NACHI

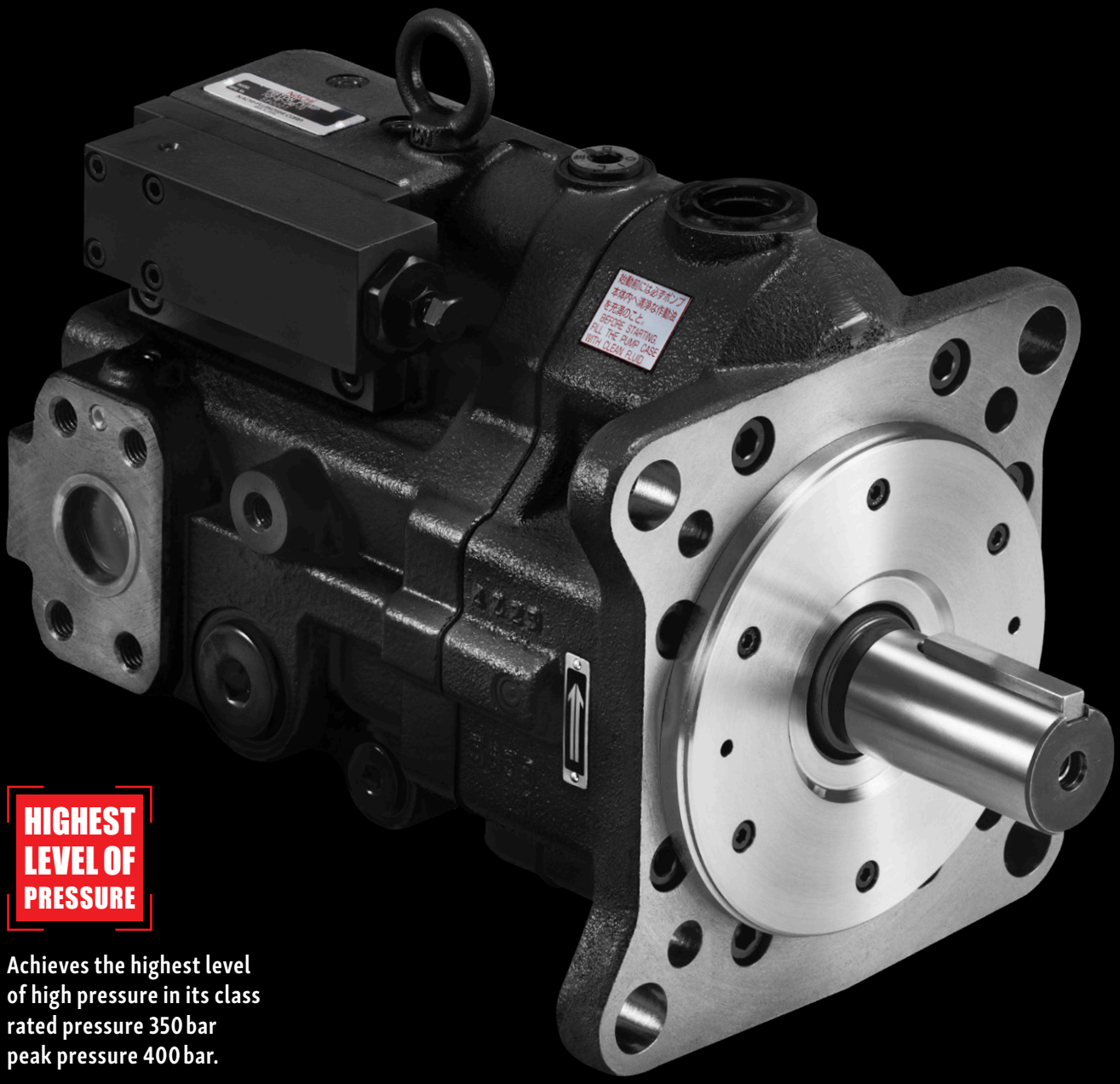
NACHI EUROPE GmbH

OUR SYNERGY
YOUR PERFORMANCE

PZH-SERIES

HIGH-PRESSURE VARIABLE DISPLACEMENT AXIAL PISTON PUMP





HIGHEST LEVEL OF PRESSURE

Achieves the highest level of high pressure in its class rated pressure 350 bar peak pressure 400 bar.

