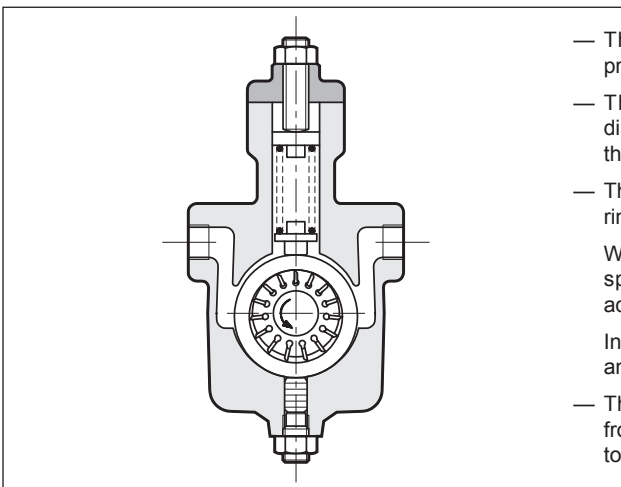


PVER

VARIABLE DISPLACEMENT VANE PUMPS DIRECT SPRING

OPERATING PRINCIPLE



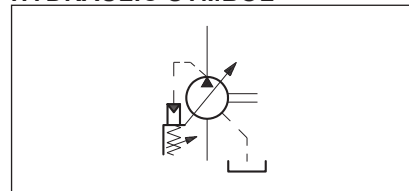
- The PVER pumps are variable displacement vane pumps with direct pressure regulator governor spring for fast on/off response.
 - The pump group is complete with hydrostatic axial compensation distribution plates that improve the volumetric efficiency and reduce wear of the components.
 - The pressure regulator adjustable load spring keeps the pump group cam ring in eccentric position.
- When the delivery pressure equals the pressure corresponding to the spring setting, the cam ring is moved so to reduce the displacement, adjusting the flow rate to the values required by the system.
- In zero flow demand conditions, the pump delivers oil only to compensate any possible leakage, keeping the circuit pressure constant.
- The PVER pumps are available in four sizes with maximum displacement from 0.4 to 1.42 cu in/rev and with pressure regulator max setting values up to 500 PSI and 1000 PSI (standard).

TECHNICAL SPECIFICATIONS

PUMP SIZE		3B	5B	7B	10B
Displacement	cu in (cm ³ /rev)	.403 (6,6)	.69 (11,3)	1.01 (16,6)	1.422 (23,3)
Flow rate (at 1750 rpm and with minimum delivery pressure)	GPM (l/min)	3.0 (10,0)	5.2 (17,0)	7.6 (25,0)	10.7 (35,0)
Operating pressure		see table 3 - Performances			
Rotation speed		see table 3 - Performances			
Rotation direction		clockwise (seen from the shaft side)			
Shaft loads:	No	radial and axial loads are not allowed			
Hydraulic connection		BSPT threading fittings			
Type of mounting		SAE-A flange J744 - 2 holes		4HNA rectangular flange - 4 holes	
Mass	LBS (kg)	11 (5)	11 (5)	20 (9)	20 (9)

