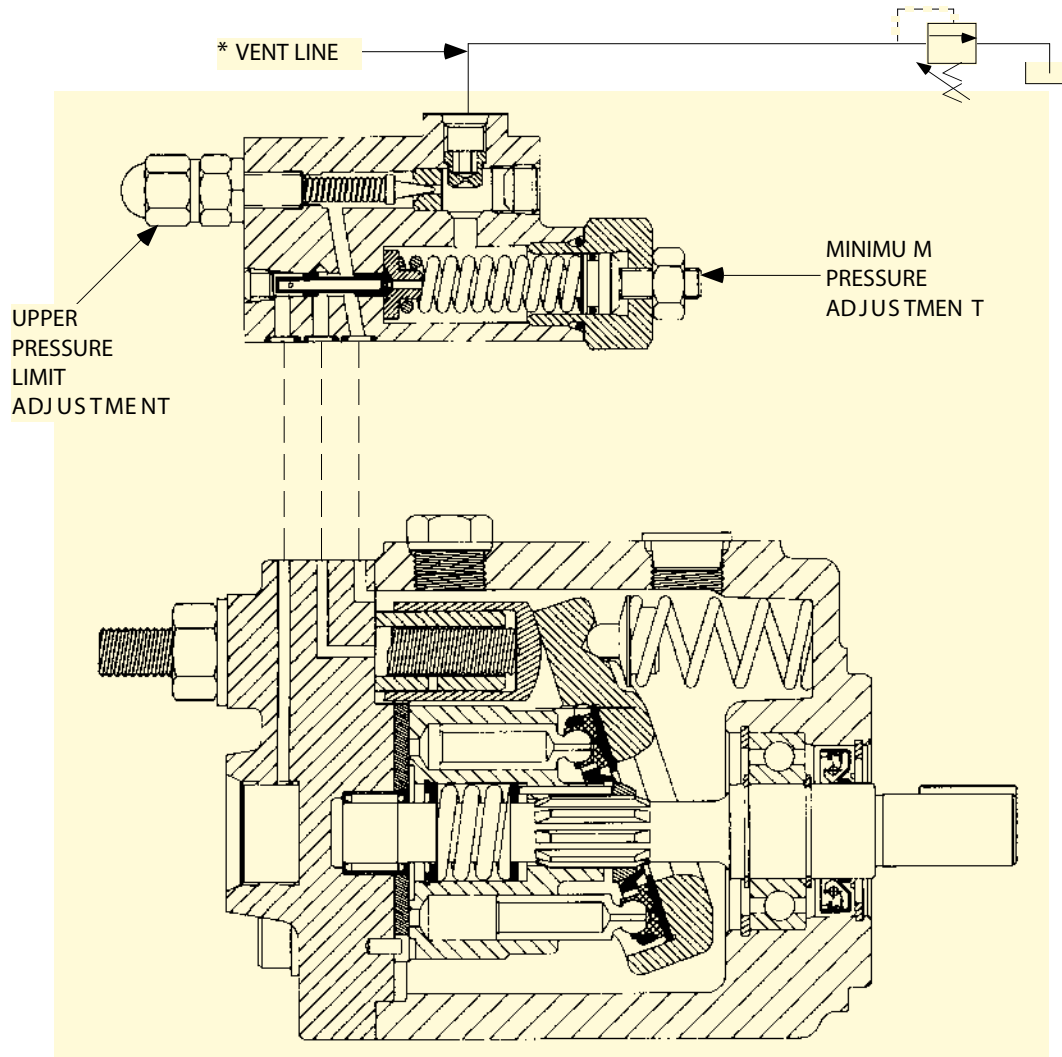
REMOTE PRESSURE CONTROL (Code 7)

The remote pressure control works similar to the standard pressure compensated control, 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 setting. The pressure in

this line may be controlled by one or more relief valves. These should be direct acting and capable of pressures up to 3500 psi (241 bar). The setting of these relief valves will control the pressure setting of the pump.

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



* Maximum length of this line is 50 feet. Hard piping is recommended to maintain system stability.

HPV SERIES

AXIAL PISTON PUMPS

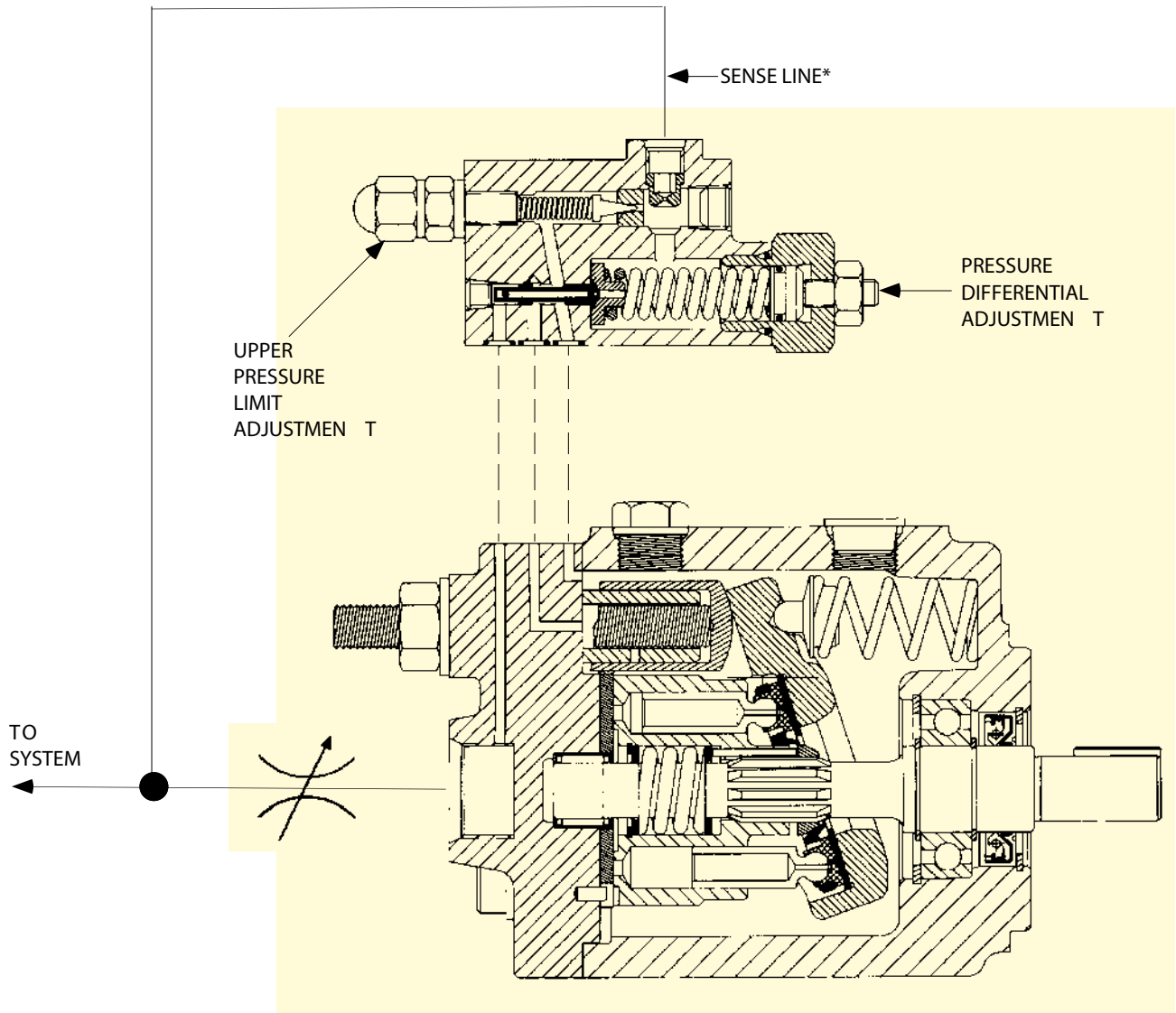
LOAD SENSING CONTROL (Code 19)

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

A sense line* must be connected between the downstream side of the flow control and the pump compensator. Through this line, the compensator will sense the fluctuations in the system pressure require-

ments. There are two adjustments on this compensator. The adjustment on the back side will set the upper pressure limit. The adjustment on the front is used to set the pressure differential of the flow control valve. This setting comes preset to 250 psi (17.2 bar).

This control can be combined with a variable flow control (like a proportional valve) to deliver variable flow and variable pressure.



* Maximum length of this line is 50 feet. Hard piping is recommended to maintain system stability.

HPV SERIES AXIAL PISTON PUMPS

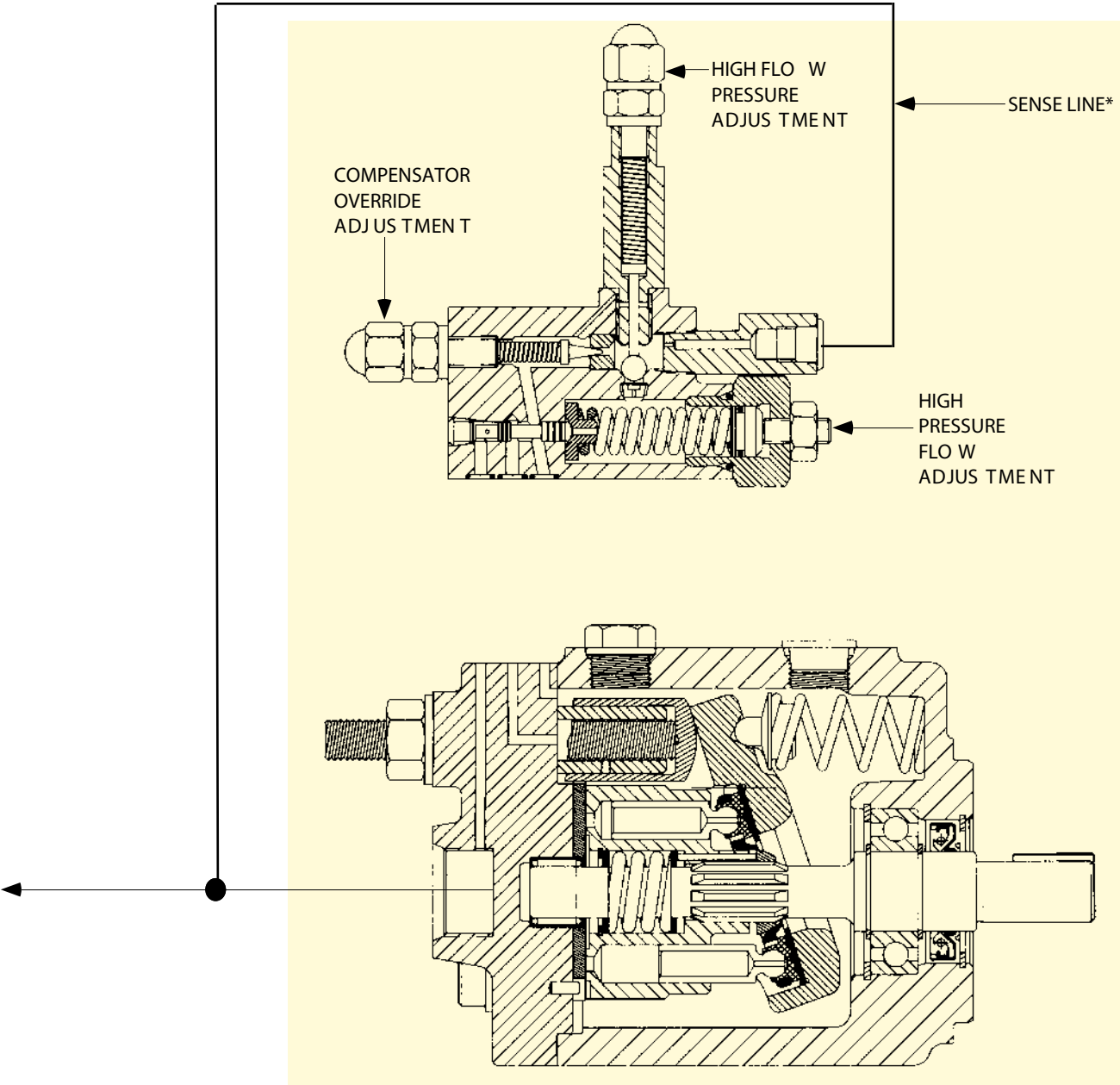
HORSEPOWER LIMITING CONTROL (Code 26)

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

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

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

This control would be used in systems that require both high pressure - low flow and high flow - low pressure.



* Maximum length of this line is 50 feet. Hard piping is recommended to maintain system stability.

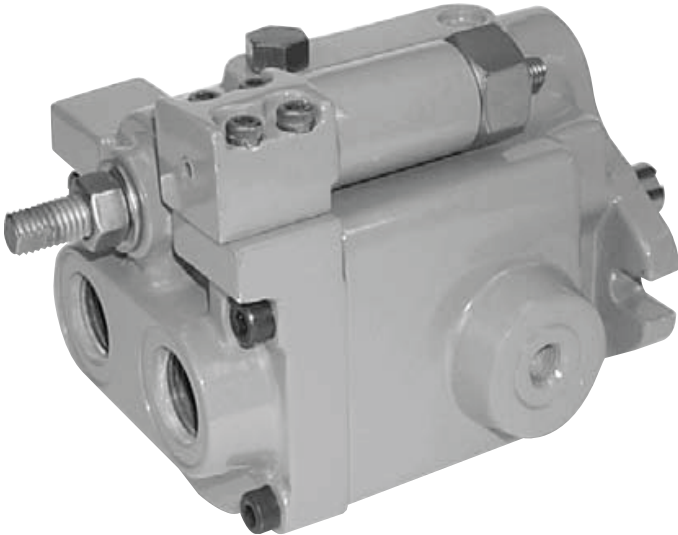
HPV SERIES
AXIAL PISTON PUMPS

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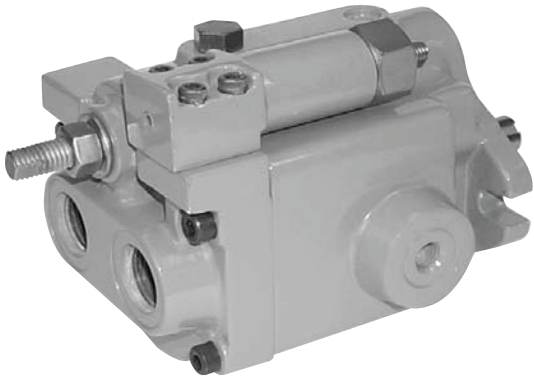


HP V-6

HPV SERIES

AXIAL PISTON PUMPS

VARIABLE DISPLACEMENT PRESSURE COMPENSATED

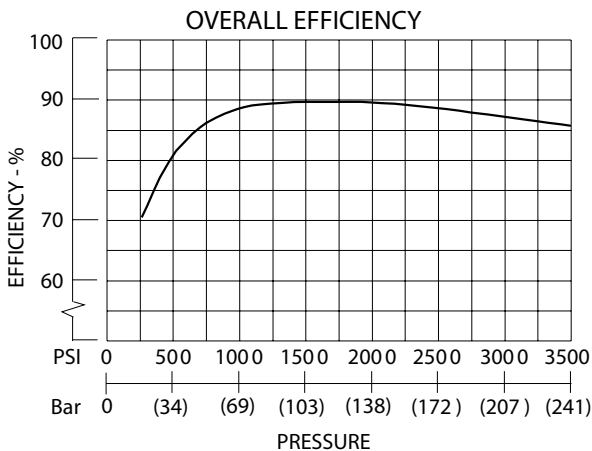


TYPICAL PERFORMANCE SPECIFICATIONS

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 @ rated flow & pressure	(1750 RPM)	hp	15
		kw	11
CASE DRAIN FLOW @ deadhead & rated pressure		gpm	.3
		lpm	1.1
MOUNTING FLANGE	Keyed Shaft	SAE Type	"A" 2-Bolt
	Spline Shaft	SAE Type	A/B 2-Bolt ?
SHIPPING WEIGHT	Rear Port	lbs.	27
		kgs	12.4
	Side Port	lbs.	35
		kgs.	15.9

NOTES:

- ? This pressure should comprise 10% or less of the total duty cycle & not exceed 6 consecutive seconds.
- ? Pumps operating at less than 150 psi may overheat & shorten pump life.
- ③ "A" size pilot with a "B" size shaft.



CASE DRAIN & INLET PORT SPECIFICATIONS

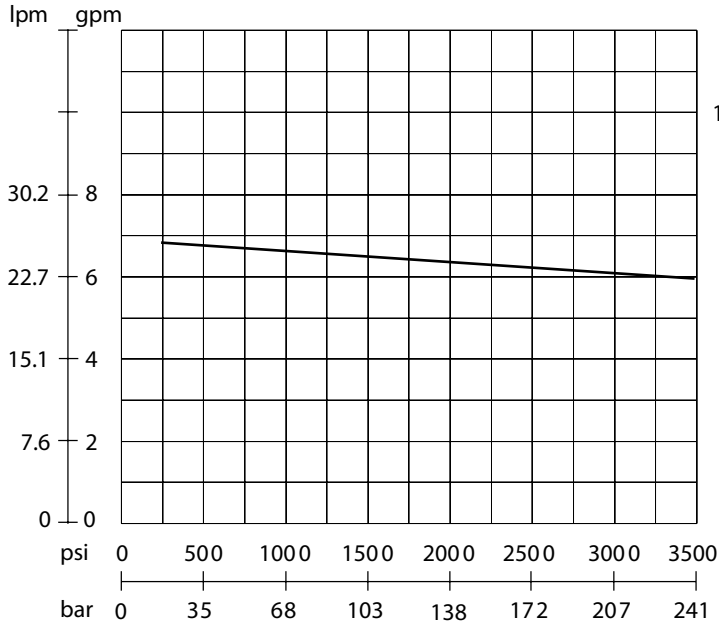
RPM	Maximum Case Pressure		Maximum Inlet Pressure		Minimum Inlet Pressure	
	psi	bar	psi	bar	vacuum/ pressure	vacuum / pressure
1800	10	0.69	50	3.4	6.12 in-Hg	155.5 mm-Hg
2050	7	0.48	50	3.4	6.12 in-Hg	155.5 mm-Hg
2100	5	0.34	50	3.4	6.12 in-Hg	155.5 mm-Hg
2750	5	0.34	50	3.4	4.79 in-Hg	121.7 mm-Hg
2900	5	0.34	50	3.4	1.97 in-Hg	49.9 mm-Hg
3000	5	0.34	50	3.4	0	0

PRESSURE & VOLUME ADJUSTMENT SENSITIVITY

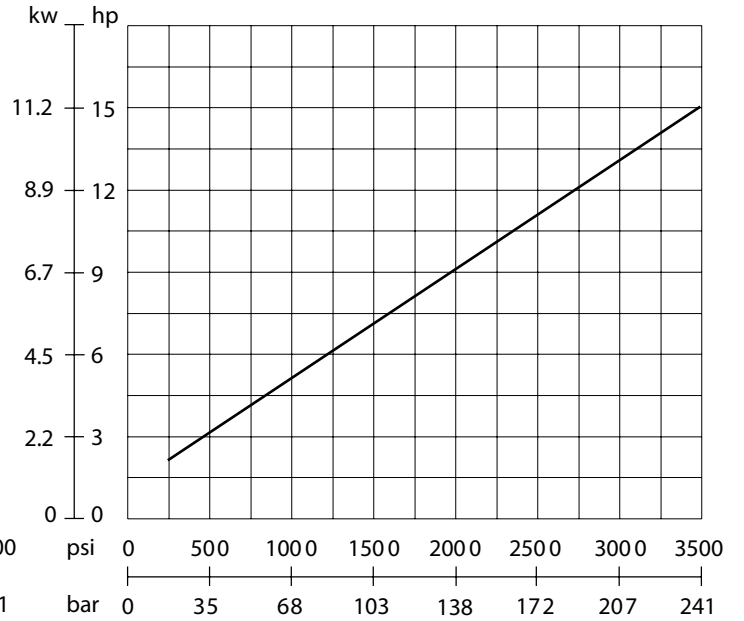
Pressure Adjustment	Pressure Change per Turn	650 psi	44.8 bar
Volume Adjustment	Flow Change per Turn	.7 gpm	2.6 lpm
	Maximum Torque	28 in-lbs.	3.2 Nm

HP V-6 HPV SERIES AXIAL PISTON PUMPS

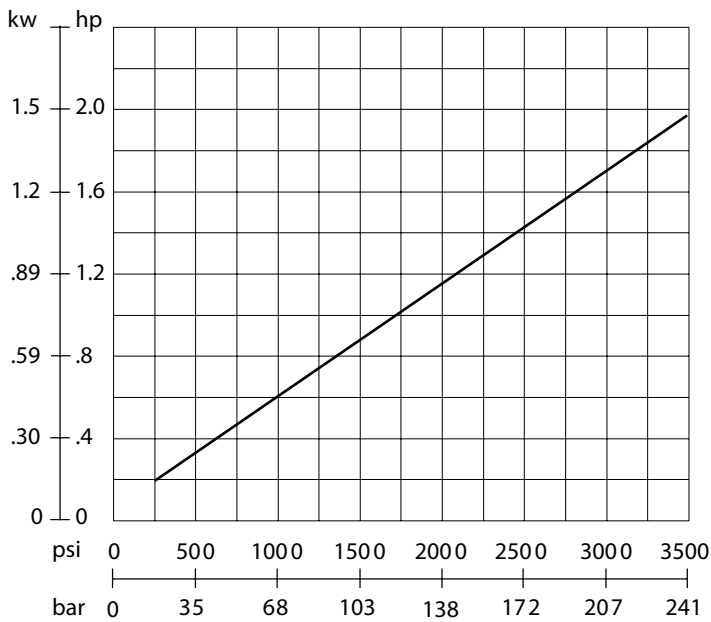
FLOW vs PRESSURE



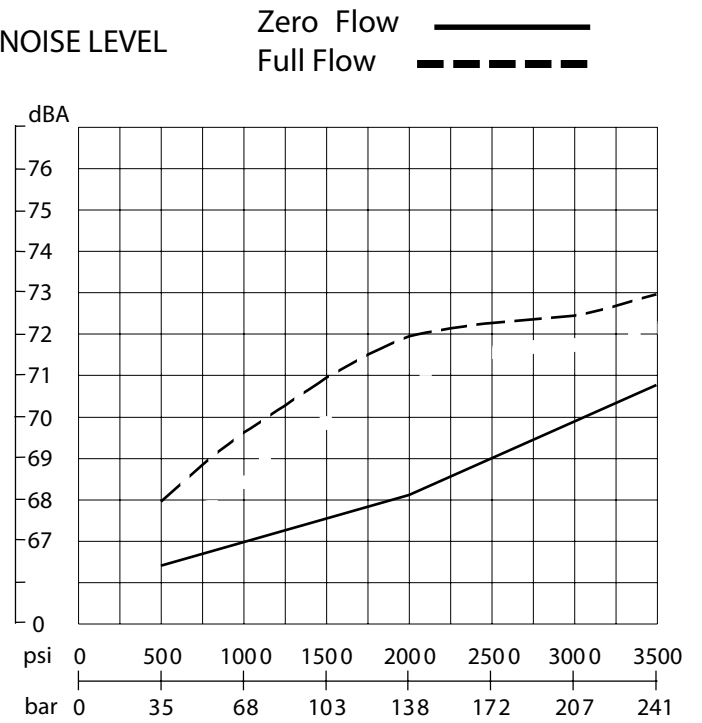
INPUT POWER @ FULL FLOW



INPUT POWER @ ZERO FLOW



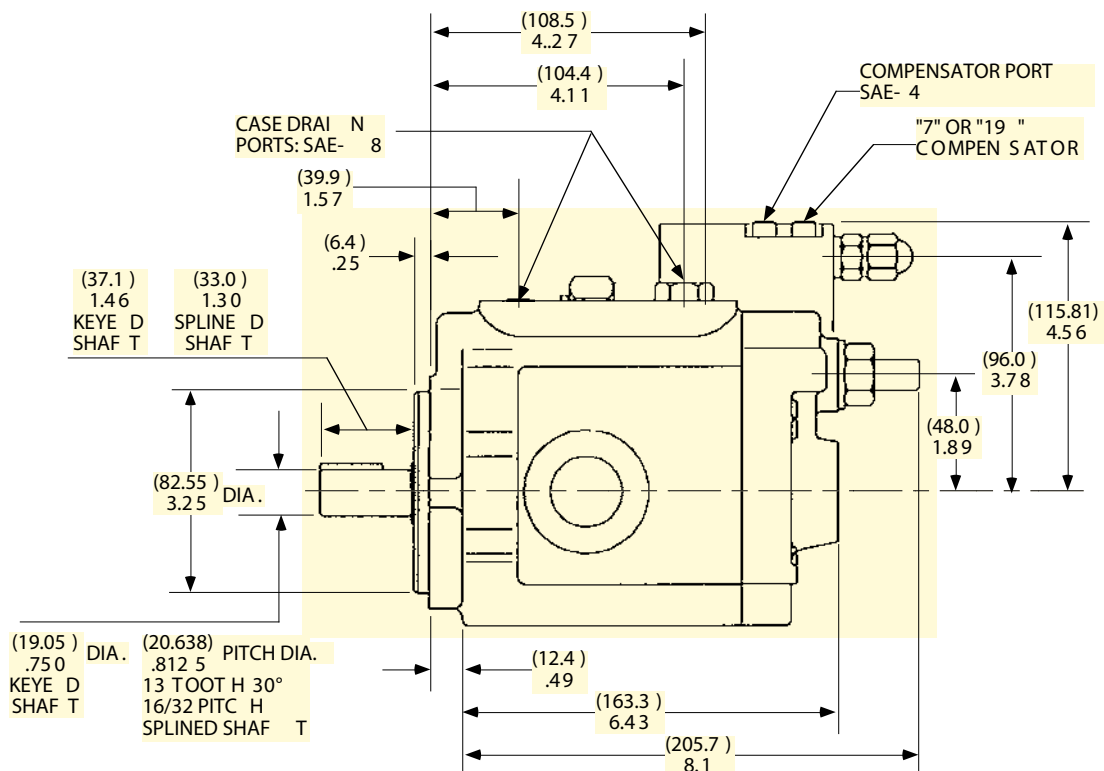
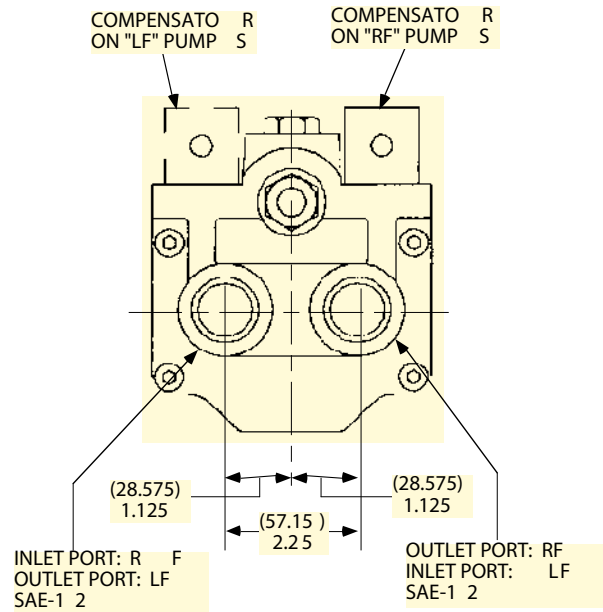
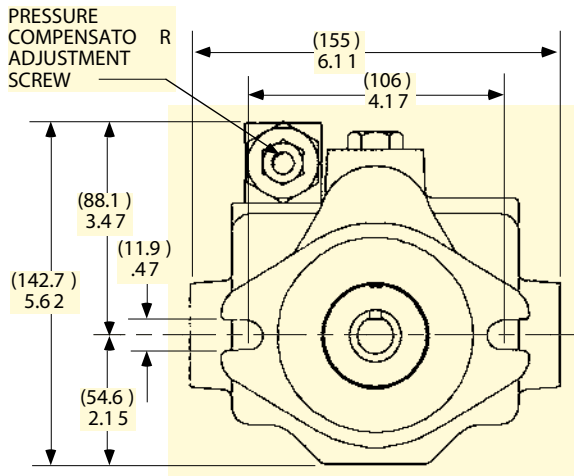
NOISE LEVEL