PZH-SERIES

Axial Piston Pump for High-Pressure Applications



Interfaces:

- Flange: SAE or ISO avaiable
- Key shaft, metric key shaft

Pressure & Flow:

- P_{max}: 350bar
- P_{peak}: 400bar
- Q: 8cm³/rev.; 16,5cm³/rev.; 45cm³/rev. and 72cm³/rev.

Benefits:

- Low noise level: 70dB(A) at full cut-off at 350bar
- Highly-efficient thanks to energy-saving spherical valve plate
- Very long lifetime with high load resistant NACHI-Bearings
- Different pressure compensators available
- Higher pressure allows compact machine design by reduced cylinder diameters and machining cycle time reduction

Features:

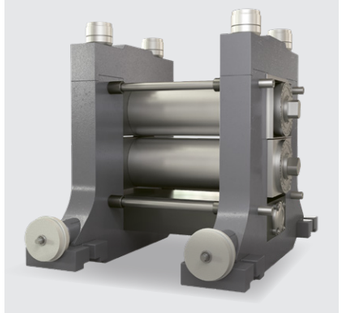
- Spherical valve plate with self-aligning function has minimised the leakage at high pressure
- Improved mechanical efficiency by reducing friction losses at high pressure
- Large port diameter for less internal pressure drop

Application Examples

FORGING MACHINES



ROLLER PRESS



TESTBENCH



Specifications

PUMP SPECIFICATIONS

Model No.	Rated pressure	Maximum operating pressure	Volume	Pressure adjustment range	Rotating speed		Mass	Auxillery pump code
					Min.	Max.		
	[Bar]	[Bar]	[cm³/rev]	[Bar]	[min⁻¹]	[min⁻¹]	[kg]	
PZH-0B	350	400	3~8	20~350	500	2000	11.8	not avaiable
PZH-1B	350	400	5~16.5	20~350	500	2000	16	not avaiable
PZH-2B	350	400	28~45	20~350	500	2000	31	3.5~8
PZH-3B	350	400	45~72	20~350	500	2000	43	3.5~16

Hydraulic oil	Petroleum based hydraulic oil (ISO VG 46~68)
Kinematic viscosity	20~200mm²/s optimal operating range: 20~50mm²/s
Oil temperature	5~60°C
Suction pressure	-0.3Bar and upwards
Painting color	black

AUXILLERY PUMP SPECIFICATIONS (PZH-2B/3B) SUPPORTED

Auxillery pump code	Pump type	Capacity [cm³/rev]	Rated pressure [Bar]	Maximum operating pressure [Bar]
3.5	IPH-2	3.6	210	300
5		5.24		
6.5		6.55		
8		8.18		
10	IPH-3	10.2		
13		13.3		
16		15.8		

Pressure Compensation Control Type

PZH - 3 B - 10 - 72 N 5 - M - 10

Explanation of Model Code

Design Number: 10 (0B/1B/3B), 11(2B)

Symbol for pump mounting:

Blank:	SAE mounting
M:	ISO mounting

Pressure Adjustment Range:

5: 20 – 350bar

Variable control mechanism

N:	Pressure compensation control
L:	Constant horsepower control
NQ:	2 pressure 2 flowrate control
RS:	Solenoid cutoff control
R:	Load sensing control
EPR:	Electromagnetic proportional pressure control

Pump Volume:

0B:	8 cm³/rev
1B:	16.5 cm³/rev
2B:	45 cm³/rev
3B:	72 cm³/rev

Optional – Auxillery fixed discharge pump capacity:

0B/1B	not avaiable
2B:	3.5 – 8
3B:	3.5 – 16

Mounting method

B: Flange type mounting

Pump size:

0, 1, 2, 3

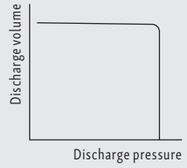
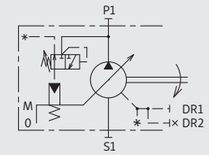
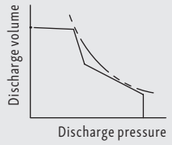
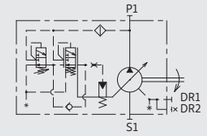
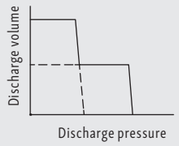
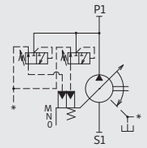
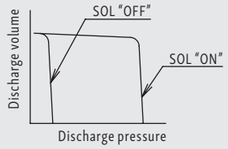
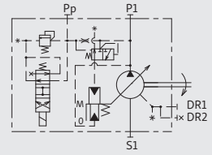
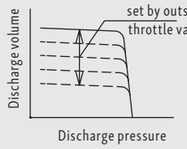
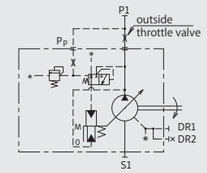
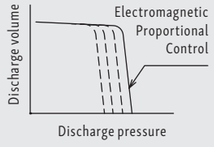
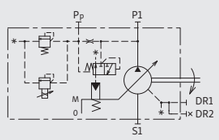
PZH Series: High-Pressure Variable Piston Pump

