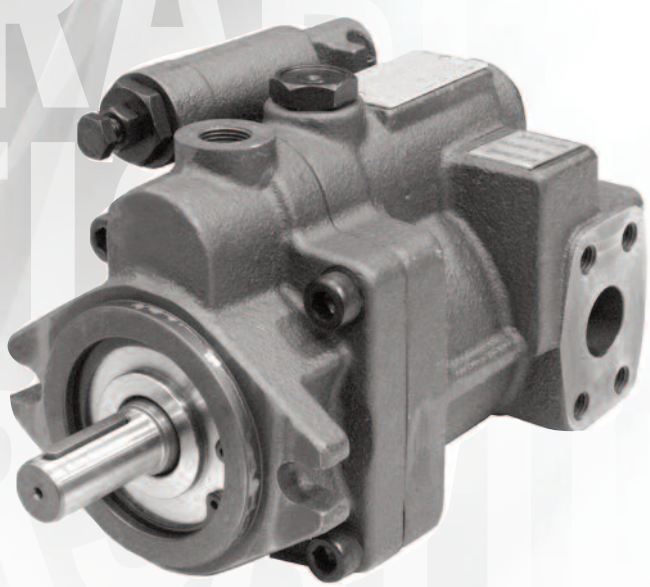
CONTINENTAL HYDRAULICS

CONTINENTAL HYDRAULICS

LPV SERIES AXIAL PISTON PUMPS



4895 12th Avenue East, Shakopee, MN 55379 / continentalhydraulics.com / 952-895-6400

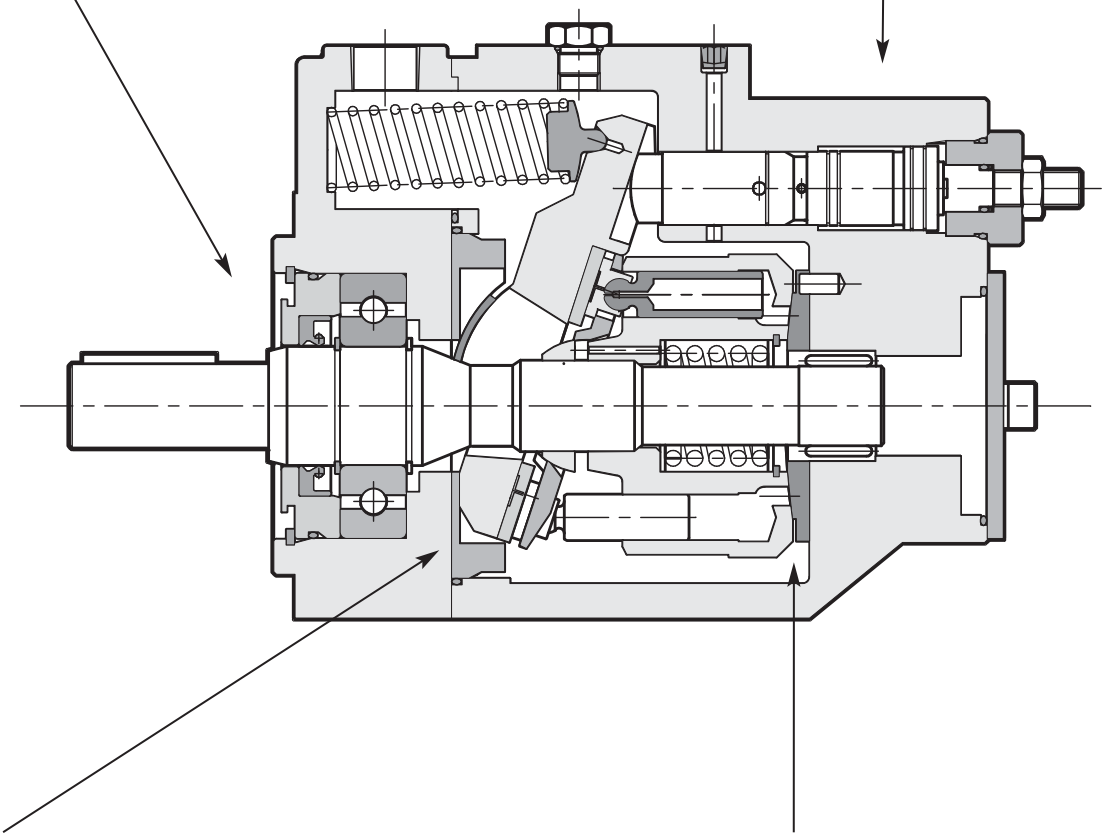
LPV PUMPS

FEATURES AND BENEFITS

The LPV line of Variable Volume, Pressure Compensated Piston Pumps are the perfect choice when reliable, fast and quiet control is required. All of the Control Compensator options are interchangeable on all pump sizes. This very flexible Control Compensator design allows the LPV pump to be quickly changed as your circuit requirement demand.

External shaft seal and bearing access for ease of servicing

Control Compensator options:
Pressure Compensator, Remote Pressure, Load Sense and a D03 valve mount
Allowing for pressure control circuits
From dual pressure to Proportional pressure

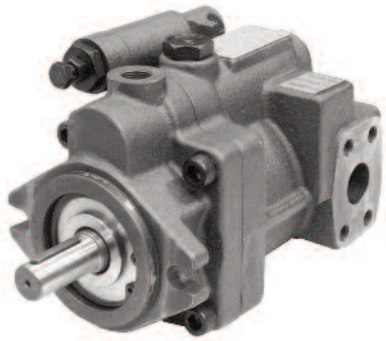


Standard SAE mounting and shafts

Swash block and saddle design permit consistent control and provide long life over Trunnion designs. Saddle bearing can also be easily serviced.

Specially designed spherical port plate makes these extremely quiet operating pumps with optimized filling performance.

LPV PUMPS
AXIAL PISTON PUMPS

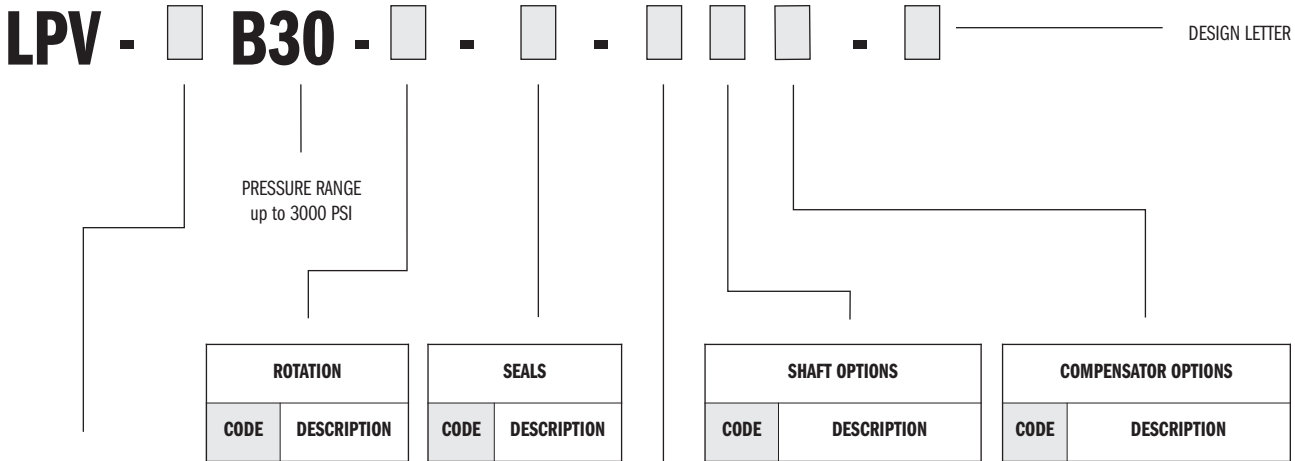


DESCRIPTION
The LPV series of pumps, are variable displacement axial piston pumps with variable swash block, suitable for applications with open loop circuits and intermediate pressures.
Available in 5 nominal displacements.
These pressure compensated pumps automatically adjust the output flow rate to maintain the set pressure. The maximum output flow can be limited via maximum volume adjustment screw.
SAE J744 2-Bolt Mounting Flange.
Available with four different types of Control Compensator options designed to meet your application or requirements.

