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-free	Bore size (mm)	Page
Standard *Series CJ2*	Double acting	Single rod	●	●	●	●	●	6, 10, 16	6-3-2
		Double rod	●	●	●	●	●	6, 10, 16	6-3-14
	Single acting	Single rod, Spring return/ Spring extend	●	●			●	6, 10, 16	6-3-22
Non-rotating Rod *Series CJ2K*	Double acting	Single rod	●	●			●	10, 16	6-3-33
	Single acting	Single rod, (Spring return/ Spring extend)	●	●			●	10, 16	6-3-38
Built-in Speed Controller *Series CJ2Z*	Double acting	Single rod	●	●			●	10, 16	6-3-45
		Double rod	●	●			●	10, 16	6-3-50
Low Friction *Series CJ2Q*	Double acting	Single rod	●	●			●	10, 16	6-3-55
Direct Mount *Series CJ2R*	Double acting	Single rod	●	●		●	●	10, 16	6-3-59
	Single acting	Single rod, (Spring return/ Spring extend)	●	●			●	10, 16	6-3-64
Direct Mount, Non-Rotating Rod *Series CJ2RK*	Double acting	Single rod	●	●			●	10, 16	6-3-68
	Single acting	Single rod, (Spring return/ Spring extend)	●	●			●	10, 16	6-3-72
With end lock *Series CBJ2*	Double acting	Single rod	●	●				16	6-3-77

Type	Band mounting style	Rail mounting style
Reed switch	D-C7□/C80, D-C73C/C80C	D-A7□/A80, D-A7□H/A80H, D-A73C/A80C, D-A79W
Solid state switch	D-H7□, D-H7C, D-H7□W, D-H7BAL, D-H7NF	D-F7□/J79, D-F7□V, D-J79C, D-F7□W/J79W, D-F7□WV, D-F7BAL, D-F79F, D-F7NTL, D-F7BAVL

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

Standard stroke (mm)

ø6	15, 30, 45, 60
ø10	15, 30, 45, 60, 75, 100, 125, 150
ø16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200

∗ Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.
∗ When auto switch is mounted, refer to "Minimum Stroke for Auto Switch Mounting" on page 6-3-3.

Mounting style

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

Cushion

Nil	Rubber bumper
A	Air cushion (Except ø6)

Without auto switch CJ2 **L** **16** — **60** **A** **R**

With auto switch CDJ2 **L** **16** — **60** **A** **R** — **J79W** **□**

Built-in magnet

Band mounting style

Rail mounting style

Port location on head cover

Bore size (mm) / Symbol	6	10, 16
Nil	—	Perpendicular to axis
R	Axial foot style	Axial foot style

∗ For configuration, refer to page 6-3-4.
∗ Double clevis style is only available for being perpendicular to axis.

Auto switch

∗ For the applicable auto switch model, refer to the table below.
∗ Auto switch for rail mounting style is shipped together, (but not assembled).

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

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.

Number of auto switches

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

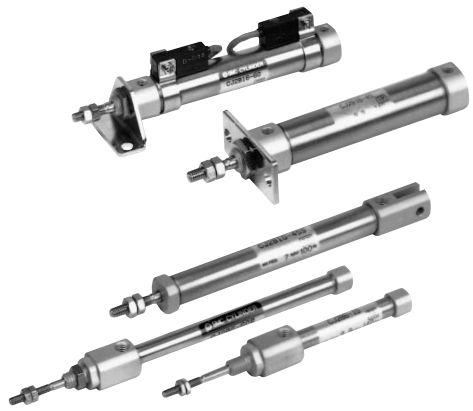
Applicable Auto Switch/Refer to page 6-16-1 for further information on auto switches.

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)	3 (L)	5 (Z)	None (N)	Pre-wire connector	Applicable load	
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**C76**	—	**A76H**	●	●	—	—	—	IC circuit	—
				2-wire	—	—	200 V	—	**A72**	**A72H**	●	●	—	—	—	—	Relay, PLC
					24 V	12 V	100 V	**C73**	**A73**	**A73H**	●	●	●	—	—		
		Connector					—	**C73C**	**A73C**	—	●	●	●	●	—		
	With diagnostic output (2-color indication)	Grommet				—	—	—	**A79W** ∗∗	—	●	●	—	—	—		
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**H7A1**	**F7NV**	**F79**	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)				**H7A2**	**F7PV**	**F7P**	●	●	○	—	○		
				2-wire		12 V		**H7B**	**F7BV**	**J79**	●	●	○	—	○	—	
		Connector						**H7C**	**J79C**	—	●	●	●	●	—		
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)		5 V, 12 V		**H7NW**	**F7NWV**	**F79W**	●	●	○	—	○	IC circuit	
				3-wire (PNP)				**H7PW**	—	**F7PW**	●	●	○	—	○		
				2-wire		12 V		**H7BW**	**F7BWV**	**J79W**	●	●	○	—	○	—	
	Water resistant (2-color indication)							**H7BA**	—	**F7BA**	—	●	○	—	○		
								—	**F7BAV**	—	—	●	○	—	—		
	With diagnostic output (2-color indication)			4-wire (NPN)		5 V, 12 V		**H7NF**	—	**F79F**	●	●	○	—	○	—	

∗ Lead wire length symbols: 0.5 m ····· Nil (Example) C73C
3 m ····· L (Example) C73CL
5 m ····· Z (Example) C73CZ
None ····· N (Example) C73CN

∗ Solid state switches marked with "○" are produced upon receipt of order.
∗∗ "D-A79W" cannot be mounted on bore size ø10 cylinder with air cushion.

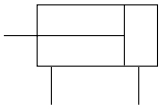
• Since there are other applicable auto switches than listed, refer to page 6-3-13 for details.
• For details about auto switches with pre-wire connector, refer to page 6-16-60.



Specifications

Action		Double acting, Single rod
Fluid		Air
Proof pressure		1.05 MPa
Maximum operating pressure		0.7 MPa
Minimum operating pressure	ø6	0.12 MPa
	ø10, ø16	0.06 MPa
Ambient and fluid temperature		Without auto switch: –10 to 70°C (No freezing) With auto switch: –10 to 60°C (No freezing)
Cushion		Rubber bumper/Air cushion
Lubrication		Not required (Non-lube)
Thread tolerance		JIS Class 2
Stroke length tolerance		$^{+1.0}_{0}$
Piston speed		50 to 750 mm/s
Allowable kinetic energy	ø6	0.012 J
	ø10	0.035 J
	ø16	0.090 J

JIS Symbol
Double acting,
Single rod



Standard Stroke

Bore size (mm)	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

∗ Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.

Made to Order Specifications (For details, refer to page 6-17-1.)

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	Fluoro rubber seals ∗ Not available with air cushion
-XC51	With hose nipple

Minimum Stroke for Auto Switch Mounting

Auto switch mounting style	Auto switch model	No. of auto switches mounted	Minimum cylinder stroke (mm)
Band mounting style (ø6, ø10, ø16)	D-C7□ D-C80	3 (Same side)	90
		3 (Different sides)	55
		2 (Same side)	50
		2 (Different sides)	15
		1	10
	D-H7□ D-H7□W D-H7BAL D-H7NF	3 (Same side)	105
		3 (Different sides)	60
		2 (Same side)	60
		2 (Different sides)	15
		1	10
	D-C73C D-C80C D-H7C	3 (Same side)	105
		3 (Different sides)	65
		2 (Same side)	65
		2 (Different sides)	15
		1	10

Auto switch mounting style	Auto switch model	No. of auto switches mounted	Minimum cylinder stroke (mm)
Rail mounting style (ø10, ø16)	D-A7□ D-A80 D-A73C D-A80C	3	35
		2	10
		1	5
	D-A7□H D-A80H	3	45
		2	10
		1	5
	D-A79W	3	40
		2	15
		1	10
	D-F7□ D-J79	3	45
		2	5
		1	5
	D-F7□V D-J79C	3	30
		2	5
		1	5
	D-F7□W D-J79W D-F7BAL D-F79F	3	55
		2	15
		1	10
	D-F7□WV D-F7BAVL	3	40
		2	15
		1	10

Mounting Style and Accessory/For details, refer to page 6-3-11.

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).

Auto Switch Mounting Bracket Part No. (Band mounting style)

Bore size (mm)	Auto switch mounting bracket no.	Note
6	BJ2-006	Common for the types of D-C7/C8 and D-H7
10	BJ2-010	
16	BJ2-016	

[Mounting screws set made of stainless steel]
The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment.
(Please order the mounting band separately, since it is not included.)

BBA4: For D-C7/C8/H7

"D-H7BAL" switch is set on the cylinder with the stainless steel screws above when shipped.
When only a switch is shipped independently, "BBA4" screws are attached.

Theoretical Output

Refer to "Double acting cylinder" in Theoretical Output Table 1 of Technical data 3 on page 6-19-1.

Port Location on Head Cover

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**

Weight

(g)

Bore size (mm)		6	10	16
Basic weight *		15	24	55
Additional weight per each 15 mm of stroke		2	4	6.5
Mounting bracket weight	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 weight.
** Mounting nut is not attached to the double clevis style, so the mounting nut weight is already subtracted.

Calculation: (Example) CJ2L10-45
- Basic weight ····· 24 (ø10)
- Additional weight ····· 4/15 stroke
- Cylinder stroke ····· 45 stroke
- Mounting bracket weight ·· 8 (Axial foot style)

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

⚠ Precautions

Be sure to read before handling. Refer to pages 6-20-3 to 6-20-6 for Safety Instructions and Actuator 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 snap ring for the knuckle pin or the clevis pin, use an appropriate pair of pliers (tool for installing a type C snap ring).
   In particular, use a pair of ultra-mini pliers such as the Super Tool CSM-07A for removing and installing the snap 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.

With Air Cushion

CJ2 | Mounting style | Bore size | – Stroke | **A** | Port location on head cover

• **With air cushion**

The cushion mechanism is provided for covers in both sides to absorb the impacts when operating at a high speed.

Specifications

Action	Double acting, Single rod
Type	Non-lube
Bore size (mm)	10, 16
Maximum operating pressure	0.7 MPa
Minimum operating pressure	0.1 MPa
Piston speed	50 to 1000 mm/s
Mounting	Basic style, Axial foot style, Rod side flange style, Double clevis style

Cushion Mechanism

Bore size (mm)	Effective cushioning length (mm)	Kinetic energy absorbable (J)
10	9.4	0.07 J
16	9.4	0.18 J

∗ For construction, refer to page 6-3-6.

Clean Series

10-CJ2 | Mounting style | Bore size | – Stroke | Port location on head cover

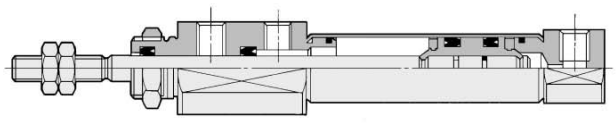
• **Clean Series**

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 6-3-3.)
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-free (For CRT manufacturing process)

20-CJ2 | Mounting style | Bore size | – Stroke | Port location on head cover

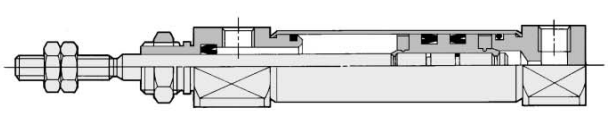
• **Copper-free**

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.

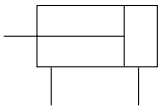
Specifications

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 6-3-3.)
Auto switch		Mountable (Band mounting style)
Mounting		Basic style, Axial foot style, Rod side flange style, Double clevis style (Except ø6)

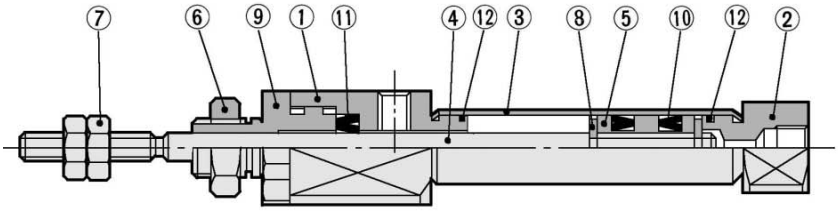
Construction

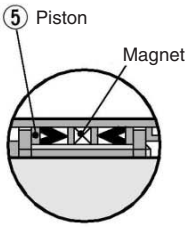


Construction (Not able to disassemble.)



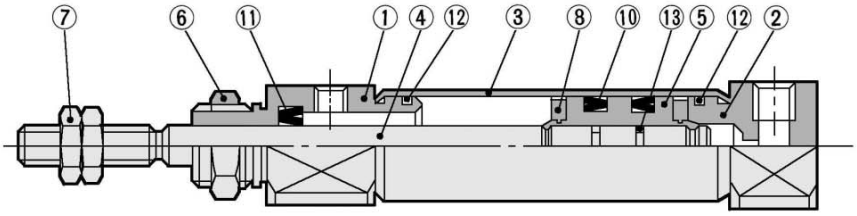
CJ2□6-R

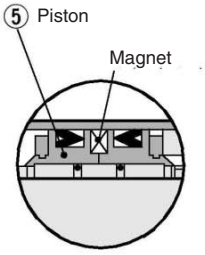




Piston construction when auto switch is mounted.

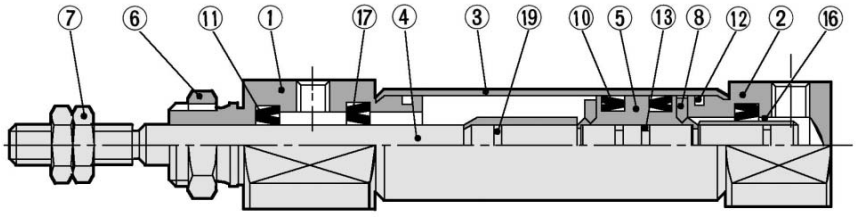
CJ2□10, CJ2□16

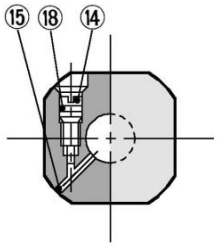




Piston construction when auto switch is mounted.

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

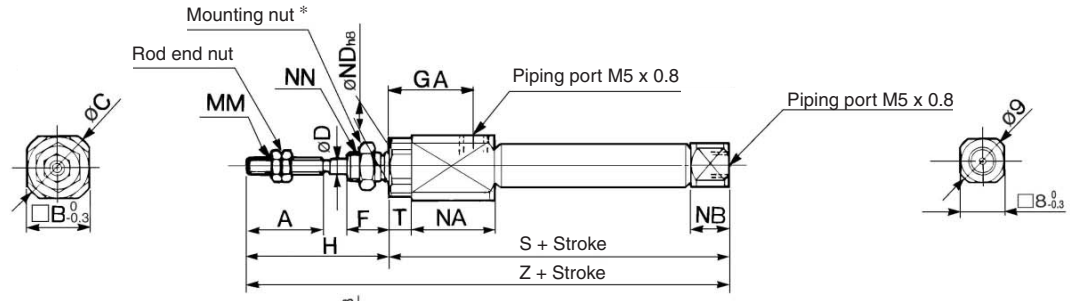
Dedicated for with Air Cushion Type

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	

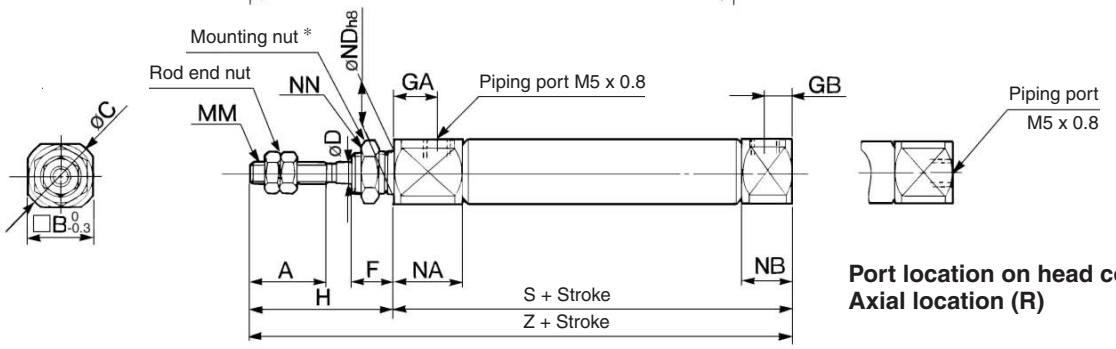
Basic Style (B)

CJ2B Bore size – Stroke Port location on head cover

CJ2B6

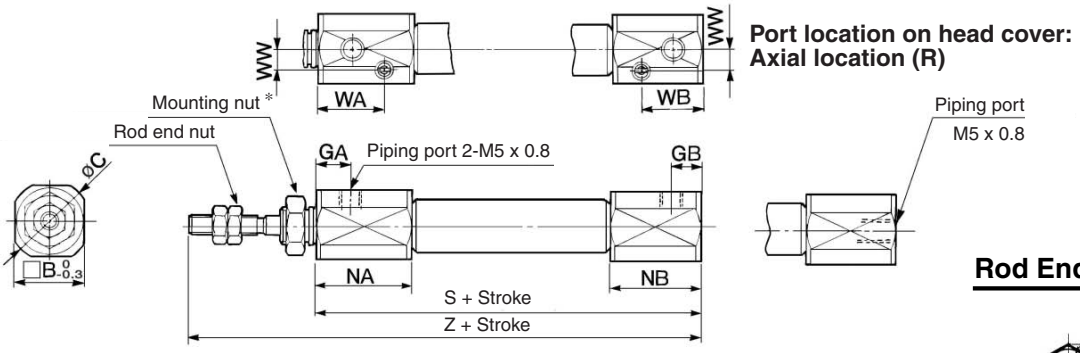


CJ2B10/16



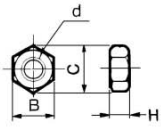
Port location on head cover: Axial location (R)

With air cushion: CJ2B Bore size – Stroke A Port location on head cover



Port location on head cover: Axial location (R)

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 6-3-11.

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

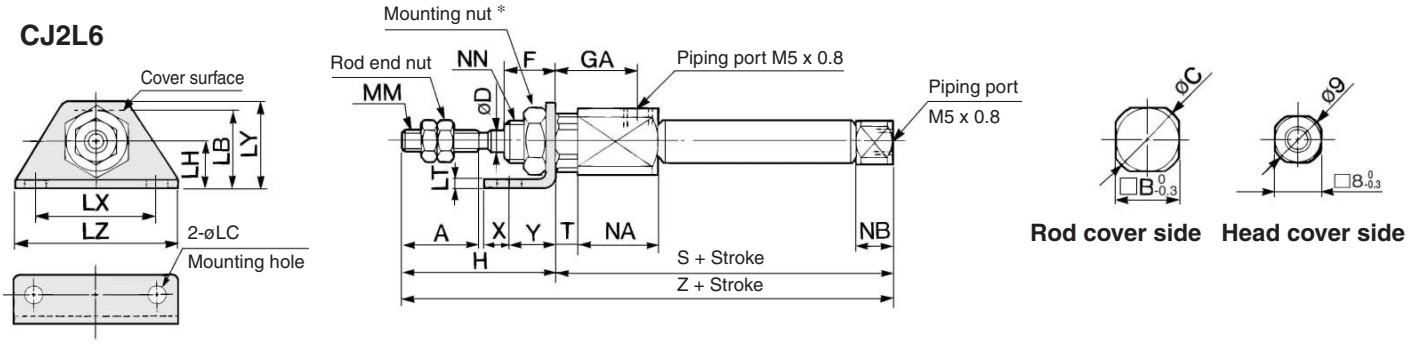
With Air Cushion/Dimensions other than the table below are the same as the table above.

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

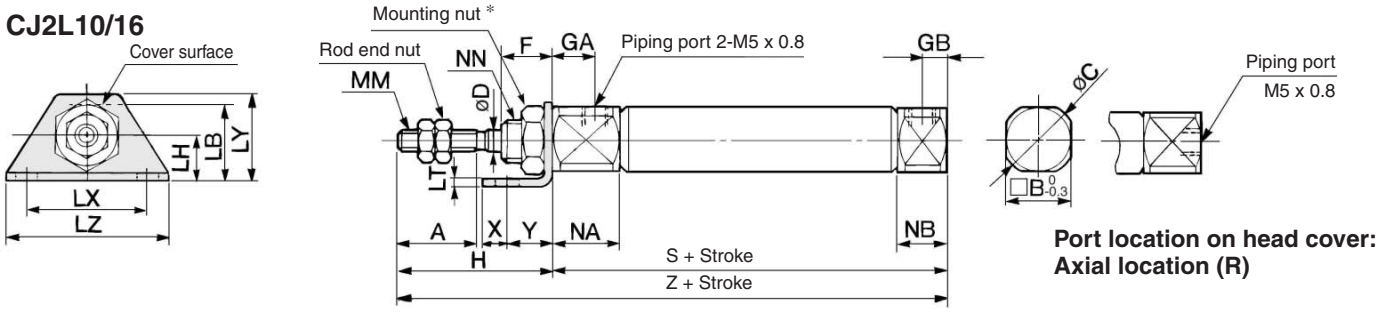
Axial Foot Style (L)

CJ2L Bore size – Stroke Port location on head cover

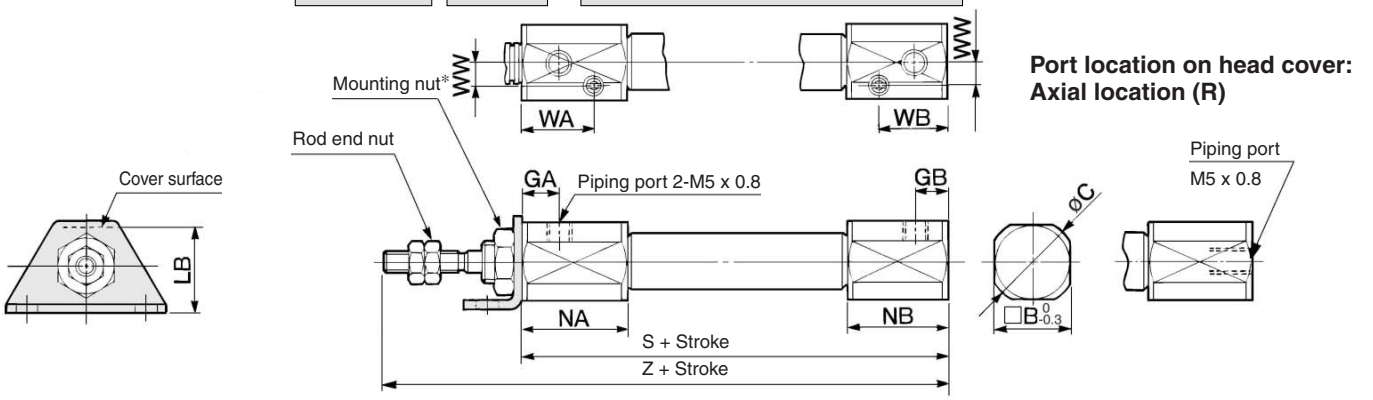
CJ2L6



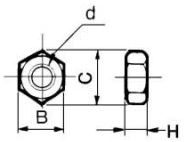
CJ2L10/16



With air cushion: CJ2L Bore size – Stroke A Port location on head cover



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 6-3-11.

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

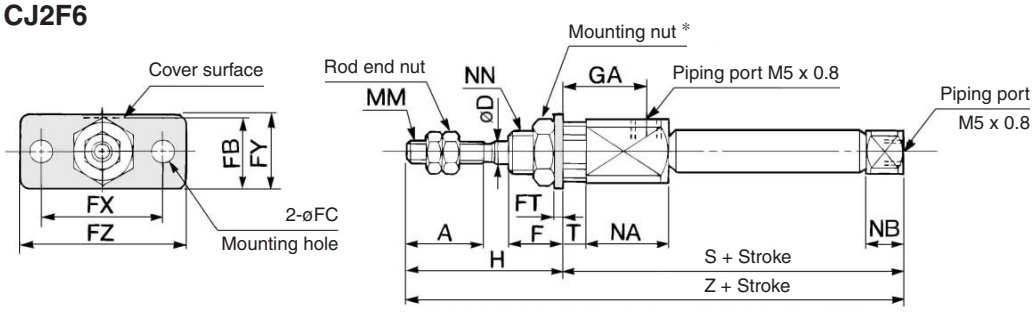
With Air Cushion/Dimensions other than the table below are the same as the table above.

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 Port location on head cover

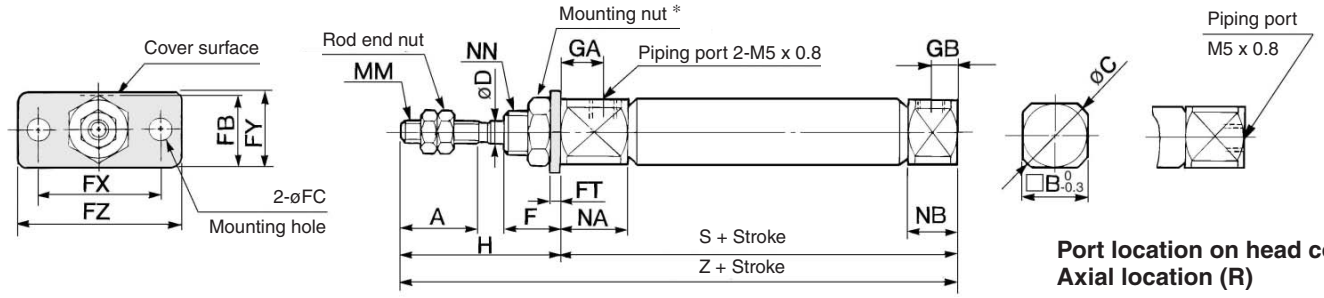
CJ2F6



Rod cover side

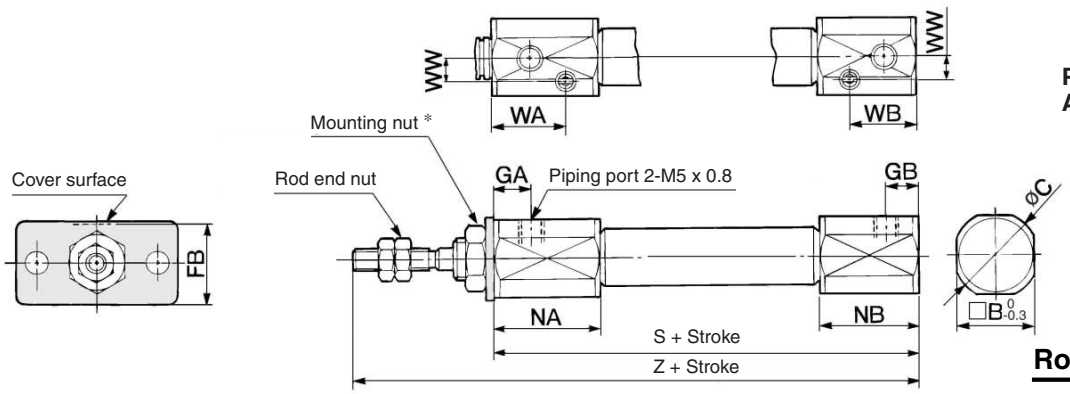
Head cover side

CJ2F10/16



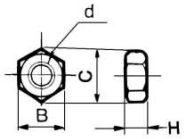
Port location on head cover: Axial location (R)

With air cushion: CJ2F Bore size – Stroke A Port location on head cover



Port location on head cover: Axial location (R)

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 6-3-11.

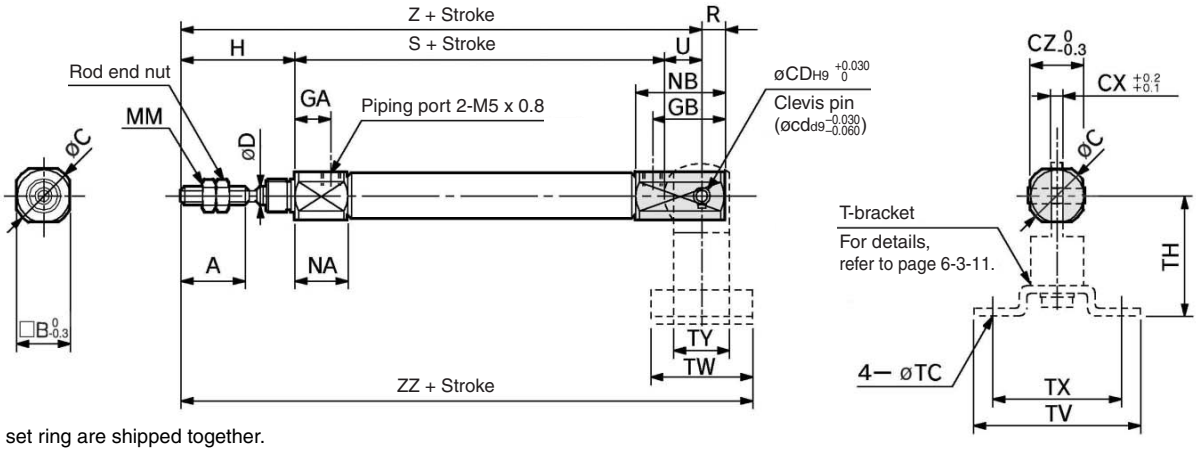
Bore size (mm)	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GA	GB	H	MM	NA	NB	NN	S	T	Z
6	15	12	14	3	8	13	4.5	1.6	24	14	32	14.5	—	28	M3 x 0.5	16	7	M6 x 1.0	49	3	77
10	15	12	14	4	8	13	4.5	1.6	24	14	32	8	5	28	M4 x 0.7	12.5	9.5	M8 x 1.0	46	—	74
16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	8	5	28	M5 x 0.8	12.5	9.5	M10 x 1.0	47	—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

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

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

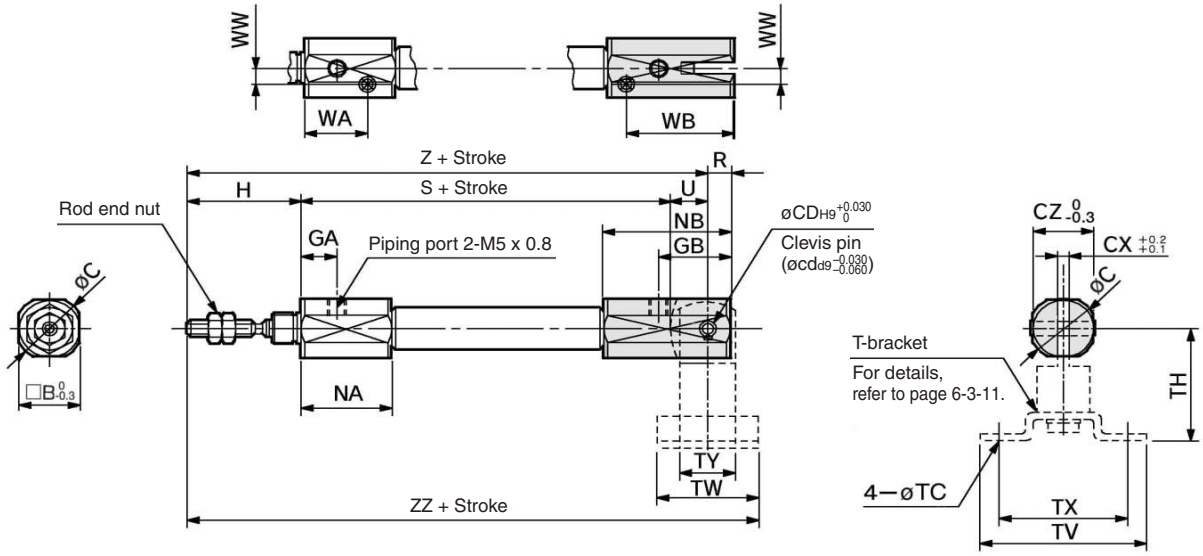
Double Clevis Style (D)

CJ2D Bore size – Stroke



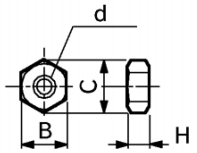
∗ Clevis pin and set ring are shipped together.

With air cushion: CJ2D Bore size – Stroke A



∗ Clevis pin and set 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

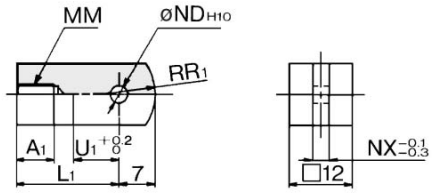
Bore size (mm)	TC	TH	TV	TW	TX	TY
10	4.5	29	40	22	32	12
16	5.5	35	48	28	38	16

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

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

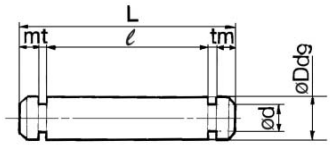
Single Knuckle Joint



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	5.3 +0.048 0	6.4	12	14

Clevis Pin

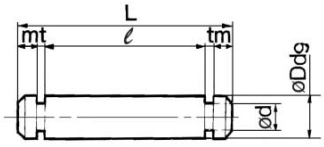


Material: Stainless steel

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**	5.3 -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.

Knuckle Pin



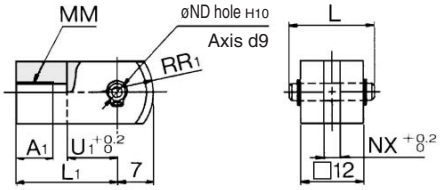
Material: Stainless steel

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**	5.3 -0.030 -0.060	4.8	16.6	12.2	1.5	0.7	Type C 5

∗ For size ø10, clevis pin is diverted.

Double Knuckle Joint

∗ Knuckle pin and set ring are shipped together.

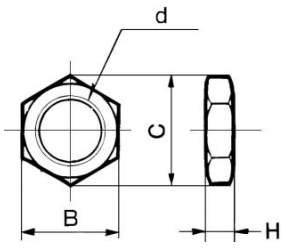


Material: Rolled steel

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	5.3 -0.030 -0.060	5.3 +0.048 0	6.5	12	10

Mounting Nut

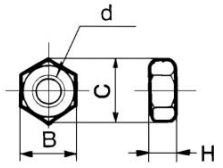


Material: Brass

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.)