THE ABOVE DATA IS TYPICAL PERFORMANCE AT 1750 RPM.

HP V-6 HPV SERIES AXIAL PISTON PUMPS

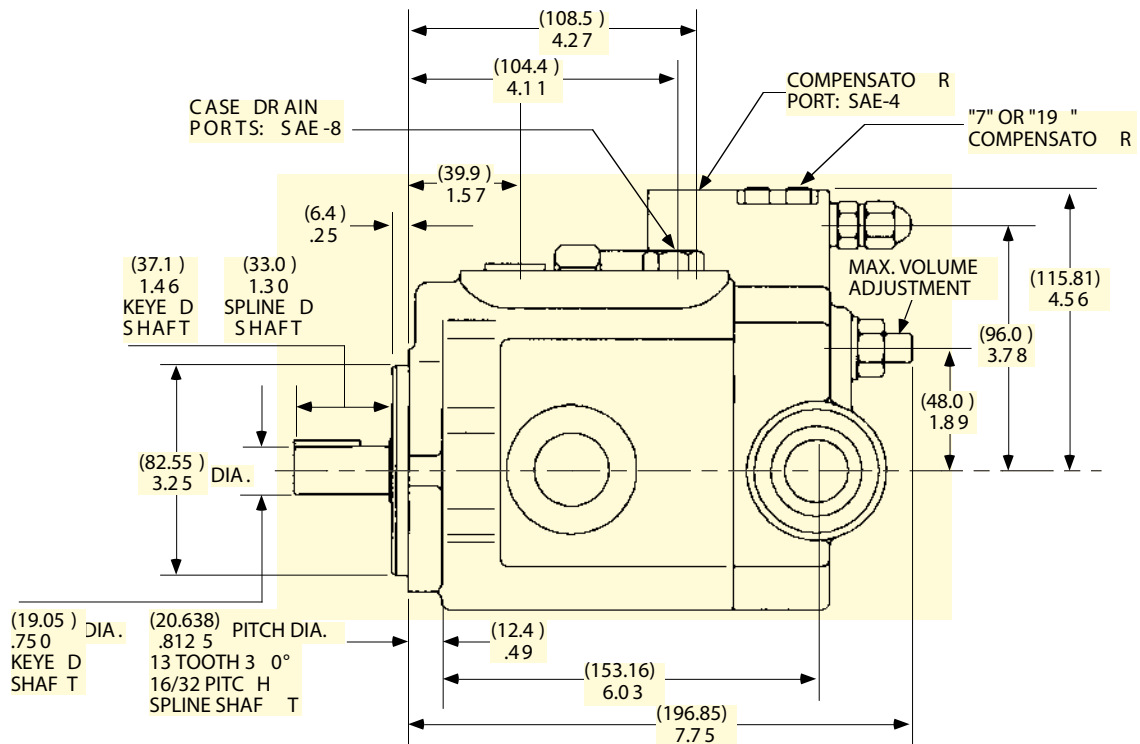
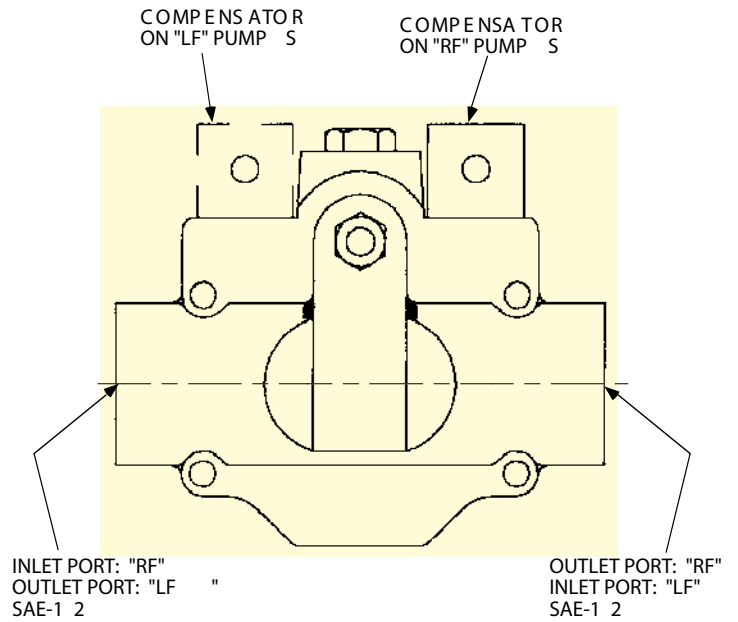
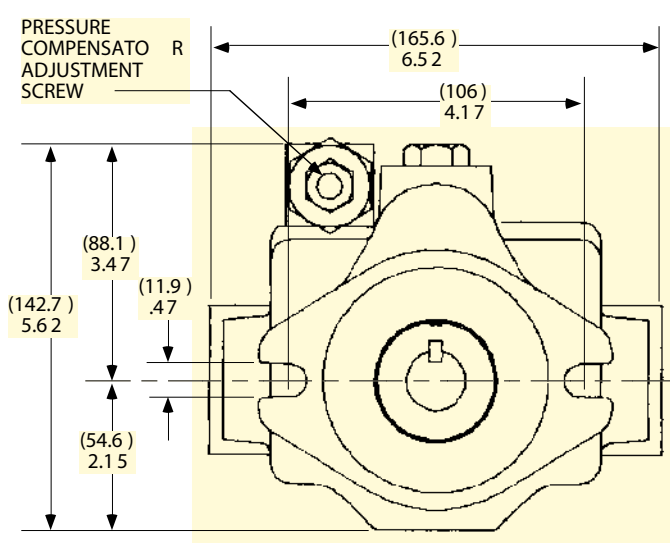
INSTALLATION DIMENSIONS -- REAR PORTS



NOTE: KEY SIZE = 3/16" x 1.00".

HP V-6 HPV SERIES AXIAL PISTON PUMPS

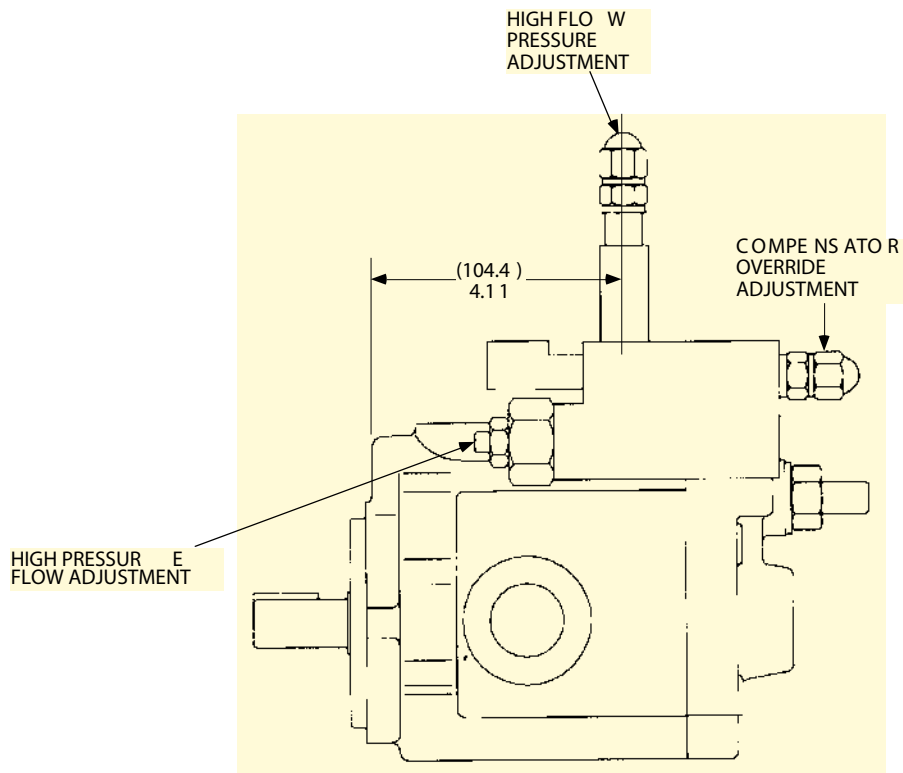
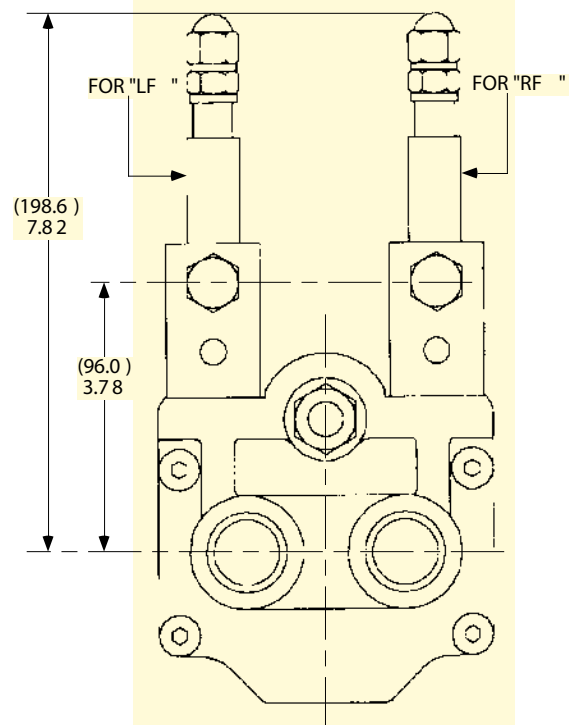
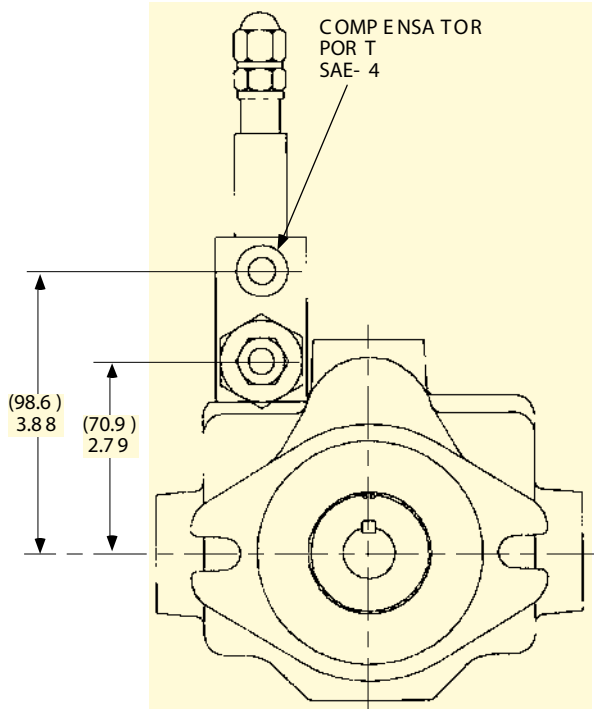
INSTALLATION DIMENSIONS - SIDE PORTS



NOTE: KEY SIZE = 3/16" x 1.00".

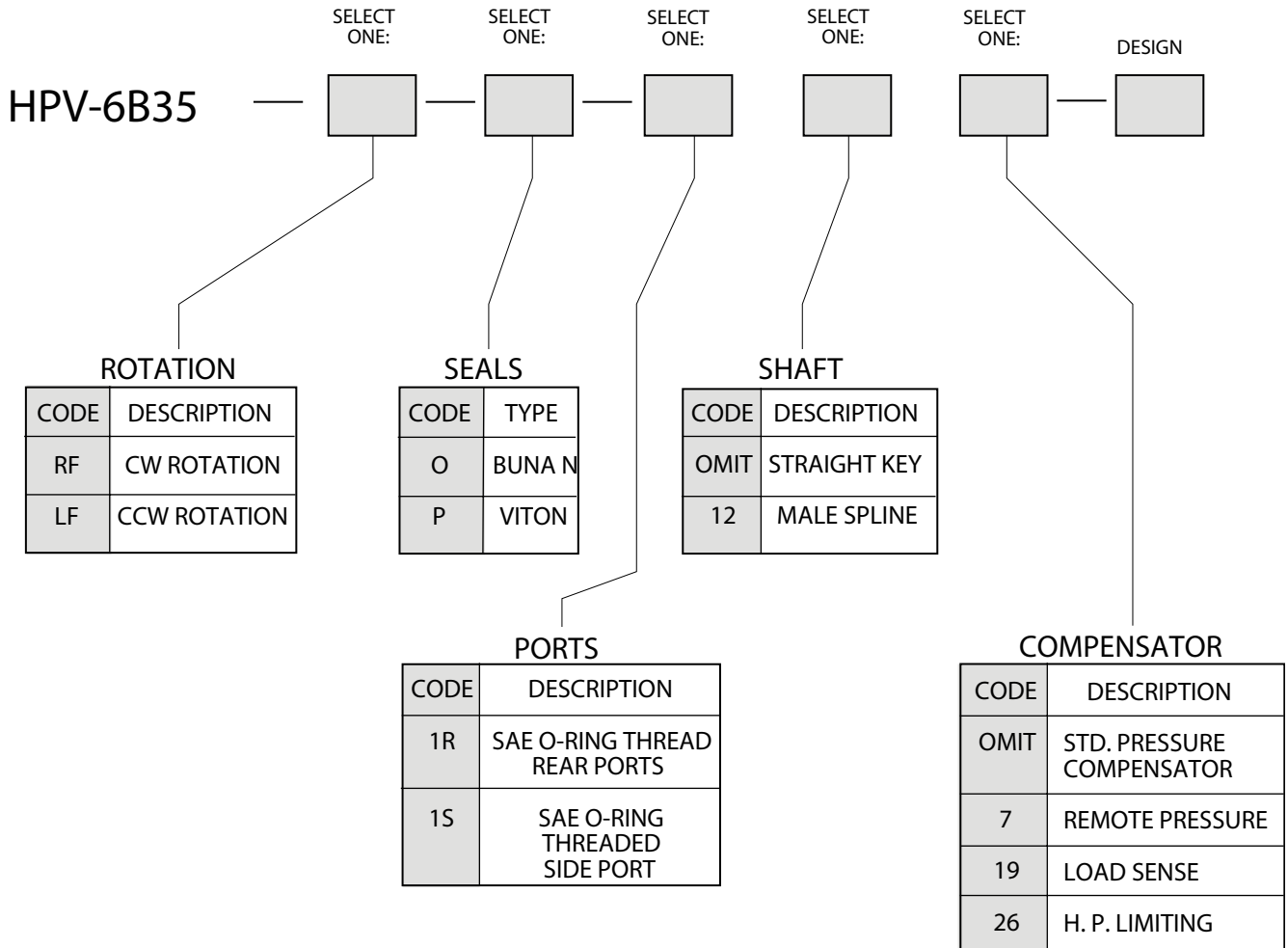
HP V-6 HPV SERIES AXIAL PISTON PUMPS

HORSEPOWER LIMITING DIMENSIONS

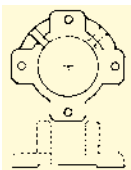


HP V-6 HPV SERIES AXIAL PISTON PUMPS

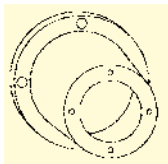
ORDERING INFORMATION



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



Foot Mounting Brackets may be found on page 49 of this catalog.



Pump Motor mounts may be found on page 115-117 of the Standard Power Units Catalog. These may be ordered from the Polypac Division.

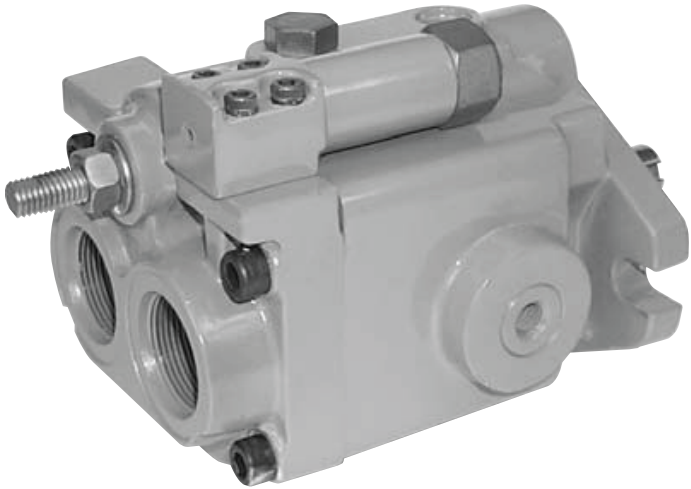
HPV SERIES
AXIAL PISTON PUMPS

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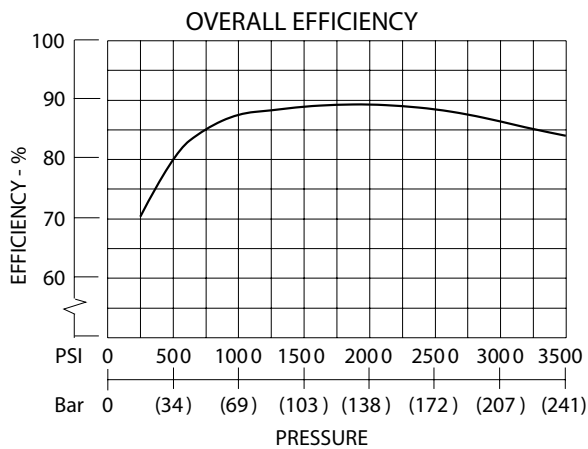
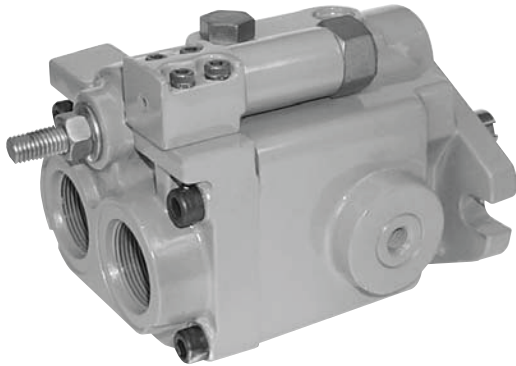


HP V-10

HPV SERIES

AXIAL PISTON PUMPS

VARIABLE DISPLACEMENT
PRESSURE COMPENSATED



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 @ rated & pressure (1750 RPM)		hp	23
		kw	17
CASE DRAIN FLOW @ deadhead & rated flow & pressure		gpm	.3
		lpm	1.1
MOUNTING FLANGE	Keyed Shaft	SAE Type	"B" 2-Bolt
	Spline Shaft	SAE Type	"B" 2-Bolt
SHIPPING WEIGHT	Rear Port	lbs.	37
		kgs.	16.7
	Side Port	lbs.	48
		kgs.	21.8
Tandem Port	lbs.	51	
	kgs.	23.1	

NOTES:

- ? This pressure should comprise 10% or less of the total duty cycle & not exceed 6 consecutive seconds.
- ? Pumps operating at less than 150 psi may overheat & shorten pump life.

