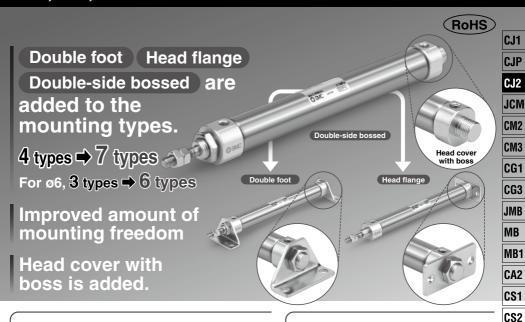
Air Cylinder

CJ2 Series

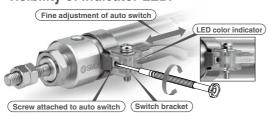
ø6, ø10, ø16



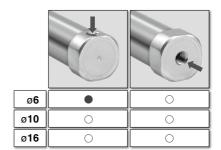
Easy fine adjustment of auto switch position

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.



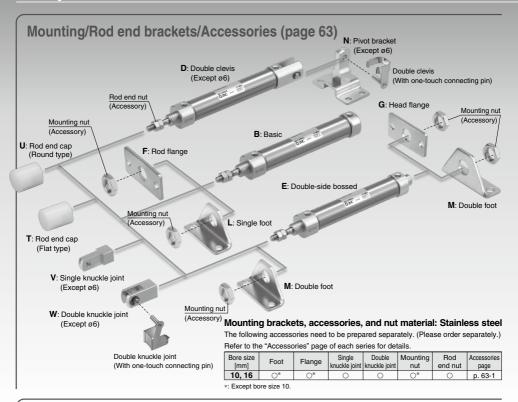
Head cover port location "Perpendicular to axis" is newly added to Ø6. Improved piping flexibility



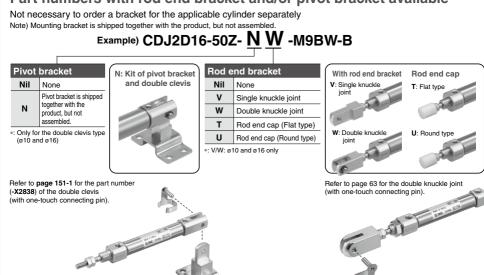


D--X□

Technica

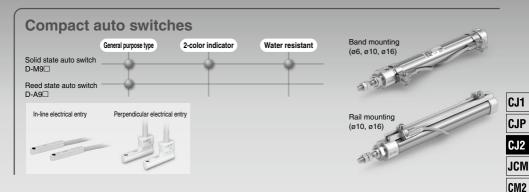


Part numbers with rod end bracket and/or pivot bracket available



СМЗ CG1 CG3 JMB

MB MB1 CA2 CS1 CS2



Stroke Variations

Danie alex formal		Standard stroke									
Bore size [mm]	15	30	45	60	75	100	125	150	175	200	
6	-	-0	-	-							
10		-	-	-	-	-	-	-		_	
16	-	-	-	-	-	•	•	•	-	-	

Series Variations

Series			В	ore size [mi	m]	Varia	Variations		
Series	Action	Туре	6	10	16	Built-in magnet	Air cushion	Page	
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	
0	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.



D-□ -X□

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100	Double Acting, Single Rod CJ2 Series	
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			Data

Combinations of Standard Products and Made to Order Specifications

CJ2

(Standard type)

Single rod Double rod

Single acting

Single rod

CJ2K

(Non-rotating rod type)

Single acting

Double acting

Single rod

Series

Action/

CJ2 Series

	Standard

- : Made to Order
- O : Special product (Please contact SMC for details.)
- : Not available

— : Not availab	ne e				(spring return) (spring extend)			(spring return) (spring extend)		
		Page	46	64	7	1	88	9	5	
Symbol	Specifications	Applicable bore size		ø6 to	ø16			ø10, ø16		
Standard	Standard	ø6 to ø16	•	•	•	•	•	•	•	
D	Built-in magnet	90 10 910	•	•	•	•	•	•	•	
CJ2□-□A	Air cushion	ø10, ø16	•	•	_	_	_	_	_	
10-, 11-	Clean series*1	ø6 to ø16	•	•*9	0	0	_	_	_	
25A-	Copper (Cu) and Zinc (Zn)-free*5	ø10, ø16	•	0	0	0	0	0	0	
XB6	Heat resistant cylinder (-10 to 150°C)*3, 4		0	0	0	0	0	0	0	
ХВ7	Cold resistant cylinder (-40 to 70°C)*3, 4	ø6 to ø16	0	0	0	0	0	0	0	
XB9	Low speed cylinder (10 to 50 mm/s)*4		0	_	_	_	_	_	_	
XB13	Low speed cylinder (5 to 50 mm/s)	ø6	0		_	_	_	_	_	
хсз	Special port position*2, 4	ø6 to ø16	0	0	_	_	0	_	_	
XC8	Adjustable stroke cylinder/ Adjustable extension type*4		0	ı	0	0	0	0	0	
XC9	Adjustable stroke cylinder/ Adjustable retraction type*4	ø10, ø16	0	ı	0	_	0	0	_	
XC10	Dual stroke cylinder/Double rod type*4	910,910	0	ı	0	0	0	0	0	
XC11	Dual stroke cylinder/Single rod type*4		0	ı	_	_	0	_	_	
XC22	Fluororubber seal*4	ø6 to ø16	0	0	0	0	0	0	0	
XC51	With hose nipple	שס נט ט וס	0	0	0	0	0	0	0	
XC85	Grease for food processing equipment	ø10, ø16	0	0	0	0	0	0	0	
X446	PTFE grease	סוט,טוט	0	0	0	0	0	0	0	
X773	Short pitch mounting	ø6	_		0	_	_	_	_	
X2838	Double clevis (With one-touch connecting pin)*11	ø10, ø16	0	_	0	0	0	0	0	

^{*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.

	CJ2X Low Speed Cylinder	CJ2Y Smooth Cylinder	CBJ2 (With end lock)*6	ing rod type)	CJ2RK nt, Non-rotati	(Direct mou	type)	CJ2R ct mount	(Dire	CJ2Z (Built-in speed controller type)		
	Double acting	Double acting	Double acting	acting		Double acting		Single	Double acting		Double	
	Single rod	Single rod	Single rod	Single rod (spring extend)	Single rod (spring return)	Single rod	Single rod (spring extend)	Single rod (spring return)	Single rod	Double rod	Single rod	
	Best Pneumatics No. 2-3	Best Pneumatics No. 2-3	134	30	1:	127	23	12	119	114	107	
Symbol	ø10, ø16	ø10, ø16	ø16				ø16	ø10,				
Standard	•	•	•	•	•	•	•	•	•	•	•	
D	•	•	•	•	•	•	•	•	•	•	•	
CJ2□-□A	_	_	_	_	_	_	_	_	0	_		
10-, 11-	_	_	O*7	_	_	_	0	0	•	_		
25A-	0	0	0	0	0	0	0	0	0	0	0	
XB6	_	_	0	0	0	0	0	0	0	0	0	
ХВ7	_	_	_	0	0	0	0	0	0	0	0	
ХВ9	_	_	0	_	l	_	_	1	_	-	_	
XB13	_	_	_	_	_	_	_	_	_	_	_	
хсз	0	0	0	_	_	0	_	1	0	_	_	
XC8	_	_		0	0	0	0	0	0	ı	0	
хС9	_	0	O*8	_	0	0	_	0	0	ı	_	
XC10	_	0	0	0	0	0	0	0	0	ı	0	
XC11	_	_	O*8	_	_	0	_	_	0	_	_	
XC22	_	_	0	0	0	0	0	0	0	0	0	
XC51	_	_	_	0	0	0	0	0	0	0	0	
XC85	_	_	_	0	0	0	0	0	0	0	0	
X446	_	_	_	0	0	0	0	0	0	0	0	
X773	_	_		_	_	_	_	_	_	_		
X2838	0	0	_	_	_	_	_	_	_	_	-	

CJ1 CJP

CJ2

JCM CM2

СМЗ

CG1

JMB MB

MB1 CA2

CS1

CS2

D-□

-X - Technical Data



Air Cylinder: Standard Type **Double Acting, Single Rod**

CJ2 Series ø6, ø10, ø16



How to Order

300 **CDJ2B** 16 With auto switch With auto switch (Built-in magnet)

Mounting

	В	Basic
	Е	Double-side bossed
	D**	Double clevis
ſ	L	Single foot
	M	Double foot
	F	Rod flange
ſ	G	Head flange

- ** Foot/Flange brackets are shipped together with the product, but not assembled
- *: Double clevis is only available for ø10 and ø16
- **: Refer to page 151-1 for the double clevis (with one-touch connecting pin).

Auto switch

Nil	Without auto switch

- For applicable auto switches refer to the table below.
- ★ Enter the auto switch mounting type (A or B) even when a built-in magnet cylinder without an auto switch is required.

2 Bore size

6	6 mm
10	10 mm
16	16 mm
10 16	10 mm

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.

Number of auto switches

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

Cvlinder standard stroke [mm] Refer to "Standard Strokes" on page 47.

6 Pivot bracket Nil None 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.

Auto switch mounting type Rail mounting

- Band mounting *: For rail mounting, screws and nuts for 2 auto switches come with the rail
- *: Refer to page 148 for auto switch mounting brackets. *: Ø6: Band mounting only

Single/Double knuckle joint: ø10 and ø16 only

4 Cushion

Nil

*: ø6: Rubber bumper only

Rod end bracket

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

the product, but not assembled.

Rubber bumper

Air cushion

None Single knuckle joint

Double knuckle joint

Rod end cap (Flat type)

Rod end cap (Round type)

Rod end bracket is shipped together with

Made to Order Refer to page 47 for details.

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

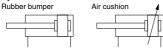
Applicable Auto Switches/Refer to pages 1575 to 1701 for further information on auto switches.

		Electrical	<u>_</u>	Wiring		Load vo	ad voltage Auto switch model Lead wire length		Auto switch model			[m]	Pre-wired	Applicable								
Тур	Special function	entry	ndicator	(Output)		DC	AC	Band m	ounting	Rail mo	ounting	0.5	1	3		None	connector		ad			
		Citaly	iğ	(Output)		DC	AC	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	CONTINUE	10	au			
				3-wire (NPN)		5 V.12 V		M9NV	M9N	M9NV	M9N	•	•	•	0	_	0	IC circuit				
ء		Grommet		3-wire (PNP)	1	5 V,12 V		M9PV	M9P	M9PV	M9P	•	•	•	0	_	0	iic arcuit				
switch				0	1	40.1/		M9BV	M9B	M9BV	M9B	•	•	•	0	_	0]			
S		Connector	1	2-wire		12 V		_	H7C	J79C	_	•	_	•	•	•	_	_				
anto	Dia		1	3-wire (NPN)	1	E V 10 V		M9NWV	M9NW	M9NWV	M9NW	•	•	•	0	_	0	IC airea il	1			
	Diagnostic indication (2-color indicator)		Yes	3-wire (PNP)	24 V	5 V,12 V		M9PWV	M9PW	M9PWV	M9PW	•	•	•	0	_	0	IC circuit	PLC			
state	(2-color indicator)	(2-color indicator)	(2-color indicator)	-color iriulcator)	(2-color iriulcator)		2-wire	1	12 V		M9BWV	M9BW	M9BWV	M9BW	•	•	•	0	_	0	_	FLC
	Water registent	Grommet		et	3-wire (NPN)	1	5 V 40 V	E V 10 V		M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	•	0	<u> </u>	0	IC circuit	1	
Solid	Water resistant			3-wire (PNP)]	5 V,12 V			M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	0	0	•	0	—	0	lic arcuit			
ő	(2-color indicator)			2-wire	1	12 V		M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	0	0	•	0	_	0	_	1 1			
	With diagnostic output (2-color indicator)			4-wire (NPN)	1	5 V,12 V			H7NF	_	F79F	•	_	•	0	<u> </u>	0	IC circuit	1			
switch			V	3-wire (NPN equivalent)	_	5 V	_	A96V	A96	A96V	A96	•	_	•	_	-	_	IC circuit	_			
<u> </u>		<u></u>	Yes		1	_	200 V	_	_	A72	A72H	•	_	•	_	_	_					
		Grommet					100 V	A93V*2	A93	A93V*2	A93	•	•	•	•	_	_	-				
anto			No	2-wire		12 V	100 V or less	A90V	A90	A90V	A90	•	_	•	_	_	_	IC circuit	Relay,			
			Yes	2-wire	24 V	12 V	_	_	C73C	A73C		•	_	•	•	•	_	_	PLĆ			
Reed		Connector	No				24 V or less	_	C80C	A80C	_	•	_	•	•	•	_	IC circuit]			
	Diagnostic indication (2-color indicator)	Grommet	Yes			_	_	_	_	A79W	_	•	_	•	_	_	_	_				

- *1: Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Please contact SMC regarding water resistant types with the above model numbers.
- *2: 1 m type lead wire is only applicable to D-A93
- *: Lead wire length symbols: 0.5 m----··· Nil (Example) M9NW 1 m····· M (Example) M9NWM 3 m----- L (Example) M9NWL
- 5 m----- Z (Example) M9NWZ None---- N (Example) H7CN
- *: Since there are other applicable auto switches than listed above, refer to page 149 for details. *: Solid state auto switches marked with "O" 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.) A 46



Symbol





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

	Symbol	Specifications					
		PTFE grease					
-X773*1 Short pitch mounting							
	-X2838*2 Double clevis (With one-touch connecting pir						

*1: ø6 only

*2: ø10 and ø16 only

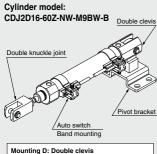
Made to Order

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



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		Do	uble acting, Single r	od		
Fluid			Air			
Proof pressure			1 MPa			
Maximum operating	pressure		0.7 MPa			
Minimum operating	Rubber bumper	0.12 MPa	0.06	MPa		
pressure	Air cushion	_	0.1 [
Ambient and fluid to	emperature	Without auto switch: -10°C to 70°C (No freezing) With auto switch: -10°C to 60°C (No freezing)				
Cushion		Rubber bumper	er bumper Rubber bumper/Air cushion			
Lubrication		Not required (Non-lube)				
Dieten enced	Rubber bumper	50 to 750 mm/s				
Piston speed	Air cushion	_	50 to 10	00 mm/s		
Allowable kinetic	Rubber bumper	0.012 J	0.035 J	0.090 J		
energy	Air cushion		0.07 J	0.18 J		
elicity	(Effective cushion length)	_	(9.4 mm)	(9.4 mm)		
Stroke length tolera	nce		+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 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

•	$ \bullet \cdots \text{Mounted on the product.} \bigcirc \cdots \text{Can be ordered within the cylinder model.} \triangle \cdots \text{Order separately.} $							
	Mounting	Basic	Foot	Flange	Double ^{Note 1)} clevis	Double clevis (including T-bracket)		
r d	Mounting nut	•	•	•	_	_		
Standard	Rod end nut	•	•	•	•	•		
St	Clevis pin (including retaining rings)	_	_	_	•	•		
	Double clevis (With one-touch connecting pin)	Δ	Δ	Δ	O (-X2838)	O (-X2838)		
١_	Single knuckle joint	0	0	0	0	0		
Option	Double knuckle joint (including a pin and retaining rings)	0	0	0	0	0		
۱ <u>۵</u>	Double knuckle joint (With one-touch connecting pin)	Δ	Δ	Δ	Δ	Δ		
	Rod end cap (Flat/Round type)	0	0	0	0	0		
	Pivot bracket (T-bracket)	_	_	_	0	•		

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

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

Refer to page 63-1 for details.

Mounting Brackets/Part No.

Marinting brookst		Bore size [mm]	
Mounting bracket	6	10	16
Foot	CJ-L006C	CJ-L010C	CJ-L016C
Flange	CJ-F006C	CJ-F010C	CJ-F016C
T-bracket*	_	CJ-T010C	CJ-T016C

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

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

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

Moisture Control Tube IDK Series

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

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

D-U
-XU
Technical

CJ1

CJ2

JCM CM2

CM3

CG₁

CG3

JMB

MB

MB1

CA₂

CS1 CS2



Weights

		Dut	ah au hiin		Air at	LG.
Bore size [mm]		6	ber bum	Air cushion		
			10	16	10	16
Basic weight	Basic	20	22	46	39	66
(When the stroke	Axial piping	17	22	46	39	66
is zero)	Double clevis (including clevis pin)	_	24	54	43	74
10 2010)	Head-side bossed	20	23	48	40	68
Additional weight	per 15 mm of stroke	2	4	7	4	7
	Single foot	8	8	25	8	25
Mounting bracket	Double foot	16	16	50	16	50
weight	Rod flange	5	5	13	5	13
	Head flange	5	5	13	5	13
	Clevis pin	_	1	3	1	3
	One-touch connecting pin for double clevis	_	2	4	_	_
	Single knuckle joint	_	17	23	17	23
Accessories	Double knuckle joint (including knuckle pin)	_	25	21	25	21
Accessories	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

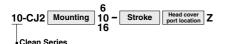
Refer to page 152 before handling.

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

Calculation: Example) CJ2L10-45Z

- •Basic weight22 (ø10)
- Additional weight4/15 stroke
- - 22 + 4/15 x 45 + 8 = **42 g**

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.

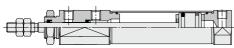


Specifications

Action		Double acting, Single rod		
Bore size [mm]		6, 10, 16		
Maximum operating	pressure	0.7 MPa		
Minimum operating Ø6		0.14 MPa		
pressure	ø10, ø16	0.08 MPa		
Cushion		Rubber bumper/Air cushion		
Standard stroke [mi	n]	Same as standard type. (Refer to page 47.)		
Auto switch		Mountable (Band mounting)		
Mounting		Basic, Double-side bossed*, Single/Double foot*, Rod/Head flange		

^{*:} ø10 and ø16 only

Construction



*: The above figure is for ø16.

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

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 pr	essure	0.7 MPa		
Minimum operating pressure		0.06 MPa		
Ambient and fluid temperature		Without auto switch: -10 to 70°C (No freezing) With auto switch: -10 to 60°C		
Cushion		Rubber bumper (Standard equipment)		
Lubrication		Not required (Non-lube)		
Stroke length tolerand	се	+1.0 0		
Piston speed		1 to 300 mm/s		
Allowable kinetic	ø10	0.035 J		
energy	ø 16	0.090 J		

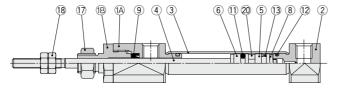
For details, refer to the Best Pneumatics No. 2-3.

Air Cylinder: Standard Type Double Acting, Single Rod CJ2 Series

Construction (Not able to disassemble)

ø6

Rubber bumper





CJ1 CJP

CJ2 JCM

CM2

CM3

CG3 JMB MB

MB1

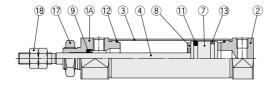
CA2

CS1

CS2

With auto switch

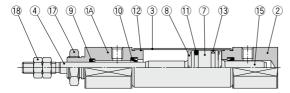
ø10, ø16 Rubber bumper





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

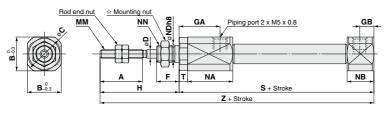
D
-X

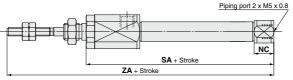
Technical
Data

Dimensions

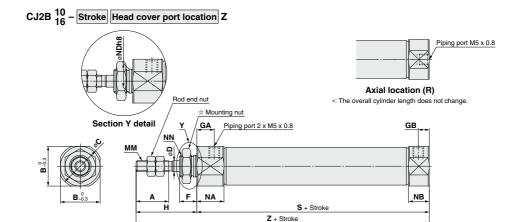
Basic (B)

CJ2B6 - Stroke Head cover port location Z





Head cover port location Axial location (R)



 $\dot{\boldsymbol{x}}$ For details of the mounting nut, refer to page 63.

																			[mm]
Bore size	Α	В	С	D	F	GA	GB	Н	MM	NA	NB	NC	NDh8	NN	S	SA	Т	Z	ZA
6	15	12	14	3	8	14.5	5	28	M3 x 0.5	16	9.5	7	6_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_0.022	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_0.022	M10 x 1.0	47	_	_	75	_

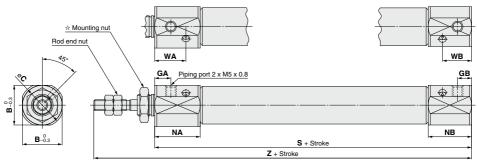
Dimensions

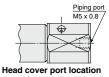
Basic (B)

16

18.3 20 7.5

With air cushion: CJ2B $^{10}_{16}$ - Stroke A Head cover port location Z





CJ1 CJP

CJ2

JCM

CM2 CM3 CG1

CG3

JMB

MB MB1

CA2

CS1

CS2

Axial location (R) *: The overall cylinder length does not change.

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

20 14.4 13.4 [mm]

Z

93

94

Dimensions other than the table below are the same as those on page 50. WA WB s Bore size В С GA GB NA NB 10 15 7.5 13.4 6.5

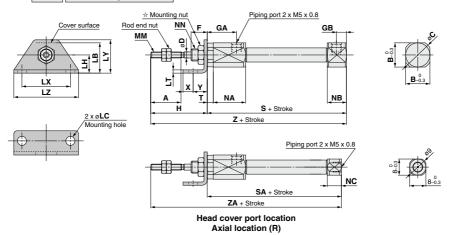
> D-□ -X□

Technical Data

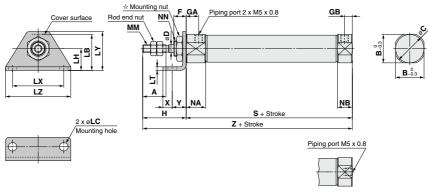
Dimensions

Single foot (L)

CJ2L6 - Stroke Head cover port location Z



CJ2L 10 - 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 63.

52

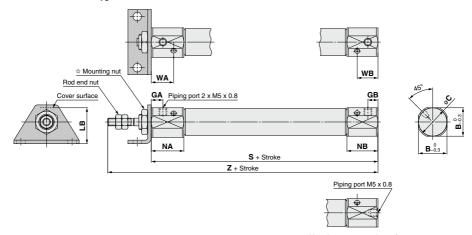
																										l	[mm]
Bore size	Α	В	С	D	F	GA	GB	Н	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NC	NN	s	SA	Т	Х	Υ	Z	ZA
6	15	12	14	3	8	14.5	5	28	15	4.5	9	1.6	24	16.5	32	M3 x 0.5	16	9.5	7	M6 x 1.0	51.5	49	3	5	7	79.5	77
10	15	12	14	4	8	8	5	28	15	4.5	9	1.6	24	16.5	32	M4 x 0.7	12.5	9.5	_	M8 x 1.0	46	—	_	5	7	74	—
16	15	18.3	20	5	8	8	5	28	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	$\overline{}$

Air Cylinder: Standard Type Double Acting, Single Rod CJ2 Series

Dimensions

Single foot (L)

With air cushion: CJ2L $^{10}_{16}$ – Stroke A Head cover port location Z



Head cover port location Axial location (R)

*: The overall cylinder length does not change.

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

Dimensions	other tha	n the ta	able be	low are	the sa	me as t	those o	n page	52.		[mm]
Bore size	В	С	GA	GB	LB	NA	NB	WA	WB	S	Z
10	15	17	7.5	6.5	16.5	21	20	14.4	13.4	65	93
16	18.3	20	7.5	6.5	23	21	20	14.4	13.4	66	94

CJ1

CJP

CJ2 JCM

CM2

CM3 CG1

CG3

JMB MB

MB1

CA2 CS1

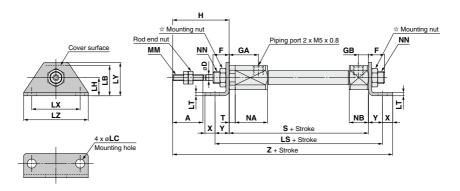
CS2

D-□ -X□ Technical Data

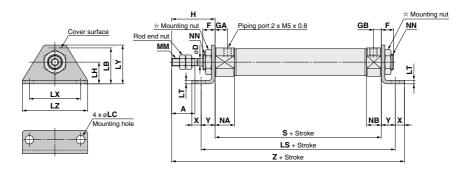
Dimensions

Double foot (M)

CJ2M6 - Stroke Z



CJ2M 10 - Stroke Z



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

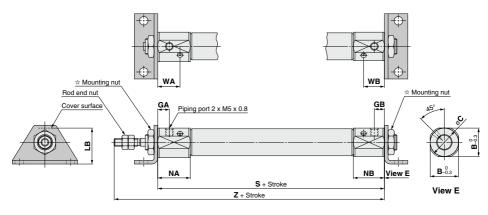
54

																							[mm]
Bore size	Α	D	F	GA	GB	Н	LB	LC	LH	LS	LT	LX	LY	LZ	MM	NA	NB	NN	S	Т	Х	Υ	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 $^{10}_{16}$ - Stroke AZ



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

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

with Air Cu	snion	Dimens	ions oth	er than t	the table	below a	are the s	ame as	those or	n page 5	4. [mm]
Bore size	В	С	GA	GB	LB	NA	NB	WA	WB	S	Z
10	15	17	7.5	6.5	16.5	21	20	14.4	13.4	65	93
16	18.3	20	7.5	6.5	23	21	20	14.4	13.4	66	94

CJ1

CJP CJ2

JCM

CM2

CG1

CG3 JMB

MB MB1

CA2

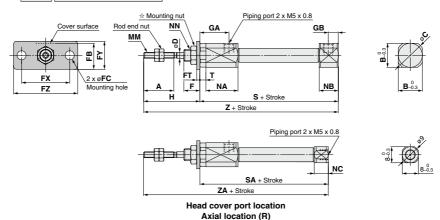
CS1

CS2

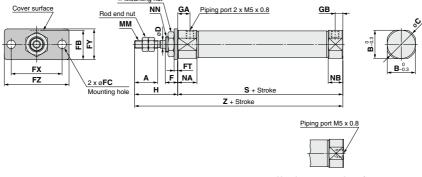
Dimensions

Rod flange (F)

CJ2F6 - Stroke Head cover port location Z



CJ2F 10 - Stroke Head cover port location Z



Head cover port location Axial location (R)

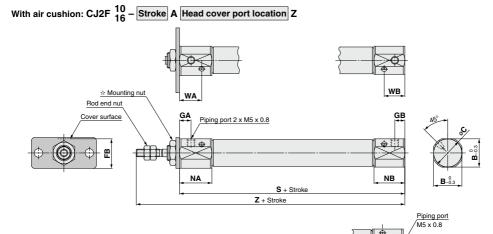
*: The overall cylinder length does not change.

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

														_								_		[111111]
Bore size	Α	В	C	D	F	FB	FC	FT	FX	FY	FZ	GA	GB	Н	MM	NA	NB	NC	NN	S	SA	Т	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)



Head cover port location Axial location (R)

*: The overall cylinder length does not change.

