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	–				
		❶	❷		❸	❹	❺			❻	❼		❽		❾	❿		⓫			

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.
∗: 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 75.

❹ Cushion

Nil	Rubber bumper
A	Air cushion

∗: ø6: Rubber bumper only

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.

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 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	—	**A96**	**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**	—	●	—	●	—	—	—	—	

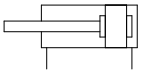
∗1: Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.
∗2: 1 m type lead wire is only applicable to D-A93.

∗: 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

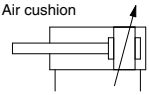
∗: Since there are other applicable auto switches than listed above, refer to page 179 for details.
∗: Solid state auto switches marked with "○" are produced upon receipt of order.
∗: The D-A9□/M9□/A7□/A80□/F7□/J7□ auto switches are shipped together, but not assembled. (For band mounting, only the auto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

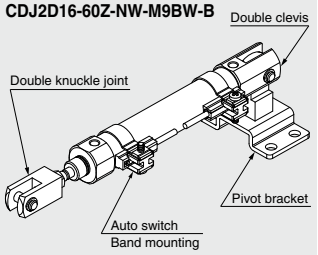
Click here for details

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**

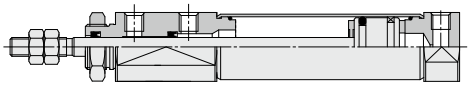
Air cylinder which is applicable for the system which discharges leakage from the rod section directly into the outside of clean room by relief port and making an actuator's rod section having a double seal construction.

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.

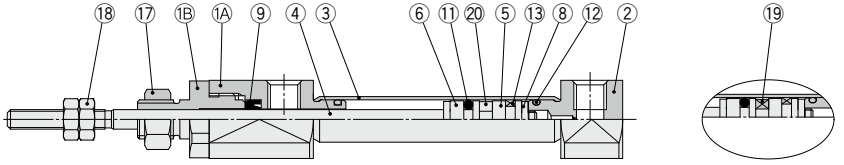
Specifications

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**.

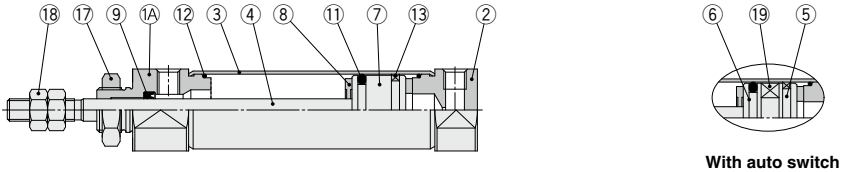
Construction (Not able to disassemble)

ø6
Rubber bumper



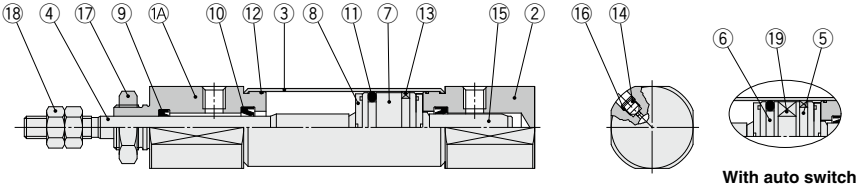
With auto switch

ø10, ø16
Rubber bumper



With auto switch

ø10, ø16
Air cushion



With auto switch

Component Parts

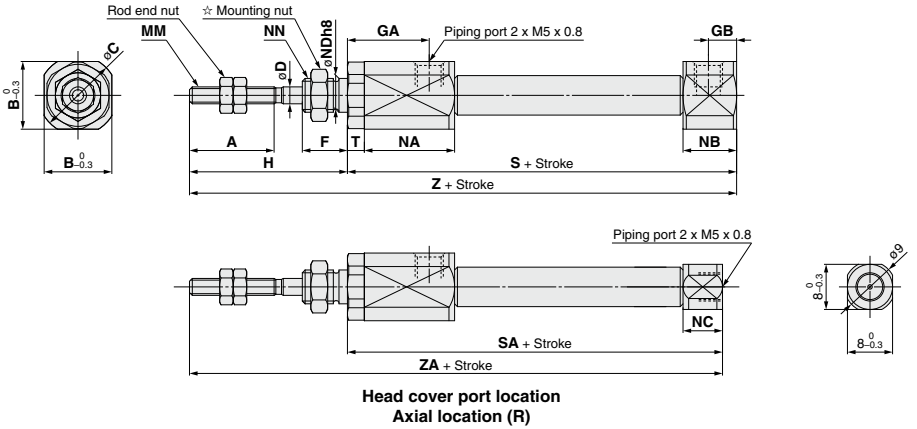
No.	Description	Material	Note
1A	**Rod cover**	Aluminum alloy	
1B	**Seal retainer**	Aluminum alloy	ø6 only
2	**Head cover**	Aluminum alloy	
3	**Cylinder tube**	Stainless steel	
4	**Piston rod**	Stainless steel	
5	**Piston A**	Aluminum alloy	
6	**Piston B**	Aluminum alloy	
7	**Piston**	Aluminum alloy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

