Air Cylinder

CJ2 Series

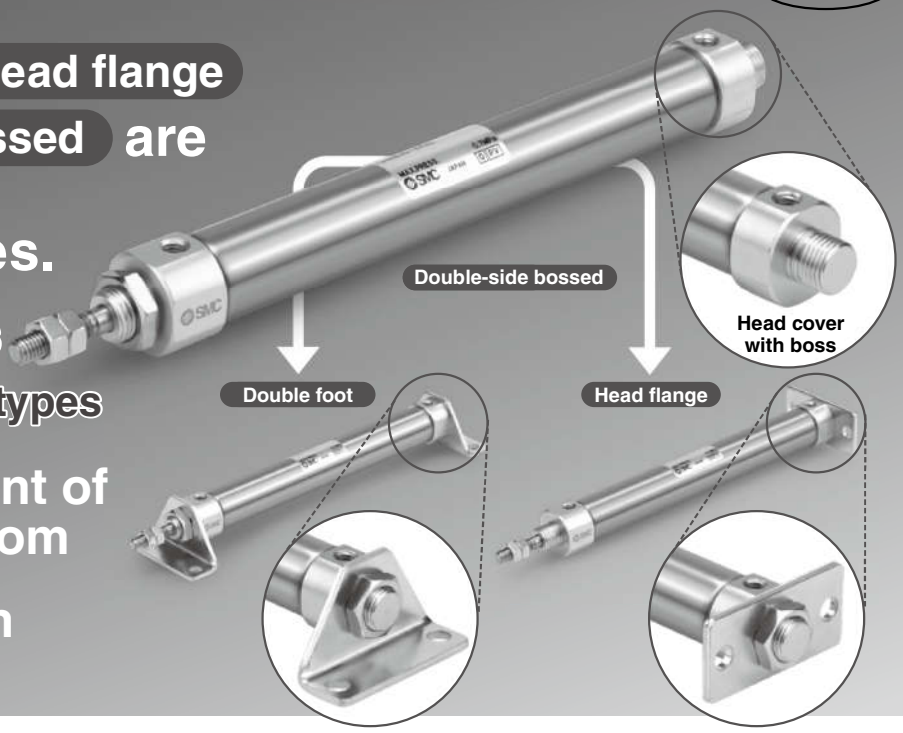
ø6, ø10, ø16

RoHS

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

4 types ➡ 7 types

For ø6, **3 types ➡ 6 types**



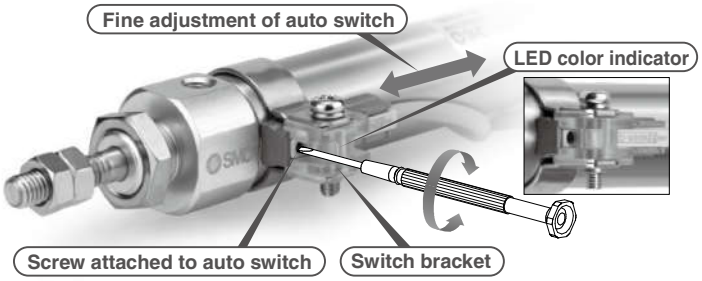
Improved amount of mounting freedom

Head cover with boss is added.

Easy fine adjustment of auto switch position

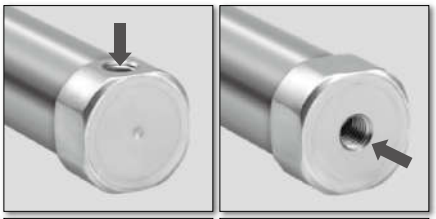
Fine adjustment of the auto switch position is possible by simply loosening the screw attached to the auto switch.

Transparent switch bracket improves visibility of indicator LED.



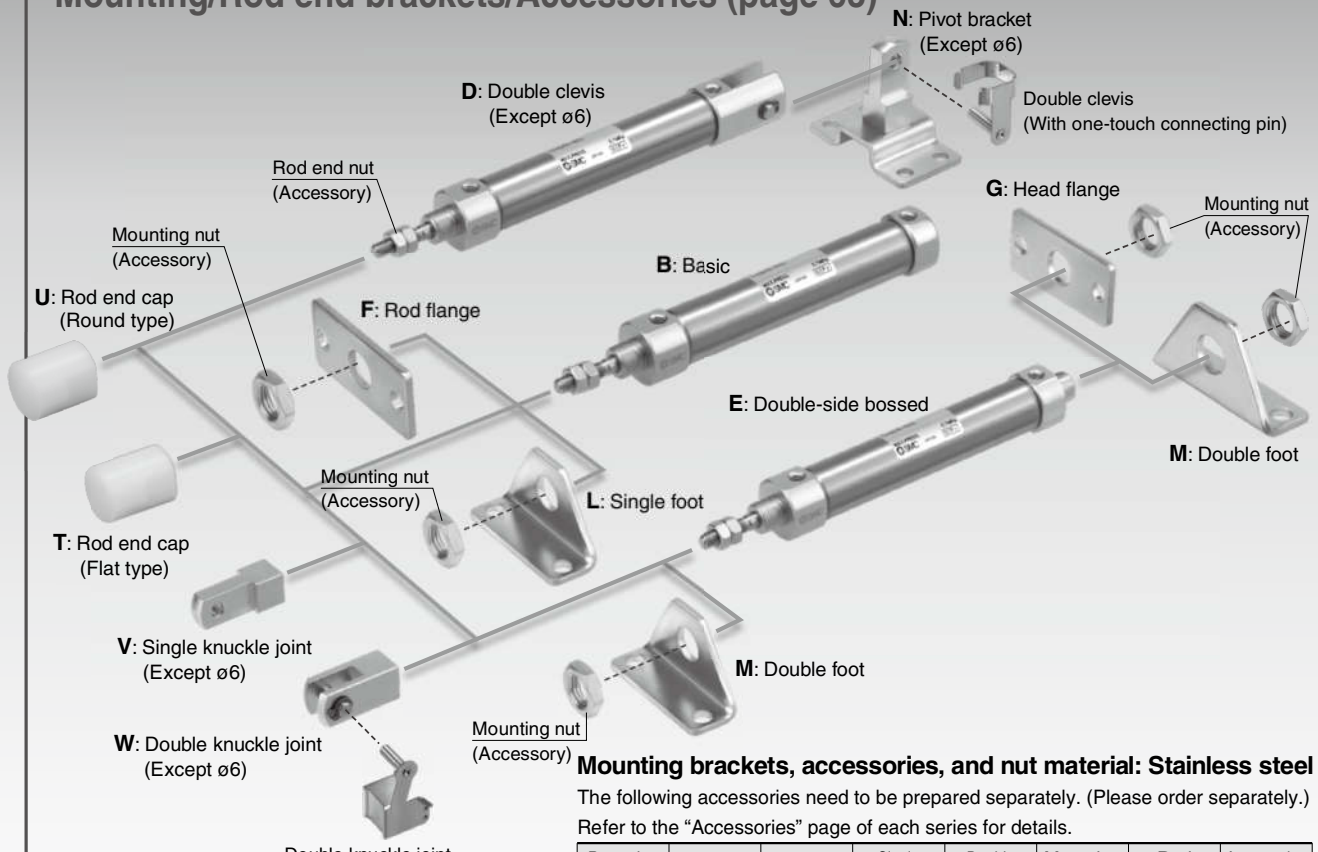
Head cover port location "Perpendicular to axis" is newly added to ø6.