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

Dimensions of	her tha	n the ta	able be	low are	the sa	me as t	hose o	n page	56.		[mm]
Bore size	В	С	FB	GA	GB	NA	NB	WA	WB	S	Z
10	15	17	14.5	7.5	6.5	21	20	14.4	13.4	65	93
16	18.3	20	19	7.5	6.5	21	20	14.4	13.4	66	94

CJ1

CJP

CJ2 JCM

CM2

СМЗ CG1

CG3

JMB MB

MB1

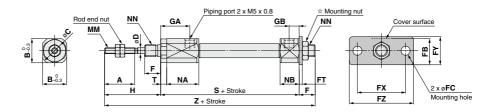
CA2 CS1

CS2

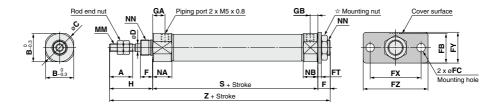
Dimensions

Head flange (G)

CJ2G6 - Stroke Z



CJ2G 10 - Stroke Z



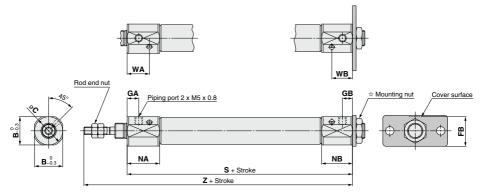
☆ For details of the mounting nut, refer to page 63.

	a i oi detalis c	n uie i	Houriti	ng mu	i, reiei	ιο ρα	ge 00.															[mm]
Ī	Bore size	Α	В	С	D	F	FB	FC	FT	FX	FY	FZ	GA	GB	Н	MM	NA	NB	NN	S	Т	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
Ī	10	15	12	14	4	8	13	4.5	1.6	24	14	32	8	5	28	M4 x 0.7	12.5	9.5	M8 x 1.0	46	_	82
	16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	8	5	28	M5 x 0.8	12.5	9.5	M10 x 1.0	47	_	83

Dimensions

Head flange (G)

With air cushion: CJ2G 10 - Stroke AZ



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

WILLI All Cu	SHIOH	Dimens	ions otn	er than	the table	below a	are the s	same as	those o	n page :	38. [111111]
Bore size	В	С	FB	GA	GB	NA	NB	WA	WB	S	Z
10	15	17	14.5	7.5	6.5	21	20	14.4	13.4	65	93
16	18.3	20	19	7.5	6.5	21	20	14.4	13.4	66	94

CJ1

CJP

CJ2 JCM

CM2

CM3

CG1 CG3

JMB

MB MB1

CA2

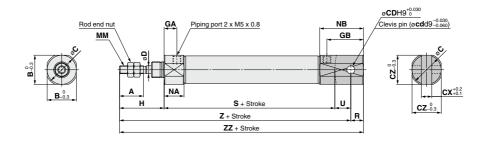
CS1

CS2

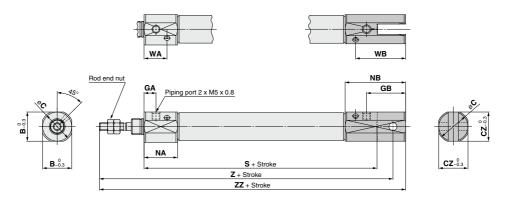
Dimensions

Double clevis (D)

CJ2D 10 - Stroke Z



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



*: A clevis pin and retaining rings are included.

																		[mm]
Bore size	Α	В	С	CD (cd)	СХ	CZ	D	GA	GB	Н	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

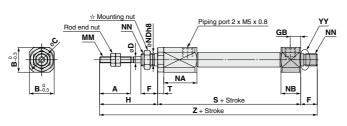
١	Nith Air C	ushio	n /Dime	ensions	other th	nan the	table b	elow ar	e the sa	ame as	the tabl	e above	e. [mm]
Ī	Bore size	В	С	CZ	GA	GB	NA	NB	WA	WB	S	Z	ZZ
_	10	15	17	15	7.5	19.5	21	33	14.4	26.4	65	101	106
	16	18.3	20	18.3	7.5	24.5	21	38	14.4	31.4	66	104	112

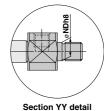
Air Cylinder: Standard Type Double Acting, Single Rod CJ2 Series

Dimensions

Double-side bossed (E)

CJ2E6 - Stroke Z





CJ1 CJP

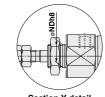
CJ2 JCM CM2

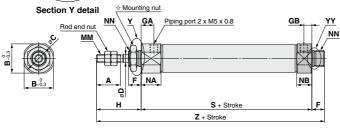
CM3

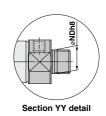
CG1 CG3

JMB MB MB1 CA2 CS1 CS2

CJ2E 10 - Stroke Z







3	r ror details of	i trie mo	unung r	iut, reie	r to pag	e 63.											[mm]
I	Bore size	Α	В	С	D	F	GA	GB	Н	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_0.018	M6 x 1.0	51.5	3	87.5
Ī	10	15	12	14	4	8	8	5	28	M4 x 0.7	12.5	9.5	8_0.022	M8 x 1.0	46		82
ľ	16	15	18.3	20	5	8	8	5	28	M5 x 0.8	12.5	9.5	10_0,022	M10 x 1.0	47	_	83

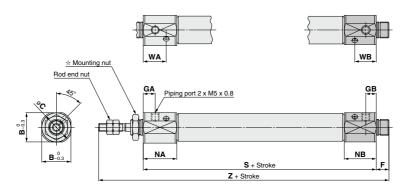
D-□ -X□

Technical Data

Dimensions

Double-side bossed (E)

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



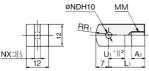
 $\dot{\boldsymbol{x}}$ For details of the mounting nut, refer to page 63.

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

With All Cushion/billiensions other than the table below are the same as those on page of. [
Ī	Bore size	В	С	GA	GB	NA	NB	WA	WB	S	Z
	10	15	17	7.5	6.5	21	20	14.4	13.4	65	101
	16	18.3	20	7.5	6.5	21	20	14.4	13.4	66	102

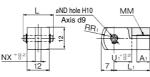
Dimensions of Accessories (Options)

Single Knuckle Joint Material: Rolled steel



						[mm]
16	8	25	M5 x 0.8	5 ^{+0.048}	6.4	12	14
	10	10 8	10 8 21	10 8 21 M4 x 0.7	10 8 21 M4 x 0.7 3.3 +0.048	10 8 21 M4 x 0.7 3.3 +0.048 3.1	Applicable A1 L1 MM NDH10 NX R1 10 8 21 M4x07 3.3 0 0 3.1 8 16 8 25 M5x08 5 0 6.4 12

Double Knuckle Joint Material: Rolled steel



								[
Part no.	Applicable bore size	Αı		L	ī	-1	ı	MM
Y-J010C	10	8	15	5.2	2	1	M	4 x 0.7
Y-J016C	16	11	1 16.6 21		1	M	5 x 0.8	
Part no.	NDd9	NDH	10	N	Х	F	1	U₁
Y-J010C	$3.3^{-0.030}_{-0.060}$	3.3+0.	048	3.	2	8	3	10
Y-J016C	5-0.030	5+0.0	148	6.	5	1	2	10

^{*:} A knuckle pin and retaining rings are included.

Knuckle Pin Material: Stainless steel

CJ1

CJP CJ2 JCM

CG1

CG3

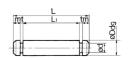
MB

MB1

CA2

CS₁

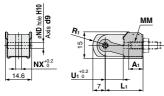
CS2



								[mm]	JCM	
Part no.	Applicable bore size	Dd9	d	L	Lı	m	t	Included retaining ring	CM2	
CD-J010	10	3.3-0.030	3	15.2	12.2	1.2	0.3	Type C 3.2	UIVIZ	
IY-J015									СМЗ	
For add to also details alternated										

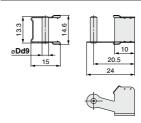
- *: For ø10, a clevis pin is diverted.
- *: Retaining rings are included with a knuckle pin.

Double Knuckle Joint (With One-touch Connecting Pin)



			ļ	7 L1	_				
								[mm	J
Applicable bore size	A 1	L ₁	ММ	NDd9	NDH10	NX	Rı	U₁	
10	8	21	M4 v 0 7	3 3-0.030	3.3+0.048	32	8	10	

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





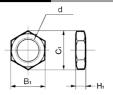
Part no.	Applicable bore size	D
IY-J10	10	3.3
IY-J16	16	5_

Mounting Nut

Y-J10

Material: Carbon steel

M5 x 0.8



Part no.	Applicable bore size	B ₁	C ₁	d	Hı
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	B2	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

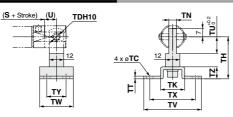
Technical Data

63 A

D-□ -X□



Pivot Bracket (T-bracket)

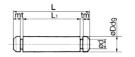


													mm]
Part no.	Applicable bore size	тс	TDH10	тн	тк	TN	тт	ΤU	τv	TW	тх	ΤY	TZ
CJ-T010C	10	4.5	3.3 ^{+0.048}	29	18	3.1	2	9	40	22	32	12	8
CJ-T016C	16	5.5	5 ^{+0.048}	35	20	6.4	2.3	14	48	28	38	16	10

- *: 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



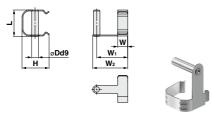
								[mm]
Part no.	Applicable bore size	Dd9	d	L	L₁	m	t	Included retaining ring
CD-J010	10	3.3-0.030	3	15.2	12.2	1.2	0.3	Type C 3.2
CD-Z015	16	5-0.030	4.8	22.7	18.3	1.5	0.7	Type C 5
CD-JA010*	10	3.3-0.030	3	18.2	15.2	1.2	0.3	Type C 3.2

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

Round type/CJ-CR $\square\square$

*: Retaining rings are included with a clevis pin.

One-touch Connecting Pin for Double Clevis Material: Stainless steel



							[mm]			
Part no.	Applica bore si			Dd9	н	L	w			
CD-J10	10		3.3 -0.030		13.4	13.2	4			
CD-J16	16		5	5-0.030 -0.060	18.2	19.5	5			
Part no.	W 1	W	1 2		N	lote				
CD-J10	12	1	5	Cannot	Cannot be mounted on cylinders with air					
CD-J16	15	1	8	cushion, or rail mounting type auto switches.						

^{*:} Please pay attention to the applicable cylinder.

Rod End Cap

Material: Polyacetal







									[mm
Part no.		Applicable	Α	D		мм	N	ь	w
Flat type	Round type	bore size	^	-	-	IVIIVI	14	n	**
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

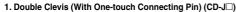
Part No. (Dimensions: Same as standard type)

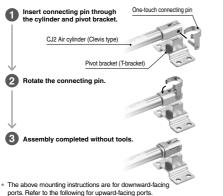
				,		
Bore size [mm]	Foot	Flange	Single knuckle joint	Double knuckle joint*	Mounting nut	Rod end nut
10		_	I-J010SUS	Y-J010SUS	_	NTJ-010SUS
16	CJ-L016SUS	CJ-F016SUS	I-J016SUS	Y-J016SUS	SNJ-016SUS	NTJ-015SUS

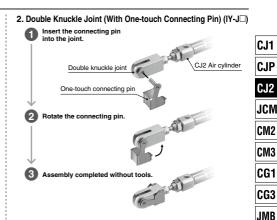
^{*:} A knuckle pin and retaining rings are shipped together.

Precautions

Assembly Procedures







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

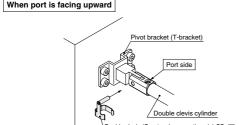
When connecting a double clevis cylinder to a pivot bracket (T-bracket), it is recommended that the pivot bracket (T-bracket) and the cylinder be connected with the one-touch connecting pin first, before fastening the pivot bracket.

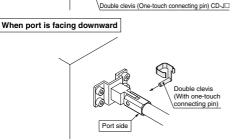
When connecting the cylinder after the pivot bracket (T-bracket) has been fastened, mount the cylinder according to the following procedure.

.↑.Warning

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

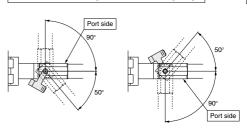
 Insert the double clevis (One-touch connecting pin) from the direction in the figure.



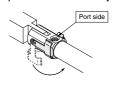


.∱Warning

* 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.



D-□

-X 🗆 Technical

MB

MB1

CA2

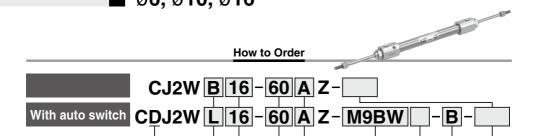
CS₁

CS2

Air Cylinder: Standard Type **Double Acting, Double Rod**

CJ2W Series ø6, ø10, ø16

RoHS



Mounting

В	Basic
L	Foot
F	Flange

With auto switch (Built-in magnet)

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

6 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.

A Rore size

•	9	DUI E SIZE
Г	6	6 mm
	10	10 mm
	16	16 mm

Number of auto switches

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

3 Cylinder standard stroke
Refer to "Standard Strokes" on pa

4 Cushion [mm] age 65

Nil	Rubber bumper	
Α	Air cushion	
		f

*: ø6: Rubber bumper only

Auto switch mounting type Rail mounting

- В Band mounting *: For rail mounting, screws and nuts for 2 auto switches come with the rail.
- *: Refer to page 148 for auto switch mounting brackets.
- *: ø6: Band mounting only

8 Made to Order Refer to page 65 for details.

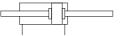
Applicable Auto Switches/Refer to pages 1575 to 1701 for further information on auto switches.

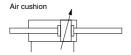
		Florence L	ight	145		Load vo	oltage		Auto swit	ch model		Lea	d wir	e le	ngth	[m]	Day and and	A !!	
Тур	Special function	Electrical entry	ndicator	Wiring (Output)		DC	AC	Band m	ounting	Rail mo	unting	0.5	1	3	5	None	Pre-wired connector		cable ad
		Citaly	Indi	(Output)		DC	AC	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	CONNECTOR	10	au
				3-wire (NPN)		5 V,12 V		M9NV	M9N	M9NV	M9N	•	•	•	0	_	0	IC circuit	
ڃ		Grommet		3-wire (PNP)		5 V,12 V		M9PV	M9P	M9PV	M9P	•	•	•	0	_	0	IIC GITCUIL	
switch				2-wire		12 V		M9BV	M9B	M9BV	M9B	•	•	•	0	-	0		
		Connector		2-wire		12 V		_	H7C	J79C	_	•	_	•	•	•	_	_	
anto	Dia			3-wire (NPN)		5 V,12 V		M9NWV	M9NW	M9NWV	M9NW	•	•	•	0	_	0	IC aireuit	١
	Diagnostic indication (2-color indicator)		Yes	3-wire (PNP)	24 V	5 V, 12 V	_	M9PWV	M9PW	M9PWV	M9PW	•	•	•	0	<u> </u>	0	IC circuit	Helay,
state	(2-color indicator)			2-wire		12 V		M9BWV	M9BW	M9BWV	M9BW	•	•	•	0	_	0	_] ' [0
	Matanasiatant	Grommet		3-wire (NPN)		5 V.12 V		M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	•	0	_	0	IC circuit	1
Solid	Water resistant (2-color indicator)			3-wire (PNP)		5 V, 12 V		M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	0	0	•	0		0	iic arcuit	
Š	(2-color indicator)			2-wire		12 V		M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	0	0	•	0	_	0	_]
	With diagnostic output (2-color indicator)	1		4-wire (NPN)		5 V,12 V		_	H7NF	_	F79F	•	_	•	0	_	0	IC circuit	1
switch			V	3-wire (NPN equivalent)	_	5 V	_	A96V	A96	A96V	A96	•	_	•	_	_	_	IC circuit	_
\ <u>\=</u>		<u></u>	Yes		1	_	200 V	_	_	A72	A72H	•	_	•	_	_	_		
	_	Grommet					100 V	A93V*2	A93	A93V*2	A93	•	•	•	•	_	_	-	
anto			No	2-wire		12 V	100 V or less	A90V	A90	A90V	A90	•	_	•	_	_	_	IC circuit	Relay,
			Yes	2-wire	24 V	12 V	_	_	C73C	A73C	_	•	_	•	•	•	_	_	PLĆ
Reed		Connector	No	1			24 V or less	_	C80C	A80C	_	•	_	•	•	•	_	IC circuit	1
_	Diagnostic indication (2-color indicator)	Grommet	Yes	1		_	_	_	_	A79W	_	•	_	•	_	_	_	_	1

- *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
 - ··· M (Example) M9NWM 1 m-
 - 3 m L (Example) M9NWL 5 m Z (Example) M9NIW
 - (Example) M9NWZ None----- N (Example) H7CN
- *: Since there are other applicable auto switches than listed above, refer to page 149 for details.
- *: Solid state auto switches marked with "O" are produced upon receipt of order. *: The D-A9□/M9□/A7□/A80□/F7□/J7□ auto switches are shipped together, but not assembled. (For band mounting, only the auto switch mounting brackets are assembled before shipment.)

Symbol

Double acting, Double rod, Rubber bumper







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

Symbol	Specifications	
-X446	PTFE grease	Τ

Made to Order

Click here for details

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

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

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

⚠ Precautions

Refer to page 152 before handling.

Moisture **Control Tube** IDK Series

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

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

Specifications

Bore size [mm]	6	10	16			
Action		Do	uble acting, Double	rod			
Fluid			Air				
Proof pressure			1 MPa				
Maximum operating	pressure		0.7 MPa				
Minimum operating	Rubber bumper	0.15 MPa	0.1 l	MРа			
pressure	Air cushion	_	0.1 l				
Ambient and fluid to	mnerature	Without auto s	switch: -10°C to 70°C switch: -10°C to 60°C (No freezing)				
Ambient and naid to	omperature	With auto switch: -10°C to 60°C (110 110521119)					
Cushion		Rubber bumper	Rubber bump	per/Air cushion			
Lubrication		N	ot required (Non-lub	e)			
Piston speed	Rubber bumper		50 to 750 mm/s				
rision speed	Air cushion	_	50 to 10	00 mm/s			
Allowable kinetic	Rubber bumper	0.012 J	0.035 J	0.090 J			
	Air cushion		0.07 J	0.18 J			
energy	(Effective cushion length)	_	(9.4 mm)	(9.4 mm)			
Stroke length tolera	ince		+1.0				

Standard Strokes

CG1		
	Standard stroke	Bore size
□ CG3	15, 30, 45, 60	6
7 [55.5	15, 30, 45, 60, 75, 100, 125, 150	10
IMD	15, 30, 45, 60, 75, 100, 125, 150, 175, 200	16
	of intermediate strokes in 1 mm increments is possible. (Spacers are not used.)	*: Manufacture of

- Produced upon receipt of order. *: Please consult with SMC for strokes which exceed the standard stroke length.
- *: Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on 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 of	on the product.	○···Please or	der separately
	Mounting	Basic	Foot	Flange
Standard	Mounting nut	•	•	•
蠹	Rod end nut	•	•	•
	Single knuckle joint	0	0	0
Ϊĕ	Double knuckle joint (including a pin and retaining rings)	0	0	0
Option	Double knuckle joint (With one-touch connecting pin)	0	0	0
~	Rod end cap (Flat/Round type)	0	0	0

*: Ø10 and Ø16 only

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

Mounting Brackets/Part No.

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

Weights

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

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

Example) CJ2WL10-45Z

·Basic weight ···· 29 (ø10) Additional weight4.5/15 stroke Cylinder stroke… 45 stroke •Mounting bracket weight---- 16 (Foot)

29 + 4.5/15 x 45 + 16 = 58.5 a



65 ©

D-□

-X□

Technical

CJ1 CJP CJ₂

JCM

CM₂ CM3

MB

MB1

CA2

CS₁

CS2



Clean Series

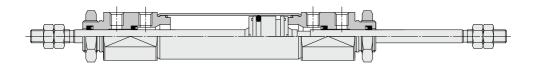
Air cylinder which is applicable for the system which discharges leakage from the rod section directly into the outside of clean room by relief port and making an actuator's rod section having a double seal construction.

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

Specifications

Action	Double acting, Double rod
Bore size [mm]	10, 16
Maximum operating pressure	0.7 MPa
Minimum operating pressure	0.1 MPa
Cushion	Rubber bumper
Standard stroke [mm]	Same as standard type. (Refer to page 65.)
Auto switch	Mountable (Band mounting)
Mounting	Basic, Foot, Flange

Construction (Not able to disassemble)



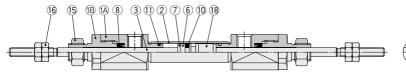


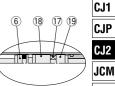
With auto switch

Construction (Not able to disassemble)

ø6

Rubber bumper





With auto switch

CM2

СМЗ

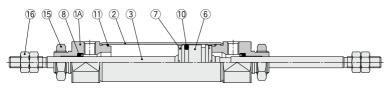
CG1

JMB MB MB1

CA2

CS1

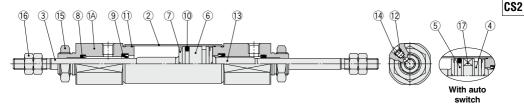
ø10, ø16 Rubber bumper





With auto switch

ø10, ø16 Air cushion



Component Parts

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

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

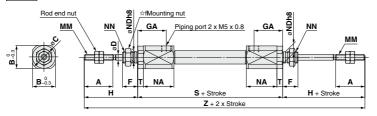
D-□ -X□

-X 🗆 Technical Data

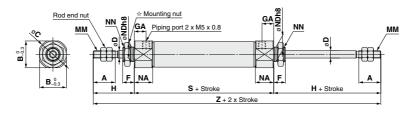


Basic (B)

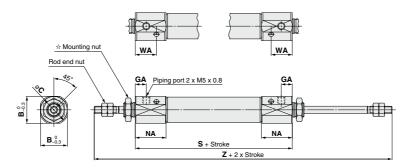
CJ2WB6 - Stroke Z



CJ2WB 10 - Stroke Z



With air cushion: CJ2WB 10 - Stroke AZ



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

[mm													[mm]	
Bore size	Α	В	С	D	F	GA	Н	MM	NA	NDh8	NN	S	Т	Z
6	15	12	14	3	8	14.5	28	M3 x 0.5	16	6-0.018	M6 x 1.0	61 (66)	3	117 (122)
10	15	12	14	4	8	8	28	M4 x 0.7	12.5	8-0.022	M8 x 1.0	49	_	105
16	15	18.3	20	5	8	8	28	M5 x 0.8	12.5	10-0.022	M10 x 1.0	50	_	106

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

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

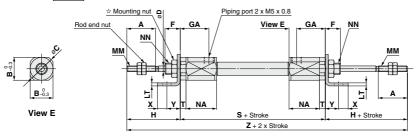
Bore size	В	С	GA	NA	WA	S	Z
10	15	17	7.5	21	14.4	66	122
16	18.3	20	7.5	21	14.4	67	123

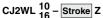
68

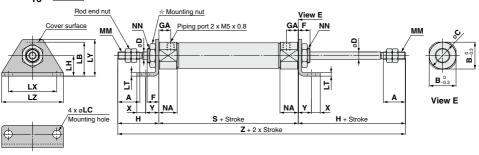
Air Cylinder: Standard Type Double Acting, Double Rod CJ2W Series

Foot (L)

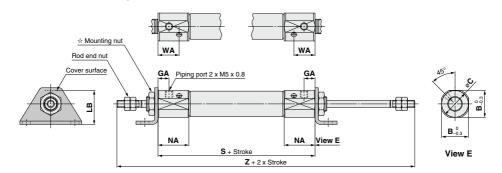
CJ2WL6 - Stroke Z







With air cushion: CJ2WL $^{10}_{16}$ - Stroke AZ



 $\dot{\boldsymbol{x}}$ For details of the mounting nut, refer to page 63.

																						[mm]
Bore size	Α	В	С	D	F	GA	Н	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NN	S	Т	Х	Υ	Z
6	15	12	14	3	8	14.5	28	15	4.5	9	1.6	24	16.5	32	M3 x 0.5	16	M6 x 1.0	61 (66)	3	5	7	117 (122)
10	15	12	14	4	8	8	28	15	4.5	9	1.6	24	16.5	32	M4 x 0.7	12.5	M8 x 1.0	49	_	5	7	105
16	15	18.3	20	5	8	8	28	23	5.5	14	2.3	33	25	42	M5 x 0.8	12.5	M10 x 1.0	50	_	6	9	106

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

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

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

-X - Technical Data

D-□

CJ1 CJP CJ2 JCM

CM2

СМЗ

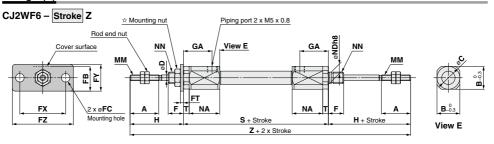
CG1

JMB MB MB1

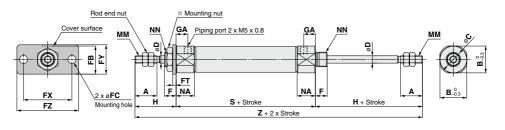
CA2

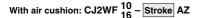
CS1

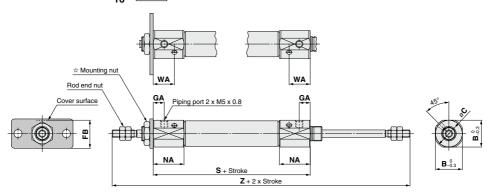
Flange (F)



CJ2WF 10 - Stroke Z







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

																			[]
Bore size	Α	В	C	D	F	FB	FC	FT	FX	FY	FZ	GA	Н	MM	NA	NN	S	T	Z
6	15	12	14	3	8	13	4.5	1.6	24	14	32	14.5	28	M3 x 0.5	16	M6 x 1.0	61 (66)	3	117 (122)
10	15	12	14	4	8	13	4.5	1.6	24	14	32	8	28	M4 x 0.7	12.5	M8 x 1.0	49	_	105
16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	8	28	M5 x 0.8	12.5	M10 x 1.0	50	_	106
With Air Cushion Dimensions other than the table below are the came as the table above *: () in S and Z dimensions: With auto switch											switch								

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

Bore size	В	С	GA	FB	NA	WA	S	Z
10	15	17	7.5	14.5	21	14.4	66	122
16	18.3	20	7.5	19	21	14.4	67	123

70



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

CJ2 Series ø6, ø10, ø16



CJ₁ **CJP** CJ₂

JCM

CM₂

CM3 CG₁

CG3

JMB

MB

MB1

CA2

How to Order

With auto switch

With auto switch (Built-in magnet) Mountina 1

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

- *: Foot/Flange brackets are shipped together with the product, but not assembled
- *: Double clevis is only available for ø10 and ø16
- **: Refer to page 151-1 for the double clevis (with one-touch connecting pin)

8 Auto switch

Nil	Without auto switch
*: For an	plicable auto switches,

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

2 Bore size

CDJ2B

6	6 mm
10	10 mm
16	16 mm

Head cover port location

Nil	Perpendicular to axis	
R	Axial	0

- *: For double clevis, the product is perpendicular to the cylinder axis.
- *: For double-side bossed, the product is perpendicular to the cylinder axis.
- *: Not applicable to single acting, spring

Number of auto switches

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

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

3 Cylinder standard stroke [mm]
Refer to "Standard Strokes" on
page 72.

6 Pivot bracket

ĺ	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.

Auto switch mounting type Rail mounting

В	Band mounting				
: For	rail mounting, screws and				
nut	s for 2 auto switches come				

- with the rail. *: Refer to page 148 for auto
- switch mounting brackets.
- *: Ø6: Band mounting only

Action

S	Single acting, Spring return
Т	Single acting, Spring extend

Rod end bracket

None
Single knuckle joint
Double knuckle joint
Rod end cap (Flat type)
Rod end cap (Round type)

- *: Rod end bracket is shipped together with the product, but not assembled *: Single/Double knuckle joint: ø10
- and ø16 only **: Refer to page 63 for the double knuckle joint (with one-touch connecting pin).

Made to Order Refer to page 72 for details.

