Air Cylinder CJ2 Series Ø6, Ø10, Ø16



@SMC

Air Cylinder



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

Not necessary to order a bracket for the applicable cylinder separately

Note) Mounting bracket is shipped together with the product, but not assembled.



A 42



Stroke Variations

Bara size (mm)	Standard stroke										CM3
Bore size [mm]	15	30	45	60	75	100	125	150	175	200	
6		-									CG1
10	$ -\phi-$										CG3
16	$ -\phi $						-0-			- \	JMB

Series Variations

			В	ore size [mi	m]	Varia	ations	_	IVID
Standard D	Action	Туре	6	10	16	Built-in magnet	Air cushion	Page	MR1
Standard CJ2-Z	Double acting	Single rod	•	•	•	•	•	46	CA2
	Double acting	Double rod	•	•		-	-	64	CS1
al distance	Single acting	Single rod (Spring return /extend)	•	•	-	-		71	CS2
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		-0-	-	-		114	
Direct mount CJ2R-Z	Double acting	Single rod		-				119	
at the second	Single acting	Single rod (Spring return /extend)						123	
Direct mount, Non-rotating rod CJ2RK-Z	Double acting	Single rod						127	
	Single acting	Single rod (Spring return /extend)						130	
With end lock CBJ2	Double acting	Single rod			•			134	
Smooth Cylinder CJ2Y-Z	Double	Single rod		-				Best Pneumatics No. 2-3	D-□
Low Speed Cylinder CJ2X-Z	Double acting	Single rod						Best Pneumatics No. 2-3	-X□
*: The air cylinder with end lock has the same si *: Air cushion is only available for #10 and #16	hape as th	ne current pro	duct.	Т	Г			10.20	Technica Data

*: Air cushion is only available for ø10 and ø16.

43 A

CONTENTS

Air Cylinder CJ2 Series



Air Cylinder: Standard Type

Double Acting, Single Rod CJ2 Series

How to Order	·· P.46
Specifications	·· P.47
Construction	·· P.49
Dimensions ·····	·· P.50
Dimensions of Accessories (Options)	·· P.63
Precautions ······	P.63-2

Air Cylinder: Standard Type

Double Acting, Double Rod CJ2W Series	
How to Order	······ P.64
Specifications	······ P.65
Construction ·····	······ P.67

Dimensions P.68



a the second





Air Cylinder: Standard Type

Single Acting, Spring Return/Extend CJ2 Series How to Order P.71 Specifications P.72

Construction P.74 Dimensions P.75

Air Cylinder: Non-rotating Rod Type

····· P.88
····· P.89
····· P.90
····· P.91

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

How to Order	P.95
Specifications	····· P.96
Construction	····· P.98
Dimensions	····· P.99

Air Cylinder: Built-in Speed Controller Type

SMC

Double Acting, Single Rod CJ2Z Series How to Order P.107 Specifications P.108 Construction P.109 Dimensions P.110



13- A. T.

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

How to Order P.114	0.14
Specifications ······P.115	UJ I
Construction ······ P.116	CJP
Dimensions ······P.117	
	CJ2
Air Cylinder: Direct Mount Type	JCM
Double Acting, Single Rod CJ2R Series	CMO
How to Order ······P.119	UNIZ
Specifications P.120	CM3
Construction P.122	001
	GUI
Air Cylinder: Direct Mount Type	CG3
Single Acting, Spring Return/Extend CJ2R Series	IMR
How to Order ······P.123	
Specifications P.124	MB
Construction P.125	MB1
Dimensions ······P.126	040
	UAZ
Air Cylinder: Direct Mount, Non-rotating Rod Type	CS1
Double Acting, Single Rod CJ2RK Series	663
How to Order ······P.127	632
Specifications ······P.128	
Construction P.129	
Dimensions ······P.129	
Air Cylinder: Direct Mount, Non-rotating Rod Type	
Single Acting Spring Poturn/Extend C 12PK come	



Single Acting, Spring Return/Extend CJ2RK Series

	•	0			
How to Order		 	 		 · P.130
Specifications		 	 		 · P.131
Construction ·		 	 		 · P.132
Dimensions ··		 	 	•••••	 · P.133



	Dimensions ·····	P.133
	Air Cylinder: With End Lock CBJ2 Series	
E.	How to Order	······ P.134
· (in	Specifications	······ P.135
W	Construction	······ P.136
	Dimensions	······ P.137
	Specific Product Precautions	······ P.141

Auto Switch Mounting	D-□
Auto Switch Mounting	
Made to Order: Individual Specifications P.150	- X □
Specific Product Precautions P 152	
	Technical
	Data





CJ2 Series

	Series		C. (Standa	J2 rd type)	(Non-re					
Standard Made to Order Special product (Please contact SMC for details.) Not available		Action/	Double	acting	Single	acting	Double acting	Single acting		
		Туре	Single rod	Double rod	Single rod (spring return)	Single rod (spring extend)	Single rod	Single rod (spring return)	Single rod (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	50 10 510	•	•	•	•	•	•	•	
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		O	_	_	_	_	_	_	
XB13	Low speed cylinder (5 to 50 mm/s)	ø6	O	_	_	—	_	_	—	
ХСЗ	Special port position* ^{2, 4}	ø6 to ø16	0	0	_	_	0	_	_	
XC8	Adjustable stroke cylinder/ Adjustable extension type ^{*4}		0	_	0	0	0	0	0	
XC9	Adjustable stroke cylinder/ Adjustable retraction type ^{*4}	ø10. ø16	0	_	0	_	0	0	_	
XC10	Dual stroke cylinder/Double rod type ^{*4}		0	_	0	0	0	0	0	
XC11	Dual stroke cylinder/Single rod type*4		0	_	_	_	0	_	_	
XC22	Fluororubber seal*4	ø6 to ø16	0	0	0	0	0	0	0	
XC51	With hose nipple		O	0	0	O	0	0	0	
XC85	Grease for food processing equipment	ø10. ø16	0	0	0	0	0	0	0	
X446	PTFE grease		0	0	0	0	0	0	0	
X773	Short pitch mounting	ø6	_	_	0	_	_		_	
X2838	Double clevis (With one-touch connecting pin)*11	ø10, ø16	O	—	0	O	0	O	O	

*1: Mounting type: Not compatible with the clevis type.

- An auto switch is available in the band mounting type only.
- *2: An auto switch is available in the band mounting type only.

*3: The products with an auto switch are not compatible.
*4: The products with an air cushion are not compatible.

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

*6: The shape is the same as the current product.

*7: Available only for locking at head end.

*8: Available only for locking at rod end.

*9: ø10 and ø16 only
 *10: Copper and fluorine-free [20-] are available as standard products.

*11: Not compatible with the air cushion or rail mounting type auto switches.

CJ2Z (Built-in speed controller type)		CJ2Z CJ2R CJ2RK in speed controller type) (Direct mount type) (Direct mount, Non-rotating rod type)						CBJ2 (With end lock) ^{*6}	CJ2Y Smooth Cylinder	CJ2X Low Speed Cylinder	
Double	e acting	Double acting	Single	acting	Double acting	Single	acting	Double acting	Double acting	Double acting	
Single rod	Double rod	Single rod	Single rod (spring return)	Single rod (spring extend)	Single rod	Single rod (spring return)	Single rod (spring extend)	Single rod	Single rod	Single rod	
107	114	119	1:	23	127	1	30	134	Best Pneumatics No. 2-3	Best Pneumatics No. 2-3	
			ø10	ø16				ø16	ø10, ø16	ø10, ø16	Symbol
•	•	•	•	•	•	•	•	•	•	•	Standard
•	•	•	•	•	•	•	•	•	•	•	D
_	_	0	_	_	_	_	_				CJ2□-□A
 _	_	•	0	0	_	_	_	O*7		_	10-, 11-
0	0	0	0	0	0	0	0	0	0	0	25A-
0	0	0	0	0	0	0	0	0			XB6
		0	0	0	0	0	0				VP7
0	0	0	0	0		0	0				ND /
-	_	_	—	—	_	_	—	0	—	—	XB9
-	-	-	-	—	-	—	—	_	—	—	XB13
_	_	0	_	_	0	_	_	0	0	0	XC3
0	_	0	0	0	0	0	0	_	_	_	XC8
-	-	0	0	_	0	0	_	0*8	O	_	XC9
0	_	0	0	0	0	0	0	0	0	_	XC10
-	-	0	-	-	0	_	-	0*8	—	—	XC11
0	0	0	0	0	0	0	0	0	_	—	XC22
0	0	0	0	0	0	0	0	_	—	—	XC51
0	0	0	0	0	0	0	O	_	—	—	XC85
0	0	0	0	0	0	0	0	_	—	—	X446
-	-	-	_	_	-	_	_	_	_	_	X773
-	_	_	_	_	_	_	_	_	0	0	X2838

D--X Technical Data



- 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.

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

Α в 9 Number of auto switches

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

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

Made to Order

Refer to page 47 for details.

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

<u> </u>			보			Loady	oltago		Auto swit	ch model		1.020	- J wir		ath	[m]																		
Tuno	Special function	Electrical	l iji	Wiring	<u> </u>	Load V	Jilage	Bond m	Auto Swi	Boil mo	unting	0.E	4	0	Igin E	Nana	Pre-wired	Appli	cable															
Type	Special function	entry	dicat	(Output)		DC	AC	Danu III Dorpondigular		Ramondiaular	In line	(Niil)	(M)	1 and 1		(NI)	connector	lo	ad															
			Ē	0.1.01010				Perpendicular	In-line	Perpendicular	In-line	(1411)	(101)	(L)	(2)	(14)	0																	
				3-wire (NPN)		5 V.12 V		MANA	M9N	M9NV	M9N	•	•	•	0	-	0	IC circuit																
÷		Grommet		3-wire (PNP)				M9PV	M9P	M9PV	M9P	•	•	•	0	-	0																	
ŧ				0		12.1/		M9BV	M9B	M9BV	M9B	•	•	•	0	—	0																	
s		Connector]	2-wire		12 V			H7C	J79C	_	•		•	٠	•	_	_																
ę	Discussed in the discussion		1	3-wire (NPN)	1	E V 10 V	1	M9NWV	M9NW	M9NWV	M9NW	٠	٠	٠	0	—	0																	
a	Diagnostic indication		Yes	3-wire (PNP)	24 V	5 V, 12 V	-	M9PWV	M9PW	M9PWV	M9PW	•	•	٠	0	—	0	IC CITCUIL	Helay,															
ate	(2-color indicator)			2-wire	1	12 V	1	M9BWV	M9BW	M9BWV	M9BW	•	٠	٠	0	—	0	_	FLO															
s	Water registent	Grommet		3-wire (NPN)]	E V 10 V	E V 10 V	2 V	M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	•	0	-	0																
l∺	(Q color indicator)			3-wire (PNP)]	15 V, 12 V	v		M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	0	0	٠	0	—	0	IC CITCUIL															
ő	(2-color indicator)			2-wire	1	12 V		M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	0	0	٠	0	—	0	_																
	With diagnostic output (2-color indicator)				4-wire (NPN)	(NPN) 5	5 V,12 V		—	H7NF	—	F79F	•	—	•	0	—	0	IC circuit															
tch			Vac	3-wire (NPN equivalent)	_	5 V	_	A96V	A96	A96V	A96	•	—	•	_	-	—	IC circuit	—															
ž		Crommet	res		1	—	200 V	—	—	A72	A72H	٠	—	٠	—	-	-																	
ő		Grommet					100 V	A93V*2	A93	A93V*2	A93	•	٠	٠	۲	—	_	_																
aul	No	0		10.1	100 V or less	A90V	A90	A90V	A90	•	-	•	—	—	_	IC circuit	Relay,																	
^b			Yes	2-wire	24 V	12 V	_	_	C73C	A73C	_	٠	-	٠	٠	•	-	-	PLĆ															
Be		Connector	No																			24 V or less	_	C80C	A80C	_	۲	—	٠	۲	•	_	IC circuit	
	Diagnostic indication (2-color indicator)	Grommet	Yes			_	_	_	_	A79W	_	۲	—	٠	—	—	_	—																

*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. ·· Nil (Example) M9NW

*: Lead wire length symbols: 0.5 m

1 m······ M (Example) M9NWM

5 m······ Z (Example) M9NWZ None····· N (Example) H7CN

3 m----- L (Example) M9NWL

*: 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-A9D/M9D/A7D/A80D/F7D/J7D auto switches are shipped together, but not assembled. (For band mounting, only the auto switch mounting brackets are assembled before shipment.)





Rubber bumper



-X2838*2	Double clevis (With one-touch connecting pi

*1: ø6 only

*2: ø10 and ø16 only

Made to Order

Nick here for deta

Onok in	
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*1	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

Ordering Example of Cylinder Assembly



Specifications

Bore size [r	nm]	6	10	16		
Action		Double acting, Single rod				
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 MPa			
Ambient and fluid te	emperature	Without auto switch: -10°C to 70°C (No freezing) With auto switch: -10°C to 60°C				
Cushion		Rubber bumper	Rubber bumper/Air cushion			
Lubrication		Not required (Non-lube)				
Distan speed	Rubber bumper	50 to 750 mm/s				
Piston speed	Air cushion	_	50 to 10	00 mm/s		
Allowedd a blandia	Rubber bumper	0.012 J	0.035 J	0.090 J		
energy	Air cushion (Effective cushion length)	_	0.07 J (9.4 mm)	0.18 J (9.4 mm)		
Stroke length tolera	nce		+1.0			

Standard Strokes

		[mm]	Г
Bore size	Standard stroke	Maximum manufacturable stroke	
6	15, 30, 45, 60	200	F
10	15, 30, 45, 60, 75, 100, 125, 150	400	
16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200	400	Ľ

*: 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.

•···Mounted on the product. O···Can be ordered within the cylinder model. A···Order separately.

	Mounting	Basic	Foot	Flange	Double* clevis	Double clevis (including T-bracket)
ard	Mounting nut	•	•	•	-	-
ğ	Rod end nut	۲	•	•	•	•
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
D	Double knuckle joint (including a pin and retaining rings)	0	0	0	0	0
b	Double knuckle joint (With one-touch connecting pin)	Δ	Δ	Δ	Δ	Δ
Ŭ	Rod end cap (Flat/Round type)	0	0	0	0	0
	Pivot bracket (T-bracket)	_	_	_	0	•
-						

ouble clevis is only available for ø10 and ø16.

Mounting Brackets/Part No.

Mounting brooket		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-

-X□

Technical

Data

Weights

						[9]		
	Poro sizo [mm]			Rubber bumper				
Bore size [mm]			10	16	10	16		
	Basic		22	46	39	66		
Basic weight	Axial piping	17	22	46	39	66		
(when the stroke	Double clevis (including clevis pin)	—	24	54	43	74		
13 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		
Assessmins	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		



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

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

Calculation:

Example) CJ2L10-45Z

- Basic weight ------ 22 (ø10)
- Additional weight ------ 4/15 stroke
- Cylinder stroke
 45 stroke
- Mounting bracket weight ----- 8 (Axial foot)
- 22 + 4/15 x 45 + 8 = **42 g**

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

SMC

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

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

Construction (Not able to disassemble)

ø6

Rubber bumper





CJ1 CJP

CJ2 JCM

CM2

CM3 CG1

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



Dimensions

Basic (B)



r For details c	of the r	nountin	ıg nut,	refer to	o 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_0022	M10 x 1.0	47	—	_	75	_

Z + Stroke

S + Stroke

NB

NA

₋∣ ∣₌⋿ H

SMC

2

B.

Dimensions



Dimensions other than the table below are the same as those on page 50. [mm]

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

51

Dimensions

Single foot (L)

CJ2L6 - Stroke Head cover port location Z



*: The overall cylinder length does not change.

☆ For details	of th	ie mou	Intin	g nu	t, re	fer to p	bage	63.																		[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	-

Dimensions



Dimensions of	her tha	n the ta	able be	low are	the sa	me as f	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



Dimensions

Double foot (M)

CJ2M6 - Stroke Z



CJ2M 10 - Stroke Z



☆ For details of	f the I	moun	iting r	nut, ref	er to	page	63.															
Bore size	Α	D	F	GA	GB	Н	LB	LC	LH	LS	LT	LX	LY	LZ	MM	NA	NB	NN	S	Т	Х	Υ
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
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
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

[mm]

Z 91.5

86 90

Dimensions



 \doteqdot 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]

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



CA2

CS1

CS2

Dimensions

Rod flange (F)

CJ2F6 - Stroke Head cover port location Z



. The overall cylinder length does not change.

☆ For details of	of the	mount	ting n	ut, r	efer	to pa	ge 63																	[mm]
Bore size	Α	В	С	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



Dimensions of	her tha	n the ta	able bel	ow are	the sar	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



Dimensions

Head flange (G)

CJ2G6 - Stroke Z



CJ2G 10 - Stroke Z



☆ For details of	of the I	mounti	ng nut	, refer	r to pa	ge 63.															[mm]
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
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 $\begin{array}{c} 10\\ 16 \end{array}$ – 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 58. [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



CA2 CS1

CS2

Dimensions

Double clevis (D)

CJ2D 10 - Stroke Z



With air cushion: CJ2D $\frac{10}{16}$ – Stroke AZ





[mm]

*: A clevis pin and retaining rings are included.

