Air Cylinder

Series CJ2

ø6, ø10, ø16

Improved wear resistance

The bearing portions of the rod cover and the clevis have been improved in wear resistance to ensure the longevity of the cylinder.

Easy installation

The installation is simple because a tool can be placed directly over the cover for installation.

High speed actuation possible

Either the rubber bumper or the air cushion can be selected according to the drive speed conditions. Therefore, it can support high speed drives.

- Rubber bumper·····50 to 750 mm/s (Standard equipment)
- Air cushion·····50 to 1000 mm/s

Reduced piston rod deflection

The clearance between the bushing and the piston rod has been decreased to achieve higher accuracy, thus decreasing the deflection of the piston rod.

Series Variations

Series	Action	Rod	Basic	Standard variations: Built-in magnet	Standard variations: With air cushion	Standard variations: Clean series	Standard variations: Copper and fluorine-free	Bore size (mm)	Page
Standard *Series CJ2*	Double acting	Single rod	●	●	●	●	●	6, 10, 16	42
		Double rod	●	●	●	●	●		52
	Single acting	Single rod, Spring return/ Spring extend	●	●			●		60
Non-rotating Rod *Series CJ2K*	Double acting	Single rod	●	●			●	10, 16	68
	Single acting	Single rod, (Spring return/ Spring extend)	●	●			●		73
Built-in Speed Controller *Series CJ2Z*	Double acting	Single rod	●	●			●		80
		Double rod	●	●			●		85
Low Friction *Series CJ2Q*	Double acting	Single rod	●	●			●		90
Direct Mount *Series CJ2R*	Double acting	Single rod	●	●		●	●		94
	Single acting	Single rod, (Spring return/ Spring extend)	●	●			●		98
Direct Mount, Non-Rotating Rod *Series CJ2RK*	Double acting	Single rod	●	●			●		102
	Single acting	Single rod, (Spring return/ Spring extend)	●	●			●		106
End lock cylinder *Series CBJ2*	Double acting	Single rod	●	●				16	110

Low-speed cylinder *Series CJ2X*	Double acting	Single rod	**Refer to Best Pneumatics No. 3.**

Combinations of Standard Products and Made

Series ***CJ2***

● : Standard
◎ : Made to Order specifications
○ : Special product (Contact SMC for details.)
— : Not available

Symbol	Specification	Applicable bore size	CJ2 (Standard)				CJ2K (Non-rotating)		
			Double acting		Single acting		Double acting	Single acting	
			Single rod	Double rod	Single rod (spring return)	Single rod (spring extend)	Single rod	Single rod (spring return)	Single rod (spring extend)
			ø6 to 16				ø10, ø16		
Standard	**Standard**	ø6 to ø16	●	●	●	●	●	●	●
D	**Built-in magnet**		●	●	●	●	●	●	●
CJ2□-□A	**Air cushion**	ø10, ø16	●	●	—	—	—	—	—
10-, 11-	**Clean series** (4)	ø6 to ø16	●	● (3)	○	○	—	—	—
20-	**Copper and Fluorine-free** (5)		●	●	●	●	●	●	●
XB6	**Heat-resistant cylinder (–10 to 150 °C)** (6)(7)	ø6 to ø16	◎	◎	○	○	○	○	○
XB7	**Cold-resistant cylinder** (6)(7)		◎	◎	○	○	○	○	○
XB9	**Low-speed cylinder (10 to 50 mm/s)** (7)		◎	—	—	—	—	—	—
XB13	**Low-speed cylinder (5 to 50 mm/s)** (7)		◎	—	—	—	—	—	—
XC3	**Special port position** (5)(7)	ø10, ø16	◎	○	—	—	◎	—	—
XC8	**Adjustable stroke cylinder/Adjustable retraction type** (5)(7)		◎	—	○	○	○	○	○
XC9	**Adjustable stroke cylinder/Adjustable extension type** (5)(7)		◎	—	○	—	○	○	—
XC10	**Dual stroke cylinder/Double rod type** (7)		◎	—	○	○	◎	○	○
XC11	**Dual stroke cylinder/Single rod type** (7)		◎	—	—	—	○	—	—
XC22	**Fluororubber seal** (7)	ø6 to ø16	◎	◎	◎	◎	◎	○	○
XC51	**With hose nipple**		◎	◎	◎	◎	◎	◎	◎
X339	**Same as CJ1 mounting dimensions**	ø10, ø16	—	◎ (1)	—	◎ (2)	—	—	◎ (2)
X773	**Short mounting pitch**	ø6	—	—	◎	—	—	—	—

Note 1) ø10 foot style only.
Note 2) ø 10 and ø16 double clevis style.
Note 3) ø 10 and ø16 only.
Note 4) Mounting style: Not compatible with the clevis style. A switch is available in the band mounting style only.
Note 5) A switch is available in the band mounting style only.
Note 6) Not compatible with cylinders with a switch.
Note 7) Not compatible with cylinders with a air cushion.
Note 8) Available only for locking at head end.
Note 9) Refer to Best Pneumatics No. 3 for low-speed cylinders.
Note 10) Available only for locking on rod side.

	CJ2Z (Built-in speed controller)		CJ2Q (Low friction)	CJ2R (Direct mount)			CJ2RK (Direct mount, Non-rotating)			CBJ2 (With end lock)	CJ2X Low-speed cylinder (9)
	Double acting		Double acting	Double acting	Single acting		Double acting	Single acting		Double acting	Double acting
	Single rod	Double rod	Single rod	Single rod	Single rod (spring return)	Single rod (spring extend)	Single rod	Single rod (spring return)	Single rod (spring extend)	Single rod	Single rod
	ø10, ø16									ø16	ø10, ø16
	●	●	●	●	●	●	●	●	●	●	●
	●	●	●	●	●	●	●	●	●	●	●
	—	—	—	○	—	—	—	—	—	—	—
	—	—	—	●	○	○	—	—	—	○ (8)	—
	●	●	—	●	●	●	●	●	●	○	—
	○	○	—	○	○	○	○	○	○	○	—
	○	○	—	○	○	○	○	○	○	—	—
	—	—	—	—	—	—	—	—	—	○	—
	—	—	—	—	—	—	—	—	—	—	—
	—	—	○	○	—	—	○	—	—	○	○
	○	—	—	○	○	○	○	○	○	—	—
	—	—	○	○	○	—	○	○	—	○ (10)	—
	○	—	○	○	○	○	○	○	○	○	—
	—	—	—	○	—	—	○	—	—	○ (10)	—
	○	○	—	◎	○	○	○	○	○	○	—
	◎	◎	◎	◎	◎	◎	◎	◎	◎	—	—
	—	—	—	—	—	—	—	—	—	—	—
	—	—	—	—	—	—	—	—	—	—	—

Air Cylinder: Standard Type
Double Acting, Single Rod
Series CJ2
ø6, ø10, ø16

How to Order

Bore size

6	6 mm
10	10 mm
16	16 mm

Mounting style

B	Basic style
L	Axial foot style
F	Rod side flange style
D	Double clevis style (Except ø6)

Cylinder standard stroke (mm)
Refer to the standard stroke table on page 43.

Cushion

Nil	Rubber bumper
A	Air cushion (Except ø6)

Built-in Magnet Cylinder Model

Suffix the symbol "-A" (Rail mounting style) or "-B" (Band mounting style) to the end of part number for cylinder with auto switch.

Example	Rail mounting style	CDJ2B10-45-A
	Band mounting style	CDJ2B16-60-B

∗ For rail mounting style, screws and nuts for 2 pcs switches come with the rail.
∗ Refer to page 123 for switch mounting brackets.

CJ2 L 16 – 60 A □ – □

With auto switch **CDJ2 L 16 – 60 A □ – M9BW □ – □**

With auto switch
(Built-in magnet)

Band mounting style

Head cover port location

Symbol \ Bore size (mm)	ø6	ø10, ø16
Nil	—	Perpendicular to axis
R	Axial	Axial

∗ For configuration, refer to page 43.
∗ Double clevis is only available for being perpendicular to axis.

Auto switch
∗ For the applicable auto switch model, refer to the table below.
∗ If a built-in magnet cylinder without an auto switch is required, refer to the model of built-in magnet cylinder.

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Made to Order
Refer to page 43 for details.

Applicable Auto Switch/Refer to pages 1263 to 1371 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Band mounting (ø6, ø10, ø16)	Auto switch model: Rail mounting (ø10, ø16) Perpendicular	Auto switch model: Rail mounting (ø10, ø16) In-line	Lead wire length (m): 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	**M9N**	—	—	●	●	●	○	—	○	IC circuit	Relay, PLC
							—	**F7NV**	**F79**	●	—	●	○	—	○		
				3-wire (PNP)			**M9P**	—	—	●	●	●	○	—	○		
							—	**F7PV**	**F7P**	●	—	●	○	—	○		
				2-wire	12 V		**M9B**	—	—	●	●	●	○	—	○	—	
							—	**F7BV**	**J79**	●	—	●	○	—	○		
		Connector					**H7C**	**J79C**	—	●	—	●	●	●	—		
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)	5 V, 12 V		**M9NW**	—	—	●	●	●	○	—	○	IC circuit	
							—	**F7NWV**	**F79W**	●	—	●	○	—	○		
				3-wire (PNP)			**M9PW**	—	—	●	●	●	○	—	○		
							—	—	**F7PW**	●	—	●	○	—	○		
				2-wire	12 V		**M9BW**	—	—	●	●	●	○	—	○	—	
							—	**F7BWV**	**J79W**	●	—	●	○	—	○		
	Water resistant (2-color indication)						**H7BA**	**F7BAV**	**F7BA**	—	—	●	○	—	○		
	With diagnostic output (2-color indication)			4-wire (NPN)	5 V, 12 V		**H7NF**	—	**F79F**	●	—	●	○	—	○	IC circuit	
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**A96**	—	**A76H**	●	—	●	—	—	—	IC circuit	—
				2-wire	—	200 V	—	—	**A72**	**A72H**	●	—	●	—	—	—	—	Relay, PLC
					24V	12 V	100 V	—	**A73**	**A73H**	●	—	●	●	—	—		
								—	—	**A93**	●	—	●	—	—	—		
			No				100 V or less	**A90**	**A80**	**A80H**	●	—	●	—	—	—	IC circuit	
		Connector	Yes				—	**C73C**	**A73C**	—	●	—	●	●	●	—	—	
			No				24 V or less	**C80C**	**A80C**	—	●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-color indication)	Grommet	Yes			—	—	—	**A79W** **	—	●	—	●	—	—	—	—	

∗ Lead wire length symbols: 0.5 m····· Nil (Example) M9NW
1 m····· M (Example) M9NWM
3 m····· L (Example) M9NWL
5 m····· Z (Example) M9NWZ
None····· N (Example) H7CN

∗ Since there are other applicable auto switches than listed, refer to page 123 for details.
∗ For details about auto switches with pre-wired connector, refer to pages 1328 and 1329.
∗ Band mounting style is not available for D-A9□V/M9□V/M9□WV and D-M9□A(V)L types.
∗∗ "D-A79W" cannot be mounted on bore size ø10 cylinder with air cushion.

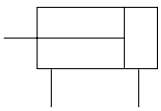
∗ Solid state auto switches marked with "○" are produced upon receipt of order.
∗ D-A9□/M9□/M9□W/A7□□/A80□/F7□□/J7□□ auto switches are shipped together (not assembled). (However, when D-A9□/M9□/M9□W types are selected, only auto switch mounting brackets are assembled before being shipped.)
∗ When D-A9□(V)/M9□(V)/M9□W(V) types are mounted on a ø10 or ø16 rail, order auto switch mounting brackets separately. Refer to page 123 for details.

Specifications

Bore size (mm)		6	10	16
Action		Double acting, Single rod		
Fluid		Air		
Proof pressure		1 MPa		
Maximum operating pressure		0.7 MPa		
Minimum operating pressure	Rubber bumper	0.12 MPa	0.06 MPa	
	Air cushion	—	0.1 MPa	
Ambient and fluid temperature		Without auto switch: −10°C to 70°C, With auto switch: −10°C to 60°C *		
Cushion		Rubber bumper/Air cushion		
Lubrication		Not required (Non-lube)		
Stroke length tolerance		$^{+1.0}_{0}$		
Piston speed	Rubber bumper	50 to 750 mm/s		
	Air cushion	50 to 1000 mm/s		
Allowable kinetic energy	Rubber bumper	0.012J	0.035J	0.090J
	Air cushion (Effective cushion length)	—	0.07J (9.4 mm)	0.18J (9.4 mm)

* No freezing

JIS Symbol
Double acting, Single rod



Standard Stroke

(mm)

Bore size	Standard stroke
6	15, 30, 45, 60
10	15, 30, 45, 60, 75, 100, 125, 150
16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200

* Manufacture of intermediate strokes at 1 mm intervals is possible. (Spacers are not used.)

Head Cover Port Location

Either perpendicular to the cylinder axis or in-line with the cylinder axis is available for basic style. (ø6 is available only as in-line style.)

Axial

Perpendicular

Refer to pages 117 to 123 for cylinders with auto switches.

- Minimum stroke for auto switch mounting
- Proper auto switch mounting position (detection at stroke end) and mounting height
- Operating range
- Switch mounting bracket part no.

Made to Order Specifications

(For details, refer to pages 1373 to 1498.)

Symbol	Specifications
—XA□	Change of rod end shape
—XB6	Heat resistant cylinder (150°C) * Not available with switch & with air cushion
—XB7	Cold resistant cylinder * Not available with switch & with air cushion
—XB9	Low speed cylinder (10 to 50 mm/s) * Not available with air cushion
—XB13	Low speed cylinder (5 to 50 mm/s) * Not available with air cushion
—XC3	Special port location * Not available with air cushion
—XC8	Adjustable stroke cylinder/Adjustable extension type
—XC9	Adjustable stroke cylinder/Adjustable retraction type
—XC10	Dual stroke cylinder/Double rod type
—XC11	Dual stroke cylinder/Single rod type
—XC22	Fluororubber seals * Not available with air cushion
—XC51	With hose nipple

Mounting Style and Accessory/For details, refer to page 51.

Mounting		Basic style	Axial foot style	Rod side flange style	Double * clevis style
Standard equipment	Mounting nut	●	●	●	—
	Rod end nut	●	●	●	●
	Clevis pin	—	—	—	●
Option	Single knuckle joint	●	●	●	●
	Double knuckle joint *	●	●	●	●
	T-bracket	—	—	—	●

* Pin and snap ring are shipped together with double clevis and double knuckle joint.

Mounting Bracket Part No.

Mounting bracket	Bore size (mm)		
	6	10	16
Foot bracket	CJ-L006B	CJ-L010B	CJ-L016B
Flange bracket	CJ-F006B	CJ-F010B	CJ-F016B
T-bracket *	—	CJ-T010B	CJ-T016B

* T-bracket is used with double clevis (D).

Mass

(g)

Bore size (mm)		6	10	16
Basic mass *		15	24	55
Additional mass per each 15 mm of stroke		2	4	6.5
Mounting bracket mass	Axial foot style	8	8	20
	Rod side flange style	5	5	15
	Double clevis style (With pin) *	–	4	10
Accessory bracket	Single knuckle joint	–	16	22
	Double knuckle joint (With pin)	–	24	19.5
	T-bracket	–	32	50

* Mounting nut and rod end nut are included in the basic mass.

** Mounting nut is not attached to the double clevis style, so the mounting nut mass is already subtracted.

Calculation: (Example) **CJ2L10-45**

- Basic mass ····· 24 (ø10)
- Additional mass ····· 4/15 stroke
- Cylinder stroke ····· 45 stroke
- Mounting bracket mass ·· 8 (Axial foot style)

24 + 4/15 x 45 + 8 = 44 g

⚠Precautions

Be sure to read before handling.
Refer to front matters 54 and 55 for Safety Instructions and pages 3 to 11 for Actuator and Auto Switch Precautions.