CS₁ CS2

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

		Electrical	ig.	Wiring		Load v	oltage		Auto swit	ch model		Lea	d wir	e ler	ngth	[m]	Dra wired	e-wired Applic																					
Туре	Special function	entry	ndicator	(Output)		DC	AC B		Band mounting Rail mounting		0.5	1	3	5	None	Pre-wired connector																							
		Citily	ğ	(Output)		DC	AC	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	CONNECTOR	10	load																				
				3-wire (NPN)]	5 V,12 V		M9NV	M9N	M9NV	M9N	•	•	•	0	_	0	IC circuit																					
ᇨ		Grommet		3-wire (PNP)]	5 V,12 V		M9PV	M9P	M9PV	M9P	•	•	•	0	_	0	io dicuit]																				
switch				2-wire		12 V		M9BV	M9B	M9BV	M9B	•	•	•	0	<u> </u>	0	l _																					
		Connector		2 11110]]	_	H7C	J79C		•	_	•	•	•	_]																				
anto	Diagnostic indication			3-wire (NPN)		5 V.12 V		M9NWV	M9NW	M9NWV	M9NW	•	•	•	0	<u> </u>	0	IC circuit	Rolay																				
	(2-color indicator)			3-wire (PNP)	24 V	J V, 12 V	12 V 5 V,12 V 12 V	M9PWV	M9PW	M9PWV	M9PW	•	•	•	0	<u> </u>	0	IO GICUII	PLC																				
state	(2-color indicator)			2-wire		12 V		M9BWV	M9BW	M9BWV	M9BW	•	•	•	0	<u> </u>	0	_]																				
	Gromme	Grommet		3-wire (NPN) 3-wire (PNP)	4	5 V 12 V		M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	•	0	_	0	IC circuit																					
Solid	Water resistant (2-color indicator)					J V, 12 V			M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	0	0	•	0	_	- 0	IIO GIICUII																				
Ñ	(2-color iridicator)			2-wire]	12 V			M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	0	0	•	0	-	0	_]																			
	With diagnostic output (2-color indicator)			4-wire (NPN)		5 V,12 V																									H7NF	_	F79F	•	_	•	0	_	0
switch			V	3-wire (NPN equivalent)	_	5 V	_	A96V	A96	A96V	A96	•	_	•	_	_	_	IC circuit	_																				
×		Grommet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes		1	_	200 V	_	_	A72	A72H	•	_	•	_	_	_															
	Conne						100 V	A93V*2	A93	A93V*2	A93	•	•	•	•	_	_	1 —	l																				
anto			No		24 V	12 V	100 V or less	A90V	A90	A90V	A90	•	_	•	_	_	_	IC circuit	Relay,																				
ğ		Cannadas	nnector Yes No	2-wire			_	_	C73C	A73C	_	•	_	•	•	•	_	_	PLC																				
Reed		Connector		No	.		ĺ	ĺ	ĺ	ĺ	1			24 V or less	_	C80C	A80C	_	•	_	•	•	•	_	IC circuit	1													
_	Diagnostic indication (2-color indicator)					_	_	_	_	A79W	_	•	_	•	_	1-	_	_	1																				

- *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 "O" are produced upon receipt of order.

 *: The D-A9□M9□IA7□/A80□/F7□J7□ auto switches are shipped together, but not assembled. (For band mounting, only auto switch mounting brackets are assembled before being shipped.)

D-□

-X□

Technical



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





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

Symbol	
	PTFE grease
-X773*1	Short pitch mounting/Single acting, spring return
-X2838*2	Double clevis (With one-touch connecting pin)

- *1: ø6 only
- *2: ø10 and ø16 only

Made to Order

Click here for details

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

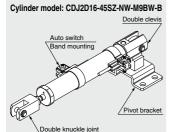
Refer to pages 142 to 149 for cylinders with auto switches

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

Precautions

Refer to page 152 before handling.

Ordering Example of Cylinder Assembly



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

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

Specifications

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

Standard Strokes

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

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

Spring Reaction Force

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

Mounting Brackets/Part No.

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

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

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

●···Mounted on the product. ○···Can be ordered within the cylinder model. △···Order separately.						
Mounting		Basic	Foot	Flange	Double ^{Note 1)} clevis	Double clevis (including T-bracket)
Stand- ard	Mounting nut	•	•	•	_	
	Rod end nut	•	•	•	•	•
	Clevis pin (including retaining rings)	_	_	_	•	•
	Double clevis (With one-touch connecting pin)	Δ	Δ	Δ	O (-X2838)	(-X2838)
l _	Single knuckle joint	0	0	0	0	
jō	Double knuckle joint (including a pin and retaining rings)	0	0	0	0	0
Option	Double knuckle joint (With one-touch connecting pin)	Δ	Δ	Δ	Δ	Δ
	Rod end cap (Flat/Round type)	0	0	0	0	0
	Pivot bracket (T-bracket)	-	_	-	0	•

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

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

Theoretical Output

Refer to the "Single acting, Spring return cylinder" in Theoretical Output 1 of Technical data 3 in page 1903. In the case of the spring extend type, the force at OUT side will be the ending force of the spring return, and that at the IN side will be the amount of the IN side force of the double acting type cylinder from which the beginning force of the spring return has been subtracted.

Moisture Control Tube **IDK Series**

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

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

Weights

Spr	ing Return											[g]
	Bore size [mm]		6				0			1	6	
	Mounting	Basic	Axial piping	Double-side bossed	Basic	Axial piping	Double clevis (including clevis pin)	Double-side bossed	Basic	Axial piping	Double clevis (including clevis pin)	Double-side bossed
	15 stroke	17	15	18	28	28	29	28	62	62	69	64
١	30 stroke	20	18	21	35	35	35	35	77	77	84	79
l g	45 stroke	23	21	23	44	44	45	45	95	95	102	97
Basic weight	60 stroke	26	24	27	54	54	55	54	113	113	119	115
i,	75 stroke								134	134	141	136
Bas	100 stroke								167	167	174	169
-	125 stroke	_							204	204	212	206
	150 stroke								227	227	234	229
Mounting bracket weight	Single foot	8	8	8			8			2	25	
ntin	Double foot	16	16	16		1	16			5	50	
- Set	Rod flange	5	5	5			5			1	3	
bra	Head flange	5	5	5			5			1	3	
	Clevis pin	_	_	_	_	_	1	_	_	_	3	_
	One-touch connecting pin for double clevis	_	_	_	_	_	2	_	_	_	4	_
l	Single knuckle joint	_	_	_			17			2	23	
Accessories	Double knuckle joint (including knuckle pin)	_	_	_		2	25			2	21	
Acces	Double knuckle joint (With one-touch connecting pin)	_	_	_		2	26			2	22	
`	Rod end cap (Flat type)	1	1	1			1				2	
	Rod end cap (Round type)	1	1	1			1				2	
	Pivot Bracket (T-bracket)	_	_	_			32			5	50	

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

*: Mounting nut is not attached to the double clevis, so the mounting nut weight is already subtracted. Calculation

Example) CJ2L10-45SZ

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

44 + 8 = **52 g**

Spring	Ex	ten	d

Spr	ng Extend										[g]
	Bore size [mm]		6		1	10			1	6	
	Mounting	Basic	Double-side bossed	Basic	Axial piping	Double clevis (including clevis pin)	Double-side bossed	Basic	Axial piping	Double clevis (including clevis pin)	Double-side bossed
	15 stroke	18	19	28	28	30	29	63	63	71	67
l	30 stroke	21	22	34	34	36	35	77	77	85	80
l #	45 stroke	24	24	42	42	44	43	93	93	100	96
weight	60 stroke	27	28	51	51	52	51	109	109	116	112
<u>.</u>	75 stroke							129	129	137	133
Basic	100 stroke]						159	159	166	162
"	125 stroke	1 /						193	193	201	196
	150 stroke							213	213	221	217
g.	Single foot	8	8			8			2	25	
Mounting bracket weight	Double foot	16	16		•	16			5	50	
Sket No	Rod flange	5	5			5			1	13	
pra P	Head flange	5	5			5			1	3	
	Clevis pin	_	_	_	_	1	_	_	_	3	_
	One-touch connecting pin for double clevis	_			_	2	_	_	_	4	_
	Single knuckle joint	_	_			17			2	23	
Accessories	Double knuckle joint (including knuckle pin)	_	_		2	25			2	21	
Acces	Double knuckle joint (With one-touch connecting pin)	_	_		2	26			2	22	
`	Rod end cap (Flat type)	1	1			1				2	
	Rod end cap (Round type)	1	1			1				2	
1	Pivot Bracket (T-bracket)	_				32			5	50	

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

*: Mounting nut is not attached to the double clevis, so the mounting nut weight is already subtracted. Calculation:

Example) CJ2L10-45TZ

 Basic weight -----42 (ø10-45 stroke)

•Mounting bracket weight····· 8 (Single foot)
42 + 8 = **50 g**

SMC

CJP CJ2

CJ1

JCM

CM2 CM3

CG1 CG3

JMB

MB MB1

CA2

CS₁

CS2

D-□ -X□

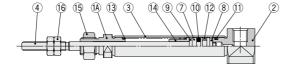
Technical Data

CJ2 Series

Construction (Not able to disassemble)

Single acting, Spring return

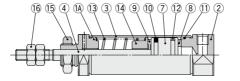






With auto switch

ø10, ø16

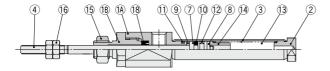




With auto switch

Single acting, Spring extend

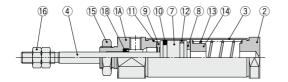






With auto switch

ø10, ø16





With auto switch

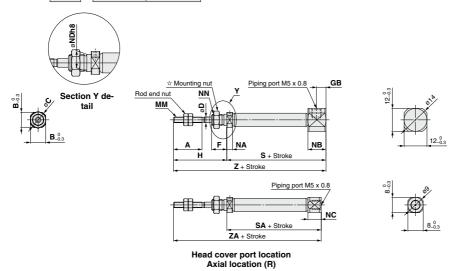
Component Parts

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

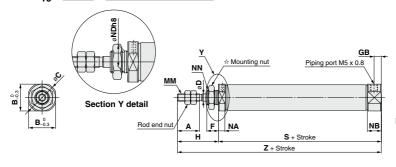
No.	Description	Material	Note
10	Piston seal	NBR	
11	Tube gasket	NBR	
12	Wear ring	Resin	
13	Return spring	Piano wire	
14	Spring seat	Aluminum alloy	
15	Mounting nut	Rolled steel	
16	Rod end nut	Rolled steel	
17	Magnet	_	
18	Rod seal	NBR	

Single Acting, Spring Return: Basic (B)

CJ2B6 - Stroke S Head cover port location Z



CJ2B 10 - Stroke S Head cover port location Z





CJ1 CJP CJ2

JCM

CM2 СМЗ

CG1

CG3

JMB

MB

MB1

CA2 CS1

CS2

Head cover port location Axial location (R)

*: The overall cylinder length does not change.

☆ For	details	of the	mounting	nut.	refer to	nage	63

	Juno .	01 1110		9 .			pago														[mm]
D																		3			
Bore	Α	В	C	D	F	GB	н	MM	NA	NB	NC	NDh8	NN	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to
SIZE														15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st
6	15	8	9	3	8	5	28	M3 x 0.5	_	9.5	-	6-0.018	M6 x 1.0	37	46	50	64				
0	15	0	9	٥	l °	5	20	IVIS X U.S	٥	9.5	′	0-0.018	IVIO X 1.U	(42)	(51)	(55)	(69)	_	_	_	_
10	15 12 14 4 8 5 28 M4 x 0.7 4.8 9.5 — 8.002												M8 x 1.0	45.5	53	65	77	_	_	_	_
16 15 18.3 20 5 8 5 28 M5 x 0.8 4.8 9.5 — 10 _{-0.022} M10 x														45.5	54	66	78	84	108	126	138

	Bore				S	Α								<u> </u>							Z	Α			
	size	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to
	SIZE	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st
	•	34.5	43.5	47.5	61.5					65	74	78	92					62.5	71.5	75.5	89.5				
	0	(39.5)	(48.5)	(52.5)	(66.5)	_		_	_	(70)	(79)	(83)	(97)	_	_	_	_	(67.5)	(76.5)	(80.5)	(94.5)	_	_		_
	10	_	_	_		_	_	_	_	73.5	81	93	105	_	_	_	_	_	_	_	_	_	_	_	_
_	16	_	_	_	_	_	_	_	_	73.5	82	94	106	112	136	154	166	_	_	_	_	_	_	_	_
																					_				

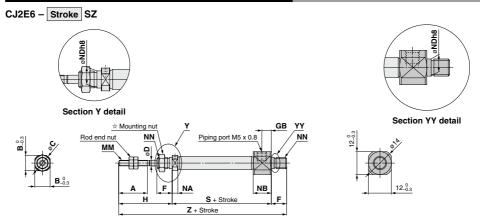
*: () in S, SA, Z and ZA dimensions: With auto switch

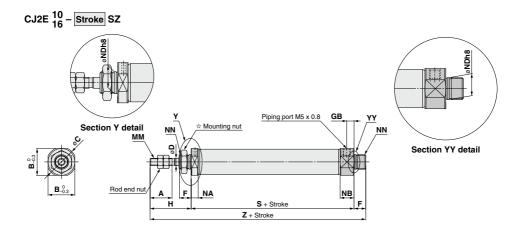
75

D-□ -X□ Technical Data

CJ2 Series

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





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

																												[mm]
D																- 5	3								<u> </u>			
Bore size	Α	В	С	D	F	GB	Н	MM	NA	NB	NDh8	NN	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to
Size													15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st
	45		_		_	-		MO 0.5	_	۸.	0.0	M6 x 1.0	37	46	50	64					73	82	86	100				
6	15	8	9	3	8	5	28	M3 x 0.5	3	9.5	6 -0.018	NID X 1.0	(42)	(51)	(55)	(69)	-	_	_	_	(78)	(87)	(91)	(105)	_	_	_	_
10	15	12	14	4	8	5	28	M4 x 0.7	4.8	9.5	8-0.022	M8 x 1.0	45.5	53	65	77	_	_	_	_	81.5	89	101	113	_	_	_	_
16	15	18.3	20	5	8	5	28	M5 x 0.8	4.8	9.5	10-0.022	M10 x 1.0	45.5	54	66	78	84	108	126	138	81.5	90	102	114	120	144	162	174

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

CJ1

CJP CJ2

JCM

CM2

СМЗ

CG1

CG3

JMB

MB MB1

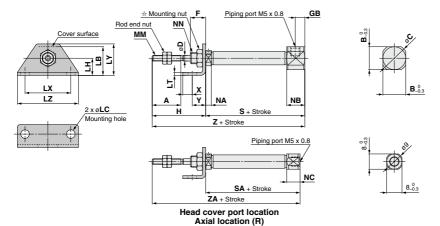
CA2

CS1 CS2

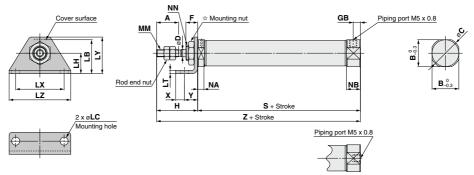
77

Single Acting, Spring Return: Single Foot (L)

CJ2L6 - Stroke S Head cover port location Z



CJ2L 10 - Stroke S Head cover port location Z



Head cover port location Axial location (R)

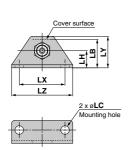
*: The overall cylinder length does not change.

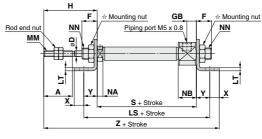
Dave	tore S																										[mm]	
																			L					<u> </u>				
size	Α	В	С	D	F	GB	Н	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	IN						61 to				
																			_		_			75 st	100 st	125 st	150 st	
6 1	15	12	14	3	8	5	28	13	4.5	9	1.6	24	16.5	32	M3 x 0.	5 3	9.5	M6 x			46	50	64	_	_	_	_	
		12		١	Ü		20	10	7.0		1.0		10.0	02	IVIO X O.	٦	0.0	INIO X		(42)	(51)	(55)	(69)					
10 1	15	12	14	4	8	5	28	15	4.5	9	1.6	24	16.5	32	M4 x 0.	7 4.8	9.5	M8 x	1.0	45.5	53	65	77	-		_	_	
16 1	15	18.3	20	5	8	5	28	23	5.5	14	2.3	33	25	42	M5 x 0.	8 4.8	9.5	M10 x	(1.0 4	45.5	54	66	78	84	108	126	138	
								_																				
Bore					SA										7	<u>'</u>							Z	ZA				
1 5	5 to	16 to	31 to	46 t	0 61	to 7	'6 to	101 to	126 to	Χ	Υ	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to	
size 1	15 st	30 st	45 s	t 60 s	st 75	5 st 1	00 st	125 st	150 st			15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st	D
. 3	34.5	43.5	47.5	61.	5							65	74	78	92					62.5	71.5	75.5	89.5					드
		(48.5)				-	- 1	_	-	5	7		(79)	(83)	(97)	-	- 1	_	_		(76.5)				-	_	_	-)
10 -	_	_	T -	T-		-	_	_	_	5	7	73.5	81	93	105	_	_	_	_	1-	-	-	1-		—	_	_	[-4
16 -	_	_	T —	1 -	-	-	_	_	_	6	9	73.5	82	94	106	112	136	154	166	_	_	_	_	_	_	_	_	Te

CJ2 Series

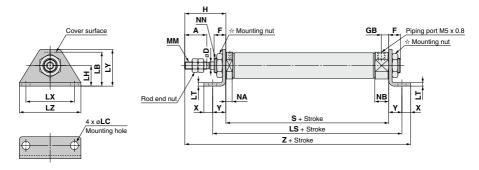
Single Acting, Spring Return: Double Foot (M)

CJ2M6 - Stroke SZ





CJ2M 10 - Stroke SZ



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

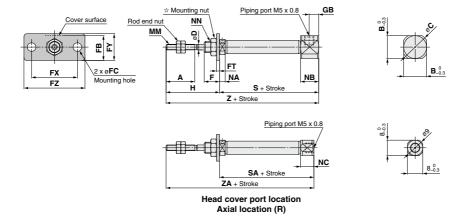
				•																		[mm]
D												L	S									
Bore size	A	D	F	GB	Н	LB	LC	LH	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to	LT	LX	LY	LZ	MM	NA
SIZE									15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st						
6	15	_	8	_	28	13	4.5	9	51	60	64	78					1.6	24	16.5	32	M3 x 0.5	3
	13	٥	0	5	20	13	4.5	9	(56)	(65)	(69)	(83)	_	_	_	_	1.0	24	10.5	32	W X U.S	3
10	15	4	8	5	28	15	4.5	9	59.5	67	79	91	_	_	—	_	1.6	24	16.5	32	M4 x 0.7	4.8
16	15	5	8	5	28	23	5.5	14	63.5	72	84	96	102	126	144	156	2.3	33	25	42	M5 x 0.8	4.8

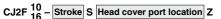
Bore																				
size	NB	NN	5 to							126 to 150 st		Y	5 to						101 to 125 st	
																			.=0 0.	
6	9.5	M6 x 1.0	37 (42)	46 (51)	50 (55)	64 (69)	_	_	_	_	5	7	77 (82)	86 (91)	90 (95)	104 (109)	_	_	_	_
	_		(/	(- /	(,	(,	_			_			(/	(- /	(/	1				
10	9.5	M8 x 1.0	45.5	53	65	77	l —	_	_	—	5	7	85.5	93	105	117	_	_	_	_
16	9.5	M10 x 1.0	45.5	54	66	78	84	108	126	138	6	9	88.5	97	109	121	127	151	169	181

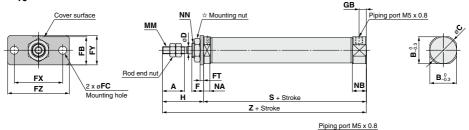
 $\ast :$ () in LS, S and Z dimensions: With auto switch

Single Acting, Spring Return: Rod Flange (F)

CJ2F6 - Stroke S Head cover port location Z









Head cover port location Axial location (R)

*: The overall cylinder length does not change.

☆ For det	tails o	f the	mour	nting	g nut,	refer	to paç	je 63.																		[mm]	
Bore																						;	S				
size	A	В	C	D	F	FB	FC	FT	FX	FΥ	FZ	GB	H	MM	NA	NB	NC	NN	5 to			46 to			101 to		
SIZC																			15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st	
6	15	12	14	3	8	11	4.5	1.0	24	14	32	5	28	M3 x 0.5	- 1	9.5	7	M6 x 1.0	37	46	50	64					
0	15	12	14	3	°	''	4.5	1.6	24	14	32) 3	20	IVIO X U.S	3	9.5	′	IVIO X 1.U	(42)	(51)	(55)	(69)	_	_	_	_	
10	15	12	14	4	8	13	4.5	1.6	24	14	32	5	28	M4 x 0.7	4.8	9.5	_	M8 x 1.0	45.5	53	65	77	_	_	_	_	
16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	5	28	M5 x 0.8	4.8	9.5	_	M10 x 1.0	45.5	54	66	78	84	108	126	138	
Bore					S									Z	<u>. </u>							Z					
size	5 to				46 to													126 to		16 to							
SIZC	15 st	30 s	t 45	st	60 st	75 st	100 st	125 s	t 150	st 1	5 st 3	30 st	45 st	60 st	75 st	100 st	125 s	t 150 st	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st	D-□
6	34.5	43.5	47	.5	61.5						35	74	78	92					62.5	71.5	75.5	89.5					
0	(39.5)	(48.5	(52	.5)	(66.5)	_	_	-	-	. (70) (79)	(83)	(97)	_	_	_	-	(67.5)	(76.5)	(80.5)	(94.5)	_	_	_	_	- X □
10	_	1 —	1 –	- 1	_	_	_	—	-	. 7	3.5	81	93	105	_	_	_	1 - 1	_	_	_	_	_	_	_	_	
16	_	-	Τ-	- 1	_	_	_	I —	1 -	. 7	3.5	82	94	106	112	136	154	166	_	_	_	_	_	_	_	_	Technical
																		*:	() in S	S, SA, 2	Z and	ZA dim	nension	ns: Wit	h auto	switch	Data

CJ1 CJP CJ2

JCM

CM2

СМЗ CG1

CG3

JMB

MB MB1

CA2

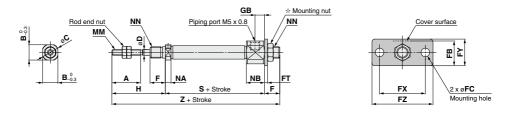
CS1

CS2

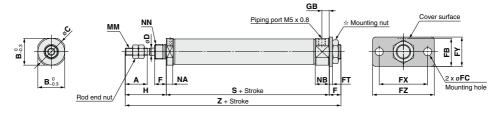
CJ2 Series

Single Acting, Spring Return: Head Flange (G)

CJ2G6 - Stroke SZ



CJ2G 10 - Stroke SZ



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

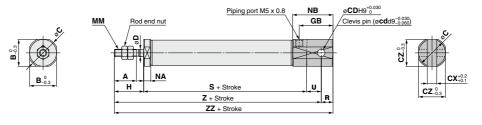
80

																			[mm]
Bore size	А	В	С	D	F	FB	FC	FT	FX	FY	FZ	GB	н	MN	1	NA	NB		NN
6	15	8	9	3	8	11	4.5	1.6	24	14	32	5	28	МЗх	0.5	3	9.5	Ме	3 x 1.0
10	15	12	14	4	8	13	4.5	1.6	24	14	32	5	28	M4 x	0.7	4.8	9.5	M8	3 x 1.0
16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	5	28	M5 x	0.8	4.8	9.5	M1	0 x 1.0
_					S									7	<u> </u>				
Bore	5 to	16 to	31	to 4	6 to	61 to	76 to	101 to	126 to	5 t	ю.	16 to	31 to	46 to	61 to	76	to 1	101 to	126 to
size	5 to 15 st	16 to			6 to 0 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to			16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st			101 to 125 st	126 to 150 st
size				st 6							st								
	15 st	30 s	t 45	st 6	0 st					t 15	st 3	30 st	45 st	60 st					
size	15 st 37	30 s	t 45	st 6	0 st 64					t 15	st 3 3)	30 st 82	45 st 86	60 st			st 1		
size 6	15 st 37 (42)	30 s 46 (51)	t 45 50 (55	st 6	0 st 64 69)	75 st	100 st	125 st	150 s	t 15 73 (78	st 3 3) .5	30 st 82 (87)	45 st 86 (91)	60 st 100 (105)	75 st	100	st 1	125 st	150 st

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

Single Acting, Spring Return: Double Clevis (D)

CJ2D 10 - Stroke SZ



[mm] В С CD CX CZ D GB н MM NA NB R U 16 to 31 to 46 to 61 to 76 to 101 to 126 to Bore size 5 to 150 st (cd) 15 st 30 st 45 st 60 st 75 st 100 st 125 st 10 15 12 14 3.3 3.2 12 4 18 20 M4 x 0.7 4.8 22.5 5 8 45.5 53 65 77 108 126 138 16 15 18.3 20 5 6.5 18.3 5 23 20 M5 x 0.8 4.8 27.5 8 10 45.5 54 66 78 84

				7	<u> </u>							Z	Z			
Bore size	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to
	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st
10	73.5	81	93	105	_	_	_	_	78.5	86	98	110	_	_	_	
16	75.5	84	96	108	114	138	156	168	83.5	92	104	116	122	146	164	176

^{*:} A clevis pin and retaining rings are included.

