Compact Cylinder with Lock

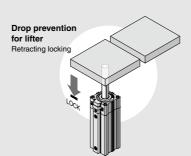
Series CLQ

Ø20, Ø25, Ø32, Ø40, Ø50, Ø63, Ø80, Ø100



Drop prevention when the pressure of air source is decreased or the residual pressure is released.







D-□

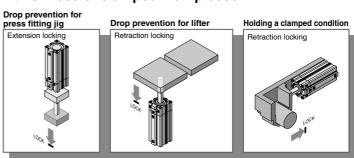
CLJ2
CLM2
CLG1
CL1
MLGC
CNG
MNB
CNA2
CLS
CLS
GLQ
MLU
MLU
MLGP



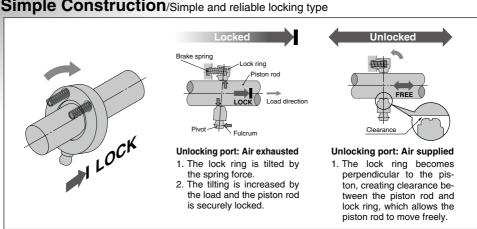
Series CLQ Compact Cylinder

Drop prevention is possible within the entire stroke at any position.

- Drop prevention in the middle of stroke
- Locking position can be changed in accordance with the external stopper position and the thickness of clamped workpieces.







43

50

Low profile with compact lock unit

· Lock unit length

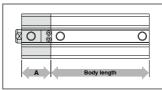
27 mm to 50 mm

 The lock unit does not project beyond the cylinder's external dimensions

Thickness of Lock	k Unit (mm)
Bore size (mm)	Α
20	27
25	31
32	32
40	34
50	35
	20

80

100



CLJ2

CLM2

CLG1

CL1

CNG MNB

CNA2

CNS

CLS CLQ RLQ

MI II

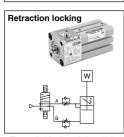
MLGP

ML1C

es of mounting

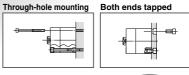
Locking direction is selectable



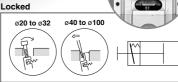


* The symbol for the cylinder with lock in the pneumatic circuit uses SMC original symbol.

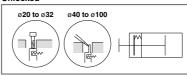
Two types of mounting



Easy manual unlocking



Unlocked



Wide Size Variations from $\varnothing 20$ to $\varnothing 100$

		Locking	Bore size					Sta	ndard s	troke (r	nm)				
Series	Mounting	direction	(mm)	5	10	15	20	25	30	35	40	45	50	75	100
	Through-hole/ Both ends tapped		20	0	@	0	@	0	@	0	0	0	@		
common		25	0	0	0	0	0	0	0	0	0	0			
		Extension locking Retraction locking	32		0	0	0	0	0	0	0	0	0	0	0
			40		0	0	0	0	0	0	0	0	0	0	0
			50		0	0	0	0	0	0	0	0	0	0	0
	Both ends tapped style		63		0	0	0	0	0	0	0	0	0	0	0
	tapped style		80		0	0	0	0	0	0	0	0	0	0	0
			100		0	0	0	0	0	0	0	0	0	0	0

D-□ -X□



Series CLQ Specific Product Precautions 1

Be sure to read before handling.

Refer to front matter 39 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

Selection

\land Warning

 The holding force (max. static load) indicates the maximum capability to hold a static load without vibration and impact. The maximum load in a locked state should be below 50 % of the holding force (max. static load).

Refer to 6 when the kinetic energy of the workpiece is absorbed at the cylinder end or eccentric loads are applied.

2. Do not use for intermediate stops while the cylinder is operating.

This cylinder is designed for locking against inadvertent movement with the locking mechanism from a stationary condition. Do not perform intermediate stops while the cylinder is operating, as this may damage the cylinder, cause unlocking malfunction or shorten the service life.

Select the correct locking direction, as this cylinder does not generate holding force opposite to the locking direction.

The extension locking does not generate holding force in the cylinder's retracting direction, and the retraction lock does not generate holding force in the cylinder's extension direction.

 Even when locked, there may be a stroke movement of approximately 1 mm in the locking direction due to external forces, such as the workpiece mass.

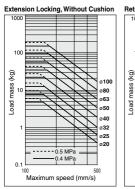
Even when locked, if air pressure drops, a stroke movement of approximately 1 mm may be generated in the locking direction of the lock mechanism due to external forces such as the workpiece mass.

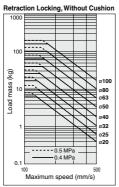
When in the locked state, do not apply a load accompanied by an impact shock, strong vibration or turning force, etc.

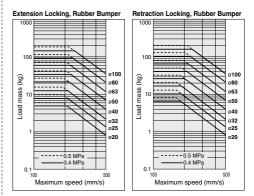
This may damage the locking mechanism, shorten the service life or cause unlocking malfunction.

6. Operate so that load mass, maximum speed and eccentric distance are within the limiting ranges in the graphs below. If the products are used beyond the limiting range, it may lead to a reduced service life or cause damage to the machinery.

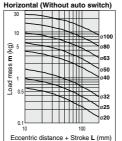
Allowable Kinetic Energy (Energy absorbable at the cylinder end)

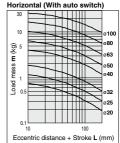


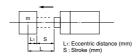




Allowable Load Mass









Series CLQ Specific Product Precautions 2

Be sure to read before handling. Refer to front matter 39 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

Pneumatic Circuit

⚠ Warning

- Drop prevention circuit
- Do not use 3 position valves with circuit example 1.
 The lock may be released due to inflow of the unlocking pressure.
- 2. Install speed controllers as meter-out control. (Circuit example 1)

When they are not installed or they are used under meter-in control, it may cause malfunction.

3. Branch off the compressed air piping for the lock unit between the cylinder and the speed controller. (Circuit example 1)

Note that branching off in other sections may shorten the service life.

4. Perform piping so that the unlocking port side going from the piping junction is short. (Circuit example 1)

If the piping of unlocking port side is longer than that of the cylinder port from the piping junction, this may cause unlocking malfunction or shorten the service life.

 Be aware of reverse exhaust pressure flow from common exhaust type valve manifolds. (Circuit example 1)

example 1)
Since the lock may be released due to reverse exhaust pressure flow, use an individual exhaust type manifold or

6.Be sure to release the lock before operating the cylinder. (Circuit example 2)

When the lock release delays, a cylinder may eject at high speed, which is extremely dangerous. It may also damage the cylinder, greatly shorten the service life or cause locking malfunction. Even when the cylinder moves freely, be sure to release the lock and operate the cylinder.

Be aware that the locking action may be delayed due to the piping length or the timing of exhaust. (Circuit example 2)

The locking action may be delayed due to the piping length or the timing of exhaust, which also makes the stroke movement toward the lock larger. Install the solenoid valve for locking closer to the cylinder than the cylinder drive solenoid valve.

• Emergency stop circuit

single type valve.

1. Perform emergency stops with the pneumatic circuit. (Circuit examples 3 and 4)

This cylinder is designed for locking against inadvertent movement from a stationary condition. Do not perform intermediate stops while the cylinder is operating, as this may damage the cylinder, cause unlocking malfunction or shorten the service life. Emergency stops must be performed with the pneumatic circuit, and workpieces must be held with the locking mechanism after the cylinder fully stops.

 When restarting the cylinder from the locked state, remove the workpiece and exhaust the residual pressure in the cylinder. (Circuit examples 3 and 4)
 A cylinder may eject at high speed, which is extremely

A cylinder may eject at high speed, which is extremely dangerous. It may also damage the cylinder, greatly shorten the service life or cause locking malfunction.

3.Be sure to release the lock before operating the cylinder. (Circuit example 4)

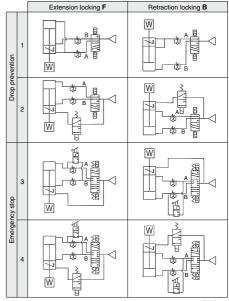
When the lock release delays, the cylinder may eject at high speed, which is extremely dangerous. It may also damage the cylinder, greatly shorten the service life or cause locking malfunction. Even when the cylinder moves freely, be sure to release the lock and operate the cylinder.

• Drop prevention circuit, Emergency stop circuit

If installing a solenoid valve for a lock unit, be aware that repeated supply and exhaustion of air may cause condensation. (Circuit examples 2 and 4)
 The lock unit operating stroke is very small and so the pipe is

The lock unit operating stroke is very small and so the pipe is long. If supplying and exhausting air repeatedly, condensation, which occurs by adiabatic expansion, accumulates in the lock unit. This may then cause air leakage and an unlocking malfunction due to corrosion of internal parts.

Circuit example



* The symbol for the cylinder with lock in the basic circuit uses SMC original symbol.

Mounting

∧ Caution

 Be sure to connect the load to the rod end with the cylinder in an unlocked condition.

If this is done in the locked state, it may cause damage to the lock mechanism.

2. Mount auto switches from the head side.

The lock body and cylinder tube exterior have the same shape for cylinder bore sizes ø40 to ø100, but auto switches may not be mountable from the rod side. For the head side flange or double clevis styles, install mounting brackets after mounting auto switches and auto switch mounting brackets from the head side.

D-□ -X□

CLJ2

CLM2

CLG1

CL₁

MLGC

CNG

MNB

CNA₂

CNS

CLS

CLO

RLO

MI II

MLGP

ML1C

SMC

925



Series CLQ **Specific Product Precautions 3**

Be sure to read before handling. Refer to front matter 39 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

Preparing for Operation

⚠ Warning

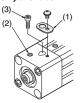
1. When starting operation from the locked position, be sure to restore air pressure to the B line in the pneumatic circuit. (Example 1)

When pressure is not applied to the B line, the load may drop or the cylinder may eject at high speed, which is extremely dangerous. It may also damage the cylinder, greatly shorten the service life or cause unlocking malfunction. When applying pressure to the B line, be sure to confirm whether the environment is safe, since workpieces may move.

2. Size Ø20 to Ø32 are shipped in the unlocked condition maintained by the unlocking bolt. Be sure to remove the unlocking bolt following the steps below before operation.

The unlocking mechanism will not be effective without the removal of the unlocking bolt.