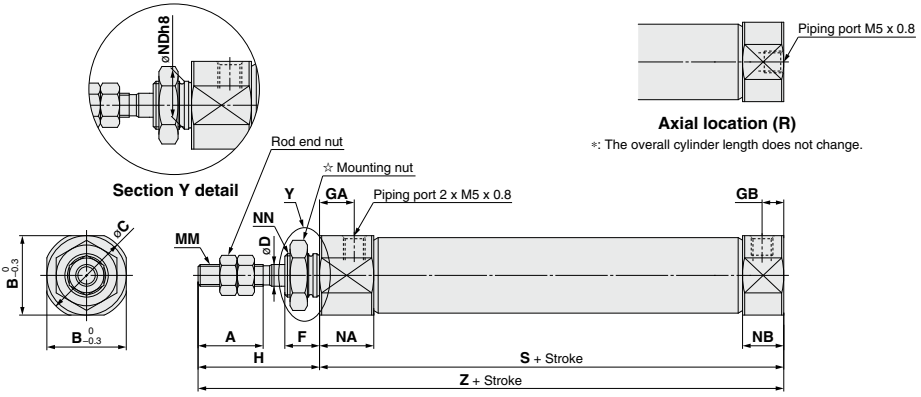
Basic (B)

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.

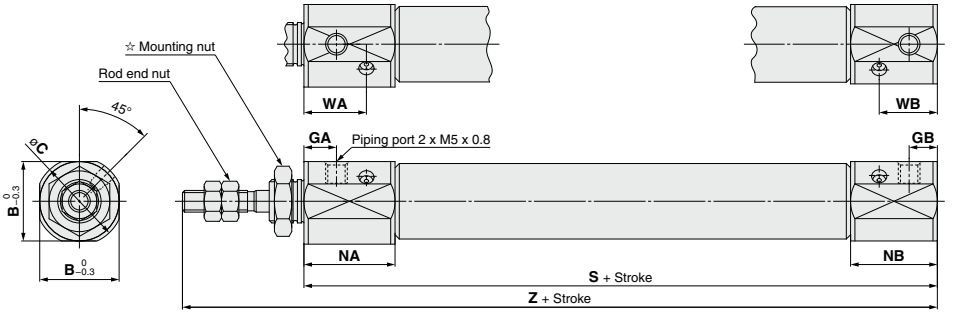
[mm]

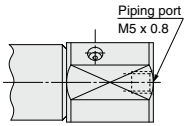
Bore size	A	B	C	D	F	GA	GB	H	MM	NA	NB	NC	NDh8	NN	S	SA	T	Z	ZA
6	15	12	14	3	8	14.5	5	28	M3 x 0.5	16	9.5	7	$6^{0}_{-0.018}$	M6 x 1.0	51.5	49	3	79.5	77
10	15	12	14	4	8	8	5	28	M4 x 0.7	12.5	9.5	—	$8^{0}_{-0.022}$	M8 x 1.0	46	—	—	74	—
16	15	18.3	20	5	8	8	5	28	M5 x 0.8	12.5	9.5	—	$10^{0}_{-0.022}$	M10 x 1.0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

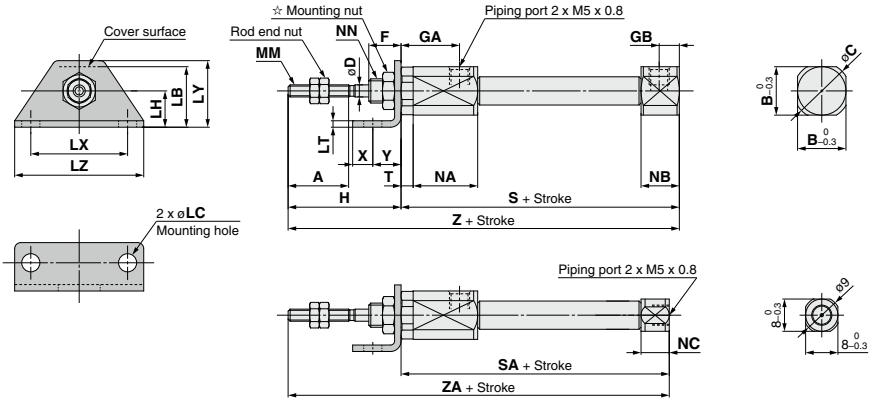
Dimensions other than the table below are the same as those on page 78. [mm]

