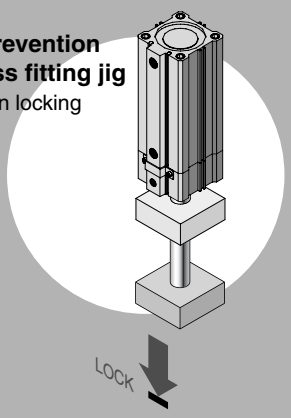
Compact Cylinder with Lock

Series CLQ

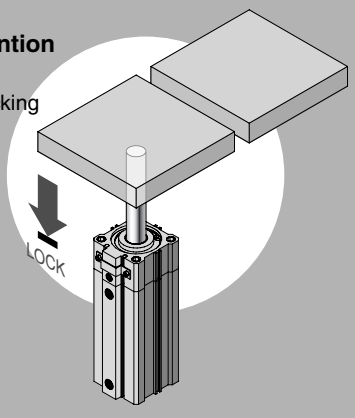
ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

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

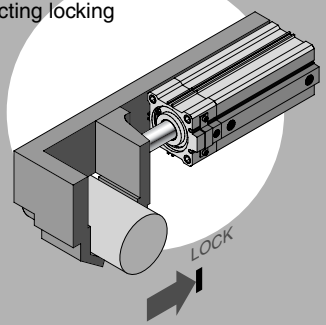
Drop prevention for press fitting jig
Extension locking



Drop prevention for lifter
Retracting locking



Holding a clamped condition
Retracting locking



Series CLQ Compact Cylinder with Lock

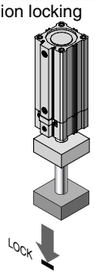
ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

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.**

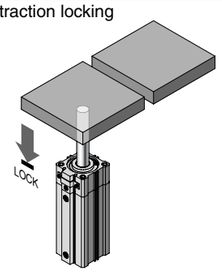
Drop prevention for press fitting jig

Extension locking



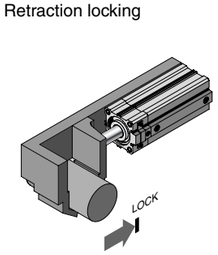
Drop prevention for lifter

Retraction locking

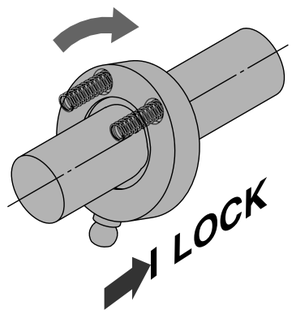


Holding a clamped condition

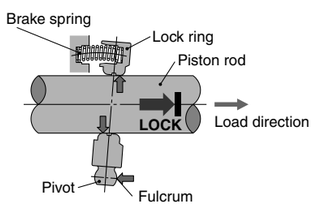
Retraction locking



Simple Construction/Simple and reliable locking type



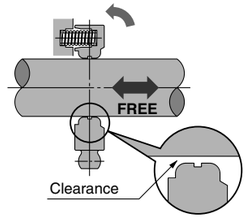
Locked



Unlocking port: Air exhausted

1. The lock ring is tilted by the spring force.
2. The tilting is increased by the load and the piston rod is securely locked.

Unlocked



Unlocking port: Air supplied

1. The lock ring becomes perpendicular to the piston, creating clearance between the piston rod and lock ring, which allows the piston rod to move freely.

Low profile with compact lock unit

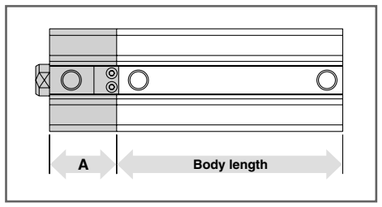
- Lock unit length

  27 mm to 50 mm

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

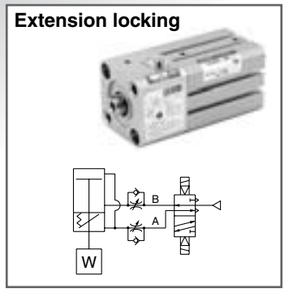
Thickness of Lock Unit (mm)

Bore size (mm)	A
20	27
25	31
32	32
40	34
50	35
63	38
80	43
100	50

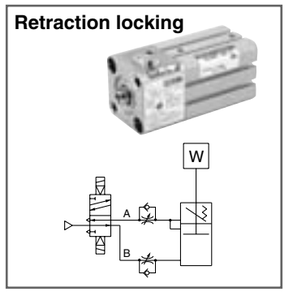


Locking direction is selectable

Extension locking

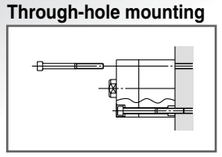


Retraction locking

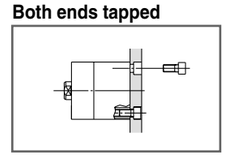


Two types of mounting

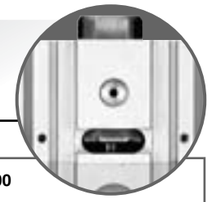
Through-hole mounting



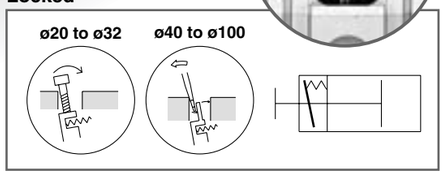
Both ends tapped



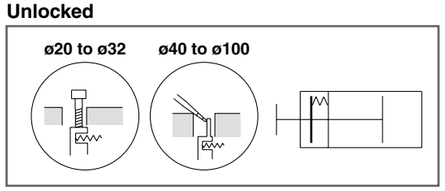
Easy manual unlocking



Locked



Unlocked



Wide Size Variations from ø20 to ø100

Series	Mounting	Locking direction	Bore size (mm)	Standard stroke (mm)											
				5	10	15	20	25	30	35	40	45	50	75	100
CLQ	Through-hole/ Both ends tapped common	Extension locking	20	●	●	●	●	●	●	●	●	●	●		
			25	●	●	●	●	●	●	●	●	●	●		
	Through-hole		32		●	●	●	●	●	●	●	●	●	●	●
		Retraction locking	40		●	●	●	●	●	●	●	●	●	●	●
	Both ends tapped style		50		●	●	●	●	●	●	●	●	●	●	●
			63		●	●	●	●	●	●	●	●	●	●	●
			80		●	●	●	●	●	●	●	●	●	●	●
			100		●	●	●	●	●	●	●	●	●	●	●

Series CLQ
Specific Product Precautions 1

Be sure to read before handling.
Refer to front matters 42 and 43 for Safety Instructions and pages 3 to 11 for Actuator and Auto Switch Precautions.

