PISCO

PNEUMATIC

PRODUCT CATALOG

version 1.0

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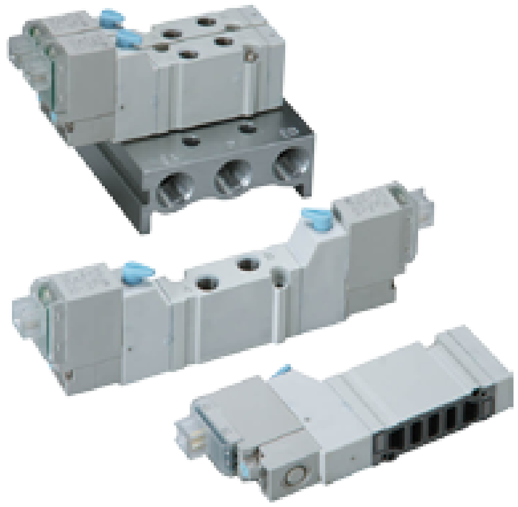
CONTENT

PTV-100 Series

SOLENOID VALVE



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		
Operating perssure (LP)		0.0~0.7 MPa		
Pilot pressure range (LP)		0.25~0.7 MPa		
Proof pressure		1 MPa		
Effective orifice	Body ported	4.5 mm^2		
	Manifold	4.5 mm^2		4.5 / 5 / 4.5 mm^2
Reponse time		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		
Available voltage range		±10%		
Insulation class		B class		
Weight		30 g	44 g	59 g

Caution

- Don't continuously energize for over 2 hours.
- The total energizing time of a day is not allowed to exceed the total non-energizing time even if it is intermittent energizing.

Order example of valve

PTV — 100M — 4E2C — AC110 — LJ1 — LP

MODEL

BODY WIDTH

Blank: Body ported type
M: Manifold type

4: 4 way
(5 port)

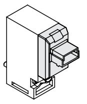
E1: Single Solenoid
E2: Double Solenoid

C: Closed center
P: Pressure center
R: Exhaust center
(Only for **4E2** type)

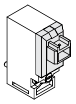
VOLTAGE
AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V
DC12V
DC6V

ELECTRIC CONNECTION

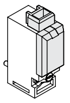
LJ: Plug on side (*1)



LR: Plug on side (*2)



SR: Plug on Top (*2)



WIRE LENGTH
Blank: 500mm
1: 1000mm
2: 2000mm
3: 3000mm

LP: External pilot (*3)
(Only for manifold type)

Order example of manifold

PTV — 100M — 5B3 — LP — G

MODEL

MANIFOLD			NUMBER
Blank: Body ported type	**5B**	5 port	**1~22**
M: Manifold type	**5M**	5 port	**1~20** **1~16** (LP)

LP: External pilot (*3)
(Only for manifold type)

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

Order example of wire

* Use the same wire with PVDY.

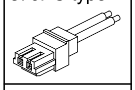
PVDY — 100 — WA2J2

MODEL

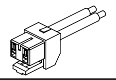
VOLTAGE
A2: AC220V(50/60)Hz
A1: AC110V(50/60)Hz
D: DC24V/12V/6V

WIRE

J: JPC type



R: RMH type



WIRE LENGTH
Blank: 500mm
1: 1000mm
2: 2000mm
3: 3000mm

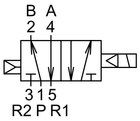
*1. Plug with flying leads **JPC** type.
*2. Plug with flying leads **RMH** type.
*3. **LP** type valve needs to match **LP** type manifold.

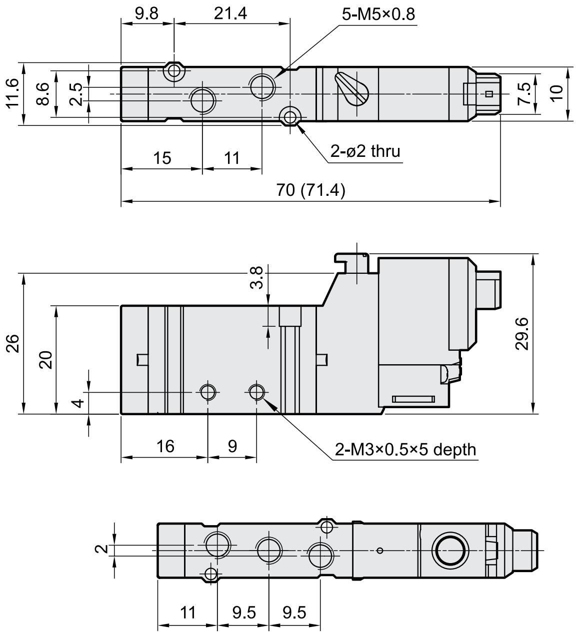
*Starting from 11 stations, manifolds are made to order.

PTV-100 Dimensions

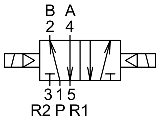
SOLENOID VALVE

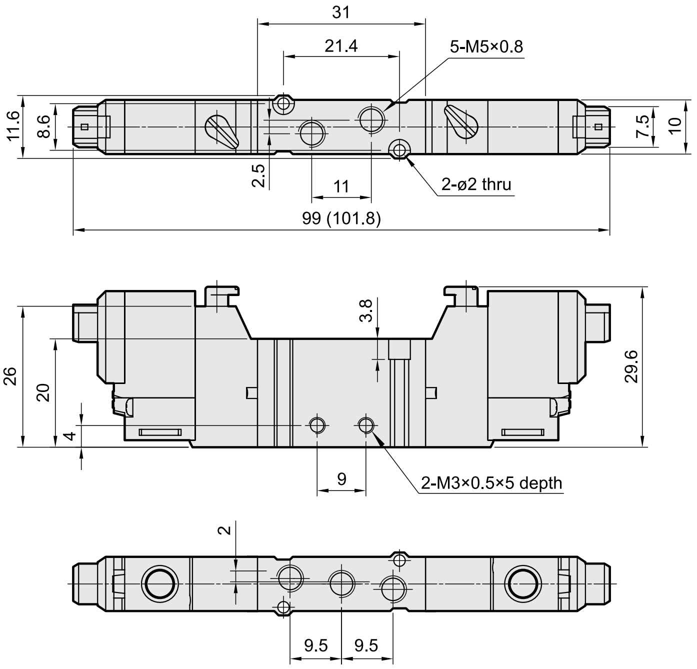
PTV-100-4E1





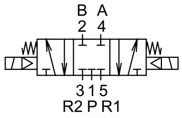
PTV-100-4E2



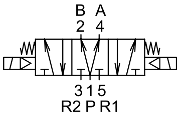


PTV-100-4E2C.P.R

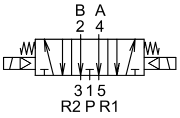
PTV-100-4E2C

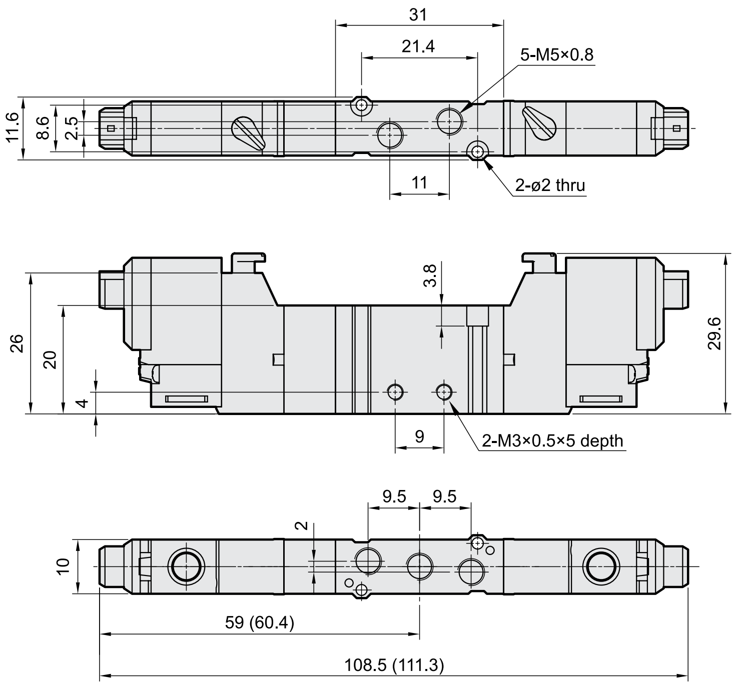


PTV-100-4E2P



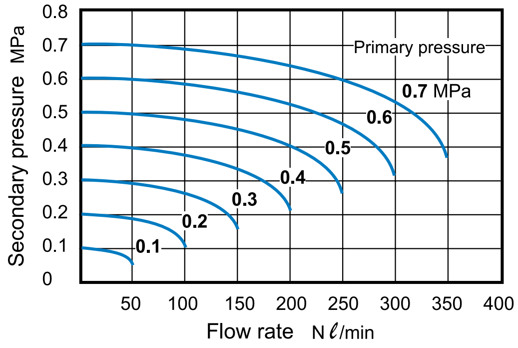
PTV-100-4E2R





Flow features

PTV-100-4E1/4E2



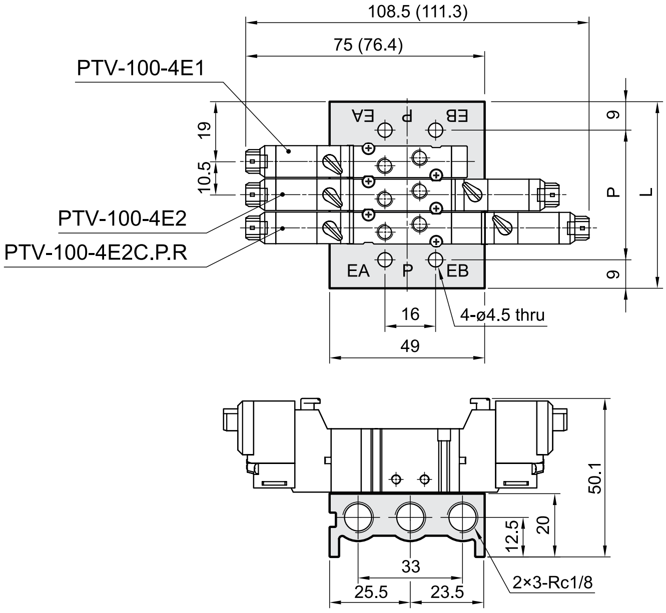
( ): Dimension for **LJ** plug type.

PTV-100 Manifold

SOLENOID VALVE

PTV-100-5B*

5 port (for body ported type)

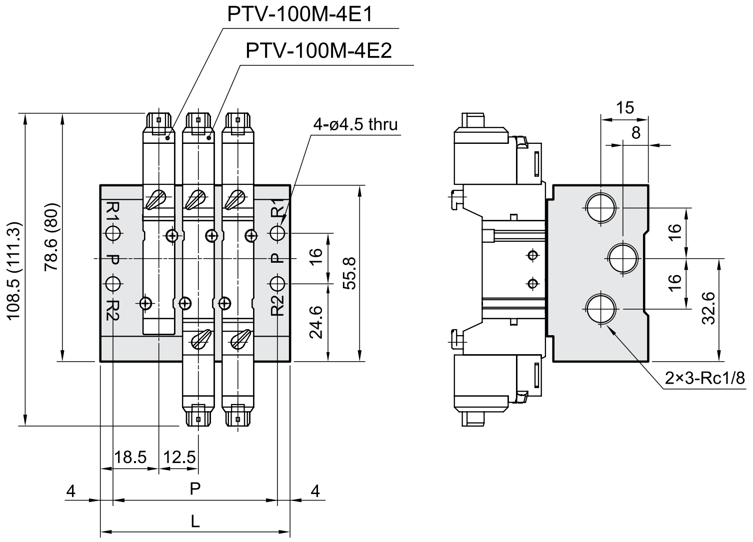


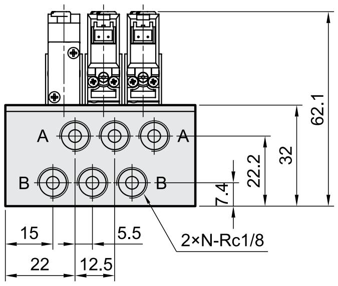
No. of stations	P	L
1	20	38
2	30.5	48.5
3	41	59
4	51.5	69.5
5	62	80
6	72.5	90.5
7	83	101
8	93.5	111.5
9	104	122
10	114.5	132.5

P: (No.of stations-1)×10.5+20
L: (No.of stations-1)×10.5+38

PTV-100M-5M*

5 port (for manifold type)

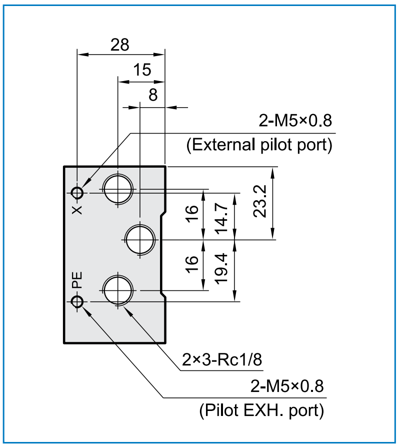




( ): Dimension for **LJ** plug type.

LP

External pilot



No. of stations (N)	P	L
1	27	35
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

P: (No.of stations-1)×12.5+27
L: (No.of stations-1)×12.5+35

PTV-156 Series

SOLENOID VALVE

Specification

Model		4E1	4E2	4E2 C.P.R	4E2 3.4.5
Bore No.		6A			
Port size		1/8			
No. of port		5			
No. of position		2		3	4
Medium		Air			
Operating perssure range		0.15~0.7 MPa		0.2~0.7 MPa	
Operating pressue (LP)		0~0.7 MPa			–
Pilot pressure range (LP)		0.2~0.7 MPa		0.25~0.7 MPa	–
Proof pressure		1 MPa			
Effective orifice	Body ported	11 mm^2		9.5 / 14.6 / 9.5 mm^2	11 mm^2
	Manifold	10 mm^2		7.5 / 13 / 8 mm^2	10 mm^2
Reponse time		19 ms		20 ms	25 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	82 g

Order example of valve

PTV — 156M — 4E2C — AC110 — LJ1 — LP — G

MODEL

BODY WIDTH

Blank: Body ported type
C4: Body ported with tube fitting (dia. ø4mm)
C6: Body ported with tube fitting (dia. ø6mm)
C8: Body ported with tube fitting (dia. ø8mm)
M: Manifold type

4: 4 way (5 port)

E1: Single Solenoid
E2: Double Solenoid

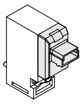
C: Closed center
P: Pressure center
R: Exhaust center
3: 2x 3/2 way (N.C. / N.C.)
4: 2x 3/2 way (N.O. / N.O.)
5: 2x 3/2 way (N.C. / N.O.)
(Only for **4E2** type)

VOLTAGE

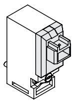
AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V
DC12V
DC6V

ELECTRIC CONNECTION

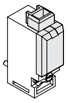
LJ: Plug on side (*1)



LR: Plug on side (*2)



SR: Plug on Top (*2)



WIRE LENGTH

Blank: 500mm
1: 1000mm
2: 2000mm
3: 3000mm

Blank: Standard
LP: External pilot (*3)
(Only for manifold type 4E1, 4E2, 4E2 C.P.R)

PORT THREAD

Blank: Rc thread
G: G thread
NPT: NPT thread
(Only for body ported type)

Order example of manifold

PTV — 156M — 5B3 — LP — G

MODEL

MANIFOLD			NUMBER
Blank: Body ported type	**5B**	5 port	**1~32**
M: Manifold type	**5M**	5 port	**1~20** **1~16** (LP)

Blank: Standard
LP: External pilot (*3)
(Only for manifold type)

PORT THREAD

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

Order example of wire

* Use the same wire with PTV.

PVDY — 100 — WA2J2

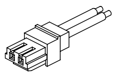
MODEL

VOLTAGE

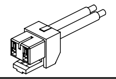
A2: AC220V(50/60)Hz
A1: AC110V(50/60)Hz
D: DC24V/12V/6V

WIRE

J: JPC type



R: RMH type



WIRE LENGTH

Blank: 500mm
1: 1000mm
2: 2000mm
3: 3000mm

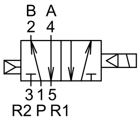
*1. Plug with flying leads **JPC** type.
*2. Plug with flying leads **RMH** type.
*3. LP type valve needs to match LP type manifold.

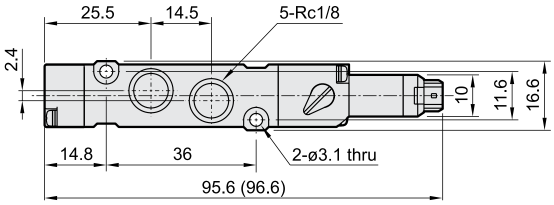
*Starting from 11 stations, manifolds are made to order.

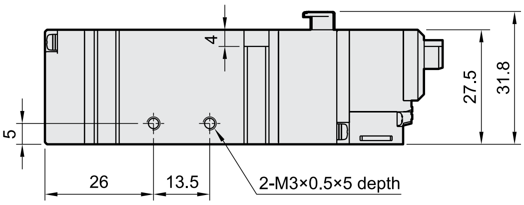
PTV-156 Dimensions

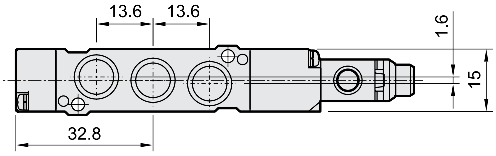
SOLENOID VALVE

PTV-156-4E1



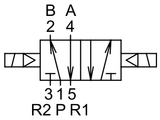




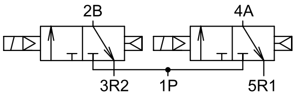


PTV-156-4E23.4.5

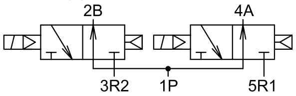
PTV-156-4E2



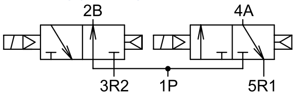
PTV-156-4E23

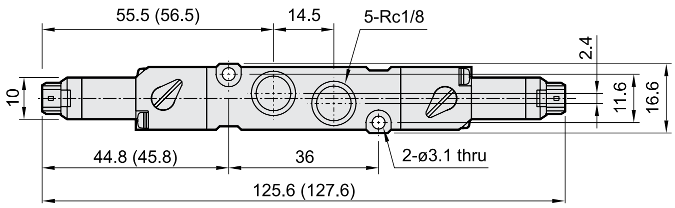


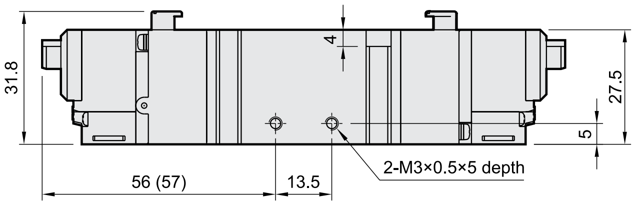
PTV-156-4E24

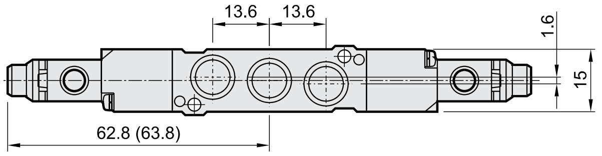


PTV-156-4E25



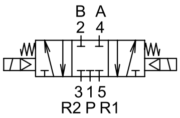




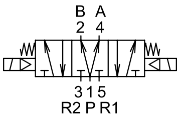


PTV-156-4E2C.P.R

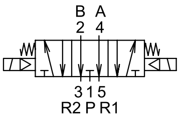
PTV-156-4E2C

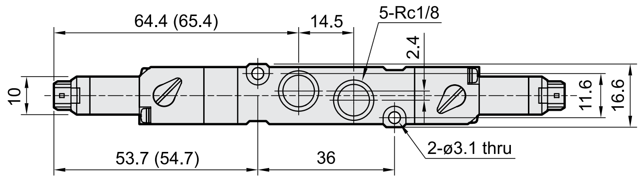


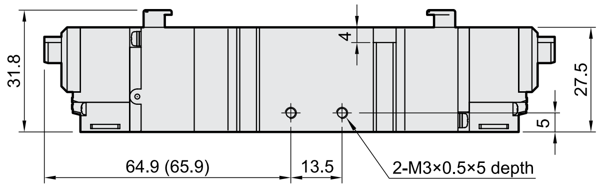
PTV-156-4E2P

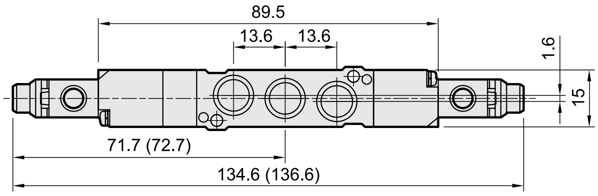


PTV-156-4E2R





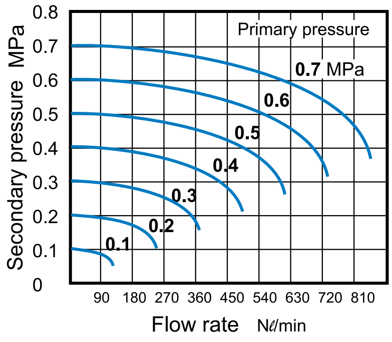




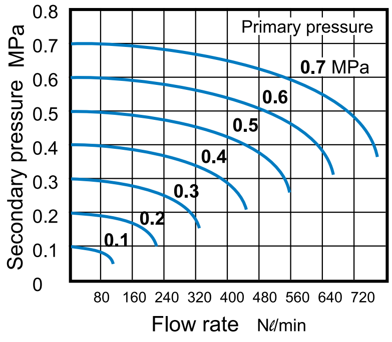
( ): Dimension for **LJ** plug type.

Flow features

PTV-156-4E1/4E2



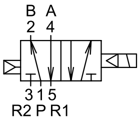
PTV-156M-4E1/4E2

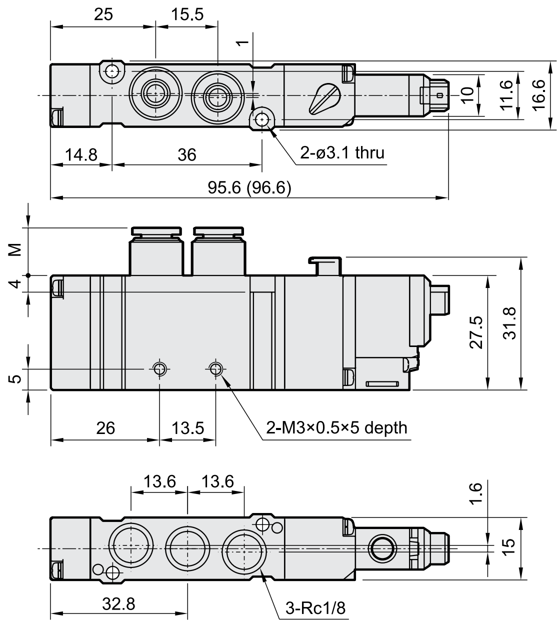


PTV-156 Dimensions

SOLENOID VALVE

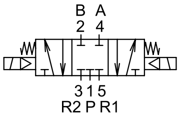
PTV-156C*-4E1



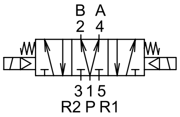


PTV-156C*-4E2C.P.R

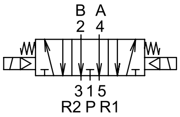
PTV-156-4E2C

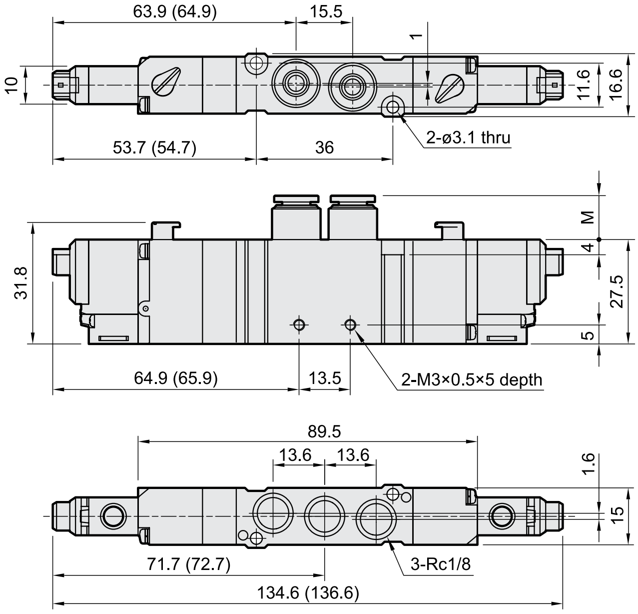


PTV-156-4E2P



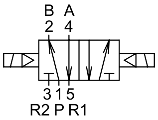
PTV-156-4E2R



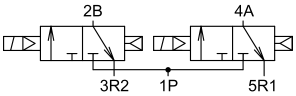


PTV156C*-4E23.4.5

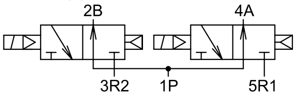
PTV-156-4E2



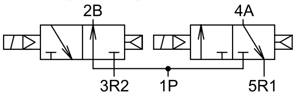
PTV-156-4E23

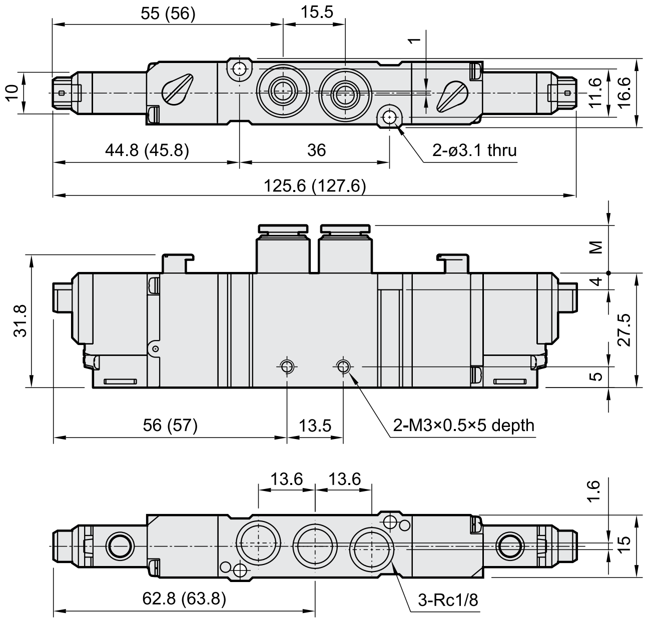


PTV-156-4E24



PTV-156-4E25





Code Tube fitting	M
C4 (ø4)	(13.8)
C6 (ø6)	(14.7)
C8 (ø8)	(19.3)

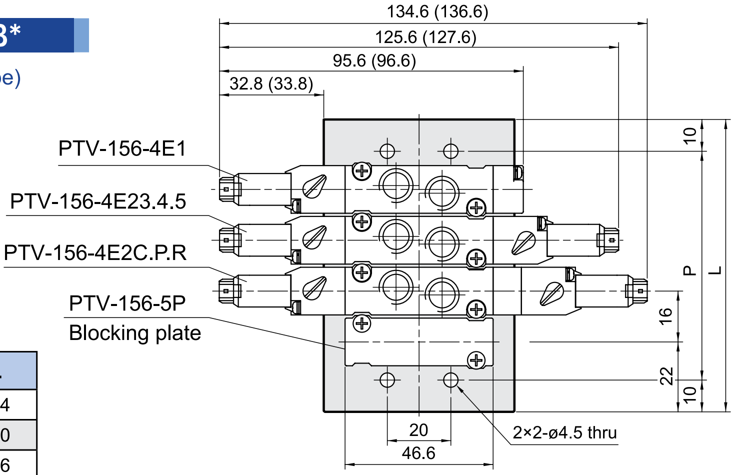
( ): Dimension for **LJ** plug type.

PTV-156 Manifold

SOLENOID VALVE

PTV-156-5B*

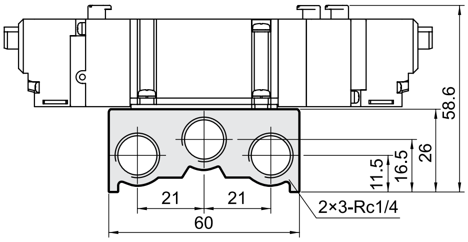
5 port (for body ported type)



No. of stations	P	L
1	24	44
2	40	60
3	56	76
4	72	92
5	88	108
6	104	124
7	120	140
8	136	156
9	152	172
10	168	188

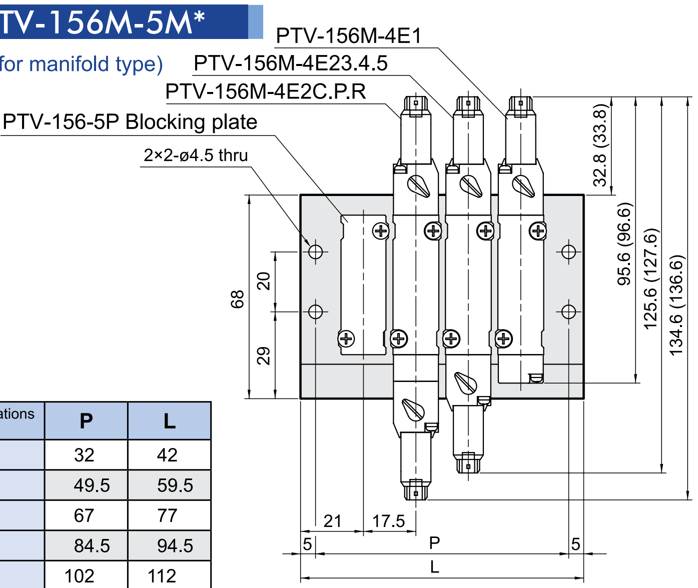
P: (No.of stations-1)×16+24

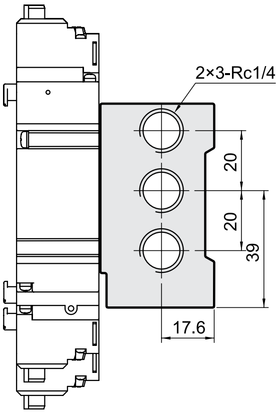
L: (No.of stations-1)×16+44



PTV-156M-5M*

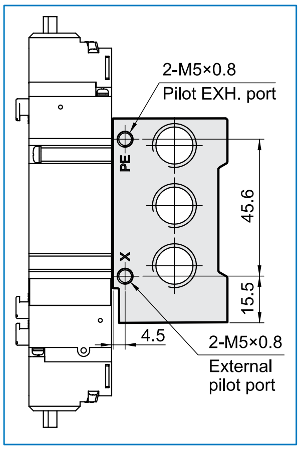
5 port (for manifold type)





LP

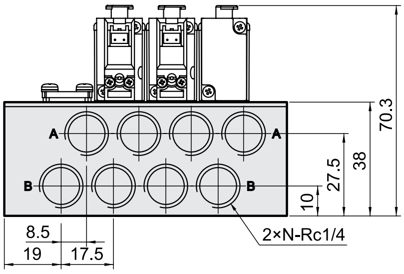
External pilot



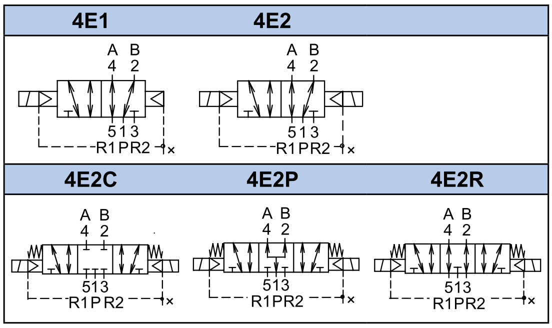
No. of stations (N)	P	L
1	32	42
2	49.5	59.5
3	67	77
4	84.5	94.5
5	102	112
6	119.5	129.5
7	137	147
8	154.5	164.5
9	172	182
10	189.5	199.5

P: (No.of stations-1)×17.5+32

L: (No.of stations-1)×17.5+42



Symbol (**LP** : External pilot)



( ): Dimension for **LJ** plug type.

PTV-188 Series

SOLENOID VALVE

Caution

- Don't continuously energize for over 2 hours.
- The total energizing time of a day is not allowed to exceed the total non-energizing time even if it is intermittent energizing.

Specification

Model		4E1	4E2	4E2 C.P.R
Bore No.		8A		
Port size		1/4		
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=1.2W, DC12/24=0.55W		
Available voltage range		±10%		
Insulation class		B class		
Weight		77 g	102 g	106 g

Order example of valve

PTV — 188M — 4E2C — AC110 — LJ1 — G

MODEL

BODY WIDTH

4: 4 way (5 port)

VOLTAGE
AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V
DC12V
DC6V

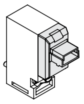
Blank: Body ported type
M: Manifold type

E1: Single Solenoid
E2: Double Solenoid

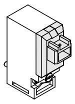
C: Closed center
P: Pressure center
R: Exhaust center
(Only for **4E2** type)

ELECTRIC CONNECTION

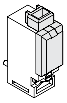
LJ: Plug on side (*1)



LR: Plug on side (*2)



SR: Plug on Top (*2)



WIRE LENGTH
Blank: 500mm
1: 1000mm
2: 2000mm
3: 3000mm

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread
(Only for body ported type)

*1. Plug with flying leads **JPC** type.
*2. Plug with flying leads **RMH** type.

Order example of manifold

PTV — 188M — 5B3 — G

MODEL

MANIFOLD			NUMBER
Blank: Body ported type	**5B**	5 port	**1~27**
M: Manifold type	**5M**	5 port	**1~18**

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

* Starting from 11 stations, manifolds are made to order.

Order example of wire

* Use the same wire with PVDY.

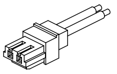
PVDY — 100 — WA2J2

MODEL

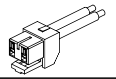
VOLTAGE
A2: AC220V(50/60)Hz
A1: AC110V(50/60)Hz
D: DC24V/12V/6V

WIRE

J: JPC type



R: RMH type

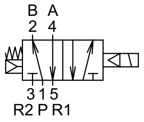


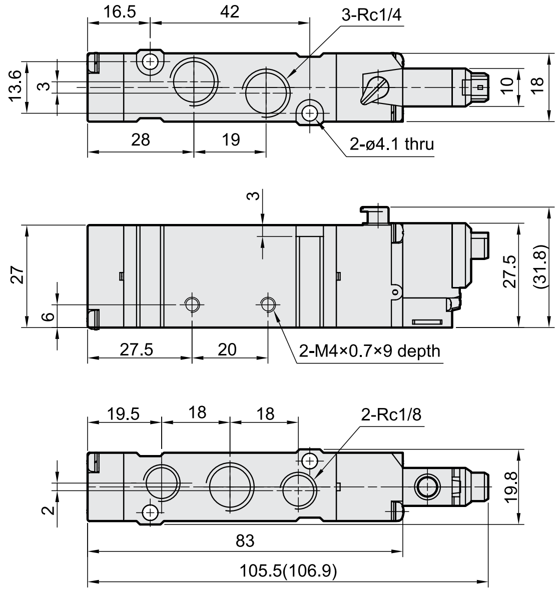
WIRE LENGTH
Blank: 500mm
1: 1000mm
2: 2000mm
3: 3000mm

PTV-188 Dimension

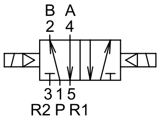
SOLENOID VALVE

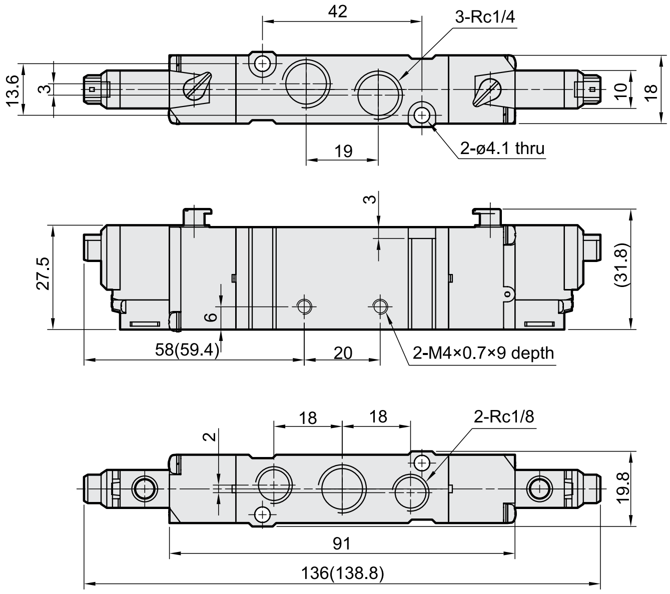
PTV-188-4E1





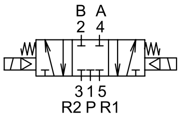
PTV-188-4E2



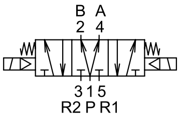


PTV-188-4E2C.P.R

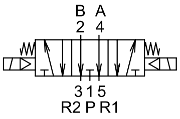
PTV-188-4E2C

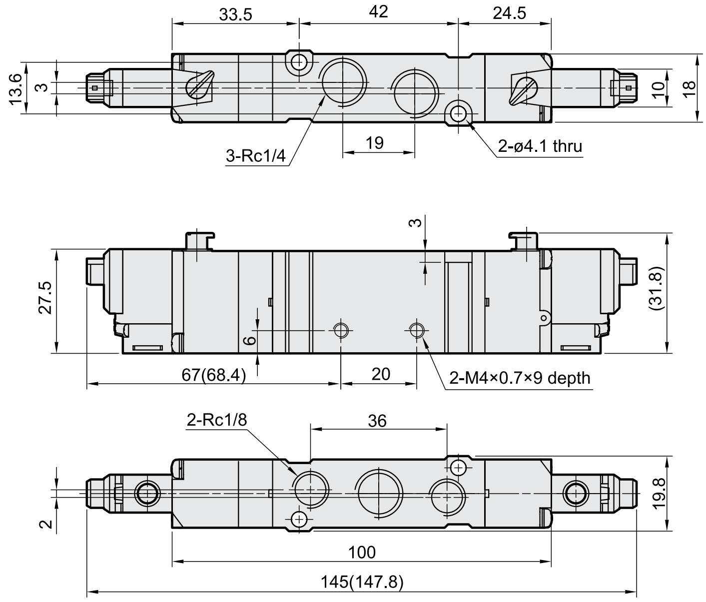


PTV-188-4E2P



PTV-188-4E2R

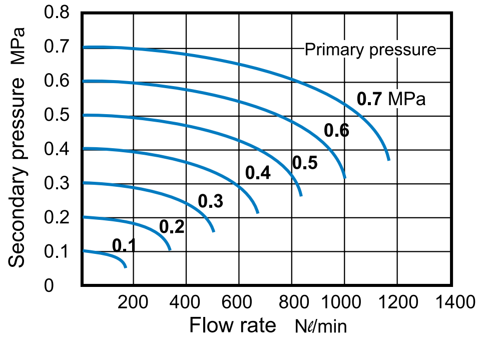




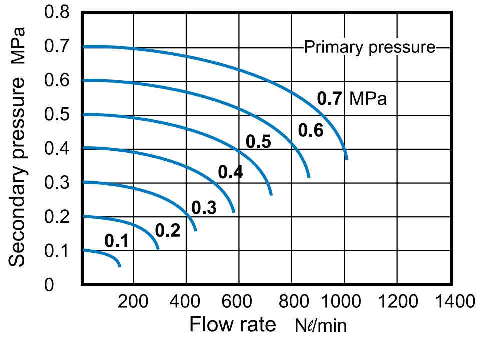
( ): Dimension for **LJ** plug type.

Flow features

PTV-188-4E1/4E2



PTV-188M-4E1/4E2

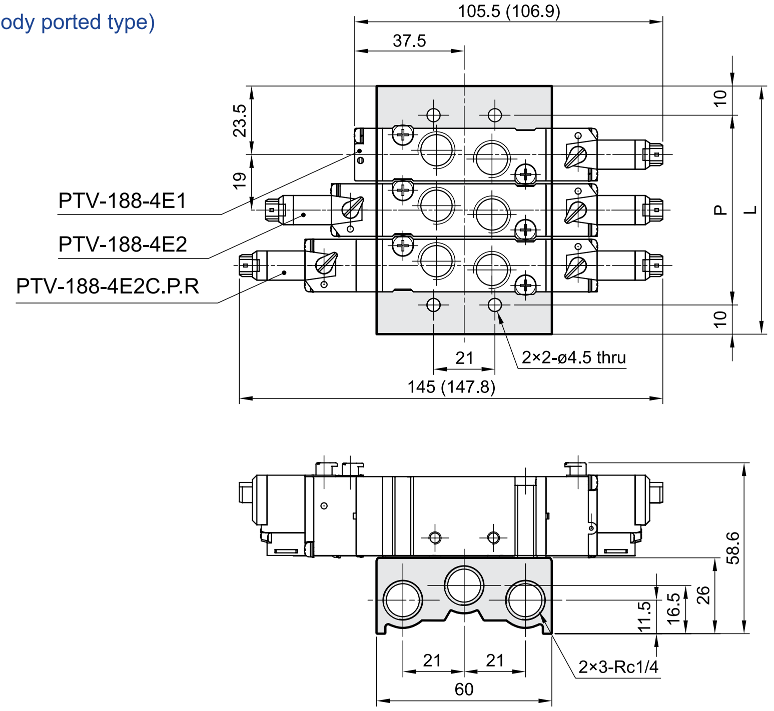


PTV-188 Manifold

SOLENOID VALVE

PTV-188-5B*

5 port (for body ported type)

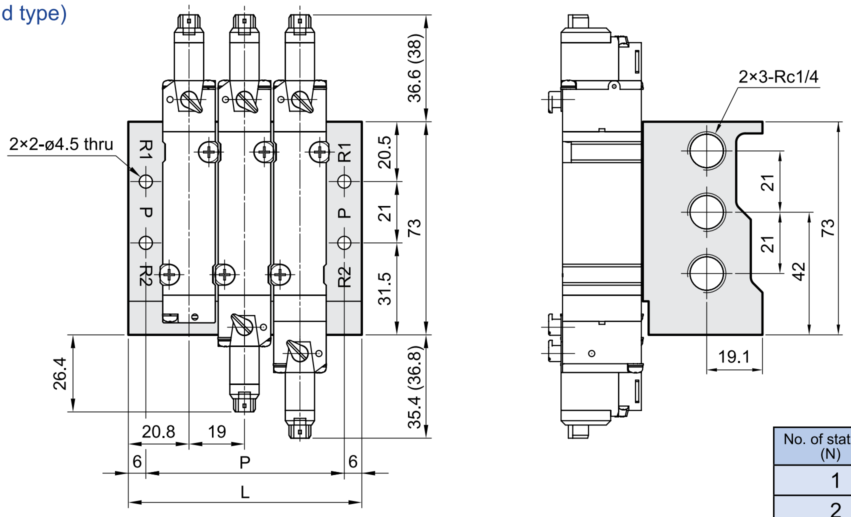


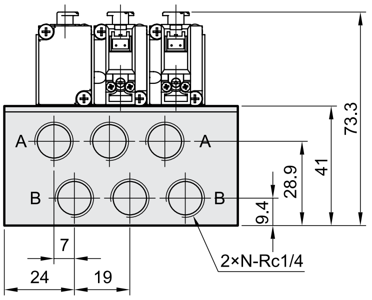
No. of stations	P	L
1	27	47
2	46	66
3	65	85
4	84	104
5	103	123
6	122	142
7	141	161
8	160	180
9	179	199
10	198	218

P: (No.of stations-1)×19+27
L: (No.of stations-1)×19+47

PTV-188M-5M*

5 port (for manifold type)





No. of stations (N)	P	L
1	30	42
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

P: (No.of stations-1)×19+30
L: (No.of stations-1)×19+42

( ): Dimension for **LJ** plug type.

PCQA Series

STANDARD CYLINDER

Features

■ Non lubrication

Special housing and bushing enables self lubrication of piston rod.

■ High quality long service life

Hard anodised aluminium cylinder tubes offer a high resistance to corrosion and low internal friction.

■ Non standard type

Custom cylinders are available as are non standard strokes, rod extensions and special rod threads.

■ Cylinder mountings

Available with comprehensive internationally recognised range of fixed and flexible mountings.

Specification

Model	PCQA				
Tube I.D. (mm)	40,50,63	80,100	125	150	200
Medium	Air				
Operating perssure range	0.05~1 MPa				
Proof pressure	1.5 MPa				
Ambient temperature	-5~+60°C (No freezing)				
Available speed range	50~500 mm/sec				
Sensor switch	RCA				
Sensor switch holder	HV2	HV4	PM14	PM16	HA5

Table for standard stroke

Tube I.D.	Stroke (mm)	Max. stroke (mm)
ø40	50,75,100,125,150, 175, 200,250,300, 400,500	1800
ø50,63		2000
ø80,100		2500
ø125,150		2000
ø200		1500

* Intermediate stroke are available, please contact us.

Order example

PCQA — 11 — 40 — 100M — T — □

MODEL

1: Single rod
2: Double rod

TUBE I.D.

STROKE

M: Magnet

TYPE

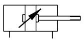
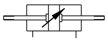
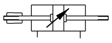
T: With magnet, TA/TB is assembled

* Tube, piston rod and tie rod are extended, and an extra piston is added.

PORT THREAD

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

STYLE

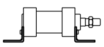
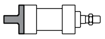
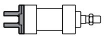
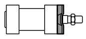
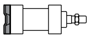
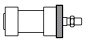
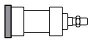
Code		Symbol	Description
1	**1**		Double acting / Male thread
2	**1**		Double rod / Male thread
2	**7**		Double rod / Adjustable male thread Please mark "adjustable stroke" at order list

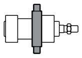
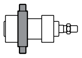
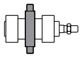
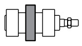
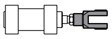
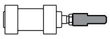
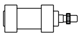
*Order example for special specification, please contact us.

PCQA Order example of accessories

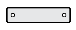
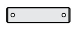
STANDARD CYLINDER

Accessories & Connector

	Accessories ⚠ ø125~ø200: Factory assembled and shipped (self-assembled is not recommended)						
Code	**LB** (Purchase 2 pcs)	**CA**	**CB**	**FA**	**FB**	**FAC**	**FBC**
Mounting / Tube I.D.							
ø40	**LB-Q1-40**	**CA-Q1-40**	**CB-Q1-40**	**FA-Q1-40**		**FAC-Q1-40**	
ø50	**LB-Q1-50**	**CA-Q1-50**	**CB-Q1-50**	**FA-Q1-50**		**FAC-Q1-50**	
ø63	**LB-Q1-63**	**CA-Q1-63**	**CB-Q1-63**	**FA-Q1-63**		**FAC-Q1-63**	
ø80	**LB-Q1-80**	**CA-Q1-80**	**CB-Q1-80**	–		**FAC-Q1-80**	
ø100	**LB-Q1-100**	**CA-Q1-100**	**CB-Q1-100**	–		**FAC-Q1-100**	
ø125	**LB-Q1-125**	**CA-Q1-125**	**CB-Q1-125**	–		**FAC-Q1-125**	
ø150	**LB-Q1-150**	**CA-Q1-150**	**CB-Q1-150**	–		**FAC-Q1-150**	
ø200	**LB-Q1-200**	**CA-Q1-200**	**CB-Q1-200**	–		**FAC-Q1-200**	

	Accessories ⚠ Factory assembled and shipped (self-assembled is not recommended)				Connector		Rod nut
Code	**TA**	**TB**	**TC**	**SDS** Mid section support (Stroke over 1000mm)	**Y**	**I**	**NUT**
Mounting / Tube I.D.							
ø40	**TC-Q1-40**			**SDS-Q1-40**	**Y-Q1-40**	**I-Q1-40**	**NUT-M14x1.5x8Hx22B**
ø50	**TC-Q1-50**			**SDS-Q1-50**	**Y-Q1-50**	**I-Q1-50**	**NUT-M18x1.5x11Hx26B**
ø63	**TC-Q1-63**			**SDS-Q1-63**			
ø80	**TC-Q1-80**			**SDS-Q1-80**	**Y-Q1-80**	**I-Q1-80**	**NUT-M22x1.5x13Hx32B**
ø100	**TC-Q1-100**			**SDS-Q1-100**	**Y-Q1-100**	**I-Q1-100**	**NUT-M26x1.5x14Hx35B**
ø125	**TC-Q1-125**			**SDS-Q1-125**	**Y-Q1-125**	**I-Q1-125**	**NUT-M30x1.5x15Hx41B**
ø150	**TC-Q1-150**			**SDS-Q1-150**	**Y-Q1-150**	**I-Q1-150**	
ø200	**TC-Q1-200**			**SDS-Q1-200**	**Y-Q1-200**	**I-Q1-200**	**NUT-M45x1.5x27Hx70B**

Pin

Applicable	Y&I connector	CA&CB accessories
Code	**PIN-Y-P** (with split pin)	**PIN-CB-P** (with split pin)
Fig / Tube I.D.		
ø40	**PIN-Q1-50-1-P**	**PIN-Q1-40-1-P**
ø50		**PIN-Q1-50-1-P**
ø63		**PIN-Q1-63-1-P**
ø80	**PIN-Q1-80-2-P**	**PIN-Q1-80-1-P**
ø100	**PIN-Q1-80-1-P**	**PIN-Q1-100-1-P**
ø125	**PIN-Q1-125-2-P**	**PIN-Q1-125-1-P**
ø150	**PIN-Q1-125-1-P**	**PIN-Q1-150-1-P**
ø200	**PIN-Q1-200-1-P**	**PIN-Q1-200-1-P**

Order example of self-assembled

The tube I.D. ø63 of LB accessories, Y connector and pin.

No.	Order number	Qty
1	**LB-Q1-63**	2
2	**Y-Q1-63**	1
3	**PIN-Q1-50-1-P**	1

* To order accessories/ connectors/ pin separately, please place orders separately according to the order codes in the above table.

Order example of factory assembled

⚠ Cylinders and accessories are distinguished by the symbol " + ".

PCQA — Standard model no. + TA

CYLINDER

ACCESSORIES

PCQA Component part & Repair kits ø40~ø200

STANDARD CYLINDER

Order example of component parts

CP — PCQA — 2 — 40 M — □

MODEL

Blank: Single rod
2: Double rod

TUBE I.D.
40, 50, 63,
80, 100, 125
150, 200

M: Magnet

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

Order example of repair kits

PS — PCQA — 2 — 40 — XB6

MODEL

Blank: Single rod
2: Double rod

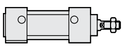
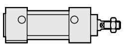
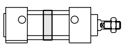
TUBE I.D.
40, 50, 63,
80, 100, 125
150, 200

Blank: NBR
XB6: Heat resistant material

Cylinder & accessories weight

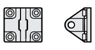
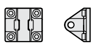
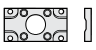
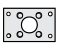
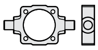
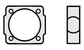
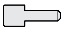
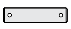
Cylinder weight

Unit: kg

Model	Basic weight **PCQA-11**	Basic weight (magnet) **PCQA-11**	Stroke 25 mm **PCQA-11**
Tube I.D.			
ø40	0.76	0.772	0.09
ø50	1.07	1.087	0.12
ø63	1.46	1.480	0.13
ø80	2.71	2.737	0.22
ø100	3.97	4.005	0.28
ø125	6.99	7.033	0.46
ø150	10.33	10.410	0.55
ø200	19.00	19.144	0.65

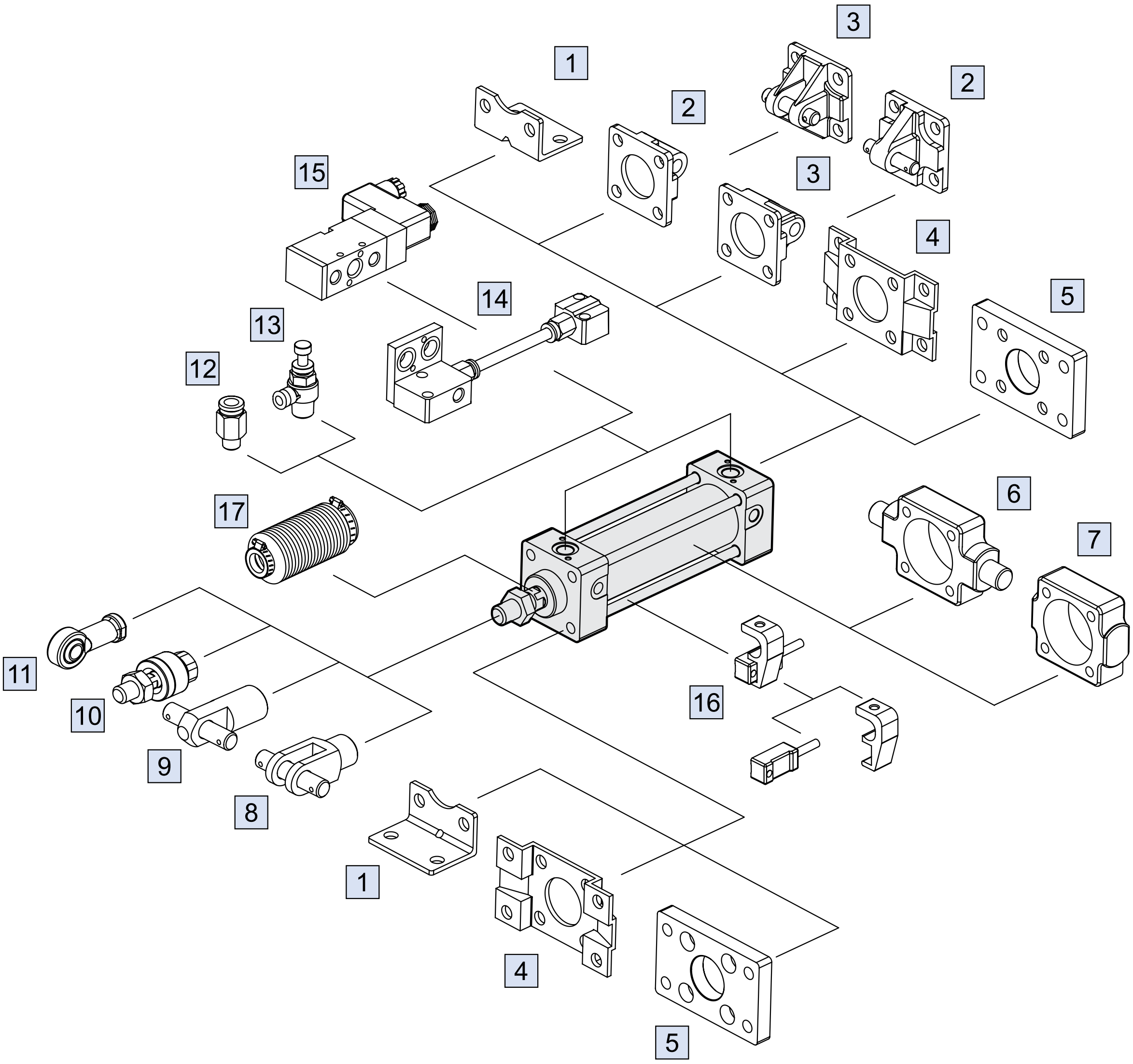
Accessories weight

Unit: kg

Model	LB	CA	CB	FA/FB	FAC/FBC	TA/TB/TC	SDS	Y	I	Pin		Rod nut
										CA/CB	Y / I	
Tube I.D.												
ø40	0.213	0.297	0.295	0.162	0.482	0.420	0.262	0.200	0.158	0.025	0.043	0.020
ø50	0.237	0.411	0.407	0.184	0.584	0.455	0.305	0.285	0.222	0.043	0.043	0.030
ø63	0.446	0.630	0.650	0.346	1.012	0.815	0.572	0.285	0.222	0.097	0.043	0.030
ø80	0.951	1.192	1.178	–	1.922	1.600	1.112	0.518	0.485	0.183	0.134	0.050
ø100	1.212	1.820	1.822	–	2.490	2.380	1.787	0.746	0.670	0.308	0.183	0.060
ø125	1.321	3.412	4.059	–	4.224	3.940	3.312	1.680	1.070	0.372	0.211	0.082
ø150	2.638	5.623	5.939	–	6.437	5.300	4.392	1.630	1.730	0.571	0.372	0.082
ø200	5.083	11.456	11.863	–	13.447	14.720	10.866	3.340	3.010	0.988	0.988	0.501

PCQA Accessories

STANDARD CYLINDER



No.	Accessories	Material
1	Mounting accessories LB	Carbon steel
2	Mounting accessories CA+PIN	Cast iron / *
3	Mounting accessories CB+PIN	Cast iron / *
4	Mounting accessories FA/FB	Carbon steel
5	Mounting accessories FAC/FBC	Carbon steel
6	Mounting accessories TA/TB/TC	Cast iron
7	Mounting accessories SDS	Cast iron
8	Accessories Y+PIN	Cast iron / *
9	Accessories I+PIN	Carbon steel

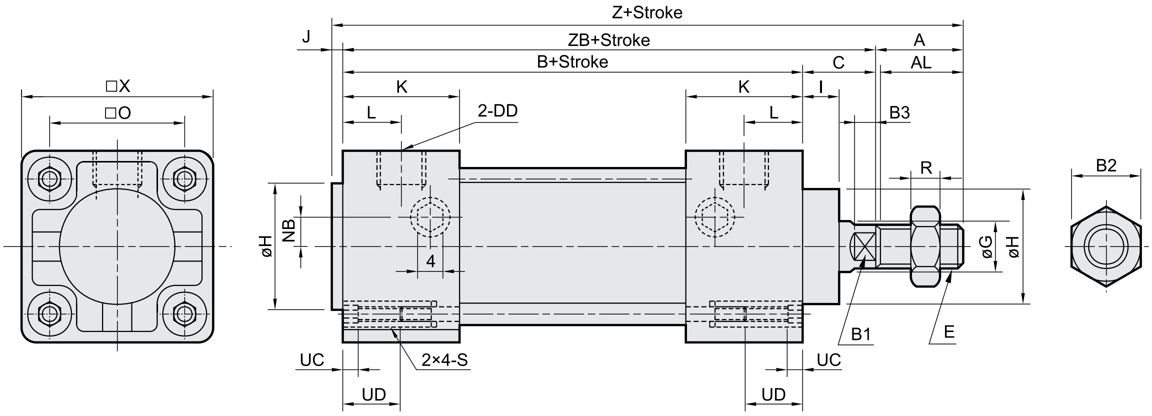
No.	Accessories	Material
10	Floating joint PFC	Carbon steel
11	Female rod ends PHS	Carbon steel
12	Fitting PC (PISCO)	–
13	Speed controller JSC (PISCO)	–
14	Solenoid valve link seats VR/VH	Aluminum alloy
15	Solenoid valve PVSC-260/300	–
16	Sensor switch RCA+HV*	–
17	Protective bellows kit	NBR

* PIN material is carbon steel.