Improved piping flexibility



ø6	●	○
ø10	○	○
ø16	○	○

Mounting/Rod end brackets/Accessories (page 63)



Mounting brackets, accessories, and nut material: Stainless steel

The following accessories need to be prepared separately. (Please order separately.)

Refer to the "Accessories" page of each series for details.

Bore size [mm]	Foot	Flange	Single knuckle joint	Double knuckle joint	Mounting nut	Rod end nut	Accessories page
10, 16	○*	○*	○	○	○*	○	p. 63-1

*: 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-N W -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

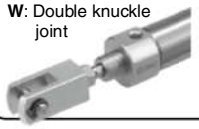
Rod end bracket	
Nil	None
V	Single knuckle joint
W	Double knuckle joint
T	Rod end cap (Flat type)
U	Rod end cap (Round type)

*: V/W: ø10 and ø16 only

With rod end bracket

V: Single knuckle joint

W: Double knuckle joint

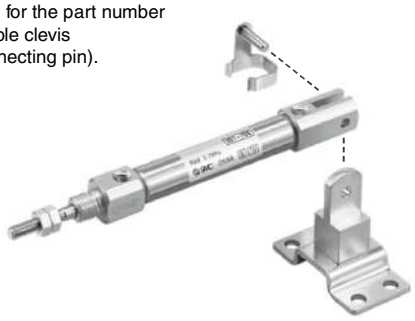


Rod end cap

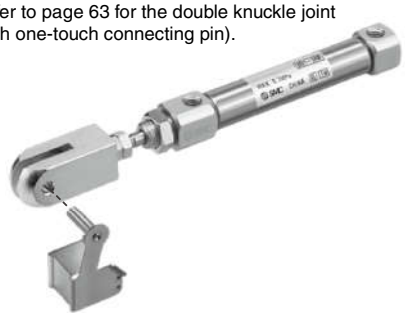
T: Flat type

U: Round type

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



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



Compact auto switches

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

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

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		46	64	71		88	95	
			ø6 to ø16				ø10, ø16		
Standard	**Standard**	ø6 to ø16	●	●	●	●	●	●	●
D	**Built-in magnet**		●	●	●	●	●	●	●
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]		◎	◎	○	○	○	○	○
XB9	**Low speed cylinder (10 to 50 mm/s)**[*4]		◎	—	—	—	—	—	—
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]		◎	—	○	—	◎	○	—
XC10	**Dual stroke cylinder/Double rod type**[*4]		◎	—	○	○	◎	○	○
XC11	**Dual stroke cylinder/Single rod type**[*4]		◎	—	—	—	○	—	—
XC22	**Fluororubber seal**[*4]	ø6 to ø16	◎	◎	◎	◎	◎	○	○
XC51	**With hose nipple**		◎	◎	◎	◎	◎	◎	◎
XC85	**Grease for food processing equipment**	ø10, ø16	◎	◎	◎	◎	◎	◎	◎
X446	**PTFE grease**		◎	◎	◎	◎	◎	◎	◎
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	
	107	114	119	123		127	130		134	Best Pneumatics No. 2-3	Best Pneumatics No. 2-3	
	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: 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** – ☐

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.

❷ Bore size

10	10 mm
16	16 mm

❸ Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 108.

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 63 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 148 for auto switch mounting brackets.

❿ Made to Order

Refer to page 108 for details.

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

Applicable Auto Switches/Refer to pages 1575 to 1701 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage 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**	—	●	—	●	—	—	—	—

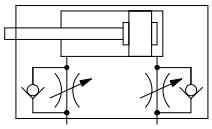
∗1: Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Please contact SMC regarding water resistant types with the above model numbers.
∗2: 1 m type lead wire is only applicable to D-A93.
∗: Lead wire length symbols: 0.5 m····· 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 149 for details.
∗: Solid state auto switches marked with "○" are produced upon receipt of order.
∗: The D-A9□/M9□/A7□/A80□/F7□/J7□ auto switches are shipped together, but not assembled. (For band mounting, only auto switch mounting brackets are assembled before being shipped.)

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 150.)

Symbol	Specifications
-X446	PTFE grease

Made to Order

Click here for details

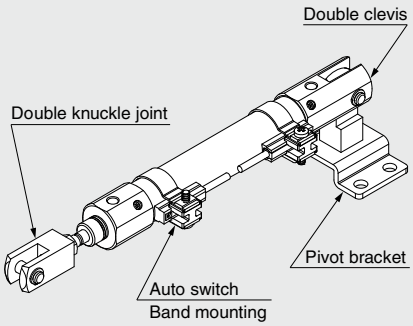
Symbol	Specifications
-XA□	Change of rod end shape
-XC51	With hose nipple
-XC85	Grease for food processing equipment

⚠ Precautions

Refer to page 152 before handling.

Ordering Example of Cylinder Assembly

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



Mounting D: Double clevis
Pivot bracket N: Yes
Rod end bracket W: Double knuckle joint
Auto switch D-M9BW: 2 pcs.
Auto switch mounting B: Band mounting

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

Specifications

Bore size [mm]	10	16
Action	Double acting, Single rod	
Fluid	Air	
Proof pressure	1 MPa	
Maximum operating pressure	0.7 MPa	
Minimum operating pressure	0.06 MPa	
Ambient and fluid temperature	Without auto switch: –10°C to 70°C With auto switch: –10°C to 60°C (No freezing)	
Cushion	Rubber bumper	
Lubrication	Not required (Non-lube)	
Stroke length tolerance	$^{+1.0}_{0}$	
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 front matter pages. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to the deflection etc.

Mounting and Accessories

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

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

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

∗: Stainless steel mounting brackets and accessories are also available.
Refer to page 63-1 for details.

Mounting Brackets/Part No.

