

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.


Head cover port location

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

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

With auto switch

Band mounting style



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.

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

Example Model: CJ2 L 16 - 60 A - [] - []

With auto switch: CDJ2 L 16 - 60 A - [] - M9BW [] - []

Labels:

- With auto switch (Built-in magnet)**
- Made to Order** (Refer to page 43 for details.)
- Number of auto switches**

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		Auto switch model			Lead wire length (m)					Pre-wired connector	Applicable load							
					DC	AC	Band mounting (ø6, ø10, ø16)	Rail mounting (ø10, ø16)	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	IC circuit		Relay, PLC							
Solid state switch		Grommet	Yes	3-wire (NPN)	24V	5 V, 12 V	—	M9N	—	—	●	●	●	○	—	○	IC circuit	Relay, PLC					
				—				F7NV	F79	●	—	●	○	—	○								
		3-wire (PNP)	—	—				●	●	●	○	—	○										
		—	F7PV	F7P				●	—	●	○	—	○										
	Connector	Yes	2-wire	12 V	—	M9B	—	—	●	●	●	○	—	○	—	—	—	—					
			—			F7BV	J79	●	—	●	○	—	○										
	Grommet	Diagnostic indication (2-color indication)	Grommet	Yes	3-wire (NPN)	24V	5 V, 12 V	—	M9NW	—	—	●	●	●	○	—	○	IC circuit	Relay, PLC				
					—				F7NWV	F79W	●	—	●	○	—	○							
			3-wire (PNP)	—	—				●	●	●	○	—	○									
			—	F7PW	—				●	—	●	○	—	○									
Connector	Yes	2-wire	12 V	—	M9BW	—	—	●	●	●	○	—	○	—	—	—	—						
		—			F7BWV	J79W	●	—	●	○	—	○											
Grommet	Water resistant (2-color indication) With diagnostic output (2-color indication)	Grommet	Yes	4-wire (NPN)	24V	5 V, 12 V	—	H7BA	F7BAV	F7BA	—	—	●	○	—	○	IC circuit	Relay, PLC					
				—				H7NF	—	F79F	●	—	●	○	—	○							
		Connector	Yes	3-wire (NPN equivalent)				5 V	—	A96	—	A76H	●	—	●	—			—	—	—	IC circuit	—
				—						—	200 V	—	A72	A72H	●	—			●	—	—		
Grommet	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24V	12 V	100 V or less	—	A73	A73H	●	—	●	—	—	—	IC circuit	Relay, PLC					
								—	A93	—	—	●	—	●	—	—			—				
		Connector	Yes	100 V or less				A90	A80	A80H	●	—	●	—	—	—			—	—	IC circuit	—	
				—				C73C	A73C	—	●	—	●	●	●	—			—				
Grommet	Yes	24 V or less	C80C	A80C	—	●	—	●	●	●	—	—	—	—	IC circuit	—							
		—	—	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□/M9□/M9□/□V and D-M9□A/V/L types.
 ** "D-A79W" cannot be mounted on bore size ø10 cylinder with air cushion.

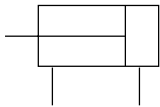
* Solid state auto switches marked with "O" are produced upon receipt of order.
 * D-A9□/M9□/□V/A7□□/A80□/□V/□V/□V auto switches are shipped together (not assembled). (However, when D-A9□/M9□/□V types are selected, only auto switch mounting brackets are assembled before being shipped.)
 * When D-A9□(V)/M9□(V)/□V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

Air Cylinder: Standard Type Double Acting, Single Rod *Series CJ2*



JIS Symbol

Double acting, Single rod



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



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

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

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.)

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.

Series CJ2

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.

Air Cylinder: Standard Type Double Acting, Single Rod *Series CJ2*

Clean Series

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

Clean Series

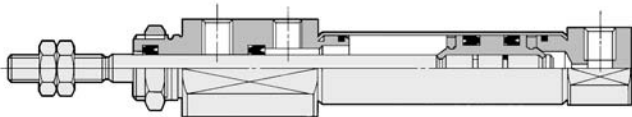
Air cylinder which is applicable for the system which discharges leakage from the rod section directly into the outside of clean room by relief port and making an actuator's rod section having a double seal construction.



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 cushion	
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".

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.



The dimensions are the same as the double acting, single rod type. Refer to Best Pneumatics No. 3 for details.

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

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

Copper and fluorine-free

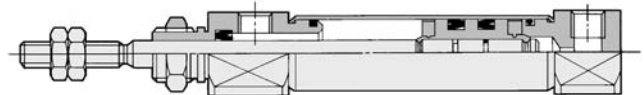
Eliminates the effects by copper based ions and fluorine based resins, etc. over the color cathode ray tube. Making copper based materials into electroless nickel plated treatment or changing them to the non-copper materials in order to prevent copper ions from generating.



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



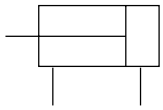
Specifications

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 (No freezing) With auto switch: -10 to 60°C	
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

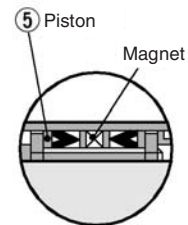
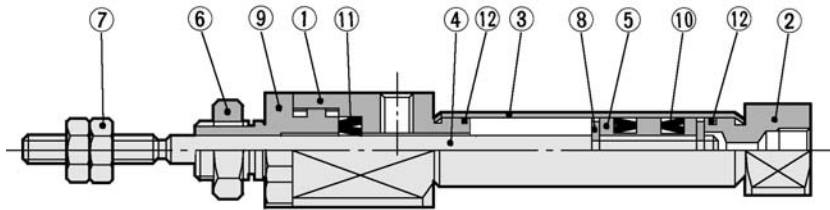
Refer to Best Pneumatics No. 3.

Series CJ2

Construction (Not able to disassemble)

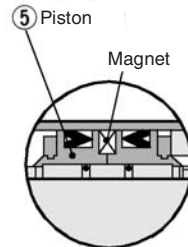
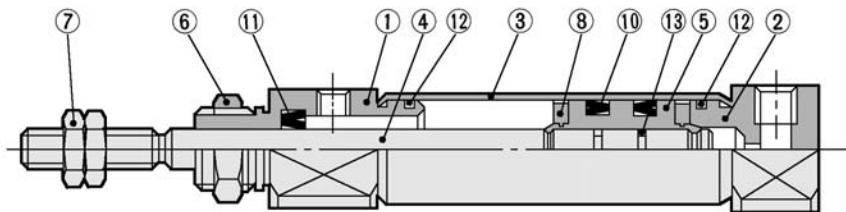


CJ2□6-R



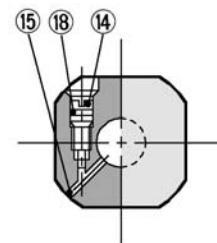
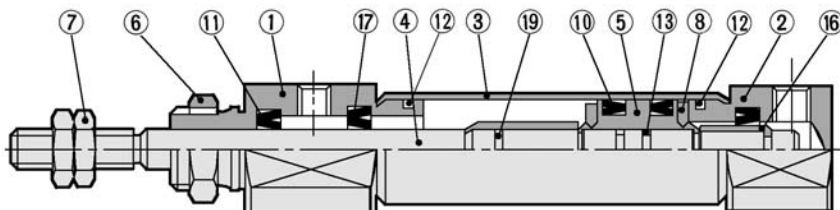
Piston construction when auto switch is mounted.

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	ø6
		Aluminum alloy	ø10, 16 chromated
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

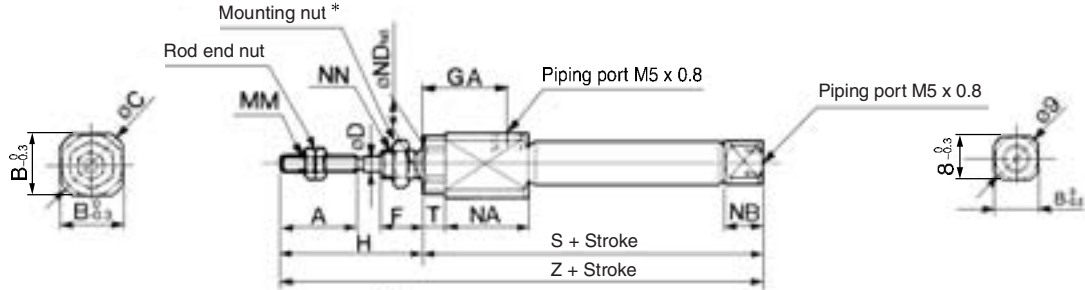
Dedicated for with Air Cushion Type

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	

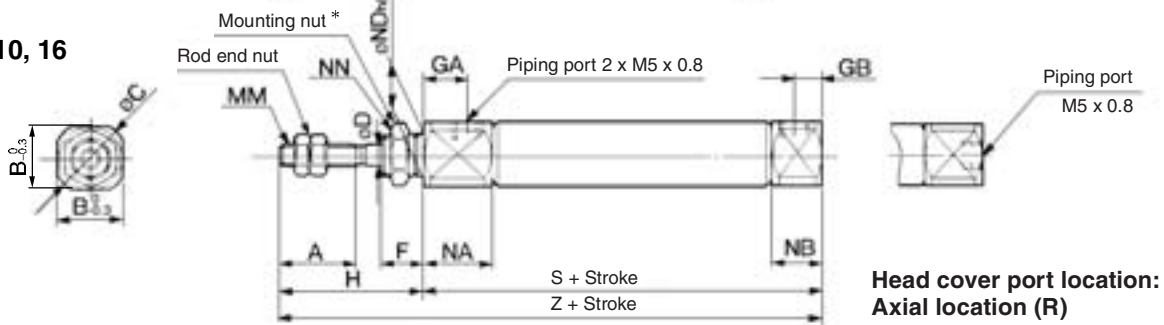
Basic Style (B)

