

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

## How to Order

**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

**Head cover port location**

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

**Auto switch**

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

**Built-in Magnet Cylinder Model**

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

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

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

**With auto switch** **CDJ2RA 16-45 S** - **M9BW**

**With auto switch** (Built-in magnet)

**Made to Order**  
Refer to page 99 for details.

\* For configuration, refer to page 99.  
\* Not applicable to single acting, spring extend (T).

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

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

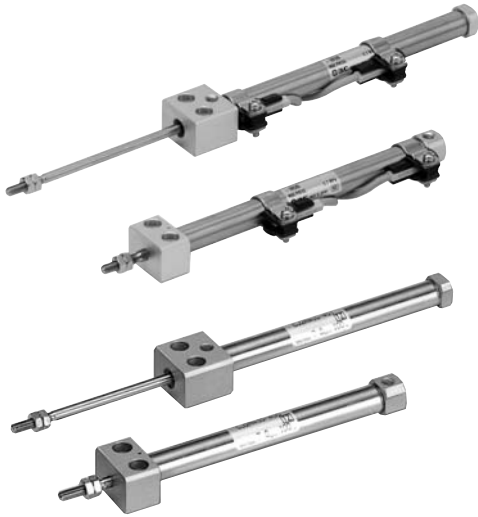
\* Lead wire length symbols: 0.5 m..... Nil (Example) M9NW  
1 m..... M (Example) M9NWM  
3 m..... L (Example) M9NWL  
5 m..... Z (Example) M9NWZ  
None..... N (Example) H7CN

\* Since there are other applicable auto switches than listed, refer to page 123 for details.  
\* For details about auto switches with pre-wired connector, refer to pages 1328 and 1329.  
\* Band mounting style is not available for D-A9□V□/M9□V□/M9□WV□ and D-M9□A(V)L types.

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

# Air Cylinder: Direct Mount Type Single Acting, Spring Return/Extend **Series CJ2R**

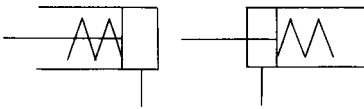
**Series CJ2R direct mount cylinder can be installed directly through the use of a square rod cover.**



### JIS Symbol

Single acting,  
Spring return

Single acting,  
Spring extend



### Made to Order Specifications

(For details, refer to pages 1380 and 1479.)

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



## Precautions

**Refer to page 44 before handling.**

### Specifications

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

\* No freezing

### Standard Stroke

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

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

### Accessory/For details, refer to page 51.

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

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

### Spring Force

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

### Head Cover Port Location

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



Axial



Perpendicular

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

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

CJ1

CJP

CJ2

CM2

CG1

MB

MB1

CA2

CS1

CS2

D-□

-X□

Individual  
-X□

Technical  
data

# Series CJ2R

## Mass

### Spring Return

Bore size (mm)		10	16
Mass *	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 mass.

### Spring Extend

Bore size (mm)		10	16
Mass *	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 mass.

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

20-CJ2RA Bore size Stroke Action Head cover port location

• Copper and fluorine-free

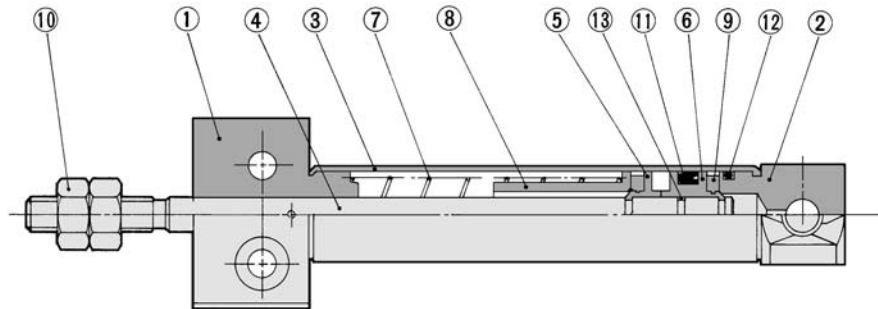
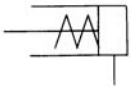
Eliminates the effects by copper based ions and fluorine based resins, etc. over the color cathode ray tube. Making copper based materials into electroless nickel plated treatment or changing them to the non-copper materials in order to prevent copper ions from generating.

### Specifications

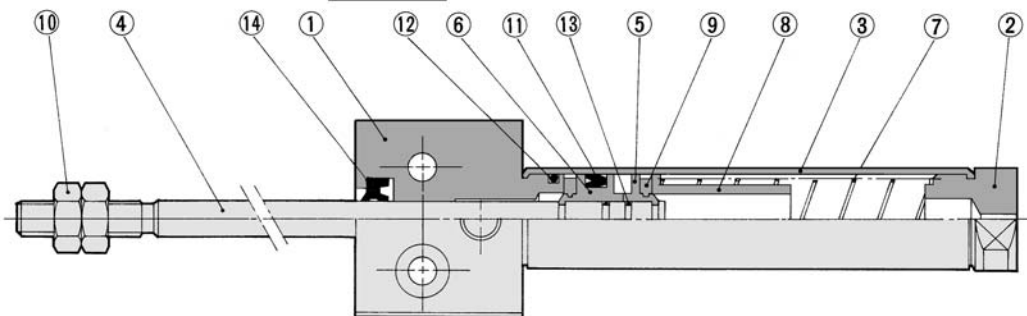
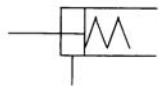
<b>Bore size (mm)</b>	10, 16
<b>Action</b>	Single acting, Spring return; Single acting, Spring extend
<b>Max. operating pressure</b>	0.7 MPa
<b>Min. operating pressure</b>	0.15 MPa
<b>Cushion</b>	Rubber bumper (Standard equipment)
<b>Standard stroke (mm)</b>	Same as standard type. (Refer to page 99.)
<b>Auto switch</b>	Mountable (Band mounting style)
<b>Mounting</b>	Bottom mounting style

## Construction (Not able to disassemble)

### CJ2RA□-□S



### CJ2RA□-□T



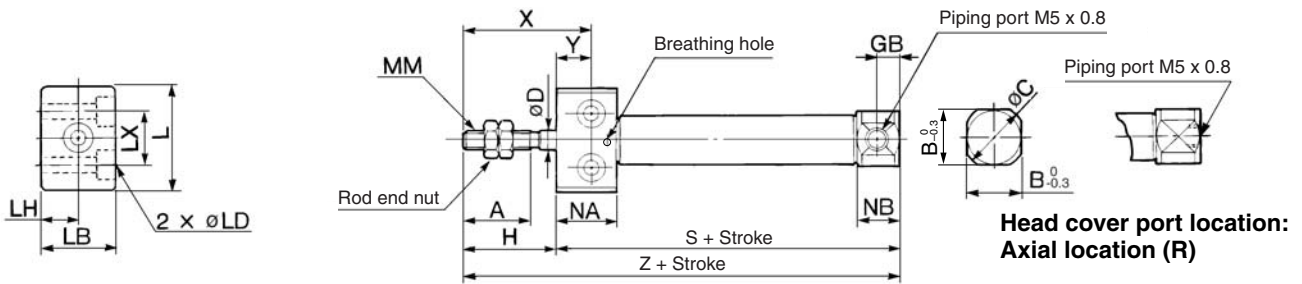
### Component Parts

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

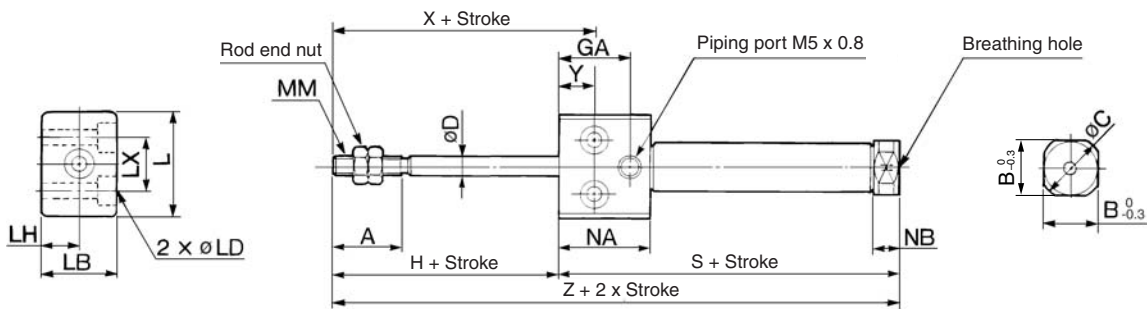
No.	Description	Material	Note
8	Spring seat	Brass	
9	Bumper	Urethane	
10	Rod end nut	Rolled steel	Nickel plated
11	Piston seal	NBR	
12	Tube gasket	NBR	
13	Piston gasket	NBR	
14	Rod seal	NBR	

**Single Acting: Bottom Mounting Style**

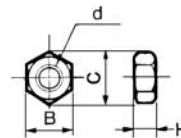
Spring return: CJ2RA Bore size Stroke S Head cover port location



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	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
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)	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	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

- CJ1
- CJP
- CJ2
- CM2
- CG1
- MB
- MB1
- CA2
- CS1
- CS2

- D-□
- X□
- Individual -X□
- Technical data

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

## How to Order

**Cylinder standard stroke (mm)**  
Refer to the standard stroke table on page 103.

**Bore size**

10	10 mm
16	16 mm

**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.  
\* Refer to page 123 for switch mounting brackets.

**With auto switch** **CDJ2RKA 16 - 60** - **M9BW** -

**With auto switch (Built-in magnet)**

**Head cover port location**

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

\* For configuration, refer to page 103.

**Auto switch**

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

**Number of auto switches**

Nil	2 pcs.
S	1 pc.
n	“n” pcs.

**Made to Order**  
Refer to page 103 for details.

## Applicable Auto Switch

Refer to pages 1263 to 1371 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model			Lead wire length (m)					Pre-wired connector	Applicable load									
					DC	AC	Band mounting	Rail mounting		0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)											
								Perpendicular	In-line																
Solid state switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9N	—	—	●	●	●	○	—	○	IC circuit	Relay, PLC								
				3-wire (PNP)			—	—	●	●	●	○	—	○											
				2-wire			—	—	●	●	●	○	—	○											
		3-wire (NPN)		12 V			—	—	●	●	●	○	—	○											
		3-wire (PNP)					—	—	●	●	●	○	—	○											
		2-wire					—	—	●	●	●	○	—	○											
	Diagnostic indication (2-color indication)	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	—	—	●	●	●	○	—	○	IC circuit	Relay, PLC								
				3-wire (PNP)			—	—	●	●	●	○	—	○											
				2-wire			—	—	●	●	●	○	—	○											
				4-wire (NPN)			—	—	●	●	●	○	—	○											
Water resistant (2-color indication)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—									
With diagnostic output (2-color indication)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—									
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	12 V	5 V	—	A96	—	A76H	●	—	●	—	—	IC circuit	Relay, PLC							
				—			200 V	—	A72	A72H	●	—	●	—	—										
				—			100 V	—	A73	A73H	●	—	●	—	—										
				—			100 V or less	A93	—	—	●	—	●	—	—										
				—			100 V or less	A90	A80	A80H	●	—	●	—	—										
		Connector		Yes			No	2-wire	24 V	24 V or less	—	—	C73C	A73C	—	●			—	●	●	—	—	IC circuit	Relay, PLC
											—	—	C80C	A80C	—	●			—	●	●	—			
											—	—	—	—	—	●			—	●	—	—			
											—	—	—	—	—	●			—	●	—	—			
											—	—	—	—	—	●			—	●	—	—			
Grommet	Yes	No	2-wire	24 V	24 V or less	—	—	A79W	—	—	●	—	●	—	—	IC circuit	Relay, PLC								
						—	—	—	—	—	●	—	●	—	—										

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

\* Since there are other applicable auto switches than listed, refer to page 123 for details.  
\* For details about auto switches with pre-wired connector, refer to pages 1328 and 1329.  
\* Band mounting style is not available for D-A9□V□/M9□V□/M9□WV□ and D-M9□A(V)L types.