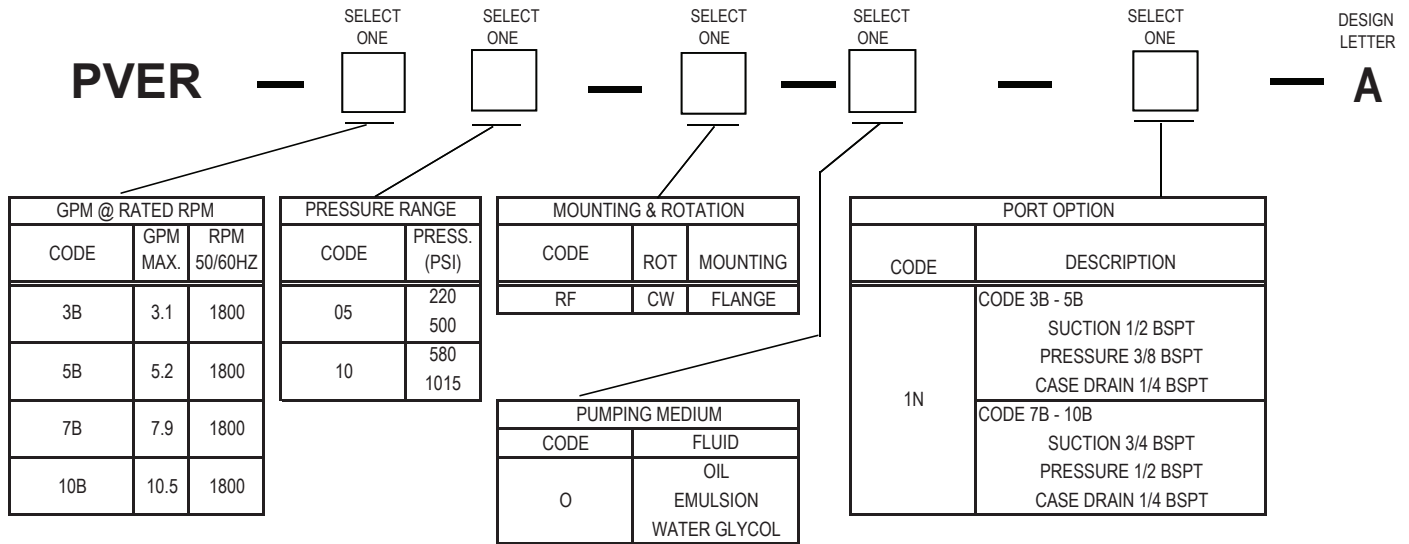
Ambient temperature range	°F (°C)	-4 / +120 (-20 / +50)
Fluid temperature range	°F (°C)	+14 / +160 (-10 / +70)
Fluid viscosity range		see paragraph 2.2
Fluid contamination degree		see paragraph 2.3
Recommended viscosity	cSt	25 ÷ 50

HYDRAULIC SYMBOL



VARIABLE DISPLACEMENT VANE PUMPS DIRECT SPRING

1 - IDENTIFICATION CODE



2 - HYDRAULIC FLUID

2.1 - Fluid type

Use only HL and HLP mineral oil based hydraulic fluids according to ISO 6743/4.

2.2 - Fluid viscosity

The operating fluid viscosity must be within the following range:

minimum viscosity	16 cSt	80 sus	referred to the maximum drainage fluid temperature of 70 °C
optimum viscosity	25-50 cSt	110-250 sus	referred to the fluid working temperature in the tank
maximum viscosity	220 cSt	1000 sus	limited to only the start-up phase of the pump

When selecting the fluid type, be sure that the true viscosity is within the range specified above at the operating temperature.

2.3 - Degree of fluid contamination

The maximum degree of fluid contamination must be according to ISO 4406:1999 class 20/18/15; therefore, use of a filter with $\beta_{20} \geq 75$ is recommended. A degree of maximum fluid contamination according to ISO 4406:1999 class 18/16/13 is recommended for optimum endurance of the pump. Hence, use of a filter with $\beta_{10} \geq 100$ is recommended.

The filter must be equipped with a by-pass valve and, if possible, with a clogging indicator.

2.4 - Installation

- The PVE pumps can be installed with the axis oriented in any position.
- The suction line must be suitably sized to facilitate the flow of oil. Bends and restrictions or an excessive line length can impair correct operation of the pump.
- The drainage port must be connected directly to the tank by a line separate from other discharges, located far from the suction line and lengthened to below the minimum oil level so as to avoid formation of foam.
- The pump start up, especially at a cold temperature, should occur with the pump unloading.
- The pumps are normally positioned directly above the oil tank. Flooded suction port installation of the pumps is advisable in the case of circuits with high flow rates and pressures.
- The motor-pump connection must be carried out directly with a flexible coupling. Couplings that generate axial or radial loads on the pump shaft are not allowed.