TYPICAL PERFORMANCE SPECIFICATIONS

PUMP SIZE		LPV-4	LPV-8	LPV-11	LPV-17	LPV-22
MAXIMUM DISPLACEMENT	in^3/rev	0.488	0.976	1.342	2.196	2.807
	(cc^3/rev)	8	16.5	22	36	46
FLOW AT 1800 RPM	GPM	3.8	7.9	10.6	17.1	21.9
	(lpm)	14.4	30	40	64.8	82.8
OPERATING PRESSURE	PSI / bar	3000 PSI / 210 bar				
OPERATING SPEED	RPM	500 min to 2000 max				
ROTATION DIRECTION		Clockwise (as viewed from shaft side)				
PORT SIZE AND TYPE		See dimensional data page				
MOUNTING FLANGE		"A" 2-Bolt	"A" 2-Bolt	"A" 2-Bolt	"B" 2-Bolt	"B" 2-Bolt
WEIGHT	LBS	20	27	27	51	51
	(kg)	9	12	12	23	23
AMBIENT TEMPERATURE RANGE	°F (°C)	15 to 120 (-10 to 50)				
FLUID TEMPERATURE RANGE	°F (°C)	15 to 160 (-10 to 70)				
FLUID CLEANLINESS		ISO 18/16/13 is recommended				
REC. OPERATING VISCOSITIES	SUS (cSt)	60 to 140 (20 to 75)				

IDENTIFICATION CODE



FLOW RATE	
CODE	**DESCRIPTION**
4	4 gpm
	8 cm^3/rev
8	8 gpm
	16.5 cm^3/rev
11	11 gpm
	22 cm^3/rev
17	17 gpm
	36 cm^3/rev
22	22 gpm
	46 cm^3/rev

ROTATION	
CODE	**DESCRIPTION**
RF	CLOCKWISE ROTATION

SEALS	
CODE	**DESCRIPTION**
0	BUNA-N

PORTS	
CODE	**DESCRIPTION**
2S	BR TISH (BSP) THREAD SIDE PORTS
5S	SAE 4 BOLT FLANGE SIDE PORTS

SHAFT OPTIONS	
CODE	**DESCRIPTION**
OMIT	STRAIGHT KEY
12	SPLINED SHAFT

COMPENSATOR OPTIONS	
CODE	**DESCRIPTION**
OMIT	STANDARD PRESSURE COMPENSATOR
7	REMOTE PRESSURE
19	LOAD SENSE
RC	D03 PAD FOR REMOTE CONTROL

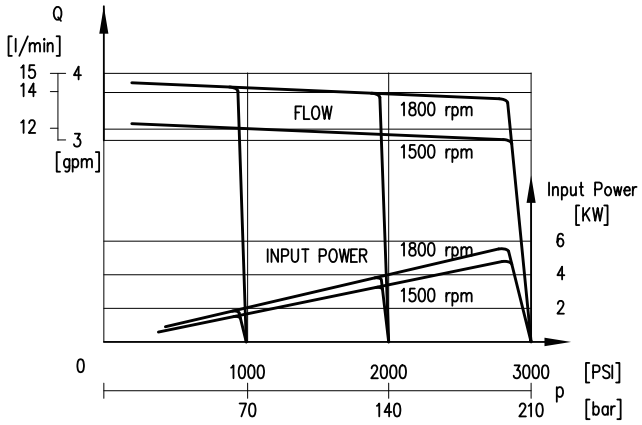
TYPICAL ORDERING CODE:
LPV-8B30-RF-0-5S-A
LPV-11B30-RF-0-5S19-A

COMPENSATOR CONVERSION KITS (Includes bolts and O-rings as required)	
ITEM NUMBER	**DESCRIPTION**
1019205	Compensator LPV Code 7
1019206	Compensator LPV Code RC
1019207	Compensator LPV Code 19

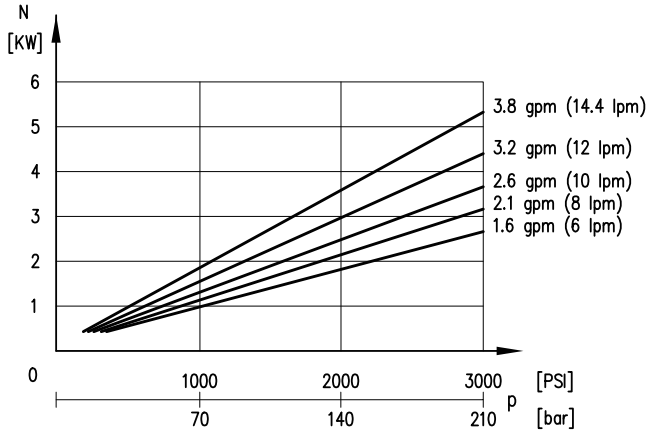
SEAL KITS	
KIT SEAL LPV-4	1020699
KIT SEAL LPV-8	1020700
KIT SEAL LPV-11	1020701
KIT SEAL LPV-17	1020704
KIT SEAL LPV-22	1020702