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

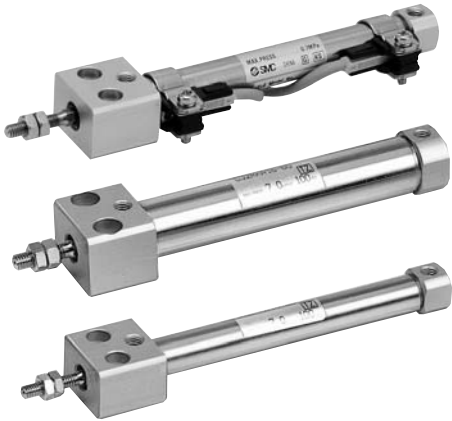
# Air Cylinder: Direct Mount, Non-rotating Rod Type Series **CJ2RK**

Double Acting, Single Rod

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

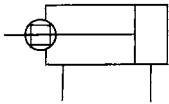
**Non-rotating accuracy**

ø10: ±1.5°, ø16: ±1°



**JIS Symbol**

Double acting, Single rod



**Made to Order Specifications**  
(For details, refer to pages 1380 and 1479.)

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

## ⚠ Precautions

Refer to page 62 and 70 before handling.

### Specifications

Bore size (mm)	10	16
<b>Action</b>	Double acting, Single rod	
<b>Fluid</b>	Air	
<b>Proof pressure</b>	1 MPa	
<b>Maximum operating pressure</b>	0.7 MPa	
<b>Minimum operating pressure</b>	0.06 MPa	
<b>Ambient and fluid temperature</b>	Without auto switch: -10°C to 70°C, With auto switch: -10°C to 60°C	
<b>Cushion</b>	Rubber bumper	
<b>Lubrication</b>	Not required (Non-lube)	
<b>Stroke length tolerance</b>	+1.0 0	
<b>Rod non-rotating accuracy</b>	±1.5°	±1°
<b>Piston speed</b>	50 to 750 mm/s	
<b>Allowable kinetic energy</b>	0.035 J	0.090 J

\* No freezing

### Standard Stroke

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

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

### Accessory/For details, refer to page 51.

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

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

### Head Cover Port Location

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



Axial



Perpendicular

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

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

### Mass

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

\* Rod end nut is included in the basic mass.

Calculation: (Example) **CJ2RKA10-45**

- Basic mass..... 36 (ø10)
  - Additional mass..... 4/15 stroke
  - Cylinder stroke..... 45 stroke
- 36 + 4/15 x 45 = 48 g

**CJ1**

**CJP**

**CJ2**

**CM2**

**CG1**

**MB**

**MB1**

**CA2**

**CS1**

**CS2**

**D-□**

**-X□**

Individual  
**-X□**

Technical  
data



# Series CJ2RK

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

20-CJ2RK Bore size Stroke Head cover port location

● **Copper and fluorine-free**

Eliminates the effects by copper based ions and fluorine based resins, etc. over the color cathode ray tube.

Making copper based materials into electroless nickel plated treatment or changing them to the non-copper materials in order to prevent copper ions from generating.

### Specifications

<b>Bore size (mm)</b>	10, 16
<b>Action</b>	Double acting, Single rod
<b>Maximum operating pressure</b>	0.7 MPa
<b>Minimum operating pressure</b>	0.06 MPa
<b>Cushion</b>	Rubber bumper (Standard equipment)
<b>Standard stroke (mm)</b>	Same as standard type. (Refer to page 103.)
<b>Auto switch</b>	Mountable (Band mounting style)
<b>Mounting</b>	Bottom mounting style

### ⚠ Caution

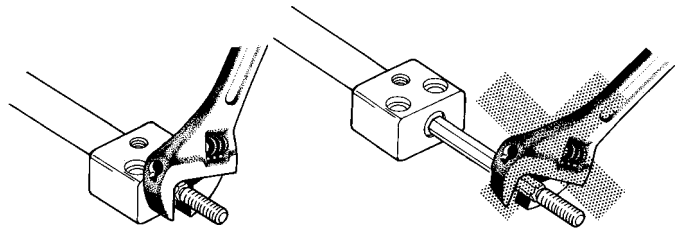
#### Caution on Handling

<When mounting>

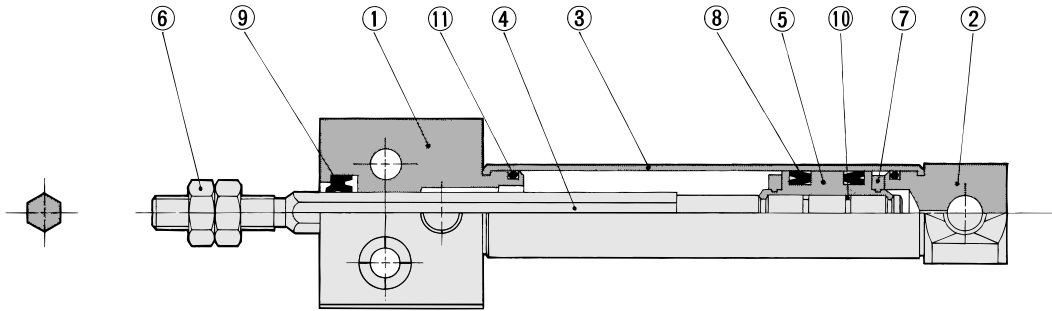
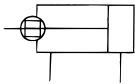
- Avoid using the air cylinder in such a way that rotational torque would be applied to the piston rod because this will deform the non-rotating guide, thus affecting the non-rotating accuracy.

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**

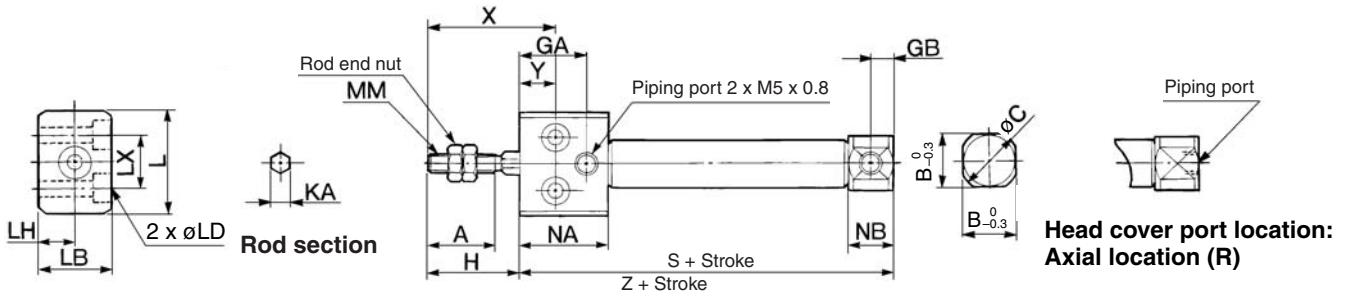
No.	Description	Material	Note
1	Rod cover	Aluminum alloy	Anodized
2	Head cover	Aluminum alloy	Anodized
3	Cylinder tube	Stainless steel	
4	Piston rod	Stainless steel	
5	Piston	Brass	
6	Rod end nut	Rolled steel	Nickel plated

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

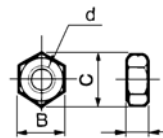
- CJ1**
- CJP**
- CJ2**
- CM2**
- CG1**
- MB**
- MB1**
- CA2**
- CS1**
- CS2**

**Bottom Mounting Style**

**CJ2RKA** Bore size Stroke Head cover port location



**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	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

(mm)

- D-□**
- X□**
- Individual **-X□**
- Technical data



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

## Series CJ2RK

ø10, ø16

### How to Order

**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

**Cylinder standard stroke (mm)**  
Refer to the standard stroke table on page 107.

**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.  
\* Refer to page 123 for switch mounting brackets.

**With auto switch** **CDJ2RKA 16-45 S** - **M9BW**

**With auto switch (Built-in magnet)**

**Head cover port location**

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

\* For configuration, refer to page 103.  
\* Not applicable to single acting, spring extend (T).

**Auto switch**

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

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

**Made to Order**  
Refer to page 107 for details.

**Number of auto switches**

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

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model			Lead wire length (m)					Pre-wired connector	Applicable load								
					DC	AC	Band mounting	Rail mounting		0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)		IC circuit	Relay, PLC							
Solid state switch		Grommet	Yes	3-wire (NPN)	5 V, 12 V		M9N	—	—	●	●	●	○	—	—	—	—							
				3-wire (PNP)			F7NV	F79	●	●	●	○	—	○										
		Connector		2-wire	12 V		M9P	—	—	●	●	●	○	—	—	—	—	—	—					
							M9B	—	—	●	●	●	○	—	○									
	Diagnostic indication (2-color indication)	Grommet	Yes	Yes	3-wire (NPN)	24 V	—	H7C	J79C	—	●	—	●	●	—	—	—	—						
								M9NW	—	—	●	●	●	○	—				○					
					3-wire (PNP)	5 V, 12 V		M9PW	—	—	●	●	●	○	—	—	—	—	—	—				
								M9BW	—	—	●	●	●	○	—	○								
					2-wire	12 V		M9W	—	—	●	—	●	○	—	—	—	—	—	—				
								H7BA	F7BAV	F7BA	—	—	●	—	●	○					—	○		
Water resistant (2-color indication)	Grommet	Yes	Yes	4-wire (NPN)	5 V, 12 V		H7NF	—	F79F	●	—	●	○	—	○	—	—							
With diagnostic output (2-color indication)							—	—	—	●	—	●	○	—	○									
Reed switch		Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96	—	A76H	●	—	●	—	—	—	—	—						
								Connector	2-wire	24 V	12 V	100 V or less	—	A72	A72H	●	—	●	—	—	—	—	—	—
														A73	A73H	●	—	●	●	—	—	—	—	—
														A93	—	●	—	●	—	—	—	—	—	—
								Grommet	No	2-wire	24 V	12 V	100 V or less	—	A90	A80	A80H	●	—	●	—	—	—	—
		C73C	A73C	—	●	—	●								●	●	—	—	—	—				
		Connector	Yes	2-wire	24 V	12 V	24 V or less	—	C80C	A80C	—	●	—	●	●	●	—	—	—					
									—	A79W	—	●	—	●	—	—	—	—	—	—				

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

\* Since there are other applicable auto switches than listed, refer to page 123 for details.  
\* For details about auto switches with pre-wired connector, refer to pages 1328 and 1329.  
\* Band mounting style is not available for D-A9□V□/M9□V□/M9□WV□ and D-M9□A(V)L types.

