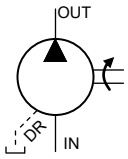
FluidHaus

Axial Piston Pump, 45-85cc/rev
Series: PVAP…6

SAE 0-250 Bar (0-3600 PSI) <212 lpm (<56 gpm)



Features

- Axial Piston Pump Design
- Variable Displacement
- For Open Loop Systems
- Rotation speed up to 2600 rpm
- Continuous Pressure to 280 Bar (4000 psi)
- Optimized for light weight and compact design.

Ordering Details

P	Pump
V	Variable
AP	Axial Piston
45-	CC, Centimeters^3/rev.: 45, 63, 85

PR- Controller: (ref. page 3)

Code	Description
PR	Pressure variable adjustment
LS	Load Sense, Flow and Pressure

13T.8- Shaft: (ref. page 4-6)

Keyed

Code	Shaft Dia., in.	Key Width, in.	CC/rev
K1	1.00	0.250	45
K1.2	1.25	0.312	63

Spline

Code	Shaft Dia.	Details	CC/Rev
13T.8	0.875	13T 16/32 DP	45
14T	1.25	14T 12/24 DP	63, 85
15T	1.00	15T 16/32 DP	45, 63
17T	1.5	17T 12/24 DP	85

2B- Mounting Flange: (ref. page 4-6)

Code	Flange	CC/Rev
2B	SAE B, 2-bolt	45
2C	SAE C, 2-bolt	63, 85

F1 Pressure Port:
F1.5 Suction Port:

4-bolt Flange, Code 61			
Code	Dia., inches	CC/Rev.	
		Pressure	Suction
F1	1.00	45, 63	
F1.5	1.50		45
F2	2.00		63
F2.5	2.50		85

4-bolt Flange, Code 62			
Code	Dia., inches	CC/Rev.	
		Pressure	Suction
HF1.25	1.25	85	

S-	Port Location: S=Side, R=Rear
R-	Rotation: L=Left Hand (CCW), R= Right Hand (CW)
6	Frame: 6

Example Part Number: PVAP45-PR-13T.8-2B-F1F1.5S-R-6

Technical Specifications:

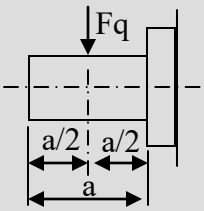
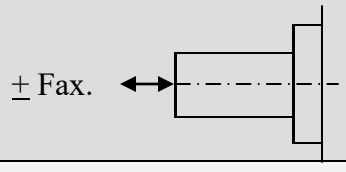
Displacement	cc/rev (in^3/rev	45	63	85
Flow at 1800 rpm	lpm (gpm)	81 (21)	113 (30)	153 (40)
Flow at Max. RPM	lpm (gpm)	117 (31)	163 (43)	212 (56)

Maximum RPM (continuous)	rpm	2600	2600	2500
Min. Recommended RPM	rpm	500	500	500
Max. Pressure (continuous)	bar (psi)	250 (3600)	250 (3600)	250 (3600)
Power at 1800 rpm and max. pressure (Continuous)	kw (hp)	33 (45)	47 (63)	63 (85)
Power at max. rpm and max. pressure (Continuous)	kw (hp)	48 (65)	68 (91)	88 (117)
Max. Case Pressure above Suction Port Pressure (not to exceed 2 bar (29psi)), Measured at drain port L.	bar (psi)	0.5 (7)	0.5 (7)	0.5 (7)
Max. Suction Port Pressure	bar (psi)	10 (145)	10 (145)	10 (145)
Min. Suction Port Pressure	bar (psi)	0.8 (12)	0.8 (12)	0.8 (12)
Recommended Oil Viscosity	mm^2/sec (SUS)	16-36 (80-170) {Cold start $\leq$ 1600mm^2/s for $\leq$ 3min}		
Recommended Fluid		Mineral based oil, VG46		
Recommended Fluid Filtration level		20/18/15 to ISO 4406		
Recommended Temp. Range	°C (°F)	-25 to 82 (-13 to 180)		

