Air Cylinder

CJ2 Series

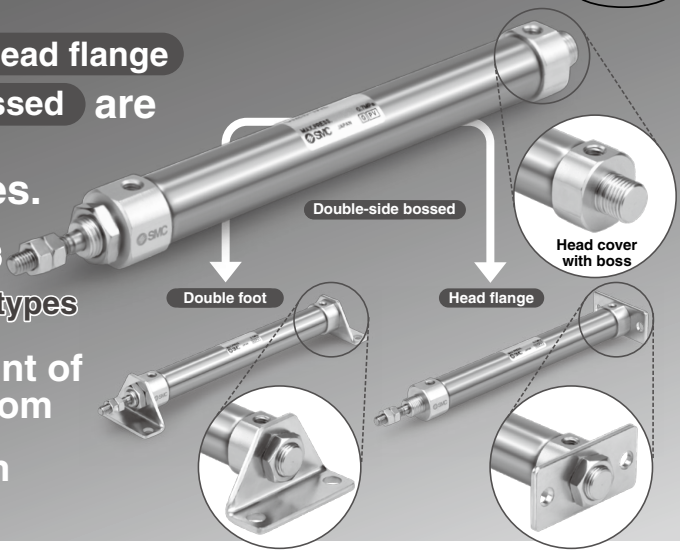
ø6, ø10, ø16

RoHS

Double foot **Head flange**
Double-side bossed **are added to the mounting types.**

4 types ➡ 7 types

For ø6, 3 types ➡ 6 types



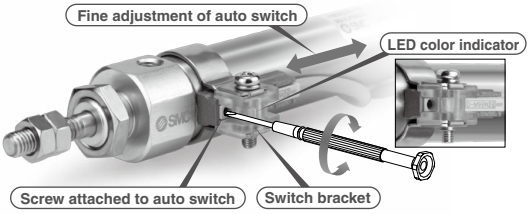
Improved amount of mounting freedom

Head cover with boss is added.

Easy fine adjustment of auto switch position

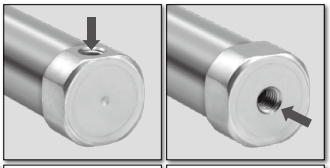
Fine adjustment of the auto switch position is possible by simply loosening the screw attached to the auto switch.

Transparent switch bracket improves visibility of indicator LED.



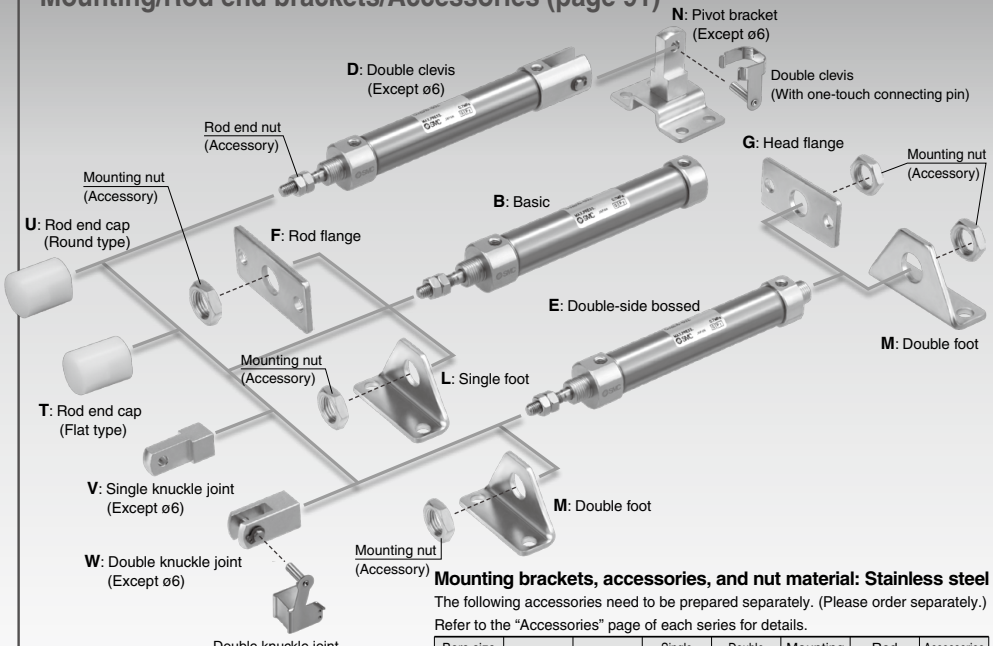
Head cover port location "Perpendicular to axis" is newly added to ø6.

Improved piping flexibility



ø6	●	○
ø10	○	○
ø16	○	○

Mounting/Rod end brackets/Accessories (page 91)



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.

Bore size [mm]	Foot	Flange	Single knuckle joint	Double knuckle joint	Mounting nut	Rod end nut	Accessories page
10, 16	○*	○*	○	○	○*	○	p. 92

*: Except bore size 10.

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-NW-M9BW-B

Pivot bracket

Nil	None
N	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

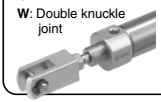
Nil	None
V	Single knuckle joint
W	Double knuckle joint
T	Rod end cap (Flat type)
U	Rod end cap (Round type)

*: V/W: ø10 and ø16 only

With rod end bracket

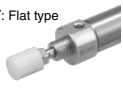
V: Single knuckle joint

W: Double knuckle joint

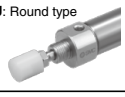


Rod end cap

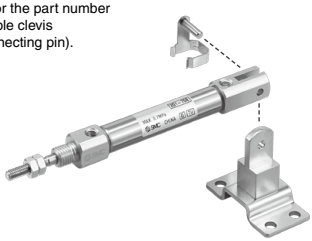
T: Flat type



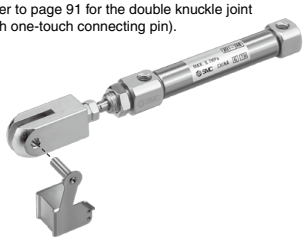
U: Round type



Refer to page 182 for the part number (**-X2838**) of the double clevis (with one-touch connecting pin).



Refer to page 91 for the double knuckle joint (with one-touch connecting pin).



Compact auto switches

General purpose type | 2-color indicator | Water resistant

Solid state auto switch
D-M9□

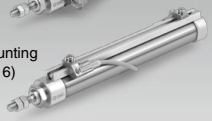
Reed state auto switch
D-A9□

In-line electrical entry

Perpendicular electrical entry

Band mounting
(ø6, ø10, ø16)

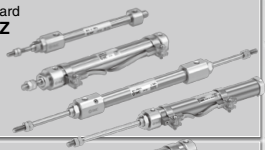
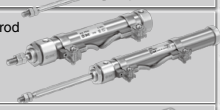
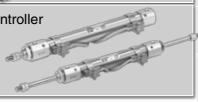
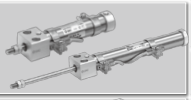
Rail mounting
(ø10, ø16)



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] 6	10	16	Variations Built-in magnet	Air cushion	Page
Standard **CJ2-Z** 	Double acting	Single rod	●	●	●	●	●	74
	Double acting	Double rod	●	●	●	●	●	94
	Single acting	Single rod (Spring return /extend)	●	●	●	●		101
Non-rotating rod **CJ2K-Z** 	Double acting	Single rod		●	●	●	●	118
	Single acting	Single rod (Spring return /extend)		●	●	●		125
Built-in speed controller **CJ2Z-Z** 	Double acting	Single rod		●	●	●	●	137
	Double acting	Double rod		●	●	●	●	144
Direct mount **CJ2R-Z** 	Double acting	Single rod		●	●	●	●	149
	Single acting	Single rod (Spring return /extend)		●	●	●		153
Direct mount, Non-rotating rod **CJ2RK-Z** 	Double acting	Single rod		●	●	●	●	157
	Single acting	Single rod (Spring return /extend)		●	●	●		160
With end lock **CBJ2** 	Double acting	Single rod			●		●	164
Smooth Cylinder **CJ2Y-Z** 	Double acting	Single rod		●	●	●	●	Web Catalog
Low Speed Cylinder **CJ2X-Z** 	Double acting	Single rod		●	●	●	●	Web Catalog

∗: The air cylinder with end lock has the same shape as the current product. ∗: Air cushion is only available for ø10 and ø16.

Environmentally Resistant Specifications

■ Water Resistant ■ Corrosion Resistant

Stainless steel cylinder (CJ5 Series) ····· p. 1117

■ Corrosion Resistant

Fluororubber seal (-XC22) ····· p. 1508

■ Temperature Measures

Heat resistant/Cold resistant cylinder (-XB6, -XB7) ····· p. 1428, 1430

Refer to "Operating Environment" in the Actuator Precautions.

Applications Requiring Lateral Load Resistance

For use in applications in which a lateral load exceeding the allowable value is to be applied, consider using a guide cylinder.

CONTENTS

Air Cylinder *CJ2 Series*

Air Cylinder: Built-in Speed Controller Type
Double Acting, Double Rod CJ2ZW Series

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

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

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

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

Air Cylinder: With End Lock CBJ2 Series

CJ2 Series

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

Symbol	Specifications	Applicable bore size	CJ2 (Standard type) Double acting Single rod	CJ2 (Standard type) Double acting Double rod	CJ2 (Standard type) Single acting Single rod (spring return)	CJ2 (Standard type) Single acting Single rod (spring extend)	CJ2K (Non-rotating rod type) Double acting Single rod	CJ2K (Non-rotating rod type) Single acting Single rod (spring return)	CJ2K (Non-rotating rod type) Single acting Single rod (spring extend)
Page			74	94	101		118	125	
			ø6 to ø16				ø10, ø16		
Standard	**Standard**	ø6 to ø16	●	●	●	●	●	●	●
D	**Built-in magnet**	ø6 to ø16	●	●	●	●	●	●	●
CJ2□-□A	**Air cushion**	ø10, ø16	●	●	—	—	—	—	—
10-, 11-	**Clean series**∗1	ø6 to ø16	●	●∗9	○	○	—	—	—
25A-	**Copper (Cu) and Zinc (Zn)-free**∗5	ø10, ø16	●	○	○	○	○	○	○
XB6	**Heat resistant cylinder (–10 to 150°C)**∗3, 4	ø6 to ø16	◎	◎	○	○	○	○	○
XB7	**Cold resistant cylinder (–40 to 70°C)**∗3, 4	ø6 to ø16	◎	◎	○	○	○	○	○
XB9	**Low speed cylinder (10 to 50 mm/s)**∗4	ø6 to ø16	◎	—	—	—	—	—	—
XB13	**Low speed cylinder (5 to 50 mm/s)**	ø6	◎	—	—	—	—	—	—
XC3	**Special port position**∗2, 4	ø6 to ø16	◎	○	—	—	◎	—	—
XC8	**Adjustable stroke cylinder/ Adjustable extension type**∗4	ø10, ø16	◎	—	○	○	○	○	○
XC9	**Adjustable stroke cylinder/ Adjustable retraction type**∗4	ø10, ø16	◎	—	○	—	◎	○	—
XC10	**Dual stroke cylinder/Double rod type**∗4	ø10, ø16	◎	—	○	○	◎	○	○
XC11	**Dual stroke cylinder/Single rod type**∗4	ø10, ø16	◎	—	—	—	○	—	—
XC22	**Fluororubber seal**∗4	ø6 to ø16	◎	◎	◎	◎	◎	○	○
XC51	**With hose nipple**	ø6 to ø16	◎	◎	◎	◎	◎	◎	◎
XC85	**Grease for food processing equipment**	ø6 to ø16	◎	◎	◎	◎	◎	◎	◎
X446	**PTFE grease**	ø10, ø16	◎	◎	◎	◎	◎	◎	◎
X773	**Short pitch mounting**	ø6	—	—	◎	—	—	—	—
X2838	**Double clevis (With one-touch connecting pin)**∗11	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)*6	CJ2Y Smooth Cylinder	CJ2X Low Speed Cylinder	
Double acting		Double acting	Single acting		Double acting	Single 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	Single rod	
137	144	149	153		157	160		164	Web Catalog	Web Catalog	
ø10, ø16								ø16	ø10, ø16	ø10, ø16	Symbol
●	●	●	●	●	●	●	●	●	●	●	Standard
●	●	●	●	●	●	●	●	●	●	●	D
—	—	○	—	—	—	—	—	—	—	—	CJ2□-□A
—	—	●	○	○	—	—	—	○*7	—	—	10-, 11-
○	○	○	○	○	○	○	○	○	○	○	25A-
○	○	○	○	○	○	○	○	○	—	—	XB6
○	○	○	○	○	○	○	○	—	—	—	XB7
—	—	—	—	—	—	—	—	○	—	—	XB9
—	—	—	—	—	—	—	—	—	—	—	XB13
—	—	○	—	—	○	—	—	○	◎	○	XC3
○	—	○	○	○	○	○	○	—	—	—	XC8
—	—	◎	○	—	◎	○	—	○*8	◎	—	XC9
○	—	○	○	○	○	○	○	○	○	—	XC10
—	—	○	—	—	○	—	—	○*8	—	—	XC11
○	○	◎	○	○	○	○	○	○	—	—	XC22
◎	◎	◎	◎	◎	◎	◎	◎	—	—	—	XC51
◎	◎	◎	◎	◎	◎	◎	◎	—	—	—	XC85
◎	◎	◎	◎	◎	◎	◎	◎	—	—	—	X446
—	—	—	—	—	—	—	—	—	—	—	X773
—	—	—	—	—	—	—	—	—	○	○	X2838

Air Cylinder: Standard Type
Double Acting, Single Rod

CJ2 Series

ø6, ø10, ø16

RoHS

How to Order

CJ2 **B** **16** – **60** **A** □ **Z** – □□ – □

With auto switch **CDJ2** **B** **16** – **60** **A** □ **Z** – □□ – **M9BW** □ – **B** – □

With auto switch (Built-in magnet)

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❶ 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 182 for the double clevis (with one-touch connecting pin).

❷ Bore size

6	6 mm
10	10 mm
16	16 mm

❺ 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.

❾ Number of auto switches

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

❸ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 75.

❻ 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.

❿ 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 178 for auto switch mounting brackets.
*: ø6: Band mounting only

❹ Cushion

Nil	Rubber bumper
A	Air cushion

*: ø6: Rubber bumper only

❼ 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 91 for the double knuckle joint (with one-touch connecting pin).

❽ 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.

⓫ Made to Order

Refer to page 75 for details.

*: **Refer to "Ordering Example of Cylinder Assembly" on page 75.**

Applicable Auto Switches/Refer to pages 1271 to 1365 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Band mounting, Perpendicular	Band mounting, In-line	Rail mounting, Perpendicular	Rail mounting, In-line	Lead wire length [m]: 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V,12 V	—	**M9NV**	**M9N**	**M9NV**	**M9N**	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			**M9PV**	**M9P**	**M9PV**	**M9P**	●	●	●	○	—	○		
				2-wire	12 V		**M9BV**	**M9B**	**M9BV**	**M9B**	●	●	●	○	—	○	—	
		Connector					—	**H7C**	**J79C**	—	●	—	●	●	●	—		
	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	12 V		**M9BWV**	**M9BW**	**M9BWV**	**M9BW**	●	●	●	○	—	○	—	
	Water resistant (2-color indicator)			3-wire (NPN)	5 V,12 V		**M9NAV**∗1	**M9NA**∗1	**M9NAV**∗1	**M9NA**∗1	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)			**M9PAV**∗1	**M9PA**∗1	**M9PAV**∗1	**M9PA**∗1	○	○	●	○	—	○		
				2-wire	12 V		**M9BAV**∗1	**M9BA**∗1	**M9BAV**∗1	**M9BA**∗1	○	○	●	○	—	○	—	
	With diagnostic output (2-color indicator)			4-wire (NPN)	5 V,12 V		—	**H7NF**	—	**F79F**	●	—	●	○	—	○	IC circuit	
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	5 V	—	**A96V**	**A96**	**A96V**	**A96**	●	—	●	—	—	—	IC circuit	—
				2-wire	—	200 V	—	—	**A72**	**A72H**	●	—	●	—	—	—	—	Relay, PLC
			No		24 V	100 V	**A93V**∗2	**A93**	**A93V**∗2	**A93**	●	●	●	●	—	—		
					12 V	100 V or less	**A90V**	**A90**	**A90V**	**A90**	●	—	●	—	—	—	IC circuit	
		Connector	Yes			—	—	**C73C**	**A73C**	—	●	—	●	●	●	—	—	
			No			24 V or less	—	**C80C**	**A80C**	—	●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-color indicator)	Grommet	Yes		—	—	—	—	**A79W**	—	●	—	●	—	—	—	—	

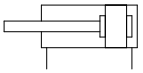
∗1: Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Please contact SMC regarding water resistant types with the above model numbers.
∗2: 1 m type lead wire is only applicable to D-A93.

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

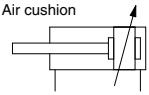
∗: Since there are other applicable auto switches than listed above, refer to page 179 for details.
∗: Solid state auto switches marked with "○" are produced upon receipt of order.
∗: The D-A9□/M9□/A7□/A80□/F7□/J7□ auto switches are shipped together, but not assembled. (For band mounting, only the auto 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 180 and 182.)

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

∗1: ø6 only
∗2: ø10 and ø16 only

Made to Order

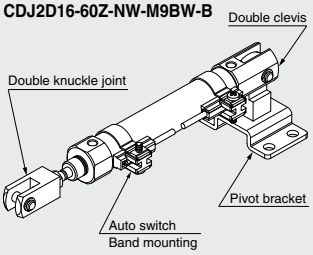
Click here for details

Symbol	Specifications
-XA□	Change of rod end shape
-XB6	Heat resistant cylinder (–10 to 150°C) ∗ Not available with switch & with air cushion
-XB7	Cold resistant cylinder (–40 to 70°C) ∗ Not available with switch & with air cushion
-XB9	Low speed cylinder (10 to 50 mm/s) ∗ Not available with air cushion
-XB13∗3	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

Cylinder model:
CDJ2D16-60Z-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.

∗: Except ø6

Specifications

Bore size [mm]		6	10	16
Action		Double acting, Single rod		
Fluid		Air		
Proof pressure		1 MPa		
Maximum operating pressure		0.7 MPa		
Minimum operating pressure	Rubber bumper	0.12 MPa	0.06 MPa	
	Air cushion	—	0.1 MPa	
Ambient and fluid temperature		Without auto switch: –10°C to 70°C (No freezing) With auto switch: –10°C to 60°C		
Cushion		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	0.090 J
	Air cushion (Effective cushion length)	—	0.07 J (9.4 mm)	0.18 J (9.4 mm)
Stroke length tolerance		$^{+1.0}_{0}$		

Standard Strokes

[mm]

Bore size	Standard stroke	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 pages 8 to 19. 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 68 for the list of brackets and page 91 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	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)	△	△	△	△	△
	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 92 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
T-bracket∗	—	CJ-T010C	CJ-T016C

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

Refer to pages 172 to 179 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 **Web Catalog**.

Weights

[g]

Bore size [mm]		Rubber bumper			Air cushion	
		6	10	16	10	16
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

∗: 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 x 45 + 8 = **42 g**

⚠ Precautions

Refer to page 183 before handling.

Clean Series

10-CJ2 | **Mounting** | **6 / 10 / 16** | **–** | **Stroke** | **Head cover port location** | **Z**

•Clean Series

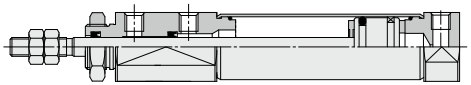
Air cylinder which is applicable for the system which discharges leakage from the rod section directly into the outside of clean room by relief port and making an actuator's rod section having a double seal construction.

Specifications

Action		Double acting, Single rod
Bore size [mm]		6, 10, 16
Maximum operating pressure		0.7 MPa
Minimum operating pressure	**ø6**	0.14 MPa
	ø10, ø16	0.08 MPa
Cushion		Rubber bumper/Air cushion
Standard stroke [mm]		Same as standard type. (Refer to page 75.)
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 **Web Catalog**.

Low Speed Cylinder

CJ2 X | **Mounting** | **10 / 16** | **–** | **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.

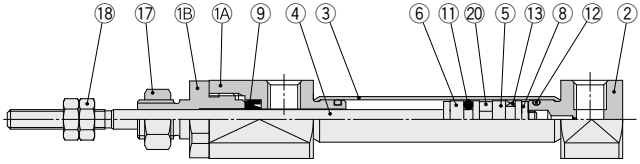
Specifications

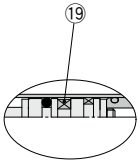
Action		Double acting, Single rod
Bore size [mm]		10, 16
Fluid		Air
Proof pressure		1.05 MPa
Maximum operating pressure		0.7 MPa
Minimum operating pressure		0.06 MPa
Ambient and fluid temperature		Without auto switch: –10 to 70°C With auto switch: –10 to 60°C (No freezing)
Cushion		Rubber bumper (Standard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

For details, refer to the **Web Catalog**.

Construction (Not able to disassemble)

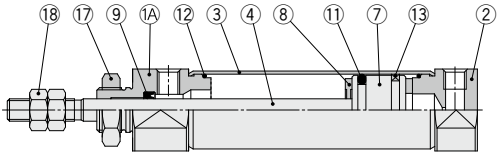
ø6
Rubber bumper

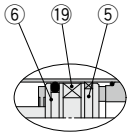




With auto switch

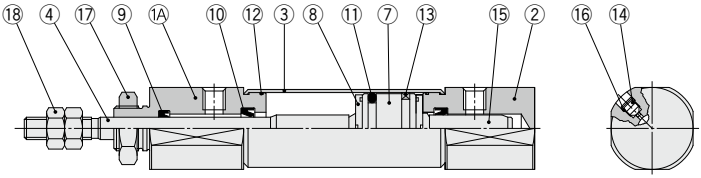
ø10, ø16
Rubber bumper

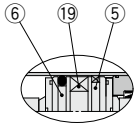




With auto switch

ø10, ø16
Air cushion





With auto switch

Component Parts

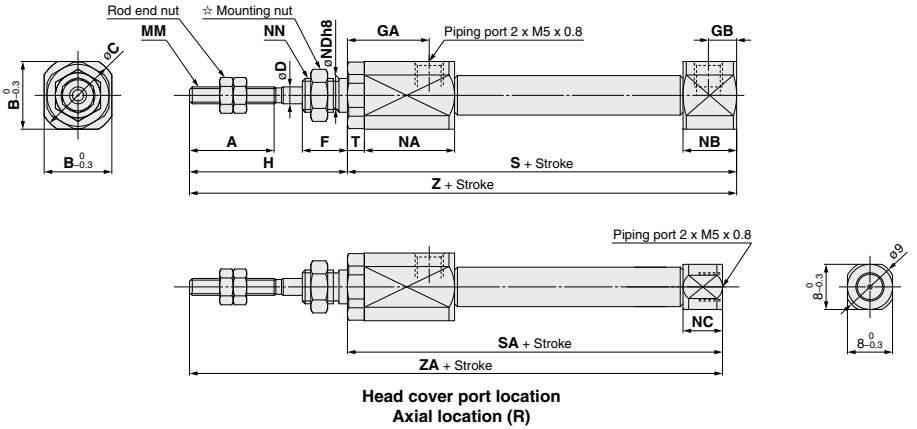
No.	Description	Material	Note
1A	**Rod cover**	Aluminum alloy	
1B	**Seal retainer**	Aluminum alloy	ø6 only
2	**Head cover**	Aluminum alloy	
3	**Cylinder tube**	Stainless steel	
4	**Piston rod**	Stainless steel	
5	**Piston A**	Aluminum alloy	
6	**Piston B**	Aluminum alloy	
7	**Piston**	Aluminum alloy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

Dimensions

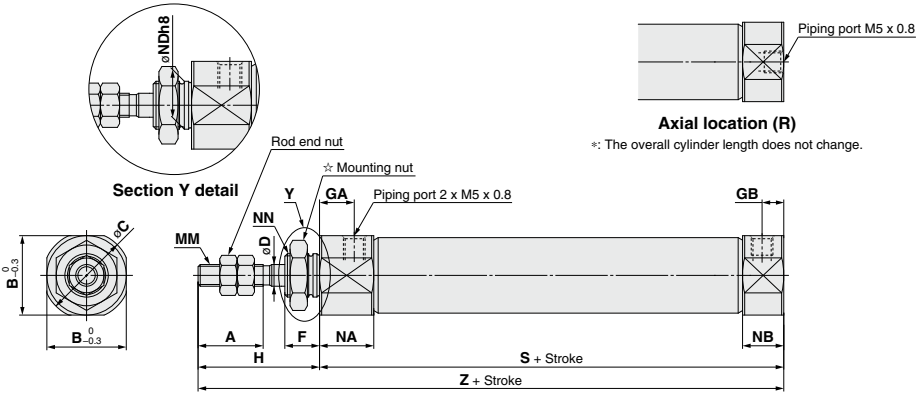
Basic (B)

CJ2B6 – Stroke Head cover port location Z



Head cover port location
Axial location (R)

CJ2B 10 16 – Stroke Head cover port location Z



☆ For details of the mounting nut, refer to page 91.

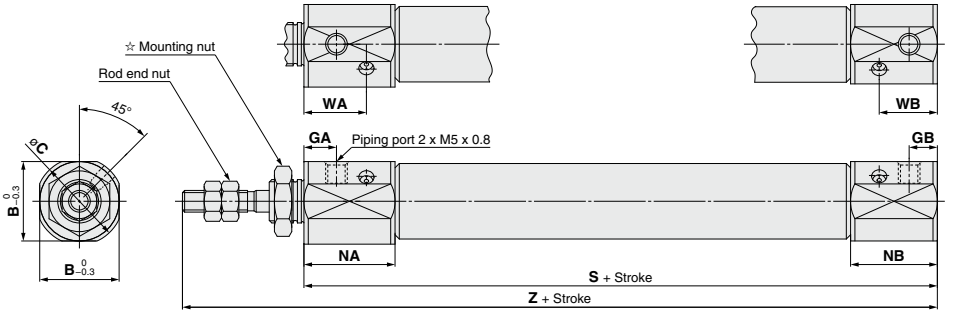
[mm]

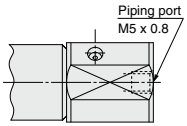
Bore size	A	B	C	D	F	GA	GB	H	MM	NA	NB	NC	NDh8	NN	S	SA	T	Z	ZA
6	15	12	14	3	8	14.5	5	28	M3 x 0.5	16	9.5	7	$6^{0}_{-0.018}$	M6 x 1.0	51.5	49	3	79.5	77
10	15	12	14	4	8	8	5	28	M4 x 0.7	12.5	9.5	—	$8^{0}_{-0.022}$	M8 x 1.0	46	—	—	74	—
16	15	18.3	20	5	8	8	5	28	M5 x 0.8	12.5	9.5	—	$10^{0}_{-0.022}$	M10 x 1.0	47	—	—	75	—

Dimensions

Basic (B)

With air cushion: CJ2B $\frac{10}{16}$ – 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 91.

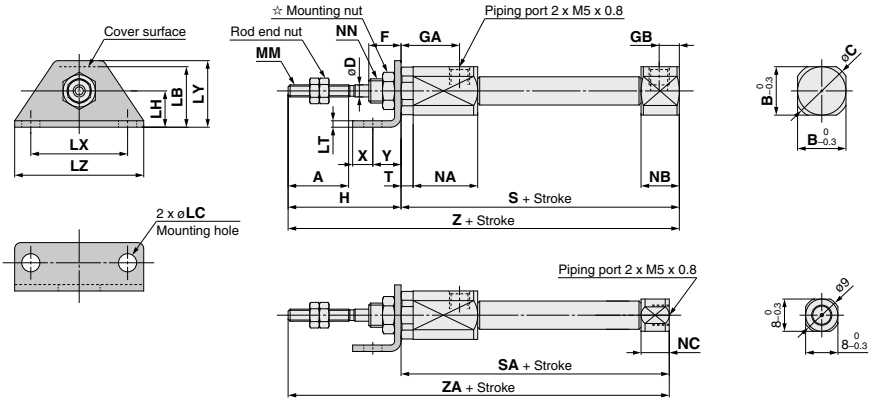
Dimensions other than the table below are the same as those on page 78. [mm]

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	93
16	18.3	20	7.5	6.5	21	20	14.4	13.4	66	94

Dimensions

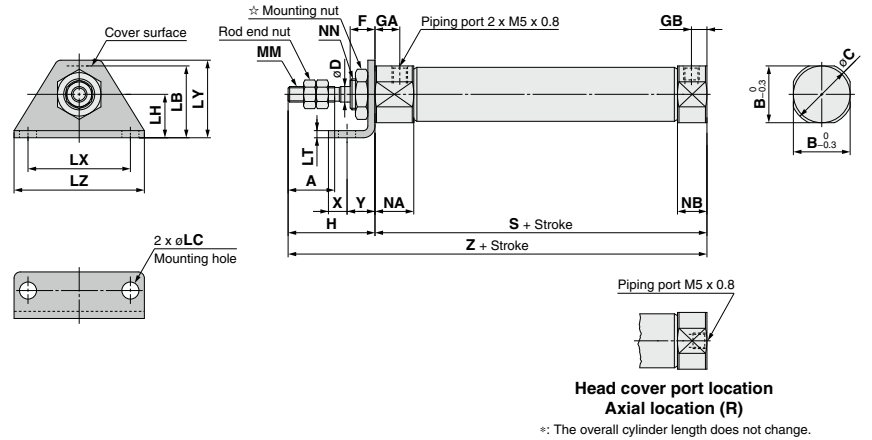
Single foot (L)

CJ2L6 – Stroke Head cover port location Z



Head cover port location
Axial location (R)

CJ2L $\begin{matrix}10\\16\end{matrix}$ – Stroke 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 91.