CJ2B Bore size Stroke Head cover port location

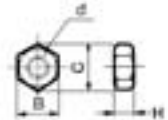
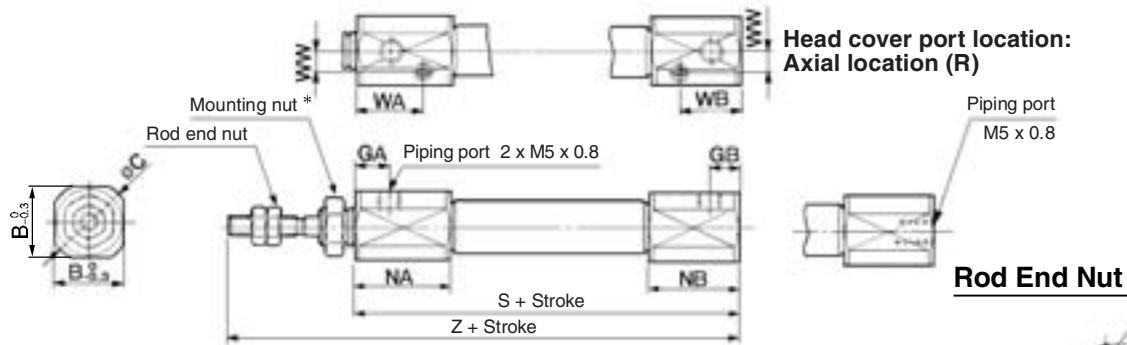
CJ2B6



CJ2B10, 16



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



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	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)

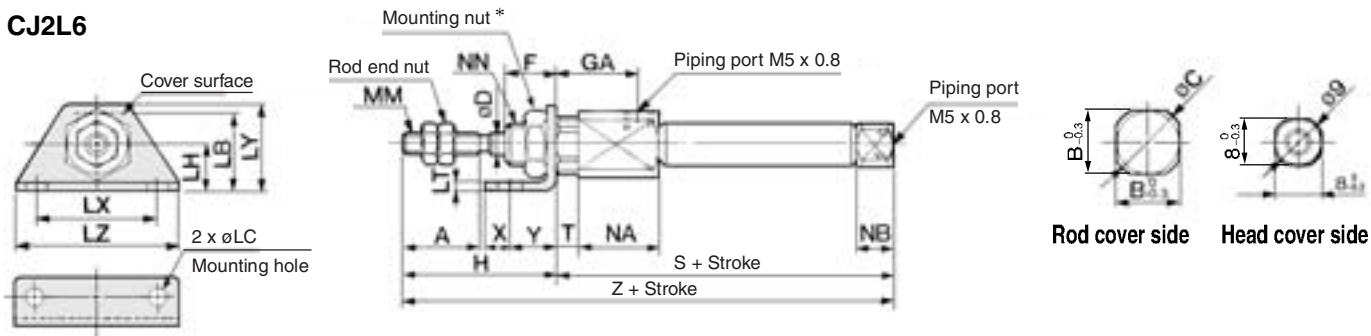
Bore size (mm)	B	C	GA	GB	NA	NB	WA	WB	WW	S	Z
10	15	17	7.5	6.5	21	20	14.5	13.5	4.5	65	93
16	18.3	20	7.5	6.5	21	20	14.5	13.5	5.5	66	94

Series CJ2

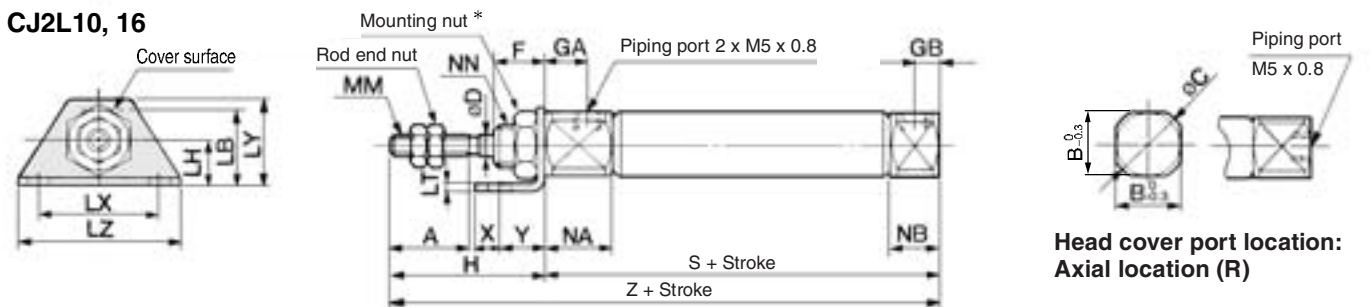
Axial Foot Style (L)

CJ2L **Bore size** **Stroke** **Head cover port location**

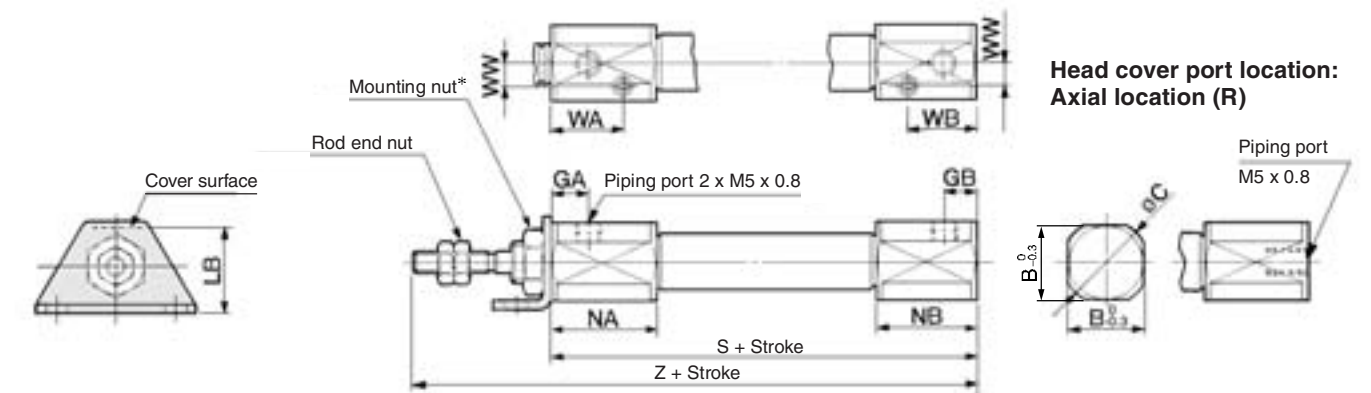
CJ2L6



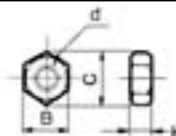
CJ2L10, 16



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

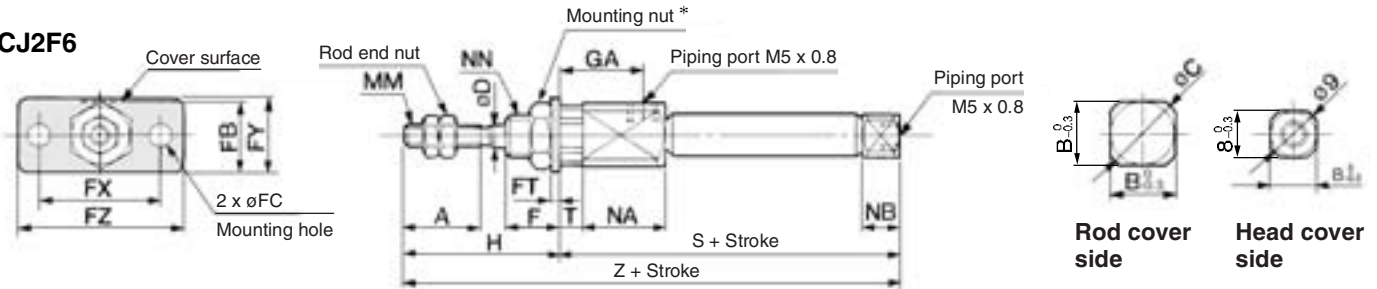
With Air Cushion/Dimensions other than the table below are the same as the table above. (mm)