B_0.3

																		լոույ
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
With Air C	ushio	n /Dime	ensions	other th	an the	table be	elow are	e the sa	me as t	the table	e above. [mr	n]						

S + Stroke Z + Stroke ZZ + Stroke

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

NA

B_0.3

Dimensions

Double-side bossed (E)

CJ2E6 - Stroke Z



CJ2E 10 - Stroke Z



☆ For details of	f the mo	unting r	nut, refe	r to pag	e 63.											[]
																լուոյ
Bore size	Α	В	С	D	F	GA	GB	н	MM	NA	NB	NDh8	NN	S	т	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
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
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

CG3

JMB MB

MB1 CA2 CS1 CS2

Dimensions

Double-side bossed (E) With air cushion: CJ2E $\begin{array}{c} 10\\ 16 \end{array}$ – Stroke AZ



 \doteqdot 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]										
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

CJ2 Series Dimensions of Accessories (Options)

Single Knuckle Joint Material: Rolled steel



Part no.	Applicable bore size	A1	Lı	мм	NDH10	NX	R₁	U₁
I-J010C	10	8	21	M4 x 0.7	3.3 ^{+0.048}	3.1	8	9
I-J016C	16	8	25	M5 x 0.8	5 ^{+0.048}	6.4	12	14

Double Knuckle Joint Material: Rolled steel



								[mm
Part no.	Applicable bore size	A 1		L	L	.1	I	ММ
Y-J010C	10	8	15	5.2	2	1	M	4 x 0.7
Y-J016C	16	11	16	6.6	2	1	Μ	5 x 0.8
Part no.	NDd9	NDH	10	N	х	F	ł1	U1
Y-J010C	3.3-0.030	3.3 ^{+0.}	048	3.	2	8	3	10
Y-J016C	5 ^{-0.030} 5-0.060	5 ^{+0.0}	48	6.	5	1	2	10

*: A knuckle pin and retaining rings are included.

Knuckle Pin

Material: Stainless steel



								[mm]		
Part no.	Applicable bore size	Dd9	d	L	Lı	m	t	Included retaining ring		
CD-J010	10	$3.3_{-0.080}^{-0.030}$	3	15.2	12.2	1.2	0.3	Type C 3.2		
IY-J015	IY-J015 16 5 ^{-0.030} 4.8 16.6 12.2 1.5 0.7 Type C5									
*: For ø10, a clevis pin is diverted.										
+ Dotoin	ing rin	an ara i	nolu	dod	with	0 1	nun	klo nin		

with a knuc

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

10 20.5

24

Double Knuckle Joint (With One-touch Connecting Pin)







									funui
Part no.	Applicable bore size	A 1	L1	мм	NDd9	NDH10	NX	R1	U1
Y-J10	10	8	21	M4 x 0.7	3.3-0.030	3.3 ^{+0.048}	3.2	8	10
Y-J16	16	11	21	M5 x 0.8	5-0.030	5 ^{+0.048}	6.5	12	10

Material: Carbon steel

[mm]

		[mm]
Part no.	Applicable bore size	Dd9
IY-J10	10	3.3 ^{-0.030} -0.060
IY-J16	16	5 ^{-0.030} -0.060

Mounting Nut



Applicable bore size	Bı	C 1	d	Hı
6	8	9.2	M6 x 1.0	4
10	11	12.7	M8 x 1.0	4
16	14	16.2	M10 x 1.0	4
16	17	19.6	M12 x 1.0	4
	Applicable bore size 6 10 16 16	Applicable bore size B1 6 8 10 11 16 14 16 17	Applicable bore size B1 C1 6 8 9.2 10 11 12.7 16 14 16.2 16 17 19.6	Applicable bore size B1 C1 d 6 8 9.2 M6 x 1.0 10 11 12.7 M8 x 1.0 16 14 16.2 M10 x 1.0 16 17 19.6 M12 x 1.0

*: 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	C2	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



SMC

Pivot Bracket (T-bracket)



 CJ-TO10C
 10
 4.5
 3.3⁺/_{10,048}
 29
 18
 3.1
 2
 9
 40
 22
 32
 12
 8

 CJ-TO16C
 16
 5.5
 5⁺/_{10,048}
 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.

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



Part no.	Applicable bore size		Dd9		н	L	w	
CD-J10	10		3.	3 ^{-0.030} -0.060	13.4	13.2	4	
CD-J16	16		Ę	5-0.030 -0.060	18.2	19.5	5	
Part no.	W 1	V	12		N	lote		
CD-J10	12	1	5	Cannot be mounted on cylinders with				
CD-J16	15	1	8	cushion, or rail mounting type auto switches				

*: Please pay attention to the applicable cylinder.

Clevis Pin

Material: Stainless steel



								[mm]
Part no.	Applicable bore size	Dd9	d	L	Lı	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
. Far at		ام مام	de h			h ai		abien

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

*: Retaining rings are included with a clevis pin.

Rod End Cap

Flat type/CJ-CF

Round type/CJ-CR





0 0



Material: Polyacetal

									[mm]
Par	t no.	Applicable	•	_		NANA	N	ь	w/
Flat type	Round type	bore size	A		L				••
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

RR



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

▲Warning

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

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



▲Warning



* Perform the mounting within the following range.



2. Push the one-touch connecting pin into the cylinder body (Double clevis) until it clicks and is firmly fastened.





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



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

RoHS



*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

(Example) M9NWL 3 m L

5 m. 7 (Example) M9NWZ

····· N (Example) H7CN None------

*: 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.)

SMC



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 Symbol Specifications -XA Change of rod end shape Heat resistant cylinder (-10 to 150°C) -XB6 * Not available with switch & with air cushion Cold resistant cylinder (-40 to 70°C) -XB7 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.

A 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	MPa		
pressure	pressure Air cushion		0.1	MPa		
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 Rubber bumper/Air cushion				
Lubrication		Not required (Non-lube)				
Biston speed	Rubber bumper		50 to 750 mm/s			
Fision speed	Air cushion	—	50 to 10	00 mm/s		
Allowable kinetie	Rubber bumper	0.012 J	0.035 J	0.090 J		
Allowable killetic	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

	[]	- L
Bore size	Standard stroke	Ē
6	15, 30, 45, 60	
10	15, 30, 45, 60, 75, 100, 125, 150	Ŀ
16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200	
		- I !

*: Manufacture of intermediate strokes in 1 mm increments is possible. (Spacers are not used.) Produced upon receipt of order.

- *: Please consult with SMC for strokes which exceed the standard stroke length.
- *: Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on 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.	O…Please or	der separately.
	Mounting	Basic	Foot	Flange
dand	Mounting nut	•	•	•
Stan	Rod end nut	•	•	•
6	Single knuckle joint	0	0	0
ē	Double knuckle joint (including a pin and retaining rings)	0	0	0
l B	Double knuckle joint (With one-touch connecting pin)	0	0	0
Ŭ	Rod end cap (Flat/Round type)	0	0	0

*: ø10 and ø16 only

Mounting Brackets/Part No.

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

Weights

						[g]
-	lere size [mm]	Ru	bber bum	per	Air cu	Ishion
-	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 ·····
- Additional weight ------ 4.5/15 stroke
- Cylinder stroke--...... 45 stroke
- Mounting bracket weight----- 16 (Foot)
- 29 + 4.5/15 x 45 + 16 = 58.5 g

SMC



JCM

[mm]

D-🗆

-X□

Technical

Data

Clean Series



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).

Construction (Not able to disassemble)

Specifications

Action	Double acting Double rod
Action	Boable adding, Boable roa
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





With auto switch

Construction (Not able to disassemble)

ø6 Rubber bumper





With auto switch CJ1

CJP

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



Basic (B)



CJ2WB 10 - Stroke Z



With air cushion: CJ2WB $\frac{10}{16}$ – Stroke AZ



☆ For details of	the mou	nting nut	, refer to	page 63	3.									[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

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	10.0	20	1.0	21	14.4	07	120

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



																						[]
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

SMC

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





CJ2WF 10 - Stroke Z





☆ For details of	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	S	Т	Z
6	15	12	14	3	8	13	4.5	1.6	24	14	32	14.5	28	M3 x 0.5	16	M6 x 1.0	61 (66)	3	117 (122)
10	15	12	14	4	8	13	4.5	1.6	24	14	32	8	28	M4 x 0.7	12.5	M8 x 1.0	49	—	105
16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	8	28	M5 x 0.8	12.5	M10 x 1.0	50	—	106

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

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								

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



Applicable Auto Switches/Refer to pages 1575 to 1701 for further information on auto switches Load voltage Auto switch model Lead wire length [m] Flectrica Wirina Pre-wired Applicable Special function TVD Band mounting Rail mounting 0.5 1 3 5 None entry (Output) DC AC connector load (Ni) (M) (L)(Z) (N) In-line erpendicular In-line erpendicular 3-wire (NPN M9NV M9N M9NV M9N . • ٠ 5 V.12 V C circuit Gromme 3-wire (PNP MOPV MOP MOPV MOP . . . switch M9BV M9B M9BV M9B . . . 2-wire 12 \/ Connecto H7C J79C . . . auto 3-wire (NPN M9NWV M9NW M9NWV M9NW . . . 5 V,12 V Diagnostic indication C circuit Relay M9PW M9PWV M9PWV M9PW Yes 3-wire (PNP) 24 . . . (2-color indicator) PLC state 2-wire 12 V M9BWV M9BW M9BWV M9BW . . . _ M9NAV* M9NAV*1 Gromme 3-wire (NPN M9NA*1 M9NA* . 5 V,12 V C circui Solid Water resistant 3-wire (PNP M9PAV* M9PA*1 M9PAV* M9PA* . (2-color indicator) 12 V 2-wire M9BAV* M9BA* M9BAV* M9BA* . With diagnostic output (2-color indicate 4-wire (NPN 5 V,12 V H7NF F79F . IC circuit . 3-wire A96V A96 A96V A96 5 V . . IC circuit (NPN equiva Reed auto switch íe: Gromme 200 V Δ72 A72H . . 100 V A93V*2 A93V*2 A93 A93 A90V No 100 V or les A90V A90 A90 . . IC circuit Relay 2-wire 12 V Yes 24 V C73C A73C PLC _ _ Connecto No 24 V or less C80C A80C IC circuit Diagnostic indication (2-color indicator) Grommet Yes

*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

*: 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.) Data

A79W

None----- N (Example) H7CN

Z (Example) M9NWZ

.

.



5 m....

71 Â

D-🗆

-X

Technical



A Precautions

Refer to page 152 before handling.

Ordering Example of Cylinder Assembly



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 [n	nm]	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 te	mperature	Without auto switch: -10°C to 70°C With auto switch: -10°C to 60°C (No freezing)						
Cushion		Rubber bumper						
Lubrication		Not required (Non-lube)						
Stroke length tolerar	nce	+1.0 0						
Piston speed		50 to 750 mm/s						
Allowable kinetic en	ergy	0.012 J	0.035 J	0.090 J				

Standard Strokes

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

Spring Reaction Force

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

- *: Manufacture of intermediate strokes in 1 mm increments is possible. (Spacers are not used.) *: Please consult with SMC for strokes which
- 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 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					
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. O…Can be ordered within the cylinder model. △…Order separat									
	Mounting	Basic	Foot	Flange	Double* clevis	Double clevis (including T-bracket)			
ard	Mounting nut	•	•	•	—	_			
pu	Rod end nut	•	•	•	•	•			
ŝ	Clevis pin (including retaining rings)	—	—	—	•	•			
	Double clevis (With one-touch connecting pin)	Δ	Δ	Δ	(-X2838)	○ (-X2838)			
_	Single knuckle joint	0	0	0	0	0			
io.	Double knuckle joint (including a pin and retaining rings)	0	0	0	0	0			
6	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	•			

*: Double clevis is only available for ø10 and ø16.

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.



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.

© 72


Air Cylinder: Standard Type Single Acting, Spring Return/Extend **CJ2** Series

Weights

Spring R	eturn
----------	-------

Spri	ng Return											[g]	
	Bore size [mm]		6			1	10			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	C.11
	15 stroke	17	15	18	28	28	29	28	62	62	69	64	001
	30 stroke	20	18	21	35	35	35	35	77	77	84	79	
ght	45 stroke	23	21	23	44	44	45	45	95	95	102	97	UJF
Ne.	60 stroke	26	24	27	54	54	55	54	113	113	119	115	0.10
<u>.</u>	75 stroke								134	134	141	136	GJ2
Base	100 stroke		/				/		167	167	174	169	
-	125 stroke								204	204	212	206	JCM
	150 stroke				\sim				227	227	234	229	
ght _	Single foot	8	8	8			8			2	25		CM2
we	Double foot	16	16	16		-	16			5	50		UIIIZ
Kel	Rod flange	5	5	5			5			1	3		CM2
pra	Head flange	5	5	5			5			1	3		CIVIS
	Clevis pin	-	-	—	_	—	1	—	-	-	3	—	
	One-touch connecting pin for double clevis	_	-	—	_	_	2	—	_		4	—	CG1
	Single knuckle joint	-	-	—		-	17			2	23		
sories	Double knuckle joint (including knuckle pin)	_	-	-		2	25			2	21		CG3
Acces	Double knuckle joint (With one-touch connecting pin)	_	_	-		2	26			2	22		JMB
· ·	Rod end cap (Flat type)	1	1	1			1				2		
	Rod end cap (Round type)	1	1	1			1				2		IMB
	Pivot Bracket (T-bracket)	—	—	—		;	32			5	50		
*: Mo	ounting nut and rod e	nd nut are i	ncluded in t	he basic wei	ght.								MB1

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

Calculation:

Example) CJ2L10-45SZ

 Basic weight ······

•Mounting bracket weight·····8 (Single foot)

44 + 8 = **52 g**

Spring Extend

Spri	ng Extend										[g]
	Bore size [mm]		6		1	0			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
	30 stroke	21	22	34	34	36	35	77	77	85	80
g	45 stroke	24	24	42	42	44	43	93	93	100	96
ve.	60 stroke	27	28	51	51	52	51	109	109	116	112
i.	75 stroke				·	^ 		129	129	137	133
3as	100 stroke						_	159	159	166	162
-	125 stroke							193	193	201	196
	150 stroke							213	213	221	217
g H	Single foot	8	8			8			2	25	
vei	Double foot	16	16		1	16			5	60	
ker 9	Rod flange	5	5			5			1	3	
bra	Head flange	5	5			5			1	3	
	Clevis pin	—	—	—	_	1	—	—	—	3	—
	One-touch connecting pin for double clevis	—	—	—	—	2	-	—	—	4	—
	Single knuckle joint	—	—		1	17			2	23	
sories	Double knuckle joint (including knuckle pin)	-	-		2	25			2	21	
Acces	Double knuckle joint (With one-touch connecting pin)	_	-		2	26			2	2	
	Rod end cap (Flat type)	1	1			1				2	
	Rod end cap (Round type)	1	1			1			2	2	
	Pivot Bracket (T-bracket)	_	—		3	32			5	60	

*: 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

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

CA2

CS1

CS2

Construction (Not able to disassemble)

Single acting, Spring return





ø10, ø16



With auto switch



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	



Air Cylinder: Standard Type Single Acting, Spring Return/Extend **CJ2** Series

Single Acting, Spring Return: Basic (B)

6

15 8 9 3 8 5 28 M3 x 0.5 3 9.5



															(/	1 (/ / /	/	(/						
10	15	12	14	4	8	5 2	8 M4	x 0.7	4.8	9.5	-	8-0.022	M8	x 1.0	45.5	53	. (65	77	—	-	-	_	_	
16	15	18.3	20	5	8	5 2	8 M5	x 0.8	4.8	9.5	-	10_0.022	M10) x 1.0	45.5	54	. (66	78	84	10	8 -	26	138	
													-												
Dawa					5A								<u> </u>								A				
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	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	D-
	04 5	40 E	47 5	C1 E		1	1		CE.	74	70	00					C0 E	74 E	75.5	00 F			1		
6	34.5	43.5	47.5	01.5	_	_	_		60	14	/0	92	_			_	02.5	/1.5	/5.5	09.5		_	_	_	
0	(39.5)	(48.5)	(52.5)	(66.5)					(70)	(79)	(83)	(97)					(67.5)	(76.5)	(80.5)	(94.5)					-X
10	—	-	-	-	-	_	—	_	73.5	81	93	105	—	_	—	_	_	—	_	—	—	_	-	_	
16	—	—	-	-	_	-	—	—	73.5	82	94	106	112	136	154	166	_	_	—	—	_	_	_	—	Technical
																*	· () in	S SA	Z and	ZA din	nensio	ns [.] Wi	th auto	switch	Data

6-0.018

M6 x 1.0

(42) (51) (55) (69)

