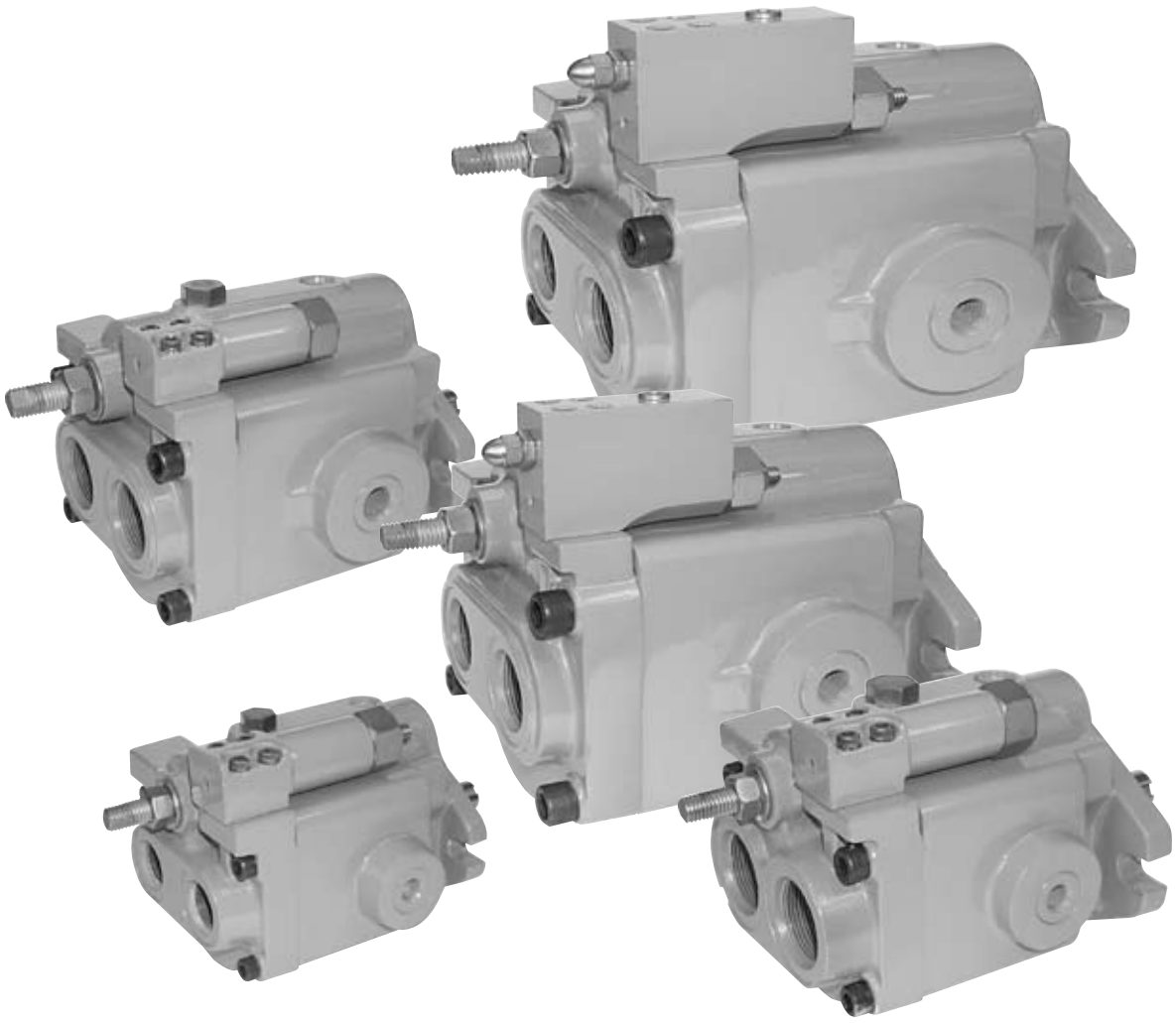
HPV SERIES

AXIAL PISTON PUMPS

CONTINENTAL HYDRAULICS



PRESSURE COMPENSATED AXIAL PISTON PUMPS

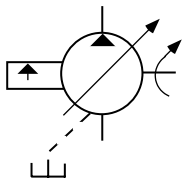
*Spline Shaft Option Conforms to SAE B Dimensions.

PUMP ACCESSORIES

HPV SERIES
AXIAL PISTON PUMPS

CONTINENTAL HYDRAULICS

VARIABLE DISPLACEMENT, PRESSURE COMPENSATED



ANSI SYMBOL

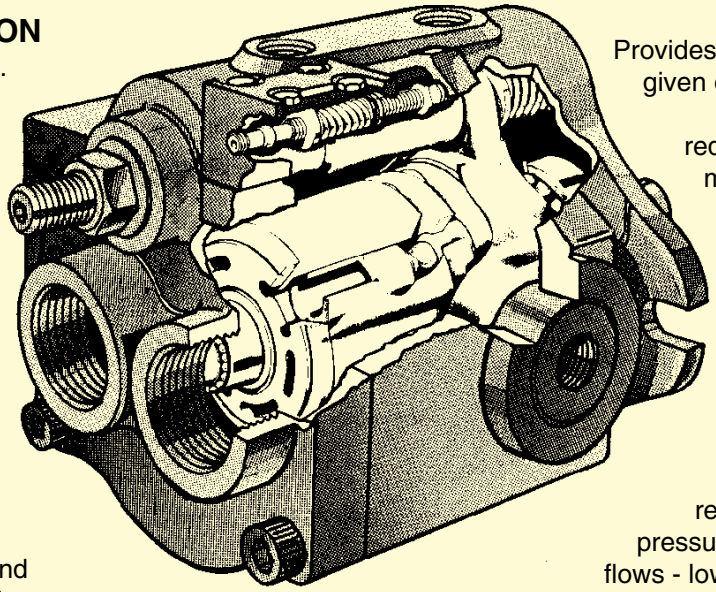
PRESSURE COMPENSATED
Delivers only the flow required by the system, while maintaining the set pressure. This will save horsepower and unnecessary wear on the system. Pressure compensation ranges from 200 to 3500 PSI continuous duty and up to 4000 PSI intermittently.

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.

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.

SIMPLE CONSTRUCTION
For a long and productive life.



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.

RUGGED CONSTRUCTION
Cast iron body designed to deliver years of reliable performance.

COMPACT SIZE
Designed to maximize the use of valuable space.

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.

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.

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.

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

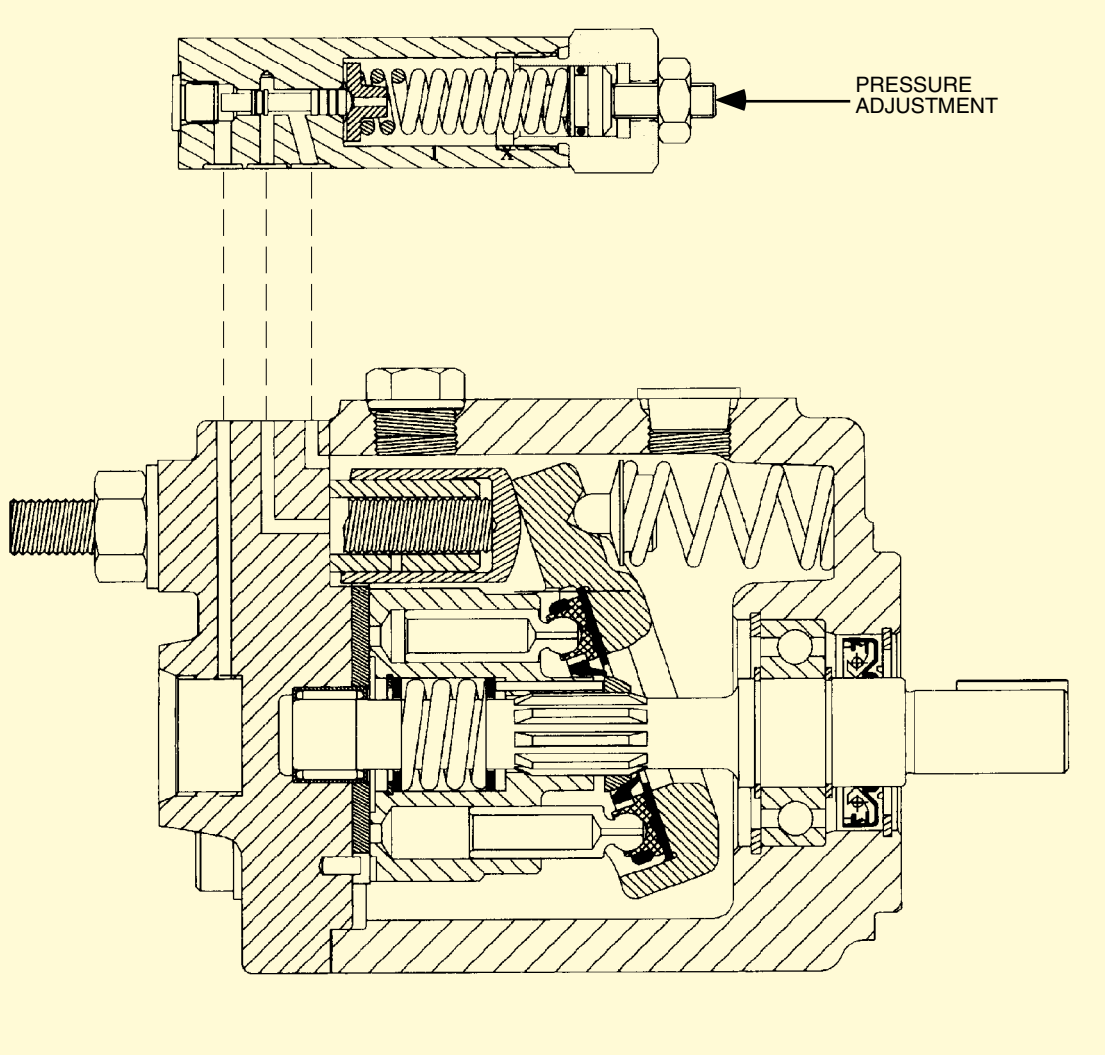
CONTINENTAL HYDRAULICS

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.

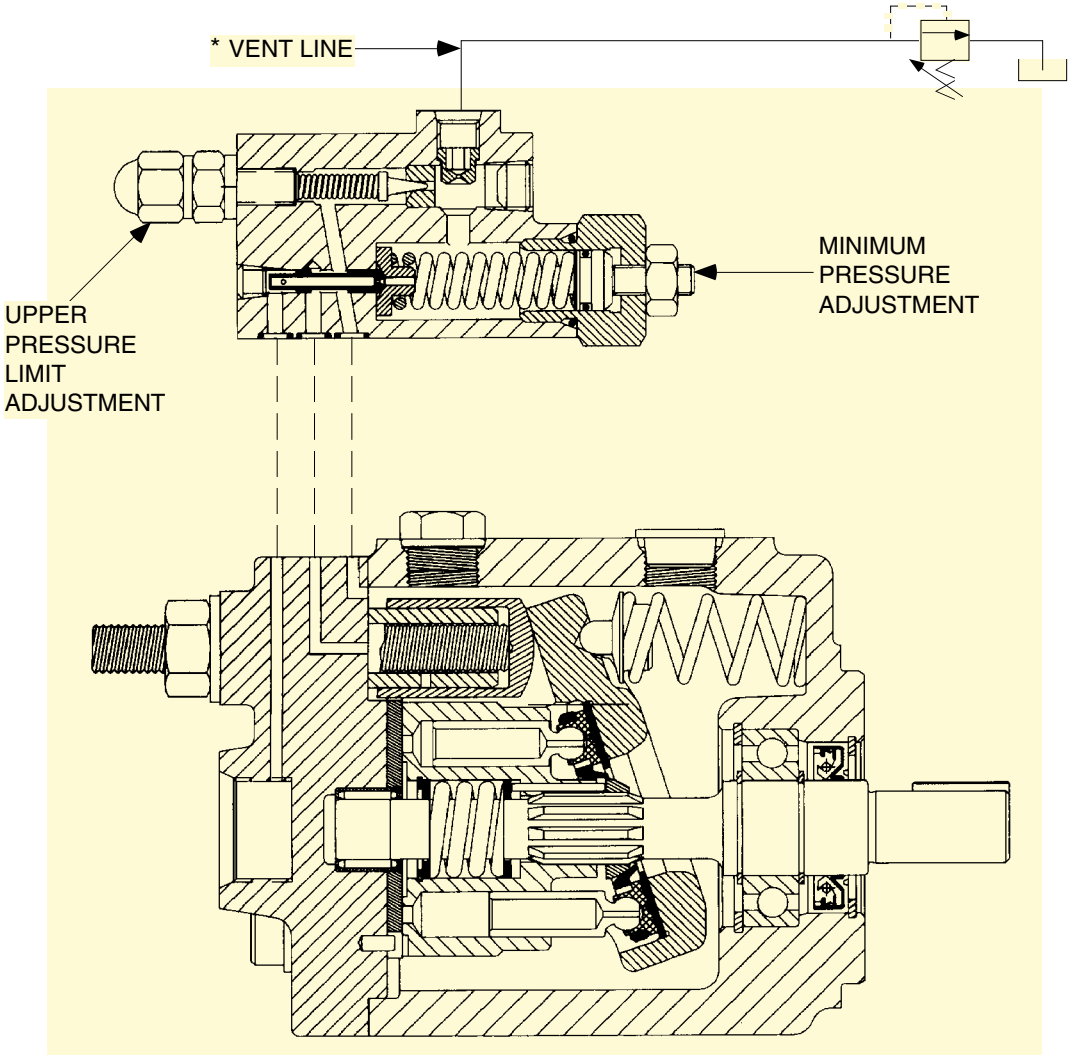


REMOTE PRESSURE CONTROL (Code 7)

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.



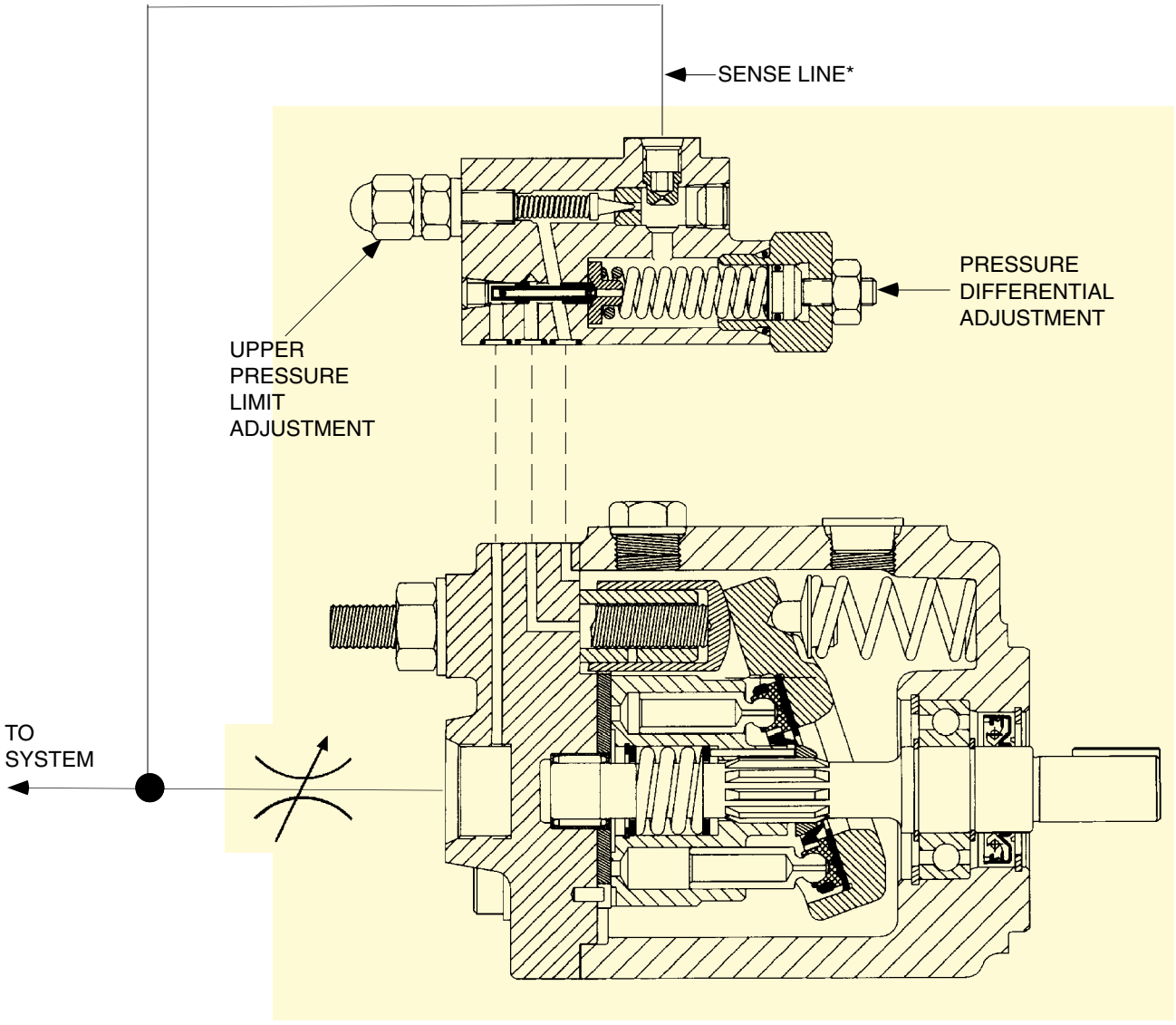
*** Maximum length of this line is 50 feet. Hard piping is recommended to maintain system stability.**

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 requirements. 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.



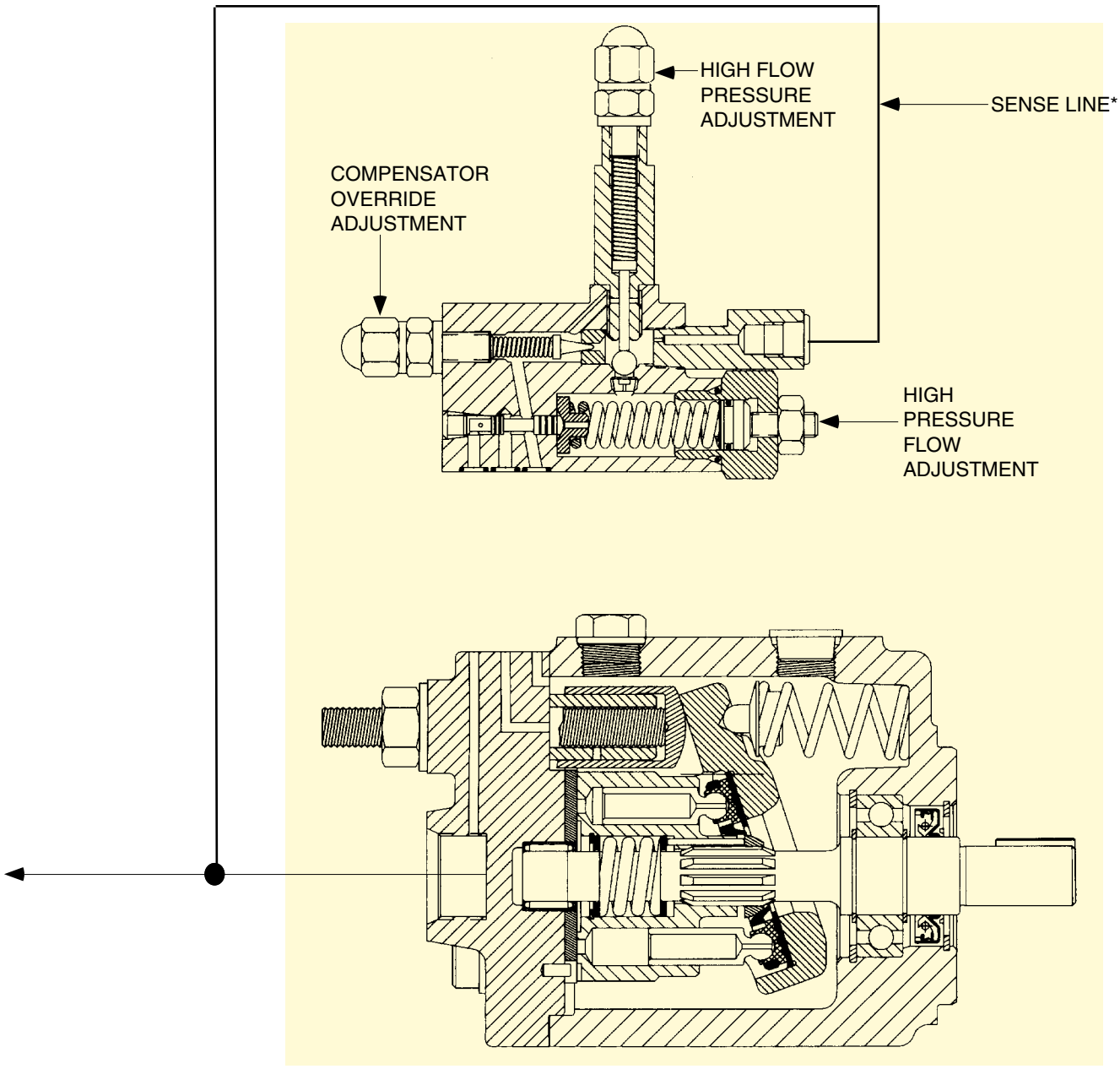
*** Maximum length of this line is 50 feet. Hard piping is recommended to maintain system stability.**

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.

