

# Air Cylinder

## CJ2 Series

ø6, ø10, ø16

Double foot Head flange

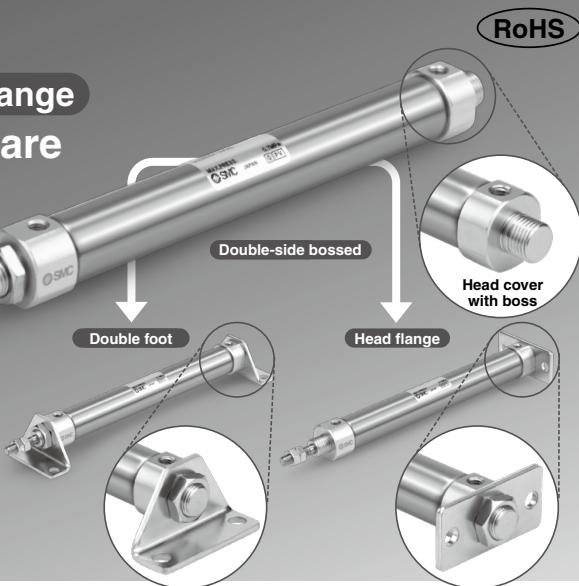
Double-side bossed are added to the mounting types.

4 types → 7 types

For ø6, 3 types → 6 types

Improved amount of mounting freedom

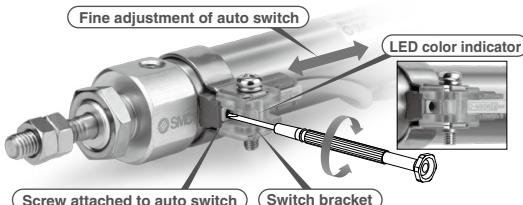
Head cover with boss is added.



### Easy fine adjustment of auto switch position

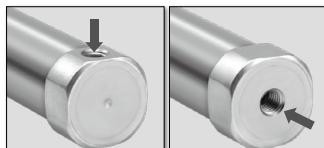
Fine adjustment of the auto switch position is possible by simply loosening the screw attached to the auto switch.

Transparent switch bracket improves visibility of indicator LED.



Head cover port location  
“Perpendicular to axis”  
is newly added to ø6.

Improved piping flexibility

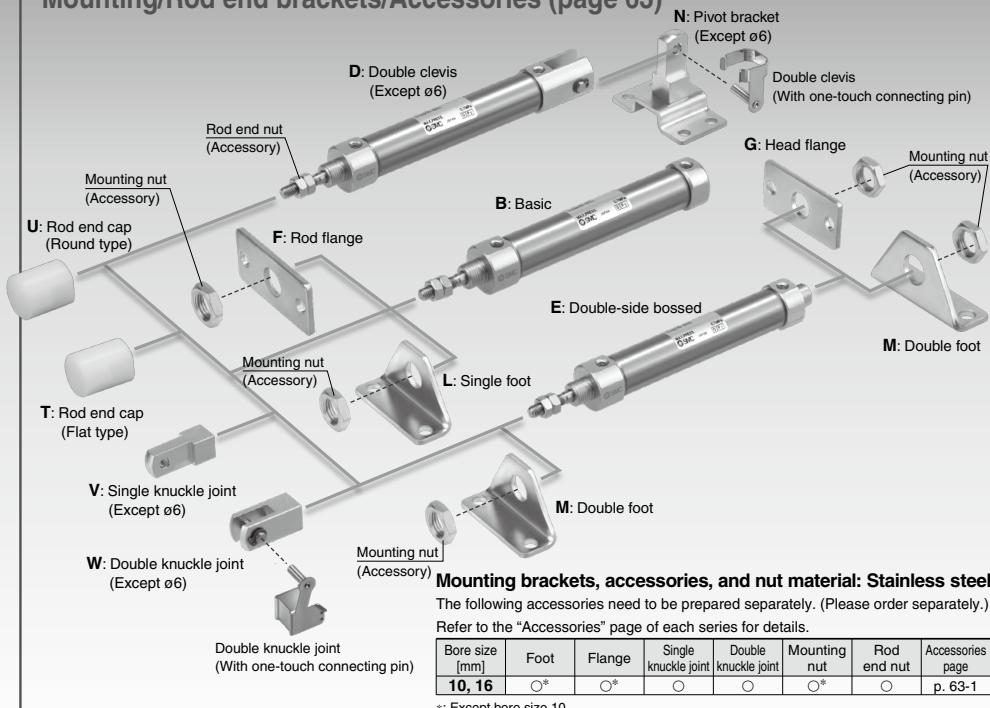


ø6	●	○
ø10	○	○
ø16	○	○



# Air Cylinder

## Mounting/Rod end brackets/Accessories (page 63)



### Mounting brackets, accessories, and nut material: Stainless steel

The following accessories need to be prepared separately. (Please order separately.) Refer to the "Accessories" page of each series for details.

## Part numbers with rod end bracket and/or pivot bracket available

Not necessary to order a bracket for the applicable cylinder separately

Note) Mounting bracket is shipped together with the product, but not assembled.

Example) CDJ2D16-50Z- N W -M9BW-B

### Pivot bracket

Nil	None
<b>N</b>	Pivot bracket is shipped together with the product, but not assembled.

\*: Only for the double clevis type (ø10 and ø16)

### N: Kit of pivot bracket and double clevis



### Rod end bracket

Nil	None
<b>V</b>	Single knuckle joint
<b>W</b>	Double knuckle joint
<b>T</b>	Rod end cap (Flat type)
<b>U</b>	Rod end cap (Round type)

\*: V/W: ø10 and ø16 only

### With rod end bracket

**V:** Single knuckle joint



### Rod end cap

**T:** Flat type



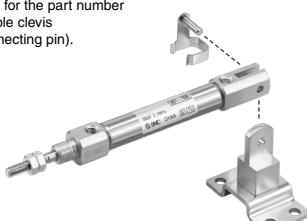
**W:** Double knuckle joint



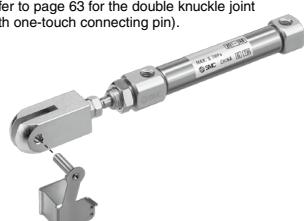
**U:** Round type



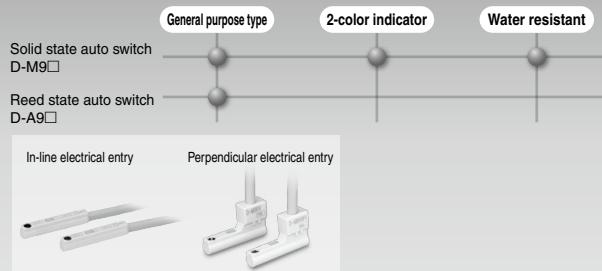
Refer to page 151-1 for the part number (-X2838) of the double clevis (with one-touch connecting pin).



Refer to page 63 for the double knuckle joint (with one-touch connecting pin).



## Compact auto switches



### Stroke Variations

Bore size [mm]	Standard stroke									
	15	30	45	60	75	100	125	150	175	200
6	●	●	●	●	●	●	●	●	●	●
10	●	●	●	●	●	●	●	●	●	●
16	●	●	●	●	●	●	●	●	●	●

### Series Variations

Series	Action	Type	Bore size [mm]			Variations			Page
			6	10	16	Built-in magnet	Air cushion		
Standard CJ2-Z	Double acting	Single rod	●	●	●	●	●	●	46
	Double acting	Double rod	●	●	●	●	●	●	64
	Single acting	Single rod (Spring return /extend)	●	●	●	●	●	●	71
Non-rotating rod CJ2K-Z	Double acting	Single rod	●	●	●	●	●	●	88
	Single acting	Single rod (Spring return /extend)	●	●	●	●	●	●	95
	Double acting	Double rod	●	●	●	●	●	●	107
Built-in speed controller CJ2Z-Z	Double acting	Single rod	●	●	●	●	●	●	114
	Double acting	Double rod	●	●	●	●	●	●	119
	Double acting	Single rod	●	●	●	●	●	●	123
Direct mount CJ2R-Z	Double acting	Single rod	●	●	●	●	●	●	127
	Single acting	Single rod (Spring return /extend)	●	●	●	●	●	●	130
	Double acting	Double rod	●	●	●	●	●	●	134
Direct mount, Non-rotating rod CJ2RK-Z	Double acting	Single rod	●	●	●	●	●	●	Best Pneumatics No. 2-3
	Single acting	Single rod (Spring return /extend)	●	●	●	●	●	●	Best Pneumatics No. 2-3
	Double acting	Double rod	●	●	●	●	●	●	D-□
With end lock CBJ2	Double acting	Single rod	●	●	●	●	●	●	-X-□
	Double acting	Double rod	●	●	●	●	●	●	Technical Data
Smooth Cylinder CJ2Y-Z	Double acting	Single rod	●	●	●	●	●	●	
	Double acting	Double rod	●	●	●	●	●	●	
Low Speed Cylinder CJ2X-Z	Double acting	Single rod	●	●	●	●	●	●	
	Double acting	Double rod	●	●	●	●	●	●	

\*: The air cylinder with end lock has the same shape as the current product.

\*\*: Air cushion is only available for ø10 and ø16.

CJ1  
CJP  
CJ2  
JCM  
CM2  
CM3  
CG1  
CG3  
JMB  
MB  
MB1  
CA2  
CS1  
CS2

D-□  
-X-□  
Technical Data

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### ■ Air Cylinder: Standard Type

#### Double Acting, Double Rod CJ2W series

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### ■ Air Cylinder: Standard Type

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### ■ Air Cylinder: Non-rotating Rod Type

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### ■ Air Cylinder: Built-in Speed Controller Type

#### Double Acting, Single Rod CJ2Z Series

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CJ1  
CJP  
CJ2  
JCM  
CM2  
CM3  
CG1  
CG3  
JMB  
MB  
MB1  
CA2  
CS1  
CS2



## ■ Air Cylinder: Direct Mount Type Double Acting, Single Rod CJ2R Series

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D-□  
-X-□  
Technical Data

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# Combinations of Standard Products and Made to Order Specifications

## CJ2 Series

● : Standard
○ : Made to Order
○ : Special product (Please contact SMC for details.)
— : Not available

Series	CJ2 (Standard type)				CJ2K (Non-rotating rod type)			
	Action/ Type		Double acting	Single acting	Double acting	Single acting		
	Page	Single rod	Double rod	Single rod (spring return)	Single rod (spring extend)	Single rod	Single rod (spring return)	Single rod (spring extend)
		46	64	71		88	95	
<b>Symbol</b>	<b>Specifications</b>	<b>Applicable bore size</b>	ø6 to ø16				ø10, ø16	
<b>Standard</b>	<b>Standard</b>	ø6 to ø16	●	●	●	●	●	●
<b>D</b>	<b>Built-in magnet</b>		●	●	●	●	●	●
<b>CJ2□-□A</b>	<b>Air cushion</b>	ø10, ø16	●	●	—	—	—	—
<b>10-, 11-</b>	<b>Clean series<sup>*1</sup></b>	ø6 to ø16	●	● <sup>*9</sup>	○	○	—	—
<b>25A-</b>	<b>Copper (Cu) and Zinc (Zn)-free<sup>*5</sup></b>	ø10, ø16	●	○	○	○	○	○
<b>XB6</b>	<b>Heat resistant cylinder (-10 to 150°C)<sup>*3, 4</sup></b>	ø6 to ø16	○	○	○	○	○	○
<b>XB7</b>	<b>Cold resistant cylinder (-40 to 70°C)<sup>*3, 4</sup></b>		○	○	○	○	○	○
<b>XB9</b>	<b>Low speed cylinder (10 to 50 mm/s)<sup>*4</sup></b>		○	—	—	—	—	—
<b>XB13</b>	<b>Low speed cylinder (5 to 50 mm/s)</b>	ø6	○	—	—	—	—	—
<b>XC3</b>	<b>Special port position<sup>*2, 4</sup></b>	ø6 to ø16	○	○	—	—	○	—
<b>XC8</b>	<b>Adjustable stroke cylinder/ Adjustable extension type<sup>*4</sup></b>	ø10, ø16	○	—	○	○	○	○
<b>XC9</b>	<b>Adjustable stroke cylinder/ Adjustable retraction type<sup>*4</sup></b>		○	—	○	—	○	—
<b>XC10</b>	<b>Dual stroke cylinder/Double rod type<sup>*4</sup></b>		○	—	○	○	○	○
<b>XC11</b>	<b>Dual stroke cylinder/Single rod type<sup>*4</sup></b>		○	—	—	—	○	—
<b>XC22</b>	<b>Fluororubber seal<sup>*4</sup></b>	ø6 to ø16	○	○	○	○	○	○
<b>XC51</b>	<b>With hose nipple</b>		○	○	○	○	○	○
<b>XC85</b>	<b>Grease for food processing equipment</b>	ø10, ø16	○	○	○	○	○	○
<b>X446</b>	<b>PTFE grease</b>		○	○	○	○	○	○
<b>X773</b>	<b>Short pitch mounting</b>	ø6	—	—	○	—	—	—
<b>X2838</b>	<b>Double clevis (With one-touch connecting pin)<sup>*11</sup></b>	ø10, ø16	○	—	○	○	○	○

\*1: Mounting type: Not compatible with the clevis type.

An auto switch is available in the band mounting type only.

\*2: An auto switch is available in the band mounting type only.

\*3: The products with an auto switch are not compatible.

\*4: The products with an air cushion are not compatible.

\*5: For details, refer to the Web Catalog.

\*6: The shape is the same as the current product.

\*7: Available only for locking at head end.

\*8: Available only for locking at rod end.

\*9: ø10 and ø16 only

\*10: Copper and fluorine-free [20-] are available as standard products.

\*11: Not compatible with the air cushion or rail mounting type auto switches.

	CJ2Z (Built-in speed controller type)		CJ2R (Direct mount type)		CJ2RK (Direct mount, Non-rotating rod type)		CBJ2 (With end lock) <sup>v6</sup>		CJ2Y Smooth Cylinder	CJ2X Low Speed Cylinder	
	Double acting		Double acting	Single acting	Double acting	Single acting	Double acting	Double acting	Double acting	Double acting	
	Single rod	Double rod	Single rod	Single rod (spring return)	Single rod (spring extend)	Single rod	Single rod (spring return)	Single rod (spring extend)	Single rod	Single rod	
	107	114	119	123	127	130	134	Best Pneumatics No. 2-3	Best Pneumatics No. 2-3	Best Pneumatics No. 2-3	
	$\phi 10, \phi 16$								$\phi 16$	$\phi 10, \phi 16$	$\phi 10, \phi 16$
	●	●	●	●	●	●	●	●	●	●	Standard
	●	●	●	●	●	●	●	●	●	●	D
	—	—	○	—	—	—	—	—	—	—	CJ2□-□A
	—	—	●	○	○	—	—	—	○ <sup>v7</sup>	—	10-, 11-
	○	○	○	○	○	○	○	○	○	○	25A-
	○	○	○	○	○	○	○	○	—	—	XB6
	○	○	○	○	○	○	○	○	—	—	XB7
	—	—	—	—	—	—	—	—	○	—	XB9
	—	—	—	—	—	—	—	—	—	—	XB13
	—	—	○	—	—	○	—	—	○	○	XC3
	○	—	○	○	○	○	○	○	—	—	XC8
	—	—	○	○	—	○	○	—	○ <sup>v8</sup>	○	XC9
	○	—	○	○	○	○	○	○	○	○	XC10
	—	—	○	—	—	○	—	—	○ <sup>v8</sup>	—	XC11
	○	○	○	○	○	○	○	○	○	—	XC22
	○	○	○	○	○	○	○	○	—	—	XC51
	○	○	○	○	○	○	○	○	—	—	XC85
	○	○	○	○	○	○	○	○	—	—	X446
	—	—	—	—	—	—	—	—	—	—	X773
	—	—	—	—	—	—	—	—	○	○	X2838

**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

**D-□**  
**-X□**  
 Technical Data

# Air Cylinder: Standard Type Double Acting, Single Rod

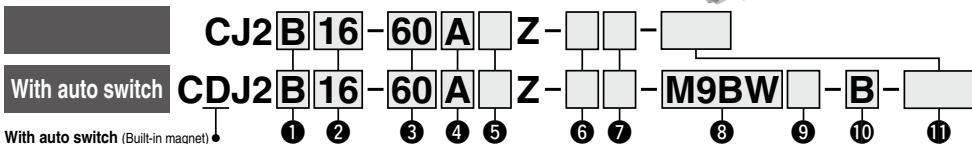
## CJ2 Series

ø6, ø10, ø16

RoHS



### How to Order



With auto switch (Built-in magnet)

#### ① Mounting

B	Basic
E	Double-side bossed
D**	Double clevis
L	Single foot
M	Double foot
F	Rod flange
G	Head flange

\*: Foot/Flange brackets are shipped together with the product, but not assembled.

\*\*: Double clevis is only available for ø10 and ø16.

\*\*\*: Refer to page 151-1 for the double clevis (with one-touch connecting pin).

#### ⑧ Auto switch

Nil	Without auto switch
-----	---------------------

\*: For applicable auto switches, refer to the table below.

★ Enter the auto switch mounting type (A or B) even when a built-in magnet cylinder without an auto switch is required.

#### ② Bore size

6	6 mm
10	10 mm
16	16 mm

#### ⑤ Head cover port location

Nil	Perpendicular to axis	
R	Axial	

\*: For double clevis, the product is perpendicular to the cylinder axis.  
\*\*: For double side bossed, the product is perpendicular to the cylinder axis.

#### ⑨ Number of auto switches

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

#### ③ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 47.

#### ⑥ Pivot bracket

Nil	None
N	Pivot bracket is shipped together with the product.

\*: Only for the double clevis type (ø10 and ø16).

\*\*: Pivot bracket is shipped together with the product, but not assembled.

#### ⑩ Auto switch mounting type

A	Rail mounting
B	Band mounting

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

\*\*: Refer to page 148 for auto switch mounting brackets.

\*\*\*: ø6: Band mounting only

#### ④ Cushion

Nil	Rubber bumper
A	Air cushion

\*\*: ø6: Rubber bumper only

#### ⑦ Rod end bracket

Nil	None
V	Single knuckle joint
W**	Double knuckle joint
T	Rod end cap (Flat type)
U	Rod end cap (Round type)

\*: Rod end bracket is shipped together with the product, but not assembled.

\*\*: Single Double knuckle joint: ø10 and ø16 only

\*\*\*: Refer to page 63 for the double knuckle joint (with one-touch connecting pin).

#### ⑪ Made to Order

Refer to page 47 for details.

\*: Refer to "Ordering Example of Cylinder Assembly" on page 47.

#### Applicable Auto Switches

Refer to pages 1575 to 1701 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	In-line			
Solid state auto switch	Diagnostic indication (2-color indicator)	Grommet	3-wire (NPN)	5 V, 12 V	—	—	M9NV	M9N	M9NV	0.5 (Nil) (M) (L) (Z) (N)	—	—
							M9PV	M9P	M9PV	1	—	IC circuit
		Connector	2-wire	12 V	—	—	M9BV	M9B	M9BV	3	—	—
							H7C	J7C	—	5	—	—
							M9NWV	M9NW	M9NWV	None	—	—
	Water resistant (2-color indicator)	Grommet	3-wire (NPN)	24 V	5 V, 12 V	—	M9PWV	M9PW	M9PW	1	—	—
							M9PBW	M9BW	M9BW	3	—	—
							M9BVW	M9BW	M9BW	5	—	—
							M9NAV <sup>†</sup>	M9NA <sup>†</sup>	M9NAV <sup>†</sup>	None	—	—
							M9PAV <sup>†</sup>	M9PA <sup>†</sup>	M9PAV <sup>†</sup>	1	—	—
Reed auto switch	Win diagnostic output (2-color indicator)	Grommet	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	A96V	0.5 (Nil) (M) (L) (Z) (N)	—	—
							—	A72	A72H	1	—	IC circuit
							100 V	A93V <sup>‡</sup>	A93	3	—	—
							100 V or less	A90V	A90	5	—	—
							—	C73C	A73C	None	—	IC circuit
Reed auto switch	—	Connector	No	Yes	24 V or less	—	C80C	A80C	—	1	—	Relay, PLC
							—	A79W	—	3	—	—

\*1: Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Please contact SMC regarding water resistant types with the above model numbers.

\*2: 1 m type lead wire is only applicable to D-A93.

\*3: Lead wire length symbols: 0.5 ..... Nil (Example) M9NW ..... 5 m ..... Z (Example) M9NZ

1 m ..... M (Example) M9NWM ..... None ..... N (Example) H7CN

3 m ..... L (Example) M9NWL ..... —

\*4: Since there are other applicable auto switches than listed above, refer to page 149 for details.

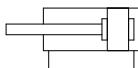
\*5: Solid state auto switches marked with "○" are produced upon receipt of order.

\*6: The D-A9□/M9□/A7□/A80□/F7□/J7□ auto switches are shipped together, but not assembled. (For band mounting, only the auto switch mounting brackets are assembled before shipment.)

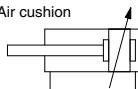


### Symbol

Rubber bumper



Air cushion



### Made to Order

Made to Order: Individual Specifications  
(For details, refer to pages 150 and 151.)

Symbol	Specifications
-X446	PTFE grease
-X773 <sup>①</sup>	Short pitch mounting
-X2838 <sup>②</sup>	Double clevis (With one-touch connecting pin)

\*1: ø6 only

\*2: ø10 and ø16 only

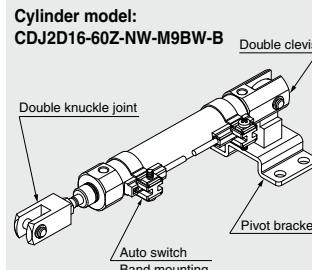
### Made to Order

[Click here for details](#)

Symbol	Specifications
-XA	Change of rod end shape
-XB6	Heat resistant cylinder (-10 to 150°C) Not available with switch & air cushion
-XB7	Cold resistant cylinder (-40 to 70°C) Not available with switch & air cushion
-XB9	Low speed cylinder (10 to 50 mm/s) Not available with air cushion
-XB13 <sup>③</sup>	Low speed cylinder (5 to 50 mm/s) Not available with air cushion
-XC3	Special port location Not available with air cushion
-XC8	Adjustable stroke cylinder/Adjustable extension type
-XC9	Adjustable stroke cylinder/Adjustable retraction type
-XC10	Dual stroke cylinder/Double rod type
-XC11	Dual stroke cylinder/Single rod type
-XC22	Fluororubber seal Not available with air cushion
-XC51	With hose nipple
-XC85	Grease for food processing equipment

\*3: ø6 only

### Ordering Example of Cylinder Assembly



Mounting D: Double clevis

Pivot bracket N: Yes

Rod end bracket W: Double knuckle joint

Auto switch D-M9BW: 2 pcs.

Auto switch mounting B: Band mounting

\*: Pivot bracket, double knuckle joint and auto switch are shipped together with the product, but not assembled.

\*: Except ø6

## Specifications

Bore size [mm]	6	10	16
Action	Double acting, Single rod		
Fluid	Air		
Proof pressure	1 MPa		
Maximum operating pressure	Rubber bumper	0.12 MPa	0.06 MPa
	Air cushion	—	0.1 MPa
Minimum operating pressure	Rubber bumper	—	Without auto switch: -10°C to 70°C (No freezing) With auto switch: -10°C to 60°C
	Air cushion	—	—
Ambient and fluid temperature	Rubber bumper	Rubber bumper/Air cushion	
Lubrication	Not required (Non-lube)		
Piston speed	Rubber bumper	50 to 750 mm/s	
	Air cushion	—	50 to 1000 mm/s
Allowable kinetic energy	Rubber bumper	0.012 J	0.035 J
	Air cushion (Effective cushion length)	— (9.4 mm)	0.07 J (9.4 mm)
Stroke length tolerance	<sup>+1.0</sup> <sub>0</sub>		

## Standard Strokes

Bore size	Standard stroke	[mm] Maximum manufacturable stroke
6	15, 30, 45, 60	200
10	15, 30, 45, 60, 75, 100, 125, 150	400
16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200	400

\*: Manufacture of intermediate strokes in 1 mm increments is possible. (Spacers are not used.)  
Produced upon receipt of order.

\*: Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on front matter pages. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to the deflection etc.

## Mounting and Accessories

Refer to page 42 for the list of brackets and page 63 for details about part numbers and dimensions.

●: Mounted on the product. ○: Can be ordered within the cylinder model. △: Order separately.

	Mounting	Basic	Foot	Flange	Double clevis <sup>①</sup>	Double clevis (including T-bracket)
Standard	Mounting nut	●	●	●	—	—
	Rod end nut	●	●	●	●	●
	Clevis pin (including retaining rings)	—	—	—	●	●
Option	Double clevis (With one-touch connecting pin)	△	△	△	○ (X-2838)	(X-2838)
	Single knuckle joint	○	○	○	○	○
	Double knuckle joint (including a pin and retaining rings)	○	○	○	○	○
	Double knuckle joint (With one-touch connecting pin)	△	△	△	△	△
	Rod end cap (Flat/Round type)	○	○	○	○	○
	Pivot bracket (T-bracket)	—	—	—	○	●

Note 1) Double clevis is only available for ø10 and ø16.

Note 2) Stainless steel mounting brackets and accessories are also available.

Refer to page 63-1 for details.

## Mounting Brackets/Part No.

Mounting bracket	6	10	16
Foot	CJ-L006C	CJ-L010C	CJ-L016C
Flange	CJ-F006C	CJ-F010C	CJ-F016C
T-bracket*	—	CJ-T010C	CJ-T016C

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

Refer to pages 142 to 149 for cylinders with auto switches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

### Moisture Control Tube IDK Series

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

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

**CJ1**

**CJP**

**CJ2**

**JCM**

**CM2**

**CM3**

**CG1**

**CG3**

**JMB**

**MB1**

**CA2**

**CS1**

**CS2**

**D-□**

**-X-□**

**Technical Data**

# CJ2 Series

## Weights

Bore size [mm]		Rubber bumper		Air cushion		[g]
		6	10	16	10	
Basic weight (When the stroke is zero)	Basic	20	22	46	39	66
	Axial piping	17	22	46	39	66
	Double clevis (including clevis pin)	—	24	54	43	74
	Head-side bossed	20	23	48	40	68
Additional weight per 15 mm of stroke		2	4	7	4	7
Mounting bracket weight	Single foot	8	8	25	8	25
	Double foot	16	16	50	16	50
	Rod flange	5	5	13	5	13
	Head flange	5	5	13	5	13
Accessories	Clevis pin	—	1	3	1	3
	One-touch connecting pin for double clevis	—	2	4	—	—
	Single knuckle joint	—	17	23	17	23
	Double knuckle joint (including knuckle pin)	—	25	21	25	21
	Double knuckle joint (With one-touch connecting pin)	—	26	22	26	22
	Rod end cap (Flat type)	1	1	2	1	2
	Rod end cap (Round type)	1	1	2	1	2
	Pivot bracket (T-bracket)	—	32	50	32	50

## Precautions

Refer to page 152 before handling.

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

\*: Mounting nut is not included in the basic weight for the double clevis.

Calculation:

Example) CJ2L10-45Z

- Basic weight ..... 22 (ø10)
- Additional weight ..... 4/15 stroke
- Cylinder stroke ..... 45 stroke
- Mounting bracket weight ..... 8 (Axial foot)

$$22 + 4/15 \times 45 + 8 = 42 \text{ g}$$

## Clean Series

10-CJ2 Mounting 10-Stroke Head cover  
port location Z

↓ 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.



## Low Speed Cylinder

CJ2 X Mounting 10-Stroke Head cover  
port location Z

↓ Low Speed Cylinder

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



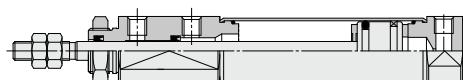
The dimensions are the same as the double acting, single rod type.

## Specifications

Action	Double acting, Single rod
Bore size [mm]	6, 10, 16
Maximum operating pressure	0.7 MPa
Minimum operating pressure	0.06 MPa
ø6	0.14 MPa
ø10, ø16	0.08 MPa
Cushion	Rubber bumper/Air cushion
Standard stroke [mm]	Same as standard type. (Refer to page 47.)
Auto switch	Mountable (Band mounting)
Mounting	Basic, Double-side bossed*, Single/Double foot*, Rod/Head flange*

\*: ø10 and ø16 only

## Construction



\*: The above figure is for ø16.

For the detailed specifications, refer to the "Pneumatic Clean Series" (CAT.E02-23).

## Specifications

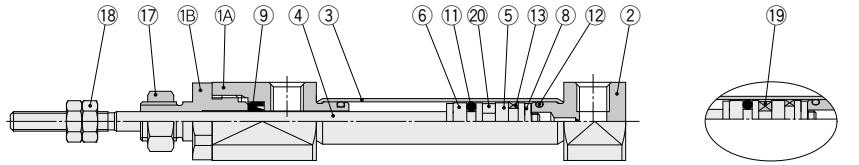
Action	Double acting, Single rod
Bore size [mm]	10, 16
Fluid	Air
Proof pressure	1.05 MPa
Maximum operating pressure	0.7 MPa
Minimum operating pressure	0.06 MPa
Ambient and fluid temperature	Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C
Cushion	Rubber bumper (Standard equipment)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

For details, refer to the Best Pneumatics No. 2-3.

### Construction (Not able to disassemble)

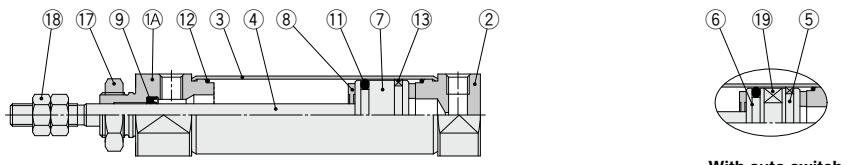
ø6

Rubber bumper



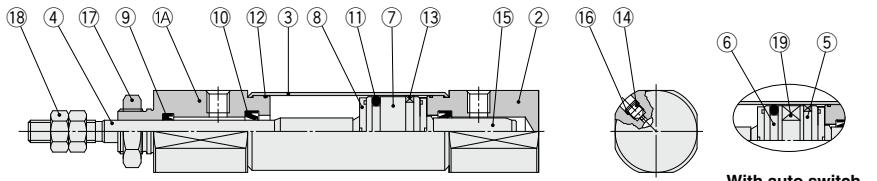
ø10, ø16

Rubber bumper



ø10, ø16

Air cushion



**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

### Component Parts

No.	Description	Material	Note
1A	Rod cover	Aluminum alloy	
1B	Seal retainer	Aluminum alloy	ø6 only
2	Head cover	Aluminum alloy	
3	Cylinder tube	Stainless steel	
4	Piston rod	Stainless steel	
5	Piston A	Aluminum alloy	
6	Piston B	Aluminum alloy	
7	Piston	Aluminum alloy	
8	Bumper	Urethane	
9	Rod seal	NBR	
10	Cushion seal	NBR	

No.	Description	Material	Note
11	Piston seal	NBR	
12	Tube gasket	NBR	
13	Wear ring	Resin	
14	Cushion needle	Carbon steel	
15	Cushion ring	Aluminum alloy	
16	Needle seal	NBR	
17	Mounting nut	Rolled steel	
18	Rod end nut	Rolled steel	
19	Magnet	—	
20	Spacer	Aluminum alloy	ø6: Without magnet

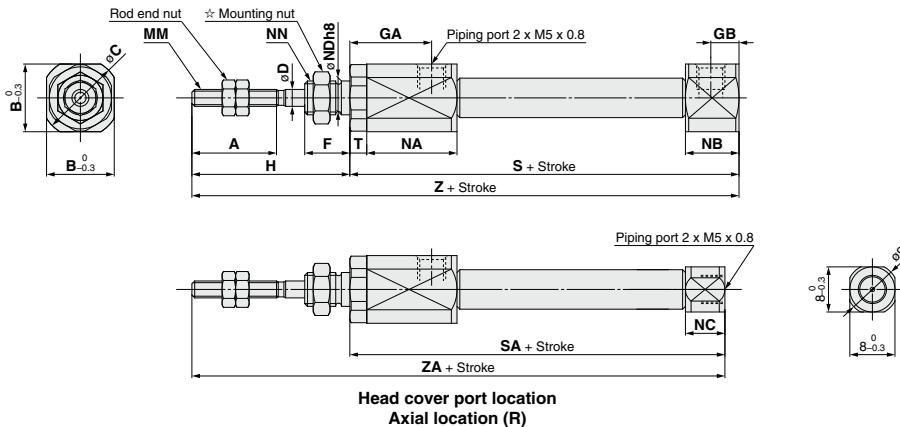
D-□  
-X□  
Technical Data

# CJ2 Series

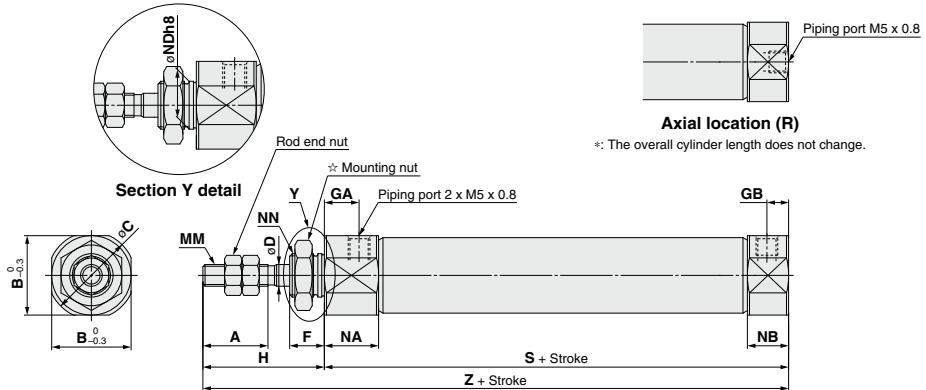
## Dimensions

### Basic (B)

**CJ2B6 – Stroke Head cover port location Z**



**CJ2B 10 – 16 Stroke Head cover port location Z**



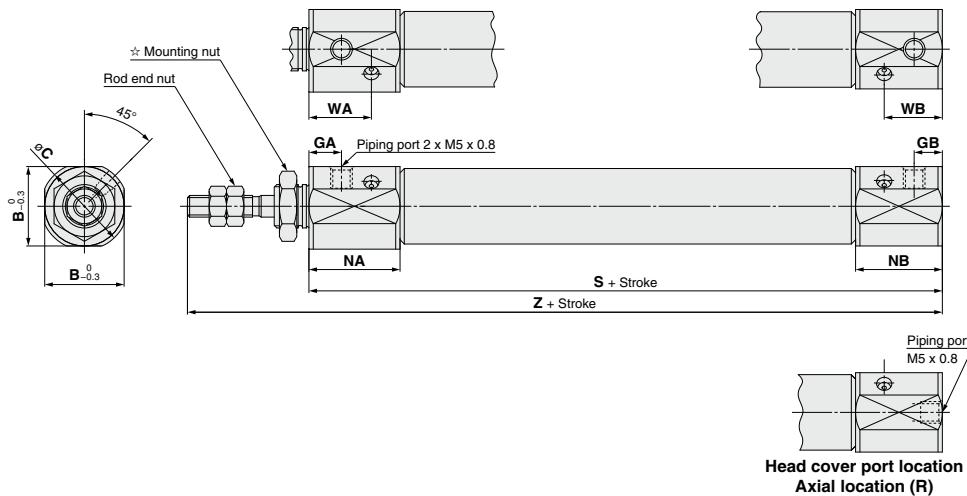
★ For details of the mounting nut, refer to page 63.

Bore size	A	B	C	D	F	GA	GB	H	MM	NA	NB	NC	Nd8h8	NN	S	SA	T	Z	ZA	[mm]
<b>6</b>	15	12	14	3	8	14.5	5	28	M3 x 0.5	16	9.5	7	6.0 <sub>-0.018</sub>	M6 x 1.0	51.5	49	3	79.5	77	
<b>10</b>	15	12	14	4	8	8	5	28	M4 x 0.7	12.5	9.5	—	8.0 <sub>-0.022</sub>	M8 x 1.0	46	—	—	74	—	
<b>16</b>	15	18.3	20	5	8	8	5	28	M5 x 0.8	12.5	9.5	—	10.0 <sub>-0.022</sub>	M10 x 1.0	47	—	—	75	—	

## Dimensions

### Basic (B)

With air cushion: CJ2B **10** – **Stroke A** Head cover port location **Z**  
**16**



★ For details of the mounting nut, refer to page 63.

Dimensions other than the table below are the same as those on page 50. [mm]

Bore size	<b>B</b>	<b>C</b>	<b>GA</b>	<b>GB</b>	<b>NA</b>	<b>NB</b>	<b>WA</b>	<b>WB</b>	<b>S</b>	<b>Z</b>
<b>10</b>	15	17	7.5	6.5	21	20	14.4	13.4	65	93
<b>16</b>	18.3	20	7.5	6.5	21	20	14.4	13.4	66	94

\*: The overall cylinder length does not change.

**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

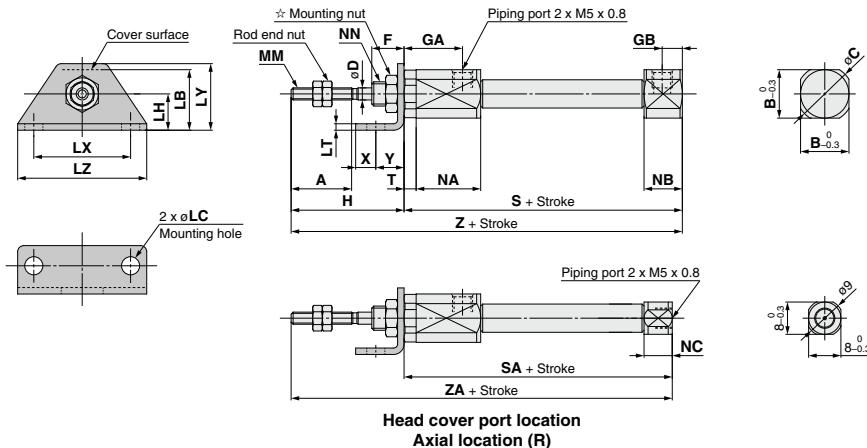
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**-X**□  
Technical Data

# CJ2 Series

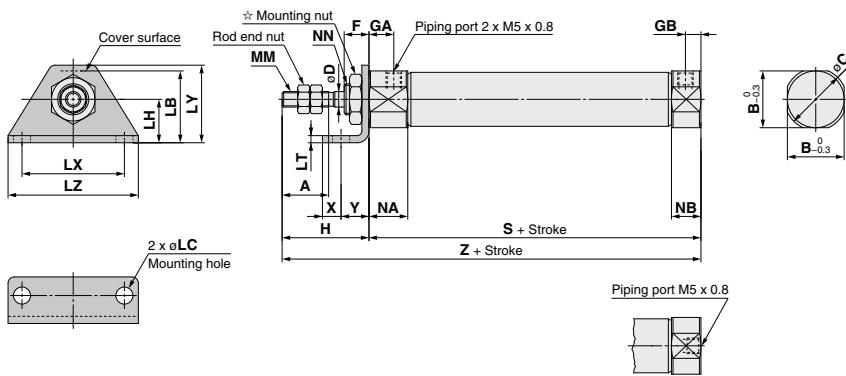
## Dimensions

### Single foot (L)

**CJ2L6 – Stroke** Head cover port location Z



**CJ2L 10  
16 – Stroke** Head cover port location Z



\*: The overall cylinder length does not change.

★ For details of the mounting nut, refer to page 63.

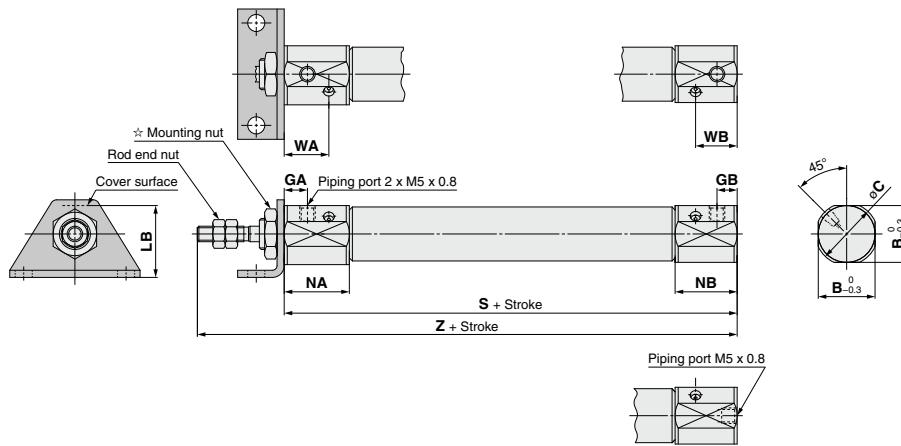
[mm]

Bore size	A	B	C	D	F	GA	GB	H	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NC	NN	S	SA	T	X	Y	Z	ZA
<b>6</b>	15	12	14	3	8	14.5	5	28	15	4.5	9	1.6	24	16.5	32	M3 x 0.5	16	9.5	7	M6 x 1.0	51.5	49	3	5	7	79.5	77
<b>10</b>	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	—
<b>16</b>	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	—

## Dimensions

### Single foot (L)

With air cushion: CJ2L 10 16 - Stroke A Head cover port location Z



☆ For details of the mounting nut, refer to page 63.

\*: The overall cylinder length does not change.

Dimensions other than the table below are the same as those on page 52.