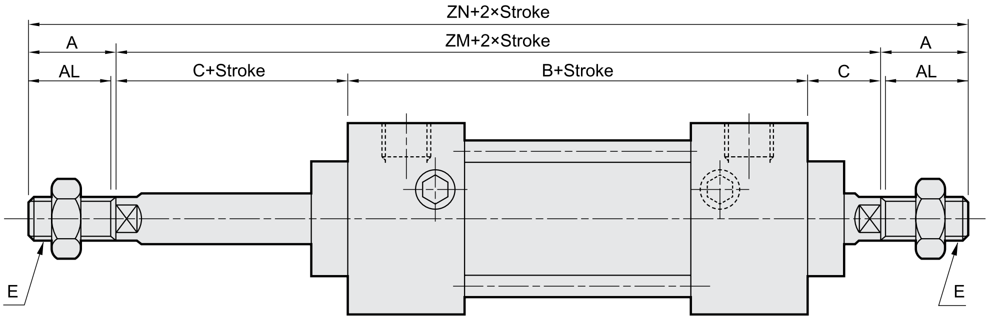
PCQA Dimensions ø40~ø100

STANDARD CYLINDER

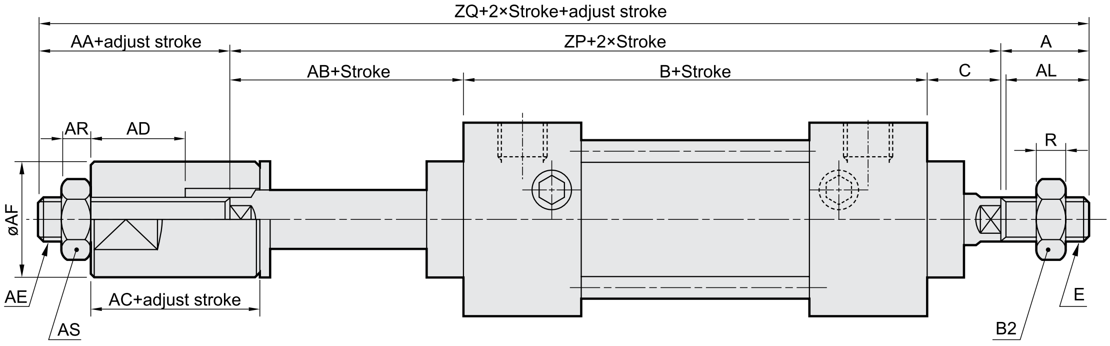
11



21



27



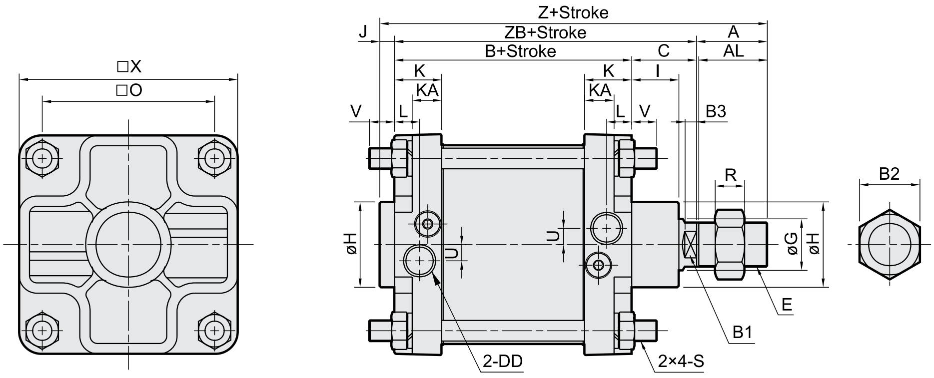
Code Tube I.D.	A	AA	AB	AC	AD	AE	AF	AL	AR	AS	B	B1	B2	B3	C	DD	E	G	H	I	J	K	L	NB
40	30	21	18	12	7	M12×1.25	30	27	7	19	84	14	22	7	21	Rc1/4	M14×1.5	16	32	11	3	26	13	8
50	35	23	18	15	10	M16×1.5	40	32	8	24	90	17	26	8	23	Rc3/8	M18×1.5	20	40	11	3	28	14	0
63	35	23	18	15	10	M16×1.5	40	32	8	24	98	17	26	8	23	Rc3/8	M18×1.5	20	40	11	3	30	15	0
80	40	33	24	20	14	M22×1.5	50	37	13	32	116	22	32	11	31	Rc1/2	M22×1.5	25	45	15	4	34	17	0
100	40	33	24	20	14	M22×1.5	50	37	13	32	126	27	36	13	32	Rc1/2	M26×1.5	30	52	15	5	37	18.5	0

Code Tube I.D.	O	R	S	UC	UD	X	Z	ZB	ZM	ZN	ZP	ZQ
40	40.5	8	M8×1.25	4	12	58	138	105	126	186	123	174
50	48	11	M8×1.25	4	12	66	151	113	136	206	131	189
63	59	11	M8×1.25	4	12	80	159	121	144	214	139	197
80	74	13	M12×1.75	4	15	100	191	147	178	258	171	244
100	90	14	M12×1.75	4	15	118	203	158	190	270	182	255

PCQA Dimensions ø125~ø200

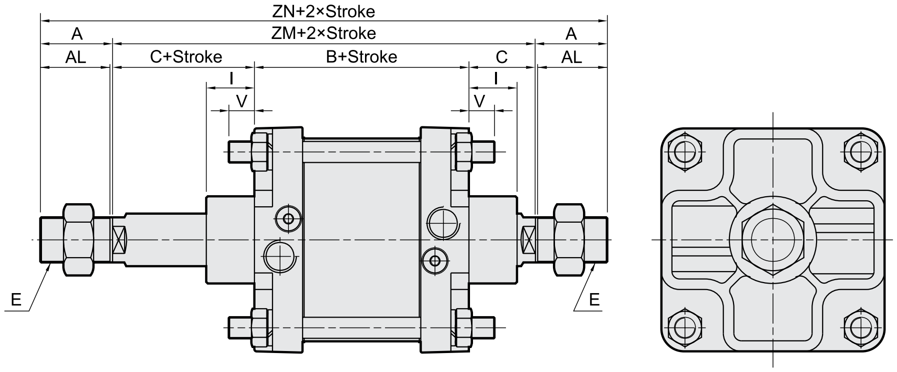
STANDARD CYLINDER

11



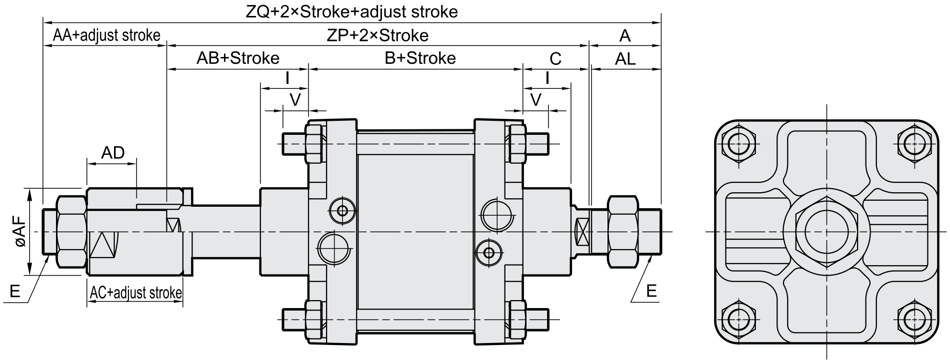
Code Tube I.D.	A	AL	B	B1	B2	B3	C	DD	E	G	H	I	J	K	KA	L	O	R	S	U	V	X	Z	ZB
125	45	42	136	30	41	9.5	47	Rc1/2	M30×1.5	35	58	32	10	32	20	17	117	15	M14×1.5	11	20	150	238	183
150	50	47	153	36	41	10	47	Rc1/2	M30×1.5	40	60	32	8	40.5	25	24.5	134	15	M16×1.5	12	26	175	258	200
200	63	60	154	46	70	20	67	Rc3/4	M45×1.5	50	74	35	8	42	25	24	182	27	M20×1.5	12	18	226	292	221

21



Code Tube I.D.	A	AL	B	C	E	I	V	ZM	ZN
125	45	42	136	47	M30×1.5	32	20	230	320
150	50	47	153	47	M30×1.5	32	26	247	347
200	63	60	154	67	M45×1.5	35	18	288	414

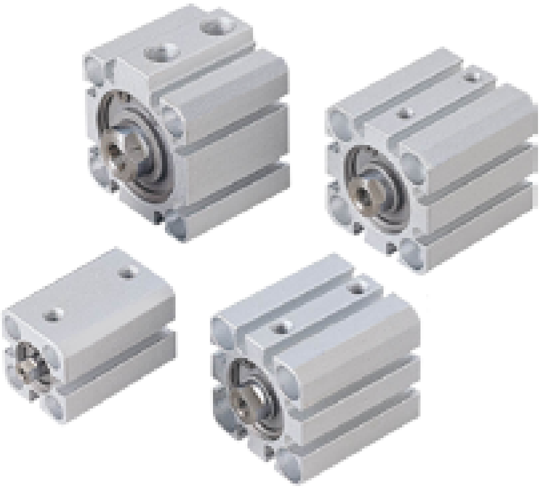
27



Code Tube I.D.	A	AA	AB	AC	AD	AF	AL	B	C	E	I	V	ZM	ZN	ZP	ZQ
125	45	38	47	30	18	60	42	136	47	M30×1.5	32	20	230	320	230	313
150	50	38	47	30	18	60	47	153	47	M30×1.5	32	26	247	347	247	335
200	63	38	50	30	18	70	60	154	67	M45×1.5	35	18	288	414	271	372

PCJQ Series

COMPACT CYLINDER



Features

- All products use counterbore and thread installation design without any fixed frame to meet the space saving requirements.
- Anodised aluminum tubes provie better corrosion and abrasion resistance.
- The assembly grooves are designed around the body to make the sensor easier to install and fix.
- Compact assembly groove design make the sensors enable to flush mount and can save space.
- Sensors can be mounted on any one of three faces for 12 and 16 bore and on four faces for 20~100 bore.

Specification

Model		PCJQ									
Acting type		Double acting / Single acting							Double		
Tube I.D. (mm)		12	16	20	25	32	40	50	63	80	100
Port size		M5×0.8				Rc1/8		Rc1/4		Rc3/8	
Medium		Air									
Operating perssure range (MPa)	Double acting	0.07~1	0.05~1								
	Single acting	0.2~1		0.15~1		0.1~1			—		
Proof pressure		1.5 MPa									
Ambient temperature		-5°C~+60°C (No freezing)									
Available speed range		50~500 mm/sec									
Sensor switch	RCE,RCE1	●	●	●	●	●	●	●	●	●	●
	RDEP	●	●	—	●	—	●	●	●	●	●

Single acting – Table for standard stroke

Tube I.D.	Standard stroke (mm)
ø12,16,20,25,32,40	5,10
ø50	5,10,15,20

Double acting – Table for standard stroke

Tube I.D.	Standard stroke	Long stroke (mm)
ø12,16	5,10,15,20,25,30	35,40,45,50,75,100
ø20	5,10,15,20,25,30, 35,40,45,50	75,100,125,150,175,200
ø25		75,100,125,150,175,200,250,300
ø32~80	5,10,15,20,25,30, 35,40,45,50,75,100	125,150,175,200,250,300
Tube I.D.	Standard stroke (mm)	
ø100	5,10,15,20,25,30,35,40,45,50,75,100	

* Please contact us if the stroke is out of specification.

Order example

*Order example for special specification, please contact us.

PCJQ — 12 — 20 — 25 M — F — G

MODEL

1: Single rod
2: Double rod

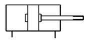
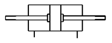
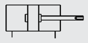
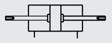
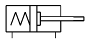
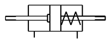
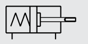
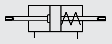
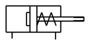
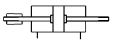
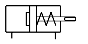
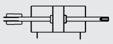
TUBE I.D.

STROKE

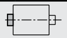
M: Magnet

PORT THREAD
Blank: M5×0.8
(for ø12~ø25)
Blank: Rc thread
G: G thread
NPT: NPT thread
(for ø32~ø100)

STYLE

Code		Symbol	Description	Code		Symbol	Description
1	**1**		Double acting / Male thread	**2**	**1**		Double rod / Male thread
1	**2**		Double acting / Female thread	**2**	**2**		Double rod / Female thread
1	**3**		Single acting / Normally extended male thread	**2**	**3**		Single acting / Double rod / Male thread
1	**4**		Single acting / Normally extended female thread	**2**	**4**		Single acting / Double rod / Female thread
1	**5**		Single acting / Normally returned male thread	**2**	**7**		Double rod / Adjustable male thread Please mark "adjustable stroke" at order list
1	**6**		Single acting / Normally returned female thread	**2**	**8**		Double rod / Adjustable female thread Please mark "adjustable stroke" at order list

TYPE

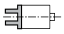
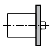
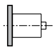
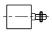
Code	Description	
Blank	Standard	
F	Rear flange 	
L*	Piston rod extended to 10 mm (for standard stroke)	For adding LB accessories or single rod cylinder with FAC accessories
LA		For double rod cylinders with FAC accessories

* **L** type not applicable to PCJQ-27/28 adjustable stroke type, if required, please contact us.

PCJQ Order example of accessories

COMPACT CYLINDER

Accessories

	Accessories					Rod nut
Code	**LB*** (Purchase 2 pcs)	**CB**	**FAC***	**FBC**	**RF**	**NUT**
Mounting Tube I.D.						
ø12	**LB-J1-12**	**CB-J1-12**	**FAC-J1-12**		**RF-J1-12**	**NUT-M5x0.8x4Hx8B**
ø16	**LB-J1-16**	**CB-J1-16**	**FAC-J1-16**		**RF-J1-16**	**NUT-M6x1.0x5Hx10B**
ø20	**LB-J1-20**	**CB-J1-20**	**FAC-J1-20**		**RF-J1-20**	**NUT-M8x1.25x5Hx13B**
ø25	**LB-J1-25**	**CB-J1-25**	**FAC-J1-25**		**RF-J1-25**	**NUT-M10x1.25x6Hx17B**
ø32	**LB-J1-32**	**CB-J1-32**	**FAC-J1-32**		**RF-J1-32**	**NUT-M14x1.5x8Hx22B**
ø40	**LB-J1-40**	**CB-J1-40**	**FAC-J1-40**		**RF-J1-40**	
ø50	**LB-J1-50**	**CB-J1-50**	**FAC-J1-50**		**RF-J1-50**	**NUT-M18x1.5x11Hx26B**
ø63	**LB-J1-63**	**CB-J1-63**	**FAC-J1-63**		**RF-J1-63**	
ø80	**LB-J1-80**	**CB-J1-80**	**FAC-J1-80**		**RF-J1-80**	**NUT-M22x1.5x13Hx32B**
ø100	**LB-J1-100**	**CB-J1-100**	**FAC-J1-100**		**RF-J1-100**	**NUT-M26x1.5x14Hx35B**

* Standard stroke LB and FAC **cannot** be assembled with the standard cylinder.
If the accessories are required, the piston rod needs to be extended by 10 mm.

* Long stroke LB and FAC **can** be assembled with the standard cylinder.
See previous page for stroke range.

Pin

Applicable	CB accessories
Code	**PIN-CB-P** (With snap ring)
Fig Tube I.D.	
ø12	**PIN-J1-12-1-P**
ø16	**PIN-J1-16-1-P**
ø20	**PIN-J1-20-1-P**
ø25	**PIN-J1-25-1-P**
ø32	**PIN-J1-32-1-P**
ø40	
ø50	**PIN-J1-50-1-P**
ø63	
ø80	**PIN-J1-80-1-P**
ø100	**PIN-J1-100-1-P**

Flat washer kits

Code	**WS**
Fig Tube I.D.	
ø12	**WS-PCJQ-12**
ø16	**WS-PCJQ-16**
ø20	**WS-PCJQ-20**
ø25	**WS-PCJQ-25**
ø32	**WS-PCJQ-32**
ø40	**WS-PCJQ-40**
ø50	**WS-PCJQ-50**
ø63	**WS-PCJQ-63**
ø80	**WS-PCJQ-80**
ø100	**WS-PCJQ-100**

Order example of self-assembled

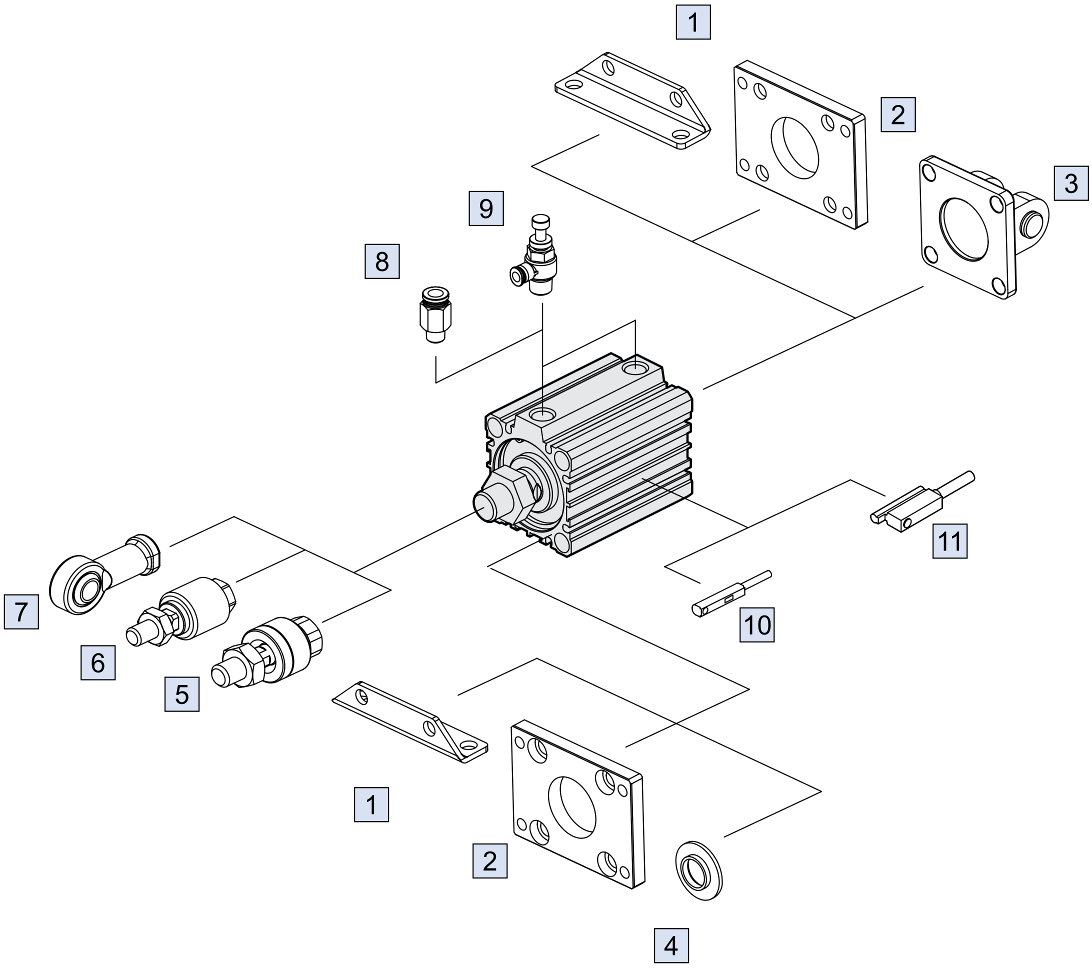
The tube I.D. ø40 of LB accessories with stroke 25mm.

No.	Order number	Qty
1	**LB-J1-40**	2
2	**PCJQ-12-40-25-L**	1

* To order accessories/cylinder, please place orders separately according to the order codes in the above table.
Please refer to the previous page for the cylinder ordering method.

PCJQ Accessories

COMPACT CYLINDER



No.	Accessories	Material
1	Mounting accessories LB	Carbon steel
2	Mounting accessories FAC/FBC	Carbon steel
3	Mounting accessories CB+PIN	Cast iron / *
4	Mounting accessories RF	Aluminum
5	Floating joint PFC	Carbon steel
6	Floating joint PFCS	Carbon steel

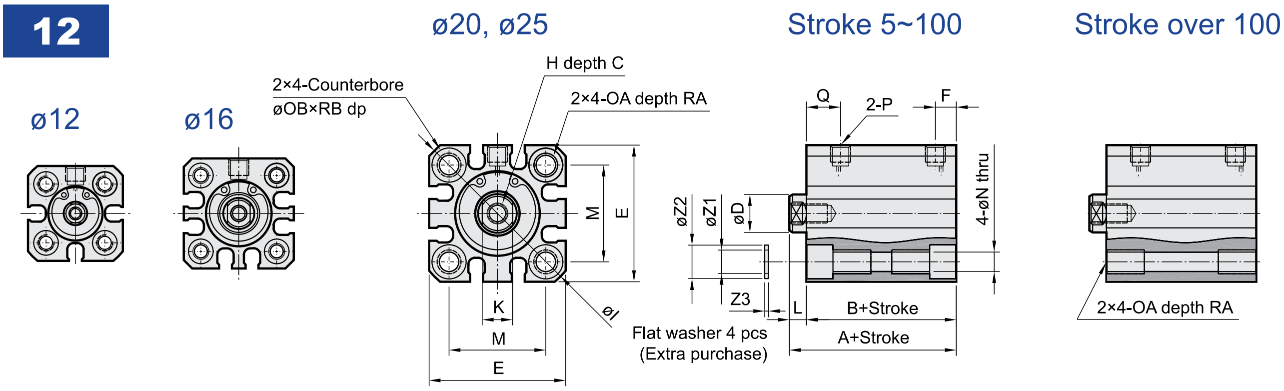
No.	Accessories	Material
7	Female rod ends PHS	Carbon steel
8	Fitting PC (PISCO)	–
9	Speed controller JSC (PISCO)	–
10	Sensor switch RCE/RCE1	–
11	Sensor switch RDEP	–

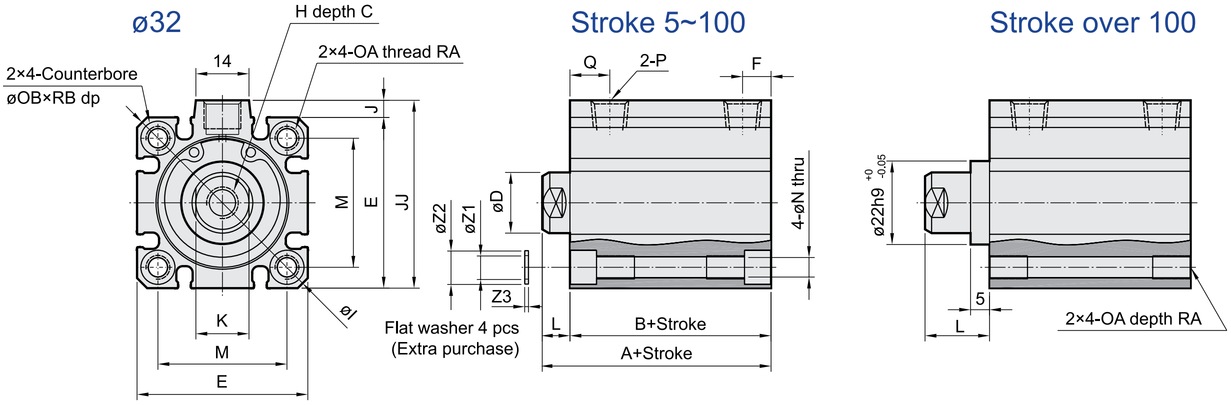
* Material of PIN and ø12, ø16 CB accessories are carbon steel.

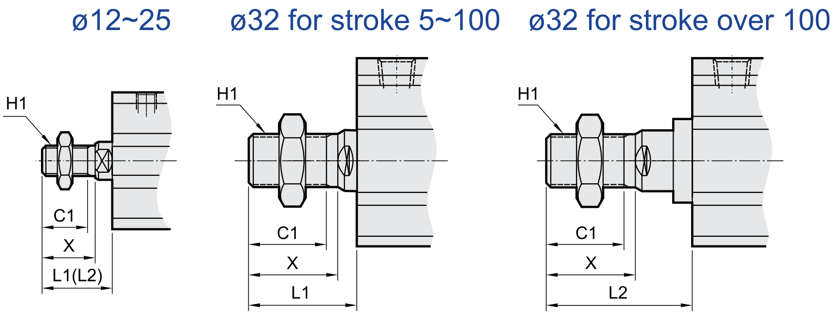
PCJQ Dimensions-Double acting ø12~ø32

COMPACT CYLINDER

12







11 Male thread

Code / Tube I.D.	C1	H1	L1*1,2	L2*1	X
12	9	M5×0.8	14 (24)	24	10.5
16	10	M6×1.0	15.5 (25.5)	25.5	12
20	12	M8×1.25	18.5 (28.5)	28.5	14
25	15	M10×1.25	22.5 (32.5)	32.5	17.5
32	20.5	M14×1.5	28.5 (38.5)	38.5	23.5

*1. L1: Standard stroke, L2: Long stroke

*2. ( ) Dimensions for piston rod extended "L" type.

ø12~25

Code / Tube I.D.	Standard stroke							Long stroke					C	D	E	H	I	K	M	N	OA	OB	P	Q	RA	RB	Z1	Z2	Z3
	Stroke range	Without magnet		Magnet		F	L*2	Stroke range	A	B	F	L																	
		A	B	A	B																								
12	5~30	20.5	17	25.5	22	5	3.5 (13.5)	31~100	45.5	32	7.5	13.5	6	6	25	M3×0.5	32	5	15.5	3.5	M4×0.7	6.5	M5×0.8	7.5	7	4	4.2	6.3	0.5
16	5~30	20.5	17	25.5	22	5	3.5 (13.5)	31~100	45.5	32	7.5	13.5	8	8	29	M4×0.7	38	6	20	3.5	M4×0.7	6.5	M5×0.8	7.5	7	4	4.2	6.3	0.5
20	5~50	24	19.5	34	29.5	5.5	4.5 (14.5)	51~200	55.5	41	9	14.5	7	10	36	M5×0.8	47	8	25.5	5.5	M6×1.0	9	M5×0.8	9	10	7	6.2	8.8	1
25	5~50	27.5	22.5	37.5	32.5	5.5	5 (15)	51~300	59	44	11	15	12	12	40	M6×1.0	52	10	28	5.5	M6×1.0	9	M5×0.8	11	10	7	6.2	8.8	1

ø32

Code / Tube I.D.	Standard stroke								Long stroke						P	C	D	E	H	I	J	JJ	K	M	N	OA	OB	RA	RB	Z1	Z2	Z3
	Stroke range	Without magnet		Magnet		F	L*2	Q	Stroke range	A	B	F	L	Q																		
		A	B	A	B																											
32	5~50	30	23	40	33	7.5*1	7 (17)	10.5*1	101 ~300	62.5	45.5	12.5	17	12.5	*1 Rc1/8	13	16	45	M8×1.25	60	4.5	49.5	14	34	5.5	M6×1.0	9	10	7	6.2	8.8	1
	51~100	40	33	40	33	7.5	7 (17)	10.5																								

*1. Without magnet with stroke=5mm, P=M5×0.8, Q=11.5, F=5.5 *2. ( ) Dimensions for piston rod extended "L" type.

PCJQ Dimensions-Double acting ø40~ø100

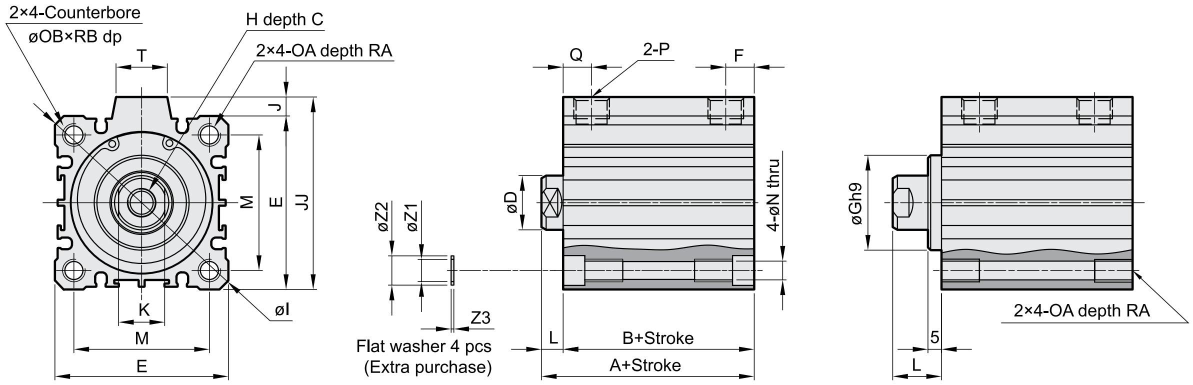
COMPACT CYLINDER

12

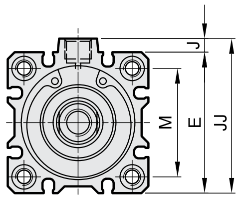
ø50~ø100

Stroke 5~100

Stroke over 100

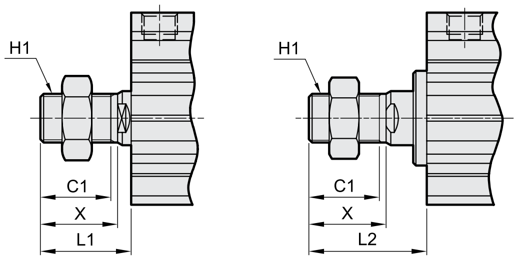


ø40



ø40~ø100
(Stroke 5~100)

ø40~ø80
(Stroke over 100)



11 Male thread

Code / Tube I.D.	C1	H1	L1*1,2	L2*1	X
40	20.5	M14×1.5	28.5 (38.5)	38.5	23.5
50	26	M18×1.5	33.5 (43.5)	43.5	28.5
63	26	M18×1.5	33.5 (43.5)	43.5	28.5
80	32.5	M22×1.5	43.5 (53.5)	53.5	35.5
100	32.5	M26×1.5	43.5 (53.5)	–	35.5

*1. L1: Standard stroke, L2: Long stroke
*2. ( ) Dimensions for piston rod extended "L" type.

Code / Tube I.D.	Standard stroke									Long stroke					
	Stroke range	Without magnet		Magnet		F	L*4	Q		Stroke range	A	B	F	L	Q
		A	B	A	B										
40	5~50	36.5	29.5	46.5	39.5	8	7 (17)	11		125~300	72	55	14	17	14
	51~100	46.5	39.5												
50	5~50	38.5	30.5	48.5	40.5	10.5*1	8 (18)	10.5*1		125~300	73.5	55.5	14	18	14
	51~100	48.5	40.5												
63	5~50	44	36	54	46	10.5	8 (18)	15		125~300	75	57	16.5	18	16.5
	51~100	54	46												
80	5~50	53.5	43.5	63.5	53.5	12.5	10 (20)	16		125~300	86	66	19	20	19
	51~100	63.5	53.5												
100	5~50	65	53	75	63	13	12 (22)	23		–					
	51~100	75	63												

Code / Tube I.D.	C	D	E	Gh9	H	I	J	JJ	K	M	N	OA	OB	P	RA	RB	T	Z1	Z2	Z3
40	13	16	52	28 $^{+0}_{-0.052}$	M8×1.25	70	5	57	14	40	5.5	M6×1.0	9	Rc1/8	10	7	14	6.2	8.8	1
50	15	20	64	35 $^{+0}_{-0.062}$	M10×1.5	86	7	71	17	50	6.6	M8×1.25	11	Rc1/4 *1	14	8	19	8.2	10.8	1
63	15	20	77	35 $^{+0}_{-0.062}$	M10×1.5	103	7	84	17	60	9	M10×1.5	14	Rc1/4 *2	18	10.5	19	10.2	13.8	1
80	21	25	98	43 $^{+0}_{-0.062}$	M16×2.0	132	6	104	22	77	11	M12×1.75	17.5	Rc3/8 *3	22	13.5	26	12.2	17.3	2
100	27	30	117	–	M20×2.5	156	6.5	123.5	27	94	11	M12×1.75	17.5	Rc3/8 *3	22	13.5	26	12.2	17.3	2

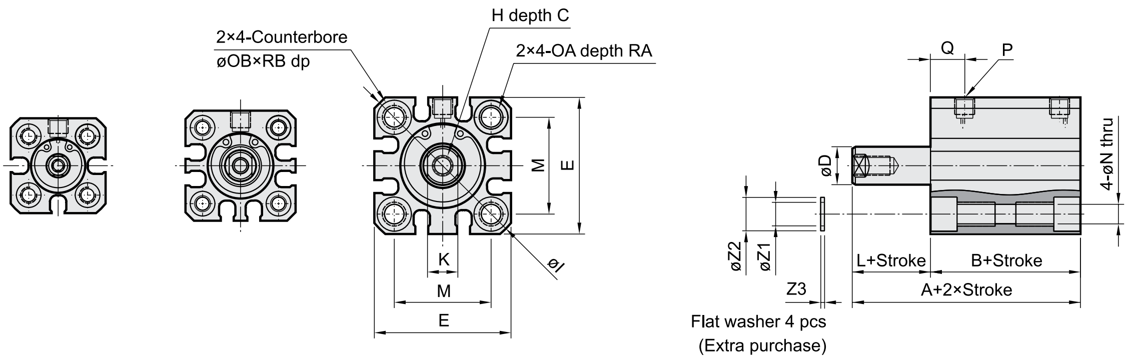
*1. Without magnet with stroke=5mm, P=Rc1/8, Q=12, F=8
*2. Without magnet with stroke=5mm, P=Rc1/8
*3. Without magnet with stroke=5mm, P=Rc1/4
*4. ( ) Dimensions for piston rod extended "L" type.

PCJQ Dimensions-Normally extented ø12~ø50

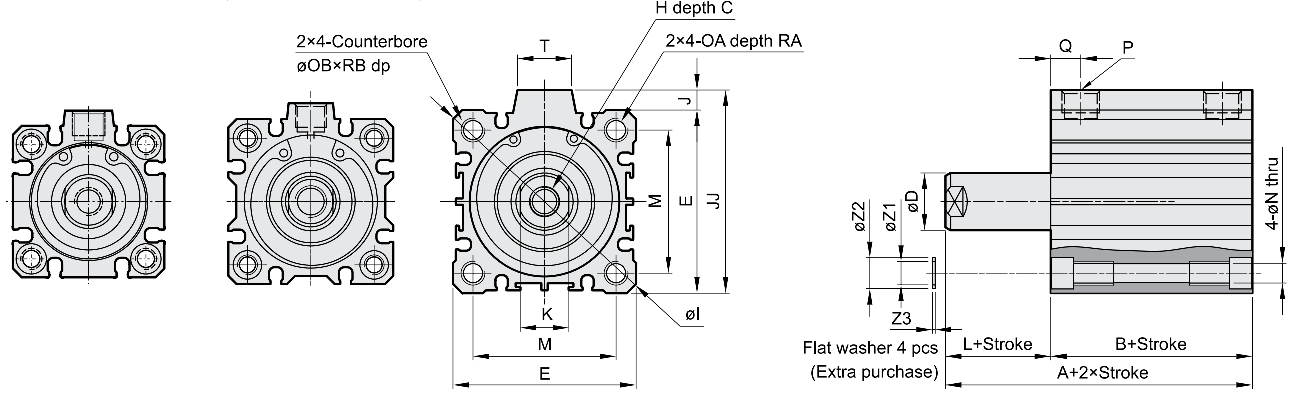
COMPACT CYLINDER

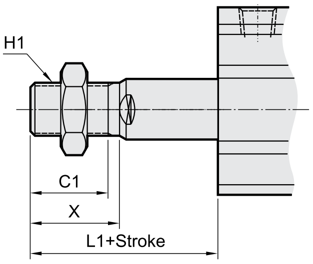
14

ø12 ø16 ø20, ø25



ø32 ø40 ø50





13 Male thread

Code / Tube I.D.	C1	H1	L1*	X
12	9	M5×0.8	14 (24)	10.5
16	10	M6×1.0	15.5 (25.5)	12
20	12	M8×1.25	18.5 (28.5)	14
25	15	M10×1.25	22.5 (32.5)	17.5
32	20.5	M14×1.5	28.5 (38.5)	23.5
40	20.5	M14×1.5	28.5 (38.5)	23.5
50	26	M18×1.5	33.5 (43.5)	28.5

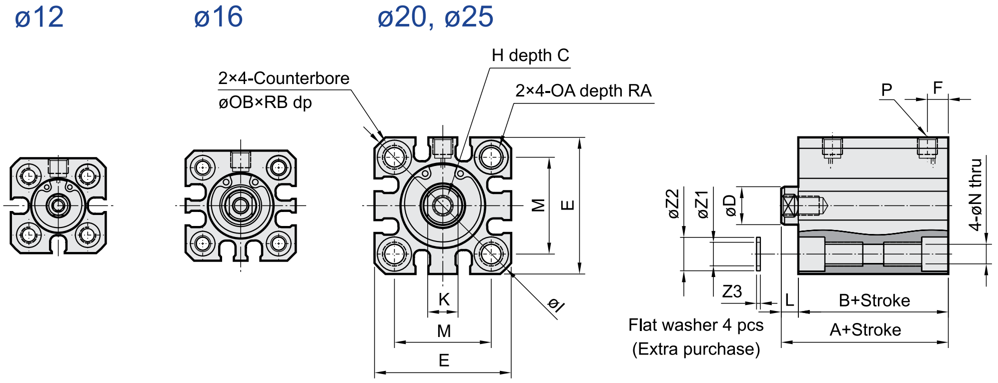
* L1: Standard stroke
* ( ) Dimensions for piston rod extended "L" type.

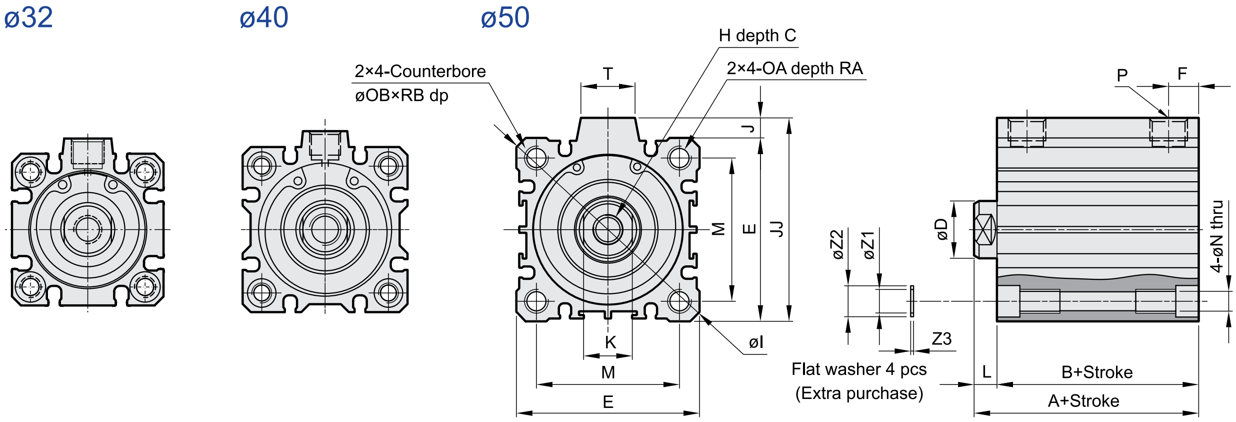
Note: The value **B** of ø12~ø40 type is greater then double acting type.

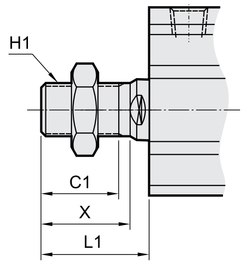
Code / Tube I.D.	Standard stroke					C	D	E	H	I	J	JJ	K	L*2	M	N	OA	OB	P	Q	RA	RB	T	Z1	Z2	Z3
	Stroke range	Without magnet		Magnet																						
		A	B	A	B																					
12	5,10	30.5	27	35.5	32	6	6	25	M3×0.5	32	–	–	5	3.5 (13.5)	15.5	3.5	M4×0.7	6.5	M5×0.8	7.5	7	4	–	4.2	6.3	0.5
16	5,10	35.5	32	40.5	37	8	8	29	M4×0.7	38	–	–	6	3.5 (13.5)	20	3.5	M4×0.7	6.5	M5×0.8	7.5	7	4	–	4.2	6.3	0.5
20	5,10	34	29.5	44	39.5	7	10	36	M5×0.8	47	–	–	8	4.5 (14.5)	25.5	5.5	M6×1.0	9	M5×0.8	9	10	7	–	6.2	8.8	1
25	5,10	47.5	42.5	57.5	52.5	12	12	40	M6×1.0	52	–	–	10	5 (15)	28	5.5	M6×1.0	9	M5×0.8	11	10	7	–	6.2	8.8	1
32	5,10	55	48	65	58	13	16	45	M8×1.25	60	4.5	49.5	14	7 (17)	34	5.5	M6×1.0	9	Rc1/8	10.5	10	7	14	6.2	8.8	1
40	5,10	61.5	54.5	71.5	64.5	13	16	52	M8×1.25	70	5	57	14	7 (17)	40	5.5	M6×1.0	9	Rc1/8	11	10	7	14	6.2	8.8	1
50	5~20	38.5	30.5	48.5	40.5	15	20	64	M10×1.5	86	7	71	17	8 (18)	50	6.5	M8×1.25	11	Rc1/4 *1	10.5 *1	14	8	19	8.2	10.8	1

*1. Without magnet with stroke=5mm, P=Rc1/8, Q=12
*2. ( ) Dimensions for piston rod extended "L" type.

16







15 Male thread

Code Tube I.D.	C1	H1	L1*	X
12	9	M5×0.8	14 (24)	10.5
16	10	M6×1.0	15.5 (25.5)	12
20	12	M8×1.25	18.5 (28.5)	14
25	15	M10×1.25	22.5 (32.5)	17.5
32	20.5	M14×1.5	28.5 (38.5)	23.5
40	20.5	M14×1.5	28.5 (38.5)	23.5
50	26	M18×1.5	33.5 (43.5)	28.5

* L1: Standard stroke
* ( ) Dimensions for piston rod extended "L" type.

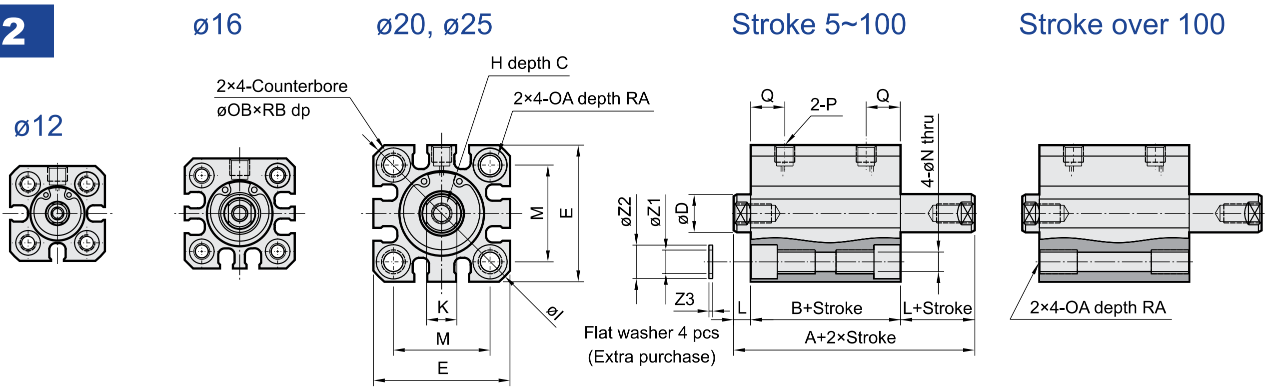
Code Tube I.D.	Standard stroke					C	D	E	F	H	I	J	JJ	K	L[*3]	M	N	OA	OB	P	RA	RB	T	Z1	Z2	Z3
	Stroke range	Without magnet		Magnet																						
		A	B	A	B																					
12	5,10	20.5	17	25.5	22	6	6	25	5	M3×0.5	32	–	–	5	3.5 (13.5)	15.5	3.5	M4×0.7	6.5	M5×0.8	7	4	–	4.2	6.3	0.5
16	5,10	20.5	17	25.5	22	8	8	29	5	M4×0.7	38	–	–	6	3.5 (13.5)	20	3.5	M4×0.7	6.5	M5×0.8	7	4	–	4.2	6.3	0.5
20	5,10	24	19.5	34	29.5	7	10	36	5.5	M5×0.8	47	–	–	8	4.5 (14.5)	25.5	5.5	M6×1.0	9	M5×0.8	10	7	–	6.2	8.8	1
25	5,10	27.5	22.5	37.5	32.5	12	12	40	5.5	M6×1.0	52	–	–	10	5 (15)	28	5.5	M6×1.0	9	M5×0.8	10	7	–	6.2	8.8	1
32	5,10	30	23	40	33	13	16	45	7.5 [*1]	M8×1.25	60	4.5	49.5	14	7 (17)	34	5.5	M6×1.0	9	Rc1/8 [*1]	10	7	14	6.2	8.8	1
40	5,10	36.5	29.5	46.5	39.5	13	16	52	8	M8×1.25	70	5	57	14	7 (17)	40	5.5	M6×1.0	9	Rc1/8	10	7	14	6.2	8.8	1
50	5~20	38.5	30.5	48.5	40.5	15	20	64	10.5 [*2]	M10×1.5	86	7	71	17	8 (18)	50	6.5	M8×1.25	11	Rc1/4 [*2]	14	8	19	8.2	10.8	1

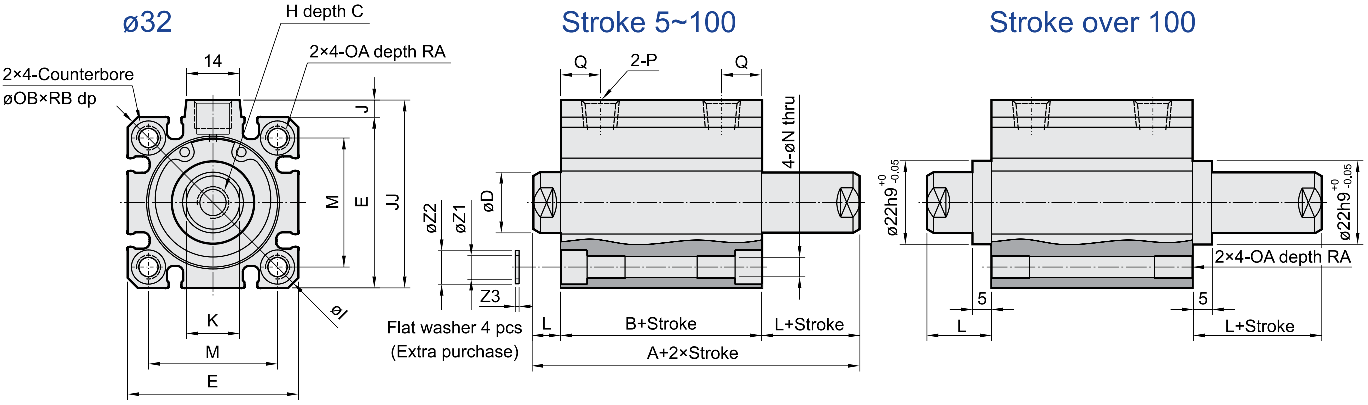
*1. Without magnet with stroke=5mm, P=M5×0.8, F=5.5
*2. Without magnet with stroke=5mm, P=Rc1/8, F=8
*3. ( ) Dimensions for piston rod extended "L" type.

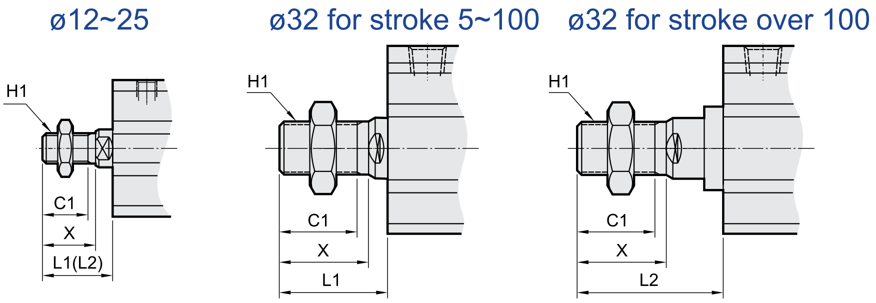
PCJQ Dimensions-Double acting / Double rod ø12~ø32

COMPACT CYLINDER

22







21 **Male thread**

Code Tube I.D.	C1	H1	L1[*1,2]	L2[*1]	X
12	9	M5×0.8	14 (24)	24	10.5
16	10	M6×1.0	15.5 (25.5)	25.5	12
20	12	M8×1.25	18.5 (28.5)	28.5	14
25	15	M10×1.25	22.5 (32.5)	32.5	17.5
32	20.5	M14×1.5	28.5 (38.5)	38.5	23.5

*1. L1: Standard stroke, L2: Long stroke
*2. ( ) Dimensions for L type that both sides piston rod are extended.
For LA type that single side piston rod is extended.

Code Tube I.D.	Standard stroke						Long stroke				C	D	E	H	I	J	JJ	K	M	N	OA	OB	P	Q	RA	RB	Z1	Z2	Z3
	Stroke range	Without magnet		Magnet		L[*2]	Stroke range	A	B	L																			
		A	B	A	B																								
12	5~30	29	22	34	27	3.5 (13.5)	31~100	59	32	13.5	6	6	25	M3×0.5	32	–	–	5	15.5	3.5	M4×0.7	6.5	M5×0.8	7.5	7	4	4.2	6.3	0.5
16	5~30	29	22	34	27	3.5 (13.5)	31~100	59	32	13.5	8	8	29	M4×0.7	38	–	–	6	20	3.5	M4×0.7	6.5	M5×0.8	7.5	7	4	4.2	6.3	0.5
20	5~50	35	26	45	36	4.5 (14.5)	51~200	70	41	14.5	7	10	36	M5×0.8	47	–	–	8	25.5	5.5	M6×1.0	9	M5×0.8	9	10	7	6.2	8.8	1
25	5~50	39	29	49	39	5 (15)	51~300	74	44	15	12	12	40	M6×1.0	52	–	–	10	28	5.5	M6×1.0	9	M5×0.8	11	10	7	6.2	8.8	1
32	5~50	44.5	30.5	54.5	40.5	7 (17)	101~300	79.5	45.5	17	13	16	45	M8×1.25	60	4.5	49.5	14	34	5.5	M6×1.0	9	Rc1/8 [*1]	12.5	10	7	6.2	8.8	1
	51~100	54.5	40.5	54.5	40.5	7 (17)																							

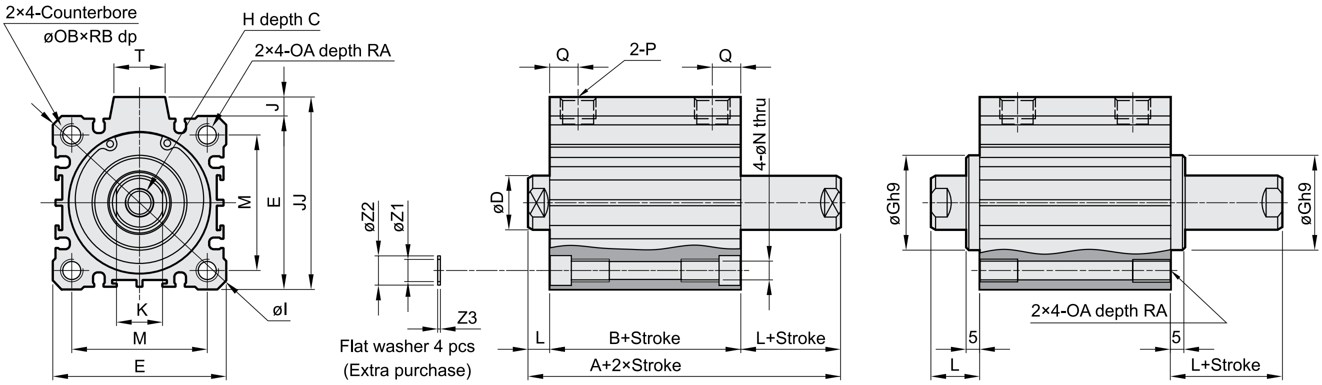
*1. Without magnet with stroke=5mm, P=M5×0.8
*2. ( ) dimensions for L type that both sides piston rod are extended.
For LA type that single side piston rod is extended.

PCJQ Dimensions-Double acting / Double rod ø40~ø100

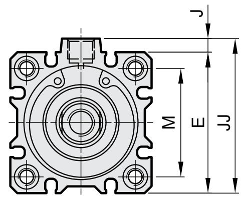
COMPACT CYLINDER

22 ø50~ø100

Stroke 5~100 | Stroke over 100

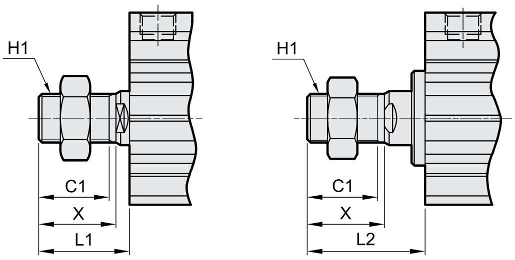


ø40



ø40~ø100
(Stroke 5~100)

ø40~ø80
(Stroke over 100)



21 Male thread

Code / Tube I.D.	C1	H1	L1*1,2	L2*1	X
40	20.5	M14×1.5	28.5 (38.5)	38.5	23.5
50	26	M18×1.5	33.5 (43.5)	43.5	28.5
63	26	M18×1.5	33.5 (43.5)	43.5	28.5
80	32.5	M22×1.5	43.5 (53.5)	53.5	35.5
100	32.5	M26×1.5	43.5 (53.5)	–	35.5

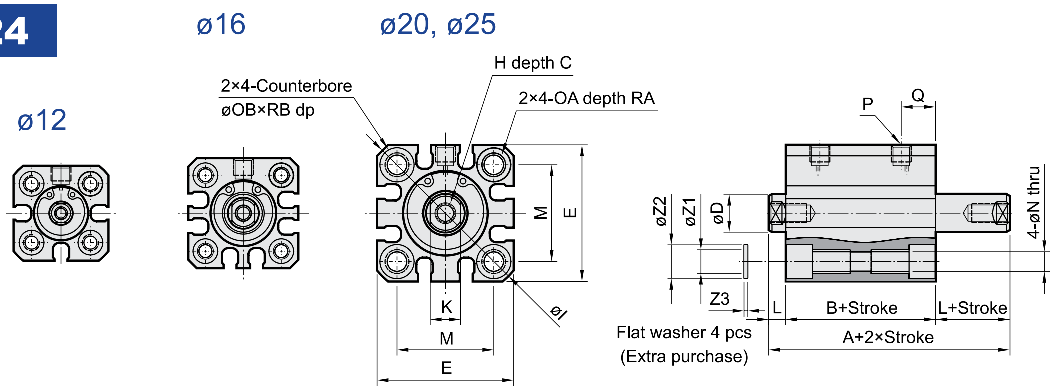
*1. L1: Standard stroke, L2: Long stroke
*2. ( ) dimensions for L type that both sides piston rod are extended.
For LA type that single side piston rod is extended.

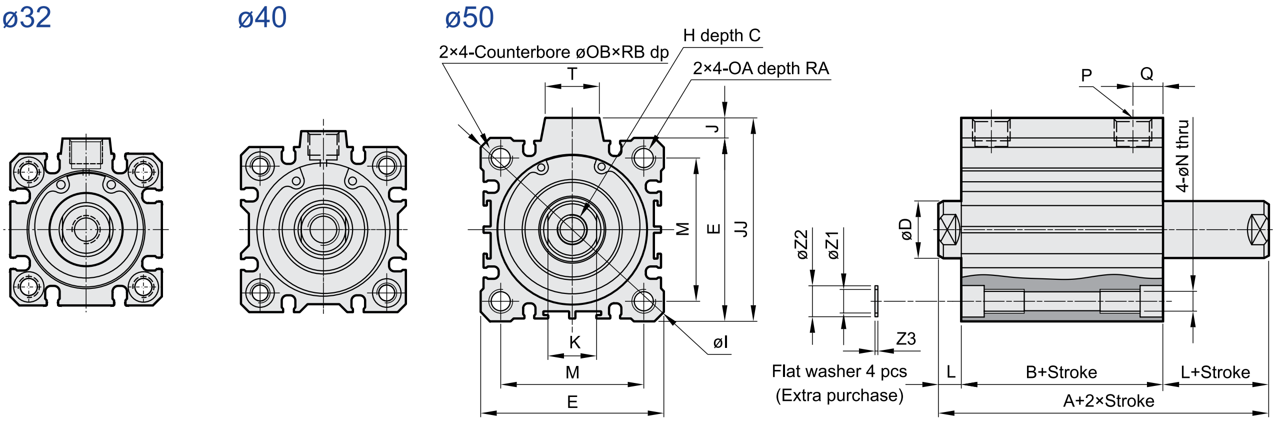
Code / Tube I.D.	Standard stroke							Long stroke				
	Stroke range	Without magnet		Magnet		L*3	Q	Stroke range	A	B	L	Q
		A	B	A	B							
40	5~50	54	40	64	50	7 (17)	14	101~300	89	55	17	14
	51~100	64	50									
50	5~50	56.5	40.5	66.5	50.5	8 (18)	14	101~300	91.5	55.5	18	14
	51~100	66.5	50.5									
63	5~50	58	42	68	52	8 (18)	15.5	101~300	93	57	18	16.5
	51~100	68	52									
80	5~50	71	51	81	61	10 (20)	18	101~300	106	66	20	19
	51~100	81	61									
100	5~50	84.5	60.5	94.5	70.5	12 (22)	22	–				
	51~100	94.5	70.5									

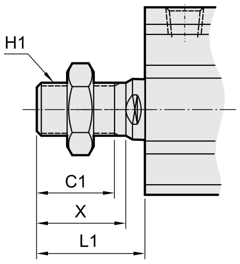
Code / Tube I.D.	C	D	E	G^{h9}	H	I	J	JJ	K	M	N	OA	OB	P	RA	RB	T	Z1	Z2	Z3
40	13	16	52	$28^{+0}_{-0.052}$	M8×1.25	70	5	57	14	40	5.5	M6×1.0	9	Rc1/8	10	7	14	6.2	8.8	1
50	15	20	64	$35^{+0}_{-0.062}$	M10×1.5	86	7	71	17	50	6.6	M8×1.25	11	Rc1/4	14	8	19	8.2	10.8	1
63	15	20	77	$35^{+0}_{-0.062}$	M10×1.5	103	7	84	17	60	9	M10×1.5	14	Rc1/4 *1	18	10.5	19	10.2	13.8	1
80	21	25	98	$43^{+0}_{-0.062}$	M16×2.0	132	6	104	22	77	11	M12×1.75	17.5	Rc3/8 *2	22	13.5	26	12.2	17.3	2
100	27	30	117	–	M20×2.5	156	6.5	123.5	27	94	11	M12×1.75	17.5	Rc3/8 *2	22	13.5	26	12.2	17.3	2

*1. Without magnet with stroke=5mm, P=Rc1/8
*2. Without magnet with stroke=5mm, P=Rc1/4
*3. ( ) dimensions for L type that both sides piston rod are extended.
For LA type that single side piston rod is extended.

24







23 Male thread

Code / Tube I.D.	C1	H1	L1*	X
12	9	M5×0.8	14 (24)	10.5
16	10	M6×1.0	15.5 (25.5)	12
20	12	M8×1.25	18.5 (28.5)	14
25	15	M10×1.25	22.5 (32.5)	17.5
32	20.5	M14×1.5	28.5 (38.5)	23.5
40	20.5	M14×1.5	28.5 (38.5)	23.5
50	26	M18×1.5	33.5 (43.5)	28.5

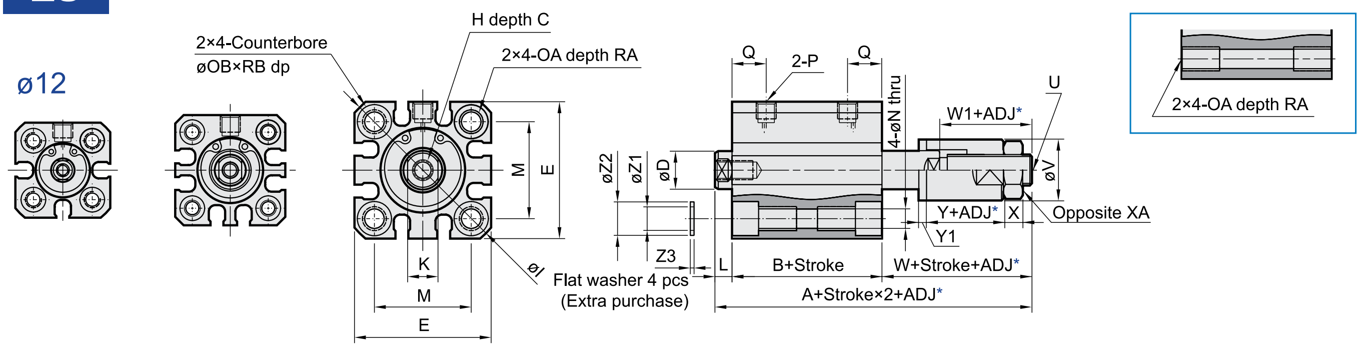
* L1: Standard stroke
* ( ) Dimensions for L type that both sides piston rod are extended.
For LA type that piston rod retracted side is extended.

Code / Tube I.D.	Standard stroke					C	D	E	H	I	J	JJ	K	L*2	M	N	OA	OB	P	Q	RA	RB	T	Z1	Z2	Z3
	Stroke range	Without magnet		Magnet																						
		A	B	A	B																					
12	5,10	29	22	34	27	6	6	25	M3×0.5	32	–	–	5	3.5 (13.5)	15.5	3.5	M4×0.7	6.5	M5×0.8	7.5	7	4	–	4.2	6.3	0.5
16	5,10	29	22	34	27	8	8	29	M4×0.7	38	–	–	6	3.5 (13.5)	20	3.5	M4×0.7	6.5	M5×0.8	7.5	7	4	–	4.2	6.3	0.5
20	5,10	35	26	45	36	7	10	36	M5×0.8	47	–	–	8	4.5 (14.5)	25.5	5.5	M6×1.0	9	M5×0.8	9	10	7	–	6.2	8.8	1
25	5,10	39	29	49	39	12	12	40	M6×1.0	52	–	–	10	5 (15)	28	5.5	M6×1.0	9	M5×0.8	11	10	7	–	6.2	8.8	1
32	5,10	44.5	30.5	54.5	40.5	13	16	45	M8×1.25	60	4.5	49.5	14	7 (17)	34	5.5	M6×1.0	9	Rc1/8 *1	12.5	10	7	14	6.2	8.8	1
40	5,10	54	40	64	50	13	16	52	M8×1.25	70	5	57	14	7 (17)	40	5.5	M6×1.0	9	Rc1/8	14	10	7	14	6.2	8.8	1
50	5~20	56.5	40.5	66.5	50.5	15	20	64	M10×1.5	86	7	71	17	8 (18)	50	6.5	M8×1.25	11	Rc1/4	14	14	8	19	8.2	10.8	1

*1. Without magnet with stroke=5mm, P=M5×0.8
*2. ( ) Dimensions for L type that both sides piston rod are extended. For LA type that piston rod retracted side is extended.

PCJQ Dimensions-Double rod / Adjustable stroke ø12~ø32

28


ø12

ø16

ø20, ø25

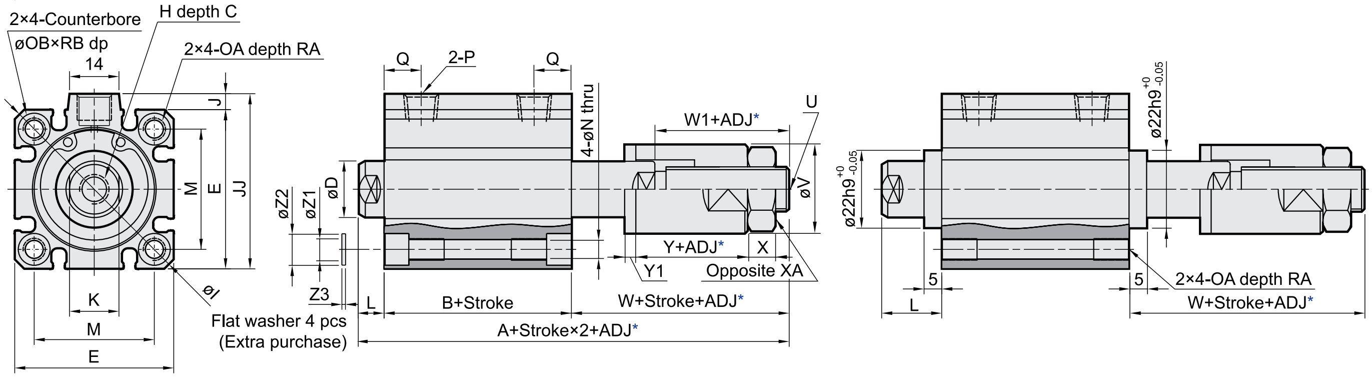
Stroke 5~100

Stroke over 100

ø32

Stroke 5~100

Stroke over 100

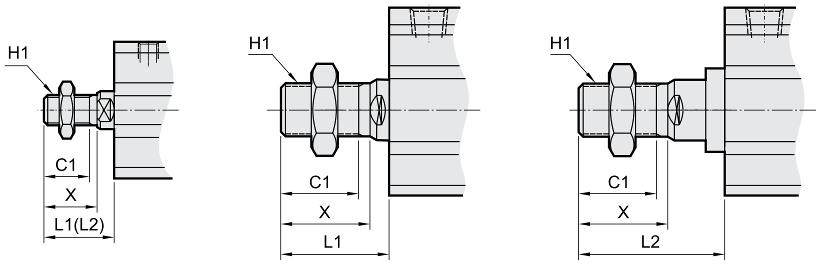


* ADJ: Adjustable stroke

ø12~25

ø32 for stroke 5~100

ø32 for stroke over 100



27 Male thread

Code / Tube I.D.	C1	H1	L1 *1,2	L2 *1	X
12	9	M5×0.8	14 (24)	24	10.5
16	10	M6×1.0	15.5 (25.5)	25.5	12
20	12	M8×1.25	18.5 (28.5)	28.5	14
25	15	M10×1.25	22.5 (32.5)	32.5	17.5
32	20.5	M14×1.5	28.5 (38.5)	38.5	23.5

*1. L1: Standard stroke, L2: Long stroke

*2. ( ) Dimensions for piston rod extended "LA" type.

