NACHI

PZH SERIES HIGH PRESSURE TYPE
VARIABLE DISPLACEMENT AXIAL PISTON PUMP

PZH Series

High-Pressure Variable Volume Piston Pump

28,40cm³/rev
41MPa

Features

①Long, trouble-free service life

Swash plate design ensures long, trouble-free bearing life.

②Low-noise, even in the high pressure range

High-rigidity semi-cylindrical swash plate provides low-noise operation, even in the high-pressure range.

③Female piston

Female piston increases sealing between the shoe and piston for enhanced resistance to contamination.

④High-precision proportional flow control

This load sensitive type pump provides precision low flow rate control from zero load.

Specifications

Model No.	Pump Capacity cm³/rev	Rated Voltage MPa {kgf/cm²}	Maximum Working Pressure MPa {kgf/cm²}	Revolution Speed min⁻¹		Weight kg
				Min.	Max.	
PZH-2B-28**5***-10	28	34.3 {350}	41.0 {418}	500	1900	28
PZH-2B-40**5***-10	40	34.3 {350}	41.0 {418}	500	1900	29

- Handling
- Pump Installation and Piping Precautions

1. Use flexible couplings for connecting the pump shaft to the drive shaft, and minimize radial or thrust load from being applied to the pump shaft.
2. Eccentricity between the drive shaft and pump shaft should be no greater than 0.05mm, with surface vibration n0.09 or less.
3. Make sure the clamping length of couplings and the hydraulic pump shaft is long enough to allow the entire length of key fits in the coupling width.
4. Use a sufficiently rigid pump mounting base.
5. Make the pump suction side pressure is at least −0.03MPa at peak times, and at least −0.01MPa normally.
6. Raise part of the drain piping so it is above the topmost part of the pump body, and insert the return section of the drain piping into the hydraulic operating fluid tank. In order to obtain a drain back pressure of 0.2Mpa or less, the drain pipe should have an inside diameter of at least ϕ17 and should be less than one meter long.

- Management of Hydraulic Operating Fluid

1. Use only good-quality hydraulic operating fluid with a kinematic viscosity during operation within the range of 20 to 200 mm²/sec. Normally, you should use an R&O type and wear-resistant type of ISO VG46 or equivalent. The optimum kinematic viscosity during operation is 20 to 50 mm²/sec.
2. The operating temperature range is 10 to 80°C. When the oil temperature at startup is 10°C or less, run the pump at low pressure until the oil temperature reaches 10°C.
3. Provide a suction strainer with a filtering grade of about 100μm (150 mesh). Provide a return line filter of grade 20μm or less on the return line to the tank. (When the pump is used at a high pressure of 14 MPa or greater, a filter of 10μm or less is recommended.)
4. Manage the hydraulic operating fluid so that contamination is maintained at class NAS9 or lower.
5. Use the hydraulic operating fluid when the operating ambient temperature is in the range of −20 to 20°C.

- Startup Precautions

1. Before starting the pump, fill the pump body with clean hydraulic operating oil through the drain port or the air bleeder port. Be sure to perform the air bleed operation from the air bleeder port before and immediately after running the pump.
2. This pump does not have a pressure compensation mechanism (no full cut-off). Be sure to install a relief valve in the circuit.
3. Check to make sure that the pump rotation direction is clockwise when viewed from the end of the shaft.
4. Air entering the pump or pipes can cause noise or vibration. At startup, set the pump discharge side to a no-load state, and operate the pump in the inching mode to remove any air that might be in the pump or pipes.
5. To enable proper flow control when using a proportional flow control model, loosen the air vent of the electro-hydraulic proportional control valve to bleed air from the valve immediately after operation. You can change the position of the air vent by loosening the coil cover. When there is no input current to the valve, you can manually control the flow rate with the manual flow rate adjusting screw. Normally, the manual adjusting screw should be returned completely to its original position and secured with the lock nut.