CONTROLER MECHANISM CHART

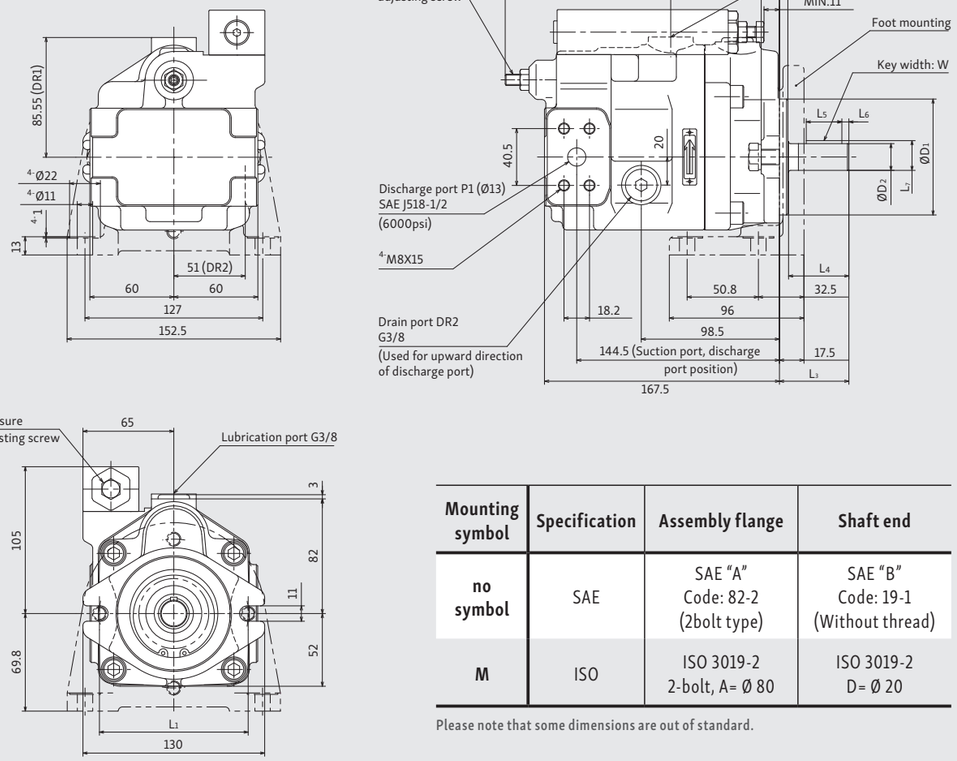
Pump Size	Controller Control Structure					
	N	L	NQ	RS	R	EPR
0B	•	◇	△	△	△	△
1B	•	◇	•	•	•	•
2B	•	•	◇	•	•	•
3B	•	•	◇	•	•	•

• Avaiable. ◇ Not supported. △ Under development please contact our sales department for details.

Others: Please contact our sales department for the product type and compatibility of the control mechanism.

SYMBOL	CHARACTERISTICS / EXPLANATION	HYDRAULIC CIRCUIT
N	 **Pressure compensation type (manual system)** When the discharge pressure reaches the preset volume set by the pressure compensator, the discharge volume is automatically reduced to hold the pressure at the set pressure	
L	 **Constant horsepower control type with pressure compensation (only available for PZH-2B/3B)** In addition to pressure compensation control, it dispenses flow according to pressure within a pre-set output range. Energy can be effectively utilized throughout the entire area in accordance with the motor size.	
NQ	 **2 pressure 2 flow rate control (only available for PZH-1B)** A sequence valve installed in the pump changes the discharge volume in two stages, enabling conventional high/low-pressure control with a single unit and energy saving of the circuit.	
RS	 **Solenoid cutoff control type** A solenoid valve for unloading is incorporated in the pressure-compensating type to minimize energy loss when pump output is not required. Heat generation can be suppressed during unloading.	
R	 **Load sensitive control** The pump capacity is controlled so that the differential pressure before and after the externally installed throttle valve is kept constant. The minimum discharge flow rate required for the actuator load saves energy.	
EPR	 **Electromagnetic proportional pressure control** The compensator's set pressure can be controlled freely by remote control using a solenoid proportional valve, flexibly responding to the machine's load conditions and saving energy.	