Mounting

⚠Caution

1. During installation, secure the rod cover and tighten by applying an appropriate tightening force to the retaining but or to the rod cover body. If the head cover is secured or the head cover is tightened, the cover could rotate, leading to the deviation.
2. Tighten the retaining screws to an appropriate tightening torque within the range given below.
   ø6: 2.1 to 2.5 N·m, ø10: 5.9 to 6.4 N·m,
   ø16: 10.8 to 11.8 N·m
3. To remove and install the retaining ring for the knuckle pin or the clevis pin, use an appropriate pair of pliers (tool for installing a type C retaining ring). In particular, use a pair of ultra-mini pliers for removing and installing the retaining ring on the ø10 cylinder.
4. In the case of auto switch rail mounting style, do not remove the rail that is mounted. Because retaining screws extend into the cylinder, this could lead to an air leak.
5. Please contact SMC when the stroke exceeds 100 mm for the axial foot mounting style.

Clean Series

10-CJ2 | Mounting style | Bore size – Stroke | Head cover port location

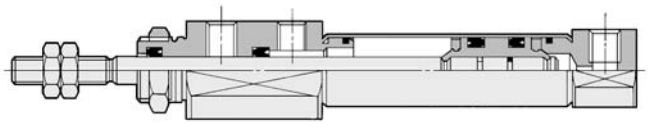
• **Clean Series**

Air cylinder which is applicable for the system which discharges leakage from the rod section directly into the outside of clean room by relief port and making an actuator's rod section having a double seal construction.

Specifications

Action		Double acting, Single rod
Bore size (mm)		6, 10, 16
Maximum operating pressure		0.7 MPa
Minimum operating pressure	**ø6**	0.14 MPa
	ø10, ø16	0.08 MPa
Cushion		Rubber bumper/Air cusion
Standard stroke (mm)		Same as standard type. (Refer to page 43.)
Auto switch		Mountable (Band mounting style)
Mounting		Basic style, Axial foot style, Rod side flange style

Construction



For details, refer to the separate catalog "Pneumatic Clean Series".

Copper and Fluorine-free Cylinder (For CRT manufacturing process)

20-CJ2 | Mounting style | Bore size – Stroke | Head cover port location

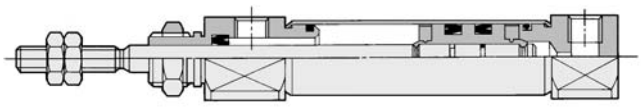
• **Copper and fluorine-free**

Eliminates the effects by copper based ions and fluorine based resins, etc. over the color cathode ray tube.
Making copper based materials into electroless nickel plated treatment or changing them to the non-copper materials in order to prevent copper ions from generating.

Specifications

Action		Double acting, Single rod
Bore size (mm)		6, 10, 16
Maximum operating pressure		0.7 MPa
Minimum operating pressure	**ø6**	0.12 MPa
	ø10, ø16	0.06 MPa
Cushion		Rubber bumper (Standard equipment)
Standard stroke (mm)		Same as standard type. (Refer to page 43.)
Auto switch		Mountable (Band mounting style)
Mounting		Basic style, Axial foot style, Rod side flange style, Double clevis style (Except ø6)

Construction



Low-speed Cylinder

CJ2 X | Mounting style | Bore size – Stroke

• **Low-speed Cylinder**

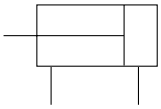
Smooth operation with a little sticking and slipping at low speed.
Can start smoothly with a little ejection even after being rendered for hours.

Specifications

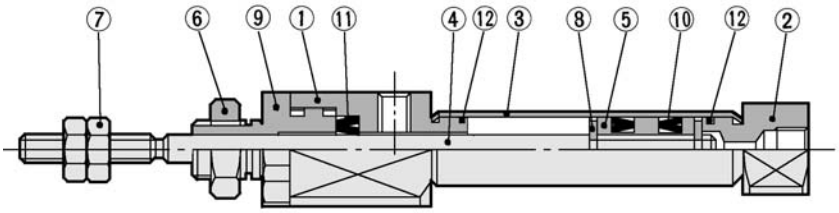
Action		Double acting, Single rod
Bore size (mm)		10, 16
Fluid		Air
Proof pressure		1.05 MPa
Maximum operating pressure		0.7 MPa
Minimum operating pressure		0.06 MPa
Ambient and fluid temperature		Without auto switch: –10 to 70°C With auto switch: –10 to 60°C (No freezing)
Cushion		Rubber bumper (Standard equipment)
Lubrication		Not required (Non-lube)
Stroke length tolerance		$^{+1.0}_{0}$
Piston speed		1 to 300 mm/s
Allowable kinetic energy	**ø10**	0.035 J
	ø16	0.090 J

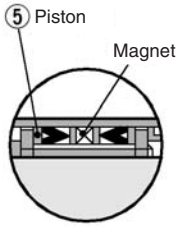
Refer to Best Pneumatics No. 3.

Construction (Not able to disassemble)



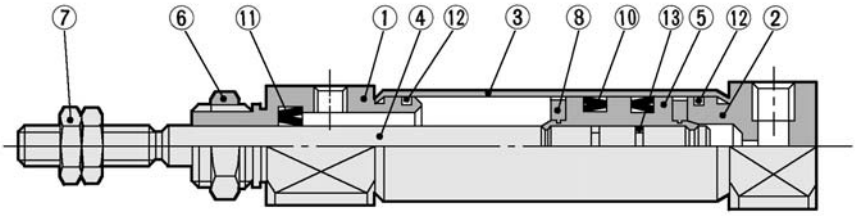
CJ2□6-R

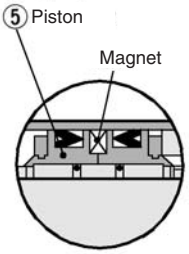




Piston construction when auto switch is mounted.

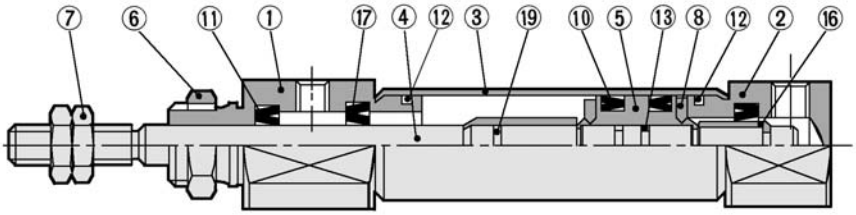
CJ2□10, CJ2□16

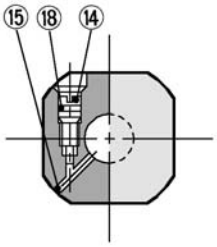




Piston construction when auto switch is mounted.

With air cushion





Component Parts

No.	Description	Material	Note
1	**Rod cover**	Aluminum alloy	Anodized
2	**Head cover**	Aluminum alloy	Anodized
3	**Cylinder tube**	Stainless steel	
4	**Piston rod**	Stainless steel	
5	**Piston**	Brass	
6	**Mounting nut**	Brass	Nickel plated
7	**Rod end nut**	Rolled steel	Nickel plated
8	**Bumper**	Urethane	
9*	**Seal retainer**	Aluminum alloy	Anodized
10	**Piston seal**	NBR	
11	**Rod seal**	NBR	
12	**Tube gasket**	NBR	
13	**Piston gasket**	NBR	

* Only for ø6

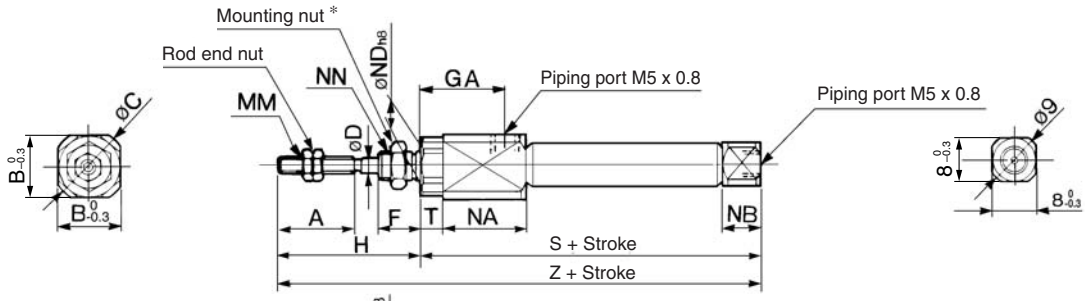
Dedicated for with Air Cushion Type

No.	Description	Material	Note
14	**Cushion needle**	Stainless steel	
15	**Steel balls**	Bearing steel	
16	**Cushion ring**	Brass	
17	**Check seal**	NBR	
18	**Needle seal**	NBR	
19	**Cushion ring gasket**	NBR	

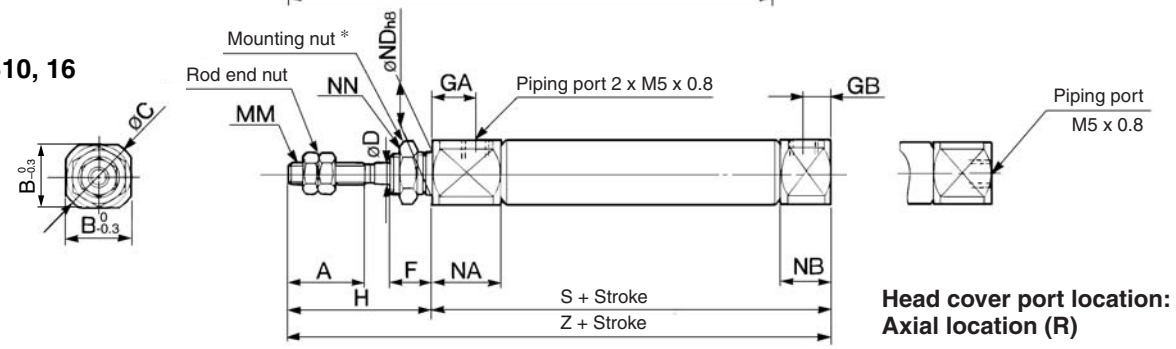
Basic Style (B)

CJ2B Bore size – Stroke Head cover port location

CJ2B6

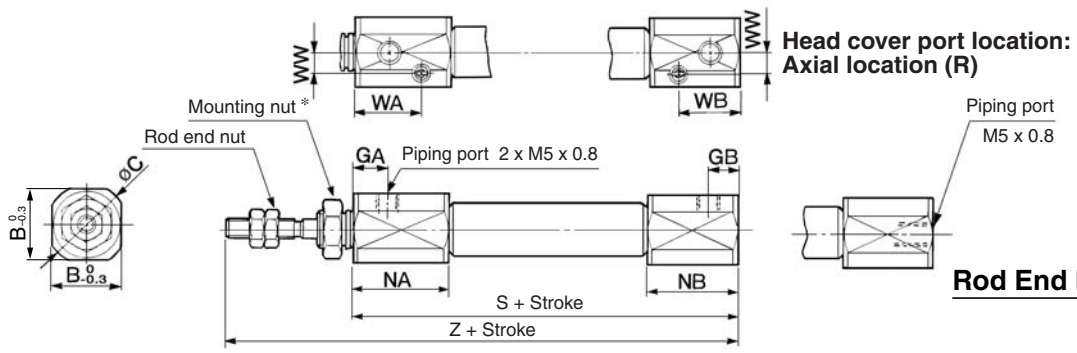


CJ2B10, 16

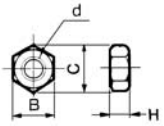


Head cover port location: Axial location (R)

With air cushion: CJ2B Bore size – Stroke A Head cover port location



Rod End Nut



Material: Iron

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

* For details of the mounting nut, refer to page 51.

(mm)

Bore size (mm)	A	B	C	D	F	GA	GB	H	MM	NA	NB	NDh8	NN	S	T	Z
6	15	12	14	3	8	14.5	–	28	M3 x 0.5	16	7	6 0 -0.018	M6 x 1.0	49	3	77
10	15	12	14	4	8	8	5	28	M4 x 0.7	12.5	9.5	8 0 -0.022	M8 x 1.0	46	—	74
16	15	18.3	20	5	8	8	5	28	M5 x 0.8	12.5	9.5	10 0 -0.022	M10 x 1.0	47	—	75

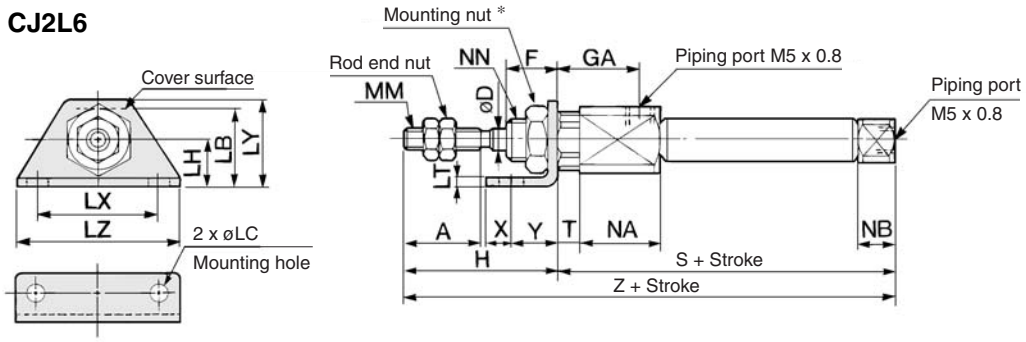
With Air Cushion/Dimensions other than the table below are the same as the table above. (mm)

Bore size (mm)	B	C	GA	GB	NA	NB	WA	WB	WW	S	Z
10	15	17	7.5	6.5	21	20	14.5	13.5	4.5	65	93
16	18.3	20	7.5	6.5	21	20	14.5	13.5	5.5	66	94

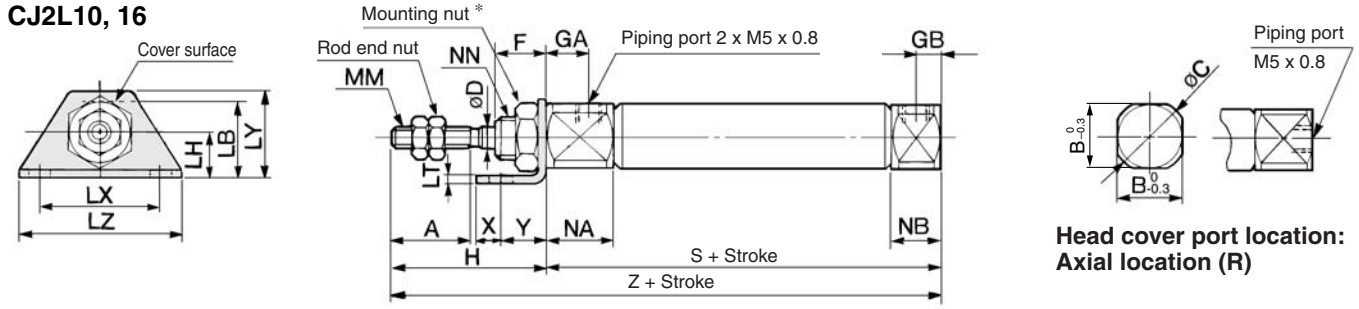
Axial Foot Style (L)

CJ2L Bore size – Stroke Head cover port location

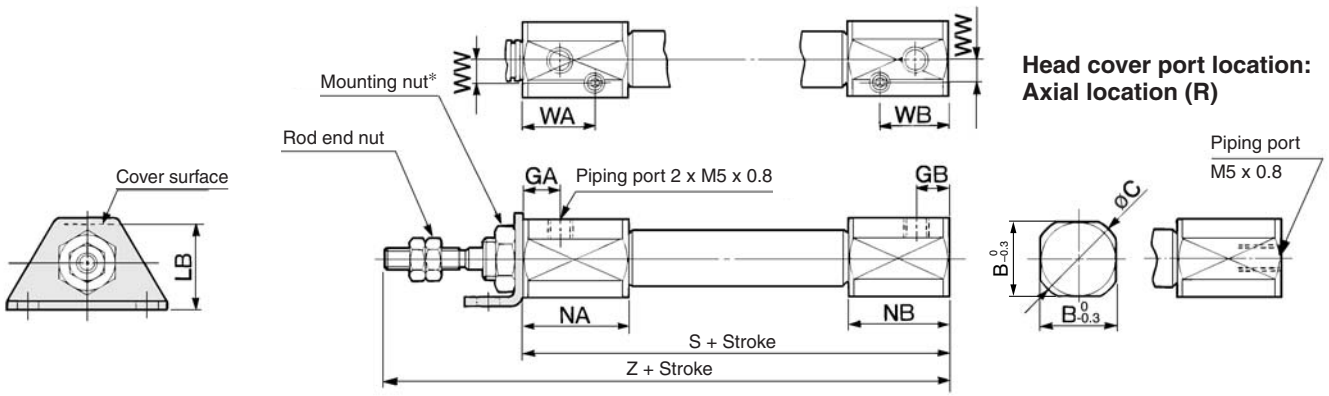
CJ2L6



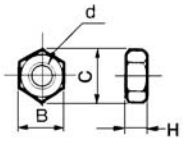
CJ2L10, 16



With air cushion: CJ2L Bore size – Stroke A Head cover port location



Rod End Nut



Material: Iron

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

∗ For details of the mounting nut, refer to page 51.