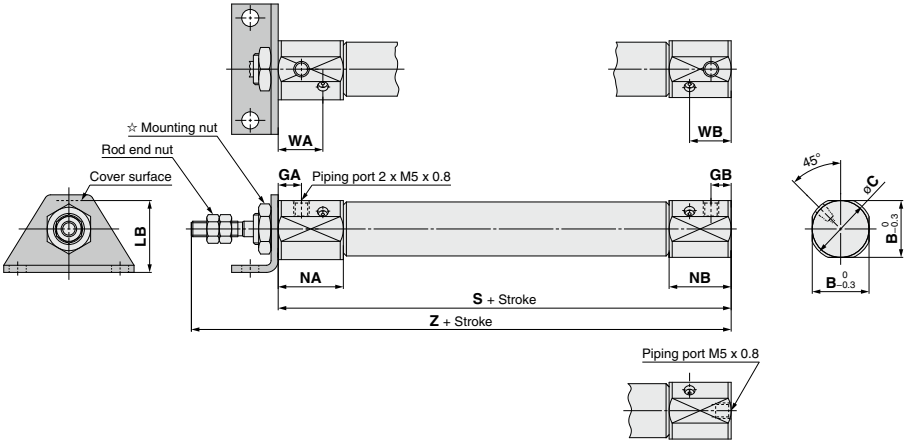
[mm]

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
6	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
10	15	12	14	4	8	8	5	28	15	4.5	9	1.6	24	16.5	32	M4 x 0.7	12.5	9.5	—	M8 x 1.0	46	—	—	5	7	74	—
16	15	18.3	20	5	8	8	5	28	23	5.5	14	2.3	33	25	42	M5 x 0.8	12.5	9.5	—	M10 x 1.0	47	—	—	6	9	75	—

Dimensions

Single foot (L)

With air cushion: CJ2L $\frac{10}{16}$ – 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 91.

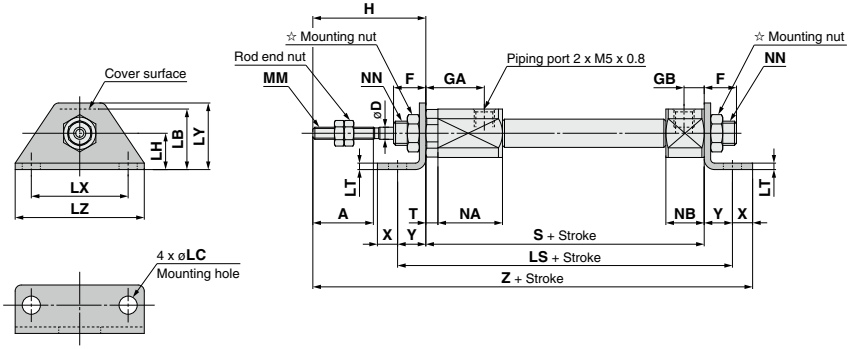
Dimensions other than the table below are the same as those on page 80. [mm]

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

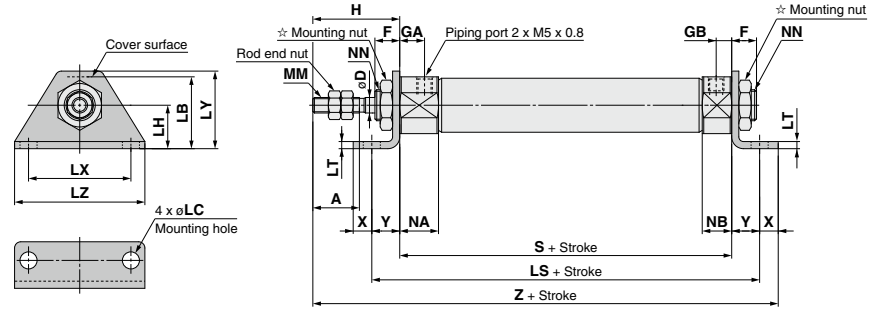
Dimensions

Double foot (M)

CJ2M6 – Stroke Z



CJ2M $\begin{matrix}10\\16\end{matrix}$ – Stroke Z



☆ For details of the mounting nut, refer to page 91.

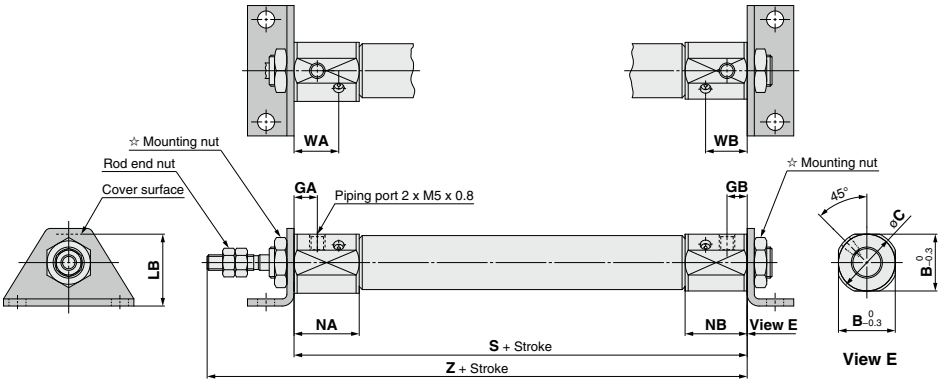
[mm]

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
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 $\begin{matrix}10\\16\end{matrix}$ – Stroke AZ



☆ For details of the mounting nut, refer to page 91.

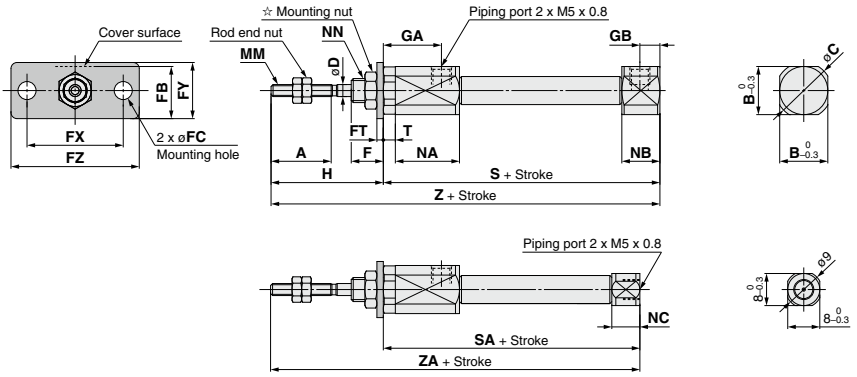
With Air Cushion/Dimensions other than the table below are the same as those on page 82. [mm]

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

Dimensions

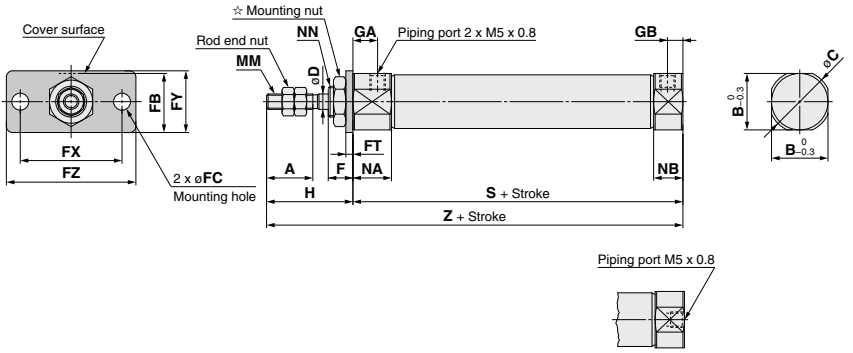
Rod flange (F)

CJ2F6 – Stroke Head cover port location Z



Head cover port location
Axial location (R)

CJ2F $\begin{matrix}10\\16\end{matrix}$ – Stroke 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 91.

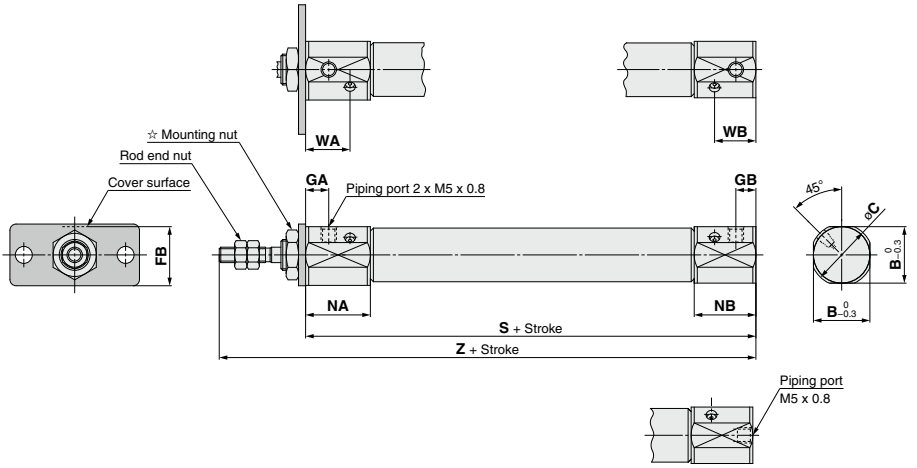
[mm]

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
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 $\frac{10}{16}$ – 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 91.

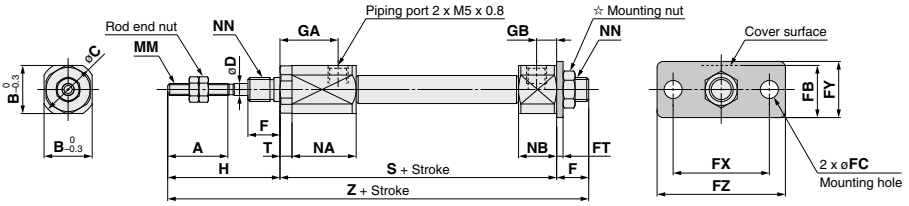
Dimensions other than the table below are the same as those on page 84. [mm]

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

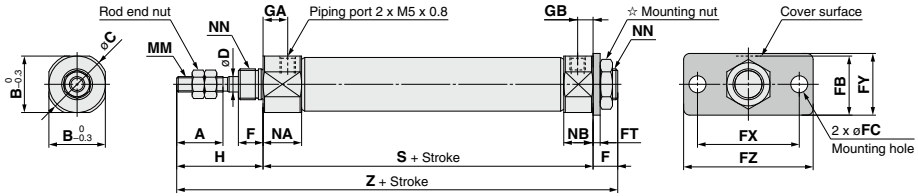
Dimensions

Head flange (G)

CJ2G6 – Stroke Z



CJ2G $\begin{matrix}10\\16\end{matrix}$ – Stroke Z



☆ For details of the mounting nut, refer to page 91.

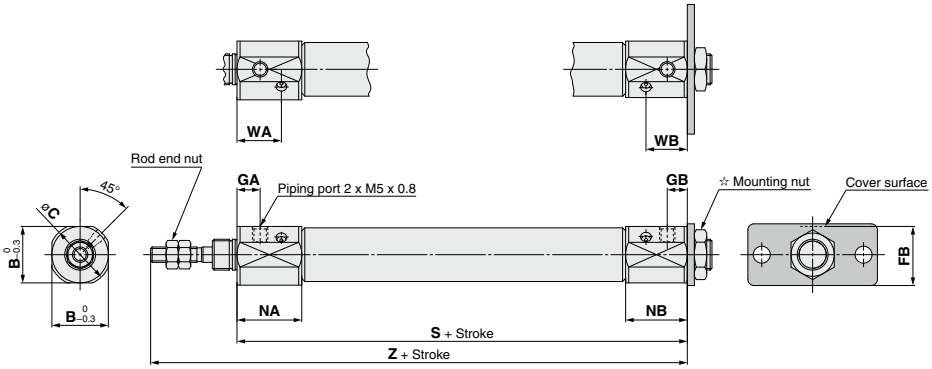
[mm]

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 $\frac{10}{16}$ – Stroke AZ



☆ For details of the mounting nut, refer to page 91.

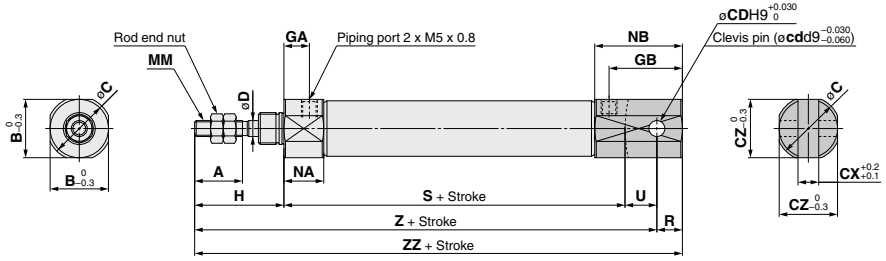
With Air Cushion/Dimensions other than the table below are the same as those on page 86. [mm]

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

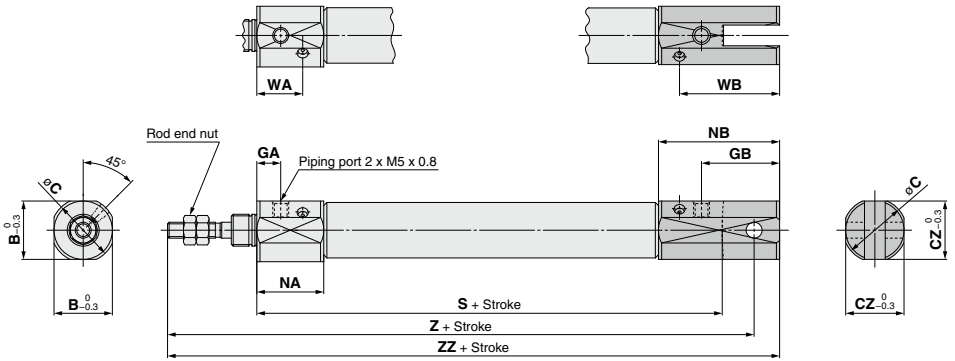
Dimensions

Double clevis (D)

CJ2D $^{10}_{16}$ – Stroke Z



With air cushion: CJ2D $^{10}_{16}$ – Stroke AZ



∗: A clevis pin and retaining rings are included.

[mm]

Bore size	A	B	C	CD (cd)	CX	CZ	D	GA	GB	H	MM	NA	NB	R	S	U	Z	ZZ
10	15	12	14	3.3	3.2	12	4	8	18	28	M4 x 0.7	12.5	22.5	5	46	8	82	87
16	15	18.3	20	5	6.5	18.3	5	8	23	28	M5 x 0.8	12.5	27.5	8	47	10	85	93

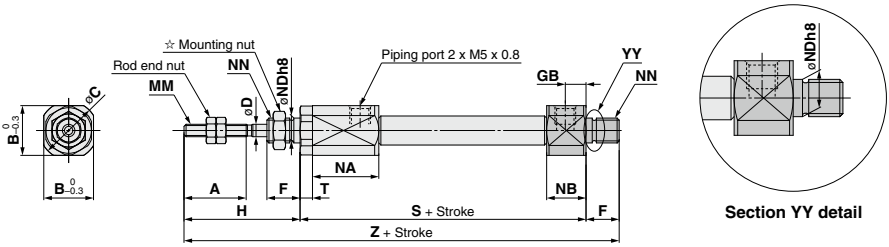
With Air Cushion/Dimensions other than the table below are the same as the table above. [mm]

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

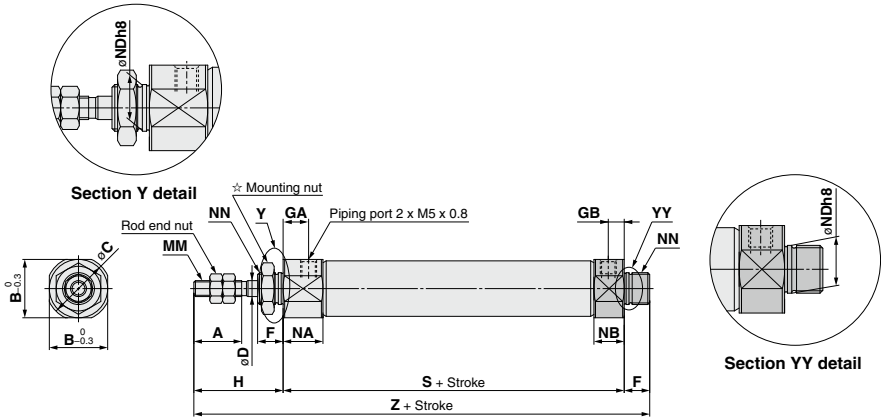
Dimensions

Double-side bossed (E)

CJ2E6 – Stroke Z



CJ2E $^{10}_{16}$ – Stroke Z



☆ For details of the mounting nut, refer to page 91.

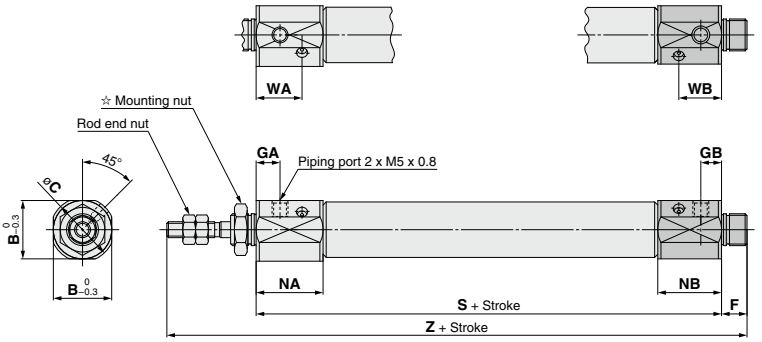
[mm]

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

Dimensions

Double-side bossed (E)

With air cushion: CJ2E $\frac{10}{16}$ – Stroke AZ



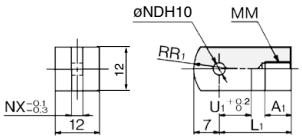
☆ For details of the mounting nut, refer to page 91.

With Air Cushion/Dimensions other than the table below are the same as those on page 89. [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)

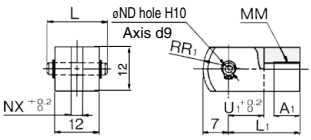
Single Knuckle Joint
Material: Rolled steel



[mm]

Part no.	Applicable bore size	A_1	L_1	MM	NDH10	NX	R_1	U_1
I-J010C	**10**	8	21	M4 x 0.7	$3.3^{+0.048}_{0}$	3.1	8	9
I-J016C	**16**	8	25	M5 x 0.8	$5^{+0.048}_{0}$	6.4	12	14

Double Knuckle Joint
Material: Rolled steel



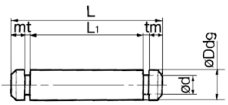
[mm]

Part no.	Applicable bore size	A_1	L	L_1	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_1	U_1
Y-J010C	$3.3^{-0.030}_{-0.060}$	$3.3^{+0.048}_{0}$	3.2	8	10
Y-J016C	$5^{-0.030}_{-0.060}$	$5^{+0.048}_{0}$	6.5	12	10

∗: A knuckle pin and retaining rings are included.

Knuckle Pin
Material: Stainless steel

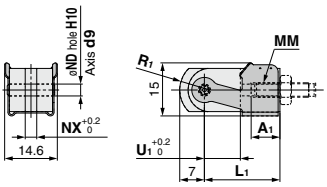


[mm]

Part no.	Applicable bore size	Dd9	d	L	L_1	m	t	Included retaining ring
CD-J010	**10**	$3.3^{-0.030}_{-0.060}$	3	15.2	12.2	1.2	0.3	Type C 3.2
IY-J015	**16**	$5^{-0.030}_{-0.060}$	4.8	16.6	12.2	1.5	0.7	Type C 5

∗: For ø10, a clevis pin is diverted.
∗: Retaining rings are included with a knuckle pin.

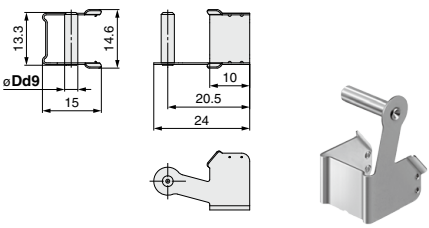
Double Knuckle Joint (With One-touch Connecting Pin)



[mm]

Part no.	Applicable bore size	A_1	L_1	MM	NDd9	NDH10	NX	R_1	U_1
Y-J10	10	8	21	M4 x 0.7	$3.3^{-0.030}_{-0.060}$	$3.3^{+0.048}_{0}$	3.2	8	10
Y-J16	16	11	21	M5 x 0.8	$5^{-0.030}_{-0.060}$	$5^{+0.048}_{0}$	6.5	12	10

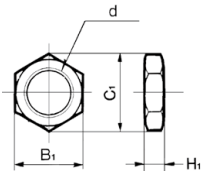
One-touch Connecting Pin for Double Knuckle Joint
Material: Stainless steel



[mm]

Part no.	Applicable bore size	Dd9
IY-J10	**10**	$3.3^{-0.030}_{-0.060}$
IY-J16	**16**	$5^{-0.030}_{-0.060}$

Mounting Nut
Material: Carbon steel

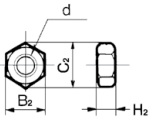


[mm]

Part no.	Applicable bore size	B_1	C_1	d	H_1
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.)

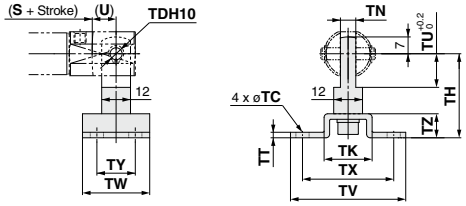
Rod End Nut
Material: Carbon steel



[mm]

Part no.	Applicable bore size	B_2	C_2	d	H_2
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

Pivot Bracket (T-bracket)



[mm]

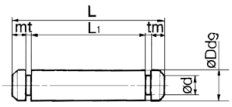
Part no.	Applicable bore size	TC	TDH10	TH	TK	TN	TT	TU	TV	TW	TX	TY	TZ
CJ-T010C	**10**	4.5	$3.3^{+0.048}_{0}$	29	18	3.1	2	9	40	22	32	12	8
CJ-T016C	**16**	5.5	$5^{+0.048}_{0}$	35	20	6.4	2.3	14	48	28	38	16	10

∗: 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 88.

Clevis Pin

Material: Stainless steel



[mm]

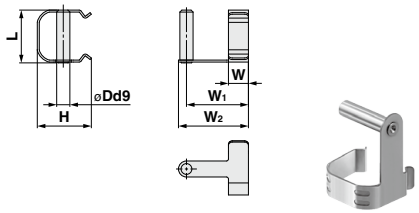
Part no.	Applicable bore size	Dd9	d	L	L_1	m	t	Included retaining ring
CD-J010	**10**	$3.3^{-0.030}_{-0.060}$	3	15.2	12.2	1.2	0.3	Type C 3.2
CD-Z015	**16**	$5^{-0.030}_{-0.060}$	4.8	22.7	18.3	1.5	0.7	Type C 5
CD-JA010∗	**10**	$3.3^{-0.030}_{-0.060}$	3	18.2	15.2	1.2	0.3	Type C 3.2

∗: For ø10 double clevis 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



[mm]

Part no.	Applicable bore size	Dd9	H	L	W
CD-J10	**10**	$3.3^{-0.030}_{-0.060}$	13.4	13.2	4
CD-J16	**16**	$5^{-0.030}_{-0.060}$	18.2	19.5	5

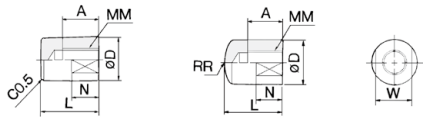
Part no.	W_1	W_2	Note
CD-J10	12	15	Cannot be mounted on cylinders with air cushion, or rail mounting type auto switches.
CD-J16	15	18	

∗: Please pay attention to the applicable cylinder.

Rod End Cap

Material: Polyacetal

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



[mm]

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	6
CJ-CF010	**CJ-CR010**	**10**	8	10	13	M4 x 0.7	6	10	8
CJ-CF016	**CJ-CR016**	**16**	10	12	15	M5 x 0.8	7	12	10

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

Part No. (Dimensions: Same as standard type)

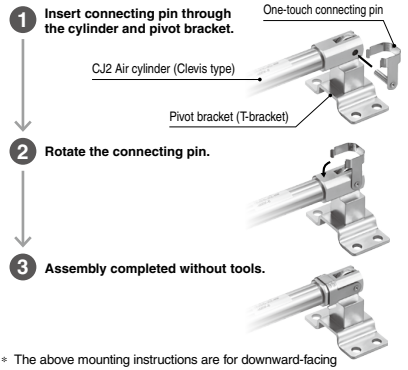
Bore size [mm]	Foot	Flange	Single knuckle joint	Double knuckle joint∗	Mounting nut	Rod end nut
10	—	—	I-J010SUS	Y-J010SUS	—	NTJ-010SUS
16	CJ-L016SUS	CJ-F016SUS	I-J016SUS	Y-J016SUS	SNJ-016SUS	NTJ-015SUS

∗: A knuckle pin and retaining rings are shipped together.

Precautions

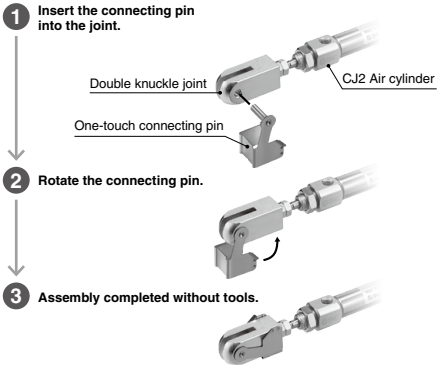
Assembly Procedures

1. Double Clevis (With One-touch Connecting Pin) (CD-J□)



∗ 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□)



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

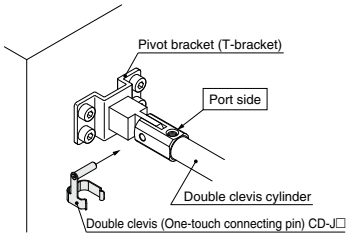
When connecting a double clevis cylinder to a pivot bracket (T-bracket), it is recommended that the pivot bracket (T-bracket) and the cylinder be connected with the one-touch connecting pin first, before fastening the pivot bracket.
When connecting the cylinder after the pivot bracket (T-bracket) has been fastened, mount the cylinder according to the following procedure.

⚠Warning

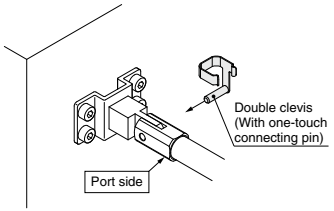
For assembling the clevis type to the pivot bracket, refer to the figure below.

1. Insert the double clevis (One-touch connecting pin) from the direction in the figure.

When port is facing upward

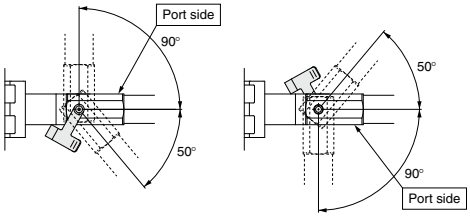


When port is facing downward

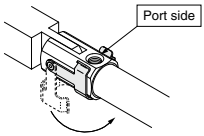


⚠Warning

∗ 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° (±90° from center). Other mounting methods are the same as the above.

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

RoHS

How to Order

CJ2W **B** **16** – **60** **A** **Z** – ☐

With auto switch **CDJ2W** **L** **16** – **60** **A** **Z** – **M9BW** ☐ – **B** – ☐

With auto switch (Built-in magnet)

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

❶ Mounting

B	Basic
L	Foot
F	Flange

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

❷ Bore size

6	6 mm
10	10 mm
16	16 mm

❸ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 95.

❹ Cushion

Nil	Rubber bumper
A	Air cushion

∗: ø6: Rubber bumper only

❺ 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.

❻ Number of auto switches

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

❼ 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 178 for auto switch mounting brackets.

∗: ø6: Band mounting only

❽ Made to Order

Refer to page 95 for details.

Applicable Auto Switches/Refer to pages 1271 to 1365 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Band mounting Perpendicular	Band mounting In-line	Rail mounting Perpendicular	Rail mounting In-line	Lead wire length [m] 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state auto switch	——	Grommet	Yes	3-wire (NPN)	5 V,12 V	—	**M9NV**	**M9N**	**M9NV**	**M9N**	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			**M9PV**	**M9P**	**M9PV**	**M9P**	●	●	●	○	—	○		
				2-wire	12 V		**M9BV**	**M9B**	**M9BV**	**M9B**	●	●	●	○	—	○	—	
		Connector					—	**H7C**	**J79C**	—	●	—	●	●	●	—		
	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	12 V		**M9BWV**	**M9BW**	**M9BWV**	**M9BW**	●	●	●	○	—	○	—	
	Water resistant (2-color indicator)			3-wire (NPN)	5 V,12 V		**M9NAV**∗1	**M9NA**∗1	**M9NAV**∗1	**M9NA**∗1	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)			**M9PAV**∗1	**M9PA**∗1	**M9PAV**∗1	**M9PA**∗1	○	○	●	○	—	○		
				2-wire	12 V		**M9BAV**∗1	**M9BA**∗1	**M9BAV**∗1	**M9BA**∗1	○	○	●	○	—	○	—	
	With diagnostic output (2-color indicator)			4-wire (NPN)	5 V,12 V		—	**H7NF**	—	**F79F**	●	—	●	○	—	○	IC circuit	
Reed auto switch	——	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**A96V**	**A96**	**A96V**	**A96**	●	—	●	—	—	—	IC circuit	—
				2-wire		—	200 V	—	—	**A72**	**A72H**	●	—	●	—	—	—	—	
			No		24 V	12 V	100 V	**A93V**∗2	**A93**	**A93V**∗2	**A93**	●	●	●	●	—	—		Relay, PLC
							100 V or less	**A90V**	**A90**	**A90V**	**A90**	●	—	●	—	—	—	IC circuit	
		Connector	Yes				—	—	**C73C**	**A73C**	—	●	—	●	●	●	—	—	
			No				24 V or less	—	**C80C**	**A80C**	—	●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-color indicator)	Grommet	Yes			—	—	—	—	**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) M9NWZ
None ····· N (Example) H7CN

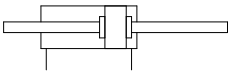
∗: Since there are other applicable auto switches than listed above, refer to page 179 for details.

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

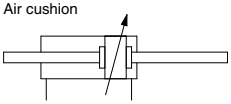
∗: The D-A9☐/M9☐/A7☐/A80☐/F7☐/J7☐ auto switches are shipped together, but not assembled. (For band mounting, only the auto switch mounting brackets are assembled before shipment.)

Symbol

Double acting, Double rod, Rubber bumper



Air cushion



Made to Order: Individual Specifications
(For details, refer to page 180.)

Symbol	Specifications
-X446	PTFE grease

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 & 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 172 to 179 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 183 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 **Web Catalog**.