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

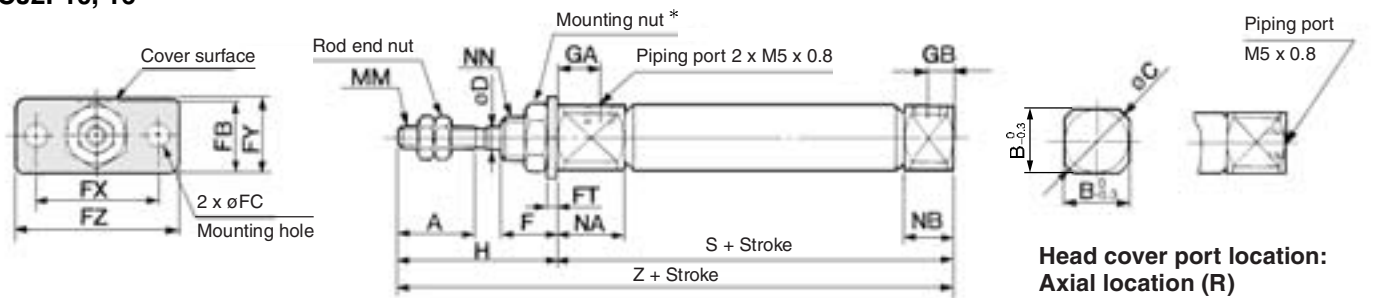
Rod Side Flange Style (F)

CJ2F Bore size Stroke Head cover port location

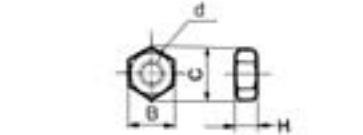
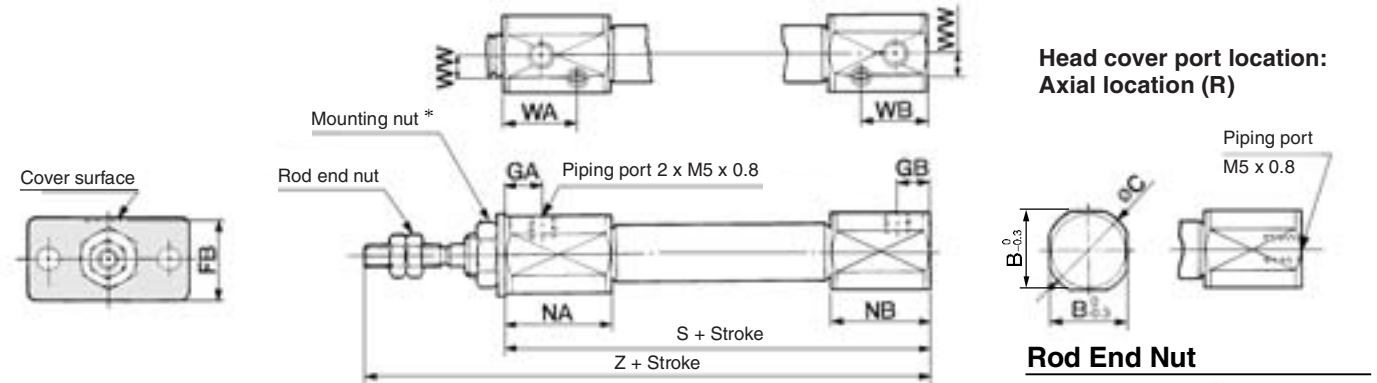
CJ2F6



CJ2F10, 16



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



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	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

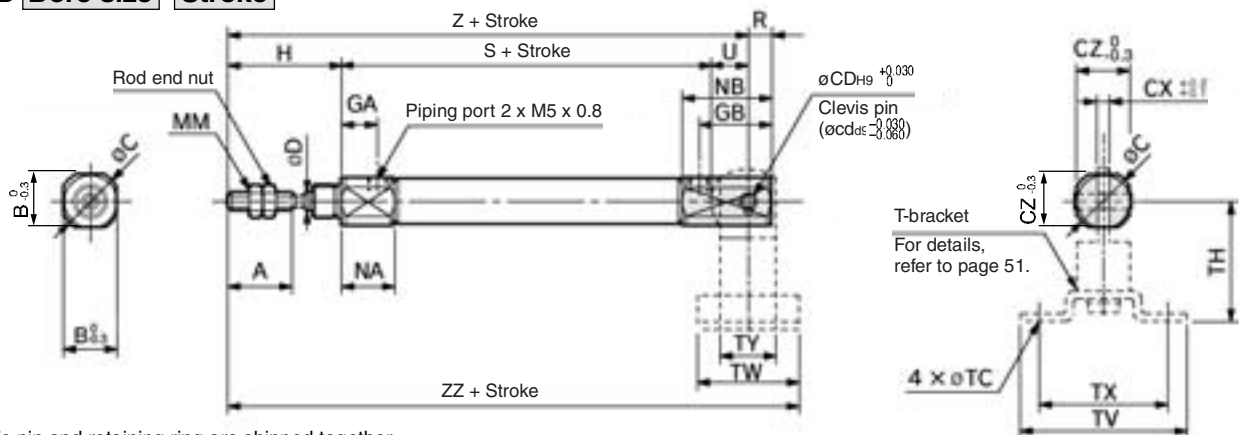
With Air Cushion Dimensions other than the table below are the same as the table above. (mm)

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

Series CJ2

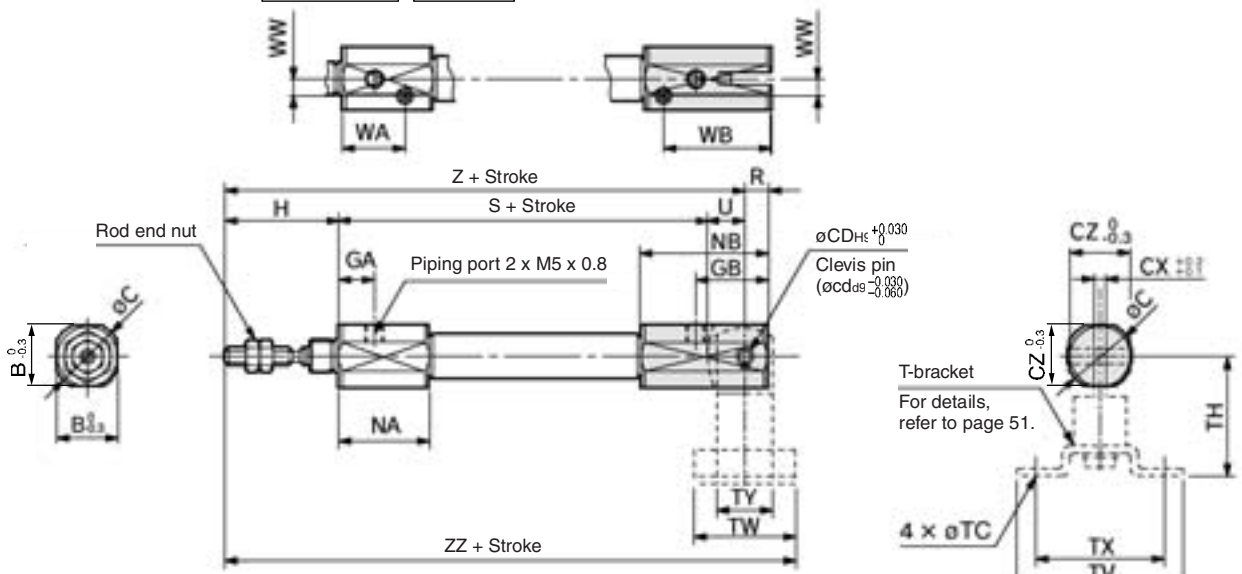
Double Clevis Style (D)

CJ2D Bore size Stroke



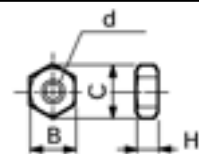
* Clevis pin and retaining ring are shipped together.

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

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

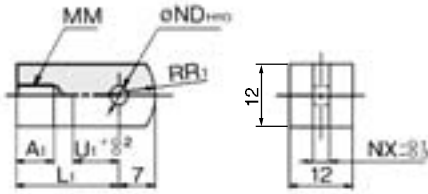
With Air Cushion/Dimensions other than the table below are the same as the table above. (mm)

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)

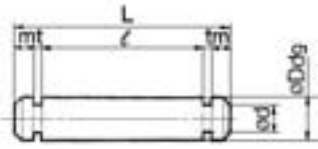
Single Knuckle Joint



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

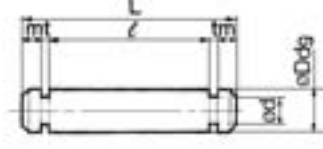


Material: Stainless steel

Part no.	Applicable bore (mm)	Dd ₉	d	L	ℓ	m	t	Applicable snap ring
CD-J010	10	3.3 ^{-0.060} ₀	3	15.2	12.2	1.2	0.3	Type C 3.2
CD-Z015	16	5 ^{-0.060} ₀	4.8	22.7	18.3	1.5	0.7	Type C 5
CD-JA010*	10	3.3 ^{-0.060} ₀	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

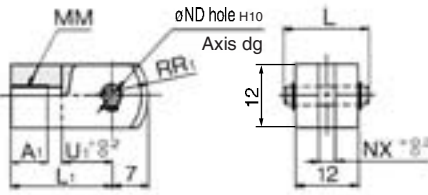


Material: Stainless steel

Part no.	Applicable bore (mm)	Dd ₉	d	L	ℓ	m	t	Applicable snap ring
CD-J010	10	3.3 ^{-0.060} ₀	3	15.2	12.2	1.2	0.3	Type C 3.2
IY-J015	16	5 ^{-0.060} ₀	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



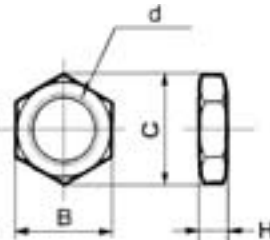
Material: Rolled steel

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

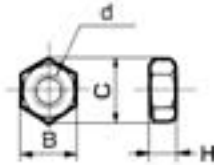


Material: Brass

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.)