PERFORMANCE CURVES FOR LPV-4

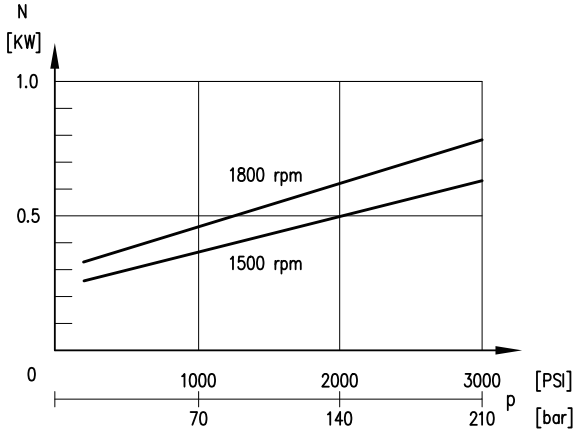
FLOW VS PRESSURE



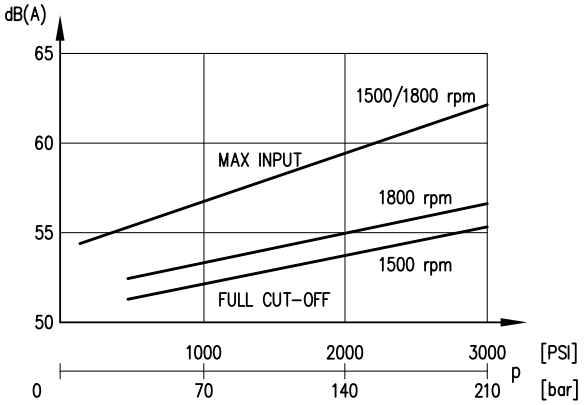
INPUT POWER @ FULL FLOW



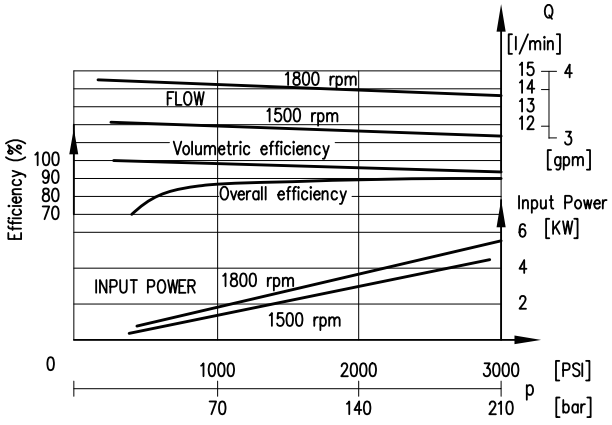
INPUT POWER @ ZERO FLOW



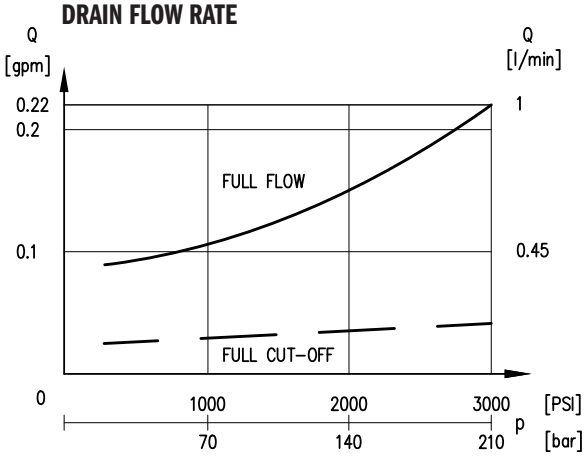
NOISE LEVEL



VOLUMETRIC & TOTAL EFFICIENCY

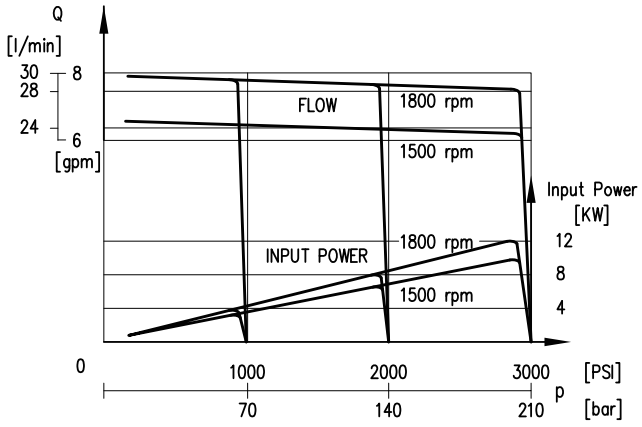


DRAIN FLOW RATE

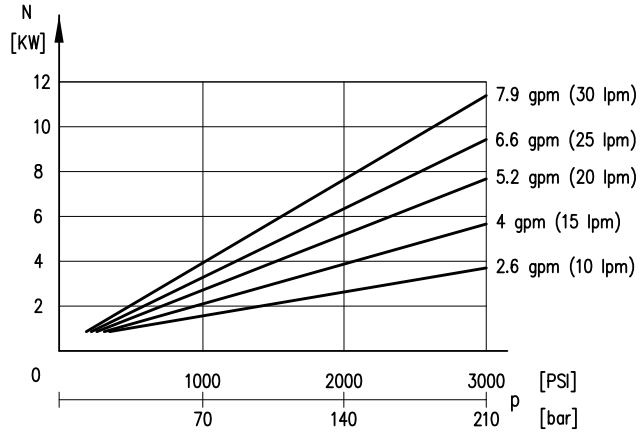


PERFORMANCE CURVES FOR LPV-8

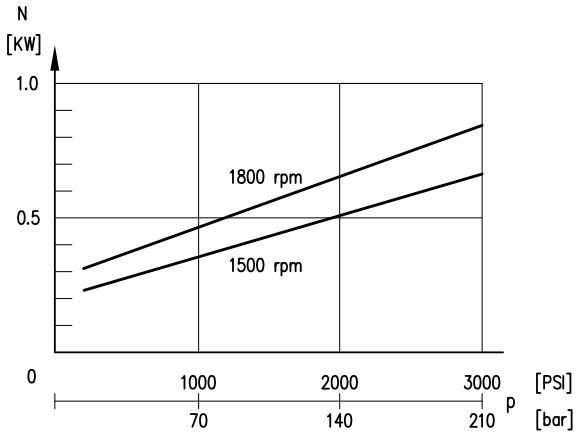
FLOW VS PRESSURE



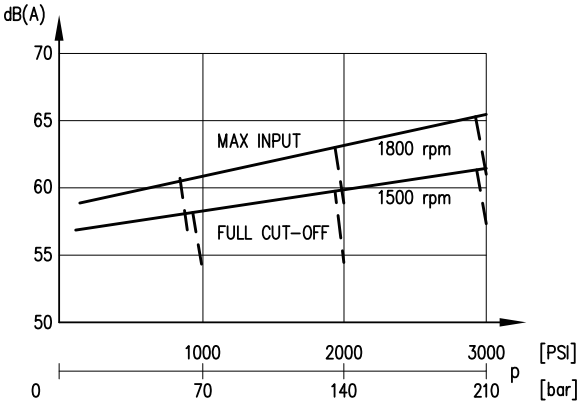
INPUT POWER @ FULL FLOW



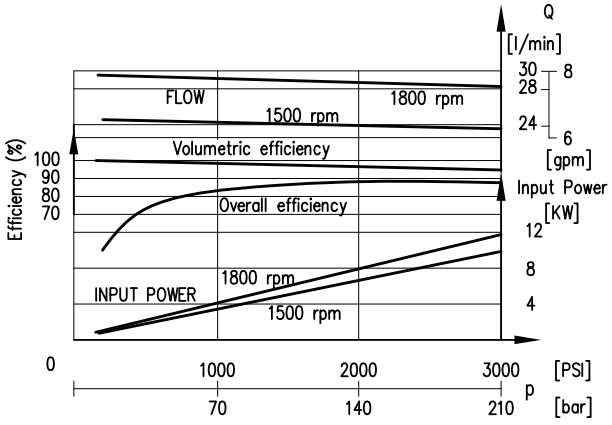
INPUT POWER @ ZERO FLOW



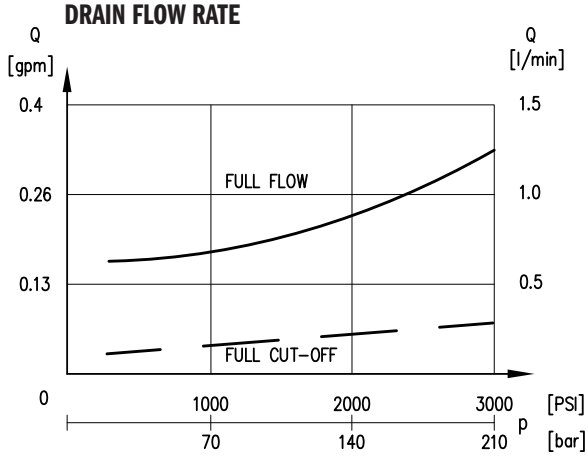
NOISE LEVEL



VOLUMETRIC & TOTAL EFFICIENCY

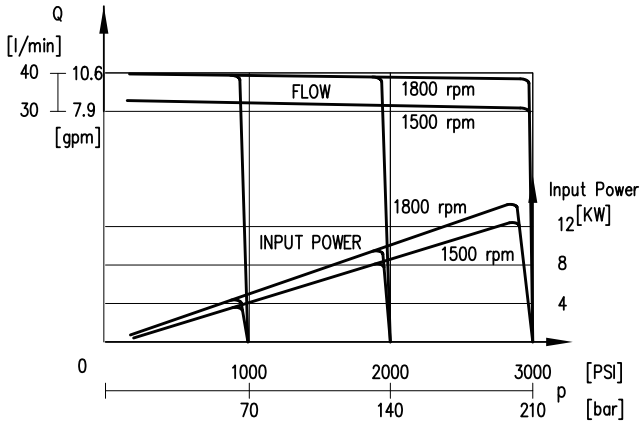


DRAIN FLOW RATE

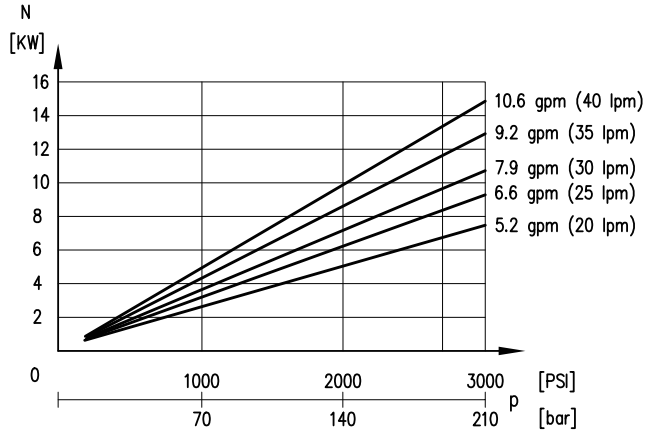


PERFORMANCE CURVES FOR LPV-11

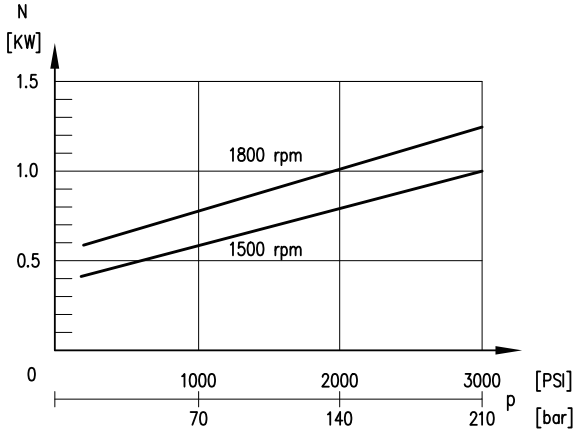
FLOW VS PRESSURE



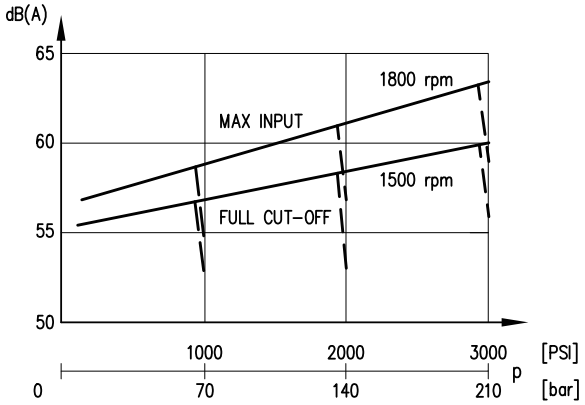
INPUT POWER @ FULL FLOW



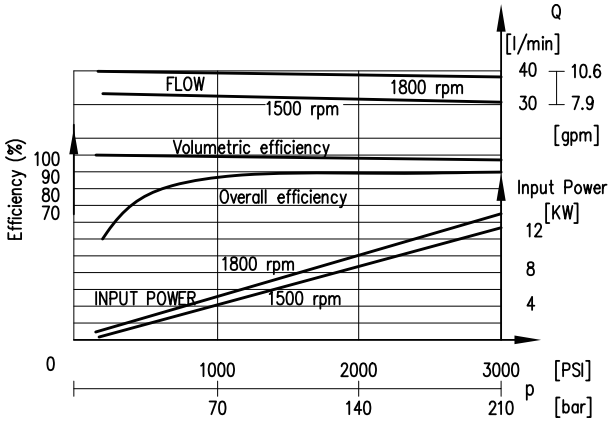
INPUT POWER @ ZERO FLOW



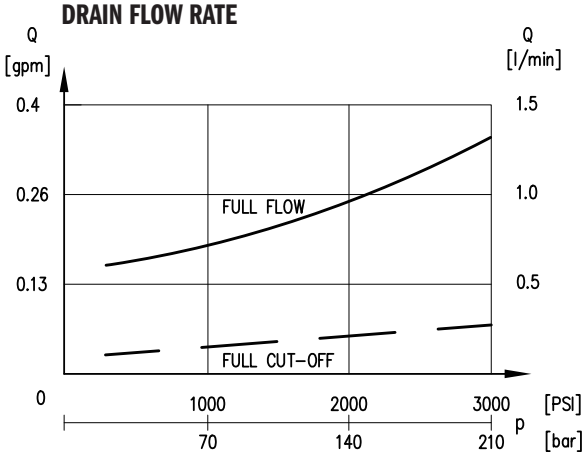
NOISE LEVEL



VOLUMETRIC & TOTAL EFFICIENCY

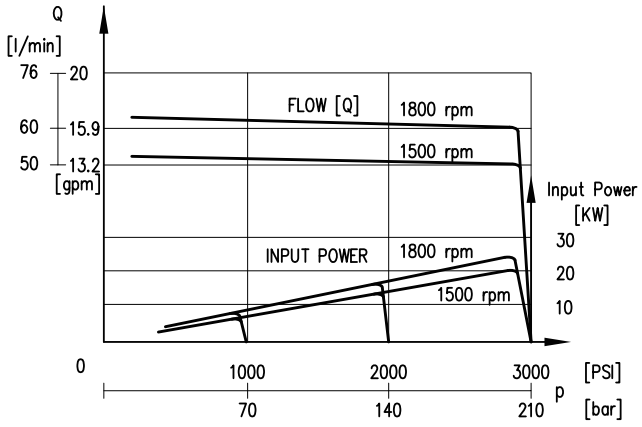


DRAIN FLOW RATE

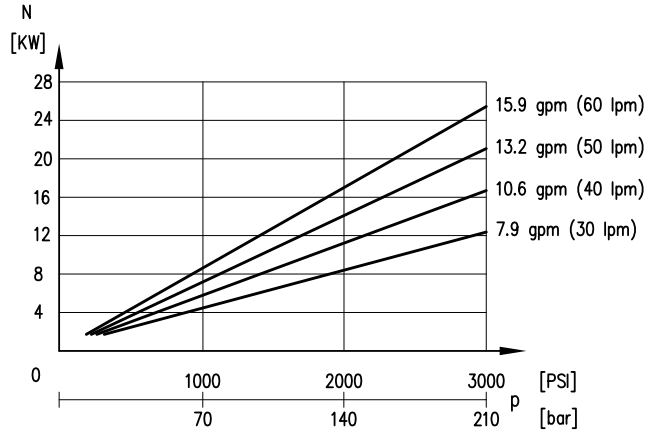


PERFORMANCE CURVES FOR LPV-17

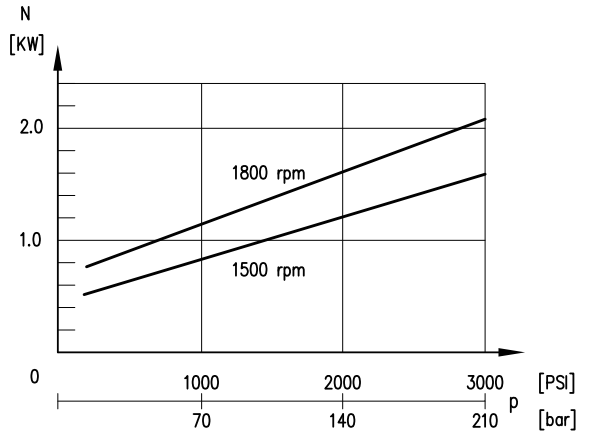
FLOW VS PRESSURE



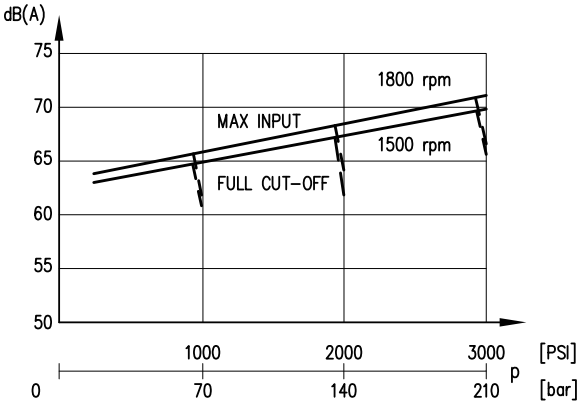
INPUT POWER @ FULL FLOW