[mm]

Bore size	B	C	GA	GB	LB	NA	NB	WA	WB	S	Z
<b>10</b>	15	17	7.5	6.5	16.5	21	20	14.4	13.4	65	93
<b>16</b>	18.3	20	7.5	6.5	23	21	20	14.4	13.4	66	94

CJ1  
CJP  
CJ2  
JCM  
CM2  
CM3  
CG1  
CG3  
JMB  
MB  
MB1  
CA2  
CS1  
CS2

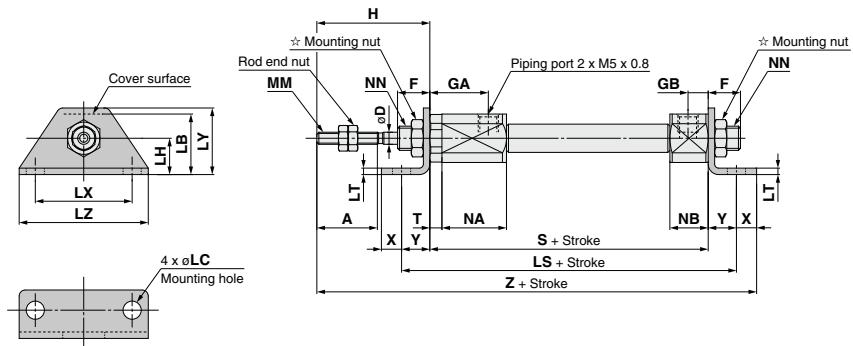
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Technical Data

# CJ2 Series

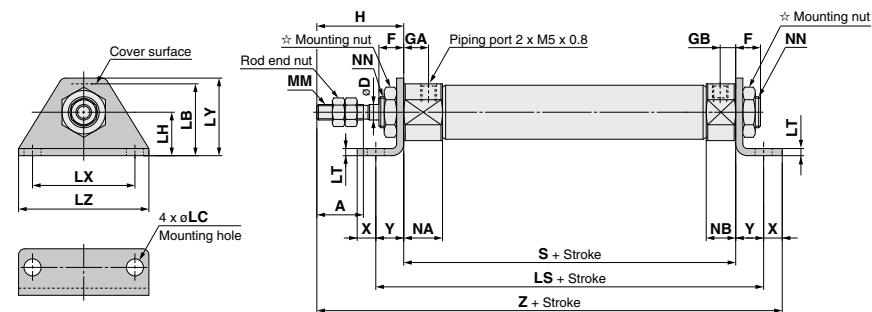
## Dimensions

### Double foot (M)

CJ2M6 – Stroke Z



CJ2M 10 – Stroke Z



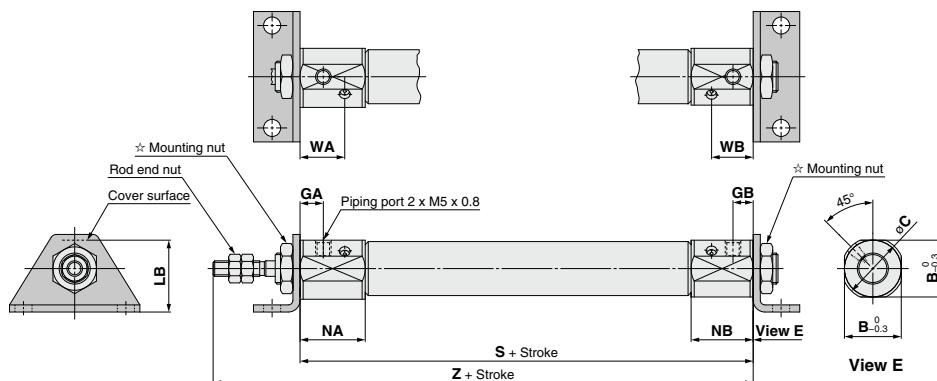
\* For details of the mounting nut, refer to page 63.

Bore size	A	D	F	GA	GB	H	LB	LC	LH	LS	LT	LX	LY	LZ	MM	NA	NB	NN	S	T	X	Y	Z	[mm]
6	15	3	8	14.5	5	28	15	4.5	9	65.5	1.6	24	16.5	32	M3 x 0.5	16	9.5	M6 x 1.0	51.5	3	5	7	91.5	
10	15	4	8	8	5	28	15	4.5	9	60	1.6	24	16.5	32	M4 x 0.7	12.5	9.5	M8 x 1.0	46	—	5	7	86	
16	15	5	8	8	5	28	23	5.5	14	65	2.3	33	25	42	M5 x 0.8	12.5	9.5	M10 x 1.0	47	—	6	9	90	

## Dimensions

### Double foot (M)

With air cushion: CJ2M 10 - **Stroke** AZ 16



★ For details of the mounting nut, refer to page 63.

**With Air Cushion**/Dimensions other than the table below are the same as those on page 54. [mm]

Bore size	B	C	GA	GB	LB	NA	NB	WA	WB	S	Z
10	15	17	7.5	6.5	16.5	21	20	14.4	13.4	65	93
16	18.3	20	7.5	6.5	23	21	20	14.4	13.4	66	94

**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

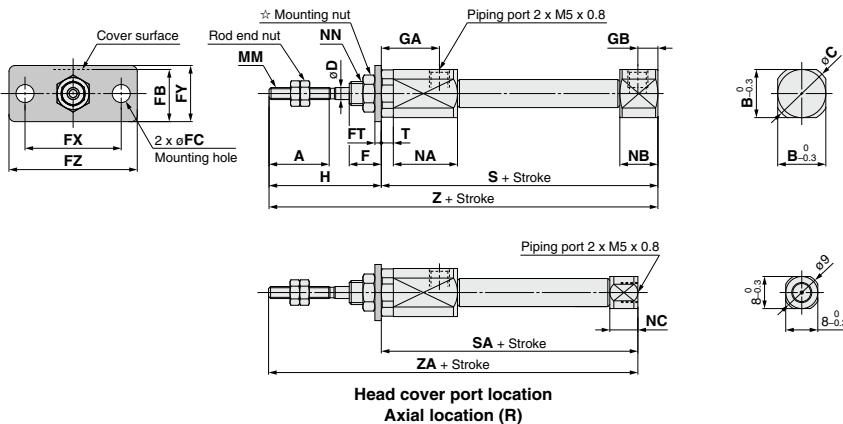
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Technical Data

# CJ2 Series

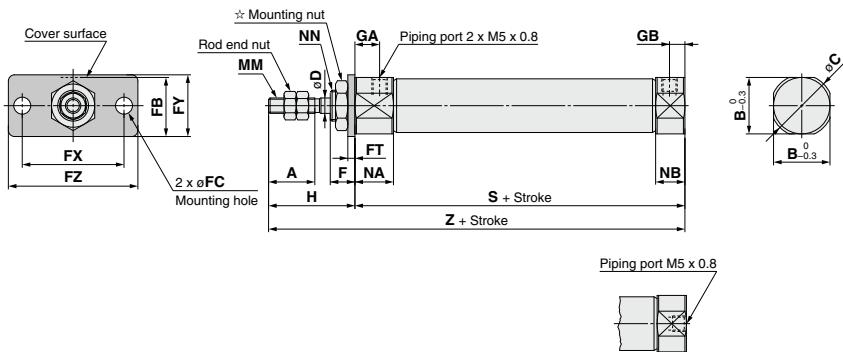
## Dimensions

### Rod flange (F)

**CJ2F6 – Stroke Head cover port location Z**



**CJ2F 10  
16 – Stroke Head cover port location Z**



\*: The overall cylinder length does not change.

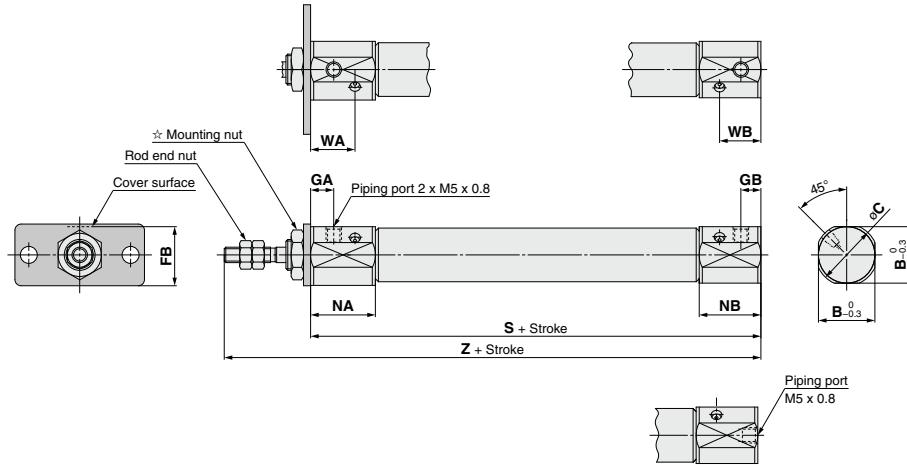
★ For details of the mounting nut, refer to page 63.

Bore size	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GA	GB	H	MM	NA	NB	NC	NN	S	SA	T	Z	ZA	[mm]
6	15	12	14	3	8	13	4.5	1.6	24	14	32	14.5	5	28	M3 x 0.5	16	9.5	7	M6 x 1.0	51.5	49	3	79.5	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	—	

## Dimensions

### Rod flange (F)

With air cushion: CJ2F 10 16 - Stroke A Head cover port location Z



**Head cover port location  
Axial location (R)**

\*: The overall cylinder length does not change.

\* For details of the mounting nut, refer to page 63.

Dimensions other than the table below are the same as those on page 56. [mm]

Bore size	B	C	FB	GA	GB	NA	NB	WA	WB	S	Z
10	15	17	14.5	7.5	6.5	21	20	14.4	13.4	65	93
16	18.3	20	19	7.5	6.5	21	20	14.4	13.4	66	94

**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

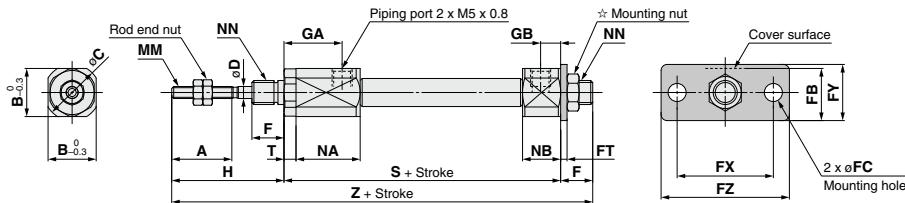
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**-X**□  
Technical Data

# CJ2 Series

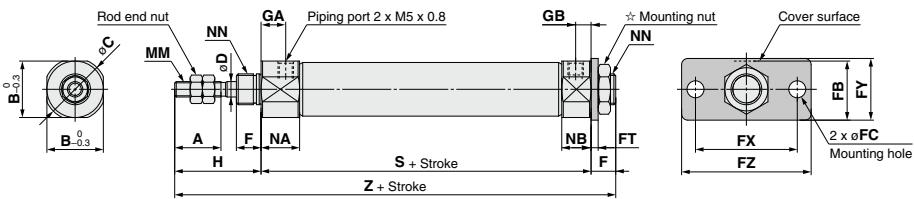
## Dimensions

### Head flange (G)

CJ2G6 – Stroke Z



CJ2G 10 – Stroke Z



★ For details of the mounting nut, refer to page 63.

[mm]

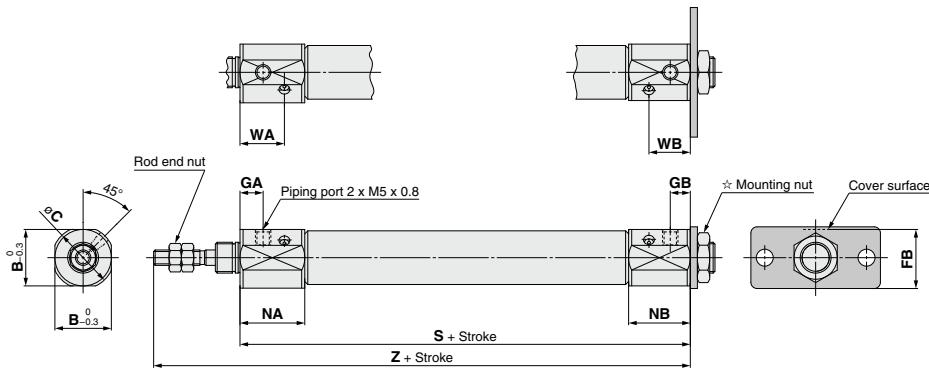
Bore size	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GA	GB	H	MM	NA	NB	NN	S	T	Z
6	15	12	14	3	8	13	4.5	1.6	24	14	32	14.5	5	28	M3 x 0.5	16	9.5	M6 x 1.0	51.5	3	87.5
10	15	12	14	4	8	13	4.5	1.6	24	14	32	8	5	28	M4 x 0.7	12.5	9.5	M8 x 1.0	46	—	82
16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	8	5	28	M5 x 0.8	12.5	9.5	M10 x 1.0	47	—	83

## Dimensions

### Head flange (G)

With air cushion: CJ2G 10 - Stroke AZ

CJ1
CJP
<b>CJ2</b>
JCM
CM2
CM3
CG1
CG3
JMB
MB
MB1
CA2
<b>CS1</b>
CS2



★ For details of the mounting nut, refer to page 63.

**With Air Cushion**/Dimensions other than the table below are the same as those on page 58. [mm]

Bore size	B	C	FB	GA	GB	NA	NB	WA	WB	S	Z
10	15	17	14.5	7.5	6.5	21	20	14.4	13.4	65	93
16	18.3	20	19	7.5	6.5	21	20	14.4	13.4	66	94

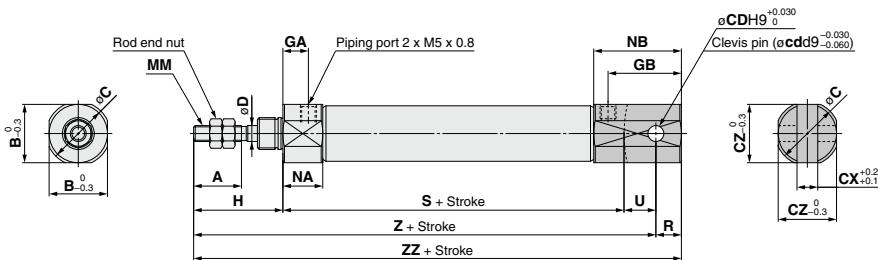
D-□
-X□
Technical Data

# CJ2 Series

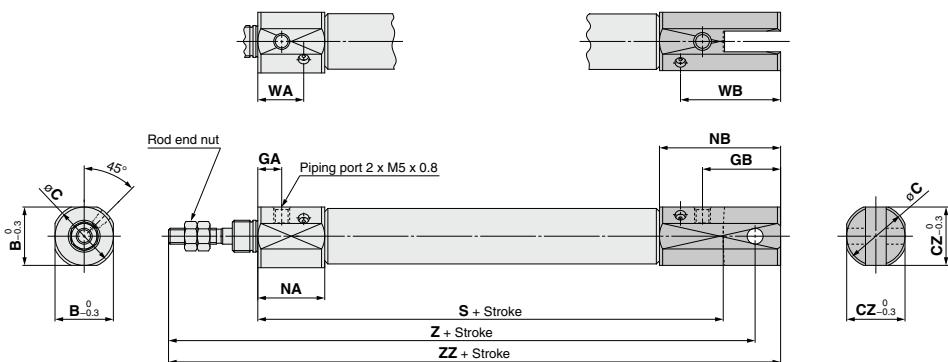
## Dimensions

### Double clevis (D)

CJ2D **10** – Stroke **Z**



With air cushion: CJ2D **16** – Stroke **AZ**



\*: A clevis pin and retaining rings are included.

Bore size	A	B	C	CD (cd)	CX	CZ	D	GA	GB	H	MM	NA	NB	R	S	U	Z	ZZ	[mm]
<b>10</b>	15	12	14	3.3	3.2	12	4	8	18	28	M4 x 0.7	12.5	22.5	5	46	8	82	87	
<b>16</b>	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	93	

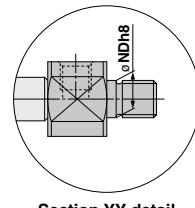
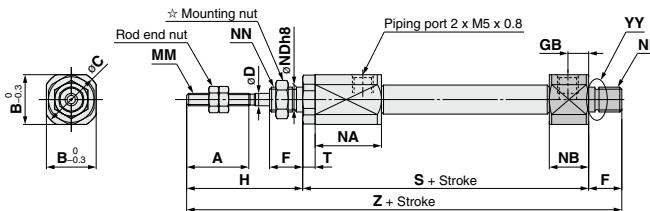
With Air Cushion/Dimensions other than the table below are the same as the table above. [mm]

Bore size	B	C	CZ	GA	GB	NA	NB	WA	WB	S	Z	ZZ
<b>10</b>	15	17	15	7.5	19.5	21	33	14.4	26.4	65	101	106
<b>16</b>	18.3	20	18.3	7.5	24.5	21	38	14.4	31.4	66	104	112

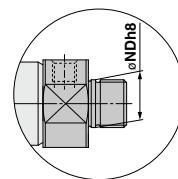
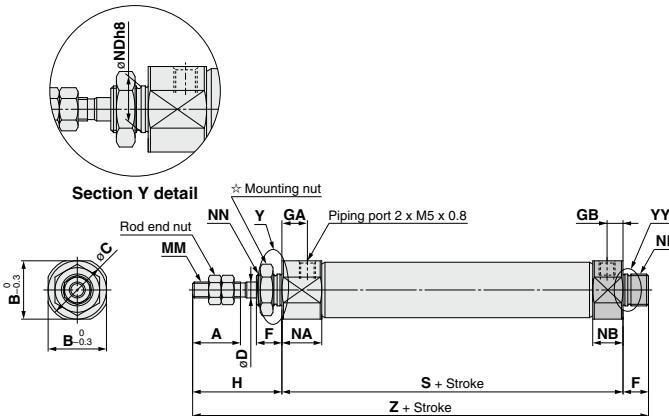
## Dimensions

### Double-side bossed (E)

**CJ2E6 – Stroke Z**



**CJ2E 10  
16 – Stroke Z**



★ For details of the mounting nut, refer to page 63.

[mm]

Bore size	A	B	C	D	F	GA	GB	H	MM	NA	NB	NDh8	NN	S	T	Z
<b>6</b>	15	12	14	3	8	14.5	5	28	M3 x 0.5	16	9.5	$6_{-0.018}^0$	M6 x 1.0	51.5	3	87.5
<b>10</b>	15	12	14	4	8	8	5	28	M4 x 0.7	12.5	9.5	$8_{-0.022}^0$	M8 x 1.0	46	—	82
<b>16</b>	15	18.3	20	5	8	8	5	28	M5 x 0.8	12.5	9.5	$10_{-0.022}^0$	M10 x 1.0	47	—	83

**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

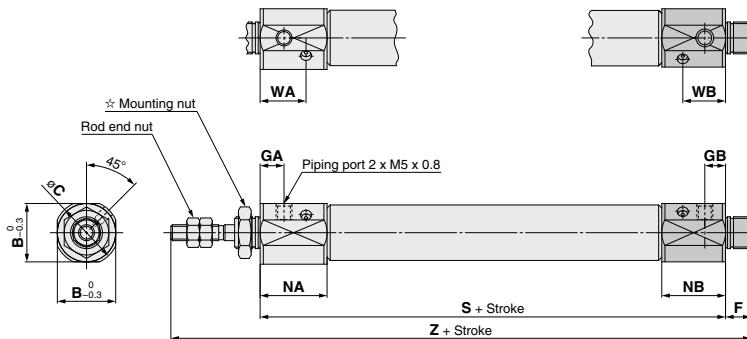
**D-**  
**-X**  
Technical Data

# CJ2 Series

## Dimensions

### Double-side bossed (E)

With air cushion: CJ2E 10 - Stroke AZ  
16



☆ For details of the mounting nut, refer to page 63.

**With Air Cushion** Dimensions other than the table below are the same as those on page 61. [mm]

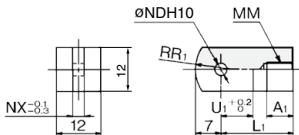
Bore size	B	C	GA	GB	NA	NB	WA	WB	S	Z
10	15	17	7.5	6.5	21	20	14.4	13.4	65	101
16	18.3	20	7.5	6.5	21	20	14.4	13.4	66	102

# CJ2 Series

## Dimensions of Accessories (Options)

### Single Knuckle Joint

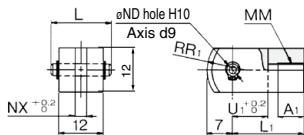
Material: Rolled steel



Part no.	Applicable bore size	A <sub>1</sub>	L <sub>1</sub>	MM	NDH10	NX	R <sub>1</sub>	U <sub>1</sub>	[mm]
I-J010C	10	8	21	M4 x 0.7	3.3 <sup>+0.048</sup> <sub>0</sub>	3.1	8	9	
I-J016C	16	8	25	M5 x 0.8	5 <sup>+0.048</sup> <sub>0</sub>	6.4	12	14	

### Double Knuckle Joint

Material: Rolled steel

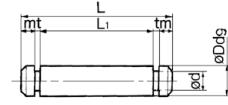


Part no.	Applicable bore size	A <sub>1</sub>	L <sub>1</sub>	L <sub>1</sub>	MM	[mm]
Y-J010C	10	8	15.2	21	M4 x 0.7	
Y-J016C	16	11	16.6	21	M5 x 0.8	
Part no.	NDd9	NDH10	NX	R <sub>1</sub>	U <sub>1</sub>	[mm]
Y-J010C	3.3 <sup>-0.030</sup> <sub>-0.060</sub>	3.3 <sup>+0.048</sup> <sub>0</sub>	3.2	8	10	
Y-J016C	5 <sup>-0.030</sup> <sub>-0.060</sub>	5 <sup>+0.048</sup> <sub>0</sub>	6.5	12	10	

\*: A knuckle pin and retaining rings are included.

### Knuckle Pin

Material: Stainless steel

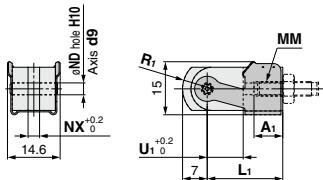


Part no.	Applicable bore size	Dd9	d	L	L <sub>1</sub>	m	t	Included retaining ring
CD-J010	10	3.3 <sup>-0.030</sup> <sub>-0.060</sub>	3	15.2	12.2	1.2	0.3	Type C3.2
IV-J015	16	5 <sup>-0.030</sup> <sub>-0.060</sub>	4.8	16.6	12.2	1.5	0.7	Type C5

\*: For ø10, a clevis pin is diverted.

\*: Retaining rings are included with a knuckle pin.

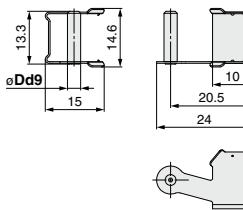
### Double Knuckle Joint (With One-touch Connecting Pin)



Part no.	Applicable bore size	A <sub>1</sub>	L <sub>1</sub>	MM	NDd9	NDH10	NX	R <sub>1</sub>	U <sub>1</sub>	[mm]
Y-J10	10	8	21	M4 x 0.7	3.3 <sup>-0.030</sup> <sub>-0.060</sub>	3.3 <sup>+0.048</sup> <sub>0</sub>	3.2	8	10	
Y-J16	16	11	21	M5 x 0.8	5 <sup>-0.030</sup> <sub>-0.060</sub>	5 <sup>+0.048</sup> <sub>0</sub>	6.5	12	10	

### One-touch Connecting Pin for Double Knuckle Joint

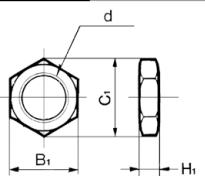
Material: Stainless steel



Part no.	Applicable bore size	Dd9
IY-J10	10	3.3 <sup>-0.030</sup> <sub>-0.060</sub>
IY-J16	16	5 <sup>-0.030</sup> <sub>-0.060</sub>

### Mounting Nut

Material: Carbon steel

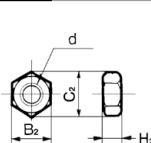


Part no.	Applicable bore size	B <sub>1</sub>	C <sub>1</sub>	d	H <sub>1</sub>
SNJ-006C	6	8	9.2	M6 x 1.0	4
SNJ-010C	10	11	12.7	M8 x 1.0	4
SNJ-016C	16	14	16.2	M10 x 1.0	4
SNKJ-016C*	16	17	19.6	M12 x 1.0	4

\*: For ø16 non-rotating type. (Use SNJ-016C for ø10 non-rotating type.)

### Rod End Nut

Material: Carbon steel



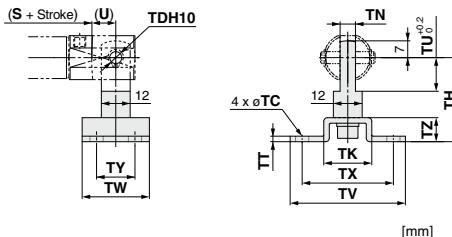
Part no.	Applicable bore size	B <sub>2</sub>	C <sub>2</sub>	d	H <sub>2</sub>
NTJ-006B	6	5.5	6.4	M3 x 0.5	2.4
NTJ-010C	10	7	8.1	M4 x 0.7	3.2
NTJ-015C	16	8	9.2	M5 x 0.8	4

CJ1  
CJP  
CJ2  
JCM  
JCM2  
JCM3  
CG1  
CG3  
JMB  
MB  
MB1  
CA2  
CS1  
CS2

D-□  
-X-□  
Technical Data

# CJ2 Series

## Pivot Bracket (T-bracket)



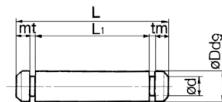
Part no.	Applicable bore size	TC	TDH10	TH	TK	TN	TT	TU	TV	TW	TX	TY	TZ
CJ-T010C	10	4.5	3.3 <sup>+0.048</sup> <sub>-0.060</sub>	29	18	3.1	2	9	40	22	32	12	8
CJ-T016C	16	5.5	5 <sup>+0.048</sup> <sub>-0.060</sub>	35	20	6.4	2.3	14	48	28	38	16	10

\*: A T-bracket includes a T-bracket base, single knuckle joint, hexagon socket head bolt and spring washer.

\*: For dimensions of (U) and (S + Stroke), refer to the double clevis drawing on page 60.

## Clevis Pin

Material: Stainless steel



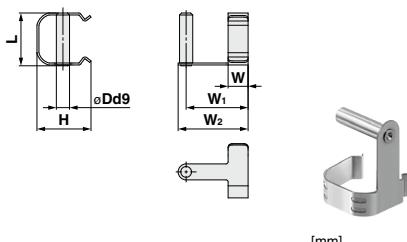
Part no.	Applicable bore size	Dd9	d	L	L1	m	t	Included retaining ring
CD-J010	10	3.3 <sup>+0.030</sup> <sub>-0.060</sub>	3	15.2	12.2	1.2	0.3	Type C32
CD-Z015	16	5 <sup>+0.030</sup> <sub>-0.060</sub>	4.8	22.7	18.3	1.5	0.7	Type C5
CD-JA010*	10	3.3 <sup>+0.030</sup> <sub>-0.060</sub>	3	18.2	15.2	1.2	0.3	Type C32

\*: For ø10 double clevis type, with air cushion and built-in speed controller.

\*: Retaining rings are included with a clevis pin.

## One-touch Connecting Pin for Double Clevis

Material: Stainless steel



Part no.	Applicable bore size	Dd9	H	L	W
CD-J10	10	3.3 <sup>+0.030</sup> <sub>-0.060</sub>	13.4	13.2	4
CD-J16	16	5 <sup>+0.030</sup> <sub>-0.060</sub>	18.2	19.5	5

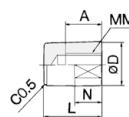
Part no.	W <sub>1</sub>	W <sub>2</sub>	Note
CD-J10	12	15	Cannot be mounted on cylinders with air cushion, or rail mounting type auto switches.
CD-J16	15	18	

\*: Please pay attention to the applicable cylinder.

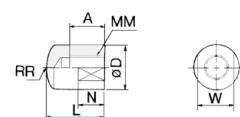
## Rod End Cap

Material: Polyacetal

### Flat type/CJ-CF□□□



### Round type/CJ-CR□□□



Part no.	Applicable bore size	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
CJ-CF010	CJ-CR010	10	8	10	13	M4 x 0.7	6	10
CJ-CF016	CJ-CR016	16	10	12	15	M5 x 0.8	7	12

## Mounting Brackets, Rod End Brackets, and Nut Material: Stainless Steel

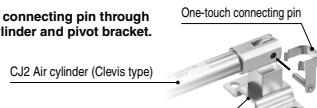
### Part No. (Dimensions: Same as standard type)

Bore size [mm]	Foot	Flange	Single knuckle joint	Double knuckle joint*	Mounting nut	Rod end nut
10	—	—	I-J010SUS	Y-J010SUS	—	NTJ-010SUS
16	CJ-L016SUS	CJ-F016SUS	I-J016SUS	Y-J016SUS	SNJ-016SUS	NTJ-015SUS

\*: A knuckle pin and retaining rings are shipped together.

**Precautions****Assembly Procedures****1. Double Clevis (With One-touch Connecting Pin) (CD-J□)**

- 1 Insert connecting pin through the cylinder and pivot bracket.



- 2 Rotate the connecting pin.



- 3 Assembly completed without tools.



\* The above mounting instructions are for downward-facing ports. Refer to the following for upward-facing ports.

**2. Double Knuckle Joint (With One-touch Connecting Pin) (IY-J□)**

- 1 Insert the connecting pin into the joint.



- 2 Rotate the connecting pin.



- 3 Assembly completed without tools.

CJ1
CJP
CJ2
JCM
CM2
CM3
CG1
CG3
JMB
MB1
CA2
CS1
CS2

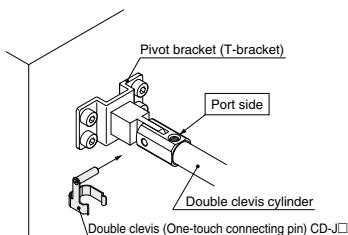
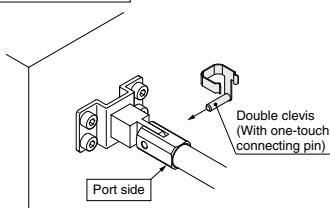
**How to Mount the Double Clevis (With One-touch Connecting Pin)**

When connecting a double clevis cylinder to a pivot bracket (T-bracket), it is recommended that the pivot bracket (T-bracket) and the cylinder be connected with the one-touch connecting pin first, before fastening the pivot bracket.

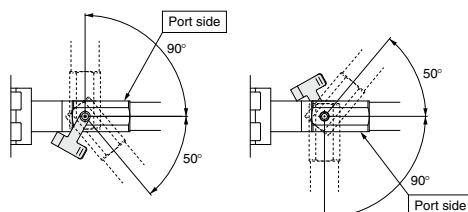
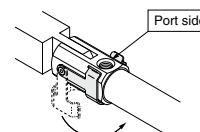
When connecting the cylinder after the pivot bracket (T-bracket) has been fastened, mount the cylinder according to the following procedure.

**⚠ Warning**

For assembling the clevis type to the pivot bracket, refer to the figure below.

**1. Insert the double clevis (One-touch connecting pin) from the direction in the figure.****When port is facing upward****When port is facing downward****⚠ Warning**

\* Perform the mounting within the following range.

**2. Push the one-touch connecting pin into the cylinder body (Double clevis) until it clicks and is firmly fastened.**

\* Attach the double knuckle joint within 180° ( $\pm 90^\circ$  from center). Other mounting methods are the same as the above.

D-
X
Technical Data

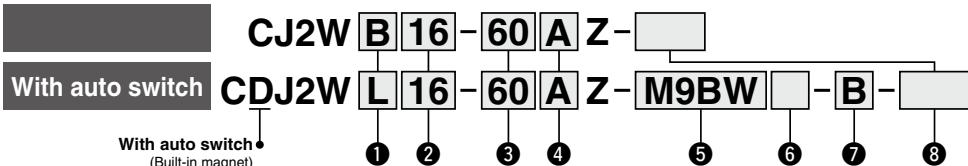
# Air Cylinder: Standard Type Double Acting, Double Rod

## CJ2W Series

ø6, ø10, ø16



### How to Order



#### ① Mounting

B	Basic
L	Foot
F	Flange

\*: Foot/Flange brackets are shipped together with the product, but not assembled.

#### ⑤ Auto switch

Nil	Without auto switch
-----	---------------------

\*: For applicable auto switches, refer to the table below.

★ Enter the auto switch mounting type (A or B) even when a built-in magnet cylinder without an auto switch is required.

#### ② Bore size

6	6 mm
10	10 mm
16	16 mm

#### ⑥ Number of auto switches

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

#### ③ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 65.

Nil	Rubber bumper
A	Air cushion

\*: ø6: Rubber bumper only

#### ⑦ Auto switch mounting type

A	Rail mounting
B	Band mounting

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

\*: Refer to page 148 for auto switch mounting brackets.

\*: ø6: Band mounting only

#### ⑧ Made to Order

Refer to page 65 for details.

### Applicable Auto Switches

Refer to pages 1575 to 1701 for further information on auto switches.

Type	Special function	Electrical entry	Indicator	Wiring (Output)	Load voltage		Auto switch model				Lead wire length [m]	Pre-wired connector	Applicable load	
					DC	AC	Band mounting	Rail mounting	In-line	Perpendicular	In-line			
Solid state auto switch	Diagnostic indication (2-color indicator)	Grommet	3-wire (NPN)	5 V, 12 V	—	—	M9NV	M9N	M9NV	M9N	● ● ○ —	—	○	IC circuit
				3-wire (PNP)			M9PV	M9P	M9PV	M9P	● ○ ○ —	—	○	—
		Connector	2-wire	12 V			M9BV	M9B	M9BV	M9B	● ○ ○ —	—	○	—
			3-wire (NPN)	3-wire (PNP)			—	H7C	J7C	—	● ○ ○ ○	● ○ ○ ○	—	—
		Water resistant (2-color indicator)	3-wire (NPN)	24 V			M9NWV	M9NW	M9NWV	M9NW	● ○ ○ ○	—	○	IC circuit
			3-wire (PNP)	24 V			M9PWV	M9PW	M9PWV	M9PW	● ○ ○ ○	—	○	—
			2-wire	12 V			M9BWW	M9BW	M9BWW	M9BW	● ○ ○ ○	—	○	—
	With diagnostic output (2-color indicator)	Grommet	3-wire (NPN)	5 V, 12 V			M9NAV <sup>①</sup>	M9NA <sup>①</sup>	M9NAV <sup>①</sup>	M9NA <sup>①</sup>	○ ○ ○ ○	—	○	IC circuit
			3-wire (PNP)	24 V			M9PAV <sup>①</sup>	M9PA <sup>①</sup>	M9PAV <sup>①</sup>	M9PA <sup>①</sup>	○ ○ ○ ○	—	○	—
		Water resistant (2-color indicator)	2-wire	12 V			M9BAV <sup>①</sup>	M9BA <sup>①</sup>	M9BAV <sup>①</sup>	M9BA <sup>①</sup>	○ ○ ○ ○	—	○	—
			4-wire (PNP)	5 V, 12 V			—	H7NF	—	F79F	● ○ ○ ○	—	○	IC circuit
			3-wire (NPN equivalent)	—			A96V	A96	A96V	A96	● ○ ○ ○	—	—	IC circuit
Reed auto switch	Diagnostic indication (2-color indicator)	Grommet	3-wire (NPN)	5 V	—	—	A96V	A96	A96V	A96	● ○ ○ ○	—	—	—
			2-wire	200 V			—	A72	A72H	—	● ○ ○ ○	—	—	—
			2-wire	100 V			A93V <sup>②</sup>	A93	A93V <sup>②</sup>	A93	● ○ ○ ○	—	—	—
		Connector	2-wire	100 V or less	24 V	—	A90V	A90	A90V	A90	● ○ ○ ○	—	—	IC circuit
			2-wire	24 V or less			—	C73C	A73C	—	● ○ ○ ○	—	—	—
			2-wire	24 V or less			C80C	A80C	C80C	A80C	● ○ ○ ○	—	—	IC circuit
			2-wire	—			A79W	—	A79W	—	● ○ ○ ○	—	—	—

\*1: Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Please contact SMC regarding water resistant types with the above model numbers.

\*2: 1 m type lead wire is only applicable to D-A93.

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

\*4: Since there are other applicable auto switches than listed above, refer to page 149 for details.

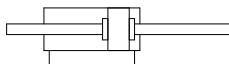
\*5: Solid state auto switches marked with "○" are produced upon receipt of order.

\*6: The D-A9□/M9□/A7□/A80□/F7□/J7□ auto switches are shipped together, but not assembled. (For band mounting, only the auto switch mounting brackets are assembled before shipment.)

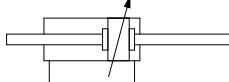


### Symbol

Double acting, Double rod, Rubber bumper



Air cushion



Made to Order: Individual Specifications  
(For details, refer to page 150.)

Symbol	Specifications
-X446	PTFE grease

### Made to Order

[Click here for details](#)

Symbol	Specifications
-XA1	Change of rod end shape
-XB6	Heat resistant cylinder (-10 to 150°C) * Not available with switch & with air cushion
-XB7	Cold resistant cylinder (-40 to 70°C) * Not available with switch & with air cushion
-XC22	Fluororubber seal * Not available with air cushion
-XC51	With hose nipple
-XC85	Grease for food processing equipment

Refer to pages 142 to 149 for cylinders with auto switches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

## ⚠ Precautions

Refer to page 152 before handling.

### Moisture Control Tube IDK Series

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

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

## Specifications

Bore size [mm]	6	10	16
Action	Double acting, Double rod		
Fluid	Air		
Proof pressure		1 MPa	
Maximum operating pressure		0.7 MPa	
Minimum operating pressure	Rubber bumper Air cushion	0.15 MPa —	0.1 MPa 0.1 MPa
Ambient and fluid temperature		Without auto switch: -10°C to 70°C With auto switch: -10°C to 60°C (No freezing)	
Cushion	Rubber bumper	Rubber bumper/Air cushion	
Lubrication		Not required (Non-lube)	
Piston speed	Rubber bumper Air cushion	50 to 750 mm/s —	50 to 1000 mm/s
Allowable kinetic energy	Rubber bumper Air cushion (Effective cushion length)	0.012 J — (9.4 mm)	0.035 J 0.07 J (9.4 mm)
Stroke length tolerance		+1.0 0	1.0 0

## Standard Strokes

[mm]

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

\*: Manufacture of intermediate strokes in 1 mm increments is possible. (Spacers are not used.)  
Produced upon receipt of order.

\*: Please consult with SMC for strokes which exceed the standard stroke length.

\*: Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinder Model Selection" on front matter pages. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to the deflection etc.

## Mounting and Accessories

[Refer to page 42 for the list of brackets and page 63 for details about part numbers and dimensions.](#)

●… Mounted on the product. ○…Please order separately.

	Mounting	Basic	Foot	Flange
Standard	Mounting nut Rod end nut	● ●	● ●	● ●
Option	Single knuckle joint Double knuckle joint (including a pin and retaining rings) Double knuckle joint (With one-touch connecting pin) Rod end cap (Flat/Round type)	○ ○ ○ ○	○ ○ ○ ○	○ ○ ○ ○

\*: ø10 and ø16 only

\*: Stainless steel mounting brackets and accessories are also available.

Refer to page 63-1 for details.

## Mounting Brackets/Part No.

Mounting bracket	Bore size [mm]		
	6	10	16
Foot	CJ-L006C	CJ-L010C	CJ-L016C
Flange	CJ-F006C	CJ-F010C	CJ-F016C

## Weights

[g]

	Bore size [mm]	Rubber bumper	Air cushion			
	6	10	16			
Basic weight (When the stroke is zero)	Basic	25	29	56	36	61
Additional weight per 15 mm of stroke	3	4.5	7.5	4.5	7.5	
Mounting bracket weight	Foot	16	16	50	16	50
	Flange	5	5	13	5	13
Accessories	Single knuckle joint	—	17	23	17	23
	Double knuckle joint (Including knuckle pin)	—	25	21	25	21
	Double knuckle joint (With one-touch connecting pin)	—	26	22	26	22
	Rod end cap (Flat type)	1	1	2	1	2
	Rod end cap (Round type)	1	1	2	1	2

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

Calculation:

Example: **CJ2WL10-45Z**

- Basic weight ..... 29 (ø10)
- Additional weight ..... 4.5/15 stroke
- Cylinder stroke ..... 45 stroke
- Mounting bracket weight ..... 16 (Foot)

$$29 + 4.5/15 \times 45 + 16 = 58.5 \text{ g}$$

D-□

-X-□

Technical Data

# CJ2W Series

## Clean Series

10-CJ2W **Mounting** 10 – **Stroke** Z  
↓  
Clean Series

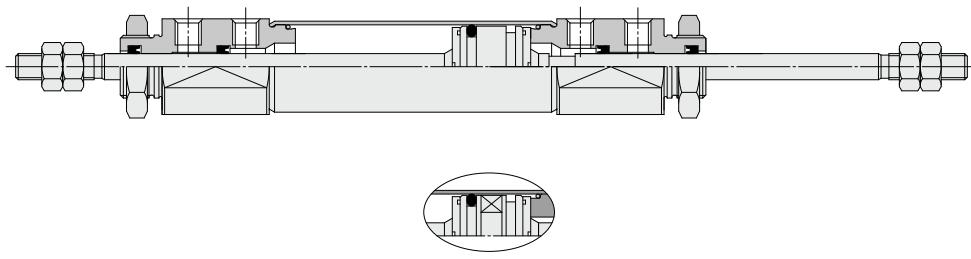
Air cylinder which is applicable for the system which discharges leakage from the rod section directly into the outside of clean room by relief port and making an actuator's rod section having a double seal construction.

For the detailed specifications, refer to the "Pneumatic Clean Series" (CAT.E02-23).