Code / Tube I.D.	Standard stroke							Long stroke				
	Stroke range	Without magnet		Magnet		L *2	W	Stroke range	A	B	L	W
		A	B	A	B							
12	5~30	45.5	22	50.5	27	3.5 (13.5)	20	31~100	65.5	32	13.5	20
16	5~30	49	22	54	27	3.5 (13.5)	23.5	31~100	69	32	13.5	23.5
20	5~50	54.3	26	64.3	36	4.5 (14.5)	23.8	51~200	79.3	41	14.5	23.8
25	5~50	56.5	29	66.5	39	5 (15)	22.5	51~300	81.5	44	15	22.5
32	5~50	60.9	30.5	70.9	40.5	7 (17)	23.4	101~300	91.5	45.5	17	29
	51~100	70.9	40.5									

*1. Without magnet with stroke=5mm, P=M5×0.8

*2. ( ) Dimensions for piston rod extended "LA" type.

Code / Tube I.D.	C	D	E	H	I	J	JJ	K	M	N	OA	OB	P	Q
12	6	6	25	M3×0.5	32	–	–	5	15.5	3.5	M4×0.7	6.5	M5×0.8	7.5
16	8	8	29	M4×0.7	38	–	–	6	20	3.5	M4×0.7	6.5	M5×0.8	7.5
20	7	10	36	M5×0.8	47	–	–	8	25.5	5.5	M6×1.0	9	M5×0.8	9
25	12	12	40	M6×1.0	52	–	–	10	28	5.5	M6×1.0	9	M5×0.8	11
32	13	16	45	M8×1.25	60	4.5	49.5	14	34	5.5	M6×1.0	9	Rc1/8 *1	12.5

Code / Tube I.D.	RA	RB	U	V	W1	X	XA	Y	Y1	Z1	Z2	Z3
12	7	4	M5×0.8	12	16	4	8	13	2	4.2	6.3	0.5
16	7	4	M8×1.25	16	19	5	13	15	2	4.2	6.3	0.5
20	10	7	M8×1.25	16	19	5	13	15	2	6.2	8.8	1
25	10	7	M10×1.25	20	18	6	17	12	2	6.2	8.8	1
32	10	7	M12×1.25	30	19	7	19	12	2	6.2	8.8	1

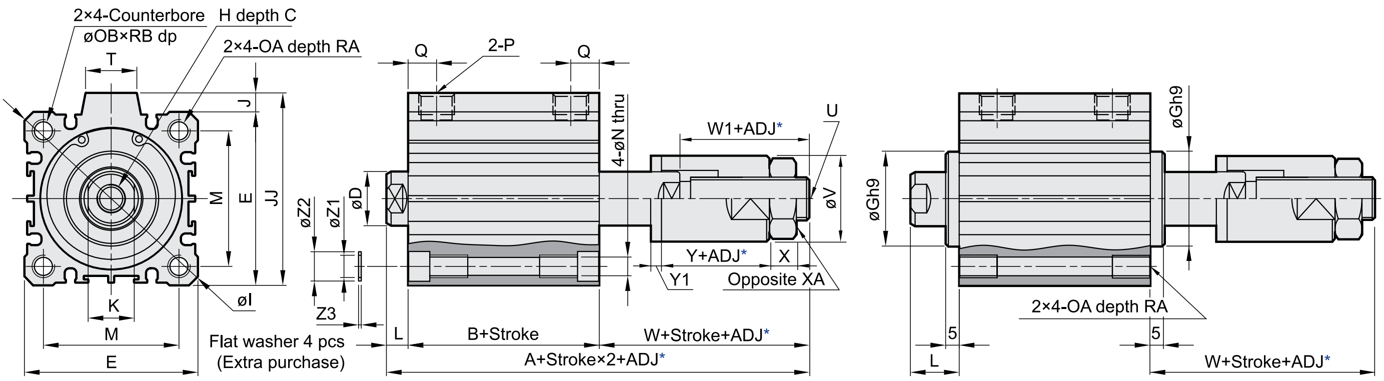
PCJQ Dimensions-Double rod / Adjustable stroke ø40~ø100

COMPACT CYLINDER

28 ø50~ø100

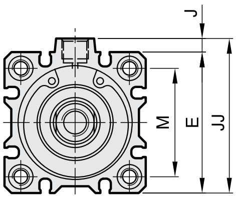
Stroke 5~100

Stroke over 100

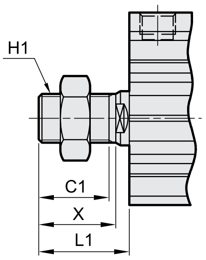


* ADJ: Adjustable stroke

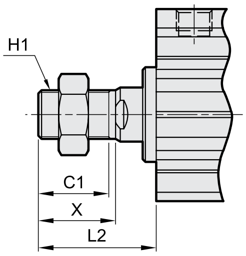
ø40



ø40~ø100
(Stroke 5~100)



ø40~ø80
(Stroke over 100)



27 Male thread

Code / Tube I.D.	C1	H1	L1*1,2	L2*1	X
40	20.5	M14×1.5	28.5 (38.5)	38.5	23.5
50	26	M18×1.5	33.5 (43.5)	43.5	28.5
63	26	M18×1.5	33.5 (43.5)	43.5	28.5
80	32.5	M22×1.5	43.5 (53.5)	53.5	35.5
100	32.5	M26×1.5	43.5 (53.5)	–	35.5

*1. L1: Standard stroke, L2: Long stroke
*2. ( ) Dimensions for piston rod extended "LA" type.

Code / Tube I.D.	Standard stroke									Long stroke					
	Stroke range	Without magnet		Magnet		L*3	Q	W		Stroke range	A	B	L	Q	W
		A	B	A	B										
40	5~50	71	40	81	50	7 (17)	14	24		101~300	102.5	55	17	14	30.5
	51~100	81	50												
50	5~50	75	40.5	85	50.5	8 (18)	14	26.5		101~300	105.5	55.5	18	14	32
	51~100	85	50.5												
63	5~50	80	42	90	52	8 (18)	15.5	30		101~300	110	57	18	16.5	35
	51~100	90	52												
80	5~50	100	51	110	61	10 (20)	18	39		101~300	130	66	20	19	44
	51~100	110	61												
100	5~50	111	60.5	121	70.5	12 (22)	22	38.5		–					
	51~100	121	70.5												

Code / Tube I.D.	C	D	E	G^h9	H	I	J	JJ	K	M	N	OA	OB	P	RA	RB	T	U	V	W1	X	XA	Y	Y1	Z1	Z2	Z3
40	13	16	52	$28^{+0}_{-0.052}$	M8×1.25	70	5	57	14	40	5.5	M6×1.0	9	Rc1/8	10	7	14	M12×1.25	30	21	7	19	12	2	6.2	8.8	1
50	15	20	64	$35^{+0}_{-0.062}$	M10×1.5	86	7	71	17	50	6.6	M8×1.25	11	Rc1/4	14	8	19	M16×1.5	40	22.5	8	24	15	2	8.2	10.8	1
63	15	20	77	$35^{+0}_{-0.062}$	M10×1.5	103	7	84	17	60	9	M10×1.5	14	Rc1/4 *1	18	10.5	19	M16×1.5	40	25.5	8	24	15	2	10.2	13.8	1
80	21	25	98	$43^{+0}_{-0.062}$	M16×2.0	132	6	104	22	77	11	M12×1.75	17.5	Rc3/8 *2	22	13.5	26	M22×1.5	50	33	13	32	20	3	12.2	17.3	2
100	27	30	117	–	M20×2.5	156	6.5	123.5	27	94	11	M12×1.75	17.5	Rc3/8 *2	22	13.5	26	M22×1.5	50	33	13	32	20	3	12.2	17.3	2

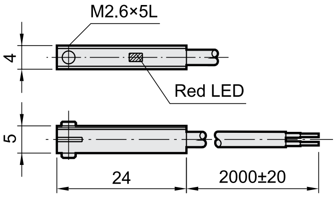
*1. Without magnet with stroke=5mm, P=Rc1/8
*2. Without magnet with stroke=5mm, P=Rc1/4
*3. ( ) Dimensions for piston rod extended "LA" type.

PCJQ Installation of sensor switch ø12~ø100

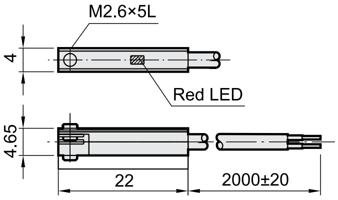
COMPACT CYLINDER

Dimensions

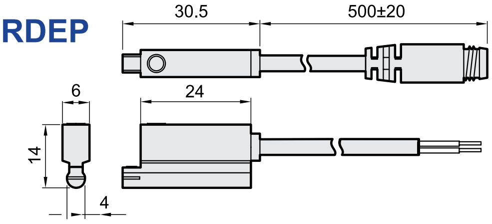
RCE



RCE1
RNE

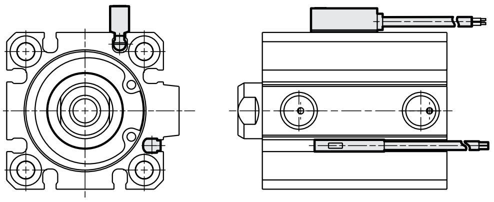


RDEP

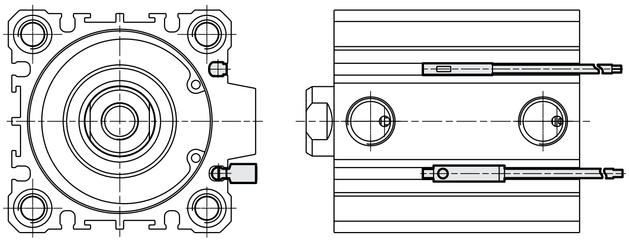


Installation of sensor switch

ø12~ø40



ø50~ø100



Order example

RCE1 — □

MODEL

RCE / RCE1 (**C**: Reed switch)
RNE (**N**: Solid state switch)
RDEP (Solid state switch)

WIRE LENGTH

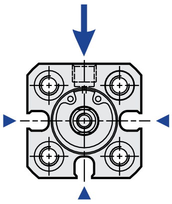
Blank: L=2000m
1M: L=1000m
QD: M8 3Pin connector
EQD: M8 3Pin connector

Description

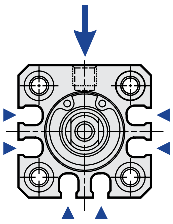
▼ **RCE, RCE1, RDEP*** **switch** ↓ **Port**

* RDEP not suitable for ø20, ø32.

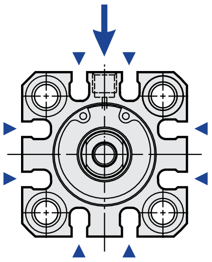
ø12



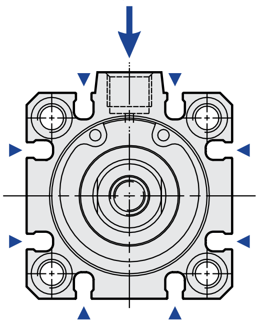
ø16



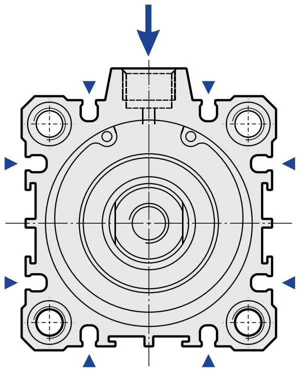
ø20, ø25



ø32, ø40



ø50~ø100



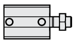
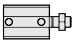
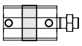
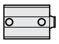
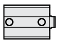
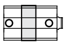
PCJQ Weight ø12~ø100

COMPACT CYLINDER

Cylinder weight

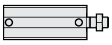
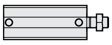
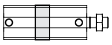
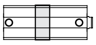
Standard stroke

Unit: g

Model		Basic weight **PCJQ-11**	Basic weight (magnet) **PCJQ-11**	Stroke 5 mm **PCJQ-11**	Basic weight **PCJQ-12**	Basic weight (magnet) **PCJQ-12**	Stroke 5 mm **PCJQ-12**
Tube I.D.	Stroke range (mm)						
ø12	5~30	22	31	7	19	28	7
ø16	5~30	33	42	8	28	37	8
ø20	5~50	55	82	13	48	75	13
ø25	5~50	92	140	16	75	123	16
ø32	5~50	129	215	22	109	166	22
	51~100	206	215	22	157	166	22
ø40	5~50	226	315	24	184	266	24
	51~100	298	315	24	249	266	24
ø50	5~50	367	500	35	317	409	35
	51~100	476	500	35	386	409	35
ø63	5~50	530	714	41	446	622	41
	51~100	685	714	41	594	622	41
ø80	5~50	1032	1278	65	904	1109	65
	51~100	1240	1278	65	1072	1109	65
ø100	5~50	1864	2278	90	1679	2030	90
	51~100	2230	2278	90	1982	2030	90

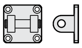
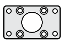
Long stroke

Unit: g

Model		Basic weight **PCJQ-11**	Basic weight (magnet) **PCJQ-11**	Stroke 5 mm **PCJQ-11**	Basic weight **PCJQ-12**	Basic weight (magnet) **PCJQ-12**	Stroke 5 mm **PCJQ-12**
Tube I.D.	Stroke range (mm)						
ø12	31~100	46	47	7	43	44	7
ø16	31~100	68	70	8	63	65	8
ø20	51~200	116	120	13	106	110	13
ø25	51~300	172	180	16	153	161	16
ø32	101~300	287	295	22	238	247	22
ø40	101~300	409	426	24	360	377	24
ø50	101~300	658	682	35	566	589	35
ø63	101~300	852	881	41	760	789	41
ø80	101~300	1531	1568	65	1398	1436	65

Accessories weight

Unit: g

Model	**LB**	**CB**	**FAC/FBC**	**F**	**RF**	**Pin**	Nut
Tube I.D.							
ø12	51	31	56	1	1	2	1
ø16	60	37	67	2	1	3	2
ø20	145	61	135	3	1	8	4
ø25	166	94	153	4	2	16	6
ø32	107	136	165	9	3	25	18
ø40	125	171	203	17	9	25	18
ø50	209	331	357	28	16	61	32
ø63	296	538	547	52	30	61	32
ø80	586	1034	1046	107	52	127	56
ø100	960	1765	1328	175	82	214	56

PCFA Series

MULTI-MOUNT CYLINDER

Features

- Compact and space saving.

Specification

Model	PCFA					
Acting type	Double acting					
Tube I.D. (mm)	6	10	16	20	25	32
Port size	M5×0.8					Rc1/8
Medium	Air					
Max. operating perssure	0.7 MPa					
Min. operating perssure (MPa)	0.12	0.06		0.05		
Proof pressure	1 MPa					
Cushion	With rubber cushion pad					
Lubrication	Not required					
Ambient temperature	-5~+60°C (No freezing)					
Available speed range	50~500 mm/sec					
Sensor switch	RCE, RCE1, RDEP					

Order example

PCFA — 11 — 6 — 10M — K — □

MODEL

1: Single rod
2: Double rod

STROKE

Blank: Standard
K: Non-rotating rod

TUBE I.D.

M: Magnet

PORT THREAD
Blank: M5×0.8
(for ø6~ø25)
Blank: Rc thread
G: G thread
NPT: NPT thread
(for ø32)

STYLE

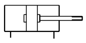
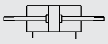
Code		Symbol	Description
1	**1**		Double action / Male thread
2	**1**		Double rod / Male thread

Table for standard stroke

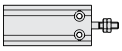
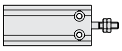
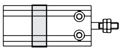
Tube I.D.	Stroke (mm)
ø6, 10, 16	5,10,15,20,25,30
ø20, 25, 32	5,10,15,20,25,30,40,50

Tightening torque

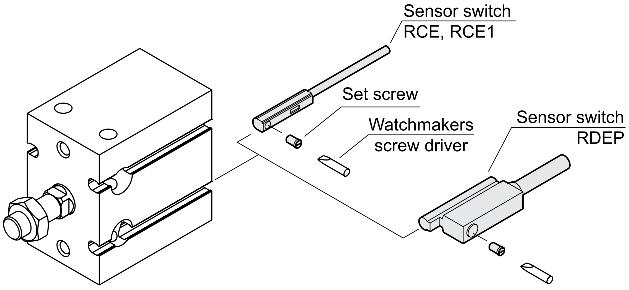
When mounting PCFA series,refer to the below table.

Tube I.D.	Hexagon socket head cap screw dia.(mm)	Proper tightening toque N.m[kgf.cm]
ø6, 10	M3	1.1 [11.2] ± 10%
ø16	M4	2.5 [25.5] ± 10%
ø20, 25	M5	5.0 [51.0] ± 10%
ø32	M6	8.0 [81.6] ± 10%

Cylinder weight

Model	Basic weight **PCFA-11**	Basic weight (magnet) **PCFA-11**	Stroke 5 mm **PCFA-11**
Tube I.D.			
ø6	20	18	3
ø10	32	31	3
ø16	42	58	6
ø20	90	118	10
ø25	161	202	17
ø32	268	330	26

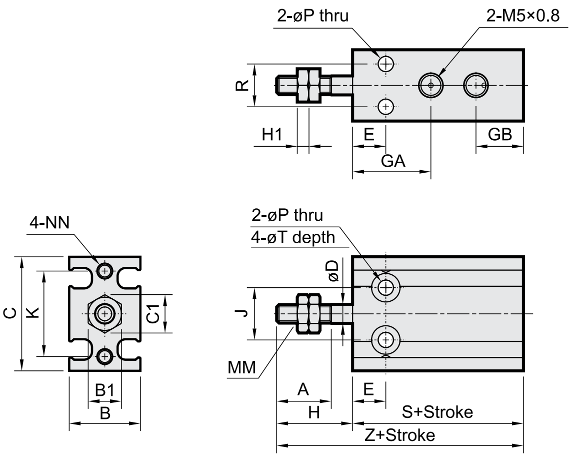
Installation of sensor switch



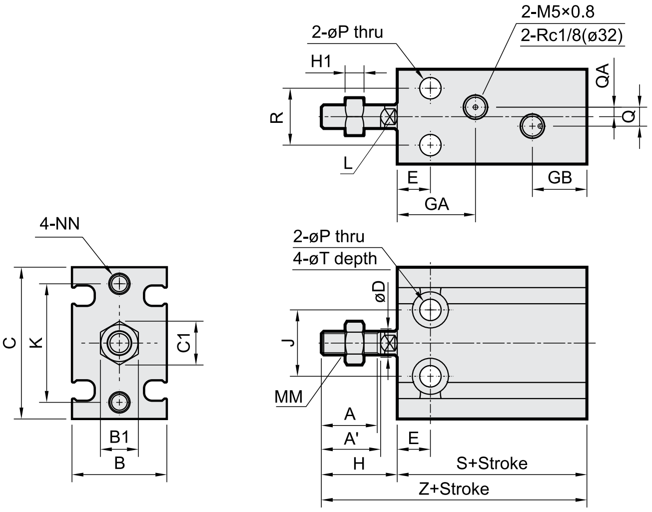
PCFA Single rod ø6~ø32

MULTI-MOUNT CYLINDER

ø6, ø10



ø16~ø32



Code Tube I.D.	A	A'	B	B1	C	C1	D	E	GA	GB	H	H1	J	K	L	MM	NN	P	Q	QA	R
6	7	—	13	5.5	22	6.4	3	7	15	10	13	1.8	10	17	—	M3×0.5	M3×0.5×5depth	3.2	—	—	7
10	10	—	15	7	24	8.1	4	7	16.5	10	16	2.4	11	18	—	M4×0.7	M3×0.5×5depth	3.2	—	—	9
16	11	12.5	20	8	32	9.2	6	7	16.5*	11.5	16	4	14	25	5	M5×0.8	M4×0.7×6depth	4.5	4	2	12
20	12	14	26	10	40	11.5	8	9	19	12.5	19	5	16	30	6	M6×1.0	M5×0.8×8depth	5.5	9	4.5	16
25	15.5	18	32	13	50	15.0	10	10	21.5	13	23	5	20	38	8	M8×1.25	M5×0.8×8depth	5.5	9	4.5	20
32	19.5	22	40	17	62	19.6	12	11	23	12.5	27	6	24	48	10	M10×1.25	M6×1.0×9depth	6.6	13.5	4.5	24

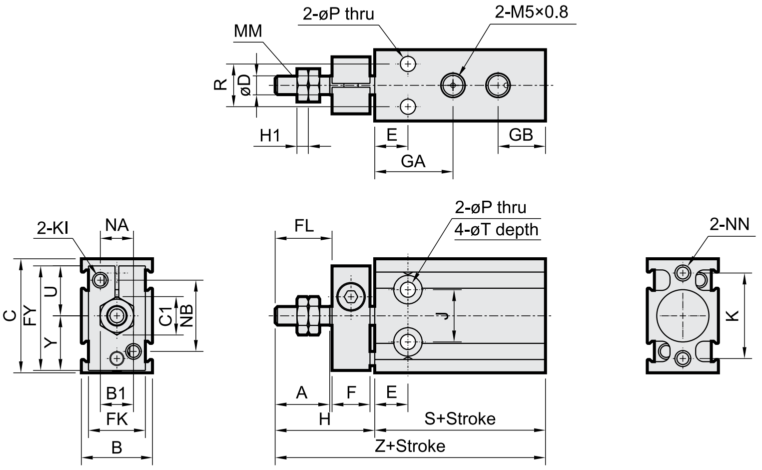
* Without magnet with stroke=5mm, GA=14.5mm.

Code Tube I.D.	T	Without magnet		Magnet	
		S	Z	S	Z
6	6×4.8depth	33	46	33	46
10	6×5depth	36	52	36	52
16	7.6×6.5depth	30	46	40	56
20	9.3×8depth	36	55	46	65
25	9.3×9depth	40	63	50	73
32	11×11.5depth	42	69	52	79

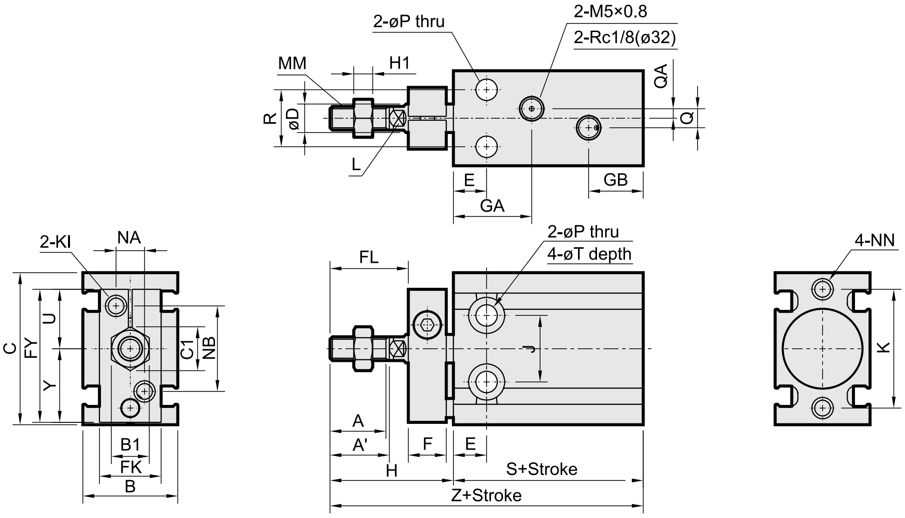
PCFA Non-rotating rod / Single rod ø6~ø32

MULTI-MOUNT CYLINDER

ø6, ø10



ø16~ø32



Code / Tube I.D.	A	A'	B	B1	C	C1	D	E	F	FL	FK	FY	GA	GB	H	H1	J	K	KI	L	MM	NA	NB
6	7	—	13	5.5	22	6.4	3	7	8	9	11	20.5	15	10	18	1.8	10	17	M3×0.5	—	M3×0.5	6	14
10	10	—	15	7	24	8.1	4	7	8	12	12	22	16.5	10	21	2.4	11	18	M3×0.5	—	M4×0.7	7	15
16	11	12.5	20	8	32	9.2	6	7	8	17	13	28	16.5*	11.5	26	4	14	25	M4×0.7	5	M5×0.8	6	18
20	12	14	26	10	40	11.5	8	9	8	20	16	33	19	12.5	29	5	16	30	M4×0.7	6	M6×1.0	8	20
25	15.5	18	32	13	50	15.0	10	10	10	22	20	43.5	21.5	13	33	5	20	38	M5×0.8	8	M8×1.25	10	28
32	19.5	22	40	17	62	19.6	12	11	12	29	24	51.5	23	12.5	42	6	24	48	M5×0.8	10	M10×1.25	12	32

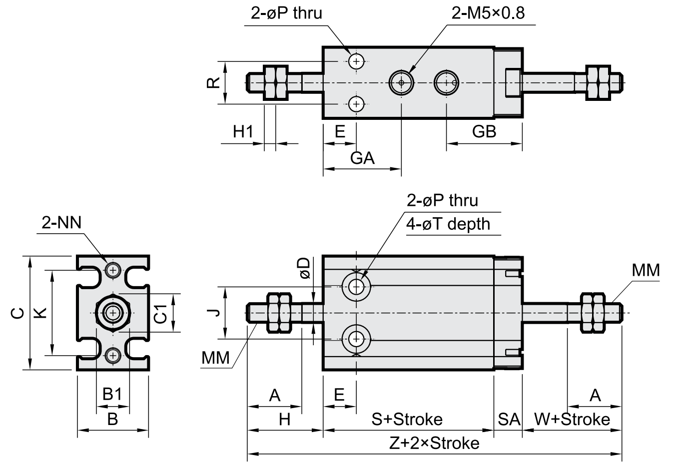
* Without magnet with stroke=5mm, GA=14.5mm.

Code / Tube I.D.	NN	P	Q	QA	R	T	U	Y	Without magnet		Magnet	
									S	Z	S	Z
6	M3×0.5×5depth	3.2	—	—	7	6×4.8depth	10	10.5	33	51	33	51
10	M3×0.5×5depth	3.2	—	—	9	6×5depth	10.5	11.5	36	57	36	57
16	M4×0.7×6depth	4.5	4	2	12	7.6×6.5depth	12.5	15.5	30	56	40	66
20	M5×0.8×8depth	5.5	9	4.5	16	9.3×8depth	13.5	19.5	36	65	46	75
25	M5×0.8×8depth	5.5	9	4.5	20	9.3×9depth	19	24.5	40	73	50	83
32	M6×1.0×9depth	6.6	13.5	4.5	24	11×11.5depth	21	30.5	42	84	52	94

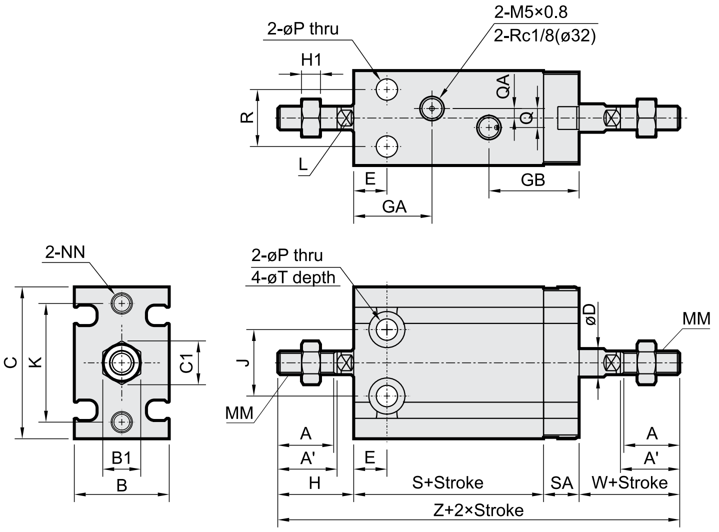
PCFA Double rod ø6~ø32

MULTI-MOUNT CYLINDER

ø6, ø10



ø16~ø32



Code / Tube I.D.	A	A'	B	B1	C	C1	D	E	GA	GB	H	H1	J	K	L	MM	NN	P	Q	QA	R	SA
6	7	—	13	5.5	22	6.4	3	7	15	16	13	1.8	10	17	—	M3×0.5	M3×0.5×5depth	3.2	—	—	7	6
10	10	—	15	7	24	8.1	4	7	16.5	16	16	2.4	11	18	—	M4×0.7	M3×0.5×5depth	3.2	—	—	9	6
16	11	12.5	20	8	32	9.2	6	7	16.5*	19	16	4	14	25	5	M5×0.8	M4×0.7×6depth	4.5	4	2	12	7.5
20	12	14	26	10	40	11.5	8	9	19	21.5	19	5	16	30	6	M6×1.0	M5×0.8×8depth	5.5	9	4.5	16	9
25	15.5	18	32	13	50	15.0	10	10	21.5	22	23	5	20	38	8	M8×1.25	M5×0.8×8depth	5.5	9	4.5	20	9
32	19.5	22	40	17	62	19.6	12	11	23	22.5	27	6	24	48	10	M10×1.25	M6×1.0×9depth	6.6	13.5	4.5	24	10

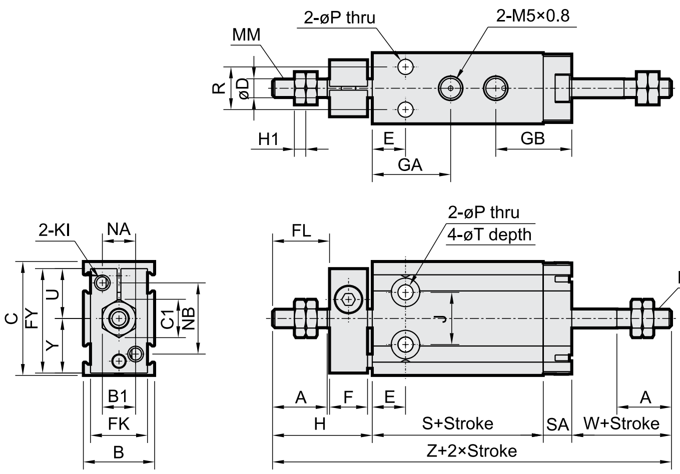
* Without magnet with stroke=5mm, GA=14.5mm.

Code / Tube I.D.	T	W	Without magnet		Magnet	
			S	Z	S	Z
6	6×4.8depth	13	38	70	38	70
10	6×5depth	16	36	74	36	74
16	7.6×6.5depth	16	30	69.5	40	79.5
20	9.3×8depth	19	36	83	46	93
25	9.3×9depth	23	40	95	50	105
32	11×11.5depth	27	42	106	52	116

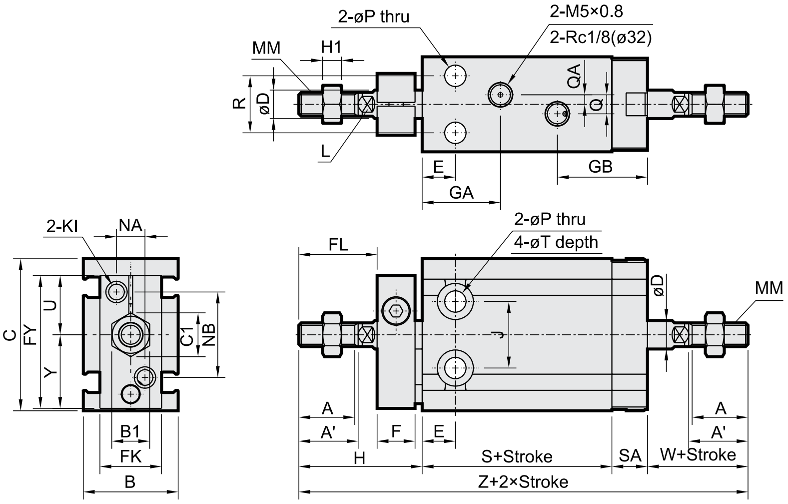
PCFA Non-rotating rod / Double rod ø6~ø32

MULTI-MOUNT CYLINDER

ø6, ø10



ø16~ø32



Code Tube I.D.	A	A'	B	B1	C	C1	D	E	F	FL	FK	FY	GA	GB	H	H1	J	KI	L	MM	NA	NB	P	Q
6	7	—	13	5.5	22	6.4	3	7	8	9	11	20.5	15	16	18	1.8	10	M3×0.5	—	M3×0.5	6	14	3.2	—
10	10	—	15	7	24	8.1	4	7	8	12	12	22	16.5	16	21	2.4	11	M3×0.5	—	M4×0.7	7	15	3.2	—
16	11	12.5	20	8	32	9.2	6	7	8	17	13	28	16.5*	19	26	4	14	M4×0.7	5	M5×0.8	6	18	4.5	4
20	12	14	26	10	40	11.5	8	9	8	20	16	33	19	21.5	29	5	16	M4×0.7	6	M6×1.0	8	20	5.5	9
25	15.5	18	32	13	50	15.0	10	10	10	22	20	43.5	21.5	22	33	5	20	M5×0.8	8	M8×1.25	10	28	5.5	9
32	19.5	22	40	17	62	19.6	12	11	12	29	24	51.5	23	22.5	42	6	24	M5×0.8	10	M10×1.25	12	32	6.6	13.5

* Without magnet with stroke=5mm, GA=14.5mm.

Code Tube I.D.	QA	R	SA	T	U	W	Y	Without magnet		Magnet	
								S	Z	S	Z
6	—	7	6	6×4.8depth	10	13	10.5	38	75	38	75
10	—	9	6	6×5depth	10.5	16	11.5	36	79	36	79
16	2	12	7.5	7.6×6.5depth	12.5	16	15.5	30	79.5	40	89.5
20	4.5	16	9	9.3×8depth	13.5	19	19.5	36	93	46	103
25	4.5	20	9	9.3×9depth	19	23	24.5	40	105	50	115
32	4.5	24	10	11×11.5depth	21	27	30.5	42	121	52	131

PCFB Series

MULTI-MOUNT CYLINDER

Order example

PCFB — S — 11 — 16 — 10M

MODEL

1: Single rod

TUBE I.D.

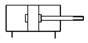
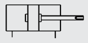
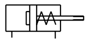
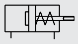
STROKE

M: Magnet

Blank: Both mounting
S: Axial mounting
(Only for ø12,16,20)

STYLE (*)

* STYLE

Code		Symbol	Description
1	1		Double acting / Male thread
1	2		Double acting / Female thread
1	5		Single acting / Normally returned male thread
1	6		Single acting / Normally returned female thread

* Single acting only for ø6,ø8,ø10.
* Single acting without magnet type.

Features

- Compact and space saving.
- Flush fitting sensor.

Specification

Model		PCFB					
Acting type		Single / Double			Double acting		
Tube I.D. (mm)		6	8	10	12	16	20
Port size		M3×0.5					M5×0.8
Medium		Air					
Max. operating perssure		0.7 MPa					
Min. operating perssure (MPa)	Single	0.3		0.2	—		
	Double	0.15		0.1	0.07		0.05
Proof pressure		1 MPa					
Lubrication		Not required					
Ambient temperature		-5~+60°C (No freezing)					
Available speed range		50~500 mm/sec					
Sensor switch (*)		RDFE(V), RDGV					

* Short stroke length (4, 6, 8mm) only use RDGV.

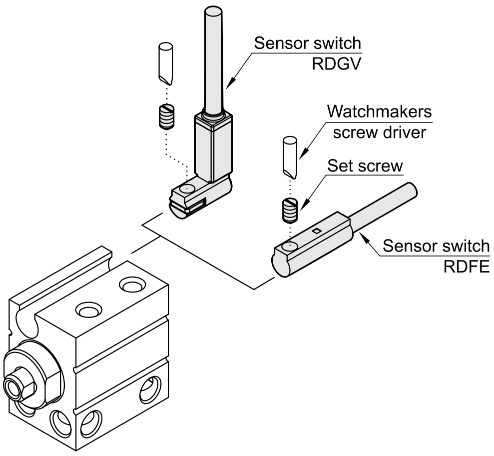
Double acting – Table for standard stroke

Tube I.D.	Stroke (mm)
ø6,8	4,6,8,10,15,20,25
ø10	4,6,8,10,15,20,30
ø12,16	5,10,15,20,25,30
ø20	5,10,15,20,25,30,35,40,45,50

Single acting – Table for standard stroke

Tube I.D.	Stroke (mm)
ø6	4,6,8
ø8,10	4,6,8,10

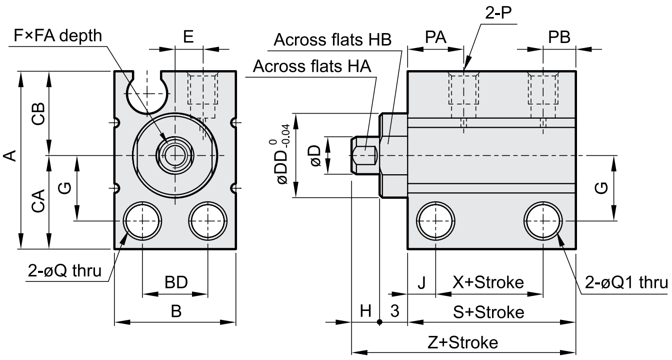
Installation of sensor switch



PCFB Dimensions ø6~ø20

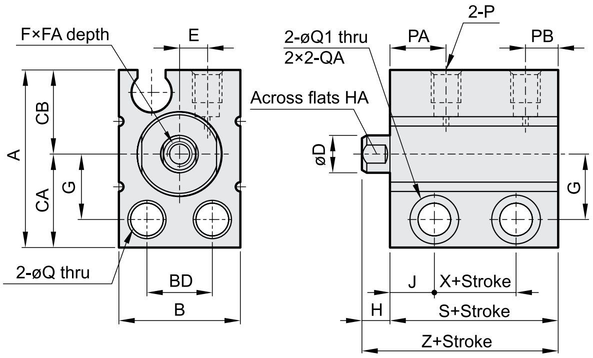
MULTI-MOUNT CYLINDER

ø6, ø8, ø10



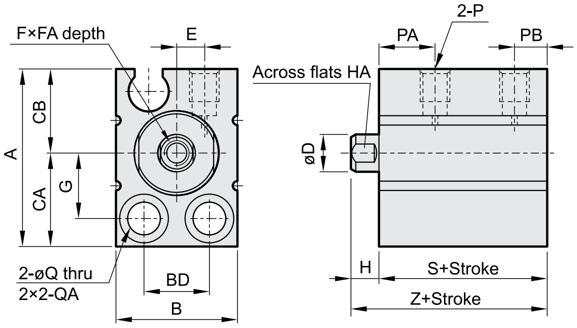
ø12, ø16, ø20

Both mounting

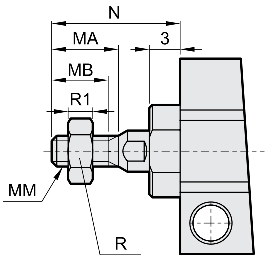


Axial mounting

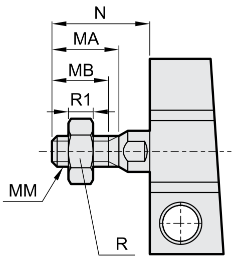
PCFB-S



ø6, ø8, ø10



ø12, ø16, ø20



PCFB-11/15 male thread size

Code / Tube I.D.	MA	MB	MM	N	R	R1
6	6.5	5.5	M3×0.5	12.5	5.5	2.4
8	8.5	7	M4×0.7	14.5	7	3.2
10	10.5	9	M5×0.8	16.5	8	4
12	10.5	9	M5×0.8	14	8	4
16	12	10	M6×1.0	15.5	10	5
20	14	12	M8×1.25	18.5	13	5

Code / Tube I.D.	A	B	BD	CA	CB	D	DD	E	F	FA	G	H	HA	HB	J	P	PA	PB	Q	Q1	QA	Without magnet			Magnet		
																						X	S	Z	X	S	Z
6	19	13	7	10	9	4	9	3	M2.5×0.45	5	7	3	3.5	8	3	M3×0.5	6	3.5	3.5	3.2	—	6.5	13	19	11.5	18	24
8	21	13	7	11	10	5	11	3	M3×0.5	6	8	3	4.5	10	3	M3×0.5	6	3.5	3.5	3.2	—						
10	22	13.5	7	11.5	10.5	6	12	3.2	M3×0.5	6	8.5	3	5	11	3	M3×0.5	6	3.5	3.5	3.2	—						
12	26.5	17	8	15.5	11	6	—	3.5	M3×0.5	6	11	3.5	5	—	6	M3×0.5	7.5	4	4.4	4.4	ø7.5, 7dp	3.5	15.5	19	7.5	19.5	23
16	29.5	21	11.5	17	12.5	8	—	5.5	M4×0.7	8	12.5	3.5	6	—	6	M3×0.5	8.5	4	4.4	4.4	ø7.5, 7dp	4	16.5	20	8.5	21	24.5
20	36	25	13.5	21	15	10	—	7	M5×0.8	7	15.5	4.5	8	—	7	M5×0.8	9	5.5	5.5	5.2	ø9.5, 9dp	5.5	19.5	24	9.5	23.5	28

PCFB Weight ø6~ø20

MULTI-MOUNT CYLINDER

Cylinder weight

Unit: g

11: Male thread (With magnet)								**11**: Male thread (Without magnet)							
Stroke (mm)	ø6	ø8	ø10	Stroke (mm)	ø12	ø16	ø20	Stroke (mm)	ø6	ø8	ø10	Stroke (mm)	ø12	ø16	ø20
4	16	20	23	5	27	42	68	4	15	19	21	5	24	38	63
6	17	21	24	10	32	49	78	6	16	20	22	10	29	45	73
8	18	23	26	15	37	56	88	8	18	22	24	15	34	52	83
10	19	24	27	20	42	63	98	10	19	23	25	20	39	59	93
15	22	27	31	25	47	70	108	15	22	26	29	25	44	66	103
20	25	31	34	30	52	77	118	20	25	29	32	30	49	73	113
25	28	34	38	40	–	–	138	25	28	33	36	40	–	–	133
30	–	–	41	50	–	–	158	30	–	–	39	50	–	–	153

12: Male thread (With magnet)								**12**: Male thread (Without magnet)							
Stroke (mm)	ø6	ø8	ø10	Stroke (mm)	ø12	ø16	ø20	Stroke (mm)	ø6	ø8	ø10	Stroke (mm)	ø12	ø16	ø20
4	15	18	20	5	24	35	57	4	14	17	18	5	21	31	52
6	16	19	21	10	29	42	67	6	15	18	19	10	26	38	62
8	17	20	23	15	34	49	77	8	16	19	21	15	31	45	72
10	18	22	24	20	39	56	87	10	18	21	22	20	36	52	82
15	21	25	28	25	44	63	97	15	21	24	26	25	41	59	92
20	24	28	31	30	49	70	107	20	24	27	29	30	46	66	102
25	27	31	35	40	–	–	127	25	27	30	33	40	–	–	122
30	–	–	38	50	–	–	147	30	–	–	36	50	–	–	142

PCMB Series

MINIATURE CYLINDER

Features

■ Non lubrication

- Special housing and bushing enables self lubrication of piston rod.

■ High quality long service life

- Hard anodised stainless steel cylinder tubes offer a high resistance to corrosion and low internal friction.
- Cylinder mountings, available with a comprehensive range of accessories for rigid or flexible mounting.

■ Magnetic as standard

Specification

Model		PCMB			
Tube I.D.		20	25	32	40
Port size		Rc1/8			Rc1/4
Medium		Air			
Max. operating perssure		1 MPa			
Min. operating perssure	Double acting	0.05 MPa			
	Single acting	Extended: 0.23, Returned: 0.18 MPa			
Proof pressure		1.5 MPa			
Lubricator		Not required			
Ambient temperature		-5~+60°C (No freezing)			
Available speed range		50~750 mm/sec			
Max. allowable kinetic energy (J)	Cushion pad	0.27	0.4	0.65	1.2
	Cushion air	0.54	0.78	1.27	2.35
Sensor switch		RCM			
Sensor switch (band)		BM20	BM25	BM32	BM40

Table for standard stroke

Acting type		Tube I.D.	Stroke (mm)	Max. stroke (mm)
Single acting	13/15	ø20,25, 32,40	15,25,50,75,100	150
Double acting	11	ø20,25, 32,40	25,50,75,100,125,150, 200,250,300,400,500	1000
	21/27		25,50,75,100,125,150, 200,250,300,400	450

* Intermediate stroke are available, please contact us.

Order example

PCMB — 11 — 20 — 50 — A — N — G

MODEL

STYLE

1: Single rod

2: Double rod

TUBE I.D.

STROKE

Blank: Cushion pad (Unadjustable)

A: Cushion air (Adjustable) ⚠

END COVER TYPE

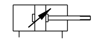
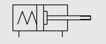
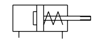
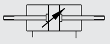
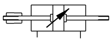
PORT THREAD

Blank: Rc thread

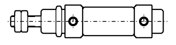
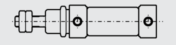
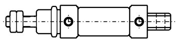
G: G thread

NPT: NPT thread

STYLE

Code		Symbol	Description
1	1		Double acting / Male thread
1	3		Single acting / Normally extended male thread
1	5		Single acting / Normally returned male thread
2	1		Double rod / Male thread
2	7		Double rod / Adjustable male thread Please mark "adjustable stroke" at order list

END COVER TYPE

Code	Symbol	Description
Blank		Standard type
N		End-plain
E		With pivot type

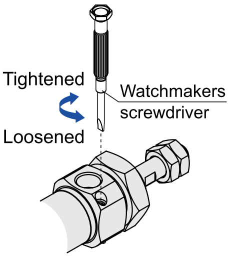
* Single acting type, please contact us.

* Order example for special specification, please contact us.

⚠ Caution

For (**A**) Cushion air (Adjustable)

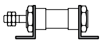
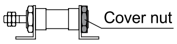
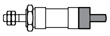
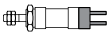
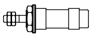
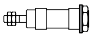
1. To adjust a cushion needle, please slowly turn the needle valve from the fully closed status to the required status which needs to be within 2.5 turns.
2. If the needle valve loosen excessively, the buffer doesn't take effect and the lifetime of cylinder would be shortened.

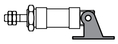
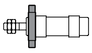
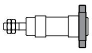
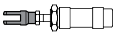
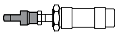


PCMB Order example of accessories & Weight

MINIATURE CYLINDER

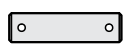
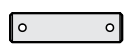
Accessories & Connector

	Accessories					
Code	**LB***1 (Purchase 2 pcs)	**NUT***1	**CA**	**CB**	**FA**	**FB**
Mounting Tube I.D.						
ø20	**LB-M2-20**	**NUT-M20x1.5x8Hx26B**	**CA-M2-20**	**CB-M2-20**	**FA-M2-20**	
ø25	**LB-M2-25**	**NUT-M26x1.5x8Hx32B**	**CA-M2-25**	**CB-M2-25**	**FA-M2-25**	
ø32						
ø40	**LB-M2-40**	**NUT-M32x2.0x10Hx41B**	**CA-M2-40**	**CB-M2-40**	**FA-M2-40**	

	Accessories			Connector	
Code	**SDB***2 (with pin×1 + snap ring×2)	**TA**	**TB**	**Y**	**I**
Mounting Tube I.D.					
ø20	**SDB-M2-20**	**TA-M2-20**		**Y-M2-20**	**I-M2-20**
ø25		**TA-M2-25**		**Y-M2-25**	**I-M2-25**
ø32	**SDB-M2-32**				
ø40		**TA-M2-40**		**Y-Q1-40**	**I-M2-40**

*1. The cylinder only comes with 1PC end cover nut, and another 1 PC needs to be ordered when assembling the LB.
*2. Only for (E) end-plain type.

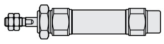
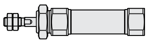
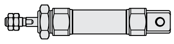
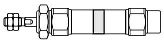
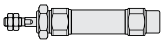
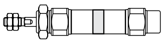
Pin

Applicable	Y&I connector	CA&CB accessories	SDB accessories
Code	**PIN-Y-P** (with split pin / snap ring)	**PIN-CB-P** (with split pin / snap ring)	**PIN-SDB** (with split pin)
Fig Tube I.D.	  ø20~ø32 ø40	  ø20~ø32 ø40	
ø20	**PIN-M2-20-1-P**	**PIN-M2-20-1-P**	**PIN-M2-20-2-P**
ø25			
ø32			**PIN-M2-32-1-P**
ø40	**PIN-M2-40-2-P**	**PIN-M2-40-1-P**	

Cylinder & accessories weight

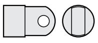
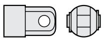
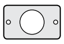
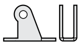
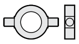
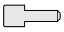
Cylinder weight

Unit: g

Model	Basic weight **PCMB-11**	Basic weight **PCMB-11-N**	Basic weight **PCMB-11-E**	Stroke 25 mm **PCMB-11**	Basic weight **PCMB-11-A**	Stroke 25 mm **PCMB-11-A**
Tube I.D.						
ø20	146	146	148	18	144	20
ø25	232	232	228	28	252	26
ø32	275	275	287	38	340	38
ø40	568	568	576	50	565	51

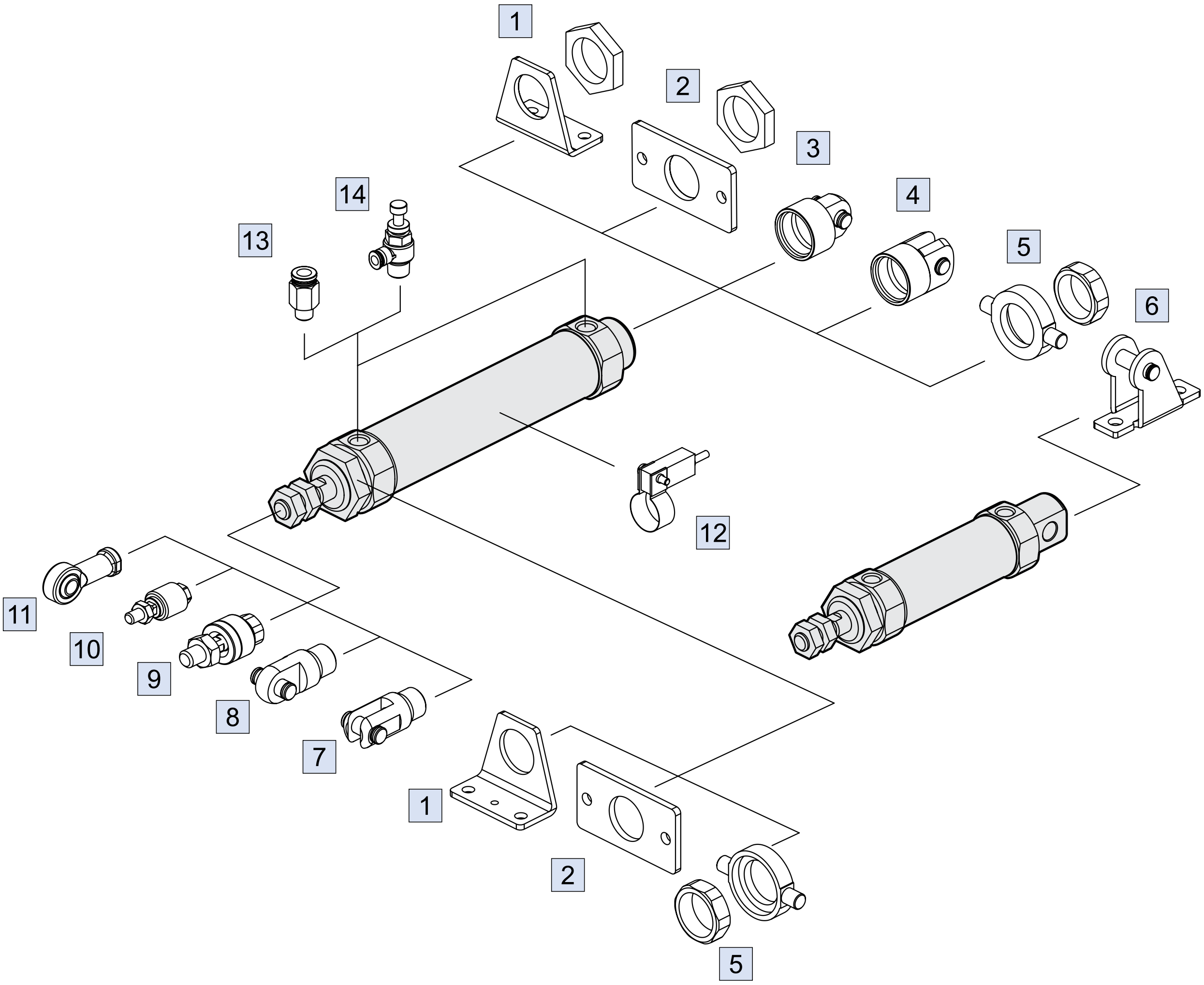
Accessories weight

Unit: g

Model	LB	CA	CB	FA/FB	SDB	TA/TB	Y	I	Pin	Rod nut	Cover nut
Tube I.D.											
ø20	122	53	49	66	62	37	53	63	13	4	19
ø25	129	63	69	73	62	47	49	62	13	8	23
ø32	129	63	69	73	140	47	49	62	13	8	23
ø40	207	162	168	124	140	94	230	164	43	16	50

PCMB Accessories

MINIATURE CYLINDER



No.	Accessories	Material
1	Mounting accessories LB	Carbon steel
2	Mounting accessories FA/FB	Carbon steel
3	Mounting accessories CA+PIN	Carbon steel
4	Mounting accessories CB+PIN	Carbon steel
5	Mounting accessories TA/TB	Cast iron *2
6	Mounting accessories SDB+PIN (*1)	Carbon steel
7	Accessories Y+PIN	Carbon steel *3
8	Accessories I+PIN	Carbon steel

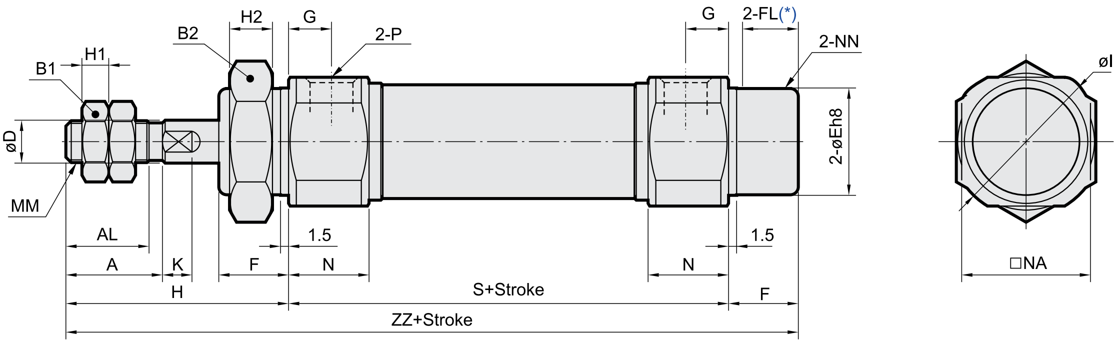
*1. Only for end cover "E" type.
*2. ø20 material is carbon steel.
*3. Y accessories ø40 material is cast iron.