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

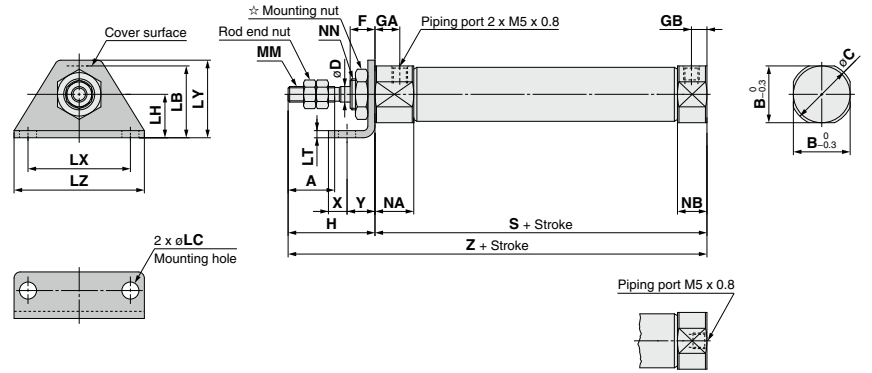
Single foot (L)

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.

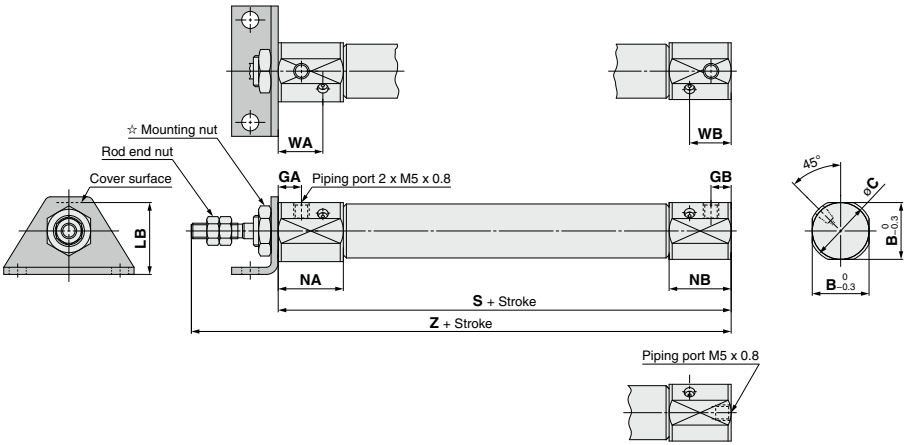
[mm]

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.

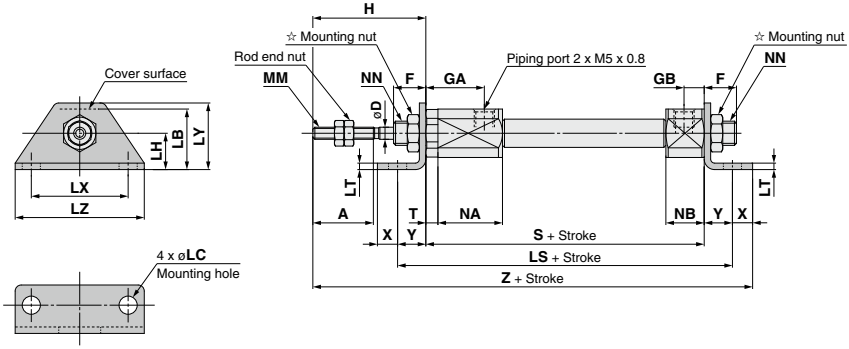
Dimensions other than the table below are the same as those on page 80. [mm]

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

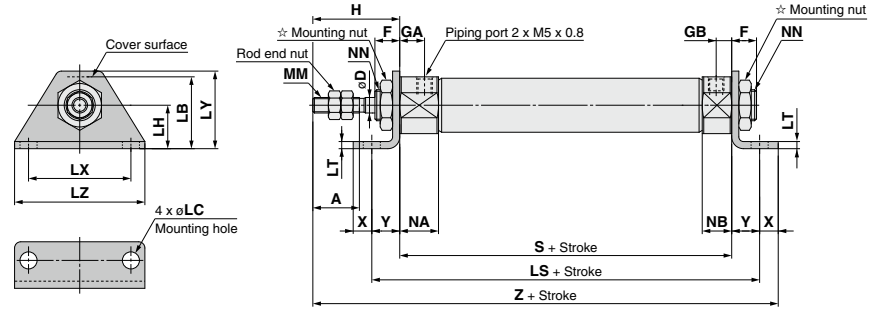
Dimensions

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.