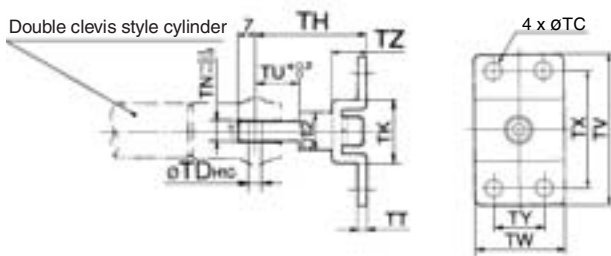
Rod End Nut



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



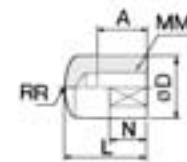
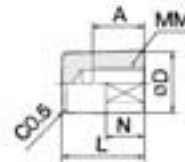
Part no.	Applicable bore (mm)	TC	TD ^{H10}	TH	TK	TN	TT	TU	TV	TW	TX	TY	TZ
CJ-T010B	10	4.5	3.3 ^{+0.048} ₀	29	18	3.1	2	9	40	22	32	12	8
CJ-T016B	16	5.5	5 ^{+0.048} ₀	35	20	6.4	2.3	14	48	28	38	16	10

* 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



Mounting style

B	Basic style
L	Foot style
F	Flange style

Bore size

6	6 mm
10	10 mm
16	16 mm

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 -

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.

Made to Order
Refer to page 53 for details.

Number of auto switches

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

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		Auto switch model			Lead wire length (m)					Pre-wired connector	Applicable load																														
					DC	AC	Band mounting (ø6, ø10, ø16)	Rail mounting (ø10, ø16)		0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)		IC circuit	Relay, PLC																													
								Perpendicular	In-line																																					
Solid state switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	—	—	—	●	●	●	○	—	○	IC circuit	Relay, PLC																													
										3-wire (PNP)	●	●	●	○	—			○																												
				2-wire	●	●	●	○	—		○																																			
		Connector			Yes	3-wire (NPN)	24 V	—	—	—	—	—	●	●	●	○		—	○																											
				3-wire (PNP)									●	●	●	○		—	○																											
						2-wire	●	●	●	○	—	○																																		
	Grommet		Yes	3-wire (NPN)			5 V, 12 V	—	—	—	—	—	●	●	●	○	—	○																												
		3-wire (PNP)			●	●							●	○	—	○																														
				2-wire	●	●	●	○	—	○																																				
		Grommet			Yes	4-wire (NPN)	5 V, 12 V	—	—	—	—	—	●	●	●	○	—	○																												
2-wire	●		●	●									○	—	○																															
	Reed switch		—	Grommet		Yes	3-wire (NPN equivalent)	—	—	—	—	—	—	—	—	—	—	—	—																											
Connector																				Yes	2-wire	24 V	12 V	100 V or less	—	—	—	—	—	—	—	—	—	—												
		Grommet			Yes																														2-wire	24 V	12 V	100 V or less	—	—	—	—	—	—	—	—
Grommet		Yes			2-wire															24 V	24 V or less	—	—	—	—	—	—	—	—	—																
				Grommet		Yes	2-wire	24 V	24 V or less	—	—	—	—	—	—	—	—	—	—																											

* 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□□/M9□□/□□/□□□□ and D-M9□□□□(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 "O" are produced upon receipt of order.

* D-A9□□/M9□□/□□/□□/□□/□□/□□/□□ auto switches are shipped together (not assembled). (However, when D-A9□□/M9□□/□□ types are selected, only auto switch mounting brackets are assembled before being shipped.)

* When D-A9□□(V)/M9□□(V)/□□(V) types are mounted on a ø10 or ø16 rail, order auto switch mounting brackets separately. Refer to page 123 for details.

Air Cylinder: Standard Type Double Acting, Double Rod **Series CJ2W**



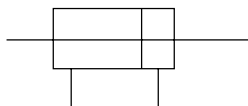
Specifications

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.)



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

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.

Series CJ2W

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

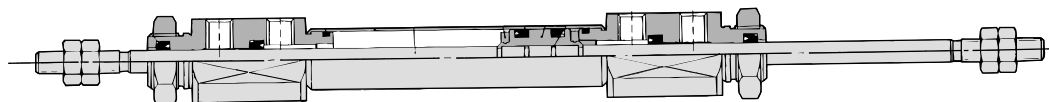
Air cylinder which is applicable for the system which discharges leakage from the rod section directly into the outside of clean room by relief port and making an actuator's rod section having a double seal construction.

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.

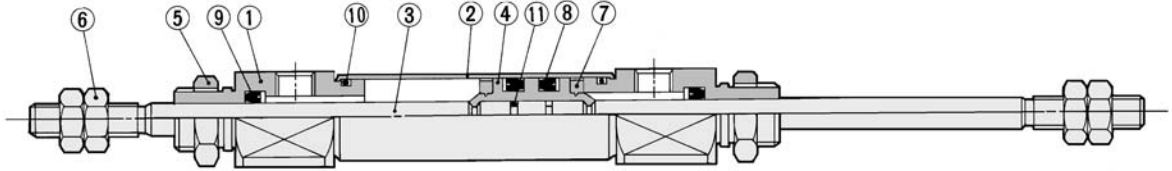
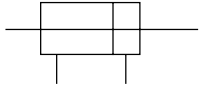


Specifications

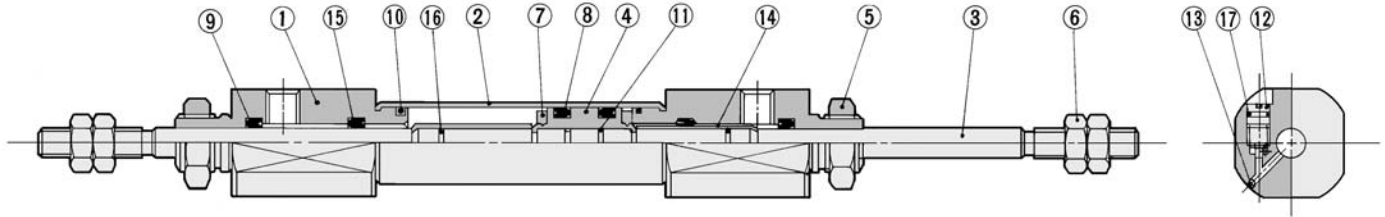
Action	Double acting, Double rod	
Bore size (mm)	6, 10, 16	
Maximum operating pressure	0.7 MPa	
Minimum operating pressure	ø6	0.15 MPa
	ø10, ø16	0.1 MPa
Cushion	Rubber bumper	
Standard stroke (mm)	15, 30, 45, 60	
Auto switch	Mountable (Band mounting style)	
Mounting	Basic style, Foot style, Flange style	

Series CJ2W

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	ø6
		Aluminum alloy	ø10, 16 chromated
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	

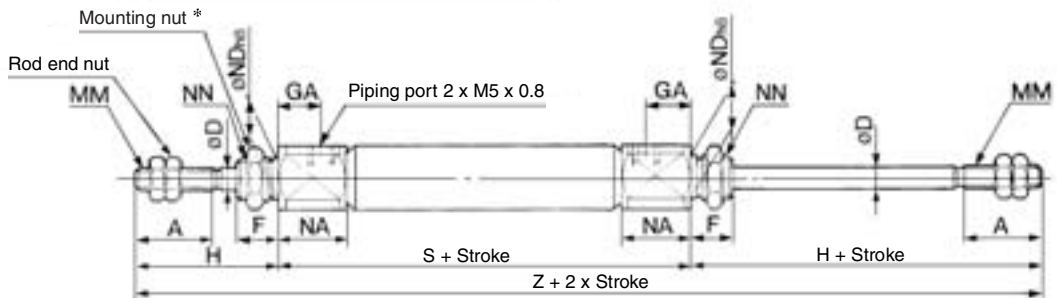
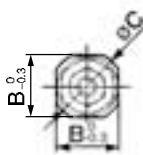
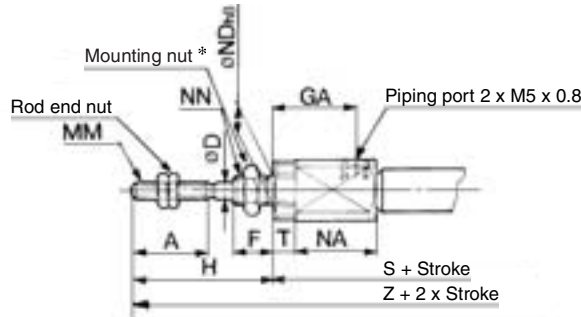
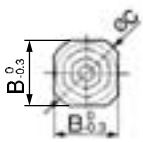
Dedicated for with Air Cushion Type