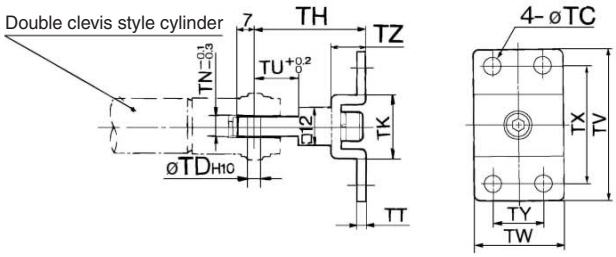
Rod End Nut



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

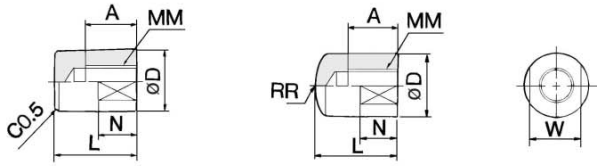
T-bracket



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

Rod End Cap

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



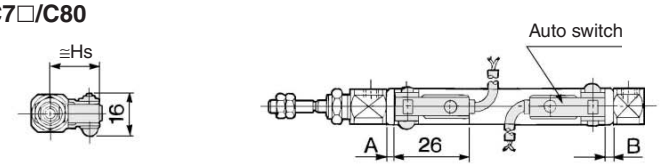
Material: Polyacetal

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

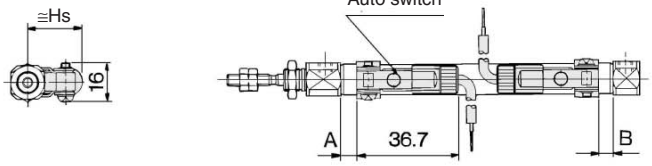
Proper Auto Switch Mounting Position (Detection at stroke end) and Its Mounting Height

Reed switch
<Band mounting style>

D-C7□/C80

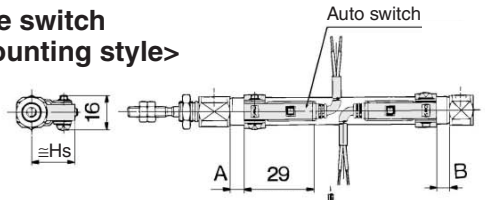


D-C73C/C80C

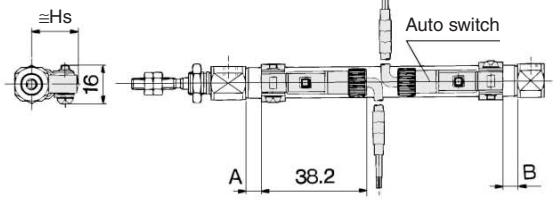


Solid state switch
<Band mounting style>

D-H7□
D-H7□W
D-H7BAL
D-H7NF

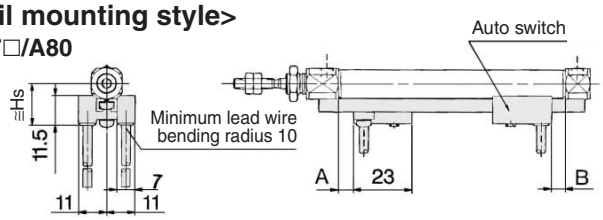


D-H7C

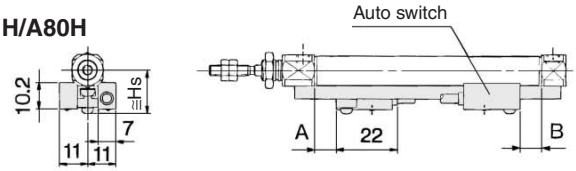


<Rail mounting style>

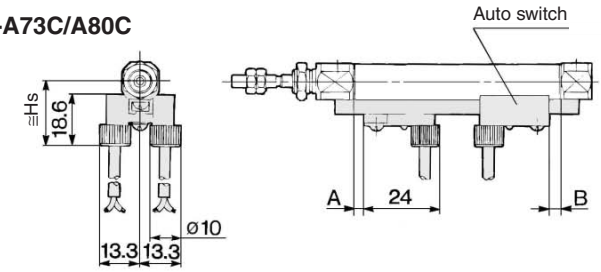
D-A7□/A80



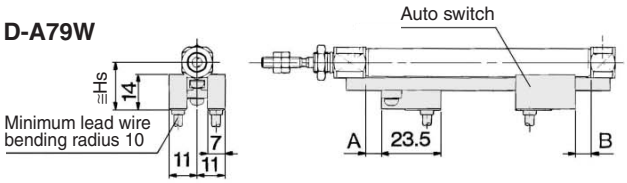
D-A7□H/A80H



D-A73C/A80C

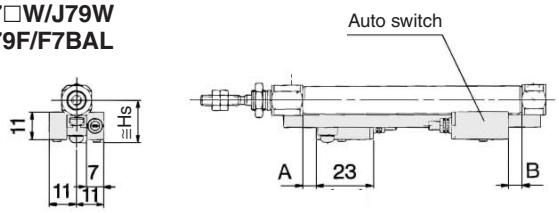


D-A79W

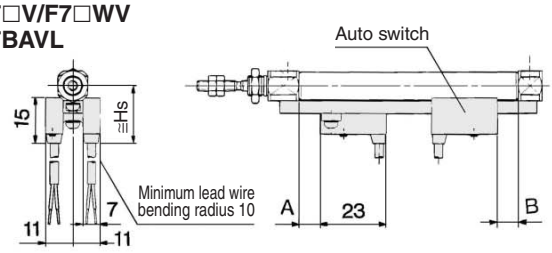


<Rail mounting style>

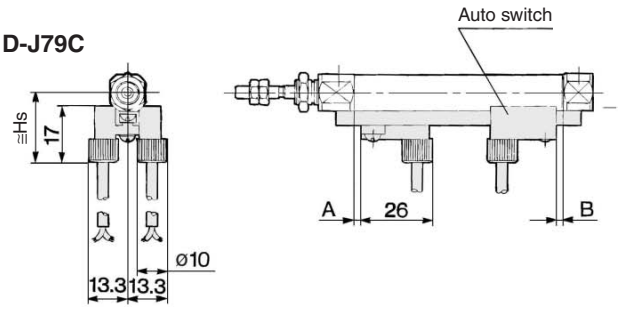
D-F7□/J79
D-F7□W/J79W
D-F79F/F7BAL



D-F7□V/F7□WV
D-F7BAVL



D-J79C



Proper Auto Switch Mounting Position

Auto switch model / Bore size (mm)	D-C7□ D-C80 D-C73C D-C80C		D-H7□ D-H7C D-H7NF D-H7□W D-H7BAL		D-A7 D-A80		D-A7□H/A80H D-A73C/A80C D-F7□/J79 D-F7□W/J79W D-F7□V/F7□WV D-F79F D-J79C D-F7BAL D-F7BAVL		D-A79W	
	A	B	A	B	A	B	A	B	A	B
6	2 (8.5)	2 (0.5)	1 (7.5)	1 (0)	—	—	—	—	—	—
10	2.5	2.5	1.5	1.5	3	3	3.5	3.5	0.5	0.5
16	3	3	2	2	3.5	3.5	4	4	1	1

∗ Figures in parentheses for bore ø6 are in the case of double rod type, (Series CJ2W).

Auto Switch Mounting Height

Auto switch model / Bore size (mm)	D-C7□/C80 D-H7□/H7□W D-H7NF D-H7BAL	D-C73C D-C80C	D-H7C	D-A7□ D-A80	D-A7□H/A80H D-F7□/J79 D-F7□W/J79W D-F7BAL/F79F	D-A73C D-A80C	D-F7□V D-F7□WV D-F7BAVL	D-J79C	D-A79W
	Hs	Hs	Hs	Hs	Hs	Hs	Hs	Hs	Hs
6	15	17.5	18	—	—	—	—	—	—
10	17	19.5	20	16.5	17.5	23.5	20	23	19
16	20.5	23	23.5	19.5	20.5	26.5	23	26	22

Operating Range

Auto switch model	Bore size (mm)		
	6	10	16
D-C7□/C80 D-C73C/C80C	6	7	7
D-A7□/A80 D-A7H/A80H D-A73C/A80C	—	8	9
D-A79W	—	11	13
D-H7□/H7□W/H7BAL	3	4	4
D-H7C	5	8	9
D-H7NF	4	5	5
D-F7□/J79 D-F7□W/J79W D-F7□V/F7□WV D-F79F D-J79C D-F7BAL/F7BAVL D-F7NTL	—	5	5

∗ Since this is a guideline including hysteresis, not meant to be guaranteed.
(Assuming approximately ±30% dispersion.)
There may be the case it will vary substantially depending on an ambient environment.

Other than the applicable auto switches listed in “How to Order”, the following auto switches can be mounted. For detailed specifications, refer to page 6-16-1.

Type	Model	Electrical entry	Features
Reed switch	D-A80	Grommet	Without indicator light
	D-A80H		
	D-A80C	Connector	
	D-C80	Grommet	
	D-C80C	Connector	
Solid state switch	D-F7NTL	Grommet	With timer

∗ With pre-wire connector is available for D-F7NTL type, too. For details, refer to page 6-16-56.

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

Standard stroke (mm)

ø6, ø10, ø16	15, 30, 45, 60

∗ Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.
∗ When auto switch is mounted, refer to "Minimum Stroke for Auto Switch Mounting" on page 6-3-15.

Mounting style

B	Basic style
L	Foot style
F	Flange style

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.

Without auto switch CJ2W **L** **16** — **45** **A**

With auto switch CDJ2W **L** **16** — **45** **A** — **J79W** ☐

Built-in magnet

Auto switch
∗ For the applicable auto switch model, refer to the table below.
∗ Auto switch for rail mounting style is shipped together, (but not assembled).
∗ 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.

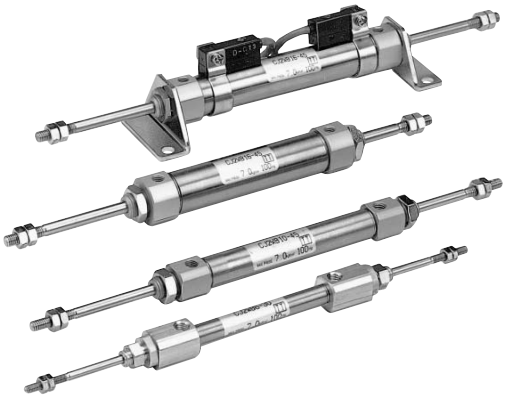
Applicable Auto Switch/Refer to page 6-16-1 for further information on auto switches.

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)	3 (L)	5 (Z)	None (N)	Pre-wire connector	Applicable load	
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	5 V	—	**C76**	—	**A76H**	●	●	—	—	—	IC circuit	—
				2-wire	—	200 V	—	**A72**	**A72H**	●	●	—	—	—	—	Relay, PLC
					24 V	12 V	100 V	**C73**	**A73**	**A73H**	●	●	●	—	—	
		Connector					—	**C73C**	**A73C**	—	●	●	●	●	—	
	With diagnostic output (2-color indication)	Grommet				—	—	—	**A79W** ∗∗	—	●	●	—	—	—	
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**H7A1**	**F7NV**	**F79**	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)				**H7A2**	**F7PV**	**F7P**	●	●	○	—	○	
				2-wire		12 V		**H7B**	**F7BV**	**J79**	●	●	○	—	○	—
		Connector						**H7C**	**J79C**	—	●	●	●	●	—	
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)		5 V, 12 V		**H7NW**	**F7NWV**	**F79W**	●	●	○	—	○	IC circuit
				3-wire (PNP)				**H7PW**	—	**F7PW**	●	●	○	—	○	
				2-wire		12 V		**H7BW**	**F7BWV**	**J79W**	●	●	○	—	○	—
	Water resistant (2-color indication)							**H7BA**	—	**F7BA**	—	●	○	—	○	
								—	**F7BAV**	—	—	●	○	—	—	
	With diagnostic output (2-color indication)			4-wire (NPN)		5 V, 12 V		**H7NF** ∗∗∗	—	**F79F**	●	●	○	—	○	IC circuit

∗ Lead wire length symbols: 0.5 m ····· Nil (Example) C73C
3 m ····· L (Example) C73CL
5 m ····· Z (Example) C73CZ
None ····· N (Example) C73CN

∗ Solid state switches marked with "○" are produced upon receipt of order.
∗∗ "D-A79W" cannot be mounted on bore size ø10 cylinder with air cushion.
∗∗∗ "D-H7NF" cannot be mounted on bore size ø6 cylinder.

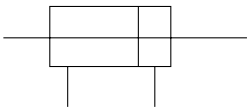
• Since there are other applicable auto switches than listed, refer to page 6-3-13 for details.
• For details about auto switches with pre-wire connector, refer to page 6-16-60.



Specifications

Action		Double acting, Double rod
Fluid		Air
Proof pressure		1.05 MPa
Maximum operating pressure		0.7 MPa
Minimum operating pressure	ø6	0.15 MPa
	ø10, ø16	0.1 MPa
Ambient and fluid temperature		Without auto switch: –10 to 70°C (No freezing) With auto switch: –10 to 60°C (No freezing)
Cushion		Rubber bumper/Air cushion
Lubrication		Not required (Non-lube)
Thread tolerance		JIS Class 2
Stroke length tolerance		$^{+1.0}_{0}$
Piston speed		50 to 750 mm/s
Allowable kinetic energy	ø6	0.012 J
	ø10	0.035 J
	ø16	0.090 J

JIS Symbol
Double acting,
Double rod



Standard Stroke

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

∗ Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.

Made to Order Specifications (For details, refer to page 6-17-1.)

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	Fluoro rubber seals ∗ Not available with air cushion
-XC51	With hose nipple

Minimum Stroke for Auto Switch Mounting

Auto switch mounting style	Auto switch model	No. of auto switches mounted	Minimum cylinder stroke (mm)
Band mounting style (ø6, ø10, ø16)	D-C7□ D-C80	3 (Same side)	90
		3 (Different sides)	55
		2 (Same side)	50
		2 (Different sides)	15
		1	10
	D-H7□ D-H7□W D-H7BAL D-H7NF	3 (Same side)	105
		3 (Different sides)	60
		2 (Same side)	60
		2 (Different sides)	15
		1	10
	D-C73C D-C80C D-H7C	3 (Same side)	105
		3 (Different sides)	65
		2 (Same side)	65
		2 (Different sides)	15
		1	10

Auto switch mounting style	Auto switch model	No. of auto switches mounted	Minimum cylinder stroke (mm)
Rail mounting style (ø10, ø16)	D-A7□ D-A80 D-A73C D-A80C	3	35
		2	10
		1	5
	D-A7□H D-A80H	3	45
		2	10
		1	5
	D-A79W	3	40
		2	15
		1	10
	D-F7□ D-J79	3	45
		2	5
		1	5
	D-F7□V D-J79C	3	30
		2	5
		1	5
	D-F7□W D-J79W D-F7BAL D-F79F	3	55
		2	15
		1	10
	D-F7□WV D-F7BAVL	3	40
		2	15
		1	10

Mounting Style and Accessory/For details, refer to page 6-3-13.

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

* Knuckle pin and snap 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

Auto Switch Mounting Bracket Part No. (Band mounting style)

Bore size (mm)	Auto switch mounting bracket no.	Note
6	BJ2-006	Common for the types of D-C7/C8 and D-H7
10	BJ2-010	
16	BJ2-016	

[Mounting screws set made of stainless steel]
The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment.
(Please order the mounting band separately, since it is not included.)

BBA4: For D-C7/C8/H7

"D-H7BAL" switch is set on the cylinder with the stainless steel screws above when shipped.
When only a switch is shipped independently, "BBA4" screws are attached.

Weight (g)

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

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

Calculation: (Example)
CJ2WL10-45
- Basic weight ····· 35 (ø10)
- Additional weight ····· 6/15 stroke
- Cylinder stroke ····· 45 stroke
- Mounting bracket weight····· 16 (Foot style)

35 + 6/15 x 45 + 16 = 69 g

Theoretical Output

Refer to "Double acting cylinder" in Theoretical Output 1 of Technical data 3 on page 6-19-1.
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 pages 6-20-3 to 6-20-6 for Safety Instructions and Actuator 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 snap ring for the knuckle pin or the clevis pin, use an appropriate pair of pliers (tool for installing a type C snap ring).
In particular, use a pair of ultra-mini pliers such as the Super Tool CSM-07A for removing and installing the snap 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.

Clean Series

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

• **Clean Series**

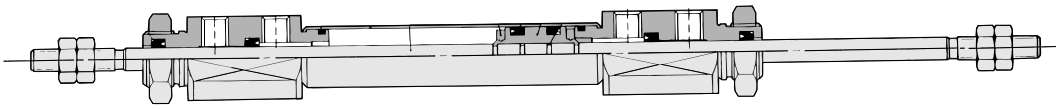
Air cylinder which is applicable for the system which discharges leakage from the rod section directly into the outside of clean room by relief port and making an actuator's rod section having a double seal construction.

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 6-3-15.)
Auto switch	Mountable (Band mounting style)
Mounting	Basic style, Foot style, Flange style

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

Construction



With Air Cushion

CJ2W | **Mounting style** | **Bore size** | **–** | **Stroke** | **A**

Air cushion •

The cushion mechanism is provided for covers in both sides to absorb the impacts when operating at a high speed.

Specifications

Action	Double acting, Double rod
Type	Non-lube
Bore size (mm)	10, 16
Maximum operating pressure	0.7 MPa
Minimum operating pressure	0.1 MPa
Piston speed	50 to 1000 mm/s
Mounting	Basic style, Axial foot style, Flange style

Cushion Mechanism

Bore size (mm)	Effective cushioning length (mm)	Kinetic energy absorbable (J)
10	9.4	0.07 J
16	9.4	0.18 J

∗ For construction, refer to page 6-3-6.

Copper-free (For CRT manufacturing process)

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

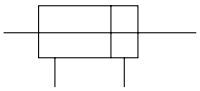
• **Copper-free**

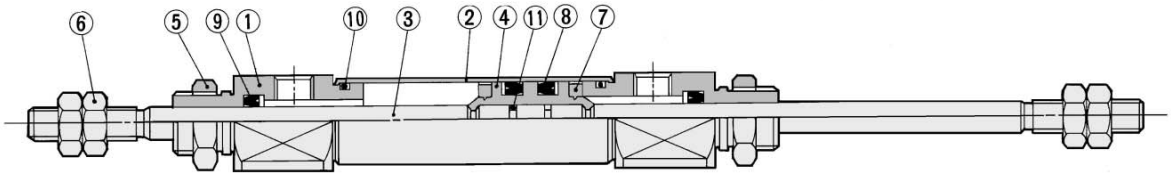
Eliminates the effects by copper based ions and fluorine based resins, etc. over the color cathode ray tube.
Making copper based materials into electroless nickel plated treatment or changing them to the non-copper materials in order to prevent copper ions from generating.

Specifications

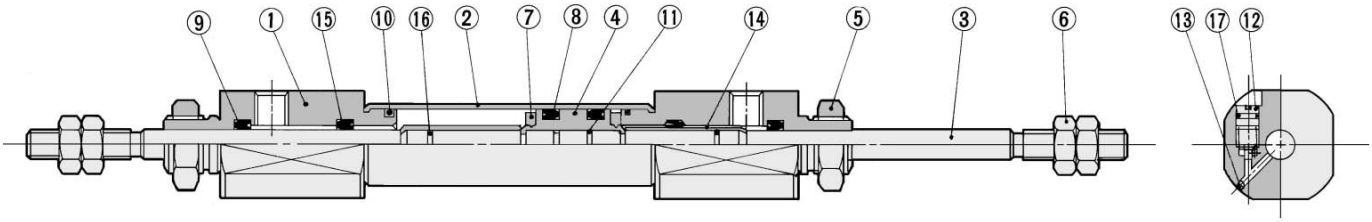
Action		Double acting, Double rod
Bore size (mm)		6, 10, 16
Maximum operating pressure		0.7 MPa
Minimum operating pressure	ø6	0.15 MPa
	ø10, ø16	0.1 MPa
Cushion		Rubber bumper
Standard stroke (mm)		15, 30, 45, 60 mm
Auto switch		Mountable (Band mounting style)
Mounting		Basic style, Foot style, Flange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

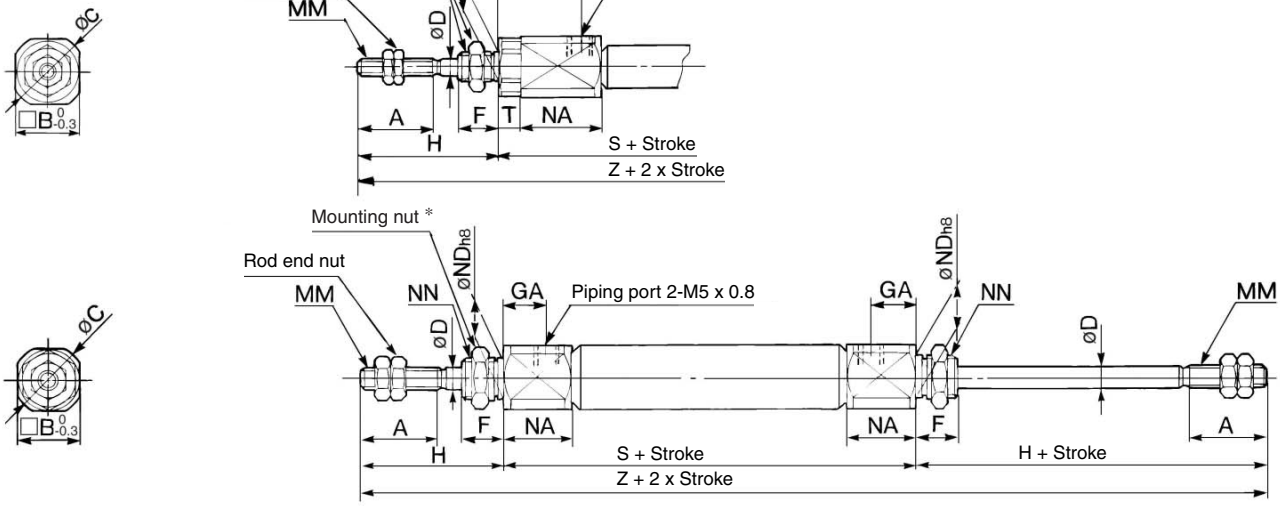
Dedicated for with Air Cushion Type

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	

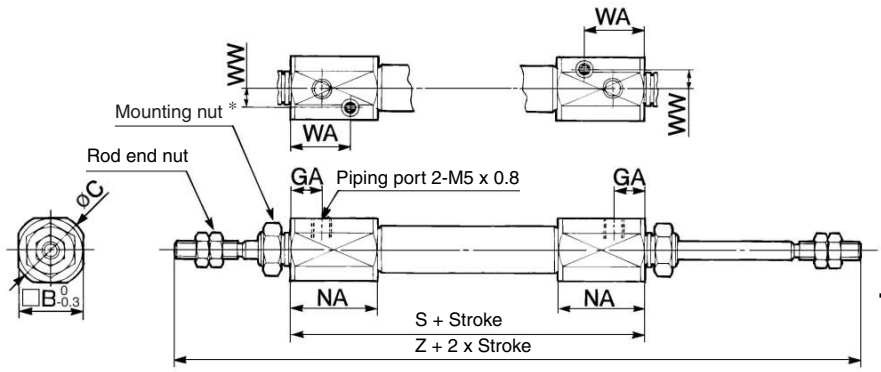
Basic Style (B)

CJ2WB Bore size – Stroke

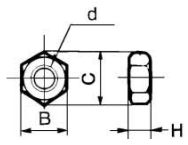
CJ2WB6
Rod cover



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 6-3-11.

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

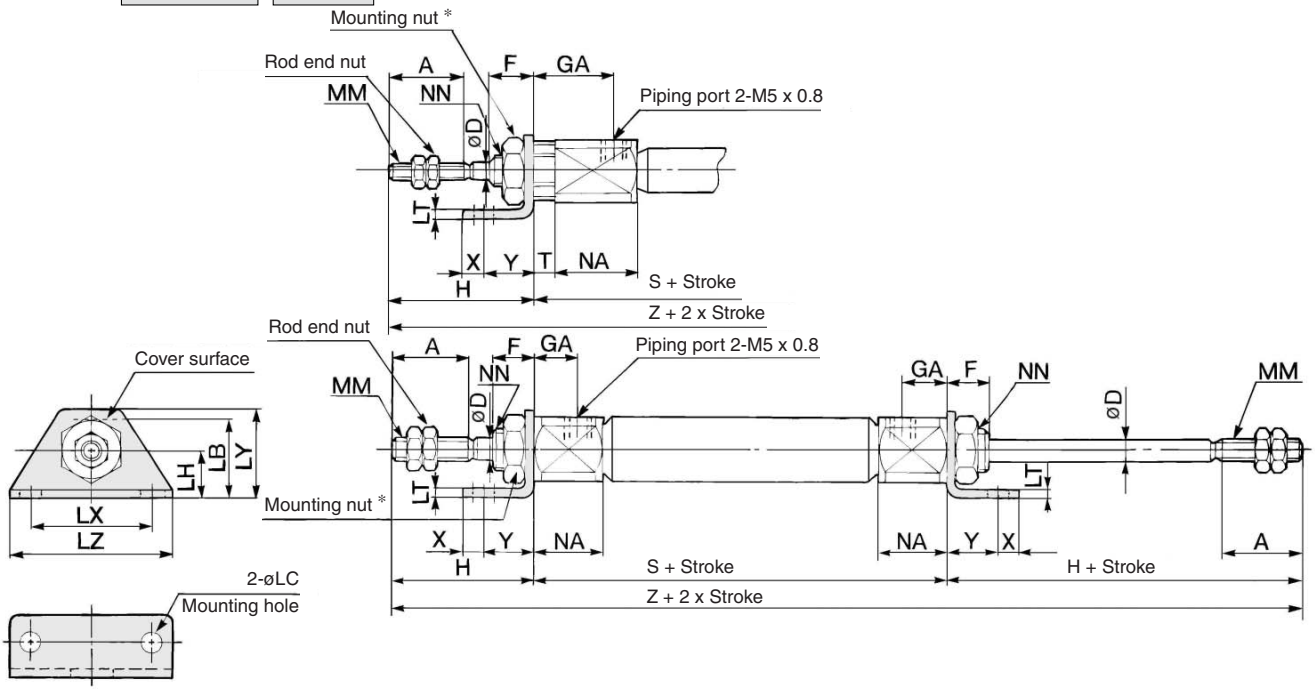
With Air Cushion/Dimensions other than the table below are the same as the table above.

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

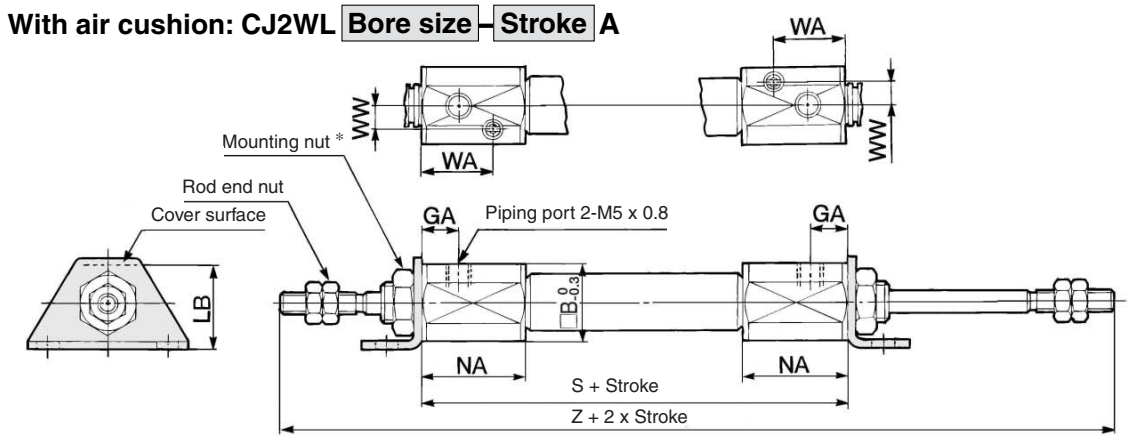
Bore size (mm)	B	C	GA	NA	WA	WW	S	Z
10	15	17	7.5	21	14.5	4.5	66	122
16	18.3	20	7.5	21	14.5	5.5	67	123

Foot Style (L)

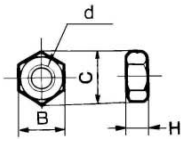
CJ2WL Bore size – Stroke



With air cushion: CJ2WL Bore size – Stroke A



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 6-3-11.

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

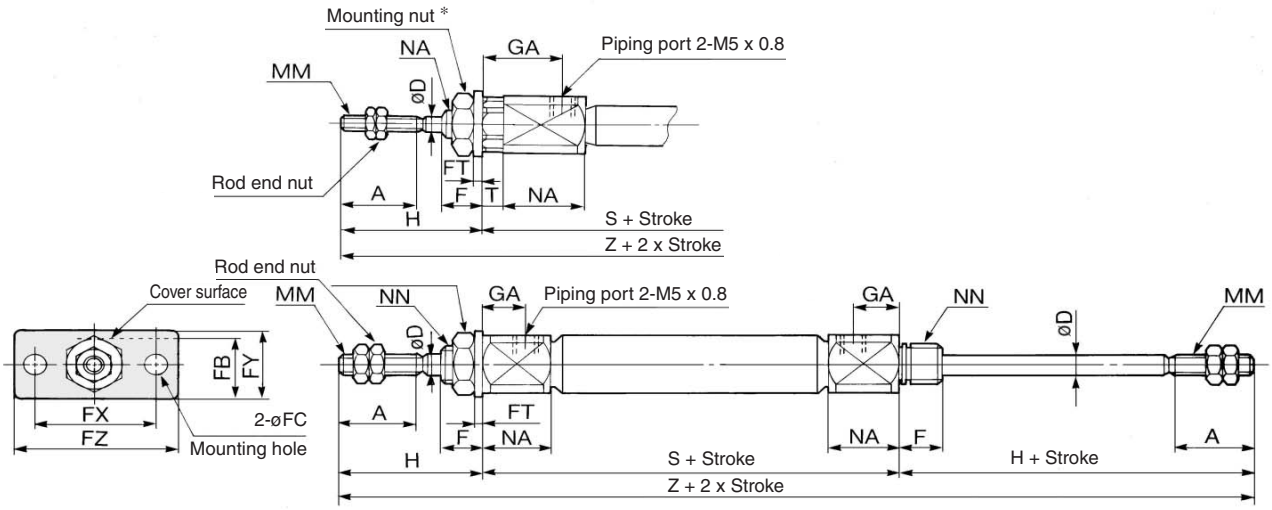
∗ ( ) in S and Z dimensions: With auto switch

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

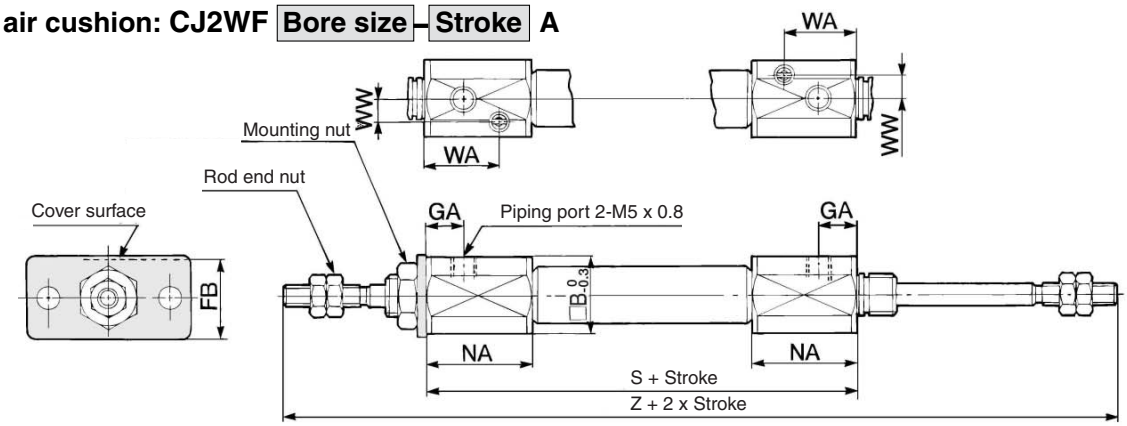
Bore size (mm)	B	GA	LB	NA	WA	WW	S	Z
10	15	7.5	16.5	21	14.5	4.5	66	122
16	18.3	7.5	23	21	14.5	5.5	67	123

Flange Style (F)

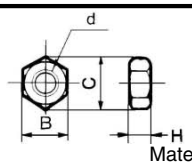
CJ2WF Bore size – Stroke



With air cushion: CJ2WF Bore size – Stroke A



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 6-3-11.

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

Spring extend

Spring return

Bore size

6	6 mm
10	10 mm
16	16 mm

Standard stroke (mm)

ø6	15, 30, 45, 60
ø10	15, 30, 45, 60
ø16	15, 30, 45, 60, 75, 100, 125, 150

∗Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.
∗When auto switch is mounted, refer to "Minimum Stroke for Auto Switch Mounting" on page 6-3-23.

Mounting style

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

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.

Without auto switch CJ2 **L** **16** **45** **S** **R**

With auto switch CDJ2 **L** **16** **45** **S** **R** **J79W** **□**

Built-in magnet

Port location on head cover

Symbol \ Bore size (mm)	6	10, 16
Nil	—	Perpendicular to axis
R	Axial foot style	Axial foot style

∗ For configuration, refer to page 6-3-4.
∗ 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.
∗ Auto switch for rail mounting style is shipped together, (but not assembled).

∗ 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.

Applicable Auto Switch/Refer to page 6-16-1 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)	3 (L)	5 (Z)	None (N)	Pre-wire connector	Applicable load	
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**C76**	—	**A76H**	●	●	—	—	—	IC circuit	—
				2-wire	—	—	200 V	—	**A72**	**A72H**	●	●	—	—	—	—	Relay, PLC
					24 V	12 V	100 V	**C73**	**A73**	**A73H**	●	●	●	—	—		
		Connector					—	**C73C**	**A73C**	—	●	●	●	●	—		
	With diagnostic output (2-color indication)	Grommet				—	—	—	**A79W**	—	●	●	—	—	—		
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**H7A1**	**F7NV**	**F79**	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)				**H7A2**	**F7PV**	**F7P**	●	●	○	—	○		
				2-wire		12 V		**H7B**	**F7BV**	**J79**	●	●	○	—	○	—	
		Connector						**H7C**	**J79C**	—	●	●	●	●	—		
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)		5 V, 12 V		**H7NW**	**F7NWV**	**F79W**	●	●	○	—	○	IC circuit	
				3-wire (PNP)				**H7PW**	—	**F7PW**	●	●	○	—	○		
				2-wire		12 V		**H7BW**	**F7BWV**	**J79W**	●	●	○	—	○	—	
	Water resistant (2-color indication)							**H7BA**	—	**F7BA**	—	●	○	—	○		
								—	**F7BAV**	—	—	●	○	—	—		
	With diagnostic output (2-color indication)			4-wire (NPN)		5 V, 12 V		**H7NF**	—	**F79F**	●	●	○	—	○	IC circuit	

∗ Lead wire length symbols: 0.5 m ····· Nil (Example) C73C
3 m ····· L (Example) C73CL
5 m ····· Z (Example) C73CZ
None ····· N (Example) C73CN

∗ Solid state switches marked with "○" are produced upon receipt of order.

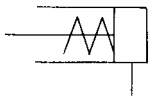
• Since there are other applicable auto switches than listed, refer to page 6-3-13 for details.
• For details about auto switches with pre-wire connector, refer to page 6-16-60.

Spring extend

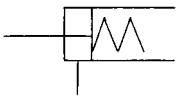
Spring return

JIS Symbol

Single acting, Spring return



Single acting, Spring extend



Specifications

Action		Single acting, Spring return	Single acting, Spring extend
Fluid		Air	
Proof pressure		1.05 MPa	
Maximum operating pressure		0.7 MPa	
Minimum operating pressure	ø6	0.2 MPa	0.25 MPa
	ø10, ø16	0.15 MPa	
Ambient and fluid temperature		Without auto switch: –10 to 70°C (No freezing) With auto switch: –10 to 60°C (No freezing)	
Cushion		Rubber bumper *	
Lubrication		Not required (Non-lube)	
Thread tolerance		JIS Class 2	
Stroke length tolerance		$^{+1.0}_{0}$	
Piston speed		50 to 750 mm/s	
Allowable kinetic energy	ø6	0.012 J	
	ø10	0.035 J	
	ø16	0.090 J	

* No freezing

Made to Order Specifications (For details, refer to page 6-17-1.)

Symbol	Specifications
-XA□	Change of rod end shape
-XC22	Fluoro rubber seals
-XC51	With hose nipple

Standard Stroke

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

* Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.

Spring Force (N)

Bore size (mm)	Retracted side	Extended side
6	3.72	1.77
10	6.86	3.53
16	14.2	6.86

Minimum Stroke for Auto Switch Mounting

Auto switch mounting style	Auto switch model	No. of auto switches mounted	Minimum cylinder stroke (mm)
Band mounting style (ø6, ø10, ø16)	D-C7□ D-C80	3 (Same side)	90
		3 (Different sides)	55
		2 (Same side)	50
		2 (Different sides)	15
		1	10
	D-H7□ D-H7□W D-H7BAL D-H7NF	3 (Same side)	105
		3 (Different sides)	60
		2 (Same side)	60
		2 (Different sides)	15
		1	10
	D-C73C D-C80C D-H7C	3 (Same side)	105
		3 (Different sides)	65
		2 (Same side)	65
		2 (Different sides)	15
		1	10

Auto switch mounting style	Auto switch model	No. of auto switches mounted	Minimum cylinder stroke (mm)
Rail mounting style (ø10, ø16)	D-A7□ D-A80 D-A73C D-A80C	3	35
		2	10
		1	5
	D-A7□H D-A80H	3	45
		2	10
		1	5
	D-A79W	3	40
		2	15
		1	10
	D-F7□ D-J79	3	45
		2	5
		1	5
	D-F7□V D-J79C	3	30
		2	5
		1	5
	D-F7□W D-J79W D-F7BAL D-F79F	3	55
		2	15
		1	10
	D-F7□WV D-F7BAVL	3	40
		2	15
		1	10

Weight/Spring Return (S)

(g)

Bore size (mm)		6	10	16
Basic weight *	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 weight	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 weight.
** Mounting nut is not attached to the double clevis style, so the mounting nut weight is already subtracted.