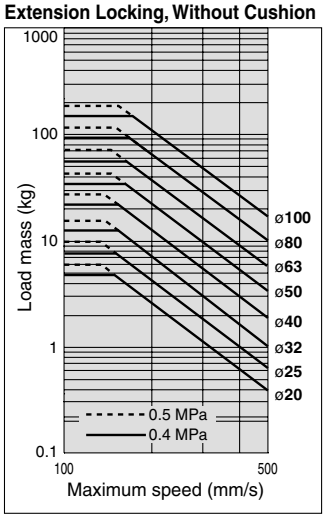
Selection

⚠ Warning

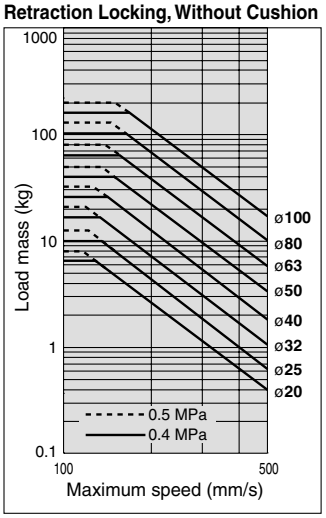
1. **The holding force (max. static load) indicates the maximum capability to hold a static load without vibration and impact. The maximum load in a locked state should be below 50 % of the holding force (max. static load).**
   Refer to 6 when the kinetic energy of the workpiece is absorbed at the cylinder 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.
3. **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.
4. **Even when locked, there may be stroke movement up to 1 mm in the locking direction due to external forces such as the weight of the workpiece.**
   Even when locked, if air pressure drops, stroke movement up to 1 mm may be generated in the locking direction of the lock mechanism due to external forces such as the workpiece weight.
5. **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)

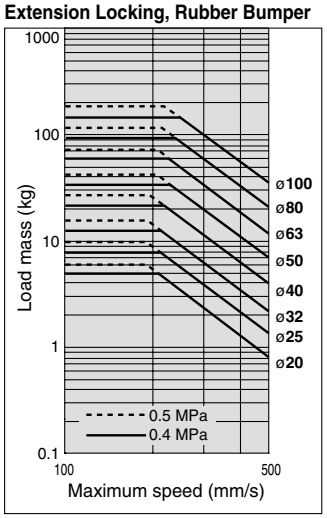
Extension Locking, Without Cushion



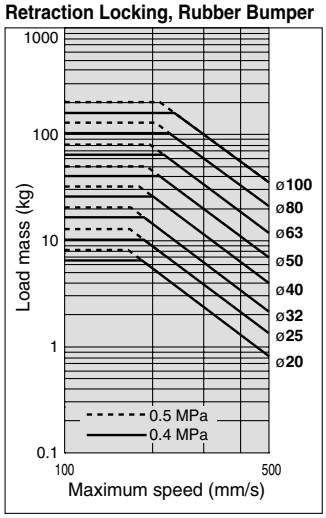
Retraction Locking, Without Cushion



Extension Locking, Rubber Bumper

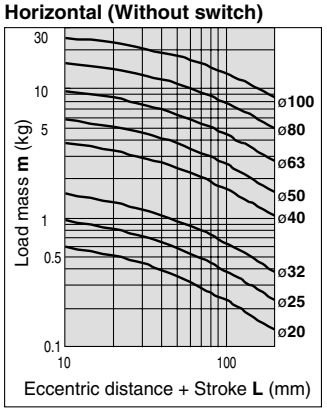


Retraction Locking, Rubber Bumper

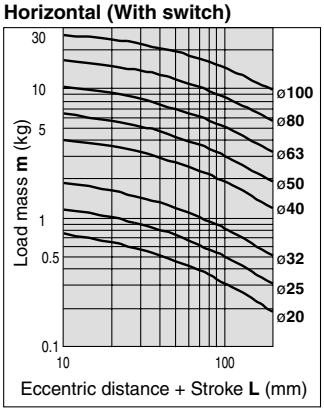


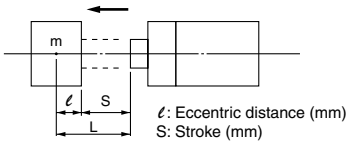
Allowable Load Mass

Horizontal (Without switch)



Horizontal (With switch)





Series CLQ
Specific Product Precautions 2

Be sure to read before handling.
Refer to front matters 42 and 43 for Safety Instructions and pages 3 to 11 for Actuator and Auto Switch Precautions.

Pneumatic Circuit

⚠ Warning

• Drop prevention circuit

1. 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.

5. Be aware of reverse exhaust pressure flow from common exhaust type valve manifolds. (Circuit example 1)
Since the lock may be released due to reverse exhaust pressure flow, use an individual exhaust type manifold or single type valve.

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.

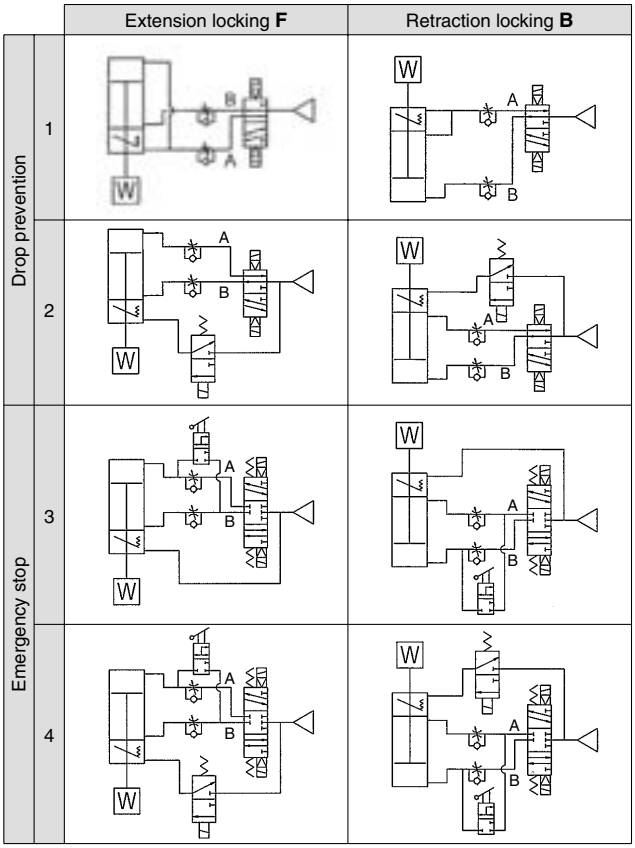
7. Be aware that the locking action may be delayed due to the piping length or the timing of exhaust. (Circuit example 2)
The locking action may be delayed due to the piping length or the timing of exhaust, which also makes the stroke movement toward the lock larger. Install the solenoid valve for locking closer to the cylinder than the cylinder drive solenoid valve.

• Emergency stop circuit

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.

2. 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 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.



Mounting

⚠ Caution

1. 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.

Series CLQ
Specific Product Precautions 3

Be sure to read before handling.
Refer to front matters 42 and 43 for Safety Instructions and pages 3 to 11 for Actuator and Auto Switch Precautions.

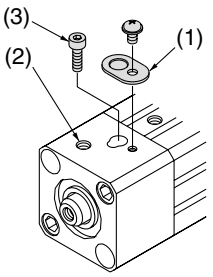
Preparing for Operation

⚠ 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 ø 32 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 2.5).

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

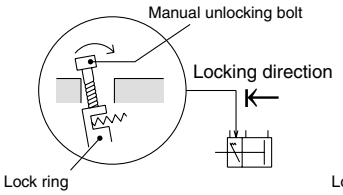
Manually Unlocking

⚠ Warning

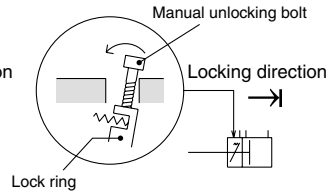
1. Do not perform unlocking while an external force such as a load or spring force is being applied.
This is very dangerous because the cylinder will move suddenly.
Release the lock after preventing cylinder movement with a lifting device such as a jack.