7

) in S, SA,



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



☆ For de	tails	of the	mou	nting	nut,	refer	to pa	ge 63.																			I	[mm]
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
3120													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		0	0		F	00	M0 - 0 5	0	0.5	C 0	MC + 1 0	37	46	50	64					73	82	86	100				
0	15	°	9	3	°	э	20	M3 X 0.5	3	9.5	0-0.018	IVIO X 1.U	(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	—		-	—	73.5	81	93	105	-		Ι	—
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	73.5	82	94	106	112	136	154	166

S + Stroke

NB

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

 B_{-0}^{0}

Rod end nut

A . H NA



Single Acting, Spring Return: Single Foot (L)

Enclose the state of a second second sector to the



	lans	or the	mour	iung n	ui, re	ier to	page c	53.																		[mm]	
Poro																						S	\$				
size	Α	в	c	D	F	iB H	I LB	LC	LH	LT	LX	LY	LZ	ММ	NA	NB	NN	5	to 1 5 st 3	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	
6	15	12	14	3	8	5 2	8 13	4.5	9	1.6	24	16.5	32	M3 x 0.	5 3	9.5	M6 x 1	.0 (4	37 42) (46 51)	50 (55)	64 (69)	-	-	_	-	
10	15	12	14	4	8	5 2	8 15	4.5	9	1.6	24	16.5	32	M4 x 0.	7 4.8	9.5	M8 x 1	.0 4	5.5	53	65	77	-	-	_	—	
16	15	18.3	20	5	8	5 2	8 23	5.5	14	2.3	33	25	42	M5 x 0.	8 4.8	9.5	M10 x 1	1.0 4	5.5	54	66	78	84	108	126	138	
	15 18.3 20 5 8 5 28 23 5.5 14 2.3 33 25 42 M5x.08 4.8 9.5 M10x1.0 45.5 54 66 78 84 108 126 138																										
Bore	5 to	16 to	31 to	S 46 to	A	76 to	101 to	126 to	v	v	5 to	16 to	31 to	Z	61 to	76 to	101 to 1	126 to	5 to	16 to	31 to	Z	ZA	76 to	101 to	126 to	
Bore size	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to	76 to 100 s	101 to 125 st	126 to 150 st	x	Y	5 to 15 st	16 to 30 st	31 to 45 st	2 46 to 60 st	61 to 75 st	76 to 100 st	101 to 1 125 st 1	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	D-
Bore size	5 to 15 st 34.5	16 to 30 st 43.5	31 to 45 st 47.5	46 to 60 st 61.5	61 to 75 st	76 to 100 s	101 to 125 st	126 to 150 st	x	Y	5 to 15 st 65	16 to 30 st 74	31 to 45 st 78	2 46 to 60 st 92	61 to 75 st	76 to 100 st	101 to 1 125 st 1	126 to 150 st	5 to 15 st 62.5	16 to 30 st 71.5	31 to 45 st 75.5	46 to 60 st 89.5	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	D-□
Bore size 6	5 to 15 st 34.5 (39.5)	16 to 30 st 43.5 (48.5)	31 to 45 st 47.5 (52.5)	46 to 60 st 61.5 (66.5)	61 to 75 st	76 to 100 s	101 to 125 st	126 to 150 st	X 5	Y 7	5 to 15 st 65 (70)	16 to 30 st 74 (79)	31 to 45 st 78 (83)	2 46 to 60 st 92 (97)	61 to 75 st	76 to 100 st	101 to 1 125 st 1	126 to 150 st	5 to 15 st 62.5 (67.5)	16 to 30 st 71.5 (76.5)	31 to 45 st 75.5 (80.5)	46 to 60 st 89.5 (94.5)	2 A 61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	D-[
Bore size 6 10	5 to 15 st 34.5 (39.5)	16 to 30 st 43.5 (48.5)	31 to 45 st 47.5 (52.5)	46 to 60 st 61.5 (66.5)	61 to 75 st	76 to 100 s	101 to 125 st	126 to 150 st 	X 5	Y 7	5 to 15 st 65 (70) 73.5	16 to 30 st 74 (79) 81	31 to 45 st 78 (83) 93	2 46 to 60 st 92 (97) 105	61 to 75 st —	76 to 100 st 	101 to 1 125 st 1 	126 to 150 st 	5 to 15 st 62.5 (67.5)	16 to 30 st 71.5 (76.5)	31 to 45 st 75.5 (80.5)	46 to 60 st 89.5 (94.5)	2A 61 to 75 st —	76 to 100 st 	101 to 125 st	126 to 150 st	D-□ -X□
Bore size 6 10 16	5 to 15 st 34.5 (39.5) —	16 to 30 st 43.5 (48.5) —	31 to 45 st 47.5 (52.5)	\$ 46 to 60 st 61.5 (66.5) —	61 to 75 st	76 to 100 s	101 to 125 st 	126 to 150 st 	X 5 5 6	Y 7 7 9	5 to 15 st 65 (70) 73.5 73.5	16 to 30 st 74 (79) 81 82	31 to 45 st 78 (83) 93 94	2 46 to 60 st 92 (97) 105 106	61 to 75 st — 112	76 to 100 st — 136	101 to 1 125 st 1 	126 to 150 st — — 166	5 to 15 st 62.5 (67.5)	16 to 30 st 71.5 (76.5)	31 to 45 st 75.5 (80.5)	46 to 60 st 89.5 (94.5) —	61 to 75 st —	76 to 100 st —	101 to 125 st 	126 to 150 st 	D- -X

SMC

Single Acting, Spring Return: Double Foot (M)

CJ2M6 - Stroke SZ



CJ2M ¹⁰₁₆ – Stroke SZ



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

ST FOR DE	alls of	the m	ountir	ig nut,	reter to	o page	63.																[mm]
Dava													.s										
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	M	M	NA
3120									15 st	30 st	45 st	60 st	75 st	100 s	t 125 st	150 st							
6	15			6	20	12	4 5	0	51	60	64	78					16	24	16 6	20	May	0.5	0
	15	3	0	5	20	13	4.5	9	(56)	(65)	(69)	(83)	-	_	_	_	1.0	24	10.5	32	1013 X	0.5	3
10	15	4	8	5	28	15	4.5	9	59.5	67	79	91	-	—	-	—	1.6	24	16.5	32	M4 x	0.7	4.8
16	15	5	8	5	28	23	5.5	14	63.5	72	84	96	102	126	144	156	2.3	33	25	42	M5 x	0.8	4.8
	-							~				- 1											
Bore								<u>></u>										<u> </u>					
size	NB	N	N	5 to	16 to	31 to	46 to	61	to 76	to 101	to 12	oto 🕽	< `	Y 5	to 16	to 31	to 46	i to	61 to	76 to	101 to	126 to	
0.20				15 st	30 st	45 st	60 s	t 75	st 100) st 125	5 st 15) st		15	ist 30	st 45	st 60	st '	75 st	100 st	125 st	150 st	
6	0.5	Me	(10	37	46	50	64					_	. .	7 7	7 8	6 90) 1	04	_	_	_	_	
- 0	3.5		(1.0	(42)	(51)	(55)	(69)							ί (ε	2) (9	1) (95	5) (1	09)	_	_			
10	9.5	M8 >	(1.0	45.5	53	65	77			- -		- !	5	7 85	5.5 9	3 10	5 1	17	-	—	—	—	
16	9.5	M10	x 1.0	45.5	54	66	78	84	4 10	8 12	26 13	38 (6	9 88	3.5 9	7 10	9 1	21	127	151	169	181	
																							-

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





Dawa										X FY FZ GB H MM NA NB NC NN 5 to 16 to 31 to 46 to 61 to 76 to 101 to 126 to															
Bore	A	в	c	D	= I	FB	FC	FT	FX F	Y FZ	Z GB	H	MM	NA	NB	NC	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	10	14	2	,	44	4.5	1.0	04 4	4 00		00	M2 0 5	0	0.5	7	MC - 1 0	37	46	50	64				
0	15	12	14	3	<u>ا</u>		4.5	1.0	24	4 34	2 5	20	W3 X U.3	3	9.5	'	IVIO X 1.U	(42)	(51)	(55)	(69)	_	_	_	-
10	15	12	14	4	3	13	4.5	1.6	24 1	4 32	2 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	3	19	5.5	2.3	33 2	20 42	2 5	28	M5 x 0.8	4.8	9.5	—	M10 x 1.0	45.5	54	66	78	84	108	126	138
	15 18.3 20 5 8 19 5.5 2.3 33 20 42 5 28 M5x0.8 4.8 9.5 — M10x1.0 45.5 54 66 78 84 108 126 138																								
Bore					SA								_ Z								Z	A			
Bore	5 to	16 to	o 31 t	o 46 t	SA 5 61	1 to	76 to	101 to	126 to	5 to	16 to	31 to	Z 46 to	61 to	76 to	101 to	126 to	5 to	16 to	31 to	2 46 to	A 61 to	76 to	101 to	126 to
Bore size	5 to 15 st	16 to 30 s	o 31 t t 45 s	o 46 t t 60 s	5A 0 61 t 75	1 to 5 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	2 46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 si	126 to 150 st	5 to 15 st	16 to 30 st	31 to 45 st	2 46 to 60 st	A 61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
Bore size	5 to 15 st 34.5	16 to 30 s	0 31 t t 45 s	0 46 t t 60 s	SA 0 61 t 75	1 to 5 st	76 to 100 st	101 to 125 st	126 to 150 st	5 to 15 st 65	16 to 30 st	31 to 45 st 78	2 46 to 60 st 92	61 to 75 st	76 to 100 st	101 to 125 sl	0 126 to t 150 st	5 to 15 st 62.5	16 to 30 st 71.5	31 to 45 st 75.5	46 to 60 st 89.5	A 61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
Bore size 6	5 to 15 st 34.5 (39.5	16 to 30 s 43.5 (48.5	0 31 t t 45 s 5 47.5	0 46 t t 60 s 5 61.5	SA 0 61 t 75 5 -	1 to 5 st	76 to 100 st	101 to 125 st	126 to 150 st	5 to 15 st 65 (70)	16 to 30 st 74 (79)	31 to 45 st 78 (83)	2 46 to 60 st 92 (97)	61 to 75 st	76 to 100 st	101 to 125 si	126 to 150 st	5 to 15 st 62.5 (67.5)	16 to 30 st 71.5 (76.5)	31 to 45 st 75.5 (80.5)	2, 46 to 60 st 89.5 (94.5)	A 61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st
Bore size 6 10	5 to 15 st 34.5 (39.5)	16 to 30 s 43.5 (48.5	0 31 t t 45 s 5 47.9 i) (52.9	0 46 t t 60 s 5 61.9 5) (66.9	SA 0 61 1 75 5 -	1 to 5 st	76 to 100 st —	101 to 125 st —	126 to 150 st —	5 to 15 st 65 (70) 73.5	16 to 30 st 74 (79) 81	31 to 45 st 78 (83) 93	2 46 to 60 st 92 (97) 105	61 to 75 st —	76 to 100 st 	101 to 125 si —	126 to 150 st	5 to 15 st 62.5 (67.5)	16 to 30 st 71.5 (76.5)	31 to 45 st 75.5 (80.5)	Z 46 to 60 st 89.5 (94.5) —	A 61 to 75 st —	76 to 100 st —	101 to 125 st 	126 to 150 st —
Bore size 6 10 16	5 to 15 st 34.5 (39.5) —	16 to 30 s 43.5 (48.5	0 31 t 45 s 5 47.9 (52.8 	0 46 t 60 s 5 61.9 6) (66.9 	SA 0 61 1 75 5 - 0 -	1 to 5 st —	76 to 100 st 	101 to 125 st 	126 to 150 st 	5 to 15 st 65 (70) 73.5 73.5	16 to 30 st 74 (79) 81 82	31 to 45 st 78 (83) 93 94	Z 46 to 60 st 92 (97) 105 106	61 to 75 st — 112	76 to 100 st — 136	101 to 125 sl — 154	126 to 150 st — — 166	5 to 15 st 62.5 (67.5) —	16 to 30 st 71.5 (76.5) —	31 to 45 st 75.5 (80.5) —	46 to 60 st 89.5 (94.5) —	A 61 to 75 st —	76 to 100 st 	101 to 125 st 	126 to 150 st

) in S, SA



Single Acting, Spring Return: Head Flange (G)

CJ2G6 - Stroke SZ



CJ2G 10 - Stroke SZ



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

☆ For deta	ils of the	e mount	ing nut,	reter to	page	63.													[mm]
Bore size	A	в	с	D	F	FB	FC	FT	FX	FY	FZ	g GB	н	м	л	NA	NE	3	NN
6	15	8	9	3	8	11	4.5	1.6	24	14	32	5	28	МЗ х	0.5	3	9.5	5 M	6 x 1.0
10	15	12	14	4	8	13	4.5	1.6	24	14	32	2 5	28	M4 x	0.7	4.8	9.5	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	5 M1	0 x 1.0
Dawa					S	;									Z				
Bore	5 to	16 t	o 31	to 4	l6 to	61 to	76 to	101 to	1261	io 5	to	16 to	31 to	46 to	61 to	76	to	101 to	126 to
SIZE	15 st	30 s	t 45	st 6	60 st	75 st	100 st	125 st	150 :	st 1	5 st	30 st	45 st	60 st	75 s	t 100) st	125 st	150 st
6	37	46	5	0	64	_			_		73	82	86	100			_		_
- 0	(42)	(51)) (5	5)	(69)	_	_	_		(78)	(87)	(91)	(105)	_		-	-	_
10	45.5	53	6	5	77	—	_	—	-	8	1.5	89	101	113	—	-	-	-	_
16	45.5	54	6	6	78	84	108	126	138	8	1.5	90	102	114	120	14	14	162	174

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

Single Acting, Spring Return: Double Clevis (D)



81

Single Acting, Spring Extend: Basic (B)



The for details	s of the m	ounting r	iut, reter	to page 6	53.											[mm]
Bore size	A	в	с	D		F	GA	н	ММ	N	4	NB	NDh8	1	NN	т
6	15	12	14	3		в 1	4.5	28	M3 x 0.5	5 16		3	6_0.018	M6	x 1.0	3
10	15	12	14	4		8	8	28	M4 x 0.7	7 12	.5	4.8	8_0.022	M8	x 1.0	_
16	15	18.3	20	5		8	8	28	M5 x 0.8	3 12	.5	4.8	10_0.022	M10) x 1.0	_
					3								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 s	60 st	75 st	100 st	125 st	150 st
6	46.5	55.5	59.5	73.5					74.5	83.5	87.5	101.5				
0	(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

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







∻	For	details	of the	mounting put	refer to	nage 63
ы	FUI	uetalis	or the	mounting nut,	Telet to	page 03.