VARIABLE DISPLACEMENT VANE PUMPS DIRECT SPRING

3 - PERFORMANCES (obtained with viscosity of 46 cSt at 40°C)

PUMP	REGULATOR TYPE	DISPLACEMENT cu in [cm ³ /rev]	MAX FLOW RATE [l/min.]		PRESSURE ADJ. RANGE PSI [bar] MIN / MAX		MAX ROTATION SPEED [rpm]	MIN ROTATION SPEED [rpm]
			1500 rev / 1800 rev					
PVER-3B	05	.403 [6,6]	10	12	217 [15]	507 [35]	1800	800
	10				580 [40]	1015 [70]		
PVER-5B	05	.69 [11,3]	17	20	217 [15]	507 [35]		
	10				580 [40]	1015 [70]		
PVER-7B	05	1.01 [16,6]	25	30	217 [15]	507 [35]		
	10				580 [40]	1015 [70]		
PVER-10B	05	1.422 [23,3]	35	40	217 [15]	507 [35]		
	10				580 [40]	1015 [70]		

Note: Flow rate values are obtained with minimum delivery pressure

4 - NOISE LEVEL

PUMP DIMENSION	NOISE LEVEL [dB (A)]	
	zero displacement	full displacement
PVER-3B	61	63
PVER-5B	62	65
PVER-7B	64	68
PVER-10B	64	70

The noise pressure levels were measured in a semi-anechoic room, at an axial distance of 1 m from the pump. The values shown must be reduced by 5 dB(A) if they are to be considered in a completely anechoic room.

5 - CASE DRAIN FLOW RATE AT DEAD HEAD

PUMP DIMENSION	DRAINAGE FLOW RATE cu in [l/min]
PVER-3B	25 [0,4]
PVER-5B	50 [0,8]
PVER-7B	75 [1,2]
PVER-10B	75 [1,2]

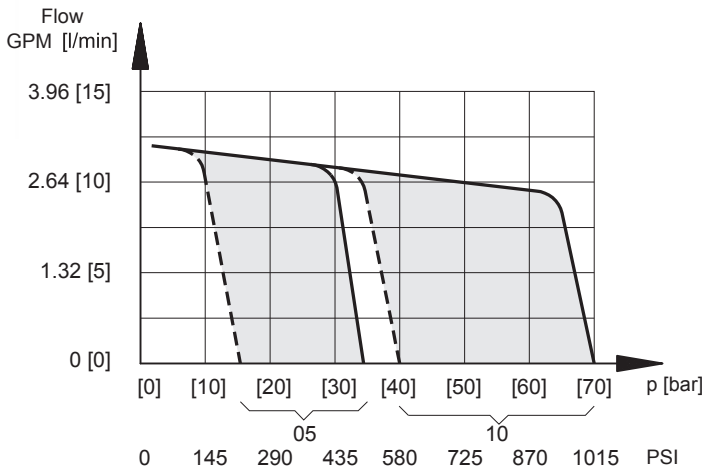
Medium values obtained at max operating pressure

VARIABLE DISPLACEMENT VANE PUMPS DIRECT SPRING

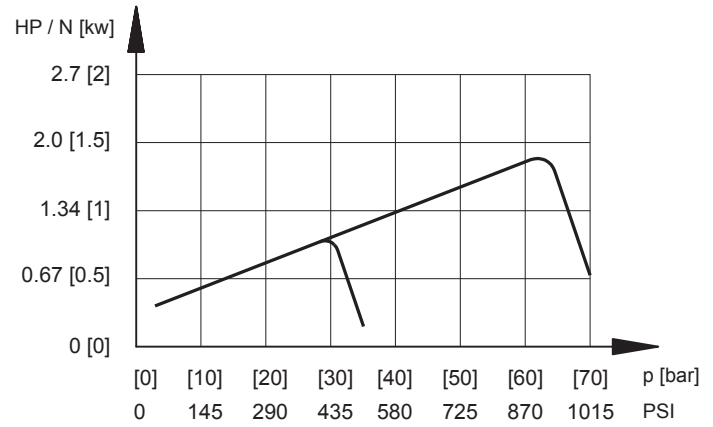
6 - PVER-3B CHARACTERISTIC CURVES (values obtained with mineral oil with viscosity of 46 cSt at 40°C)