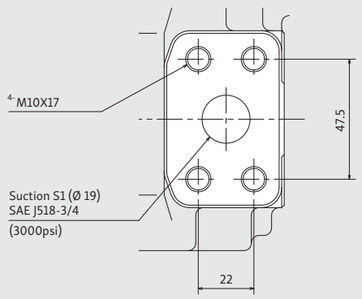
Installation Dimension Drawing PZH-0B-8N5- (M)-10



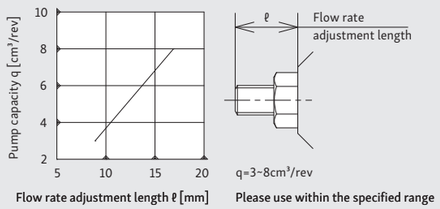
Mounting symbol	Specification	Assembly flange	Shaft end
no symbol	SAE	SAE "A" Code: 82-2 (2bolt type)	SAE "B" Code: 19-1 (Without thread)
M	ISO	ISO 3019-2 2-bolt, A= Ø 80	ISO 3019-2 D= Ø 20

Please note that some dimensions are out of standard.

Suction port



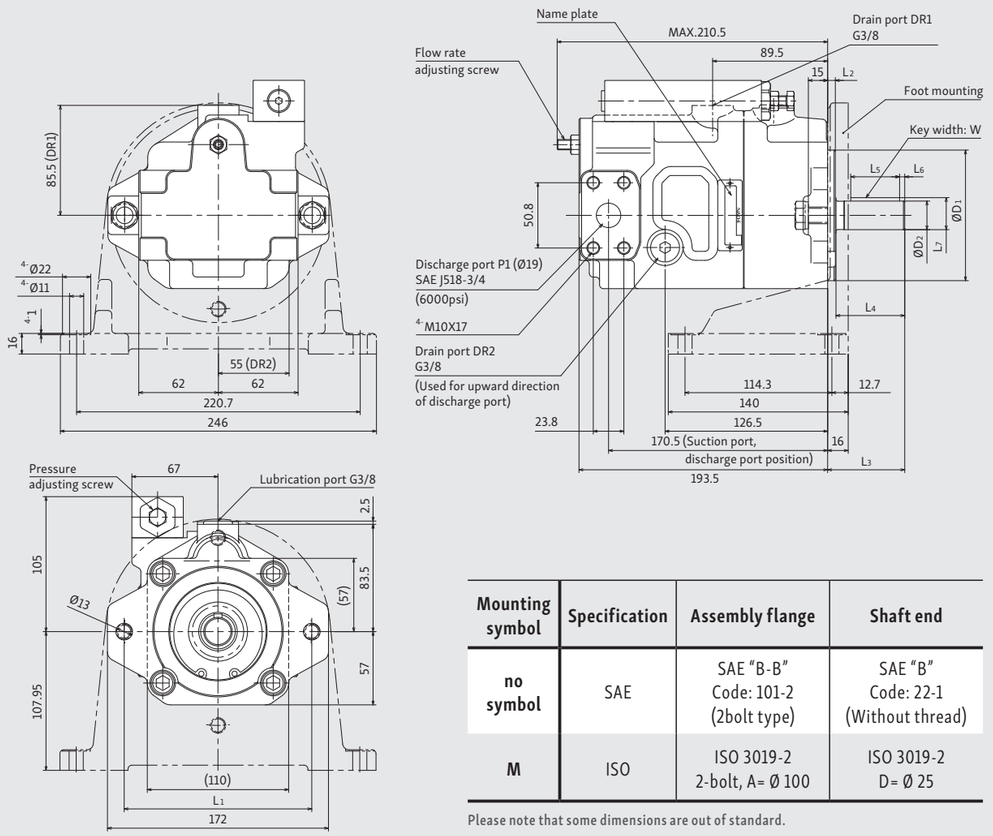
Flow rate adjustment length and pump capacity