CASE DRAIN & INLET PORT SPECIFICATIONS

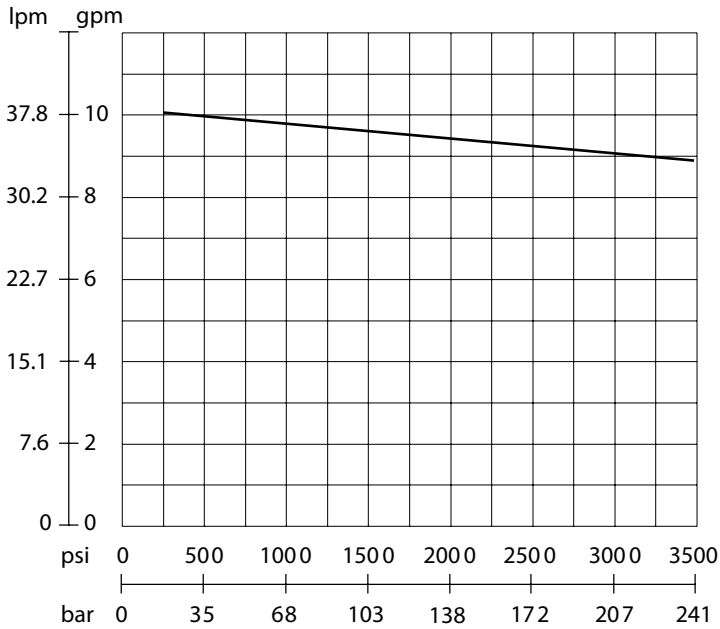
RPM	Maximum Case Pressure		Maximum Inlet Pressure		Minimum Inlet Pressure	
	psi	bar	psi	bar	vacuum / pressure	vacuum / pressure
1800	10	0.69	50	3.4	6.12 in-Hg	155.5 mm-Hg
2100	7	0.48	50	3.4	6.12 in-Hg	155.5 mm-Hg
2500	5	0.34	50	3.4	6.12 in-Hg	155.5 mm-Hg
2550	5	0.34	50	3.4	5.12 in-Hg	130.9 mm-Hg
2700	5	0.34	50	3.4	2.10 in-Hg	88.67mm-Hg
2800	5	0.34	50	3.4	0	0
3000	5	0.34	50	3.4	2.18 psi	.09 bar

PRESSURE & VOLUME ADJUSTMENT SENSITIVITY

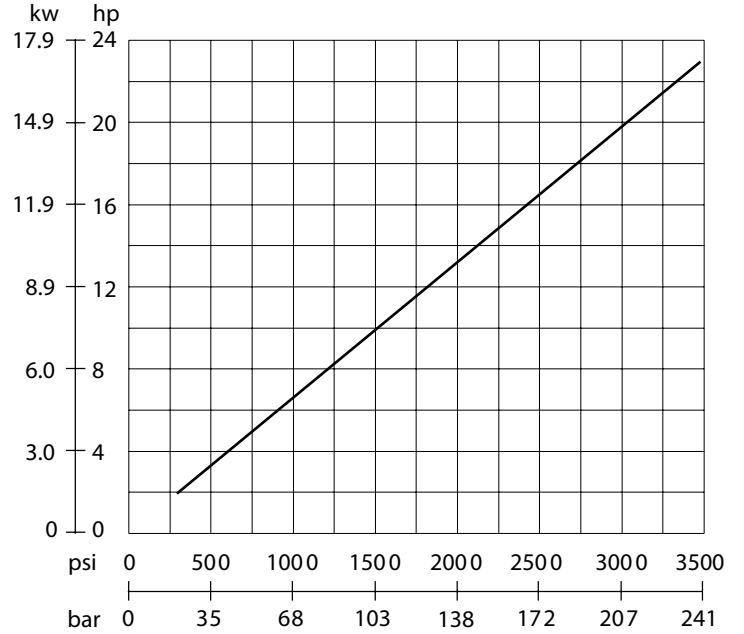
Pressure Adjustment	(Pressure Change per Turn)	650 psi	44.8 bar
Volume Adjustment	Flow Change per Turn	1.2 gpm	4.5 lpm
	Maximum Torque	25 in-lbs.	2.8 Nm

HP V-10 HPV SERIES AXIAL PISTON PUMPS

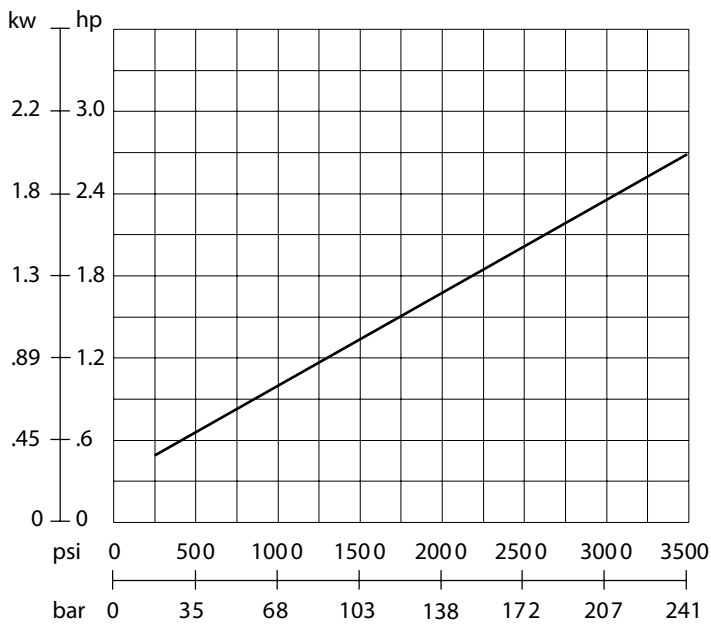
FLOW vs PRESSURE



INPUT POWER @ FULL FLOW

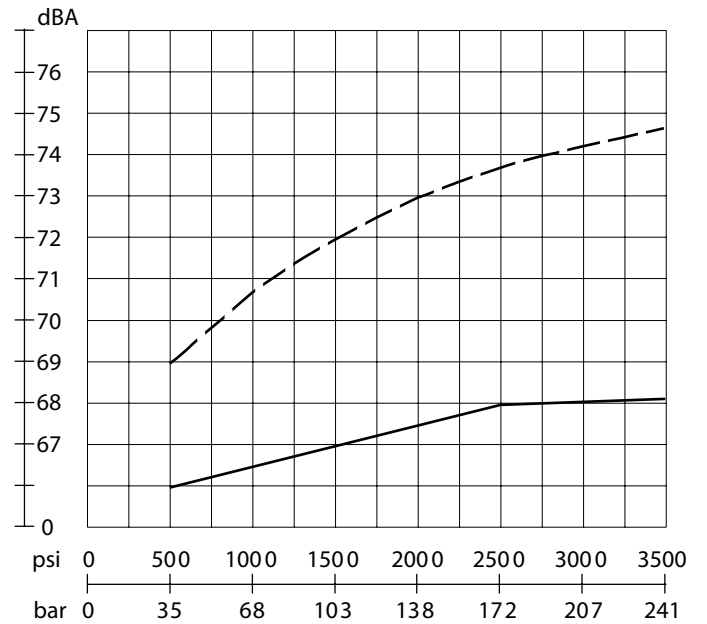


INPUT POWER @ ZERO FLOW



NOISE LEVEL

Zero Flow =
 Full Flow =

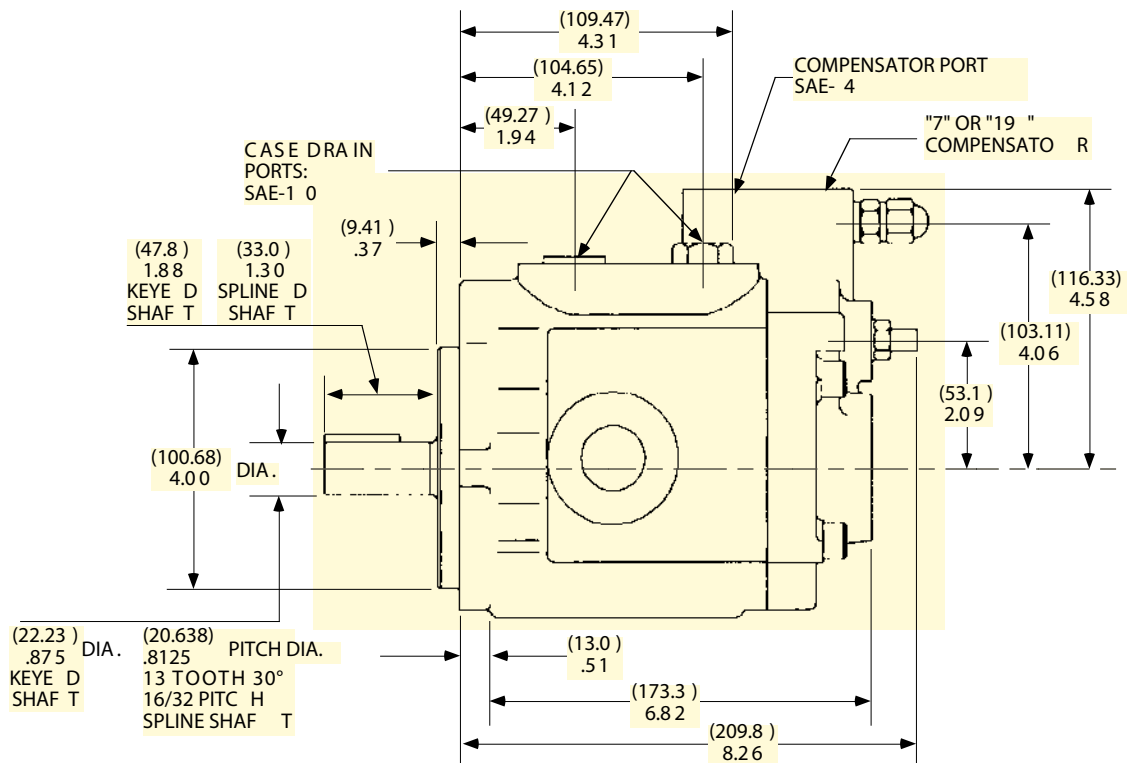
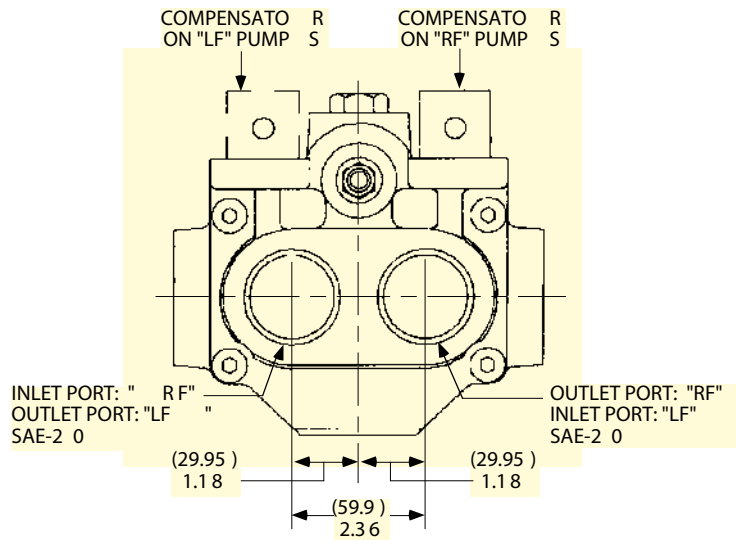
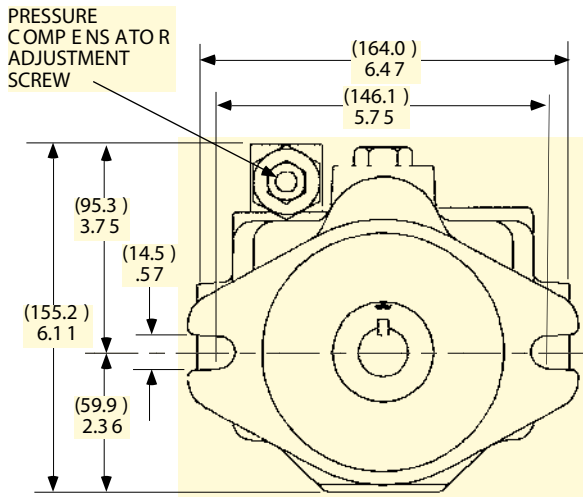


THE ABOVE DATA IS TYPICAL PERFORMANCE AT 1750 RPM.

HP V-10 HPV SERIES AXIAL PISTON PUMPS

INSTALLATION DIMENSIONS -- REAR PORTS

(MILLIMETERS)
INCHES

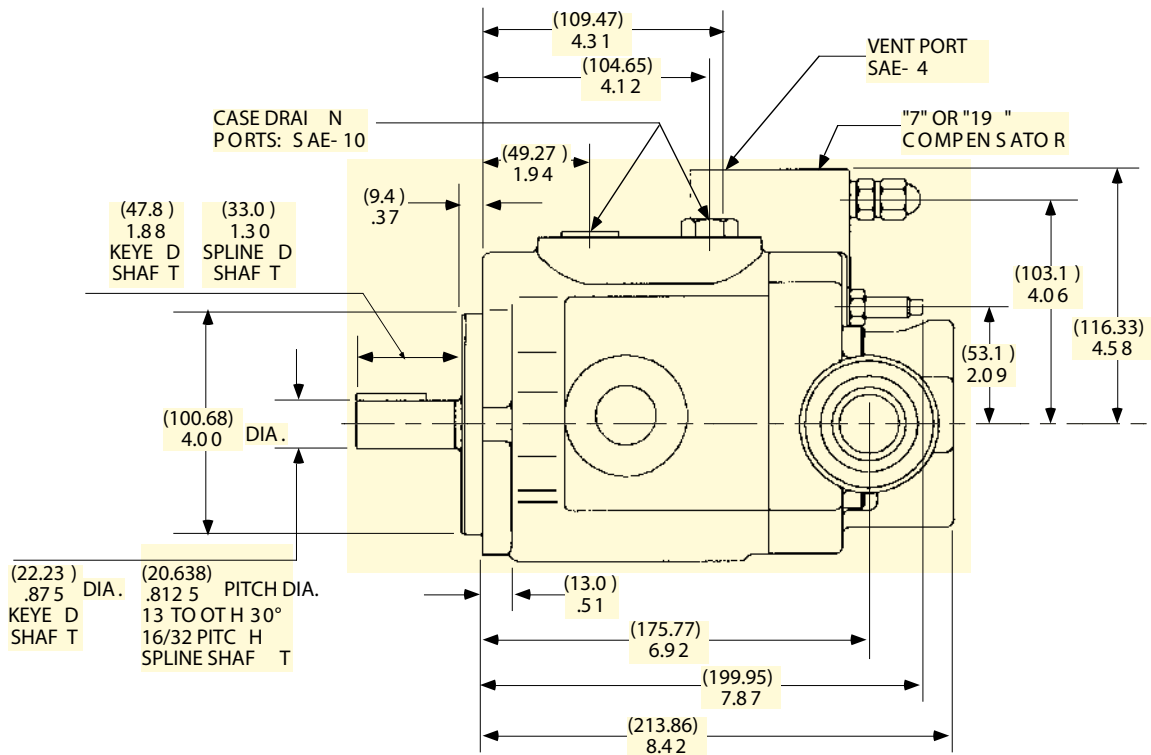
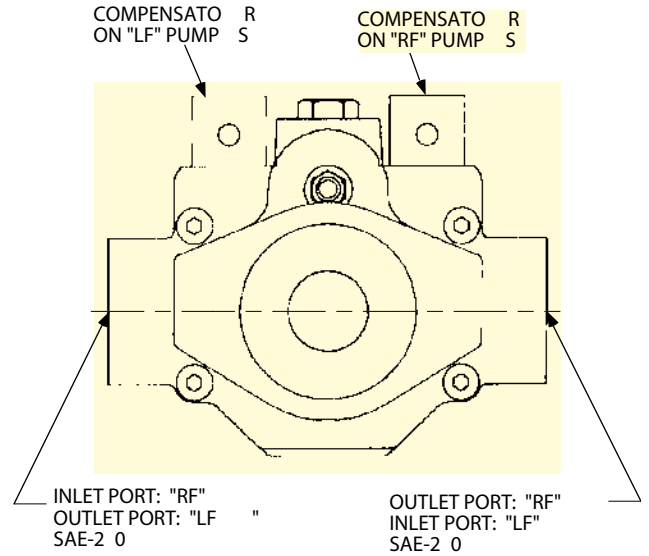
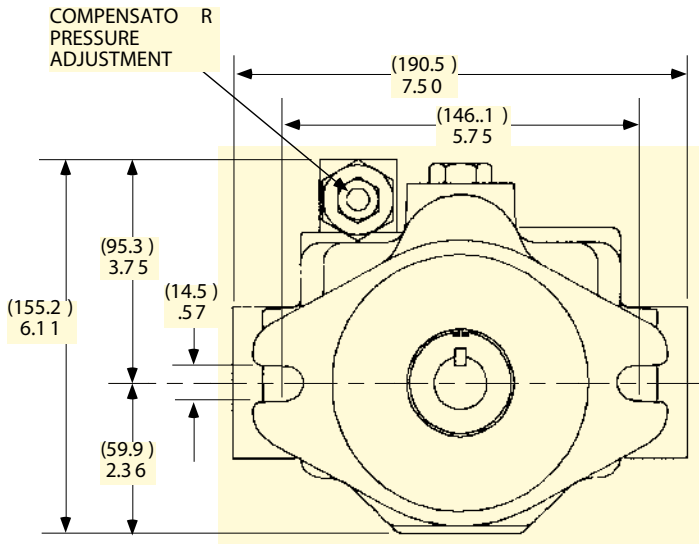


NOTE: KEY SIZE = 1/4"x 1.25".

HP V-10 HPV SERIES AXIAL PISTON PUMPS

INSTALLATION DIMENSIONS -- SIDE PORTS

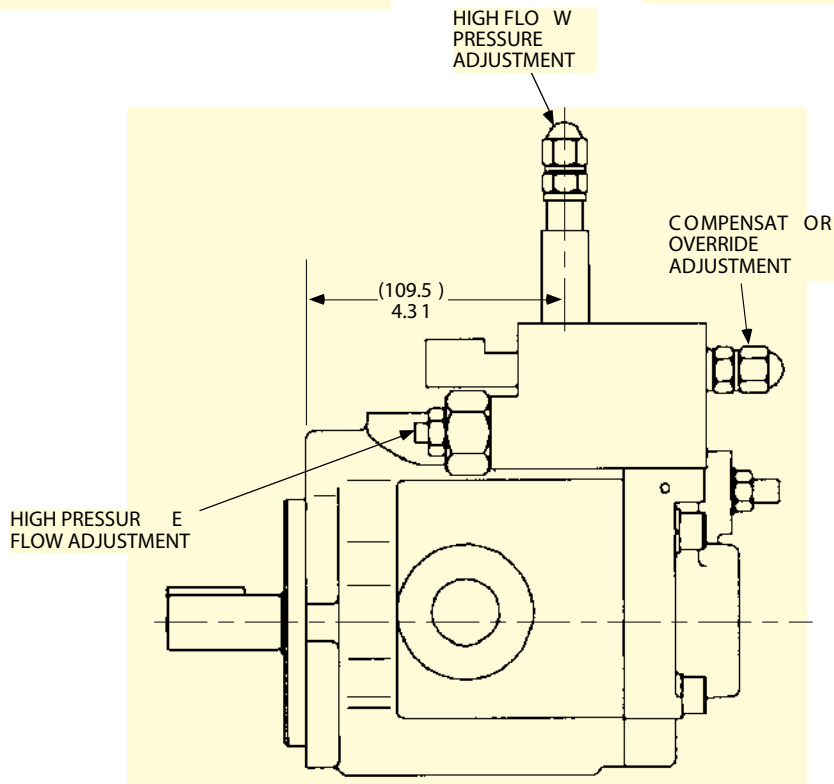
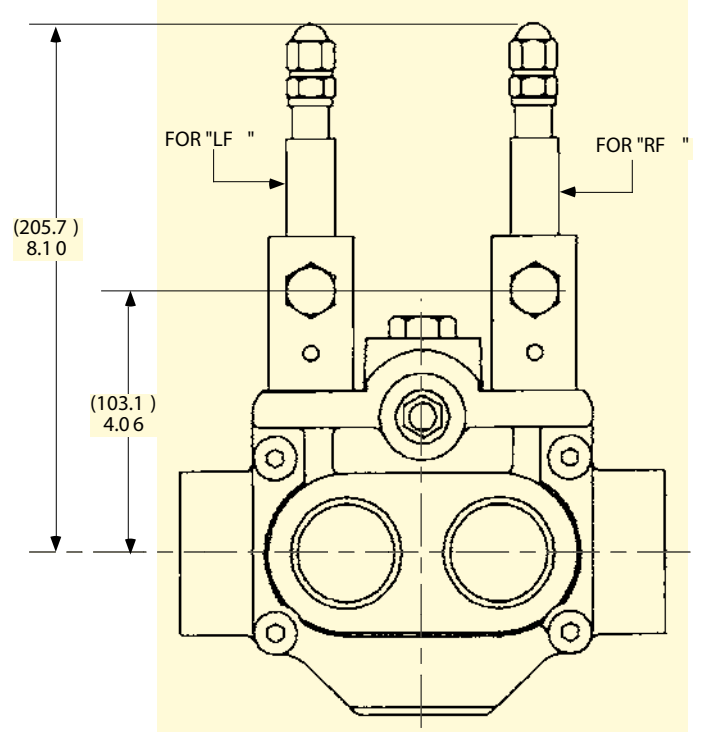
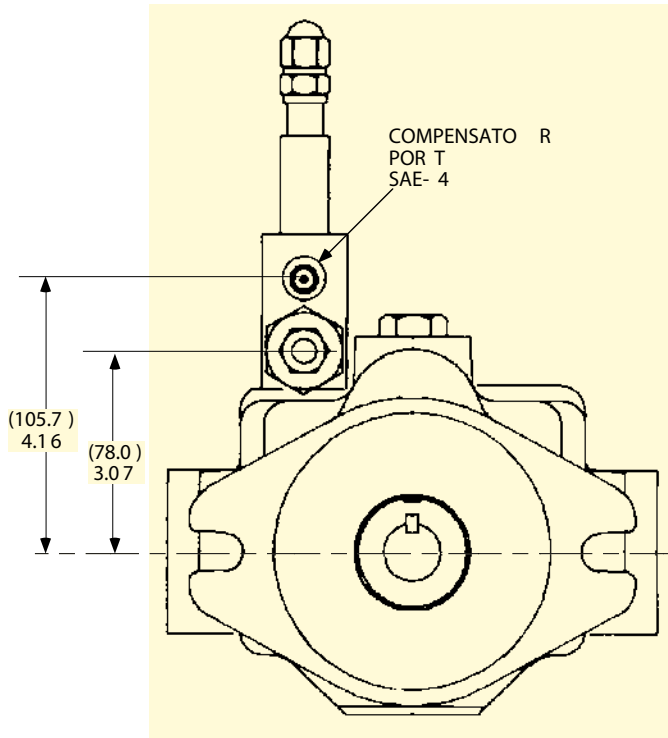
MILLIMETERS)
INCHES



NOTE: KEY SIZE = 1/4" x 1.25".

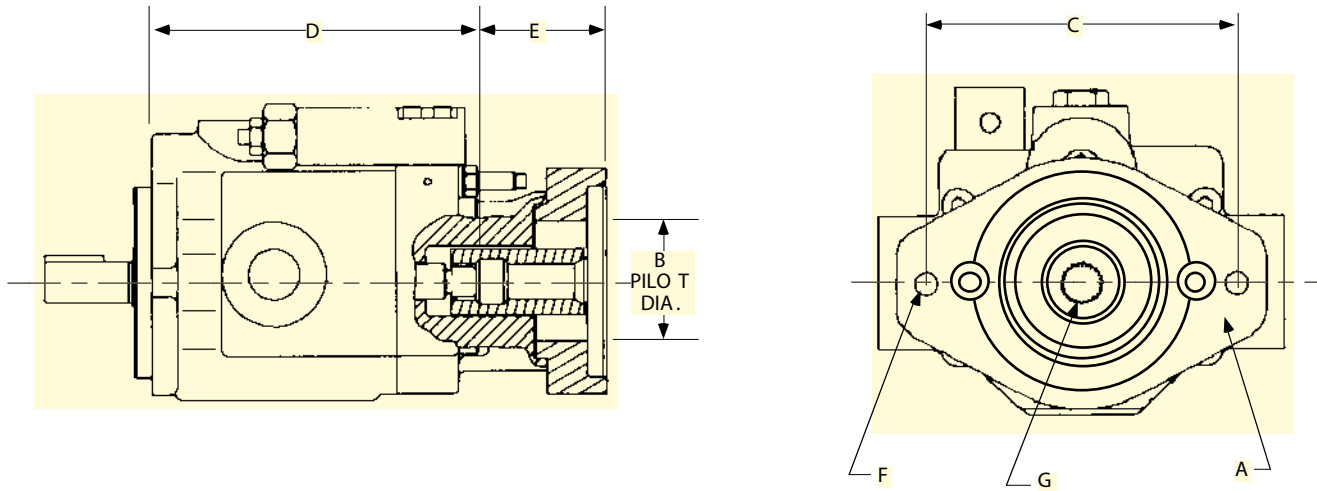
HP V-10
HPV SERIES
AXIAL PISTON PUMPS

HORSEPOWER LIMITING DIMENSIONS



HP V-10 HPV SERIES AXIAL PISTON PUMPS

CODES 21, 22, 31 -- TANDEM OPTIONS



NOTE : HPV-10 WITH THE "CODE 22" OPTION IS PICTURED ABOVE.
OTHER OPTIONS WILL APPEAR DIFFERENTLY.