Bore size (mm)	A	B	C	D	F	GA	GB	H	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	S	T	X	Y	Z
6	15	12	14	3	8	14.5	–	28	15	4.5	9	1.6	24	16.5	32	M3 x 0.5	16	7	M6 x 1.0	49	3	5	7	77
10	15	12	14	4	8	8	5	28	15	4.5	9	1.6	24	16.5	32	M4 x 0.7	12.5	9.5	M8 x 1.0	46	—	5	7	74
16	15	18.3	20	5	8	8	5	28	23	5.5	14	2.3	33	25	42	M5 x 0.8	12.5	9.5	M10 x 1.0	47	—	6	9	75

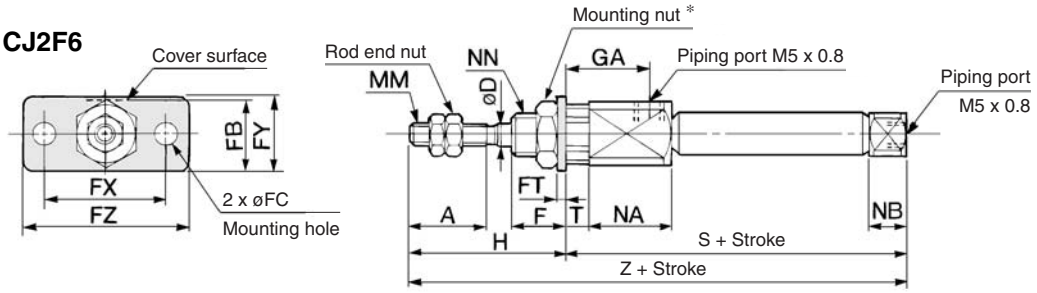
With Air Cushion/Dimensions other than the table below are the same as the table above. (mm)

Bore size (mm)	B	C	GA	GB	LB	NA	NB	WA	WB	WW	S	Z
10	15	17	7.5	6.5	16.5	21	20	14.5	13.5	4.5	65	93
16	18.3	20	7.5	6.5	23	21	20	14.5	13.5	5.5	66	94

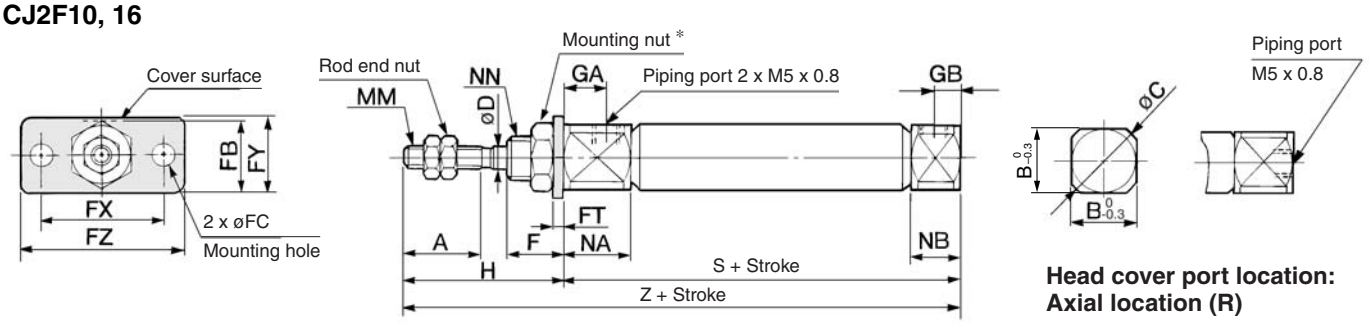
Rod Side Flange Style (F)

CJ2F Bore size – Stroke Head cover port location

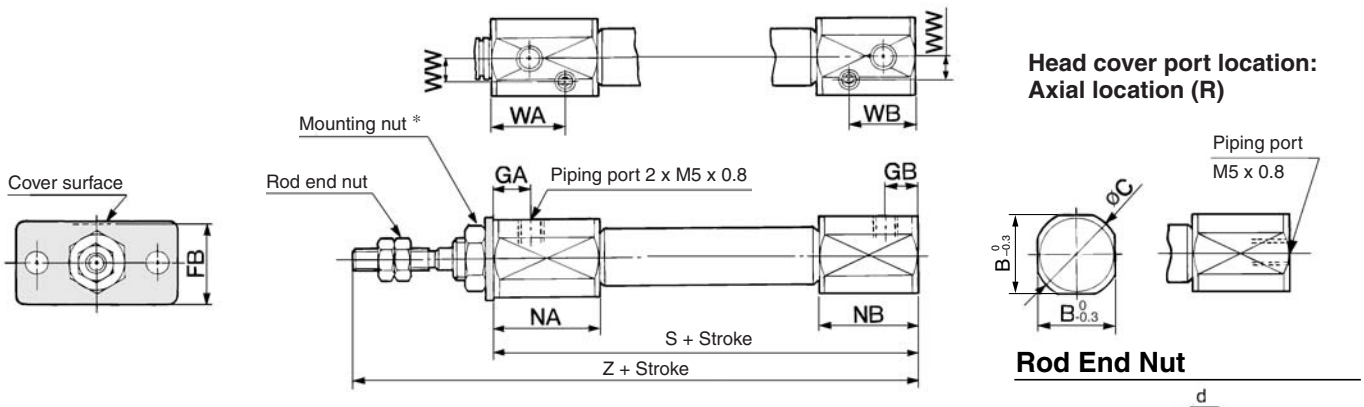
CJ2F6



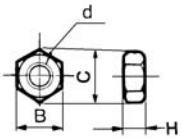
CJ2F10, 16



With air cushion: CJ2F Bore size – Stroke A Head cover port location



Rod End Nut



Material: Iron

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

∗ For details of the mounting nut, refer to page 51.

(mm)

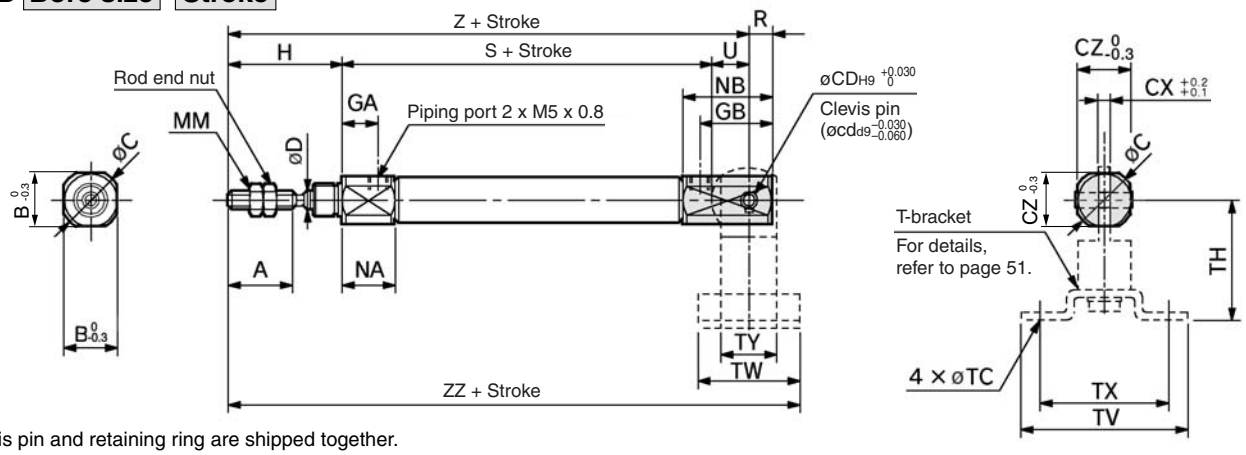
Bore size (mm)	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GA	GB	H	MM	NA	NB	NN	S	T	Z
6	15	12	14	3	8	13	4.5	1.6	24	14	32	14.5	–	28	M3 x 0.5	16	7	M6 x 1.0	49	3	77
10	15	12	14	4	8	13	4.5	1.6	24	14	32	8	5	28	M4 x 0.7	12.5	9.5	M8 x 1.0	46	—	74
16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	8	5	28	M5 x 0.8	12.5	9.5	M10 x 1.0	47	—	75

With Air Cushion/Dimensions other than the table below are the same as the table above. (mm)

Bore size (mm)	B	C	FB	GA	GB	NA	NB	WA	WB	WW	S	Z
10	15	17	14.5	7.5	6.5	21	20	14.5	13.5	4.5	65	93
16	18.3	20	19	7.5	6.5	21	20	14.5	13.5	5.5	66	94

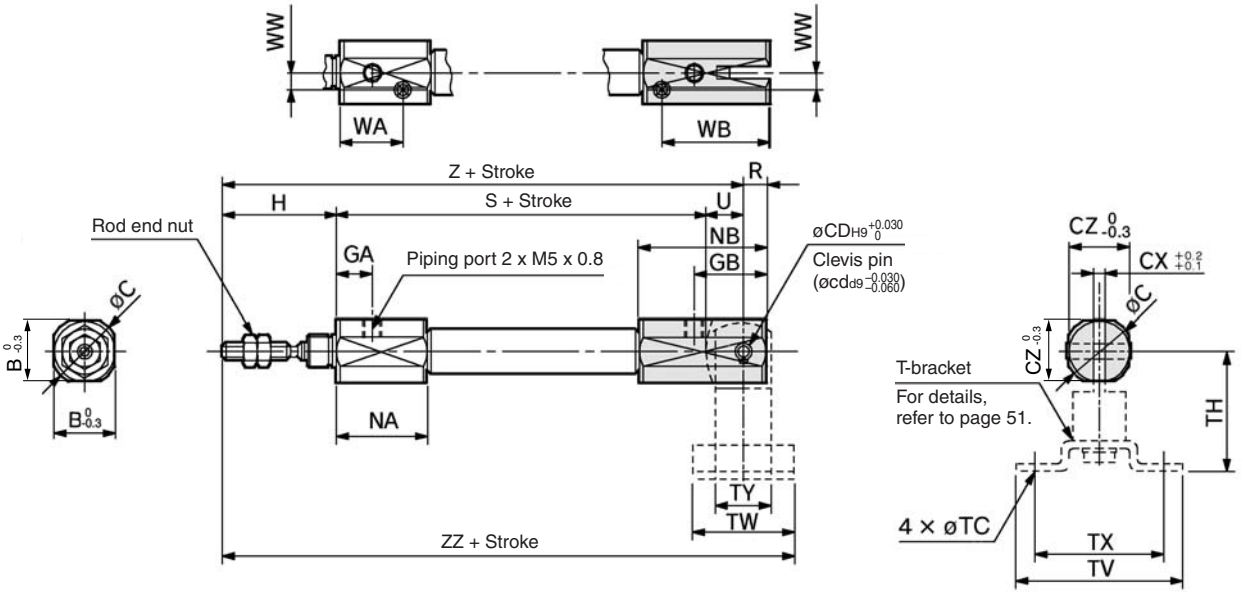
Double Clevis Style (D)

CJ2D Bore size – Stroke



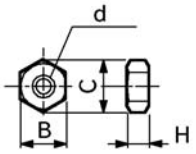
∗ Clevis pin and retaining ring are shipped together.

With air cushion: CJ2D Bore size – Stroke A



∗ Clevis pin and retaining ring are shipped together.

Rod End Nut



Material: Iron

Part no.	Applicable bore (mm)	B	C	d	H
NTJ-010A	10	7	8.1	M4 x 0.7	3.2
NTJ-015A	16	8	9.2	M5 x 0.8	4

(mm)

Bore size (mm)	A	B	C	CD(cd)	CX	CZ	D	GA	GB	H	MM	NA	NB	R	S	U	Z	ZZ
10	15	12	14	3.3	3.2	12	4	8	18	28	M4 x 0.7	12.5	22.5	5	46	8	82	93
16	15	18.3	20	5	6.5	18.3	5	8	23	28	M5 x 0.8	12.5	27.5	8	47	10	85	99

T-bracket Dimensions

(mm)

Bore size (mm)	TC	TH	TV	TW	TX	TY
10	4.5	29	40	22	32	12
16	5.5	35	48	28	38	16

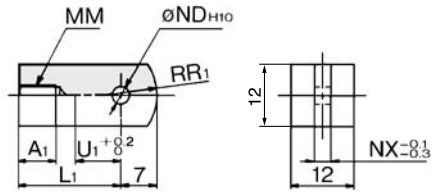
With Air Cushion/Dimensions other than the table below are the same as the table above.

(mm)

Bore size (mm)	B	C	CZ	GA	GB	NA	NB	S	WA	WB	WW	Z	ZZ
10	15	17	15	7.5	19.5	21	33	65	14.5	26.5	4.5	101	112
16	18.3	20	18.3	7.5	24.5	21	38	66	14.5	31.5	5.5	104	118

Accessory Bracket Dimensions (mm)

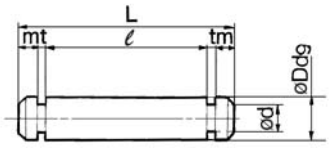
Single Knuckle Joint



Material: Rolled steel

Part no.	Applicable bore (mm)	A_1	L_1	MM	ND^{H10}	NX	R_1	U_1
I-J010B	**10**	8	21	M4 x 0.7	$3.3^{+0.048}_{0}$	3.1	8	9
I-J016B	**16**	8	25	M5 x 0.8	$5^{+0.048}_{0}$	6.4	12	14

Clevis Pin

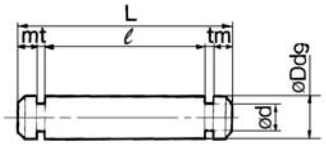


Material: Stainless steel

Part no.	Applicable bore (mm)	Dd9	d	L	ℓ	m	t	Applicable snap ring
CD-J010	**10**	$3.3^{-0.030}_{-0.060}$	3	15.2	12.2	1.2	0.3	Type C 3.2
CD-Z015	**16**	$5^{-0.030}_{-0.060}$	4.8	22.7	18.3	1.5	0.7	Type C 5
CD-JA010∗	**10**	$3.3^{-0.030}_{-0.060}$	3	18.2	15.2	1.2	0.3	Type C 3.2

∗ For ø10 double clevis style, with air cushion and built-in speed controller.
∗ Clevis pins are shipped with retaining rings.

Knuckle Pin

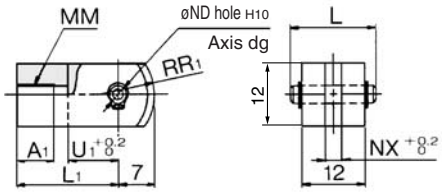


Material: Stainless steel

Part no.	Applicable bore (mm)	Dd9	d	L	ℓ	m	t	Applicable snap ring
CD-J010	**10**	$3.3^{-0.030}_{-0.060}$	3	15.2	12.2	1.2	0.3	Type C 3.2
IY-J015	**16**	$5^{-0.030}_{-0.060}$	4.8	16.6	12.2	1.5	0.7	Type C 5

∗ For size ø10, clevis pin is diverted.
∗ Knuckle pins are shipped with retaining rings.