Specifications

Bore size [mm]		6	10	16
Action		Double acting, Double rod		
Fluid		Air		
Proof pressure		1 MPa		
Maximum operating pressure		0.7 MPa		
Minimum operating pressure	Rubber bumper	0.15 MPa	0.1 MPa	
	Air cushion	—	0.1 MPa	
Ambient and fluid temperature		Without auto switch: –10°C to 70°C With auto switch: –10°C to 60°C (No freezing)		
Cushion		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	0.090 J
	Air cushion (Effective cushion length)	—	0.07 J (9.4 mm)	0.18 J (9.4 mm)
Stroke length tolerance		$^{+1.0}_{0}$		

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 Cylinders Model Selection" on pages 8 to 19. 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 68 for the list of brackets and page 91 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 92 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**	**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 x 45 + 16 = **58.5 g**

Clean Series

10-CJ2W [Mounting] **10 / 16 –** [Stroke] **Z**

Clean Series

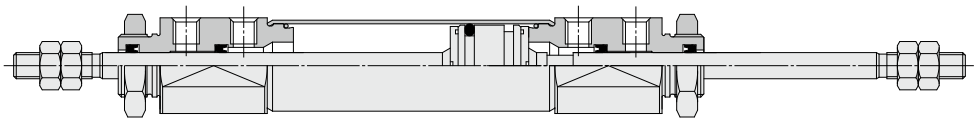
Air cylinder which is applicable for the system which discharges leakage from the rod section directly into the outside of clean room by relief port and making an actuator's rod section having a double seal construction.

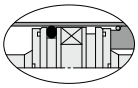
For the detailed specifications, refer to the **Web Catalog**.

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 95.)
Auto switch	Mountable (Band mounting)
Mounting	Basic, Foot, Flange

Construction (Not able to disassemble)

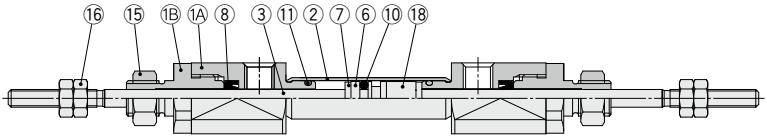


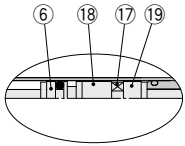


With auto switch

Construction (Not able to disassemble)

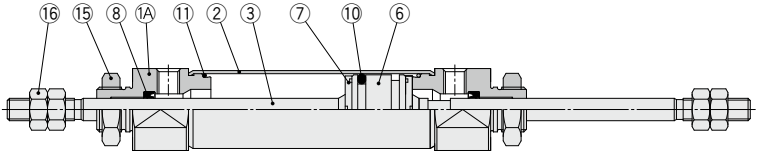
ø6
Rubber bumper

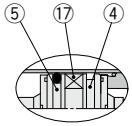




With auto switch

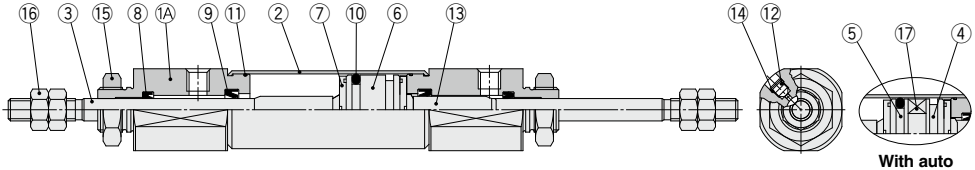
ø10, ø16
Rubber bumper





With auto switch

ø10, ø16
Air cushion



With auto switch

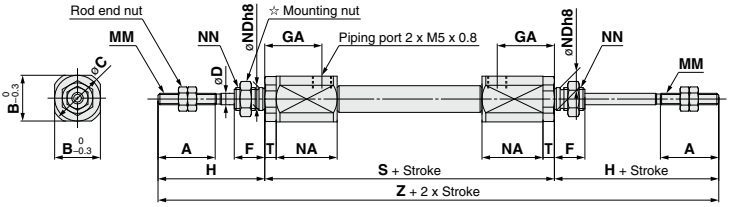
Component Parts

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	

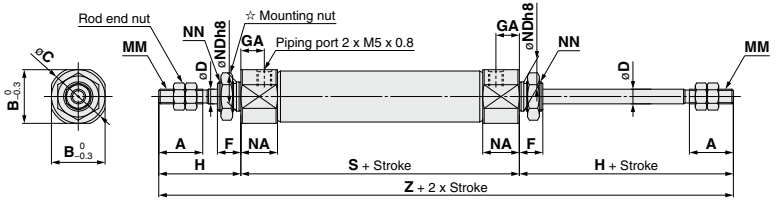
No.	Description	Material	Note
10	**Piston seal**	NBR	
11	**Tube gasket**	NBR	
12	**Cushion needle**	Carbon steel	
13	**Cushion ring**	Aluminum alloy	
14	**Needle seal**	NBR	
15	**Mounting nut**	Rolled steel	
16	**Rod end nut**	Rolled steel	
17	**Magnet**	—	
18	**Spacer A**	Aluminum alloy	ø6 only
19	**Spacer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

Basic (B)

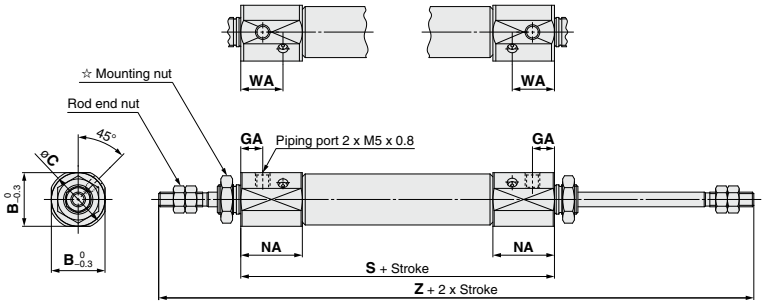
CJ2WB6 – Stroke Z



CJ2WB 10 16 – Stroke Z



With air cushion: CJ2WB 10 16 – Stroke AZ



☆ For details of the mounting nut, refer to page 91.

[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	$6^{0}_{-0.018}$	M6 x 1.0	61 (66)	3	117 (122)
10	15	12	14	4	8	8	28	M4 x 0.7	12.5	$8^{0}_{-0.022}$	M8 x 1.0	49	—	105
16	15	18.3	20	5	8	8	28	M5 x 0.8	12.5	$10^{0}_{-0.022}$	M10 x 1.0	50	—	106

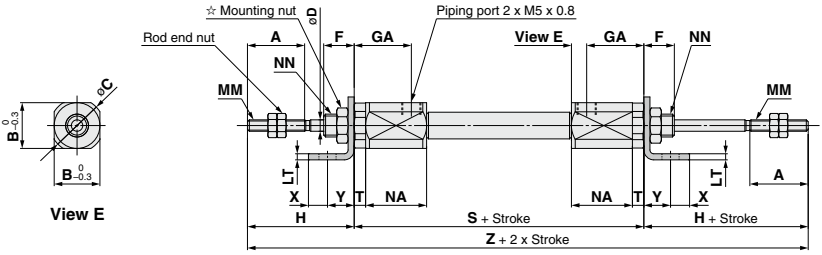
With Air Cushion/Dimensions other than the table below are the same as the table above.

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

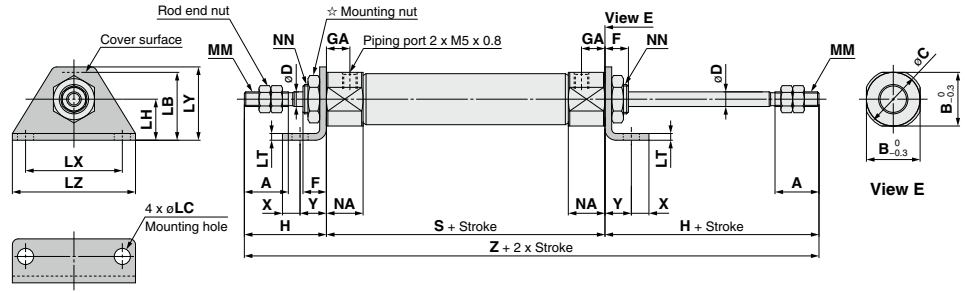
Bore size	B	C	GA	NA	WA	S	Z
10	15	17	7.5	21	14.4	66	122
16	18.3	20	7.5	21	14.4	67	123

Foot (L)

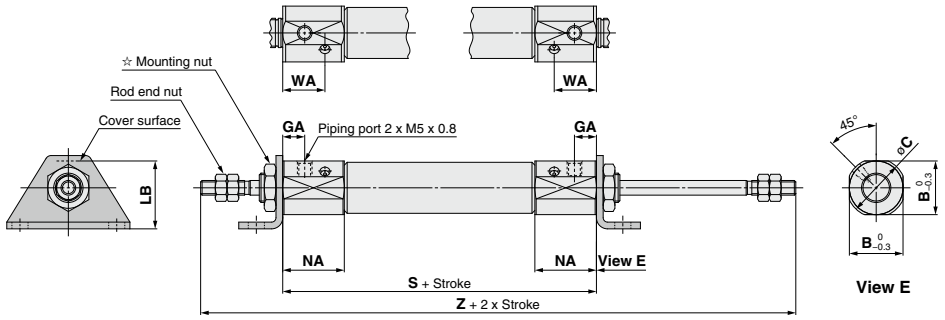
CJ2WL6 – Stroke Z



CJ2WL 10 16 – Stroke Z



With air cushion: CJ2WL 10 16 – Stroke AZ



☆ For details of the mounting nut, refer to page 91.

[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

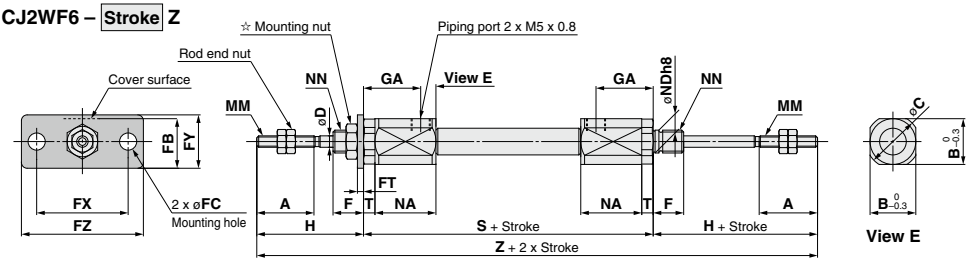
With Air Cushion/Dimensions other than the table below are the same as the table above.

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

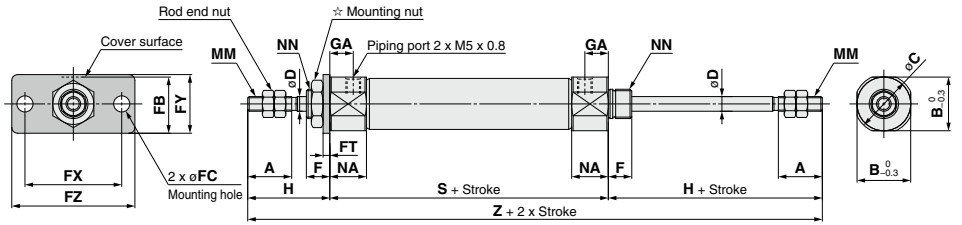
Bore size	B	C	GA	LB	NA	WA	S	Z
10	15	17	7.5	16.5	21	14.4	66	122
16	18.3	20	7.5	23	21	14.4	67	123

Flange (F)

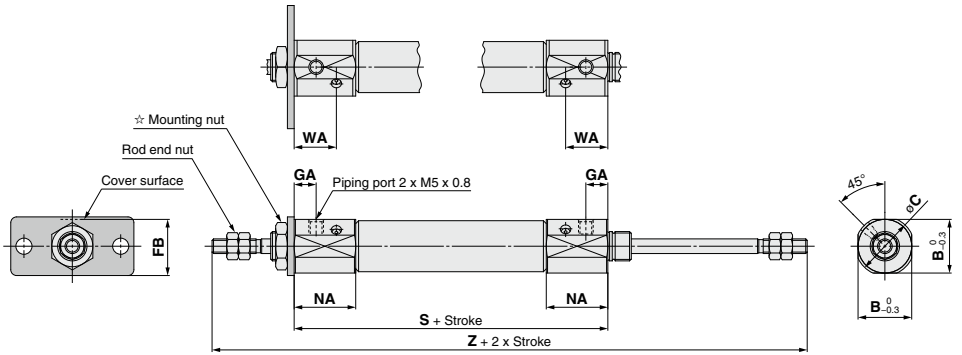
CJ2WF6 – Stroke Z



CJ2WF 10/16 – Stroke Z



With air cushion: CJ2WF 10/16 – Stroke AZ



☆ For details of the mounting nut, refer to page 91.

[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.

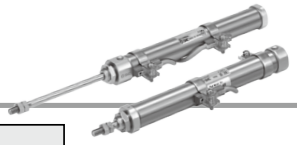
∗: ( ) in S and Z dimensions: With auto switch

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

RoHS



How to Order

CJ2 B 16 – 45 S Z – – –

With auto switch **CDJ2 B 16 – 45 S Z – – – M9BW – B –**

With auto switch (Built-in magnet) ❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❶ 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 182 for the double clevis (with one-touch connecting pin).

❷ Bore size

6	6 mm
10	10 mm
16	16 mm

❸ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 102.

❹ Action

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

❺ 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).

❻ 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.

❼ 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 91 for the double knuckle joint (with one-touch connecting pin).

❽ 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.

❾ Number of auto switches

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

❿ 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 178 for auto switch mounting brackets.
∗: ø6: Band mounting only

⓫ Made to Order

Refer to page 102 for details.

∗: **Refer to "Ordering Example of Cylinder Assembly" on page 102.**

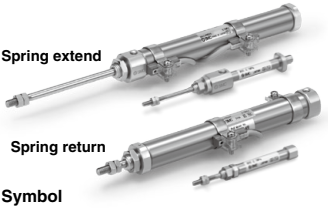
Applicable Auto Switches/Refer to pages 1271 to 1365 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Band mounting Perpendicular	Band mounting In-line	Rail mounting Perpendicular	Rail mounting In-line	Lead wire length [m]: 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V,12 V	—	**M9NV**	**M9N**	**M9NV**	**M9N**	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			**M9PV**	**M9P**	**M9PV**	**M9P**	●	●	●	○	—	○		
				2-wire	12 V		**M9BV**	**M9B**	**M9BV**	**M9B**	●	●	●	○	—	○	—	
		Connector					—	**H7C**	**J79C**	—	●	—	●	●	●	—		
	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	12 V		**M9BWV**	**M9BW**	**M9BWV**	**M9BW**	●	●	●	○	—	○	—	
	Water resistant (2-color indicator)			3-wire (NPN)	5 V,12 V		**M9NAV**∗1	**M9NA**∗1	**M9NAV**∗1	**M9NA**∗1	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)			**M9PAV**∗1	**M9PA**∗1	**M9PAV**∗1	**M9PA**∗1	○	○	●	○	—	○		
				2-wire	12 V		**M9BAV**∗1	**M9BA**∗1	**M9BAV**∗1	**M9BA**∗1	○	○	●	○	—	○	—	
	With diagnostic output (2-color indicator)			4-wire (NPN)	5 V,12 V		—	**H7NF**	—	**F79F**	●	—	●	○	—	○	IC circuit	
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	5 V	—	**A96V**	**A96**	**A96V**	**A96**	●	—	●	—	—	—	IC circuit	—
				2-wire	—	200 V	—	—	**A72**	**A72H**	●	—	●	—	—	—	—	Relay, PLC
					24 V	100 V	**A93V**∗2	**A93**	**A93V**∗2	**A93**	●	●	●	●	—	—		
			No			100 V or less	**A90V**	**A90**	**A90V**	**A90**	●	—	●	—	—	—	IC circuit	
		Connector	Yes			—	—	**C73C**	**A73C**	—	●	—	●	●	●	—	—	
			No			24 V or less	—	**C80C**	**A80C**	—	●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-color indicator)	Grommet	Yes			—	—	—	—	**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.

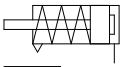
∗: Lead wire length symbols: 0.5 m ····· Nil (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ····· L (Example) M9NWL
5 m ····· Z (Example) M9NWZ
None ····· N (Example) H7CN

∗: Since there are other applicable auto switches than listed, refer to page 179 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.)

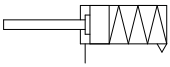


Symbol

Single acting, Spring return, Rubber bumper



Single acting, Spring extend, Rubber bumper



Made to Order

Made to Order: Individual Specifications (For details, refer to pages 180 and 182.)

Symbol	Specifications
-X446	PTFE grease
-X773∗1	Short pitch mounting/Single acting, spring return
-X2838∗2	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
-XC22	Fluororubber seal
-XC51	With hose nipple
-XC85	Grease for food processing equipment

Refer to pages 172 to 179 for cylinders with auto switches.

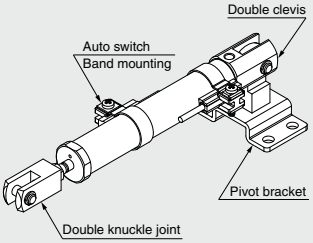
- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

⚠ Precautions

Refer to page 183 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	0.15 MPa	
	Spring extend	0.25 MPa	0.15 MPa	
Ambient and fluid temperature		Without auto switch: –10°C to 70°C With auto switch: –10°C to 60°C (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

[mm]

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

∗: Manufacture of intermediate strokes 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 pages 8 to19. 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 1571 (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)∗1	—	CJ-T010C	CJ-T016C

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

Mounting and Accessories

Refer to page 68 for the list of brackets and page 91 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	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)	△	△	△	△	△
	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 92 for details.

Theoretical Output

Refer to the "Single acting, Spring return cylinder" in Theoretical Output of Technical data 3 in page 1575. 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 **Web Catalog**.

Weights

Spring Return

[g]

Bore size [mm]		6			10				16			
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
Mounting bracket weight	Single foot	8	8	8	8				25			
	Double foot	16	16	16	16				50			
	Rod flange	5	5	5	5				13			
	Head flange	5	5	5	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	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 g**

Spring Extend

[g]

Bore size [mm]		6		10				16			
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
Mounting bracket weight	Single foot	8	8	8				25			
	Double foot	16	16	16				50			
	Rod flange	5	5	5				13			
	Head flange	5	5	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	1	1				2			
	Rod end cap (Round type)	1	1	1				2			
	Pivot Bracket (T-bracket)	—	—	32				50			

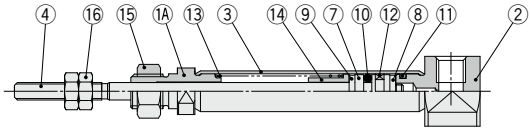
∗: Mounting nut and rod end nut are included in the basic weight.
∗: Mounting nut is not attached to the double clevis, so the mounting nut weight is already subtracted.
Calculation:
Example) **CJ2L10-45TZ**
- Basic weight ····· 42 (ø10-45 stroke)
- Mounting bracket weight····· 8 (Single foot)

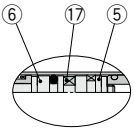
42 + 8 = **50 g**

Construction (Not able to disassemble)

Single acting, Spring return

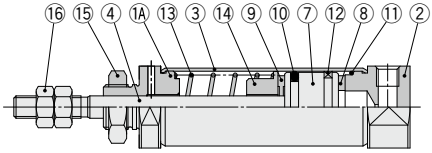
ø6

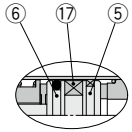




With auto switch

ø10, ø16

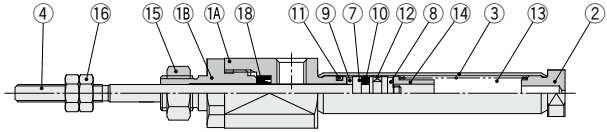


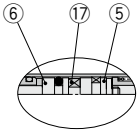


With auto switch

Single acting, Spring extend

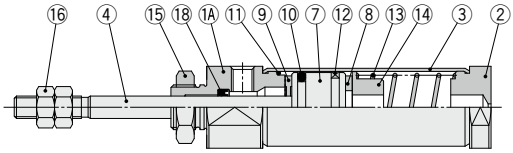
ø6

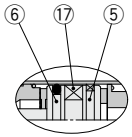




With auto switch

ø10, ø16





With auto switch

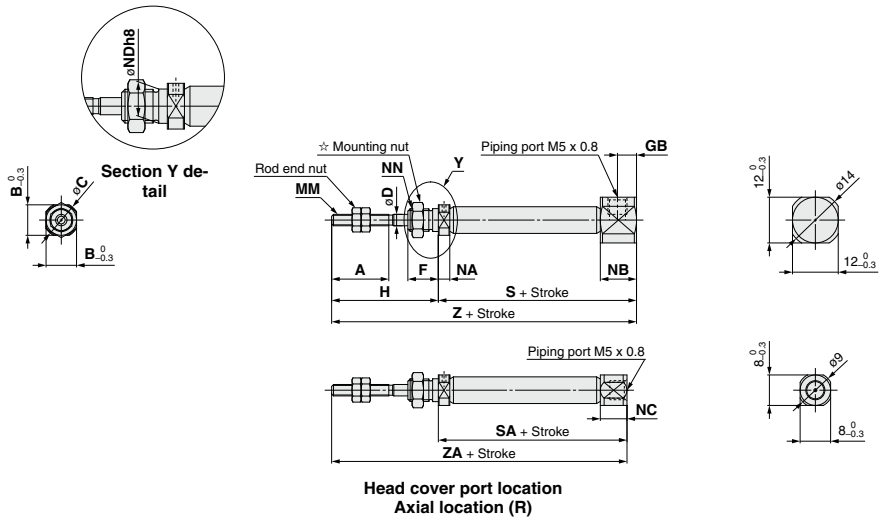
Component Parts

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	

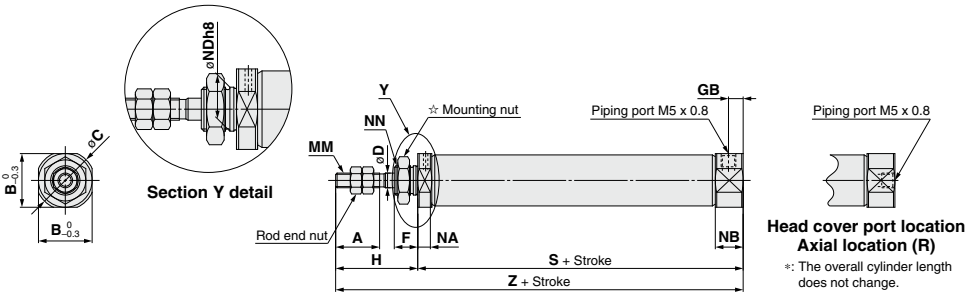
Single Acting, Spring Return: Basic (B)

CJ2B6 – Stroke S Head cover port location Z



Head cover port location
Axial location (R)

CJ2B $^{10}_{16}$ – 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 91.

[mm]

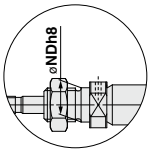
Bore size	A	B	C	D	F	GB	H	MM	NA	NB	NC	NDh8	NN	S							
														5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
6	15	8	9	3	8	5	28	M3 x 0.5	3	9.5	7	6 0 -0.018	M6 x 1.0	37 (42)	46 (51)	50 (55)	64 (69)	—	—	—	—
10	15	12	14	4	8	5	28	M4 x 0.7	4.8	9.5	—	8 0 -0.022	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 0 -0.022	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	—	—	—	—	—	—	—	—

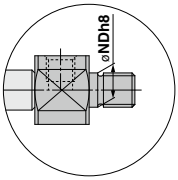
∗: ( ) in S, SA, Z and ZA dimensions: With auto switch

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

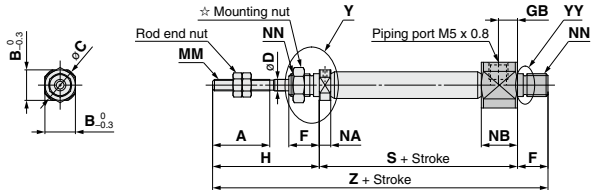
CJ2E6 – Stroke SZ



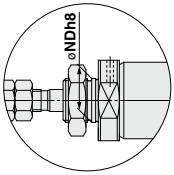
Section Y detail



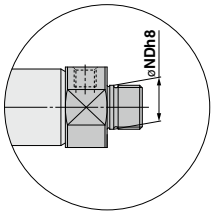
Section YY detail



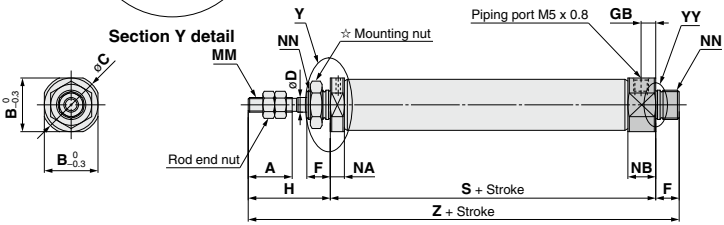
CJ2E 10 16 – Stroke SZ



Section Y detail



Section YY detail



☆ For details of the mounting nut, refer to page 91.

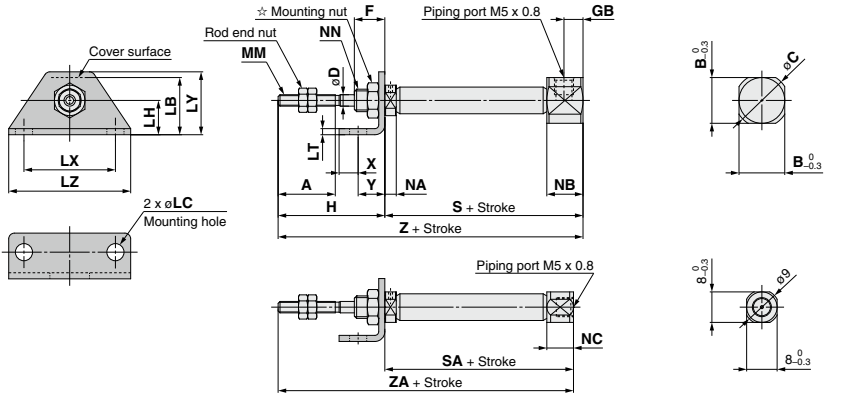
[mm]

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	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	$6^{0}_{-0.018}$	M6 x 1.0	37 (42)	46 (51)	50 (55)	64 (69)	—	—	—	—	73 (78)	82 (87)	86 (91)	100 (105)	—	—	—	—
10	15	12	14	4	8	5	28	M4 x 0.7	4.8	9.5	$8^{0}_{-0.022}$	M8 x 1.0	45.5	53	65	77	—	—	—	—	81.5	89	101	113	—	—	—	—
16	15	18.3	20	5	8	5	28	M5 x 0.8	4.8	9.5	$10^{0}_{-0.022}$	M10 x 1.0	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

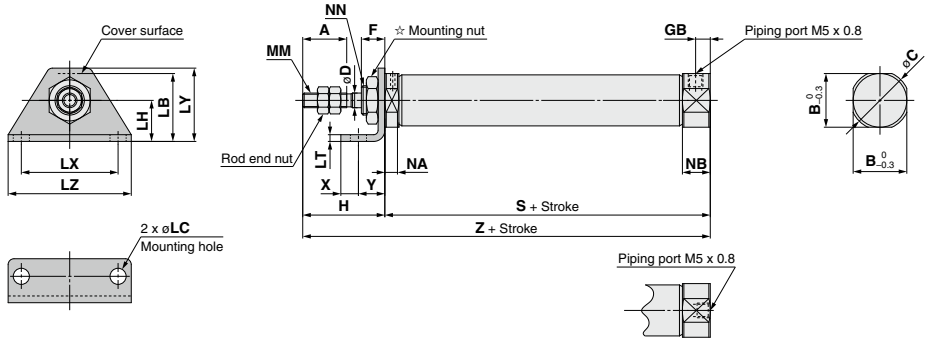
Single Acting, Spring Return: Single Foot (L)

CJ2L6 – Stroke S Head cover port location Z



Head cover port location
Axial location (R)

CJ2L 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 91.

[mm]

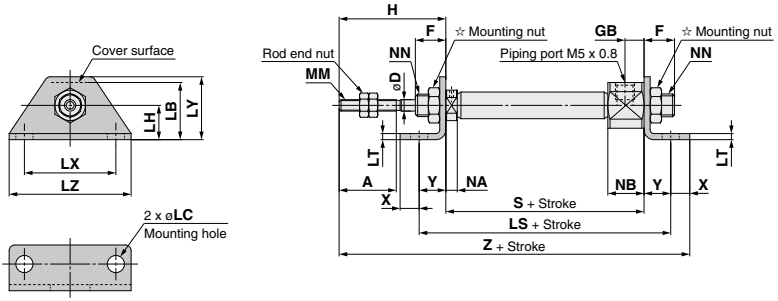
Bore size	A	B	C	D	F	GB	H	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	S							
																			5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
6	15	12	14	3	8	5	28	13	4.5	9	1.6	24	16.5	32	M3 x 0.5	3	9.5	M6 x 1.0	37 (42)	46 (51)	50 (55)	64 (69)	—	—	—	—
10	15	12	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

Bore size	SA								X	Y	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)	—	—	—	—	5	7	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	—	—	—	—	—	—	—	—	5	7	73.5	81	93	105	—	—	—	—	—	—	—	—	—	—	—	—
16	—	—	—	—	—	—	—	—	6	9	73.5	82	94	106	112	136	154	166	—	—	—	—	—	—	—	—

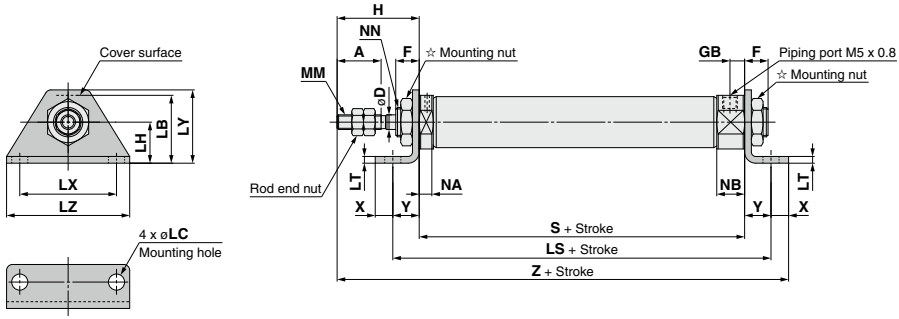
∗: ( ) in S, SA, Z and ZA dimensions: With auto switch

Single Acting, Spring Return: Double Foot (M)

CJ2M6 – Stroke SZ



CJ2M 10 16 – Stroke SZ



☆ For details of the mounting nut, refer to page 91.