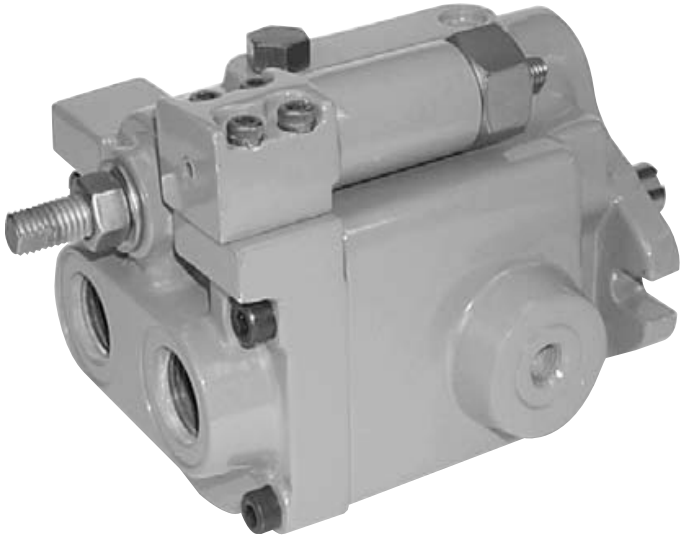


*** Maximum length of this line is 50 feet. Hard piping is recommended to maintain system stability.**

HPV SERIES
AXIAL PISTON PUMPS

CONTINENTAL HYDRAULICS

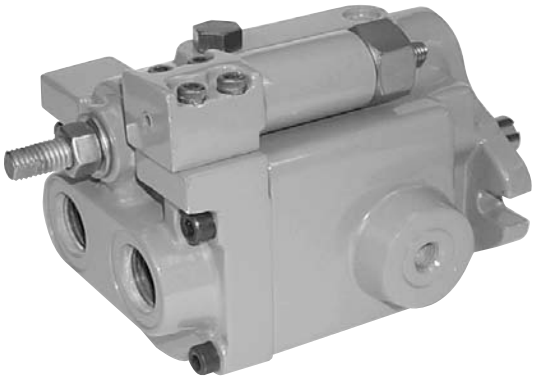
HPV-6 AXIAL PISTON PUMP

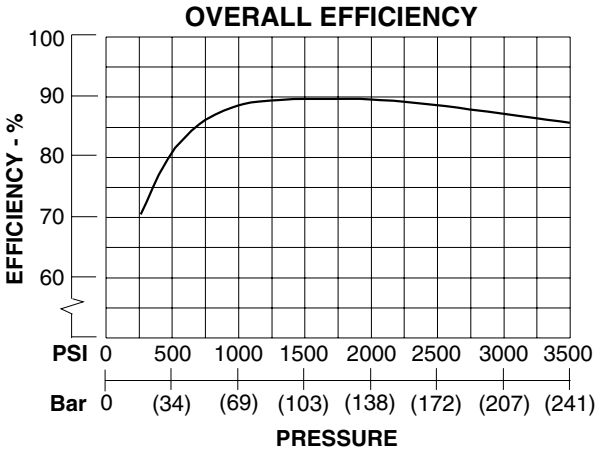


CONTINENTAL HYDRAULICS

HPV-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

	Maximum Case Pressure		Maximum Inlet Pressure		Minimum Inlet Pressure	
RPM	**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

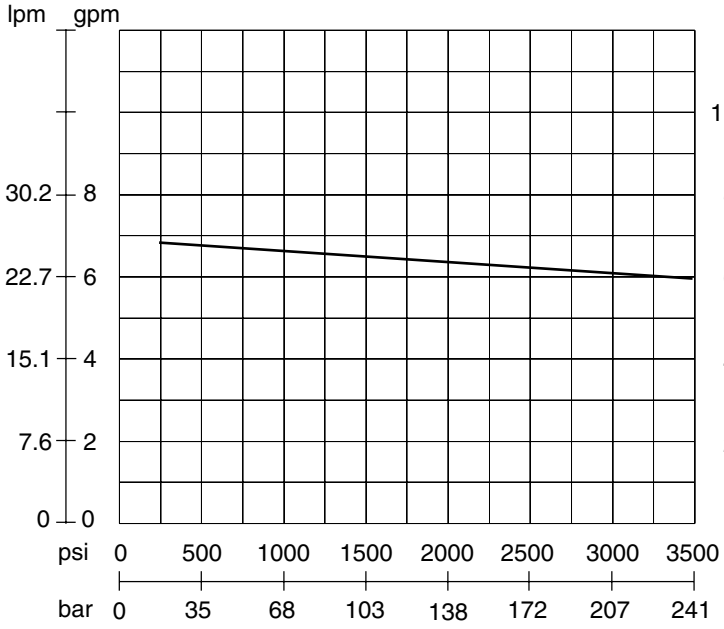
PRESSURE & VOLUME ADJUSTMENT SENSITIVITY

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

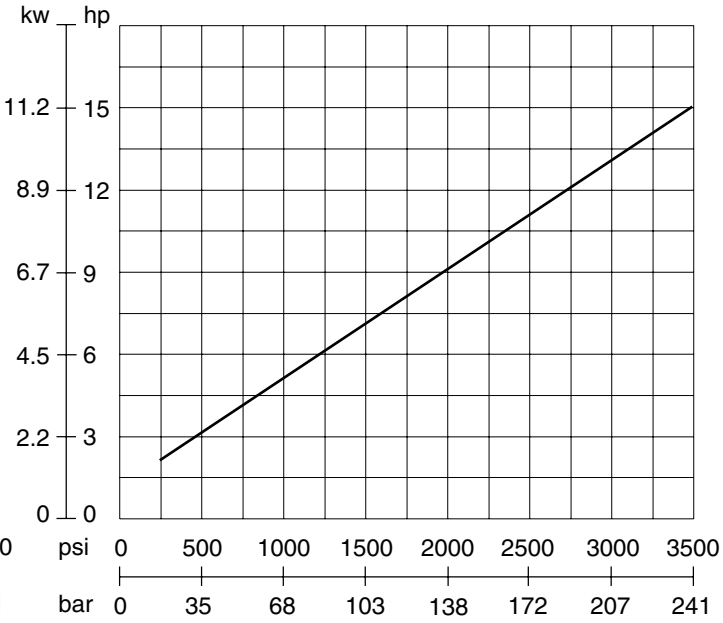
HPV-6
HPV SERIES
AXIAL PISTON PUMPS

CONTINENTAL HYDRAULICS

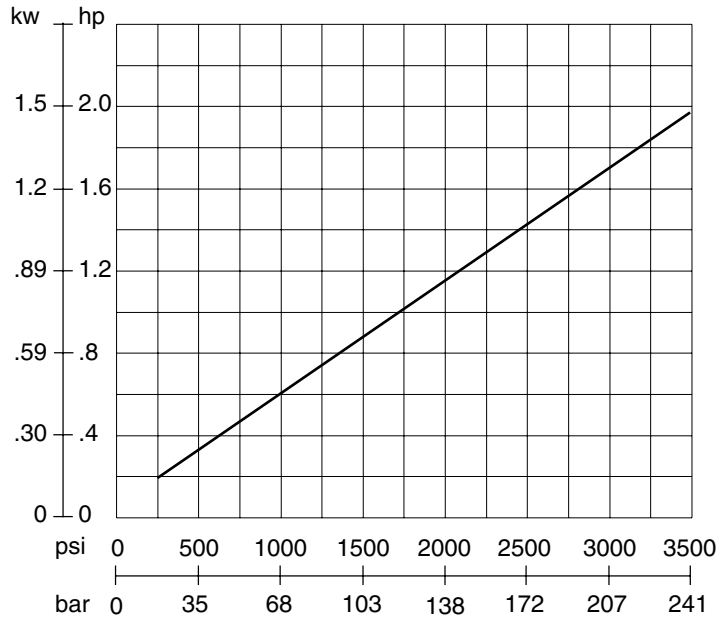
FLOW vs PRESSURE



INPUT POWER @ FULL FLOW

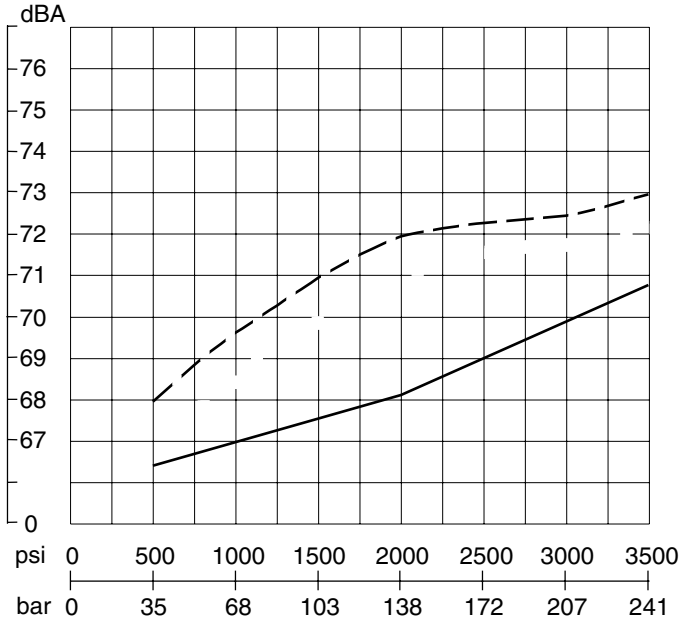


INPUT POWER @ ZERO FLOW



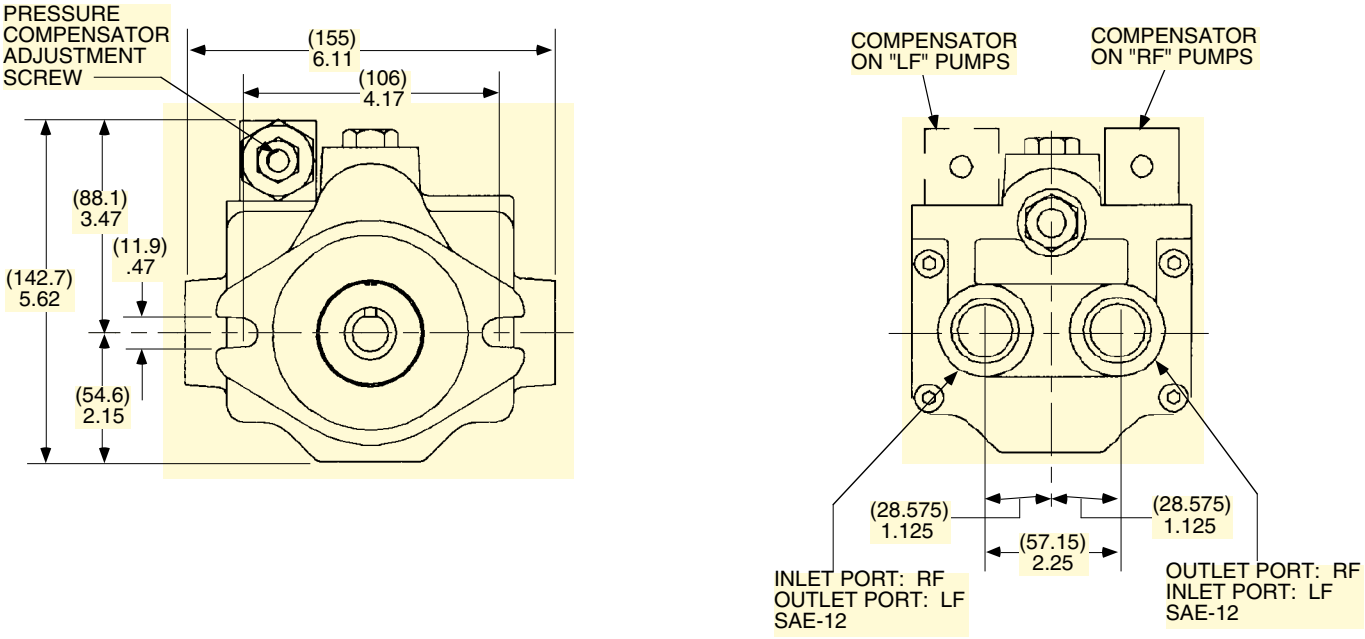
NOISE LEVEL

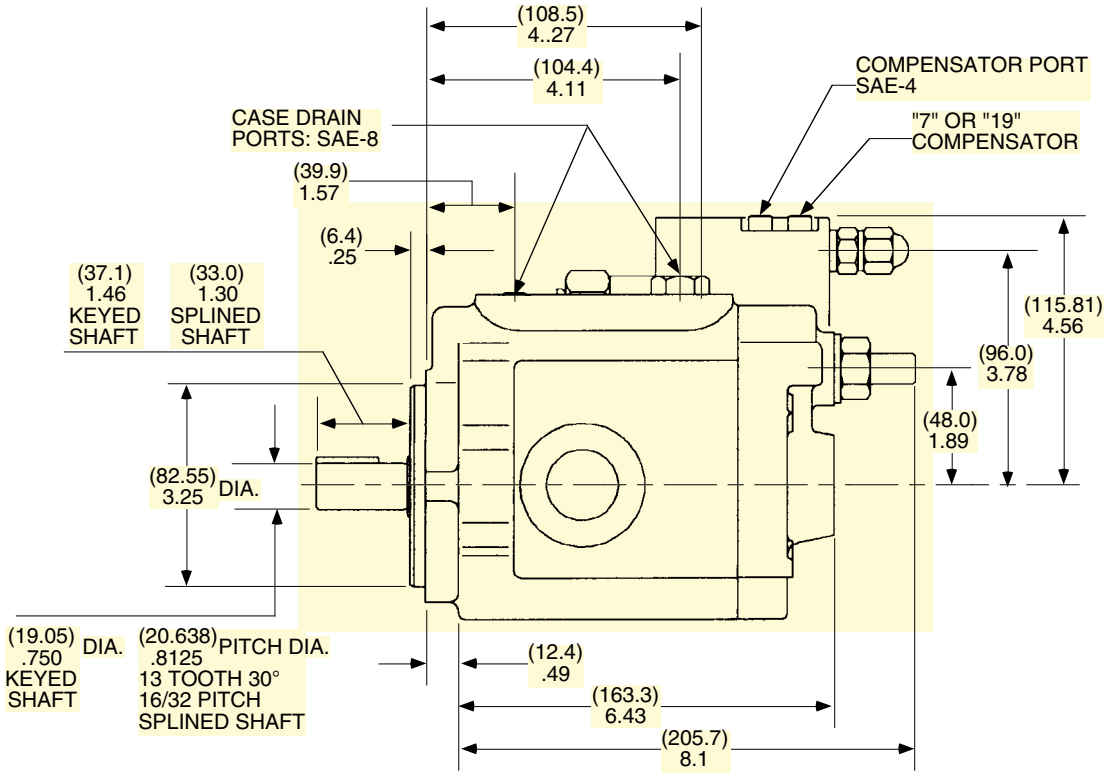
Zero Flow ——————
Full Flow - - - - -



THE ABOVE DATA IS TYPICAL PERFORMANCE AT 1750 RPM.

INSTALLATION DIMENSIONS -- REAR PORTS

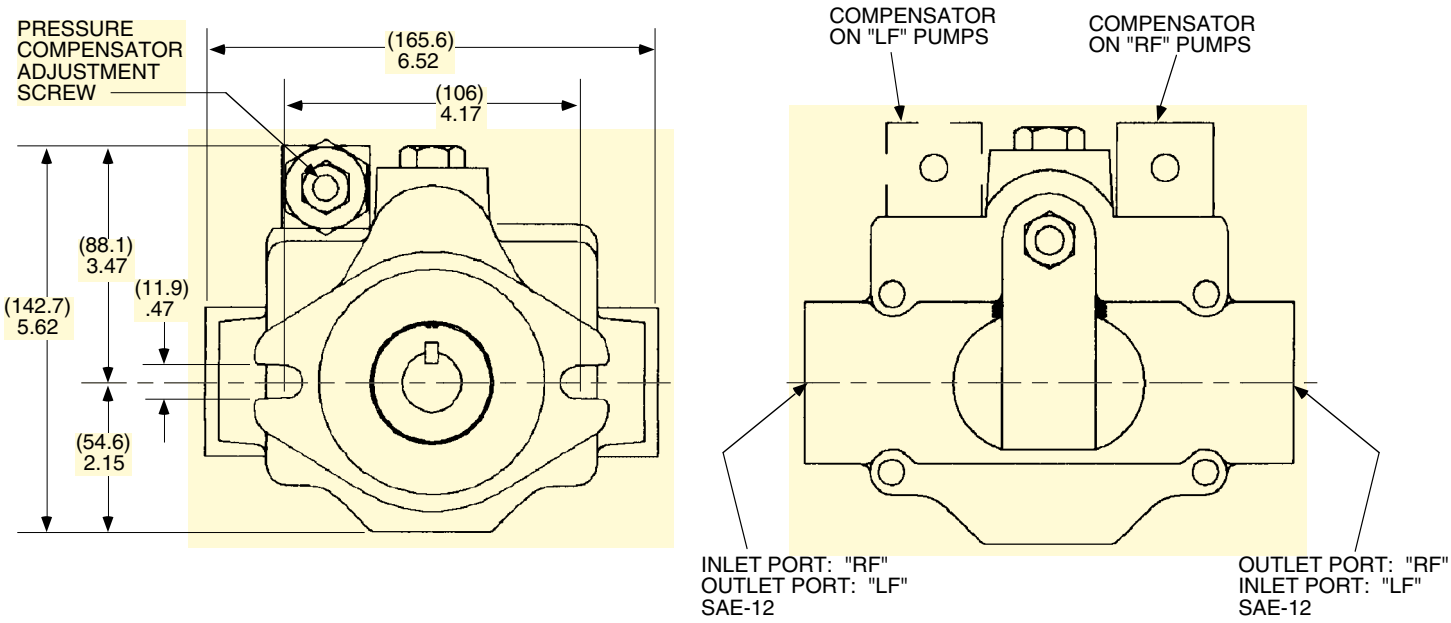


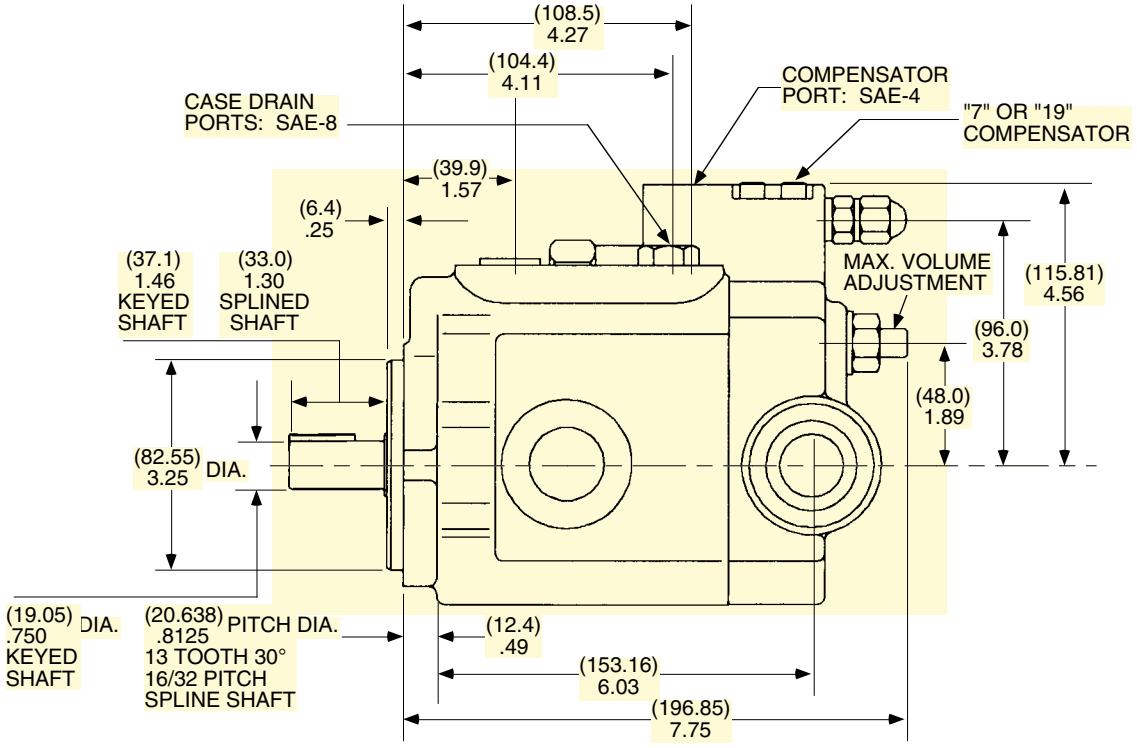


NOTE: KEY SIZE = 3/16" x 1.00".