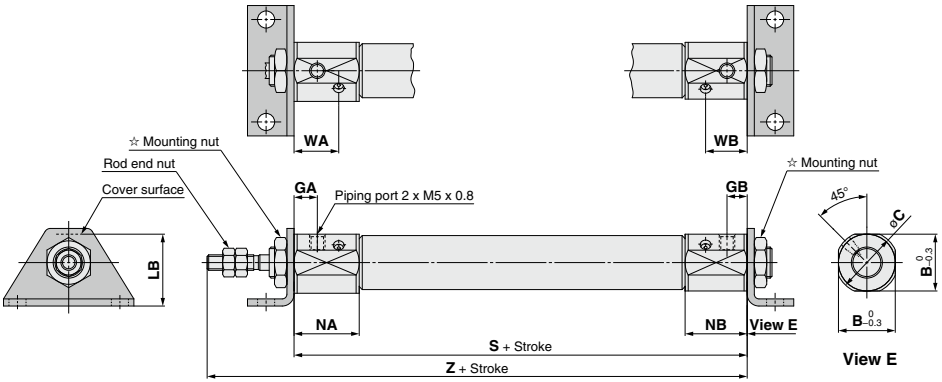
[mm]

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.

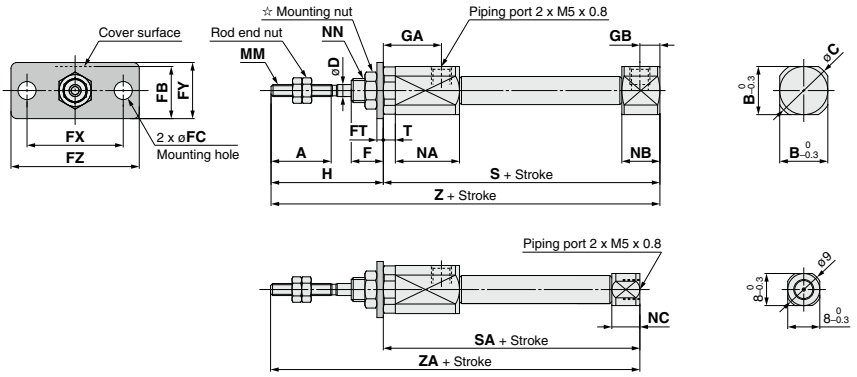
With Air Cushion/Dimensions other than the table below are the same as those on page 82. [mm]

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

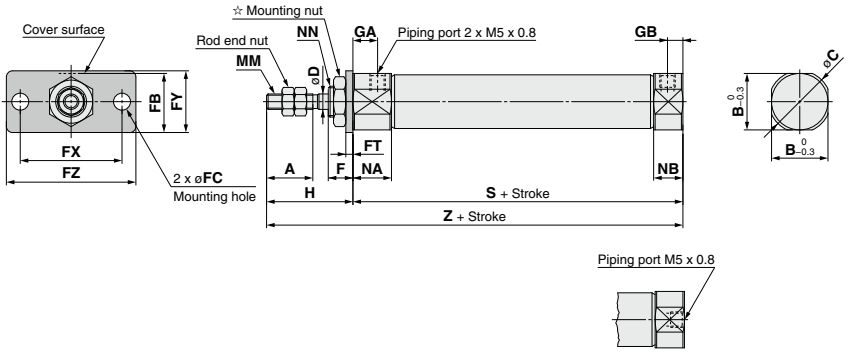
Rod flange (F)

CJ2F6 – Stroke Head cover port location Z



Head cover port location
Axial location (R)

CJF $^{10}_{16}$ – 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.

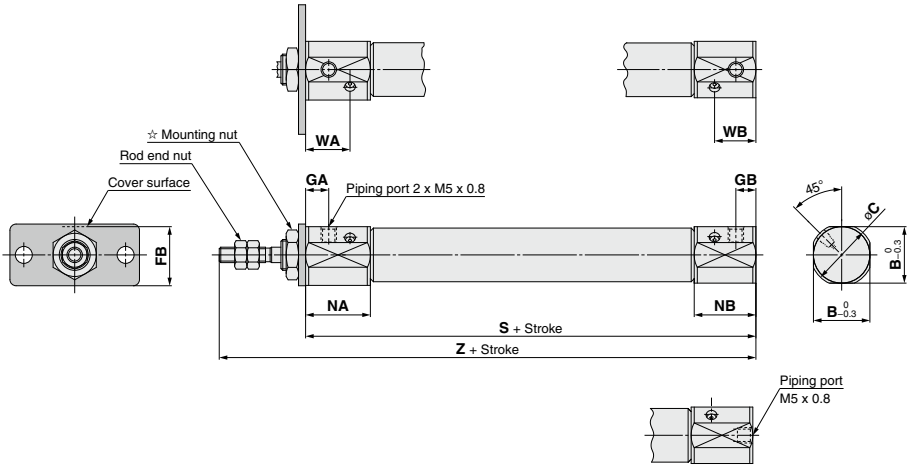
[mm]

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.