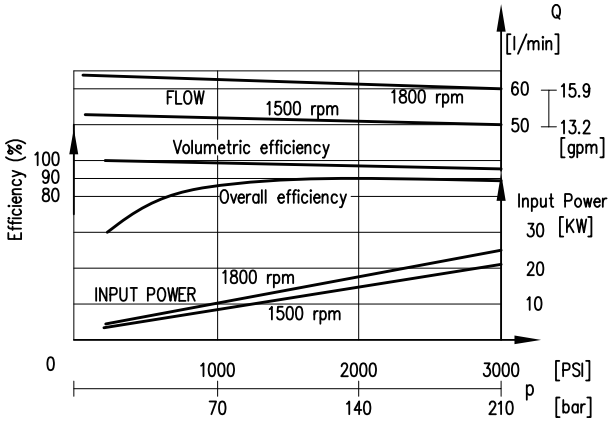
INPUT POWER @ ZERO FLOW



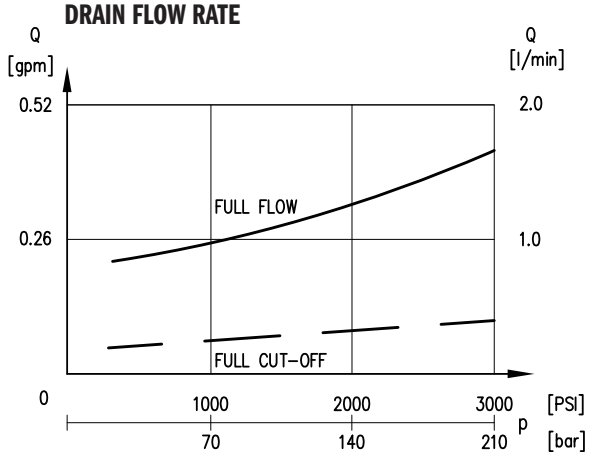
NOISE LEVEL



VOLUMETRIC & TOTAL EFFICIENCY

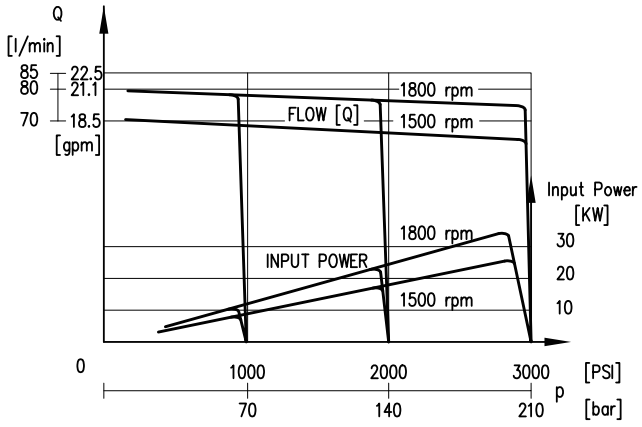


DRAIN FLOW RATE

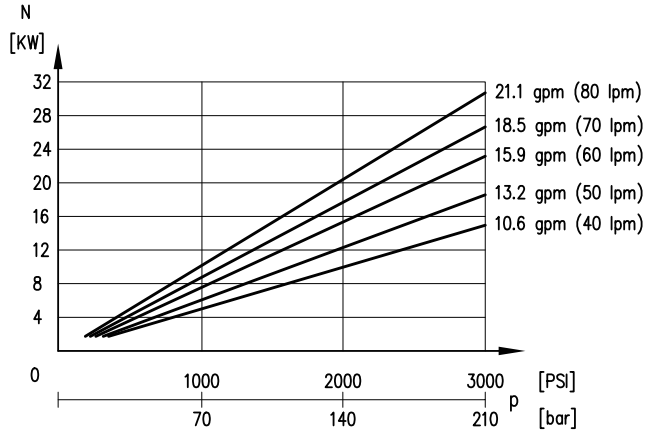


PERFORMANCE CURVES FOR LPV-22

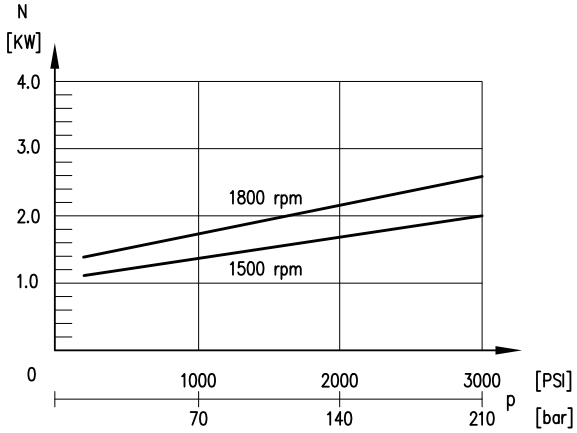
FLOW VS PRESSURE



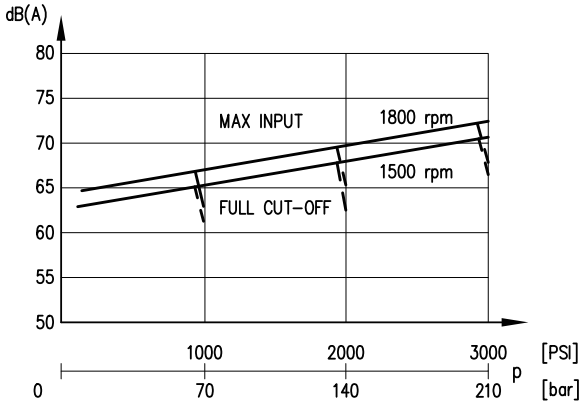
INPUT POWER @ FULL FLOW



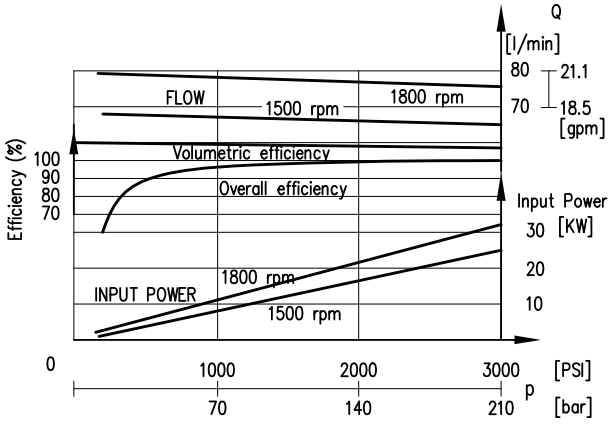
INPUT POWER @ ZERO FLOW



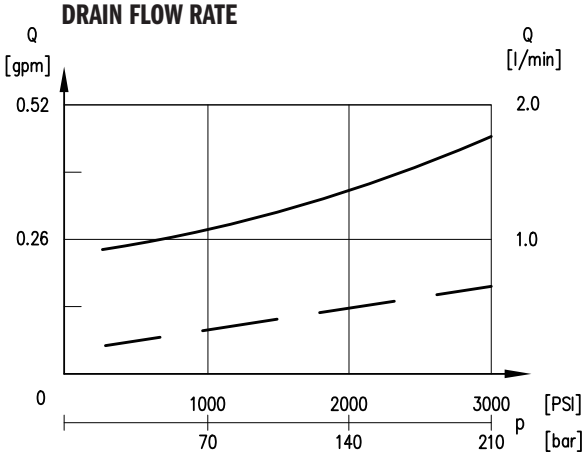
NOISE LEVEL



VOLUMETRIC & TOTAL EFFICIENCY



DRAIN FLOW RATE



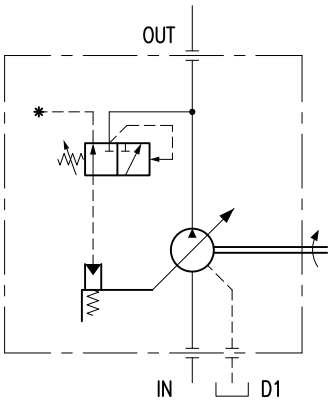
CONTROL COMPENSATOR OPTIONS

PRESSURE COMPENSATED CONTROL (Standard)

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

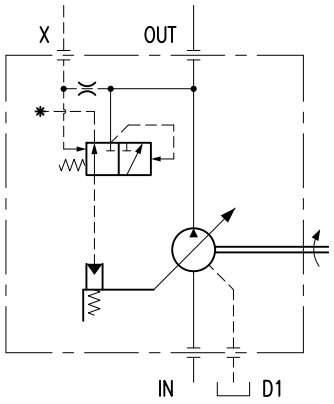
Pump displacement is mechanically controlled by the angle of the swash plate. The swash plate angle is controlled by the extension of the compensator plunger working against the swash plate bias spring. The compensator senses downstream pressure and adjusts displacement to maintain the set pressure.

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



REMOTE PRESSURE CONTROL (Code 7)

The Remote Pressure Control is designed for use with, and must use an external pressure control device to set the upper pressure limit. External pressure device is supplied separately.
