Pin Cylinders

CJP2/CJP Series

ø4, ø6, ø10, ø15, ø16

2 auto switches can even be mounted on a cylinder with ø4 bore size (5 mm stroke).

Double acting / ***CJP2 Series***

One-touch fitting can be connected.

(Panel mount type)

ø2 One-touch fitting, miniature fitting, and speed controller can be connected.

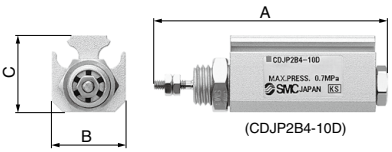
Single acting / ***CJP Series***

Small and Light

Double acting / CJP2 Series

- Full length: **Shortened by 6** to **9.5** mm
- Weight: **Reduced by 55** to **65**%

New aluminum body is light weight compared with the current CJP series.
(Compared with the basic model CJP cylinder without auto switch)



(CDJP2B4-10D)

Dimensions Unit: mm

Bore size	A	B	C
4	29 + stroke (34 + stroke)	14	14.5
6	33 + stroke (38 + stroke)	14	16.5
10	39.5 + stroke (44.5 + stroke)	15	19
16	43.5 + stroke (48.5 + stroke)	20	24.5

∗ ( ): Dimension for built-in magnet type

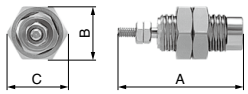
Weight Unit: g

Stroke	Bore size (mm)			
	4	**6**	**10**	**16**
5	11	16	27	42
10	13	18	29	46
15	15	21	32	50
20	17	23	35	54
25	—	25	37	58
30	—	—	40	63
35	—	—	43	67
40	—	—	45	71

Single acting / CJP Series

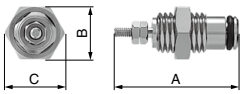
Panel mount type (CJPB4-5)

Scale :100%



Embedded type (CJPS4-5)

Scale :100%



Dimensions Unit: mm

Bore size	A			B	C
	5st	**10st**	**15st**		
4	23.5	31.5	39.5	10	11.5
6	27.5	34.5	41.5	12	13.9
10	32.5	39	46	19	22
15	37.5	43.5	50	27	31

Weight Unit: g

Stroke (mm)	Bore size (mm)			
	4	**6**	**10**	**15**
5	10	10.6	28	75
10	13	13.1	33	82
15	15	15.6	38	92

Variation

Series	Action	Bore size (mm)	Standard stroke (mm)	Mounting Note 2)
CJP2	Double acting, Single rod	**4**	5, 10, 15 (20) Note 1)	Basic Foot Flange Clevis Trunnion
		6	5, 10, 15, 20, 25	
		10	5, 10, 15, 20, 25, 30, 35, 40	
		16	5, 10, 15, 20, 25, 30, 35, 40	

Series	Action	Bore size (mm)	Standard stroke (mm)	Mounting
CJP	Single acting, Spring return	**4**	5, 10, 15	Panel mount type, Embedded type
		6	5, 10, 15	
		10	5, 10, 15	
		15	5, 10, 15	

Note 1) A stroke of 20 is available with a standard product only. Note 2) Bore size of ø4 is available with basic mounting only.

Related Products

Refer to Best Pneumatics No. 7.

Pin Cylinder: Double Acting, Single Rod

CJP2 Series

ø4, ø6, ø10, ø16

How to Order

Standard CJP2 **F** **10** – **15** **D** – ☐ – ☐

Built-in magnet CDJP2 **F** **10** – **15** **D** – ☐ – **M9BW** **S** – ☐

With auto switch (Built-in magnet)

Mounting

Symbol	Mounting	Standard	Built-in magnet
B	Basic	●	●
F	Flange	●	●
L	Foot	●	●
D	Clevis	●	●
T	Trunnion	●	●

∗ Bore size of 4 mm is available with basic mounting only.
∗ Mounting bracket is shipped together (but not assembled).
∗ Trunnion mounting type is shipped after assembled.

Bore size

4	4 mm
6	6 mm
10	10 mm
16	16 mm

Rod end thread

Nil	With thread
B	Without thread

Cylinder standard stroke (mm)

ø4	5, 10, 15, (20) Note)
ø6	5, 10, 15, 20, 25
ø10, ø16	5, 10, 15, 20, 25, 30, 35, 40

Note) A stroke of 20 is available with a standard product only.

Double acting

Number of auto switches

Nil	2 pcs.
S	1 pc.

Auto switch

Nil	Without auto switch

∗ For the applicable auto switch model, refer to the below table.

Made to Order (Refer to page 24.)

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example) CDJP2B6-20

Applicable Auto Switches / For detailed auto switch specifications, refer to page 1575 through to 1701.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage			Auto switch model		Lead wire length (m)∗				Pre-wired connector	Applicable load	
					DC		AC	Electrical entry direction		0.5 (Nil)	1 (M)	3 (L)	5 (Z)			
								Perpendicular	In-line							
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**M9NV**	**M9N**	●	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)				**M9PV**	**M9P**	●	●	●	○	○		
				2-wire		12 V		**M9BV**	**M9B**	●	●	●	○	○	—	
	Diagnostic indication (2-color)			3-wire (NPN)		5 V, 12 V		**M9NWV**	**M9NW**	●	●	●	○	○	IC circuit	
				3-wire (PNP)				**M9PWV**	**M9PW**	●	●	●	○	○		
				2-wire		12 V		**M9BWV**	**M9BW**	●	●	●	○	○	—	
	Water resistant (2-color indicator)			3-wire (NPN)		5 V, 12 V		**M9NAV**∗1	**M9NA**∗1	○	○	●	○	○	IC circuit	
				3-wire (PNP)				**M9PAV**∗1	**M9PA**∗1	○	○	●	○	○		
				2-wire		12 V		**M9BAV**∗1	**M9BA**∗1	○	○	●	○	○	—	
Reed auto switch	—	Grommet	Yes	3-wire (NPN equiv.)	—	5 V	—	**A96V**∗∗	**A96**∗∗	●	—	●	—	—	IC circuit	—
			No	2-wire	24 V	12 V	100 V	**A93V**∗∗∗2	**A93**∗∗	●	●	●	●	—	—	Relay, PLC
						5 V, 12 V	100 V or less	**A90V**∗∗	**A90**∗∗	●	—	●	—	—	IC circuit	

∗1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Consult with SMC regarding water resistant types with the above model numbers.
∗2 1 m type lead wire is only applicable to D-A93.

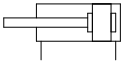
∗ Lead wire length symbols: 0.5 m ····· Nil (Example) M9NW
1 m ····· M M9NWM
3 m ····· L M9NWL
5 m ····· Z M9NWZ

∗∗ The D-A9□(V) switch is not attachable to ø4.

∗ Auto switches marked with "○" are made to order specification.
∗ For details about auto switches with pre-wired connector, refer to pages 1648 and 1649.
∗ Auto switches are shipped together, (but not assembled).

Symbol

Double acting, Single rod, Rubber bumper



Made to Order

Made to Order: Individual Specifications

(For details, refer to page 33.)

Symbol	Specifications
-X1666	Interchangeability of clevis and trunnion types

Made to Order

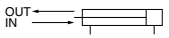
(For details, refer to pages 1703 to 1896.)