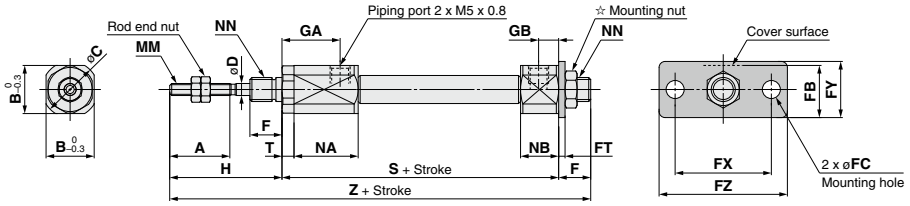
Dimensions other than the table below are the same as those on page 84. [mm]

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

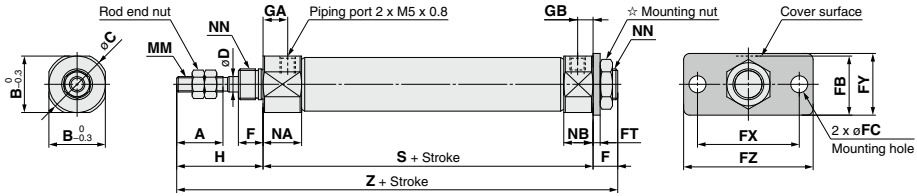
Dimensions

Head flange (G)

CJ2G6 – Stroke Z



CJ2G $^{10}_{16}$ – Stroke Z



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

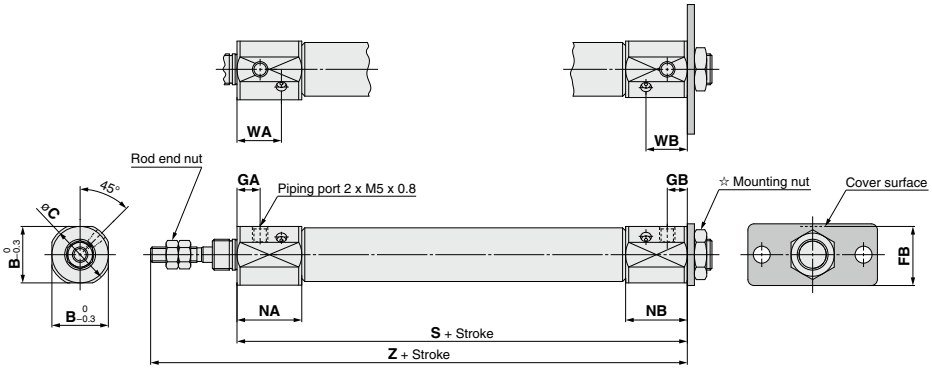
[mm]

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.

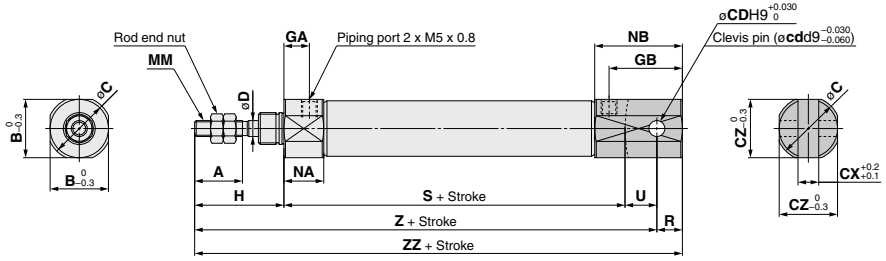
With Air Cushion/Dimensions other than the table below are the same as those on page 86. [mm]

