



DRIVEN EQUIPMENT

PNEUMATIC series

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PTV SERIES

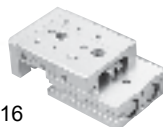
Solenoid Valve
PTV100
PTV156
PTV188



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Slide Cylinder



>>> P.16

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>>> P.40

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Air units

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PTV-100 series



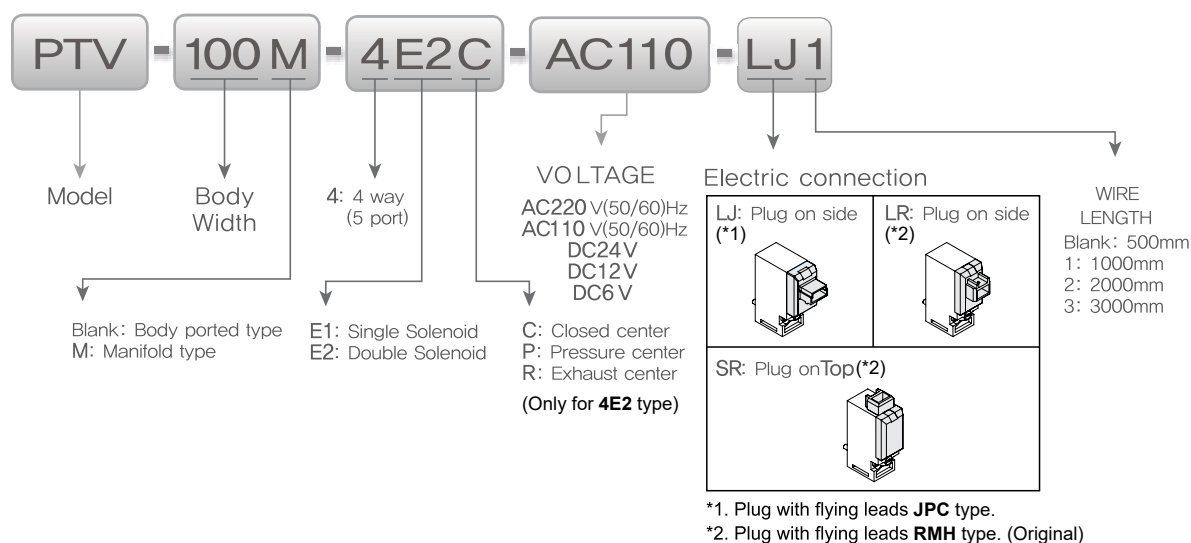
Caution

- Don't continuous energizing for about 2 hours or more.
- The total energizing time of a day don't exceeds the total non-energizing time even if it is intermittent energizing.

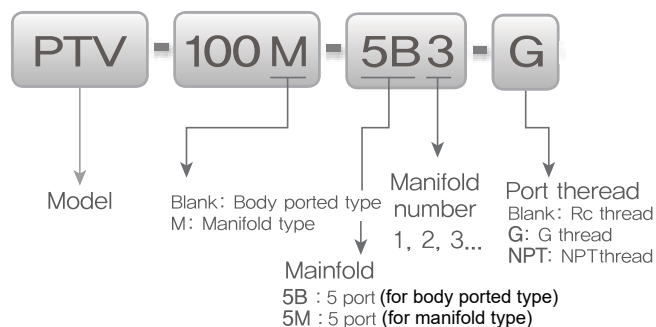
Specification

Model	4E1	4E2	4E2 C.P.R
Bore No.	M5		
Port size	M5×0.8		
No. of port	5		
No. of position	2		3
Medium	Air		
Operating perssure range	0.2~0.7 MPa		
Proof pressure	1 MPa		
Effective orifice	Body ported	4.5 mm ²	
	Manifold	4.5 mm ²	4.5 / 5 / 4.5 mm
Reponse time	12 ms		15 ms
Ambient temperature	+5~+50° C		
Max. operating frequency	5 Hz		
Voltage	AC110V, 220V (50/60)Hz, DC24/12/6V		
Power consumption	AC=1.6/2.5VA, DC6=1.2W, DC12/24=0.55W		
Availablevoltage range	± 10%		
Insulation class	B class		
Weight	30 g	44 g	59 g

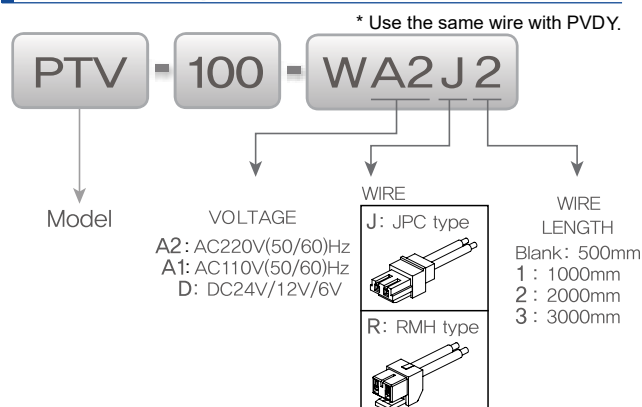
Order example of valve



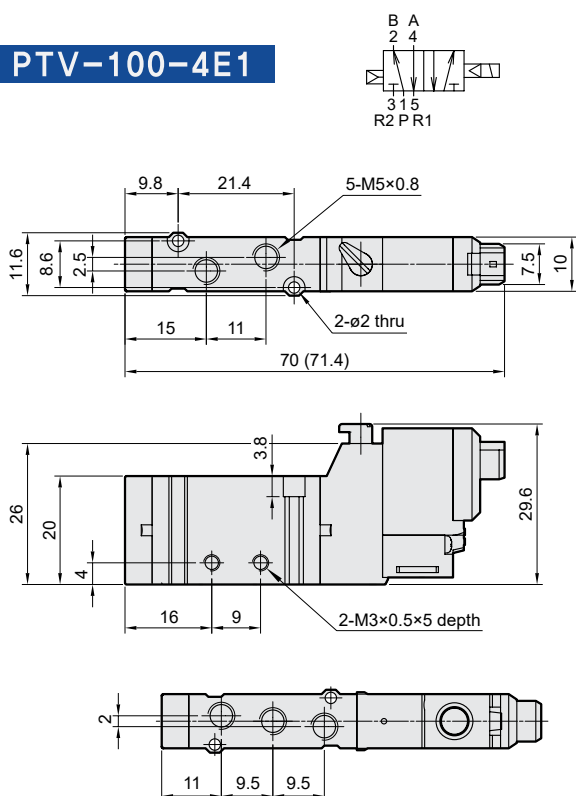
Order example of manifold



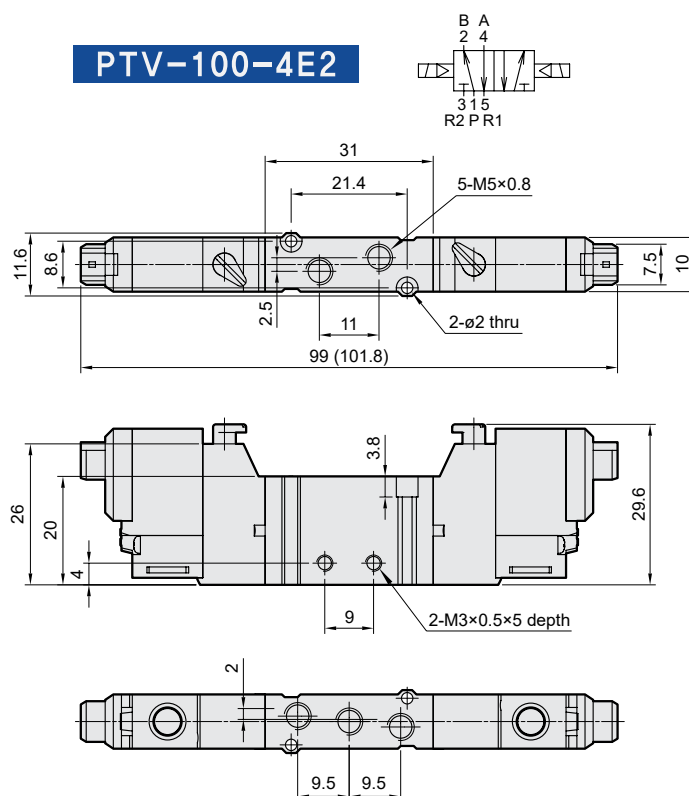
Order example of wire



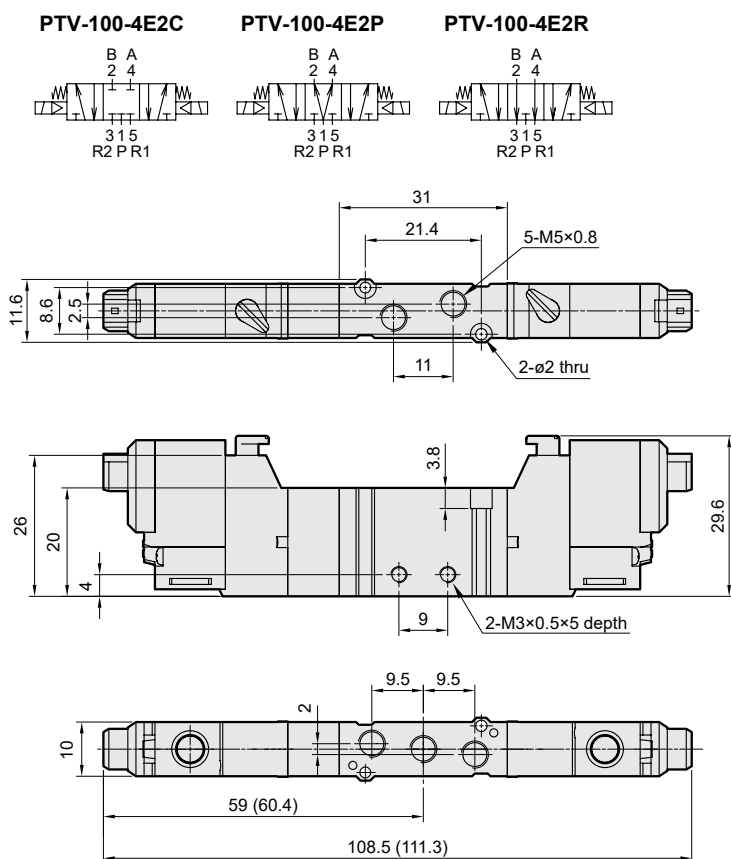
PTV-100-4E1



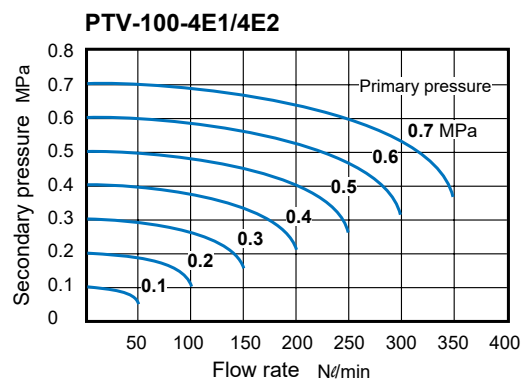
PTV-100-4E2



PTV-100-4E2C.P.R



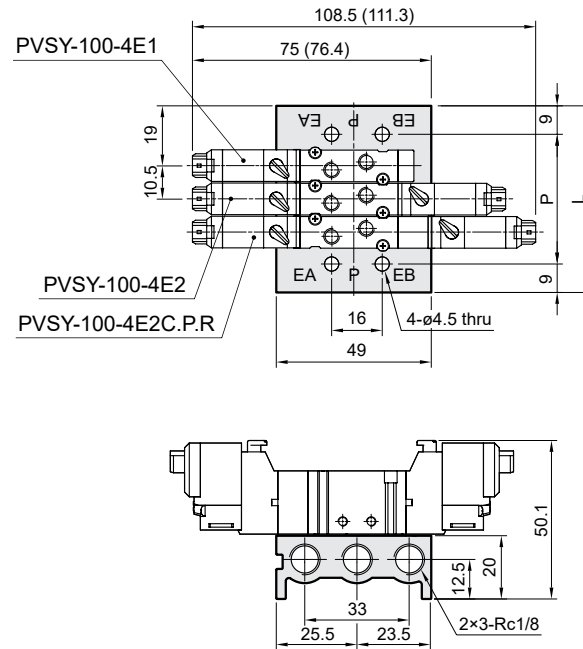
Flow features



() : Dimension for LJ plug type.

PTV-100-5B*

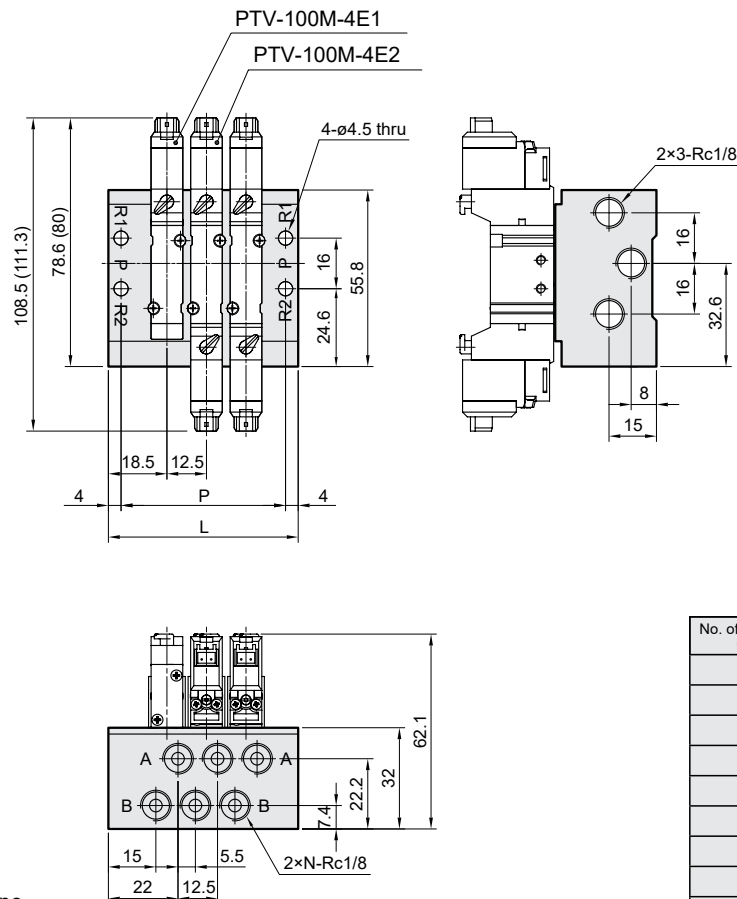
5 port (for body ported type)



No. of stations	P	L
2	30.5	48.5
3	41	59
4	51.5	69.5
5	62	80
6	72.5	90.5
7	83	101
8	93.5	111.5
9	104	122
10	114.5	132.5

PTV-100M-5M*

5 port (for manifold type)

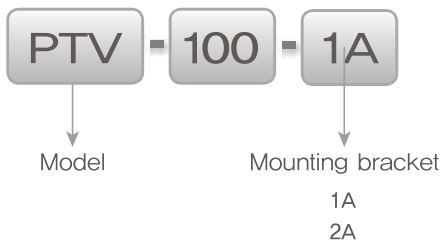


No. of stations (N)	P	L
2	39.5	47.5
3	52	60
4	64.5	72.5
5	77	85
6	89.5	97.5
7	102	110
8	114.5	122.5
9	127	135
10	139.5	147.5

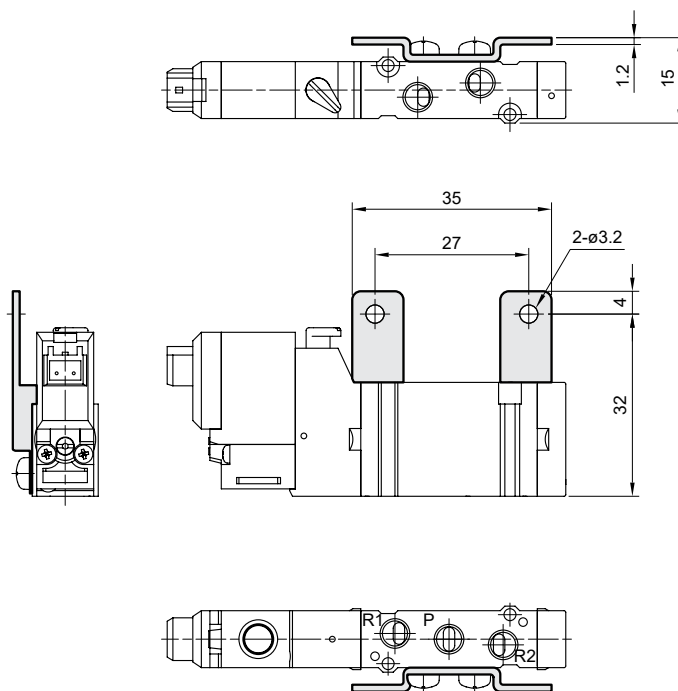
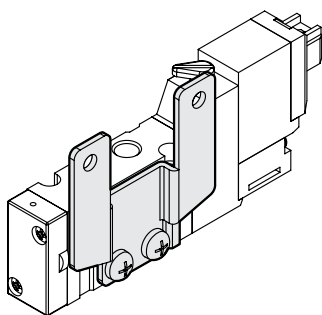
(): Dimension for LJ plug type.

Mounting bracket

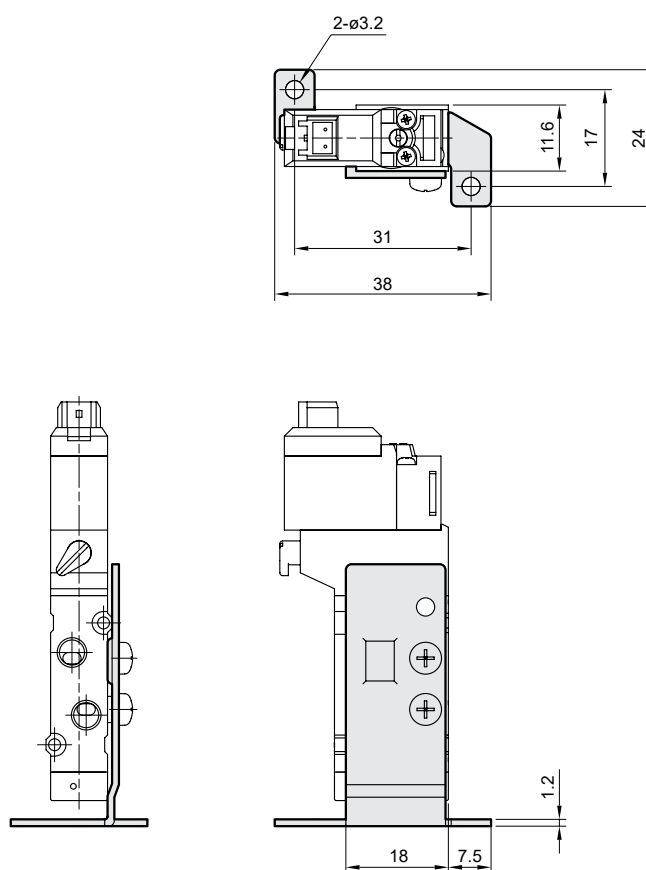
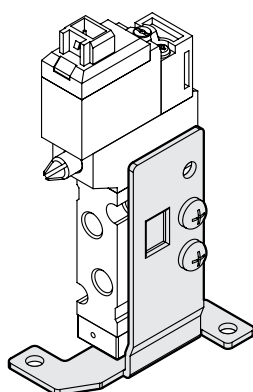
Order example of bracket



PTV-100-1A



PTV-100-2A



PTV-156 series



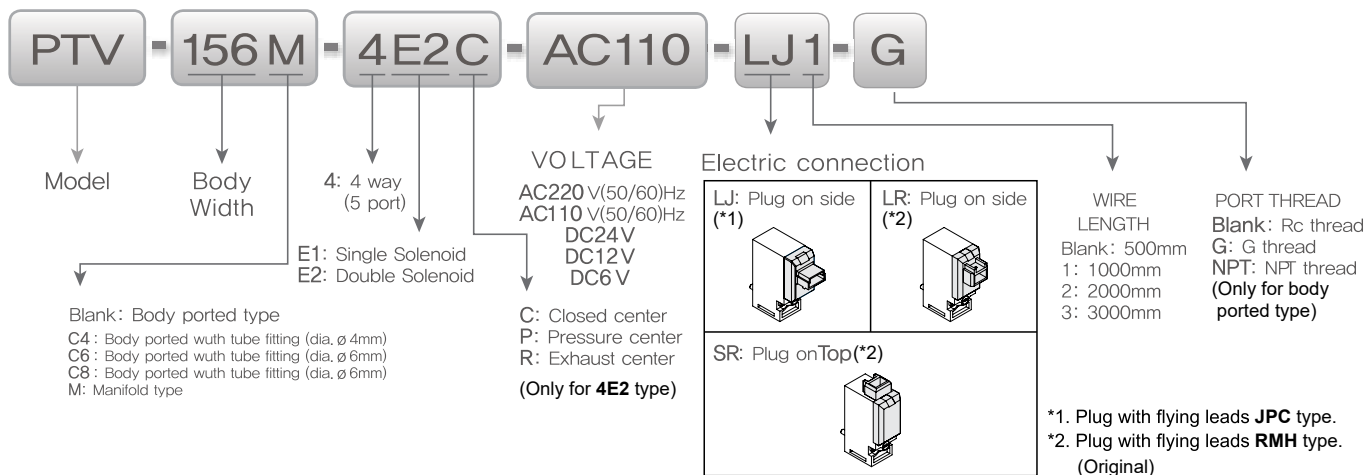
Caution

- Don't continuous energizing for about 2 hours or more.
- The total energizing time of a day don't exceeds the total non-energizing time even if it is intermittent energizing.

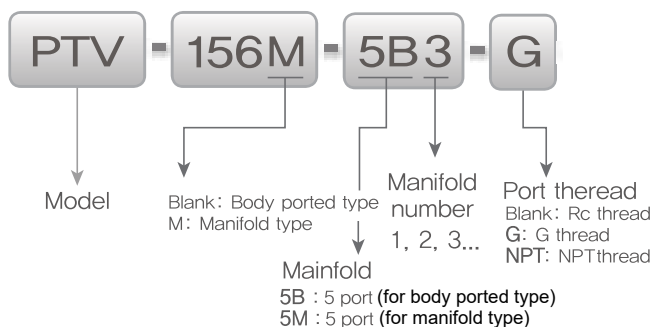
Specification

Model		4E1	4E2	4E2 C, P,R
Bore No.		6A		
Port size		Rc1/8		
No. of port		5		
No. of position		2	3	
Medium		Air		
Operating perssure range		0.15~0.7 MPa		0.2~0.7 MPa
Proof pressure		1 MPa		
Effective orifice	Body ported	11 mm ²		9.5 / 14.6 / 9.5 mm ²
	Manifold	10 mm ²		7.5 / 13 / 8 mm ²
Reponse time		19 ms		20 ms
Ambient temperature		+5~+50° C		
Max. operating frequency		5 Hz		
Voltage		AC110V, 220V (50/60)Hz, DC24/12/6V		
Power consumption		AC=1.6/2.5VA, DC6=1.2W, DC12/24=0.55W		
Available voltage range		± 10%		
Insulation class		B class		
Weight		63 g	82 g	102 g

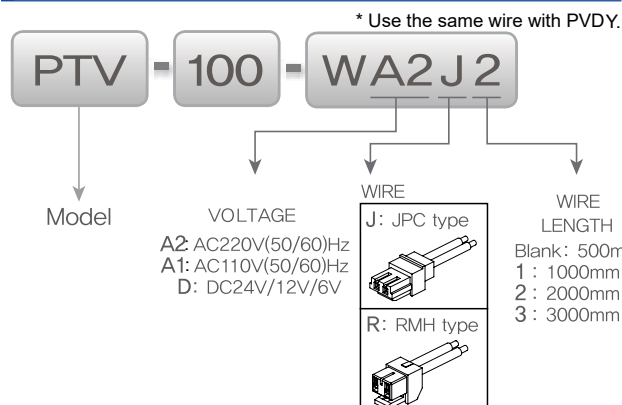
Order example of valve



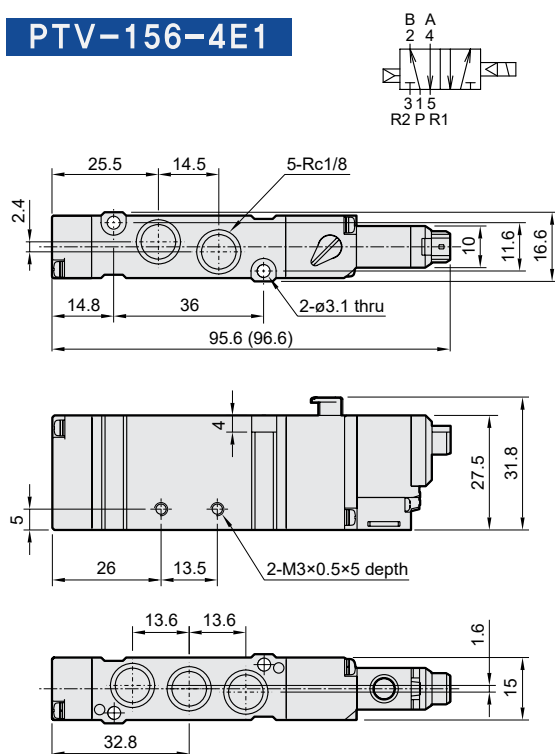
Order example of manifold



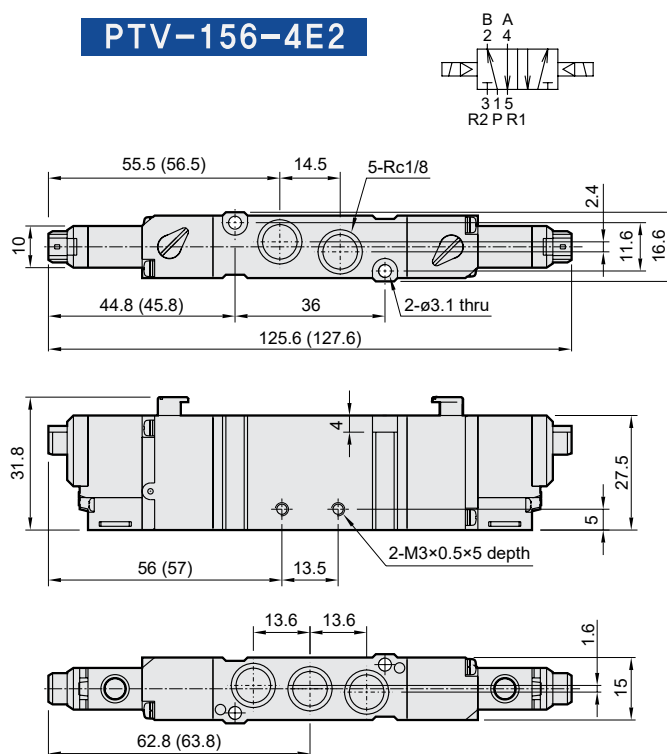
Order example of wire



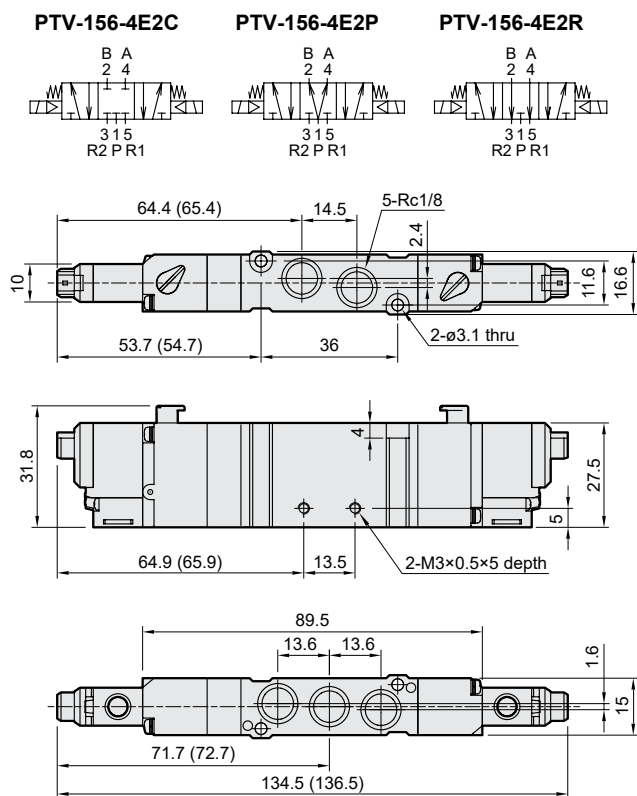
PTV-156-4E1



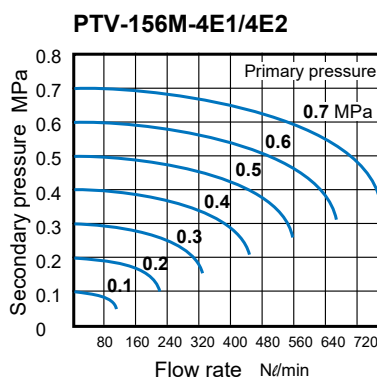
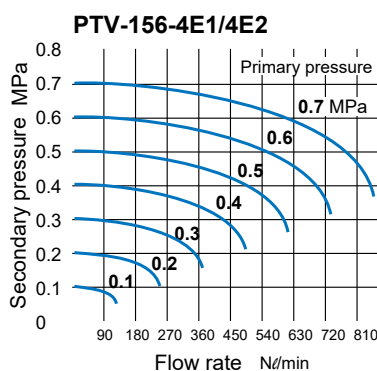
PTV-156-4E2



PTV-156-4E2C.P.R

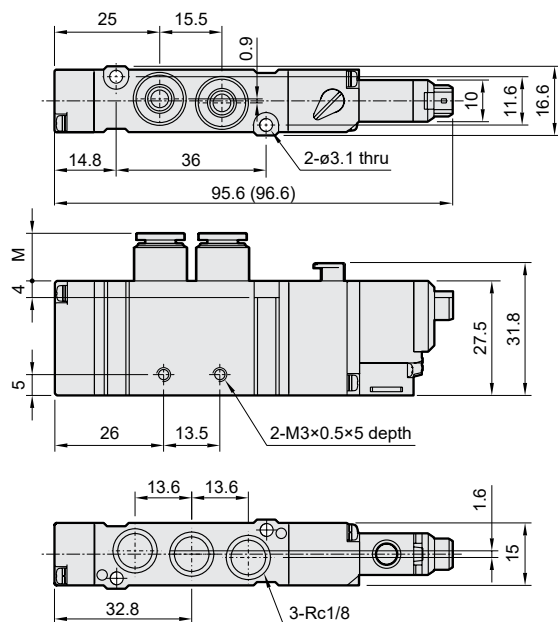
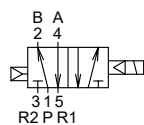


Flow features

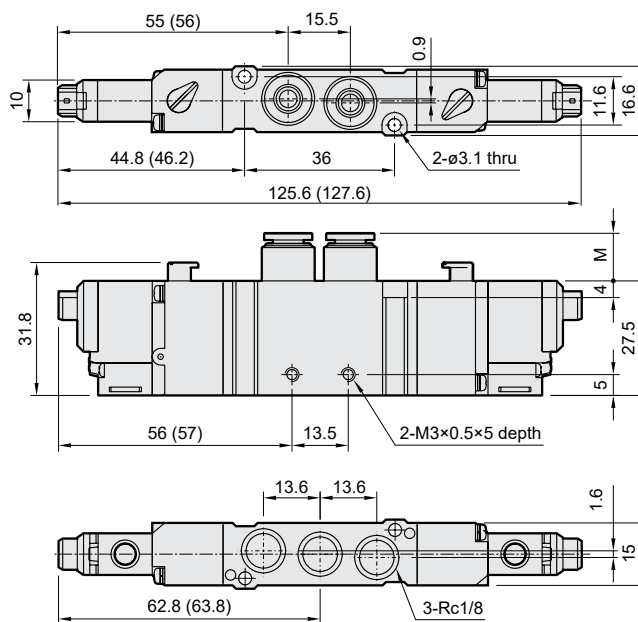
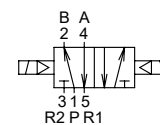


(): Dimension for LJ plug type.

PTV-156C*-4E1



PTV-156C*-4E2

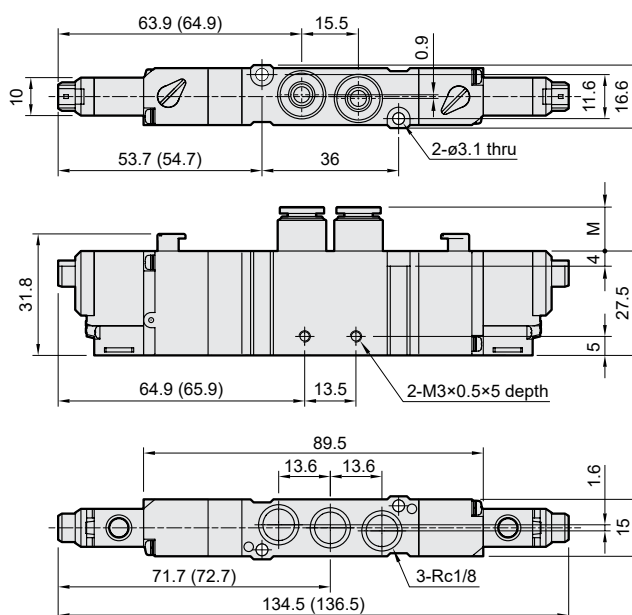
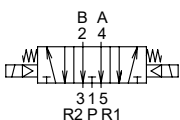
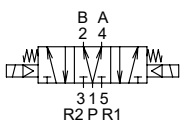
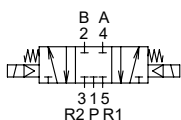


PTV-156C*-4E2C.P.R

PTV-156-4E2C

PTV-156-4E2P

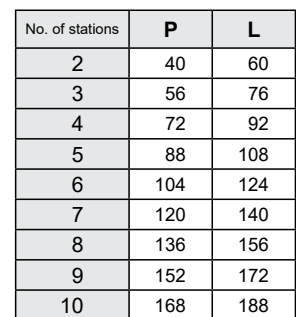
PTV-156-4E2R



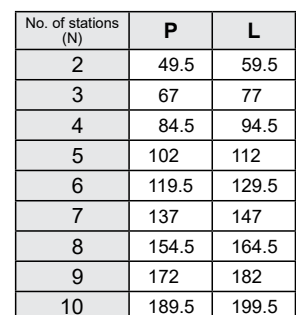
Code Tube fitting	M
C4 (ϕ 4)	(13.8)
C6 (ϕ 6)	(14.7)
C8 (ϕ 8)	(19.3)

() : Dimension for LJ plug type.

5 port (for body ported type)

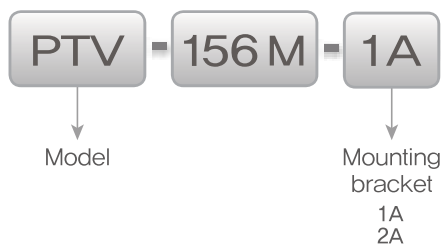


5 port (for manifold type)

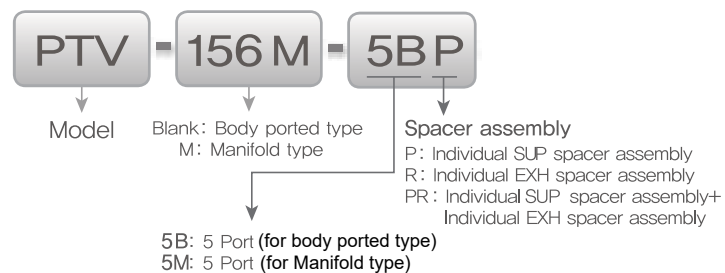


8

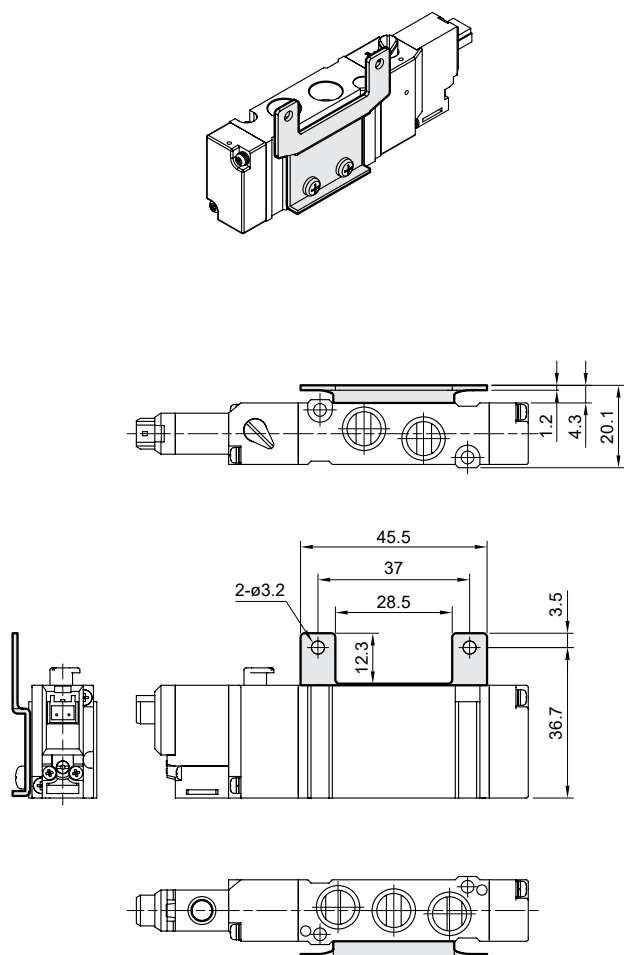
■ Order example of bracket



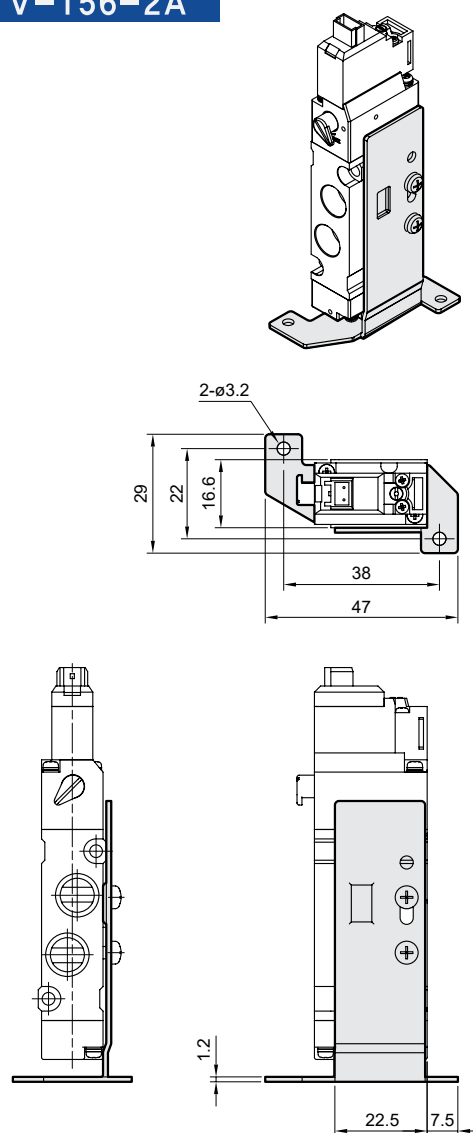
■ Order example of spacer assembly



PTV-156-1A



PTV-156-2A

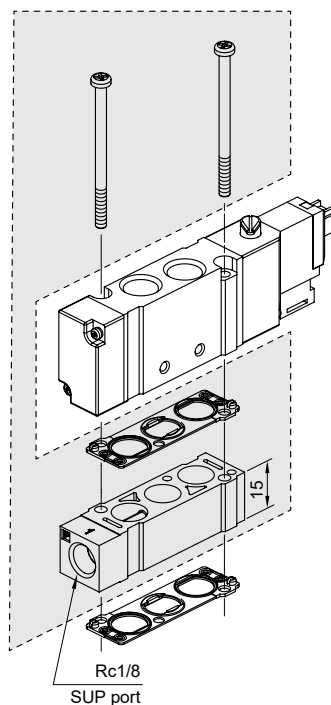


Spacer assembly

■ for body ported type

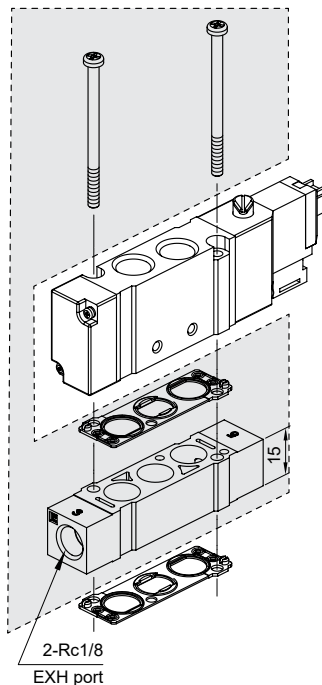
PTV-156-5BP

Individual SUP spacer assembly



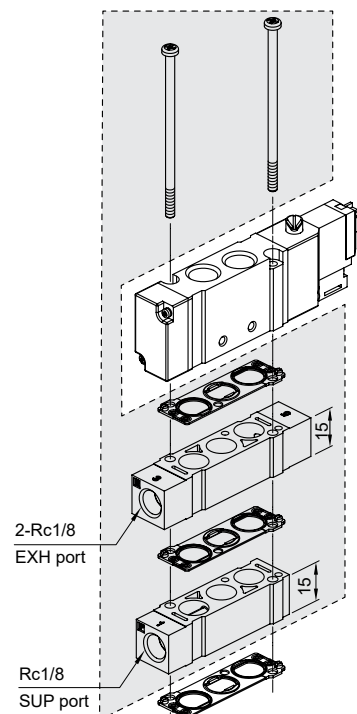
PTV-156-5BR

Individual EXH spacer assembly



PTV-156-5BPR

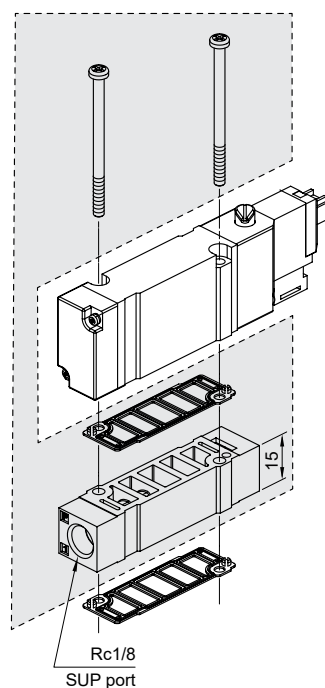
Individual SUP spacer assembly+
Individual EXH spacer assembly



■ for manifold type

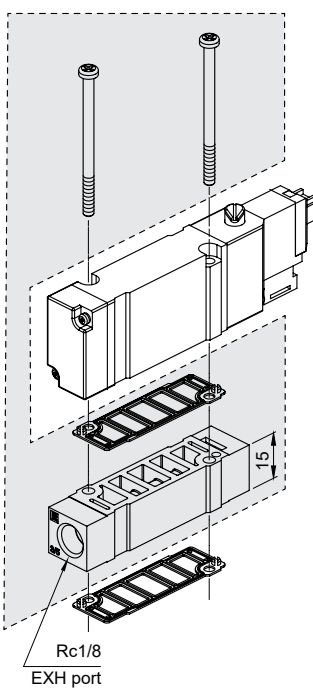
PTV-156M-5MP

Individual SUP spacer assembly



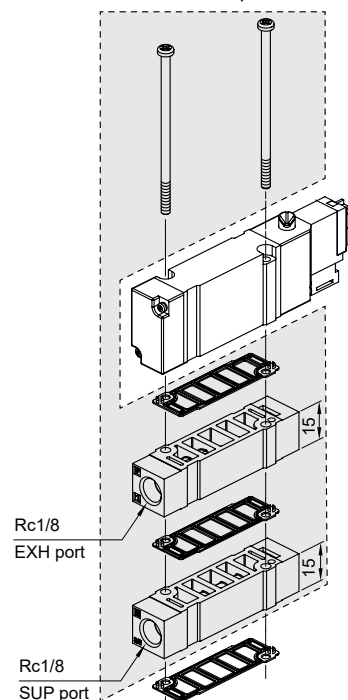
PTV-156M-5MR

Individual EXH spacer assembly



PTV-156M-5MPR

Individual SUP spacer assembly+
Individual EXH spacer assembly



PTV-156 series



For more information
Please scan



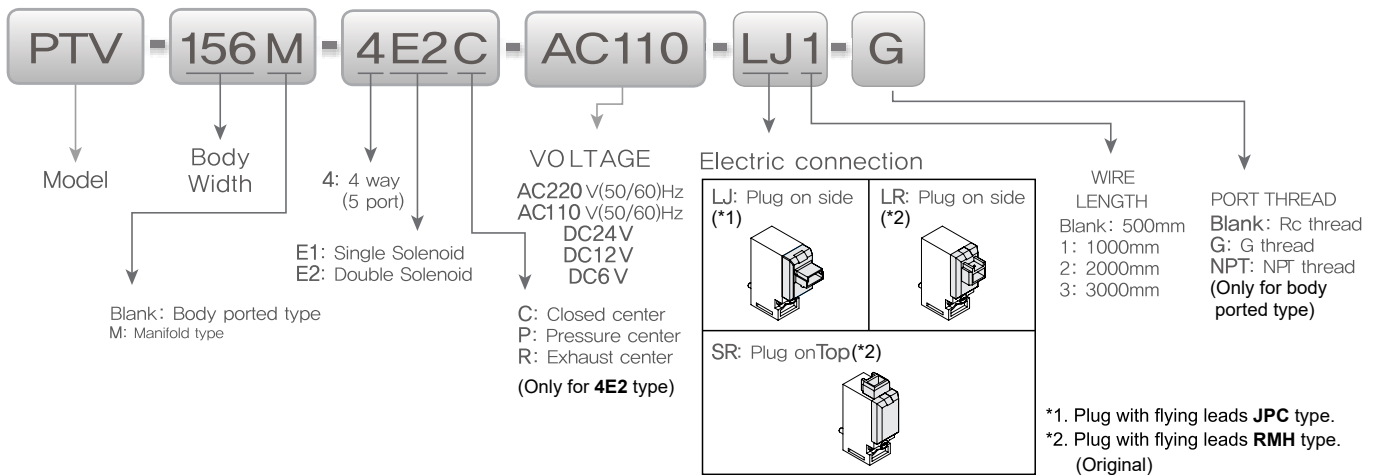
Caution

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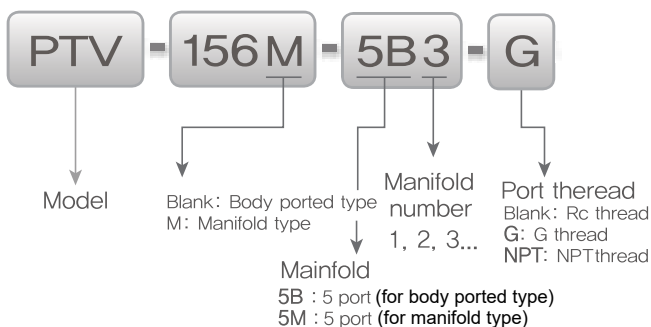
■ Specification

Model		4E1	4E2	4E2 C. P.R
Bore No.		8A		
Port size		Rc1/4		
No. of port		5		
No. of position		2	3	
Medium		Air		
Operating perssure range		0.15~0.7 MPa		0.2~0.7 MPa
Proof pressure		1 MPa		
Effective orifice	Body ported	15 mm ²		16.3/27/12.4 mm ²
	Manifold	13 mm ²		13.5/18.4/11 mm ²
Reponse time		23 ms		50 ms
Ambient temperature		+5~+50° C		
Max. operating frequency		5 Hz		
Voltage		AC110V, 220V (50/60)Hz, DC24/12/6V		
Power consumption		AC=1.6/2.5VA, DC6=1.2 W, DC12/24=0.55W		
Availablevoltage range		± 10%		
Insulation class		B class		
Weight		77 g	102 g	106 g

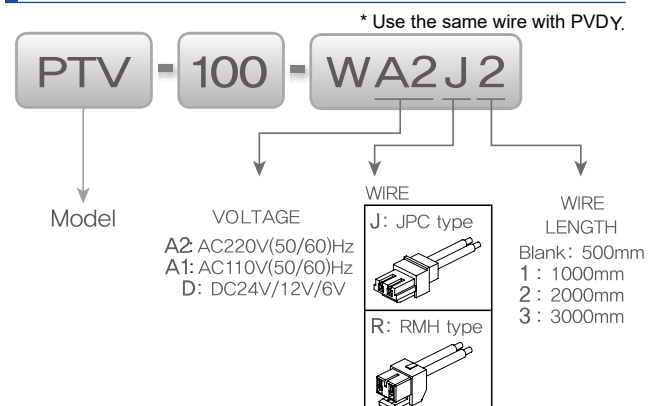
Order example of valve



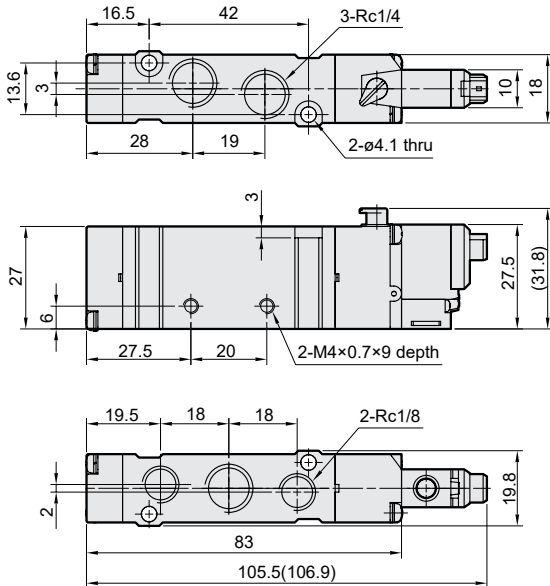
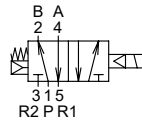
Order example of manifold



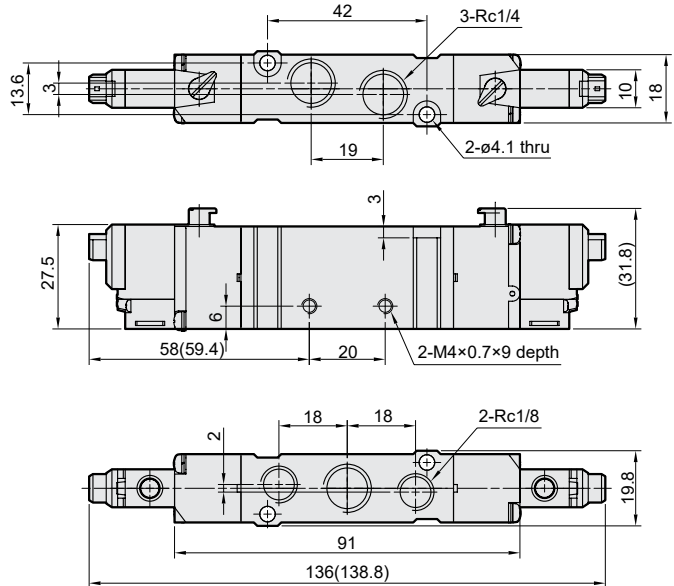
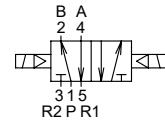
Order example of wire



PTV-188-4E1



PTV-188-4E2

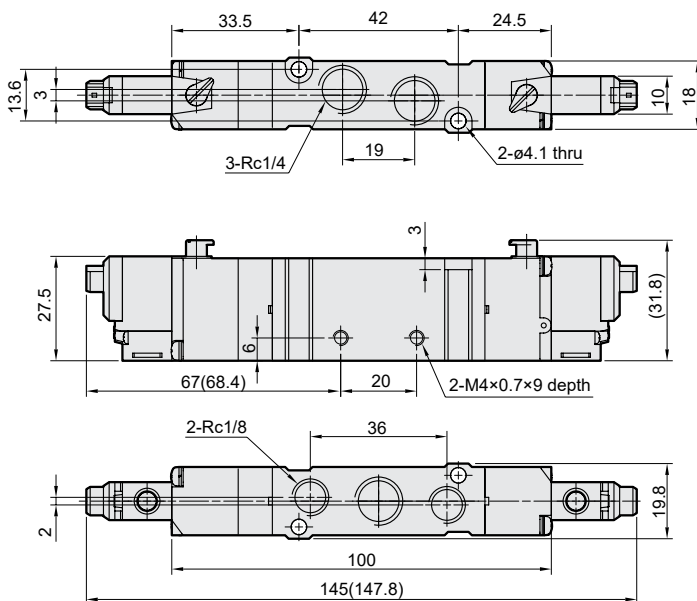
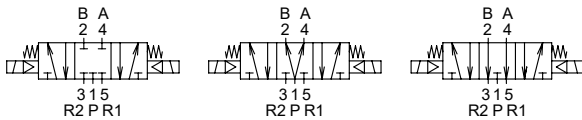


PTV-188-4E2C.P.R

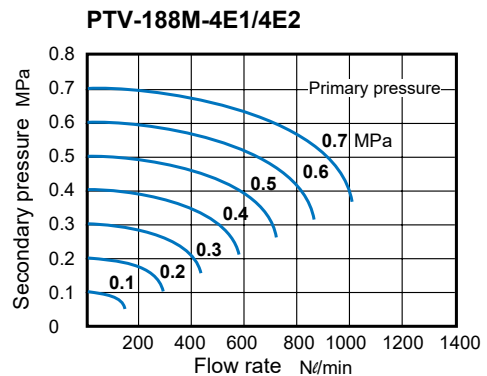
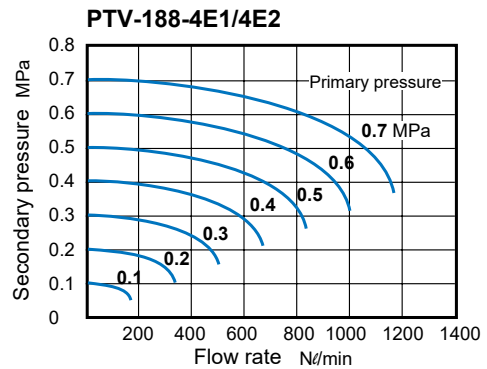
PTV-188-4E2C

PTV-188-4E2P

PTV-188-4E2R



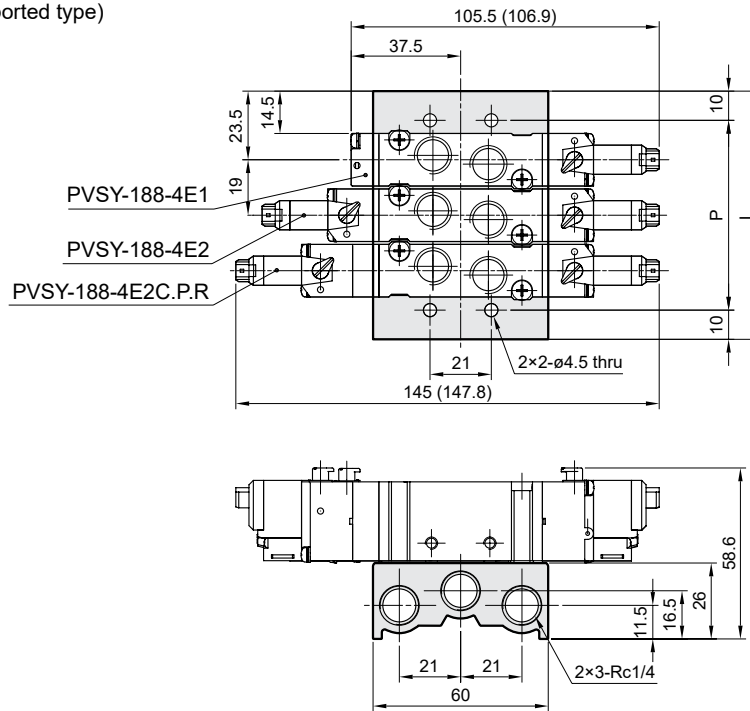
Flow features



(): Dimension for LJ plug type.

PTV-188-5B*

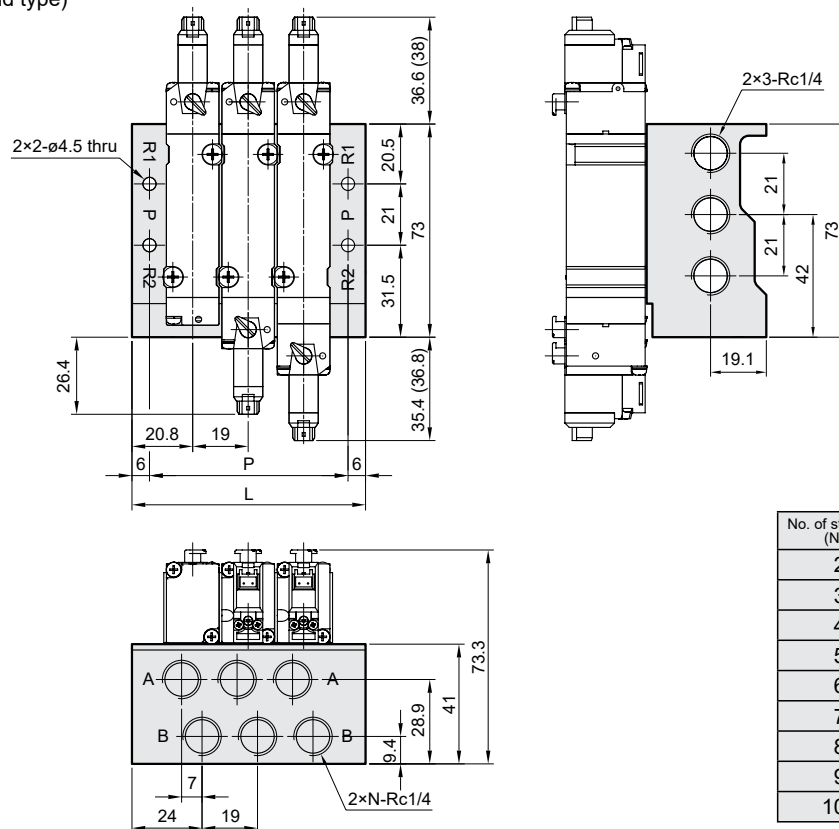
5 port (for body ported type)



No. of stations	P	L
2	46	66
3	65	85
4	84	104
5	103	123
6	122	142
7	141	161
8	160	180
9	179	199
10	198	218

PTV-188M-5M*

5 port (for manifold type)

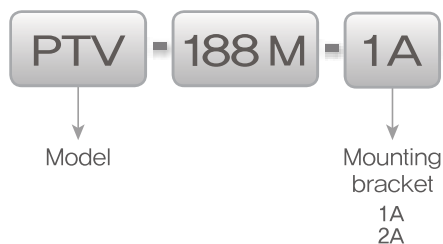


No. of stations (N)	P	L
2	49	61
3	68	80
4	87	99
5	106	118
6	125	137
7	144	156
8	163	175
9	182	194
10	201	213

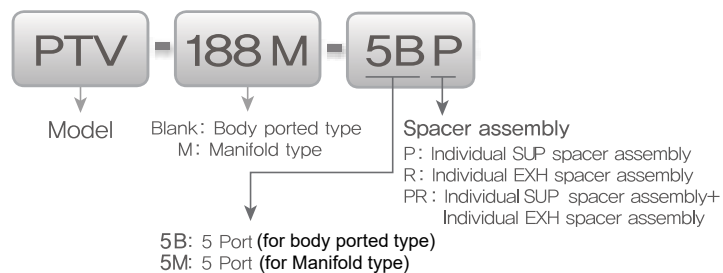
() : Dimension for LJ plug type.