*Single duration <2ms, Total durations <300hours

Weight	Kg (lbs.)	18 (40)	22 (48.5)	34 (75)

Permissible Radial and Axial loading on the drive shaft

Radial Force Maximum, Fq at a/2 	N (lbf)	1500 (337)	2000 (450)	3000 (675)
Axial Force Maximum, +/-Fax 	N (lbf)	1500 (337)	1700 (382)	2000 (450)

Max. Shaft Through Drive Power**	kw (hp)	39 (52)	64 (86)	95 (128)

**Maximum power of all pumps mounted behind the lead pump. To calculate the power of all pumps mounted to the lead pump add the power of each with the following calculation:

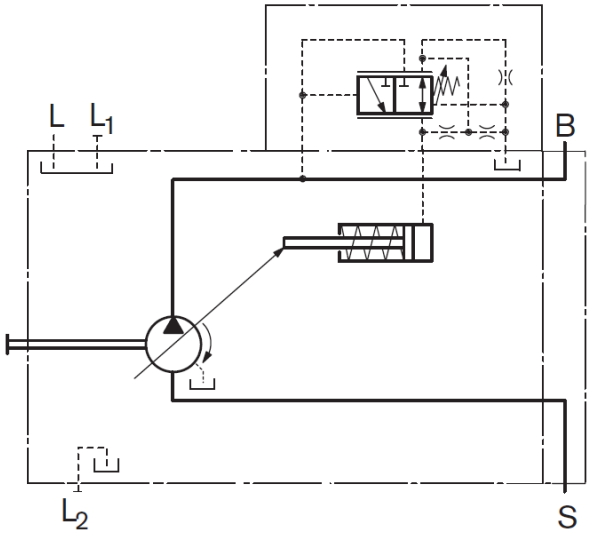
Pump hp = Flow (gpm) x Pressure (psi) /1714 or Pump kw =Flow (lpm) x Pressure (bar)/600

Controller Options:

PR-Pressure Compensated

Controls the maximum pressure at port B by varying the pump displacement. The pump will provide only the amount of fluid required by the actuators. The maximum pressure is set manually by an allen wrench adjustment on the compensator.

Repetitive accuracy of pressure setting ≤ 3 bar (45psi)



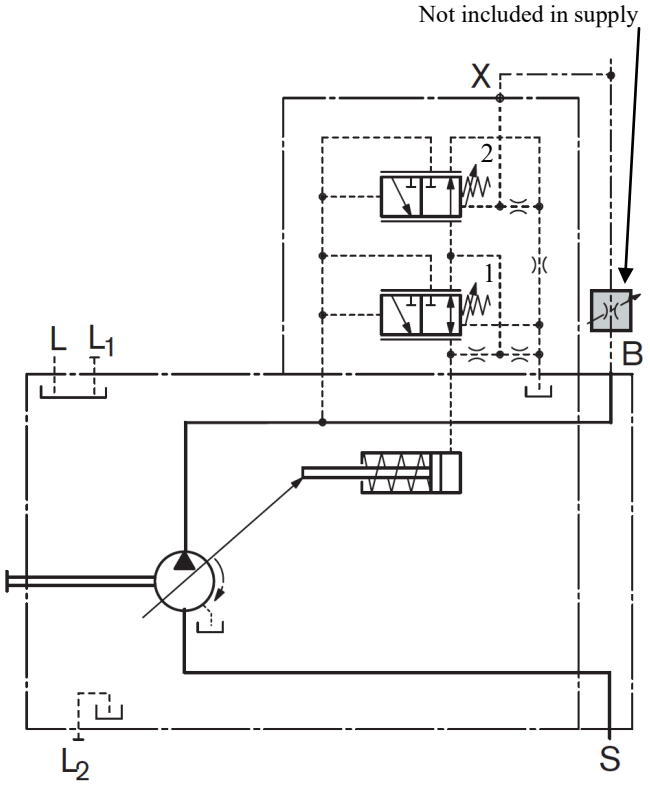
B = Working Pressure Port
S = Suction Port
L = Drain Port
$L_{1,2}$ = Auxiliary Drain Port, plugged