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

# Air Cylinder: Direct Mount, Non-rotating Rod Type Single Acting, Spring Return/Extend **Series CJ2RK**

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

**Non-rotating accuracy**

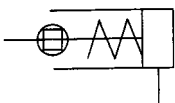
ø10: ±1.5°, ø16: ±1°

**Can operate without lubrication.**

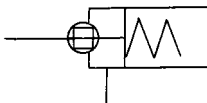


### JIS Symbol

Single acting,  
Spring return



Single acting,  
Spring extend



### Made to Order Specifications

(For details, refer to pages 1380 and 1479.)

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

## ⚠ Precautions

**Refer to page 62 and 70 before handling.**

### Specifications

Bore size (mm)	10	16
<b>Action</b>	Single acting, Spring return/Single acting, Spring extend	
<b>Fluid</b>	Air	
<b>Proof pressure</b>	1 MPa	
<b>Maximum operating pressure</b>	0.7 MPa	
<b>Minimum operating pressure</b>	0.15 MPa	
<b>Ambient and fluid temperature</b>	Without auto switch: -10°C to 70°C, With auto switch: -10°C to 60°C*	
<b>Cushion</b>	Rubber bumper	
<b>Lubrication</b>	Not required (Non-lube)	
<b>Stroke length tolerance</b>	+1.0 0	
<b>Rod non-rotating accuracy</b>	±1.5°	±1°
<b>Piston speed</b>	50 to 750 mm/s	
<b>Allowable kinetic energy</b>	0.035 J	0.090 J

\* No freezing

### Standard Stroke

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

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

### Accessory/For details, refer to page 51.

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

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

### Spring Force (N)

Bore size (mm)	Retracted side	Extended side
<b>10</b>	6.86	3.53
<b>16</b>	14.2	6.86

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

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

**CJ1**

**CJP**

**CJ2**

**CM2**

**CG1**

**MB**

**MB1**

**CA2**

**CS1**

**CS2**

**D-□**

**-X□**

Individual  
**-X□**

Technical  
data

# Series CJ2RK

## Mass

### Spring Return

Bore size (mm)		10	16
Mass *	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 mass.

### Spring Extend

Bore size (mm)		10	16
Mass *	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 mass.

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

20-CJ2RKA Bore size Stroke Action Head cover port location

• Copper and fluorine-free

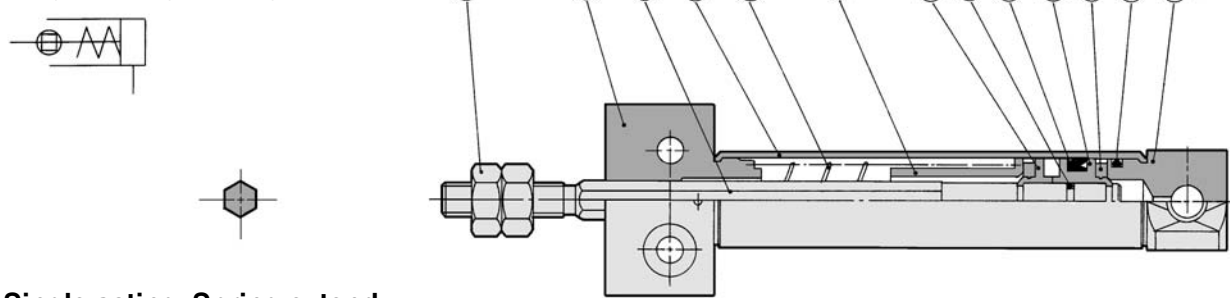
Eliminates the effects by copper based ions and fluorine based resins, etc. over the color cathode ray tube. Making copper based materials into electroless nickel plated treatment or changing them to the non-copper materials in order to prevent copper ions from generating.

### Specifications

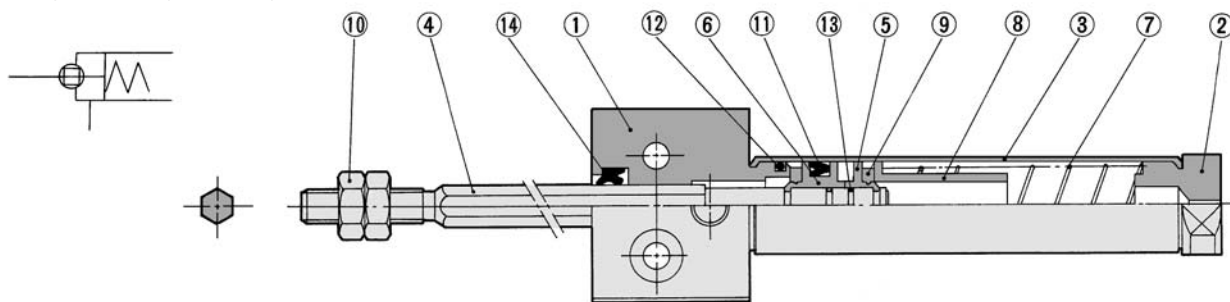
Bore size (mm)	10, 16
Action	Single acting, Spring return/Single acting, Spring extend
Max. operating pressure	0.7 MPa
Min. operating pressure	0.15 MPa
Cushion	Rubber bumper (Standard equipment)
Standard stroke (mm)	Same as standard type. (Refer to page 107.)
Auto switch	Mountable (Band mounting style)
Mounting	Bottom mounting style

## Construction (Not able to disassemble)

### Single acting, Spring return



### Single acting, Spring extend



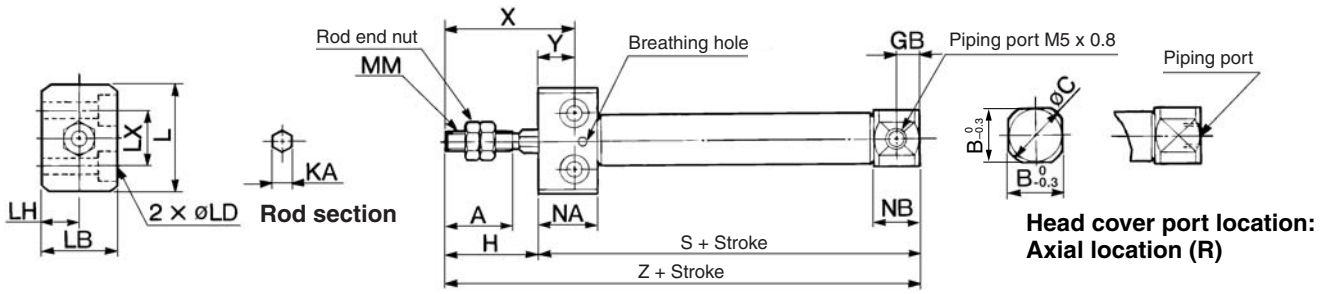
## Component Parts

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	

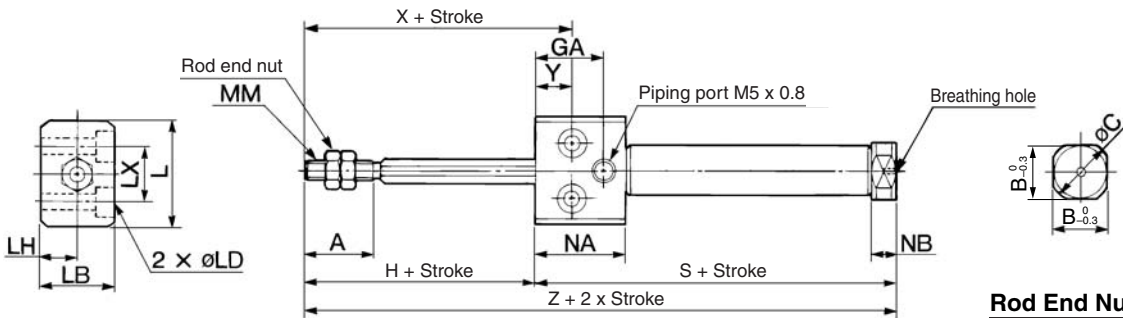
No.	Description	Material	Note
9	Bumper	Urethane	
10	Rod end nut	Rolled steel	Nickel plated
11	Piston seal	NBR	
12	Tube gasket	NBR	
13	Piston gasket	NBR	
14	Rod seal	NBR	

**Single Acting: Bottom Mounting Style**

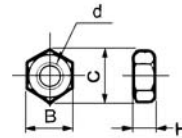
Spring return: CJ2RK **Bore size** **Stroke** **S** **Head cover port location**



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	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)	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	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

- CJ1
- CJP
- CJ2
- CM2
- CG1
- MB
- MB1
- CA2
- CS1
- CS2

- D-□
- X□
- Individual -X□
- Technical data

# Air Cylinder: With End Lock

## Series CBJ2

ø16

### How to Order



**Mounting Style**

<b>B</b>	Basic style
<b>L</b>	Axial foot style
<b>F</b>	Rod side flange style
<b>D</b>	Double clevis style <sup>(Note)</sup>

Note) Rod end lock only.

**Cylinder standard stroke (mm)**  
Refer to the standard stroke table on page 111.

**Lock position**

<b>H</b>	Head end lock
<b>R</b>	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	CDBJ2B16-45-A
	Band mounting style	CDBJ2B16-60-B

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

\* Refer to page 123 for switch mounting brackets.

**CBJ2 L 16-60-H N**

With auto switch

**CDBJ2 L 16-60-H N - M9BW**

**With auto switch**  
(Built-in magnet)

**Manual release**  
**N** Non-locking type

**Auto switch**

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

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

**Number of auto switches**

<b>Nil</b>	2 pcs.
<b>S</b>	1 pc.
<b>n</b>	"n" pcs.