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

44 + 8 = 52 g

Weight/Spring Extend (T)

(g)

Bore size (mm)		6	10	16
Basic weight *	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 weight	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 weight.
** Mounting nut is not attached to the double clevis style, so the mounting nut weight is already subtracted.

Calculation: (Example) CJ2L10-45T
- Basic weight ····· 43 (ø10-45 stroke)
- Mounting bracket weight··· 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).

Auto Switch Mounting Bracket Part No. (Band mounting style)

Bore size (mm)	Auto switch mounting bracket no.	
6	BJ2-006	Common for the types of D-C7/C8 and D-H7
10	BJ2-010	
16	BJ2-016	

[Mounting screws set made of stainless steel]
The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment.
(Please order the mounting band separately, since it is not included.)

BBA4: For D-C7/C8/H7

"D-H7BAL" switch is set on the cylinder with the stainless steel screws above when shipped.
When only a switch is shipped independently, "BBA4" screws are attached.

Mounting Style and Accessory

/For details, refer to page 6-3-13.

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. For the attached bracket weight, refer to page 6-3-4.

Theoretical Output

Refer to the "Single acting, Spring return cylinder" in Theoretical Output 1 of Technical data 3 on page 6-19-7. 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.

⚠ Precautions

Be sure to read before handling. Refer to pages 6-20-3 to 6-20-6 for Safety Instructions and Actuator Precautions.

Mounting

⚠ Caution

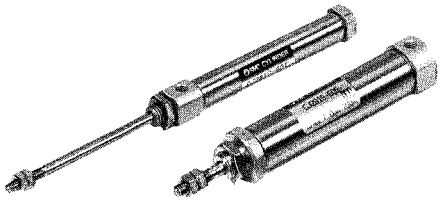
1. During installation, secure the rod cover and tighten by applying an appropriate tightening force to the retaining nut or to the rod cover body.
   If the head cover is secured or the head cover is tightened, the cover could rotate, leading to the deviation.
2. Tighten the retaining screws to an appropriate 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 snap ring for the knuckle pin or the clevis pin, use an appropriate pair of pliers (tool for installing a type C snap ring).
   In particular, use a pair of ultra-mini pliers such as the Super Tool CSM-07A for removing and installing the snap 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-free (For CRT manufacturing process)

20-CJ2 | Mounting style | Bore size | - Stroke | Action | Port location on head cover

• **Copper-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	
Minimun operating pressure	ø6	0.2 MPa	0.25 MPa
	ø10, ø16	0.15 MPa	
Cushion		Rubber bumper	
Standard stroke (mm)		Same as standard type. (Refer to page 6-3-23.)	
Auto switch		Mountable (Band mounting style)	
Mounting		Basic style, Axial foot style, Rod side flange style, Double clevis style (Except ø6)	

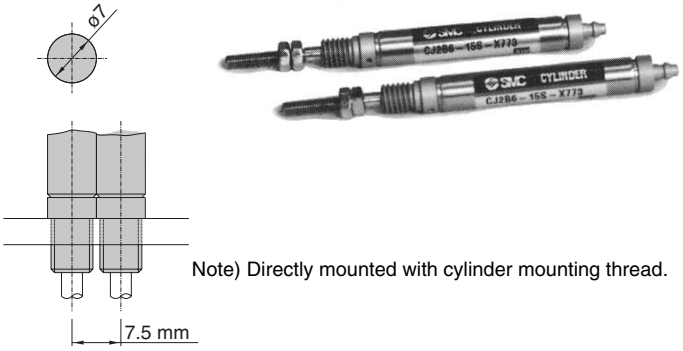
Short Pitch Mounting Style/Single Acting, Spring Return

CJ2B6 – Stroke SU4- X773

• **Short pitch mounting style**

Mounting pitch is shortened when using in parallel.

- External dimensions of rod cover and head cover is changed to ø7.
- Overall length is shorten by adopting head cover integrated with barb fitting.

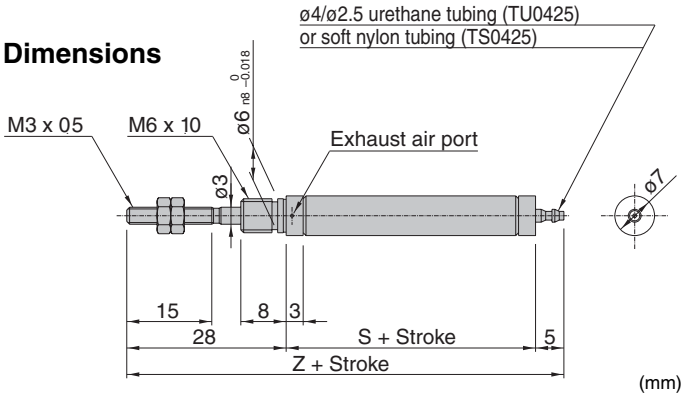


Note) Directly mounted with cylinder mounting thread.

Specifications

Bore size (mm)	6
Action	Single acting, Spring return
Operating pressure range	0.2 to 0.7 MPa
Connection size	With ø4 barb fitting (for soft tubing)
Connecting port location	Head cover/Axial foot
Stroke (mm)	5 to 60
Auto switch	None

Dimensions

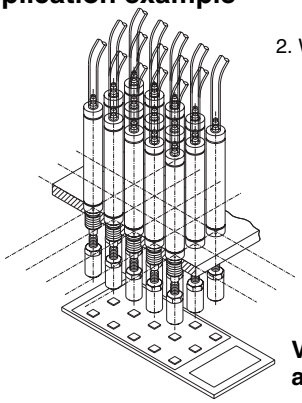


(mm)

Stroke	5 to 15	16 to 30	31 to 45	46 to 60
S	30.5	39.5	43.5	57.5
Z	63.5	72.5	76.5	90.5

Note)
1. When installing cylinder, make sure that exhaust port for air on rod cover should not be blocked.
2. When a cylinder is mounted, apply thread-locking adhesive on the threaded part and secure the external diameter of a rod cover by plier, etc. for mounting.

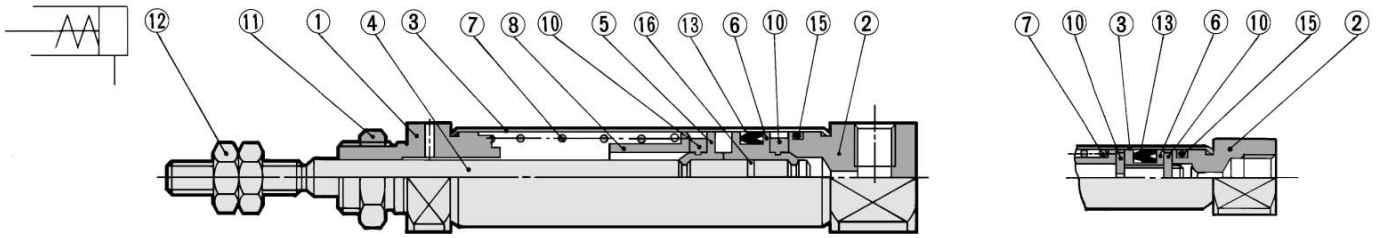
Application example



Verification of push button actuation for mobile phone, etc.

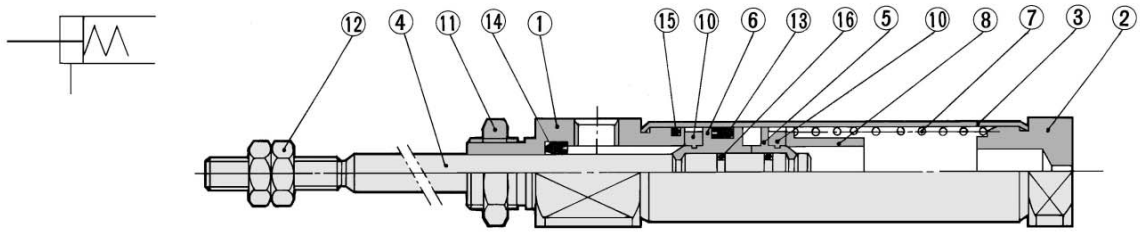
Construction (Not able to disassemble.)

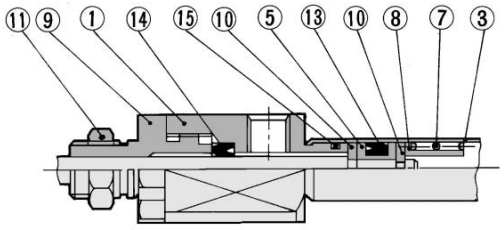
Single acting, Spring return



CJ2□6 Piston/Head cover

Single acting, Spring extend





CJ2□6 Piston/Rod cover

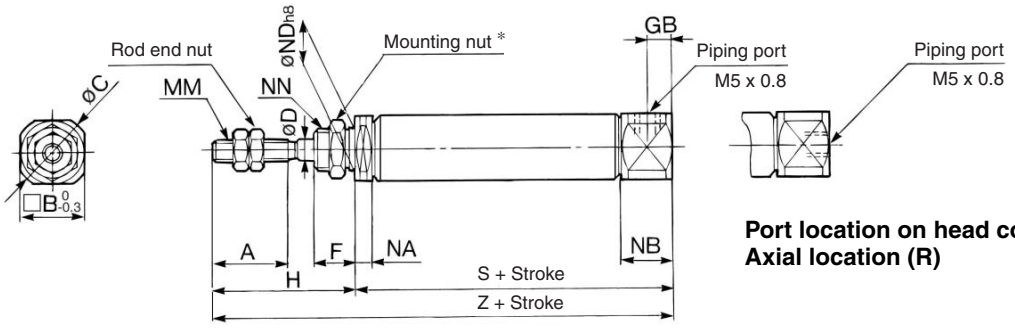
Component Parts

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 Port location on head cover



Port location on head cover: Axial location (R)

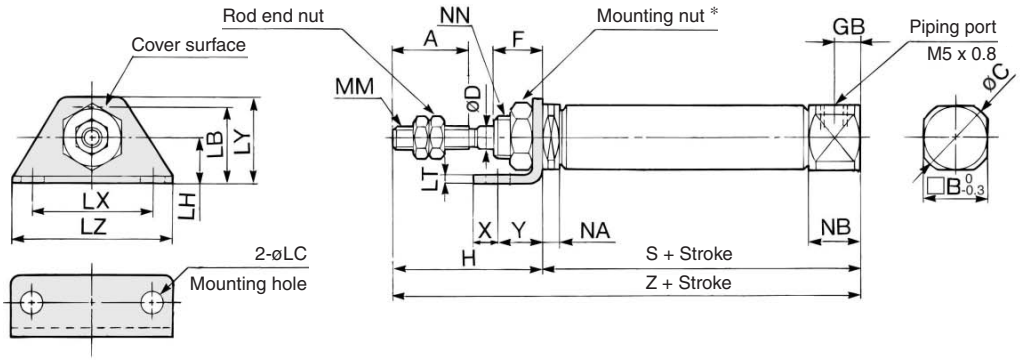
∗ For details of the mounting nut, refer to page 6-3-11.

Bore size (mm)	A	B	C	D	F	GB	H	MM	NA	NB	NDh8	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

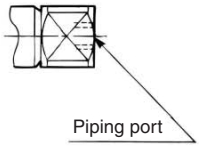
∗ ( ) in S and Z dimensions: With auto switch

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

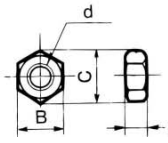
CJ2L Bore size – Stroke S Port location on head cover



Port location on head cover: Axial location (R)



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

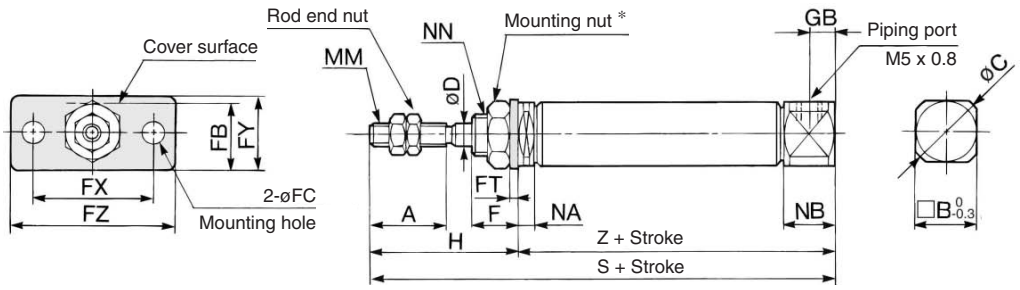
∗ For details of the mounting nut, refer to page 6-3-11.

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

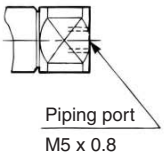
∗ ( ) in S and Z dimensions: With auto switch

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

CJ2F Bore size – Stroke S Port location on head cover



Port location on head cover: Axial location (R)



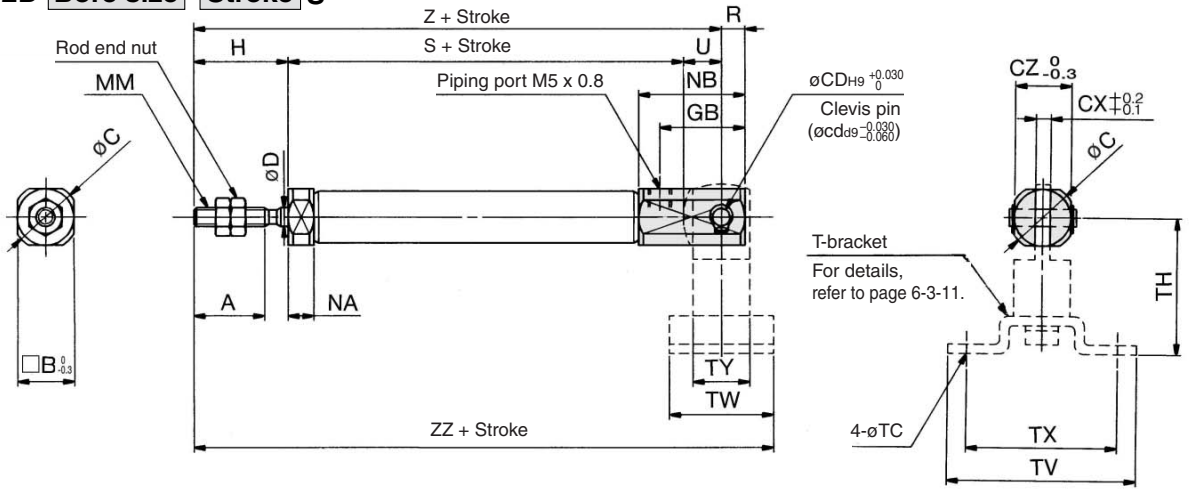
∗ For details of the mounting nut, refer to page 6-3-11.

Bore size (mm)	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GB	H	MM	NA	NB	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	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

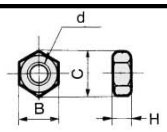
Single Acting, Spring Return: Double Clevis Style (D)

CJ2D Bore size – Stroke S



∗ Clevis pin and set 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

Bore size (mm)	A	B	C	CD (cd)	CX	CZ	D	GB	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	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

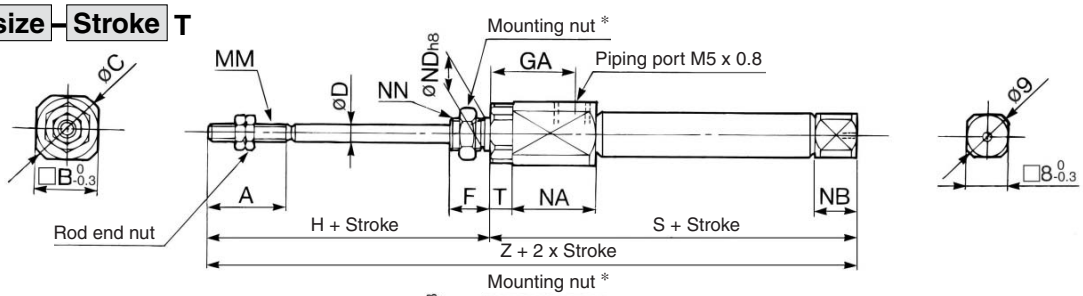
T-bracket Dimensions

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

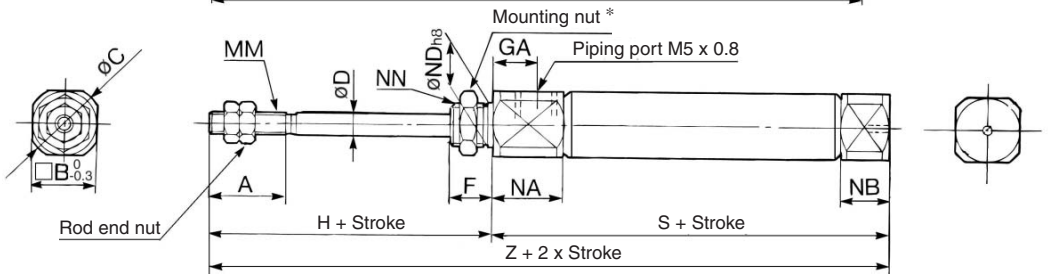
Single Acting, Spring Extend: Basic Style (B)

CJ2B Bore size – Stroke T

CJ2B6



CJ2B10/16



* For details of the mounting nut, refer to page 6-3-11.

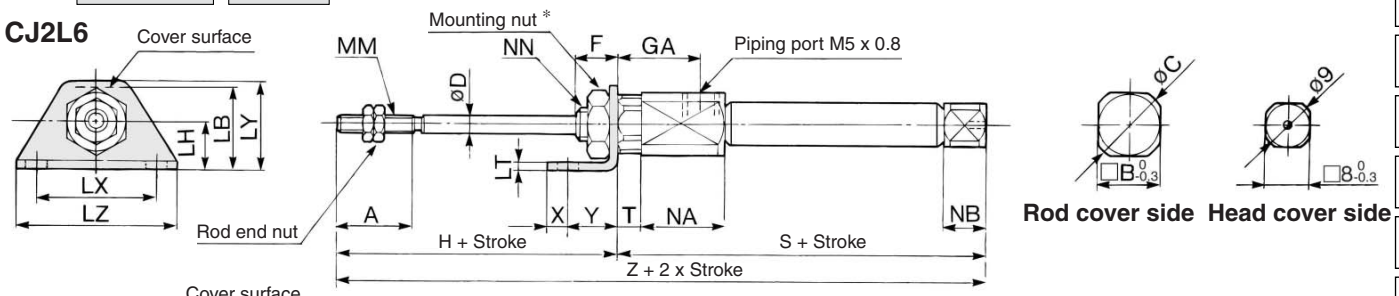
Bore size (mm)	A	B	C	D	F	GA	H	MM	NN	NA	NB	ND h8	T	S *								Z *							
														5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
6	15	12	14	3	8	14.5	28	M3 x 0.5	M6 x 1.0	16	3	6 0 -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

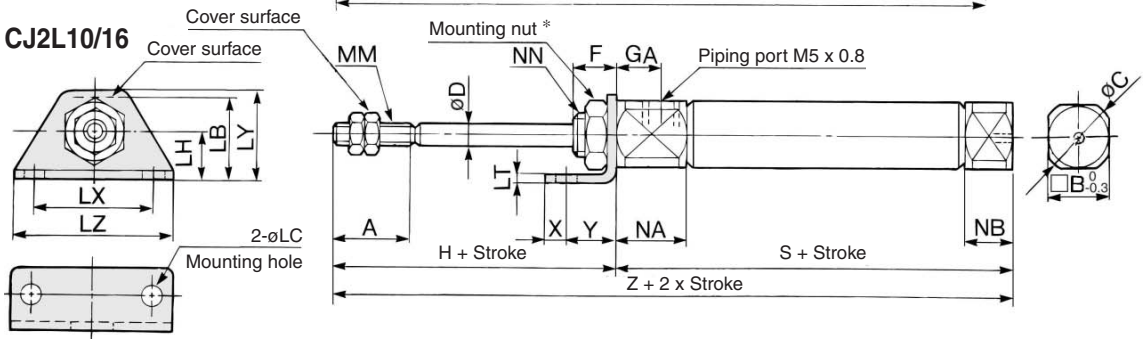
Single Acting, Spring Extend: Axial Foot Style (L)

CJ2L Bore size – Stroke T

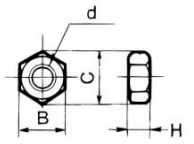
CJ2L6



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 6-3-11.

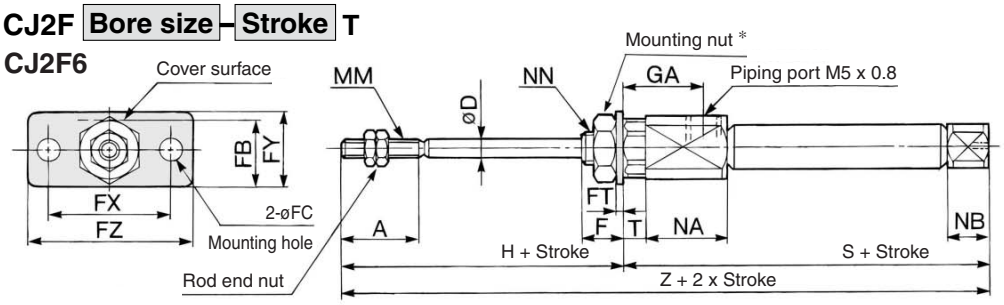
Bore size (mm)	A	B	C	D	F	GA	H	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	T	X	Y	S *								Z *							
																						5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126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

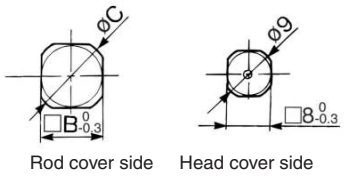
* ( ) in S and Z dimensions: With auto switch

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

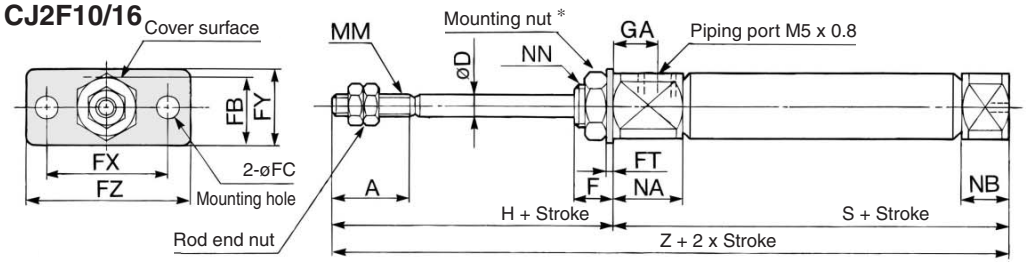
CJ2F Bore size – Stroke T

CJ2F6

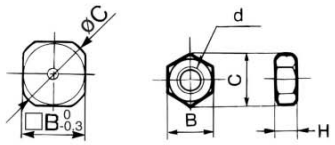




CJ2F10/16



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

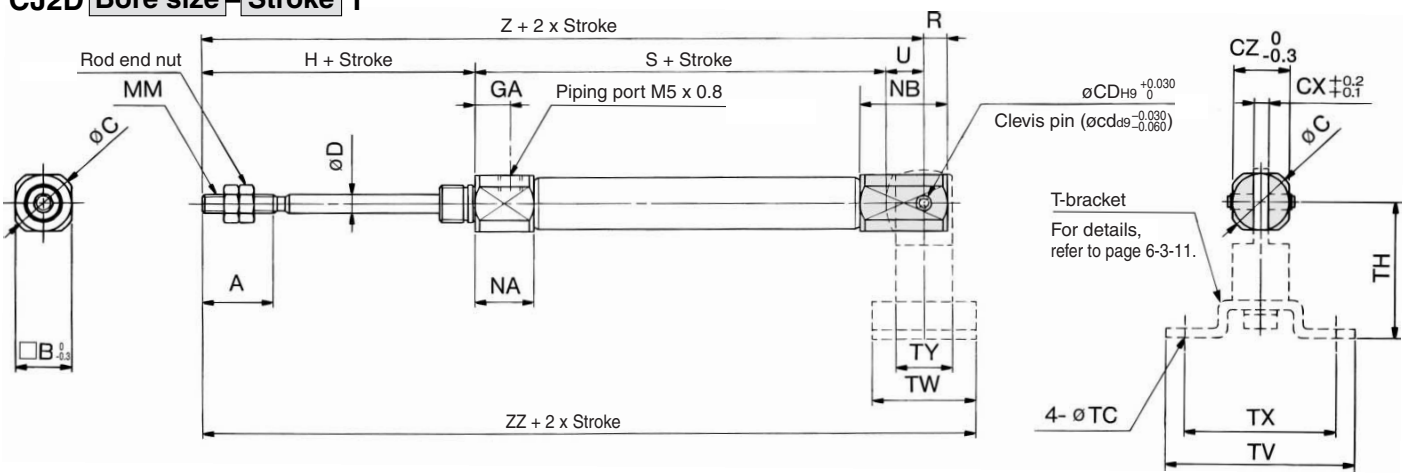
∗ For details of the mounting nut, refer to page 6-3-11.

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 (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 set 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

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

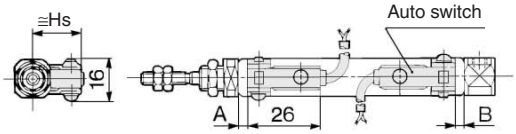
Bore size (mm)	TC	TH	TV	TW	TX	TY
10	4.5	29	40	22	32	12
16	5.5	35	48	28	38	16

Proper Auto Switch Mounting Position (Detection at stroke end) and Its Mounting Height: Single Acting, Spring Return (S)

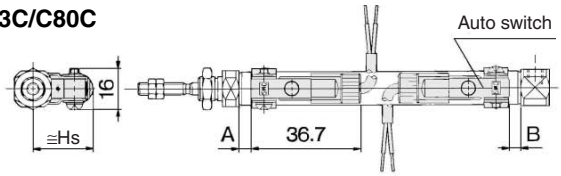
For the operating range of auto switch, refer to page 6-3-13.

Reed switch
<Band mounting style>

D-C7□/C80

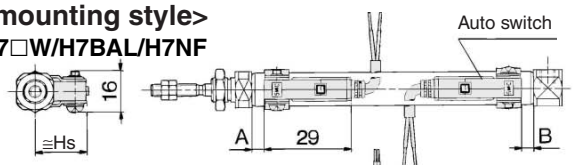


D-C73C/C80C

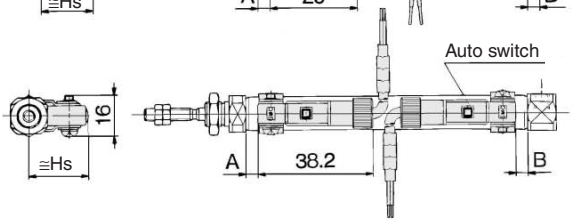


Solid state switch
<Band mounting style>

D-H7□/H7□W/H7BAL/H7NF

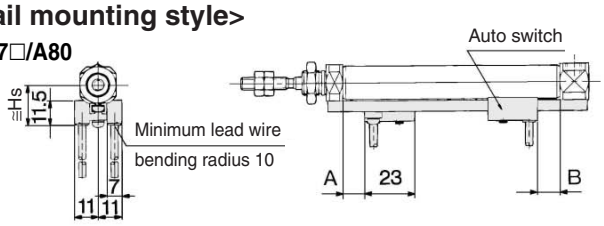


D-H7C

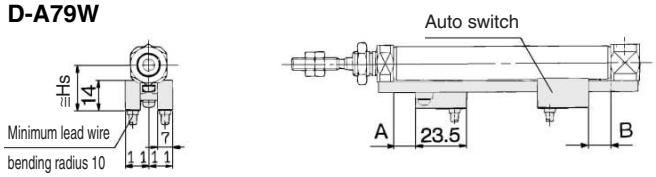


<Rail mounting style>

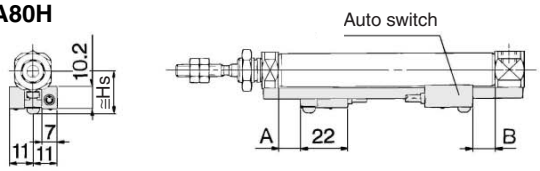
D-A7□/A80



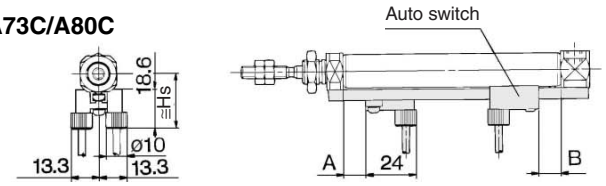
D-A79W



D-A7□H/A80H

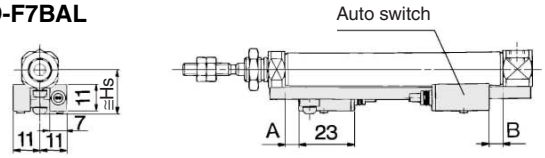


D-A73C/A80C

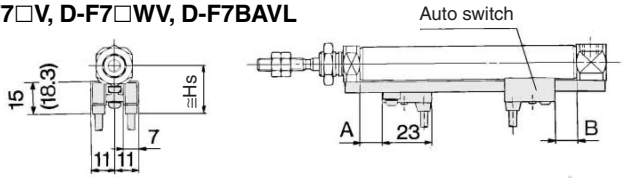


<Rail mounting style>

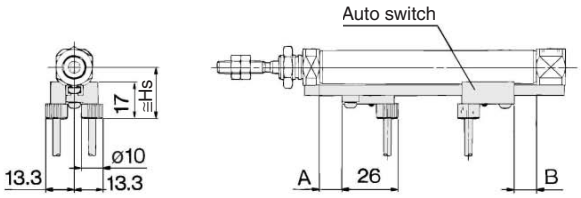
D-F7□/J79, D-F7□W, D-J79W
D-F79F, D-F7BAL



D-F7□V, D-F7□WV, D-F7BAVL



D-J79C



Proper Auto Switch Mounting Position/Spring Return

Auto switch model	Bore size (mm)	A dimension								B
		10 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	
D-C7□/C80	6	8.5	17.5	21.5	35.5	—	—	—	—	2
D-C73C	10	9	16.5	28.5	40.5	—	—	—	—	2.5
D-C80C	16	8.5	17	29	41	47	71	89	101	3
D-H7□/H7C	6	7.5	16.5	20.5	34.5	—	—	—	—	1
D-H7□W/H7BAL	10	8	15.5	27.5	39.5	—	—	—	—	1.5
D-H7NF	16	7.5	16	28	40	46	70	88	100	2
D-A7□/A80	10	9.5	17	29	41	—	—	—	—	3
	16	9	17.5	29.5	41.5	47.5	71.5	89.5	101.5	3.5
D-A7□H/A80H **D-A73C/A80C** **D-F7□/J79** **D-F7□W/J79W**	10	10	17.5	29.5	41.5	—	—	—	—	3.5
D-F7□V/F7□WV **D-F79F/J79C** **D-F7BAL** **D-F7BAVL**	16	9.5	18	30	42	48	72	90	102	4
D-A79W	10	7	14.5	26.5	38.5	—	—	—	—	0.5
	16	6.5	15	27	39	45	69	87	99	1

Auto Switch Mounting Height

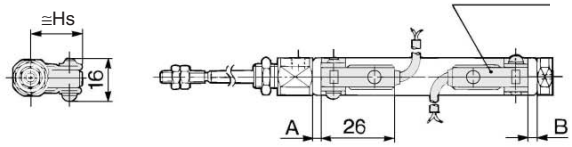
Auto switch model	Bore size (mm)	≅Hs
D-C7□/C80	6	15
D-H7□/H7□W	10	17
D-H7NF/H7BAL	16	20.5
D-C73C	6	17.5
D-C80C	10	19.5
	16	23
D-H7C	6	18
	10	20
	16	23.5
D-A7	10	16.5
D-A80	16	19.5
D-A7□H/A80H **D-F7□/J79**	10	17.5
D-F7□W/J79W **D-F7BAL/F79F**	16	20.5
D-A73C/A80C	10	23.5
	16	26.5
D-F7□V/F7BAVL	10	20
D-F7□WV	16	23
D-J79C	10	23
	16	26
D-A79W	10	19
	16	22

Proper Auto Switch Mounting Position (Detection at stroke end) and Its Mounting Height: Single Acting, Spring Extend (T)

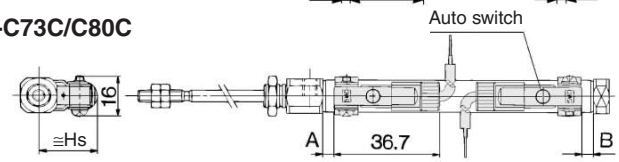
For the operating range of auto switch, refer to page 6-3-13.

Reed switch <Band mounting style>

D-C7□/C80

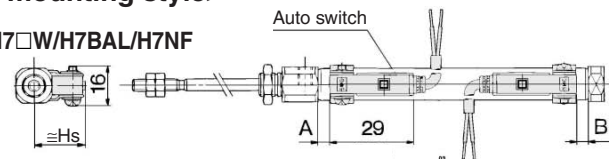


D-C73C/C80C

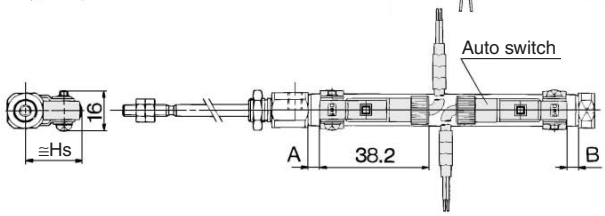


Solid state switch <Band mounting style>

D-H7□/H7□W/H7BAL/H7NF

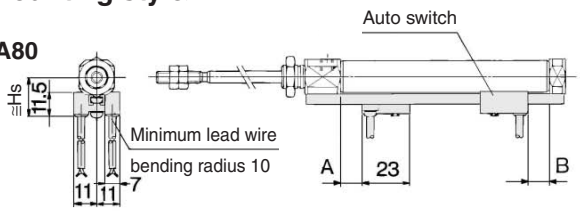


D-H7C

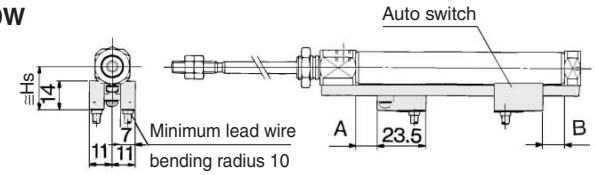


<Rail mounting style>

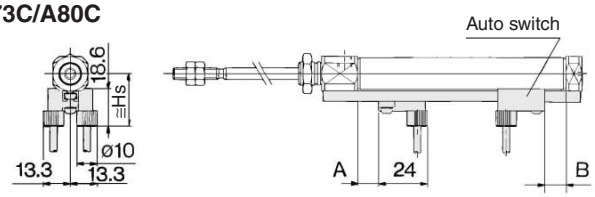
D-A7□/A80



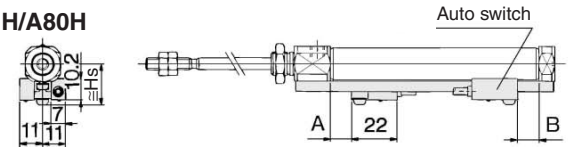
D-A79W



D-A73C/A80C

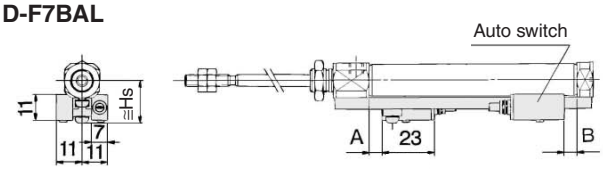


D-A7□H/A80H

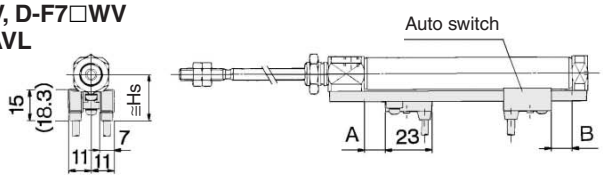


<Rail mounting style>

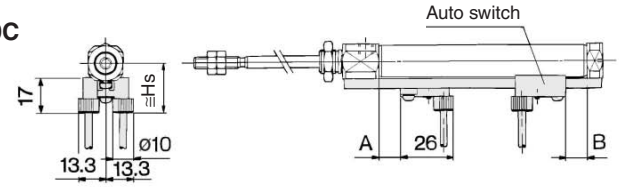
D-F7□/J79, D-F7□W, D-J79W
D-F79F, D-F7BAL



D-F7□V, D-F7□WV
D-F7BAVL



D-J79C



Proper Auto Switch Mounting Position/Spring Extend

Auto switch model	Bore size (mm)	A All stroke	B dimension 10 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
D-C7□/C80	6	2	8.5	17.5	21.5	35.5	—	—	—	—
D-C73C	10	2.5	9	16.5	28.5	40.5	—	—	—	—
D-C80C	16	3	8.5	17	29	41	47	71	89	101
D-H7□/H7C	6	1	7.5	16.5	20.5	34.5	—	—	—	—
D-H7□W/H7BAL	10	1.5	8	15.5	27.5	39.5	—	—	—	—
D-H7NF	16	2	7.5	16	28	40	46	70	88	100
D-A7□/A80	10	3	9.5	17	29	41	—	—	—	—
	16	3.5	9	17.5	29.5	41.5	47.5	71.5	87.5	101.5
D-A7□H/A80H D-A73C/A80C D-F7□/J79 D-F7□W/J79W	10	3.5	10	17.5	29.5	41.5	—	—	—	—
D-F7□V/F7□WV D-F79F/J79C D-F7BAL D-F7BAVL	16	4	9.5	18	30	42	48	72	90	102
D-A79W	10	0.5	7	14.5	26.5	38.5	—	—	—	—
	16	1	6.5	15	27	39	45	69	87	99

Auto Switch Mounting Height

Auto switch model	Bore size (mm)	≅Hs
D-C7□/C80 D-H7□/H7□W D-H7NF/H7BAL	6	15
	10	17
	16	20.5
D-C73C D-C80C	6	17.5
	10	19.5
	16	23
D-H7C	6	18
	10	20
	16	23.5
D-A7□ D-A80	10	16.5
	16	19.5
D-A7□H/A80H D-F7□/J79	10	17.5
D-F7□W/J79W D-F7BAL/F79F	16	20.5
D-A73C D-A80C	10	23.5
	16	26.5
D-F7□V/F7BAVL D-F7□WV	10	20
	16	23
D-J79C	10	23
	16	26
D-A79W	10	19
	16	22

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

How to Order

Bore size

10	10 mm
16	16 mm

Standard stroke (mm)

ø10	15, 30, 45, 60, 75, 100, 125, 150
ø16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200

∗ Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.
∗ When auto switch is mounted, refer to "Minimum Stroke for Auto Switch Mounting" on page 6-3-34.