	A B 15 12 15 12 15 18.3 5 to 16 to 15 st 30 st 46.5 55.5 51.5) (60.5) 48.5 56															[mm]
Bore size	A	В	с		D	F	GA	н	м	м	NA	NB	N	Dh8	Ν	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	L	4	8	8	28	M4 >	< 0.7	12.5	4.8		8-0.022	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
	1				S							Z	2			
Bore size	6 15 1 size 5 to 16 t 15 st 30 s	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	_	—	_	_	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

D--X Technical Data

Single Acting, Spring Extend: Single Foot (L)









☆ For details	of the	mounti	ng nu	t, refe	er to pag	ge 63.																[mm]
Bore size	A	в	с	D	F	GA	н	LB	LC	LH	LT		LX	LY	LZ	N	м	NA	NB		NN	т
6	15	12	14	3	8	14.5	28	15	4.5	9	1.6		24	16.5	5 32	MЗ	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	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	2.3		33	25	42	M5	x 0.8	12.5	4.8	M1	0 x 1.0	-
															_							
						3												<u>z</u>				
Bore size	5 to	16 to	o 31	l to	46 to	61 to	76 to	101 to	b 126	to 3	K	Υ	51	to	16 to	31 to	46 to	61 te	o 76	6 to	101 to	126 to
	15 st	30 s	t 45	5 st	60 st	75 st	100 st	125 s	t 150	st			15	st	30 st	45 st	60 st	75 s	st 10	0 st	125 st	150 st
6	46.5 55.5 59.5 73.5 73.5 74.5 83.5							83.5	87.5	101.5												
0	(51.5)	(60.5	5) (64	4.5)	(78.5)	-	_	-	-	- ;		1	(79	.5)	(88.5)	(92.5)	(106.5)	-	1		-	_
10	48.5	56	6	68	80	—	_	—	-	- {	5	7	76	.5	84	96	108	-	-	_	_	_
16	48.5	57	6	69	81	87	111	129	14	1 (6	9	76	.5	85	97	109	115	5 1	39	157	169

SMC

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

Single Acting, Spring Extend: Double Foot (M)

CJ2M6 - Stroke TZ



CJ2M 10 - Stroke TZ





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

																							funui	
Dawa													LS											
size	A	D	F	GA	н	LB	LC	LH	5 to 15 st	16 to 30 st	31 to 45 s	0 46 t t 60 s	o 61 st 75	to 7 st 1	76 to 00 st	101 to 125 st	126 150	st L	r L	(L)		: N	ЛМ	
6	15	3	8	14.5	5 28	15	4.5	9	60.5 (65.5)	69.5 (74.5	73.5 (78.5	87.) (101	5 .5) -	-	-	_	-	1.	6 24	16.	5 32	M3	x 0.5	
10	15	4	8	8	28	15	4.5	9	62.5	70	82	94	-	-	—	—	-	1.	6 24	16.	5 32	M4	x 0.7	
16	15	5	8	8	28	23	5.5	14	66.5	75	87	99	10)5 ·	129	147	159	2.	3 33	3 25	42	M5	x 0.8	
Poro				L				S	5											2				
size	NA	NB	NN		5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to	X	Y	5	to 1	6 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	5 st 3	0 st	45 st	60 st	75 st	100 st	125 st	150 st	U-L
•	10				46.5	55.5	59.5	73.5					-	-	8	6.5 9	5.5	99.5	113.5					
6	16	3	M6 X	1.0 (51.5)	(60.5)	(64.5)	(78.5)	-	-	-	_	5	1	(9	1.5) (1	00.5) (104.5)	(118.5)	_	_	-	-	
10	12.5	4.8	M8 x 1	1.0	48.5	56	68	80	-	-	-	_	5	7	8	8.5	96	108	120	—	—	-	-	
16	12.5	4.8	M10 x	1.0	48.5	57	69	81	87	111	129	141	6	9	9	1.5 1	00	112	124	130	154	172	184	Technical
																*: () in LS	S, S ai	nd Z di	mensio	ons: W	th auto	switch	Data

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

85

JMB

MB

MB1

CA2

CS1

CS2

Single Acting, Spring Extend: Head Flange (G)

CJ2G6 - Stroke TZ



CJ2G 10 - Stroke TZ



× For details of the mounting hut, refer to page 6	☆	For	details	of the	mounting nu	it, refer to	page (63
--	---	-----	---------	--------	-------------	--------------	--------	----

Bore size	A	в	с	D	F	FB	FC	FT	FX	FY	FZ	G/	а н	N	м	NA	NB		NN
6	15	12	14	3	8	13	4.5	1.6	24	14	32	14.	5 28	мз	x 0.5	16	3	M	6 x 1.0
10	15	12	14	4	8	13	4.5	1.6	24	14	32	8	28	8 M4	x 0.7	12.5	4.8	M	8 x 1.0
16	15	18.3	20	5	8	19	5.5	2.3	33	20	42	8	28	8 M5	x 0.8	12.5	4.8	M1	0 x 1.0
Dere					S	\$									z				
Dore	5 to	16 to	31	to 4	6 to	61 to	76 to	101 to	126 to	5 to	16	to	31 to	46 to	61 to	76 t	0 10)1 to	126 to
size	15 st	30 st	45	st 6	i0 st	75 st	100 st	125 st	150 st	15 st	30	st	45 st	60 st	75 st	100	st 12	25 st	150 st
~	46.5	55.5	59.	5 7	73.5					82.5	91	.5	95.5	109.5					
0	(51.5)	(60.5) (64.	.5) (7	78.5)	_	_	-	-	(87.5) (96	5.5)	(100.5)	(114.5)	-	_		_	_
10	48.5	56	68	3	80	_	_	_	—	76.5	8	4	96	108	-	_		_	—
16	48.5	57	69)	81	87	111	129	141	76.5	8	5	97	109	115	139	э .	57	169
						-						-			· ·			-	

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

[mm]

Single Acting, Spring Extend: Rod Flange (F)



Single Acting, Spring Extend: Double Clevis (D)



*: A clevis pin and retaining rings are included.

		1													r –				<u> </u>			
																			>			
Bore size	A	В	C	CD	CX	CZ	D	GA	н	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	14	3.3	3.2	12	4	8	28	M4 x 0.7	12.5	17.8	5	8	48.5	56	68	80	—	-	-	—
16	15	18.3	20	5	6.5	18.3	5	8	28	M5 x 0.8	12.5	22.8	8	10	48.5	57	69	81	87	111	129	141

SMC

				Z	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	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



[mm]



switch is required.

- *: Refer to "Ordering Example of Cylinder Assembly" on page 89.
- switch mounting brackets.

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

		Flootical	light	M.C		Load vo	oltage		Auto swit	ch model		Lead	d wir	e ler	ngth	[m]	Description	Ameli	
Туре	Special function	Electrical	ator	(Output)			10	Band m	ounting	Rail mo	unting	0.5	1	3	5	None	Pre-wired	Appli	cable
		enuy	Indic	(Output)		DC	AC	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	CONTRECTO	104	au
				3-wire (NPN)		E V 10 V		M9NV	M9N	M9NV	M9N	٠	•	•	0	—	0	IC airearit	
£		Grommet		3-wire (PNP)		5 V, 12 V		M9PV	M9P	M9PV	M9P	•	٠	•	0		0	IC CITCUIL	
Ę				Quuine		10.1/		M9BV	M9B	M9BV	M9B	٠	•	•	0	-	0		
s		Connector		2-wire		12 V		—	H7C	J79C	_	٠	—	٠	٠	•	_	_	
욕				3-wire (NPN)		E V 10 V		M9NWV	M9NW	M9NWV	M9NW	•	•	•	0	-	0	IC aireanit	Deless
a	Diagnostic indication		Yes	3-wire (PNP)	24 V	5 V, 12 V	_	M9PWV	M9PW	M9PWV	M9PW	٠	•	•	0	—	0		Helay,
ate				2-wire		12 V		M9BWV	M9BW	M9BWV	M9BW	٠	•	٠	0	—	0	-	FLU
1s		Grommet		3-wire (NPN)		E V 10 V		M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	•	0	-	0	IC aireanit	
ĕ	Water resistant			3-wire (PNP)	1	5 V, IZ V		M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	0	0	٠	0	—	0	IC CITCUIL	
ŵ				2-wire		12 V		M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	0	0	٠	0	—	0	-	
	With diagnostic output (2-color indicator)			4-wire (NPN)		5 V,12 V		-	H7NF	—	F79F	•	-	•	0		0	IC circuit	
tch			V	3-wire (NPN equivalent)	_	5 V	—	A96V	A96	A96V	A96	•	-	•	_	-	—	IC circuit	-
Ň		Grommet	res		1	_	200 V	_	—	A72	A72H	٠	—	۲	—	—	—		
0.0							100 V	A93V*2	A93	A93V*2	A93	٠	٠	٠	٠	—	_	_	
aut			No	0		10.11	100 V or less	A90V	A90	A90V	A90	٠	—	٠	—	—	_	IC circuit	Relay,
D.		Connoder	Yes	∠-wire	24 V	12 V	—	_	C73C	A73C	_	٠	—	•	٠	•	—	—	PLC
3e		Connector	No				24 V or less	—	C80C	A80C	_	٠	—	٠	٠	٠	_	IC circuit	
_	Diagnostic indication (2-color indicator)	Grommet	Yes			_	_	_	_	A79W	_	۲	—	•	—	—	_	—	

*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

*: 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.)

5 m······ Z (Example) M9NWZ None····· N (Example) H7CN



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 $\emptyset 10: \pm 1.5^{\circ}, \emptyset 16: \pm 1^{\circ}$ Can operate without lubrication.



Symbol



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

Onon in	
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



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

Boro cizo [mm]	10	16						
Bore size [mm]	10	10						
Action	Double acting, Single rod							
Fluid	A	ir						
Proof pressure	1 N	IPa						
Maximum operating pressure	0.7	MPa						
Minimum operating pressure	0.06	MPa						
Ambient and fluid temperature	Without auto switch: -10 With auto switch: -10	°C to 70°C °C to 60°C (No freezing)						
Cushion	Rubber	bumper						
Lubrication	Not required	i (Non-lube)						
Stroke length tolerance	+1	.0						
Rod non-rotating accuracy	±1.5° ±1°							
Piston speed	50 to 75	i0 mm/s						
Allowable kinetic energy	0.035 J 0.090 J							

Standard Strokes

	[1101]	ւլլ
Bore size	Standard stroke	F
10	15, 30, 45, 60, 75, 100, 125, 150	J
16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200	N
. Manufacture a		114

*: 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. O…Can be ordered within the cylinder model. △…Order separate										
	Mounting	Basic	Foot	Flange	Double clevis	Double clevis (including T-bracket)				
ard	Mounting nut	•	•	•	—	—				
anda	Rod end nut	•	•	•	•	•				
Ste	Clevis pin (including retaining rings)	_	—	—	•	•				
	Double clevis (With one-touch connecting pin)	Δ	Δ	Δ	(-X2838)	(-X2838)				
	Single knuckle joint	0	0	0	0	0				
ion	Double knuckle joint (including a pin and retaining rings)	0	0	0	0	0				
Opt	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 brookst	Bore size [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.

[mm]



89 ®

Weights

			[g]
	Bore size [mm]	10	16
	Basic	25	47
Basic weight	Axial piping	25	47
(when the stroke	Double clevis (including clevis pin)	27	55
13 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



Double-side Bossed (E)



															f1	
Bore size	Α	В	С	F	GA	GB	Н	KA	MM	NA	NB	NDh8	NN	S	Z	-X ∟
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	Technical
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	Data

91

Double Clevis (D)



*: A clevis pin and retaining rings are included.

																			[IIIIII]
Bore size	Α	BA	BB	CA	СВ	CD(cd)	CX	GA	GB	н	KA	MM	NA	NB	R	S	U	Z	ZZ
10	15	15	12	17	14	3.3	3.2	8	18	28	4.2	M4 x 0.7	12.5	22.5	5	46	8	82	87
16	15	18.3	18.3	20	20	5	6.5	8	23	28	5.2	M5 x 0.8	12.5	27.5	8	47	10	85	93

Single Foot (L)



Head cover port location Axial location (R) CX+0.2

*: The overall cylinder length does not change.

A Hold to pag																[mm]									
Bore size	Α	BA	BB	CA	СВ	F	GA	GB	н	KA	LB	LC	LH	LT	LX	LY	LZ	MM	NA	NB	NN	s	X	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

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

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

Double Foot (M)



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

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

Rod Flange (F)





Piping port M5 x 0.8



Head cover port location Axial location (R)

*: The overall cylinder length does not change.

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

											[mm]												
Bore size	Α	BA	BB	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	D-
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	V

SMC



MB MB1 CA2

CS1

CS2

Head Flange (G)

CJ2KG 10 - Stroke Z



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

Bore size	A	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

[mm]



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

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

n

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

		Electricity of	ight	Marine er		Load vo	oltage		Auto swit	ch model		Lead	d wir	e ler	length [m]		Description	Applicable	
Туре	Special function	Electrical	ator	(Output)		DC	40	Band m	ounting	Rail mo	ounting	0.5	1	3	5	None	Pre-wired	Appli	cable
		enuy	lidi	(Output)		DC	AC	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	CONTRECTO	104	au
				3-wire (NPN)]	E V 10 V		M9NV	M9N	M9NV	M9N	•		۲	0	—	0	IC oirouit	
۽ ا	Gromme	Grommet 3-wire (PNP)]	5 V, 12 V		M9PV	M9P	M9PV	M9P	•	•	•	0	—	0	IC CITCUIL			
Ę.				2 wiro]	10.1/		M9BV	M9B	M9BV	M9B	•	•	٠	0		0		
s		Connector		2-wire		12 V		—	H7C	J79C	_	•	—	•	٠	•	—	_	
욕	Disgraphic indication]	3-wire (NPN)		5 V 10 V	1	M9NWV	M9NW	M9NWV	M9NW	•	•	٠	0	—	0		Deleu
al	(2-color indicator)		Yes	3-wire (PNP)	24 V	5 V,12 V	—	M9PWV	M9PW	M9PWV	M9PW	•	•	٠	0		0	IC CITCUIL	PLC
ate				2-wire]	12 V		M9BWV	M9BW	M9BWV	M9BW	•	•	•	0	—	0	<u> </u>	10
s	Grommet 3-wire (NPN)		5 V 12 V		5 V 12 V	M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	٠	0	—	0	IC airauit			
l∺	(2-color indicator)			3-wire (PNP)]	5 V, 12 V		M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	0	0	٠	0		0		
٥,				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	•	—	۲	0	—	0	IC circuit	
tch			Vaa	3-wire (NPN equivalent)	_	5 V	—	A96V	A96	A96V	A96	•	-	•	_	-	—	IC circuit	
Ň		Grommet	res			—	200 V	—	_	A72	A72H	•	—	۲	—	—	—		
ő							100 V	A93V*2	A93	A93V*2	A93	•	•	•	•	-	—	_	
aut			No	0		10.1/	100 V or less	A90V	A90	A90V	A90	•	—	•	—	—	—	IC circuit	Relay,
0		Connector	Yes	2-wire	24 V	12 V	-	_	C73C	A73C	_	•	—	۲	٠	٠	_	_	PLĆ
l a		Connector	No]			24 V or less	—	C80C	A80C	_	٠	—	٠	٠	•	—	IC circuit	
_	Diagnostic indication (2-color indicator)	Grommet	Yes	1		_		_	_	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

without an auto switch is required.

1 m----- M (Example) M9NWM 3 m----- L (Example) M9NWL

*: Since there are other applicable auto switches than listed, refer to page 149 for details.

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

5 m------ Z (Example) M9NWZ

None----- N (Example) H7CN



D-

-X

Technical

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. Spring extend

Spring return



l



Single acting, Spring extend, Rubber bumper



____<u>4_///</u>

Made to Order: Individual Specifications

 Symbol
 Specifications

 -X446
 PTFE grease

 -X2838
 Double clevis (With one-touch connecting pin)

Made to Order

Click here for details

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

A Precautions

Refer to page 152 before handling.

Ordering Example of Cylinder Assembly



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 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 (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 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.

Spring Reaction Force

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

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

••••	Nounted on the product. O…Can be	ordered wi	thin the cylir	$ riangle \cdots$ Order separately.		
	Mounting	Basic	Foot	Flange	Double clevis	Double clevis (including T-bracket)
P	Mounting nut	٠	•	•	-	—
anda	Rod end nut	۲	•	•	•	•
ŝ	Clevis pin (including retaining rings)	—	-	—	•	•
	Double clevis (With one-touch connecting pin)	Δ	Δ	Δ	(-X2838)	○ (-X2838)
_	Single knuckle joint	0	0	0	0	0
io	Double knuckle joint (including a pin and retaining rings)	0	0	0	0	0
<u>p</u>	Double knuckle joint (With one-touch connecting pin)	Δ	Δ	Δ	Δ	Δ
Č	Rod end cap (Flat/Round type)	0	0	0	0	0
	Pivot bracket (T-bracket)	—	-	—	0	•

Mounting Brackets/Part No.

Mounting brookst	Bore size [mm]							
wounting 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.



Weights

Spring Return

Sprii	Spring Return [g]											
Bo	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			
art	45 stroke	48	48	48	49	97	97	104	99			
. wei	60 stroke	58	58	58	59	116	116	122	118			
Si.	75 stroke				/	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				
ntin t we	Double foot		16				50					
Ke No	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						
cessori	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)
- Cylinder stroke-----45 stroke
- •Mounting bracket weight-----8 (Single foot)

48 + 8 = **56 g**

Spring Extend										
Bo	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	CJ1
	15 stroke	29	29	31	31	64	64	72	69	C.IP
	30 stroke	35	35	37	38	79	79	86	83	001
Ъ	45 stroke	44	44	46	46	95	95	103	99	CJ2
wei	60 stroke	52	52	54	55	111	111	119	115	
sic	75 stroke					133	133	140	137	JCM
Ba	100 stroke					163	163	170	167	
	125 stroke		/			198	198	206	202	CM2
	150 stroke	\angle				219	219	227	223	
ght	Single foot			8				25		CM3
t we	Double foot	16						50		
Mou	Rod flange			5				13		CG1
bra	Head flange			5				13		
	Clevis pin	-	_	1	—	-	—	3	_	CG3
	One-touch connecting pin for double clevis	-		2	-	-	-	4	-	JMB
	Single knuckle joint			17					-	
Double knuckle joint			:	25			:		MB	
Double knuckle joint (Wit				26				22		MB1
Acc	Rod end cap (Flat type)			1				2		CA2
	Rod end cap (Round type)			1		2				CS1
	Pivot Bracket (T-bracket)		:	32		50				CS2

*: 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	(a10)	١
· Dasic weight		1010	

- Cylinder stroke-----45 stroke
- Mounting bracket weight ----- 8 (Single foot)

44 + 8 = **52 g**



Construction (Not able to disassemble)

Single acting, Spring return



Single acting, Spring extend





5

With auto switch

Component Parts

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

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

Single Acting, Spring Return: Basic (B)



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



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

																														······	
Bore	•	DA		C A		E	CB		~	БАБА			NDbo	NINI	E to	16 to	21 to	46 to	S	76 10	101 10	106 to	E to	16 to	91 to	Z	61 to	76 to	101 to	10610	D -□
size	~	DA	ь	CA	СВ	Г	αв	П	ГА	IVIIVI	NA	ND	NDIIO	ININ	15 st	30 st	45 st	40 to 60 st	75 st	100 st	125 st	120 to 150 st	15 st	30 st	45 st	40 to 60 st	75 st	100 st	125 st	120 to 150 st	-X□
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	-	-	—	—	73.5	81	93	105	_	—	—	—	
16	15	18.3	18.3	20	20	8	5	28	5.2	M5 x 0.8	4.8	9.5	12_0.027	M12 x 1.0	45.5	54	66	78	84	108	126	138	73.5	82	94	106	112	136	154	166	Technical
																															Data

SMC

[mage1

Single Acting, Spring Return: Double Clevis (D)

CJ2KD 10 - Stroke SZ



*: A clevis pin and retaining rings are included.