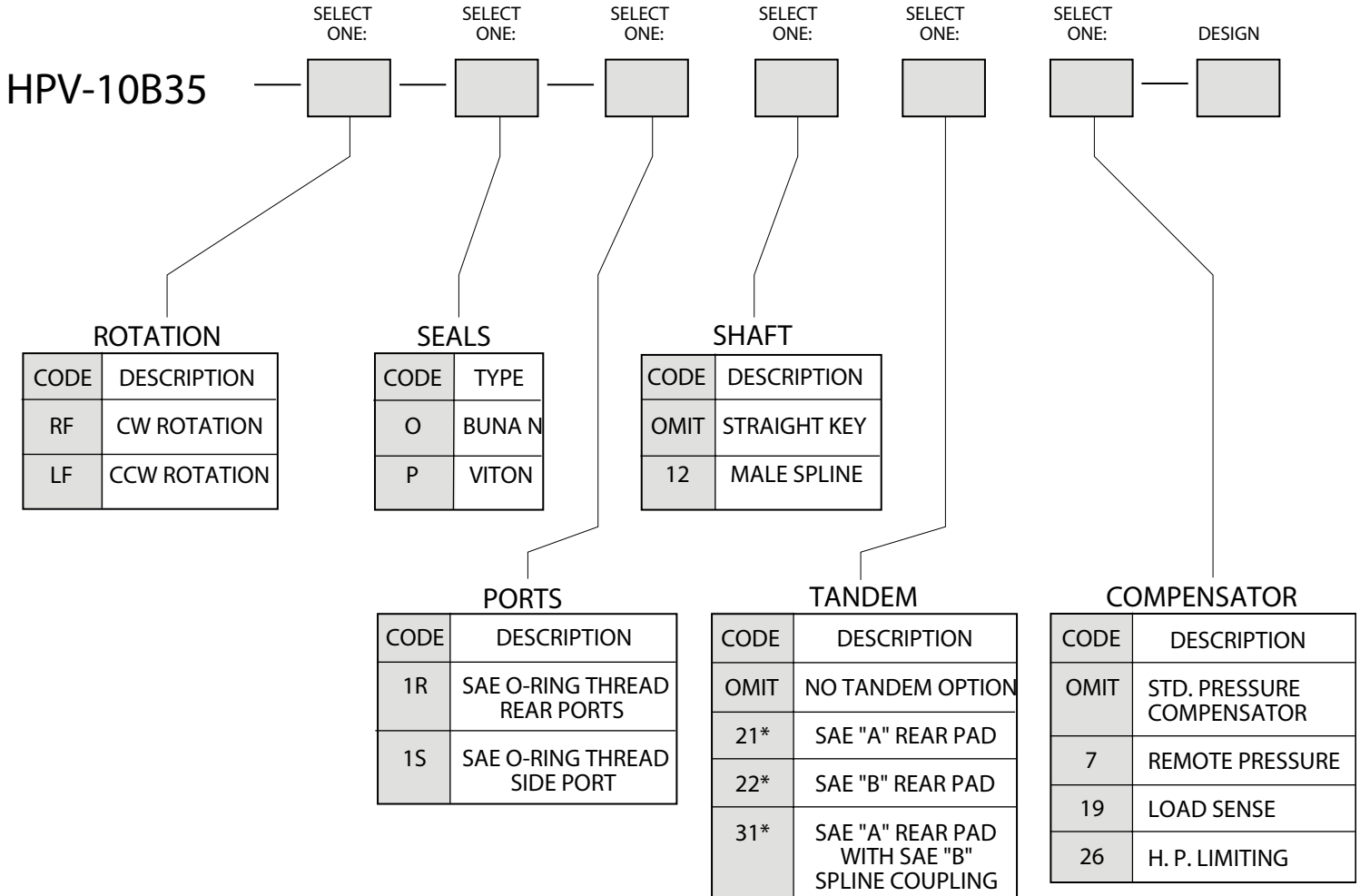
CODE	SAE 2-BOLT MTG PAD	DIMENSIONS (MILLIMETERS) INCHES					INTERNAL 30° INVOLUTE SPLINE	MAX. HP RATING *	MAX. TORQUE RATING *
		A	B	C	D	E			
21	"A" FLANGE	(82.6) 3.25	(106.17) 4.18	(239.0) 9.41	(58.58) 2.07	3/8-16 UNC	9 TOOTH 16/32 PITCH 0.5625" PITCH DIA.	8.5 HP @ 1750 RPM	306 lb. in.
22	"B" FLANGE	(101.7) 4.00	(146.1) 5.75	(229.36) 9.03	(56.64) 2.23	1/2-13 UNC	13 TOOTH 16/32 PITCH 0.8125" PITCH DIA.	28.1 HP @ 1750 RPM	1013 lb. in.
31	"A-B" FLANGE	(82.6) 3.25	(106.17) 4.18	(239.0) 9.41	(52.58) 2.07	3/8-16 UNC	13 TOOTH 16/32 PITCH 0.8125 PITCH DIA.	28.1 HP @ 1750 RPM	1013 lb. in.

* THIS IS THE MAXIMUM HORSEPOWER OR TORQUE THAT CAN BE TRANSMITTED THROUGH THE SHAFT COUPLING TO THE REAR PUMP.

NOTE : CODE 1S PORT OPTIONS MUST BE ORDERED WITH ALL TANDEM OPTIONS.

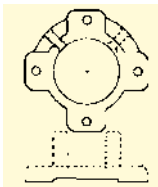
HP V-10 HPV SERIES AXIAL PISTON PUMPS

ORDERING INFORMATION

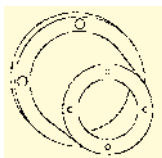


* NOTE CODE 1S SIDE PORT OPTION MUST BE ORDERED WITH ALL TANDEM OPTIONS.

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



Foot Mounting Brackets may be found on page 49 of this catalog.



Pump Motor mounts may be found on page 115-117 of the Standard Power Units Catalog. These may be ordered from the Polypac Division.

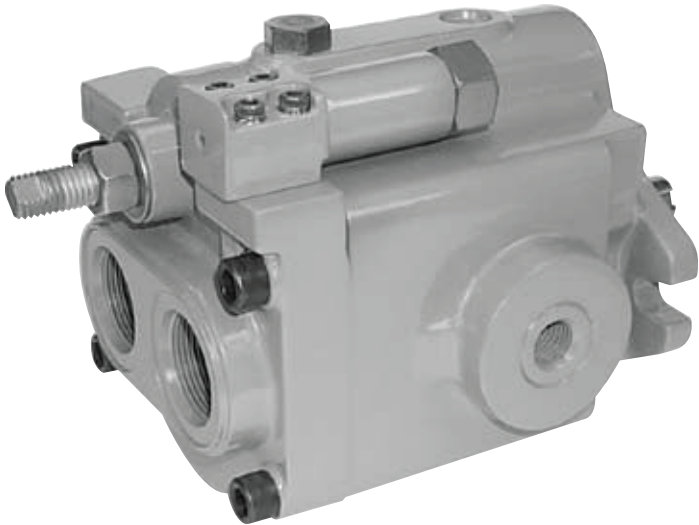
HPV SERIES
AXIAL PISTON PUMPS

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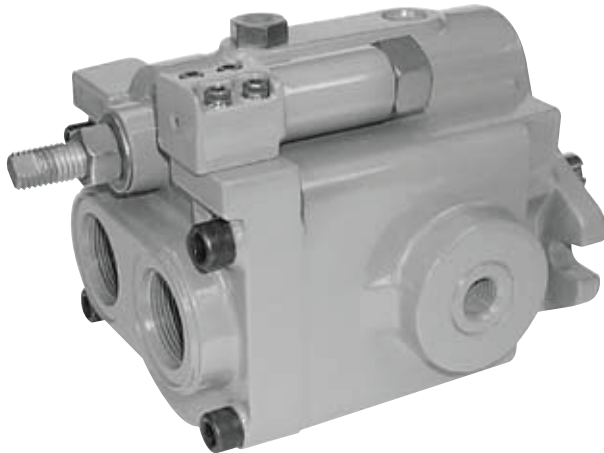
P
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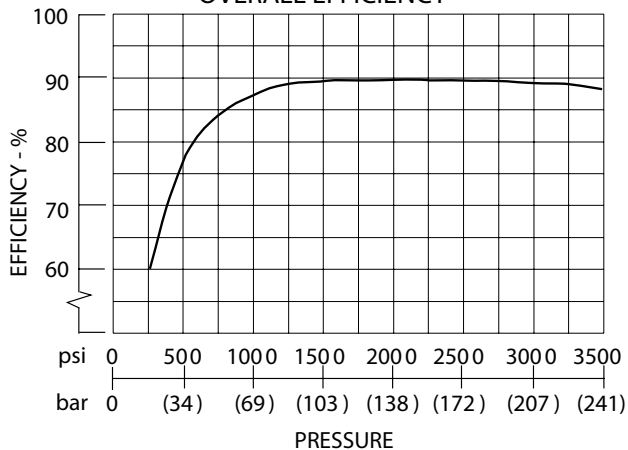


HP V-15 HPV SERIES AXIAL PISTON PUMPS

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 @ rated flow & pressure	(1750 RPM)	hp	34
		kw	25
CASE DRAIN FLOW @ deadhead & rated pressure		gpm	.5
		lpm	1.9
MOUNTING FLANGE	Keyed Shaft	SAE Type	"B" 2-Bolt
	Spline Shaft	SAE Type	"B" 2-Bolt
SHIPPING WEIGHT	Rear Port	lbs.	51
		kgs.	23.3
	Side Port	lbs.	63
		kgs.	28.6
Tandem Port	lbs.	69	
	kgs.	31.3	

NOTES:

- ? This pressure should comprise 10% or less of the total duty cycle & not exceed 6 consecutive seconds.
- ? Pumps operating at less than 150 psi may overheat & shorten pump life.

CASE DRAIN & INLET PORT SPECIFICATIONS

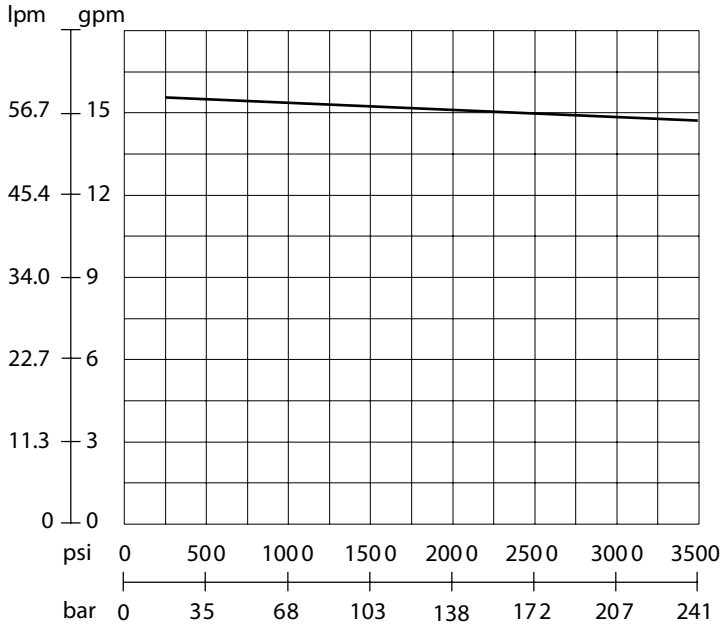
RPM	Maximum Case Pressure		Maximum Inlet Pressure		Minimum Inlet Pressure	
	psi	bar	psi	bar	vacuum / pressure	vacuum / pressure
1800	10	0.69	50	3.4	6.12 in-Hg	155.5 mm-Hg
2100	7	0.48	50	3.4	6.12 in-Hg	155.5 mm-Hg
2230	5	0.34	50	3.4	6.12 in-Hg	155.5 mm-Hg
2275	5	0.34	50	3.4	5.16 in-Hg	130.9 mm-Hg
2350	5	0.34	50	3.4	3.49 in-Hg	88.67 mm-Hg
2500	5	0.34	50	3.4	0	0

PRESSURE & VOLUME ADJUSTMENT SENSITIVITY

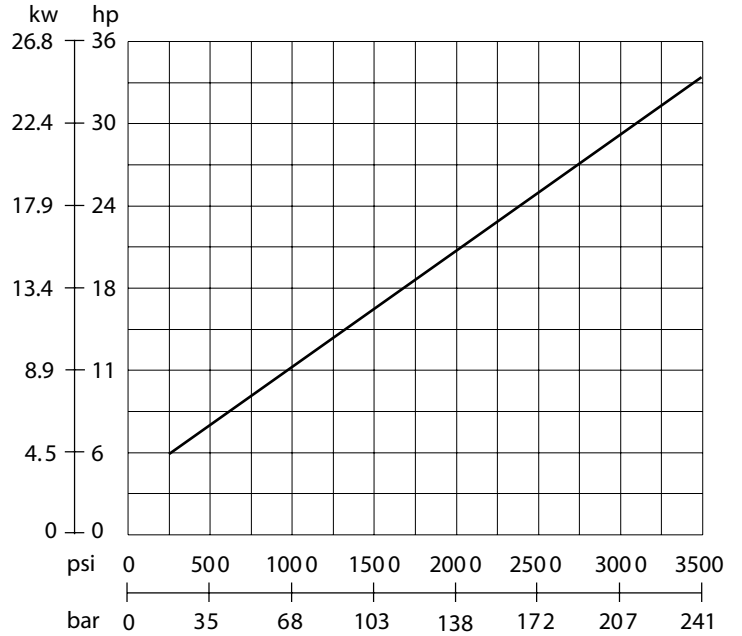
Pressure Adjustment	Pressure Change per Turn	650 psi	44.8 bar
Volume Adjustment	Flow Change per Turn	1.8 gpm	6.8 lpm
	Maximum Torque	41 in-lbs.	4.6 Nm

HP V-15 HPV SERIES AXIAL PISTON PUMPS

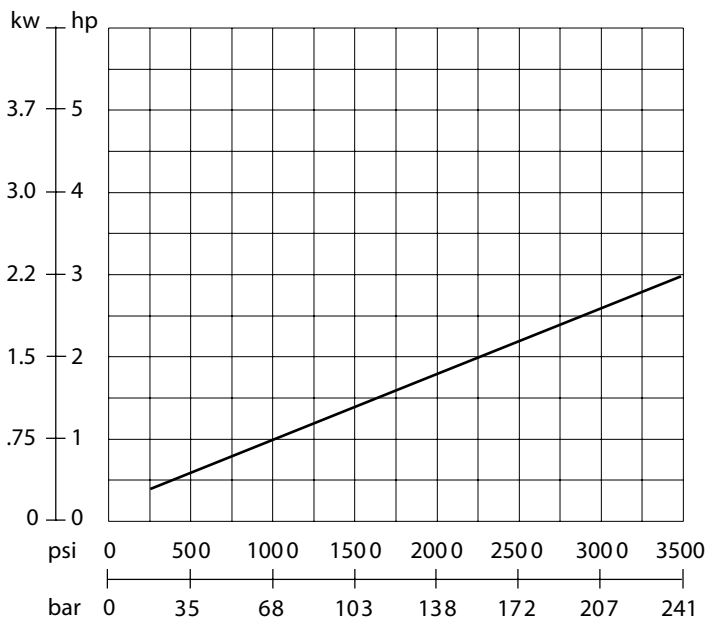
FLOW vs PRESSURE



INPUT POWER @ FULL FLOW

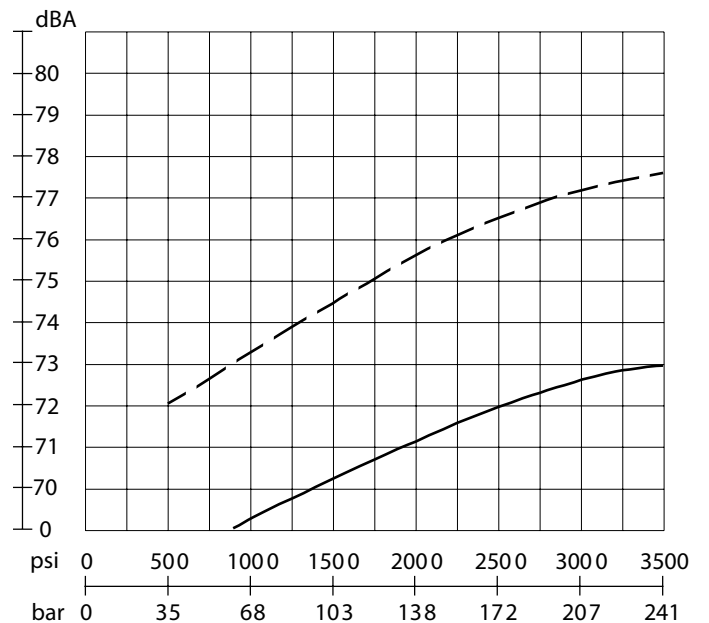


INPUT POWER @ ZERO FLOW



NOISE LEVEL

Zero Flow = ———
Full Flow = - - - - -

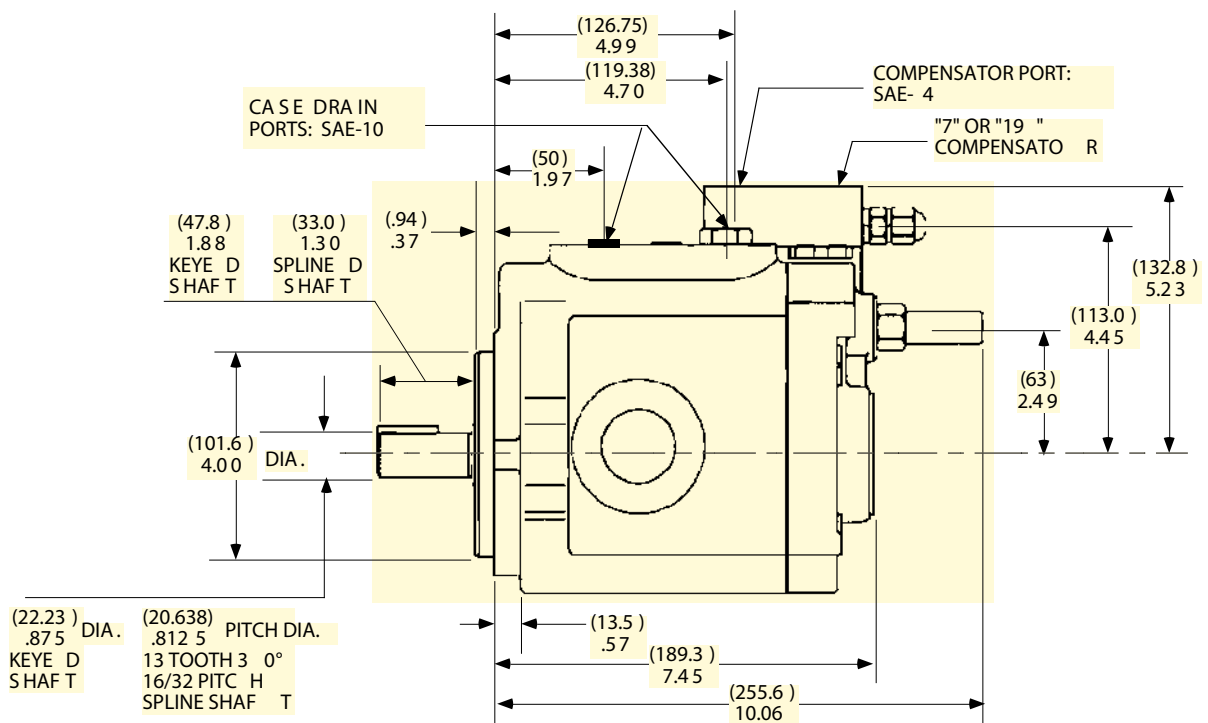
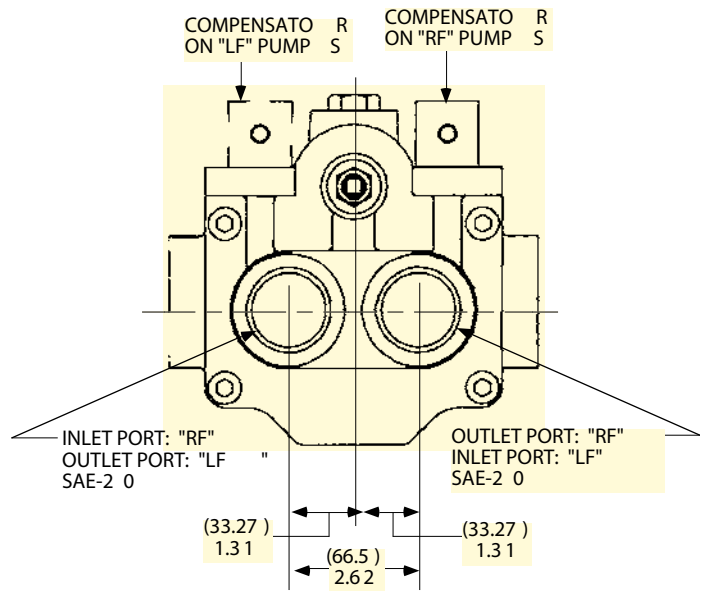
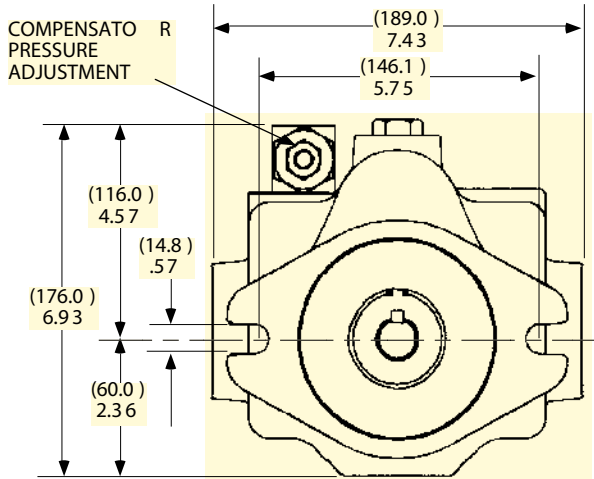


THE ABOVE DATA IS TYPICAL PERFORMANCE AT 1750 RPM.

HP V-15 HPV SERIES AXIAL PISTON PUMPS

INSTALLATION DIMENSIONS -- REAR PORTS

(MILLIMETERS)
INCHES

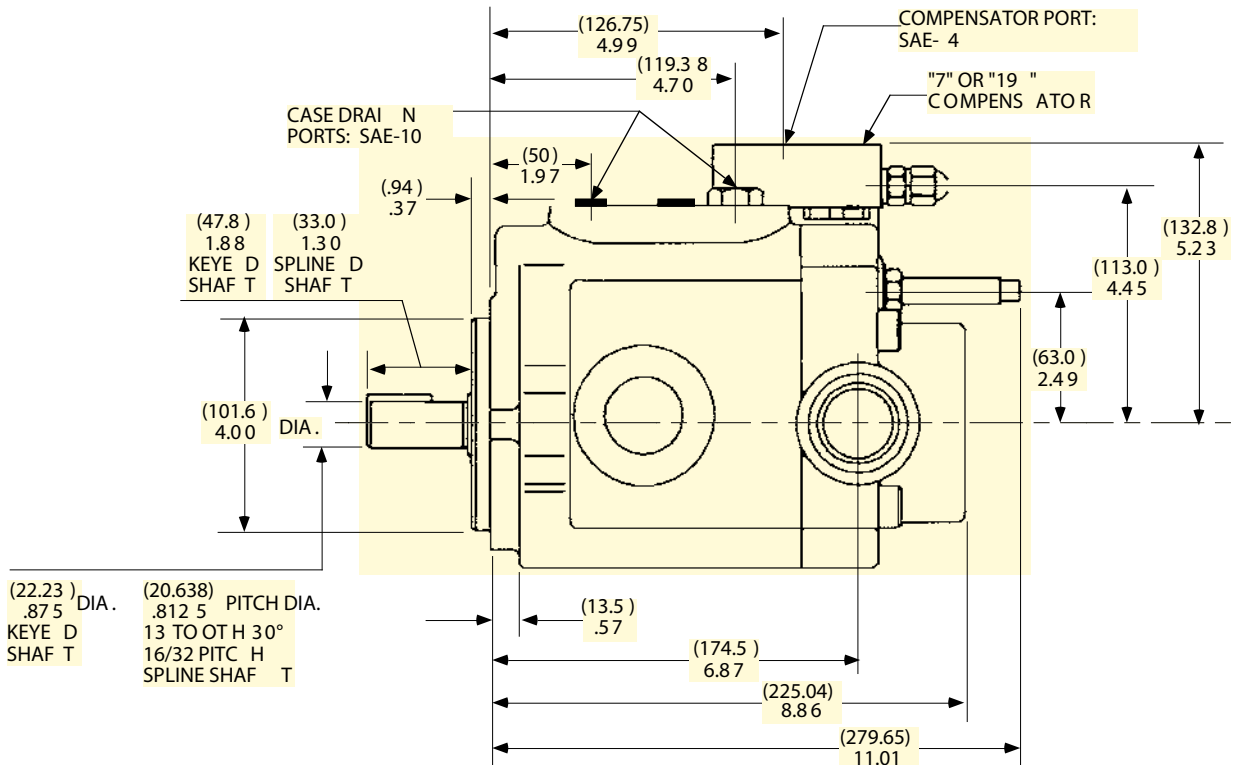
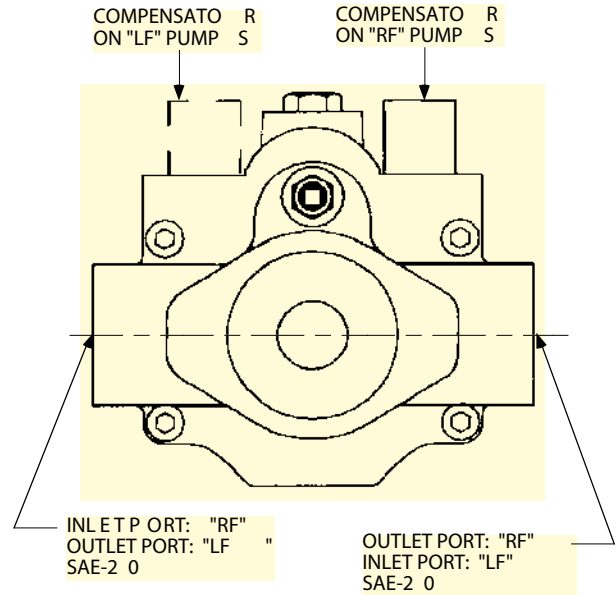
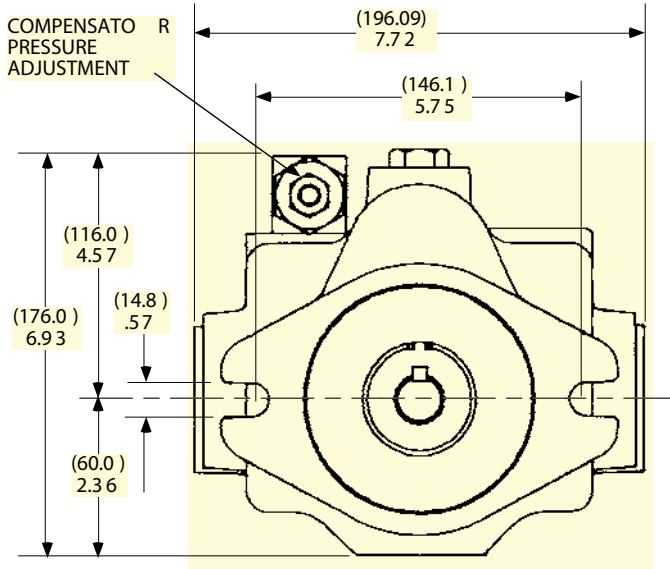


NOTE: KEY SIZE = 1/4" x 1.25".