Mounting bracket & Spacer assembly

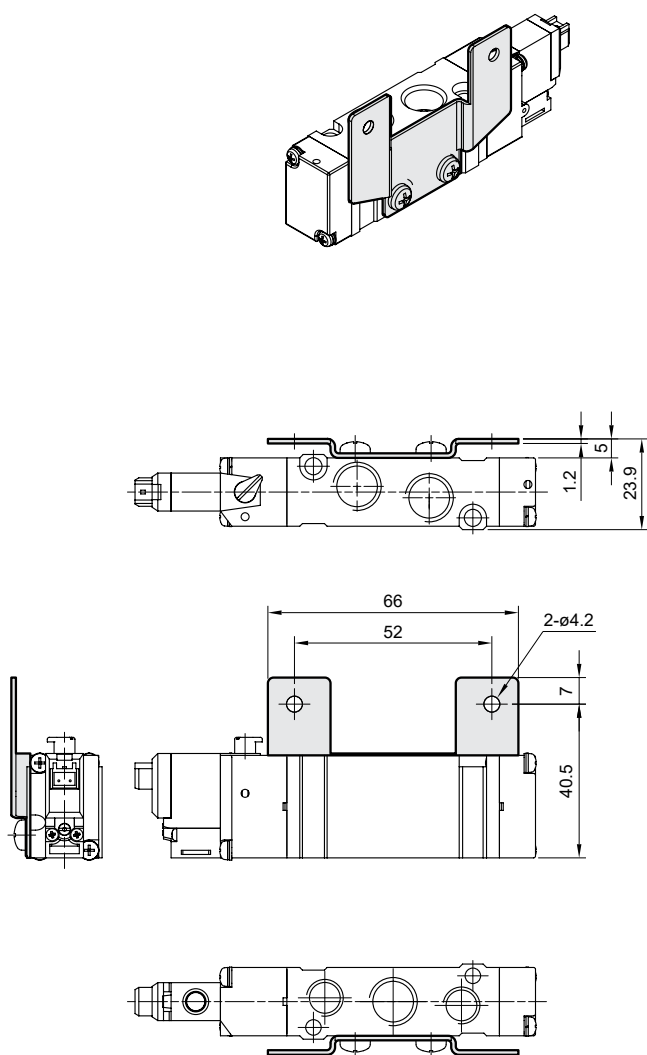
Order example of bracket



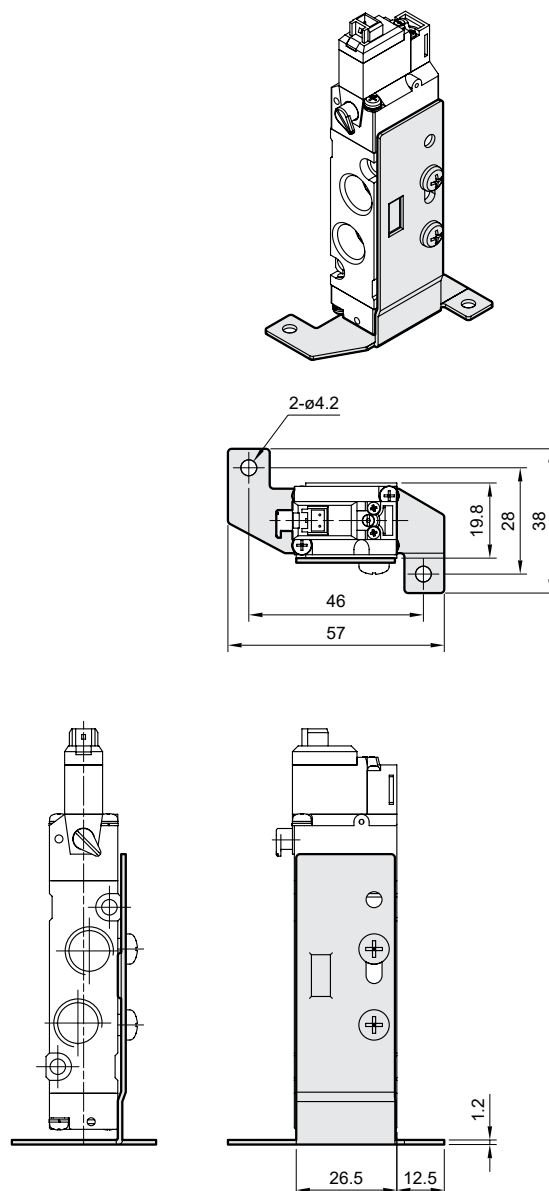
Order example of spacer assembly



PTV-188-1A



PTV-188-2A

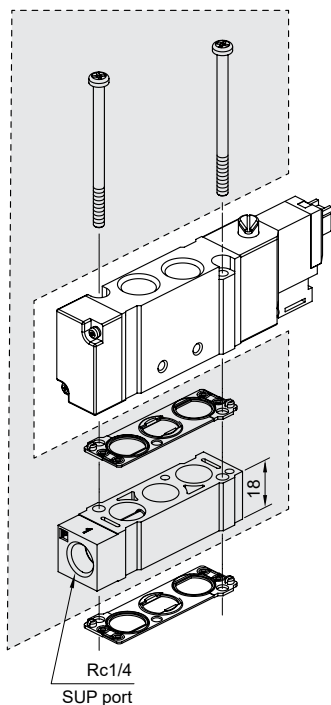


Spacer assembly

■ for body ported type

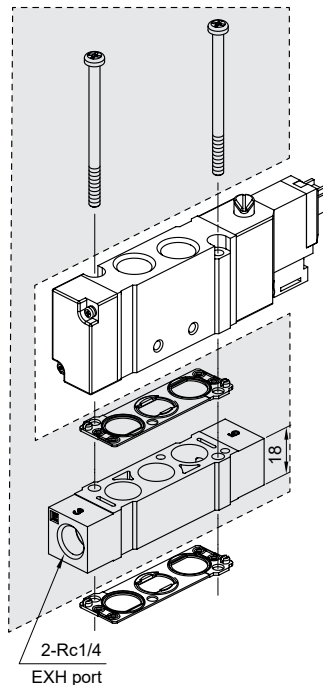
PTV-188-5BP

Individual SUP spacer assembly



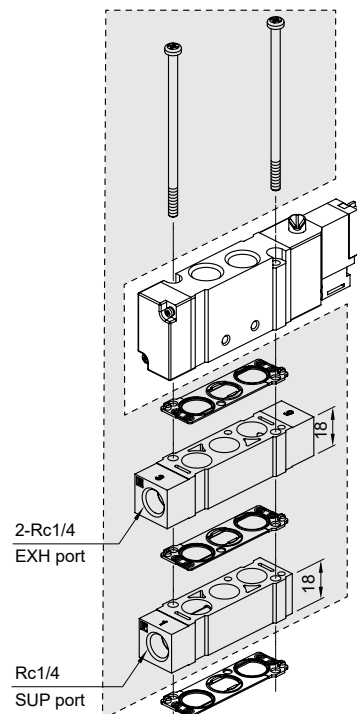
PTV-188-5BR

Individual EXH spacer assembly



PTV-188-5BPR

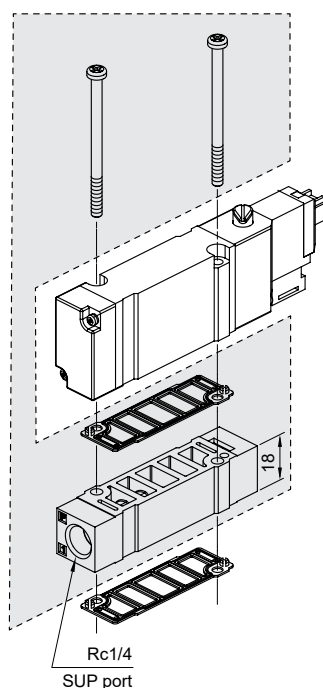
Individual SUP spacer assembly+
Individual EXH spacer assembly



■ for manifold type

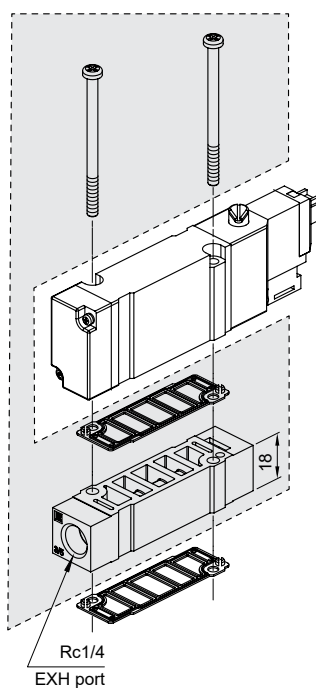
PTV-188 M-5MP

Individual SUP spacer assembly



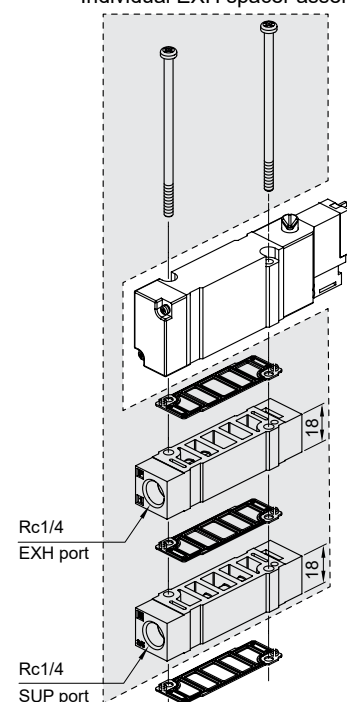
PTV-188M-5MR

Individual EXH spacer assembly



PTV-188M-5MPR

Individual SUP spacer assembly+
Individual EXH spacer assembly



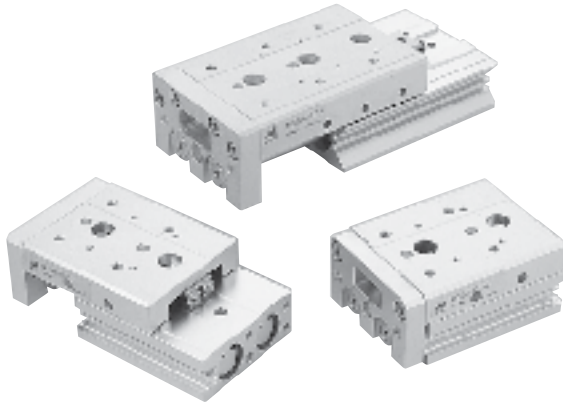


Table for standard stroke

Tube I.D.	Stroke (mm)
ø6	10, 20, 30, 40, 50
ø8	10, 20, 30, 40, 50, 75
ø12	10, 20, 30, 40, 50, 75, 100
ø16	10, 20, 30, 40, 50, 75, 100, 125
ø 20, 25	10, 20, 30, 40, 50, 75, 100, 125, 150

Features

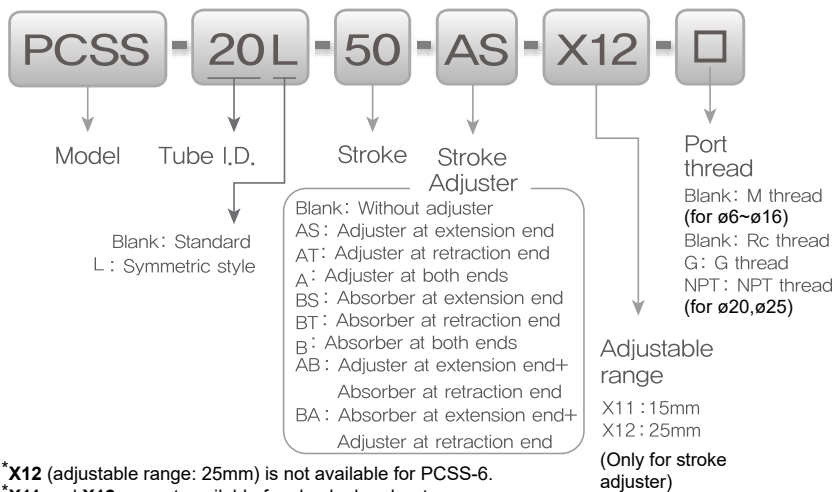
- High precision combination of cylinder and linear rail.
- Flush fitting sensor groove.
- Magnetic as standard.

Specification

Model	PCSS		
Acting type	Double acting		
Tube I.D. (mm)	6	8, 12, 16	20, 25
Port size	M3×0.5	M5×0.8	Rc1/8
Medium	Air		
Operating pressure range	0.15~0.7 MPa		
Proof pressure	1 MPa		
Ambient temperature	-5~+60°C (No freezing)		
Lubricator	Not required		
Available speed range	50~500 mm/sec		
Cushion	Rubber bumper (Standard) Shock absorber (Option)		
Sensor switch (*)	RCE, RCE1, RDEP		

* RCE, RCE1, RDEP specification, please refer to page 8-10, 14.

Order example

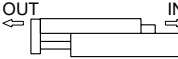


*X12 (adjustable range: 25mm) is not available for PCSS-6.

*X11 and X12 are not available for shock absorber type.

*Shock absorber is not available on series PCSS-6.

Theoretical force



Theoretical force

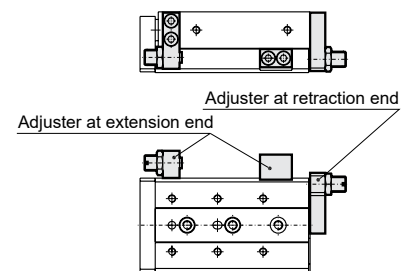
Unit: N

Tube I.D. (mm)	Piston rod (mm)	Operating direction	Piston area (mm ²)	Operating pressure (MPa)						
				0.2	0.3	0.4	0.5	0.6	0.7	
6	3	OUT	57	11	17	23	29	34	40	
		IN	42	8	13	17	21	25	29	
8	4	OUT	101	20	30	40	51	61	71	
		IN	75	15	23	30	38	45	53	
12	6	OUT	226	45	68	90	113	136	158	
		IN	170	34	51	68	85	102	119	
16	8	OUT	402	80	121	161	201	241	281	
		IN	302	60	91	121	151	181	211	
20	10	OUT	628	126	188	251	314	377	400	
		IN	471	94	141	188	236	283	330	
25	12	OUT	982	196	295	393	491	589	687	
		IN	756	151	227	302	378	454	529	

Stroke adjuster option

Stroke adjuster

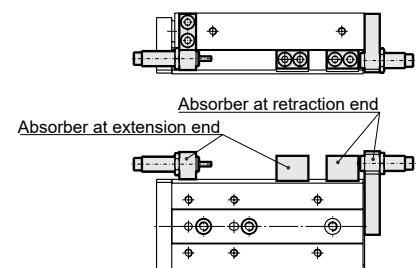
- Adjustable stroke range: 0~5mm (Standard)
- AS: Adjuster at extension end
- AT: Adjuster at retraction end
- A: Adjuster at both ends

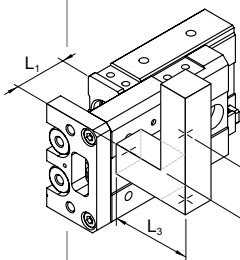


With shock absorber

- Enables adjustment of stroke.
- Absorbs the collision at stroke end and stops smoothly.

- BS: Absorber at extension end
- BT: Absorber at retraction end
- B: Absorber at both ends



Model selection steps	Formula / Data	Selection example
1. Operating conditions List the operating conditions considering the mounting position and workpiece configuration. Check that the load weight does not exceed the max. allowable load weight and that the average operating speed does not exceed the operating speed range.	- Model to be used. - Type of cushion. - Workpiece mounting position. - Average operating speed V_a (mm/s) - Load mass W (kg): Fig 1, Table 2 - Overhang L_n(mm): Fig 2	 Cylinder: PCSS-6-10 Cushion: Rubber bumper Workpiece table mounting Mounting: Horizontal wall mounting Average operating speed: $V_a = 150$ mm/s Load mass: $W = 0.3$ kg $L_1 = 4$ mm $L_2 = 4$ mm $L_3 = 5$ mm
2. Kinetic energy Find the kinetic energy E (J) of the load. Find the allowable kinetic energy E_a (J). Confirm that the kinetic energy of the load does not exceed the allowable kinetic energy.	$E = \frac{1}{2} \cdot W \left(\frac{V}{1000} \right)^2$ Collision speed $V = 1.4 \cdot V_a$ * Correction factor (Reference values) $E_a = K \cdot E_{max}$ Workpiece mounting coefficient K: Fig 3 Max. allowable kinetic energy E_{max}: Table 1 Kinetic energy (E) $\leq$ Allowable kinetic energy (E_a)	$E = \frac{1}{2} \cdot 0.3 \left(\frac{210}{1000} \right)^2 = 0.0066$ $V = 1.4 \cdot 150 = 210$ $E_a = 1 \cdot 0.015 = 0.015$ Can be used based on $E = 0.0066 \leq E_a = 0.015$

(Continued)

Table 1: Max. allowable kinetic energy: E_{max} (J)

Tube I.D. (mm)	Allowable kinetic energy	
	Rubber bumper	Shock absorber
ø6	0.015	—
ø8	0.023	0.041
ø12	0.05	0.105
ø16	0.104	0.214
ø20	0.153	0.313
ø25	0.232	0.472

Fig 1: Load mass: W (kg)

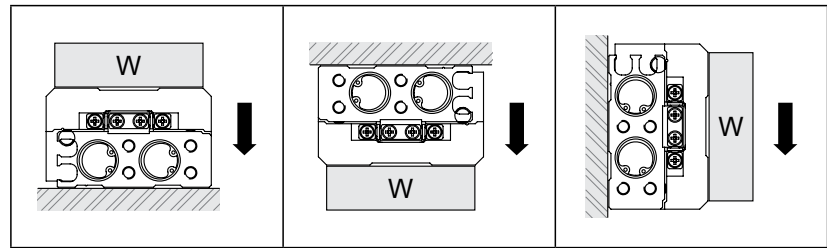


Table 2: Max. allowable load mass: W_{max} (kg)

Tube I.D. (mm)	Max. allowable load mass
ø6	0.6
ø8	0.8
ø12	2
ø16	3.7
ø20	6
ø25	8.5

Fig 2: Overhang: L_n (mm), Correction value of moment center position distance: A_n (mm)

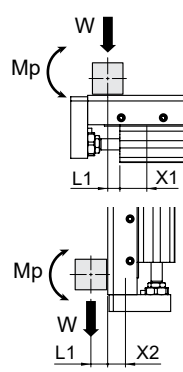
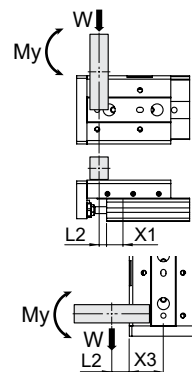
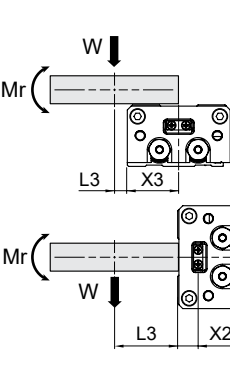
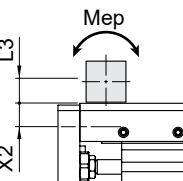
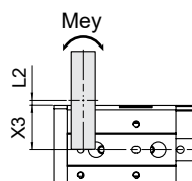
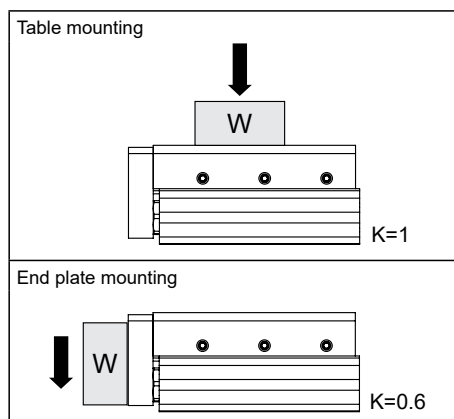
	Pitch moment	Yaw moment	Roll moment
Static moment			
Dynamic moment			—

Fig 3: Workpiece mounting coefficient: K



Model selection steps	Formula / Data	Selection example
3. Load factor 3-1 Load factor of load mass Find the allowable load mass W_a (kg). Note: There is no need to consider this load factor in the case of using perpendicularly in a vertical position. (Define $\alpha_1 = 0$.) Find the load factor of the load mass α_1 .	$W_a = K \cdot \beta \cdot W_{max}$ Workpiece mounting coefficient K: Fig 3 Allowable load mass coefficient β : Fig 4 Max. allowable load mass W_{max} : Table 2 $\alpha_1 = W/W_a$	$W_a = 1 \cdot 1 \cdot 0.6 = 0.6$ $K = 1$ $\beta = 1$ $W_{max} = 0.6$ $\alpha_1 = 0.3/0.6 = 0.5$
3-2 Load factor of static moment Find the static moment M (N·m). Find the allowable static moment M_a (N·m). Find the load factor α_2 of the static moment.	$M = W \cdot 9.8(L_n + X_n) / 1000$ Correction value of moment center position distance X_n : Table 3 $M_a = K \cdot \gamma \cdot M_{max}$ Workpiece mounting coefficient K: Fig 3 Allow load mounting coefficient γ : Fig 4 Max. allowable moment M_{max} : Table 4 $\alpha_2 = M/M_a$	Yawing Examine M_y. $M_y = 0.3 \cdot 9.8(4+14.5)/1000 = 0.05$ $X_1 = 14.5$ $M_{ay} = 1 \cdot 1 \cdot 0.7 = 0.7$ $M_{ymax} = 0.7$ $K = 1$ $\gamma = 1$ $\alpha_2 = 0.05/0.7 = 0.072$ Rolling Examine M_r. $M_r = 0.3 \cdot 9.8(5+6)/1000 = 0.033$ $X_2 = 6$ $M_{ar} = 0.7$ (Same value as M_{ay}) $\alpha'_2 = 0.033/0.7 = 0.047$
3-3 Load factor of dynamic moment Find the dynamic moment M_e (N·m). Find the allowable dynamic moment M_{ea} (N·m). Find the load factor α_3 of the dynamic moment.	$M_e = 1/3 \cdot W_e \cdot 9.8 \frac{(L_n + X_n)}{1000}$ Correction equivalent to impact $W_e = \delta \cdot W \cdot V$ δ : Bumper coefficient With urethane bumper (Standard) = 4/100 With shock absorber = 1/100 Correction value of moment center position distance X_n : Table 3 $M_{ea} = K \cdot \gamma \cdot M_{max}$ Workpiece mounting coefficient K: Fig 3 Allowable mounting coefficient γ : Fig 4 Max. allowable moment M_{max} : Table 4 $\alpha_3 = M_e/M_{ea}$	Pitching Examine M_{ep}. $M_{ep} = 1/3 \cdot 2.52 \cdot 9.8 \cdot \frac{(5+6)}{1000} = 0.09$ $W_e = 4/100 \cdot 0.3 \cdot 210 = 2.52$ $X_2 = 6$ $M_{eap} = 1 \cdot 1 \cdot 0.7 = 0.7$ $K = 1$ $\gamma = 1$ $M_{pmax} = 0.7$ $\alpha_3 = 0.09/0.7 = 0.128$ Yawing Examine M_{ey}. $M_{ey} = 1/3 \cdot 2.52 \cdot 9.8 \cdot \frac{(4+16)}{1000} = 0.165$ $W_e = 2.52$ $X_3 = 16$ $M_{eay} = 0.7$ (Same value as M_{eap}) $\alpha'_3 = 0.165/0.7 = 0.235$
3-4 Sum of load factors Possible to use if the sum of the load factors does not exceed 1.	$\Sigma \alpha_n = \alpha_1 + \alpha_2 + \alpha_3 \leq 1$	$\Sigma \alpha_n = \alpha_1 + \alpha_2 + \alpha'_2 + \alpha_3 + \alpha'_3 \leq 1$ $\Sigma \alpha_n = 0.5 + 0.072 + 0.047 + 0.128 + 0.235 = 0.982 \leq 1$ Add it is possible to use.

Table 3: Correction value of moment center position distance: X_n (mm)

Tube I.D. (mm)	X1, Stroke (mm)										X2	X3
	10	20	30	40	50	75	100	125	150			
ø6	14.5	14.5	19	26.5	35.5	—	—	—	—	—	6	16
ø8	14.5	14.5	19	28.5	35.5	49	—	—	—	—	8	20
ø12	23.5	23.5	23.5	27.5	33	50.5	68.5	—	—	—	9.5	25
ø16	22.5	22.5	22.5	26.5	32	51.5	67.5	85	—	—	10.5	31
ø20	25	25	25	25	32.5	49.5	68.5	88.5	88.5	15.5	38	
ø25	24	24	24	24	31.5	51.5	66.5	86.5	91.5	20.5	46	

Table 4: Max. allowable moment: M_{max} (N·m)

Tube I.D. (mm)	Stroke (mm)									
	10	20	30	40	50	75	100	125	150	
ø6	0.7	1	1.1	1.1	1.1	—	—	—	—	
ø8	2	2	2.6	3.5	3.9	3.9	—	—	—	
ø12	3.9	3.9	3.9	5.5	6.8	9.6	9.6	—	—	
ø16	9.8	9.8	9.8	9.8	12	21	30	30	—	
ø20	16.4	16.4	16.4	16.4	24.2	31.4	45.5	45.5	45.5	
ø25	26.5	26.5	26.5	26.5	37.8	49.8	62.2	62.2	62.2	

Fig 3: Workpiece mounting coefficient: K

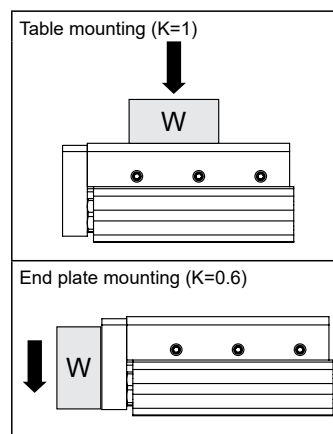
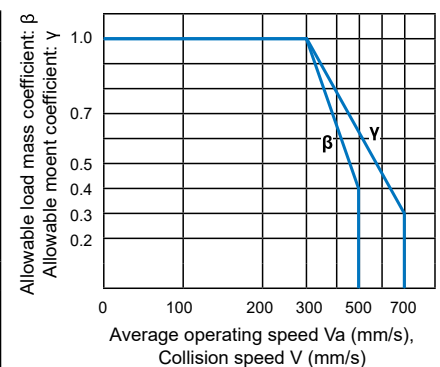


Fig.4: Allowable load mass coefficient: β
Allowable moment coefficient: γ



γ note: Use the average operating speed when calculating static moment. Use the collision speed when calculating dynamic moment.

■ Table deflection (Reference values)

Table displacement due to roll moment load

Table displacement of section A when loads are applied to the section F with the slide table retracted.

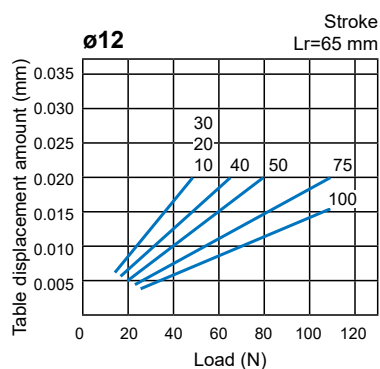
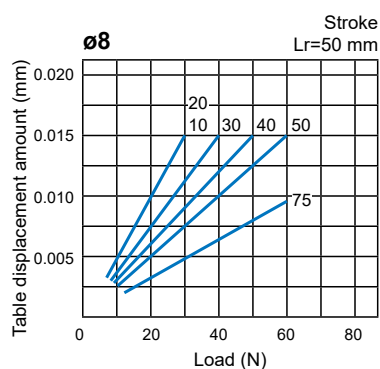
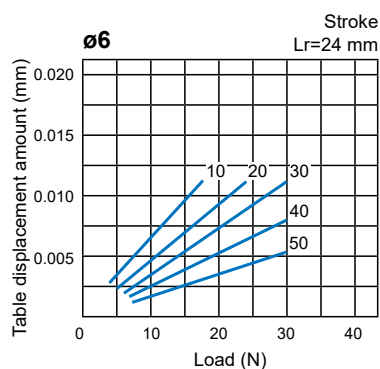
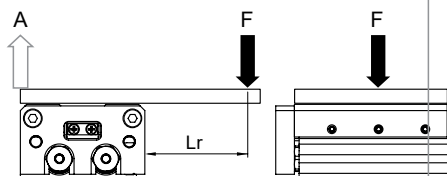


Table displacement due to yaw moment load

Table displacement when loads are applied to the section marked with the arrow at the full stroke.

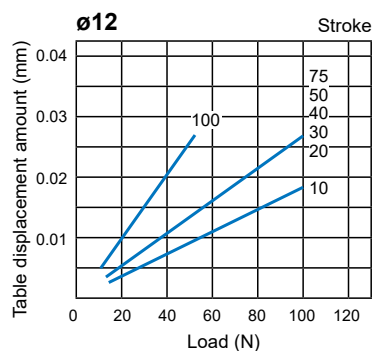
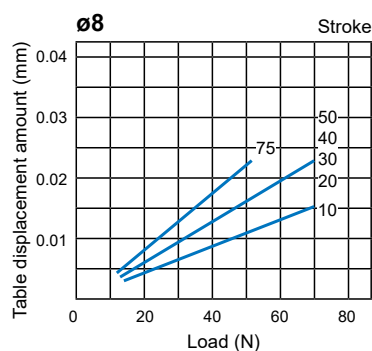
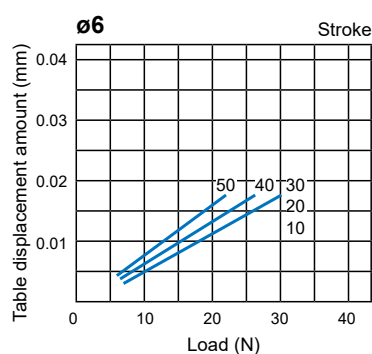
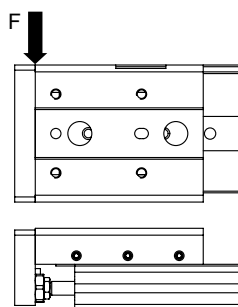


Table displacement due to pitch moment load

Table displacement when loads are applied to the section marked with the arrow at the full stroke.

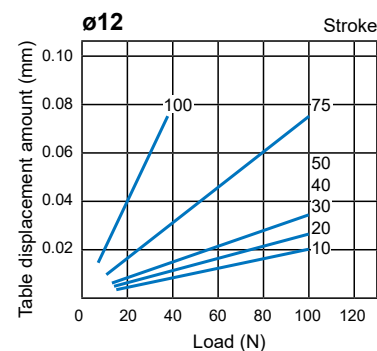
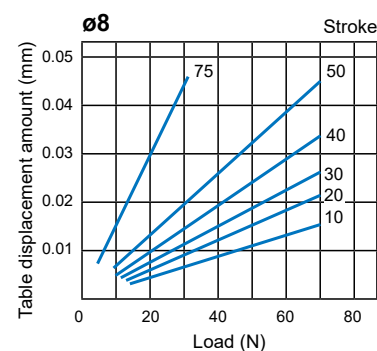
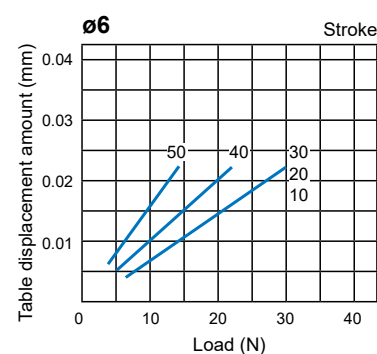
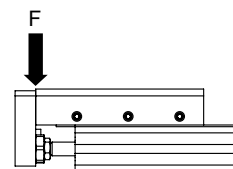


Table deflection (Reference values)

Table displacement due to roll moment load

Table displacement of section A when loads are applied to the section F with the slide table retracted.

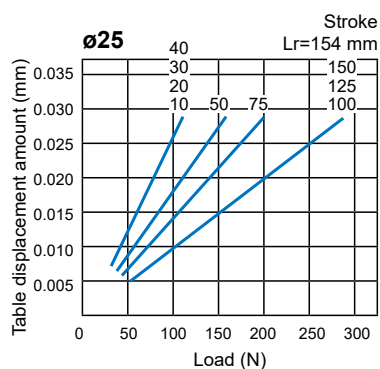
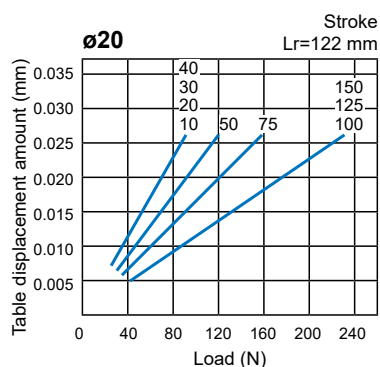
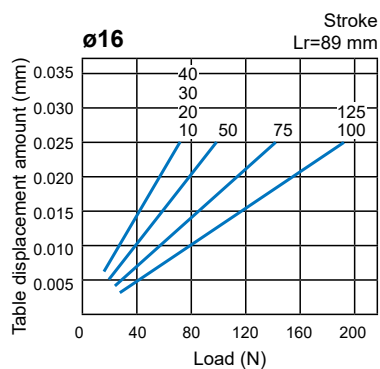
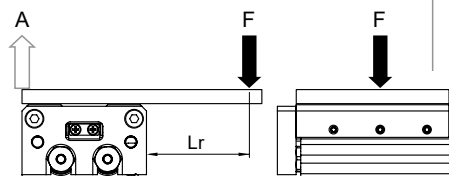


Table displacement due to yaw moment load

Table displacement when loads are applied to the section marked with the arrow at the full stroke.

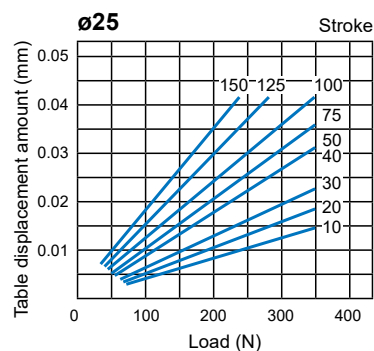
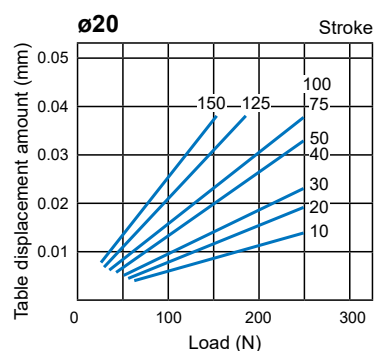
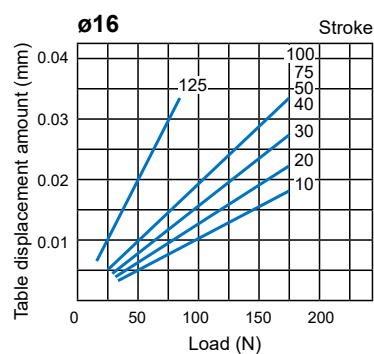
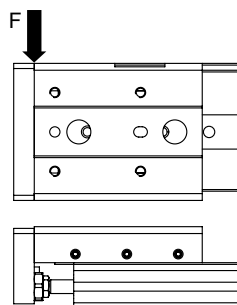
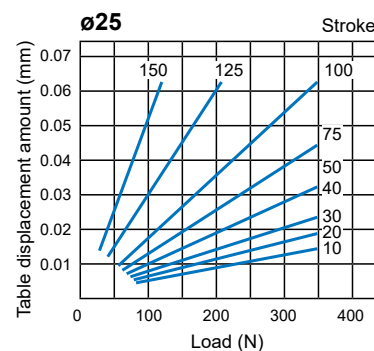
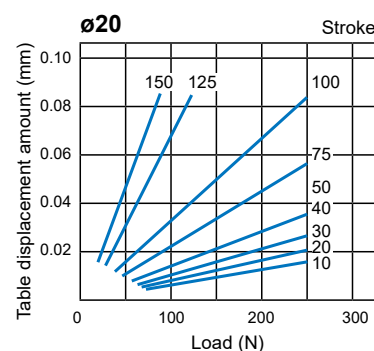
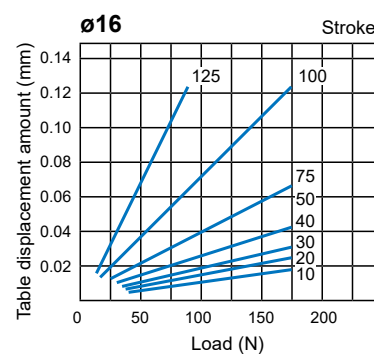
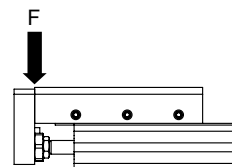


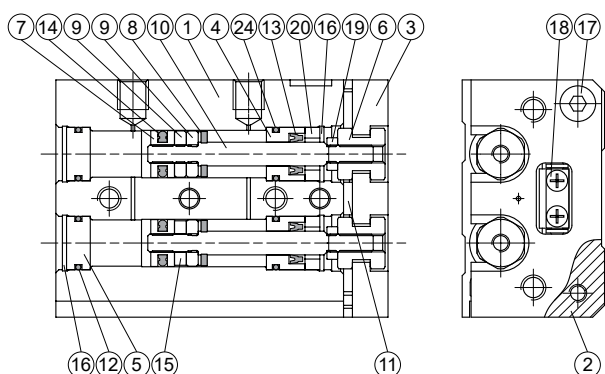
Table displacement due to pitch moment load

Table displacement when loads are applied to the section marked with the arrow at the full stroke.

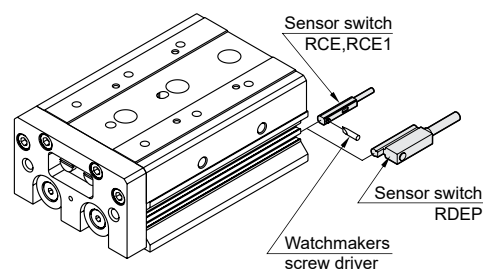


Inside structure & Parts list

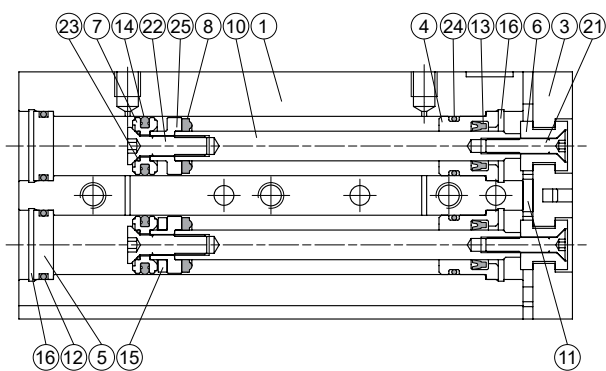
ø6, ø8



Installation of sensor switch



ø12~ø25



Order example of repair kits

Tube I.D.	Repair kits
ø6	PS-PCSS-6
ø8	PS-PCSS-8
ø12	PS-PCSS-12
ø16	PS-PCSS-16
ø20	PS-PCSS-20
ø25	PS-PCSS-25

Material

*1. Aluminum alloy *2. Stainless steel *3. Spring steel

No.	Tube I.D. Part name	6	8	12~25	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy			1	
2	Table	Aluminum alloy			1	
3	Plate	Aluminum alloy			1	
4	Rod cover	Aluminum alloy			2	
5	Head cover	Aluminum alloy			2	
6	Floating connector	Stainless steel			2	
7	Piston	Stainless steel		*1	2	
8	Cushion pad	NBR			2	●
9	Spacer ring	*1	*2	—	3	
10	Piston rod	Stainless steel			2	
11	End cushion	PU			1	●
12	Cover ring	NBR			2	●
13	Rod packing	NBR			2	●
14	Piston packing	NBR			2	●
15	Magnet ring	Magnet material			1	
16	Snap ring	*3	Stainless steel		4	
17	Bolt	Stainless steel			2 or 4	
18	Slide way	Bearing steel			1	
19	Nut	Stainless steel		—	2	

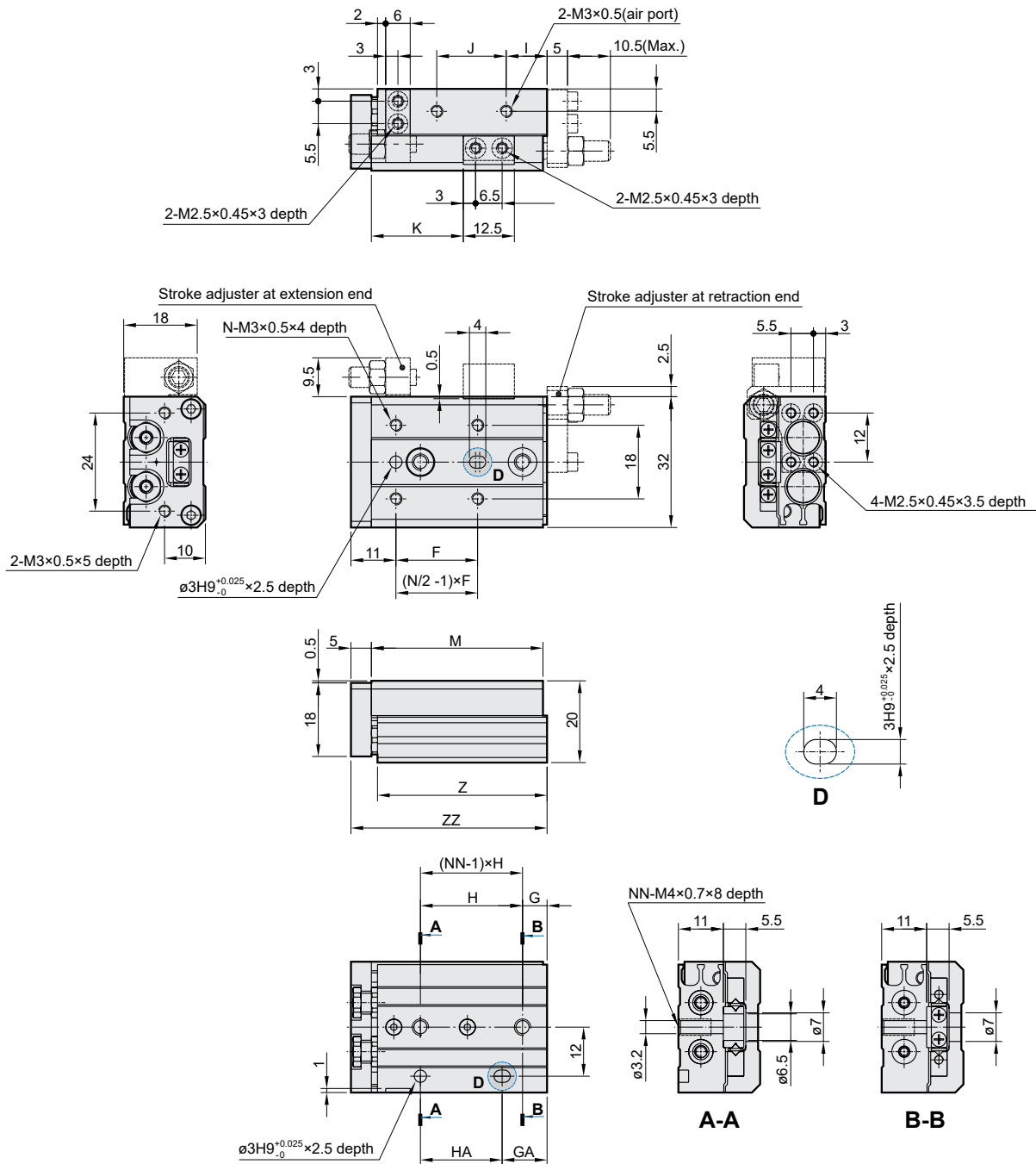
* Item 17. Tube I.D. ø6~16 (Q'y: 2pcs); Tube I.D. ø20, 25 (Q'y: 4pcs).

No.	Tube I.D. Part name	6	8	12~25	Q'y	Repair kits (inclusion)
20	Rod cover washer	Stainless steel			—	2
21	Floating connector bolt	—			*2	2
22	Piston screw	—			*2	2
23	Piston gasket	—			NBR	2 ●
24	Cover ring	NBR			2	●
25	Piston for magnet ring	—			*1	2

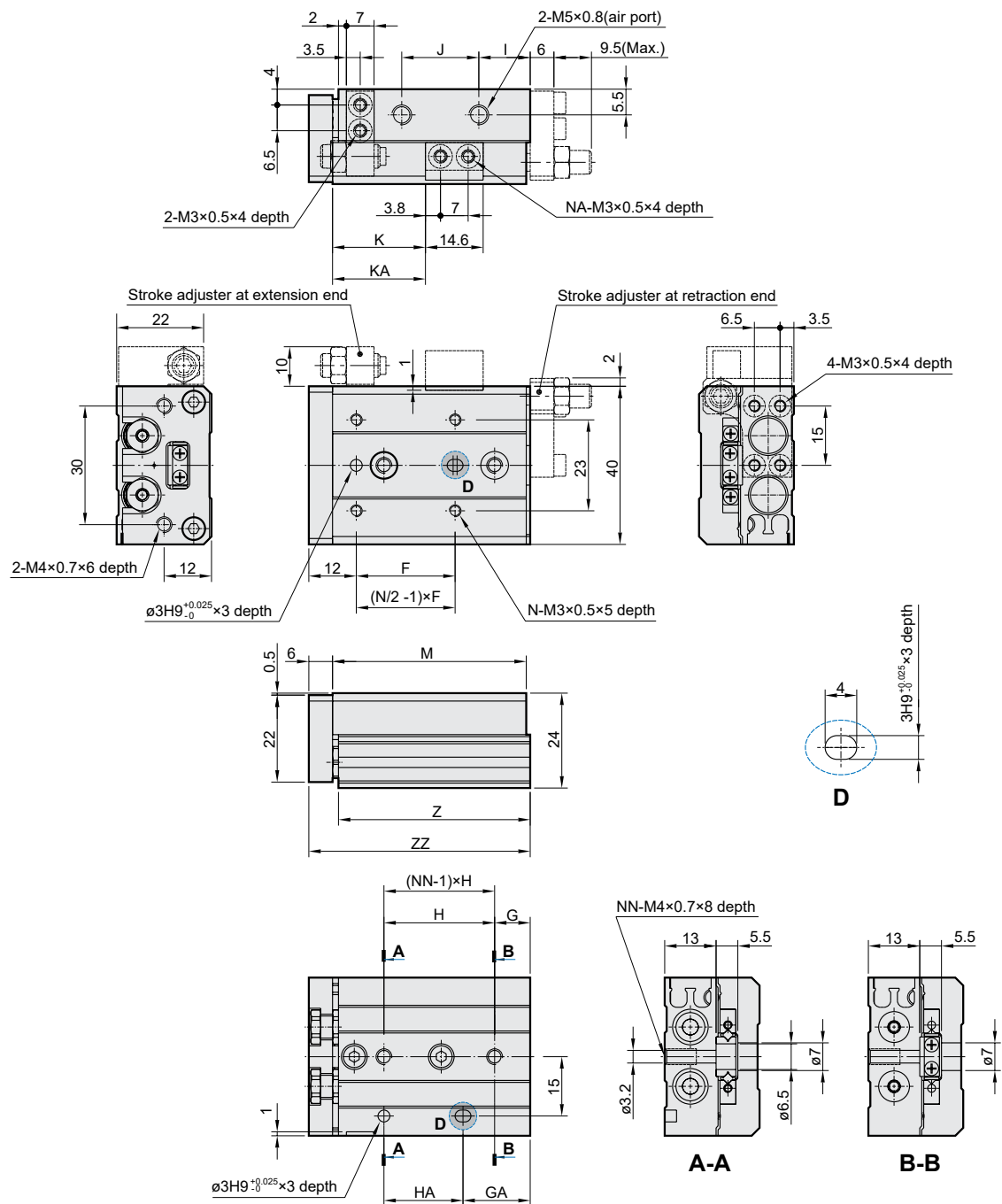
Cylinder weight

Unit: g

Stroke (mm)	Tube I.D.					
	ø6	ø8	ø12	ø16	ø20	ø25
10	89	155	360	576	1050	1636
20	110	166	362	604	1060	1650
30	122	201	369	602	1092	1673
40	161	246	425	674	1145	1797
50	199	281	529	762	1320	1989
75	—	394	722	1095	1815	2713
100	—	—	960	1410	2365	3260
125	—	—	—	1702	2880	4260
150	—	—	—	—	3368	4530

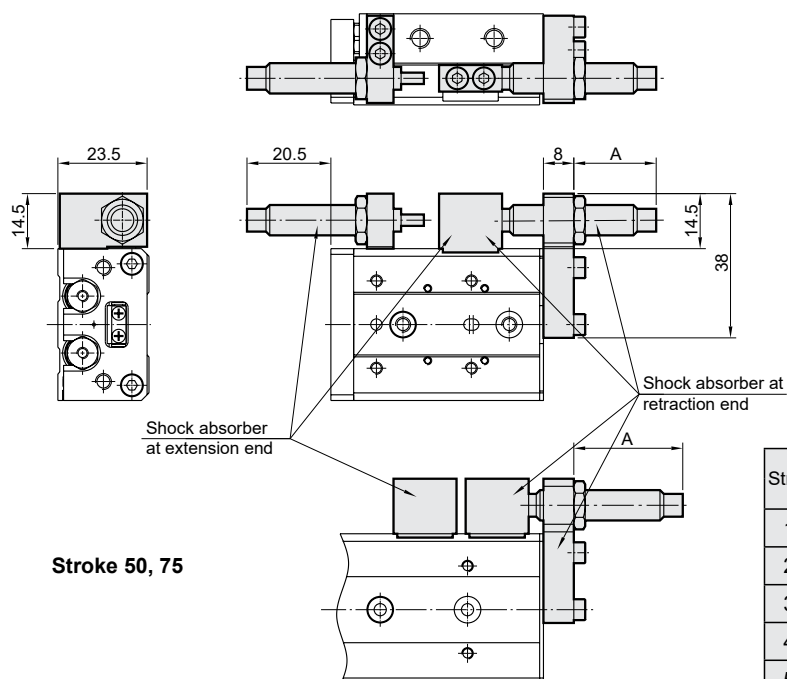


Code Stroke	F	G	GA	H	HA	I	J	K	M	N	NN	Z	ZZ
10	20	6	11	25	20	10	17	22.5	42	4	2	41.5	48
20	30	6	21	35	20	10	27	32.5	52	4	2	51.5	58
30	20	11	31	20	20	7	40	42.5	62	6	3	61.5	68
40	28	13	43	30	30	19	50	52.5	84	6	3	83.5	90
50	38	17	41	24	48	25	60	62.5	100	6	4	99.5	106



Code Stroke	F	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	25	9	17	28	20	13	19.5	23.5	-	49	4	2	2	48.5	56
20	25	12	12	30	30	8.5	29	33.5	-	54	4	2	2	53.5	61
30	40	13	33	20	20	9.5	39	43.5	-	65	4	2	3	64.5	72
40	50	15	43	28	28	10.5	56	53.5	-	83	4	2	3	82.5	90
50	38	20	43	23	46	24.5	60	63.5	82.5	101	6	4	4	100.5	108
75	50	27	83	28	56	38.5	96	88.5	132.5	151	6	4	5	150.5	158

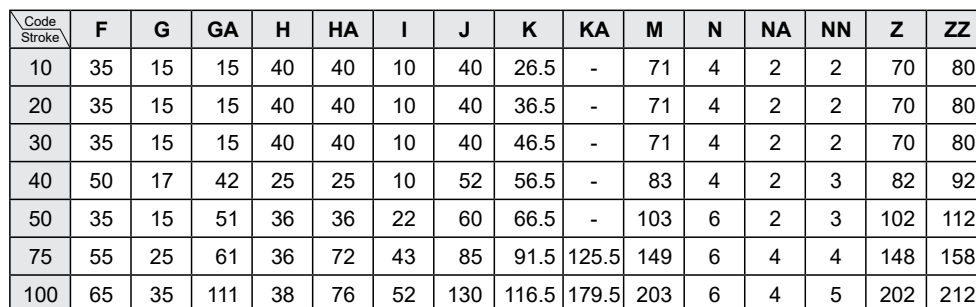
$\varnothing 8$

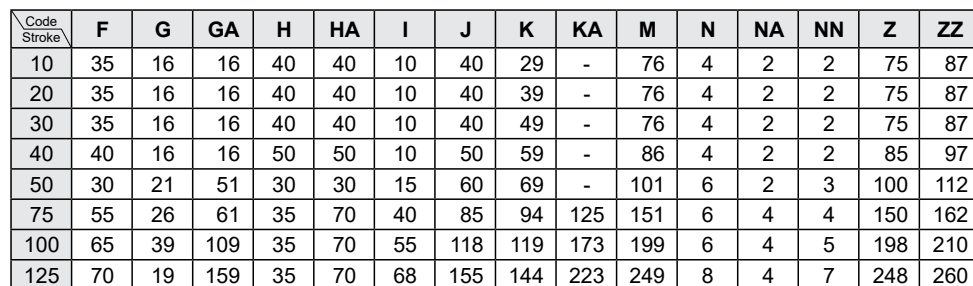


Stroke 50, 75

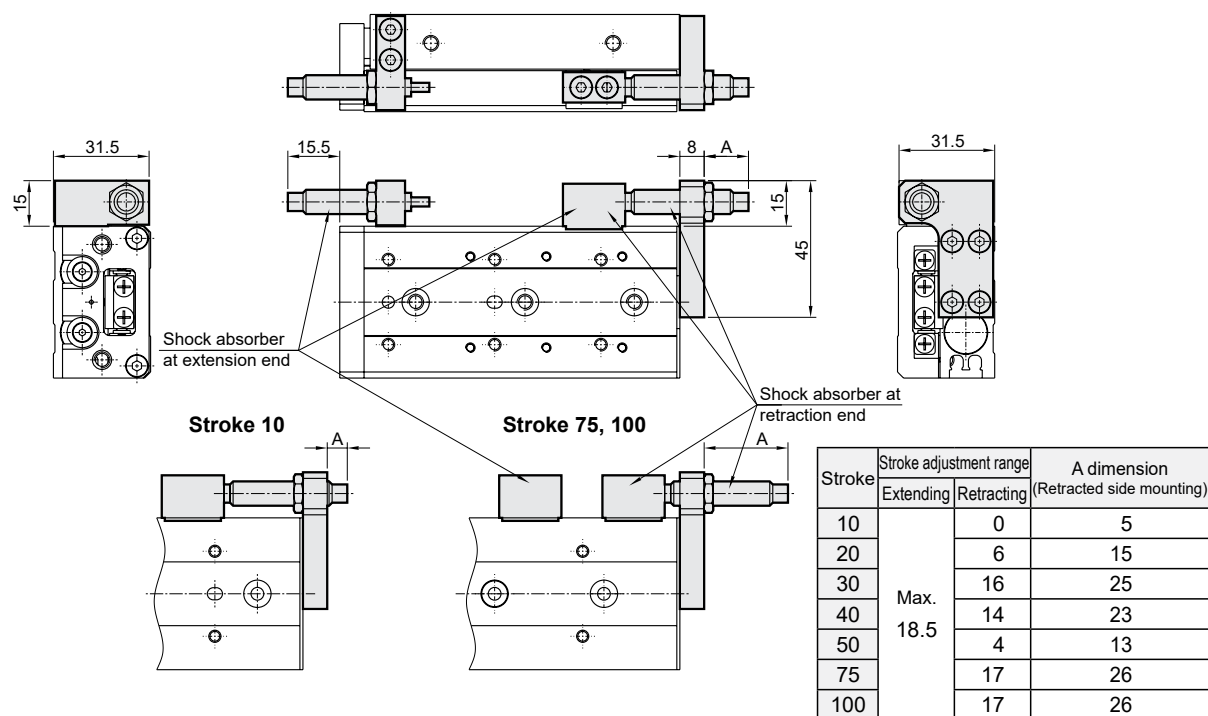
Stroke	Stroke adjustment range		A dimension (Retracted side mounting)
	Extending	Retracting	
10	Max. 21	11.5	20.1
20		16.1	25.1
30		15.1	24.1
40		7.1	16.1
50		18.1	27.1
75		18.1	27.1

* Other dimensions not indicated are the same as the basic style.



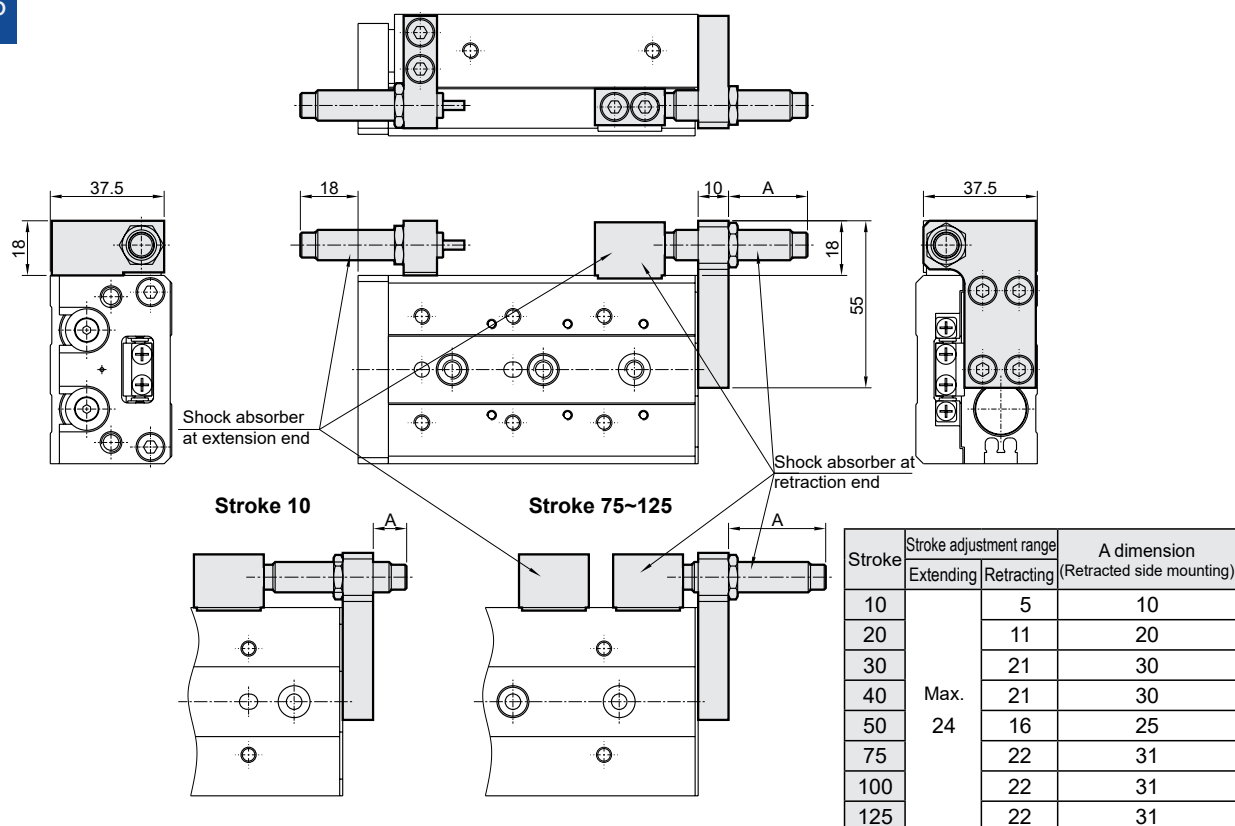


$\varnothing 12$

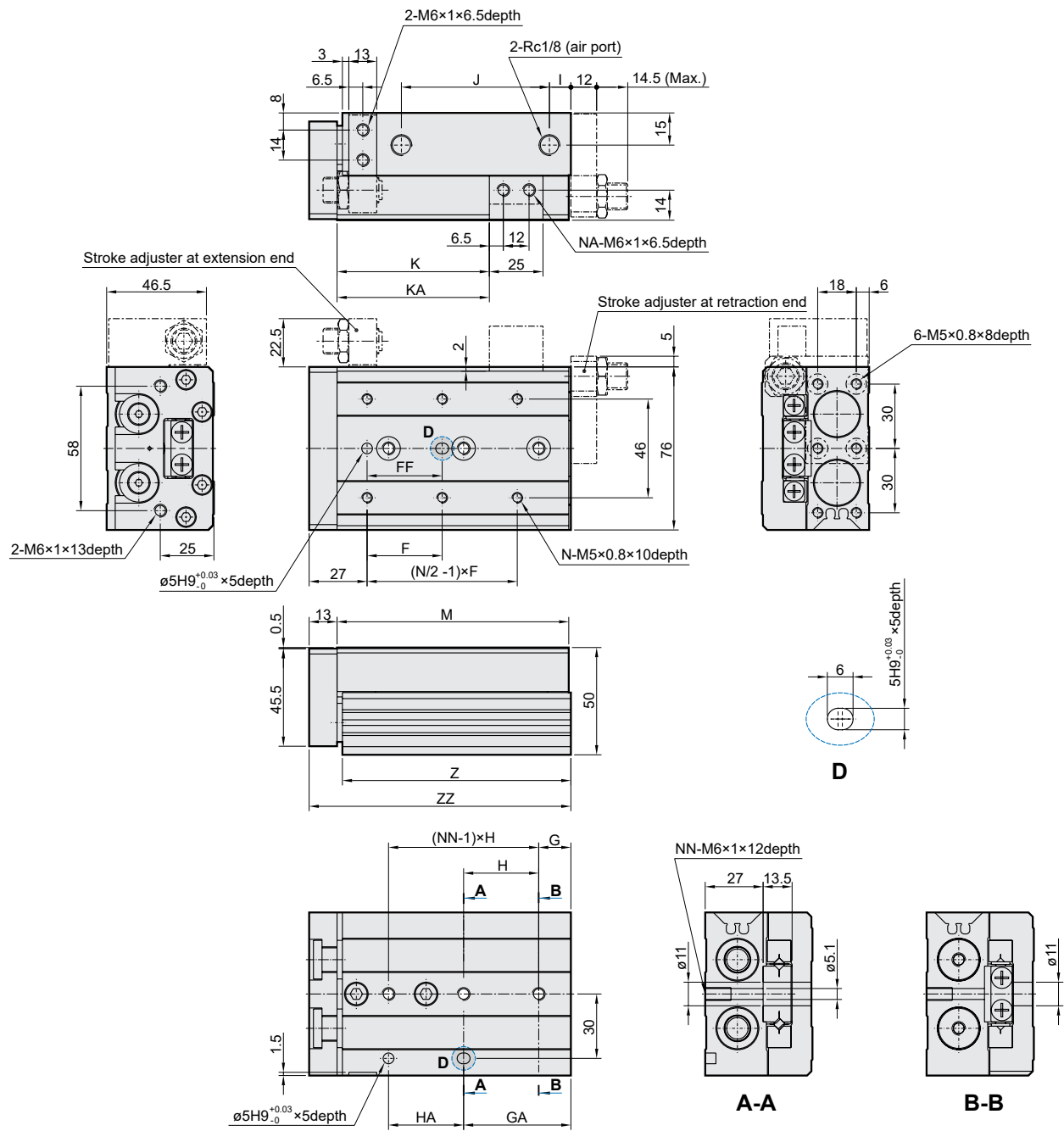


* Other dimensions not indicated are the same as the basic style.