CJ1

CJP

CJ2 JCM

CM2

CM3

CG1

CG3

JMB MB

MB1

CA2

CS1

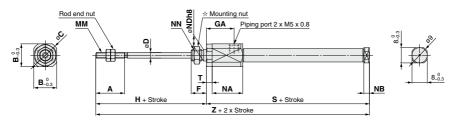
CS2

D-□

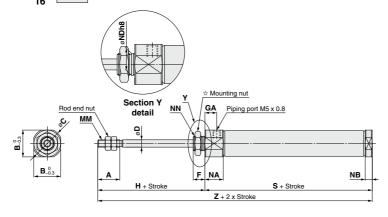
CJ2 Series

Single Acting, Spring Extend: Basic (B)

CJ2B6 - Stroke TZ



CJ2B $^{10}_{16}$ - Stroke TZ



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

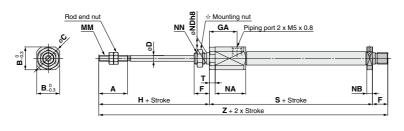
[mm] В С D F GA MM NA NB NDh8 NN Bore size т 6 15 3 8 14.5 16 3 6-0.018 12 14 28 M3 x 0.5 M6 x 1.0 3 10 15 12 14 4 8 8 28 M4 x 0.7 12.5 4.8 8_0,0 M8 x 1.0 5 12.5 4.8 16 15 18.3 20 8 8 28 M5 x 0.8 10_0.022 M10 x 1.0

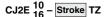
					3							7	<u> </u>			
Bore size	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to
	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st
	46.5	55.5	59.5	73.5					74.5	83.5	87.5	101.5				
	(51.5)	(60.5)	(64.5)	(78.5)	_	_	_	_	(79.5)	(88.5)	(92.5)	(106.5)	_	_	_	_
10	48.5	56	68	80	_	_	_	_	76.5	84	96	108	_	_	_	_
16	48.5	57	69	81	87	111	129	141	76.5	85	97	109	115	139	157	169

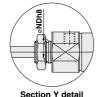
 $[\]ast$: () in S and Z dimensions: With auto switch

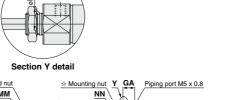
Single Acting, Spring Extend: Double-side Bossed (E)

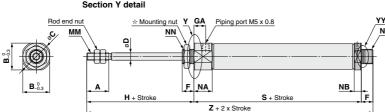
CJ2E6 - Stroke TZ











☆ For details	of the m	ounting n	nut, refer	to page 6	63.											[mm]
Bore size	A	В	С	ı	D	F	GA	н	М	М	NA	NB	N	Dh8	N	IN
6	15	12	14		3	8	14.5	28	M3 >	₹ 0.5	16	3		6-0.018	M6	x 1.0
10	15	12 14 4 8 8 28 M4 x 0.7 12.5 4.8 8 and a second													M8	x 1.0
16	15	18.3	20		5	8	8	28	M5 >	¢ 0.8	12.5	4.8	1	0_0.022	M10	x 1.0
					3							7	2			
Bore size	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
6	46.5 (51.5)	55.5 (60.5)	59.5 (64.5)	73.5 (78.5)	_	_	_	_	82.5 (87.5)	91.5 (96.5)	95.5 (100.5)	109.5 (114.5)	_	_	_	_
10	48.5 56 68 80 84.5 92 104 116									_						
16	48.5	57	69	81	87	111	129	141	84.5	93	105	117	123	147	165	177

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

D-□

CJ1

CJP CJ2

JCM

CM2 CM3 CG1

CG3 JMB MB MB1 CA2

CS1

CS2

Section YY

detail

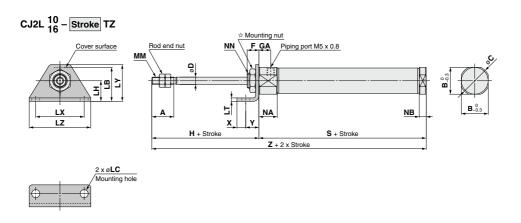
-X□



CJ2 Series

Single Acting, Spring Extend: Single Foot (L)

CJ2L6 - Stroke TZ Rod end nut NN F GA Piping port M5 x 0.8 NB B -0.3 Rod cover side H + Stroke Z + 2 x Stroke Rod cover side Head cover side

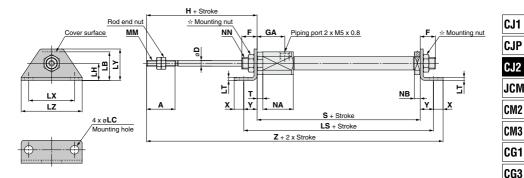


☆ For details	of the	mountir	ng nut,	refe	r to pag	e 63.																[mm]
Bore size	A	В	С	D	F	GA	н	LB	LC	LH	ı	LT	LX	Ľ	/ LZ	N	ім	NA	NB	3	NN	Т
6	15	12	14	3	8	14.5	28	15	4.5	9	١.	1.6	24	16	.5 32	МЗ	x 0.5	16	3	М	6 x 1.0	3
10	15	12 14 4 8 8 28 15 4.5 9 1.6 24 16.5 32										M4	x 0.7	12.5	4.8	M	8 x 1.0	 -				
16	15	18.3	20	5	8	8	28	23	5.5	14	2	2.3	33	25	42	M5	x 0.8	12.5	4.8	M	10 x 1.0	T-
		·										T						_				_
					S					_			_					4				
Bore size	5 to	16 to	31	to	46 to	61 to	76 to	101 to	126	to	Х	Υ		i to	16 to	31 to	46 to	61 t	0 7	76 to	101 to	126 to
	15 st	30 st	45	st	60 st	75 st	100 st	125 st	150	st			1	5 st	30 st	45 st	60 st	75 s	st 1	00 st	125 st	150 st
	46.5	55.5	59	.5	73.5								7	4.5	83.5	87.5	101.5					
6	(51.5)	(60.5			(78.5)	_	_	-	-		5	7		9.5)	(88.5)		(106.5)			-	_	_
10	48.5	56	68	3	80	_	_	_	-	-	5	7	7	6.5	84	96	108	_		_	_	_
16	48.5	57	69	9	81	87	111	129	14	1	6	9	7	6.5	85	97	109	115	5	139	157	169

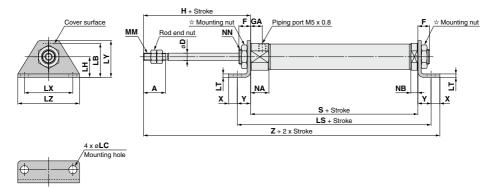
*: () in S and Z dimensions: With auto switch

Single Acting, Spring Extend: Double Foot (M)

CJ2M6 - Stroke TZ



CJ2M 10 - Stroke TZ



A I OI GE	talis 0	i tile i	nounting	y mu	i, reiei	io pagi	5 00.															[mm]
Bore	A	D	F	G/	ч	LB	LC	LH	5 to	16 to	31 to	_	LS 61 t	o 76	to 10	l to 12	6 to L	.T L	X LY	LZ		ım
size	*	-	•		`				15 st						st 12		-		` -			
6	15	3	8	14.	5 28	15	4.5	9	60.5 (65.5)			87.5 (101.5		-		- -	- 1	.6 2	4 16.	5 32	МЗ	x 0.5
10	15	4	8	8	28	15	4.5	9	62.5	70	82	94	_	-		- -	- 1	.6 2	4 16.	5 32	M4	x 0.7
16	15	5	8	8	28	23	5.5	14	66.5	75	87	99	105	5 12	29 14	7 1	59 2	.3 3	3 25	42	M5	x 0.8
												- 1			1				7			
Bore									_										_			
size	NA	NB	NN		5 to								Х	Υ	5 to				61 to		101 to	
0.20					15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st			15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st
								73.5					,	7	86.5	95.5	99.5	113.5				
6	16	3	M6 x 1	1.0	(51.5)	(60.5)	(64.5)	(78.5)	_	_	_	- 1	5	/	(91.5)	(100.5)	(104.5	(118.5)	-	_	_	_
10	12.5	4.8	M8 x 1	1.0	48.5	56	68	80	_	-	_	_	5	7	88.5	96	108	120	_	_	_	_
16	12.5	4.8	M10 x	1.0	48.5	57	69	81	87	111	129	141	6	9	91.5	100	112	124	130	154	172	184

85

JMB

MB

MB1

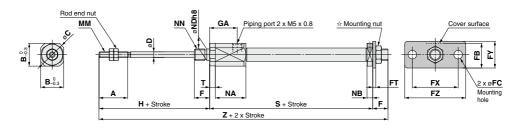
CA2

CS1 CS2

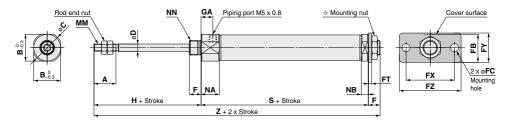
CJ2 Series

Single Acting, Spring Extend: Head Flange (G)

CJ2G6 - Stroke TZ



CJ2G 10 - Stroke TZ



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

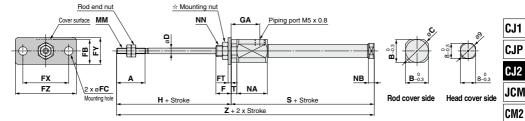
A I OI det	ans or tr	e moun	iiig iiui,	Telel to	page 0	.											[mm]
Bore size	A	В	С	D	F	FB	FC	FT	FX	FY	FZ	GA	н	ММ	NA	NB	NN
6	15	12	14	3	8	13	4.5	1.6	24	14	32	14.5	28	M3 x 0.5	16	3	M6 x 1.0
10	15	12	14	4	8	13	4.5	1.6	24	14	32	8	28	M4 x 0.7	12.5	4.8	M8 x 1.0
16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	8	28	M5 x 0.8	12.5	4.8	M10 x 1.0
										_							

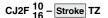
D					3								<u> </u>			
Bore size	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to
size	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st
	46.5	55.5	59.5	73.5					82.5	91.5	95.5	109.5				
0	(51.5)	(60.5)	(64.5)	(78.5)	_	_	_	_	(87.5)	(96.5)	(100.5)	(114.5)	_	_	_	_
10	48.5	56	68	80	_	_	_	_	84.5	92	104	116	_	_	_	_
16	48.5	57	69	81	87	111	129	141	84.5	93	105	117	123	147	165	177

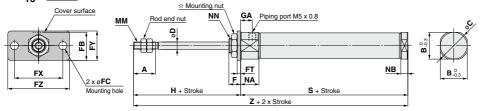
*: () in S and Z dimensions: With auto switch

Single Acting, Spring Extend: Rod Flange (F)







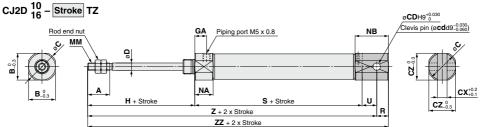


☆ For details of the mounting nut, refer to page 63.

☆ For de	tails	ot	the	mo	unt	ing	nut,	rete	er to	pa pa	ge	63.																					[[mm]
Bore	A	В	С	D	F	FB	FC	FT	FX	FY	FΖ	GA	н	мм	NA	NB	NN	т	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to
size		_	_								_								15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st
6	15	12	14	3	a	13	4.5	16	24	14	32	14.5	28	M3 x 0.5	16	3	M6 x 1.0	13				73.5	_							101.5				
	10	"	17	٠	٠	10	7.0	1.0		14	02	17.0	20	1410 X 0.0	10		WIO X 1.0	Ľ	(51.5)	(60.5)	(64.5)	(78.5)					(79.5)	(88.5)	(92.5)	(106.5)				<u></u>
10	15	12	14	4	8	13	4.5	1.6	24	14	32	8	28	M4 x 0.7	12.5	4.8	M8 x 1.0	<u> </u>	48.5	56	68	80	_	-	_	_	76.5	84	96	108	-	-	-	-
16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	8	28	M5 x 0.8	12.5	4.8	M10 x 1.0	_	48.5	57	69	81	87	111	129	141	76.5	85	97	109	115	139	157	169
	_	_	_			_	_	_	_	_	_				_	_		_			_			_			_							

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

Single Acting, Spring Extend: Double Clevis (D)



*: A cievis pin	and re	aining	rings	are in	ciuaea																	[mm]
																			S			
Bore size	Α	В	С	CD	СХ	CZ I	o ∣G	A H	l N	IM	NA	NB	R	U	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to
				(cd)										1	5 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st
10	15	12	14	3.3	3.2	2 4	4 8	28	M4	x 0.7	12.5	17.8	5	8 4	18.5	56	68	80	_	_	_	
16	15	18.3	20	5	6.5	8.3	5 8	28	M5	x 0.8	12.5	22.8	8	10 4	18.5	57	69	81	87	111	129	141
																	_					
					z							Z	ZZ									
Bore size	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to	5 to	16 to	31 to	46 to	61 to	76 to	101	to 126	6 to					
	15 st	30 st	45 st	60 s	t 75 s	100 s	125 s	t 150 st	15 st	30 st	45 st	60 st	75 st	100 s	t 125	st 150) st					
10	84.5	92	104	116	_	T —	_	_	89.5	97	109	121	_	-	-	-						
16	86.5	95	107	119	125	149	167	179	94.5	103	115	127	133	157	17	5 18	37					

D-□ -X□ Technical Data

CM3

CG1

CG3 JMB

MB

MB1

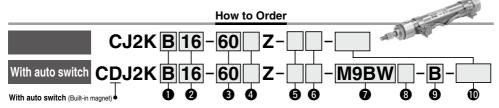
CA2

CS₁ CS2

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

CJ2K Series ø10, ø16





Mounting

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

- *: Foot/Flange brackets are shipped together with the product, but not assembled
- **: Refer to page 151-1 for the double clevis (with one-touch connecting pin).

Auto switch

Nil	Without auto switch						
*: For an	plicable auto switches, refer						

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

2 Bore size

10	10 mm
16	16 mm

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.

Alumbar of auto switche

Williper of auto switches								
Nil	2 pcs.							
S	1 pc.							
n	"n" pcs.							

		9				
S	1 pc.					
n	"n" pcs.					

3 Cylinder standard stroke [mm] Refer to "Standard Strokes" on page 89.

6 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.

Auto switch mounting type Rail mounting

В	Band mounting					
*: Fo	r rail mounting, screws and					

nuts for 2 auto switches come with the rail. *: Refer to page 148 for auto switch mounting brackets.

6 Rod end bracket

Nil	None						
V	Single knuckle joint						
W**	Double knuckle joint						
Т	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).

Made to Order

Refer to page 89 for details.

*: Refer to "Ordering Example of Cylinder Assembly" on page 89. Applicable Auto Switches/Refer to pages 1575 to 1701 for further information on auto switches.

		Clastriani	light	Minima	Load voltage Auto switch model					Lea	d wir	re lei	ngth	[m]	Dea misad	Applicable															
Тур	Special function	Electrical entry	ndicator	Wiring (Output)		DC AC		DC AC		DC AC		Band m	ounting	Rail mo	ounting	0.5	1	3	5	None	Pre-wired connector		ad								
		Citily	ğ	(Output)		DC	٨٥	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	COTIFICATION	10.	au												
				3-wire (NPN)		5 V.12 V		M9NV	M9N	M9NV	M9N	•	•	•	0	<u> </u>	0	IC circuit													
۽ ا		Grommet		3-wire (PNP)		J V, 12 V		M9PV	M9P	M9PV	M9P	•	•	•	0	_	0	IO GIIGUII													
switch			ļ	2-wire		12 V		M9BV	M9B	M9BV	M9B	•	•	•	0	_	0	_													
		Connector	[Z-WIIE		12 V		_	H7C	J79C	_	•	<u> </u>	•	•	•	_														
율	Diagnostic indication			3-wire (NPN)		5 V,12 V		M9NWV	M9NW	M9NWV	M9NW	•	•	•	0	<u> </u>	0	IC circuit	Rolay												
_ c	Diagnostic indication (2-color indicator)			Yes	3-wire (PNP)	24 V	0 4,12 4	_	M9PWV	V M9PW M9PWV M9PW ● ● ● C	0	_	0	IC circuit Relay	PLC																
state				2-wire	PN) 5 V,1	12 V	12 V		M9BWV	M9BW	M9BWV	M9BW	•	•	•	0	<u> </u>	0	_] ' [0											
	Water resistant	Grommet		3-wire (NPN)							5 V 12 V	5 V 12 V	5 V.12 V	5 V 12 V	5 V 12 V	5 V 12 V	5 V 12 V	5 V 12 V	'1 1	M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	•	0	_	0	IC circuit	
Solid	(2-color indicator)			3-wire (PNP)							<u>*</u>	_		M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	0	0	•	0	<u> </u>	0	IO GIIGUII							
S	(2 color irialculor)			2-wire		12 V		M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	0	0	•	0	<u> </u>	0	_													
	With diagnostic output (2-color indicator)			4-wire (NPN)		5 V,12 V		_	H7NF	_	F79F	•	<u> </u>	•	0	_	0	IC circuit													
switch			.,	3-wire (NPN equivalent)	_	5 V	_	A96V	A96	A96V	A96	•	-	•	-	-	_	IC circuit	-												
=		Grommet	Yes		1	_	200 V	_	_	A72	A72H	•	_	•	_	_	_														
							100 V	A93V*2	A93	A93V*2	A93	•	•	•	•	-	_	1 —													
anto			No	0		40.1/	100 V or less	A90V	A90	A90V	A90	•	_	•	_	_	_	IC circuit	Relay,												
			Cannadar	Yes	2-wire	24 V	12 V	_	_	C73C	A73C	_	•	_	•	•	•	_	_	PLC											
Reed		Connector	No				24 V or less	_	C80C	A80C	_	•	<u> </u>	•	•	•	_	IC circuit	1												
_	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 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 "O" 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.)

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

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

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

Symbol

Double acting, Single rod, Rubber bumper





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

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

Made to Order

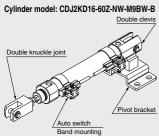
Click here for details

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

Precautions

Refer to page 152 before handling.

Ordering Example of Cylinder Assembly



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 actin	g, Single rod			
Fluid	А	ir			
Proof pressure	1 N	1Pa			
Maximum operating pressure	0.7	MРа			
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	+	.0			
Rod non-rotating accuracy	±1.5° ±1°				
Piston speed	50 to 750 mm/s				
Allowable kinetic energy	0.035 J 0.090 J				

Standard Strokes

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

- *: Manufacture of intermediate strokes in 1 mm increments is possible. (Spacers are not used.)
- *: Please consult with SMC for strokes which exceed the standard stroke length.
- *: Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on 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 ord	lered withir	the cylinde	er model.	△···Order	separately.
	Mounting	Basic	Foot	Flange	Double clevis	Double clevis (ncluding T-bracket)
purg	Mounting nut	•	•	•	_	_
Standard	Rod end nut	•	•	•	•	•
Sta	Clevis pin (including retaining rings)	_	_	_	•	•
	Double clevis (With one-touch connecting pin)	Δ	Δ	Δ	O (-X2838)	O (-X2838)
	Single knuckle joint	0	0	0	0	0
Option	Double knuckle joint (including a pin and retaining rings)	0	0	0	0	0
l o	Double knuckle joint (With one-touch connecting pin)	Δ	Δ	Δ	Δ	Δ
	Rod end cap (Flat/Round type)	0	0	0	0	0
	Pivot bracket (T-bracket)	_	_	_	0	•

Mounting Brackets/Part No.

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

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

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

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



CJ1

CJP

CJ2 JCM CM₂

CM3 CG₁

CG3

JMB MB

MB1

CA₂ CS₁

CS2

89 ©

CJ2K Series

Weights

			[g]
	Bore size [mm]	10	16
D ! ! - ! - ! - !	Basic	25	47
Basic weight (When the stroke	Axial piping	25	47
is zero)	Double clevis (including clevis pin)	27	55
15 2010)	Head-side bossed	29	50
Additional weight	per 15 mm of stroke	4	7
	Single foot	8	25
Mounting bracket	Double foot	16	50
weight	Rod flange	5	13
	Head flange	5	13
	Clevis pin	1	3
	One-touch connecting pin for double clevis	2	4
	Single knuckle joint	17	23
Accessories	Double knuckle joint (including knuckle pin)	25	21
	Double knuckle joint (With one-touch connecting pin)	26	22
	Rod end cap (Flat type)	1	2
	Rod end cap (Round type)	1	2
	Pivot bracket (T-bracket)	32	50

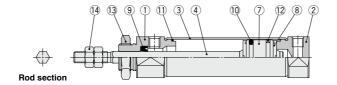
- *: Mounting nut and rod end nut are included in the basic weight.
- *: Mounting nut is not included in the basic weight for the double clevis. Calculation:

Example) CJ2KL10-45Z

- Basic weight -----25 (Ø10)
- Additional weight ------4/15 stroke
- Cylinder stroke -----45 stroke
- Mounting bracket weight --- 8 (Single foot)

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

Construction (Not able to disassemble)





With auto switch

Component Parts

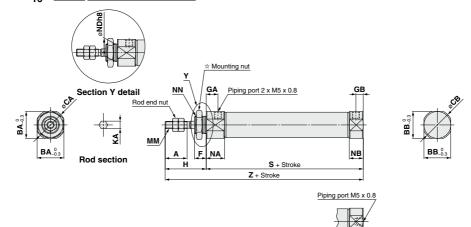
No.	Description	Material	Note
1	Rod cover	Aluminum alloy	
2	Head cover	Aluminum alloy	
3	Cylinder tube	Stainless steel	
4	Piston rod	Stainless steel	
5	Piston A	Aluminum alloy	
6	Piston B	Aluminum alloy	
7	Piston	Aluminum alloy	
8	Bumper	Urethane	

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

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

Basic (B)

CJ2KB 10 - Stroke Head cover port location Z



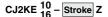
Head cover port location Axial location (R)

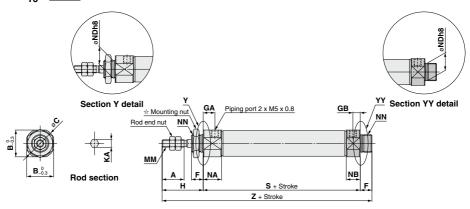
*: The overall cylinder length does not change.

 $\dot{\approx}$ Refer to page 63 for details of the mounting nut. (SNJ-016C for ø10, SNKJ-016C for ø16)

																	[IIIIII]
Bore size	Α	BA	BB	CA	СВ	F	GA	GB	Н	KA	MM	NA	NB	NDh8	NN	S	Z
10	15	15	12	17	14	8	8	5	28	4.2	M4 x 0.7	12.5	9.5	10_0.022	M10 x 1.0	46	74
16	15	18.3	18.3	20	20	8	8	5	28	5.2	M5 x 0.8	12.5	9.5	12_0.027	M12 x 1.0	47	75
									•								

Double-side Bossed (E)





☆ Refer to page 63 for details of the mounting nut. (SNJ-016C for Ø10, SNKJ-016C for Ø16)

															[mm]
Bore size	Α	В	С	F	GA	GB	Н	KA	MM	NA	NB	NDh8	NN	S	Z
10	15	15	17	8	8	5	28	4.2	M4 x 0.7	12.5	9.5	10_0.022	M10 x 1.0	46	82
16	15	18.3	20	8	8	5	28	5.2	M5 x 0.8	12.5	9.5	12_0 027	M12 x 1.0	47	83

D-□

CJ1 CJP

CJ2

JCM

CM2

CG1

CG3

JMB MB MB1

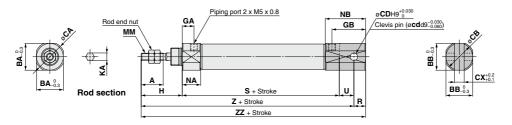
CA2

CS1

CJ2K Series

Double Clevis (D)

CJ2KD 10 - Stroke Z

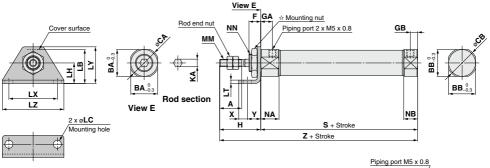


*: A clevis pin and retaining rings are included.

[mm] Bore size ВА BB СВ CD(cd) СХ GA GB Н KA MM NA NB R s U Z ZZ 15 15 17 14 3.3 18 28 M4 x 0.7 12.5 22.5 5 46 8 87 18.3 18.3 5.2 M5 x 0.8 27.5 8 10 93

Single Foot (L)

CJ2KL 10 - Stroke Head cover port location Z



Head cover port location Axial location (R)

*: The overall cylinder length does not change.

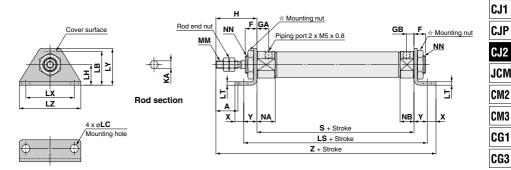
 $\,\dot{\approx}\,$ Refer to page 63 for details of the mounting nut. (SNJ-016C for ø10, SNKJ-016C for ø16)

																[mmn]									
Bore size	Α	BA	ВВ	CA	СВ	F	GA	GB	Н	KA	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	S	Х	Υ	Z
10	15	15	12	17	14	8	8	5	28	4.2	21.5	5.5	14	2.3	33	25	42	M4 x 0.7	12.5	9.5	M10 x 1.0	46	6	9	74
16	15	18.3	18.3	20	20	8	8	5	28	5.2	23	5.5	14	2.3	33	25	42	M5 x 0.8	12.5	9.5	M12 x 1.0	47	6	9	75

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

Double Foot (M)

CJ2KM 10 - Stroke Z

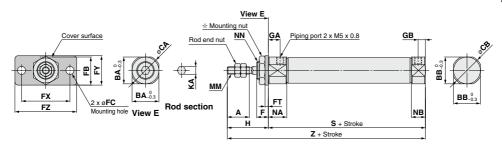


 $\,\dot{\approx}\,$ Refer to page 63 for details of the mounting nut. (SNJ-016C for ø10, SNKJ-016C for ø16)

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

Rod Flange (F)

CJ2KF 10 - Stroke Head cover port location Z



Piping port M5 x 0.8

Head cover port location Axial location (R)

*: The overall cylinder length does not change.

 $\dot{\approx}$ Refer to page 63 for details of the mounting nut. (SNJ-016C for ø10, SNKJ-016C for ø16)

																						[mm]
Bore size	Α	BA	ВВ	CA	СВ	F	FB	FC	FT	FX	FY	FZ	GA	GB	Н	KA	MM	NA	NB	NN	S	Z
10	15	15	12	17	14	8	17.5	5.5	2.3	33	20	42	8	5	28	4.2	M4 x 0.7	12.5	9.5	M10 x 1.0	46	74
16	15	18.3	18.3	20	20	8	19	5.5	2.3	33	20	42	8	5	28	5.2	M5 x 0.8	12.5	9.5	M12 x 1.0	47	75
		•	•		•				•		•					•						

D
-X

Technical
Data

JMB

MB1 CA2

CS₁

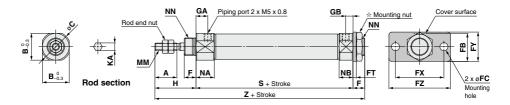
CS2



CJ2K Series

Head Flange (G)

CJ2KG $^{10}_{16}$ - Stroke Z



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

A Holor to pag	,0 00	o. aota			ug	(0		00 .0.	D . O, C			,								[mm]
Bore size	Α	В	С	F	FB	FC	FT	FX	FY	FZ	GA	GB	Н	KA	MM	NA	NB	NN	S	Z
10	15	15	17	8	17.5	5.5	2.3	33	20	42	8	5	28	4.2	M4 x 0.7	12.5	9.5	M10 x 1.0	46	82
16	15	18.3	20	8	19	5.5	2.3	33	20	42	8	5	28	5.2	M5 x 0.8	12.5	9.5	M12 x 1.0	47	83

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

CJ2K Series ø10, ø16



CJ1

CJP CJ₂

JCM

CM₂

CM3

CG₁

CG3 JMB

MB

MB1

CA₂

CS₁

CS2

How to Order CJ2K|B|16| CDJ2K|B||16 With auto switch With auto switch (Built-in magnet)

Mounting

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

- *: Foot/Flange brackets are shipped together with the product, but not assembled
- **: Refer to page 151-1 for the double clevis (with one-touch connecting

8 Auto switch

Nil	Without auto switch

- *: For applicable auto switches refer to the table below
- ★ Enter the auto switch mounting type (A or B) even when a built-in magnet cylinder without an auto switch is required.

2 Bore size

_	
10	10 mm
16	16 mm

Head cover port location

	·						
Nil	Perpendicular to axis						
R	Axial	10					
. Franklas	F 1 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						

- For double clevis, the product is perpendicular to the cylinder axis.
- *: For double-side bossed, the product is perpendicular to the cylinder axis.
- *: Not applicable to single acting, spring extend (T).

9 Number of auto switches

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

*: Refer to "Ordering Example of Cylinder Assembly" on page 96.

Cvlinder standard stroke [mm] Refer to "Standard Strokes" on

6 Pivot bracket

page 96.

Nil	None
N	Pivot bracket is shipped together with the product
. 0.1	and the analysis of a standard and

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

10 Auto switch mounting type

А	A Hall mounting				
B Band mounting					
Fo	rail mounting screws				

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

S	Single acting, Spring return
Т	Single acting, Spring extend
•	onigio dotting, opining exteria

Rod end bracket

Nil	None
V	Single knuckle joint
W**	Double knuckle joint
Т	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).

Made to Order

Refer to page 96 for details.