HP V-15 HPV SERIES AXIAL PISTON PUMPS

INSTALLATION DIMENSIONS -- SIDE PORTS

(MILLIMETERS)
INCHES

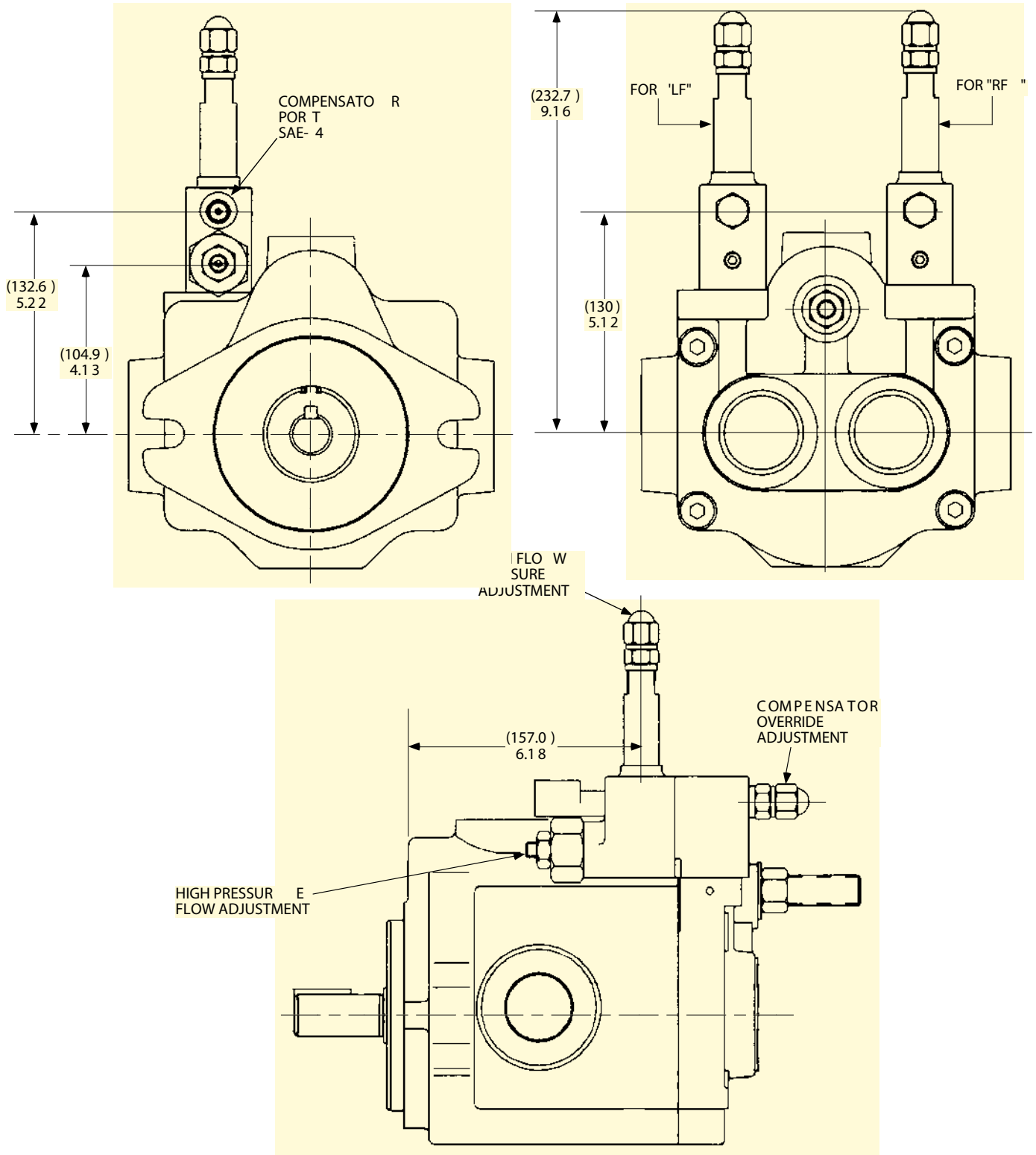


NOTE: KEY SIZE = 1/4" x 1.25".

HP V-15 HPV SERIES AXIAL PISTON PUMPS

HORSEPOWER LIMITING DIMENSIONS

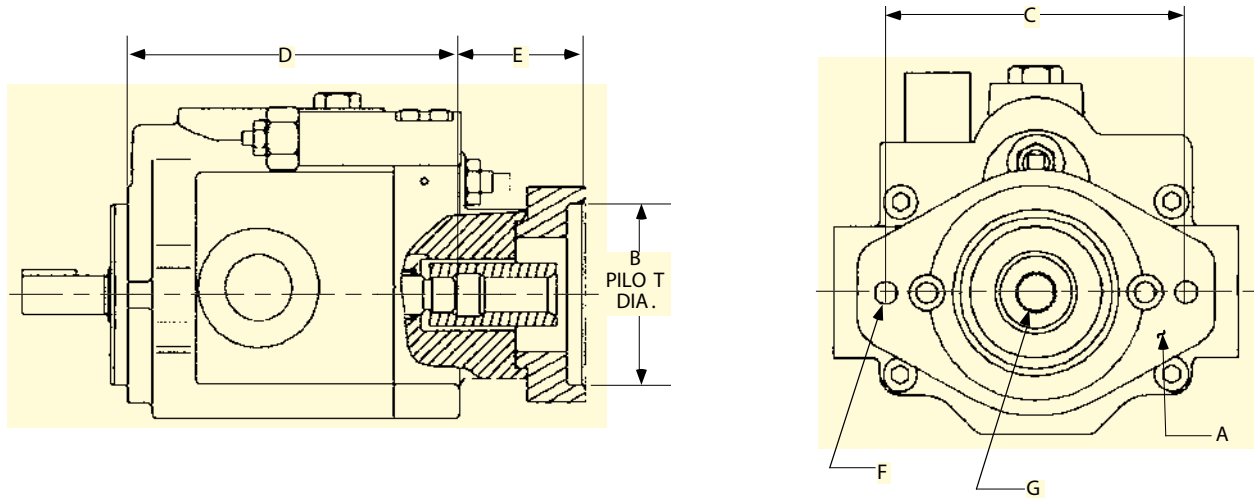
(MILLIMETERS)
INCHES



HP V-15 HPV SERIES AXIAL PISTON PUMPS

CODES 21, 22, & 31-TANDEM OPTIONS

(MILLIMETERS)
INCHES



NOTE : HPV-15 WITH THE "CODE 22" OPTION IS PICTURED ABOVE.
OTHER OPTIONS WILL APPEAR DIFFERENTLY.

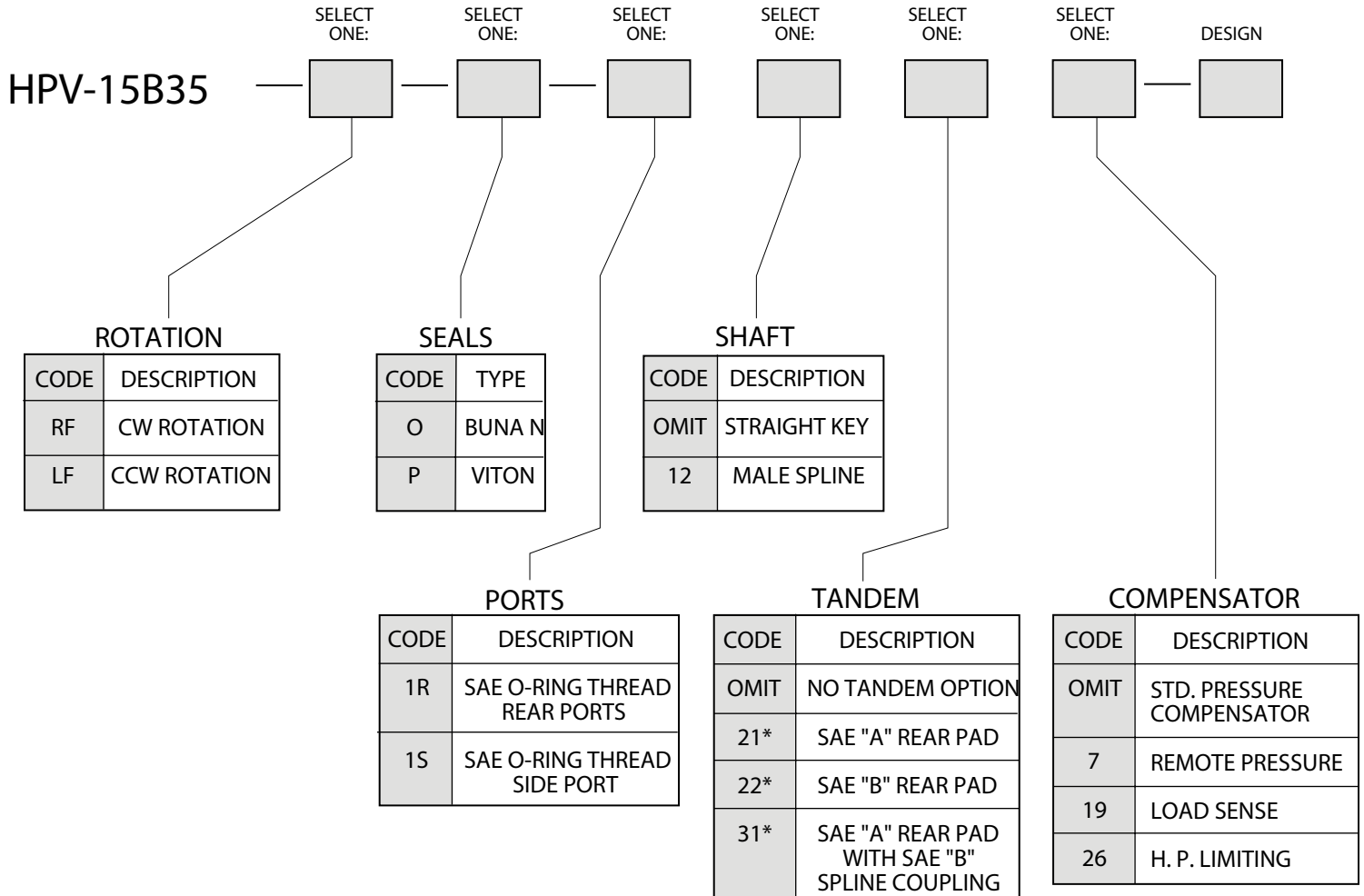
CODE	SAE 2-BOLT MTG PAD	DIMENSIONS					INTERNAL 30° INVOLUTE SPLINE	MAX. HP RATING *	MAX. TORQUE RATING *
		(MILLIMETERS)	(MILLIMETERS)	(MILLIMETERS)	(MILLIMETERS)	(MILLIMETERS)			
	A	B	C	D	E	F	G		
21	"A" FLANGE	(82.6) 3.25	(106.17) 4.18	(239.0) 9.41	(52.58) 2.07	3/8-16 UNC	9 TOOTH 16/32 PITCH 0.5625" PITCH DIA.	8.5 HP @ 1750 RPM	306 lb. in.
22	"B" FLANGE	(101.7) 4.00	(146.1) 5.75	(229.36) 9.03	(56.64) 2.23	1/2-13 UNC	13 TOOTH 16/32 PITCH 0.8125" PITCH DIA.	28.1 HP @ 1750 RPM	1013 lb. in.
31	"A-B" FLANGE	(82.6) 3.25	(106.17) 4.18	239.0) 9.41	(52.58) 2.07	3/8-16 UNC	13 TOOTH 16/32 PITCH 0.8125 PITCH DIA.	28.1 HP @ 1750 RPM	1013 lb. in.

* THIS IS THE MAXIMUM HORSEPOWER OR TORQUE THAT CAN BE TRANSMITTED THROUGH THE SHAFT COUPLING TO THE REAR PUMP.

NOTE : CODE 1S PORT OPTIONS MUST BE ORDERED WITH ALL TANDEM OPTIONS.

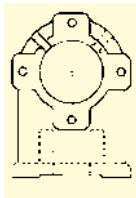
HP V-15 HPV SERIES AXIAL PISTON PUMPS

ORDERING INFORMATION

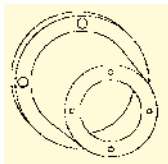


* NOTE CODE 1S SIDE PORT OPTION MUST BE ORDERED WITH ALL TANDEM OPTIONS.

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



Foot Mounting Brackets may be found on page 49 of this catalog.

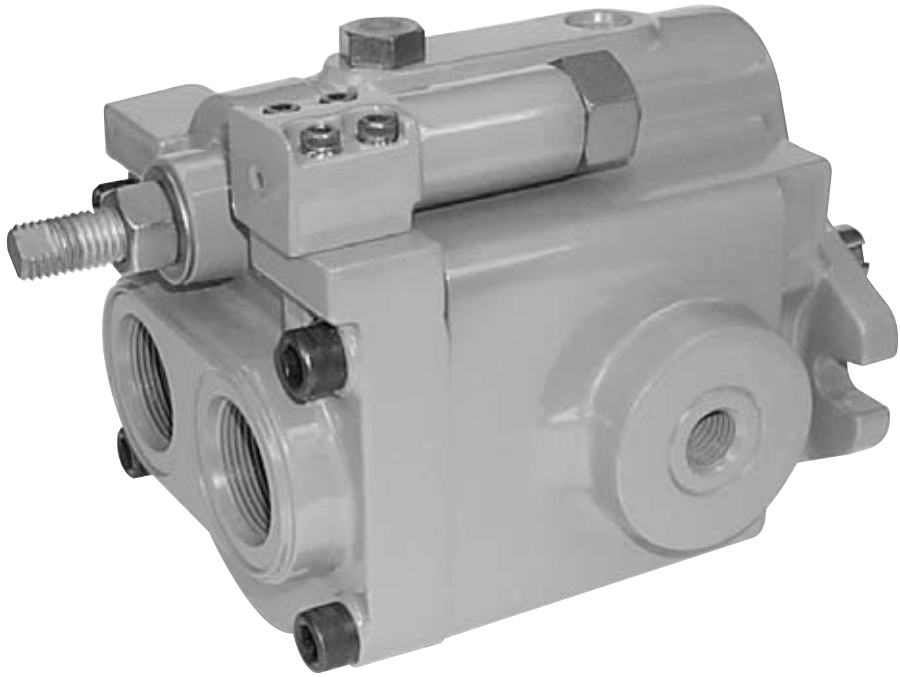


Pump Motor mounts may be found on page 115-117 of the Standard Power Units Catalog. These may be ordered from the Polypac Division.

HPV-20
HPV SERIES
AXIAL PISTON PUMPS

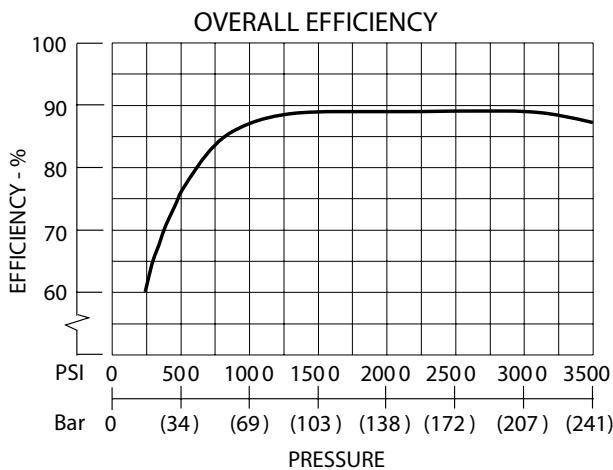
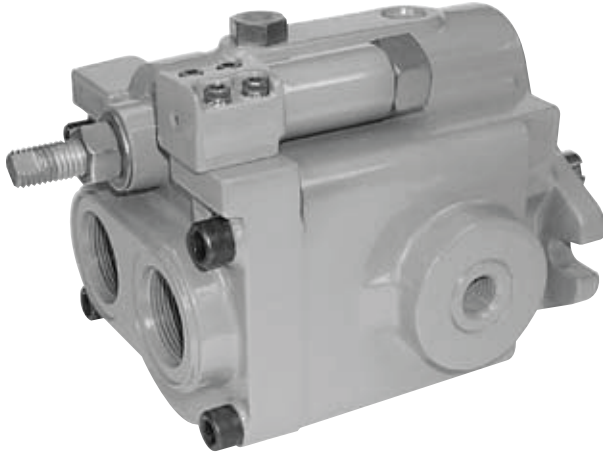
HPV-20

AXIAL
PISTON
PUMP



HP V-20 HPV SERIES AXIAL PISTON PUMPS

VARIABLE DISPLACEMENT
PRESSURE COMPENSATED



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 @ rated flow & pressure	(1750 RPM)	hp	47
		kw	35
CASE DRAIN FLOW @ deadhead & rated pressure		gpm	.8
		lpm	3.0
MOUNTING FLANGE	Keyed Shaft	SAE Type	"C" 2-Bolt
	Spline Shaft	SAE Type	"C" 2-Bolt
SHIPPING WEIGHT	Rear Port	lbs.	67
		kgs.	30.5
	Side Port	lbs.	84
		kgs.	38.2
	Tandem	lbs.	93
		kgs.	42.3

NOTES:

- ? This pressure should comprise 10% or less of the total duty cycle & not exceed 6 consecutive seconds.
- ? Pumps operating at less than 150 psi may overheat & shorten pump life.

CASE DRAIN & INLET PORT SPECIFICATIONS

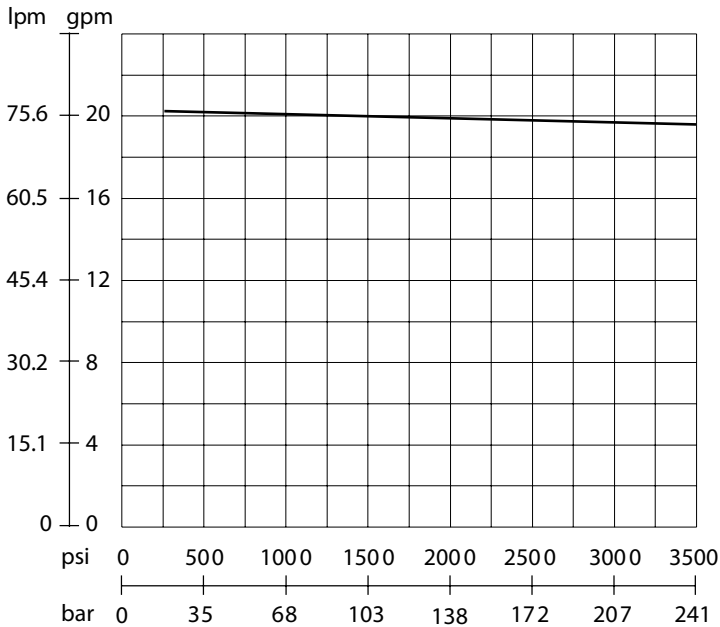
RPM	Maximum Case Pressure		Maximum Inlet Pressure		Minimum Inlet Pressure	
	psi	bar	psi	bar	vacuum / pressure	vacuum / pressure
1800	10	0.69	50	3.4	6.12 in-Hg	155.5 mm-Hg
2050	7	0.48	50	3.4	6.12 in-Hg	155.5 mm-Hg
2100	5	0.34	50	3.4	4.99 in-Hg	126.7 mm-Hg
2200	5	0.34	50	3.4	2.55 in-Hg	64.8 mm-Hg
2300	5	0.34	50	3.4	0	0
2400	5	0.34	50	3.4	1.31 psi	.09 bar

PRESSURE & VOLUME ADJUSTMENT SENSITIVITY

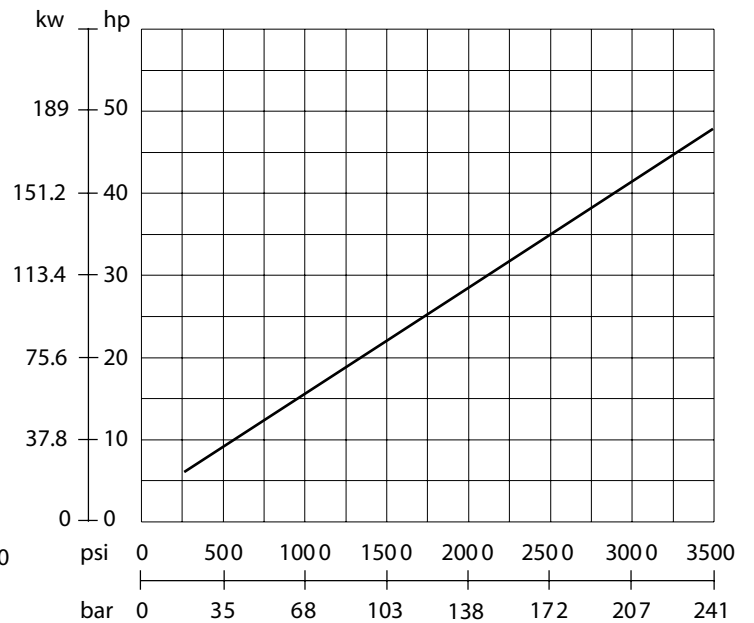
Pressure Adjustment	Pressure Change per Turn	650 psi	44.8 bar
Volume Adjustment	Flow Change per Turn	2.1 gpm	7.9 lpm
	Maximum Torque	49 in-lbs.	5.5 Nm