HPV-6
HPV SERIES
AXIAL PISTON PUMPS

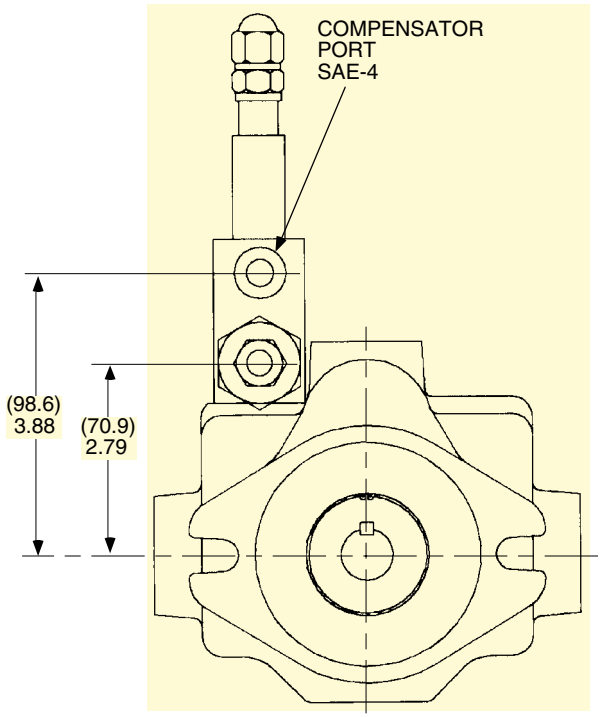
INSTALLATION DIMENSIONS - SIDE PORTS

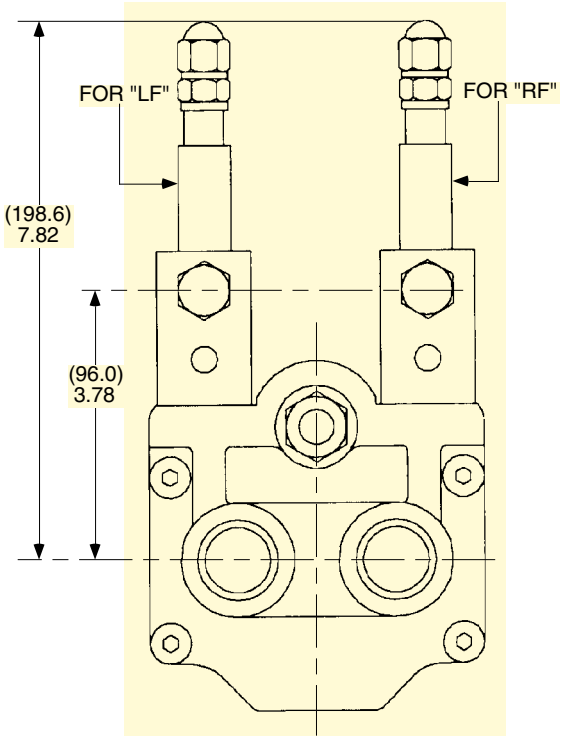


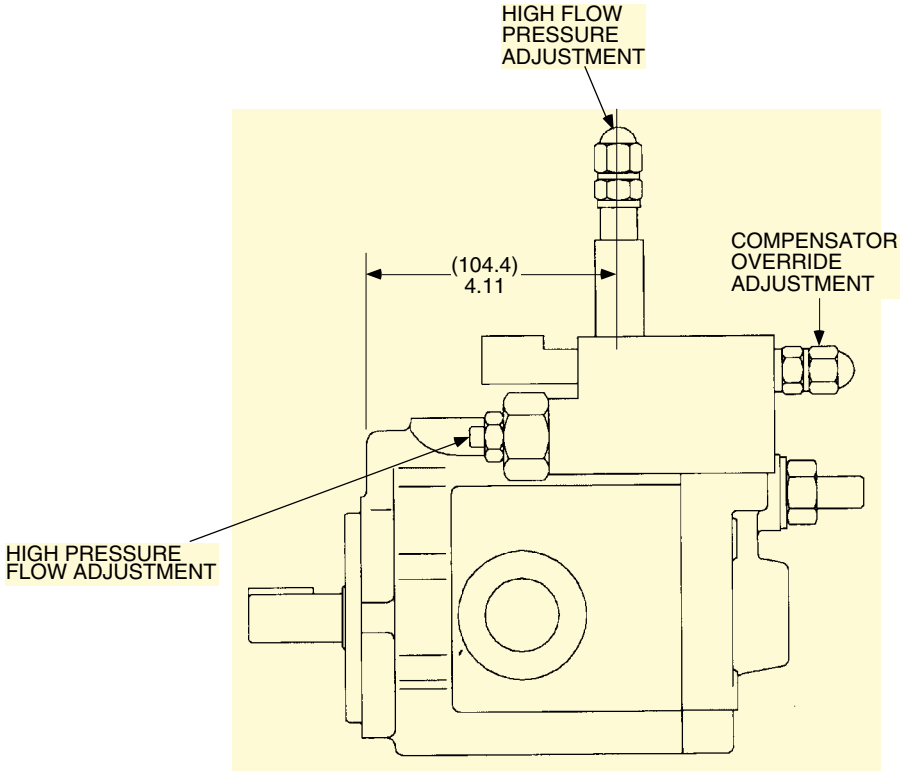


NOTE: KEY SIZE = 3/16" x 1.00".

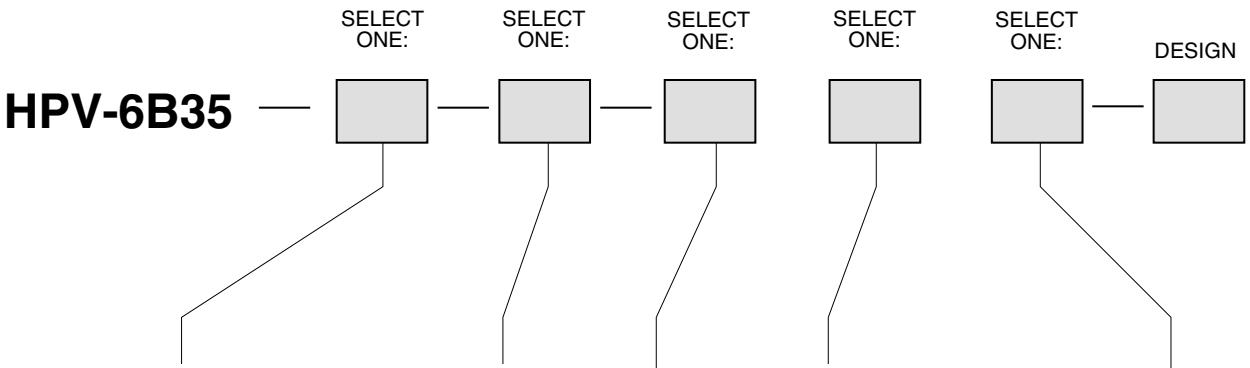
HORSEPOWER LIMITING DIMENSIONS







ORDERING INFORMATION



ROTATION

CODE	DESCRIPTION
RF	CW ROTATION
LF	CCW ROTATION

SEALS

CODE	TYPE
O	BUNA N
P	VITON

SHAFT

CODE	DESCRIPTION
OMIT	STRAIGHT KEY
12	MALE SPLINE

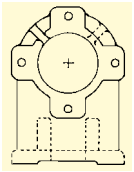
PORTS

CODE	DESCRIPTION
1R	SAE O-RING THREAD REAR PORTS
1S	SAE O-RING THREADED SIDE PORT

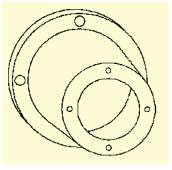
COMPENSATOR

CODE	DESCRIPTION
OMIT	STD. PRESSURE COMPENSATOR
7	REMOTE PRESSURE
19	LOAD SENSE
26	H. P. LIMITING

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



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

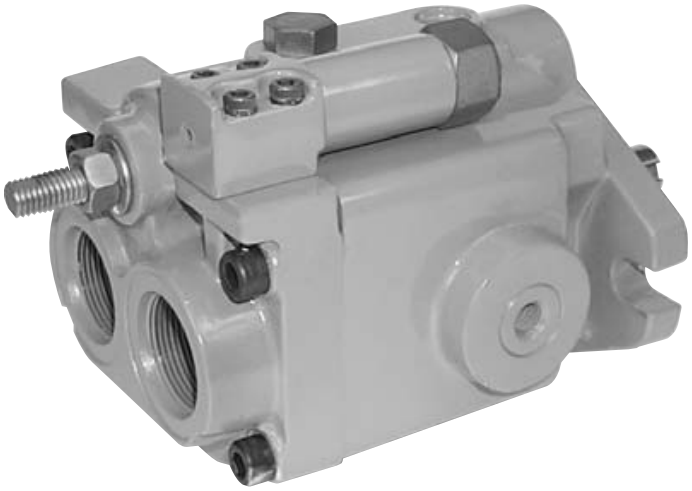


Pump Motor mounts may be found on page 115-117 of the Standard Power Units Catalog. These may be ordered from the Polypac Division.

CONTINENTAL HYDRAULICS

HPV SERIES
AXIAL PISTON PUMPS

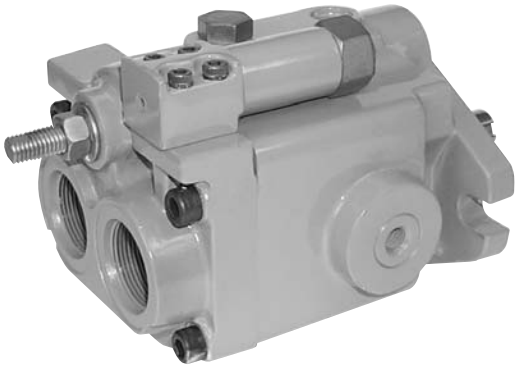
HPV-10 AXIAL PISTON PUMP

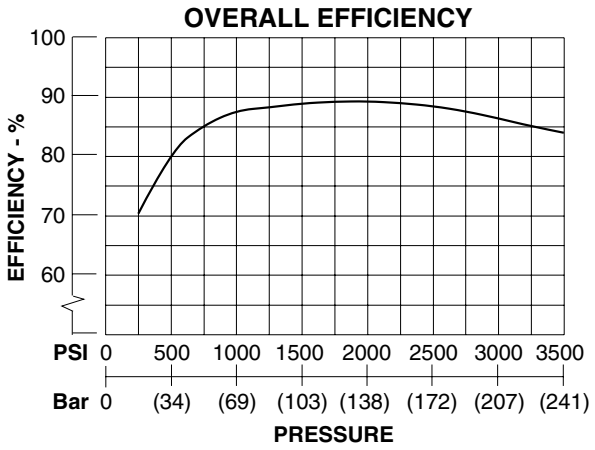


HPV-10
HPV SERIES
AXIAL PISTON PUMPS

CONTINENTAL HYDRAULICS

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

	Maximum Case Pressure		Maximum Inlet Pressure		Minimum Inlet Pressure	
RPM	**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

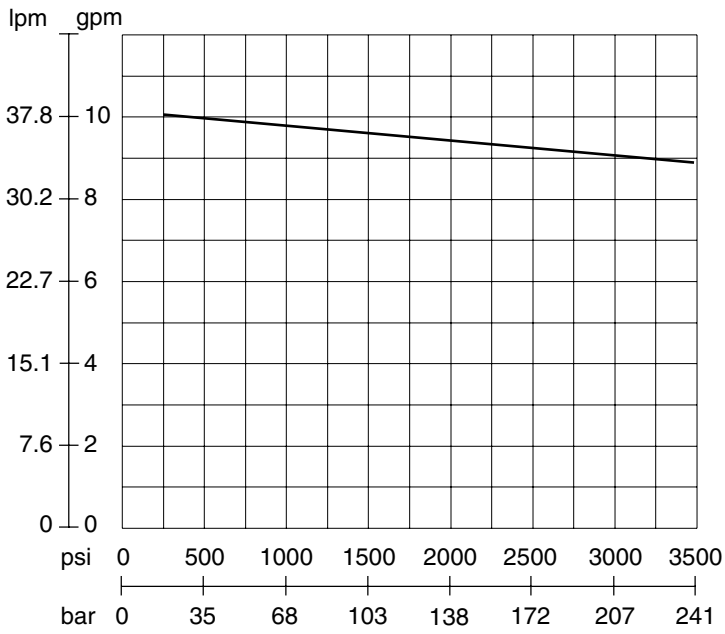
PRESSURE & VOLUME ADJUSTMENT SENSITIVITY

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

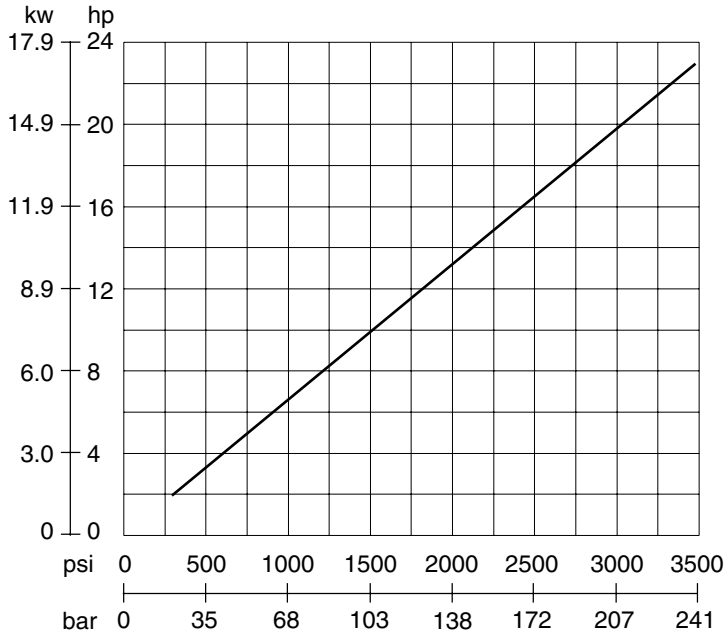
CONTINENTAL HYDRAULICS

HPV-10
HPV SERIES
AXIAL PISTON PUMPS

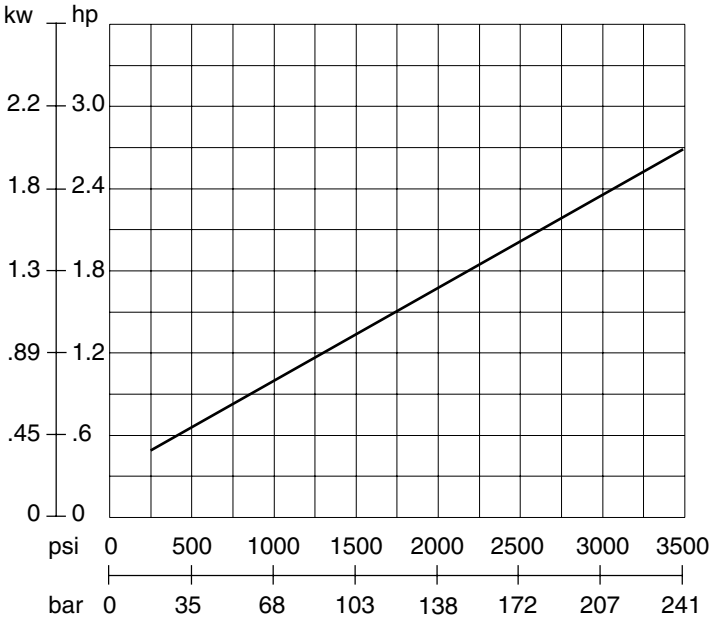
FLOW vs PRESSURE



INPUT POWER @ FULL FLOW

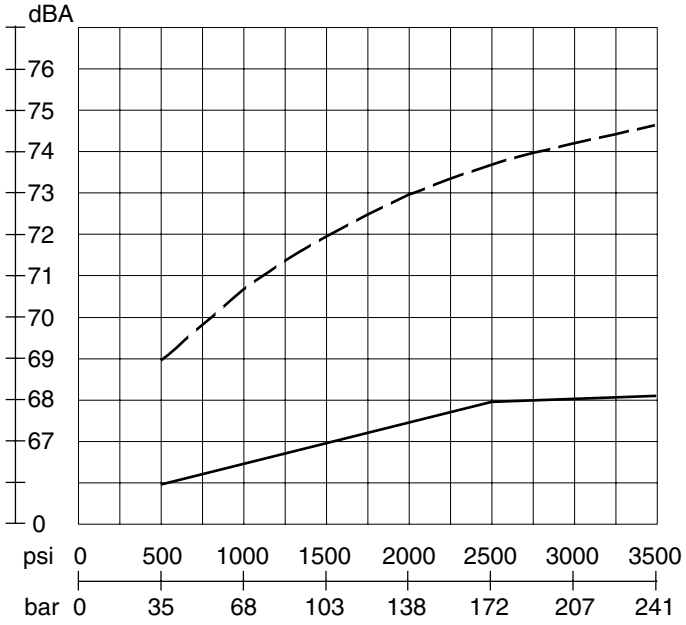


INPUT POWER @ ZERO FLOW



NOISE LEVEL

Zero Flow = ——————
Full Flow = — — — —



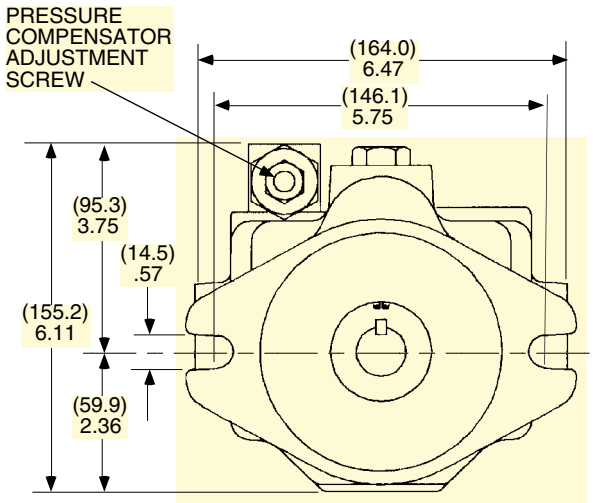
THE ABOVE DATA IS TYPICAL PERFORMANCE AT 1750 RPM.