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

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

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

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

Weights

[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

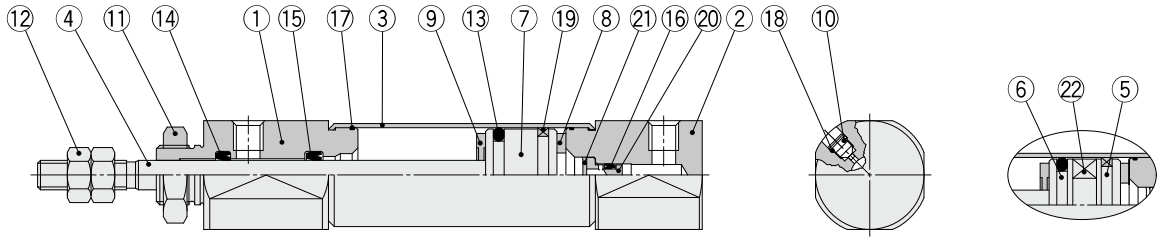
∗: Mounting nut and rod end nut are included in the basic weight.
∗: Mounting nut is not included in the basic weight for the double clevis.

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

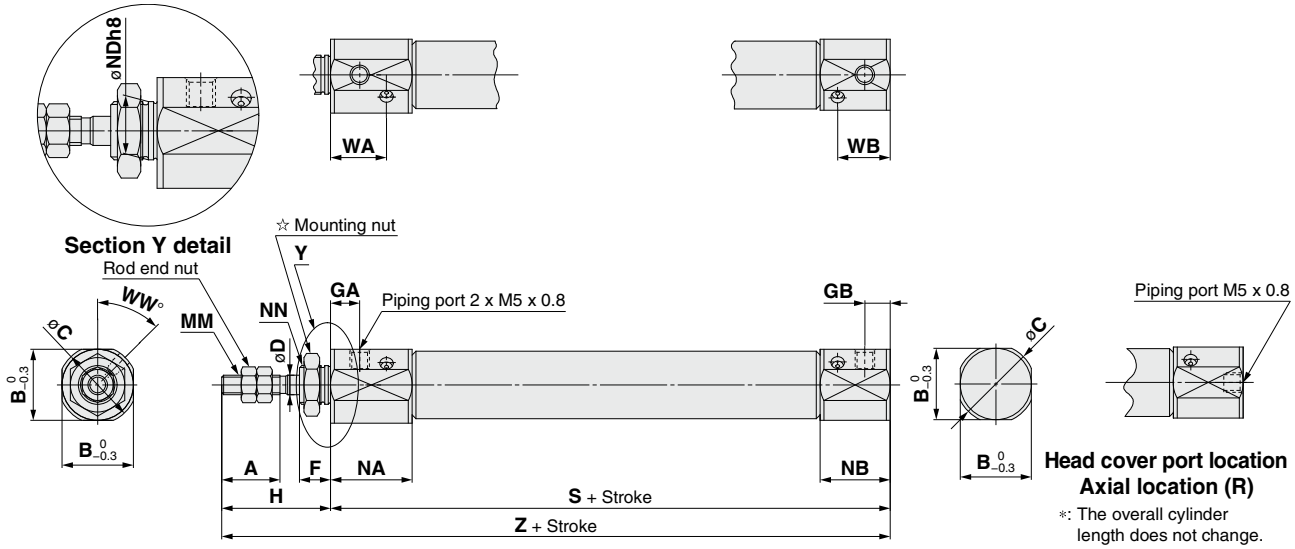
Component Parts

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



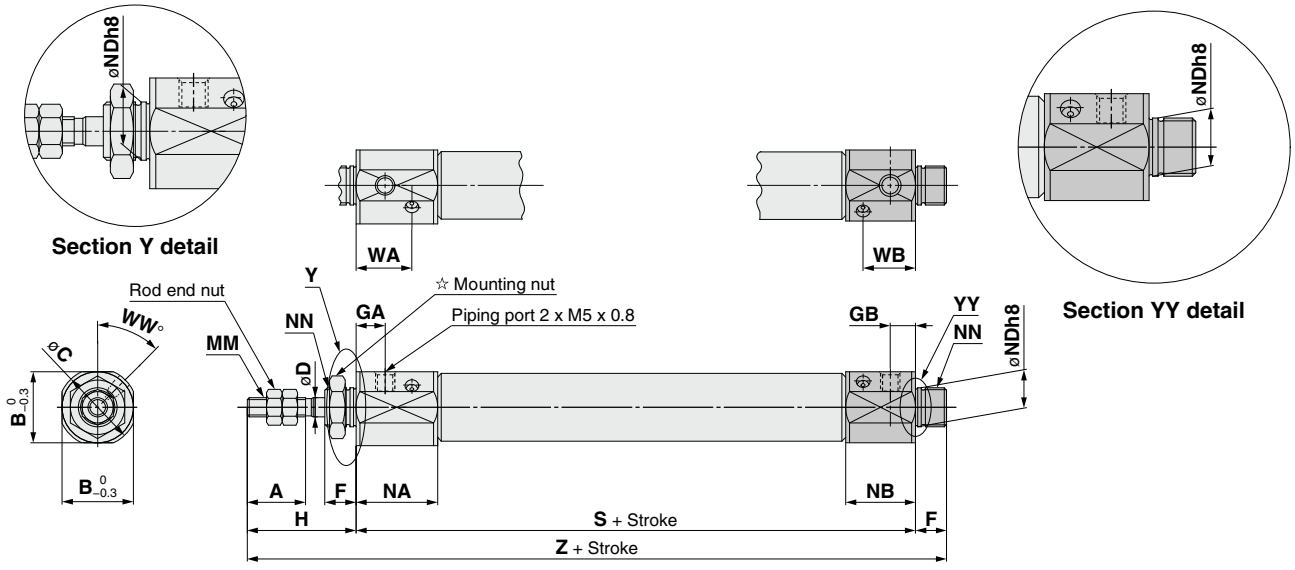
☆ For details of the mounting nut, refer to page 63.

