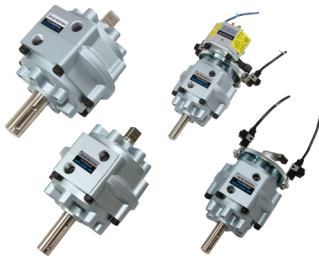
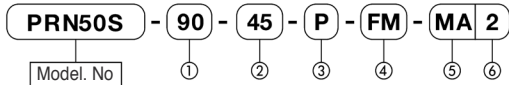


PRN Series

HI-ROTOR/Standard type
50S, 150S, 300S, 800S/50D, 300D, 800D



Ordering Instructions



Single vane	Double vane
PRN50S	PRN50D
PRN150S	PRN150D
PRN300S	PRN300D
PRN800S	PRN800D

④ Option

No mark	: Standard
CR	: Hydro-cushion
FM	: Switch unit
FC	: Hydro-cushion+Switch unit

① Oscillating angle

90	: 90°
100	: 100°
180	: 180°
270	: 270°
280	: 280°

② Oscillating reference point

40	: 40°
45	: 45°

③ Mounting hardware

No mark	: No mounting hardware
P	: With flange plate
L1	: With one foot plate
L2	: With two foot plates

Note:

P is not provided for PRN300, 800.

⑤ Type of switch units

No mark	: No switch unit
MA	: MA-1
MB	: MD-1
MC	: MD-3
MD	: MR
ME	: MA-2L
MF	: MA-2H
MG	: MT-3
MH	: MT-3U
MJ	: MT-2
MK	: MT-2U

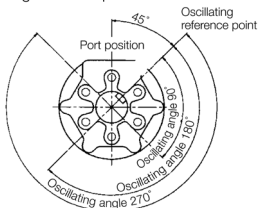
⑥ Number of switch

No mark	: No switch
1	: With one switch
2	: With two switches

Oscillation Starting Point and Oscillating Angle

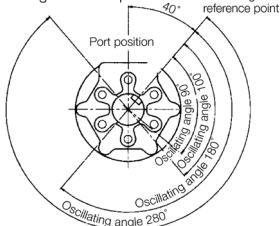
PRN50, 150, 300, 800

Oscillating reference point at 45°



PRN50, 150, 300, 800

Oscillating reference point at 40°



- Only oscillating reference point 45° is available with FC option. (Combination of Hydro-cushion and Switch unit.)
- Two foot plates (L2) is not available with CR, FM, FC option.
- Mounting hardware and Hydro-cushion comes being not fabricated.

Model Nos. of mounting hardware

Applicable HI-ROTOR	Flange plate	Foot plate
PRN50	PRN50-P	PRN50-L
PRN150	PRN150-P	PRN150-L
PRN300	—	PRN300-L
PRN800	—	PRN800-L

Note : Set screws are available.

Specifications

Model No.	Unit	PRN50S				PRN150S				PRN300S			
Vane		Single vane											
Fluid		Non-lubricated air (Lubricated air)											
Oscillating angle	degree	90 ⁺³ ₀	180 ⁺³ ₀	270 ⁺³ ₀	280 ⁺³ ₀	90 ⁺³ ₀	180 ⁺³ ₀	270 ⁺³ ₀	280 ⁺³ ₀	90 ⁺³ ₀	180 ⁺³ ₀	270 ⁺³ ₀	280 ⁺³ ₀
Oscillating reference point	degree	45	45	45	40	45	45	45	40	45	45	45	40
Port size		Rc ¹ / ₄				Rc ¹ / ₄				Rc ³ / ₄			
Minimum working pressure	MPa	0.1				0.08				0.08			
Operation pressure range	MPa	0.2 ~ 1											
Proof withstanding pressure	MPa	1.5											
Temperature range	°C	5 ~ 60											
Maximum frequency of use	Hz	3	1.5	1		2	1.3	0.8		1.5	1	0.7	
Internal volume	cm ³	51	51	61	62	146	146	179	185	244	283	352	365
Allowable radial load	N	588				1176				1960			
Allowable thrust load	N	44.1				88.2				147			
Allowable thrust load	mJ	49				225.4				1078			
Mass	kg	0.82	0.79	0.73	0.7	2.0	1.9	1.7	1.6	3.7	3.7	3.7	3.6