*: A clevis pin a	and re	etaimir	ig nng	js are	inciu	ueu.																	[mm]
																			9	\$			
Bore size	A	BA	BB	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

					<u>z</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

Single Acting, Spring Return: Single Foot (L)

CJ2KL 10 - Stroke S Head cover port location Z



[mm]

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

Bore size	A	ва	вв	СА	СВ	F	GB	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

SMC

Dere					3										Z			
Dore	5 to	16 to	31 to	46 to	61 to	76 to	101 to	126 to	х	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

CJ2KM 10 - Stroke SZ GB A Mounting nut Rod end nut ☆ Mounting nut F NN Piping port M5 x 0.8 Cover surface CJ1 MM CJP 2 т CJ2 5 5 NB I X Rod section JCM Α 17 х NΔ Y х 4 x ØLC CM2 S + Stroke Mounting hole LS + Stroke CM3 Z + Stroke CG1 ☆ For details of the mounting nut, refer to page 63 [mm] LS Bore CG3 F GB LB LC 5 to 16 to 31 to 46 to 61 to 76 to 101 to 126 to LT LX LZ KA мм NA NB NN Α н LH LY size 30 st 45 st 60 st 75 st 100 st 125 st 150 st 15 st JMB 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 5.5 14 63.5 72 84 42 5.2 M5 x 0.8 4.8 9.5 M12 x 1.0 16 15 8 5 28 23 96 102 126 144 156 2.3 33 25 MB S Bore 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 х Υ size MB1 45 st 60 st 75 st 100 st 125 st 150 st 30 st 45 st 60 st 75 st 15 st 30 st 15 st 100 st 125 st 150 st 10 45.5 53 65 77 6 9 88.5 96 108 120 16 45.5 54 66 78 84 108 126 138 6 9 88.5 97 109 121 127 151 169 181 CA2 CS1

Single Acting, Spring Return: Double Foot (M)

Single Acting, Spring Return: Rod Flange (F)

CJ2KF 10 - Stroke S Head cover port location Z





CS2

101

16 15 18.3 18.3 20 20 8 19 5.5 2.3 33 20 42 5 28 5.2 M5 x 0.8 4.8 9.5 M12 x 1.0 45.5 54 66 78 84 108 126 138 73.5 82 94 106 112 136 154 166

Single Acting, Spring Return: Head Flange (G)

CJ2KG 10 - Stroke SZ



☆ For de	tails o	f the r	nount	ing nu	it, refe	er to p	age 6	3.											[mm]
Bore size	A	в	с	F	FE	B FO	F	TF	x	FY	FZ	GB	н	ка	М	М	NA	NB	NN
10	15	15	17	8	17.	5 5.	5 2.	3 3	33	20	42	5	28	4.2	M4 >	(0.7	4.8	9.5	M10 x 1.0
16	15	18.3	20	8	19	5.	5 2.	3 3	33	20	42	5	28	5.2	M5 >	‹ 0.8	4.8	9.5	M12 x 1.0
Dere				5	\$								z						
Dore	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	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			

⊘SMC

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.

Poro			1			1												5	S							Z	<u>'</u>				D-🗆
size	A	BA	вв	CA	СВ	F	GA	н	KA	ММ	NA	NB	NDh8	NN	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	5 to 15 st	16 to 30 st	31 to 45 st	46 to 60 st	61 to 75 st	76 to 100 st	101 to 125 st	126 to 150 st	
10	15	15	15	17	17	8	8	28	4.2	M4 x 0.7	12.5	4.8	10_0_022	M10 x 1.0	48.5	56	68	80	—	—	—	-	76.5	84	96	108	—	—	—	_	
16	15	18.3	18.3	20	20	8	8	28	5.2	M5 x 0.8	12.5	4.8	12_0.027	M12 x 1.0	48.5	57	69	81	87	111	129	141	76.5	85	97	109	115	139	157	169	Technical
																															I Data

103

Single Acting, Spring Extend: Double Clevis (D)



* A clevis pin and retaining rings are included.

										1									Ş	3			
Bore size	A	BA	BB	CA	СВ	CD	CX	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	-		Ι	_
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
					Z								Z	Z									
Bore size	5 to	16 to	31	to 4	6 to	61 to	76 to	101 to	126 t	5 to	o 16 to	31 to	46 to	61 to	76 to	101 to	126 t	0					
	15 st	30 s	t 45	st 6	0 st	75 st	100 st	125 st	150 s	t 15 s	st 30 st	45 st	60 st	75 st	100 s	t 125 s	t 150 s	st					
10	84.5	92	10)4 1	16	-	_	_	-	89.	5 97	109	121	_	-	-	-	_					
16	86.5	95	10)7 1	19	125	149	167	179	94.	5 103	115	127	133	157	175	187	'					

[mm]

Single Acting, Spring Extend: Single Foot (L)





× For details o	Ji the h	nountil	ig nut	, reier	to page	3 03.																[mm]
Bore size	A	ва	вв	CA	СВ	F	GA	н	KA	LB	LC	LH	LT	LX	LY	LZ	м	м	NA	NB		NN
10	15	15	12	17	14	8	8	28	4.2	21.5	5.5	14	2.3	33	25	42	M4 >	(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 >	< 0.8	12.5	4.8	M12	2 x 1.0
Boro oizo					9	\$					v	v					2	Z				
Dole Size	5 to 15 s	t 16 to 3	30 st 31 f	to 45 st	46 to 60 st	61 to 75 s	t 76 to 10	0 st 101	1 to 125 st	126 to 150 st	^	I I	5 to 15 s	t 16 to 30	st 31	to 45 st	46 to 60 st	61 to 75 s	t 76 to 10) st 101 i	to 125 st	126 to 150 st
10	48.5	56	6	68	80	_			-	—	6	9	76.5	84		96	108	—			_	_
16	48.5	57	7	69	81	87	11	1	129	141	6	9	76.5	85		97	109	115	139) 1	57	169

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

Single Acting, Spring Extend: Double Foot (M)

CJ2KM 10 - Stroke TZ



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

		-	~									L	S	70.1		1001									.IMB
Bore size	A	F	GA	н	KA	LR	LC	LH	5 to	16 to	31 to	46 to	61 to	/6 t0	101 to	126 to	LI	LX	LY	LZ	ININ	NA	NR	NN	•
									15 st	30 st	45 st	60 st	75 st	100 st	125 st	150 st									
10	15	8	8	28	4.2	21.5	5.5	14	66.5	74	86	98	Ι		—	-	2.3	33	25	42	M4 x 0.7	12.5	4.8	M10 x 1.0	IMB
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	<u> </u>
																			_						MR1
					S										Z										
Bore size	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							0.4.0
	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							UAZ
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							CS1
																			-						1

Single Acting, Spring Extend: Rod Flange (F)

CJ2KF 10 - Stroke TZ



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

48.5

48.5

																			נווחוו
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
Poro oizo						S										z			
Dore size	5 to 15	st 16 to	30 st 31	to 45 st	46 to 60 s	st 61 to	75 st 76	o 100 st	101 to 125	st 126 to 1	50 st 5 t	o 15 st	16 to 30 st	1 31 to 4	5 st 46 to	0 60 st 61 to 75 st	76 to 100) st 101 to	125 st 126 to 150 st

76.5

76.5

D- □	
-X□	

[mm]

CS2

Single Acting, Spring Extend: Head Flange (G)

CJ2KG 10 - Stroke TZ



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

Profideration of the moduluing hub, refer to page 65. [mm]																		
Bore size	Α	в	C I	F FB	FC	FT	FX	FY	FZ	GA	н	KA	ММ	1 P	A	NB	1	NN
10	15	15	17 8	3 17.5	5 5.5	2.3	33	20	42	8	28	4.2	M4 x ().7 1	2.5	4.8	M10) x 1.0
16	15	18.3	20 8	3 19	5.5	2.3	33	20	42	8	28	5.2	M5 x (0.8 1	2.5	4.8	M12	2 x 1.0
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 10	00 st 1	01 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	14	7	165	177



<u> </u>	repricable Adde et interie a pages 1076 to 1761 for infinitiation on adde switches.																								
			light	146-2-2		Load voltage Aut			Auto swit	witch model			Lead wire length [n				Destinat								
Туре	Special function	Electrical	ator	(Output)			40	Band m	ounting	Rail mo	ounting	0.5	1	3	5	None	Pre-wireu	Applica	ble load						
	enuy .		Indic	(Output)		DC	AC	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	CUITIECIUI								
				3-wire (NPN)		5 V 40 V		M9NV	M9N	M9NV	M9N	٠	•	•	0	-	0	10							
ء		Grommet		3-wire (PNP)	1	5 V, 12 V		M9PV	M9P	M9PV	M9P	٠	٠	•	0	-	0	IC CIrcuit							
ţ					1	10.11	1	M9BV	M9B	M9BV	M9B	٠	•	•	0	-	0								
sv		Connector		2-wire		12 V		—	H7C	J79C	—	٠	—	•	٠	•	_	_							
٩ ٤				3-wire (NPN)	1	5 V 40 V	1	M9NWV	M9NW	M9NWV	M9NW	•	•	•	0	-	0	10							
al	Yes Water resistant (2-color indicator) Water distant	Yes	Yes	3-wire (PNP)	24 V	5 V, 12 V	—	M9PWV	M9PW	M9PWV	M9PW	٠	•	•	0	—	0	IC CIRCUIT	Helay,						
ate			2-wire	12 V		M9BWV	M9BW	M9BWV	M9BW	٠	•	•	0	-	0	_	PLC								
st		Water resistant	3-wire (NPI	3-wire (NPN)	1	E.V. 40.V	1	M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	•	0	-	0	10							
ie Bio		ater resistant	3-wire (PNP)	15 V, 12 V	'		/, 12 V 12 V /, 12 V	M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	0	0	•	0	—	0	IC CIRCUIT							
Ň				2-wire	1	12 V			V	M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	0	0	•	0	-	0	_					
	With diagnostic output (2-color indicator)			4-wire (NPN)	1	5 V, 12 V		—	H7NF	—	F79F	٠	—	•	0	-	0	IC circuit							
-				3-wire		5 V		AGEV	A 06	AGEV	A06							IC circuit							
t <u>c</u>			Vaa	(NPN equivalent)] —	5.		ASUV	AJU	ASUV	AJU	•	_		_	_	_	TO CITCUIT							
Ň	Gro	Grommet	162			—	200 V	—	—	A72	A72H	•	—		—	—	—								
ğ														100 V	A93V*2	A93	A93V*2	A93	•	•	•	۰	—	—	
au			No	o 2-wire 24 \		10.1	100 V or less	A90V	A90	A90V	A90	•	—		—	-	—	IC circuit	Relay,						
ba Ba		Connector	Yes		24 V	/ 12 V	—	—	C73C	A73C	—	•	—		٠		—	-	PLC						
Å		COLLIECTOL	No				24 V or less	_	C80C	A80C	_	٠	—	٠	۲	•	_	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

*: 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.) Data

5 m------ Z (Example) M9NWZ

None----- N (Example) H7CN



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

		opecifications
46	PTFE grease	

Made to Order

-X

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



*: 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	A	ir					
Proof pressure	1 N	IPa					
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 (No freezing)						
Cushion	Rubber bumper						
Lubrication	Not required (Non-lube)						
Stroke length tolerance	+1.0 0						
Speed controller	Built-in						
Piston speed	50 to 750 mm/s						
Allowable kinetic energy	0.035 J	0.090 J					

Standard Strokes

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

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

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

•····	Nounted on the product. OCan be	e ordered wi	unin une cynr	∠Order separately			
	Mounting	Basic	Basic Foot Flange		Double clevis	Double clevis (including T-bracket)	
p	Mounting nut	۲	•	•	—	—	
andê	Rod end nut	•	•	•	•	•	
St	Clevis pin (including retaining rings)	_	_	—	•	•	
	Single knuckle joint	0	0	0	0	0	
E	Double knuckle joint (including a pin and retaining rings)	0	0	0	0	0	
Optic	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	•	

Mounting Brackets/Part No.

	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.
Weights

			[g
	Bore size [mm]	10	16
De sie unsielet	Basic	36	61
Basic weight	Axial piping	36	61
(When the shoke	Double clevis (including clevis pin)	40	68
13 2010)	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

- 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

(5)

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	_	





CJ2Z Series

Basic (B)





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

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_0022	M10 x 1.0	14.4	13.5	45	64	92

[mm]

Double-side Bossed (E)



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

																		լուույ
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



Technical Data

CJ2Z Series

Double Foot (M)



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

																											funni
Bore size	Α	в	С	D	F	GA	GB	н	LB	LC	LH	LS	LT	LX	LY	LZ	MM	NA	NB	NN	WA	WB	٨Å	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

[mm]

[mm]

Rod Flange (F)



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

																							funni
Bore size	Α	в	С	D	F	FB	FC	FT	FX	FY	FΖ	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





CA2 CS1 CS2

Air Cylinder: Built-in Speed Controller Type **Double Acting, Double Rod** CJ2ZW Series RoHS ø10, ø16



		El contra el	9	MAR		LUau vi	Jilaye		Auto Swit	CITINOUEI		Leau		6 161	iyur	լույ	Des subset	A	I- I -
Туре	Special function	entry	cator	(Output)		DC	AC.	Band m	ounting	Rail mo	ounting	0.5	1	3	5	None	Pre-wired		ad
		onay	j <u>p</u>	Coupuly		00	7.0	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	0011100101	101	
				3-wire (NPN)		5 V 10 V		M9NV	M9N	M9NV	M9N	٠	•	٠	0	—	0		
ا چ ا		Grommet		3-wire (PNP)]	5 V,12 V		M9PV	M9P	M9PV	M9P	•	•	٠	0	-	0	IC circuit	
본				Quuino]	10.1		M9BV	M9B	M9BV	M9B	٠	•	•	0	-	0		
s		Connector]	2-wire		12 V		-	H7C	J79C	Ι	٠	—	٠	•	•	—	-	
육	Dia ana shia in dia shia a			3-wire (NPN)]	EVION		M9NWV	M9NW	M9NWV	M9NW	•	•	•	0	-	0		<u> </u>
a	Diagnostic indication		Yes	3-wire (PNP)	24 V	5 V,12 V	—	M9PWV	M9PW	M9PWV	M9PW	٠	•	٠	0	-	0		Relay,
ate	(2-0001 Indicator)			2-wire]	12 V		M9BWV	M9BW	M9BWV	M9BW	٠	•	٠	0	—	0	—	110
120	Mater a sister t	Grommet		3-wire (NPN)]	EVION		M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	•	0	-	0		
∺	(2 color indicator)			3-wire (PNP)]	5 V,12 V		M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	0	0	•	0	-	0		
ι σ				2-wire]	12 V		M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	0	0	٠	0	—	0	—	
	With diagnostic output (2-color indicator)			4-wire (NPN)		5 V,12 V		-	H7NF		F79F	٠	—	٠	0	—	0	IC circuit	
tch			Vaa	3-wire (NPN equivalent)	_	5 V	—	A96V	A96	A96V	A96	•	-	•	_	-	—	IC circuit	-
Ň		Cummet	res		1	_	200 V	_	_	A72	A72H	٠	—	٠	—	—	_		
ő		Grommet					100 V	A93V*2	A93	A93V*2	A93	٠	•	٠	•	-	—	1 —	
ar			No	2 wiro		10.1	100 V or less	A90V	A90	A90V	A90	٠	-	٠	-	-	—	IC circuit	Relay,
8			Yes	2-wire	24 V	12 V	—		C73C	A73C		٠	—	٠	•		—	—	PLC
l a		Connector	No]			24 V or less	_	C80C	A80C	_	٠	-	٠	٠	•	_	IC circuit	
_	Diagnostic indication (2-color indicator)	Grommet	Yes			_	_	-	_	A79W	-	٠	-	٠	—	-	_	_	

*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: In 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..... 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.)

SMC

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

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



Double acting, Double rod, Rubber bumper

Made to Order: Individual Specifications

Specifications

Specifications

- - - - - - -

(For details, refer to page 150.)