[mm]

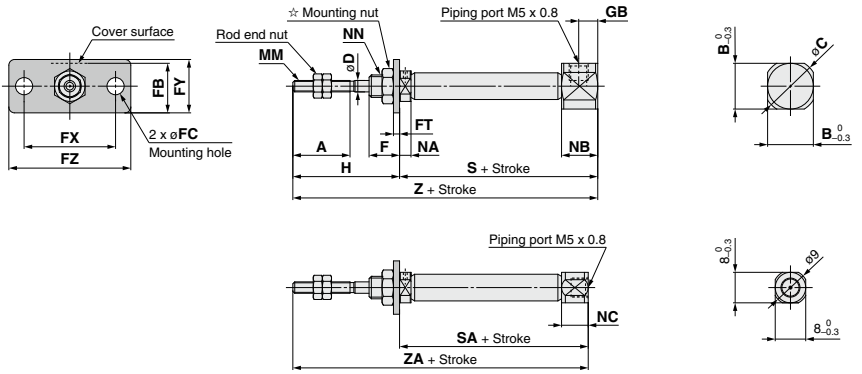
Bore size	A	D	F	GB	H	LB	LC	LH	LS								LT	LX	LY	LZ	MM	NA
									5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st						
6	15	3	8	5	28	13	4.5	9	51 (56)	60 (65)	64 (69)	78 (83)	—	—	—	—	1.6	24	16.5	32	M3 x 0.5	3
10	15	4	8	5	28	15	4.5	9	59.5	67	79	91	—	—	—	—	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								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
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

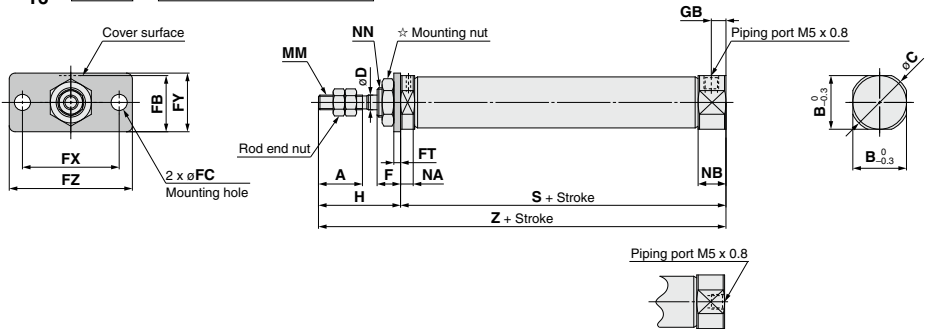
Single Acting, Spring Return: Rod Flange (F)

CJ2F6 – Stroke S Head cover port location Z



Head cover port location
Axial location (R)

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 91.

[mm]

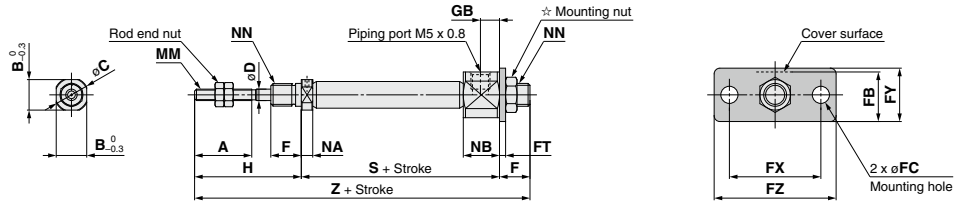
Bore size	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GB	H	MM	NA	NB	NC	NN	S 5 to 15 st	S 16 to 30 st	S 31 to 45 st	S 46 to 60 st	S 61 to 75 st	S 76 to 100 st	S 101 to 125 st	S 126 to 150 st
6	15	12	14	3	8	11	4.5	1.6	24	14	32	5	28	M3 x 0.5	3	9.5	7	M6 x 1.0	37 (42)	46 (51)	50 (55)	64 (69)	—	—	—	—
10	15	12	14	4	8	13	4.5	1.6	24	14	32	5	28	M4 x 0.7	4.8	9.5	—	M8 x 1.0	45.5	53	65	77	—	—	—	—
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 5 to 15 st	SA 16 to 30 st	SA 31 to 45 st	SA 46 to 60 st	SA 61 to 75 st	SA 76 to 100 st	SA 101 to 125 st	SA 126 to 150 st	Z 5 to 15 st	Z 16 to 30 st	Z 31 to 45 st	Z 46 to 60 st	Z 61 to 75 st	Z 76 to 100 st	Z 101 to 125 st	Z 126 to 150 st	ZA 5 to 15 st	ZA 16 to 30 st	ZA 31 to 45 st	ZA 46 to 60 st	ZA 61 to 75 st	ZA 76 to 100 st	ZA 101 to 125 st	ZA 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	—	—	—	—	—	—	—	—

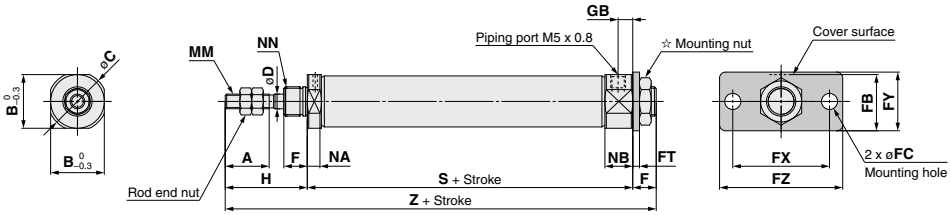
∗: ( ) in S, SA, Z and ZA dimensions: With auto switch

Single Acting, Spring Return: Head Flange (G)

CJ2G6 – Stroke SZ



CJ2G 10 16 – Stroke SZ



☆ For details of the mounting nut, refer to page 91.

[mm]

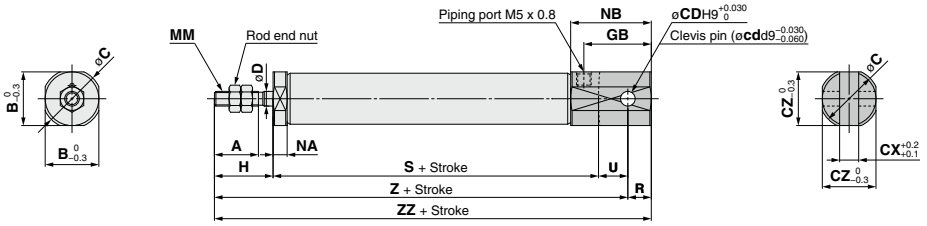
Bore size	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GB	H	MM	NA	NB	NN
6	15	8	9	3	8	11	4.5	1.6	24	14	32	5	28	M3 x 0.5	3	9.5	M6 x 1.0
10	15	12	14	4	8	13	4.5	1.6	24	14	32	5	28	M4 x 0.7	4.8	9.5	M8 x 1.0
16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	5	28	M5 x 0.8	4.8	9.5	M10 x 1.0

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 $^{10}_{16}$ – Stroke SZ



[mm]

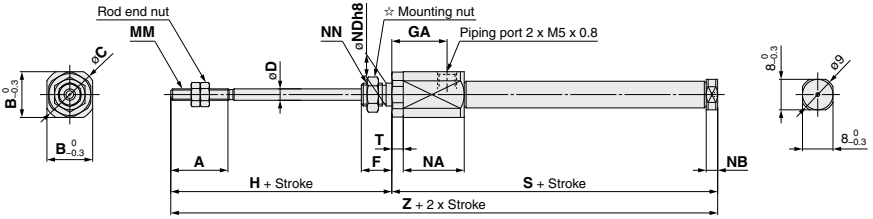
Bore size	A	B	C	CD (cd)	CX	CZ	D	GB	H	MM	NA	NB	R	U	S							
															5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
10	15	12	14	3.3	3.2	12	4	18	20	M4 x 0.7	4.8	22.5	5	8	45.5	53	65	77	—	—	—	—
16	15	18.3	20	5	6.5	18.3	5	23	20	M5 x 0.8	4.8	27.5	8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

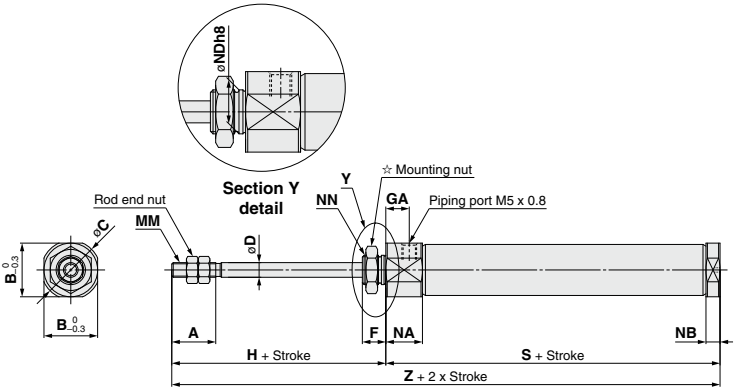
∗: A clevis pin and retaining rings are included.

Single Acting, Spring Extend: Basic (B)

CJ2B6 – Stroke TZ



CJ2B 10 16 – Stroke TZ



☆ For details of the mounting nut, refer to page 91.

[mm]

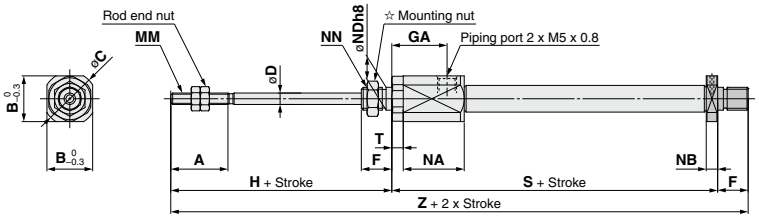
Bore size	A	B	C	D	F	GA	H	MM	NA	NB	NDh8	NN	T
6	15	12	14	3	8	14.5	28	M3 x 0.5	16	3	$6^{0}_{-0.018}$	M6 x 1.0	3
10	15	12	14	4	8	8	28	M4 x 0.7	12.5	4.8	$8^{0}_{-0.022}$	M8 x 1.0	—
16	15	18.3	20	5	8	8	28	M5 x 0.8	12.5	4.8	$10^{0}_{-0.022}$	M10 x 1.0	—

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)	—	—	—	—	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

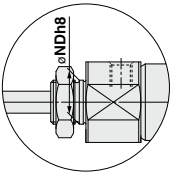
∗: ( ) in S and Z dimensions: With auto switch

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

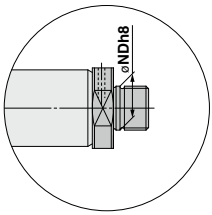
CJ2E6 – Stroke TZ



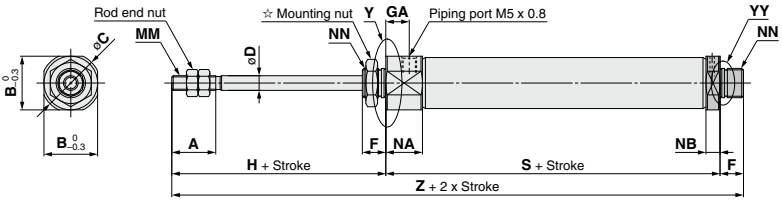
CJ2E 10 16 – Stroke TZ



Section Y detail



Section YY detail



☆ For details of the mounting nut, refer to page 91.

[mm]

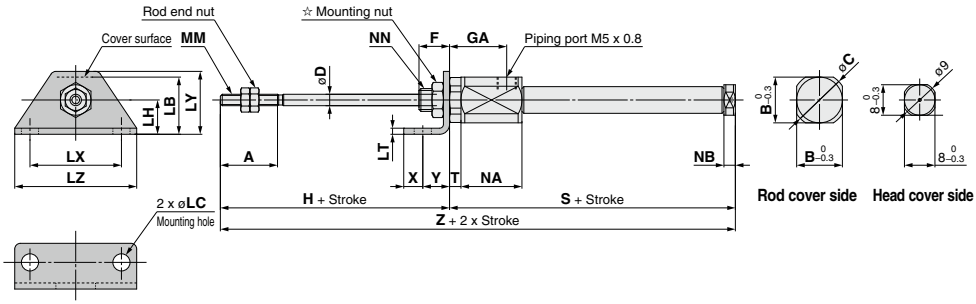
Bore size	A	B	C	D	F	GA	H	MM	NA	NB	NDh8	NN
6	15	12	14	3	8	14.5	28	M3 x 0.5	16	3	$6^{0}_{-0.018}$	M6 x 1.0
10	15	12	14	4	8	8	28	M4 x 0.7	12.5	4.8	$8^{0}_{-0.022}$	M8 x 1.0
16	15	18.3	20	5	8	8	28	M5 x 0.8	12.5	4.8	$10^{0}_{-0.022}$	M10 x 1.0

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	—	—	—	—	84.5	92	104	116	—	—	—	—
16	48.5	57	69	81	87	111	129	141	84.5	93	105	117	123	147	165	177

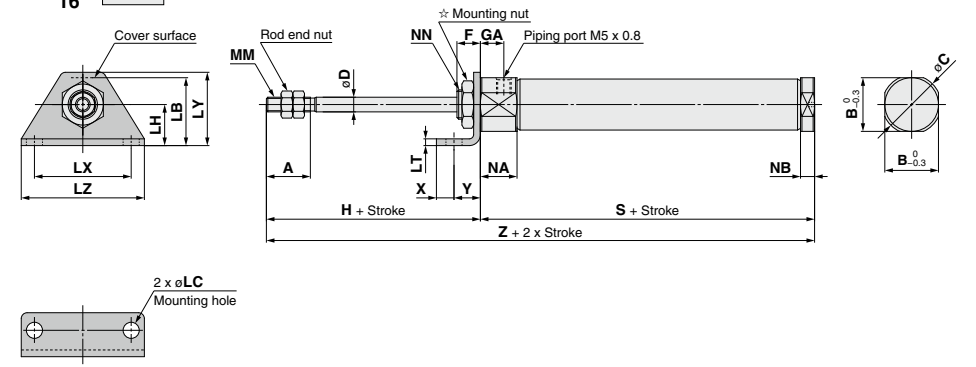
∗: ( ) in S and Z dimensions: With auto switch

Single Acting, Spring Extend: Single Foot (L)

CJ2L6 – Stroke TZ



CJ2L 10 16 – Stroke TZ



☆ For details of the mounting nut, refer to page 91.

[mm]

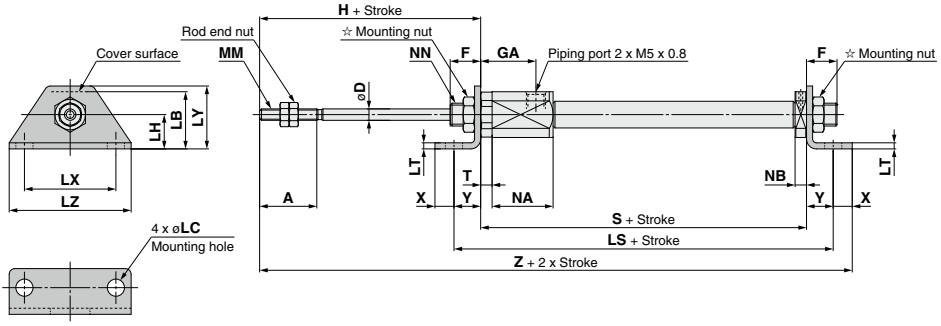
Bore size	A	B	C	D	F	GA	H	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	T
6	15	12	14	3	8	14.5	28	15	4.5	9	1.6	24	16.5	32	M3 x 0.5	16	3	M6 x 1.0	3
10	15	12	14	4	8	8	28	15	4.5	9	1.6	24	16.5	32	M4 x 0.7	12.5	4.8	M8 x 1.0	—
16	15	18.3	20	5	8	8	28	23	5.5	14	2.3	33	25	42	M5 x 0.8	12.5	4.8	M10 x 1.0	—

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			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

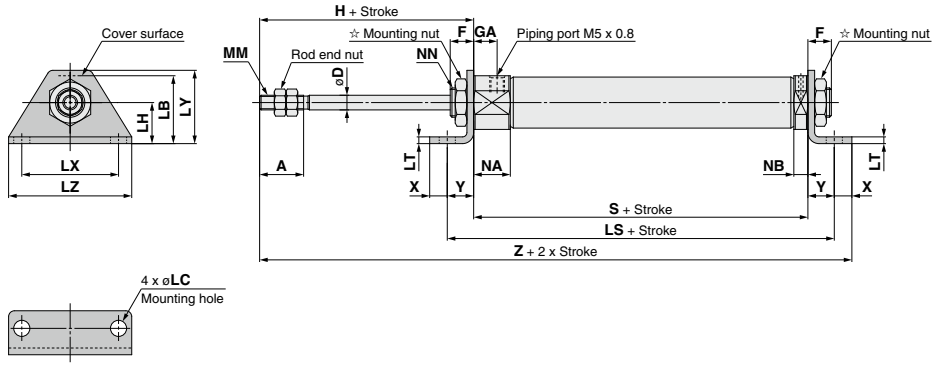
∗: ( ) in S and Z dimensions: With auto switch

Single Acting, Spring Extend: Double Foot (M)

CJ2M6 – Stroke TZ



CJ2M $^{10}_{16}$ – Stroke TZ



☆ For details of the mounting nut, refer to page 91.

[mm]

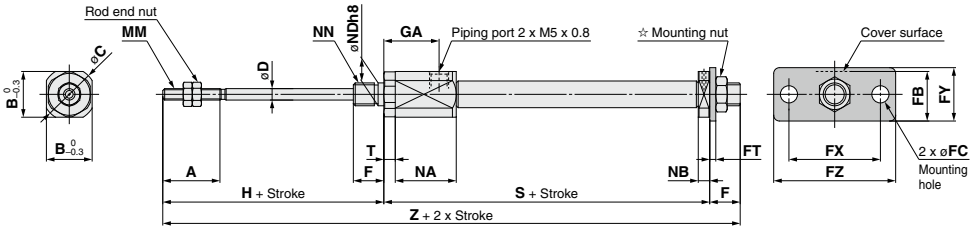
Bore size	A	D	F	GA	H	LB	LC	LH	LS								LT	LX	LY	LZ	MM
									5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st					
6	15	3	8	14.5	28	15	4.5	9	60.5 (65.5)	69.5 (74.5)	73.5 (78.5)	87.5 (101.5)	—	—	—	—	1.6	24	16.5	32	M3 x 0.5
10	15	4	8	8	28	15	4.5	9	62.5	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								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
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

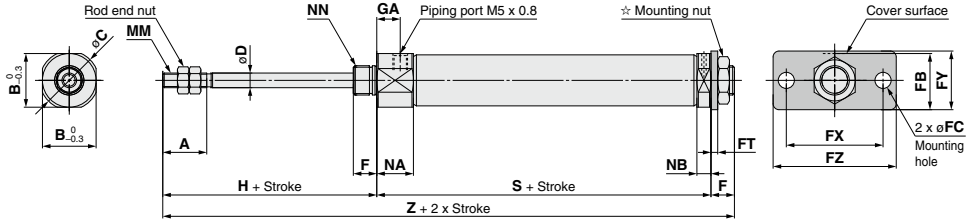
∗: ( ) in LS, S and Z dimensions: With auto switch

Single Acting, Spring Extend: Head Flange (G)

CJ2G6 – Stroke TZ



CJ2G 10 16 – Stroke TZ



☆ For details of the mounting nut, refer to page 91.

[mm]

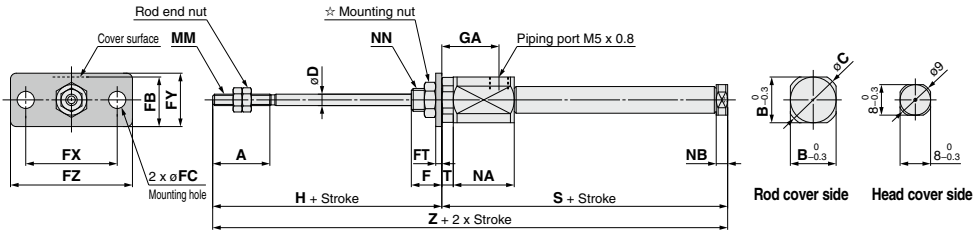
Bore size	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GA	H	MM	NA	NB	NN
6	15	12	14	3	8	13	4.5	1.6	24	14	32	14.5	28	M3 x 0.5	16	3	M6 x 1.0
10	15	12	14	4	8	13	4.5	1.6	24	14	32	8	28	M4 x 0.7	12.5	4.8	M8 x 1.0
16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	8	28	M5 x 0.8	12.5	4.8	M10 x 1.0

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	—	—	—	—	84.5	92	104	116	—	—	—	—
16	48.5	57	69	81	87	111	129	141	84.5	93	105	117	123	147	165	177

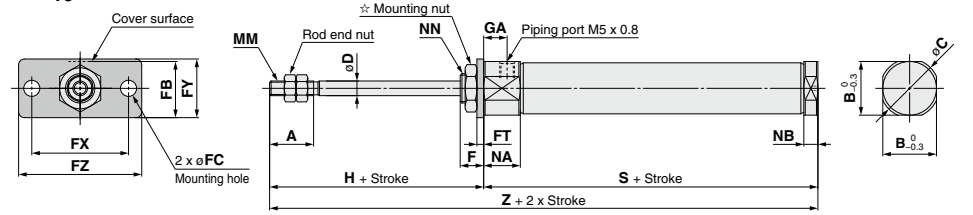
∗: ( ) in S and Z dimensions: With auto switch

Single Acting, Spring Extend: Rod Flange (F)

CJ2F6 – Stroke TZ



CJ2F 10 16 – Stroke TZ



☆ For details of the mounting nut, refer to page 91.

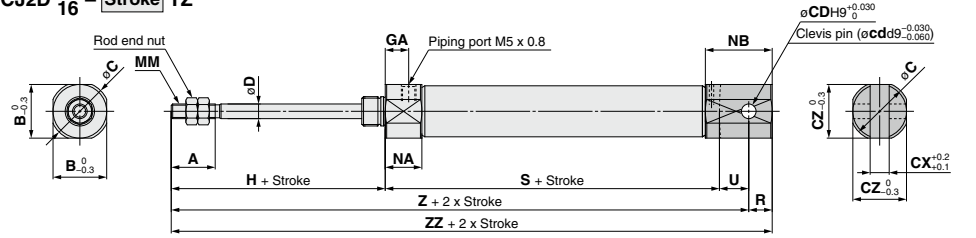
[mm]

Bore size	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GA	H	MM	NA	NB	NN	T	S 5 to 15 st	S 16 to 30 st	S 31 to 45 st	S 46 to 60 st	S 61 to 75 st	S 76 to 100 st	S 101 to 125 st	S 126 to 150 st	Z 5 to 15 st	Z 16 to 30 st	Z 31 to 45 st	Z 46 to 60 st	Z 61 to 75 st	Z 76 to 100 st	Z 101 to 125 st	Z 126 to 150 st
6	15	12	14	3	8	13	4.5	1.6	24	14	32	14.5	28	M3 x 0.5	16	3	M6 x 1.0	3	46.5 (51.5)	55.5 (60.5)	59.5 (64.5)	73.5 (78.5)	—	—	—	—	74.5 (79.5)	83.5 (88.5)	87.5 (92.5)	101.5 (106.5)	—	—	—	—
10	15	12	14	4	8	13	4.5	1.6	24	14	32	8	28	M4 x 0.7	12.5	4.8	M8 x 1.0	—	48.5	56	68	80	—	—	—	—	76.5	84	96	108	—	—	—	—
16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	8	28	M5 x 0.8	12.5	4.8	M10 x 1.0	—	48.5	57	69	81	87	111	129	141	76.5	85	97	109	115	139	157	169

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

Single Acting, Spring Extend: Double Clevis (D)

CJ2D 10 16 – Stroke TZ



∗: A clevis pin and retaining rings are included.

[mm]

Bore size	A	B	C	CD (cd)	CX	CZ	D	GA	H	MM	NA	NB	R	U	S 5 to 15 st	S 16 to 30 st	S 31 to 45 st	S 46 to 60 st	S 61 to 75 st	S 76 to 100 st	S 101 to 125 st	S 126 to 150 st
10	15	12	14	3.3	3.2	12	4	8	28	M4 x 0.7	12.5	17.8	5	8	48.5	56	68	80	—	—	—	—
16	15	18.3	20	5	6.5	18.3	5	8	28	M5 x 0.8	12.5	22.8	8	10	48.5	57	69	81	87	111	129	141

Bore size	Z 5 to 15 st	Z 16 to 30 st	Z 31 to 45 st	Z 46 to 60 st	Z 61 to 75 st	Z 76 to 100 st	Z 101 to 125 st	Z 126 to 150 st	ZZ 5 to 15 st	ZZ 16 to 30 st	ZZ 31 to 45 st	ZZ 46 to 60 st	ZZ 61 to 75 st	ZZ 76 to 100 st	ZZ 101 to 125 st	ZZ 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

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

RoHS

How to Order

CJ2K **B** **16** – **60** **Z** – – –

With auto switch **CDJ2K** **B** **16** – **60** **Z** – – – **M9BW** – **B** –

With auto switch (Built-in magnet)

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

❶ 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 182 for the double clevis (with one-touch connecting pin).

❷ Bore size

10	10 mm
16	16 mm

❸ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 119.

❹ 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.

❺ 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.

❻ 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 91 for the double knuckle joint (with one-touch connecting pin).

❼ 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.

❽ Number of auto switches

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

❾ 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 178 for auto switch mounting brackets.

❿ Made to Order

Refer to page 119 for details.

*: **Refer to "Ordering Example of Cylinder Assembly" on page 119.**

Applicable Auto Switches/Refer to pages 1271 to 1365 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Band mounting Perpendicular	Band mounting In-line	Rail mounting Perpendicular	Rail mounting In-line	Lead wire length [m] 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V,12 V	—	**M9NV**	**M9N**	**M9NV**	**M9N**	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			**M9PV**	**M9P**	**M9PV**	**M9P**	●	●	●	○	—	○		
				2-wire	12 V		**M9BV**	**M9B**	**M9BV**	**M9B**	●	●	●	○	—	○	—	
		Connector					—	**H7C**	**J79C**	—	●	—	●	●	●	—		
	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	12 V		**M9BWV**	**M9BW**	**M9BWV**	**M9BW**	●	●	●	○	—	○	—	
	Water resistant (2-color indicator)			3-wire (NPN)	5 V,12 V		**M9NAV***1	**M9NA***1	**M9NAV***1	**M9NA***1	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)			**M9PAV***1	**M9PA***1	**M9PAV***1	**M9PA***1	○	○	●	○	—	○		
				2-wire	12 V		**M9BAV***1	**M9BA***1	**M9BAV***1	**M9BA***1	○	○	●	○	—	○	—	
	With diagnostic output (2-color indicator)			4-wire (NPN)	5 V,12 V		—	**H7NF**	—	**F79F**	●	—	●	○	—	○	IC circuit	
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	5 V	—	**A96V**	**A96**	**A96V**	**A96**	●	—	●	—	—	—	IC circuit	—
				2-wire	—	200 V	—	—	**A72**	**A72H**	●	—	●	—	—	—	—	Relay, PLC
			No		24 V	100 V	**A93V***2	**A93**	**A93V***2	**A93**	●	●	●	●	—	—		
					12 V	100 V or less	**A90V**	**A90**	**A90V**	**A90**	●	—	●	—	—	—	IC circuit	
		Connector	Yes			—	—	**C73C**	**A73C**	—	●	—	●	●	●	—	—	
			No			24 V or less	—	**C80C**	**A80C**	—	●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-color indicator)	Grommet	Yes		—	—	—	—	**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) M9NWZ
None····· N (Example) H7CN

*: Since there are other applicable auto switches than listed, refer to page 179 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.)

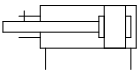
SMC

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

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

Symbol

Double acting, Single rod, Rubber bumper



Made to Order

Made to Order: Individual Specifications
(For details, refer to pages 180 to 182.)

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

Made to Order
Click here for details

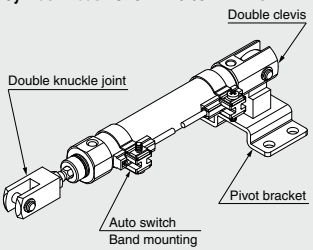
Symbol	Specifications
-XA□	Change of rod end shape
-XC3	Special port location
-XC9	Adjustable stroke cylinder/Adjustable retraction type
-XC10	Dual stroke cylinder/Double rod type
-XC22	Fluororubber seal
-XC51	With hose nipple
-XC85	Grease for food processing equipment

⚠ Precautions

Refer to page 183 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	±1.5°	±1°
Piston speed	50 to 750 mm/s	
Allowable kinetic energy	0.035 J	0.090 J

Standard Strokes

[mm]

Bore size	Standard stroke
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 pages 8 to 19. 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 68 for the list of brackets and page 91 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)	△	△	△	△	△
	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 172 to 179 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

[g]

	Bore size [mm]	10	16
Basic weight (When the stroke is zero)	Basic	25	47
	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

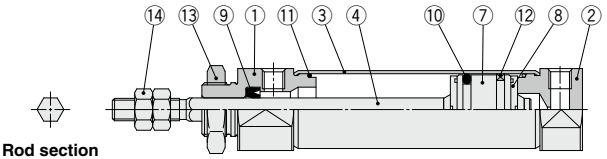
∗: Mounting nut and rod end nut are included in the basic weight.
∗: Mounting nut is not included in the basic weight for the double clevis.