Mounting symbol	Specification	D1	D2	L1	L2	L3	L4	L5	L6	L7	W	Kit Model No.
no symbol	SAE	82.6 $^{-0.036}_{-0.071}$	19.05 $^{0}_{-0.021}$	106.4	6	49.5	43	25.4	5	21.2 $^{0}_{-0.25}$	4.76 $^{0}_{-0.012}$	IHM-2-10
M	ISO	80.0 $^{0}_{-0.046}$	20.0 $^{+0.009}_{-0.004}$	109	7	45	37	23	0	22.5 $^{0}_{-0.30}$	6 $^{0}_{-0.030}$	IHM-2M-10

* indicates the shape when the foot mounting kit is installed.

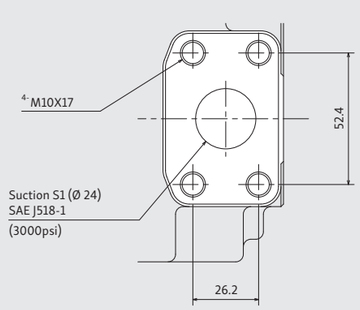
Installation Dimension Drawing PZH-1B-16N5- (M)-10



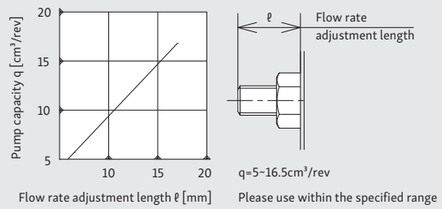
Mounting symbol	Specification	Assembly flange	Shaft end
no symbol	SAE	SAE "B-B" Code: 101-2 (2bolt type)	SAE "B" Code: 22-1 (Without thread)
M	ISO	ISO 3019-2 2-bolt, A= Ø 100	ISO 3019-2 D= Ø 25

Please note that some dimensions are out of standard.

Suction port



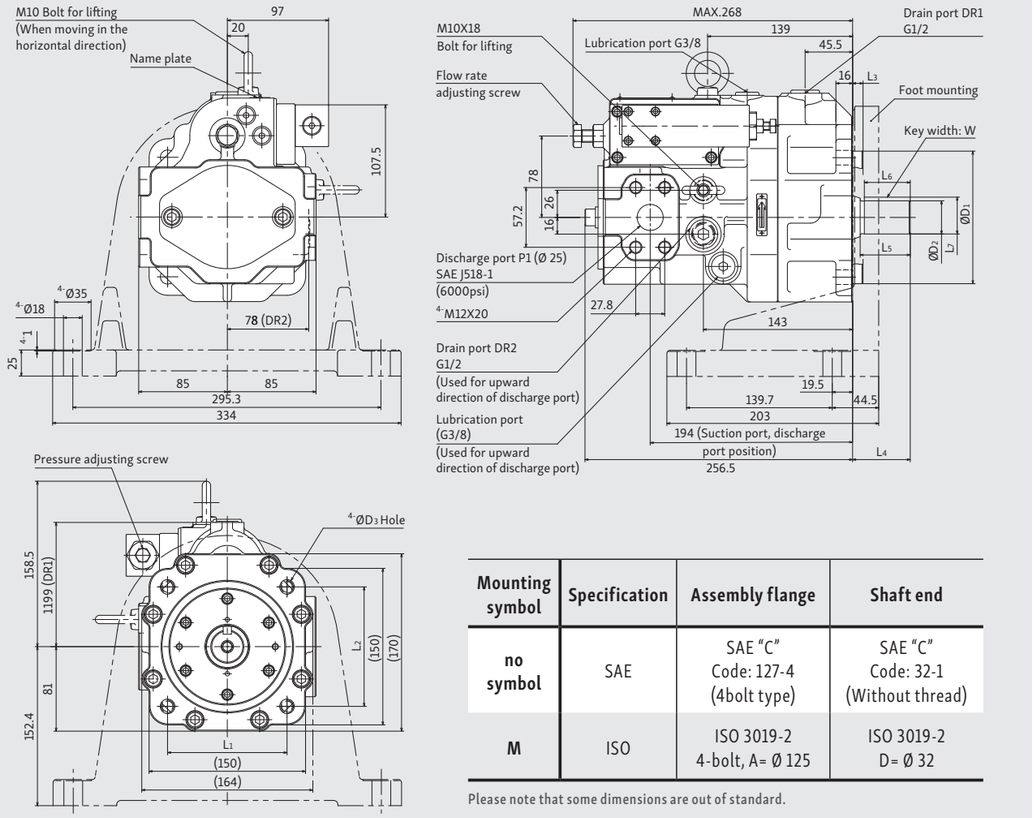
Flow rate adjustment length and pump capacity