Double Knuckle Joint



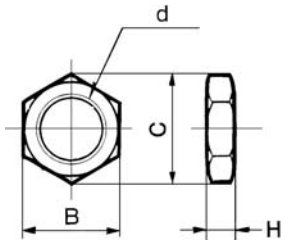
Material: Rolled steel

Part no.	Applicable bore (mm)	A_1	L	L_1	MM
Y-J010B	**10**	8	15.2	21	M4 x 0.7
Y-J016B	**16**	11	16.6	21	M5 x 0.8

Part no.	ND_{d9}	ND_{H10}	NX	R_1	U_1
Y-J010B	$3.3^{-0.030}_{-0.060}$	$3.3^{+0.048}_{0}$	3.2	8	10
Y-J016B	$5^{-0.030}_{-0.060}$	$5^{+0.048}_{0}$	6.5	12	10

∗ Knuckle pin and retaining ring are shipped together.

Mounting Nut

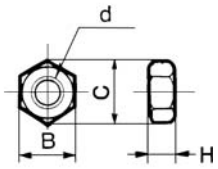


Material: Brass

Part no.	Applicable bore (mm)	B	C	d	H
SNJ-006B	**6**	8	9.2	M6 x 1.0	4
SNJ-010B	**10**	11	12.7	M8 x 1.0	4
SNJ-016B	**16**	14	16.2	M10 x 1.0	4
SNKJ-016B∗	**16**	17	19.6	M12 x 1.0	4

∗ For ø16 non-rotating type. (Use SNJ-016B for ø10 non-rotating type.)

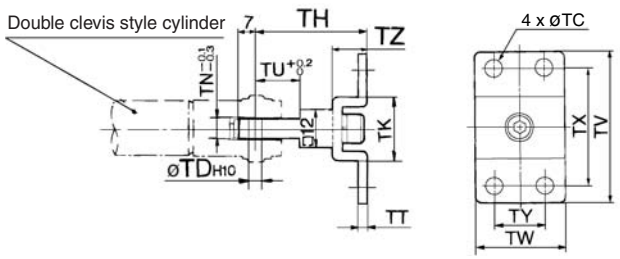
Rod End Nut



Material: Iron

Part no.	Applicable bore (mm)	B	C	d	H
NTJ-006A	**6**	5.5	6.4	M3 x 0.5	2.4
NTJ-010A	**10**	7	8.1	M4 x 0.7	3.2
NTJ-015A	**16**	8	9.2	M5 x 0.8	4

T-bracket

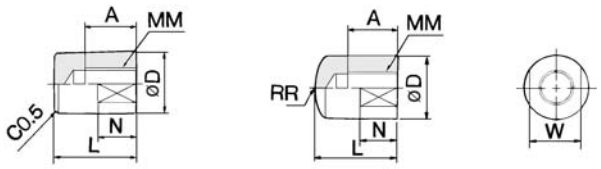


Part no.	Applicable bore (mm)	TC	TD_{H10}	TH	TK	TN	TT	TU	TV	TW	TX	TY	TZ
CJ-T010B	**10**	4.5	$3.3^{+0.048}_{0}$	29	18	3.1	2	9	40	22	32	12	8
CJ-T016B	**16**	5.5	$5^{+0.048}_{0}$	35	20	6.4	2.3	14	48	28	38	16	10

∗ T-bracket includes a T-bracket base, single knuckle joint, hexagon socket head bolt and spring washer.

Rod End Cap

Flat type/CJ-CF□□□ **Round type/CJ-CR□□□**



Material: Polyacetal

Part no.		Applicable bore (mm)	A	D	L	MM	N	R	W
Flat type	Round type								
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

Air Cylinder: Standard Type
Double Acting, Double Rod
Series CJ2W
ø6, ø10, ø16

How to Order

Bore size

6	6 mm
10	10 mm
16	16 mm

Mounting style

B	Basic style
L	Foot style
F	Flange style

Cylinder standard stroke (mm)
Refer to the standard stroke table on page 53.

Cushion

Nil	Rubber bumper
A	Air cushion

Built-in Magnet Cylinder Model

Suffix the symbol "-A" (Rail mounting style) or "-B" (Band mounting style) to the end of part number for cylinder with auto switch.

Example	Rail mounting style	CDJ2WB16-60-A
	Band mounting style	CDJ2WB10-45-B

* For rail mounting style, screws and nuts for 2 pcs switches come with the rail.
* Refer to page 123 for switch mounting brackets.

CJ2W L 16 – 45 A – □

With auto switch

CDJ2W L 16 – 45 A – M9BW □ – □

With auto switch
(Built-in magnet)

Auto switch
* For the applicable auto switch model, refer to the table below.
* If a built-in magnet cylinder without an auto switch is required, refer to the model of built-in magnet cylinder.

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Made to Order
Refer to page 53 for details.

Applicable Auto Switch/Refer to pages 1263 to 1371 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Band mounting (ø6, ø10, ø16)	Auto switch model: Rail mounting (ø10, ø16) Perpendicular	Auto switch model: Rail mounting (ø10, ø16) In-line	Lead wire length (m): 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state switch	——	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	**M9N**	—	—	●	●	●	○	—	○	IC circuit	Relay, PLC
							—	**F7NV**	**F79**	●	—	●	○	—	○		
				3-wire (PNP)			**M9P**	—	—	●	●	●	○	—	○		
							—	**F7PV**	**F7P**	●	—	●	○	—	○		
				2-wire	12 V		**M9B**	—	—	●	●	●	○	—	○	—	
							—	**F7BV**	**J79**	●	—	●	○	—	○		
		Connector					**H7C**	**J79C**	—	●	—	●	●	●	—		
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)	24 V	—	**M9NW**	—	—	●	●	●	○	—	○	IC circuit	
					5 V, 12 V		—	**F7NWV**	**F79W**	●	—	●	○	—	○		
				3-wire (PNP)			**M9PW**	—	—	●	●	●	○	—	○		
							—	—	**F7PW**	●	—	●	○	—	○	—	
				2-wire	12 V		**M9BW**	—	—	●	●	●	○	—	○		
							—	**F7BWV**	**J79W**	●	—	●	○	—	○		
	Water resistant (2-color indication)						**H7BA**	**F7BAV**	**F7BA**	—	—	●	○	—	○		
	With diagnostic output (2-color indication)			4-wire (NPN)		5 V, 12 V	**H7NF** ***	—	**F79F**	●	—	●	○	—	○	IC circuit	
Reed switch	——	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**A96**	—	**A76H**	●	—	●	—	—	—	IC circuit	—
				2-wire	—	200 V	—	—	**A72**	**A72H**	●	—	●	—	—	—	—	Relay, PLC
					24 V	100 V	—	—	**A73**	**A73H**	●	—	●	●	—	—		
							A93	—	—		●	—	●	—	—	—		
			No			100 V or less	**A90**	**A80**	**A80H**	●	—	●	—	—	—	IC circuit	
		Connector	Yes			—	**C73C**	**A73C**	—	●	—	●	●	●	—	—	
			No			24 V or less	**C80C**	**A80C**	—	●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-color indication)	Grommet	Yes		—	—	—	**A79W** **	—	●	—	●	—	—	—	—	

* Lead wire length symbols: 0.5 m····· Nil (Example) M9NW
1 m····· M (Example) M9NWM
3 m····· L (Example) M9NWL
5 m····· Z (Example) M9NWZ
None····· N (Example) H7CN

* Since there are other applicable auto switches than listed, refer to page 123 for details.
* For details about auto switches with pre-wired connector, refer to pages 1328 and 1329.
* Band mounting style is not available for D-A9□V□/M9□V□/M9□WV□ and D-M9□A(V)L types.
** "D-A79W" cannot be mounted on bore size ø10 cylinder with air cushion.
*** "D-H7NF" cannot be mounted on bore size ø6 cylinder.

* Solid state auto switches marked with "○" are produced upon receipt of order.
* D-A9□/M9□/M9□W/A7□□/A80□/F7□□/J7□□ auto switches are shipped together (not assembled). (However, when D-A9□/M9□/M9□W types are selected, only auto switch mounting brackets are assembled before being shipped.)
* When D-A9□(V)/M9□(V)/M9□W(V) types are mounted on a ø10 or ø16 rail, order auto switch mounting brackets separately. Refer to page 123 for details.

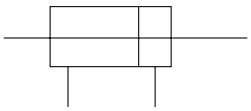
Specifications

Bore size (mm)		6	10	16
Action		Double acting, Double rod		
Fluid		Air		
Proof pressure		1 MPa		
Maximum operating pressure		0.7 MPa		
Minimum operating pressure	Rubber bumper	0.1 MPa		
	Air cushion	—	0.1 MPa	
Ambient and fluid temperature		Without auto switch: −10°C to 70°C, With auto switch: −10°C to 60°C ∗		
Cushion		Rubber bumper/Air cushion		
Lubrication		Not required (Non-lube)		
Stroke length tolerance		$^{+1.0}_{0}$		
Piston speed	Rubber bumper	50 to 750 mm/s		
	Air cushion	50 to 1000 mm/s		
Allowable kinetic energy	Rubber bumper	0.012 J	0.035 J	0.090 J
	Air cushion (Effective cushion length)	—	0.07 J (9.4 mm)	0.18 J (9.4 mm)

∗ No freezing

JIS Symbol

Double acting, Double rod



Standard Stroke

(mm)

Bore size (mm)	Standard stroke
6, 10, 16	15, 30, 45, 60

∗ Manufacture of intermediate strokes at 1 mm intervals is possible. (Spacers are not used.)

Refer to pages 117 to 123 for cylinders with auto switches.

- Minimum stroke for auto switch mounting
- Proper auto switch mounting position (detection at stroke end) and mounting height
- Operating range
- Switch mounting bracket part no.

Made to Order

Made to Order Specifications

(For details, refer to pages 1373 to 1498.)

Symbol	Specifications
–XA□	Change of rod end shape
–XB6	Heat resistant cylinder (150°C) ∗ Not available with switch & with air cushion
–XB7	Cold resistant cylinder ∗ Not available with switch & with air cushion
–XC22	Fluororubber seals ∗ Not available with air cushion
–XC51	With hose nipple

Mounting Style and Accessory/For details, refer to page 51.

Mounting		Basic style	Foot style	Flange style
Standard equipment	Mounting nut	●	●	●
	Rod end nut	●	●	●
Option	Single knuckle joint	●	●	●
	Double knuckle joint *	●	●	●

* Knuckle pin and retaining ring are shipped together with double knuckle joint.

Mounting Bracket Part No.

Mounting bracket	Bore size (mm)		
	6	10	16
Foot bracket	CJ-L006B	CJ-L010B	CJ-L016B
Flange bracket	CJ-F006B	CJ-F010B	CJ-F016B

Mass

(g)

Bore size (mm)		6	10	16
Basic mass *		27	35	70
Additional mass per each 15 mm of stroke		3	6	9
Mounting bracket mass	Foot style	16	16	40
	Flange style	5	5	15

* Mounting nut and rod end nut are included in the basic mass.

Calculation: (Example)

CJ2WL10-45

- Basic mass ····· 35 (ø10)
- Additional mass ····· 6/15 stroke
- Cylinder stroke ····· 45 stroke
- Mounting bracket mass ····· 16 (Foot style)

  35 + 6/15 x 45 + 16 = 69 g
- For accessory bracket mass, refer to page 44.

Theoretical Output

Refer to "Double acting cylinder" in Theoretical Output 1 of Technical data 3 on page 1573.
In the case of the double rod style, the force at IN side will be its theoretical output.

⚠Precautions

Be sure to read before handling.
Refer to front matters 54 and 55 for Safety Instructions and pages 3 to 11 for Actuator and Auto Switch Precautions.

Mounting

⚠Caution

1. During installation, secure the rod cover and tighten by applying an appropriate tightening force to the retaining but or to the rod cover body. If the head cover is secured or the head cover is tightened, the cover could rotate, leading to the deviation.
2. Tighten the retaining screws to an appropriate tightening torque within the range given below.
   ø6: 2.1 to 2.5 N·m, ø10: 5.9 to 6.4 N·m,
   ø16: 10.8 to 11.8 N·m
3. To remove and install the retaining ring for the knuckle pin, use an appropriate pair of pliers (tool for installing a type C retaining ring for hole). In particular, use a pair of ultra-mini pliers for removing and installing the retaining rings on the ø10 cylinder.
4. In the case of auto switch rail mounting style, do not remove the rail that is mounted. Because retaining screws extend into the cylinder, this could lead to an air leak.

Clean Series

10-CJ2W **Mounting style** **Bore size** – **Stroke**

• **Clean Series**

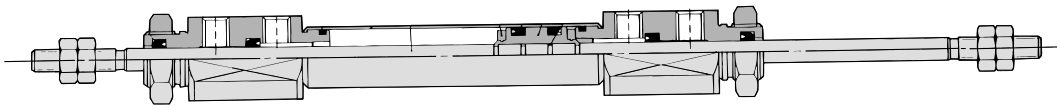
Air cylinder which is applicable for the system which discharges leakage from the rod section directly into the outside of clean room by relief port and making an actuator's rod section having a double seal construction.

Specifications

Action	Double acting, Double rod
Bore size (mm)	10, 16
Maximum operating pressure	0.7 MPa
Minimum operating pressure	0.1 MPa
Cushion	Rubber bumper
Standard stroke (mm)	Same as standard type. (Refer to page 53.)
Auto switch	Mountable (Band mounting style)
Mounting	Basic style, Foot style, Flange style

For details, refer to the separate catalog "Pneumatic Clean Series".

Construction (Not able to disassemble)



Copper and Fluorine-free Air Cylinder (For CRT manufacturing process)

20-CJ2W **Mounting style** **Bore size** – **Stroke**

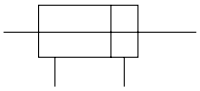
• **Copper and fluorine-free**

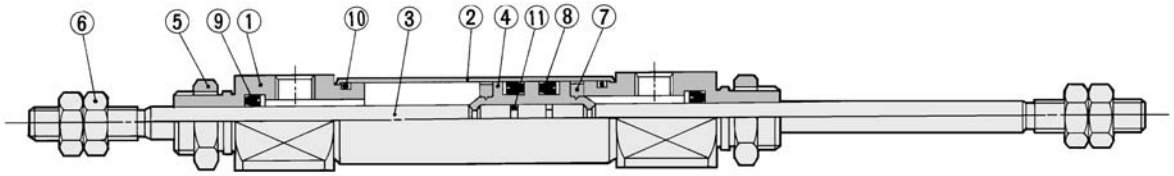
Eliminates the effects by copper based ions and fluorine based resins, etc. over the color cathode ray tube.
Making copper based materials into electroless nickel plated treatment or changing them to the non-copper materials in order to prevent copper ions from generating.