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

		Electrical	light	Wiring		Load v	oltage		Auto swit	ch model		Lea	d wir	ire length [m]			Pre-wired	Applicable																								
Гуре	Special function				40	AC Band mounting Rail mounting				0.5 1		3	5	None	connector																											
		entry	Indica	(Output)		DC	AC	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	connector	load																								
				3-wire (NPN)		5 V,12 V		M9NV	M9N	M9NV	M9N	•	•	•	0	_	0	IC circuit																								
Ë		Grommet		3-wire (PNP)		5 V,12 V		M9PV	M9P	M9PV	M9P	•	•	•	0	_	0	IC CITCUIT																								
switch				2-wire		12 V		M9BV	M9B	M9BV	M9B	•	•	•	0	_	0																									
		Connector		Z-WIIC	J	12 V		_	H7C	J79C	_	•	_	•	•	•	_																									
anto	Diagnostic indication			3-wire (NPN)		5 V.12 V		M9NWV	M9NW	M9NWV	M9NW	•	•	•	0	_	0	IC aircuit	Delev																							
	(2-color indicator)		Yes	3-wire (PNP)	24 V	5 V, 12 V		M9PWV	M9PW	M9PWV	M9PW	•	•	•	0	_	0	IC CITCUIT	C circuit Relay,																							
state	(2 color indicator)			2-wire	J	12 V		,	/				M9BWV	M9BW	M9BWV	M9BW	•	•	•	0	_	0	_]																		
S	Water resistant	Grommet		3-wire (NPN)		5 V,12 V				M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	•	0	_	0	IC circuit																						
Solid	(2-color indicator)			3-wire (PNP)	j	J V,12 V					}																				M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	0	0	•	0	_	0	IO GITCUIT	
S	(2 color indicator)			2-wire	J	12 V								M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	0	0	•	0	_	0	_																		
	With diagnostic output (2-color indicator)			4-wire (NPN)		5 V,12 V		-	H7NF	_	F79F	•	_	•	0	_	0	IC circuit																								
switch			V	3-wire (NPN equivalent)	_	5 V	_	A96V	A96	A96V	A96	•	_	•	-	-	_	IC circuit	_																							
₹		Grommet	Yes		1	_	200 V	_	_	A72	A72H	•	_	•	_	_	_																									
0				0			100 V	A93V*2	A93	A93V*2	A93	•	•	•	•	_	_	1 —																								
anto			No			40.1/	100 V or less	A90V	A90	A90V	A90	•	_	•	_	_	_	IC circuit	Relay.																							
ğ		Connector	Yes	2-wire	24 V	12 V	_	_	C73C	A73C	_	•	_	•	•	•	_	_	PLĆ																							
Reed		Connector	No	1		1					ĺ		24 V or less	_	C80C	A80C	_	•	_	•	•	•	_	IC circuit																		
_	Diagnostic indication (2-color indicator)	Grommet	Yes	1		_	_	_	_	A79W	_	•	_	•	<u> </u>	_	_	_	1																							

- *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 "O" 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.)



95 A

D-□

-X□

Technical

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

Non-rotating accuracy \emptyset 10: \pm 1.5°, \emptyset 16: \pm 1° Can operate without



Symbol

Single acting, Spring return, Rubber bumper









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

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

Made to Order

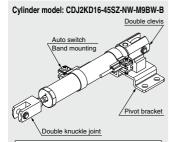
Click here for details

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

⚠ Precautions

Refer to page 152 before handling.

Ordering Example of Cylinder Assembly



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

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

Specifications

Bore size [mm]	10	16				
Action	Single acting, Spring return/	Single acting, Spring extend				
Fluid	A	ir				
Proof pressure	1 M	1Pa				
Maximum operating pressure	0.71	MPa				
Minimum operating pressure	0.15	MPa				
Ambient and fluid temperature	Without auto switch: -10 With auto switch: -10	o°C to 70°C (No freezing) o°C to 60°C				
Cushion	Rubber bumper (st	andard equipment)				
Lubrication	Not required	d (Non-lube)				
Stroke length tolerance	+1	.0				
Rod non-rotating accuracy	±1.5° ±1°					
Piston speed	50 to 75	60 mm/s				
Allowable kinetic energy	0.035 J	0.090 J				

Standard Strokes

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

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

Spring Reaction Force

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

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

•…	Mounted on the product. OCan be	ordered wi	thin the cylir	der model.	△···Order	separately.
	Mounting	Basic	Foot	Flange	Double clevis	Double clevis (including T-bracket)
5	Mounting nut	•	•	•	_	
Standard	Rod end nut	•	•	•	•	•
Š	Clevis pin (including retaining rings)	_	_	_	•	•
	Double clevis (With one-touch connecting pin)	Δ	Δ	Δ	O (-X2838)	○ (-X2838)
l _	Single knuckle joint	0	0	0	0	0
Option	Double knuckle joint (including a pin and retaining rings)	0	0	0	0	0
l G	Double knuckle joint (With one-touch connecting pin)	Δ	Δ	Δ	Δ	Δ
	Rod end cap (Flat/Round type)	0	0	0	0	0
	Pivot bracket (T-bracket)	_	_	_	0	•

Mounting Brackets/Part No.

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

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

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

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



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

Spring Extend

Weights

<u> </u>	ng Return								[g]
Во	re size [mm]			10				16	
	Mounting	Basic	Axial piping	Double clevis (including clevis pin)	Double- side bossed	Basic	Axial piping	Double clevis (including clevis pin)	Double- side bossed
	15 stroke	30	30	30	31	64	64	70	66
	30 stroke	38	38	38	39	79	79	86	81
ᄩ	45 stroke	48	48	48	49	97	97	104	99
Basic weight	60 stroke	58	58	58	59	116	116	122	118
Sic.	75 stroke				$\overline{}$	138	138	144	140
Ba	100 stroke]				171	171	178	173
	125 stroke		/			209	209	215	211
	150 stroke					232	232	238	234
ght	Single foot			8				25	
Mounting bracket weight	Double foot			16				50	
ket 🧟	Rod flange			5				13	
bra	Head flange			5				13	
	Clevis pin	_	_	1	_	-	_	3	_
	One-touch connecting pin for double clevis	_	_	2	_	_	_	4	_
	Single knuckle joint			17				23	
es	Double knuckle joint (including knuckle pin)			25				21	
Accessories	Double knuckle joint (With one-touch connecting pin)			26				22	
Ao	Rod end cap (Flat type)			1				2	
	Rod end cap (Round type)			1				2	
	Pivot Bracket (T-bracket)			32				50	

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

Example) CJ2KL10-45SZ

- Basic weight -----48 (ø10)
 - - 48 + 8 = **56 g**

	re size [mm]			10			-	16	[9]		
	Mounting	Basic	Axial piping	Double clevis (including clevis pin)	Double- side bossed	Basic	Axial piping	Double clevis (including clevis pin)	Double- side bossed		
	15 stroke	29	29	31	31	64	64	72	69		
	30 stroke	35	35	37	38	79	79	86	83		
ght	45 stroke	44	44	46	46	95	95	103	99		
Basic weight	60 stroke	52	52	54	55	111	111	119	115		
Sic	75 stroke				$\overline{}$	133	133	140	137		
Ba	100 stroke					163	163	170	167		
	125 stroke		/			198	198	206	202		
	150 stroke					219	219	227	223		
ght	Single foot			8				25			
wei	Double foot			16				50			
Mounting pracket weight	Rod flange			5				13			
bra	Head flange			5				13			
	Clevis pin	_	_	1	_	_	_	3	_		
	One-touch connecting pin for double clevis	_	_	2	_	_	_	4	_		
	Single knuckle joint			17	•			23			
es	Double knuckle joint (including knuckle pin)		:	25				21			
Accessories	Double knuckle joint (With one-touch connecting pin)		:	26				22			
Ao	Rod end cap (Flat type)			1				2			
	Rod end cap (Round type)			1		2					
	Pivot Bracket (T-bracket)		;	32				50			

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

Example) CJ2KL10-45TZ

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

44 + 8 = **52 g**

D
-X

Technical



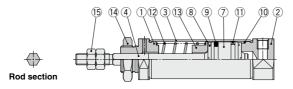
[g]

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



Construction (Not able to disassemble)

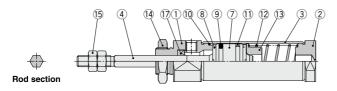
Single acting, Spring return





With auto switch

Single acting, Spring extend





With auto switch

Component Parts

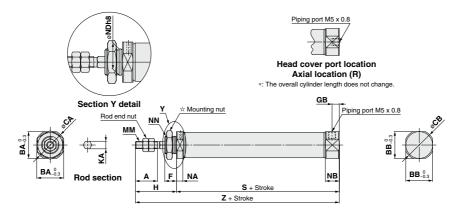
No.	Description	Material	Note
1	Rod cover	Aluminum alloy	
2	Head cover	Aluminum alloy	
3	Cylinder tube	Stainless steel	
4	Piston rod	Stainless steel	
5	Piston A	Aluminum alloy	
6	Piston B	Aluminum alloy	
7	Piston	Aluminum alloy	
8	Bumper	Urethane	
9	Piston seal	NBR	

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

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

Single Acting, Spring Return: Basic (B)

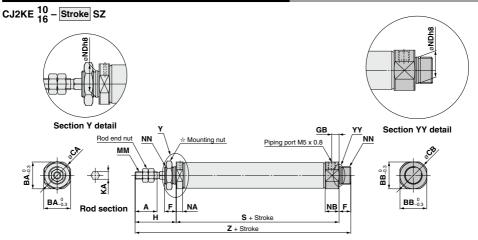
CJ2KB 10 - Stroke S Head cover port location Z



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

Bore GB H KA NA NB NDh8 5 to | 16 to | 31 to | 46 to | 61 to | 76 to | 101 to | 126 to | 5 to | 16 to | 31 to | 46 to | 61 to | 76 to | 101 to | 126 to size 15 st 30 st 45 st 60 st 75 st 100 st 125 st 150 st 15 st 30 st 45 st 60 st 75 st 100 st 125 st 150 st 10 15 | 15 | 12 | 17 | 14 | 8 | 5 | 28 | 4.2 | M4 x 0.7 | 4.8 | 9.5 | 10_0022 | M10 x 1.0 | 45.5 | 53 | 65 | 77 73.5 81 93 105 15 18.3 18.3 20 20 8 8 5 28 5.2 M5 x 0.8 4.8 9.5 12.0 027 M12 x 1.0 45.5 54 66 78 84 108 126 138 73.5 82 94 106 112 136 154 166

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



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

Bore																			5							7	z			
size	Α	BA	вв	CA	СВ	F	GB	н	KΑ	MM	NΑ	NΒ	NDh8	NN	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to
SIZE															15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st
10	15	15	15	17	17	8	5	28	4.2	M4 x 0.7	4.8	9.5	10_0,022	M10 x 1.0	45.5	53	65	77	_	_			81.5	89	101	113		_	_	_
16	15	18.3	18.3	20	20	8	5	28	5.2	M5 x 0.8	4.8	9.5	12_0.027	M12 x 1.0	45.5	54	66	78	84	108	126	138	81.5	90	102	114	120	144	162	174

CJ1

CJP CJ₂

JCM

CM2

CM3 CG1

CG3

JMB

MB MB1

CA₂

CS₁

CS2

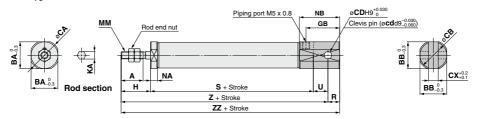
[mm]

D--X□ Technica

CJ2K Series

Single Acting, Spring Return: Double Clevis (D)

CJ2KD $^{10}_{16}$ - Stroke SZ



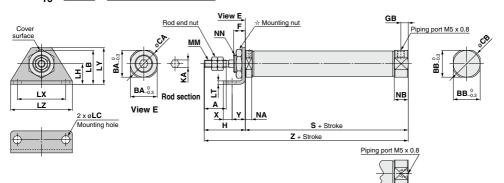
*: A clevis pin and retaining rings are included.

																							[mm]
Bore size	Α	ВА	ВВ	CA	СВ	CD	cx	GB	н	KA	MM	NA	NB	R	U	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to
						(cd)										15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st
10	15	12	12	14	14	3.3	3.2	18	20	4.2	M4 x 0.7	4.8	22.5	5	8	45.5	53	65	77	_	_	_	
16	15	18.3	18.3	20	20	5	6.5	23	20	5.2	M5 x 0.8	4.8	27.5	8	10	45.5	54	66	78	84	108	126	138

				7	Z							Z	Z			
Bore size	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to
	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st
10	73.5	81	93	105	_	_	_	_	78.5	86	98	110	_	_	_	_
16	75.5	84	96	108	114	138	156	168	83.5	92	104	116	122	146	164	176

Single Acting, Spring Return: Single Foot (L)

CJ2KL $^{10}_{16}$ – Stroke S Head cover port location Z



Head cover port location Axial location (R)

*: The overall cylinder length does not change.

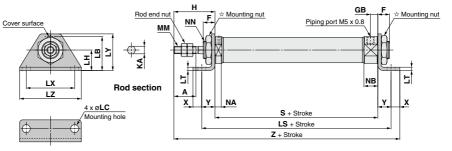
 $\ensuremath{\dot{\mathbf{x}}}$ For details of the mounting nut, refer to page 63.

Bore size	A	ВА	вв	CA	СВ	F	GВ	н	КА	LB	LC	LH	LT	LX	LY	LZ	ММ	NA	NB	NN
10	15	15	12	17	14	8	5	28	4.2	21.5	5.5	14	2.3	33	25	42	M4 x 0.7	4.8	9.5	M10 x 1.0
16	15	18.3	18.3	20	20	8	5	28	5.2	23	5.5	14	2.3	33	25	42	M5 x 0.8	4.8	9.5	M12 x 1.0

Bore					•									- 4	4			
	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to	X	Y	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to
size	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st			15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st
10	45.5	53	65	77	_	_	_	_	6	9	73.5	81	93	105	_	_	_	
16	45.5	54	66	78	84	108	126	138	6	9	73.5	82	94	106	112	136	154	166

Single Acting, Spring Return: Double Foot (M)

CJ2KM 10 - Stroke SZ



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

[mm]

CJ1

CJP CJ2

JCM

CM2

СМЗ

CG₁

CG3 JMB MB

MB1

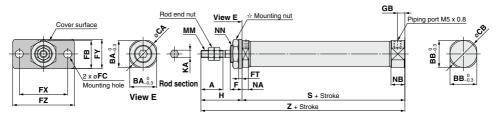
CA2 CS1 CS2

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

Bore 5 to 16 to 31 to 46 to 61 to 76 to 101 to 126 to 5 to 16 to 31 to 46 to 61 to 76 to 101 to 126 to size 30 st 45 st 60 st 75 st 100 st 125 st 150 st 30 st 45 st 60 st 75 st 15 st 100 st | 125 st | 150 st 45.5 53 65 77 6 9 88.5 96 108 120 16 45.5 54 66 78 84 108 126 138 6 9 88.5 97 109 121 127 151 169 181

Single Acting, Spring Return: Rod Flange (F)

CJ2KF $^{10}_{16}$ - Stroke S Head cover port location Z





Head cover port location Axial location (R)

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

						u	9 .			J. 10	Pu	go o	<u> </u>																					[mm]
Dava																								5							Z				
Dore	Α	BA	ВВ	CA	СВ	F	FΒ	FC	FT	FX	FY	FΖ	GB	н	KΑ	MM	NA	NB	NN	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to
size																				15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st
10	15	15	12	17	14	8	17.5	5.5	2.3	33	20	42	5	28	4.2	M4 x 0.7	4.8	9.5	M10 x 1.0	45.5	53	65	77	_	_	_	_	73.5	81	93	105	_	=	_	=
16	15	18.3	18.3	20	20	8	19	5.5	2.3	33	20	42	5	28	5.2	M5 x 0.8	4.8	9.5	M12 x 1.0	45.5	54	66	78	84	108	126	138	73.5	82	94	106	112	136	154	166
								_	_	_	_							_																	_

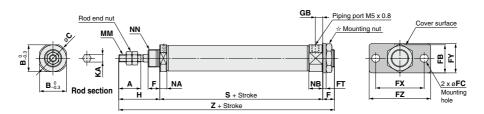
SIVIC

D-U
-XU
Technical

CJ2K Series

Single Acting, Spring Return: Head Flange (G)

CJ2KG $^{10}_{16}$ - Stroke SZ



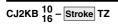
☆ For details of the mounting nut, refer to page 63.

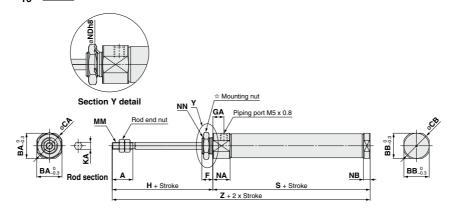
																	[mm]
Bore size	A	В	С	F	FB	FC	FT	FX	FY	FZ	GВ	н	KA	ММ	NA	NB	NN
10	15	15	17	8	17.5	5.5	2.3	33	20	42	5	28	4.2	M4 x 0.7	4.8	9.5	M10 x 1.0
16	15	18.3	20	8	19	5.5	2.3	33	20	42	5	28	5.2	M5 x 0.8	4.8	9.5	M12 x 1.0

Ī	D													Z			
	Bore size						76 to										
	size	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st
	10	45.5	53	65	77	_	_	_	_	81.5	89	101	113	_	_	_	_
	16	45.5	54	66	78	84	108	126	138	81.5	90	102	114	120	144	162	174

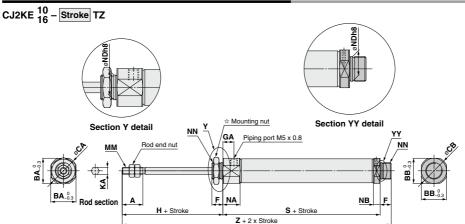
Air Cylinder: Non-rotating Rod Type Single Acting, Spring Return/Extend CJ2K Series

Single Acting, Spring Extend: Basic (B)





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



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

Dava																		- 5	}							Z				
Bore size	Α	ВА	вв	CA	СВ	F	GA	н	KA	ММ	NA	NB	NDh8												31 to 45 st					
10	15	15	15	17	17	8	8	28	4.2	M4 x 0.7	12.5	4.8	10_0,022	M10 x 1.0	48.5	56	68	80	_	_	_	-	84.5	92	104	116	_	_	_	_
16	15	18.3	18.3	20	20	8	8	28	5.2	M5 x 0.8	12.5	4.8	12_0.027	M12 x 1.0	48.5	57	69	81	87	111	129	141	84.5	93	105	117	123	147	165	177
																														_

D-□

CJ1 CJP CJ2

JCM

CM2

CM3

CG3

JMB MB

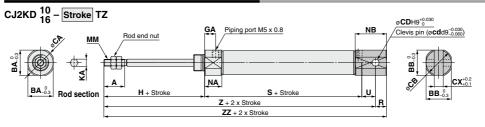
MB1

CA2

CS1

CJ2K Series

Single Acting, Spring Extend: Double Clevis (D)



* A clevis pin and retaining rings are included.

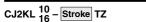
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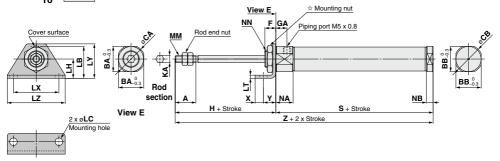
																				3			
Bore size	Α	ВА	вв	CA	СВ		СХ	GA	н	KA	MM	NA	NB	R	U	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to
						(cd)										15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st
10	15	15	12	17	14	3.3	3.2	8	28	4.2	M4 x 0.7	12.5	17.8	5	8	48.5	56	68	80	_	_	_	
16	15	18.3	18.3	20	20	5	6.5	8	28	5.2	M5 x 0.8	12.5	22.8	8	10	48.5	57	69	81	87	111	129	141

				7	<u> </u>							Z	Z			
Bore size	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to
	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st
10	84.5	92	104	116	_	_	_	_	89.5	97	109	121	_	_	_	_
16	86.5	95	107	119	125	149	167	179	94.5	103	115	127	133	157	175	187

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

Single Acting, Spring Extend: Single Foot (L)





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

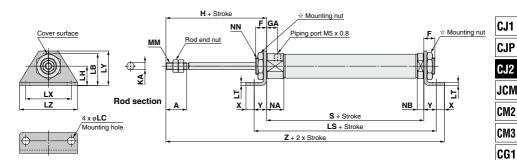
[mm

10	15	15	12	17	14	8	8	28	4.2	21.5	5.5	14	2.3	33	25	42	M4 :	¢ 0.7	12.5	4.8	M10	0 x 1.0
16	15	18.3	18.3	20	20	8	8	28	5.2	23	5.5	14	2.3	33	25	42	M5 2	k 0.8	12.5	4.8	M12	2 x 1.0
					•	•												,				
Doro sino						>					v	v					4	<u> </u>				
Bore size	5 to 15 s	t 16 to 3	0 st 31 t	o 45 st	46 to 60 st	61 to 75 s	76 to 10	0 st 101 t	to 125 st	126 to 150 st		Y	5 to 15 s	16 to 30) st 31 t	to 45 st	46 to 60 st	61 to 75 st	76 to 100	st 101 to	o 125 st	126 to 150 st
Bore size	5 to 15 s 48.5	t 16 to 3		o 45 st	46 to 60 st 80	61 to 75 s	76 to 10		to 125 st	126 to 150 st		Y	5 to 15 si	16 to 30	-	to 45 st 96	46 to 60 st 108	61 to 75 si	76 to 100	-	o 125 st	126 to 150 st

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

Single Acting, Spring Extend: Double Foot (M)

CJ2KM $^{10}_{16}$ - Stroke TZ



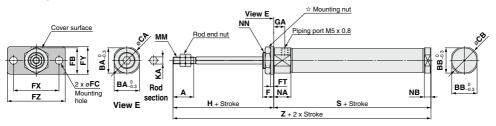
☆ For details of the mounting nut, refer to page 63.

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

					3									7	Z			
Bore size	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to	Х	Υ	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to
	15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st			15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st
10	48.5	56	68	80	_	-	_	-	6	9	91.5	99	111	123	_	-	_	_
16	48.5	57	69	81	87	111	129	141	6	9	91.5	100	112	124	130	154	172	184

Single Acting, Spring Extend: Rod Flange (F)

CJ2KF $^{10}_{16}$ - Stroke TZ



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

					1-3-														[mm]
Bore size	A	ВА	вв	CA	СВ	F	FB	FC	FT	FX	FY	FZ	GA	н	KA	ММ	NA	NB	NN
10	15	15	12	17	14	8	17.5	5.5	2.3	33	20	42	8	28	4.2	M4 x 0.7	12.5	4.8	M10 x 1.0
16	15	18.3	18.3	20	20	8	19	5.5	2.3	33	20	42	8	28	5.2	M5 x 0.8	12.5	4.8	M12 x 1.0

Bore size					3			Z								
Dore Size	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
10	48.5	56	68	80	_	_	_	_	76.5	84	96	108	_	_	_	_
16	48.5	57	69	81	87	111	129	141	76.5	85	97	109	115	139	157	169

-X - Technical Data

CG3

JMB

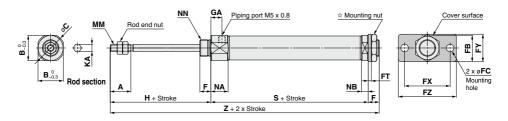
MB

MB1 CA2 CS1 CS2

CJ2K Series

Single Acting, Spring Extend: Head Flange (G)

CJ2KG $^{10}_{16}$ - Stroke TZ



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

[mm] FΥ FΖ GA Α В С FΒ FC FT FΧ Н KA MM NA NB NN Bore size 10 15 17 5.5 2.3 33 42 8 28 4.2 M4 x 0.7 12.5 15 8 17.5 20 4.8 M10 x 1.0 16 15 18.3 20 8 19 5.5 2.3 33 20 42 8 28 5.2 M5 x 0.8 12.5 4.8 M12 x 1.0

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

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

CJ2Z Series



CJ₁

CJP CJ₂

JCM

CM₂

CM3

CG₁

CG3 JMB

MB

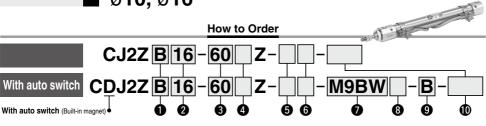
MB1

CA2

CS₁

CS2

ø10, ø16



Mounting

Auto switch

*: For applicable auto switches. refer to the table below ★ Enter the auto switch mounting type (A or B)

an auto switch is required.

even when a built-in magnet cylinder without

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

Without auto switch

2 Bore size

10	10 mm	
16	16 mm	

4 Head cover port location

Nil	Perpendicular to axis	
R	Axial	10

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

U Nui	liber of auto switches
Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Cvlinder standard stroke [mm]

Refer to "Standard Strokes" on page 108.

Pivot bracket

ı	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.

Auto switch mounting type Rail mounting

В	Band mounting
	rail mounting, screws and
nut	s for 2 auto switches come

- with the rail.
- *: Refer to page 148 for auto switch mounting brackets.

6 Rod end bracket

Nil	None
V	Single knuckle joint
W**	Double knuckle joint
Т	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)

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.

			ig	VA Ci		Load vol	tage		Auto swit	ch model		Lead	d wire	e ler	ngth	[m]	Pre-wired		
Type	Special function	Electrical entry	Indicator	Wiring (Output)		DC	AC	Band m	ounting	Rail mo	ounting	0.5	1	3	5	None	connector	Applica	ble load
		Citily	Indic	(Output)		DC	Ŕ	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	COITIECCOI		
				3-wire (NPN)		5 V, 12 V		M9NV	M9N	M9NV	M9N	•	•	•	0	_	0	IC circuit	
ج		Grommet		3-wire (PNP)		5 V, 12 V		M9PV	M9P	M9PV	M9P	•	•	•	0	_	0	IC CIICUII	
switch				2-wire		12 V		M9BV	M9B	M9BV	M9B	•	•	•	0	_	0		
		Connector		2-wire		12 V			H7C	J79C	_	•	_	•	•	•	_		
anto	Dia alia dia alia.			3-wire (NPN)		5 V. 12 V		M9NWV	M9NW	M9NWV	M9NW	•	•	•	0	_	0	IC circuit]
	Diagnostic indication (2-color indicator)		Yes	3-wire (PNP)	24 V	5 V, 12 V	_	M9PWV	M9PW	M9PWV	M9PW	•	•	•	0	_	0	IC CIICUII	Relay,
state	(2-color indicator)			2-wire		12 V		M9BWV	M9BW	M9BWV	M9BW	•	•	•	0	_	0	_] [[
	Mater registent	Grommet		3-wire (NPN)		5 V, 12 V		M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	•	0	_	0	IC circuit]
Solid	Water resistant (2-color indicator)			3-wire (PNP)		5 V, 12 V		M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	0	0	•	0	_	0	IC CIICUII	
Ś	(2 color indicator)			2-wire		12 V		M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	0	0	•	0	_	0	_	
	With diagnostic output (2-color indicator)			4-wire (NPN)		5 V, 12 V		_	H7NF	_	F79F	•	 -	•	0	_	0	IC circuit	
switch			Yes	3-wire (NPN equivalent)	_	5 V	_	A96V	A96	A96V	A96	•	_	•	_	-	_	IC circuit	_
\ <u>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</u>		Grommet	res		1	_	200 V	_	_	A72	A72H	•	_	•	_	_	_		
S S							100 V	A93V*2	A93	A93V*2	A93	•	•	•	•	_	_	_	
anto			No	2-wire		12 V	100 V or less	A90V	A90	A90V	A90	•	_	•	_	_	_	IC circuit	Relay,
8		Cannadas	Yes	∠-wire	24 V	12 V	_	_	C73C	A73C	_	•	_	•	•	•	_	_	PLC
Reed		Connector	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 5 m----- Z (Example) M9NWZ 1 m----- M (Example) M9NWM 3 m---- L (Example) M9NWL 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 "O" 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.)