No.	Accessories	Material
9	Floating joint PFC	Carbon steel
10	Floating joint PFCS	Carbon steel
11	Female rod ends PHS	Carbon steel
12	Sensor switch RCM+BM**	–
13	Fitting PC (PISCO)	–
14	Speed controller JSC (PISCO)	–

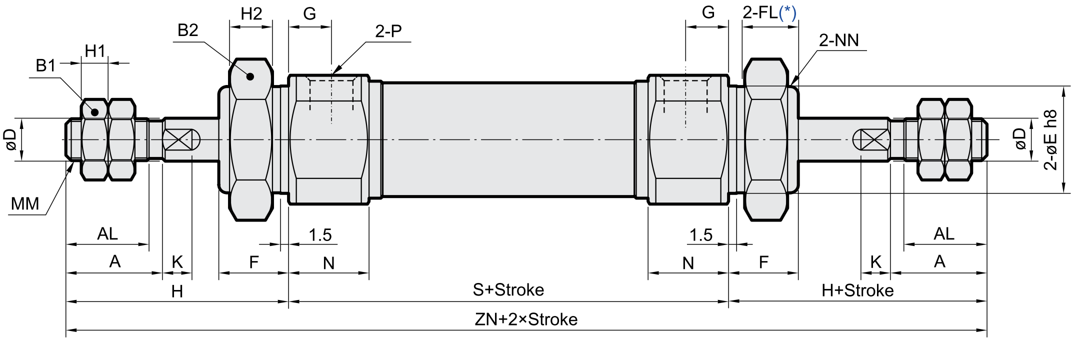
PCMB Dimensions-Double acting ø20~ø40

MINIATURE CYLINDER

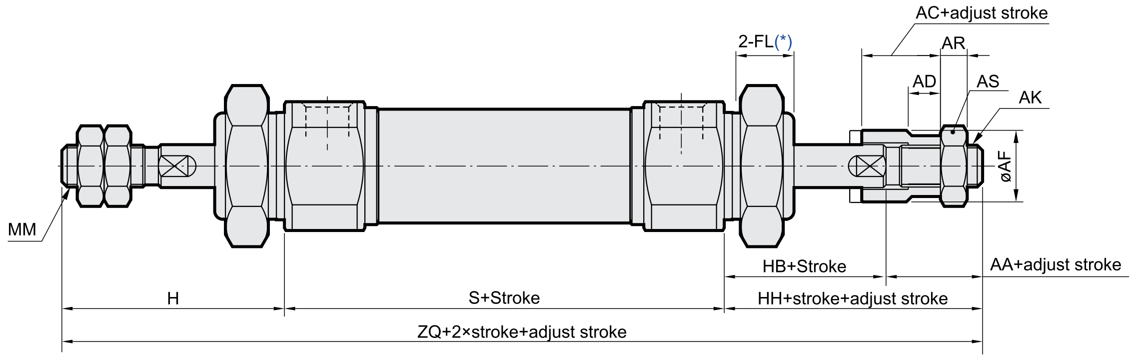
11



21



27



Unit: mm

Code Tube I.D.	A	AA	AC	AD	AF	AK	AL	AR	AS	B1	B2	D	E	F	FL	G	H	H1	H2	HB	HH	I	K	MM
20	18	17.5	15	9.5	16	M8×1.25	15.5	5	13	13	26	8	$20^{\ 0}_{-0.03}$	13	10.5	8	41	5	8	20.5	38	28	5	M8×1.25
25	22	18.5	15	9.5	16	M8×1.25	19.5	5	13	17	32	10	$26^{\ 0}_{-0.03}$	13	10.5	8	45	6	8	20.5	39	33.5	5	M10×1.25
32	22	16	12	7	20	M10×1.25	19.5	6	17	17	32	12	$26^{\ 0}_{-0.03}$	13	10.5	8	45	6	8	20	36	37.5	5.5	M10×1.25
40	24	17	12	7	30	M12×1.25	21	7	19	22	41	14	$32^{\ 0}_{-0.04}$	16	13.5	11	50	8	10	23	40	46.5	7	M14×1.5

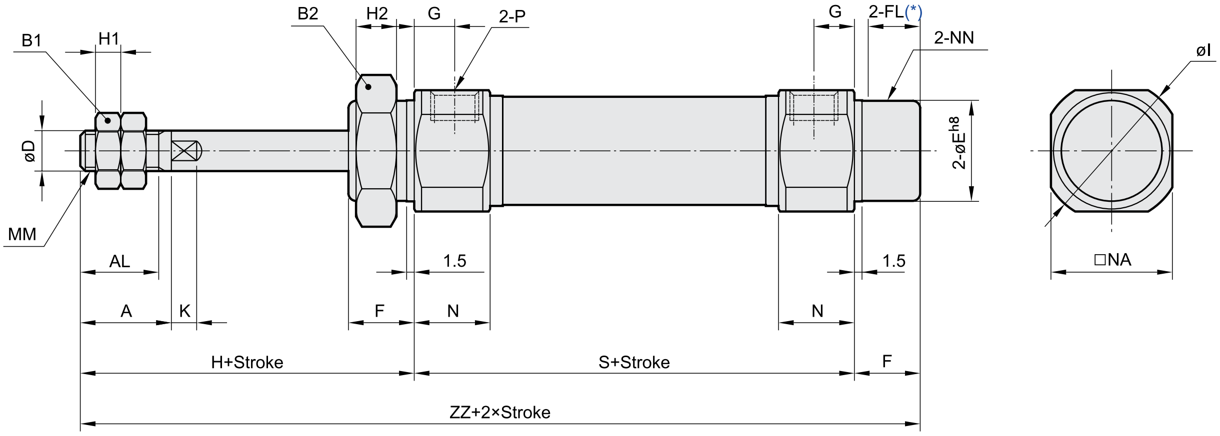
Code Tube I.D.	N	NA	NN	P	S	ZN	ZQ	ZZ
20	15	24	M20×1.5	Rc1/8	62	144	141	116
25	15	30	M26×1.5	Rc1/8	62	152	146	120
32	15	34.5	M26×1.5	Rc1/8	64	154	145	122
40	21.5	42.5	M32×2.0	Rc1/4	88	188	178	154

* FL: Effective thread length

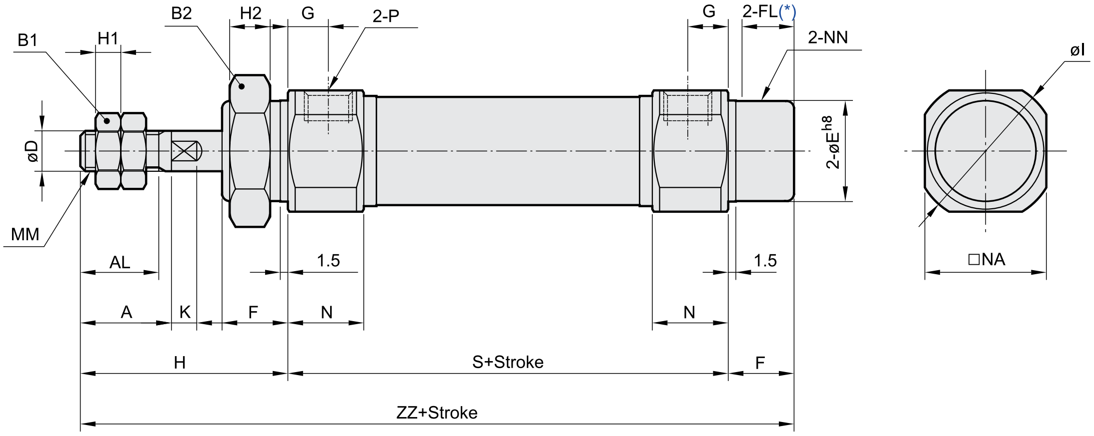
PCMB Dimensions-Single acting ø20~ø40

MINIATURE CYLINDER

13



15



Code Tube I.D.	A	AL	B1	B2	D	E	F	FL	G	H	H1	H2	I	K	MM	N	NA	NN	P
20	18	15.5	13	26	8	$20^{0}_{-0.03}$	13	10.5	8	41	5	8	28	5	M8×1.25	15	24	M20×1.5	Rc1/8
25	22	19.5	17	32	10	$26^{0}_{-0.03}$	13	10.5	8	45	6	8	33.5	5	M10×1.25	15	30	M26×1.5	Rc1/8
32	22	19.5	17	32	12	$26^{0}_{-0.03}$	13	10.5	8	45	6	8	37.5	5.5	M10×1.25	15	34.5	M26×1.5	Rc1/8
40	24	21	22	41	14	$32^{0}_{-0.04}$	16	13.5	11	50	8	10	46.5	7	M14×1.5	21.5	42.5	M32×2.0	Rc1/4

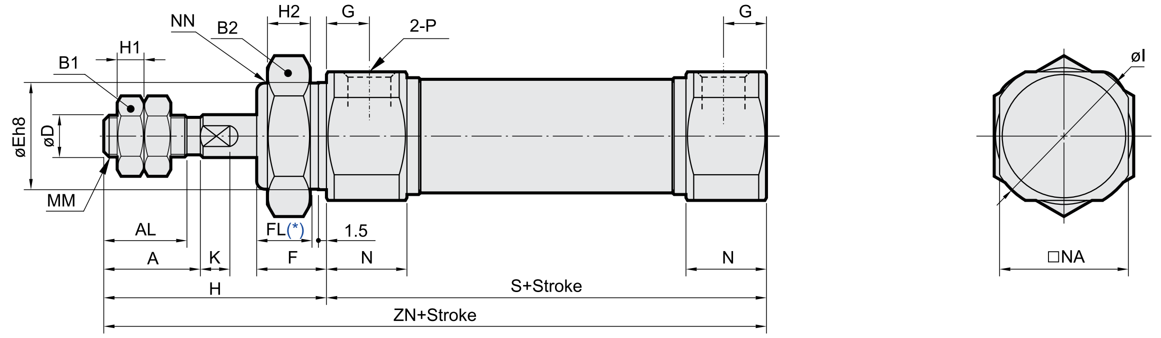
Code Stroke Tube I.D.	S			ZZ		
	1~50	51~100	101~150	1~50	51~100	101~150
20	87	112	137	141	166	191
25	87	112	137	145	170	195
32	89	114	139	147	172	197
40	113	138	163	179	204	229

* FL: Effective thread length

PCMB Dimensions-Double acting ø20~ø40

MINIATURE CYLINDER

N

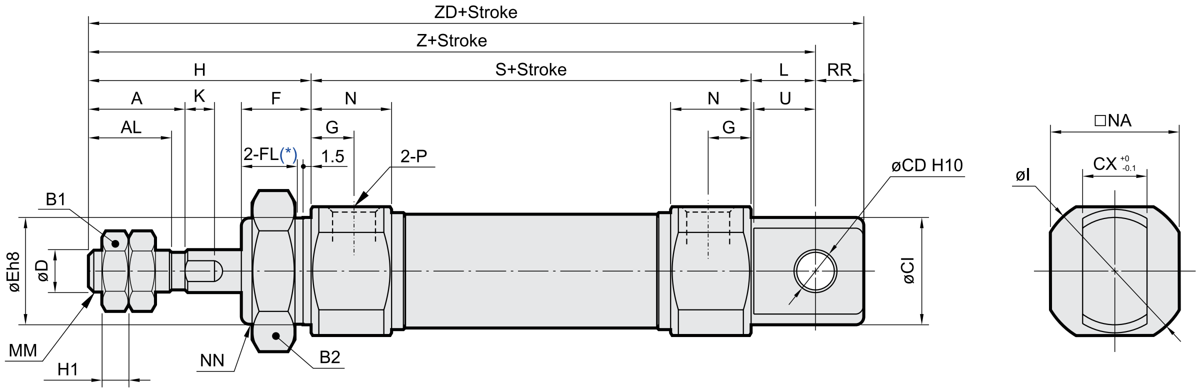


* FL: Effective thread length

Unit: mm

Code Tube I.D.	A	AL	B1	B2	D	E	F	FL	G	H	H1	H2	I	K	MM	N	NA	NN	P	S	ZN
20	18	15.5	13	26	8	$20^{0}_{-0.03}$	13	10.5	8	41	5	8	28	5	M8×1.25	15	24	M20×1.5	Rc1/8	62	103
25	22	19.5	17	32	10	$26^{0}_{-0.03}$	13	10.5	8	45	6	8	33.5	5	M10×1.25	15	30	M26×1.5	Rc1/8	62	107
32	22	19.5	17	32	12	$26^{0}_{-0.03}$	13	10.5	8	45	6	8	37.5	5.5	M10×1.25	15	34.5	M26×1.5	Rc1/8	64	109
40	24	21	22	41	14	$32^{0}_{-0.04}$	16	13.5	11	50	8	10	46.5	7	M14×1.5	21.5	42.5	M32×2.0	Rc1/4	88	138

E



* FL: Effective thread length

Unit: mm

Code Tube I.D.	A	AL	B1	B2	CD	CX	CI	D	E	F	FL	G	H	H1	I	K	L	MM	N	NA	NN	P	RR	S	U	Z	ZD
20	18	15.5	13	26	8	12	20	8	$20^{0}_{-0.03}$	13	10.5	8	41	5	28	5	12	M8×1.25	15	24	M20×1.5	Rc1/8	9	62	11.5	115	124
25	22	19.5	17	32	8	12	22	10	$26^{0}_{-0.03}$	13	10.5	8	45	6	33.5	5	12	M10×1.25	15	30	M26×1.5	Rc1/8	9	62	11.5	119	128
32	22	19.5	17	32	10	20	27	12	$26^{0}_{-0.03}$	13	10.5	8	45	6	37.5	5.5	15	M10×1.25	15	34.5	M26×1.5	Rc1/8	12	64	14.5	124	136
40	24	21	22	41	10	20	33	14	$32^{0}_{-0.04}$	16	13.5	11	50	8	46.5	7	15	M14×1.5	21.5	42.5	M32×2.0	Rc1/4	12	88	14.5	153	165

PCMJ Series

PEN CYLINDER

Features

■ High quality long service life

Stainless steel cylinder tubes offer a high resistance to corrosion and low internal friction.

■ Cylinder mountings

Available with a comprehensive range of accessories for rigid or flexible mounting.

Specification

Model			PCMJ		
Tube I.D. (mm)			ø6	ø10	ø16
Port size			M5×0.8		
Medium			Air		
Max. operating perssure			0.7 MPa		
Min. operating perssure (MPa)	Single acting	normally extended	0.25	0.15	
		normally returned	0.2	0.15	
	Double acting		0.12	0.06	
Proof pressure			1 MPa		
Lubrication			Not required		
Ambient temperature			-5~+60°C (No freezing)		
Available speed range			50~500 mm/sec		
Max. allowable kinetic energy (J)			0.16	0.27	0.4
Sensor switch			RCM		
Sensor switch band			BM6	BM10	BM16

Table for standard stroke

Acting type		Tube I.D.	Stroke (mm)	Max. stroke (mm)
Single acting	13 15	ø6	15,30,45,60	60
		ø10	15,30,45,60	70
		ø16	15,30,45,60,75,100,125,150	150
Double acting	11	ø6	15,30,45,60,75,100	200
		ø10,16	↑ 150,200	300

* Intermediate stroke are available, please contact us.

Order example

PCMJ — 11 — 16 — 45M — B

MODEL

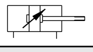
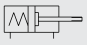
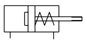
1: Single rod
2: Double rod

TUBE I.D.

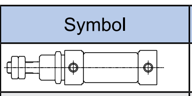
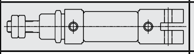
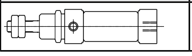
STROKE

M: Magnet

STYLE

Code		Symbol	Description
1	**1**		Double acting / Male thread
1	**3**		Single acting / Normally extended male thread
1	**5**		Single acting / Normally returned male thread

END COVER TYPE

Code	Symbol	Tube I.D.
B		ø10,16
D		ø10,16
R		ø6,10,16

*Order example for special specification and order for 21 or 27 type, please contact us.

Pin

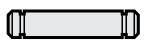
PIN — PCMJ — 10 — Y — P

PIN

TUBE I.D.

TYPE

Y: for Y & I connector
D: for end cover D type



P: With split pin

Tightening torque

Tube I.D.	Rod thread	Tightening torque (kgf·cm)	End cap thread	Tightening torque (kgf·cm)
ø6	M3×0.5	4.79	M6×1.0	24.6~26.6
ø10	M4×0.7	11.8	M8×1.0	60~65
ø16	M5×0.8	22.8	M10×1.0	110~120

* Make sure the tightening torque within the value above, and avoid breaking the thread.
* The tolerance of tightening torque is ±5%.

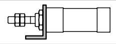
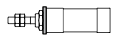
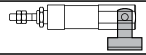
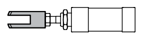
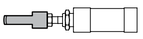
Mounting accessories

FA — PCMJ — 16

MODEL

TUBE I.D.

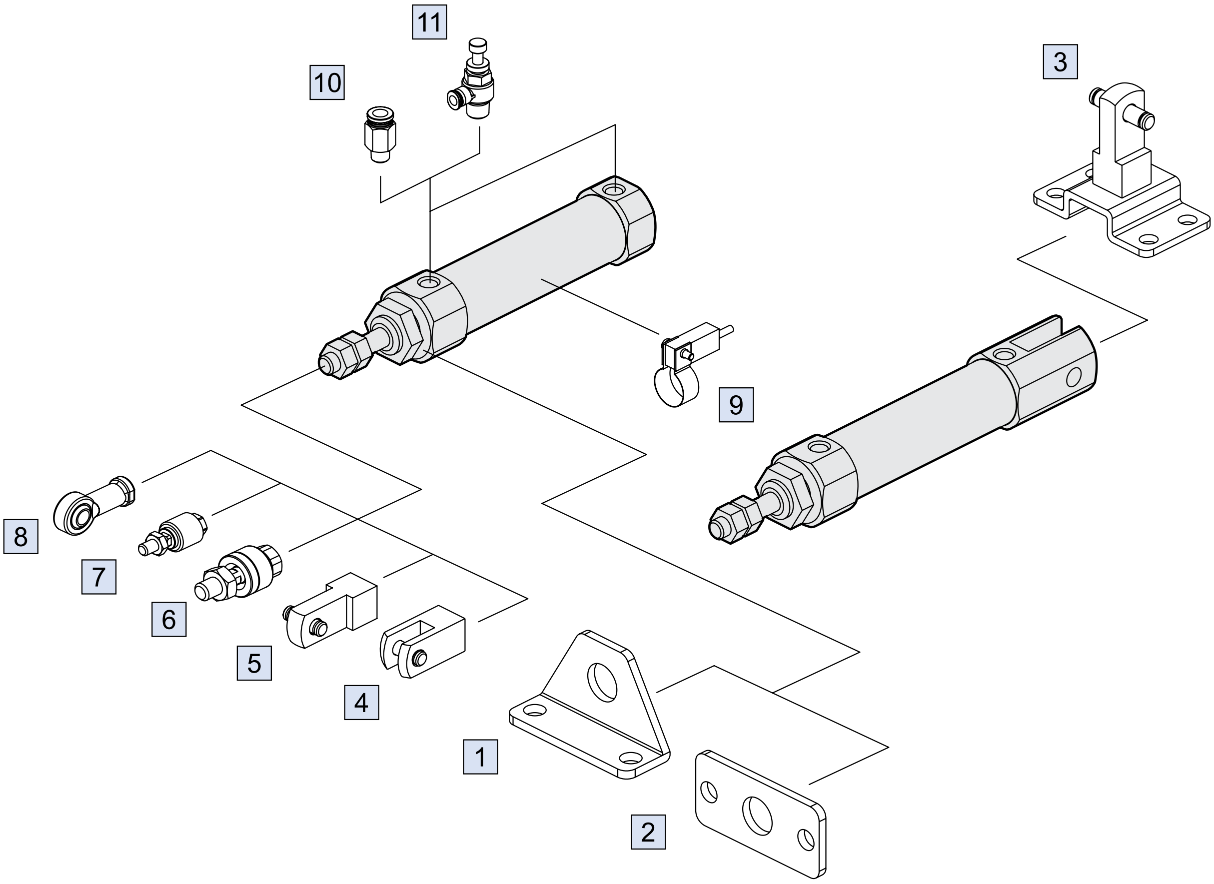
MOUNTING TYPE

	**LB**
	**FA**
	**T** (+I+PIN)*
	**Y**
	**I**

* Contains I+PIN

PCMJ Accessories

PEN CYLINDER



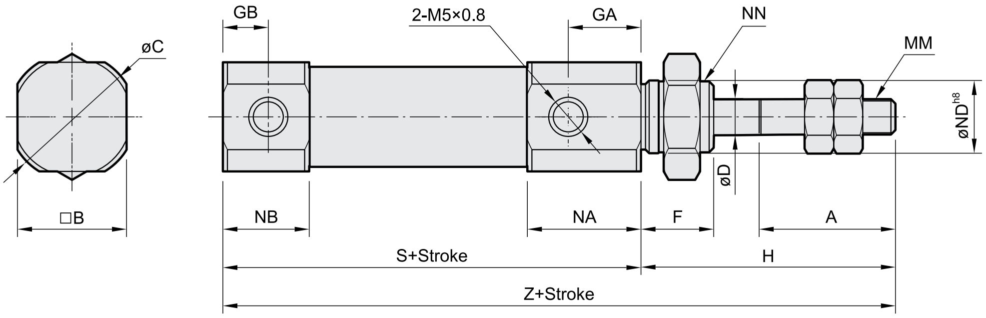
No.	Accessories	Material
1	Mounting accessories LB	Carbon steel
2	Mounting accessories FA	Carbon steel
3	Mounting accessories T+I+PIN (*)	Carbon steel
4	Accessories Y+PIN	Carbon steel
5	Accessories I+PIN	Carbon steel
6	Floating joint PFC	Carbon steel

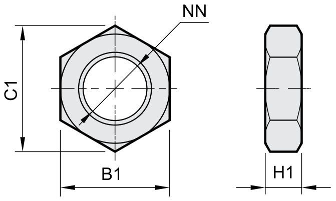
No.	Accessories	Material
7	Floating joint PFCS	Carbon steel
8	Female rod ends PHS	Carbon steel
9	Sensor switch RCM+BM**	–
10	Fitting PC (PISCO)	–
11	Speed controller JSC (PISCO)	–

* Contains I+PIN. Only for end cover "D" type.

PCMJ Dimensions-Double acting ø10~ø16

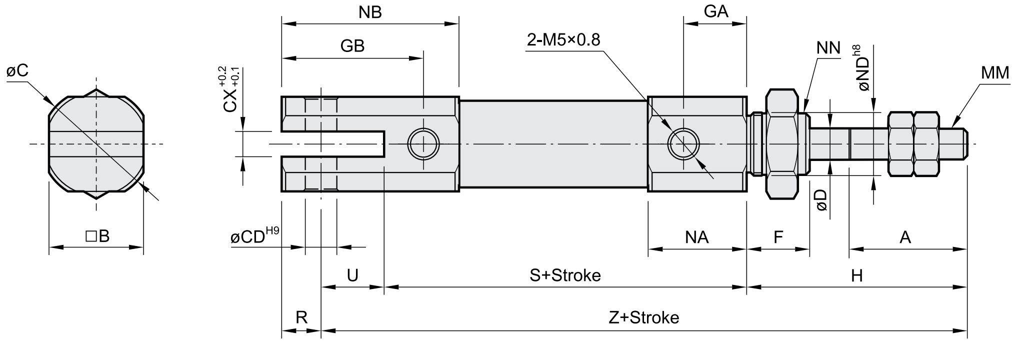
B

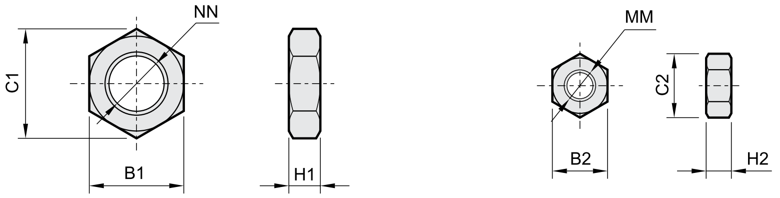




Code Tube I.D.	A	B	B1	B2	C	C1	C2	D	F	GA	GB	H	H1	H2	MM	NA	NB	ND^{h8}	NN	S	Z
10	15	12	11	7	14	11.5	8.1	4	8	8	5	28	4	3.2	M4×0.7	12.5	9.5	8 $^{0}_{-0.022}$	M8×1.0	46	74
16	15	18	14	8	20	16.2	9.2	5	8	8	5	28	4	4	M5×0.8	12.5	9.5	10 $^{0}_{-0.022}$	M10×1.0	47	75

D





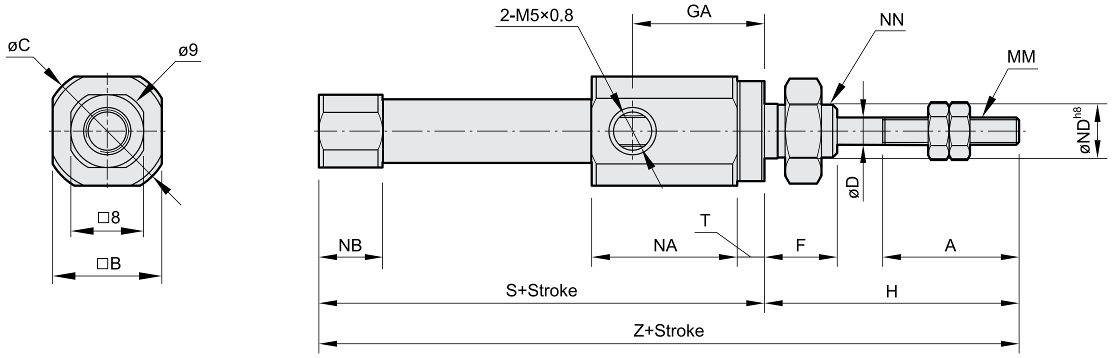
Code Tube I.D.	A	B	B1	B2	C	CD	CX	C1	C2	D	F	GA	GB	H	H1	H2	MM	NA	NB	ND^{h8}	NN	R	S	U	Z
10	15	12	11	7	14	3.3	3.2	12.7	8.1	4	8	8	18	28	4	3.2	M4×0.7	12.5	22.5	8 $^{0}_{-0.022}$	M8×1.0	5	46	8	82
16	15	18	14	8	20	5	6.5	16.2	9.2	5	8	8	23	28	4	4	M5×0.8	12.5	27.5	10 $^{0}_{-0.022}$	M10×1.0	8	47	10	85

PCMJ Dimensions-Double acting ø6~ø16

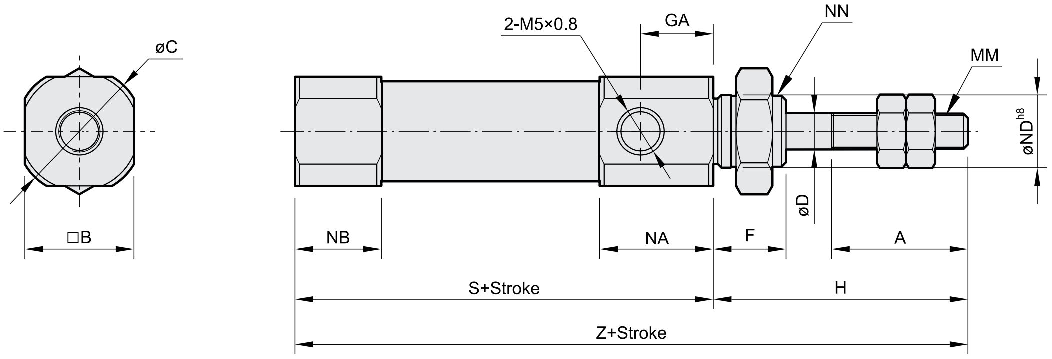
PEN CYLINDER

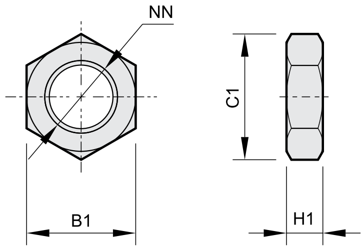
R

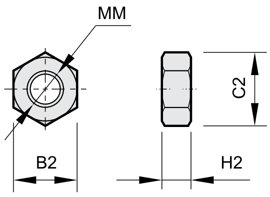
ø6



ø10~ø16







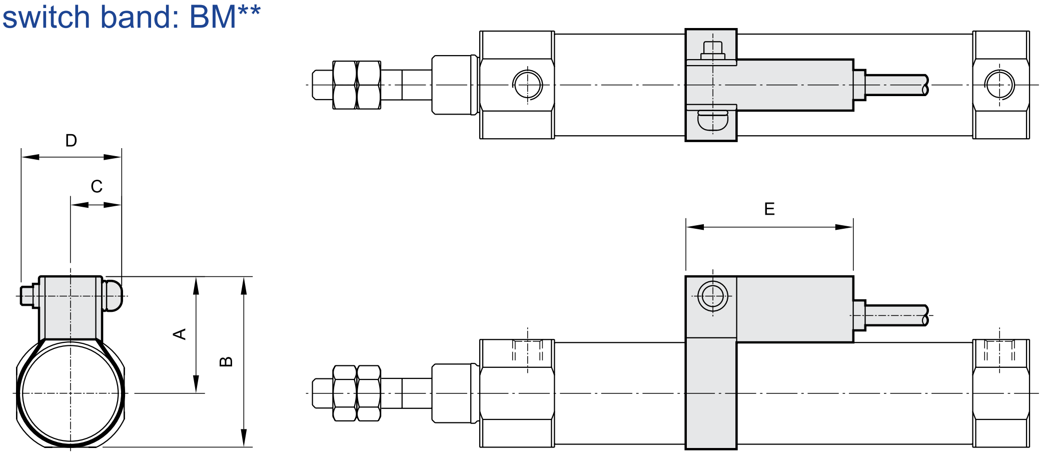
Code Tube I.D.	A	B	B1	B2	C	C1	C2	D	F	GA	H	H1	H2	MM	NA	NB	ND^{h8}	NN	S	T	Z
6	15	12	8	5.5	14	9.2	6.4	3	8	14.5	28	4	2.4	M3×0.5	16	7	$6\ ^{0}_{-0.022}$	M6×1.0	49	3	77
10	15	12	11	7	14	12.7	8.1	4	8	8	28	4	3.2	M4×0.7	12.5	9.5	$8\ ^{0}_{-0.022}$	M8×1.0	46	—	74
16	15	18	14	8	20	16.2	9.2	5	8	8	28	4	4	M5×0.8	12.5	9.5	$10\ ^{0}_{-0.022}$	M10×1.0	47	—	75

PCMJ Installation of sensor switch ø6~ø16

PEN CYLINDER

■ Installation of sensor switch

Sensor switch: RCM
Sensor switch band: BM**

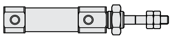
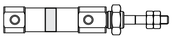
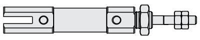
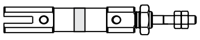
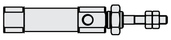
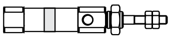


Code Tube I.D.	A	B	C	D	E
6	15	21	10	16	28
10	17	23	10	16	28
16	20	29	10	16	28

■ Cylinder & accessories weight

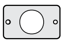
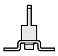
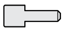
Cylinder weight

Unit: g

Model	Basic weight **PCMJ-11-B**	Stroke 15 mm **PCMJ-11-B**	Basic weight **PCMJ-11-D**	Stroke 15 mm **PCMJ-11-D**	Basic weight **PCMJ-11-R**	Stroke 15 mm **PCMJ-11-R**
Tube I.D.						
ø6	–	–	–	–	18	2
ø10	21	4	24	4	23	3
ø16	46	7	52	8	46	7

Accessories weight

Unit: g

Model	LB	FA	T	Y	I	Pin
Tube I.D.						
ø6	9	5	–	–	–	–
ø10	9	5	14	22	16	1
ø16	21	13	54	17	21	3

PCGS Series ø6, ø10

TWIN-GUIDE CYLINDER

Features

- Multi-ports as standard enabling both direction mounting.
- Non-rotating accuracy ± 0.1°
- 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.

Specification

Model	PCGS	
Acting type	Double acting	
Tube I.D. (mm)	6	10
Stroke (mm)	5, 10, 15	5, 10, 15, 20
Port size	M3×0.5	
Medium	Air	
Max. operating perssure	0.7 MPa	
Min. operating perssure	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.

Order example

PCGS — 6 — 10

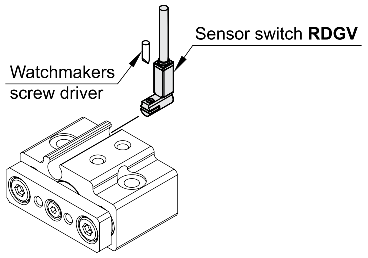
MODEL TUBE I.D. STROKE

Cylinder weight

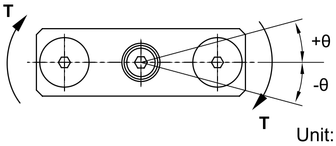
Unit: g

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

Installation of sensor switch



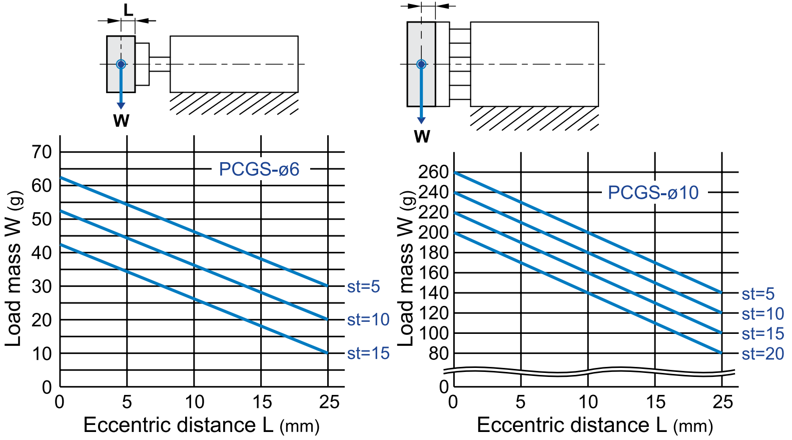
Allowable rotational torque & Non-rotating accuracy



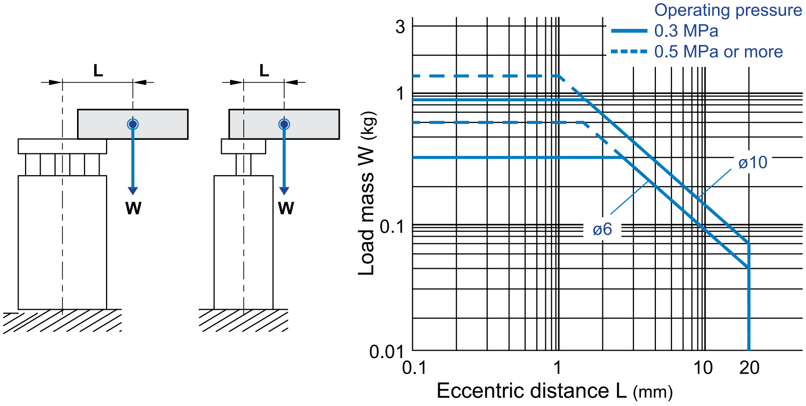
Unit: N.m

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

Allowable lateral load

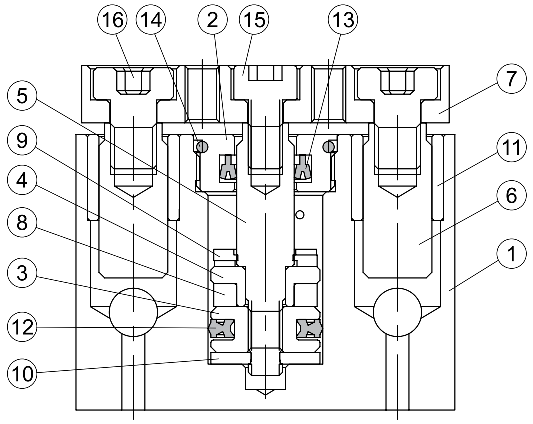


Allowable eccentric load



PCGS Inside structure & Parts list ø6, ø10

Inside structure & Parts list



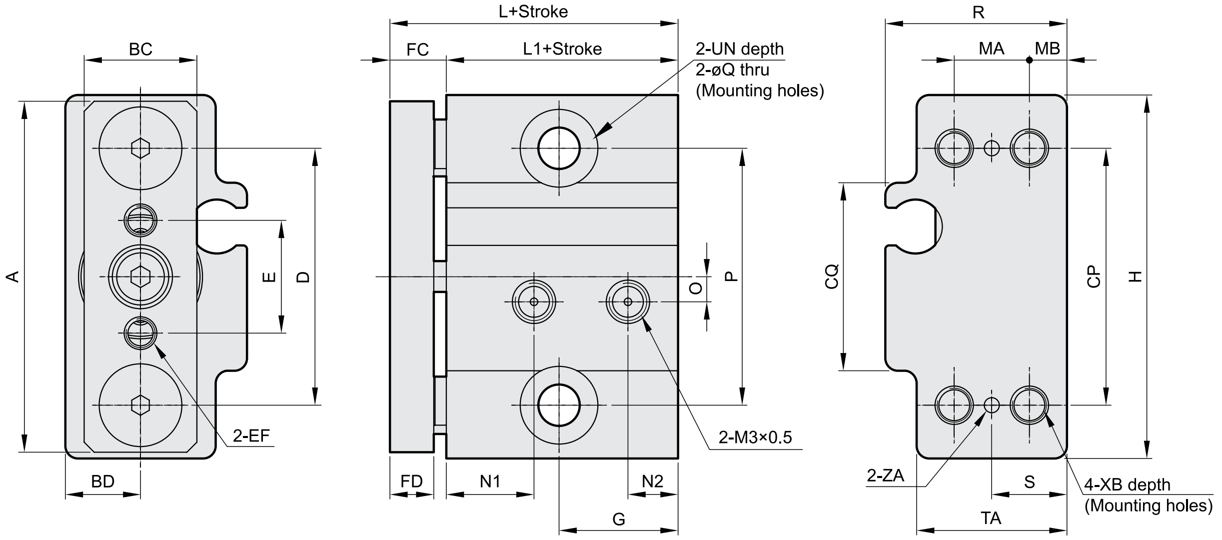
Material

No.	Part name	Material	Q'y	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	

Order example of repair kits

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

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

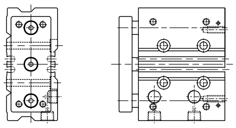
PCGS Series ø12~ø63

TWIN-GUIDE CYLINDER

Features

- Proven track record in manufacturing precision guided cylinders.
- Multi-Ports as standard enabling two direction mounting option.
- Flush fitting sensors.
- Magnetic as standard

Specification

Model	PCGS		
Model			
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 perssure 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 example

PCGS – 03 – 12 – 50 – 20 – G

MODEL

TUBE I.D.

STROKE

ADJUST STROKE
(for 07, 27 type)

PORT THREAD
Blank: M5×0.8
(for ø12, ø16)
Blank: Rc thread
G: G thread
NPT: NPT thread
(for ø20~ø63)

PURPOSE / TYPE OF BEARING

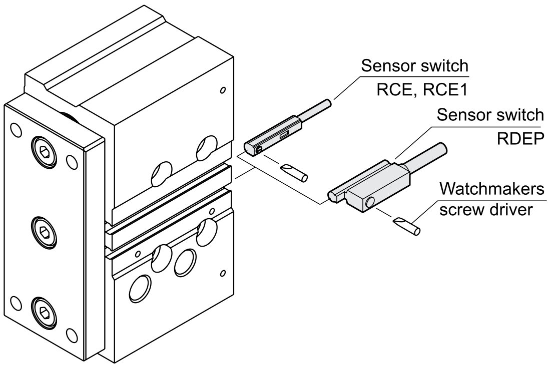
Code	Purpose / Type of bearing
03	Stop / Slide bush
07	Stop / Slide bush / Stroke adjustable
23	Push / Linear bearing (Could attach a table for the use as a lifter)
27	Push / Linear bearing / Stroke adjustable (Could attach a table for the use as a lifter)

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			●			●	●	●	●	●	●	●	●	●	●	●
	ø63			●			●	●	●	●	●						
PCGS-23 **PCGS-27** (Linear bearing)	ø12	●	●		●	●	●	●	●	●	●	●	●	●			
	ø16	●	●		●	●	●	●	●	●	●	●	●	●			
	ø20		●		●	●	●	●	●	●	●	●	●	●	●	●	●
	ø25		●		●	●	●	●	●	●	●	●	●	●	●	●	●
	ø32*			●			●	●	●	●	●	●	●	●	●	●	●
	ø40			●			●	●	●	●	●	●	●	●	●	●	●
	ø50			●			●	●	●	●	●	●	●	●	●	●	●
	ø63			●			●	●	●	●	●						

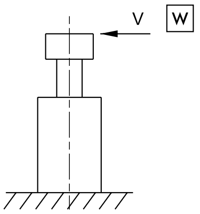
* Tube I.D. ø32: 25mm for the shortest standard stroke.
* Adjustable air cushion type, please contact us.

Installation of sensor switch

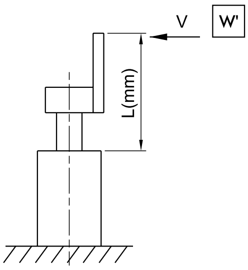


Capacity graph

Capacity for the use as a stopper



Linear bearing type is not available as a stopper.



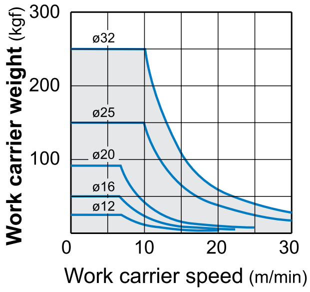
$$W = W' \times \frac{L}{\ell}$$

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

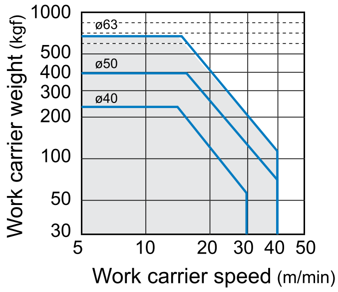
W: The maximum weight of the work carrier in the above graph for the stopper's capacity.

Stop capacity

PCGS-03/07 ...30st ø12~ø32

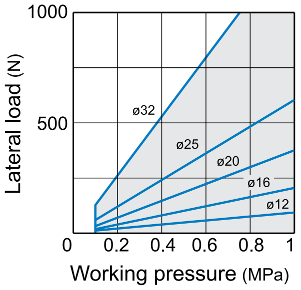


PCGS-03/07 ...25st ø40~ø63



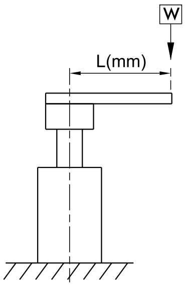
Normal lateral load

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

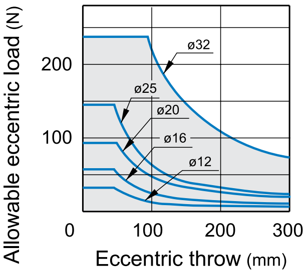
Allowable eccentricity load for the use as a lifter (at supply pressure 0.5 MPa)

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

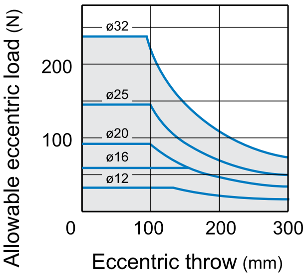
Slide bush

PCGS-03/07

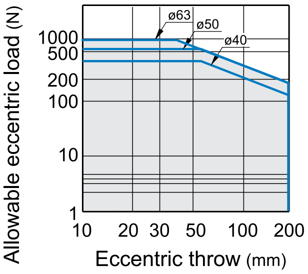
ø12~ø32...10-50st



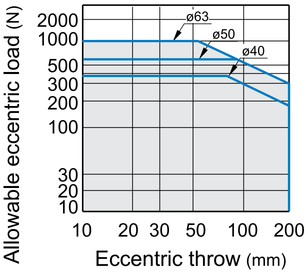
ø12~ø32...Over 51st



ø40~ø63...25-50st



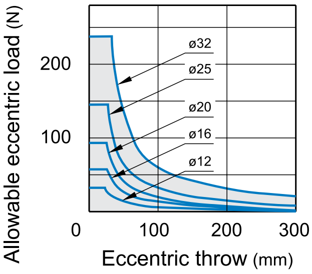
ø40~ø63...Over 51st



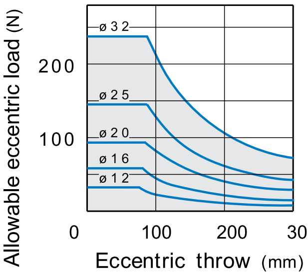
Linear bearing

PCGS-23/27

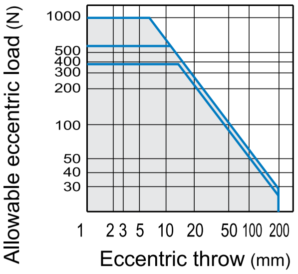
ø12~ø32...10-50st



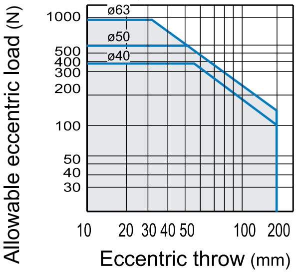
ø12~ø32...Over 51st



ø40~ø63...25-50st



ø40~ø63...Over 51st

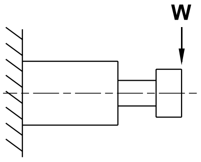


PCGS Capacity ø12~ø63

TWIN-GUIDE CYLINDER

Capacity table

Allowable lateral load

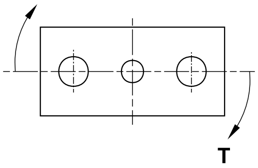


Shows the dynamic allowable value, when actuating the cylinder with lateral load W at the guide rods' top (vertical load against the guide rods).

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**
ø12	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	—	—	—
ø16	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	—	—	—
ø20	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
ø25	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
ø32	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
ø40	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
ø50	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
ø63	Slide bush	—	—	296	—	—	245	273	241	216	195	—	—	—	—	—	—
	Linear bearing	—	—	117	—	—	81	176	145	145	126	—	—	—	—	—	—

Allowable rotating torque

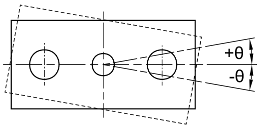


Shows the dynamic allowable value, when actuating the cylinder with a rotating torque T at the guide rods' top.

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**
ø12	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	—	—	—
ø16	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	—	—	—
ø20	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
ø25	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
ø32	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
ø40	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
ø50	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
ø63	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

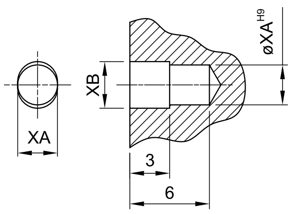


- The values are the deflection angle against the piston rod.
- Exclusive factor of the guide rods' deflection.

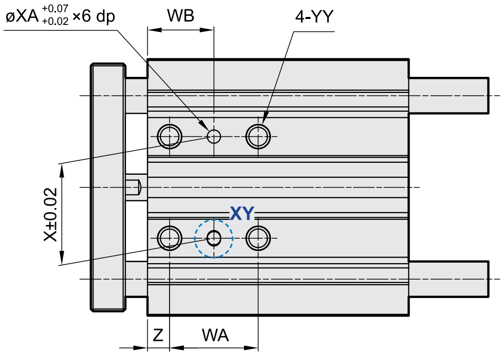
Tube I.D.	Bearing type	Anti-roll accuracy
		θ
ø12	Slide bush	±0.09°
	Linear bearing	±0.06°
ø16	Slide bush	±0.08°
	Linear bearing	±0.06°
ø20	Slide bush	±0.08°
	Linear bearing	±0.03°
ø25	Slide bush	±0.07°
	Linear bearing	±0.05°
ø32	Slide bush	±0.07°
	Linear bearing	±0.03°
ø40	Slide bush	±0.06°
	Linear bearing	±0.08°
ø50	Slide bush	±0.05°
	Linear bearing	±0.06°
ø63	Slide bush	±0.05°
	Linear bearing	±0.06°

PCGS-03/23 Dimensions ø12~ø32

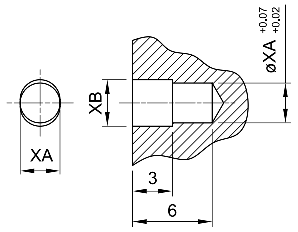
TWIN-GUIDE CYLINDER



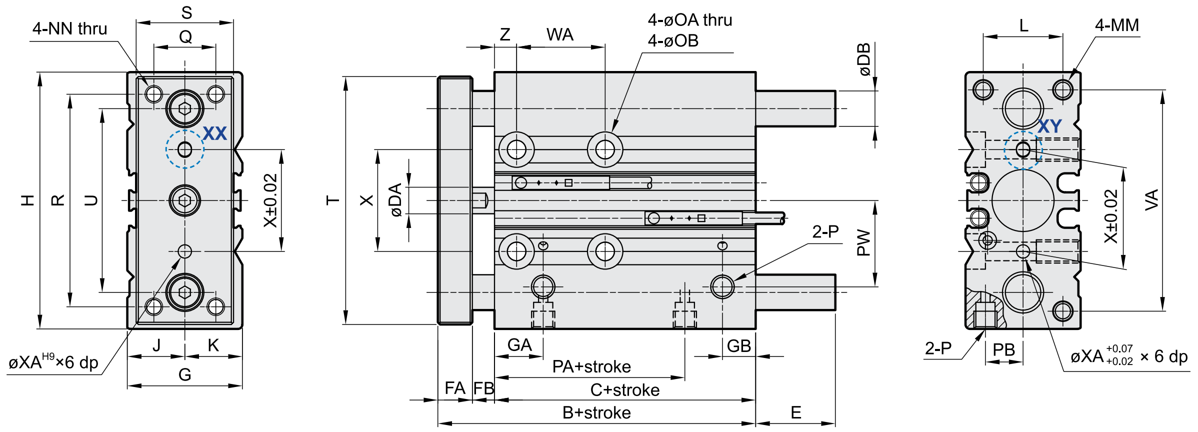
XX



Back side



XY



PCGS-03 / PCGS-23

Code / Tube I.D.	B	C	DA	DB		FA	FB	G	GA	GB	H	J	K	L	MM	NN	OA	OB	P	PA	PB
				03 type	23 type																
12	42	29	6	8	6	8	5	26	11	15(*1)	58	13	13	18	M4×0.7×10dp	M4×0.7	4.3	8.0×4.5dp	M5×0.8	14	8.5
16	46	33	8	10	8	8	5	30	11	18(*2)	64	15	15	22	M5×0.8×12dp	M5×0.8	4.3	8.0×4.5dp	M5×0.8	15	10.0
20	53	37	10	12	10	10	6	36	10.5	8.5	85	17	19	24	M5×0.8×13dp	M5×0.8	5.2	9.5×5.5dp	Rc1/8	12.5	11.5
25	53.5	37.5	12	16	13	10	6	42	11.5	9	96	21	21	30	M6×1.0×15dp	M6×1.0	5.2	9.5×5.5dp	Rc1/8	12.5	13.5
32	59.5	37.5	16	20	16	12	10	51	12.5	9	116	26	25	34	M8×1.25×20dp	M8×1.25	6.6	11.0×7.5dp	Rc1/8	7	16.0

Code / Tube I.D.	PW	Q	R	S	T	U	VA	X	XA	XB	YY	Z
12	18	14	48	22	56	41.5	50	23	3	3.5	M5×0.8×10dp	5
16	19	16	54	25	62	46	56	24	3	3.5	M5×0.8×10dp	5
20	25	18	70	30	81	55	72	28	3	3.5	M6×1.0×12dp	17
25	28.5	26	78	38	91	65	82	34	4	4.5	M6×1.0×12dp	17
32	34	30	96	44	110	80	98	42	4	4.5	M8×1.25×16dp	21

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

Code / Tube I.D.	WA					WB				
	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

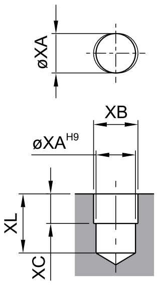
Code / Tube I.D.	E		
	10~50st	51~100st	101st~
12	—	18.5	43
16	—	18.5	49
	10~50st	51~200st	201st~
20	—	31.5	69
25	—	31.5	68.5
32	37.5	42.5	80.5

PCGS-23

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

PCGS-03/23 Dimensions ø40~ø63

TWIN-GUIDE CYLINDER



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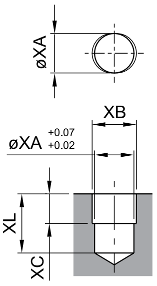
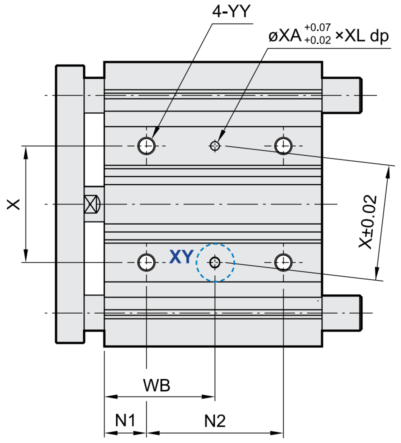
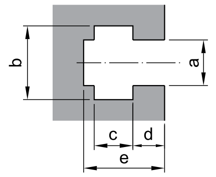


XY



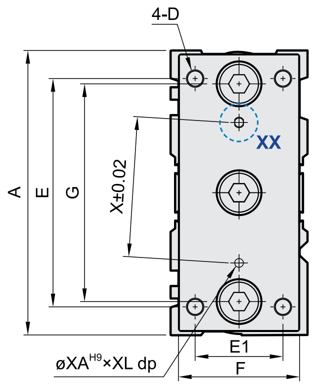
Back side

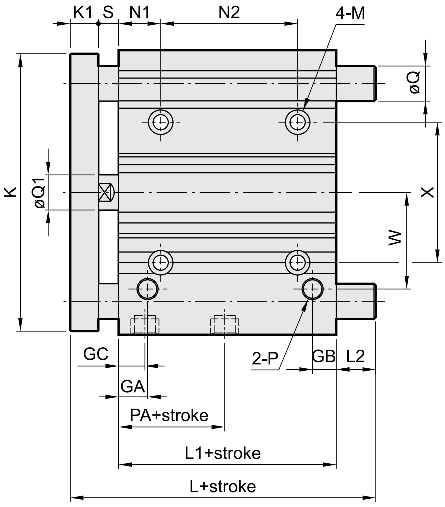
T slot for hexagon head bolt

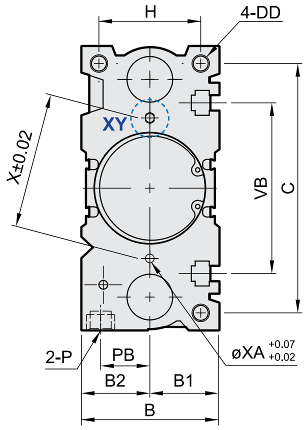


T slot for hexagon head bolt

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	ø6.8thru, ø11×7.5dp	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	ø8.6thru, ø14×9dp	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	ø8.6thru, ø14×9dp	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	ø4	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	ø5	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	ø5	6	4	8	M10×1.5×20 dp	28	52	128	—	—	38	50	88	—	—

PCGS-03

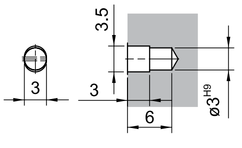
Code / Tube I.D.	L		L2			Q
	25,50st	51st~	25,50st	51~200st	201~400st	
40	97	102	31	36	63.5	ø20
50	106.5	118	34.5	46	78.5	ø25
63	106.5	118	29.5	41	—	ø25

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	ø16
50	93	114	134	21	42	62	87.5	ø20
63	93	114	134	16	37	57	—	ø20

PCGS-07/27 Dimensions ø12~ø20

TWIN-GUIDE CYLINDER



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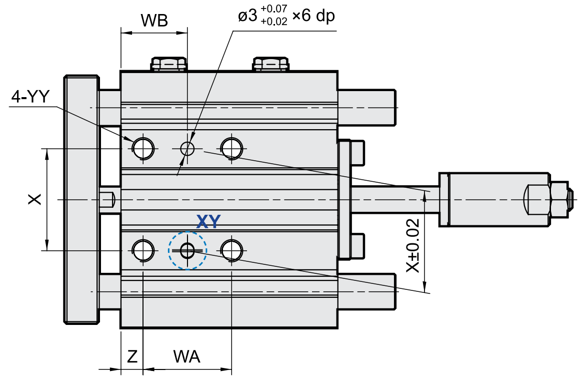
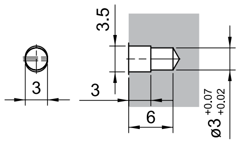


Back side



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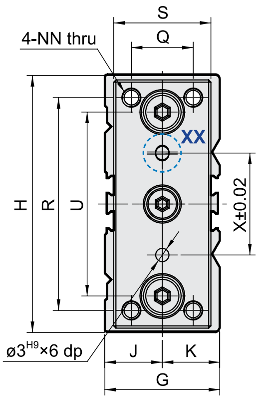
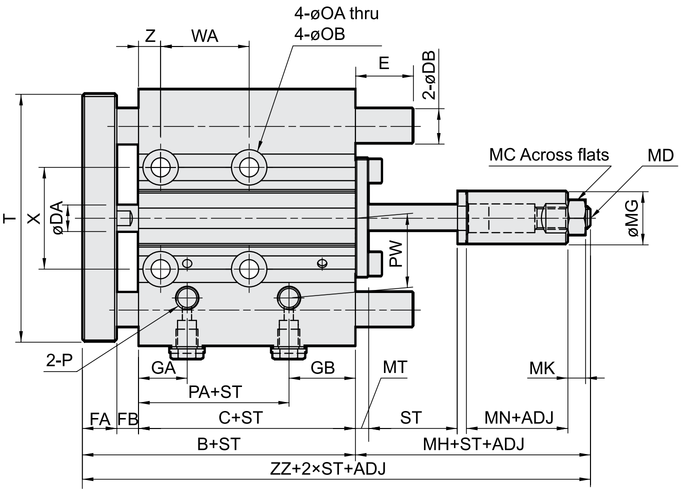
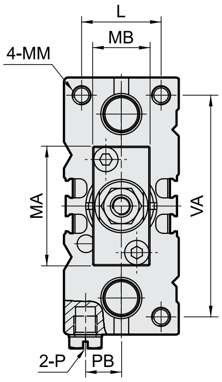






*ST = Stroke
ADJ = Adjust stroke

PCGS-07 / PCGS-27

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	MT
				07 type	27 type																			
12	42	29	6	8	6	8	5	26	11	15(*1)	58	13	13	18	27	13	8	M5×0.8	12	23	4	13	M4×0.7×10dp	3
16	46	33	8	10	8	8	5	30	11	18(*2)	64	15	15	22	28	16	10	M6×1.0	15	26	5	15	M5×0.8×12dp	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	M5×0.8×13dp	4

Code / Tube I.D.	NN	OA	OB	P	PA	PB	PW	Q	R	S	T	U	VA	X	YY	Z	ZZ
12	M4×0.7	4.3	8×4.5dp	M5×0.8	14	8.5	18	14	48	22	56	41.5	50	23	M5×0.8×10dp	5	65
16	M5×0.8	4.3	8×4.5dp	M5×0.8	15	10.0	19	16	54	25	62	46	56	24	M5×0.8×10dp	5	72
20	M5×0.8	5.2	9.5×5.5dp	Rc1/8	12.5	11.5	25	18	70	30	81	55	72	28	M6×1.0×12dp	17	79

Code / Tube I.D.	WA					WB				
	10~39st	40~100st	125~200st	201st~300st		10~39st	40~100st	125~200st	201~300st	
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

PCGS-07

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

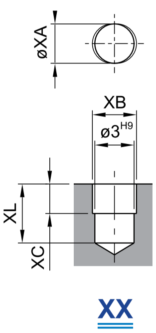
PCGS-27

Code / Tube I.D.	E			
	~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

*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-07/27 Dimensions ø25~ø63

TWIN-GUIDE CYLINDER



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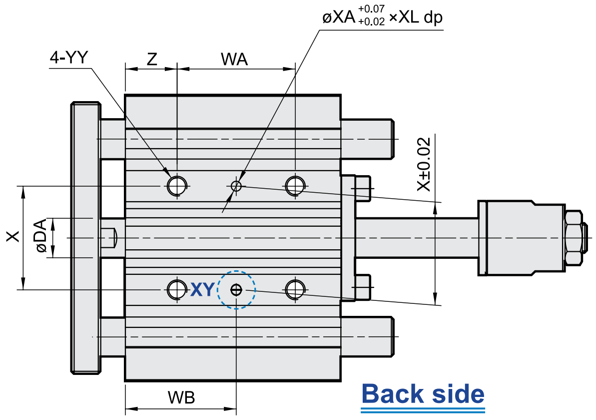
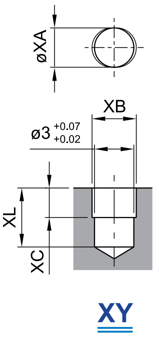
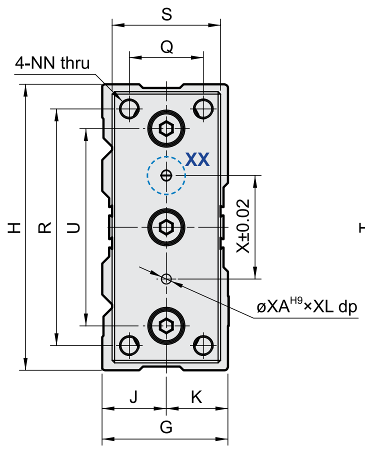
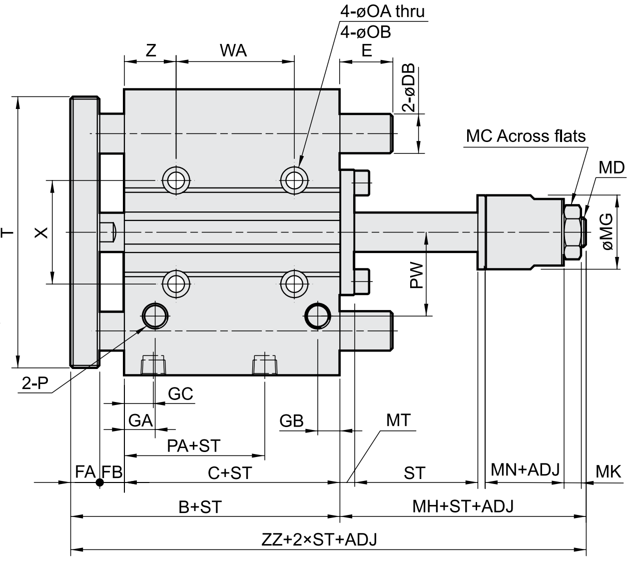


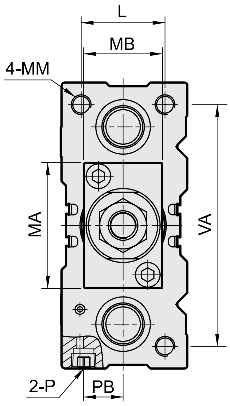
Back side



XY







*ST = Stroke
ADJ = Adjust stroke

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	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	M6×1.0×15dp	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	M8×1.25×20dp	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	M8×1.25×20dp	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	M10×1.5×22dp	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	M10×1.5×22dp	8

Code / Tube I.D.	NN	OA	OB	P	PA	PB	PW	Q	R	S	T	U	VA	X	XA	XB	XC	XL	YY	Z	ZZ
25	M6×1.0	5.2	9.5×5.5dp	Rc1/8	12.5	13.5	28.5	26	78	38	91	65	82	34	4	4.5	3	6	M6×1.0×12dp	17	80.5
32	M8×1.25	6.6	11×7.5dp	Rc1/8	7	16	34	30	96	44	110	80	98	42	4	4.5	3	6	M8×1.25×16dp	21	89.5
40	M8×1.25	6.8	11×7.5dp	Rc1/8	13	18	38	30	104	44	118	86	106	50	4	4.5	3	6	M8×1.25×16dp	22	96
50	M10×1.5	8.6	14×9dp	Rc1/4	9	21.5	47	40	130	60	146	110	130	66	5	6	4	8	M10×1.5×20dp	24	110
63	M10×1.5	8.6	14×9dp	Rc1/4	14	28	55	50	130	70	158	124	142	80	5	6	4	8	M10×1.5×20dp	24	115

Code / Tube I.D.	WA						WB					
	~39st	40~100st		125~200st	201st~300st	301st~	~39st	40~100st		125~200st	201~300st	301st~
25	24	44		120	200	300	29	39		77	117	167
	~49st	50~100st		125~200st	201st~300st	301st~	~49st	50~100st		125~200st	201st~300st	301st~
32	24	48		124	200	300	33	45		83	121	171
	~49st	50~69st	70~100st	125~200st	201st~300st	301st~	~49st	50~69st	70~100st	125~200st	201st~300st	301st~
40	24	48	48	124	200	300	34	46	46	84	122	172
	~49st	50~69st	70~100st	125~200st	201st~300st	301st~	~49st	50~69st	70~100st	125~200st	201st~300st	301st~
50	24	48	48	124	200	300	36	48	48	86	124	174
	~49st	50~100st		125st~			~49st	50~100st		125st~		
63	28	52		128			38	50		88		

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
	~50st	51st~	
63	29.5	41	

PCGS-27

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

Handling

⚠ Caution

❶ **Please control the cylinder within the allowable speed range**:

If the cylinder is not using the speed control valve, it may occur beyond the speed range of the piston. If it is used outside the allowable speed range, it will cause cylinder damage or reduce product life. Therefore, please install the speed control valve and adjust the speed within the allowable range. The product allowable speed is shown in Table 1.

❷ **Please note the speed control during vertical installation**:

When the cylinder is used vertically, if the load rate is large, it will cause the speed control valve to exceed the upper limit and could cause sudden unintended acceleration which will affect the product life. Therefore, it is recommended to use a dual speed controller.

❸ **The lateral load of the cylinder during the operation must be within the allowable range**:

Exceeding the allowable value will prevent the cylinder from operating properly and affect the life of the product.

❹ **Do not scratch the mounting surface of the cylinder body and end plate to avoid affecting the flatness**:

If the flatness of the mounting surface is poor, the cylinder will malfunction. The mounting surface of the cylinder body and the end plate should have a flatness of less than 0.05 mm.

❺ **Do not cause surface damage or impact marks on the operating parts of the piston rod and the guide rod**:

Damage to the appearance will result in damage to the seal ring which could cause leakage or malfunction of the cylinder.