Specifications

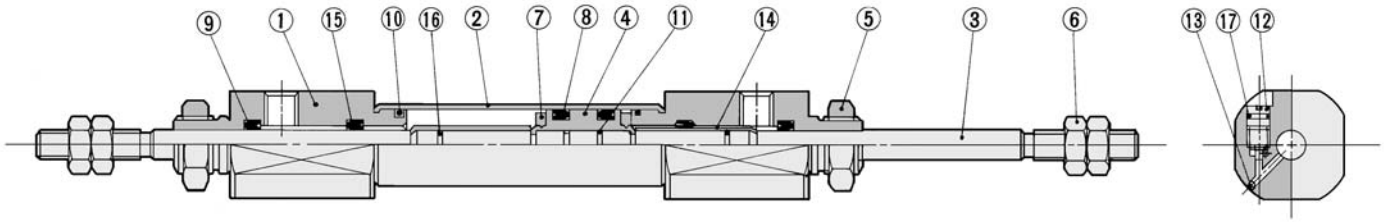
Action		Double acting, Double rod
Bore size (mm)		6, 10, 16
Maximum operating pressure		0.7 MPa
Minimum operating pressure	**ø6**	0.15 MPa
	ø10, ø16	0.1 MPa
Cushion		Rubber bumper
Standard stroke (mm)		15, 30, 45, 60
Auto switch		Mountable (Band mounting style)
Mounting		Basic style, Foot style, Flange style

Construction (Not able to disassemble)





With air cushion



Component Parts

No.	Description	Material	Note
1	**Rod cover**	Aluminum alloy	Anodized
2	**Cylinder tube**	Stainless steel	
3	**Piston rod**	Stainless steel	
4	**Piston**	Brass	
5	**Mounting nut**	Brass	Nickel plated
6	**Rod end nut**	Rolled steel	Nickel plated
7	**Bumper**	Urethane	
8	**Piston seal**	NBR	
9	**Rod seal**	NBR	
10	**Tube gasket**	NBR	
11	**Piston gasket**	NBR	

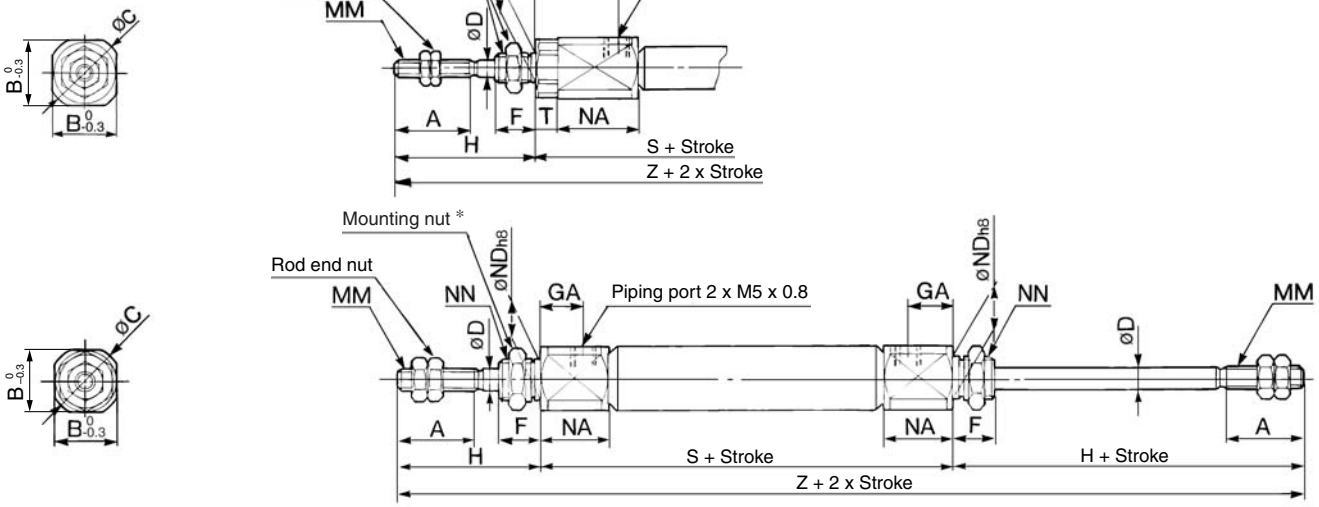
Dedicated for with Air Cushion Type

No.	Description	Material	Note
12	**Cushion needle**	Stainless steel	
13	**Steel balls**	Bearing steel	
14	**Cushion ring**	Brass	
15	**Check seal**	NBR	
16	**Cushion ring gasket**	NBR	
17	**Needle seal**	NBR	

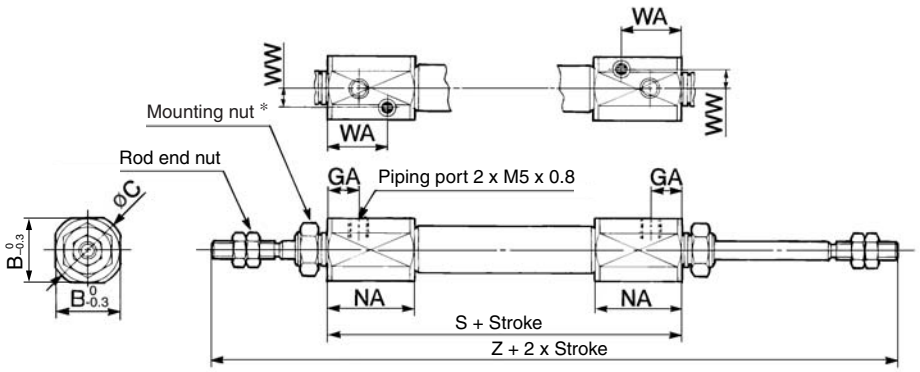
Basic Style (B)

CJ2WB Bore size – Stroke

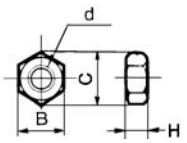
CJ2WB6
Rod cover



With air cushion: CJ2WB Bore size – Stroke A



Rod End Nut



Material: Iron

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

∗ For details of the mounting nut, refer to page 51.

(mm)

Bore size (mm)	A	B	C	D	F	GA	H	MM	NA	ND h8	NN	S∗	T	Z∗
6	15	12	14	3	8	14.5	28	M3 x 0.5	16	$6^{0}_{-0.018}$	M6 x 1.0	61 (66)	3	117 (122)
10	15	12	14	4	8	8	28	M4 x 0.7	12.5	$8^{0}_{-0.022}$	M8 x 1.0	49	–	105
16	15	18.3	20	5	8	8	28	M5 x 0.8	12.5	$10^{0}_{-0.022}$	M10 x 1.0	50	–	106

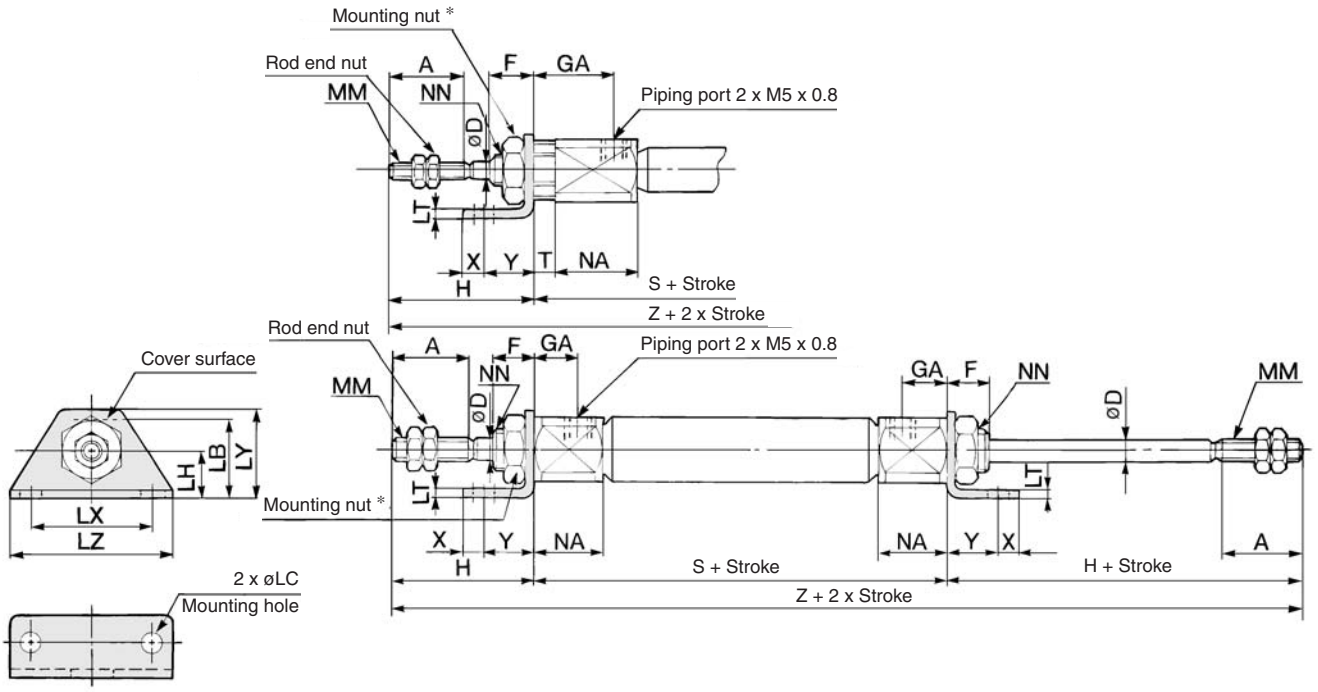
With Air Cushion/Dimensions other than the table below are the same as the table above.

∗ ( ) in S and Z dimensions: With auto switch

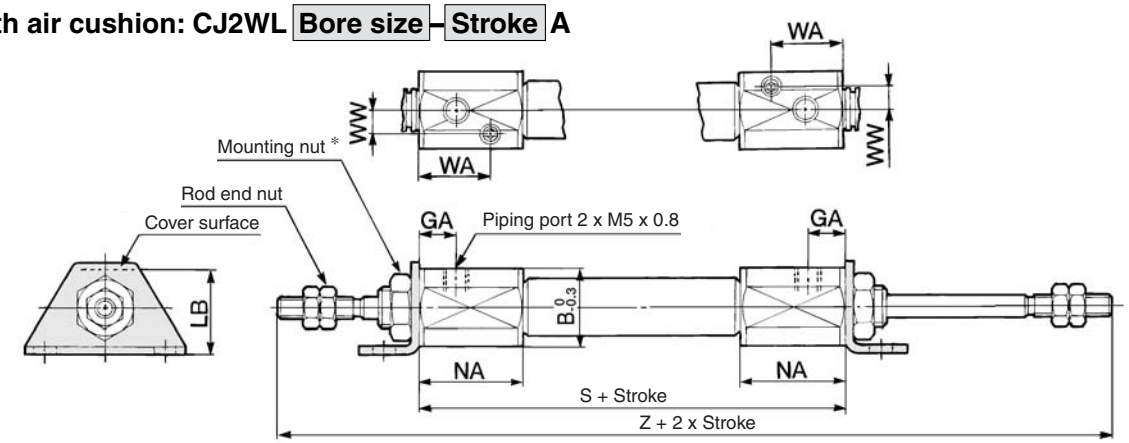
Bore size (mm)	B	C	GA	NA	WA	WW	S	Z
10	15	17	7.5	21	14.5	4.5	66	122
16	18.3	20	7.5	21	14.5	5.5	67	123

Foot Style (L)

CJ2WL Bore size – Stroke

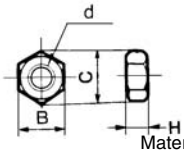


With air cushion: CJ2WL Bore size – Stroke A



* For details of the mounting nut, refer to page 51.

Rod End Nut



Material: Iron

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

(mm)

Bore size (mm)	A	D	F	GA	H	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NN	S *	T	X	Y	Z *
6	15	3	8	14.5	28	15	4.5	9	1.6	24	16.5	32	M3 x 0.5	16	M6 x 1.0	61 (66)	3	5	7	117 (122)
10	15	4	8	8	28	15	4.5	9	1.6	24	16.5	32	M4 x 0.7	12.5	M8 x 1.0	49	–	5	7	105
16	15	5	8	8	28	23	5.5	14	2.3	33	25	42	M5 x 0.8	12.5	M10 x 1.0	50	–	6	9	106

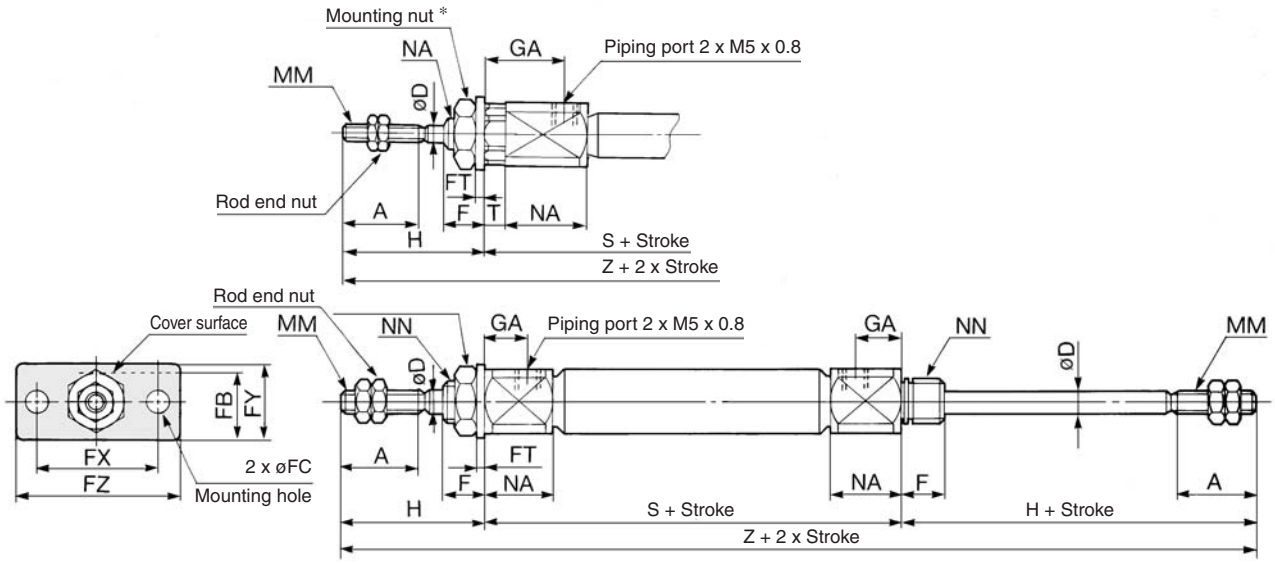
With Air Cushion/Dimensions other than the table below are the same as the table above.

* ( ) in S and Z dimensions: With auto switch

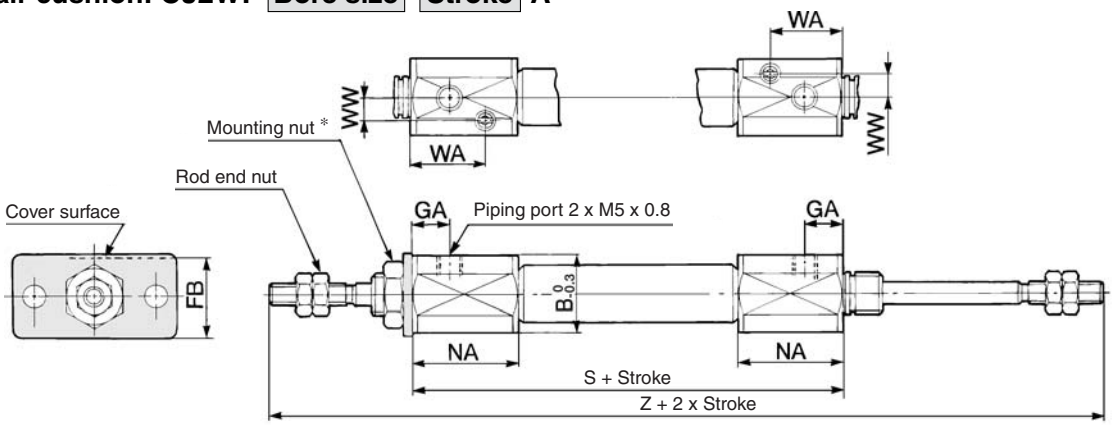
Bore size (mm)	B	GA	LB	NA	WA	WW	S	Z
10	15	7.5	16.5	21	14.5	4.5	66	122
16	18.3	7.5	23	21	14.5	5.5	67	123

Flange Style (F)

CJ2WF Bore size – Stroke

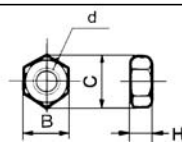


With air cushion: CJ2WF Bore size – Stroke A



* For details of the mounting nut, refer to page 51.