Calculation:
Example) **CJ2KL10-45Z**

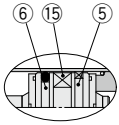
- Basic weight ····· 25 (ø10)
- Additional weight ····· 4/15 stroke
- Cylinder stroke ····· 45 stroke
- Mounting bracket weight ··· 8 (Single foot)

25 + 4/15 x 45 + 8 = **45 g**

Construction (Not able to disassemble)



Rod section



With auto switch

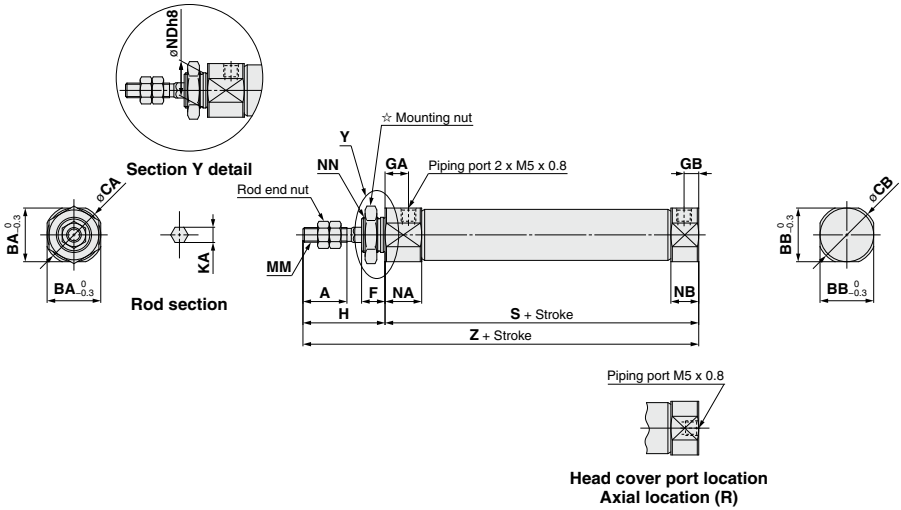
Component Parts

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	**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 $^{10}_{16}$ – Stroke Head cover port location Z



∗: The overall cylinder length does not change.

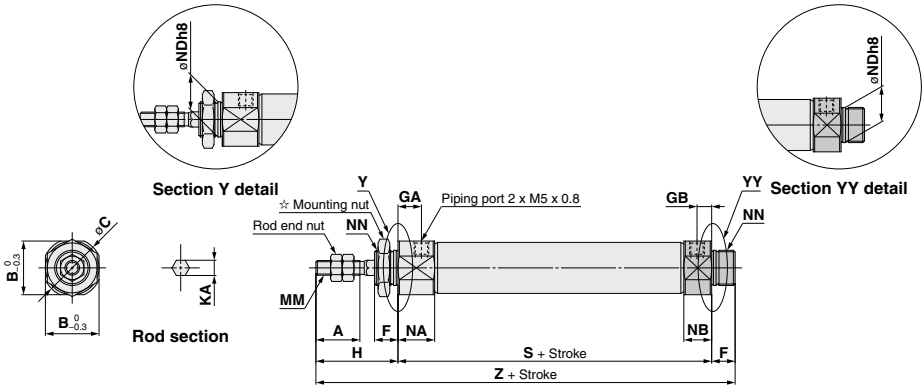
☆ Refer to page 91 for details of the mounting nut. (SNJ-016C for ø10, SNKJ-016C for ø16)

[mm]

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

Double-side Bossed (E)

CJ2KE $^{10}_{16}$ – Stroke Z



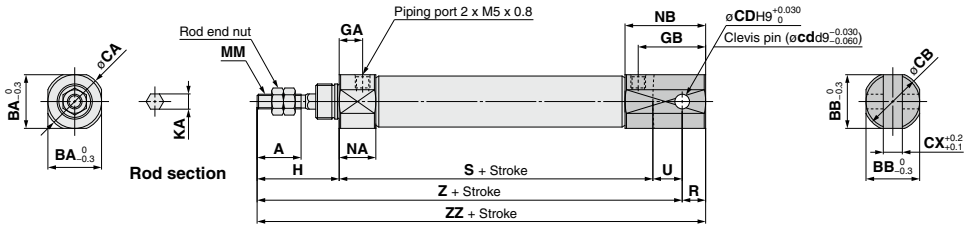
☆ Refer to page 91 for details of the mounting nut. (SNJ-016C for ø10, SNKJ-016C for ø16)

[mm]

Bore size	A	B	C	F	GA	GB	H	KA	MM	NA	NB	NDh8	NN	S	Z
10	15	15	17	8	8	5	28	4.2	M4 x 0.7	12.5	9.5	$10^{0}_{-0.022}$	M10 x 1.0	46	82
16	15	18.3	20	8	8	5	28	5.2	M5 x 0.8	12.5	9.5	$12^{0}_{-0.027}$	M12 x 1.0	47	83

Double Clevis (D)

CJ2KD 10/16 – Stroke Z



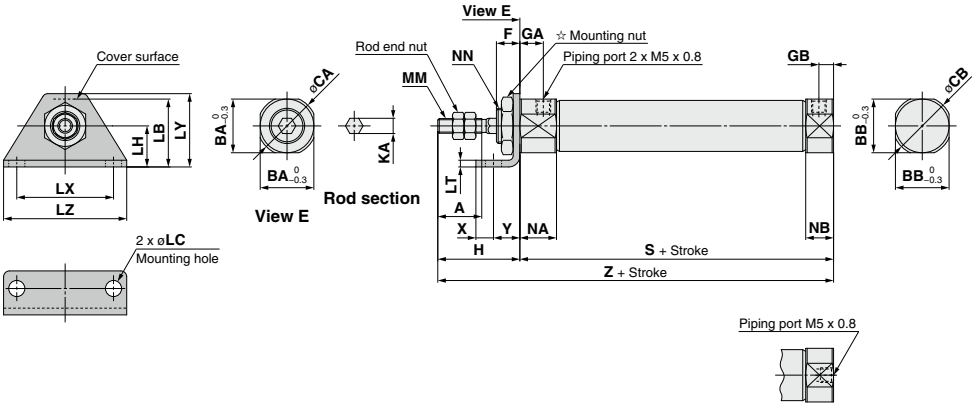
∗: A clevis pin and retaining rings are included.

[mm]

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 10/16 – Stroke Head cover port location Z



Head cover port location
Axial location (R)

∗: The overall cylinder length does not change.

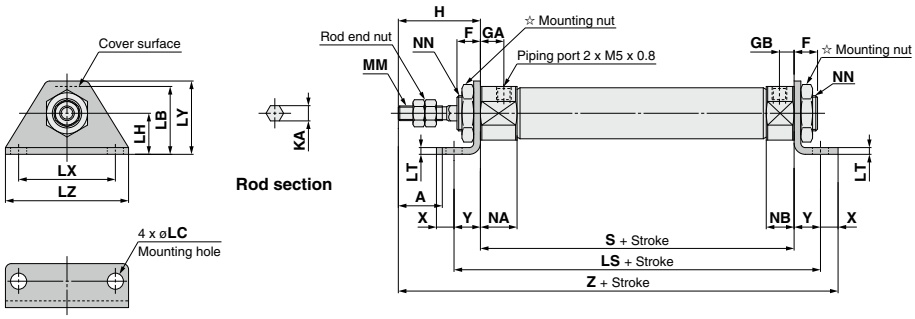
☆ Refer to page 91 for details of the mounting nut. (SNJ-016C for ø10, SNKJ-016C for ø16)

[mm]

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 $\begin{matrix}10\\16\end{matrix}$ – Stroke Z



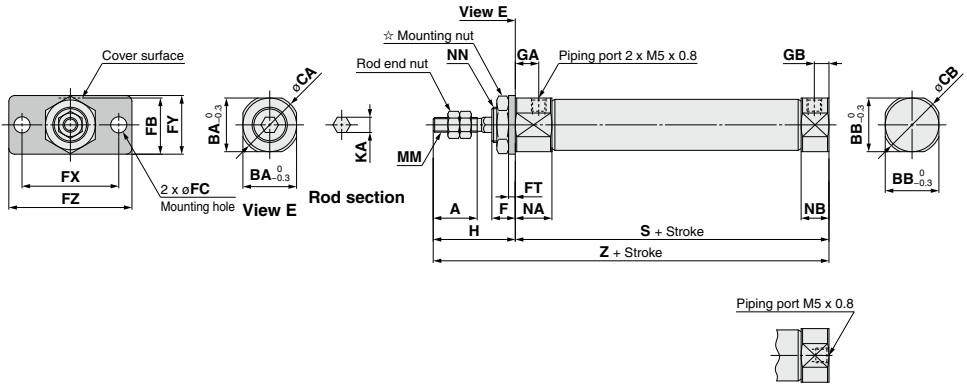
☆ Refer to page 91 for details of the mounting nut. (SNJ-016C for ø10, SNKJ-016C for ø16)

[mm]

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 $\begin{matrix}10\\16\end{matrix}$ – Stroke Head cover port location Z



∗: The overall cylinder length does not change.

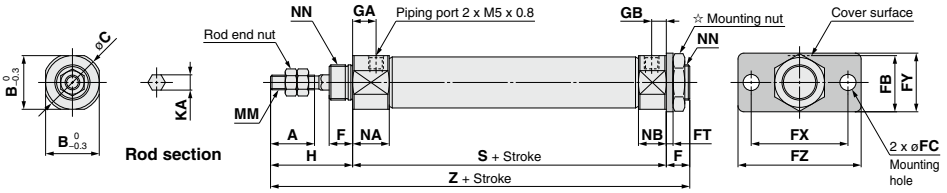
☆ Refer to page 91 for details of the mounting nut. (SNJ-016C for ø10, SNKJ-016C for ø16)

[mm]

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

Head Flange (G)

CJ2KG $\begin{matrix}10\\16\end{matrix}$ **–** [**Stroke**] **Z**



☆ Refer to page 91 for details of the mounting nut. (SNJ-016C for ø10, SNKJ-016C for ø16)

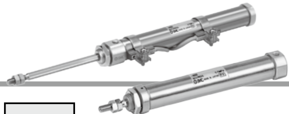
[mm]

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

Air Cylinder: Non-rotating Rod Type
Single Acting, Spring Return/Extend
CJ2K Series

RoHS

ø10, ø16



How to Order

CJ2K B 16 – 45 S ☐ Z – ☐ ☐ – ☐

With auto switch **CDJ2K B 16 – 45 S ☐ Z – ☐ ☐ – M9BW ☐ – B – ☐**

With auto switch (Built-in magnet)

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿ ⓫

❶ 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 182 for the double clevis (with one-touch connecting pin).

❷ Bore size

10	10 mm
16	16 mm

❸ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 126.

❹ Action

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

❺ 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).

❻ 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.

❼ 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 91 for the double knuckle joint (with one-touch connecting pin).

❽ 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.

❾ Number of auto switches

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

❿ 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 178 for auto switch mounting brackets.

⓫ Made to Order

Refer to page 119 for details.

***: Refer to "Ordering Example of Cylinder Assembly" on page 126.**

Applicable Auto Switches/Refer to pages 1271 to 1365 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC		Load voltage AC	Auto switch model Band mounting Perpendicular	Band mounting In-line	Rail mounting Perpendicular	Rail mounting In-line	Lead wire length [m] 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V,12 V	—	M9NV	M9N	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)				M9PV	M9P	M9PV	M9P	●	●	●	○	—	○		
				2-wire		12 V		M9BV	M9B	M9BV	M9B	●	●	●	○	—	○	—	
		Connector						—	H7C	J79C	—	●	—	●	●	●	—		
	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		12 V		M9BWV	M9BW	M9BWV	M9BW	●	●	●	○	—	○	—	
	Water resistant (2-color indicator)			3-wire (NPN)		5 V,12 V		M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)				M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	○	○	●	○	—	○		
				2-wire		12 V		M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	○	○	●	○	—	○	—	
	With diagnostic output (2-color indicator)			4-wire (NPN)		5 V,12 V		—	H7NF	—	F79F	●	—	●	○	—	○	IC circuit	
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	A96V	A96	●	—	●	—	—	—	IC circuit	—
				2-wire		—	200 V	—	—	A72	A72H	●	—	●	—	—	—	—	Relay, PLC
					24 V	12 V	100 V	A93V*2	A93	A93V*2	A93	●	●	●	●	—	—		
			No				100 V or less	A90V	A90	A90V	A90	●	—	●	—	—	—	IC circuit	
		Connector	Yes				—	—	C73C	A73C	—	●	—	●	●	●	—	—	
			No				24 V or less	—	C80C	A80C	—	●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-color indicator)	Grommet	Yes			—	—	—	—	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) M9NWZ
None··············· N (Example) H7CN

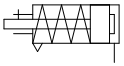
*: Since there are other applicable auto switches than listed, refer to page 179 for details.
*: Solid state auto switches marked with "○" are produced upon receipt of order.
*: The D-A9☐/M9☐/A7☐/A80☐/F7☐/J7☐ auto switches are shipped together, but not assembled. (For band mounting, only auto switch mounting brackets are assembled before being shipped.)

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

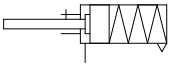
Non-rotating accuracy
ø10: ±1.5°, ø16: ±1°
Can operate without lubrication.

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 pages 180 to 182.)

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

Made to Order

Click here for details

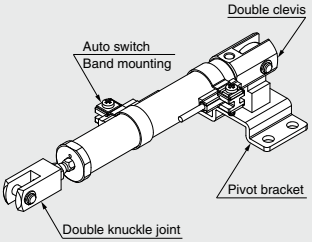
Symbol	Specifications
-XA□	Change of rod end shape
-XC51	With hose nipple
-XC85	Grease for food processing equipment

⚠ Precautions

Refer to page 183 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 With auto switch: –10°C to 60°C (No freezing)	
Cushion	Rubber bumper (standard equipment)	
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

[mm]

Bore size	Standard stroke
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 pages 8 to 19. 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 1571 (Table (2): Spring Reaction Force).

Mounting and Accessories

/Refer to page 68 for the list of brackets and page 91 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)	△	△	△	△	△
	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 172 to 179 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
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) **CJ2KL10-45SZ**
- Basic weight ····· 48 (ø10)
- Cylinder stroke····· 45 stroke
- Mounting bracket weight····· 8 (Single foot)

48 + 8 = **56 g**

Spring Extend

[g]

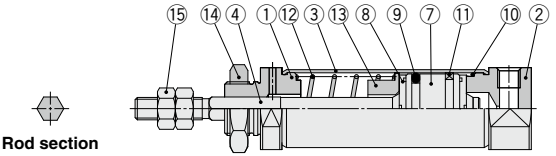
Bore size [mm]		10				16			
Mounting		Basic	Axial piping	Double clevis (including clevis pin)	Double-side bossed	Basic	Axial piping	Double clevis (including clevis pin)	Double-side bossed
Basic weight	15 stroke	29	29	31	31	64	64	72	69
	30 stroke	35	35	37	38	79	79	86	83
	45 stroke	44	44	46	46	95	95	103	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
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			

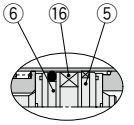
∗: Mounting nut and rod end nut are included in the basic weight.
∗: Mounting nut is not included in the basic weight for the double clevis.
Calculation:
Example) **CJ2KL10-45TZ**
- Basic weight ····· 44 (ø10)
- Cylinder stroke····· 45 stroke
- Mounting bracket weight····· 8 (Single foot)

44 + 8 = **52 g**

Construction (Not able to disassemble)

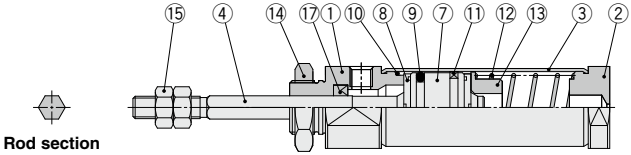
Single acting, Spring return

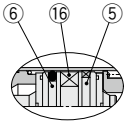




With auto switch

Single acting, Spring extend





With auto switch

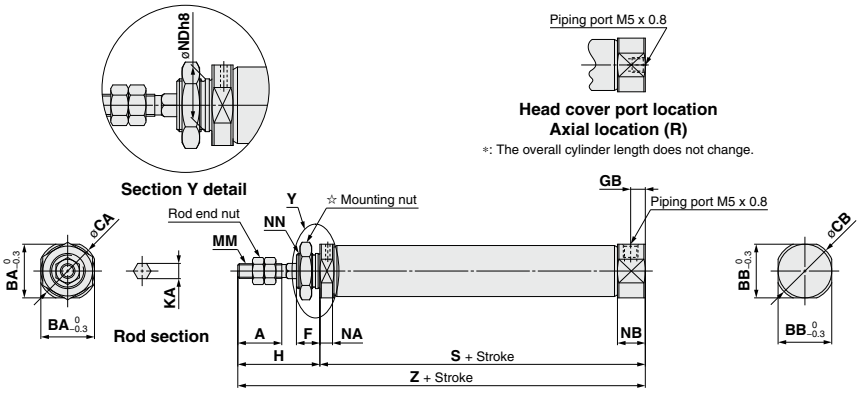
Component Parts

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	
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 $\begin{matrix}10\\16\end{matrix}$ – Stroke S Head cover port location Z



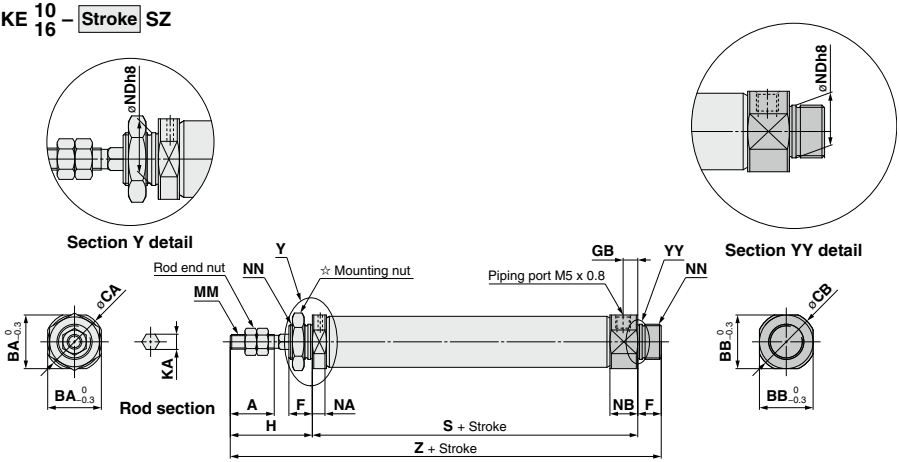
☆ For details of the mounting nut, refer to page 91.

[mm]

Bore size	A	BA	BB	CA	CB	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	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	$10^{0}_{-0.022}$	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	$12^{0}_{-0.027}$	M12 x 1.0	45.5	54	66	78	84	108	126	138	73.5	82	94	106	112	136	154	166

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

CJ2KE $\begin{matrix}10\\16\end{matrix}$ – Stroke SZ



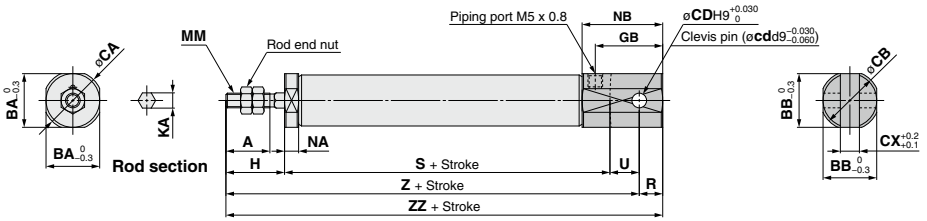
☆ For details of the mounting nut, refer to page 91.

[mm]

Bore size	A	BA	BB	CA	CB	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	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	5	28	4.2	M4 x 0.7	4.8	9.5	$10^{0}_{-0.022}$	M10 x 1.0	45.5	53	65	77	—	—	—	—	81.5	89	101	113	—	—	—	—
16	15	18.3	18.3	20	20	8	5	28	5.2	M5 x 0.8	4.8	9.5	$12^{0}_{-0.027}$	M12 x 1.0	45.5	54	66	78	84	108	126	138	81.5	90	102	114	120	144	162	174

Single Acting, Spring Return: Double Clevis (D)

CJ2KD $\begin{matrix}10\\16\end{matrix}$ – Stroke SZ



∗: A clevis pin and retaining rings are included.

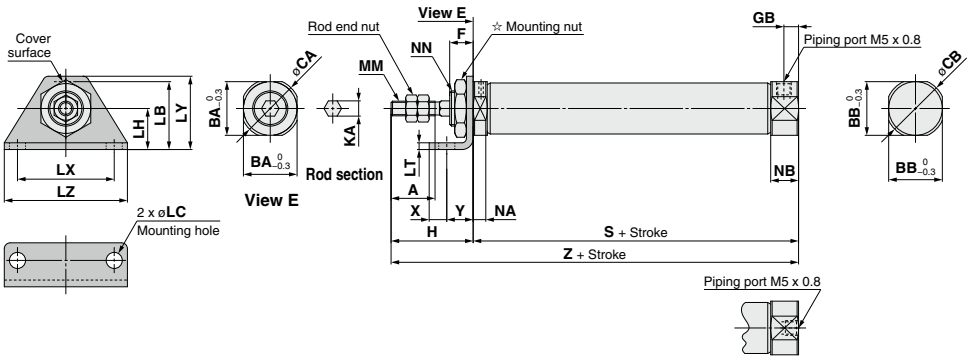
[mm]

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	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 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	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	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 $\begin{matrix}10\\16\end{matrix}$ – 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 91.

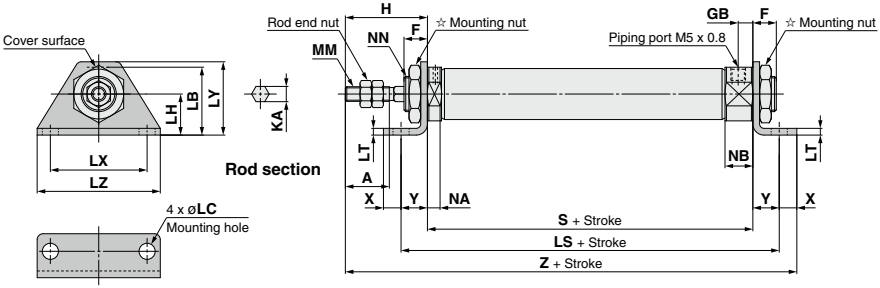
[mm]

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	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	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 10/16 – Stroke SZ



☆ For details of the mounting nut, refer to page 91.

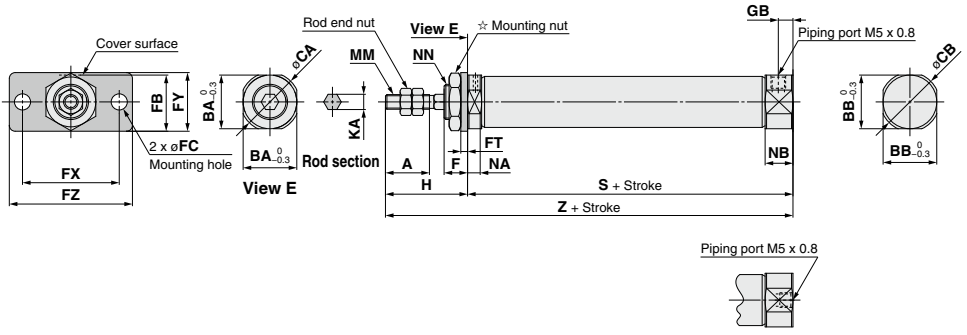
[mm]

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									
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

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	45.5	53	65	77	—	—	—	—	6	9	88.5	96	108	120	—	—	—	—
16	45.5	54	66	78	84	108	126	138	6	9	88.5	97	109	121	127	151	169	181

Single Acting, Spring Return: Rod Flange (F)

CJ2KF 10/16 – Stroke S Head cover port location Z



Head cover port location
Axial location (R)

∗: The overall cylinder length does not change.

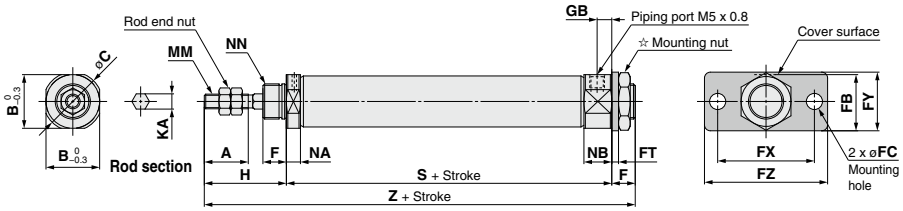
☆ For details of the mounting nut, refer to page 91.

[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	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

Single Acting, Spring Return: Head Flange (G)

CJ2KG $\begin{matrix}10\\16\end{matrix}$ – Stroke SZ



☆ For details of the mounting nut, refer to page 91.

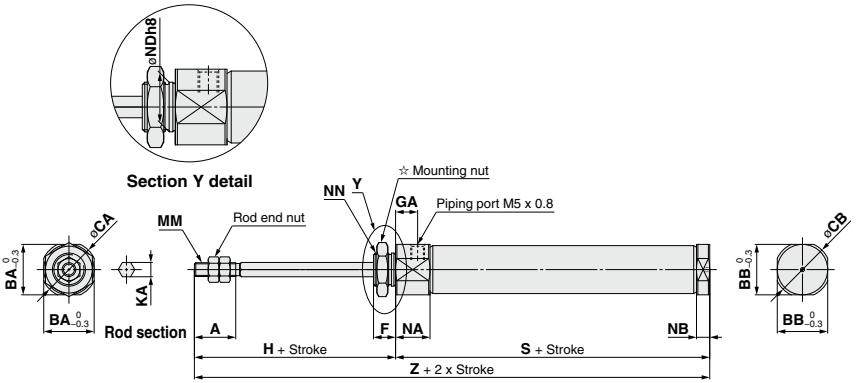
[mm]

Bore size	A	B	C	F	FB	FC	FT	FX	FY	FZ	GB	H	KA	MM	NA	NB	NN
10	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
16	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	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	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

Single Acting, Spring Extend: Basic (B)

CJ2KB 10/16 – Stroke TZ



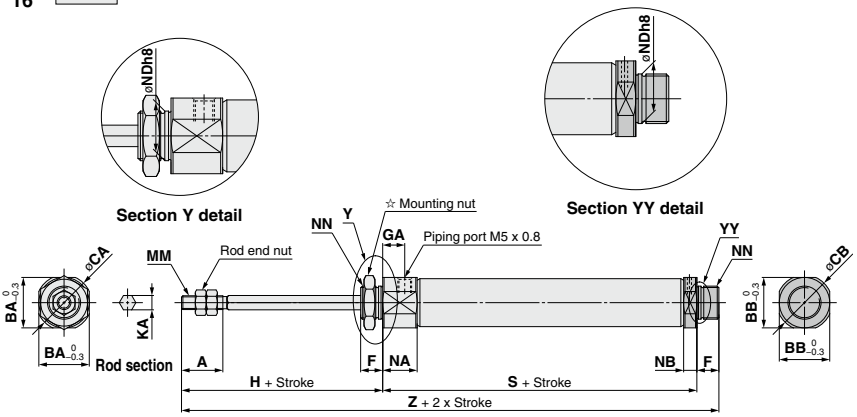
☆ For details of the mounting nut, refer to page 91.

[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	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	$10^{0}_{-0.022}$	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	$12^{0}_{-0.022}$	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 10/16 – Stroke TZ



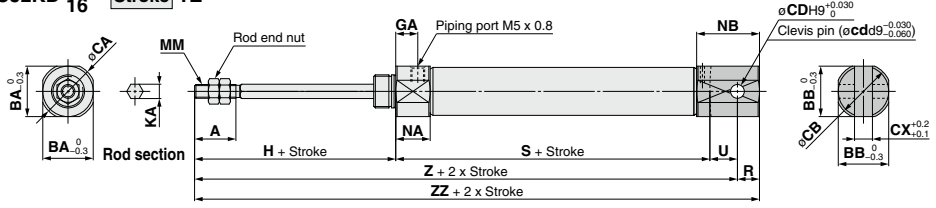
☆ For details of the mounting nut, refer to page 91.

[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	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	$10^{0}_{-0.022}$	M10 x 1.0	48.5	56	68	80	—	—	—	—	84.5	92	104	116	—	—	—	—
16	15	18.3	18.3	20	20	8	8	28	5.2	M5 x 0.8	12.5	4.8	$12^{0}_{-0.027}$	M12 x 1.0	48.5	57	69	81	87	111	129	141	84.5	93	105	117	123	147	165	177

Single Acting, Spring Extend: Double Clevis (D)

CJ2KD 10/16 – Stroke TZ



∗ A clevis pin and retaining rings are included.

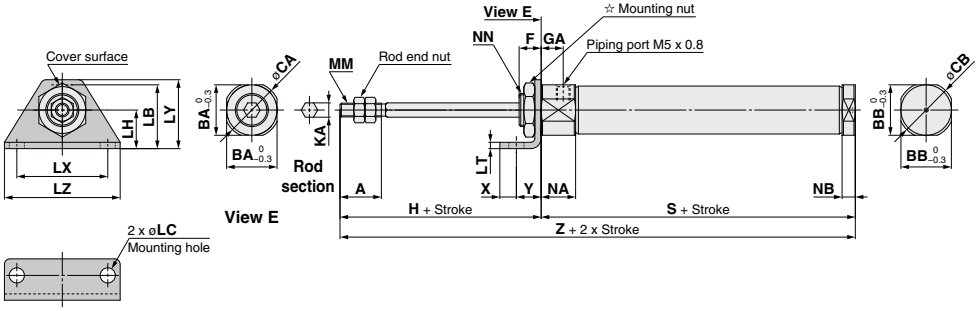
[mm]

Bore size	A	BA	BB	CA	CB	CD (cd)	CX	GA	H	KA	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
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

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
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 91.

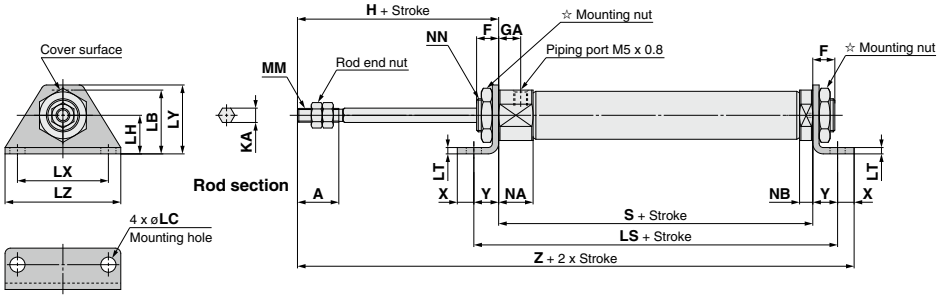
[mm]

Bore size	A	BA	BB	CA	CB	F	GA	H	KA	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN
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

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	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 $\begin{matrix}10\\16\end{matrix}$ – Stroke TZ



☆ For details of the mounting nut, refer to page 91.

