Air Cylinder
Standard: Double Acting, Single Rod
Series CA2
ø40, ø50, ø63, ø80, ø100

RoHS

How to Order

CA2 L 50 – 100 Z – – – –

With auto switch: CDA2 D 50 – 100 Z – N W – M9BW – –

With auto switch (Built-in magnet)

Mounting

B	Basic
L	Axial foot
F	Rod flange
G	Head flange
C	Single clevis
D	Double clevis
T	Center trunnion

Bore size

40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm

Cylinder stroke (mm)
For details, refer to the next page.

Cylinder suffix

Rod boot	Nil	Without
	J	Nylon tarpaulin
	K	Heat resistant tarpaulin

Bracket 1

Nil	Without bracket
N	Pivot bracket

Bracket 2

Nil	Without bracket
V	Single knuckle joint
W	Double knuckle joint

Auto switch

Nil	Without auto switch

∗ For applicable auto switch model, refer to the table below.

Built-in Magnet Cylinder Model
If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example) CDA2L40-100Z

Number of auto switches

Nil	2 pcs.
S	1 pc.
3	3 pcs.
n	"n" pcs.

Made to Order
For details, refer to the next page.

Applicable Auto Switches
/Refer to page 1263 to 1371 in Best Pneumatics No. 2 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Tie-rod mounting	Auto switch model: Band mounting	Lead wire length (m): 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	Pre-wired connector	Applicable load	
Solid state auto switch	——	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9N	—	●	●	●	○	○	IC circuit	Relay, PLC
							—	G59	●	—	●	○	○		
				3-wire (PNP)	24 V		M9P	—	●	●	●	○	○		
							—	G5P	●	—	●	○	○		
				2-wire	12 V		M9B	—	●	●	●	○	○	—	
							—	K59	●	—	●	○	○		
					—	100 V, 200 V	J51	—	●	—	●	○	—		
		Terminal conduit		3-wire (NPN)	24 V	12 V	G39C	G39	—	—	—	—	—	—	
				2-wire			K39C	K39	—	—	—	—	—	IC circuit	
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)	5 V, 12 V	—	M9NW	—	●	●	●	○	○		
							—	G59W	●	—	●	○	○		
				3-wire (PNP)			M9PW	—	●	●	●	○	○		
							—	G5PW	●	—	●	○	○		
				2-wire	12 V		M9BW	—	●	●	●	○	○	—	
							—	K59W	●	—	●	○	○		
	Water resistant (2-color indication)			3-wire (NPN)	5 V, 12 V		M9NA**	—	○	○	●	○	○		
				3-wire (PNP)			M9PA**	—	○	○	●	○	○		
				2-wire	12 V		M9BA**	—	○	○	●	○	○		
							—	G5BA**	—	—	●	○	○		
	With diagnostic output (2-color indication)			4-wire (NPN)	5 V, 12 V		F59F	G59F	●	—	●	○	○	IC circuit	
	Magnetic field resistant (2-color indication)			2-wire (Non-polar)	—		P3DW	—	●	—	●	●	○	—	
							P4DW	—	—	—	●	●	○		
Reed auto switch	——	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96	—	●	—	●	—	—	IC circuit	—
			Yes	2-wire	24 V	100 V	—	A93	—	●	—	●	●	—	—	Relay, PLC
			No			100 V or less	—	A90	—	●	—	●	—	—	IC circuit	
			Yes			100 V, 200 V	—	A54	—	●	—	●	●	—	—	
			No			200 V or less	—	A64	—	●	—	●	—	—		
		Terminal conduit				—	—	A33C	—	—	—	—	—	—	—	
						100 V, 200 V	—	A34C	—	—	—	—	—	—		PLC
		DIN terminal	Yes				—	A44C	—	—	—	—	—	—		Relay, PLC
	Diagnostic indication (2-color indication)	Grommet				—	—	A59W	—	B59W	●	—	●	—	—	

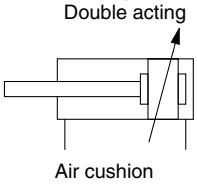
** Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.
A water resistant type cylinder is recommended for use in an environment which requires water resistance.