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.

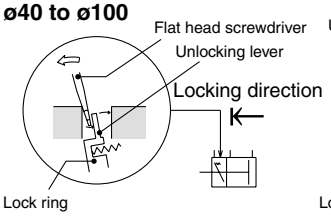


Retraction locking
1) Remove the dust cover.
2) Screw a manual unlocking bolt (a bolt of M3 x 0.5 x 15 ℓ or more commercially available) into the lock ring threads as shown above, and lightly push the bolt in the direction of the arrow (rod side) to unlock.

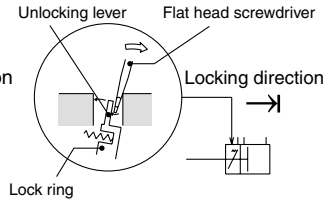
Manually Unlocking

⚠ Warning

ø40 to ø100



Extension locking
1) 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
1) 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.

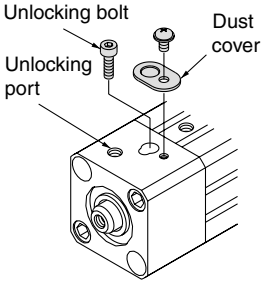
3. Never disassemble the lock unit.
It contains a heavy duty spring which is dangerous and there is also a danger of reducing the locking performance.

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".

Compact Cylinder with Lock
Double Acting, Single Rod
Series CLQ
ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

How to Order

CLQ B 40 □ – 30 D □ – F – □

With auto switch **CDLQ B 40 □ – 30 D □ – F – M9BW □ –** □

With auto switch
(Built-in magnet)

Mounting style

ø20, ø25		ø32 to ø100	
B	Through-hole/ Both ends tapped common (Standard)	**B**	Through-hole (Standard)
L	Foot style	**A**	Both ends tapped style
F	Rod side flange style	**L**	Foot style
G	Head side flange style	**F**	Rod side flange style
D	Double clevis style	**G**	Head side flange style
		D	Double clevis style

∗ Mounting bracket is shipped together, (but not assembled).

Bore size

20	20 mm	**50**	50 mm
25	25 mm	**63**	63 mm
32	32 mm	**80**	80 mm
40	40 mm	**100**	100 mm

Auto switch

Nil	Without auto switch

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

Locking direction

F	Extension locking
B	Retraction locking

Number of auto switches

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

Body option

Nil	Standard (Rod end female thread)
C	With rubber bumper
M	Rod end male thread
CM	With rubber bumper, Rod end male thread

Action

D	Double acting

Made to Order
Refer to page 817 for details.

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) CDLQL32-30D-B

Port thread type

Nil	Rc,M (ø20, ø25)
TN	NPT
TF	G

Cylinder stroke (mm)
For "Standard strokes" and "Manufacture of Intermediate of Stroke", refer to page 817.

Applicable Auto Switch/Refer to pages 1719 to 1827 for detailed specifications of auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Perpendicular ø20, ø25	Perpendicular ø32 to ø100	In-line ø20, ø25	In-line ø32	In-line ø40 to ø100	Lead wire length (m): 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NV		M9N			●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			M9PV		M9P			●	●	●	○	—	○		
				2-wire	12V		M9BV		M9B			●	●	●	○	—	○	—	
		Connector					—	J79C	—			●	—	●	●	●	—		
	Diagnostic indication (2-color indication)	Grommet		3-wire (NPN)	5 V, 12 V		M9NWV		M9NW			●	●	●	○	—	○	IC circuit	
				3-wire (PNP)			M9PWV		M9PW			●	●	●	○	—	○		
				2-wire	12 V		M9BWV		M9BW			●	●	●	○	—	○	—	
	Water resistant (2-color indication)			3-wire (NPN)	5 V, 12 V		M9NAV		M9NA			○	○	●	○	—	○	IC circuit	
				3-wire (PNP)			M9PAV		M9PA			○	○	●	○	—	○		
				2-wire	12 V		M9BAV		M9BA			○	○	●	○	—	○	—	
	With diagnostic output (2-color indication)			4-wire	5 V,12 V		—		—		F79F	●	—	●	○	—	○	IC circuit	
	Magnetic field resistant (2-color indication)			2-wire (Non-polar)	—		—		—		P4DW	—	—	●	●	—	○	—	
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	— 5 V	—	A96V		A96			●	—	●	—	—	—	IC circuit	—
				2-wire	—	200V	—	A72	—		A72H	●	—	●	—	—	—	—	Relay, PLC
			None		12 V	100V	A93V		A93			●	—	●	—	—	—		
			None		24 V 5 V,12 V	100 V or less	A90V		A90			●	—	●	—	—	—	IC circuit	
		Connector	Yes		12 V	—	—	A73C	—			●	—	●	●	●	—	—	
			None		5 V,12 V	24 V or less	—	A80C	—			●	—	●	●	●	—	IC circuit	
	Diagnostic indication (2-color indication)	Grommet	Yes		—	—	—	A79W	—			●	—	●	—	—	—	—	

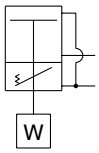
∗ Lead wire length symbols: 0.5 m ····· Nil (Example) M9NW
1 m ····· M (Example) M9NWM
3 m ····· L (Example) M9NWL
5 m ····· Z (Example) M9NWZ
None ····· N (Example) J79CN

∗ Solid state auto switches marked with "○" are produced upon receipt of order.
∗ D-P4DWL is compatible with ø40 to ø100.
∗ D-P4DW is assembled at the time of shipment.

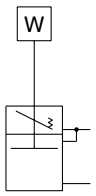
∗ Since there are other applicable auto switches than listed, refer to page 837 for details.
∗ For details about auto switches with pre-wired connector, refer to pages 1784 and 1785.
∗ When D-A9□(V)/M9□(V)/M9□W(V)/M9□A(V)L types with ø32 to ø50 are mounted on a side other than the port side, order auto switch mounting brackets separately. Refer to page 836 for details.
∗ When mounting brackets (foot/head side flange/double clevis style) are used, then in some cases auto switches cannot be retrofitted.

JIS Symbol

Extension locking



Retraction locking



Made to Order Specifications
(For details, refer to pages 1836 and 1926.)

Symbol	Specifications
—XA□	Change of rod end shape
—XC35	With coil scraper (ø40 to ø100 only)

Refer to pages 834 to 837 for cylinders with auto switches.

- Minimum auto switch mounting stroke
- Proper auto switch mounting position (detection at stroke end) and mounting height
- Operating range
- Switch mounting bracket: Part no.

