

Air Cylinder

CJ2 Series

ø6, ø10, ø16

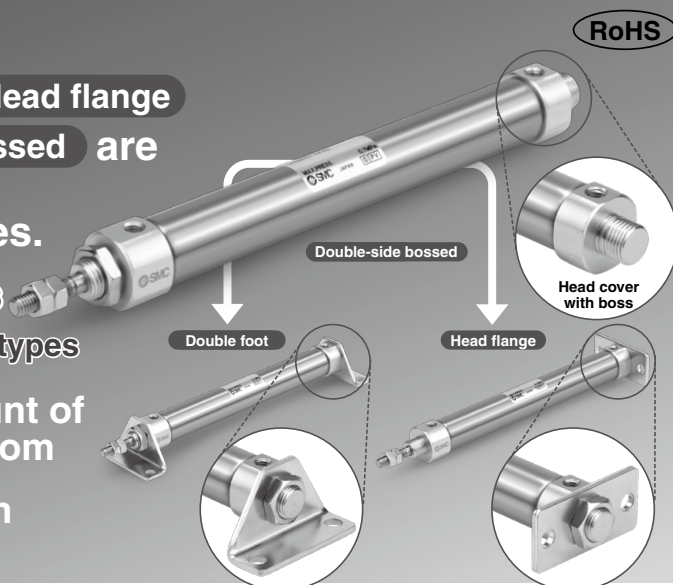
Double foot Head flange
Double-side bossed are
added to the
mounting types.

4 types → 7 types

For ø6, **3 types → 6 types**

**Improved amount of
mounting freedom**

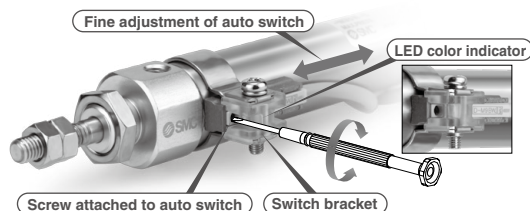
**Head cover with
boss is added.**



Easy fine adjustment of auto switch position

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

**Transparent switch bracket improves
visibility of indicator LED.**



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

Improved piping flexibility

ø6	●	○
ø10	○	○
ø16	○	○



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

CJ2Z Series

ø10, ø16

RoHS

How to Order



With auto switch

CJ2Z **B** **16** - **60** **Z** - **M9BW** - **B**

1 2 3 4 5 6 7 8 9 10

With auto switch (Built-in magnet)

1 Mounting

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

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

2 Bore size

10	10 mm
16	16 mm

4 Head cover port location

Nil	Perpendicular to axis	
R	Axial	

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

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

3 Cylinder standard stroke [mm]

Refer to "Standard Strokes" on page 108.

5 Pivot bracket

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

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

6 Rod end bracket

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

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

7 Auto switch

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

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

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

8 Number of auto switches

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

9 Auto switch mounting type

A	Rail mounting
B	Band mounting

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

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

10 Made to Order

Refer to page 108 for details.

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

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

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model				Lead wire length [m]					Pre-wired connector	Applicable load	
					DC	AC	Band mounting		Rail mounting		0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)			
							Perpendicular	In-line	Perpendicular	In-line								
Solid state auto switch	—	Grommet	3-wire (NPN)	5 V, 12 V	24 V	—	M9NV	M9N	M9NV	M9N	●	●	●	○	○	IC circuit	Relay, PLC	
		3-wire (PNP)	M9PV				M9P	M9PV	M9P	●	●	○	○	○				
	Connector	2-wire	12 V	M9BV		M9B	M9BV	M9B	●	●	●	○	○	—				
		—	H7C	J79C		—	●	●	●	●	—	—						
	Diagnostic indication (2-color indicator)	Yes	3-wire (NPN)	M9NVV		M9NW	M9NVV	M9NW	●	●	●	○	○	IC circuit				
			3-wire (PNP)	M9PWV		M9PW	M9PWV	M9PW	●	●	●	○	○		○			
	Water resistant (2-color indicator)	Grommet	2-wire	12 V		M9BWW	M9BW	M9BWW	M9BW	●	●	●	○	○	—			
			3-wire (NPN)	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	Relay, PLC
				—	—	200 V	—	—	A72	A72H	●	—	●	—	—	—		
		Connector	No	2-wire	24 V	12 V	100 V	A93V ^{*2}	A93	A93V ^{*2}	A93	●	—	●	—	—	—	
						100 V or less	A90V	A90	A90V	A90	●	—	●	—	—	—	IC circuit	
	Grommet	No	24 V or less	—		C73C	A73C	—	—	—	—	●	—	●	—	—		
			—	—		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) M9NV 5 m..... Z (Example) M9NVZ
1 m..... M (Example) M9NWM None..... N (Example) H7CN
3 m..... L (Example) M9NWL

*: 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.)



