Lock-up Cylinder
Double Acting, Single Rod
Series CL1
ø40, ø50, ø63, ø80, ø100, ø125, ø140, ø160

The CL1 series lock-up cylinder is a self-locking type that contains a ring that is tilted by a spring force, which is further tilted by the load that is applied to the cylinder, thus locking the piston rod. This cylinder is suitable for intermediate stops, emergency stops, or for drop prevention.

How to Order

Without auto switch CL1 **L** **□** **100** **200** **F** **JN**

With auto switch CDL1 **L** **□** **100** **200** **F** **JN** **Y7BW** **□**

Number of auto switches

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

Built-in magnet

Lock-up cylinder

Mounting style

B	Basic style	C	Single clevis style
L	Foot style	D	Double clevis style
F	Rod side flange style	T	Center trunnion style
G	Head side flange style		

Tubing material

Symbol	Bore size	Tubing material
Nil Note)	40 to 100	Aluminum tube
	125 to 160	Aluminum tube
F *	40 to 160	Steel tube

Note) Auto switches are not available with steel tube.

Bore size (mm)

40	40 mm	100	100 mm
50	50 mm	125	125 mm
63	63 mm	140	140 mm
80	80 mm	160	160 mm

Cylinder stroke (mm)
For details, refer to page 9-3-2.

Locked-up direction

F	Extension locking
B	Retraction locking

* For both sides lock, refer to Made to Order "-X51".

Auto switch

Nil	Without auto switch (Built-in magnet)

* For the applicable auto switch model, refer to the table below.
* D-Z7□/Z80/Y59□/Y69□/Y7□□ types are shipped together, (but not assembled). (But, only the mounting bracket for the above models is assembled when shipping.)

With rod boot/cushion

Rod boot	J	Nylon tarpaulin
	K	Heat resistant tarpaulin
Cushion	N	Without cushion
	R	With rod bumper
	H	With head cushion
	Nil	With cushion on both ends

* Indicate alphabetically when 2 or more symbols are applicable.

Applicable Auto Switch/Refer to page 9-15-1 for further information on auto switches.

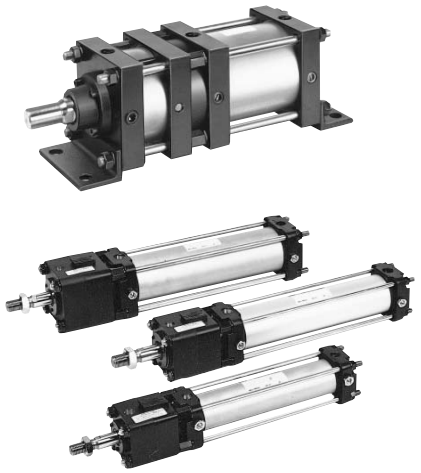
Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Tie-rod mounting	Tie-rod mounting: Applicable bore size	Auto switch model: Band mounting	Band mounting: Applicable bore size	Lead wire length (m) * 0.5 (Nil)	3 (L)	5 (Z)	Pre-wire connector	Applicable load	
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	Z76	40 to 160	—	—	●	●	—	—	IC circuit	—
				2-wire	24 V	100 V	Z73	40 to 160	—	—	●	●	●	—		Relay, PLC
						—	—		B53	40 to 100	●	●	●	—		PLC
						100 V, 200 V	A54		B54		●	●	●	—		Relay, PLC
		Terminal conduit				—	A33C	40 to 100	A33	40 to 160	—	—	—	—	—	PLC
						100 V	A34C		A34		—	—	—	—		Relay, PLC
		DIN terminal				200 V	A44C		A44		—	—	—	—		
	Diagnostic indication (2-color indication)	Grommet				—	A59W	40 to 160	B59W	40 to 100	●	●	—	—		
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	Y59A	40 to 160	G59	40 to 100	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)			Y7P		G5P		●	●	○	○		
				2-wire	—	—	J51		—		●	●	○	—	—	
					24 V	12 V	Y59B		K59		●	●	○	○		
		Terminal conduit		3-wire (NPN)		5 V, 12 V	G39C	40 to 100	G39	40 to 160	—	—	—	—	IC circuit	
				2-wire		12 V	K39C		K39		—	—	—	—	—	
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)		5 V	Y7NW	40 to 160	G59W	40 to 100	●	●	○	○	IC circuit	
				3-wire (PNP)		12 V	Y7PW		G5PW		●	●	○	○		
				2-wire		12 V	Y7BW		K59W		●	●	○	○	—	
	Water resistant (2-color indication)						Y7BA		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		—	P5DW	40 to 100	—	—	—	●	●	○		

* Lead wire length symbols: 0.5 m ····· Nil (Example) A54
3 m ····· L (Example) A54L
5 m ····· Z (Example) A54Z

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

• Since there are other applicable auto switches than listed, refer to page 9-3-3 for details.
• For details about auto switches with pre-wire connector, refer to page 9-15-66.