Mounting style

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

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.

Without auto switch CJ2K [L] [16] — [60] [ ]

With auto switch CDJ2K [L] [16] — [60] [ ] — [J79W] [ ]

Built-in magnet

Port location on head cover

Symbol	Port location on head cover
Nil	Perpendicular to axis
R	Axial foot style

∗ For configuration, refer to page 6-3-34.
∗ Double clevis style is only available for being perpendicular to axis.

Auto switch

∗ For the applicable auto switch model, refer to the table below.
∗ Auto switch for rail mounting style is shipped together, (but not assembled).
∗ 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.

Applicable Auto Switch/Refer to page 6-16-1 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)	Rail mounting (ø10, ø16): Perpendicular	Rail mounting (ø10, ø16): In-line	Lead wire length (m) ∗: 0.5 (Nil)	3 (L)	5 (Z)	None (N)	Pre-wire connector	Applicable load	
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**C76**	—	**A76H**	●	●	—	—	—	IC circuit	
				2-wire	—		200 V	—	**A72**	**A72H**	●	●	—	—	—	—	Relay, PLC
					24 V	12 V	100 V	**C73**	**A73**	**A73H**	●	●	●	—	—		
		Connector						**C73C**	**A73C**	—	●	●	●	●	—	—	
	With diagnostic output (2-color indication)	Grommet				—	—	—	**A79W**	—	●	●	—	—	—		
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**H7A1**	**F7NV**	**F79**	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)				**H7A2**	**F7PV**	**F7P**	●	●	○	—	○		
				2-wire		12 V		**H7B**	**F7BV**	**J79**	●	●	○	—	○	—	
		Connector						**H7C**	**J79C**	—	●	●	●	●	—		
	Diagnostic indication (2-color indication)			3-wire (NPN)		5 V, 12 V		**H7NW**	**F7NWV**	**F79W**	●	●	○	—	○	IC circuit	
				3-wire (PNP)				**H7PW**	—	**F7PW**	●	●	○	—	○		
				2-wire		12 V		**H7BW**	**F7BWV**	**J79W**	●	●	○	—	○	—	
	Water resistant (2-color indication)	Grommet						**H7BA**	—	**F7BA**	—	●	○	—	○		
								—	**F7BAV**	—	—	●	○	—	—		
	With diagnostic output (2-color indication)			4-wire (NPN)		5 V, 12 V		**H7NF**	—	**F79F**	●	●	○	—	○	IC circuit	

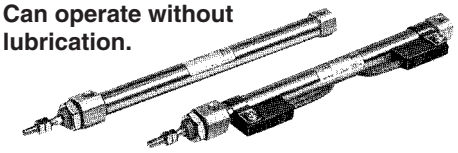
∗ Lead wire length symbols: 0.5 m ····· Nil (Example) C73C
3 m ····· L (Example) C73CL
5 m ····· Z (Example) C73CZ
None ····· N (Example) C73CN

∗ Solid state switches marked with "○" are produced upon receipt of order.
∗∗ "D-A79W" cannot be mounted on bore size ø10 cylinder with air cushion.

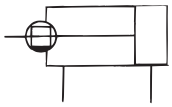
• Since there are other applicable auto switches than listed, refer to page 6-3-13 for details.
• For details about auto switches with pre-wire connector, refer to page 6-16-60.

A cylinder which rod does not rotate because of the hexagonal rod shape.

Non-rotating accuracy
ø10: ±1.5°, ø16: ±1°
Can operate without lubrication.



JIS Symbol
Double acting,
Single rod



Port Location on Head Cover

Either perpendicular to the cylinder axis or in-line with the cylinder axis is available for basic style.

Axial

Perpendicular

Made to Order Specifications (For details, refer to page 6-17-1.)

Symbol	Specifications
-XA□	Change of rod end shape
-XC3	Special port location
-XC51	With hose nipple

Specifications

Action		Double acting, Single rod
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 (No freezing)
Cushion		Rubber bumper
Lubrication		Not required (Non-lube)
Thread tolerance		JIS Class 2
Stroke length tolerance		$^{+1.0}_{0}$
Rod non-rotating accuracy	ø10	±1.5°
	ø16	±1°
Mounting		Basic style, Axial foot style, Rod side flange style, Double clevis style
Piston speed		50 to 750 mm/s
Allowable kinetic energy	ø10	0.035 J
	ø16	0.090 J

Standard Stroke

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

∗ Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.

Minimum Stroke for Auto Switch Mounting

Refer to “Minimum Stroke for Auto Switch Mounting” on page 6-3-3.

Mounting Style and Accessory/For details, refer to page 6-3-11.

Mounting style		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.

Part numbers for auto switch mounting bracket are common with Series CJ2, double acting, single rod type. Refer to page 6-3-4.

Mounting Bracket Part No.

Mounting bracket	Bore size (mm)	
	10	**16**
Foot bracket	CJ-L016B	CJK-L016B
Flange bracket	CJ-F016B	CJK-F016B
T-bracket *	CJ-T010B	CJ-T016B

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

⚠Precautions

Be sure to read before handling. Refer to pages 6-20-3 to 6-20-6 for Safety Instructions and Actuator Precautions.

Caution on Handling

⚠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.
ø10: 10.8 to 11.8 N·m, ø16: 20 to 21 N·m

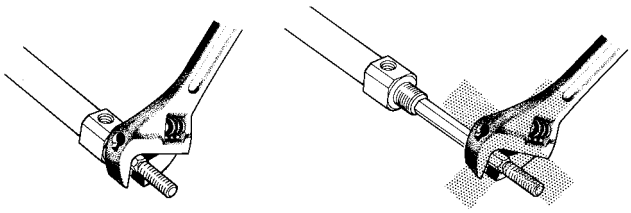
3. In the case of a non-rotating cylinder, do not operate it in such a way that rotational torque would be applied to the piston rod. If rotational torque is applied, the non-rotating guide will become deformed, thus affecting the non-rotating accuracy.

Allowable rotational torque (N·m)	ø10	ø16
	0.02	0.04

4. To screw a bracket onto the threaded portion at the tip of the piston rod, make sure to retract the piston rod entirely, and place a wrench over the flat portion of the rod that protrudes. To tighten, take precautions to prevent the tightening torque from being applied to the non-rotating guide.

5. To remove and install the snap ring for the knuckle pin or the clevis pin, use an appropriate pair of pliers (tool for installing a type C snap ring).
In particular, use a pair of ultra-mini pliers such as the Super Tool CSM-07A for removing and installing the snap 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.



Weight

(g)

Bore size (mm)		10	16
Basic weight *		24	55
Additional weight per each 15 mm of stroke		4	6.5
Mounting bracket weight	Axial foot style	20	20
	Rod side flange style	15	15
	Double clevis style (With pin) *	4	10

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

Calculation: (Example) CJ2KL10-45
- Basic weight ····· 24 (ø10)
- Additional weight ····· 4/15 stroke
- Cylinder stroke ····· 45 stroke
- Mounting bracket weight ····· 20 (Axial foot style)

24 + 4/15 x 45 + 20 = 56 g

Copper-free (For CRT manufacturing process)

20-CJ2K | Mounting style | Bore size | – | Stroke | Action | Port location on head cover

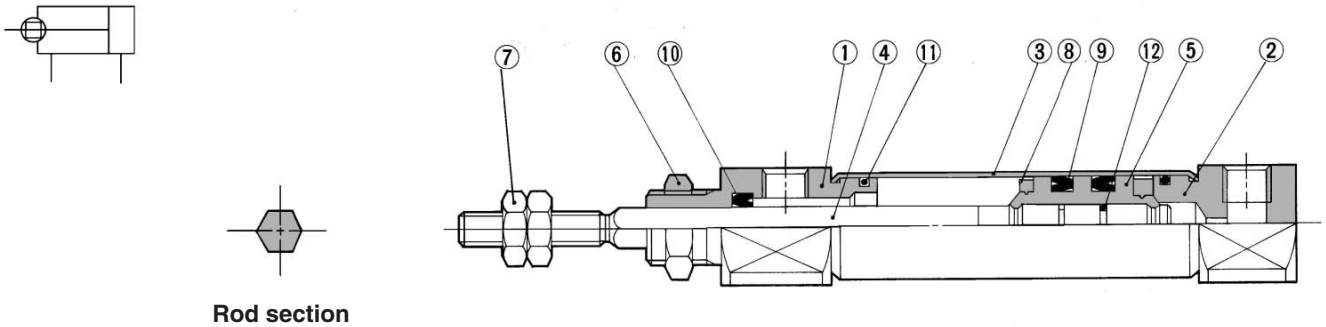
- **Copper-free**

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
Maximum operating pressure		0.7 MPa
Minimum operating pressure		0.06 MPa
Cushion		Rubber bumper (Standard equipment)
Rod non-rotating accuracy	ø10	±1.5°
	ø16	±1°
Standard stroke (mm)		Same as standard type. (Refer to page 6-3-34.)
Auto switch		Mountable (Band mounting style)
Mounting		Basic style, Axial foot style, Rod side flange style, Double clevis style

Construction (Not able to disassemble.)



Rod section

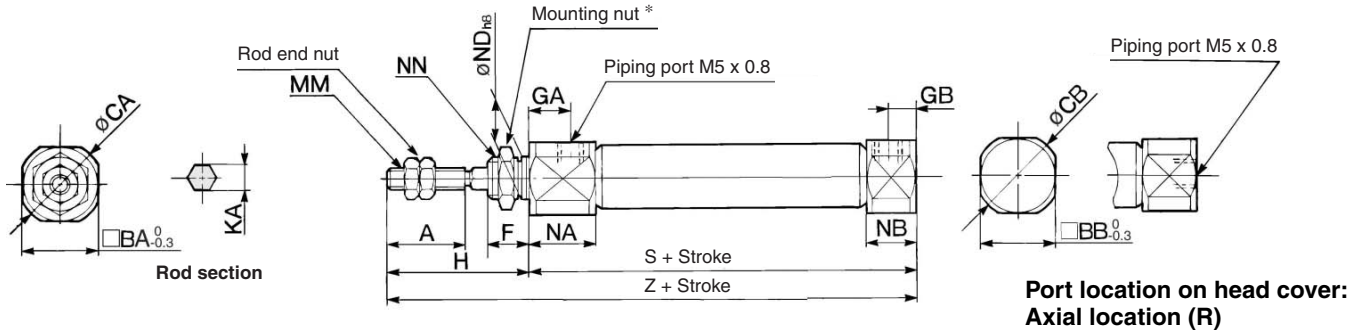
Component Parts

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

No.	Description	Material	Note
⑦	Rod end nut	Rolled steel	Nickel plated
⑧	Bumper	Urethane	
⑨	Piston seal	NBR	
⑩	Rod seal	NBR	
⑪	Tube gasket	NBR	
⑫	Piston gasket	NBR	

Basic Style (B)

CJ2KB **Bore size** – **Stroke** **Port location on head cover**

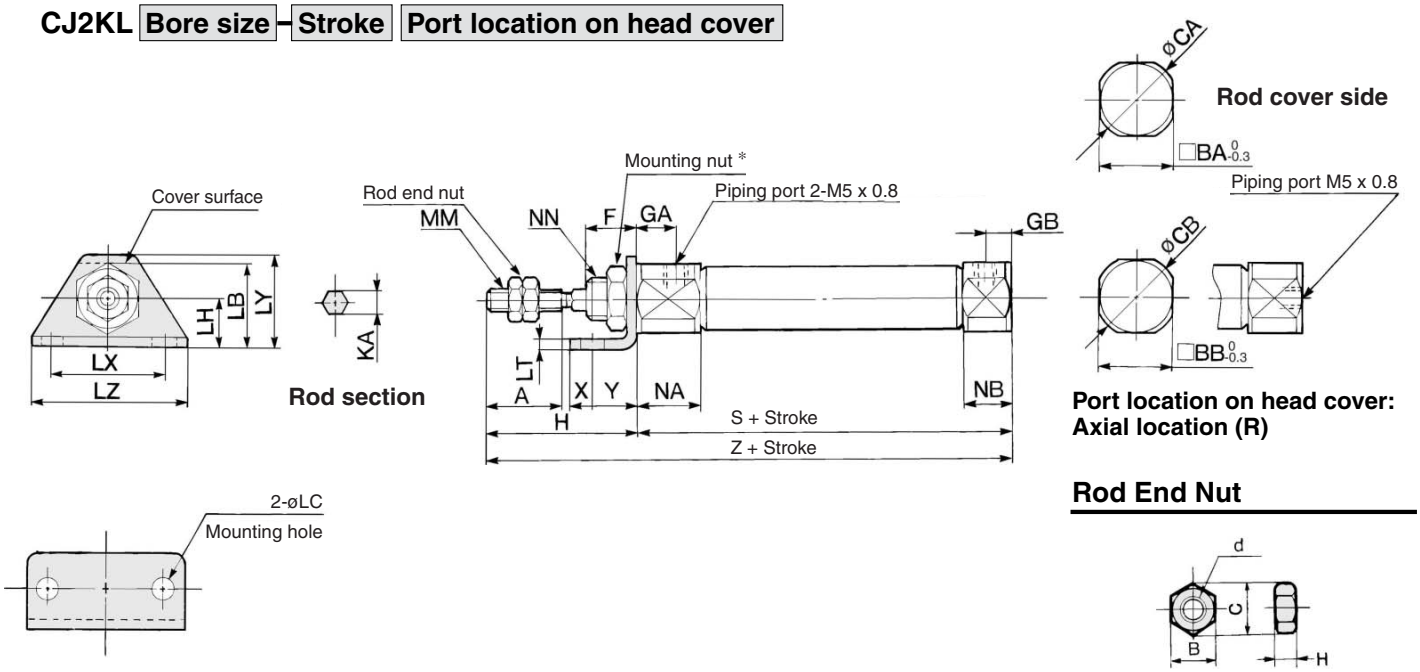


* Refer to page 6-3-11 for details of the mounting nut. (SNJ-016B for ø10, SNKJ-016B for ø16)

Bore size (mm)	A	BA	BB	CA	CB	F	GA	GB	H	KA	MM	NA	NB	NDh8	NN	S	Z
10	15	15	12	17	14	8	8	5	28	4.2	M4 x 0.7	12.5	9.5	10 $^{0}_{-0.022}$	M10 x 1.0	46	74
16	15	18.3	18.3	20	20	8	8	5	28	5.2	M5 x 0.8	12.5	9.5	12 $^{0}_{-0.027}$	M12 x 1.0	47	75

Axial Foot Style (L)

CJ2KL **Bore size** – **Stroke** **Port location on head cover**



Rod End Nut

Material: Iron

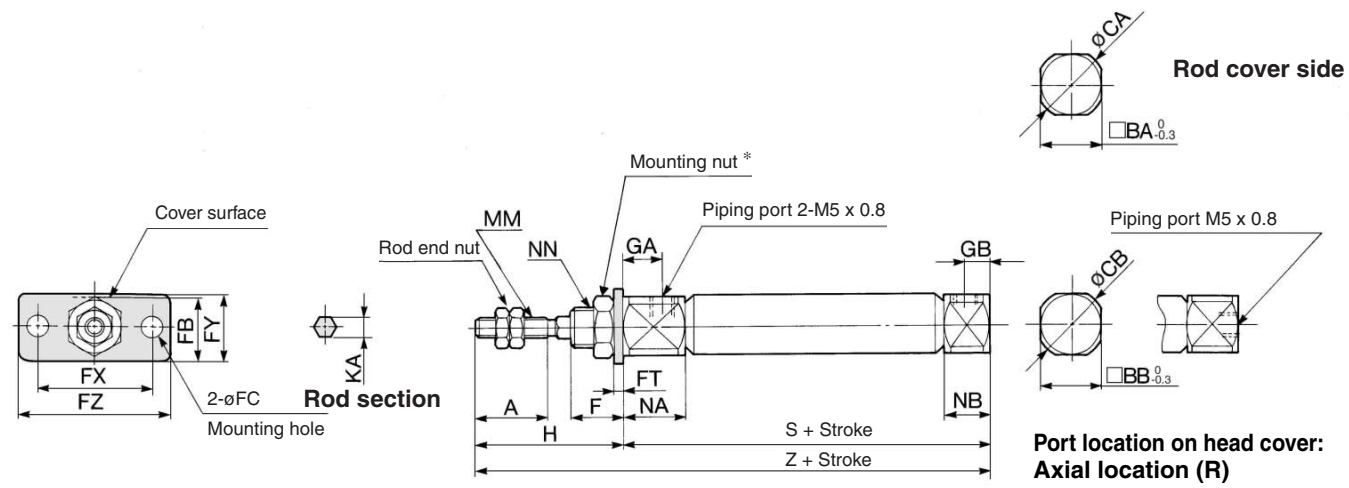
Part no.	Applicable bore (mm)	B	C	d	H
NTJ-010A	10	7	8.1	M4 x 0.7	3.2
NTJ-015A	16	8	9.2	M5 x 0.8	4

* Refer to page 6-3-11 for details of the mounting nut. (SNJ-016B for ø10, SNKJ-016B for ø16)

Bore size (mm)	A	BA	BB	CA	CB	F	GA	GB	H	KA	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	X	Y	S	Z
10	15	15	12	17	14	8	8	5	28	4.2	21.5	5.5	14	2.3	33	25	42	M4 x 0.7	12.5	9.5	M10 x 1.0	6	9	46	74
16	15	18.3	18.3	20	20	8	8	5	28	5.2	23	5.5	14	2.3	33	25	42	M5 x 0.8	12.5	9.5	M12 x 1.0	6	9	47	75

Rod Side Flange Style (F)

CJ2KF Bore size – Stroke Port location on head cover

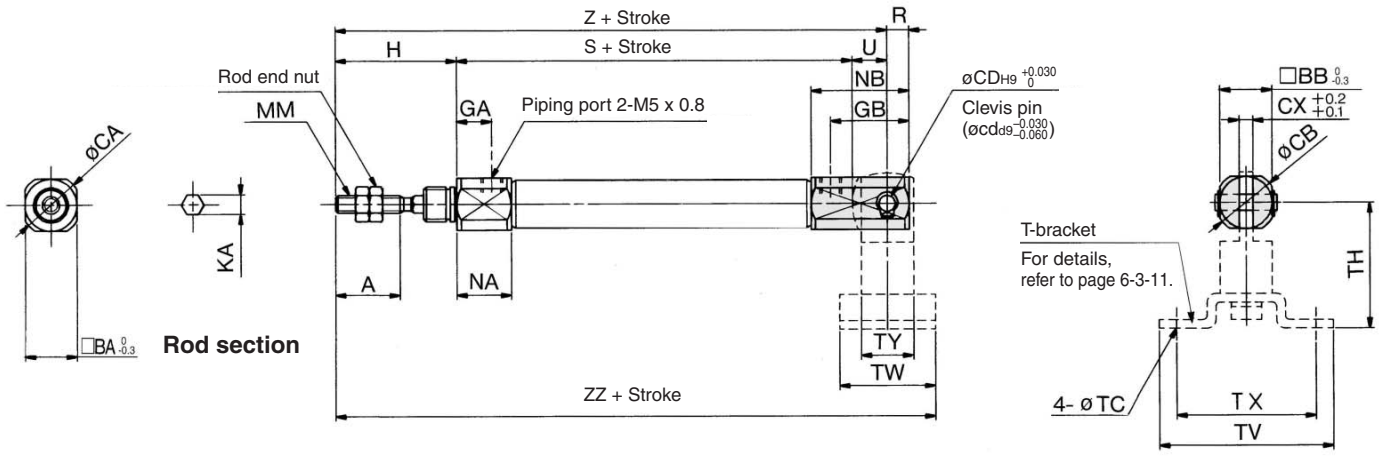


* Refer to page 6-3-11 for details of the mounting nut. (SNJ-016B for ø10, SNKJ-016B for ø16)

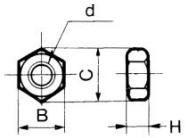
Bore size (mm)	A	BA	BB	CA	CB	F	FB	FC	FT	FX	FY	FZ	GA	GB	H	KA	MM	NA	NB	NN	S	Z
10	15	15	12	17	14	8	17.5	5.5	2.3	33	20	42	8	5	28	4.2	M4 x 0.7	12.5	9.5	M10 x 1.0	46	74
16	15	18.3	18.3	20	20	8	19	5.5	2.3	33	20	42	8	5	28	5.2	M5 x 0.8	12.5	9.5	M12 x 1.0	47	75

Double Clevis Style (D)

CJ2KD Bore size – Stroke



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

* Clevis pin and set ring are shipped together.

Bore size (mm)	A	BA	BB	CA	CB	CD (cd)	CX	GA	GB	H	KA	MM	NA	NB	R	S	U	Z	ZZ
10	15	15	12	17	14	3.3	3.2	8	18	28	4.2	M4 x 0.7	12.5	22.5	5	46	8	82	93
16	15	18.3	18.3	20	20	5	6.5	8	23	28	5.2	M5 x 0.8	12.5	27.5	8	47	10	85	99

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
Single Acting, Single Rod, Spring Return/Extend
Series CJ2K
ø10, ø16

How to Order

Bore size

10	10 mm
16	16 mm

Standard stroke (mm)

ø10	15, 30, 45, 60
ø16	15, 30, 45, 60, 75, 100, 125, 150

∗ Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.
∗ When auto switch is mounted, refer to "Minimum Stroke for Auto Switch Mounting" on page 6-3-3.

Mounting style

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

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	CDJ2KB16-60S-A
	Band mounting style	CDJ2KB10-45S-B

∗ For rail mounting style, screws and nuts for 2 pcs. switches come with the rail.

Without auto switch **CJ2K** [L] [16] — [45] [S] [ ]

With auto switch **CDJ2K** [L] [16] — [45] [S] [ ] — [J79W] [ ]

Built-in magnet

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.
∗ Auto switch for rail mounting style is shipped together, (but not assembled).
∗ If a built-in magnet cylinder without an auto switch is required, refer to the model of built-in magnet cylinder.

Port location on head cover

Symbol	Port location on head cover
Nil	Perpendicular to axis
R	Axial foot style

∗ For configuration, refer to page 6-3-34.
∗ Single acting, Spring return (S), Clevis style is available only for 90° to the axis.
∗ Not applicable to single acting, spring extend (T).

Applicable Auto Switch/Refer to page 6-16-1 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)	3 (L)	5 (Z)	None (N)	Pre-wire connector	Applicable load	
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**C76**	—	**A76H**	●	●	—	—	—	IC circuit	
				2-wire	—	—	200 V	—	**A72**	**A72H**	●	●	—	—	—	—	Relay, PLC
					24 V	12 V	100 V	**C73**	**A73**	**A73H**	●	●	●	—	—		
		Connector					—	**C73C**	**A73C**	—	●	●	●	●	—		
	With diagnostic output (2-color indication)	Grommet				—	—	—	**A79W**	—	●	●	—	—	—		
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**H7A1**	**F7NV**	**F79**	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)				**H7A2**	**F7PV**	**F7P**	●	●	○	—	○		
				2-wire		12 V		**H7B**	**F7BV**	**J79**	●	●	○	—	○	—	
		Connector						**H7C**	**J79C**	—	●	●	●	●	—		
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)		5 V, 12 V		**H7NW**	**F7NWV**	**F79W**	●	●	○	—	○	IC circuit	
				3-wire (PNP)				**H7PW**	—	**F7PW**	●	●	○	—	○		
				2-wire		12 V		**H7BW**	**F7BWV**	**J79W**	●	●	○	—	○	—	
	Water resistant (2-color indication)							**H7BA**	—	**F7BA**	—	●	○	—	○		
								—	**F7BAV**	—	—	●	○	—	—		
	With diagnostic output (2-color indication)			4-wire (NPN)		5 V, 12 V		**H7NF**	—	**F79F**	●	●	○	—	○	IC circuit	

∗ Lead wire length symbols: 0.5 m ····· Nil (Example) C73C
3 m ····· L (Example) C73CL
5 m ····· Z (Example) C73CZ
None ····· N (Example) C73CN

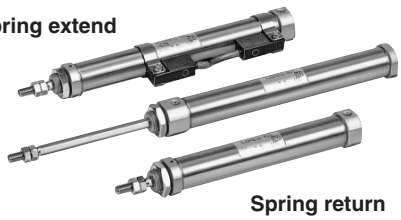
∗ Solid state switches marked with "○" are produced upon receipt of order.
∗∗ "D-A79W" cannot be mounted on bore size ø10 cylinder with air cushion.

• Since there are other applicable auto switches than listed, refer to page 6-3-13 for details.
• For details about auto switches with pre-wire connector, refer to page 6-16-60.

A cylinder which rod does not rotate because of the hexagonal rod shape.

Non-rotating accuracy
ø10: ±1.5°, ø16: ±1°
Can operate without lubrication.

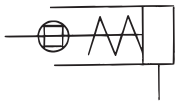
Spring extend



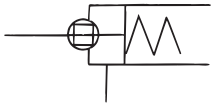
Spring return

JIS Symbol

Single acting, Spring return



Single acting, Spring extend



Specifications

Action		Single acting, Spring return	Single acting, Spring extend
Fluid		Air	
Proof pressure		1.05 MPa	
Maximum operating pressure		0.7 MPa	
Minimum operating pressure		0.15 MPa	
Ambient and fluid temperature		Without auto switch: –10 to 70°C (No freezing) With auto switch: –10 to 60°C (No freezing)	
Cushion		Rubber bumper (Standard equipment)	
Lubrication		Not required (Non-lube)	
Thread tolerance		JIS Class 2	
Stroke length tolerance		$^{+1.0}_{0}$	
Rod non-rotating accuracy	ø10	±1.5°	
	ø16	±1°	
Piston speed		50 to 750 mm/s	
Allowable kinetic energy	ø10	0.035 J	
	ø16	0.090 J	

Standard Stroke

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

∗ Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.

Spring Force (N)

Bore size (mm)	Retracted side	Extended side
10	6.86	3.53
16	14.2	6.86

Minimum Stroke for Auto Switch Mounting

Refer to “Minimum Stroke for Auto Switch Mounting” on page 6-3-3.

Mounting Style and Accessory/For details, refer to page 6-3-4.

	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.

Part numbers for auto switch mounting bracket are common with Series CJ2, double acting, single rod type. Refer to page 6-3-4.

Mounting Bracket Part No.

Mounting bracket	Bore size (mm)	
	10	**16**
Foot bracket	CJ-L016B	CJK-L016B
Flange bracket	CJ-F016B	CJK-F016B
T-bracket *	CJ-T010B	CJ-T016B

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

Made to Order Specifications (For details, refer to page 6-17-1.)

Symbol	Specifications
-XA□	Change of rod end shape
-XC51	With hose nipple

⚠ Precautions

Be sure to read before handling. Refer to pages 6-20-3 to 6-20-6 for Safety Instructions and Actuator Precautions.

Weight/Spring Return, ( ): Spring Extend (g)

Bore size (mm)		10	16
Basic weight *	15 stroke	28(28)	63(64)
	30 stroke	35(34)	80(80)
	45 stroke	44(43)	102(100)
	60 stroke	53(51)	124(121)
	75 stroke	—	145(140)
	100 stroke	—	188(178)
	125 stroke	—	224(212)
	150 stroke	—	250(236)
Mounting bracket weight	Axial foot style	20	20
	Rod side flange style	15	15
	Double clevis style * (With pin)	4	10

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

Calculation: (Example) CJ2L10-45T
- Basic weight ..... 44 (ø10-45 stroke)
- Mounting bracket weight ··· 20 (Axial foot style)

44 + 20 = 6 g

Copper-free (For CRT manufacturing process)

20-CJ2K | Mounting style | Bore size | – Stroke | Port location on head cover

- **Copper-free**

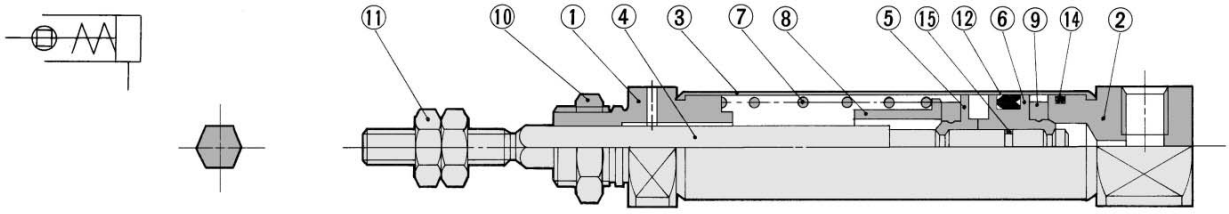
Eliminates the effects by copper based ions and fluorine based resins, etc. over the color cathode ray tube.
Making copper based materials into electroless nickel plated treatment or changing them to the non-copper materials in order to prevent copper ions from generating.

Specifications

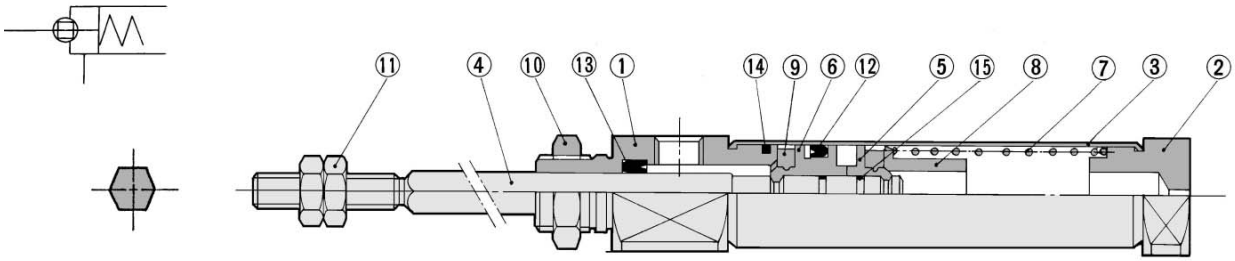
Action	Single acting/Spring return, Spring extend
Fluid	Air
Bore size (mm)	10, 16
Maximum operating pressure	0.7 MPa
Minimum operating pressure	0.15 MPa
Cushion	Rubber bumper (Standard equipment)
Rod non-rotating accuracy	ø10: ±1.5°, ø16: ±1°
Standard stroke (mm)	Same as standard type. (Refer to page 6-3-39.)
Auto switch	Mountable (Band mounting style)
Mounting	Basic style, Axial foot style, Rod side flange style, Double clevis style

Construction (Not able to disassemble.)