HP V-20 HPV SERIES AXIAL PISTON PUMPS

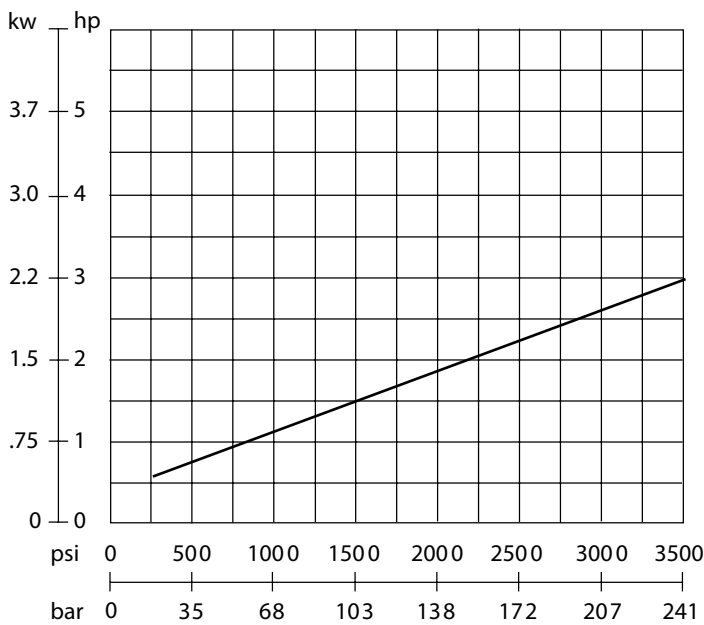
FLOW vs PRESSURE



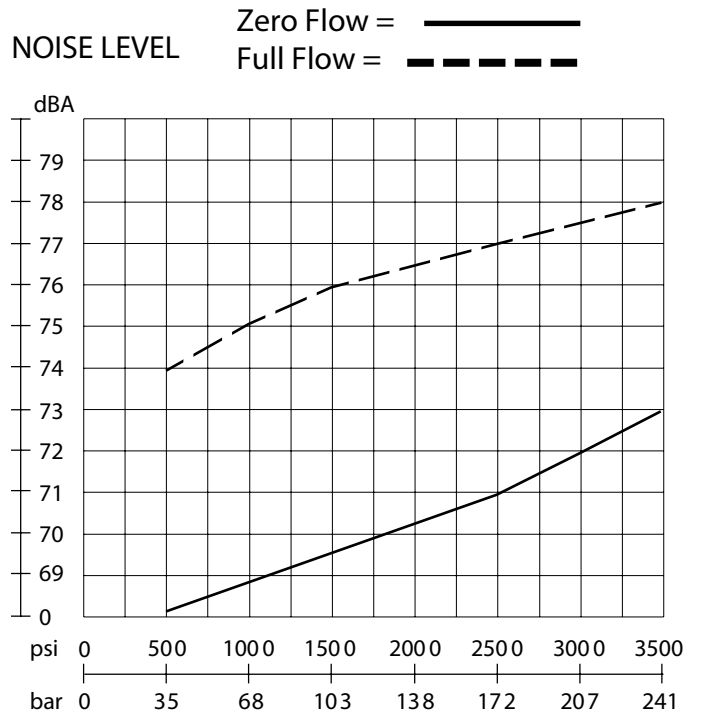
INPUT POWER @ FULL FLOW



INPUT POWER @ ZERO FLOW



NOISE LEVEL

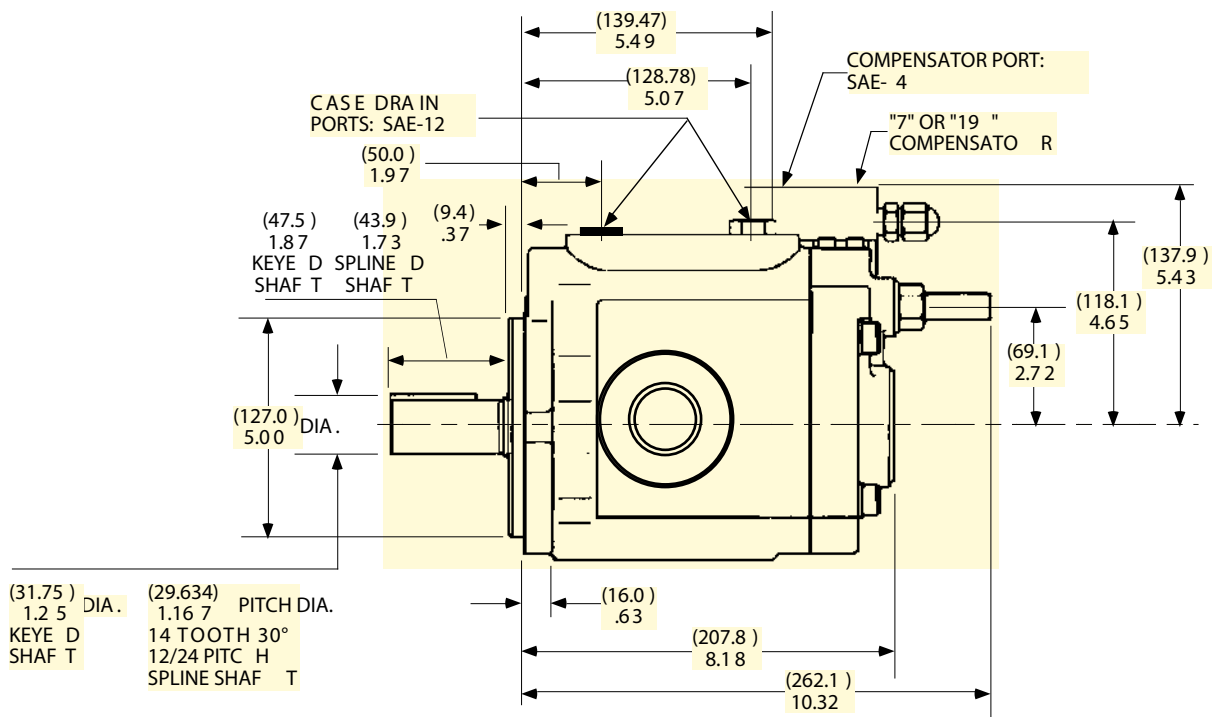
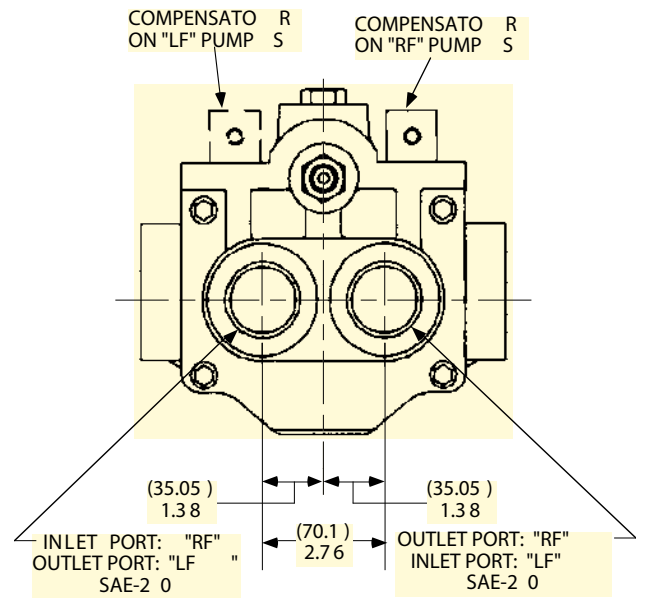
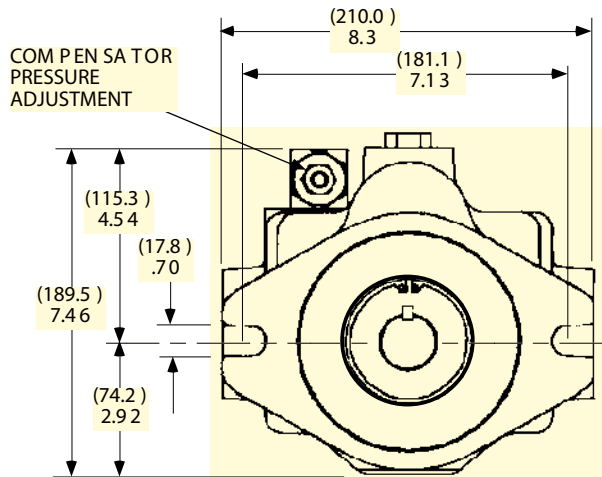


THE ABOVE DATA IS TYPICAL PERFORMANCE AT 1750 RPM.

HP V-20 HPV SERIES AXIAL PISTON PUMPS

INSTALLATION DIMENSIONS -- REAR PORTS

(MILLIMETERS)
INCHES

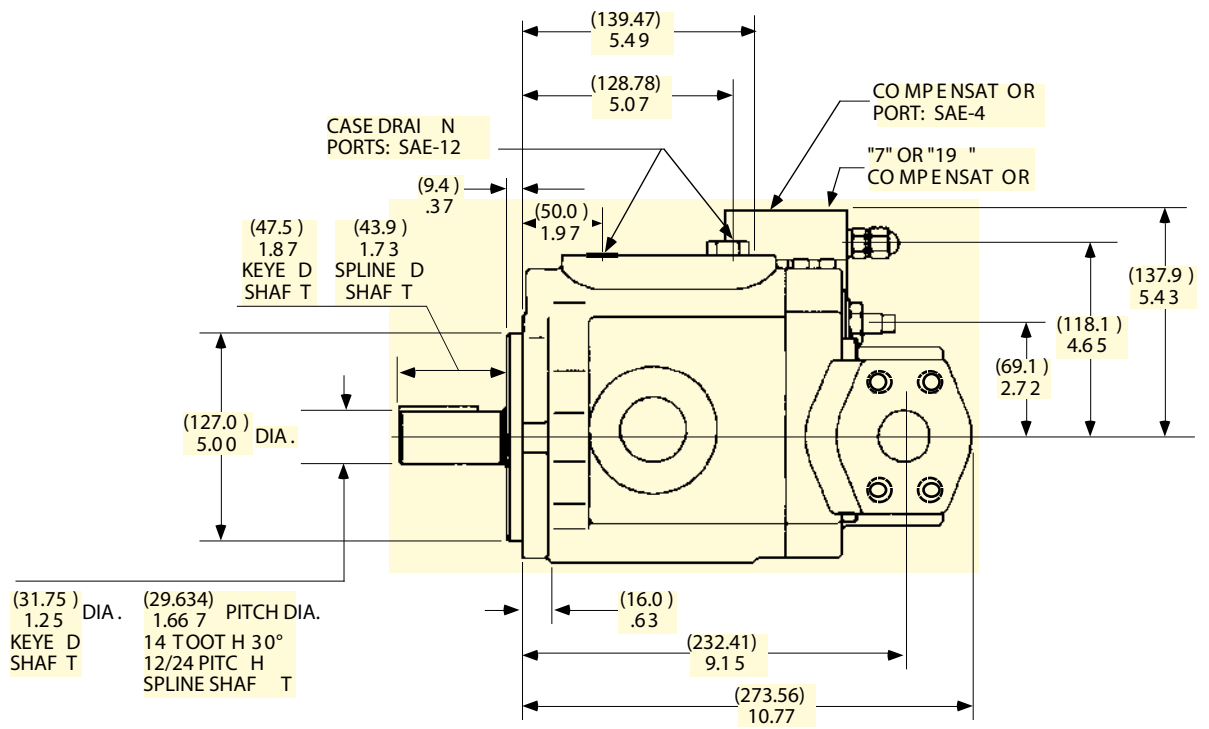
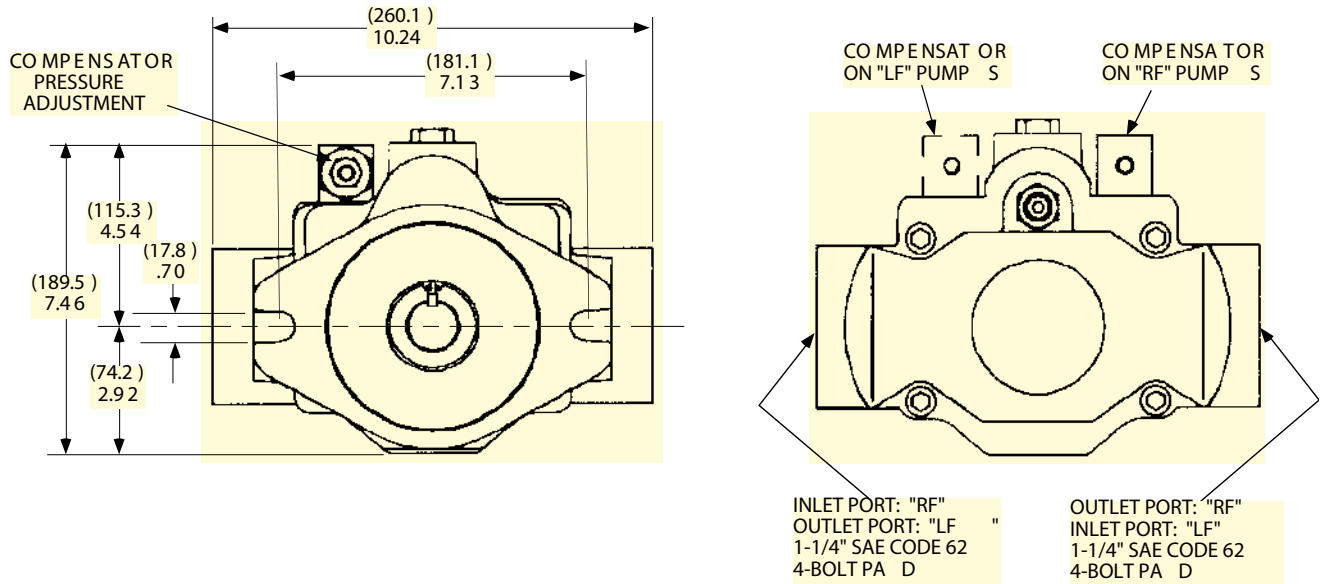


NOTE: KEY SIZE = 5/16" x 1.25".

HP V-20 HPV SERIES AXIAL PISTON PUMPS

INSTALLATION DIMENSIONS -- SIDE PORTS

(MILLIMETERS)
INCHES

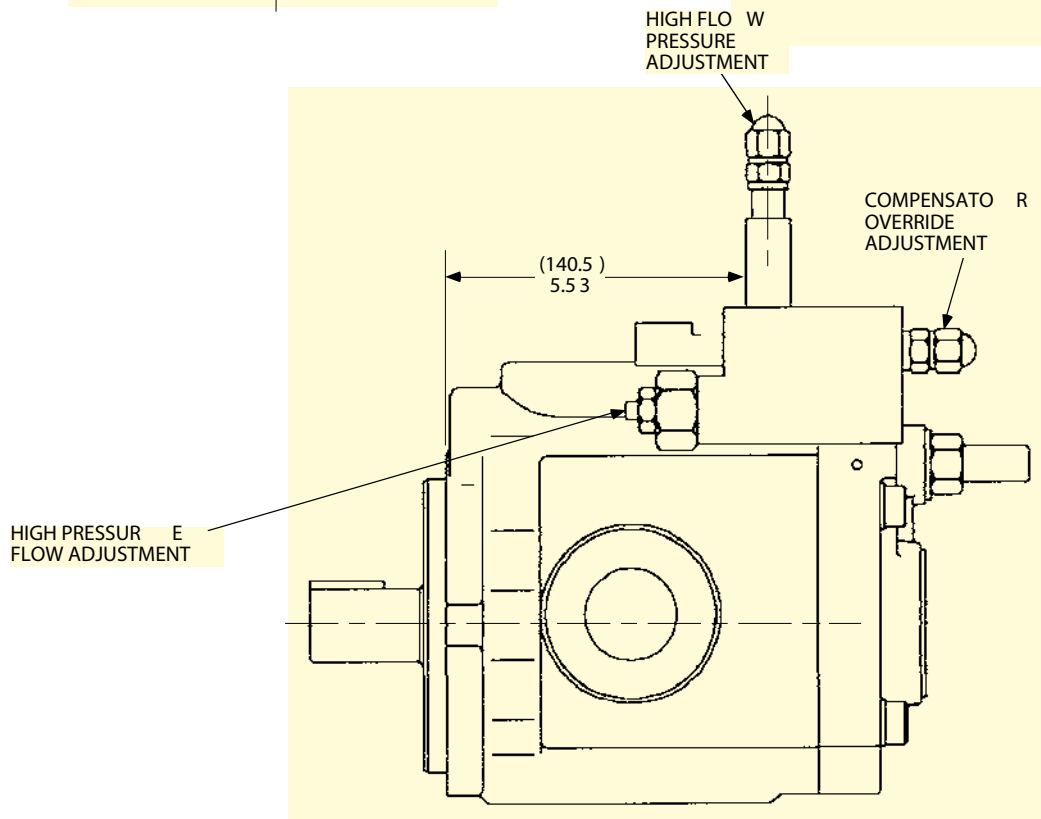
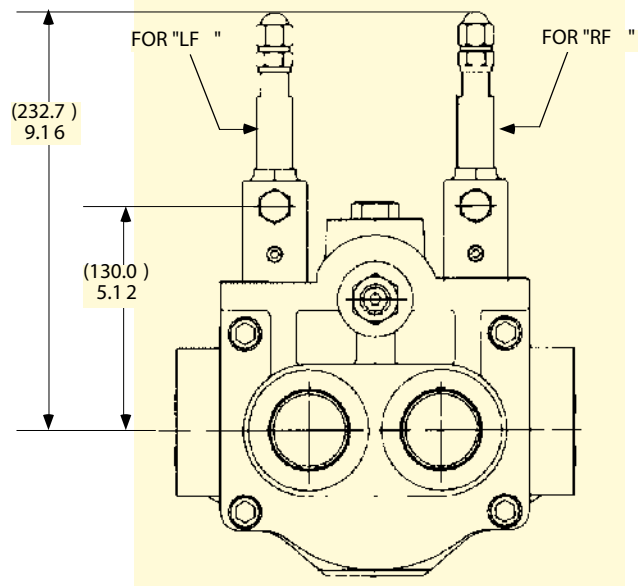
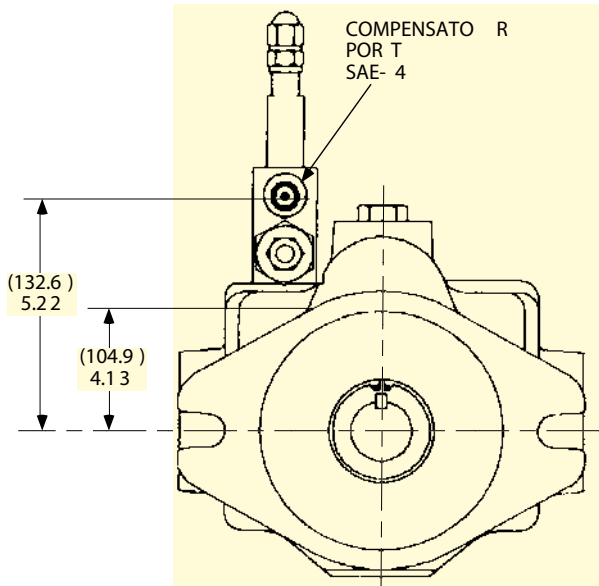


NOTE: KEY SIZE = 5/16" x 1.25".

HP V-20
 HPV SERIES
 AXIAL PISTON PUMPS

HORSEPOWER LIMITING DIMENSIONS

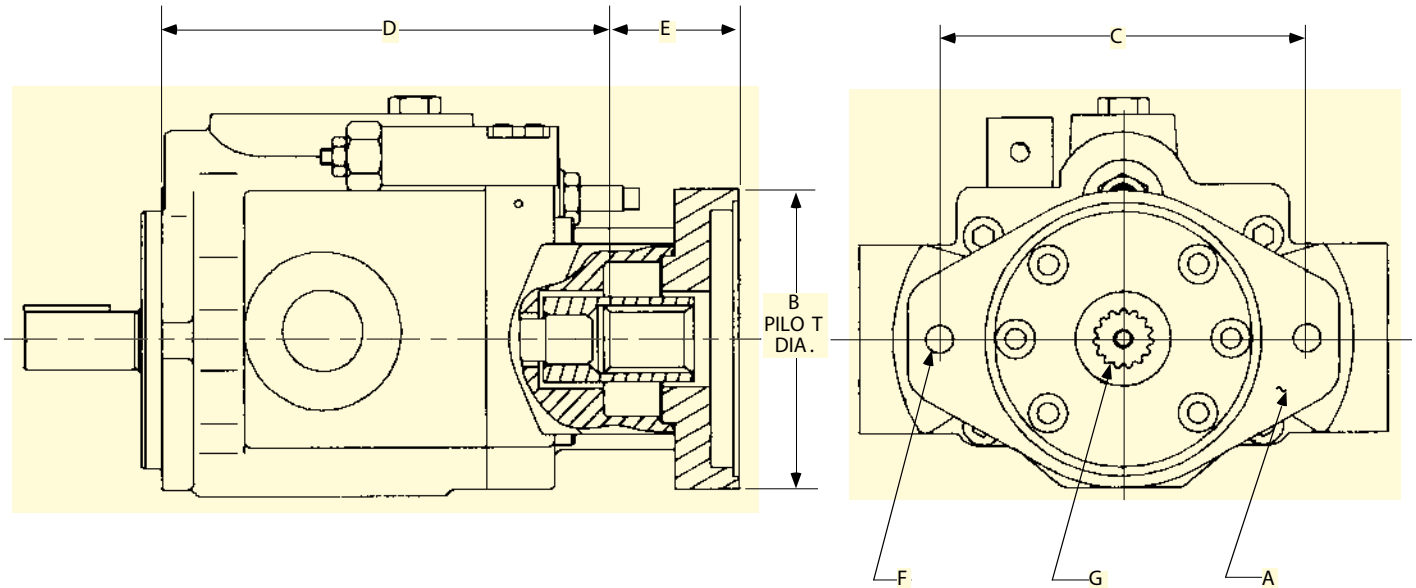
(MILLIMETERS)
 INCHES



HP V-20 HPV SERIES AXIAL PISTON PUMPS

CODES 21, 22, 23 & 31 -- TANDEM OPTIONS

(MILLIMETERS)
INCHES



NOTE : HPV-20 WITH THE CODE "23" OPTION IS PICTURED ABOVE.
OTHER OPTIONS WILL APPEAR DIFFERENTLY.

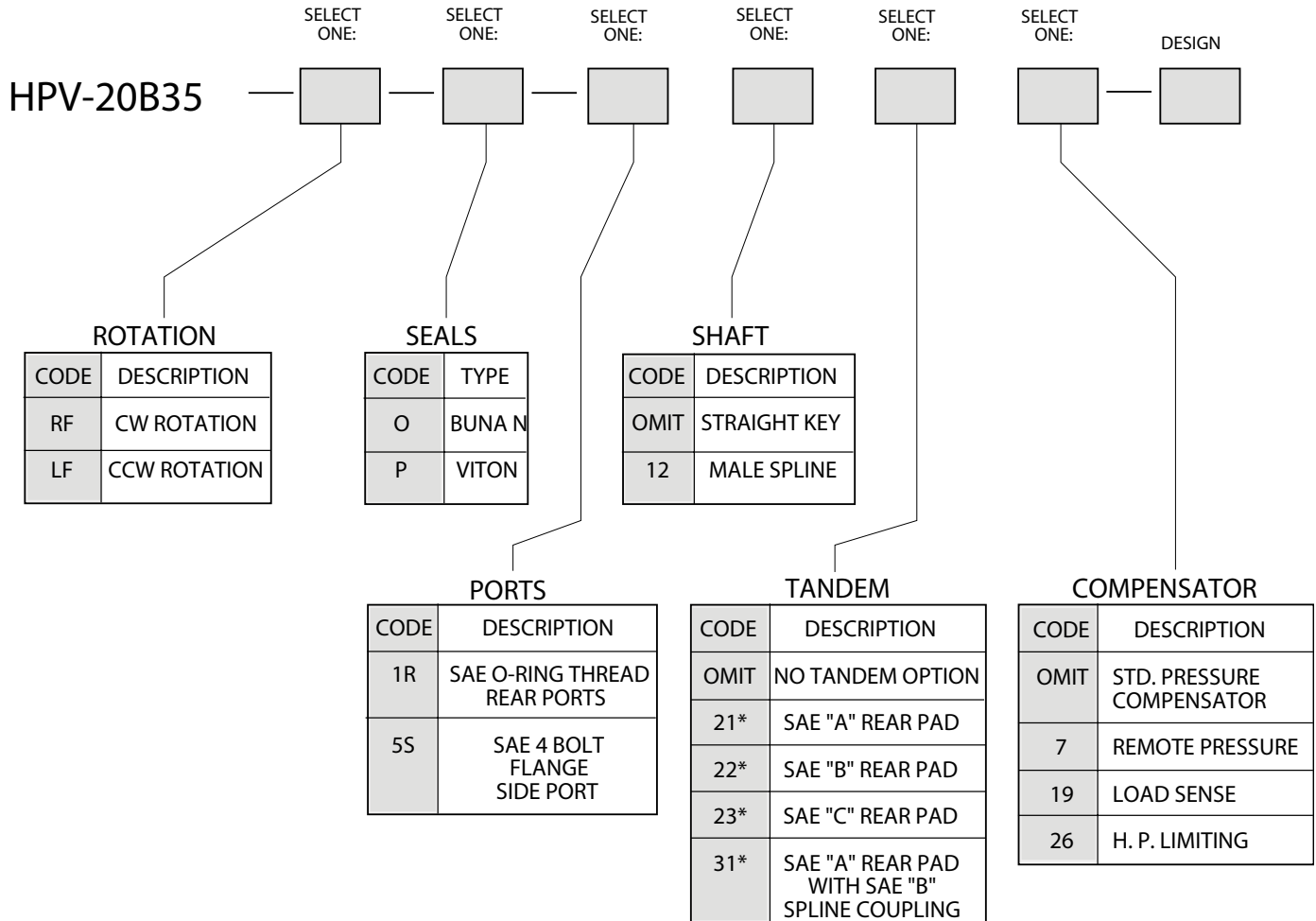
CODE	SAE 2-BOLT MTG PAD	DIMENSIONS					INTERNAL 30° INVOLUTE SPLINE	MAX. HP RATING *	MAX. TORQUE RATING *
		(MILLIMETERS)	(MILLIMETERS)	(MILLIMETERS)	(MILLIMETERS)	(MILLIMETERS)			
	A	B	C	D	E	F	G		
21	"A" FLANGE	(82.6) 3.25	(106.17) 4.18	(239.0) 9.41	(52.58) 2.07	3/8-16 UNC	9 TOOTH 16/32 PITCH 0.5625" PITCH DIA.	8.5 HP @ 1750 RPM	306 lb. in.
22	"B" FLANGE	(101.7) 4.00	(146.1) 5.75	(229.36) 9.03	(56.64) 2.23	1/2-13 UNC	13 TOOTH 16/32 PITCH 0.8125" PITCH DIA.	28.1 HP @ 1750 RPM	1013 lb. in.
23	"C" FLANGE	(127.0) 5.00	(181.10) 7.13	(221.74) 8.73	(64.26) 2.53	5/8-11 UNC	14 TOOTH 12/24 PITCH 1.1667" PITCH DIA.	43.8 HP @ 1750 RPM	1576 lb. in.
31	"A-B" FLANGE	(82.6) 3.25	(106.17) 4.18	(239.0) 9.41	(52.58) 2.07	3/8-16 UNC	13 TOOTH 16/32 PITCH 0.8125 PITCH DIA.	28.1 HP @ 1750 RPM	1013 lb. in.