Symbol	Specifications
-XA□	Change of rod end type
-XB6	Heat resistant cylinder (150°C)
-XB7	Cold resistant cylinder
-XC22	Fluororubber seals

Theoretical Output

(N)

Bore size (mm)	Operating direction	Operating pressure (MPa)		
		0.3	0.5	0.7
4	IN	2.8	4.7	6.6
	OUT	3.8	6.3	8.8
6	IN	6.4	10.6	14.8
	OUT	8.5	14.1	19.8
10	IN	19.8	33.0	46.2
	OUT	23.6	39.3	55.0
16	IN	51.8	86.4	121.0
	OUT	60.3	100.5	140.7



Moisture Control Tube IDK Series

When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to **the IDK series in the Best Pneumatics No. 6**.

Specifications

Action		Double acting, Single rod
Maximum operating pressure		0.7 MPa
Minimum operating pressure	**ø4**	0.15 MPa
	ø6	0.12 MPa
	ø10, ø16	0.06 MPa
Proof pressure		1 MPa
Ambient and fluid temperature		Without auto switch: –10 to 70°C With auto switch: –10 to 60°C (No freezing)
Lubrication		Not required (Non-lube)
Stroke length tolerance		$^{+1.0}_{0}$
Rod end type		With thread/Without thread
Piston speed		10 to 500 mm/s*
Cushion		Rubber bumper
Mounting Note)		Basic, Flange, Foot, Clevis, Trunnion

Note) Bore size of ø4 is available with basic mounting only. The piston speed for a bore size of ø4 is 50 to 500 mm/s.

Standard Equipment Accessory

Accessory / Mounting	Mounting nut (1 pc.)	Rod end nut (2 pcs.) (with thread)	Trunnion (with pin)
Basic	●	●	—
Flange	●	●	—
Foot	●	●	—
Clevis	—	●	—
Trunnion	—	●	●

Standard Stroke

Bore size (mm)	Stroke (mm)
4	5, 10, 15, 20 Note)
6	5, 10, 15, 20, 25
10	5, 10, 15, 20, 25, 30, 35, 40
16	5, 10, 15, 20, 25, 30, 35, 40

* 20 stroke of bore size 4 mm is standard type only.

Option

Bore size (mm) / Description	6	10	16
Auto switch	D-A9□(V), D-M9□(V), D-M9□W(V)		
Single knuckle joint	I-P006A	I-P010A	I-P016A
Double knuckle joint (with pin)	Y-P006A	Y-P010A	Y-P016A

* Refer to page 30 for dimensions.

Mounting Bracket Part No.

Bore size (mm) / Bracket	6	10	16
Flange	CP-F006A	CP-F010A	CP-F016A
Foot	CP-L006A	CP-L010A	CP-L016A
Trunnion (with pin)	CP-T006A	CP-T010A	CP-T016A

Weight

(g)

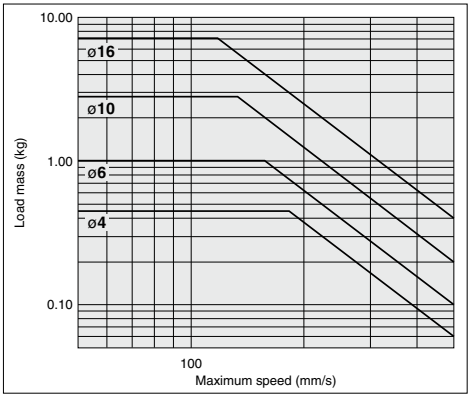
	Stroke (mm) / Mounting	Bore size (mm)			
		4	**6**	**10**	**16**
Basic weight	5	11	16	27	42
	10	13	18	29	46
	15	15	21	32	50
	20	17	23	35	54
	25	—	25	37	58
	30	—	—	40	63
	35	—	—	43	67
	40	—	—	45	71
Bracket weight	Flange	—	5	6	16
	Foot	—	7	9	24
	Clevis	—	2	5	8
	Trunnion (with pin)	—	15	25	70
Additional weight for built-in magnet		2	3	5	7

Allowable Kinetic Energy

⚠ Caution

When driving an inertial load, operate a cylinder with kinetic energy within the allowable value. The range in the chart below that is delineated by bold solid lines indicates the relation between load mass and maximum driving speeds.

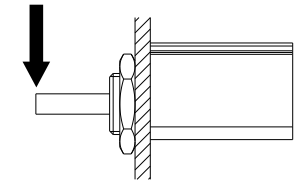
Bore size (mm)	4	6	10	16
Piston speed (m/s)	0.05 to 0.5			
Allowable kinetic energy (J)	0.75×10^{-2}	1.2×10^{-2}	2.5×10^{-2}	5.0×10^{-2}

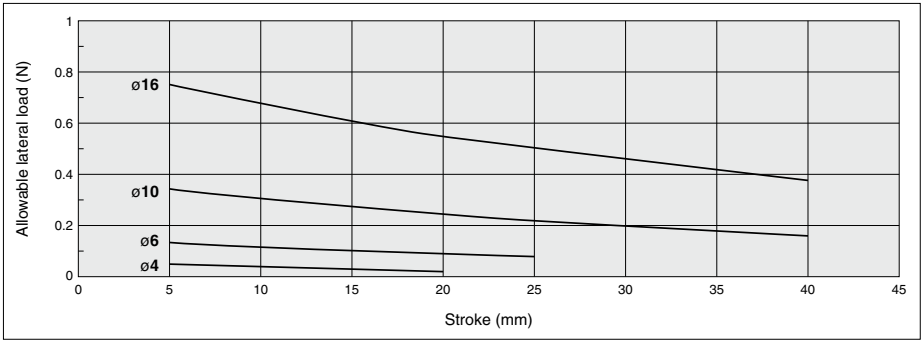


Allowable Lateral Load

Strictly observe the limiting range of lateral load on a piston rod. (Refer to the below graph.) If this product is used beyond the limits, it may shorten the machine life or cause damage.

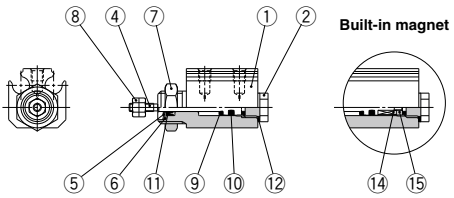
Allowable lateral load



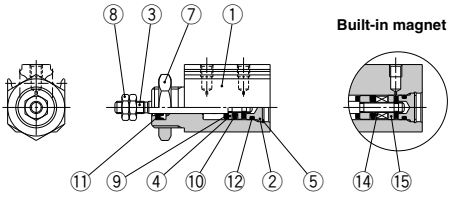


Construction

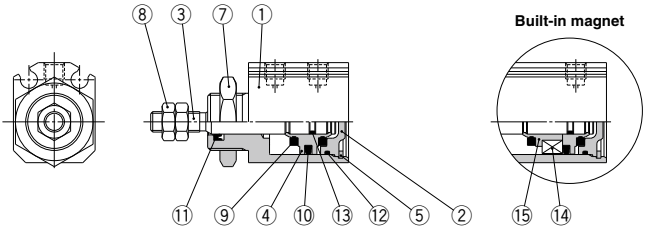
C□JP2B4



C□JP2B6



C□JP2B10, 16



Component Parts

No.	Description		Material	Note
1	**Body**		Aluminum alloy	Hard anodized
2	**Head cover**	**ø4**, **ø6**, **ø10**	Brass	Electroless nickel plated
		ø16	Aluminum alloy	Chromated
3	**Piston rod**		Stainless steel	
4	**Piston**	**ø4**	Stainless steel	
		ø6, **ø10**	Brass	
		ø16	Aluminum alloy	Chromated
5	**Retaining ring**		Tool steel	Phosphate coating
6	**Seal retainer**		Special steel	Nickel plated
7	**Mounting nut**		Brass	Electroless nickel plated
8	**Rod end nut**		Steel	Zinc chromated
9	**Bumper**		Urethane rubber	
10	**Piston seal**		NBR	
11	**Rod seal**		NBR	
12	**Gasket**	**ø4**	Stainless steel + NBR	
		ø6, **ø10**, **ø16**	NBR	
13	**Piston gasket**		NBR	
14	**Magnet**		—	
15	**Magnet retainer**	**ø4**, **ø6**, **ø10**	Brass	
		ø16	Aluminum alloy	Chromated