Cylinder Specifications

Bore size (mm)	20	25	32	40	50	63	80	100
Action	Double acting, Single rod							
Fluid	Air							
Proof pressure	1.5 MPa							
Maximum operating pressure	1.0 MPa							
Minimum operating pressure	0.2 MPa Note 1)							
Ambient and fluid temperature	Without auto switch: –10 to 70°C (No freezing) With auto switch: –10 to 60°C (No freezing)							
Lubrication	Non-lube							
Piston speed	50 to 500 mm/s							
Stroke length tolerance	$^{+1.0}_{0}$ 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 locking (Exhaust locking)							
Unlocking pressure		0.2 MPa or more							
Lock starting pressure		0.05 MPa or less							
Locking direction		One direction (Either extension locking or retraction locking)							
Unlocking port size	**Rc**	M5 x 0.8		1/8					1/4
	NPT	—							
	G			M5 x 0.8				1/8	1/4
Holding force (N)		157	245	402	629	982	1559	2513	3927
(Maximum static load)		Equivalent to 0.5 MPa							

Note) Be sure to select cylinders referring page 812.

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 standard stroke body.	
Part no.	Refer to "How to Order" for the standard model no. on page 816.	
Method	Dealing with the stroke by the 1 mm interval is available by installing spacer with standard stroke cylinder.	
Stroke range	Bore size (mm)	Stroke range (mm)
	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 increments from 55 to 95 mm.

Mounting Bracket Part No.

Bore size (mm)	Foot (1)	Flange	Double clevis (3)
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.
Note 3) Clevis pin and retaining ring are included with the double clevis style.

Theoretical Output

(N)

Bore size (mm)	Operating direction	Operating pressure (MPa)		
		0.3	0.5	0.7
20	IN	71	118	165
	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
	OUT	377	628	880
50	IN	495	825	1150
	OUT	589	982	1370
63	IN	841	1400	1960
	OUT	935	1560	2180
80	IN	1360	2270	3170
	OUT	1510	2510	3520
100	IN	2140	3570	5000
	OUT	2360	3930	5500

Mass

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

(g)

Bore size (mm)	Standard stroke (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 Mass: Mounting/Both Ends Tapped (Type A)

(g)

Bore size (mm)	Standard stroke (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 Mass

(g)

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
	Nut	4	8	17	17	32	32	49	116
With rubber bumper		–2	–3	–3	–7	–9	–18	–31	–56
Foot style (Including mounting bolt)		152	174	137	149	221	288	638	1009
Rod side flange style (Including mounting bolt)		127	149	174	208	351	523	998	1307
Head side flange style (Including mounting bolt)		121	140	159	192	326	498	959	1251
Double clevis style (Including pin, snap ring, bolt and flat washer)		76	111	145	190	373	518	1064	1839

Calculation: (Example) **CDLQD32-20DCM-B**
- Basic mass : CLQA32-20D-□.....453 g
- Additional mass: Magnet..... 64 g
  Rod end male thread.....43 g
  With rubber bumper..... –3 g
  Double clevis.....145 g

  702 g

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

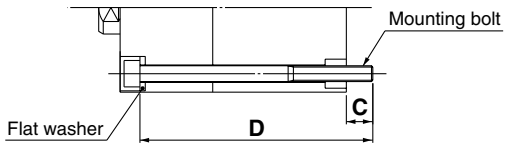
Auto Switch Mounting Bracket Mass

Auto Switch mounting bracket part no.	Applicable bore size (mm)	mass (g)
BQ-2	ø32 to ø100	1.5
BQ2-012	ø32 to ø100	5
BQP1-050	ø40 to ø100	16

For the auto switch mass, refer to page 1719.
Refer to pages 836 and 837 for applicable auto switch mounting brackets.

Mounting Bolt for C□LQB

Mounting method: Mounting bolt for through-hole mounting style of C□LQB is available as an option.
Ordering: Add the word "Bolt" in front of the bolts to be used.
Example) Bolt M6 x 90 L 4 pcs.



Note) When mounting ø50 to ø100 cylinders from the rod side, be sure to use the attached flat washers because the bearing surface is limited.

CLQB: Without Auto Switch

Cylinder model	C	D	Mounting bolt size
CLQB20-5D	10.5	55	M5 x 55 L
-10D		60	x 60 L
-15D		65	x 65 L
-20D		70	x 70 L
-25D		75	x 75 L
-30D		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	8.5	60	M5 x 60 L
-10D		65	x 65 L
-15D		70	x 70 L
-20D		75	x 75 L
-25D		80	x 80 L
-30D		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	C	D	Mounting bolt size
CLQB32-10D	7	65	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		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	8.5	75	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		100	x 100 L
-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	C	D	Mounting bolt size
CLQB50-10D	12.5	80	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		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	16.5	90	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		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

Cylinder model	C	D	Mounting bolt size
CLQB80-10D	17	100	M10 x 100 L
-15D		105	x 105 L
-20D		110	x 110 L
-25D		115	x 115 L
-30D		120	x 120 L
-35D		125	x 125 L
-40D		130	x 130 L
-45D		135	x 135 L
-50D		140	x 140 L
-75D		175	x 175 L
-100D		200	x 200 L
CLQB100-10D	15.5	115	M10 x 115 L
-15D		120	x 120 L
-20D		125	x 125 L
-25D		130	x 130 L
-30D		135	x 135 L
-35D		140	x 140 L
-40D		145	x 145 L
-45D		150	x 150 L
-50D		155	x 155 L
-75D		190	x 190 L
-100D		215	x 215 L

CDLQB: Without Auto Switch

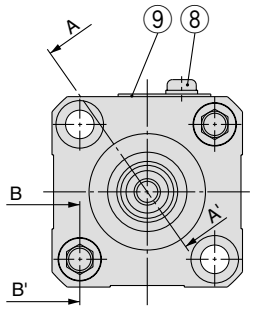
Cylinder model	C	D	Mounting bolt size
CDLQB20-5D	10.5	65	M5 x 65 L
-10D		70	x 70 L
-15D		75	x 75 L
-20D		80	x 80 L
-25D		85	x 85 L
-30D		90	x 90 L
-35D		95	x 95 L
-40D		100	x 100 L
-45D		105	x 105 L
-50D		110	x 110 L
CDLQB25-5D	8.5	70	M5 x 70 L
-10D		75	x 75 L
-15D		80	x 80 L
-20D		85	x 85 L
-25D		90	x 90 L
-30D		95	x 95 L
-35D		100	x 100 L
-40D		105	x 105 L
-45D		110	x 110 L
-50D		115	x 115 L

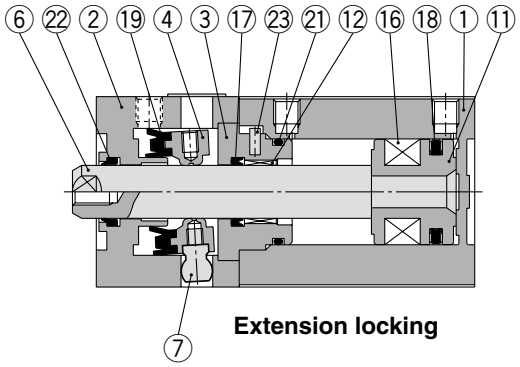
Cylinder model	C	D	Mounting bolt size
CDLQB32-10D	7	75	M5 x 75 L
-15D		80	x 80 L
-20D		85	x 85 L
-25D		90	x 90 L
-30D		95	x 95 L
-35D		100	x 100 L
-40D		105	x 105 L
-45D		110	x 110 L
-50D		115	x 115 L
-75D		140	x 140 L
-100D		165	x 165 L
CDLQB40-10D	8.5	85	M5 x 85 L
-15D		90	x 90 L
-20D		95	x 95 L
-25D		100	x 100 L
-30D		105	x 105 L
-35D		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 L