[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



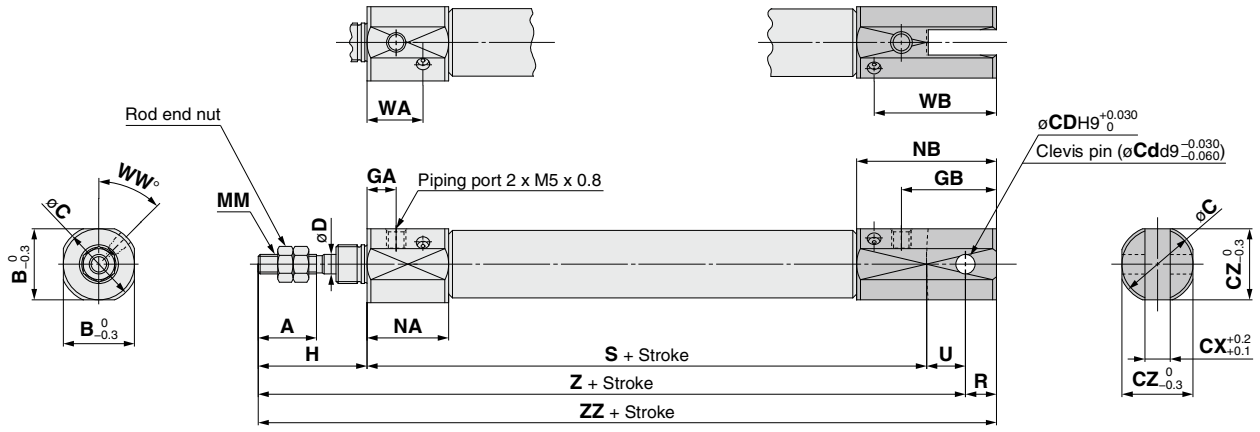
☆ For details of the mounting nut, refer to page 63.

[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



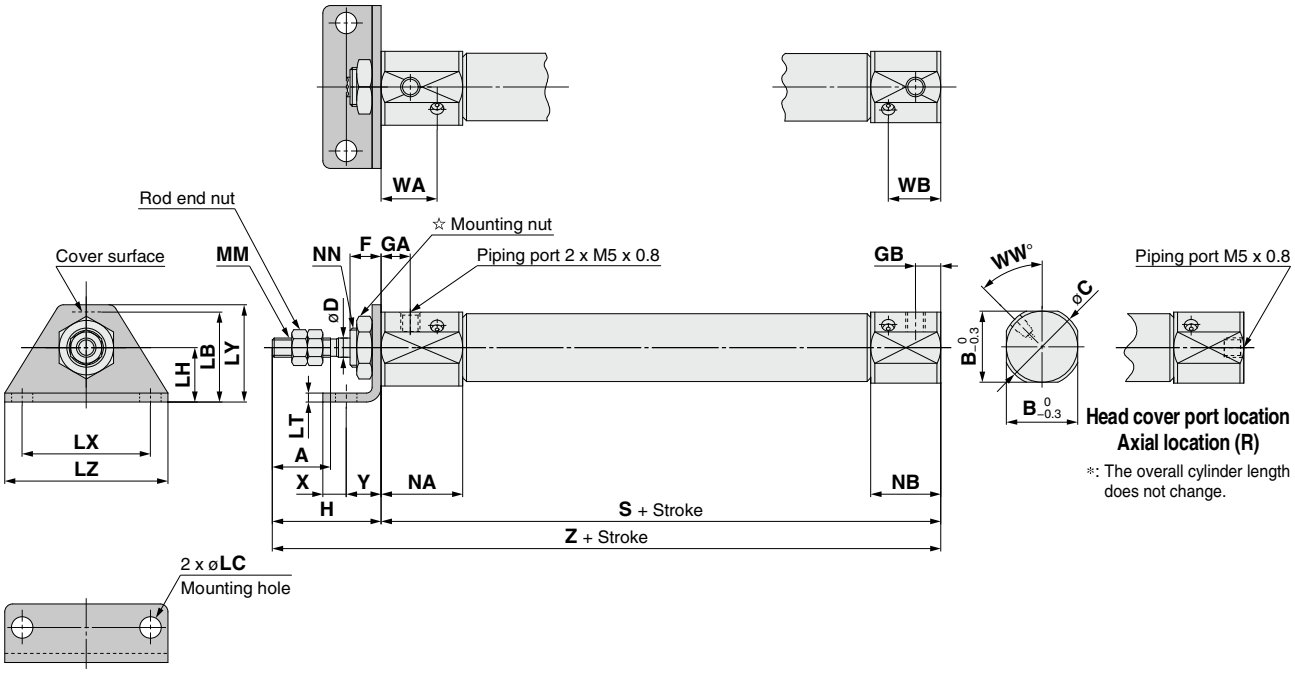
∗: A clevis pin and retaining rings are included.

[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



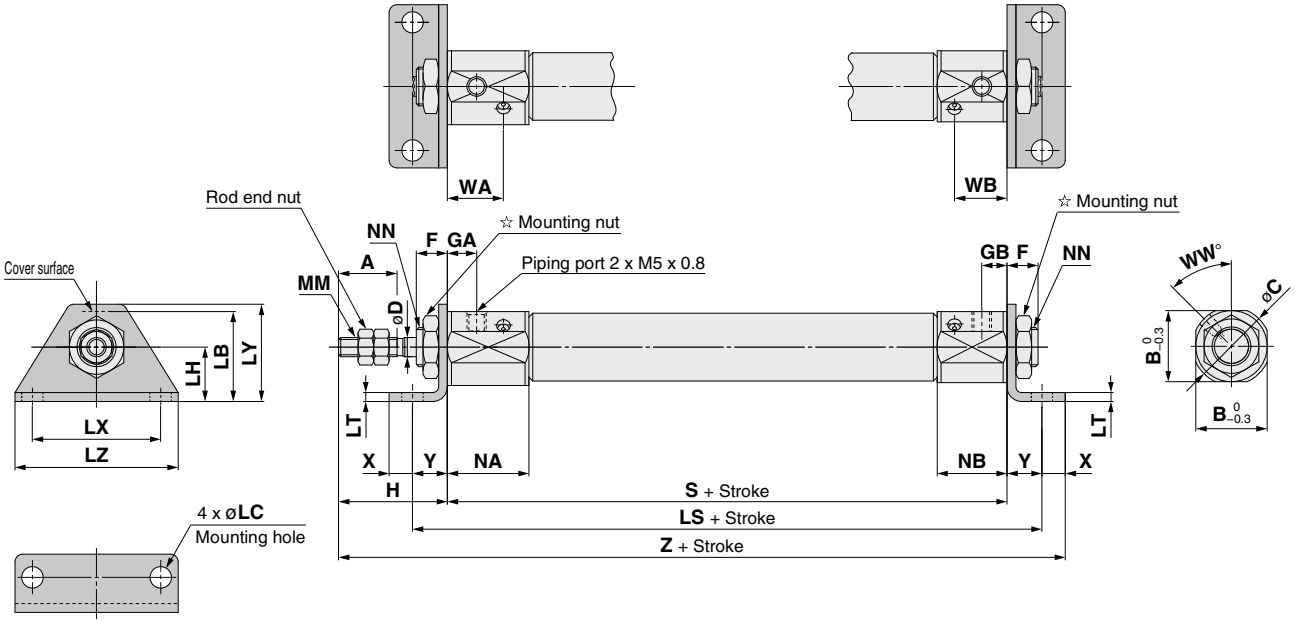
☆ For details of the mounting nut, refer to page 63.