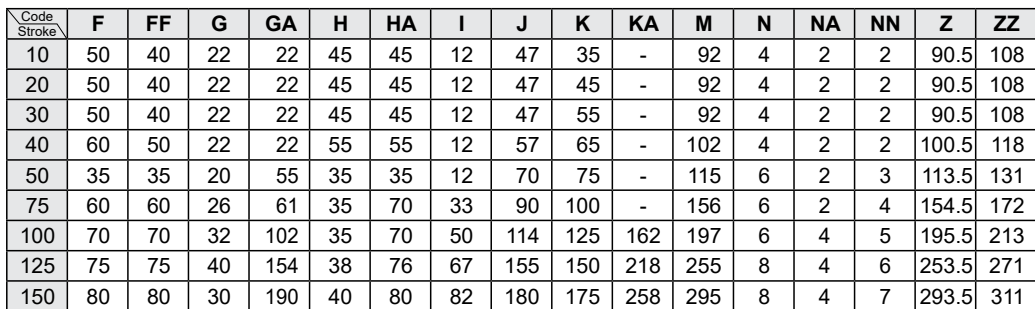
$\varnothing 16$



* Other dimensions not indicated are the same as the basic style.

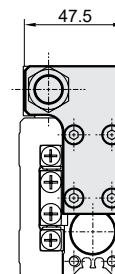
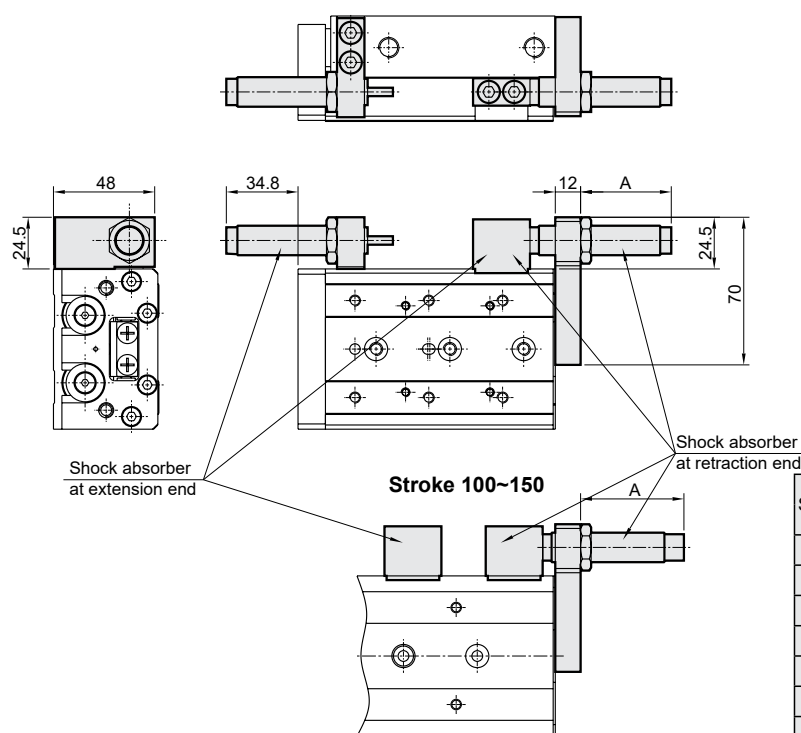


Code Stroke	F	FF	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	50	40	15	25	45	35	10	44	31	-	83	4	2	2	81.5	97
20	50	40	15	25	45	35	10	44	41	-	83	4	2	2	81.5	97
30	50	40	15	25	45	35	10	44	51	-	83	4	2	2	81.5	97
40	60	50	15	35	55	35	10	54	61	-	93	4	2	2	91.5	107
50	35	35	15	50	35	35	10	69	71	-	108	6	2	3	106.5	122
75	60	60	19	54	35	70	10	108	96	-	147	6	2	4	145.5	161
100	70	70	37	107	35	70	58	113	121	169	200	6	4	5	198.5	214
125	70	70	41	155	38	76	70	155	146	223	254	8	4	6	252.5	268
150	80	80	19	195	44	88	87	190	171	275	306	8	4	7	304.5	320



Dimensions – With shock absorber ø 20, ø 25

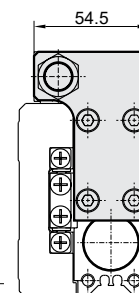
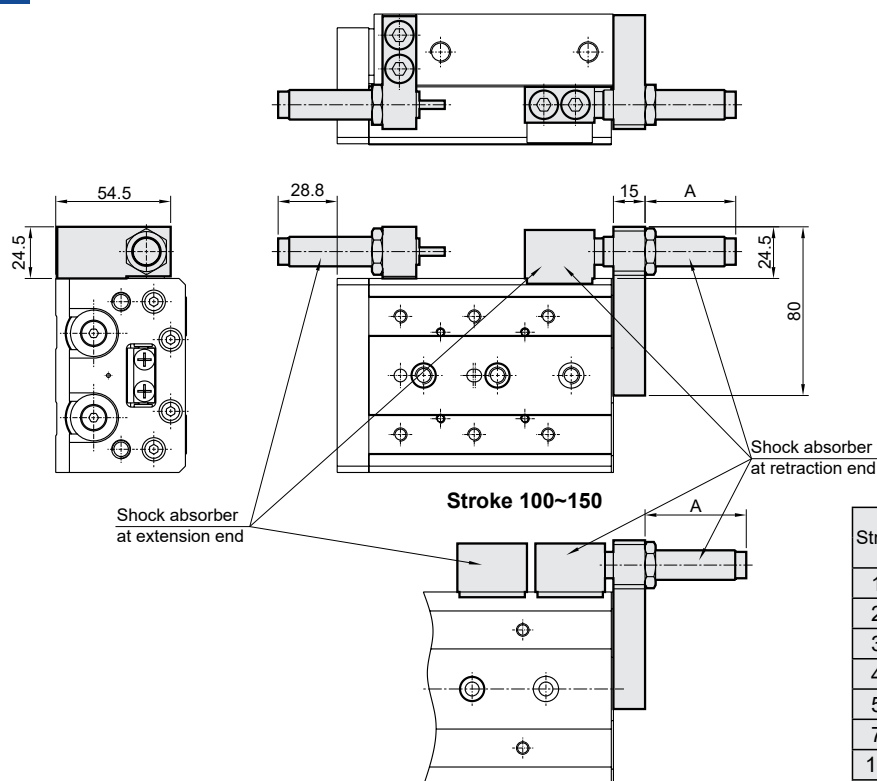
ø20



Stroke	Stroke adjustment range		A dimension (Retracted side mounting)
	Extending	Retracting	
10	Max. 40.3	15.8	28.8
20		25.8	38.8
30		35.8	48.8
40		35.8	48.8
50		30.8	43.8
75		16.8	29.8
100		36.8	49.8
125		36.8	49.8
150		36.8	49.8

* Other dimensions not indicated are the same as the basic style.

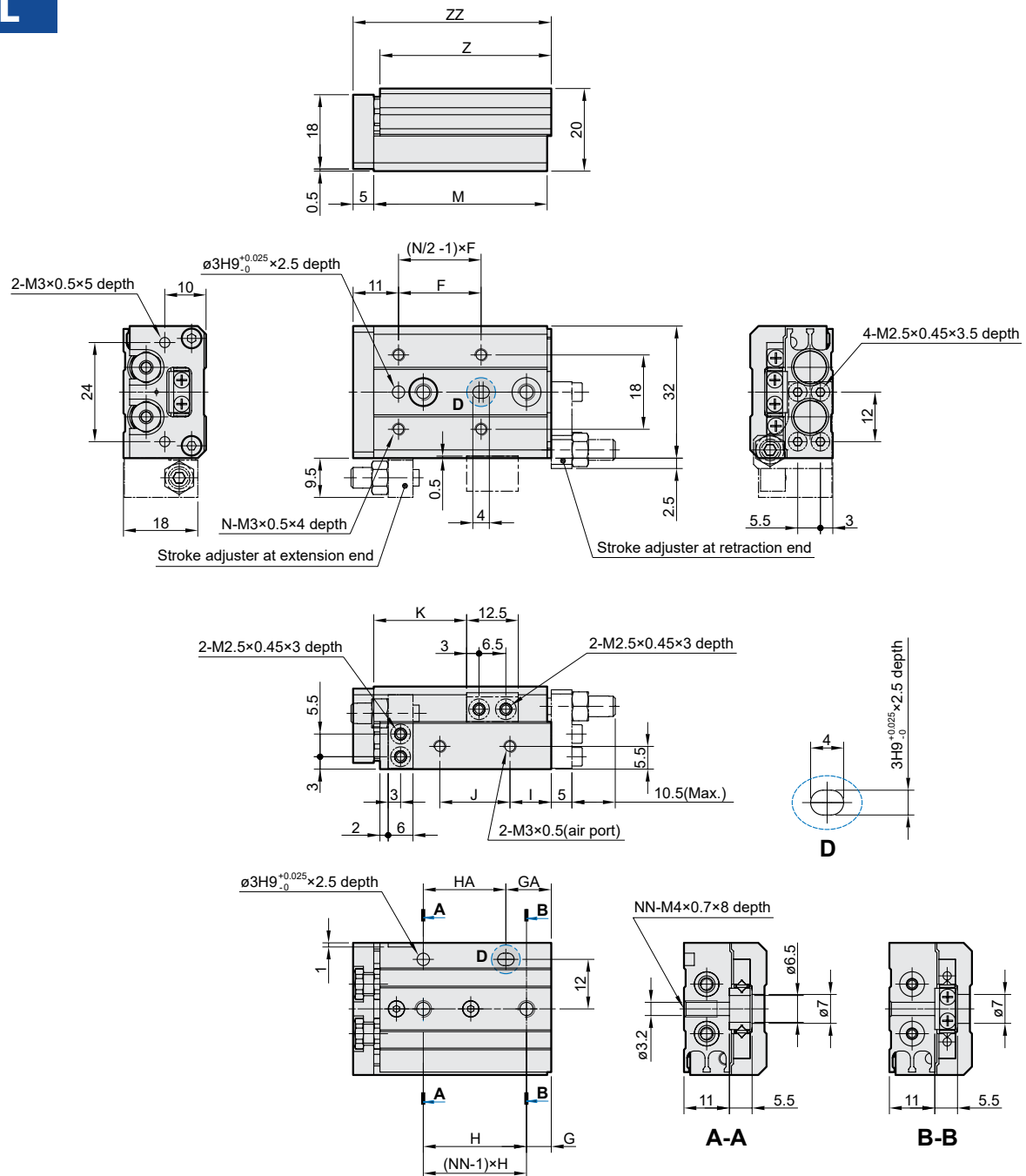
ø25



Stroke	Stroke adjustment range		A dimension (Retracted side mounting)
	Extending	Retracting	
10	Max. 36.3	12.8	26.8
20		22.8	36.8
30		32.8	46.8
40		32.8	46.8
50		29.8	43.8
75		13.8	27.8
100		34.8	48.8
125		32.8	46.8
150		32.8	46.8

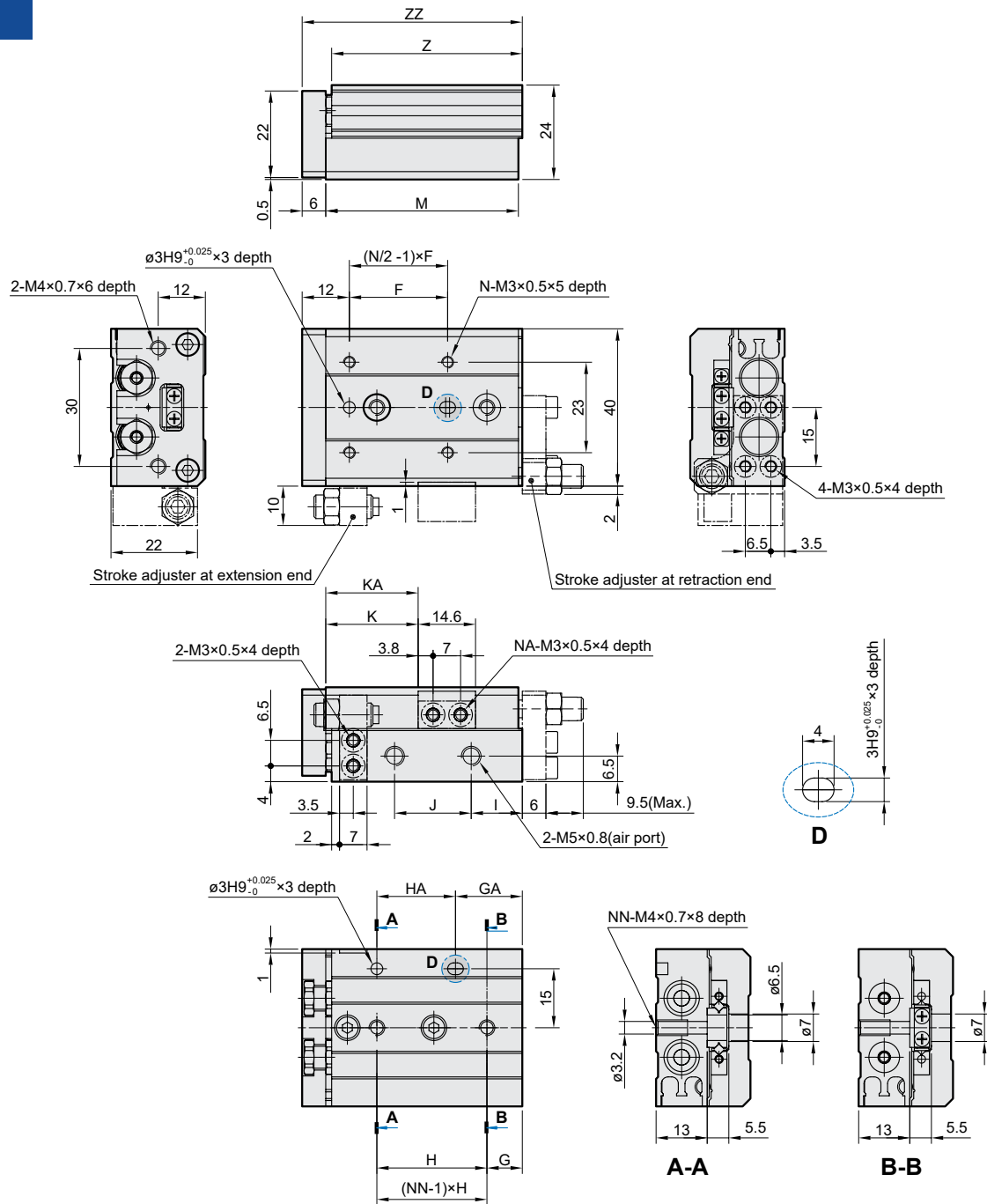
* Other dimensions not indicated are the same as the basic style.

L



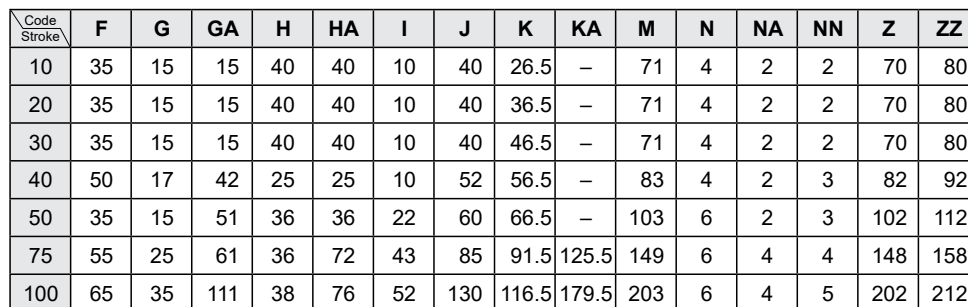
Code Stroke	F	G	GA	H	HA	I	J	K	M	N	NN	Z	ZZ
10	20	6	11	25	20	10	17	22.5	42	4	2	41.5	48
20	30	6	21	35	20	10	27	32.5	52	4	2	51.5	58
30	20	11	31	20	20	7	40	42.5	62	6	3	61.5	68
40	28	13	43	30	30	19	50	52.5	84	6	3	83.5	90
50	38	17	41	24	48	25	60	62.5	100	6	4	99.5	106

L

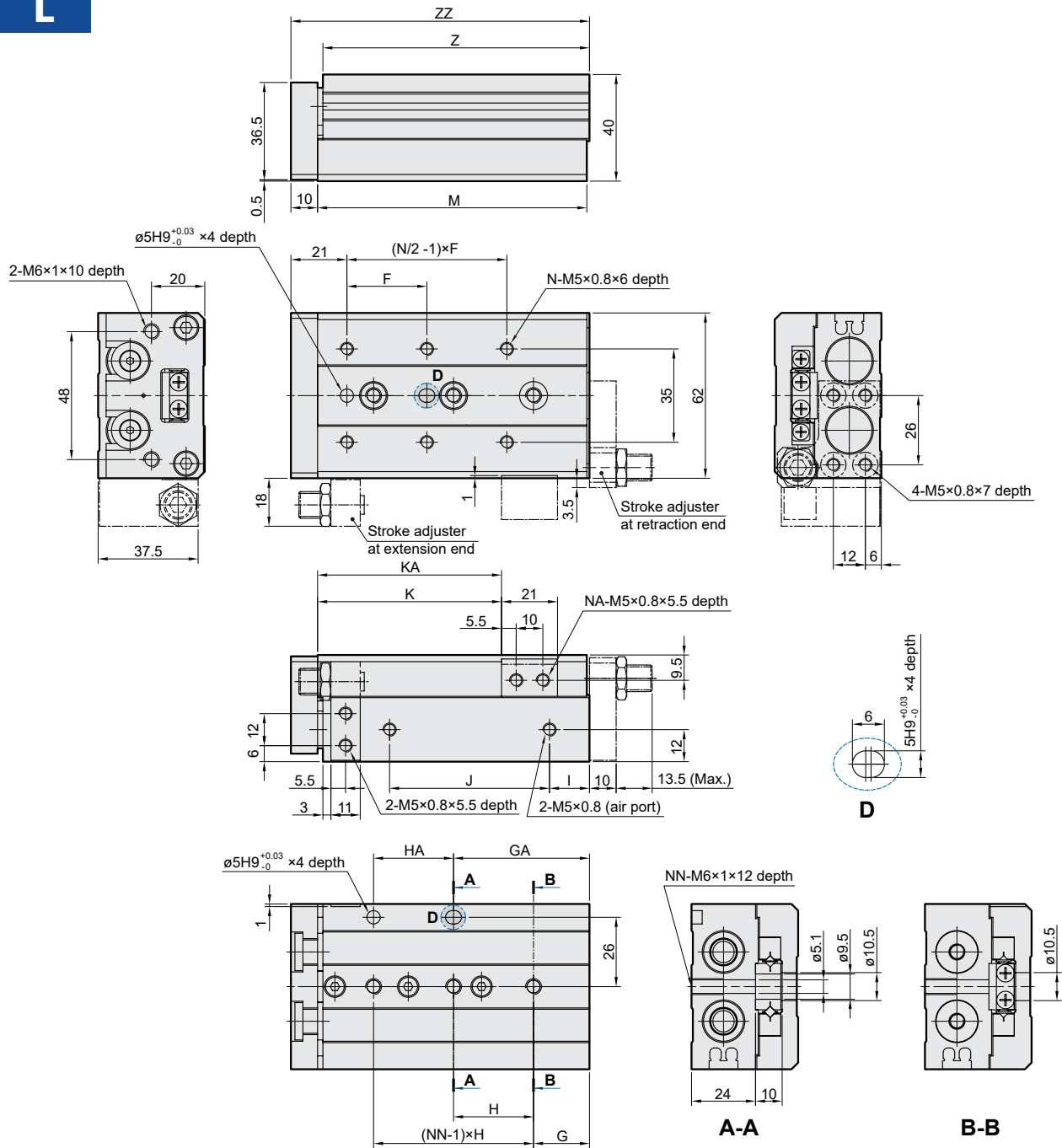


Code Stroke	F	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	25	9	17	28	20	13	19.5	23.5	—	49	4	2	2	48.5	56
20	25	12	12	30	30	8.5	29	33.5	—	54	4	2	2	53.5	61
30	40	13	33	20	20	9.5	39	43.5	—	65	4	2	3	64.5	72
40	50	15	43	28	28	10.5	56	53.5	—	83	4	2	3	82.5	90
50	38	20	43	23	46	24.5	60	63.5	82.5	101	6	4	4	100.5	108
75	50	27	83	28	56	38.5	96	88.5	132.5	151	6	4	5	150.5	158

L



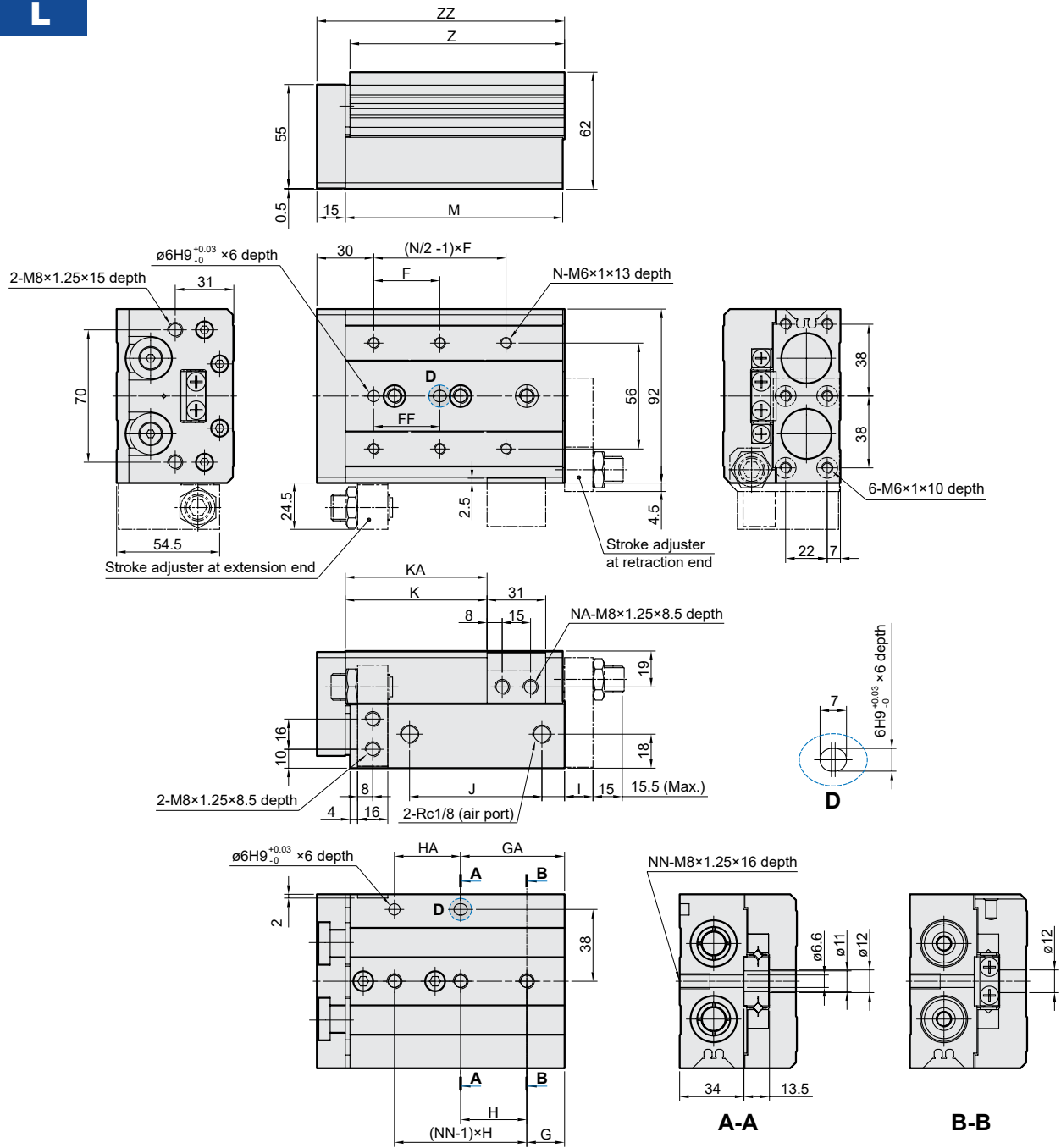
L



Code Stroke	F	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	35	16	16	40	40	10	40	29	—	76	4	2	2	75	87
20	35	16	16	40	40	10	40	39	—	76	4	2	2	75	87
30	35	16	16	40	40	10	40	49	—	76	4	2	2	75	87
40	40	16	16	50	50	10	50	59	—	86	4	2	2	85	97
50	30	21	51	30	30	15	60	69	—	101	6	2	3	100	112
75	55	26	61	35	70	40	85	94	125	151	6	4	4	150	162
100	65	39	109	35	70	55	118	119	173	199	6	4	5	198	210
125	70	19	159	35	70	68	155	144	223	249	8	4	7	248	260

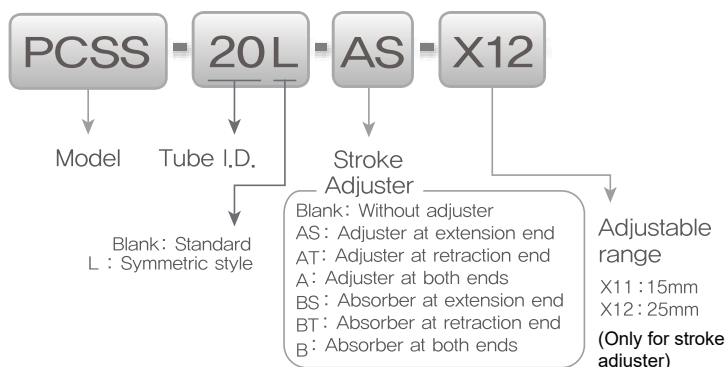
[illegible]35

L



Code Stroke	F	FF	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	50	40	22	22	45	45	12	47	35	—	92	4	2	2	90.5	108
20	50	40	22	22	45	45	12	47	45	—	92	4	2	2	90.5	108
30	50	40	22	22	45	45	12	47	55	—	92	4	2	2	90.5	108
40	60	50	22	22	55	55	12	57	65	—	102	4	2	2	100.5	118
50	35	35	20	55	35	35	12	70	75	—	115	6	2	3	113.5	131
75	60	60	26	61	35	70	33	90	100	—	156	6	2	4	154.5	172
100	70	70	32	102	35	70	50	114	125	162	197	6	4	5	195.5	213
125	75	75	40	154	38	76	67	155	150	218	255	8	4	6	253.5	271
150	80	80	30	190	40	80	82	180	175	258	295	8	4	7	293.5	311

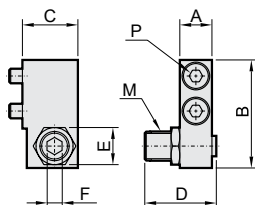
Order example of stroke adjuster



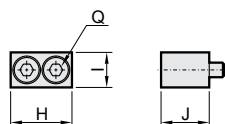
(adjustable range: 25mm) is not available for PCSS-6. and X12 are not available for shock absorber type.
* Shock absorber is not available on series PCSS-6.

Stroke adjuster at extension end

- Mounted to body



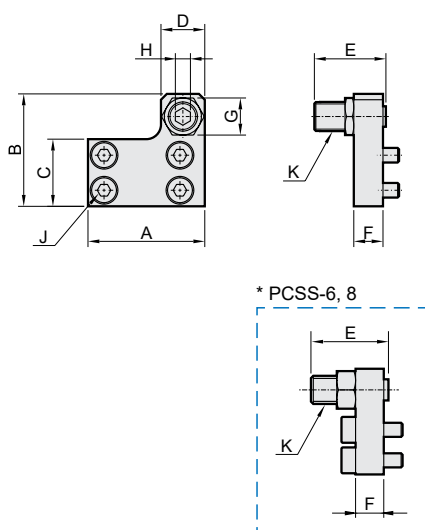
- Mounted to table



Tube I.D.	Order code	Adjustable stroke range (mm)	Mounted to body								Mounted to table			
			A	B	C	D	E	F	M	P*	H	I	J	Q*
6	PCSS-6-AS	5	6	17.8	10.5	16.5	7	2.5	M5×0.8	M2.5×10	12.5	6	8.5	M2.5×8
	PCSS-6-AS-X11	15				26.5								
8	PCSS-8-AS	5	7	21.5	11	16.5	8	3	M6×1	M3×10	14.6	7	10	M3×10
	PCSS-8-AS-X11	15				26.5								
	PCSS-8-AS-X12	25				36.5								
12	PCSS-12-AS	5	9.5	31	16	20	11	4	M8×1	M4×16	18.5	10	13	M4×12
	PCSS-12-AS-X11	15				30								
	PCSS-12-AS-X12	25				40								
16	PCSS-16-AS	5	11	37	19	24.5	14	5	M10×1	M5×16	21	12	16.5	M5×16
	PCSS-16-AS-X11	15				34.5								
	PCSS-16-AS-X12	25				44.5								
20	PCSS-20-AS	5	13	45.5	24	27.5	17	6	M12×1.25	M6×20	25	13	21	M6×20
	PCSS-20-AS-X11	15				37.5								
	PCSS-20-AS-X12	25				47.5								
25	PCSS-25-AS	5	16	53.5	26.5	32.5	19	6	M14×1.5	M8×25	31	17	25.5	M8×25
	PCSS-25-AS-X11	15				42.5								
	PCSS-25-AS-X12	25				52.5								

* Size of hexagon socket head cap screws.

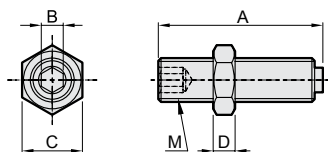
Stroke adjuster at retraction end



Tube I.D.	Order code	Adjustable stroke range (mm)	A	B	C	D	E	F	G	H	J*	K
6	PCSS-6-AT	5	21	19	10.5	8	16.5	5	7	2.5	M2.5×8	M5×0.8
	PCSS-6-AT-X11	15					26.5					
8	PCSS-8-AT	5	25	22.5	12.5	9	16.5	6	8	3	M3×10	M6×1
	PCSS-8-AT-X11	15					26.5					
	PCSS-8-AT-X12	25					36.5					
12	PCSS-12-AT	5	32	31	18.5	13	20	8	12	4	M4×8	M8×1
	PCSS-12-AT-X11	15					30					
	PCSS-12-AT-X12	25					40					
16	PCSS-16-AT	5	40	38.5	23	15	24.5	10	14	5	M5×10	M10×1
	PCSS-16-AT-X11	15					34.5					
	PCSS-16-AT-X12	25					44.5					
20	PCSS-20-AT	5	50	48	29	21	27.5	12	17	6	M5×12	M12×1.25
	PCSS-20-AT-X11	15					37.5					
	PCSS-20-AT-X12	25					47.5					
25	PCSS-25-AT	5	60	58	35	23	32.5	15	19	6	M6×16	M14×1.5
	PCSS-25-AT-X11	15					42.5					
	PCSS-25-AT-X12	25					52.5					

* Size of hexagon socket head cap screws.

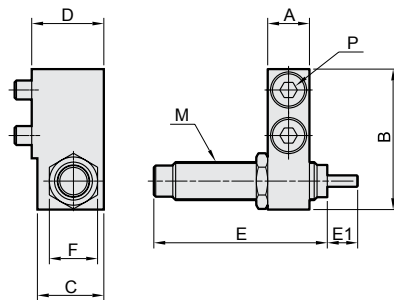
- Adjusting bolt



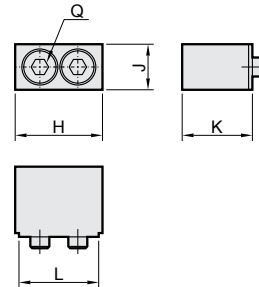
Tube I.D.	Order code	Adjustable stroke range (mm)	A	B	C	D	M
6	PCSS-6-A2	5	16.5	2.5	7	4	M5×0.8
	PCSS-6-A2-X11	15	26.5				
8	PCSS-8-A2	5	16.5	3	8	4	M6×1
	PCSS-8-A2-X11	15	26.5				
	PCSS-8-A2-X12	25	36.5				
12	PCSS-12-A2	5	20	4	11	4	M8×1
	PCSS-12-A2-X11	15	30				
	PCSS-12-A2-X12	25	40				
16	PCSS-16-A2	5	24.5	5	14	4	M10×1
	PCSS-16-A2-X11	15	34.5				
	PCSS-16-A2-X12	25	44.5				
20	PCSS-20-A2	5	27.5	6	17	5	M12×1.25
	PCSS-20-A2-X11	15	37.5				
	PCSS-20-A2-X12	25	47.5				
25	PCSS-25-A2	5	32.5	6	19	6	M14×1.5
	PCSS-25-A2-X11	15	42.5				
	PCSS-25-A2-X12	25	52.5				

Order example of stroke adjuster

- Mounted to body



- Mounted to table

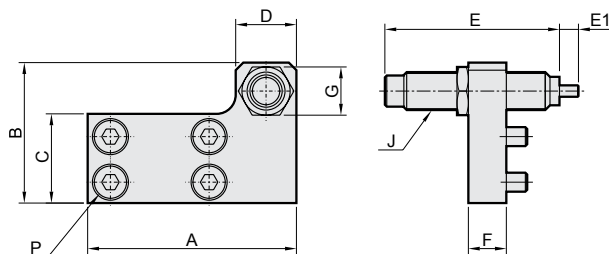


Tube I.D.	Order code	Mounted to body										Mounted to table				
		A	B	C	D	E	E1	F	M		P*	H	J	K	L	Q*
8	PCSS-8-BS	7	23	14	15.5	38.5	6	11	M8×1	PDSC-0806-3-N	M3×16	16.6	7	15.5	14.6	M3×16
12	PCSS-12-BS	9.5	31	14.5	16	38.5	6	11	M8×1	PDSC-0806-3-N	M4×16	20.5	10	15	18.5	M4×12
16	PCSS-16-BS	11	37	17.5	19	45.5	8	12.7	M10×1	PDSC-1008-3-N	M5×16	23	12	18.5	21	M5×16
20	PCSS-20-BS	13	45.5	23.5	26	67.5	12	19	M14×1.5	PDSC-1412-3-N	M6×25	27	13	25.5	25	M6×25
25	PCSS-25-BS	16	53.5	23.5	26.5	67.5	12	19	M14×1.5	PDSC-1412-3-N	M8×25	33	17	25.5	31	M8×25

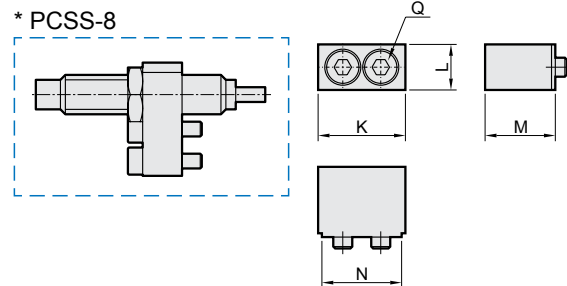
* Size of hexagon socket head cap screws.

Stroke adjuster at retraction end

- Mounted to body



- Mounted to table



Tube I.D.	Order code	Mounted to body											Mounted to table				
		A	B	C	D	E	E1	F	G	J		P*	K	L	M	N	Q*
8	PCSS-8-BT	38	23	12.5	14	38.5	6	8	12	M8×1	PDSC-0806-3-N	M3×12	16.6	7	15.5	14.6	M3×16
12	PCSS-12-BT	45	31	18	14	38.5	6	8	11	M8×1	PDSC-0806-3-N	M4×8	20.5	10	15	18.5	M4×12
16	PCSS-16-BT	55	37	23.5	16	45.5	8	10	12.7	M10×1	PDSC-1008-3-N	M5×10	23	12	18.5	21	M5×16
20	PCSS-20-BT	70	47	29	23	67.5	12	12	19	M14×1.5	PDSC-1412-3-N	M5×12	27	13	25.5	25	M6×25
25	PCSS-25-BT	80	54	35	23	67.5	12	15	19	M14×1.5	PDSC-1412-3-N	M6×16	33	17	25.5	31	M8×25

* Size of hexagon socket head cap screws.



Features

Multi-ports as standard enabling both direction mounting.

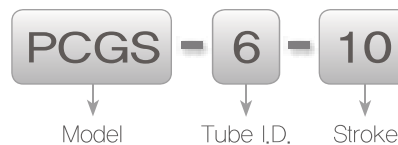
Non-rotating accuracy $\pm 0.1^\circ$

Embedding type sensors.

The sensor cable will be in the same direction as the piping tube if vertical type sensor switch (Angle cable) is used.

Magnetic as standard

Order form (Example)



Specification

Model	PCGS	
Acting type	Double acting	
Tube I.D. (mm)	6	10
Stroke (mm)	5, 10, 15	5, 10, 15, 20
Port size	M3x0.5	
Medium	Air	
Max. operating pressure	0.7 MPa	
Min. operating pressure	0.15 MPa	
Proof pressure	1 MPa	
Lubrication	Not required	
Ambient temperature	-5~+60° C (No freezing)	
Available speed range	50~400 mm/sec	
Sensor switch(*)	RDGV	

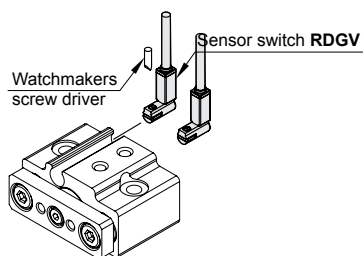
* This product is not applicable for stopper purpose

Cylinder weight

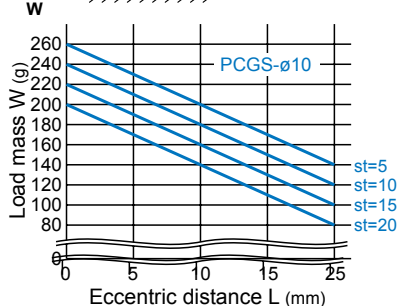
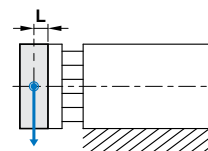
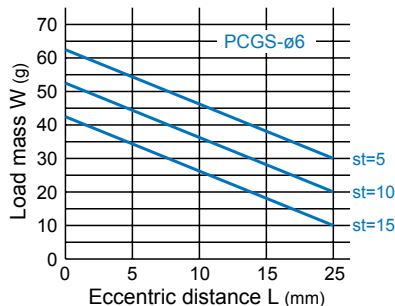
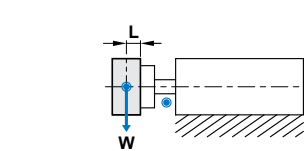
Unit: g

Tube I.D.	Stroke (mm)			
	5	10	15	20
ø6	29	34	39	—
ø10	41	49	57	65

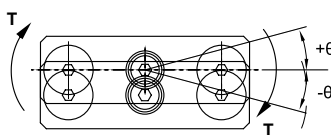
Installation of sensor switch



Allowable lateral load



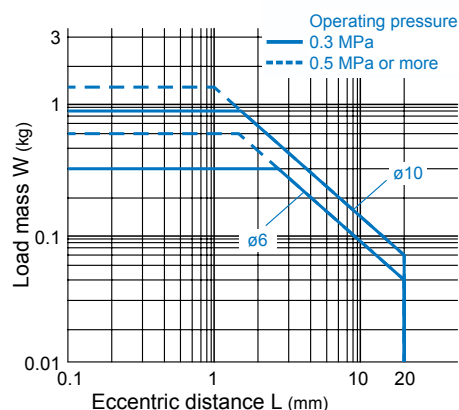
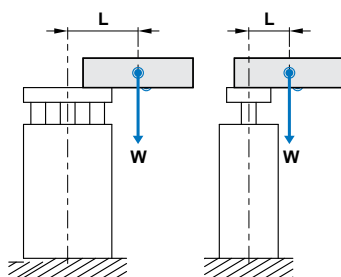
Allowable rotational torque & Non-rotating accuracy



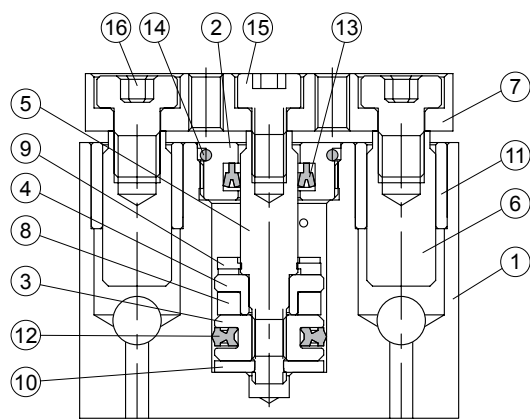
Unit: N.m

Tube I.D.	Stroke (mm)				Non-rotating accuracy θ
	5	10	15	20	
ø6	0.9	0.7	0.6	—	$\pm 0.15^\circ$
ø10	4.7	3.9	3.3	2.8	

Allowable eccentric load



Inside structure & Parts list



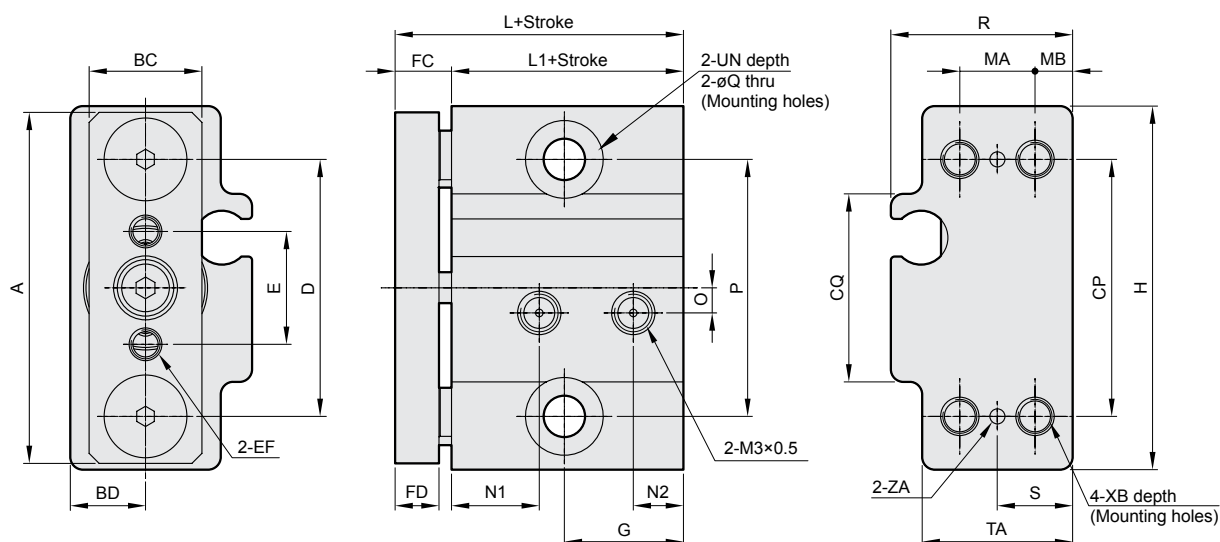
Order example of repair kits

Tube I.D.	Repair kits
ø6	PS-PCGS-6
ø10	PS-PCGS-10

Material

No.	Part name	Material	Q'ty	Repair kits (inclusion)
1	Body	Aluminum alloy	1	
2	Rod cover	Aluminum alloy	1	
3	Piston- H	Aluminum alloy	1	
4	Piston- R	Aluminum alloy	1	
5	Piston rod	Stainless steel	1	
6	Guide rod	Carbon steel	2	
7	Plate	Aluminum alloy	1	
8	Magnet ring	Magnet material	1	
9	Cushion	NBR	1	●
10	Cushion	NBR	1	●
11	Bush	Copper	2	
12	Piston seal	NBR	1	●
13	Rod seal	NBR	1	●
14	O ring	NBR	1	●
15	Screw	Carbon steel	1	
16	Screw	Carbon steel	2	

Dimensions



Code Tube I.D.	A	BC	BD	CP	CQ	D	E	EF	FC	FD	G	H	L	L1	MA	MB	N1	N2
6	28	9	6	20.5	15	20.5	9	M2.5×0.45 thru	4.5	3.5	9.5	29	23	18.5	6	3	7	4
10	32	10	7.5	23	17.5	23	11	M3×0.5 thru	6	5	8.5	33	25	19	8	3.5	7	4.5

Code Tube I.D.	O	P	Q	R	S	TA	UN	XB	ZA
6	2	20.5	3.3	14.5	6	12	ø6.2×0.5	M3×0.5×5	ø1.2
10	3	23	4.3	17	7.5	15	ø8×0.5	M4×0.7×5	ø2



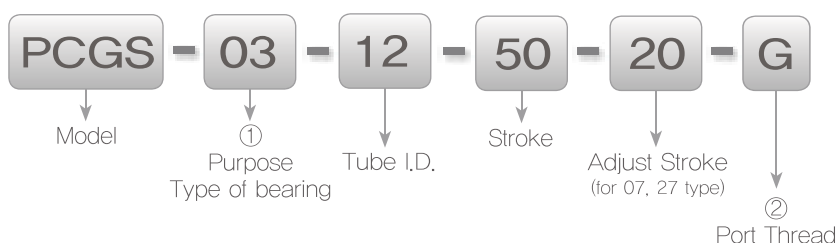
Features

Proven track record in manufacturing precision guided cylinders.
Multi-Ports as standard enabling two direction mounting option.
Flush fitting sensors.
Inbuilt high density rubber pad absorbs energy at the end of stroke.
Magnetic as standard

Specification

Model	PCGS		
Acting type	Double acting		
Tube I.D. (mm)	12,16	20,25,32,40	50,63
Port size	M5×0.8	Rc1/8	Rc1/4
Medium	Air		
Operating pressure range	0.1~1 MPa		
Proof pressure	1.5 MPa		
Ambient temperature	-5~+60° C (No freezing)		
Cushion	With rubber cushion pad		
Available speed range	50~500 mm/sec		
Lubrication	Not required		
Sensor switch	RCE, RCE1, RDEP		

Order form (Example)



① Purpose / Type of bearing

Code	Purpose / Type of bearing
03	Stop / Slide bush
07	Stop / Slide bush / Stroke adjustable
23	Push / Linear bearing (Could attach a table for the use as a lifter)
27	Push / Linear bearing / Stroke adjustable (Could attach a table for the use as a lifter)

① Port Thread

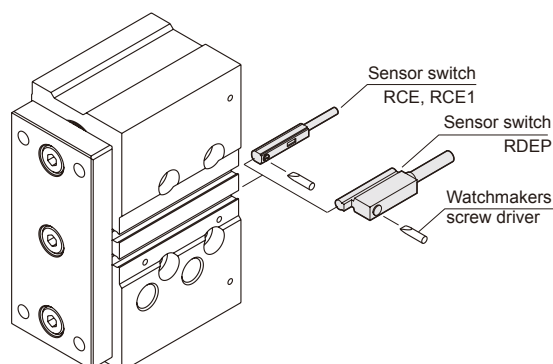
Blank	M5x0.8 (for ø12, ø16)
Blank	Rc thread
G	G thread
NPT	NPT thread (for ø12, ø16)

Table for standard stroke

Series variety (Bearing type)	Tube I.D.	Stroke (mm)															
		10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400
PCGS-03 PCGS-07 (Slide bush)	ø12																
	ø16																
	ø20																
	ø25																
	ø32*																
	ø40																
	ø50																
PCGS-23 PCGS-27 (Linear bearing)	ø12																
	ø16																
	ø20																
	ø25																
	ø32*																
	ø40																
	ø50																
	ø63																

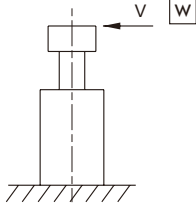
* Tube I.D. ø32: 25mm for the shortest standard stroke.

Installation of sensor switch

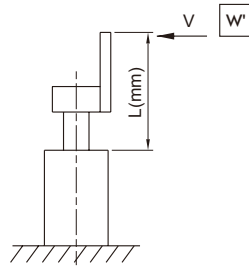


Capacity graph

Capacity for the use as a stopper



Linear bearing type is not available as a stopper.



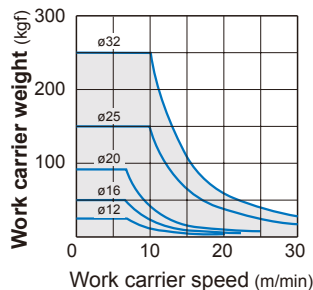
$$W = W' \times \frac{L}{\ell}$$

For the use of attaching a plate to the link bar, choose a bore size referring to the formula below.

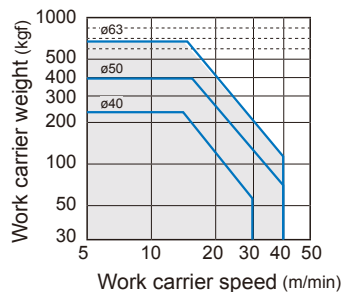
W: The maximum weight of the work carrier in the above graph for the stopper's capacity.

Stop capacity

PCGS-03/07 ...30st ø12~ø32

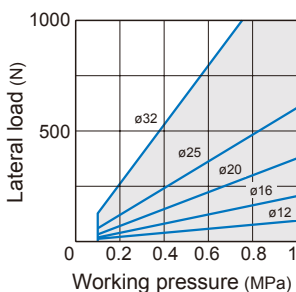


PCGS-03/07 ...25st ø40~ø63



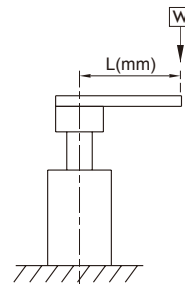
Normal lateral load

PCGS-03/07 ...30st



Coefficients for conversion

Tube I.D.	ℓ
ø12	40
ø16	42
ø20	42
ø25	42
ø32	44
ø40	72
ø50	78
ø63	78



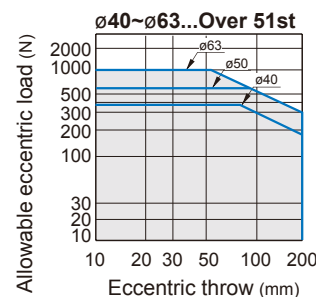
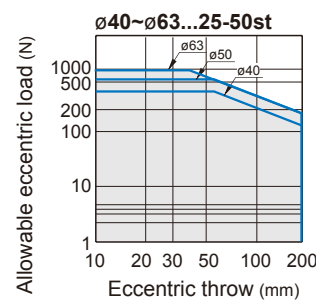
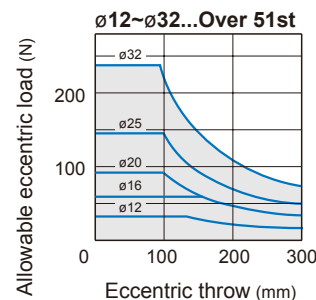
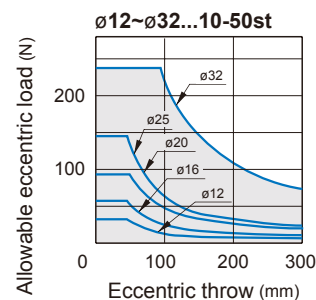
Capacity for the use as a lifter

Allowable eccentricity load for the use as a lifter (at supply pressure 0.5 MPa)

Show the dynamic allowable value at L(mm) eccentricity from the center of the guide rod.

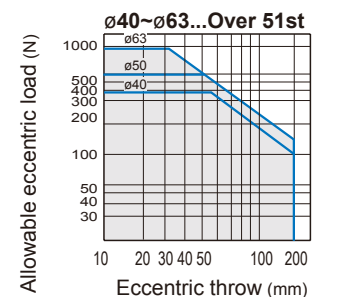
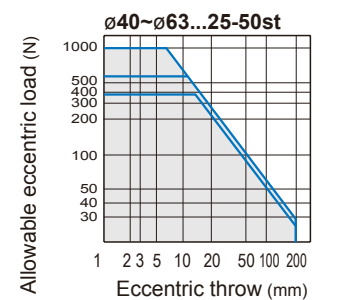
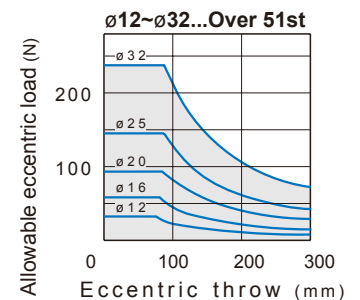
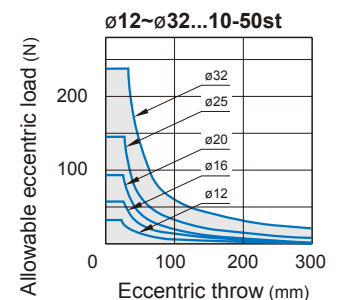
Slide bush

PCGS-03/07

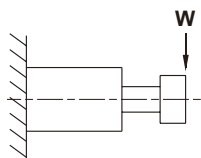


Linear bearing

PCGS-23/27



Capacity table Allowable lateral load

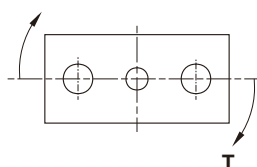


Shows the dynamic allowable value, when actuating the cylinder with lateral load W at the guide rods' top (vertical load against the guide rods).

Unit: N

Tube I.D.	Bearing type	Stroke (mm)															
		10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400
$\phi 12$	Slide bush	31	24	—	19	16	13	37	31	15	13	12	10	9	—	—	—
	Linear bearing	23	17	—	14	34	30	23	19	12	11	9	8	6	—	—	—
$\phi 16$	Slide bush	50	39	—	32	27	24	54	45	27	24	21	19	16	—	—	—
	Linear bearing	36	29	—	24	59	52	40	33	20	17	15	13	10	—	—	—
$\phi 20$	Slide bush	—	51	—	44	39	35	54	46	74	66	59	54	28	24	21	19
	Linear bearing	—	43	—	36	98	87	69	57	46	40	36	32	32	27	23	20
$\phi 25$	Slide bush	—	68	—	59	52	46	72	61	98	88	79	72	53	46	41	37
	Linear bearing	—	67	—	56	148	132	105	87	70	62	55	50	42	36	30	27
$\phi 32$	Slide bush	—	—	165	—	—	129	106	90	138	123	111	101	88	77	68	61
	Linear bearing	—	—	104	—	—	74	165	138	114	100	90	81	66	56	48	42
$\phi 40$	Slide bush	—	—	203	—	—	164	182	159	142	127	190	174	150	132	118	106
	Linear bearing	—	—	113	—	—	78	129	106	130	114	106	95	78	67	58	50
$\phi 50$	Slide bush	—	—	296	—	—	245	273	241	216	195	190	174	150	132	118	106
	Linear bearing	—	—	120	—	—	83	178	148	148	129	106	95	78	67	58	50
$\phi 63$	Slide bush	—	—	296	—	—	245	273	241	216	195	—	—	—	—	—	—
	Linear bearing	—	—	117	—	—	81	176	145	145	126	—	—	—	—	—	—

Allowable rotating torque

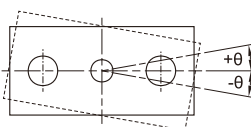


Shows the dynamic allowable value, when actuating the cylinder with a rotating torque T at the guide rods' top.

Unit: N.m

Tube I.D.	Bearing type	Stroke (mm)															
		10	20	25	30	40	50	75	100	125	150	175	200	250	300	350	400
$\phi 12$	Slide bush	0.64	0.48	—	0.39	0.32	0.28	0.75	0.63	0.15	0.13	0.12	0.11	0.09	—	—	—
	Linear bearing	0.47	0.35	—	0.29	0.71	0.62	0.40	0.38	0.13	0.11	0.09	0.08	0.07	—	—	—
$\phi 16$	Slide bush	1.14	0.90	—	0.74	0.63	0.55	1.23	1.04	0.31	0.27	0.24	0.22	0.18	—	—	—
	Linear bearing	0.84	0.66	—	0.54	1.35	1.19	0.93	1.76	0.23	0.19	0.17	0.15	0.12	—	—	—
$\phi 20$	Slide bush	—	1.14	—	1.21	1.07	0.95	1.49	1.25	2.03	1.81	1.63	1.48	0.37	0.32	0.29	0.26
	Linear bearing	—	1.19	—	0.99	2.69	2.40	1.89	1.56	1.26	1.10	0.98	0.88	0.43	0.36	0.31	0.27
$\phi 25$	Slide bush	—	2.19	—	1.88	1.65	1.47	2.31	1.94	3.15	2.80	2.52	2.30	0.85	0.74	0.66	0.59
	Linear bearing	—	2.14	—	1.79	4.74	4.22	3.36	2.78	2.25	1.98	1.76	1.59	0.68	0.57	0.49	0.42
$\phi 32$	Slide bush	—	—	6.61	—	—	5.16	4.23	3.59	5.52	4.93	4.45	4.06	1.72	1.50	1.33	1.20
	Linear bearing	—	—	4.17	—	—	2.95	6.60	5.52	4.56	4.02	3.59	3.24	1.29	1.09	0.94	0.82
$\phi 40$	Slide bush	—	—	7.00	—	—	5.66	6.27	5.48	4.87	4.38	5.21	4.79	4.13	3.63	3.23	2.92
	Linear bearing	—	—	5.24	—	—	4.25	7.19	6.33	7.81	7.11	2.93	2.61	2.16	1.83	1.58	1.39
$\phi 50$	Slide bush	—	—	13.0	—	—	10.8	12.0	10.6	9.50	8.60	5.88	5.41	4.66	4.09	3.65	3.29
	Linear bearing	—	—	7.02	—	—	5.76	12.3	10.9	11.2	10.2	3.30	2.94	2.43	2.06	1.78	1.57
$\phi 63$	Slide bush	—	—	14.7	—	—	12.1	13.5	12.0	10.7	9.69	—	—	—	—	—	—
	Linear bearing	—	—	7.77	—	—	3.35	13.7	12.2	12.5	11.4	—	—	—	—	—	—

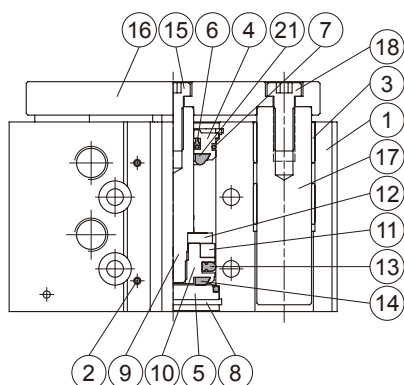
Anti-roll accuracy



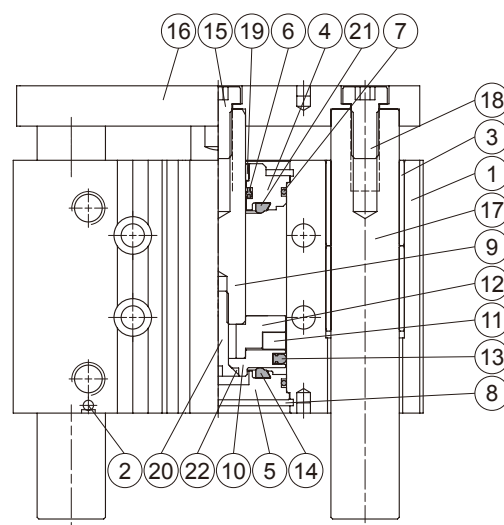
- The values are the deflection angle against the piston rod.
- Exclusive factor of the guide rod's deflection.