Single acting, Spring return



Single acting, Spring extend



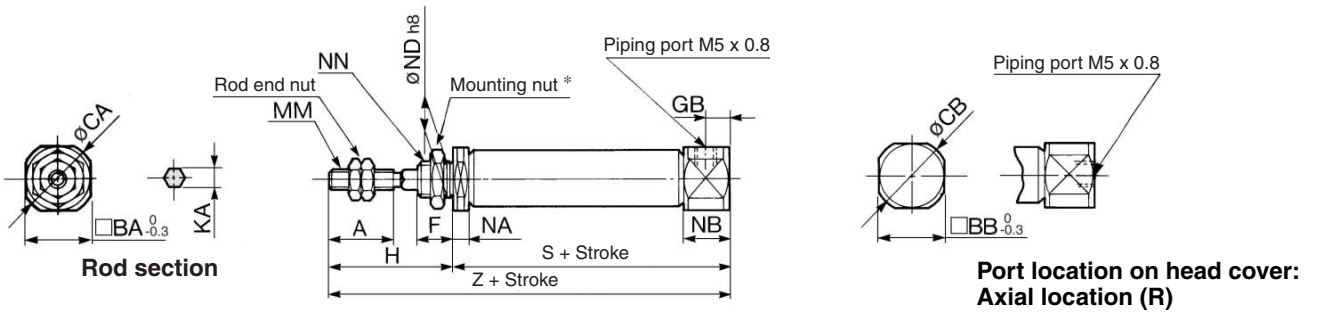
Component Parts

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	Bumper	Urethane	
⑩	Mounting nut	Brass	Nickel plated
⑪	Rod end nut	Rolled steel	Nickel plated
⑫	Piston seal	NBR	
⑬	Rod seal	NBR	
⑭	Tube gasket	NBR	
⑮	Piston gasket	NBR	

Single Acting, Spring Return: Basic Style (B)

CJ2KB **Bore size** – **Stroke** **S** **Port location on head cover**



∗ Refer to page 6-3-11 for details of the mounting nut. (SNJ-016B for ø10, SNKJ-016B for ø16)

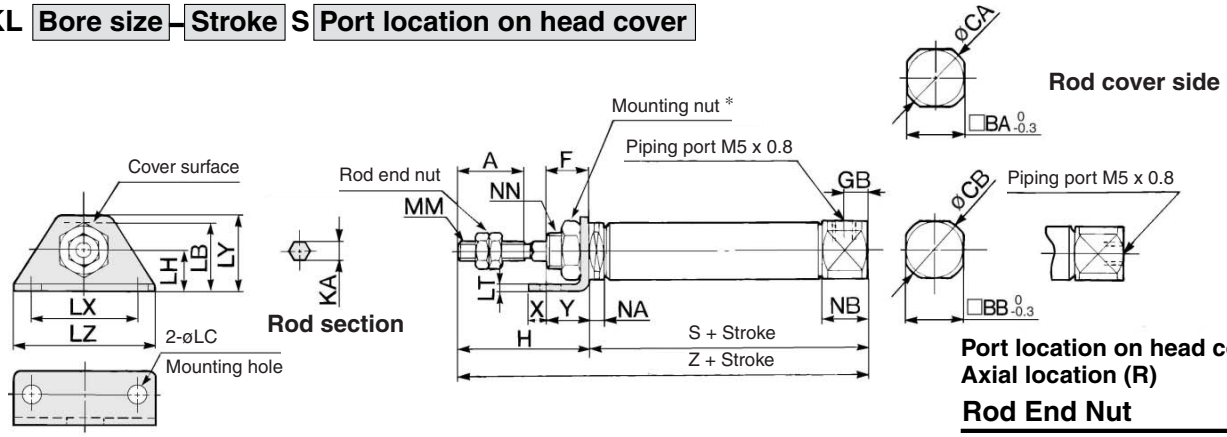
Bore size (mm)	A	BA	BB	CA	CB	F	GB	H	KA	MM	NA	NB	NDh8	NN
10	15	15	12	17	14	8	5	28	4.2	M4 x 0.7	5.5	9.5	$10^{\ 0}_{-0.022}$	M10 x 1.0
16	15	18.3	18.3	20	20	8	5	28	5.2	M5 x 0.8	5.5	9.5	$12^{\ 0}_{-0.027}$	M12 x 1.0

Dimensions by Stroke

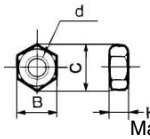
Bore size (mm) \ Symbol / Stroke	S								Z							
	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150
10	45.5	53	65	77	—	—	—	—	73.5	81	93	105	—	—	—	—
16	45.5	54	66	78	84	108	126	138	73.5	82	94	106	112	136	154	166

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

CJ2KL **Bore size** – **Stroke** **S** **Port location on head cover**



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

∗ Refer to page 6-3-11 for details of the mounting nut. (SNJ-016B for ø10, SNKJ-016B for ø16)

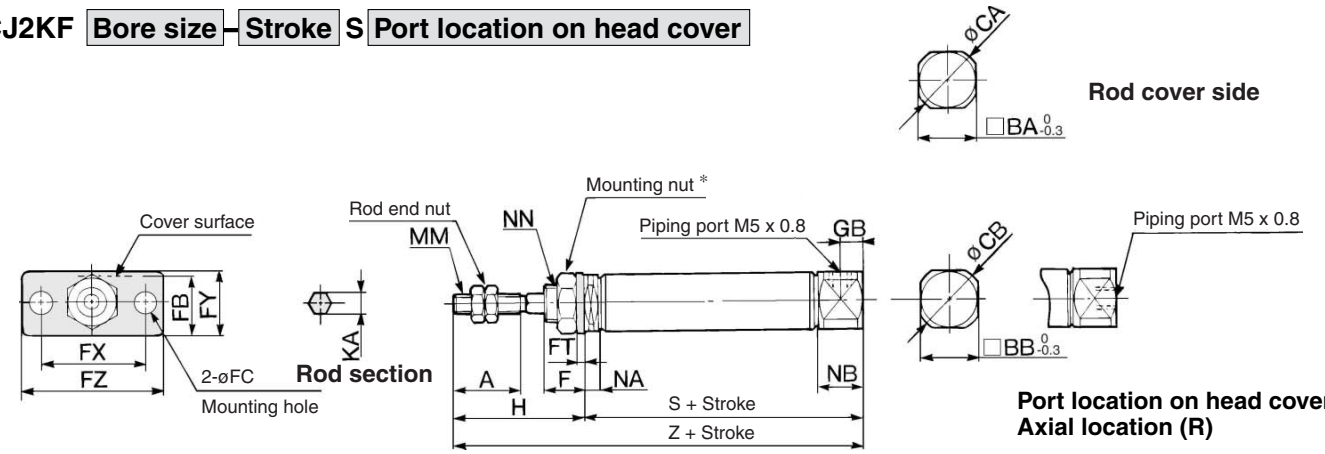
Bore size (mm)	A	BA	BB	CA	CB	F	GB	H	KA	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	X	Y
10	15	15	12	17	14	8	5	28	4.2	21.5	5.5	14	2.3	33	25	42	M4 x 0.7	5.5	9.5	M10 x 1.0	6	9
16	15	18.3	18.3	20	20	8	5	28	5.2	23	5.5	14	2.3	33	25	42	M5 x 0.8	5.5	9.5	M12 x 1.0	6	9

Dimensions by Stroke

Bore size (mm) \ Symbol / Stroke	S								Z							
	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150
10	45.5	53	65	77	—	—	—	—	73.5	81	93	105	—	—	—	—
16	45.5	54	66	78	84	108	126	138	73.5	82	94	106	112	136	154	166

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

CJ2KF Bore size – Stroke S Port location on head cover



* Refer to page 6-3-11 for details of the mounting nut. (SNJ-016B for ø10, SNKJ-016B for ø16)

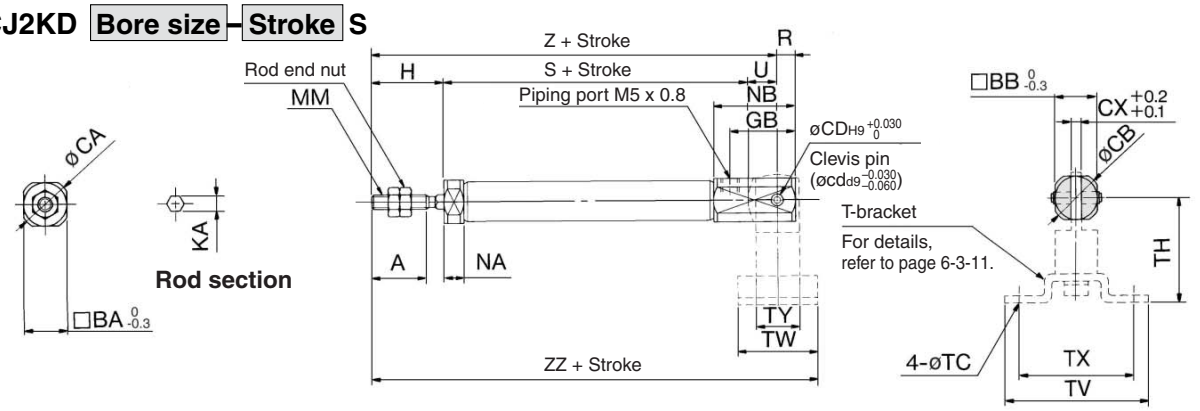
Bore size (mm)	A	BA	BB	CA	CB	F	FB	FC	FT	FX	FY	FZ	GB	H	KA	MM	NA	NB	NN
10	15	15	12	17	14	8	17.5	5.5	2.3	33	20	42	5	28	4.2	M4 x 0.7	5.5	9.5	M10 x 1.0
16	15	18.3	18.3	20	20	8	19	5.5	2.3	33	20	42	5	28	5.2	M5 x 0.8	5.5	9.5	M12 x 1.0

Dimensions by Stroke

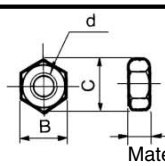
Bore size (mm) \ Symbol / Stroke	S								Z							
	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150
10	45.5	53	65	77	—	—	—	—	73.5	81	93	105	—	—	—	—
16	45.5	54	66	78	84	108	126	138	73.5	82	94	106	112	136	154	166

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

CJ2KD Bore size – Stroke S



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

* Clevis pin and set ring are shipped together.

Bore size (mm)	A	BA	BB	CA	CB	CD(cd)	CX	GB	H	KA	MM	NA	NB	R	U
10	15	12	12	14	14	3.3	3.2	18	20	4.2	M4 x 0.7	5.5	22.5	5	8
16	15	18.3	18.3	20	20	5	6.5	23	20	5.2	M5 x 0.8	5.5	27.5	8	10

Dimensions by Stroke

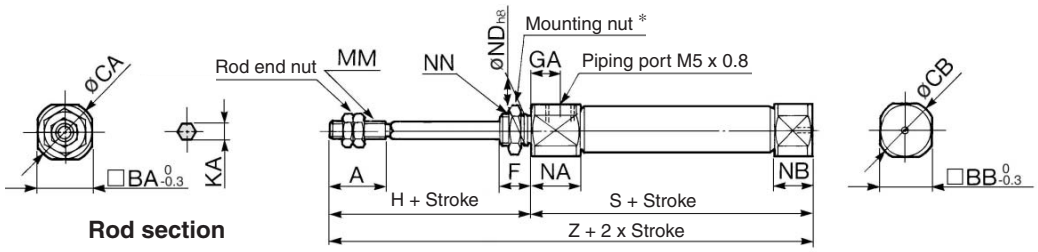
Bore size (mm) \ Symbol / Stroke	S								Z								ZZ							
	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	12 to 150	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150
10	45.5	53	65	77	—	—	—	—	73.5	81	93	105	—	—	—	—	84.5	92	104	116	—	—	—	—
16	45.5	54	66	78	84	108	126	138	75.5	84	96	108	114	138	156	168	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)

CJ2KB Bore size – Stroke T



∗ Refer to page 6-3-11 for details of the mounting nut. (SNJ-016B for ø10, SNKJ-016B for ø16)

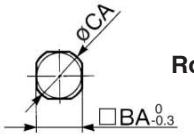
Bore size (mm)	A	BA	BB	CA	CB	F	GA	H	KA	MM	NA	NB	NDh8	NN
10	15	15	12	17	14	8	8	28	4.2	M4 x 0.7	12.5	5.5	$10^{0}_{-0.022}$	M10 x 1.0
16	15	18.3	18.3	20	20	8	8	28	5.2	M5 x 0.8	12.5	5.5	$12^{0}_{-0.027}$	M12 x 1.0

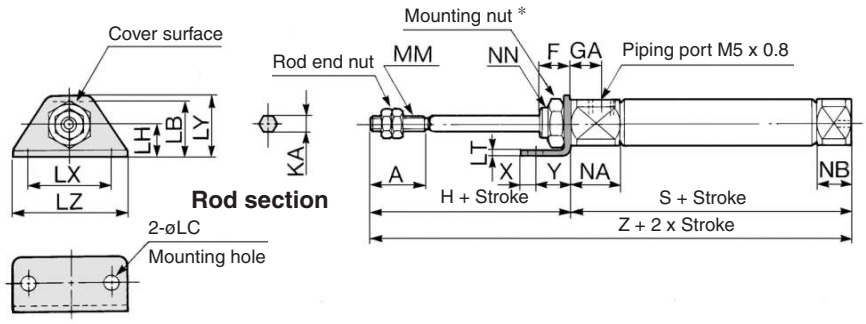
Dimensions by Stroke

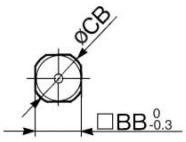
Bore size (mm) \ Symbol / Stroke	S								Z							
	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150
10	48.5	56	68	80	—	—	—	—	76.5	84	96	108	—	–	—	—
16	48.5	57	69	81	87	111	129	141	76.5	85	97	109	115	139	157	169

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

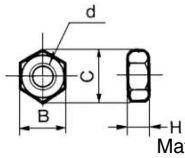
CJ2KL Bore size – Stroke T







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

∗ Refer to page 6-3-11 for details of the mounting nut. (SNJ-016B for ø10, SNKJ-016B for ø16)

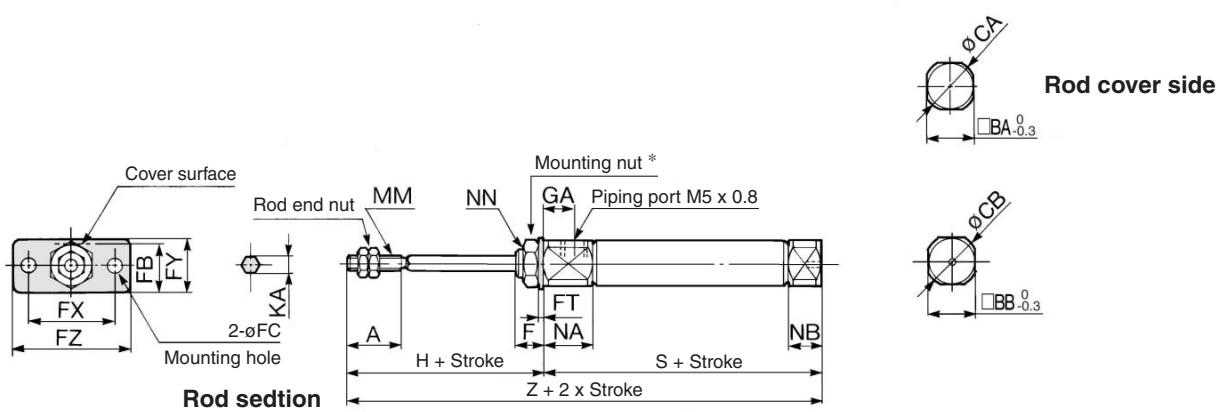
Bore size (mm)	A	BA	BB	CA	CB	F	GA	H	KA	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	X	Y
10	15	15	12	17	14	8	8	28	4.2	21.5	5.5	14	2.3	33	25	42	M4 x 0.7	12.5	5.5	M10 x 1.0	6	9
16	15	18.3	18.3	20	20	8	8	28	5.2	23	5.5	14	2.3	33	25	42	M5 x 0.8	12.5	5.5	M12 x 1.0	6	9

Dimensions by Stroke

Bore size (mm) \ Symbol / Stroke	S								Z							
	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150
10	48.5	56	68	80	—	—	—	—	76.5	84	96	108	—	—	—	—
16	48.5	57	69	81	87	111	129	141	76.5	85	97	109	115	139	157	169

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

CJ2KF Bore size – Stroke T



∗ Refer to page 6-3-11 for details of the mounting nut. (SNJ-016B for ø10, SNKJ-016B for ø16)

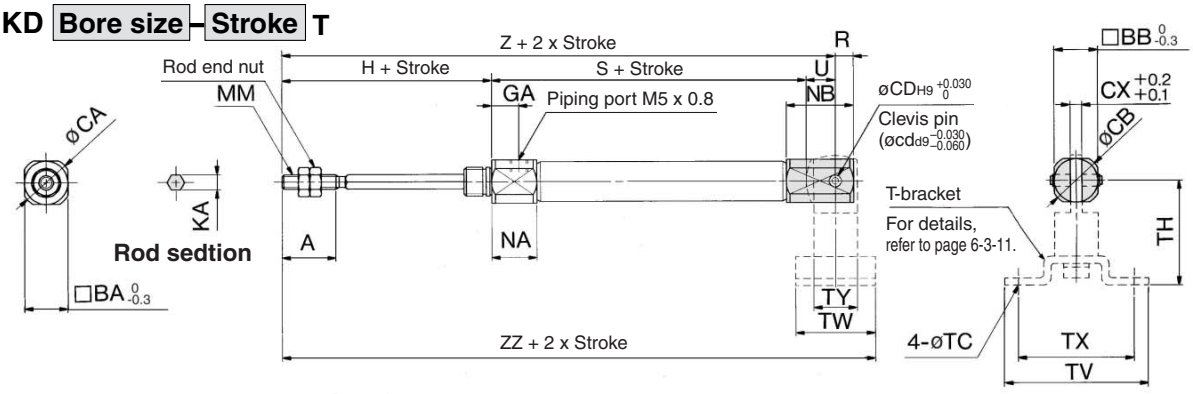
Bore size (mm)	A	BA	BB	CA	CB	F	FB	FC	FT	FX	FY	FZ	GA	H	KA	MM	NA	NB	NN
10	15	15	12	17	14	8	17.5	5.5	2.3	33	20	42	8	28	4.2	M4 x 0.7	12.5	5.5	M10 x 1.0
16	15	18.3	18.3	20	20	8	19	5.5	2.3	33	20	42	8	28	5.2	M5 x 0.8	12.5	5.5	M12 x 1.0

Dimensions by Stroke

Bore size (mm) \ Symbol / Stroke	S								Z							
	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150
10	48.5	56	68	80	—	—	—	—	76.5	84	96	108	—	—	—	—
16	48.5	57	69	81	87	111	129	141	76.5	85	97	109	115	139	157	169

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

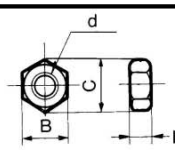
CJ2KD Bore size – Stroke T



∗ Clevis pin and set ring are shipped together.

Bore size (mm)	A	BA	BB	CA	CB	CD (cd)	CX	GA	H	KA	MM	NA	NB	R	U
10	15	15	12	17	14	3.3	3.2	8	28	4.2	M4 x 0.7	12.5	18.5	5	8
16	15	18.3	18.3	20	20	5	6.5	8	28	5.2	M5 x 0.8	12.5	23.5	8	10

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

Dimensions by Stroke

Bore size (mm) \ Symbol / Stroke	S								Z								ZZ							
	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150
10	48.5	56	68	80	—	—	—	—	84.5	92	104	116	—	—	—	—	95.5	103	115	127	—	—	—	—
16	48.5	57	69	81	87	111	129	141	86.5	95	107	119	125	149	167	179	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: Built-in Speed Controller Type
Double Acting, Single Rod
Series CJ2Z
ø10, ø16

How to Order

Bore size

10	10 mm
16	16 mm

Standard stroke (mm)

ø10	15, 30, 45, 60, 75, 100, 125, 150
ø16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200

∗ Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.
∗ When auto switch is mounted, refer to "Minimum Stroke for Auto Switch Mounting" on page 6-3-3.

Mounting style

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

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	CDJ2ZB16-60-A
	Band mounting style	CDJ2ZB10-45-B

∗ For rail mounting style, screws and nuts for 2 pcs. switches come with the rail.

Without auto switch CJ2Z L 16 — 60 ☐

With auto switch CDJ2Z L 16 — 60 ☐ — J79W ☐

Band mounting style

Rail mounting style

Built-in magnet

Port location on head cover

Symbol	Port location on head cover
Nil	Perpendicular to axis
R	Axial foot style

∗For configuration, refer to page 6-3-46.
∗ Double clevis style is only available for being perpendicular to axis.

Auto switch

∗ For the applicable auto switch model, refer to the table below.
∗ Auto switch for rail mounting style is shipped together, (but not assembled).

∗ 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.

Applicable Auto Switch/Refer to page 6-16-1 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)	Rail mounting (ø10, ø16): Perpendicular	Rail mounting (ø10, ø16): In-line	Lead wire length (m) ∗: 0.5 (Nil)	3 (L)	5 (Z)	None (N)	Pre-wire connector	Applicable load	
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	C76	—	A76H	●	●	—	—	—	IC circuit	—
				2-wire	—	—	200 V	—	A72	A72H	●	●	—	—	—	—	Relay, PLC
					24 V	12 V	100 V	C73	A73	A73H	●	●	●	—	—		
		Connector					—	C73C	A73C	—	●	●	●	●	—		
	With diagnostic output (2-color indication)	Grommet				—	—	—	A79W	—	●	●	—	—	—		
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	H7A1	F7NV	F79	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)				H7A2	F7PV	F7P	●	●	○	—	○		
				2-wire		12 V		H7B	F7BV	J79	●	●	○	—	○	—	
		Connector						H7C	J79C	—	●	●	●	●	—		
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)		5 V, 12 V		H7NW	F7NWV	F79W	●	●	○	—	○	IC circuit	
				3-wire (PNP)				H7PW	—	F7PW	●	●	○	—	○		
	Water resistant (2-color indication)			2-wire		12 V		H7BW	F7BWV	J79W	●	●	○	—	○	—	
								H7BA	—	F7BA	—	●	○	—	○		
								—	F7BAV	—	—	●	○	—	—		
	With diagnostic output (2-color indication)			4-wire (NPN)		5 V, 12 V		H7NF		F79F	●	●	○	—	○	IC circuit	

∗ Lead wire length symbols: 0.5 m ····· Nil (Example) C73C
3 m ····· L (Example) C73CL
5 m ····· Z (Example) C73CZ
None ····· N (Example) C73CN

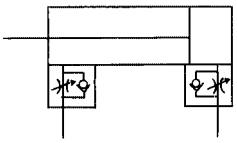
∗ Solid state switches marked with "○" are produced upon receipt of order.
∗∗ "D-A79W" cannot be mounted on bore size ø10 cylinder with air cushion.

• Since there are other applicable auto switches than listed, refer to page 6-3-13 for details.
• For details about auto switches with pre-wire connector, refer to page 6-16-60.

Space-saving air cylinder with speed controller built-in cylinder cover

JIS Symbol

Double acting,
Single rod



Made to Order Specifications (For details, refer to page 6-17-1.)

Symbol	Specifications
-XA□	Change of rod end shape
-XC51	With hose nipple

⚠ Precautions

Be sure to read before handling. Refer to pages 6-20-3 to 6-20-6 for Safety Instructions and Actuator Precautions.

Specifications

Action		Double acting, Single rod
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 (No freezing)
Cushion		Rubber bumper (Standard equipment)
Lubrication		Not required (Non-lube)
Thread tolerance		JIS Class 2
Stroke length tolerance		$^{+1.0}_{0}$
Speed controller		Built-in
Mounting		Basic style, Axial foot style Rod side flange style, Double clevis style
Piston speed		50 to 750 mm/s
Allowable kinetic energy	ø10	0.035 J
	ø16	0.090 J

Standard Stroke

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

∗ Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.

Minimum Stroke for Auto Switch Mounting

Refer to “Minimum Stroke for Auto Switch Mounting” on page 6-3-3.

Mounting Style and Accessory/For details, refer to page 6-3-11.

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.

Port Location on Head Cover

Either perpendicular to the cylinder axis or in-line with the cylinder axis is available for basic style.

Axial

Perpendicular

Part numbers for mounting bracket and auto switch mounting bracket are common with Series CJ2, double acting, single rod type. Refer to page 6-3-4.

Weight

(g)

Bore size (mm)		10	16
Basic weight *		40	73
Additional weight per each 15 mm of stroke		4	6.5
Mounting bracket weight	Axial foot style	8	20
	Rod side flange style	5	15
	Double clevis style * (With pin)	4	10

* Mounting nut and rod end nut are included in the basic weight.
Calculation: (Example) CJ2ZL10-45
- Basic weight ····· 40 (ø10)
- Additional weight ····· 4/15 stroke
- Cylinder stroke ····· 45 stroke
- Mounting bracket weight ····· 8 (Axial foot style)

40 + 4/15 x 45 + 8 = 60 g

Copper-free (For CRT manufacturing process)

20-CJ2Z | Mounting style | Bore size | – Stroke | Port location on head cover

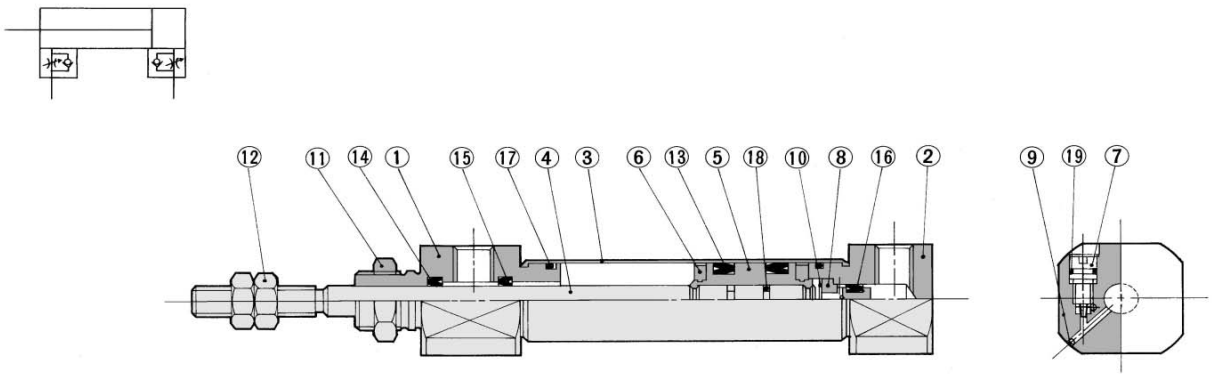
- **Copper-free**

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)	10, 16
Maximum operating pressure	0.7 MPa
Minimum operating pressure	0.06 MPa
Cushion	Rubber bumper (Standard equipment)
Standard stroke (mm)	Same as standard type. (Refer to page 6-3-46.)
Auto switch	Mountable (Band mounting style)
Mounting	Basic style, Axial foot style, Rod side flange style, Double clevis style

Construction (Not able to disassemble.)



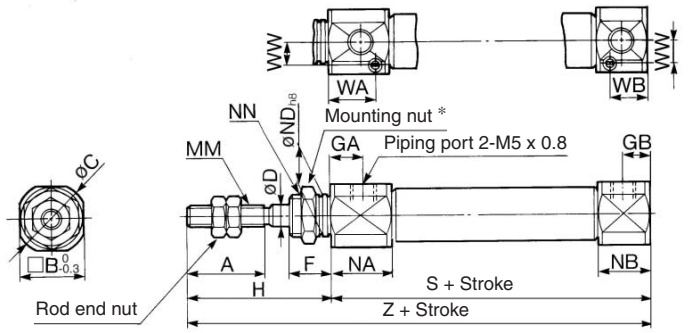
Component Parts

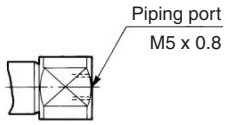
No.	Description	Material	Note
①	Rod cover	Aluminum alloy	Anodized
②	Head cover	Aluminum alloy	Anodized
③	Cylinder tube	Stainless steel	
④	Piston rod	Stainless steel	
⑤	Piston	Brass	
⑥	Bumper	Urethane	
⑦	Speed controller needle	Stainless steel	
⑧	Check packing sleeve	Brass	
⑨	Steel balls	Bearing steel	
⑩	Snap ring	Carbon tool steel	Black zinc chromated

No.	Description	Material	Note
⑪	Mounting nut	Brass	Nickel plated
⑫	Rod end nut	Rolled steel	Nickel plated
⑬	Piston seal	NBR	
⑭	Rod seal	NBR	
⑮	Check seal A	NBR	
⑯	Check seal B	NBR	
⑰	Tube gasket	NBR	
⑱	Piston gasket	NBR	
⑲	Needle seal	NBR	

Basic Style (B)

CJ2ZB Bore size – Stroke Port location on head cover





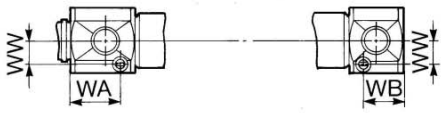
Port location on head cover: Axial location (R)

* For details of the mounting nut, refer to page 6-3-11.

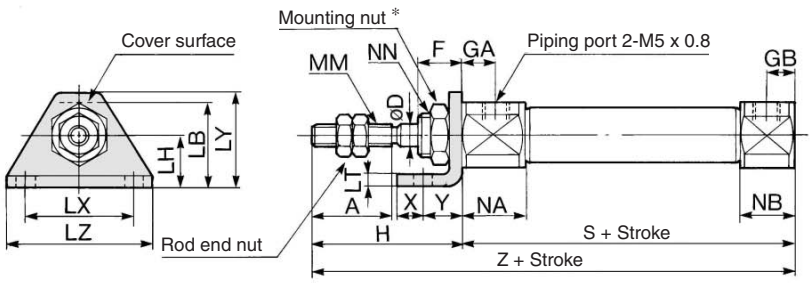
Bore size (mm)	A	B	C	D	F	GA	GB	H	MM	NA	NB	NDh8	NN	WA	WB	WW	S	Z
10	15	15	17	4	8	7.5	6.5	28	M4 x 0.7	21	18	$8^{0}_{-0.022}$	M8 x 1.0	14.5	13.5	4.5	63	91
16	15	18.3	20	5	8	7.5	6.5	28	M5 x 0.8	21	18	$10^{0}_{-0.022}$	M10 x 1.0	14.5	13.5	5.5	64	92

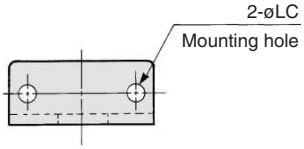
Axial Foot Style (L)

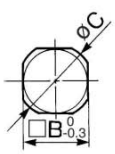
CJ2ZL Bore size – Stroke Port location on head cover

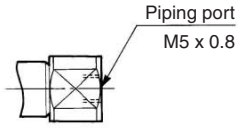


Port location on head cover: Axial location (R)

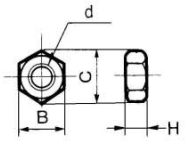








Rod End Nut



Material: Iron

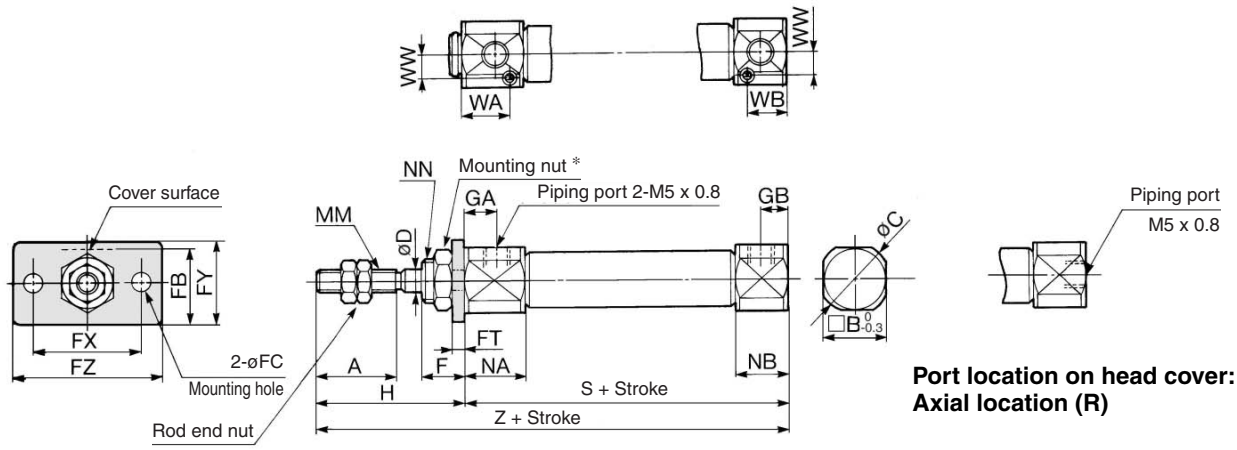
Part no.	Applicable bore (mm)	B	C	d	H
NTJ-010A	**10**	7	8.1	M4 x 0.7	3.2
NTJ-015A	**16**	8	9.2	M5 x 0.8	4

* For details of the mounting nut, refer to page 6-3-11.

Bore size (mm)	A	B	C	D	F	GA	GB	H	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	S	WA	WB	WW	X	Y	Z
10	15	15	17	4	8	7.5	6.5	28	16.5	4.5	9	1.6	24	16.5	32	M4 x 0.7	21	18	M8 x 1.0	63	14.5	13.5	4.5	5	7	91
16	15	18.3	20	5	8	7.5	6.5	28	23	5.5	14	2.3	33	25	42	M5 x 0.8	21	18	M10 x 1.0	64	14.5	13.5	5.5	6	9	92

Rod Side Flange Style (F)

CJ2ZF **Bore size** – **Stroke** **Port location on head cover**



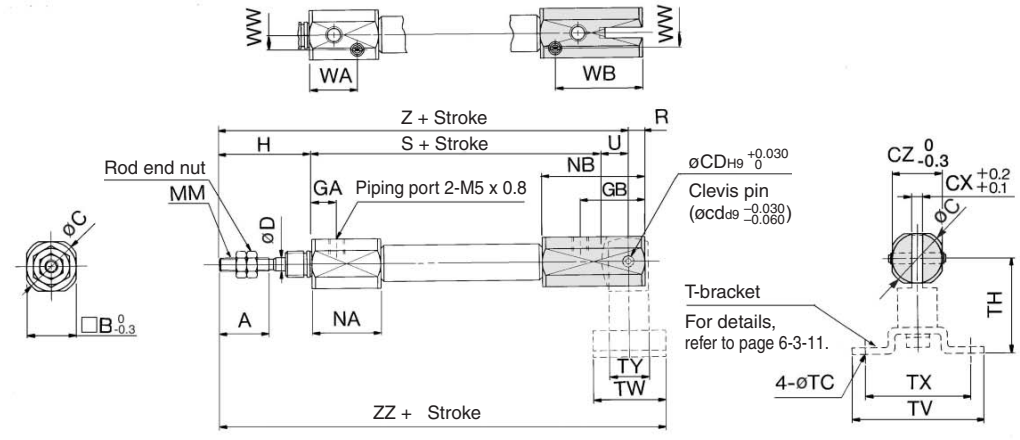
Port location on head cover: Axial location (R)

∗ For details of the mounting nut, refer to page 6-3-11.

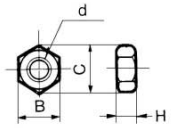
Bore size (mm)	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GA	GB	H	MM	NA	NB	NN	WA	WB	WW	S	Z
10	15	15	17	4	8	14.5	4.5	1.6	24	14	32	7.5	6.5	28	M4 x 0.7	21	18	M8 x 1.0	14.5	13.5	4.5	63	91
16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	7.5	6.5	28	M5 x 0.8	21	18	M10 x 1.0	14.5	13.5	5.5	64	92

Double Clevis Style (D)

CJ2ZD **Bore size** – **Stroke**



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

∗ Clevis pin and set ring are shipped together.

Bore size (mm)	A	B	C	CD (cd)	CX	CZ	D	GA	GB	H	MM	NA	NB	R	S	U	WA	WB	WW	Z	ZZ
10	15	15	17	3.3	3.2	15	4	7.5	19.5	28	M4 x 0.7	21	31	5	63	8	14.5	26.5	4.5	99	110
16	15	18.3	20	5	6.5	18.3	5	7.5	24.5	28	M5 x 0.8	21	36	8	64	10	14.5	31.5	5.5	102	116

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: Built-in Speed Controller Type
Double Acting, Double Rod
Series CJ2ZW
ø10, ø16

How to Order

Bore size

10	10 mm
16	16 mm

Standard stroke (mm)

ø10	15, 30, 45, 60
ø16	15, 30, 45, 60

∗ Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.
∗ When auto switch is mounted, refer to "Minimum Stroke for Auto Switch Mounting" on page 6-3-15.

Mounting style

B	Basic style
L	Foot style
F	Flange style

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	CDJ2ZWB16-60-A
	Band mounting style	CDJ2ZWB10-45-B

∗ For rail mounting style, screws and nuts for 2 pcs. switches come with the rail.

Without auto switch CJ2ZW **L** **16** — **45**

With auto switch CDJ2ZW **L** **16** — **45** — **J79W** **□**

Built-in magnet

Auto switch
∗ For the applicable auto switch model, refer to the table below.
∗ Auto switch for rail mounting style is shipped together, (but not assembled).

∗ 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.

Applicable Auto Switch/Refer to page 6-16-1 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)	3 (L)	5 (Z)	None (N)	Pre-wire connector	Applicable load	
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	C76	—	A76H	●	●	—	—	—	IC circuit	—
				2-wire	—	—	200 V	—	A72	A72H	●	●	—	—	—	—	Relay, PLC
					24 V	12 V	100 V	C73	A73	A73H	●	●	●	—	—		
		Connector					—	C73C	A73C	—	●	●	●	●	—	—	
	With diagnostic output (2-color indication)	Grommet				—	—	—	A79W∗∗	—	●	●	—	—	—		
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	H7A1	F7NV	F79	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)				H7A2	F7PV	F7P	●	●	○	—	○		
				2-wire		12 V		H7B	F7BV	J79	●	●	○	—	○	—	
		Connector						H7C	J79C	—	●	●	●	●	—		
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)		5 V, 12 V		H7NW	F7NWV	F79W	●	●	○	—	○	IC circuit	
				3-wire (PNP)				H7PW	—	F7PW	●	●	○	—	○		
				2-wire		12 V		H7BW	F7BWV	J79W	●	●	○	—	○	—	
	Water resistant (2-color indication)							H7BA	—	F7BA	—	●	○	—	○		
								—	F7BAV	—	—	●	○	—	—		
	With diagnostic output (2-color indication)			4-wire (NPN)		5 V, 12 V		H7NF	—	F79F	●	●	○	—	○	IC circuit	

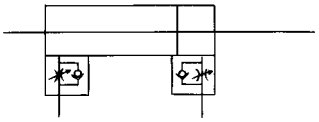
∗ Lead wire length symbols: 0.5 m ····· Nil (Example) C73C
3 m ····· L (Example) C73CL
5 m ····· Z (Example) C73CZ
None ····· N (Example) C73CN

∗ Solid state switches marked with "○" are produced upon receipt of order.
∗∗ "D-A79W" cannot be mounted on bore size ø10 cylinder with air cushion.