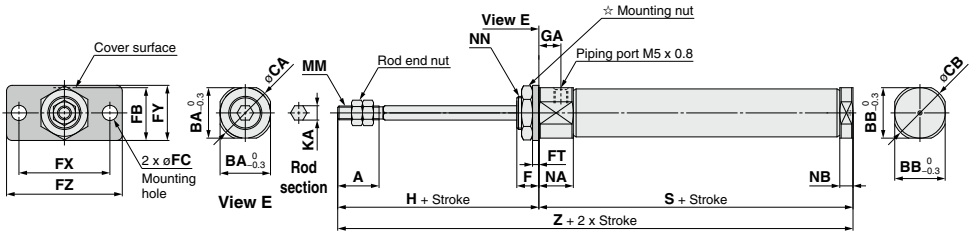
[mm]

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								
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 $\begin{matrix}10\\16\end{matrix}$ – Stroke TZ



☆ For details of the mounting nut, refer to page 91.

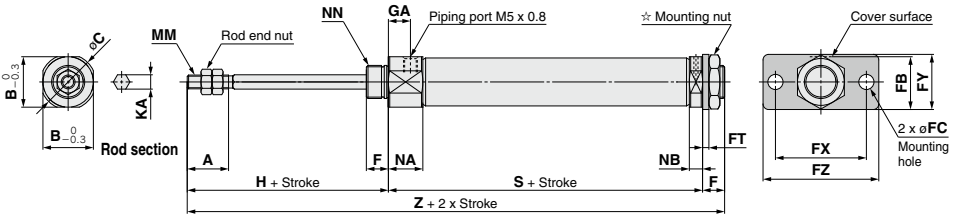
[mm]

Bore size	A	BA	BB	CA	CB	F	FB	FC	FT	FX	FY	FZ	GA	H	KA	MM	NA	NB	NN
10	15	15	12	17	14	8	17.5	5.5	2.3	33	20	42	8	28	4.2	M4 x 0.7	12.5	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

Single Acting, Spring Extend: Head Flange (G)

CJ2KG $\begin{matrix}10\\16\end{matrix}$ – Stroke TZ



☆ For details of the mounting nut, refer to page 91.

[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	76 to 100 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

RoHS

How to Order

	CJ2Z	B	16	–	60		Z	–			–			
With auto switch	CDJ2Z	B	16	–	60		Z	–			–	M9BW		– B –	
		❶	❷		❸	❹			❺	❻		❼	❽	❾ ❿

With auto switch (Built-in magnet)

❶ 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.

❷ Bore size

10	10 mm
16	16 mm

❸ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 138.

❹ 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.

❺ 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.

❻ 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 91 for the double knuckle joint (with one-touch connecting pin).

❼ 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.

❽ Number of auto switches

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

❾ 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 178 for auto switch mounting brackets.

❿ Made to Order

Refer to page 138 for details.

∗: **Refer to "Ordering Example of Cylinder Assembly" on page 138.**

Applicable Auto Switches/Refer to pages 1271 to 1365 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Band mounting Perpendicular	Band mounting In-line	Rail mounting Perpendicular	Rail mounting In-line	Lead wire length [m] 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state auto switch	——	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NV	M9N	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			M9PV	M9P	M9PV	M9P	●	●	●	○	—	○		
				2-wire	12 V		M9BV	M9B	M9BV	M9B	●	●	●	○	—	○	—	
		Connector					—	H7C	J79C	—	●	—	●	●	●	—		
	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	12 V		M9BWV	M9BW	M9BWV	M9BW	●	●	●	○	—	○	—	
	Water resistant (2-color indicator)			3-wire (NPN)	5 V, 12 V		M9NAV∗1	M9NA∗1	M9NAV∗1	M9NA∗1	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)			M9PAV∗1	M9PA∗1	M9PAV∗1	M9PA∗1	○	○	●	○	—	○		
				2-wire	12 V		M9BAV∗1	M9BA∗1	M9BAV∗1	M9BA∗1	○	○	●	○	—	○	—	
	With diagnostic output (2-color indicator)			4-wire (NPN)	5 V, 12 V		—	H7NF	—	F79F	●	—	●	○	—	○	IC circuit	
Reed auto switch	——	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	A96V	●	—	●	—	—	—	IC circuit	—
				2-wire	24 V	200 V	—	—	A72	A72H	●	—	●	—	—	—	—	Relay, PLC
			No			100 V	A93V∗2	A93	A93V∗2	A93	●	●	●	●	—	—		
					12 V	100 V or less	A90V	A90	A90V	A90	●	—	●	—	—	—	IC circuit	
		Connector	Yes			—	—	C73C	A73C	—	●	—	●	●	●	—	—	
			No			24 V or less	—	C80C	A80C	—	●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-color indicator)	Grommet	Yes			—	—	—	—	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.

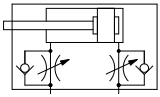
∗: Lead wire length symbols: 0.5 m····· Nil (Example) M9NW
1 m····· M (Example) M9NWM
3 m····· L (Example) M9NWL
5 m····· Z (Example) M9NWZ
None····· N (Example) H7CN

∗: Since there are other applicable auto switches than listed, refer to page 179 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.)

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

Symbol

Double acting, Single rod, Rubber bumper



Made to Order

Made to Order: Individual Specifications (For details, refer to page 180.)

Symbol	Specifications
-X446	PTFE grease

Made to Order

Click here for details

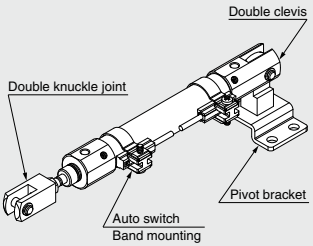
Symbol	Specifications
-XA□	Change of rod end shape
-XC51	With hose nipple
-XC85	Grease for food processing equipment

⚠ Precautions

Refer to page 183 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 (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

[mm]

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 pages 8 to19. 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 68 for the list of brackets and page 91 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 92 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 172 to 179 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

[g]

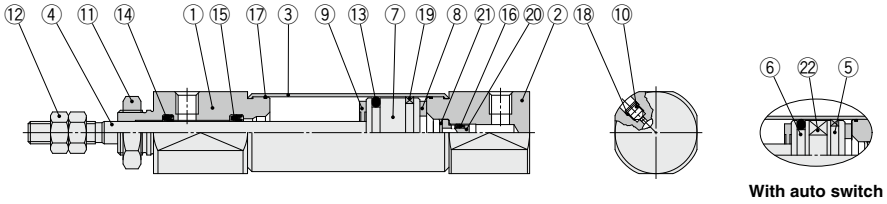
Bore size [mm]		10	16
Basic weight (When the stroke is zero)	Basic	36	61
	Axial piping	36	61
	Double clevis (including clevis pin)	40	68
	Head-side bossed	37	63
Additional weight per 15 mm of stroke		4	7
Mounting bracket weight	Single foot	8	25
	Double foot	16	50
	Rod flange	5	13
	Head flange	5	13
Accessories	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 x 45 + 8 = **56 g**

Construction (Not able to disassemble)



With auto switch

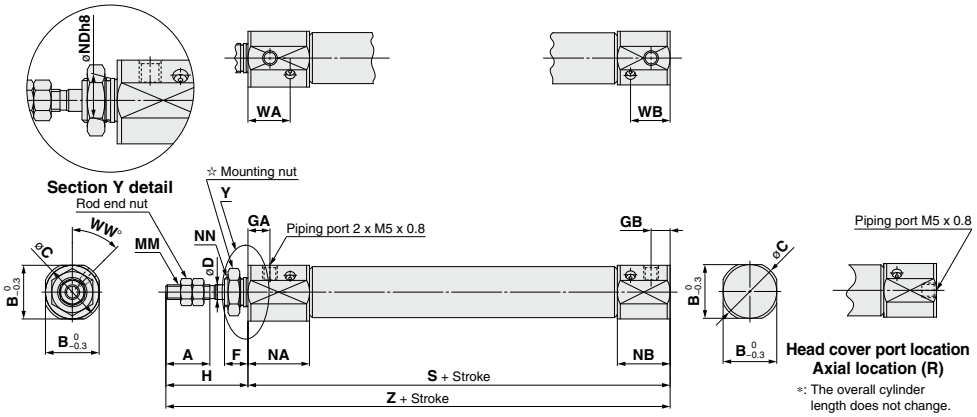
Component Parts

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**	—	

Basic (B)

CJ2ZB $\begin{matrix}10\\16\end{matrix}$ – Stroke Head cover port location Z



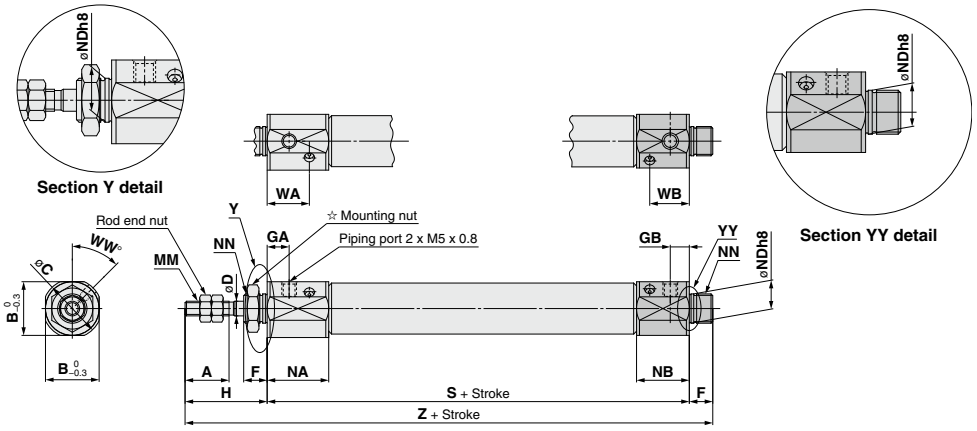
☆ For details of the mounting nut, refer to page 91.

[mm]

Bore size	A	B	C	D	F	GA	GB	H	MM	NA	NB	NDh8	NN	WA	WB	WW	S	Z
10	15	15	17	4	8	7.5	6.5	28	M4 x 0.7	21	18	$8^{0}_{-0.022}$	M8 x 1.0	14.4	13.5	45	63	91
16	15	18.3	20	5	8	7.5	6.5	28	M5 x 0.8	21	18	$10^{0}_{-0.022}$	M10 x 1.0	14.4	13.5	45	64	92

Double-side Bossed (E)

CJ2ZE $\begin{matrix}10\\16\end{matrix}$ – Stroke Z



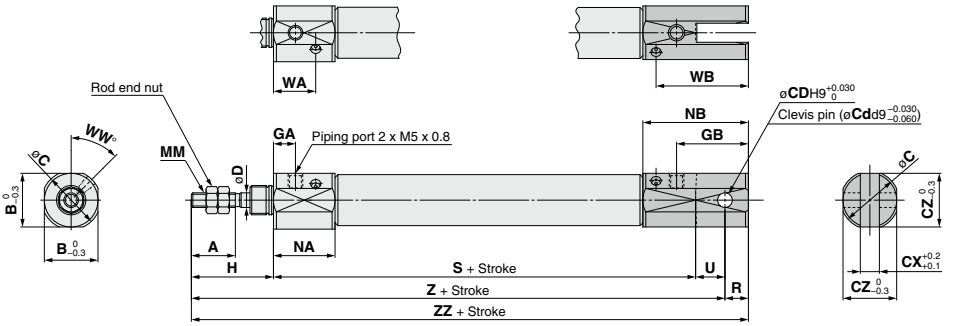
☆ For details of the mounting nut, refer to page 91.

[mm]

Bore size	A	B	C	D	F	GA	GB	H	MM	NA	NB	NDh8	NN	WA	WB	WW	S	Z
10	15	15	17	4	8	7.5	6.5	28	M4 x 0.7	21	18	$8^{0}_{-0.022}$	M8 x 1.0	14.4	13.5	45	63	99
16	15	18.3	20	5	8	7.5	6.5	28	M5 x 0.8	21	18	$10^{0}_{-0.022}$	M10 x 1.0	14.4	13.5	45	64	100

Double Clevis (D)

CJ2ZD $^{10}_{16}$ – Stroke Z



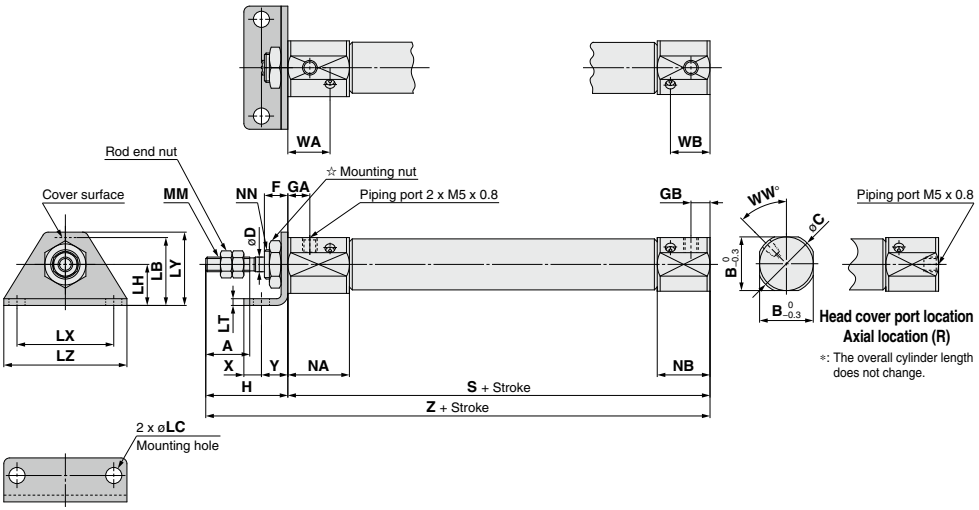
∗: A clevis pin and retaining rings are included.

[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 $^{10}_{16}$ – Stroke Head cover port location Z



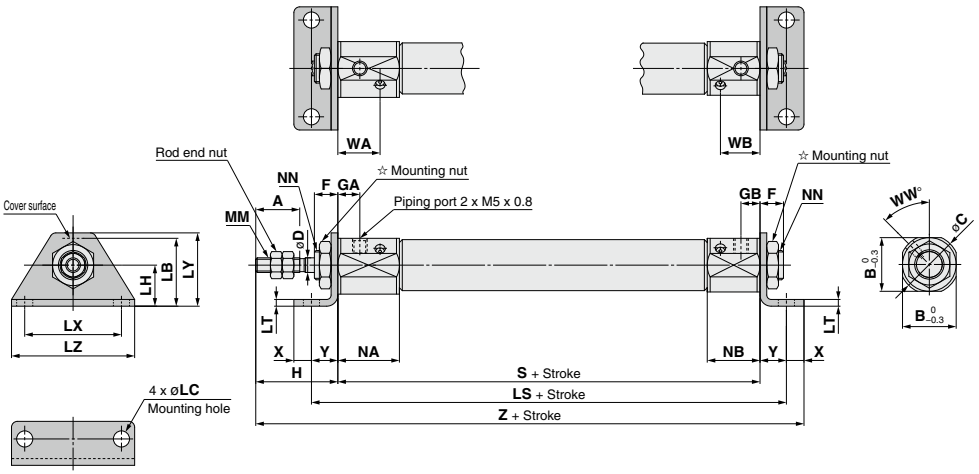
☆ For details of the mounting nut, refer to page 91.

[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

Double Foot (M)

CJ2ZM $\begin{matrix}10\\16\end{matrix}$ – Stroke Z



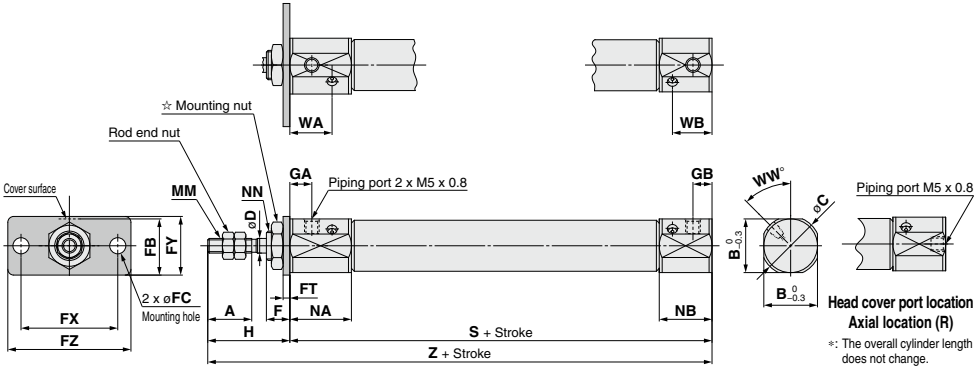
☆ For details of the mounting nut, refer to page 91.

[mm]

Bore size	A	B	C	D	F	GA	GB	H	LB	LC	LH	LS	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	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 $\begin{matrix}10\\16\end{matrix}$ – Stroke Head cover port location Z



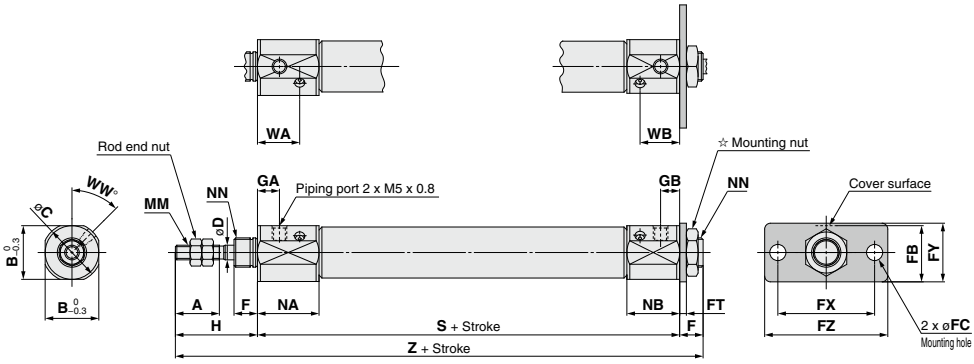
☆ For details of the mounting nut, refer to page 91.

[mm]

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 $\begin{matrix}10\\16\end{matrix}$ – Stroke Z



☆ For details of the mounting nut, refer to page 91.

[mm]

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	99
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	100

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

CJ2ZW Series

RoHS

ø10, ø16

How to Order

	CJ2ZW	B	16	–	60	Z	–							
With auto switch	CDJ2ZW	L	16	–	60	Z	–	M9BW		–	B	–		
			❶		❷		❸		❹	❺		❻		❼

With auto switch (Built-in magnet)

❶ Mounting

B	Basic
L	Foot
F	Flange

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

❷ Bore size

10	10 mm
16	16 mm

❸ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 145.

❹ 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.

❺ Number of auto switches

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

❻ 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 178 for auto switch mounting brackets.

❼ Made to Order

Refer to page 145 for details.

Applicable Auto Switches/Refer to pages 1271 to 1365 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Band mounting Perpendicular	Band mounting In-line	Rail mounting Perpendicular	Rail mounting In-line	Lead wire length [m] 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V,12 V	—	M9NV	M9N	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			M9PV	M9P	M9PV	M9P	●	●	●	○	—	○		
				2-wire	12 V		M9BV	M9B	M9BV	M9B	●	●	●	○	—	○	—	
		Connector					—	H7C	J79C	—	●	—	●	●	●	—		
	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	12 V		M9BWV	M9BW	M9BWV	M9BW	●	●	●	○	—	○	—	
	Water resistant (2-color indicator)			3-wire (NPN)	5 V,12 V		M9NAV∗1	M9NA∗1	M9NAV∗1	M9NA∗1	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)			M9PAV∗1	M9PA∗1	M9PAV∗1	M9PA∗1	○	○	●	○	—	○		
				2-wire	12 V		M9BAV∗1	M9BA∗1	M9BAV∗1	M9BA∗1	○	○	●	○	—	○	—	
	With diagnostic output (2-color indicator)			4-wire (NPN)	5 V,12 V		—	H7NF	—	F79F	●	—	●	○	—	○	IC circuit	
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	A96V	A96	●	—	●	—	—	—	IC circuit	—
				2-wire		—	200 V	—	—	A72	A72H	●	—	●	—	—	—	—	Relay, PLC
			No		24 V	12 V	100 V	A93V∗2	A93	A93V∗2	A93	●	●	●	●	—	—		
							100 V or less	A90V	A90	A90V	A90	●	—	●	—	—	—	IC circuit	
		Connector	Yes				—	—	C73C	A73C	—	●	—	●	●	●	—	—	
			No				24 V or less	—	C80C	A80C	—	●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-color indicator)	Grommet	Yes			—	—	—	—	A79W	—	●	—	●	—	—	—	—	

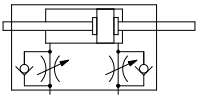
∗1: Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Please contact SMC regarding water resistant types with the above model numbers.
∗2: 1 m type lead wire is only applicable to D-A93.
∗: Lead wire length symbols: 0.5 m····· Nil (Example) M9NW
1 m····· M (Example) M9NWM
3 m····· L (Example) M9NWL
5 m····· Z (Example) M9NWZ
None····· N (Example) H7CN

∗: Since there are other applicable auto switches than listed, refer to page 179 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.)

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

Symbol

Double acting, Double rod, Rubber bumper



Made to Order

Made to Order: Individual Specifications
(For details, refer to page 180.)

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

[mm]

Bore size	Standard stroke
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 pages 8 to 19. 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 68 for the list of brackets and page 91 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)	○	○	○

∗: Stainless steel mounting brackets and accessories are also available.
Refer to page 92 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 172 to 179 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

[g]

Bore size [mm]		10	16
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.

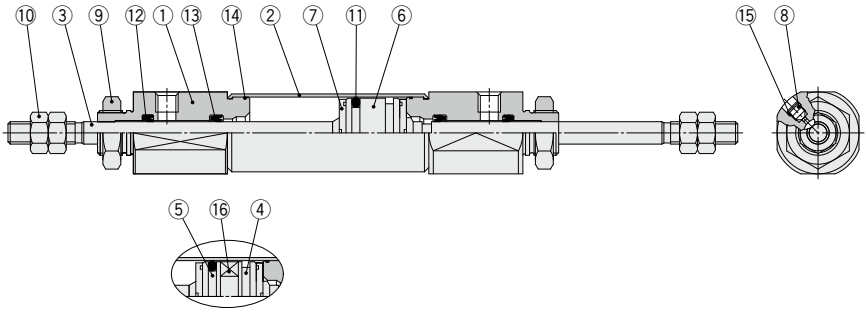
Calculation:

Example) **CJ2ZWL10-45Z**

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

36 + 4.5/15 x 45 + 16 = **65.5 g**

Construction (Not able to disassemble)



With auto switch

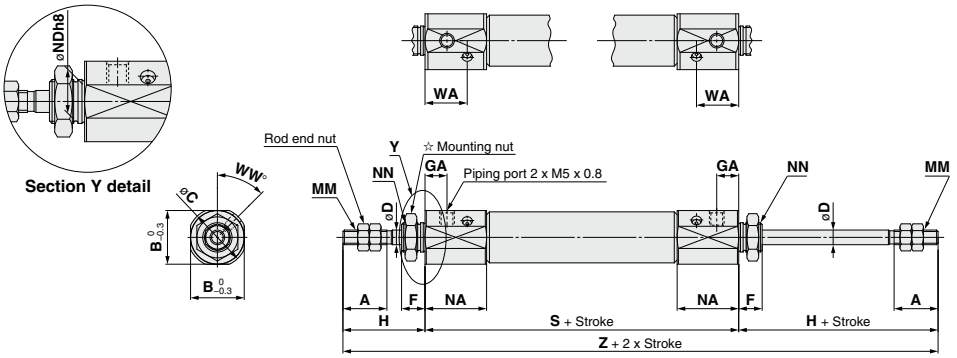
Component Parts

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 $\begin{matrix}10\\16\end{matrix}$ – Stroke Z



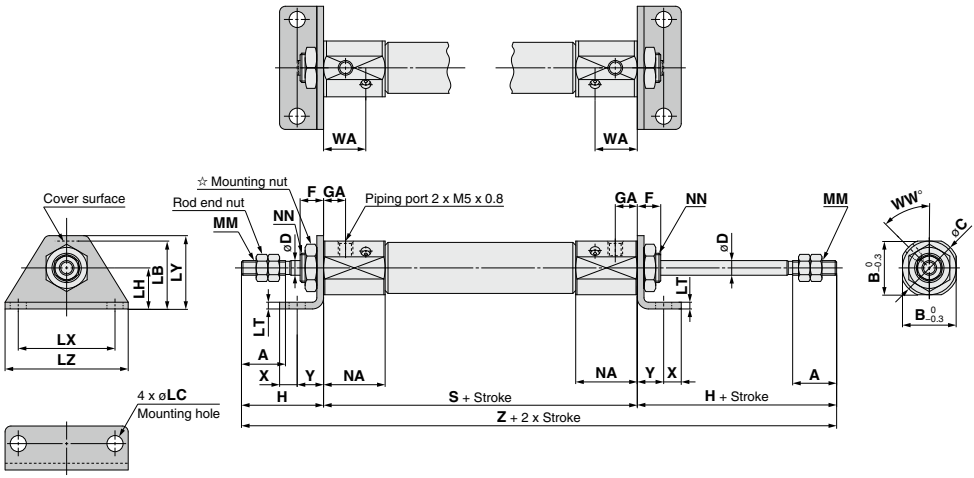
☆ For details of the mounting nut, refer to page 91.

[mm]

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

Foot (L)

CJ2ZWL $\begin{matrix}10\\16\end{matrix}$ – Stroke Z



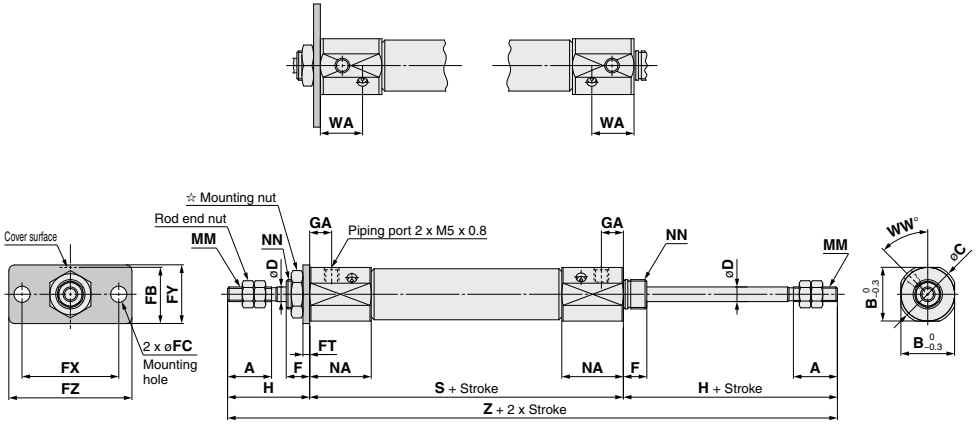
☆ For details of the mounting nut, refer to page 91.

[mm]

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
10	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
16	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

Flange (F)

CJ2ZWF $\begin{matrix}10\\16\end{matrix}$ **– Stroke Z**



☆ For details of the mounting nut, refer to page 91.

[mm]

Bore size	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GA	H	MM	NA	NN	WA	WW	S	Z
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

RoHS

How to Order

CJ2RA 16 – 60 Z – – –

With auto switch **CDJ2RA 16 – 60 Z – – M9BW – B –**

With auto switch (Built-in magnet)

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶ Mounting

A	Bottom mounting

❷ Bore size

10	10 mm
16	16 mm

❸ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 150.

❹ Head cover port location

Nil	Perpendicular to axis	
R	Axial	

❺ 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 91 for the double knuckle joint (with one-touch connecting pin).

❻ 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.

❼ Number of auto switches

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

❽ 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 178 for auto switch mounting brackets.

❾ Made to Order

Refer to page 150 for details.

∗: **Refer to "Ordering Example of Cylinder Assembly" on page 150.**

Applicable Auto Switches/Refer to pages 1271 to 1365 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Band mounting Perpendicular	Band mounting In-line	Rail mounting Perpendicular	Rail mounting In-line	Lead wire length [m] 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load:	
Solid state auto switch	——	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	**M9NV**	**M9N**	**M9NV**	**M9N**	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			**M9PV**	**M9P**	**M9PV**	**M9P**	●	●	●	○	—	○		
				2-wire	12 V		**M9BV**	**M9B**	**M9BV**	**M9B**	●	●	●	○	—	○	—	
		Connector					—	**H7C**	**J79C**	—	●	—	●	●	●	—		
	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	12 V		**M9BWV**	**M9BW**	**M9BWV**	**M9BW**	●	●	●	○	—	○	—	
	Water resistant (2-color indicator)			3-wire (NPN)	5 V, 12 V		**M9NAV**∗1	**M9NA**∗1	**M9NAV**∗1	**M9NA**∗1	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)			**M9PAV**∗1	**M9PA**∗1	**M9PAV**∗1	**M9PA**∗1	○	○	●	○	—	○		
				2-wire	12 V		**M9BAV**∗1	**M9BA**∗1	**M9BAV**∗1	**M9BA**∗1	○	○	●	○	—	○	—	
	With diagnostic output (2-color indicator)			4-wire (NPN)	5 V, 12 V		—	**H7NF**	—	**F79F**	●	—	●	○	—	○	IC circuit	
Reed auto switch	——	Grommet	Yes	3-wire (NPN equivalent)	5 V	—	**A96V**	**A96**	**A96V**	**A96**	●	—	●	—	—	—	IC circuit	—
				2-wire	—	200 V	—	—	**A72**	**A72H**	●	—	●	—	—	—	—	Relay, PLC
					12 V	100 V	**A93V**∗2	**A93**	**A93V**∗2	**A93**	●	●	●	●	—	—		
			No			100 V or less	**A90V**	**A90**	**A90V**	**A90**	●	—	●	—	—	—	IC circuit	
		Connector	Yes			—	—	**C73C**	**A73C**	—	●	—	●	●	●	—	—	
			No			24 V or less	—	**C80C**	**A80C**	—	●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-color indicator)	Grommet	Yes			—	—	—	**A79W**	—	●	—	●	—	—	—	—	

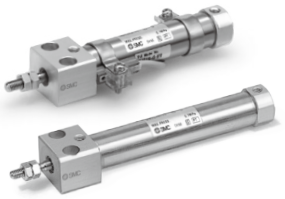
∗1: Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Please contact SMC regarding water resistant types with the above model numbers.
∗2: 1 m type lead wire is only applicable to D-A93.