The X port on the compensator, allows pilot flow to an external pressure device and must not be blocked off.
Back pressure from the Remote Pressure Control device, adds to the factory set Minimum bias spring within the compensator body. These external valves should be direct acting and capable of adding back pressures of up to 3.000 psi.



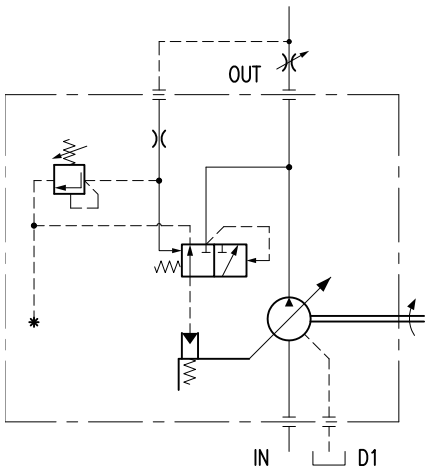
CONTROL COMPENSATOR OPTIONS

LOAD SENSING CONTROL (Code 19)

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

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

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

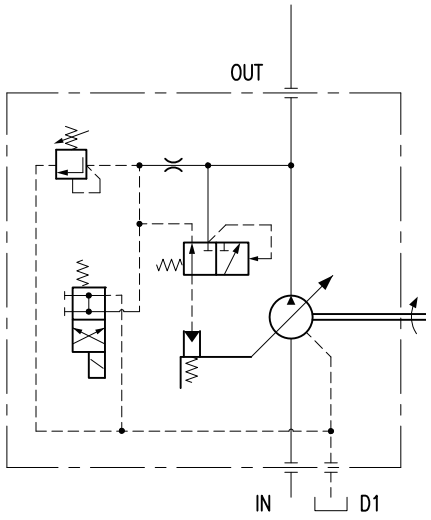


D03 PATTERN REMOTE CONTROL (Code RC)

The RC Control offers the adaptability for a variety of controlling pressure compensation values, based on the valve selections of commonly used valves.

- Two Pressure - energize to High Pressure
- Two Pressure – energize to Low Pressure
- Three Pressure – Low / Medium / High
- Proportional Pressure Control

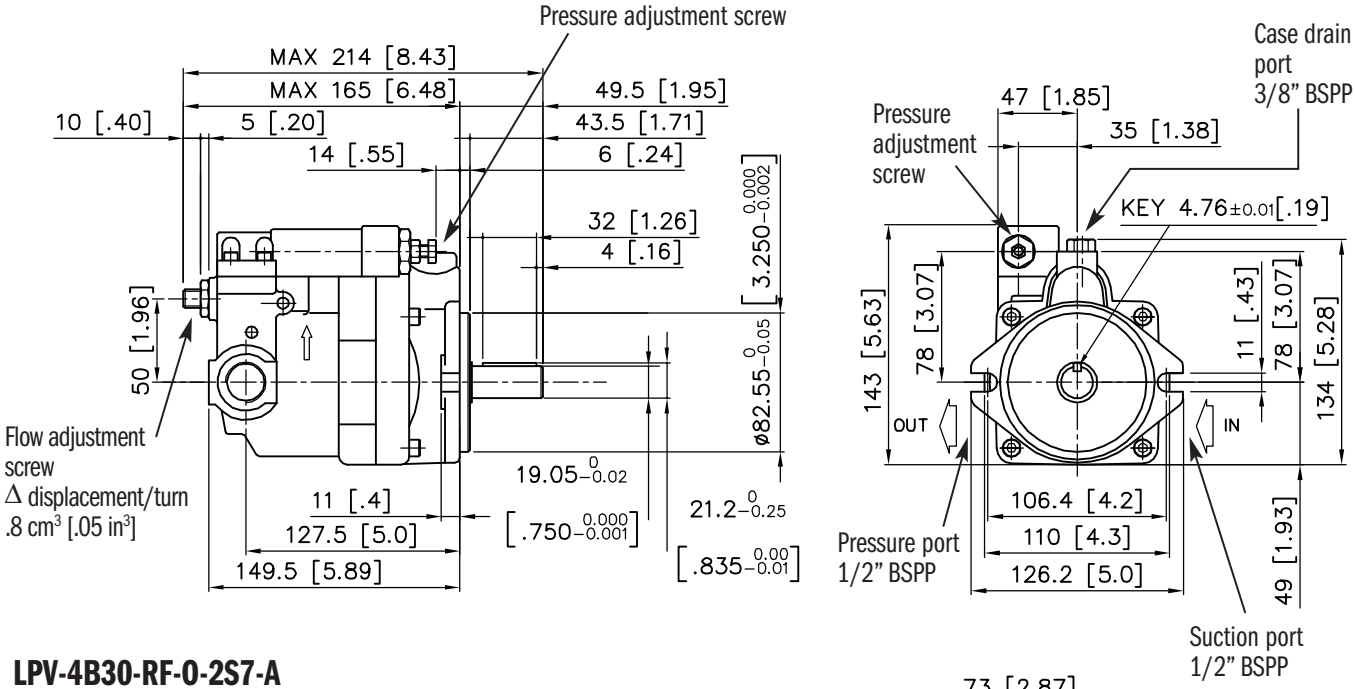
The RC Control comes with the non adjustable differential pressure and upper pressure control adjustments. The D03 valve and / or other pressure valves required for the desired circuit are supplied separately.



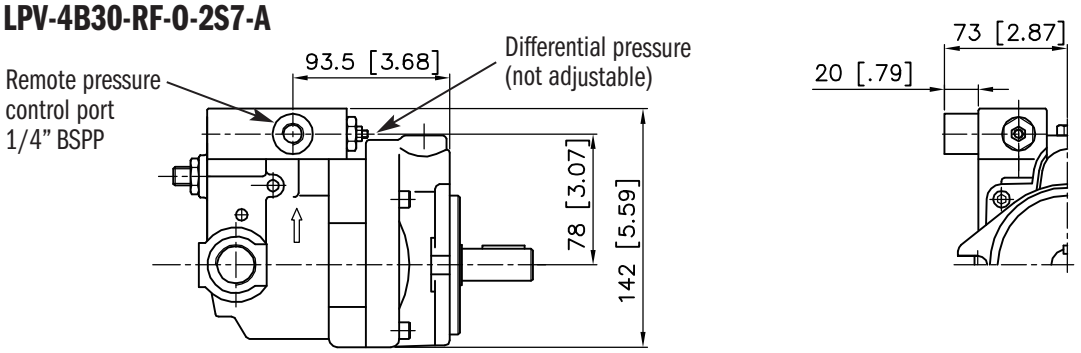
OVERALL AND MOUNTING DIMENSIONS FOR LPV-4

LPV-4B30-RF-0-2S-A

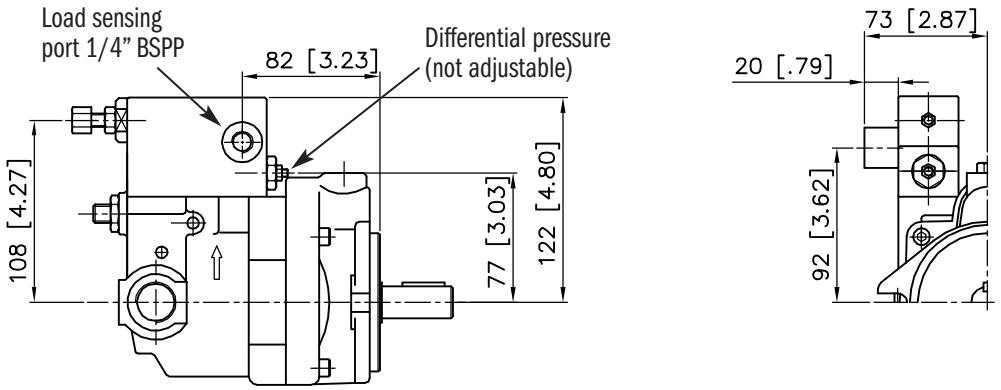
Dimensions in mm [IN]