Rod End Nut



Material: Iron

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

(mm)

Bore size (mm)	A	D	F	FB	FC	FT	FX	FY	FZ	GA	H	MM	NA	NN	S *	T	Z *
6	15	3	8	13	4.5	1.6	24	14	32	14.5	28	M3 x 0.5	16	M6 x 1.0	61 (66)	3	117 (122)
10	15	4	8	13	4.5	1.6	24	14	32	8	28	M4 x 0.7	12.5	M8 x 1.0	49	–	105
16	15	5	8	19	5.5	2.3	33	20	42	8	28	M5 x 0.8	12.5	M10 x 1.0	50	–	106

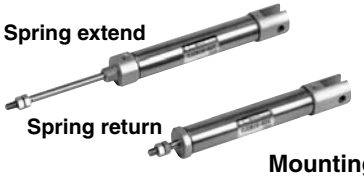
With Air Cushion/Dimensions other than the table below are the same as the table above.

* ( ) in S and Z dimensions: With auto switch

Bore size (mm)	B	FB	GA	NA	WA	WW	S	Z
10	15	14.5	7.5	21	14.5	4.5	66	122
16	18.3	19	7.5	21	14.5	5.5	67	123

Air Cylinder: Standard Type
Single Acting, Spring Return/Extend
Series CJ2
ø6, ø10, ø16

How to Order



Bore size

6	6 mm
10	10 mm
16	16 mm

Mounting style

B	Basic style
L	Axial foot style
F	Rod side flange style
D	Double clevis style (Except ø6)

Cylinder standard stroke (mm)
Refer to the standard stroke table on page 61.

Action

S	Single acting, Spring return
T	Single acting, Spring extend

Built-in Magnet Cylinder Model

Suffix the symbol "-A" (Rail mounting style) or "-B" (Band mounting style) to the end of part number for cylinder with auto switch.

Example	Rail mounting style	CDJ2B16-60S-A
	Band mounting style	CDJ2B10-45S-B

* For rail mounting style, screws and nuts for 2 pcs. switches come with the rail.
* Refer to page 123 for switch mounting brackets.

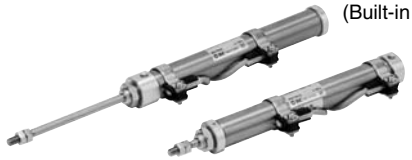
Standard

**CJ2 L 16 – 45 S – **

With auto switch

**CDJ2 L 16 – 45 S – M9BW – **

With auto switch
(Built-in magnet)



Head cover port location

Symbol \ Bore size (mm)	ø6	ø10, ø16
Nil	—	Perpendicular to axis
R	Axial	Axial

* For configuration, refer to page 43.
* Single acting, Spring return (S), Clevis style is available only for 90° to the axis.
* Not applicable to single acting, spring extend (T).

Auto switch
* For the applicable auto switch model, refer to the table below.
* If a built-in magnet cylinder without an auto switch is required, refer to the model of built-in magnet cylinder.

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Made to Order
Refer to page 61 for details.

Applicable Auto Switch/Refer to pages 1263 to 1371 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Band mounting (ø6, ø10, ø16)	Auto switch model: Rail mounting (ø10, ø16) Perpendicular	Auto switch model: Rail mounting (ø10, ø16) In-line	Lead wire length (m): 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state switch	——	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9N	—	—	●	●	●	○	—	○	IC circuit	Relay, PLC
							—	F7NV	F79	●	—	●	○	—	○		
				3-wire (PNP)			M9P	—	—	●	●	●	○	—	○		
							—	F7PV	F7P	●	—	●	○	—	○		
				2-wire	12 V		M9B	—	—	●	●	●	○	—	○	—	
							—	F7BV	J79	●	—	●	○	—	○		
		Connector					H7C	J79C	—	●	—	●	●	●	—		
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)	5 V, 12 V		M9NW	—	—	●	●	●	○	—	○	IC circuit	
							—	F7NWV	F79W	●	—	●	○	—	○		
				3-wire (PNP)			M9PW	—	—	●	●	●	○	—	○		
							—	—	F7PW	●	—	●	○	—	○		
				2-wire	12 V		M9BW	—	—	●	●	●	○	—	○	—	
							—	F7BWV	J79W	●	—	●	○	—	○		
	Water resistant (2-color indication)						H7BA	F7BAV	F7BA	—	—	●	○	—	○		
	With diagnostic output (2-color indication)			4-wire (NPN)	5 V, 12 V		H7NF	—	F79F	●	—	●	○	—	○	IC circuit	
Reed switch	——	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96	—	A76H	●	—	●	—	—	—	IC circuit	—
				2-wire	—	200 V	—	A72	A72H	●	—	●	—	—	—	—	Relay, PLC
					24 V	12 V	100 V	—	A73	A73H	●	—	●	●	—	—	
								A93	—	—	●	—	●	—	—	—	
			No				100 V or less	A90	A80	A80H	●	—	●	—	—	—	IC circuit	
		Connector	Yes				—	C73C	A73C	—	●	—	●	●	●	—	—	
			No				24 V or less	C80C	A80C	—	●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-color indication)	Grommet	Yes		—	—	—	—	A79W	—	●	—	●	—	—	—	—	

* Lead wire length symbols: 0.5 m····· Nil (Example) M9NW
  1 m····· M (Example) M9NWM
  3 m····· L (Example) M9NWL
  5 m····· Z (Example) M9NWZ
  None····· N (Example) H7CN
* Since there are other applicable auto switches than listed, refer to page 123 for details.
* For details about auto switches with pre-wired connector, refer to pages 1328 and 1329.
* Band mounting style is not available for D-A9□V□/M9□V□/M9□WV□ and D-M9□A(V)L types.
* Solid state auto switches marked with "○" are produced upon receipt of order.
* D-A9□/M9□/M9□W/A7□□/A80□/F7□□/J7□□ auto switches are shipped together (not assembled). (However, when D-A9□/M9□/M9□W types are selected, only auto switch mounting brackets are assembled before being shipped.)
* When D-A9□(V)/M9□(V)/M9□W(V) types are mounted on a ø10 or ø16 rail, order auto switch mounting brackets separately. Refer to page 123 for details.

Spring extend

Spring return

Specifications

Bore size (mm)		6	10	16
Action		Single acting, Spring return/Single acting, Spring extend		
Fluid		Air		
Proof pressure		1 MPa		
Maximum operating pressure		0.7 MPa		
Minimum operating pressure	Rubber bumper	0.2 MPa	0.15 MPa	
	Air cushion	0.25 MPa	0.15 MPa	
Ambient and fluid temperature		Without auto switch: −10°C to 70°C, With auto switch: −10°C to 60°C *		
Cushion		Rubber bumper/Air cushion		
Lubrication		Not required (Non-lube)		
Stroke length tolerance		$^{+1.0}_{0}$		
Piston speed		50 to 750 mm/s		
Allowable kinetic energy		0.012J	0.035J	0.090J

* No freezing

Standard Stroke (mm)

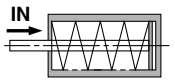
Bore size (mm)	Standard stroke
6	15, 30, 45, 60
10	15, 30, 45, 60
16	15, 30, 45, 60, 75, 100, 125, 150

* Manufacture of intermediate strokes at 1 mm intervals is possible. (Spacers are not used.)

Spring Reaction Force (N)

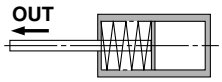
Bore size (mm)	Spring reaction force (N)	
	Primary	Secondary
6	1.77	3.72
10	3.53	6.86
16	6.86	14.2

Spring with primary mounting load



When the spring is set in the cylinder

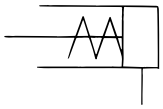
Spring with secondary mounting load



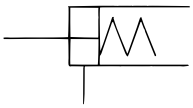
When the spring is contracted by applying air

JIS Symbol

Single acting, Spring return



Single acting, Spring extend



Made to Order Specifications

(For details, refer to pages 1373 to 1498.)

Symbol	Specifications
—XA□	Change of rod end shape
—XC22	Fluororubber seals
—XC51	With hose nipple

Refer to pages 117 to 123 for cylinders with auto switches.

- Minimum stroke for auto switch mounting
- Proper auto switch mounting position (detection at stroke end) and mounting height
- Operating range
- Switch mounting bracket part no.

Mass/Spring Return (S)

(g)

Bore size (mm)		6	10	16
Basic mass *	15 stroke	11	28	63
	30 stroke	16	35	80
	45 stroke	18	44	102
	60 stroke	23	53	124
	75 stroke	—	—	145
	100 stroke	—	—	188
	125 stroke	—	—	224
	150 stroke	—	—	250
Mounting bracket mass	Axial foot style	8	8	20
	Rod side flange style	5	5	15
	Double clevis style (With pin) *	—	4	10

* Mounting nut and rod end nut are included in the basic mass.
** Mounting nut is not attached to the double clevis style, so the mounting nut mass is already subtracted.

Calculation: (Example) **CJ2L10-45S**
- Basic mass ····· 44 (ø10-45 stroke)
- Mounting bracket mass····· 8 (Axial foot style)

44 + 8 = 52 g

Mass/Spring Extend (T)

(g)

Bore size (mm)		6	10	16
Basic mass *	15 stroke	17	28	64
	30 stroke	21	34	80
	45 stroke	23	43	100
	60 stroke	27	51	121
	75 stroke	—	—	140
	100 stroke	—	—	178
	125 stroke	—	—	212
	150 stroke	—	—	236
Mounting bracket mass	Axial foot style	8	8	20
	Rod side flange style	5	5	15
	Double clevis style (With pin)*	—	4	10

* Mounting nut and rod end nut are included in the basic mass.
** Mounting nut is not attached to the double clevis style, so the mounting nut mass is already subtracted.

Calculation: (Example) **CJ2L10-45T**
- Basic mass ····· 43 (ø10-45 stroke)
- Mounting bracket mass····· 8 (Axial foot style)

43 + 8 = 51 g

Mounting Bracket Part No.

Mounting bracket	Bore size (mm)		
	6	10	16
Foot bracket	CJ-L006B	CJ-L010B	CJ-L016B
Flange bracket	CJ-F006B	CJ-F010B	CJ-F016B
T-bracket *	—	CJ-T010B	CJ-T016B

* T-bracket is used with double clevis (D).

Mounting Style and Accessory

/For details, refer to page 51.

Mounting		Basic style	Axial foot style	Rod side flange style	Double * clevis style
Standard equipment	Mounting nut	●	●	●	—
	Rod end nut	●	●	●	●
	Clevis pin	—	—	—	●
Option	Single knuckle joint	●	●	●	●
	Double knuckle joint *	●	●	●	●
	T-bracket	—	—	—	●

* Pin and retaining ring are shipped together with double clevis and double knuckle joint. For the attached bracket mass, refer to page 44.

Theoretical Output

Refer to the "Single acting, Spring return cylinder" in Theoretical Output 1 of Technical data 3 on page 1573. In the case of the spring extend style, the force at OUT side will be the ending force of the spring return, and that at the IN side will be the amount of the IN side force of the double acting style cylinder from which the beginning force of the spring return has been subtracted.

⚠ Specific Product Precautions

Be sure to read before handling.
Refer to front matters 54 and 55 for Safety Instructions and pages 3 to 11 for Actuator and Auto Switch Precautions.

Mounting

⚠ Caution

1. During installation, secure the rod cover and tighten by applying an appropriate tightening force to the retaining nut or to the rod cover body.
   If the head cover is secured or the head cover is tightened, the cover could rotate, leading to the deviation.
2. Tighten the retaining screws to an appropriate tightening torque within the range given below.
   ø6: 2.1 to 2.5 N·m, ø10: 5.9 to 6.4 N·m,
   ø16: 10.8 to 11.8 N·m
3. In the case of a single acting cylinder, do not operate it in such a way that a load would be applied during the retraction of the piston rod of the spring return style, or during the extension of the piston rod of the spring extend style. The spring that is built into the cylinder provides only enough force to retract the piton rod. Thus, if a load is applied, the piston rod will not be able to retract to the end of the stroke.
4. In the case of a single acting cylinder, a breather hole is provided in the cover surface. Make sure not to block this hole during installation, as this could lead to a malfunction.
5. To remove and install the retaining ring for the knuckle pin or the clevis pin, use an appropriate pair of pliers (tool for installing a type C retaining ring).
   In particular, use a pair of ultra-mini pliers for removing and installing the retaining ring on the ø10 cylinder.
6. In the case of auto switch rail mounting style, do not remove the rail that is mounted. Because retaining screws extend into the cylinder, this could lead to an air leak.

Copper and Fluorine-free Air Cylinder (For CRT manufacturing process)

20-CJ2 | Mounting style | Bore size | — | Stroke | Action | Head cover port location

•Copper and fluorine-free

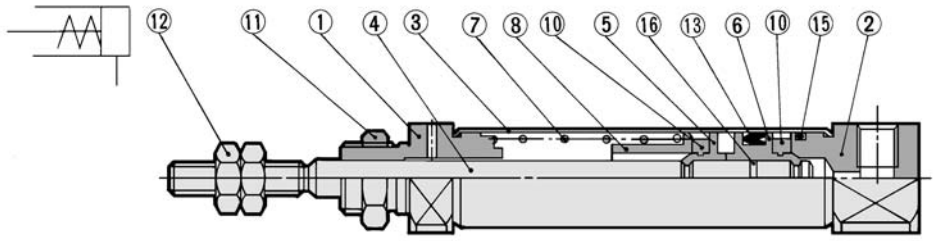
Eliminates the effects by copper based ions and fluorine based resins, etc. over the color cathode ray tube.
Making copper based materials into electroless nickel plated treatment or changing them to the non-copper materials in order to prevent copper ions from generating.

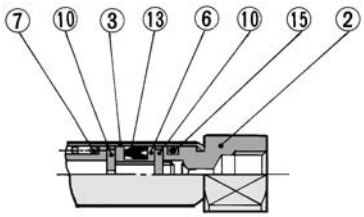
Specifications

Action		Single acting: Spring return	Single acting: Spring extend
Bore size (mm)		6, 10, 16	
Maximum operating pressure		0.7 MPa	
Minimum operating pressure	ø6	0.2 MPa	0.25 MPa
	ø10, ø16	0.15 MPa	
Cushion		Rubber bumper (Standard equipment)	
Standard stroke (mm)		Same as standard type. (Refer to page 61.)	
Auto switch		Mountable (Band mounting style)	
Mounting		Basic style, Axial foot style, Rod side flange style, Double clevis style (Except ø6)	

Construction (Not able to disassemble)

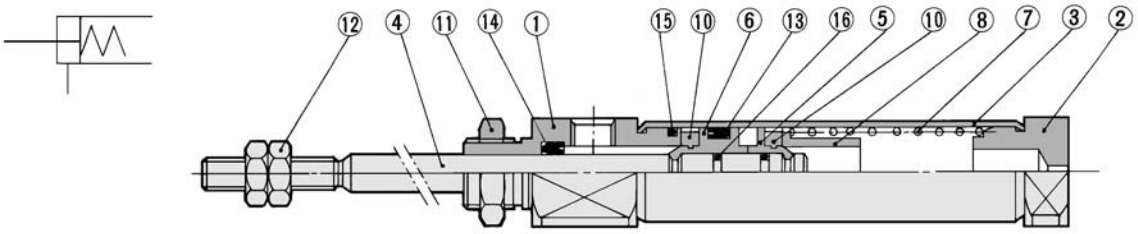
Single acting, Spring return

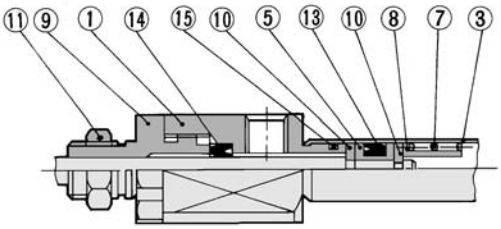




CJ2□6 Piston/Head cover

Single acting, Spring extend





CJ2□6 Piston/Rod cover

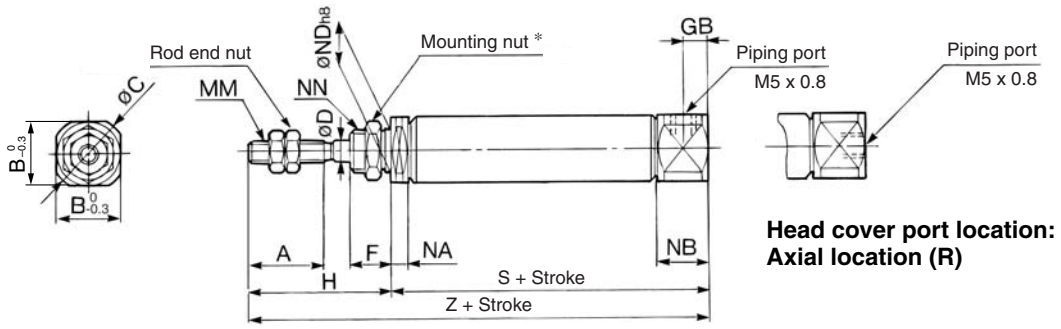
Component Parts

No.	Description	Material	Note
1	**Rod cover**	Aluminum alloy	Anodized
2	**Head cover**	Aluminum alloy	Anodized
3	**Cylinder tube**	Stainless steel	
4	**Piston rod**	Stainless steel	
5	**Piston A**	Brass	
6	**Piston B**	Brass	
7	**Return spring**	Piano wire	Zinc chromated
8	**Spring seat**	Brass	

No.	Description	Material	Note
9	**Seal retainer**	Aluminum alloy	Clear anodized (ø6 spring extend)
10	**Bumper**	Urethane	
11	**Mounting nut**	Brass	Nickel plated
12	**Rod end nut**	Rolled steel	Nickel plated
13	**Piston seal**	NBR	
14	**Rod seal**	NBR	
15	**Tube gasket**	NBR	
16	**Piston gasket**	NBR	

Single Acting, Spring Return: Basic Style (B)

CJ2B Bore size – Stroke S Head cover port location



∗ For details of the mounting nut, refer to page 51.