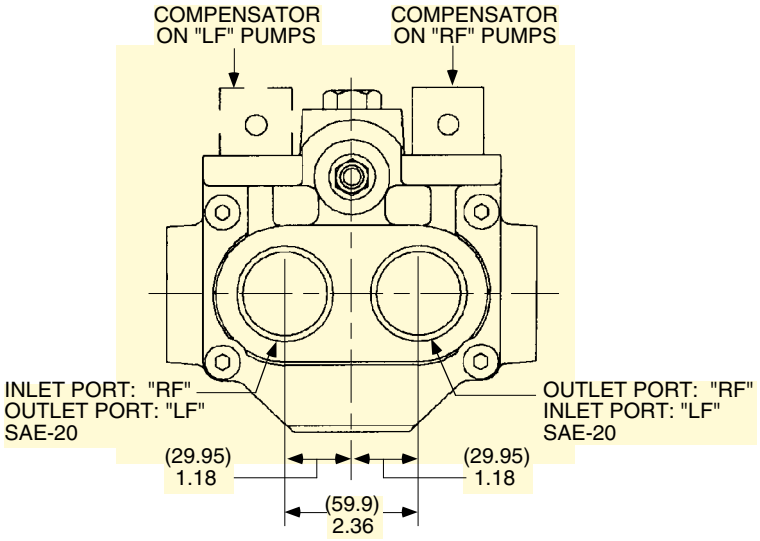
HPV-10
HPV SERIES
AXIAL PISTON PUMPS

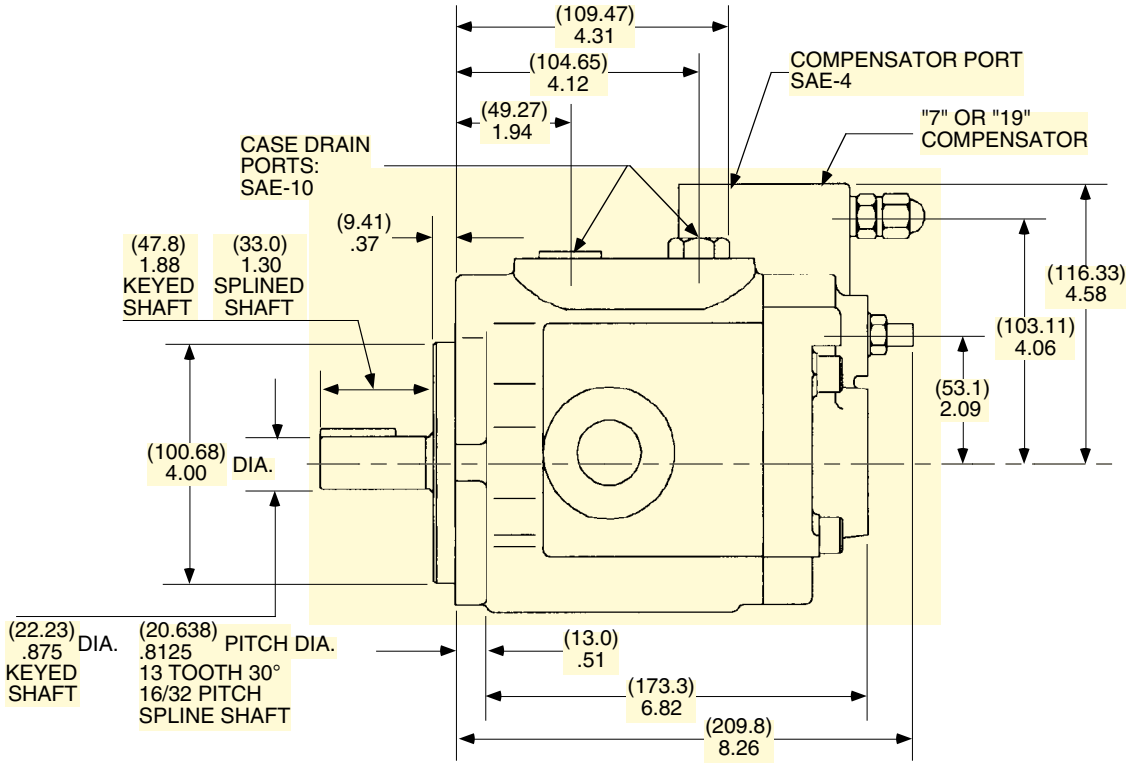
CONTINENTAL HYDRAULICS

INSTALLATION DIMENSIONS -- REAR PORTS

(MILLIMETERS)
INCHES



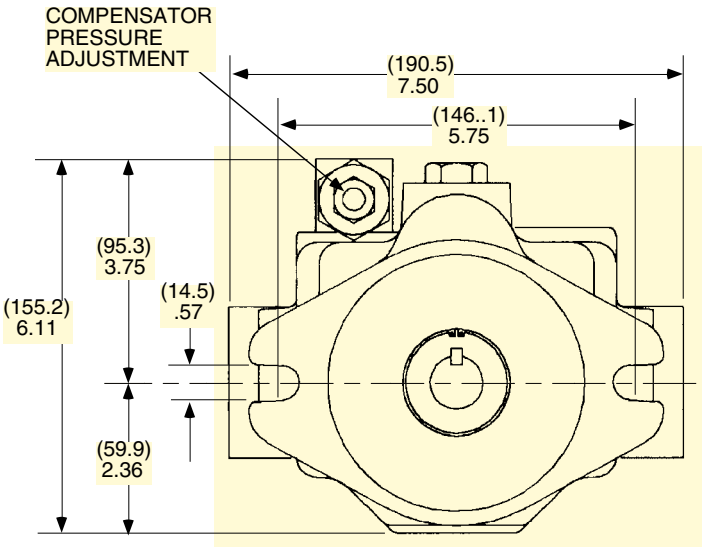


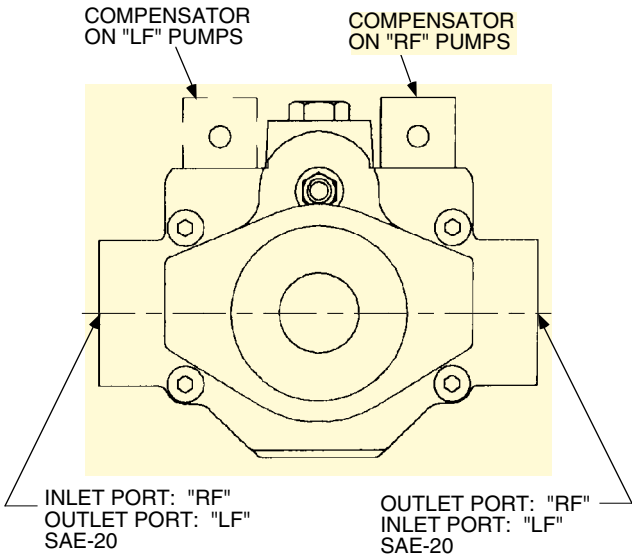


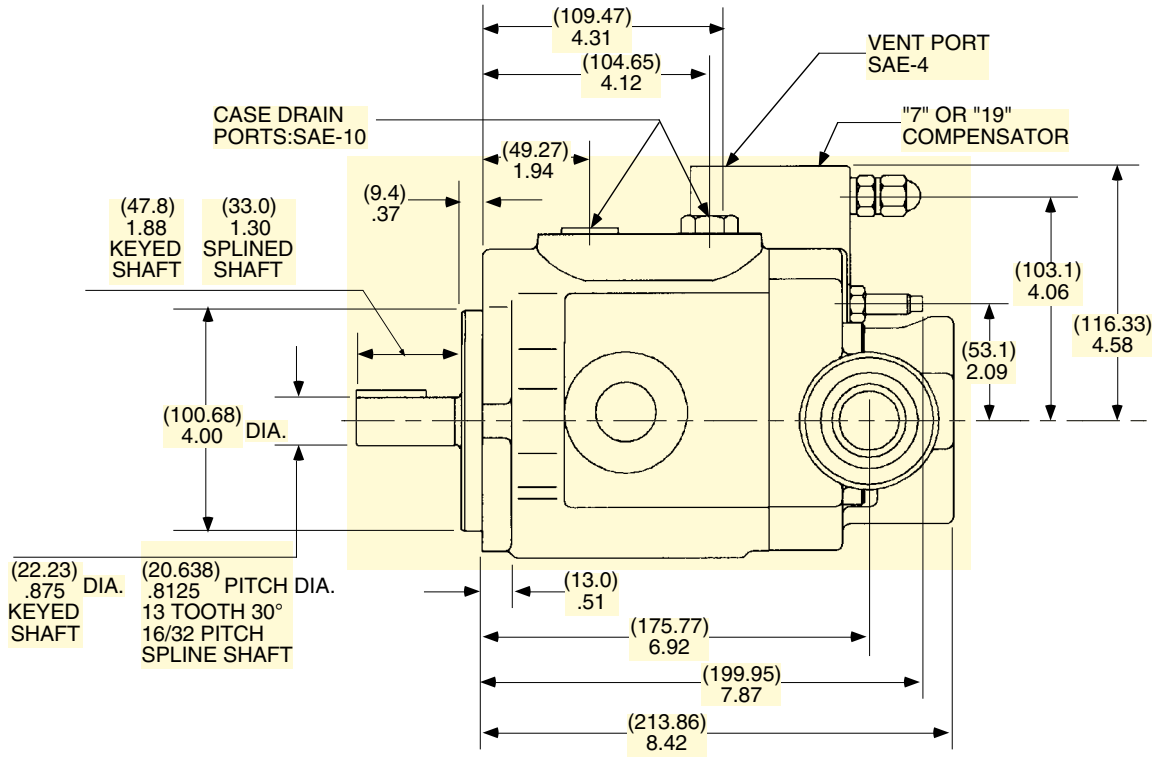
NOTE: KEY SIZE = 1/4"x 1.25".

INSTALLATION DIMENSIONS -- SIDE PORTS

MILLIMETERS)
INCHES





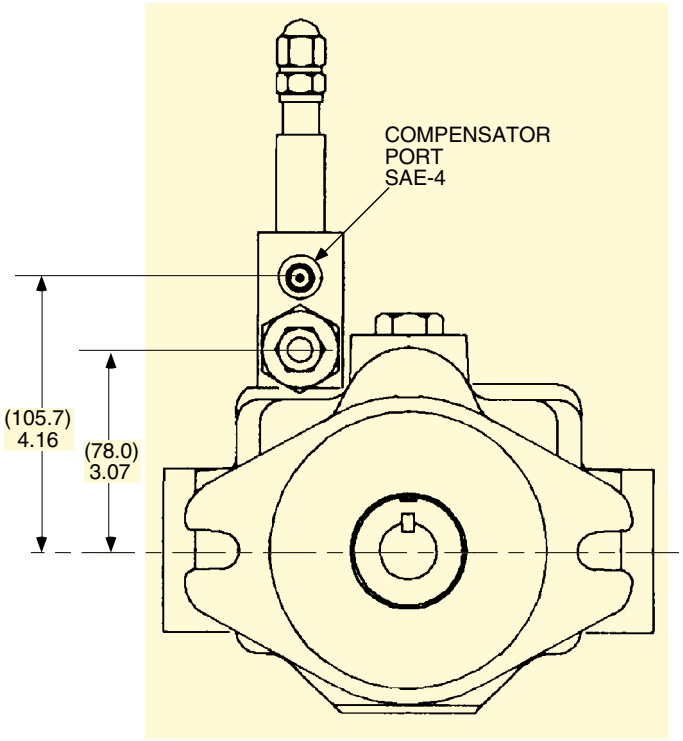


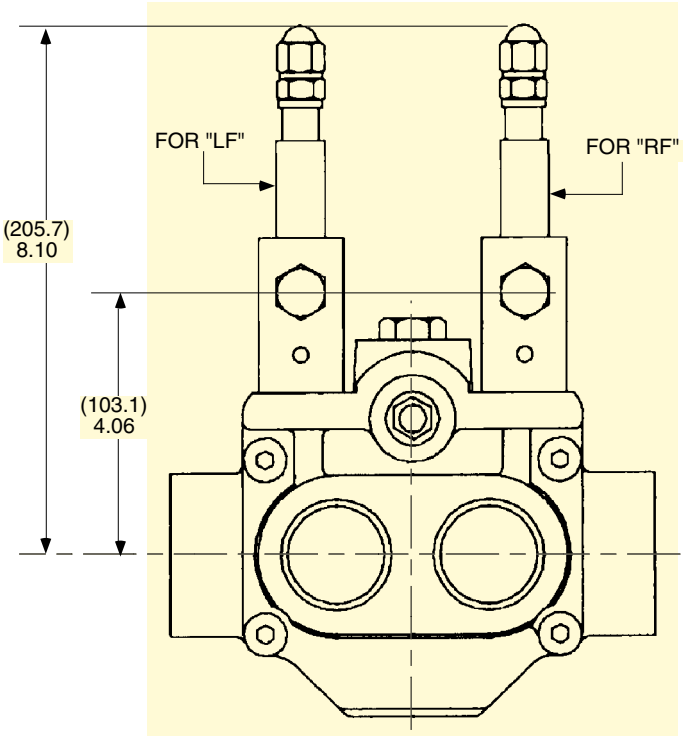
NOTE: KEY SIZE = 1/4" x 1.25".

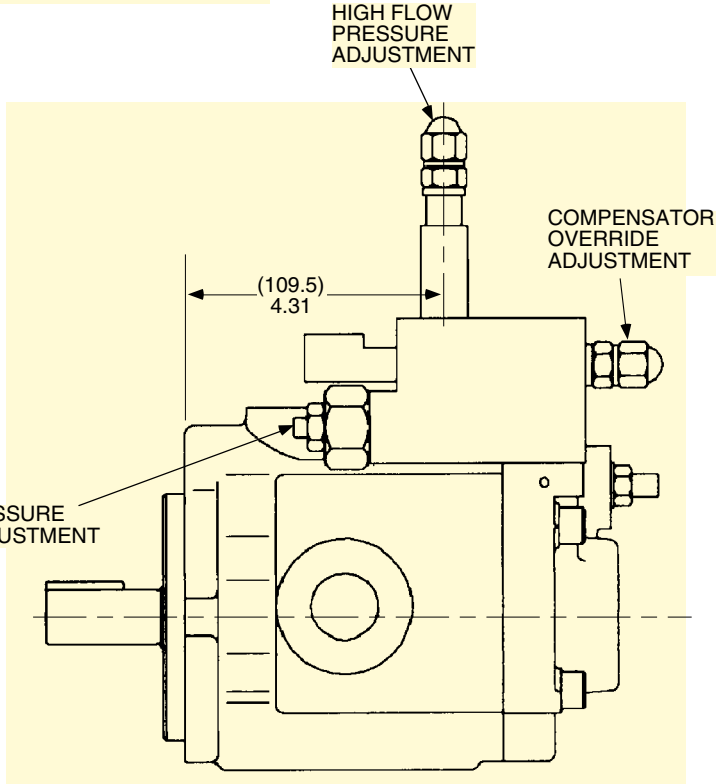
HPV-10
HPV SERIES
AXIAL PISTON PUMPS

CONTINENTAL HYDRAULICS

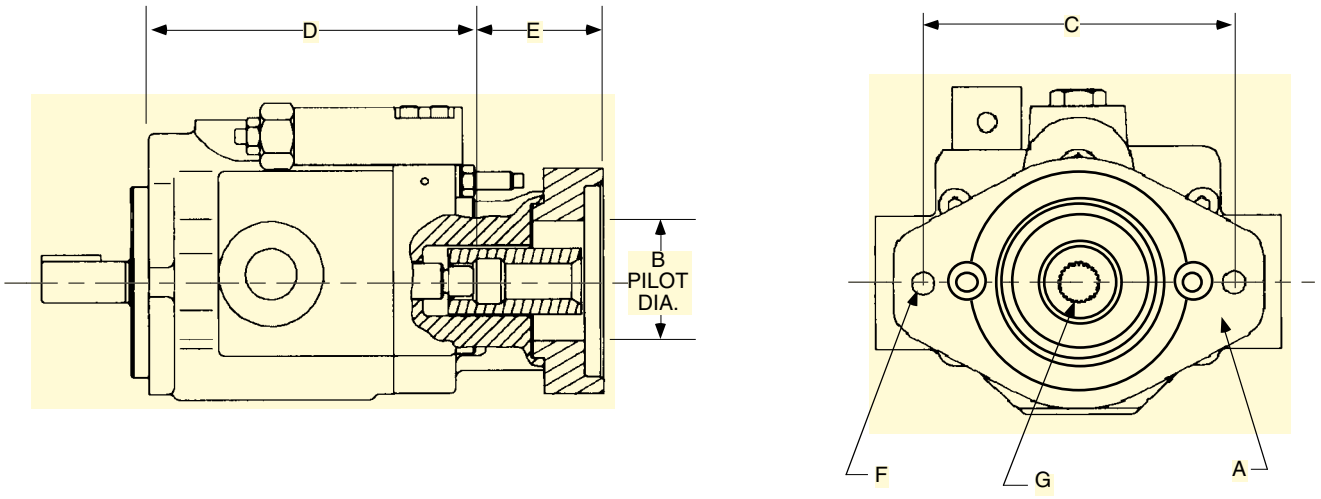
HORSEPOWER LIMITING DIMENSIONS







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	F	G		
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.

HPV-10
HPV SERIES
AXIAL PISTON PUMPS

CONTINENTAL HYDRAULICS

ORDERING INFORMATION

HPV-10B35 — [SELECT ONE:] — [SELECT ONE:] — [SELECT ONE:] — [SELECT ONE:] — [SELECT ONE:] — [SELECT ONE:] — [DESIGN]

ROTATION

CODE	DESCRIPTION
RF	CW ROTATION
LF	CCW ROTATION

SEALS

CODE	TYPE
O	BUNA N
P	VITON

SHAFT

CODE	DESCRIPTION
OMIT	STRAIGHT KEY
12	MALE SPLINE

PORTS

CODE	DESCRIPTION
1R	SAE O-RING THREAD REAR PORTS
1S	SAE O-RING THREAD SIDE PORT

TANDEM

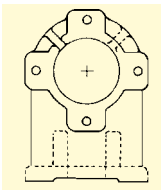
CODE	DESCRIPTION
OMIT	NO TANDEM OPTION
21*	SAE "A" REAR PAD
22*	SAE "B" REAR PAD
31*	SAE "A" REAR PAD WITH SAE "B" SPLINE COUPLING

COMPENSATOR

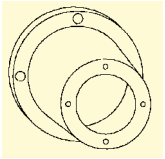
CODE	DESCRIPTION
OMIT	STD. PRESSURE COMPENSATOR
7	REMOTE PRESSURE
19	LOAD SENSE
26	H. P. LIMITING

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

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



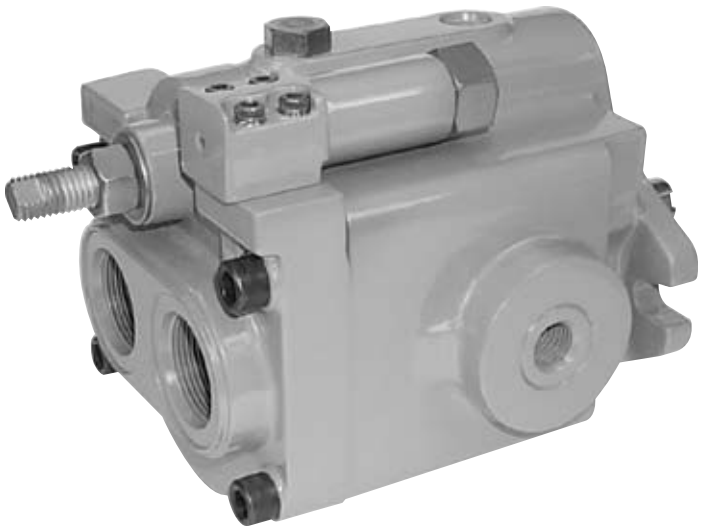
Foot Mounting Brackets may be found on page 49 of this catalog.



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

CONTINENTAL HYDRAULICS

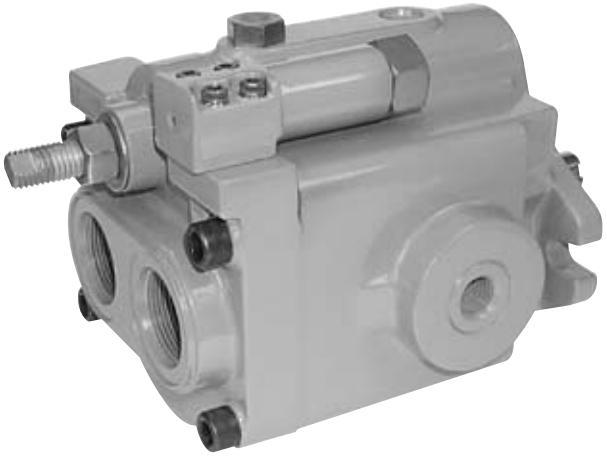
HPV-15 AXIAL PISTON PUMP



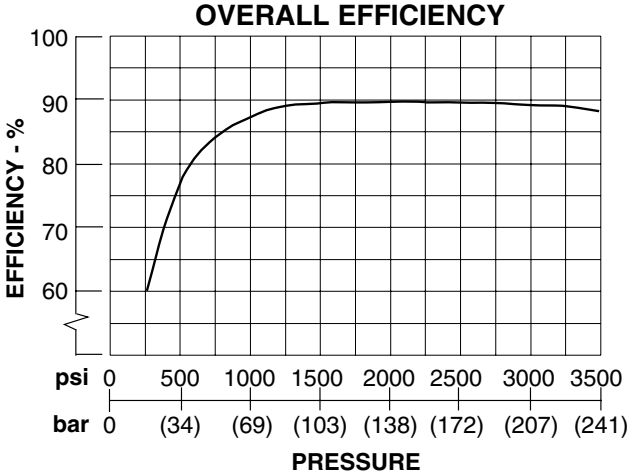
HPV-15
HPV SERIES
AXIAL PISTON PUMPS

CONTINENTAL HYDRAULICS

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 exceeed 6 consecutive seconds.**

? **Pumps operating at less than 150 psi may overheat & shorten pump life.**

CASE DRAIN & INLET PORT SPECIFICATIONS

	Maximum Case Pressure		Maximum Inlet Pressure		Minimum Inlet Pressure	
RPM	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	88.67mm-Hg
2500	5	0.34	50	3.4	0	0