Only ø20 to ø32



- 1) Confirm that there is no air pressure inside the cylinder, and remove the dust cover (1).
- 2) Supply air pressure of 0.2 MPa or more to unlocking port (2) shown in the drawing on the left.
- 3) Remove the unlocking bolt (3) with a hexagon wrench (width across flats

Since a holding function for the unlocked state is not available for sizes ø40 through ø100, they can be used as shipped.

Manually Unlocking

⚠ Warning

1. Do not perform unlocking while an external force such as a load or spring force is being applied.

This is very dangerous because the cylinder will move suddenly.

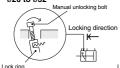
Release the lock after preventing cylinder movement with a lifting device such as a jack.

2. After confirming safety, operate the manual release following the steps shown below.

Confirm that there are no personnel inside the load movement range, etc., and that there is no danger even if the load moves suddenly.

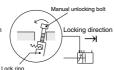
Manually unlocking

ø20 to ø32



Extension locking 1) Remove the dust cover

2) Screw a manual unlocking bolt (a bolt of M3 x 0.5 x 15 L or more commercially available) into the lock ring threads as shown above, and lightly push the bolt in the direction of the arrow (head side) to unlock



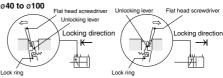
Retraction locking

1) Remove the dust cover

2) Screw a manual unlocking bolt (a bolt of M3 x 0.5 x 15 L or more commercially available) into the lock ring threads as shown above. and lightly push the bolt in the direction of the arrow (rod side) to unlock

Manually Unlocking

♠ Warning



Extension locking

 Remove the dust cover 2) Insert a flat head screwdriver on the rod side of the manual

unlocking lever as shown in the figure above, and lightly push the screwdriver in the direction of the arrow (rod side) to unlock.

Retraction locking

Remove the dust cover.

2) Insert a flat head screwdriver on the head side of the manual unlocking lever as shown in the figure above, and lightly push the screwdriver in the direction of the arrow (head side) to unlock.

Maintenance

⚠ Caution

1. In order to maintain good performance, operate with clean unlubricated air.

If lubricated air, compressor oil or drainage, etc., enters the cylinder, there is a danger of sharply reducing the locking performance

2. Do not apply grease to the piston rod.

There is a danger of sharply reducing the locking performance.

3. Never disassemble the lock unit.

It contains a heavy duty spring which is dangerous and there is also a danger of reducing the locking performance.

4. Never remove the pivot seal and disassemble the internal unit.

As for ø20 to ø32, a ø12 silver seal (pivot seal) is labeled on the one surface of the lock body (on the surface opposite from the unlocking port). The seal is meant for dust prevention, but even if it's peeled off, there would be no problem functionally. However, never disassemble the internal parts.

Holding the Unlocked State

⚠ Warning

- 1. Ø20 to Ø32 can hold the unlocked condition.
 - <Holding the unlocked state>
 - 1) Remove the dust cover.
 - 2) Supply air pressure of 0.2 MPa or more to the unlocking port, and set the lock ring to the perpendicular position.
 - 3) Screw the attached bolt for unlocking (hexagon socket head cap screw/ø20, ø25: M3 x 5 L, Ø32: M3 x 10 L) into the lock ring to hold the unlocked condition.



2. To use the lock mechanism again, be sure to remove the unlocking bolt.

When the unlocking bolt is screwed in, the lock mechanism does not function. Remove the unlocking bolt according to the steps prescribed in the section of "Preparing for Operation".

CLJ2

CLM2

CLG1

CL1

MLGC

CNG MNB

CNA2

CNS

CLS

CLQ

RLQ MLU

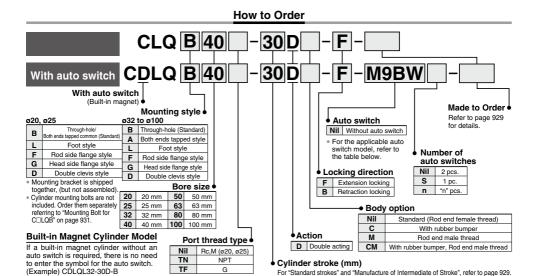
MLGP

ML1C

Compact Cylinder with Lock Double Acting, Single Rod

Series CLO

Ø20, Ø25, Ø32, Ø40, Ø50, Ø63, Ø80, Ø100



Applicable Auto Switches/Refer to pages 1893 to 2007 for detailed specifications of auto switches

	nicable Auto s		_			oad vo		Auto switch model Le		Lea	ad wi	re le	ngth	(m)					
Туре	Special function	Electrical entry	Indicator light	(Output)		DC	AC		ndicular		In-line	0.5 (Nii)		3	5 (Z)	None (N)	Pre-wired connector		icable ad
			드			- ×						(1411)	(101)	(=)	(2)	(14)			
				3-wire (NPN)		5 V,			NV		M9N	•	•	•	0	_	0	IC circuit	
		Grommet		3-wire (PNP)		12 V			PV		M9P	•	•	•	0	_	0		
_				2-wire		12V		M9	BV		M9B	•	•	•	0	_	0	_	
switch		Connector				124		-	J79C		_	•	_	•	•	•	_		
S.	D			3-wire (NPN)		5 V,		M9N	1WV		M9NW	•	•	•	0	_	0	IC circuit	
anto	Diagnostic indication (2-color indication)			3-wire (PNP)		12 V		M9F	٧W		M9PW	•	•	•	0	-	0	IC CITCUIL	
a	(2-color indication)		Yes	2-wire	24 V	12 V	_	M9E	3WV		M9BW	•	•	•	0	-	0	_	Relay,
state			_	3-wire (NPN)		5 V.		M9N	AV*1	N	19NA*1	0	0	•	0	_	0		
TS I	Water resistant	Grommet		3-wire (PNP)		12 V			M9PAV*1		19PA*1	0	Ô	•	Ó	-	Ô	IC circuit	
Solid	(2-color indication)			2-wire		12 V			AV*1		19BA*1	Ō	Ō	•	Ō	-	Õ	_	1
S	With diagnostic output (2-color indication)			4-wire		5 V,12 V				_	F79F	•	Ē	•	Ō	-	Ō	IC circuit	
	Magnetic field resistant			2-wire				_	_		P3DWA**	•	-	•	•	_	Ō		
	(2-color indication)			(Non-polar)		-		_	_		P4DW	-	-	•	•	-	0	_	
£			es	3-wire (NPN equivalent)	_	5 V	_	A9	6V		A96	•	_	•	_	_	_	IC circuit	_
Reed auto switch		Grommet	×			_	200V	_	A72	_	A72H	•	-	•	-	-	_		
o S	_					12 V	100V	A93	8V*2		A93	•	•	•	•	-	_		
ant			None	1		5 V,12 V	100 V or less	A9	0V		A90	•	-	•	I —	-	_	IC circuit	Relay,
9		0	Yes	2-wire	24 V	12 V	_	_	A73C		_	•	-	•	•	•	_	_	PLC
æ		Connector	lone	1		5 V.12 V	24 V or less	_	A80C		_	•	1-	•	•	•	_	IC circuit	
	Diagnostic indication (2-color indication)	Grommet	Yes	1				_	A79W		_	ě	1=	•	Ť	Ť	_	_	

For "Standard strokes" and "Manufacture of Intermediate of Stroke", refer to page 929.

- *1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Consult with 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 * Solid state auto switches marked with "O" are produced upon receipt of order.
 - (Example) M9NWM * D-P4DW is compatible with ø40 to ø100. 1 m M * D-P4DW is assembled at the time of shipment.
 - 3 m ----- L 5 m ---- Z (Example) M9NWL (Example) M9NWZ ** D-P3DWA□ is compatible with a25 to a100
- None ······ N (Example) J79CN For ø25, it is mounted away from the port side to avoid interference with fittings.
- * Since there are other applicable auto switches than listed, refer to page 949 for details.

 * For details about auto switches with pre-wired connector, refer to pages 1960 and 1961. For D-P3DWA□, refer to the **WEB catalog**.

 * When D-A9□(V)/M9□(V)/M9□(V)/M9□(V) (M9□(V) (M9□(V
- brackets separately. Refer to page 948 for details * When mounting brackets (foot/head side flange/double clevis style) are used, then in some cases auto swit a nnot be retrofitted.



Compact Cylinder with Lock Double Acting, Single Rod Series CLQ

Cylinder Specifications

Bore size (mm)	20 25 32 40 50 63 80									
Action			Doub	ole actin	g, Singl	e rod				
Fluid				А	ir					
Proof pressure				1.5	МРа					
Maximum operating pressure		1.0 MPa								
Minimum operating pressure	0.2 MPa Note 1)									
Ambient and	Without auto switch: -10 to 70°C (No freezing)									
fluid temperature		With a	uto swit	ch: -10	to 60°C	(No fre	ezing)			
Lubrication			Not	required	d (Non-l	ube)				
Piston speed				50 to 50	00 mm/s					
Stroke length tolerance	+1.0 mm Note 2)									
Cushion	None, rubber bumper									
Port size (Rc, NPT, G)	M5 x 0.8 1/8 1/4 3/8									

Note 1) The minimum operating pressure of the cylinder is 0.1 MPa when the cylinder and lock are connected to separate ports.

Note 2) Stroke length tolerance does not include the amount of bumper change.

Lock Specifications

Bore size (mm)		20	25	32	40	50	63	80	100		
Locking action			;	Spring lo	ocking (I	Exhaust	locking)			
Unlocking pressure	В			().2 MPa	or more	9				
Lock starting press	sure		0.05 MPa or less								
Locking direction	irection	(Either e	extensio	n lockin	g or retr	action lo	ocking)				
	Rc	M5 :	k 0.8			1/8			1/4		
Unlocking port size	NPT			1/6							
	G			M5 x 0.8 1/8							
Holding force Note) (I	N)	157	245	402	629	982	1559	2513	3927		
(Maximum static lo	Equivalent to 0.5 MPa										

Note) The holding force (max. static load) shows the maximum capability and does not show the normal holding capability. So, select an appropriate cylinder while referring to page 924.