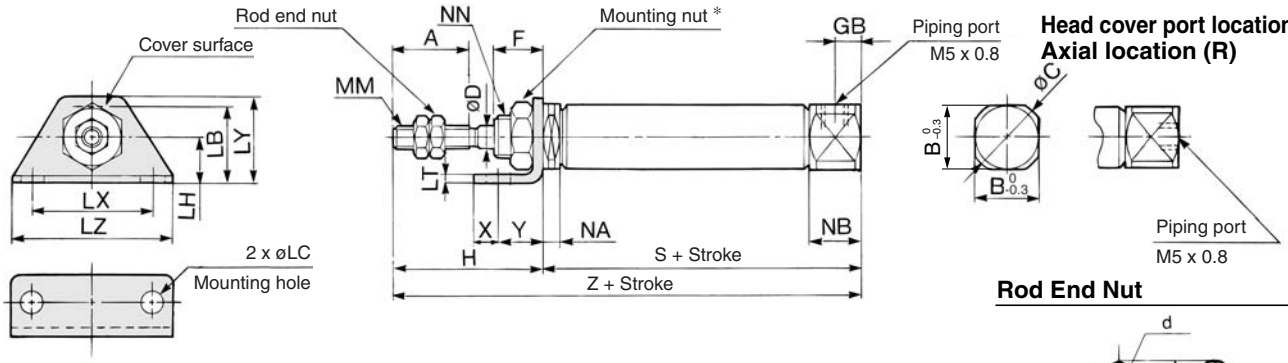
(mm)

Bore size (mm)	A	B	C	D	F	GB	H	MM	NA	NB	ND h8	NN	S ∗								Z ∗							
													5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
6	15	8	9	3	8	–	28	M3 x 0.5	3	7	6 0 -0.018	M6 x 1.0	34.5 (39.5)	43.5 (48.5)	47.5 (52.5)	61.5 (66.5)	–	–	–	–	62.5 (67.5)	71.5 (76.5)	75.5 (80.5)	89.5 (94.5)	–	–	–	–
10	15	12	14	4	8	5	28	M4 x 0.7	5.5	9.5	8 0 -0.022	M8 x 1.0	45.5	53	65	77	–	–	–	–	73.5	81	93	105	–	–	–	–
16	15	18.3	20	5	8	5	28	M5 x 0.8	5.5	9.5	10 0 -0.022	M10 x 1.0	45.5	54	66	78	84	108	126	138	73.5	82	94	106	112	136	154	166

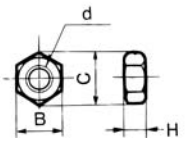
∗ ( ) in S and Z dimensions: With auto switch

Single Acting, Spring Return: Axial Foot Style (L)

CJ2L Bore size – Stroke S Head cover port location



Rod End Nut



Material: Iron

Part no.	Applicable bore (mm)	B	C	d	H
NTJ-006A	**6**	5.5	6.4	M3 x 0.5	2.4
NTJ-010A	**10**	7	8.1	M4 x 0.7	3.2
NTJ-015A	**16**	8	9.2	M5 x 0.8	4

∗ For details of the mounting nut, refer to page 51.

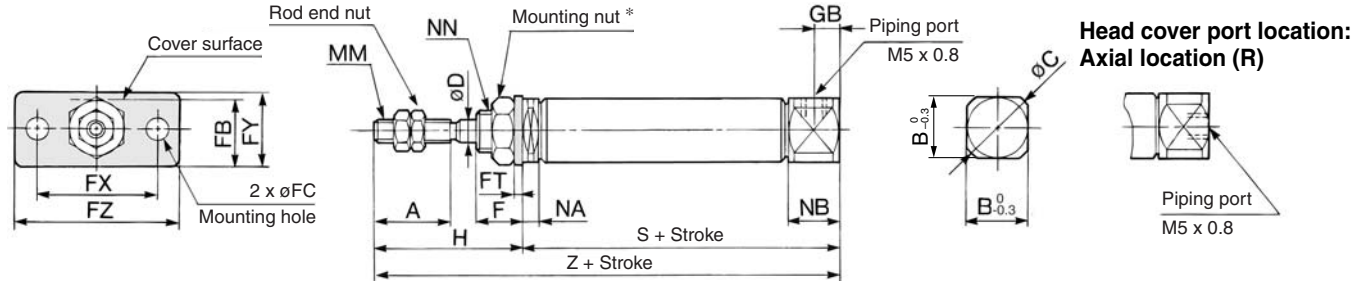
(mm)

Bore size (mm)	A	B	C	D	F	GB	H	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	X	Y	S ∗								Z ∗							
																					5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
6	15	8	9	3	8	–	28	13	4.5	9	1.6	24	16.5	32	M3 x 0.5	3	7	M6 x 1.0	5	7	34.5 (39.5)	43.5 (48.5)	47.5 (52.5)	61.5 (66.5)	–	–	–	–	62.5 (67.5)	71.5 (76.5)	75.5 (80.5)	89.5 (94.5)	–	–	–	–
10	15	12	14	4	8	5	28	15	4.5	9	1.6	24	16.5	32	M4 x 0.7	5.5	9.5	M8 x 1.0	5	7	45.5	53	65	77	–	–	–	–	73.5	81	93	105	–	–	–	–
16	15	18.3	20	5	8	5	28	23	5.5	14	2.3	33	25	42	M5 x 0.8	5.5	9.5	M10 x 1.0	6	9	45.5	54	66	78	84	108	126	138	73.5	82	94	106	112	136	154	166

∗ ( ) in S and Z dimensions: With auto switch

Single Acting, Spring Return: Rod Side Flange Style (F)

CJ2F Bore size – Stroke S Head cover port location



* For details of the mounting nut, refer to page 51.

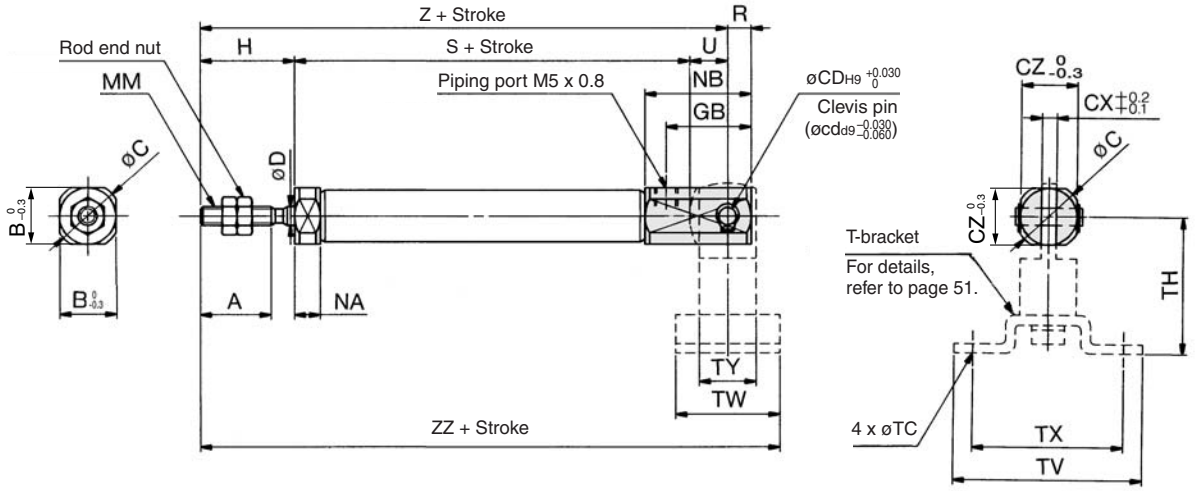
(mm)

Bore size (mm)	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GB	H	MM	NA	NB	NN	S * 5 to 15 st	S * 16 to 30 st	S * 31 to 45 st	S * 46 to 60 st	S * 61 to 75 st	S * 76 to 100 st	S * 101 to 125 st	S * 126 to 150 st	Z * 5 to 15 st	Z * 16 to 30 st	Z * 31 to 45 st	Z * 46 to 60 st	Z * 61 to 75 st	Z * 76 to 100 st	Z * 101 to 125 st	Z * 126 to 150 st
6	15	8	9	3	8	11	4.5	1.6	24	14	32	–	28	M3 x 0.5	3	7	M6 x 1.0	34.5 (39.5)	43.5 (48.5)	47.5 (52.5)	61.5 (66.5)	–	–	–	–	62.5 (67.5)	71.5 (76.5)	75.5 (80.5)	89.5 (94.5)	–	–	–	–
10	15	12	14	4	8	13	4.5	1.6	24	14	32	5	28	M4 x 0.7	5.5	9.5	M8 x 1.0	45.5	53	65	77	–	–	–	–	73.5	81	93	105	–	–	–	–
16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	5	28	M5 x 0.8	5.5	9.5	M10 x 1.0	45.5	54	66	78	84	108	126	138	73.5	82	94	106	112	136	154	166

* ( ) in S and Z dimensions: With auto switch

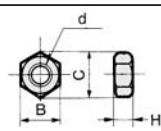
Single Acting, Spring Return: Double Clevis Style (D)

CJ2D Bore size – Stroke S



* Clevis pin and retaining ring are shipped together.

Rod End Nut



Material: Iron

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

(mm)

Bore size (mm)	A	B	C	CD (cd)	CX	CZ	D	GB	H	MM	NA	NB	R	U	S 5 to 15 st	S 16 to 30 st	S 31 to 45 st	S 46 to 60 st	S 61 to 75 st	S 76 to 100 st	S 101 to 125 st	S 126 to 150 st	Z 5 to 15 st	Z 16 to 30 st	Z 31 to 45 st	Z 46 to 60 st	Z 61 to 75 st	Z 76 to 100 st	Z 101 to 125 st	Z 126 to 150 st
10	15	12	14	3.3	3.2	12	4	18	20	M4 x 0.7	5.5	22.5	5	8	45.5	53	65	77	–	–	–	–	73.5	81	93	105	–	–	–	–
16	15	18.3	20	5	6.5	18.3	5	23	20	M5 x 0.8	5.5	27.5	8	10	45.5	54	66	78	84	108	126	138	75.5	84	96	108	114	138	156	168

Bore size (mm)	ZZ 5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
10	84.5	92	104	116	–	–	–	–
16	89.5	98	110	122	128	152	170	182

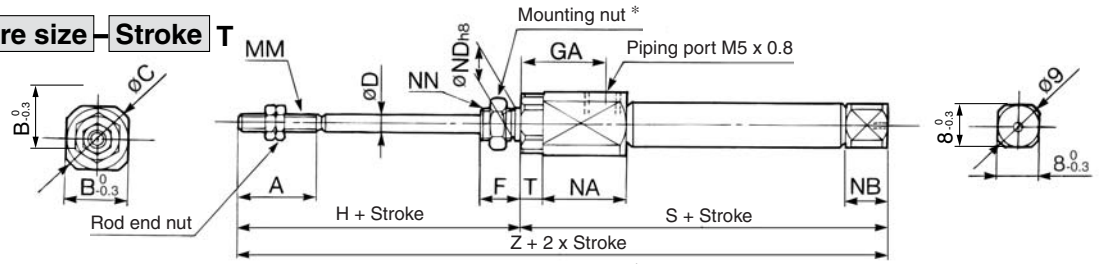
T-bracket Dimensions

Bore size (mm)	TC	TH	TV	TW	TX	TY
10	4.5	29	40	22	32	12
16	5.5	35	48	28	38	16

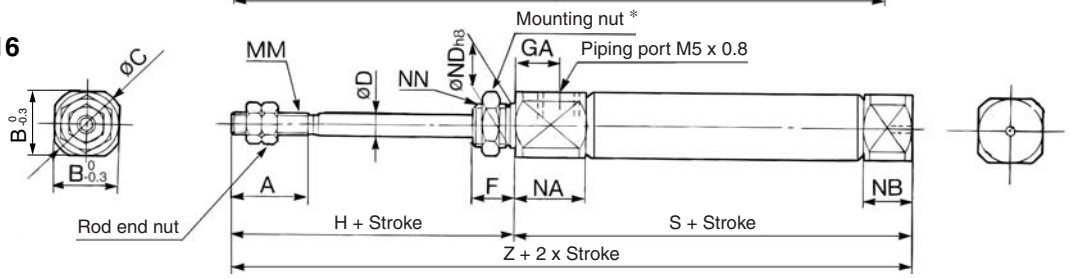
Single Acting, Spring Extend: Basic Style (B)

CJ2B Bore size – Stroke T

CJ2B6



CJ2B10, 16



∗ For details of the mounting nut, refer to page 51.