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

∗: Since there are other applicable auto switches than listed, refer to page 179 for details.

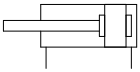
∗: Solid state auto switches marked with "○" are produced upon receipt of order.
∗: The D-A9□/M9□/A7□/A80□/F7□/J7□ auto switches are shipped together, but not assembled. (For band mounting, only auto switch mounting brackets are assembled before being shipped.)

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

Made to Order: Individual Specifications (For details, refer to page 180.)

Symbol	Specifications
-X446	PTFE grease

Made to Order

Click here for details

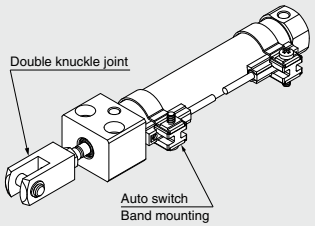
Symbol	Specifications
-XA□	Change of rod end shape
-XC9	Adjustable stroke cylinder/Adjustable retraction type
-XC22	Fluororubber seal
-XC51	With hose nipple
-XC85	Grease for food processing equipment

⚠ Precautions

Refer to page 183 before handling.

Ordering Example of Cylinder Assembly

Cylinder model: CDJ2RA16-60Z-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	$^{+1.0}_{0}$	
Piston speed	50 to 750 mm/s	
Allowable kinetic energy	0.035 J	0.090 J

Standard Strokes

[mm]

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 pages 8 to 19. 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 68 for the list of brackets and page 91 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 92 for details.

Weights

[g]

Bore size [mm]		10	16
Basic weight (When the stroke is zero)	Basic	36	61
	Axial piping	36	61
Additional weight per 15 mm of stroke		4	7
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) **CJ2RA10-45Z**
- Basic weight ····· 36 (ø10)
- Additional weight ···· 4/15 stroke
- Cylinder stroke····· 45 stroke

36 + 4/15 x 45 = **48 g**

Refer to pages 172 to 179 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.

SMC

Clean Series

10-CJ2RA $\begin{matrix}10\\16\end{matrix}$ **– Stroke Head cover port location Z**

Clean Series

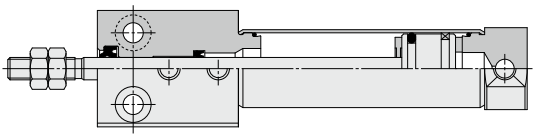
Air cylinder which is applicable for the system which discharges leakage from the rod section directly into the outside of clean room by relief port and making an actuator's rod section having a double seal construction.

For the detailed specifications, refer to the **Web Catalog**.

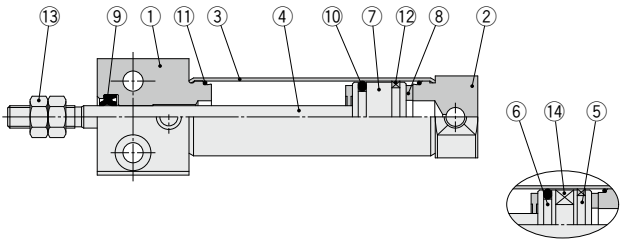
Specifications

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 150.)
Auto switch	Mountable (Band mounting)
Mounting	Bottom mounting

Construction (Not able to disassemble)



Construction (Not able to disassemble)



With auto switch

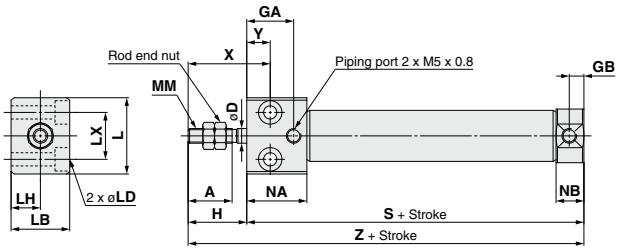
Component Parts

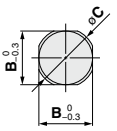
No.	Description	Material	Note
1	**Rod cover**	Aluminum alloy	
2	**Head cover**	Aluminum alloy	
3	**Cylinder tube**	Stainless steel	
4	**Piston rod**	Stainless steel	
5	**Piston A**	Aluminum alloy	
6	**Piston B**	Aluminum alloy	
7	**Piston**	Aluminum alloy	

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**	—	

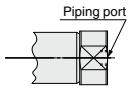
Bottom Mounting

CJ2RA $\begin{matrix}10\\16\end{matrix}$ – Stroke Head cover port location Z





Head cover shape



Head cover port location
Axial location (R)

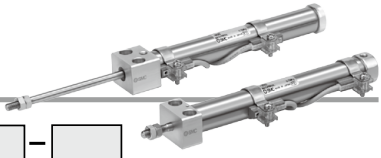
∗: The overall cylinder length does not change.

[mm]

Bore size	A	B	C	D	GA	GB	H	L	LB	LD	LH	LX	MM	NA	NB	X	Y	S	Z
10	15	12	14	4	16	5	20	23	16	ø3.5 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

CJ2RA 16 – 45 S Z – – –

With auto switch **CDJ2RA 16 – 45 S Z – – M9BW – B –**

With auto switch (Built-in magnet)

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

❶ Mounting

A	Bottom mounting

❷ Bore size

10	10 mm
16	16 mm

❸ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 154.

❹ Action

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

❺ Head cover port location

Nil	Perpendicular to axis	
R	Axial	

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

❻ 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 91 for the double knuckle joint (with one-touch connecting pin).

❼ 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.

❽ Number of auto switches

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

❾ 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 178 for auto switch mounting brackets.

❿ Made to Order

Refer to page 154 for details.

∗: **Refer to "Ordering Example of Cylinder Assembly" on page 154.**

Applicable Auto Switches/Refer to pages 1271 to 1365 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Band mounting Perpendicular	Band mounting In-line	Rail mounting Perpendicular	Rail mounting In-line	Lead wire length [m] 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state auto switch	——	Grommet	Yes	3-wire (NPN)	5 V,12 V	—	M9NV	M9N	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			M9PV	M9P	M9PV	M9P	●	●	●	○	—	○		
				2-wire	12 V		M9BV	M9B	M9BV	M9B	●	●	●	○	—	○	—	
		Connector					—	H7C	J79C	—	●	—	●	●	●	—		
	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	12 V		M9BWV	M9BW	M9BWV	M9BW	●	●	●	○	—	○	—	
	Water resistant (2-color indicator)			3-wire (NPN)	5 V,12 V		M9NAV∗1	M9NA∗1	M9NAV∗1	M9NA∗1	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)			M9PAV∗1	M9PA∗1	M9PAV∗1	M9PA∗1	○	○	●	○	—	○		
				2-wire	12 V		M9BAV∗1	M9BA∗1	M9BAV∗1	M9BA∗1	○	○	●	○	—	○	—	
	With diagnostic output (2-color indicator)			4-wire (NPN)	5 V,12 V		—	H7NF	—	F79F	●	—	●	○	—	○	IC circuit	
Reed auto switch	——	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	A96V	A96	●	—	●	—	—	—	IC circuit	—
				2-wire	24 V	—	200 V	—	—	A72	A72H	●	—	●	—	—	—	—	Relay, PLC
			No			12 V	100 V	A93V∗2	A93	A93V∗2	A93	●	●	●	●	—	—		
							100 V or less	A90V	A90	A90V	A90	●	—	●	—	—	—	IC circuit	
		Connector	Yes				—	—	C73C	A73C	—	●	—	●	●	●	—	—	
			No				24 V or less	—	C80C	A80C	—	●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-color indicator)	Grommet	Yes		—	—	—	—	—	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) M9NWZ
None····· N (Example) H7CN

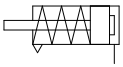
∗: Since there are other applicable auto switches than listed, refer to page 179 for details.

∗: 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.)

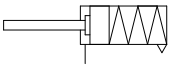
The CJ2R direct mount cylinder can be installed directly through the use of a square rod cover.

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 180.)

Symbol	Specifications
-X446	PTFE grease

Made to Order

Click here for details

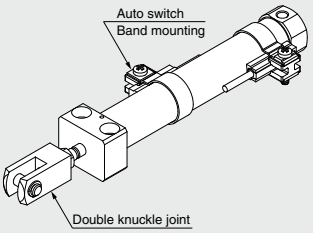
Symbol	Specifications
-XA□	Change of rod end shape
-XC51	With hose nipple
-XC85	Grease for food processing equipment

⚠ Precautions

Refer to page 183 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 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	0.035 J	0.090 J

Standard Strokes

[mm]

Bore size	Standard stroke
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 pages 8 to 19. 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 68 for the list of brackets and page 91 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 92 for details.

Spring Reaction Force

Refer to page 1571 (Table (2): Spring Reaction Force).

Refer to pages 172 to 179 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	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	

Spring Extend

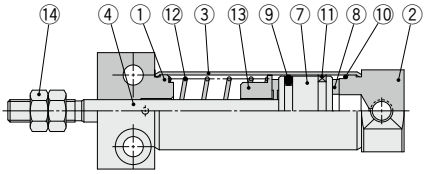
[g]

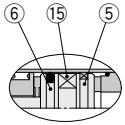
Bore size [mm]		10	16
Mounting		Basic	Basic
Basic weight	15 stroke	41	78
	30 stroke	47	92
	45 stroke	55	108
	60 stroke	64	123
	75 stroke		144
	100 stroke		173
	125 stroke		208
	150 stroke		228
Accessories	Single knuckle joint	17	23
	Double knuckle joint (including knuckle pin)	25	21
	Double knuckle joint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

∗: Rod end nut is included in the basic weight.

Construction (Not able to disassemble)

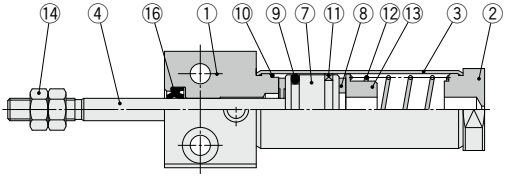
Single acting, Spring return

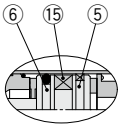




With auto switch

Single acting, Spring extend





With auto switch

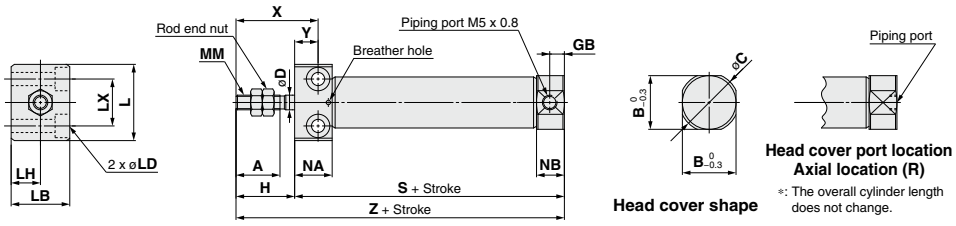
Component Parts

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	

Single Acting: Bottom Mounting

Spring return: CJ2RA $\frac{10}{16}$ – Stroke S Head cover port location Z



[mm]

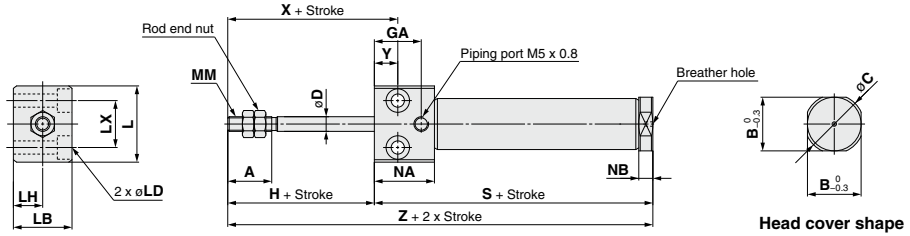
Bore size	A	B	C	D	GB	H	L	LB	LD	LH	LX	MM	NA	NB	X	Y
10	15	12	14	4	5	20	23	16	ø3.5 through, ø6.5 counterbore depth 4	8	12	M4 x 0.7	12.8	9.5	28	8
16	15	18.3	20	5	5	20	26	20	ø4.5 through, ø8 counterbore depth 5	10	16	M5 x 0.8	12.8	9.5	28	8

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 $\frac{10}{16}$ – Stroke TZ



[mm]

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

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

RoHS

How to Order

CJ2RKA 16 – 60 Z – – –

With auto switch **CDJ2RKA 16 – 60 Z – – M9BW – B –**

With auto switch (Built-in magnet)

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

❶ Mounting

A	Bottom mounting

❷ Bore size

10	10 mm
16	16 mm

❸ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 158.

❹ Head cover port location

Nil	Perpendicular to axis	
R	Axial	

❺ 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 91 for the double knuckle joint (with one-touch connecting pin).

❻ 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.

❼ Number of auto switches

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

❽ 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 178 for auto switch mounting brackets.

❾ Made to Order

Refer to page 158 for details.

∗: **Refer to "Ordering Example of Cylinder Assembly" on page 158.**

Applicable Auto Switches/Refer to pages 1271 to 1365 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Band mounting Perpendicular	Band mounting In-line	Rail mounting Perpendicular	Rail mounting In-line	Lead wire length [m] 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V,12 V	—	**M9NV**	**M9N**	**M9NV**	**M9N**	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			**M9PV**	**M9P**	**M9PV**	**M9P**	●	●	●	○	—	○		
				2-wire	12 V		**M9BV**	**M9B**	**M9BV**	**M9B**	●	●	●	○	—	○	—	
		Connector					—	**H7C**	**J79C**	—	●	—	●	●	●	—		
	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	12 V		**M9BWV**	**M9BW**	**M9BWV**	**M9BW**	●	●	●	○	—	○	—	
	Water resistant (2-color indicator)			3-wire (NPN)	5 V,12 V		**M9NAV**∗1	**M9NA**∗1	**M9NAV**∗1	**M9NA**∗1	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)			**M9PAV**∗1	**M9PA**∗1	**M9PAV**∗1	**M9PA**∗1	○	○	●	○	—	○		
				2-wire	12 V		**M9BAV**∗1	**M9BA**∗1	**M9BAV**∗1	**M9BA**∗1	○	○	●	○	—	○	—	
	With diagnostic output (2-color indicator)			4-wire (NPN)	5 V,12 V		—	**H7NF**	—	**F79F**	●	—	●	○	—	○	IC circuit	
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	**A96V**	**A96**	**A96V**	**A96**	●	—	●	—	—	—	IC circuit	—
				2-wire	24 V	200 V	—	—	**A72**	**A72H**	●	—	●	—	—	—	—	Relay, PLC
			No			12 V	100 V	**A93V**∗2	**A93**	**A93V**∗2	**A93**	●	●	●	●	—	—	
							100 V or less	**A90V**	**A90**	**A90V**	**A90**	●	—	●	—	—	—	IC circuit	
		Connector	Yes				—	—	**C73C**	**A73C**	—	●	—	●	●	●	—	—	
			No				24 V or less	—	**C80C**	**A80C**	—	●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-color indicator)	Grommet	Yes			—	—	—	—	**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.

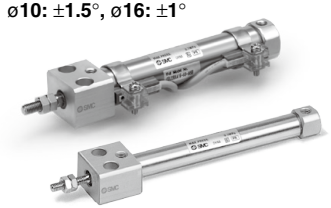
∗: Lead wire length symbols: 0.5 m ····· Nil (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ····· L (Example) M9NWL
5 m ····· Z (Example) M9NWZ
None ····· N (Example) H7CN

∗: Since there are other applicable auto switches than listed, refer to page 179 for details.

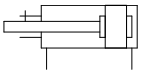
∗: Solid state auto switches marked with "○" are produced upon receipt of order.
∗: The D-A9□/M9□/A7□/A80□/F7□/J7□ auto switches are shipped together, but not assembled. (For band mounting, only auto switch mounting brackets are assembled before being shipped.)

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 **Made to Order: Individual Specifications (For details, refer to page 180.)**

Symbol	Specifications
-X446	PTFE grease

Made to Order
Click here for details

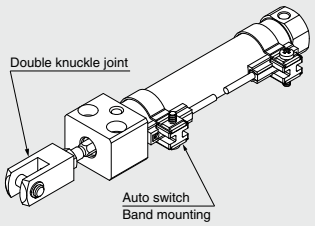
Symbol	Specifications
-XA□	Change of rod end shape
-XC9	Adjustable stroke cylinder/Adjustable retraction type
-XC51	With hose nipple
-XC85	Grease for food processing equipment

⚠ Precautions

Refer to page 183 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

[mm]

Bore size	Standard stroke
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 pages 8 to 19. 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 68 for the list of brackets and page 91 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 92 for details.

Weights

[g]

Bore size [mm]		10	16
Basic weight (When the stroke is zero)	Basic	36	62
	Axial piping	36	62
Additional weight per 15 mm of stroke		4	7
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

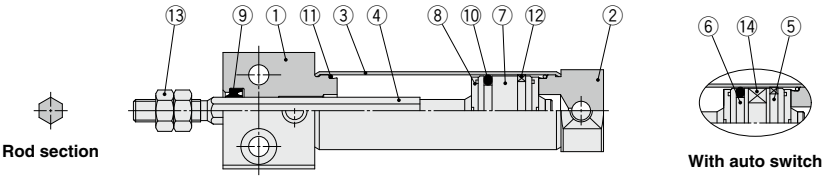
∗: Rod end nut is included in the basic weight.
Calculation:
Example) **CJ2RKA10-45Z**
- Basic weight ····· 36 (ø10)
- Additional weight ···· 4/15 stroke
- Cylinder stroke····· 45 stroke

36 + 4/15 x 45 = **48 g**

Refer to pages 172 to 179 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)



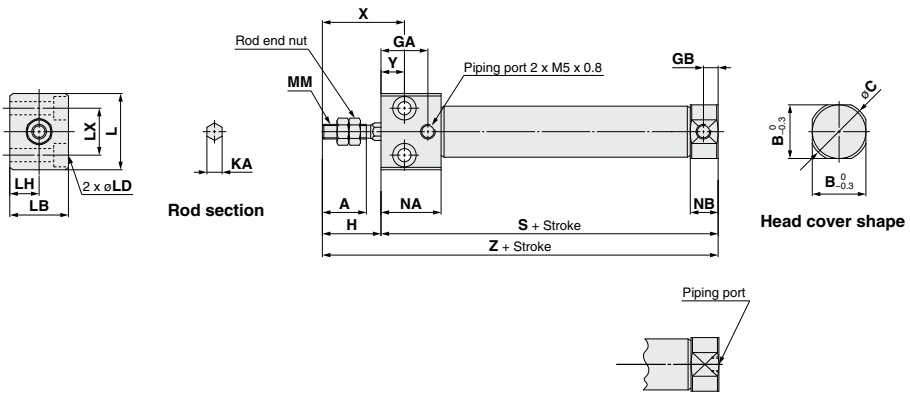
Component Parts

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 $\begin{matrix}10\\16\end{matrix}$ – [Stroke] [Head cover port location] Z



∗: The overall cylinder length does not change.

[mm]

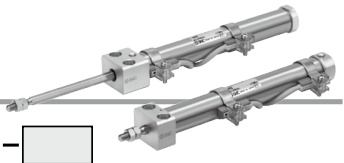
Bore size	A	B	C	GA	GB	H	KA	L	LB	LD	LH	LX	MM	NA	NB	X	Y	S	Z
10	15	12	14	16	5	20	4.2	23	16	ø3.5 through, ø6.5 counterbore depth 4	8	12	M4 x 0.7	20.5	9.5	28	8	54	74
16	15	18.3	20	16	5	20	5.2	26	20	ø4.5 through, ø8 counterbore depth 5	10	16	M5 x 0.8	20.5	9.5	28	8	55	75

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

CJ2RK Series

RoHS

ø10, ø16



How to Order

CJ2RKA 16 – 45 S Z – – –

With auto switch: CDJ2RKA 16 – 45 S Z – – M9BW – B –

With auto switch (Built-in magnet)

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾ ❿

❶ Mounting

A	Bottom mounting

❷ Bore size

10	10 mm
16	16 mm

❸ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 161.

❹ Action

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

❺ Head cover port location

Nil	Perpendicular to axis	
R	Axial	

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

❻ 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 91 for the double knuckle joint (with one-touch connecting pin).

❼ 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.

❽ Number of auto switches

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

❾ 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 178 for auto switch mounting brackets.

❿ Made to Order

Refer to page 161 for details.

∗: **Refer to "Ordering Example of Cylinder Assembly" on page 161.**

Applicable Auto Switches/Refer to pages 1271 to 1365 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Band mounting Perpendicular	Band mounting In-line	Rail mounting Perpendicular	Rail mounting In-line	Lead wire length [m] 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load:	
Solid state auto switch	——	Grommet	Yes	3-wire (NPN)	5 V,12 V	—	M9NV	M9N	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			M9PV	M9P	M9PV	M9P	●	●	●	○	—	○		
				2-wire	12 V		M9BV	M9B	M9BV	M9B	●	●	●	○	—	○	—	
		Connector					—	H7C	J79C	—	●	—	●	●	●	—		
	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	12 V		M9BWV	M9BW	M9BWV	M9BW	●	●	●	○	—	○	—	
	Water resistant (2-color indicator)			3-wire (NPN)	5 V,12 V		M9NAV∗1	M9NA∗1	M9NAV∗1	M9NA∗1	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)			M9PAV∗1	M9PA∗1	M9PAV∗1	M9PA∗1	○	○	●	○	—	○		
				2-wire	12 V		M9BAV∗1	M9BA∗1	M9BAV∗1	M9BA∗1	○	○	●	○	—	○	—	
	With diagnostic output (2-color indicator)			4-wire (NPN)	5 V,12 V		—	H7NF	—	F79F	●	—	●	○	—	○	IC circuit	
Reed auto switch	——	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	A96V	A96	●	—	●	—	—	—	IC circuit	—
				2-wire	24 V	200 V	—	—	A72	A72H	●	—	●	—	—	—	—	Relay, PLC
						12 V	100 V	A93V∗2	A93	A93V∗2	A93	●	●	●	●	—	—	
			No				100 V or less	A90V	A90	A90V	A90	●	—	●	—	—	—	IC circuit
		Connector	Yes				—	—	C73C	A73C	—	●	—	●	●	●	—	—
			No				24 V or less	—	C80C	A80C	—	●	—	●	●	●	—	IC circuit
	Diagnostic indication (2-color indicator)	Grommet	Yes		—	—	—	—	—	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) M9NWZ
None····· N (Example) H7CN

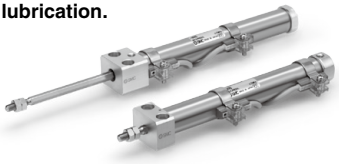
∗: Since there are other applicable auto switches than listed, refer to page 179 for details.

∗: 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.)

SMC

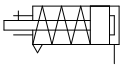
A cylinder which rod does not rotate because of the hexagonal rod shape.

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

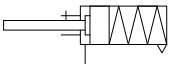


Symbol

Single acting, Spring return, Rubber bumper



Single acting, Spring extend, Rubber bumper



Made to Order: Individual Specifications
(For details, refer to page 180.)

Symbol	Specifications
-X446	PTFE grease

Made to Order

Click here for details

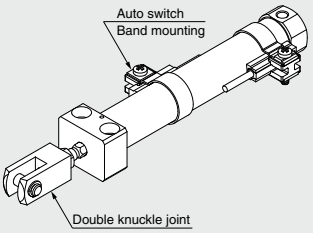
Symbol	Specifications
-XA□	Change of rod end shape
-XC51	With hose nipple
-XC85	Grease for food processing equipment

⚠ Precautions

Refer to page 183 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	±1.5°	±1°
Piston speed	50 to 750 mm/s	
Allowable kinetic energy	0.035 J	0.090 J

Standard Strokes

[mm]

Bore size	Standard stroke
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 pages 8 to 19. 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 68 for the list of brackets and page 91 for details about part numbers and dimensions.

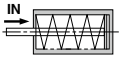
Standard	Rod end nut
Option[Note 1)]	Single knuckle joint, Double knuckle joint (including a pin and retaining rings), Rod end cap (Flat/Round type), Double knuckle joint (With one-touch connecting pin)

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 92 for details.

Spring Reaction Force

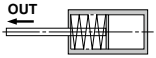
Bore size [mm]	Spring reaction force [N]	
	Primary	Secondary
10	3.53	6.86
16	6.86	14.2

Spring with primary mounting load



When the spring is set in the cylinder

Spring with secondary mounting load



When the spring is contracted by applying air

Refer to pages 172 to 179 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	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.

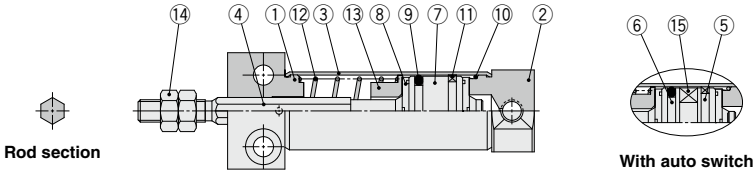
Spring Extend

[g]

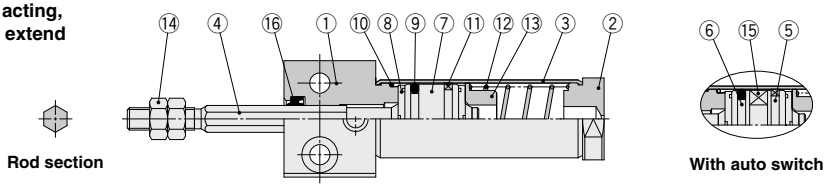
Bore size [mm]		10	16
Mounting		Basic	Basic
Basic weight	15 stroke	42	79
	30 stroke	48	93
	45 stroke	57	110
	60 stroke	66	126
	75 stroke		147
	100 stroke		177
	125 stroke		213
	150 stroke		234
Accessories	Single knuckle joint	17	23
	Double knuckle joint (including knuckle pin)	25	21
	Double knuckle joint (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



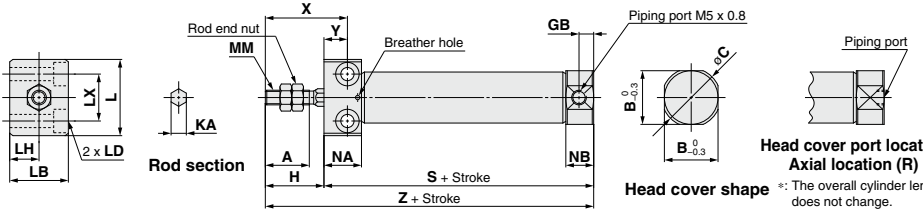
Component Parts

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 $\frac{10}{16}$ – Stroke S Head cover port location Z



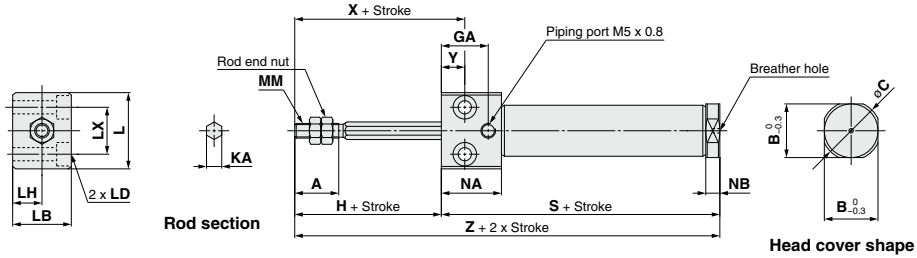
[mm]

Bore size	A	B	C	GB	H	KA	L	LB	LD	LH	LX	MM	NA	NB	X	Y
10	15	12	14	5	20	4.2	23	16	ø3.5 through, ø6.5 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 [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	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 $\frac{10}{16}$ – Stroke TZ



[mm]

Bore size	A	B	C	GA	H	KA	L	LB	LD	LH	LX	MM	NA	NB	X	Y
10	15	12	14	16	20	4.2	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	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

Air Cylinder: With End Lock

CBJ2 Series

ø16

RoHS

How to Order

CBJ2 L 16 – 60 – H N

With auto switch CDBJ2 L 16 – 60 – H N – M9BW ☐ – C

With auto switch (Built-in magnet)

❶ ❷ ❸ ❹ ❺ ❻ ❼

❶ Mounting

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.

❷ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 165.

❸ Lock position

H	Head end lock
R	Rod end lock

❹ Manual release

N	Non-locking type

❺ 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.

❻ Number of auto switches

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

❼ 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 178 for auto switch mounting brackets.

Applicable Auto Switches/Refer to pages 1271 to 1365 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Band mounting Perpendicular	Band mounting In-line	Rail mounting Perpendicular	Rail mounting In-line	Lead wire length [m] 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state auto switch	——	Grommet	Yes	3-wire (NPN)	5 V,12 V	—	M9NV	M9N	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			M9PV	M9P	M9PV	M9P	●	●	●	○	—	○		
				2-wire	12 V		M9BV	M9B	M9BV	M9B	●	●	●	○	—	○	—	
		Connector					—	H7C	J79C	—	●	—	●	●	●	—		
	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	12 V		M9BWV	M9BW	M9BWV	M9BW	●	●	●	○	—	○	—	
	Water resistant (2-color indicator)			3-wire (NPN)	5 V,12 V		M9NAV∗1	M9NA∗1	M9NAV∗1	M9NA∗1	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)			M9PAV∗1	M9PA∗1	M9PAV∗1	M9PA∗1	○	○	●	○	—	○		
				2-wire	12 V		M9BAV∗1	M9BA∗1	M9BAV∗1	M9BA∗1	○	○	●	○	—	○	—	
	With diagnostic output (2-color indicator)			4-wire (NPN)	5 V,12 V		—	H7NF	—	F79F	●	—	●	○	—	○	IC circuit	
Reed auto switch	——	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	A96V	A96	●	—	●	—	—	—	IC circuit	—
				2-wire	24 V	—	200 V	—	—	A72	A72H	●	—	●	—	—	—	—	Relay, PLC
						12 V	100 V	A93V∗2	A93	A93V∗2	A93	●	●	●	●	—	—		
			No				100 V or less	A90V	A90	A90V	A90	●	—	●	—	—	—	IC circuit	
		Connector	Yes				—	—	C73C	A73C	—	●	—	●	●	●	—	—	
			No				24 V or less	—	C80C	A80C	—	●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-color indicator)	Grommet	Yes			—	—	—	—	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) M9NWZ
None····· N (Example) H7CN

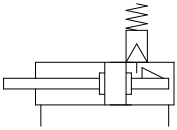
∗: Since there are other applicable auto switches than listed, refer to page 179 for details.