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

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model			Lead wire length (m)					Pre-wired connector	Applicable load			
					DC	AC	Band mounting	Rail mounting		0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)					
Solid state switch		Grommet		3-wire (NPN)	5 V, 12 V		M9N	—	—	●	●	○	○	○	IC circuit	Relay, PLC			
				3-wire (PNP)			M9P	—	—	●	●	○	○						
				2-wire			M9B	—	—	●	●	○	○						
		Connector Yes		2-wire			—	F7BV	J79	●	●	○	○						
				3-wire (NPN)			24 V	H7C	J79C	●	—	●	●	—					
				3-wire (PNP)			5 V, 12 V	M9NW	—	—	●	●	○	○					
	Diagnostic indication (2-color indication)	Grommet			3-wire (PNP)	5 V, 12 V		—	—	—	●	●	○	○	IC circuit				
					2-wire			—	F7PW	—	—	●	●	○			○		
					Water resistant (2-color indication) With diagnostic output (2-color indication)			2-wire	12 V	—	F7BWV	J79W	●	●			○	○	
								4-wire (NPN)	5 V, 12 V	H7BA	F7BAV	F7BA	—	—			●	○	○
Reed switch		Grommet		3-wire (NPN equivalent)	24 V	12 V	—	A96	—	A76H	●	—	●	—	IC circuit				
				Connector Yes			2-wire	—	A72	A72H	●	—	●	—			—		
								—	A73	A73H	●	—	●	●			—	—	
								—	A93	—	●	—	●	—			—	—	
								—	A90	A80H	●	—	●	—			—	—	
		Grommet Yes		2-wire			—	C73C	A73C	—	—	●	—	●	●	—	—	IC circuit	Relay, PLC
							—	C80C	A80C	—	—	●	—	●	●	●	—		
							—	—	A79W	—	—	●	—	●	—	—	—		
							—	—	—	—	—	●	—	●	—	—	—		
							—	—	—	—	—	●	—	●	—	—	—		

\* Lead wire length symbols: 0.5 m..... Nil (Example) M9NW  
1 m..... M (Example) M9NWM  
3 m..... L (Example) M9NWL  
5 m..... Z (Example) M9NWX  
None..... N (Example) H7CN

\* Since there are other applicable auto switches than listed, refer to page 123 for details.

\* For details about auto switches with pre-wired connector, refer to pages 1328 and 1329.

\* Band mounting style is not available for D-A9□V□/M9□V□/M9□WV□ and D-M9□A(V)L types.

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

\* D-A9□/M9□/M9□W/A7□□/A80□/F7□□/J7□□ auto switches are shipped together (not assembled). (However, when D-A9□/M9□/M9□W types are selected, only auto switch mounting brackets are assembled before being shipped.)

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

Series CJ2 air cylinder is equipped with end lock function.



## Specifications

Bore size (mm)	<b>16</b>
Action	Double acting, Single rod
Fluid	Air
Proof pressure	1 MPa
Maximum operating pressure	0.7 MPa
Minimum operating pressure	0.15 MPa **
Ambient and fluid temperature	Without auto switch: -10°C to 70°C, With auto switch: -10°C to 60°C *
Cushion	Rubber bumper
Lubrication	Not required (Non-lube)
Stroke length tolerance	+1.0 0
Piston speed	50 to 750 mm/s
Allowable kinetic energy	0.090 J

\* No freezing

\*\* 0.06 MPa for parts other than the lock unit.

## 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

(mm)

Bore size	Standard stroke
<b>16</b>	15, 30, 45, 60, 75, 100, 125, 150, 175, 200

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

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

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

**CJ1**

**CJP**

**CJ2**

**CM2**

**CG1**

**MB**

**MB1**

**CA2**

**CS1**

**CS2**

**D-□**

**-X□**

Individual  
**-X□**

Technical  
data



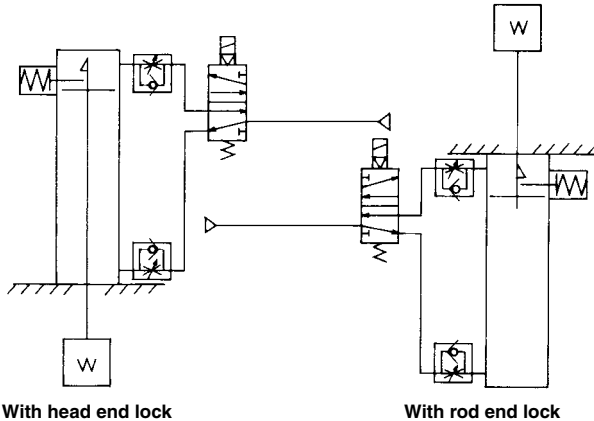
# Series CBJ2 Specific Product Precautions

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.



## Selection

### ⚠ 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 cylinder.**  
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