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	

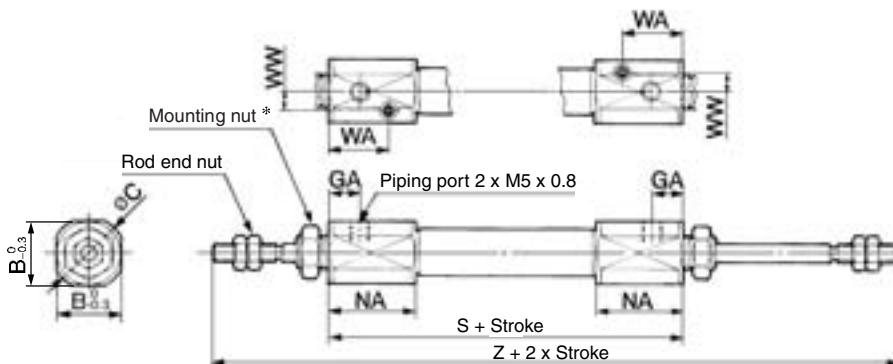
Basic Style (B)

CJ2WB Bore size Stroke

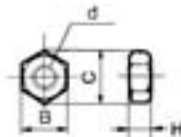
CJ2WB6 Rod cover



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.

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.

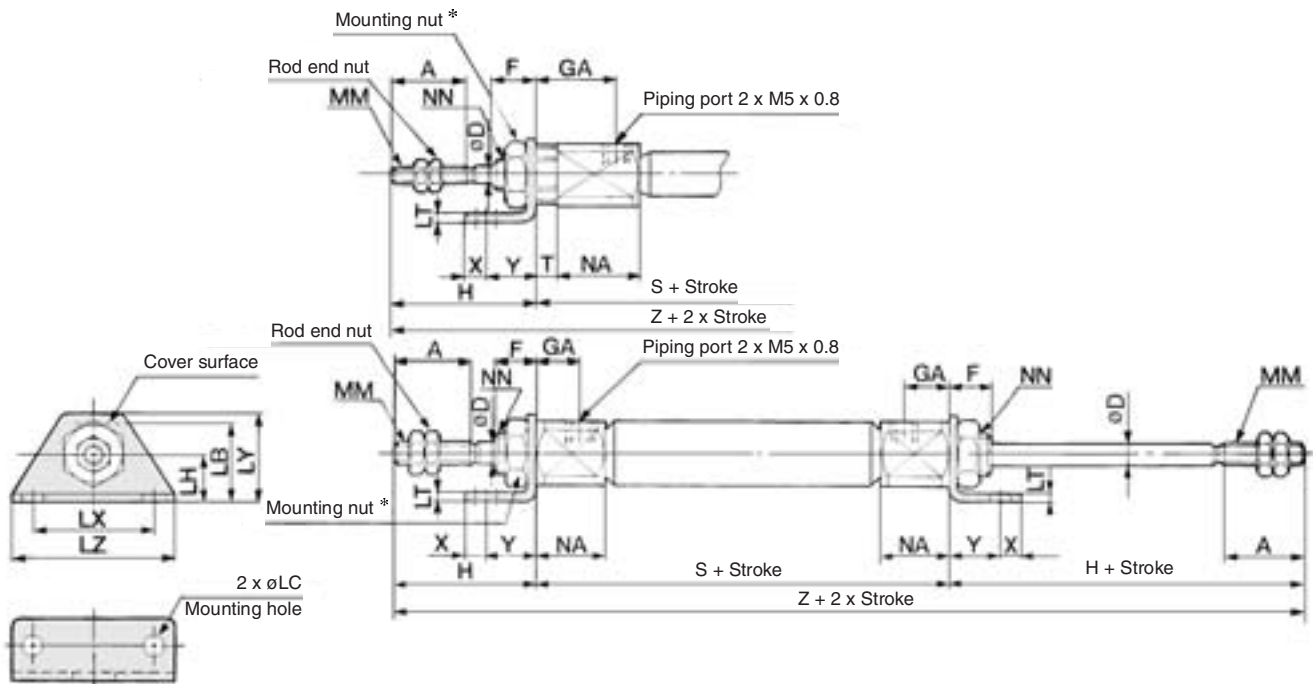
* () in S and Z dimensions: With auto switch

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

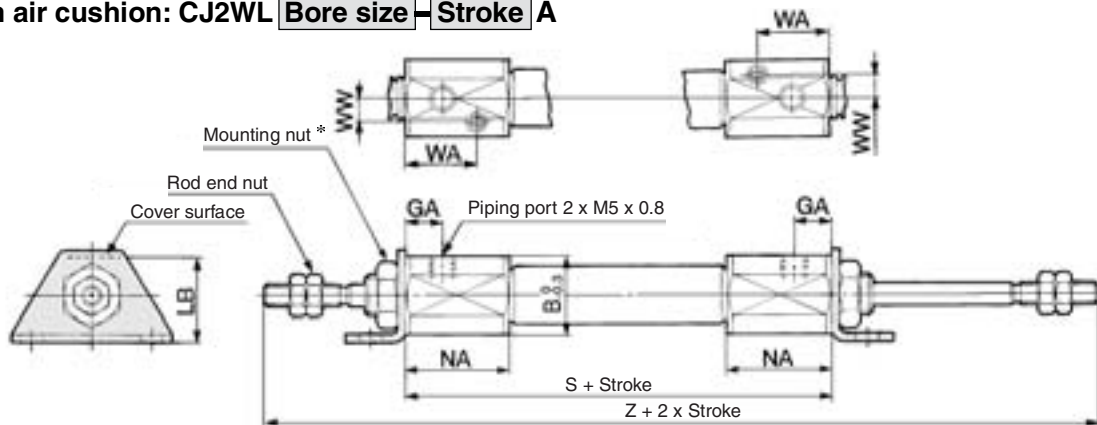
Series CJ2W

Foot Style (L)

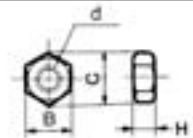
CJ2WL **Bore size** — **Stroke**



With air cushion: CJ2WL **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.

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

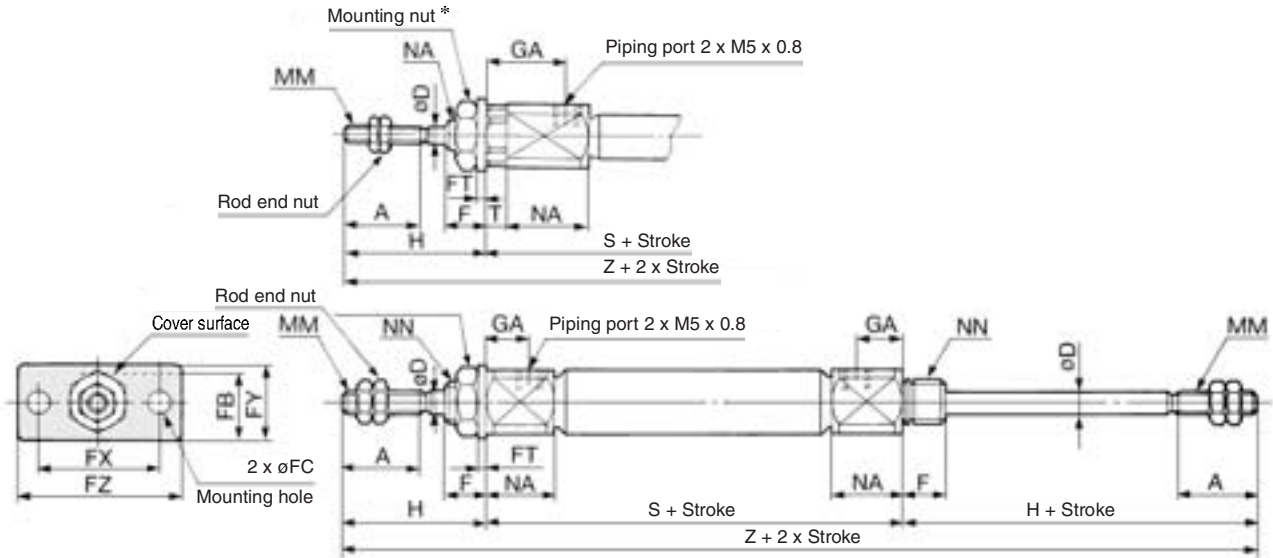
Bore size (mm)	B	GA	LB	NA	WA	WW	S	Z
10	15	7.5	16.5	21	14.5	4.5	66	122
16	18.3	7.5	23	21	14.5	5.5	67	123