### 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 65.)
Auto switch	Mountable (Band mounting)
Mounting	Basic, Foot, Flange

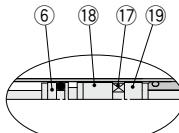
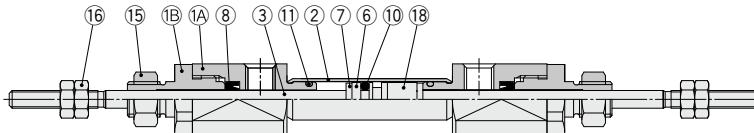
### Construction (Not able to disassemble)



### Construction (Not able to disassemble)

ø6

Rubber bumper



**CJ1**

**CJP**

**CJ2**

**JCM**

**CM2**

**CM3**

**CG1**

**CG3**

**JMB**

**MB**

**MB1**

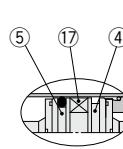
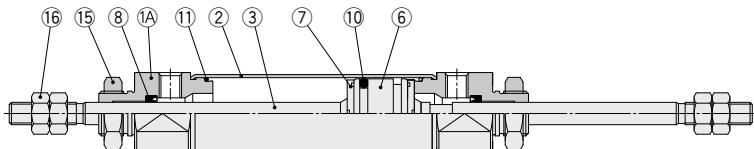
**CA2**

**CS1**

**CS2**

ø10, ø16

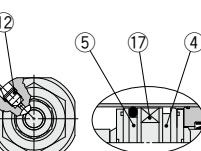
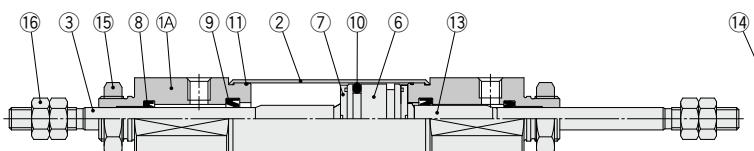
Rubber bumper



With auto switch

ø10, ø16

Air cushion



With auto switch

### Component Parts

No.	Description	Material	Note
1A	Rod cover	Aluminum alloy	
1B	Seal retainer	Aluminum alloy	ø6 only
2	Cylinder tube	Stainless steel	
3	Piston rod	Stainless steel	
4	Piston A	Aluminum alloy	
5	Piston B	Aluminum alloy	
6	Piston	Aluminum alloy	
7	Bumper	Urethane	
8	Rod seal	NBR	
9	Cushion seal	NBR	

No.	Description	Material	Note
10	Piston seal	NBR	
11	Tube gasket	NBR	
12	Cushion needle	Carbon steel	
13	Cushion ring	Aluminum alloy	
14	Needle seal	NBR	
15	Mounting nut	Rolled steel	
16	Rod end nut	Rolled steel	
17	Magnet	—	
18	Spacer A	Aluminum alloy	ø6 only
19	Spacer B	Aluminum alloy	ø6 only

D-□

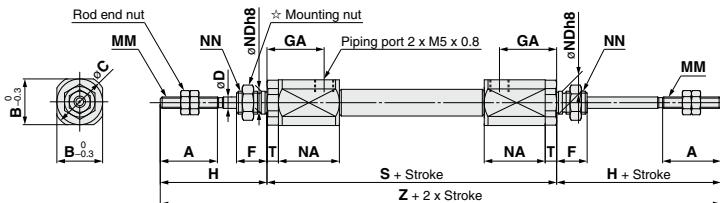
-X-□

Technical Data

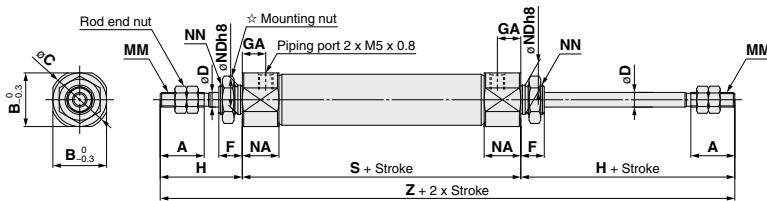
# CJ2W Series

## Basic (B)

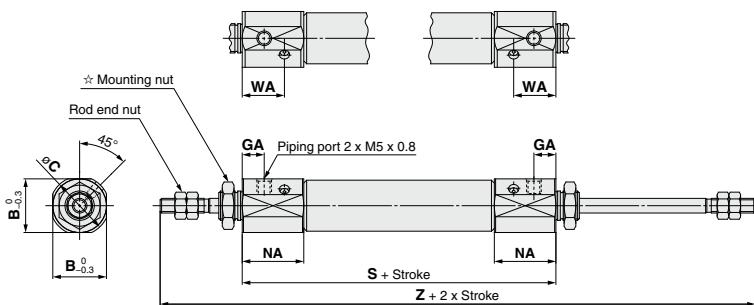
CJ2WB6 – Stroke Z



CJ2WB 10 16 – Stroke Z



With air cushion: CJ2WB 10 16 – Stroke AZ



\* For details of the mounting nut, refer to page 63.

[mm]

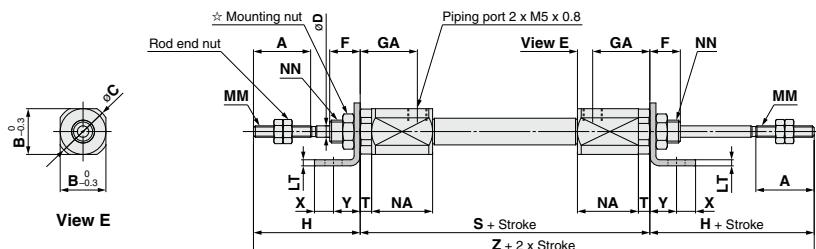
Bore size	A	B	C	D	F	GA	H	MM	NA	NDh8	NN	S	T	Z
6	15	12	14	3	8	14.5	28	M3 x 0.5	16	6 <sup>0.018</sup>	M6 x 1.0	61 (66)	3	117 (122)
10	15	12	14	4	8	8	28	M4 x 0.7	12.5	8 <sup>0.022</sup>	M8 x 1.0	49	—	105
16	15	18.3	20	5	8	8	28	M5 x 0.8	12.5	10 <sup>0.022</sup>	M10 x 1.0	50	—	106

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

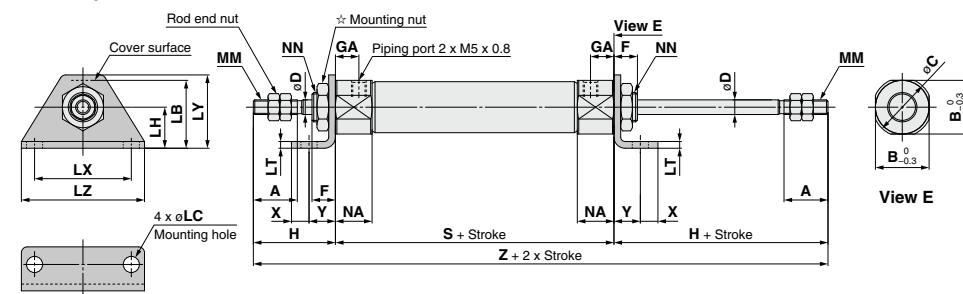
Bore size	B	C	GA	NA	WA	S	Z
10	15	17	7.5	21	14.4	66	122
16	18.3	20	7.5	21	14.4	67	123

## Foot (L)

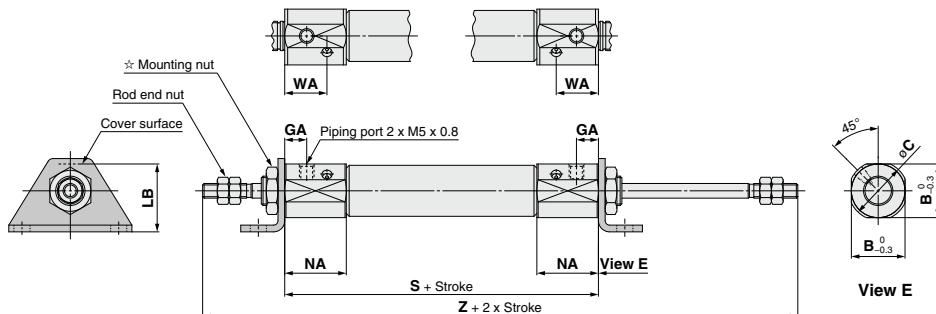
**CJ2WL6 – Stroke Z**



**CJ2WL 10 16 – Stroke Z**



**With air cushion: CJ2WL 10 16 – Stroke AZ**



\* For details of the mounting nut, refer to page 63.

[mm]

Bore size	A	B	C	D	F	GA	H	LB	LC	LH	LT	LX	LY	LZ	MM	NA	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	M6 x 1.0	61 (66)	3	5	7	117 (122)
10	15	12	14	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	18.3	20	5	8	8	28	23	5.5	14	2.3	33	25	42	M5 x 0.8	12.5	M10 x 1.0	50	—	6	9	106

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

Bore size	B	C	GA	LB	NA	WA	S	Z
10	15	17	7.5	16.5	21	14.4	66	122
16	18.3	20	7.5	23	21	14.4	67	123

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

**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

**D**

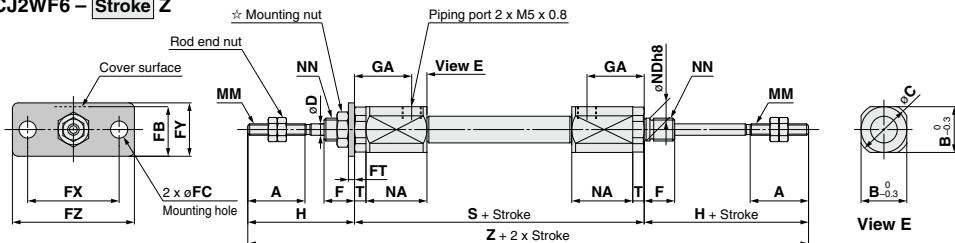
**-X**

Technical Data

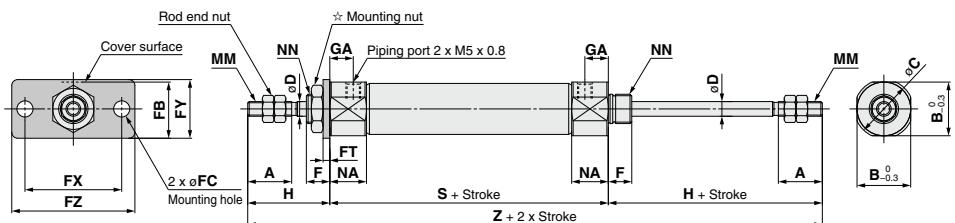
# CJ2W Series

## Flange (F)

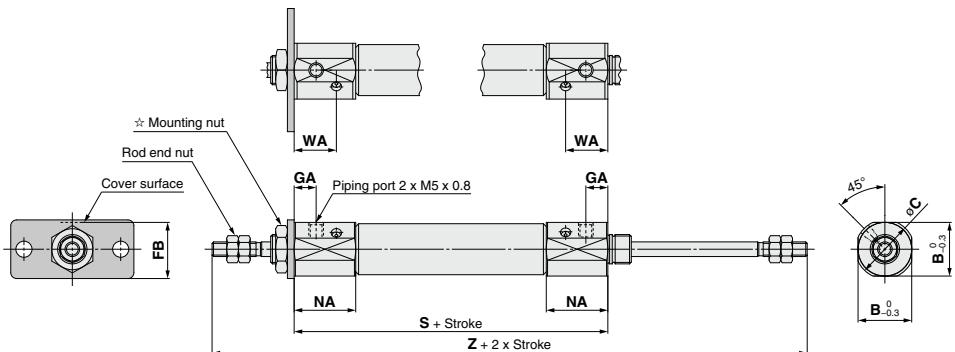
**CJ2WF6 – Stroke Z**



**CJ2WF 10 16 – Stroke Z**



**With air cushion: CJ2WF 10 16 – Stroke AZ**



\* For details of the mounting nut, refer to page 63.

[mm]

Bore size	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GA	H	MM	NA	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	M6 x 1.0	61 (66)	3	117 (122)
10	15	12	14	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	18.3	20	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	B	C	GA	FB	NA	WA	S	Z
10	15	17	7.5	14.5	21	14.4	66	122
16	18.3	20	7.5	19	21	14.4	67	123

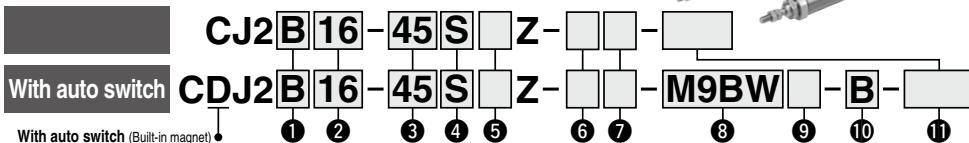
# Air Cylinder: Standard Type Single Acting, Spring Return/Extend

## CJ2 Series

ø6, ø10, ø16



### How to Order



With auto switch (Built-in magnet) •

#### ① Mounting

B	Basic
E	Double-side bossed
D**	Double clevis
L	Single foot
M	Double foot
F	Rod flange
G	Head flange

\*: Foot/Flange brackets are shipped together with the product, but not assembled.

\*\*: Double clevis is only available for ø10 and ø16.

Refer to page 151-1 for the double clevis (with one-touch connecting pin).

#### ② Auto switch

Nil	Without auto switch
-----	---------------------

\*: For applicable auto switches, refer to the table below.

★ Enter the auto switch mounting type (A or B) even when a built-in magnet cylinder without an auto switch is required.

#### ② Bore size

6	6 mm
10	10 mm
16	16 mm

#### ③ Head cover port location

Nil	Perpendicular to axis	
R	Axial	

\*: For double clevis, the product is perpendicular to the cylinder axis.

\*: For double-side bossed, the product is perpendicular to the cylinder axis.

\*: Not applicable to single acting, spring extend (T).

#### ④ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 72.

#### ⑤ Head cover port location

Nil	None
N	Pivot bracket is shipped together with the product.

\*: Only for the double clevis type (ø10 and ø16).

\*: Pivot bracket is shipped together with the product, but not assembled.

#### ⑥ Pivot bracket

Nil	None
N	Single knuckle joint

\*: Double knuckle joint.

\*: Rod end cap (Flat type).

\*: Rod end cap (Round type).

\*: Rod end bracket is shipped together with the product, but not assembled.

\*: Single/Double knuckle joint: ø10 and ø16 only

\*: Refer to page 63 for the double knuckle joint (with one-touch connecting pin).

#### ⑦ Rod end bracket

Nil	None
V	Single knuckle joint

\*: Double knuckle joint.

\*: Rod end cap (Flat type).

\*: Rod end cap (Round type).

\*: Rod end bracket is shipped together with the product, but not assembled.

\*: Single/Double knuckle joint: ø10 and ø16 only

\*: Refer to page 63 for the double knuckle joint (with one-touch connecting pin).

#### ⑩ Auto switch mounting type

A	Rail mounting
B	Band mounting

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

\*: Refer to page 148 for auto switch mounting brackets.

\*: ø6: Band mounting only

#### ⑪ Made to Order

Refer to page 72 for details.

\*: Refer to "Ordering Example of Cylinder Assembly" on page 72.

**Applicable Auto Switches** (Refer to pages 1575 to 1701 for further information on auto switches.)

Type	Special function	Electrical entry	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) (M)	1 (L)	3 (Z)	5 (N)	None			
Solid state auto switch	—	Grommet	3-wire (NPN)	5 V, 12 V	—	M9N	M9N	M9NV	M9N	●	●	○	○	○	IC circuit
			3-wire (PNP)			M9PV	M9P	M9PV	M9P	●	●	●	○	○	—
		Connector	2-wire			M9BV	M9B	M9BV	M9B	●	●	●	○	○	—
	Diagnostic indication (2-color indicator)	Grommet	3-wire (NPN)	5 V, 12 V	—	M9NWV	M9NW	M9NWV	M9NW	●	●	●	●	○	IC circuit
			3-wire (PNP)			M9PWV	M9PW	M9PWV	M9PW	●	●	●	○	○	—
			2-wire			M9BVW	M9BW	M9BVW	M9BW	●	●	●	○	○	—
	Water resistant (2-color indicator)	Grommet	3-wire (NPN)	5 V, 12 V	—	M9NAV <sup>①</sup>	M9NA <sup>①</sup>	M9NAV <sup>①</sup>	M9NA <sup>①</sup>	○	○	○	○	○	IC circuit
			3-wire (PNP)			M9PAV <sup>①</sup>	M9PA <sup>①</sup>	M9PAV <sup>①</sup>	M9PA <sup>①</sup>	○	○	○	○	○	—
			2-wire			M9BAV <sup>①</sup>	M9BA <sup>①</sup>	M9BAV <sup>①</sup>	M9BA <sup>①</sup>	○	○	●	○	○	—
	With diagnostic output (2-color indicator)	Grommet	4-wire (NPN)	5 V, 12 V	—	H7NF	—	F79F	●	—	●	○	—	○	IC circuit
			3-wire (NPN equivalent)			A96V	A96	A96V	A96	●	●	●	—	—	IC circuit
			2-wire			—	—	A72	A72H	●	—	●	—	—	—
Reed auto switch	—	Grommet	3-wire (NPN equivalent)	5 V	—	—	—	A72	A72H	●	—	●	—	—	—
			2-wire			100 V	A93V <sup>②</sup>	A93	A93V <sup>②</sup>	●	●	●	●	—	—
			100 V or less			A90V	A90	A90V	A90	●	—	●	—	—	IC circuit
	Yes	Connector	2-wire	24 V	—	—	—	C73C	A73C	—	●	—	●	●	—
			24 V or less			C80C	A80C	—	●	—	●	●	●	—	—
			—			—	—	A79W	—	●	—	●	—	—	—

\*1: Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Please contact SMC regarding water resistant types with the above model numbers.

\*2: 1 m type lead wire is only applicable to D-A93.

\*3: Lead wire length symbols: 0.5 ..... Nil (Example) M9NW

5 m ..... Z (Example) M9NWZ

1 m ..... M (Example) M9NWM

None ..... N (Example) H7CN

3 m ..... L (Example) M9NWL

\*4: Since there are other applicable auto switches than listed, refer to page 149 for details.

\*5: Solid state auto switches marked with "○" are produced upon receipt of order.

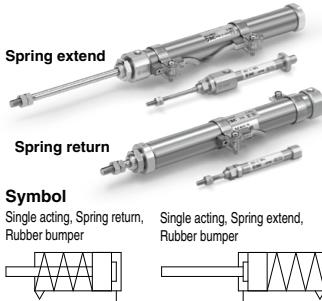
\*6: The D-A9□ M9□ A7□ A80□ F7□ J7□ auto switches are shipped together, but not assembled. (For band mounting, only auto switch mounting brackets are assembled before being shipped.)

D-□

-X-□

Technical Data

# CJ2 Series



Made to Order

Made to Order: Individual Specifications  
(For details, refer to pages 150 and 151.)

Symbol	Specifications
-X446	PTFE grease
-X773 <sup>*1</sup>	Short pitch mounting/Single acting, spring return

\*1: ø6 only  
\*2: ø10 and ø16 only

## Made to Order [Click here for details](#)

Symbol	Specifications
-XA1	Change of rod end shape
-XC22	Fluororubber seal
-XC51	With hose nipple
-XC85	Grease for food processing equipment

Refer to pages 142 to 149 for cylinders with auto switches.

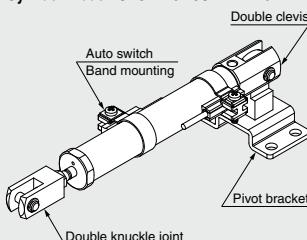
- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

## Precautions

Refer to page 152 before handling.

## Ordering Example of Cylinder Assembly

Cylinder model: CDJ2D16-45SZ-NW-M9BW-B



Mounting D: Double clevis

Pivot bracket N: Yes

Rod end bracket W: Double knuckle joint

Auto switch D-M9BW: 2 pcs.

Auto switch mounting B: Band mounting

\*: Pivot bracket, double knuckle joint and auto switch are shipped together with the product, but not assembled.

## Specifications

Bore size [mm]	6	10	16
Action	Single acting, Spring return/Single acting, Spring extend		
Fluid	Air		
Proof pressure		1 MPa	
Maximum operating pressure		0.7 MPa	
Minimum operating pressure	Spring return 0.2 MPa Spring extend 0.25 MPa	0.15 MPa 0.15 MPa	
Ambient and fluid temperature	Without auto switch: -10°C to 70°C With auto switch: -10°C to 60°C (No freezing)		
Cushion	Rubber bumper		
Lubrication	Not required (Non-lube)		
Stroke length tolerance	+1.0 0		
Piston speed		50 to 750 mm/s	
Allowable kinetic energy	0.012 J	0.035 J	0.090 J

## Standard Strokes

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

\*: Manufacture of intermediate strokes in 1 mm increments is possible. (Spacers are not used.)

\*: Please consult with SMC for strokes which exceed the standard stroke length.

\*: Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on front matter pages. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to the deflection etc.

## Spring Reaction Force

Refer to page 1899 (Table (2): Spring Reaction Force).

## Mounting Brackets/Part No.

Mounting bracket	Bore size [mm]		
	6	10	16
Foot	CJ-L006C	CJ-L010C	CJ-L016C
Flange	CJ-F006C	CJ-F010C	CJ-F016C
Pivot bracket (T-bracket) <sup>*1</sup>	—	CJ-T010C	CJ-T016C

\*1: The pivot bracket (T-bracket) is used with double clevis (D).

## Mounting and Accessories

Refer to page 42 for the list of brackets and page 63 for details about part numbers and dimensions.

●: Mounted on the product. ○: Can be ordered within the cylinder model. △: Order separately.

Mounting	Basic	Foot	Flange	Double Note 1) clevis (including T-bracket)	
				Double clevis clevis (including T-bracket)	Double clevis clevis (including T-bracket)
Mounting nut	●	●	●	—	—
Rod end nut	●	●	●	●	●
Double clevis (With one-touch connecting pin)	△	△	△	○ (-X238)	○ (-X238)
Single knuckle joint	○	○	○	○	○
Double knuckle joint (Including a pin and retaining rings)	○	○	○	○	○
Double knuckle joint (With one-touch connecting pin)	△	△	△	△	△
Rod end cap (Flat/Round type)	○	○	○	○	○
Pivot bracket (T-bracket)	—	—	—	○	●

Note 1) Double clevis is only available for ø10 and ø16.

Note 2) Stainless steel mounting brackets and accessories are also available.

Refer to page 63-1 for details.

## Theoretical Output

Refer to the "Single acting, Spring return cylinder" in Theoretical Output 1 of Technical data 3 in page 1903. In the case of the spring extend type, 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 type cylinder from which the beginning force of the spring return has been subtracted.

## Moisture Control Tube IDK Series



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

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

Air Cylinder: Standard Type  
Single Acting, Spring Return/Extend **CJ2 Series**

## Weights

### Spring Return

Bore size [mm]		6			10			16			[g]	
Mounting		Basic	Axial piping	Double-side bossed	Basic	Axial piping	Double clevis (including clevis pin)	Double-side bossed	Basic	Axial piping	Double clevis (including clevis pin)	Double-side bossed
Basic weight	15 stroke	17	15	18	28	28	29	28	62	62	69	64
	30 stroke	20	18	21	35	35	35	35	77	77	84	79
	45 stroke	23	21	23	44	44	45	45	95	95	102	97
	60 stroke	26	24	27	54	54	55	54	113	113	119	115
	75 stroke								134	134	141	136
	100 stroke								167	167	174	169
	125 stroke								204	204	212	206
	150 stroke								227	227	234	229
	Single foot	8	8	8			8					25
	Double foot	16	16	16			16					50
Mounting bracket weight	Rod flange	5	5	5			5					13
	Head flange	5	5	5			5					13
	Clevis pin	—	—	—	—	—	1	—	—	—	3	—
	One-touch connecting pin for double clevis	—	—	—	—	—	2	—	—	—	4	—
	Single knuckle joint	—	—	—		17					23	
	Double knuckle joint (including knuckle pin)	—	—	—		25					21	
	Double knuckle joint (With one-touch connecting pin)	—	—	—		26					22	
	Rod end cap (Flat type)	1	1	1		1					2	
	Rod end cap (Round type)	1	1	1		1					2	
	Pivot Bracket (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, so the mounting nut weight is already subtracted.

Calculation:

Example) CJ2L10-45SZ

- Basic weight ..... 44 (ø10-45 stroke)
- Mounting bracket weight ..... 8 (Single foot)

$$44 + 8 = 52 \text{ g}$$

### Spring Extend

Bore size [mm]		6			10			16			[g]
Mounting		Basic	Double-side bossed	Basic	Axial piping	Double clevis (including clevis pin)	Double-side bossed	Basic	Axial piping	Double clevis (including clevis pin)	Double-side bossed
Basic weight	15 stroke	18	19	28	28	30	29	63	63	71	67
	30 stroke	21	22	34	34	36	35	77	77	85	80
	45 stroke	24	24	42	42	44	43	93	93	100	96
	60 stroke	27	28	51	51	52	51	109	109	116	112
	75 stroke							129	129	137	133
	100 stroke							159	159	166	162
	125 stroke							193	193	201	196
	150 stroke							213	213	221	217
	Single foot	8	8		8						25
	Double foot	16	16		16						50
Mounting bracket weight	Rod flange	5	5		5						13
	Head flange	5	5		5						13
	Clevis pin	—	—	—	—	1	—	—	—	3	—
	One-touch connecting pin for double clevis	—	—	—	—	2	—	—	—	4	—
	Single knuckle joint	—	—		17					23	
	Double knuckle joint (including knuckle pin)	—	—		25					21	
	Double knuckle joint (With one-touch connecting pin)	—	—		26					22	
	Rod end cap (Flat type)	1	1		1					2	
	Rod end cap (Round type)	1	1		1					2	
	Pivot Bracket (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, so the mounting nut weight is already subtracted.

Calculation:

Example) CJ2L10-45TZ

- Basic weight ..... 42 (ø10-45 stroke)
- Mounting bracket weight ..... 8 (Single foot)

$$42 + 8 = 50 \text{ g}$$

**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

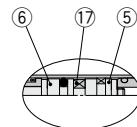
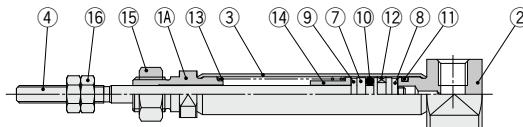
**D-□**  
**-X□**  
Technical Data

# CJ2 Series

## Construction (Not able to disassemble)

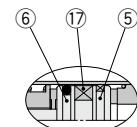
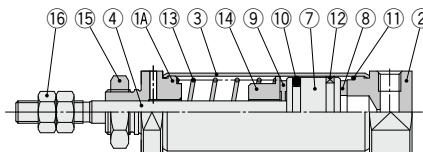
Single acting, Spring return

ø6



With auto switch

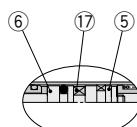
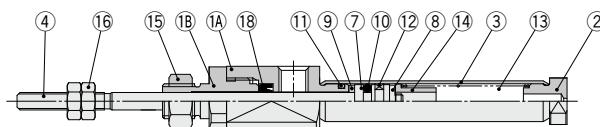
ø10, ø16



With auto switch

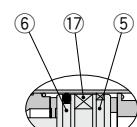
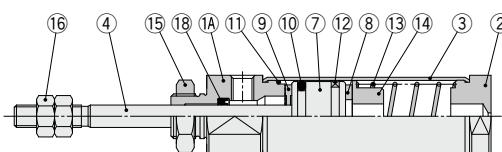
Single acting, Spring extend

ø6



With auto switch

ø10, ø16



With auto switch

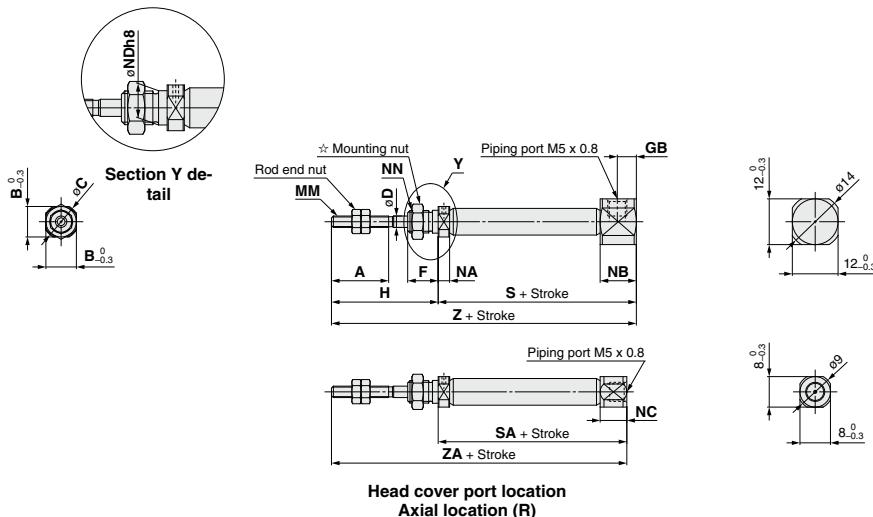
## Component Parts

No.	Description	Material	Note
1A	Rod cover	Aluminum alloy	
1B	Seal retainer	Aluminum alloy	ø6 only
2	Head cover	Aluminum alloy	
3	Cylinder tube	Stainless steel	
4	Piston rod	Stainless steel	
5	Piston A	Aluminum alloy	
6	Piston B	Aluminum alloy	
7	Piston	Aluminum alloy	
8	Bumper A	Urethane	
9	Bumper B	Urethane	

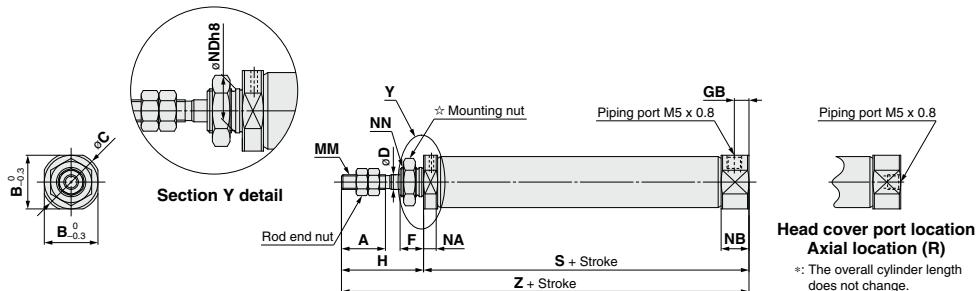
No.	Description	Material	Note
10	Piston seal	NBR	
11	Tube gasket	NBR	
12	Wear ring	Resin	
13	Return spring	Piano wire	
14	Spring seat	Aluminum alloy	
15	Mounting nut	Rolled steel	
16	Rod end nut	Rolled steel	
17	Magnet	—	
18	Rod seal	NBR	

### Single Acting, Spring Return: Basic (B)

**CJ2B6 – Stroke S Head cover port location Z**



**CJ2B 10 16 – Stroke S Head cover port location Z**



★ For details of the mounting nut, refer to page 63.

[mm]

Bore size	A	B	C	D	F	GB	H	MM	NA	NB	NC	NDh8	NN	S							
														5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
6	15	8	9	3	8	5	28	M3 x 0.5	3	9.5	7	6 <sup>0.018</sup>	M6 x 1.0	37	46	50	64	—	—	—	—
10	15	12	14	4	8	5	28	M4 x 0.7	4.8	9.5	—	8 <sup>0.022</sup>	M8 x 1.0	45.5	53	65	77	—	—	—	—
16	15	18.3	20	5	8	5	28	M5 x 0.8	4.8	9.5	—	10 <sup>0.022</sup>	M10 x 1.0	45.5	54	66	78	84	108	126	138

Bore size	SA						Z						ZA									
	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	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st
6	34.5 (39.5)	43.5 (48.5)	47.5 (52.5)	61.5 (66.5)	—	—	—	—	65 (70)	74 (79)	78 (83)	92 (97)	—	—	—	62.5 (67.5)	71.5 (76.5)	75.5 (80.5)	89.5 (94.5)	—	—	—
10	—	—	—	—	—	—	—	—	73.5	81	93	105	—	—	—	—	—	—	—	—	—	—
16	—	—	—	—	—	—	—	—	73.5	82	94	106	112	136	154	166	—	—	—	—	—	—

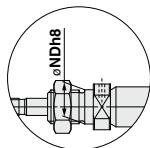
\*: ( ) in S, SA, Z and ZA dimensions: With auto switch

CJ1  
CJP  
CJ2  
JCM  
CM2  
CM3  
CG1  
CG3  
JMB  
MB  
MB1  
CA2  
CS1  
CS2

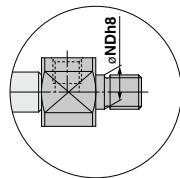
# CJ2 Series

## Single Acting, Spring Return: Double-side Bossed (E)

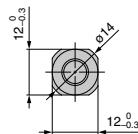
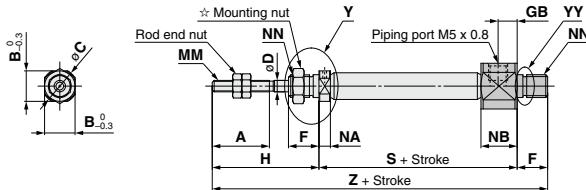
CJ2E6 – Stroke SZ



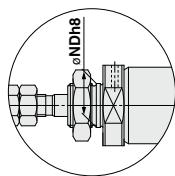
Section Y detail



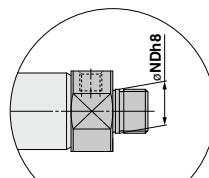
Section YY detail



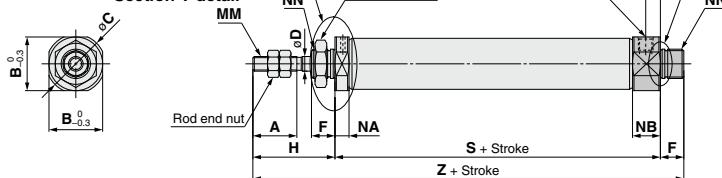
CJ2E 10  
16 – Stroke SZ



Section Y detail



Section YY detail



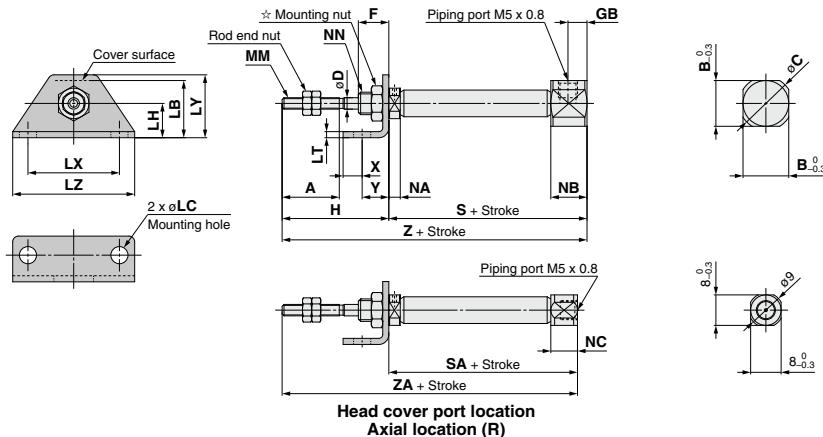
\* For details of the mounting nut, refer to page 63.

Bore size	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								
6	15	8	9	3	8	5	28	M3 x 0.5	3	9.5	6 <sup>0.018</sup>	M6 x 1.0	37	46	50	64	—	—	—	73	82	86	100	—	—	—	—	
10	15	12	14	4	8	5	28	M4 x 0.7	4.8	9.5	8 <sup>0.022</sup>	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	4.8	9.5	10 <sup>0.022</sup>	M10 x 1.0	45.5	54	66	78	84	108	126	138	73.5	82	94	106	112	136	154	166

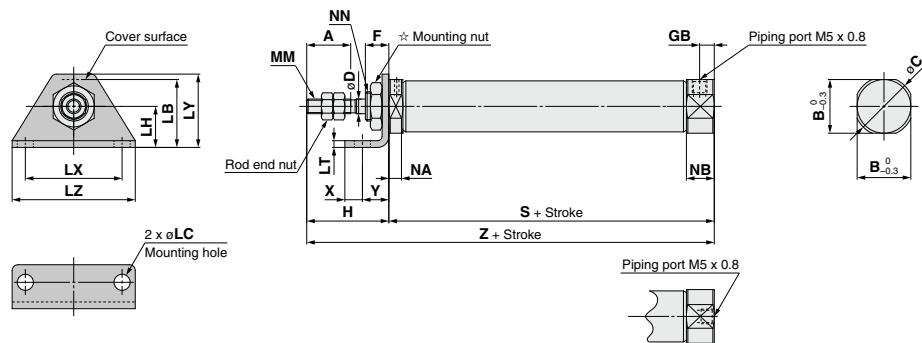
\*: ( ) in S and Z dimensions: With auto switch

### Single Acting, Spring Return: Single Foot (L)

**CJ2L6 – Stroke S Head cover port location Z**



**CJ2L 10 – Stroke S Head cover port location Z**



\*: The overall cylinder length does not change.

\* For details of the mounting nut, refer to page 63.

**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

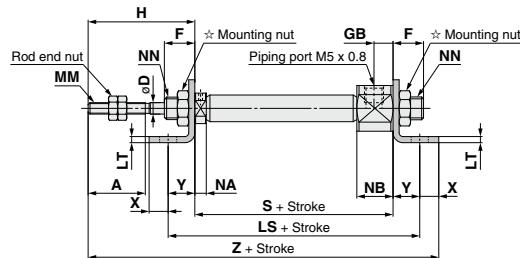
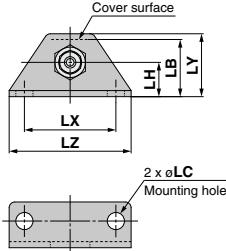
Bore size	A	B	C	D	F	GB	H	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	S								
																			5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	
6	15	12	14	3	8	5	28	13	4.5	9	1.6	24	16.5	32	M3 x 0.5	3	9.5	M6 x 1.0	37 (42) (51)	46 (55) (59)	50 (55) (69)	56 (64) (69)	—	—	—	—	
10	15	12	14	4	8	5	28	15	4.5	9	1.6	24	16.5	32	M4 x 0.7	4.8	9.5	M8 x 1.0	45.5	53	65	77	—	—	—	—	
16	15	18.3	20	5	8	5	28	23	5.5	14	2.3	33	25	42	M5 x 0.8	4.8	9.5	M10 x 1.0	45.5	54	66	78	84	108	126	138	
SA										X	Y	Z								ZA							
Bore size	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	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	34.5 (39.5) (48.5)	43.5 (48.5) (52.5)	47.5 (52.5) (66.5)	61.5	—	—	—	—	5	7	65 (70) (79)	74 (79) (83)	78 (97)	92	—	—	—	—	62.5 (67.5) (76.5)	71.5 (76.5) (80.5)	75.5 (80.5) (89.5)	89.5 (94.5)	—	—	—	—	
10	—	—	—	—	—	—	—	—	5	7	73.5	81	93	105	—	—	—	—	—	—	—	—	—	—	—	—	
16	—	—	—	—	—	—	—	—	6	9	73.5	82	94	106	112	136	154	166	—	—	—	—	—	—	—	—	

\*: ( ) in S, SA, Z and ZA dimensions: With auto switch

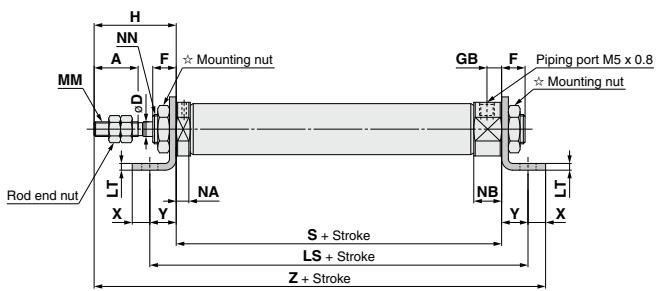
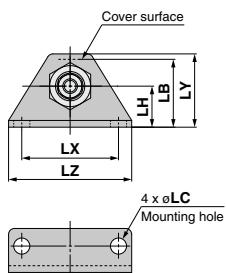
# CJ2 Series

## Single Acting, Spring Return: Double Foot (M)

CJ2M6 – Stroke SZ



CJ2M 10  
16 – Stroke SZ



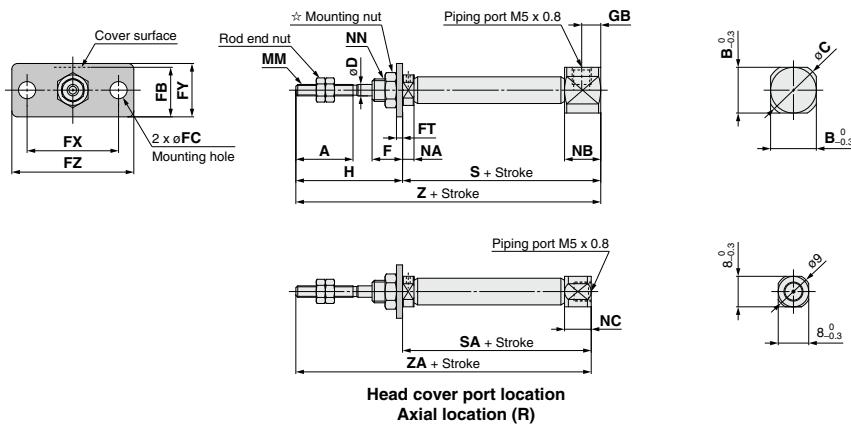
\* For details of the mounting nut, refer to page 63.

Bore size	A	D	F	GB	H	LB	LC	LH	LS										LT	LX	LY	LZ	MM	NA
									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	X	Y	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st
6	15	3	8	5	28	13	4.5	9	51 (56)	60 (65)	64 (69)	78 (83)	—	—	—	—	—	1.6	24	16.5	32	M3 x 0.5	3	
10	15	4	8	5	28	15	4.5	9	59.5	67	79	91	—	—	—	—	—	1.6	24	16.5	32	M4 x 0.7	4.8	
16	15	5	8	5	28	23	5.5	14	63.5	72	84	96	102	126	144	156	2.3	33	25	42	M5 x 0.8	4.8		
Bore size	NB	NN	S								Z								LS					
			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	X	Y	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	101 to 125 st	126 to 150 st	101 to 125 st	126 to 150 st
6	9.5	M6 x 1.0	37 (42)	46 (51)	50 (55)	64 (69)	—	—	—	—	5	7	77 (82)	86 (91)	90 (95)	104 (109)	—	—	—	—	—	—	—	—
10	9.5	M8 x 1.0	45.5	53	65	77	—	—	—	—	5	7	85.5	93	105	117	—	—	—	—	—	—	—	—
16	9.5	M10 x 1.0	45.5	54	66	78	84	108	126	138	6	9	88.5	97	109	121	127	151	169	181	—	—	—	—

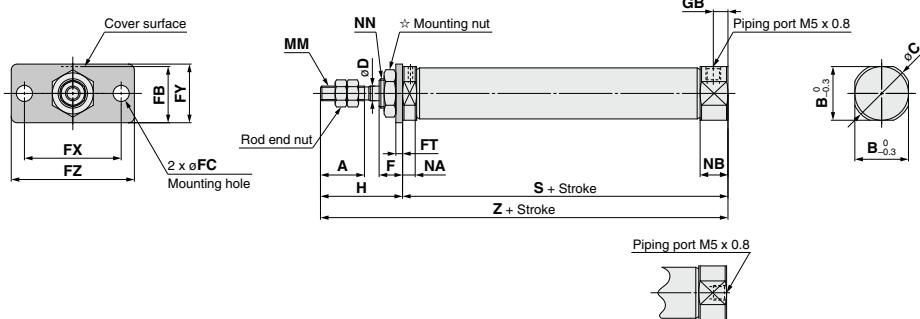
\*: () in LS, S and Z dimensions: With auto switch

### Single Acting, Spring Return: Rod Flange (F)

**CJ2F6 – Stroke S Head cover port location Z**



**CJ2F 10 16 – Stroke S Head cover port location Z**



**Head cover port location  
Axial location (R)**

\*: The overall cylinder length does not change.