Replacement Parts: Seal Kit

Standard

Bore size (mm)	Kit no.	Contents
6	CJP2B6D-PS	Set of left nos. ⑩, ⑪, ⑫.
10	CJP2B10D-PS	
16	CJP2B16D-PS	

∗ Seal kit includes a grease pack (5 g).
Order with the following part number when only the grease pack is needed.
Grease pack part number: GR-L-005 (5 g)

XB6/Heat-resistant cylinder (–10 to 150°C)

Bore size (mm)	Kit no.	Contents
6	CJP2B6D-XB6-PS	Set of left nos. ⑩, ⑪, ⑫.
10	CJP2B10D-XB6-PS	
16	CJP2B16D-XB6-PS	

∗ Seal kit includes a grease pack (5 g).
Order with the following part number when only the grease pack is needed.
Grease pack part number: GR-F-005 (5 g)

XB7/Cold-resistant cylinder

Bore size (mm)	Kit no.	Contents
6	CJP2B6D-XB7-PS	Set of left nos. ⑩, ⑪, ⑫.
10	CJP2B10D-XB7-PS	
16	CJP2B16D-XB7-PS	

∗ Seal kit includes a grease pack (5 g).
Order with the following part number when only the grease pack is needed.
Grease pack part number: GR-T-005 (5 g)

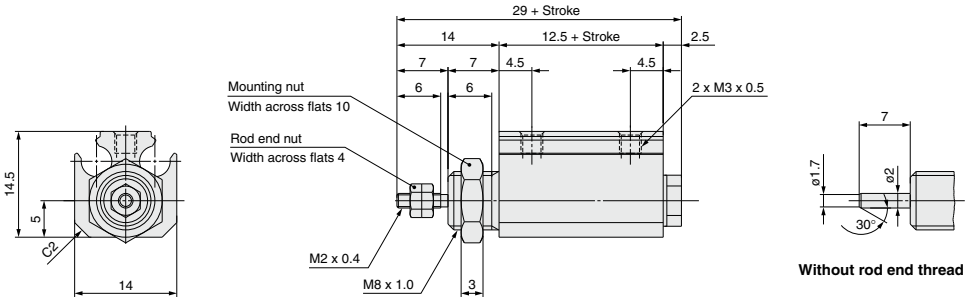
XC22/Fluororubber seal

Bore size (mm)	Kit no.	Contents
6	CJP2B6D-XC22-PS	Set of left nos. ⑩, ⑪, ⑫.
10	CJP2B10D-XC22-PS	
16	CJP2B16D-XC22-PS	

∗ Seal kit includes a grease pack (5 g).
Order with the following part number when only the grease pack is needed.
Grease pack part number: GR-L-005 (5 g)

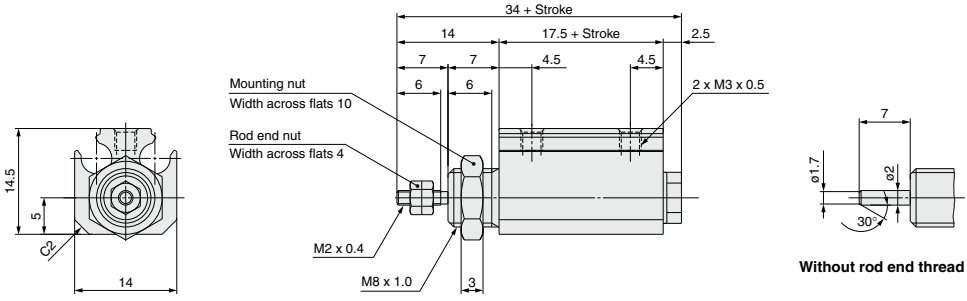
Dimensions: Basic Mounting (ø4)

Standard: CJP2B4



Without rod end thread

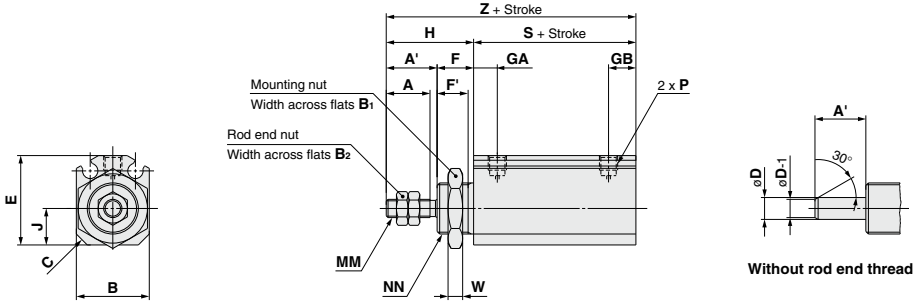
Built-in magnet: CDJP2B4



Without rod end thread

Dimensions: Basic Mounting (ø6 to ø16)

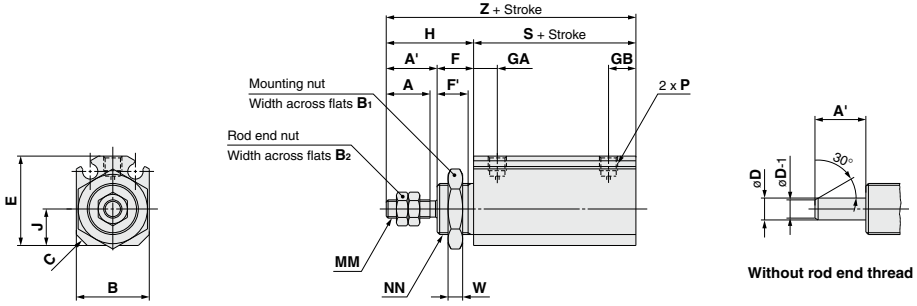
Standard: CJP2B6 to 16



(mm)

Symbol / Bore size	A	A'	B	B_1	B_2	C	D	E	F	F'	GA	GB	H	J	MM	NN	P	S	W	Z
6	7	9	14	14	5.5	2	3	16.5	8	6.5	5.5	6.5	17	6	M3 x 0.5	M10 x 1.0	M3 x 0.5	16	3	33
10	10	12	15	17	7	2.5	4	19	8	6.5	6	7	20	7	M4 x 0.7	M12 x 1.0	M3 x 0.5	19.5	3	39.5
16	12	14	20	19	8	3	6	24.5	10	8.5	6.5	7.5	24	10	M5 x 0.8	M14 x 1.0	M5 x 0.8	19.5	4	43.5