Tube I.D.	Bearing type	Anti-roll accuracy	
		θ	
$\phi 12$	Slide bush	$\pm 0.09^\circ$	
	Linear bearing	$\pm 0.06^\circ$	
$\phi 16$	Slide bush	$\pm 0.08^\circ$	
	Linear bearing	$\pm 0.06^\circ$	
$\phi 20$	Slide bush	$\pm 0.08^\circ$	
	Linear bearing	$\pm 0.03^\circ$	
$\phi 25$	Slide bush	$\pm 0.07^\circ$	
	Linear bearing	$\pm 0.05^\circ$	
$\phi 32$	Slide bush	$\pm 0.07^\circ$	
	Linear bearing	$\pm 0.03^\circ$	
$\phi 40$	Slide bush	$\pm 0.06^\circ$	
	Linear bearing	$\pm 0.08^\circ$	
$\phi 50$	Slide bush	$\pm 0.05^\circ$	
	Linear bearing	$\pm 0.06^\circ$	
$\phi 63$	Slide bush	$\pm 0.05^\circ$	
	Linear bearing	$\pm 0.06^\circ$	

ø12~ø32



ø40~ø63



Material

No.	Tube I.D. Part name	12	16	20	25	32	40	50	63	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy								1	
2	Ball	Stainless steel								1	
3	Slide bush	Bronze alloy						Bearing alloy		4	
4	Rod cover	Aluminum alloy								1	
5	Head cover	(*)	Carbon steel				Aluminum alloy			1	
6	Rod packing	NBR								1	●
7	Cover ring	NBR								2	●
8	Snap ring	Spring steel								2	
9	Piston rod	Stainless steel			Carbon steel					1	
10	Piston	Aluminum alloy								1	
11	Magnet ring	Magnet material								1	
12	Magnet holder	Stainless steel					Aluminum alloy			1	
13	Piston packing	NBR								1	●
14	Head cushion	NBR								1	●
15	Bolt	SCM								1	
16	Plate	Carbon steel								1	
17	Guide rod	Carbon steel								2	
18	Screw	SCM								2	
19	Rod bush	—					Bearing alloy			1	
20	Piston bolt	—					SCM			1	
21	Rod cushion	NBR								1	●
22	Piston gasket	—					NBR			1	●

* Aluminum alloy

Order example of repair kits

Tube I.D.	Repair kits
ø 12	PS-PCGS-12
ø 16	PS-PCGS-16
ø 20	PS-PCGS-20
ø 25	PS-PCGS-25
ø 32	PS-PCGS-32
ø 40	PS-PCGS-40
ø 50	PS-PCGS-50
ø 63	PS-PCGS-63

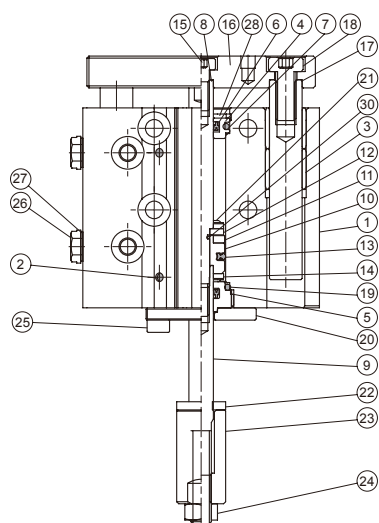
Cylinder weight

Unit: g

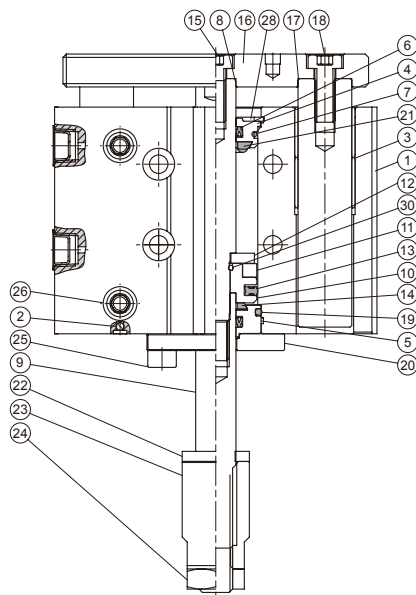
Model	Basic weight PCGS-03	Stroke 5mm PCGS-03
Tube I.D.		
ø 12	191	21
ø 16	283	28
ø 20	450	45
ø 25	670	63
ø 32	1,210	90
ø 40	1,474	88
ø 50	2,540	140
ø 63	3,295	151

PCGS-07 Inside structure & Parts list

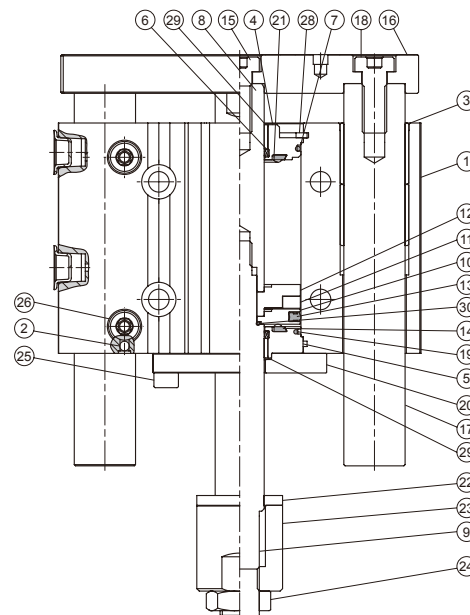
ø12~ø16



ø20~ø32



ø40~ø63



Material

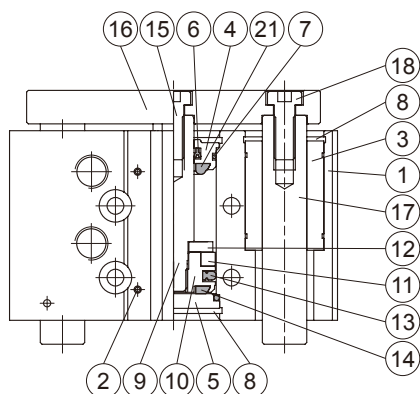
No.	Tube I.D.	12	16	20	25	32	40	50	63	Q'y	Repair kits (inclusion)
	Part name										
1	Body	Aluminum alloy								1	
2	Ball	Stainless steel								1~3	
3	Slide bush	Bronze alloy						Bearing alloy		4	
4	Rod cover #1	Aluminum alloy								1	
5	Rod cover #2	Aluminum alloy								1	
6	Rod packing	NBR								2	●
7	Cover ring #1	NBR								1	●
8	Piston rod #1	Stainless steel			Carbon steel				1		
9	Piston rod #2	Stainless steel			Carbon steel				1		
10	Piston	Aluminum alloy								1	
11	Magnet ring	Magnet material								1	
12	Magnet holder	Stainless steel					Aluminum alloy			1	
13	Piston packing	NBR								1	●
14	Head cushion	NBR								1	●
15	Bolt	SCM								1	
16	Plate	Carbon steel								1	
17	Guide rod	Carbon steel								2	
18	Bolt	SCM								2	
19	Cover ring #2	NBR								1	●
20	FBC board	Carbon steel								1	
21	Rod cushion	NBR								1	●
22	Gasket	PU								1	
23	Adjustable nut	Carbon steel								1	
24	Nut	Carbon steel								1	
25	Bolt	Stainless steel			SCM				2		
26	Screw	Bronze alloy			Carbon steel (*)				2		
27	Washer	PET			—				2		
28	Snap ring	Spring steel								1	
29	Bush	—					Bearing alloy			2	
30	Piston gasket	NBR								1	●

Order example of repair kits

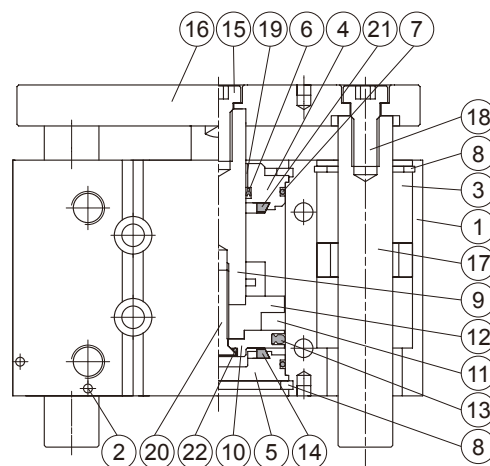
Tube I.D.	Repair kits
ø 12	PS-PCGS-2-12
ø 16	PS-PCGS-2-16
ø 20	PS-PCGS-2-20
ø 25	PS-PCGS-2-25
ø 32	PS-PCGS-2-32
ø 40	PS-PCGS-2-40
ø 50	PS-PCGS-2-50
ø 63	PS-PCGS-2-63

* The material changes into bronze alloy when the part thread is BSPF. (JISPF)

ø20~ø32



ø40~ø63



Material

No.	Tube I.D. Part name	12	16	20	25	32	40	50	63	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy								1	
2	Ball	Stainless steel								1	
3	Linear bearing	—								2 or 4	
4	Rod cover	Aluminum alloy								1	
5	Head cover	(*)	Carbon steel				Aluminum alloy		1		
6	Rod packing	NBR								1	●
7	Cover ring	NBR								2	●
8	Snap ring	Spring steel								2	
9	Piston rod	Stainless steel			Carbon steel					1	
10	Piston	Aluminum alloy								1	
11	Magnet ring	Magnet material								1	
12	Magnet holder	Stainless steel				Aluminum alloy				1	
13	Piston packing	NBR								1	●
14	Head cushion	NBR								1	●
15	Bolt	SCM								1	
16	Plate	Carbon steel								1	
17	Guide rod	Special steel								2	
18	Screw	SCM								2	
19	Rod bush	—				Bearing alloy				1	
20	Piston bolt	—				SCM				1	
21	Rod cushion	NBR								1	●
22	Piston gasket	—				NBR				1	●

* Aluminum alloy

Order example of repair kits

Tube I.D.	Repair kits
ø 12	PS-PCGS-12
ø 16	PS-PCGS-16
ø 20	PS-PCGS-20
ø 25	PS-PCGS-25
ø 32	PS-PCGS-32
ø 40	PS-PCGS-40
ø 50	PS-PCGS-50
ø 63	PS-PCGS-63

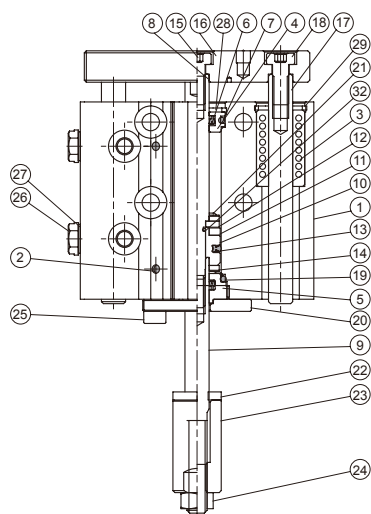
Cylinder weight

Unit: g

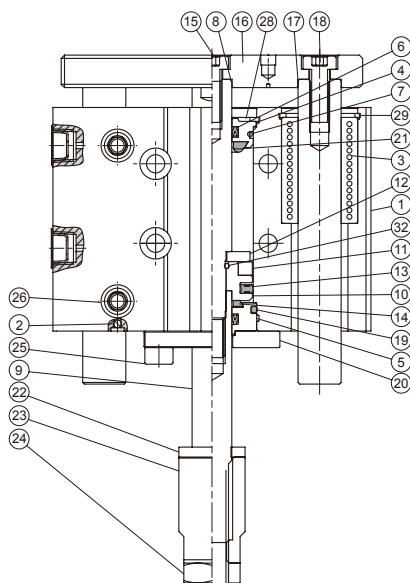
Model	Basic weight PCGS-23	Stroke 5mm PCGS-23
Tube I.D.		
ø 12	211	18
ø 16	260	30
ø 20	470	45
ø 25	740	60
ø 32	1,170	85
ø 40	1,300	98
ø 50	2,360	150
ø 63	3,010	168

PCGS-27 Inside structure & Parts list

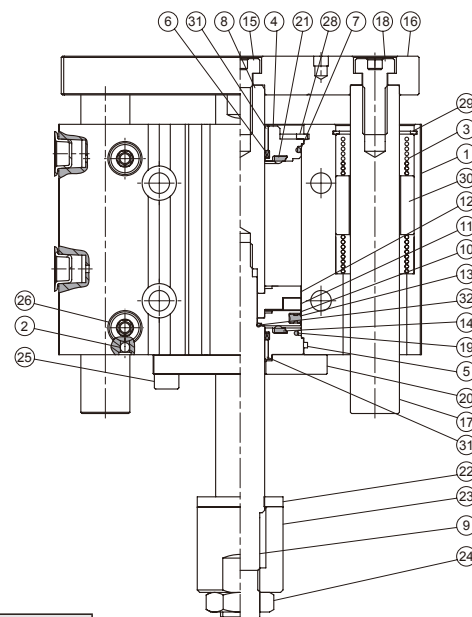
ø12~ø16



ø20~ø32



ø40~ø63



Material

No.	Tube I.D. Part name	12	16	20	25	32	40	50	63	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy								1	
2	Ball	Stainless steel								1~3	
3	Linear bearing	—								2 or 4	
4	Rod cover #1	Aluminum alloy								1	
5	Rod cover #2	Aluminum alloy								1	
6	Rod packing	NBR								2	●
7	Cover ring #1	NBR								1	●
8	Piston rod #1	Stainless steel			Carbon steel			1			
9	Piston rod #2	Stainless steel			Carbon steel			1			
10	Piston	Aluminum alloy								1	
11	Magnet ring	Magnet material								1	
12	Magnet holder	Stainless steel				Aluminum alloy				1	
13	Piston packing	NBR								1	●
14	Head cushion	NBR								1	●
15	Bolt	SCM								1	
16	Plate	Carbon steel								1	
17	Guide rod	Special steel								2	
18	Bolt	SCM								2	
19	Cover ring #2	NBR								1	●
20	FBC board	Carbon steel								1	
21	Rod cushion	NBR								1	●
22	Gasket	PU								1	
23	Adjustable nut	Carbon steel								1	
24	Nut	Carbon steel								1	
25	Bolt	Stainless steel		SCM				2			
26	Screw	Bronze alloy		Carbon steel (*2)				2			
27	Washer	PET		—				2			
28	Snap ring #1	Spring steel								1	
29	Snap ring #2	Spring steel								2	
30	Collar (*1)	Aluminum alloy		Carbon steel				2			
31	Bush	—				Bearing alloy				2	
32	Piston gasket	NBR								1	●

Order example of repair kits

Tube I.D.	Repair kits
ø 12	PS-PCGS-2-12
ø 16	PS-PCGS-2-16
ø 20	PS-PCGS-2-20
ø 25	PS-PCGS-2-25
ø 32	PS-PCGS-2-32
ø 40	PS-PCGS-2-40
ø 50	PS-PCGS-2-50
ø 63	PS-PCGS-2-63

*1. Use for stroke 101 or more.

*2. The material changes into bronze alloy when the part thread is BSPF. (JISPF)



Code	WA					WB				
Tube I.D.	25~49st	50~100st	125~200st	201st~300st	301st~	25~49st	50~100st	125~200st	201~300st	301st~
32	24	48	124	200	300	33	45	83	121	171

*1. When stroke length is equal to 19mm or less, GB=7.5 mm

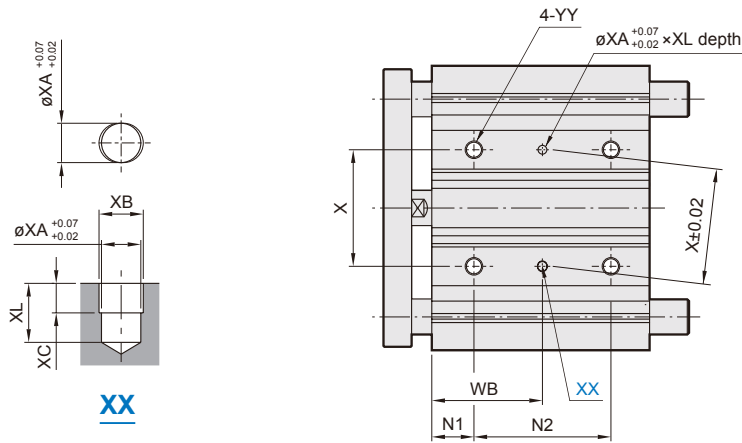
*2. When stroke length is equal to 19mm or less, GB=9 mm

PCGS-03

Code Tube I.D.	E		
	10~50sf	51~100sf	101sf~
12	—	18,5	43
16	—	18,5	49
	10~50sf	51~200sf	201sf~
20	—	31,5	69
25	—	31,5	68,5
32	37,5	42,5	80,5

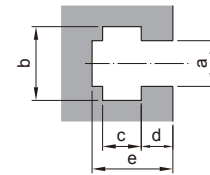
PCGS-23

Code Tube I.D.	E			
	10~30s	31~100s	101s~	
12	1	13	43	
16	3	19	49	
	20~30s	31~100s	101~200s	201s~
20	10	27	51	69
25	16	32	51	68.5
32	21.5	38.5	58.5	80.5



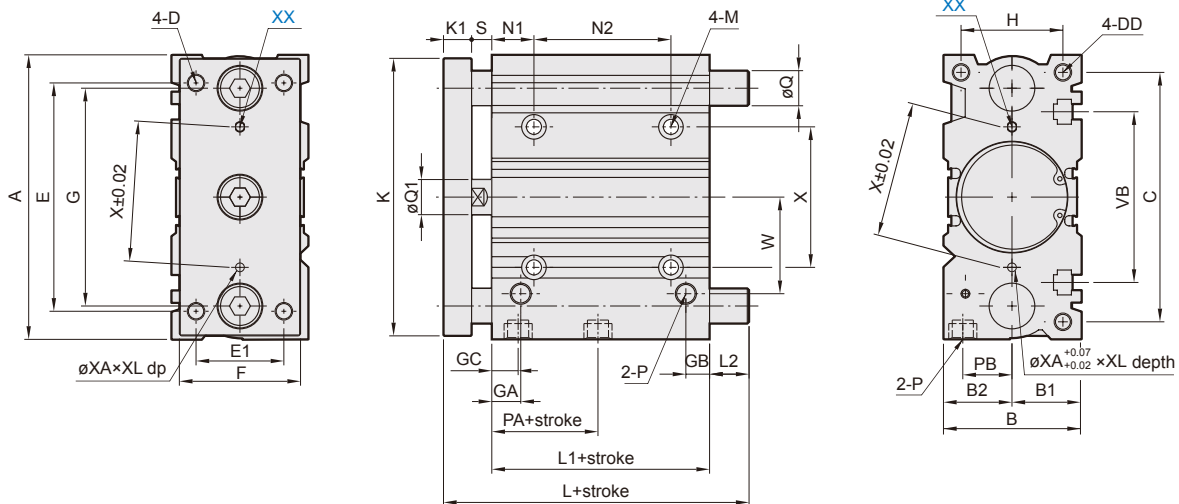
Back side

T slot for hexagon head bolt



T slot for hexagon head bolt

Code Tube I.D.	a	b	c	d	e
40	6.5	10.5	5.5	4	11
50	8.5	13.5	7.5	4.5	13.5
63	11	17.8	10	7	18.5



PCGS-03 / PCGS-23

Code Tube I.D.	A	B	B1	B2	C	D	DD	E	E1	F	G	GA	GB	GC	H	K	K1	L1	M	N1	P
40	120	54	27	27	106	M8×1.25	M8×1.25×20 dp	104	30	44	86	14	10	14	40	118	12	44	$\phi 6.6 \text{ thru}$, $\phi 11 \times 7.5 \text{ dp}$	22	Rc1/8
50	148	64	32	32	130	M10×1.5	M10×1.5×22 dp	130	40	60	110	14	11	12	46	146	16	44	$\phi 8.6 \text{ thru}$, $\phi 14 \times 9 \text{ dp}$	24	Rc1/4
63	162	78	39	39	142	M10×1.5	M10×1.5×22 dp	130	50	70	124	16.5	13.5	16.5	58	158	16	49	$\phi 8.6 \text{ thru}$, $\phi 14 \times 9 \text{ dp}$	24	Rc1/4

Code Tube I.D.	PA	PB	Q1	S	VB	W	X	XA	XB	XC	XL	YY	N2					WB				
													25st	50,75,100st	101st~200st	201~300st	301~400st	25st	50,75,100st	101st~200st	201~300st	301~400st
40	13	18	16	10	72	38	50	4	4.5	3	6	M8×1.25×16 dp	24	48	124	200	300	34	46	84	122	172
50	9	21.5	20	12	92	47	66	5	6	4	8	M10×1.5×20 dp	24	48	124	200	300	36	48	86	124	174
63	14	28	20	12	110	55	80	5	6	4	8	M10×1.5×20 dp	28	52	128	—	—	38	50	88	—	—

PCGS-03

Code Tube I.D.	L		L2			Q
	25,50st	51st~	25,50st	51~200st	201~400st	
40	97	102	31	36	63.5	$\phi 20$
50	106.5	118	34.5	46	78.5	$\phi 25$
63	106.5	118	29.5	41	—	$\phi 25$

PCGS-23

Code Tube I.D.	L			L2				Q
	25,50st	75,100st	101st~	25,50st	75,100st	101~200st	201~400st	
40	81	98	118	15	32	52	72.5	$\phi 16$
50	93	114	134	21	42	62	87.5	$\phi 20$
63	93	114	134	16	37	57	—	$\phi 20$



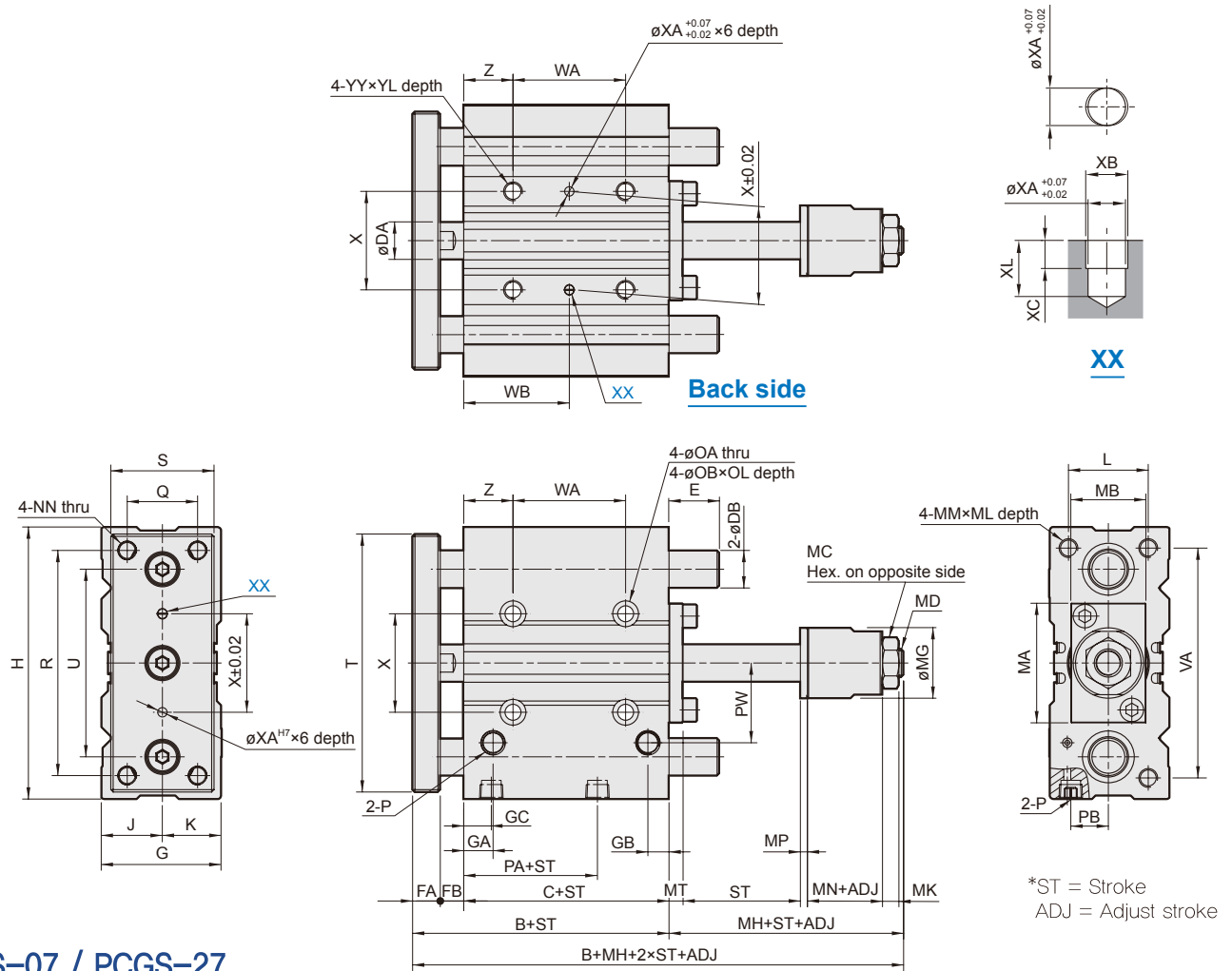
Code Tube I.D.	B	C	DA	DB		FA	FB	G	GA	GB	H	J	K	L	MA	MB	MC	MD	MG	MH	MK	MN	MM	ML	MP	MT
				07 type	27 type																					
12	42	29	6	8	6	8	5	26	11	15 ^(*)	58	13	13	18	27	13	8	M5×0.8	12	23	4	13	M4×0.7	10	2	3
16	46	33	8	10	8	8	5	30	11	18 ^(*)	64	15	15	22	28	16	10	M6×1.0	15	26	5	15	M5×0.8	12	2	3
20	53	37	10	12	10	10	6	36	10.5	8.5	85	17	19	24	33	22	13	M8×1.25	20	26	5	12	M5×0.8	13	3	4

Code	WA					WB				
Tube I.D.	10~39st	40~100st	125~200st	201st~300st		10~39st	40~100st	125~200st	201st~300st	
12	20	40	110	200		15	25	60	105	
16	~39st	40~100st	125~200st	201st~300st		~39st	40~100st	125~200st	201st~300st	
	24	44	110	200		17	27	60	105	
20	~39st	40~100st	125~200st	201st~300st	301st~	~39st	40~100st	125~200st	201st~300st	301st~
	24	44	120	200	300	29	39	77	117	167

Code Tube I.D.	E		
	~50st	51~100st	101st
12	0	18.5	43
16	10~50st	51~100st	101st
	0	18.5	49
20	~50st	51~200st	201st
	0	31.5	69

Code	E			
Tube I.D.	~30st	31~100st	101st~	
12	1	13	43	
16	10~30st	31~100st	101st~	
	3	19	49	
20	20~30st	31~100st	101~200st	201st~
	10	27	51	69

*2. When stroke length is equal to 19mm or less, GB=9 mm



PCGS-07 / PCGS-27

Code Tube I.D.	B	C	DA	DB		FA	FB	G	GA	GB	GC	H	J	K	L	MA	MB	MC	MD	MG	MH	MK	MN	MM	ML	MP	MT
				07 type	27 type																						
25	53.5	37.5	12	16	13	10	6	42	11.5	9	11.5	96	21	21	30	41	25	17	M10×1.25	20	27	6	12	M6×1.0	15	3	5
32	59.5	37.5	16	20	16	12	10	51	12.5	9	12.5	116	26	25	34	51	32	19	M12×1.25	30	30	7	12	M8×1.25	20	3	6
40	66	44	16	20	16	12	10	54	14	10	14	120	27	27	40	60	32	19	M12×1.25	30	30	7	12	M8×1.25	20	3	6
50	72	44	20	25	20	16	12	64	14	11	12	148	32	32	46	71	38	24	M16×1.5	35	38	8	15	M10×1.5	22	4	8
63	77	49	20	25	20	16	12	78	16.5	13.5	16.5	162	39	39	58	84	50	24	M16×1.5	35	38	8	15	M10×1.5	22	4	8

Code Tube I.D.	NN	OA	OB	OL	P	PA	PB	PW	Q	R	S	T	U	VA	X	XA	XB	XC	XL	YY	YL	Z
25	M6×1.0	5.2	9.5	5.5	Rc1/8	12.5	13.5	28.5	26	78	38	91	65	82	34	4	4.5	3	6	M6×1.0	12	17
32	M8×1.25	6.6	11	7.5	Rc1/8	7	16	34	30	96	44	110	80	98	42	4	4.5	3	6	M8×1.25	16	21
40	M8×1.25	6.8	11	7.5	Rc1/8	13	18	38	30	104	44	118	86	106	50	4	4.5	3	6	M8×1.25	16	22
50	M10×1.5	8.6	14	9	Rc1/4	9	21.5	47	40	130	60	146	110	130	66	5	6	4	8	M10×1.5	20	24
63	M10×1.5	8.6	14	9	Rc1/4	14	28	55	50	130	70	158	124	142	80	5	6	4	8	M10×1.5	20	24

Code Tube I.D.	WA				WB			
	~39st	40~100st	125~200st	201st~300st	301st~	~39st	40~100st	125~200st
25	24	44	120	200	300	29	39	77
32	~49st	50~100st	125~200st	201st~300st	301st~	~49st	50~100st	83
40	24	48	124	200	300	33	45	121
50	~49st	50~69st	70~100st	125~200st	201st~300st	~49st	50~69st	84
63	24	48	124	200	300	34	46	122
	~49st	50~69st	70~100st	125~200st	201st~300st	~49st	50~69st	86
	24	48	124	200	300	36	48	124
	~49st	50~100st	125st~			~49st	50~100st	88
	28	52	128			38	50	

PCGS-07

Code Tube I.D.	E		
	~50st	51~200st	201st~
25	0	31.5	68.5
32	37.5	42.5	80.5
40	31	36	63.5
50	34.5	46	78.5
63	~50st	51st~	
	29.5	41	

PCGS-27

Code Tube I.D.	E			
	20~30st	31~100st	101~200st	201st~
25	16	32	51	68.5
32	20~50st	51~100st	101~200st	201st~
	21.5	38.5	58.5	80.5
40	~69st	70~100st	101~200st	201st~
	15	32	52	72.5
50	21	42	62	87.5
63	~69st	70~100st	101st~	
	16	37	57	



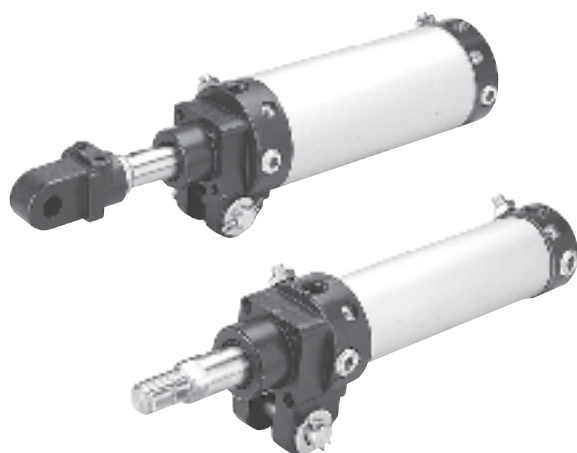
■ Features

- Aluminium alloy tube provides both smooth lines and high corrosion resistance.
- Self lubricated nose bush gives long life.
- Versatile porting position available.
- End cushioning at both ends reduces impact loads.

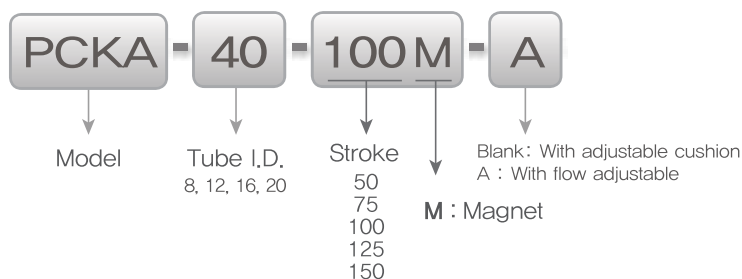
■ Specification

Model	PCKA
Acting type	Double acting
Tube I.D. (mm)	40
Medium	Air
Operating pressure range	0.05~1 MPa
Proof pressure	1.5 MPa
Temperature range	-5~+60°C (No freezing)
Lubrication	Not required
Available speed range	50~500 mm/sec
Cushion	With adjustable cushion at both ends
Sensor switch (*)	RCA
Sensor switch band	PN-A40

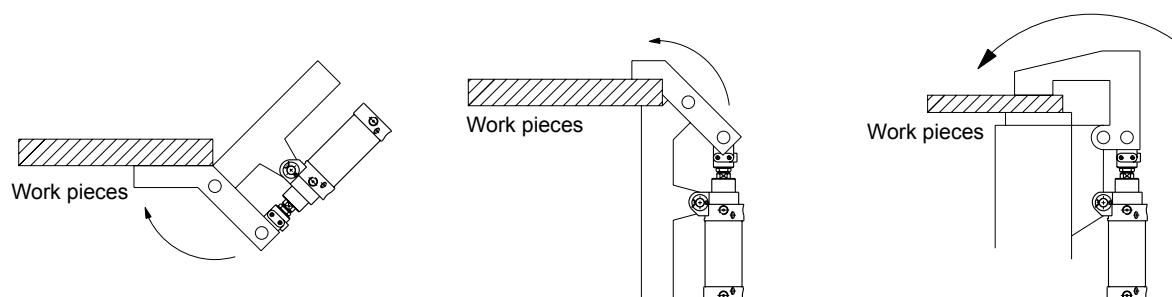
* RCA specification, please refer to page 5-2.

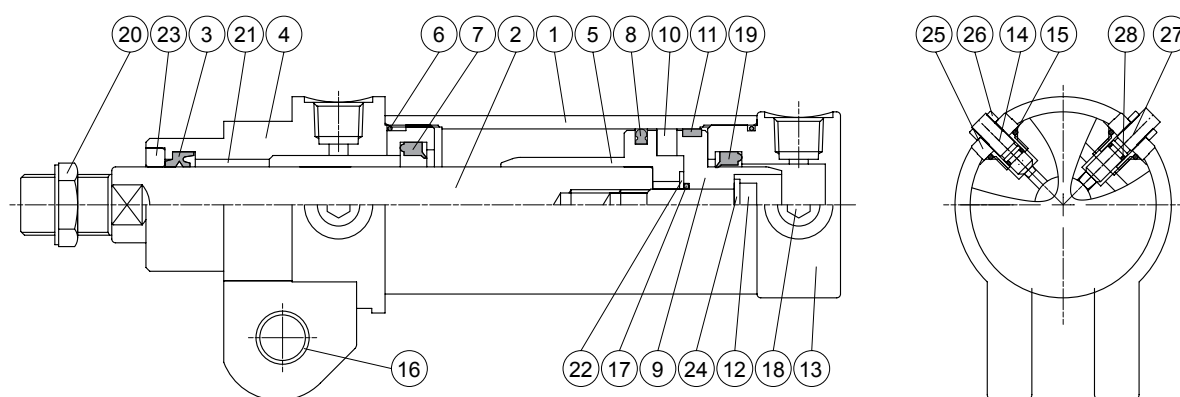


■ Order example



Application examples



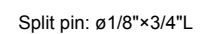


Material

No.	Part name	Material	Q'y	Component parts (inclusion)	Repair kits (inclusion)
1	Tube	Aluminum alloy	1		
2	Piston rod	Carbon steel	1		
3	Rod packing	NBR	1	●	●
4	Rod cover	Carbon steel	1	●	
5	Piston-R	Aluminum alloy	1	●	
6	Cover ring	NBR	2	●	●
7	Cushion packing-R	NBR	1	●	●
8	Piston packing	NBR	1	●	●
9	Piston-H	Aluminum alloy	1	●	
10	Magnet ring	Magnet material	1	●	
11	Wear ring	Teflon	1	●	
12	Piston bolt	SCM	1	●	
13	Head cover	Aluminum alloy	1	●	
14	Cushion needle valve	Copper	2	●	
15	Need valve packing	NBR	4	●	●
16	Bush	Copper	2	●	
17	Piston gasket	NBR	1	●	●
18	Seal screw	Carbon steel	4	●	
19	Cushion packing-H	NBR	1	●	●
20	Rod front nut	Carbon steel	1	●	
21	Rod bush	Copper	1	●	
22	Washer	Carbon steel	1	●	
23	Scraper	Copper	1	●	
24	Washer	Carbon steel	1	●	
25	Lock nut for need valve	Copper	4	●	
26	Adj. nut for need valve	Copper	4	●	
27	Flow needle valve	Copper	2	●	
28	Need valve packing	NBR	4	●	●

Order example of component parts / repair kits

Tube I.D.	Component parts	Repair kits
ø40	CP-PCKA-40	PS-PCKA-40





■ Specification

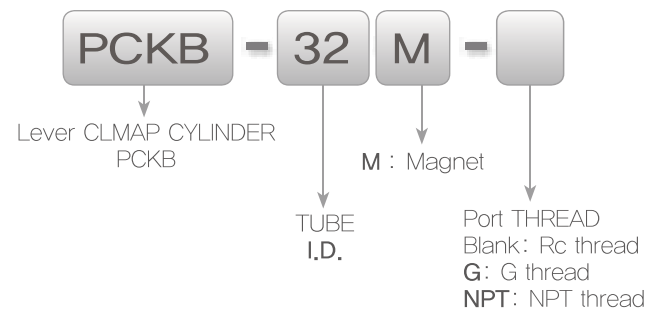
Model		PCKB
Acting type		Double acting
Tube I.D. (mm)		32
Port size		Rc1/8
Operating fluid		Air
Operating pressure range		0.1~1 MPa
Proof pressure		1.5 MPa
Ambient temperature		-5~+60°C (No freezing)
Lubrication	Cylinder	Not required
	Lever	Grease
Available speed range		50~500 mm/sec
Sensor switch (*)		RCB, RCE, RCE1, RDEP

* RCB, RCE, RCE1, RDEP specification, please refer to page 5-4, 6, 9.

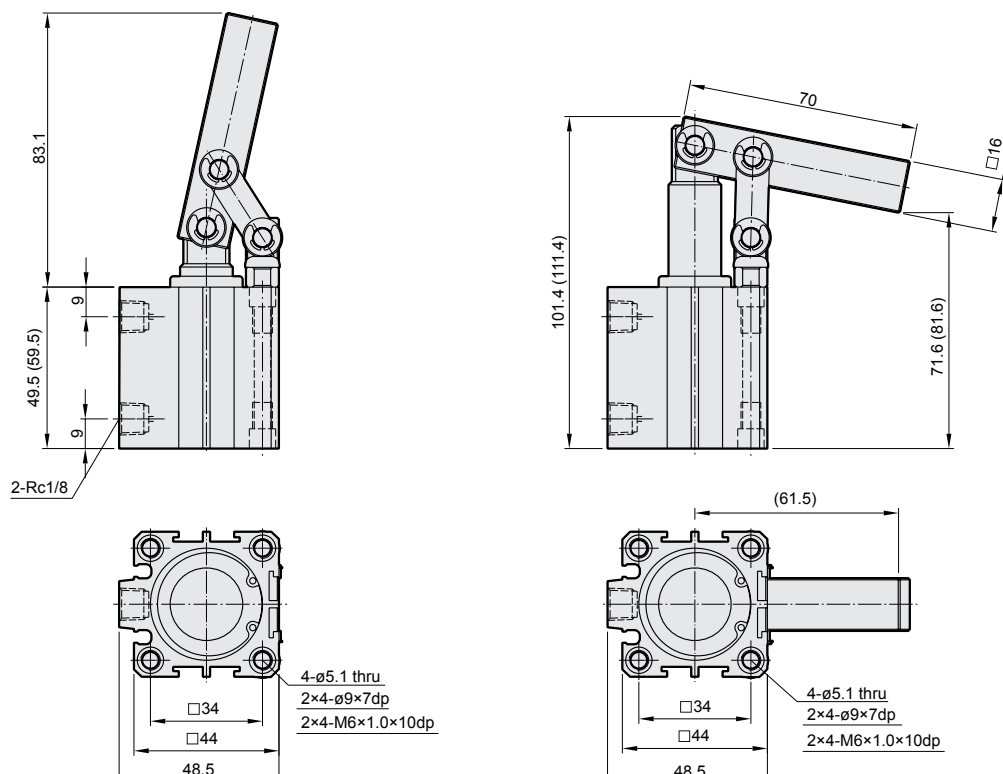
■ Features

- Lever type clamp cylinder gives high clamping force.
- Simple mounting of sensors on all four sides of body.
- Hard anodised body gives smooth lines and high corrosion resistance.

■ Order form (Example)

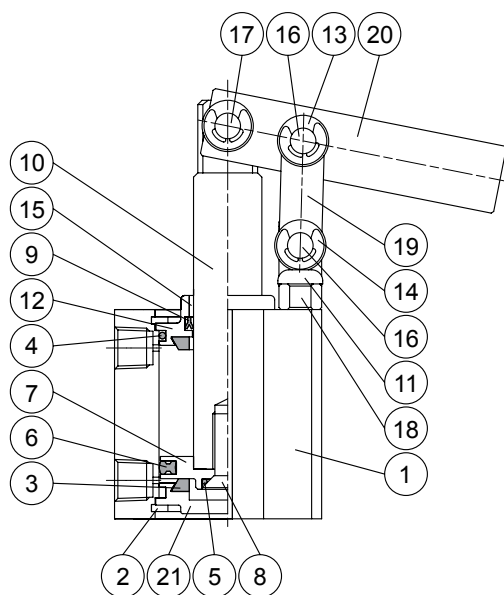


■ Dimensional drawing(mm)



*(): Dimension for with magnet.

Inside structure & Parts list



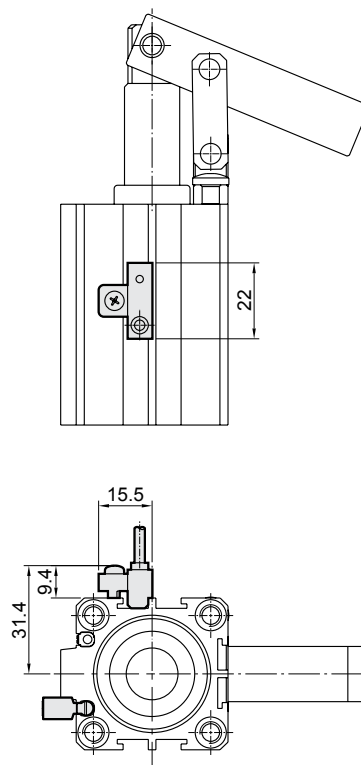
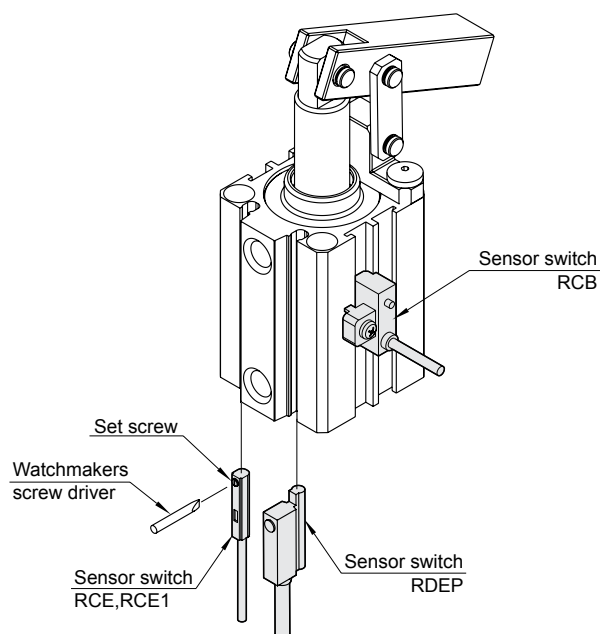
Order example of repair kits

Tube I.D.	Repair kits
ø32	PS-PCKB-32

Material

No.	Part name	Material	Q'y	Repair kits (inclusion)
1	Body	Aluminum alloy	1	
2	Snap ring	Spring steel	2	
3	Cushion	NBR	2	●
4	Cover gasket	NBR	2	●
5	Piston gasket	NBR	1	●
6	Piston packing	NBR	1	●
7	Piston	Aluminum alloy	1	
8	Piston bolt	SCM	1	
9	Rod packing	NBR	1	●
10	Piston rod	Carbon steel	1	
11	Screw	SCM	2	
12	Rod cover	Aluminum alloy	1	
13	Washer	Carbon steel	6	
14	Snap ring	Spring steel	6	
15	Rod bush	Bearing alloy	1	
16	Connecting pin	Stainless steel	2	
17	Lever pin	Stainless steel	1	
18	Holder	Carbon steel	1	
19	Connecting plate	Carbon steel	2	
20	Lever	Carbon steel	1	
21	Head cover	Aluminum alloy	1	

Installation of sensor switch





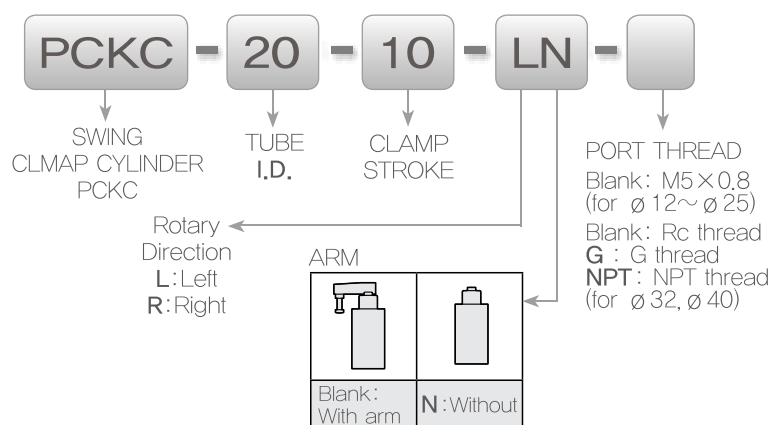
■ Specification

Model	PCKC					
Acting type	Double acting					
Tube I.D. (mm)	12	16	20	25	32	40
Port size	M5×0.8				Rc1/8	
Rotary angle	90°±10°					
Rotary direction	Left (L), Right (R)					
Rotary stroke (mm)	7.5		9.5		15	
Clamp stroke (mm)	10, 20		10, 20, 30			
Medium	Air					
Operating pressure range	0.1~0.9 MPa					
Ambient temperature	-5°C~+60°C (No freezing)					
Available speed range	50~200 mm/sec					
Non-rotating accuracy (*1)	±2°	±1.3°	±1.2°		±1°	
Lubrication	Not required					
Sensor switch (*2)	RDE		RCE, RCE1, RDEP			

*1. Arm during clamping (Clamp part).

*2. RCE, RCE1, RDE, RDEP specifications please refer to page 5-6, 9.

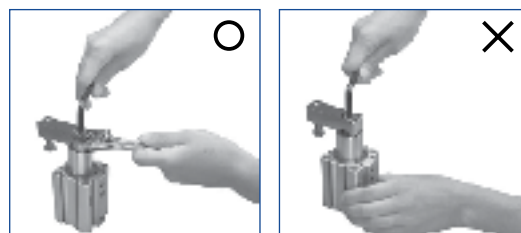
■ Order form (Example)



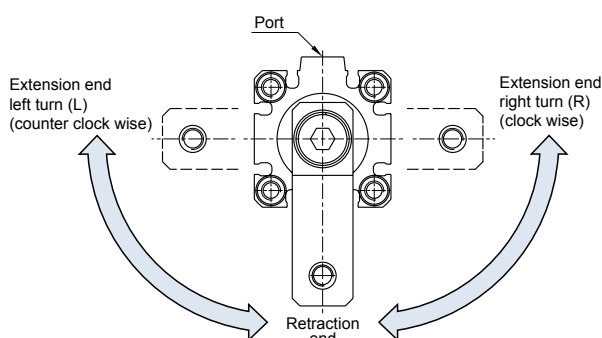
■ Features

- Ultra compact, light weight and space saving cylinder.
- Ideal for use in machinery where space is limited and incorporating sensor groove which enables flush fitting of sensors.
- The sensor can freely mounted the four sides.
- Magnetic as standard.

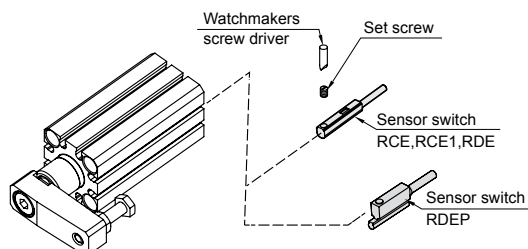
■ Clamping arm mounting methods



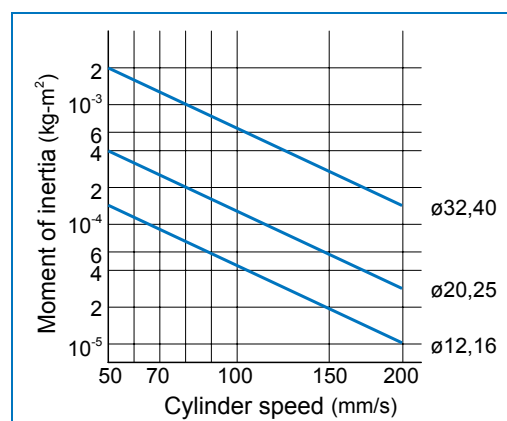
■ Rotary direction



■ Installation of sensor switch

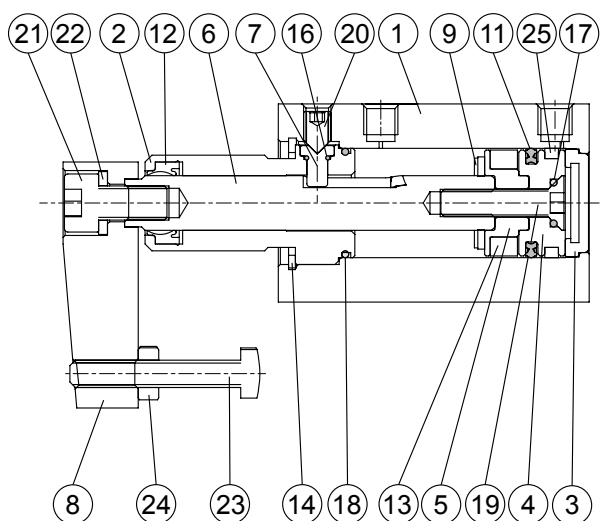


■ Moment of inertia

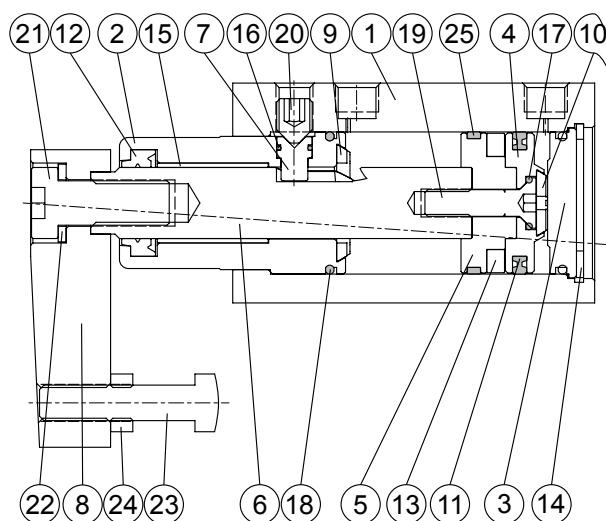


Inside structure & Parts list

ø12, ø16, ø40



ø20, ø25, ø32



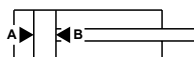
Material

No.	Part name	Material	Note
1	Body	Aluminum alloy	
2	Rod cover	Aluminum alloy	
3	End cover	Aluminum alloy	
4	Piston	Aluminum alloy	
5	Piston for magnet ring	Aluminum alloy	
6	Piston rod	SCM	
7	Guide pin	SCM	
8	Arm	Carbon steel	
9	Rod cushion	NBR	
10	End cushion	NBR	For ø20~ø40
11	Piston packing	NBR	
12	Rod packing	NBR	
13	Magnet ring	Magnet material	

No.	Part name	Material	Note
14	Snap ring	Stainless steel	*1
15	Bush	Copper	For ø32,ø40
16	O-ring	NBR	
17	O-ring	NBR	
18	O-ring	NBR	
19	Bolt	Stainless steel	
20	Set screw	SCM	
21	Bolt	SCM	
22	Spring washer	Spring steel	
23	Bolt	SCM	
24	Nut	Carbon steel	
25	Wear ring	Teflon	

*1. Carbon steel (for ø12,ø16)

Theoretical force



Unit: N

Tube I.D. (mm)	Piston rod (mm)	Operating direction	Piston area (mm ²)	Operating pressure (MPa)								
				0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9
12	6	A	113	11.3	22.6	33.9	45.2	56.5	67.8	79.1	90.4	101.7
		B	85	8.5	17.0	25.5	34.0	42.5	51.0	59.5	68.0	76.5
16	8	A	201	20.1	40.2	60.3	80.4	100.5	120.6	140.7	160.8	181.0
		B	151	15.1	30.2	45.2	60.3	75.4	90.5	105.6	120.6	135.7
20	12	A	314	31.4	62.8	94.2	125.7	157.1	188.5	219.9	251.3	282.7
		B	201	20.1	40.2	60.3	80.4	100.5	120.6	140.7	160.8	181.0
25	12	A	491	49.1	98.2	147.3	196.4	245.4	294.5	343.6	392.7	441.8
		B	378	37.8	75.6	113.3	151.1	188.9	226.7	264.4	302.2	340.0
32	16	A	804	80.4	160.8	241.3	321.7	402.1	482.5	563.0	643.4	723.8
		B	603	60.3	120.6	181.0	241.3	301.6	361.9	422.2	482.5	542.9
40	16	A	1257	125.7	251.4	377.1	502.8	628.5	754.2	879.9	1005.6	1131.3
		B	1056	105.6	211.2	316.8	422.4	528.0	633.6	739.2	844.8	950.4

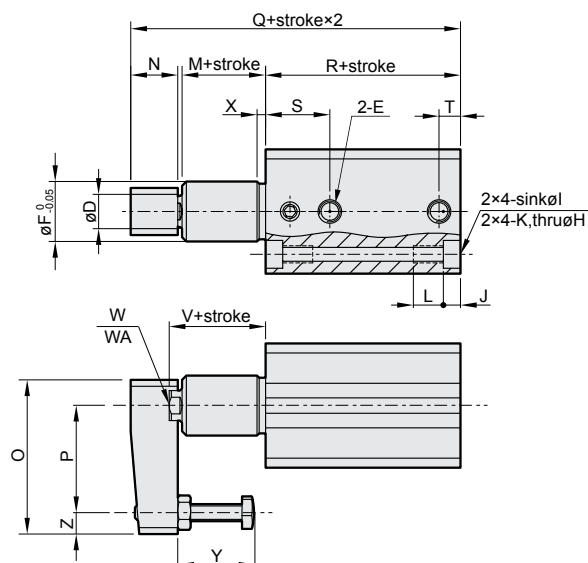
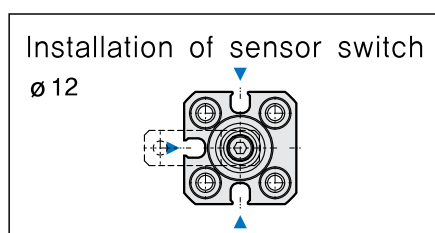
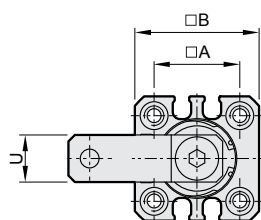
Cylinder weight

Unit: g

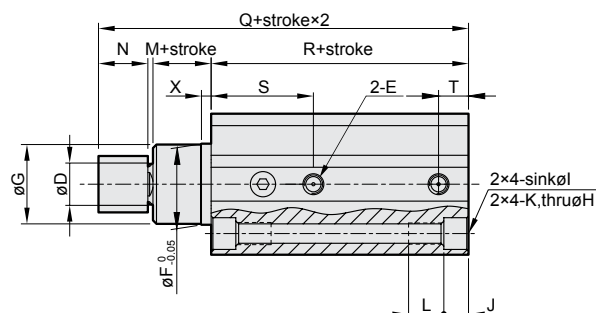
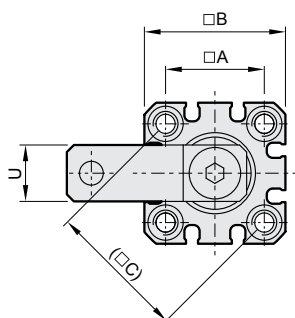
Model	Basic weight PCKC	Basic weight PCKC-N	Stroke 10 mm PCKC
Tube I.D.			
ø12	66	52	16
ø16	100	66	23
ø20	266	176	38
ø25	319	229	46
ø32	573	382	69
ø40	652	461	74

Installation of sensor switch

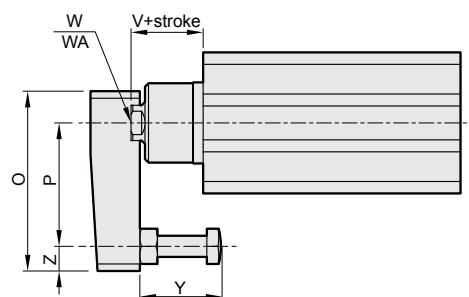
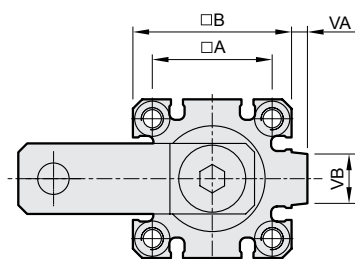
ø 12, ø 16



ø 20, ø 25

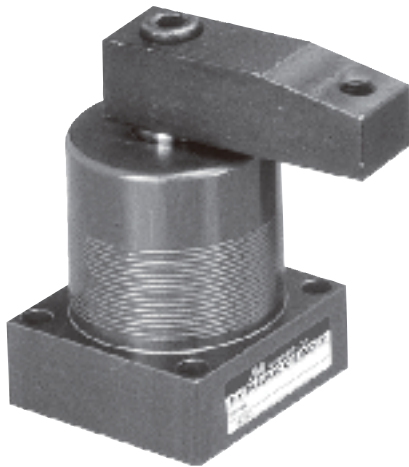


ø 32, ø 40



Code Tube I.D.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
12	15.5	25	—	6	M5×0.8	11	—	3.5	6.5	4	M4×0.7	7	9.5	8	29	20	54	35.5	15	5	8
16	20	29	—	8	M5×0.8	14	—	3.5	6.5	4	M4×0.7	7	9.5	11	36	25	57	35.5	15	5	11
20	25.5	36	36	12	M5×0.8	18	17.9	5.4	9	7	M6×1.0	10	6.5	14	51	35	84	62	28	8.7	16
25	28	40	39.6	12	M5×0.8	23	22.5	5.4	9	7	M6×1.0	10	6.5	14	51	35	85	63	29	8.5	16
32	34	45	—	16	Rc1/8	30	29.5	5.5	9	7	M6×1.0	10	15.5	18	67	45	107	71.5	28	11	20
40	40	52	—	16	Rc1/8	30	29.5	5.5	9	7	M6×1.0	10	23	18	67	45	108	65	27	8	20

Code Tube I.D.	V	VA	VB	W (ROD thread)	WA	X	Y	Z
12	12.5	—	—	M3×0.5×5.5L	Across flats 5×2.5L	2	7~18	4
16	12.5	—	—	M5×0.8×6.5L	Across flats 7×2.5L	2	7~20	5
20	10.5	—	—	M8×1.25×14L	Across flats 10×3L	3	12~25	7
25	10.5	—	—	M8×1.25×14L	Across flats 10×3L	3	12~25	7
32	22	4.5	14	M10×1.5×19L	Across flats 14×5.5L	3	12~25	10
40	29.5	5	14	M10×1.5×19L	Across flats 14×5.5L	3	12~25	10



■ Features

Double clamp retracting, the piston rod rotates, causing the clamping arm to swing in either a clockwise or counterclockwise direction. Clamping then takes place as the rod continues to retract in a straight line, pulling the arm against the workpieces.

Pull cylinder type, Available models offer angles of rotation of 0° , 45° , 60° or 90°

The cylinder body is made of aluminum alloy and the surface is hard membrane treated.

Mounting methode: Square base type, threaded type, upper flange type.

■ Note

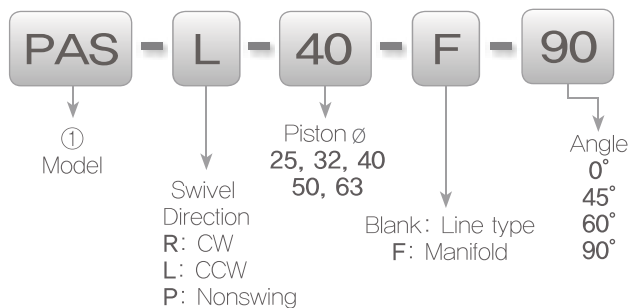
When it is necessary to change the length of the clamping arm, it should be noted that do not exceed 1.5 times of the original G value in order to avoid the serious slanting of the piston rod.

Suggested to add a flow control valve to the hydraulic inlet to control the motion of the swing angle in order to prevent the inertial impaction.

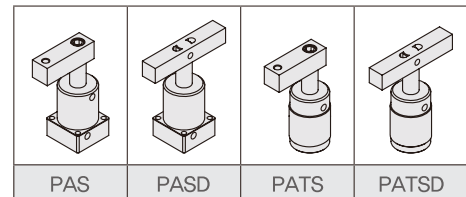
A workpiece should not be clamped within a swing stroke, and it should be calmped within the vertical downward clamping stroke.

Whenever placing and taking off a workpiece, it is necessary to use an air gun to clean the piston and the seal for removing the iron slag or foreigner objects attached thereon in order to prevent the foreigner objects form entering the seal to cause oil leakage.

Order form (Example)



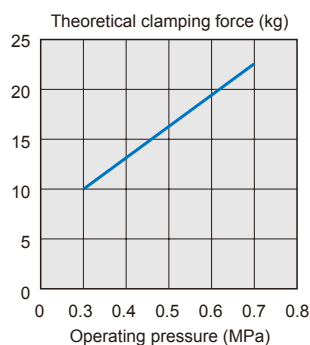
① Model (PNEUMATIC – SWING CLAMP CYLINDER)



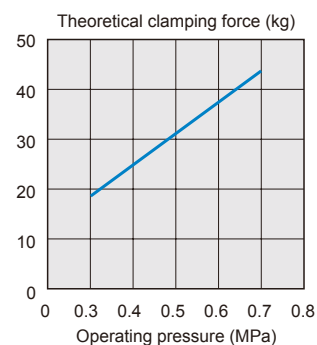
* PATS and PATSD produced by order.

■ Schematic view showing a theoretical clamping force under different pneumatic pressure.