[mm]

Bore size	A	B	C	D	F	GA	GB	H	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	WA	WB	WW	S	X	Y	Z
10	15	15	17	4	8	7.5	6.5	28	15	4.5	9	1.6	24	16.5	32	M4 x 0.7	21	18	M8 x 1.0	14.4	13.5	45	63	5	7	91
16	15	18.3	20	5	8	7.5	6.5	28	23	5.5	14	2.3	33	25	42	M5 x 0.8	21	18	M10 x 1.0	14.4	13.5	45	64	6	9	92

Double Foot (M)

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



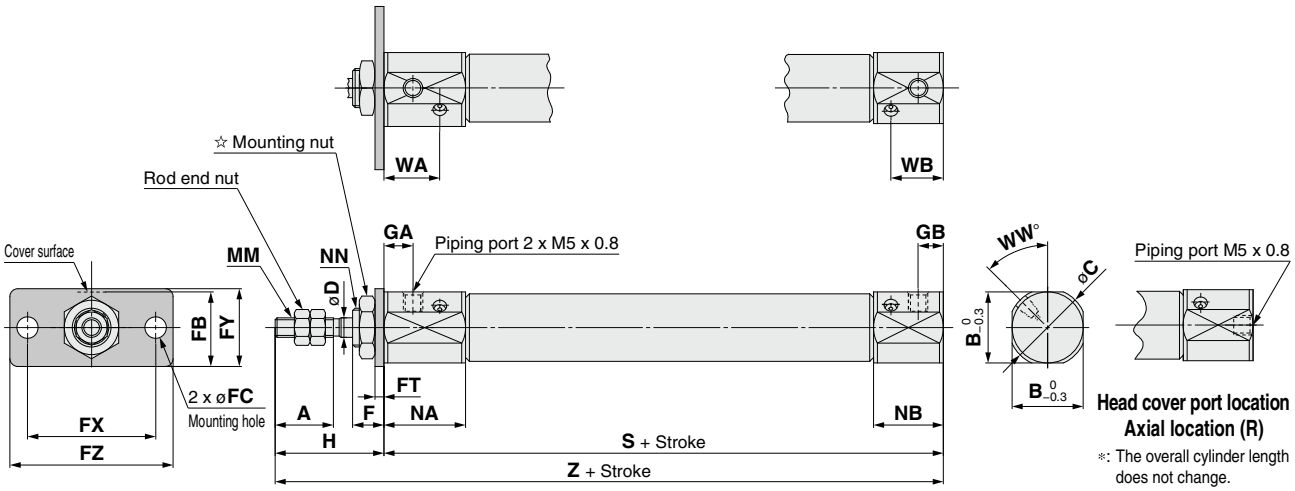
☆ For details of the mounting nut, refer to page 63.

[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



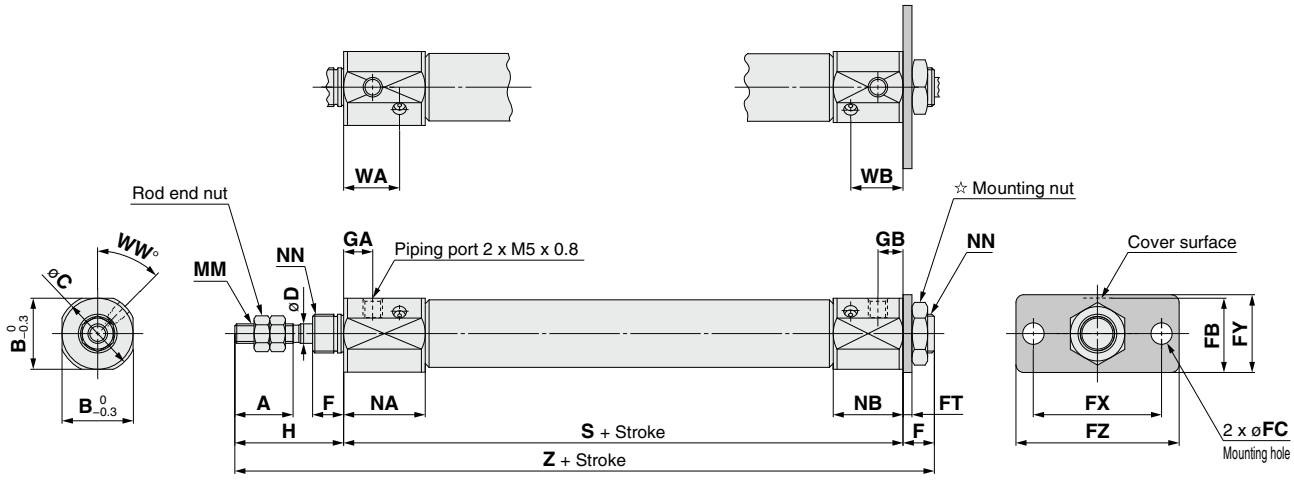
☆ For details of the mounting nut, refer to page 63.

[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 $^{10}_{16}$ – Stroke Z



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

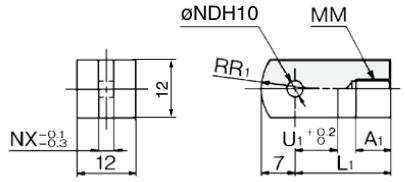
[mm]

Bore size	A	B	C	D	F	FB	FC	FT	FX	FY	FZ	GA	GB	H	MM	NA	NB	NN	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

Dimensions of Accessories (Options)

Single Knuckle Joint

Material: Rolled steel

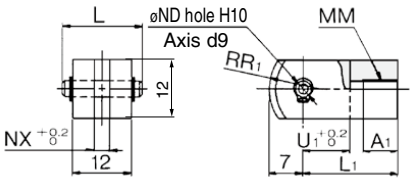


[mm]

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]

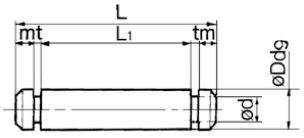
Part no.	Applicable bore size	A_1	L	L_1	MM
Y-J010C	**10**	8	15.2	21	M4 x 0.7
Y-J016C	**16**	11	16.6	21	M5 x 0.8