ØSMC

107 A

D-□

-X□

Technical

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

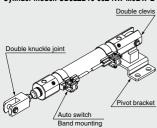
Symbol	Specifications	
-XA□	Change of rod end shape	
-XC51	With hose nipple	
-XC85	Grease for food processing equipment	

⚠ 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

		[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.				$\triangle \cdots$ Order separately.		
Mounting		Basic	Foot	Flange	Double clevis	Double clevis (including T-bracket)
5	Mounting nut	•	•	•	_	_
Standard	Rod end nut	•	•	•	•	•
	Clevis pin (including retaining rings)	_	_	_	•	•
Option	Single knuckle joint	0	0	0	0	0
	Double knuckle joint (including a pin and retaining rings)	0	0	0	0	0
	Double knuckle joint (With one-touch connecting pin)	Δ	Δ	Δ	Δ	0
	Rod end cap (Flat/Round type)	0	0	0	0	0
	Pivot bracket (T-bracket)	_	_	_	0	•

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

Mounting Brackets/Part No.

Maunting brookst	Bore size [mm]			
Mounting bracket	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.

Air Cylinder: Built-in Speed Controller Type Double Acting, Single Rod CJ2Z Series

Weights

	Bore size [mm]	10	16
D1 ! - 1 - 4	Basic	36	61
Basic weight (When the stroke	Axial piping	36	61
is zero)	Double clevis (including clevis pin)	40	68
13 2610)	Head-side bossed	37	63
Additional weight	per 15 mm of stroke	4	7
	Single foot	8	25
Mounting bracket	Double foot	16	50
weight	Rod flange	5	13
	Head flange	5	13
	Single knuckle joint	17	23
	Double knuckle joint (including knuckle pin)	25	21
Accessories	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.

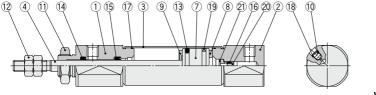
Calculation:

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	_	

D-□

CJ1 CJP CJ2 JCM CM2 СМЗ CG1

CG3

JMB

MB

MB1 CA2

CS₁

CS2

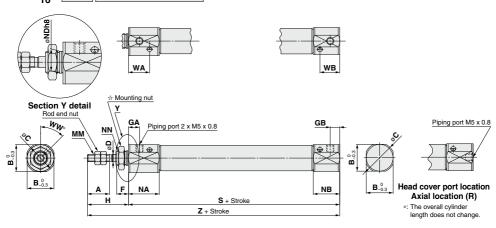
-X□ Technical Data



CJ2Z Series

Basic (B)

CJ2ZB $^{10}_{16}$ - Stroke Head cover port location Z

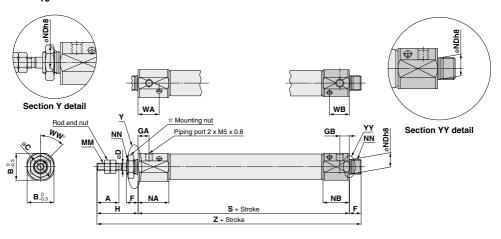


☆ For details of the mounting nut, refer to page 63.

																		[mm]
Bore size	Α	В	С	D	F	GA	GB	Н	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_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_0.022	M10 x 1.0	14.4	13.5	45	64	92

Double-side Bossed (E)

CJ2ZE 10 - Stroke Z



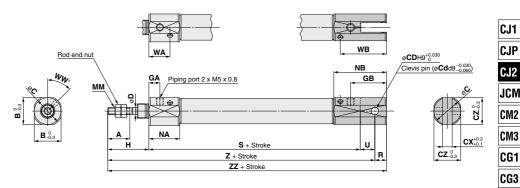
 $\mbox{$\stackrel{l}{\simeq}$}$ For details of the mounting nut, refer to page 63.

																		[mm]
Bore size	Α	В	С	D	F	GA	GB	Н	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_0.022	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_0.022	M10 x 1.0	14.4	13.5	45	64	100

Air Cylinder: Built-in Speed Controller Type Double Acting, Single Rod CJ2Z Series

Double Clevis (D)

CJ2ZD 10 - Stroke Z

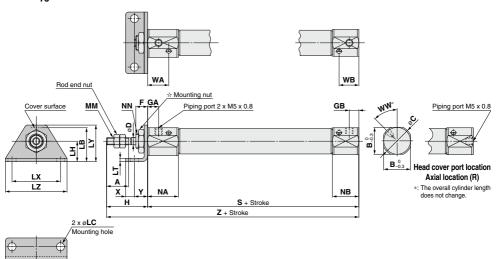


*: A clevis pin and retaining rings are included.

E	Bore size	Α	В	С	CD	СХ	CZ	D	GA	GB	Н	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	Α	В	С	D	F	GA	GB	Н	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	WA	WB	ww	S	Х	Υ	Z
10	15	15	17	4	8	7.5	6.5	28	15	4.5	9	1.6	24	16.5	32	M4 x 0.7	21	18	M8 x 1.0	14.4	13.5	45	63	5	7	91
16	15	18.3	20	5	8	7.5	6.5	28	23	5.5	14	2.3	33	25	42	M5 x 0.8	21	18	M10 x 1.0	14.4	13.5	45	64	6	9	92
																			•							

D
-X

Technical Data

[mm] JMB

MB MB1

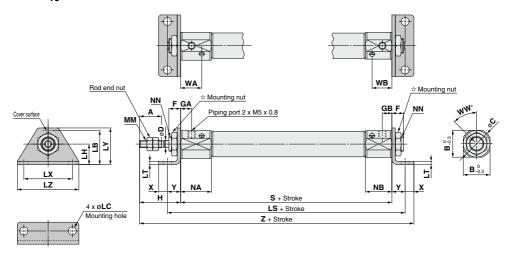
CA2

CS1

CJ2Z Series

Double Foot (M)

CJ2ZM 10 - Stroke Z

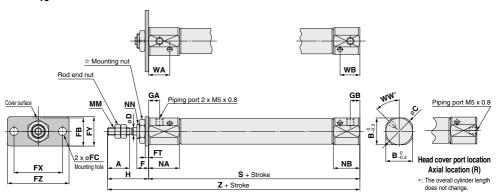


 $\mbox{$\stackrel{l}{\propto}$}$ For details of the mounting nut, refer to page 63.

Bore size	Α	В	С	D	F	GA	GB	Н	LB	LC	LH	LS	LT	LX	LY	LZ	MM	NA	NB	NN	WA	WB	ww	S	Х	Υ	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 10 - Stroke Head cover port location Z



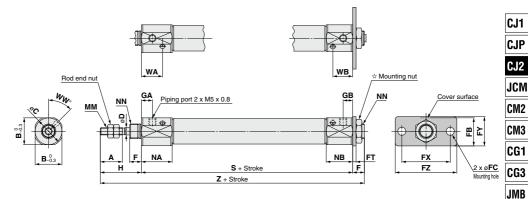
☆ For details of the mounting nut, refer to page 63.

																							[mmi]
Bore size	Α	В	С	D	F	FB	FC	FT	FX	FY	FZ	GA	GB	Н	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

Air Cylinder: Built-in Speed Controller Type Double Acting, Single Rod CJ2Z Series

Head Flange (G)

CJ2ZG $^{10}_{16}$ - Stroke Z



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

A TOT GOLGIS O	i tiic i	nount	ing in	at, 101	01 to p	age c	, o.																[mm]
Bore size	Α	В	С	D	F	FB	FC	FT	FX	FY	FZ	GA	GB	Н	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

D-□

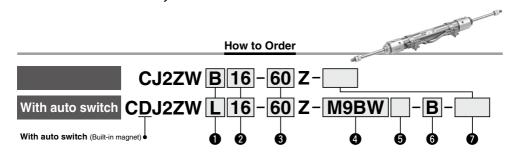
MB1 CA2 CS1

Technical Data

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

CJ2ZW Series ø10, ø16





Mounting

В	Basic
L	Foot
F	Flange

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

Auto switch

Nil	Without auto switch
*: For ap	plicable 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.

A Rore size

G DOIC 312C						
10	10 mm					
16	16 mm					

Cylinder standard stroke [mm] Refer to "Standard Strokes" on page 115.

Number of auto switches

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

6 Auto switch mounting type

B	Band mounting
*: Fo	r rail mounting, screws and nuts
for	2 outo quitabas same with the

- for 2 auto switches come with the
- *: Refer to page 148 for auto switch mounting brackets.

Made to Order Refer to page 115 for details. Rail mounting

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

		Floridad	or light	Wiring		Load v	oltage		Auto switch model			Lead wire length [m]				[m]	Pre-wired Applic																					
Туре	Special function	Electrical entry	ago	(Output)		DC AC		Band m	ounting	Rail mo	unting	0.5	1	3		None	connector		cable ad																			
		entry	Indicato	(Output)		DC	AC	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	COTTRECTO	10	au																			
				3-wire (NPN)		5 V,12 V		M9NV	M9N	M9NV	M9N	•	•	•	0	 —	0	IC circuit																				
ج ا		Grommet		3-wire (PNP)]	5 V, 12 V		M9PV	M9P	M9PV	M9P	•	•	•	0	-	0	IC Circuit																				
switch				2-wire]	12 V		M9BV	M9B	M9BV	M9B	•	•	•	0	-	0																					
		Connector		2-wire		12 V		_	H7C	J79C	_	•	-	•	•	•	_	-																				
anto	Diameratic in diameter			3-wire (NPN)		5 V,12 V		M9NWV	M9NW	M9NWV	M9NW	•	•	•	0	-	0	IC aireanis	١																			
	Diagnostic indication (2-color indicator)		Yes	3-wire (PNP)	24 V	5 V, 12 V	_	M9PWV	M9PW	M9PWV	M9PW	•	•	•	0	_	0	IC circuit	Helay,																			
state	(2-color indicator)																						2-wire	1	12 V		M9BWV	M9BW	M9BWV	M9BW	•	•	•	0	_	0	_	FLC
		Grommet		3-wire (NPN)	1	5 V,12 V	5 V 10 V	E V 10 V	E V 10 V	E V 10 V		M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	•	0	_	0	IC circuit																
Solid	Water resistant			3-wire (PNP)	1		<u>N</u>	M9PAV*1	M9PA*1	M9PAV*1	*1 M9PA*1 O O •	0	_	0	TIC CIrcuit																							
တိ	(2-color indicator)			2-wire	1 [12 V		M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	0	0	•	0	_	0	_	1																			
	With diagnostic output (2-color indicator)			4-wire (NPN)	1	5 V,12 V		_	H7NF	_	F79F	•	_	•	0	_	0	IC circuit																				
switch			Yes	3-wire (NPN equivalent)	_	5 V	_	A96V	A96	A96V	A96	•	_	•	_	_	_	IC circuit	_																			
\ <u>\=</u>			res		1	_	200 V	_	_	A72	A72H	•	_	•	_	_	_																					
						100 V	A93V*2	A93	A93V*2	A93	•	•	•	•	_	_	1 —																					
anto			l li	No	O mino		12 V	100 V or less	A90V	A90	A90V	A90	•	_	•	_	_	_	IC circuit	Relay,																		
			Yes	2-wire	24 V	12 V	_	_	C73C	A73C	_	•	_	•	•	•	_	_	PLĆ																			
Reed		Connector No	No				24 V or less	_	C80C	A80C	_	•	-	•	•	•	_	IC circuit	1																			
-	Diagnostic indication (2-color indicator)	Grommet	Yes			_	_	_	_	A79W	_	•	_	•	_	 —	_	l —	1																			

- *1: Water resistant type auto switches can be mounted on 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 ····· M (Example) M9NWM 3 m----- L (Example) M9NWL 5 m..... 7 (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 "O" are produced upon receipt of order.
- *: The D-A9□/M9□/A7□/A80□/F7□/J7□ auto switches are shipped together, but not assembled. (For band mounting, only auto switch mounting brackets are assembled before being shipped.) **A** 114

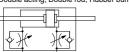
Air Cylinder: Built-in Speed Controller Type Double Acting, Double Rod CJ2ZW Series

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



Symbol

Double acting, Double rod, Rubber bumper





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

_	(· · · · · · · · · · · · · · · · · · ·
Symbol	Specifications
-X446	PTFE grease

Made to Order

Click here for details

OHER H	Olick liefe for details					
Symbol	Specifications					
-ХА□	-XA□ Change of rod end shape					
-XC51	With hose nipple					
-XC85 Grease for food processing equipment						



Refer to page 152 before handling. I

Specifications

Bore size [mm]	10	16	
Action	Double acting	g, Double rod	
Fluid	A	ir	
Proof pressure	1 M	MPa	
Maximum operating pressure	0.7 I	MPa	
Minimum operating pressure	0.1 l	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
10	15, 30, 45, 60, 75, 100, 125, 150
16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200

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

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

	●···Mounte	ed on the produc	t. O…Please o	order separately.
	Mounting	Basic	Foot	Flange
Standard	Mounting nut	•	•	•
Standard	Rod end nut	•	•	•
	Single knuckle joint	0	0	0
Option	Double knuckle joint (including a pin and retaining rings)	0	0	0
	Double knuckle joint (With one-touch connecting pin)	0	0	0

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

Mounting Brackets/Part No.

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

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

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

D-□ -X□ Technical

CJ1 CJP CJ₂ JCM CM2 CM3 CG₁ CG3

JMB

MB MB1

CA₂

CS₁

CS2



CJ2ZW Series

Weights

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

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

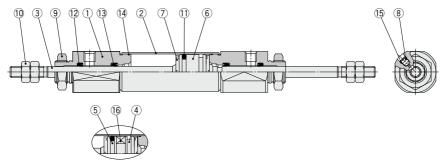
Example) CJ2ZWL10-45Z

● Basic weight -----36 (ø10)

Additional weight ------4.5/15 stroke

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

Construction (Not able to disassemble)



With auto switch

Component Parts

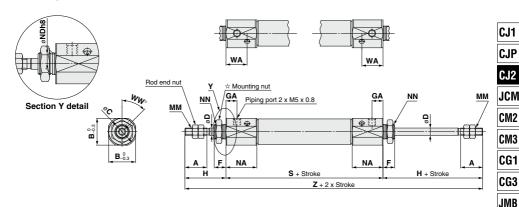
No.	Description	Material	Note
140.			14010
1	Rod cover	Aluminum alloy	
2	Cylinder tube	Stainless steel	
3	Piston rod	Stainless steel	
4	Piston A	Aluminum alloy	
5	Piston B	Aluminum alloy	
6	Piston	Aluminum alloy	
7	Bumper	Urethane	
8	Speed controller needle	Carbon steel	

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

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

Basic (B)

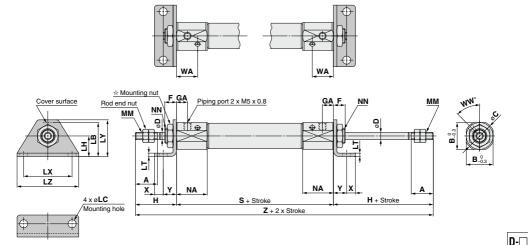
CJ2ZWB $^{10}_{16}$ - Stroke Z



															[mm]
Bore size	Α	В	С	D	F	GA	Н	MM	NA	NDh8	NN	WA	ww	S	Z
10	15	15	17	4	8	7.5	28	M4 x 0.7	21	8_0.022	M8 x 1.0	14.4	45	66	122
16	15	18.3	20	5	8	7.5	28	M5 x 0.8	21	10_0.022	M10 x 1.0	14.4	45	67	123

Foot (L)

CJ2ZWL 10 - Stroke Z



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

	[mm]											[mm]												
Е	ore size	Α	В	С	D	F	GA	Н	LB	LC	LH	LT	LX	LY	LZ	NN	NA	NN	WA	ww	S	Х	Υ	Z
	10	15	15	17	4	8	7.5	28	15	4.5	9	1.6	24	16.5	32	M4 x 0.7	21	M8 x 1.0	14.4	45	66	5	7	122
	16	15	18.3	20	5	8	7.5	28	23	5.5	14	2.3	33	25	42	M5 x 0.8	21	M10 x 1.0	14.4	45	67	6	9	123

-X Technical

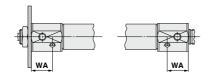
MB1 CA2 CS1

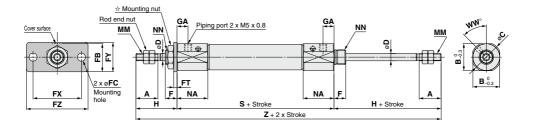
CS2

CJ2ZW Series

Flange (F)

CJ2ZWF $^{10}_{16}$ - Stroke Z





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

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

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

CJ2R Series ø10, ø16



CJ1

CJP

CJ₂

JCM CM₂

CM3

CG₁

CG3

JMB

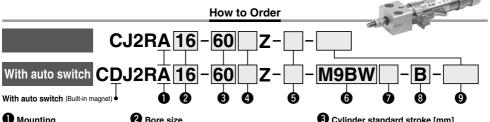
MB

MB₁

CA₂

CS₁

CS2



Mounting

Bottom mounting

•	•	Duie	SIZE
Г	10		

10 mm 16 16 mm

3 Cylinder standard stroke [mm] Refer to "Standard Strokes" on page 120.

Nil

R

Perpendi

6 Rod end bracket 4 Head cover port location

cular to s	
al	

- Nil None ν Single knuckle joint W* Double knuckle joint 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 onetouch connecting pin).

6 Auto switch

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.

Axia

U Nu	inder of auto switches
Nil	2 pcs.
S	1 pc.
n	"n" noc

8 Auto switch mounting type

Α	Rail mounting
В	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.

Made to Order

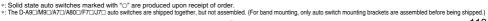
Refer to page 120 for details.

*: Refer to "Ordering Example of Cylinder Assembly" on page 120.

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

		Floridad	ligh	Wiring		Load v						Lea	d wir	e ler	ngth	[m]	Pre-wired	Annli	cable							
Type	Special function	Electrical entry		(Output)		DC	AC	Band m	ounting	Rail mo	0.5	1	3		None	connector		ad								
		Citaly	Indicat	(Output)		DC	AC	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	COTTRECTO	10	ioau							
				3-wire (NPN)		5 V, 12 V		M9NV	M9N	M9NV	M9N	•	•	•	0	<u> — </u>	0	IC circuit								
듯		Grommet		3-wire (PNP)		J V, 12 V		M9PV	M9P	M9PV	M9P	•	•	•	0	<u> —</u>	0	IO GIIGUII								
switch			Į	2-wire		12 V		M9BV	M9B	M9BV	M9B	•	•	•	0	<u> — </u>	0									
		Connector	ļ	Z-WIIC				_	H7C	J79C	_	•	<u> —</u>	•	•	•	_									
anto	Diagnostic indication			3-wire (NPN)		5 V, 12 V		M9NWV	M9NW	M9NWV	M9NW	•	•	•	0	<u> —</u>	0	IC circuit	Relay,							
	(2-color indicator)				Yes	3-wire (PNP)	24 V	J V, 12 V	_	M9PWV	M9PW	M9PWV	M9PW	•	•	•	0	<u> — </u>	0	IO GIIGUII	PLC					
state	(,			2-wire		12 V		M9BWV	M9BW	M9BWV	M9BW	•		_												
	Water resistant Grommet			3-wire (NPN)	[5 V, 12 V		M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	•	0	<u> —</u>	0	IC circuit								
Solid	(2-color indicator)			3-wire (PNP)				M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	0	0	•	0	<u> — </u>	0	10 diluit								
တ	(E color irializator)			2-wire		12 V				M9BA*1	0	0	•	0	<u> — </u>	0										
	With diagnostic output (2-color indicator)			4-wire (NPN)		5 V, 12 V		_	H7NF	_	F79F	•	-	•	0	-	0	IC circuit								
switch			v	3-wire (NPN equivalent)	_	5 V	_	A96V	A96	A96V	A96	•	-	•	_	-	_	IC circuit	_							
<u>×</u>		Grommet	Yes			_	200 V	_	_	A72	A72H	•	-	•	_	-	_									
							100 V	A93V*2	A93	A93V*2	A93	•	•	•	•	-	_] —								
anto			No	2-wire		12 V	100 V or less	A90V	A90	A90V	A90	•	<u> </u>	•	-	 -	_	IC circuit	Relay,							
8		Connector	onnector Yes	Vac	Vas	Vas	Vas	Vas	Vac		2-wire	24 V	12 V	_	_	C73C	A73C	_	•	-	•	•	•	_	_	PLĆ
Reed		COLLIGCTOL					24 V or less	_	C80C	A80C	_	•	_	•	•	•	_	IC circuit								
_	Diagnostic indication (2-color indicator)	Grommet	Yes			_	_	_	_	A79W	_	•	I-	•	_	 -	_	_								

- *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
 - Z (Example) M9NWZ 5 m--
- *: Since there are other applicable auto switches than listed, refer to page 149 for





D-□

-X□

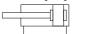
Technical

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



Symbol

Double acting, Single rod, Rubber bumper





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

_	(· - · - · · · · · · · · · · · · · · · ·
Symbol	Specifications
-X446	PTFE grease

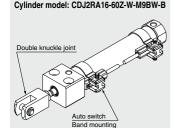
Made to Order

Click here for details

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

Refer to page 152 before handling.

Ordering Example of Cylinder Assembly



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

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

Specifications

Bore size [mm]	10	16					
Action	Double acting, Single rod						
Fluid	A	ir					
Proof pressure	1 M	1Pa					
Maximum operating pressure	0.71	MPa					
Minimum operating pressure	0.06	MPa					
Ambient and fluid temperature	Without auto switch: -10 With auto switch: -10	o°C to 70°C (No freezing) o°C to 60°C					
Cushion	Rubber	bumper					
Lubrication	Not required	d (Non-lube)					
Stroke length tolerance	+1.0 0						
Piston speed	50 to 750 mm/s						
Allowable kinetic energy	0.035 J 0.090 J						

Standard Strokes

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

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

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

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

- Note 1) Can be ordered within the cylinder model. Except for the double knuckle joint (with onetouch connecting pin).
- Note 2) Stainless steel accessories are also available. Refer to page 63-1 for details.

Weights

Bore	10	16	
Basic weight	Basic	36	61
(When the stroke is zero)	Axial piping	36	61
Additional weight per 15 m	4	7	
	Single knuckle joint	17	23
	Double knuckle joint (including knuckle pin)	25	21
Accessories	Double knuckle joint (With one-touch connecting pin)	26	22
	Rod end cap (Flat type)	1	2
	Rod end cap (Round type)	1	2

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

Calculation:

Example) CJ2RA10-45Z

• Cylinder stroke ······· 45 stroke

36 + 4/15 x 45 = 48 g

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

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



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

Clean Series

10-CJ2RA 10 - Stroke Head cover port location Z

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

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

Specifications

Action	Double acting, Single rod
Bore size [mm]	10, 16
Maximum operating pressure	0.7 MPa
Minimum operating pressure	0.08 MPa
Cushion	Rubber bumper
Standard stroke [mm]	Same as standard type. (Refer to page 120.)
Auto switch	Mountable (Band mounting)
Mounting	Bottom mounting

CJ1

CJP

CJ2 JCM

CM2

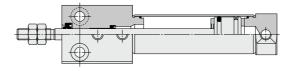
CM3

CG1

CG3

JMB MB

Construction (Not able to disassemble)



MB1

CA2

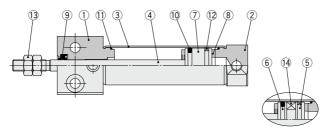
CS1

D-□ -X□

Technical Data

CJ2R Series

Construction (Not able to disassemble)



With auto switch

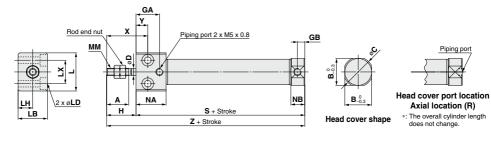
Component Parts

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

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

Bottom Mounting

CJ2RA 10 - Stroke Head cover port location Z

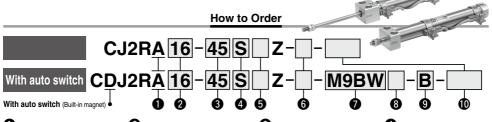


																			[mm]
Bore size	Α	В	С	D	GA	GB	Н	L	LB	LD	LH	LX	MM	NA	NB	Х	Υ	S	Z
10	15	12	14	4	16	5	20	23	16	ø3.5 through, ø6.5 counterbore depth 4	8	12	M4 x 0.7	20.5	9.5	28	8	54	74
16	15	18.3	20	5	16	5	20	26	20	ø4.5 through, ø8 counterbore depth 5	10	16	M5 x 0.8	20.5	9.5	28	8	55	75

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

CJ2R Series ø10, ø16





Mounting Bottom m

ounting	

U	Bore size
10	10 mm
16	16 mm

Cvlinder standard stroke [mm] Refer to "Standard Strokes" on page 124.

	CM3		
	S	Single acting, Spring return	Ր Ը1
	Т	Single acting, Spring extend	Ե Ա I

Head cover port location

Nil	Perpendicular to axis				
R	Axial	1			
*· Not applicable to single acting					

spring extend (T).

6 Rod end bracket

Nil	None				
V	Single knuckle joint				
W**	Double knuckle joint				
Т	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).

Auto switch

1411	Williout date Switch
	pplicable auto switches, refe 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.

MB MB₁

CG3

JMB

CJ₁

CJP

CJ₂

JCM CM₂

CA₂

CS₁

CS2

 Auto switch mounting type Rail mounting Band mounting

*: Refer to page 148 for auto switch mounting brackets

es come with the rail.

Made to Order

Refer to page 124 for details.