### ⚠ Caution

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

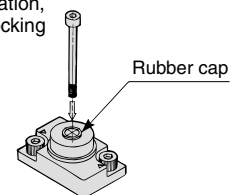
### ⚠ Caution

#### 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 N	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.





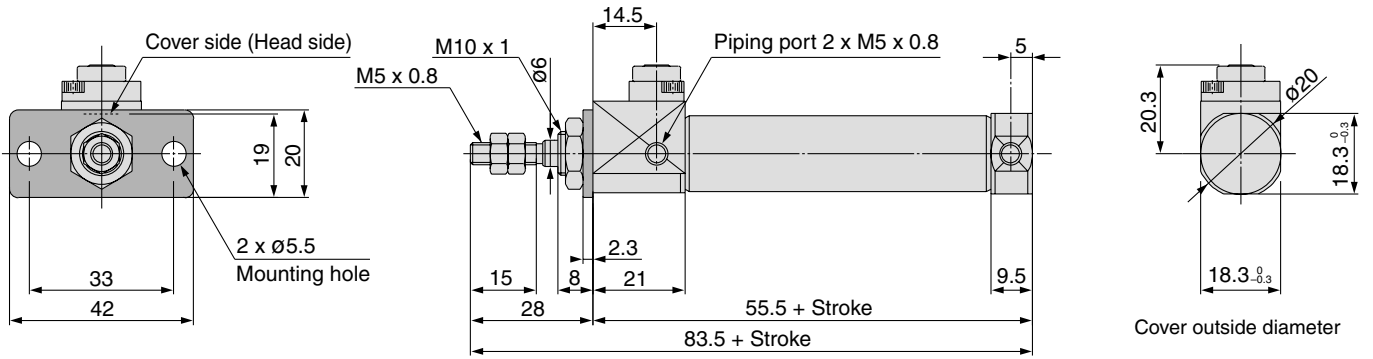


# Series CBJ2

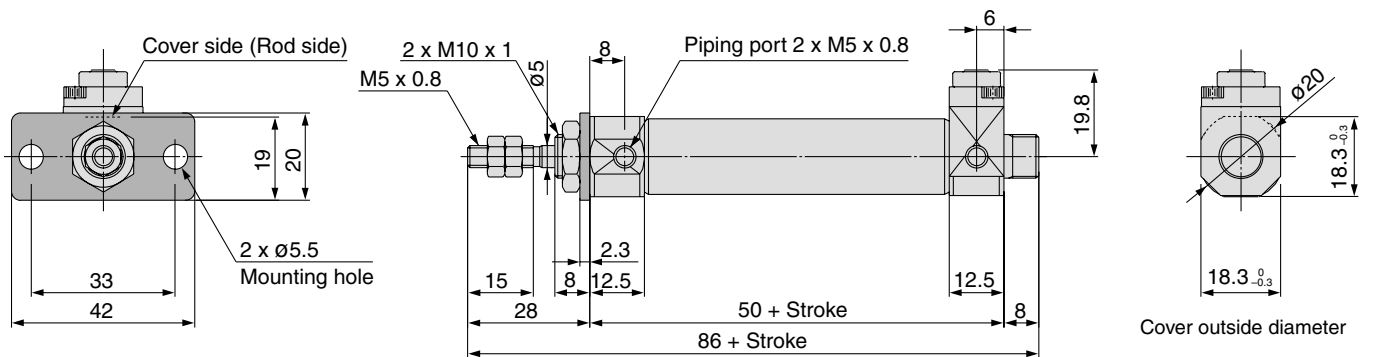
## Dimensions

### Flange style

With rod end lock: C□BJ2F16-□-RN

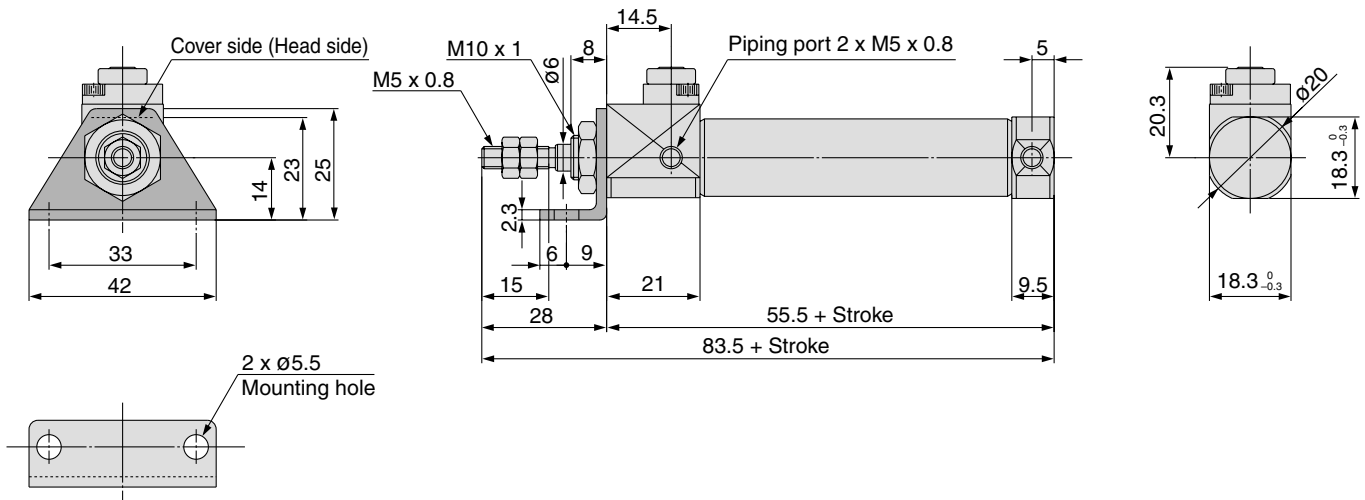


With head end lock: C□BJ2F16-□-HN



**Axial foot style**

With rod end lock: C□BJ2L16-□-RN



CJ1

CJP

**CJ2**

CM2

CG1

MB

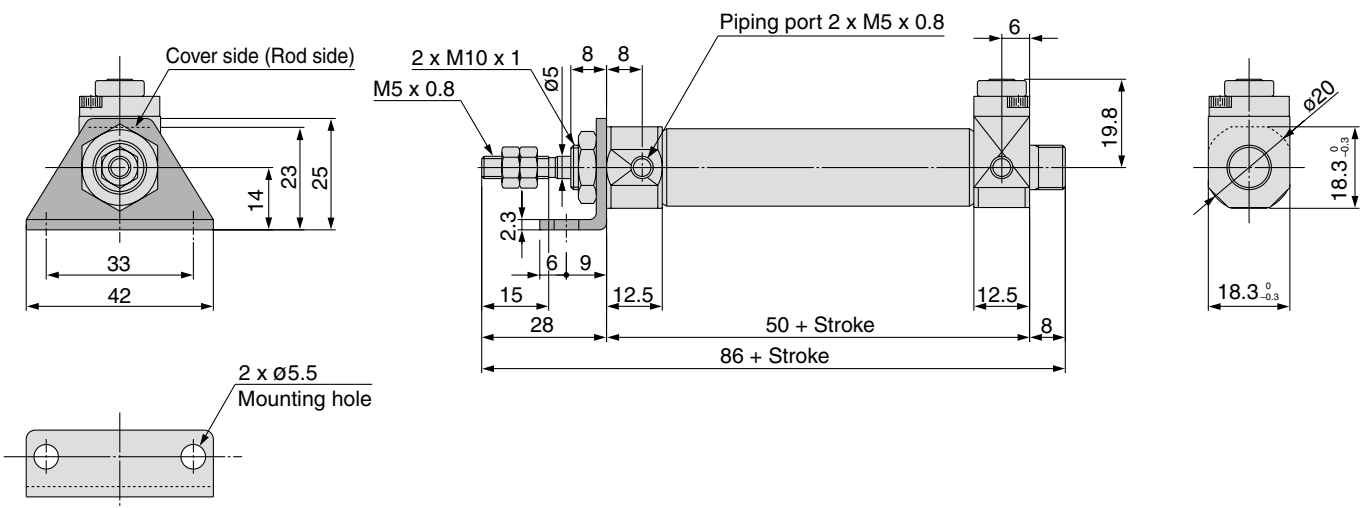
MB1

CA2

CS1

CS2

With head end lock: C□BJ2L16-□-HN



D-□

-X□

Individual  
-X□

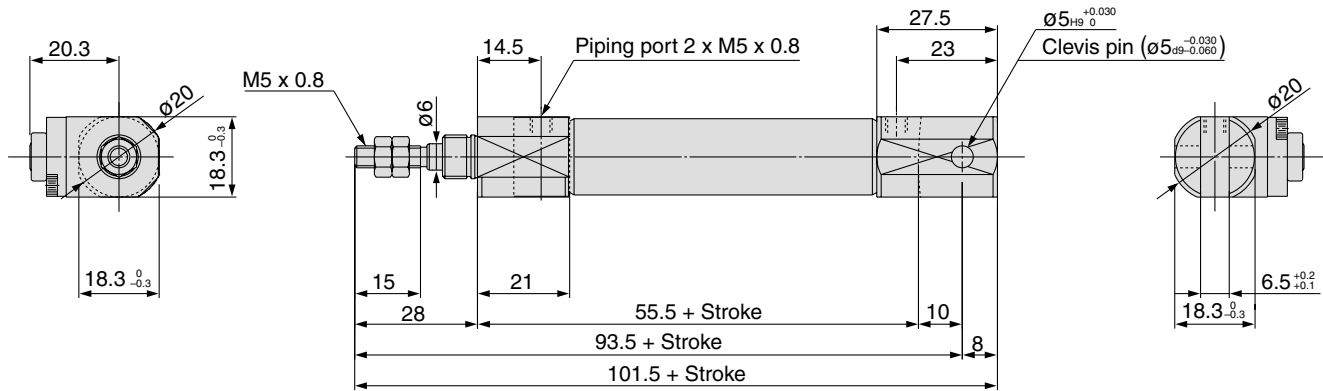
Technical  
data

# Series CBJ2

## Dimensions

Double clevis style

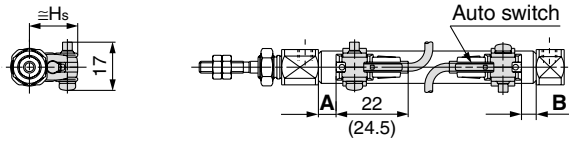
With rod end lock: C□BJ2D16-□-RN



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

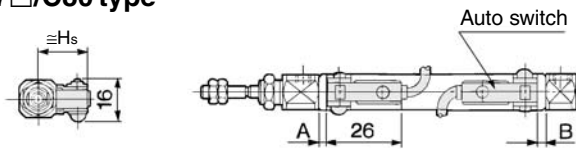
**Reed Auto Switch  
<Band mounting type>**

**D-A9□ type**

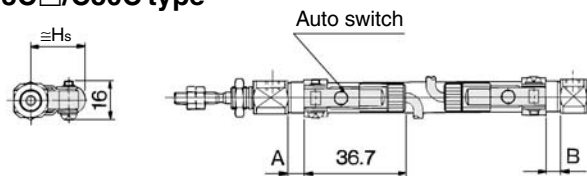


( ): Values for D-A93

**D-C7□/C80 type**

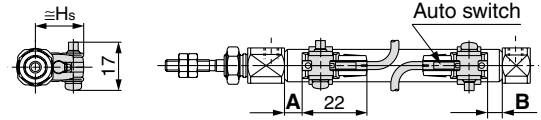


**D-C73C□/C80C type**

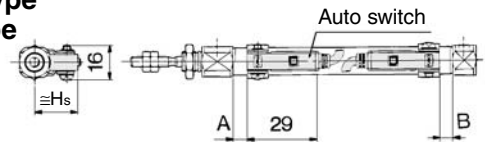


**Solid State Auto Switch  
<Band mounting type>**

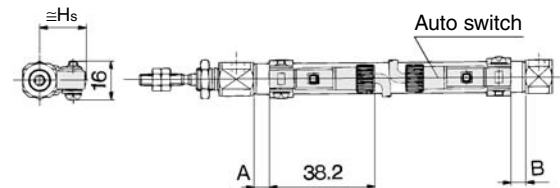
**D-M9□ type  
D-M9□W type**



**D-H7□ type  
D-H7□W type  
D-H7BAL type  
D-H7NF type**



**D-H7C type**



CJ1

CJP

**CJ2**

CM2

CG1

MB

MB1

CA2

CS1

CS2

D-□

-X□

Individual  
-X□

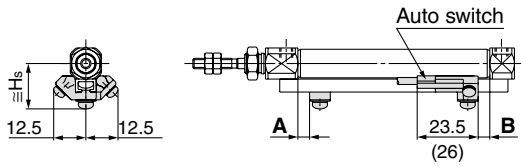
Technical  
data

# Series CJ2

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

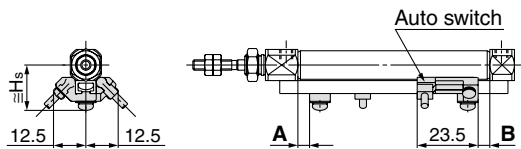
### <Rail mounting type>

#### D-A9□ type

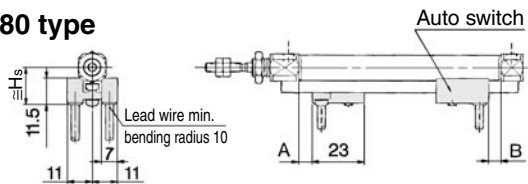


( ): Values for D-A93

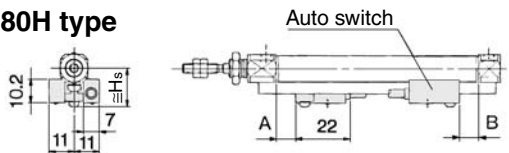
#### D-A9□V type



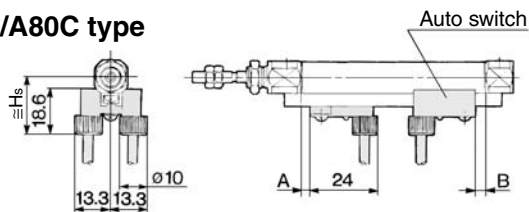
#### D-A7□/A80 type



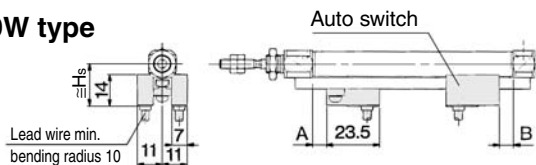
#### D-A7□H/A80H type



#### D-A73C/A80C type



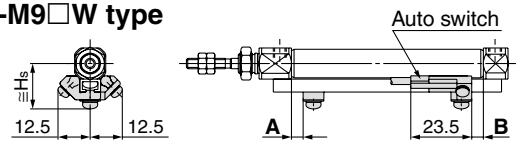
#### D-A79W type



### <Rail mounting type>

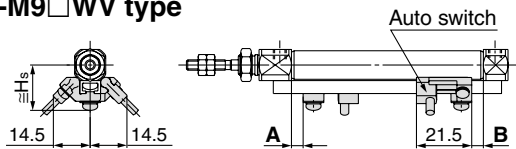
#### D-M9□ type

#### D-M9□W type



#### D-M9□V type

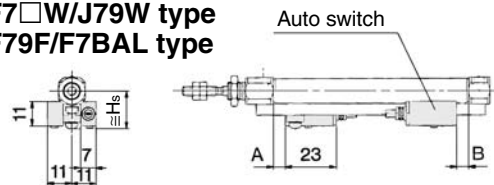
#### D-M9□WV type



#### D-F7□/J79 type

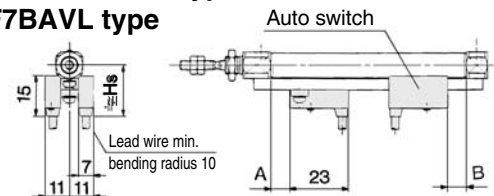
#### D-F7□W/J79W type

#### D-F79F/F7BAL type

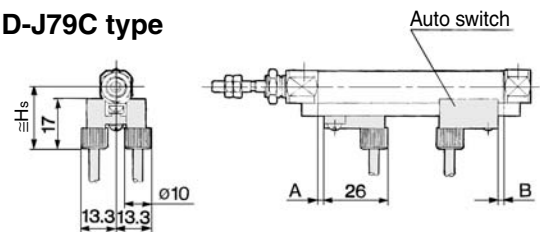


#### D-F7□V/F7□WV type

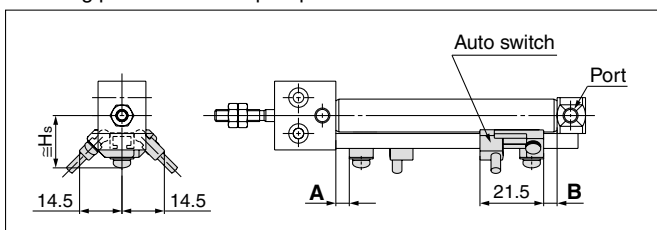
#### D-F7BAVL type



#### D-J79C type



For the direct mount type, the relation between the auto switch mounting position and the port position is as shown below.



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

**Proper Auto Switch Mounting Position (Single acting type excluded) (mm)**

Auto switch model	Band mounting							
	D-A9□		D-M9□ D-M9□W		D-C7□ D-C80 D-C73C D-C80C		D-H7□ D-H7C D-H7NF D-H7□W D-H7BAL	
Bore size	A	B	A	B	A	B	A	B
6	1.5 (8)	1.5 (0)	5.5 (12)	5.5 (4)	2 (8.5)	2 (0.5)	1 (7.5)	1 (0)
10	2	2	6	6	2.5	2.5	1.5	1.5
16	2.5	2.5	6.5	6.5	3	3	2	2

Auto switch model	Rail mounting											
	D-A9□ D-A9□V		D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□AL D-M9□AVL		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-F7NTL		D-A79W	
Bore size	A	B	A	B	A	B	A	B	A	B	A	B
6	—	—	—	—	—	—	—	—	—	—	—	—
10	0.5	0.5	4.5	4.5	3	3	3.5	3.5	8.5	8.5	0.5	0.5
16	1	1	5	5	3.5	3.5	4	4	9	9	1	1

\* Figures in parentheses for bore ø6 are for the double rod type (Series CJ2W).  
 \*\* In the actual setting, adjust them after confirming the auto switch performance.