Cylinder model	C	D	Mounting bolt size
CDLQB50-10D	12.5	90	M6 x 90 L
-15D		95	x 95 L
-20D		100	x 100 L
-25D		105	x 105 L
-30D		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	16.5	100	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		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		190	x 190 L

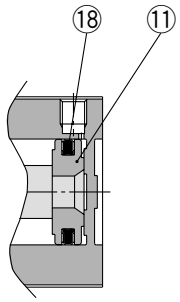
Cylinder model	C	D	Mounting bolt size
CDLQB80-10D	17	110	M10 x 110 L
-15D		115	x 115 L
-20D		120	x 120 L
-25D		125	x 125 L
-30D		130	x 130 L
-35D		135	x 135 L
-40D		140	x 140 L
-45D		145	x 145 L
-50D		150	x 150 L
-75D		175	x 175 L
-100D		200	x 200 L
CDLQB100-10D	15.5	125	M10 x 125 L
-15D		130	x 130 L
-20D		135	x 135 L
-25D		140	x 140 L
-30D		145	x 145 L
-35D		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

Construction: ø20 to ø32

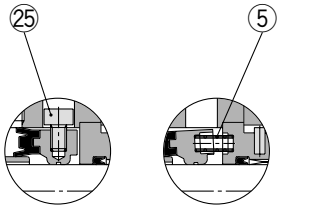




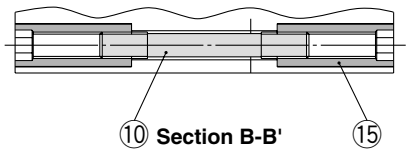
Extension locking



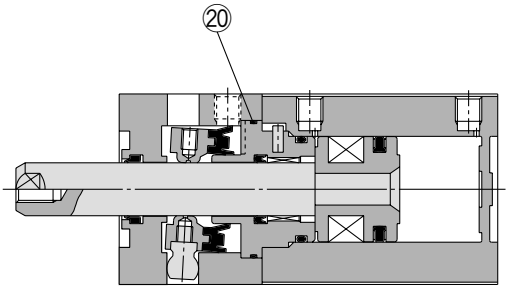
Without magnet



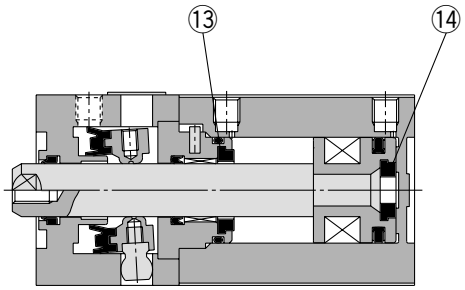
When shipped Section A-A'



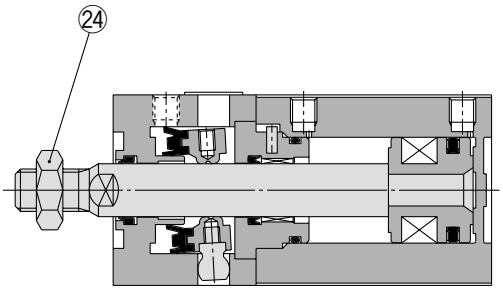
Section B-B'



Retraction locking



With bumper



Rod end male thread

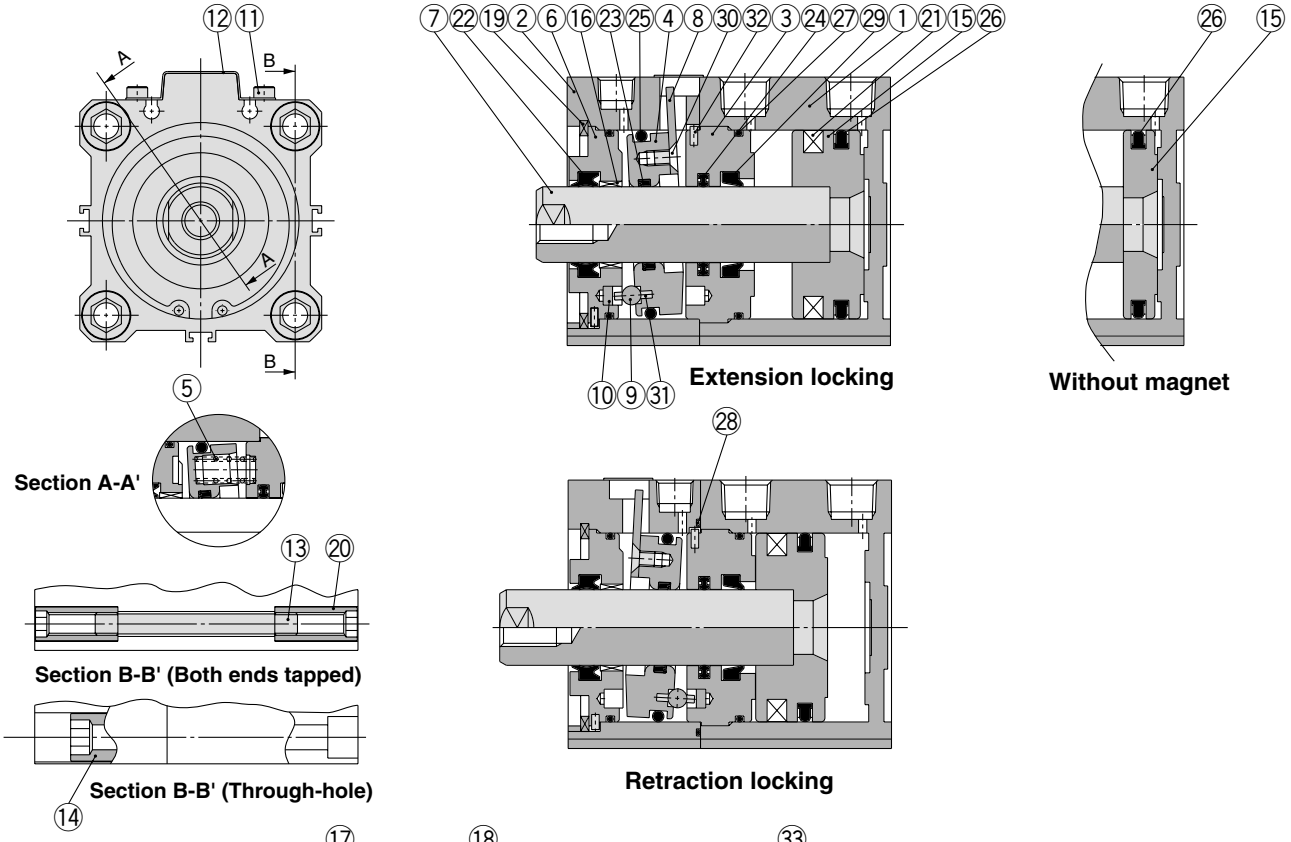
Note) The sectional drawing above shows the locked condition. (A bolt is used to maintain the cylinder in the unlocked condition when shipped.)