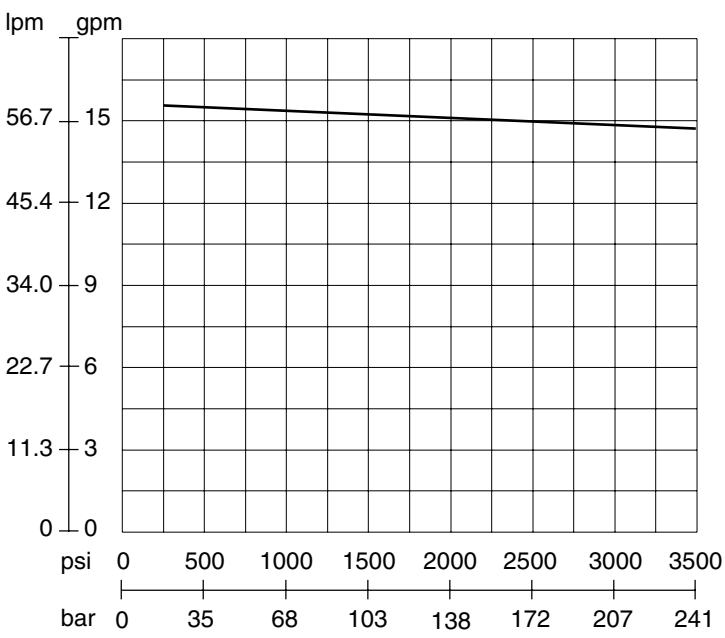
PRESSURE & VOLUME ADJUSTMENT SENSITIVITY

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

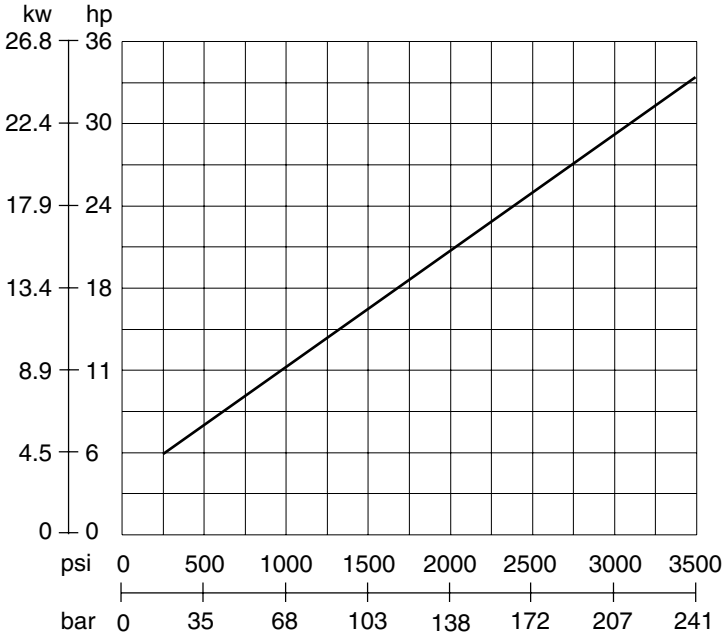
CONTINENTAL HYDRAULICS

HPV-15
HPV SERIES
AXIAL PISTON PUMPS

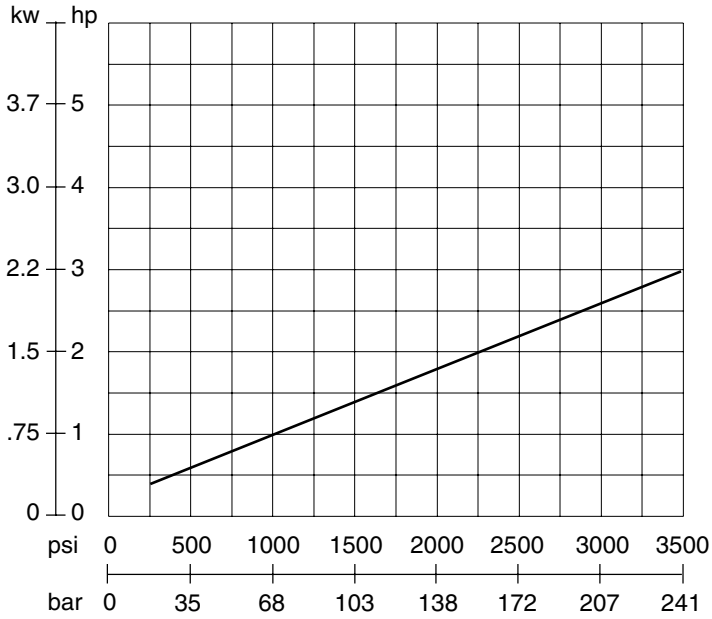
FLOW vs PRESSURE



INPUT POWER @ FULL FLOW

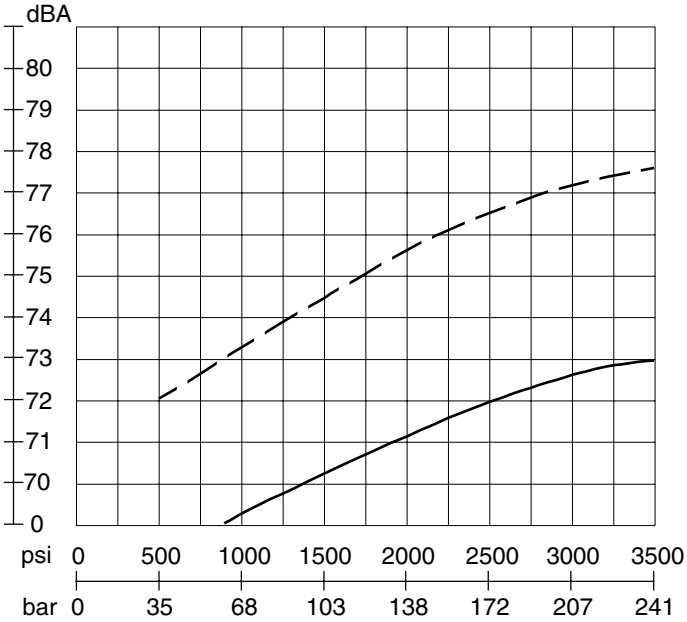


INPUT POWER @ ZERO FLOW



NOISE LEVEL

Zero Flow = ————
Full Flow = — — — —



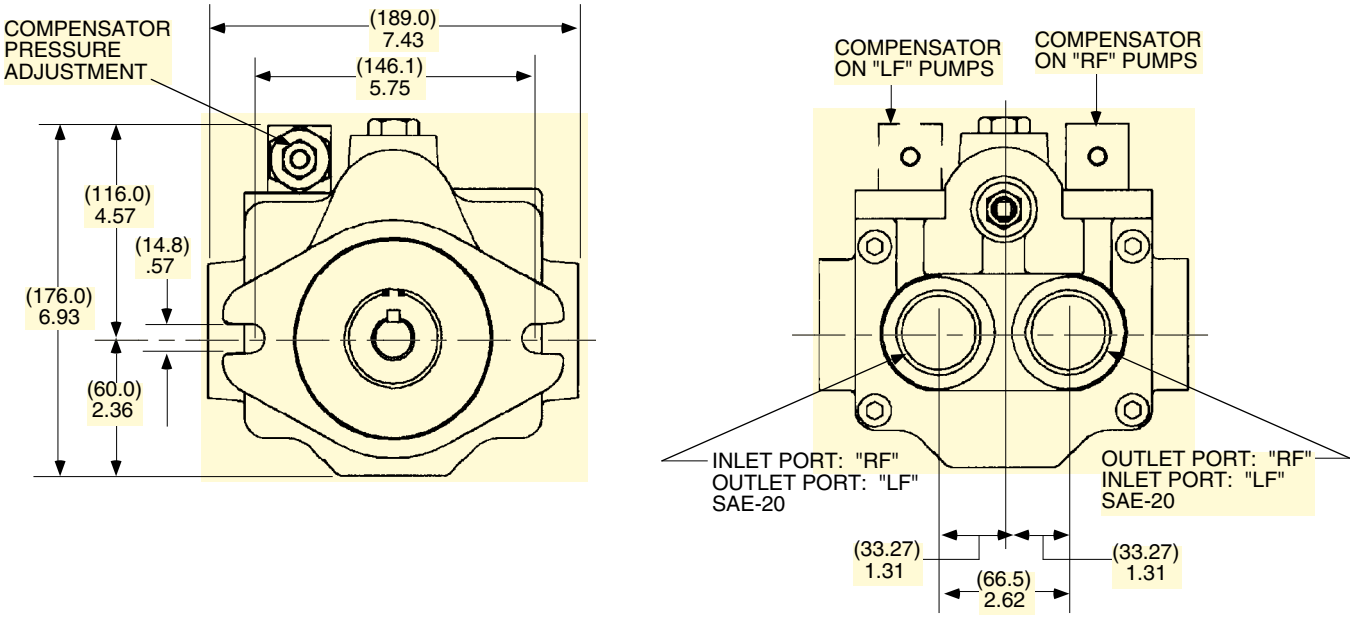
THE ABOVE DATA IS TYPICAL PERFORMANCE AT 1750 RPM.

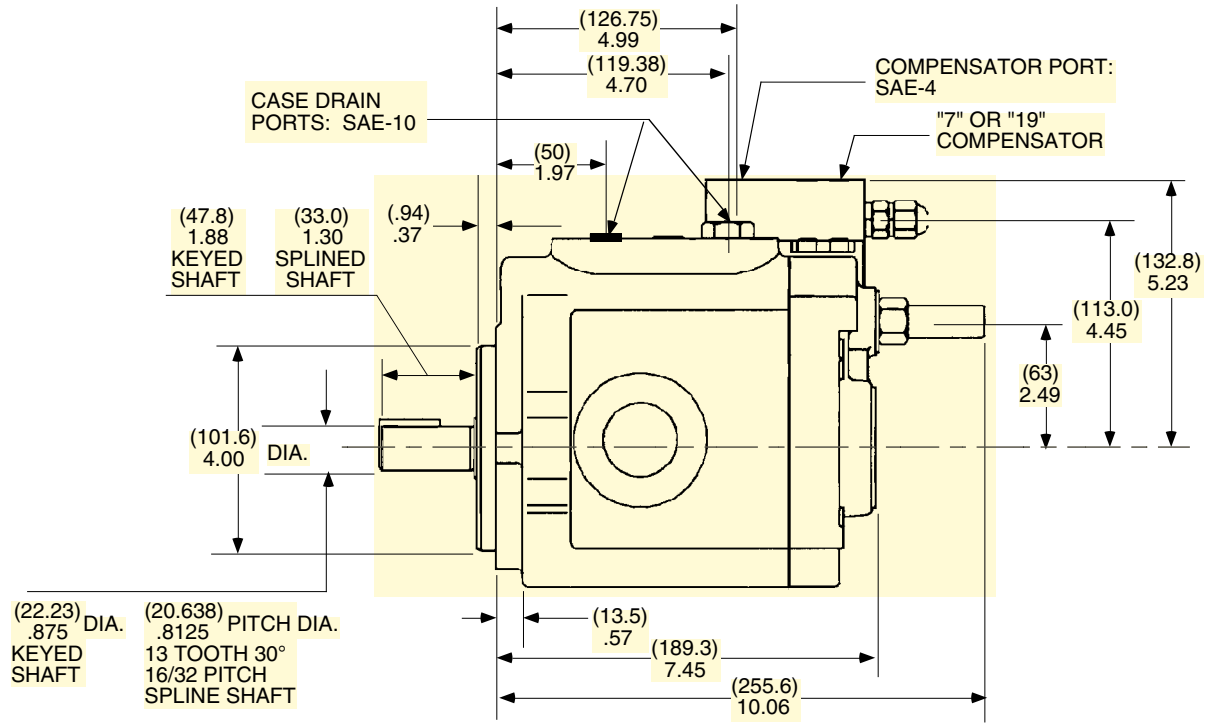
HPV-15
HPV SERIES
AXIAL PISTON PUMPS

CONTINENTAL HYDRAULICS

INSTALLATION DIMENSIONS -- REAR PORTS

(MILLIMETERS)
INCHES

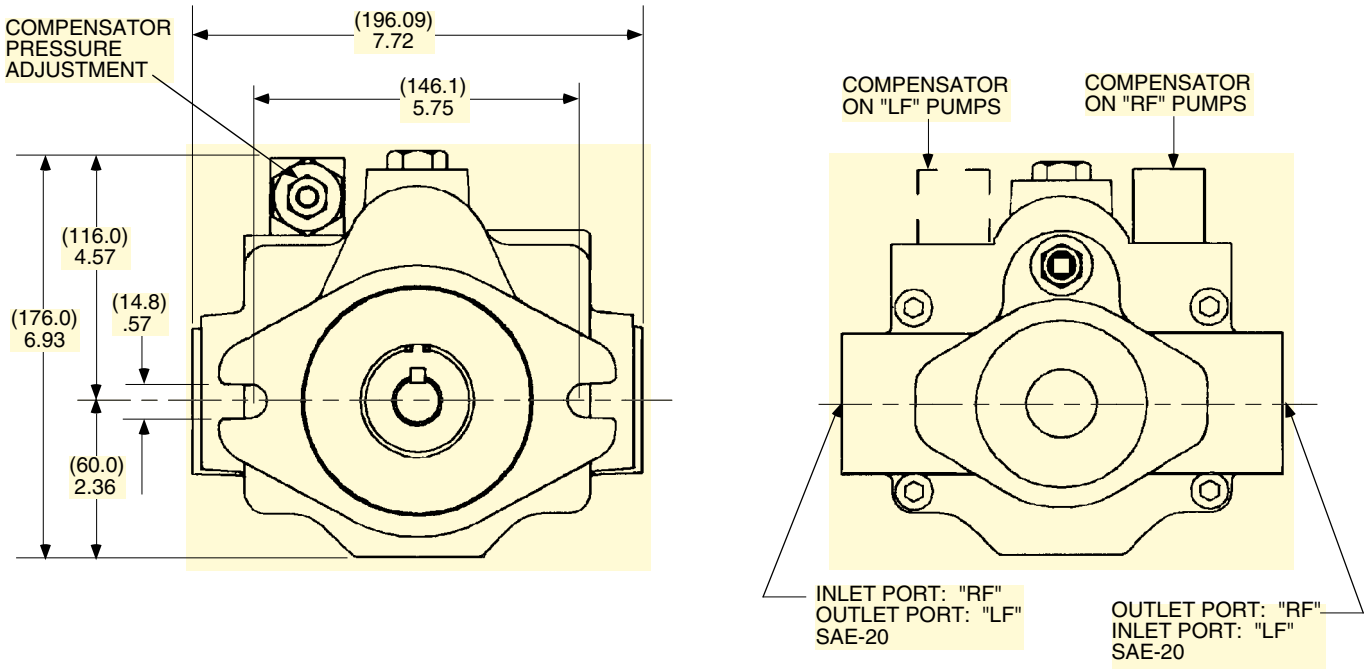


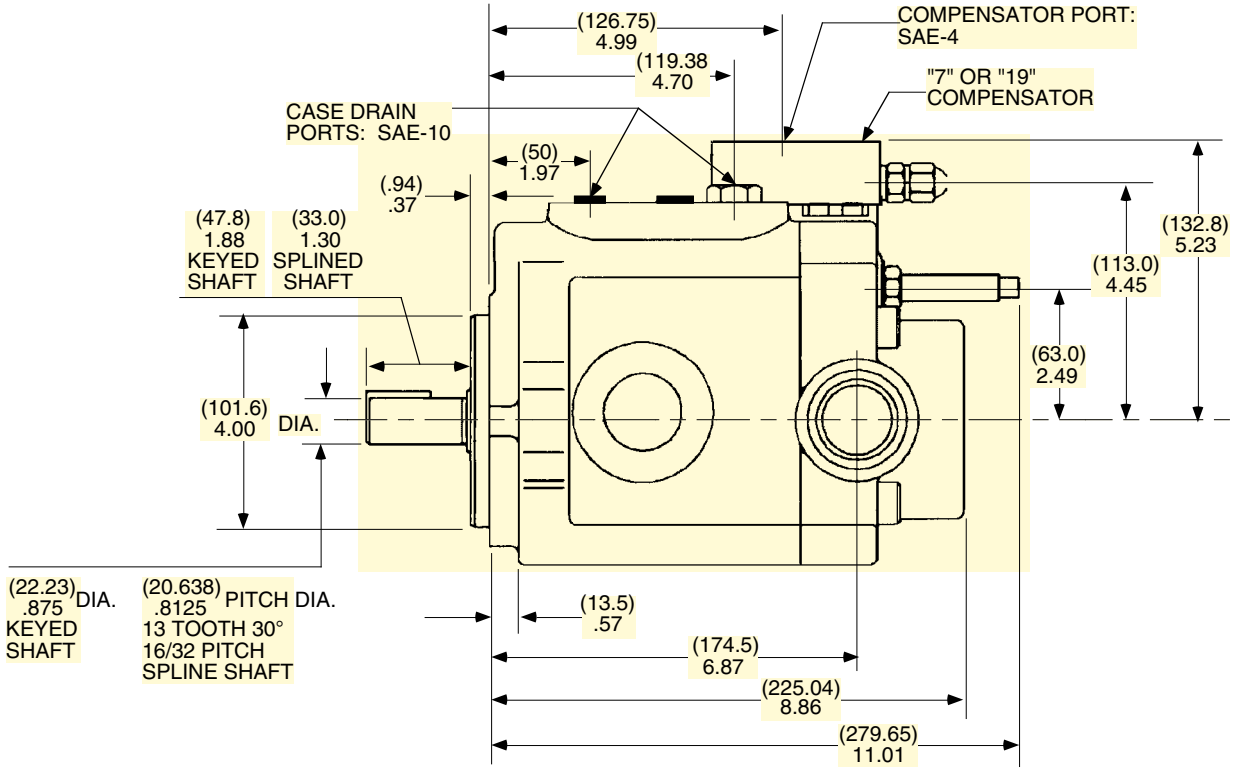


NOTE: KEY SIZE = 1/4" x 1.25".

INSTALLATION DIMENSIONS -- SIDE PORTS

(MILLIMETERS)
INCHES





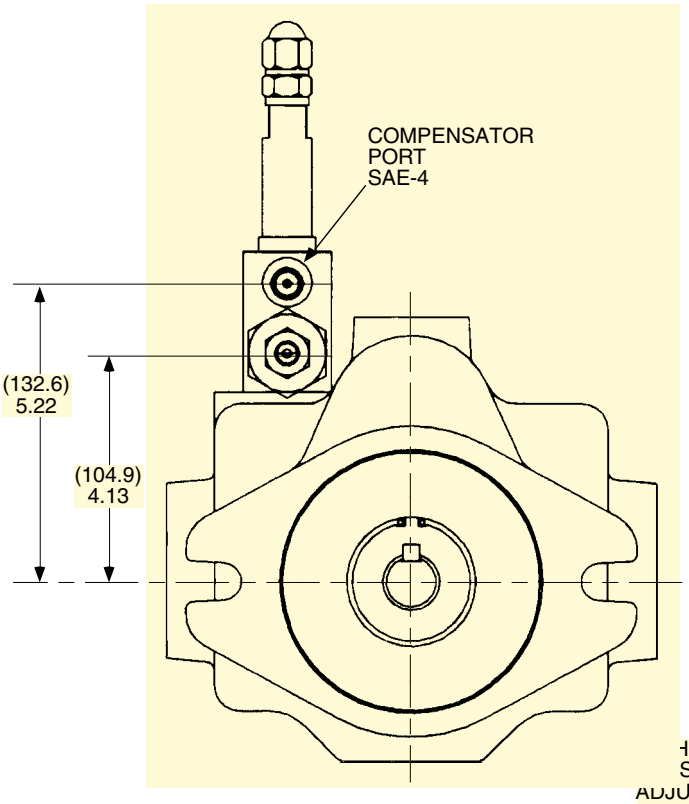
NOTE: KEY SIZE = 1/4" x 1.25".

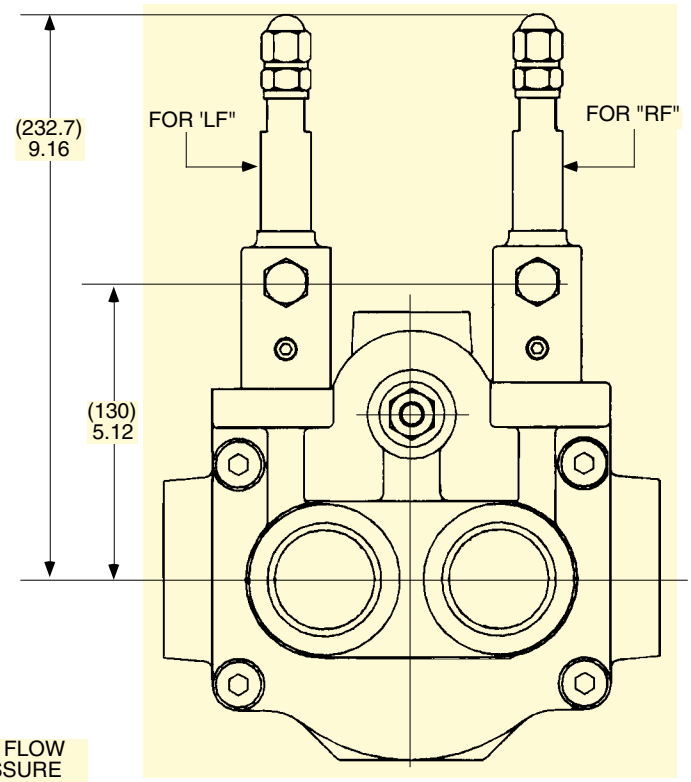
HPV-15
HPV SERIES
AXIAL PISTON PUMPS

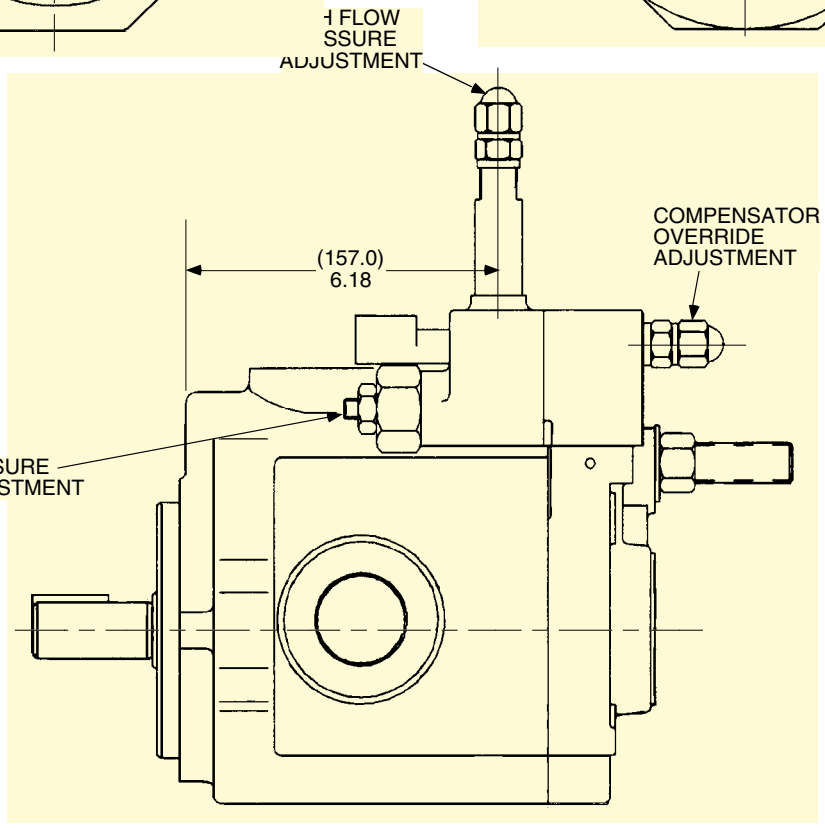
CONTINENTAL HYDRAULICS

HORSEPOWER LIMITING DIMENSIONS

(MILLIMETERS)
INCHES

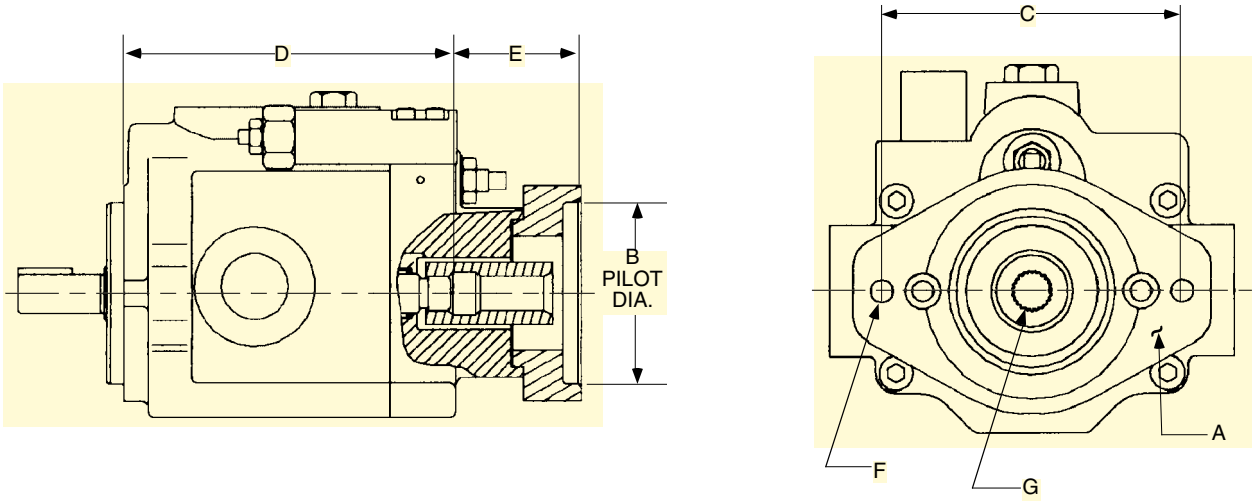






CODES 21, 22, & 31-TANDEM OPTIONS

(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 (MILLIMETERS) INCHES					INTERNAL 30° INVOLUTE SPLINE	MAX. HP RATING *	MAX. TORQUE RATING *
	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.