**Auto Switch Mounting Height (mm)**

Auto switch model	Band mounting				
	D-A9□ D-M9□ D-M9□W	D-C7□/C80 D-H7□/H7□W D-H7NF D-H7BAL	D-C73C D-C80C	D-H7C	D-A7□ D-A80
Bore size	Hs	Hs	Hs	Hs	Hs
6	14.5	15	17.5	18	—
10	16.5	17	19.5	20	16.5
16	20	20.5	23	23.5	19.5

Auto switch model	Rail mounting					
	D-A9□ D-A9□V D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□AL D-M9□AVL	D-A7□H/A80H D-F7□/J79 D-F7□W/J79W D-F7BAL/F79F D-F7NTL	D-A73C D-A80C	D-F7□V D-F7□WV D-F7BAVL	D-J79C	D-A79W
Bore size	Hs	Hs	Hs	Hs	Hs	Hs
6	—	—	—	—	—	—
10	17.5	17.5	23.5	20	23	19
16	21	20.5	26.5	23	26	22

CJ1

CJP

**CJ2**

CM2

CG1

MB

MB1

CA2

CS1

CS2

D-□

-X□

Individual  
-X□

Technical  
data



# Series CJ2

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

Proper auto switch mounting position: Spring return type (S)

- Standard type (CDJ2□□□-□S)
- Non-rotating rod type (CDJ2K□□□-□S)
- Direct mount type (CDJ2R□□□-□S)
- Non-rotating rod/Direct mount type (CDJ2RK□□□-□S)

(mm)

Auto switch model	Bore size	A Dimensions								B	
		10 to 15 <sup>st</sup>	16 to 30 <sup>st</sup>	31 to 45 <sup>st</sup>	46 to 60 <sup>st</sup>	61 to 75 <sup>st</sup>	76 to 100 <sup>st</sup>	101 to 125 <sup>st</sup>	126 to 150 <sup>st</sup>		
Band mounting	D-A9□	6	8	17	21	35	—	—	—	—	1.5
		10	8.5	16	28	40	—	—	—	—	2
		16	8	16.5	28.5	40.5	46.5	70.5	88.5	100.5	2.5
	D-M9□ D-M9□W	6	12	21	25	39	—	—	—	—	5.5
		10	12.5	20	32	44	—	—	—	—	6
		16	12	20.5	32.5	44.5	50.5	74.5	92.5	104.5	6.5
	D-C7□/C80 D-C73C D-C80C	6	8.5	17.5	21.5	35.5	—	—	—	—	2
		10	9	16.5	28.5	40.5	—	—	—	—	2.5
		16	8.5	17	29	41	47	71	89	101	3
	D-H7□/H7C D-H7□W/H7BAL D-H7NF	6	7.5	16.5	20.5	34.5	—	—	—	—	1
		10	8	15.5	27.5	39.5	—	—	—	—	1.5
		16	7.5	16	28	40	46	70	88	100	2
Rail mounting	D-A9□ D-A9□V	10	7	14.5	26.5	38.5	—	—	—	—	0.5
		16	6.5	15	27	39	45	69	87	99	1
	D-M9□/M9□V D-M9□W/M9□WV D-M9□AL/M9□AVL	10	11	18.5	30.5	42.5	—	—	—	—	4.5
		16	10.5	19	31	43	49	73	91	103	5
	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 D-F7□V/F7□WV D-F79F/J79C D-F7BAL D-F7BAVL	10	10	17.5	29.5	41.5	—	—	—	—	3.5
		16	9.5	18	30	42	48	72	90	102	4
	D-F7NTL	10	15	22.5	34.5	46.5	—	—	—	—	8.5
		16	14.5	23	35	47	53	77	95	107	9
	D-A79W	10	7	14.5	26.5	38.5	—	—	—	—	0.5
		16	6.5	15	27	39	45	69	87	99	1

\* In the actual setting, adjust them after confirming the auto switch performance.

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

Proper auto switch mounting position: Spring extend type (T)

- Standard type (CDJ2□□□-□T)
- Non-rotating rod type (CDJ2K□□□-□T)
- Direct mount type (CDJ2R□□□-□T)
- Non-rotating rod/Direct mount type (CDJ2RK□□□-□T)

Auto switch model	Bore size	A	B Dimensions (mm)								
			10 to 15 <sup>st</sup>	16 to 30 <sup>st</sup>	31 to 45 <sup>st</sup>	46 to 60 <sup>st</sup>	61 to 75 <sup>st</sup>	76 to 100 <sup>st</sup>	101 to 125 <sup>st</sup>	126 to 150 <sup>st</sup>	
Band mounting	D-A9□	6	1.5	8	17	21	35	—	—	—	—
		10	2	8.5	16	28	40	—	—	—	—
		16	2.5	8	16.5	28.5	40.5	46.5	69.5	88.5	100.5
	D-M9□ D-M9□W	6	5.5	12	21	25	39	—	—	—	—
		10	6	12.5	20	32	44	—	—	—	—
		16	6.5	12	20.5	32.5	44.5	50.5	73.5	92.5	104.5
	D-C7□/C80 D-C73C D-C80C	6	2	8.5	17.5	21.5	35.5	—	—	—	—
		10	2.5	9	16.5	28.5	40.5	—	—	—	—
		16	3	8.5	17	29	41	47	71	89	101
	D-H7□/H7C D-H7□W/H7BAL D-H7NF	6	1	7.5	16.5	20.5	34.5	—	—	—	—
		10	1.5	8	15.5	27.5	39.5	—	—	—	—
		16	2	7.5	16	28	40	46	70	88	100
Rail mounting	D-A9□ D-A9□V	10	0.5	7	14.5	16.5	38.5	—	—	—	—
		16	1	6.5	15	27	39	45	68	87	99
	D-M9□/M9□V D-M9□W/M9□WV D-M9□AL/M9□AVL	10	4.5	11	18.5	30.5	42.5	—	—	—	—
		16	5	10.5	19	31	43	49	72	91	103
	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 D-F7□V/F7□WV D-F79F/J79C D-F7BAL D-F7BAVL	10	3.5	10	17.5	29.5	41.5	—	—	—	—
		16	4	9.5	18	30	42	48	72	90	102
	D-F7NTL	10	8.5	15	22.5	34.5	46.5	—	—	—	—
		16	9	14.5	23	35	47	53	77	95	107
	D-A79W	10	0.5	7	14.5	26.5	38.5	—	—	—	—
		16	1	6.5	15	27	39	45	69	87	99

\* In the actual setting, adjust them after confirming the auto switch performance.

- CJ1
- CJP
- CJ2**
- CM2
- CG1
- MB
- MB1
- CA2
- CS1
- CS2

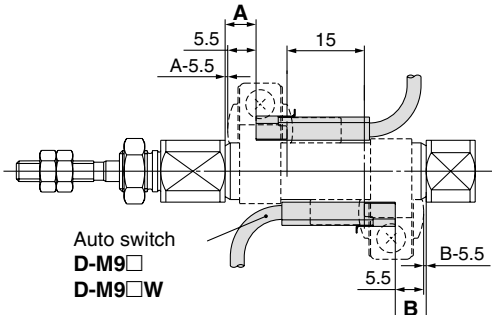
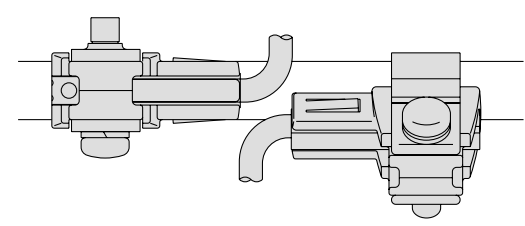
- D-□
- X□
- Individual  
-X□
- Technical  
data

# Series CJ2

## Minimum Auto Switch Mounting Stroke

(mm)

Auto switch mounting	Auto switch model	No. of auto switch mounted				
		1 pc.	2 pcs.		n pcs. (n: No. of auto switch)	
			Different surfaces	Same surface	Different surfaces	Same surface
Band mounting	D-A9□ D-M9□ D-M9□W	10	15 (Note)	45 (Note)	$15 + 35 \frac{(n-2)}{2}$ (n = 2, 4, 6...)	45 + 15 (n-2)
	D-C7□ D-C80	10	15	50	$15 + 40 \frac{(n-2)}{2}$ (n = 2, 4, 6...)	50 + 20 (n-2)
	D-H7□/H7□W D-H7BAL D-H7NF	10	15	60	$15 + 45 \frac{(n-2)}{2}$ (n = 2, 4, 6...)	60 + 22.5 (n-2)
	D-C73C D-C80C D-H7C	10	15	65	$15 + 50 \frac{(n-2)}{2}$ (n = 2, 4, 6...)	50 + 27.5 (n-2)
Rail mounting	D-M9□V	5	—	5	—	10 + 10 (n-2) (n = 4, 6...)
	D-A9□V	5	—	10	—	10 + 15 (n-2) (n = 4, 6...)
	D-M9□ D-A9□	10	—	10	—	15 + 15 (n-2) (n = 4, 6...)
	D-M9□WV D-M9□AVL	10	—	15	—	15 + 15 (n-2) (n = 4, 6...)
	D-M9□W	15	—	15	—	20 + 15 (n-2) (n = 4, 6...)
	D-M9□AL	15	—	20	—	20 + 15 (n-2) (n = 4, 6...)
	D-A7□/A80 D-A7□H/A80H D-A73C/A80C	5	—	10	—	15 + 10 (n-2) (n = 4, 6...)
	D-A7□H D-A80H	5	—	10	—	15 + 15 (n-2) (n = 4, 6...)
	D-A79W	10	—	15	—	10 + 15 (n-2) (n = 4, 6...)
	D-F7□ D-J79	5	—	5	—	15 + 15 (n-2) (n = 4, 6...)
	D-F7□V D-J79C	5	—	5	—	10 + 10 (n-2) (n = 4, 6...)
	D-F7□W/J79W D-F7BAL/F79F D-F7NTL	10	—	15	—	15 + 20 (n-2) (n = 4, 6...)
	D-F7□WV D-F7BAVL	10	—	15	—	10 + 15 (n-2) (n = 4, 6...)

Auto switch model	With 2 auto switches	
	Different surfaces	Same surface
 <p>Auto switch D-M9□ D-M9□W</p> <p>The proper auto switch mounting position is 5.5 mm inward from the switch holder edge.</p>	 <p>The auto switch is mounted by slightly displacing it in a direction (cylinder tube circumferential exterior) so that the auto switch and lead wire do not interfere with each other.</p>	
D-A93	—	Less than 50 strokes
D-M9□ D-M9□W	Less than 20 strokes	Less than 55 strokes

Note) When 2 D-A93/M9□/M9□W auto switches are included.