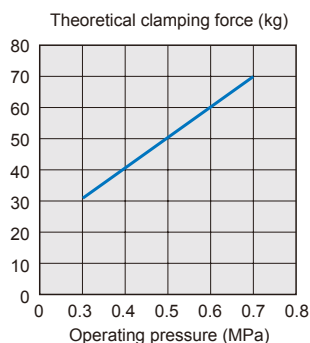
PAS-25



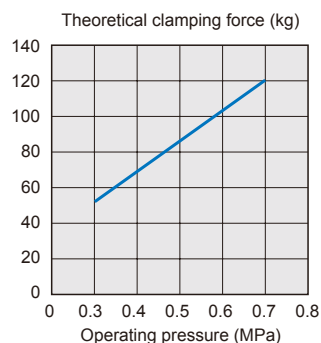
PAS-32



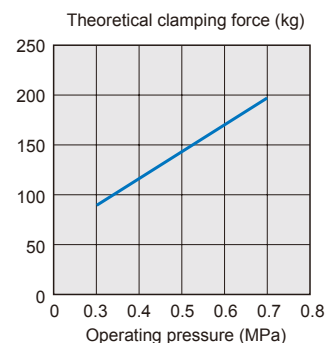
PAS-40



PAS-50

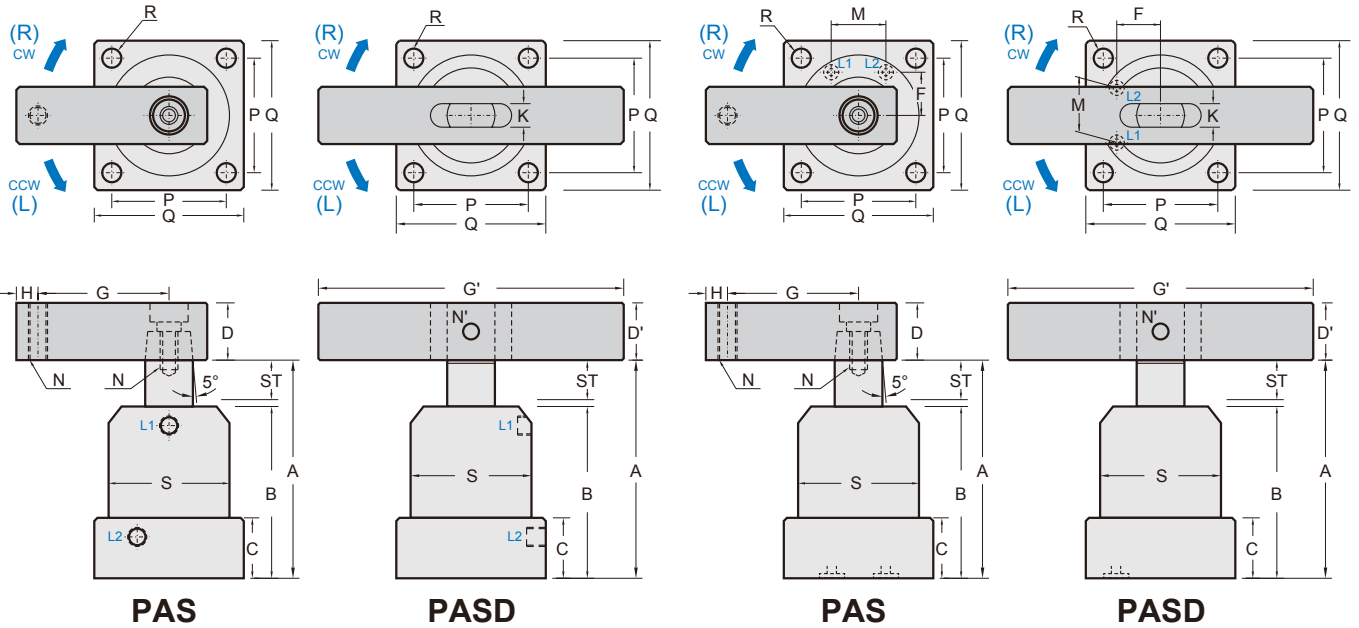


PAS-63



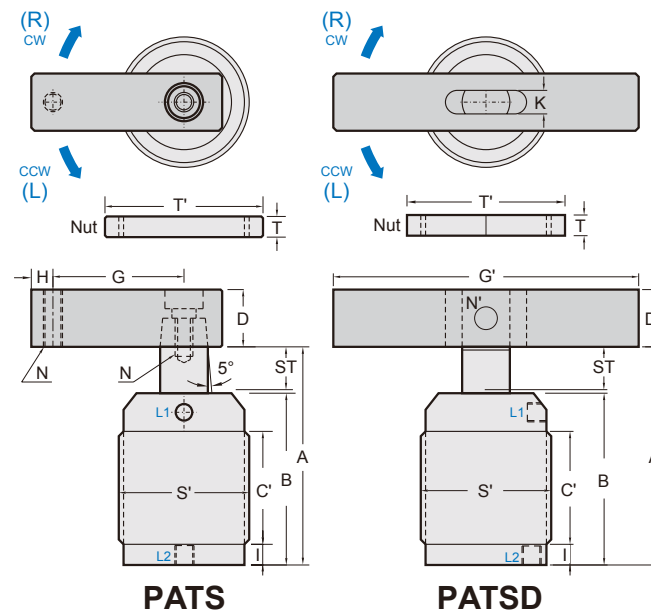
PAS

PAS-F



Flange type	PAS-25	PAS-32 PASD-32	PAS-40 PASD-40	PAS-50 PASD-50	PAS-63 PASD-63
Max. operating pressure	1 MPa				
Normal operating pressure	0.4~0.6 MPa				
Cylinder operating	Double acting				
Swivel angle	90° (60° ,45° ,0°)±2°				
Swivel stroke (mm)	12	12	12	14	14
Clamping stroke (mm)	14	14	15	15	15
Piston ø (mm)	25	32	40	50	63
Piston rod ø (mm)	14	16	16	20	20
Theoretical force (0.5 MPa)	16kg	30kg	50kg	85kg	140kg
A (unclamp) (mm)	95,5	102,5	106	113	119
B (mm)	65,5	71	75	80	86
C (mm)	23	23	26	26	30
D (mm)	□ 16	□ 19	□ 19	□ 25,4	□ 25,4
D' (mm)	—	□ 19	□ 19	□ 22	□ 22
G (mm)	30	50	50	70	70
G' (mm)	—	100	100	120	120
H (mm)	8	9	9	10	10
K (mm)	—	9	9	10	10
L1 (clamp) L2 (unclamp)	M5×0,8	Rc1/8	Rc1/8	Rc1/8	Rc1/8
O-ring manifold	S3	S4	S4	S4	S4
N (mm)	M6×1	M8×1,25	M8×1,25	M10×1,5	M10×1,5
N' (mm)	—	ø 8	ø 8	ø 8	ø 8
P (mm)	30	44	48	55	64
Q (mm)	40	54	58	68	80
R (mm)	ø 4,5	ø 6,5	ø 6,5	ø 8,5	ø 8,5
S (mm)	ø 35	ø 50	ø 55	ø 65	ø 75
M (mm)	18	22	26	30	40
F (mm)	12,5	17	19,5	24	29
Weight (kg)	0,4	0,7	0,85	1,3	1,8

PATS



Threaded type (produced by order)	PATS-25	PATS-32 PATSD-32	PATS-40 PATSD-40	PATS-50 PATSD-50	PATS-63 PATSD-63
Max. operating pressure	1 MPa				
Normal operating pressure	0.4~0.6 MPa				
Cylinder operating	Double acting				
Swivel angle	90° (60°, 45°, 0°) ± 2°				
Swivel stroke (mm)	12	12	12	14	14
Clamping stroke (mm)	14	14	15	15	15
Piston ø (mm)	25	32	40	50	63
Piston rod ø (mm)	14	16	16	20	20
Theoretical force (0.5 MPa)	16kg	30kg	50kg	85kg	140kg
A (unclamp) (mm)	95.5	102.5	106	113	119
B (mm)	66.5	71	75	80	86
C' (mm)	35	40	45	50	56
D (mm)	□ 16	□ 19	□ 19	□ 25.4	□ 25.4
D' (mm)	-	□ 19	□ 19	□ 22	□ 22
G (mm)	30	50	50	70	70
G' (mm)	-	100	100	120	120
H (mm)	8	9	9	10	10
I (mm)	7	9	9	9	10
K (mm)	-	9	9	10	10
L1 (clamp) L2 (unclamp)	M5×0.8	Rc1/8	Rc1/8	Rc1/8	Rc1/8
N (mm)	M6×1	M8×1.25	M8×1.25	M10×1.5	M10×1.5
N' (mm)	-	ø 8	ø 8	ø 8	ø 8
S' (mm)	M40×1.5	M50×1.5	M55×1.5	M65×1.5	M80×1.5
T (×2 pcs nut) (mm)	9	11	11	12	12
T' (mm)	ø 58	ø 70	ø 75	ø 85	ø 100
Weight (kg)	0.8	1.1	1.25	1.7	2



■ Specification

Model	PTAS	PTAD
Acting type	Double acting	
Tube I.D. (mm)	25, 32, 40, 50, 63	32, 40, 50, 63
Power fluid	Filtered air with or without lubrication	
The range of pressure	0.1~1 MPa	
Max. pressure	1.47 MPa	
Material of cylinder barrel	Anodised aluminum alloy	
Standard angle of rotation	90° ±2° (Angle of 0°, 45° and 60° are optional)	
Rotating direction	Clockwise or counter clockwise	
Sensor switch	LN40R	

■ Features

These swing clamps are used when it is required to keep the fixture workpiece area free of straps and clamping components for unrestricted workpiece loading and un-loading.

This pneumatic clamping element is a pull type cylinder. There are five standard sizes, and for each size two versions of standard clamping arms, mounting of these clamping arms at any angle within 360.

■ Note

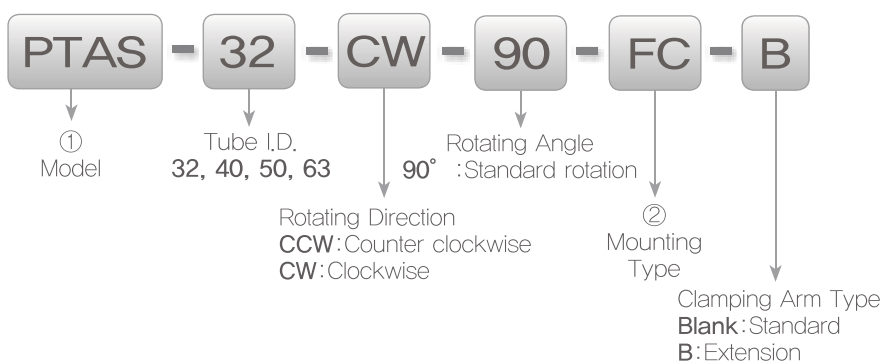
Please don't exceed 1.5 times of the original length, if it is necessary to increase the length of the clamping arm.

Suggested to install a flow control valve protect cylinder barrel and internal components against fretting wear.

■ Double acting

PTAS	Single side clamping arm	
PTAD	Double sides clamping arm	
PTAS..M	Single side clamping arm (Piston with magnet)	
PTAD..M	Double sides clamping arm (Piston with magnet)	
PTAS..FC	Single side clamping arm (Manifold With flow control)	
PTAD..FC	Double sides clamping arm (Manifold With flow control)	
PTAS..FA	Single side clamping arm (Flange type)	
PTAD..FA	Double sides clamping arm (Flange type)	

■ Order form (Example)

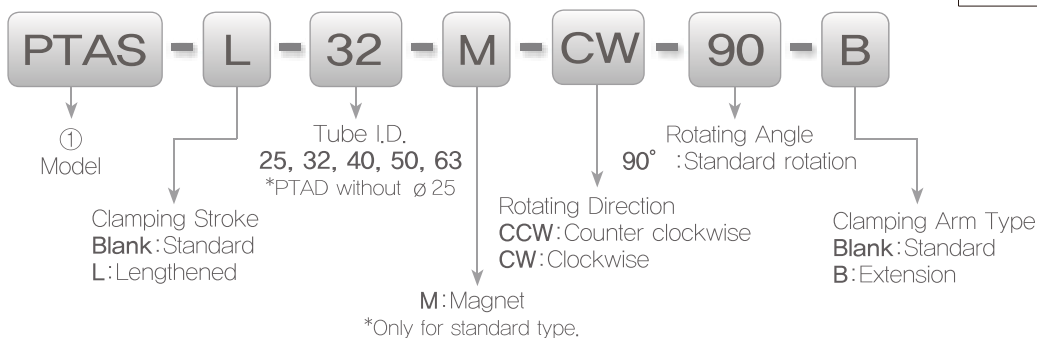


① Model

PATS	PATD

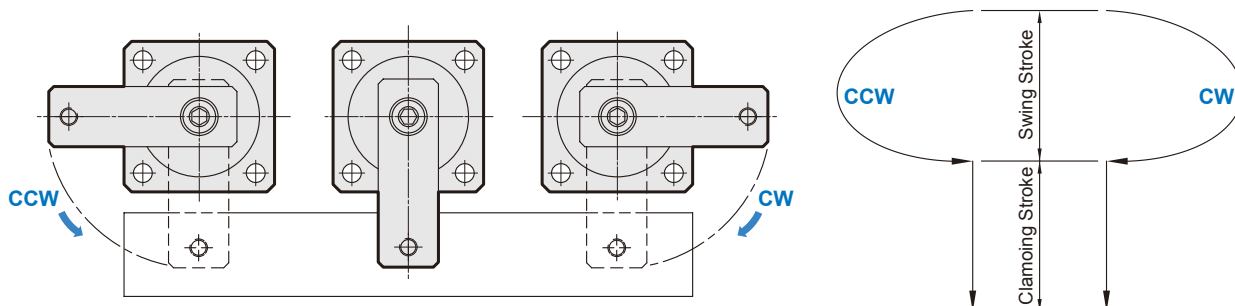
② Mounting type

FA	FC

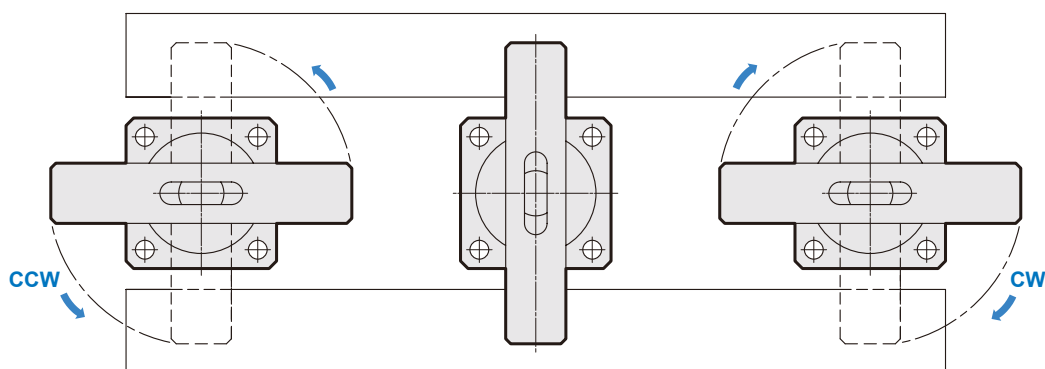


Precautions (Read before installing)

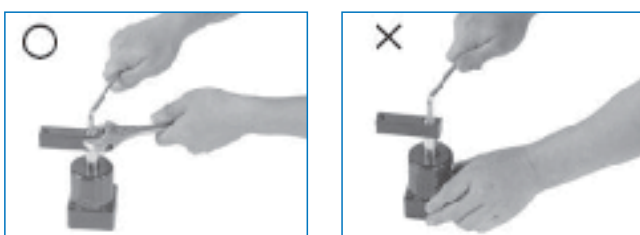
■ Single side swing clamp



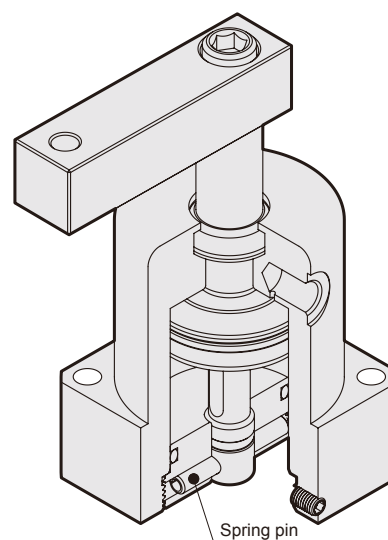
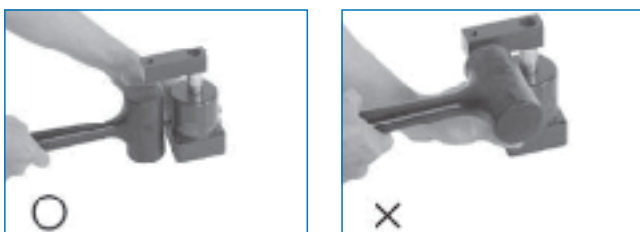
■ Double side swing clamp



■ Clamping arm mounting methods



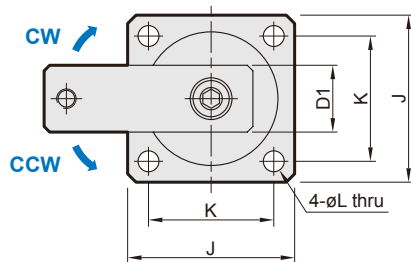
■ Clamping arm removing methods



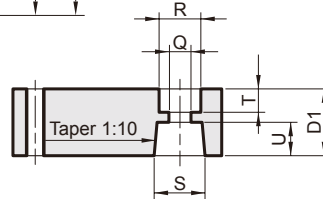
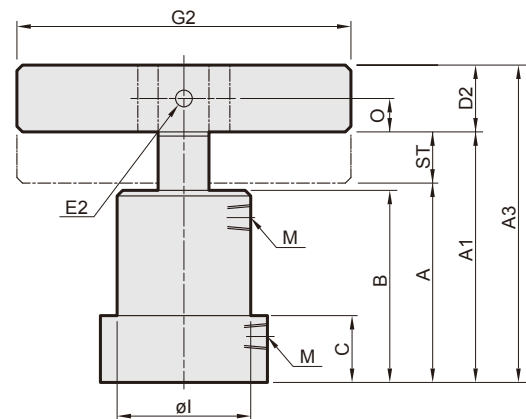
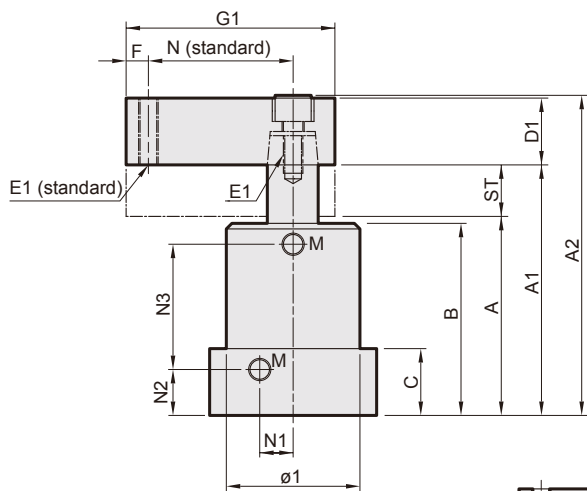
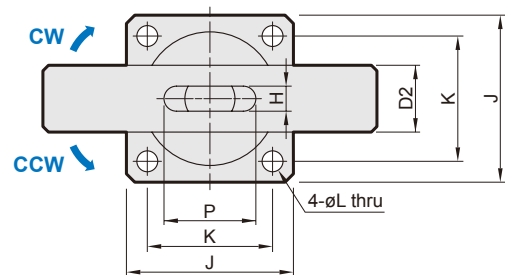
Note

If the clamping arm is wrong mounting and removing, the spring pin is broken easily. than the rotation angle's deviation or the action is not smooth when the cylinder works.

PTAS/PTASL



PTAD/PTADL



■ Single side clamping arm

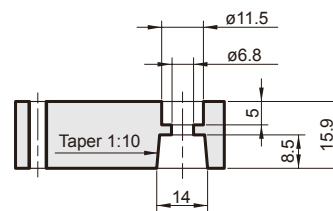
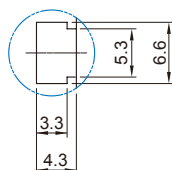
* Clamping stroke lengthened type.

Model		Tube I.D. (mm)	Piston rod (mm)	Swing stroke (mm)	Clamping stroke (mm)		Pressure area push/ pull (mm²)	Clamping force N (0.6 MPa)	Clamping arm type			
					Standard	L type*			G1		G2	
									Standard	Extension	Standard	Extension
PTAS-25	—	ø 25	ø 14	9	13	—	491 / 337	200	50	70	—	—
PTAS-32	PTAD-32	ø 32	ø 16	11	15	30	804 / 603	360	70	100	140	200
PTAS-40	PTAD-40	ø 40	ø 16	11	15	30	1257 / 1056	630	75	100	140	200
PTAS-50	PTAD-50	ø 50	ø 20	13	17	34	1963 / 1649	980	85	130	160	230
PTAS-63	PTAD-63	ø 63	ø 20	13	17	34	3117 / 2803	1680	95	130	160	230

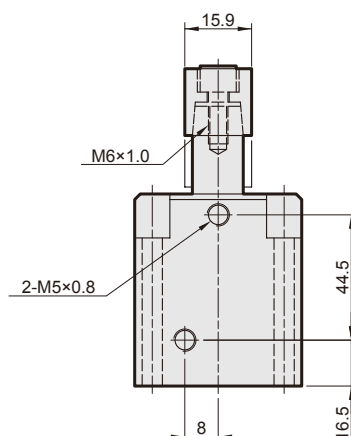
Code Model		Standard type						Clamping stroke lengthened type						C	D1	D2	E1	E2	F
		A	A1	A2	A3	B	ST	A	A1	A2	A3	B	ST						
PTAS-25	—	67	89	(105,9)	—	65	22	—	—	—	—	—	—	23	□15,9	—	M6×1,0	—	6
PTAS-32	PTAD-32	82	108	(128)	127	78	26	97	138	(158)	157	93	41	28	□19	□19	M8×1,25	ø8	8
PTAS-40	PTAD-40	82	108	(128)	127	78	26	97	138	(158)	157	93	41	28	□19	□19	M8×1,25	ø8	8
PTAS-50	PTAD-50	94	124	(150,4)	146,2	90	30	111	158	(184,4)	180,2	107	47	31	□25,4	□22,2	M10×1,5	ø8	10
PTAS-63	PTAD-63	94	124	(150,4)	146,2	90	30	111	158	(184,4)	180,2	107	47	31	□25,4	□22,2	M10×1,5	ø8	10

Code Model		H	I	J	K	L	M	N	N1	N2	N3		O	P	Q	R	S	T	U
											Standard	L type*							
PTAS-25	—	—	ø 35	38	30	ø 4.6	M5×0.8	35	8	16.5	39.5	—	—	—	ø 6.8	ø 11	ø 14	5	8.5
PTAS-32	PTAD-32	9	ø 46	50	40	ø 5.6	Rc1/8	50	11.5	19	45	60	9.5	25	ø 9	ø 14	ø 16	7	9.5
PTAS-40	PTAD-40	9	ø 55	60	48	ø 6.8	Rc1/8	55	14	19	45	60	9.5	25	ø 9	ø 14	ø 16	7	9.5
PTAS-50	PTAD-50	10	ø 65	70	57	ø 6.8	Rc1/8	60	17	21	54	71	11.1	29	ø 11	ø 17	ø 20	9	12.5
PTAS-63	PTAD-63	10	ø 78	83	67	ø 9	Rc1/8	70	20	21	54	71	11.1	29	ø 11	ø 17	ø 20	9	12.5

Technical drawing of the front view of a 4-hole flange. The drawing shows a rectangular plate with a central circular feature and four corner holes. Dimensions include a width of 38, a height of 30, and a central hole diameter of 15.9. A 4-hole flange is indicated by a callout "4-Ø4.6 thru". Arrows indicate clockwise (CW) and counter-clockwise (CCW) rotation.



-



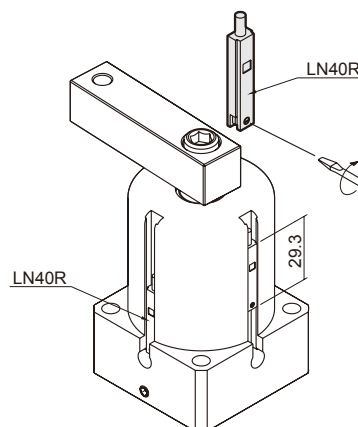
Model	Tube I.D. (mm)	Piston rod (mm)	Swing stroke (mm)	Clamping stroke (mm)	Pressure area push/ pull (mm ²)	Clamping force N (0.6MPa)	Clamping arm type G1	
							Standard	Extension
PTAS-25M	ø 25	ø 14	9	13	491 / 337	200	50	70

- Installation of sensor switch

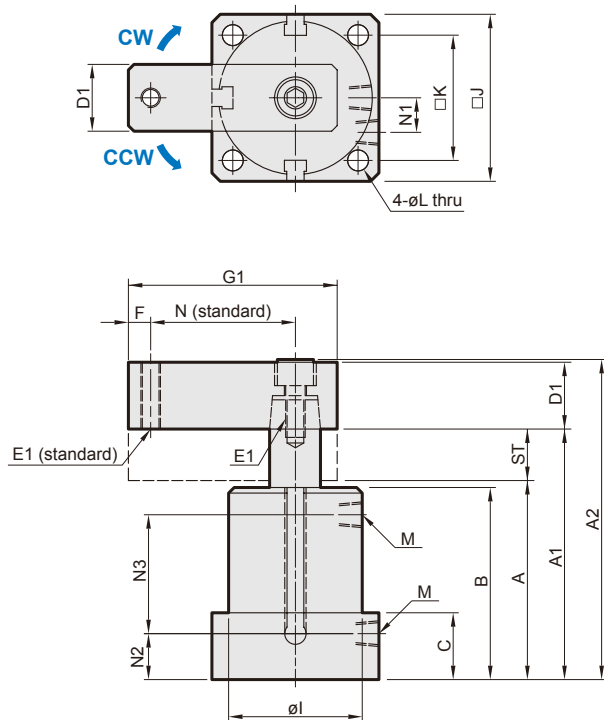
- With magnet type

Model	Weight (kg)
PTAS-25	0.3
PTAS-32	0.7
PTAD-32	0.9
PTAS-40	0.9
PTAD-40	1.1
PTAS-50	1.6
PTAD-50	1.8
PTAS-63	2.1
PTAD-63	2.3

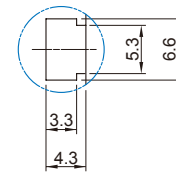
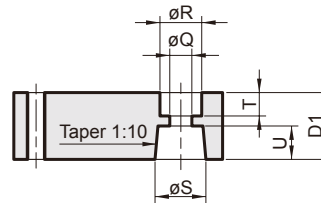
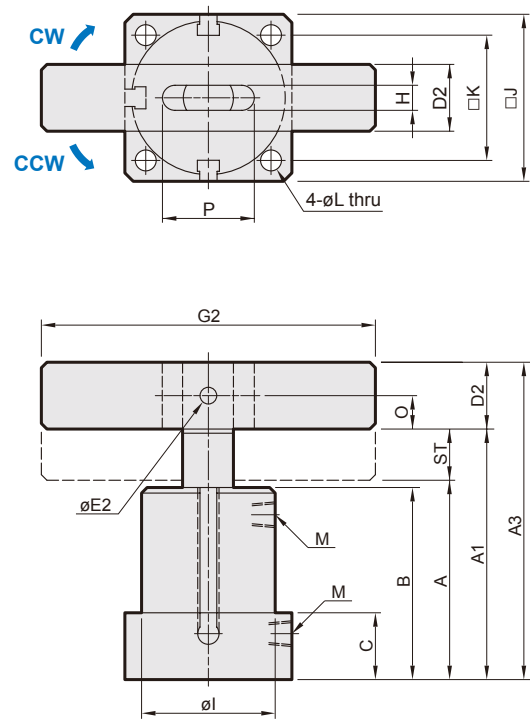
Model	Weight (kg)
PTAS-25M	0.4
PTAS-32M	0.73
PTAD-32M	0.93
PTAS-40M	0.95
PTAD-40M	1.15
PTAS-50M	1.65
PTAD-50M	1.85
PTAS-63M	2.22
PTAD-63M	2.42



PTAS



PTAD



■ Single side clamping arm

■ Auto switch mounting groove position

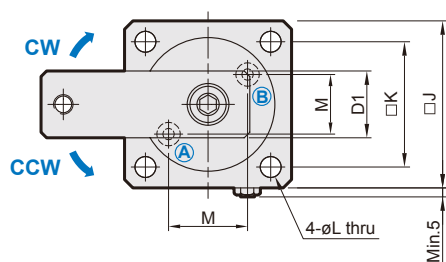
Model	Tube I.D. (mm)	Piston rod (mm)	Swing stroke (mm)	Clamping stroke (mm)	Pressure area push/Pull (mm ²)	Clamping force N (0.6 MPa)	Clamping arm type			
							G1		G2	
							Standard	Extension	Standard	Extension
PTAS-32M	PTAD-32M	$\varnothing 32$	$\varnothing 16$	11	804 / 603	360	70	100	140	200
PTAS-40M	PTAD-40M	$\varnothing 40$	$\varnothing 16$	11	1257 / 1056	630	75	100	140	200
PTAS-50M	PTAD-50M	$\varnothing 50$	$\varnothing 20$	13	1963 / 1649	980	85	130	160	230
PTAS-63M	PTAD-63M	$\varnothing 63$	$\varnothing 20$	13	3117 / 2803	1680	95	130	160	230

Code Model		A	A1	A2	A3	B	C	D1	D2	E1	E2	F	H	I	J	K
PTAS-32M	PTAD-32M	87	113	(133)	132	83	28	□ 19	□ 19	M8×1,25	ø 8	8	9	ø 46	50	40
PTAS-40M	PTAD-40M	87	113	(133)	132	83	28	□ 19	□ 19	M8×1,25	ø 8	8	9	ø 55	60	48
PTAS-50M	PTAD-50M	99	129	(155,4)	151,2	95	31	□ 25,4	□ 22,2	M10×1,5	ø 8	10	10	ø 65	70	57
PTAS-63M	PTAD-63M	99	129	(155,4)	151,2	95	31	□ 25,4	□ 22,2	M10×1,5	ø 8	10	10	ø 78	83	67

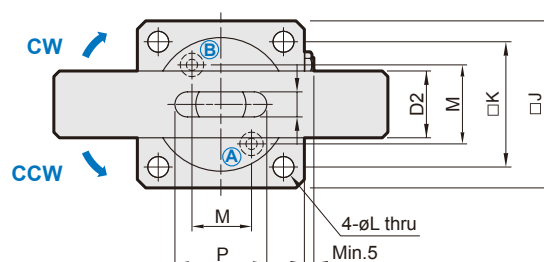
Code Model		L	M	N	N1	N2	N3	O	P	Q	R	S	ST	T	U
PTAS-32M	PTAD-32M	ø 5,6	Rc1/8	50	11,5	19	50	9,5	25	ø 9	ø 14	ø 16	26	7	9,5
PTAS-40M	PTAD-40M	ø 6,8	Rc1/8	55	14	19	50	9,5	25	ø 9	ø 14	ø 16	26	7	9,5
PTAS-50M	PTAD-50M	ø 6,8	Rc1/8	60	17	21	59	11,1	29	ø 11	ø 17	ø 20	30	9	12,5
PTAS-63M	PTAD-63M	ø 9	Rc1/8	70	20	21	59	11,1	29	ø 11	ø 17	ø 20	30	9	12,5

FC

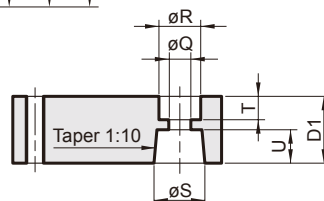
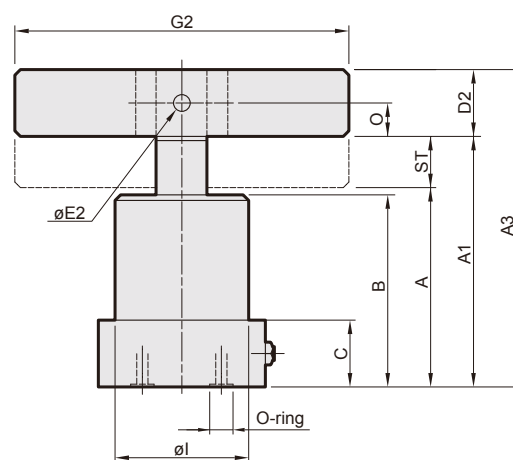
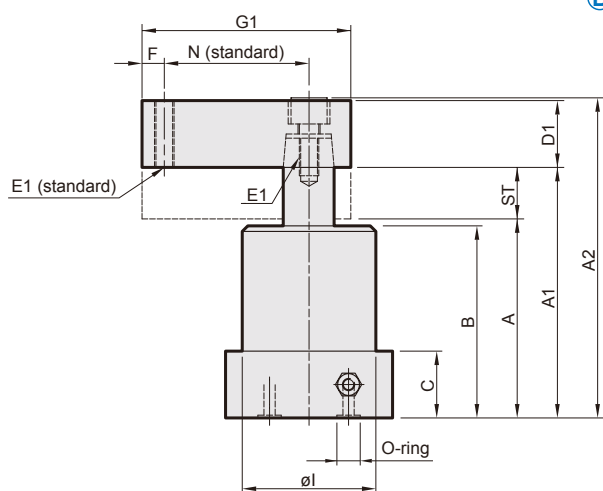
PTAS



PTAD



Ⓐ Clamp port
Ⓑ Release port



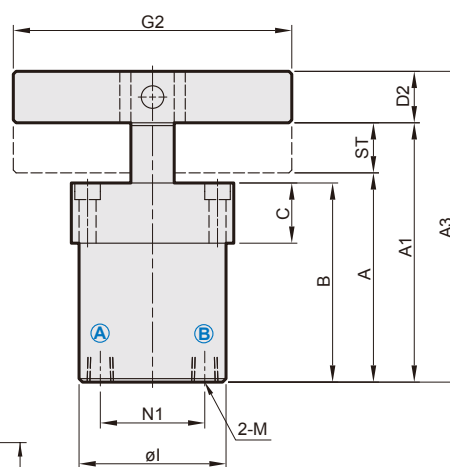
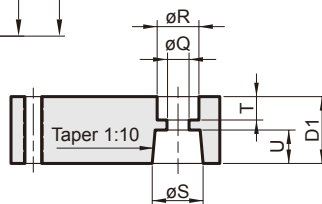
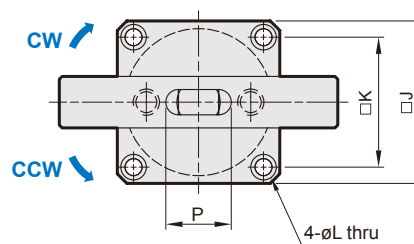
■ Single side clamping arm

Model	Tube I.D. (mm)	Piston rod (mm)	Swing stroke (mm)	Clamping stroke (mm)	Pressure area push/Pull (mm ²)	Clamping force N (0.6 MPa)	Clamping arm type			
							G1		G2	
							Standard	Extension	Standard	Extension
PTAS-32FA PTAD-32FA	ø 32	ø 16	11	15	804 / 603	360	70	100	140	200
PTAS-40FA PTAD-40FA	ø 40	ø 16	11	15	1257 / 1056	630	75	100	140	200
PTAS-50FA PTAD-50FA	ø 50	ø 20	13	17	1963 / 1649	980	85	130	160	230
PTAS-63FA PTAD-63FA	ø 63	ø 20	13	17	3117 / 2803	1680	95	130	160	230

Code Model	A	A1	A2	A3	B	C	D1	D2	E1	E2	F	H	I	J	K
PTAS-32FA PTAD-32FA	82	108	(129,5)	127	78	22	□19	□19	M8×1,25	ø8	8	9	ø46	50	40
PTAS-40FA PTAD-40FA	82	108	(129,5)	127	78	22	□19	□19	M8×1,25	ø8	8	9	ø55	60	48
PTAS-50FA PTAD-50FA	94	124	(152,4)	146,2	90	25	□25,4	□22,2	M10×1,5	ø8	10	10	ø65	70	57
PTAS-63FA PTAD-63FA	94	124	(152,4)	146,2	90	25	□25,4	□22,2	M10×1,5	ø8	10	10	ø78	83	67

Code Model	L	M	N	O	P	Q	R	S	ST	T	U	O-ring
PTAS-32FA PTAD-32FA	ø5,6	19	50	9,5	25	ø9	ø14	ø16	26	7	9,5	P7
PTAS-40FA PTAD-40FA	ø6,8	23	55	9,5	25	ø9	ø14	ø16	26	7	9,5	P7
PTAS-50FA PTAD-50FA	ø6,8	28	60	11,1	29	ø11	ø17	ø20	30	9	12,5	P9
PTAS-63FA PTAD-63FA	ø9	32	70	11,1	29	ø11	ø17	ø20	30	9	12,5	P9

PTAS

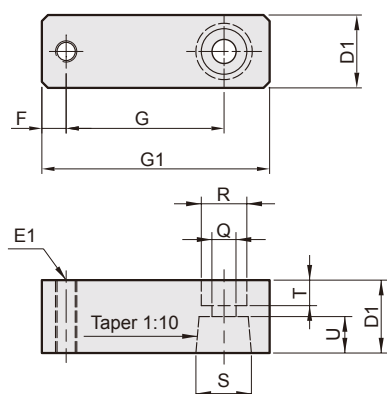


Model		Tube I.D. (mm)	Piston rod (mm)	Swing stroke (mm)	Clamping stroke (mm)	Pressure area push/Pull (mm ²)	Clamping force N (0.6 MPa)	Clamping arm type			
								G1		G2	
								Standard	Extension	Standard	Extension
PTAS-32FA	PTAD-32FA	ø 32	ø 16	11	15	804 / 603	360	70	100	140	200
PTAS-40FA	PTAD-40FA	ø 40	ø 16	11	15	1257 / 1056	630	75	100	140	200
PTAS-50FA	PTAD-50FA	ø 50	ø 20	13	17	1963 / 1649	980	85	130	160	230
PTAS-63FA	PTAD-63FA	ø 63	ø 20	13	17	3117 / 2803	1680	95	130	160	230

Code Model		L	M	N	N1	O	P	Q	R	S	ST	T	U
PTAS-32FA	PTAD-32FA	ø 5,6, ø 9x5,5dp	Rc1/8	50	32	9,5	25	ø 9	ø 14	ø 16	26	7	9,5
PTAS-40FA	PTAD-40FA	ø 6,8, ø 10,5x6,5dp	Rc1/8	55	40	9,5	25	ø 9	ø 14	ø 16	26	7	9,5
PTAS-50FA	PTAD-50FA	ø 6,8, ø 10,5x6,5dp	Rc1/8	60	50	11,1	29	ø 11	ø 17	ø 20	30	9	12,5
PTAS-63FA	PTAD-63FA	ø 9, ø 14x9dp	Rc1/8	70	63	11,1	29	ø 11	ø 17	ø 20	30	9	12,5

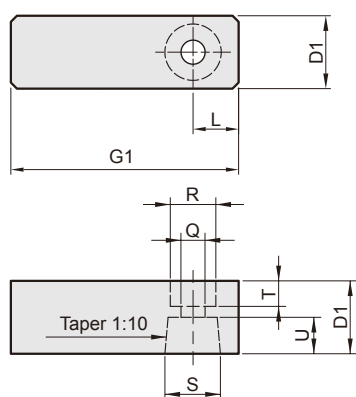
PTA* Clamping arm type $\varnothing 32 \sim \varnothing 63$

■ Single side swing clamping arm
(Standard type with thread)



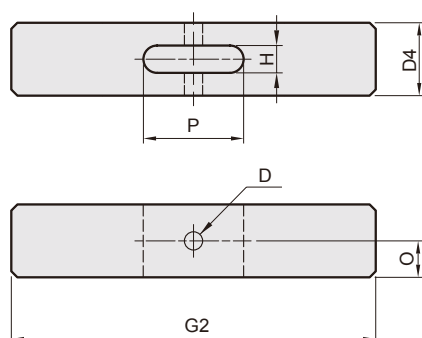
Code Model	D1	F	G	G1	E1	Q	R	S	T	U
PTAS-25	□ 15,9	6	35	50	M6×1,0	∅ 6,8	∅ 11	∅ 14	5	8,5
PTAS-32	□ 19	8	50	70	M8×1,25	∅ 9	∅ 14	∅ 16	7	9,5
PTAS-40	□ 19	8	55	75	M8×1,25	∅ 9	∅ 14	∅ 16	7	9,5
PTAS-50	□ 25,4	10	60	85	M10×1,5	∅ 11	∅ 17	∅ 20	9	12,5
PTAS-63	□ 25,4	10	70	95	M10×1,5	∅ 11	∅ 17	∅ 20	9	12,5

■ Single side swing clamping arm B type
(Extension type without thread)



Code Model	D1	F	G1	L	Q	R	S	T	U
PTAS-25B	□ 15,9	6	70	15	∅ 6,8	∅ 11	∅ 14	5	8,5
PTAS-32B	□ 19	8	100	20	∅ 9	∅ 14	∅ 16	7	9,5
PTAS-40B	□ 19	8	100	20	∅ 9	∅ 14	∅ 16	7	9,5
PTAS-50B	□ 25,4	10	130	25	∅ 11	∅ 17	∅ 20	9	12,5
PTAS-63B	□ 25,4	10	130	25	∅ 11	∅ 17	∅ 20	9	12,5

■ Double side swing clamping arm
(Standard & Extension type)



· Double side clamping arm (Standard type)

Code Model	Tube I.D.	D	D4	G2	H	O	P
PTAD-32	∅ 32	∅ 8	□ 19	140	9	9,5	25
PTAD-40	∅ 40	∅ 8	□ 19	140	9	9,5	25
PTAD-50	∅ 50	∅ 8	□ 22,2	160	10	11,1	29
PTAD-63	∅ 63	∅ 8	□ 22,2	160	10	11,1	29

· Double side clamping arm B type (Extension type)

Code Model	Tube I.D.	D	D4	G2	H	O	P
PTAD-32B	∅ 32	∅ 8	□ 19	200	9	9,5	25
PTAD-40B	∅ 40	∅ 8	□ 19	200	9	9,5	25
PTAD-50B	∅ 50	∅ 8	□ 22,2	230	10	11,1	29
PTAD-63B	∅ 63	∅ 8	□ 22,2	230	10	11,1	29



■ Specification

Model	PSB*	
Medium	Air	
Operating pressure range	0.2~1 MPa	
Proof pressure	Please scan	1.5 MPa
Ambient temperature	-5~+60°C (No freezing)	
Lubrication	Not required	
Cushion	With rubber cushion pad	
Sensor switch(*)	RCA for $\phi 50$	RCB, RCE, RCE1, RDEP
Sensor switch holder	HS	—

* RCA, RCB, RCE, RCE1, PAEP specifications, please refer to page 8-6, 8, 10, 14.

Order example

PSBD - 32 - 20 - (L - K - L) - G - V - 4E2 - AC110

Model

Tube I.D. (mm): 32
Stroke (mm): 20
Level lock Mechanism: (L - K - L)
Free pass: G
Solenoid valve link seats for MVSC1-150 valve* (Only for MSBD- $\phi 32$, $\phi 50$): V
VOLTAGE: AC220 V(50/60)Hz, AC110 V(50/60)Hz, DC24 V: AC110
Shock absorbers grade: L (Light), M (Standard), H (Powerful)
Port thread: Blank: Rc thread, G: G thread, NPT: NPT thread

Type of cylinder	Operation type	Standard stroke	Magnet	Sensor switch	Weight
PSBD	Shockless stopper (Double acting with spring)	$\phi 32-20$	○	RCE, RCE1, RDEP	740 g
		$\phi 50-30$	○	RCA	1800 g
		$\phi 63-30$	○	RCB, RCE, RCE1, RDEP	3680 g
		$\phi 80-40$	○	RCB, RCE, RCE1, RDEP	6820 g

* MVSC1-150 specification, please refer to page 1-21 (Vol.1).

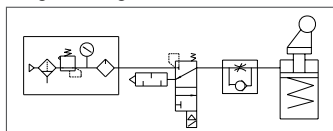
PSBR - 40 - 30 - G

Model

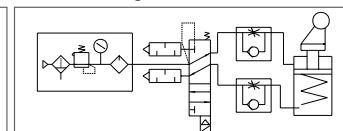
Tube I.D. (mm): 40
Stroke (mm): 30
PORT THREAD: Blank: Rc thread, G: G thread, NPT: NPT thread

■ Piping diagram

Single acting



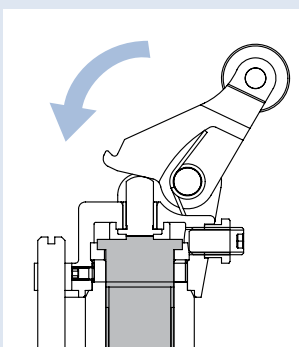
Double acting



Type of cylinder	Operation type	Standard stroke	Magnet	Sensor switch	Weight
PSBR	Stopper with roller (Double acting)	$\phi 20-20$	○	RCB	250 g
	Stopper with roller (Single acting-Spring extended)	$\phi 32-20$	○	RCE, RCE1, RDEP	740 g
		$\phi 40-30$	×	—	1400 g
		$\phi 50-30$	×	—	1800 g
PSBS	Direct stopper (Double acting)	$\phi 20-10$	○	RCB	192 g
		$\phi 32-20$	○	RCE, RCE1, RDEP	720 g
		$\phi 50-30$	○	RCA	1850 g

Pallet control stopper type

Shock absorber built-in



Absorbs the shock when the carried object stops, and stops the object softly on the right Position. There is an adapter between the lever and shock absorber, which straightens the inclined load on the lever and transmits it to the lever.

Lever lock mechanism

With this optional feature, the carried object is not pushed back by the lever. Also the Object returns to the right position after being lifted up. The lock is released by supplying air and lowering the rod.

Stopper mechanism

Guide bar equipped for fixing the direction of the roller lever.

Light aluminum

Main cylinder part, shock absorber, and roller lever are integrated in the aluminum die cast body. The best cylinder for the light and space-saving conveyor line.

Free pass mechanism

Setting the pass-plate on the lever holder, the lever is fixed in the OFF position. Use the optional feature when the carried object needs to pass over the cylinder.



Solenoid valve and sensor switch

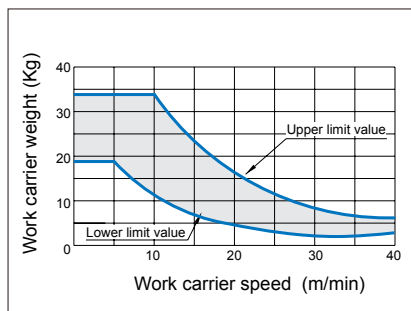
Magnet-sensing sensor switch is available for MS** Reed or "solid state" switches with LED is fixed, not need to adjust the position, 5/2 solenoid Valve can be directly mounted on the cylinder.



Capacity $\phi 32 \sim \phi 80$

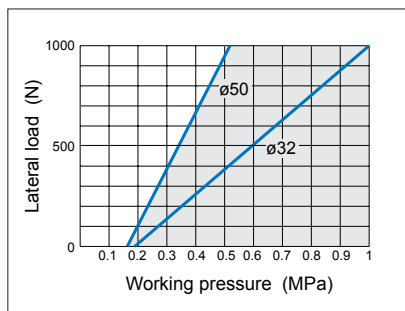
■ PSBD $\phi 32-20$

Capacity



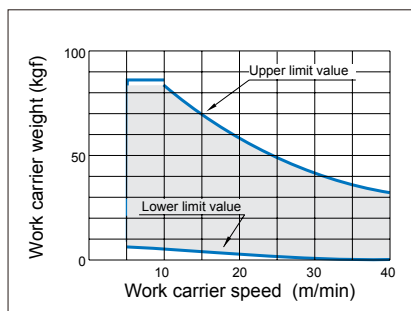
■ PSBD $\phi 32-20, \phi 50-30$

Normal lateral load

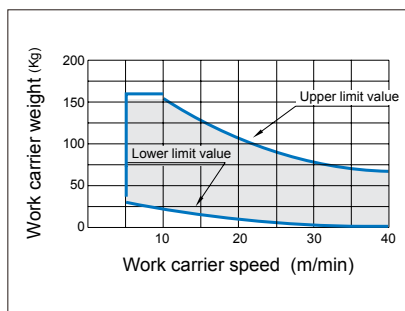


■ PSBD $\phi 50-30$

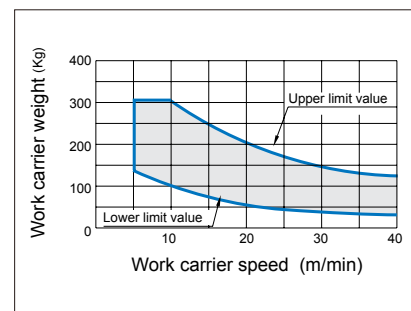
Capacity Light weight type



Capacity Standard type

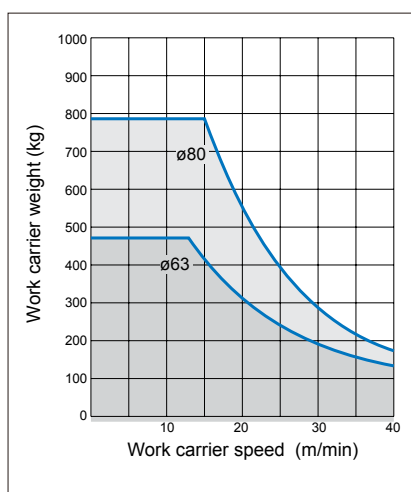


Capacity Heavy duty type

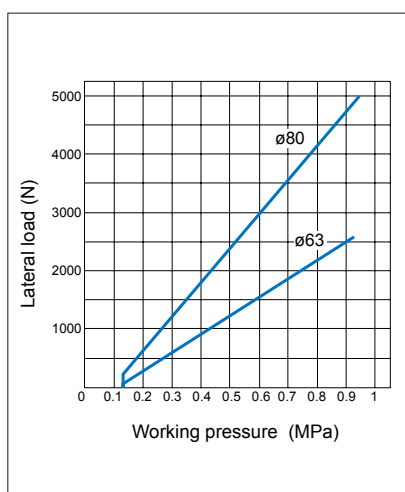


■ PSBD $\phi 63-30, \phi 80-40$

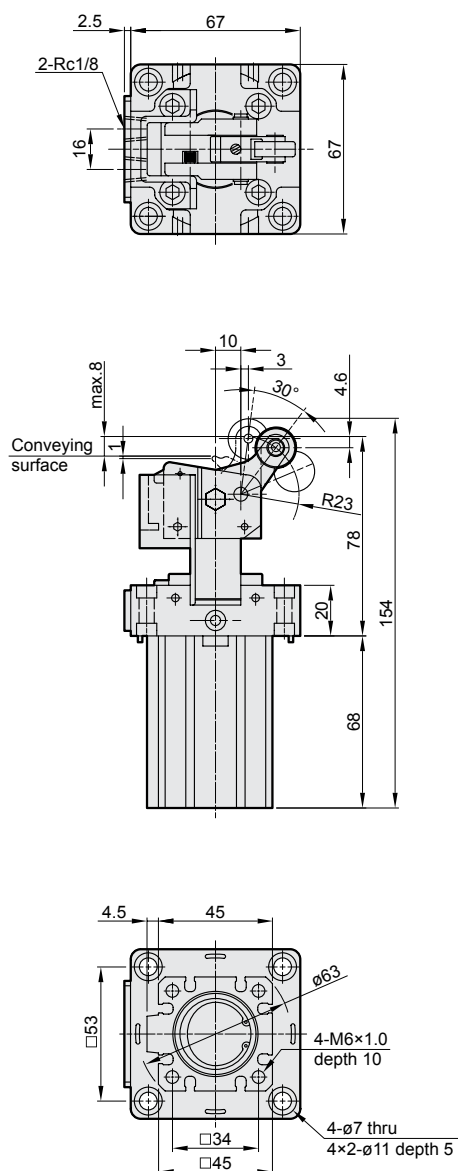
Capacity



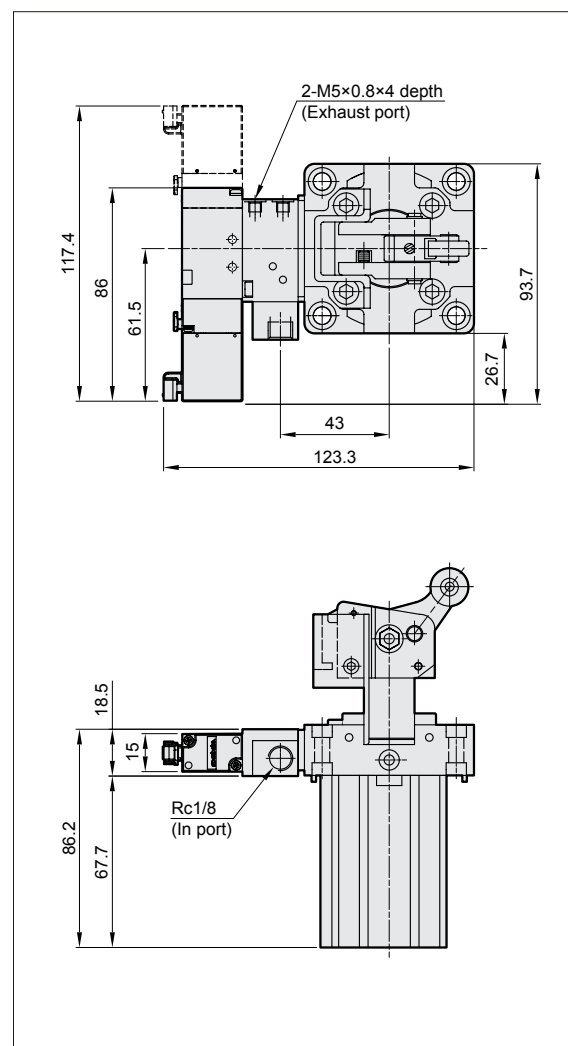
Normal lateral load



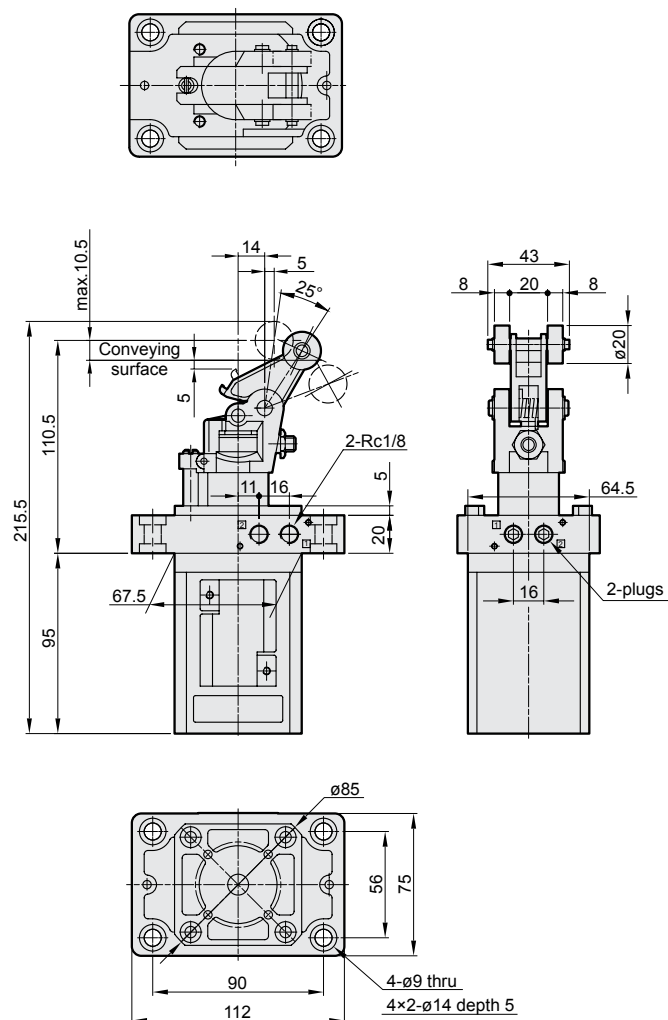
■ PSBD $\varnothing 32-20$



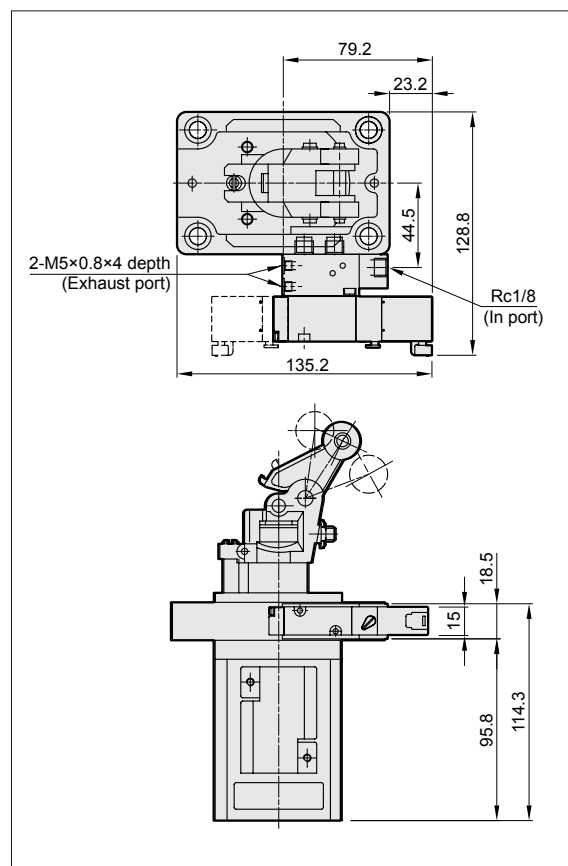
■ PSBD $\varnothing 32-20-V$



■ PSBD $\varnothing 50-30$



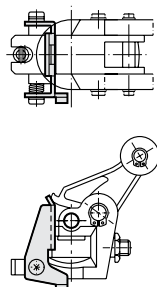
■ PSBD $\varnothing 50-30-V$



■ Option accessories

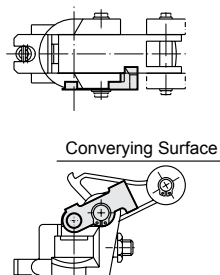
PSBD- $\varnothing 50 \times 30$ -K

Lever lock mechanism



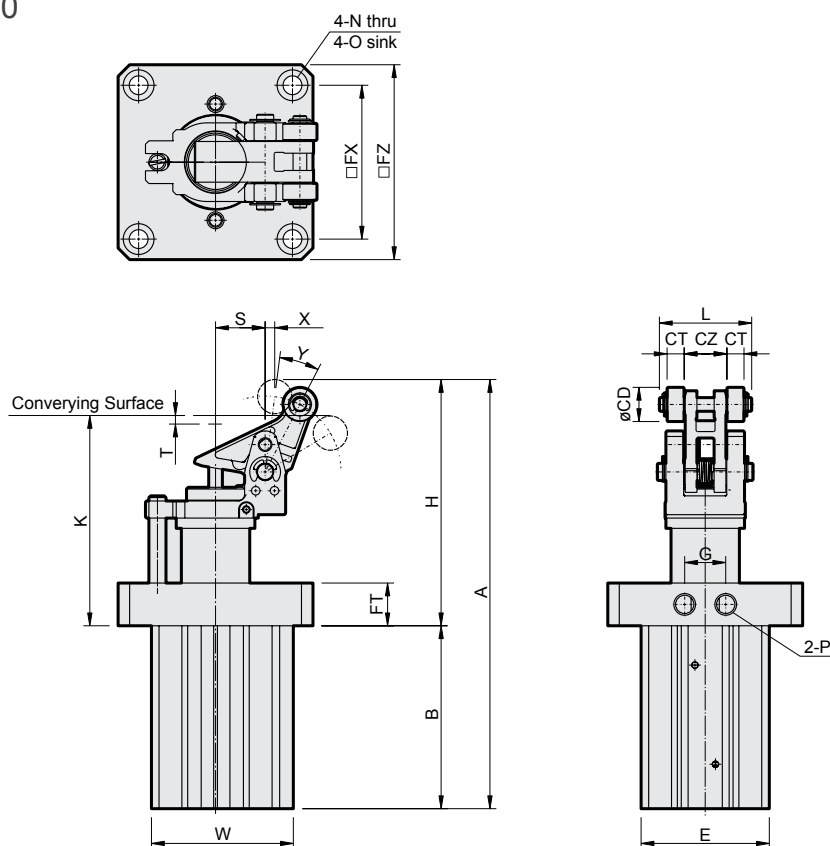
PSBD- $\varnothing 50 \times 30$ -L

Free pass mechanism



■ PSBD ø63-30

■ PSBD ø80-40

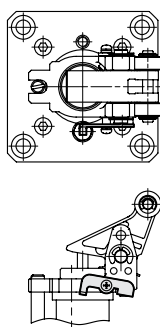


■ Option accessories

PSBD-ø63-30-K

PSBD-ø80-40-K

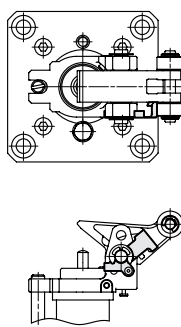
Lever lock mechanism



PSBD-ø63-30-L

PSBD-ø80-40-L

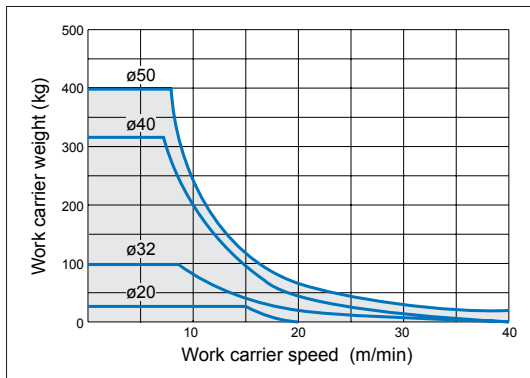
Free pass mechanism



Tube I.D.	Stroke	A	B	CD	CT	CZ	E	FT	FX	FZ	G	H	K	L	N	O	P	S	T	W	X	Y
63	30	251	107	20	10	25	75	25	90	114	24	144	123	54	ø11	ø18×6 depth	Rc1/4	29	5	83	6	20°
80	40	322.5	145	25	12	30	94	25	110	140	24	177.5	150	63	ø13	ø20×6 depth	Rc1/4	36	4	102	8	22°