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

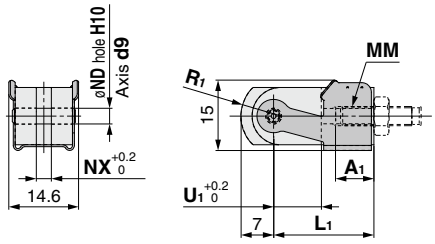


[mm]

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)

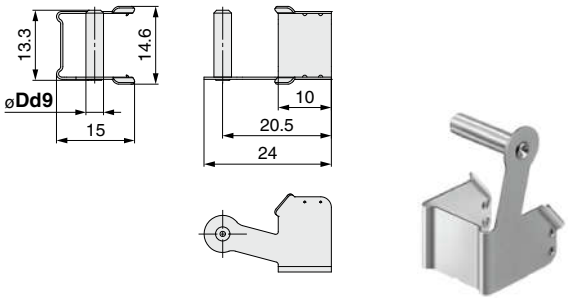


[mm]

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

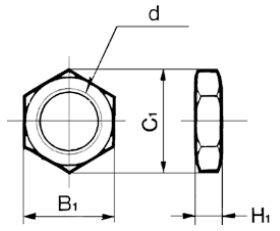


[mm]

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



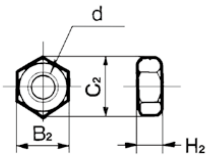
[mm]

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

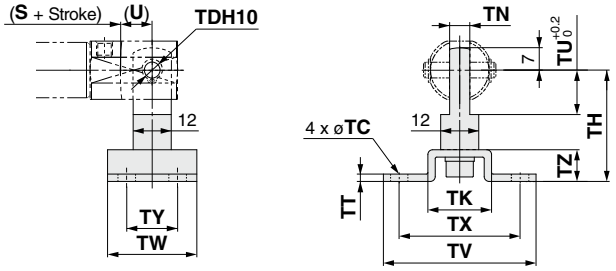
Material: Carbon steel



[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)



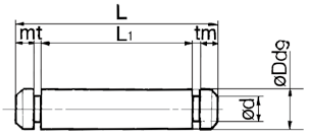
[mm]

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 60.

Clevis Pin

Material: Stainless steel



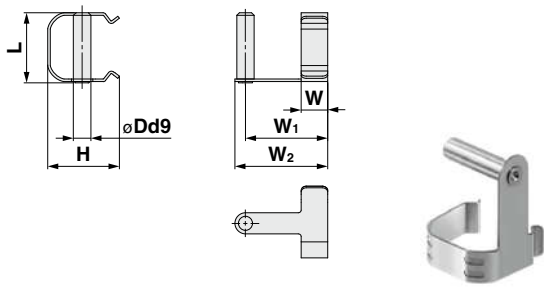
[mm]

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

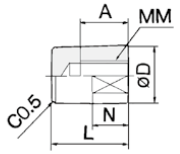
Part no.	W_1	W_2	Note
CD-J10	12	15	Cannot be mounted on cylinders with air cushion, or rail mounting type auto switches.
CD-J16	15	18	

∗: Please pay attention to the applicable cylinder.

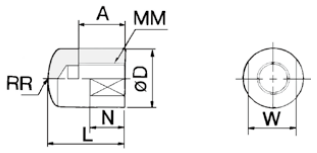
Rod End Cap

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

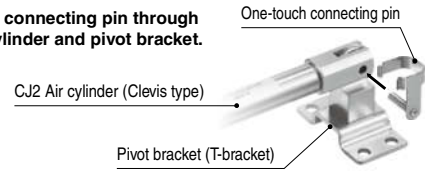
∗: A knuckle pin and retaining rings are shipped together.

Precautions

Assembly Procedures

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

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



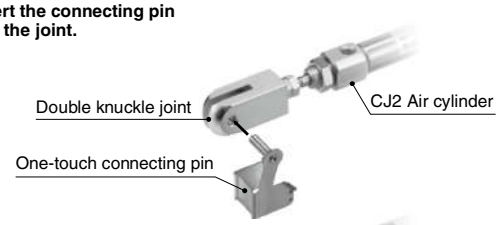
2 **Rotate the connecting pin.**

3 **Assembly completed without tools.**

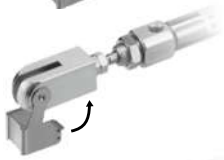
∗ The above mounting instructions are for downward-facing ports. Refer to the following for upward-facing ports.

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

1 **Insert the connecting pin into the joint.**



2 **Rotate the connecting pin.**



3 **Assembly completed without tools.**

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

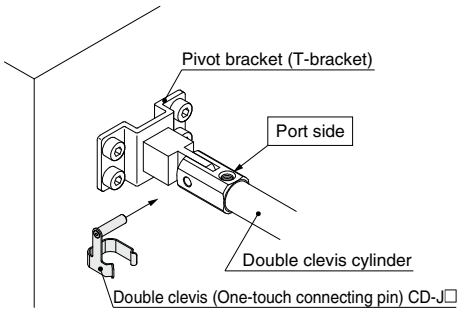
When connecting a double clevis cylinder to a pivot bracket (T-bracket), it is recommended that the pivot bracket (T-bracket) and the cylinder be connected with the one-touch connecting pin first, before fastening the pivot bracket.
When connecting the cylinder after the pivot bracket (T-bracket) has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

⚠Warning

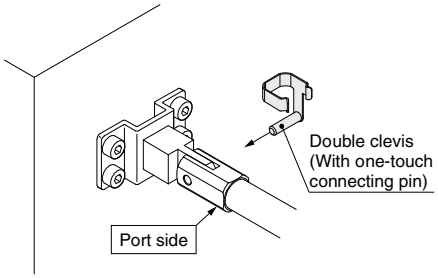
For assembling the clevis type to the pivot bracket, refer to the figure below.

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

When port is facing upward

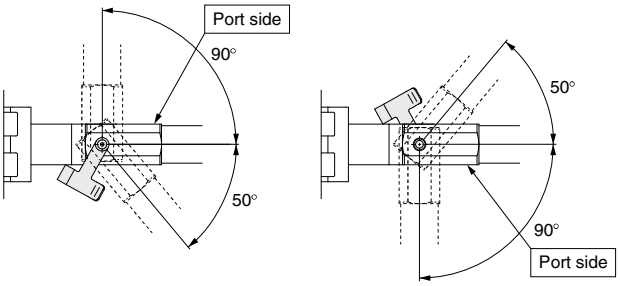


When port is facing downward

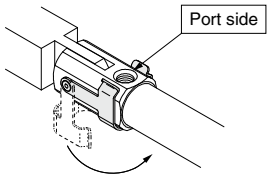


⚠Warning

∗ **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.