HPV-15
HPV SERIES
AXIAL PISTON PUMPS

CONTINENTAL HYDRAULICS

ORDERING INFORMATION

HPV-15B35 — [SELECT ONE:] — [SELECT ONE:] — [SELECT ONE:] — [SELECT ONE:] — [SELECT ONE:] — [SELECT ONE:] — [DESIGN]

ROTATION

CODE	DESCRIPTION
RF	CW ROTATION
LF	CCW ROTATION

SEALS

CODE	TYPE
O	BUNA N
P	VITON

SHAFT

CODE	DESCRIPTION
OMIT	STRAIGHT KEY
12	MALE SPLINE

PORTS

CODE	DESCRIPTION
1R	SAE O-RING THREAD REAR PORTS
1S	SAE O-RING THREAD SIDE PORT

TANDEM

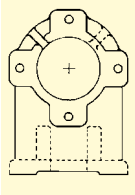
CODE	DESCRIPTION
OMIT	NO TANDEM OPTION
21*	SAE "A" REAR PAD
22*	SAE "B" REAR PAD
31*	SAE "A" REAR PAD WITH SAE "B" SPLINE COUPLING

COMPENSATOR

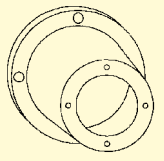
CODE	DESCRIPTION
OMIT	STD. PRESSURE COMPENSATOR
7	REMOTE PRESSURE
19	LOAD SENSE
26	H. P. LIMITING

*** 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.

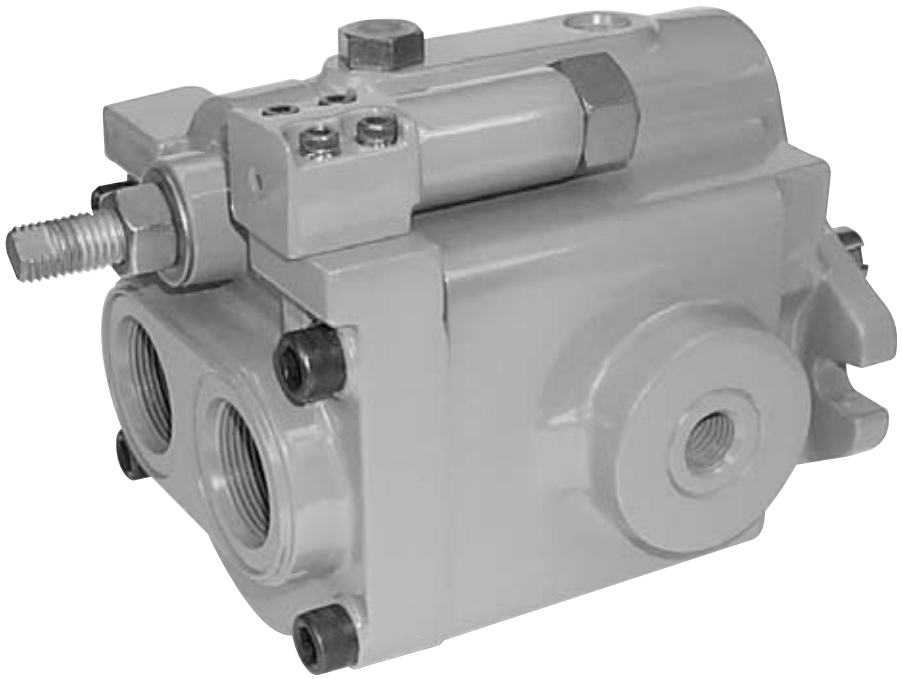


Pump Motor mounts may be found on page 115-117 of the Standard Power Units Catalog. These may be ordered from the Polypac Division.

CONTINENTAL HYDRAULICS

HPV-20
HPV SERIES
AXIAL PISTON PUMPS

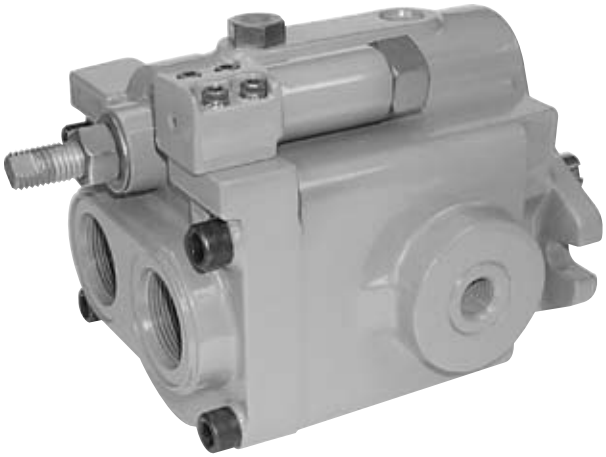
HPV-20 AXIAL PISTON PUMP



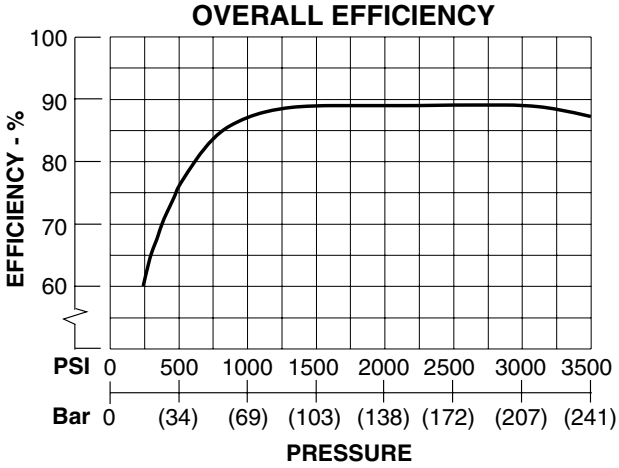
HPV-20
HPV SERIES
AXIAL PISTON PUMPS

CONTINENTAL HYDRAULICS

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 @ 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

	Maximum Case Pressure		Maximum Inlet Pressure		Minimum Inlet Pressure	
RPM	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

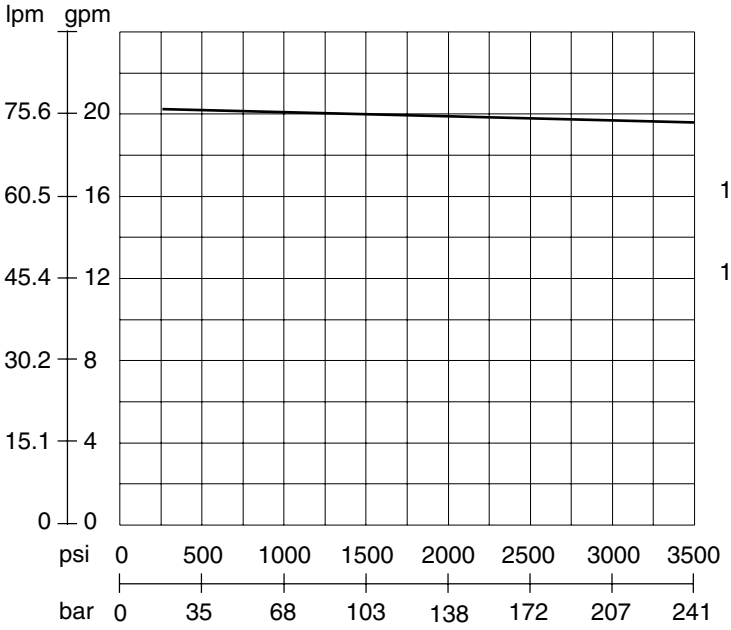
PRESSURE & VOLUME ADJUSTMENT SENSITIVITY

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

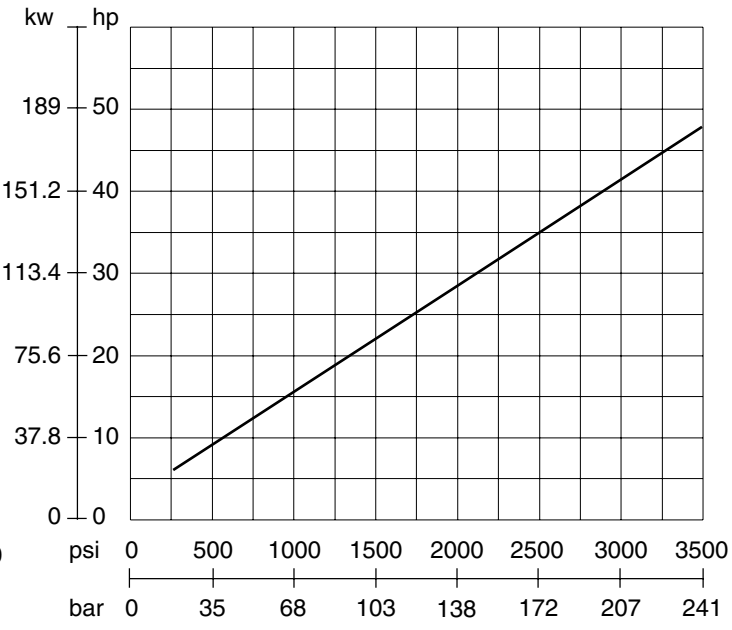
CONTINENTAL HYDRAULICS

HPV-20
HPV SERIES
AXIAL PISTON PUMPS

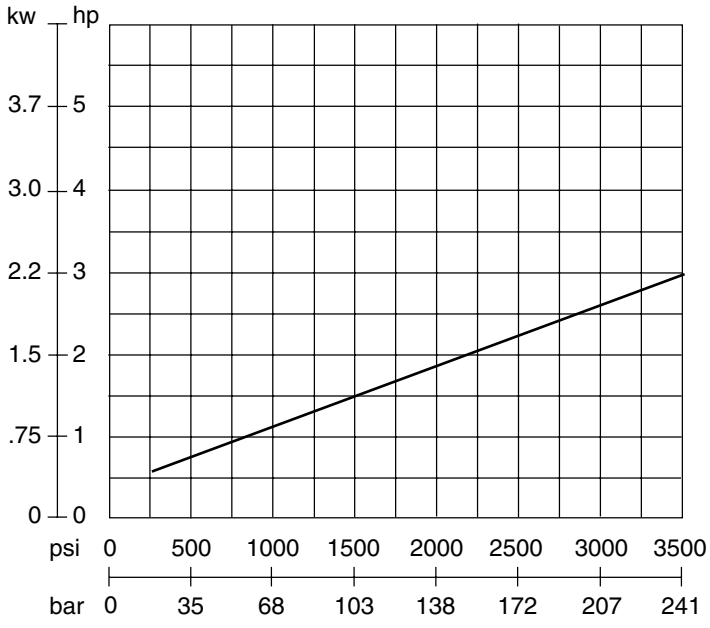
FLOW vs PRESSURE



INPUT POWER @ FULL FLOW



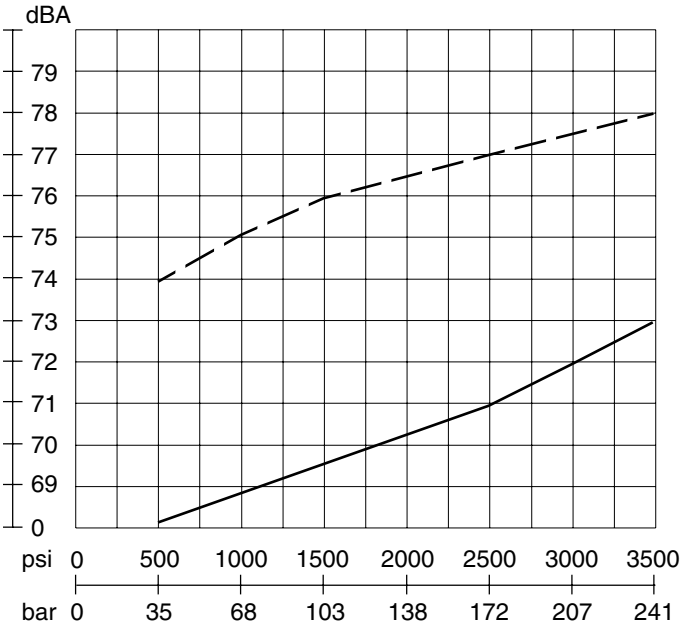
INPUT POWER @ ZERO FLOW



NOISE LEVEL

Zero Flow = ——————

Full Flow = — — — — —

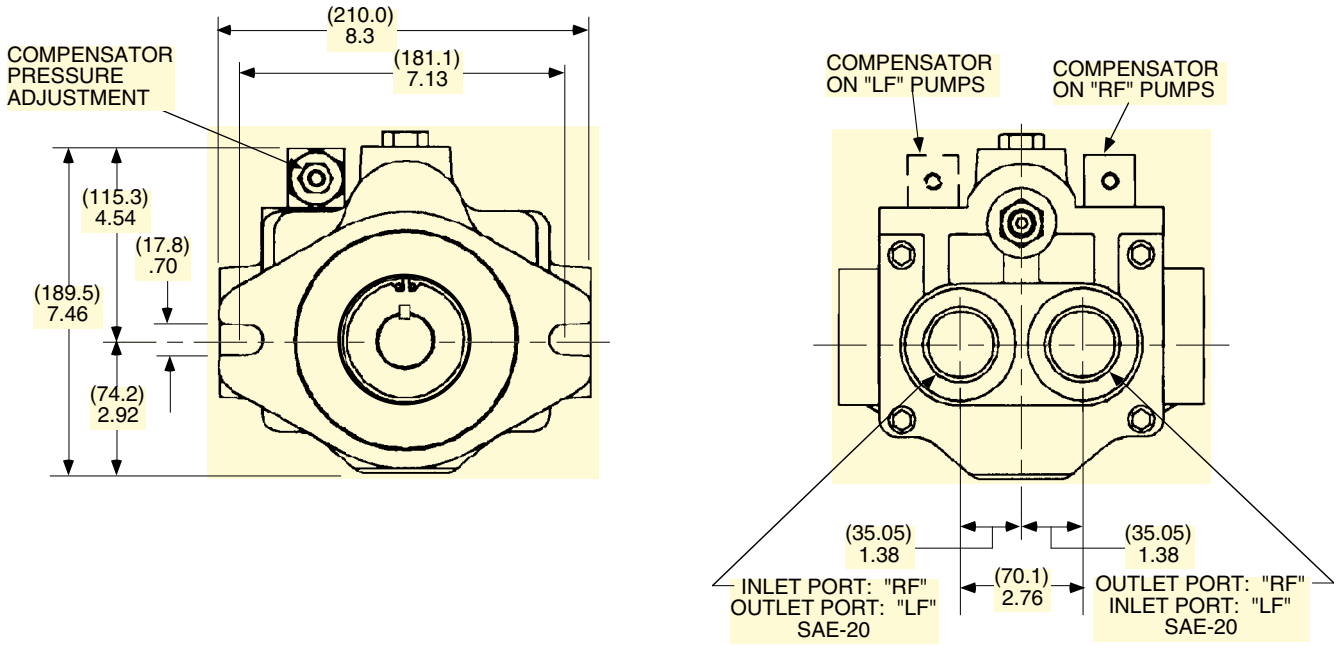


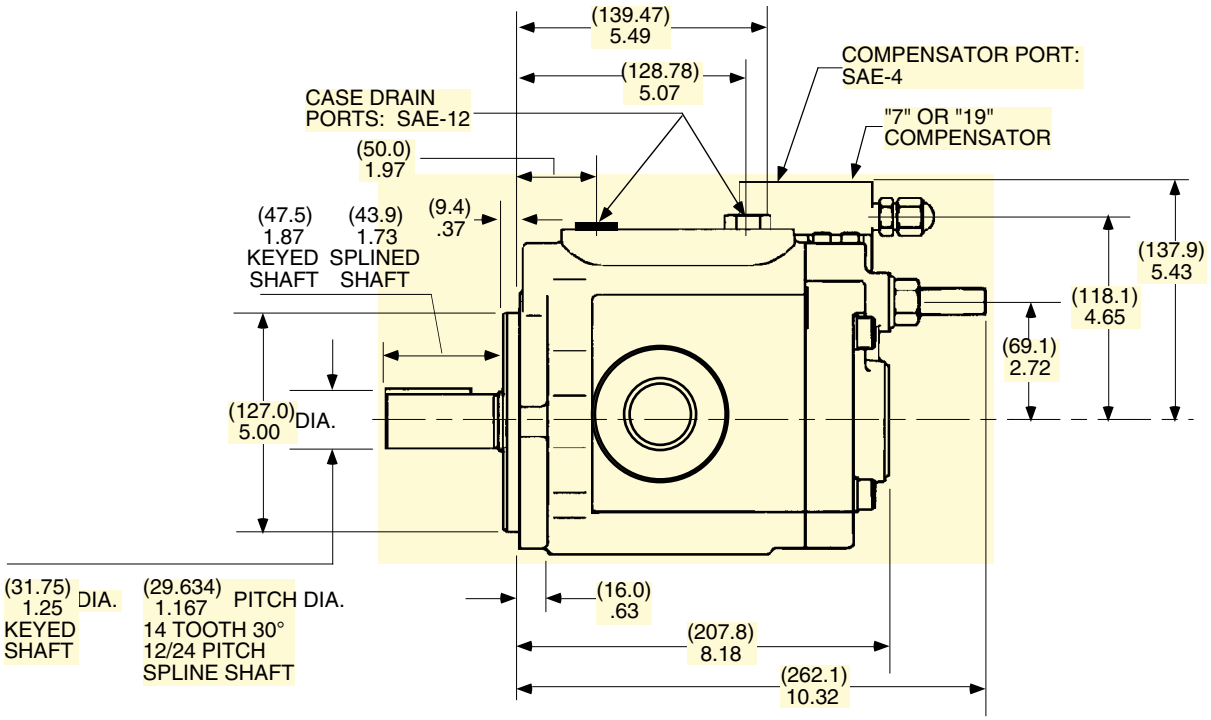
THE ABOVE DATA IS TYPICAL PERFORMANCE AT 1750 RPM.

HPV-20
HPV SERIES
AXIAL PISTON PUMPS

INSTALLATION DIMENSIONS -- REAR PORTS

(MILLIMETERS)
INCHES

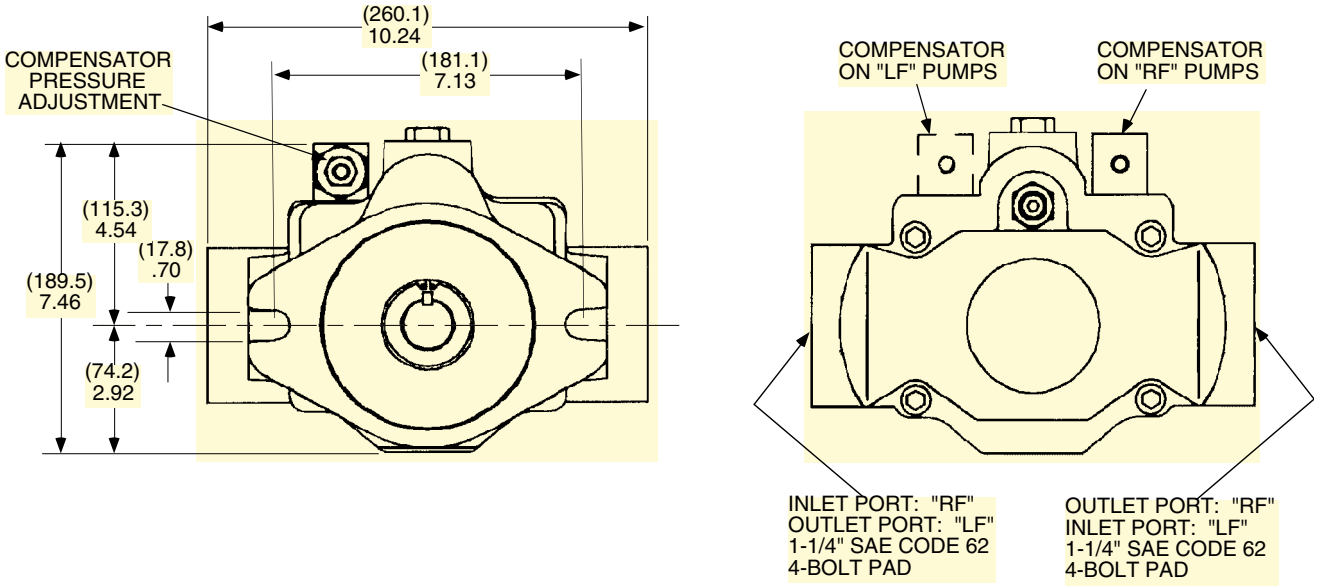


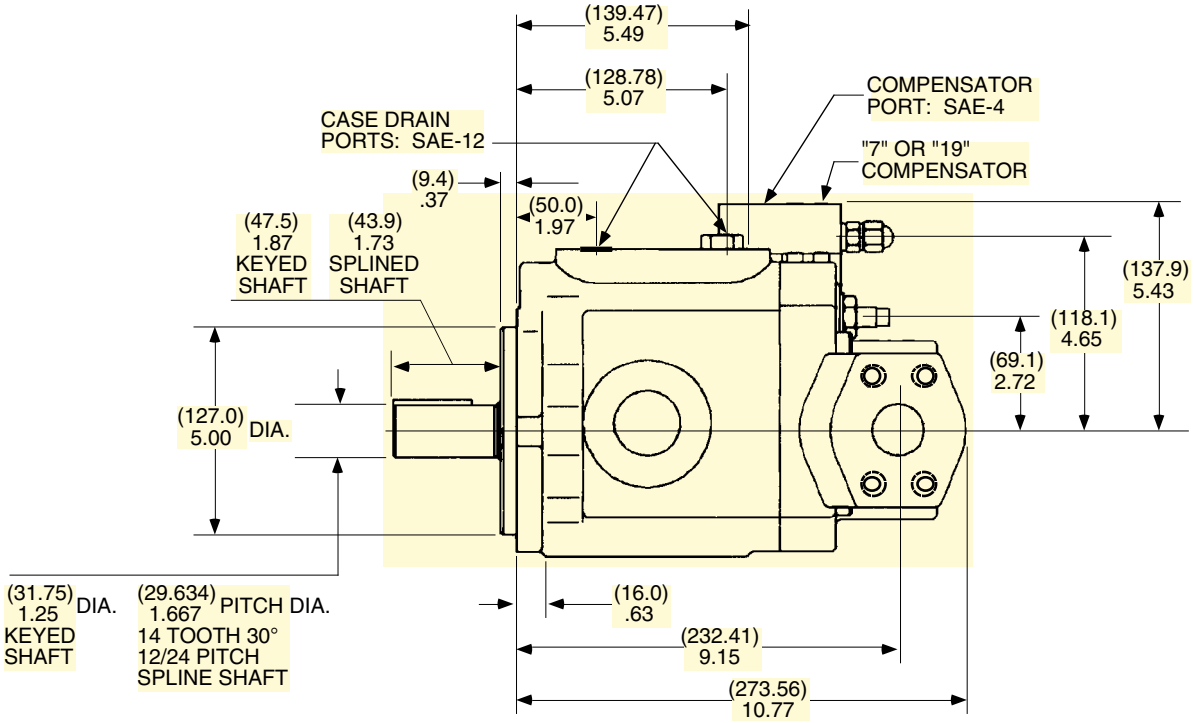


NOTE: KEY SIZE = 5/16" x 1.25".