Standard Stroke

Bore size (mm)	Standard stroke (mm)
20, 25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
32, 40, 50, 63, 80, 100	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

Manufacture of Intermediate Stroke

Description	Spacer is installed in the standa	ard stroke body.							
Part no.	Refer to "How to Order" for the st	andard model no. on page 928.							
Method	Dealing with the stroke by the 1 mm interval is available installing spacer with standard stroke cylinder.								
	Bore size (mm)	Stroke range (mm)							
Stroke range	20, 25	1 to 50							
	32, 40, 50, 63, 80, 100	1 to 100							
Example	Part no.: CLQB40-47D-B 3 mm spacer is installed in standard cylinder CLQB40-50D-B. B dimension is 79.5 mm.								

Note) ø40 to ø100 bumper spacers with intermediate strokes can be manufactured in 5 mm



Made to Order Specifications (For details, refer to pages 2009 to 2152.)

Symbol	Specifications
-XA□	Change of rod end shape
-XC35	With coil scraper (ø40 to ø100 only)
-XC87	Heavy duty (ø40 to ø100 only)

Refer to pages 946 to 949 for cylinders

• Minimum auto switch mounting stroke • Proper auto switch mounting position (detection at stroke end) and mounting height

· Auto switch mounting bracket: Part no.

with auto switches

· Operating range

increments from 55 to 95 mm.

-X□

CLJ2 CLM2 CLG1 CL1 MLGC

CNG

MNB

CNA2 CNS CLS

CLQ

RLQ MLU

MLGP

ML1C



Mounting Bracket Part No.

Bore size (mm)	Foot (1)	Flange	Double clevis			
20	CLQ-L020	CLQ-F020	CLQ-D020			
25	CLQ-L025	CLQ-F025	CLQ-D025			
32	CLQ-L032	CLQ-F032	CLQ-D032			
40	CLQ-L040	CLQ-F040	CLQ-D040			
50	CLQ-L050	CLQ-F050	CLQ-D050			
63	CLQ-L063	CLQ-F063	CLQ-D063			
80	CLQ-L080	CLQ-F080	CLQ-D080			
100	CLQ-L100	CLQ-F100	CLQ-D100			

Note 1) When ordering foot bracket, order 2 pieces per cylinder.

Note 2) Parts belonging to each bracket are as follows. Foot, Flange: Body mounting screws, Double clevis: Clevis pin, type C retaining ring for shaft, Body mounting screws. Flat washer.

Theoretical Output



				(IV)
Bore size (mm)	Operating direction	Op	erating pressure (M	ЛРа)
Dore Size (ITIII)	Operating direction	0.3	0.5	0.7
20	IN	71	118	165
20	OUT	94	157	220
25	IN	113	189	264
	OUT	147	245	344
32	IN	181	302	422
	OUT	241	402	563
40	IN	317	528	739
40	OUT	377	628	880
50	IN	495	825	1150
50	OUT	589	982	1370
63	IN	841	1400	1960
03	OUT	935	1560	2180
80	IN	1360	2270	3170
00	OUT	1510	2510	3520
100	IN	2140	3570	5000
100	OUT	2360	3930	5500

Weight

Basic Weight: Mounting/Through-hole (Type B)

(g)

Bore size					Sta	ndard s	troke (n	nm)				
(mm)	5	10	15	20	25	30	35	40	45	50	75	100
20 *	184	199	213	227	241	255	270	284	298	312	_	_
25 *	260	278	295	312	329	346	364	381	398	415	_	_
32	_	407	430	453	475	498	521	544	566	589	754	867
40	_	514	537	560	583	606	630	653	676	699	883	1003
50	_	838	874	910	947	983	1019	1055	1092	1128	1421	1609
63	_	1202	1242	1283	1324	1365	1406	1447	1488	1529	1877	2088
80	_	2229	2297	2364	2432	2500	2568	2636	2704	2771	3344	3678
100	_	3770	3860	3951	4041	4132	4223	4313	4404	4495	5299	5759

^{*} Through-hole and both ends tapped are common for sizes ø20 and ø25.

Basic Weight:

Mounting/Both Ends Tapped (Type A)

(g)

(g)

Bore size		Standard stroke (mm)												
(mm)	10	15	20	25	30	35	40	45	50	75	100			
32	405	429	453	475	499	523	546	569	593	763	879			
40	542	568	593	619	644	670	695	721	746	947	1079			
50	883	922	962	1002	1041	1081	1121	1161	1200	1517	1723			
63	1330	1377	1424	1471	1518	1565	1613	1660	1707	2099	2341			
80	2468	2545	2623	2700	2778	2856	2933	3011	3089	3729	4113			
100	4054	4154	4254	4355	4455	4556	4656	4757	4857	5730	6239			

Additional Weight

Bore size (mm)		20	25	32	40	50	63	80	100
Magnet		35	45	64	77	118	158	261	380
Rod end male thread	Thread	6	12	26	27	53	53	120	175
Hod end male thread	Nut	4	8	17	17	32	32	49	116
With rubber bumper		-2	-3	-3	-7	-9	-18	-31	-56
Foot style (Including mou	nting bolt)	152	174	137	149	221	288	638	1009
Rod side flange style (Including n	nounting bolt)	127	149	174	208	351	523	998	1307
Head side flange style (Including r	nounting bolt)	121	140	159	192	326	498	959	1251
Double clevis style (Including pin, snap ring, bolt and	d flat washer)	76	111	145	190	373	518	1064	1839

702 g

Calculation: (Example) CDLQD32-20DCM-B

• Basic weight : CLQA32-20D-□-----453 g

 When auto switches are mounted, add the weight of the auto switch and auto switch mounting bracket multiplied by the quantity.

Auto Switch Mounting Bracket Weight

riate childri meaning bracket part no.	reprioadio boro dibo (min)	
BQ-2	ø32 to ø100	1.5
BQ2-012	ø32 to ø100	5
BQP1-050	ø40 to ø100	16

For the auto switch weight, refer to page 1893.

Refer to pages 948 and 949 for applicable auto switch mounting brackets



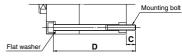
Compact Cylinder with Lock Double Acting, Single Rod Series CLQ

Mounting Bolt for C□LQB

Mounting method: Mounting bolt for through-hole mounting Refer to the following for ordering procedures.

Order the actual number of bolts that will be used.

Example) CQ-M5 x 55L 2 pcs.



Note) Be sure to use the attached flat washers as the bearing surface is small when mounting ø50 to ø100 cylinders from the rod side.

CLJ2 CLM2 CLG1

CL1

MLGC
CNG
MNB
CNA2
CNS
CLS
CLQ
RLQ
MLU
MLGP

ML1C

CLQB: Without Auto Switch

Cylinder model	С	D	Mounting bolt part no.
CLQB20-5D		55	CQ-M5 x 55 L
-10D		60	x 60 L
-15D		65	x 65 L
-20D		70	x 70 L
-25D	10.5	75	x 75 L
-30D	10.5	80	x 80 L
-35D		85	x 85 L
-40D		90	x 90 L
-45D		95	x 95 L
-50D		100	x 100 L
CLQB25-5D		60	CQ-M5 x 60 L
-10D		65	x 65 L
-15D		70	x 70 L
-20D		75	x 75 L
-25D	8.5	80	x 80 L
-30D	0.5	85	x 85 L
-35D		90	x 90 L
-40D		95	x 95 L
-45D		100	x 100 L
-50D		105	x 105 L

	Cylinder model	С	D	Mounting bolt part no.
_	CLQB32-10D		65	CQ-M5 x 65 L
	-15D		70	x 70 L
_	-20D		75	x 75 L
	-25D		80	x 80 L
_	-30D		85	x 85 L
_	-35D	7	90	x 90 L
_	-40D		95	x 95 L
	-45D		100	x 100 L
-	-50D		105	x 105 L
_	-75D		140	x 140 L
_	-100D		165	x 165 L
_	CLQB40-10D		75	CQ-M5 x 75 L
-	-15D		80	x 80 L
_	-20D		85	x 85 L
	-25D		90	x 90 L
-	-30D		95	x 95 L
	-35D	8.5	100	x 100 L
<u>.</u>	-40D		105	x 105 L
-	-45D		110	x 110 L
_	-50D		115	x 115 L
	-75D		150	x 150 L
	-100D		175	x 175 L

Cylinder model	С	D	Mounting bolt part no.
CLQB50-10D		80	CQ-M6 x 80 L
-15D		85	x 85 L
-20D		90	x 90 L
-25D		95	x 95 L
-30D		100	x 100 L
-35D	12.5	105	x 105 L
-40D		110	x 110 L
-45D		115	x 115 L
-50D		120	x 120 L
-75D		155	x 155 L
-100D		180	x 180 L
CLQB63-10D		90	CQ-M8 x 90 L
-15D		95	x 95 L
-20D		100	x 100 L
-25D		105	x 105 L
-30D		110	x 110 L
-35D	16.5	115	x 115 L
-40D		120	x 120 L
-45D		125	x 125 L
-50D		130	x 130 L
-75D		165	x 165 L
-100D		190	x 190 L

_				
olt	Cylinder model	С	D	Mounting bolt part no.
0 L	CLQB80-10D		100	CQ-M10 x 100 L
5 L	-15D		105	x 105 L
0 L	-20D		110	x 110 L
5 L	-25D		115	x 115 L
0 L	-30D		120	x 120 L
5 L	-35D	17	125	x 125 L
0 L	-40D		130	x 130 L
5 L	-45D		135	x 135 L
0 L	-50D		140	x 140 L
5 L	-75D		175	x 175 L
0 L	-100D		200	x 200 L
0 L	CLQB100-10D		115	CQ-M10 x 115 L
5 L	-15D		120	x 120 L
0 L	-20D		125	x 125 L
5 L	-25D		130	x 130 L
0 L	-30D		135	x 135 L
5 L	-35D	15.5	140	x 140 L
0 L	-40D		145	x 145 L
5 L	-45D		150	x 150 L
0 L	-50D		155	x 155 L
5 L	-75D		190	x 190 L
0 L	-100D		215	x 215 L