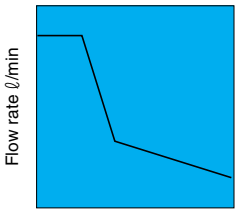
Understanding Model Numbers

Standard type
Constant horsepower control type (L)

PZH – 2 B – 28 L 5 A ＊＊ – 10

- PZH Series Variable Piston Pump
- Pump size 2
- Mounting method A: Foot type mounting B: Flange type mounting
- Pump capacity 28: 28cm³/rev, 40: 40cm³/rev
- Control mechanism L: Constant horsepower control
- Rated voltage 5: to 35.0MPa {357kgf/cm²}
- Revolution speed A: 1500min⁻¹, B: 1800min⁻¹
- Constant horsepower axial input 5: 5.5 kW, 7: 7.5kW, 11: 11 kW, 15: 15.5kW, 18: 18.5kW, 22: 22 kW, 30: 30 kW, 37: 37 kW
- Design number

P-Q characteristics

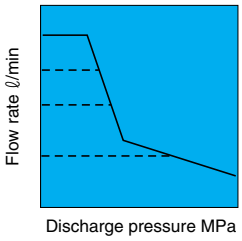


Option type
Electro-hydraulic proportional control type (EF)

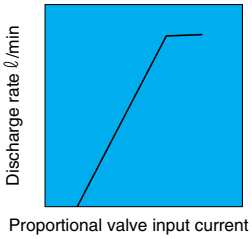
PZH – 2 B – 28 EF 5 A ＊＊ – 10

- PZH Series Variable Piston Pump
- Pump size 2
- Mounting method A: Foot type mounting B: Flange type mounting
- Pump capacity 28: 28cm³/rev, 40: 40cm³/rev
- Control mechanism EF: Constant horsepower type with electromagnetic proportional flow control
- Rated voltage 5: to 35.0MPa {357kgf/cm²}
- Revolution speed A: 1500min⁻¹, B: 1800min⁻¹
- Constant horsepower axial input 5: 5.5 kW, 7: 7.5kW, 11: 11 kW, 15: 15.5kW, 18: 18.5kW, 22: 22 kW, 30: 30 kW, 37: 37 kW
- Design number