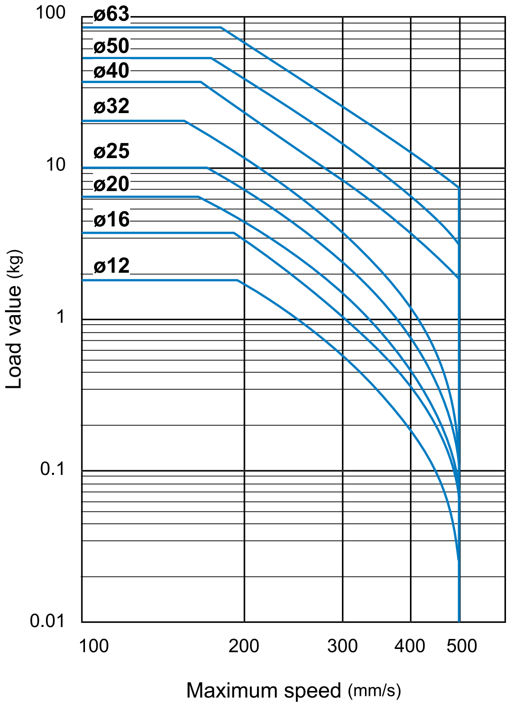
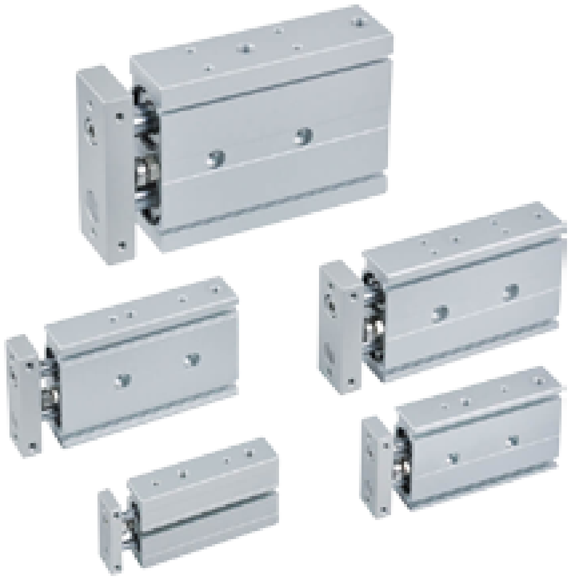
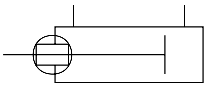


Table 1

PCDA Series

DUAL-ROD CYLINDER





Features

- Compact in width and length with precision guidance.
- High lateral loads can be applied on both slide and linear bearing unit.
- Magnetic as standard.

Specification

Model		PCDA					
Acting type		Double acting					
Tube I.D.(mm)		6	12	16	20	25	32
Port size		M5×0.8				Rc1/8	
Medium		Air					
Operating pressure range (MPa)	Max.	0.7					
	Min.	0.15	0.1		0.05		
Proof pressure		1 MPa					
Ambient temperature		-5~+60°C (No freezing)					
Cushion		With rubber cushion pad (both side)					
Available speed range		50~300	50~500 mm/sec				
Lubrication		Not required (If lubrication is used, apply turbine oil NO1 ISO VG32)					
Sensor switch		RCE, RCE1, RDEP					

Order example

PCDA — 03 — 12 — 50 — □

MODEL

TUBE I.D.

TYPE OF BEARING

03	Slide bush
23	Linear bearing

STROKE

PORT THREAD
Blank: M5×0.8
(for ø6~ø20)
Blank: Rc thread
G: G thread
NPT: NPT thread
(for ø25, ø32)

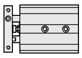
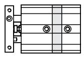
Table for standard stroke

Tube I.D.	Stroke (mm)
ø6	10,20,30,40,50
ø12	10,15,20,25,30,35,40,45,50,60,70,75,80,90,100,110,120,125,150
ø16	10,15,20,25,30,35,40,45,50,60,70,75,80,90,100,110,120,125,150
ø20	10,15,20,25,30,35,40,45,50,60,70,75,80,90,100,110,120,125,150,175,200
ø25	
ø32	

- Please contact us if the stroke is out of specification.
- It is possible to adjust length of basic stroke by 0~5mm.

Cylinder weight

Unit: g

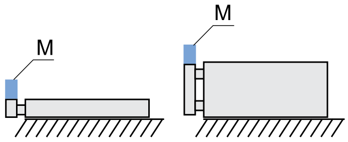
Model	Basic weight **PCDA**	Stroke 5mm **PCDA**
Tube I.D.		
ø6	85.8	7.5
ø12	150	8
ø16	222	13
ø20	376	18
ø25	557	27
ø32	1105	42

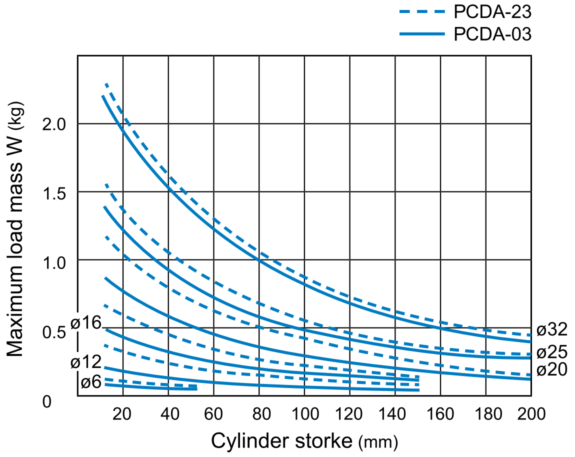
PCDA Capacity & Installation of sensor switch ø6~ø32

DUAL-ROD CYLINDER

Maximum load mass

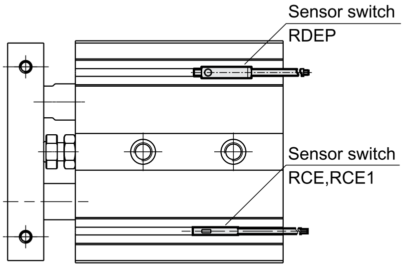
When the cylinder mounted as shown in the diagrams below, the maximum load mass W should not exceed the values illustrated in the graph.



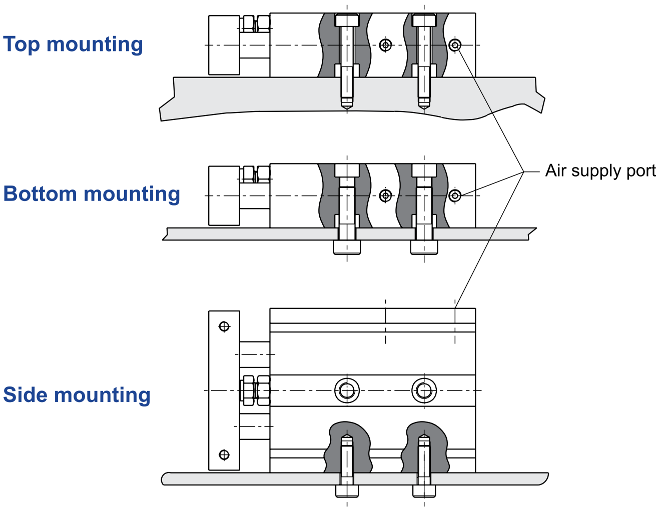


Installation of sensor switch

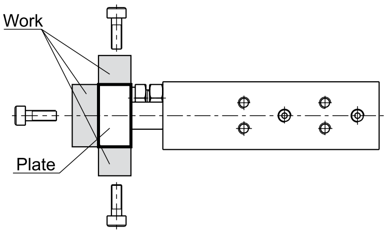
Sensor switch: RCE, RCE1, RDEP



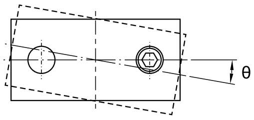
Mounting methods



Work can be mounted on three faces of the rod square plate.



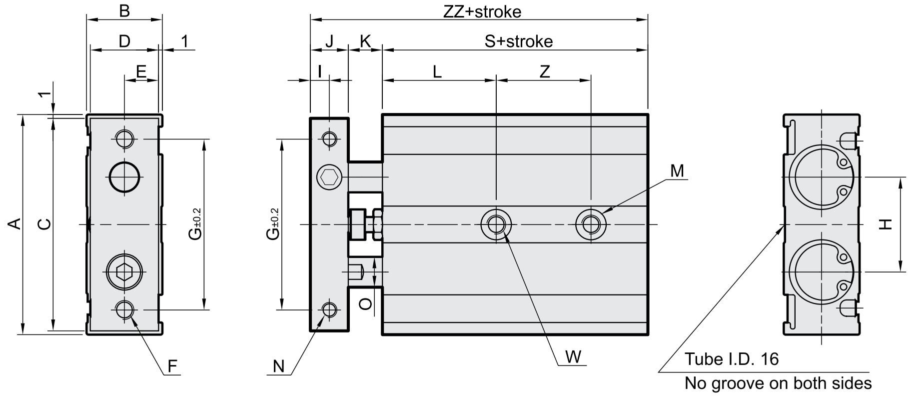
Anti-roll accuracy



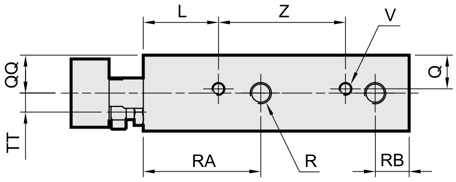
Code / Type	θ				
	ø6	ø12	ø16	ø20	ø25, ø32
PCDA-03	±0.3°	±0.45°	±0.35°	±0.3°	±0.25°
PCDA-23	±0.25°		±0.2°		±0.15°

PCDA Dimension ø6~ø32

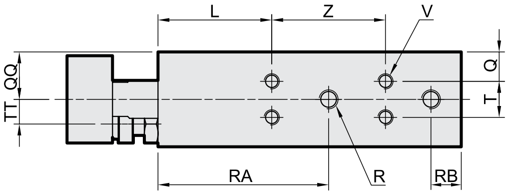
DUAL-ROD CYLINDER



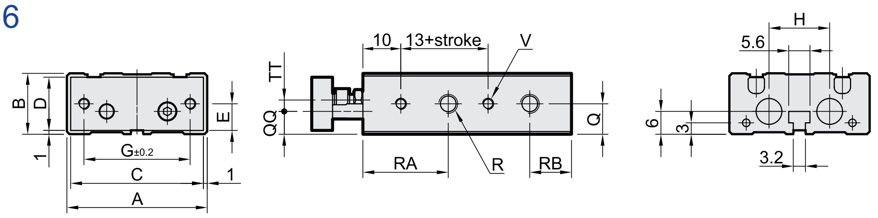
ø12, ø16



ø20~ø32



ø6



PCDA-03 / 23

Code Tube I.D.	A	B	C	D	E	F (Thru)	G	H	I	J	K	L	M (Both side)	N (Both side)	O	Q	QQ	R (Both side)	RA	RB	S	T
6	37	16	35	14	7	2-M3×0.5	28	16	2.75	5.5	8	13	2-ø6.5×3.3dp *1	2-M3×0.5 thru	4	8	6	4-M5×0.8	22.5	11	45	–
12	46	18	44	16	8	2-M4×0.7	35	19	4	8	9	20	4-ø6.5×3.3dp	4-M3×0.5×5dp	6	9	10	4-M5×0.8	30	8	55	–
16	58	20	56	18	9	2-M5×0.8	45	25	5	10	9	30	4-ø8×4.4dp	4-M4×0.7×6dp	8	10	10	4-M5×0.8	38.5	8	60	–
20	64	25	62	23	11.5	2-M5×0.8	50	28	6	12	12	30	4-ø9.5×5.3dp	4-M4×0.7×6dp	10	7.75	12.5	4-M5×0.8	45	8	70	9.5
25	80	30	78	28	14	2-M6×1.0	60	35	6	12	12	30	4-ø11×6.3dp	4-M5×0.8×8dp	12	8.5	15	4-Rc1/8	46	9	72	13
32	98	38	96	36	18	2-M6×1.0	75	44	8	16	14	30	4-ø11×6.3dp	4-M5×0.8×8dp	16	9	19	4-Rc1/8	56	10	82	20

Code Tube I.D.	TT	V (Both side)	W (Thru)	Z (Stroke)							ZZ
				10,15,20,25	30,35,40,45,50	60,70,75,80	90,100	110,120,125	150	175,200	
6	3	4-M3×0.5×4.5dp	2-ø3.4	10+1/2 stroke *2							58.5
12	3.5	4-M3×0.5×4.5dp	2-M4×0.7	30	40	50	60	70	80	–	72
16	5	4-M4×0.7×5dp	2-M5×0.8	25	35	45	55	65	75	–	79
20	6.5	8-M4×0.7×5.5dp	2-M6×1.0	30	40	60		80		100	94
25	9	8-M5×0.8×7.5dp	2-M8×1.25	30	40	60		80		100	96
32	11.5	8-M5×0.8×7.5dp	2-M8×1.25	40	50	70		90		110	112

*1. ø6- single side.
*2. ø6- stroke (10, 20, 30, 40, 50)

PCSS Series

SLIDE CYLINDER

Features

- High precision combination of cylinder and linear rail.
- Flush fitting sensor groove.
- Provide optional combination for stroke adjuster and end lock (for vertical installation to prevent falling).
- 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)					
End lock Operating speed range	–	50~500 mm/sec				
End lock Holding force (N)	–	25	60	110	160	250
Sensor switch	RCE, RCE1, RDEP					

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
ø20, 25	10, 20, 30, 40, 50, 75, 100, 125, 150

Order example

PCSS — 20 L — 50 — AS — X12 — HL — ☐

MODEL

TUBE I.D.

Blank: Standard
L: Symmetric style

STROKE

(*1)
STROKE ADJUSTER
Blank: Without adjuster
AS: Adjuster at extension end
AT: Adjuster at retraction end
A: Adjuster at both ends
BS: Absorber at extension end
BT: Absorber at retraction end
B: Absorber at both ends
AB: Adjuster at extension end+Absorber at retraction end
BA: Absorber at extension end+Adjuster at retraction end

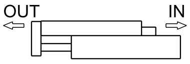
(*2)
ADJUSTABLE RANGE
Blank: 5mm
X11: 15mm
X12: 25mm
(Only for stroke adjuster)

(*3,*4)
END LOCK
Blank: Without
HL: With end lock
(for ø8~ø25)

PORT THREAD
Blank: M thread
(for ø6~ø16)
Blank: Rc thread
G: G thread
NPT: NPT thread
(for ø20,ø25)

*1. Adjustable range is not available for shock absorber type. Shock absorber is not available for PCSS-6.
*2. **X12** (adjustable range: 25mm) is not available for PCSS-6.
*3. End lock (**HL**) not suit for symmetric style (**L**) and PCSS-6.

Theoretical force



Unit: N

Tube I.D. (mm)	Piston rod (mm)	Operating direction	Piston area (mm²)	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

(*4) Option combination

End lock / Stroke adj.	Blank	HL
Blank	○	○
AS	○	○
AT	○	×
A	○	×
BS	○	○
BT	○	×
B	○	×
AB	○	×
BA	○	×

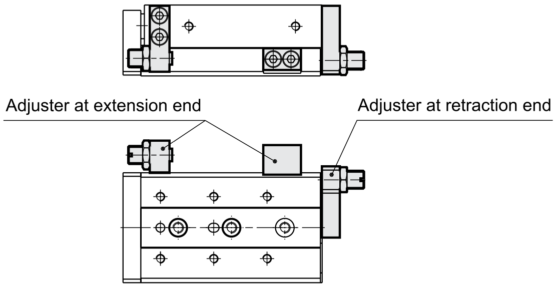
PCSS Options & Installation of sensor switch

SLIDE CYLINDER

Options

Stroke adjuster

- Adjustable stroke range:
  0~5mm (Standard), 0~15mm (-X11), 0~25mm (-X12)
  AS: Adjuster at extension end
  AT: Adjuster at retraction end
  A: Adjuster at both ends

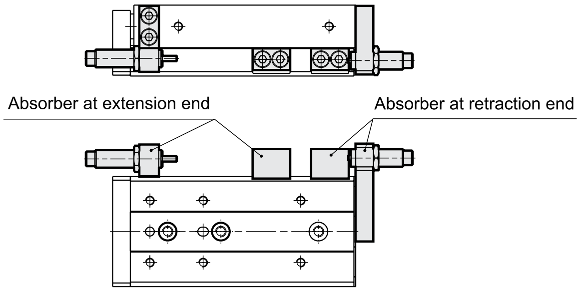


- Tightening torque of mounting bolts
  Insufficient torque will cause a decrease in the positioning accuracy and lead to malfunction.

Tube I.D. (mm)	Adjuster at extension end (AS)				Adjuster at retraction end (AT)	
	Body mounting section		Table mounting section			
	Bolt size	Tightening torque (N.m)	Bolt size	Tightening torque (N.m)	Bolt size	Tightening torque (N.m)
6	M2.5×10	0.5	M2.5×8	0.5	M2.5×8	0.5
8	M3×12	0.9	M3×10	0.9	M3×10	0.9
12	M4×15	2.1	M4×12	2.1	M4×8	2.1
16	M5×18	4.4	M5×18	4.4	M5×10	4.4
20	M6×20	7.0	M6×20	7.0	M5×12	4.4
25	M8×25	18.0	M8×25	18.0	M6×16	7.0

With shock absorber

- Enable adjustment of stroke.
- Absorb the collision at stroke end and stops smoothly.
  BS: Absorber at extension end
  BT: Absorber at retraction end
  B: Absorber at both ends

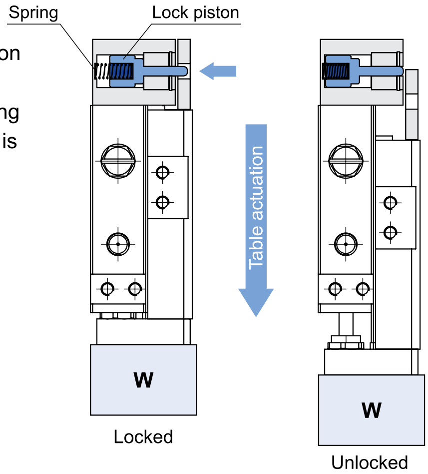


- Tightening torque of mounting bolts.
  Insufficient torque will cause a decrease in the positioning accuracy and cause malfunction.

Tube I.D. (mm)	Absorber at extension end (BS)		Absorber at retraction end (BT)			
			Body mounting section		Table mounting section	
	Bolt size	Tightening torque (N.m)	Bolt size	Tightening torque (N.m)	Bolt size	Tightening torque (N.m)
8	M3×16	0.9	M3×12	0.9	M3×16	0.9
12	M4×15	2.1	M4×8	2.1	M4×15	2.1
16	M5×18	4.4	M5×10	4.4	M5×18	4.4
20	M6×25	7.0	M5×12	4.4	M6×25	7.0
25	M8×25	18.0	M6×16	7.0	M8×25	18.0

With End lock

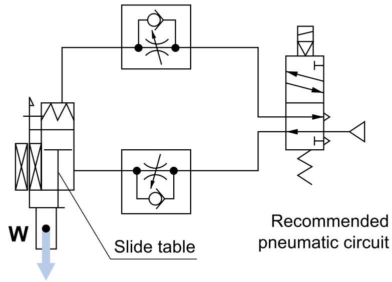
- Hold the return position of cylinder to prevent the table from dropping even if the air supply is cut off.



⚠ Caution

1. Use 4/2 or 5/2 solenoid valves.

A malfunction may occur with a control circuit that exhausts from two ports, such as exhaust center 3 position valves.



2. Be sure to use meter-out speed control valves.

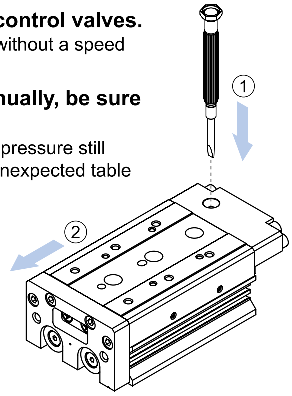
If it is used in meter-in speed control or without a speed controller, it may result in malfunction.

3. When releasing the end lock manually, be sure that air pressure is released.

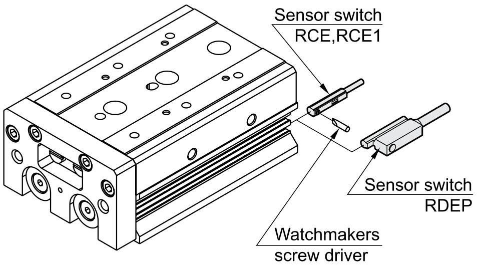
If the End Lock is unlocked while the air pressure still remains, it may cause damage, due to unexpected table moving.

How to unlock the end lock

Before proceeding, make sure that there is no residual air pressure.
① Push down the lock piston pin.
② Slide the table forward.

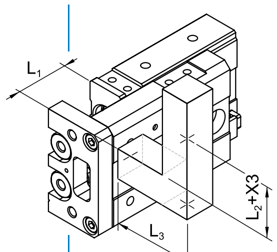


Installation of sensor switch



PCSS Model selection

SLIDE CYLINDER

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 Va (mm/s) ● Load mass W (kg): Fig 1, Table 2 ● Overhang Ln(mm): Fig 2	 Cylinder: PCSS-6-10 Cushion: Rubber bumper Workpiece table mounting Mounting: Horizontal wall mounting Average operating speed: Va = 150 mm/s Load mass: W = 0.3 kg L_1 = 4mm L_2 = 4mm L_3 = 5mm
2. Kinetic energy Find the kinetic energy E (J) of the load. Find the allowable kinetic energy Ea (J). Confirm that the kinetic energy of the load does not exceed the allowable kinetic energy.	$E = \frac{1}{2} \bullet W (\frac{V}{1000})^2$ Collision speed V = 1.4* • Va * Correction factor (Reference values) Ea = K • Emax Workpiece mounting coefficient K: Fig 3 Max. allowable kinetic energy Emax: Table 1 Kinetic energy (E) ≤ Allowable kinetic energy (Ea)	$E = \frac{1}{2} \bullet 0.3 (\frac{210}{1000})^2 = 0.0066$ V = 1.4 • 150 = 210 Ea = 1 • 0.015 = 0.015 Can be used based on E = 0.0066 ≤ Ea = 0.015

(Continued)

Table 1: Max. allowable kinetic energy: Emax (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)

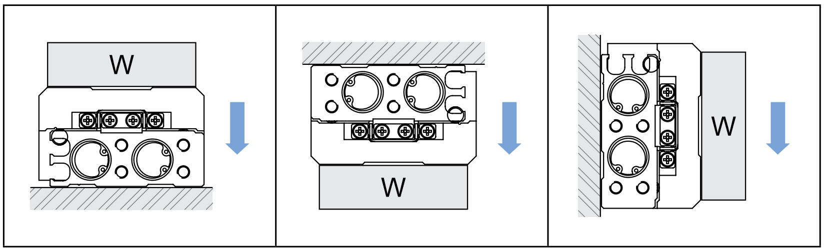


Table 2: Max. allowable load mass: Wmax (kg)

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: Ln (mm), Correction value of moment center position distance: Xn (mm)

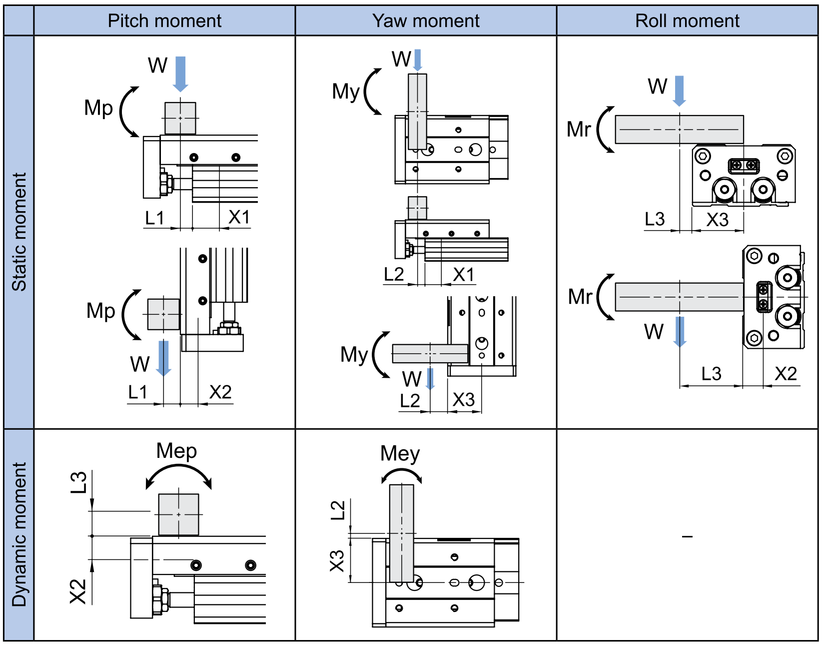
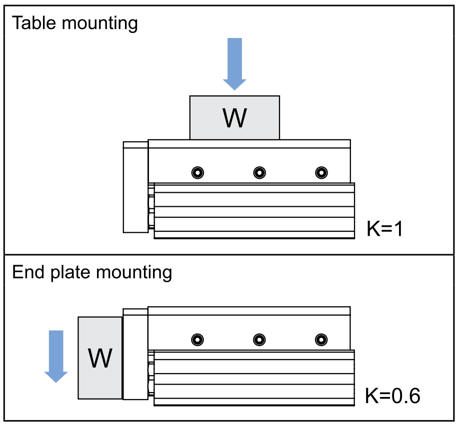


Fig 3: Workpiece mounting coefficient: K



Note.

Static moment: Moment generated by gravity.
Dynamic moment: Moment generated by impact when colliding with stopper.

PCSS Model selection

SLIDE CYLINDER

Model selection steps	Formula / Data	Selection example
3. Load factor		
3-1 Load factor of load mass Find the allowable load mass Wa (kg). Note: There is no need to consider this load factor in the case of using perpendicularly in a vertical position. (Define α_1 = 0.) Find the load factor of the load mass α_1.	Wa = K • β • Wmax Workpiece mounting coefficient K: Fig 3 Allowable load mass coefficient β: Fig 4 Max. allowable load mass Wmax: Table 2 α_1 = W/Wa	Wa = 1 • 1 • 0.6 = 0.6 K = 1 β = 1 Wmax = 0.6 α_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 Ma (N·m). Find the load factor α_2 of the static moment.	M = W • 9.8(Ln+Xn) / 1000 Correction value of moment center position distance Xn: Table 3 Ma = K • γ • Mmax Workpiece mounting coefficient K: Fig 3 Allow load mounting coefficient γ: Fig 4 Max. allowable moment Mmax: Table 4 α_2 = M/Ma	Yawing Examine My. My = 0.3 • 9.8(4+14.5)/1000 = 0.05 X_1 = 14.5 May = 1 • 1 • 0.7 = 0.7 Mymax = 0.7 K = 1 γ = 1 α_2 = 0.05/0.7 = 0.072 Rolling Examine Mr. Mr = 0.3 • 9.8(5+6)/1000 = 0.033 X_2 = 6 Mar = 0.7 (Same value as May) α'_2 = 0.033/0.7 = 0.047
3-3 Load factor of dynamic moment Find the dynamic moment Me (N·m). Find the allowable dynamic moment Mea (N·m). Find the load factor α_3 of the dynamic moment.	Me = 1/3 • We • 9.8 $\frac{(Ln+Xn)}{1000}$ Correction equivalent to impact We = δ • W • V δ: Bumper coefficient With urethane bumper (Standard) = 4/100 With shock absorber = 1/100 Correction value of moment center position distance Xn: Table 3 Mea = K • γ • Mmax Workpiece mounting coefficient K: Fig 3 Allowable mounting coefficient γ: Fig 4 Max. allowable moment Mmax: Table 4 α_3 = Me/Mea	Pitching Examine Mep. Mep = 1/3 • 2.52 • 9.8 • $\frac{(5+6)}{1000}$ = 0.09 We = 4/100 • 0.3 • 210 = 2.52 X_2 = 6 Meap = 1 • 1 • 0.7 = 0.7 K = 1 γ = 1 Mpmax = 0.7 α_3 = 0.09/0.7 = 0.128 Yawing Examine Mey. Mey = 1/3 • 2.52 • 9.8 • $\frac{(4+16)}{1000}$ = 0.165 We = 2.52 X_3 = 16 Meay = 0.7 (Same value as Meap) α'_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 ≤ 1 Add it is possible to use.

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

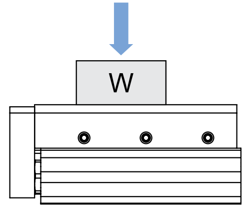
Tube I.D. (mm)	**X1**, Stroke (mm)									**X2**	**X3**
	10	20	30	40	50	75	100	125	150		
ø6	14.5	14.5	19	26.5	35.5	–	–	–	–	6	16
ø8	14.5	14.5	19	28.5	35.5	49	–	–	–	8	20
ø12	23.5	23.5	23.5	27.5	33	50.5	68.5	–	–	9.5	25
ø16	22.5	22.5	22.5	26.5	32	51.5	67.5	85	–	10.5	31
ø20	25	25	25	25	32.5	49.5	68.5	88.5	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: Mmax (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

Table mounting (K=1)



End plate mounting (K=0.6)

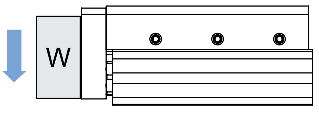
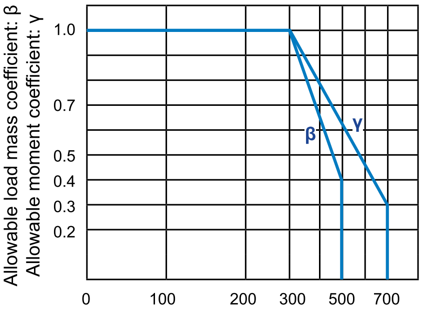


Fig.4: Allowable load mass coefficient: β
Allowable moment coefficient: γ



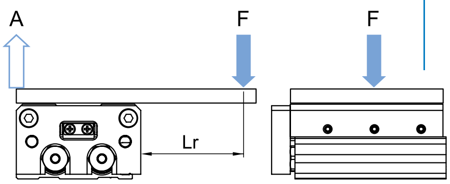
Average operating speed Va (mm/s), Collision speed V (mm/s)

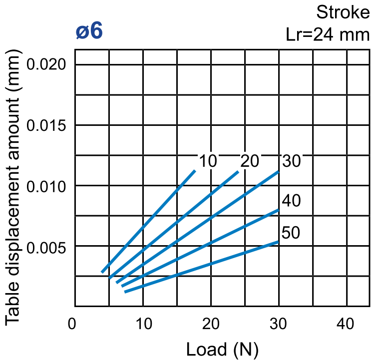
γ note: Use the average operating speed when calculating static moment. Use the collision speed when calculating dynamic moment.

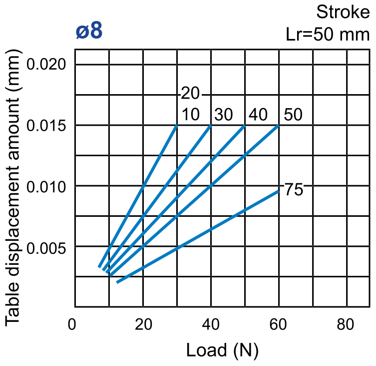
Table deflection (Reference values)

Table displacement due to roll moment load

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







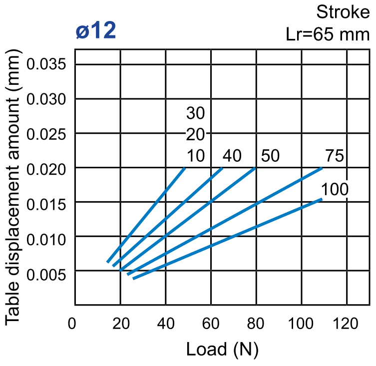
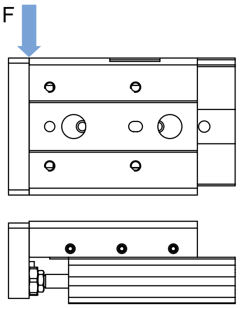
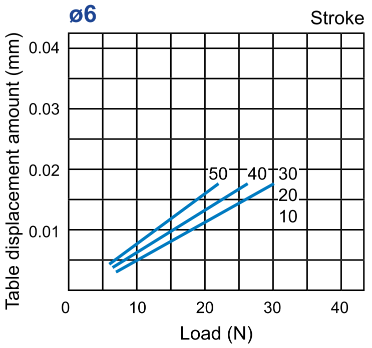
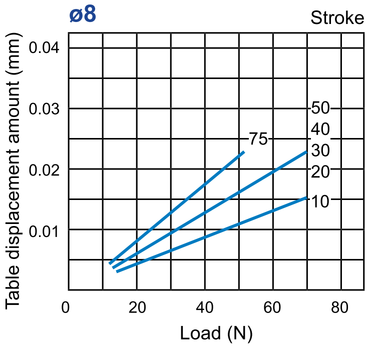


Table displacement due to yaw moment load

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







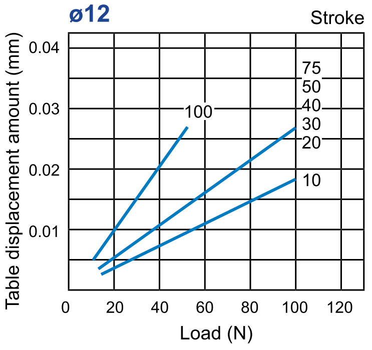
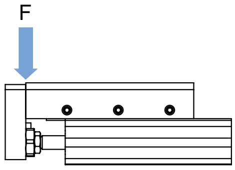
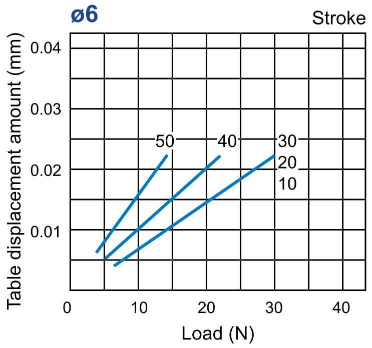
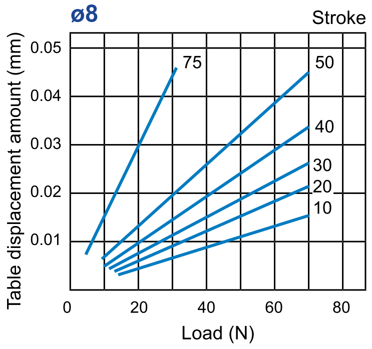


Table displacement due to pitch moment load

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







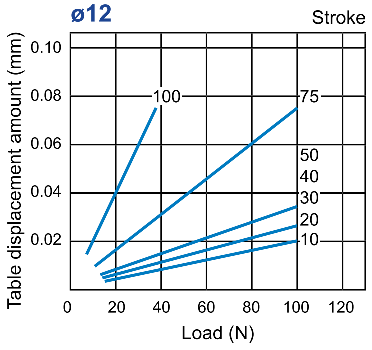
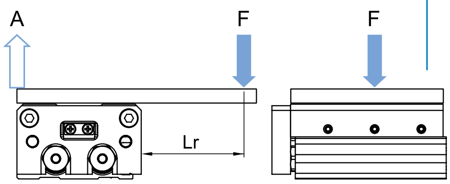
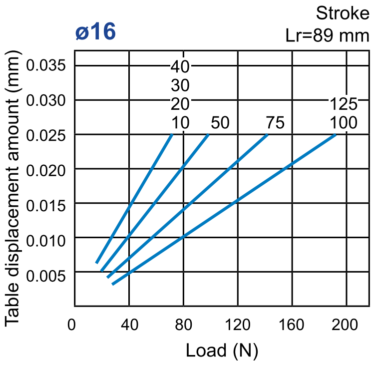


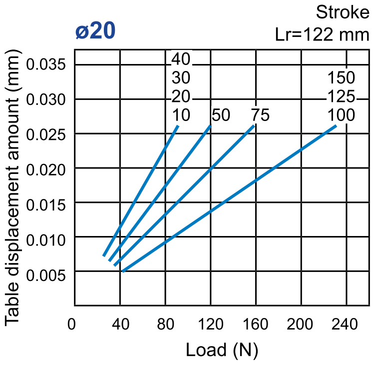
Table deflection (Reference values)

Table displacement due to roll moment load

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







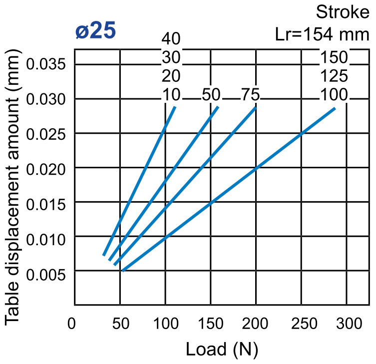
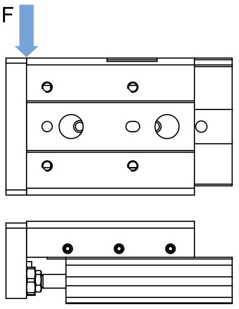
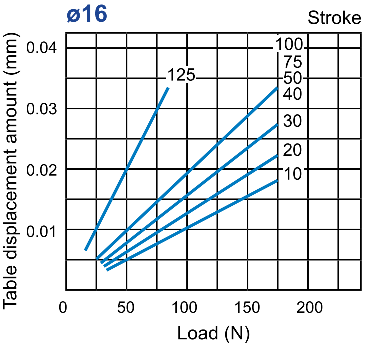
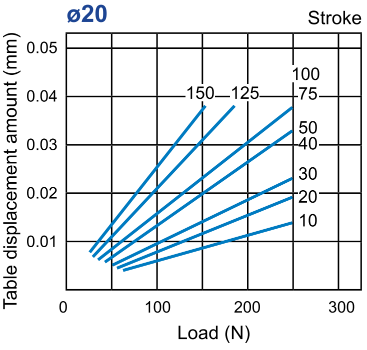


Table displacement due to yaw moment load

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







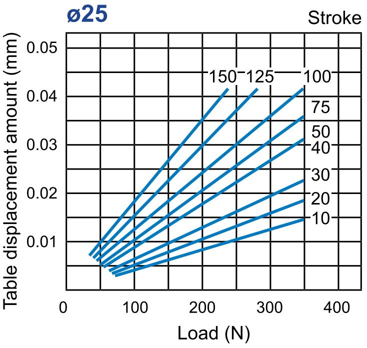
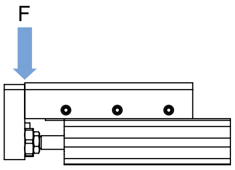
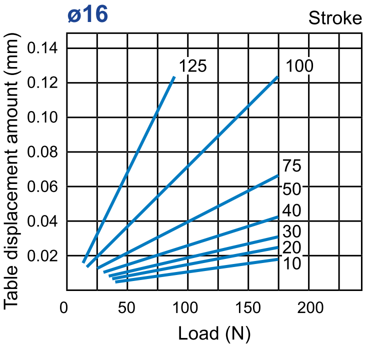
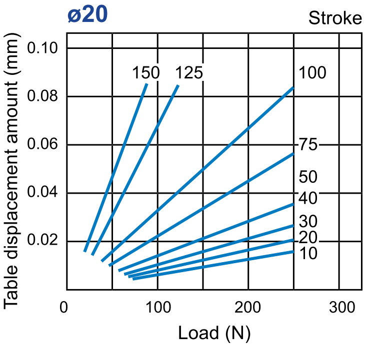


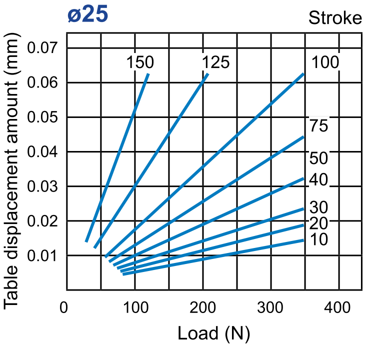
Table displacement due to pitch moment load

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



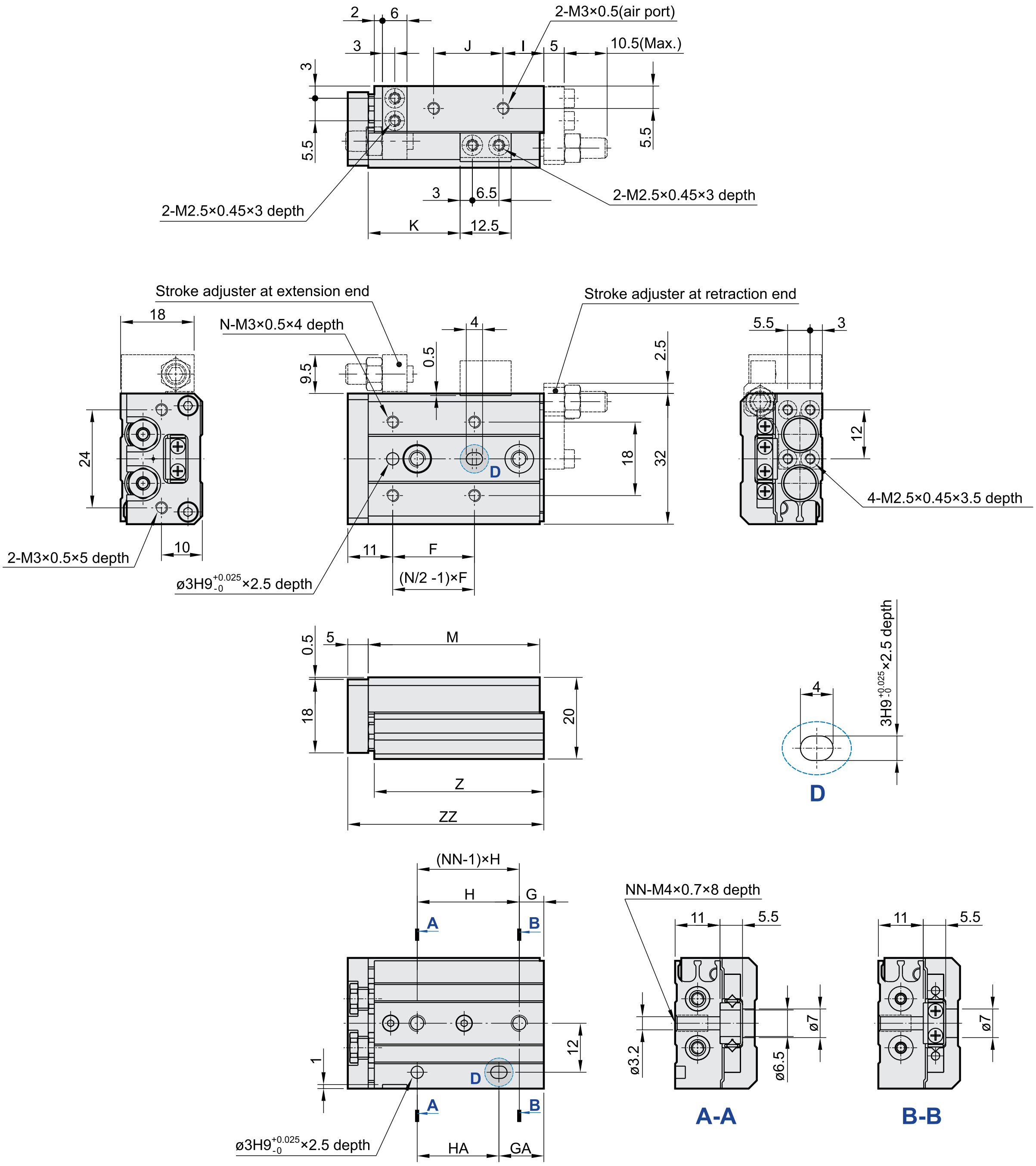






PCSS Dimensions ø6

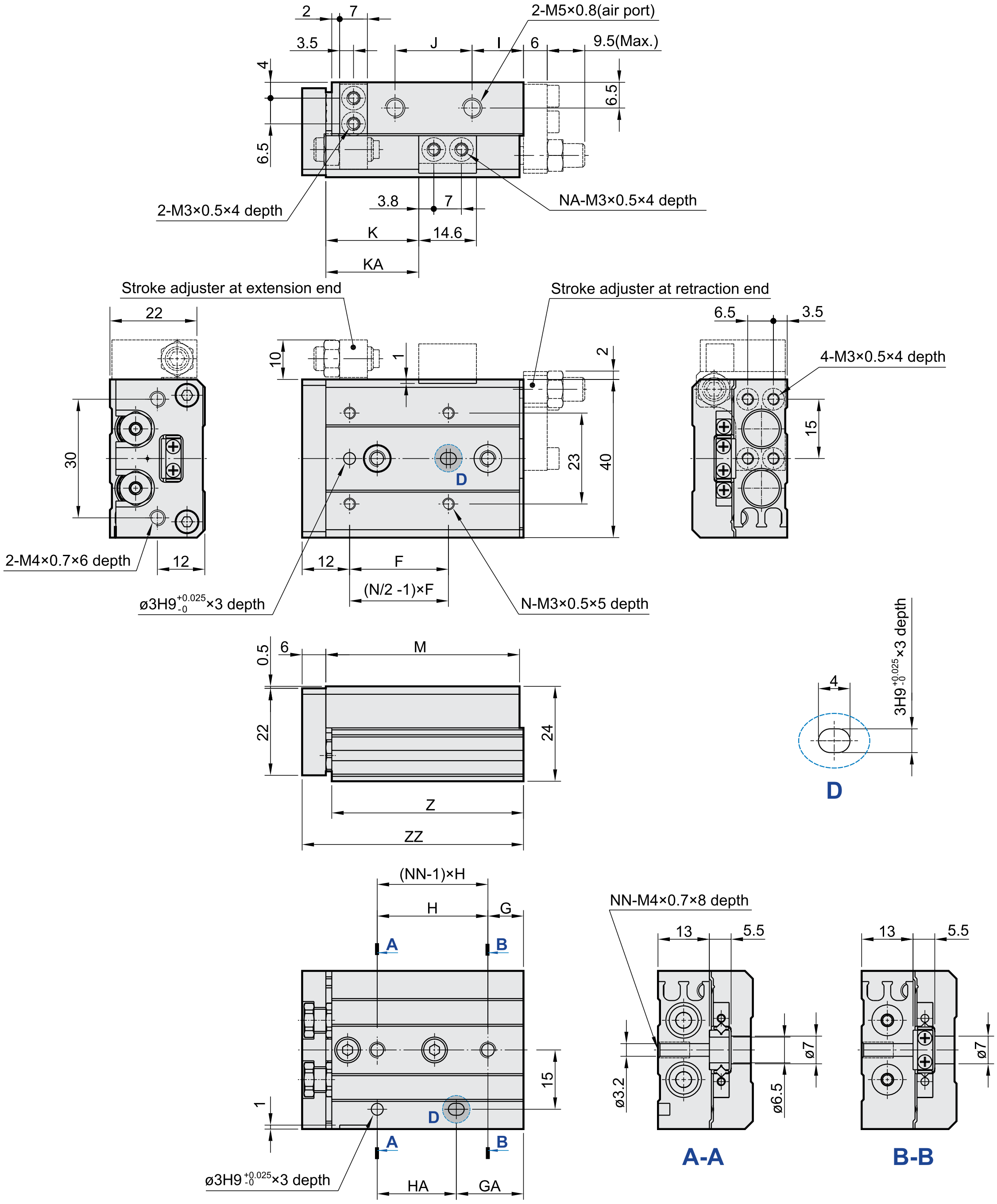
SLIDE CYLINDER



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

PCSS Dimensions ø8

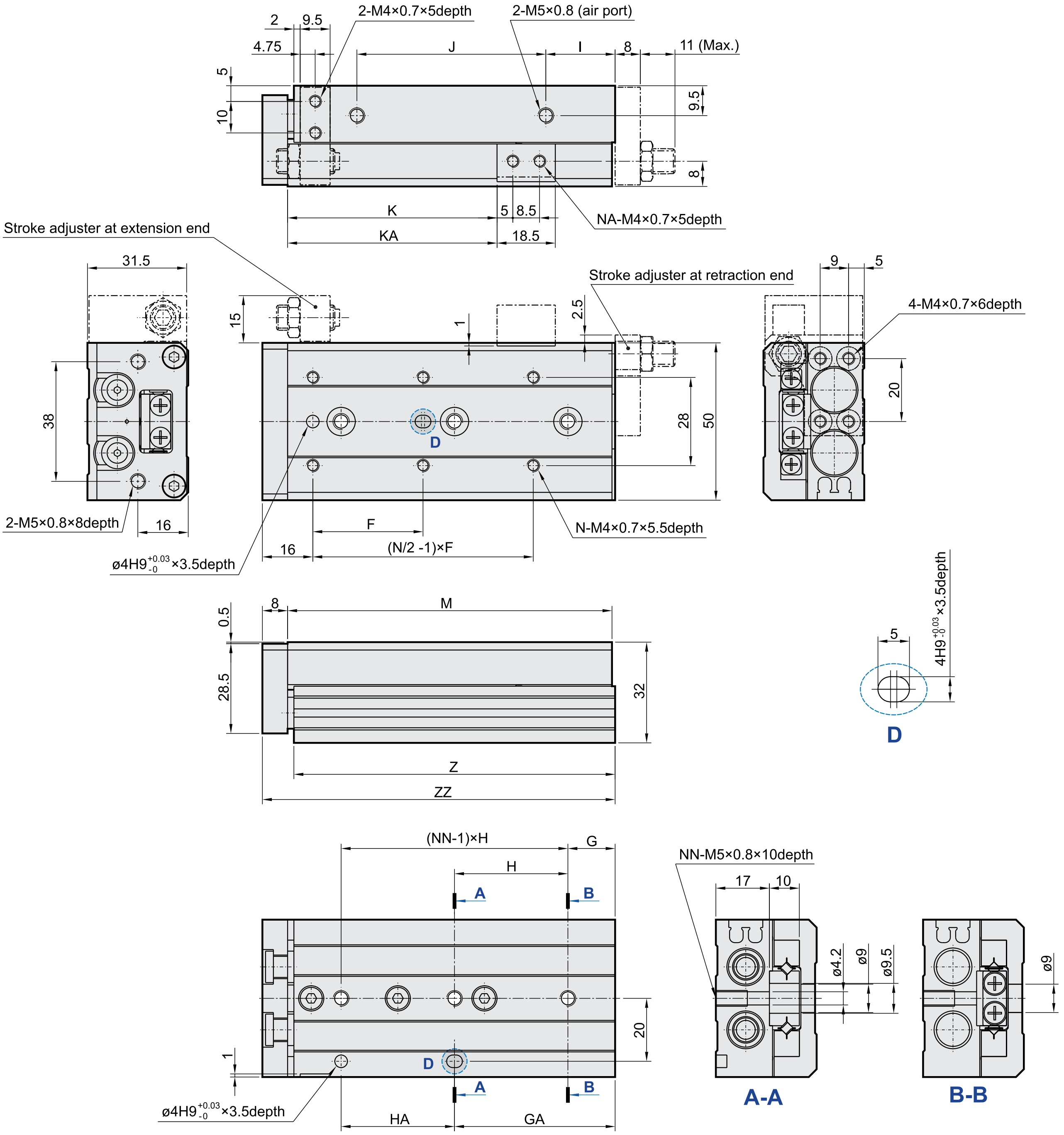
SLIDE CYLINDER



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

PCSS Dimensions ø12

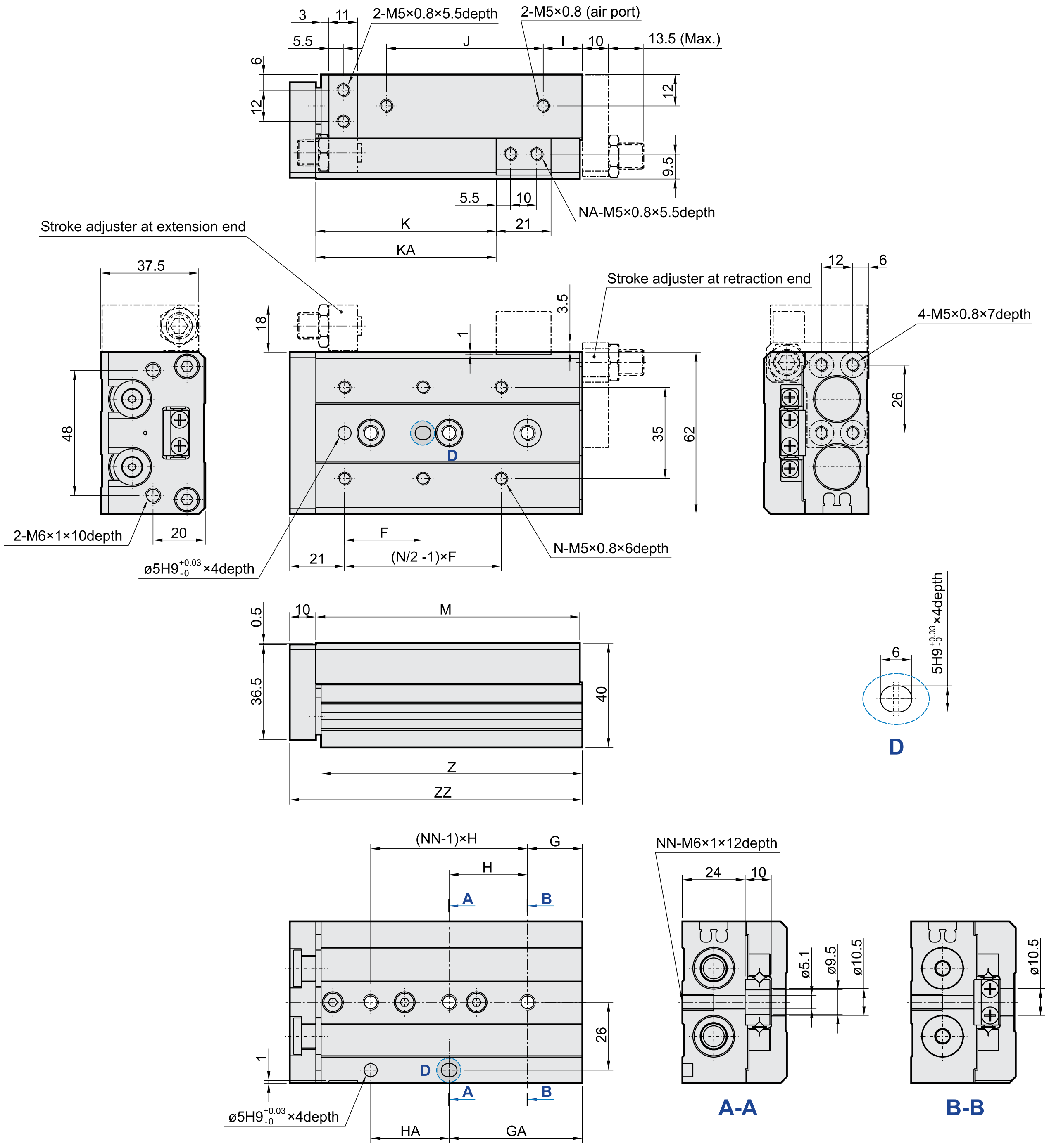
SLIDE CYLINDER



Code Stroke	F	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	35	15	15	40	40	10	40	26.5	-	71	4	2	2	70	80
20	35	15	15	40	40	10	40	36.5	-	71	4	2	2	70	80
30	35	15	15	40	40	10	40	46.5	-	71	4	2	2	70	80
40	50	17	42	25	25	10	52	56.5	-	83	4	2	3	82	92
50	35	15	51	36	36	22	60	66.5	-	103	6	2	3	102	112
75	55	25	61	36	72	43	85	91.5	125.5	149	6	4	4	148	158
100	65	35	111	38	76	52	130	116.5	179.5	203	6	4	5	202	212

PCSS Dimensions ø16

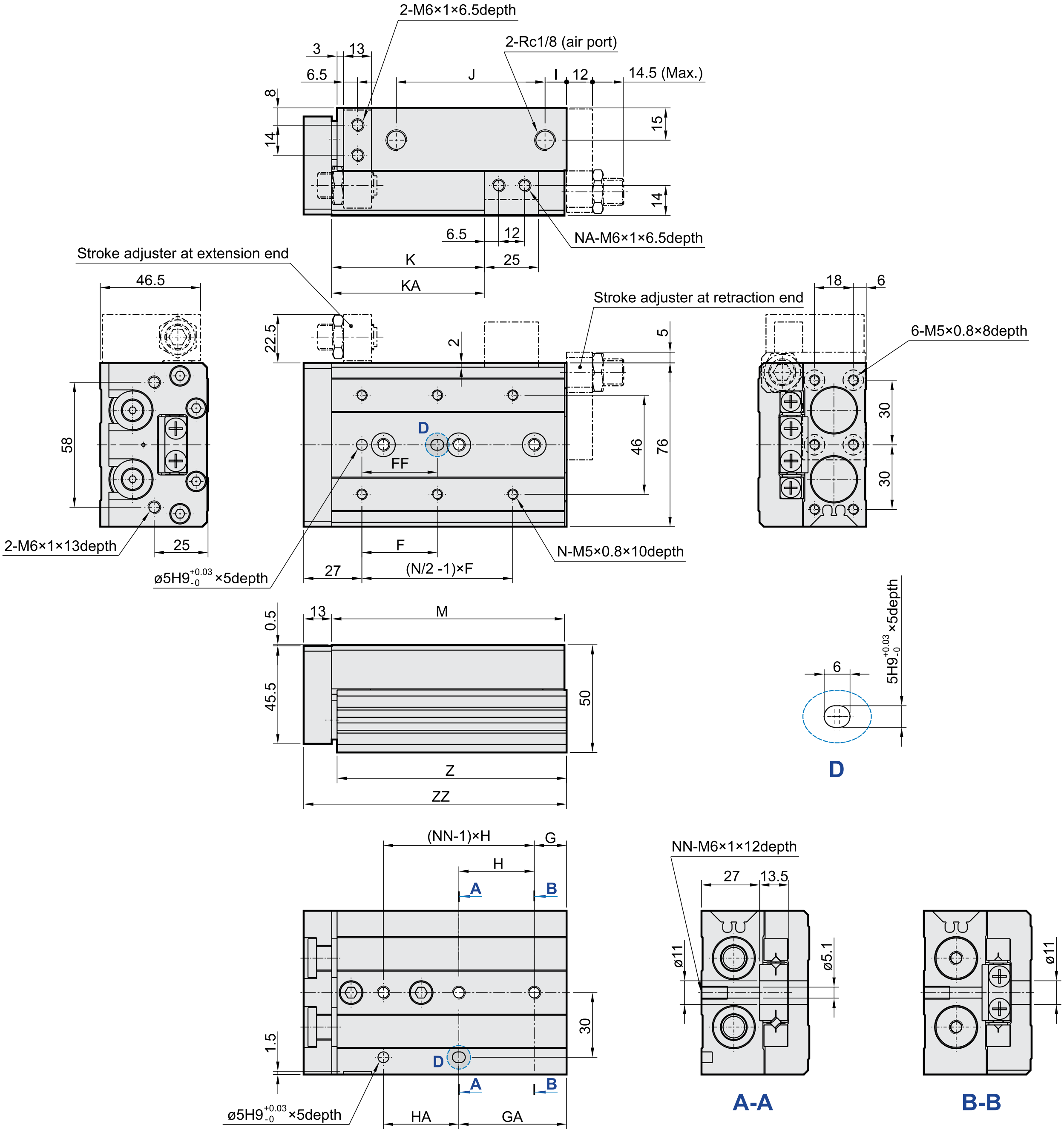
SLIDE CYLINDER



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

PCSS Dimensions ø20

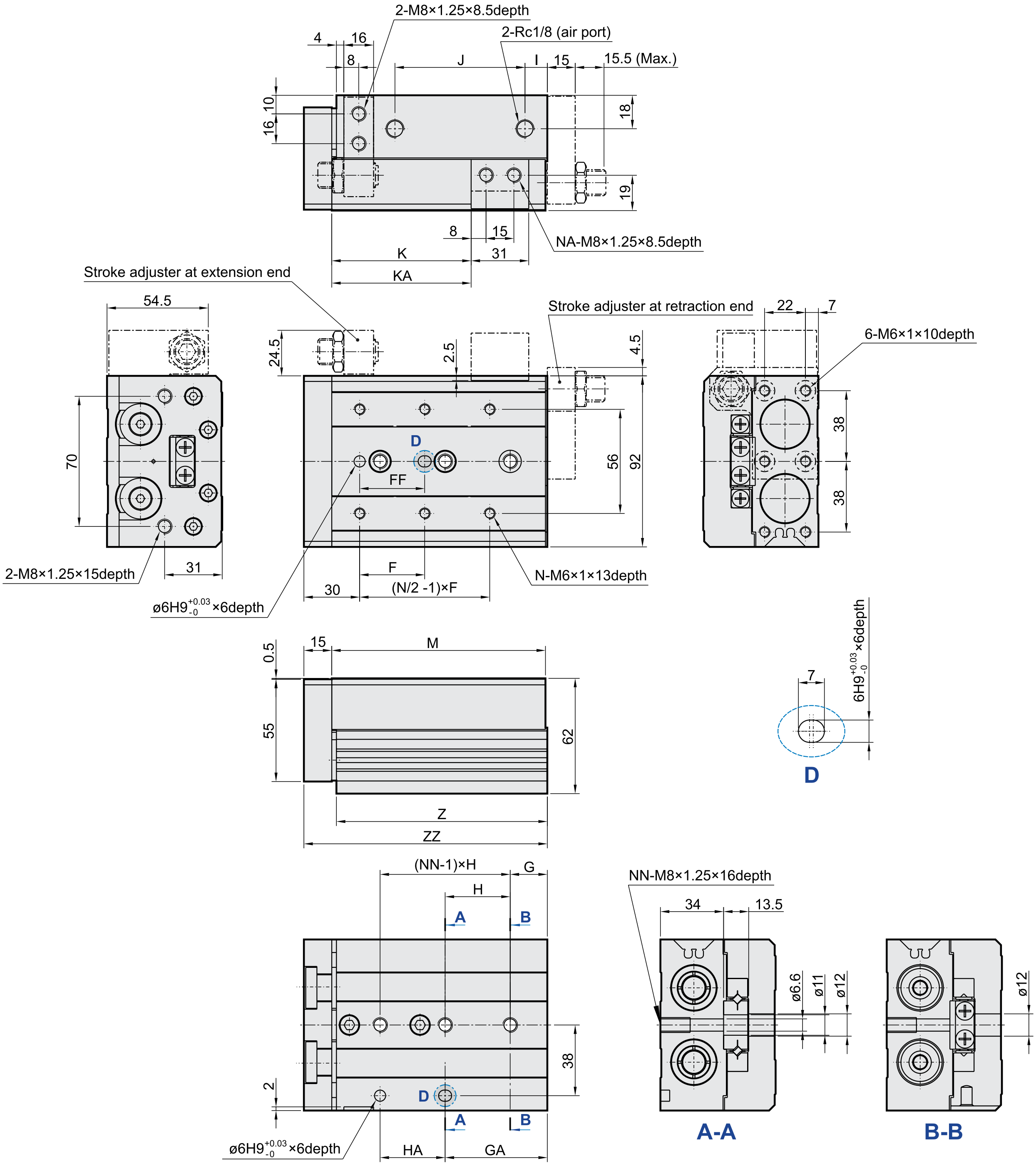
SLIDE CYLINDER



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

PCSS Dimensions ø25

SLIDE CYLINDER

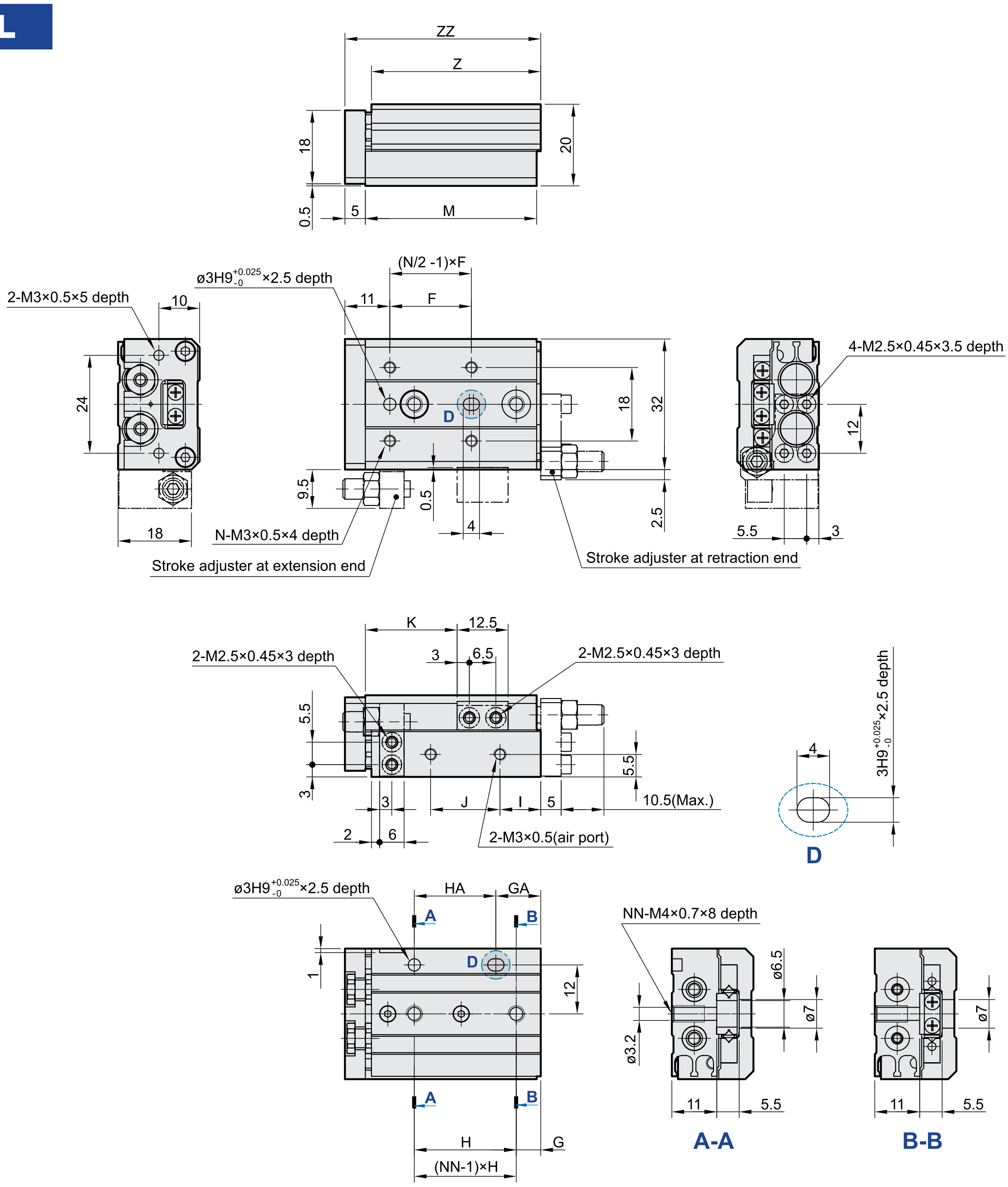


Code Stroke	F	FF	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	50	40	22	22	45	45	12	47	35	-	92	4	2	2	90.5	108
20	50	40	22	22	45	45	12	47	45	-	92	4	2	2	90.5	108
30	50	40	22	22	45	45	12	47	55	-	92	4	2	2	90.5	108
40	60	50	22	22	55	55	12	57	65	-	102	4	2	2	100.5	118
50	35	35	20	55	35	35	12	70	75	-	115	6	2	3	113.5	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