LPV-4B30-RF-0-2S7-A

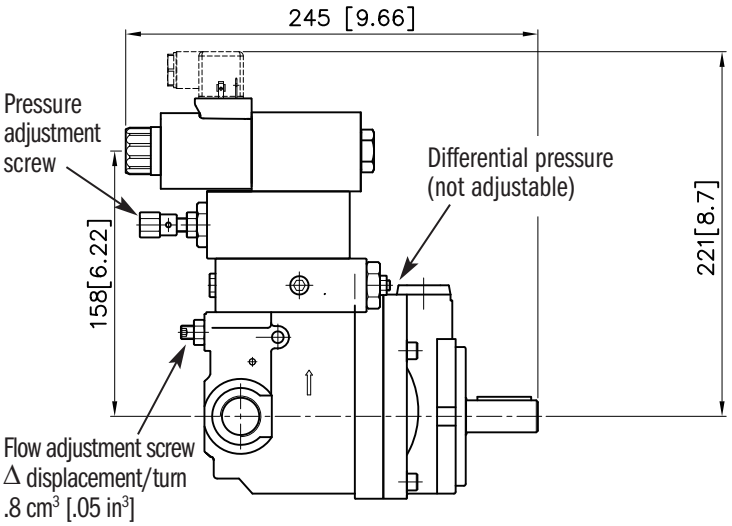


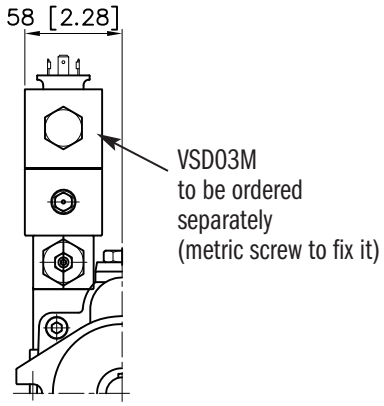
LPV-4B30-RF-0-2S19-A



LPV-4B30-RF-0-2SRC-A

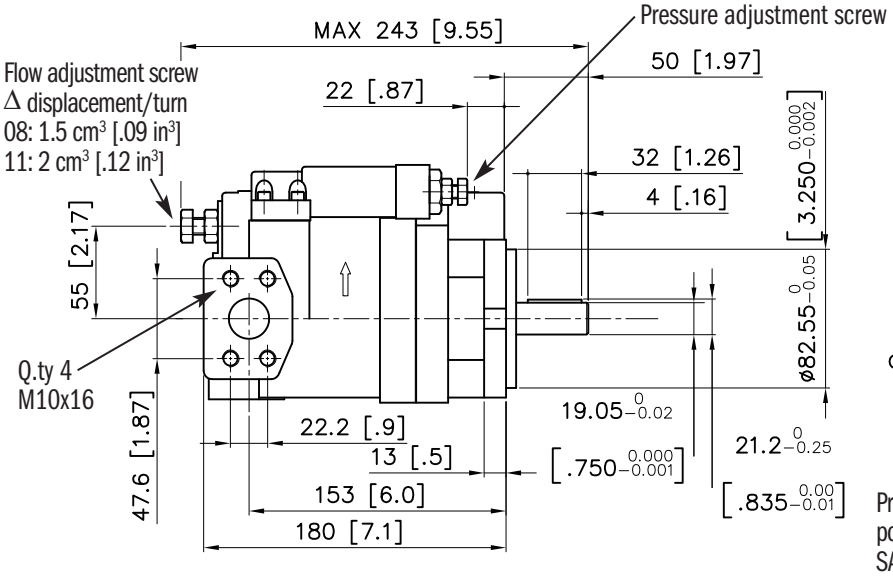
Dimensions in mm [IN]