Model No.	Unit	PRN800S				PRN50D	PRN150D	PRN300D	PRN800D				
Vane		Single vane				Double vane							
Fluid		Non-lubricated air (Lubricated air)											
Oscillating angle	degree	90 ⁺³ ₀	180 ⁺³ ₀	270 ⁺³ ₀	280 ⁺³ ₀	90 ⁺³ ₀	100 ⁺³ ₀	90 ⁺³ ₀	100 ⁺³ ₀	90 ⁺³ ₀	100 ⁺³ ₀	90 ⁺³ ₀	100 ⁺³ ₀
Oscillating reference point	degree	45	45	45	40	45	40	45	40	45	40	45	40
Port size		Rc ¹ / ₂				Rc ¹ / ₄	Rc ¹ / ₄	Rc ¹ / ₄	Rc ¹ / ₄	Rc ¹ / ₂			
Minimum working pressure	MPa	0.05				0.08	0.06	0.06	0.05				
Operation pressure range	MPa	0.2 ~ 1											
Proof withstanding pressure	MPa	1.5											
Temperature range	°C	5 ~ 60											
Maximum frequency of use	Hz	1.1	0.75	0.5		3	2	1.5	1.1				
Internal volume	cm ³	754	869	1036	1046	42	43	127	123	244	271	754	774
Allowable radial load	N	4900				588	1176	1960	4900				
Allowable thrust load	N	490				44.1	88.2	147	490				
Allowable energy	mJ	3920				49	225.4	1078	3920				
Mass	kg	12.7	12.2	11.2	11.0	0.82	0.8	2.0	1.9	4.3	4.1	12.7	12.5



- Maximum frequency of use at the supply pressure of 0.5 MPa (Unloaded).
- Please make sure to use the HI-ROTOR within allowable energy.
- HI-ROTORS with keyways are provided with keys.
- For HI-ROTORS other than standard, please contact FONTAL.

Output (Effective torque)

(Unit : N·cm)

Model No.	Supply pressure (MPa)								
	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
PRN50S	125	259	369	479	590	700	829	950	1060
PRN50D	330	579	829	1040	1280	1510	1760	2010	2250
PRN150S	550	850	1150	1500	1800	2100	2400	2730	3050
PRN150D	1250	1900	2700	3500	4150	4800	5500	6200	6900
PRN300S	1050	1650	2250	2850	3450	4050	4600	5180	5750
PRN300D	2550	3900	5400	6800	8300	9700	11000	12400	13700
PRN800S	3780	5910	8100	10200	12300	14400	16600	18600	20500
PRN800D	7740	12000	16100	20600	24700	28800	33200	37100	41100

Oscillating time range

(Unit : s)

Model No.	Oscillating angle				
	90°	100°	180°	270°	280°
PRN50	0.08 ~ 0.8	0.09 ~ 0.9	0.16 ~ 1.6	0.24 ~ 2.4	0.25 ~ 2.5
PRN150	0.12 ~ 1.2	0.13 ~ 1.3	0.24 ~ 2.4	0.36 ~ 3.6	0.37 ~ 3.7
PRN300	0.16 ~ 1.6	0.17 ~ 1.7	0.32 ~ 3.2	0.48 ~ 4.8	0.49 ~ 4.9
PRN800	0.22 ~ 2.2	0.24 ~ 2.4	0.44 ~ 4.4	0.66 ~ 6.6	0.68 ~ 6.8



- Use HI-ROTORS within the range of the oscillating time range. Otherwise, the HI-ROTOR will tend to occur in a stick-slip motion.
- When it is necessary to operate a HI-ROTOR at a low speed, recommend to use PRF series.