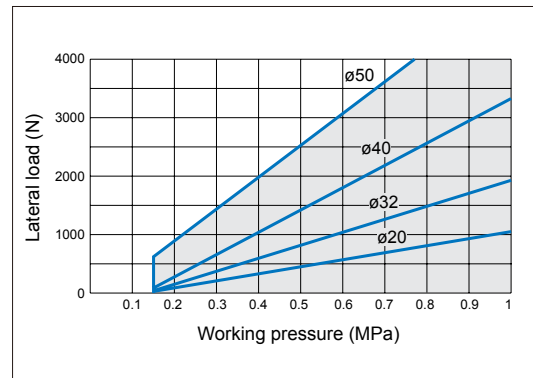
■ PSBR

Capacity



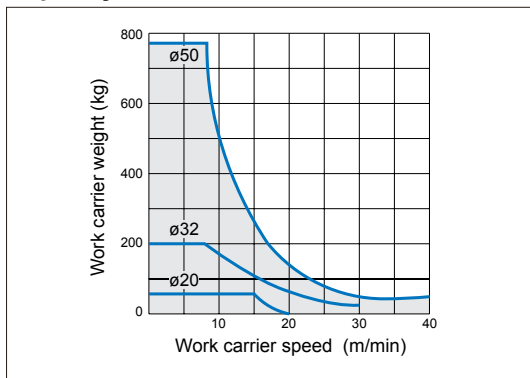
■ PSBR

Normal lateral load



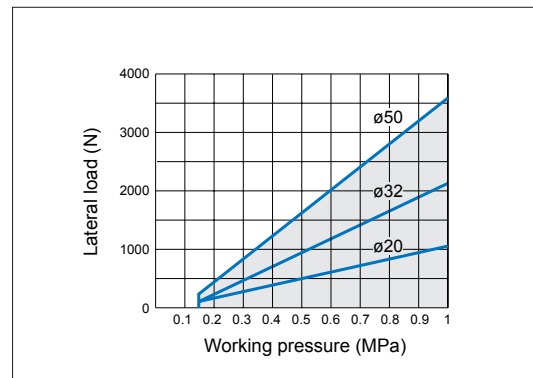
■ PSBS

Capacity

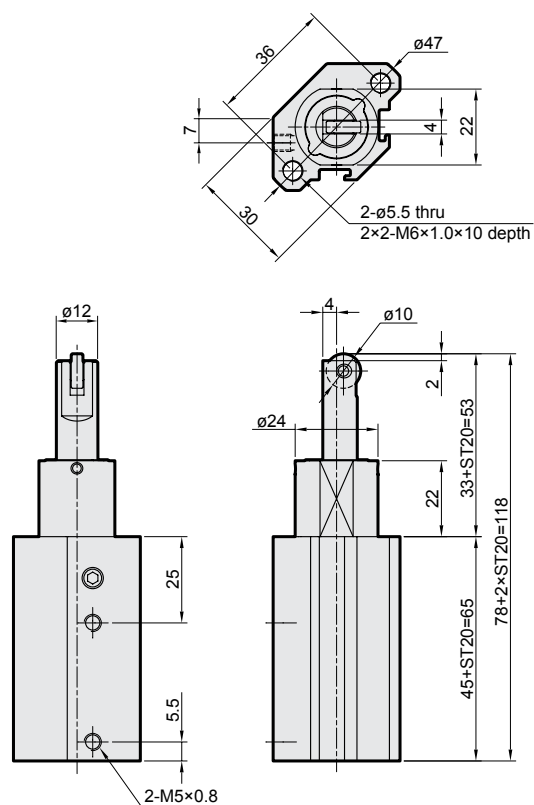


■ PSBS

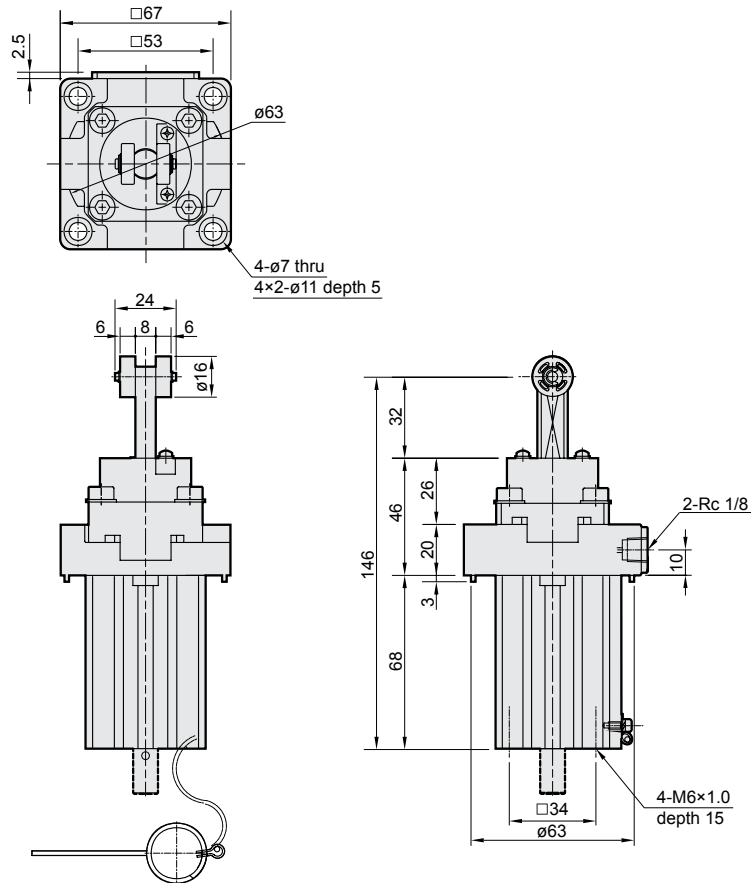
Normal lateral load



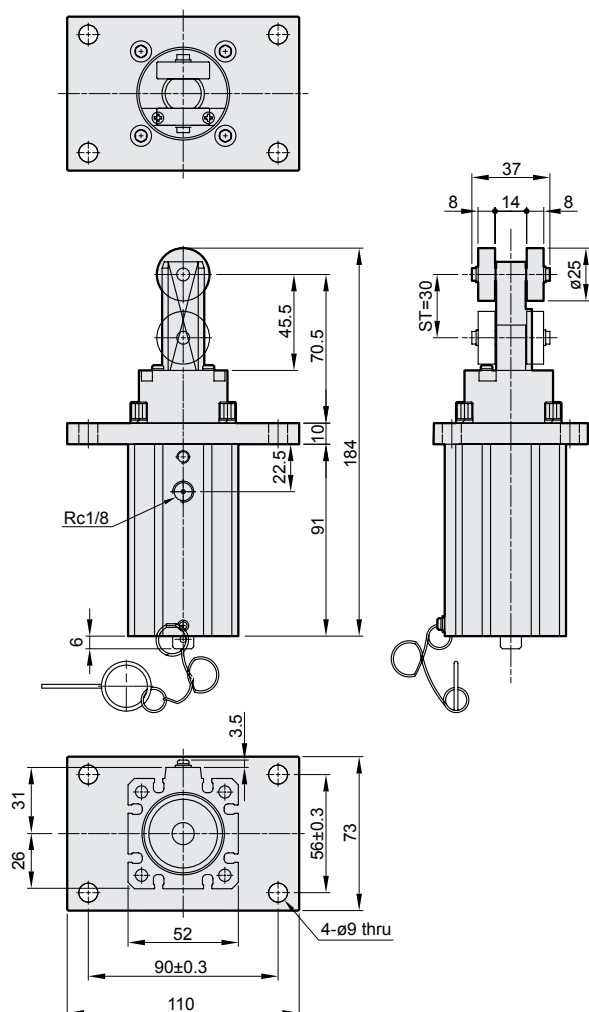
■ PSBR $\varnothing 20-20$



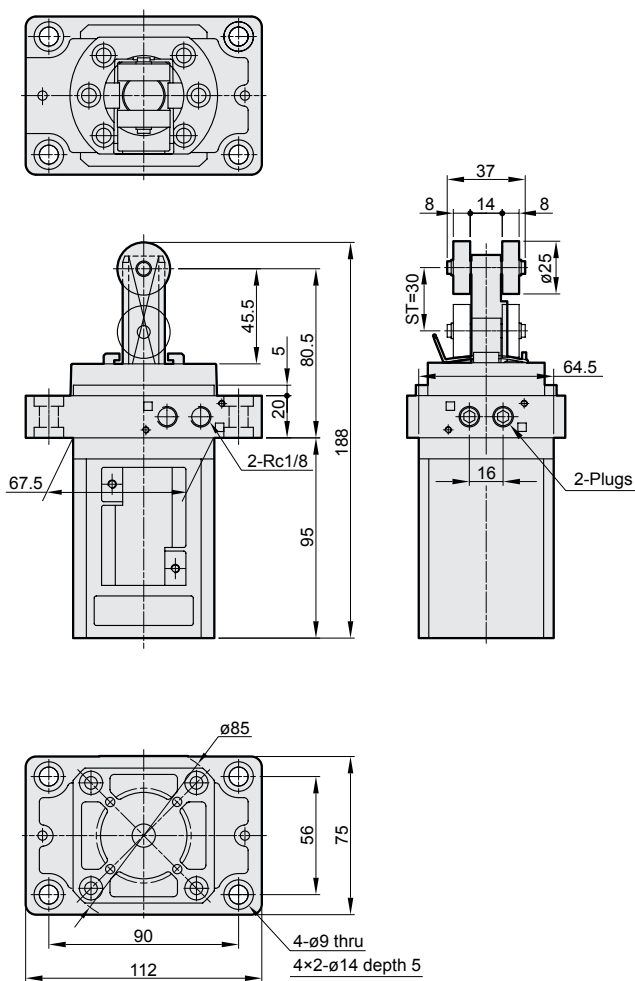
■ PSBR $\varnothing 32-20$



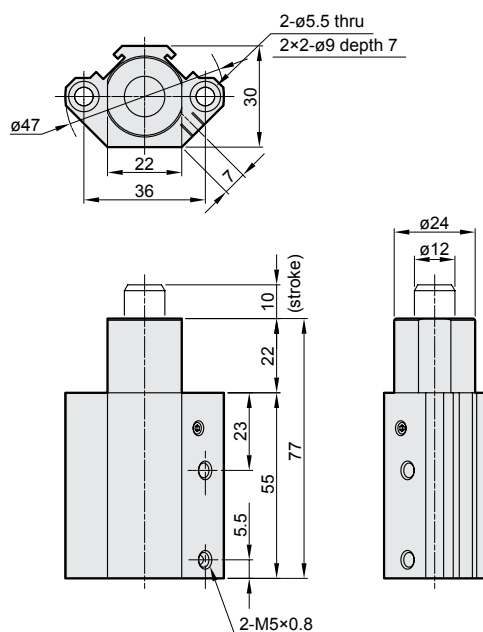
■ PSBR $\varnothing 40$ -30



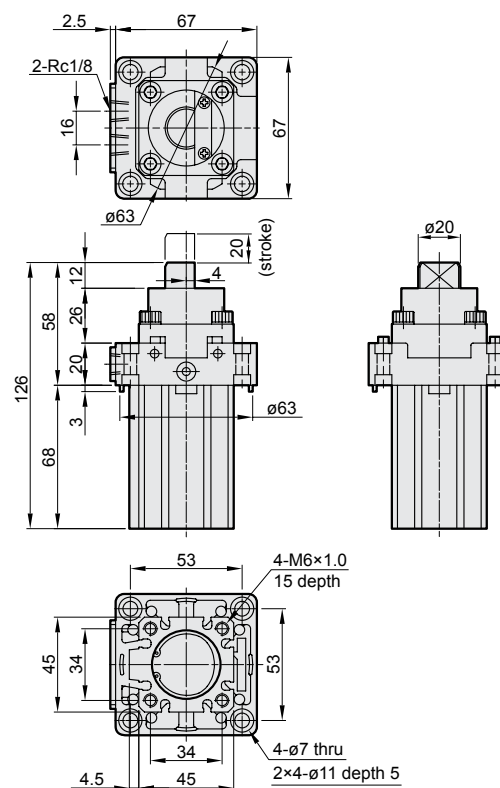
■ PSBR $\varnothing 50$ -30



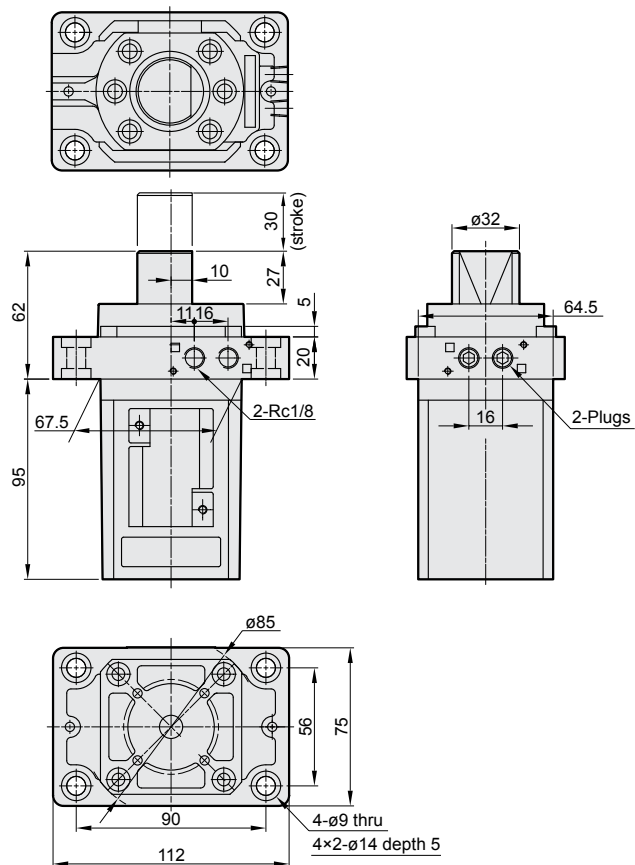
■ PSBS $\varnothing 20-10$

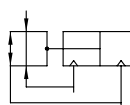
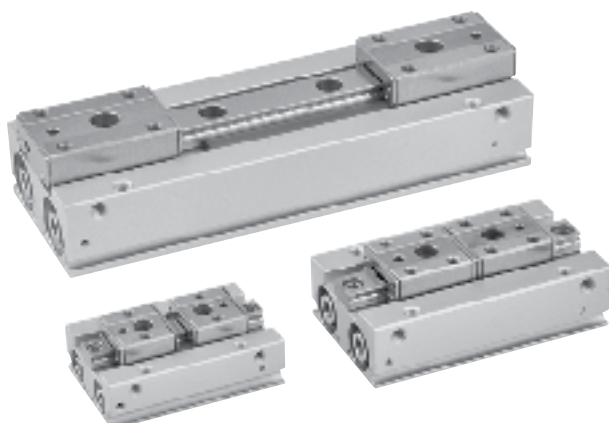


■ PSBS $\varnothing 32-20$

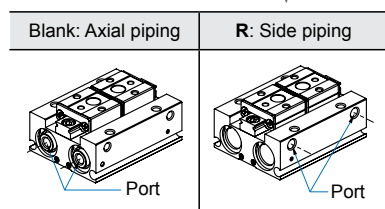
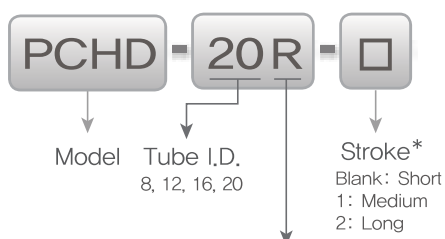


■ PSBS $\varnothing 50-30$





Order example



* Stroke selection

Tube I.D. Stroke (mm)	8	12	16	20
Short stroke 	8	12	16	20
Medium stroke 	16	24	32	40
Long stroke 	32	48	64	80

Features

- Low profile design saves space and reduces bending moments, improved accuracy with smooth operation.
- Improved mounting repeatability, easy positioning for mounting.
- Double piston construction achieves compact design with strong gripping force.
- High rigidity and high precision with martensitic stainless steel.
- Grooves on the body for sensor switch to be inserted into.
- Standard with magnet.

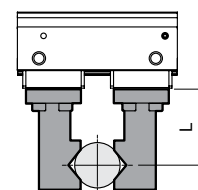
Specification

Model		PCHD			
Acting type		Double acting			
Tube I.D. (mm)		8	12	16	20
Port size		M3×0.5	M5×0.8		
Medium		Air			
Operating pressure range		0.15~0.7	0.1~0.7 MPa		
Ambient temperature		-10~+60°C (No freezing)			
Repeatability		± 0.05 mm (*1)			
Max. frequency	Short	120 c.p.m			
	Medium	120 c.p.m			
	Long	60 c.p.m			
Lubricator		Not required			
Sensor switch (*2)	2 wire	RDVE(V): Non-contact			
	3 wire	RNFE(V): NPN, RPFE(V): PNP			
Attached bolt		2 pcs		—	

* 1. This is the value when no offset load is applied to the finger. When an offset load is applied to the finger, the maximum value is ±0.15mm due to the influence of backlash of the rack and pinion.

* 2. R*FE(V) specification, please refer to page 5-10.

Gripping force

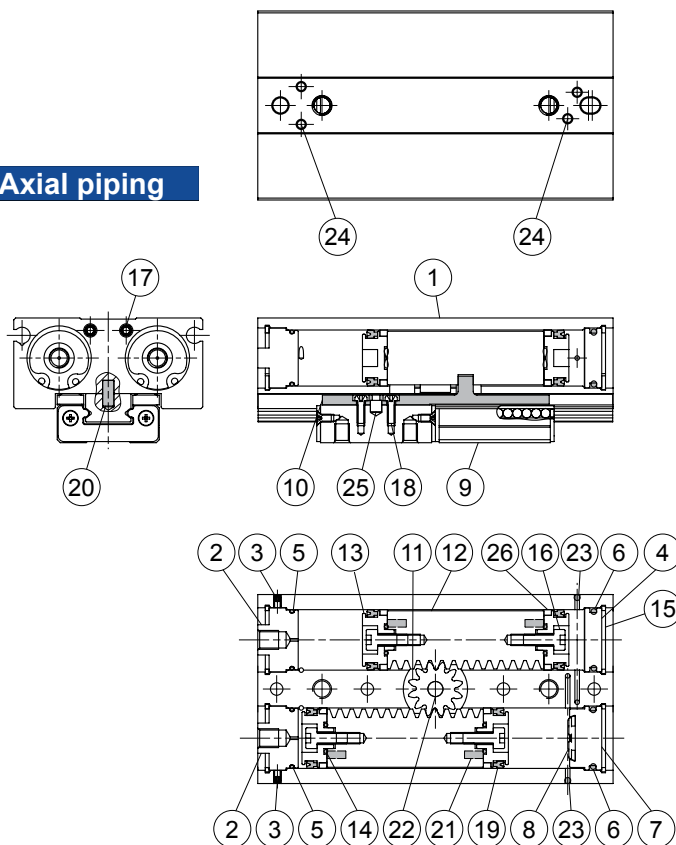


Model	Gripping force per finger effective value (N) (*)	Weight (g)
PCHD-8	19	65
PCHD-8-1		79.1
PCHD-8-2		113.3
PCHD-12	48	150
PCHD-12-1		191.3
PCHD-12-2		291.2
PCHD-16	90	350
PCHD-16-1		454.2
PCHD-16-2		678.3
PCHD-20	141	660
PCHD-20-1		869
PCHD-20-2		1310.6

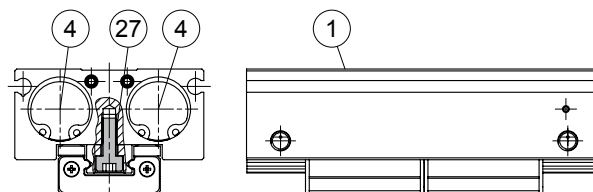
* Values based on pressure of 0.5 MPa, gripping point L=20mm, at center of stroke.

Inside structure & Parts list

Axial piping



Side piping



Order example of repair kits

Tube I.D.	Repair kits	Tube I.D.	Repair kits
ø8	PS-PCHD-8	ø16	PS-PCHD-16
	PS-PCHD-8R		PS-PCHD-16R
ø12	PS-PCHD-12	ø20	PS-PCHD-20
	PS-PCHD-12R		PS-PCHD-20R

Material

No.	Tube I.D.	Material				Q'y		Repair kits (inclusion)
	Part name	8	12	16	20	Axial	Side	
1	Body	Aluminum alloy				1	1	
2	Cover A	Aluminum alloy				2	0	
3	Hexgon screw	Stainless steel				2	0	
4	Cover B	Aluminum alloy				1	3	
5	O-ring	NBR				2	0	●
6	O-ring	NBR				2	4	●
7	Cover C	Aluminum alloy				1	1	
8	Cushion pad	TPU				1	1	●
9	Guide set	Stainless steel				1	1	
10	Lever	Stainless steel				2	2	
11	Pinion	SCM				1	1	
12	Pinion piston	Stainless steel				2	2	
13	Piston	*1	Aluminum alloy			4	2	
14	O-ring	NBR				4	4	●
15	Snap ring	Stainless steel				4	4	
16	Bolt	—	Stainless steel			4	4	
17	Screw	Stainless steel				4	4	
18	Screw	Stainless steel				4	4	

No.	Tube I.D. Part name	Material				Q'y		Repair kits (inclusion)
		8	12	16	20	Axial	Side	
19	Piston packing	NBR				4	4	●
20	Pin	Stainless steel				2	2	
21	Magnet	Magnet material				4	4	
22	Needle	Stainless steel				1	1	
23	Ball	Stainless steel				2	2	
24	Ball	Stainless steel				4	4	
25	Needle	Stainless steel				2	2	
26	Wear ring *2	Teflon				4	4	
27	Bolt *3	Stainless steel				K	K	

*1. Stainless steel

*2. Model PCHD-8(R)(-1), PCHD-12(R)(-1) without wear ring.

*3. Bolt Q'y

Model	K	Model	K
PCHD-8	2	PCHD-16	2
PCHD-8-1	2	PCHD-16-1	4
PCHD-8-2	4	PCHD-16-2	4
PCHD-12	2	PCHD-20	2
PCHD-12-1	4	PCHD-20-1	4
PCHD-12-2	4	PCHD-20-2	4

Model selection

Please select your model according to the weight of workpiece

- Although conditions differ according to the work piece shape and the coefficient of friction between the attachments and the workpiece, select a model that can provide a gripping force of 10 to 20 times the workpiece weight, or more.
- If high acceleration, deceleration or impact forces are encountered during motion, a further margin of safety should be considered.

When gripping a workpiece as in the figure as shown above:

F: Gripping force (N)

μ : Coefficient of friction between the attachments and the workpiece

m: Workpiece mass (kg)

g: Gravitational acceleration ($=9.8\text{m/s}^2$)

mg: Workpiece weight (N)

the conditions under which the workpiece will not drop are,

$$2 \times \mu F > mg$$

Number of fingers

Therefore,

$$F > \frac{mg}{2 \times \mu}$$

With "a" representing the extra margin, "F" is determined by the following formula:

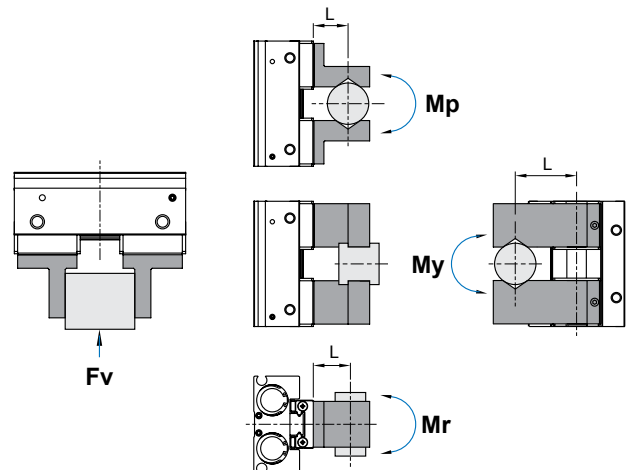
$$F = \frac{mg}{2 \times \mu} \times a$$

The "10 to 20 times or more of the workpiece weight" is calculated with a safety margin of $a=4$, which allows for impacts that occur during normal transportation, etc.

$\mu=0.2$	$\mu=0.1$
$F = \frac{mg}{2 \times 0.2} \times 4$ $= 10 \times mg$	$F = \frac{mg}{2 \times 0.1} \times 4$ $= 20 \times mg$
↓	↓
10×workpiece weight	20×workpiece weight

- * 1. Even in cases where the coefficient of friction is greater than $\mu=0.2$, for reasons of safety, please select a gripping force which is at least 10 to 20 times greater than the workpiece weight.
- * 2. If high acceleration, deceleration or impact forces are encountered during motion, a further margin of safety should be considered.

Confirmation of external force on fingers



L: Distance to the point at which the load is applied (mm)

Tube I.D. (mm)	Allowable vertical load Fv(N)	Maximum allowable moment		
		Pitch moment Mp(N·m)	Yaw moment My(N·m)	Roll moment Mr(N·m)
8	58	0.26	0.26	0.53
12	98	0.68	0.68	1.4
16	176	1.4	1.4	2.8
20	294	2	2	4

* Values for load and moment in the table indicate static values.

Allowable load calculation

$$\text{Allowable load } F(N) = \frac{M(\text{maximum allowable moment})(N \cdot m)}{L(m)}$$

Example

When a static load of $f=20\text{N}$ is operating, which applies pitch moment to point $L=25\text{mm}$ from the **PCHD-16** guide.

$$\begin{aligned} \text{Allowable load } F(N) &= \frac{1.4 (N \cdot m)}{25 \times 10^{-3} (m)} \\ &= 56 (N) \end{aligned}$$

Load $f=20 (N) < 56 (N)$, so can be used.

Model selection example

In the motion process did not produce high acceleration, deceleration or impact forces,
Workpiece mass: 300g, Gripping method: External gripping,
Operating pressure: 0.5 MPa, Coefficient of friction (μ): 0.1,
Holding position: 20mm (no overhang)

1. The conditions under which the workpiece will not drop are,

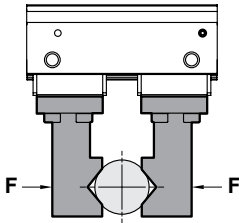
$$F = \frac{0.3}{2 \times 0.1} \times 4 = 6 (\text{kgf}) \approx 60 (N)$$

2. From Effective Gripping Force Fig,
Operating pressure: 0.5 MPa; Holding position: 20 mm
Effective gripping force is greater than 60 (N)
So selected **PCHD-16** grippers.

Effective gripping force (Double acting)

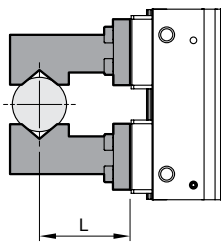
Indication of effective force.

The effective gripping force shown in the graphs to the right is expressed as F, which is the thrust of one finger, when both fingers and attachments are in full contact with the workpiece as shown in the figure below.

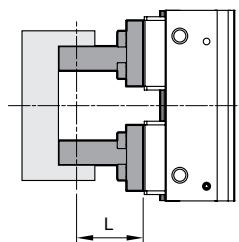


$$1\text{N}=0.102\text{ kgf}$$

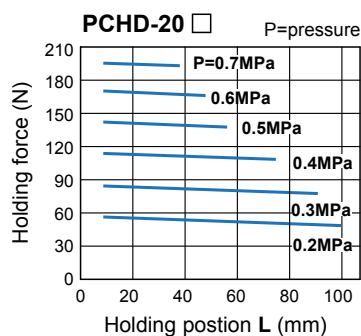
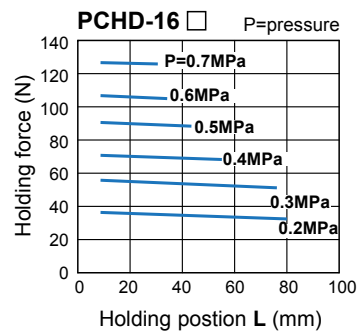
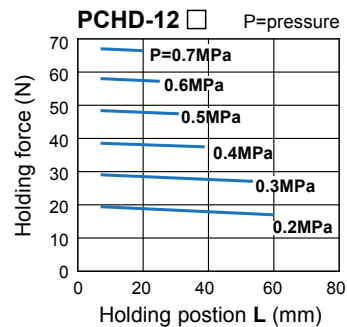
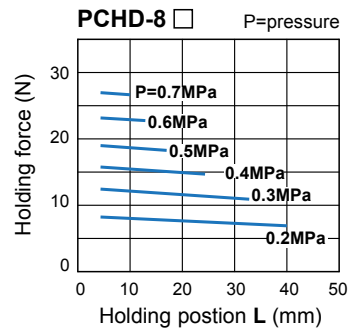
$$1\text{MPa}=10.2\text{ kgf/cm}^2$$



External grip

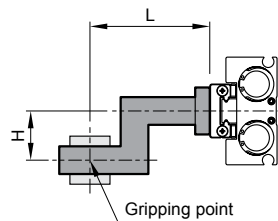


Internal grip

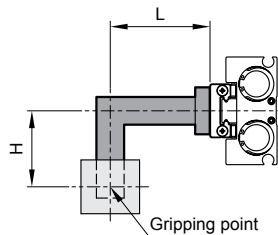


Confirmation of gripping point

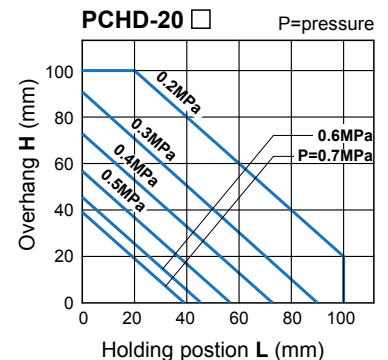
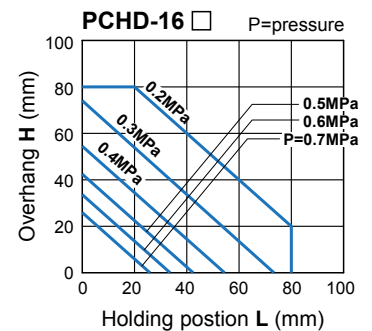
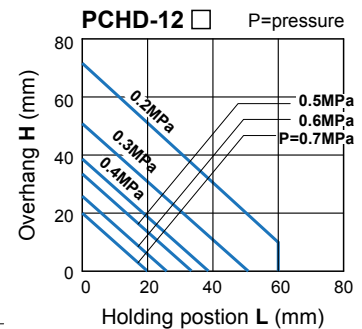
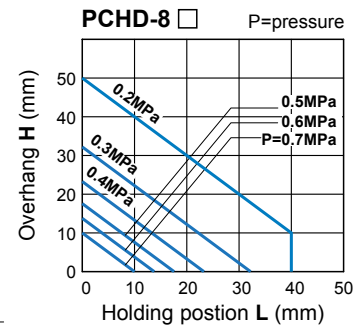
- The air gripper should be operated so that the workpiece gripping point "L" and the amount of overhang "H" stay within the range shown for each operating pressure given in the graphs.
- If the workpiece gripping point goes beyond the range limits, this will have an adverse effect on the life of the air gripper.



External grip



Internal grip

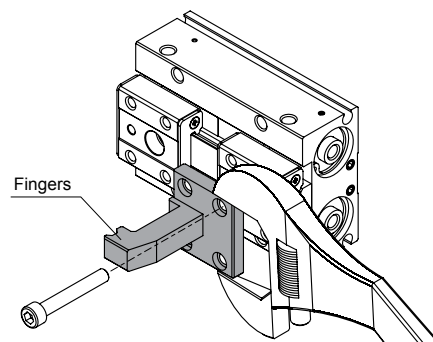


Product precautions

Product precautions

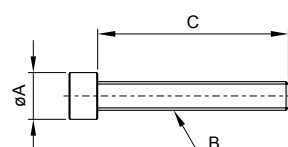
Before mount the fingers, sure be refer the tightening torque values in the table below.

Tube I.D. (mm)	Bolt	Max. tightening torque (N.m)
8	M2.5×0.45	0.36
12	M3×0.5	0.63
16	M4×0.7	1.5
20	M4×0.7	1.5



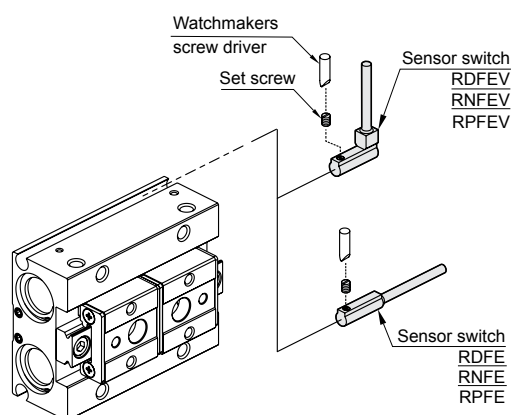
Order example of attached bolt

* One set includes 2 pcs, long stroke type need two sets (4 pcs).



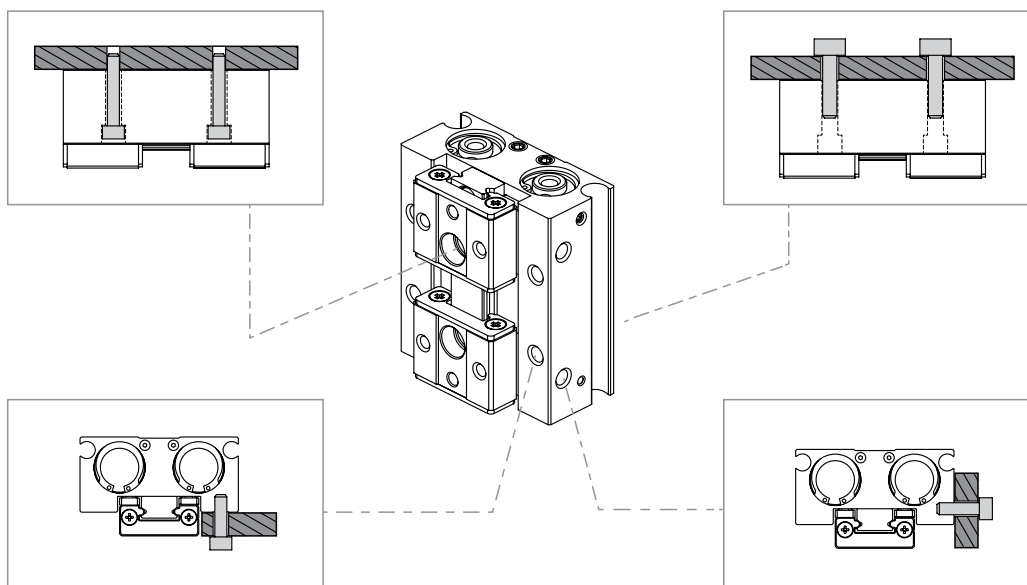
Code Tube I.D.	A	B	C
8	3.8	M2.5×0.45	15
12	4.9	M3×0.5	20

Installation of sensor switch



High degree of mounting flexibility

* Use the attached bolt for mounting in tube I.D. ø8, ø12.



PCHD-8(R)
PCHD-8(R)-1

2×M2.5×0.45×3 depth
(Mounting thread)

Q K K Q

Side view of side piping type

S

5.5

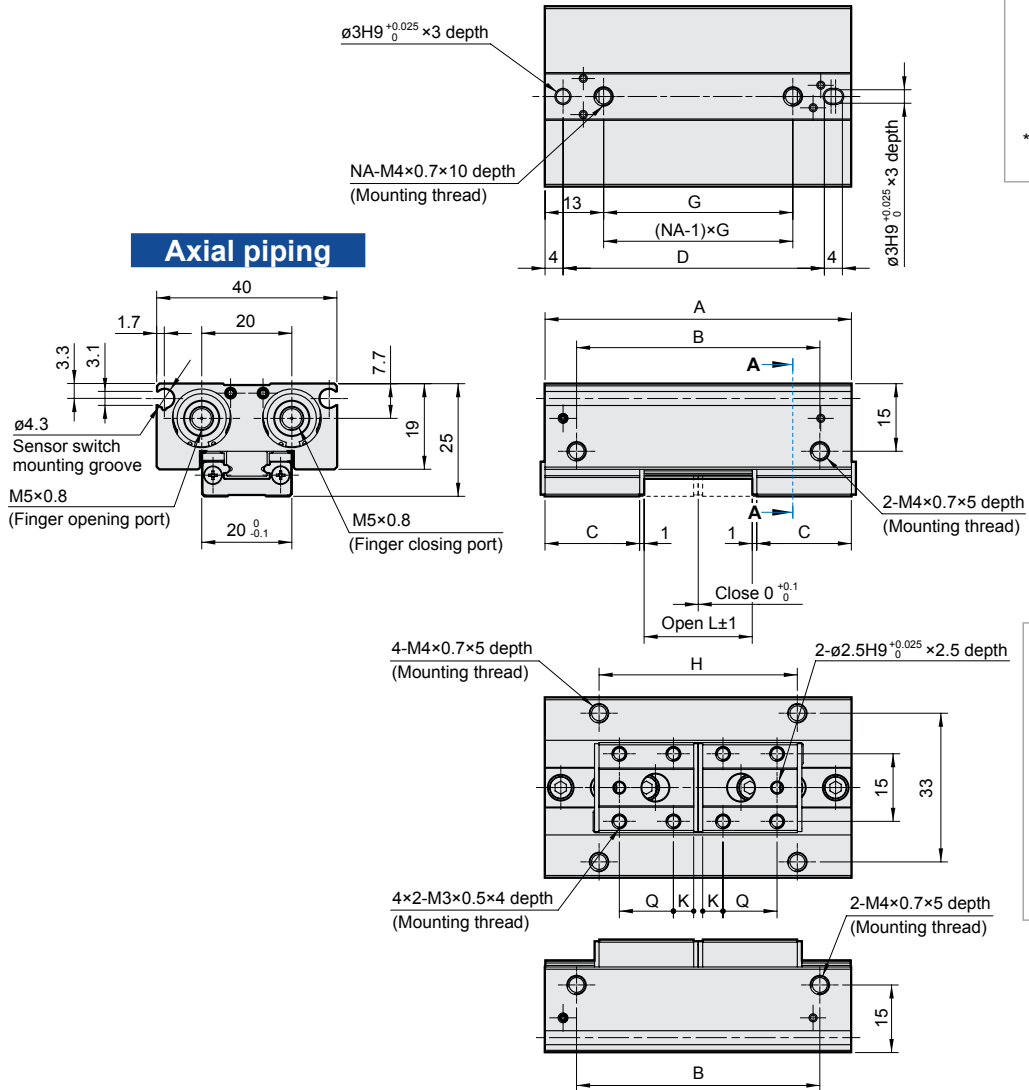
11

M3×0.5
(Finger closing port)

M3×0.5
(Finger opening port)

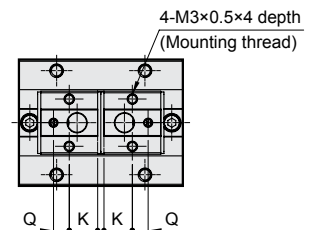
Code Model	A	B	C	D	G	H	K	L	N	NA	Q	S
PCHD-8(R)	36	22	12	28.3	16	14	6	8	10	2	4	25
PCHD-8(R)-1	48	34	14	40.3	28	26	7	16	10	2	4	37
PCHD-8(R)-2	72	58	18	64.3	17	50	5	32	10.5	4	8	61

Axial piping

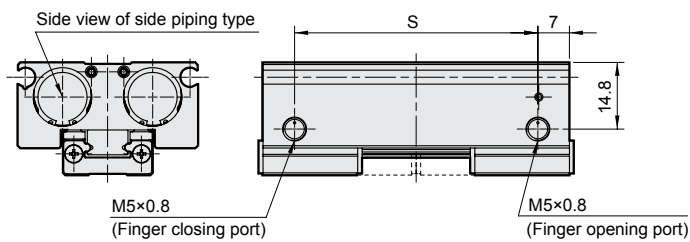


* Use the attached hex socket bolt while using the mounting hole.

PCHD-12(R)



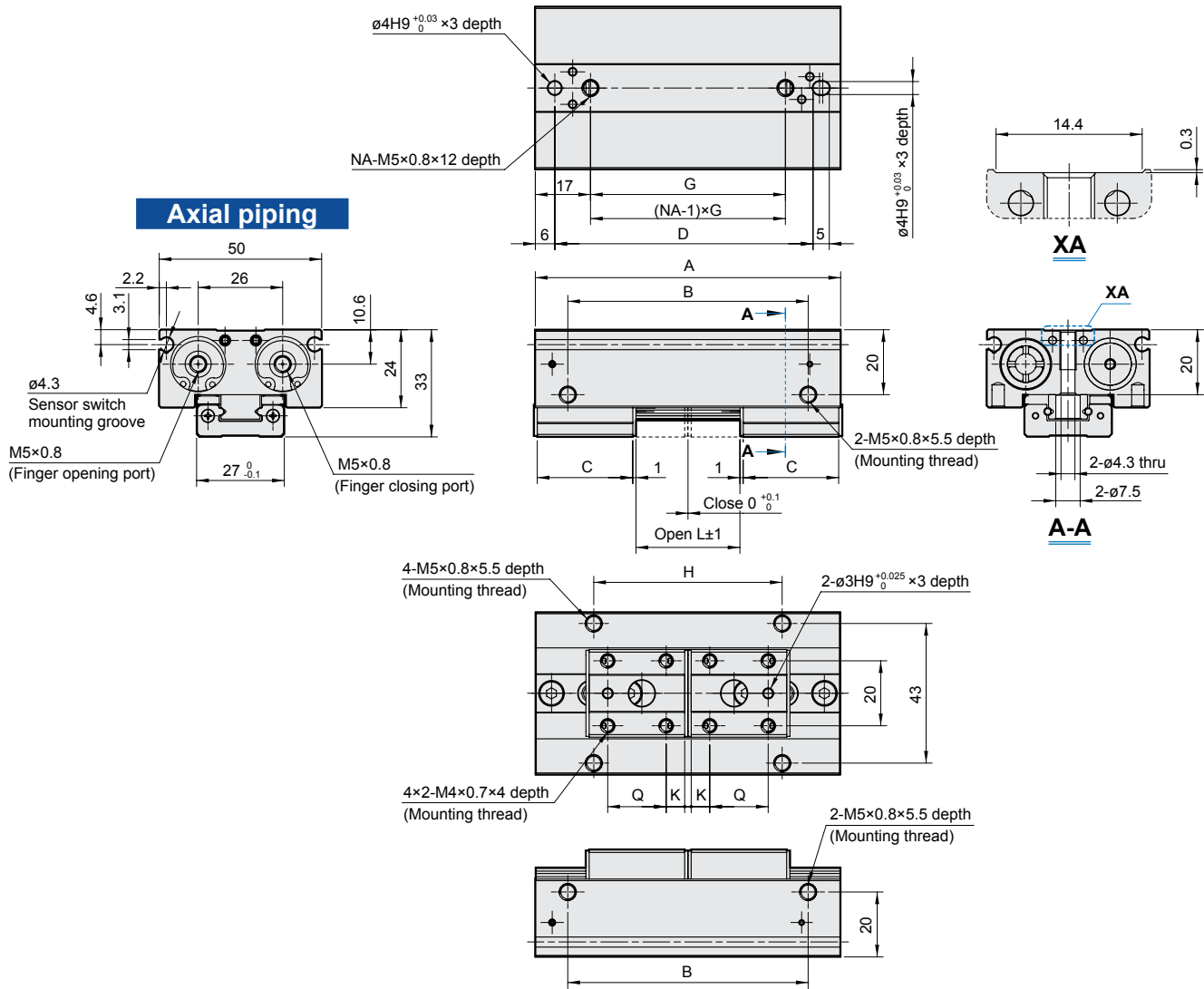
Side piping



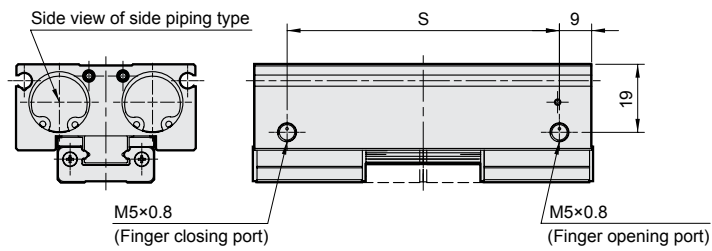
Unit: mm

Code Model	A	B	C	D	G	H	K	L	NA	Q	S
PCHD-12(R)	52	38	18	42	26	28	9	12	2	5	38
PCHD-12(R)-1	68	54	21	58	42	44	4.5	24	2	12	54
PCHD-12(R)-2	104	90	27	94	26	80	4.5	48	4	18	90

Axial piping



Side piping



Unit: mm

Code Model	A	B	C	D	G	H	K	L	NA	Q	S
PCHD-16(R)	72	52	25.4	57.5	38	36	5.2	16	2	15	54
PCHD-16(R)-1	94	74	29.4	79.5	60	58	5.7	32	2	18	76
PCHD-16(R)-2	142	122	37.4	127.5	36	106	5.7	64	4	26	124

Code Model	A	B	C	D	G	H	K	L	NA	Q	S
PCHD-20(R)	86	56	31.4	71	38	40	7.7	20	2	16	66
PCHD-20(R)-1	114	84	36.4	99	66	68	8.2	40	2	20	94
PCHD-20(R)-2	174	144	46.4	159	42	128	8.2	80	4	30	154

PAF302 series AIR UNIT (FILTER)



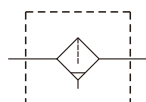
For more information
Please scan



■ Specification

Model	PAF302		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	Standard: 5μm, Option: 40μm		
Drain capacity	35 cm ³		
Weight	335 g		

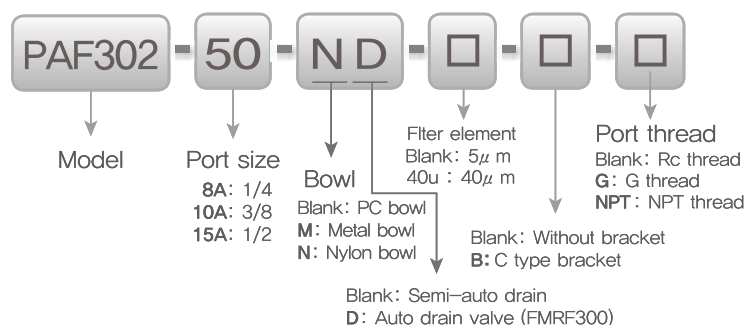
Symbol



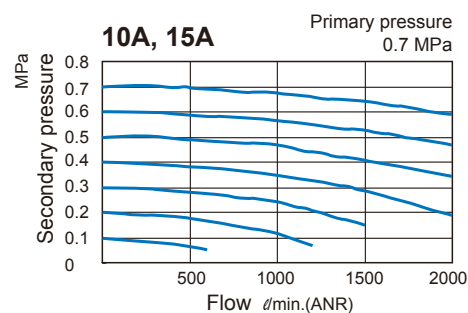
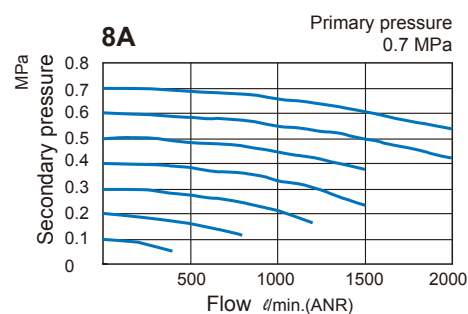
* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

■ Order example

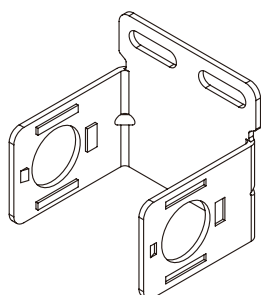


■ Flow feature



■ Option accessories

C type bracket

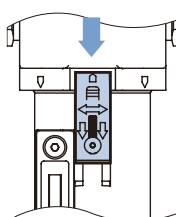


⚠ Caution

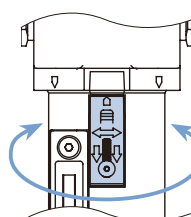
Metal bowl

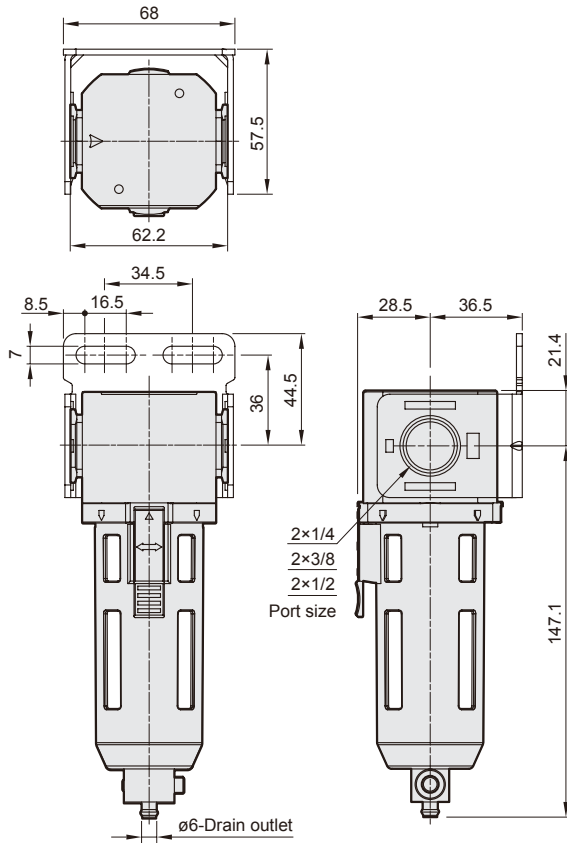
Before assembling or disassembling, push the lock plate down to the end, and confirm that is detached from the body then rotate the bowl, otherwise the lock plate will be deformed or the body will be scratched.

1. Sliding plate down



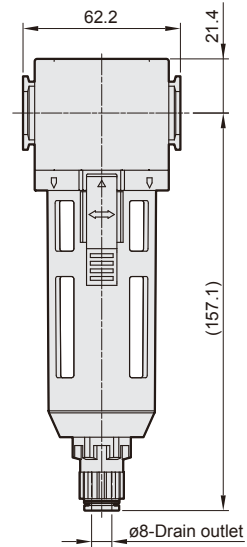
2. Rotating the bowl





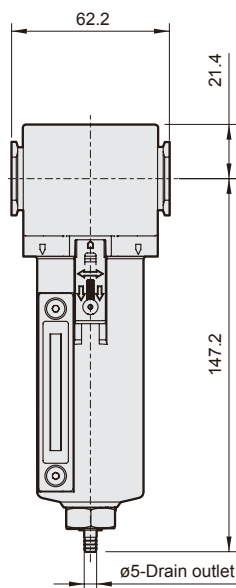
PAF302-D

Auto drain valve



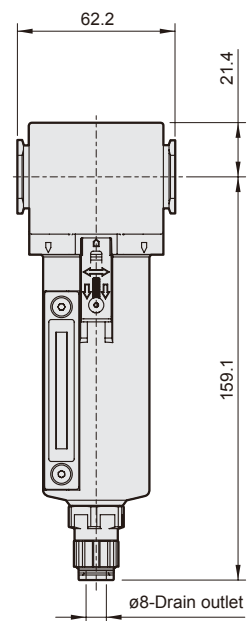
PAF302-M

Metal bowl



PAF302-MD

Metal bowl + Auto drain valve



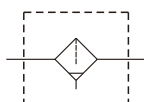
PAF401 series AIR UNIT (FILTER)



For more information
Please scan



Symbol



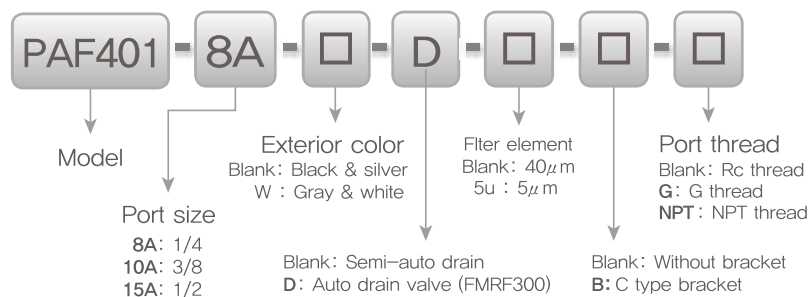
■ Specification

Model	PAF401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*1.2)	0.05~1.5 MPa		
Proof pressure	2 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5μm		
Drain capacity	70 cm ³		
Max. flow rate(*3) ℓ/min(ANR)	1500	2000	2500
Weight	480 g		

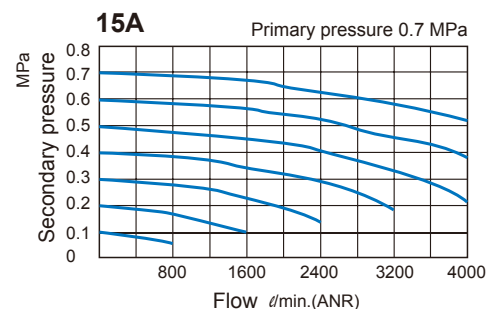
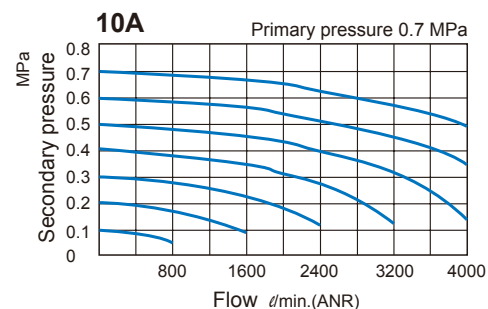
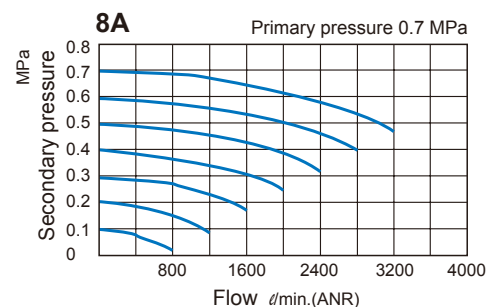
*1. Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

*2. Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.
Δ P=0.03 MPa.