Component Parts

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

No.	Description	Material	Note
12	**Bushing**	Oil-impregnated sintered alloy	ø20, 25
		Copper alloy	ø32
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	Nickel plated
25	**Unlocking bolt**	Chromium molybdenum steel	Nickel plated

Construction: ø40 to ø100



Component Parts

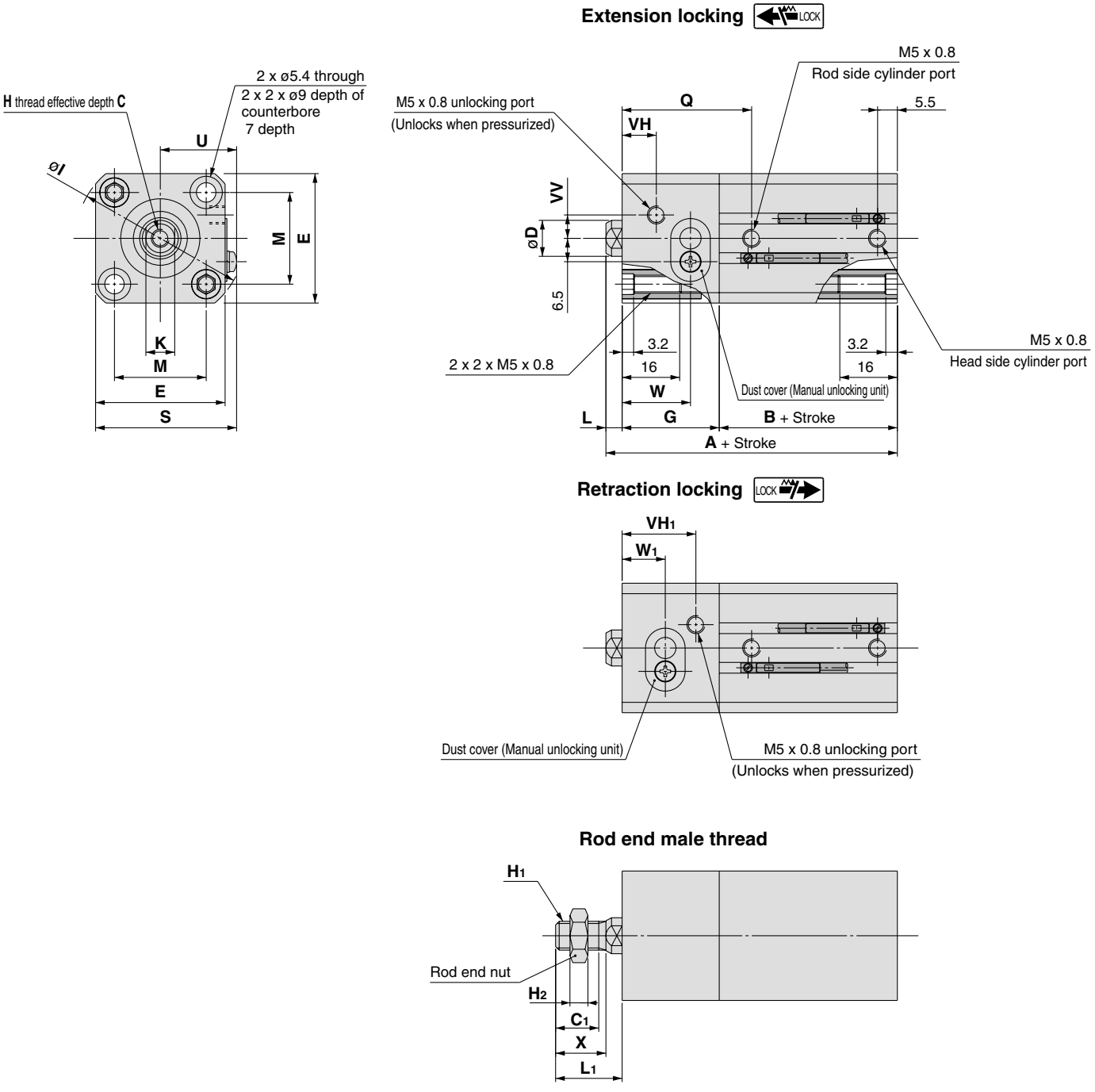
No.	Description	Material	Note
1	**Cylinder tube**	Aluminum alloy	Hard anodized
2	**Lock body**	Aluminum alloy	Hard anodized
3	**Intermediate collar**	Aluminum alloy	Chromated
4	**Lock ring**	Carbon steel	Heat treated
5	**Brake spring**	Steel wire	Zinc chromated
6	**Collar**	Aluminum bearing alloy	ø40: Hard anodized
		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	Nickel plated
12	**Dust cover**	Rolled steel	Nickel plated
13	**Tie-rod**	Rolled steel	ø40, Zinc chromated
		Carbon steel	ø50 or larger, Zinc chromated
14	**Unit holding bolt**	Carbon steel	Nickel plated
15	**Piston**	Aluminum alloy	Chromated
16	**Bushing**	Copper alloy	For ø50 or larger only

Note) The sectional drawing above shows the locked 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	Nickel plated
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 head screw**	Chromium molybdenum steel	Nickel plated
31	**Spring pin**	Carbon steel	JIS B 2808
32	**Parallel pin**	Stainless steel	JIS B 1354
33	**Rod end nut**	Carbon steel	Nickel plated

Dimensions: ø20, ø25

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



(mm)

Bore size (mm)	Stroke range	Without auto switch		With auto switch		C	D	E	G	H	I	K	L	M	Q	S	U	VH	VV	W
		A	B	A	B															
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)	VH_1	W_1
20	20.5	12
25	23	14.5

Rod End Male Thread (mm)

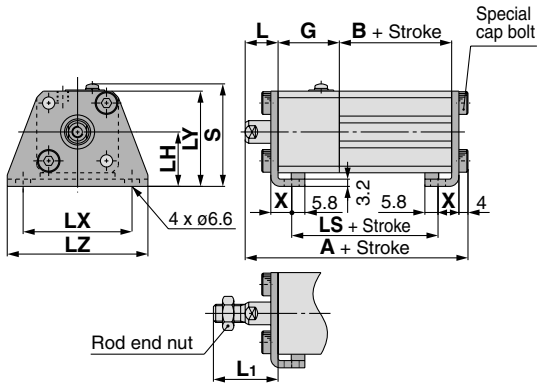
Bore size (mm)	C_1	X	H_1	H_2	L_1
20	12	14	M8 x 1.25	5	18.5
25	15	17.5	M10 x 1.25	6	22.5

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

∗∗ Refer to page 832 for details of rod end nuts and accessory brackets.