M type reed switches
Lead wire type

Type of switch	Load voltage (V)	Load current (mA)	Indicating lamp (Lights up at ON)	Applications
MA-1	AC100	5~45	○	Relay PLC
	DC24	5~45		
MD-1	DC24	25~65	○	Relay
MD-3	DC5, 6	50 or less (Inductive load) 300 or less (Resistance load)	○	IC circuit
MR	AC 5 ~ 10 DC 5 ~ 10	50 or less (Inductive load) 300 or less (Resistance load)	Not provided	Relay
MA-2L	AC100/110	5 ~ 150	○	Relay
MA-2H	AC200/220	5 ~ 150	○	Relay

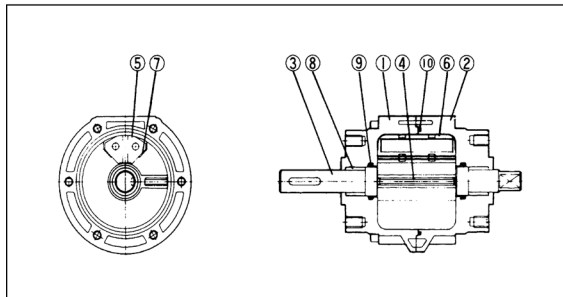


- The MA-2L is the same as the MA-1 except that it is provided with a surge suppressor SS-2L.
- The MA-2H is the same as the MA-1 except that it is provided with a surge suppressor SS-2H.

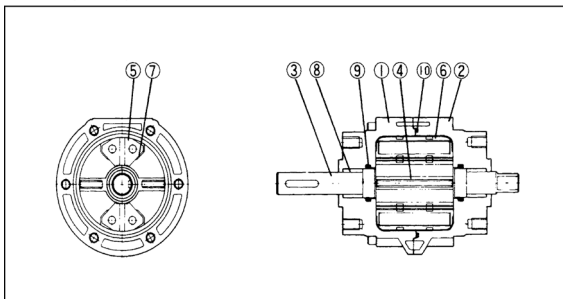
M type proximity switches
Lead wire type

Type of switch	Load voltage (V)	Load current (mA)	Indicating lamp (Lights up at ON)	Applications
MT-2 MT-2U	DC24 (DC10 ~ 30)	5 ~ 100	○	Relay PLC
MT-3 MT-3U	DC5 ~ 30	5 ~ 200	○	Relay PLC IC circuit

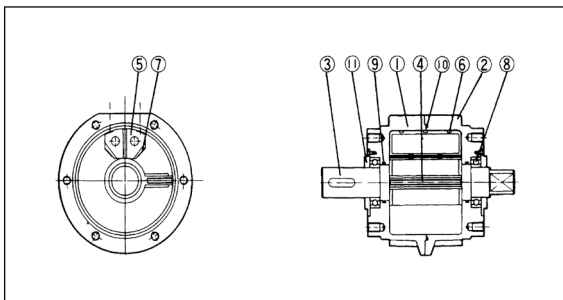
PRN50S, 150S, 300S



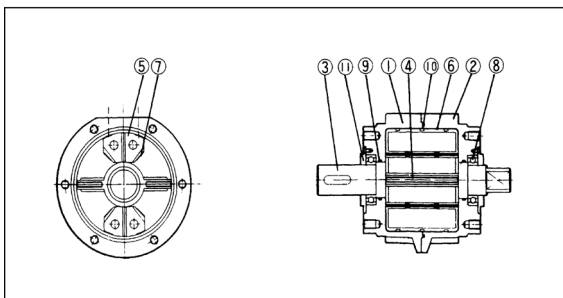
PRN50D, 150D, 300D



PRN800S



PRN800D



Main Components

No.	Description	Material
1	Body A	50, 150 : Aluminum alloy die casting
2	Body B	300 : Aluminum alloy casting
3	Vane shaft	Structural alloy steel
4	Vane seal	Nitrile rubber
5	Shoe	Zinc alloy die casting
6	Shoe seal	Nitrile rubber
7	Damper	Urethane rubber
8	Bearing	-
9	O-ring	Nitrile rubber
10	O-ring	Nitrile rubber

Note: The vane shaft and vane seal are merged into one.