* THIS IS THE MAXIMUM HORSEPOWER OR TORQUE THAT CAN BE TRANSMITTED THROUGH THE SHAFT COUPLING TO THE REAR PUMP.

NOTE : CODE 5S SIDE PORT OPTION MUST BE ORDERED WITH ALL TANDEM OPTIONS.

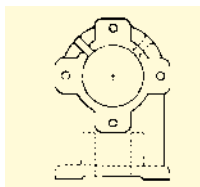
HP V-20 HPV SERIES AXIAL PISTON PUMPS

ORDERING INFORMATION

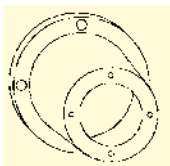


* NOTE: CODE 5S SIDE PORT OPTION MUST BE ORDERED WITH ALL TANDEM OPTIONS.

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



Foot Mounting Brackets may be found on page 49 of this catalog.

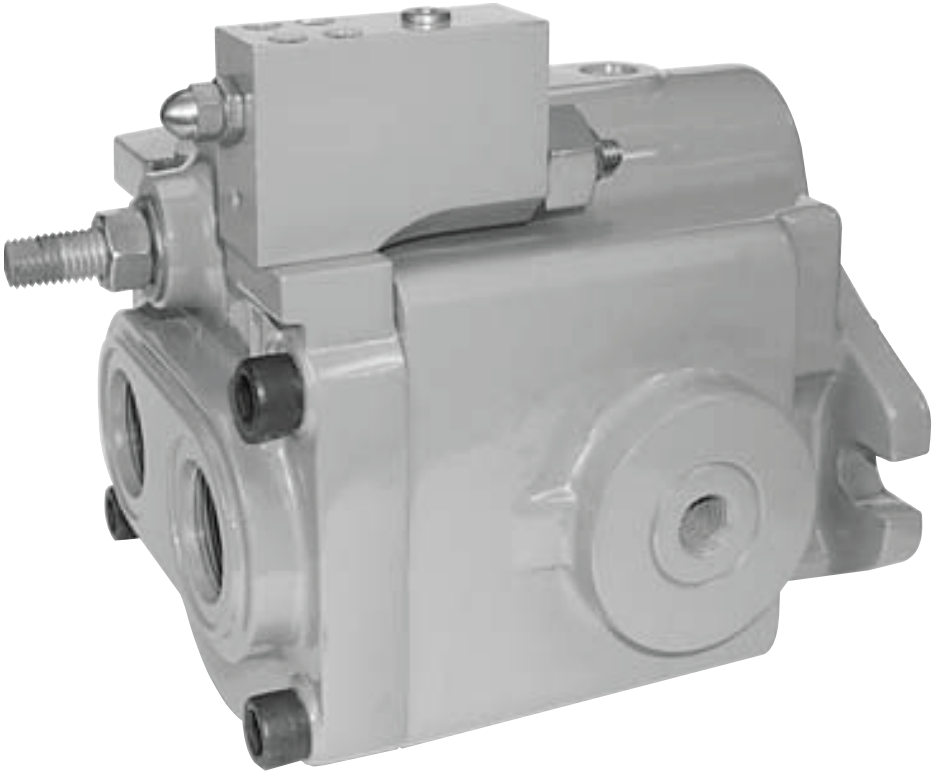


Pump Motor mounts may be found on page 115-117 of the Standard Power Units Catalog. These may be ordered from the Polypac Division.

HPV SERIES
AXIAL PISTON PUMPS

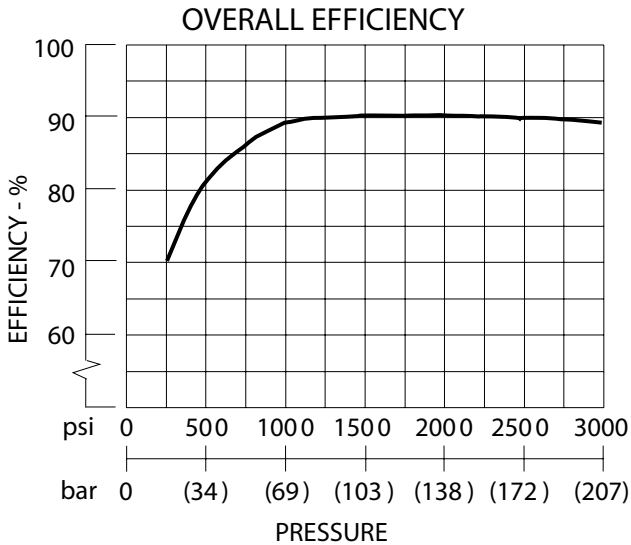
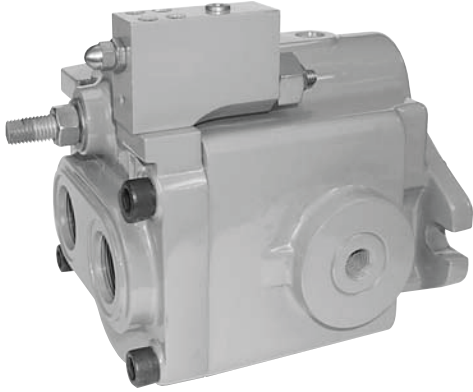
HPV - 29

AXIAL
PISTON
PUMP



HP V-29 HPV SERIES AXIAL PISTON PUMPS

VARIABLE DISPLACEMENT
PRESSURE COMPENSATED



TYPICAL PERFORMANCE SPECIFICATIONS

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 @ rated flow & pressure (1750 RPM)		hp	64
		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 Port	lbs.	86
		kg.	39.1
	Side Port	lbs.	102
		kg.	46.3
Tandem	lbs.	111	
	kg.	50.3	

NOTES:

- ? This pressure should comprise 10% or less of the total duty cycle & not exceed 6 consecutive seconds.
- ? Pumps operating at less than 150 psi may overheat & shorten pump life.

CASE DRAIN & INLET PORT SPECIFICATIONS

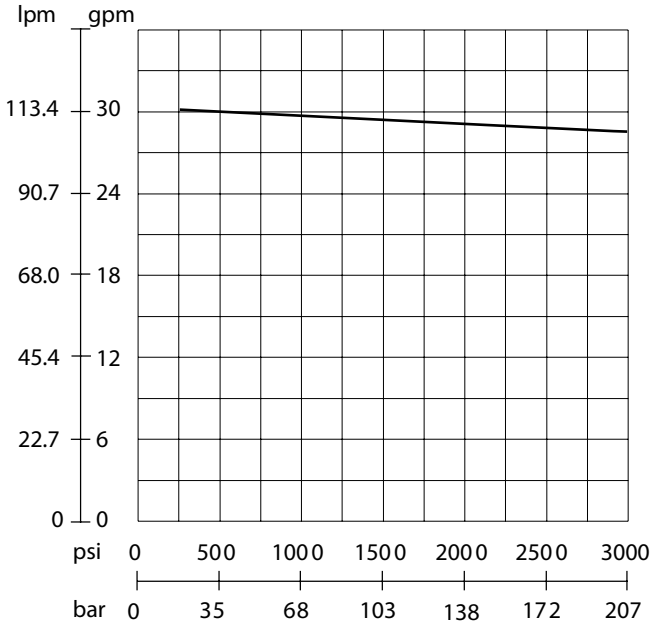
RPM	Maximum Case Pressure		Maximum Inlet Pressure		Minimum Inlet Pressure	
	psi	bar	psi	bar	vacuum / pressure	vacuum / pressure
1800	10	0.69	50	3.4	6.12 in-Hg	155.5 mm-Hg
2050	7	0.48	50	3.4	6.12 in-Hg	155.5 mm-Hg
2100	5	0.34	50	3.4	4.99 in-Hg	126.7 mm-Hg
2200	5	0.34	50	3.4	2.55 in-Hg	64.8 mm-Hg
2300	5	0.34	50	3.4	0	0
2400	5	0.34	50	3.4	1.31 psi	.09 bar

PRESSURE & VOLUME ADJUSTMENT SENSITIVITY

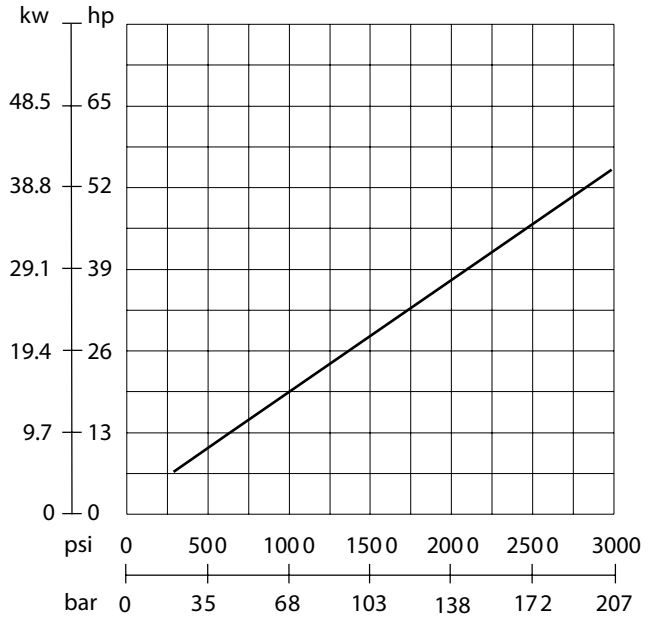
Pressure Adjustment	Pressure Change per Turn	650 psi	44.8 bar
Volume Adjustment	Flow Change per Turn	2.8 gpm	10.6 lpm
	Maximum Torque	45 in-lbs.	5.1 Nm

HP V-29 HPV SERIES AXIAL PISTON PUMPS

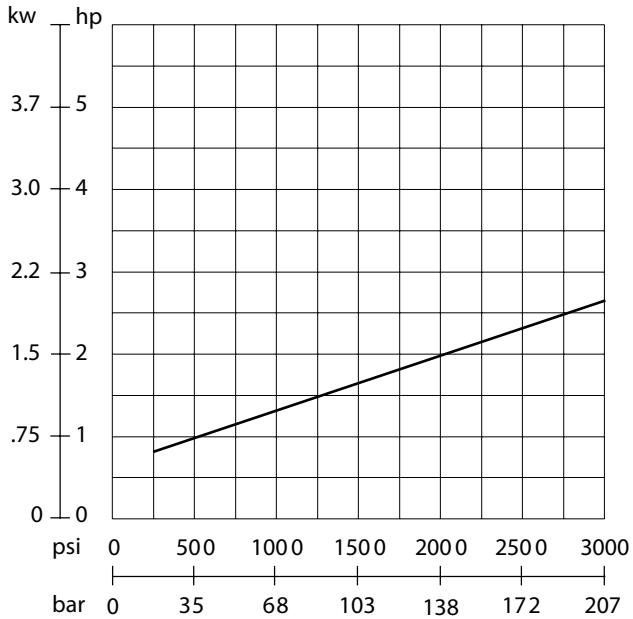
FLOW vs PRESSURE



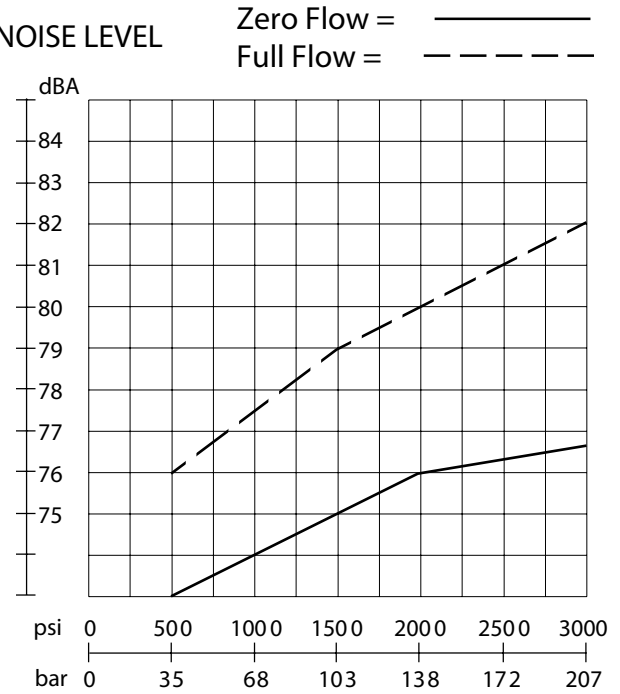
INPUT POWER @ FULL FLOW



INPUT POWER @ ZERO FLOW



NOISE LEVEL

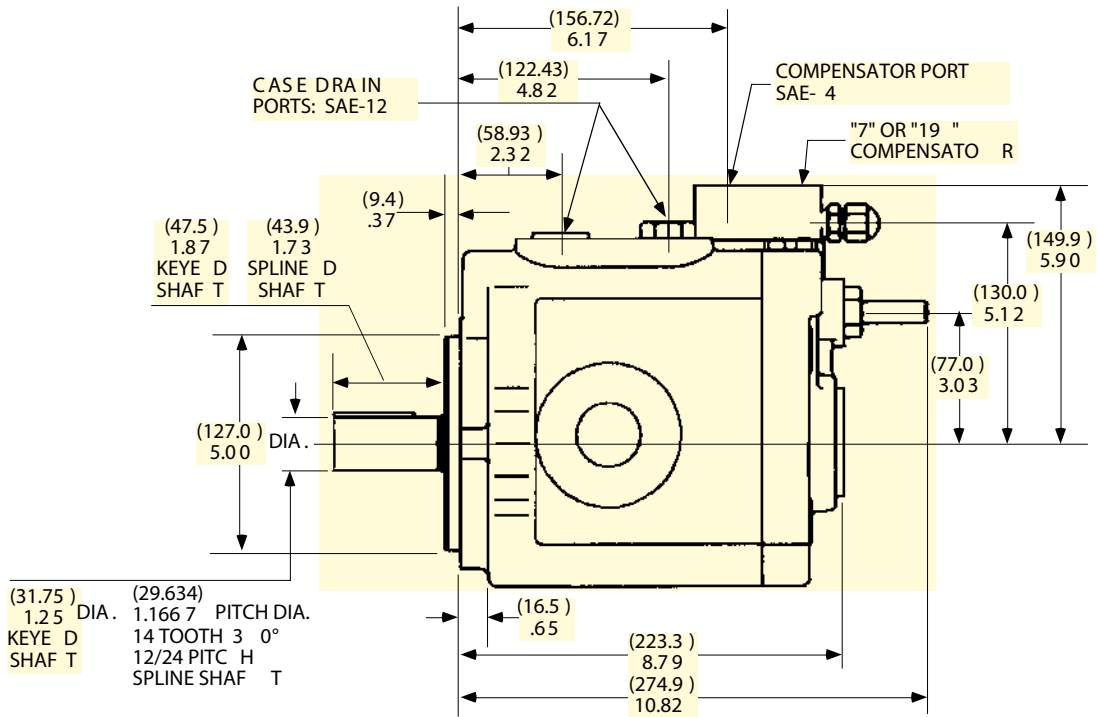
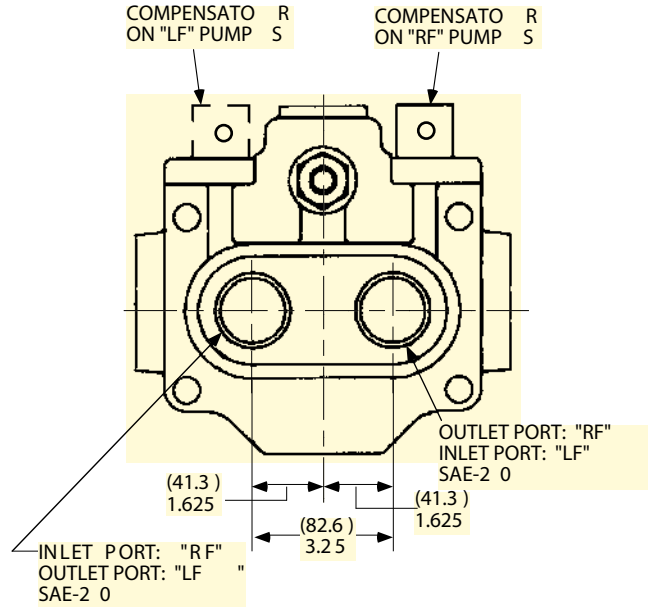
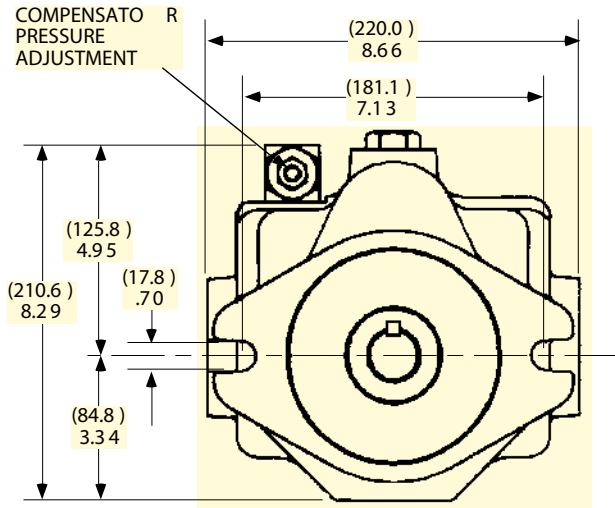


THE ABOVE DATA IS TYPICAL PERFORMANCE AT 1750 RPM.

HP V-29 HPV SERIES AXIAL PISTON PUMPS

INSTALLATION DIMENSIONS -- REAR PORTS

(MILLIMETERS)
INCHES

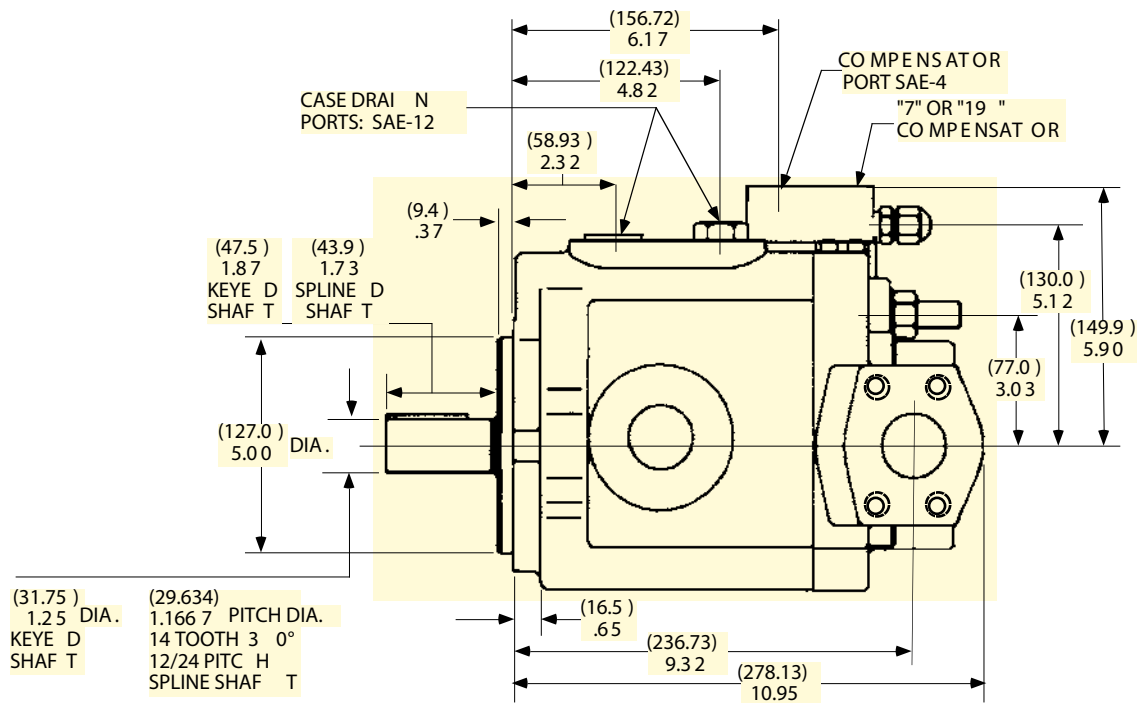
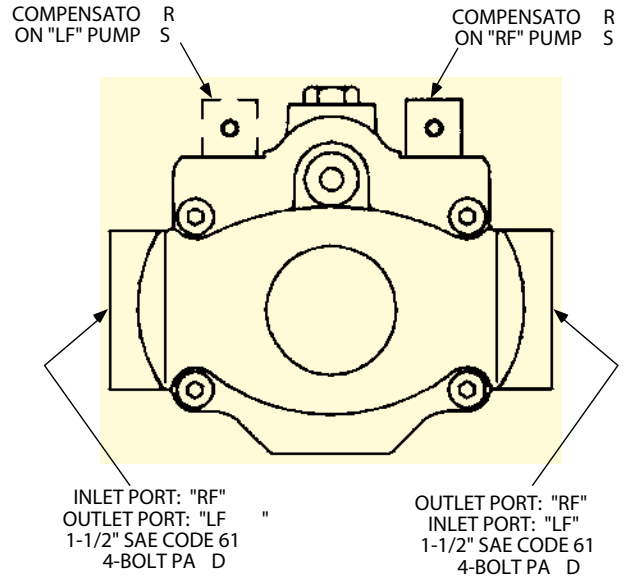
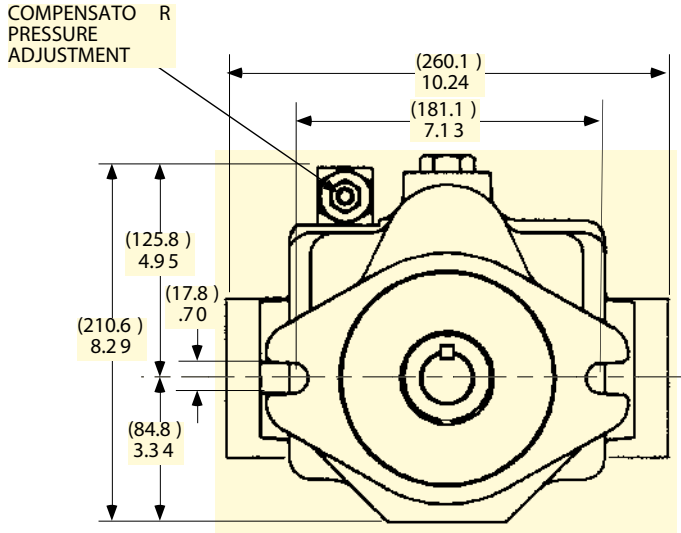


NOTE: KEY SIZE = 5/16" x 1.25".