INSTALLATION DIMENSIONS -- SIDE PORTS

(MILLIMETERS)
INCHES



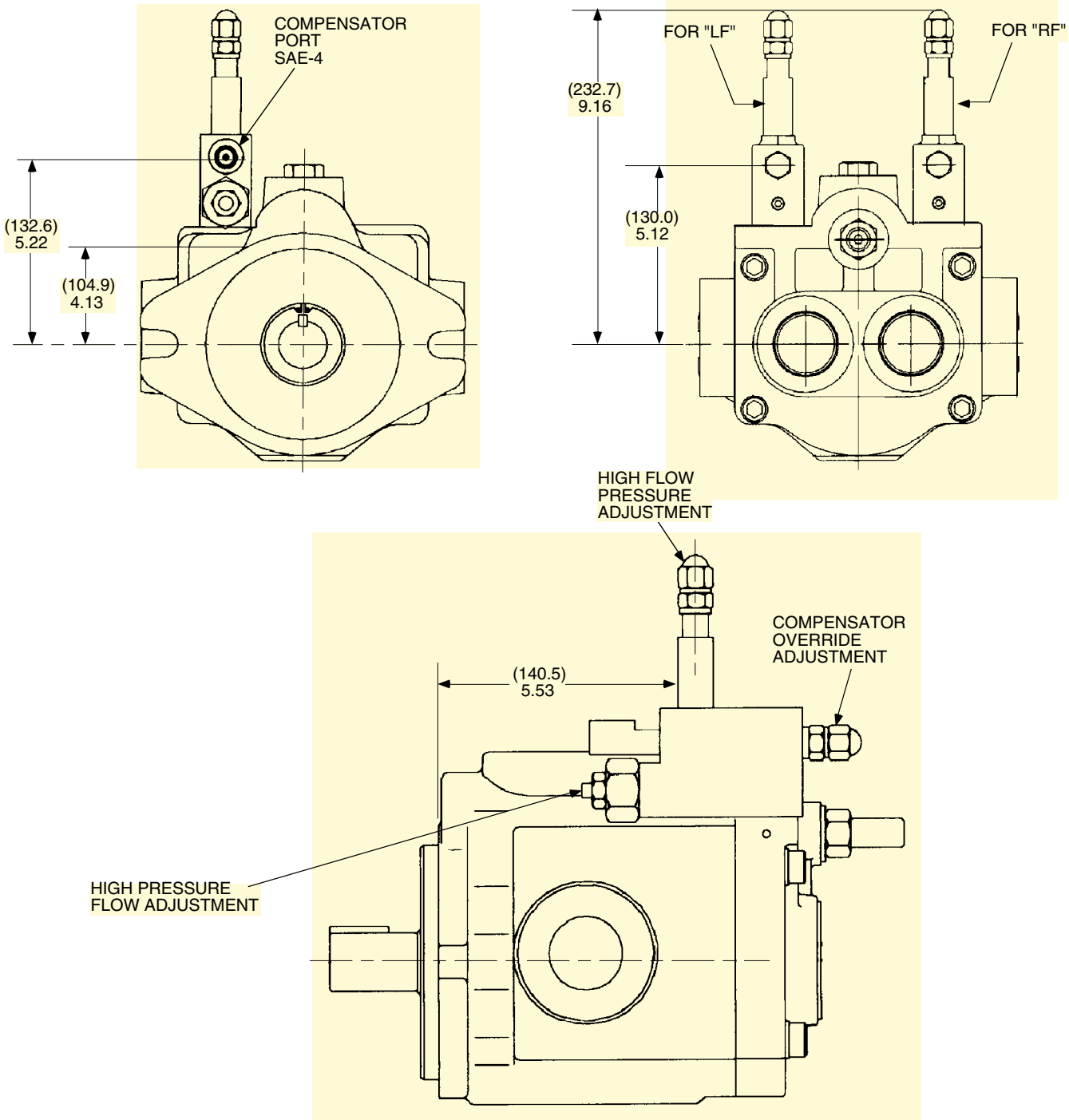


NOTE: KEY SIZE = 5/16" x 1.25".

HPV-20
HPV SERIES
AXIAL PISTON PUMPS

HORSEPOWER LIMITING DIMENSIONS

(MILLIMETERS)
INCHES

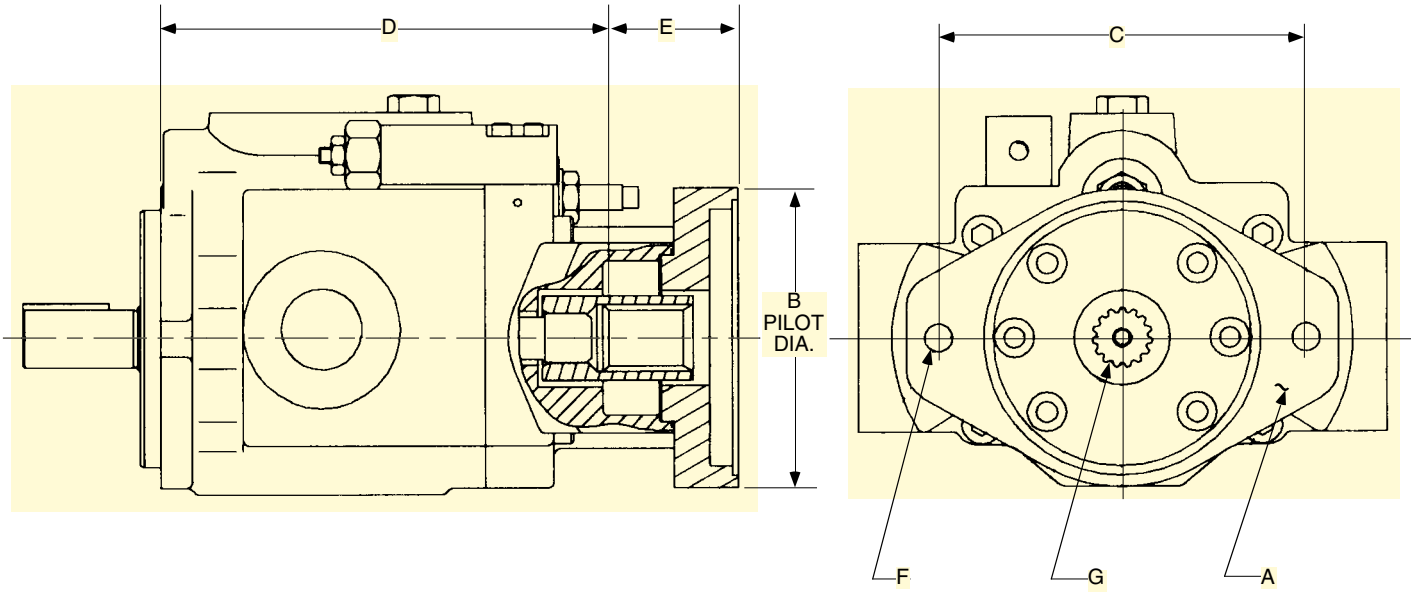


CONTINENTAL HYDRAULICS

HPV-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 (MILLIMETERS) INCHES					INTERNAL 30° INVOLUTE SPLINE	MAX. HP RATING *	MAX. TORQUE RATING *
	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.

HPV-20
HPV SERIES
AXIAL PISTON PUMPS

CONTINENTAL HYDRAULICS

ORDERING INFORMATION

HPV-20B35 — [SELECT ONE:] — [SELECT ONE:] — [SELECT ONE:] — [SELECT ONE:] — [SELECT ONE:] — [SELECT ONE:] — [DESIGN]

ROTATION

CODE	DESCRIPTION
RF	CW ROTATION
LF	CCW ROTATION

SEALS

CODE	TYPE
O	BUNA N
P	VITON

SHAFT

CODE	DESCRIPTION
OMIT	STRAIGHT KEY
12	MALE SPLINE

PORTS

CODE	DESCRIPTION
1R	SAE O-RING THREAD REAR PORTS
5S	SAE 4 BOLT FLANGE SIDE PORT

TANDEM

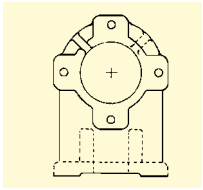
CODE	DESCRIPTION
OMIT	NO TANDEM OPTION
21*	SAE "A" REAR PAD
22*	SAE "B" REAR PAD
23*	SAE "C" REAR PAD
31*	SAE "A" REAR PAD WITH SAE "B" SPLINE COUPLING

COMPENSATOR

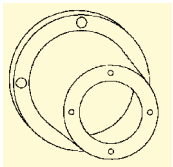
CODE	DESCRIPTION
OMIT	STD. PRESSURE COMPENSATOR
7	REMOTE PRESSURE
19	LOAD SENSE
26	H. P. LIMITING

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

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



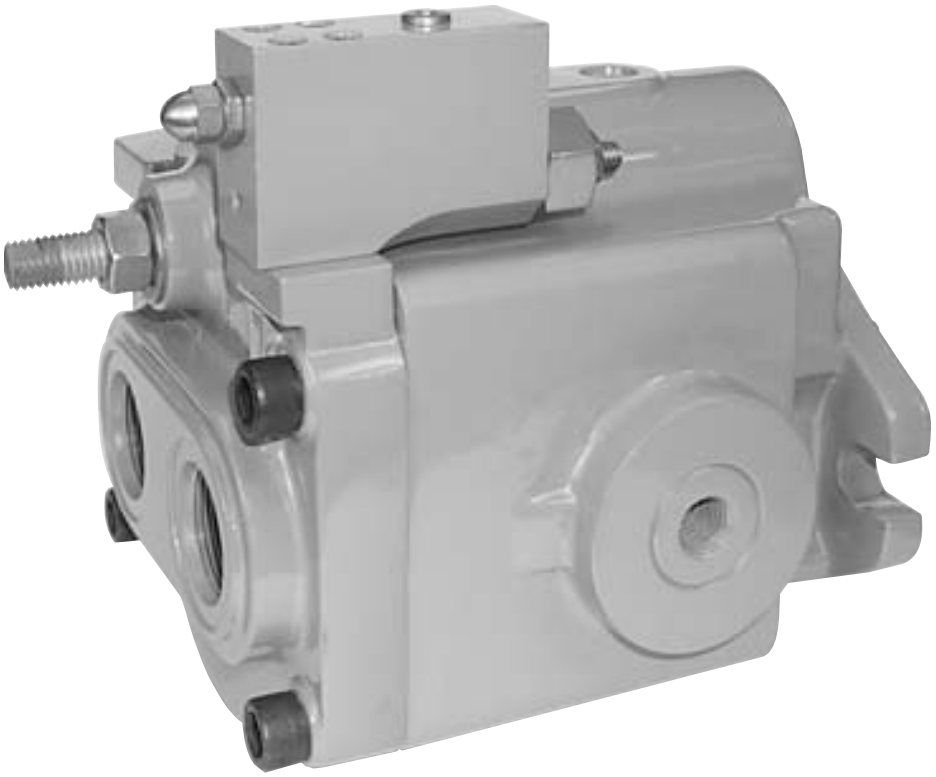
Foot Mounting Brackets may be found on page 49 of this catalog.



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

CONTINENTAL HYDRAULICS

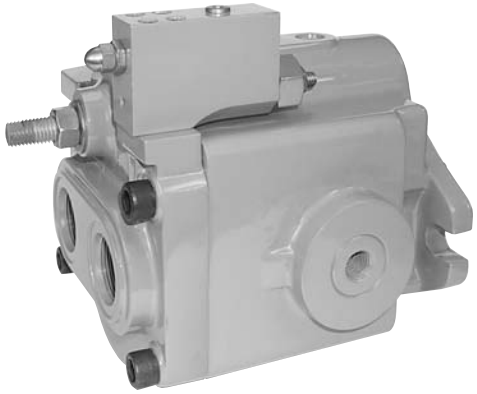
HPV-29 AXIAL PISTON PUMP



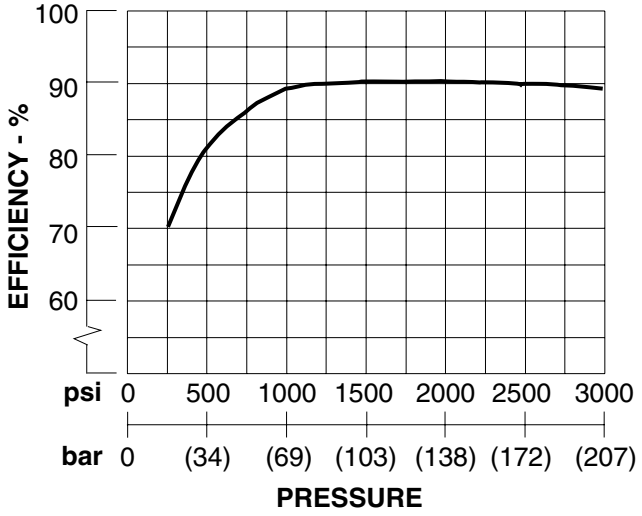
HPV-29
HPV SERIES
AXIAL PISTON PUMPS

CONTINENTAL HYDRAULICS

VARIABLE DISPLACEMENT PRESSURE COMPENSATED



OVERALL EFFICIENCY



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

	Maximum Case Pressure		Maximum Inlet Pressure		Minimum Inlet Pressure	
RPM	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

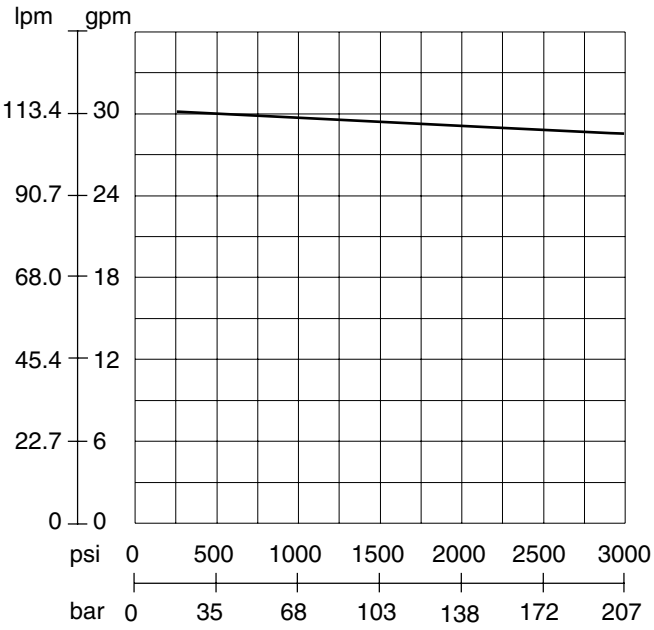
PRESSURE & VOLUME ADJUSTMENT SENSITIVITY

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

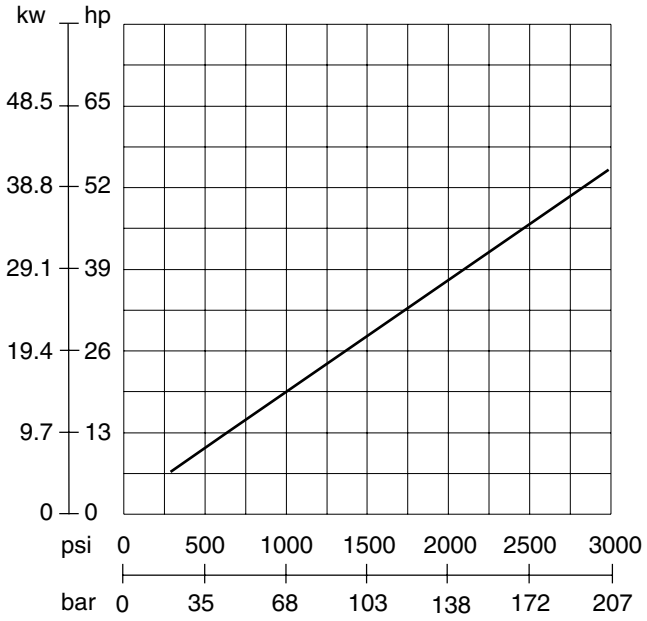
CONTINENTAL HYDRAULICS

HPV-29
HPV SERIES
AXIAL PISTON PUMPS

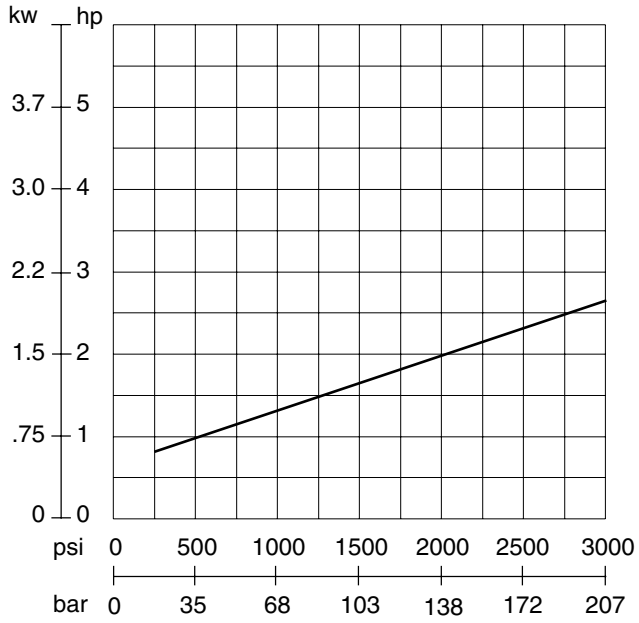
FLOW vs PRESSURE



INPUT POWER @ FULL FLOW

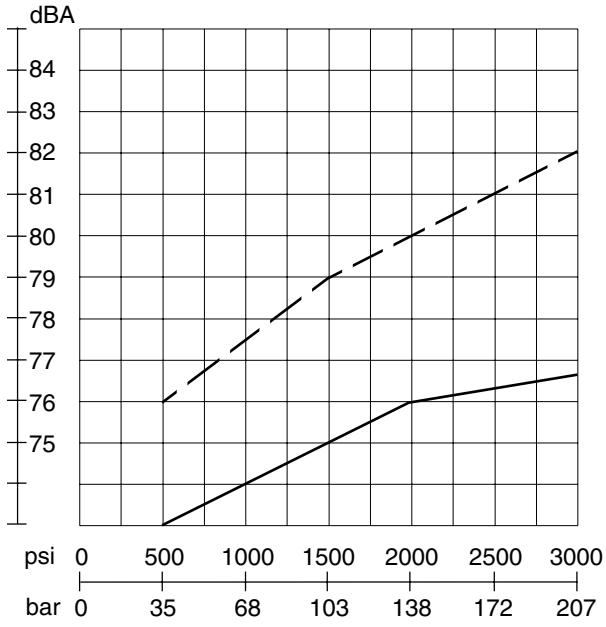


INPUT POWER @ ZERO FLOW



NOISE LEVEL

Zero Flow = ——————
Full Flow = — — — — —

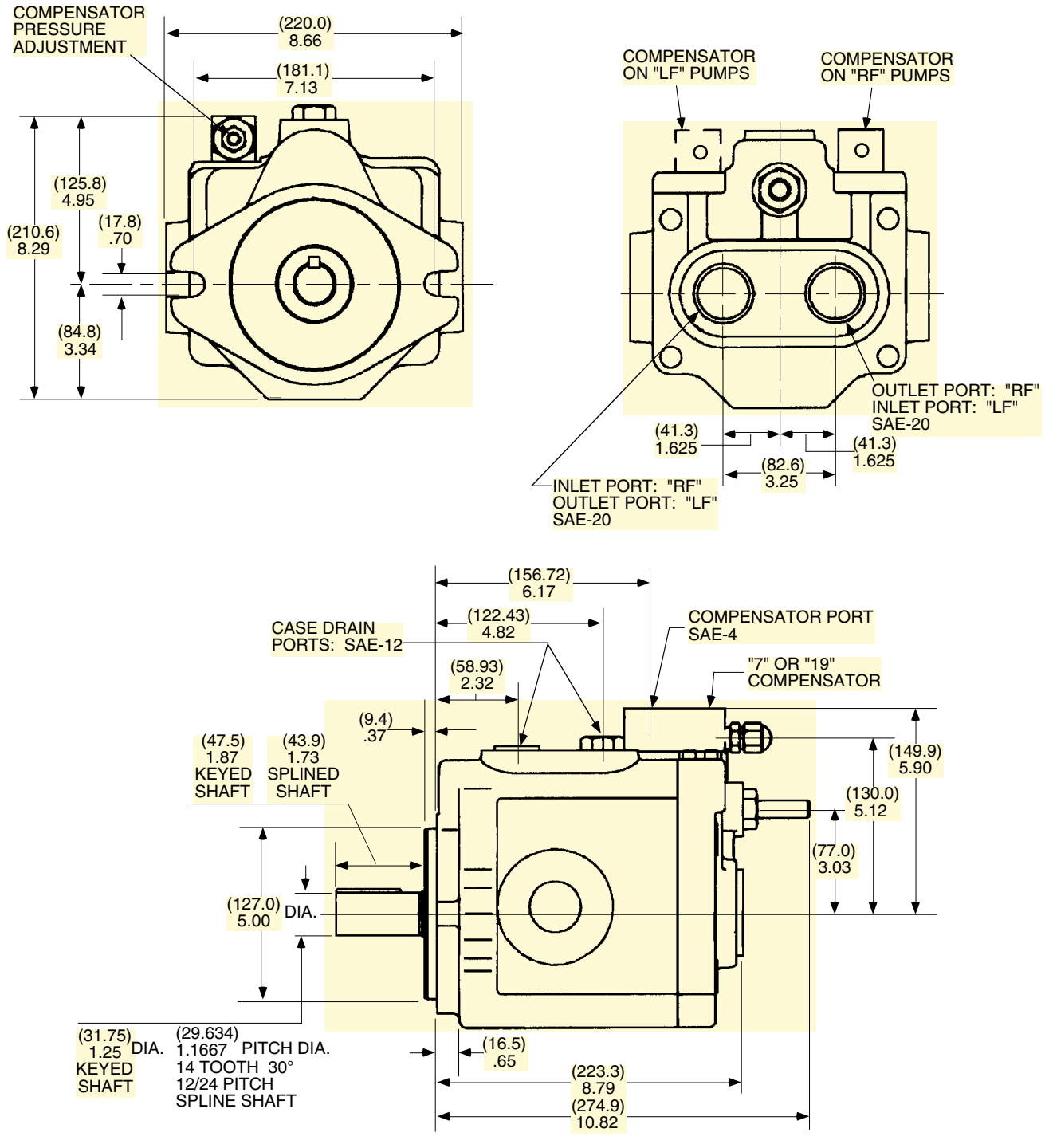


THE ABOVE DATA IS TYPICAL PERFORMANCE AT 1750 RPM.