Dimensions: ø20, ø25

Foot style: CLQL/CDLQL

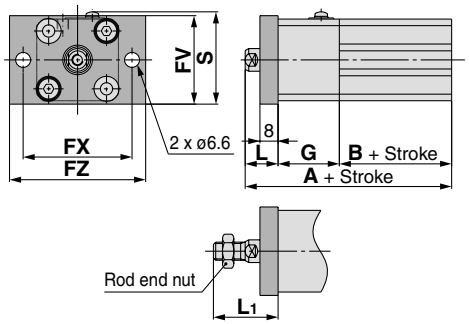


Foot Style (mm)

Bore size (mm)	Stroke range	Without auto switch			With auto switch		
		A	B	LS	A	B	LS
20	5 to 50	68.2	19.5	34.5	78.2	29.5	44.5
25	5 to 50	75.7	22.5	38.5	85.7	32.5	48.5

Bore size (mm)	G	L	L1	LH	LX	LY	LZ	S	X
20	27	14.5	28.5	24	48	42	62	45.2	9.2
25	31	15	32.5	26	52	46	66	49.2	10.7

Rod side flange style: CLQF/CDLQF

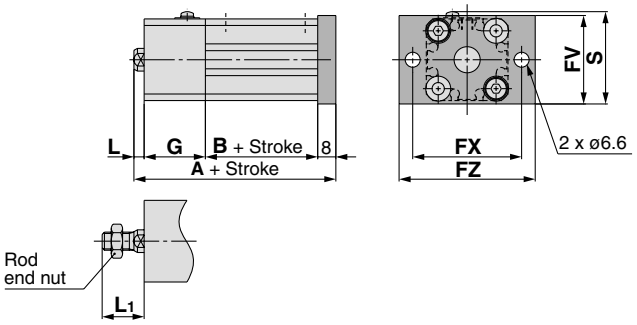


Rod Side Flange Style (mm)

Bore size (mm)	Stroke range	Without auto switch		With auto switch	
		A	B	A	B
20	5 to 50	61	19.5	71	29.5
25	5 to 50	68.5	22.5	78.5	32.5

Bore size (mm)	FV	FX	FZ	G	L	L1	S
20	39	48	60	27	14.5	28.5	40.7
25	42	52	64	31	15	32.5	44.2

Head side flange style: CLQG/CDLQG

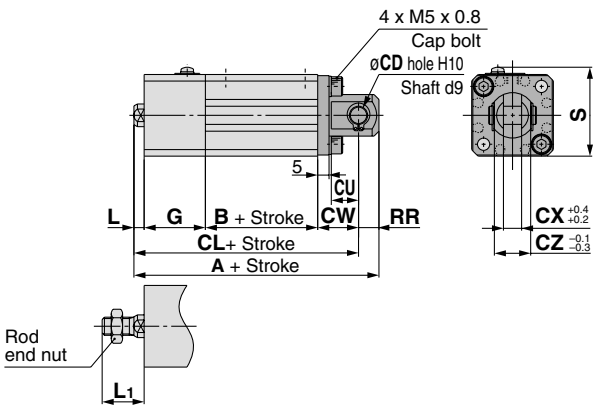


Head Side Flange Style (mm)

Bore size (mm)	Stroke range	Without auto switch		With auto switch	
		A	B	A	B
20	5 to 50	59	19.5	69	29.5
25	5 to 50	66.5	22.5	76.5	32.5

Bore size (mm)	FV	FX	FZ	G	L	L1	S
20	39	48	60	27	4.5	18.5	40.7
25	42	52	64	31	5	22.5	44.2

Double clevis style: CLQD/CDLQD



Double Clevis Style (mm)

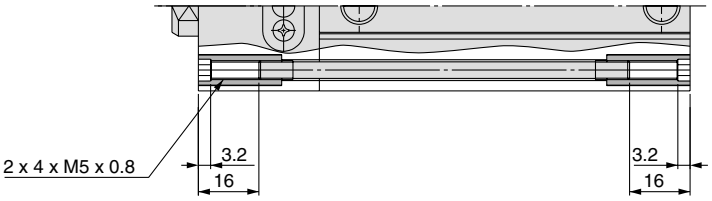
Bore size (mm)	Stroke range	Without auto switch			With auto switch		
		A	B	CL	A	B	CL
20	5 to 50	78	19.5	69	88	29.5	79
25	5 to 50	88.5	22.5	78.5	98.5	32.5	88.5

Bore size (mm)	CD	CU	CW	CX	CZ	G	L	L1	RR	S
20	8	12	18	8	16	27	4.5	18.5	9	39.2
25	10	14	20	10	20	31	5	22.5	10	43.2

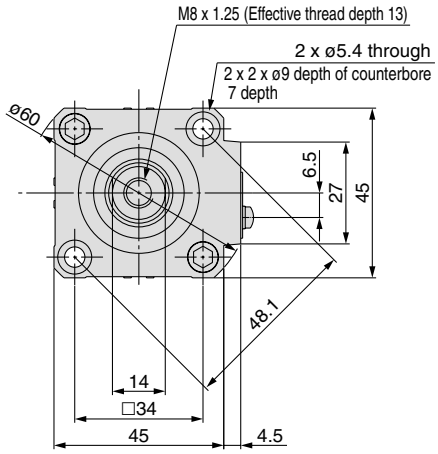
∗ Refer to page 832 for details of rod end nuts and accessory brackets.
∗∗ Double clevis pins and retaining rings are included.

Dimensions: ø32

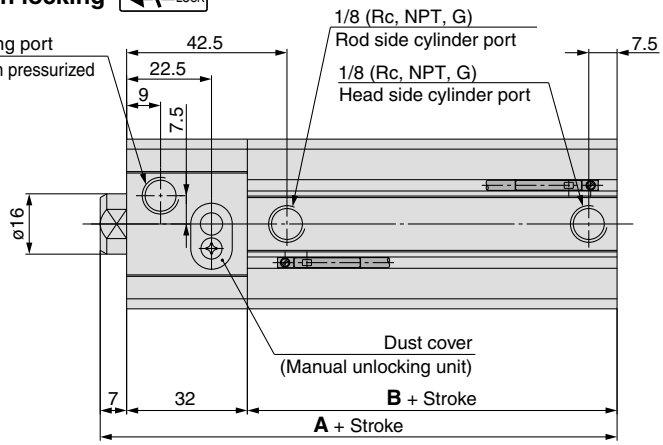
Both ends tapped style: C□LQA32



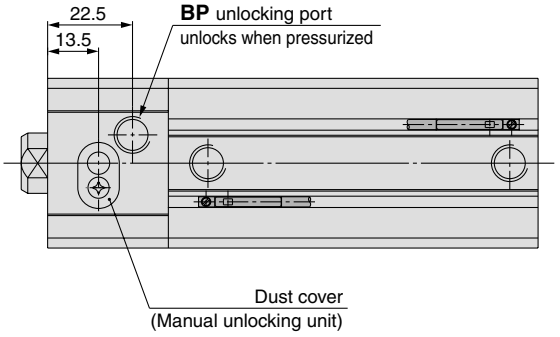
Basic style (Through-hole): C□LQB32



Extension locking



Retraction locking



(mm)

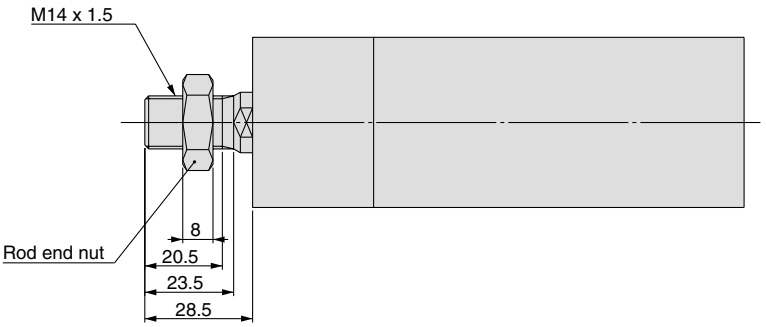
Bore size (mm)	Stroke range	Without auto switch		With auto switch	
		A	B	A	B
32	10 to 50	62	23	72	33
	75, 100	72	33		