Symbol

Made to

Order

Symbol

-X446 PTFE grease Made to Order **Click here for details** Symbol

-XA Change of rod end shape -XC51 With hose nipple

Specifications

	2							
Bore size [mm]	10	16						
Action	Double acting	g, Double rod						
Fluid	A	ir						
Proof pressure	1 N	1Pa						
Maximum operating pressure	0.7 MPa							
Minimum operating pressure	0.1	MPa						
Ambient and fluid temperature	Without auto switch: -10 With auto switch: -10	0°C to 70°C (No freezing) 0°C to 60°C (No freezing)						
Cushion	Rubber	bumper						
Lubrication	Not required	d (Non-lube)						
Stroke length tolerance	+1	.0						
Speed controller	Bui	lt-in						
Piston speed	50 to 750 mm/s							
Allowable kinetic energy	0.035 J 0.090 J							
Piston speed Allowable kinetic energy	50 to 75 0.035 J	60 mm/s 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.

*: 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.

CG3
JMB
MB
MB1
CA2
CS1
CS2

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
Clandard	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

Mounting Brackets/Part No.

Mounting brookst	Bore si	ze [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

I

· Auto switch mounting brackets/Part no.



@SMC

J1 JP J2 СМ Μ2 M3 CG1

[mm]

Precautions Refer to page 152 before handling.

-XC85 Grease for food processing equipment

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
- Cylinder stroke
 45 stroke
- Mounting bracket weight…16 (Double foot)
- 36 + 4.5/15 x 45 + 16 = 65.5 g

Construction (Not able to disassemble)



SMC

With auto switch

Component Parts

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

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

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



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

A TOT GETAILS C		Junung i	iut, reie	r to pag	e 03.										[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





☆ Fo	or c	letails	of	the	mounting	nut,	refe	er t	0	page	63	,
------	------	---------	----	-----	----------	------	------	------	---	------	----	---

																							[]	
Bore size	Α	В	С	D	F	GA	н	LB	LC	LH	LT	LX	LY	LZ	NN	NA	NN	WA	ww	S	Х	Υ	Ζ	-X ∟
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	Technical
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	Data

ſm

D-🗆

MB

MB1 CA2 CS1

CS2

CJ2ZW Series

Flange (F) CJ2ZWF ¹⁰₁₆ – Stroke Z





☆ For details o	f the n	nountin	ng nut,	refer t	o 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 RoHS ø10, ø16



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

<u> </u>	-		+		r i	. .													
			흐	10/1000		Load v	oltage		Auto swi	ich model		Lea	d wir	e ler	ngth	լայ	Dro wirod	Appli	aabla
Туре	Special function	entry	ator	(Output)		DC	10	Band m	ounting	Rail mo	ounting	0.5	1	3	5	None	connector		able
		Citay	Indic	(Output)		DC	AC	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	CONTRECTO	104	au
				3-wire (NPN)		EV 10.V		M9NV	M9N	M9NV	M9N	•	•	•	0	Ι	0		
۽ ا		Grommet		3-wire (PNP)		5 V, 12 V		M9PV	M9P	M9PV	M9P	•	•	•	0	-	0	IC CITCUIL	
ŧ				Quuiro		10.1		M9BV	M9B	M9BV	M9B	•	•	•	0	Ι	0		
s		Connector	1	2-wire		12 V		_	H7C	J79C	_	٠	—	٠	٠	٠	_	_	
욕	Disgraphic indication		1	3-wire (NPN)]	EV 10V		M9NWV	M9NW	M9NWV	M9NW	•	•	٠	0	Ι	0		Datas
a	(2-color indicator)		Yes	3-wire (PNP)	24 V	5 V, 12 V	_	M9PWV	M9PW	M9PWV	M9PW	•	•	۲	0	Ι	0	IC CITCUIL	PLC
tate]		2-wire]	12 V		M9BWV	M9BW	M9BWV	M9BW	•		۲	0		0	—	1 20
1 s	Water registant	Grommet		3-wire (NPN)		5 V 12 V		M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	•	0	—	0	IC circuit	
ĕ	(2-color indicator)			3-wire (PNP)		J V, 12 V		M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	0	0	•	0	—	0	IO CIICUII	
Ō]		2-wire]	12 V		M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	0	0	۲	0	-	0	—	
	With diagnostic output (2-color indicator)			4-wire (NPN)		5 V, 12 V		—	H7NF	—	F79F	•	—	•	0	—	0	IC circuit	
tch			Vee	3-wire (NPN equivalent)	_	5 V	—	A96V	A96	A96V	A96	•	-	•	-	-	—	IC circuit	—
Ň		Grommet	res			—	200 V	Ι	—	A72	A72H	•	—	٠	-	Ι	_		
ő							100 V	A93V*2	A93	A93V*2	A93	•	•	•	•	Ι	_	_	
aut			No	2 wiro		10.1	100 V or less	A90V	A90	A90V	A90	٠	-	٠	-	-	_	IC circuit	Relay,
g		Connector	Yes	2-wire	24 V	12 V	_	-	C73C	A73C	_	٠	-	٠	٠	۲	_	_	PLĆ
Å		CONTROLOT	No				24 V or less	-	C80C	A80C	_	•	-	۲	٠	•	_	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

..... Z (Example) M9NWZ 5 m…

*: Solid state auto switches marked with "O" are produced upon receipt of order. *: The D-A92M92A72/A802/F72J72 auto switches are shipped together, but not assembled. (For band mounting, only auto switch mounting brackets are assembled before being shipped.) Data

details

119

<b

*: Since there are other applicable auto switches than listed, refer to page 149 for

D-

-X

Technical

CJ2R Series

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



Symbol

Order

Symbol

Double acting, Single rod, Rubber bumper



Made to Order: Individual Specifications

(For details, refer to page 150.)

-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

\land Pre	cautions
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 actin	g, Single rod					
Fluid	A	ir					
Proof pressure	1 N	1Pa					
Maximum operating pressure	0.7 1	MPa					
Minimum operating pressure	0.06	0.06 MPa					
Ambient and fluid temperature	Without auto switch: -10°C to 70°C With auto switch: -10°C to 60°C (No freezing)						
Cushion	Rubber bumper						
Lubrication	Not required	d (Non-lube)					
Stroke length tolerance	+1	+1.0 0					
Piston speed	50 to 750 mm/s						
Allowable kinetic energy	0.035 J	0.090 J					

Standard Strokes

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

*: Manufacture of intermediate strokes in 1 mm increments is possible. (Spacers are not used.) *: Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on 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*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)

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

Weights

		[9]			
size [mm]	10	16			
Basic	36	61			
Axial piping	36	61			
Additional weight per 15 mm of stroke					
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			
	size [mm] Basic Axial piping m of stroke Single knuckle joint Double knuckle joint (including knuckle pin) Double knuckle joint (With one-touch connecting pin) Rod end cap (Flat type) Rod end cap (Round type)	ID Basic 36 Axial piping 36 m of stroke 4 Single knuckle joint 17 Double knuckle joint 25 Double knuckle joint (With one-touch connecting pin) 26 Rod end cap (Flat type) 1 Rod end cap (Round type) 1			

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

Calculation:

- Additional weight ---- 4/15 stroke
- Cylinder stroke------45 stroke
- 36 + 4/15 x 45 = **48 g**

 $30 + 4/15 \times 45 = 40 \text{ g}$

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.



Clean Series

10-CJ2RA 10 - Stroke Head cover port location Z

Clean Series

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

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

Construction	(Not abla	to disassamble)	
CONSILUCIION	uvoi abie	to uisassemulei	



		CJ1
Specifications		CJF
Action	Double acting, Single rod	
Bore size [mm]	10, 16	C.L
Maximum operating pressure	0.7 MPa	004
Minimum operating pressure	0.08 MPa	JCI
Cushion	Rubber bumper	
Standard stroke [mm]	Same as standard type. (Refer to page 120.)	CM
Auto switch	Mountable (Band mounting)	0.04
Mounting	Bottom mounting	CIM



121

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



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





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

9 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

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

*: Since there are other applicable auto switches than listed, refer to page 149 for

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

Made to Order

Refer to page 124 for details.

**: Refer to page 63 for the double knuckle

joint (with one-touch connecting pin).

		Fleetrical	light	Minima		Load v	oltage		Auto switch model					e ler	ngth [m]		Dec using	Annli	aabla		
Туре	Special function	entry	ator	(Output)		DC	AC	Band m	ounting	Rail mo	ounting	0.5	1	3	5	None	connector		cable		
		enuy	la ju	(Output)		DC	AC	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	CONTRECTO		au		
				3-wire (NPN)		E V 10 V		M9NV	M9N	M9NV	M9N	•		•	0	—	0				
E.		Grommet		3-wire (PNP)		5 V,12 V		M9PV	M9P	M9PV	M9P	•	•	۰	0	-	0				
			J	2 wire		10.1/		M9BV	M9B	M9BV	M9B	•		۰	0	—	0				
s		Connector		2-wire		12 V		-	H7C	J79C	-	•	-	•	•	•	—	_			
욕	Disgraphic indication			3-wire (NPN)		E V 10 V		M9NWV	M9NW	M9NWV	M9NW	•	•	٠	0	-	0		Deless		
a	(2 color indication		Yes	3-wire (PNP)	24 V	5 V,12 V	_	M9PWV	M9PW	M9PWV	M9PW	•	•	•	0	-	0		Relay,		
ate				2-wire		12 V		M9BWV	M9BW	M9BWV	M9BW	٠	•	٠	0	-	0	-	1 10		
1 st	Water registent	Grommet		3-wire (NPN)		E V 10 V		M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	٠	0	-	0				
l₩	(2 color indicator)			3-wire (PNP)		12 V	5 V,12 V	5 0,12 0		M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	0	0	•	0	-	0		
ŭ				2-wire]			M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	0	0	٠	0	—	0	-			
	With diagnostic output (2-color indicator)			4-wire (NPN)		5 V,12 V		Ι	H7NF	—	F79F	•	-	•	0	-	0	IC circuit			
ч				3-wire (NPN equivalent)	_	5 V	_	A96V	A96	A96V	A96	•	-	•	—	-	—	IC circuit	_		
ž		Grommet	Yes		1	—	200 V	-	_	A72	A72H	•	—	٠	—	—	—				
S							100 V	A93V*2	A93	A93V*2	A93	•	•	٠	٠	-	—	-			
art			No			1011	100 V or less	A90V	A90	A90V	A90	•	-	٠	—	—	—	IC circuit	Relay,		
g		Connector	Yes	s 2-wire	24 V	12 V	—	_	C73C	A73C	_	٠	—	٠	٠	•	—	—	PLC		
Bee		Connector	No	1			24 V or less	_	C80C	A80C	_	٠	—	٠	٠	•	—	IC circuit	1		
	Diagnostic indication (2-color indicator)	Grommet	Yes			_	_	_	_	A79W	_	٠	-	٠	—	-	_	_			

*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-

*: Solid state auto switches marked with "O" are produced upon receipt of order

Data *: 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.)

details.



D-

-X

Technical

CA2

CS1

CS2

CJ2R Series

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



Symbol



Single acting, Spring extend, Rubber bumper



(For details, refer to page 150.)

-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



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 With auto switch: -10°C to 60°C (No freezing)				
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
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.

Option*1 Single knuckle joint, Double knuckle joint (including a pin and retainin end cap (Flat type, Round type), Double knuckle joint (With one-touch co	g rings), Rod

connecting pin).

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.



Weights

Spring I	Return				[g]		
	Bore size [mm]	1	0	16			
	Mounting	Basic	Axial piping	Basic	Axial piping		
	15 stroke	42	42	81	81		
	30 stroke	49	49	97	97		
	45 stroke	59	59	114	114		
Basic	60 stroke	68	68	132	132		
weight	75 stroke			154	154		
	100 stroke			187	187		
	125 stroke			224	224		
	150 stroke			246	246		
	Single knuckle joint	1	7	2	23		
	Double knuckle joint (including knuckle pin)	2	25	2	21		
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			

Spring I	Extend		[g]
	Bore size [mm]	10	16
	Mounting	Basic	Basic
	15 stroke	41	78
	30 stroke	47	92
	45 stroke	55	108
Basic	60 stroke	64	123
weight	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
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.

Construction (Not able to disassemble)

Single acting, Spring return





With auto switch

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

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	

CJ2R Series

Single Acting: Bottom Mounting

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



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

Dimensions	Imensions by Stroke: Spring Return [mm]														[mm]	
Dere eize					\$								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	53.5	61	73	85	—	_	—	—	73.5	81	93	105	—	—	—	_
16	53.5	62	74	86	92	116	134	146	73.5	82	94	106	112	136	154	166

Spring extend: CJ2RA 10 - Stroke TZ



[mm]

[mm]

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

Dimensions by Stroke: Spring Extend

			<u> </u>													
Bore size		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	56.5	64	76	88	_	—	—	-	76.5	84	96	108	—	—	—	—
16	56.5	65	77	89	95	119	137	149	76.5	85	97	109	115	139	157	169

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



come with the rai

*: Refer to page 148 for auto switch mounting brackets

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

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

	Electrical 5 Miring Load voltage Auto switch model								Lea	d wir	e lei	ngth	[m]	December	A													
Туре	Special function	Electrical	ator	(Output)		DC	10	Band m	ounting	Rail mo	ounting	0.5	1	3	5	None	Pre-wireu	Appii	cable									
		enuy	hđ	(Output)		DC	AC	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	CONTRECTO		au									
				3-wire (NPN)		E V 10 V		M9NV	M9N	M9NV	M9N	•		•	0	—	0											
۽ ا		Grommet		3-wire (PNP)		5 V,12 V		M9PV	M9P	M9PV	M9P	•	•	۰	0	-	0											
븧			J	2 wire		10.1/		M9BV	M9B	M9BV	M9B	•	•	۰	0	—	0											
S		Connector		2-wire		12 V		-	H7C	J79C	-	•	-	•	•	•	—	_										
욕	Disgraphic indication			3-wire (NPN)		E V 10 V		M9NWV	M9NW	M9NWV	M9NW	•	•	•	0	-	0		Balan									
al	(2-color indicator)		Yes	3-wire (PNP)	24 V	5 V,12 V	_	M9PWV	M9PW	M9PWV	M9PW	•		۲	0	—	0		PLC									
ate				2-wire		12 V		M9BWV	M9BW	M9BWV	M9BW	•	•	•	0	-	0	—	1 20									
1st	Water resistant	Grommet		3-wire (NPN)		E V 10 V		M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	•	0	-	0											
lĕ							3-wire (PNP)]	5 V,12 V		M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	0	0	۲	0	—	0								
٥,																	2-wire		12 V		M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	0	0	•	0
	With diagnostic output (2-color indicator)			4-wire (NPN)		5 V,12 V		—	H7NF	—	F79F	•	—	۰	0	-	0	IC circuit										
÷				3-wire (NPN equivalent)	_	5 V	_	A96V	A96	A96V	A96	•	-	•	-	-	_	IC circuit	_									
ž		Grommet	res		1	_	200 V	_	_	A72	A72H	٠	—	٠	-	-	—											
So							100 V	A93V*2	A93	A93V*2	A93	٠	٠	٠	٠	-	—	-										
art			No	0		1011	100 V or less	A90V	A90	A90V	A90	•	—	•	—	—	—	IC circuit	Relay,									
D.		Connector	Yes	es lo	24 V	12 V	—	-	C73C	A73C	_	٠	-	٠	•	•	—	—	PLC									
š		Connector	No				24 V or less	_	C80C	A80C	_	٠	-	٠	٠	•	_	IC circuit	1									
	Diagnostic indication (2-color indicator)	Grommet	Yes			-	_	_	_	A79W	_	٠	-	٠	-	-	_	_										

*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
ží 1	m	Μ	(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-49 LM9CI/ATU/JT and 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



Symbol

Symbol

Double acting, Single rod, Rubber bumper



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

Specifications

-X446 PTFE grease

Made to Order

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

Precautions

Refer to page 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 actin	g, Single rod			
Fluid	A	ir			
Proof pressure	1 N	1Pa			
Maximum operating pressure	0.71	MPa			
Minimum operating pressure	0.06	MPa			
Ambient and fluid temperature	Without auto switch: -10°C to 70°C With auto switch: -10°C to 60°C (No freezing)				
Cushion	Rubber bumper				
Lubrication	Not required (Non-lube)				
Stroke length tolerance	+1.0 0				
Rod non-rotating accuracy	±1.5° ±1°				
Piston speed	50 to 750 mm/s				
Allowable kinetic energy	0.035 J	0.090 J			

Standard Strokes

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

*: Manufacture of intermediate strokes in 1 mm increments is possible. (Spacers are not used.) *: Please consult with SMC for strokes which exceed the standard stroke length.

 Applicable strokes should be confirmed according to the usage. For details, refer to "Air Cylinders Model Selection" on 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*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)

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

Weights

			[g]
Bore	size [mm]	10	16
Basic weight	Basic	36	62
(When the stroke is zero)	Axial piping	36	62
Additional weight per 15 m	m of stroke	4	7
	Single knuckle joint	17	23
	Double knuckle joint (including knuckle pin)	25	21
Accessories	Double knuckle joint (With one-touch connecting pin)		22
	Rod end cap (Flat type)	1	2
	Bod end can (Bound type)	1	2

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

Calculation:

Example) CJ2RKA10-45Z

- Basic weight ------ 36 (ø10)
- Additional weight ---- 4/15 stroke
- Cylinder stroke 45 stroke

36 + 4/15 x 45 = 48 g

Refer to pages 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.



