

Fine Lock Cylinder

Double Acting, Single Rod

Series CLA2

ø40, ø50, ø63, ø80, ø100

How to Order

CLA2 **L** **50** **-** **100** **JN** **-** **E** **-**

With auto switch **CDLA2** **L** **50** **-** **100** **JN** **-** **E** **-** **M9BW** **-**

With auto switch (Built-in magnet)

Mounting

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

Tube material

Nil	Aluminum tube
F*	Steel tube
H	Air-hydro type

* Not available with auto switch.

Port thread type

Nil	Rc
TN	NPT

Bore size

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

Cylinder stroke [mm]
For details, refer to page 2.

Auto switch

Nil Without auto switch
* For applicable auto switches, refer to the table below.

Lock operation

E	Spring locking (Exhaust locking)
P	Pneumatic locking (Pressure locking)
D	Spring and pneumatic locking

Number of auto switches

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

Made to Order
For details, refer to page 2.

With rod boot/cushion

Rod boot	Nil	Without rod boot
	J	Nylon tarpaulin
Cushion	K	Heat resistant tarpaulin
	Nil	With cushion on both sides
	N	Without cushion

* Air-hydro type has no cushion.

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) CDLA2L40-100-E

Applicable Auto Switches/Refer to the Best Pneumatics No. 3 for further information on auto switches.

Type	Special function	Electrical entry	Indicator/light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length [m]					Pre-wired connector	Applicable load				
					DC		AC	Tie-rod mounting	Band mounting	0.5 (Nil)	1 (M)	3 (L)	5 (Z)		IC circuit	Relay, PLC			
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9N	—	●	●	○	○	—			—	IC circuit	Relay, PLC
				3-wire (PNP)				M9P	—	●	●	○	○						
				2-wire	12 V	M9B		—	●	●	○	○							
				3-wire (NPN)		G39C		G39	—	—	—	—							
	Diagnostic indication (2-color indication)	Grommet		2-wire	24 V	12 V	K39C	K39	—	—	—	—	—	—	IC circuit				
				3-wire (NPN)			M9NW	—	●	●	●	○				○			
				3-wire (PNP)			—	G59W	●	—	●	○				○			
				2-wire			M9PW	—	●	●	○	○							
				Water resistant (2-color indication)	Grommet	24 V	12 V	M9BW	—	●	●	●	○	○	—	—	IC circuit		
								3-wire (NPN)	—	K59W	●	—	●	○				○	
								3-wire (PNP)	M9NA**	—	○	○	●	○				○	
								2-wire	M9PA**	—	○	○	●	○				○	
	With diagnostic output (2-color indication)	Terminal conduit	24 V	12 V	M9BA**	—	○	○	●	○	○	—	—	IC circuit					
	2-wire				—	G5BA**	—	—	—	●	○				○				
	Magnetic field resistant (2-color indication)				4-wire (NPN)	5 V, 12 V	F59F	G59F	●	—	●				○	○			
	Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	P3DWA	—	—	—	●	●	○	—	—	—	
2-wire					24 V	12 V	A96	—	—	●	—	●	—	—	—	—	IC circuit	Relay, PLC	
							100 V	A93	—	—	●	—	●	—					—
							100 V or less	A90	—	—	●	—	●	—					—
							100 V, 200 V	A54	B54	●	—	●	●	—					—
							200 V or less	A64	B64	●	—	●	—	—					
							—	A33C	A33	—	—	—	—	—					
Terminal conduit					24 V	12 V	A34C	A34	—	—	—	—	—	—	—	PLC			
							A44C	A44	—	—	—	—	—						
							DIN terminal	24 V	12 V	A59W	B59W	●	—				●	—	—
	—	—	—	—						—	—	—							

** 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.

* Lead wire length symbols: 0.5 m..... Nil (Example) M9NW
1 m..... M (Example) M9NWM
3 m..... L (Example) M9NWL
5 m..... Z (Example) M9NWW

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

* Since there are other applicable auto switches than listed above, refer to page 23 for details.

* For details about auto switches with pre-wired connector, refer to the Best Pneumatics No. 3. For the D-P3DWA□, refer to the **WEB catalog**.

* The D-A9□/M9□□□/P3DWA□ auto switches are shipped together, (but not assembled). (However, auto switch mounting brackets are assembled for the D-A9□/M9□□□ before shipment.)

Series CLA2

Provided with a compact lock mechanism, it is suitable for intermediate stop, emergency stop, and drop prevention.



Made to Order

Symbol	Specifications
-XA□	Change of rod end shape
-XC3	Special port location
-XC6	Piston rod and rod end nut made of stainless steel
-XC11	Dual stroke cylinder/Single rod type
-XC14	Change of trunnion bracket mounting position
-XC15	Change of tie-rod length
-XC22	Fluororubber seal
-XC35	With coil scraper

Caution

Recommended Pneumatic Circuit/Caution on Handling

For detailed specifications mentioned above, refer to "Specific Product Precautions 3".

Refer to pages 18 to 23 for cylinders with auto switches.

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

Minimum Stroke for Auto Switch Mounting

Caution

- 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 20 and 21.)

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	●	●	●	●	●	●	●

Specifications

Bore size [mm]	40	50	63	80	100	40	50	63	80	100
Type	Non-lube					Air-hydro				
Fluid	Air					Turbine oil (Lock portion is air)				
Action	Double acting									
Proof pressure	1.5 MPa									
Maximum operating pressure	1.0 MPa									
Minimum operating pressure	0.08 MPa					0.2 MPa				
Piston speed	50 to 500 mm/sec*					15 to 300 mm/sec*				
Ambient and fluid temperature	Without auto switch: -10°C to 70°C With auto switch: -10°C to 60°C (No freezing)					5°C to 60°C				
Cushion	Air cushion					None				
Stroke length tolerance	Up to 250: $\begin{smallmatrix} +1.0 \\ 0 \end{smallmatrix}$, 251 to 1000: $\begin{smallmatrix} +1.4 \\ 0 \end{smallmatrix}$, 1001 to 1500: $\begin{smallmatrix} +1.8 \\ 0 \end{smallmatrix}$									
Mounting	Basic, Axial foot, Rod flange, Head flange, Single clevis, Double clevis, Center trunnion									

* Constraints associated with the allowable kinetic energy are imposed on the speeds at which the piston can be locked.

Lock Specifications

Lock operation	Spring locking (Exhaust locking)	Spring and pneumatic locking	Pneumatic locking (Pressure locking)
Unlocking pressure [MPa]	0.3 or more		0.1 or more
Lock starting pressure [MPa]	0.25 or less		0.05 or more
Maximum operating pressure [MPa]	1.0		0.5
Locking direction	Both directions		

Standard Strokes

Bore size [mm]	Standard stroke [mm] ^{Note 1)}	Long stroke [mm] ^{Note 2)}
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

Note 1) Intermediate strokes not listed above are produced upon receipt of order.
Spacers are not used for intermediate strokes.

Note 2) Long strokes are applicable for the axial foot and rod flange types.

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