\* For details of the mounting nut, refer to page 63.

[mm]

Bore size	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GB	H	MM	NA	NB	NC	NN	S							
																			5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
6	15	12	14	3	8	11	4.5	1.6	24	14	32	5	28	M3 x 0.5	3	9.5	7	M6 x 1.0	37	46	50	64	—	—	—	—
	(42)	(40)	(45)	(10)	(15)	(18)	(25)	(20)	(30)	(22)	(35)	(5)	(30)	(M4 x 0.7)	(4.8)	(9.5)	(—)	(M8 x 1.0)	(45.5)	(53)	(65)	(77)	(—)	(—)	(—)	(—)
10	15	12	14	4	8	13	4.5	1.6	24	14	32	5	28	M4 x 0.7	4.8	9.5	—	M8 x 1.0	45.5	53	65	77	—	—	—	—
	(48.5)	(45)	(48.5)	(12)	(10)	(15)	(25)	(20)	(30)	(22)	(35)	(5)	(30)	(M5 x 0.8)	(4.8)	(9.5)	(—)	(M10 x 1.0)	(45.5)	(54)	(66)	(78)	(84)	(108)	(126)	(138)
16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	5	28	M5 x 0.8	4.8	9.5	—	M10 x 1.0	45.5	54	66	78	84	108	126	138

Bore size	SA								Z								ZA							
	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	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	34.5 (39.5)	43.5 (48.5)	47.5 (52.5)	61.5 (66.5)	—	—	—	—	65 (70)	74 (79)	78 (83)	92 (97)	—	—	—	62.5 (67.5)	71.5 (76.5)	75.5 (80.5)	89.5 (94.5)	—	—	—	—	
10	—	—	—	—	—	—	—	—	73.5	81	93	105	—	—	—	—	—	—	—	—	—	—	—	—
16	—	—	—	—	—	—	—	—	73.5	82	94	106	112	136	154	166	—	—	—	—	—	—	—	—

\*: ( ) in S, SA, Z and ZA dimensions: With auto switch

**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

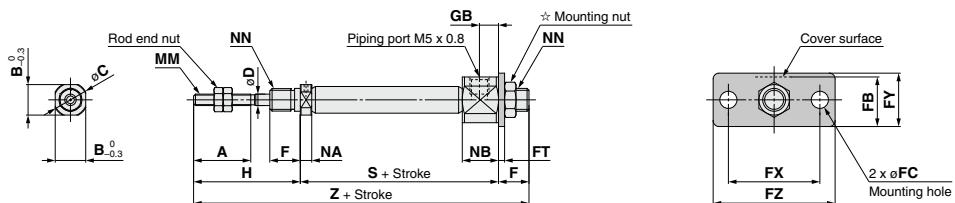
**D**   
**X**

Technical Data

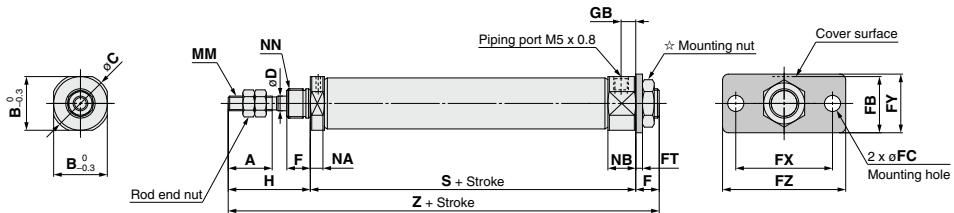
# CJ2 Series

## Single Acting, Spring Return: Head Flange (G)

CJ2G6 – Stroke SZ



CJ2G 10  
16 – Stroke SZ



\* For details of the mounting nut, refer to page 63.

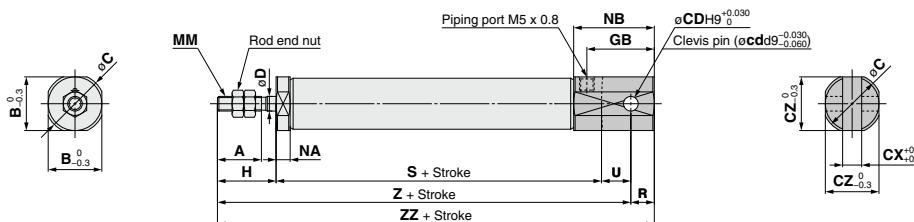
[mm]

Bore size	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GB	H	MM	NA	NB	NN
6	15	8	9	3	8	11	4.5	1.6	24	14	32	5	28	M3 x 0.5	3	9.5	M6 x 1.0
10	15	12	14	4	8	13	4.5	1.6	24	14	32	5	28	M4 x 0.7	4.8	9.5	M8 x 1.0
16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	5	28	M5 x 0.8	4.8	9.5	M10 x 1.0
Bore size	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	37 (42)	46 (51)	50 (55)	64 (69)	—	—	—	—	73 (78)	82 (87)	86 (91)	100 (105)	—	—	—	—	
10	45.5	53	65	77	—	—	—	—	81.5	89	101	113	—	—	—	—	
16	45.5	54	66	78	84	108	126	138	81.5	90	102	114	120	144	162	174	

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

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

**CJ2D 10 - Stroke SZ**  
**16**



Bore size	A	B	C	CD (cd)	CX	CZ	D	GB	H	MM	NA	NB	R	U	S							
															5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
<b>10</b>	15	12	14	3.3	3.2	12	4	18	20	M4 x 0.7	4.8	22.5	5	8	45.5	53	65	77	—	—	—	—
<b>16</b>	15	18.3	20	5	6.5	18.3	5	23	20	M5 x 0.8	4.8	27.5	8	10	45.5	54	66	78	84	108	126	138

Bore size	Z								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	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
<b>10</b>	73.5	81	93	105	—	—	—	—	78.5	86	98	110	—	—	—	—
<b>16</b>	75.5	84	96	108	114	138	156	168	83.5	92	104	116	122	146	164	176

\*: A clevis pin and retaining rings are included.

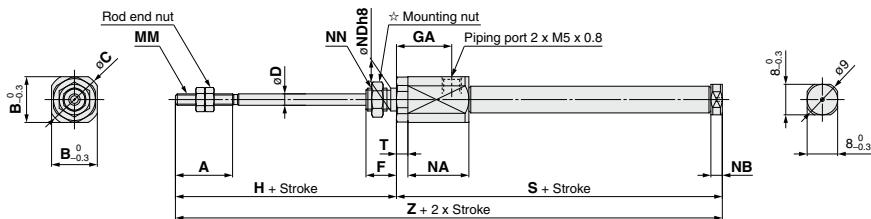
**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

**D-**  
**-X**  
Technical Data

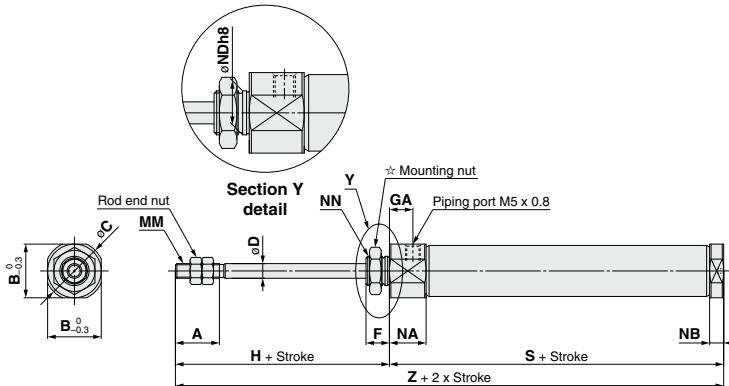
# CJ2 Series

## Single Acting, Spring Extend: Basic (B)

**CJ2B6 – Stroke TZ**



**CJ2B 10  
16 – Stroke TZ**



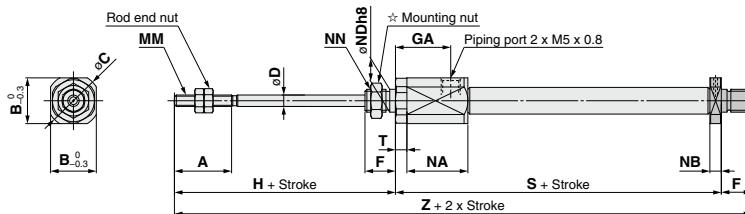
★ For details of the mounting nut, refer to page 63.

Bore size	A	B	C	D	F	GA	H	MM	NA	NB	NDh8	NN	T	[mm]		
6	15	12	14	3	8	14.5	28	M3 x 0.5	16	3	6 <sup>0.018</sup> <sub>-0.018</sub>	M6 x 1.0	3			
10	15	12	14	4	8	8	28	M4 x 0.7	12.5	4.8	8 <sup>0.022</sup> <sub>-0.022</sub>	M8 x 1.0	—			
16	15	18.3	20	5	8	8	28	M5 x 0.8	12.5	4.8	10 <sup>0.022</sup> <sub>-0.022</sub>	M10 x 1.0	—			
S Z																
Bore size	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	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	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

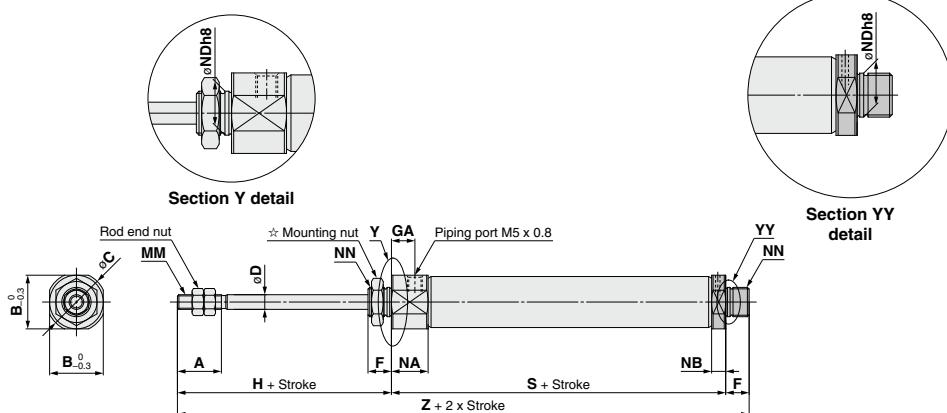
\*: ( ) in S and Z dimensions: With auto switch

### Single Acting, Spring Extend: Double-side Bossed (E)

**CJ2E6 – Stroke TZ**



**CJ2E 10  
16 – Stroke TZ**



★ For details of the mounting nut, refer to page 63.

[mm]

Bore size	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>	<b>GA</b>	<b>H</b>	<b>MM</b>	<b>NA</b>	<b>NB</b>	<b>NDh8</b>	<b>NN</b>
<b>6</b>	15	12	14	3	8	14.5	28	M3 x 0.5	16	3	6 <sup>0.018</sup>	M6 x 1.0
<b>10</b>	15	12	14	4	8	8	28	M4 x 0.7	12.5	4.8	8 <sup>0.022</sup>	M8 x 1.0
<b>16</b>	15	18.3	20	5	8	8	28	M5 x 0.8	12.5	4.8	10 <sup>0.022</sup>	M10 x 1.0

Bore size	<b>S</b>							<b>Z</b>								
	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
<b>6</b>	46.5 (51.5)	55.5 (60.5)	59.5 (64.5)	73.5 (78.5)	—	—	—	—	82.5 (87.5)	91.5 (96.5)	95.5 (100.5)	109.5 (114.5)	—	—	—	—
<b>10</b>	48.5	56	68	80	—	—	—	—	76.5	84	96	108	—	—	—	—
<b>16</b>	48.5	57	69	81	87	111	129	141	76.5	85	97	109	115	139	157	169

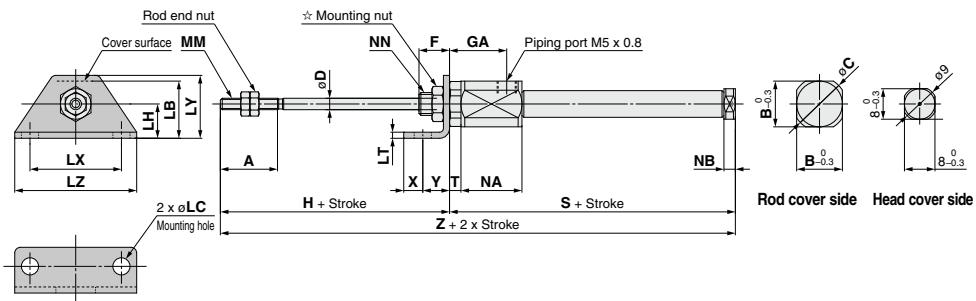
\*: () in S and Z dimensions: With auto switch

**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

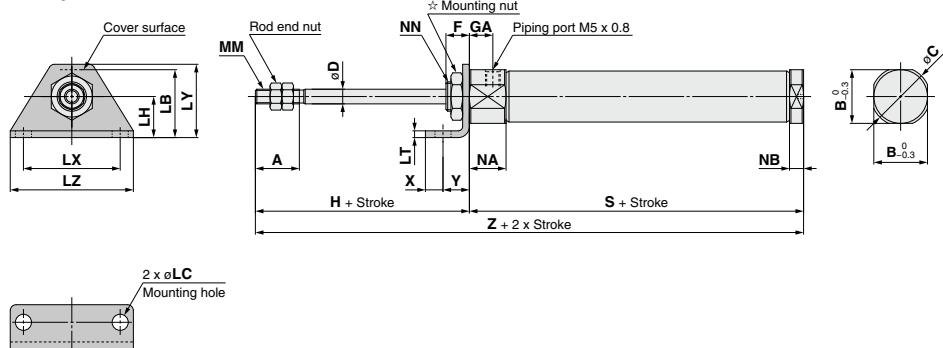
# CJ2 Series

## Single Acting, Spring Extend: Single Foot (L)

### CJ2L6 – Stroke TZ



### CJ2L 10 16 – Stroke TZ



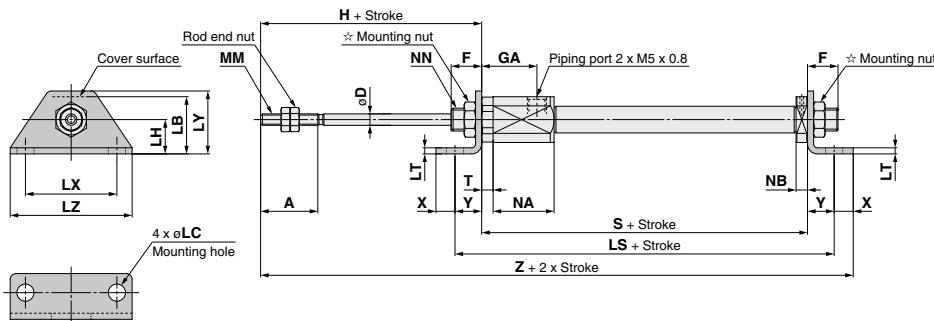
\* For details of the mounting nut, refer to page 63.

Bore size	A	B	C	D	F	GA	H	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	T	
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	
10	15	12	14	4	8	8	28	15	4.5	9	1.6	24	16.5	32	M4 x 0.7	12.5	4.8	M8 x 1.0	—	
16	15	18.3	20	5	8	8	28	23	5.5	14	2.3	33	25	42	M5 x 0.8	12.5	4.8	M10 x 1.0	—	
Bore size	S										X	Y	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		X	Y	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	46.5 (51.5)	55.5 (60.5)	59.5 (64.5)	73.5 (78.5)	—	—	—	—	5	7	74.5 (79.5)	83.5 (88.5)	87.5 (92.5)	101.5 (106.5)	—	—	—	—		
10	48.5	56	68	80	—	—	—	—	5	7	76.5	84	96	108	—	—	—	—		
16	48.5	57	69	81	87	111	129	141	6	9	76.5	85	97	109	115	139	157	169		

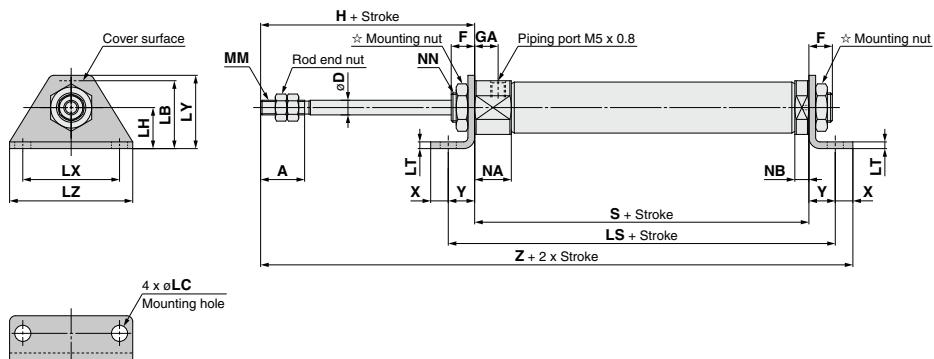
\*: ( ) in S and Z dimensions: With auto switch

### **Single Acting, Spring Extend: Double Foot (M)**

**CJ2M6 – Stroke TZ**



**CJ2M 10 – Stroke TZ**



★ For details of the mounting nut, refer to page 63.

[mm]

Bore size	A	D	F	GA	H	LB	LC	LH	LS										LT	LX	LY	LZ	MM
									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
6	15	3	8	14.5	28	15	4.5	9	60.5 (65.5)	69.5 (74.5)	73.5 (78.5)	87.5 (101.5)	—	—	—	—	—	—	1.6	24	16.5	32	M3 x 0.5
10	15	4	8	8	28	15	4.5	9	62.5	70	82	94	—	—	—	—	—	—	1.6	24	16.5	32	M4 x 0.7
16	15	5	8	8	28	23	5.5	14	66.5	75	87	99	105	129	147	159	2.3	33	25	42	—	M5 x 0.8	

Bore size	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	X	Y	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	16	3	M6 x 1.0	46.5 (51.5)	55.5 (60.5)	59.5 (64.5)	73.5 (78.5)	—	—	—	—	5	7	86.5 (91.5)	95.5 (100.5)	99.5 (104.5)	113.5 (118.5)	—	—	—	—
10	12.5	4.8	M8 x 1.0	48.5	56	68	80	—	—	—	—	5	7	88.5	96	108	120	—	—	—	—
16	12.5	4.8	M10 x 1.0	48.5	57	69	81	87	111	129	141	6	9	91.5	100	112	124	130	154	172	184

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

**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

**D-**□

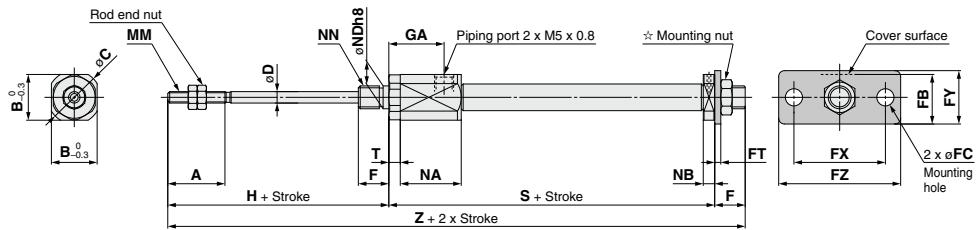
**-X**□

Technical Data

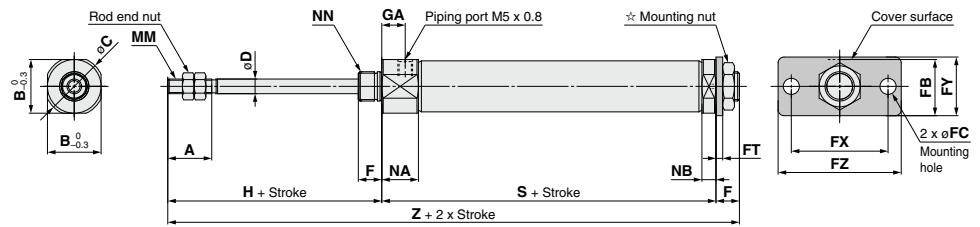
# CJ2 Series

## Single Acting, Spring Extend: Head Flange (G)

CJ2G6 – Stroke TZ



CJ2G 10  
16 – Stroke TZ



\* For details of the mounting nut, refer to page 63.

[mm]

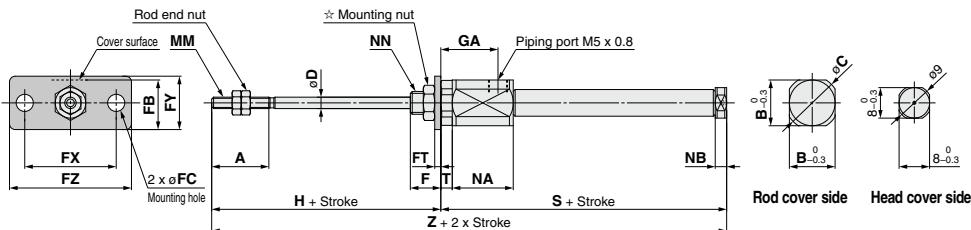
Bore size	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GA	H	MM	NA	NB	NN
6	15	12	14	3	8	13	4.5	1.6	24	14	32	14.5	28	M3 x 0.5	16	3	M6 x 1.0
10	15	12	14	4	8	13	4.5	1.6	24	14	32	8	28	M4 x 0.7	12.5	4.8	M8 x 1.0
16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	8	28	M5 x 0.8	12.5	4.8	M10 x 1.0

Bore size	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	46.5 (51.5)	55.5 (60.5)	59.5 (64.5)	73.5 (78.5)	—	—	—	—	82.5 (87.5)	91.5 (96.5)	95.5 (100.5)	109.5 (114.5)	—	—	—	—
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

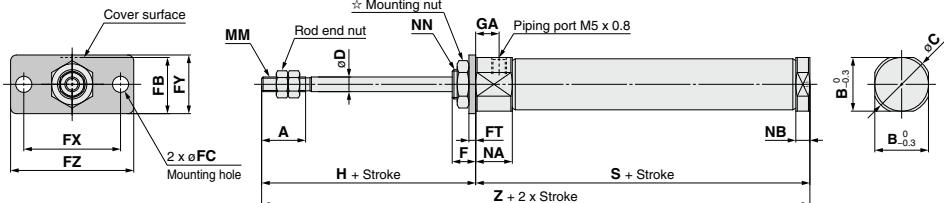
\*: ( ) in S and Z dimensions: With auto switch

## Single Acting, Spring Extend: Rod Flange (F)

CJ2F6 – Stroke TZ



CJ2F 10  
16 - Stroke TZ



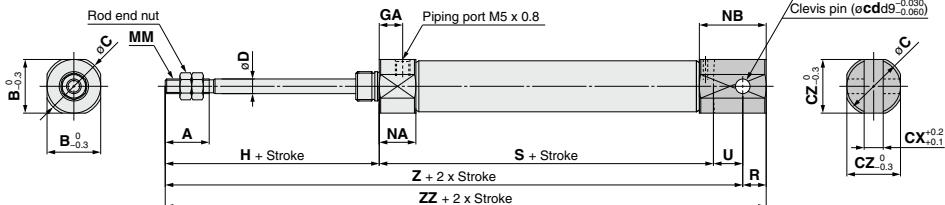
★ For details of the mounting nut, refer to page 63.

A For details of the mounting hub, refer to page 603.																[mm]																		
Bore size	A	B	C	D	F	FB	FC	FT	FY	FZ	GA	H	MM	NA	NB	NN	T	S	Z															
<b>6</b>	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)	—	—	—	—	—	—	—	—	—	—	—	—
<b>10</b>	15	12	14	4	8	13	4.5	1.6	24	14	32	8	28	M4 x 0.7	12.5	4.8	M8 x 1.0	4	48.5 (48.5)	56 (56)	68 (68)	80 (80)	—	—	—	—	—	—	—	—	—	—	—	—
<b>16</b>	15	12	15	20	5	8	19	5.5	2.3	30	20	42	8	28	M5 x 0.8	12.5	4.8	M10 x 1.0	4	48.5 (48.5)	57 (59)	69 (81)	87 (87)	111 (111)	129 (129)	141 (141)	76.5 (76.5)	85 (87)	97 (97)	109 (109)	115 (115)	139 (139)	157 (157)	169 (169)

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

### **Single Acting, Spring Extend: Double Clevis (D)**

CJ2D 10/16 - Stroke TZ



\*: A clevis pin and retaining rings are included.

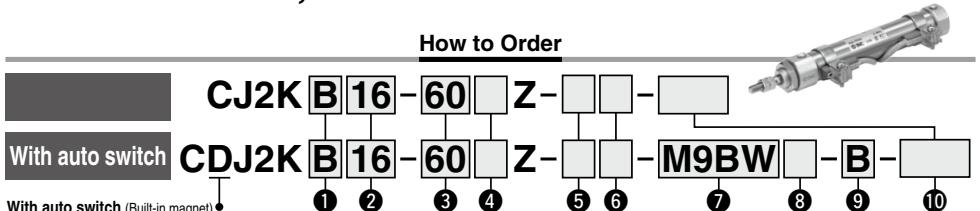
# Air Cylinder: Non-rotating Rod Type Double Acting, Single Rod

## CJ2K Series

ø10, ø16



### How to Order



#### ① Mounting

B	Basic
E	Double-side bossed
D**	Double clevis
L	Single foot
M	Double foot
F	Rod flange
G	Head flange

\*: Foot/Flange brackets are shipped together with the product, but not assembled.

\*\*: Refer to page 151-1 for the double clevis (with one-touch connecting pin).

#### ⑦ Auto switch

Nil	Without auto switch
-----	---------------------

\*: For applicable auto switches, refer to the table below.

★ Enter the auto switch mounting type (A or B) even when a built-in magnet cylinder without an auto switch is required.

\*: Refer to "Ordering Example of Cylinder Assembly" on page 89.

#### ② Bore size

10	10 mm
16	16 mm

#### ④ Head cover port location

Nil	Perpendicular to axis	
R	Axial	

\*: For double clevis, the product is perpendicular to the cylinder axis.  
\*: For double-side bossed, the product is perpendicular to the cylinder axis.

#### ③ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 89.

#### ⑤ Pivot bracket

Nil	None
N	Pivot bracket is shipped together with the product.

\*: Only for the double clevis type

\*\*: Pivot bracket is shipped together with the product, but not assembled.

#### ⑥ Rod end bracket

Nil	None
V	Single knuckle joint
W**	Double knuckle joint
T	Rod end cap (Flat type)
U	Rod end cap (Round type)

\*: Rod end bracket is shipped together with the product, but not assembled.

\*\*: Refer to page 63 for the double knuckle joint (with one-touch connecting pin).

#### ⑨ Auto switch mounting type

A	Rail mounting
B	Band mounting

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

\*\*: Refer to page 148 for auto switch mounting brackets.

#### ⑩ Made to Order

Refer to page 89 for details.

### Applicable Auto Switches

(Refer to pages 1575 to 1701 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) (M)	1 (L)	3 (Z)	5 (N)	None (N)			
Solid state auto switch	—	Grommet	—	3-wire (NPN)	5 V, 12 V	—	M9NV	M9N	M9NV	●	●	○	—	○	IC circuit	
				3-wire (PNP)			M9PV	M9P	M9PV	●	●	●	○	○	—	
				2-wire			M9BV	M9B	M9BV	●	●	●	○	○	—	
	Diagnostic indication (2-color indicator)	Connector	Yes	3-wire (NPN)	24 V	—	M9NWV	M9NW	M9NWV	M9NW	●	●	●	○	○	IC circuit
				3-wire (PNP)			M9PWV	M9PW	M9PWV	●	●	●	○	○	—	
				2-wire			M9BVW	M9BW	M9BVW	●	●	●	○	○	—	
	Water resistant (2-color indicator)	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NAV <sup>①</sup>	M9NA <sup>①</sup>	M9NAV <sup>①</sup>	○	○	●	○	○	IC circuit	
				3-wire (PNP)			M9PAV <sup>①</sup>	M9PA <sup>①</sup>	M9PAV <sup>①</sup>	○	○	●	○	○	—	
				2-wire			M9BAV <sup>①</sup>	M9BA <sup>①</sup>	M9BAV <sup>①</sup>	○	○	●	○	○	—	
	With diagnostic output (2-color indicator)	Grommet	Yes	4-wire (NPN)	5 V, 12 V	—	H7NF	—	F79F	●	—	●	—	○	IC circuit	
	3-wire (NPN equivalent)	A96V	A96	A96V			●	—	●	—	—	IC circuit				
	—	—	A72	A72H			●	—	●	—	—	—				
	200 V	A93	A93V <sup>②</sup>	A93			●	●	●	—	—	—				
	100 V or less	A90V	A90	A90V			●	●	●	●	—	IC circuit				
Reed auto switch	—	Grommet	Yes	2-wire	12 V	—	—	C73C	A73C	—	●	—	●	—	Relay, PLC	
				24 V or less			C80C	A80C	—	●	—	●	●	●	—	
				—			A79W	—	—	●	—	●	●	—	IC circuit	
				—			—	—	—	●	—	●	●	—	—	
Diagnostic indication (2-color indicator)				—			—	—	—	—	—	—	—	—	—	

\*1: Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Please contact SMC regarding water resistant types with the above model numbers.

\*2: 1 m type lead wire is only applicable to D-A93.

\*3: Lead wire length symbols: 0.5 ..... Nil (Example) M9NW  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NZ  
None ..... N (Example) H7CN

\*4: Since there are other applicable auto switches than listed, refer to page 149 for details.

\*5: Solid state auto switches marked with "○" are produced upon receipt of order.

\*6: The D-A9□ M9□ A7□ A80□ F7□ J7□ auto switches are shipped together, but not assembled. (For band mounting, only auto switch mounting brackets are assembled before being shipped.)

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

#### Non-rotating accuracy

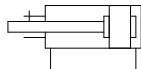
$\varnothing 10: \pm 1.5^\circ$ ,  $\varnothing 16: \pm 1^\circ$

Can operate without lubrication.



#### Symbol

Double acting, Single rod, Rubber bumper



Made to Order: Individual Specifications  
(For details, refer to page 150.)

#### Made to Order

[Click here for details](#)

#### Symbol

#### Specifications

Symbol	Specifications
-X446	PTFE grease
-X2838	Double clevis (With one-touch connecting pin)

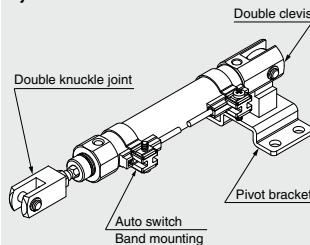
Symbol	Specifications
-XA1	Change of rod end shape
-XC3	Special port location
-XC9	Adjustable stroke cylinder/Adjustable retraction type
-XC10	Dual stroke cylinder/Double rod type
-XC22	Fluororubber seal
-XC51	With hose nipple
-XC85	Grease for food processing equipment

#### Precautions

[Refer to page 152 before handling.](#)

### Ordering Example of Cylinder Assembly

Cylinder model: CDJ2KD16-60Z-NW-M9BW-B



Mounting D: Double clevis

Pivot bracket N: Yes

Rod end bracket W: Double knuckle joint

Auto switch D-M9BW: 2 pcs.

Auto switch mounting B: Band mounting

\*: Pivot bracket, double knuckle joint and auto switch are shipped together with the product, but not assembled.

### Specifications

Bore size [mm]	10	16
Action	Double acting, Single rod	
Fluid	Air	
Proof pressure	1 MPa	
Maximum operating pressure	0.7 MPa	
Minimum operating pressure	0.06 MPa	
Ambient and fluid temperature	Without auto switch: -10°C to 70°C With auto switch: -10°C to 60°C (No freezing)	
Cushion	Rubber bumper	
Lubrication	Not required (Non-lube)	
Stroke length tolerance	$^{+1.0}_0$	
Rod non-rotating accuracy	$\pm 1.5^\circ$	$\pm 1^\circ$
Piston speed	50 to 750 mm/s	
Allowable kinetic energy	0.035 J	0.090 J

### Standard Strokes

Bore size	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 in 1 mm increments is possible. (Spacers are not used.)

\*: Please consult with SMC for strokes which exceed the standard stroke length.

\*: Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on front matter pages. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to the deflection etc.

### Mounting and Accessories

(Refer to page 42 for the list of brackets and page 63 for details about part numbers and dimensions.)

●… Mounted on the product. ○… Can be ordered within the cylinder model. △… Order separately.

	Mounting	Basic	Foot	Flange	Double clevis	Double clevis (including T-bracket)
Standard	Mounting nut	●	●	●	—	—
	Rod end nut	●	●	●	●	●
	Clevis pin (including retaining rings)	—	—	—	●	●
Option	Double clevis (With one-touch connecting pin)	△	△	△	○ (-X2838)	○ (-X2838)
	Single knuckle joint	○	○	○	○	○
	Double knuckle joint (including a pin and retaining rings)	○	○	○	○	○
	Double knuckle joint (With one-touch connecting pin)	△	△	△	△	△
Option	Rod end cap (Flat/Round type)	○	○	○	○	○
	Pivot bracket (T-bracket)	—	—	—	○	●

### Mounting Brackets/Part No.

Mounting bracket	Bore size [mm]	
	10	16
Foot	CJ-L016C	CJK-L016C
Flange	CJ-F016C	CJK-F016C
Pivot bracket (T-bracket)*1	CJ-T010C	CJ-T016C

\*1: The pivot bracket (T-bracket) is used with double clevis (D).

Refer to pages 142 to 149 for cylinders with auto switches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

CJ1

CJP

CJ2

JCM

CM2

CM3

CG1

CG3

JMB

MB

MB1

CA2

CS1

CS2

D-□

-X-□

Technical Data

# CJ2K Series

## Weights

	[g]	
Bore size [mm]	10	16
Basic weight	25	47
(When the stroke is zero)		
Axial piping	25	47
Double clevis (including clevis pin)	27	55
Head-side bossed	29	50
Additional weight per 15 mm of stroke	4	7
Mounting bracket weight		
Single foot	8	25
Double foot	16	50
Rod flange	5	13
Head flange	5	13
Accessories		
Clevis pin	1	3
One-touch connecting pin for double clevis	2	4
Single knuckle joint	17	23
Double knuckle joint (including knuckle pin)	25	21
Double knuckle joint (With one-touch connecting pin)	26	22
Rod end cap (Flat type)	1	2
Rod end cap (Round type)	1	2
Pivot bracket (T-bracket)	32	50

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

\*: Mounting nut is not included in the basic weight for the double clevis.

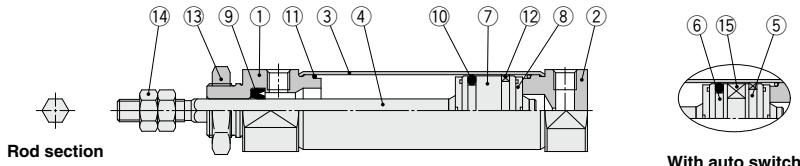
Calculation:

Example) CJ2KL10-45Z

- Basic weight ..... 25 (ø10)
- Additional weight ..... 4/15 stroke
- Cylinder stroke ..... 45 stroke
- Mounting bracket weight ... 8 (Single foot)

$$25 + 4/15 \times 45 + 8 = 45 \text{ g}$$

## Construction (Not able to disassemble)



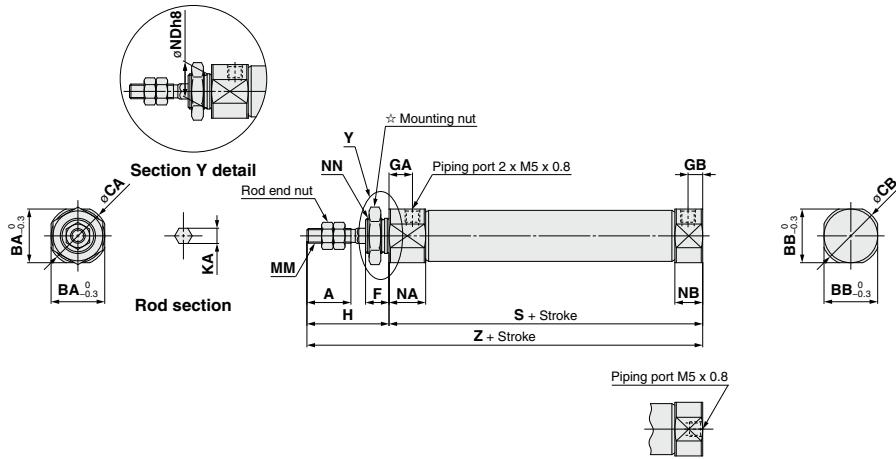
## Component Parts

No.	Description	Material	Note
1	Rod cover	Aluminum alloy	
2	Head cover	Aluminum alloy	
3	Cylinder tube	Stainless steel	
4	Piston rod	Stainless steel	
5	Piston A	Aluminum alloy	
6	Piston B	Aluminum alloy	
7	Piston	Aluminum alloy	
8	Bumper	Urethane	

No.	Description	Material	Note
9	Rod seal	NBR	
10	Piston seal	NBR	
11	Tube gasket	NBR	
12	Wear ring	Resin	
13	Mounting nut	Rolled steel	
14	Rod end nut	Rolled steel	
15	Magnet	—	

### Basic (B)

**CJ2KB 10 - Stroke** **Head cover port location Z**

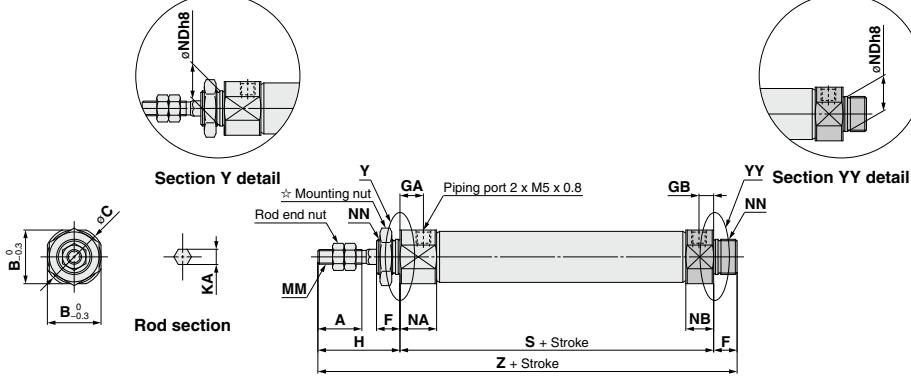


\* Refer to page 63 for details of the mounting nut. (SNJ-016C for ø10, SNKJ-016C for ø16)

\*: The overall cylinder length does not change.

### Double-side Bossed (E)

**CJ2KE 10 - Stroke** **Z**



\* Refer to page 63 for details of the mounting nut. (SNJ-016C for ø10, SNKJ-016C for ø16)

**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

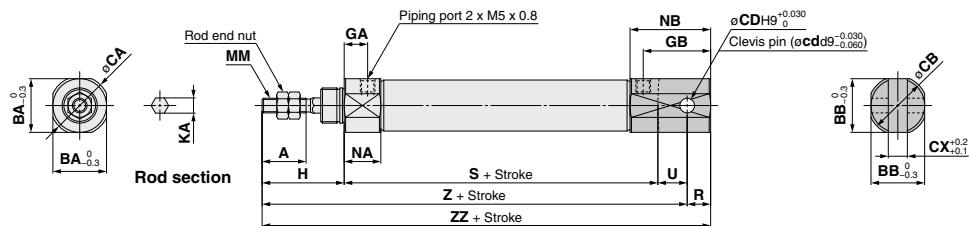
Bore size	A	B	C	F	GA	GB	H	KA	MM	NA	NB	NDh8	NN	S	Z
<b>10</b>	15	15	12	17	14	8	8	5	M4 x 0.7	12.5	9.5	10 <sub>-0.022</sub>	M10 x 1.0	46	74
<b>16</b>	15	18.3	18.3	20	20	8	8	5	M5 x 0.8	12.5	9.5	12 <sub>-0.027</sub>	M12 x 1.0	47	75

**D**   
**X**   
Technical Data

# CJ2K Series

## Double Clevis (D)

CJ2KD 10 - Stroke Z  
16

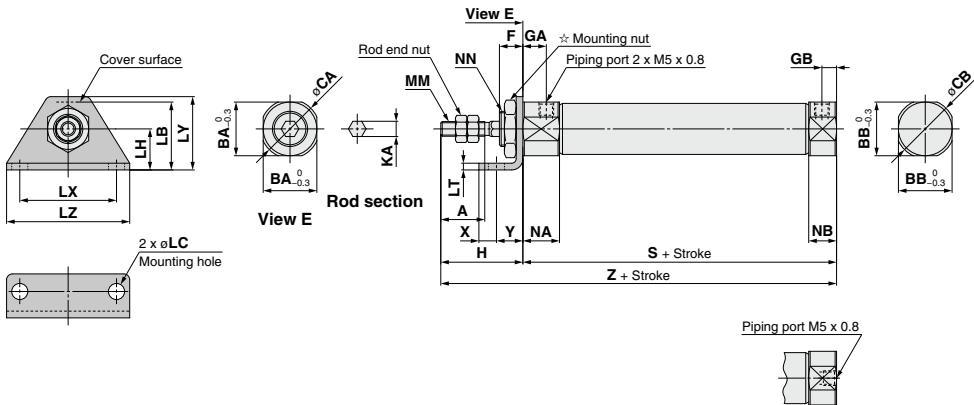


\*: A clevis pin and retaining rings are included.