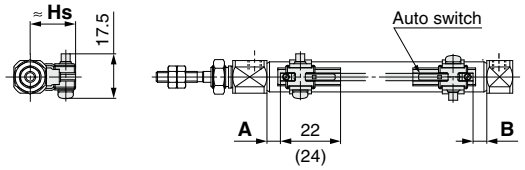


∗ Attach the double knuckle joint within 180° (±90° from center). Other mounting methods are the same as the above.

Auto Switch Mounting

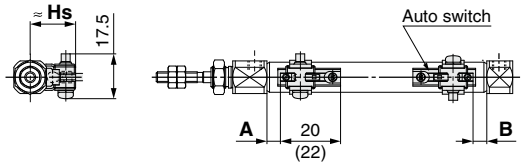
Auto Switch Proper Mounting Position (Detection at stroke end) and Its Mounting Height

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



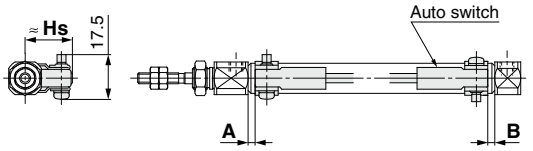
( ): Dimension of the D-M9□A.
A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

D-M9□V
D-M9□MV
D-M9□AV

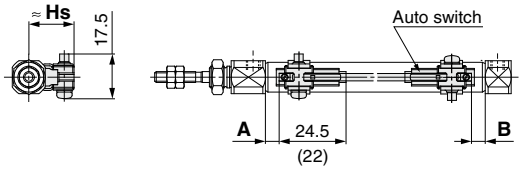


( ): Dimension of the D-M9□AV.
A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

D-H7□
D-H7□W
D-H7BA
D-H7NF
D-H7C

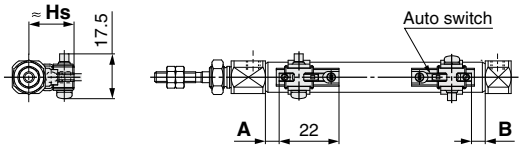


Reed auto switch
<Band mounting>
D-A9□



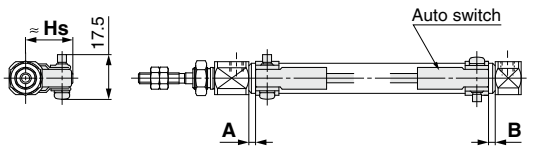
( ): Dimension of the D-A96.
A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

D-A9□V



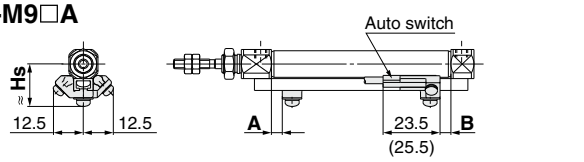
A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

D-C7□/C80
D-C73C□/C80C



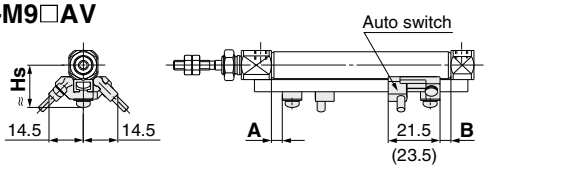
Auto Switch Proper Mounting Position (Detection at stroke end) and Its Mounting Height

<Rail mounting>
D-M9□
D-M9□W
D-M9□A



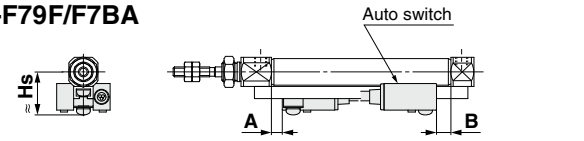
( ): Dimension of the D-M9□A.

D-M9□V
D-M9□WV
D-M9□AV

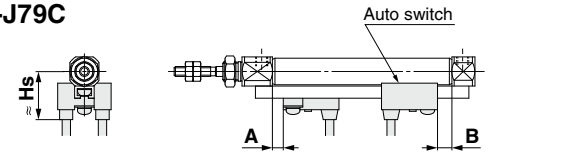


( ): Dimension of the D-M9□AV.

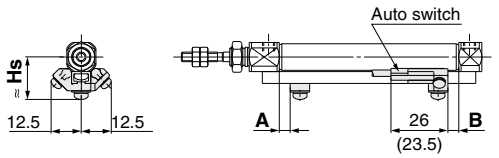
D-F7□/J79
D-F7□W/J79W
D-F79F/F7BA



D-F7□V/F7□WV
D-F7BAV
D-J79C

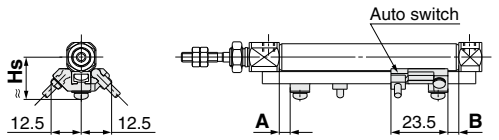


<Rail mounting>
D-A9□

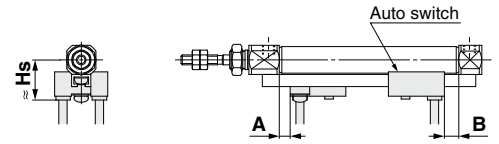


( ): Dimension of the D-A96.

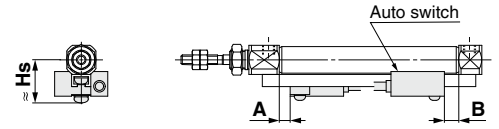
D-A9□V



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.

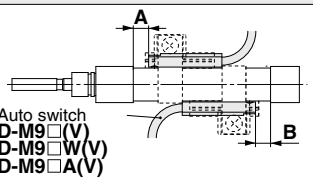
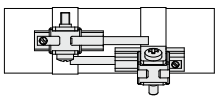
Minimum Stroke for Auto Switch Mounting

[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 144.	 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.

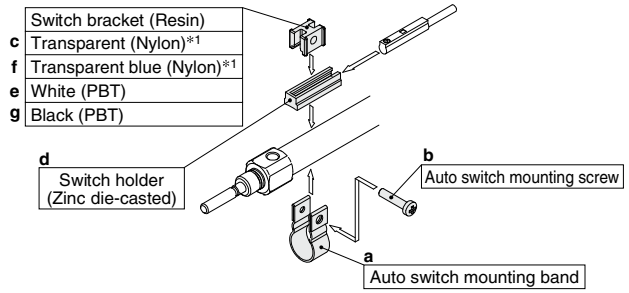
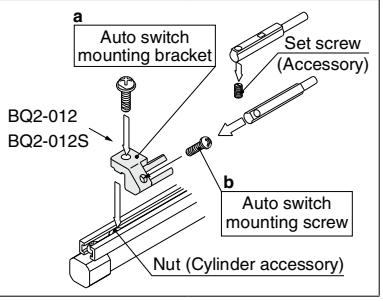
Operating Range

[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 1682 for details on the BBA4.