Construction (Not able to disassemble)



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



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

ø10, ø16 and the How to Order **CJ2RKA** 16 45 **CDJ2RKA** With auto switch 9**B** With auto switch (Built-in magnet) ጠ 2 Bore size 4 Action Mounting Cylinder standard stroke [mm] Refer to "Standard Strokes" on Δ Bottom mounting 10 10 mm S Single acting, Spring return page 131. 16 16 mm 8 Number of auto switches Head cover port location 6 Rod end bracket Auto switch Nil Without auto switch Nil 1 None ν Single knuckle joint

CJ2RK Series

Nil	Perpendicular to axis	TO
R	Axial	1º

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

9 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

*: 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

T Single acting, Spring extend

RoHS

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

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

*: Since there are other applicable auto switches than listed, refer to page 149 for

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

Made to Order Refer to page 131 for details.

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. **: Refer to page 63 for the double knuck-

le joint (with one-touch connecting pin).

W*

٦

U

	•		ight		Load voltage				Auto swit	ch model		Lea	d wir	e ler	ngth	[m]		Annli	aabla			
Туре	Special function	ction Electrical Wiring Rail m			Rail mo	ounting	0.5	1	3	5	None	Pre-wired	Appil	cable								
		enuy	laid	(Output)		DC	AC	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	CONTROCTOR	10	au			
				3-wire (NPN)		5 V 12 V		M9NV	M9N	M9NV	M9N	۲	۲	۲	0	-	0	IC circuit				
£		Grommet		3-wire (PNP)		5 V, 12 V		M9PV	M9P	M9PV	M9P	•	•	•	0	—	0	IO GIICUII				
ţ				2-wiro		12 V		M9BV	M9B	M9BV	M9B	۲	٠	٠	0	—	0					
S		Connector]	2-wile		12 V		-	H7C	J79C	—	٠	—	٠	•	•	—	_				
£,	Discretio indication			3-wire (NPN)		5 V 10 V		M9NWV	M9NW	M9NWV	M9NW	•	•	•	0	—	0					
a	(2 color indicator)		Yes	3-wire (PNP)	24 V	5 V, 12 V	—	M9PWV	M9PW	M9PWV	M9PW	٠	•	٠	0	—	0	IC CIICUIL	PLC			
tate							2-wire]	12 V		M9BWV	M9BW	M9BWV	M9BW	٠	•	٠	0	—	0	—	1.50
l si	Water registent	Grommet							3-wire (NPN)		5 V 10 V		M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	٠	0	—	0
ĕ	(2 color indicator)			3-wire (PNP)			5 V, 12 V		M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	0	0	٠	0	—	0	IC CIICUIL			
ŵ				2-wire]	12 V		M9BAV*1	M9BA*1	M9BAV*1	M9BA*1	0	0	٠	0	—	0	—]			
	With diagnostic output (2-color indicator)			4-wire (NPN)		5 V,12 V			H7NF	—	F79F	٠	—	•	0	—	0	IC circuit				
_				3-wire		5 V		AGEV	406	AGEV	A 06	•	_	-	_			IC circuit				
tc			Vac	(NPN equivalent)	—	5.		ASOV	ASO	ASUV	A90	•		•								
Ň		Grommet	100			—	200 V	-	—	A72	A72H	•	—	•	—	—	—					
ğ							100 V	A93V*2	A93	A93V*2	A93	٠	•	•	•	—	—	_				
aut			No	2-wiro		12 V	100 V or less	ess A90V A90 A90V A90 •	less A90V A90 A90V	A90 A90V A90	۲	_	۲	-	—	_	IC circuit	Relay,				
ed		Connector	Yes	s	24 V	12 V	_	_	C73C	A73C	_	۲	-	۲	٠	•	_	_	PLĆ			
Ъ.		CONNECTO	No				24 V or less	—	C80C	A80C	_	۲	—	٠	•	•	—	IC circuit				
	Diagnostic indication (2-color indicator)	Grommet	Yes			_	_	_	_	A79W	_	۲	—	٠	-	—	—	_				

*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

*: 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.)

details.

SMC

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

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



Symbol



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

iodmy	Specifications	
X446	PTEE 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								

A Precautions
Defer to name 150 before bandling
Refer to page 152 before handling.

Ordering Example of Cylinder Assembly

Cylinder model: CDJ2RKA16-45SZ-W-M9BW-B Auto switch Band mounting Double knuckle joint

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

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

Specifications

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

Standard Strokes

	[[1111]
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.

MB1 CA2 CS1 CS2

CJ2 JCM

CG3

JMB MB

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*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)

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

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

opring v	with secondary
mountin	ig load
OUT	







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 mounting
- Operating range
- · Auto switch mounting brackets/Part no.



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	21			
Accessories	Double knuckle joint (With	2	26	22			
	one-touch connecting pin)						
	Rod end cap (Flat type)		1	2			
	Rod end cap (Round type)		1	2			

Spring Extend [g										
	Bore size [mm]	10	16							
	Mounting	Basic	Basic							
	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							

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

Construction (Not able to disassemble)



Component Parts

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

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







Single Acting: Bottom Mounting



Dere eize		S									Z							
Dore size	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150	5 to 15	16 to 30	31 to 45	46 to 60	61 to 75	76 to 100	101 to 125	126 to 150		
10	56.5	64	76	88	-	_	-	_	76.5	84	96	108	-	-	_	_		
16	56.5	65	77	89	95	119	137	149	76.5	85	97	109	115	139	157	169		



28 8

Air Cylinder: With End Lock **CBJ2** Series





or M9⁻ type auto switch is specified. This *: For rail mounting, screws and nuts for 2 auto switches mounting bracket does not apply to other come with the rail. auto switches (D-C7 and H7 , etc.) (Nil)

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

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

		Fleetrical	light	Minima		Load vol	tage		Auto switch model			Lea	d wir	e len	ngth	[m]	Dec wired																
Туре	Special function	entry	ator	(Output)		DC		Band m	Band mounting Rail mounting		0.5	1	3	5	None	connector	Applica	ble load															
		entry	hđi	(Output)		DC	AC	Perpendicular	In-line	Perpendicular	In-line	(Nil)	(M)	(L)	(Z)	(N)	COLLIECTOL																
						3-wire (NPN)		E V 10 V		M9NV	M9N	M9NV	M9N	•	•	•	0	-	0														
÷		Grommet		3-wire (PNP)]	5 V, 12 V		M9PV	M9P	M9PV	M9P		•	•	0	-	0																
/ito				2 wire]	10.1		M9BV	M9B	M9BV	M9B	•	•	•	0	-	0																
s		Connector]	2-wire		12 V		_	H7C	J79C	—	•	-	•	۲	•	—	_															
윩	Discrestis indication			3-wire (NPN)]	E V 10 V		M9NWV	M9NW	M9NWV	M9NW		•	•	0	-	0		Delau														
a	(2-color indicator)	ater resistant color indicator)	Yes	Yes	Yes	Yes	Yes	Yes	3-wire (PNP)	24 V	5 V, 12 V	-	M9PWV	M9PW	M9PWV	M9PW	•	•	٠	0	-	0		Relay,									
ate																		2-wire]	12 V		M9BWV	M9BW	M9BWV	M9BW	•	•	•	0	-	0	_	FLU
10 To	Water resistant (2-color indicator)		et	3-wire (NPN)]	5 V,12 V	r	M9NAV*1	M9NA*1	M9NAV*1	M9NA*1	0	0	•	0	-	0																
i i i				3-wire (PNP)]			M9PAV*1	M9PA*1	M9PAV*1	M9PA*1	0	0	•	0	-	0	IC CIrcuit															
ŵ																					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															
_				3-wire		5 V		A061/	106	A06V	406							IC circuit															
달			Vac	(NPN equivalent)	—	5.		ASUV	ASU	ASUV	ASU	•	_	•	_	_		TO CITCUIT															
š		Grommet	105			-	200 V	—	_	A72	A72H	•	-	•	—	-	—	_															
ő							100 V	A93V*2	A93	A93V*2	A93		•	•	۲	-	—	_															
aut			No	0	24 V	12 1	100 V or less	A90V	A90	A90V	A90	•	—	•	—	—	—	IC circuit	Relay,														
8		Connector	tor Yes No	2-wire 0		12 V	—	—	C73C	A73C	—	•	-	•	•	•	—	—	– PLC														
Å.		CUITIECIUI					24 V or less	—	C80C	A80C	—	•	-	•	۲	•	-	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

*: 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.

S

n

1 pc

"n" pcs

SMC

*: Since there are other applicable auto switches than listed, refer to page 149 for details

The CJ2 air cylinder is equipped with end lock function.



Symbol

-Rubber bumper



Lock Specifications

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

	[1111]		L
Bore size	Standard stroke	Ľ	
16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200		C
		- P	-

*: 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

Mounting Brackets/Part No.

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

*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.

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

Standard Strokes

	[1101]		
Bore size	Standard stroke	Ľ	
16	15, 30, 45, 60, 75, 100, 125, 150, 175, 200		C:
		11	

*: Manufacture of intermediate strokes in 1 mm increments is possible. (Spacers are not used.) standard stroke might not be able to fulfill the specifications due to the deflection etc.

JCM CM2 CM3 CG1 CG3 MB В MB1 CA2 **S1 S2**

D-

-X□

Technical

Data

CBJ2 Series

Construction (Not able to disassemble)

Head end lock





Rod end lock





With auto switch

Component Parts

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

No.	Description	Material	Note
11	Hexagon socket head cap screw	Alloy steel	
12	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	_	

Dimensions

Basic

With rod end lock: CDBJ2B16-D-RN









CJ1 CJP

CJ2

JCM

CM2

CM3

CG1

CG3 JMB MB1 CA2 CS1 CS2

CBJ2 Series

Dimensions

Flange

With rod end lock: CDBJ2F16-D-RN



With head end lock: CDBJ2F16-D-HN



Dimensions

Axial foot

With rod end lock: CDBJ2L16-D-RN





D--X Technical Data 139

CBJ2 Series

Dimensions

Double clevis

With rod end lock: CDBJ2D16-D-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.

A 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

- Back pressure is necessary for unlocking. Before starting, make sure that air is supplied to the side that is not equipped with a lock mechanism as shown in the diagram above. Otherwise, the lock may not disengage. (Refer to "Lock Disengagement.")
- 3. Disengage the lock before installing or adjusting the cylinder.

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

- 4. Operate the cylinder at a load ratio of 50% or less. The lock might not disengage or might become damaged if a load ratio of 50% is exceeded.
- 5. Do not synchronize multiple cylinders. Do not operate two or more end lock cylinders synchronized to move a single workpiece because one of the cylinder locks may not be able to disengage when required.
- 6. Operate the speed controller under 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.
- 8. The position adjustment of the auto switch should be performed at two positions; a position determined by the stroke and a position after the backlash movement (by 1 mm).

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

Operating I	Pressure
-------------	----------

▲Caution

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

Exhaust Air Speed

▲Caution

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

Lock Disengagement

▲Warning

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

Manual Disengagement

▲ Caution

SMC

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	M2.5 x 0.45 x 25 L or more	4.9	2	
Bolt should be otherwise it ma eature.	detached under normal opera ay cause malfunction of the loo	tion, cking Ru	ibber cap	
		~		D-
				-X
				Technical Data
			141	

CJ2 Series Auto Switch Mounting

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





(): 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.





(): 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.





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.





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





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

								_ / \ /		
Auto switch	Band mounting									
model	D-M9 D-M9 V D-M9 WV D-M9 WV D-M9 A D-M9 AV		D-A9⊡ D-A9⊡V		D-H7 D-H7C D-H7NF D-H7 W D-H7BA		D-C7□ D-C80 D-C73C D-C80C			
Bore size	A	В	Α	В	Α	В	A	В		
6	5.5 (4.5) [12]	5.5 (4.5) [4]	1.5 (0.5) [8]	1.5 (0.5) [0]	1 (7.5)	1 (0)	2 (8.5)	2 (0.5)		
10	(5) 6	(5) 6	(1) 2	(1) 2	1.5	1.5	2.5	2.5		
16	(5.5) 6.5	(5.5) 6.5	(1.5) 2.5	(1.5) 2.5	2	2	3	3		

Auto Switch Proper Mounting Position (Single acting type excluded) [mm]

*: The values in () are measured from the end of the auto switch mounting bracket.

*: The values in [] for bore size ø6 are for the double rod type (CJ2W series).

												[mm]
Auto switch		Rail mounting										
D-M9 D-M9 D-M9 W D-M9 WV D-M9 WV D-M9 A D-M9 AV		D-A D-A	D-F7□/J79 D-F7□W/J79W D-F7□W/F7WV D-F79F D-J79C D-F7BA D-F7BA D-F7BAV D-A7□H/A80H D-A72(A80C		79 //J79W /F7⊡WV /F7⊡WV /A80H /A80C	D-F7NT		D-A7⊡ D-A80		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

*: Adjust the auto switch after confirming the operating condition in the actual setting.

Auto Switch Mounting Height

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				

							[1101]
Auto switch	Rail mounting						
model	D-M9 D-M9 V D-M9 WV D-M9 WV D-M9 AV D-A9 D-A9 V	D-F7□/J79 D-F7□W/J79W D-F7BA/F79F D-F7NT D-A7□H/A80H	D-F7⊡V D-F7⊡WV D-F7BAV	D-J79C	D-A7⊡ D-A80	D-A73C D-A80C	D-A79W
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
Auto Switch Proper Mounting Position (Detection at stroke end) and Its Mounting Height/Single Acting, Spring Return Type (S)

Auto Switch Proper Mounting Position: Spring Return Type (S)

· Standard Type (CDJ2 - SZ)

- Non-rotating Rod Type (CDJ2K SZ)
- · Direct Mount Type (CDJ2R - SZ)

_							-						
	Auto quitab model	Bore					A dimensions	3				ь	
	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	0	
	D-M9□	6	-	12	21	25	39	_	-	_	—	5.5	CJ2
	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	JCM
	D-M9⊡V	6	12	12	21	25	39	-	_	-	_	5.5	
		10	13	13	20.5	32.5	44.5	—	—	-	—	6	CM2
		16	12.5	12.5	21	33	45	51	75	93	105	6.5	
5		6	_	8	17	21	35	_	_	_	_	1.5	CM3
Jting	D-A9□	10	-	9	16.5	28.5	40.5	—	—	_	_	2	
Inou		16	_	8.5	17	29	41	47	71	89	101	2.5	CG1
u pr		6	8	8	17	21	35	-	-	-	_	1.5	
Bar	D-A9⊟V	10	9	9	16.5	28.5	40.5	_	—	_	_	2	CG3
		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	JMB
	D-H7□W/H7BA	10	-	8.5	16	28	40	-	-	-	_	1.5	
	D-H/NF	16	-	8	16.5	28.5	40.5	46.5	70.5	88.5	100.5	2	IMB
	D-C7□/C80	6	-	8.5	17.5	21.5	35.5	_	_	_	—	2	
	D-C73C	10	-	9.5	17	29	41	-	-	-	—	2.5	MB1
	D-C80C	16	-	9	17.5	29.5	41.5	47.5	71.5	89.5	101.5	3	0.0
	D-M9□ D-M9□W/M9□WV	10	_	11.5	19	31	43	_	_	_	_	4.5	CA2
	D-M9□A/M9□AV	16	-	11	19.5	31.5	43.5	49.5	73.5	91.5	103.5	5	CS1
	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	CS2
	D-A9	10	_	7.5	15	27	39	_	_		_	0.5	
		16	_	7	15.5	27.5	39.5	45.5	69.5	87.5	99.5	1	
	D-A9⊟V	10	7.5	7.5	15	27	39	-	-	_	_	0.5	
		16	7	7	15.5	27.5	39.5	45.5	69.5	87.5	99.5	1	
ounting	D-F7□/F7□V D-J79/J79C	10	10.5	10.5	18	30	42	-	—	-	-	3.5	
Rail m	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-470/480	10	10	10	17.5	29.5	41.5	-	-	_	—	3]
		16	9.5	9.5	18	30	42	48	72	90	102	3.5	
	D-479W	10	_	7.5	15	27	39	_	_	_		0.5	
	D-A/9W	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.