P-Q characteristics

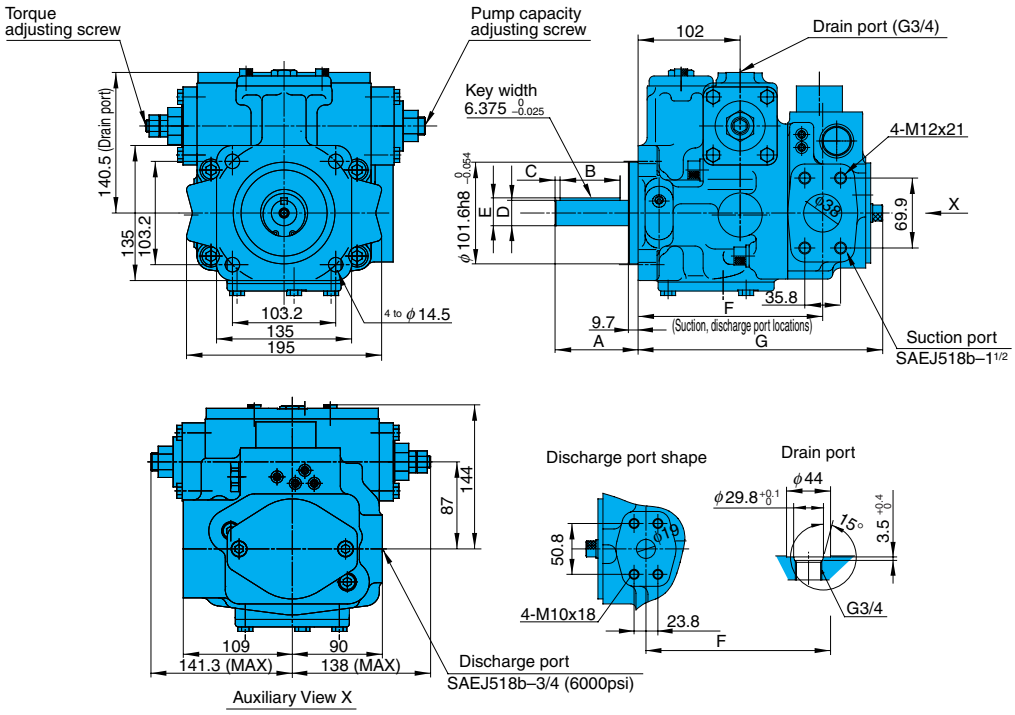


Input Current – Discharge Rate Characteristics



Installation Dimension Drawings

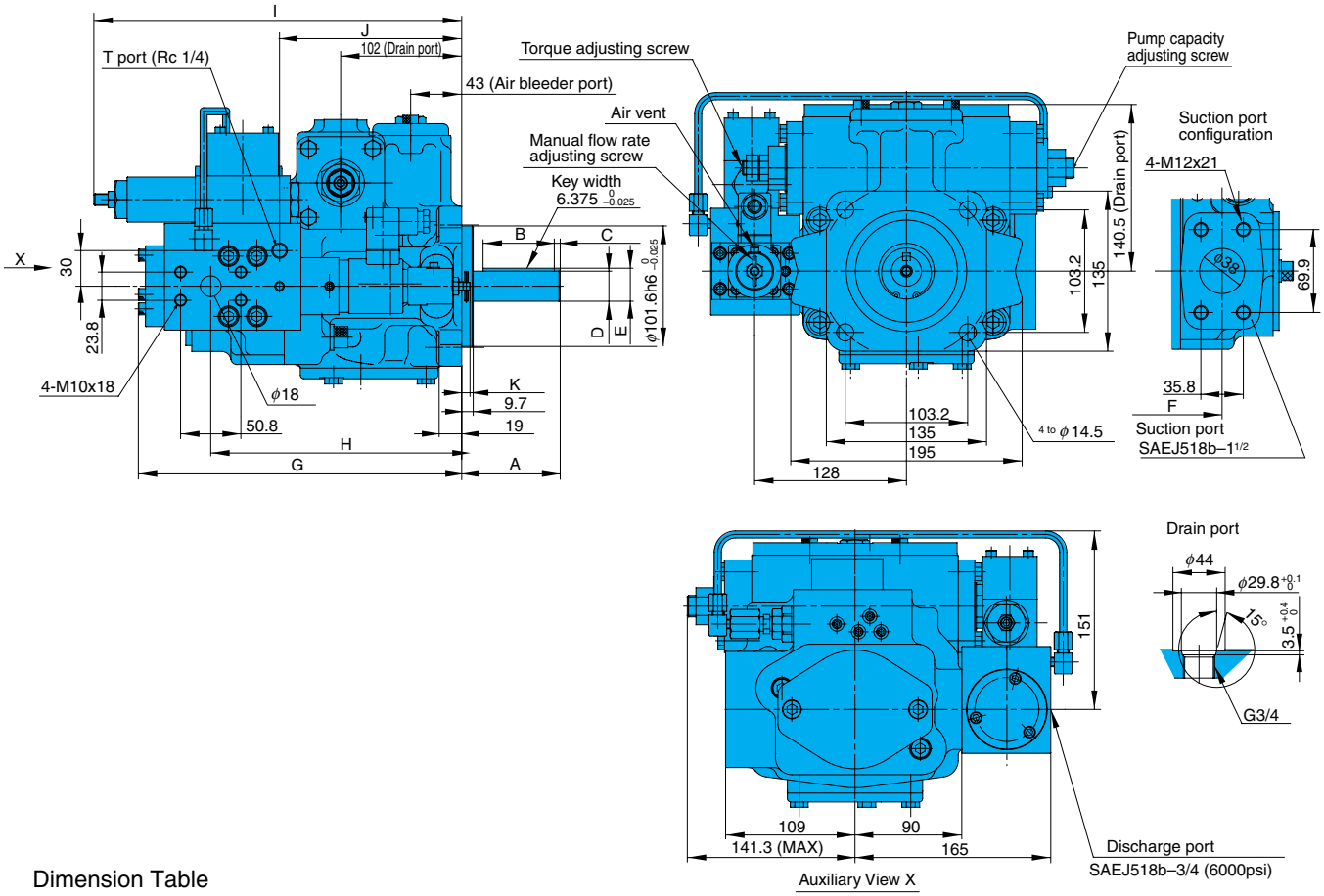
PZH-2B-$^{28}_{40}$L5**-10



Dimension Table

Pump Model No.	A	B	C	D	E	F	G
PZH-2B-28L5**-10	67	45	4	φ22.23 0 -0.025	25.08 0 -0.25	175	233
PZH-2B-40L5**-10	83	60	5	φ25.385 0 -0.025	27.85 0 -0.25	184.5	242.5