When the D-H7BA type auto switch is shipped independently, the BBA4 is attached.

Other than the applicable auto switches listed in "How to Order", the following auto switches are mountable.
Refer to pages 1575 to 1701 for the detailed specifications.

Type	Mounting	Model	Electrical entry	Features	Applicable bore size
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 1648 and 1649.
∗: Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H) are also available. For details, refer to page 1593.

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

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

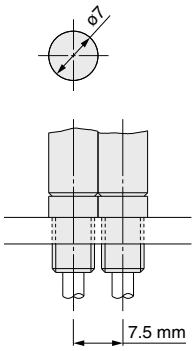
Be aware that smoking cigarettes etc. after your hands have come into contact with the grease used in this cylinder can create a gas that is hazardous to humans.

Symbol

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

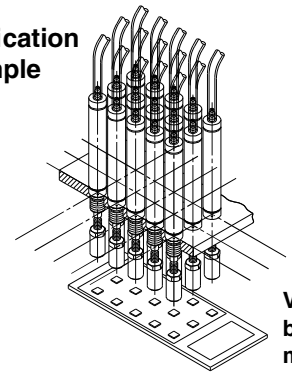
Mounting pitch is shortened when cylinders are used in parallel.

- 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

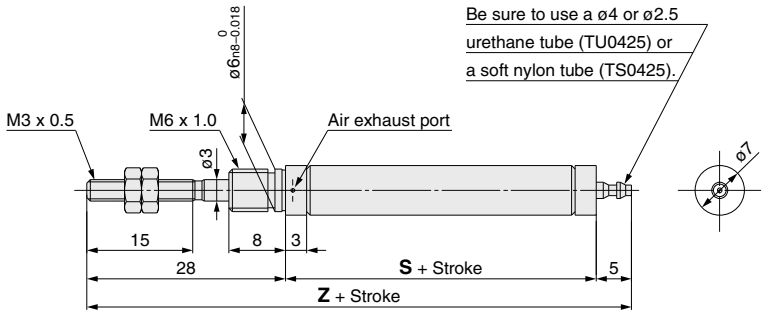
Bore size [mm]	6
Action	Single acting, Spring return
Operating pressure range	0.2 to 0.7 MPa
Port size	With ø4 barb fitting (For soft tube)
Connecting port location	Head cover/Axial direction
Stroke [mm]	5 to 60
Auto switch	None

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

3 Double Clevis (With One-touch Connecting Pin) -X2838

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)	

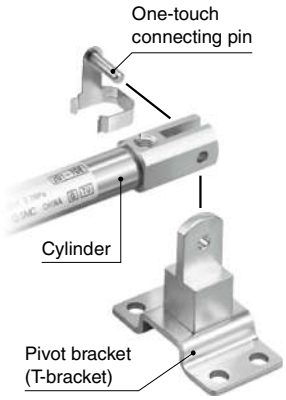
How to Order

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 63-2 for assembly instructions.
- **Pivot bracket (T-bracket)**

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

- **Double clevis type**

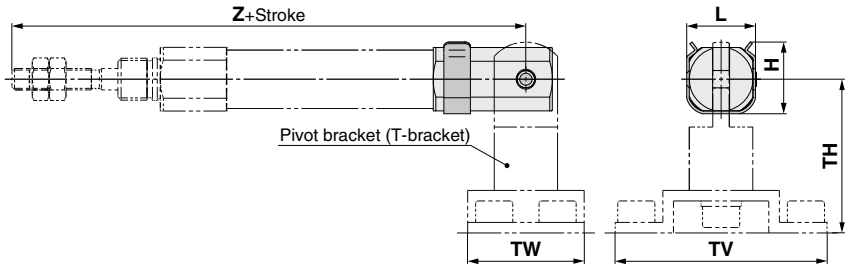


Specifications: Same as standard type

Dimensions

CJ2D $\frac{10}{16}$ – Stroke Z – (N) – X2838

∗: Refer to page 63-2 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 63-1 for details.

Specific Product Precautions

Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

Mounting

⚠Warning

1. Use within the specified cylinder speed and kinetic energy ranges.

Otherwise, cylinder and seal damage may occur.

2. Do not apply excessive lateral load to the piston rod.

Easy checking method

Minimum operating pressure after the cylinder is mounted to the equipment (MPa) = Minimum operating pressure of cylinder (MPa) + {Load weight (kg) x Friction coefficient of guide/Sectional area of cylinder (mm^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.

⚠Caution

1. During installation, secure the cover on the tightening side and tighten by applying an appropriate tightening force to the retaining nut or to the cover on the tightening side.

If the cover on the opposite side of the tightening side is secured or tightened, the cover could rotate, leading to the deviation.

2. Tighten the retaining screws to an appropriate tightening torque within the range given below.

ø6: 2.1 to 2.5 N·m, ø10: 5.9 to 6.4 N·m

ø16: 10.8 to 11.8 N·m

3. To remove and install the retaining ring for the knuckle pin or the clevis pin, use an appropriate pair of pliers (tool for installing a type C retaining ring). In particular, use a pair of ultra-mini pliers for removing and installing the retaining ring on the ø10 cylinder.

4. In the case of auto switch rail mounting type, do not remove the rail that is mounted. Because retaining screws extend into the cylinder, this could lead to an air leak.

5. Please contact SMC when the stroke exceeds 100 mm for the axial foot mounting type.

<Precautions on the single acting cylinder>

1) Do not operate it in such a way that a load would be applied during the retraction of the piston rod of the spring return type, or during the extension of the piston rod of the spring extend type. The spring that is built into the cylinder provides only enough force to retract the piston rod. Thus, if a load is applied, the piston rod will not be able to retract to the end of the stroke.

2) A breather hole is provided in the cover surface. Make sure not to block this hole during installation, as this could lead to a malfunction.

<Precautions on the non-rotating cylinder>

1) Tighten the retaining screws to an appropriate tightening torque within the range given below.
ø10: 10.8 to 11.8 N·m, ø16: 20 to 21 N·m

2) Do not operate it in such a way that rotational torque would be applied to the piston rod. If rotational torque is applied, the non-rotating guide will become deformed, thus affecting the non-rotating accuracy.

	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.