• Since there are other applicable auto switches than listed, refer to page 6-3-13 for details.
• For details about auto switches with pre-wire connector, refer to page 6-16-60.

Space-saving air cylinder with speed controller built-in cylinder cover

JIS Symbol
Double acting,
Single rod



Specifications

Action		Double acting, Double rod
Fluid		Air
Proof pressure		1.05 MPa
Maximum operating pressure		0.7 MPa
Minimum operating pressure		0.1 MPa
Ambient and fluid temperature		Without auto switch: –10 to 70°C (No freezing) With auto switch: –10 to 60°C (No freezing)
Cushion		Rubber bumper
Lubrication		Not required (Non-lube)
Thread tolerance		JIS Class 2
Stroke length tolerance		$^{+1.0}_{0}$
Speed controller		Built-in type
Mounting		Basic style, Axial foot style, Flange style
Piston speed		50 to 750 mm/s
Allowable kinetic energy	ø10	0.035 J
	ø16	0.090 J

Standard Stroke

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

∗ Intermediate stroke length is available by the 1 mm interval with no stroke adjustment by spacer.

Minimum Stroke for Auto Switch Mounting

Refer to “Minimum Stroke for Auto Switch Mounting” on page 6-3-15.

Mounting Style and Accessory/For details, refer to page 6-3-11.

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

∗ Knuckle pin and snap ring are shipped together with double knuckle joint.

Made to Order Specifications (For details, refer to page 6-17-1.)

Symbol	Specifications
-XA□	Change of rod end shape
-XC51	With hose nipple

⚠ Precautions

Be sure to read before handling. Refer to pages 6-20-3 to 6-20-6 for Safety Instructions and Actuator Precautions.

Mounting Bracket Part No.

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

Auto Switch Mounting Bracket Part No. (Band mounting style)

Bore size (mm)	Auto switch mounting bracket no.	Note
10	BJ2-010	Common for the types of D-C7/C8 and D-H7
16	BJ2-016	

Weight

(g)

Bore size (mm)		10	16
Basic weight *		50	85
Additional weight per each 15 mm of stroke		6	9
Mounting bracket weight	Foot style	16	40
	Flange style	5	15

* Rod end nut are included in the basic weight.

Calculation: (Example) CJ2ZWL10-45

- Basic weight ····· 50 (ø10)
- Additional weight ····· 6/15 stroke
- Cylinder stroke ····· 45 stroke
- Mounting bracket weight ····· 16 (Axial foot style)

50 + 6/15 x 45 + 16 = 84 g

Copper-free (For CRT manufacturing process)

20-CJ2XW | Mounting style | Bore size | – Stroke | Port location on head cover

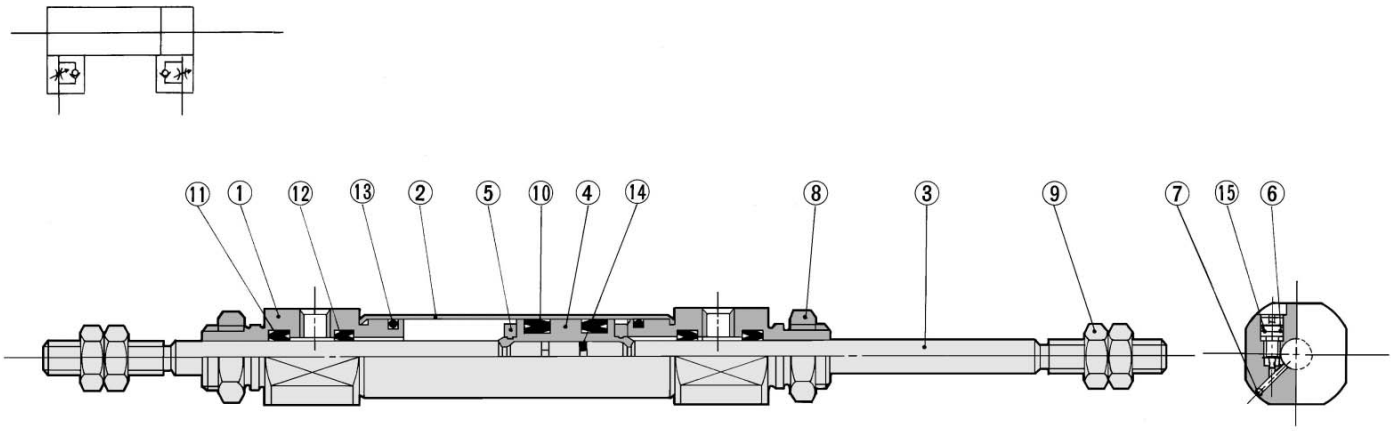
• Copper-free

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)	10, 16
Maximum operating pressure	0.7 MPa
Minimum operating pressure	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.)



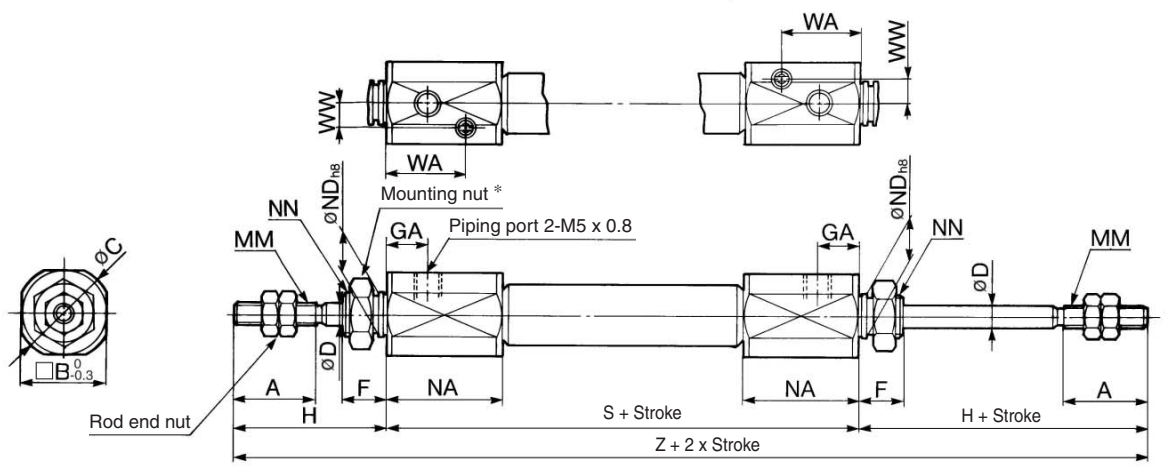
Component Parts

No.	Description	Material	Note
①	Rod cover	Aluminum alloy	Anodized
②	Cylinder tube	Stainless steel	
③	Piston rod	Stainless steel	
④	Piston	Brass	
⑤	Bumper	Urethane	
⑥	Speed controller needle	Stainless steel	
⑦	Steel balls	Bearing steel	
⑧	Mounting nut	Brass	Nickel plated

No.	Description	Material	Note
⑨	Rod end nut	Rolled steel	Nickel plated
⑩	Piston seal	NBR	
⑪	Rod seal	NBR	
⑫	Check seal	NBR	
⑬	Tube gasket	NBR	
⑭	Piston gasket	NBR	
⑮	Needle seal	NBR	

Basic Style (B)

CJ2ZWB **Bore size** – **Stroke**

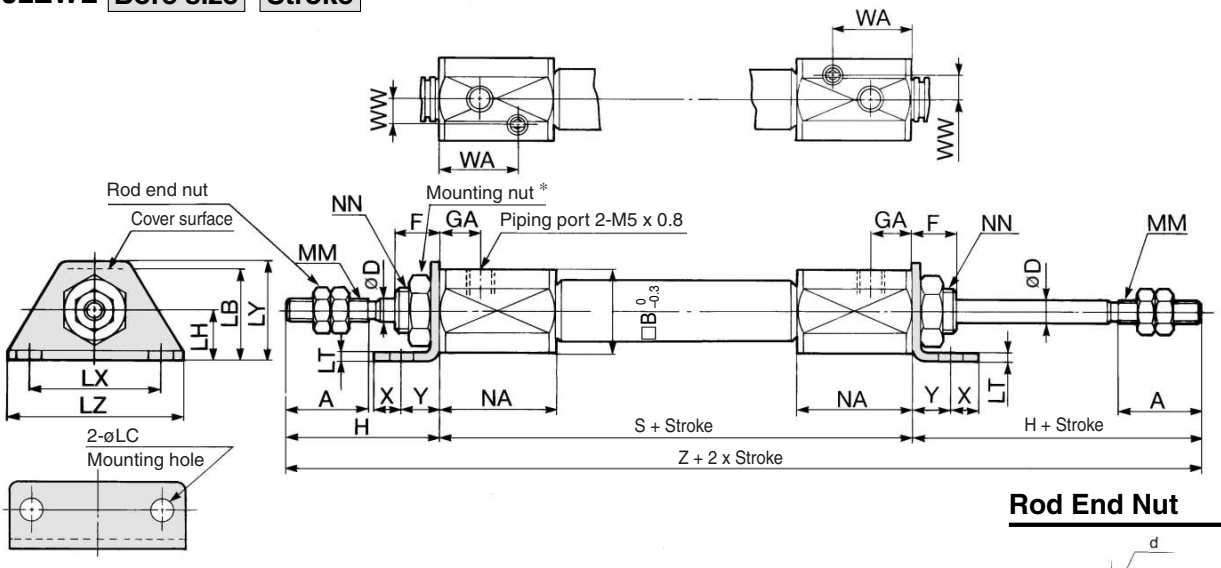


∗ For details of the mounting nut, refer to page 6-3-11.

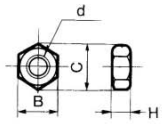
Bore size (mm)	A	B	C	D	F	GA	H	MM	NA	NDh8	NN	S	WA	WW	Z
10	15	15	17	4	8	7.5	28	M4 x 0.7	21	8 $^{0}_{-0.022}$	M8 x 1.0	66	14.5	4.5	122
16	15	18.3	20	5	8	7.5	28	M5 x 0.8	21	10 $^{0}_{-0.022}$	M10 x 1.0	67	14.5	5.5	123

Foot Style (L)

CJ2ZWL **Bore size** – **Stroke**



Rod End Nut



Material: Iron

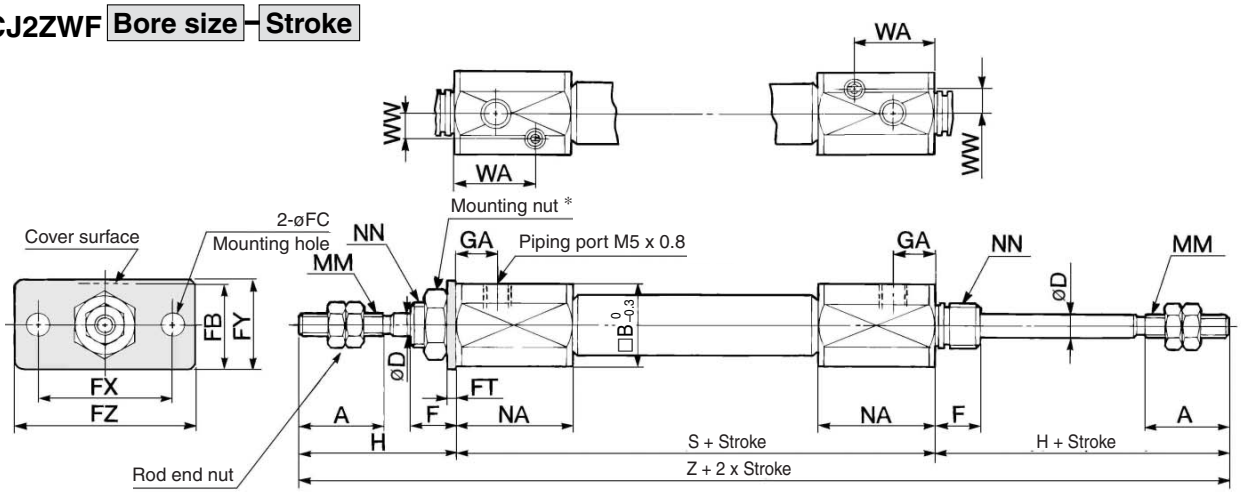
Part no.	Applicable bore (mm)	B	C	d	H
NTJ-010A	**10**	7	8.1	M4 x 0.7	3.2
NTJ-015A	**16**	8	9.2	M5 x 0.8	4

∗ For details of the mounting nut, refer to page 6-3-11.

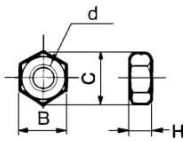
Bore size (mm)	A	B	D	F	LB	LC	LH	LT	LX	LY	LZ	GA	H	MM	NA	NN	S	WA	WW	X	Y	Z
10	15	15	4	8	16.5	4.5	9	1.6	24	16.5	32	7.5	28	M4 x 0.7	21	M8 x 1.0	66	14.5	4.5	5	7	122
16	15	18.3	5	8	23	5.5	14	2.3	33	25	42	7.5	28	M5 x 0.8	21	M10 x 1.0	67	14.5	5.5	6	9	123

Flange Style (F)

CJ2ZWF Bore size – Stroke



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

∗ For details of the mounting nut, refer to page 6-3-11.

Bore size (mm)	A	B	D	F	FB	FC	FT	FX	FY	FZ	GA	H	MM	NA	NN	S	WA	WW	Z
10	15	15	4	8	14.5	4.5	1.6	24	14	32	7.5	28	M4 x 0.7	21	M8 x 1.0	66	14.5	4.5	122
16	15	18.3	5	8	19	5.5	2.3	33	20	42	7.5	28	M5 x 0.8	21	M10 x 1.0	67	14.5	5.5	123

Air Cylinder: Low Friction Type
Double Acting, Single Rod
Series CJ2Q
ø10, ø16

How to Order

Bore size

10	10 mm
16	16 mm

Standard stroke (mm)

ø10	15, 30, 45, 60, 75, 100, 125, 150
ø16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200

∗ Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.
∗ When auto switch is mounted, refer to "Minimum Stroke for Auto Switch Mounting" on page 6-3-3.

Mounting style

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

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	CDJ2QB16-60-A
	Band mounting style	CDJ2QB10-45-B

∗ For rail mounting style, screws and nuts for 2 pcs. switches come with the rail.

Without auto switch **CJ2Q** **L** **16** — **60**

With auto switch **CDJ2Q** **L** **16** — **60** — **J79W**

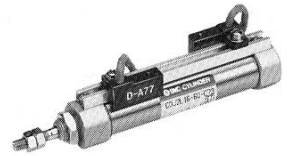
Built-in magnet

Number of auto switches

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

Band mounting style

Rail mounting style



Port location on head cover

Symbol	Port location on head cover
Nil	Perpendicular to axis
R	Axial foot style

∗ For configuration, refer to page 6-3-57.
∗ Double clevis style is only available for being perpendicular to axis.

Auto switch

∗ For the applicable auto switch model, refer to the table below.
∗ Auto switch for rail mounting style is shipped together, (but not assembled).

∗ 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 page 6-16-1 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)	Rail mounting (ø10, ø16): Perpendicular	Rail mounting (ø10, ø16): In-line	Lead wire length (m) ∗: 0.5 (Nil)	3 (L)	5 (Z)	None (N)	Pre-wire connector	Applicable load	
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**C76**	—	**A76H**	●	●	—	—	—	IC circuit	—
				2-wire	—	—	200 V	—	**A72**	**A72H**	●	●	—	—	—	—	Relay, PLC
					24 V	12 V	100 V	**C73**	**A73**	**A73H**	●	●	●	—	—		
		Connector					—	**C73C**	**A73C**	—	●	●	●	●	—		
	With diagnostic output (2-color indication)	Grommet				—	—	—	**A79W**	—	●	●	—	—	—		
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**H7A1**	**F7NV**	**F79**	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)				**H7A2**	**F7PV**	**F7P**	●	●	○	—	○		
				2-wire		12 V		**H7B**	**F7BV**	**J79**	●	●	○	—	○	—	
		Connector						**H7C**	**J79C**	—	●	●	●	●	—		
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)		5 V, 12 V		**H7NW**	**F7NWV**	**F79W**	●	●	○	—	○	IC circuit	
				3-wire (PNP)				**H7PW**	—	**F7PW**	●	●	○	—	○		
				2-wire		12 V		**H7BW**	**F7BWV**	**J79W**	●	●	○	—	○	—	
	Water resistant (2-color indication)							**H7BA**	—	**F7BA**	—	●	○	—	○		
								—	**F7BAV**	—	—	●	○	—	—		
	With diagnostic output (2-color indication)			4-wire (NPN)		5 V, 12 V		**H7NF**	—	**F79F**	●	●	○	—	○	IC circuit	

∗ Lead wire length symbols: 0.5 m ····· Nil (Example) C73C
3 m ····· L (Example) C73CL
5 m ····· Z (Example) C73CZ
None ····· N (Example) C73CN

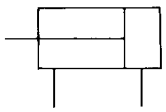
∗ Solid state switches marked with "○" are produced upon receipt of order.

• Since there are other applicable auto switches than listed, refer to page 6-3-13 for details.
• For details about auto switches with pre-wire connector, refer to page 6-16-60.

Specially designed to keep friction of the piston to a minimum. Suitable for contact-pressure control requiring smooth operation at low pressures.

Low sliding resistance
Minimum operating pressure: 0.03 MPa

JIS Symbol
Double acting,
Single rod



Made to Order Specifications (For details, refer to page 6-17-1.)

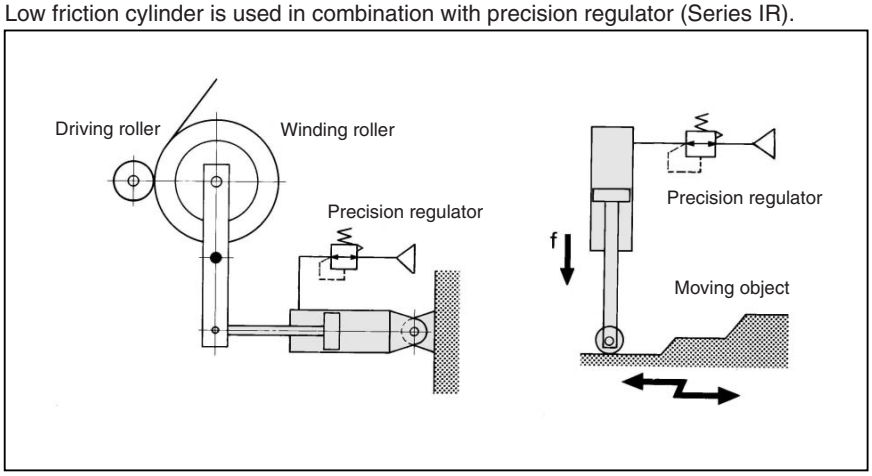
Symbol	Specifications
-XA□	Change of rod end shape
-XC51	With hose nipple

⚠ Precautions

Be sure to read before handling. Refer to pages 6-20-3 to 6-20-6 for Safety Instructions and Actuator Precautions.

Application Example

Low friction cylinder is used in combination with precision regulator (Series IR).



Specifications

Action		Double acting, Single rod
Fluid		Air
Proof pressure		1.05 MPa
Maximum operating pressure		0.7 MPa
Minimum operating pressure		0.03 MPa
Ambient and fluid temperature		Without auto switch: –10 to 70°C (No freezing) With auto switch: –10 to 60°C (No freezing)
Cushion		Rubber bumper
Lubrication		Not required (Non-lube)
Thread tolerance		JIS Class 2
Stroke length tolerance		$^{+1.0}_{0}$
Bore size (mm)		10, 16
Mounting		Basic style, Axial foot style Rod side flange style, Double clevis style
Piston speed		50 to 750 mm/s
Allowable kinetic energy	ø10	0.035 J
	ø16	0.090 J

Standard Stroke

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

∗ Intermediate stroke length is available by the 1 mm interval with no stroke adjustment by spacer.

Minimum Stroke for Auto Switch Mounting

Refer to “Minimum Stroke for Auto Switch Mounting” on page 6-3-3.

Mounting Style and Accessory/For details, refer to page 6-3-11.

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)	
	10	**16**
Foot bracket	CJ-L010B	CJ-L016B
Flange bracket	CJ-F010B	CJ-F016B
T-bracket *	CJ-T010B	CJ-T016B

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

Auto Switch Mounting Bracket Part No. (Band mounting style)

Bore size (mm)	Auto switch mounting bracket no.	Note
10	BJ2-010	Common for the types of D-C7/C8 and D-H7
16	BJ2-016	

[Mounting screws set made of stainless steel]
The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment.
(Please order the mounting band separately, since it is not included.)

BBA4: For D-C7/C8/H7

"D-H7BAL" switch is set on the cylinder with the stainless steel screws above when shipped.
When only a switch is shipped independently, "BBA4" screws are attached.

Weight

(g)

Bore size (mm)		**10**	**16**
Basic weight *		24	55
Additional weight per each 15 mm of stroke		4	6.5
Mounting bracket weight	Axial foot style	8	20
	Rod side flange style	5	15
	Double clevis style (With pin) *	4	10

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

Calculation: (Example) CJ2QL10-45
- Basic weight····· 24 (ø10)
- Additional weight····· 4/15 stroke
- Cylinder stroke····· 45 stroke
- Mounting bracket weight····· 8 (Axial foot style)

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

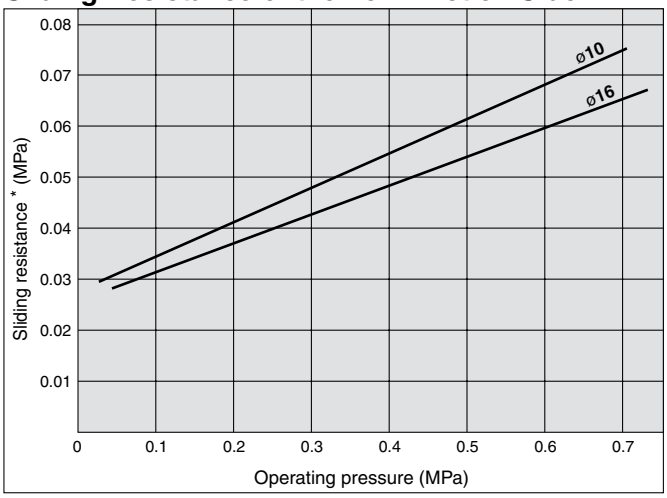
Port Location on Head Cover

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

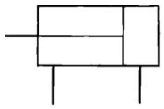
Perpendicular

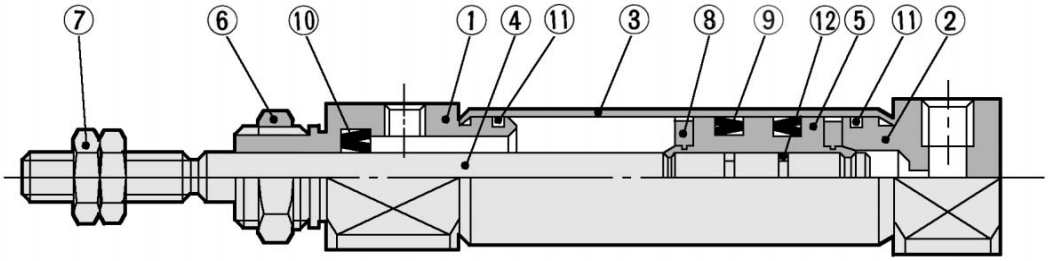
Sliding Resistance of the Low Friction Side



* Conversion into the cylinder operating pressure:

Construction (Not able to disassemble.)





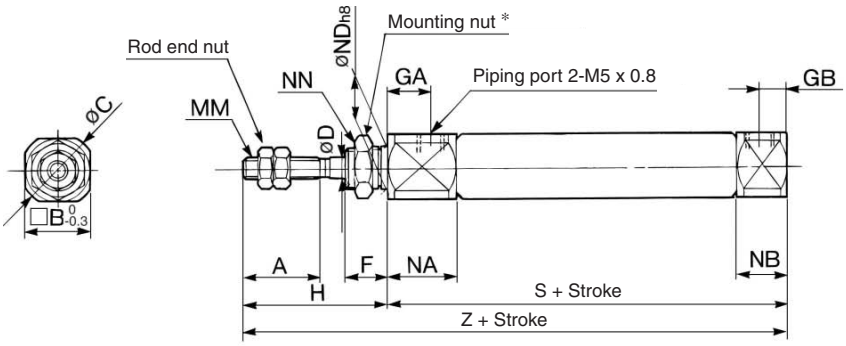
Component Parts

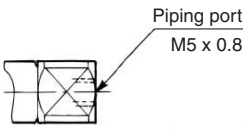
No.	Description	Material	Note
①	Rod cover	Aluminum alloy	Anodized
②	Head cover	Aluminum alloy	Anodized
③	Cylinder tube	Stainless steel	
④	Piston rod	Stainless steel	
⑤	Piston	Brass	
⑥	Mounting nut	Brass	Nickel plated

No.	Description	Material	Note
⑦	Rod end nut	Rolled steel	Nickel plated
⑧	Bumper	Urethane	
⑨	Piston seal	NBR	For low friction
⑩	Rod seal	NBR	For low friction
⑪	Tube gasket	NBR	
⑫	Piston gasket	NBR	

Basic Style (B)

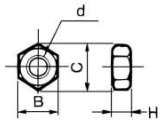
CJ2QB **Bore size** – **Stroke** **Port location on head cover**





Port location on head cover: Axial location (R)

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

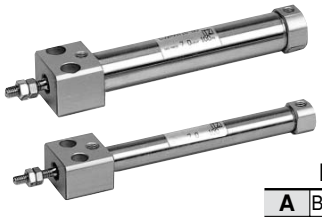
∗ For details of the mounting nut, refer to page 6-3-11.

Bore size (mm)	A	B	C	D	F	GA	GB	H	MM	NA	NB	ND	NN	S	Z
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

For dimensions of each mounting bracket, refer to pages 6-3-8 to 6-3-10.

Air Cylinder: Direct Mount Type
Double Acting, Single Rod
Series CJ2R
ø10, ø16

How to Order



Bore size

10	10 mm
16	16 mm

Mounting style

A	Bottom mounting style

Standard stroke (mm)

ø10	15, 30, 45, 60, 75, 100, 125, 150
ø16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200

* Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.
* When auto switch is mounted, refer to "Minimum Stroke for Auto Switch Mounting" on page 6-3-60.

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	CDJ2RB16-60-A
	Band mounting style	CDJ2RB10-45-B

* For rail mounting style, screws and nuts for 2 pcs. switches come with the rail.

Without auto switch **CJ2RA 16 — 60**

With auto switch **CDJ2RA 16 — 60 — J79W**

Built-in magnet

Band mounting style

Rail mounting style

Port location on head cover

Symbol	Port location on head cover
Nil	Perpendicular to axis
R	Axial foot style

* For configuration, refer to page 6-3-61.

Auto switch

* For the applicable auto switch model, refer to the table below.
* Auto switch for rail mounting style is shipped together, (but not assembled).
* 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.

Applicable Auto Switch/Refer to page 6-16-1 for further information on auto switches.

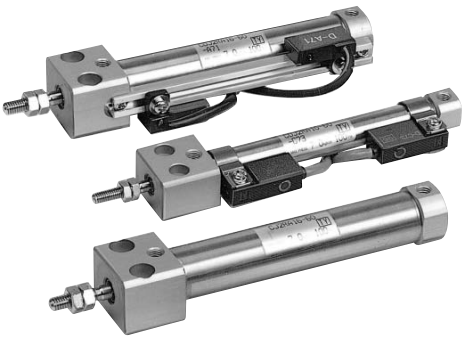
Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Band mounting (ø6, ø10, ø16)	Auto switch model: Rail mounting (ø10, ø16) Perpendicular	Auto switch model: Rail mounting (ø10, ø16) In-line	Lead wire length (m) * 0.5 (Nil)	3 (L)	5 (Z)	None (N)	Pre-wire connector	Applicable load	
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	— 5 V	—	**C76**	—	**A76H**	●	●	—	—	—	IC circuit	—
				2-wire	—	200 V	—	**A72**	**A72H**	●	●	—	—	—	—	Relay, PLC
					24 V 12 V	100 V	**C73**	**A73**	**A73H**	●	●	●	—	—		
		Connector				—	**C73C**	**A73C**	—	●	●	●	●	—		
	With diagnostic output (2-color indication)	Grommet			—	—	—	**A79W**	—	●	●	—	—	—		
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V 5 V, 12 V	—	**H7A1**	**F7NV**	**F79**	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			**H7A2**	**F7PV**	**F7P**	●	●	○	—	○		
				2-wire	12 V		**H7B**	**F7BV**	**J79**	●	●	○	—	○	—	
		Connector					**H7C**	**J79C**	—	●	●	●	●	—		
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)	5 V, 12 V		**H7NW**	**F7NWV**	**F79W**	●	●	○	—	○	IC circuit	
				3-wire (PNP)			**H7PW**	—	**F7PW**	●	●	○	—	○		
				2-wire	12 V		**H7BW**	**F7BWV**	**J79W**	●	●	○	—	○	—	
	Water resistant (2-color indication)						**H7BA**	—	**F7BA**	—	●	○	—	○		
							—	**F7BAV**	—	—	●	○	—	—		
	With diagnostic output (2-color indication)			4-wire (NPN)	5 V, 12 V		**H7NF**	—	**F79F**	●	●	○	—	○	IC circuit	

* Lead wire length symbols: 0.5 m ····· Nil (Example) C73C
3 m ····· L (Example) C73CL
5 m ····· Z (Example) C73CZ
None ····· N (Example) C73CN

* Solid state switches marked with "○" are produced upon receipt of order.

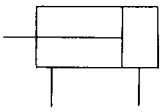
• Since there are other applicable auto switches than listed, refer to page 6-3-13 for details.
• For details about auto switches with pre-wire connector, refer to page 6-16-60.

Series CJ2R direct mount cylinder can be installed directly through the use of a square rod cover.



JIS Symbol

Double acting,
Single rod



Specifications

Action		Double acting, Single rod
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 (No freezing)
Cushion		Rubber bumper
Lubrication		Not required (Non-lube)
Thread tolerance		JIS Class 2
Stroke length tolerance		$^{+1.0}_{0}$
Bore size (mm)		10, 16
Mounting		Bottom mounting style
Piston speed		50 to 750 mm/s
Allowable kinetic energy	ø10	0.035 J
	ø16	0.090 J

Standard Stroke

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

∗ Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.

Minimum Stroke for Auto Switch Mounting

Auto switch mounting style	Auto switch model	No. of auto switches mounted	Minimum cylinder stroke (mm)
Band mounting style	D-C7□ D-C80	3 (Same side)	90
		3 (Different sides)	55
		2 (Same side)	50
		2 (Different sides)	15
		1	10
	D-H7□ D-H7□W D-H7BAL D-H7NF	3 (Same side)	105
		3 (Different sides)	60
		2 (Same side)	60
		2 (Different sides)	15
		1	10
	D-C73C D-C80C D-H7C	3 (Same side)	105
		3 (Different sides)	65
		2 (Same side)	65
		2 (Different sides)	15
		1	10

Auto switch mounting style	Auto switch model	No. of auto switches mounted	Minimum cylinder stroke (mm)
Rail mounting style	D-A7□ D-A80 D-A73C D-A80C	3	35
		2	10
		1	5
	D-A7□H D-A80H	3	45
		2	10
		1	5
	D-A79W	3	40
		2	15
		1	10
	D-F7□ D-J79	3	45
		2	5
		1	5
	D-F7□V D-J79C	3	30
		2	5
		1	5
	D-F7□W D-J79W D-F7BAL D-F79F	3	55
		2	15
		1	10
	D-F7□WV D-F7BAVL	3	40
		2	15
		1	10

Made to Order Specifications (For details, refer to page 6-17-1.)

Symbol	Specifications
-XA□	Change of rod end shape
-XC51	With hose nipple

⚠ Precautions

Be sure to read before handling. Refer to pages 6-20-3 to 6-20-6 for Safety Instructions and Actuator Precautions.

Weight

(g)

Bore size (mm)	10	16
Basic weight *	36	71.5
Additional weight per each 15 mm of stroke	4	6.5

* Rod end nut are included in the basic weight.
Calculation: (Example) CJ2RA10-45
- Basic weight ····· 36 (ø10)
- Additional weight ····· 4/15 stroke
- Cylinder stroke ····· 45 stroke

36 + 4/15 x 45 = 48 g

Port Location on Head Cover

Either perpendicular to the cylinder axis or in-line with the cylinder axis is available for basic style.

Axial

Perpendicular

Auto Switch Mounting Bracket/ Part No. (Band mounting style)

Bore size (mm)	Auto switch mounting bracket no.	Note
10	BJ2-010	Common for the types of D-C7/C8 and D-H7
16	BJ2-016	

* Mounting screws set made of stainless steel
The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment. (Please order the mounting band separately, since it is not included.)
BBA4: For D-C7/C8/H7
"D-H7BAL" switch is set on the cylinder with the stainless steel screws above when shipped.
When only a switch is shipped independently, "BBA4" screws are attached.

Clean Series

10-CJ2RA | **Bore size** | **Stroke** | **Port location onhead cover**

• 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)	10, 16
Maximum operating pressure	0.7 MPa
Minimum operating pressure	0.08 MPa
Cushion	Rubber bumper
Standard stroke (mm)	Same as the standard. (Refer to page 6-3-60.)
Auto switch	Mountable (Band mounting style)
Mounting	Bottom mounting style

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

Copper-free (For CRT manufacturing process)

20-CJ2RA | **Bore size** | **Stroke** | **Port location onhead cover**

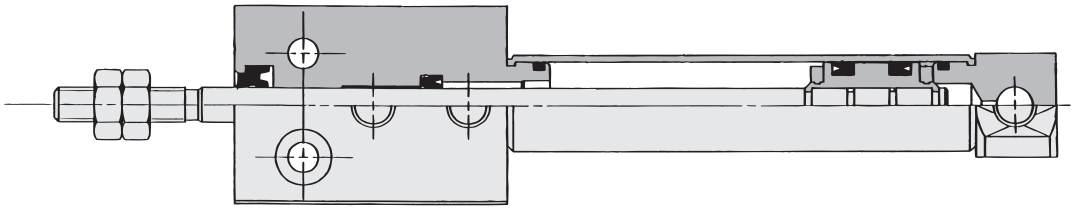
• Copper-free

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.

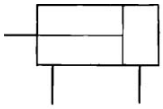
Specifications

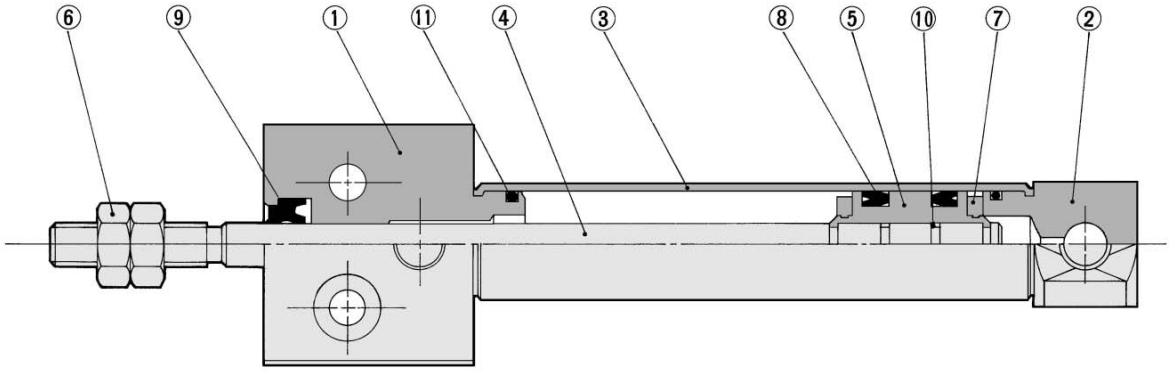
Bore size (mm)	10, 16
Action	Double acting, Single rod
Maximum operating pressure	0.7 MPa
Minimum operating pressure	0.06 MPa
Cushion	Rubber bumper (Standard equipment)
Standard stroke (mm)	Same as standard type. (Refer to page 6-3-60.)
Auto switch	Mountable (Band mounting style)
Mounting	Bottom mounting style

Construction (Not able to disassemble.)