PZH-2B-$^{28}_{40}$EF5**-10



Dimension Table

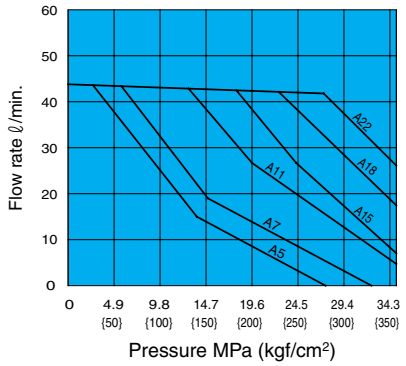
Pump Model No.	A	B	C	D	E	F	G	H	I	J	K
PZH-2B-28EF5**-10	67	45	4	φ22.23 0 -0.025	25.08 0 -0.25	175	263	202	300.5	144	16.5
PZH-2B-40EF5**-10	83	60	5	φ25.385 0 -0.025	27.85 0 -0.25	184.5	272.5	211.5	310	153.5	7

Performance Curves

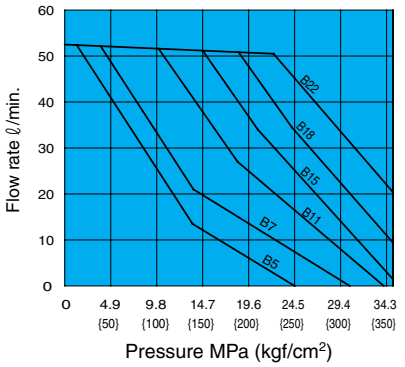
Typical Characteristics at a Hydraulic Operating Fluid Kinematic Viscosity of 46 mm²/s

Load Pressure - Flow Rate Characteristics

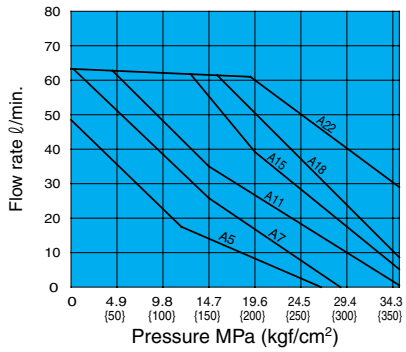
PZH-2B-28*5A**-10
Revolution Speed :1500min⁻¹
Symbol : A**



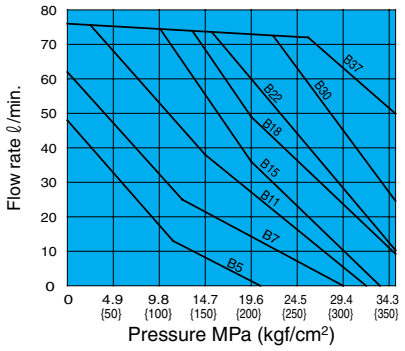
PZH-2B-28*5B**-10
Revolution Speed :1800min⁻¹
Symbol : B**



PZH-2B-40*5A**-10
Revolution Speed :1500min⁻¹
Symbol : A**



PZH-2B-40*5B**-10
Revolution Speed :1800min⁻¹
Symbol : B**

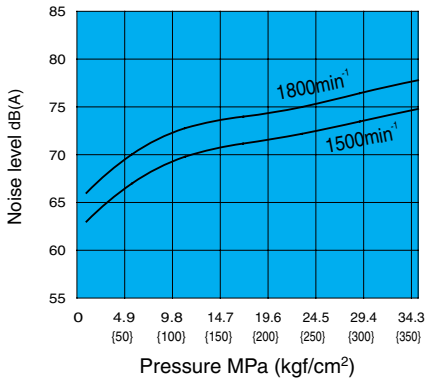


Constant Horsepower Input and Symbols

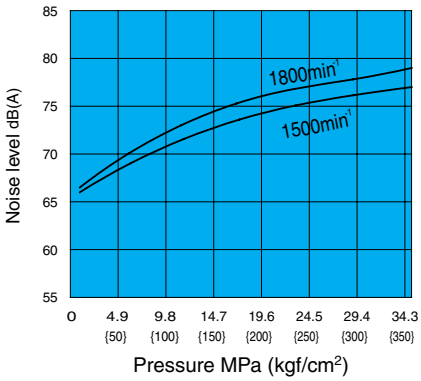
Input (kW)	PZH-2B-28		PZH-2B-40	
	4P-50Hz	4P-60Hz	4P-50Hz	4P-60Hz
5.5	A5	B5	A5	B5
7.5	A7	B7	A7	B7
11	A11	B11	A11	B11
15	A15	B15	A15	B15
18.5	A18	B18	A18	B18
22	A22	B22	A22	B22
30	–	–	–	B30
37	–	–	–	B37