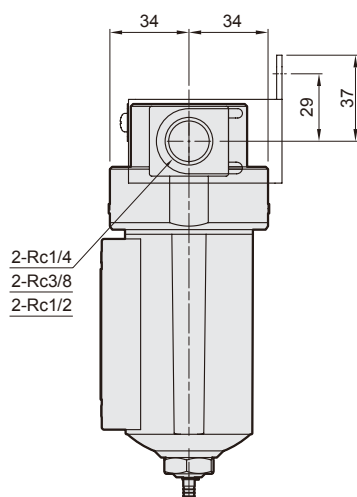
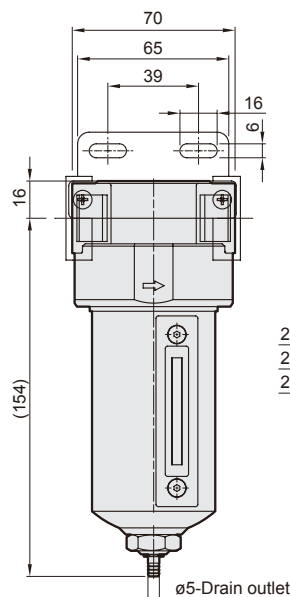
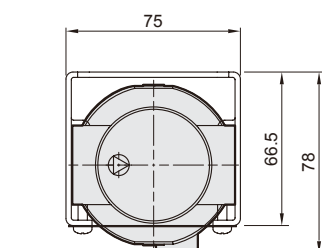
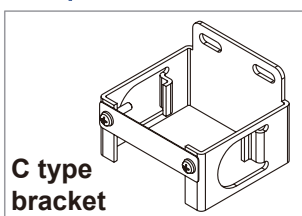
■ Order example



■ Flow feature



■ Option accessories



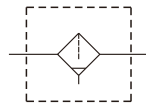
PAF501 series AIR UNIT (FILTER)



For more information
Please scan



Symbol



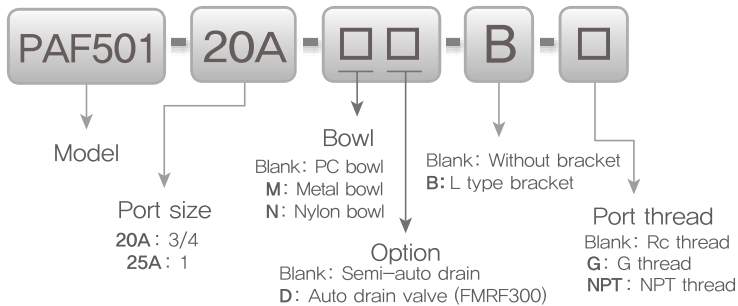
■ Specification

Model	PAF501	
Bore No.	20A	25A
Port size	3/4	1
Medium	Air	
Operating perssure range (*)	Nylon bowl, PC bowl: 0.05~1 MPa	
	Metal bowl: 0.05~1.5 MPa	
Proof pressure	Nylon bowl, PC bowl: 1.5 MPa	
	Metal bowl: 2 MPa	
Ambient temperature	- 5~+60°C (No freezing)	
Filter element	40 μm	
Drain capacity	Nylon bowl, PC bowl: 75 cm ³	
	Metal bowl: 70 cm ³	
Weight	Nylon bowl, PC bowl: 1180g	
	Metal bowl: 1300g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

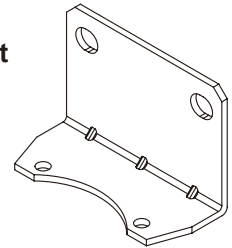
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

■ Order example

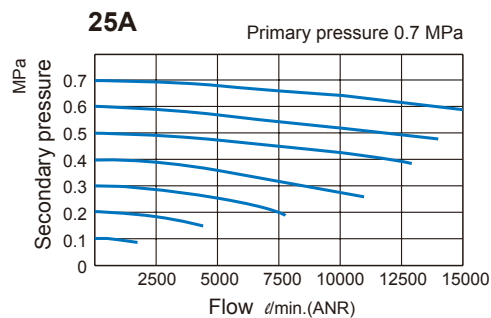
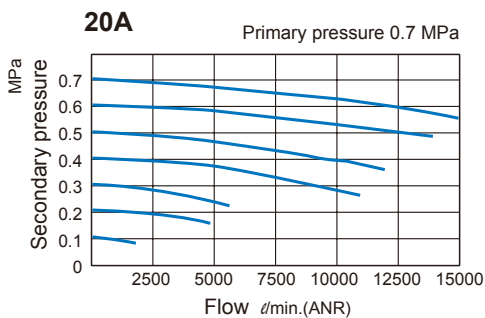


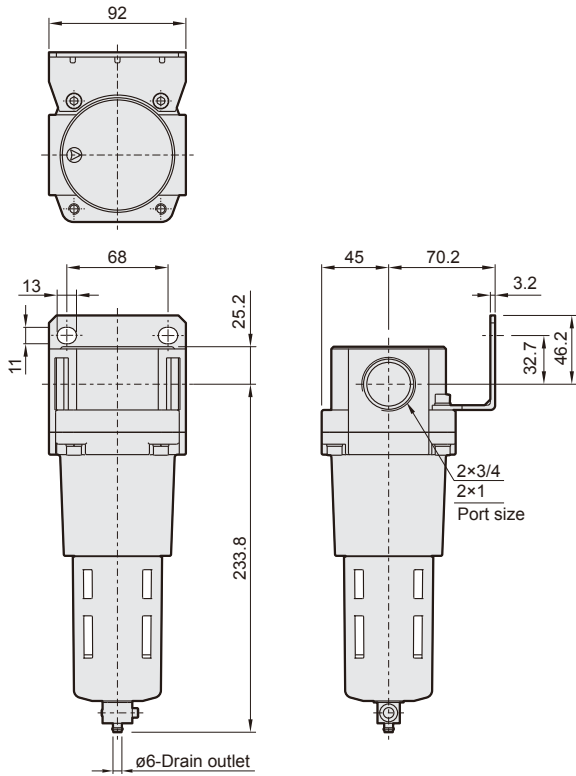
■ Option accessories

L type bracket



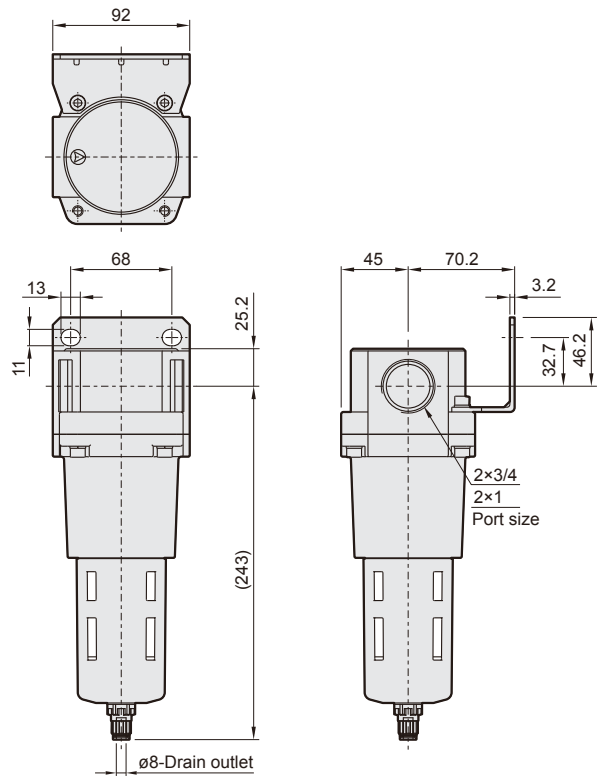
■ Flow feature





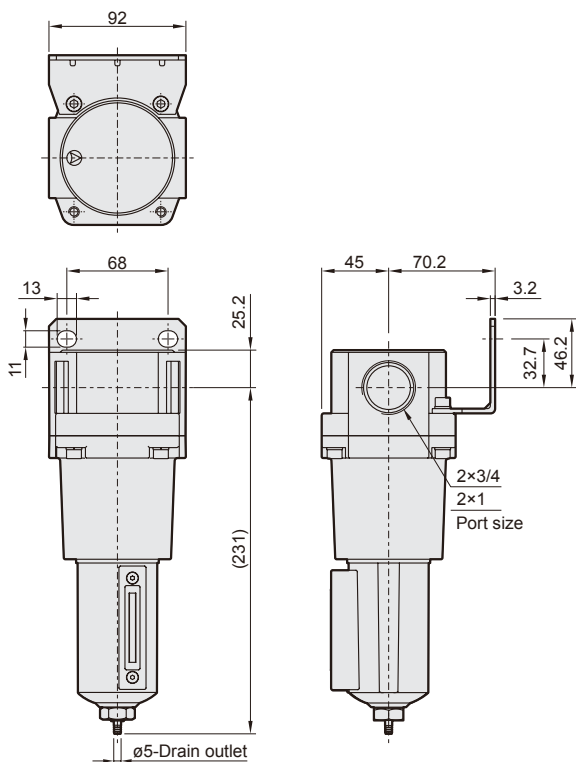
PAF501-D

Auto drain valve



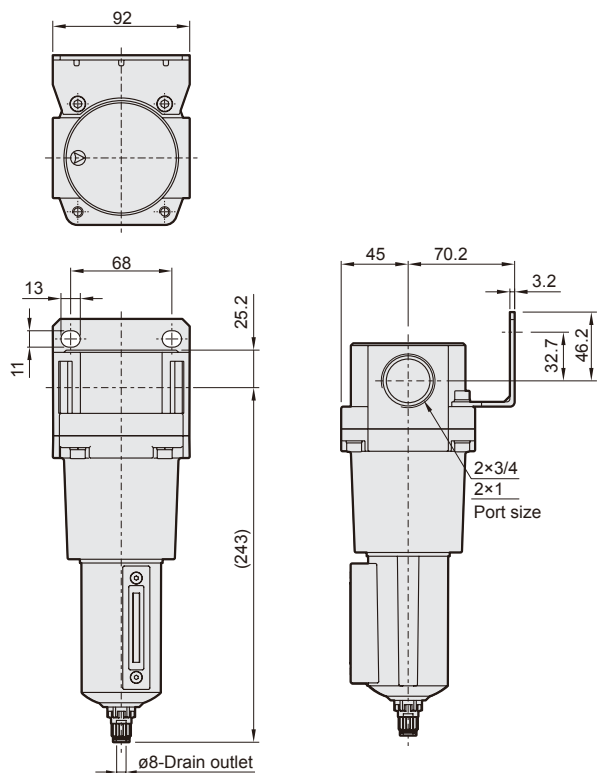
PAF501-M

Metal bowl



PAF501-MD

Metal bowl + auto drain valve



PAF401 A/D/M series

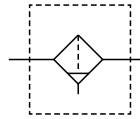
AIR UNIT (AIR / MIST / MICRO MIST FILTER)



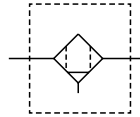
For more information
Please scan



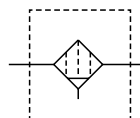
Symbol



A: 5μm



D: 0.3μm



M: 0.01μm

- PAF401A is designed for draining and removal of foreign matter. (Element: 5μm)
- PAF401D/M is designed for removal of foreign matter as well as oil mist (Element: 0.3μm / 0.01μm)

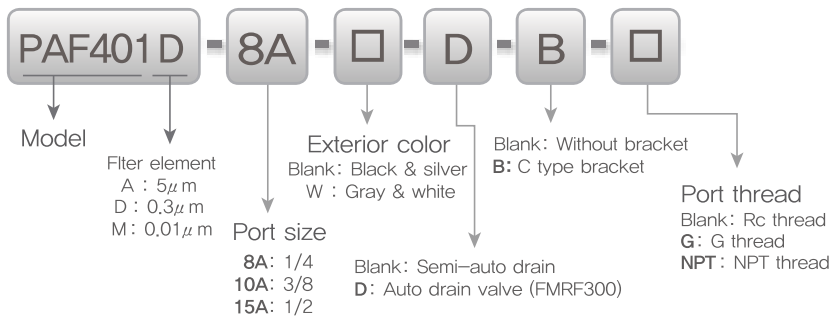
■ Specification

Model	PAF401A/D/M		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1.5 MPa		
Proof pressure	2 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	5 μm, 0.3 μm, 0.01 μm		
Drain capacity	70 cm ³		
Weight	480 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

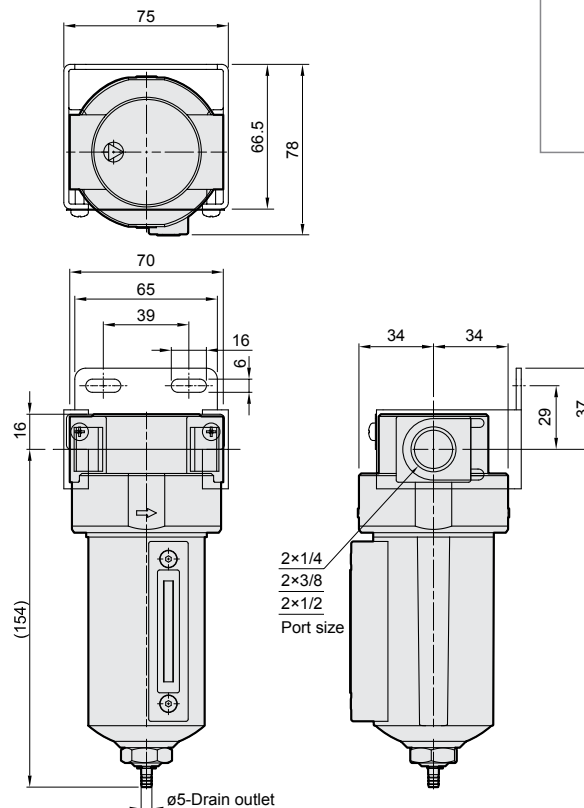
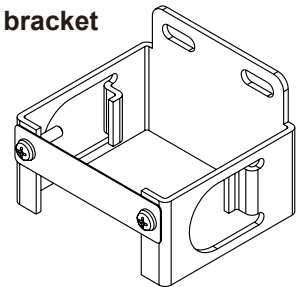
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

■ Order example



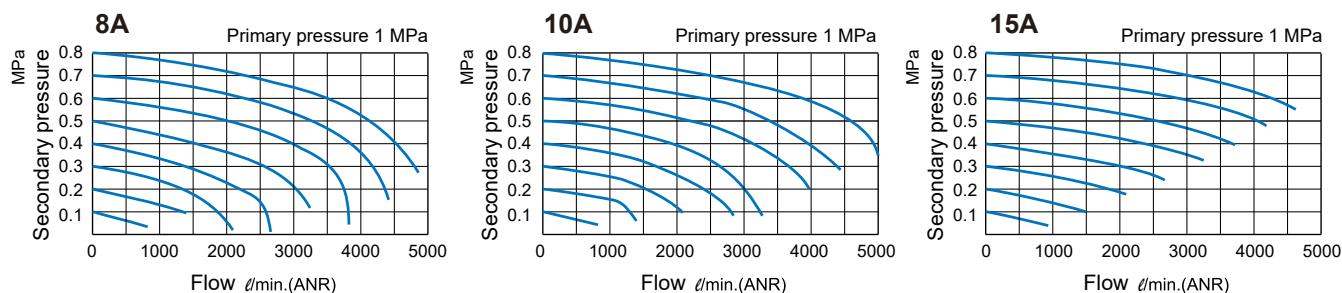
■ Option accessories

C type bracket

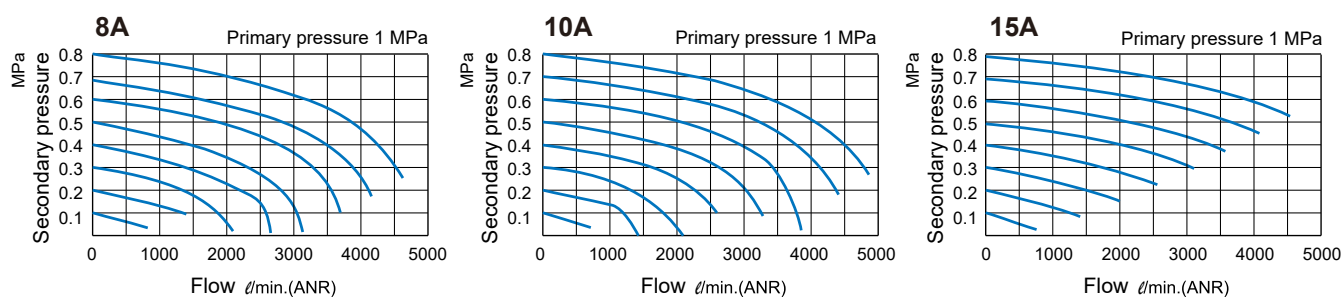


■ Flow feature

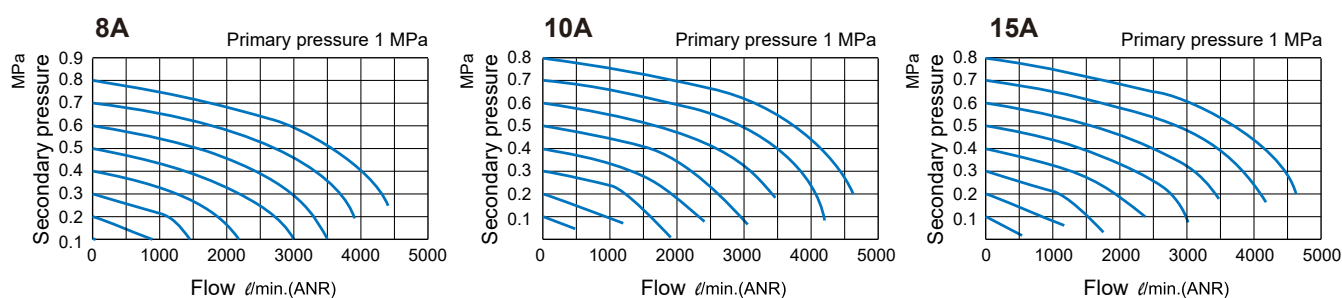
PAF401A (Filter element: 5 µm)



PAF401D (Filter element: 0.3 µm)



PAF401M (Filter element: 0.01 µm)



PAF501 D/M series

AIR UNIT (MIST / MICRO MIST FILTER)



For more information
Please scan

■ Specification

Model	PAF501D/M	
Bore No.	20A	25A
Port size	3/4	1
Medium	Air	
Operating pressure range (*)	Nylon bowl, PC bowl: 0.05~1 MPa	
	Metal bowl: 0.05~1.5 MPa	
Proof pressure	Nylon bowl, PC bowl: 1.5 MPa	
	Metal bowl: 2 MPa	
Ambient temperature	- 5~+60°C (No freezing)	
Filter element	0.3 μm, 0.01 μm	
Drain capacity	Nylon bowl, PC bowl: 75 cm ³	
	Metal bowl: 70 cm ³	
Weight	Nylon bowl, PC bowl: 1180g	
	Metal bowl: 1300g	

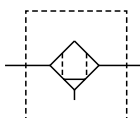
* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

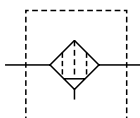
* Replace filter element at least once per year or when pressure drop reaches 0.07 MPa.



Symbol

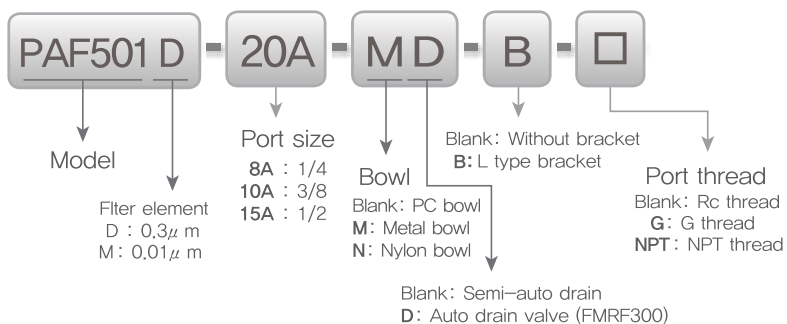


D: 0.3μm



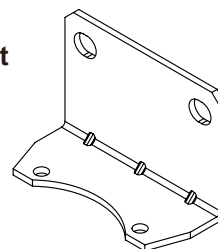
M: 0.01μm

■ Order example



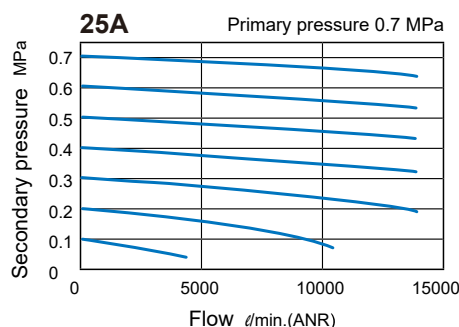
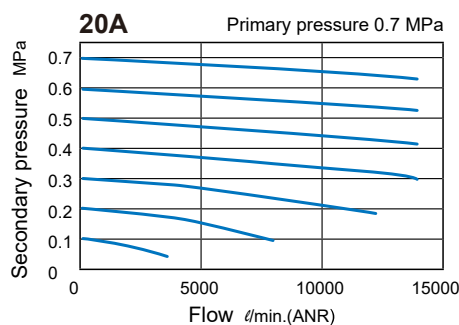
■ Option accessories

L type bracket

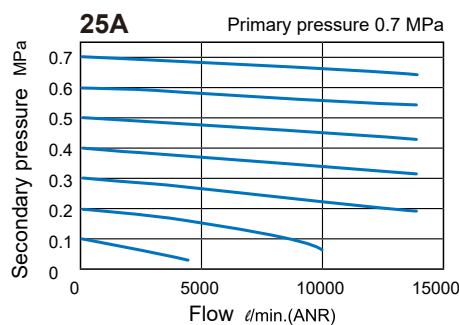
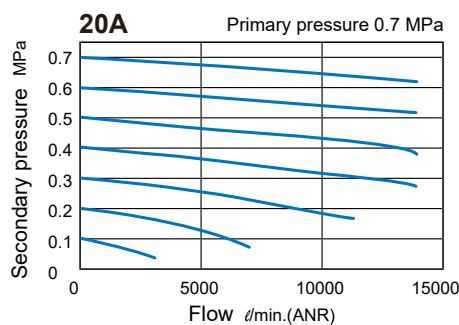


■ Flow feature

PAF501D (Filter element: 0.3 μm)

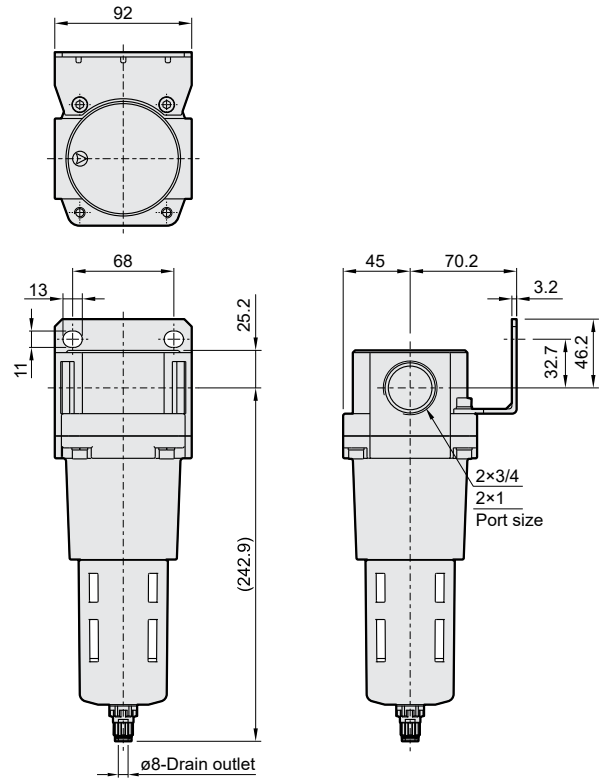
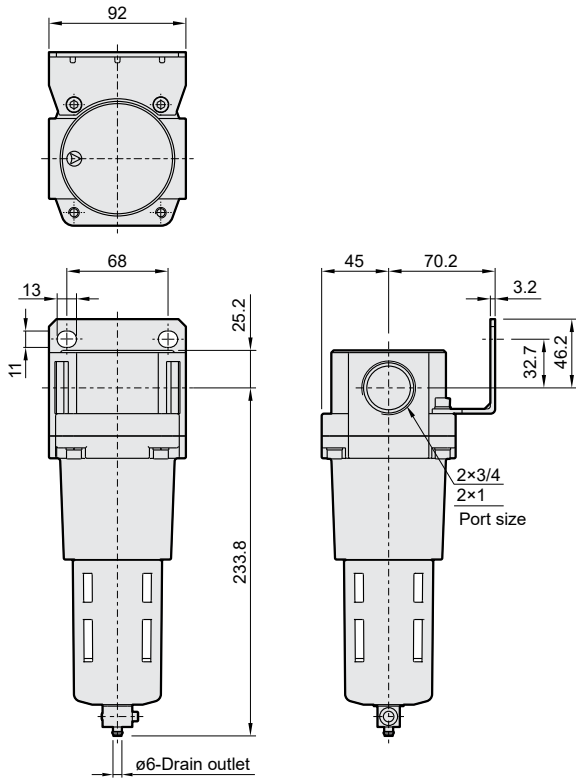


PAF501M (Filter element: 0.01 μm)



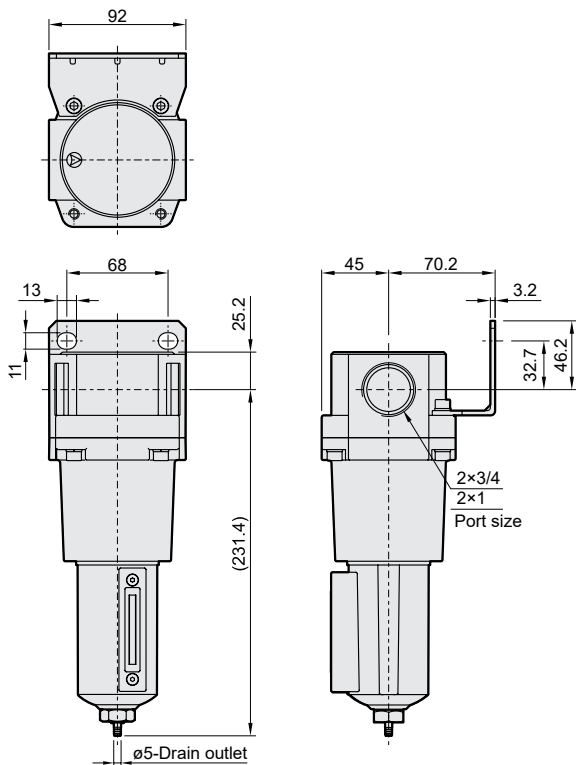
PAF501D/M-D

Auto drain valve



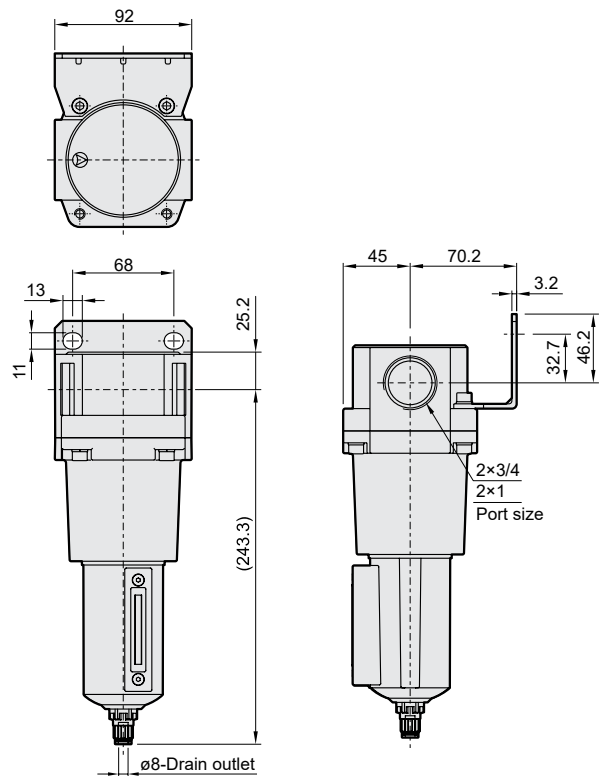
PAF501D/M-M

Metal bowl



PAF501D/M-MD

Metal bowl + auto drain valve



PATFR401 series AIR UNIT (F.R.UNIT)



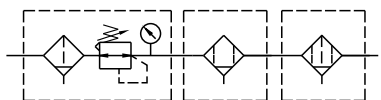
For more information
Please scan



■ Specification

Model	PATFR401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1.5 MPa		
Proof pressure	2 MPa		
Regulated pressure range	Standard type: 0.1~0.85 MPa		
	High pressure type: 0.1~1.5 Mpa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	5 μm+0.3 μm+0.01 μm		
Attachment	Pressure gauge (PG-20), L type bracket		
Weight	2106 g		

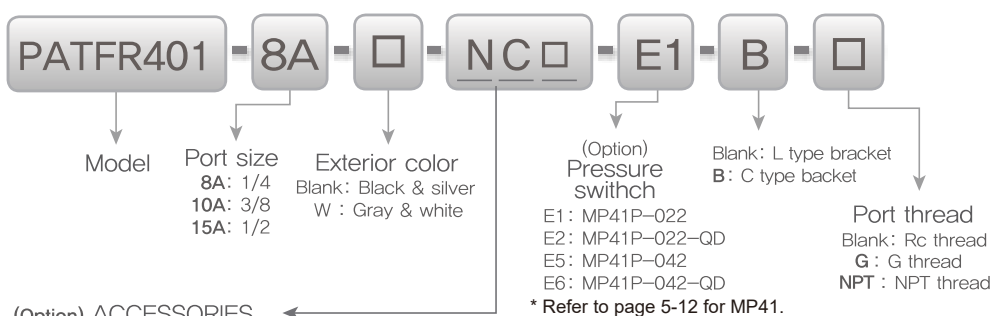
Symbol



* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

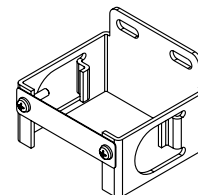
* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

■ Order example



■ Option accessories

C type bracket



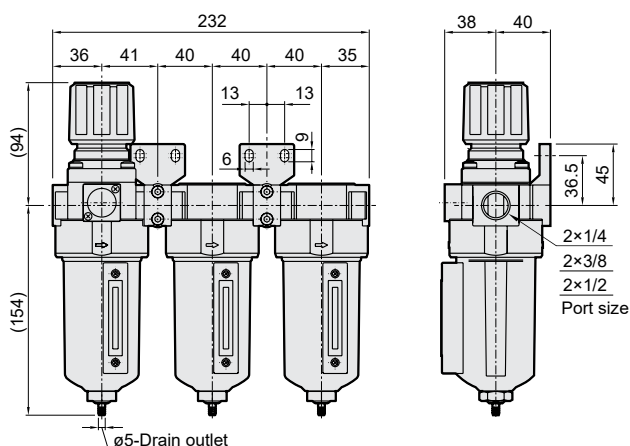
Type	Pressure gauge	Drain valve
Blank: Standard type	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-PAR401) A: Gauge adapter set (A-PAR401)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)
H: High pressure type	C: External pressure gauge (PG-40) + Gauge adapter set (A-PAR401) A: Gauge adapter set (A-PAR401)	Blank: Semi-auto drain

* PG-40 (C), A-PAR302 (A) and MP41 (E*) can not be selected at the same time.

* Specification (W) gauge adapter set (A-PAR302).

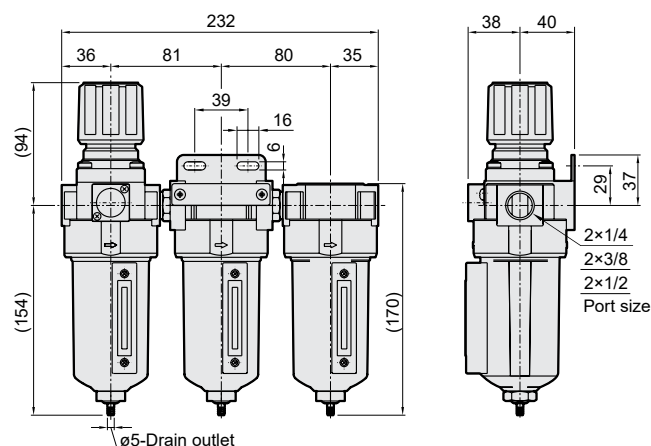
PATFR401

L type bracket



PATFR401-B

C type bracket



PAFR302 series AIR UNIT (F.R.UNIT)

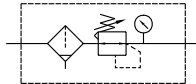


For more information
Please scan



Option: **MP41**

Symbol



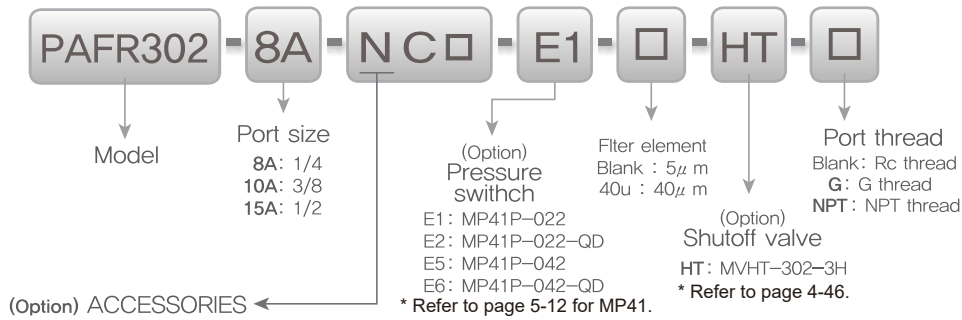
Specification

Model	PAFR302		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.05~0.85 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	Standard: 5μm, Option: 40μm		
Drain capacity	35 cm ³		
Attachment	Pressure gauge (PG-20), bracket		
Weight	490 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

Order example

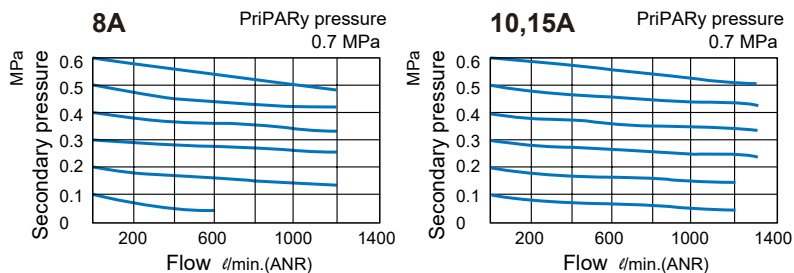


Bowl	Pressure gauge	Drain valve
Blank: PC bowl M: Metal bowl N: Nylon bowl	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-PAR302) A: Gauge adapter set (A-PAR302)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)

* PG-40 (C) and MP41 (E*) can not be selected at the same time.

* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

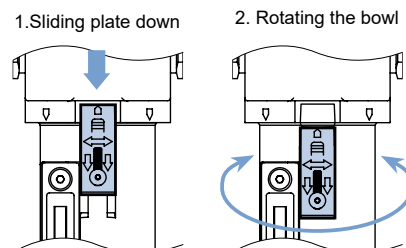
Flow feature



Caution

Metal bowl

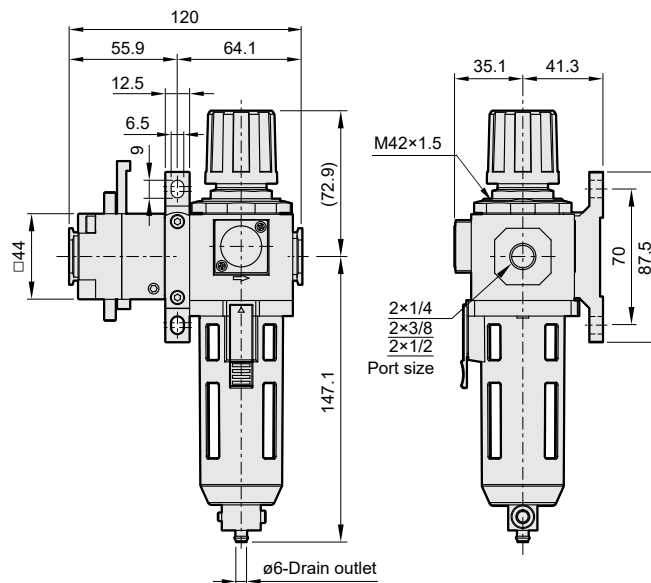
Before assembling or disassembling, push the lock plate down to the end, and confirm that is detached from the body then rotate the bowl, otherwise the lock plate will be deformed or the body will be scratched.



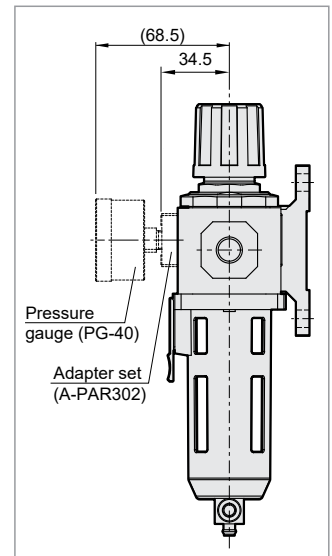
PAFR302-HT With shutoff valve



For more information
Please scan

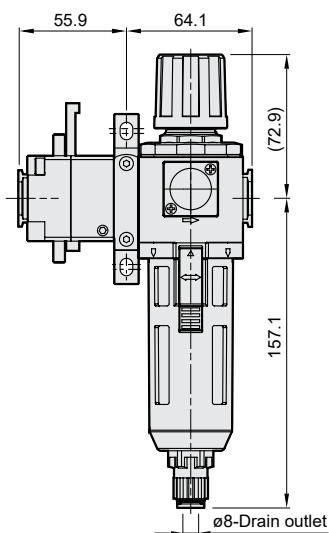


Accessories



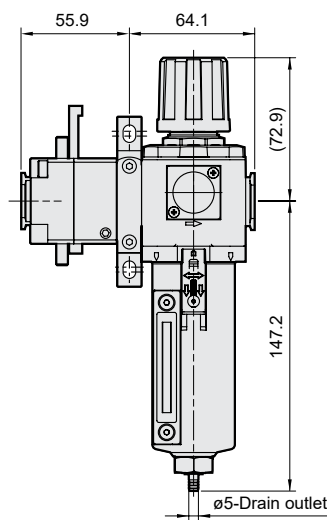
PAFR302-D*-HT

Auto drain valve



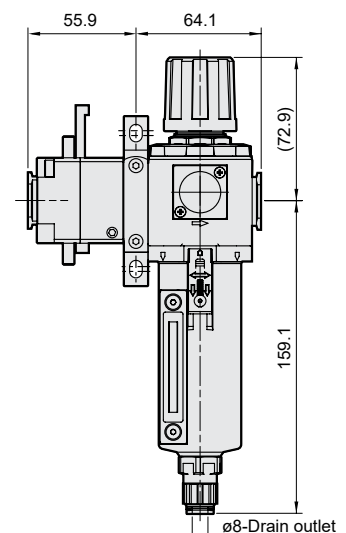
PAFR302-M*-HT

Metal bowl



PAFR302-DM*-HT

Auto drain valve + Metal bowl



PAFR401 series AIR UNIT (F.R.UNIT)



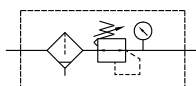
For more information
Please scan

■ Specification



Option: **MP41**

Symbol

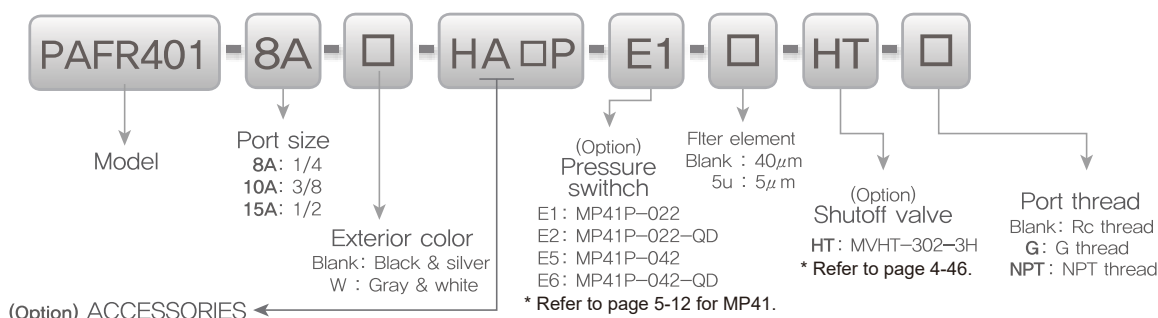


Model	PAFR401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1.5 MPa		
Proof pressure	2 MPa		
Regulated pressure range	Standard type: 0.1~0.85 MPa		
	High pressure type: 0.1~1.5 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5μm		
Drain capacity	70 cm ³		
Attachment	Pressure gauge (PG-20), L-type bracket		
Weight	800 g		

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

■ Order example

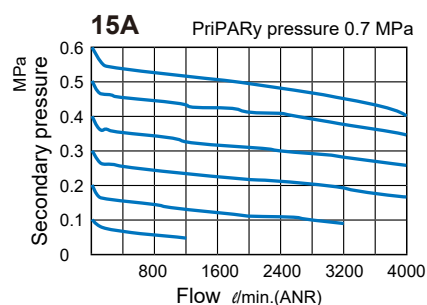
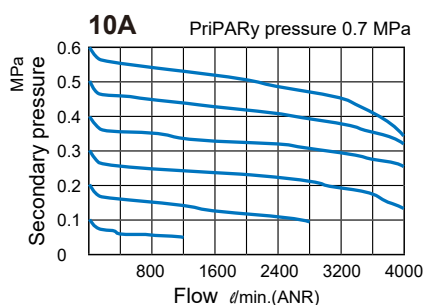
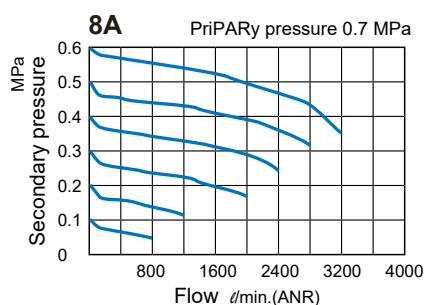


Type	Pressure gauge	Drain valve	Pressure switch
Blank: Standard type	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-PAR401) A: Gauge adapter set (A-PAR401)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)	P: Pressure switch (MPS series)
H: High pressure type	C: External pressure gauge (PG-40) + Gauge adapter set (A-PAR401) A: Gauge adapter set (A-PAR401)	Blank: Semi-auto drain	

* PG-40 (C) and MP41 (E*) can not be selected at the same time.

* PAFR401-W pressure gauge with set (A-PAR302).

■ Flow feature



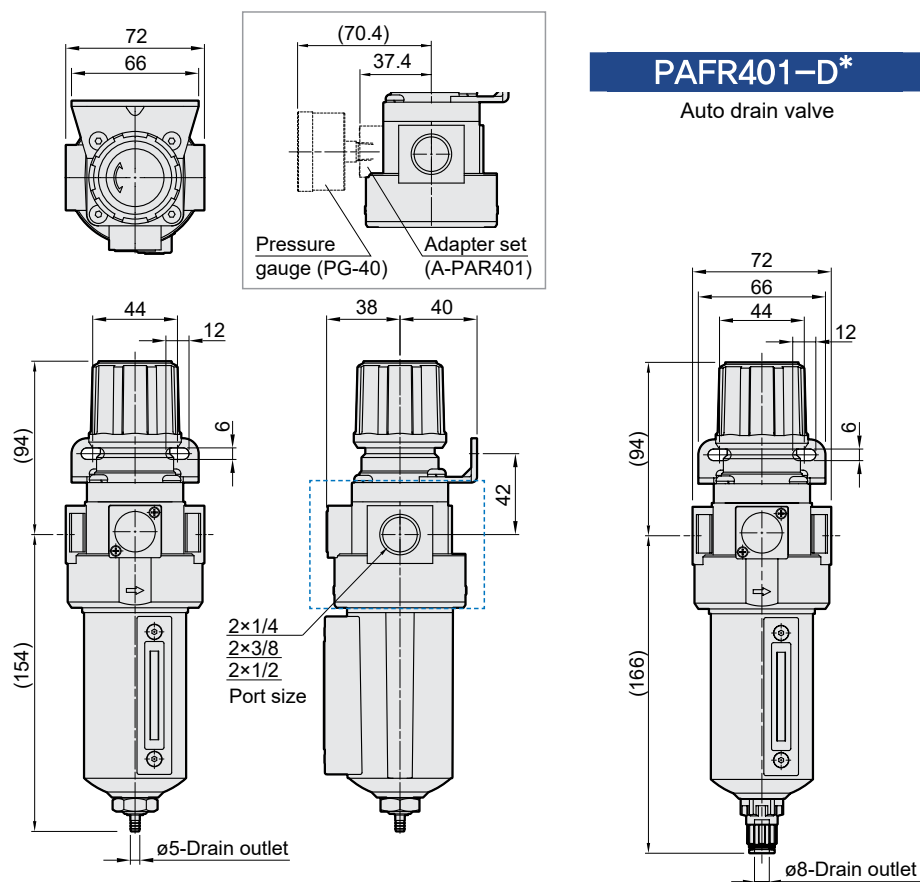
PAFR 401 / PAFR 401-HT



For more information
Please scan

Dimensions

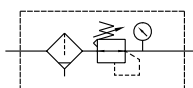
■ Accessories





Option: **MP41**

Symbol



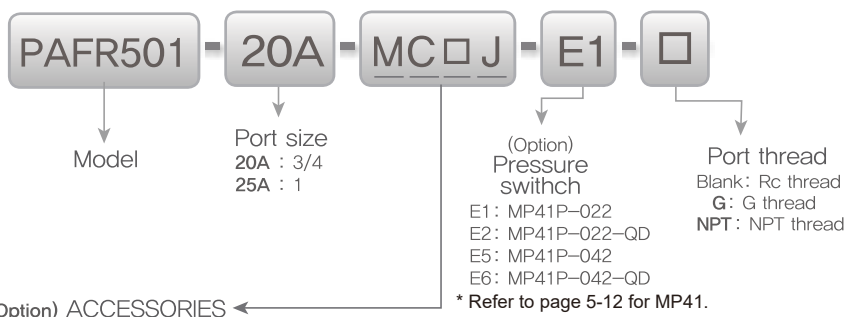
■ Specification

Model	PAFR501	
Bore No.	20A	25A
Port size	3/4	1
Medium	Air	
Operating pressure range (*)	Nylon bowl, PC bowl: 0.05~1 MPa	
	Metal bowl: 0.05~1.5 MPa	
Proof pressure	Nylon bowl, PC bowl: 1.5 MPa	
	Metal bowl: 2 MPa	
Regulated pressure range	0.1~0.85 MPa	
Ambient temperature	- 5~+60°C (No freezing)	
Filter element	40μm	
Drain capacity	PC, Nylon bowl: 75 cm ³	
	Metal bowl: 70 cm ³	
Attachment	Pressure gauge(PG-20), L-type bracket	
Weight	PC, Nylon bowl: 1940 g	
	Metal bowl: 2060 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

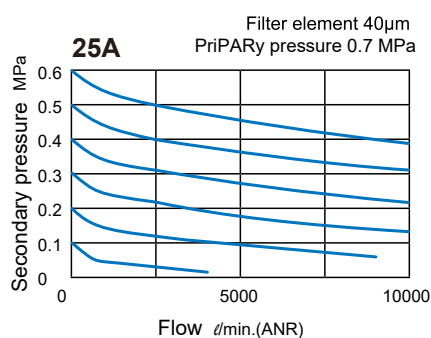
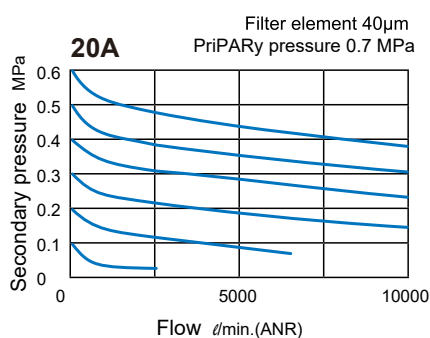
■ Order example



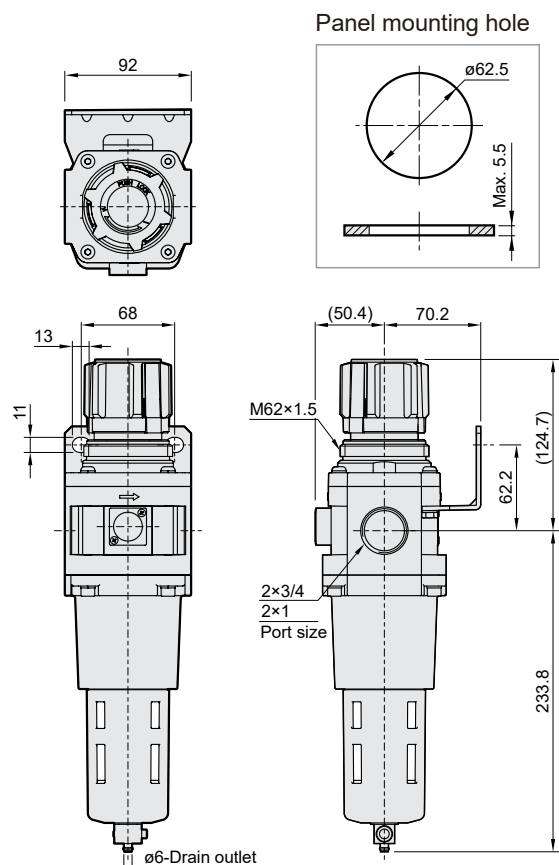
Bowl	Pressure gauge	Drain valve	Panel nuts
Blank: PC bowl M: Metal bowl N: Nylon bowl	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-PAR302) A: Gauge adapter set (A-PAR302)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)	J: Panel nuts

* PG-40 (C), A-PAR302 (A) and MP41 (E*) can not be selected at the same time.

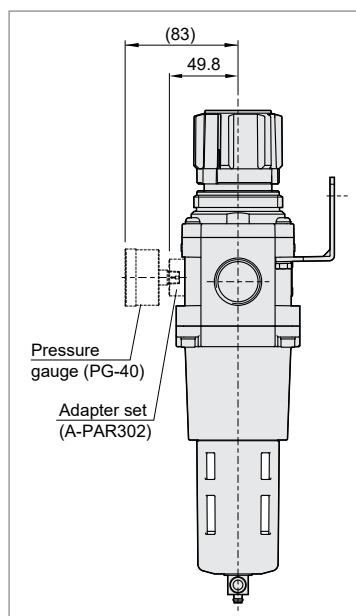
■ Flow feature



Dimensions

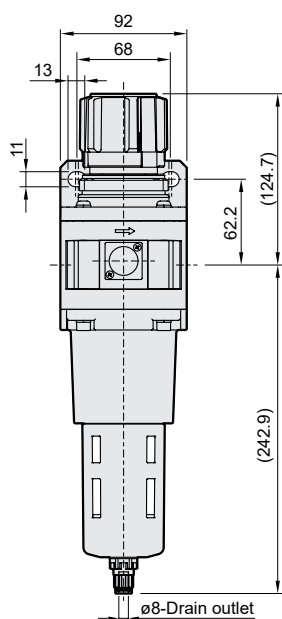


Accessories



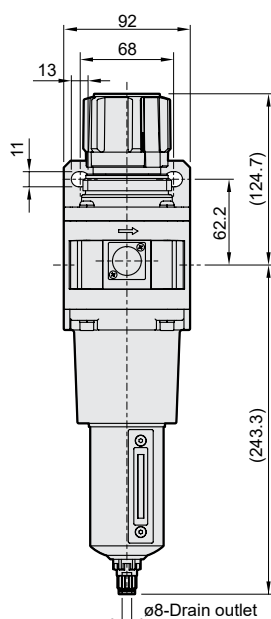
PAFR501-D

Auto drain valve



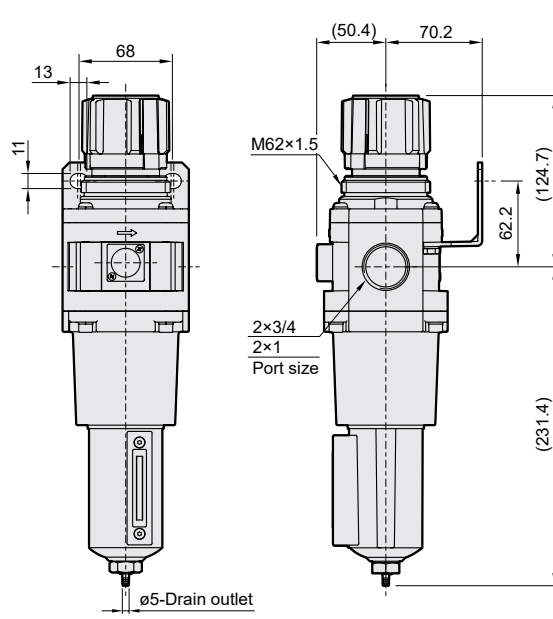
PAFR501-MD

Metal bowl + auto drain valve



PAFR501-M

Metal bowl



PACT302 series AIR UNIT (F.R.L.UNIT)



For more information
Please scan

■ Specification

Model	PACT302		
Components	PAF302, PAR302, PAL302		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Effective orifice	32mm ²	34mm ²	
Regulated pressure range	0.05~0.85 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	Standard: 5μm, Option: 40μm		
Lubricating oil capacity	65c.c		
Min. flow for oil drip	50 l/min	60 l/min	
Recommended lubricating oil	Turbine oil ISO-VG32		
Attachment	Pressure gauge (PG-20), T-type bracket		
Weight	1115 g		

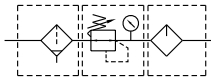
* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

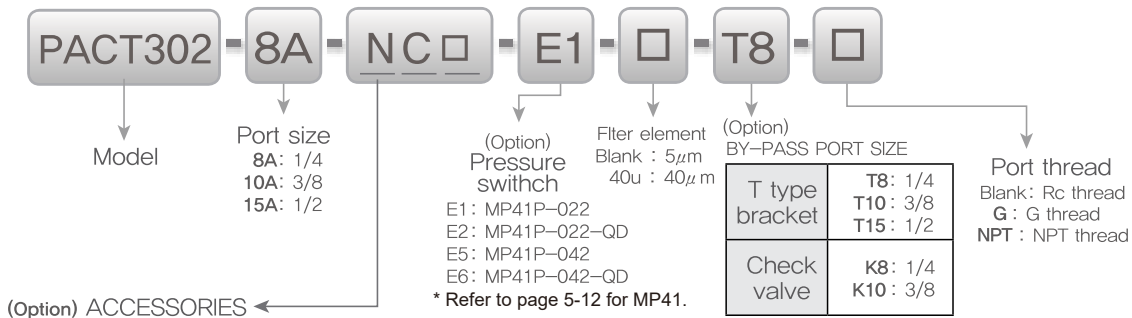


Option: MP41

Symbol



■ Order example

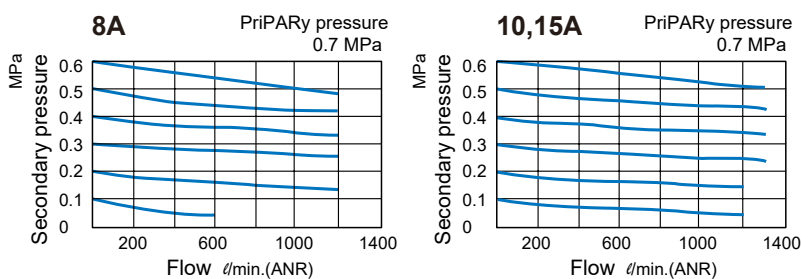


Bowl	Pressure gauge	Drain valve
Blank: PC bowl M: Metal bowl N: Nylon bowl	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-PAR302) A: Gauge adapter set (A-PAR302)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)

* PG-40 (C) and MP41 (E*) can not be selected at the same time.

* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

■ Flow feature

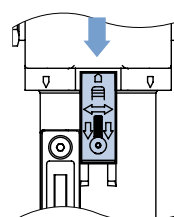


⚠ Caution

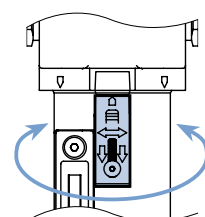
Metal bowl

Before assembling or disassembling, push the lock plate down to the end, and confirm that is detached from the body then rotate the bowl, otherwise the lock plate will be deformed or the body will be scratched.

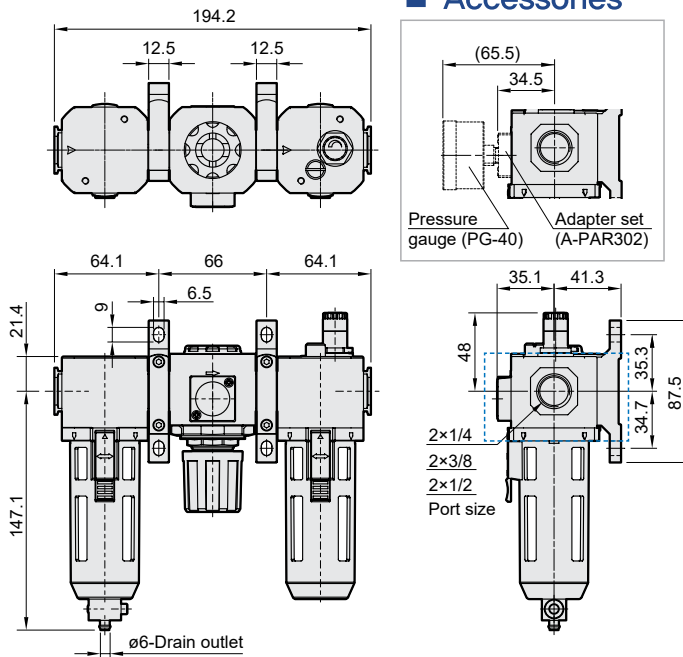
1. Sliding plate down



2. Rotating the bowl

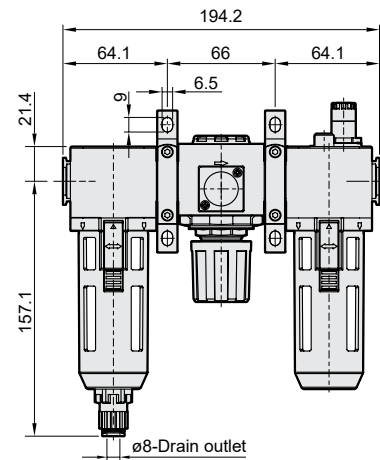


Accessories



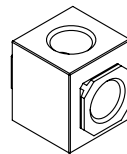
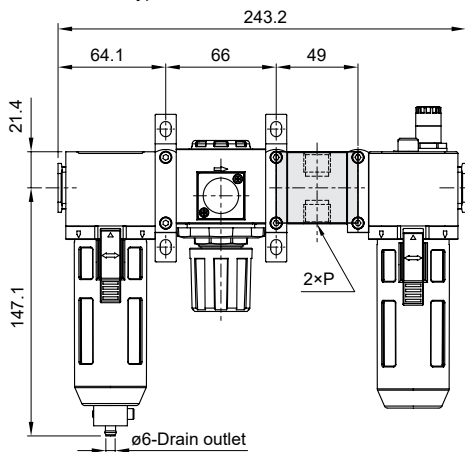
PACT302-D*

Auto drain valve



PACT302-T*

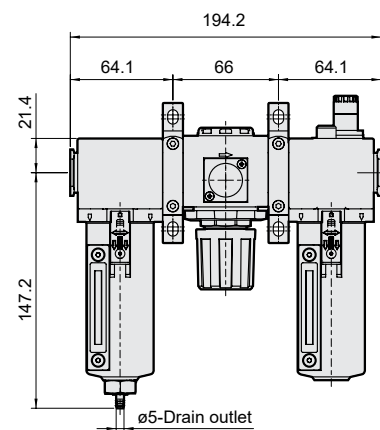
T type bracket



Port Bracket	P
T8	1/4
T10	3/8
T15	1/2

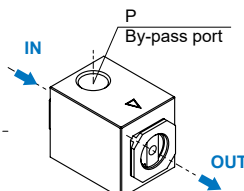
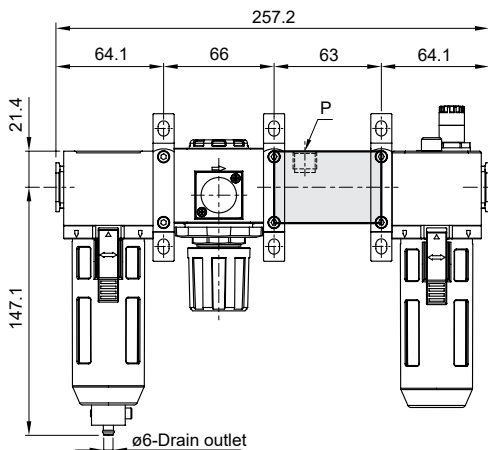
PACT302-M*

Metal bowl



PACT302-K*

Check valve

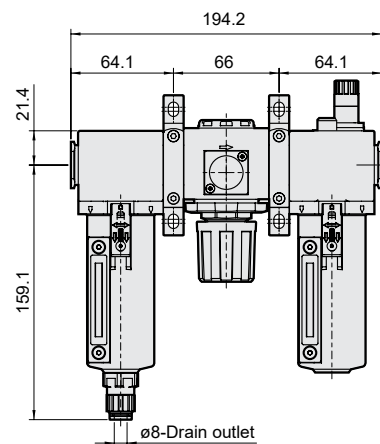


* Threads for IN and OUT ports are not machined.

Port Check valve	P
K8	1/4
K10	3/8

PACT302-DM*

Auto drain valve + Metal bowl



PACT401 series AIR UNIT (F.R.L.UNIT)



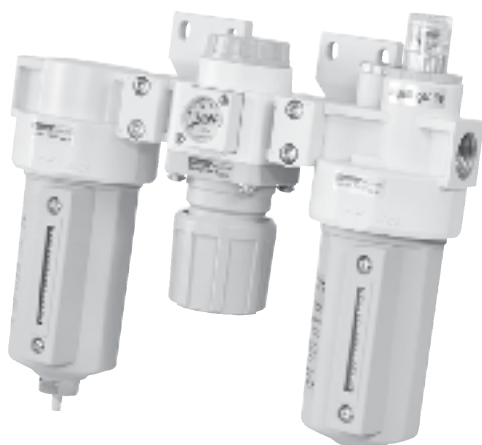
For more information
Please scan

■ Specification

Model	PACT401		
Components	PMF401, PAR401, a401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating pressure range (*)	0.05~1.5 MPa		
Proof pressure	2 MPa		
Regulated pressure range	Standard: 0.1~0.85 MPa High pressure: 0.1~1.5 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Filter element	Standard: 40μm, Option: 5μm		
Lubricating oil capacity	200c.c		
Min. flow for oil drip	30 l/min	65 l/min	80 l/min
Recommended lubricating oil	Turbine oil ISO-VG32		
Attachment	Pressure gauge (PG-20), L-type bracket		
Weight	1812 g		

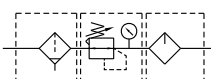
* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

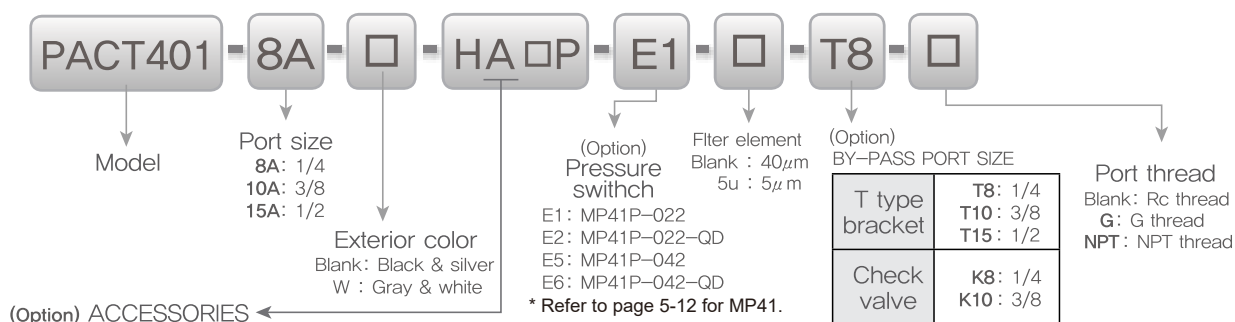


Option: **MP41**

Symbol



■ Order example

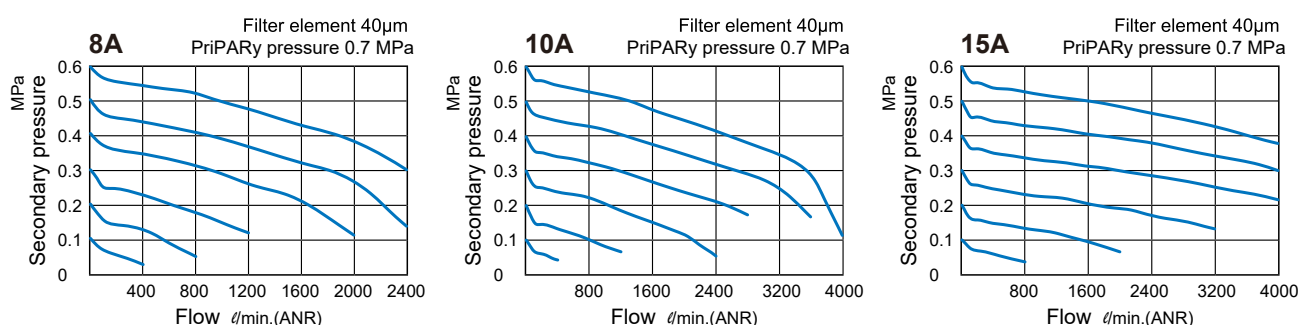


Type	Pressure gauge	Drain valve	Pressure switch
Blank: Standard type	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-PAR401) A: Gauge adapter set (A-PAR401)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)	P: Pressure switch (MPS series)
H: High pressure type	C: External pressure gauge (PG-40) + Gauge adapter set (A-PAR401) A: Gauge adapter set (A-PAR401)	Blank: Semi-auto drain	

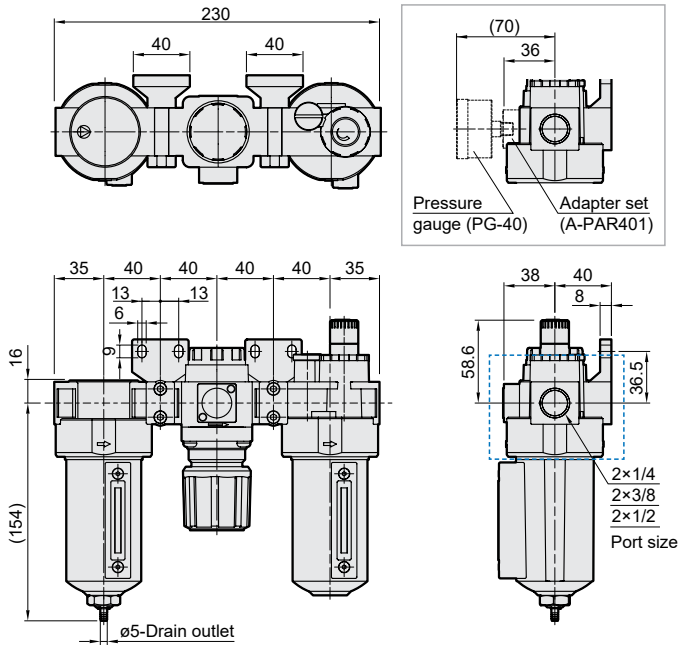
* PG-40 (C) and MP41 (E*) can not be selected at the same time.
* PAR401-W pressure gauge with set (A-PAR302).

* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

■ Flow feature

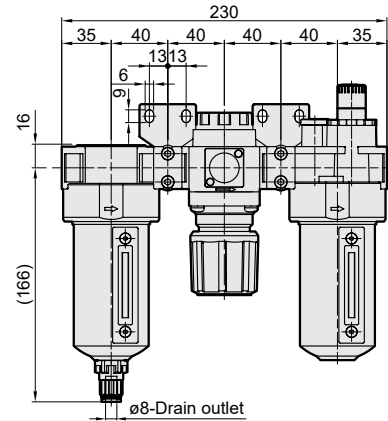


Accessories



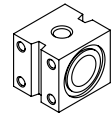
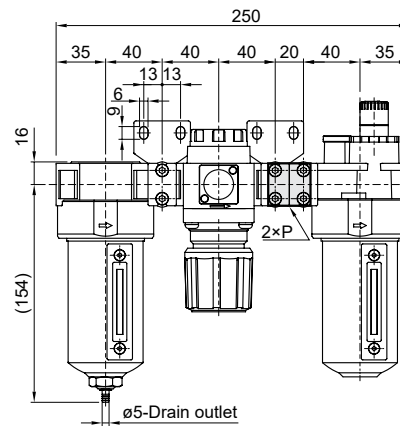
PACT401-D

Auto drain valve



PACT401-T*

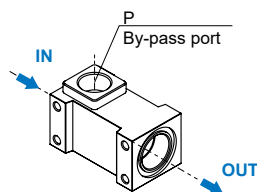
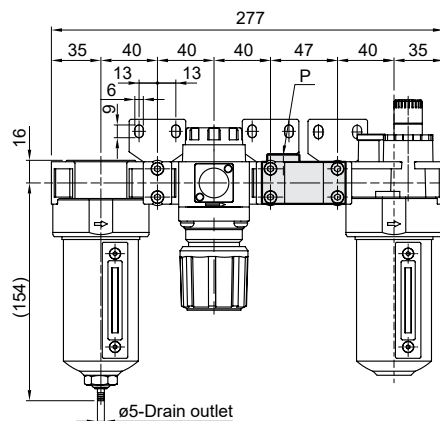
T type bracket



Port Bracket	P
T8	1/4
T10	3/8
T15	1/2

PACT401-K*

Check valve

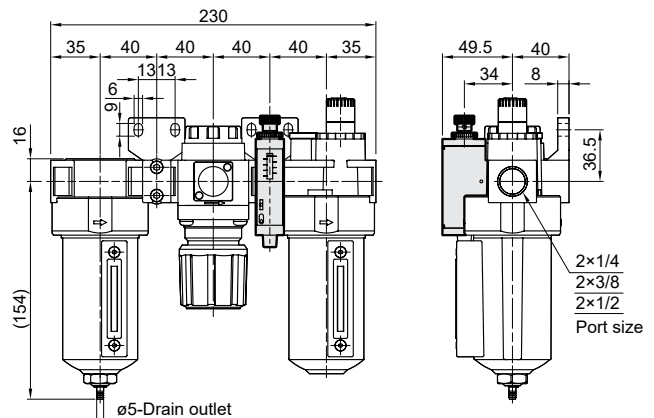


Port Check valve	P
K8	1/4
K10	3/8

* Threads for IN and OUT ports are not machined.

PACT401-P

MPS Series
pneumatic pressure switch



PACT501 series AIR UNIT (F.R.L.UNIT)

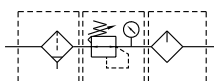


For more information
Please scan



Option: **MP41**

Symbol



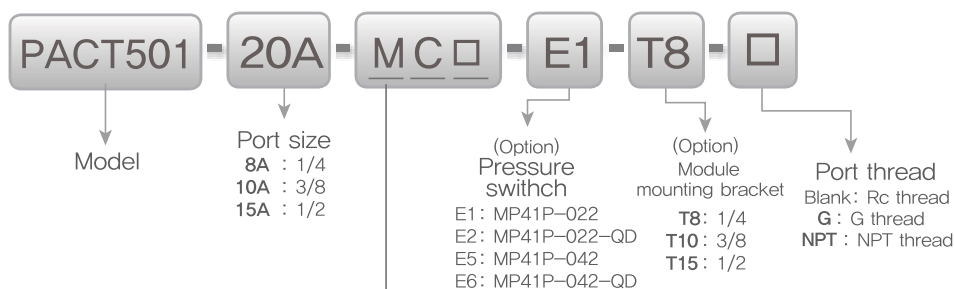
■ Specification

Model	PACT501	
Components	PAF501, PAR501, PAL501	
Bore No.	20A	25A
Port size	3/4	1
Medium	Air	
Operating pressure range (*)	0.05~1 MPa	
Proof pressure	1.5 MPa	
Regulated pressure range	0.05~0.85 MPa	
Ambient temperature	- 5~+60°C (No freezing)	
Filter element	40μm	
Lubricating oil capacity	200c.c	
Min. flow for oil drip	25 l/min	33 l/min
Recommended lubricating oil	Turbine oil ISO-VG32	
Attachment	Pressure gauge (PG-20), bracket	
Weight	Nylon bowl, PC bowl: 4200 g	
	Metal bowl: 4440 g	

* Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.

* Choose auto-drain FMRF300, the pressure range is 0.15~1 MPa.

■ Order example



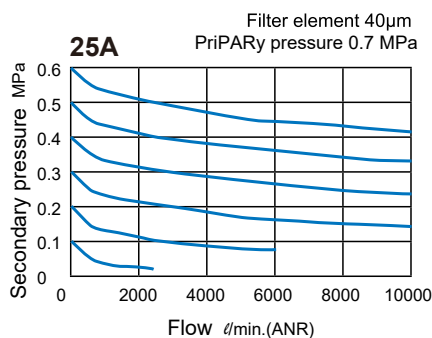
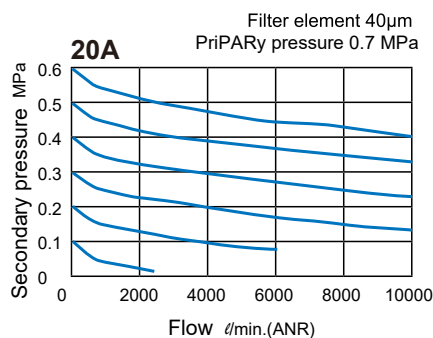
(Option) ACCESSORIES ←

* Refer to page 5-12 for MP41.

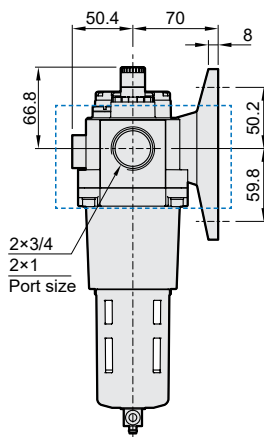
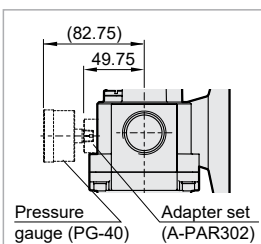
Bowl	Pressure gauge	Drain valve
Blank: PC bowl M: Metal bowl N: Nylon bowl	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-PAR302) A: Gauge adapter set (A-PAR302)	Blank: Semi-auto drain D: Auto drain valve (FMRF300)

* PG-40 (C) and MP41 (E*) can not be selected at the same time.

■ Flow feature

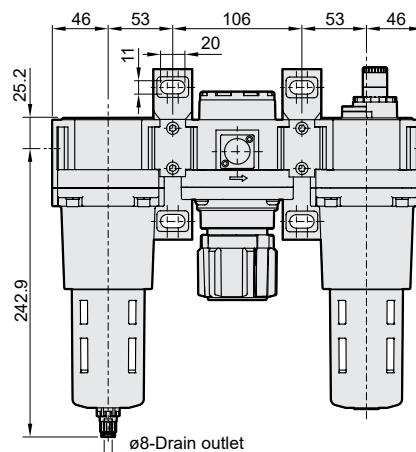


Accessories



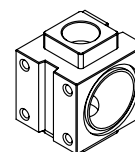
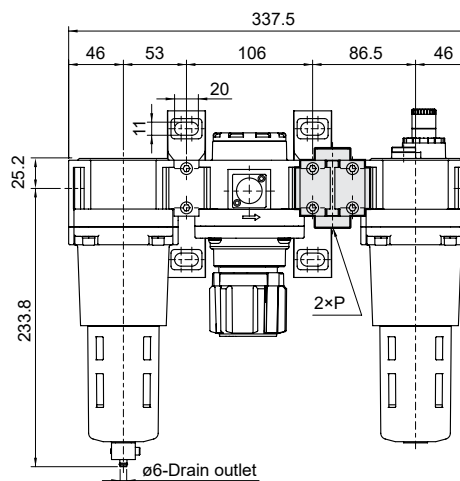
PACT501-D

Auto drain valve



PACT501-T*

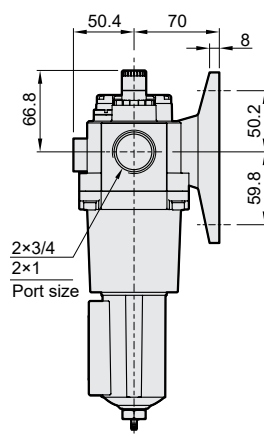
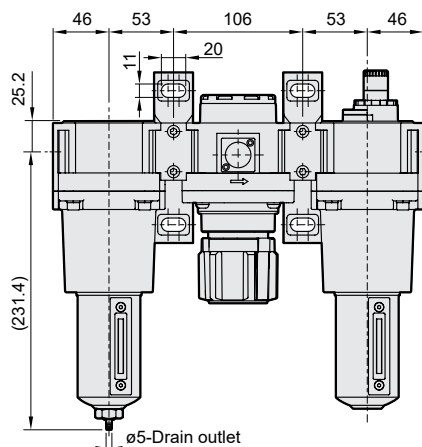
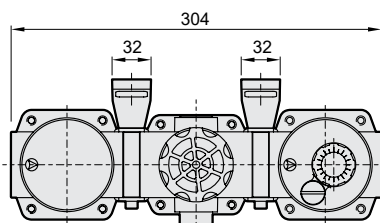
T type bracket



Port Bracket	P
T8	1/4
T10	3/8
T15	1/2

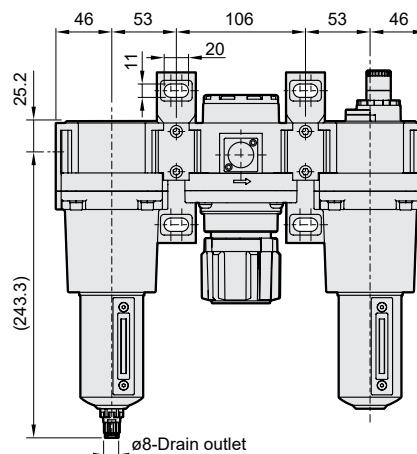
PACT501-M

Metal bowl



PACT501-MD

Metal bowl + auto drain valve



PAR302 series PRESSURE REGULATOR

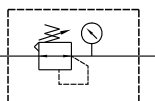


For more information
Please scan

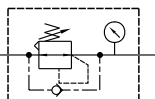


Option: **MP41**

Symbol



Standard



Backflow

■ Specification

Model	PAR302		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	0.05~0.85 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Attachment	Pressure gauge (PG-20), Bracket		
Weight	270 g		

■ Order example



Model

Blank: Standard
K: Backflow function

EXHAUST mechanism

Blank: Relieving type
Q: Non-relieving type

(Option)
Pressure switch

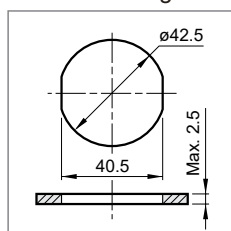
E1: MP41P-022
E2: MP41P-022-QD
E5: MP41P-042
E6: MP41P-042-QD

* Refer to page 5-12 for MP41.

Port thread

Blank: Rc thread
G: G thread
NPT: NPT thread

Panel mounting hole



Port size

8A: 1/4
10A: 3/8
15A: 1/2

Blank: Standard type (PG-20)
C: External pressure gauge (PG-40) +
Gauge adapter set (A-PAR302)
A: Gauge adapter set (A-PAR302)

*The backflow mogule can not be exchange with gauge. When choosing the flow dierction is left to right, the knob is up

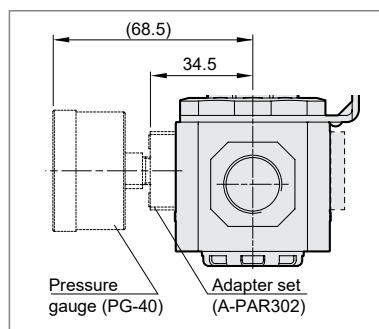
* Standard type regulator can not release the outlet pressure completely, even if inlet pressure was cut off, and the backflow function (K) must be applied to completely remove the residual pressure.

* The (Q) non-relieving type regulator is used. When the output pressure is higher than the set pressure ,the output pressure will not flow out through the exhaust hole.

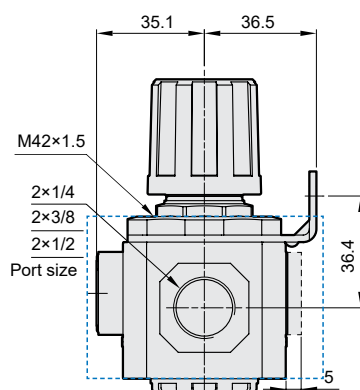
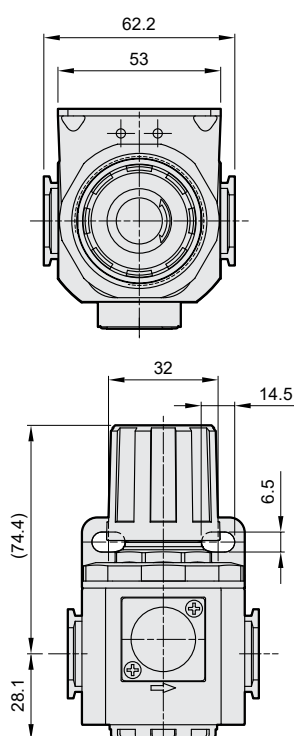
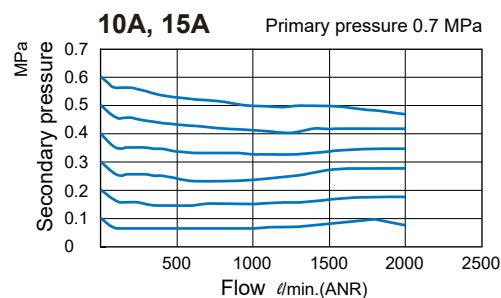
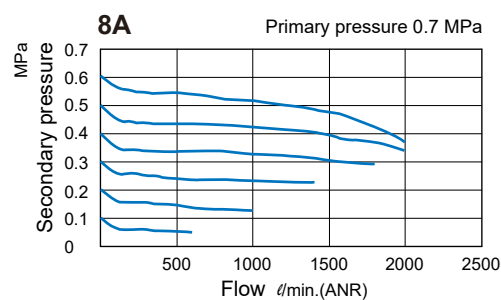
* PG-40 (C), A-PAR302 (A) and MP41 (E*) can not be selected at the same time.

* Refer to page 5-11 for the option of digital pressure switch MP41 (E*).

■ Accessories



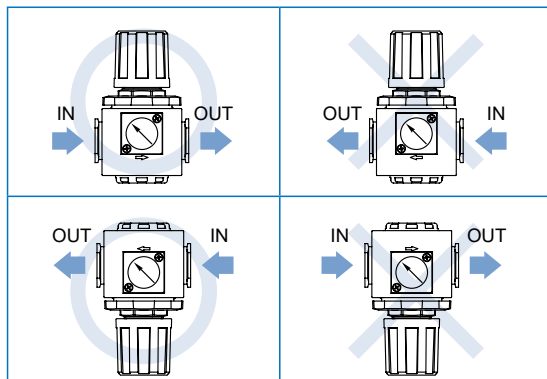
■ Flow feature



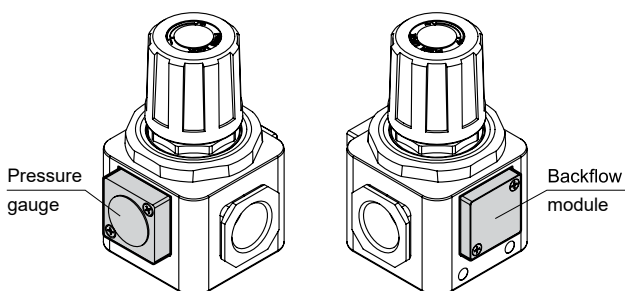
Backflow function instructions

■ Installation direction

When choosing the flow direction, the backflow module can not be exchange with gauge. If you have special order request, please contact the business.



■ Precautions

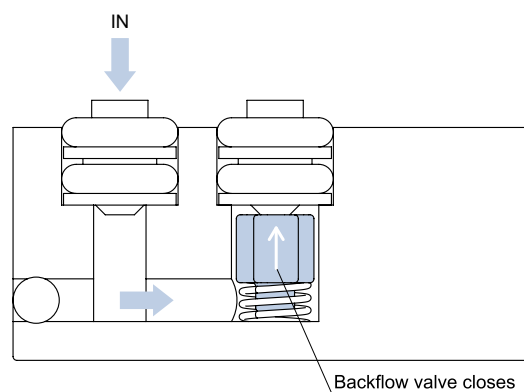


- When the air supply is cut off, the inlet pressure less than outlet pressure, the residual pressure return to the inlet side.
- Please set the inlet pressure to at least 0.05MPa higher than the set pressure.

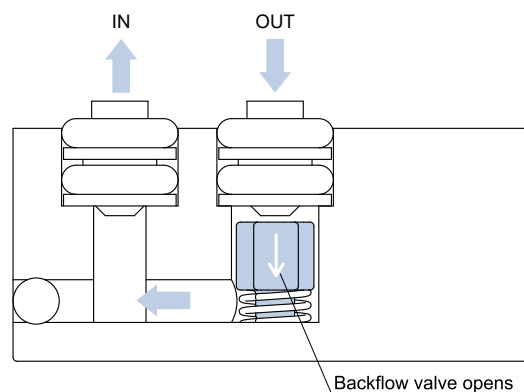
■ Working principle

Normally, as the inlet pressure (IN) is higher than the setting pressure (pressure of outlet), the backflow valve is closed. If the inlet pressure is cut off, backflow valve will be opened and the outlet pressure is exhausted to IN port.

Normal air supply



Cut off air source



PAR401 series PRESSURE REGULATOR

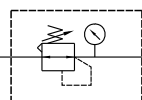


For more information
Please scan

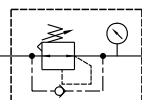


Option: **MP41**

Symbol



Standard

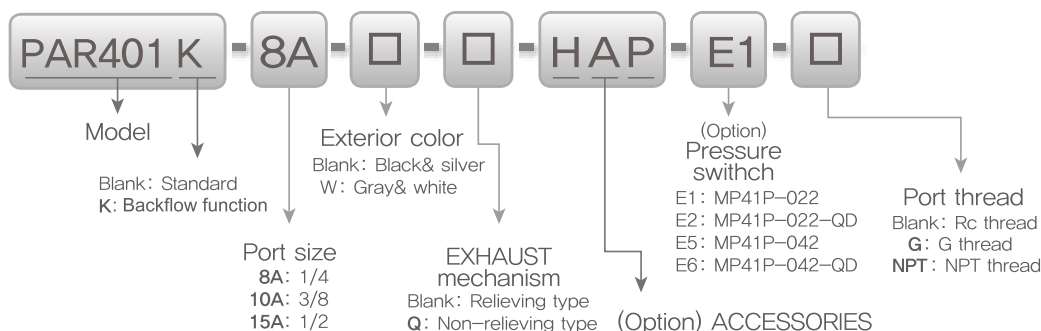


Backflow

■ Specification

Model	PAR401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1.5 MPa		
Proof pressure	2 MPa		
Regulated pressure range	Standard type: 0.1~0.85 MPa		
	High pressure type: 0.1~1.5 MPa		
Ambient temperature	- 5~+60°C (No freezing)		
Attachment	Pressure gauge (PG-20), L-type bracket		
Weight	450 g		

■ Order example

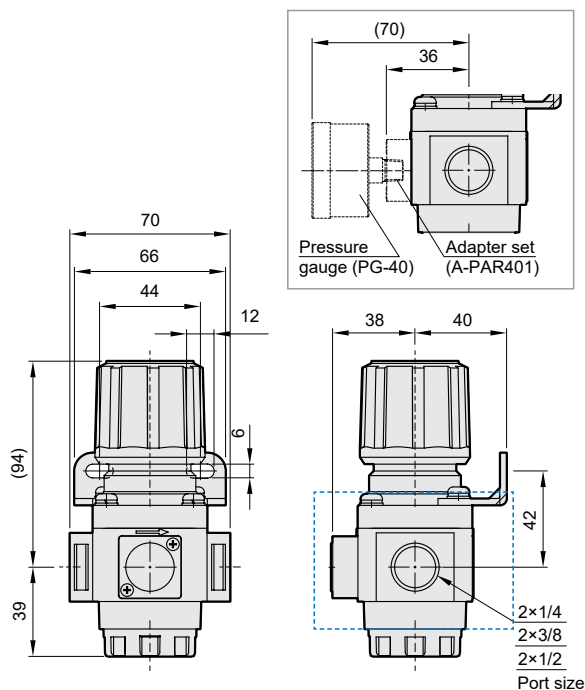


- * The backflow module can not be exchange with gauge.
When choosing the flow direction is left to right, the knob is up.
- * Standard type regulator can not release the outlet pressure completely, even if inlet pressure was cut off, and the backflow function (K) must be applied to completely remove the residual pressure.
- * The (Q) non-relieving type regulator is used. When the output pressure is higher than the set pressure, the output pressure will not flow out through the exhaust hole.

Type	Pressure gauge	Pressure switch
Blank: Standard type	Blank: Pressure gauge (PG-20) C: External pressure gauge (PG-40) + Gauge adapter set (A-PAR401)	P: Pressure switch (MPS series)
H: High pressure type	A: Gauge adapter set (A-PAR401)	-

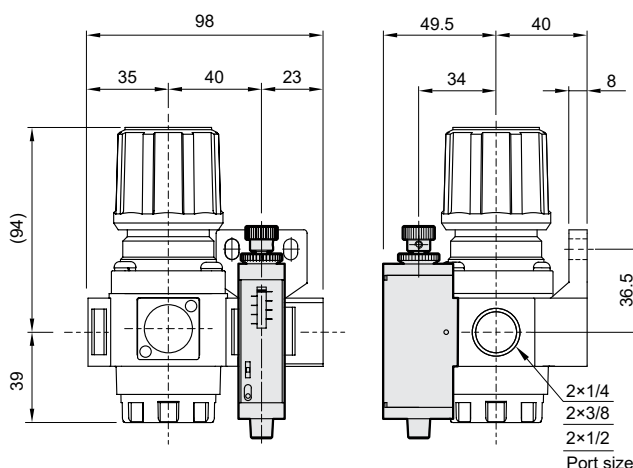
- * PG-40 (C), A-PAR302 (A) and MP41 (E*) can not be selected at the same time.
- * Specification (W) gauge adapter set (A-MAR302).
- * Refer to page 5-11 for the option of digital pressure switch MP41 (E*).

■ Accessories

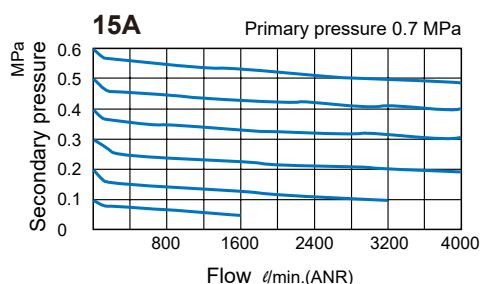
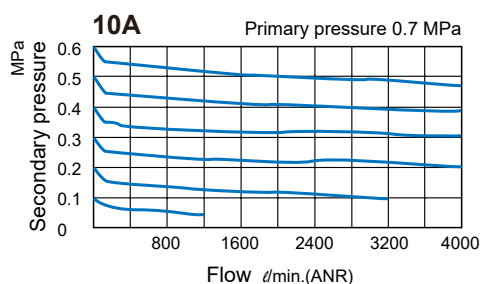
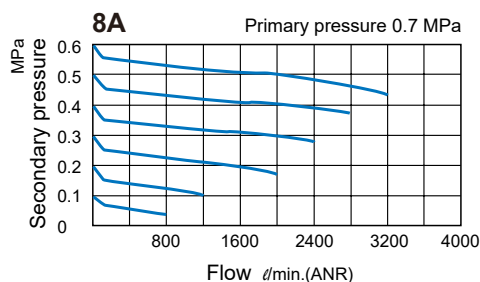


PAR401-P

MPS Series
pneumatic pressure switch

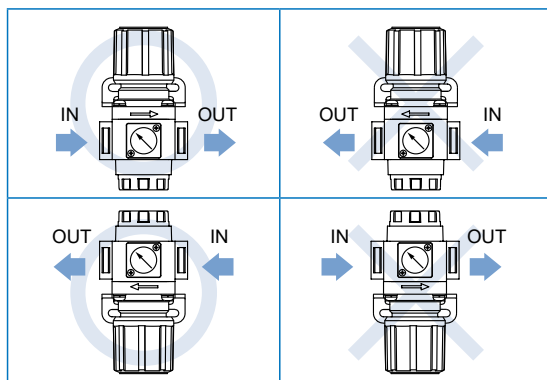


Flow feature

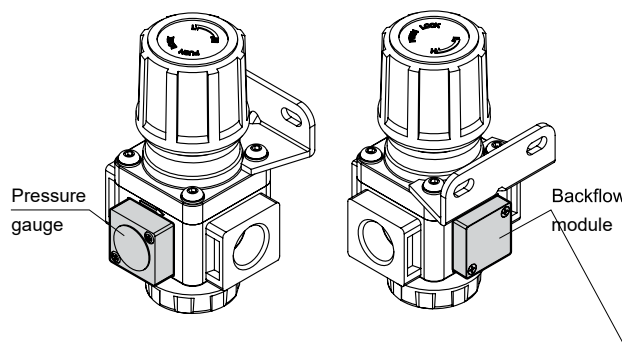


Installation direction

When choosing the flow direction, the backflow module can not be exchange with gauge. If you have special order request, please contact the business.



Precautions

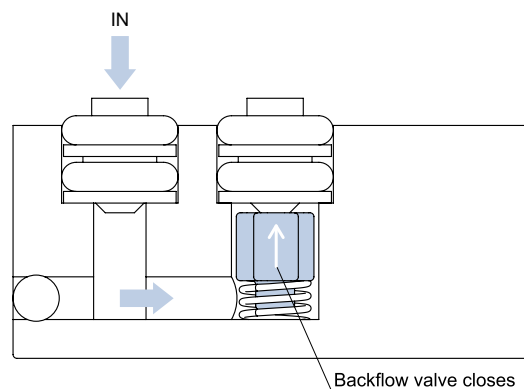


- When the air supply is cut off, the inlet pressure less than outlet pressure, the residual pressure return to the inlet side.
- Please set the inlet pressure to at least 0.05MPa higher than the set pressure.

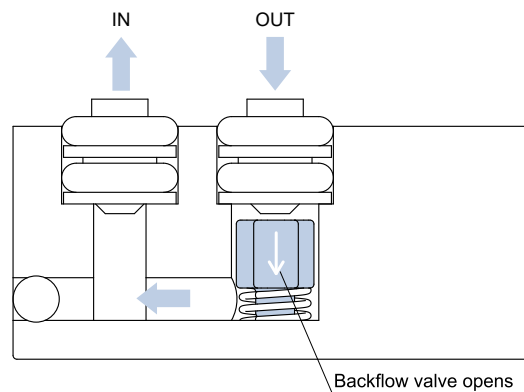
Working principle

Normally, as the inlet pressure (IN) is higher than the setting pressure (pressure of outlet), the backflow valve is closed. If the inlet pressure is cut off, backflow valve will be opened and the outlet pressure is exhausted to IN port.

Normal air supply



Cut off air source



PAR501 series PRESSURE REGULATOR

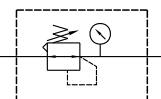


For more information
Please scan



Option: **MP41**

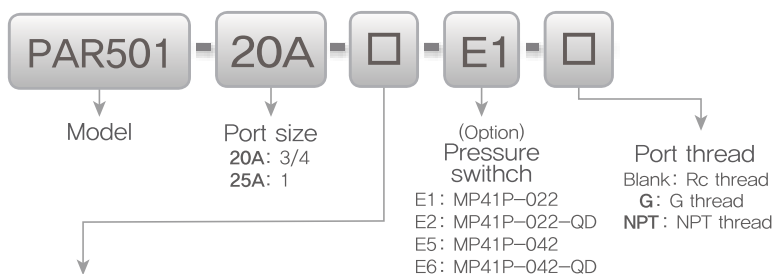
Symbol



■ Specification

Model	PAR501	
Bore No.	20A	25A
Port size	3/4	1
Medium	Air	
Max. operating pressure	1.5 MPa	
Proof pressure	2 MPa	
Regulated pressure range	0.05~0.85 MPa	
Repeatability	±7% F.S.	
Ambient temperature	- 5~+60°C (No freezing)	
Attachment	Pressure gauge(PG-20),L-type bracket	
Weight	1460 g	

■ Order example



Blank: Standard type (PG-20)

C: External pressure gauge (PG-40) + Gauge adapter set (A-PAR302)

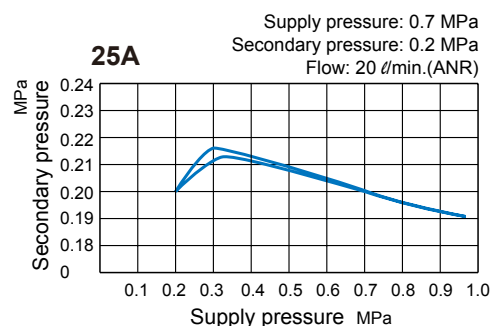
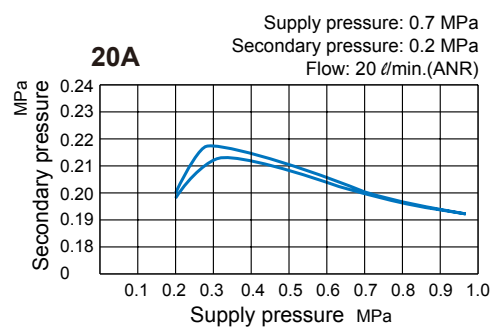
A: Gauge adapter set (A-PAR302)

J: Panel nuts

* PG-40 (C) and MP41 (E*) can not be selected at the same time.

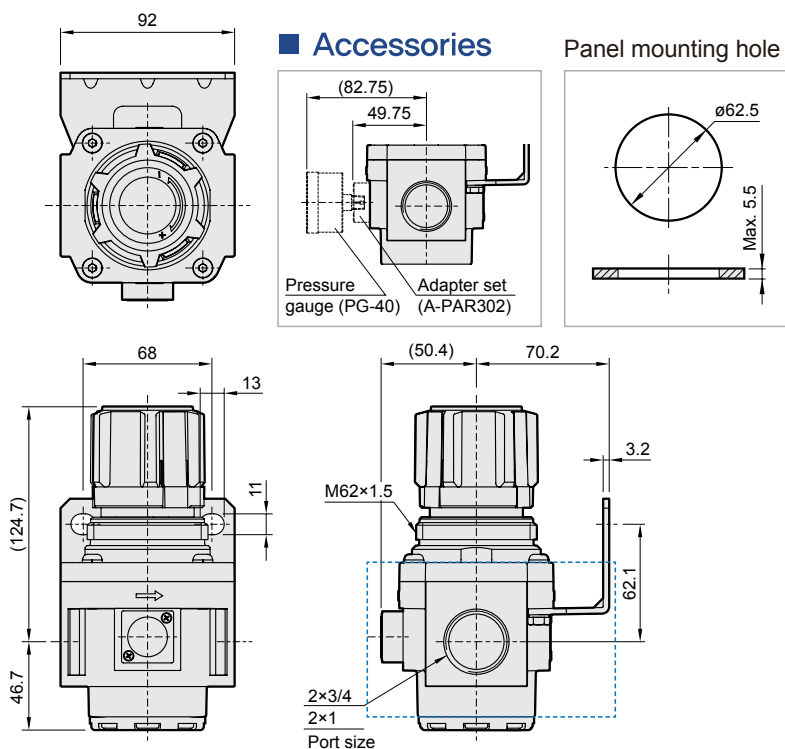
* Refer to page 5-11 for the option of digital pressure switch MP41 (E*).

■ Pressure characteristics

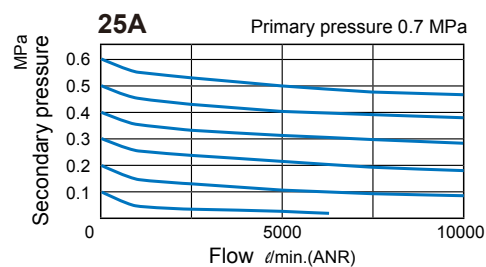
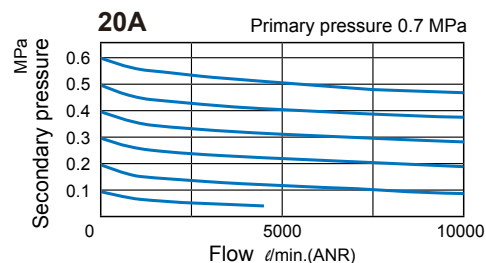


■ Accessories

Panel mounting hole



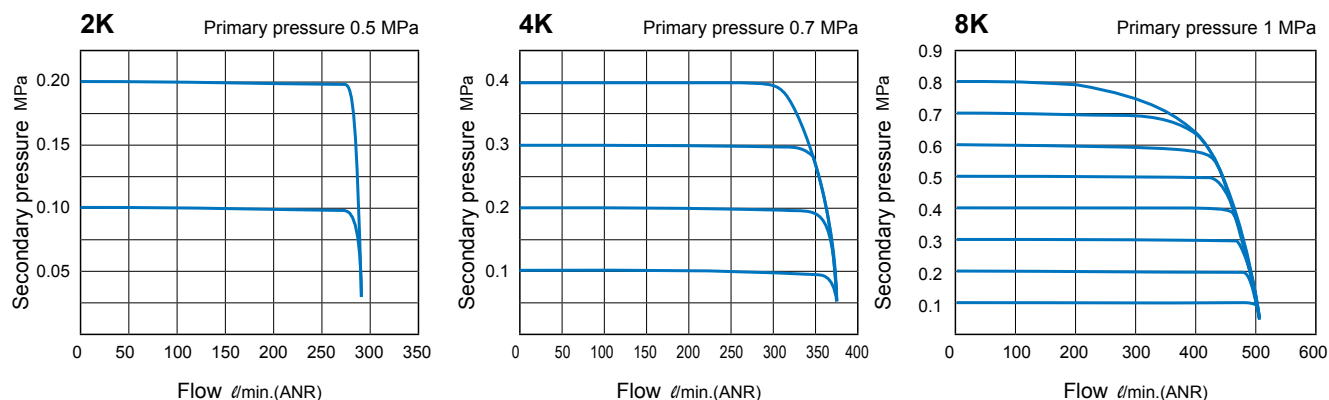
■ Flow feature



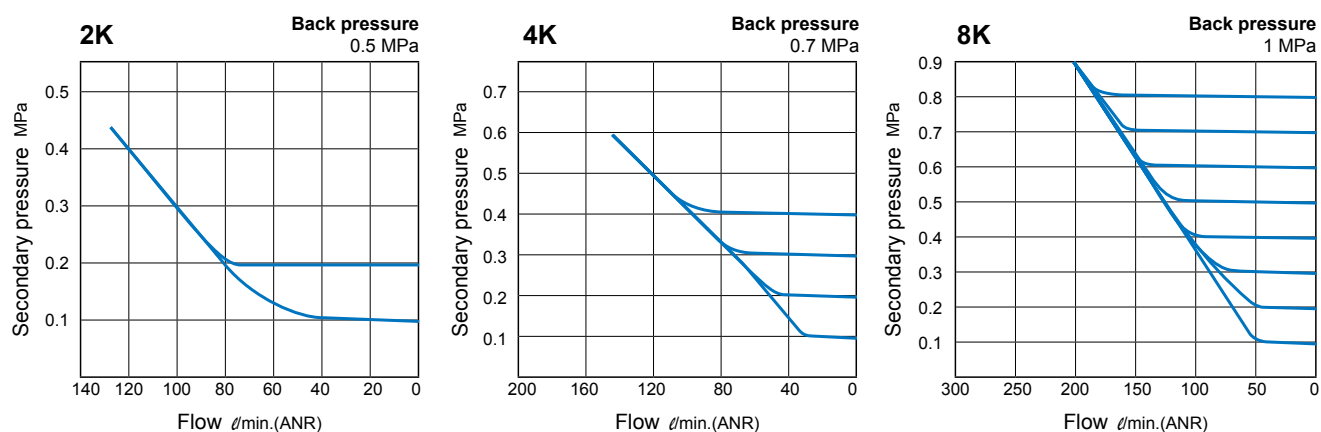
Model	PAIR100
Bore No.	6A
Port size	1/8
Medium	Air
Max. operating pressure	1MPa
Min. operating pressure	Setting pressure+0.05 MPa
Proof pressure	1.5MPa
Regulated pressure range	2K: 0.005~0.2 MPa
	4K: 0.01~0.4 MPa
	8K: 0.01~0.8 MPa
Sensitivity	0.2% F.S.
Repeatability	±0.5% F.S.
Air consumption(*)	4.4ℓ /min(ANR) F.S.
Ambient temperature	- 5~+60° C (No freezing)
Attachment	Bracket
Option	Pressure gauge (PG-33S)
Weight	150g

Capacity

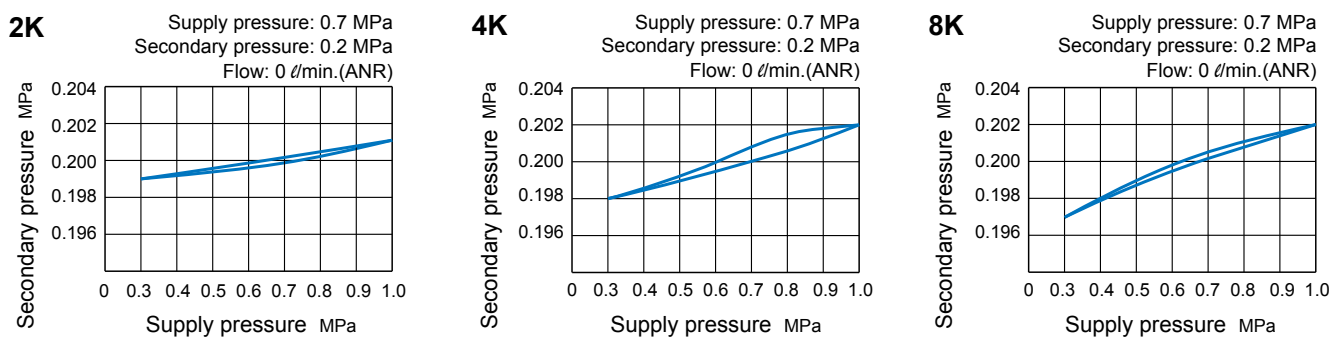
Flow feature



Relief characteristics



Pressure characteristics



PAIR200 series



For more information
Please scan

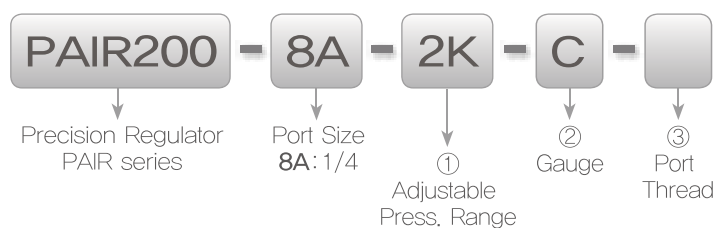


■ Specification

Model	PAIR200
Bore No.	8A
Port size	1/4
Medium	Air
Max. operating pressure	1MPa
Min. operating pressure	Setting pressure+0.05 MPa
Proof pressure	1.5MPa
Regulated pressure range	2K: 0.005~0.2 MPa
	4K: 0.01~0.4 MPa
	8K: 0.01~0.8 MPa
Sensitivity	0.2% F.S.
Repeatability	±0.5% F.S.
Air consumption(*)	4.4ℓ /min(ANR) F.S.
Ambient temperature	- 5~+60° C (No freezing)
Attachment	Bracket
Option	Pressure gauge (PG-40S)
Weight	300g

* For supply pressure 1MPa

■ Order form (Example)



① Adjustable press. range

2K	4K	8K
0.005~0.2MPa	0.01~0.4MPa	0.01~0.8MPa

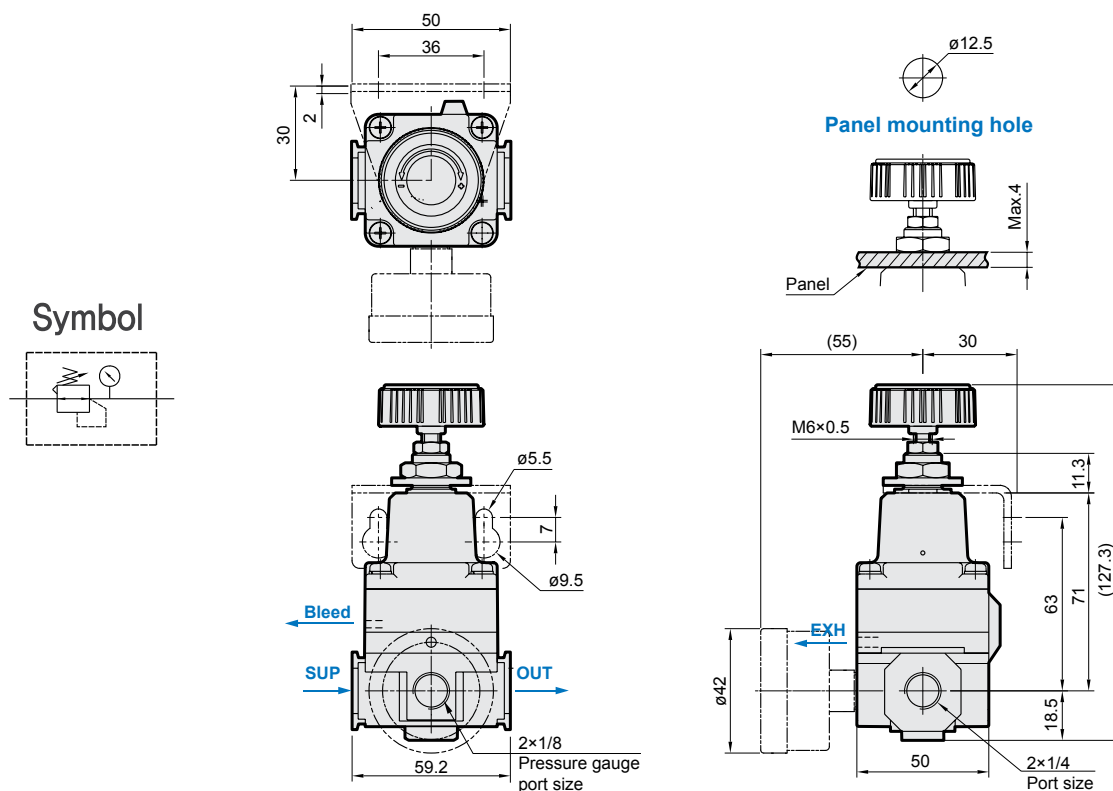
② Gauge

Blank	Without pressure gauge
C	Pressure gauge (PG-40S)

③ Port thread

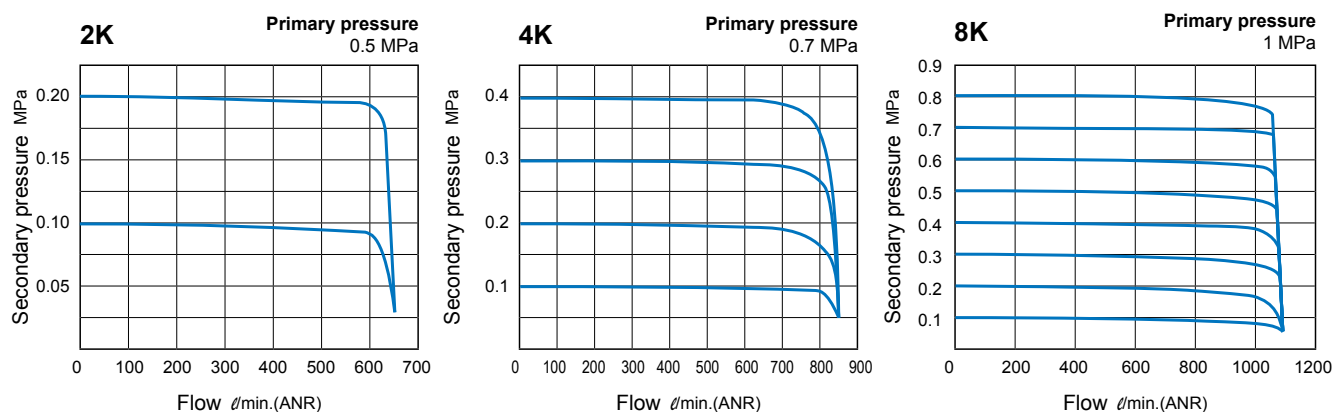
Blank	G	NPT
Rc thread	G thread	NPT thread

■ Dimensional drawing(mm)

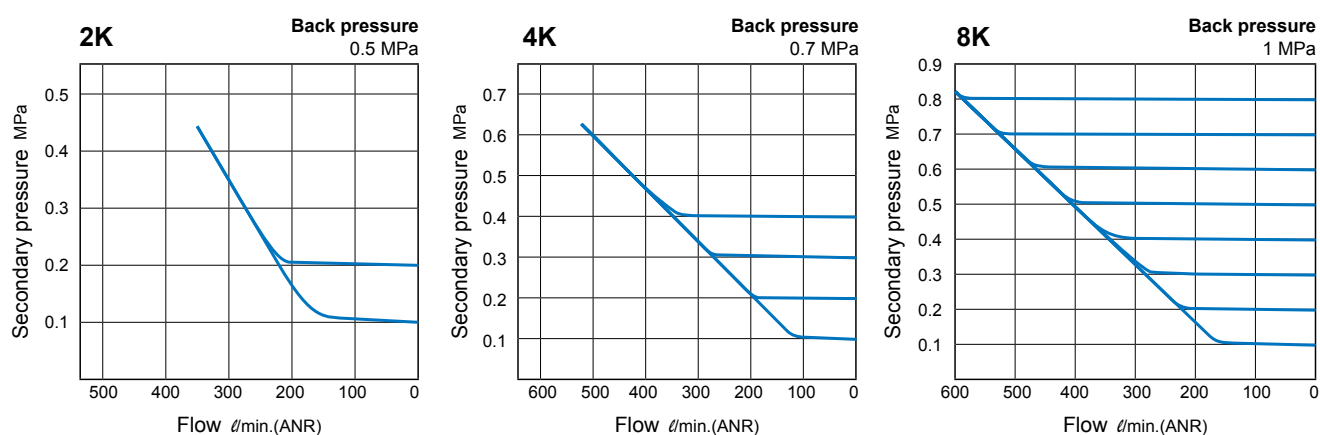


Capacity

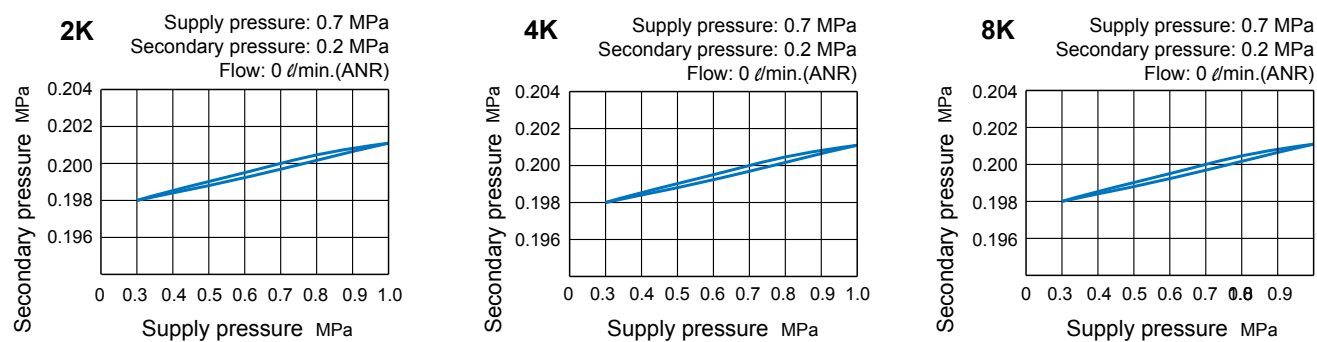
Flow feature



Relief characteristics



Pressure characteristics



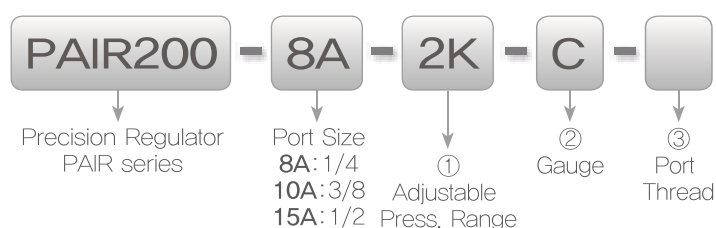


Specification

Model	PAIR300		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Max. operating pressure	1 MPa		
Min. operating pressure	Setting pressure +0.1 MPa		
Proof pressure	1.5 MPa		
Regulated pressure range	2K: 0.005~0.2 MPa		
	4K: 0.01~0.4 MPa		
	8K: 0.01~0.8 MPa		
Sensitivity	0.2% F.S.		
Repeatability	±0.5% F.S.		
Air consumption(*)	11.5 l/min(ANR) F.S.		
Ambient temperature	- 5~+60° C (No freezing)		
Attachment	Bracket		
Option	Pressure gauge (PG-40S)		
Weight	875 g		

* For supply pressure 1 MPa.

Order form (Example)



① Adjustable press. range

2K	4K	8K
0.005~0.2MPa	0.01~0.4MPa	0.01~0.8MPa

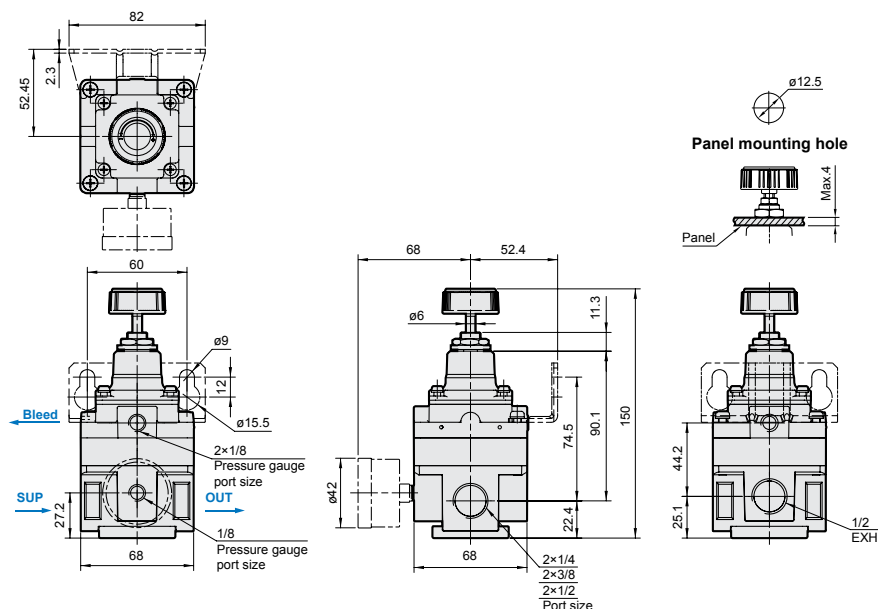
② Gauge

Blank	Without pressure gauge
C	Pressure gauge (PG-40S)

③ Port thread

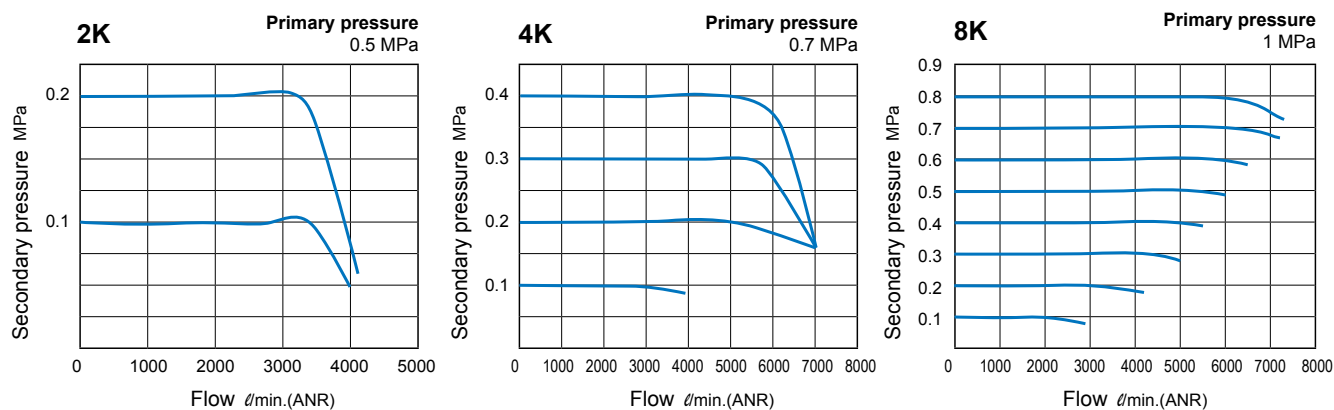
Blank	G	NPT
Rc thread	G thread	NPT thread

Dimensional drawing(mm)

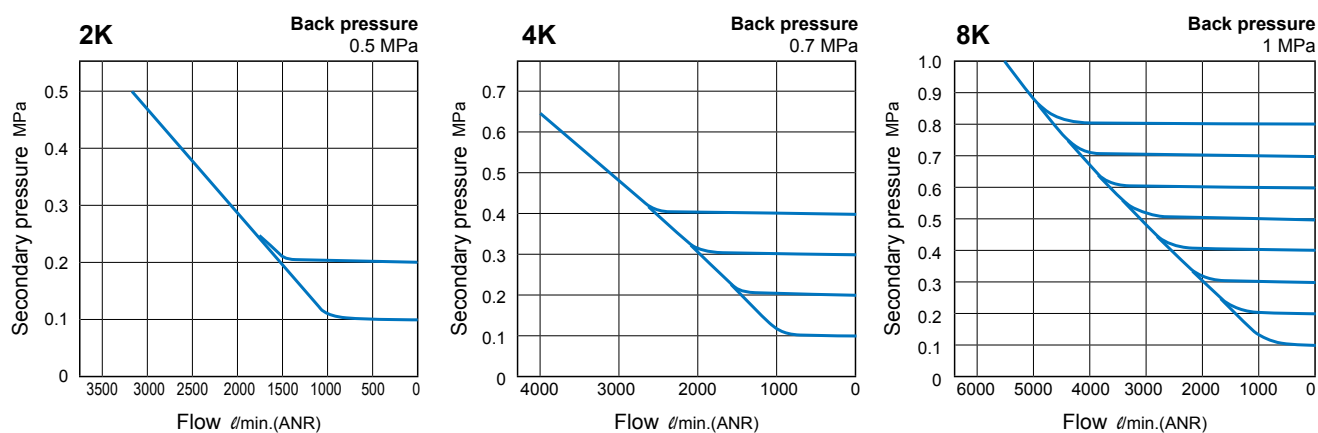


Capacity

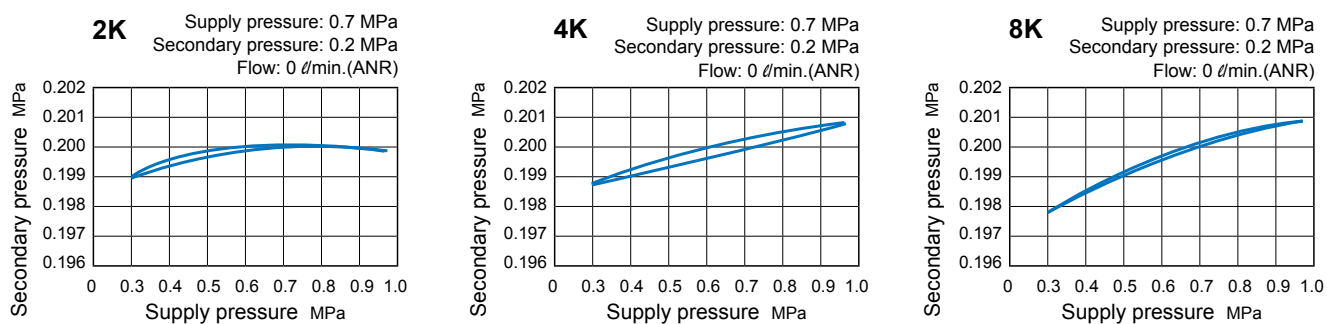
Flow feature



Relief characteristics



Pressure characteristics



Precautions (Read before installing)

01

Air Supply

⚠ Caution

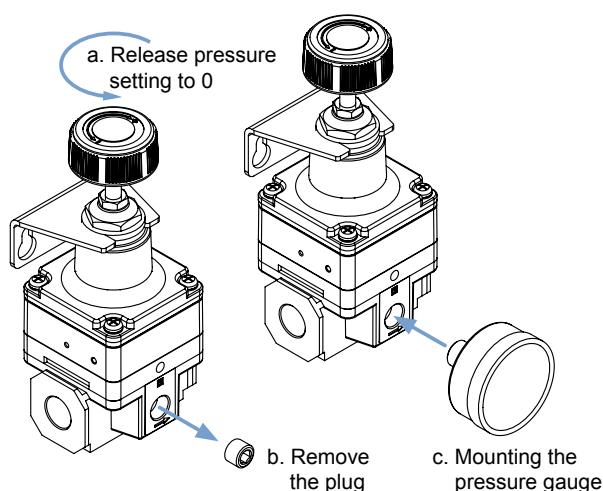
1. If the air supply line contains drain or particulate, etc., the primary pressure fixed throttle can become clogged leading to malfunction, and therefore, be sure to use an air filter (PAF) & mist separator.
2. Never use a lubricator on the primary side of the regulator, as this will positively cause the fixed throttle to become clogged and result in a malfunction. If lubrication is required for terminal devices, connect a lubricator on the secondary side.

02

Maintenance

⚠ Warning

1. When to be during maintenance, first reduce the precision regulator set pressure to zero, and completely shut off the supply pressure.
2. When a pressure gauge is to be mounted, remove the plug after reducing the regulator pressure set pressure to zero. (Step a→b→c)



03

Product Precautions

⚠ Caution

The primary pressure is relatively high (approx. 0.5 MPa or more), the set pressure is low (approx. 0.1 MPa or less), and when operated with the secondary side released to the atmosphere, there may be pulsations in the setting pressure. In this kind of situation, operate with the primary pressure reduced as much as possible, or increase the set pressure somewhat and restrict the secondary side line (add and adjust a stop valve, etc.)

When used for the purpose of a relief function, and capacity of the precision regulator is large, the exhaust sound will be loud when being relieved. the operation with a silencer (MSR*) mounted on the exhaust port (EXH port). (Silencer refer to Other Auxiliary Equipment)

04

Operation

⚠ Caution

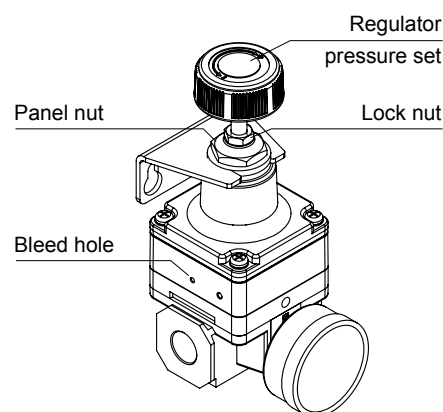
1. Do not use a precision regulator outside the range of its specifications as this can cause failure. (Refer to specifications.)
2. When mounting is performed, make connections while confirming port direction (indications).
3. Screw a panel nut with the proper torque when mounting onto a panel. (be listed as follows)

Model	PAIR100	PAIR200	PAIR300
Torque (kgf)	12.5	21	21

Looseness or faulty sealing will occur if tightening torque is insufficient, while thread damage will result if the torque is excessive.

⚠ Warning

4. If a directional switching valve (solenoid valve, mechanical valve, etc.) is mounted on the primary side of the the precision regulator and repeatedly switched ON and OFF, wear of the nozzle/diaphragm section will be accelerated and a discrepancy in the setting value may occur. Therefore, avoid using a directional switching valve on the primary side. In the event a directional switching valve will be used, install it on the secondary side of the precision regulator.
5. Air is normally released from the bleed hole (the hole on the side of the body's mid-section). This is a necessary consumption of air based on the construction of the precision regulator, and is not an abnormality.
6. In order to avoid operation mistakes, make sure to tighten the lock nut after pressure adjustment.



PISCO



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