Model Nos. of Packing Kit

Applicable HI-ROTOR	Model No.
PRN50S, PRF50S	PRN50S-PS
PRN50D, PRF50D	PRN50D-PS
PRN150S, PRF150S	PRN150S-PS
PRN150D, PRF150D	PRN150D-PS
PRN300S, PRF300S	PRN300S-PS
PRN300D, PRF300D	PRN300D-PS

Note: A set of packings consists of part Nos. 4, 6, 9 and 10.

Main Components

No.	Description	Material
1	Body A	Aluminum alloy casting
2	Body B	Aluminum alloy casting
3	Vane shaft	Structural alloy steel
4	Vane seal	Nitrile rubber
5	Shoe	Zinc alloy die casting
6	Shoe seal	Nitrile rubber
7	Damper	Urethane rubber
8	Bearing	Bearing steel
9	O-ring	Nitrile rubber
10	O-ring	Nitrile rubber
11	Cover plate	Structural carbon steel

Note: The vane shaft and vane seal are merged into one.

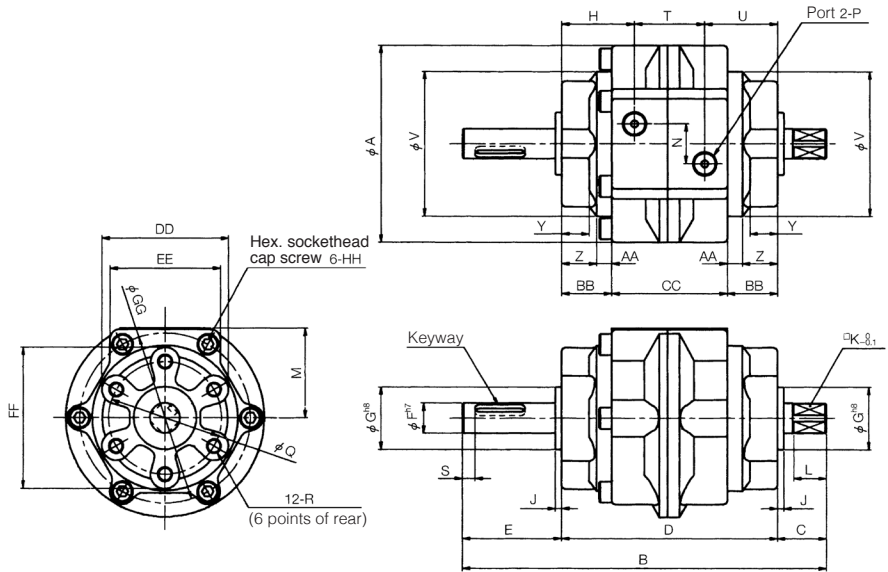
Model Nos. of Packing Kit

Applicable HI-ROTOR	Model No.
PRN800S, PRF800S	PRN800S-PS
PRN800D, PRF800D	PRN800D-PS

Note: A set of packings consists of part Nos. 4, 6, 9 and 10.