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



Made to Order Specifications (For details, refer to page 9-16-1.)

Symbol	Specifications
-XA□	Change of rod end shape
-XC3	Special port location
-XC14	Change of trunnion bracket mounting position
-XC18	NPT finish piping port
-X50	Large bore lock-up cylinder
-X51	Both-directions lock-up cylinder

Model

Series	Applicable air cylinder	Bore size (mm)	Action	Lock operation
CL1	CA1□N*	40, 50, 63, 80, 100	Double acting	Spring lock
	CS1□N	125, 140, 160		

* The Series CA1 has been changed to the Series CA2.

Specifications

Bore size (mm)	**40 to 100**	**125 to 160**
Fluid	Air	
Proof pressure	1.5 MPa	1.57 MPa
Maximum operating pressure	1.0 MPa	0.97 MPa
Minimum operating pressure	0.08 MPa	
Piston speed	50 to 200 mm/s *	
Ambient and fluid temperature	Without auto switch –10 to 70°C With auto switch –10 to 60°C (No freezing)	Without auto switch –0 to 70°C With auto switch –0 to 60°C (No freezing)
Lubrication	Non-lube	
Cushion	Air cushion	
Thread tolerance	JIS class 2	
Stroke length tolerance	Up to 250 $^{+1.0}_{0}$, 251 to 1000 $^{+1.4}_{0}$, 1001 to 1500 $^{+1.8}_{0}$, 1501 to 1600 $^{+2.2}_{0}$	
Mounting	Basic style , Axial foot style, Rod side flange style Head side flange style, Single clevis style Double clevis style, Center trunnion style	

* Make sure to operate the cylinder in such a way that the piston speed does not exceed 200 mm/s during locking.
* The maximum speed of 500 mm/s can be accommodated if the piston is to be locked in the stationary state for the purpose of drop prevention.

Max. Load and Lock Holding Force (Max. static load)

Bore size (mm)		**40**	**50**	**63**	**80**	**100**	**125**	**140**	**160**
Max. load (N)	Horizontal Mounting	588	981	1470	2450	3820	6010	7540	9850
	Vertical Mounting	294	490	735	1230	1910	3000	3770	4920
Holding force (N) *		1230	1920	3060	4930	7700	12100	15100	19700

* The cylinder can be used to 1/2 or less of its holding force, if only a static load is applied, such as for drop prevention.

Lock-up Unit Specifications

Lock-up direction release pressure	0.2 MPa (at no load)
Lock-up direction start pressure	0.05 MPa or less
Lock-up direction direction	One direction (Lock direction can be changed.)

Stopping Accuracy

(Not including tolerance of control system)

Piston speed	Bore size (mm)	
	40 to 100	**125 to 160**
50 mm/s	±0.6 mm	±1 mm
100 mm/s	±1.2 mm	±2 mm
200 mm/s	±2.3 mm	±3 mm

Lock-up Unit Model

Applicable bore size (mm)	**40**	**50**	**63**	**80**	**100**
Lock-up unit part no.	CL-40	CL-50	CL-63	CL-80	CL-100

Standard Stroke

Bore size (mm)	Standard stroke (mm)
40	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500
50, 63	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600
80, 100	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700

Maximum Stroke

For the maximum stroke of the CA1 series ø40 to ø100, and CS1 series ø120 to ø160, refer to Best Pneumatics Vol. 6.
Note) The Series CA1 has been changed to the Series CA2.

Minimum Stroke for Auto Switch Mounting

Regarding the minimum stroke for auto switch mounting, refer to the following pages by bore size.
• Bore size/ø40 to ø100····Refer to page of the CA2 series.
• Bore size/ø125 to ø160····Refer to page of the CS1 series.