Construction (Not able to disassemble.)





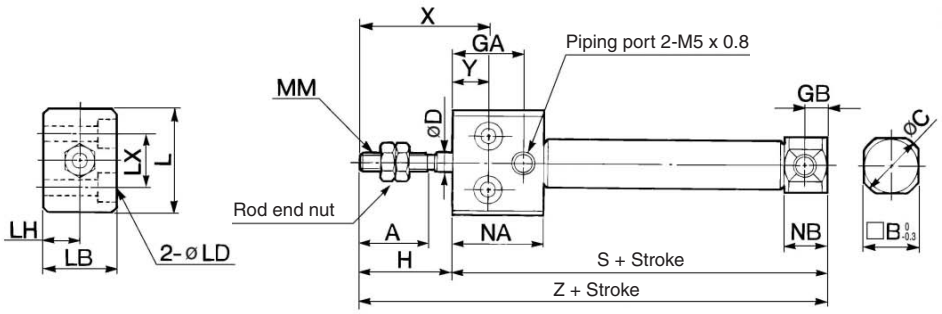
Component Parts

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	Rod end nut	Rolled steel	Nickel plated

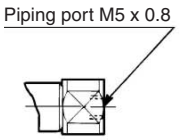
No.	Description	Material	Note
⑦	Bumper	Urethane	
⑧	Piston seal	NBR	
⑨	Rod seal	NBR	
⑩	Piston gasket	NBR	
⑪	Tube gasket	NBR	

Bottom Mounting Style

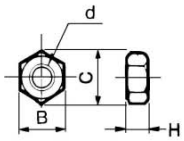
CJ2RA Bore size – Stroke Port location on head cover



Port location on head cover: Axial location (R)



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 (mm)	A	B	C	D	GA	GB	H	L	LB	LD	LH	LX	MM	NA	NB	X	Y	S	Z
10	15	12	14	4	16	5	20	23	16	ø3.5, ø6.5 counterbore depth 4	8	12	M4 x 0.7	20.5	9.5	28	8	54	74
16	15	18.3	20	5	16	5	20	26	20	ø4.5, ø8 counterbore depth 5	10	16	M5 x 0.8	20.5	9.5	28	8	55	75

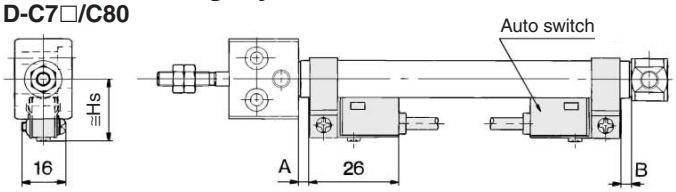
Proper Auto Switch Mounting Position (Detection at stroke end) and Its Mounting Height

For the operating range of auto switch, refer to page 6-3-13.

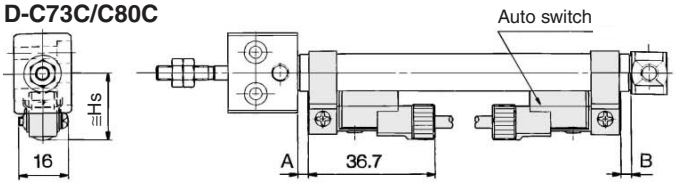
Reed switch

<Band mounting style>

D-C7□/C80

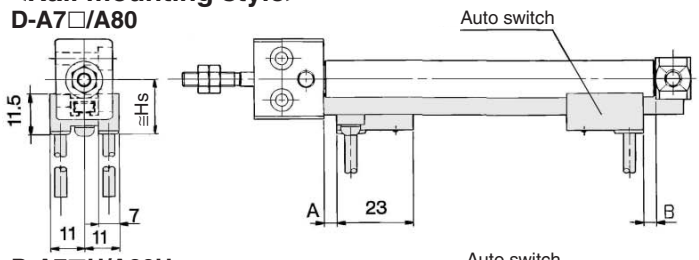


D-C73C/C80C

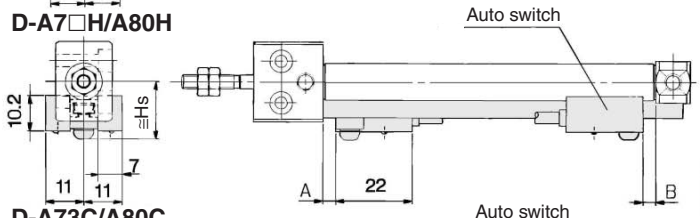


<Rail mounting style>

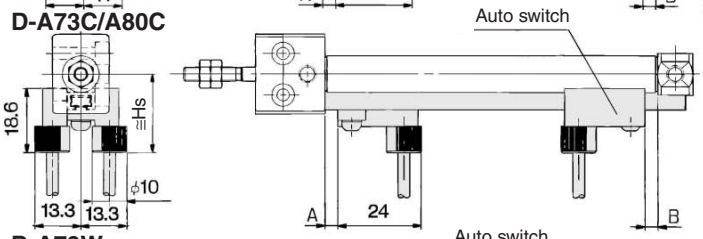
D-A7□/A80



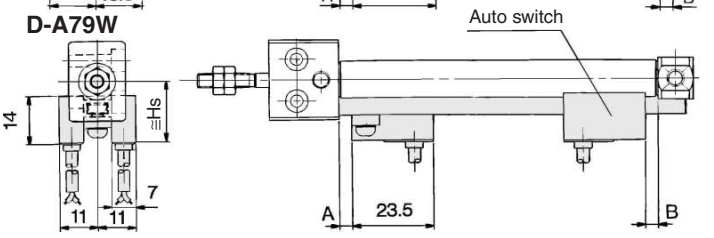
D-A7□H/A80H



D-A73C/A80C



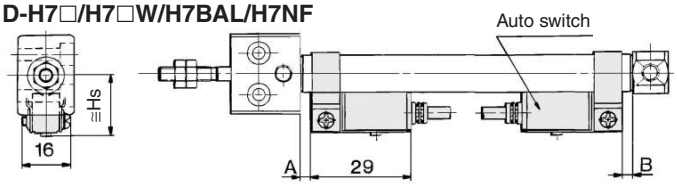
D-A79W



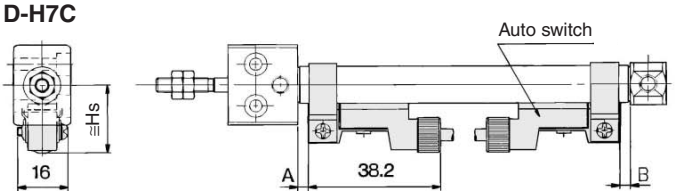
Solid state switch

<Band mounting style>

D-H7□/H7□W/H7BAL/H7NF

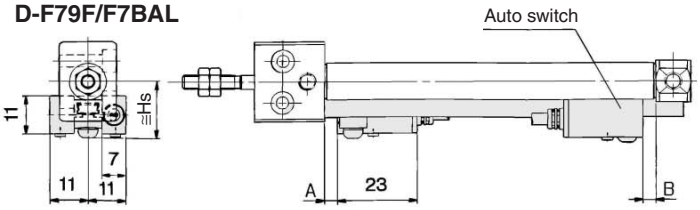


D-H7C

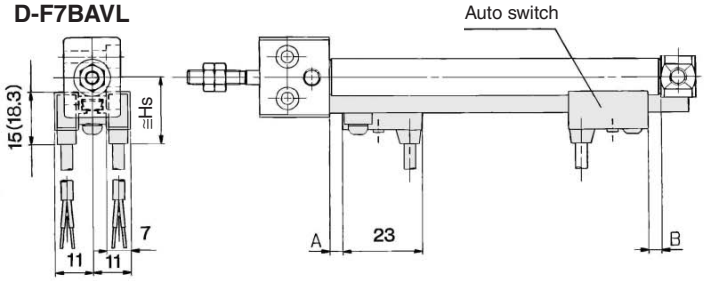


<Rail mounting style>

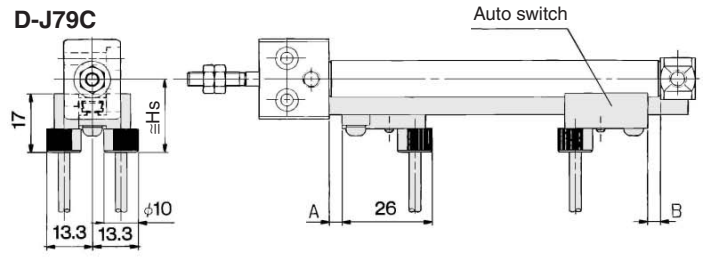
D-F7□/J79
D-F7□W/J79W
D-F79F/F7BAL



D-F7□V/F7□WV
D-F7BAVL



D-J79C



Proper Auto Switch Mounting Position

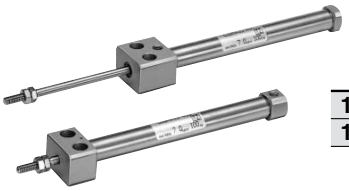
Auto switch model / Bore size (mm)	D-C7□ D-C80 D-C73C D-C80C		D-H7 D-H7C D-H7□W D-H7BAL D-H7NF		D-A7□ D-A80		D-A7□H/A80H D-A73C/A80C D-F7□/J79 D-F7□W/J79W D-F7□V/F7□WV D-F79F/J79C D-F7BAL D-F7BAVL		D-A79W	
	A	B	A	B	A	B	A	B	A	B
10	2.5	2.5	1.5	1.5	3	3	3.5	3.5	0.5	0.5
16	3	3	2	2	3.5	3.5	4	4	1	1

Auto Switch Mounting Height

Auto switch model / Bore size (mm)	D-C7□/C80 D-H7□/H7□W D-H7NF D-H7BAL	D-C73C D-C80C	D-H7C	D-A7 D-A80	D-A7□H/A80H D-F7□/J79 D-F7□W/J79W D-F7BAL/F79F	D-A73C D-A80C	D-F7□V D-F7□WV D-F7BAVL	D-J79C	D-A79W
	Hs	Hs	Hs	Hs	Hs	Hs	Hs	Hs	Hs
10	17	19.5	20	16.5	17.5	23.5	20	23	19
16	20.5	23	23.5	19.5	20.5	26.5	23	26	22

Air Cylinder: Direct Mount Type
Single Acting, Single Rod, Spring Return/Extend
Series CJ2R
ø10, ø16

How to Order



Bore size

10	10 mm
16	16 mm

Standard stroke (mm)

ø10	15, 30, 45, 60
ø16	15, 30, 45, 60, 75, 100, 125, 150

∗ Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.
∗ When auto switch is mounted, refer to "Minimum Stroke for Auto Switch Mounting" on page 6-3-60.

Mounting style

A	Bottom mounting style

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	CDJ2RA16-60S-A
	Band mounting style	CDJ2RA10-45S-B

∗ For rail mounting style, screws and nuts for 2 pcs. switches come with the rail.

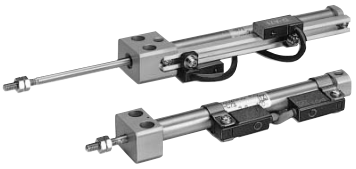
Without auto switch **CJ2RA** **16** — **45** **S** ☐

With auto switch **CDJ2RA** **16** — **45** **S** ☐ — **J79W** ☐

Built-in magnet

Number of auto switches

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



Port location on head cover

Symbol	Port location on head cover
Nil	Perpendicular to axis
R	Axial foot style

∗ For configuration, refer to page 6-3-61.
∗ Not applicable to single acting, spring extend (T).

Auto switch

∗ For the applicable auto switch model, refer to the table below.
∗ Auto switch for rail mounting style is shipped together, (but not assembled).
∗ 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 page 6-16-1 for further information on auto switches.

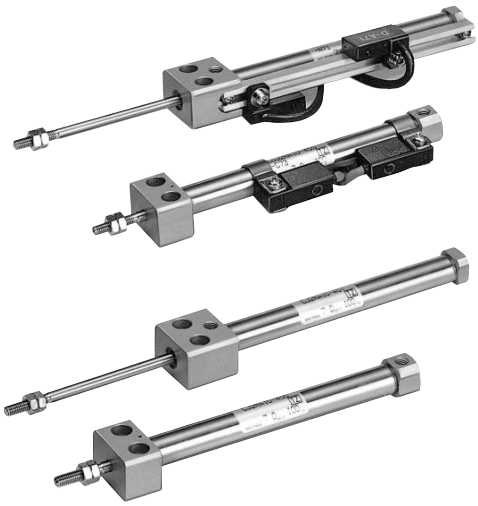
Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Load voltage AC	Auto switch model: Band mounting (ø6, ø10, ø16)	Rail mounting (ø10, ø16): Perpendicular	Rail mounting (ø10, ø16): In-line	Lead wire length (m) ∗: 0.5 (Nil)	3 (L)	5 (Z)	None (N)	Pre-wire connector	Applicable load	
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**C76**	—	**A76H**	●	●	—	—	—	IC circuit	—
				2-wire		—	200 V	—	**A72**	**A72H**	●	●	—	—	—	—	Relay, PLC
					24 V	12 V	100 V	**C73**	**A73**	**A73H**	●	●	●	—	—		
		Connector					—	**C73C**	**A73C**	—	●	●	●	●	—		
	With diagnostic output (2-color indication)	Grommet				—	—	—	**A79W**	—	●	●	—	—	—		
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**H7A1**	**F7NV**	**F79**	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)				**H7A2**	**F7PV**	**F7P**	●	●	○	—	○		
				2-wire		12 V		**H7B**	**F7BV**	**J79**	●	●	○	—	○	—	
		Connector						**H7C**	**J79C**	—	●	●	●	●	—		
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)		5 V, 12 V		**H7NW**	**F7NWV**	**F79W**	●	●	○	—	○	IC circuit	
				3-wire (PNP)				**H7PW**	—	**F7PW**	●	●	○	—	○		
				2-wire		12 V		**H7BW**	**F7BWV**	**J79W**	●	●	○	—	○	—	
	Water resistant (2-color indication)							**H7BA**	—	**F7BA**	—	●	○	—	○		
								—	**F7BAV**	—	—	●	○	—	—		
	With diagnostic output (2-color indication)			4-wire (NPN)		5 V, 12 V		**H7NF**	—	**F79F**	●	●	○	—	○	IC circuit	

∗ Lead wire length symbols: 0.5 m ····· Nil (Example) C73C
3 m ····· L (Example) C73CL
5 m ····· Z (Example) C73CZ
None ····· N (Example) C73CN

∗ Solid state switches marked with "○" are produced upon receipt of order.

• Since there are other applicable auto switches than listed, refer to page 6-3-13 for details.
• For details about auto switches with pre-wire connector, refer to page 6-16-60.

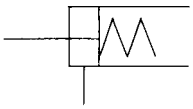
Series CJ2R direct mount cylinder can be installed directly through the use of a square rod cover.



JIS Symbol

Single acting, Spring return

Single acting, Spring extend



Made to Order Specifications (For details, refer to page 6-17-1.)

Symbol	Specifications
-XA□	Change of rod end shape
-XC51	With hose nipple

⚠ Precautions

Be sure to read before handling. Refer to pages 6-20-3 to 6-20-6 for Safety Instructions and Actuator Precautions.

Specifications

Action		Single acting, Spring return	Single acting, Spring extend
Fluid		Air	
Proof pressure		1.05 MPa	
Maximum operating pressure		0.7 MPa	
Minimum operating pressure		0.15 MPa	
Ambient and fluid temperature		Without auto switch: –10 to 70°C (No freezing) With auto switch: –10 to 60°C (No freezing)	
Cushion		Rubber bumper	
Lubrication		Not required (Non-lube)	
Thread tolerance		JIS Class 2	
Stroke length tolerance		$^{+1.0}_{0}$	
Bore size (mm)		ø10, ø16	
Mounting		Bottom mounting style	
Piston speed		50 to 750 mm/s	
Allowable kinetic energy	ø10	0.035 J	
	ø16	0.090 J	

Standard Stroke

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

∗ Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.

Minimum Stroke for Auto Switch Mounting

Refer to “Minimum Stroke for Auto Switch Mounting” on page 6-3-60.

Accessory/For details, refer to page 6-3-11.

Standard equipment	Rod end nut
Option	Single knuckle joint, Double knuckle joint ∗

∗ Knuckle pin and snap ring are shipped together with double knuckle joint.

Auto Switch Mounting Bracket Part No. (Band mounting style)

Bore size (mm)	Auto switch mounting bracket no.	Note
10	BJ2-010	Common for the types of D-C7/C8 and D-H7
16	BJ2-016	

∗ Mounting screws set made of stainless steel
The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment. (Please order the mounting band separately, since it is not included.)
BBA4: For D-C7/C8/H7
“D-H7BAL” switch is set on the cylinder with the stainless steel screws above when shipped.
When only a switch is shipped independently, “BBA4” screws are attached.

Spring Force (N)

Bore size (mm)	Retracted side	Extended side
10	6.86	3.53
16	14.2	6.86

Weight/Spring Return

(g)

Bore size (mm)		10	16
Weight *	15 stroke	38	73
	30 stroke	45	90
	45 stroke	54	112
	60 stroke	63	134
	75 stroke	—	155
	100 stroke	—	198
	125 stroke	—	234
	150 stroke	—	260

* Rod end nut is included in the weight.

Weight/Spring Extend

(g)

Bore size (mm)		10	16
Weight *	15 stroke	44	78
	30 stroke	50	94
	45 stroke	59	114
	60 stroke	67	135
	75 stroke	—	154
	100 stroke	—	192
	125 stroke	—	226
	150 stroke	—	250

* Rod end nut is included in the weight.

Copper-free (For CRT manufacturing process)

20-CJ2RA Bore size – Stroke Action Port location on head cover

• Copper-free

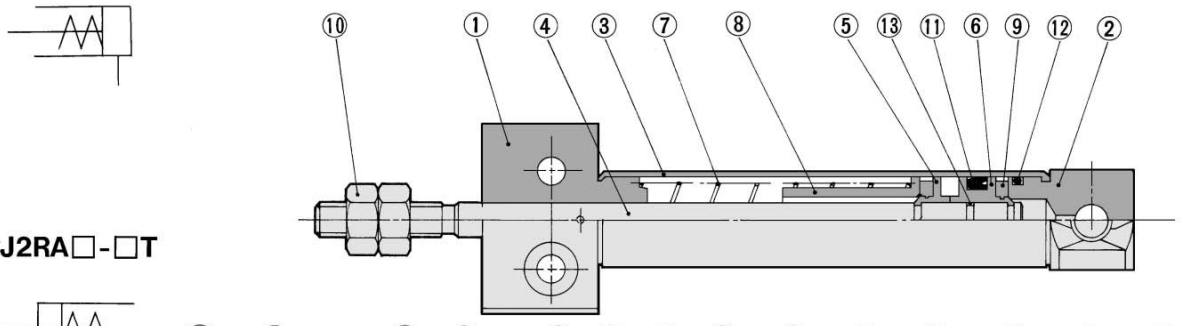
Eliminates the effects by copper based ions and fluorine based resins, etc. over the color cathode ray tube.
Making copper based materials into electroless nickel plated treatment or changing them to the non-copper materials in order to prevent copper ions from generating.

Specifications

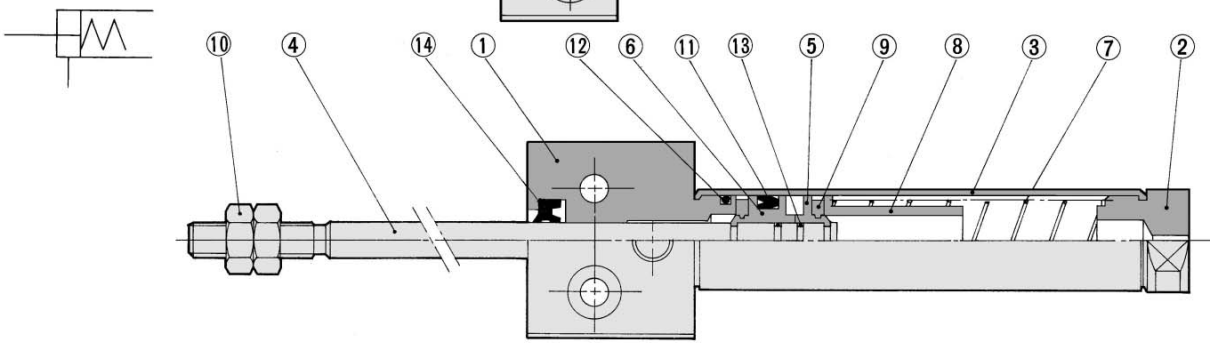
Bore size (mm)	10/16
Action	Single acting, Spring return; Single acting, Spring extend
Max. operating pressure	0.7 MPa
Min. operating pressure	0.15 MPa
Cushion	Rubber bumper (Standard equipment)
Standard stroke (mm)	Same as standard type. (Refer to page 6-3-65.)
Auto switch	Mountable (Band mounting style)
Mounting	Bottom mounting style

Construction (Not able to disassemble.)

CJ2RA□-□S



CJ2RA□-□T



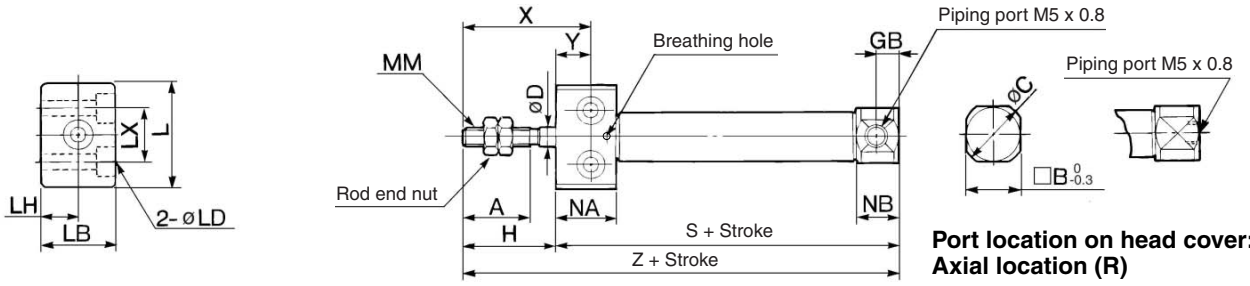
Component Parts

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

No.	Description	Material	Note
⑧	Spring seat	Brass	
⑨	Bumper	Urethane	
⑩	Rod end nut	Rolled steel	Nickel plated
⑪	Piston seal	NBR	
⑫	Tube gasket	NBR	
⑬	Piston gasket	NBR	
⑭	Rod seal	NBR	

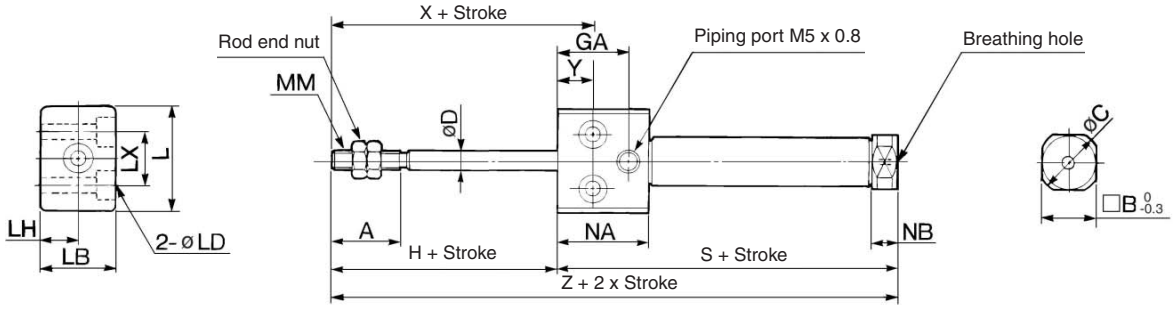
Single Acting: Bottom Mounting Style

Spring return: CJ2RA Bore size – Stroke S Port location on head cover

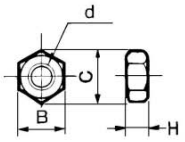


Port location on head cover: Axial location (R)

Spring extend: CJ2RA Bore size – Stroke T



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	D	GB	H	L	LB	LD	LH	LX	MM	NA	NB	X	Y
10	15	12	14	4	5	20	23	16	ø3.5, ø6.5 counterbore depth 4	8	12	M4 x 0.7	13.5	9.5	28	8
16	15	18.3	20	5	5	20	26	20	ø4.5, ø8 counterbore depth 5	10	16	M5 x 0.8	13.5	9.5	28	8

Dimensions by Stroke: Spring Return

Bore size (mm) \ Symbol / Stroke	S								Z							
	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150
10	53.5	61	73	85	—	—	—	—	73.5	81	93	105	—	—	—	—
16	53.5	62	74	86	92	116	134	146	73.5	82	94	106	112	136	154	166

Dimensions by Stroke: Spring Extend (Dimensions not mentioned in the below table are the same as the above table.)

Bore size (mm)	GA	NA	NB	S								Z							
				5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150
10	16	20.5	5.5	56.5	64	76	88	—	—	—	—	76.5	84	96	108	—	—	—	—
16	16	20.5	5.5	56.5	65	77	89	95	119	137	149	76.5	85	97	109	115	139	157	169

Air Cylinder: Direct Mount, Non-rotating Rod Type
Double Acting, Single Rod
Series CJ2RK
ø10, ø16

How to Order

Bore size

10	10 mm
16	16 mm

Standard stroke (mm)

ø10	15, 30, 45, 60, 75, 100, 125, 150
ø16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200

∗ Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.
∗ When auto switch is mounted, refer to "Minimum Stroke for Auto Switch Mounting" on page 6-3-60.

Mounting style

A	Bottom mounting style

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	CDJ2RKA16-60-A
	Band mounting style	CDJ2RKA10-45-B

∗ For rail mounting style, screws and nuts for 2 pcs. switches come with the rail.

Without auto switch **CJ2RKA** **16** — **60** □

With auto switch **CDJ2RKA** **16** — **60** □ — **J79W** □

Built-in magnet

Port location on head cover

Symbol	Port location on head cover
Nil	Perpendicular to axis
R	Axial foot style

∗ For configuration, refer to page 6-3-70.

Auto switch

∗ For the applicable auto switch model, refer to the table below.
∗ Auto switch for rail mounting style is shipped together, (but not assembled).

∗ 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.

Applicable Auto Switch/Refer to page 6-16-1 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)	Rail mounting (ø10, ø16) Perpendicular	Rail mounting (ø10, ø16) In-line	Lead wire length (m)∗ 0.5 (Nil)	3 (L)	5 (Z)	None (N)	Pre-wire connector	Applicable load	
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**C76**	—	**A76H**	●	●	—	—	—	IC circuit	—
				2-wire		—	200 V	—	**A72**	**A72H**	●	●	—	—	—	—	Relay, PLC
					24 V	12 V	100 V	**C73**	**A73**	**A73H**	●	●	●	—	—		
		Connector					—	**C73C**	**A73C**	—	●	●	●	●	—		
	With diagnostic output (2-color indication)	Grommet				—	—	—	**A79W**	—	●	●	—	—	—		
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**H7A1**	**F7NV**	**79**	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)				**H7A2**	**F7PV**	**F7P**	●	●	○	—	○		
				2-wire		12 V		**H7B**	**F7BV**	**J79**	●	●	○	—	○	—	
		Connector						**H7C**	**J79C**	—	●	●	●	●	—		
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)		5 V, 12 V		**H7NW**	**F7NWV**	**F79W**	●	●	○	—	○	IC circuit	
				3-wire (PNP)				**H7PW**	—	**F7PW**	●	●	○	—	○		
				2-wire		12 V		**H7BW**	**F7BWV**	**J79W**	●	●	○	—	○	—	
	Water resistant (2-color indication)							**H7BA**	—	**F7BA**	—	●	○	—	○		
								—	**F7BAV**	—	—	●	○	—	—		
	With diagnostic output (2-color indication)			4-wire (NPN)		5 V, 12 V		**H7NF**	—	**F79F**	●	●	○	—	○	IC circuit	

∗ Lead wire length symbols: 0.5 m ····· Nil (Example) C73C
3 m ····· L (Example) C73CL
5 m ····· Z (Example) C73CZ
None ····· N (Example) C73CN

∗ Solid state switches marked with "○" are produced upon receipt of order.

• Since there are other applicable auto switches than listed, refer to page 6-3-13 for details.
• For details about auto switches with pre-wire connector, refer to page 6-16-60.

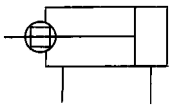
A cylinder which rod does not rotate because of the hexagonal rod shape.

Non-rotating accuracy

ø10: ±1.5°, **ø16:** ±1°

JIS Symbol

Double acting,
Single rod



Made to Order Specifications (For details, refer to page 6-17-1.)

Symbol	Specifications
-XA□	Change of rod end shape
-XC51	With hose nipple

⚠ Precautions

Be sure to read before handling. Refer to pages 6-20-3 to 6-20-6 for Safety Instructions and Actuator Precautions.

Specifications

Action		Double acting, Single rod
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 (No freezing)
Cushion		Rubber bumper
Lubrication		Not required (Non-lube)
Thread tolerance		JIS Class 2
Stroke length tolerance		$^{+1.0}_{0}$
Rod non-rotating accuracy		ø10: ±1.5°, ø16: ±1°
Mounting		Bottom mounting style
Piston speed		50 to 750 mm/s
Allowable kinetic energy	ø10	0.035 J
	ø16	0.090 J

Standard Stroke

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

∗ Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.

Minimum Stroke for Auto Switch Mounting

Refer to “Minimum Stroke for Auto Switch Mounting” on page 6-3-60.

Accessory/For details, refer to page 6-3-11.

Standard equipment	Rod end nut
Option	Single knuckle joint, Double knuckle joint ∗

∗ Knuckle pin and snap ring are shipped together with double knuckle joint.

Weight

(g)

Bore size (mm)	10	16
Basic weight *	36	71.5
Additional weight per each 15 mm of stroke	4	6.5

* Rod end nut are included in the basic weight.
Calculation: (Example) CJ2RKA10-45
- Basic weight····· 36 (ø10)
- Additional weight····· 4/15 stroke
- Cylinder stroke····· 45 stroke

36 + 4/15 x 45 = 48 g

Port Location on Head Cover

Either perpendicular to the cylinder axis or in-line with the cylinder axis is available for basic style.

Axial

Perpendicular

Auto Switch Mounting Bracket Part No. (Band mounting style)

Bore size (mm)	Auto switch mounting bracket no.	Note
10	BJ2-010	Common for the types of D-C7/C8 and D-H7
16	BJ2-016	

* Mounting screws set made of stainless steel
The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment.
(Please order the mounting band separately, since it is not included.)
BBA4: For D-C7/C8/H7
"D-H7BAL" switch is set on the cylinder with the stainless steel screws above when shipped.
When only a switch is shipped independently, "BBA4" screws are attached.

Copper-free (For CRT manufacturing process)

20-CJ2RK **Bore size** – **Stroke** **Port location on head cover**

• Copper-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

Bore size (mm)	10, 16
Action	Double acting, Single rod
Maximum operating pressure	0.7 MPa
Minimum operating pressure	0.06 MPa
Cushion	Rubber bumper (Standard equipment)
Standard stroke (mm)	Same as standard type. (Refer to page 6-3-69.)
Auto switch	Mountable (Band mounting style)
Mounting	Bottom mounting style

Caution on Handling

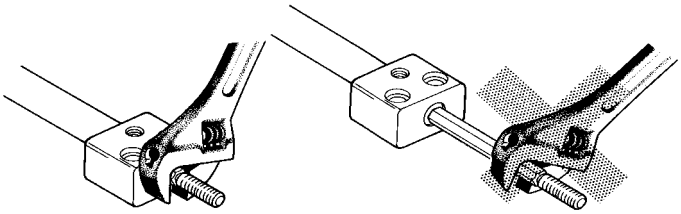
⚠ Caution

<When mounting>

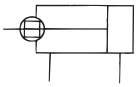
- Avoid using the air cylinder in such a way that rotational torque would be applied to the piston rod because this will deform the non-rotating guide, thus affecting the non-rotating accuracy.

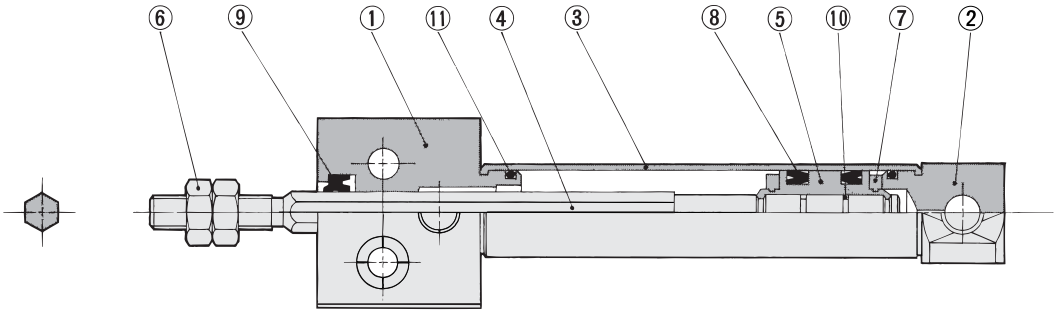
Allowable rotational torque (N·m)	ø10	ø16
	0.02	0.04

- Operate the cylinder in such a way that the load to the piston rod is always applied in the axial direction.
- To screw a bracket onto the threaded portion at the tip of the piston rod, make sure to retract the piston rod entirely, and place a wrench over the flat portion of the rod that protrudes.
Tighten it by giving consideration to prevent the tightening torque from being applied to the non-rotating guide.



Construction (Not able to disassemble.)





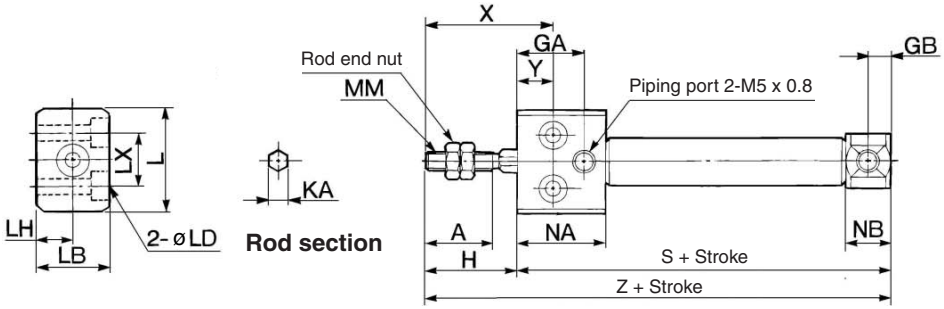
Component Parts

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	Rod end nut	Rolled steel	Nickel plated

No.	Description	Material	Note
⑦	Bumper	Urethane	
⑧	Piston seal	NBR	
⑨	Rod seal	NBR	
⑩	Piston gasket	NBR	
⑪	Tube gasket	NBR	

Bottom Mounting Style

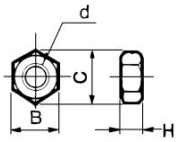
CJ2RKA **Bore size** – **Stroke** **Port location on head cover**



Rod section

Port location on head cover: Axial location (R)

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	GA	GB	H	KA	L	LB	LD	LH	LX	MM	NA	NB	X	Y	S	Z
10	15	12	14	16	5	20	4.2	23	16	ø3.5, ø6.5 counterbore depth 4	8	12	M4 x 0.7	20.5	9.5	28	8	54	74
16	15	18.3	20	16	5	20	5.2	26	20	ø4.5, ø8 counterbore depth 5	10	16	M5 x 0.8	20.5	9.5	28	8	55	75

Air Cylinder: Direct Mount, Non-rotating Rod Type
Single Acting, Single Rod, Spring Return/Extend

Series CJ2RK

ø10, ø16

How to Order

Standard stroke (mm)

ø10	15, 30, 45, 60
ø16	15, 30, 45, 60, 75, 100, 125, 150

* Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.
* When auto switch is mounted, refer to "Minimum Stroke for Auto Switch Mounting" on page 6-3-60.