Bore size	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	87
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	93

## Single Foot (L)

CJ2KL 10 - Stroke Head cover port location Z  
16



### Head cover port location Axial location (R)

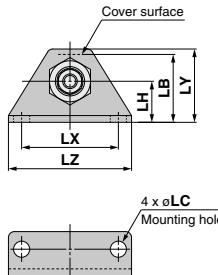
\*: The overall cylinder length does not change.

\* Refer to page 63 for details of the mounting nut. (SNJ-016C for ø10, SNKJ-016C for ø16)

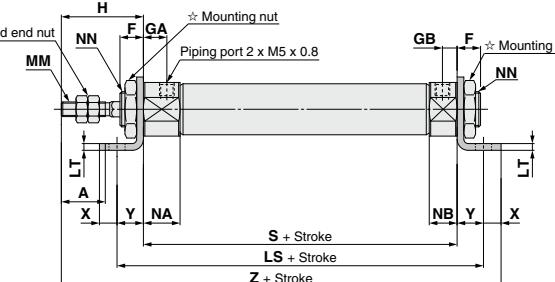
Bore size	A	BA	BB	CA	CB	F	GA	GB	H	KA	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	S	X	Y	Z
10	15	15	12	17	14	8	8	5	28	4.2	21.5	5.5	14	2.3	33	25	42	M4 x 0.7	12.5	9.5	M10 x 1.0	46	6	9	74
16	15	18.3	18.3	20	20	8	8	5	28	5.2	23	5.5	14	2.3	33	25	42	M5 x 0.8	12.5	9.5	M12 x 1.0	47	6	9	75

## Double Foot (M)

**CJ2KM 10 – Stroke Z**



**Rod section**

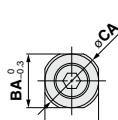
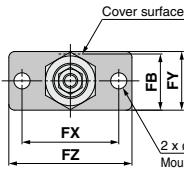


★ Refer to page 63 for details of the mounting nut. (SNJ-016C for ø10, SNKJ-016C for ø16)

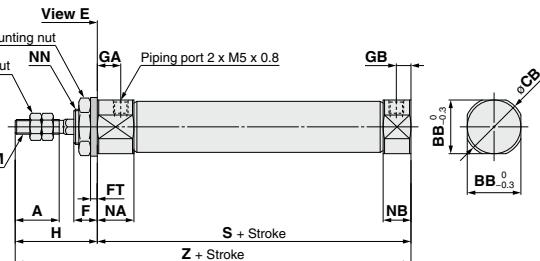
Bore size	A	F	GA	GB	H	KA	LB	LC	LH	LS	LT	LX	LY	LZ	MM	NA	NB	NN	S	X	Y	Z
10	15	8	8	5	28	4.2	21.5	5.5	14	64	2.3	33	25	42	M4 x 0.7	12.5	9.5	M10 x 1.0	46	6	9	89
16	15	8	8	5	28	5.2	23	5.5	14	65	2.3	33	25	42	M5 x 0.8	12.5	9.5	M12 x 1.0	47	6	9	90

## Rod Flange (F)

**CJ2KF 10 – Stroke Head cover port location Z**



**Rod section**



Piping port M5 x 0.8



### Head cover port location Axial location (R)

\*: The overall cylinder length does not change.

★ Refer to page 63 for details of the mounting nut. (SNJ-016C for ø10, SNKJ-016C for ø16)

Bore size	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

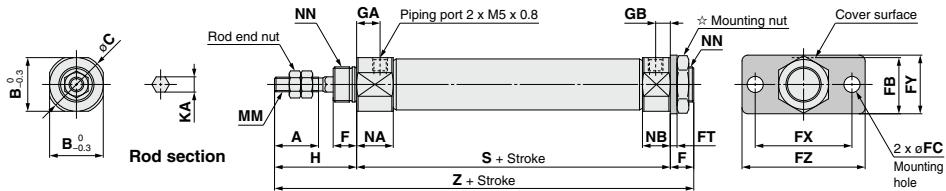
**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

**D**   
**-X**   
Technical Data

# CJ2K Series

## Head Flange (G)

CJ2KG 10 - [Stroke] Z  
16



★ Refer to page 63 for details of the mounting nut. (SNJ-016C for ø10, SNKJ-016C for ø16)

[mm]

Bore size	A	B	C	F	FB	FC	FT	FX	FY	FZ	GA	GB	H	KA	MM	NA	NB	NN	S	Z
10	15	15	17	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	82
16	15	18.3	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	83



# CJ2K Series

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

### Non-rotating accuracy

$\phi 10: \pm 1.5^\circ$ ,  $\phi 16: \pm 1^\circ$

Can operate without lubrication.



### Symbol

Single acting, Spring return,  
Rubber bumper



Made to Order: Individual Specifications  
(For details, refer to page 150.)

Symbol	Specifications
-X446	PTFE grease
-X2838	Double clevis (With one-touch connecting pin)

### Made to Order

[Click here for details](#)

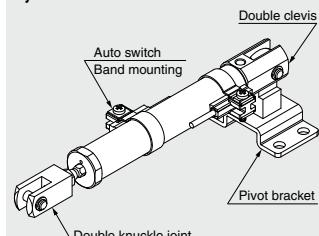
Symbol	Specifications
-XA□	Change of rod end shape
-XC51	With hose nipple
-XC85	Grease for food processing equipment

## Precautions

Refer to page 152 before handling.

## Ordering Example of Cylinder Assembly

Cylinder model: CDJ2KD16-45SZ-NW-M9BW-B



Mounting D: Double clevis

Pivot bracket N: Yes

Rod end bracket W: Double knuckle joint

Auto switch D-M9BW: 2 pcs.

Auto switch mounting B: Band mounting

\*: Pivot bracket, double knuckle joint and auto switch are shipped together with the product, but not assembled.

## 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 (No freezing) With auto switch: -10°C to 60°C	
Cushion	Rubber bumper (standard equipment)	
Lubrication	Not required (Non-lube)	
Stroke length tolerance	$\pm 1.0$	
Rod non-rotating accuracy	$\pm 1.5^\circ$	$\pm 1^\circ$
Piston speed	50 to 750 mm/s	
Allowable kinetic energy	0.035 J	0.090 J

## Standard Strokes

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

## Spring Reaction Force

Refer to page 1899 (Table (2): Spring Reaction Force).

- \*: Manufacture of intermediate strokes in 1 mm increments is possible. (Spacers are not used.)
- \*: Please consult with SMC for strokes which exceed the standard stroke length.
- \*: Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on front matter pages. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to the deflection etc.

## Mounting and Accessories

(Refer to page 42 for the list of brackets and page 63 for details about part numbers and dimensions.)

●... Mounted on the product. ○... Can be ordered within the cylinder model. △... Order separately.

	Mounting	Basic	Foot	Flange	Double clevis	Double clevis (including bracket)
Standard	Mounting nut	●	●	●	—	—
	Rod end nut	●	●	●	●	●
	Clevis pin (Including retaining rings)	—	—	—	●	●
Option	Double clevis (With one-touch connecting pin)	△	△	△	○ (-X2838)	○ (-X2838)
	Single knuckle joint	○	○	○	○	○
	Double knuckle joint (Including a pin and retaining rings)	○	○	○	○	○
	Double knuckle joint (With one-touch connecting pin)	△	△	△	△	△
	Rod end cap (Flat/Round type)	○	○	○	○	○
	Pivot bracket (T-bracket)	—	—	—	○	●

## Mounting Brackets/Part No.

Mounting bracket	Bore size [mm]	
	10	16
Foot	CJ-L016C	CJK-L016C
Flange	CJ-F016C	CJK-F016C
Pivot bracket (T-bracket)*1	CJ-T010C	CJ-T016C

\*1: The pivot bracket (T-bracket) is used with double clevis (D).

Refer to pages 142 to 149 for cylinders with auto switches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

## Weights

### Spring Return

		[g]							
Bore size [mm]		10			16				
Mounting		Basic	Axial piping	Double clevis (including clevis pin)	Double-side bossed	Basic	Axial piping	Double clevis (including clevis pin)	Double-side bossed
Basic weight	15 stroke	30	30	30	31	64	64	70	66
	30 stroke	38	38	38	39	79	79	86	81
	45 stroke	48	48	48	49	97	97	104	99
	60 stroke	58	58	58	59	116	116	122	118
	75 stroke					138	138	144	140
	100 stroke					171	171	178	173
	125 stroke					209	209	215	211
	150 stroke					232	232	238	234
	Single foot					8		25	
	Double foot					16		50	
Mounting bracket weight	Rod flange					5		13	
	Head flange					5		13	
	Clevis pin	—	—	1	—	—	—	3	—
	One-touch connecting pin for double clevis	—	—	2	—	—	—	4	—
	Single knuckle joint					17		23	
	Double knuckle joint (including knuckle pin)					25		21	
	Double knuckle joint (With one-touch connecting pin)					26		22	
	Rod end cap (Flat type)					1		2	
	Rod end cap (Round type)					1		2	
	Pivot Bracket (T-bracket)					32		50	

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

\*: Mounting nut is not included in the basic weight for the double clevis.

Calculation:

Example) CJ2KL10-45SZ

- Basic weight ..... 48 (ø10)
- Cylinder stroke ..... 45 stroke
- Mounting bracket weight ..... 8 (Single foot)

$$48 + 8 = 56 \text{ g}$$

### Spring Extend

		[g]							
Bore size [mm]		10			16				
Mounting		Basic	Axial piping	Double clevis (including clevis pin)	Double-side bossed	Basic	Axial piping	Double clevis (including clevis pin)	Double-side bossed
Basic weight	15 stroke	29	29	31	31	64	64	72	69
	30 stroke	35	35	37	38	79	79	86	83
	45 stroke	44	44	46	46	95	95	103	99
	60 stroke	52	52	54	55	111	111	119	115
	75 stroke					133	133	140	137
	100 stroke					163	163	170	167
	125 stroke					198	198	206	202
	150 stroke					219	219	227	223
	Single foot					8		25	
	Double foot					16		50	
Mounting bracket weight	Rod flange					5		13	
	Head flange					5		13	
	Clevis pin	—	—	1	—	—	—	3	—
	One-touch connecting pin for double clevis	—	—	2	—	—	—	4	—
	Single knuckle joint					17		23	
	Double knuckle joint (including knuckle pin)					25		21	
	Double knuckle joint (With one-touch connecting pin)					26		22	
	Rod end cap (Flat type)					1		2	
	Rod end cap (Round type)					1		2	
	Pivot Bracket (T-bracket)					32		50	

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

\*: Mounting nut is not included in the basic weight for the double clevis.

Calculation:

Example) CJ2KL10-45TZ

- Basic weight ..... 44 (ø10)
- Cylinder stroke ..... 45 stroke
- Mounting bracket weight ..... 8 (Single foot)

$$44 + 8 = 52 \text{ g}$$

**CJ1**

**CJP**

**CJ2**

**JCM**

**CM2**

**CM3**

**CG1**

**CG3**

**JMB**

**MB1**

**CA2**

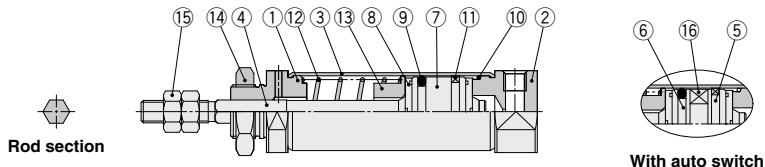
**CS1**

**CS2**

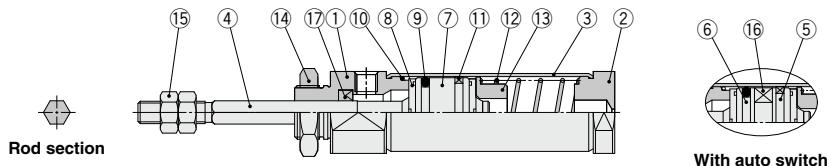
# CJ2K Series

## Construction (Not able to disassemble)

Single acting, Spring return



Single acting, Spring extend



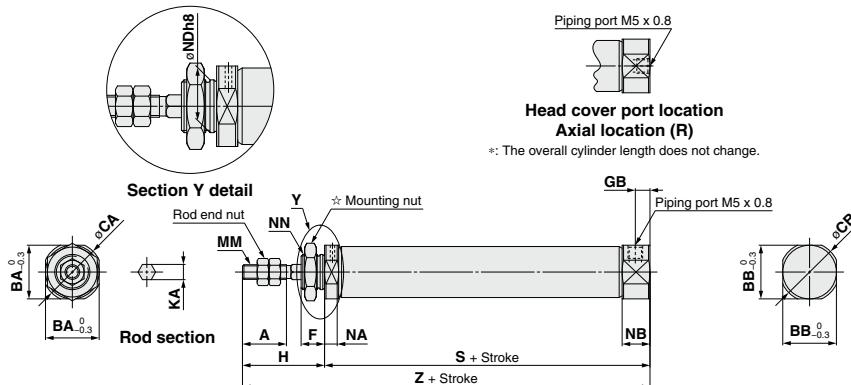
## Component Parts

No.	Description	Material	Note
1	Rod cover	Aluminum alloy	
2	Head cover	Aluminum alloy	
3	Cylinder tube	Stainless steel	
4	Piston rod	Stainless steel	
5	Piston A	Aluminum alloy	
6	Piston B	Aluminum alloy	
7	Piston	Aluminum alloy	
8	Bumper	Urethane	
9	Piston seal	NBR	

No.	Description	Material	Note
10	Tube gasket	NBR	
11	Wear ring	Resin	
12	Return spring	Piano wire	
13	Spring seat	Aluminum alloy	
14	Mounting nut	Rolled steel	
15	Rod end nut	Rolled steel	
16	Magnet	—	
17	Rod seal	NBR	

### Single Acting, Spring Return: Basic (B)

CJ2KB 10 - Stroke S Head cover port location Z

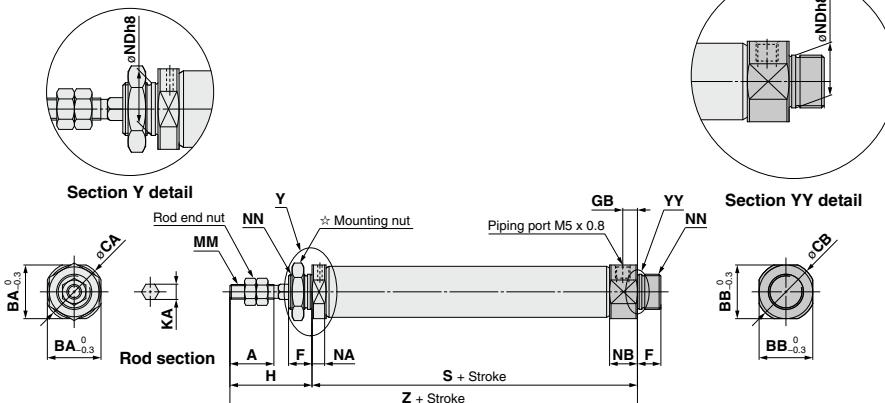


★ For details of the mounting nut, refer to page 63.

CJ1
CJP
CJ2
JCM
CM2
CM3
CG1
CG3
JMB
MB
MB1
CA2
CS1
CS2

### Single Acting, Spring Return: Double-side Bossed (E)

CJ2KE 10 - Stroke SZ



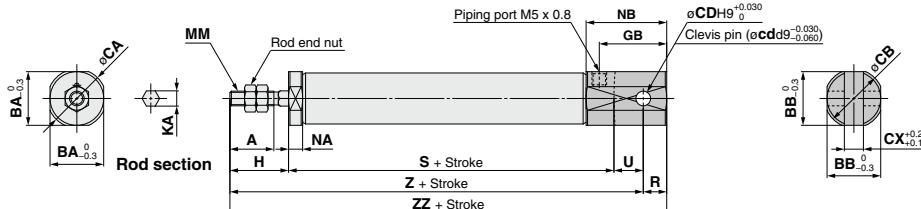
★ For details of the mounting nut, refer to page 63.

Bore size	A	B	A-B	B-B	C	C-B	F	GB	H	KA	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							
10	15	15	12	17	14	8	5	28	4.2	M4 x 0.7	4.8	9.5	10 <sub>0.022</sub>	M10 x 1.0	45.5	53	65	77	—	—	—	73.5	81	93	105	—	—	—	—	
16	15	18.3	18.3	20	20	8	5	28	5.2	M5 x 0.8	4.8	9.5	12 <sub>0.027</sub>	M12 x 1.0	45.5	54	66	78	84	108	126	138	73.5	82	94	106	112	136	154	166

# CJ2K Series

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

CJ2KD 10  
16 - Stroke SZ



\*: A clevis pin and retaining rings are included.

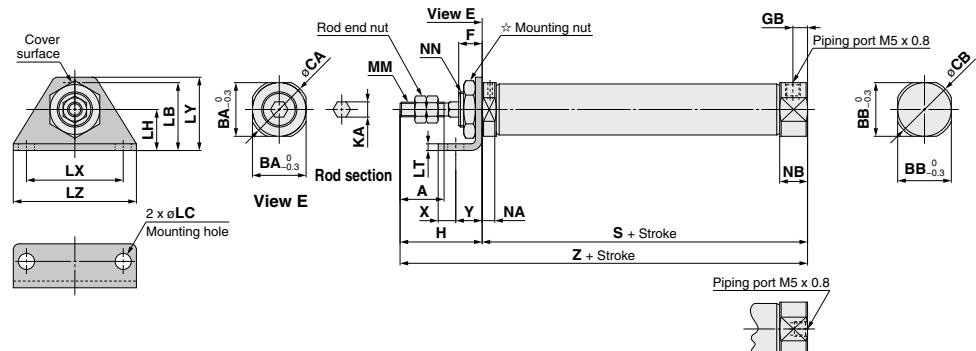
[mm]

Bore size	A	BA	BB	CA	CB	CD (cd)	CX	GB	H	KA	MM	NA	NB	R	U	S							
																5 to 15 st	16 to 30 st	31 to 45 st	31 to 60 st	61 to 75 st	61 to 100 st	61 to 125 st	61 to 150 st
10	15	12	12	14	14	3.3	3.2	18	20	4.2	M4 x 0.7	4.8	22.5	5	8	45.5	53	65	77	—	—	—	—
16	15	18.3	18.3	20	20	5	6.5	23	20	5.2	M5 x 0.8	4.8	27.5	8	10	45.5	54	66	78	84	108	126	138

Bore size	Z								ZZ							
	5 to 15 st	16 to 30 st	31 to 45 st	31 to 60 st	46 to 75 st	61 to 100 st	61 to 125 st	61 to 150 st	5 to 15 st	16 to 30 st	31 to 45 st	31 to 60 st	61 to 75 st	61 to 100 st	61 to 125 st	61 to 150 st
10	73.5	81	93	105	—	—	—	—	78.5	86	98	110	—	—	—	—
16	75.5	84	96	108	114	138	156	168	83.5	92	104	116	122	146	164	176

## Single Acting, Spring Return: Single Foot (L)

CJ2KL 10  
16 - Stroke S Head cover port location Z



Head cover port location  
Axial location (R)

\*: The overall cylinder length does not change.

\* For details of the mounting nut, refer to page 63.

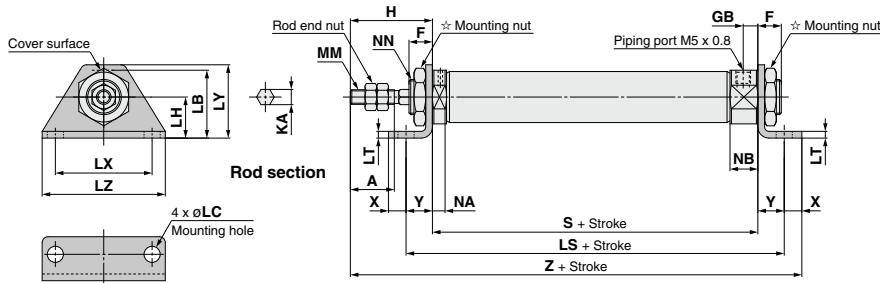
[mm]

Bore size	A	BA	BB	CA	CB	F	GB	H	KA	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN
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	4.8	9.5	M10 x 1.0
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	4.8	9.5	M12 x 1.0

Bore size	S								X	Y	Z							
	5 to 15 st	16 to 30 st	31 to 45 st	31 to 60 st	46 to 75 st	61 to 100 st	61 to 125 st	61 to 150 st			5 to 15 st	16 to 30 st	31 to 45 st	31 to 60 st	61 to 75 st	61 to 100 st	61 to 125 st	61 to 150 st
10	45.5	53	65	77	—	—	—	—	6	9	73.5	81	93	105	—	—	—	—
16	45.5	54	66	78	84	108	126	138	6	9	73.5	82	94	106	112	136	154	166

### Single Acting, Spring Return: Double Foot (M)

**CJ2KM 10 – Stroke SZ**



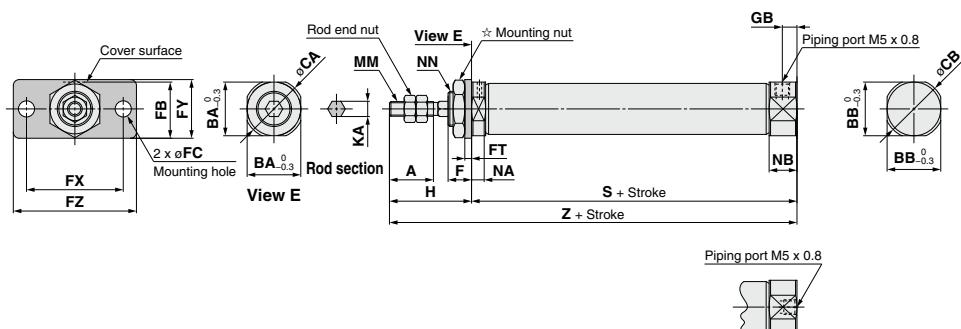
★ For details of the mounting nut, refer to page 63.

[mm]

Bore size	A	F	GB	H	LB	LC	LH	LS										LT	LX	LY	LZ	KA	MM	NA	NB	NN
								5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st			
10	15	8	5	28	21.5	5.5	14	63.5	71	83	95	—	—	—	—	2.3	33	25	42	4.2	M4 x 0.7	4.8	9.5	M10 x 1.0		
16	15	8	5	28	23	5.5	14	63.5	72	84	96	102	126	144	156	2.3	33	25	42	5.2	M5 x 0.8	4.8	9.5	M12 x 1.0		

### Single Acting, Spring Return: Rod Flange (F)

**CJ2KF 10 – Stroke S Head cover port location Z**



#### Head cover port location Axial location (R)

\*: The overall cylinder length does not change.

★ For details of the mounting nut, refer to page 63.

[mm]

Bore size	A	BA	BB	CA	CB	F	FB	FC	FT	FX	FY	FZ	GB	H	KA	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				
10	15	12	17	14	8	17.5	5.5	2.3	33	20	42	5	28	4.2	M4 x 0.7	4.8	9.5	M10 x 1.0	45.5	53	65	77	—	—	—	—	73.5	81	93	105	—	—	—	—	—	—			
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	4.8	9.5	M12 x 1.0	45.5	54	66	78	84	108	126	138	73.5	82	94	106	112	136	154	166				

D-□

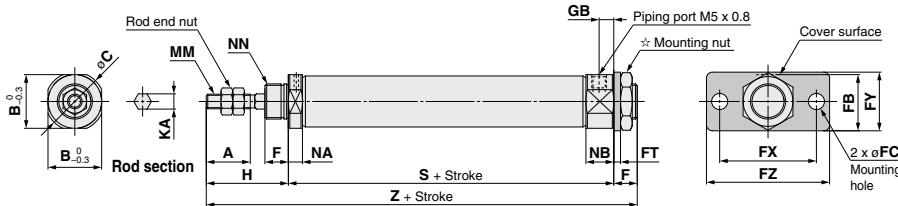
-X-□

Technical Data

# CJ2K Series

## Single Acting, Spring Return: Head Flange (G)

CJ2KG **10** – **Stroke** **SZ**  
**16**



★ For details of the mounting nut, refer to page 63.

[mm]

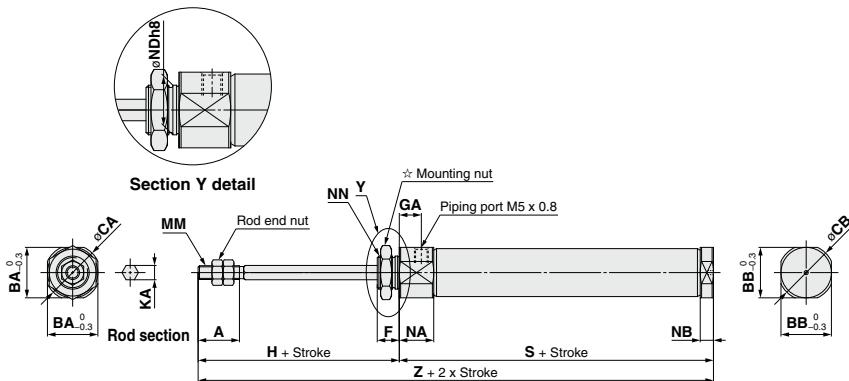
Bore size	<b>A</b>	<b>B</b>	<b>C</b>	<b>F</b>	<b>FB</b>	<b>FC</b>	<b>FT</b>	<b>FX</b>	<b>FY</b>	<b>FZ</b>	<b>GB</b>	<b>H</b>	<b>KA</b>	<b>MM</b>	<b>NA</b>	<b>NB</b>	<b>NN</b>
<b>10</b>	15	15	17	8	17.5	5.5	2.3	33	20	42	5	28	4.2	M4 x 0.7	4.8	9.5	M10 x 1.0
<b>16</b>	15	18.3	20	8	19	5.5	2.3	33	20	42	5	28	5.2	M5 x 0.8	4.8	9.5	M12 x 1.0

Bore size	<b>S</b>							<b>Z</b>										
	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.		
<b>10</b>	45.5	53	65	77	—	—	—	—	81.5	89	101	113	—	—	—	—		
<b>16</b>	45.5	54	66	78	84	108	126	138	81.5	90	102	114	120	144	162	174		

### Single Acting, Spring Extend: Basic (B)

**CJ2KB** **10** – Stroke **TZ**



★ For details of the mounting nut, refer to page 63.

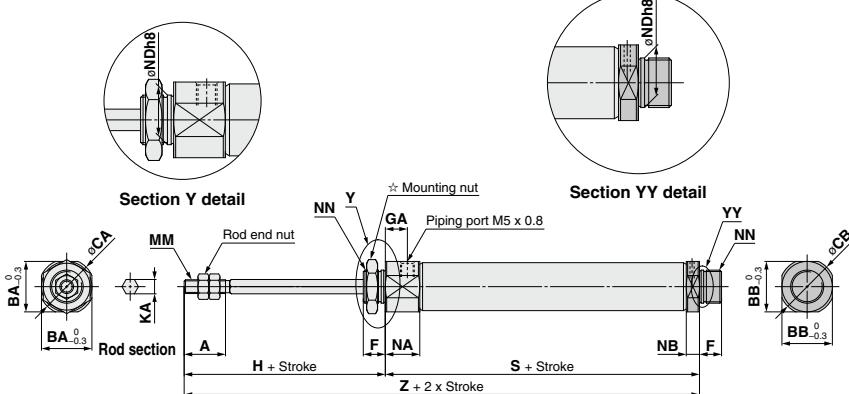
**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

[mm]

Bore size	A	BA	BB	CA	CB	F	GA	H	KA	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								
10	15	15	12	17	14	8	8	28	4.2	M4 x 0.7	12.5	4.8	10 <sup>0</sup> <sub>-0.022</sub>	M10 x 1.0	48.5	56	68	80	—	—	76.5	84	96	108	—	—	—	—		
16	15	18.3	18.3	20	20	8	8	28	5.2	M5 x 0.8	12.5	4.8	12 <sup>0</sup> <sub>-0.022</sub>	M12 x 1.0	48.5	57	69	81	87	111	129	141	76.5	85	97	109	115	139	157	169

### Single Acting, Spring Extend: Double-side Bossed (E)

**CJ2KE** **10** – Stroke **TZ**



★ For details of the mounting nut, refer to page 63.

[mm]

Bore size	A	BA	BB	CA	CB	F	GA	H	KA	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								
10	15	15	15	17	17	8	8	28	4.2	M4 x 0.7	12.5	4.8	10 <sup>0</sup> <sub>-0.022</sub>	M10 x 1.0	48.5	56	68	80	—	—	76.5	84	96	108	—	—	—	—		
16	15	18.3	18.3	20	20	8	8	28	5.2	M5 x 0.8	12.5	4.8	12 <sup>0</sup> <sub>-0.027</sub>	M12 x 1.0	48.5	57	69	81	87	111	129	141	76.5	85	97	109	115	139	157	169

D-□

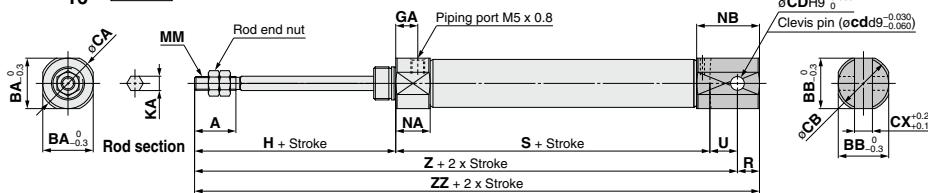
-X-

Technical Data

# CJ2K Series

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

CJ2KD 10  
16 - Stroke TZ

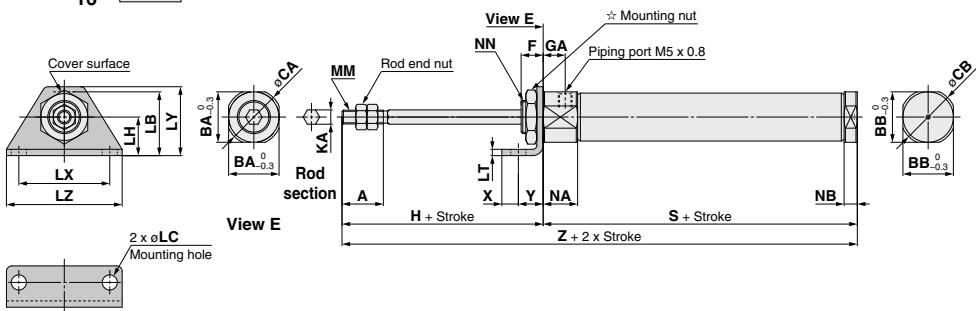


\* A clevis pin and retaining rings are included.

Bore size	A	BA	BB	CA	CB	CD (cd)	CX	GA	H	KA	MM	NA	NB	R	U	S [mm]							
																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	15	12	17	14	3.3	3.2	8	28	4.2	M4 x 0.7	12.5	17.8	5	8	48.5	56	68	80	—	—	—	—
16	15	18.3	18.3	20	20	5	6.5	8	28	5.2	M5 x 0.8	12.5	22.8	8	10	48.5	57	69	81	87	111	129	141
		Z										ZZ											
Bore size		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		84.5	92	104	116	—	—	—	—		89.5	97	109	121	—	—	—	—					
16		86.5	95	107	119	125	149	167	179		94.5	103	115	127	133	157	175	187					

## Single Acting, Spring Extend: Single Foot (L)

CJ2KL 10  
16 - Stroke TZ

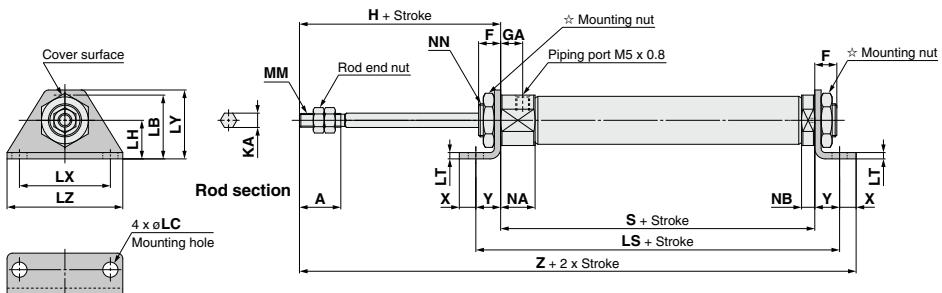


\* For details of the mounting nut, refer to page 63.

Bore size	A	BA	BB	CA	CB	F	GA	H	KA	LB	LC	LH	LT	LX	LY	NN	S [mm]								
																	LX	LZ	LB	LT	LY	LB	LT	LY	LB
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	4.8	M10 x 1.0					
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	4.8	M12 x 1.0					
		Z										X	Y				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	
Bore size		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		48.5	56	68	80	—	—	—	—		6	9	76.5	84	96	108	—	—	—	—					
16		48.5	57	69	81	87	111	129	141		6	9	76.5	85	97	109	115	139	157	169					

### Single Acting, Spring Extend: Double Foot (M)

**CJ2KM 10 - [Stroke] TZ**  
16



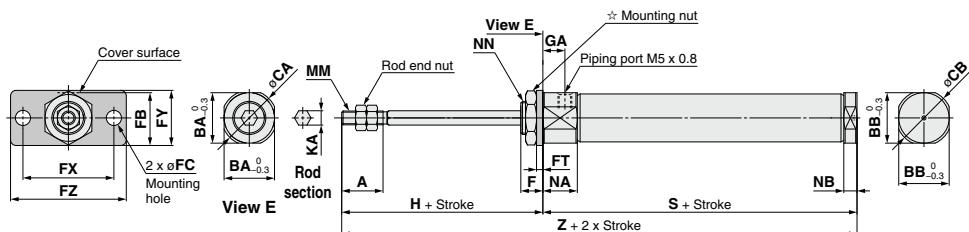
★ For details of the mounting nut, refer to page 63.

Bore size	A	F	GA	H	KA	LB	LC	LH	LS									LT	LX	LY	LZ	MM	NA	NB	NN
									5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st	
10	15	8	8	28	4.2	21.5	5.5	14	66.5	74	86	98	—	—	—	—	2.3	33	25	42	M4 x 0.7	12.5	4.8	M10 x 1.0	
16	15	8	8	28	5.2	23	5.5	14	66.5	75	87	99	105	129	147	159	2.3	33	25	42	M5 x 0.8	12.5	4.8	M12 x 1.0	

Bore size	S								X	Y	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	48.5	56	68	80	—	—	—	—	6	9	91.5	99	111	123	—	—	—	—
16	48.5	57	69	81	87	111	129	141	6	9	91.5	100	112	124	130	154	172	184

### Single Acting, Spring Extend: Rod Flange (F)

**CJ2KF 10 - [Stroke] TZ**  
16



★ For details of the mounting nut, refer to page 63.

Bore size	A	BA	BB	CA	CB	F	FB	FC	FT	FX	FY	FZ	GA	H	KA	[mm]					
																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	4.8	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	4.8	M12 x 1.0		

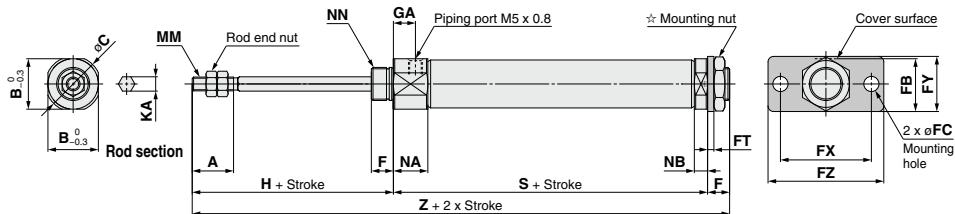
Bore size	S								Z										
	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st			
10	48.5	56	68	80	—	—	—	—	76.5	84	96	108	—	—	—	—	—	—	
16	48.5	57	69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

**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

# CJ2K Series

## Single Acting, Spring Extend: Head Flange (G)

CJ2KG 10 – [Stroke] TZ  
16



\* For details of the mounting nut, refer to page 63.

[mm]

Bore size	A	B	C	F	FB	FC	FT	FX	FY	FZ	GA	H	KA	MM	NA	NB	NN
10	15	15	17	8	17.5	5.5	2.3	33	20	42	8	28	4.2	M4 x 0.7	12.5	4.8	M10 x 1.0
16	15	18.3	20	8	19	5.5	2.3	33	20	42	8	28	5.2	M5 x 0.8	12.5	4.8	M12 x 1.0

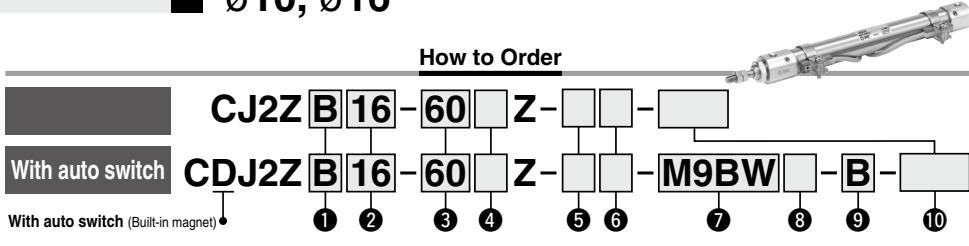
Bore size	S										Z						
	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	101 to 125 st	126 to 150 st		
10	48.5	56	68	80	—	—	—	—	84.5	92	104	116	—	—	—	—	—
16	48.5	57	69	81	87	111	129	141	84.5	93	105	117	123	147	165	177	

# Air Cylinder: Built-in Speed Controller Type Double Acting, Single Rod

## CJ2Z Series

ø10, ø16

### How to Order



#### ① Mounting

<b>B</b>	Basic
<b>E</b>	Double-side bossed
<b>D</b>	Double clevis
<b>L</b>	Single foot
<b>M</b>	Double foot
<b>F</b>	Rod flange
<b>G</b>	Head flange

\*: Foot/Flange brackets are shipped together with the product, but not assembled.

#### ⑦ Auto switch

<b>NII</b>	Without auto switch
------------	---------------------

\*: For applicable auto switches, refer to the table below.

\*: Enter the auto switch mounting type (A or B) even when a built-in magnet cylinder without an auto switch is required.

#### ② Bore size

<b>10</b>	10 mm
<b>16</b>	16 mm

#### ④ Head cover port location

Nil	Perpendicular to axis		None
			Pivot bracket is shipped together with the product.
<b>R</b>	Axial		

\*: For double clevis, the product is perpendicular to the cylinder axis.  
\*: For double-side bossed, the product is perpendicular to the cylinder axis.

#### ③ Number of auto switches

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

\*: For rail mounting, screws and nuts for 2 auto switches come with the rail.  
\*: Refer to page 148 for auto switch mounting brackets.

#### ⑤ Pivot bracket

Nil	None
<b>N</b>	Pivot bracket is shipped together with the product.

\*: Only for the double clevis type  
\*: Pivot bracket is shipped together with the product, but not assembled.

#### ⑨ Auto switch mounting type

<b>A</b>	Rail mounting
<b>B</b>	Band mounting

\*: For rail mounting, screws and nuts for 2 auto switches come with the rail.  
\*: Refer to page 148 for auto switch mounting brackets.

#### ⑥ Rod end bracket

Nil	None
<b>V</b>	Single knuckle joint
<b>W**</b>	Double knuckle joint
<b>T</b>	Rod end cap (Flat type)
<b>U</b>	Rod end cap (Round type)

\*: Rod end bracket is shipped together with the product, but not assembled.

\*\*: Refer to page 63 for the double knuckle joint (with one-touch connecting pin).

#### ⑩ Made to Order

Refer to page 108 for details.

\*: Refer to "Ordering Example of Cylinder Assembly" on page 108.

#### Applicable Auto Switches

(Refer to pages 1575 to 1701 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	Perpendicular	In-line	Perpendicular	In-line	0.5 (Nil) (M)	1 (M) (L)	3 (L)	5 (Z)	None (N)
Solid state auto switch	—	Grommet	3-wire (NPN)	5 V, 12 V	—	—	M9NV	M9N	M9NV	M9N	●	●	○	—	○	IC circuit	
			3-wire (PNP)	—			M9PV	M9P	M9PV	M9P	●	●	●	○	—	○	—
		Connector	2-wire	12 V			M9BV	M9B	M9BV	M9B	●	●	●	○	—	○	—
	Diagnostic indication (2-color indicator)	Yes	3-wire (NPN)	5 V, 12 V			M9NWV	M9NW	M9NWV	M9NW	●	●	●	●	●	—	—
			3-wire (PNP)	24 V			M9PWV	M9PW	M9PWV	M9PW	●	●	●	○	—	○	IC circuit
			2-wire	12 V			M9BVW	M9BW	M9BWV	M9BW	●	●	●	○	—	○	—
	Water resistant (2-color indicator)	Grommet	3-wire (NPN)	5 V, 12 V			M9NAV <sup>*1</sup>	M9NA <sup>*1</sup>	M9NAV <sup>*1</sup>	M9NA <sup>*1</sup>	○	○	●	○	—	○	IC circuit
			3-wire (PNP)	12 V			M9PAV <sup>*1</sup>	M9PA <sup>*1</sup>	M9PAV <sup>*1</sup>	M9PA <sup>*1</sup>	○	○	●	○	—	○	—
			2-wire	12 V			M9BAV <sup>*1</sup>	M9BA <sup>*1</sup>	M9BAV <sup>*1</sup>	M9BA <sup>*1</sup>	○	○	●	○	—	○	—
	With diagnostic output (2-color indicator)	Grommet	4-wire (NPN)	5 V, 12 V			—	H7NF	—	F79F	●	—	●	○	—	○	IC circuit
			3-wire (NPN equivalent)	—			A96V	A96	A96V	A96	●	—	●	—	—	—	IC circuit
			2-wire	5 V			—	—	—	—	—	—	—	—	—	—	—
Reed auto switch	—	Grommet	3-wire (NPN equivalent)	—	—	—	A96V	A96	A96V	A96	●	—	●	—	—	—	—
			2-wire	200 V			—	A72	A72H	●	—	●	—	—	—	—	—
			2-wire	100 V or less			A93V <sup>*2</sup>	A93	A93V <sup>*2</sup>	A93	●	●	●	●	—	—	IC circuit
		Yes	2-wire	—			A90V	A90	A90V	A90	●	●	●	—	—	—	—
			2-wire	24 V or less			C73C	A73C	—	●	—	●	●	●	—	—	—
			2-wire	—			C80C	A80C	—	●	—	●	●	●	—	—	IC circuit
	Diagnostic indication (2-color indicator)	Grommet	2-wire	—			—	—	—	—	—	—	—	—	—	—	—
			2-wire	—			—	—	—	—	—	—	—	—	—	—	—

\*1: Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Please contact SMC regarding water resistant types with the above model numbers.