Built-in magnet: CDJP2B6 to 16

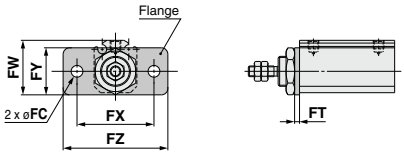


(mm)

Symbol / Bore size	A	A'	B	B_1	B_2	C	D	E	F	F'	GA	GB	H	J	MM	NN	P	S	W	Z
6	7	9	14	14	5.5	2	3	16.5	8	6.5	5.5	6.5	17	6	M3 x 0.5	M10 x 1.0	M3 x 0.5	21	3	38
10	10	12	15	17	7	2.5	4	19	8	6.5	6	7	20	7	M4 x 0.7	M12 x 1.0	M3 x 0.5	24.5	3	44.5
16	12	14	20	19	8	3	6	24.5	10	8.5	6.5	7.5	24	10	M5 x 0.8	M14 x 1.0	M5 x 0.8	24.5	4	48.5

Mounting Bracket Dimensions

Flange: C(D)JP2F6 to 16

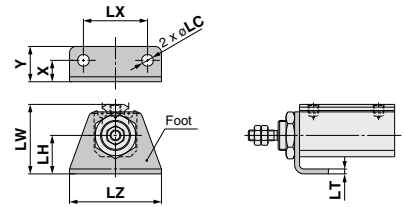


Flange (mm)

Bore size \ Symbol	FC	FT	FW	FX	FY	FZ
6	3.4	1.6	18.5	24	16	32
10	4.5	1.6	21	28	18	37
16	5.5	2.3	25.5	36	22	49

∗ Other dimensions are the same as basic mounting.

Foot: C(D)JP2L6 to 16

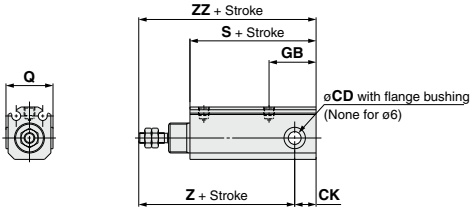


Foot (mm)

Bore size \ Symbol	X	Y	LC	LH	LT	LW	LX	LZ
6	6.5	10.5	3.4	11	1.6	21.5	20	28
10	7	12	4.5	13	1.6	25	24	33
16	10	16.5	5.5	18	2.3	32.5	30	43

∗ Other dimensions are the same as basic mounting.

Clevis: C(D)JP2D6 to 16

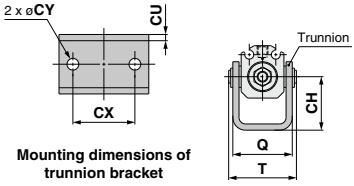


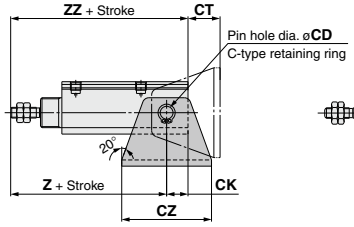
Clevis (mm)

Bore size \ Symbol	CD	CK	GB	Q
6	$3^{+0.040}_{0}$	4	11.5	—
10	$5^{+0.065}_{0}$	6.5	18	$17^{0}_{-0.5}$
16	$6^{+0.065}_{0}$	10	22	$22^{0}_{-0.5}$

Bore size \ Symbol	S		Z		ZZ	
	Without magnet	Built-in magnet	Without magnet	Built-in magnet	Without magnet	Built-in magnet
6	21	26	34	39	38	43
10	30.5	35.5	44	49	50.5	55.5
16	34	39	48	53	58	63

Trunnion: C(D)JP2T6 to 16

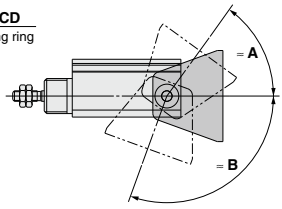




Trunnion (mm)

Bore size \ Symbol	CD	CH	CK	CT	CU	CX	CY	CZ	Q	T	Z		ZZ	
											Without magnet	Built-in magnet	Without magnet	Built-in magnet
6	3	16	4	12	1.6	18	3.4	26	18.5	20.4	34	39	38	43
10	5	20	6.5	13.5	1.6	24	4.5	33	20.5	23.9	44	49	50.5	55.5
16	6	25	10	15	2.9	29	5.5	42	28	31.7	48	53	58	63

Rotation angle

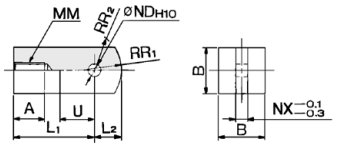


Applicable bore	ø6	ø10	ø16
= A	54°	62°	55°
= B	110°	110°	102°

∗ Provided as guidelines.
The values are varied depending on the condition.

Accessory Bracket Dimensions

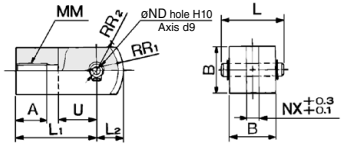
Single knuckle joint



Material: Rolled steel

Part no.	Applicable bore size (mm)	A	B	L_1	L_2	MM	ND_{H10}	NX	R_1	R_2	U
I-P006A	6	5	6	12	3.5	M3 x 0.5	$3^{+0.040}_{0}$	3	5	4	5
I-P010A	10	6.5	10	16	5.5	M4 x 0.7	$5^{+0.048}_{0}$	5	8	6.3	7
I-P016A	16	7	12	19	7	M5 x 0.8	$6^{+0.048}_{0}$	6	10	7.8	9

Double knuckle joint

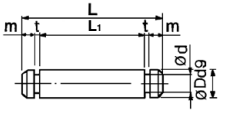


∗ Knuckle pin and retaining ring are included.

Material: Rolled steel

Part no.	Applicable bore size (mm)	A	B	L	L_1	L_2	MM	ND_{d9}	ND_{H10}	NX	R_1	R_2	U
Y-P006A	6	5	6	9	12	3.5	M3 x 0.5	$3^{-0.020}_{-0.045}$	$3^{+0.040}_{0}$	3	5	4	5
Y-P010A	10	6.5	10	13.6	16	5.5	M4 x 0.7	$5^{-0.030}_{-0.060}$	$5^{+0.048}_{0}$	5	8	6.3	7
Y-P016A	16	7	12	15.8	19	7	M5 x 0.8	$6^{-0.030}_{-0.060}$	$6^{+0.048}_{0}$	6	10	7.8	9

Knuckle pin

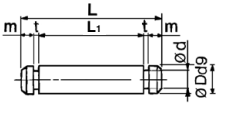


Material: Stainless steel

Part no.	Applicable bore size (mm)	D d9	L	d	L_1	m	t	Retaining∗ ring
IY-P006	6	$3^{-0.020}_{-0.045}$	9	2.85	6.2	0.75	0.65	Clip C-type 3
IY-P010	10	$5^{-0.030}_{-0.060}$	13.6	4.8	10.2	1	0.7	C-type 5
IY-P015	16	$6^{-0.030}_{-0.060}$	15.8	5.7	12.2	1	0.8	C-type 6