Gentle Automatic Solution Sdn Bhd

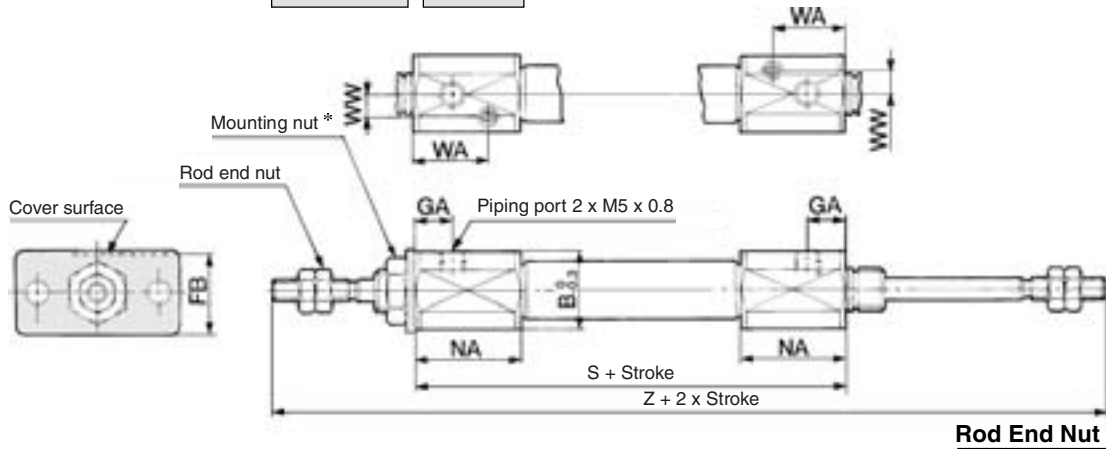
Tel :603-80237743 Fax :603-80239743 Email :sales@gentle.com.my http://www.gentle.com.my

Flange Style (F)

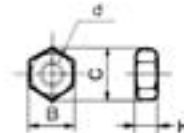
CJ2WF Bore size Stroke



With air cushion: CJ2WF 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.

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

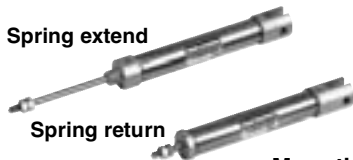
Bore size (mm)	B	FB	GA	NA	WA	WW	S	Z
10	15	14.5	7.5	21	14.5	4.5	66	122
16	18.3	19	7.5	21	14.5	5.5	67	123

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

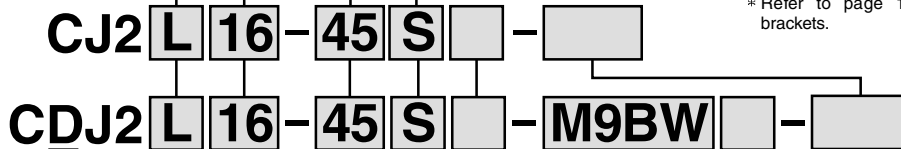
Suffix the symbol "-A" (Rail mounting style) or "-B" (Band mounting style) to the end of part number for cylinder with auto switch.

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.



With auto switch



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).

Made to Order
Refer to page 61 for details.

Number of auto switches

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

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.

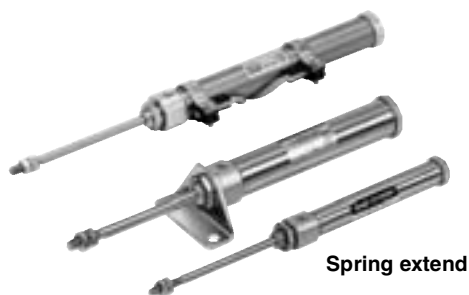
Applicable Auto Switch/Refer to pages 1263 to 1371 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model			Lead wire length (m)					Pre-wired connector	Applicable load				
					DC	AC	Band mounting (ø6, ø10, ø16)	Rail mounting (ø10, ø16)		0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)		IC circuit	Relay, PLC			
								Perpendicular	In-line											
Solid state switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9N	—	—	●	●	●	○	—	○	IC circuit	Relay, PLC			
				3-wire (PNP)			M9P	—	—	●	●	●	○	—	○					
		2-wire		12 V	—	—	—	●	●	●	○	—	○	—	—					
		—			F7BV	J79	●	—	●	○	—	○								
	Diagnostic indication (2-color indication)	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9B	—	—	●	●	●	○	—	○	IC circuit	Relay, PLC		
				3-wire (PNP)				M9NW	—	—	●	●	●	○	—	○				
		2-wire		12 V	—	—	—	●	—	●	○	—	○	—	—					
		—			F79C	—	●	—	●	●	○	—	○							
		Water resistant (2-color indication) With diagnostic output (2-color indication)		Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	—	M9NW	—	—	●	●	●	○	—	○	IC circuit	—
						2-wire				M9PW	—	—	●	●	●	○	—	○		
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V	—	A96	—	A76H	●	—	●	—	—	IC circuit	—			
				—				—	A72	A72H	●	—	●	—	—			—		
		2-wire		12 V	100 V	—	A73	A73H	●	—	●	●	—	—	—	—				
		—			100 V or less	A93	—	—	—	●	—	●	—	—						
	Diagnostic indication (2-color indication)	Grommet	Yes	2-wire	24 V	24 V or less	—	A90	A80	A80H	●	—	●	—	—	IC circuit	Relay, PLC			
				—				C73C	A73C	—	●	—	●	●	—			—		
		2-wire		24 V or less	—	—	C80C	A80C	—	—	—	●	—	●	●	—	IC circuit	—		
		—			—	—	—	A79W	—	—	—	●	—	●	—	—				

* Lead wire length symbols: 0.5 m..... Nil (Example) M9NW
1 m..... M (Example) M9NWM
3 m..... L (Example) M9NLW
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 "O" 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.

Air Cylinder: Standard Type *Series CJ2*



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)

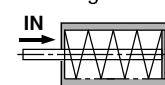
Bore size (mm)	Standard stroke
6	15, 30, 45, 60
10	15, 30, 45, 60
16	15, 30, 45, 60, 75, 100, 125, 150

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

Spring Reaction Force (N)

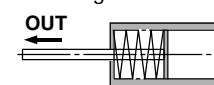
Bore size (mm)	Spring reaction force (N)	
	Primary	Secondary
6	1.77	3.72
10	3.53	6.86
16	6.86	14.2

Spring with primary mounting load



When the spring is set in the cylinder

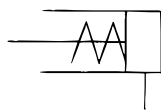
Spring with secondary mounting load



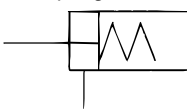
When the spring is contracted by applying air

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.

Series CJ2

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
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
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

- 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.
- 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
- 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 piston rod. Thus, if a load is applied, the piston rod will not be able to retract to the end of the stroke.
- 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.
- 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.
- 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

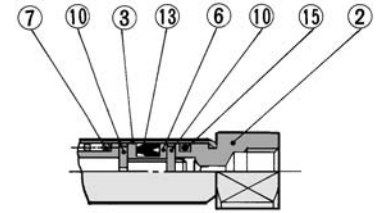
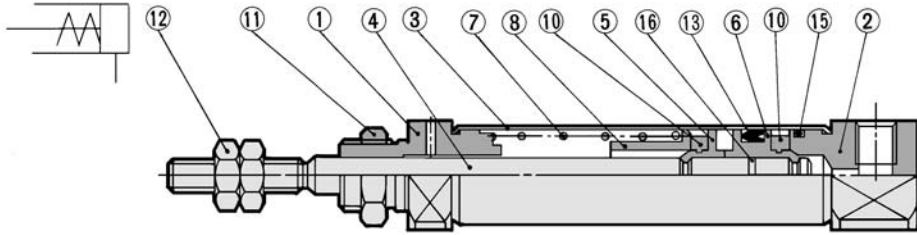
Eliminates the effects by copper based ions and fluorine based resins, etc. over the color cathode ray tube.
 Making copper based materials into electroless nickel plated treatment or changing them to the non-copper materials in order to prevent copper ions from generating.

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
	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)	

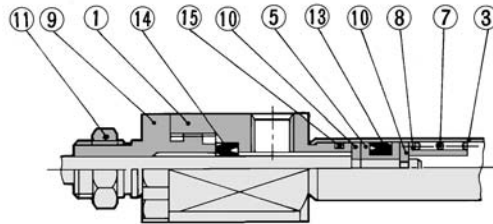
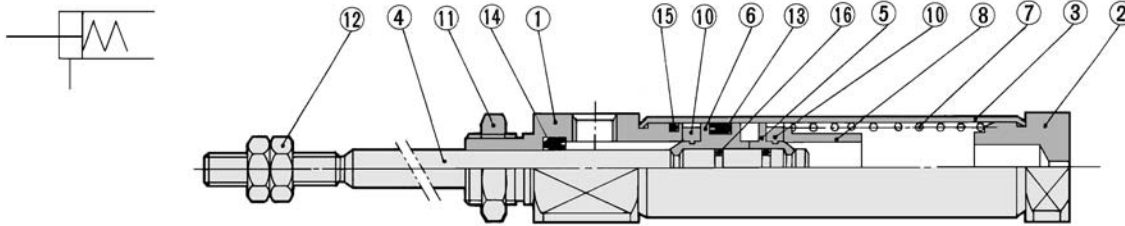
Construction (Not able to disassemble)