The diagram curves were measured with a pump rotation speed of 1800 rev/min

FLOW RATE / PRESSURE CURVES



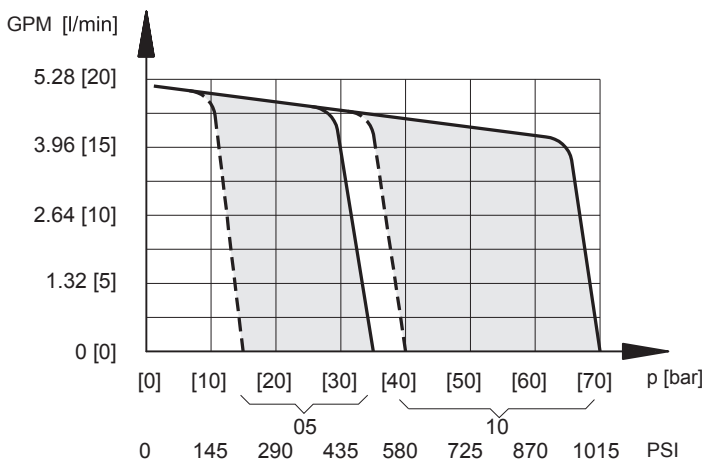
ABSORBED POWER



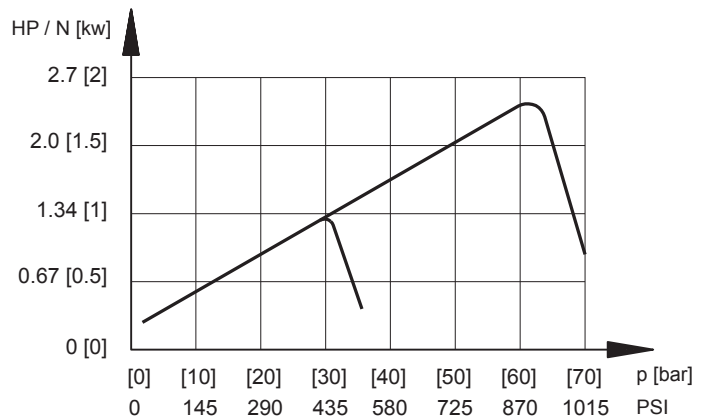
7 - PVER-5B CHARACTERISTIC CURVES (values obtained with mineral oil with viscosity of 46 cSt at 40°C)