PCSS Dimensions-Symmetric style ø6

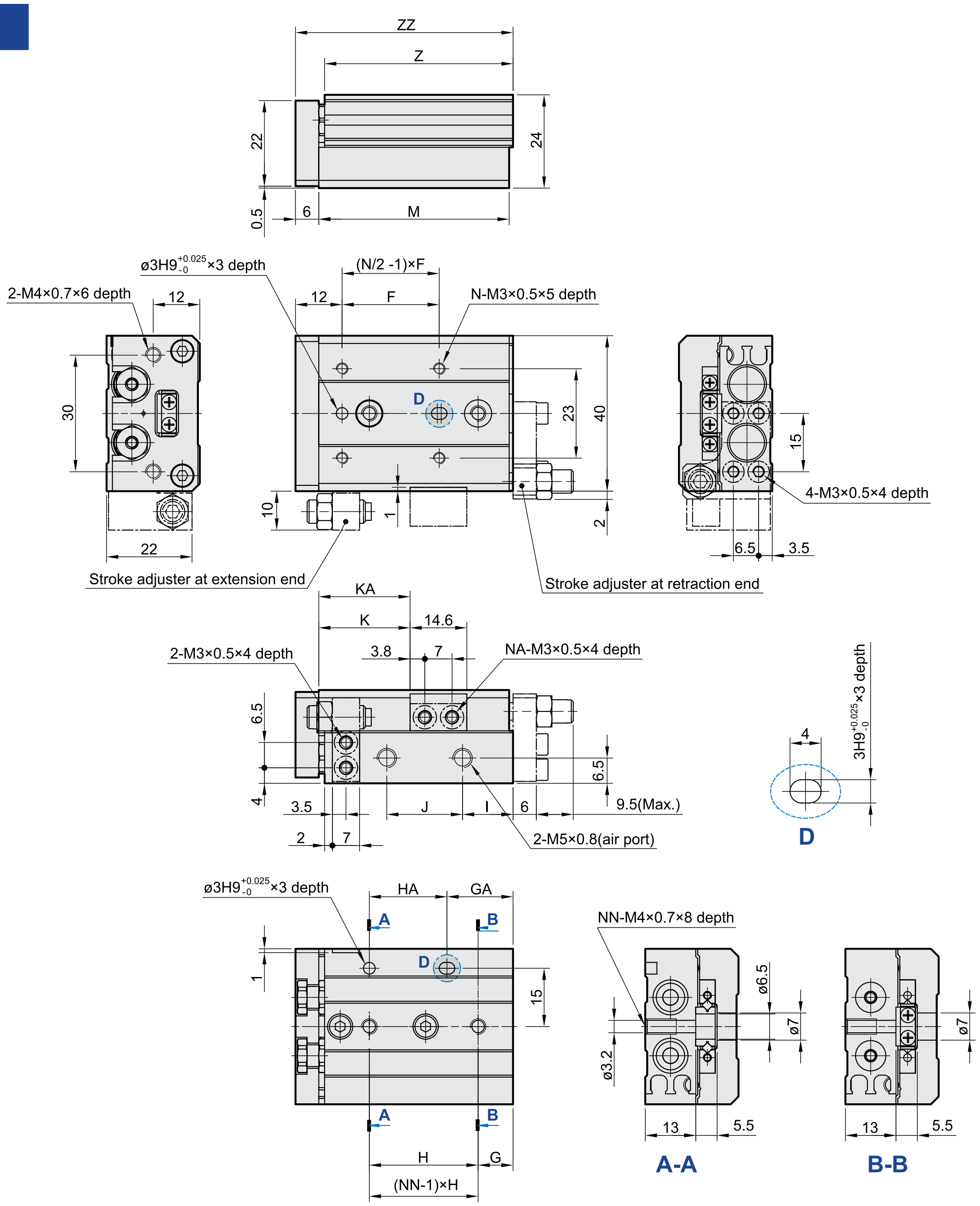
SLIDE CYLINDER

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

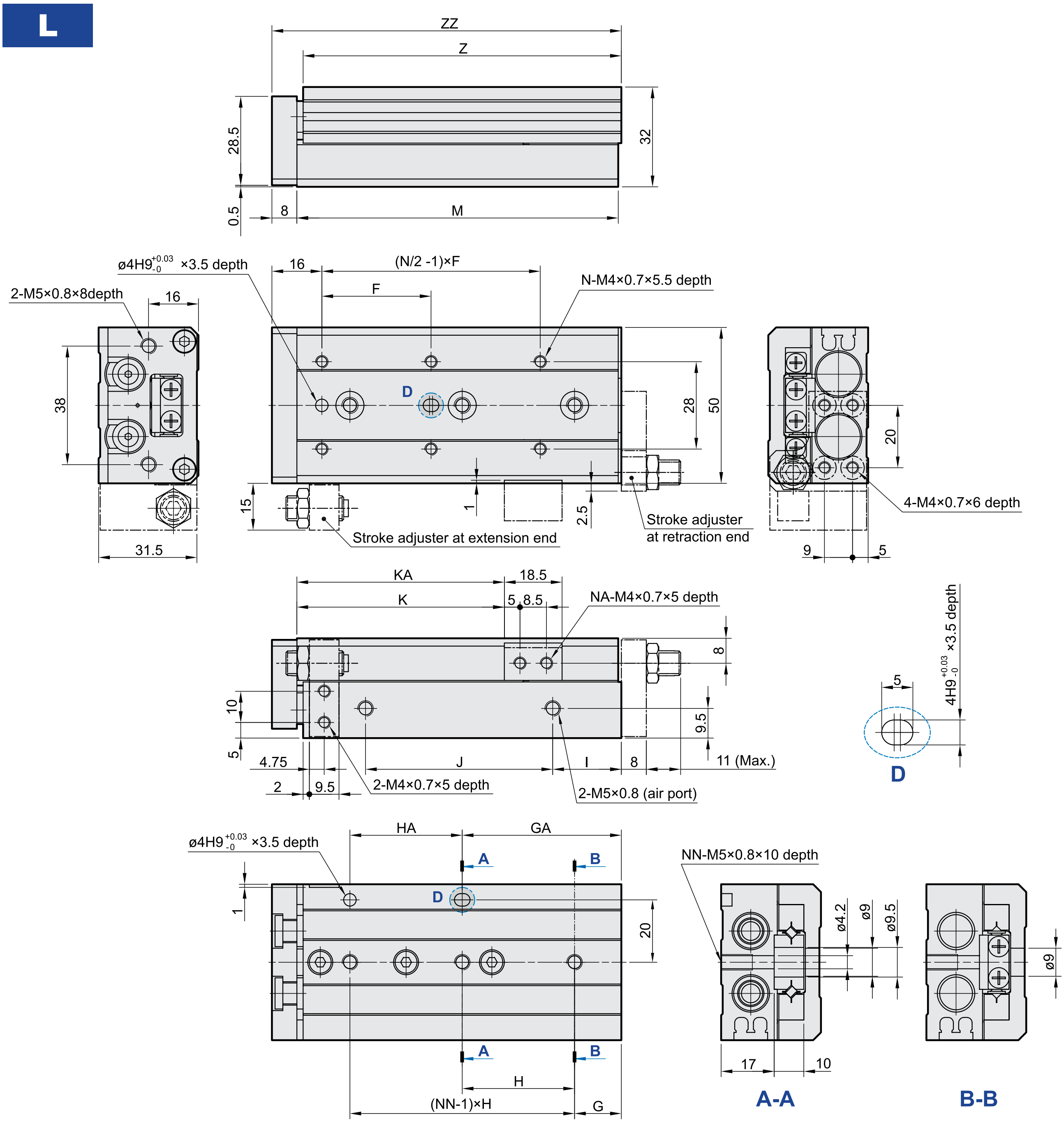


Code Stroke	F	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	25	9	17	28	20	13	19.5	23.5	–	49	4	2	2	48.5	56
20	25	12	12	30	30	8.5	29	33.5	–	54	4	2	2	53.5	61
30	40	13	33	20	20	9.5	39	43.5	–	65	4	2	3	64.5	72
40	50	15	43	28	28	10.5	56	53.5	–	83	4	2	3	82.5	90
50	38	20	43	23	46	24.5	60	63.5	82.5	101	6	4	4	100.5	108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

PCSS Dimensions-Symmetric style ø12

SLIDE CYLINDER

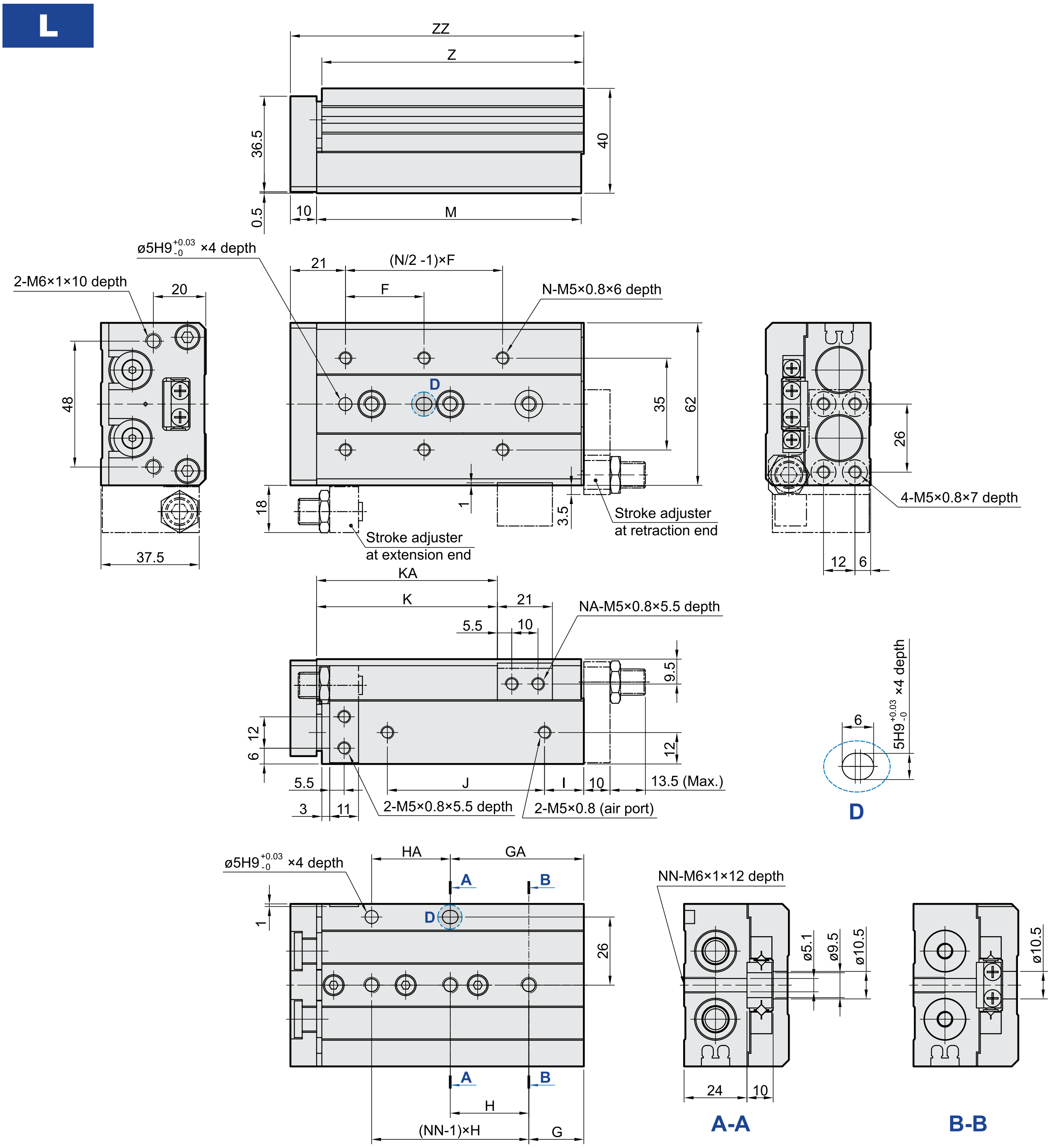
L



Code Stroke	F	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	35	15	15	40	40	10	40	26.5	–	71	4	2	2	70	80
20	35	15	15	40	40	10	40	36.5	–	71	4	2	2	70	80
30	35	15	15	40	40	10	40	46.5	–	71	4	2	2	70	80
40	50	17	42	25	25	10	52	56.5	–	83	4	2	3	82	92
50	35	15	51	36	36	22	60	66.5	–	103	6	2	3	102	112
75	55	25	61	36	72	43	85	91.5	125.5	149	6	4	4	148	158
100	65	35	111	38	76	52	130	116.5	179.5	203	6	4	5	202	212

PCSS Dimensions-Symmetric style ø16

L

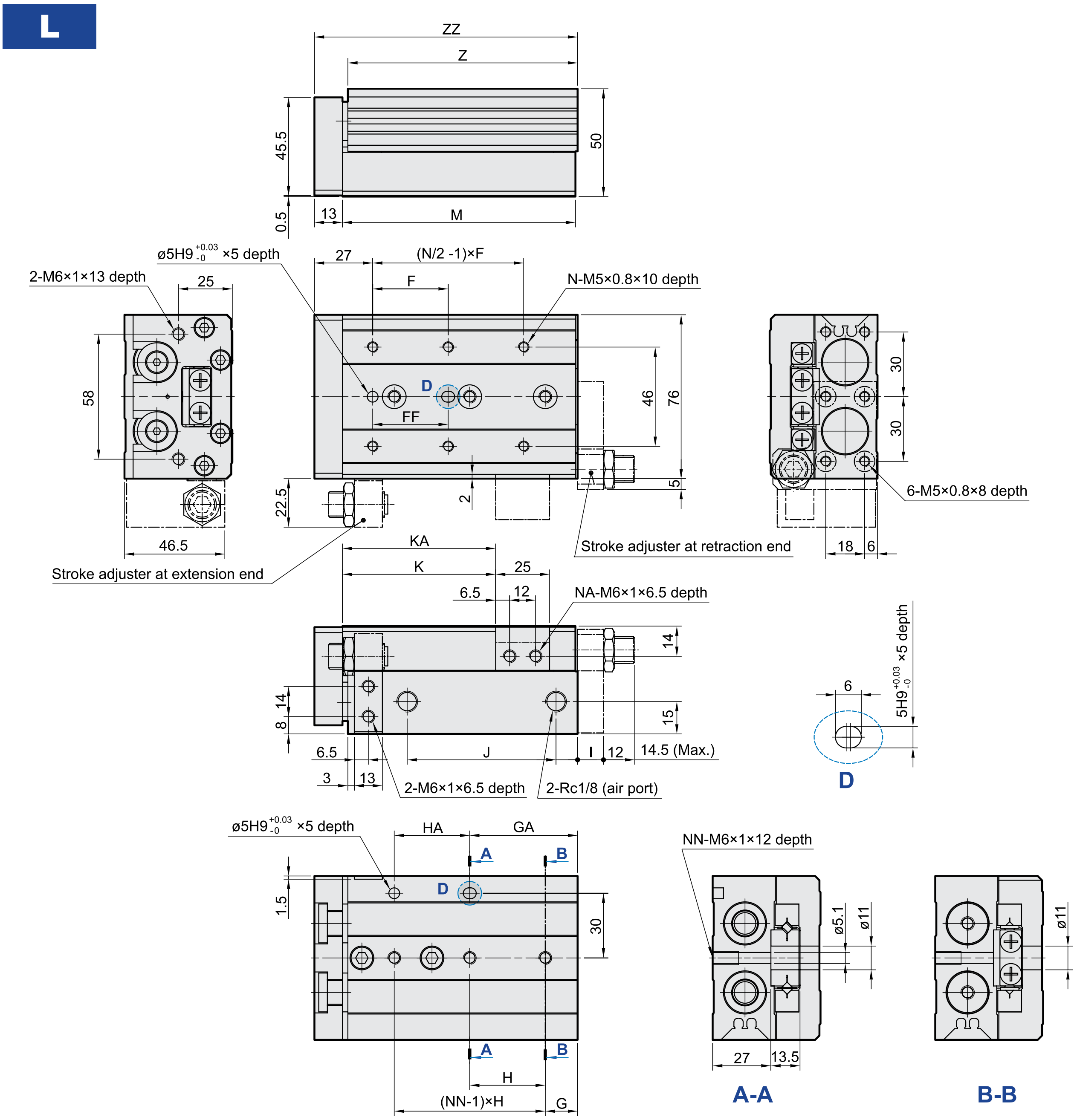


Code Stroke	F	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	35	16	16	40	40	10	40	29	–	76	4	2	2	75	87
20	35	16	16	40	40	10	40	39	–	76	4	2	2	75	87
30	35	16	16	40	40	10	40	49	–	76	4	2	2	75	87
40	40	16	16	50	50	10	50	59	–	86	4	2	2	85	97
50	30	21	51	30	30	15	60	69	–	101	6	2	3	100	112
75	55	26	61	35	70	40	85	94	125	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

PCSS Dimensions-Symmetric style ø20

SLIDE CYLINDER

L

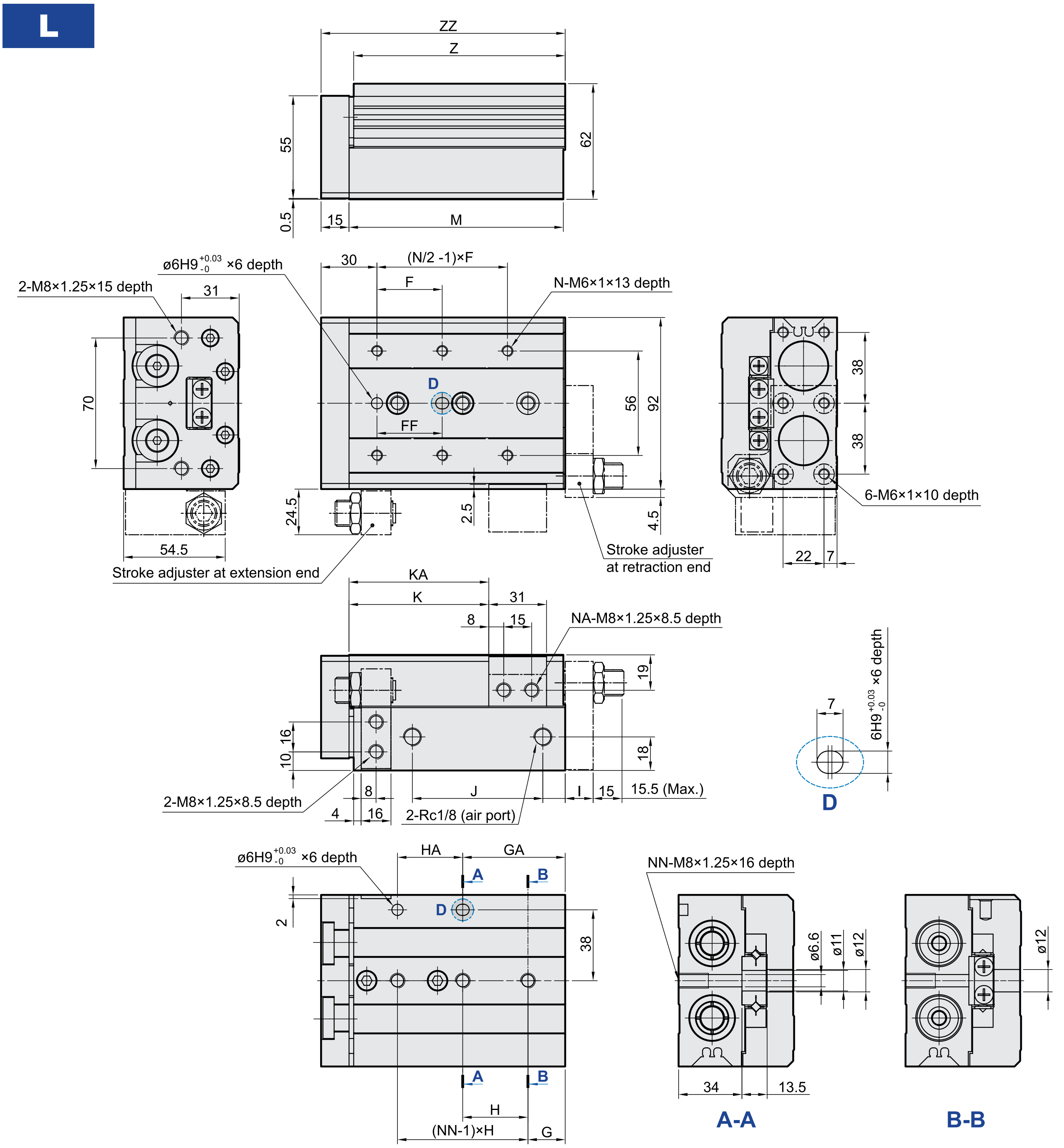


Code Stroke	F	FF	G	GA	H	HA	I	J	K	KA	M	N	NA	NN	Z	ZZ
10	50	40	15	25	45	35	10	44	31	–	83	4	2	2	81.5	97
20	50	40	15	25	45	35	10	44	41	–	83	4	2	2	81.5	97
30	50	40	15	25	45	35	10	44	51	–	83	4	2	2	81.5	97
40	60	50	15	35	55	35	10	54	61	–	93	4	2	2	91.5	107
50	35	35	15	50	35	35	10	69	71	–	108	6	2	3	106.5	122
75	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

PCSS Dimensions-Symmetric style ø25

SLIDE CYLINDER

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

PCKB Series

LEVER CLAMP CYLINDER

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.

Specification

Model		PCKB				
Acting type		Double acting				
Tube I.D. (mm)		25	32	40	50	63
Stroke (mm)		20	25	25	30	35
Port size		M5×0.8	Rc1/8		Rc1/4	
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		RCE, RCE1, RDEP				
Weight (g)	Without	233	411	466	832	1111
	Magnet	270	456	578	915	1242

Order example

PCKB — 32 — 25 M — □

MODEL

TUBE I.D.

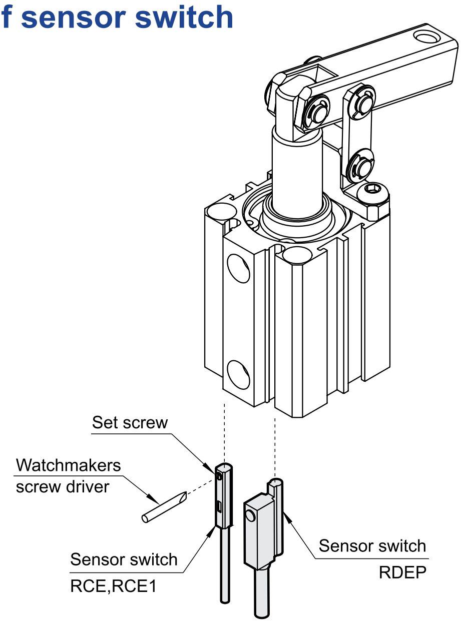
STROKE

M: Magnet

PORT THREAD
Blank: M8×0.5
(Only for ø25)

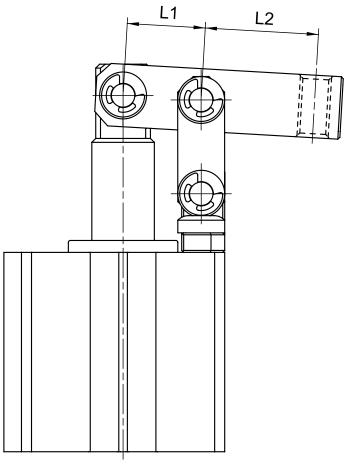
Blank: Rc thread
G: G thread
NPT: NPT thread
(Only for ø32~ø63)

Installation of sensor switch



PCKB Theoretical clamping force calculation

LEVER CLAMP CYLINDER



$$T = \frac{F \times L1}{L2}$$

T: Theoretical clamping force of the lever (N)

F: Theoretical output of cylinder (N)

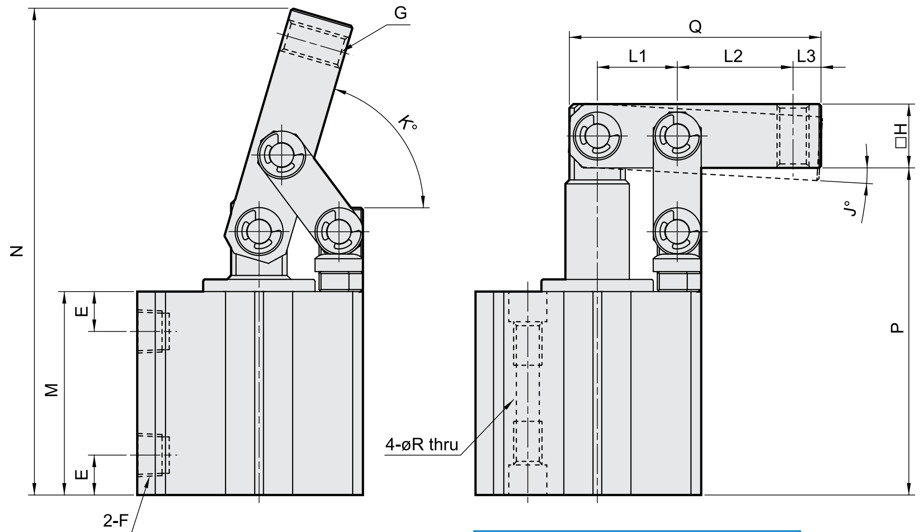
L1: Distance from output point to fulcrum (mm)

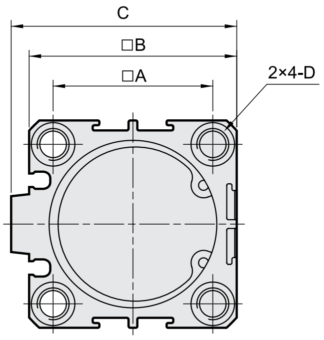
L2: Distance from clamping point to fulcrum (mm)

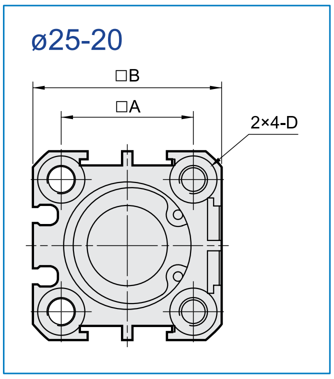
Tube I.D. (mm)	Piston area when the lever is down (mm^2)	Operating pressure (MPa)						Operating pressure (MPa)					
		0.3	0.4	0.5	0.6	0.7	0.8	0.3	0.4	0.5	0.6	0.7	0.8
		Theoretical output (N)						Theoretical clamping force of lever (N)					
25	490.9	147.3	196.3	245.4	294.5	343.6	392.7	61.5	82.1	102.6	123.1	143.6	164.1
32	804.2	241.3	321.7	402.1	482.5	563.0	643.4	108.6	144.8	181.0	217.1	253.3	289.5
40	1256.6	377.0	502.7	628.3	754.0	879.6	1005.3	260.0	346.7	433.3	520.0	606.7	693.3
50	1963.5	589.0	785.4	981.7	1178.1	1374.4	1570.8	471.2	628.3	785.4	942.5	1099.6	1256.6
63	3117.2	935.2	1246.9	1558.6	1870.3	2182.1	2493.8	1169.0	1558.6	1948.3	2337.9	2727.6	3117.2

PCKB Dimensions ø25~ø63

LEVER CLAMP CYLINDER







Code \ Tube I.D.	A	B	C	D	E	F	G	H	J	K	L1	L2	L3
25	28	40	–	ø9×7 depth, M6×1.0×10 depth	8	M5×0.8	M6×1.0	13	4.5	81.2	14	33.5	5
32	34	44	48.5	ø9×7 depth, M6×1.0×10 depth	9	Rc1/8	M8×1.25	16	11.9	77.4	18	40	7
40	40	52	56.5	ø10.5×8 depth, M8×1.25×12 depth	10	Rc1/8	M8×1.25	16	3.3	73.6	20	29	7
50	48	62	70	ø11×8.5 depth, M8×1.25×16.5 depth	10	Rc1/4	M10×1.5	22	2.6	72.2	24	30	8
63	60	75	83	ø11×8.5 depth, M8×1.25×16.5 depth	12	Rc1/4	M10×1.5	22	2.1	67.1	30	24	8

Code \ Tube I.D.	Without magnet			Magnet			Q	R
	M	N	P	M	N	P		
25	41	103.8	63.5	51	113.8	73.5	57	5.1
32	49.5	132.7	80.9	59.5	142.7	90.9	70	5.1
40	51	122	82	61	132	92	63	6.9
50	58	138.5	94	68	148.5	104	70	6.9
63	67	147.5	109	77	157.5	119	70	6.9

PCKC Series

PNEUMATIC - SWING CLAMP CYLINDER

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.

Specification

Model		PCKC						
Acting type		Double acting						
Tube I.D. (mm)		12	16	20	25	32	40	50
Port size		M5×0.8				Rc1/8		Rc1/4
Rotary angle (Extension end)		90°±10°						
Rotary direction		CCW (L), CW (R)						
Rotary stroke (mm)		7.5		9.5		15		19
Clamp stroke (mm)		10, 20		10, 20, 30, 50 (50 only for ø50)				
Medium		Air						
Operating pressure range		0.1~1 MPa						
Ambient temperature		-5°C~+60°C (No freezing)						
Available speed range (*1)		50~200 mm/sec						
Non-rotating accuracy (*2)		±2°	±1.3°	±1.2°		±1°		
Lubrication		Not required						
Sensor switch	RDE	●	●	–	–	–	–	–
	RCE,RCE1	–	–	●	●	●	●	●
	RDEP	–	–	–	●	–	●	●

*1. Keep the operating speed between 50~200mm/s with a speed conteoller.
Please refer to moment of inertia.
Adjust the speed gradually from state to prevent inner parts being damaged.

*2. Arm during clamping (Clamp part).

Order example

PCKC — 20 — 10 — LN — □

MODEL

TUBE I.D.

CLAMP STROKE

ROTARY DIRECTION

L: Counter clockwise (CCW)

R: Clock wise (CW)

PORT THREAD

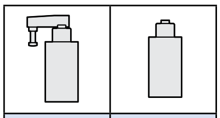
Blank: M5×0.8
(for ø12~ø25)

Blank: Rc thread

G: G thread

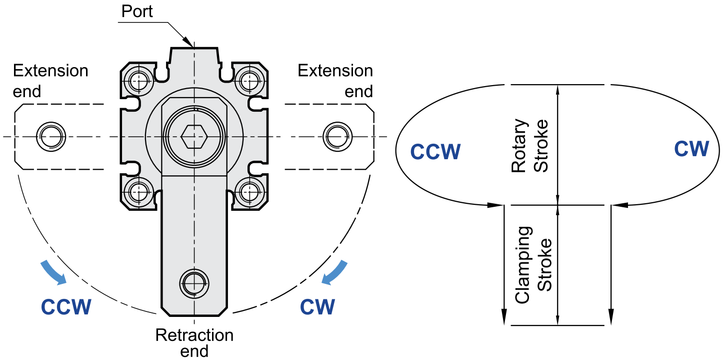
NPT: NPT thread
(for ø32~ø50)

ARM

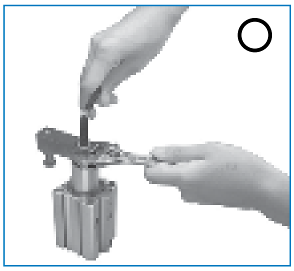


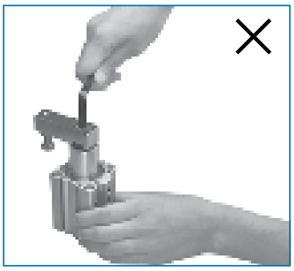
Blank: With | **N**: Without

Rotary direction

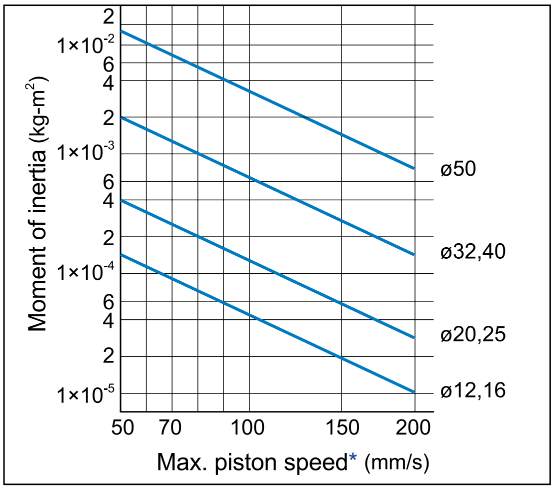


Clamping arm mounting methods



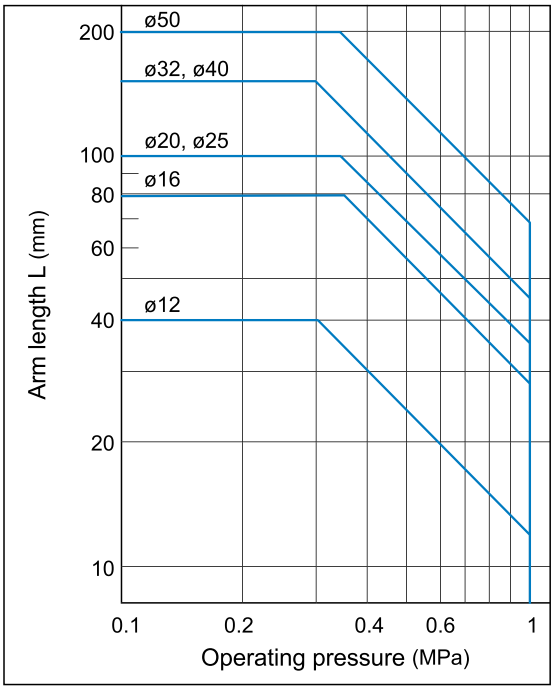


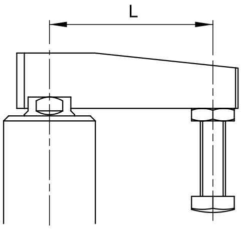
Moment of inertia



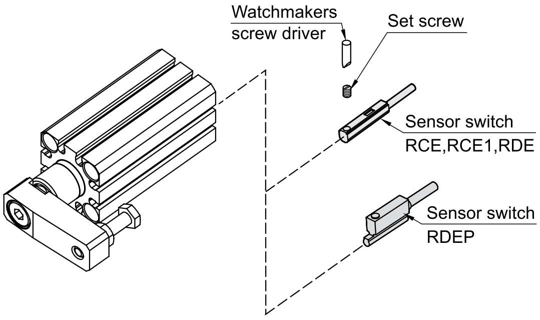
* Max. piston speed is equivalent to approximately 1.6x the average piston speed. (Rough indication)

Allowable bending moment





Installation of sensor switch



⚠ CAUTION

Do not use the cylinder under the following environments

- Areas that contain splashing cutting oil.
- Areas that contain foreign objects such as cutting chips or heavy-dust.
- Areas that environment temperature exceeds the operating range.
- Areas that expose to direct sunlight.
- Areas that contain corrosion risk.

A cylinder could malfunction or the non-rotating accuracy could be reduced if a rotational force is applied to the piston rod. Therefore, check the particular examples below before operating the cylinder.

❶ Make sure to mount the cylinder vertically to the ground. (Fig.1)
❷ Do not apply external rotary force on the piston rod. (Fig.2)
❸ Make sure that the clamping surface of the workpiece is perpendicular to the axial line of cylinder. (Fig.3)
❹ Clamping the workpiece in the clamping stroke of cylinder only. Do not clamp the workpiece in the rotary stroke. (Fig.4)
❺ Make sure that the workpiece is not moved by external force while clamping. (Fig.5)

❶ Do not mount the cylinder horizontally.

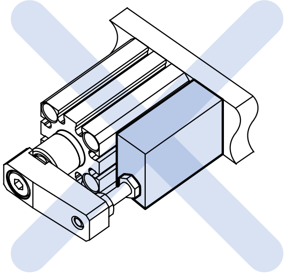


Fig.1

❷ Do not apply external rotary force on the piston rod.

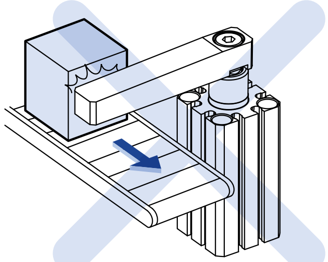


Fig.2

❸ Do not clamp on a slope.

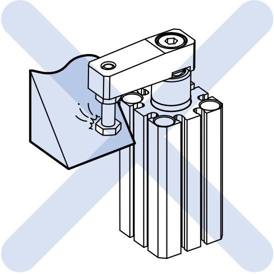


Fig.3

❹ Do not clamp the workpiece in the rotary stroke.

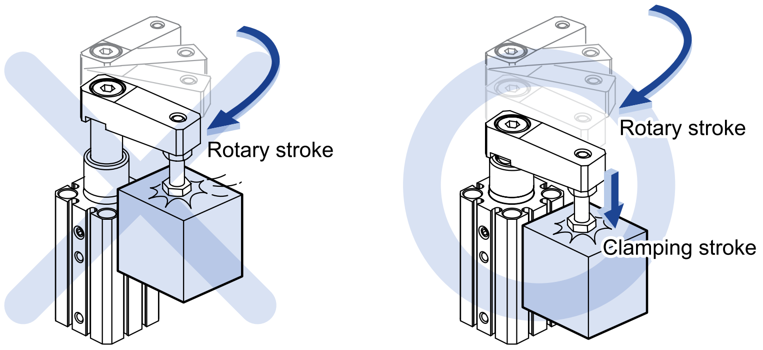


Fig.4

❺ Make sure that the workpiece have no external force applied besides the cylinder while clamping.

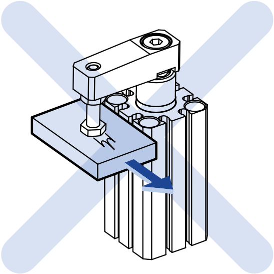
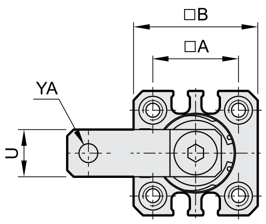


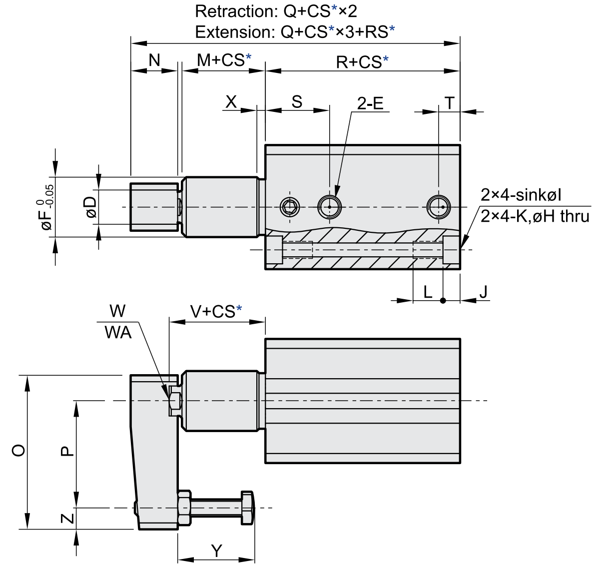
Fig.5

PCKC Dimensions ø12~ø50

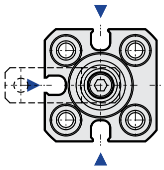
PNEUMATIC - SWING CLAMP CYLINDER

ø12, ø16

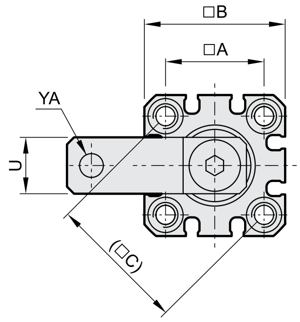


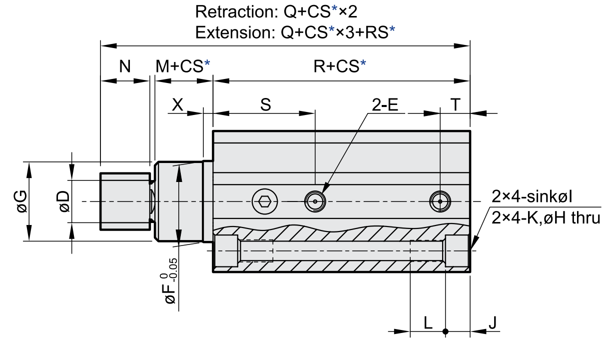


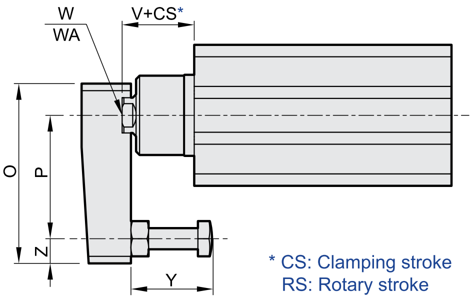
Installation of sensor switch
ø12



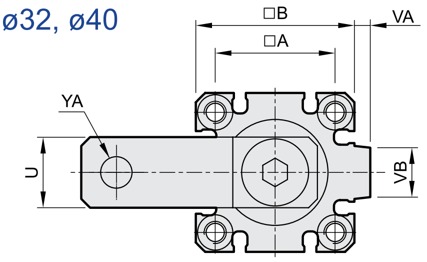
ø20, ø25



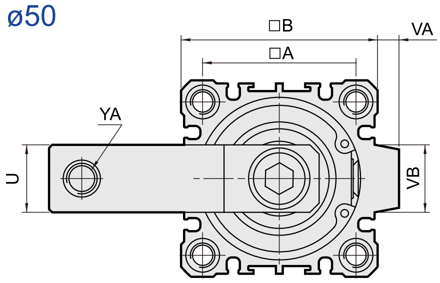




ø32, ø40



ø50



* CS: Clamping stroke
RS: Rotary stroke

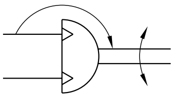
Code Tube I.D.	A	B	C	D	E	F	G	H	I	J	K	L	M
12	15.5	25	–	6	M5×0.8	11	–	3.5	6.5	4	M4×0.7	7	9.5
16	20	29	–	8	M5×0.8	14	–	3.5	6.5	4	M4×0.7	7	9.5
20	25.5	36	36	12	M5×0.8	18	17.9	5.4	9	7	M6×1.0	10	6.5
25	28	40	39.6	12	M5×0.8	23	22.5	5.4	9	7	M6×1.0	10	6.5
32	34	45	–	16	Rc1/8	30	29.5	5.5	9	7	M6×1.0	10	15.5
40	40	52	–	16	Rc1/8	30	29.5	5.5	9	7	M6×1.0	10	23
50	50	64	–	20	Rc1/4	37	36.5	6.6	11	8	M8×1.25	14	28

Code Tube I.D.	N	O	P	Q	R	RS	S	T	U	V	VA	VB	W (ROD thread)	WA	X	Y	YA	Z
12	8	29	20	54	35.5	7.5	15	5	8	12.5	–	–	M3×0.5×5.5L	Across flats 5×2.5L	2	7~18	M3×0.5	4
16	11	36	25	57	35.5	7.5	15	5	11	12.5	–	–	M5×0.8×6.5L	Across flats 7×2.5L	2	7~20	M4×0.7	5
20	14	51	35	84	62	9.5	28	8.7	16	10.5	–	–	M8×1.25×14L	Across flats 10×3L	3	12~25	M6×1.0	7
25	14	51	35	85	63	9.5	29	8.5	16	10.5	–	–	M8×1.25×14L	Across flats 10×3L	3	12~25	M6×1.0	7
32	18	67	45	107	71.5	15	28	11	20	22	4.5	14	M10×1.5×19L	Across flats 14×5.5L	3	12~25	M8×1.25	10
40	18	67	45	108	65	15	27	8	20	29.5	5	14	M10×1.5×19L	Across flats 14×5.5L	3	12~25	M8×1.25	10
50	22	88	65	129.5	76.5	19	34	11.5	22	35.5	7	19	M12×1.75×20L	Across flats 17×5.5L	3.5	30~40	M10×1.5	10

PCRQ Series

ROTARY ACTUATOR

Symbol



Order example

PCRQ — 20R — □ — □

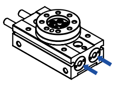
MODEL

TUBE I.D.

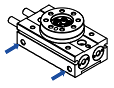
ANGLE ADJUSTER
A: With adjusting bolt
R: With shock absorber
* ø12 without shock absorber.

PORT LOCATION (*)

Blank: End port



E: Front port



* ø12 only option.
* Port location cannot be changed after delivery.

PORT THREAD
Blank: M5×0.8
(for ø12, ø16)
Blank: Rc thread
G: G thread
NPT: NPT thread
(for ø20~ø40)

Features

- Centering boss and locating hole for accurate positioning.
- Operating range of table is 0°~190° by angle adjusting screw
- Compact design using double rack and single pinion.
- Hollow shaft standard for wiring and piping.
- Possible to fit shock absorbers as stops.
- Ease of mounting with integral table.
- Magnetic as standard.

Specification

Model		PCRQ					
Acting type		Double acting					
Tube I.D. (mm)		12	16	20	25	32	40
Port size		M5×0.8		Rc1/8			
Medium		Air					
Max. operating pressure	adjusting bolt	0.7MPa	1 MPa				
	shock absorber	—	0.6 MPa (*1)				
Min. operating pressure		0.1 MPa (*2)					
Ambient temperature		0~+60°C (No freezing)					
Cushion	adjusting bolt	Rubber bumper					
	shock absorber	—	Shock absorber (*3)				
Angle adjustment range		0° to 190°(max.) (*4)					
Sensor switch (*4)	2 wire	**RDFE(V)**: Non-contact					
	3 wire	**RNFE(V)**: NPN, **RPFE(V)**: PNP					
Weight (kg)	adjusting bolt	0.25	0.60	1.24	2.10	4.18	7.67
	shock absorber	—	0.61	1.31	2.12	4.19	7.72
Minimum rotation that will not allow decrease of energy absorption ability		—	72°	58°	69°	77°	82°

*1. The maximum operating pressure of the actuator is restricted by the maximum allowable thrust of the shock absorber.

*2. No-load conditions.

*3. The shock absorber is expendable. Replace when damping performance decrease.

*4. Be careful if the rotation angle of a type with internal shock absorber is set below the value in the table below, the piston stroke will be smaller than the shock absorber's effective stroke, resulting in decreased energy absorption ability.

Allowable kinetic energy and rotation time adjustment range

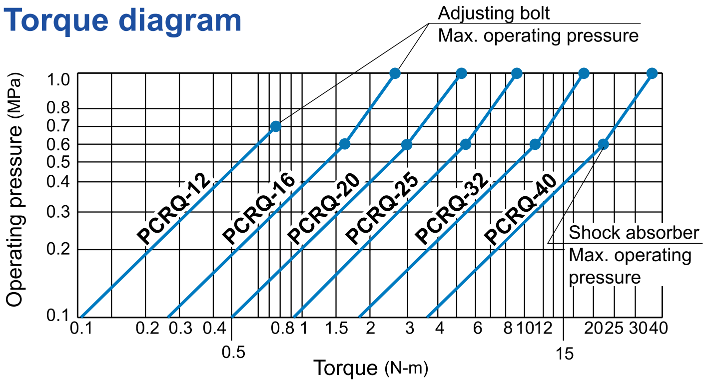
Model	Allowable kinetic energy (J)		Rotation time adjustment range for stable operation(s/90°)	
	Adjustment bolt	Internal shock adsorber	Adjustment bolt	Internal shock adsorber
PCRQ-12	0.006	—	0.2 to 1.0	—
PCRQ-16	0.007	0.039		0.2 to 0.7
PCRQ-20	0.048	0.116		
PCRQ-25	0.081	0.294		
PCRQ-32	0.32	1.6	0.2 to 2.0	0.2 to 1.0
PCRQ-40	0.53	2.9	0.2 to 2.5	

* Be careful if a type with internal absorber is used below the minimum speed, the energy absorption ability will decrease drastically.

PCRQ Capacity ø12~ø40

ROTARY ACTUATOR

Torque diagram



Installation guide of shock absorber

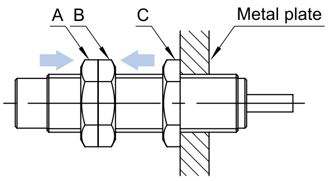
❶ Install 3 nuts on the shock absorber as the picture shown.

❷ Bind the A nut and B nut together via tightening them with different rotating direction.

❸ Hold B nut and rotate C nut to bind the plate and C nut together.

❹ Unbind the A nut and B nut. The installation is complete.

❺ For the tightening torque of the fixed nut of the shock absorber, please refer to the table below.



Tube I.D.	Max. tightening torque (N.m)
16	1.67
20	3.14
25	10.8
32	23.5
40	62.8

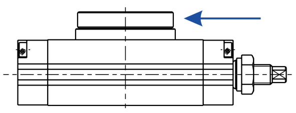
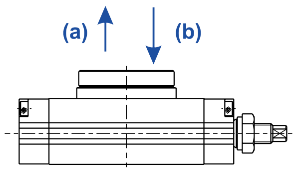
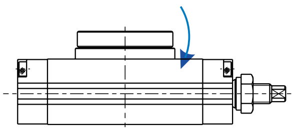
Theoretic force

Unit: N·m

Model		PCRQ					
Tube I.D.		**12**	**16**	**20**	**25**	**32**	**40**
Operating pressure (MPa)	0.1	0.1	0.26	0.5	0.91	1.88	3.78
	0.2	0.21	0.52	1	1.81	3.78	7.53
	0.3	0.31	0.78	1.5	2.72	5.66	11.31
	0.4	0.41	1.04	2.01	3.62	7.56	15.09
	0.5	0.52	1.31	2.51	4.55	9.44	18.87
	0.6	0.63	1.57	3	5.45	11.32	22.62
	0.7	0.73	1.83	3.5	6.36	13.23	26.4
	0.8	–	2.09	4.02	7.26	15.12	30.16
	0.9	–	2.35	4.52	8.17	17.01	33.93
	1.0	–	2.61	5.03	9.08	18.9	37.7

Allowable load

Set the load and moment to be applied to the table within the allowable values shown in the table below.
(Values outsize of limitations will cause excessive play, deteriorate accuracy, and shorten service life.)

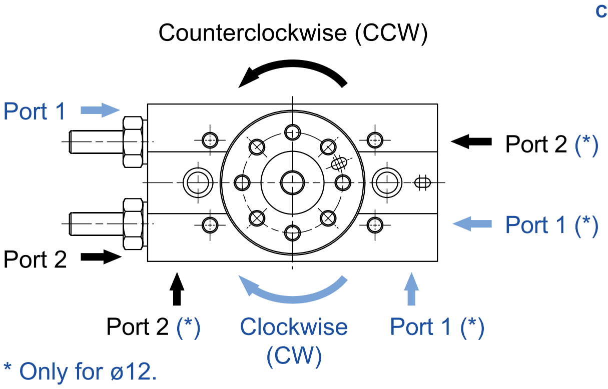
Pictures				
Tube I.D.	Allowable radial load (N)	Allowable thrust load (N)		Allowable moment (N.m)
		(a)	**(b)**	
12	54	71	71	1.5
16	78	74	78	2.4
20	196	197	363	5.3
25	314	296	451	9.7
32	390	493	708	18
40	543	740	1009	25

Rotation direction and angle

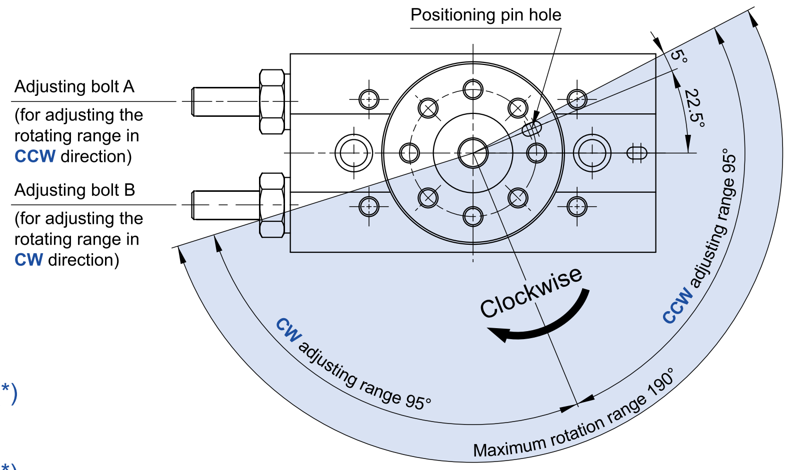
Rotating direction and angle

- When the port 1 is pressurized, the flange rotates in clockwise (CW) direction.
- When the port 2 is pressurized, the flange rotates in counter-clockwise (CCW) direction.

The rotating angle range can be adjust by the method shown as right figure.



* Only for ø12.



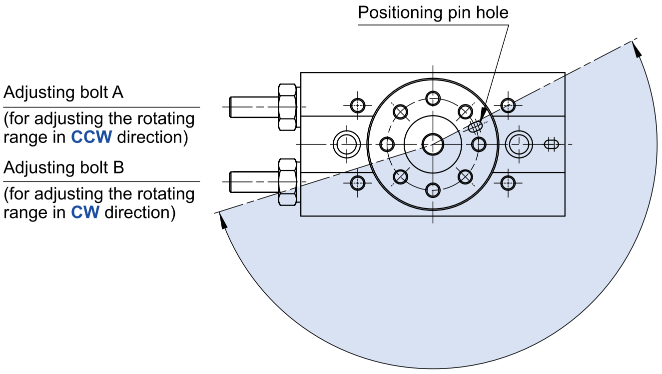
NOTE

- The figure shows the rotating range and use the pin hole as indicator.
- The pin hole position in the figure locates at the situation which the CCW & CW rotating range are both adjusted at 90°.

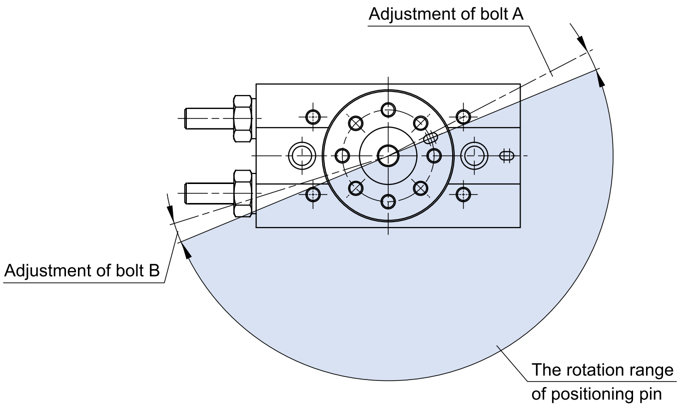
Rotating range adjusting example

- The followed figures show the rotating range of different adjustment via bolt A and B. (The drawings also show the rotation ranges of the positioning pin hole.)