HP V-29 HPV SERIES AXIAL PISTON PUMPS

INSTALLATION DIMENSIONS -- SIDE PORTS

(MILLIMETERS)
INCHES

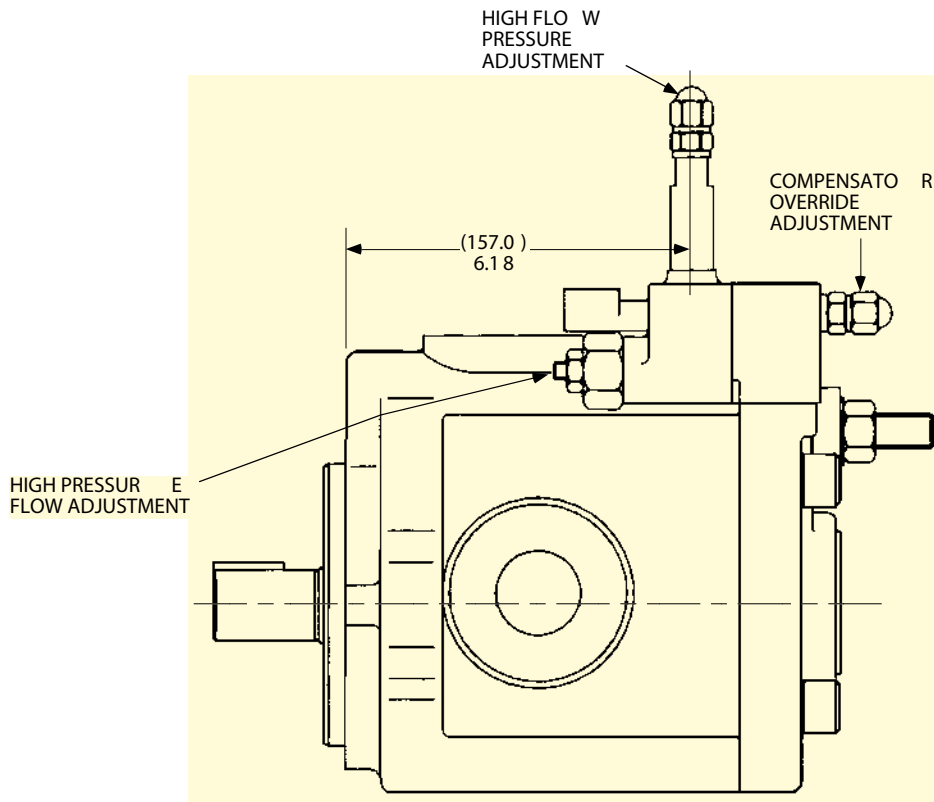
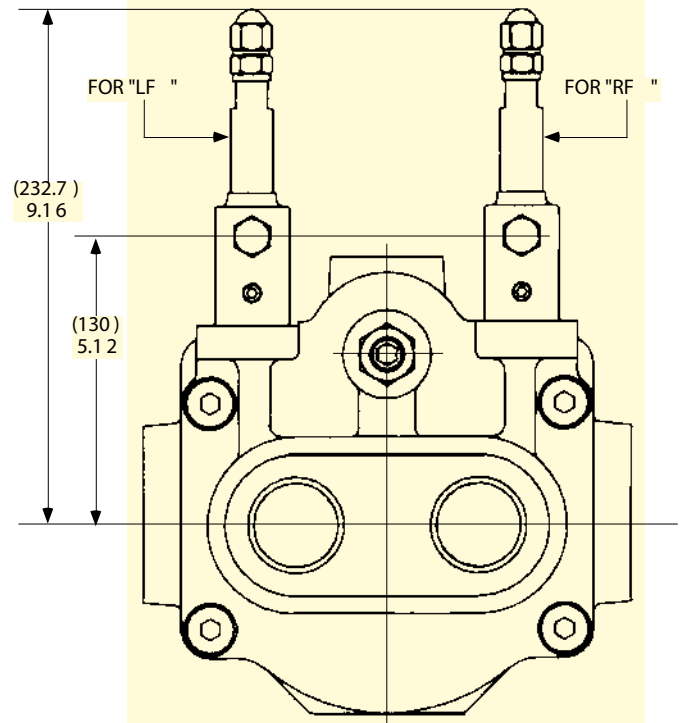
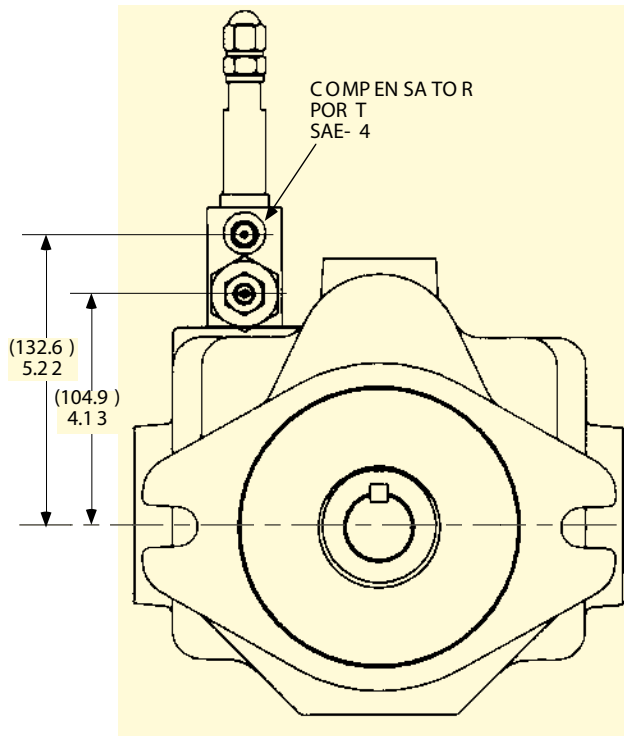


NOTE: KEY SIZE = 5/16" x 1.25".

HP V-29
 HPV SERIES
 AXIAL PISTON PUMPS

HORSEPOWER LIMITING DIMENSIONS

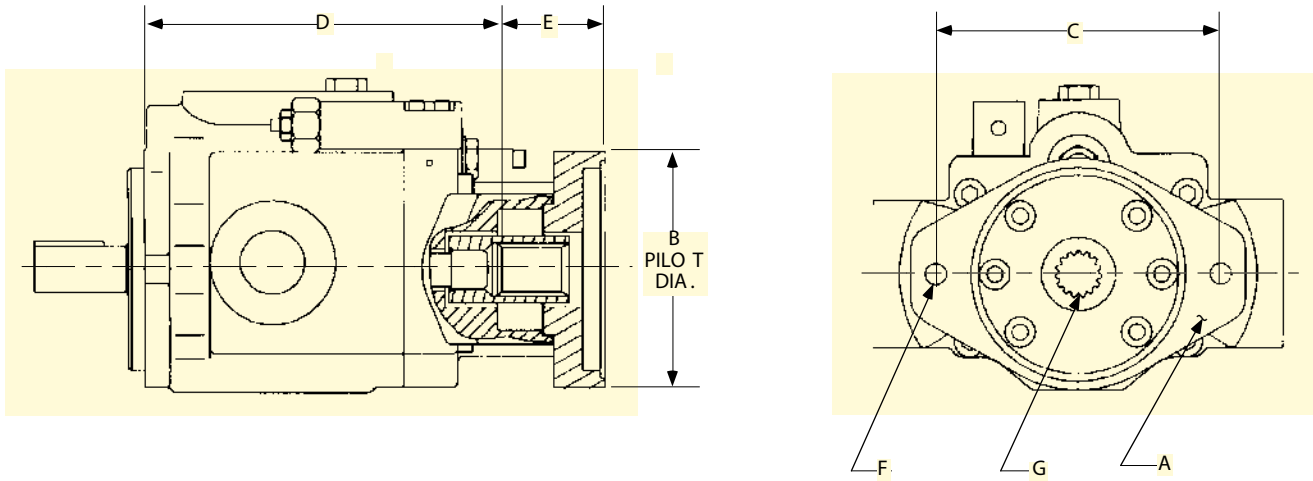
(MILLIMETERS)
 INCHES



HP V-29 HPV SERIES AXIAL PISTON PUMPS

CODES 21, 22, 23 & 31 -- TANDEM OPTIONS

(MILLIMETERS)
INCHES



NOTE : HPV-29 WITH THE CODE "23" OPTION PICTURED ABOVE.
OTHER OPTIONS WILL APPEAR DIFFERENTLY.

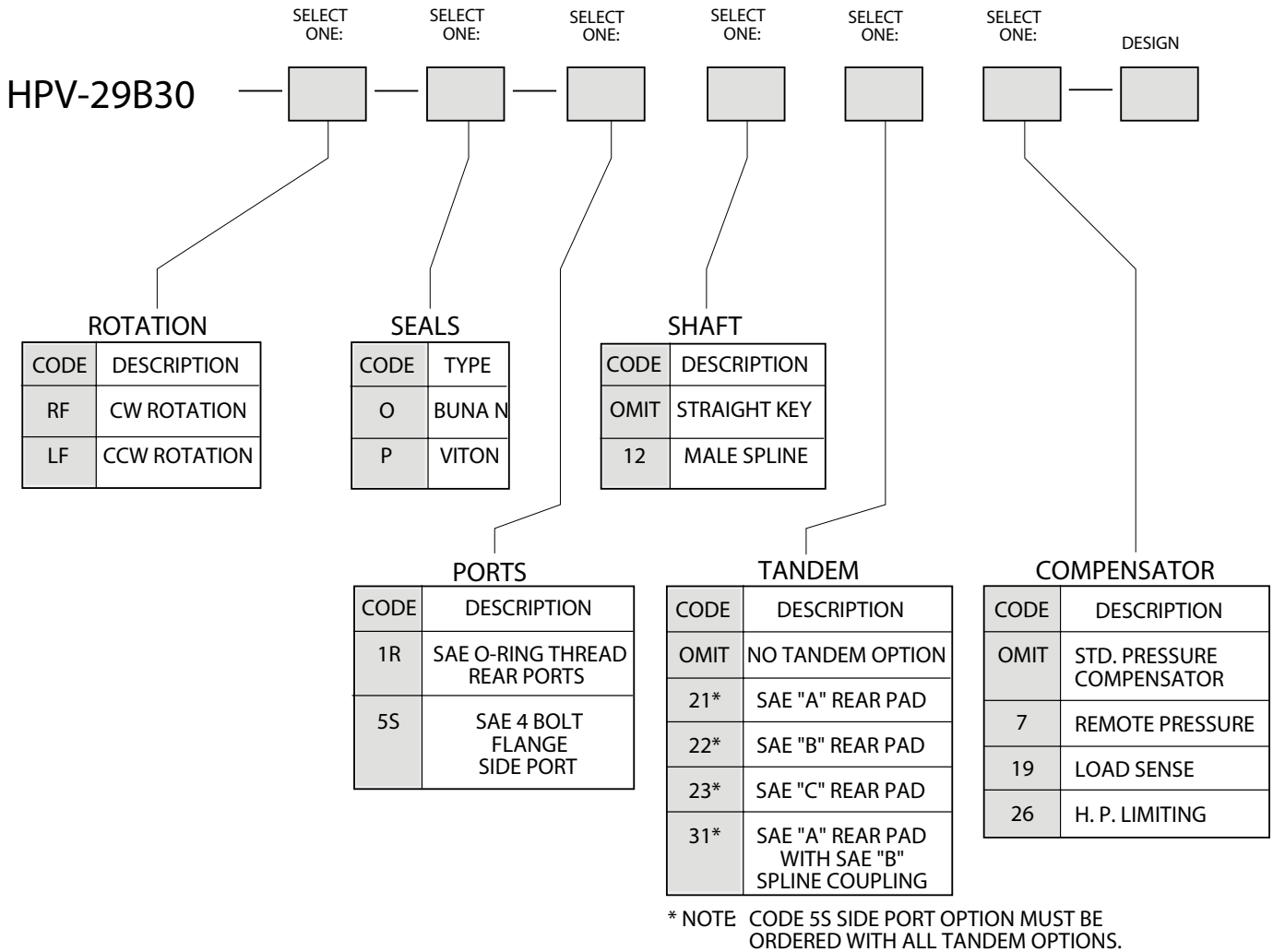
CODE	SAE 2-BOLT MTG PAD	DIMENSIONS					INTERNAL 30° INVOLUTE SPLINE	MAX. HP RATING *	MAX. TORQUE RATING *
		(MILLIMETERS)	(MILLIMETERS)	(MILLIMETERS)	(MILLIMETERS)	(MILLIMETERS)			
21	"A" FLANGE	(82.6) 3.25	(106.17) 4.18	(286.0) 11.26	(58.42) 2.30	3/8-16 UNC	9 TOOTH 16/32 PITCH 0.5625" PITCH DIA.	8.5 HP @ 1750 RPM	306 lb. in.
22	"B" FLANGE	(101.7) 4.00	(146.1) 5.75	(290.07) 11.42	(62.48) 2.46	1/2-13 UNC	13 TOOTH 16/32 PITCH 0.8125" PITCH DIA.	28.1 HP @ 1750 RPM	1013 lb. in.
23	"C" FLANGE	(127.0) 5.00	(181.10) 7.13	(290.07) 11.42	(62.48) 2.46	5/8-11 UNC	14 TOOTH 12/24 PITCH 1.1667" PITCH DIA.	43.8 HP @ 1750 RPM	1576 lb. in.
31	"A-B" FLANGE	(82.6) 3.25	(106.17) 4.18	(286.0) 11.26	(58.42) 2.30	3/8-16 UNC	13 TOOTH 16/32 PITCH 0.8125 PITCH DIA.	28.1 HP @ 1750 RPM	1013 lb. in.

* THIS IS THE MAXIMUM HORSEPOWER OR TORQUE THAT CAN BE TRANSMITTED THROUGH THE SHAFT COUPLING TO THE REAR PUMP.

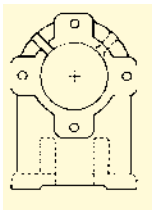
NOTE : CODE 5S SIDE PORT OPTION MUST BE ORDERED WITH ALL TANDEM OPTIONS.

HP V-29 HPV SERIES AXIAL PISTON PUMPS

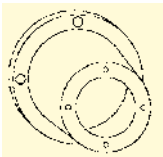
ORDERING INFORMATION



TYPICAL ORDERING CODE: HPV-29B30-RF-O-1R



Foot Mounting Brackets may be found on page 49 of this catalog.



Pump Motor mounts may be found on page 115-117 of the Standard Power Units Catalog. These may be ordered from the Polypac Division.

HPV SERIES
AXIAL PISTON PUMPS

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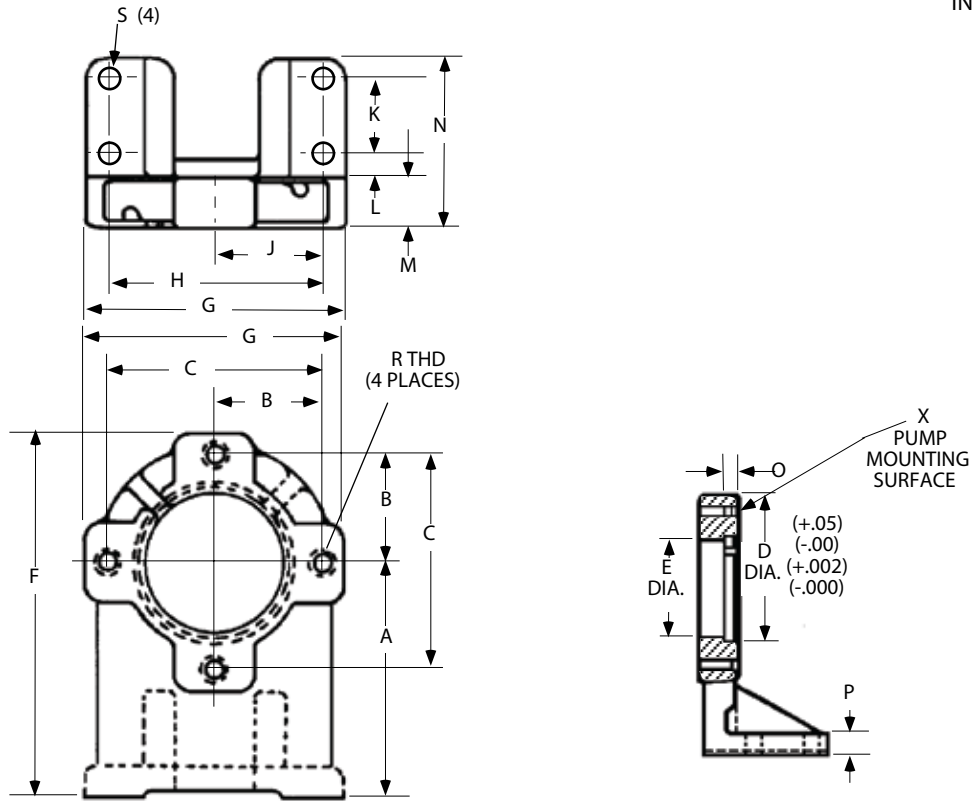
MOUNTING BRACKETS

HPV SERIES

AXIAL PISTON PUMPS

HPV FOOT MOUNTING BRACKETS

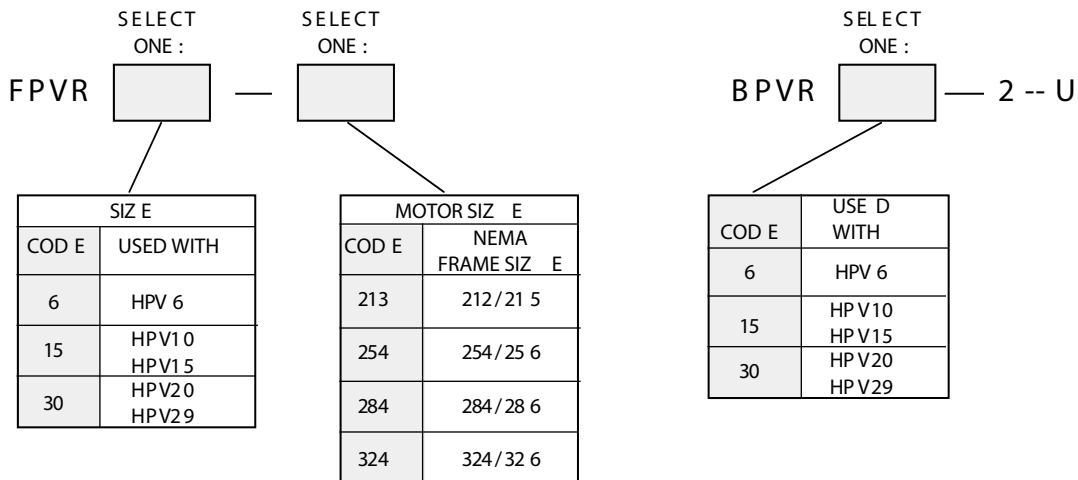
(MILLIMETERS)
INCHES



FOOT BRACKET SERIES	X SAE FLANGE	DIMENSIONS (mm)															R THREAD	S BOLT SIZE
		A	B	C	D	E	F	G	H	J	K	L	M	N	O	P		
FPVR6	A	(133.4 5.25)	(53.1 2.09)	(106.4 4.19)	(82.60 3.252)	(76.2 3.00)	(198.4 7.81)	(130.1 5.12)	(88.9 3.50)	(44.5 1.75)	(50.8 2.00)	(12.2 .48)	(25.4 1.00)	(101.1 3.98)	(7.9 .31)	(20.6 .81)	3/8-16 UNF	3/8 IN
FPVR15	B	(158.8 6.25)	(73.0 2.87)	(146.0 5.75)	(101.6 4.00)	(106.0 4.25)	(246.0 9.69)	(174.0 6.85)	(146.0 5.75)	(73.0 2.87)	(51.0 2.01)	(15.0 .59)	(32.0 1.26)	(113.0 4.45)	(12.0 .47)	(20.0 .79)	1/2-13 UNF	1/2 IN
FPVR30	C	(203.00 8.00)	(90.4 3.56)	(181.0 7.12)	(127.0 5.001)	(127.7 4.75)	(309.6 12.19)	(213.1 8.39)	(152.4 6.00)	(76.2 3.00)	(95.3 3.75)	(19.1 .75)	(30.0 1.18)	(157.0 6.18)	(14.0 .55)	(20.1 .79)	5/8-11 UNF	1/2 IN

HPV FOOT MOUNTING BRACKETS

BOLT KITS FOR MOUNTING HPV SERIES PUMPS



AIR BLEED VALVE HPV SERIES AXIAL PISTON PUMPS

TYPICAL APPLICATIONS

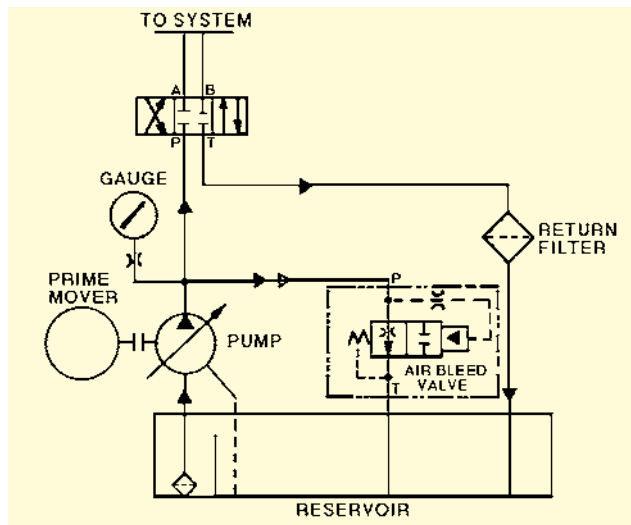
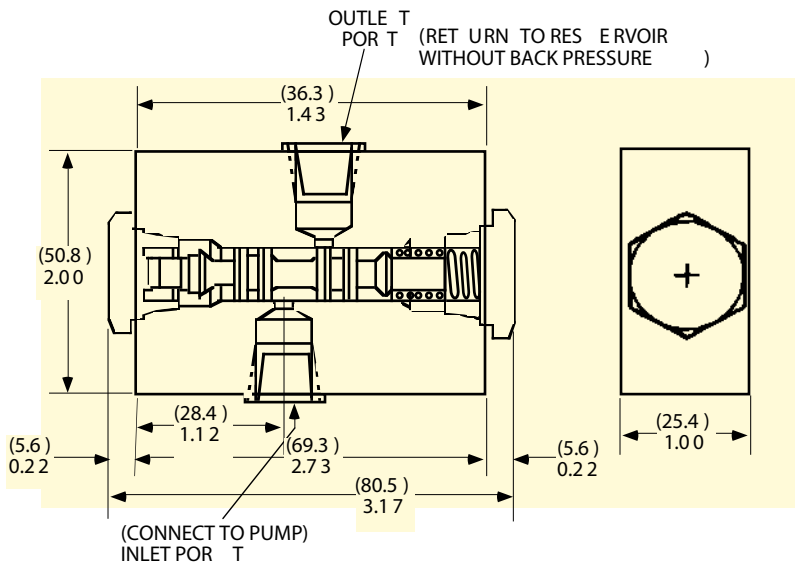
DESCRIPTION

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 reservoir. Pressure in the spool center section is bled via spool clearance to the no-spring end of the spool. As pressure builds up, it overcomes the spring, shifts the spool to close off the inlet port and allows full pump flow to the circuit.

TYPICAL PERFORMANCE SPECIFICATIONS		
MINIMUM FLOW RATE		8 gpm
MINIMUM OPERATING PRESSURE	@ 8 gpm	500 psi
	@ 15 gpm	350 psi
	@ 50 gpm	200 psi
MAXIMUM OPERATING PRESSURE		3500 psi
MIN. PRESSURE TO HOLD CLOSED		150 psi
TYPICAL CLOSING TIMES	@ 500 psi	30 sec.
	@ 1500 psi	10 sec.
SEALS		VITON

DATA IS BASED ON ISO VG 46 OIL AT 120° F. (49° C.).

DIMENSIONS



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.

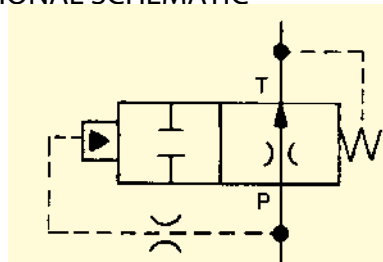
ENGINE PRIME MOVER

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

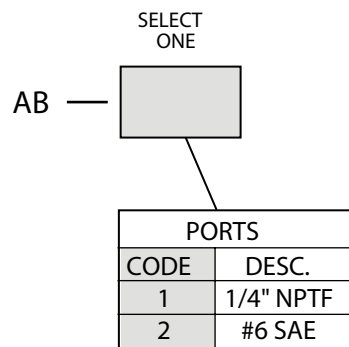
NOTE

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

FUNCTIONAL SCHEMATIC



ORDERING INFORMATION



WEIGHT = 0.6 lbs./0.27 kg