∗: 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). (However, when the D-A9☐/M9☐ types are selected, only auto switch mounting brackets are assembled before being shipped.)
∗: When the D-A9☐/M9☐ types are mounted on a rail, order auto switch mounting brackets separately. Refer to page 178 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 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	0.090 J

∗: 0.06 MPa for parts other than the lock unit.

Lock Specifications

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

Standard Strokes

[mm]

Bore size	Standard stroke
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 pages 8 to 19. 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-L016C
Flange	CJ-F016C
Pivot bracket (T-bracket)Note 1)	CJ-T016C

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 92 for details.

Refer to pages 172 to 179 for cylinders with auto switches.

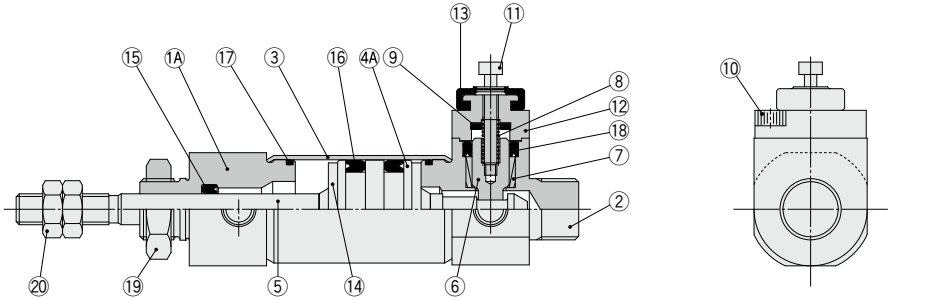
- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

Moisture Control Tube IDK Series

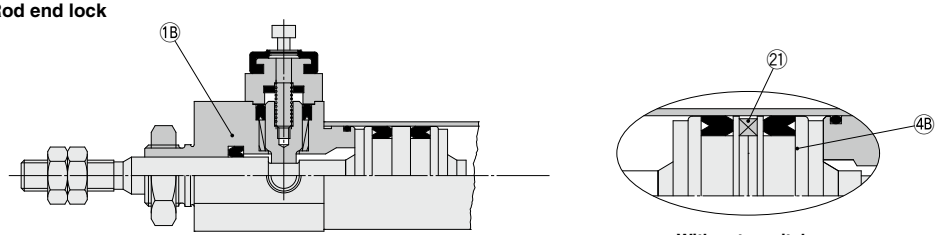
When operating an actuator with a small diameter and a short stroke at a high frequency, the dew condensation (water droplet) may occur inside the piping depending on the conditions.
Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to the **Web Catalog**.

Construction (Not able to disassemble)

Head end lock



Rod end lock



With auto switch

Component Parts

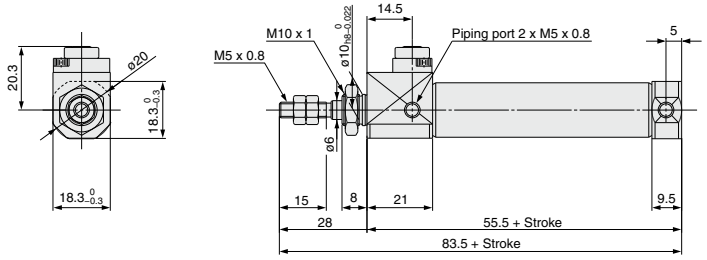
No.	Description	Material	Note
1A	**Rod cover**	Aluminum alloy	
1B	**Rod cover**	Stainless steel	
2	**Head cover**	Aluminum alloy	
3	**Cylinder tube**	Stainless steel	
4A	**Piston**	Aluminum alloy	
4B	**Piston B**	Aluminum alloy	
5	**Piston rod**	Carbon steel	
6	**Locking piston**	Carbon steel	
7	**Locking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

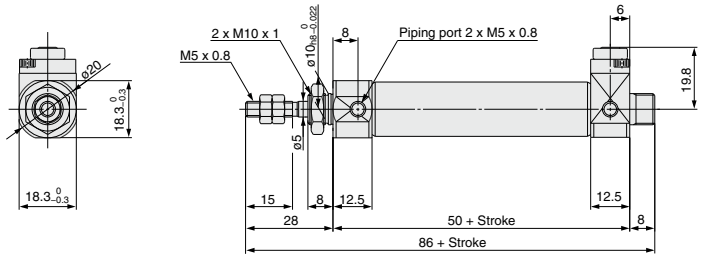
Dimensions

Basic

With rod end lock: C□BJ2B16-□□-RN



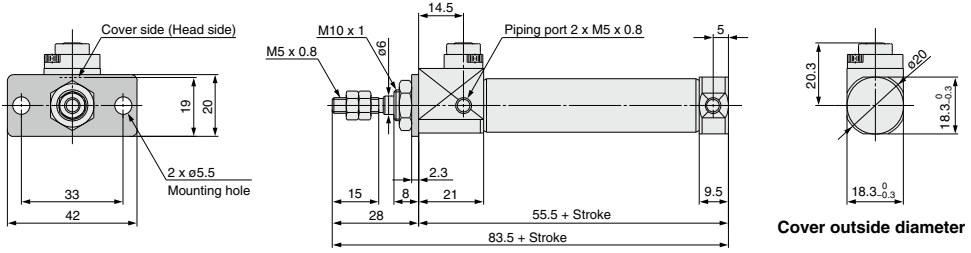
With head end lock: C□BJ2B16-□□-HN



Dimensions

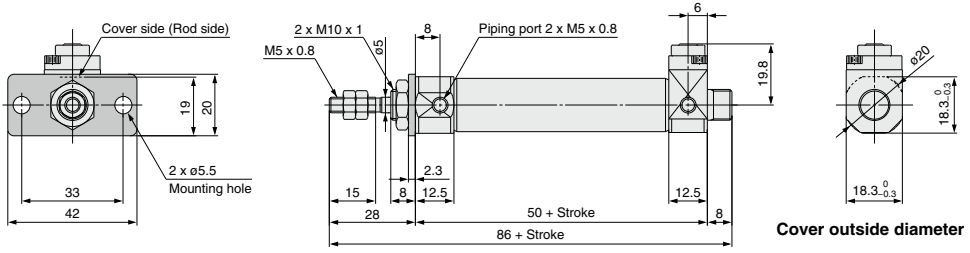
Flange

With rod end lock: C□BJ2F16-□□-RN



Cover outside diameter

With head end lock: C□BJ2F16-□□-HN

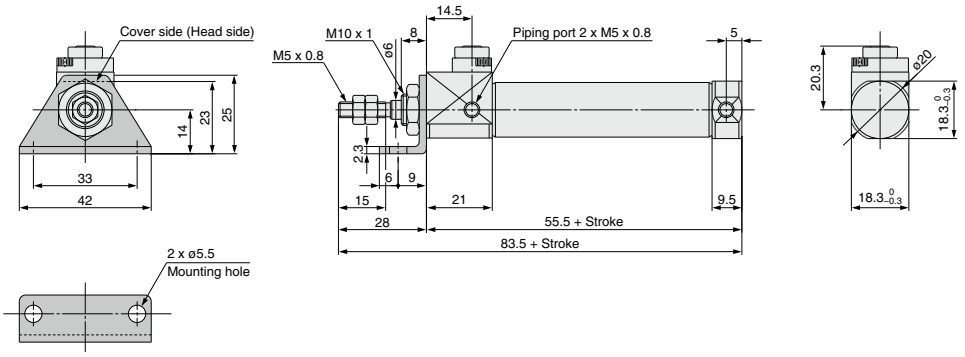


Cover outside diameter

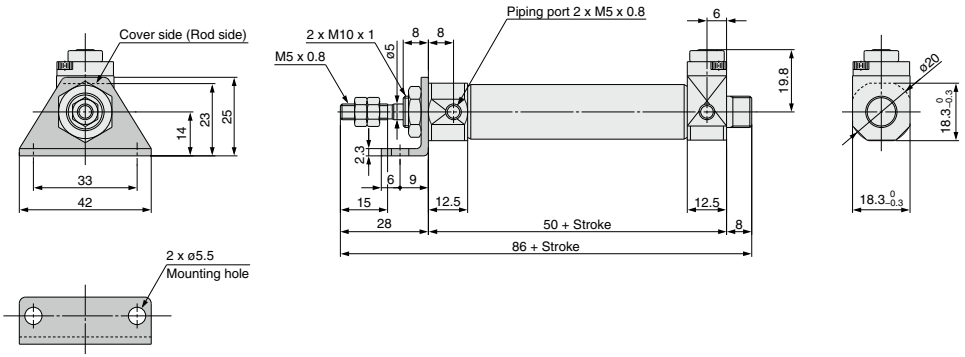
Dimensions

Axial foot

With rod end lock: C□BJ2L16-□-RN



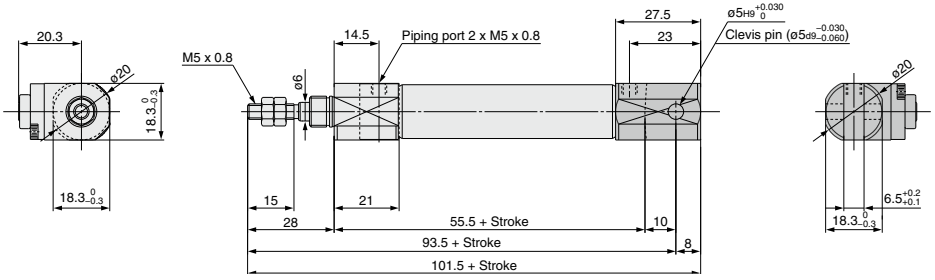
With head end lock: C□BJ2L16-□-HN



Dimensions

Double clevis

With rod end lock: C□BJ2D16-□-RN



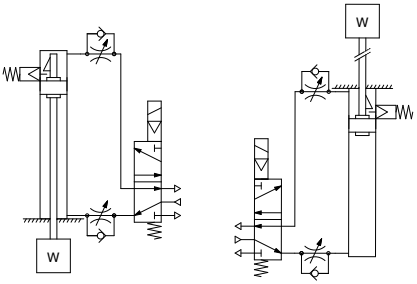
Specific Product Precautions

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.



With head end lock **With rod end lock**

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

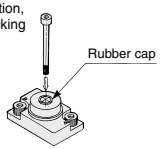
⚠Caution

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

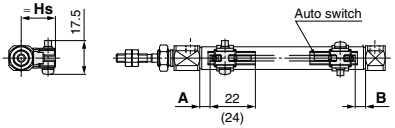
Bolt should be detached under normal operation, otherwise it may cause malfunction of the locking feature.



Auto Switch Mounting

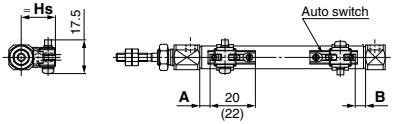
Auto Switch Proper Mounting Position (Detection at stroke end) and Its Mounting Height

Solid state auto switch
<Band mounting>
D-M9□
D-M9□W
D-M9□A



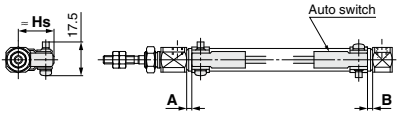
( ): Dimension of the D-M9□A.
A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

D-M9□V
D-M9□MV
D-M9□AV



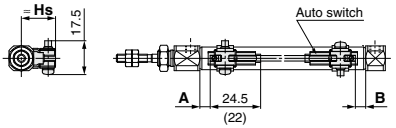
( ): Dimension of the D-M9□AV.
A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

D-H7□
D-H7□W
D-H7BA
D-H7NF
D-H7C



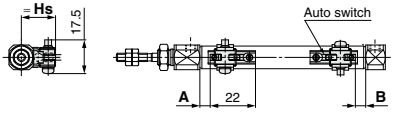
Reed auto switch
<Band mounting>

D-A9□



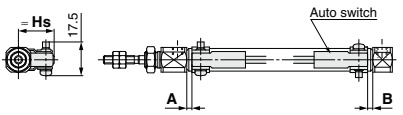
( ): Dimension of the D-A96.
A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

D-A9□V



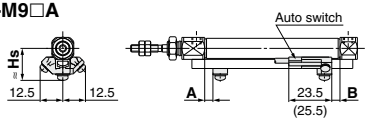
A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

D-C7□/C80
D-C73C□/C80C



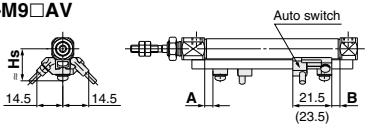
Auto Switch Proper Mounting Position (Detection at stroke end) and Its Mounting Height

<Rail mounting>
D-M9□
D-M9□W
D-M9□A



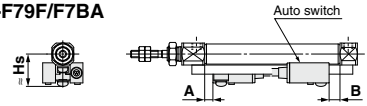
( ): Dimension of the D-M9□A.

D-M9□V
D-M9□WV
D-M9□AV

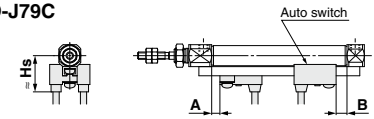


( ): Dimension of the D-M9□AV.

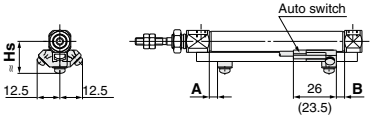
D-F7□/J79
D-F7□W/J79W
D-F79F/F7BA



D-F7□V/F7□WV
D-F7BAV
D-J79C

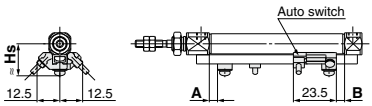


<Rail mounting>
D-A9□

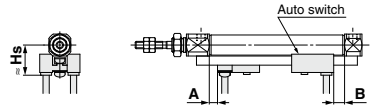


( ): Dimension of the D-A96.

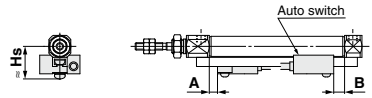
D-A9□V



D-A7□/A80
D-A73C/A80C
D-A79W



D-A7□H/A80H



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 / Bore size	Band mounting							
	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-H7□ D-H7C D-H7NF D-H7□W D-H7BA		D-C7□ D-C80 D-C73C D-C80C	
	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 ø6 are for the double rod type (CJ2W series).

[mm]

Auto switch model / Bore size	Rail mounting											
	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV		D-A9□ D-A9□V		D-F7□/J79 D-F7□W/J79W D-F7□V/F7□WV D-F79F D-J79C D-F7BA D-F7BAV D-A7□H/A80H D-A73C/A80C		D-F7NT		D-A7□ D-A80		D-A79W	
	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 / Bore size	Band mounting				
	D-M9□ D-M9□W D-M9□A D-A9□	D-M9□V D-M9□WV D-M9□AV D-A9□V	D-H7□/H7□W D-H7NF D-H7BA D-C7□/C80	D-H7C	D-C73C D-C80C
	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

[mm]

Auto switch model / Bore size	Rail mounting						
	D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A D-M9□AV D-A9□ D-A9□V	D-F7□/J79 D-F7□W/J79W D-F7BA/F79F D-F7NT D-A7□H/A80H	D-F7□V D-F7□WV D-F7BAV	D-J79C	D-A7□ D-A80	D-A73C D-A80C	D-A79W
	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)**

[mm]

Auto switch model		Bore size	**A** dimensions									**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□** **D-M9□W/M9□WV** **D-M9□A/M9□AV**	6	—	12	21	25	39	—	—	—	—	5.5
		10	—	13	20.5	32.5	44.5	—	—	—	—	6
		16	—	12.5	21	33	45	51	75	93	105	6.5
	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	6.5
	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	2.5
	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	2.5
	D-H7□/H7C **D-H7□W/H7BA** **D-H7NF**	6	—	7.5	16.5	20.5	34.5	—	—	—	—	1
		10	—	8.5	16	28	40	—	—	—	—	1.5
		16	—	8	16.5	28.5	40.5	46.5	70.5	88.5	100.5	2
	D-C7□/C80 **D-C73C** **D-C80C**	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	3
Rail mounting	**D-M9□** **D-M9□W/M9□WV** **D-M9□A/M9□AV**	10	—	11.5	19	31	43	—	—	—	—	4.5
		16	—	11	19.5	31.5	43.5	49.5	73.5	91.5	103.5	5
	D-M9□V	10	11.5	11.5	19	31	43	—	—	—	—	4.5
		16	11	11	19.5	31.5	43.5	49.5	73.5	91.5	103.5	5
	D-A9□	10	—	7.5	15	27	39	—	—	—	—	0.5
		16	—	7	15.5	27.5	39.5	45.5	69.5	87.5	99.5	1
	D-A9□V	10	7.5	7.5	15	27	39	—	—	—	—	0.5
		16	7	7	15.5	27.5	39.5	45.5	69.5	87.5	99.5	1
	D-F7□/F7□V **D-J79/J79C** **D-A7□H/A80H** **D-A73C/A80C**	10	10.5	10.5	18	30	42	—	—	—	—	3.5
		16	10	10	18.5	30.5	42.5	48.5	72.5	90.5	102.5	4
	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	4
	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	9
	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	3.5
	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	1

∗: In the actual setting, adjust them after confirming the auto switch performance.

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)**

[mm]

	Auto switch model	Bore size	A	B dimensions								
				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□ D-M9□W/M9□WV D-M9□A/M9□AV	6	5.5	—	12	21	25	39	—	—	—	—
		10	6	—	13	20.5	32.5	44.5	—	—	—	—
		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
	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 D-H7□W/H7BA D-H7NF	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 D-C73C D-C80C	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□ D-M9□W/M9□WV D-M9□A/M9□AV	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
	D-M9□V	10	4.5	11.5	11.5	19	31	43	—	—	—	—
		16	5	11	11	19.5	31.5	43.5	49.5	73.5	91.5	103.5
	D-A9□	10	0.5	—	7.5	15	27	39	—	—	—	—
		16	1	—	7	15.5	27.5	39.5	45.5	69.5	87.5	99.5
	D-A9□V	10	0.5	7.5	7.5	15	27	39	—	—	—	—
		16	1	7	7	15.5	27.5	39.5	45.5	69.5	87.5	99.5
	D-F7□/F7□V D-J79/J79C D-A7□H/A80H D-A73C/A80C	10	3.5	10.5	10.5	18	30	42	—	—	—	—
		16	4	10	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	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-F7NT	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
	D-A7□/A80	10	3	10	10	17.5	29.5	41.5	—	—	—	—
		16	3.5	9.5	9.5	18	30	42	48	72	90	102
	D-A79W	10	0.5	—	7.5	15	27	39	—	—	—	—
		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.

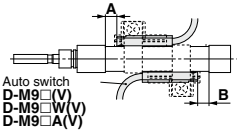
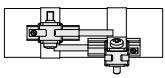
Minimum Stroke for Auto Switch Mounting

[mm]

Auto switch mounting	Auto switch model	Number of auto switches				
		With 1 pc.	With 2 pcs.		With n pcs. (n: Number of auto switches)	
			Different surfaces	Same surface	Different surfaces	Same surface
Band mounting	**D-M9□ D-M9□W D-M9□A D-A9□**	10	15∗1	45∗1	$15 + 35\frac{(n-2)}{2}$ (n = 2, 4, 6…)∗3	45 + 15 (n – 2) (n = 2, 3, 4, 5…)
	D-M9□V	5	15∗1	35	$15 + 35\frac{(n-2)}{2}$ (n = 2, 4, 6…)∗3	35 + 25 (n – 2) (n = 2, 3, 4, 5…)
	D-M9□WV D-M9□AV	10	15∗1	35	$15 + 35\frac{(n-2)}{2}$ (n = 2, 4, 6…)∗3	35 + 25 (n – 2) (n = 2, 3, 4, 5…)
	D-A9□V	5	10	35	$10 + 35\frac{(n-2)}{2}$ (n = 2, 4, 6…)∗3	35 + 25 (n – 2) (n = 2, 3, 4, 5…)
	D-H7□/H7□W D-H7BA D-H7NF	10	15	60	$15 + 45\frac{(n-2)}{2}$ (n = 2, 4, 6…)∗3	60 + 22.5 (n – 2) (n = 2, 3, 4, 5…)
	D-C7□ D-C80	10	15	50	$15 + 40\frac{(n-2)}{2}$ (n = 2, 4, 6…)∗3	50 + 20 (n – 2) (n = 2, 3, 4, 5…)
	D-H7C D-C73C D-C80C	10	15	65	$15 + 50\frac{(n-2)}{2}$ (n = 2, 4, 6…)∗3	50 + 27.5 (n – 2) (n = 2, 3, 4, 5…)
Rail mounting	**D-M9□V**	5	—	5	—	10 + 10 (n – 2) (n = 4, 6…)∗4
	D-A9□V	5	—	10	—	10 + 15 (n – 2) (n = 4, 6…)∗4
	D-M9□ D-A9□	10 (5)∗5	—	10	—	15 + 15 (n – 2) (n = 4, 6…)∗4
	D-M9□WV D-M9□AV	10	—	15	—	15 + 15 (n – 2) (n = 4, 6…)∗4
	D-M9□W	15 (10)∗5	—	15	—	20 + 15 (n – 2) (n = 4, 6…)∗4
	D-M9□A	15 (10)∗5	—	20 (15)∗5	—	20 + 15 (n – 2) (n = 4, 6…)∗4
	D-F7□ D-J79	5	—	5	—	15 + 15 (n – 2) (n = 4, 6…)∗4
	D-F7□V D-J79C	5	—	5	—	10 + 10 (n – 2) (n = 4, 6…)∗4
	D-F7□W/J79W D-F7BA/F79F/F7NT	10	—	15	—	15 + 20 (n – 2) (n = 4, 6…)∗4
	D-F7□WV D-F7BAV	10	—	15	—	10 + 15 (n – 2) (n = 4, 6…)∗4
	D-A7□/A80 D-A7□H/A80H D-A73C/A80C	5	—	10	—	15 + 10 (n – 2) (n = 4, 6…)∗4
	D-A7□H D-A80H	5	—	10	—	15 + 15 (n – 2) (n = 4, 6…)∗4
	D-A79W	10	—	15	—	10 + 15 (n – 2) (n = 4, 6…)∗4

∗3: When "n" is an odd number, an even number that is one larger than this odd number is used for the calculation.
∗4: 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.
∗5: 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∗1	Same surface∗1
	 The proper auto switch mounting position is 5.5 mm inward from the switch holder edge. The above A and B indicate values for band mounting in the table of page 174.	 The auto switch is mounted by slightly displacing it in a direction (cylinder tube circumferential exterior) so that the auto switch and lead wire do not interfere with each other.
D-M9□/M9□W/M9□A	Less than 20 stroke∗2	Less than 55 stroke∗2
D-A9□	—	Less than 50 stroke∗2

∗2: Minimum stroke for auto switch mounting in types other than those mentioned in ∗1.

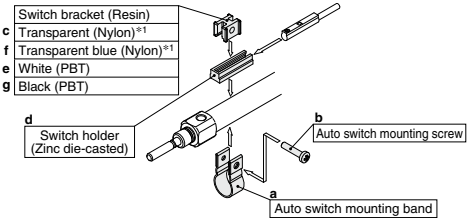
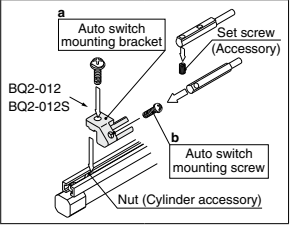
Operating Range

[mm]

	Auto switch model	Bore size 6	10	16
Band mounting	**D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV**	2	2.5	3
	D-A9□	4.5	6	7
	D-H7□/H7□W D-H7BA/H7NF	3	4	4
	D-H7C	5	8	9
	D-C7□/C80/C73C/C80C	6	7	7
Rail mounting	**D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV**	—	3	3.5
	D-A9□/A9□V	—	6	6.5
	D-F7□/J79/F7□W/J79W D-F7□V/F7□WV/F79F D-J79C/F7BA/F7BAV D-F7NT	—	5	5
	D-A7□/A80/A7H/A80H D-A73C/A80C	—	8	9
	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 D-A9□ D-A9□V**	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-M9□A ∗2 **D-M9□AV**∗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)
				
Band mounting	**D-H7□/H7□W D-H7BA/H7NF D-C7□/C80 D-C73C/C80C**	BJ2-006 (A set of band and screw)	BJ2-010 (A set of band and screw)	BJ2-016 (A set of band and screw)
∗4 Rail mounting	**D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□A** ∗4 **D-M9□AV**∗4 **D-A9□ D-A9□V**	—	BQ2-012 (S) (A set of a and b)	BQ2-012 (S) (A set of a and b)
				

∗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 1370 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 1271 to 1365 for the detailed specifications.

Type	Mounting	Model	Electrical entry	Features	Applicable bore size
Sold state	**Band mounting**	D-H7A1/H7A2/H7B	Grommet (In-line)	—	ø6 to ø16
		D-H7NW/H7PW/H7BW		Diagnostic indication (2-color indicator)	
	Rail mounting	D-F79/F7P/J79		—	ø10, ø16
		D-F79W/F7PW/J79W		Diagnostic indication (2-color indicator)	
		D-F7NV/F7PV/F7BV	Grommet (Perpendicular)	—	
		D-F7NWV/F7BWV		Diagnostic indication (2-color indicator)	
Reed	**Band mounting**	D-C73/C76	Grommet (In-line)	—	ø6 to ø16
		D-C80		Without indicator light	
	Rail mounting	D-A73H/A76H		—	ø10, ø16
		D-A80H		Without indicator light	
		D-A73	Grommet (Perpendicular)	—	
		D-A80		Without indicator light	

∗: With pre-wired connector is also available for solid state auto switches. For details, refer to pages 1340 and 1341.
∗: Normally closed (NC = b contact) solid state auto switches (D-M9□E(V)) are also available. For details, refer to page 1290.

Made to Order: Individual Specifications

Contact SMC for detailed specifications, delivery and prices.

Made to Order

Symbol

1 PTFE Grease -X446

Applicable Series

Description	Model	Action	Note
Standard type	CJ2	Double acting, Single rod	
		Single acting (Spring return/extend)	
	CJ2W	Double acting, Double rod	
Non-rotating rod type	CJ2K	Double acting, Single rod	
		Single acting (Spring return/extend)	
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

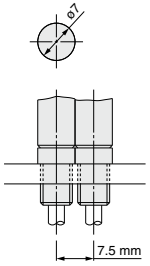
Precautions

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

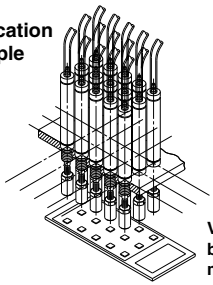
2 Short Pitch Mounting/Single Acting, Spring Return — -X773

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.



*: Directly mounted with cylinder mounting screws

Application example



Verification of push button actuation for mobile phones etc.

Applicable Series

Description	Model	Action	Note
Standard type	CJ2	Single acting (Spring return)	

Specifications

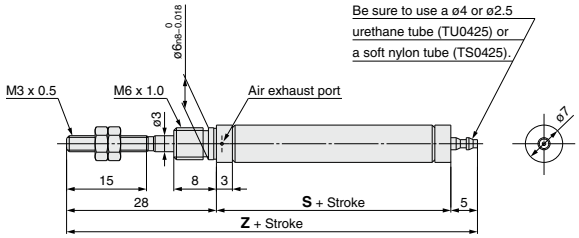
Bore size [mm]	6
Action	Single acting, Spring return
Operating pressure range	0.2 to 0.7 MPa
Port size	With ø4 barb fitting (For soft tube)
Connecting port location	Head cover/Axial direction
Stroke [mm]	5 to 60
Auto switch	None

How to Order

CJ2B6 − Stroke SU4Z − X773

● **Short pitch mounting/ Single acting, spring return**

Dimensions



[mm]

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

Note
1. When mounting a cylinder, make sure that the air exhaust port on the rod cover is not blocked.
2. 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.

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)	
		Non-rotating rod type	CJ2KD	Double acting, Single rod	
			CJ2KD	Single acting, Single rod (Spring return/extend)	

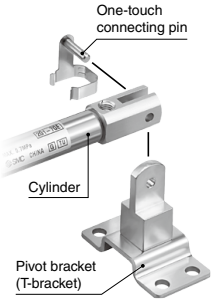
How to Order

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 93 for assembly instructions.
- **Pivot bracket (T-bracket)**

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

- **Double clevis type**

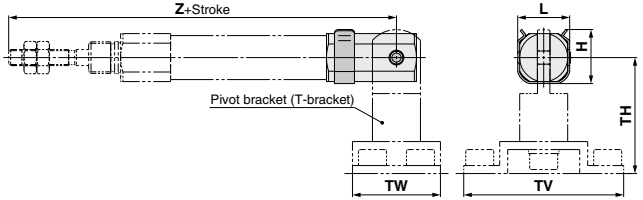


Specifications: Same as standard type

Dimensions

CJ2D $\begin{matrix}10\\16\end{matrix}$ – Stroke Z – (N) – X2838

∗: Refer to page 93 for assembly procedures and mounting methods.



[mm]

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

∗: The pivot bracket (T-bracket) is the same as the standard type. Refer to page 92 for details.

Specific Product Precautions

Be sure to read this before handling the products. Refer to page 20 for safety instructions and pages 21 to 30 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^2)}

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.

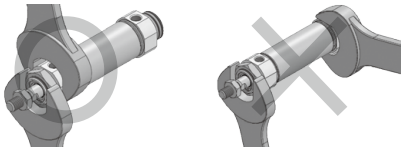
3. Do not open the cushion needle after rotating it numerous times in a row. Though uncommon, there are cases in which the cushion needle may leak air.

The cushion needle should be adjusted by gradually opening it while checking the operation of the cylinder cushion.

4. Do not apply any torque to the cover joint.

Both the rod cover and head cover have wrench flats. When mounting the product, be sure to tighten with an appropriate amount of force.

When mounting the cylinder or screwing a fitting into the port, tighten while holding the cover on the mounting side with a wrench. In other words, do not hold the cover on the opposite side with a wrench. The applied torque may damage the cover jointed part.



⚠Caution

1. 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

2. 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.

3. 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.

4. 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.

	ø10	ø16
Allowable rotational torque [N·m]	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.