The diagram curves were measured with a pump rotation speed of 1800 rev/min

FLOW RATE / PRESSURE CURVES



ABSORBED POWER

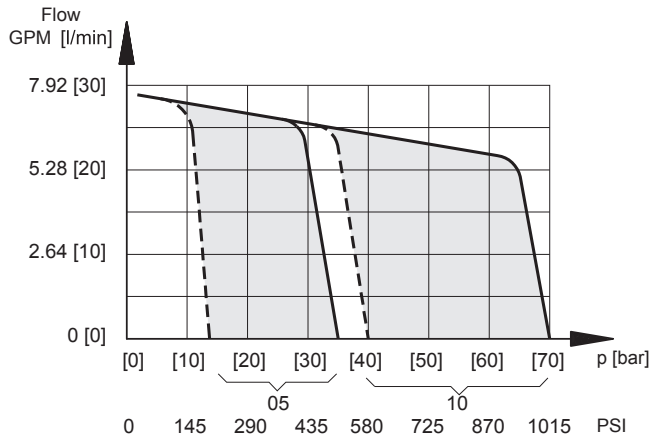


VARIABLE DISPLACEMENT VANE PUMPS DIRECT SPRING

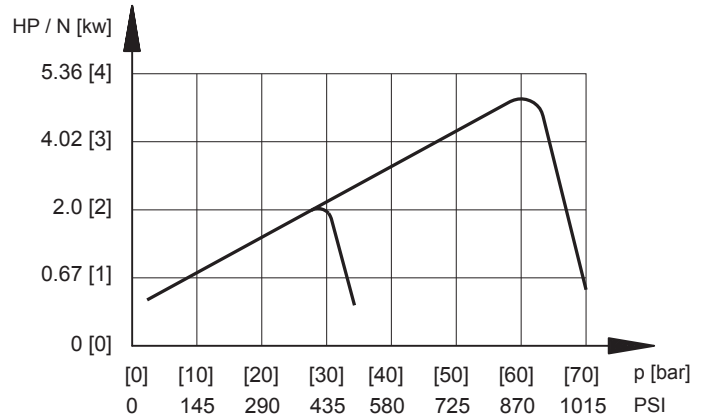
8 - PVER-7B CHARACTERISTIC CURVES (values obtained with mineral oil with viscosity of 46 cSt at 40°C)

The diagram curves were measured with a pump rotation speed of 1800 rev/min

FLOW RATE / PRESSURE CURVES



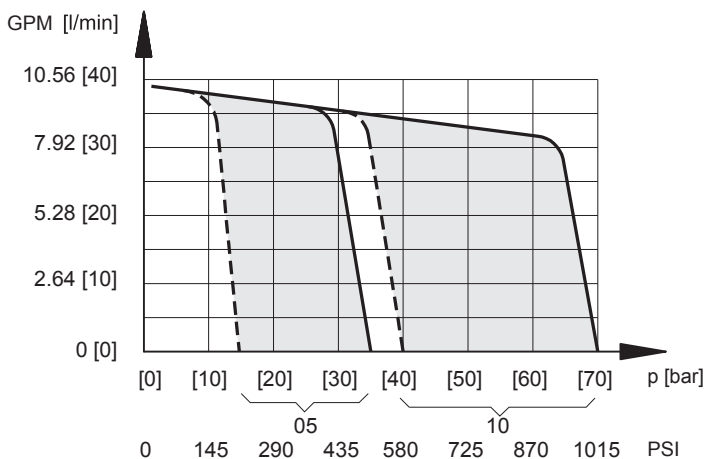
ABSORBED POWER



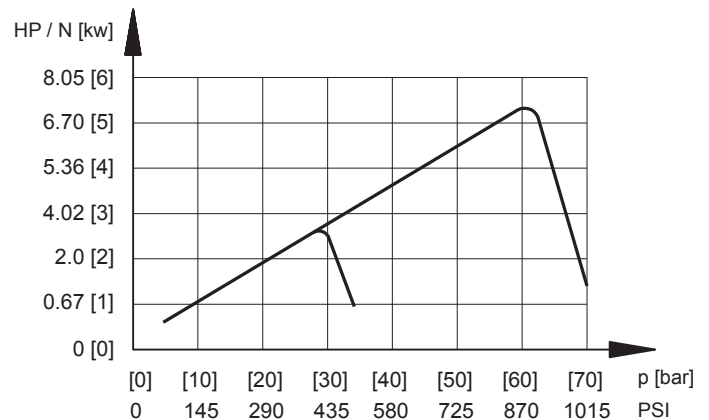
9 - PVER-10B CHARACTERISTIC CURVES (values obtained with mineral oil with viscosity of 46 cSt at 40°C)