Noise Characteristics

PZH-2B-28

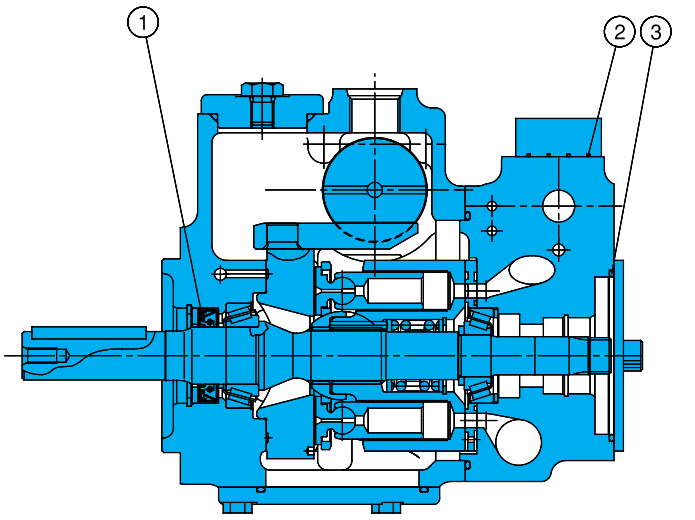


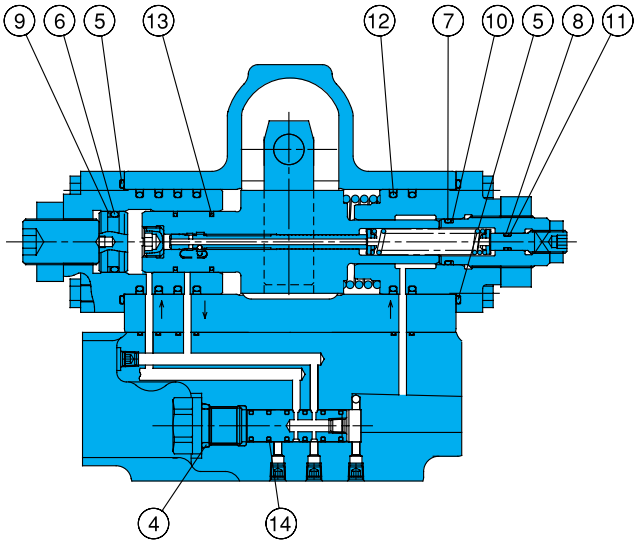
PZH-2B-40



Cross-sectional Drawing

PZH-2B-***-10



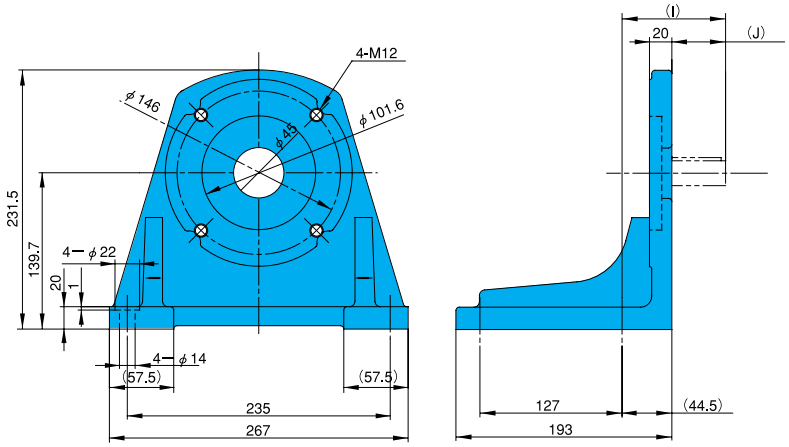


List of Sealing Parts

Part No.	Name	Q'ty	Part Number	
			PZH-2B-28	PZH-2B-40
1	Oil seal	1	*	*
2	O-ring	4	*	
3	O-ring	1	*	
4	O-ring	1	*	
5	O-ring	2	*	
6	O-ring	1	*	
7	O-ring	1	*	
8	O-ring	1	*	
9	Backup ring	1	*	
10	Backup ring	1	*	
11	Backup ring	1	*	
12	Packing	6	*	
13	Packing	6	*	
14	Packing	2	*	

*These seal products are not available through retail channels. For details, consult your agent.

Foot Mounting Kit



Kit Model No.	Applicable Pump Model No.	Accessories				Dimensions (mm)		Weight kg
		Bolt	Q'ty	Washer	Q'ty	I	J	
PZM-2-H-10	PZH-2B-28	TB-12×35	4	WP-10	4	92.5	48	12.0
	PZH-2B-40					107.5	63	