LS—Load Sense Control (Pressure and Flow)

The pump maximum pressure is controlled by the pressure setting (1). The flow can also be varied based on the differential pressure across an orifice (valve) in line with each actuator. The pump will limit its flow by means of the spring setting (2) to only what's required for the movement of the actuator based on the orifice (valve) opening. The larger the opening the higher the speed. The pump flow will be consistent regardless of changes in pressure (varying loads on the actuator) or pump rpm The benefit of a LS controls is energy efficiency, reduced heat generation and consistent speed control.

The load sense flow control spring setting (2) is pre-set to 14-22 bar (200-320 psi).

There is no connection between the X port and the reservoir. Care must be taken to insure the X port can be relieved to the reservoir in the circuit.

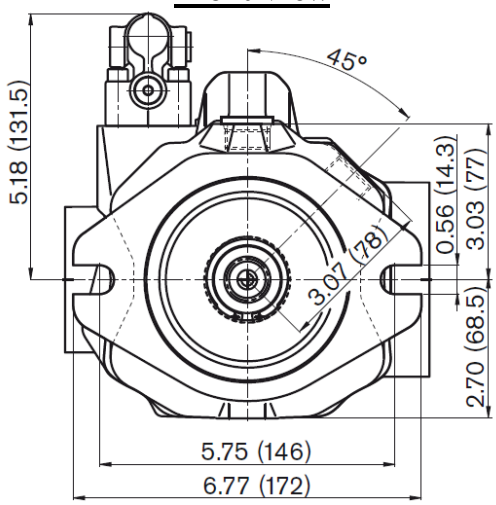


B = Working Pressure Port
S = Suction Port
L = Drain Port
$L_{1,2}$ = Auxiliary Drain Port, plugged
X = Load Sense Pilot Pressure

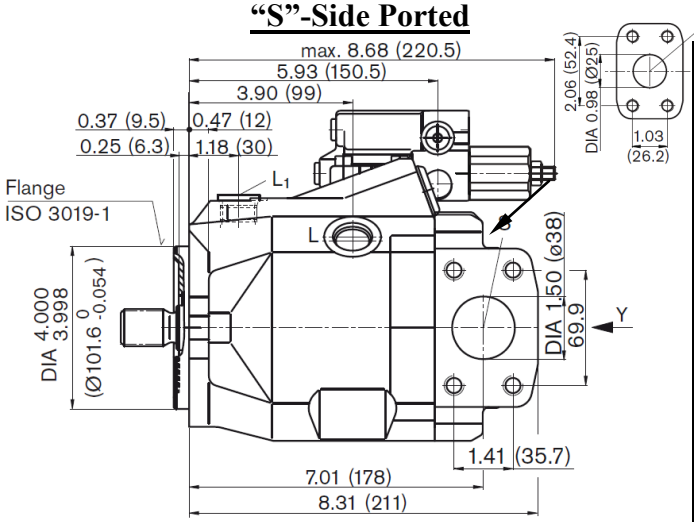
Dimensions, 45 cc/rev:

"PR"-Controller

Front View



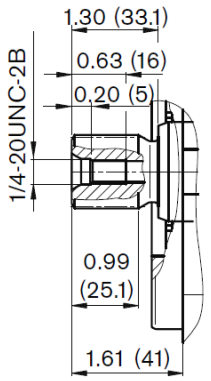
"S"-Side Ported



Shafts

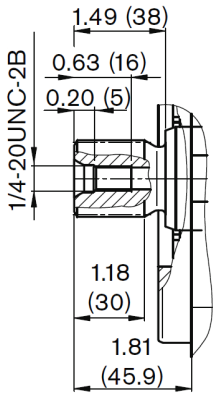
13T.8-Spline Shaft

13T 16/32DP

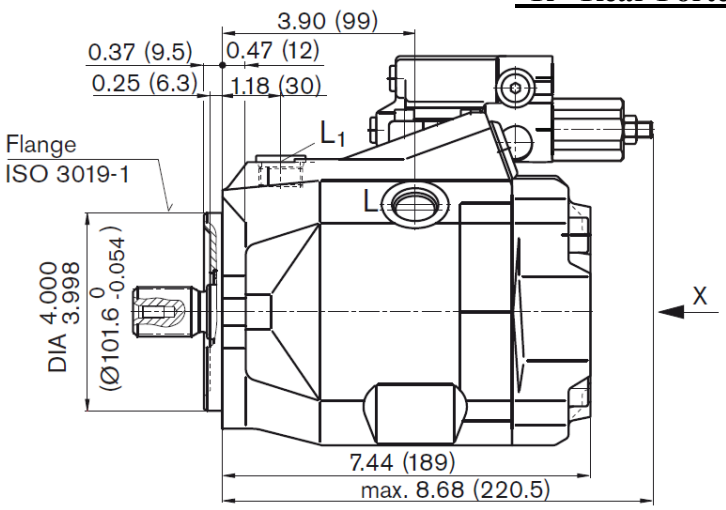


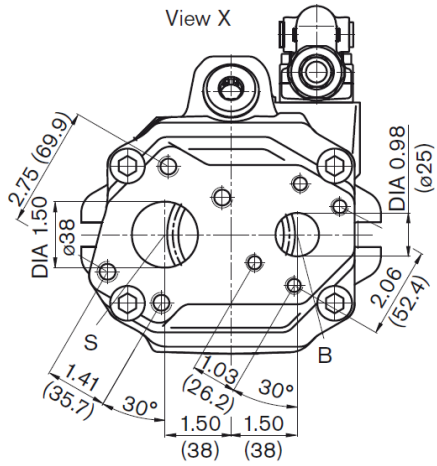
15T-Spline Shaft

15T 16/32DP

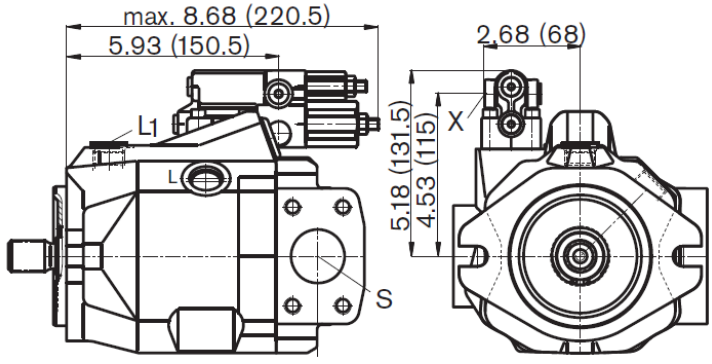


"R"-Rear Ported

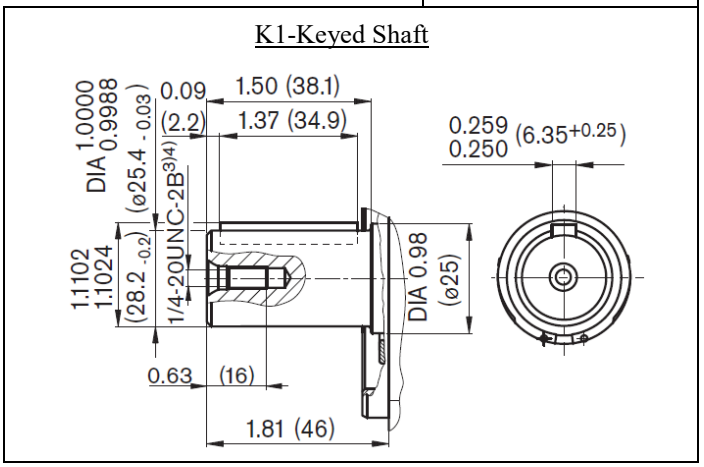




"LS"-Pressure Control



K1-Keyed Shaft



Port	Description	Flange
B	Pressure Port	1 in, SAE J518, Flange (4) fastening bolts 3/8-16UNC-2B, 18mm deep