## Operating range

Auto switch model		Bore size (mm)		
		6	10	16
Band mounting	D-A9□	4.5	6	7
	D-M9□ D-M9□W	2	2.5	3
	D-C7□/C80/C73C/C80C	6	7	7
	D-H7□/H7□W D-H7BAL/H7NF	3	4	4
	D-H7C	5	8	9
Rail mounting	D-A9□/A9□V	—	6	6.5
	D-M9□/M9□V D-M9□W/M9□WV D-M9□AL/M9□ALV	—	3	3.5
	D-A7□/A80/A7H/A80H D-A73C/A80C	—	8	9
	D-A79W	—	11	13
	D-F7□/J79/F7□W/J79W D-F7□V/F7□WV/F79F D-J79C/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.

## Auto Switch Mounting Bracket: Part No.

Auto switch mounting	Auto switch model	Bore size (mm)		
		ø6	ø10	ø16
Band mounting	D-A9□ D-M9□ D-M9□W	Note 1), Note 2) ①BJ2-006 ②BJ3-1	Note 1), Note 2) ①BJ2-010 ②BJ3-1	Note 1), Note 2) ①BJ2-016 ②BJ3-1
		<p>① BJ2-□□□: A set of a and b above ② BJ3-1: A set of c, d and e above</p>		
Rail mounting	D-C7□/C80 D-C73C/C80C D-H7□/H7□W D-H7BAL/H7NF	BJ2-006	BJ2-010	BJ2-016
		D-A9□ D-A9□V D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□AL <sup>(4)</sup> D-M9□AVL <sup>(4)</sup>	—	Note 3), Note 4) BQ2-012, BQ2-012S

Note 1) Two kinds of auto switch bracket are used as a set.

Note 2) When cylinders are shipped, only auto switch mounting brackets are assembled.

Note 3) When a compact auto switch is mounted on a ø10 or ø16 rail, an auto switch bracket is needed, to be ordered separately.

CDJ2B10-60-A-.....1  
D-M9BWV.....2 pcs.  
BQ2-012.....2 pcs.

Note 4) For D-M9□A(V)L, order BQ2-012S, which uses stainless steel mounting screws.

### [Stainless Steel Mounting Screw Kit]

The following set of stainless steel mounting screws is available. Use them in accordance with the operating environment. (Since auto switch brackets are not included, order them separately.)

BBA4: For D-C7/C8/H7 types

Note 5) Refer to page 1358 for the details of BBA4 screws.

The above stainless steel screws are used when a cylinder is shipped with D-H7BAL-type auto switches.

When only a switch is shipped independently, BBA4 screws are attached.

### Reference

Auto switch mounting brackets using stainless steel screws are available for stainless steel cylinder CJ5.

## Auto Switch Mounting Brackets for CJ5: Part No.

Bore size (mm)	Auto switch mounting bracket part no.	Note
10	BJ2-010S	Stainless steel mounting screw
16	BJ2-016S	

In addition to the auto switches listed above, the following auto switches are also available. Refer to pages 1263 to 1371 for the detailed specifications.

Auto switch type	Part no.	Electrical entry (Entry direction)	Features
Reed	D-C73, C76	Grommet (In-line)	—
	D-C80		Without light
Solid state	D-H7A1, H7A2, H7B		—
	D-H7NW, H7PW, H7BW		Diagnosis indication (2 colors)

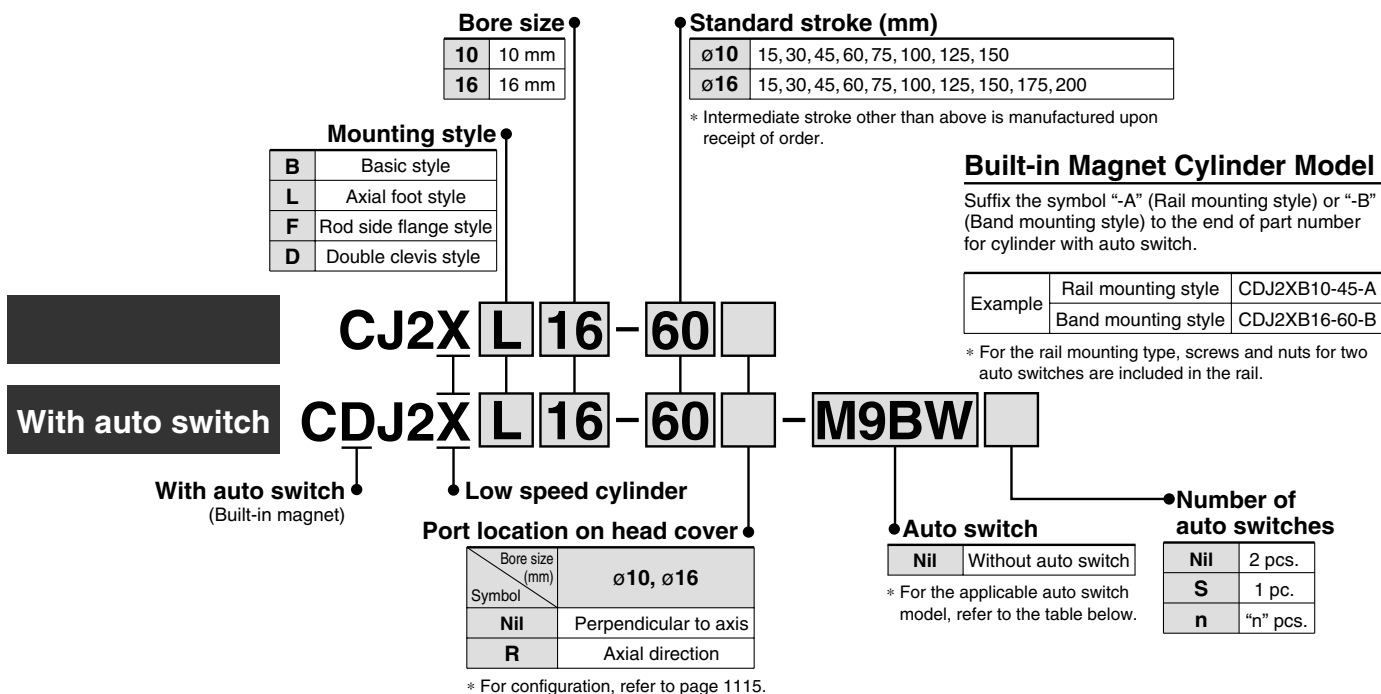
\* Solid state auto switches are also available with a pre-wired connector. Refer to pages 1328 and 1329 for details.

\* Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H types) are also available. Refer to page 1290 for details.

# Low Speed Cylinder Double Acting, Single Rod Series CJ2X

ø10, ø16

## How to Order



## Applicable Auto Switch

Refer to pages 1719 to 1827 for further information on auto switches.

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

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

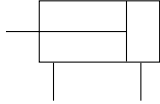
\* Since there are other applicable auto switches than listed, refer to page 1123 for details.  
 \* For details about auto switches with pre-wired connector, refer to pages 1784 and 1785.  
 \* For the band mounting type, D-A9□V□/M9□V□/M9□WV□/M9□A(V)L types cannot be mounted.

\* Solid state auto switches marked with "○" are produced upon receipt of order.  
 \* D-A9□/M9□/M9□W/A7□□/A80□/F7□□/J7□□ auto switches are shipped together (not assembled). (When D-A9□/M9□/M9□W are specified, only auto switch mounting brackets are assembled before shipped.)  
 \* D-C7□□/C80□/H7□□ auto switches are assembled at the time of shipment.  
 \* Order auto switch mounting brackets separately when D-A9□(V)/M9□(V)/M9□W(V) types are mounted with a rail. Refer to page 1123 for details.



### JIS Symbol

Double acting, Single rod



## ⚠ Precautions

**Be sure to read before handling.**  
Refer to front matters 42 and 43 for Safety Instructions and pages 3 to 11 for Actuator and Auto Switch Precautions.

### Mounting

#### ⚠ Caution

- During installation, secure the rod cover and tighten by applying an appropriate tightening force to the retaining 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.
- Proper tightening torque for mounting thread should be within the range specified. Apply a Loctite® (no. 242 Blue) for mounting thread.

Bore size (mm)	Proper tightening torque for mounting thread (N·m) (tightening torque for mounting nut)
10	3.0 to 3.2
16	5.4 to 5.9

- To remove and install the retaining ring for the knuckle pin or the clevis pin, use an appropriate pair of pliers (tool for installing a type C retaining ring).  
Especially with ø10, use ultra thin pliers, such as Super Tool Corp., CSM-07A.
- For the auto switch mounting rail, do not remove the pre-equipped rail. Since the mounting thread is drilled through inside a the cylinder, it will result in air leakage.

### Operating Precautions

#### ⚠ Warning

- It might not be able to control by meter-out at a low speed operation.

#### ⚠ Caution

- For Series CJ2X, 0.1 Nℓ/min is the values at maximum in terms of its construction and there is internal leakage (ANR).

## Specifications

Bore size (mm)	10	16
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)	
Stroke length tolerance	+1.0 0	
Piston speed	1 to 300 mm/s	
Allowable kinetic energy	ø10	0.035 J
	ø16	0.090 J

## Standard Stroke

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

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

## Mounting Style and Accessory

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

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

## Port Location on Head Cover

For basic style, the port position in a head cover is available either perpendicular to the axis or in-line with the cylinder axis.



## 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).

REA

REB

REC

Y

X

MQ

RHC

RZQ

D-

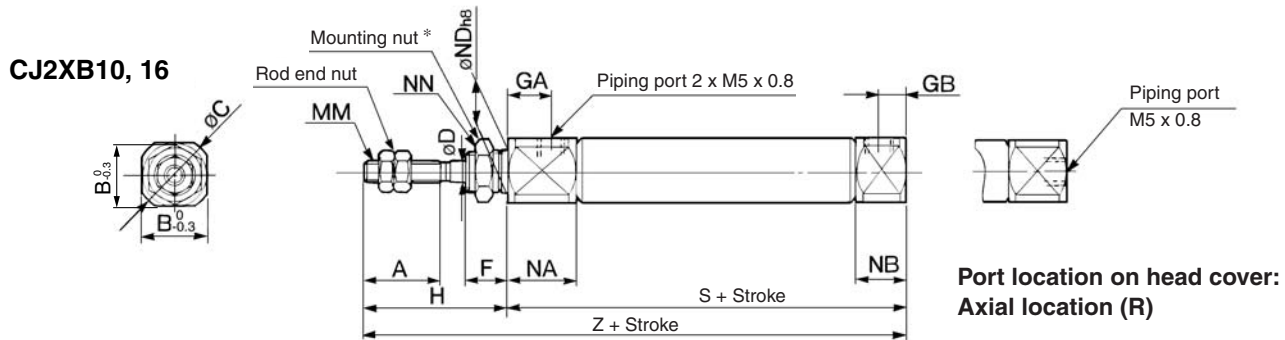
-X

Individual  
-X

# Series CJ2X

## Basic Style (B)

CJ2XB Bore size – Stroke Port location on head cover



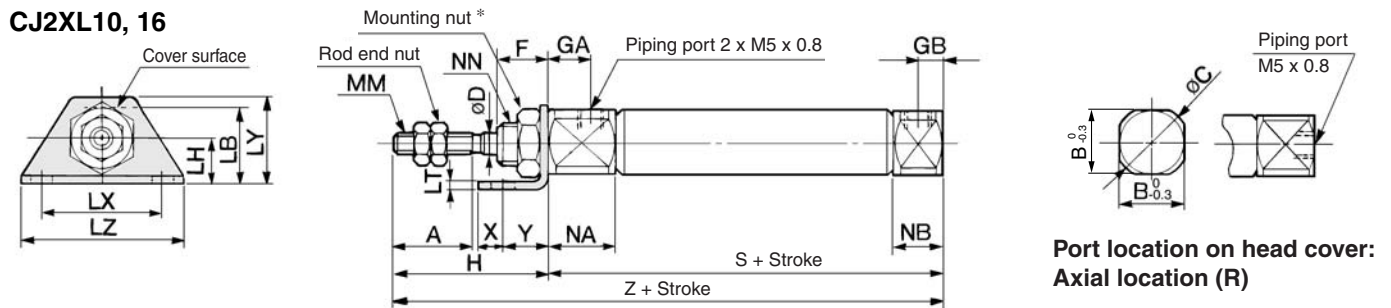
\* For details of the mounting nut, refer to page 1118.