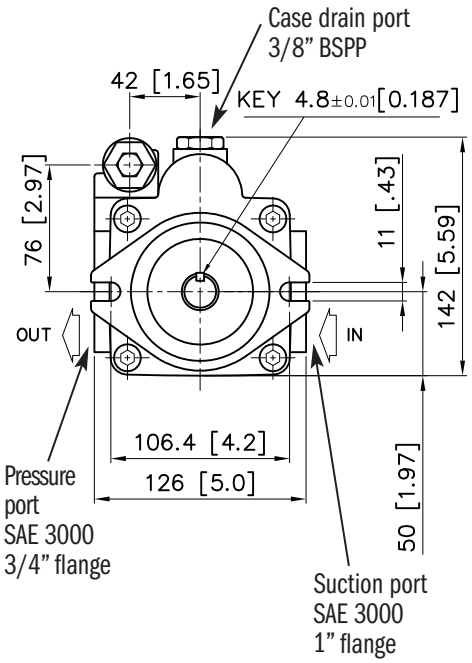




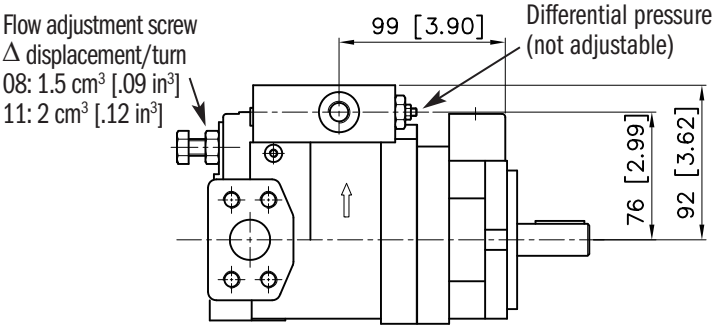
OVERALL AND MOUNTING DIMENSIONS FOR LPV-8 & 11

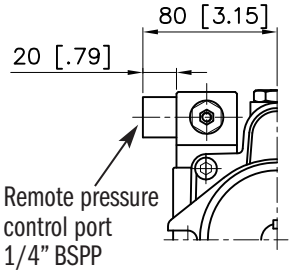
LPV-8, 11 B30-RF-0-5S-A





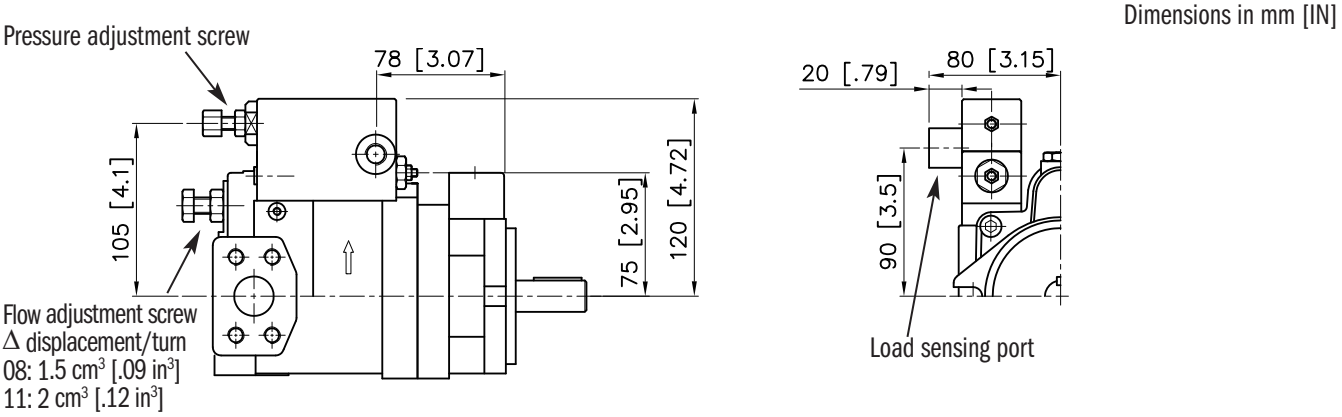
LPV-8, 11 B30-RF-0-5S7-A



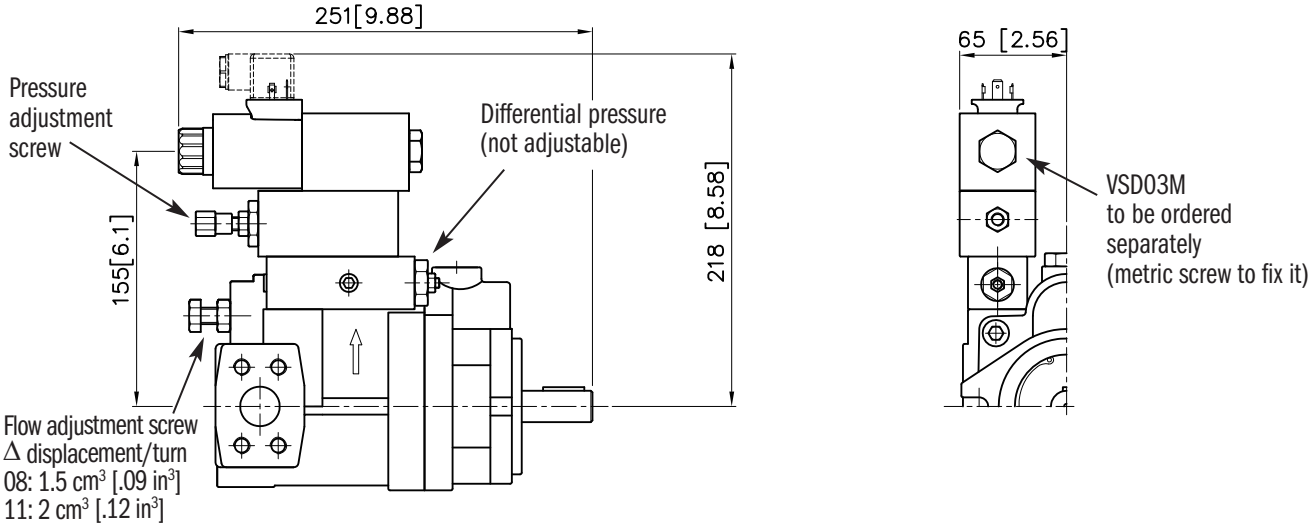


LPV-8, 11 B30-RF-0-5S19-A

Dimensions in mm [IN]

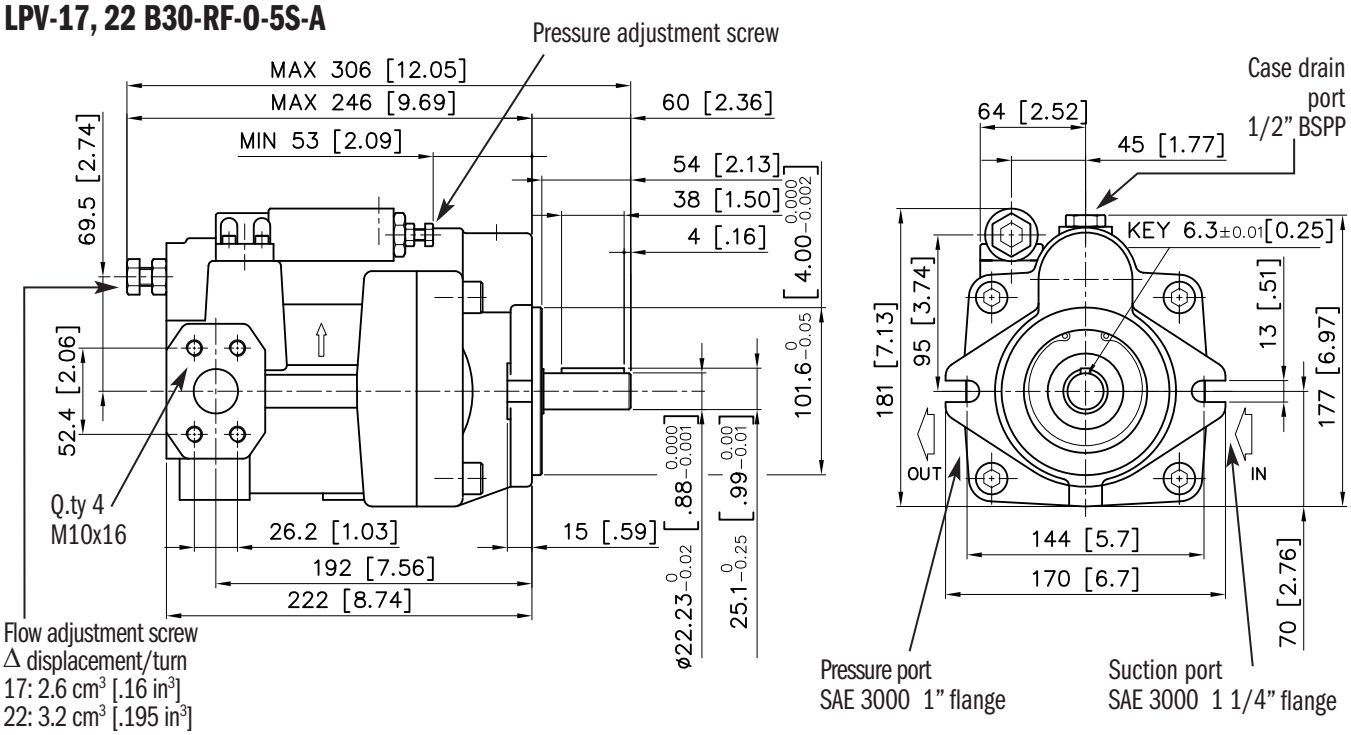


LPV-8, 11 B30-RF-0-5SRC-A



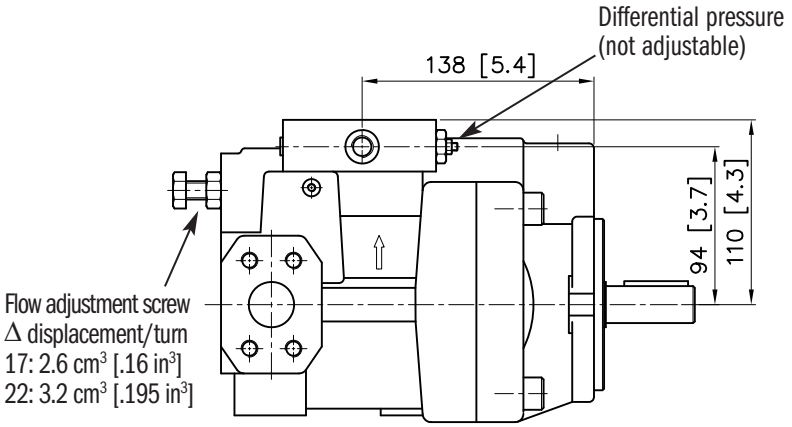
OVERALL AND MOUNTING DIMENSIONS FOR LPV-17 & 22

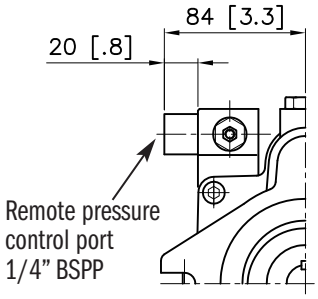
LPV-17, 22 B30-RF-0-5S-A



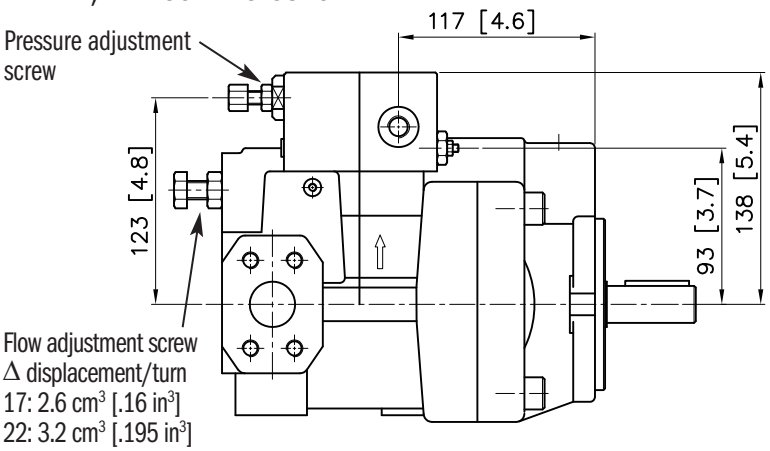
LPV-17, 22 B30-RF-0-5S7-A

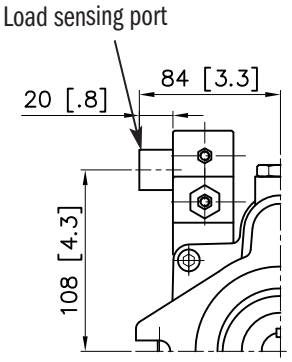
Dimensions in mm [IN]