[mm] CJ1

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

<u>· D</u>	Direct Mount, Non-rotating Hod Type (CDJ2HKLUL-LTZ)											
	Auto switch model	Bore						B dimensions	6			
	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
	D-M9□	6	5.5	_	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
_		6	1.5	-	8	17	21	35	_	_	-	-
lting	D-A9□	10	2	-	9	16.5	28.5	40.5	-	-	-	-
Jour		16	2.5	_	8.5	17	29	41	47	71	89	101
тр		6	1.5	8	8	17	21	35	_	_	-	-
Bar	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
	D-H7□/H7C	6	1	_	7.5	16.5	20.5	34.5	_	_	_	-
	D-H7□W/H7BA	10	1.5	-	8.5	16	28	40	-	-	-	-
	D-H/NF	16	2	_	8	16.5	28.5	40.5	46.5	70.5	88.5	100.5
	D-C7□/C80	6	2	-	8.5	17.5	21.5	35.5	-	-	_	_
	D-C73C	10	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
	D-M9□ D-M9□W/M9□WV	10	4.5	_	11.5	19	31	43	_	_		_
	D-M9□A/M9□AV	16	5	_	11	19.5	31.5	43.5	49.5	73.5	91.5	103.5
	D-M9□V	10	4.5	11.5	11.5	19	31	43	-	-	-	_
		16	5	11	11	19.5	31.5	43.5	49.5	73.5	91.5	103.5
	D-A9□	10	0.5	-	7.5	15	27	39	-	-	-	-
		16	1	_	7	15.5	27.5	39.5	45.5	69.5	87.5	99.5
	D-A9⊟V	10	0.5	7.5	7.5	15	27	39	-	_	-	_
Б		16	1	1	7	15.5	27.5	39.5	45.5	69.5	87.5	99.5
ountin	D-F7□/F7□V D-J79/J79C	10	3.5	10.5	10.5	18	30	42	_	_	_	_
Rail m	D-A7⊡H/A80H D-A73C/A80C	16	4	10	10	18.5	30.5	42.5	48.5	72.5	90.5	102.5
	D-F7□W/J79W D-F7□WV/F79F	10	3.5	_	10.5	18	30	42	_	_	_	_
	D-F7BA/F7BAV	16	4	_	10	18.5	30.5	42.5	48.5	72.5	90.5	102.5
	D-F7NT	10	8.5	_	15.5	23	35	47	_	_		—
		16	9	_	15	23.5	35.5	47.5	53.5	77.5	95.5	107.5
	D-A7□/A80	10	3	10	10	17.5	29.5	41.5	_	-		-
		16	3.5	9.5	9.5	18	30	42	48	72	90	102
	D-A79W	10	0.5	_	7.5	15	27	39		_	_	-
		16	1		7	15.5	27.5	39.5	45.5	69.5	87.5	99.5

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

		1		[mm] Number of auto switches						
Auto switch	Auto switch model		With	2 ncs	With n ncs. (n: Num	ber of auto switches)				
mounting	Auto switch hiodel	With 1 pc.	Different surfaces	Same surface	Different surfaces	Same surface				
	D-M9 D-M9 W D-M9 A D-A9	10	15* ¹	45* ¹	$15 + 35 \frac{(n-2)}{2}$ (n = 2, 4, 6)*3	45 + 15 (n - 2) (n = 2, 3, 4, 5)				
	D-M9⊡V	5	15 ^{*1}	35	$15 + 35 \frac{(n-2)}{2}$ (n = 2, 4, 6)*3	35 + 25 (n - 2) (n = 2, 3, 4, 5)				
	D-M9□WV D-M9□AV	10	15 ^{*1}	35	$15 + 35\frac{(n-2)}{2}$ (n = 2, 4, 6)*3	35 + 25 (n - 2) (n = 2, 3, 4, 5)				
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	-	$\begin{array}{c} 15 + 10 \; (n-2) \\ (n = 4, \; 6 \ldots)^{*4} \end{array}$				
	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				

Minimum Stroke for Auto Switch Mounting

*3: When "n" is an odd number, an even number that is one larger than this odd number is used for the calculation.

*4: When "n" is an odd number, an even number that is one larger than this odd number is used for the calculation.

However, the minimum even number is 4. So, 4 is used for the calculation when "n" is 1 to 3.

*5: The dimension stated in () shows the minimum mountable stroke when the auto switch does not project from the end face of the cylinder body and the lead wire bending space is not hindered.

With 2 auto switches Different surfaces*1 Same surface*1 38-1 Auto switch model Auto switch D-M9□(V) D-M9□W(V) в D-M9□A(V) The proper auto switch mounting position is 5.5 mm inward The auto switch is mounted by slightly displacing it in a direction from the switch holder edge. The above A and B indicate values (cylinder tube circumferential exterior) so that the auto switch for band mounting in the table of page 144. and lead wire do not interfere with each other. Less than 20 stroke*2 Less than 55 stroke*2 D-M9□/M9□W/M9□A Less than 50 stroke*2 D-A9

SMC

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

*1: Auto switch mounting

D-

-X🗆

Technical Data

CJ2 Series

Operating Range

				լոոս
	Auto owitch model	В	ore siz	ze
	Auto switch model	6	10	16
nting	D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV	2	2.5	3
our	D-A9	4.5	6	7
and m	D-H7□/H7□W D-H7BA/H7NF	3	4	4
ш	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
p	D-A9□/A9□V	—	6	6.5
Rail mounti	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

e: 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.



*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.

.		Bore size [mm]					
Set part no.	Contents	6	10	16			
BJ2-000	 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.



Auto Switch Mounting CJ2 Series

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)		
Sold state	Rail mounting	D-F79/F7P/J79	(In-line)	_		
		D-F79W/F7PW/J79W		Diagnostic indication (2-color indicator)	ø10, ø16	
		D-F7NV/F7PV/F7BV	Grommet	_		
		D-F7NWV/F7BWV	(Perpendicular)	Diagnostic indication (2-color indicator)		
	Band manufacture	D-C73/C76		_	ø6 to ø16	
	Band mounting	D-C80	Grommet	Without indicator light		
Deed		D-A73H/A76H	(In-line)	_		
нееа	Dell months a	D-A80H		Without indicator light	-10 -10	
	Rail mounting	D-A73	Grommet	_	Ø10, Ø16	
		D-A80	(Perpendicular)	Without indicator light		



CJ2 series Made to Order: Individual Specifications

Contact SMC for detailed specifications, delivery and prices.

1 PTFE Grease

Applicable Series

Description	Model	Action	Note
	C 10	Double acting, Single rod	
Standard type	052	Single acting (Spring return/extend)	
	CJ2W	Double acting, Double rod	
Non-rotating rod	CIOK	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 tune	CIOD	Double acting, Single rod	
Direct mount type	CJ2R	Single acting (Spring return/extend)	
Direct mount,	0.0001/	Double acting, Single rod	
Non-rotating rod type	CJ2RK	Single acting (Spring return/extend)	

How to Order

Standard model no.

X446 PTFE grease

Specifications: Same as standard type

Dimensions: Same as standard type

 When grease is necessary for maintenance, grease pack is available, please order it separately.
 GR-F-005 (Grease: 5 g)

Made to Order

Symbol

-X446

▲ 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 Ditch Mounting/Single Acting Spring	Dotum			Sy	mbol	
Mounting pitch is shortened when cylinders are used in parallel. Changes rod cover and head cover dimensions to ø7.	Return			-^	113	
	~ <i>П</i> ~					CJ1
	Application	kha				CJP
						CJ2
						.ICM
						CM2
*: Directly mounted with cylinder mounting screws		V V	erificati	ion of p	ush	CM3
→ 7.5 mm		n 🤍	nobile p	hones e	etc.	CG1
Applicable Series	Specifications					CG3
Description Model Action Note	Bore size [mm]	1	6			IMR
Standard type CJ2 Single acting (Spring return)	Action	Single	acting, S	pring retu	rn	JIND
	Operating pressure range		0.2 to 0.7	MPa		MR
How to Order	Port size	With ø4 b	arb fitting	(For soft	tube)	
	Connecting port location	Head	cover/Axi	al directio	n	MR1
CJ2B6 – Stroke SU4Z – X773	Stroke [mm]		5 to 6	0		
	Auto switch		None	Э		CA2
Single acting, spring return						
						CS1
						CS2
Dimensions						
Be sure to use a ø4 or ø2	2.5					
a soft pylon tube (TS042	5)				[mm]	
	Strok	e 5 to 15	16 to 30	31 to 45	46 to 60	
M3 x 0.5 M6 x 1.0 Air exhaust port	/S	30.5	39.5	43.5	57.5	
	Z	63.5	72.5	76.5	90.5	
15 15 28 Z + Stroke 5 	Note 1. When air exi 2. When adhese extern nose	n mounting a o haust port on t n mounting a c sive on the t al diameter of pliers or regula	cylinder, r he rod co cylinder, a hreaded i the rod c ar pliers.	make sure ver is not pply threa part and over with	e that the blocked. ad locking hold the a needle-	



3 Double Clevis (With One-touch Connecting Pin)

Symbol -X2838

With pivot bracket (T-bracket) and one-touch connecting pin Not necessary to order a bracket for the applicable cylinder separately.

Applicable Series

Applicable Cylinders (Double Clevis Type)

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

How to Order

Example) CDJ2D10-60Z-N-M9BW-B-X2838 One-touch connecting pin With one-touch connecting pin *: The pivot bracket (T-bracket) and one-touch connecting pin are shipped together. Refer to page 63-2 for assembly instructions. Pivot bracket (T-bracket) Nil None Cylinder Pivot bracket is shipped together with Ν the product, but not assembled. Double clevis type Pivot bracket (T-bracket)

Specifications: Same as standard type

Dimensions



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



						[mm]
Applicable bore size	н	L	тн	тν	тw	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

MWarning

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

Otherwise, cylinder and seal damage may occur.

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

Easy checking method

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

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

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

▲Caution

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

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

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

ø6: 2.1 to 2.5 N·m, ø10: 5.9 to 6.4 N·m ø16: 10.8 to 11.8 N·m

- 3. To remove and install the retaining ring for the knuckle pin or the clevis pin, use an appropriate pair of pliers (tool for installing a type C retaining ring). In particular, use a pair of 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.
- 5. Please contact SMC when the stroke exceeds 100 mm for the axial foot mounting type.

<Precautions on the single acting cylinder>

- 1) Do not operate it in such a way that a load would be applied during the retraction of the piston rod of the spring return type, or during the extension of the piston rod of the spring extend type. The spring that is built into the cylinder provides only enough force to retract the piston rod. Thus, if a load is applied, the piston rod will not be able to retract to the end of the stroke.
- A breather hole is provided in the cover surface. Make sure not to block this hole during installation, as this could lead to a malfunction.

<Precautions on the non-rotating cylinder>

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

non-rotating accuracy

non rotating acountoj.		
Allowable rotational torque [N m]	ø10	ø16
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.



@ SMC

152 ®

SMC

INFORMATION

Material Stainless Steel Foot Bracket, Flange Bracket, Single Knuckle Joint, Double Knuckle Joint

CJ2, CM2, CG1, CQ2 Series



External dimensions and mounting dimensions are interchangeable^{*1} with the standard type. Post-mounting is possible.

*1 Excludes the foot bracket and flange bracket of the CG1 series

Single knuckle Double knuckle Flange bracket Foot bracket Mounting nut Rod end nut Series Bore size [mm] CJ2 10.16 CM₂ 20, 25, 32, 40 CG1 20, 25, 32, 40, 50, 63, 80, 100 CQ2 20, 25, 32, 40, 50, 63, 80, 100

Bracket Applicable Cylinders



Mounting Bracket/Rod End Bracket Part Nos.

* Brackets should be ordered separately from cylinders.

1	CJ2 Series							
		Bore size [mm]	Foot bracket	Flange bracket	Single knuckle joint	Double knuckle joint	Mounting nut	Rod end nut
a la		10	—	—	I-J010SUS	Y-J010SUS	—	NTJ-010SUS
		16	CJ-L016SUS	CJ-F016SUS	I-J016SUS	Y-J016SUS	SNJ-016SUS	NTJ-015SUS
		Contents	Foot bracket: 1 pc.	Flange bracket: 1 pc.	Single knuckle joint: 1 pc.	Double knuckle joint: 1 pc. Knuckle pin: 1 pc. Retaining ring: 2 pcs.	Mounting nut: 1 pc.	Rod end nut: 1 pc.
		Minimum order quantity	1	1	1	1	1	1

CM2 Series

	Bore size [mm]	Foot bracket	Flange bracket	Single knuckle joint	Double knuckle joint	Mounting nut	Rod end nut
	20	CM-L020BSUS	CM-F020BSUS	I-020BSUS	Y-020BSUS	SN-020BSUS	NT-02SUS
	25, 32	CM-L032BSUS	CM-F032BSUS	I-032BSUS	Y-032BSUS	SN-032BSUS	NT-03SUS
19.55	40	CM-L040BSUS	CM-F040BSUS	I-040BSUS	Y-040BSUS	SN-040BSUS	NT-04SUS
3	Contents	Foot bracket: 1 pc.	Flange bracket: 1 pc.	Single knuckle joint: 1 pc.	Double knuckle joint: 1 pc. Knuckle pin: 1 pc. Retaining ring: 2 pcs. (Split pins for ø40)	Mounting nut: 1 pc.	Rod end nut: 1 pc.
	Minimum order quantity	1	1	1	1	1	1

CG1 Series

	Bore size [mm]	Foot bracket	Flange bracket	Single knuckle joint	Double knuckle joint	Rod end nut	
	20	—	_	I-G02SUS	Y-G02SUS	NT-02SUS	
	25	—	—		× 0000110		
	32	CG-L032SUS	CG-F032SUS	1-003505	1-003505	11-03505	
	40	CG-L040SUS	CG-F040SUS	I-G04SUS	Y-G04SUS	NT-G04SUS	
14 - The - O	50	CG-L050SUS CG-F050SUS				NT-05SUS	
	63	CG-L063SUS CG-F063SUS		1-005505	1-005505		
	80	CG-L080SUS	CG-F080SUS	I-G08SUS	Y-G08SUS	NT-08SUS	
100	100	CG-L100SUS	CG-F100SUS	I-G10SUS	Y-G10SUS	NT-10SUS	
	Contents	Foot bracket: 2 pcs. Mounting bolt: 4 pcs.	Flange bracket: 1 pc. Mounting bolt: 4 pcs.	Single knuckle joint: 1 pc.	Double knuckle joint: 1 pc. Knuckle pin: 1 pc. Retaining ring: 2 pcs.	Rod end nut: 1 pc.	
	Minimum order quantity	2	1	1	1	1	

CQ2 Series

	Bore size [mm]	Foot bracket	Flange bracket	Single knuckle joint	Double knuckle joint	Rod end nut
	20		_	I-G02SUS	Y-G02SUS	NT-02SUS
	25	_		I-G03SUS	Y-G03SUS	NT-03SUS
6	32 40			I-G04SUS	Y-G04SUS	NT-G04SUS
in the second	50					NTOFOLIO
51	63			1-005505	1-005505	11-05505
R	80			I-G08SUS	Y-G08SUS	NT-08SUS
	100			I-G10SUS	Y-G10SUS	NT-10SUS
	Contents	_	_	Single knuckle joint: 1 pc.	Double knuckle joint: 1 pc. Knuckle pin: 1 pc. Retaining ring: 2 pcs.	Rod end nut: 1 pc.
	Minimum order quantity	_	_	1	1	1



Dimensions

CJ2, CM2, CQ2 series: Same as standard^{*1}

- *1 The dimensions of the series shown above are the same as those of the standard type. For details, refer to the Web Catalog.
- * Refer to the following for the foot bracket and flange bracket of the CG1 series.

CG1 Series

Foot bracket





											[mm]
Bore size	В	LD	LH	LT	LX	LZ	M	X	Y	Z	ZZ
32	44	7.2	[25]	[3]	[44]	60	[3.5]	[16]	6	[53]	[117.5 (125.5)]
40	53.5	7.2	[30]	[3]	[54]	75	[4]	[16.5]	6.5	[63.5]	[135 (144)]
50	69	[10]	[40]	4	[66]	90	5.5	21.5	11.5	[75.5]	[157.5 (169.5)]
63	81	[12]	[45]	4	[82]	110	7	21.5	11.5	[75.5]	159 (171)
80	99.5	12	[55]	4	[100]	130	7	28	17	[95]	190 (204)
100	125	[14]	[70]	[6]	[120]	160	8	[30]	15	[95]	193 (207)

* []: Same as the standard type

(): Denotes the dimensions for long strokes

Flange bracket





ie i							
					[mm]		
3ore size	В	FD	FT	FX	Z		
32	50	[6.6]	6	[38]	34		
40	60	[6.6]	6	[46]	44		
50	75	[9]	[9]	[58]	[49]		
63	90	[11]	[9]	[70]	[49]		
80	100	[11]	9	[82]	62		
100	125	[14]	10	[100]	61		

0)

* []: Same as the standard type

Made to Order: Common Specifications

■Made of stainless steel: XC6

The piston rod and rod end nut have been changed to the stainless steel specification.

CM2	Standard model no.	– XC6
CG1	Standard model no.	– XC6
CQ2	Standard model no.	– XC6

External stainless steel cylinder: XB12

External parts have been changed to the stainless steel specification.

CM2 Standard model no. – XB12

* Refer to the Web Catalog for details on the stainless steel (XC6) and external stainless steel cylinder (XB12) specifications.



Safety Instructions Be sure to read the "Handling Precautions for SMC Products" (M-E03-3) and "Operation Manual" before use.