Mounting symbol	Specification	D1	D2	L1	L2	L3	L4	L5	L6	L7	W	Kit Model No.
no symbol	SAE	101.6 $^{0}_{-0.051}$	22.23 $^{0}_{-0.021}$	146	6	60	53.5	38	4	24.9 $^{0}_{-0.5}$	6.3 $^{+0.015}_{-0.010}$	IHM-4-10
M	ISO	100.0 $^{0}_{-0.054}$	25.0 $^{+0.009}_{-0.004}$	140	7	56	48	40	0	28.0 $^{0}_{-0.3}$	8 $^{0}_{-0.036}$	IHM-4M-10

* indicates the shape when the foot mounting kit is installed.

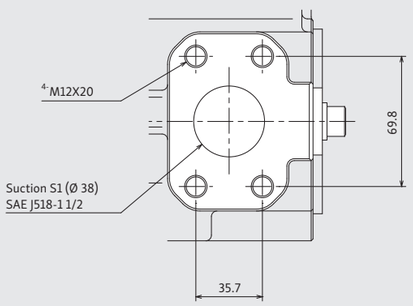
Installation Dimension Drawing PZH-2B-45N5- (M)-11



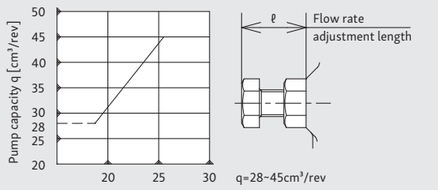
Mounting symbol	Specification	Assembly flange	Shaft end
no symbol	SAE	SAE "C" Code: 127-4 (4bolt type)	SAE "C" Code: 32-1 (Without thread)
M	ISO	ISO 3019-2 4-bolt, A= Ø 125	ISO 3019-2 D= Ø 32

Please note that some dimensions are out of standard.

Suction port



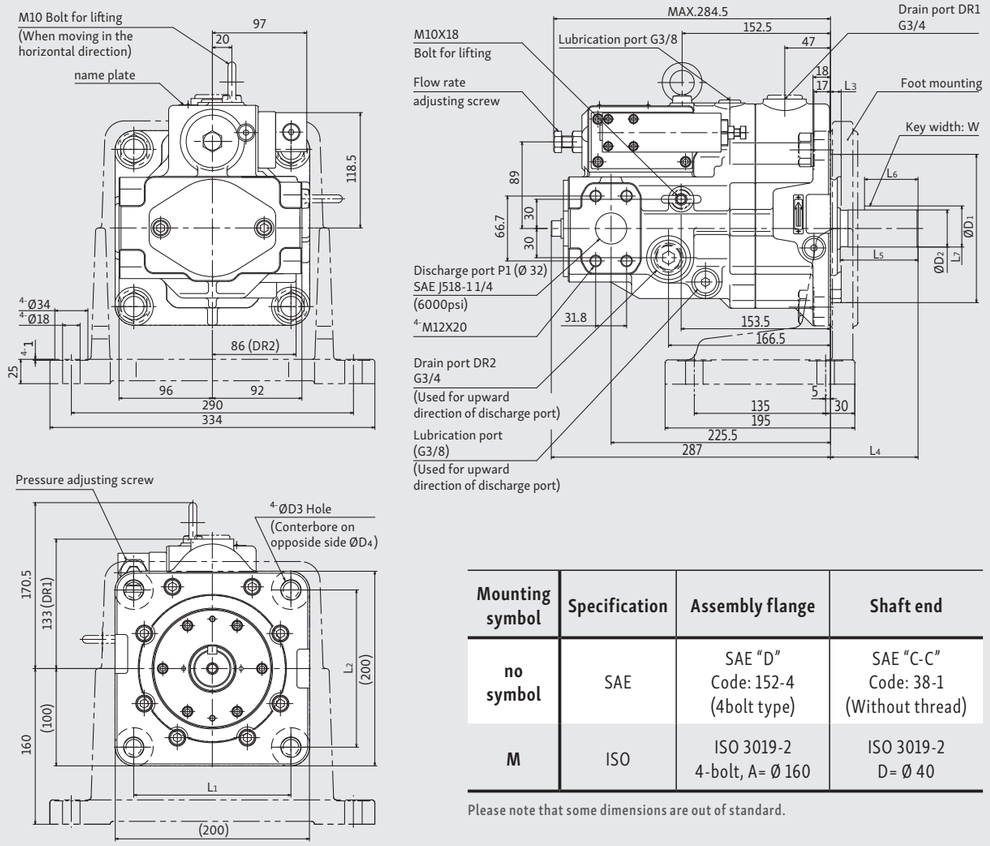
Flow rate adjustment length and pump capacity