CDLQB: Without Auto Switch

Cylinder model	С	D	Mounting bolt part no.
CDLQB20-5D		65	CQ-M5 x 65 L
-10D		70	x 70 L
-15D		75	x 75 L
-20D		80	x 80 L
-25D	10.5	85	x 85 L
-30D	10.5	90	x 90 L
-35D		95	x 95 L
-40D		100	x 100 L
-45D		105	x 105 L
-50D		110	x 110 L
CDLQB25-5D		70	CQ-M5 x 70 L
-10D		75	x 75 L
-15D		80	x 80 L
-20D		85	x 85 L
-25D	8.5	90	x 90 L
-30D] 0.5	95	x 95 L
-35D		100	x 100 L
-40D		105	x 105 L
-45D		110	x 110 L
-50D		115	x 115 L

Cylinder model	С	D	Mounting bolt part no.
CDLQB32-10D		75	CQ-M5 x 75 L
-15D		80	x 80 L
-20D		85	x 85 L
-25D		90	x 90 L
-30D		95	x 95 L
-35D	7	100	x 100 L
-40D		105	x 105 L
-45D		110	x 110 L
-50D		115	x 115 L
-75D		140	x 140 L
-100D		165	x 165 L
CDLQB40-10D		85	CQ-M5 x 85 L
-15D		90	x 90 L
-20D		95	x 95 L
-25D		100	x 100 L
-30D		105	x 105 L
-35D	8.5	110	x 110 L
-40D		115	x 115 L
-45D		120	x 120 L
-50D		125	x 125 L
-75D		150	x 150 L
-100D		175	x 175 I

Cylinder model	С	D	Mounting bolt part no.
CDLQB50-10D		90	CQ-M6 x 90 L
-15D		95	x 95 L
-20D		100	x 100 L
-25D		105	x 105 L
-30D	12.5	110	x 110 L
-35D		115	x 115 L
-40D		120	x 120 L
-45D		125	x 125 L
-50D		130	x 130 L
-75D		155	x 155 L
-100D		180	x 180 L
CDLQB63-10D		100	CQ-M8 x 100 L
-15D		105	x 105 L
-20D		110	x 110 L
-25D		115	x 115 L
-30D		120	x 120 L
-35D	16.5	125	x 125 L
-40D		130	x 130 L
-45D		135	x 135 L
-50D		140	x 140 L
-75D		165	x 165 L
-100D	1	190	x 190 L

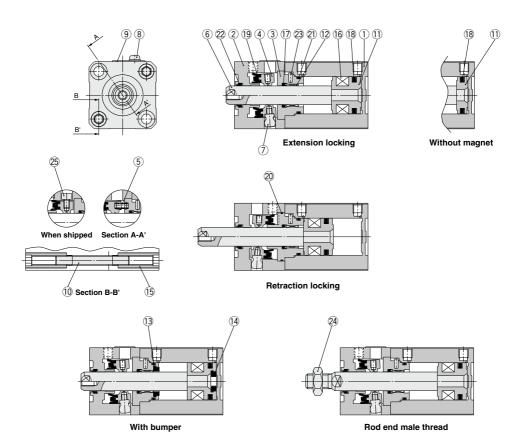
Cylinder model	С	D	Mounting bolt part no.
CDLQB80-10D		110	CQ-M10 x 110 L
-15D		115	x 115 l
-20D		120	x 120 l
-25D		125	x 125 l
-30D		130	x 130 l
-35D	17	135	x 135 l
-40D		140	x 140 l
-45D		145	x 145 l
-50D		150	x 150 l
-75D		175	x 175 l
-100D		200	x 200 l
CDLQB100-10D		125	CQ-M10 x 125 l
-15D		130	x 130 l
-20D		135	x 135 l
-25D		140	x 140 l
-30D		145	x 145 l
-35D	15.5	150	x 150 l
-40D		155	x 155 l
-45D		160	x 160 l
-50D		165	x 165 l
-75D		190	x 190 l
-100D		215	x 215 l

D-□ -X□



Series CLQ

Construction: Ø20 to Ø32



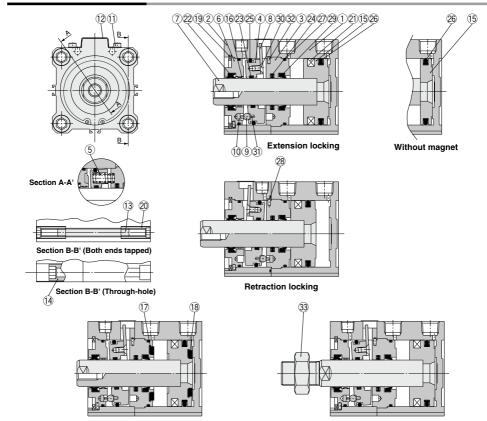
Component Parts

Comp	Joneni Paris		
No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Lock body	Aluminum alloy	Hard anodized
3	lata and distance line	Alternation and allere	Extension locking: Chromated
	Intermediate collar	Aluminum alloy	Retraction locking: Hard anodized
4	Lock ring	Carbon steel	Heat treated
5	Brake spring	Steel wire	Zinc chromated
6	Distance and	Stainless steel	ø20, 25: Hard chrome plated
	6 Piston rod	Carbon steel	ø32: Hard chrome plated
7	Pivot	Chromium molybdenum steel	Electroless nickel plated
8	Dust cover holding bolt	Carbon steel	
9	Dust cover	Stainless steel	
			ø20: Nickel plated
10	Tie-rod	Rolled steel	ø25: Zinc chromated
			ø32: Black zinc chromated
11	Piston	Aluminum alloy	

Note) The sectional drawing above shows the locked condition. (A bolt is used to maintain the cylinder in the unlocked condition when shipped.)

No.	Description	Material	Note
12	Bushing	Bearing alloy	
13	Bumper A	Urethane	
14	Bumper B	Urethane	
15	Tie-rod nut	Carbon steel	Nickel plated
16	Magnet	_	
17	Rod seal	NBR	
18	Piston seal	NBR	
19	Lock ring seal	NBR	
20	Tube gasket A	NBR	
21	Tube gasket B	NBR	
22	Scraper	NBR	
23	Parallel pin	Stainless steel	JIS B 1354
24	Rod end nut	Carbon steel	
25	Unlocking bolt	Chromium molybdenum steel	

Construction: ø40 to ø100



With bumper

ompopont Borto

Com	ponent Parts		
No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Lock body	Aluminum alloy	Hard anodized
3	Intermediate collar	Aluminum alloy	Chromated
4	Lock ring	Carbon steel	Heat treated
5	Brake spring	Steel wire	Zinc chromated
_		Aluminum bearing alloy	ø40: Hard anodized
6	Collar	Aluminum alloy casted	ø50 to ø100: Chromated, painted
7	Piston rod	Carbon steel	Hard chrome plated
8	Lever	Stainless steel	
9	Pivot pin	Carbon steel	Zinc chromated
10	Pivot key	Carbon steel	Zinc chromated
11	Dust cover holding bolt	Chromium molybdenum steel	
12	Dust cover	Rolled steel	
13	Tie-rod	Rolled steel	ø40, Zinc chromated
13	i ie-roa	Carbon steel	ø50 or larger, Zinc chromated
14	Unit holding bolt	Carbon steel	Nickel plated
15	Piston	Aluminum alloy	
16	Bushing	Bearing alloy	For ø50 or larger only

Rod end male thread

	Note) The sectional drawing	g above shows the I	ocked condition.
No.	Description	Material	Note
17	Bumper A	Urethane	
18	Bumper B	Urethane	
19	Retaining ring	Carbon tool steel	Phosphate coated
20	Tie-rod nut	Carbon steel	ø40, Nickel plated
20	Tie-rod flut	Carbon steer	ø50 to ø100, Zinc chromated
21	Magnet	_	
22	Rod seal A	NBR	
23	Rod seal B	NBR	
24	Rod seal C	NBR	
25	Piston seal A	NBR	
26	Piston seal B	NBR	
27	Tube gasket A	NBR	
28	Tube gasket B	NBR	
29	Scraper	NBR	
30	Hexagon socket countersunk	Chromium	
30	head screw	molybdenum steel	
31	Spring pin	Carbon steel	JIS B 2808
32	Parallel pin	Stainless steel	JIS B 1354
33	Rod end nut	Carbon steel	

D-□ -X□

CLJ2 CLM2 CLG1 CL1 MLGC

CNG

MNB CNA2 CNS CLS

CLQ

RLQ

MLU MLGP ML1C



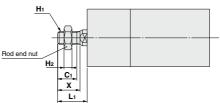
Series CLQ

Dimensions: Ø20, Ø25

Basic style (Through-hole/Both ends tapped common): C□LQB20/25

Extension locking M5 x 0.8 2 x ø5.4 through Rod side cylinder port 2 x 2 x ø9 depth of counterbore 7 depth Q H thread effective depth C M5 x 0.8 unlocking port 5.5 (Unlocks when pressurized) VΗ ≥ Σ ш M5 x 0.8 3.2 3.2 Head side cylinder port 2 x 2 x M5 x 0.8 M 16 16 Dust cover (Manual unlocking unit) Ε w s G B + Stroke A + Stroke Retraction locking LOCK ۷H1 W₁ Dust cover (Manual unlocking unit) M5 x 0.8 unlocking port (Unlocks when pressurized)

Rod end male thread



Bore size	Stroke range	Without a	uto switch	With aut	o switch	_	n	_	G	ш		v		М	^		U	VH	vv	w
(mm)	Stroke range	Α	В	Α	В	C	ט	_	u	-	' '		-	IVI	u) >	"	VΠ	V V	VV
20	5 to 50	51	19.5	61	29.5	7	10	36	27	M5 x 0.8	47	8	4.5	25.5	36	39.2	21.2	9.5	6.5	19
25	5 to 50	58.5	22.5	68.5	32.5	12	12	40	31	M6 x 1.0	52	10	5	28	42	43.2	23.2	10	7	21.5

Retraction Locking (mm)

Bore size (mm)	VH1	W 1
20	20.5	12
25	23	14.5

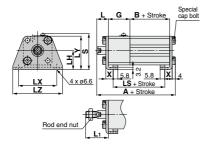
Rod End I	Male	Thre	ead		(mm)
Bore size (mm)	C ₁	х	H ₁	H2	L ₁
20	12	14	M8 x 1.25	5	18.5
25	15	17.5	M10 x 1 25	6	22.5

Dimensions for cylinders with a rubber bumper are the same as the standard type above.