HPV-29
HPV SERIES
AXIAL PISTON PUMPS

INSTALLATION DIMENSIONS -- REAR PORTS

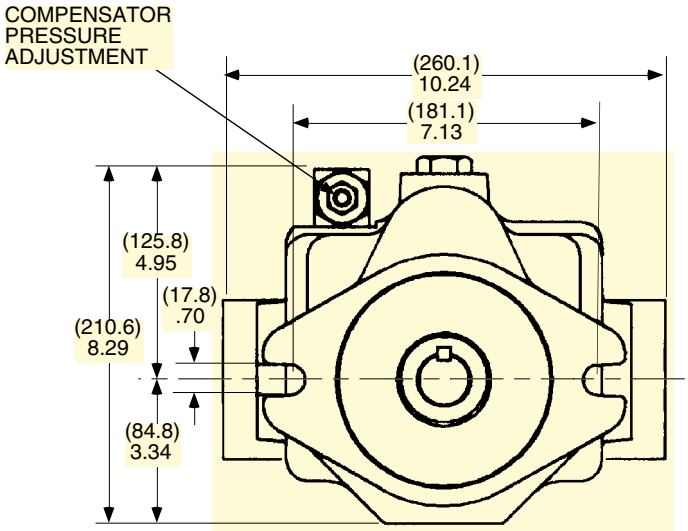
(MILLIMETERS)
INCHES

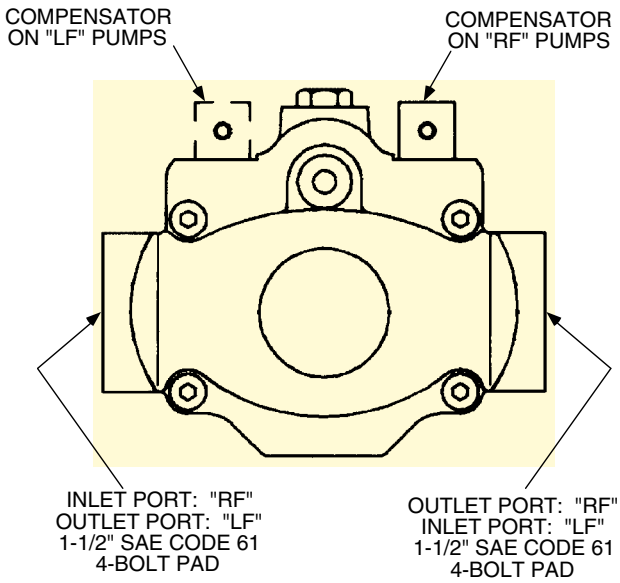


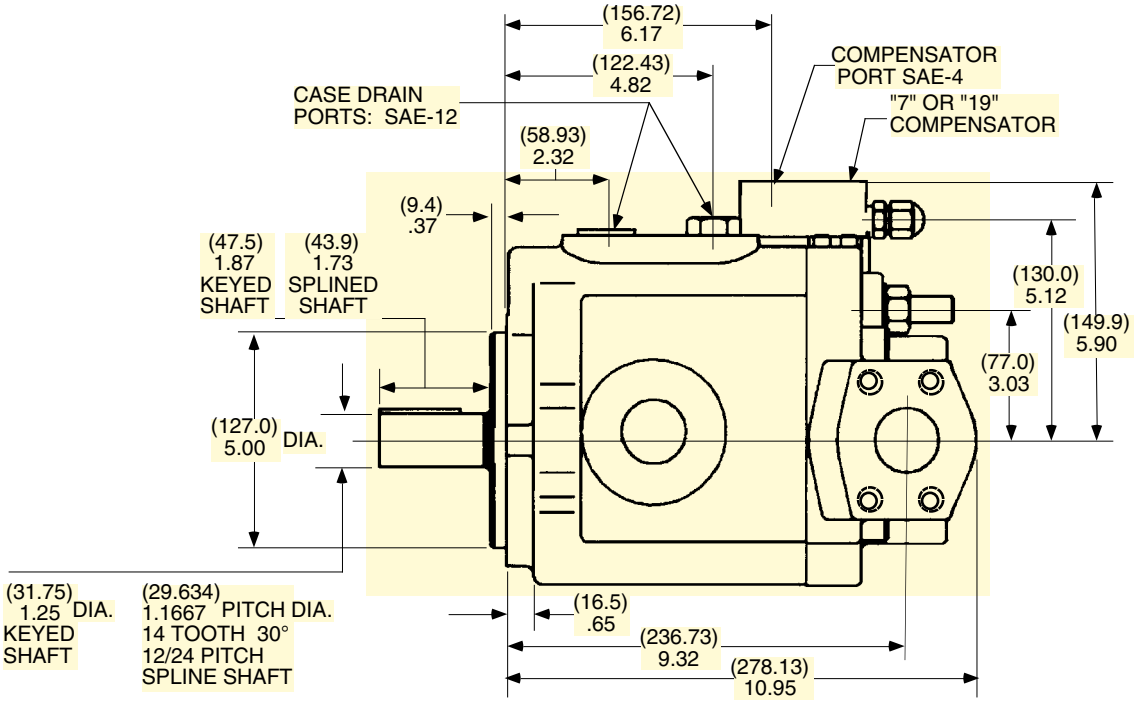
NOTE: KEY SIZE = 5/16" x 1.25".

INSTALLATION DIMENSIONS -- SIDE PORTS

(MILLIMETERS)
INCHES







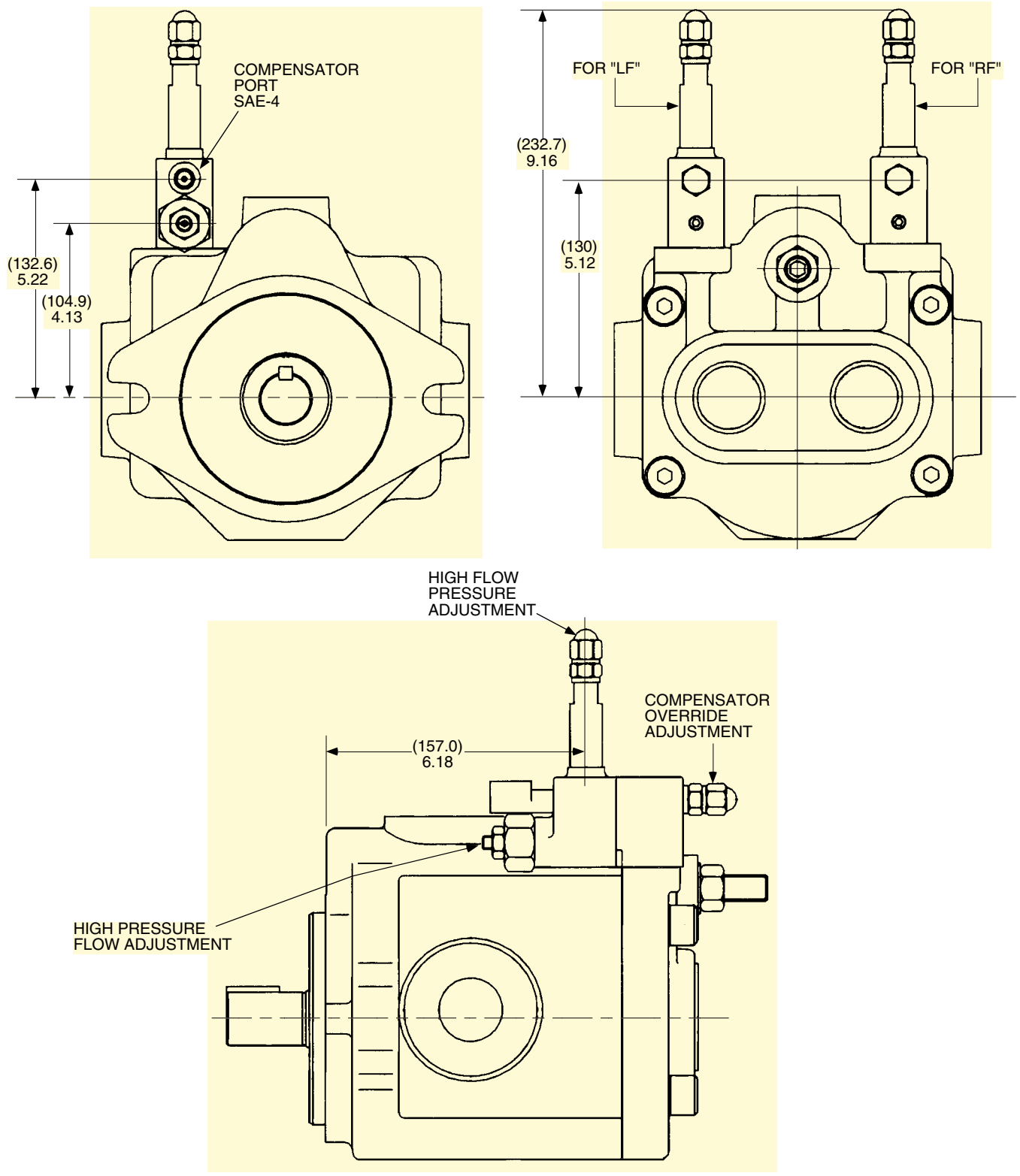
NOTE: KEY SIZE = 5/16" x 1.25".

HPV-29
HPV SERIES
AXIAL PISTON PUMPS

CONTINENTAL HYDRAULICS

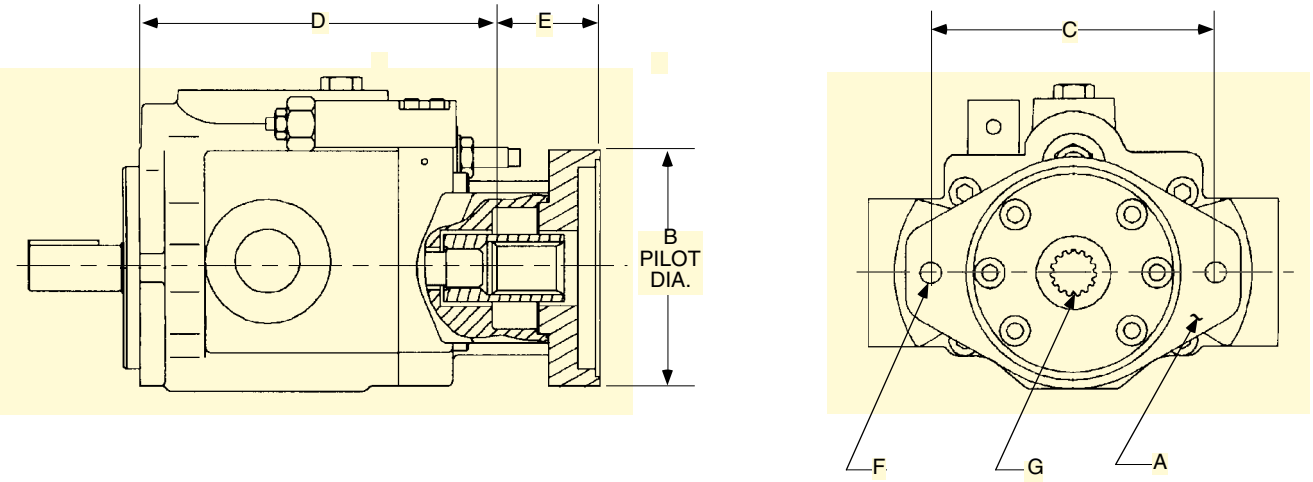
HORSEPOWER LIMITING DIMENSIONS

(MILLIMETERS)
INCHES



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 (MILLIMETERS) INCHES					INTERNAL 30° INVOLUTE SPLINE	MAX. HP RATING *	MAX. TORQUE RATING *
	A	B	C	D	E	F	G		
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.

HPV-29
HPV SERIES
AXIAL PISTON PUMPS

CONTINENTAL HYDRAULICS

ORDERING INFORMATION

HPV-29B30 — [SELECT ONE:] — [SELECT ONE:] — [SELECT ONE:] — [SELECT ONE:] — [SELECT ONE:] — [SELECT ONE:] — [DESIGN]

ROTATION

CODE	DESCRIPTION
RF	CW ROTATION
LF	CCW ROTATION

SEALS

CODE	TYPE
O	BUNA N
P	VITON

SHAFT

CODE	DESCRIPTION
OMIT	STRAIGHT KEY
12	MALE SPLINE

PORTS

CODE	DESCRIPTION
1R	SAE O-RING THREAD REAR PORTS
5S	SAE 4 BOLT FLANGE SIDE PORT

TANDEM

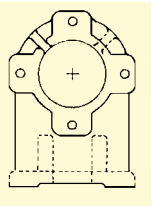
CODE	DESCRIPTION
OMIT	NO TANDEM OPTION
21*	SAE "A" REAR PAD
22*	SAE "B" REAR PAD
23*	SAE "C" REAR PAD
31*	SAE "A" REAR PAD WITH SAE "B" SPLINE COUPLING

COMPENSATOR

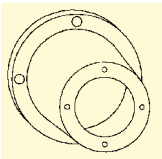
CODE	DESCRIPTION
OMIT	STD. PRESSURE COMPENSATOR
7	REMOTE PRESSURE
19	LOAD SENSE
26	H. P. LIMITING

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

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.

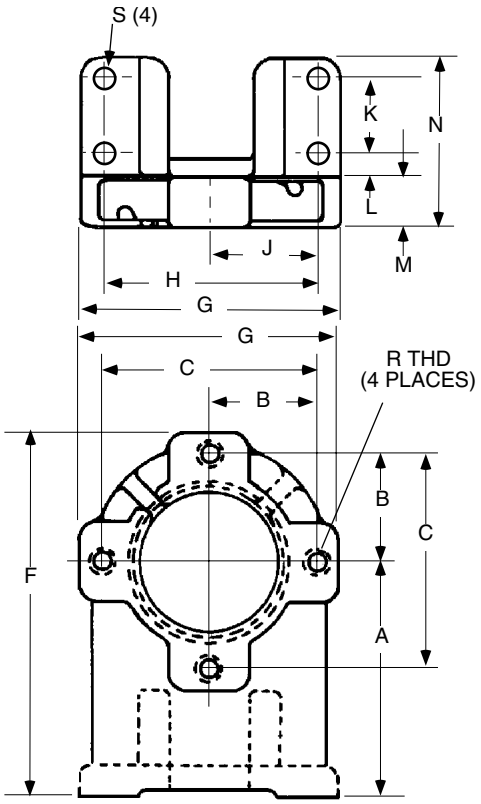
ACCESSORIES

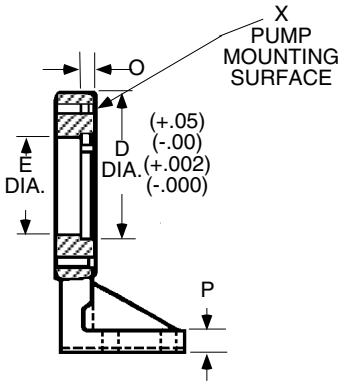
MOUNTING BRACKETS
HPV SERIES
AXIAL PISTON PUMPS

CONTINENTAL HYDRAULICS

HPV FOOT MOUNTING BRACKETS

(MILLIMETERS)
INCHES





FOOT BRACKET SERIES	X SAE FLANGE	DIMENSIONS (mm) in.																
		A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R THREAD	S BOLT SIZE
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 UNC	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 UNC	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 UNC	1/2 IN.

HPV FOOT MOUNTING BRACKETS

SELECT ONE: SELECT ONE:

FPVR [ ] — [ ]

SIZE	
CODE	USED WITH
6	HPV6
15	HPV10 HPV15
30	HPV20 HPV29

MOTOR SIZE	
CODE	NEMA FRAME SIZE
213	212 / 215
254	254 / 256
284	284 / 286
324	324 / 326

BOLT KITS FOR MOUNTING HPV SERIES PUMPS

SELECT ONE:

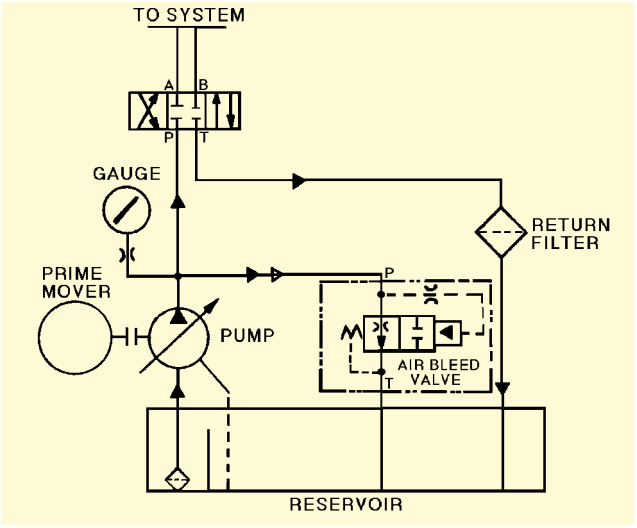
BPVR [ ] — **2 -- U**

CODE	USED WITH
6	HPV6
15	HPV10 HPV15
30	HPV20 HPV29

CONTINENTAL HYDRAULICS

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.).

ELECTRIC MOTOR PRIME MOVER

In this curcuit 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.

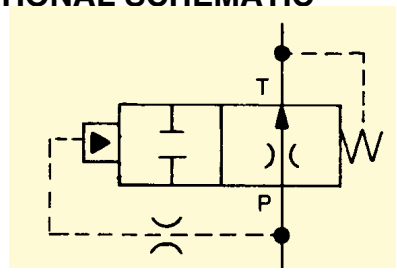
ENGINE PRIME MOVER

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.

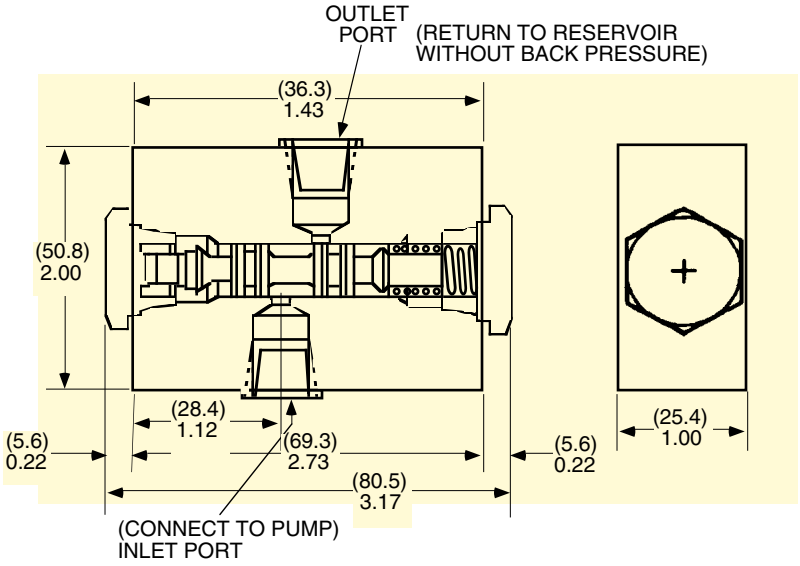
NOTE

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

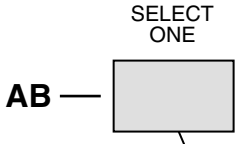
FUNCTIONAL SCHEMATIC



DIMENSIONS



ORDERING INFORMATION



PORTS	
CODE	DESC.
1	1/4" NPTF
2	#6 SAE

WEIGHT = 0.6 lbs./0.27 kg

CONTINENTAL HYDRAULICS

WARRANTY

Continental warrants the products, so far as the same are of Continental's own manufacture or supply, against defects of material and workmanship under normal use and service, for a period of eighteen (18) months from date of shipment. This warranty does not cover ordinary wear and tear, abuse, misuse, overloading, altered products, use of improper fluid, or materials not of Continental's manufacture or supply.

The obligation of Continental under this warranty shall be limited to repairing or replacing, F.O.B. Continental's plant, or allowing credit at Continental's option, any part or parts which may prove to be thus defective, provided that the buyer gives Continental prompt written notice of the defect or defects and further provided that inspection, if required by Continental, confirm this defect or defects. It is expressly agreed that this remedy of repair, replacement or credit, at Continental's option, is the exclusive remedy under this contract.

Continental in its manufacture and sale of the products will assume no liability as to possible infringement of patents by virtue of the use of said devices in combination with other elements or structures.

All sales are made with the understanding that there are no express warranties other than those contained in this agreement, Continental does not warrant merchantability or fitness for a particular purpose. There are no warranties which extend beyond the description on the face hereof. In the event of breach of this contract by Continental, the buyer shall not be entitled to consequential damages.