\*2: 1 m type lead wire is only applicable to D-A93.

\*: Lead wire length symbols: 0.5 ..... Nil (Example) M9NW  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NZ  
None ..... N (Example) H7CN

\*: Since there are other applicable auto switches than listed, refer to page 149 for details.

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

\*: The D-A9□ M9□ A7□ A80□ F7□ J7□ auto switches are shipped together, but not assembled. (For band mounting, only auto switch mounting brackets are assembled before being shipped.)

D-□

-X-□

Technical Data

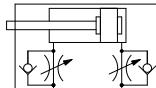
# CJ2Z Series

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



### Symbol

Double acting, Single rod, Rubber bumper



Made to Order: Individual Specifications  
(For details, refer to page 150.)

Symbol	Specifications
-X46	PTFE grease

### Made to Order

[Click here for details](#)

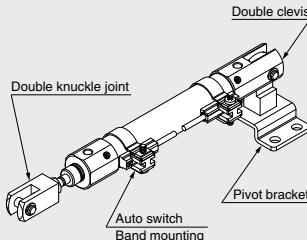
Symbol	Specifications
-XA	Change of rod end shape
-XC51	With hose nipple
-XC85	Grease for food processing equipment

## Precautions

Refer to page 152 before handling.

## Ordering Example of Cylinder Assembly

Cylinder model: CDJ2ZD16-60Z-NW-M9BW-B



Mounting D: Double clevis

Pivot bracket N: Yes

Rod end bracket W: Double knuckle joint

Auto switch D-M9BW: 2 pcs.

Auto switch mounting B: Band mounting

\*: Pivot bracket, double knuckle joint and auto switch are shipped together with the product, but not assembled.

## Specifications

Bore size [mm]	10	16
Action	Double acting, Single rod	
Fluid	Air	
Proof pressure	1 MPa	
Maximum operating pressure	0.7 MPa	
Minimum operating pressure	0.06 MPa	
Ambient and fluid temperature	Without auto switch: -10°C to 70°C With auto switch: -10°C to 60°C (No freezing)	
Cushion	Rubber bumper	
Lubrication	Not required (Non-lube)	
Stroke length tolerance	+1.0	
Speed controller	Built-in	
Piston speed	50 to 750 mm/s	
Allowable kinetic energy	0.035 J	0.090 J

## Standard Strokes

Bore size	Standard stroke	[mm] Maximum manufacturable stroke
10	15, 30, 45, 60, 75, 100, 125, 150	400
16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200	400

\*: Manufacture of intermediate strokes in 1 mm increments is possible. (Spacers are not used.)

\*: Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on front matter pages. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to the deflection etc.

## Mounting and Accessories

(Refer to page 42 for the list of brackets and page 63 for details about part numbers and dimensions.)

●: Mounted on the product. ○: Can be ordered within the cylinder model. △: Order separately.

	Mounting	Basic	Foot	Flange	Double clevis	Double clevis (including T-bracket)
Standard	Mounting nut	●	●	●	—	—
	Rod end nut	●	●	●	●	●
	Clevis pin (including retaining rings)	—	—	—	●	●
Option	Single knuckle joint	○	○	○	○	○
	Double knuckle joint (including a pin and retaining rings)	○	○	○	○	○
	Double knuckle joint (With one-touch connecting pin)	△	△	△	△	○
	Rod end cap (Flat/Round type)	○	○	○	○	○
	Pivot bracket (T-bracket)	—	—	—	○	●

\*: Stainless steel mounting brackets and accessories are also available.

Refer to page 63-1 for details.

## Mounting Brackets/Part No.

Mounting bracket	Bore size [mm]	
	10	16
Foot	CJ-L010C	CJ-L016C
Flange	CJ-F010C	CJ-F016C
Pivot bracket (T-bracket)*1	CJ-T010C	CJ-T016C

\*1: The pivot bracket (T-bracket) is used with double clevis (D).

Refer to pages 142 to 149 for cylinders with auto switches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

## Weights

	Bore size [mm]	<b>10</b>	<b>16</b>	[g]
Basic weight (When the stroke is zero)	Basic	36	61	
	Axial piping	36	61	
	Double clevis (including clevis pin)	40	68	
	Head-side bossed	37	63	
Additional weight per 15 mm of stroke		4	7	
Mounting bracket weight	Single foot	8	25	
	Double foot	16	50	
	Rod flange	5	13	
	Head flange	5	13	
Accessories	Single knuckle joint	17	23	
	Double knuckle joint (including knuckle pin)	25	21	
	Double knuckle joint (With one-touch connecting pin)	26	22	
	Rod end cap (Flat type)	1	2	
	Rod end cap (Round type)	1	2	
	Pivot bracket (T-bracket)	32	50	

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

\*: Mounting nut is not included in the basic weight for the double clevis.

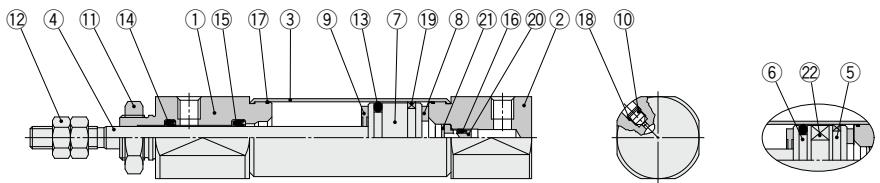
Calculation:

Example) CJ2ZL10-45Z

- Basic weight ..... 36 (ø10)
- Additional weight ..... 4/15 stroke
- Cylinder stroke ..... 45 stroke
- Mounting bracket weight ... 8 (Single foot)

$$36 + 4/15 \times 45 + 8 = 56 \text{ g}$$

## Construction (Not able to disassemble)



With auto switch

## Component Parts

No.	Description	Material	Note
1	Rod cover	Aluminum alloy	
2	Head cover	Aluminum alloy	
3	Cylinder tube	Stainless steel	
4	Piston rod	Stainless steel	
5	Piston A	Aluminum alloy	
6	Piston B	Aluminum alloy	
7	Piston	Aluminum alloy	
8	Bumper A	Urethane	
9	Bumper B	Urethane	
10	Speed controller needle	Carbon steel	
11	Mounting nut	Rolled steel	

No.	Description	Material	Note
12	Rod end nut	Rolled steel	
13	Piston seal	NBR	
14	Rod seal	NBR	
15	Check seal A	NBR	
16	Check seal B	NBR	
17	Tube gasket	NBR	
18	Needle seal	NBR	
19	Wear ring	Resin	
20	Check seal sleeve	Aluminum alloy	
21	Retaining ring	Carbon tool steel	
22	Magnet	—	

**CJ1**

**CJP**

**CJ2**

**JCM**

**CM2**

**CM3**

**CG1**

**CG3**

**JMB**

**MB1**

**CA2**

**CS1**

**CS2**

D-□

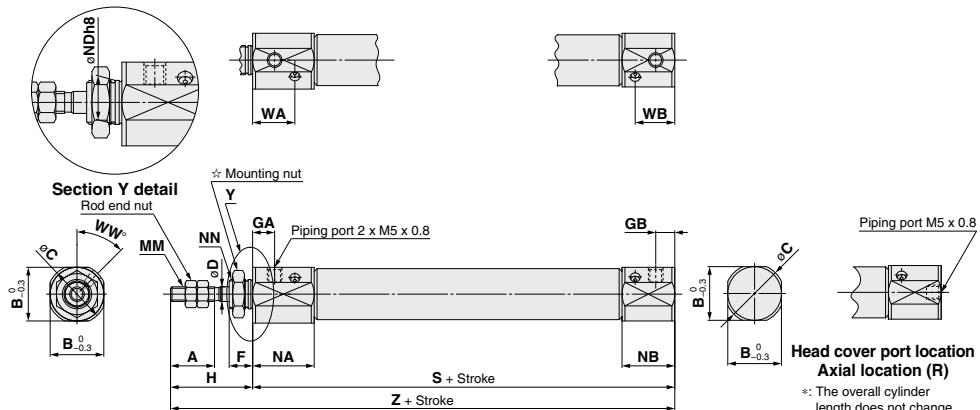
-X-□

Technical  
Data

# CJ2Z Series

## Basic (B)

CJ2ZB 10 – Stroke Head cover port location Z

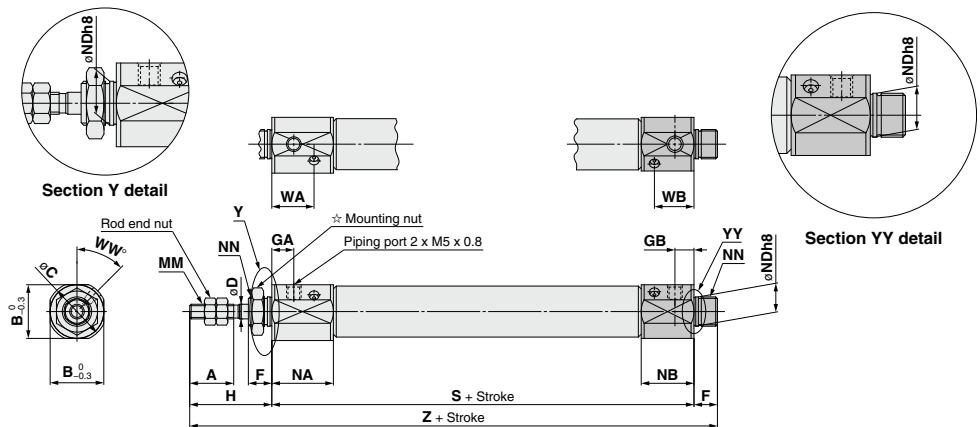


★ For details of the mounting nut, refer to page 63.

Bore size	A	B	C	D	F	GA	GB	H	MM	NA	NB	NDh8	NN	WA	WB	WW	S	Z	[mm]
10	15	15	17	4	8	7.5	6.5	28	M4 x 0.7	21	18	8 <sup>0.022</sup>	M8 x 1.0	14.4	13.5	45	63	91	
16	15	18.3	20	5	8	7.5	6.5	28	M5 x 0.8	21	18	10 <sup>0.022</sup>	M10 x 1.0	14.4	13.5	45	64	92	

## Double-side Bossed (E)

CJ2ZE 10 – Stroke Z

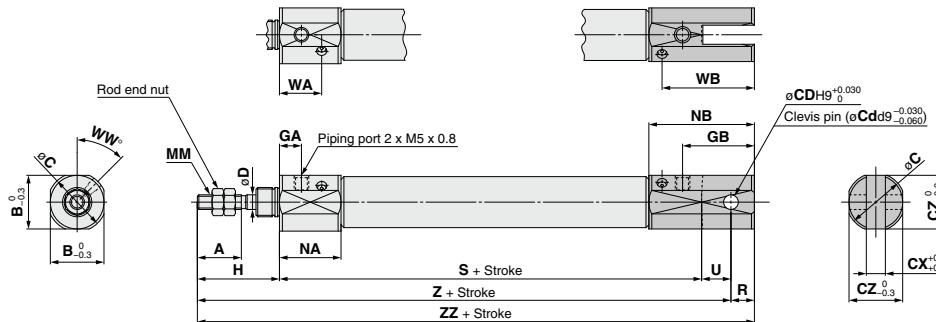


★ For details of the mounting nut, refer to page 63.

Bore size	A	B	C	D	F	GA	GB	H	MM	NA	NB	NDh8	NN	WA	WB	WW	S	Z	[mm]
10	15	15	17	4	8	7.5	6.5	28	M4 x 0.7	21	18	8 <sup>0.022</sup>	M8 x 1.0	14.4	13.5	45	63	99	
16	15	18.3	20	5	8	7.5	6.5	28	M5 x 0.8	21	18	10 <sup>0.022</sup>	M10 x 1.0	14.4	13.5	45	64	100	

### Double Clevis (D)

CJ2ZD 10 – Stroke Z



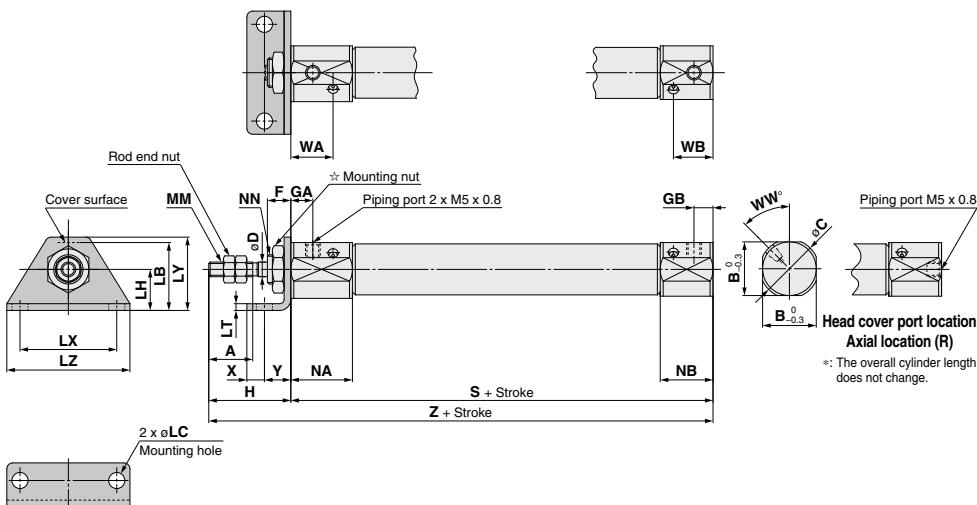
\*: A clevis pin and retaining rings are included.

[mm]

Bore size	A	B	C	CD	CX	CZ	D	GA	GB	H	MM	NA	NB	R	U	WA	WB	WW	S	Z	ZZ
10	15	15	17	3.3	3.2	15	4	7.5	19.5	28	M4 x 0.7	21	31	5	8	14.4	26.5	45	63	99	104
16	15	18.3	20	5	6.5	18.3	5	7.5	24.5	28	M5 x 0.8	21	36	8	10	14.4	31.5	45	64	102	110

### Single Foot (L)

CJ2ZL 10 – Stroke Head cover port location Z



\*: The overall cylinder length does not change.

\* For details of the mounting nut, refer to page 63.

[mm]

Bore size	A	B	C	D	F	GA	GB	H	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	WA	WB	WW	S	X	Y	Z
10	15	15	17	4	8	7.5	6.5	28	15	4.5	9	1.6	24	16.5	32	M4 x 0.7	21	18	M8 x 1.0	14.4	13.5	45	63	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	14.4	13.5	45	64	6	9	92

D-□

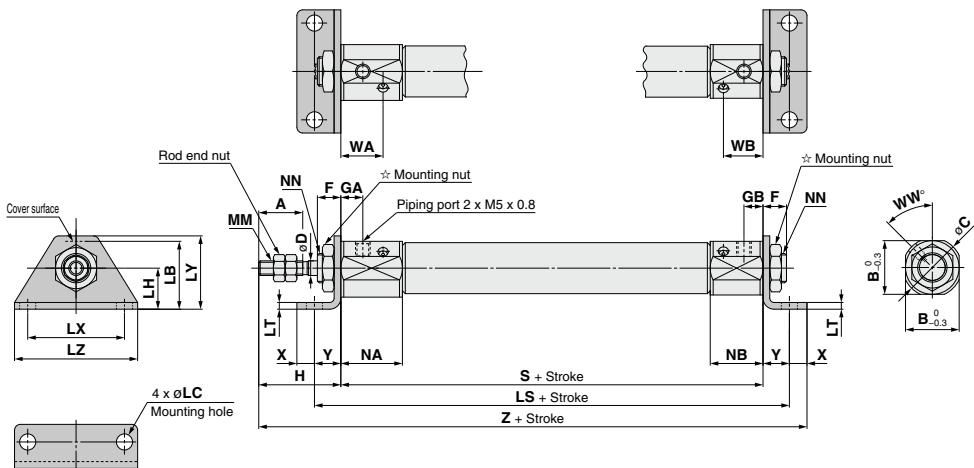
-X-□

Technical Data

# CJ2Z Series

## Double Foot (M)

CJ2ZM 10 16 – Stroke Z

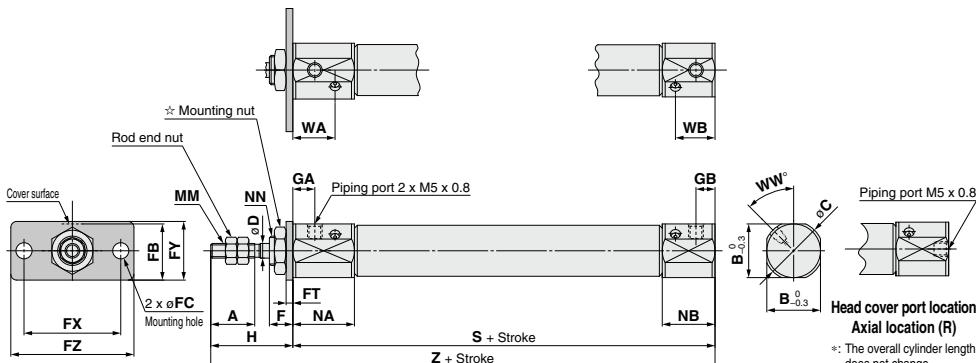


\* For details of the mounting nut, refer to page 63.

Bore size	A	B	C	D	F	GA	GB	H	LB	LH	LC	LH	LS	LT	LX	LY	LZ	MM	NA	NB	NN	WA	WB	WW	S	X	Y	Z	[mm]
10	15	15	17	4	8	7.5	6.5	28	15	4.5	9	77	1.6	24	16.5	32	M4 x 0.7	21	18	M8 x 1.0	14.4	13.5	45	63	5	7	103		
16	15	18.3	20	5	8	7.5	6.5	28	23	5.5	14	82	2.3	33	25	42	M5 x 0.8	21	18	M10 x 1.0	14.4	13.5	45	64	6	9	107		

## Rod Flange (F)

CJ2ZF 10 16 – Stroke Head cover port location Z



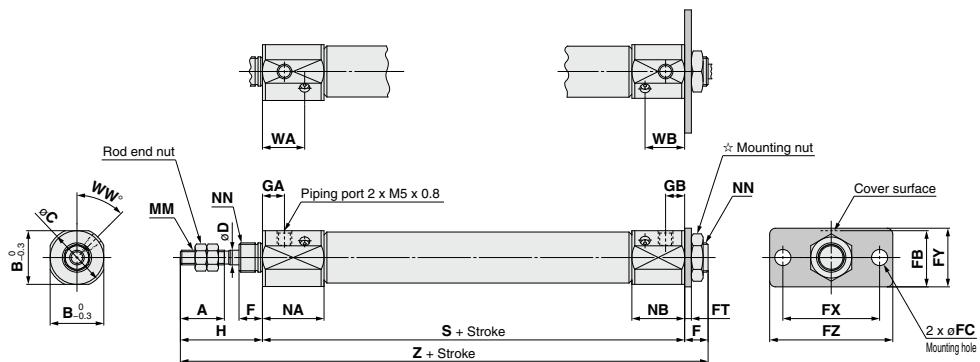
\*: The overall cylinder length does not change.

\* For details of the mounting nut, refer to page 63.

Bore size	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	13	4.5	1.6	24	14	32	7.5	6.5	28	M4 x 0.7	21	18	M8 x 1.0	14.4	13.5	45	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	14.4	13.5	45	64	92

### Head Flange (G)

CJ2ZG **10** – **Stroke Z**



★ For details of the mounting nut, refer to page 63.

Bore size	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GA	GB	H	MM	NA	NB	NN	WA	WB	WW	S	Z	[mm]
<b>10</b>	15	15	17	4	8	13	4.5	1.6	24	14	32	7.5	6.5	28	M4 x 0.7	21	18	M8 x 1.0	14.4	13.5	45	63	99	
<b>16</b>	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	14.4	13.5	45	64	100	

**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

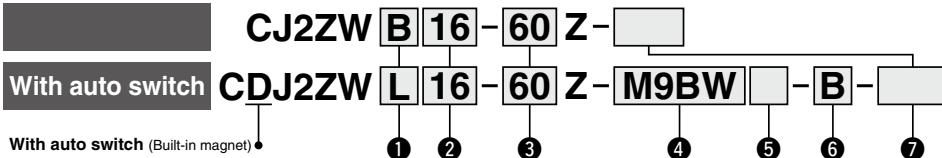
**D-**□  
**-X**□  
Technical Data

# Air Cylinder: Built-in Speed Controller Type Double Acting, Double Rod

## CJ2ZW Series

ø10, ø16

### How to Order



#### ① Mounting

B	Basic
L	Foot
F	Flange

\*: Foot/Flange brackets are shipped together with the product, but not assembled.

#### ④ Auto switch

NII	Without auto switch
-----	---------------------

\*: For applicable auto switches, refer to the table below.

★ Enter the auto switch mounting type (A or B) even when a built-in magnet cylinder without an auto switch is required.

#### ② Bore size

10	10 mm
16	16 mm

#### ③ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 115.

#### ⑤ Number of auto switches

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

#### ⑥ Auto switch mounting type

A	Rail mounting
B	Band mounting

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

\*: Refer to page 148 for auto switch mounting brackets.

#### ⑦ Made to Order

Refer to page 115 for details.

### Applicable Auto Switches

(Refer to pages 1575 to 1701 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 (NII)	1 (M)	3 (L)	5 (Z)	None (N)			
Solid state auto switch	Diagnostic indication (2-color indicator)	Grommet	3-wire (NPN)	5 V, 12 V	—	—	M9NV	M9N	M9NV	●	●	○	—	○	IC circuit	IC circuit
			3-wire (PNP)	24 V			M9PV	M9P	M9PV	●	●	○	—	○		
		Connector	2-wire	12 V			M9BV	M9B	M9BV	●	●	○	—	○		
	Water resistant (2-color indicator)	Grommet	3-wire (NPN)	5 V, 12 V	—	—	M9NWV	M9NW	M9NWV	●	●	○	—	○	IC circuit	Relay, PLC
			3-wire (PNP)	24 V			M9PW	M9PW	M9PWV	●	●	○	—	○		
			2-wire	12 V			M9BWV	M9BW	M9BWV	●	●	○	—	○		
	With diagnostic output (2-color indicator)	Grommet	3-wire (NPN)	5 V, 12 V	—	—	M9NAV <sup>①</sup>	M9NA <sup>①</sup>	M9NAV <sup>①</sup>	○	○	●	○	○	IC circuit	IC circuit
			3-wire (PNP)	24 V			M9PAV <sup>①</sup>	M9PA <sup>①</sup>	M9PAV <sup>①</sup>	○	○	●	○	○		
			2-wire	12 V			M9BAV <sup>①</sup>	M9BA <sup>①</sup>	M9BAV <sup>①</sup>	○	○	●	○	○		
	Reed auto switch	Grommet	3-wire (NPN equivalent)	5 V	—	—	A96V	A96	A96V	●	—	●	—	—	IC circuit	—
			3-wire (PNP)	200 V			—	—	—	●	—	●	—	—		
			2-wire	100 V	24 V	—	A93V <sup>②</sup>	A93	A93V <sup>②</sup>	●	●	●	●	—		Relay, PLC
			2-wire	100 V or less			A90V	A90	A90V	●	●	—	—	—		
			2-wire	24 V or less			—	C73C	A73C	—	●	—	●	●		
			2-wire	—			C80C	A80C	—	●	—	●	●	●		
			2-wire	—			A79W	—	—	●	—	●	—	—		

\*1: Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Please contact SMC regarding water resistant types with the above model numbers.

\*2: 1 m type lead wire is only applicable to D-A93.

\*3: Lead wire length symbols: 0.5 ..... NII (Example) M9NW

1 m ..... M (Example) M9NW

3 m ..... L (Example) M9NWL

5 m ..... Z (Example) M9NZW

None ..... N (Example) H7CN

\*4: Since there are other applicable auto switches than listed, refer to page 149 for details.

\*5: Solid state auto switches marked with "○" are produced upon receipt of order.

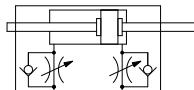
\*6: The D-A9□/M9□/A7□/A80□/F7□/J7□ auto switches are shipped together, but not assembled. (For band mounting, only auto switch mounting brackets are assembled before being shipped.)

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



#### Symbol

Double acting, Double rod, Rubber bumper



**Made to Order: Individual Specifications**  
(For details, refer to page 150.)

Symbol	Specifications
-X446	PTFE grease

#### Made to Order

[Click here for details](#)

Symbol	Specifications
-XA	Change of rod end shape
-XC51	With hose nipple
-XC85	Grease for food processing equipment

### ⚠ Precautions

Refer to page 152 before handling.

### Specifications

Bore size [mm]	10	16
Action	Double acting, Double rod	
Fluid	Air	
Proof pressure	1 MPa	
Maximum operating pressure	0.7 MPa	
Minimum operating pressure	0.1 MPa	
Ambient and fluid temperature	Without auto switch: -10°C to 70°C (No freezing) With auto switch: -10°C to 60°C	
Cushion	Rubber bumper	
Lubrication	Not required (Non-lube)	
Stroke length tolerance	+1.0 0	
Speed controller	Built-in	
Piston speed	50 to 750 mm/s	
Allowable kinetic energy	0.035 J	0.090 J

### Standard Strokes

Bore size	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 in 1 mm increments is possible. (Spacers are not used.)

\*: Please consult with SMC for strokes which exceed the standard stroke length.

\*: Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on front matter pages. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to the deflection etc.

### Mounting and Accessories

●… Mounted on the product. ○… Please order separately.

	Mounting	Basic	Foot	Flange
Standard	Mounting nut	●	●	●
	Rod end nut	●	●	●
Option	Single knuckle joint	○	○	○
	Double knuckle joint (including a pin and retaining rings)	○	○	○
	Double knuckle joint (With one-touch connecting pin)	○	○	○

\*: Stainless steel mounting brackets and accessories are also available.

Refer to page 63-1 for details.

### Mounting Brackets/Part No.

Mounting bracket	Bore size [mm]	
	10	16
Foot	CJ-L010C	CJ-L016C
Flange	CJ-F010C	CJ-F016C

Refer to pages 142 to 149 for cylinders with auto switches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

**CJ1**

**CJP**

**CJ2**

**JCM**

**CM2**

**CM3**

**CG1**

**CG3**

**JMB**

**MB**

**MB1**

**CA2**

**CS1**

**CS2**

**D-**

**-X**

**Technical Data**

# CJ2ZW Series

## Weights

	Bore size [mm]	10	16	[g]
Basic weight (When the stroke is zero)	Basic	36	61	
Additional weight per 15 mm of stroke		4.5	7.5	
Mounting bracket weight	Double foot	16	50	
	Head flange	5	13	
Accessories	Single knuckle joint	17	23	
	Double knuckle joint (including knuckle pin)	25	21	
	Double knuckle joint (With one-touch connecting pin)	26	22	
	Rod end cap (Flat type)	1	2	
	Rod end cap (Round type)	1	2	

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

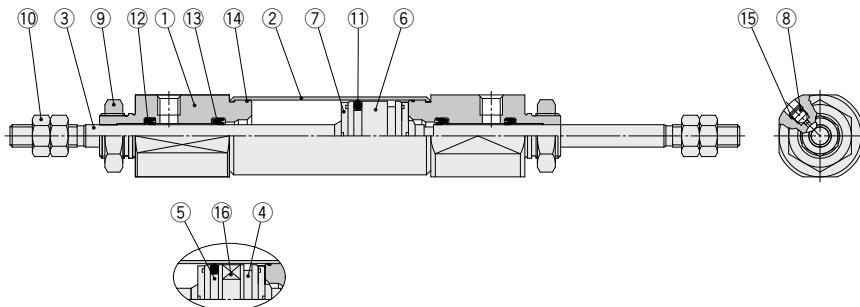
Calculation:

Example) CJ2ZW-L10-45Z

- Basic weight ..... 36 (ø10)
- Additional weight ..... 4.5/15 stroke
- Cylinder stroke ..... 45 stroke
- Mounting bracket weight ..... 16 (Double foot)

$$36 + 4.5/15 \times 45 + 16 = 65.5 \text{ g}$$

## Construction (Not able to disassemble)



With auto switch

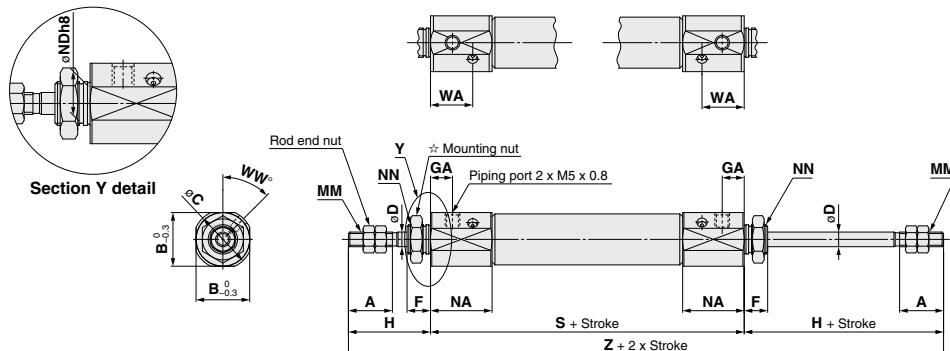
## Component Parts

No.	Description	Material	Note
1	Rod cover	Aluminum alloy	
2	Cylinder tube	Stainless steel	
3	Piston rod	Stainless steel	
4	Piston A	Aluminum alloy	
5	Piston B	Aluminum alloy	
6	Piston	Aluminum alloy	
7	Bumper	Urethane	
8	Speed controller needle	Carbon steel	

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

### Basic (B)

**CJ2ZWB 10 16 - Stroke Z**

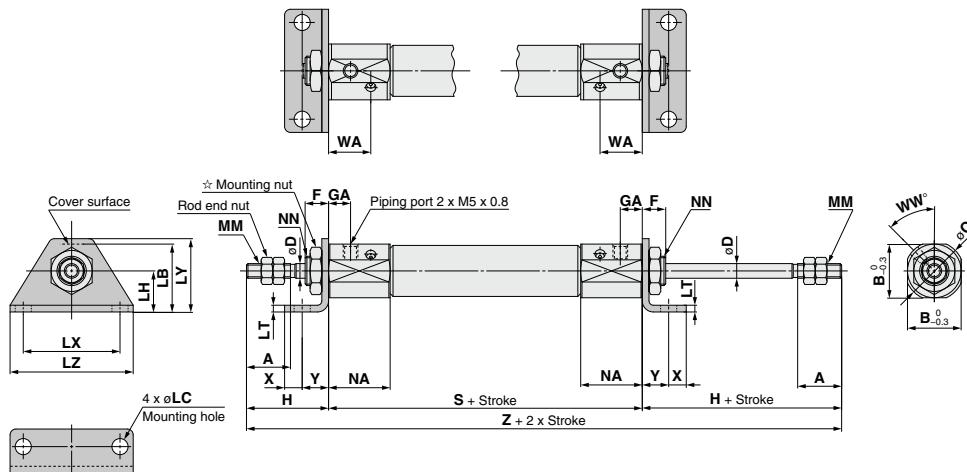


★ For details of the mounting nut, refer to page 63.

Bore size	A	B	C	D	F	GA	H	MM	NA	NDh8	NN	WA	WW	S	Z	[mm]
<b>10</b>	15	15	17	4	8	7.5	28	M4 x 0.7	21	$8_{-0.022}^0$	M8 x 1.0	14.4	45	66	122	
<b>16</b>	15	18.3	20	5	8	7.5	28	M5 x 0.8	21	$10_{-0.022}^0$	M10 x 1.0	14.4	45	67	123	

### Foot (L)

**CJ2ZWL 10 16 - Stroke Z**



★ For details of the mounting nut, refer to page 63.

Bore size	A	B	C	D	F	GA	H	LB	LC	LH	LT	LX	LY	LZ	NN	NA	NN	WA	WW	S	X	Y	Z	[mm]
<b>10</b>	15	15	17	4	8	7.5	28	15	4.5	9	1.6	24	16.5	32	M4 x 0.7	21	M8 x 1.0	14.4	45	66	5	7	122	
<b>16</b>	15	18.3	20	5	8	7.5	28	23	5.5	14	2.3	33	25	42	M5 x 0.8	21	M10 x 1.0	14.4	45	67	6	9	123	

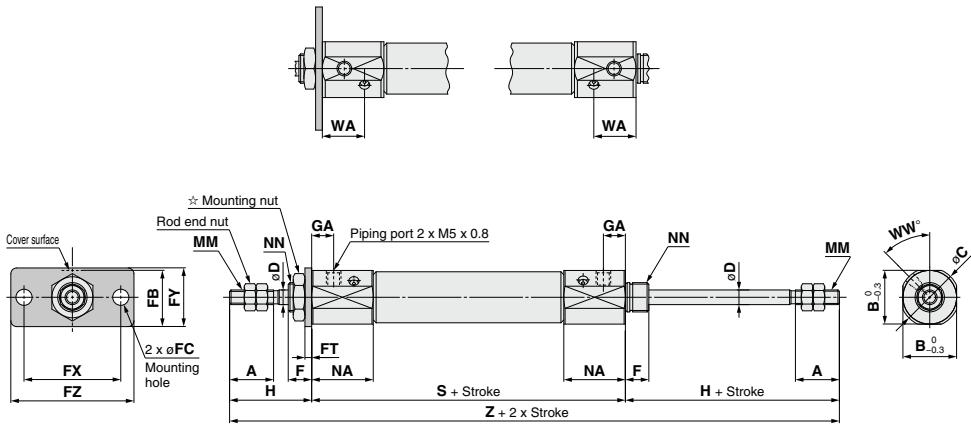
**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

**D-□**  
**-X□**  
Technical Data

# CJ2ZW Series

## Flange (F)

CJ2ZWF <sup>10</sup><sub>16</sub> - [Stroke] Z



★ For details of the mounting nut, refer to page 63.

Bore size	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GA	H	MM	NA	NN	WA	WW	S	Z	[mm]
10	15	15	17	4	8	13	4.5	1.6	24	14	32	7.5	28	M4 x 0.7	21	M8 x 1.0	14.4	45	66	122	
16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	7.5	28	M5 x 0.8	21	M10 x 1.0	14.4	45	67	123	

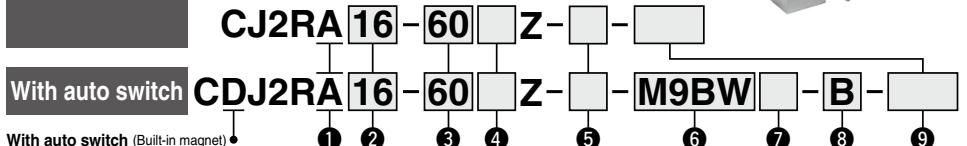
# Air Cylinder: Direct Mount Type Double Acting, Single Rod

## **CJ2R Series**

**ø10, ø16**



## **How to Order**



## 1 Mounting

## **2 Bore size**

#### 4 Head cover port location

5 Rod end bracket	
NII	None
V	Single knuckle joint
W**	Double knuckle joint
T	Rod end cap (Flat type)
U	Rod end cap (Round type)

\*: Rod end bracket is shipped together with the product, but not assembled.  
\*\*: Refer to page 63 for the double knuckle joint (with one-touch connecting pin).

<b>7</b>	<b>Number of auto switches</b>
<b>Nil</b>	2 pcs.
<b>S</b>	1 pc.
<b>D</b>	"D" pcs

⑧ Auto switch mounting type	
A	Rail mounting
B	Band mounting

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

\*: Refer to page 148 for auto switch mounting brackets.

\*: Refer to “Ordering Example of Cylinder Assembly” on page 120.

### **Applicable Auto Switches**

Load voltage Auto switch model

Type	Special function	Electrical entry	Indication	Wiring (Output)	Load Voltage		Auto switch model				Lead wire length (mm)					Pre-wired connector	Applicable load		
							Band mounting		Rail mounting		0.5 (Nil)		1 (M)		3 (L)				
					DC	AC	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(Nil)	(M)			
Solid state auto switch	—	Grommet	Yes	3-wire (NPN) 3-wire (PNP)	5 V, 12 V	—	M9NV	M9N	M9NV	M9N	●	●	○	—	○	—	Relay PLC		
				2-wire			M9PV	M9P	M9PV	M9P	●	●	○	—	○	—			
	Diagnostic indication (2-color indicator)	Connector	Yes	3-wire (NPN)	24 V	12 V	M9BV	M9B	M9BV	M9B	●	●	○	—	○	—			
				2-wire			—	H7C	J79C	—	—	—	—	●	●	—			
	Water resistant (2-color indicator)	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NWV	M9NW	M9NWV	M9NW	●	●	●	○	○	—			
				2-wire			M9PWV	M9PW	M9PWV	M9PW	●	●	●	○	○	—			
	With diagnostic output (2-color indicator)	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9BWW	M9BW	M9BWW	M9BW	●	●	●	○	○	—			
				2-wire			M9NAV <sup>*1</sup>	M9NA <sup>*1</sup>	M9NAV <sup>*1</sup>	M9NA <sup>*1</sup>	○	○	○	○	○	—			
	Water resistant (2-color indicator)	Grommet	Yes	3-wire (NPN)	12 V	—	M9PAV <sup>*1</sup>	M9PA <sup>*1</sup>	M9PAV <sup>*1</sup>	M9PA <sup>*1</sup>	○	○	○	○	○	—			
				2-wire			M9BAV <sup>*1</sup>	M9BA <sup>*1</sup>	M9BAV <sup>*1</sup>	M9BA <sup>*1</sup>	○	○	○	○	○	—			
	With diagnostic output (2-color indicator)	Grommet	Yes	4-wire (NPN)	5 V, 12 V	—	—	H7NF	—	F79F	●	—	●	○	○	—	IC circuit		
				3-wire (NPN equivalent)			—	A96V	A96	A96V	A96	●	—	●	—	—	—	IC circuit	
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	A96V	A96	●	—	●	—	—	—	Relay PLC	
				2-wire			—	200 V	—	—	A72	A72H	●	—	●	—	—	—	
	No	Connector	Yes	100 V or less	24 V	12 V	100 V or less	A93V <sup>*2</sup>	A93	A93V <sup>*2</sup>	A93	●	●	●	●	—	—		
				24 V or less			—	A90V	A90	A90V	A90	●	●	●	—	—	—		
	Diagnostic indication (2-color indicator)	Grommet	Yes	—	—	—	C73C	A73C	—	●	—	●	●	●	●	—	—		
				—			C80C	A80C	—	●	●	●	●	●	●	—	—	IC circuit	

\*1: Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Please contact SMC regarding water resistant types with the above model numbers.

\*2: 1 m type lead wire is only applicable to D-A93.

\*: Lead wire length symbols: 0.5 m.....N (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 149 for details.

5 m..... Z (Example) M9NWZ

\*: Solid state auto switches marked with are produced upon receipt of order.  
\*: The D-A9□M9□A7□/A80□F7□I7□ auto switches are shipped together, but not assembled. (For band mounting, only auto switch mounting brackets are assembled before being shipped.)

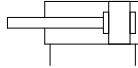
# CJ2R Series

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



## Symbol

Double acting, Single rod, Rubber bumper



Made to Order: Individual Specifications  
(For details, refer to page 150.)



Specifications



-X46

PTFE grease

## Made to Order

[Click here for details](#)



Specifications



-XA□

Change of rod end shape



-XC9

Adjustable stroke cylinder/Adjustable retraction type



-XC22

Fluororubber seal



-XC51

With hose nipple



-XC85

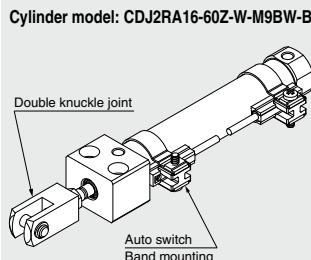
Grease for food processing equipment



## Precautions

Refer to page 152 before handling.

## Ordering Example of Cylinder Assembly



### Mounting A: Bottom mounting

Rod end bracket W: Double knuckle joint

Auto switch D-M9BW: 2 pcs.

Auto switch mounting B: Band mounting

\*: Double knuckle joint and auto switch are shipped together with the product, but not assembled.

## Specifications

Bore size [mm]	10	16
Action	Double acting, Single rod	
Fluid	Air	
Proof pressure	1 MPa	
Maximum operating pressure	0.7 MPa	
Minimum operating pressure	0.06 MPa	
Ambient and fluid temperature	Without auto switch: -10°C to 70°C (No freezing) With auto switch: -10°C to 60°C	
Cushion	Rubber bumper	
Lubrication	Not required (Non-lube)	
Stroke length tolerance	+1.0 -0.5	
Piston speed	50 to 750 mm/s	
Allowable kinetic energy	0.035 J	0.090 J

## Standard Strokes

Bore size	Standard stroke	Maximum manufacturable stroke
10	15, 30, 45, 60, 75, 100, 125, 150	400
16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200	400

\*: Manufacture of intermediate strokes in 1 mm increments is possible. (Spacers are not used.)

\*: Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on front matter pages. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to the deflection etc.

## Accessories

/Refer to page 42 for the list of brackets and page 63 for details about part numbers and dimensions.

Standard	Rod end nut
Option>Note 1)	Single knuckle joint, Double knuckle joint (including a pin and retaining rings), Rod end cap (Flat/Round type), Double knuckle joint (With one-touch connecting pin)

Note 1) Can be ordered within the cylinder model. Except for the double knuckle joint (with one-touch connecting pin).

Note 2) Stainless steel accessories are also available. Refer to page 63-1 for details.

## Weights

Bore size [mm]	10	16
Basic weight (When the stroke is zero)	Basic Axial piping	36 36
Additional weight per 15 mm of stroke	4	7
Accessories	Single knuckle joint Double knuckle joint (including knuckle pin)	17 25
	Double knuckle joint (With one-touch connecting pin)	26
	Rod end cap (Flat type)	1
	Rod end cap (Round type)	1

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

Calculation:

Example) CJ2RA10-45Z

- Basic weight ..... 36 (ø10)
- Additional weight ... 4/15 stroke
- Cylinder stroke..... 45 stroke

$$36 + 4/15 \times 45 = 48 \text{ g}$$

Refer to pages 142 to 149 for cylinders with auto switches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

## Clean Series

10-CJ2RA 10 16 – Stroke Head cover port location Z  
 └─ Clean Series

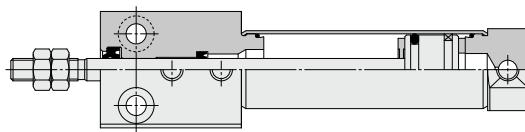
Air cylinder which is applicable for the system which discharges leakage from the rod section directly into the outside of clean room by relief port and making an actuator's rod section having a double seal construction.