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

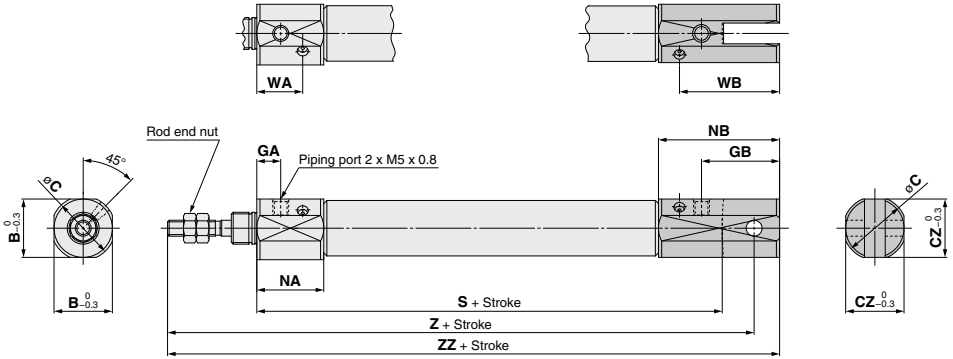
Dimensions

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

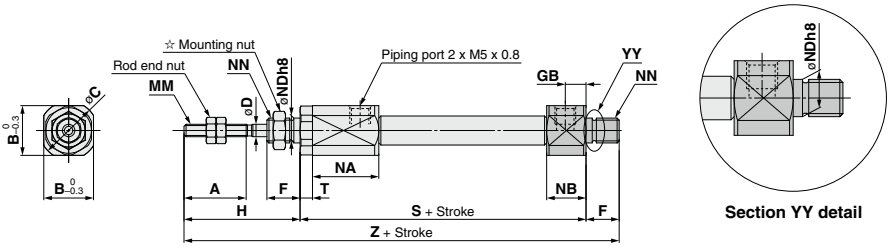
With Air Cushion/Dimensions other than the table below are the same as the table above. [mm]

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

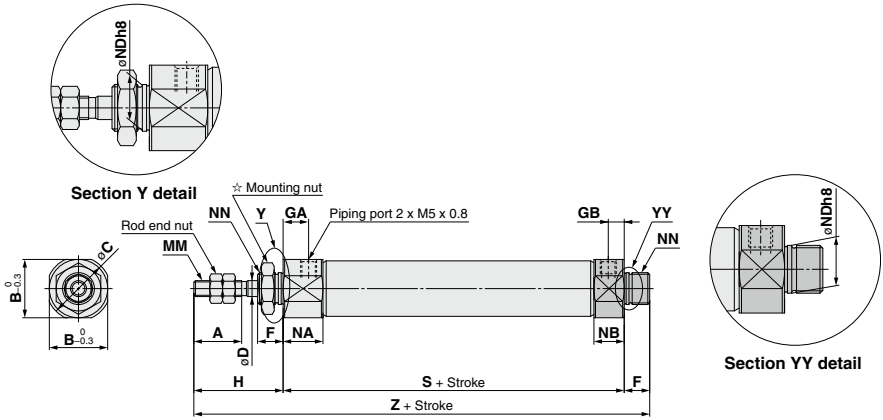
Dimensions

Double-side bossed (E)

CJ2E6 – Stroke Z



CJ2E $\begin{matrix}10\\16\end{matrix}$ – 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	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

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

CJ2Z Series

RoHS

ø10, ø16

How to Order

CJ2Z B 16 – 60 Z – – – (Without auto switch)

With auto switch: CDJ2Z B 16 – 60 Z – – – M9BW – B – (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 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	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.
∗2: 1 m type lead wire is only applicable to D-A93.

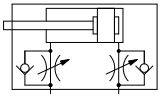
∗: Lead wire length symbols: 0.5 m ····· Nil (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ····· L (Example) M9NWL
5 m ····· Z (Example) M9NWZ
None ····· N (Example) H7CN

∗: 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

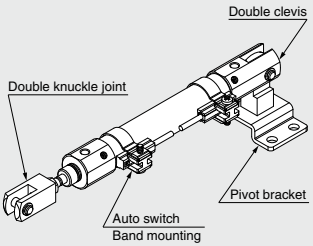
Symbol	Specifications
-XA□	Change of rod end shape
-XC51	With hose nipple
-XC85	Grease for food processing equipment

⚠ 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]

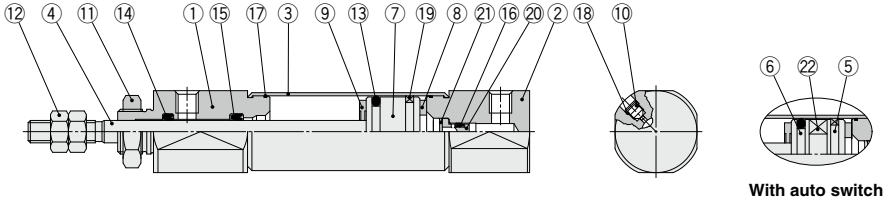
Bore size [mm]		10	16
Basic weight (When the stroke is zero)	Basic	36	61
	Axial piping	36	61
	Double clevis (including clevis pin)	40	68
	Head-side bossed	37	63
Additional weight per 15 mm of stroke		4	7
Mounting bracket weight	Single foot	8	25
	Double foot	16	50
	Rod flange	5	13
	Head flange	5	13
Accessories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