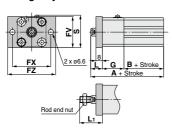
^{**} Refer to page 944 for details of rod end nuts and accessory brackets.

Dimensions: Ø20, Ø25

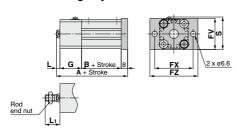
Foot style: CLQL/CDLQL



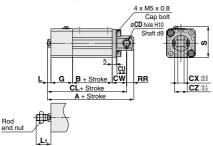
Rod side flange style: CLQF/CDLQF



Head side flange style: CLQG/CDLQG



Double clevis style: CLQD/CDLQD



Foot Style

	_											(1111111
Bore size	Stroke	rango	With	out au	to s	witc	h		With	au	to sw	itch
(mm)	Sticke	ange	Α	В	П	L	s	-	A	E	В	LS
20	5 to	50	68.2	19.	5	34	.5	78	3.2	29	9.5	44.5
25	5 to	50	75.7	22.	5	38	3.5	85	5.7	32	2.5	48.5
Bore size (mm)	G	L	L1	LH	L	Х	LY	,	LZ		s	х
20	27	14.5	28.5	24	4	8	42	П	62	4	45.2	9.2
25	31	15	32.5	26	5	2	46	П	66	-	49.2	10.7

Foot bracket material: Carbon steel Surface treatment: Nickel plated

CLJ2

CLM2

CLG1

CL1 MLGC

CNG

MNB CNA2 CNS

CLS

CLQ RLQ

MLU

MLGP

ML1C

Rod Side Flange Style

			<u> </u>	, .				(111111)
Ī	Bore size	Stroke	rango	Without	auto sw	itch Wi	th auto	switch
	(mm)	Stroke	larige	Α	В		Α	В
	20	5 to	50	61	19.	.5 7	1	29.5
	25	5 to	50	68.5	22.	.5 7	8.5	32.5
	Bore size (mm)	FV	FX	FZ	G	L	Lı	s
	20	39	48	60	27	14.5	28.5	40.7
	25	42	52	64	31	15	32.5	44.2

Flange bracket material: Carbon steel Surface treatment: Nickel plated

Head Side	Fla	nge	Style	е					(mm)
Bore size	Stroke	range	Withou	t a	uto sw	itch	Wit	th aut	o switch
(mm)	Ollono	lange	Α		В			Α	В
20	5 to	50	59		19.	5	6	9	29.5
25	5 to	50	66.5		22.	5	7	6.5	32.5
				_					
Bore size (mm)	FV	FX	FZ		G	ı	-	L ₁	s
20	39	48	60	Г	27	4.	5	18.5	40.7
25	42	52	64	Г	31	5		22.5	44.2
								01-	

Flange bracket material: Carbon steel Surface treatment: Nickel plated

Double C	evis	Sty	'ie								(mm)
Bore size	Stroke	n rang	w	ithou	ut a	uto s	witch	V	Vith a	uto sv	vitch
(mm)	Sticke	s rang		Α		В	CL	A		В	CL
20	5 t	o 50	78		19	9.5	69	88		29.5	79
25	5 t	o 50	88	.5	22	2.5	78.5	98.	5	32.5	88.5
		_			_				_	_	
Bore size (mm)	CD	CU	cw	c>	۱	cz	G	L	L1	RR	s
20	8	12	18	8	П	16	27	4.5	18.5	9	39.2
25	10	14	20	10		20	31	5	22.5	10	43.2

brackets.

** Double clevis pins and retaining rings are included.



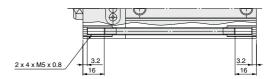
935

-X□

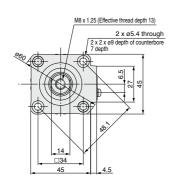
Refer to page 944 for details of rod end nuts and accessory
 Surface treatment: Nickel plated
 Surface treatment: Nickel plated Surface treatment: Nickel plated

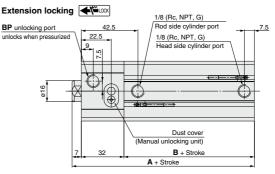
Dimensions: Ø32

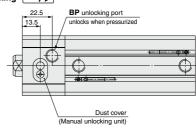
Both ends tapped style: C□LQA32



Basic style (Through-hole): C□LQB32







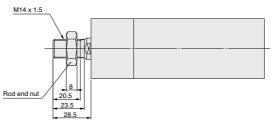
						(mm)
	Bore size	Stroke	Without a	uto switch	With au	to switch
ı	(mm)	range	Α	В	Α	В
	20	10 to 50	62	23	72	-00
	32	75, 100	72	33	12	33

Port thread type	BP
Rc	1/8
NPT	1/8
G	M5 x 0.8

- * Dimensions for cylinders with a rubber bumper are the same as the standard type above.

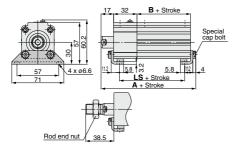
 ** Refer to page 944 for details of rod end nuts and
- accessory brackets.

Rod end male thread



Dimensions: Ø32

Foot style: C□LQL32



Foot Style

(mm)

Foot bracket material: Carbon steel Surface treatment: Nickel plated

CLJ2 CLM2

CLG1

CL1 MLGC

CNG

MNB CNA2 CNS CLS

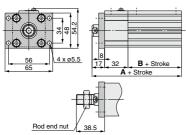
CLQ

RLQ MLU

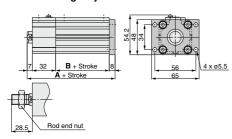
MLGP

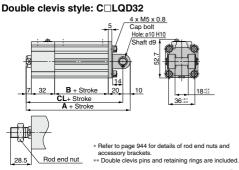
ML1C

Rod side flange style: C□LQF32



Head Side flange style: C□LQG32





							(
Bore size Stroke range		Witho	ut auto :	switch	With auto switch		
(mm)	Stroke range	Α	В	LS	Α	В	LS
32	10 to 50	79.2	23	39	89.2	33	49
32	75, 100	89.2	33	49	05.2	33	43

Rod Side Flange Style

tou side i larige style (mm)						
Bore size	Stroke range	Without auto switch		With auto switch		
(mm)	Stroke range	Α	В	Α	В	
32	10 to 50	72	23	82	33	
32	75, 100	82	33	02		

Flange bracket material: Carbon steel Surface treatment: Nickel plated

Head Side	de Flange Style (mn		(mm)			
Bore size	Stroke range	Without a	uto switch	With auto switch		
(mm)	Stroke range	Α	В	Α	В	
32	10 to 50	70	23	80	33	
32	75, 100	80	33	80	33	

Flange bracket material: Carbon steel Surface treatment: Nickel plated

Davible Clavic Chile

Double	U	evis Styl	е					(mm)	
Bore size		Stroke range	Without auto switch			trake range Without auto switch With auto s			witch
(mm)		Stroke larige	Α	В	CL	Α	В	CL	
32		10 to 50	92	23	82	102	33	92	
32		75, 100	102	33	92	102	33	92	

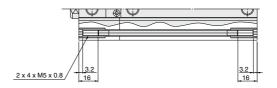
Double clevis bracket material: Cast iron Surface treatment: Painted

-**X**□

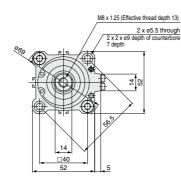
Series CLQ

Dimensions: Ø40

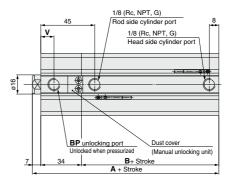
Both ends tapped style: C□LQA40



Basic style (Through-hole): C□LQB40



Extension locking



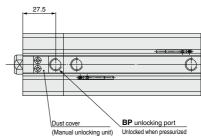
	A, B Dimensions (mm)								
Bore size		Stroke range	Without auto switch		With aut	o switch			
	(mm)	(mm)	Α	В	Α	В			
		10 to 50	70.5	29.5	80.5	39.5			
	40	75, 100	80.5	39.5	60.5	39.5			

Port thread type	BP	V
Rc	1/0	
NPT	1/8	11
G	M5 x 0.8	13

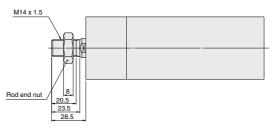
- * Dimensions for cylinders with a rubber bumper are the
- same as the standard type above.

 ** Refer to page 944 for details of rod end nuts and accessory brackets.

Retraction locking □□□×□)→

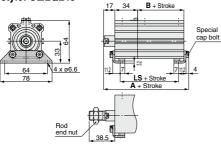


Rod end male thread



Dimensions: Ø40

Foot style: C□LQL40



ot Style

-oot style (mm)										
Bore size			ut auto :	switch	With	auto s	witch			
(mm)	Cirono nango	Α	В	LS	Α	В	LS			
40	10 to 50	87.7	29.5	47.5	97.7	39.5	57.5			
40	75, 100	97.7	39.5	57.5	97.7	39.5	57.5			

Foot bracket material: Carbon steel Surface treatment: Nickel plated

CLJ2

CLM2 CLG1

CL1 MLGC

CNG

MNB

CNA2 CNS

CLS

CLQ

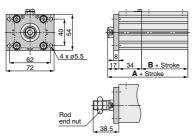
RLQ

MLU

MLGP

ML1C

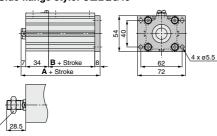
Rod side flange style: C□LQF40



I	Rod Side Flange Style (m						
Bore size (mm)		Stroke range	Without a	uto switch	With auto switch		
		Olloke lange	Α	В	Α	В	
	40	10 to 50	80.5	29.5	90.5	39.5	
	40	75, 100	90.5	39.5	90.5	39.5	

Flange bracket material: Carbon steel Surface treatment: Nickel plated

Head Side flange style: C□LQG40



Double Clevis Style

Stroke range

10 to 50

75, 100

Bore size

(mm)

40

nead Side	Flange	Style			(mm)	
Bore size	Stroke range	Without a	uto switch	With auto switch		
(mm)	Otroke range	Α	В	Α	В	
40	10 to 50	78.5	29.5	88.5	39.5	
40	75, 100	88.5	39.5	88.5	39.5	