For the detailed specifications, refer to the "Pneumatic Clean Series" (CAT.E02-23).

### 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 standard type. (Refer to page 120.)
Auto switch	Mountable (Band mounting)
Mounting	Bottom mounting

### Construction (Not able to disassemble)

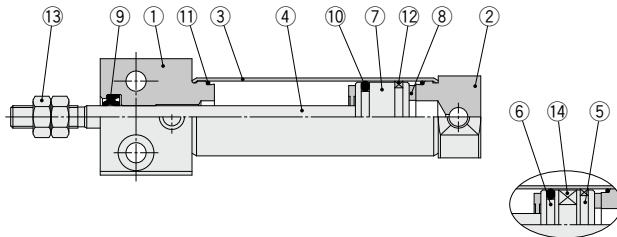


CJ1  
CJP  
CJ2  
JCM  
CM2  
CM3  
CG1  
CG3  
JMB  
MB1  
CA2  
CS1  
CS2

D-□  
-X□  
Technical Data

# CJ2R Series

## Construction (Not able to disassemble)



With auto switch

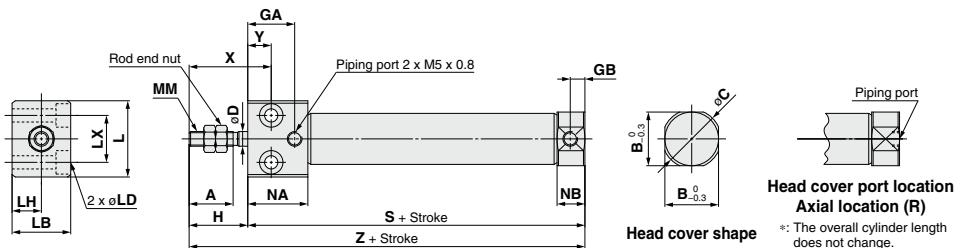
### Component Parts

No.	Description	Material	Note
1	Rod cover	Aluminum alloy	
2	Head cover	Aluminum alloy	
3	Cylinder tube	Stainless steel	
4	Piston rod	Stainless steel	
5	Piston A	Aluminum alloy	
6	Piston B	Aluminum alloy	
7	Piston	Aluminum alloy	

No.	Description	Material	Note
8	Bumper	Urethane	
9	Rod seal	NBR	
10	Piston seal	NBR	
11	Tube gasket	NBR	
12	Wear ring	Resin	
13	Rod end nut	Rolled steel	
14	Magnet	—	

### Bottom Mounting

CJ2RA **10**  
**16** – Stroke Head cover port location Z



Bore size	A	B	C	D	GA	GB	H	L	LB	LD	LH	LX	MM	NA	NB	X	Y	S	Z	[mm]
10	15	12	14	4	16	5	20	23	16	ø3.5 through, 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 through, ø8 counterbore depth 5	10	16	M5 x 0.8	20.5	9.5	28	8	55	75	

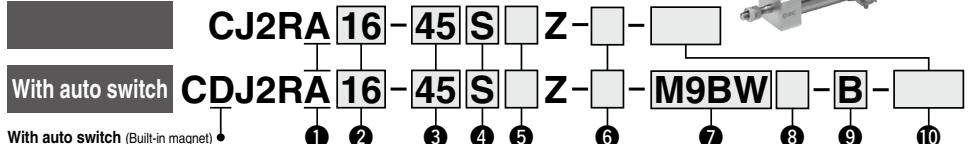
# Air Cylinder: Direct Mount Type Single Acting, Spring Return/Extend

## CJ2R Series

ø10, ø16

RoHS

### How to Order



#### ① Mounting

A	Bottom mounting
---	-----------------

#### ⑤ Head cover port location

Nil	Perpendicular to axis	
R	Axial	

\*: Not applicable to single acting, spring extend (T).

#### ② Bore size

10	10 mm
16	16 mm

#### ⑥ Rod end bracket

Nil	None
V	Single knuckle joint
W**	Double knuckle joint
T	Rod end cap (Flat type)
U	Rod end cap (Round type)

\*: Rod end bracket is shipped together with the product, but not assembled.

\*\*: Refer to page 63 for the double knuckle joint (with one-touch connecting pin).

#### ③ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 124.

#### ⑦ Auto switch

Nil	Without auto switch
-----	---------------------

\*: For applicable auto switches, refer to the table below.

★ Enter the auto switch mounting type (A or B) even when a built-in magnet cylinder without an auto switch is required.

#### ④ Action

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

#### ⑧ Number of auto switches

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

#### ⑨ Auto switch mounting type

A	Rail mounting
B	Band mounting

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

\*: Refer to page 148 for auto switch mounting brackets.

#### ⑩ Made to Order

Refer to page 124 for details.

\*: Refer to "Ordering Example of Cylinder Assembly" on page 124.

### Applicable Auto Switches

Refer to pages 1575 to 1701 for further information on auto switches.

Type	Special function	Electrical entry	Indicator/bracket	Wiring (Output)	Load voltage		Auto switch model			Lead wire length [m]					Pre-wired connector	Applicable load
					DC	AC	Band mounting	Rail mounting	In-line	Perpendicular	In-line	0.5 (Nil) (M)	1 (L)	3 (Z)	5 (N)	
Solid state auto switch	Diagnostic indication (2-color indicator)	Grommet	3-wire (NPN)	5 V, 12 V	—	—	M9NV	M9N	M9NV	M9N	●	●	○	—	○	IC circuit
			3-wire (PNP)	12 V			M9PV	M9P	M9PV	M9P	●	●	○	—	○	—
		Connector	2-wire	5 V, 12 V			M9BV	M9B	M9BV	M9B	●	●	○	—	○	—
			3-wire (NPN)	12 V			M9NWV	M9NW	M9NWV	M9NW	●	●	●	●	●	—
			3-wire (PNP)	24 V			M9PWV	M9PW	M9PWV	M9PW	●	●	●	●	●	IC circuit
	Water resistant (2-color indicator)	Grommet	2-wire	12 V	—	—	M9BVW	M9BW	M9BWV	M9BW	●	●	○	—	○	—
			3-wire (NPN)	5 V, 12 V			M9NAV <sup>*1</sup>	M9NA <sup>*1</sup>	M9NAV <sup>*1</sup>	M9NA <sup>*1</sup>	○	○	●	○	○	—
			3-wire (PNP)	12 V			M9PAV <sup>*1</sup>	M9PA <sup>*1</sup>	M9PAV <sup>*1</sup>	M9PA <sup>*1</sup>	○	○	●	○	○	IC circuit
			2-wire	5 V, 12 V			M9BAV <sup>*1</sup>	M9BA <sup>*1</sup>	M9BAV <sup>*1</sup>	M9BA <sup>*1</sup>	○	○	●	○	○	—
			4-wire (NPN)	—			H7NF	—	F79F	—	●	—	●	—	○	IC circuit
Reed auto switch	Diagnostic indication (2-color indicator)	Grommet	3-wire (NPN equivalent)	5 V	—	—	A96V	A96	A96V	A96	●	—	●	—	—	IC circuit
			3-wire (NPN)	200 V			—	A72	A72H	—	●	—	●	—	—	—
			100 V	A93V <sup>*2</sup>			A93	A93V <sup>*2</sup>	A93	●	●	●	●	—	—	—
			100 V or less	A90V			A90	A90V	A90	●	—	●	—	—	—	IC circuit
		Connector	2-wire	12 V	—	—	C73C	A73C	—	●	—	●	●	●	—	Relay, PLC
			24 V or less	—			C80C	A80C	—	●	—	●	●	●	—	IC circuit
			—	—			A79W	—	—	●	—	●	—	—	—	—
			—	—			—	—	—	—	—	—	—	—	—	—

\*1: Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Please contact SMC regarding water resistant types with the above model numbers.

\*2: 1 m type lead wire is only applicable to D-A93.

\*: Lead wire length symbols: 0.5 m.....Nil (Example) M9NW  
1 m.....M (Example) M9NWM  
3 m.....L (Example) M9NWL  
5 m.....Z (Example) M9NZW  
None.....N (Example) H7CN

\*: Since there are other applicable auto switches than listed, refer to page 149 for details.

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

\*: The D-A9□/M9□/A7□/A80□/F7□/J7□ auto switches are shipped together, but not assembled. (For band mounting, only auto switch mounting brackets are assembled before being shipped.)

D-□

-X-□

Technical Data

CJ1

CJP

CJ2

JCM

CM3

CG1

JGB

MB

MB1

CA2

CS1

CS2

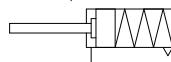
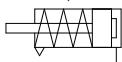
# CJ2R Series

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



## Symbol

Single acting, Spring return,  
Rubber bumper      Single acting, Spring extend,  
Rubber bumper



Made to Order

Made to Order: Individual Specifications  
(For details, refer to page 150.)

Symbol	Specifications
-X446	PTFE grease

## Made to Order

[Click here for details](#)

Symbol	Specifications
-XA <input type="checkbox"/>	Change of rod end shape
-XC51	With hose nipple
-XC85	Grease for food processing equipment

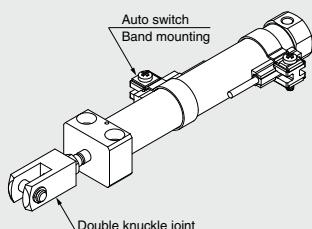


## Precautions

Refer to page 152 before handling.

## Ordering Example of Cylinder Assembly

Cylinder model: CDJ2RA16-45SZ-W-M9BW-B



Mounting A: Bottom mounting  
Rod end bracket W: Double knuckle joint  
Auto switch D-M9BW: 2 pcs.  
Auto switch mounting B: Band mounting

\*: Double knuckle joint and auto switch are shipped together with the product, but not assembled.

## 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 (No freezing) 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

## Standard Strokes

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

\*: Manufacture of intermediate strokes in 1 mm increments is possible. (Spacers are not used.)

\*: Please consult with SMC for strokes which exceed the standard stroke length.

\*: Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on front matter pages. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to the deflection etc.

## Accessories

Refer to page 42 for the list of brackets and page 63 for details about part numbers and dimensions.

Standard	Rod end nut
Option Note 1)	Single knuckle joint, Double knuckle joint (including a pin and retaining rings), Rod end cap (Flat type, Round type), Double knuckle joint (With one-touch connecting pin)

Note 1) Can be ordered within the cylinder model. Except for the double knuckle joint (with one-touch connecting pin).

Note 2) Stainless steel accessories are also available. Refer to page 63-1 for details.

## Spring Reaction Force

Refer to page 1899 (Table (2): Spring Reaction Force).

Refer to pages 142 to 149 for cylinders with auto switches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

## Weights

### Spring Return

Bore size [mm]		10		16		[g]
Mounting		Basic	Axial piping	Basic	Axial piping	
Basic weight	15 stroke	42	42	81	81	
	30 stroke	49	49	97	97	
	45 stroke	59	59	114	114	
	60 stroke	68	68	132	132	
	75 stroke			154	154	
	100 stroke			187	187	
	125 stroke			224	224	
	150 stroke			246	246	
Accessories	Single knuckle joint	17		23		
	Double knuckle joint (including knuckle pin)	25		21		
	Double knuckle joint (With one-touch connecting pin)	26		22		
	Rod end cap (Flat type)	1		2		
	Rod end cap (Round type)	1		2		

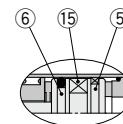
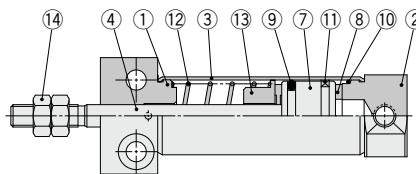
\*: Rod end nut is included in the basic weight.

### Spring Extend

Bore size [mm]		10	16	[g]
Mounting		Basic	Basic	
Basic weight	15 stroke	41	78	
	30 stroke	47	92	
	45 stroke	55	108	
	60 stroke	64	123	
	75 stroke		144	
	100 stroke		173	
	125 stroke		208	
	150 stroke		228	
Accessories	Single knuckle joint	17	23	
	Double knuckle joint (including knuckle pin)	25	21	
	Double knuckle joint (With one-touch connecting pin)	26	22	
	Rod end cap (Flat type)	1	2	
	Rod end cap (Round type)	1	2	

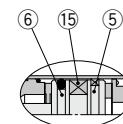
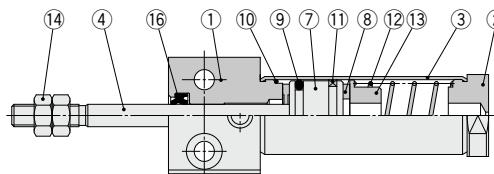
## Construction (Not able to disassemble)

### Single acting, Spring return



With auto switch

### Single acting, Spring extend



With auto switch

## Component Parts

No.	Description	Material	Note
1	Rod cover	Aluminum alloy	
2	Head cover	Aluminum alloy	
3	Cylinder tube	Stainless steel	
4	Piston rod	Stainless steel	
5	Piston A	Aluminum alloy	
6	Piston B	Aluminum alloy	
7	Piston	Aluminum alloy	
8	Bumper	Urethane	

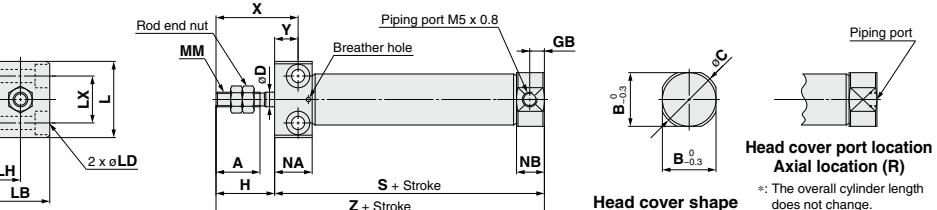
No.	Description	Material	Note
9	Piston seal	NBR	
10	Tube gasket	NBR	
11	Wear ring	Resin	
12	Return spring	Piano wire	
13	Spring seat	Aluminum alloy	
14	Rod end nut	Rolled steel	
15	Magnet	—	
16	Rod seal	NBR	

**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

# CJ2R Series

## Single Acting: Bottom Mounting

Spring return: CJ2RA 10 - Stroke S Head cover port location Z



**Head cover port location Axial location (R)**

\*: The overall cylinder length does not change.

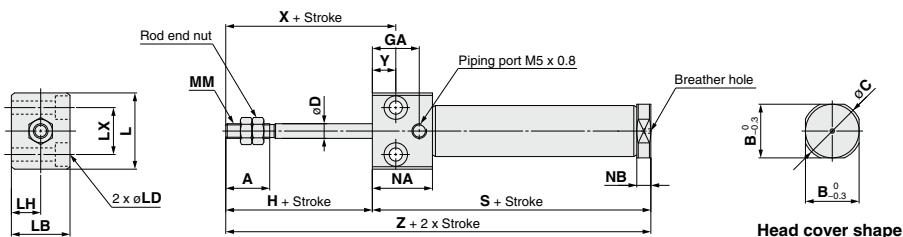
Bore size	A	B	C	D	GB	H	L	LB	LD			LH	LX	MM	NA	NB	X	Y
10	15	12	14	4	5	20	23	16	ø3.5 through, ø6.5 counterbore depth 4			8	12	M4 x 0.7	12.8	9.5	28	8
16	15	18.3	20	5	5	20	26	20	ø4.5 through, ø8 counterbore depth 5			10	16	M5 x 0.8	12.8	9.5	28	8

### Dimensions by Stroke: Spring Return

[mm]

Bore size	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	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

Spring extend: CJ2RA 10 - Stroke TZ



**Head cover shape**

Bore size	A	B	C	D	GA	H	L	LB	LD			LH	LX	MM	NA	NB	X	Y
10	15	12	14	4	16	20	23	16	ø3.5 through, ø6.5 counterbore depth 4			8	12	M4 x 0.7	20.5	4.8	28	8
16	15	18.3	20	5	16	20	26	20	ø4.5 through, ø8 counterbore depth 5			10	16	M5 x 0.8	20.5	4.8	28	8

### Dimensions by Stroke: Spring Extend

[mm]

Bore size	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	56.5	64	76	88	—	—	—	—	76.5	84	96	108	—	—	—	—
16	56.5	65	77	89	95	119	137	149	76.5	85	97	109	115	139	157	169



# CJ2RK Series

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

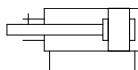
## Non-rotating accuracy

ø10: ±1.5°, ø16: ±1°



## Symbol

Double acting, Single rod, Rubber bumper



Made to Order: Individual Specifications  
(For details, refer to page 150.)

Symbol	Specifications
-X446	PTFE grease

## Made to Order

[Click here for details](#)

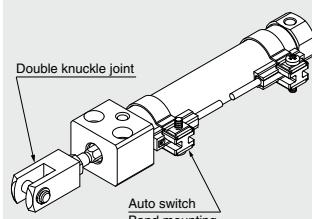
Symbol	Specifications
-XA□	Change of rod end shape
-XC9	Adjustable stroke cylinder/Adjustable retraction type
-XC51	With hose nipple
-XC85	Grease for food processing equipment

## ⚠ Precautions

Refer to page 152 before handling.

## Ordering Example of Cylinder Assembly

Cylinder model: CDJ2RKA16-60Z-W-M9BW-B



**Mounting A:** Bottom mounting  
Rod end bracket W: Double knuckle joint  
Auto switch D-M9BW: 2 pcs.  
Auto switch mounting B: Band mounting

\*: Double knuckle joint and auto switch are shipped together with the product, but not assembled.

## Specifications

Bore size [mm]	10	16
Action	Double acting, Single rod	
Fluid	Air	
Proof pressure	1 MPa	
Maximum operating pressure	0.7 MPa	
Minimum operating pressure	0.06 MPa	
Ambient and fluid temperature	Without auto switch: -10°C to 70°C With auto switch: -10°C to 60°C (No freezing)	
Cushion	Rubber bumper	
Lubrication	Not required (Non-lube)	
Stroke length tolerance	+1.0 0	
Rod non-rotating accuracy	±1.5°	±1°
Piston speed	50 to 750 mm/s	
Allowable kinetic energy	0.035 J	0.090 J

## Standard Strokes

Bore size	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 in 1 mm increments is possible. (Spacers are not used.)

\*: Please consult with SMC for strokes which exceed the standard stroke length.

\*: Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on front matter pages. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to the deflection etc.

## Accessories

/Refer to page 42 for the list of brackets and page 63 for details about part numbers and dimensions.

Standard	Rod end nut
Option>Note 1)	Single knuckle joint, Double knuckle joint (including a pin and retaining rings), Rod end cap (Flat/Round type), Double knuckle joint (With one-touch connecting pin)
Note 1)	Can be ordered within the cylinder model. Except for the double knuckle joint (with one-touch connecting pin).
Note 2)	Stainless steel accessories are also available. Refer to page 63-1 for details.
Accessories	
Basic weight (When the stroke is zero)	Basic Axial piping
Additional weight per 15 mm of stroke	4 7
	Single knuckle joint Double knuckle joint (including knuckle pin)
	25 21
	Double knuckle joint (With one-touch connecting pin)
	26 22
	Rod end cap (Flat type)
	1 2
	Rod end cap (Round type)
	1 2

\*: Rod end nut is included in the basic weight.

Calculation:

Example) CJ2RKA10-45Z

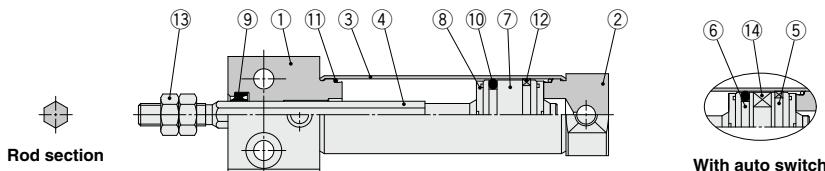
- Basic weight ..... 36 (ø10)
- Additional weight ... 4/15 stroke
- Cylinder stroke..... 45 stroke

$$36 + 4/15 \times 45 = 48 \text{ g}$$

Refer to pages 142 to 149 for cylinders with auto switches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

## Construction (Not able to disassemble)



### Component Parts

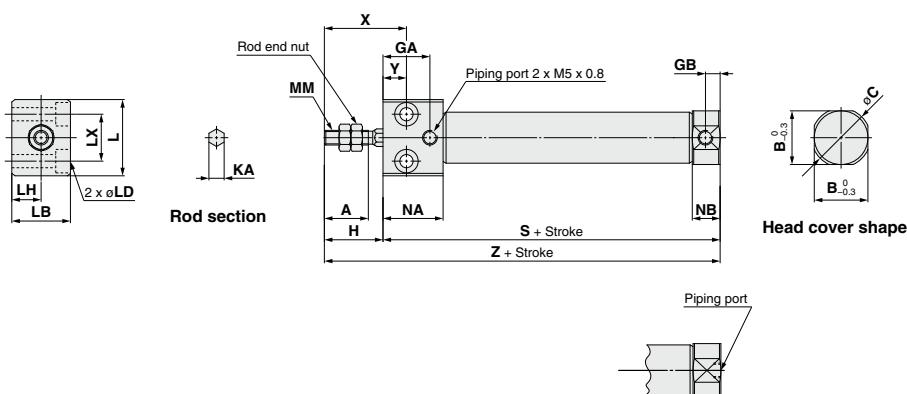
No.	Description	Material	Note
1	Rod cover	Aluminum alloy	
2	Head cover	Aluminum alloy	
3	Cylinder tube	Stainless steel	
4	Piston rod	Stainless steel	
5	Piston A	Aluminum alloy	
6	Piston B	Aluminum alloy	
7	Piston	Aluminum alloy	

No.	Description	Material	Note
8	Bumper	Urethane	
9	Rod seal	NBR	
10	Piston seal	NBR	
11	Tube gasket	NBR	
12	Wear ring	Resin	
13	Rod end nut	Rolled steel	
14	Magnet	—	

### Bottom Mounting

CJ2RKA <sup>10</sup><sub>16</sub> - Stroke Head cover port location Z

CJ1  
CJP  
CJ2  
JCM  
CM2  
CM3  
CG1  
CG3  
JMB  
MB  
MB1  
CA2  
CS1  
CS2



\*: The overall cylinder length does not change.

Bore size	A	B	C	GA	GB	H	KA	L	LB	LD	LH	LX	MM	NA	NB	X	Y	S	Z	[mm]
10	15	12	14	16	5	20	4.2	23	16	ø3.5 through, 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 through, ø8 counterbore depth 5	10	16	M5 x 0.8	20.5	9.5	28	8	55	75	

D-□  
-X□  
Technical Data

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

## CJ2RK Series ø10, ø16

RoHS

### How to Order



**CJ2RKA 16-45S Z - -**

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

With auto switch (Built-in magnet)

① 2 3 4 5 6 7 8 9 10

#### ① Mounting

<b>A</b>	Bottom mounting
----------	-----------------

#### ⑤ Head cover port location

<b>Nil</b>	Perpendicular to axis	
<b>R</b>	Axial	

\*: Not applicable to single acting, spring extend (T).

#### ② Bore size

<b>10</b>	10 mm
<b>16</b>	16 mm

#### ⑥ Rod end bracket

<b>Nil</b>	None
<b>V</b>	Single knuckle joint
<b>W**</b>	Double knuckle joint
<b>T</b>	Rod end cap (Flat type)
<b>U</b>	Rod end cap (Round type)

\*: Rod end bracket is shipped together with the product, but not assembled.

\*\*: Refer to page 63 for the double knuckle joint (with one-touch connecting pin).

#### ③ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 131.

#### ⑦ Auto switch

<b>Nil</b>	Without auto switch
------------	---------------------

\*: For applicable auto switches, refer to the table below.

★ Enter the auto switch mounting type (A or B) even when a built-in magnet cylinder without an auto switch is required.

#### ④ Action

<b>S</b>	Single acting, Spring return
<b>T</b>	Single acting, Spring extend

#### ⑧ Number of auto switches

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

#### ⑨ Auto switch mounting type

<b>A</b>	Rail mounting
<b>B</b>	Band mounting

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

\*\*: Refer to page 148 for auto switch mounting brackets.

#### ⑩ Made to Order

Refer to page 131 for details.

\*: Refer to "Ordering Example of Cylinder Assembly" on page 131.

### Applicable Auto Switches

(Refer to pages 1575 to 1701 for further information on auto switches.)

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model				Lead wire length (m) 0.5 (Nil) (M) 1 (L) 3 (Z) 5 (N) None (N)	Pre-wired connector	Applicable load
					DC	AC	Band mounting	Rail mounting	In-line	Perpendicular			
Solid state auto switch	Diagnostic indication (2-color indicator)	Grommet	—	3-wire (NPN)	5 V, 12 V	—	M9NV	M9N	M9NV	M9N	● ● ○ ○ — ○	○	IC circuit
				3-wire (PNP)			M9PV	M9P	M9PV	M9P	● ○ ○ ○ ○ ○		
				2-wire			M9BV	M9B	M9BV	M9B	● ○ ○ ○ ○ ○		
	Water resistant (2-color indicator)	Grommet	Yes	3-wire (NPN)	24 V	—	M9NWV	M9NW	M9NWV	M9NW	● ○ ○ ○ ○ ○	○	IC circuit
				3-wire (PNP)			M9PWV	M9PW	M9PWV	M9PW	● ○ ○ ○ ○ ○		
				2-wire			M9BWV	M9BW	M9BWV	M9BW	● ○ ○ ○ ○ ○		
	Water resistant (2-color indicator)	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NAV <sup>①</sup>	M9NA <sup>①</sup>	M9NAV <sup>①</sup>	M9NA <sup>①</sup>	○ ○ ○ ○ ○ ○	○	IC circuit
				3-wire (PNP)			M9PAV <sup>①</sup>	M9PA <sup>①</sup>	M9PAV <sup>①</sup>	M9PA <sup>①</sup>	○ ○ ○ ○ ○ ○		
				2-wire			M9BAV <sup>①</sup>	M9BA <sup>①</sup>	M9BAV <sup>①</sup>	M9BA <sup>①</sup>	○ ○ ○ ○ ○ ○		
	With diagnostic output (2-color indicator)	Grommet	Yes	4-wire (NPN)	5 V, 12 V	—	H7NF	—	F79F	—	● ○ ○ ○ ○ ○	○	IC circuit
				3-wire (NPN equivalent)			A96V	A96	A96V	A96	● ○ ○ ○ ○ ○		
				2-wire			—	A72	A72H	—	● ○ ○ ○ ○ ○		
Relay auto switch	Diagnostic indication (2-color indicator)	Grommet	Yes	3-wire (NPN)	24 V	12 V	—	100 V	A93V <sup>②</sup>	A93	● ○ ○ ○ ○ ○	○	Relay, PLC
				2-wire			—	100 V or less	A90V	A90	● ○ ○ ○ ○ ○		
				3-wire (NPN)			—	—	C73C	C73C	—		
				3-wire (PNP)			—	—	A80C	A80C	—		
				2-wire			—	—	A79W	—	● ○ ○ ○ ○ ○		

\*: Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Please contact SMC regarding water resistant types with the above model numbers.

\*\*: 1 m type lead wire is only applicable to D-A93.

\*: Lead wire length symbols: 0.5 m ..... Nil (Example) M9NW

\*: Since there are other applicable auto switches than listed, refer to page 149 for details.

1 m ..... M (Example) M9NWM

3 m ..... L (Example) M9NWL

5 m ..... Z (Example) M9NZW

None ..... N (Example) H7CN

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

\*: The D-A96/M90/A72/A80/F79/J7C auto switches are shipped together, but not assembled. (For band mounting, only auto switch mounting brackets are assembled before being shipped.)

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

#### Non-rotating accuracy

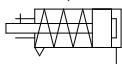
$\varnothing 10: \pm 1.5^\circ$ ,  $\varnothing 16: \pm 1^\circ$

Can operate without lubrication.

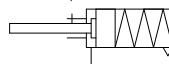


#### Symbol

Single acting, Spring return,  
Rubber bumper



Single acting, Spring extend,  
Rubber bumper



Made to Order: Individual Specifications  
(For details, refer to page 150.)

Symbol	Specifications
-X46	PTFE grease

#### Made to Order

[Click here for details](#)

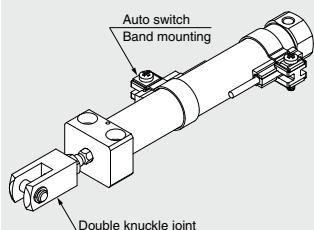
Symbol	Specifications
-XA	Change of rod end shape
-XC51	With hose nipple
-XC85	Grease for food processing equipment

## Precautions

Refer to page 152 before handling.

### Ordering Example of Cylinder Assembly

Cylinder model: CDJ2RKA16-45SZ-W-M9BW-B



Mounting A: Bottom mounting  
Rod end bracket W: Double knuckle joint  
Auto switch D-M9BW: 2 pcs.  
Auto switch mounting B: Band mounting

\*: Double knuckle joint and auto switch are shipped together with the product, but not assembled.

## 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 (No freezing)	
Cushion	Rubber bumper	
Lubrication	Not required (Non-lube)	
Stroke length tolerance	$+1.0$ $0$	
Rod non-rotating accuracy	$\pm 1.5^\circ$	$\pm 1^\circ$
Piston speed	50 to 750 mm/s	
Allowable kinetic energy	0.035 J	0.090 J

### Standard Strokes

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

\*: Manufacture of intermediate strokes in 1 mm increments is possible. (Spacers are not used.)

\*: Please consult with SMC for strokes which exceed the standard stroke length.

\*: Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on front matter pages. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to the deflection etc.

### Accessories

Standard	Rod end nut
Option <sup>Note 1)</sup>	Single knuckle joint, Double knuckle joint (including a pin and retaining rings), Rod end cap (Flat/Round type), Double knuckle joint (With one-touch connecting pin)

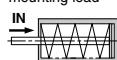
Note 1) Can be ordered within the cylinder model. Except for the double knuckle joint (with one-touch connecting pin).

Note 2) Stainless steel accessories are also available. Refer to page 63-1 for details.

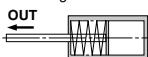
### Spring Reaction Force

Bore size [mm]	Spring reaction force [N] Primary	Secondary
10	3.53	6.86
16	6.86	14.2

Spring with primary mounting load



Spring with secondary mounting load



When the spring is set in the cylinder

When the spring is contracted by applying air

Refer to pages 142 to 149 for cylinders with auto switches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

D-□

-X-□

Technical Data

# CJ2RK Series

## Weights

### Spring Return

Mounting	10		16		[g]
	Basic	Axial piping	Basic	Axial piping	
Basic weight	15 stroke	44	44	83	83
	30 stroke	52	52	99	99
	45 stroke	62	62	117	117
	60 stroke	72	72	135	135
	75 stroke			157	157
	100 stroke			191	191
	125 stroke			228	228
	150 stroke			251	251
Accessories	Single knuckle joint	17		23	
	Double knuckle joint (including knuckle pin)	25		21	
	Double knuckle joint (With one-touch connecting pin)	26		22	
	Rod end cap (Flat type)	1		2	
	Rod end cap (Round type)	1		2	

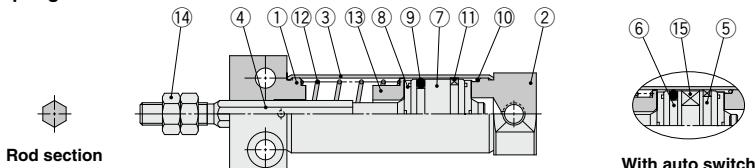
\*: Rod end nut is included in the basic weight.

### Spring Extend

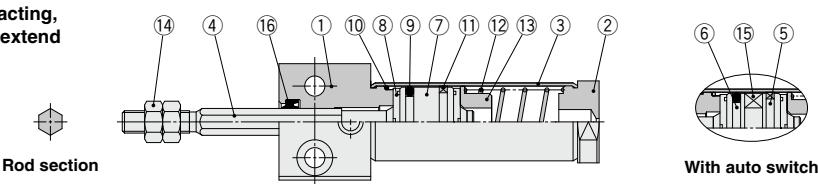
Mounting	10		16		[g]
	Basic	Axial piping	Basic	Axial piping	
Basic weight	15 stroke		42		79
	30 stroke		48		93
	45 stroke		57		110
	60 stroke		66		126
	75 stroke				147
	100 stroke				177
	125 stroke				213
	150 stroke				234
Accessories	Single knuckle joint	17		23	
	Double knuckle joint (including knuckle pin)	25		21	
	Double knuckle joint (With one-touch connecting pin)	26		22	
	Rod end cap (Flat type)	1		2	
	Rod end cap (Round type)	1		2	

## Construction (Not able to disassemble)

### Single acting, Spring return



### Single acting, Spring extend



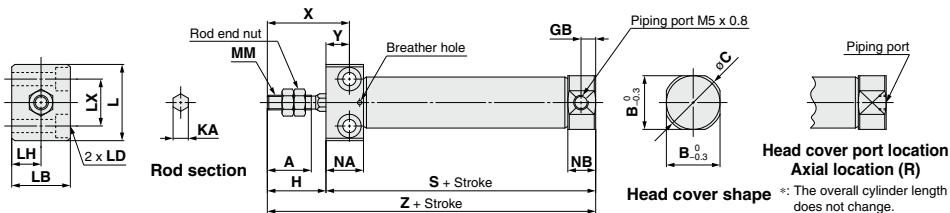
## Component Parts

No.	Description	Material	Note
1	Rod cover	Aluminum alloy	
2	Head cover	Aluminum alloy	
3	Cylinder tube	Stainless steel	
4	Piston rod	Stainless steel	
5	Piston A	Aluminum alloy	
6	Piston B	Aluminum alloy	
7	Piston	Aluminum alloy	
8	Bumper	Urethane	

No.	Description	Material	Note
9	Piston seal	NBR	
10	Tube gasket	NBR	
11	Wear ring	Resin	
12	Return spring	Piano wire	
13	Spring seat	Aluminum alloy	
14	Rod end nut	Rolled steel	
15	Magnet	—	
16	Rod seal	NBR	

### Single Acting: Bottom Mounting

Spring return: CJ2RK 10-16 - Stroke S Head cover port location Z

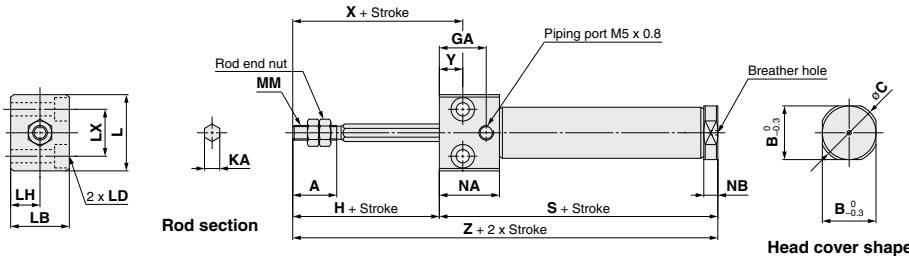


Bore size	A	B	C	GB	H	KA	L	LB	LD	LH	LX	MM	NA	NB	X	Y	[mm]
10	15	12	14	5	20	4.2	23	16	Ø3.5 through, Ø5.5 counterbore depth 4	8	12	M4 x 0.7	12.8	9.5	28	8	
16	15	18.3	20	5	20	5.2	26	20	Ø4.5 through, Ø8 counterbore depth 5	10	16	M5 x 0.8	12.8	9.5	28	8	

### Dimensions by Stroke: Spring Return

Bore size	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

Spring extend: CJ2RK 10-16 - Stroke TZ



Bore size	A	B	C	GA	H	KA	L	LB	LD	LH	LX	MM	NA	NB	X	Y	[mm]
10	15	12	14	16	20	4.2	23	16	Ø3.5 through, Ø5.5 counterbore depth 4	8	12	M4 x 0.7	20.5	4.8	28	8	
16	15	18.3	20	16	20	5.2	26	20	Ø4.5 through, Ø8 counterbore depth 5	10	16	M5 x 0.8	20.5	4.8	28	8	

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

Bore size	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	56.5	64	76	88	—	—	—	—	76.5	84	96	108	—	—	—	—
16	56.5	65	77	89	95	119	137	149	76.5	85	97	109	115	139	157	169

CJ1  
CJP  
CJ2  
JCM  
CM2  
CM3  
CG1  
CG3  
JMB  
MB  
MB1  
CA2  
CS1  
CS2

D-□  
-X□  
Technical Data

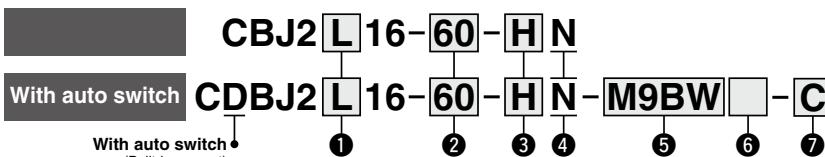
# Air Cylinder: With End Lock

# CBJ2 Series

ø16



## How to Order



B	Basic
L	Axial foot
F	Rod flange
D	Double clevis**

\*: Foot/Flange brackets are shipped together with the product, but not assembled.

\*\*: Rod end lock only.

### 2 Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 135.

### 3 Lock position

H	Head end lock
R	Rod end lock

### 4 Manual release

N	Non-locking type
---	------------------

### 5 Auto switch

Nil	Without auto switch
-----	---------------------

\*: For applicable auto switches, refer to the table below.

★ Enter the auto switch mounting type (A or B) even when a built-in magnet cylinder without an auto switch is required.

### 6 Number of auto switches

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

### 7 Auto switch mounting bracket

\*: This symbol is indicated when the D-A9□ or M9□ type auto switch is specified. This mounting bracket does not apply to other auto switches (D-C7□ and H7□, etc.) (Nil)

## Built-in Magnet Cylinder Model

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

Example	Rail mounting	CDBJ2B16-45-HN-A
	Band mounting	CDBJ2B16-60-HN-B

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

\*: Refer to page 148 for auto switch mounting brackets.

## Applicable Auto Switches

(Refer to pages 1575 to 1701 for further information on auto switches.)

Type	Special function	Electrical entry Indicator/light	Wiring (Output)	Load voltage		Auto switch model				Lead wire length [m] (Nil) 1 (M) 3 (L) 5 (Z) None (N)	Pre-wired connector	Applicable load			
						Band mounting		Rail mounting							
				Perpendicular	In-line	Perpendicular	In-line								
Solid state auto switch	—	Grommet	3-wire (PNP) 3-wire (PINP)	5 V, 12 V 12 V	— 12 V	M9NV	M9N	M9NV	M9N	● ● ○ — ○	—	IC circuit			
		Connector	2-wire			M9PV	M9P	M9PV	M9P	● ● ○ — ○	—	—			
	Diagnostic indication (2-color indicator)	Yes	3-wire (PNP) 3-wire (PINP)	24 V	— 5 V, 12 V 12 V	M9BV	M9B	M9BV	M9B	● ● ○ — ○	—	IC circuit			
			2-wire			H7C	J7C	—	—	● ○ ● ● ○	—	—			
	Water resistant (2-color indicator)	Grommet	3-wire (PNP) 3-wire (PINP)			M9NWV	M9NW	M9NWV	M9NW	● ○ ○ ○ ○	—	IC circuit			
			2-wire			M9PWV	M9PW	M9PWV	M9PW	● ○ ○ ○ ○	—	—			
	Water resistant (2-color indicator)	Grommet	4-wire (NPN/PNP)			M9BWV	M9BW	M9BWV	M9BW	● ○ ○ ○ ○	—	IC circuit			
			4-wire (NPN/PNP)			M9NAV <sup>†</sup>	M9NA <sup>†</sup>	M9NAV <sup>†</sup>	M9NA <sup>†</sup>	○ ○ ○ ○ ○	—	—			
	With diagnostic output (2-color indicator)	Grommet	3-wire (NPN equivalent)		5 V, 12 V 24 V	A96V	A96	A96V	A96	● ○ ○ ○ ○	—	IC circuit			
			3-wire (NPN equivalent)			—	—	A72	A72H	● ○ ○ ○ ○	—	—			
Reed auto switch	—	Yes	3-wire (NPN equivalent)			100 V	A93V <sup>‡</sup>	A93	A93V <sup>‡</sup>	● ○ ○ ○ ○	—	—			
			2-wire			100 V or less	A90V	A90	A90V	● ○ ○ ○ ○	—	IC circuit			
			2-wire			—	C73C	A73C	—	● ○ ○ ○ ○	—	—			
			2-wire			24 V or less	C80C	A80C	—	● ○ ○ ○ ○	—	IC circuit			
			2-wire			—	A79W	—	● ○ ○ ○ ○	—	—	—			
Diagnostic indication (2-color indicator)	Grommet	Yes	—			—	—	—	—	—	—	Relay, PLC			
			—			—	—	—	—	—	—	—			
Diagnostic indication (2-color indicator)	Grommet	No	—			—	—	—	—	—	—	—			
			—			—	—	—	—	—	—	—			
Diagnostic indication (2-color indicator)	Grommet	Yes	—			—	—	—	—	—	—	—			
			—			—	—	—	—	—	—	—			
Diagnostic indication (2-color indicator)	Grommet	No	—			—	—	—	—	—	—	—			
			—			—	—	—	—	—	—	—			

\*1: Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Please contact SMC regarding water resistant types with the above model numbers.

\*2: 1 m type lead wire is only applicable to D-A93.

\*3: Lead wire length symbols: 0.5 m..... Nil (Example) M9NW

1 m..... M (Example) M9NWM

3 m..... L (Example) M9NWL

5 m..... Z (Example) M9NZW

None..... N (Example) H7CN

\*4: Since there are other applicable auto switches than listed, refer to page 149 for details.

\*5: Solid state auto switches marked with "○" are produced upon receipt of order.

\*6: The D-A9□/M9□/A7□/A80□/F7□/J7□ auto switches are shipped together, (but not assembled). (However, when the D-A9□/M9□ types are selected, only auto switch mounting brackets are assembled before being shipped.)