CJ1

CJP

CJ2

JCM

CM2

CM3

CG1

CG3

JMB

MB

MB1

CA2

CS1

CS2

D-□

-X□

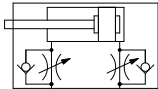
Technical Data

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



Symbol

Double acting, Single rod, Rubber bumper



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

Symbol	Specifications
-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

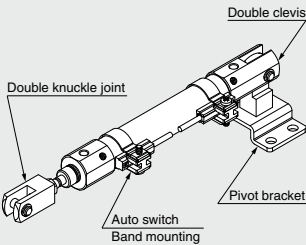


Precautions

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 (No freezing) With auto switch: -10°C to 60°C	
Cushion	Rubber bumper	
Lubrication	Not required (Non-lube)	
Stroke length tolerance	+1.0 0	
Speed controller	Built-in	
Piston speed	50 to 750 mm/s	
Allowable kinetic energy	0.035 J	0.090 J

Standard Strokes

Bore size	Standard stroke	Maximum manufacturable stroke [mm]
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)	—	—	—	●	●
	Single knuckle joint	○	○	○	○	○
Option	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
	Single foot	8	25
Mounting bracket weight	Double foot	16	50
	Rod flange	5	13
	Head flange	5	13
Accessories	Single knuckle joint	17	23
	Double knuckle joint (including knuckle pin)	25	21
	Double knuckle joint (With one-touch connecting pin)	26	22
	Rod end cap (Flat type)	1	2
	Rod end cap (Round type)	1	2
	Pivot bracket (T-bracket)	32	50

∴ Mounting nut and rod end nut are included in the basic weight.

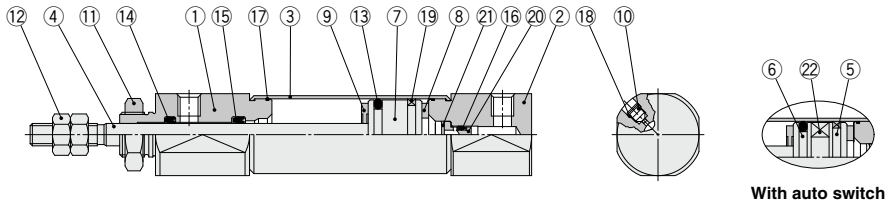
∴ Mounting nut is not included in the basic weight for the double clevis.

Calculation:

Example) **CJ2ZL10-45Z**

- Basic weight 36 (ø10)
 - Additional weight 4/15 stroke
 - Cylinder stroke 45 stroke
 - Mounting bracket weight ... 8 (Single foot)
- $36 + 4/15 \times 45 + 8 = 56 \text{ g}$

Construction (Not able to disassemble)



Component Parts

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

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

CJ1

CJP

CJ2

JCM

CM2

CM3

CG1

CG3

JMB

MB

MB1

CA2

CS1

CS2

D-□

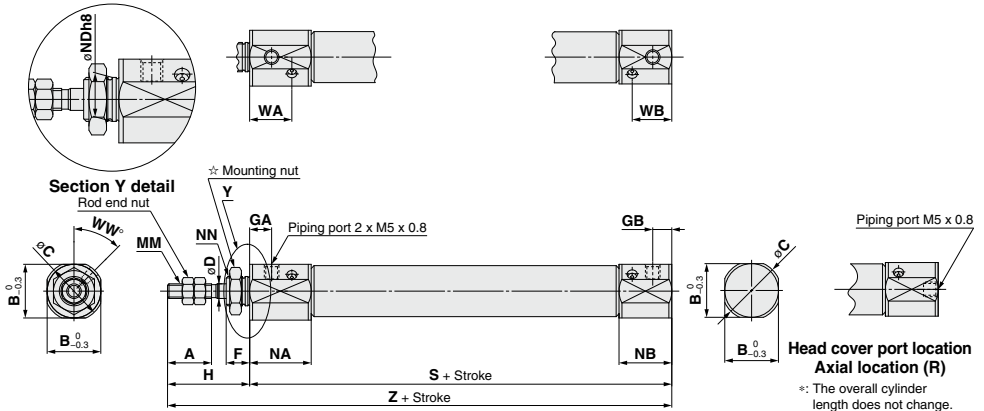
-X□

Technical
Data

CJ2Z Series

Basic (B)