Basic type - PRN50, 150, 300, 800

(Unit: mm)



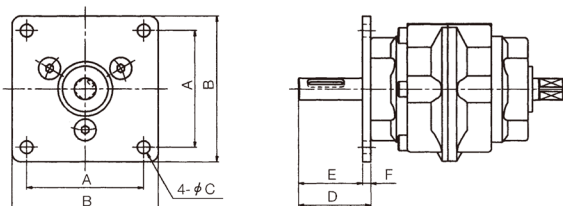
PRN Series

Model No.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
PRN50	79	145	19.5	86	39.5	12	25	29	2.5	10	13	36	16	Rc $\frac{1}{4}$	45	M6x1 depth 9	5	28
PRN150	110	180	23.5	103	53.5	17	30	34.5	3	13	16	51	24	Rc $\frac{1}{4}$	70	M8x1.25 depth 12	5	34
PRN300	141.5	220	30	125	65	25	45	41.5	3.5	19	22	66	32	Rc $\frac{1}{4}$	80	M10x1.5 depth 15	5	42
PRN800	196	285	44.5	171	69.5	40	70	53.5	4.5	32	35	90	44	Rc $\frac{1}{2}$	120	M12x1.75 depth 18	10	64

Model No.	U	V	Y	Z	AA	BB	CC	DD	EE	FF	GG	HH	Keyway width x depth x length
PRN50	29	58	11	14	6	20	46	51	44	57	68	M5x30 ℓ	4 $_{-0.03}^0$ X 2.5 $_{+0.1}^0$ x 20
PRN150	34.5	85.2	10.5	15.5	8	23.5	56	75	61	85	97	M6x35 ℓ	5 $_{-0.03}^0$ X 3 $_{+0.1}^0$ x 36
PRN300	41.5	110	13	17.5	10	27.5	70	88.5	78	98.5	125	M8x45 ℓ	7 $_{-0.036}^0$ X 4 $_{+0.2}^0$ x 40
PRN800	53.5	152	14.5	21.1	11.4	32.5	106	130	110	145	173	M12x70 ℓ	12 $_{-0.043}^0$ X 5 $_{+0.2}^0$ x 40

With flange plate

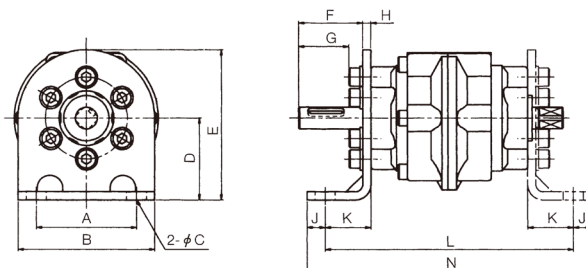
PRN50, 150□-□-□-P



Model No.	A	B	C	D	E	F
PRN50	64	80	7	39.5	35	4.5
PRN150	88	110	9	53.5	47.5	6

With foot plate

PRN50, 150, 300, 800□-□-□-L1(L2)



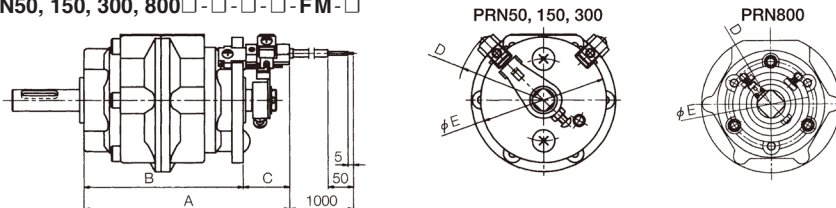
Model No.	A	B	C	D	E	F	G	H	J	K	L	N
PRN50	55	75	11	45	82.5	35	27.5	4.5	10	25	136	156
PRN150	80	110	13	65	115	43.5	33.5	10	12	28	159	183
PRN300	100	140	15	80	135	53	40.5	12	13	32	189	215
PRN800	140	200	15	110	200	54.5	39.5	15	15	35	241	271

Note:

Short shaft side : Example with L2 (2 pcs.).

With switch unit

PRN50, 150, 300, 800□-□-□-□-FM-□



Model No.	A	B	C	D	E
PRN50	115	87.2	25.5	R47	69
PRN150	131.7	104.2	27.5	R61	97
PRN300	161.2	126.2	35	R69	113
PRN800	215.5	174.2	41.3	R60	108