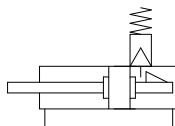
\*7: When the D-A9□/M9□ types are mounted on a rail, order auto switch mounting brackets separately. Refer to page 148 for details.

**The CJ2 air cylinder is  
equipped with end lock function.**



#### Symbol

Rubber bumper



## Specifications

Bore size [mm]	16
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 (No freezing) 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

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

**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

## 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 Strokes

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

\*: Manufacture of intermediate strokes in 1 mm increments is possible. (Spacers are not used.)

\*: Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on front matter pages. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to the deflection etc.

## Mounting Brackets/Part No.

Mounting bracket	Bore size [mm]
	16
Foot	CJ-L016B
Flange	CJ-F016B
Pivot bracket (T-bracket) <sup>Note 1)</sup>	CJ-T016B

Note 1) The pivot bracket (T-bracket) is used with double clevis (D).

Note 2) Stainless steel mounting brackets and accessories are also available.

Refer to page 63-1 for details.

Refer to pages 142 to 149 for cylinders with auto switches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

### Moisture Control Tube IDK Series



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

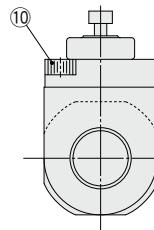
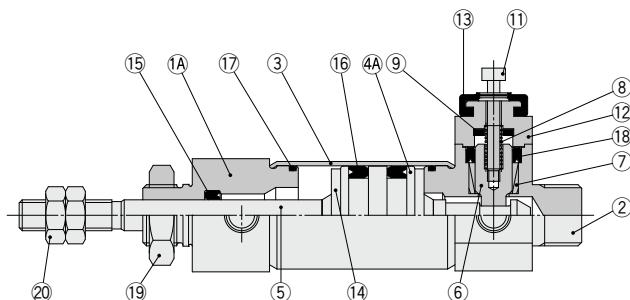
Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to [the IDK series in the Best Pneumatics No. 6](#).

D-□  
-X□  
Technical Data

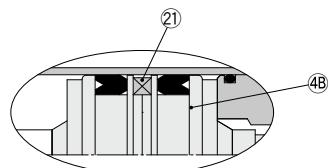
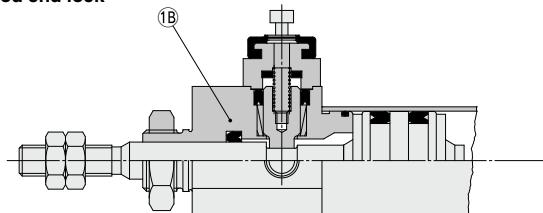
# CBJ2 Series

## Construction (Not able to disassemble)

### Head end lock



### Rod end lock



With auto switch

### Component Parts

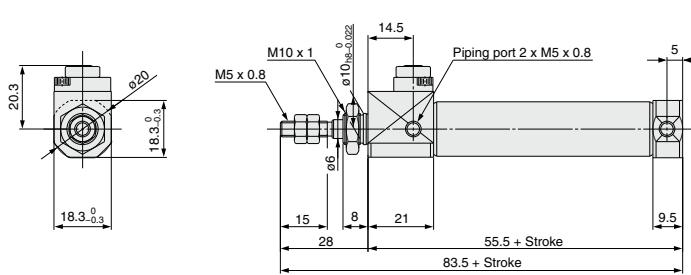
No.	Description	Material	Note
1A	Rod cover	Aluminum alloy	
1B	Rod cover	Stainless steel	
2	Head cover	Aluminum alloy	
3	Cylinder tube	Stainless steel	
4A	Piston	Aluminum alloy	
4B	Piston B	Aluminum alloy	
5	Piston rod	Carbon steel	
6	Locking piston	Carbon steel	
7	Locking bushing	Copper alloy	
8	Lock spring	Spring steel	
9	Bumper	Urethane	
10	Hexagon socket head cap screw	Alloy steel	

No.	Description	Material	Note
11	Hexagon socket head cap screw	Alloy steel	
12	Cap	Aluminum alloy	
13	Rubber cap	Synthetic rubber	
14	Bumper	Urethane	
15	Rod seal	NBR	
16	Piston seal	NBR	
17	Tube gasket	NBR	
18	Locking piston seal	NBR	
19	Mounting nut	Brass	
20	Rod end nut	Rolled steel	
21	Magnet	—	

## Dimensions

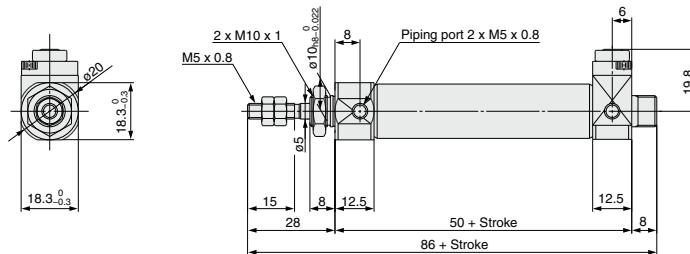
### Basic

With rod end lock: C□BJ2B16-□-RN



CJ1
CJP
CJ2
JCM
CM2
CM3
CG1
CG3
JMB
MB1
CA2
CS1
CS2

With head end lock: C□BJ2B16-□-HN



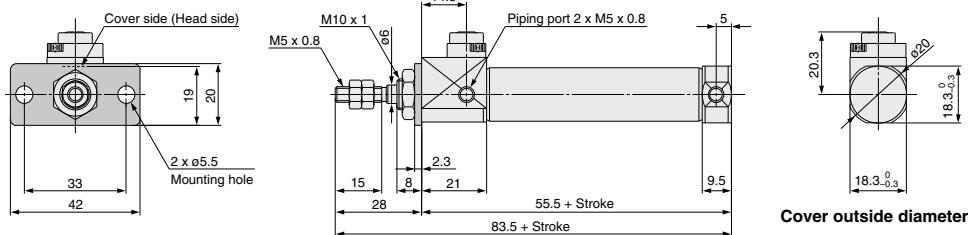
D-□
-X□
Technical Data

# **CBJ2 Series**

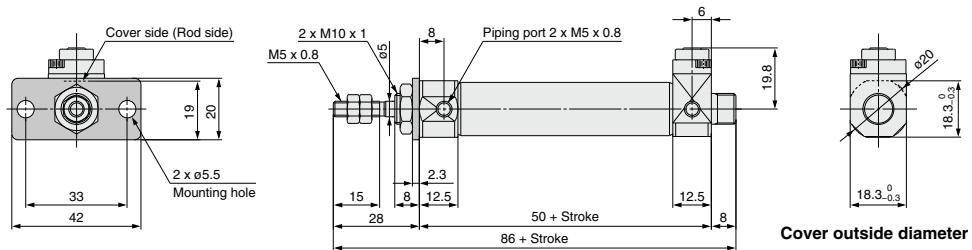
## **Dimensions**

### **Flange**

With rod end lock: C□BJ2F16-□-RN



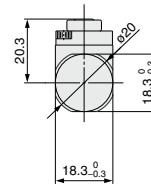
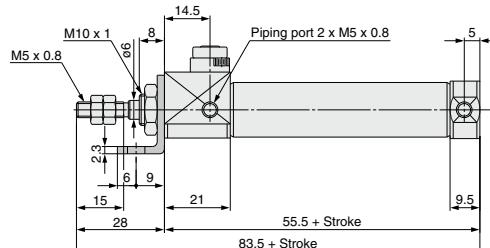
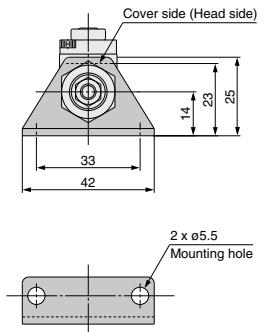
With head end lock: C□BJ2F16-□-HN



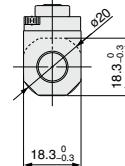
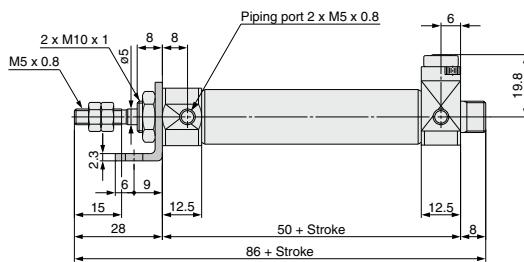
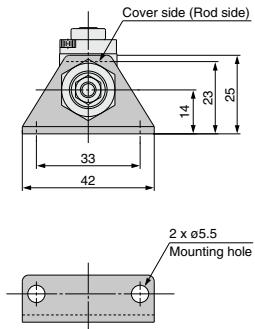
## Dimensions

### Axial foot

With rod end lock: C□BJ2L16-□□-RN



With head end lock: C□BJ2L16-□□-HN



- CJ1
- CJP
- CJ2
- JCM
- CM2
- CM3
- CG1
- CG3
- JMB
- MB
- MB1
- CA2
- CS1
- CS2

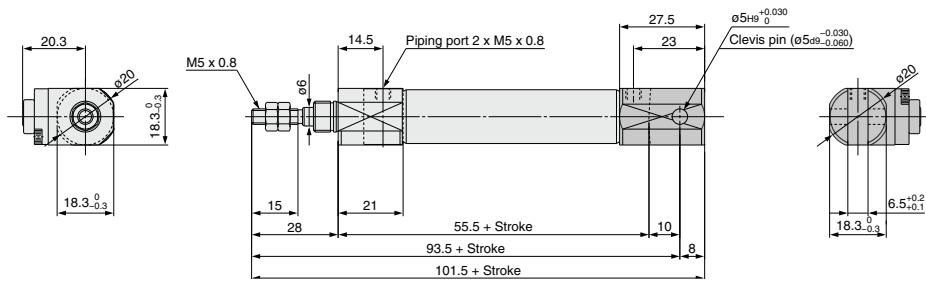
- D-□
- X□
- Technical Data

# **CBJ2 Series**

## **Dimensions**

### **Double clevis**

With rod end lock: C□BJ2D16-□-RN





# CBJ2 Series

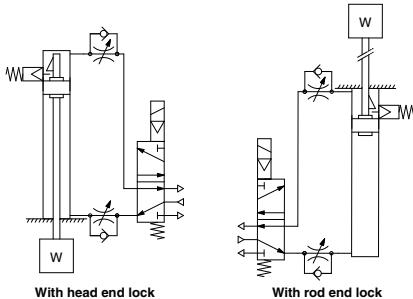
## Specific Product Precautions

Be sure to read this before handling the products. 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 "Lock 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 indicator 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

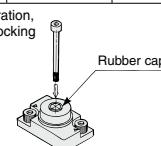
#### ⚠ Caution

##### Non-locking type 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 x 0.4 x 20 L or more	4.9	2

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



CJ1

CJP

CJ2

JCM

CM2

CM3

CG1

CG3

JMB

MB1

CA2

CS1

CS2

D-

-X-

Technical Data

## CJ2 Series

# Auto Switch Mounting

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

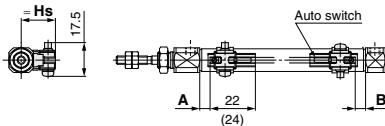
#### Solid state auto switch

##### <Band mounting>

D-M9□

D-M9□W

D-M9□A



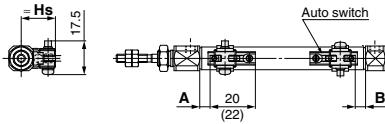
( ): Dimension of the D-M9□A.

A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

D-M9□V

D-M9□MV

D-M9□AV



( ): Dimension of the D-M9□AV.

A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

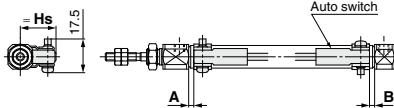
D-H7□

D-H7□W

D-H7BA

D-H7NF

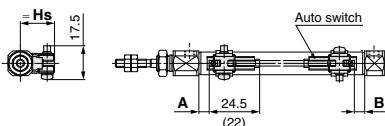
D-H7C



#### Reed auto switch

##### <Band mounting>

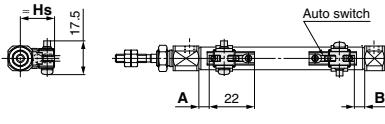
D-A9□



( ): Dimension of the D-A96.

A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

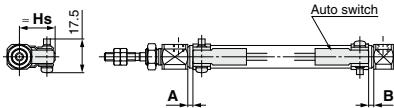
D-A9□V



A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

D-C7□/C80

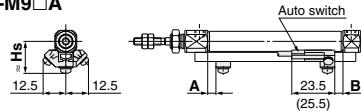
D-C73C□/C80C



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

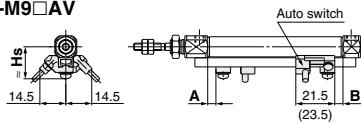
## &lt;Rail mounting&gt;

D-M9□  
D-M9□W  
D-M9□A



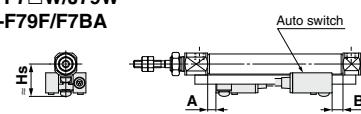
( ): Dimension of the D-M9□A.

D-M9□V  
D-M9□WV  
D-M9□AV

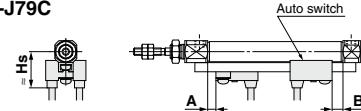


( ): Dimension of the D-M9□AV.

D-F7□/J79  
D-F7□W/J79W  
D-F79F/F7BA

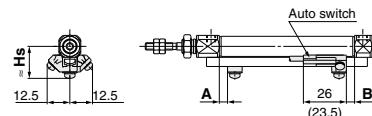


D-F7□V/F7□WV  
D-F7BAV  
D-J79C



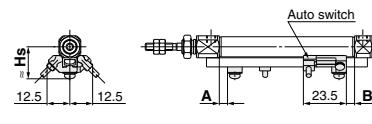
## &lt;Rail mounting&gt;

D-A9□

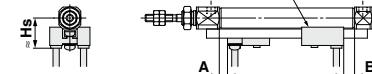


( ): Dimension of the D-A96.

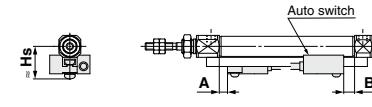
D-A9□V



D-A7□/A80  
D-A73C/A80C  
D-A79W



D-A7□H/A80H



**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

**D-□**  
**-X□**  
Technical Data

# CJ2 Series

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

### Auto Switch Proper Mounting Position (Single acting type excluded) [mm]

Auto switch model	Band mounting							
	D-M9□		D-A9□		D-H7□		D-C7□	
Bore size	A	B	A	B	A	B	A	B
6	5.5 (4.5) [12]	5.5 (4.5) [4]	1.5 (0.5) [8]	1.5 (0.5) [0]	1 (7.5)	1 (0)	2 (8.5)	2 (0.5)
10	(5) 6	(5) 6	(1) 2	(1) 2	1.5	1.5	2.5	2.5
16	(5.5) 6.5	(5.5) 6.5	(1.5) 2.5	(1.5) 2.5	2	2	3	3

\*: The values in ( ) are measured from the end of the auto switch mounting bracket.

\*: The values in [ ] for bore size 6φ are for the double rod type (CJ2W series).

Auto switch model	Rail mounting											
	D-M9□		D-A9□		D-F7□/J79		D-F7□/W/J79W		D-F7□/F7□/WV		D-F79F	
Bore size	A	B	A	B	A	B	A	B	A	B	A	B
6	—	—	—	—	—	—	—	—	—	—	—	—
10	4.5	4.5	0.5	0.5	3.5	3.5	8.5	8.5	3	3	0.5	0.5
16	5	5	1	1	4	4	9	9	3.5	3.5	1	1

\*: Adjust the auto switch after confirming the operating condition in the actual setting.

### Auto Switch Mounting Height

[mm]

Auto switch model	Band mounting					
	D-M9□		D-M9□V		D-H7□/H7□W	
Bore size	Hs	Hs	Hs	Hs	Hs	Hs
6	15	16	15	18	17.5	—
10	17	18	17	20	19.5	—
16	20.5	21	20.5	23.5	23	—

Auto switch model	Rail mounting						
	D-M9□		D-F7□/J79		D-F7□/V		D-J79C
Bore size	Hs	Hs	Hs	Hs	Hs	Hs	Hs
6	—	—	—	—	—	—	—
10	17.5	17.5	20	23	16.5	23.5	19
16	21	20.5	23	26	19.5	26.5	22

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

### Auto Switch Proper Mounting Position: Spring Return Type (S)

- Standard Type (CDJ2□□□-□SZ)
- Non-rotating Rod Type (CDJ2K□□□-□SZ)
- Direct Mount Type (CDJ2R□□□-□SZ)
- Direct Mount, Non-rotating Rod Type (CDJ2RK□□□-□SZ)

Auto switch model	Bore size	A dimensions [mm]									B
		5 to 9 st	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	
Band mounting	D-M9□	6	—	12	21	25	39	—	—	—	5.5
	D-M9□W/M9□WV	10	—	13	20.5	32.5	44.5	—	—	—	6
	D-M9□A/M9□AV	16	—	12.5	21	33	45	51	75	93	105
	D-M9□V	6	12	12	21	25	39	—	—	—	5.5
		10	13	13	20.5	32.5	44.5	—	—	—	6
		16	12.5	12.5	21	33	45	51	75	93	105
	D-A9□	6	—	8	17	21	35	—	—	—	1.5
		10	—	9	16.5	28.5	40.5	—	—	—	2
		16	—	8.5	17	29	41	47	71	89	101
	D-A9□V	6	8	8	17	21	35	—	—	—	1.5
		10	9	9	16.5	28.5	40.5	—	—	—	2
		16	8.5	8.5	17	29	41	47	71	89	101
Rail mounting	D-H7□/H7C	6	—	7.5	16.5	20.5	34.5	—	—	—	1
	D-H7□W/H7BA	10	—	8.5	16	28	40	—	—	—	1.5
	D-H7NF	16	—	8	16.5	28.5	40.5	46.5	70.5	88.5	100.5
	D-C7□/C80	6	—	8.5	17.5	21.5	35.5	—	—	—	2
		10	—	9.5	17	29	41	—	—	—	2.5
		16	—	9	17.5	29.5	41.5	47.5	71.5	89.5	101.5
	D-M9□	10	—	11.5	19	31	43	—	—	—	4.5
		16	—	11	19.5	31.5	43.5	49.5	73.5	91.5	103.5
		10	11.5	11.5	19	31	43	—	—	—	4.5
	D-M9□V	16	11	11	19.5	31.5	43.5	49.5	73.5	91.5	103.5
		10	—	7.5	15	27	39	—	—	—	0.5
	D-A9□	16	—	7	15.5	27.5	39.5	45.5	69.5	87.5	99.5
		10	7.5	7.5	15	27	39	—	—	—	0.5
	D-A9□V	16	7	7	15.5	27.5	39.5	45.5	69.5	87.5	99.5
		10	10.5	10.5	18	30	42	—	—	—	3.5
	D-F7□/F7□V D-J79/J79C D-A7□H/A80H D-A73C/A80C	16	10	10	18.5	30.5	42.5	48.5	72.5	90.5	102.5
		10	—	10.5	18	30	42	—	—	—	3.5
		16	—	10	18.5	30.5	42.5	48.5	72.5	90.5	102.5
	D-F7□W/J79W D-F7□WV/F79F D-F7BA/F7BAV	10	—	10.5	18	30	42	—	—	—	3.5
		16	—	10	18.5	30.5	42.5	48.5	72.5	90.5	102.5
	D-F7NT	10	—	15.5	23	35	47	—	—	—	8.5
		16	—	15	23.5	35.5	47.5	53.5	77.5	95.5	107.5
	D-A7□/A80	10	10	10	17.5	29.5	41.5	—	—	—	3
		16	9.5	9.5	18	30	42	48	72	90	102
	D-A79W	10	—	7.5	15	27	39	—	—	—	0.5
		16	—	7	15.5	27.5	39.5	45.5	69.5	87.5	99.5

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

CJ1

CJP

CJ2

JCM

CM2

CM3

CG1

CG3

JMB

MB

MB1

CA2

CS1

CS2

D-□

-X□

Technical Data

# CJ2 Series

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

### Auto Switch Proper Mounting Position: Spring Extend Type (T)

- Standard Type (CDJ2□□□-□TZ)
- Non-rotating Rod Type (CDJ2K□□□-□TZ)
- Direct Mount Type (CDJ2R□□□-□TZ)
- Direct Mount, Non-rotating Rod Type (CDJ2RK□□□-□TZ)

Auto switch model	Bore size	A	B dimensions									[mm]
			5 to 9 st	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	
Band mounting	D-M9□	6	5.5	—	12	21	25	39	—	—	—	—
	D-M9□W/M9□WV	10	6	—	13	20.5	32.5	44.5	—	—	—	—
	D-M9□A/M9□AV	16	6.5	—	12.5	21	33	45	51	75	93	105
	D-M9□V	6	5.5	12	12	21	25	39	—	—	—	—
		10	6	13	13	20.5	32.5	44.5	—	—	—	—
		16	6.5	12.5	12.5	21	33	45	51	75	93	105
	D-A9□	6	1.5	—	8	17	21	35	—	—	—	—
		10	2	—	9	16.5	28.5	40.5	—	—	—	—
		16	2.5	—	8.5	17	29	41	47	71	89	101
Rail mounting	D-A9□V	6	1.5	8	8	17	21	35	—	—	—	—
		10	2	9	9	16.5	28.5	40.5	—	—	—	—
		16	2.5	8.5	8.5	17	29	41	47	71	89	101
	D-H7□/H7C	6	1	—	7.5	16.5	20.5	34.5	—	—	—	—
		10	1.5	—	8.5	16	28	40	—	—	—	—
		16	2	—	8	16.5	28.5	40.5	46.5	70.5	88.5	100.5
	D-C7□/C80	6	2	—	8.5	17.5	21.5	35.5	—	—	—	—
		10	2.5	—	9.5	17	29	41	—	—	—	—
		16	3	—	9	17.5	29.5	41.5	47.5	71.5	89.5	101.5
Rail mounting	D-M9□	10	4.5	—	11.5	19	31	43	—	—	—	—
		16	5	—	11	19.5	31.5	43.5	49.5	73.5	91.5	103.5
		10	4.5	11.5	11.5	19	31	43	—	—	—	—
	D-M9□V	16	5	11	11	19.5	31.5	43.5	49.5	73.5	91.5	103.5
		10	0.5	—	7.5	15	27	39	—	—	—	—
	D-A9□	16	1	—	7	15.5	27.5	39.5	45.5	69.5	87.5	99.5
		10	0.5	7.5	7.5	15	27	39	—	—	—	—
	D-A9□V	16	1	7	7	15.5	27.5	39.5	45.5	69.5	87.5	99.5
		10	3.5	10.5	10.5	18	30	42	—	—	—	—
	D-F7□/F7□V	16	4	10	10	18.5	30.5	42.5	48.5	72.5	90.5	102.5
		10	3.5	—	10.5	18	30	42	—	—	—	—
		16	4	—	10	18.5	30.5	42.5	48.5	72.5	90.5	102.5
	D-F7□W/J79W	10	8.5	—	15.5	23	35	47	—	—	—	—
		16	9	—	15	23.5	35.5	47.5	53.5	77.5	95.5	107.5
		10	3	10	10	17.5	29.5	41.5	—	—	—	—
	D-A7□/A80	16	3.5	9.5	9.5	18	30	42	48	72	90	102
		10	0.5	—	7.5	15	27	39	—	—	—	—
	D-A79W	16	1	—	7	15.5	27.5	39.5	45.5	69.5	87.5	99.5

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

## Minimum Stroke for Auto Switch Mounting

Auto switch mounting	Auto switch model	Number of auto switches				[mm]	
		With 1 pc.	With 2 pcs.		With n pcs. (n: Number of auto switches)		
			Different surfaces	Same surface	Different surfaces		
Band mounting	D-M9□	10	15 <sup>*1</sup>	45 <sup>*1</sup>	$15 + 35 \frac{(n-2)}{2}$ (n = 2, 4, 6...) <sup>*3</sup>	45 + 15 (n - 2) (n = 2, 3, 4, 5...)	
	D-M9□W	5	15 <sup>*1</sup>	35	$15 + 35 \frac{(n-2)}{2}$ (n = 2, 4, 6...) <sup>*3</sup>	35 + 25 (n - 2) (n = 2, 3, 4, 5...)	
	D-M9□A	10	15 <sup>*1</sup>	35	$15 + 35 \frac{(n-2)}{2}$ (n = 2, 4, 6...) <sup>*3</sup>	35 + 25 (n - 2) (n = 2, 3, 4, 5...)	
	D-A9□	5	10	35	$10 + 35 \frac{(n-2)}{2}$ (n = 2, 4, 6...) <sup>*3</sup>	35 + 25 (n - 2) (n = 2, 3, 4, 5...)	
	D-H7□/H7□W	10	15	60	$15 + 45 \frac{(n-2)}{2}$ (n = 2, 4, 6...) <sup>*3</sup>	60 + 22.5 (n - 2) (n = 2, 3, 4, 5...)	
	D-H7BA						
	D-H7NF						
	D-C7□	10	15	50	$15 + 40 \frac{(n-2)}{2}$ (n = 2, 4, 6...) <sup>*3</sup>	50 + 20 (n - 2) (n = 2, 3, 4, 5...)	
	D-C80						
Rail mounting	D-H7C	10	15	65	$15 + 50 \frac{(n-2)}{2}$ (n = 2, 4, 6...) <sup>*3</sup>	50 + 27.5 (n - 2) (n = 2, 3, 4, 5...)	
	D-C73C						
	D-C80C						
	D-M9□V	5	—	5	—	10 + 10 (n - 2) (n = 4, 6...) <sup>*4</sup>	
	D-A9□V	5	—	10	—	10 + 15 (n - 2) (n = 4, 6...) <sup>*4</sup>	
	D-M9□	10 (5) <sup>*5</sup>	—	10	—	15 + 15 (n - 2) (n = 4, 6...) <sup>*4</sup>	
	D-A9□						
	D-M9□WV	10	—	15	—	15 + 15 (n - 2) (n = 4, 6...) <sup>*4</sup>	
	D-M9□AV						
	D-M9□W	15 (10) <sup>*5</sup>	—	15	—	20 + 15 (n - 2) (n = 4, 6...) <sup>*4</sup>	
	D-M9□A	15 (10) <sup>*5</sup>	—	20 (15) <sup>*5</sup>	—	20 + 15 (n - 2) (n = 4, 6...) <sup>*4</sup>	
	D-F7□	5	—	5	—	15 + 15 (n - 2) (n = 4, 6...) <sup>*4</sup>	
	D-J79						
	D-F7□V	5	—	5	—	10 + 10 (n - 2) (n = 4, 6...) <sup>*4</sup>	
	D-J79C						
	D-F7□W/J79W	10	—	15	—	15 + 20 (n - 2) (n = 4, 6...) <sup>*4</sup>	
	D-F7BA/F79F/F7NT						
	D-F7□WV	10	—	15	—	10 + 15 (n - 2) (n = 4, 6...) <sup>*4</sup>	
	D-F7□BAV						
	D-A7□/A80	5	—	10	—	15 + 10 (n - 2) (n = 4, 6...) <sup>*4</sup>	
	D-A7□H/A80H						
	D-A73C/A80C						
	D-A7□H	5	—	10	—	15 + 15 (n - 2) (n = 4, 6...) <sup>*4</sup>	
	D-A80H						
	D-A79W	10	—	15	—	10 + 15 (n - 2) (n = 4, 6...) <sup>*4</sup>	

<sup>\*3</sup>: When "n" is an odd number, an even number that is one larger than this odd number is used for the calculation.<sup>\*4</sup>: When "n" is an odd number, an even number that is one larger than this odd number is used for the calculation. However, the minimum even number is 4. So, 4 is used for the calculation when "n" is 1 to 3.<sup>\*5</sup>: The dimension stated in ( ) shows the minimum mountable stroke when the auto switch does not project from the end face of the cylinder body and the lead wire bending space is not hindered.

\*1: Auto switch mounting

Auto switch model	With 2 auto switches	
	Different surfaces <sup>*1</sup>	Same surface <sup>*1</sup>
D-M9□/M9□W/M9□A	Less than 20 stroke <sup>*2</sup>	Less than 55 stroke <sup>*2</sup>
D-A9□	—	Less than 50 stroke <sup>*2</sup>

\*2: Minimum stroke for auto switch mounting in types other than those mentioned in \*1.

CJ1  
CJP  
CJ2  
JCM  
CM2  
CM3  
CG1  
CG3  
JMB  
MB  
MB1  
CA2  
CS1  
CS2

D-□  
-X-  
Technical Data

# CJ2 Series

## Operating Range

		[mm]		
Auto switch model		Bore size		
		6	10	16
Band mounting	D-M9□/M9□V	2	2.5	3
	D-M9□/W/M9□WV			
	D-M9□/A/M9□AV			
	D-A9□	4.5	6	7
	D-H7□/H7□W	3	4	4
	D-H7BA/H7NF			
	D-H7C	5	8	9
Rail mounting	D-C7□/C80/C73C/C80C	6	7	7
	D-M9□/M9□V	—	3	3.5
	D-M9□/W/M9□WV			
	D-M9□/A/M9□AV			
	D-A9□/A9□V	—	6	6.5
	D-F7□/J79/F7□W/J79W			
	D-F7□/V/F7□WV/F79F	—	5	5
Rail mounting	D-J79C/F7BA/F7BAV			
	D-F7NT			
	D-A7□/A80/A7H/A80H	—	8	9
	D-A73C/A80C			
	D-A79W	—	11	13

\*: Values which include hysteresis are for guideline purposes only, they are not a guarantee (assuming approximately ±30% dispersion) and may change substantially depending on the ambient environment.

## Auto Switch Mounting Brackets/Part No.

Auto switch mounting	Auto switch model	Bore size [mm]		
		6	10	16
Band mounting	D-M9□			
	D-M9□V			
	D-M9□W			
	D-M9□WV	BJ6-006 (A set of a, b, d, f)	BJ6-010 (A set of a, b, c, d)	BJ6-016 (A set of a, b, c, d)
	D-A9□			
	D-A9□V			
	D-M9□A *2	BJ6-006S (A set of a, b, d, g)	BJ6-010S (A set of a, b, d, e)	BJ6-016S (A set of a, b, d, e)
Rail mounting	D-M9□/A/M9□AV *2			
	D-F7□/J79/F7□W/J79W			
	D-F7□/V/F7□WV/F79F			
	D-J79C/F7BA/F7BAV			
	D-F7NT			
	D-A7□/A80/A7H/A80H			
	D-A73C/A80C			
Rail mounting	D-A79W			
	D-H7□/H7□W	BJ2-006 (A set of band and screw)	BJ2-010 (A set of band and screw)	BJ2-016 (A set of band and screw)
	D-H7BA/H7NF			
	D-C7□/C80			
	D-C73C/C80C			
	D-M9□		BQ2-012 (S) (A set of a and b)	BQ2-012 (S) (A set of a and b)
	D-M9□V			
*4 Rail mounting	D-M9□W			
	D-M9□WV			
	D-M9□A *4			
	D-M9□AV *4			
	D-A9□			
	D-A9□V			
		—	BQ2-012 BQ2-012S	a Auto switch mounting bracket Set screw (Accessory) b Auto switch mounting screw Nut (Cylinder accessory)

\*1: Since the switch bracket (made from nylon) are affected in an environment where alcohol, chloroform, methylamines, hydrochloric acid or sulfuric acid is splashed over, so it cannot be used. Please contact SMC regarding other chemicals.

\*2: As the indicator LED is projected from the auto switch unit, indicator LED may be damaged if the switch bracket is fixed on the indicator LED.

\*3: When the cylinder is shipped, the auto switch mounting bracket and the auto switch will be included.

\*4: For D-M9□A(V), order the BQ2-012S, which uses stainless steel mounting screws.

## Band Mounting Brackets Set Part No.

Set part no.	Contents	Bore size [mm]		
		6	10	16
BJ2-□□□	• Auto switch mounting band (a) • Auto switch mounting screw (b)	BJ2-006	BJ2-010	BJ2-016
BJ4-1	• Switch bracket (White/PBT) (e) • Switch holder (d)	—	●	●
BJ4-2	• Switch bracket (Black/PBT) (g) • Switch holder (d)	●	—	—
BJ5-1	• Switch bracket (Transparent/Nylon) (c)*1 • Switch holder (d)	—	●	●
BJ5-2	• Switch bracket (Transparent blue/Nylon) (f)*1 • Switch holder (d)	●	—	—

## [Stainless Steel Mounting Screw]

The following stainless steel mounting screw kit is available. Use it in accordance with the operating environment. (Since the auto switch mounting bracket is not included, order it separately.)

BBA4: For D-C7/C8/H7 types

\*5: Refer to page 1682 for details on the BBA4.

When the D-H7BA type auto switch is shipped independently, the BBA4 is attached.

**Other than the applicable auto switches listed in "How to Order", the following auto switches are mountable.**  
Refer to pages 1575 to 1701 for the detailed specifications.

Type	Mounting	Model	Electrical entry	Features	Applicable bore size
<b>Solid state</b>	<b>Band mounting</b>	D-H7A1/H7A2/H7B	Grommet (in-line)	—	ø6 to ø16
		D-H7NW/H7PW/H7BW		Diagnostic indication (2-color indicator)	ø10, ø16
	<b>Rail mounting</b>	D-F79/F7P/J79		—	
		D-F79W/F7PW/J79W	Grommet (Perpendicular)	Diagnostic indication (2-color indicator)	
		D-F7NV/F7PV/F7BV		—	ø10, ø16
		D-F7NWV/F7BWV		Diagnostic indication (2-color indicator)	
<b>Reed</b>	<b>Band mounting</b>	D-C73/C76	Grommet (in-line)	—	ø6 to ø16
		D-C80		Without indicator light	
	<b>Rail mounting</b>	D-A73H/A76H		—	ø10, ø16
		D-A80H	Grommet (Perpendicular)	Without indicator light	
		D-A73		—	
		D-A80		Without indicator light	

\*: With pre-wired connector is also available for solid state auto switches. For details, refer to pages 1648 and 1649.

\*\*: Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H) are also available. For details, refer to page 1593.

CJ1

CJP

CJ2

JCM

CM2

CM3

CG1

CG3

JMB

MB

MB1

CA2

CS1

CS2

D-□

-X□

Technical Data

# Made to Order: Individual Specifications

Contact SMC for detailed specifications, delivery and prices.



## 1 PTFE Grease

Symbol  
-X446

### Applicable Series

Description	Model	Action	Note
Standard type	CJ2	Double acting, Single rod	
		Single acting (Spring return/extend)	
Non-rotating rod type	CJ2W	Double acting, Double rod	
		Double acting, Single rod	
Built-in speed controller type	CJ2Z	Double acting, Single rod	
	CJ2ZW	Double acting, Double rod	
Direct mount type	CJ2R	Double acting, Single rod	
		Single acting (Spring return/extend)	
Direct mount, Non-rotating rod type	CJ2RK	Double acting, Single rod	
		Single acting (Spring return/extend)	

### How to Order

Standard model no.

- X446

PTFE grease •

**Specifications: Same as standard type****Dimensions: Same as standard type**

\*: When grease is necessary for maintenance, grease pack is available, please order it separately.

GR-F-005 (Grease: 5 g)

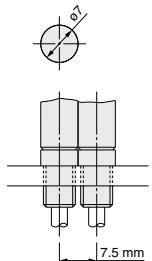
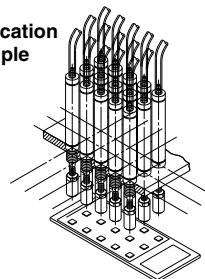
**⚠ Warning****Precautions**

Be aware that smoking cigarettes etc. after your hands have come into contact with the grease used in this cylinder can create a gas that is hazardous to humans.

Symbol  
**-X773****2 Short Pitch Mounting/Single Acting, Spring Return**

Mounting pitch is shortened when cylinders are used in parallel.

- Changes rod cover and head cover dimensions to Ø7.
- Shortens the full length with a head cover integrated with a barb fitting.

**Application example**

Verification of push button actuation for mobile phones etc.

**Applicable Series**

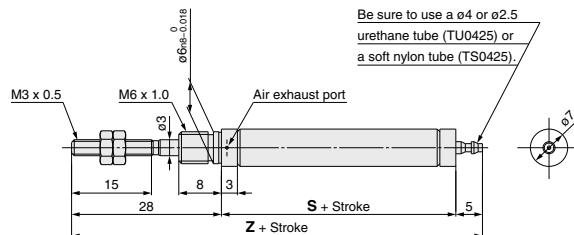
Description	Model	Action	Note
Standard type	CJ2	Single acting (Spring return)	

**How to Order**CJ2B6 - **Stroke** SU4Z - X773

• Short pitch mounting/  
Single acting, spring return

**Specifications**

Bore size [mm]	6
Action	Single acting, Spring return
Operating pressure range	0.2 to 0.7 MPa
Port size	With Ø4 barb fitting (For soft tube)
Connecting port location	Head cover/Axial direction
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

- When mounting a cylinder, make sure that the air exhaust port on the rod cover is not blocked.
- When mounting a cylinder, apply thread locking adhesive on the threaded part and hold the external diameter of the rod cover with a needle-nose pliers or regular pliers.

**CJ1**  
**CJP**  
**CJ2**  
**JCM**  
**CM2**  
**CM3**  
**CG1**  
**CG3**  
**JMB**  
**MB**  
**MB1**  
**CA2**  
**CS1**  
**CS2**

**D-**  
**X**  
Technical Data

# CJ2 Series

Symbol

-X2838

## 3 Double Clevis (With One-touch Connecting Pin)

With pivot bracket (T-bracket) and one-touch connecting pin

Not necessary to order a bracket for the applicable cylinder separately.

### Applicable Series

Applicable Cylinders (Double Clevis Type)

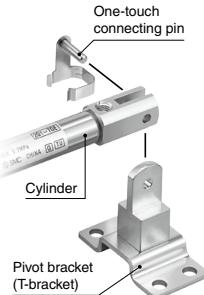
Series	Bore size [mm]	Type	Model	Action	Note
CJ2D	10, 16	Standard	CJ2D	Double acting, Single rod	Cannot be mounted on cylinders with air cushion, or rail mounting type auto switches.
			CJ2D	Single acting, Single rod (Spring return/extend)	
	16	Non-rotating rod type	CJ2KD	Double acting, Single rod	Cannot be mounted on cylinders with air cushion, or rail mounting type auto switches.
			CJ2KD	Single acting, Single rod (Spring return/extend)	

### How to Order

Example) CDJ2D10-60Z-N-M9BW-B-X2838

- With one-touch connecting pin  
\*: The pivot bracket (T-bracket) and one-touch connecting pin are shipped together. Refer to page 63-2 for assembly instructions.
- Pivot bracket (T-bracket)

NII	None
N	Pivot bracket is shipped together with the product, but not assembled.
- Double clevis type

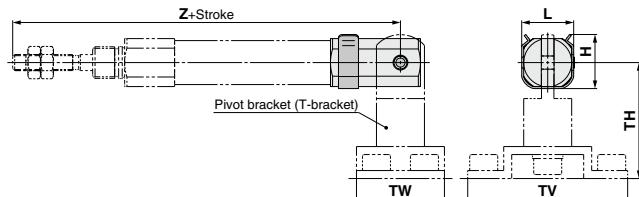


### Specifications: Same as standard type

### Dimensions

CJ2D  $\frac{10}{16}$  – Stroke Z – (N) – X2838

\*: Refer to page 63-2 for assembly procedures and mounting methods.



Applicable bore size	H	L	TH	TV	TW	Z
10	13.4	13.2	29	40	22	82
16	18.2	19.5	35	48	28	85

[mm]  
\*: The pivot bracket (T-bracket) is the same as the standard type. Refer to page 63-1 for details.



## Specific Product Precautions

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

## Mounting

**⚠ Warning**

- 1. Use within the specified cylinder speed and kinetic energy ranges.**

Otherwise, cylinder and seal damage may occur.

- 2. Do not apply excessive lateral load to the piston rod.**

Easy checking method

Minimum operating pressure after the cylinder is mounted to the equipment (MPa) = Minimum operating pressure of cylinder (MPa) + {Load weight (kg) x Friction coefficient of guide/Sectional area of cylinder (mm<sup>2</sup>)}

If smooth operation is confirmed within the above value, the load on the cylinder is the resistance of the thrust only and it can be judged as having no lateral load.

- 3. Do not open the cushion needle after rotating it numerous times in a row. Though uncommon, there are cases in which the cushion needle may leak air.**

The cushion needle should be adjusted by gradually opening it while checking the operation of the cylinder cushion.

**⚠ Caution**

- 1. During installation, secure the cover on the tightening side and tighten by applying an appropriate tightening force to the retaining nut or to the cover on the tightening side.**

If the cover on the opposite side of the tightening side is secured or tightened, the cover could rotate, leading to the deviation.

- 2. Tighten the retaining screws to an appropriate tightening torque within the range given below.**

ø6: 2.1 to 2.5 N·m, ø10: 5.9 to 6.4 N·m

ø16: 10.8 to 11.8 N·m

- 3. To remove and install the retaining ring for the knuckle pin or the clevis pin, use an appropriate pair of pliers (tool for installing a type C retaining ring). In particular, use a pair of ultra-mini pliers for removing and installing the retaining ring on the ø10 cylinder.**

- 4. In the case of auto switch rail mounting type, do not remove the rail that is mounted. Because retaining screws extend into the cylinder, this could lead to an air leak.**

- 5. Please contact SMC when the stroke exceeds 100 mm for the axial foot mounting type.**

**<Precautions on the single acting cylinder>**

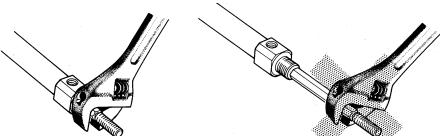
- 1) Do not operate it in such a way that a load would be applied during the retraction of the piston rod of the spring return type, or during the extension of the piston rod of the spring extend type. The spring that is built into the cylinder provides only enough force to retract the piston rod. Thus, if a load is applied, the piston rod will not be able to retract to the end of the stroke.
- 2) 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.

**<Precautions on the non-rotating cylinder>**

- 1) 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
- 2) 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

- 3) 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.



CJ1

CJP

CJ2

JCM

CM2

CM3

CG1

CG3

JMB

MB

MB1

CA2

CS1

CS2

D-□

-X□

Technical Data