S	Suction Port	1 1/2 in, SAE J518, Flange (4) fastening bolts 1/2-13UNC-2B, 22mm deep
L*	Case Drain	SAE –10, 7/8-14 UNF-2B, Thread
L_1, L_2*	Case Dain, Optional	SAE –10, 7/8-14 UNF-2B, Thread
X	Pilot Pressure	SAE –4, 7/16-20 UNC-2B, Thread

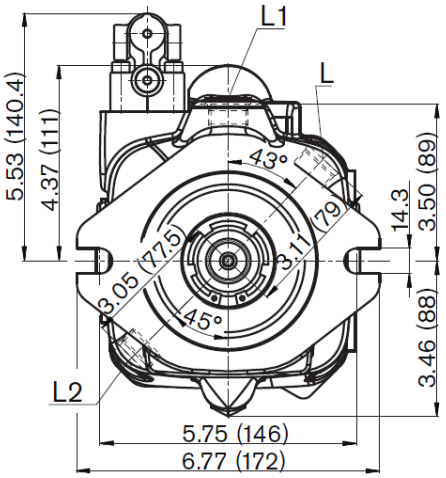
Note:

- B and S port dimensions rotated 180° for left hand
- Fill drain port before operating. Select drain port based on installation direction.

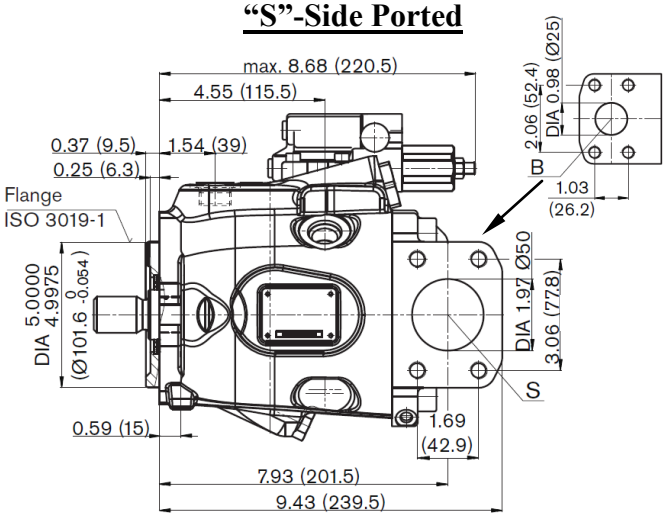
Dimensions, 63 cc/rev:

"PR"-Controller

Front View



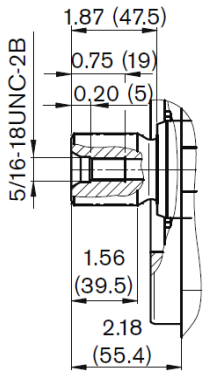
"S"-Side Ported



Shafts

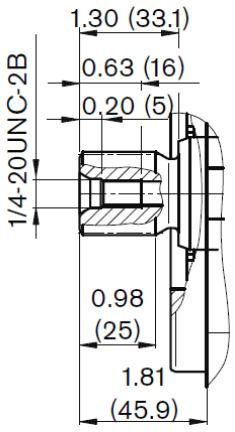
14T-Spline Shaft

14T 12/24DP

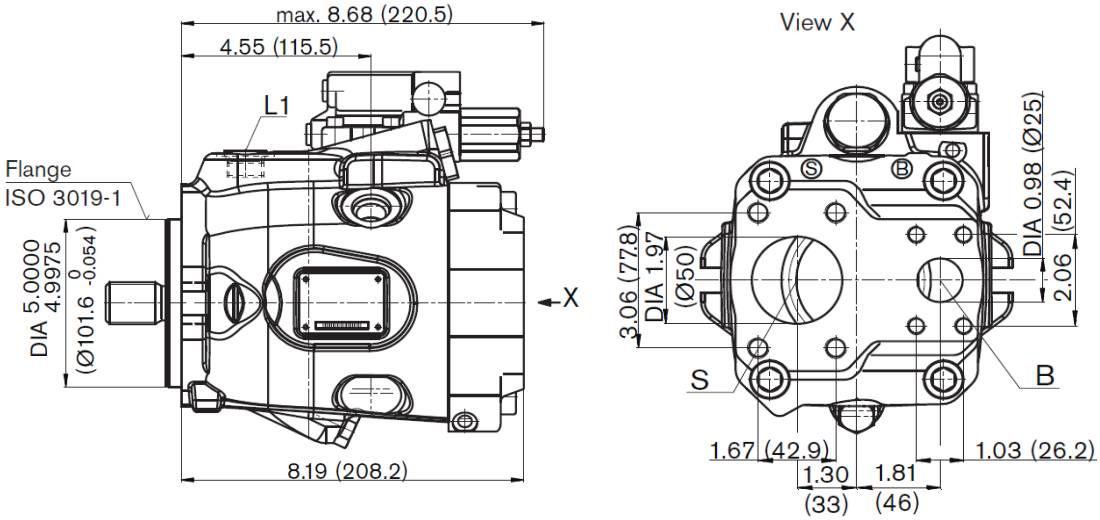


15T-Spline Shaft

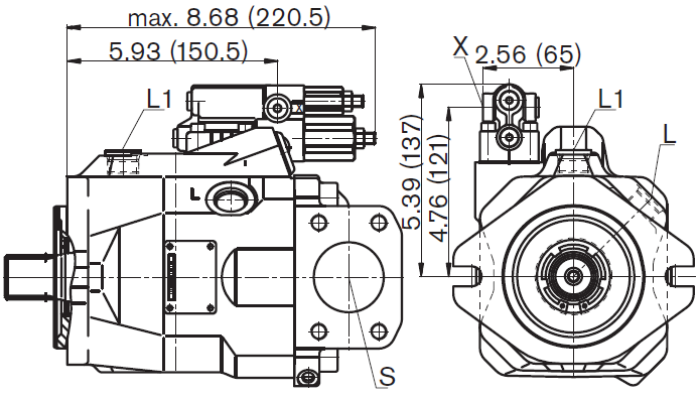
15T 16/32DP



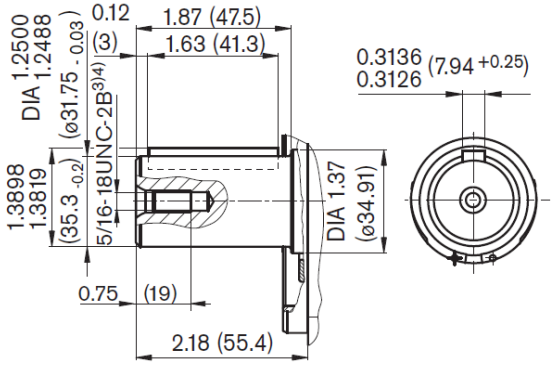
"R"-Rear Ported



"LS"-Pressure Control



K1.2-Keyed Shaft



Port	Description	Flange
B	Pressure Port	1 in, SAE J518, Flange (4) fastening bolts 3/8-16UNC-2B, 18mm deep
S	Suction Port	2 in, SAE J518, Flange (4) fastening bolts 1/2-13UNC-2B, 22mm deep
L*	Case Drain	SAE –10, 7/8-14 UNF-2B, Thread
L_1, L_2*	Case Dain, Optional	SAE –10, 7/8-14 UNF-2B, Thread
X	Pilot Pressure	SAE –4, 7/16-20 UNC-2B, Thread