∗ Included

Trunnion pin

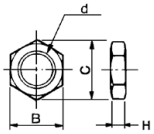


Material: Stainless steel

Part no.	Applicable bore size (mm)	D d9	L	d	L_1	m	t	Retaining∗ ring
CT-P006	6	$3^{-0.020}_{-0.045}$	20.4	2.85	17.6	0.75	0.65	Clip C-type 3
CT-P010	10	$5^{-0.030}_{-0.060}$	23.9	4.8	20.5	1	0.7	C-type 5
CT-P015	16	$6^{-0.030}_{-0.060}$	31.7	5.7	28.1	1	0.8	C-type 6

∗ Included

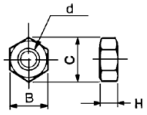
Mounting nut



Material: Brass

Part no.	Applicable bore size (mm)	d	H	B	C
SNPS-004	4	M8 x 1.0	3	10	11.5
SNP-006	6	M10 x 1.0	3	14	16.2
SNP-010	10	M12 x 1.0	3	17	19.6
SNP-015	16	M14 x 1.0	4	19	21.9

Rod end nut

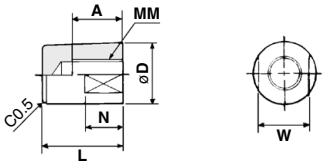


Material: Iron

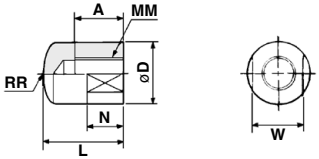
Part no.	Applicable bore size (mm)	d	H	B	C
NTJ-004	4	M2 x 0.4	1.6	4	4.6
NTP-006	6	M3 x 0.5	1.8	5.5	6.4
NTP-010	10	M4 x 0.7	2.4	7	8.1
NTP-015	16	M5 x 0.8	3.2	8	9.2

Rod end cap

Flat type: CJ-CF□□□



Round type: CJ-CR□□□



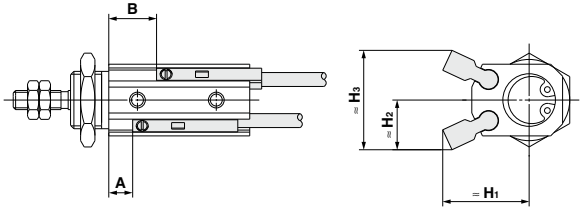
Material: Polyacetal

Part no.		Applicable bore size (mm)	A	D	L	MM	N	RR	W
Flat type	Round type								
CJ-CF004	**CJ-CR004**	4	5	6	9	M2 x 0.4	3	6	5
CJ-CF006	**CJ-CR006**	6	6	8	11	M3 x 0.5	5	8	6
CJ-CF010	**CJ-CR010**	10	8	10	13	M4 x 0.7	6	10	8
CJ-CF016	**CJ-CR016**	16	10	12	15	M5 x 0.8	7	12	10

Auto Switch Mounting 1

Auto Switch Proper Mounting Position (Detection at Stroke End) and Its Mounting Height

D-A9□(V), D-M9□(V), D-M9□W(V), D-M9□A(V)



Applicable Auto Switches: D-A9□, D-A9□V

(mm)

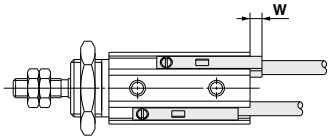
Bore size	A (When detecting at extended stroke end position)	B (When detecting at retracted stroke end position)								H1	H2	H3
		5 st	10 st	15 st	20 st	25 st	30 st	35 st	40 st			
ø4	—	—	—	—	—	—	—	—	—	—	—	—
ø6	1	6	11	16	21	26	—	—	—	13	10	20
ø10	1	6	11	16	21	26	31	36	41	16	9.5	19
ø16	1	6	11	16	21	26	31	36	41	18	12	24

Applicable Auto Switches: D-M9□, D-M9□V, D-M9□W, D-M9□WV, D-M9□A, D-M9□AV

(mm)

Bore size	A (When detecting at extended stroke end position)	B (When detecting at retracted stroke end position)								H1	H2	H3
		5 st	10 st	15 st	20 st	25 st	30 st	35 st	40 st			
ø4	4	9	14	19	—	—	—	—	—	14.5	11.5	23
ø6	5	10	15	20	25	30	—	—	—	15	11.5	23
ø10	5	10	15	20	25	30	35	40	45	18	10.5	21
ø16	5	10	15	20	25	30	35	40	45	20	13	26

Note) Only adjust the setting position after confirming the auto switch is properly activated.



Mounting: Basic, Flange, Foot

(mm)

Auto switch model / Bore size	D-M9□ D-M9□W	D-M9□V D-M9□WV	D-M9□A	D-M9□AV	D-A96 D-A9□V	D-A90 D-A93
	W					
ø4	6	4	8	6	—	—
ø6	6	4	8	6	2	4.5
ø10	2.5	0.5	4.5	2.5	0	1
ø16	2.5	0.5	4.5	2.5	0	1

Mounting: Clevis, Trunnion

(mm)

Auto switch model / Bore size	D-M9□ D-M9□W	D-M9□V D-M9□WV D-A9□ D-A9□V	D-M9□A	D-M9□AV
	W			
ø4	—	—	—	—
ø6	1	0	3	2
ø10	0	0	2	2
ø16	0	0	2	2

∗ 0 (zero) denotes the auto switch does not protrude from the end surface.
Note) Adjust the auto switch after confirming the operating conditions in the actual setting.

Auto Switch Mounting 2

Operating Range

(mm)

Auto switch model	Bore size			
	4	6	10	16
D-A9□(V)	—	5	6	7
D-M9□(V) **D-M9□W(V)** **D-M9□A(V)**	2.5	2.5	3	3.5

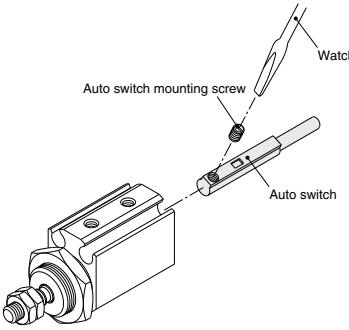
∗ Since the operating range is provided as a guideline including hysteresis, it cannot be guaranteed (assuming approximately ±30% dispersion). It may vary substantially depending on an ambient environment.

Minimum Stroke for Auto Switch Mounting

(mm)

No. of auto switches mounted	Applicable auto switch model	
	D-M9□, D-M9□V	**D-M9□W, D-M9□WV** **D-M9□A, D-M9□A(V)** **D-A9□, D-A9□V**
1	5	5
2	5	10

Mounting and Moving Auto Switches



① Fit an auto switch into the auto switch mounting groove to set it roughly to the mounting position for an auto switch.
② After reconfirming the detecting position, tighten the auto switch mounting screw∗ to secure the auto switch.
③ Modification of the detecting position should be made in the condition of ①.

∗ When tightening an auto switch mounting screw, use a watchmaker's screwdriver with a handle of approximately 5 to 6 mm in diameter. (Use a tightening torque of approximately 0.10 to 0.20 N·m.)

Tightening torque for auto switch mounting screw (N·m)

Auto switch model	Tightening torque
D-A9□(V)	0.10 to 0.20
D-M9□(V) **D-M9□W(V)** **D-M9□A(V)**	0.05 to 0.15

⚠ Specific Product Precautions

Before handling auto switches, refer to pages 8 to 12 for Auto Switches Precautions.