Single acting, Spring return



CJ2□6 Piston/Head cover

Single acting, Spring extend



CJ2□6 Piston/Rod cover

Component Parts

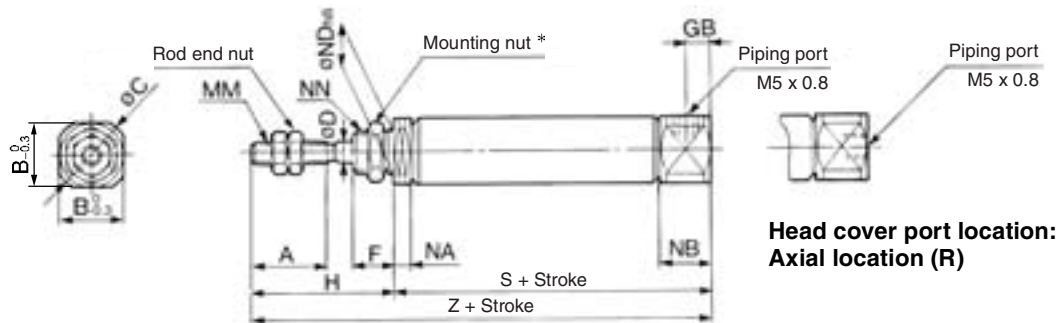
No.	Description	Material	Note
1	Rod cover	Aluminum alloy	Anodized
2	Head cover	Aluminum alloy	Anodized
3	Cylinder tube	Stainless steel	
4	Piston rod	Stainless steel	
5	Piston A	Brass	ø6
		Aluminum alloy	ø10, 16 chromated
6	Piston B	Brass	ø6
		Aluminum alloy	ø10, 16 chromated
7	Return spring	Piano wire	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	

Series CJ2

Single Acting, Spring Return: Basic Style (B)

CJ2B **Bore size** **Stroke** S **Head cover port location**



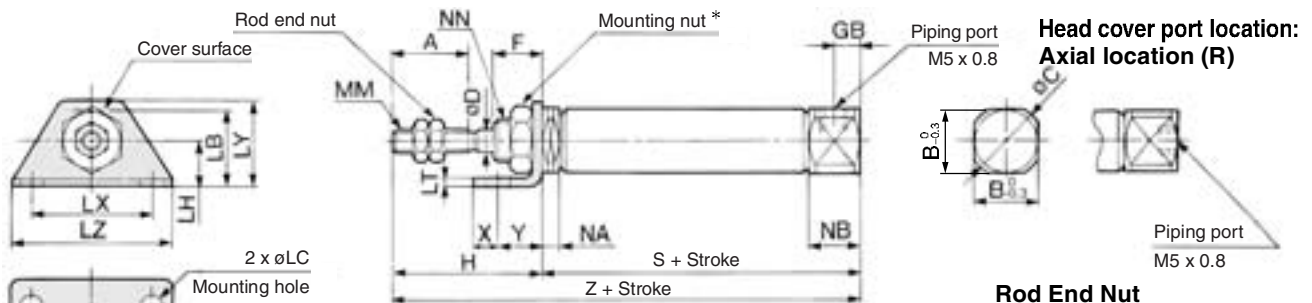
* For details of the mounting nut, refer to page 51.

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**



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

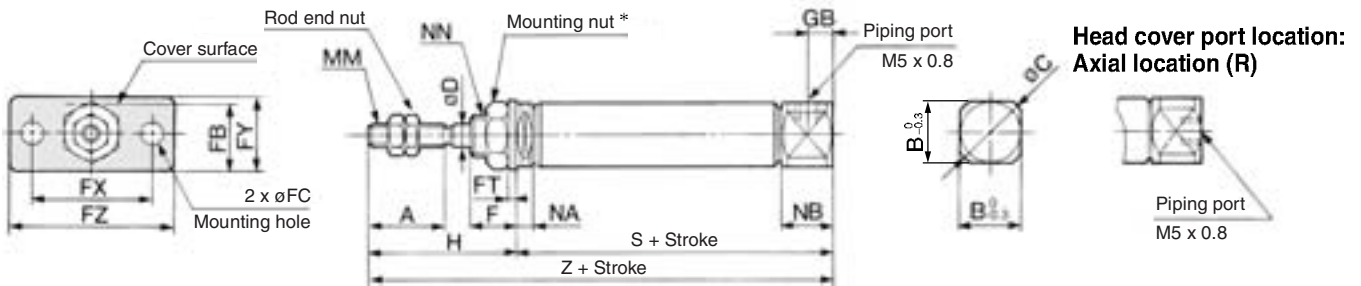
* For details of the mounting nut, refer to page 51.

Bore size (mm)	A	B	C	D	F	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



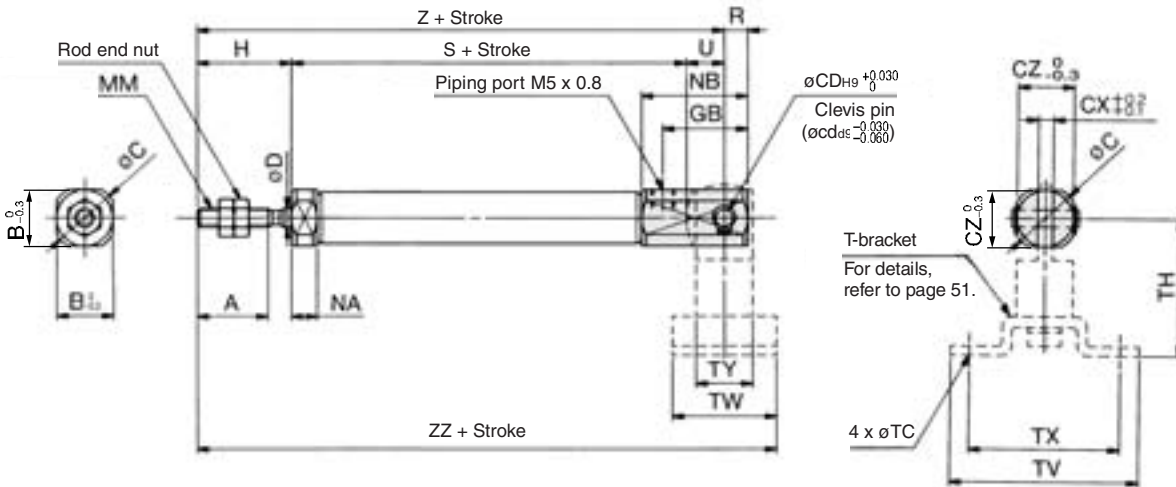
* For details of the mounting nut, refer to page 51.

Bore size (mm)	S*														Z*																		
	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GB	H	MM	NA	NB	NN	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	11	4.5	1.6	24	14	32	-	28	M3 x 0.5	3	7	M6 x 1.0	34.5	43.5	47.5	61.5	-	-	-	-	62.5	71.5	75.5	89.5	-	-	-	-
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

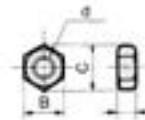
* () in S and Z dimensions: With auto switch

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

CJ2D Bore size Stroke **S**



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

* Clevis pin and retaining ring are shipped together.

Bore size (mm)	S														Z															
	A	B	C	CD (cd)	CX	CZ	D	GB	H	MM	NA	NB	R	U	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
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	73.5	84	96	108	114	138	156	168

T-bracket Dimensions

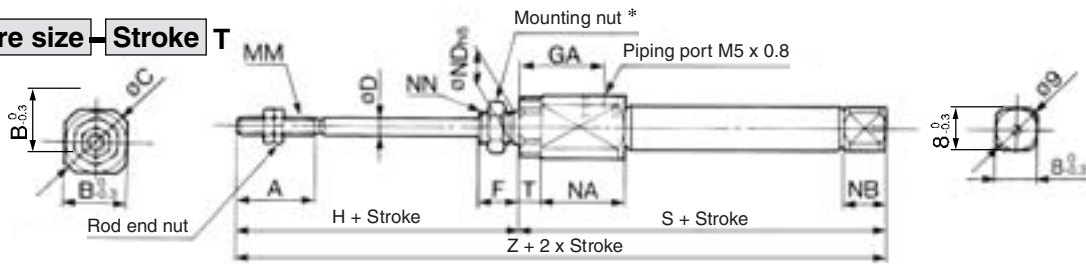
Bore size (mm)	ZZ								T-bracket Dimensions					
	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	TC	TH	TV	TW	TX	TY
10	84.5	92	104	116	-	-	-	-	4.5	29	40	22	32	12
16	89.5	98	110	122	128	152	170	182	5.5	35	48	28	38	16

Series CJ2

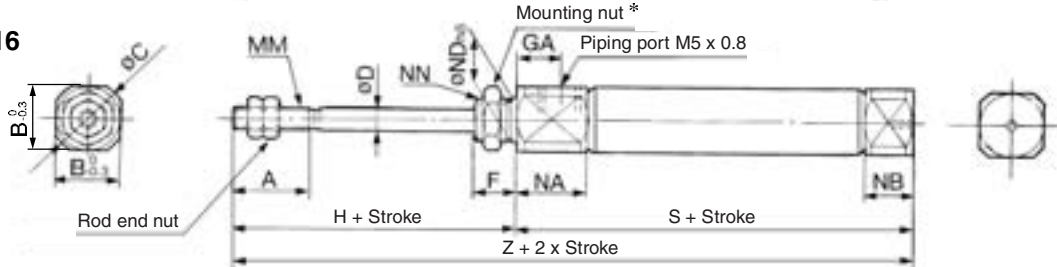
Single Acting, Spring Extend: Basic Style (B)