Mounting symbol	Specification	D1	D2	D3	L1	L2	L3	L4	L5	L6	L7	W	Kit Model No.
no symbol	SAE	$127.0^{\ 0}_{-0.071}$	$31.75^{\ 0}_{-0.051}$	14.0	114.5	114.5	10	55	48	44	$35.3^{\ 0}_{-0.25}$	$7.94^{\ 0}_{-0.050}$	PXM-2-10
M	ISO	$125.0^{\ 0}_{-0.063}$	$32.0^{\ +0.018}_{+0.002}$	14.0	113.2	113.2	9	68	58	48	$35.0^{\ 0}_{-0.20}$	$10^{\ 0}_{-0.036}$	PXM-2M-10

* indicates the shape when the foot mounting kit is installed.

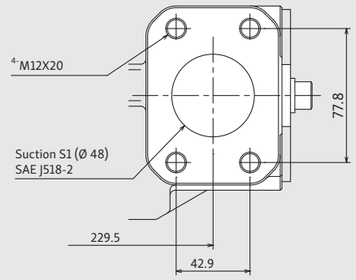
Installation Dimension Drawing PZH-3B-72N5- (M)-10



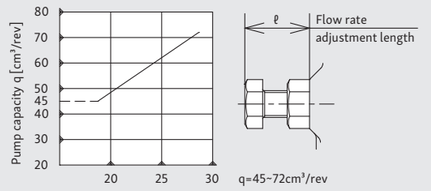
Mounting symbol	Specification	Assembly flange	Shaft end
no symbol	SAE	SAE "D" Code: 152-4 (4bolt type)	SAE "C-C" Code: 38-1 (Without thread)
M	ISO	ISO 3019-2 4-bolt, A= Ø 160	ISO 3019-2 D= Ø 40

Please note that some dimensions are out of standard.

Suction port



Flow rate adjustment length and pump capacity



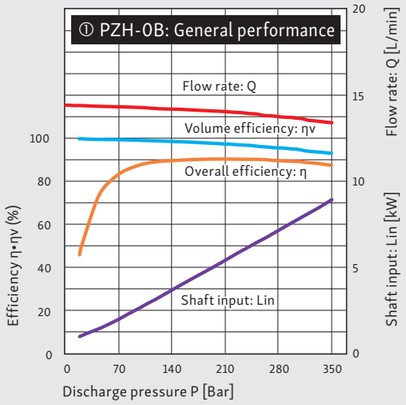
Mounting symbol	Specification	D1	D2	D3	D4	L1	L2	L3	L4	L5	L6	L7	W	Kit Model No.
no symbol	SAE	$152.4^{\ 0}_{-0.050}$	$38.1^{\ 0}_{-0.03}$	21.0	40.0	161.6	161.6	11	90	80	55	$42.2^{\ 0}_{-0.15}$	$9.53^{\ 0}_{-0.015}$	PZM-4-10
M	ISO	$160.0^{\ 0}_{-0.063}$	$40.0^{\ +0.027}_{+0.002}$	17.5	32.0	141.4	141.4	9	92	82	55	$43.0^{\ 0}_{-0.20}$	$12.0^{\ 0}_{-0.043}$	PZM-4M-10

* indicates the shape when the foot mounting kit is installed.