∗ Lead wire length symbols: 0.5m····· Nil (Example) M9NW
1m····· M (Example) M9NWM
3m····· L (Example) M9NWL
5m····· Z (Example) M9NWZ

∗ Solid state auto switches marked with "○" are produced upon receipt of order.

∗ Since there are other applicable auto switches then listed above, refer to page 23 for details.
∗ For details about auto switches with pre-wired connector, refer to pages 1328 and 1329 in Best Pneumatics No. 2.
For the D-P3DW□, refer to the catalog CAT.ES20-201.
∗ The D-A9□/M9□□□/P3DW□ auto switches are shipped together, (but not assembled). (However, auto switch mounting brackets are assembled for the D-A9□/M9□□□ before shipment.)

JIS Symbol
Double acting



Made to Order

Made to Order
(For details, refer to pages 25 to 28.)

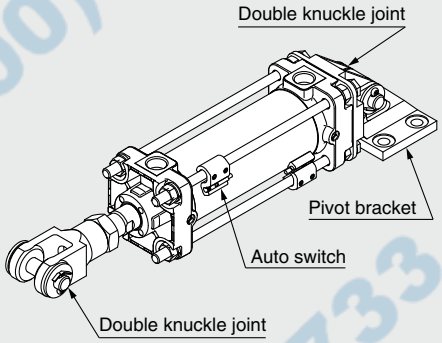
Symbol	Specifications
-XA□	Change of rod end shape
-XC7	Tie-rod, cushion valve, tie-rod nut, etc. made of stainless steel
-XC8	Adjustable stroke cylinder/Adjustable extension type
-XC14	Change of trunnion bracket mounting position
-XC15	Change of tie-rod length
-XC30	Rod trunnion

Refer to pages 19 to 23 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.

Ordering Example of Cylinder Assembly

Cylinder model:
CDA2D50-100Z-NW-M9BW



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

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

Specifications

Bore size (mm)		40	50	63	80	100
Fluid		Air				
Action		Double acting				
Proof pressure		1.5 MPa				
Maximum operating pressure		1.0 MPa				
Ambient and fluid temperature		Without auto switch: –10 to 70°C Note 1) With auto switch: –10 to 60°C Note 1)				
Minimum operating pressure		0.05 MPa				
Piston speed		50 to 500 mm/s				
Cushion		Air cushion				
Stroke length tolerance		Up to 250st.: $^{+1.0}_{0}$ 251 to 1000st.: $^{+1.4}_{0}$ 1001 to 1500st.: $^{+1.8}_{0}$				
Lubrication		Not required (Non-lube)				
Mounting		Basic, Foot, Rod flange, Head flange Single clevis, Double clevis, Center trunnion				
Allowable kinetic energy (J) Note 2)	When air cushion is activated	2.8	4.6	7.8	16	29
	When air cushion is not activated	0.33	0.56	0.91	1.50	2.68

Note 1) With no freezing
Note 2) Activate the air cushion when operating the cylinder. If this is not done, the piston rod assembly or the tie-rods will be damaged when the allowable kinetic energy exceeds the values shown in the table above.

Standard Strokes
For model with auto switch, also refer to Minimum Strokes for Auto Switch Mounting on pages 21 and 22.

(mm)

Bore size	Standard stroke∗	Long stroke (L and F only)
40	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500	800
50, 63	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600	1200
80, 100	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700	ø80: 1400 ø100: 1500

∗ Intermediate strokes not listed above are produced upon receipt of order.

Rod Boot Material

Symbol	Rod boot material	Max. ambient temperature
J	Nylon tarpaulin	70°C
K	Heat resistant tarpaulin	110°C∗

∗ Maximum ambient temperature for the rod boot

Accessories

Mounting		Basic	Axial foot	Rod flange	Head flange	Single clevis	Double clevis	Center trunnion
Standard	Rod end nut	●	●	●	●	●	●	●
	Clevis pin	—	—	—	—	—	●	—
Option	Single knuckle joint	●	●	●	●	●	●	●
	Double knuckle joint (with pin)	●	●	●	●	●	●	●
	With rod boot	●	●	●	●	●	●	●

Minimum Stroke for Auto Switch Mounting

⚠Caution

1. The minimum stroke for mounting varies with the auto switch type and cylinder mounting type. In particular, the center trunnion type needs careful attention. (For details, refer to pages 21 and 22.)