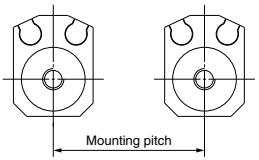
⚠ Caution

1. If auto switch cylinders are used in parallel, keep the distance between cylinders in accordance with the below chart.

Mounting Pitch (mm)

Auto switch model	Bore size			
	4	6	10	16
D-A9□(V)	—	20	25	30
D-M9□(V) **D-M9□W(V)** **D-M9□A(V)**	25	25	30	35

Use caution not to use them, getting closer than the specified pitch. Otherwise, it may cause auto switch to malfunction.



Made to Order: Individual Specifications

Please contact SMC for detailed dimensions, specifications and lead times.

Made to Order

Symbol

1 Clevis / Trunnion Type Mounting Interchangeable -X1666

CJP2 series standard model no. – **X1666**

Clevis / Trunnion type mounting interchangeable (Former CJP)

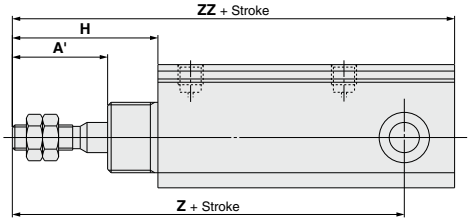
Specifications

Applicable series	CJP2
Bore size	ø6, ø10, ø16

Other specifications	Same as standard type.

∗ ø6 is available for both standard and built-in magnet types.
∗ ø10 and ø16 are available for the standard type (The built-in magnet type is interchangeable.)

Dimensions



Bore size(mm)	A'	H	Z	ZZ
6	18.5 (13.5)	26.5 (21.5)	43.5	47.5
10	17	25	49	55.5
16	19	29	53	63

∗ Dimensions other than above are same as basic type.
( ): For the built-in magnet type

CJP2 Series
Specific Product Precautions

Be sure to read this before handling the products. Please consult with SMC for the use other than the specifications.

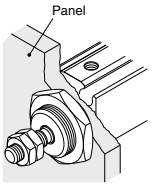
Mounting

⚠Caution

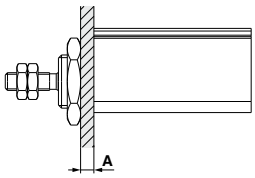
Mounting nut maximum tightening torque and panel width

① Do not apply more torque than the maximum torque range when mounting the cylinder or bracket. Also, do not attach a panel with a thickness beyond the specified range.

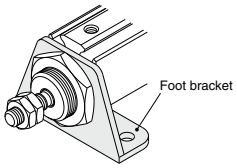
Cylinder bore size	Thread	Maximum tightening torque (N·m)	**A** dimension maximum value (mm)
ø**4**	M8 x 1	6.2	3
ø**6**	M10 x 1	12.5	4
ø**10**	M12 x 1	21.0	4
ø**16**	M14 x 1	34.0	5



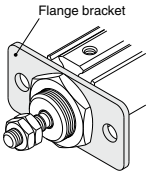
Panel mounting



Panel maximum thickness



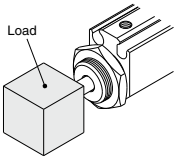
Foot mounting



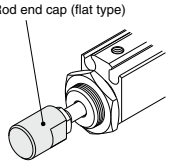
Flange mounting

② Do not apply more tightening torque than the below specified range when attaching a load on the rod end, rod end cap, single or double knuckle joint.

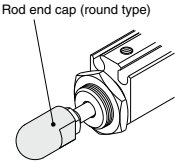
Applicable bore size	Thread size	Maximum tightening torque (N·m)
ø**4**	M2 x 0.4	0.1
ø**6**	M3 x 0.5	0.3
ø**10**	M4 x 0.7	0.8
ø**16**	M5 x 0.8	1.6



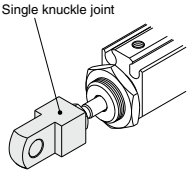
Rod end load mounting



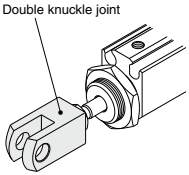
Rod end cap (flat type) mounting



Rod end cap (round type) mounting



Single knuckle joint mounting



Double knuckle joint mounting

Piping

⚠Caution

The piping port size of CJ2□6 and CJP2□10 is M3 x 0.5. If using piping tube O.D. ø6, piping is possible on M3 One-touch fittings (applicable tube O.D. ø4) when used with a reducer (KQ2R06-04A).

∗ For details of One-touch fittings, refer to Best Pneumatics No. 7.

Disassembly and Maintenance

⚠Caution

Snap ring installation / removal

1. To replace seals or grease the cylinder during maintenance, use an appropriate pair of pliers (tool for installing a C-type retaining ring for hole).
   After re-installing the cylinder, make sure that the retaining ring is placed securely in the groove before supplying air.
2. To remove and install the retaining ring for the knuckle pin or the trunnion pin, use an appropriate pair of pliers (tool for installing a C-type retaining ring for hole). In particular, use a pair of ultra-mini pliers, for removing and installing the retaining rings on the ø6 cylinder.
   Do not disassemble the CJP4 cylinder. Do not loosen or remove the head cover.

Pin Cylinder: Single Acting, Spring Return

CJP Series

ø4, ø6, ø10, ø15

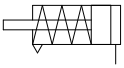
A short stroke miniature cylinder with a shorter overall length.

The installation space can be significantly reduced because this cylinder can be recessed directly into a machine body or installed on a panel. Thus, the machine can be made more compact.

Embedded type **Panel mount type**

Symbol

Single acting, Spring return



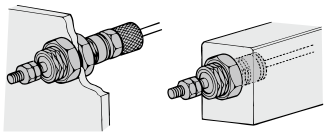
Made to Order **Made to Order (ø6 to ø15)**

(For details, refer to pages 1703 to 1896.)

Symbol	Specifications
XC17	Pin cylinder with rod quenched
XC22	Fluororubber seals

Mounting

Panel mount type **Embedded type**



Moisture Control Tube IDK Series

When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.

Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to **the IDK series in the Best Pneumatics No. 6**.

How to Order

CJP B 10 – 15 H4 – □ – □

Pin cylinder

Mounting

B	Panel mount type
S	Embedded type

Bore size

4	4 mm
6	6 mm
10	10 mm
15	15 mm

Cylinder standard stroke (mm)

ø4, ø6, ø10, ø15	5, 10, 15

Hose nipple (Applicable to the mounting type B panel mount type (ø6 to ø15) only.)

(Hose nipple is not attached to embedded type.)

Nil	Without hose nipple *
H4	For ø4/ø2.5 tubing
H6	For ø6/ø4 tubing

Rod end thread

Nil	With thread
B	Without thread

Made to Order

Refer to the table below.

∗ Refer to ⚠ caution on piping on page 39.