Flange bracket material: Carbon steel Surface treatment: Nickel plated

Without auto switch

Α В CL

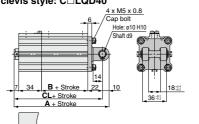
102.5 29.5 92.5

112.5 39.5 102.5

Double clevis style: C□LQD40

Rod end nut

Rod



* Refer to page 944 for details of rod end nuts a	and
accessory brackets.	
** Double clavic nine and retaining rings are inc	doule

Double clevis bracket material: Cast iron Surface treatment: Painted

112.5



(mm)

102.5

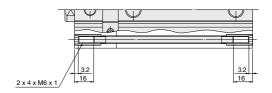
With auto switch

В CL

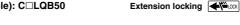
Series CLQ

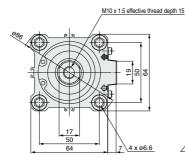
Dimensions: ø50

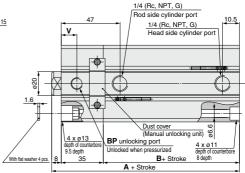
Both ends tapped style: C□LQA50



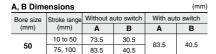
Basic style (Through-hole): C□LQB50







Retraction locking [□□x 🗃 🖈



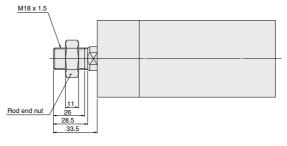
V 1	-
•	
	Dust cover BP unlocking port (Manual unlocking unit) Unlocked when pressurized

Rod end male thread

Port thread type	BP	٧	V 1	
Rc	1/8	40	-00	
NPT		13	28	
G	M5 x 0.8	15	30.2	

- * Dimensions for cylinders with a rubber bumper are the same as the standard type above.

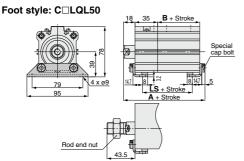
 ** Refer to page 944 for details of rod end nuts and
- ** Refer to page 944 for details of rod end nuts and accessory brackets.



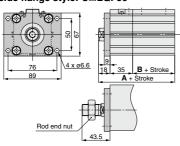
Note) Be sure to use the attached flat washers when mounting a cylinder from the rod side.



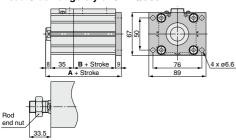
Dimensions: Ø50



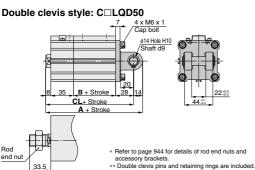
Rod side flange style: C□LQF50



Head Side flange style: C□LQG50



Rod



Foot Style

	Foot Style (mm)													
ĺ	Bore size	Stroke range	Witho	ut auto :	switch	With auto switch								
	(mm)	Olloke range	Α	В	LS	Α	В	LS						
	50	10 to 50	91.7	30.5	42.5	101.7	40.5	52.5						
	30	75, 100	101.7	40.5 52.5		101.7	40.5	32.5						

Foot bracket material: Carbon steel Surface treatment: Nickel plated

Rod Side Flange Style (n											
Bore size	Stroke range	Without a	uto switch	With auto switch							
(mm)	ou one range	Α	В	Α	В						
50	10 to 50	83.5	30.5	93.5	40.5						
50	75, 100	93.5	40.5	93.5	40.5						

Flange bracket material: Carbon steel Surface treatment: Nickel plated

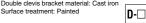
Head Side		(mm)					
Bore size	Stroke range	Without a	uto switch	With auto switch			
(mm)	otrono rango	Α	В	Α	В		
50	10 to 50	82.5	30.5	92.5	40.5		
50	75, 100	92.5	40.5	92.5	40.5		

Flange bracket material: Carbon steel Surface treatment: Nickel plated

ubla Clavia Styla

Jouble Clevis Style (mr												
Bore size	Stroke range	Witho	ut auto :	switch	With auto switch							
(mm)	Olloke range	Α	B CL		Α	В	CL					
50	10 to 50	115.5	30.5	101.5	125.5	40.5	111.5					
50	75, 100	125.5	40.5	111.5	123.5	40.5	111.5					

Double clevis bracket material: Cast iron



-**X**□

CLJ2

CLM2 CLG1

CL1

MLGC

CNG MNB

CNA2

CNS

CLS

CLQ

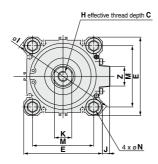
RLQ

MLU MLGP

ML1C

Dimensions: Ø63, Ø80, Ø100

Basic style (Through-hole): C□LQB63/80/100



(mm)

(mm)

Retraction Locking

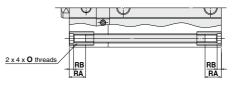
Bore size		٧	1			
(mm)	Rc	NPT	G			
63	30).5	33			
80	35	5.5	37.7			
100	40).5	41.5			

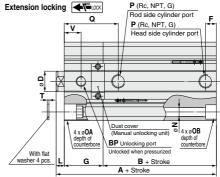
Rod End Male Thread

Bore size (mm)	C ₁	Х	H ₁	H ₂	L ₁
63	26	28.5	M18 x 1.5	11	33.5
80	32.5	35.5	M22 x 1.5	13	43.5
100	32.5	35.5	M26 x 1.5	16	43.5

- * Dimensions for cylinders with a rubber bumper are the same as the standard type above.
- ** Refer to page 944 for details of rod end nuts and accessory brackets.

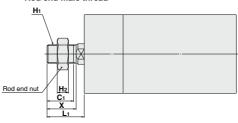
Both ends tapped style: C□LQA63/80/100





Retraction locking Lox Manual unlocking unit Lindoked when pressurized

Rod end male thread



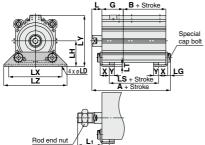
Note) Be sure to use the attached flat washers when mounting a cylinder from the rod side.

- (m	m	ľ

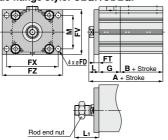
Bore size (mm)	Stroke	With auto s	hout switch	auto:	ith switch	В	P	С	D	Е	F		н			v				0	OA	ОВ	_			RB	_	v	_											
(mm)	range (mm)	Α	В	Α	В	Rc NPT	G	٦	ט	_	r	G	п	1	J	K	L	М	N	O OA		ОВ	Р	Q	HA	нв		v	_											
63	10 to 50	82	36	92	46	1/8	M5 x 0.8	15	20	77	40.5		M10 x 1.5	400	_	17	8	60	_	M8 x 1.25	15.6	14	1/4	53	16	4.2		40.5	10											
	75, 100	92	46	32	40	1/8	3.0 X CIVI	B.U X CIVI	8.U X CIVI	15	20	//	77 10.5	0.5 36	36 WIU X 1.3	103	′	17	8	60	9	INB X 1.25	depth 12	depth 10.5	1/4	53	16	4.2	1.6	10.5	19									
80	10 to 50	96.5	43.5	1065	53.5	06.5 53.5	06.5 53.5	06.5 53.5	06.5 53.5	3.5 53.5	3.5 53.5	8.5 53.5	3.5 53.5	5 53.5	5 53.5	53.5	1/8	3 1/8	21	25	00	10 5	12	M16 x 2.0	122	_	22	10	77		M10 x 1.5	19.6	17.5	3/8	59	16	4.2	١	18.5	26
80	75, 100	106.5	53.5	100.5	30.5	1/0	1/0	21	25	90	12.3	43	W110 X 2.U	132	0	22	10	//	- 11	W10 X 1.5	depth 15.5	depth 13.5	3/0	39	10	4.2	_	10.5	20											
100 ⊦	10 to 50	115	53	125	63	1/4	1/4	0.7		117	40	50	M20 x 2.5	450		27	12	94	۱.,	M10 x 1.5	19.6	17.5	3/8	73	16	4.2	_	23	26											
	75, 100	125	63	123	00	1/4	1/4	27	30	117	13	50	W2U X 2.5	100	0.5	21	12	94	_''	WIIU X I.5	depth 15.5	depth 13.5	3/8	/3	16	4.2	_	23	20											

Dimensions: Ø63, Ø80, Ø100

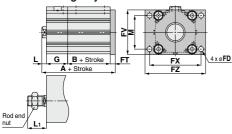
Foot style: CLQL/CDLQL



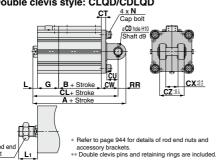
Rod side flange style: CLQF/CDLQF



Head Side flange style: CLQG/CDLQG



Double clevis style: CLQD/CDLQD



Foot Style (m												
Bore size	Stro	oke	Witho	ut auto	switch	With	auto s	witch	G	L		
(mm)	ran	ige	Α	В	LS	Α	В	LS	u	_		
63	10 to	10 to 50 1		36	48	110.2	46	58	38	18		
00	75, 100		110.2	46	58	110.2	40	30	30	10		
80	10 to	50	118	43.5	56.5	128	53.5	66.5	43	20		
80	75,	100	128	53.5	66.5		33.3	00.5	7	20		
100	10 to 50		138	53	69	148	63	79	50	22		
100	75,	100	148	63	79	140	63	/9	50			
Bore size (mm)	L ₁	L ₁ LD		LH	LT	LX	LY	LZ	х	Υ		
63	43.5	11	5	46	3.2	95	91.5	113	16.2	9		
80	53.5	53.5 13		59	4.5	118	114	140	19.5	11		
100	53.5	13	7	71	6	137	136	162	23	12.5		

Foot bracket material: Carbon steel Surface treatment: Nickel plated

CLJ2

CLM2 CLG1

CL1 MLGC CNG

MNB

CNA2 CNS

CLS

CLQ

RLQ MLU

MLGP

ML1C

	Rod Side Flange Style												
ĺ	Bore size	Stroke	Without a	uto switch	With aut	o switch	ר						
	(mm)	range	Α	В	Α	В	FD	FT					
	63	10 to 50	92	36	102	46	9	9					
	03	75, 100	102	46	102	40	9	"					
	90	10 to 50	106.5	43.5	116.5	53.5	11	11					
	80	75, 100	116.5	53.5	116.5	55.5		- 11					
	100	10 to 50	125	53	105								