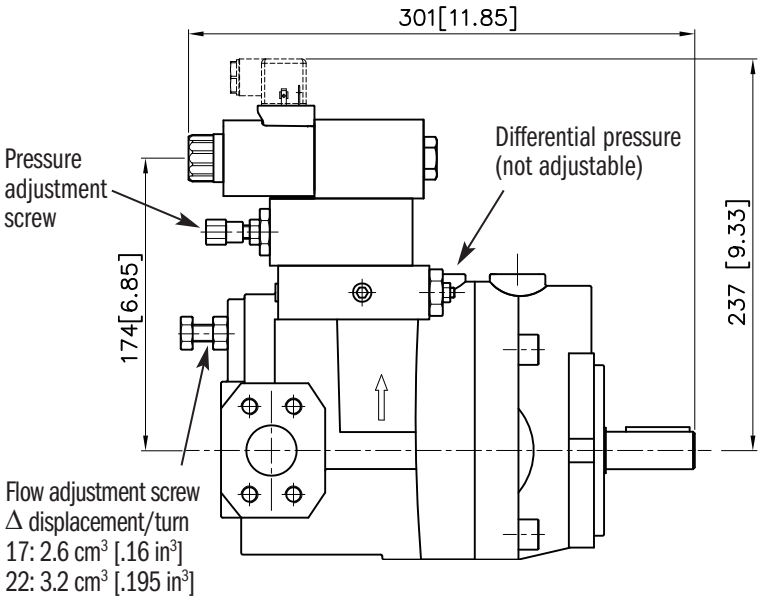


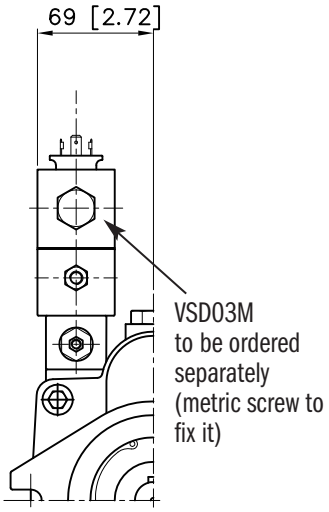
LPV-17, 22 B30-RF-0-5S19-A





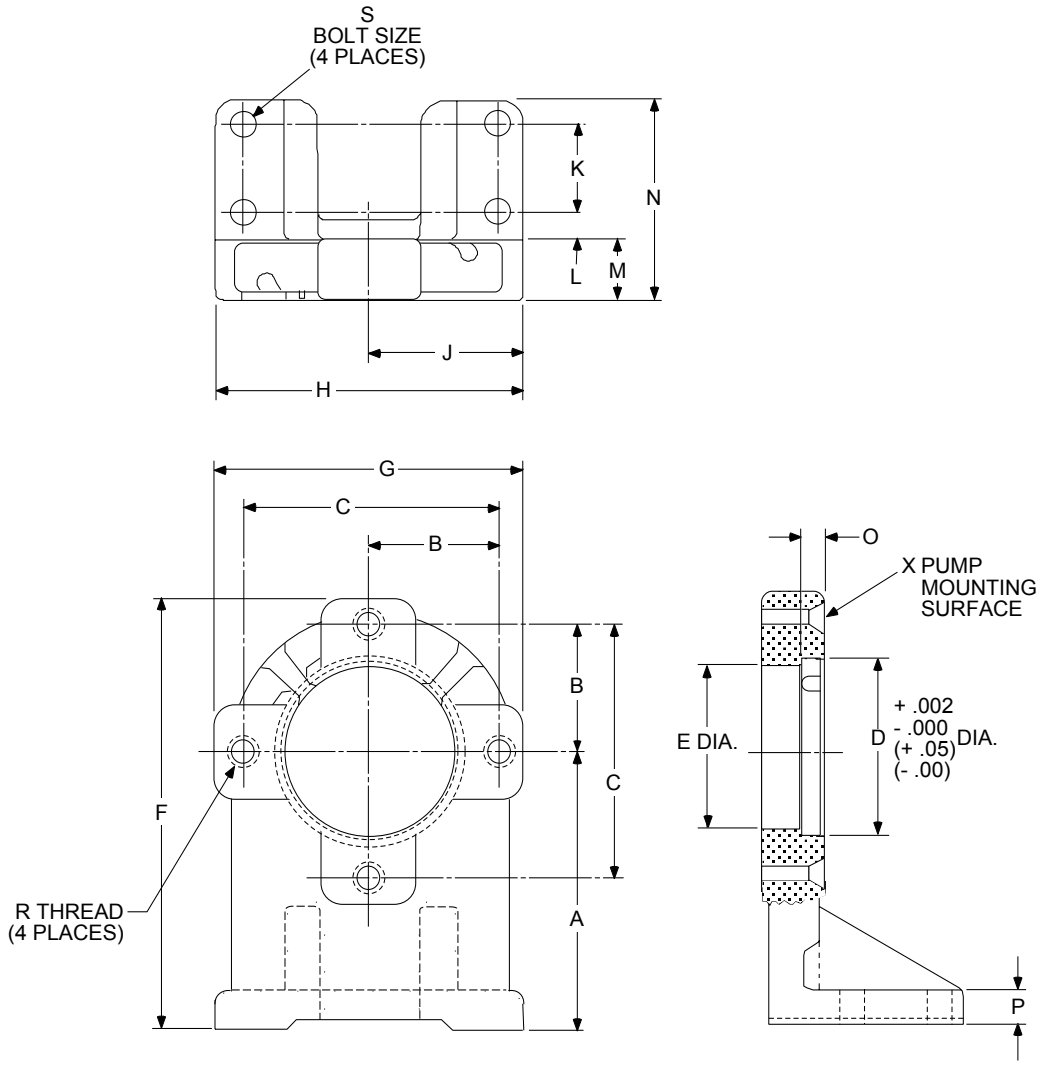
LPV-17, 22 B30-RF-0-5SRC-A





FOOT MOUNTING BRACKET DIMENSIONS

Dimensions in inches (millimeters)



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

FOOT MOUNTING BRACKET ORDERING INFORMATION

SELECT ONE | DESIGN LETTER | DESIGN LETTER

FPVR - ☐ - ☐ - ☐

SIZE	
CODE	**USED WITH MODEL**
6	LPV-4 LPV-8 LPV-11
15	LPV-17 LPV-22

MOTOR SIZE		KIT INCLUDES	
CODE	**NEMA FRAME SIZE**	**MOTOR SPACERS [in.]**	**BRACKET* SPACERS [in.]**
143	143/145	1.74	-
182	182/183	0.75	-
213	213/215	-	-
254	254/256	-	1.00
254	254/256	-	-
284	284/286	-	0.75
324	324/326	-	1.75

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

TYPICAL ORDERING CODE:
FPVR-15-284-B

FOOT MOUNTING BOLTS ORDERING INFORMATION

SELECT ONE | DESIGN LETTER

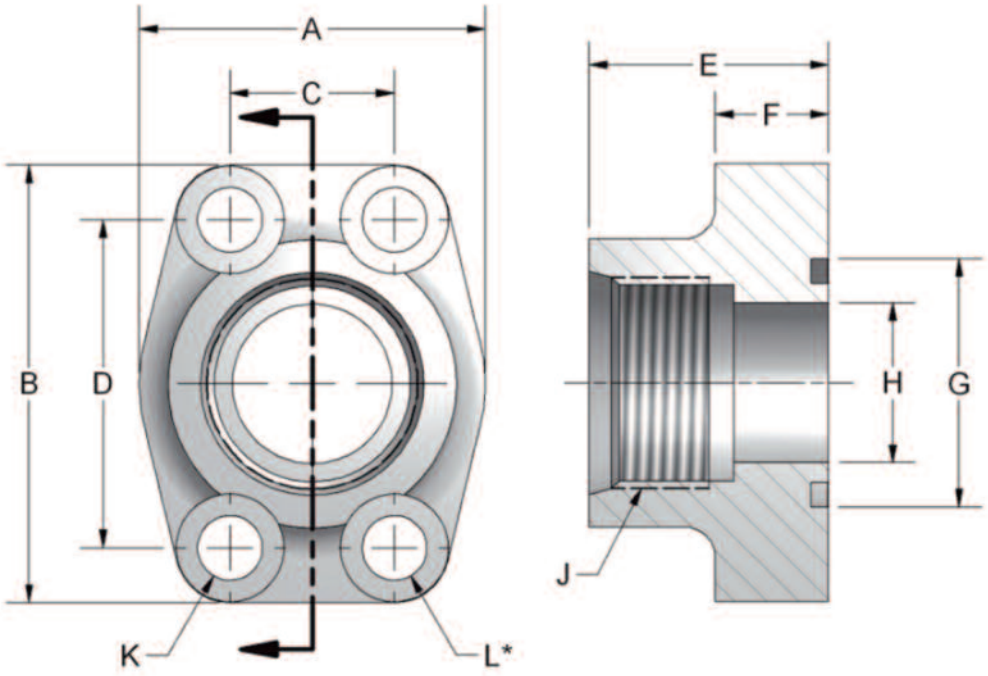
BPVR - ☐ - 2 - U - ☐

PUMP TO FOOT BRACKET

SIZE		BOLTS	
CODE	**USED WITH MODEL**	**BOLT SIZE**	**QUANTITY BOLTS/WASHERS**
6	LPV-4 LPV-8 LPV-11	3/8 - 16 UNC X 0.88	2
15	LPV-17 LPV-22	1/2 - 13 UNC X 1.25	2

TYPICAL ORDERING CODE:
BPVR-15-2-U-A

STRAIGHT FLANGES DIMENSIONS



PORT SIZE		DIMENSIONS inches										MOUNTING HARDWARE	
	PAD SIZE	A	B	C	D	E	F	G	H	J	K	SHC BOLTS ISO 4762	O-RING AS568
0.75	**0.75**	1.97	2.56	0.88	1.88	1.42	0.71	1.25	0.75	1 1/16-12	0.41	q.ty 4 - M10x35	214
1	**1**	2.17	2.75	1.03	2.06	1.50	0.71	1.56	1.00	1 5/16-12	0.41	q.ty 4 - M10x35	219
1.25	**1.25**	2.68	3.12	1.19	2.31	1.61	0.83	1.75	1.25	1 5/8-12	0.47	q.ty 4 - M10x35	222

ABOUT CONTINENTAL HYDRAULICS

Rugged, durable, high-performance, efficient—the reason Continental Hydraulics' products are used in some of the most challenging applications across the globe. With a commitment to quality customer support and innovative engineering, Continental's pumps, valves, power units, mobile and custom products deliver what the markets demand. Continental has been serving the food production, brick and block, wood products, automotive and machine tool industries since 1962. Learn how our products survive some of the most harsh environments.

SALES@CONTHYD.COM

4895 12th Avenue East, Shakopee, MN 55379 / continentalhydraulics.com / 952-895-6400

CONTINENTAL HYDRAULICS