CJ2ZB ¹⁰/₁₆ – **Stroke** **Head cover port location** **Z**



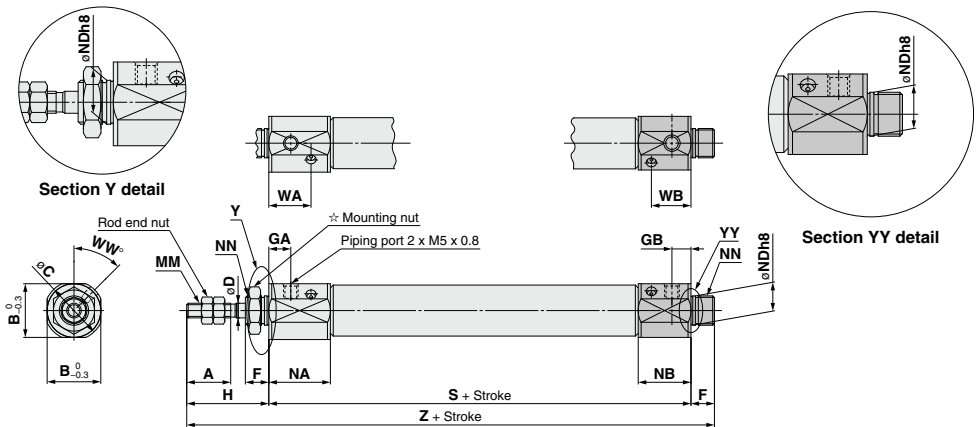
☆ For details of the mounting nut, refer to page 63.

For details on the mounting nut, refer to page 55.

																		(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

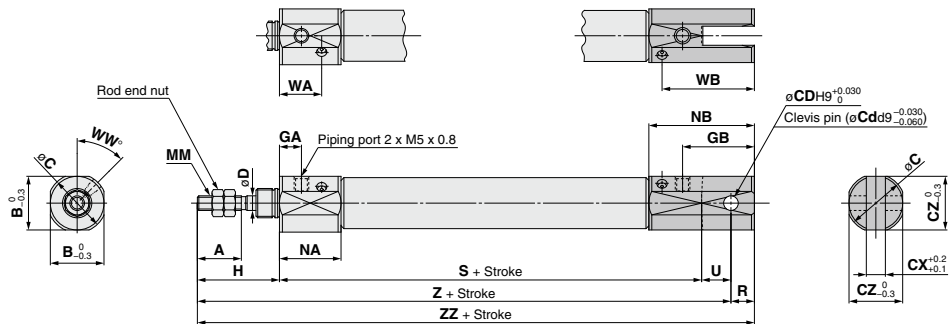


☆ For details of the mounting nut, refer to page 63.

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 $\frac{10}{16}$ - Stroke Z

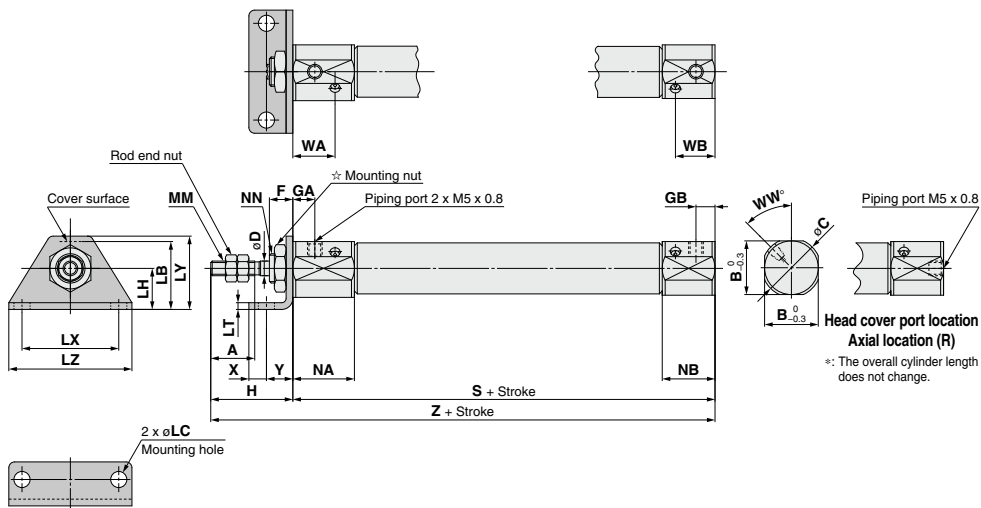


*: A clevis pin and retaining rings are included.