*: For rail mounting, screws and nuts for 2 auto switch-

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

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

		Electrical	light	\A/::		Load v	oltage		Auto swit	ch model		Lea	d wir	e ler	ngth	[m]	Day ordered	A 13												
Туре	Special function	Electrical entry		Wiring (Output)		DC	AC	Band m	Band mounting		Rail mounting		1	3		None	Pre-wired connector		cable ad											
		Citily	Indica	(Output)		DC	٨٥	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	COTTRECTO	10	au											
				3-wire (NPN)		5 V,12 V		M9NV	M9N	M9NV	M9N	•	•	•	0	-	0	IC circuit												
ڃ		Grommet		3-wire (PNP)		J V, 12 V		M9PV	M9P	M9PV	M9P	•	•	•	0	<u> — </u>	0	IIO CIICUII												
switch				2-wire		12 V		M9BV	M9B	M9BV	M9B	•	•	•	0	<u> — </u>	0	_												
		Connector		∠-wire		12 V		_	H7C	J79C	_	•	-	•	•	•	_													
읔	Diagnostic indication			3-wire (NPN)		5 V,12 V		M9NWV	M9NW	M9NWV	M9NW	•	•	•	0	<u> — </u>	0	IC circuit	Delevi											
_ cz	(2-color indicator)	<u>'</u>	Yes	3-wire (PNP)	24 V	J V,12 V	_	M9PWV	M9PW	M9PWV	M9PW	•	•	•	0	<u> — </u>	0	IO CIICUII	PLC											
state	(2-color indicator)			2-wire		12 V		M9BWV	M9BW	M9BWV	M9BW	•	•	•	0	<u> —</u>	0	_	. 20											
	Water resistant			3-wire (NPN)		5 V.12 V	,	M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	•	0	<u> — </u>	0	IC circuit												
Solid	(2-color indicator)			3-wire (PNP)	(PNP) rire	3 V,12 V		M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	0	0	•	0	<u> — </u>	0	IO CIICUII												
ဟ	(2-color indicator)			2-wire		12 V	/		ĺ	M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	0	0	•	0	-	0	—										
	With diagnostic output (2-color indicator)			4-wire (NPN)		5 V,12 V			_	H7NF	_	F79F	•	-	•	0	<u> — </u>	0	IC circuit											
switch														v	3-wire (NPN equivalent)	_	5 V	_	A96V	A96	A96V	A96	•	-	•	-	_	_	IC circuit	_
		Grommet	Yes			_	200 V	_	_	A72	A72H	•	-	•	_	-	_													
							100 V	A93V*2	A93	A93V*2	A93	•	•	•	•	I —	_	-												
anto			No	2-wire 24		10.1/	100 V or less	A90V	A90	A90V	A90	•	I —	•	_	Ι—	_	IC circuit	Relay,											
		Connector	Yes		24 V	12 V	_	_	C73C	A73C	_	•	-	•	•	•	_	_	PLĆ											
Reed		COTTTECTO	No				24 V or less	_	C80C	A80C	_	•	-	•	•	•	_	IC circuit]											
	Diagnostic indication (2-color indicator)	Grommet	Yes				_	_	_	A79W	_	•	-	•	_	<u> - </u>		_												

- *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 ··· N (Example) H7CN None-
- *: Since there are other applicable auto switches than listed, refer to page 149 for
- D--X□ Technical

*: Solid state auto switches marked with "O" 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.)



CJ2R Series

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



Symbol

Single acting, Spring return, Rubber bumper

Single acting, Spring extend, Rubber bumper







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

Symbol	Specifications	
-X446	PTFE grease	

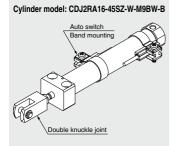
Made to Order

Click here for details

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

Refer to page 152 before handling.

Ordering Example of Cylinder Assembly



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

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

Specifications

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

Standard Strokes

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

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

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

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

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

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

Spring Reaction Force

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

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

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

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

Weights

Accessories

Spring Return Bore size [mm] 10 16 Axial piping Mounting Basic Axial piping Basic 15 stroke 42 42 81 81 30 stroke 49 49 97 97 59 59 114 114 45 stroke Basic 60 stroke 68 68 132 132 weight 75 stroke 154 154 100 stroke 187 187 224 224 125 stroke 150 stroke 246 246 Single knuckle joint 17 23 Double knuckle joint 25 21 (including knuckle pin)

26

1

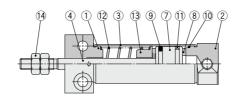
xtend		[g.		
Bore size [mm]	10	16		
Mounting	Basic	Basic		
15 stroke	41	78		
30 stroke	47	92		
45 stroke	55	108		
60 stroke	64	123		
75 stroke		144		
100 stroke		173		
125 stroke		208		
150 stroke		228		
Single knuckle joint	17	23		
Double knuckle joint (including knuckle pin)	25	21		
Double knuckle joint (With one-touch connecting pin)	26	22		
Rod end cap (Flat type)	1	2		
Rod end cap (Round type)	1	2		
	Mounting 15 stroke 30 stroke 45 stroke 60 stroke 75 stroke 100 stroke 125 stroke 150 stroke 150 stroke 150 stroke 150 stroke 150 stroke 150 stroke 160 stroke 170 stroke 180 stroke 180 stroke 190 str	10 10 10 10 10 10 10 10		

Double knuckle joint (With

one-touch connecting pin)

Construction (Not able to disassemble)

Single acting, Spring return



22

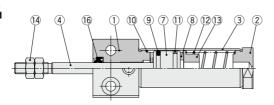
2

2



With auto switch

Single acting, Spring extend





With auto switch

Component Parts

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

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

D-□ -X□ Technical Data

CJ1

CJP

CJ2

JCM

CM2

CM3

CG₁

CG3

JMB

MB

MB1 CA2 CS₁

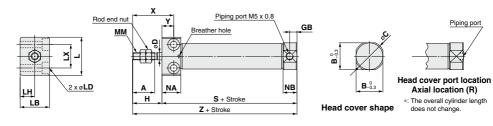
CS2

Rod end cap (Flat type) Rod end cap (Round type) *: Rod end nut is included in the basic weight.

CJ2R Series

Single Acting: Bottom Mounting

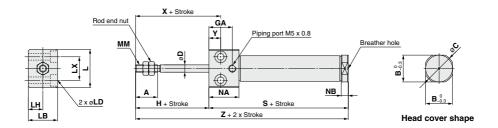
Spring return: CJ2RA 10 - Stroke S Head cover port location Z



																[mm]
Bore size	Α	В	С	D	GB	Н	L	LB	LD	LH	LX	MM	NA	NB	Х	Υ
10	15	12	14	4	5	20	23	16	ø3.5 through, ø6.5 counterbore depth 4	8 12		M4 x 0.7	12.8	9.5	28	8
16	15	18.3	20	5	5	20	26	20	ø4.5 through, ø8 counterbore depth 5	10	16	M5 x 0.8	12.8	9.5	28	8

Di	Dimensions by Stroke: Spring Return [mm]																
	D					3							7	Z			
	Bore size	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
	10	53.5	61	73	85	_	_	_	I —	73.5	81	93	105	_	_	_	
	16	53.5	62	74	86	92	116	134	146	73.5	82	94	106	112	136	154	166

Spring extend: CJ2RA 10 - Stroke TZ



																[iiiiii]
Bore size	Α	В	С	D	GA	Н	L	LB	LD	LH	LX	MM	NA	NB	Х	Y
10	15	12	14	4	16	20	23	16	ø3.5 through, ø6.5 counterbore depth 4	8	12	M4 x 0.7	20.5	4.8	28	8
16	15	18.3	20	5	16	20	26	20	ø4.5 through, ø8 counterbore depth 5	10	16	M5 x 0.8	20.5	4.8	28	8

I	Dimensions by Stroke: Spring Extend [mm]																
ı	Dave size					5							7	Z			
	Bore size	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
	10	56.5	64	76	88	_	_	_	_	76.5	84	96	108	_	_	_	_
	16	56.5	65	77	89	95	119	137	149	76.5	85	97	109	115	139	157	169

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

3 Cylinder standard stroke [mm]

Without auto switch

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

type (A or B) even when a built-in magnet cylinder without an auto

★ Enter the auto switch mounting

6 Auto switch

switch is required

CJ2RK Series



Number of auto switches

2 pcs.

1 pc.

"n" pcs.

Nil

s

n

CM3

CG₁

CG3

JMB

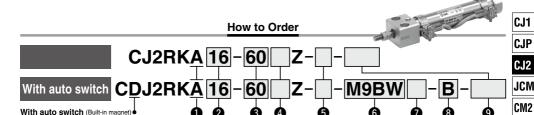
MB

MB₁

CA₂

CS₁

CS2



Mounting Bottom mounting

2 Bore size 10 mm 16 mm

ø10, ø16

Refer to "Standard Strokes" on page 128.

6 Rod end bracket

axis	0	
R Axial	•	

4 Head cover port location

Nil	None						
٧	Single knuckle joint						
W**	Double knuckle joint						
T	Rod end cap (Flat type)						
U	Rod end cap (Round type)						
*: Rod e	: 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).

Made to Order

Refer to page 128 for details.

*: Refer to "Ordering Example of Cylinder Assembly" on page 128.

<u> </u>	Auto switch mounting type
Α	Rail mounting
В	Band mounting
Га	wall manufing agreeme and nuts

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

Applicable Auto Cwitches

		Electrical Wiring			Load v	oltage		Auto swi	tch model		Lea	d wir	e le	Lead wire length [m]												
Туре	Special function	entry	Indicator light	(Output)		DC	AC	Band m	Band mounting Rail mounting			0.5	1	3	5	None	Pre-wired connector		cable ad							
	Cita	entry	Рá	(Output)		DC	AC	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	connector	10	au							
				3-wire (NPN)		5 V,12 V		M9NV	M9N	M9NV	M9N	•	•	•	0	-	0	IC circuit								
Ë		Grommet		3-wire (PNP)		3 V,12 V		M9PV	M9P	M9PV	M9P	•	•	•	0	—	0	IIC CIICUII								
switch				2-wire]	12 V		M9BV	M9B	M9BV	M9B	•	•	•	0	-	0									
		Connector		Z-WITE		12 V		_	H7C	J79C	_	•	-	•	•	•	_	_								
anto	Diagnostic indication		7 1	3-wire (NPN)		5 V,12 V		M9NWV	M9NW	VWN6W	M9NW	•	•	•	0	-	0	IC circuit	D.J.							
ā		Diagnostic indication (2-color indicator)			Ye	Y			Yes	3-wire (PNP)	24 V	3 V,12 V	_	M9PWV	M9PW	M9PWV	M9PW	•	•	•	0	-	0	ilo diladit	Relay	
state	(2-color indicator)		1 1									2-wire		12 V		M9BWV	M9BW	M9BWV	M9BW	•	•	•	0	-	0	l —
	Water resistant	Grommet		3-wire (NPN))	5 V,12 V		M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	•	0	-	0	IC circuit								
Solid	(2-color indicator)										3-wire (PNP)]	M9PAV* M9PA*	M9PA*1	M9PAV*1	M9PA*1	0	0	•	0	-	0	IIC GIIGUII			
ŭ	(2-color indicator)			2-wire	ĺ	12 V				M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	0	0	•	0	I —	0	I —						
	With diagnostic output (2-color indicator)			4-wire (NPN)		5 V,12 V		_	H7NF		F79F	•	-	•	0	-	0	IC circuit								
switch					V	3-wire (NPN equivalent) -	_	5 V	_	A96V	A96	A96V	A96	•	-	•	_	_	_	IC circuit	_					
>		Grommet	Yes		1	_	200 V	_	_	A72	A72H	•	_	•	_	_	_									
							100 V	A93V*2	A93	A93V*2	A93	•	•	•	• •	_	_	1 —								
anto			No			12 V	100 V or less	A90V	A90	A90V	A90	•	—	•	I —	—	_	IC circuit	Relay,							
		Cannadas	Yes	2-wire	24 V	12 V	_	_	C73C	A73C	_	•	_	•	•	•	_	_	PLĆ							
Reed		Connector	No				24 V or less	_	C80C	A80C	_	•	-	•	•	•	_	IC circuit								
_	Diagnostic indication (2-color indicator)	Grommet	Yes			_	_	_	_	A79W	_	•	1—	•	_	 —	_	<u> </u>	1							

- *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
 ··· N (Example) H7CN
- *: Since there are other applicable auto switches than listed, refer to page 149 for details
 - -X□

D-

Technical

- *: Solid state auto switches marked with "O" 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.)



CJ2RK Series

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

Non-rotating accuracy \emptyset 10: \pm 1.5°, \emptyset 16: \pm 1°



Symbol

Double acting, Single rod, Rubber bumper





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

Symbol	Specifications	Ī
-X446	PTFE grease	

Made to Order

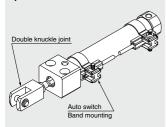
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Symbol	Specifications
	Change of rod end shape
-XC9	Adjustable stroke cylinder/Adjustable retraction type
-XC51	With hose nipple
-XC85	Grease for food processing equipment

Refer to page 152 before handling.

Ordering Example of Cylinder Assembly

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



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

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

Specifications

Bore size [mm]	10	16				
Action	Double acting, Single rod					
Fluid	Д	ir				
Proof pressure	1 N	1Pa				
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				
Rod non-rotating accuracy	±1.5°	±1°				
Piston speed	50 to 750 mm/s					
Allowable kinetic energy	0.035 J	0.090 J				

Standard Strokes

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

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

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

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

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

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

Weights

			[g]			
Bore	Bore size [mm]					
Basic weight	Basic	36	62			
(When the stroke is zero)	Axial piping	36	62			
Additional weight per 15 m	4	7				
	Single knuckle joint	17	23			
	Double knuckle joint (including knuckle pin)	25	21			
Accessories	Double knuckle joint (With one-touch connecting pin)	26	22			
	Rod end cap (Flat type)	1	2			
	Rod end cap (Round type)	1	2			

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

Calculation:

Example) CJ2RKA10-45Z

Basic weight 36 (Ø10)
 Additional weight 4/15 stroke

Cylinder stroke ----- 45 stroke

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

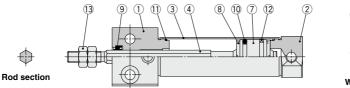
Refer to pages 142 to 149 for cylinders with auto switches.

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



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

Construction (Not able to disassemble)





CJ1 CJP CJ2

JCM CM2

CM3 CG1 CG3 JMB MB MB1

CA2

CS₁ CS2

With auto switch

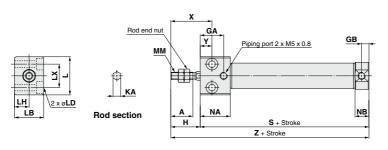
Component Parts

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

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

Bottom Mounting

CJ2RKA $^{10}_{16}$ – Stroke Head cover port location Z







Head cover port location Axial location (R)

*: The overall cylinder length does not change.

Piping port

																			[mm]
Bore size	Α	В	С	GA	GB	Н	KA	L	LB	LD	LH	LX	MM	NA	NB	Х	Υ	S	Z
10	15	12	14	16	5	20	4.2	23	16	ø3.5 through, ø6.5 counterbore depth 4	8	12	M4 x 0.7	20.5	9.5	28	8	54	74
16	15	18.3	20	16	5	20	5.2	26	20	ø4.5 through, ø8 counterbore depth 5	10	16	M5 x 0.8	20.5	9.5	28	8	55	75

D-□ -X□

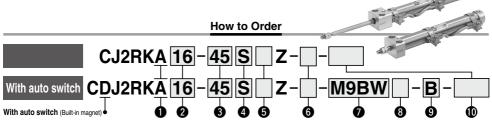
Technical Data



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

CJ2RK Series ø10, ø16





Mounting

Nil

R

A 130

_	_ · · · · · ·
Α	Bottom mounting

Head cover port location

Perpendicular to

axis

Axial

*: Not applicable to single acting.

spring extend (T)

A Rore size

9	DOTE SIZE
10	10 mm
16	16 mm

6 Rod end bracket

Nil	None					
V Single knuckle joint						
W**	Double knuckle joint					
Т	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).

Cvlinder standard stroke [mm] Refer to "Standard Strokes" on

page 131.

Nil	Without auto switch
	plicable auto switches, refer

Auto switch

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

4 Action

_	
S	Single acting, Spring return
Т	Single acting, Spring extend

8 Number of auto switche											
Nil	2 pcs.										
S	1 pc.										
n	"n" pcs.										

Auto switch mounting type Rail mounting Band mounting

Made to Order Refer to page 131 for details.

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

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

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

		Florando el	light	\A/:!		Load vo	oltage		Auto swit	ch model		Lea	d wir	re ler	ngth	[m]		Annli	cable												
Туре	Special function	Electrical entry	ndicator	Wiring (Output)		DC AC		Band mounting		Rail mounting		0.5	1	3	5	None	Pre-wired connector		ad												
		Citily	ğ	(Output)		DC	AC	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	00111100101	10.	au												
				3-wire (NPN)		5 V.12 V		M9NV	M9N	M9NV	M9N	•	•	•	0	_	0	IC circuit													
ء ا		Grommet		3-wire (PNP)		3 V, 12 V		M9PV	M9P	M9PV	M9P	•	•	•	0	_	0	O													
switch				2-wire]	12 V		M9BV	M9B	M9BV	M9B	•	•	•	0	 -	0]												
		Connector		Z-WITE]	12 V		_	H7C	J79C	_	•	_	•	•	•	_	_													
anto	Diagnostic indication			3-wire (NPN)		5 V,12 V		M9NWV	M9NW	M9NWV	M9NW	•	•	•	0	_	0	IC aireuit	۱ . ا												
	(2-color indicator)		Yes	3-wire (PNP)	24 V	5 V, 12 V	_	M9PWV	M9PW	M9PWV	M9PW	•	•	•	0	—	0	IC circuit	PLC												
state	(2-color indicator)	ior)													2-wire		12 V		M9BWV	M9BW	M9BWV	M9BW	•	•	•	0	_	0	_	' - 0	
ᄧ	Water resistant	Water registers Grommet		3-wire (NPN)	1	5 V.12 V		M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	•	0	—	0	IC circuit	1												
Solid	(2-color indicator)		İ											3-wire (PNP)		5 V, 12 V		M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	0	0	•	0	_	0	IC CITCUIL			
Ñ	(2-color indicator)															2-wire]	12 V		M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	0	0	•	0	_	0	_]
	With diagnostic output (2-color indicator)			4-wire (NPN)		5 V,12 V		_	H7NF	_	F79F	•	_	•	0	_	0	IC circuit													
switch				3-wire (NPN equivalent)	_	5 V	_	A96V	A96	A96V	A96	•	_	•	-	-	_	IC circuit	_												
3		Grommet	Yes]	_	200 V	_	_	A72	A72H	•	_	•	<u> </u>	_	_														
S		İ				100 V	A93V*2	A93	A93V*2	A93	•	•	•	•	_	_	1 —														
anto			No	0		10.1/	100 V or less	A90V	A90	A90V	A90	•	_	•	_	_	_	IC circuit	Relay,												
8		Cannadar	Yes	2-wire	24 V	12 V	_	_	C73C	A73C	_	•	_	•	•	•	_	_	PLĆ												
Reed		Connector	Connector	Connector No	No				24 V or less	_	C80C	A80C	_	•	_	•	•	•	_	IC circuit	1										
	Diagnostic indication (2-color indicator)	Grommet	Yes			_	_	_	_	A79W	_	•	_	•	<u> </u>	<u> </u>	_	_													

- *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
- *: Solid state auto switches marked with "O" 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.)

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

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

Non-rotating accuracy \emptyset 10: \pm 1.5°, \emptyset 16: \pm 1° Can operate without



Symbol

Single acting, Spring return, Rubber bumper Rubber bumper





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

	•	·	•			
Symbol		Specificati	on	3		i
-X446	PTFE grease					

Made to Order

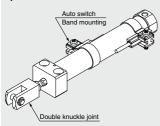
Click here for details

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



Ordering Example of Cylinder Assembly

Cylinder model: CDJ2RKA16-45SZ-W-M9BW-B



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

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

Specifications

Bore size [mm]	10	16			
Action	Single acting, Spring return/	Single acting, Spring extend			
Fluid	A	ir			
Proof pressure	1 N	1Pa			
Maximum operating pressure	0.7	MPa			
Minimum operating pressure	0.15	MPa			
Ambient and fluid temperature	Without auto switch: -10°C to 70°C (No freezing) With auto switch: -10°C to 60°C				
Cushion	Rubber bumper				
Lubrication	Not required (Non-lube)				
Stroke length tolerance	+1	1.0			
Rod non-rotating accuracy	±1.5°	±1°			
Piston speed	50 to 750 mm/s				
Allowable kinetic energy	0.035 J	0.090 J			

Standard Strokes

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

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

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

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

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

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

Spring Reaction Force

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

Spring with primary mounting load

in W



Spring with secondary

When the spring is set in the cylinder

When the spring is contracted by applying air

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

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



D-□

-X□

Technical

CJ1

CJP

CJ2 JCM CM2 CM3

CG₁

CG3

JMB MB

MB1

CA2

CS1

CJ2RK Series

Weights

Spring I	Return				[g]		
	Bore size [mm]	1	0	16			
	Mounting	Basic	Axial piping	Basic	Axial piping		
	15 stroke	44	44	83	83		
	30 stroke	52	52	99	99		
	45 stroke	62	62	117	117		
Basic	60 stroke	72	72	135	135		
weight	75 stroke			157	157		
	100 stroke			191	191		
	125 stroke			228	228		
	150 stroke			251	251		
	Single knuckle joint	1	7	23			
	Double knuckle joint (including knuckle pin)	2	25	2	:1		
Accessories	Double knuckle joint (With one-touch connecting pin)	2	26	22			
	Rod end cap (Flat type)		1	2			
	Rod end cap (Round type)		1	2			

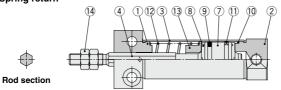
	Bore size [mm]	10	16		
	Mounting	Basic	Basic		
	15 stroke	42	79		
	30 stroke	48	93		
	45 stroke	57	110		
Basic	60 stroke	66	126		
weight	75 stroke		147		
	100 stroke		177		
	125 stroke		213		
	150 stroke		234		
	Single knuckle joint	17	23		
	Double knuckle joint (including knuckle pin)	25	21		
Accessories	Double knuckle joint (With one-touch connecting pin)	26	22		
	Rod end cap (Flat type)	1	2		
	Rod end cap (Round type)	1	2		

[g]

Spring Extend

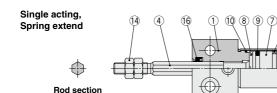
Construction (Not able to disassemble)

Single acting, Spring return





With auto switch





With auto switch

Component Parts

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

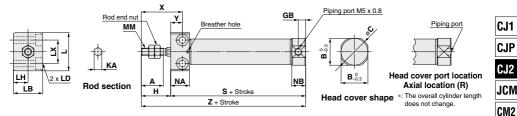
No.	Description	Material	Note
9	Piston seal	NBR	
10	Tube gasket	NBR	
11	Wear ring	Resin	
12	Return spring	Piano wire	
13	Spring seat	Aluminum alloy	
14	Rod end nut	Rolled steel	
15	Magnet	_	
16	Rod seal	NBR	

^{*:} Rod end nut is included in the basic weight.

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

Single Acting: Bottom Mounting

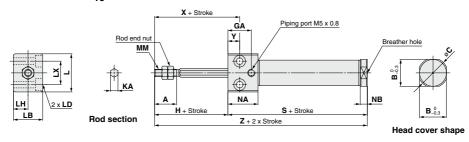
Spring return: CJ2RK $^{10}_{16}$ – Stroke S Head cover port location Z



																[mm]
Bore size	Α	В	С	GB	Н	KA	Г	LB	LD	LH	LX	MM	NA	NB	Х	Υ
10 1	15	12	14	5	20	4.2	23	16	ø3.5 through, ø6.5 counterbore depth 4	8	12	M4 x 0.7	12.8	9.5	28	8
16 1	15	18.3	20	5	20	5.2	26	20	ø4.5 through, ø8 counterbore depth 5	10	16	M5 x 0.8	12.8	9.5	28	8

Dimensions by Stroke: Spring Return [mm] s Bore size 126 to 150 5 to 15 16 to 30 31 to 45 46 to 60 61 to 75 76 to 100 5 to 15 16 to 30 31 to 45 46 to 60 61 to 75 76 to 100 126 to 150 10 53.5 61 73 73.5 81 105 16 53.5 62 74 92 116 134 146 73.5 82 94 106 154 166 112 136

Spring extend: CJ2RK 10 - Stroke TZ



																[mm]
Bore size	Α	В	С	GA	Н	KA	L	LB	LD	LH	LX	MM	NA	NB	Х	Υ
10	15	12	14	16	20	4.2	23	16	ø3.5 through, ø6.5 counterbore depth 4	8	12	M4 x 0.7	20.5	4.8	28	8
16	15	18.3	20	16	20	5.2	26	20	ø4.5 through, ø8 counterbore depth 5	10	16	M5 x 0.8	20.5	4.8	28	8

Dimensions	Dimensions by Stroke: Spring Extend (Dimensions not mentioned in the below table are the same as the above table.) [mm]															
Bore size S												7	<u> </u>			
bore size	5 to 15	5 to 15 16 to 30 31 to 45 46 to 60 61 to 75 76 to 100 101 to 125 126 to							5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150
10	56.5	64	76	88	_	_	_	_	76.5	84	96	108	_	_		_
16	56.5	65	77	89	95	119	137	149	76.5	85	97	109	115	139	157	169

-X - Technical Data

CM3

CG3

JMB

MB MB1

CA2

CS2

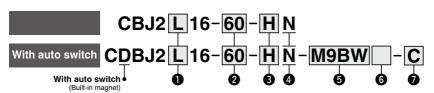
SMC

Air Cylinder: With End Lock

CBJ2 Series



How to Order



Mounting

В	Basic
L	Axial foot
F	Rod flange
D	Double clevis**

- *: Foot/Flange brackets are shipped together with the product, but not assembled.
- **: Rod end lock only.

6 Number of auto switches

	•	
	Nil	2 pcs.
	S	1 pc.
	n	"n" pcs.

2 Cylinder standard stroke [mm] Refer to "Standard Strokes" on page 135.

6 Auto switch

- 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.

Auto switch mounting bracket

*: This symbol is indicated when the D-A9 or M9 type auto switch is specified. This mounting bracket does not apply to other auto switches (D-C7 and H7, etc.) (Nil)

3 Lock position

_	
Н	Head end lock
R	Rod end lock

Manual release

Non-locking type

Built-in Magnet Cylinder Model

Suffix the symbol "-A" (Rail mounting) or "-B" (Band mounting) to the end of part number for cylinder with auto switch.

Example	Rail mounting	CDBJ2B16-45-HN-A
Example	Band mounting	CDBJ2B16-60-HN-B

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

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

	Electrical		light	Wiring		Load vol	tage		Auto swit	ch model		Lead	wir	e ler	igth	[m]	Pre-wired																				
Type		n entry	Indicator	(Output)		DC	AC	Band m	ounting	Rail mo	unting	0.5	1	3	5		connector	Applica	ble load																		
		Citity	Indic	(Output)		DC	AC	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	COINICCIO																				
				3-wire (NPN)		5 V,12 V		M9NV	M9N	M9NV	M9N	•	•	•	0	<u> </u>	0	IC circuit																			
Ę		Grommet		3-wire (PNP)		5 V, 12 V		M9PV	M9P	M9PV	M9P	•	•	•	0	—	0	IC CIICUII																			
switch				2-wire		12 V		M9BV	M9B	M9BV	M9B	•	•	•	0	-	0]																		
S		Connector		Z-WIIE		12 0		_	H7C	J79C	_	•	_	•	•	•	_	_																			
anto	Diama atia indiama		1	3-wire (NPN)		E V 10 V		M9NWV	M9NW	M9NWV	M9NW	•	•	•	0	_	0	IC aireuit	D-1																		
	Diagnostic indication (2-color indicator)		Yes	3-wire (PNP)	24 V	5 V,12 V	_	M9PWV	M9PW	M9PWV	M9PW	•	•	•	0	 -	0	IC circuit	Relay, PLC																		
state	(2-color indicator)		t																ĺ	ĺ		2-wire		12 V	1	M9BWV	M9BW	M9BWV	M9BW	•	•	•	0	_	0	_	PLC
	Water resistant (2-color indicator)	irommet		3-wire (NPN)		5 V,12 V	,			M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	•	0	_	0	10	1																
Solid				3-wire (PNP)					M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	0	0	•	0	 -	0	IC circuit																		
Ñ								İ												2-wire	ĺ	12 V	1	M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	0	0	•	0	_	0	_	1		
	With diagnostic output (2-color indicator)	1		4-wire (NPN)		5 V,12 V	7	_	H7NF		F79F	•	-	•	0	-	0	IC circuit]																		
_				3-wire		5 V	_	A96V	A96	A96V	A96	•			_	_	_	IC circuit	_																		
switch		Grommet	Grommet	Grommet	l	i		Yes	(NPN equivalent)	—			7001				_		_				TO GIT GUIL														
3					103			_	200 V	_	_	A72	A72H	•	_	•	_	<u> </u>	_	_																	
							100 V	A93V*2	A93	A93V*2	A93	•	•	•	•	<u> — </u>	_																				
anto			No	2-wire		12 V	100 V or less	A90V	A90	A90V	A90	•	_	•	_	_	_	IC circuit	Relay,																		
8		Connector	IYesI	24 V	12 0	_	_	C73C	A73C	_	•	<u> </u>	•	•	•	_	_	PLC																			
Reed	Connector	Connector	Connector	Connector 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 "O" are produced upon receipt of order.
- *: The D-A9□/M9□/A7□/A80□/F7□/J7□ auto switches are shipped together, (but not assembled). (However, when the D-A9□/M9□ types are selected, only auto
- switch mounting brackets are assembled before being shipped.)