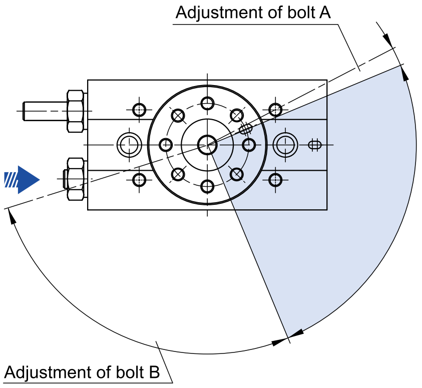
190° (Max) Rotation

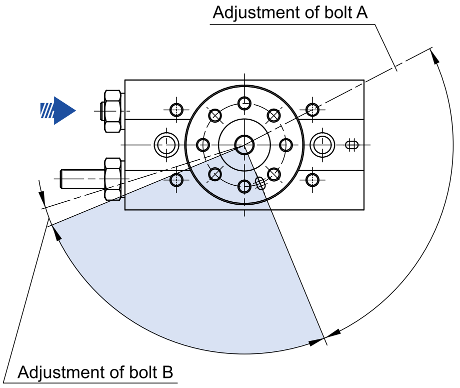


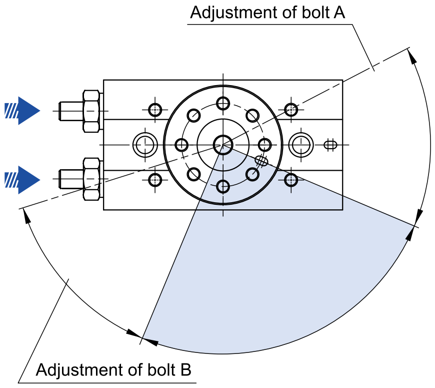
180° Rotation



90° Rotation

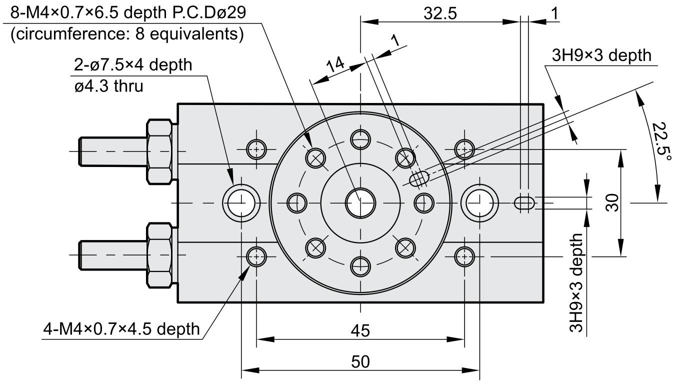


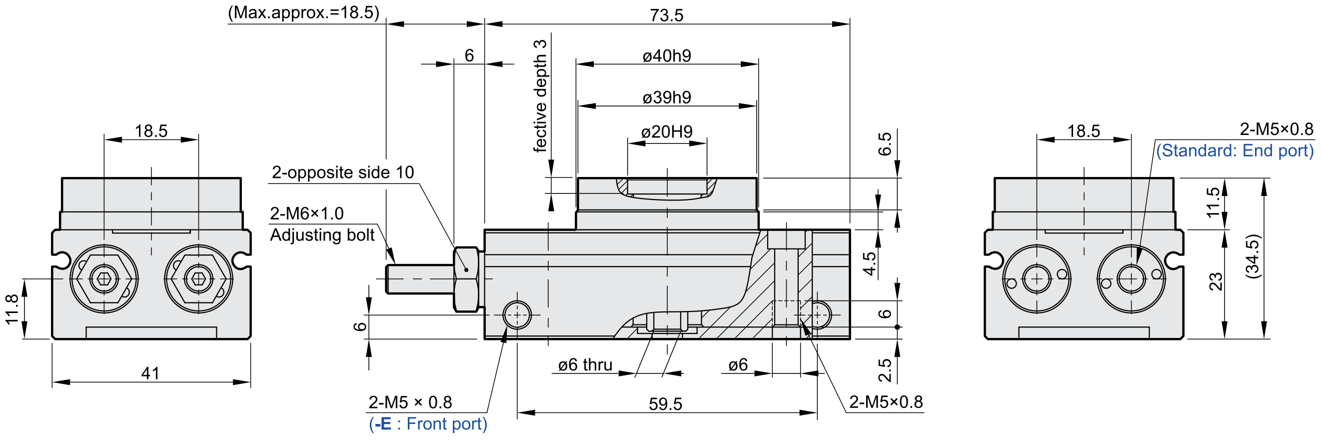


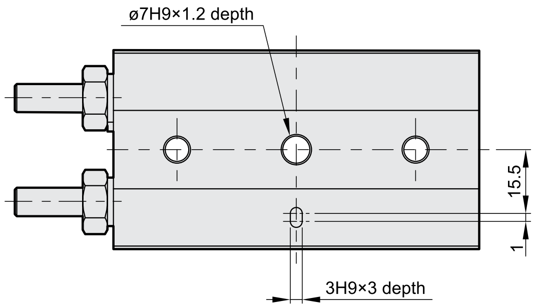


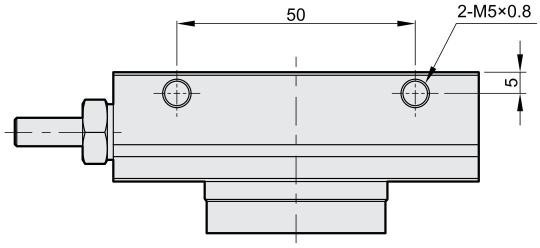
PCRQ Dimensions ø12

ROTARY ACTUATOR



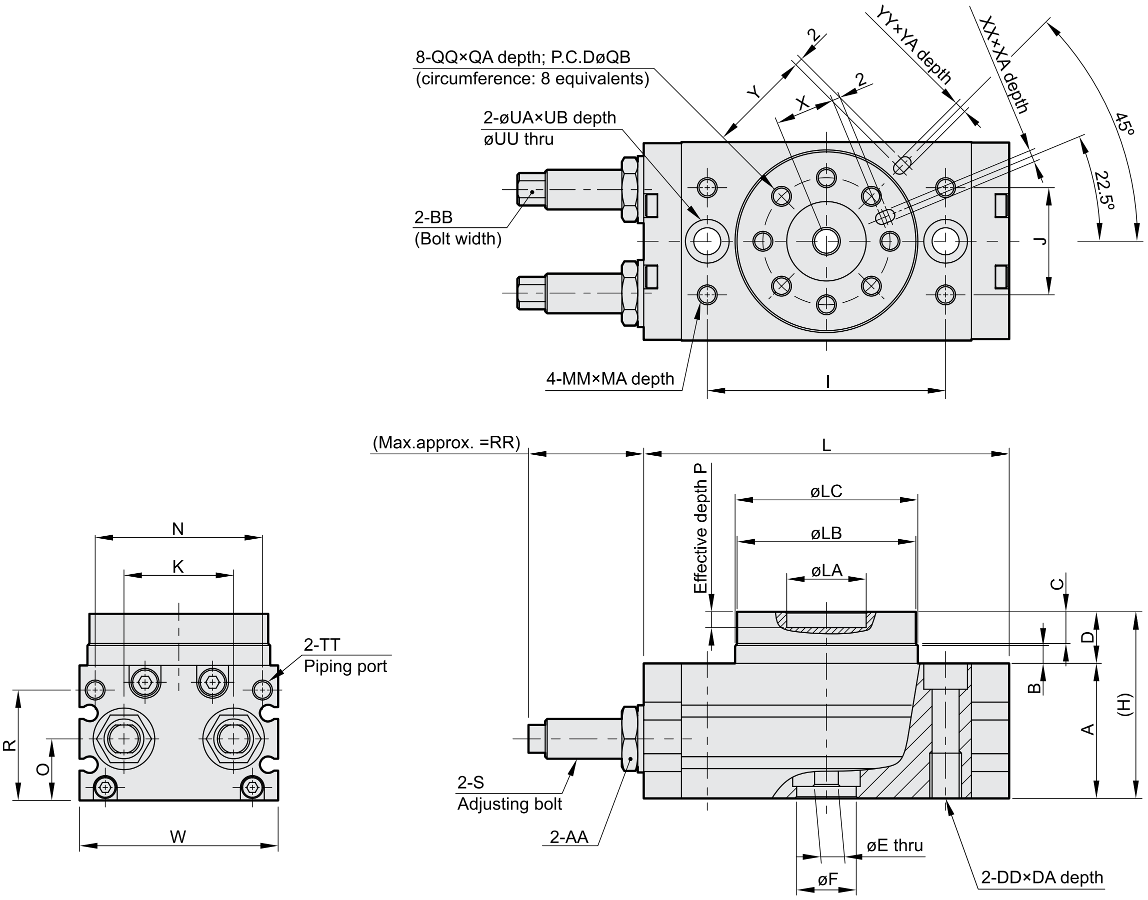






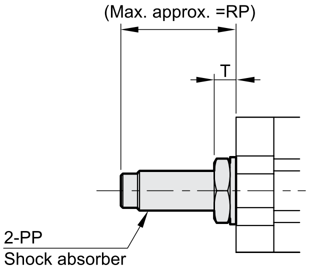
PCRQ Dimensions ø16, ø20, ø25

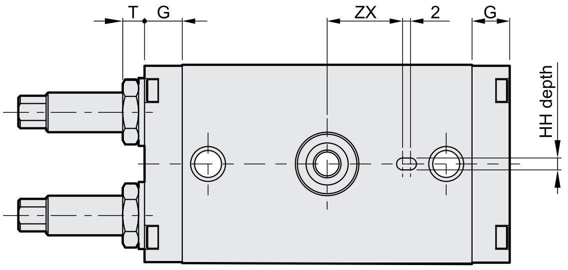
ROTARY ACTUATOR



PCRQ-16~25R

With shock absorber





Code Tubr I.D.	A	AA	B	BB	C	D	DA	DD	E	F	G	H	HH	I	J	K	L	LA	LB	LC	MA	MM	N
16	34	14	4.5	7	8	13	12	M8×1.25	6	15H9	9.5	47	3H9×3.5	60	27	26	92	20H9	45h9	46h9	8	M5×0.8	37
20	40	17	6.5	7	10	17	15	M10×1.5	10	22H9	12	57	4H9×4.5	84	37	32	127	32H9	65h9	67h9	8	M6×1	54
25	46	22	7.5	8	12	20	18	M12×1.75	13	26H9	15.5	66	5H9×5.5	100	50	37	152	35H9	75h9	77h9	8	M8×1.25	63

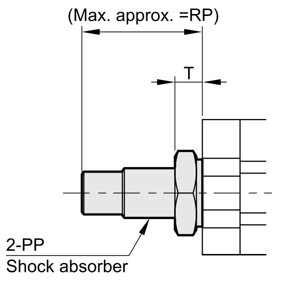
Code Tubr I.D.	O	P	PP	QA	QB	QQ	R	RP	RR	S	T	TT	UA	UB	UU	W	X	XA	XX	Y	YA	YY	ZX
16	15.5	4	FK-1008L-S	8	32	M5×0.8	29	29	31	M10×1.0	5.5	M5×0.8	11	6.5	6.8	50	15	3.5	3H9	27	3.5	3H9	19
20	19.5	4.5	FK-1008L-S	10	48	M6×1.0	33	23.5	26	M10×1.0	4.5	Rc1/8	14	8.5	8.6	70	23	4.5	4H9	39	4.5	4H9	28
25	22	5	FK-1412L-S	12	55	M8×1.25	37.5	33	31.2	M14×1.5	7.5	Rc1/8	18	10.5	10.5	80	26.5	5.5	5H9	45	5.5	5H9	33

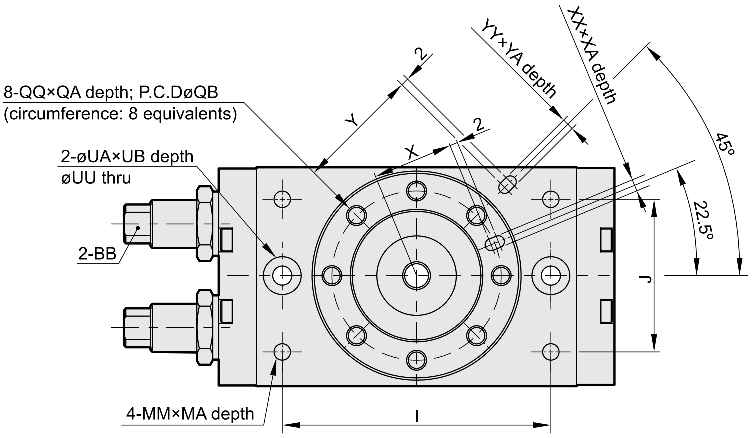
PCRQ Dimensions ø32, ø40

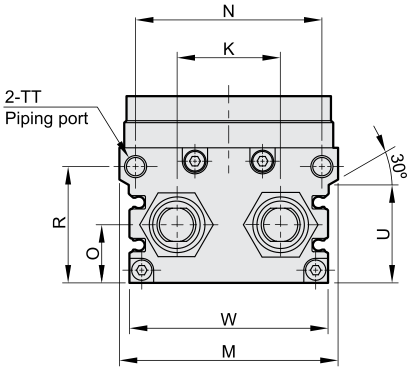
ROTARY ACTUATOR

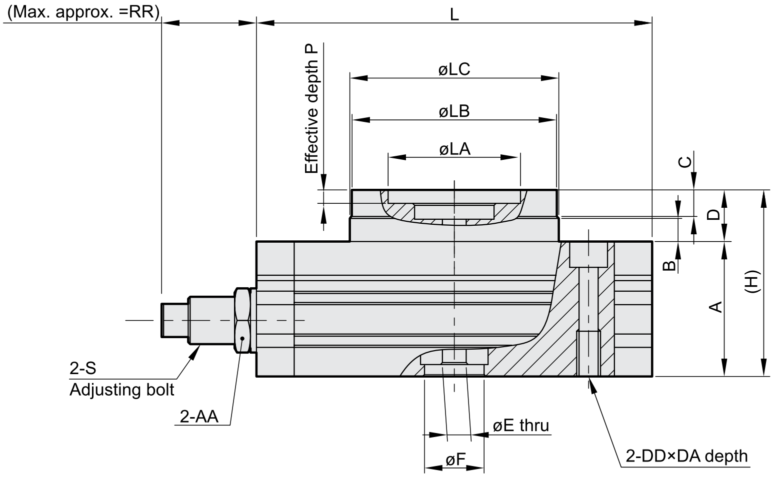
PCRQ-32R, 40R

With shock absorber

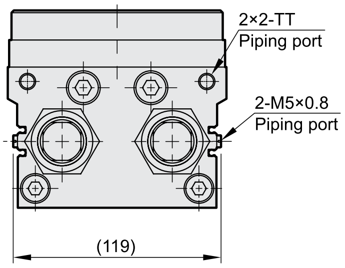


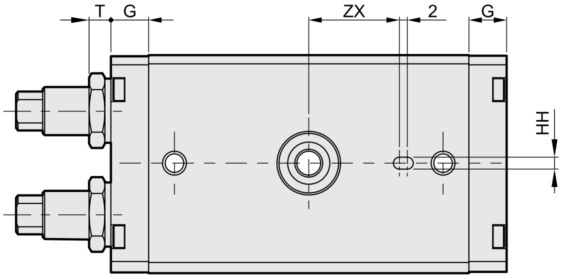






PCRQ-40





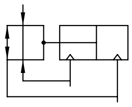
Code Tubr I.D.	A	AA	B	BB	C	D	DA	DD	E	F	G	H	HH	I	J	K	L	LA	LB	LC	M	MA
32	59	30	12	Bolt width 12	14.5	27	18	M12×1.75	13	24H9	17	86	6H9×4.5 dp	130	66	47	189	56H9	98h9	100h9	102	10
40	74	36	15	Bolt width 21	16.5	32	25	M16×2.0	24	32H9	24	106	8H9×6.5 dp	150	80	60	240	64H9	116h9	118h9	120	13

Code Tubr I.D.	MM	N	O	P	PP	QA	QB	QQ	R	RP	RR	S	T	TT	U	UA	UB	UU	W	X	XA
32	M8×1.25	85	27.5	6	FK-2016L-S	14.5	77	M10×1.5	50.5	46	38.1	M20×1.5	10.5	Rc1/8	42	18	10.5	10.5	95	37.5	6.5
40	M12×1.75	100	37	9	FK-2725L-S	16.5	90	M12×1.75	65.5	68	45	M27×1.5	7	Rc1/8	57	20	12.5	14.2	113	44	8.5

Code Tubr I.D.	XX	Y	YA	YY	ZX
32	6H9	59	4.5	6H9	49
40	8H9	69	4.5	8H9	54

PCHD Series

PARALLEL GRIPPER (2-Finger)



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.
- Magnetic as standard.

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. operating frequency (c.p.m)	Short	120			
	Medium	120			
	Long	60			
Lubricator		Not required			
Sensor switch	2 wire	**RDFE(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.

Order example

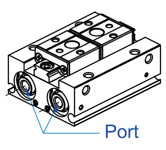
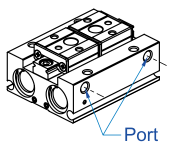
PCHD — 20R — □

MODEL

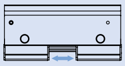
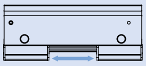
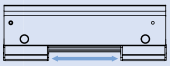
TUBE I.D.
8, 12, 16, 20

STROKE *
Blank: Short
1: Medium
2: Long

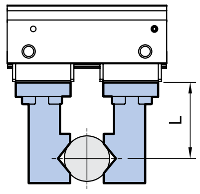
PIPING TYPE

Blank: Axial piping	**R**: Side piping
 Port	 Port

* 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

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.

PCHD Model selection / Allowable load calculation

PARALLEL GRIPPER (2-Finger)

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 (=9.8m/s^2)

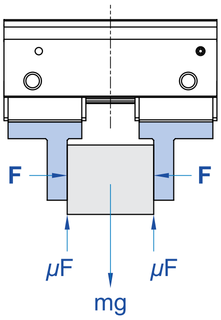
mg : Workpiece weight (N)

the conditions under which the workpiece will not drop are,

$$\underbrace{2}_{\text{Number of fingers}}\times\mu F > mg$$

Therefore,

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



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

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

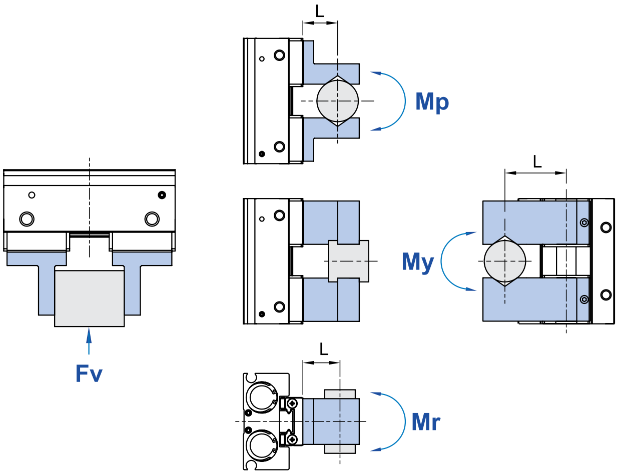
The "10 to 20 times or more of the workpiece weight" is calculated with a safety margin of a=4, which allows for impacts that occur during normal transportation, etc.

μ=0.2	μ=0.1
$F = \frac{mg}{2\times0.2} \times 4$ $= 10\times mg$	$F = \frac{mg}{2\times0.1} \times 4$ $= 20\times mg$
↓	↓
10×workpiece weight	20×workpiece weight

* 1. Even in cases where the coefficient of friction is greater than μ=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

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

Example

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

$$\text{Allowable load } F(N) = \frac{1.4\ (N\bullet m)}{25\times10^{-3}(m)}$$

$$= 56\ (N)$$

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)

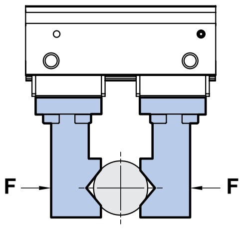
1. The conditions under which the workpiece will not drop are,

$$F = \frac{0.3}{2\times0.1} \times 4 = 6\ (kgf) \approx 60\ (N)$$

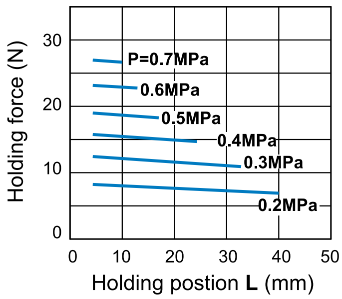
2. From Effective Gripping Force Fig,
Operating pressure: 0.5 MPa; Holding position: 20 mm
Effective gripping force is greater than 60 (N)
So selected **PCHD-16** grippers.

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.

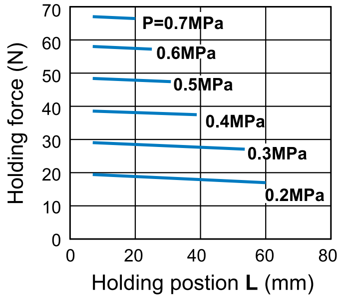


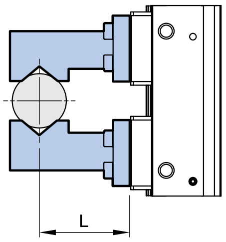
PCHD-8 ☐



1N=0.102 kgf
1MPa=10.2 kgf/cm^2

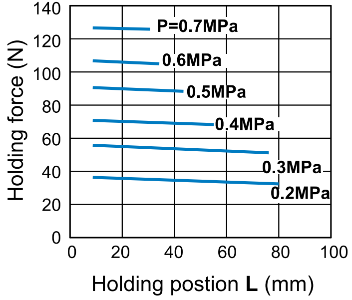
PCHD-12 ☐

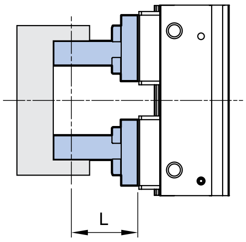




External grip

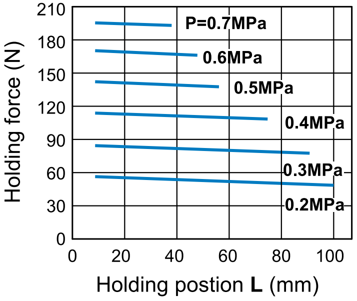
PCHD-16 ☐





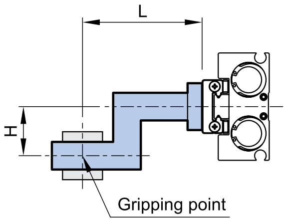
Internal grip

PCHD-20 ☐

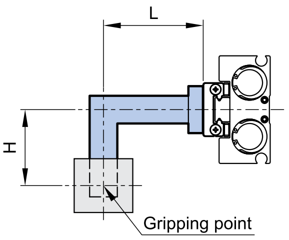


Confirmation of gripping point

- 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 the air gripper.

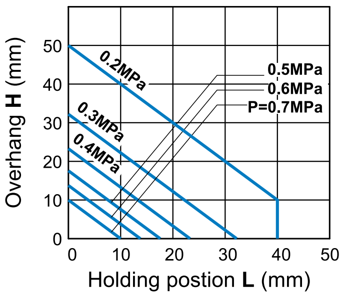


External grip

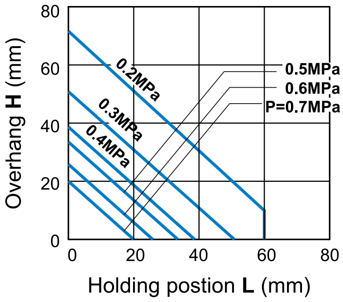


Internal grip

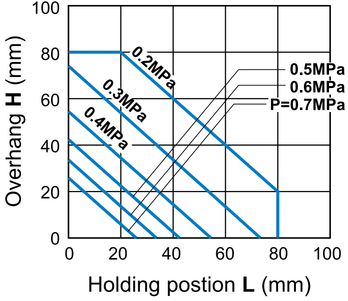
PCHD-8 ☐



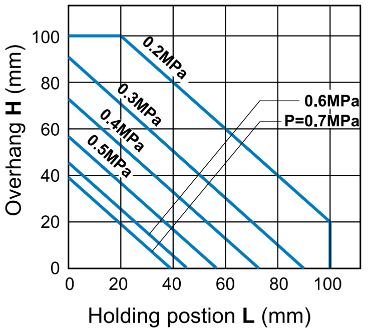
PCHD-12 ☐



PCHD-16 ☐



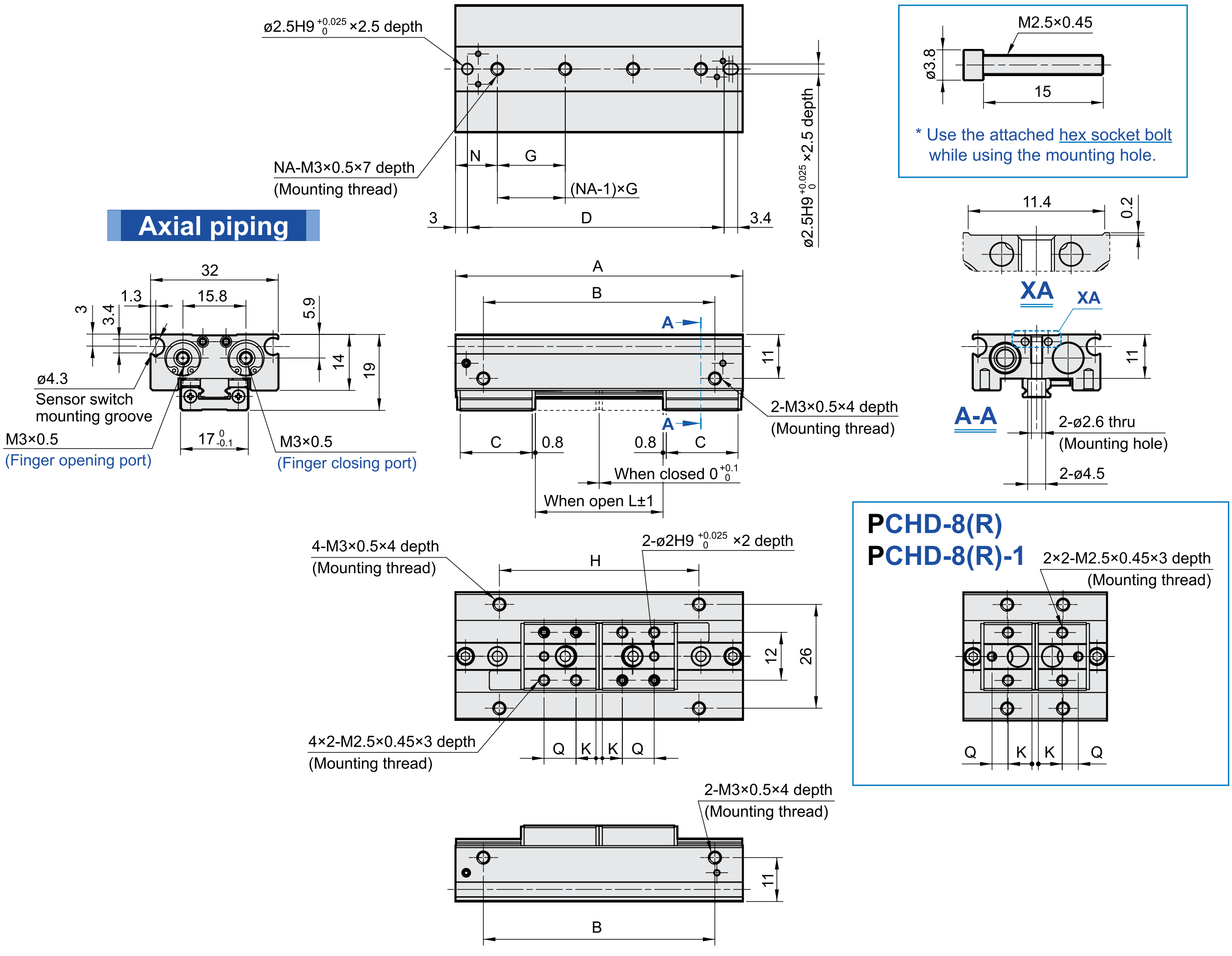
PCHD-20 ☐



PCHD Dimensions ø8

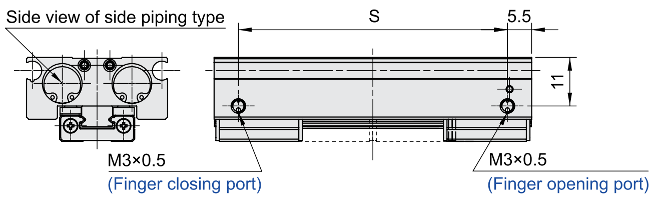
PARALLEL GRIPPER (2-Finger)

Axial piping



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

Side piping



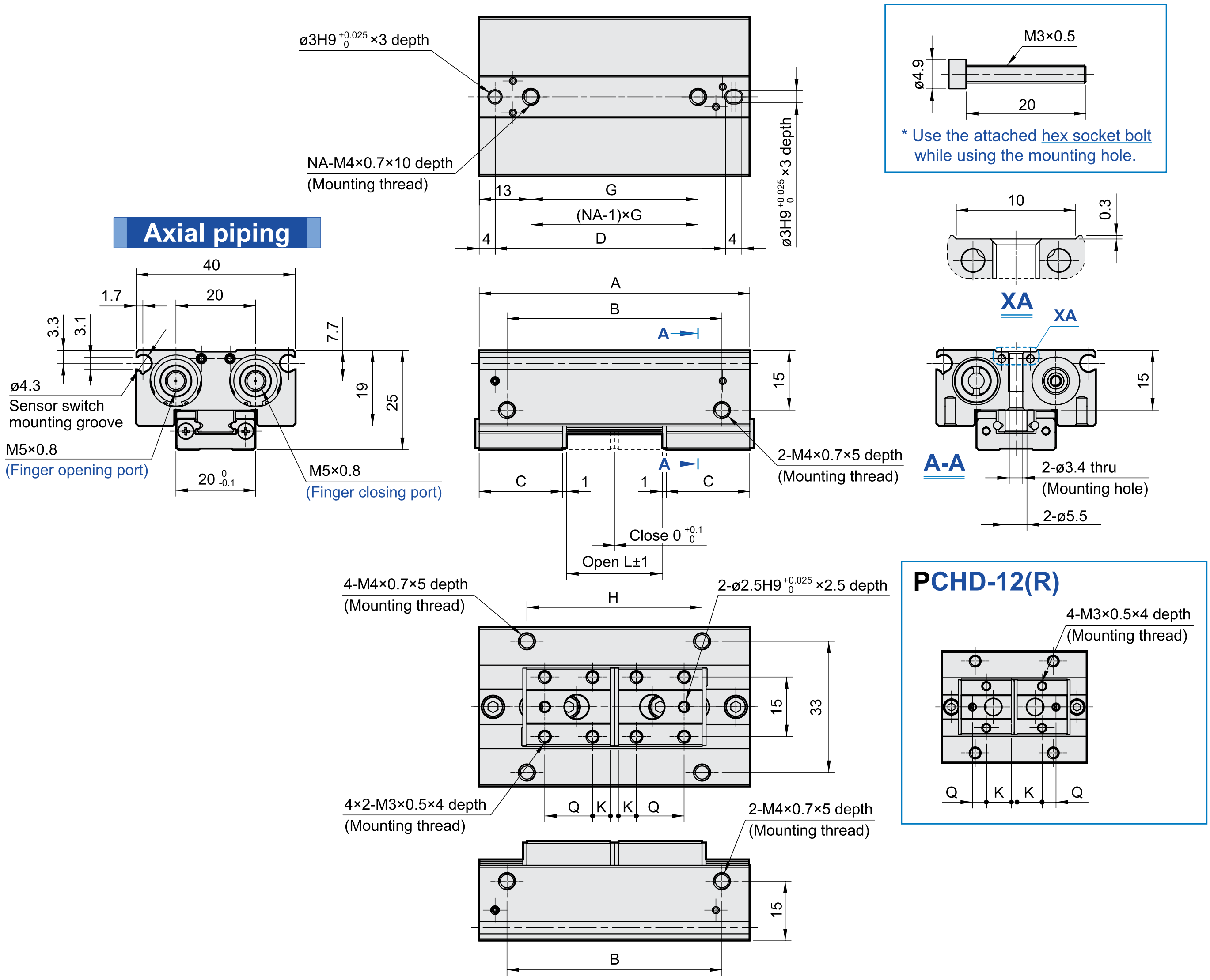
Unit: mm

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

PCHD Dimensions ø12

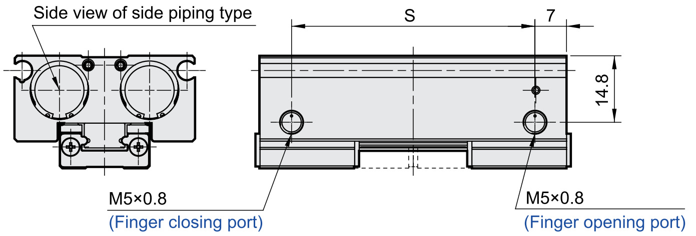
PARALLEL GRIPPER (2-Finger)

Axial piping



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

Side piping



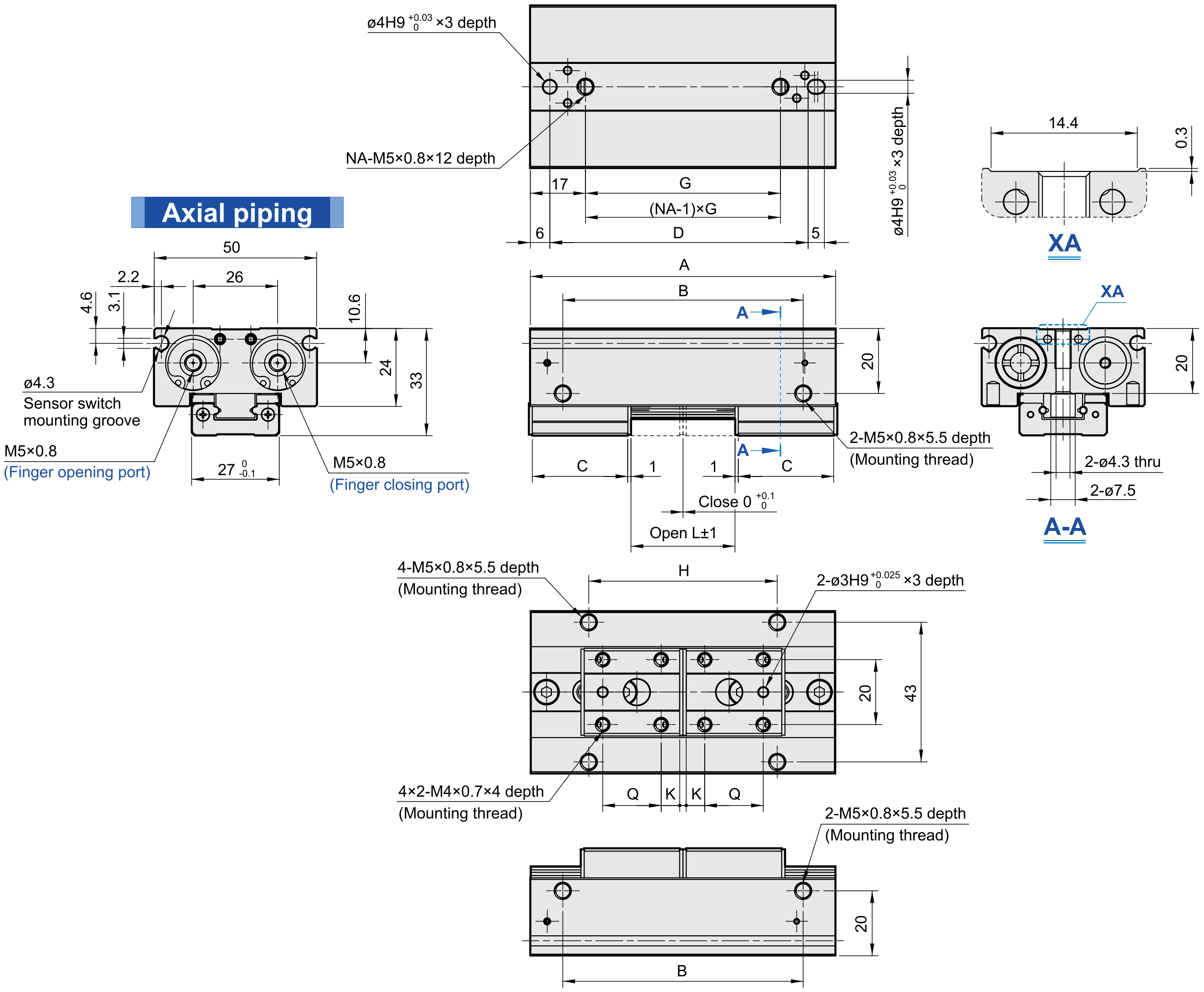
Unit: mm

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

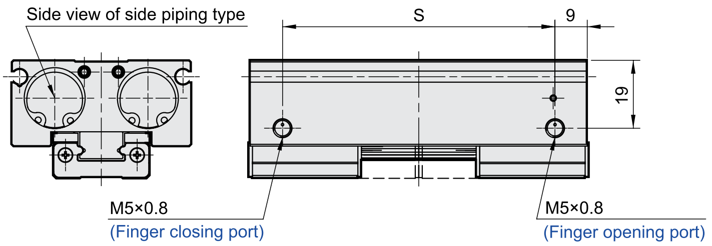
PCHD Dimensions ø16

PARALLEL GRIPPER (2-Finger)

Axial piping



Side piping



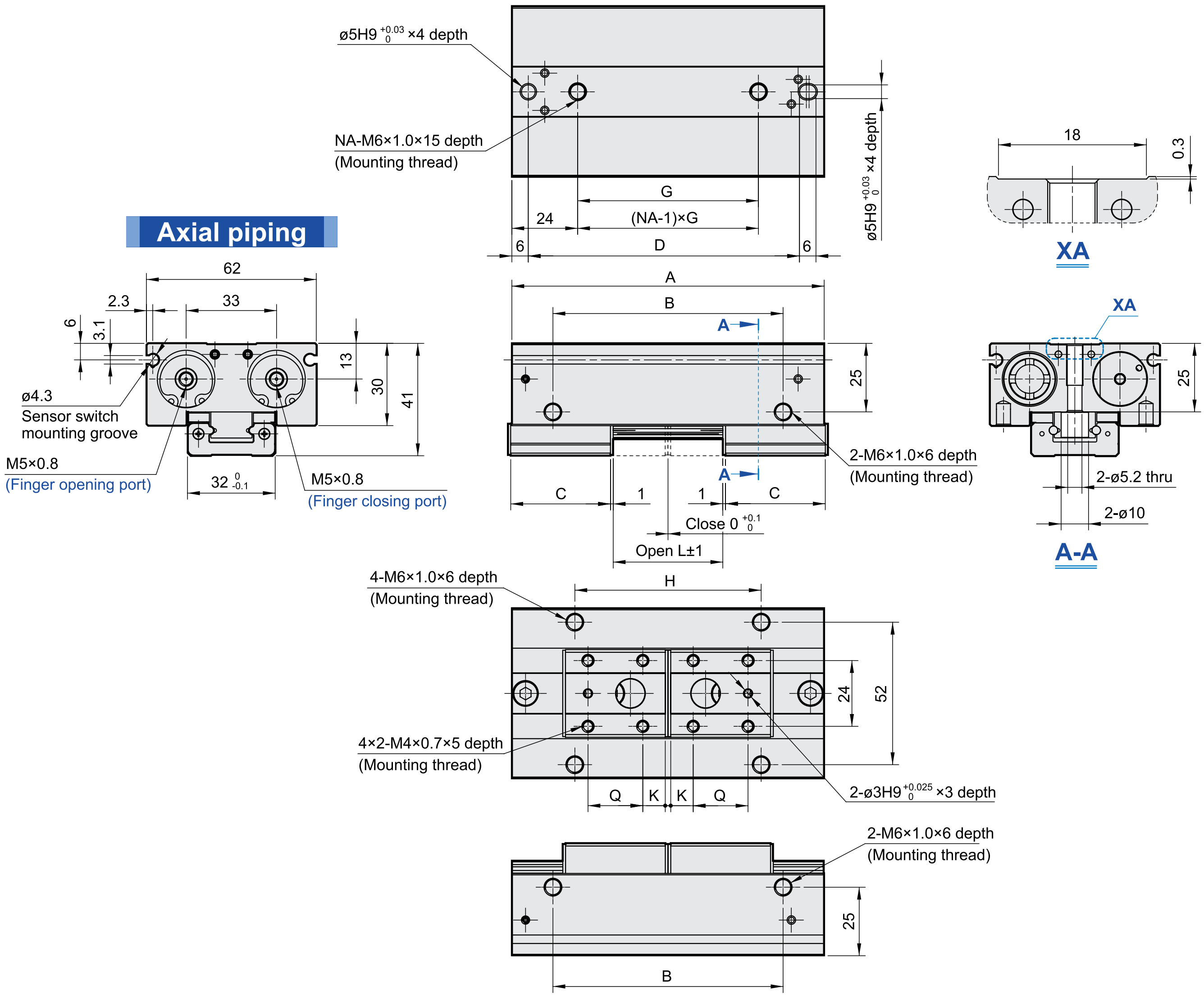
Unit: mm

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

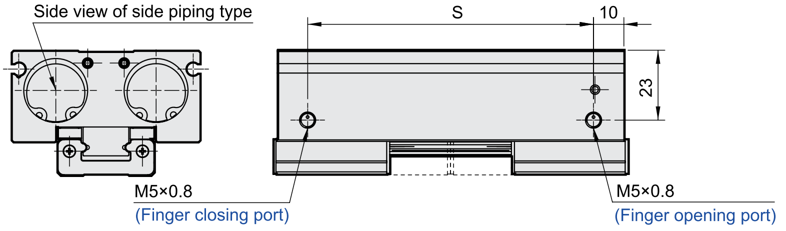
PCHD Dimensions ø20

PARALLEL GRIPPER (2-Finger)

Axial piping



Side piping

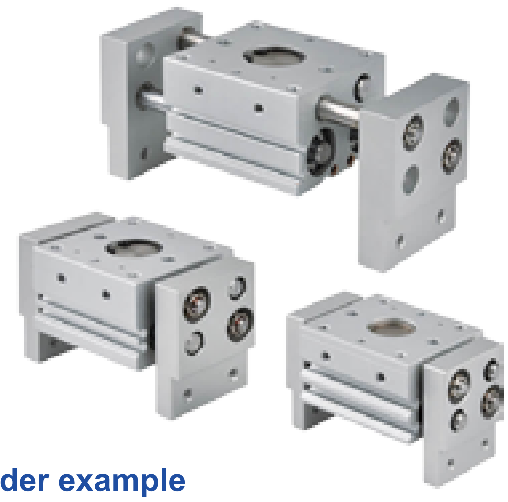


Unit: mm

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

PCHX Series

WIDE TYPE PARALLEL GRIPPER (2-Finger)



Features

- Rack and pinion construction enable synchronisation of both jaws enabling smooth and consistent gripping force.
- Wide range of strokes available.
- Dust seals protect all internal parts from ingress of dirt.
- Proximity and reed switches can be used with this unit.
- Magnetic as standard.

Specification

Model		PCHX					
Acting type		Double acting					
Tube I.D. (mm)		10	16	20	25	32	40
Medium		Air					
Operating pressure range		0.2~0.6 MPa					
Ambient temperature		-5~+60°C (No freezing)					
Lubrication		Not required					
Repeatability		±0.1 mm					
Sensor switch	2 wire	**RDFE**(**V**): Non-contact					
	3 wire	**RNFE**(**V**): NPN, **RPFE**(**V**): PNP					

Order example

PCHX — 16 — 30 M

MODEL

TUBE I.D.	STROKE
10	**20, 40, 60**
16	**30, 60, 80**
20	**40, 80, 100**
25	**50, 100, 120**
32	**70, 120, 160**
40	**100, 160, 200**

M: Magnet

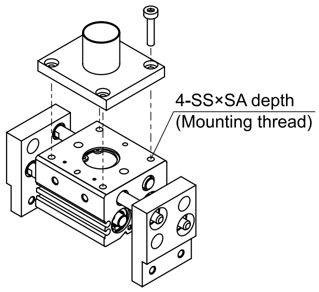
* Magnetic as standard.

Weight

Model	PCHX-10			PCHX-16			PCHX-20			PCHX-25			PCHX-32			PCHX-40		
Stroke (mm)	20	40	60	30	60	80	40	80	100	50	100	120	70	120	160	100	160	200
Max. operating frequency (c.p.m)	60	40	40	60	40	40	60	40	40	60	40	40	30	20	20	30	20	20
Weight (kg)	0.28	0.35	0.44	0.56	0.8	0.94	1.0	1.5	1.68	1.69	2.8	3.0	3.15	4.36	5.02	5.3	6.8	8.6

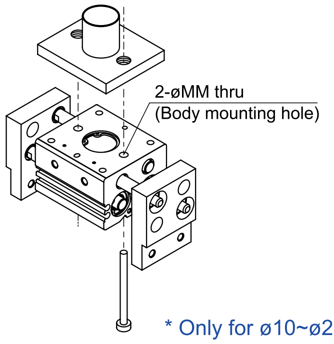
Mounting

Axial mounting



Tube I.D.	SA	SS	Max. tightening torque (N.m)
10	8	M4×0.7	2.1
16	10	M5×0.8	4.3
20	12	M6×1.0	7.3
25	16	M8×1.25	17.7
32	16	M8×1.25	18
40	20	M10×1.5	36

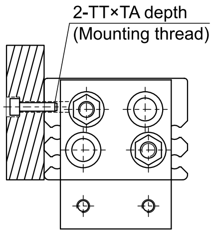
Axial mounting



* Only for ø10~ø25.

Tube I.D.	MM	Bolt	Max. tightening torque (N.m)
10	4.5	M4×0.7	2.1
16	5.5	M5×0.8	4.3
20	6.6	M6×1.0	7.3
25	9	M8×1.25	17.7
32	–	–	–
40	–	–	–

Lateral mounting



Tube I.D.	TA	TT	Max. tightening torque (N.m)
10	5	M4×0.7	1.4
16	7	M5×0.8	2.8
20	7	M6×1.0	4.8
25	7	M8×1.25	12
32	11	M8×1.25	12
40	12	M10×1.5	24

PCHX Model selection / Mounting precautions

WIDE TYPE PARALLEL GRIPPER (2-Finger)

Model selection example

* Finger selection please contact us.

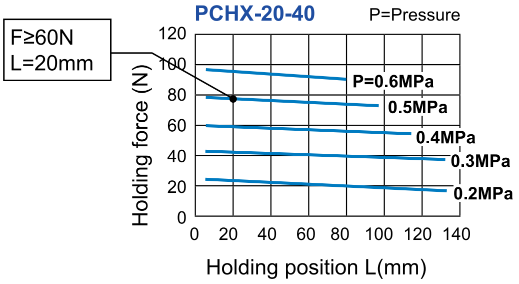
In the motion process did not produce high acceleration, deceleration or impact forces, Workpiece mass: 0.3kg , Gripping method: External gripping, Operating pressure: 0.5 MPa, Coefficient of friction (μ): 0.1, Holding position: L=20mm (no overhang)

1. Based on the above formula, the required gripping force can be derived:

$$F \geq \frac{0.3\times 9.8}{2\times 0.1} \times 4$$

$$\geq 60(N)$$

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 **PCHX-20-40** grippers.

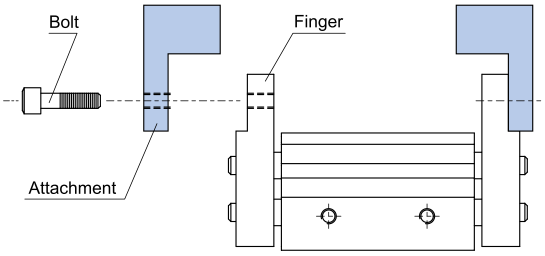


Model selection suggestions

1. For normal gripping and carrying usage, the recommended safe factor (a) is 4.
2. The value of gripping force of single finger can be found at the gripping force table.
3. The safe factor (a) have to be higher if the gripper is using with a great accelerated velocity or impaction condition.

Mounting precautions

1. To prevent bending the piston rod, please mount the attachment when finger is closing.
2. Do not scratch or dent the sliding portion of the piston rod, or it may cause air leaks or faulty operation.
3. Refer to the table below for the proper tightening torque on the bolt used for securing the attachment to the finger.



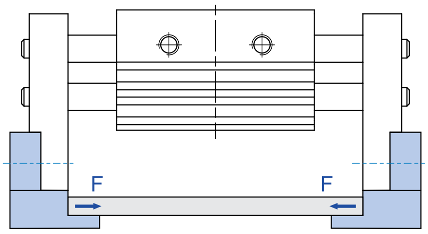
Tube I.D.	Bolt	Max. tightening torque (N.m)
10	M4×0.7	1.4
16	M5×0.8	2.8
20	M6×1.0	4.8
25	M8×1.25	12
32	M10×1.5	24
40	M12×1.75	42.2

PCHX Capacity ø10~ø40

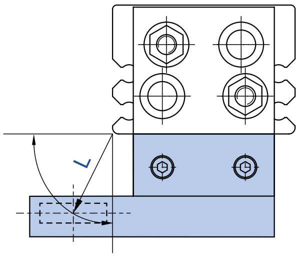
WIDE TYPE PARALLEL GRIPPER (2-Finger)

Effective gripping force

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.

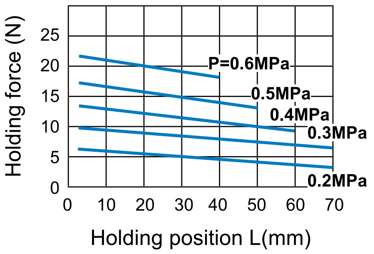


1N=0.102 kgf
1MPa=10.2 kgf/cm^2

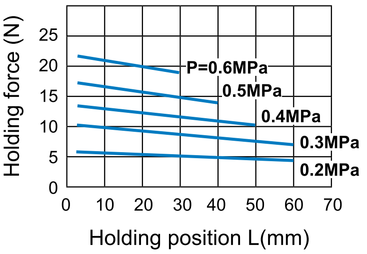


L: Holder position (mm)

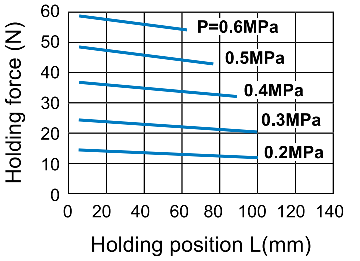
PCHX-10-20



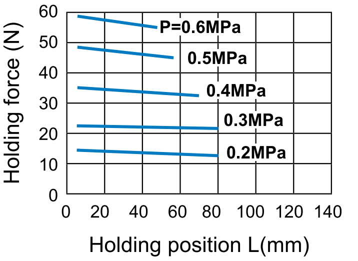
PCHX-10-40
PCHX-10-60



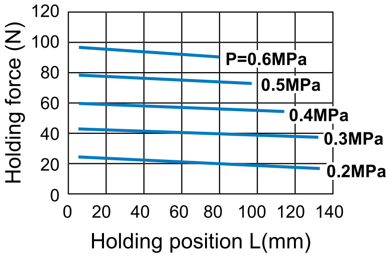
PCHX-16-30



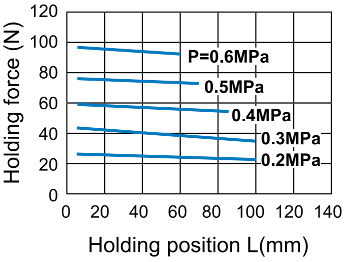
PCHX-16-60
PCHX-16-80



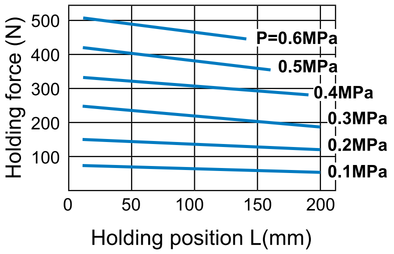
PCHX-20-40



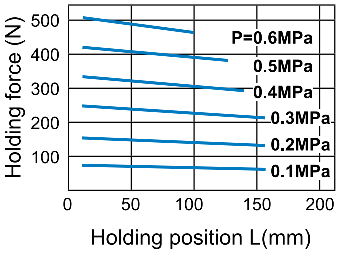
PCHX-20-80
PCHX-20-100



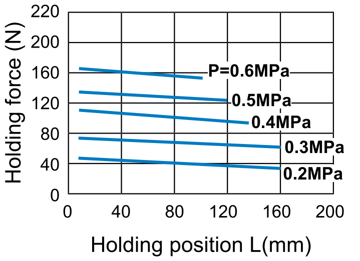
PCHX-40-100



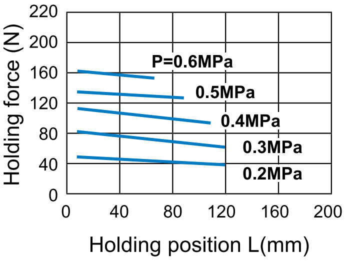
PCHX-40-160
PCHX-40-200



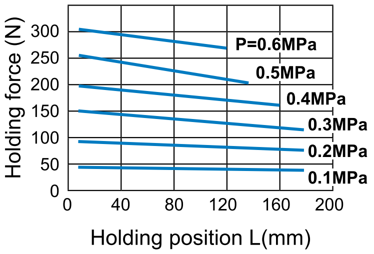
PCHX-25-50



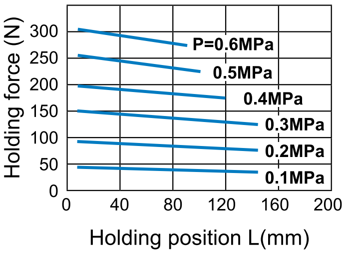
PCHX-25-100
PCHX-25-120



PCHX-32-70

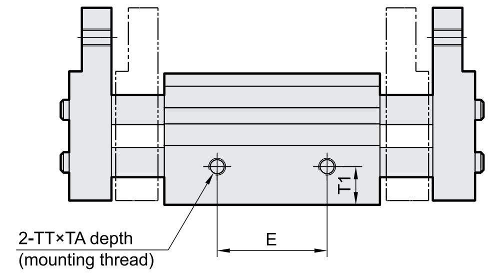


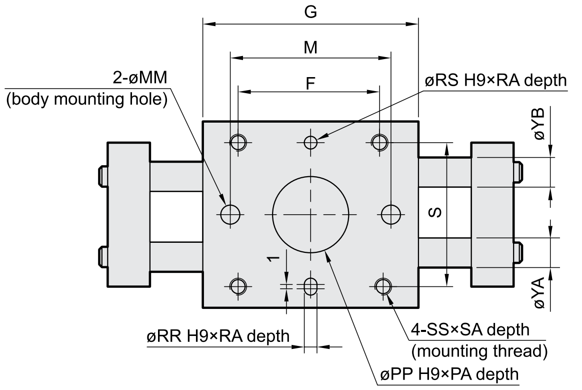
PCHX-32-120
PCHX-32-160



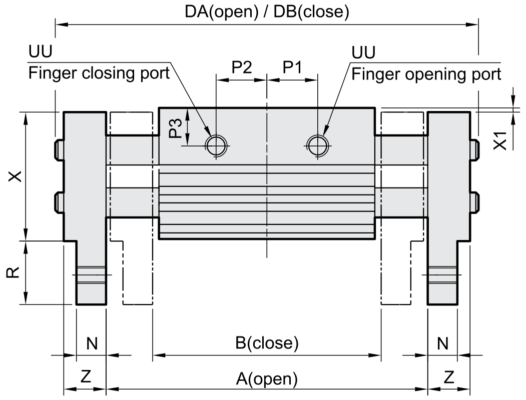
PCHX Dimensions

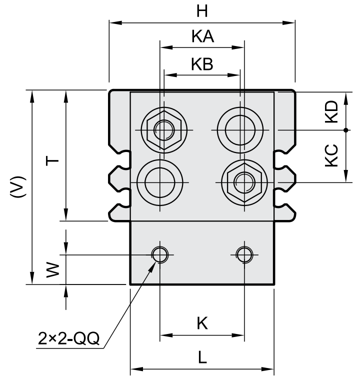
WIDE TYPE PARALLEL GRIPPER (2-Finger)





Code Tube I.D.	Stroke	A	B	DA	DB	E	F	G	M	P1	P2
10	20	76	56	100	80	26	36	51	38	11.5	11.5
	40	118	78	142	108	42	52	67	54	19.5	19.5
	60	156	96	180	146	60	70	85	72	28.5	28.5
16	30	98	68	128	98	28	45	60	40	13	13
	60	170	110	200	152	58	75	90	70	25	25
	80	210	130	240	192	78	95	110	90	35	35
20	40	122	82	160	120	38	58	71	54	16	16
	80	222	142	260	194	80	100	113	96	34	34
	100	262	162	300	234	100	120	133	116	44	44
25	50	150	100	196	146	48	70	88	66	19	19
	100	282	182	328	244	102	124	142	120	43	43
	120	320	200	366	282	120	142	160	138	52	52
32	70	220	150	272	202	60	86	110	—	28	28
	120	318	198	370	282	108	134	158	—	52	52
	160	402	242	454	366	152	178	202	—	74	74
40	100	288	188	348	252	80	116	148	—	36	36
	160	406	246	466	370	138	174	206	—	65	65
	200	486	286	546	450	178	214	246	—	85	85





Code Tube I.D.	H	K	KA	KB	KC	KD	L	N	MM	PA	PP	P3	QQ	R	RA	RR	RS	S	SA	SS
10	44	20	20	18.2	12.5	8	34	7	4.5	1.5	18	9	M4×0.7	15	3	3	3	34	8	M4×0.7
16	55	25	25	22.6	16.5	9	43	9	5.5	1.5	23	10	M5×0.8	19	3	3	3	42	10	M5×0.8
20	65	30	30	28.2	20	10	54	12.5	6.6	1.5	24	11	M6×1.0	24	4	4	4	52	12	M6×1.0
25	76	40	38	33.2	23.5	11.5	64	14	9	1.5	32	16	M8×1.25	29	4.5	4	4	62	16	M8×1.25
32	82	50	40	32.2	30	14.5	70	15	–	2.5	35	16	M10×1.5	32	8	6	6	64	16	M8×1.25
40	98	60	48	40.2	37	16	86	18	–	2.5	40	18	M12×1.75	38	8	6	6	76	20	M10×1.5

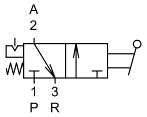
Code Tube I.D.	T	T1	TA	TT	UU	V	W	X	X1	YA	YB	Z
10	31	9	5	M4×0.7	M5×0.8	46	7	30.5	0.5	6	6	10
16	39	10	7	M5×0.8	M5×0.8	58	8	38.5	0.5	8	8	13
20	46	11	7	M6×1.0	M5×0.8	70	10	45	1	10	10	17
25	52	12.5	7	M8×1.25	M5×0.8	81	12	51	1	12	12	21
32	68	22	11	M8×1.25	Rc1/8	100	15	67	1	14	16	24
40	79	28	12	M10×1.5	Rc1/8	117	18	78	1	16	20	28

PVHR Series

ON-OFF VALE

(Lock is not attached)

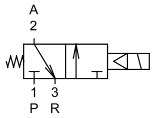
Symbol



Specification – Manual type

Model		PVHR-302 / 400		
Bore No.		8A	10A	15A
Port size		1/4	3/8	Rc1/2
No. of port		3		
No. of position		2		
Medium		Air		
Operating pressure range		0.1~1 MPa		
Proof pressure		1.5 MPa		
Effective orifice (mm^2)	IN→OUT	39	56	66
	OUT→EXH	39	45	58
Ambient temperature		-5~+60°C (No freezing)		
Weight		304g / 311g		

Symbol



Specification – Solenoid type

Model		PVHR-302S / 400S		
Bore No.		8A	10A	15A
Port size		1/4	3/8	Rc1/2
No. of port		3		
No. of position		2		
Medium		Air		
Operating pressure range		0.15~1 MPa		
Proof pressure		1.5 MPa		
Effective orifice (mm^2)	IN→OUT	39	56	66
	OUT→EXH	39	45	58
Ambient temperature		-5~+60°C (No freezing)		
Voltage		AC110V, 220V (50/60)Hz, DC24V		
Power consumption		AC=4.8/4.4VA, 6/4.9VA, DC=2W		
Available voltage range		±10%		
Insulation class		F class		
Weight		378g / 385g		

Order example

PVHR — 302□ — 3H — 8A — 1□— DC24 — □ — B — G

MODEL

MODEL for F.R.L
302: for PA**302 series
400: for PA**401, 403 series

CONTROL MODEL
Blank: Manual type
S: Solenoid type

3H: 3way(3port)
(Residual pressure release)

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

Apply to PVHR-400
1: Silver (For air unit 401 series)
3: Cool gray (For air unit 401-W, 403 series)

FLOW DIRECTION
Blank: Left to right
R: Right to left

VOLTAGE
*Only for solenoid type
AC220V(50/60)Hz
AC110V(50/60)Hz
DC24V

*Only for solenoid type
Blank: DIN connector
L: DIN connector with LED indicator
E: Explosion protection (Table 1)
(**E** type use black coil)

BRACKET
Blank: Without
B: With bracket

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

Order example of bracket

PVHR — 302 — B

BRACKET

* 302 and 400 use the same bracket.

Table 1

Property for explosion-proof type

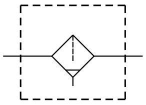
Anti-explosion class	EEx m II T4
Voltage	AC110V. 220V.(50/60)Hz. DC24V.
Power consumption	AC=4.4VA DC=5W
Available voltage range	±10%
Insulation class	F class
Wire length	3 m

PAF302 Series

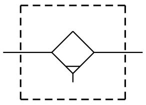
AIR UNIT (FILTER / WATER SEPARATOR)

Symbol

Filter



Water separator



Specification

Model	PAF302		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure range (*1)	0.05~1 MPa		
Proof pressure	1.5 MPa		
Ambient temperature	– 5~+60°C (No freezing)		
Drain capacity	35 cm^3		

Filter	PAF302	
Filter element	Standard: 5μm, Option: 40μm	
Weight	335 g	
Water separator	**PAF302G**	
Water droplet removal ratio (*2)	99±1%	
Rated flow l/min(ANR) (*3)	550	1280
Weight	345 g	

*1. Standard unit contains semi-auto-drain function when operating pressure below 0.05 MPa.
Choose auto-drain PMRF300, the pressure range is 0.15~1 MPa.
*2. This shows the water droplet removal ratio at the rated flow.
*3. Input pressure: 0.7 MPa. When fluid flows exceeding the rated flow, the accumulated condensate may be pulled up and may flow out to outlet side.

Order example

PAF302G – 8A – ND – ☐ – ☐ – ☐

MODEL
Blank: Filter
G: Water separator
(Removal ratio 99%±1)

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

BOWL
Blank: PC bowl
M: Metal bowl
N: Nylon bowl

Blank: Semi-auto drain
D: Auto drain valve (PMRF300)

(*)
FILTER ELEMENT
Blank: 5μm
40u: 40μm

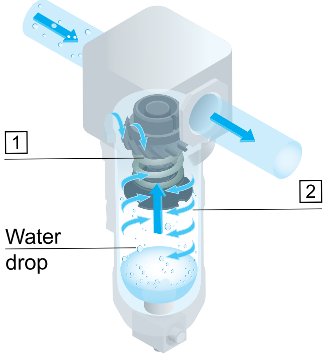
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

Blank: Without bracket
B: C type bracket

* There is not filter element in PAF302G series.

Water separator features

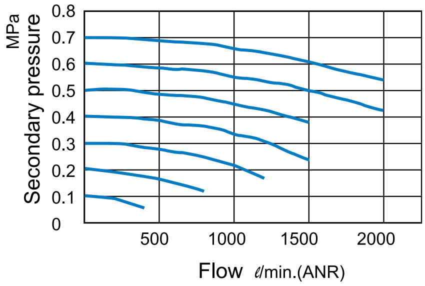
1. Water droplets are removed by centrifugal force.
This product can remove water droplets in the compressed air, but cannot remove moisture content (water vapor).
2. Filter element is not needed. Water droplet removal ratio: 99%



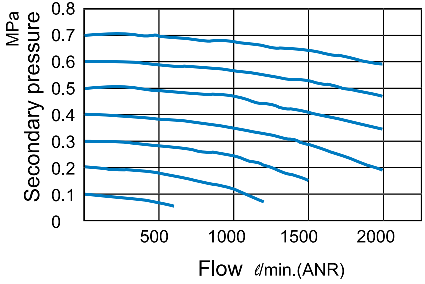
Flow feature

PAF302 (Filter)

8A

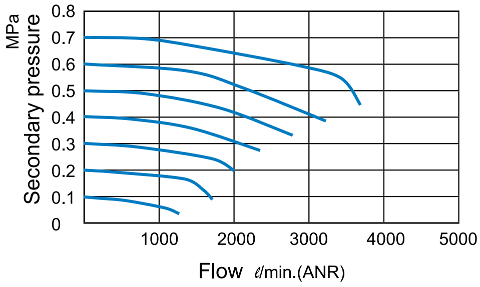


10A, 15A

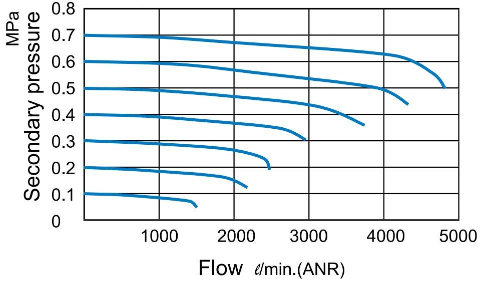


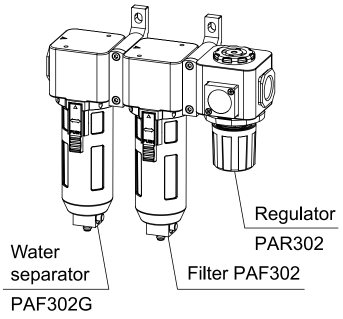
PAF302G (Water separator)

8A



10A, 15A



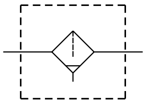


Assembly example

PAF401 Series

AIR UNIT (FILITER)

Symbol



Specification

Model	PAF401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure 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. Sandard unit contains semi-auto-drain function when operating ressure below 0.05 MPa.