100	75, 100		120	50	135	63	1 1	4
100			135	63	133	63	'	'
Bore size (mm)			FZ	G	L	L ₁	М	
63	80	92	108	38	18	43.5	60	-
80	99	116	134	43	20	53.5	77	
100	117	136	154	50	22	53.5	94	-

Flange bracket material: Carbon steel Surface treatment: Nickel plated

ļ	Head Side Flange Style													
ı	Bore size	Strol	ке	W	lithout au	ito switch	With a	uto swit	ch	FD		FT		
	(mm)	rang	je		Α	В	Α	В	В		4	ы		
	63	10 to	50		91	36	101	46	46			9		
	63	75, 1	100		101	46	101	46	70			9		
	80	10 to	10 to 50		107.5	43.5	117.5	5 53.	_	11		11		
	80	75, 1	75, 100		17.5	53.5	117.8) 55.	3	''		- 11		
	100	10 to	50	1	126	53	136	63		11	11			
	100	75, 1	00	1	136	63	130	63				- 11		
	Bore size (mm)	FV	FX	(FZ	G	L	L ₁		М				
	63	80	92	2 108		38	8	33.5	(30				
Ī	80	99	116	3 134		43	10	43.5	7	77				

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12 Flange bracket material: Carbon steel Surface treatment: Nickel plated

43.5

Head Side	e Fla	nge	Sty	le						(mm)
Bore size	Str	oke	Witho	ut auto	switch	With	auto s	witch		
(mm)	ran	ige	Α	В	CL	Α	В	CL	CD	СТ
63	10 t	10 to 50		36	112	136	46	122	14	8
03	75,	75, 100		46	122	130	40	122	14	٥
80	10 t	o 50	152.5	43.5	134.5	162.5	53.5	144.5	18	10
80	75,	100	162.5	53.5	144.5	102.3	33.3	144.5	18	10
100	10 t	o 50	182	53	160	192	63	170	22	13
	75,	100	192	63	170	192	03	170		13
Bore size (mm)	CU	cw	сх	cz	G	L	L ₁	١	١	RR
63	20	30	22	44	38	8	33.5	M8 x	1.25	14
80	27	38	28	56	43	10	43.5	M10	x 1.5	18
100	31	45	32	64	50	12	43.5	M10	x 1.5	22
Double clavic bracket material: Cast iron										

Double clevis bracket material: Cast iron Surface treatment: Painted



100

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D-□

-X□

Series CLQ Accessory Bracket Dimensions

Single Knuckle Joint

I-G02, I-G03

I-G04, I-G05 I-G08, I-G10

MM ONDно WM ONDно WM ONDно Ref Al UI L1 NX Al UI Al UI

Material: Rolled steel Surface treatment: Nickel plated

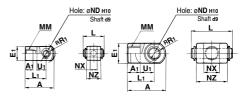
Material: Cast iron Surface treatment: Nickel plated

										(111111)
Part no.	Applicable bore size (mm)	Α	A 1	E1	Lı	ММ	RR1	U ₁	ND	NX
I-G02	20	34	8.5	□16	25	M8 x 1.25	10.3	11.5	8 ^{+0.058}	8 -0.2
I-G03	25	41	10.5	□20	30	M10 x 1.25	12.8	14	10 +0.058	10 -0.2
I-G04	32, 40	42	14	ø22	30	M14 x 1.5	12	14	10 +0.058	18 ^{-0.3} -0.5
I-G05	50, 63	56	18	ø28	40	M18 x 1.5	16	20	14 +0.070	22 -0.3
I-G08	80	71	21	ø38	50	M22 x 1.5	21	27	18 ^{+0.070}	28 -0.3
I-G10	100	79	21	ø44	55	M26 x 1.5	24	31	22 0 +0.084	32 -0.3

Double Knuckle Joint

Y-G02, Y-G03

Y-G04, Y-G05 Y-G08, Y-G10



Material: Rolled steel Surface treatment: Nickel plated Material: Cast iron Surface treatment: Nickel plated

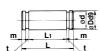
(mm)

Part no.	Applicable bore size (mm)	Α	A 1	E1	Lı	ММ	RR1	U ₁	ND
Y-G02	20	34	8.5	□16	25	M8 x 1.25	10.3	11.5	8 +0.058
Y-G03	25	41	10.5	□20	30	M10 x 1.25	12.8	14	10 +0.058
Y-G04	32, 40	42	16	ø22	30	M14 x 1.5	12	14	10 +0.058
Y-G05	50, 63	56	20	ø28	40	M18 x 1.5	16	20	14 +0.070
Y-G08	80	71	23	ø38	50	M22 x 1.5	21	27	18 +0.070
Y-G10	100	79	24	ø44	55	M26 x 1.5	24	31	22 +0.084

Part no.	Applicable bore size (mm)	NX	NZ	L	Applicable pin part no.
Y-G02	20	8 +0.4	16	21	IY-G02
Y-G03	25	10 +0.4	20	25.6	IY-G03
Y-G04	32, 40	18 +0.5	36	41.6	IY-G04
Y-G05	50, 63	22 +0.5	44	50.6	IY-G05
Y-G08	80	28 +0.5	56	64	IY-G08
Y-G10	100	32 +0.5	64	72	IY-G10

^{*} Knuckle pins and retaining rings are included.

Knuckle Pin (Common with double clevis pin)



Material: Carbon steel (mm)

Part no.	Applicable bore size (mm)	D	L	d	Lı	m	t	Applicable retaining ring
IY-G02	20	8 ^{-0.040} -0.076	21	7.6	16.2	1.5	0.9	Type C 8 for axis
IY-G03	25	10 -0.040	25.6	9.6	20.2	1.55	1.15	Type C 10 for axis
IY-G04	32, 40	10 -0.040	41.6	9.6	36.2	1.55	1.15	Type C 10 for axis
IY-G05	50, 63	14 -0.050	50.6	13.4	44.2	2.05	1.15	Type C 14 for axis
IY-G08	80	18 ^{-0.050} -0.093	64	17	56.2	2.55	1.35	Type C 18 for axis
IY-G10	100	22 -0.065	72	21	64.2	2.55	1.35	Type C 22 for axis

^{*} Retaining rings are included.

Rod End Nut



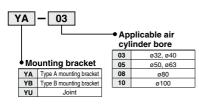


					(111111)
Part no.	Applicable bore size (mm)	d	н	В	С
NT-02	20	M8 x 1.25	5	13	15.0
NT-03	25	M10 x 1.25	6	17	19.6
NT-04	32, 40	M14 x 1.5	8	22	25.4
NT-05	50, 63	M18 x 1.5	11	27	31.2
NT-08	80	M22 x 1.5	13	32	37.0
NT-10	100	M26 x 1.5	16	41	47.3

Simple Joint: Ø32 to Ø100



Joint and Mounting Bracket (Type A, Type B) Part No.



Bore size	Joint	Applicable mo	ounting bracket
(mm)	Joint	Type A mounting bracket	Type B mounting bracket
32, 40	32, 40 YU-03		YB-03
50, 63	YU-05	YA-05	YB-05
80	YU-08	YA-08	YB-08
100	YU-10	YA-10	YB-10

Allowable Eccentricity

Allowable Eccentricity										
Bore size (mm)	32	40	50	63	80	100				
Eccentricity tolerance	ance ±1 ±1.5									
Backlash	0.5									

<Ordering>

Joints are not included with the A or B type mounting brackets.
 Order them separately.

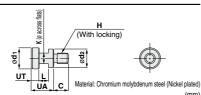
(Example)

Bore size ø40 Part no.

• Type A mounting bracket part number.....YA-03

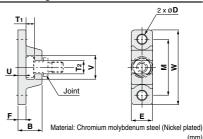
• Joint......YU-03

Joint



											()
ĺ	Part no.	Applicable bore size (mm)	UA	С	d1	d ₂	Н	к	L	UT	Weight (g)
	YU-03	32, 40	17	11	15.8	14	M8 x 1.25	8	7	6	25
	YU-05	50, 63	17	13	19.8	18	M10 x 1.5	10	7	6	40
	YU-08	80	22	20	24.8	23	M16 x 2	13	9	8	90
	YU-10	100	26	26	29.8	28	M20 x 2.5	14	11	10	160

Type A Mounting Bracket



								(
Part no.	Bore size (mm)	В	D	Е	F	М	T 1	T ₂
YA-03	32, 40	18	6.8	16	6	42	6.5	10
YA-05	50, 63	20	9	20	8	50	6.5	12
YA-08	80	26	11	25	10	62	8.5	16
YA-10	100	31	14	30	12	76	10.5	18

Part no.	Bore size (mm)	U	v	w	Weight (g)
YA-03	32, 40	6	18	56	55
YA-05	50, 63	8	22	67	100
YA-08	80	10	28	83	195
YA-10	100	12	36	100	340

Type B Mounting Bracket

Bore size

(mm)

32, 40

50.63

ደበ

Part no

YB-03

YB-05

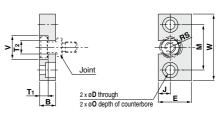
YB-08

B | D | E | J | M

12 7 25 9 34

12 9 32 11 42

16 | 11 | 38 | 13 | 52



Material: Stainless steel

O 11.5 depth 7.5 14.5 depth 8.5 18 depth 12

(mm)

10-10	100	19	14	30	17	02	21 00		pui 14
Part no.	Bore size (mm)	RS	1	1	T ₂		V	w	Weight (g)
YB-03	32, 40	9	6	6.5		10		50	80
YB-05	50, 63	11	6	.5	12		22	60	120
YB-08	80	14	8	.5	1	16		75	230
YB-10	100	18	10	.5	1	8	36	90	455