(mm)

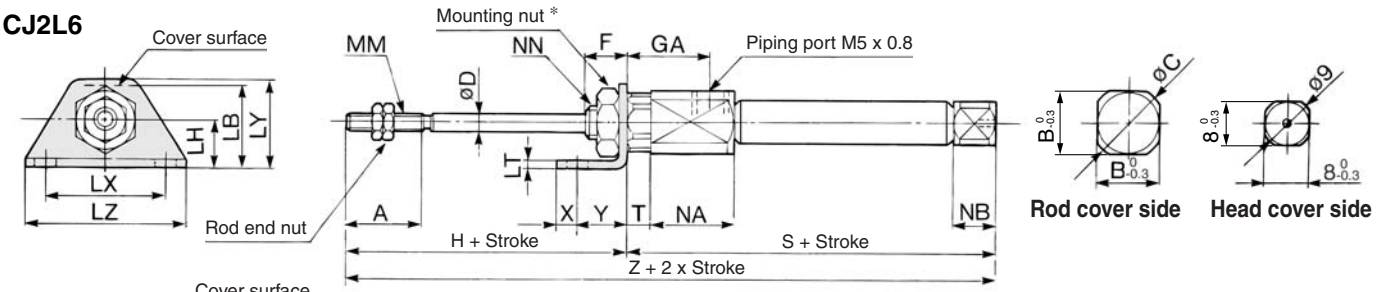
Bore size (mm)	A	B	C	D	F	GA	H	MM	NN	NA	NB	ND h8	T	S ∗ 5 to 15 st	S ∗ 16 to 30 st	S ∗ 31 to 45 st	S ∗ 46 to 60 st	S ∗ 61 to 75 st	S ∗ 76 to 100 st	S ∗ 101 to 125 st	S ∗ 126 to 150 st	Z ∗ 5 to 15 st	Z ∗ 16 to 30 st	Z ∗ 31 to 45 st	Z ∗ 46 to 60 st	Z ∗ 61 to 75 st	Z ∗ 76 to 100 st	Z ∗ 101 to 125 st	Z ∗ 126 to 150 st
6	15	12	14	3	8	14.5	28	M3 x 0.5	M6 x 1.0	16	3	6 0 -0.018	3	46.5 (51.5)	55.5 (60.5)	59.5 (64.5)	73.5 (78.5)	–	–	–	–	74.5 (79.5)	83.5 (88.5)	87.5 (92.5)	101.5 (106.5)	–	–	–	–
10	15	12	14	4	8	8	28	M4 x 0.7	M8 x 1.0	12.5	5.5	8 0 -0.022	–	48.5	56	68	80	–	–	–	–	76.5	84	96	108	–	–	–	–
16	15	18.3	20	5	8	8	28	M5 x 0.8	M10 x 1.0	12.5	5.5	10 0 -0.022	–	48.5	57	69	81	87	111	129	141	76.5	85	97	109	115	139	157	169

∗ ( ) in S and Z dimensions: With auto switch

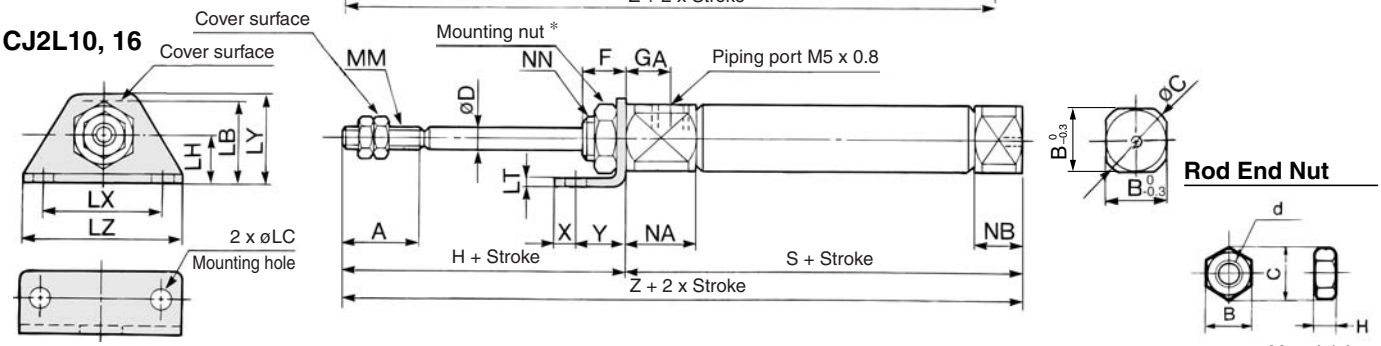
Single Acting, Spring Extend: Axial Foot Style (L)

CJ2L Bore size – Stroke T

CJ2L6



CJ2L10, 16



Rod End Nut

Material: Iron

Part no.	Applicable bore (mm)	B	C	d	H
NTJ-006A	**6**	5.5	6.4	M3 x 0.5	2.4
NTJ-010A	**10**	7	8.1	M4 x 0.7	3.2
NTJ-015A	**16**	8	9.2	M5 x 0.8	4

∗ For details of the mounting nut, refer to page 51.

(mm)

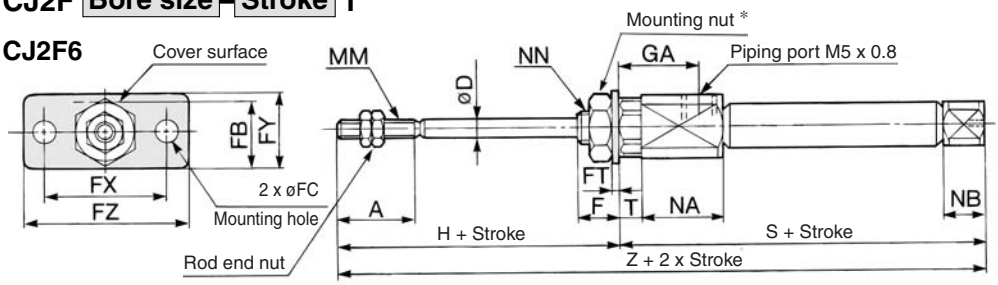
Bore size (mm)	A	B	C	D	F	GA	H	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	T	X	Y	S ∗ 5 to 15 st	S ∗ 16 to 30 st	S ∗ 31 to 45 st	S ∗ 46 to 60 st	S ∗ 61 to 75 st	S ∗ 76 to 100 st	S ∗ 101 to 125 st	S ∗ 126 to 150 st	Z ∗ 5 to 15 st	Z ∗ 16 to 30 st	Z ∗ 31 to 45 st	Z ∗ 46 to 60 st	Z ∗ 61 to 75 st	Z ∗ 76 to 100 st	Z ∗ 101 to 125 st	Z ∗ 126 to 150 st
6	15	12	14	3	8	14.5	28	15	4.5	9	1.6	24	16.5	32	M3 x 0.5	16	3	M6 x 1.0	3	5	7	46.5 (51.5)	55.5 (60.5)	59.5 (64.5)	73.5 (78.5)	–	–	–	–	74.5 (79.5)	83.5 (88.5)	87.5 (92.5)	101.5 (106.5)	–	–	–	–
10	15	12	14	4	8	8	28	15	4.5	9	1.6	24	16.5	32	M4 x 0.7	12.5	5.5	M8 x 1.0	–	5	7	48.5	56	68	80	–	–	–	–	76.5	84	96	108	–	–	–	–
16	15	18.3	20	5	8	8	28	23	5.5	14	2.3	33	25	42	M5 x 0.8	12.5	5.5	M10 x 1.0	–	6	9	48.5	57	69	81	87	111	129	141	76.5	85	97	109	115	139	157	169

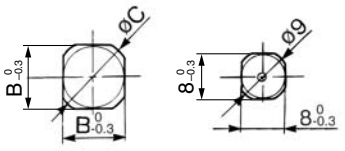
∗ ( ) in S and Z dimensions: With auto switch

Single Acting, Spring Extend: Rod Side Flange Style (F)

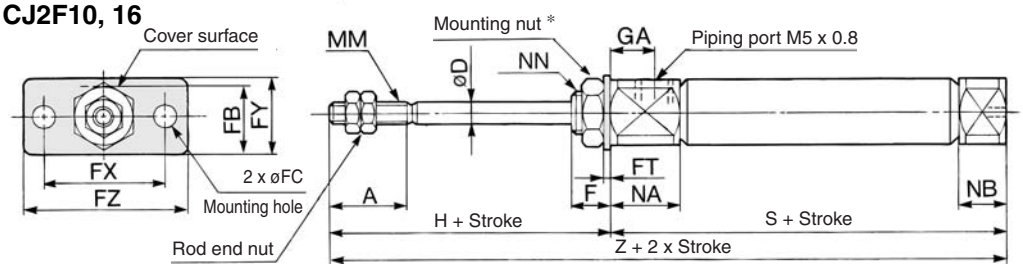
CJ2F Bore size – Stroke T

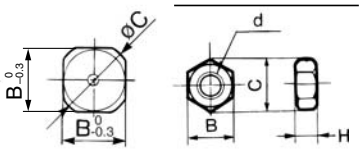
CJ2F6





CJ2F10, 16





Rod End Nut

Material: Iron

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

∗ For details of the mounting nut, refer to page 51.

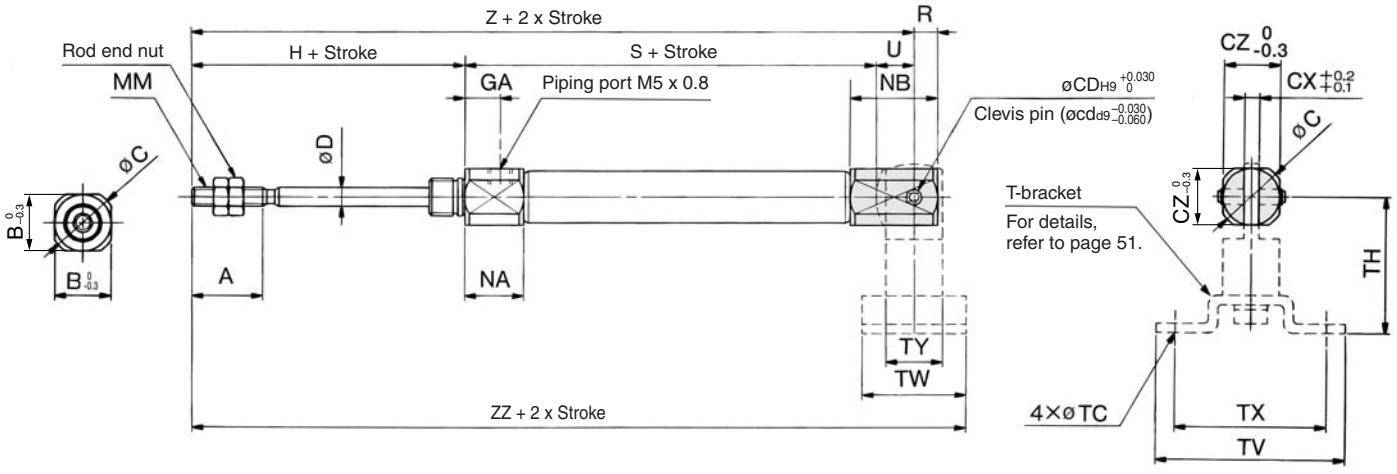
(mm)

Bore size (mm)	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GA	H	MM	NA	NB	NN	T	S * 5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	Z * 5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
6	15	12	14	3	8	13	4.5	1.6	24	14	32	14.5	28	M3 x 0.5	16	3	M6 x 1.0	3	46.5 (51.5)	55.5 (60.5)	59.5 (64.5)	73.5 (78.5)	–	–	–	–	74.5 (79.5)	83.5 (88.5)	87.5 (92.5)	101.5 (106.5)	–	–	–	–
10	15	12	14	4	8	13	4.5	1.6	24	14	32	8	28	M4 x 0.7	12.5	5.5	M8 x 1.0	–	48.5	56	68	80	–	–	–	–	76.5	84	96	108	–	–	–	–
16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	8	28	M5 x 0.8	12.5	5.5	M10 x 1.0	–	48.5	57	69	81	87	111	129	141	76.5	85	97	109	115	139	157	169

∗ ( ) in S and Z dimensions: With auto switch

Single Acting, Spring Extend: Double Clevis Style (D)

CJ2D Bore size – Stroke T



∗ Clevis pin and retaining ring are shipped together.

(mm)

Bore size (mm)	A	B	C	CD (cd)	CX	CZ	D	GA	H	MM	NA	NB	R	U	S 5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	Z 5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
10	15	12	14	3.3	3.2	12	4	8	28	M4 x 0.7	12.5	18.5	5	8	48.5	56	68	80	–	–	–	–	84.5	92	104	116	–	–	–	–
16	15	18.3	20	5	6.5	18.3	5	8	28	M5 x 0.8	12.5	23.5	8	10	48.5	57	69	81	87	111	129	141	86.5	95	107	119	125	149	167	179

(mm)

Bore size (mm)	ZZ 5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
10	95.5	103	115	127	–	–	–	–
16	100.5	109	121	133	139	163	181	193

T-bracket Dimensions

Bore size (mm)	TC	TH	TV	TW	TX	TY
10	4.5	29	40	22	32	12
16	5.5	35	48	28	38	16

Air Cylinder: Non-rotating Rod Type
Double Acting, Single Rod
Series CJ2K
ø10, ø16

How to Order

Mounting style

B	Basic style
L	Axial foot style
F	Rod side flange style
D	Double clevis style

Bore size

10	10 mm
16	16 mm

Cylinder standard stroke (mm)
Refer to the standard stroke table on page 69.

CJ2K **L** **16** – **60** ☐ – ☐

With auto switch

CDJ2K **L** **16** – **60** ☐ – **M9BW** ☐ – ☐

With auto switch
(Built-in magnet)

Made to Order
Refer to page 69 for details.

Head cover port location

Symbol \ Bore size (mm)	ø10, ø16
Nil	Perpendicular to axis
R	Axial

∗For configuration, refer to page 69.
∗ Double clevis is only available for being perpendicular to axis.

Auto switch
∗ For the applicable auto switch model, refer to the table below.
∗ If a built-in magnet cylinder without an auto switch is required, refer to the model of built-in magnet cylinder.

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Built-in Magnet Cylinder Model

Suffix the symbol "-A" (Rail mounting style) or "-B" (Band mounting style) to the end of part number for cylinder with auto switch.

Example	Rail mounting style	CDJ2KB16-60-A
	Band mounting style	CDJ2KB10-45-B

∗ For rail mounting style, screws and nuts for 2 pcs switches come with the rail.
∗ Refer to page 123 for switch mounting brackets.

Applicable Auto Switch/Refer to pages 1263 to 1371 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Load voltage AC	Auto switch model: Band mounting	Auto switch model: Rail mounting Perpendicular	Auto switch model: Rail mounting In-line	Lead wire length (m) 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state switch	——	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**M9N**	—	—	●	●	●	○	—	○	IC circuit	Relay, PLC
								—	**F7NV**	**F79**	●	—	●	○	—	○		
				3-wire (PNP)				**M9P**	—	—	●	●	●	○	—	○		
								—	**F7PV**	**F7P**	●	—	●	○	—	○		
				2-wire		12 V		**M9B**	—	—	●	●	●	○	—	○	—	
								—	**F7BV**	**J79**	●	—	●	○	—	○		
		Connector						**H7C**	**J79C**	—	●	—	●	●	●	—		
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)		5 V, 12 V		**M9NW**	—	—	●	●	●	○	—	○	IC circuit	
								—	**F7NWV**	**F79W**	●	—	●	○	—	○		
				3-wire (PNP)				**M9PW**	—	—	●	●	●	○	—	○		
								—	—	**F7PW**	●	—	●	○	—	○		
				2-wire		12 V		**M9BW**	—	—	●	●	●	○	—	○	—	
								—	**F7BWV**	**J79W**	●	—	●	○	—	○		
	Water resistant (2-color indication)							**H7BA**	**F7BAV**	**F7BA**	—	—	●	○	—	○		
	With diagnostic output (2-color indication)			4-wire (NPN)		5 V, 12 V		**H7NF**	—	**F79F**	●	—	●	○	—	○	IC circuit	
Reed switch	——	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**A96**	—	**A76H**	●	—	●	—	—	—	IC circuit	—
				2-wire	24 V	—	200 V	—	**A72**	**A72H**	●	—	●	—	—	—	—	Relay, PLC
						12 V	100 V	—	**A73**	**A73H**	●	—	●	●	—	—		
								A93	—	—	●	—	●	—	—	—		
			No				100 V or less	**A90**	**A80**	**A80H**	●	—	●	—	—	—	IC circuit	
		Connector	Yes				—	**C73C**	**A73C**	—	●	—	●	●	●	—	—	
			No				24 V or less	**C80C**	**A80C**	—	●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-color indication)	Grommet	Yes			—	—	—	**A79W** ∗∗	—	●	—	●	—	—	—	—	

∗ Lead wire length symbols: 0.5 m····· Nil (Example) M9NW
1 m····· M (Example) M9NWM
3 m····· L (Example) M9NWL
5 m····· Z (Example) M9NWZ
None····· N (Example) H7CN

∗ Since there are other applicable auto switches than listed, refer to page 123 for details.
∗ For details about auto switches with pre-wired connector, refer to pages 1328 and 1329.
∗ Band mounting style is not available for D-A9□V/M9□V/M9□WV and D-M9□A(V)L types.
∗∗ "D-A79W" cannot be mounted on bore size ø10 cylinder with air cushion.

∗ Solid state auto switches marked with "○" are produced upon receipt of order.
∗ D-A9□/M9□/M9□W/A7□□/A80□/F7□□/J7□□ auto switches are shipped together (not assembled). (However, when D-A9□/M9□/M9□W types are selected, only auto switch mounting brackets are assembled before being shipped.)
∗ When D-A9□(V)/M9□(V)/M9□W(V) types are mounted on a ø10 or ø16 rail, order auto switch mounting brackets separately. Refer to page 123 for details.