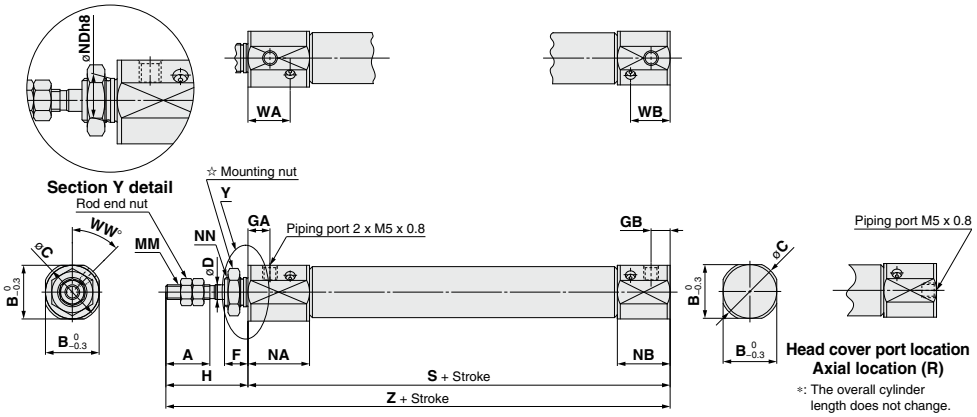
Component Parts

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



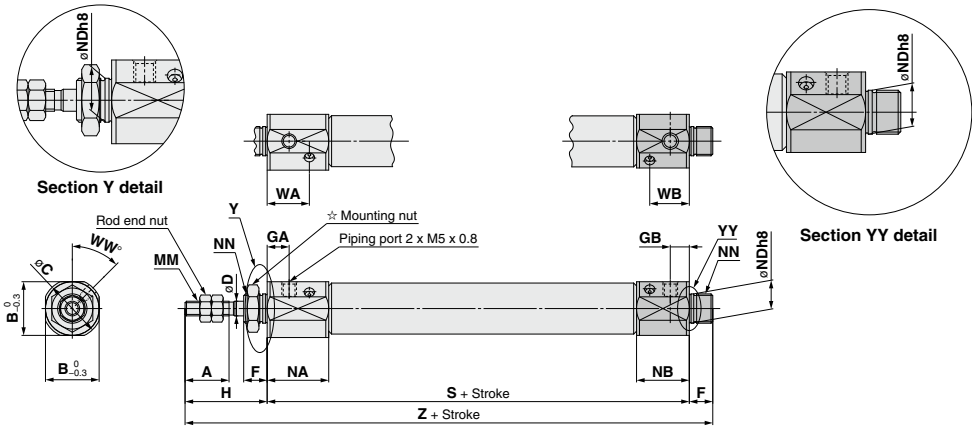
☆ For details of the mounting nut, refer to page 91.

[mm]

Bore size	A	B	C	D	F	GA	GB	H	MM	NA	NB	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 $^{10}_{16}$ – Stroke Z



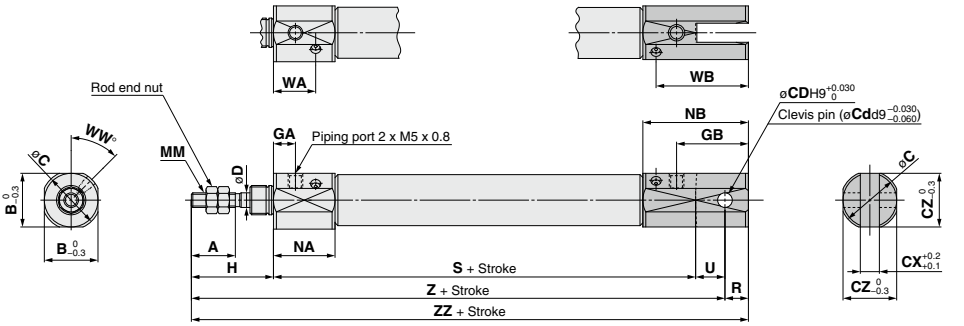
☆ For details of the mounting nut, refer to page 91.

[mm]

Bore size	A	B	C	D	F	GA	GB	H	MM	NA	NB	NDh8	NN	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 $\begin{matrix}10\\16\end{matrix}$ – Stroke Z



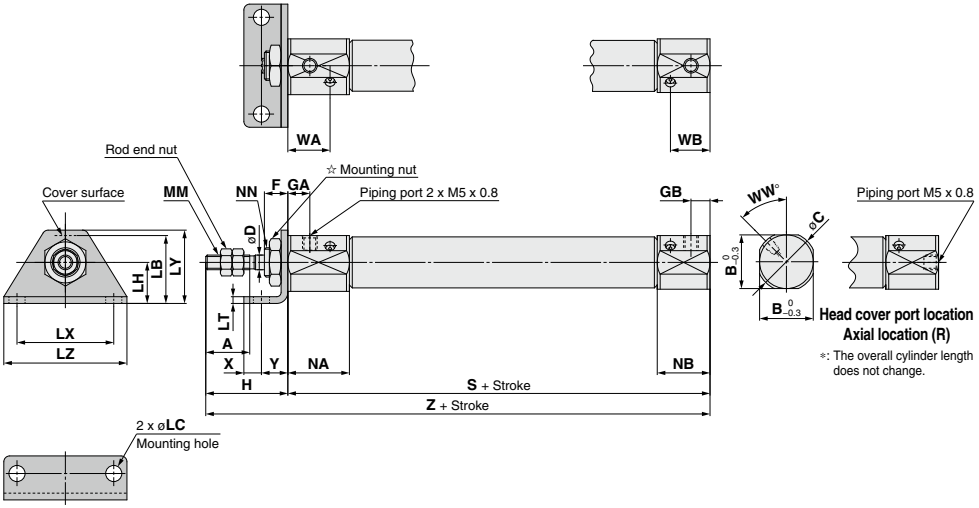
∗: A clevis pin and retaining rings are included.