CJ2B Bore size Stroke T

CJ2B6



CJ2B10, 16



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

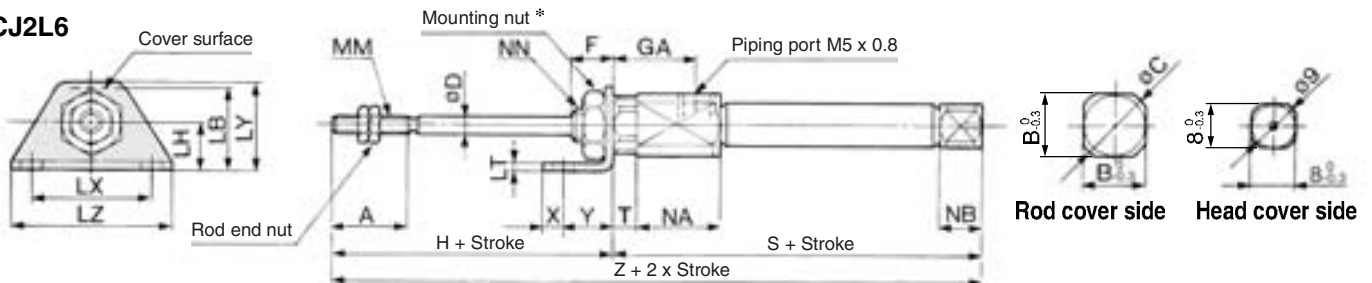
Bore size (mm)	A	B	C	D	F	GA	H	MM	NN	NA	NB	ND	h8	T	S*								Z*							
															5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
6	15	12	14	3	8	14.5	28	M3 x 0.5	M6 x 1.0	16	3	6 ^{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 ^{0.022}	-	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 ^{0.022}	-	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

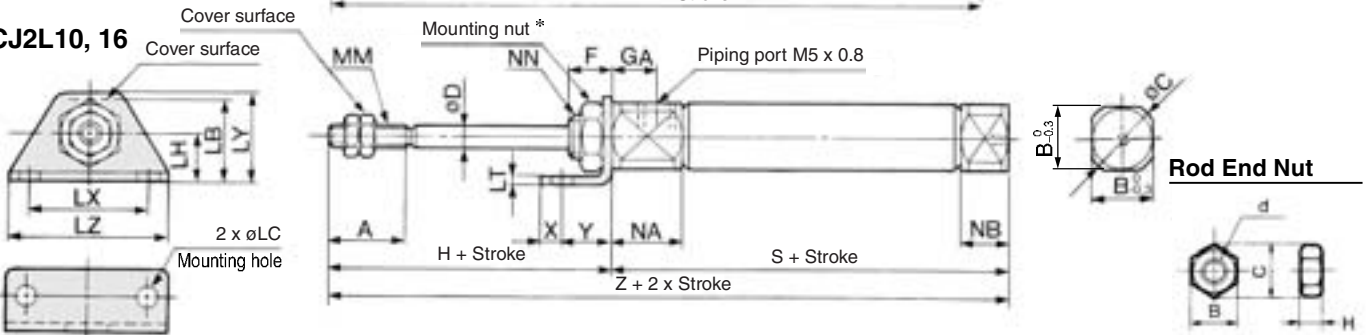
Single Acting, Spring Extend: Axial Foot Style (L)

CJ2L Bore size Stroke T

CJ2L6



CJ2L10, 16



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

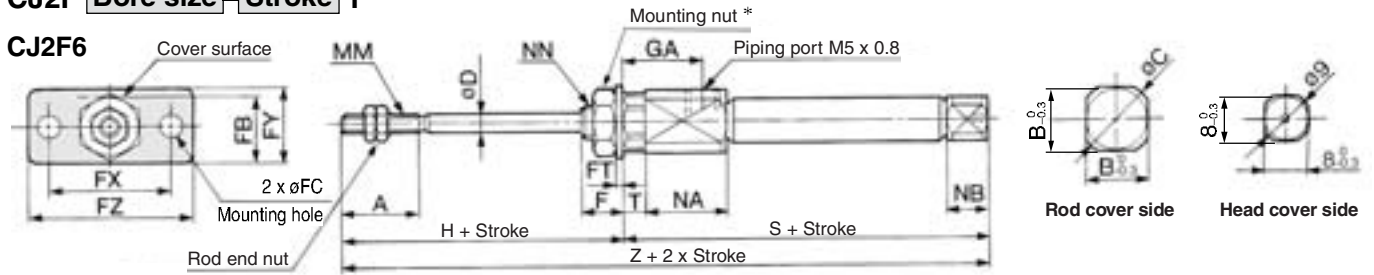
Bore size (mm)	A	B	C	D	F	GA	H	LB	LC	LH	LT	LX	LY	LZ	MM	N	NB	NN	T	X	Y	S*								Z*							
																						5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
6	15	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

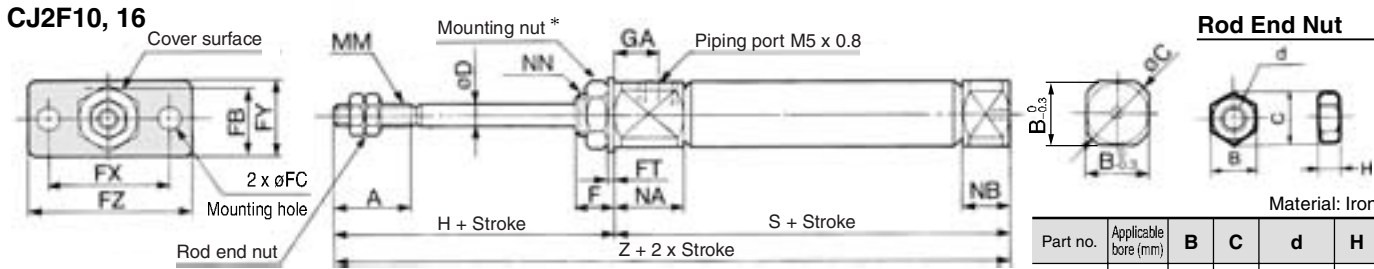
Single Acting, Spring Extend: Rod Side Flange Style (F)

CJ2F Bore size — Stroke T

CJ2F6



CJ2F10, 16



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

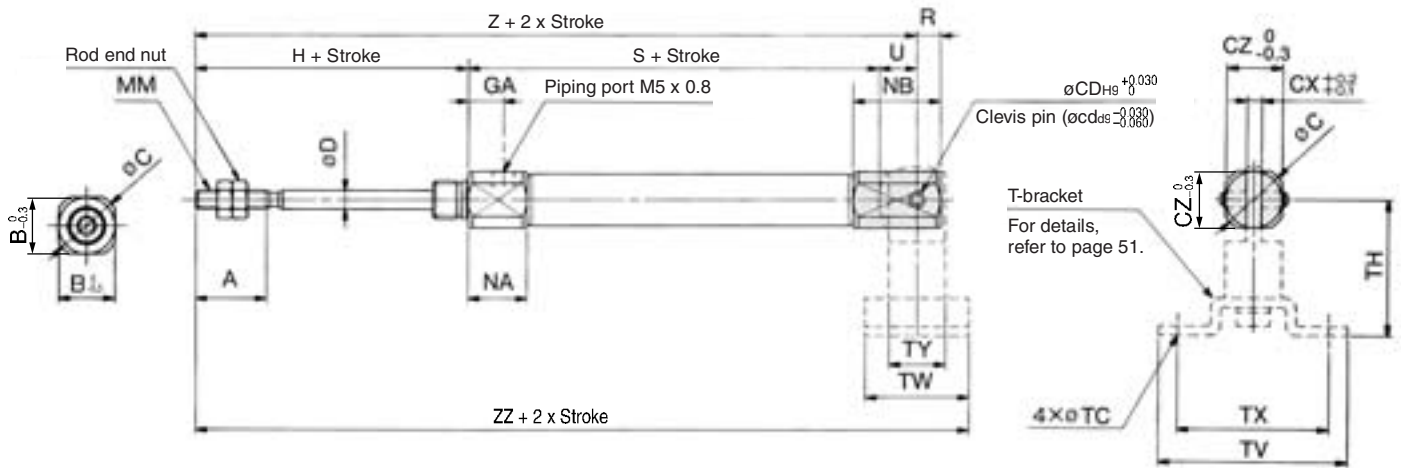
* For details of the mounting nut, refer to page 51.

Bore size (mm)	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GA	H	MM	NA	NB	NN	T	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	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	55.5	59.5	73.5	-	-	-	-	74.5	83.5	87.5	101.5	-	-	-	-
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.

Bore size (mm)	A	B	C	CD (cd)	CX	CZ	D	GA	H	MM	NA	NB	R	U	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
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