The diagram curves were measured with a pump rotation speed of 1800 rev/min

FLOW RATE / PRESSURE CURVES

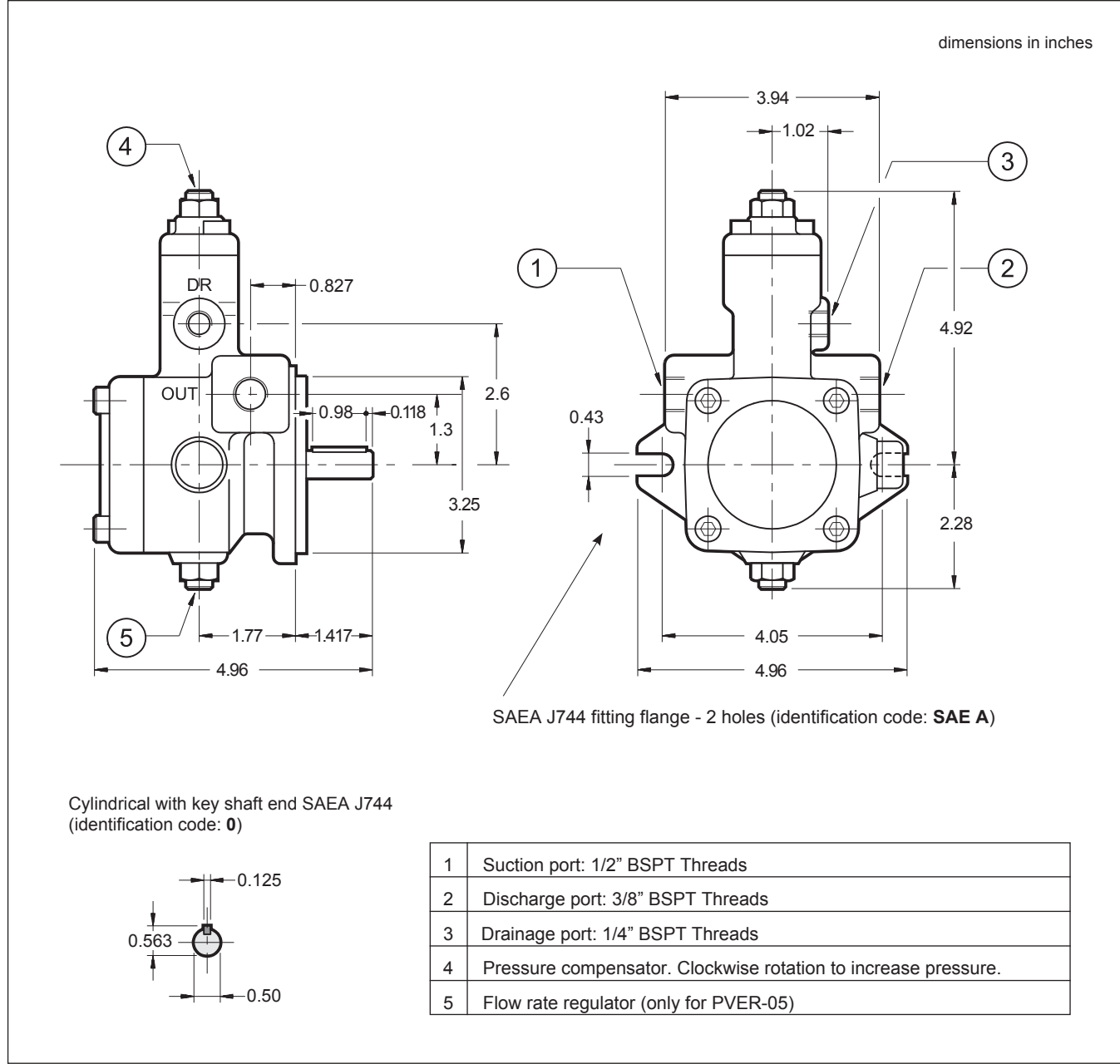


ABSORBED POWER



VARIABLE DISPLACEMENT VANE PUMPS DIRECT SPRING

10 - OVERALL AND MOUNTING DIMENSIONS PVER-3B and PVER-5B

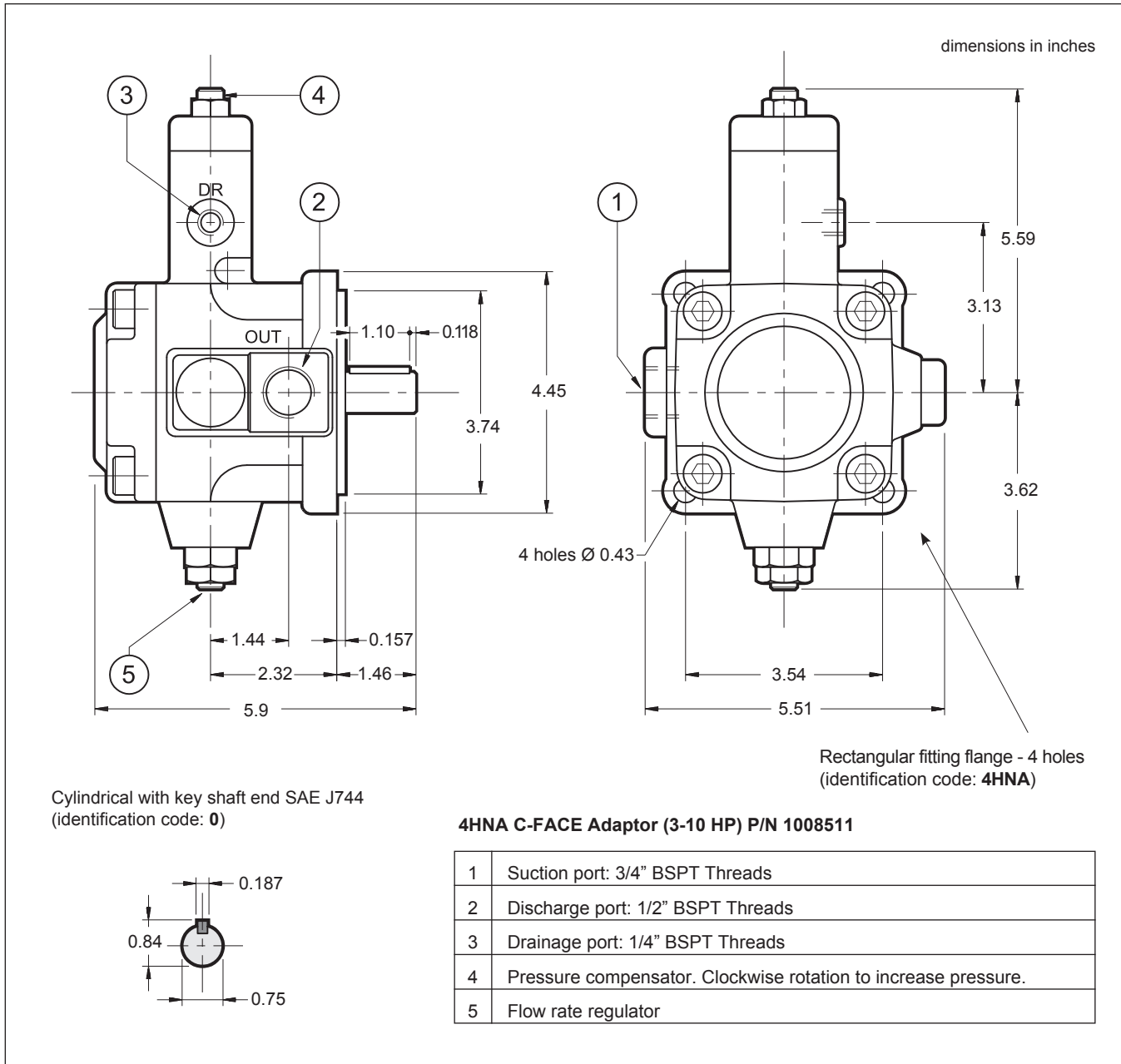


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VARIABLE DISPLACEMENT VANE PUMPS DIRECT SPRING

11 - OVERALL AND MOUNTING DIMENSIONS PVER-7B and PVER-10B



Seal Kit Buna PVER 7/10

1009403

PVER

SERIES 10

VARIABLE DISPLACEMENT VANE PUMPS DIRECT SPRING



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