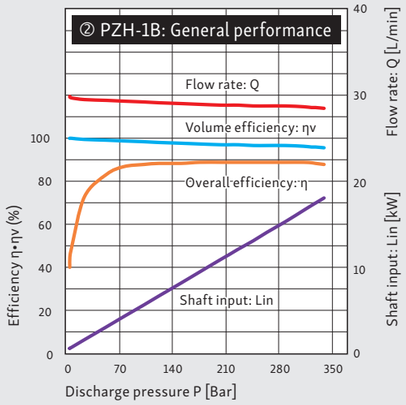
Performance Curves

1. General Performance

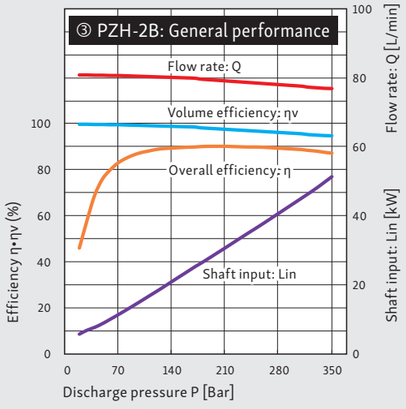
Rotation speed: 1800min⁻¹



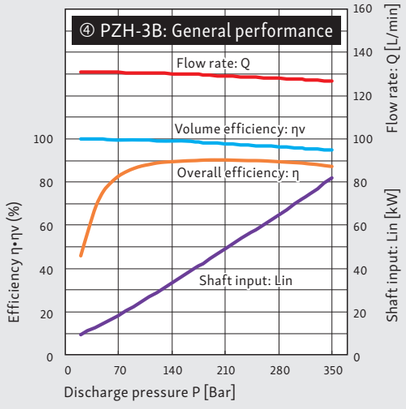
Rotation speed: 1800min⁻¹



Rotation speed: 1800min⁻¹

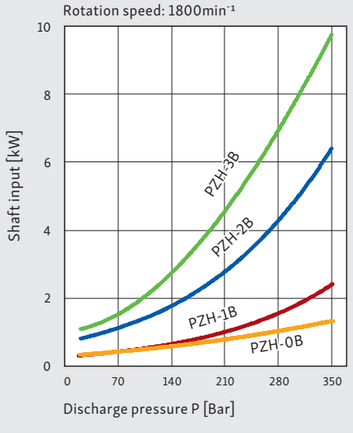


Rotation speed: 1800min⁻¹



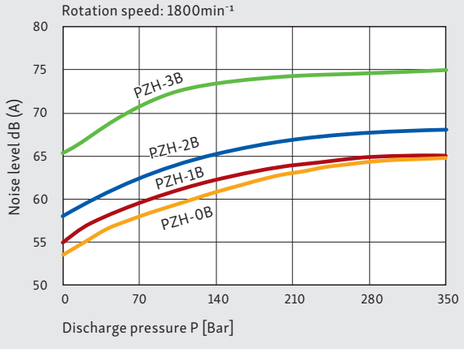
2. Axial Input At Full Cutoff

Rotation speed: 1800min⁻¹



2. Noise characteristics

Rotation speed: 1800min⁻¹



Measured ¹m / Rear of pump at max. discharge flow rate

Spare Parts

SEAL KIT

PZH-0B			PZH-1B			PZH-2B			PZH-3B		
Seal kit	PHAS-100000		Seal kit	PHAS-101000		Seal kit	PHAS-102000		Seal kit	PHAS-103000	
Oil seal	TCN-254511-V	1	Oil seal	TCN-305011-V	1	Oil seal	TCZ4062910.3-V	1	Oil seal	TCN-456812-V	1
O-ring	NBR-90 G70	1	O-ring	NBR-90 G70	1	O-ring	NBR-90 G70	1	O-ring	NBR-90 G80	1
O-ring	NBR-90 P14	2	O-ring	NBR-90 P14	2	O-ring	NBR-90 P18	2	O-ring	NBR-90 P22.4	1
O-ring	NBR-90 P9	1	O-ring	NBR-90 P9	1	O-ring	NBR-90 P14	2	O-ring	NBR-90 P14	2
Backup ring	RBO-P9	1	O-ring	NBR-90 P5	2	O-ring	NBR-90 P12	1	O-ring	NBR-90 P12	1
			Backup ring	RBO-P9	1	O-ring	NBR-90 P8	1	O-ring	NBR-90 P8	2
						O-ring	NBR-90 P5	2	O-ring	NBR-90 P7	2
						Backup ring	T2-P12	1	Backup ring	T2-P12	1
						O-ring	NBR-90 P9	2	O-ring	NBR-90 G40	1
						O-ring	NBR-90 G75	1	O-ring	NBR-90 P9	2
									O-ring	NBR-90 G85	1

NACHI

NACHI EUROPE GmbH

OUR SYNERGY
YOUR PERFORMANCE



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