Bore size

10	10 mm
16	16 mm

Mounting style

A	Bottom mounting style

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	CDJ2RKA16-60S-A
	Band mounting style	CDJ2RKA10-45S-B

* For rail mounting style, screws and nuts for 2 pcs. switches come with the rail.

Without auto switch **CJ2RKA** **16** — **45** **S** □

With auto switch **CDJ2RKA** **16** — **45** **S** □ — **J79W** □

Built-in magnet

Port location on head cover

Symbol	Port location on head cover
Nil	Perpendicular to axis
R	Axial foot style

* For configuration, refer to page 6-3-70.
* Not applicable to single acting, spring extend (T).

Auto switch

* For the applicable auto switch model, refer to the table below.
* Auto switch for rail mounting style is shipped together, (but not assembled).
* 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.

Applicable Auto Switch/Refer to page 6-16-1 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)	3 (L)	5 (Z)	None (N)	Pre-wire connector	Applicable load	
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**C76**	—	**A76H**	●	●	—	—	—	IC circuit	—
				2-wire	—	—	200 V	—	**A72**	**A72H**	●	●	—	—	—	—	Relay, PLC
					24 V	12 V	100 V	**C73**	**A73**	**A73H**	●	●	●	—	—		
		Connector					—	**C73C**	**A73C**	—	●	●	●	●	—		
	With diagnostic output (2-color indication)	Grommet				–	—	—	**A79W**	—	●	●	—	—	—		
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	**H7A1**	**F7NV**	**F79**	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)				**H7A2**	**F7PV**	**F7P**	●	●	○	—	○		
				2-wire		12 V		**H7B**	**F7BV**	**J79**	●	●	○	—	○	—	
		Connector						**H7C**	**J79C**	—	●	●	●	●	—		
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)		5 V, 12 V		**H7NW**	**F7NWV**	**F79W**	●	●	○	—	○	IC circuit	
				3-wire (PNP)				**H7PW**	—	**F7PW**	●	●	○	—	○		
				2-wire		12 V		**H7BW**	**F7BWV**	**J79W**	●	●	○	—	○	—	
	Water resistant (2-color indication)							**H7BA**	—	**F7BA**	—	●	○	—	○		
								—	**F7BAV**	—	—	●	○	—	—		
	With diagnostic output (2-color indication)			4-wire (NPN)		5 V, 12 V		**H7NF**	—	**F79F**	●	●	○	—	○	IC circuit	

* Lead wire length symbols: 0.5 m ····· Nil (Example) C73C
3 m ····· L (Example) C73CL
5 m ····· Z (Example) C73CZ
None ····· N (Example) C73CN

* Solid state switches marked with "○" are produced upon receipt of order.

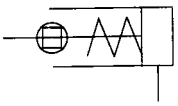
• Since there are other applicable auto switches than listed, refer to page 6-3-13 for details.
• For details about auto switches with pre-wire connector, refer to page 6-16-60.

A cylinder which rod does not rotate because of the hexagonal rod shape.

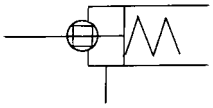
Non-rotating accuracy
ø10: ±1.5°, ø16: ±1°
Can operate without lubrication.

JIS Symbol

Single acting, Single return



Single acting, Spring extend



Made to Order Specifications (For details, refer to page 6-17-1.)

Symbol	Specifications
-XA□	Change of rod end shape
-XC51	With hose nipple

⚠ Precautions

Be sure to read before handling. Refer to pages 6-20-3 to 6-20-6 for Safety Instructions and Actuator Precautions.

Specifications

Action		Single acting, Spring return	Single acting, Spring extend
Fluid		Air	
Proof pressure		1.05 MPa	
Maximum operating pressure		0.7 MPa	
Minimum operating pressure		0.15 MPa	
Ambient and fluid temperature		Without auto switch: –10 to 70°C (No freezing) With auto switch: –10 to 60°C (No freezing)	
Cushion		Rubber bumper	
Lubrication		Not required (Non-lube)	
Thread tolerance		JIS Class 2	
Stroke length tolerance		$^{+1.0}_{0}$	
Rod non-rotating accuracy		ø10: ±1.5°, ø16: ±1°	
Mounting		Bottom mounting style	
Bore size (mm)		10, 16	
Piston speed		50 to 750 mm/s	
Allowable kinetic energy	ø10	0.035 J	
	ø16	0.090 J	

Standard Stroke

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

∗ Intermediate strokes are available by the 1 mm interval with no stroke adjustment by spacer.

Minimum Stroke for Auto Switch Mounting

Refer to “Minimum Stroke for Auto Switch Mounting” on page 6-3-60.

Accessory/For details, refer to page 6-3-11.

Standard equipment	Rod end nut
Option	Single knuckle joint, Double knuckle joint ∗

∗ Knuckle pin and snap ring are shipped together with double knuckle joint.

Auto Switch Mounting Bracket Part No. (Band mounting style)

Bore size (mm)	Auto switch mounting bracket no.	Note
10	BJ2-010	Common for the types of D-C7/C8 and D-H7
16	BJ2-016	

∗ Mounting screws set made of stainless steel
The following set of mounting screws made of stainless steel is also available. Use it in accordance with the operating environment.
(Please order the mounting band separately, since it is not included.)
BBA4: For D-C7/C8/H7
“D-H7BAL” switch is set on the cylinder with the stainless steel screws above when shipped.
When only a switch is shipped independently, “BBA4” screws are attached.

Spring Force

(N)

Bore size (mm)	Retracted side	Extended side
10	6.86	3.53
16	14.2	6.86

Weight/Spring Return

(g)

Bore size (mm)		10	16
Weight *	15 stroke	38	73
	30 stroke	45	90
	45 stroke	54	112
	60 stroke	63	134
	75 stroke	—	155
	100 stroke	—	198
	125 stroke	—	234
	150 stroke	—	260

* Rod end nut is included in the weight.

Weight/Spring Extend

(g)

Bore size (mm)		10	16
Weight *	15 stroke	44	78
	30 stroke	50	94
	45 stroke	59	114
	60 stroke	67	135
	75 stroke	—	154
	100 stroke	—	192
	125 stroke	—	226
	150 stroke	—	250

* Rod end nut is included in the weight.

Copper-free (For CRT manufacturing process)

20-CJ2RKA Bore size – Stroke Action Port location on head cover

● **Copper-free**

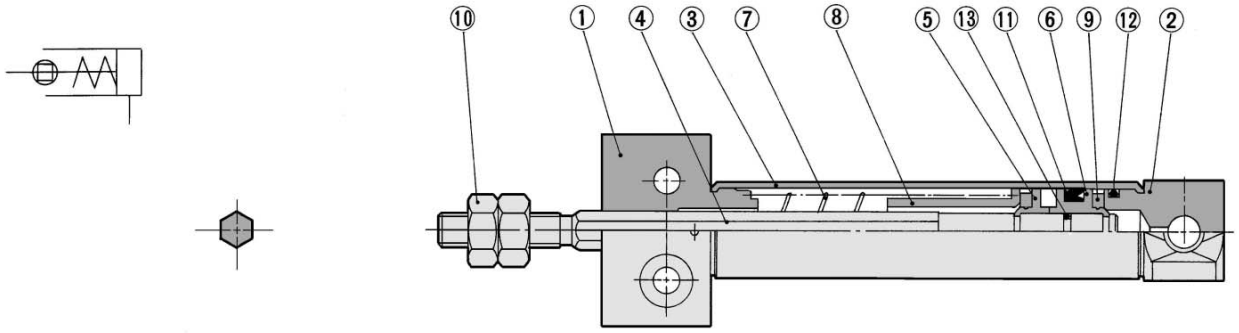
Eliminates the effects by copper based ions and fluorine based resins, etc. over the color cathode ray tube.
Making copper based materials into electroless nickel plated treatment or changing them to the non-copper materials in order to prevent copper ions from generating.

Specifications

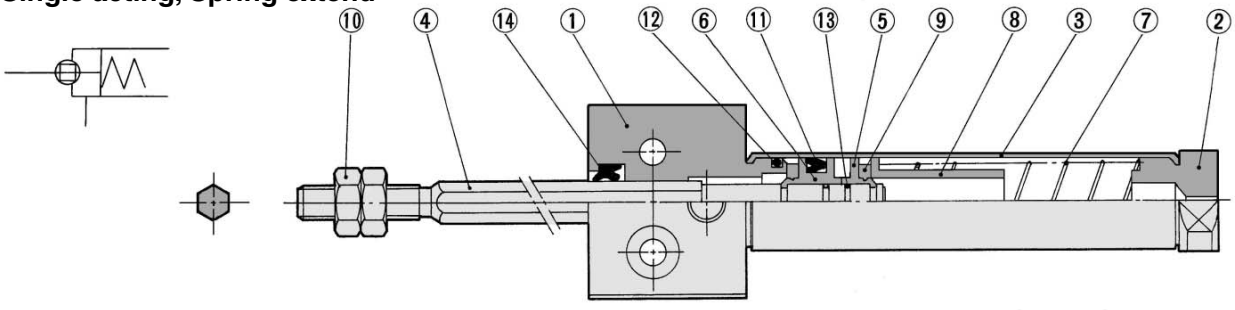
Bore size (mm)	10, 16
Action	Single acting, Spring return; Single acting, Spring extend
Max. operating pressure	0.7 MPa
Min. operating pressure	0.15 MPa
Cushion	Rubber bumper (Standard equipment)
Standard stroke (mm)	Same as standard type. (Refer to page 6-3-73.)
Auto switch	Mountable (Band mounting style)
Mounting	Bottom mounting style

Construction (Not able to disassemble.)

Single acting, Spring return



Single acting, Spring extend



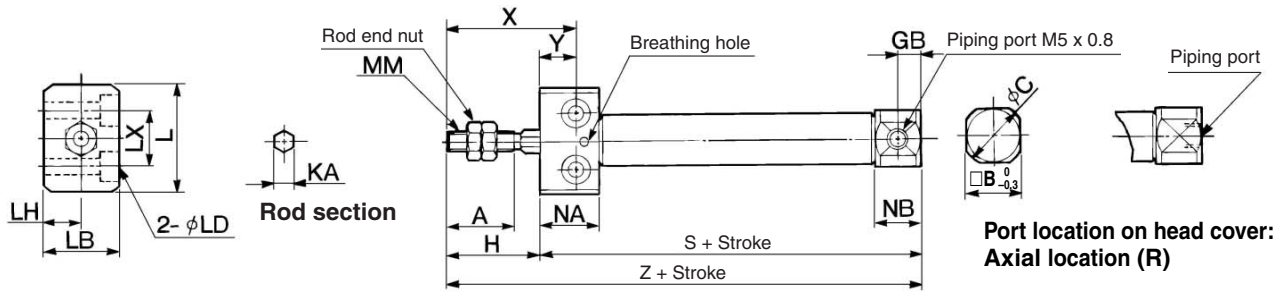
Component Parts

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	

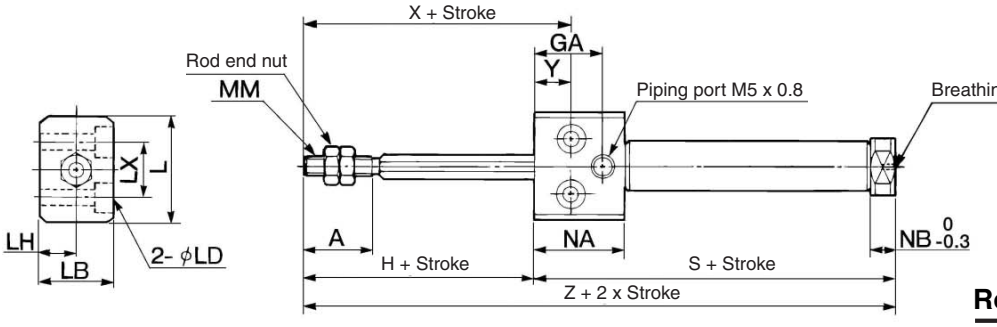
No.	Description	Material	Note
⑨	Bumper	Urethane	
⑩	Rod end nut	Rolled steel	Nickel plated
⑪	Piston seal	NBR	
⑫	Tube gasket	NBR	
⑬	Piston gasket	NBR	
⑭	Rod seal	NBR	

Single Acting: Bottom Mounting Style

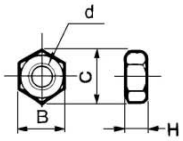
Spring return: CJ2RK Bore size – Stroke S Port location on head cover



Spring extend: CJ2RK Bore size – Stroke T



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	GB	H	KA	L	LB	LD	LH	LX	MM	NA	NB	X	Y
10	15	12	14	5	20	4.2	23	16	ø3.5, ø6.5 counterbore depth 4	8	12	M4 x 0.7	13.5	9.5	28	8
16	15	18.3	20	5	20	5.2	26	20	ø4.5, ø8 counterbore depth 5	10	16	M5 x 0.8	13.5	9.5	28	8

Dimensions by Stroke: Spring Return

Bore size (mm) \ Symbol / Stroke	S								Z							
	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150
10	53.5	61	73	85	—	—	—	—	73.5	81	93	105	—	—	—	—
16	53.5	62	74	86	92	116	134	146	73.5	82	94	106	112	136	154	166

Dimensions by Stroke: Spring Extend (Dimensions not mentioned in the below table are the same as the above table.)

Bore size (mm)	GA	NA	NB	S								Z							
				5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150
10	16	20.5	5.5	56.5	64	76	88	—	—	—	—	76.5	84	96	108	—	—	—	—
16	16	20.5	5.5	56.5	65	77	89	95	119	137	149	76.5	85	97	109	115	139	157	169

Air Cylinder: With End Lock

Series CBJ2

ø16

How to Order

Cylinder stroke (mm)

ø16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200

* Intermediate strokes are available in 1 mm increments without stroke adjustment with a spacer.
* For types with auto switch, refer to Minimum Strokes for Auto Switch Mounting on page 6-3-78.

Mounting Style

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

Note) Front end lock only.

Lock position

H	Head end lock
R	Rod end lock

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	CDJ2B16-45-A
	Band mounting style	CDJ2B16-60-B

* For rail mounting style, screws and nuts for 2 pcs. switches come with the rail.

Without auto switch **CBJ2 L 16—60 H N**

With auto switch **CDBJ2 L 16—60 H N —J79W**

Built-in magnet

Manual release

N	Non-locking type

Auto switch

* Refer to the table below for applicable auto switch.
* Rail mounting type auto switches are not mounted and are supplied loose at the time of shipment.
** For cylinders with built-in magnet and without auto switch, refer to How to Order for cylinders with built-in magnet.

Number of auto switches

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

Applicable Auto Switch/Refer to page 6-16-1 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)	3 (L)	5 (Z)	None (N)	Pre-wire connector	Applicable load	
Reed switch	—	Grommet	Yes	3-wire (Equiv. to NPN)	5 V	—	C76	—	A76H	●	●	—	—	—	IC circuit	
				2-wire	—	200 V	—	A72	A72H	●	●	—	—	—	—	Replay, PLC
					24 V 12 V	200 V	C73	A73	A73H	●	●	●	—	—		
		Connector				—	C73C	A73C	—	●	●	●	●	—		
	Diagnostic indication (2-color)	Grommet				—	—	A79W **	—	●	●	—	—	—		
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	H7A1	F7NV	F79	●	●	○	—	○	IC circuit	Replay, PLC
				3-wire (PNP)			H7A2	F7PV	F7P	●	●	○	—	—		
				2-wire		12 V	H7B	F7BV	J79	●	●	○	—	○	—	
		Connector					H7C	J79C	—	●	●	●	●	—		
	Diagnostic indication (2-color)	Grommet		3-wire (NPN)		5 V, 12 V	H7NW	F7NWV	F79W	●	●	○	—	○	IC circuit	
				3-wire (PNP)			H7PW	—	F7PW	●	●	○	—	○		
				2-wire		12 V	H7BW	F7BWV	J79W	●	●	○	—	○	—	
	Water resistant (2-color)						H7BA	—	F7BA	—	●	○	—	○		
							—	F7BAV	—	—	●	○	—	—		
	Diagnostic output (2-color)					5 V,12 V	H7NF	—	F79F	●	●	○	—	○	IC circuit	

* Lead wire length symbols: 0.5 m ····· Nil (Example) C73C
3 m ····· L (Example) C73CL
5 m ····· Z (Example) C73CZ
None ····· N (Example) C73CN

* Solid state switches marked with "○" are manufactured upon receipt of order.
** Model D-A79W cannot be mounted on a ø10 cylinder with air cushion.

• In addition to the models in the above table, there are some other auto switches that are applicable. For more information, refer to page 6-3-78.

Series CJ2 air cylinder is equipped with end lock function.

Maintains the cylinder's original position even if the air supply interrupted.

When air is discharged at the stroke end position, the lock engages to maintain the rod in that position.

Specifications

Action	Double acting, Single rod
Fluid	Air
Proof pressure	1.05 MPa
Maximum operating pressure	0.7 MPa
Minimum operating presuure	0.06 MPa
Ambient and fluid temperature	Without auto switch: –10˚C to 70˚C With auto switch: –10˚C to 60˚C*
Cushion	Rubber bumper
Lubrication	Not required (Non-lube)
Thread tolerance	JIS Class 2
Stroke tolerance	$^{+1.0}_{0}$
Piston speed	50 to 750 mm/s
Allowable kinetic energy	0.090 J

* With no freezing

Lock Specifications

Lock position	Head end, Rod end
Holding force (Max.)	98 N
Lock release pressure	0.15 MPa or less
Backlash	1 mm or less
Manual release	Non-locking type

Standard Stroke

Bore size (mm)	Standard stroke
16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200

* Intermediate strokes are available in 1 mm increments without stroke adjustment with a spacer.

Minimum Strokes for Auto Switch Mounting

Auto switch mounting style	Auto switch model	Number of auto switches	Min. cylinder stroke (mm)
Band mounting style (ø16)	D-C7□ D-C80	3 (Same side)	90
		3 (Different sides)	55
		2 (Same side)	50
		2 (Different sides)	15
		1	10
	D-H7□ D-H7□W D-H7BAL D-H7NF	3 (Same side)	105
		3 (Different sides)	60
		2 (Same side)	60
		2 (Different sides)	15
		1	10
	D-C73C D-C80C D-H7C	3 (Same side)	105
		3 (Different sides)	65
		2 (Same side)	65
		2 (Different sides)	15
		1	10

Auto switch mounting style	Auto switch model	Number of auto switches	Min. cylinder stroke (mm)
Rail mounting style (ø16)	D-A7□ D-A80 D-A73C D-A80C	3	35
		2	10
		1	5
	D-A7□H D-A80H	3	45
		2	10
		1	5
	D-A79W	3	40
		2	15
		1	10
	D-F7□ D-J79	3	45
		2	5
		1	5
	D-F7□V D-J79C	3	30
		2	5
		1	5
	D-F7□W D-J79W D-F7BAL D-F79F	3	55
		2	15
		1	10
	D-F7□WV D-F7BAVL	3	40
		2	15
		1	10

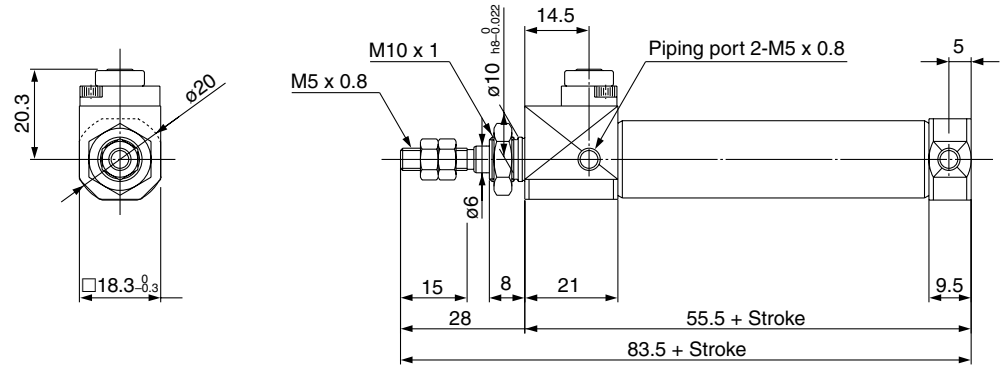
Other than the applicable auto switches listed in "How to Order", the following auto switches can be mounted. For detailed specifications, refer to page 6-16-1.

Type	Model	Electrical entry	Features
Reed switch	D-A80	Grommet	Without indicator light
	D-A80H		
	D-A80C	Connector	
	D-C80	Grommet	
	D-C80C	Connector	
Solid state switch	D-F7NTL	Grommet	With timer

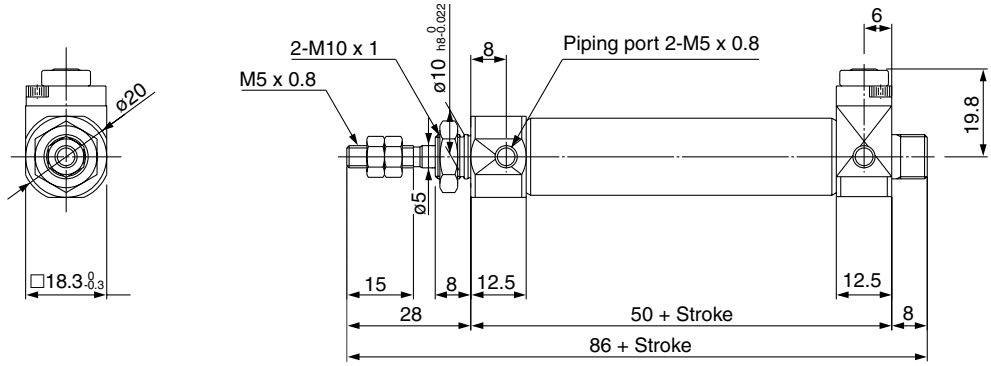
* D-F7NTL is also available with pre-wire connector.

Dimensions

Basic style
With rod end lock: C□BJ2B16-□-RN

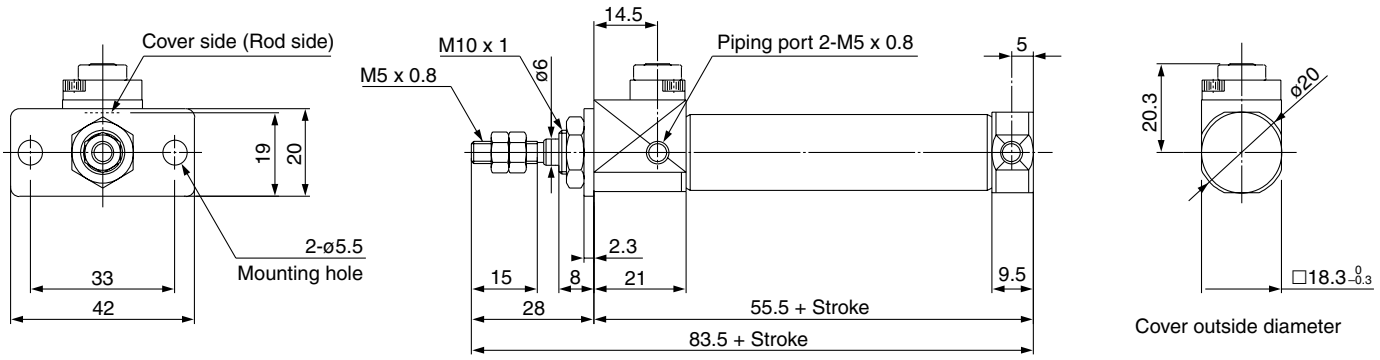


With head end lock: C□BJ2B16-□-HN

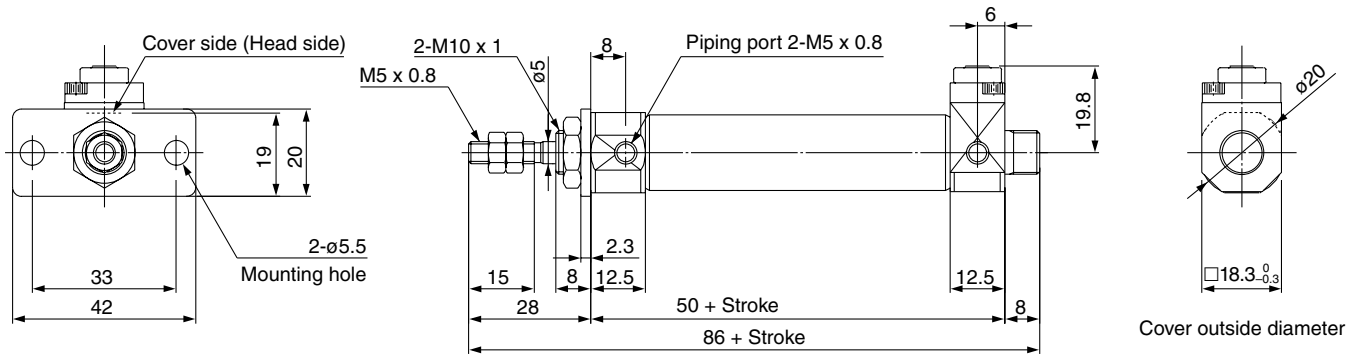


Dimensions

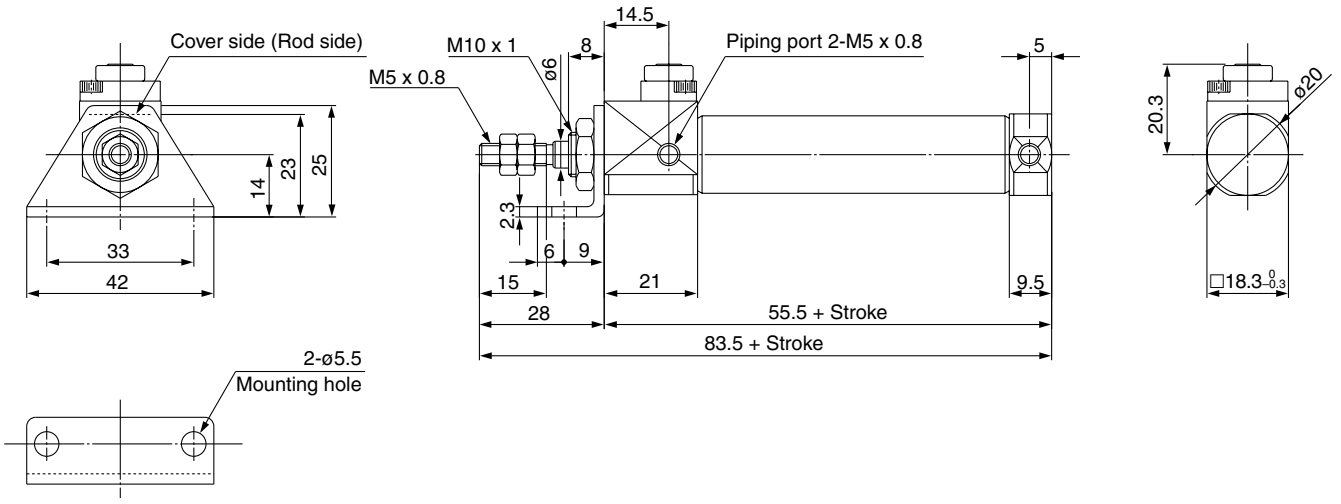
Flange style
With rod end lock: C□BJ2F16-□-RN



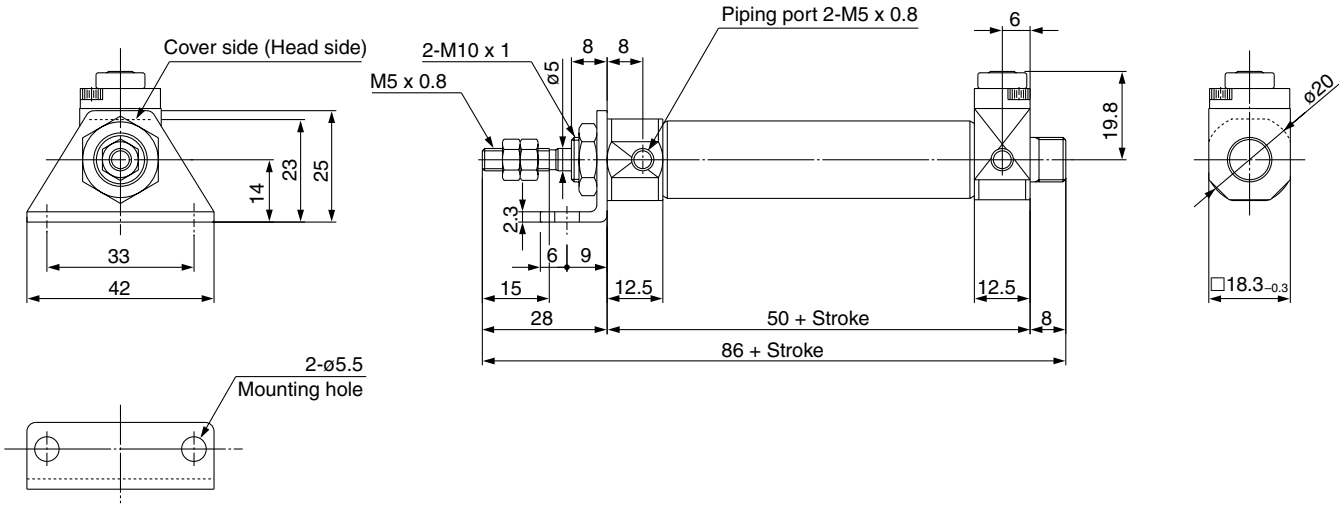
With head end lock: C□BJ2F16-□-HN



Axial foot style
With rod end lock: C□BJ2L16-□□-RN

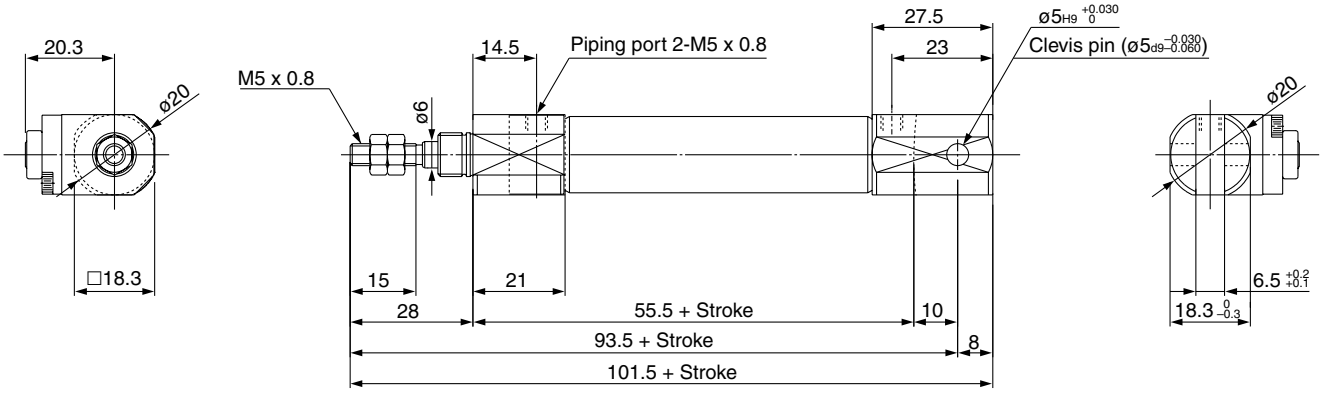


With head end lock: C□BJ2L16-□□-HN



Dimensions

Double clevis style
With rod end lock: C□BJ2D16-□-RN



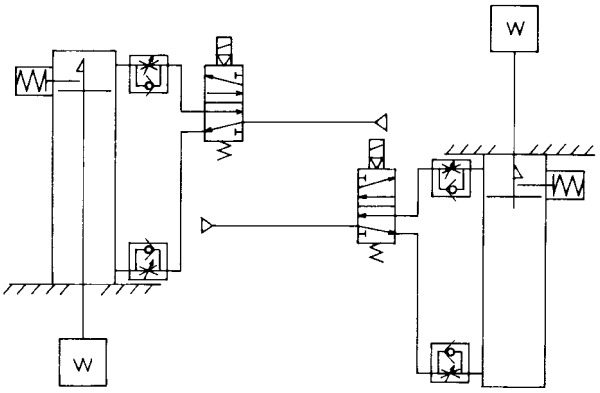
⚠ Precautions

Be sure to read before handling. Please consult with SMC for products outside these specifications.

Use Recommended Air Pressure Circuit.

⚠ Caution

• It is necessary for proper locking and unlocking.



With rear lock | With front lock

Operating Precautions

⚠ Caution

1. **Do not use a 3 position solenoid valve.**
   Avoid using this cylinder in combination with a 3 position solenoid valve (particularly the closed center metal seal type). If air pressure becomes sealed inside the port on the side that contains the lock mechanism, the lock will not engage. Even if the lock is engaged at first, the air that leaks from the solenoid valve could enter the cylinder and cause the lock to disengage as time elapses.
2. **Back pressure is necessary for unlocking.**
   Before starting, make sure that air is supplied to the side that is not equipped with a lock mechanism as shown in the diagram above. Otherwise, the lock may not disengage.
   (Refer to “Rock Disengagement”.)
3. **Disengage the lock before installing or adjusting the cyliner.**
   The lock could become damaged if the cylinder is installed with its lock engaged.
4. **Operate the cylinder at a load ratio of 50% or less.**
   The lock might not disengage or might become damaged if a load ratio of 50% is exceeded.
5. **Do not synchronize multiple cylinders.**
   Do not operate two or more end lock cylinders synchronized to move a single workpiece because one of the cylinder locks may not be able to disengage when required.
6. **Operate the speed controller under meter-out control.**
   If operated under meter-in control, the lock might not disengage.
7. **On the side that has a lock, make sure to operate at the stroke end of the cylinder.**
   The lock might not engage or disengage if the piston of the cylinder has not reached the stroke end.
8. **The position adjustment of the auto switch should be performed at two positions; a position determined by the stroke and a position after the backlash movement (by 1 mm).**
   When a 2-color indication switch is adjusted to show green at the stroke end, the indication may turn red when the cylinder returns by the backlash. This, however, is not an error.

Operating Pressure

⚠ Caution

Supply air pressure of 0.15 MPa or higher to the port on the side that has the lock mechanism, as it is necessary for disengaging the lock.

Exhaust Air Speed

⚠ Caution

The lock will engage automatically if the air pressure at the port on the side that has the lock mechanism becomes 0.05 MPa or less. Be aware that if the piping on the side that has the lock mechanism is narrow and long, or if the speed controller is located far from the cylinder port, the exhaust air speed could become slower, involving a longer time for the lock to engage. A similar result will ensure if the silencer that is installed on the exhaust port of the solenoid valve becomes clogged.

Lock Disengagement

⚠ Warning

To disengage the lock, make sure to supply air pressure to the port on the side without a lock mechanism, thus preventing the load from being applied to the lock mechanism. (Refer to the recommended air pressure circuit.) If the lock is disengaged when the port on the side that does not contain a lock mechanism is in the exhausted state and the load is being applied to the lock mechanism, undue force will be applied to the lock mechanism, and it may damage the lock mechanism. Also, it could be extremely dangerous, because the piston rod could move suddenly.

Manual Disengagement

⚠ Caution

Non-locking style manual release

Insert the bolt, which is provided as an accessory part, through the rubber cap (it is not necessary to remove the rubber cap). Screw the bolt into the lock piston and pull the bolt to disengage the lock. Releasing the bolt will re-engage the lock.

The bolt size, pulling force, and the stroke are listed below.

Bore size (mm)	Thread size	Pulling force	Stroke (mm)
16	M2.5 x 0.45 x 25ℓ or more	4.9	2

Bolt should be detached under normal operation, otherwise it may cause malfunction of the locking feature.