*2. Choose auto-drain PMRF300, the pressure range is 0.15~1 MPa.

*3. Flow is at pressure P=0.7 MPa with pressure drop △ P=0.03 MPa.

Order example

PAF401 – 8A – □ – D□ – □ – □ – □

MODEL

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

EXTERIOR COLOR
Blank: Black & silver
W: Gray & white

Blank: Semi-auto drain
D: Auto drain valve (PMRF300)

FLOW DIRECTION
Blank: Left to right
R: Right to left

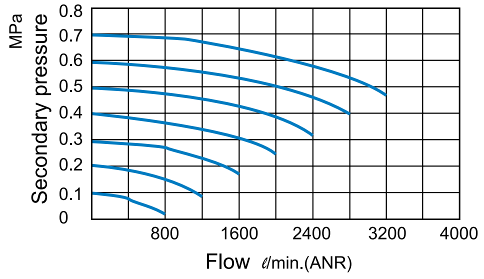
FILTER ELEMENT
Blank: 40μm
5u: 5μm

Blank: Without bracket
B: C type bracket

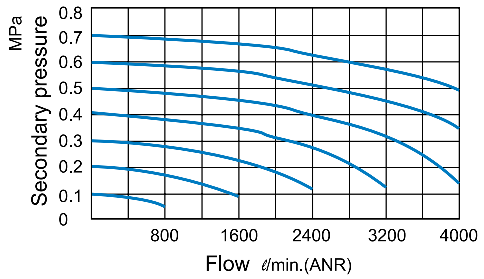
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

Flow feature

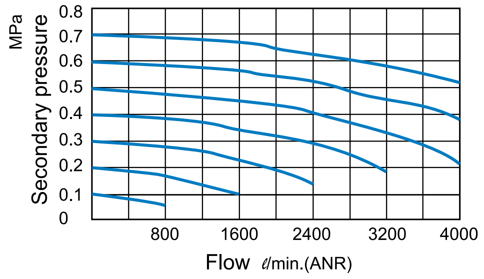
8A



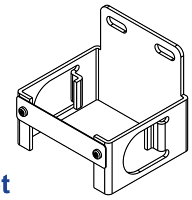
10A



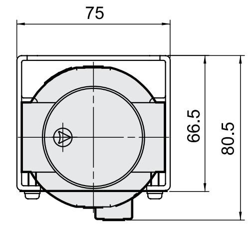
15A

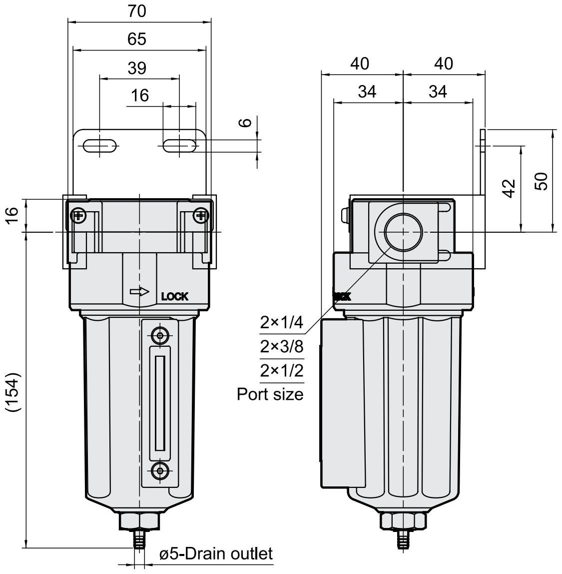


Option accessories



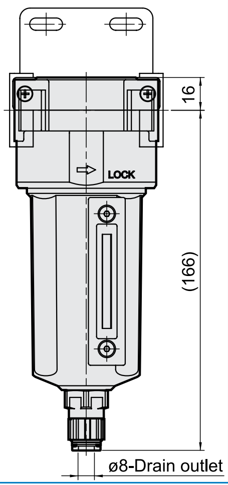
C type bracket





PAF401-D

Auto drain valve

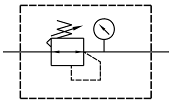


PAR302 Series

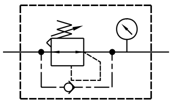
PRESSURE REGULATOR

Option: **PP41**

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), L type bracket		
Weight	400 g		

Order example

PAR302 K – 8A – □ – □□ – E1 – □ – □

MODEL

Blank: Standard
K: Backflow function

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

EXHAUST MECHANISM
Blank: Relieving type
Q: Non-relieving type

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

FLOW DIRECTION
Blank: Left to right
R: Right to left

(Option) PRESSURE SWITCH
E1: PP41P-022
E2: PP41P-022-QD
E5: PP41P-042
E6: PP41P-042-QD

BRACKET
Blank: L type
B3: Z type

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

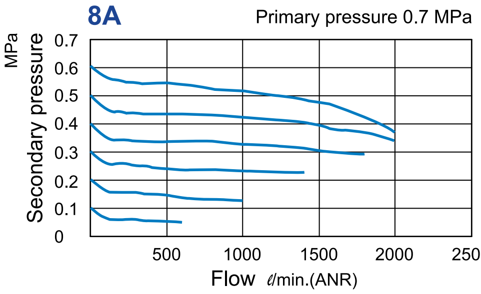
* Standard type regulator can not release the outlet pressure completely, even if inlet pressure was cut off, and the backflow function (K) must be applied to completely remove the residual pressure.

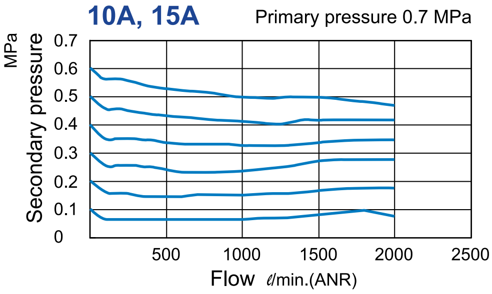
* The (Q) non-relieving type regulator is used. When the output pressure is higher than the set pressure, the output pressure will not flow out through the exhaust hole.

* PG-40 (C), A-PAR302 (A) and PP41 (E*) can not be selected at the same time.

* For the option of digital pressure switch PP41 (E*), please contact us.

Flow feature



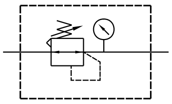


PAR401 Series

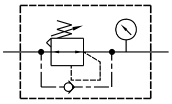
PRESSURE REGULATOR

Option: **PP41**

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)		
Weight	450 g		

Order example

PAR401 K– 8A – ☐ – ☐ – HAP☐ – E1 – ☐ – ☐

MODEL

Blank: Standard
K: Backflow function

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

EXTERIOR COLOR
Blank: Black& silver
W: Gray& white

EXHAUST MECHANISM
Blank: Relieving type
Q: Non-relieving type

(Option)
PRESSURE SWITCH
E1: PP41P-022
E2: PP41P-022-QD
E5: PP41P-042
E6: PP41P-042-QD

(Option)
BRACKET
Blank: Without
B2: Screw fixed

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

(Option)

Type	Pressure gauge	Pressure switch	Flow direction
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)	**P**: Pressure switch (PPS series)	Blank: Left to right **R**: Right to left
H: High pressure type	**C**: External pressure gauge (PG-40) + Gauge adapter set (A-PAR401) **A**: Gauge adapter set (A-PAR401)	–	

* PG-40 (C), A-PAR302 (A) and PP41 (E*) can not be selected at the same time.

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

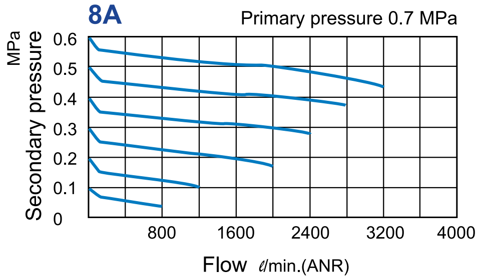
* Please contact us for the option of digital pressure switch PP41 (E*).

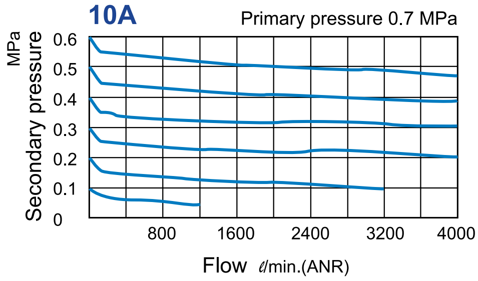
* There is no pressure gauge in option (A). Please purchase if necessary.

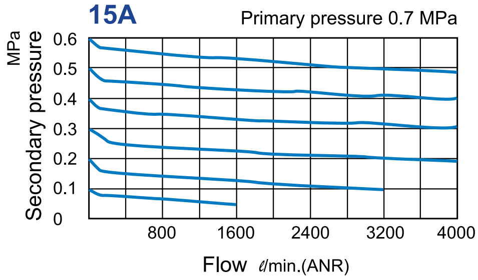
* Standard type regulator can not release the outlet pressure completely, even if inlet pressure was cut off, and the backflow function (K) must be applied to completely remove the residual pressure.

* 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.

Flow feature





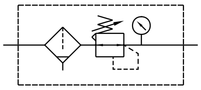


PAFR302 Series

AIR UNIT (F.R.UNIT)

Option: **PP41**

Symbol



Specification

Model	PAFR302		
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		
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), L type bracket		
Weight	490 g		

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

* Choose auto-drain PMRF300, the pressure range is 0.15~1 MPa.

Order example

PAFR302 K – 8A – ☐ – NC☐☐ – E1 – ☐ – HT – ☐ – ☐

MODEL

Blank: Standard
K: Backflow function

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

EXHAUST MECHANISM
Blank: Relieving type
Q: Non-relieving type

(Option)
PRESSURE SWITCH
E1: PP41P-022
E2: PP41P-022-QD
E5: PP41P-042
E6: PP41P-042-QD

FILTER ELEMENT
Blank: 5μm
40u: 40μm

(Option)
SHUTOFF VALVE
HT: PVH T-302-3H

BRACKET
Blank: L type
B3: Z type

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

(Option)

Bowl	Pressure gauge	Drain valve	Flow direction
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 (PMRF300)	Blank: Left to right **R**: Right to left

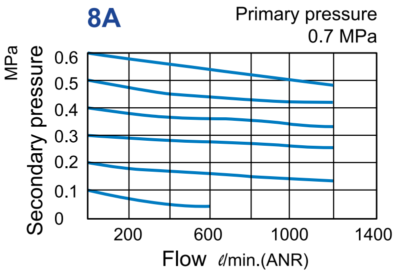
* Standard type regulator can not release the outlet pressure completely, even if inlet pressure was cut off, and the backflow function (K) must be applied to completely remove the residual pressure.

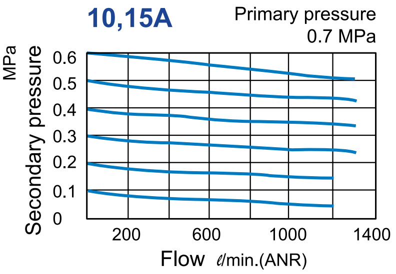
* The (Q) non-relieving type regulator is used. When the output pressure is higher than the set pressure, the output pressure will not flow out through the exhaust hole.

* PG-40 (C), A-PAR302 (A) and PP41 (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



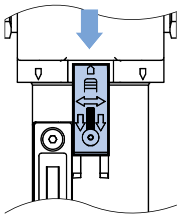


⚠ Caution

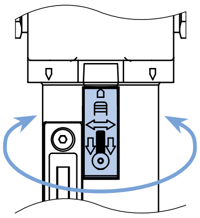
Metal bowl

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

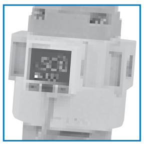


2. Rotating the bowl



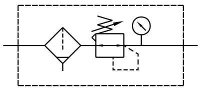
PAFR401 Series

AIR UNIT (F.R.UNIT)



Option: **PP41**

Symbol



Specification

Model	PAFR401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure 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)		
Weight	800 g		

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

* Choose auto-drain PMRF300, the pressure range is 0.15~1 MPa.

Order example

PAFR401 K – 8A – □ – □ – HA□P□ – E1 – □ – □ – □

MODEL

Blank: Standard
K: Backflow function

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

EXTERIOR COLOR
Blank: Black & silver
W: Gray & white

EXHAUST MECHANISM
Blank: Relieving type
Q: Non-relieving type

(Option)
PRESSURE SWITCH
E1: PP41P-022
E2: PP41P-022-QD
E5: PP41P-042
E6: PP41P-042-QD

FILTER ELEMENT
Blank: 40μm
5u: 5μm

(Option)

Bracket	
B2	Screw fixed

Shutoff valve	
HT	PVHT-400-3H

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

(Option)

Type	Pressure gauge	Drain valve	Pressure switch	Flow direction
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 (PMRF300)	**P**: Pressure switch (PPS series)	Blank: Left to right **R**: Right to left
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	–	

* 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.

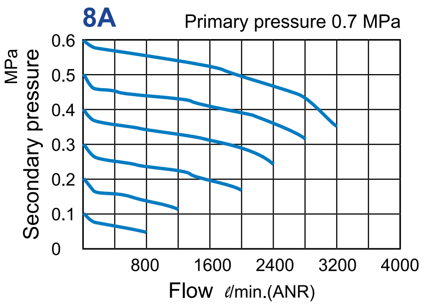
* The (Q) non-relieving type regulator is used. When the output pressure is higher than the set pressure, the output pressure will not flow out through the exhaust hole.

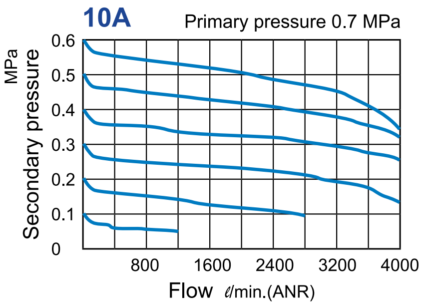
* PG-40 (C), A-PAR302 (A) and PP41 (E*) can not be selected at the same time.

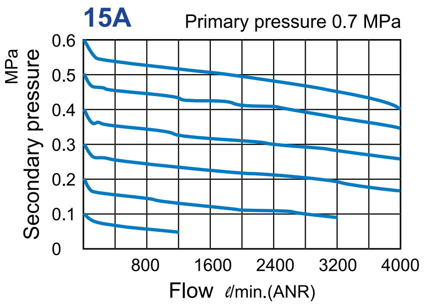
* Specification (W) gauge adapter set (A- PAR302).

* There is no pressure gauge in option (A), please purchase if necessary.

Flow feature







PACT302 Series

AIR UNIT (F.R.L.UNIT)

Option: **PP41**

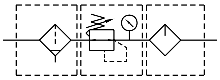
Specification

Model	PACT302		
Components	PAF302, PAR302, PAL302		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating persure 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 PMRF300, the pressure range is 0.15~1 MPa.

Symbol



Order example

PACT302 – 8A – NC□□ – E1 – □ – T8– □

MODEL

PORT SIZE
- **8A**: 1/4
- **10A**: 3/8
- **15A**: 1/2

(Option)
PRESSURE SWITCH
- **E1**: PP41P-022
- **E2**: PP41P-022-QD
- **E5**: PP41P-042
- **E6**: PP41P-042-QD

FILTER ELEMENT
- Blank: 5µm
- **40u**: 40µm

(Option)
BY-PASS PORT SIZE

T type bracket	**T8**: 1/4 **T10**: 3/8 **T15**: 1/2
Check valve	**K8**: 1/4 **K10**: 3/8

PORT THREAD
- Blank: Rc thread
- **G**: G thread
- **NPT**: NPT thread

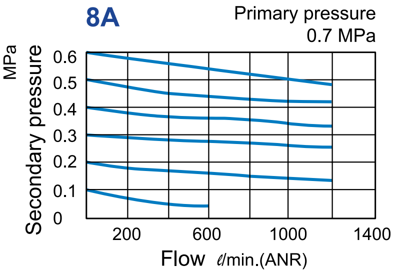
(Option)

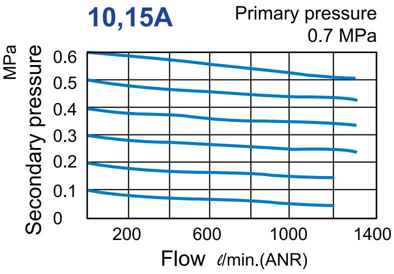
Bowl	Pressure gauge	Drain valve	Flow direction
Blank: PC bowl **M**: Metal bowl **N**: Nylon bowl	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-PAR302) **A**: Gauge adapter set (A-PAR302)	Blank: Semi-auto drain **D**: Auto drain valve (PMRF300)	Blank: Left to right **R**: Right to left

* PG-40 (C), A-PAR302 (A) and PP41 (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



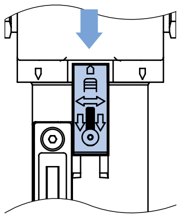


⚠ Caution

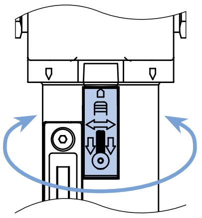
Metal bowl

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



PACT401 Series

AIR UNIT (F.R.L.UNIT)

Option: **PP41**

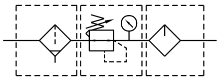
Specification

Model	PACT401		
Components	PAF401, PAR401, PAL401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure 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: 40*μ*m, Option: 5*μ*m		
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 PMRF300, the pressure range is 0.15~1 MPa.

Symbol



Order example

PACT401 – 8A – □ – HA□P□ – E1 – □ – T8 – □

MODEL

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

EXTERIOR COLOR
Blank: Black & silver
W: Gray & white

(Option)
PRESSURE SWITCH
E1: PP41P-022
E2: PP41P-022-QD
E5: PP41P-042
E6: PP41P-042-QD

FILTER ELEMENT
Blank: 40μm
5u: 5μm

(Option)
BY-PASS PORT SIZE

T type bracket	**T8**: 1/4 **T10**: 3/8 **T15**: 1/2
Check valve	**K8**: 1/4 **K10**: 3/8

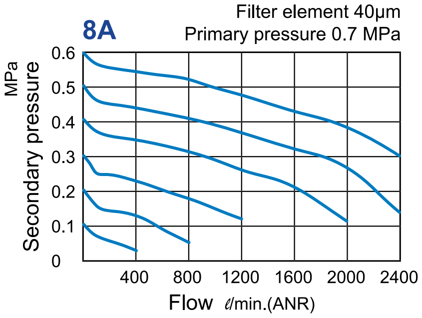
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

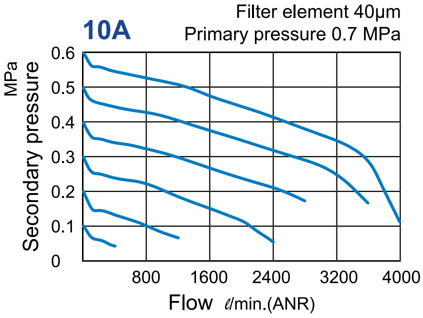
(Option)

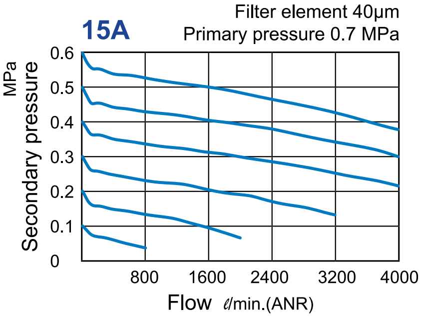
Type	Pressure gauge	Drain valve	Pressure switch	Flow direction
Blank: Standard type	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-PAR401) **A**: Gauge adapter set (A-PAR401)	Blank: Semi-auto drain **D**: Auto drain valve (PMRF300)	**P**: Pressure switch (PPS series)	Blank: Left to right **R**: Right to left
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 PP41 (E*) can not be selected at the same time.
* Specification (W) gauge adapter set (A- PAR302).
* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

Flow feature





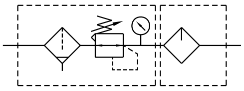


PACP302 Series

AIR UNIT (F.R.L.UNIT)

Option: **PP41**

Symbol



Specification

Model	PACP302		
Components	PAFR302, 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		
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	845 g		

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

* Choose auto-drain PMRF300, the pressure range is 0.15~1 MPa.

Order example

PACP302 – 8A – NC☐☐ – E1 – ☐ – T8– ☐

MODEL

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

(Option)
PRESSURE SWITCH
E1: PP41P-022
E2: PP41P-022-QD
E5: PP41P-042
E6: PP41P-042-QD

FILTER ELEMENT
Blank: 5μm
40u: 40μm

(Option)
BY-PASS PORT SIZE

T type bracket	**T8**: 1/4 **T10**: 3/8 **T15**: 1/2
Check valve	**K8**: 1/4 **K10**: 3/8

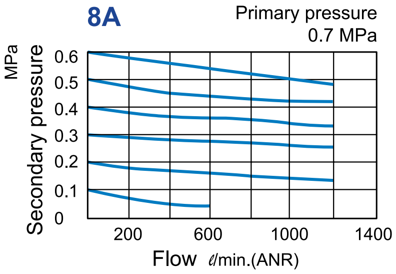
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

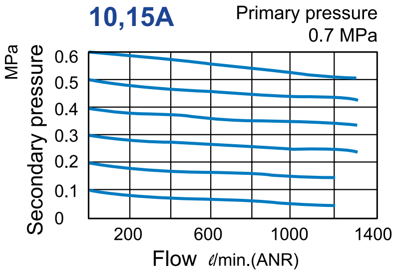
(Option)

Bowl	Pressure gauge	Drain valve	Flow direction
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 (PMRF300)	Blank: Left to right **R**: Right to left

* PG-40 (C), A-PAR302 (A) and PP41 (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



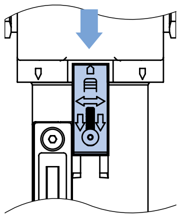


Caution

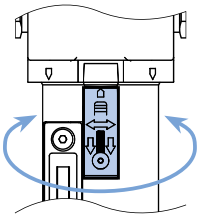
Metal bowl

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

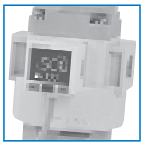


2. Rotating the bowl



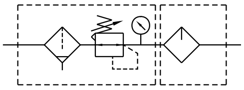
PACP401 Series

AIR UNIT (F.R.L.UNIT)



Option: **PP41**

Symbol



Specification

Model	PACP401		
Components	PAFR401, PAL401		
Bore No.	8A	10A	15A
Port size	1/4	3/8	1/2
Medium	Air		
Operating perssure 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		
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	1518 g		

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

* Choose auto-drain PMRF300, the pressure range is 0.15~1 MPa.

Order example

PACP401 – 8A – ☐ – HA☐P☐ – E1 – ☐ – T8 – ☐

MODEL

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

EXTERIOR COLOR
Blank: Black & silver
W: Gray & white

(Option)
PRESSURE SWITCH
E1: PP41P-022
E2: PP41P-022-QD
E5: PP41P-042
E6: PP41P-042-QD

FILTER ELEMENT
Blank: 40μm
5u: 5μm

(Option)
BY-PASS PORT SIZE

T type bracket	**T8**: 1/4 **T10**: 3/8 **T15**: 1/2
Check valve	**K8**: 1/4 **K10**: 3/8

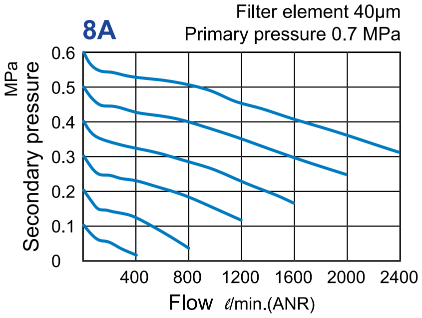
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

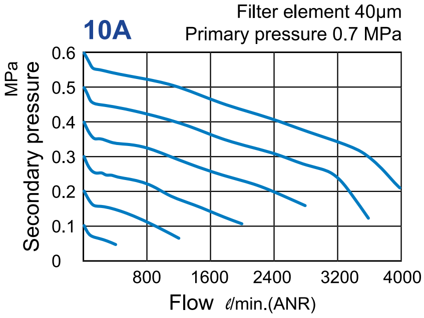
(Option)

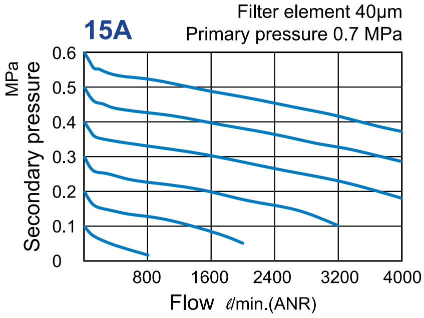
Type	Pressure gauge	Drain valve	Pressure switch	Flow direction
Blank: Standard type	Blank: Pressure gauge (PG-20) **C**: External pressure gauge (PG-40) + Gauge adapter set (A-PAR401) **A**: Gauge adapter set (A-PAR401)	Blank: Semi-auto drain **D**: Auto drain valve (PMRF300)	**P**: Pressure switch (PPS series)	Blank: Left to right **R**: Right to left
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 PP41 (E*) can not be selected at the same time.
* Specification (W) gauge adapter set (A- PAR302).
* Be sure to use above check valves when redirecting the air flow on the inlet side of the lubricator.

Flow feature



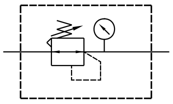




PAIR100 Series

AIR UNIT (PRECISION REGULATOR)

Symbol



Specification

Model	PAIR100
Bore No.	6A
Port size	1/8
Medium	Air
Max. operating pressure	1 MPa
Min. operating pressure	Setting pressure+0.05 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 (*)	4.4 ℓ/min(ANR)
Ambient temperature	– 5~+60°C (No freezing)
Attachment	Bracket
Option	Pressure gauge (PG-33S)
Weight	150 g

* For supply pressure 1 MPa.

* Air is normally being discharged to the atmosphere from a bleed hole or an exhaust port.

Order example

PAIR100 — 6A — 2K — C☐ — ☐

MODEL

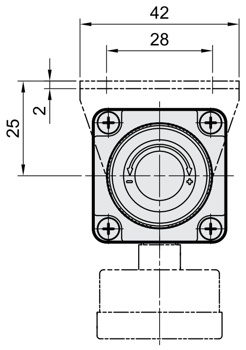
PORT SIZE
6A: 1/8

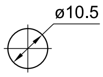
ADJUSTABLE PRESS. RANGE
2K: 0.005~0.2 MPa
4K: 0.01~0.4 MPa
8K: 0.01~0.8 MPa

Blank: Without pressure gauge
C: Pressure gauge (PG-33S)

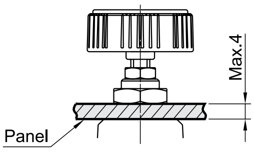
FLOW DIRECTION
Blank: Left to right
R: Right to left

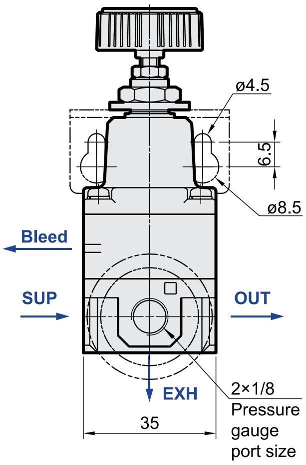
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

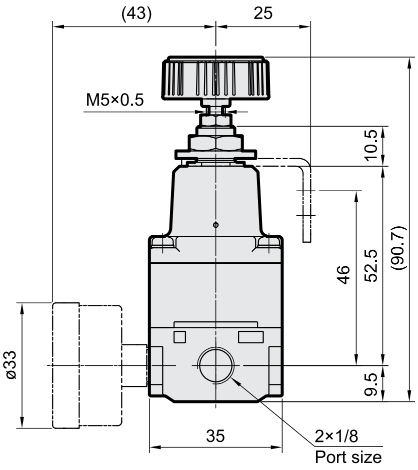




Panel mounting hole



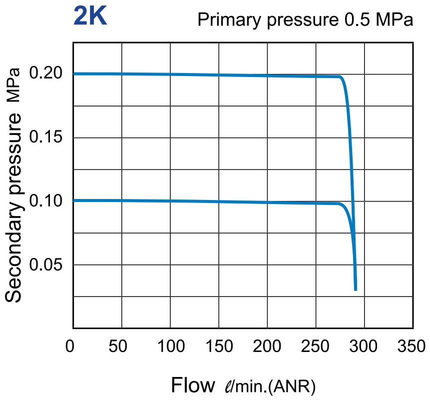


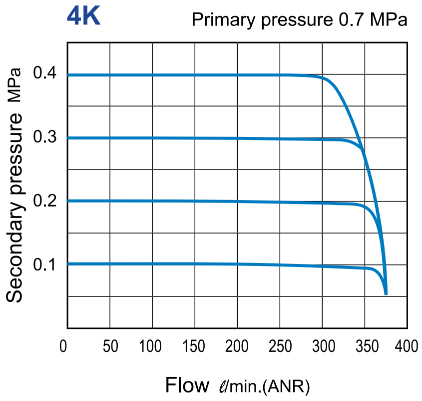


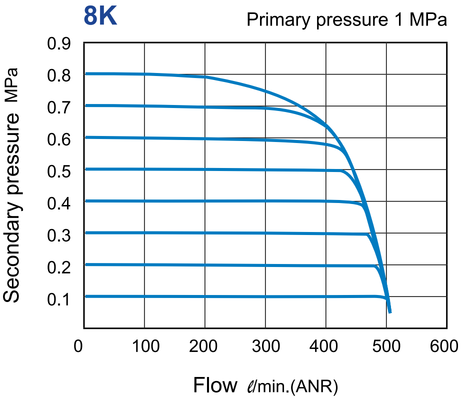
PAIR100 Capacity

AIR UNIT (PRECISION REGULATOR)

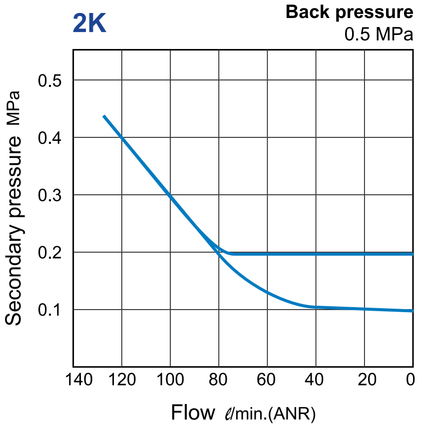
Flow feature

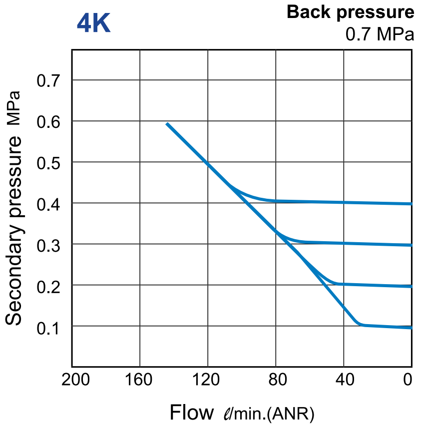

2K Primary pressure 0.5 MPa

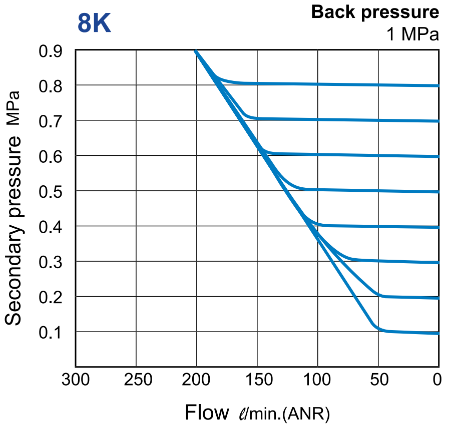

4K Primary pressure 0.7 MPa


8K Primary pressure 1 MPa

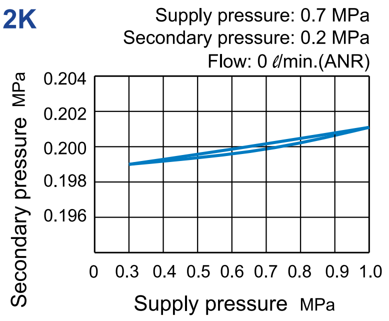
Relief characteristics

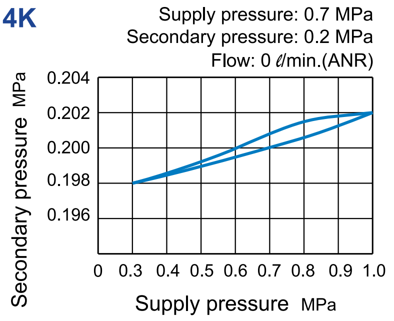

2K **Back pressure** 0.5 MPa

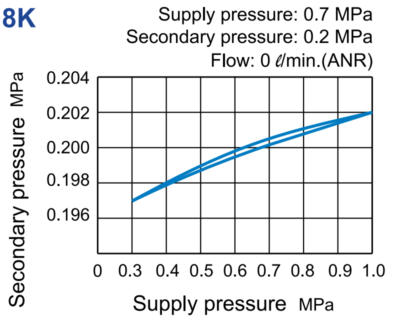

4K **Back pressure** 0.7 MPa


8K **Back pressure** 1 MPa

Pressure characteristics


2K Supply pressure: 0.7 MPa
Secondary pressure: 0.2 MPa
Flow: 0 ℓ/min.(ANR)

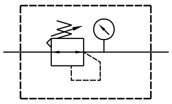

4K Supply pressure: 0.7 MPa
Secondary pressure: 0.2 MPa
Flow: 0 ℓ/min.(ANR)


8K Supply pressure: 0.7 MPa
Secondary pressure: 0.2 MPa
Flow: 0 ℓ/min.(ANR)

PAIR200 Series

AIR UNIT (PRECISION REGULATOR)

Symbol



Specification

Model	PAIR200
Bore No.	8A
Port size	1/4
Medium	Air
Max. operating pressure	1 MPa
Min. operating pressure	Setting pressure+0.05 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(*)	4.4 ℓ/min(ANR)
Ambient temperature	– 5~+60°C (No freezing)
Attachment	Bracket
Option	Pressure gauge (PG-40S)
Weight	300 g

* For supply pressure 1 MPa.

* Air is normally being discharged to the atmosphere from a bleed hole or an exhaust port.

Order example

PAIR200 – 8A – 2K – C☐ – ☐

MODEL

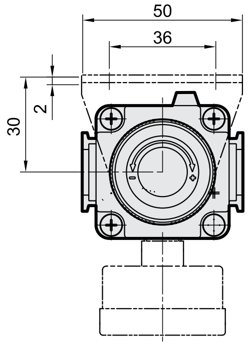
PORT SIZE
8A: 1/4

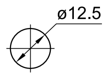
ADJUSTABLE PRESS. RANGE
2K: 0.005~0.2 MPa
4K: 0.01~0.4 MPa
8K: 0.01~0.8 MPa

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

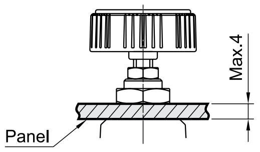
FLOW DIRECTION
Blank: Left to right
R: Right to left

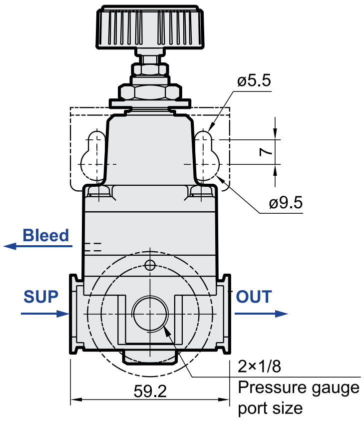
PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread

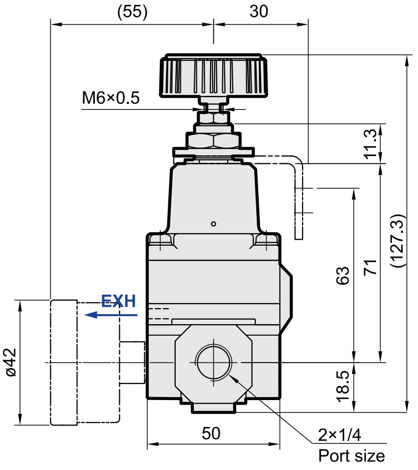




Panel mounting hole







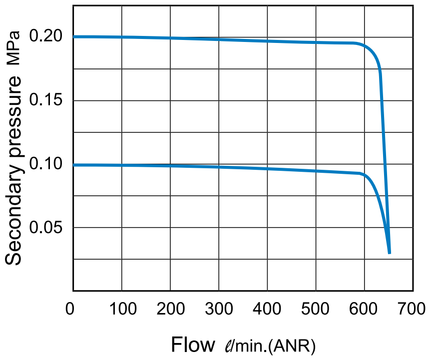
PAIR200 Capacity

AIR UNIT (PRECISION REGULATOR)

Flow feature

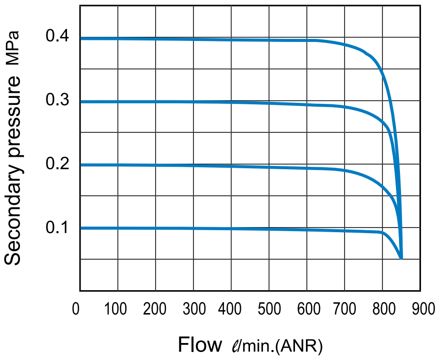
2K

Primary pressure
0.5 MPa



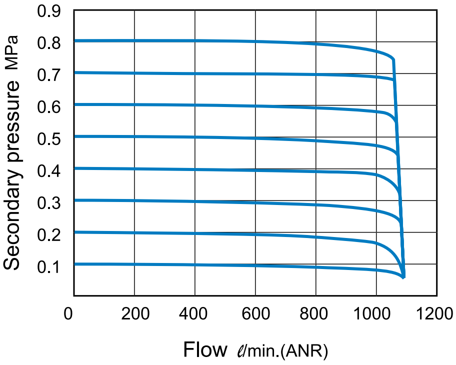
4K

Primary pressure
0.7 MPa



8K

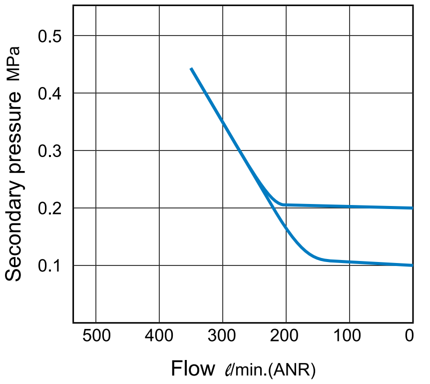
Primary pressure
1 MPa



Relief characteristics

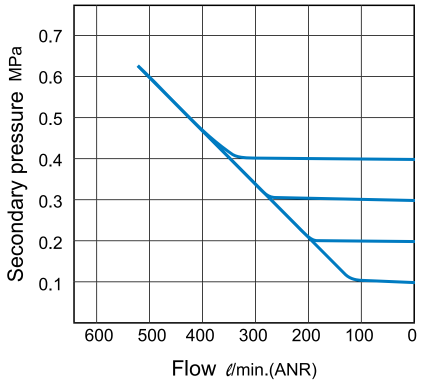
2K

Back pressure
0.5 MPa



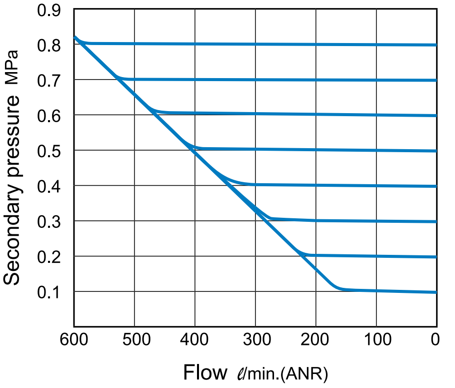
4K

Back pressure
0.7 MPa



8K

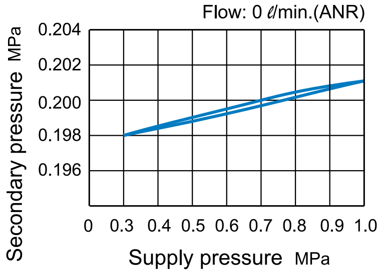
Back pressure
1 MPa



Pressure characteristics

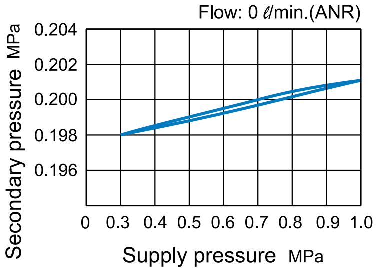
2K

Supply pressure: 0.7 MPa
Secondary pressure: 0.2 MPa
Flow: 0 ℓ/min.(ANR)



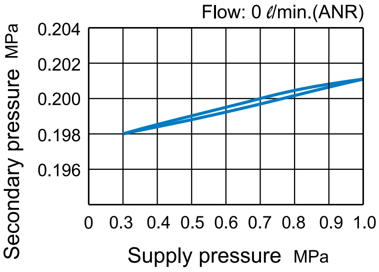
4K

Supply pressure: 0.7 MPa
Secondary pressure: 0.2 MPa
Flow: 0 ℓ/min.(ANR)



8K

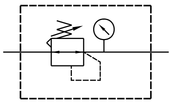
Supply pressure: 0.7 MPa
Secondary pressure: 0.2 MPa
Flow: 0 ℓ/min.(ANR)



PAIR300 Series

AIR UNIT (PRECISION REGULATOR)

Symbol



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	0.2h% F.S.		
Repeatability	±0.5% F.S.		
Air consumption (*)	11.5 ℓ/min(ANR)		
Ambient temperature	– 5~+60°C (No freezing)		
Attachment	Bracket		
Option	Pressure gauge (PG-40S)		
Weight	875 g		

* For supply pressure 1 MPa.

* Air is normally being discharged to the atmosphere from a bleed hole or an exhaust port.

Order example

PAIR300 — 8A — 2K — C□ — □

MODEL

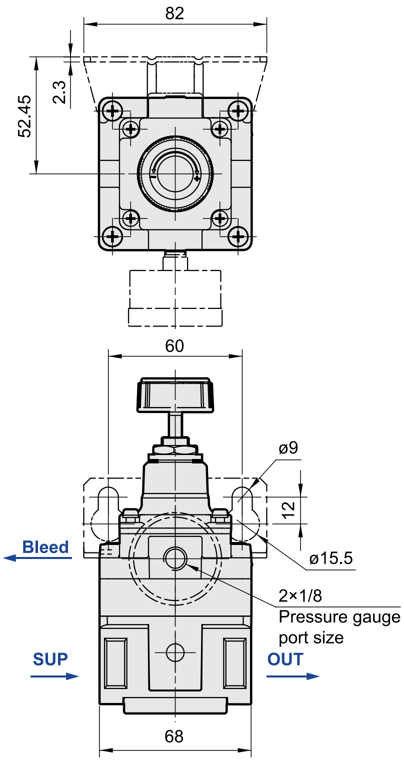
PORT SIZE
8A: 1/4
10A: 3/8
15A: 1/2

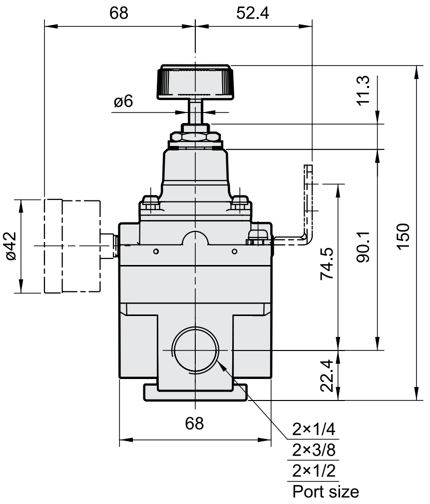
ADJUSTABLE PRESS. RANGE
2K: 0.005~0.2 MPa
4K: 0.01~0.4 MPa
8K: 0.01~0.8 MPa

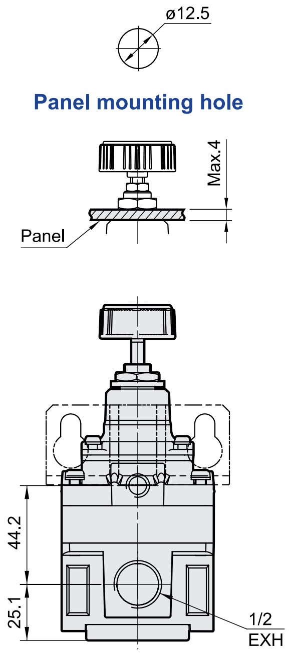
Blank: Without pressure gauge
C: Pressure gauge (PG-40S)

FLOW DIRECTION
Blank: Left to right
R: Right to left

PORT THREAD
Blank: Rc thread
G: G thread
NPT: NPT thread







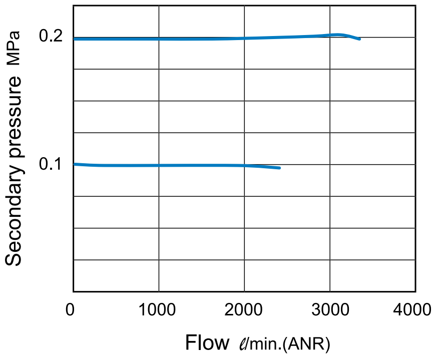
PAIR300 Capacity

AIR UNIT (PRECISION REGULATOR)

Flow feature

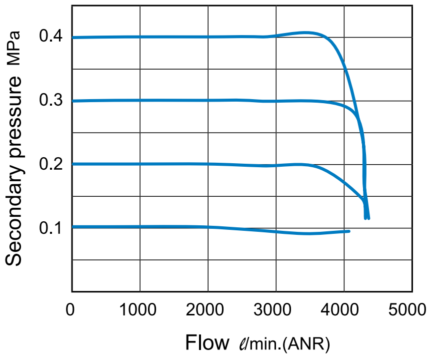
2K

Primary pressure
0.5 MPa



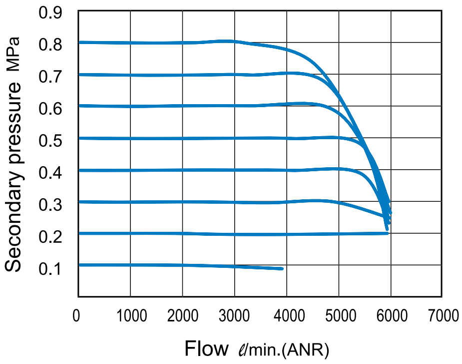
4K

Primary pressure
0.7 MPa



8K

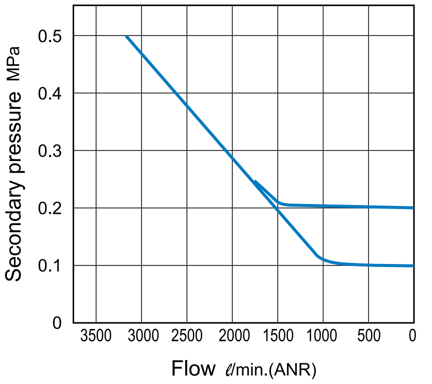
Primary pressure
1 MPa



Relief characteristics

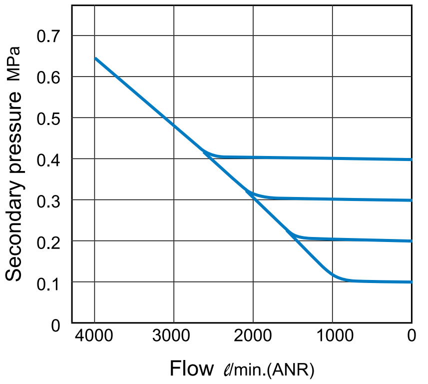
2K

Back pressure
0.5 MPa



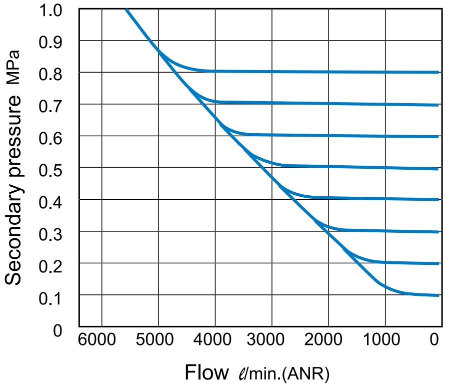
4K

Back pressure
0.7 MPa



8K

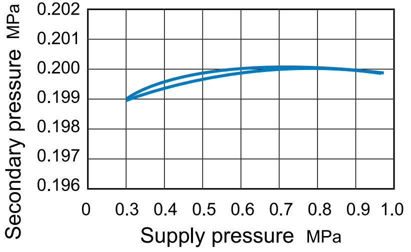
Back pressure
1 MPa



Pressure characteristics

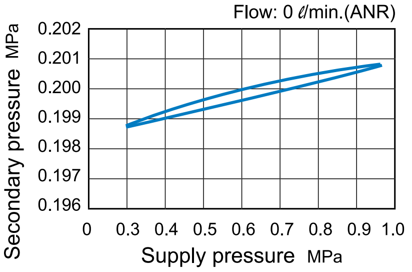
2K

Supply pressure: 0.7 MPa
Secondary pressure: 0.2 MPa
Flow: 0 ℓ/min.(ANR)



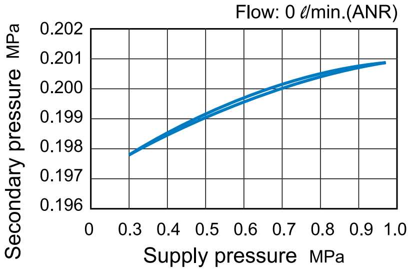
4K

Supply pressure: 0.7 MPa
Secondary pressure: 0.2 MPa
Flow: 0 ℓ/min.(ANR)



8K

Supply pressure: 0.7 MPa
Secondary pressure: 0.2 MPa
Flow: 0 ℓ/min.(ANR)



PAIR ⚠ Precautions Read before installing

AIR UNIT (PRECISION REGULATOR)

Air Supply

⚠ Caution

❶ If the air supply line contains drain or particlate, etc., the primary pressure fixed throttle can become clogged leading to malfunction, and therefore, be sure to use an air filter (PAF or PAM*) & mist separator.

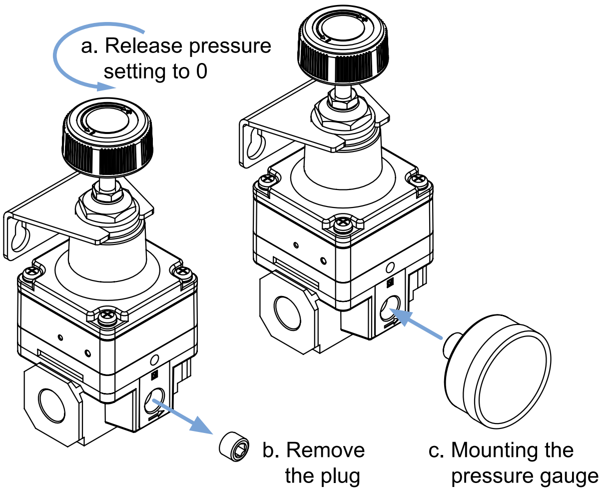
❷ Never use a lubricator on the primary side of the regulator, as this will positively cause the fixed throttle to become clogged and result in a malfunction. If lubrication is required for terminal devices, connect a lubricator on the secondary side.

Maintenance

⚠ Warning

❶ When to be during maintenance, first reduce the precision regulatorset pressure to zero, and completely shut off the supply pressure.

❷ When a pressure gauge is to be mounted, remove the plug after reducing the regulator pressure set pressure to zero. (Step a→b→c)



PAIR300 Product Precautions

⚠ Caution

❶ 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.)

❷ 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 (PSR*) mounted on the exhaust port (EXH port). (Silencer refer to Other Auxiliary Equipment)

Operation

⚠ Caution

❶ Do not use a precision regulator outside the range of its specifications as this can cause failure. (Refer to specifications.)

❷ When mounting is performed, make connections while confirming port direction (indications).

❸ 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

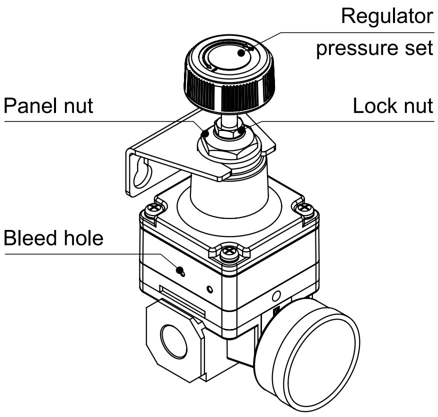
Looseness or faulty sealing will occur if tightening torque is insufficient, while thread damage will result if the torque is excessive.

⚠ Warning

❹ 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.

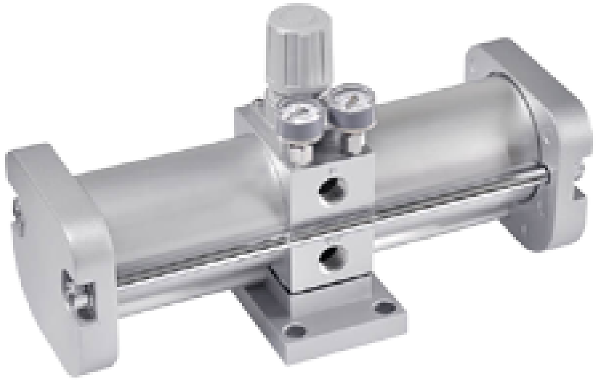
❺ Air is normally released from the bleed hole (the hole on the side of the body's mid-section). This is a necessary consumption of air based on the construction of the precision regulator, and is not an abnormality.

❻ In order to avoid operation mistakes, make sure to tighten the lock nut after pressure adjustment.



PVBA-2100 Series

BOOSTER REGULATOR



Order example

PVBA — 2100 — S — □

- MODEL
- SILENCER
- PORT THREAD
  - Blank: Rc thread
  - **G**: G thread
  - **NPT**: NPT thread

Features

- Increase factory air pressure by up to twice as much.
- Air-only operation requires no power supply, reduces heat generation, and allows easy installation.

Specification

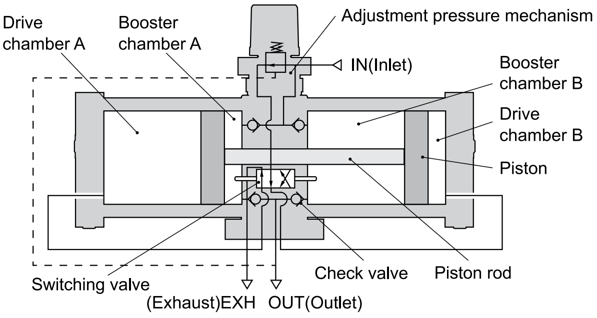
Model	PVBA-2100
Port size	Rc3/8
Medium	Air
Pressure increase rate	Twice
Operating pressure range	0.2~1 MPa
Supply pressure range	0.1~1 MPa
Proof pressure	1.5 MPa
Max. flow rate (*)	1000 ℓ/min
Ambient temperature	+2~+50°C
Installation	Horizontal
Lubrication	Not required
Attachment	Pressure gauge (PG-25)
Option	Silencer (PSLT-03)
Weight	3900 g

* Max. flow rate at In=Out=0.5 MPa.

Caution

- If the outlet capacity is undersized, pulsation may occur.
- Make sure to install a mist separator at the inlet side of the booster regulator.
- The booster regulator has a sliding part inside, and it generates dust. Also, install a cleaning device such as an air filter or a mist separator on the outlet side as necessary.
- Provide a dedicated pipe to release the exhaust air from each booster regulator. If exhaust air is converged into a pipe, the back pressure that is created could cause improper operation.
- Depending on the necessity, install a silencer on the exhaust port of the booster regulator to reduce the exhaustion sound.
- Allow the sufficient space for maintenance and inspection.

Working Principle

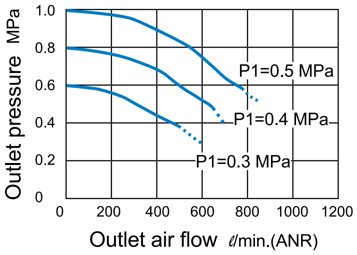


- The IN(Inlet) air passes through the check valve to booster chamber A and B. Meanwhile, air is supplied to drive chamber B via the governor and the switching valve. Then, the air pressure from drive chamber B and booster chamber A are applied to the piston, boosting the air in booster chamber B. As the piston travels, the boosted air is pushed via the check valve to the OUT(Outlet) side. When the piston reaches the switching valve to touch, so that drive chamber B is in the exhaust state and drive chamber A is in the supply state respectively. Then, the piston reverses its movement, this time, the pressures from booster chamber B and drive chamber A boosts the air in booster chamber A and sends it to the OUT side.
- The process described above is repeated to continuously supply highly pressurized air from the IN to the OUT side. The governor establishes the outlet pressure by handle operation and pressure adjustment in the drive chamber by feeding back the outlet pressure.

PVBA-2100 Capacity & Dimensions

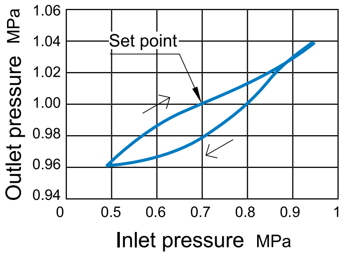
BOOSTER REGULATOR

Flow features

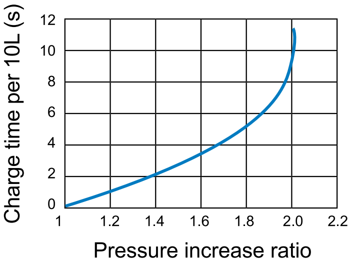


Pressure characteristics

Supply pressure 0.7 MPa
Primary pressure 1 MPa
Flow rate: 20L/min



Charge characteristics

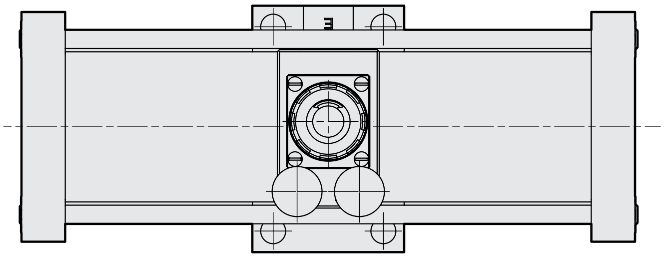


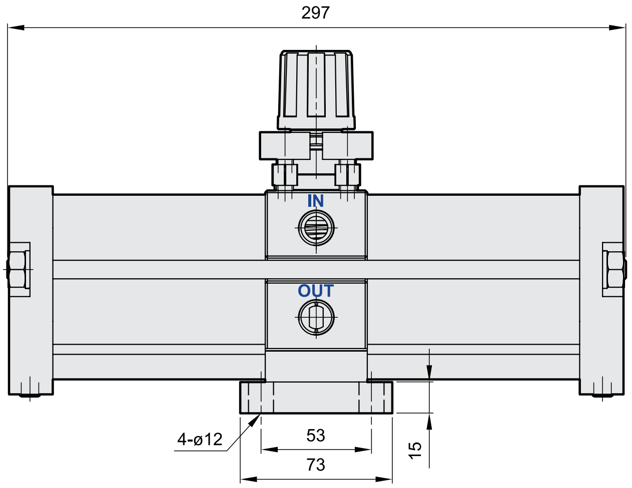
* When filling tank with air, where Primary side air pressure **P_0**, air pressure in tank before filling **P_1**, air pressure after filling **P_2**, boosting ratio before filling **K_1=P_1/P_0** and after filling **K_2=P_2/P_0**. Find **K_1** and **K_2** at first, then read filling time **t_1** and **t_2** according to graph where boosting ratio **K_1**, **K_2**, Finally filling time for tank capacity Q is obtained with

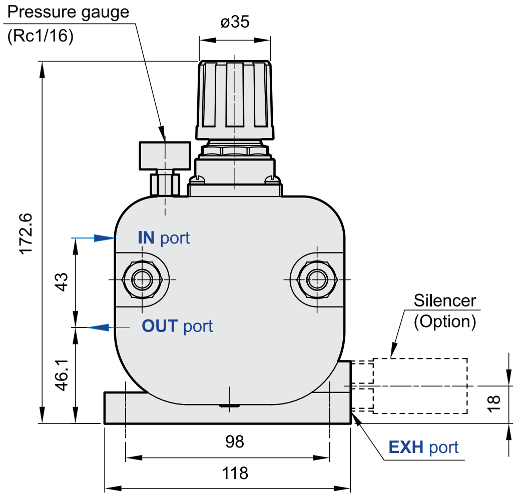
$$T = \frac{Q}{10} (t_2 - t_1).$$

(Each characteristics are just reference, but not assured conditions)

Dimensions







Memo

PISCO

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