Bore size (mm)	A	B	C	D	F	GA	GB	H	MM	NA	NB	NDh8	NN	S	T	Z
10	15	12	14	4	8	8	5	28	M4 x 0.7	12.5	9.5	8 <sup>0</sup> <sub>-0.022</sub>	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 <sup>0</sup> <sub>-0.022</sub>	M10 x 1.0	47	—	75

(mm)

## Axial Foot Style (L)

CJ2XL Bore size – Stroke Port location on head cover



\* For details of the mounting nut, refer to page 1118.

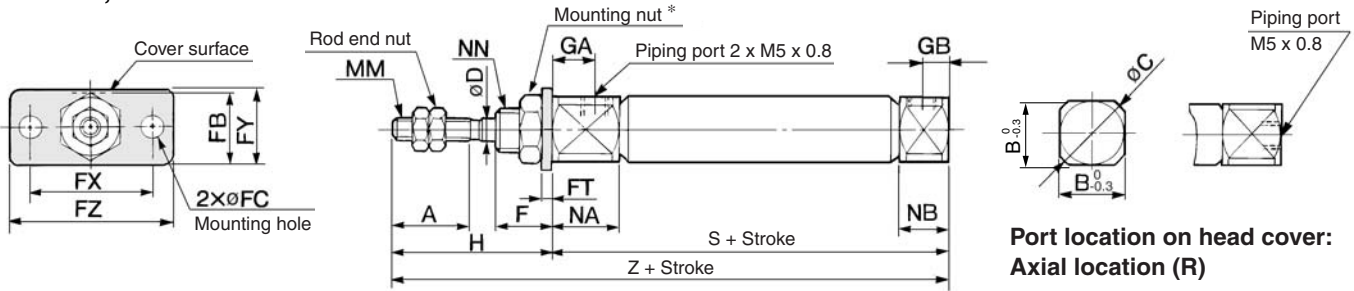
Bore size (mm)	A	B	C	D	F	GA	GB	H	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	S	T	X	Y	Z
10	15	12	14	4	8	8	5	28	15	4.5	9	1.6	24	16.5	32	M4 x 0.7	12.5	9.5	M8 x 1.0	46	—	5	7	74
16	15	18.3	20	5	8	8	5	28	23	5.5	14	2.3	33	25	42	M5 x 0.8	12.5	9.5	M10 x 1.0	47	—	6	9	75



**Rod Side Flange Style (F)**

**CJ2XF** Bore size – Stroke Port location on head cover

**CJ2XF10, 16**

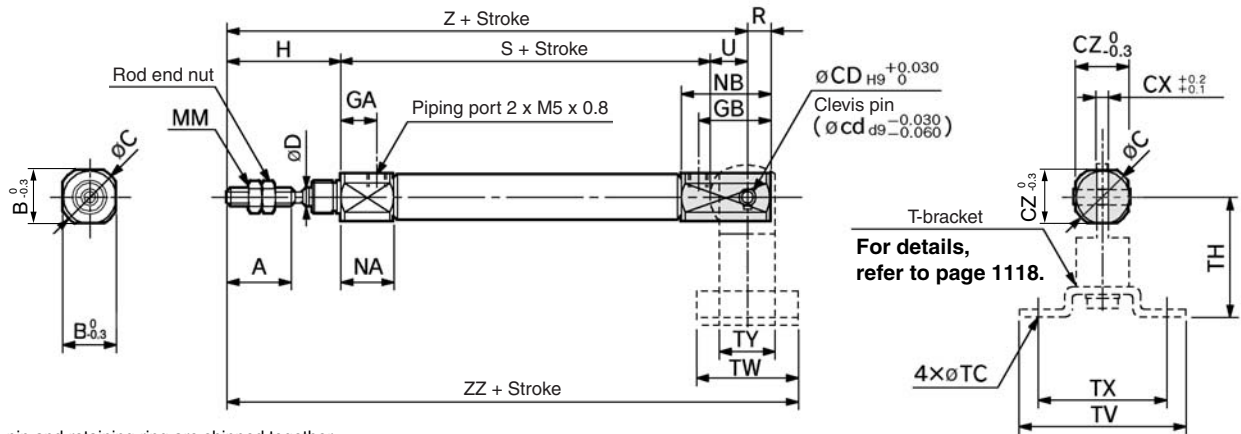


\* For details of the mounting nut, refer to page 1118.

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

**Double Clevis Style (D)**

**CJ2XD** Bore size – Stroke



\* Clevis pin and retaining ring are shipped together.

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

REA

REB

REC

C□Y

C□X

MQ

RHC

RZQ

D-□

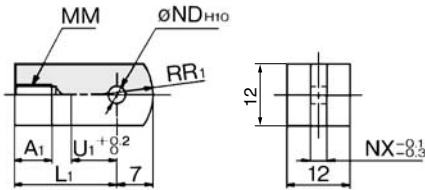
-X□

Individual  
-X□

## Accessory Bracket Dimensions

(mm)

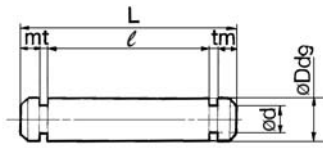
### Single Knuckle Joint



Material: Rolled steel

Part no.	Applicable bore	A <sub>1</sub>	L <sub>1</sub>	MM	ND <sub>H10</sub>	NX	R <sub>1</sub>	U <sub>1</sub>
I-J010B	10	8	21	M4 x 0.7	3.3 <sup>+0.048</sup> <sub>0</sub>	3.1	8	9
I-J016B	16	8	25	M5 x 0.8	5 <sup>+0.048</sup> <sub>0</sub>	6.4	12	14

### Clevis Pin

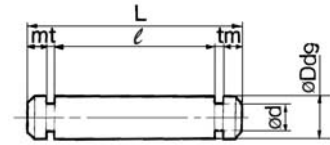


Material: Stainless steel

Part no.	Applicable bore	Dd9	d	L	ℓ	m	t	Applicable retaining ring
CD-J010	10	3.3 <sup>-0.030</sup> <sub>-0.060</sub>	3	15.2	12.2	1.2	0.3	Type C 3.2
CD-Z015	16	5 <sup>-0.030</sup> <sub>-0.060</sub>	4.8	22.7	18.3	1.5	0.7	Type C 5

\* Retaining rings are packaged with clevis pins.

### Knuckle Pin



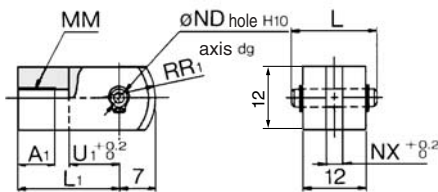
Material: Stainless steel

Part no.	Applicable bore	Dd9	d	L	ℓ	m	t	Applicable retaining ring
CD-J010	10	3.3 <sup>-0.030</sup> <sub>-0.060</sub>	3	15.2	12.2	1.2	0.3	Type C 3.2
IY-J015	16	5 <sup>-0.030</sup> <sub>-0.060</sub>	4.8	16.6	12.2	1.5	0.7	Type C 5

\* For size ø10, clevis pin is diverted.

\* Retaining rings are packaged with knuckle pins.

### Double Knuckle Joint



Material: Rolled steel

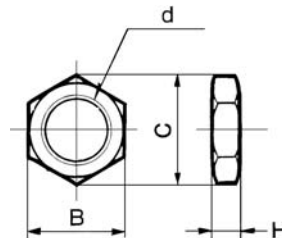
Part no.	Applicable bore	A <sub>1</sub>	L	L <sub>1</sub>	MM
Y-J010B	10	8	15.2	21	M4 x 0.7
Y-J016B	16	11	16.6	21	M5 x 0.8

Part no.	ND <sub>99</sub>	ND <sub>H10</sub>	NX	R <sub>1</sub>	U <sub>1</sub>
Y-J010B	3.3 <sup>-0.030</sup> <sub>-0.060</sub>	3.3 <sup>+0.048</sup> <sub>0</sub>	3.2	8	10
Y-J016B	5 <sup>-0.030</sup> <sub>-0.060</sub>	5 <sup>+0.048</sup> <sub>0</sub>	6.5	12	10

\* Knuckle pin and retaining ring are shipped together.

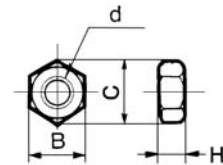
### Mounting Nut



Material: Brass

Part no.	Applicable bore	B	C	d	H
SNJ-010B	10	11	12.7	M8 x 1.0	4
SNJ-016B	16	14	16.2	M10 x 1.0	4

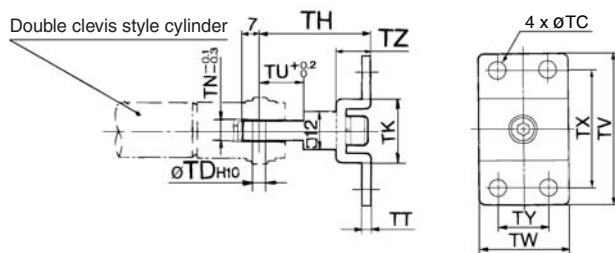
### Rod End Nut



Material: Iron

Part no.	Applicable bore	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

### T-bracket

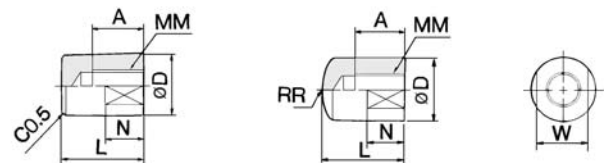


Part no.	Applicable bore	TC	TD <sub>H10</sub>	TH	TK	TN	TT	TU	TV	TW	TX	TY	TZ
CJ-T010B	10	4.5	3.3 <sup>+0.048</sup> <sub>0</sub>	29	18	3.1	2	9	40	22	32	12	8
CJ-T016B	16	5.5	5 <sup>+0.048</sup> <sub>0</sub>	35	20	6.4	2.3	14	48	28	38	16	10

\* T-bracket includes a T-bracket base, single knuckle joint, hexagon socket head cap screw and spring washer.

### Rod End Cap

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



Material: Polyacetal

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