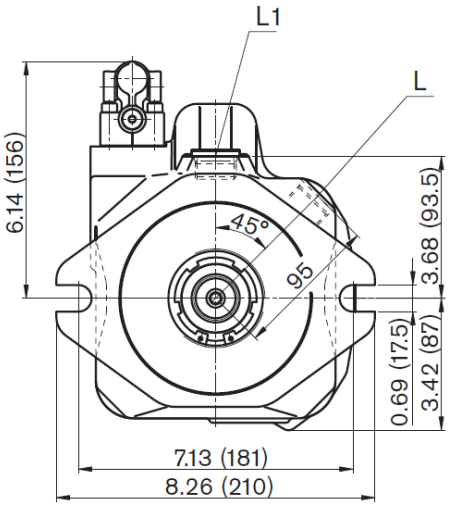
Note:

- B and S port dimensions rotated 180° for left hand
- Fill drain port before operating. Select drain port based on installation direction.

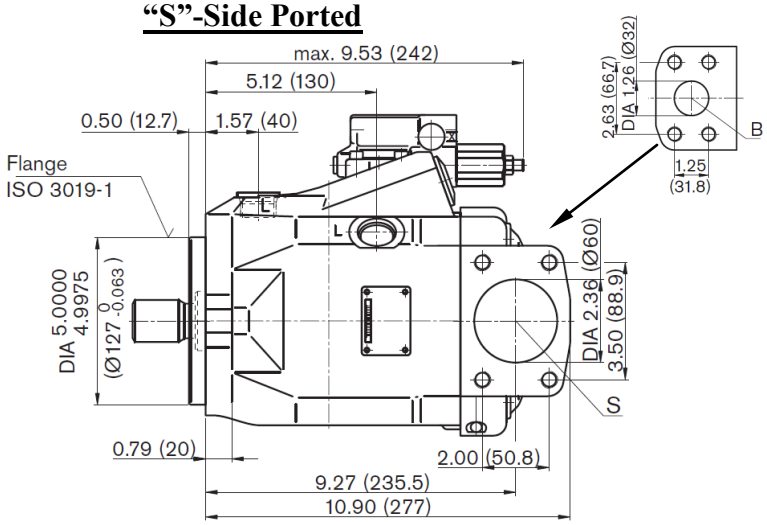
Dimensions, 85 cc/rev:

"PR"-Controller

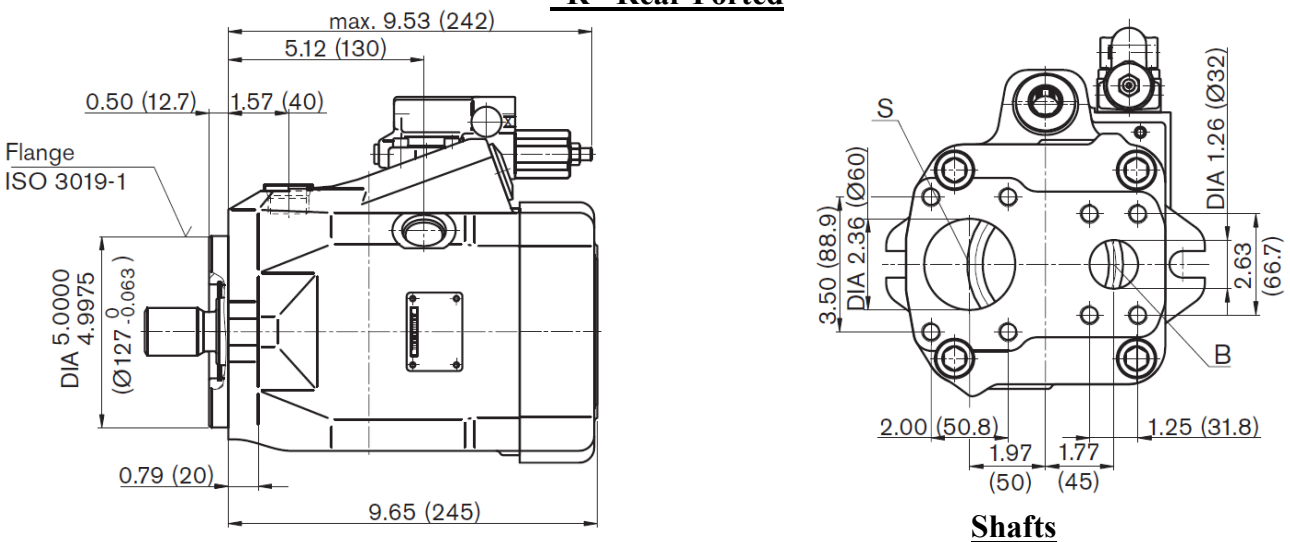
Front View



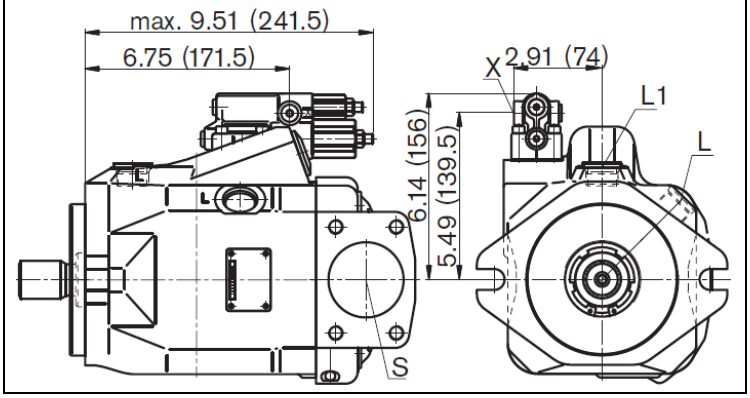
"S"-Side Ported



"R"-Rear Ported

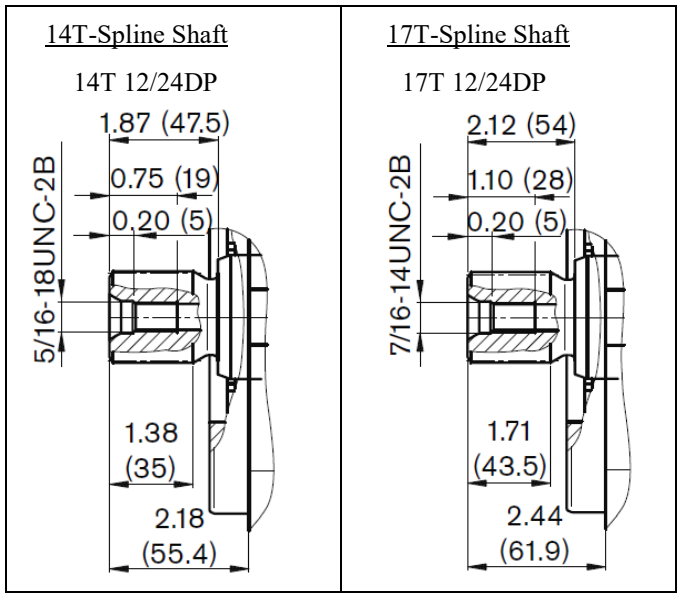


"LS"-Pressure Control



Port	Description	Flange
B	Pressure Port	1 1/4 in, SAE J518, Flange (4) fastening bolts 1/2-13UNC-2B, 19mm deep
S	Suction Port	2 in, SAE J518, Flange (4) fastening bolts 1/2-13UNC-2B, 27mm deep
L*	Case Drain	SAE –12, 1 1/16-12 UNF-2B, Thread
L_1, L_2*	Case Dain, Optional	SAE –12, 1 1/16-12 UNF-2B, Thread
X	Pilot Pressure	SAE –4, 7/16-20 UNC-2B, Thread

Shafts



Note:

- B and S port dimensions rotated 180° for left hand
- Fill drain port before operating. Select drain port based