Specifications

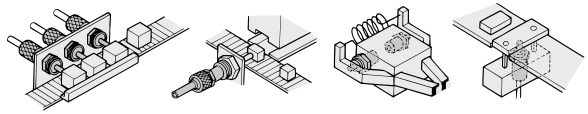
Action		Single acting, Spring return	
Maximum operating pressure		0.7 MPa	
Minimum operating pressure	**ø4**	0.3 MPa	
	ø6	0.2 MPa	
	ø10, ø15	0.15 MPa	
Proof pressure		1 MPa	
Ambient and fluid temperature		–10 to 70°C (No freezing)	
Lubrication		Not required (Non-lube)	
Piston speed		50 to 500 mm/s	
Cushion		None	
Stroke length tolerance		$^{+1.0}_{0}$	
Rod end type		With thread/Without thread	
Mounting		Panel mount type	Embedded type
Accessory (Standard equipment)	**Standard equipment**	Mounting nut (2) Rod end nut (2) *	Mounting nut (1) Gasket (1) Rod end nut (2) *
	Option	Hose nipple (Except ø4)	—

∗ When rod end is threaded.

∗ For details about the hose nipple (accessory), refer to page 39.

Application Examples

Clamper **Ejector** **Gripper** **Stopper**



Standard Stroke

Bore size (mm)	Stroke (mm)
4	5, 10, 15
6	5, 10, 15
10	5, 10, 15
15	5, 10, 15

Weight

(g)

Model	Stroke (mm)		
	5	**10**	**15**
CJP□4	10	13	15
CJP□6	10.6	13.1	15.6
CJP□10	28	33	38
CJP□15	72	82	92

∗ Weight of hose nipple (4 g) for panel mounting is excluded.

Theoretical Output

(N)

Bore size (mm)	Operating direction	Operating pressure (MPa)		
		0.3	0.5	0.7
4	OUT	0.97	3.48	6.00
	IN	1.0		
6	OUT	4.56	10.2	15.9
	IN	1.42		
10	OUT	17.6	33.3	49.0
	IN	2.45		
15	OUT	42.2	77.5	113
	IN	4.41		

Spring Reaction Force

(N)

Bore size (mm)	Stroke (mm)	Retracted side	Extended side
4	5, 10, 15	2.80	1.00
6	5, 10, 15	3.92	1.42
10	5, 10, 15	5.98	2.45
15	5, 10, 15	10.80	4.41

∗ Same spring force for each stroke.

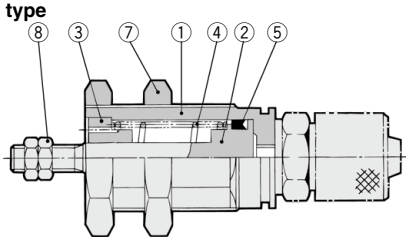
Hose Nipple Dedicated for Panel Mount Type

(With fixed orifice)

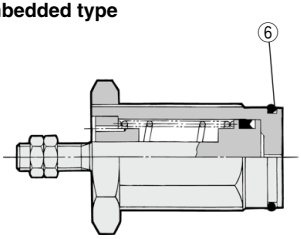
Applicable tubing	Part no.
For ø4/ø2.5 tubing	CJ-5H-4
For ø6/ø4 tubing	CJ-5H-6

Construction (Not able to disassemble.)

Panel mount type



Embedded type



Component Parts

No.	Description	Material	Note	
1	**Cover**	Brass	Electroless nickel plated	
2	**Piston**	Stainless steel		
3	**Collar**	Oil-impregnated sintered alloy	ø4	Brass + Electroless nickel plated
			ø6, ø10	Bronze
4	**Return spring**	Steel wire	Zinc chromated	
5	**Piston seal**	NBR		
6	**Gasket**	NBR	Special product (O-ring) embedded type only	
7	**Mounting nut**	Brass	Electroless nickel plated	
8	**Rod end nut**	Steel	Zinc chromated	

Dedicated Nut / Part No.

Description \ Bore size (mm)	4	6	10	15
Mounting nut	SNPS-004	SNPS-006	SNPS-010	SNPS-015
Rod end nut	NTJ-004	NTP-006	NTP-010	NTP-015

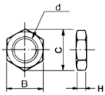
Replacement Parts / Gasket

Bore size (mm)	Order no.	Contents
4	CJPS4-G	Above no. ⑥
6	CJPS6-G	
10	CJPS10-G	
15	CJPS15-G	

∗ Dedicated for the embedded type.

∗ For the plug mounting type
∗ Since gaskets (10 pcs./set) do not include a grease pack (10 g), order it separately.
Grease pack part number: GR-S-010 (10g)

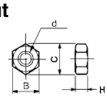
Mounting nut



Material: Brass

Part no.	Applicable bore size (mm)	d	H	B	C
SNPS-004	**4**	M8 x 1.0	3	10	11.5
SNPS-006	**6**	M10 x 1.0	3	12	13.9
SNPS-010	**10**	M15 x 1.5	4	19	22
SNPS-015	**15**	M22 x 1.5	5	27	31

Rod end nut



Material: Steel

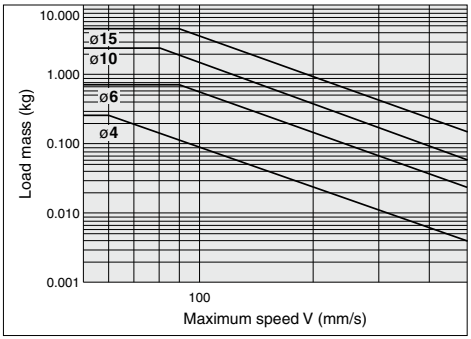
Part no.	Applicable bore size (mm)	d	H	B	C
NTJ-004	**4**	M2 x 0.4	1.6	4	4.6
NTP-006	**6**	M3 x 0.5	1.8	5.5	6.4
NTP-010	**10**	M4 x 0.7	2.4	7	8.1
NTP-015	**15**	M5 x 0.8	3.2	8	9.2

Allowable Kinetic Energy

⚠Caution

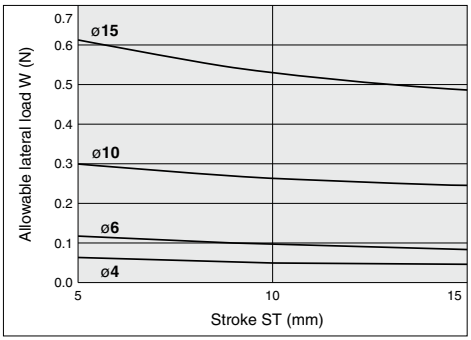
When driving an inertial load, operate a cylinder with kinetic energy within the allowable value. The range in the chart below that is delineated by bold solid lines indicates the relation between load mass and maximum driving speeds.

Bore size (mm)	4	6	10	15
Piston speed (m/s)	0.05 to 0.5			
Allowable kinetic energy (J)	0.5×10^{-3}	3×10^{-3}	8×10^{-3}	19×10^{-3}



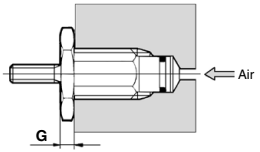
Allowable Lateral Load

Strictly observe the limiting range of lateral load on a piston rod. (Refer to the below graph.) If this product is used beyond the limits, it may shorten the machine life or cause damage.