CLS

CLJ2 CLM2

CLG1

CL1

CNG

MNB

CNA2

CNS

CLQ RLQ

MLU

MLGP ML1C

D-□ -X□

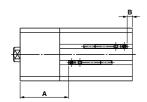
Series CLQ **Auto Switch Mounting 1**

Minimum Auto Switch Mounting Stroke

									(mm)
No. of auto switches mounted	D-M9□V D-F7□V D-J79C	D-A9□V D-A7□ D-A80 D-A73C D-A80C	D-A9□ D-M9□	D-M9□WV D-M9□AV D-F7□WV D-F7BAV	D-M9□W D-M9□A D-A7□H D-A80H D-F7□ D-J79	D-A79W	D-F7□W D-J79W D-F7BA D-F79F	D-P3DWA	D-P4DW
1 pc.	5	5	10	10	15	15	20	15	15
2 pcs.	5	10	10	15	15	20	20	15	15

Auto Switch Proper Mounting Position (Detection at Stroke End) and Its Mounting Height

ø20, ø25



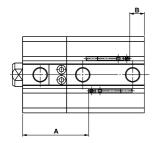
D-M9□ D-M9□W D-M9□A D-A9□



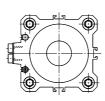
D-M9□V D-M9□WV D-M9□AV D-A9□V



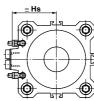
ø32 to ø100



D-M9□ D-M9□W D-M9□A D-A9□



D-M9□V D-M9□WV D-M9□AV D-A9□V

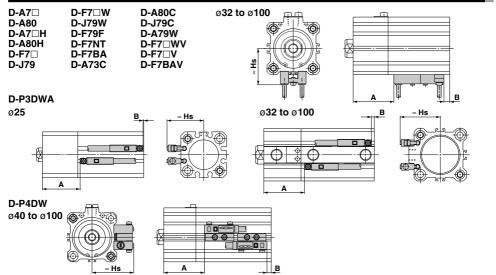


Auto Switch Proper Mounting Position (mm)

Auto Switch Proper Woulding Position (mm)									
Auto switch model	D-M9 D-M9 D-M9 D-M9 D-M9 D-M9	□V □W □WV	D-As D-As						
(mm)	Α	В	Α	В					
20	37	7.5	33	3.5					
25	42	9.5	38	5.5					
32	44	9	40	5					
40	50	11.5	46	7.5					
50	49	14.5	45	10.5					
63	54.5	17.5	50.5	13.5					
80	63.5	21	59.5	17					
100	74	27	70	23					

Auto Switch Mounting Height (mm)								
Auto switch model Bore size	D-M9□V D-M9□WV D-M9□AV	D-A9□V						
(mm)	Hs	Hs						
20	25	22.5						
25	27	24.5						
32	29	27						
40	32.5	30.5						
50	38.5	36.5						
63	42	40						
80	52	50						
100	62	60						

Auto Switch Proper Mounting Position (Detection at Stroke End) and Its Mounting Height



Auto Switch	Auto Switch Proper Mounting Position (mm)											
Auto switch model		A73 A80	D-A72/A7□H D-A80H/A73C D-A80C/F7BAV D-F7BA/F79F D-F7□W/F7□ D-J79/F7□V D-J79C/J79W D-F7□WV		H 3C BAV 9F 7 D-F7NT		D-A79W		D-P3DWA		D-P4DW	
(mm)	Α	В	Α	В	Α	В	Α	В	Α	В	Α	В
20	_	_	_	_	_	_	_	_	_	_	_	_
25	_	_	_	_	_	_	_	_	37.5	5	_	_
32	41	6	41.5	6.5	46.5	11.5	38.5	3.5	39.5	4.5	_	_
40	47	8.5	47.5	9	52.5	14	44.5	6	45.5	7	43	4.5
50	46	11.5	46.5	12	51.5	17	43.5	9	44.5	10	42	7.5
63	51.5	14.5	52	15	57	20	49	12	50	13	47.5	10.5
80	60.5	18	61	18.5	66	23.5	58	15.5	59	16.5	56.5	14
100	71	24	71.5	24.5	76.5	29.5	68.5	21.5	69.5	22.5	67	20

Note 1) Adjust the auto switch after confirming the operating conditions in the actual setting. Note 2) For bore sizes ø32 to ø50, the D-P3DWA is mountable only on the port side.

Auto Switch	Auto Switch Mounting Height (mm)									
Auto switch model	D-A7□ D-A80	D-A7 H D-A80H D-F7 D-J79 D-F7 W D-J79W D-F7BA D-F79F D-F7NT	D-A73C D-A80C	D-F7□V D-F7□WV D-F7BAV	D-J79C	D-A79W	D-P3DWA	D-P4DW		
(mm)	Hs	Hs	Hs	Hs	Hs	Hs	Hs	Hs		
20	_	_	_	_	_	_	_	_		
25	_	_	_	_	_	_	33	_		
32	31.5	32.5	38.5	35	38	34	35.5	_		
40	35	36	42	38.5	41.5	37.5	39	44		
50	41	42	48	44.5	47.5	43.5	45	50		
63	47.5	48.5	54.5	51	54	50	48.5	56.5		
80	57.5	58.5	64.5	61	64	60	58.5	66.5		
100	67.5	68.5	74.5	71	74	70	68.5	76.5		

D-□ -X□

CLJ2 CLM2

CLG1

CL1 MLGC

CNG MNB

CNA2

CNS

CLS

CLQ RLQ

MLU MLGP

ML1C

Series CLQ Auto Switch Mounting 2

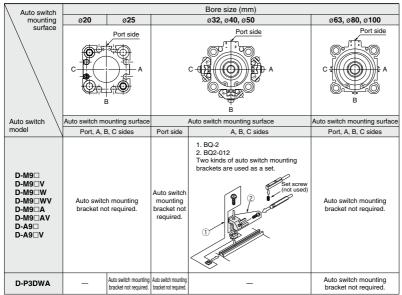
Operating Range

								(mm)	
Auto switch model	Bore size (mm)								
Auto switch model	20	25	32	40	50	63	80	100	
D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV	4.5	4.5	5	5	6	6.5	6.5	7.5	
D-A9□/A9□V	10	10	9.5	9.5	9.5	11.5	9	11.5	
D-A7□/F7□H D-A73C D-A80/A80H D-A80C	_	_	12	11	10	12	12	13	
D-A79W	_	_	13	14	14	16	15	17	
D-F7□/F7□V D-J79/J79C D-F7□W/F7□WV D-J79W D-F7BA/F7BAV D-F7NT/F79F	_	_	6	6	6	6.5	6.5	7	
D-P3DWA	_	5	6	6	7.5	6.5	6.5	7.5	
D-P4DW	_	_	_	5	5	5	5	5.5	

^{*} Since this is a guideline including hysteresis, not meant to be guaranteed. (Assuming approximately ±30% dispersion)

There may be the case it will vary substantially depending on an ambient environment.

Auto Switch Mounting Bracket: Part No.



Note 1) For each cylinder series, when a compact auto switch is mounted on the three sides (A, B and C above) other than the port side of bore sizes o32 to o50, the auto switch mounting brackets above are required. Order them separately from cylinders.

(It is the same as when mounting compact cylinders with an auto switch mounting rail, but not with ø63 to ø100 compact auto switch installation groove.)

Example order CDLQB32-50-M9BW 1 unit

BQ-2 2 pcs.

BQ2-012 2 pcs.

Note 2) Auto switch mounting brackets and auto switches are shipped together with cylinders.

^{*} Auto switch mounting brackets BQ2-012 are not used for sizes over ø32 of D-A9\(\to V)/M9\(\to V)/

The above values indicate the operating range when mounted with the conventional auto switch installation groove.

Auto Switch Mounting $Series \ CLQ$

Auto Switch Mounting Bracket: Part. No.

Auto switch model	Bore size (mm)							
Auto switch model	25	32	40	50	63	80	100	
D-A7□/A80 D-A73C/A80C D-A7□H/A80H D-A79W D-F7□J/79 D-F7□W/J79C D-J79C D-F7□WV D-F7□WV D-F7BA/F7BAV D-F79F/F7NT	_			ВС)-2			
D-P4DW	-	_		BQP	1-050			

Note 1) Auto switch mounting brackets and auto switches are shipped together with cylinders.

[Mounting screw set made of stainless steel]

The following set of mounting screws made of stainless steel (including nuts) is available. Use it in accordance with the operating environment. (Please order BQ-2 separately, since the auto switch spacer (for BQ-2) is not included.)

BBA2: For D-A7/A8/F7/J7 types

Water resistant auto switches, D-F7BA/F7BAV are set on the cylinder with the stainless steel screws above when shipped. When an auto switch is shipped independently, BBA2 is attached.

Note 1) Refer to page 1993 for the details of BBA2.

Note 2) When mounting D-M9□A(V) on a port other than the ports for o32, e40 and o50, order auto switch mounting brackets BO2-012S, BQ-2 and stainless steel screw set BBA2 separately.

Auto Switch Mounting Bracket Weight

Auto switch mounting bracket part no.	Weight (g)
BQ-2	1.5
BQ2-012	5
BQP1-050	16

Other than the applicable auto switches listed in "How to Order", the following auto switches can be mounted. For details, refer to pages 1893 to 2007.

Auto switch type	Model	Electrical entry (Fetching direction)	Features	
	D-A73	Grommet (Perpendicular)	_	
Reed	D-A80	Grommet (Perpendicular)	Without indicator light	
neeu	D-A73H, A76H	Grommet (In-line)	_	
	D-A80H	Gronninet (III-IIIIe)	Without indicator light	
	D-F7NV, F7PV, F7BV		_	
	D-F7NWV, F7BWV	Grommet (Perpendicular)	Diagnostic indication(2-color indication)	
	D-F7BAV		Water resistant (2-color indication)	
Solid state	D-F79, F7P, J79		_	
Solid State	D-F79W, F7PW, J79W		Diagnostic indication(2-color indication)	
	D-F7BA	Grommet (In-line)	Water resistant (2-color indication)	
	D-F7NT		With timer	
	D-P5DW		Magnetic field resistant (2-color indication)	

- * For solid state auto switches, auto switches with a pre-wired connector are also available. Refer to pages 1960 and 1961 for details.
- * Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H types) are also available. Refer to page 1911 for details.
- * D-A7/A8/F7/J7 types cannot be mounted on ø20 and ø25.

CLJ2

CLM2

CLG1

CL1

MLGC

CNG MNB

CNA2

CNS

CLS

CLQ RLO

MIU

MLGP ML1C

D-□ -X□