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	111

Single Foot (L)

CJ2ZL $\frac{10}{16}$ – **Stroke** **Head cover port location** **Z**



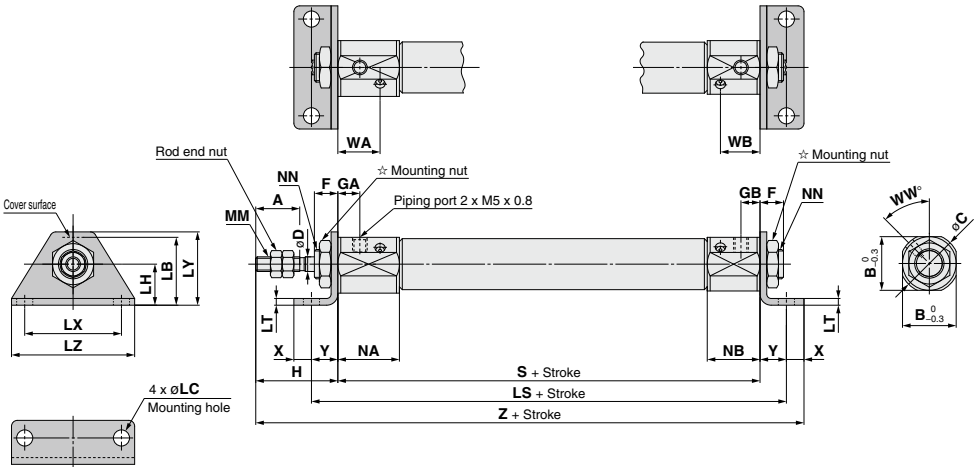
☆ For details of the mounting nut, refer to page 63.

Core 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

CJ2Z Series

Double Foot (M)

CJ2ZM $\frac{10}{16}$ - Stroke Z

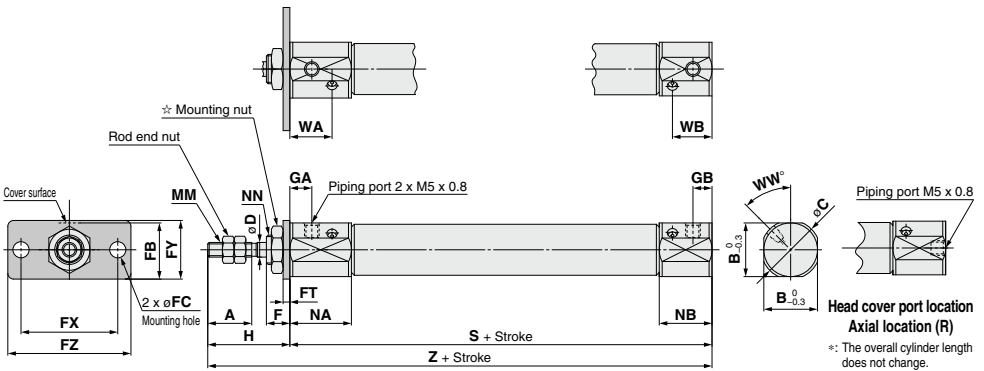


☆ For details of the mounting nut, refer to page 63.

For details of the mounting nut, refer to page 65.																									(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 $\frac{10}{16}$ – **Stroke** **Head cover port location** **Z**



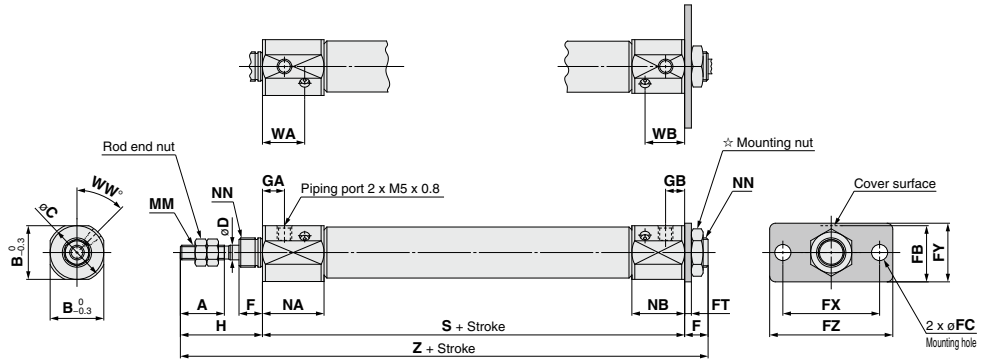
☆ For details of the mounting nut, refer to page 63.

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

																							[mm]
Bore size	A	B	C	D	F	FB	FC	FE	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 63.

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

CJ1

CJP

CJ2

JCM

CM2

CM3

CG1

CG3

JMB

MB

MB1

CA2

CS1

CS2

D-□

-X□

Technical
Data