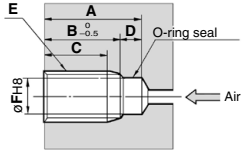


Recommended Mounting Hole Dimensions for Embedded Type

When embedded



Machining dimensions for mounting



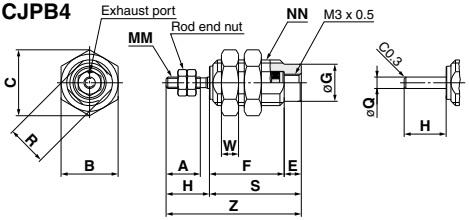
(mm)

Bore size (mm)	Stroke	A	B	C	D	E	F	G
4	5	12	8.5	6	3.5	M8 x 1.0	6.5	3
	10	20	16.5	14				
	15	28	24.5	22				
6	5	16	12.5	10	3.5	M10 x 1.0	8.5	3
	10	23	19.5	17				
	15	30	26.5	24				
10	5	17	13.5	10.5	3.5	M15 x 1.5	12	4
	10	23.5	20	17				
	15	30.5	27	24				
15	5	19	14.5	11.5	4.5	M22 x 1.5	19	5
	10	25	20.5	17.5				
	15	31.5	27	24				

Note) E and øF should be machined in a concentric manner.

Dimensions: Panel Mount Type

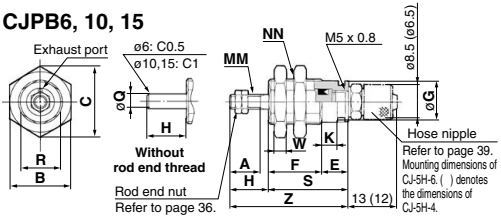
CJPB4



(mm)

Bore size (mm)	A	B	C	E	F			G	H	K	MM
					5st	10st	15st				
4	6	10	11.5	3	13	21	29	6.5	7.5	—	M2 x 0.4
6	7	12	13.9	6	12.5	19.5	26.5	8.5	9	3.5	M3 x 0.5
10	10	19	22	6	14.5	21	28	12	12	3.5	M4 x 0.7
15	12	27	31	7	16.5	22.5	29	19	14	4.2	M5 x 0.8

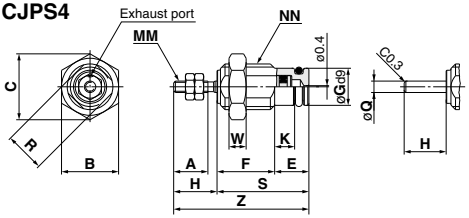
CJPB6, 10, 15



Bore size (mm)	NN	R	S			W	Z			Q
			5st	10st	15st		5st	10st	15st	
4	M8 x 1.0	7	16	24	32	3	23.5	31.5	39.5	2
6	M10 x 1.0	9	18.5	25.5	32.5	3	27.5	34.5	41.5	3
10	M15 x 1.5	13	20.5	27	34	4	32.5	39	46	5
15	M22 x 1.5	20	23.5	29.5	36	5	37.5	43.5	50	6

Dimensions: Embedded Type

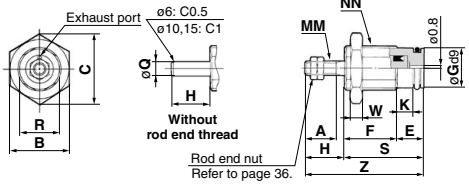
CJPS4



(mm)

Bore size (mm)	A	B	C	E	F			G	H	K	MM
					5st	10st	15st				
4	6	10	11.5	6	10	18	26	6.5	7.5	3.5	M2 x 0.4
6	7	12	13.9	6	12.5	19.5	26.5	8.5	9	3.5	M3 x 0.5
10	10	19	22	6	14.5	21	28	12	12	3.5	M4 x 0.7
15	12	27	31	7	16.5	22.5	29	19	14	4.2	M5 x 0.8

CJPS6, 10, 15



Bore size (mm)	NN	R	S			W	Z			Q
			5st	10st	15st		5st	10st	15st	
4	M8 x 1.0	7	16	24	32	3	23.5	31.5	39.5	2
6	M10 x 1.0	9	18.5	25.5	32.5	3	27.5	34.5	41.5	3
10	M15 x 1.5	13	20.5	27	34	4	32.5	39	46	5
15	M22 x 1.5	20	23.5	29.5	36	5	37.5	43.5	50	6

CJP Series
Specific Product Precautions

Be sure to read this before handling the products. Please consult with SMC for the use other than the specifications.

Piping

⚠Caution

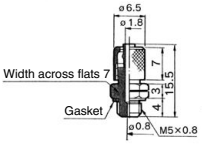
The following fittings are recommended for this cylinder connection. However, there may be a case where the piston speed exceeds 500 mm/sec. even with the recommended fittings for this cylinder. Use a speed controller in such cases.

Cylinder bore size	Applicable bore size	Fitting type	Connection thread	Model
ø4	ø2	One-touch fitting	M3 x 0.5	**KQ2□02-M3G**
		Miniature fitting		**M-3AU-2**
ø6 ø10 ø15		One-touch fitting	M5 x 0.8	**KQ2□02-M5N**
		Miniature fitting		**M-5AU-2**
	ø4/2.5	Dedicated hose nipple (with fixed orifice)		**CJ-5H-4**
	ø6/4			**CJ-5H-6**

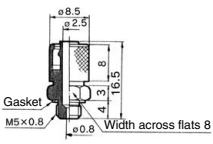
∗ Please be aware that cylinder speed may slow down on the retracting side when using the above one-touch fittings and miniature fittings with a cylinder bore size of ø15.

Hose nipple

CJ-5H-4
(For ø4/ø2.5 tubing)



CJ-5H-6
(For ø6/ø4 tubing)



In addition to the above fittings and hose nipples, the below fittings can also be attached to the cylinder.
When using the below fittings be sure to provide a speed controller after adjusting it to 500 mm/s or less.

Cylinder bore size	Applicable bore size	Fitting type	Connection thread	Model
ø4	3.2	One-touch fitting	M3 x 0.5	**KQ2□23-M3G**
	4			**KQ2□04-M3G**
ø6 ø10 ø15	3.2		M5 x 0.8	**KQ2□23-M5□**
	4			**KQ2□04-M5□**
	6			**KQ2□06-M5□**

Recommended Speed Controller

Applicable bore size (mm)	Connection thread	Elbow type meter-in	Universal type meter-in	In-line type meter-in
ø2	M3	AS1211F-M3-02	—	AS1002F-02
	M5	AS1211F-M5E-02A	—	
ø3.2	M3	AS1211F-M3-23	AS1311F-M3-23	AS1002F-23
	M5	AS1211F-M5E-23A	AS1311F-M5E-23A	
ø4	M3	AS1211F-M3-04	AS1311F-M3-04	AS1002F-04
	M5	AS1211F-M5E-04A	AS1311F-M5E-04A	
ø6	M5	AS1211F-M5E-06A	AS1311F-M5E-06A	AS1002F-06

∗ For details about one-touch fittings, miniature fittings and speed controllers (applicable tubing O.D. ø2 only), refer to the Best Pneumatics No. 7.
Also, for details about speed controllers (applicable tubing O.D. ø3.2 to ø6), refer to the Best Pneumatics No. 7.
∗ Refer to the Fittings and Tubing Precautions (Best Pneumatics No. 7) for how to handle one-touch fittings.

Mounting

⚠Caution

Do not use it in such a way that a load could be applied to the piston rod during the retraction.
The spring that is built into the cylinder provides only enough force to retract the piston rod. Thus, if a load is applied, the piston rod may not be able to retract to the end of the stroke.