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



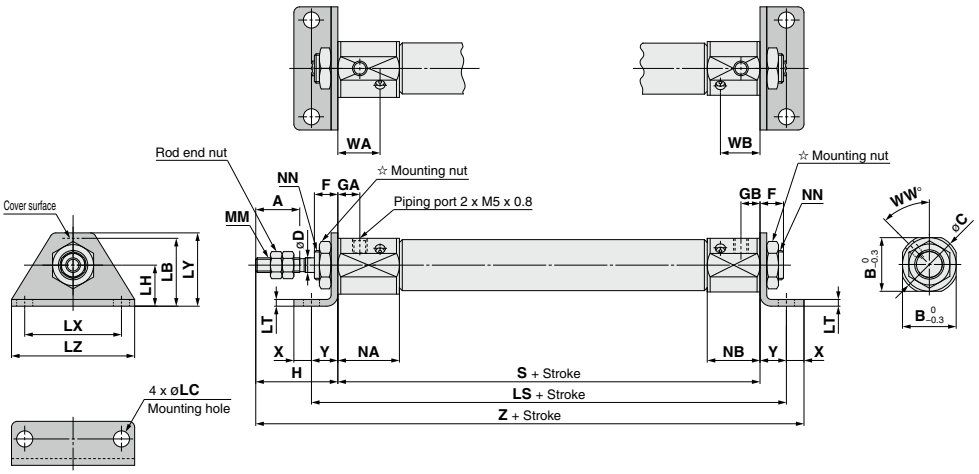
☆ For details of the mounting nut, refer to page 91.

[mm]

Bore size	A	B	C	D	F	GA	GB	H	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



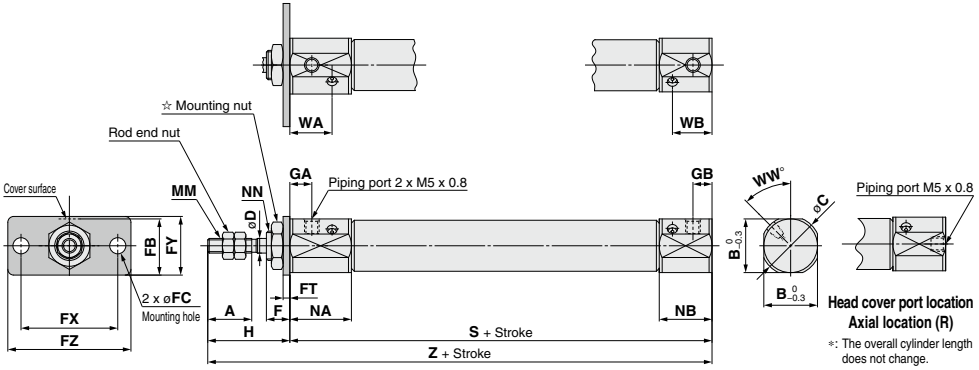
☆ For details of the mounting nut, refer to page 91.

[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



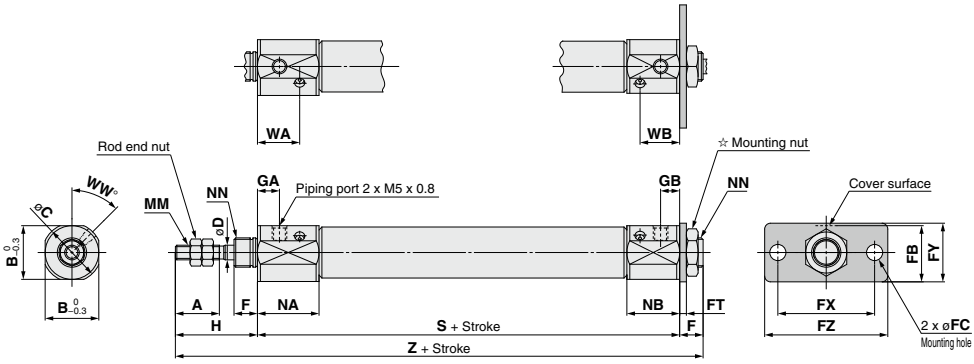
☆ For details of the mounting nut, refer to page 91.

[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 $\frac{10}{16}$ – 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