 *: When the D-A9□/M9□ types are mounted on a rail, order auto switch mounting brackets separately. Refer to page 148 for details.

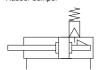


Air Cylinder: With End Lock CBJ2 Series

The CJ2 air cylinder is equipped with end lock function.



Symbol Rubber bumper



Specifications

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

^{*: 0.06} MPa for parts other than the lock unit.

Lock Specifications

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

Standard Strokes

	[mm]	CS1				
Bore size	Standard stroke					
16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200	CS2				
* Manufacture of intermediate strokes in 1 mm increments is possible. (Spacers are not used.)						

Mounting Brackets/Part No.

Mounting brookst	Bore size [mm]
Mounting bracket	16
Foot	CJ-L016B
Flange	CJ-F016B
Pivot bracket (T-bracket)Note 1)	CJ-T016B

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

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

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

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

Moisture Control Tube **IDK Series**

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

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

ØSMC

-X□

D-□

CJ₁

CJP CJ₂ **JCM** CM₂

CM3

CG₁

CG3 JMB MB MB1 CA₂

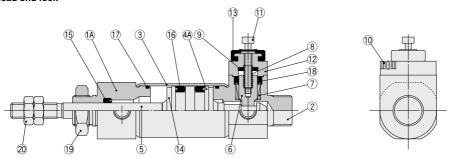
135 ®

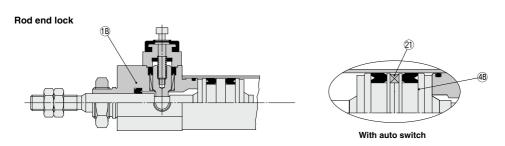
^{*:} Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on front matter pages. In addition, the products that exceed the standard stroke might not be able to fulfill the specifications due to the deflection etc.

CBJ2 Series

Construction (Not able to disassemble)

Head end lock





Component Parts

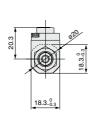
No.	Description	Material	Note
1A	Rod cover	Aluminum alloy	
1B	Rod cover	Stainless steel	
2	Head cover	Aluminum alloy	
3	Cylinder tube	Stainless steel	
4A	Piston	Aluminum alloy	
4B	Piston B	Aluminum alloy	
5	Piston rod	Carbon steel	
6	Locking piston	Carbon steel	
7	Locking bushing	Copper alloy	
8	Lock spring	Spring steel	
9	Bumper	Urethane	
10	Hexagon socket head cap screw	Alloy steel	

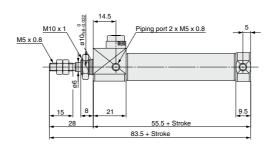
No.	Description	Material	Note
11	Hexagon socket head cap screw	Alloy steel	
12	Сар	Aluminum alloy	
13	Rubber cap	Synthetic rubber	
14	Bumper	Urethane	
15	Rod seal	NBR	
16	Piston seal	NBR	
17	Tube gasket	NBR	
18	Locking piston seal	NBR	
19	Mounting nut	Brass	
20	Rod end nut	Rolled steel	
21	Magnet		

Air Cylinder: With End Lock CBJ2 Series

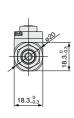
Dimensions

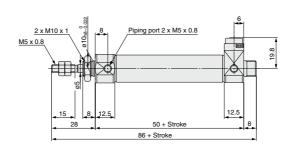
Basic





With head end lock: C□BJ2B16-□□-HN





CJ1

CJP

CJ2 JCM

CM2

CM3

CG1

CG3

МВ

MB1

CA2

CS2

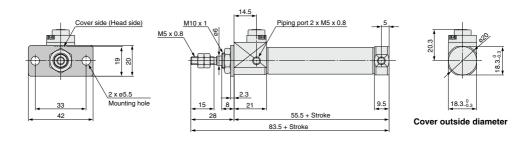
D-□ -X□

Technical Data

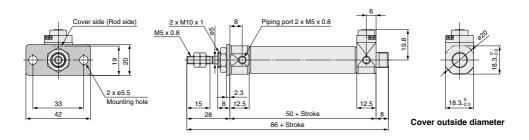
CBJ2 Series

Dimensions

Flange



With head end lock: C□BJ2F16-□□-HN

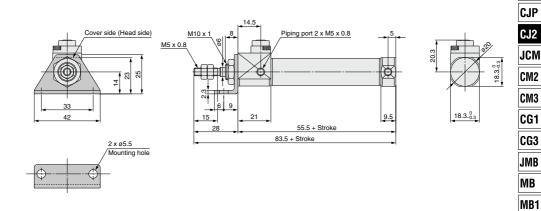


Air Cylinder: With End Lock CBJ2 Series

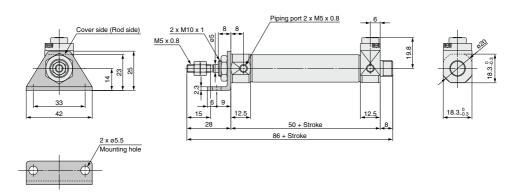
Dimensions

Axial foot

With rod end lock: C□BJ2L16-□-RN



With head end lock: C□BJ2L16-___-HN



D
-X

Technical Data

CJ1

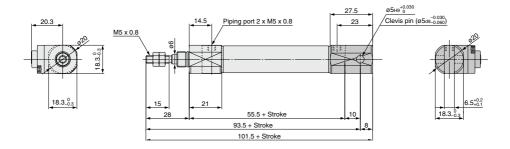
CA2 CS1 CS2

CBJ2 Series

Dimensions

Double clevis

With rod end lock: C□BJ2D16-□□-RN





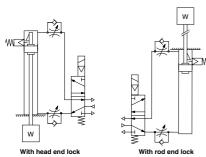
CBJ2 Series Specific Product Precautions

Be sure to read this before handling the products. Please consult with SMC for products outside these specifications.

Use Recommended Air Pressure Circuit.

∕ Caution

• It is necessary for proper locking and unlocking.



Selection

⚠ Caution

1. Do not use a 3-position solenoid valve.

Avoid using this cylinder in combination with a 3-position solenoid valve (particularly the closed center metal seal type). If air pressure becomes sealed inside the port on the side that contains the lock mechanism, the lock will not engage. Even if the lock is engaged at first, the air that leaks from the solenoid valve could enter the cylinder and cause the lock to disengage as time elapses.

2. Back pressure is necessary for unlocking.

Before starting, make sure that air is supplied to the side that is not equipped with a lock mechanism as shown in the diagram above. Otherwise, the lock may not disengage. (Refer to "Lock Disengagement.")

Disengage the lock before installing or adjusting the cylinder.

The lock could become damaged if the cylinder is installed with its lock engaged.

4. Operate the cylinder at a load ratio of 50% or less. The lock might not disengage or might become damaged if a load ratio of 50% is exceeded.

5. Do not synchronize multiple cylinders.

Do not operate two or more end lock cylinders synchronized to move a single workpiece because one of the cylinder locks may not be able to disengage when required.

Operate the speed controller under meterout control.

If operated under meter-in control, the lock might not disengage.

7. On the side that has a lock, make sure to operate at the stroke end of the cylinder.

The lock might not engage or disengage if the piston of the cylinder has not reached the stroke end.

The position adjustment of the auto switch should be performed at two positions; a position determined by the stroke and a position after the backlash movement (by 1 mm).

When a 2-color indicator switch is adjusted to show green at the stroke end, the indication may turn red when the cylinder returns by the backlash. This, however, is not an error.

Operating Pressure

Supply air pressure of 0.15 MPa or higher to the port on the side that has the lock mechanism, as it is necessary for disengaging the lock.

Exhaust Air Speed

_Caution

The lock will engage automatically if the air pressure at the port on the side that has the lock mechanism becomes 0.05 MPa or less. Be aware that if the piping on the side that has the lock mechanism is narrow and long, or if the speed controller is located far from the cylinder port, the exhaust air speed could become slower, involving a longer time for the lock to engage. A similar result will ensure if the silencer that is installed on the exhaust port of the solenoid valve becomes clogged.

Lock Disengagement

⚠ Warning

To disengage the lock, make sure to supply air pressure to the port on the side without a lock mechanism, thus preventing the load from being applied to the lock mechanism. (Refer to the recommended air pressure circuit.) If the lock is disengaged when the port on the side that does not contain a lock mechanism is in the exhausted state and the load is being applied to the lock mechanism, undue force will be applied to the lock mechanism, and it may damage the lock mechanism. Also, it could be extremely dangerous, because the piston rod could move suddenly.

Manual Disengagement

. Caution

Non-locking type manual release

Insert the bolt, which is provided as an accessory part, through the rubber cap (it is not necessary to remove the rubber cap). Screw the bolt into the lock piston and pull the bolt to disengage the lock. Releasing the bolt will re-engage the lock. The bolt size, pulling force, and the stroke are listed below.

Bore size [mm]	Thread size	Pulling force [N]	Stroke [mm]
16	M2 x 0.4 x 20 L or more	4.9	2

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



D-U
-XU
Technical

CJ1

CJP

CJ2

JCM

CM₂

CM3

CG₁

CG3

JMB

MB

MB₁

CA₂

CS₁

CS₂

@SMC

141 A

CJ2 Series

Auto Switch Mounting

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

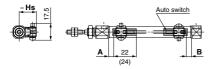
Solid state auto switch

<Band mounting>

D-M9□

D-M9□W

D-M9□A

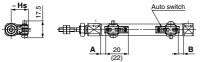


(): Dimension of the D-M9□A. A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

D-M9□V

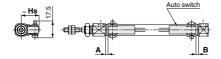
D-M9□MV

D-M9□AV



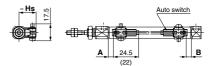
(): Dimension of the D-M9□AV. A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

D-H7□ D-H7□W D-H7BA D-H7NF D-H7C



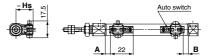
Reed auto switch <Band mounting>

D-A9□



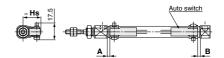
(): Dimension of the D-A96. A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

D-A9□V

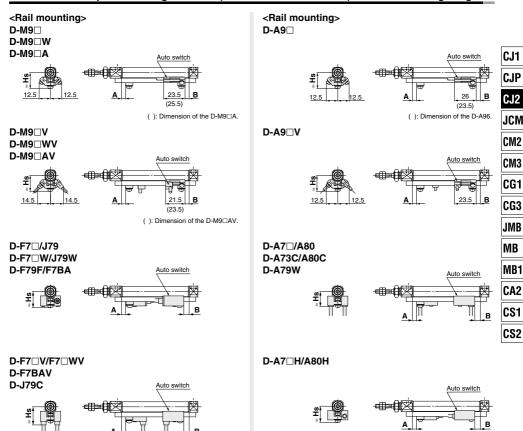


A and B are the dimensions from the end of the head cover/rod cover to the end of the auto switch.

D-C7□/C80 D-C73C□/C80C



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



-X - Technical Data

10

16

(5)6

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

1.5

2

Auto Switch Proper Mounting Position (Single acting type excluded) [mm] Auto switch Band mounting model D-M9□ D-M9□V D-M9□W D-H7□ D-C7□ D-C80 D-C73C D-C80C D-H7C D-H7NF D-H7□W D-H7BA D-A9□ D-M9□WV D-M9□A D-A9□V D-M9□AV В В В Α В Bore size Α Α Α 5.5 (4.5) 5.5 (4.5) 1.5 (0.5) 1.5 (0.5) 2 6 (8.5) (0.5)[12] [4] [8] [0] (7.5)(0)

(1)2

(1)2

(5)6

												[mm]	
Auto switch				Rail mounting									
model	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□W/F7□WV D-F79F D-J79C D-F7BA D-F7BA D-F7BAV D-A7□H/A80H D-A73C/A80C		D-F7NT		D-A		D-A79W		
Bore size	Α	В	Α	В	Α	В	Α	В	Α	В	Α	В	
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	

1.5

2

2.5

3

2.5

3

^{*:} Adjust the auto switch after confirming the operating condition in the actual setting

Auto Switch Mounting Height [mm								
Auto switch		Band mounting						
model	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			
Bore size	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		Rail mounting						
model	D-M9 D-M9 V D-M9 W D-M9 W D-M9 A V 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	
Bore size	Hs	Hs	Hs	Hs	Hs	Hs	Hs	
6	_	_	_	_	_	_	_	
10	17.5	17.5	20	23	16.5	23.5	19	
16	21	20.5	23	26	19.5	26.5	22	

^{(5.5) 6.5 (5.5) 6.5 (1.5) 2.5 (1.5) 2.5} *: 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).

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 (CDJ2KUUU-USZ)
- · Direct Mount Type (CDJ2R□□□-□SZ)

Direct Mount, Non-rotating Rod Type (CDJ2RK□□□-□SZ)

[mm] CJP CJ2 6 6.5 5.5 6 6.5 5.5 CM2 2.5 CG1 1.5 2 CG3 2.5 1 JMB 1.5 2 2.5 MB 1 2 2 2.5 MB 1 2 2 2.5 MB 1

CA2 CS1 CS2

CJ1

Auto switch model Bore A dimensions			В									
	Auto switch model	size	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	- B
	D-M9□	6	_	12	21	25	39	_	_	_	_	5.5
	D-M9□W/M9□WV	10	_	13	20.5	32.5	44.5	_	_	_	_	6
	D-M9□A/M9□AV	16	_	12.5	21	33	45	51	75	93	105	6.5
		6	12	12	21	25	39	_	_	_	_	5.5
	D-M9□V	10	13	13	20.5	32.5	44.5	_	_	_	_	6
		16	12.5	12.5	21	33	45	51	75	93	105	6.5
		6	_	8	17	21	35	_	_	_	_	1.5
mounting	D-A9□	10	_	9	16.5	28.5	40.5	_	_	_	_	2
our		16	_	8.5	17	29	41	47	71	89	101	2.5
Ε		6	8	8	17	21	35	_	_	_	_	1.5
Band	D-A9□V	10	9	9	16.5	28.5	40.5	_	_	_	_	2
1		16	8.5	8.5	17	29	41	47	71	89	101	2.5
	D-H7□/H7C	6	_	7.5	16.5	20.5	34.5	_	_	_		1
	D-H7□W/H7BA	10	_	8.5	16	28	40	_	_	_	_	1.5
	D-H7NF	16	_	8	16.5	28.5	40.5	46.5	70.5	88.5	100.5	2
	D-C7□/C80	6	_	8.5	17.5	21.5	35.5	_	_	_	_	2
	D-C73C	10	_	9.5	17	29	41	_	_	_	_	2.5
	D-C80C	16	_	9	17.5	29.5	41.5	47.5	71.5	89.5	101.5	3
	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
	D-A3	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
	D-A3E V	16	7	7	15.5	27.5	39.5	45.5	69.5	87.5	99.5	1
mounting	D-F7□/F7□V D-J79/J79C	10	10.5	10.5	18	30	42	_	_	_	_	3.5
Railm	D-A7□H/A80H D-A73C/A80C	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	10	-	10.5	18	30	42	-	_	-	_	3.5
	D-F7BA/F7BAV	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
	D AI SIAOU	16	9.5	9.5	18	30	42	48	72	90	102	3.5
	D-A79W	10	_	7.5	15	27	39	_	_	_	_	0.5
	DAISH	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.

D-U
-XU
Technical

SMC



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] **B** dimensions Bore Auto switch model 76 to 100 st | 101 to 125 st | 126 to 150 st 5 to 9 st 10 to 15 st 16 to 30 st 31 to 45 st 46 to 60 st 61 to 75 st 5.5 D-M9□ 6 12 21 25 39 D-M9□W/M9□WV 10 6 13 20.5 32.5 44.5 D-M9□A/M9□AV 16 6.5 12.5 21 33 45 51 75 93 105 6 5.5 12 12 21 25 39 D-M9□V 10 6 13 13 20.5 32.5 44.5 16 6.5 12.5 12.5 21 33 45 51 75 93 105 1.5 6 Я 17 21 35 D-A9□ 10 2 9 16.5 28.5 40.5 16 2.5 8.5 17 29 41 47 71 89 101 6 1.5 Я Я 17 21 35 D-A9□V 10 2 9 9 16.5 28.5 40.5 16 2.5 8.5 8.5 17 29 41 47 71 89 101 6 1 7.5 16.5 20.5 34.5 D-H7□/H7C D-H7 W/H7BA 10 1.5 8.5 16 28 40 D-H7NF 2 8 28.5 40.5 46.5 70.5 88.5 100.5 16 16.5 6 2 8.5 17.5 21.5 35.5 D-C7□/C80 D-C73C 2.5 9.5 17 29 41 D-C80C 16 3 9 17.5 29.5 41.5 47.5 71.5 89.5 101.5 4.5 11.5 31 43 D-M9□W/M9□WV D-M9□A/M9□AV 5 11 43.5 49.5 73.5 103.5 4.5 11.5 11.5 31 43 D-M9□V 16 5 11 11 19.5 31.5 43.5 49.5 73.5 91.5 103.5 10 0.5 7.5 15 27 39 D-A9□ 16 1 15.5 27.5 39.5 45.5 69.5 87.5 99.5 0.5 7.5 7.5 27 39 10 15 D-A9□V 1 7 7 16 15.5 27.5 39.5 45.5 69.5 87.5 99.5 D-F7 - /F7 - V 10 10.5 10.5 18 30 42 3.5 D-J79/J79C D-A7 H/A80H 16 4 10 10 18.5 30.5 42.5 48.5 72.5 102.5 D-A73C/A80C 90.5 D-F7 W/J79W 10 3.5 10.5 18 30 42 D-F7 WV/F79F D-F7BA/F7BAV 4 16 10 18.5 30.5 42.5 48.5 72.5 90.5 102.5 10 8.5 15.5 23 35 47 D-F7NT 47.5 77.5 16 9 15 23.5 35.5 53.5 95.5 107.5 29.5 10 3 10 10 17.5 415 D-A7□/A80 3.5 9.5 42 16 9.5 18 30 48 72 90 102 10 0.5 7.5 15 27 39 D-A79W 7 27.5 39.5 45.5 69.5 87.5 99.5

^{*:} In the actual setting, adjust them after confirming the auto switch performance.

Auto Switch Mounting CJ2 Series

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

Minimum Stroke for Auto Switch Mounting

				Novelesses		[mm]	
Auto switch	A. de accidede acceded	Number of auto switches With 2 pcs. With n pcs. (n: Number of auto switches					
mounting	Auto switch model	With 1 pc.					
	D-M9□ D-M9□W D-M9□A D-A9□	10	Different surfaces 15*1	Same surface 45*1	Different surfaces $15 + 35 \frac{(n-2)}{2}$ $(n = 2, 4, 6)^{*3}$	Same surface 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)	
Band mounting	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)	
	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	
Rail mounting	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.

*1: Auto switch mounting			
	With 2 aut	o switches	
	Different surfaces*1	Same surface*1	
Auto switch model	Auto switch D-M9=(V) D-M9=A(V) D-M9=A(V)		
	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.



D-□ -X□ Technical

^{*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.

Operating Range

_				[mm]	
Auto switch model		Bore size			
	Auto switch model		10	16	
ting	D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV	2	2.5	3	
on	D-A9□	4.5	6	7	
Band mounting	D-H7□/H7□W D-H7BA/H7NF	3	4	4	
В	D-H7C	5	8	9	
	D-C7□/C80/C73C/C80C	6	7	7	
	D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV	_	3	3.5	
Б	D-A9□/A9□V	_	6	6.5	
Rail mounting	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			Bore size [mm]		
switch	Auto switch model				
mounting		6	10	16	
	D-M9 D-M9 V D-M9 W D-M9 WV D-A9 D-A9 U	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	c Transpare	oket (Resin) It (Nylon)*1 It blue (Nylon)*1 In oket (Resin) It blue (Nylon)*1 It blue (Nylon)*1 It blue (Nylon)*1 It blue (Nylon)*1 It blue (Nylon)*1 It blue (Nylon)*1 It blue (Nylon)*1 It blue (Nylon)*1 It blue (Nylon)*1			
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) Auto switch mounting bracket BQ2-012 BQ2-012 BQ2-012S Auto switch mounting bracket Auto switch mounting bracket Auto switch mounting bracket Auto switch mounting bracket Auto switch mounting screw Nut (Cylinder accessory)		

- *1: Since the switch bracket (made from nylon) are affected in an environment where alcohol, chloroform, methylamines, hydrochloric acid or sulfuric acid is splashed over, so it cannot be used. Please contact SMC regarding other chemicals.
- *2: As the indicator LED is projected from the auto switch unit, indicator LED may be damaged if the switch bracket is fixed on the indicator LED.
- *3: When the cylinder is shipped, the auto switch mounting bracket and the auto switch will be included.
- *4: For D-M9□A(V), order the BQ2-012S, which uses stainless steel mounting screws.

Band Mounting Brackets Set Part No.

Set part no.	Contents	Bore size [mm]				
Set part 110.	Contents	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.

Туре	Mounting	Model	Electrical entry	Features	Applicable bore size	
Band mounting		D-H7A1/H7A2/H7B		_	ø6 to ø16	
	Band mounting	D-H7NW/H7PW/H7BW	Grommet	Diagnostic indication (2-color indicator)	90 10 9 10	
Sold state		D-F79/F7P/J79	(In-line)	_		
Solu state	Rail mounting	D-F79W/F7PW/J79W		Diagnostic indication (2-color indicator)	ø10. ø16	
		D-F7NV/F7PV/F7BV	Grommet	_	910, 910	
		D-F7NWV/F7BWV	(Perpendicular)	Diagnostic indication (2-color indicator)		
	Band mounting	D-C73/C76		_	ø6 to ø16	
	Band mounting	D-C80	Grommet	Without indicator light	7 00 10 10	
Reed		D-A73H/A76H	(In-line)	_		
neeu	Rail mounting	D-A80H		Without indicator light	ø10. ø16	
	hall illouliting	D-A73	Grommet	_	910, 916	
		D-A80	(Perpendicular)	Without indicator light		

^{*:} With pre-wired connector is also available for solid state auto switches. For details, refer to pages 1648 and 1649.

CJ1

CJP CJ2

JCM

CM2 CM3

CG1

CG3

JMB

MB MB1

CA2

CS1

CS2

^{*:} Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H) are also available. For details, refer to page 1593.

CJ2 Series

Made to Order: Individual Specifications

Contact SMC for detailed specifications, delivery and prices.



1 PTFE Grease

Symbol -X446

Applicable Series

Description	Model	Action	Note
	CJ2	Double acting, Single rod	
Standard type	002	Single acting (Spring return/extend)	
	CJ2W	Double acting, Double rod	
Non-rotating rod	C/15K	Double acting, Single rod	
type	CJ2K	Single acting (Spring return/extend)	
Built-in speed	CJ2Z	Double acting, Single rod	
controller type	CJ2ZW	Double acting, Double rod	
Direct mount type	CIOD	Double acting, Single rod	
Direct mount type	CJ2R	Single acting (Spring return/extend)	
Direct mount,	CIODIC	Double acting, Single rod	
Non-rotating rod type	CJ2RK	Single acting (Spring return/extend)	

How to Order

Standard model no. – X446

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.

2 Short Pitch Mounting/Single Acting, Spring Return

Symbol -X773

CJ1

CJP

CJ₂ **JCM** CM2 СМЗ

CG1

CG3

JMB MB

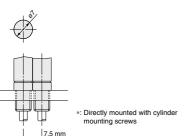
MB1

CA2

CS₁ CS2

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.



Applicable Series

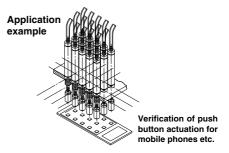
Applicable defies					
Description	Model	Action	Note		
Standard type	CJ2	Single acting (Spring return)			



CJ2B6 -Stroke SU4Z - X773

Short pitch mounting/ Single acting, spring return



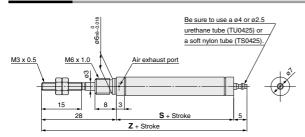


Specifications

Opeomoutions					
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				

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

Dimensions



				[mm]
Stroke	5 to 15	16 to 30	31 to 45	46 to 60
S	30.5	39.5	39.5 43.5	
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 needlenose pliers or regular pliers.

D-□ -X□ Technical Data



Symbol

-X2838

3 Double Clevis (With One-touch Connecting Pin)

With pivot bracket (T-bracket) and one-touch connecting pin

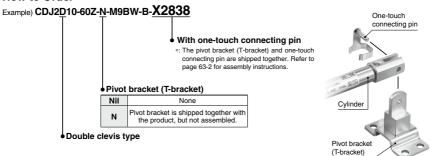
Not necessary to order a bracket for the applicable cylinder separately.

Applicable Series

Applicable Cylinders (Double Clevis Type)

Applicable Cylindere (Beable Cievie 1996)						
Series	Bore size [mm]	Type	Model	Action	Note	
CJ2D	10, 16	Standard	CJ2D	Double acting, Single rod	Cannot be mounted on	
			CJ2D	Single acting, Single rod (Spring return/extend)	cylinders with air cushion, or rail mounting	
		Non-rotating rod type	CJ2KD	Double acting, Single rod		
			CJ2KD	Single acting, Single rod (Spring return/extend)	type auto switches.	



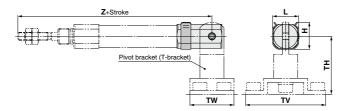


Specifications: Same as standard type

Dimensions

$$CJ2D_{16}^{10} - Stroke Z - (N) - X2838$$

*: Refer to page 63-2 for assembly procedures and mounting methods.



					[mm]	
Applicable bore size	н	L	тн	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.

CJ2 Series



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.

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 quide/Sectional area of cylinder (mm²)}

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.

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

 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.

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

<Pre><Pre>cautions on the single acting cylinder>

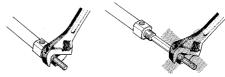
- 1) Do not operate it in such a way that a load would be applied during the retraction of the piston rod of the spring return type, or during the extension of the piston rod of the spring extend type. The spring that is built into the cylinder provides only enough force to retract the piston rod. Thus,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

<Pre><Pre>cautions on the non-rotating cylinder>

- 1) Tighten the retaining screws to an appropriate tightening torque within the range given below. ø10: 10.8 to 11.8 N·m, ø16: 20 to 21 N·m
- 2) Do not operate it in such a way that rotational torque would be applied to the piston rod. If rotational torque is applied, the non-rotating guide will become deformed, thus affecting the non-rotating accuracy.

Allowable rotational torque [N·m]	ø 10	ø 16
Allowable rotational torque [N-III]	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.



D-U

CJ₁

CJP

CJ₂

JCM

CM₂

CM3

CG₁

CG3

JMB

MB

MB1

CA2

CS₁

CS₂

ØSMC