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

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

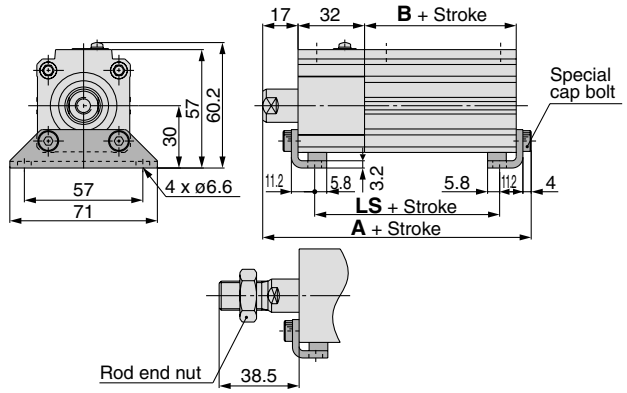
∗∗ Refer to page 832 for details of rod end nuts and accessory brackets.

Rod end male thread



Dimensions: ø32

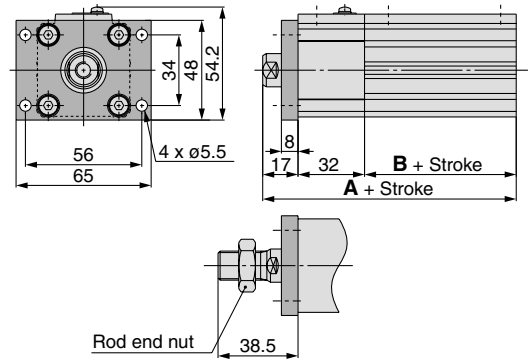
Foot style: C□LQL32



Foot Style (mm)

Bore size (mm)	Stroke range	Without auto switch			With auto switch		
		A	B	LS	A	B	LS
32	10 to 50	79.2	23	39	89.2	33	49
	75, 100	89.2	33	49			

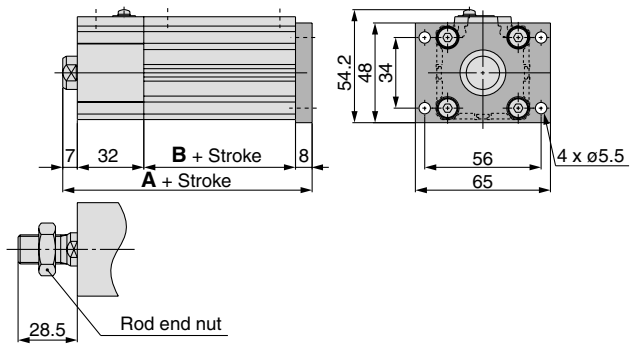
Rod side flange style: C□LQF32



Rod Side Flange Style (mm)

Bore size (mm)	Stroke range	Without auto switch		With auto switch	
		A	B	A	B
32	10 to 50	72	23	82	33
	75, 100	82	33		

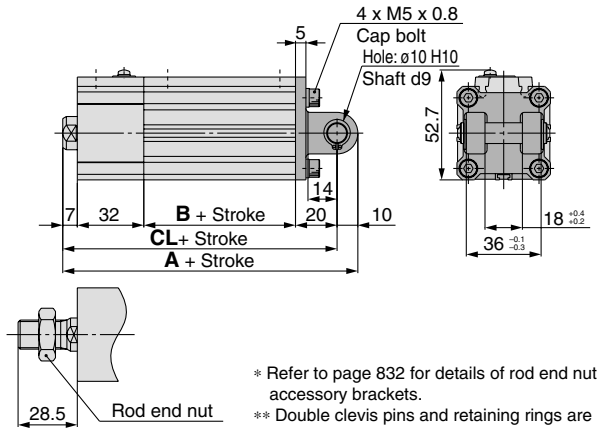
Head Side flange style: C□LQG32



Head Side Flange Style (mm)

Bore size (mm)	Stroke range	Without auto switch		With auto switch	
		A	B	A	B
32	10 to 50	70	23	80	33
	75, 100	80	33		

Double clevis style: C□LQD32



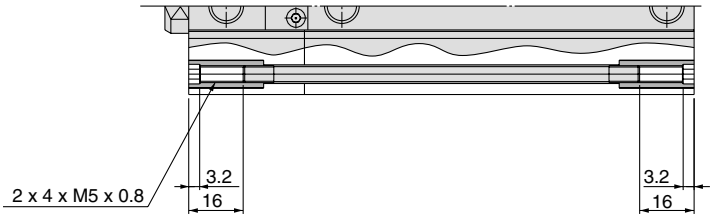
Double Clevis Style (mm)

Bore size (mm)	Stroke range	Without auto switch			With auto switch		
		A	B	CL	A	B	CL
32	10 to 50	92	23	82	102	33	92
	75, 100	102	33	92			

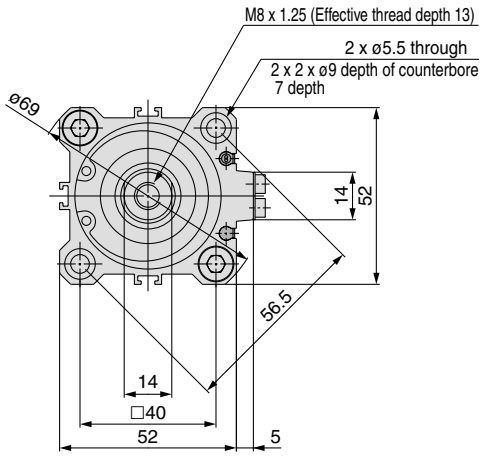
∗ Refer to page 832 for details of rod end nuts and accessory brackets.
∗∗ Double clevis pins and retaining rings are included.

Dimensions: ø40

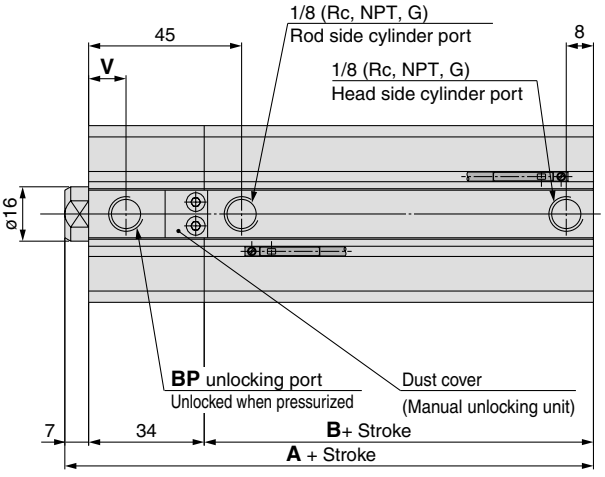
Both ends tapped style: C□LQA40



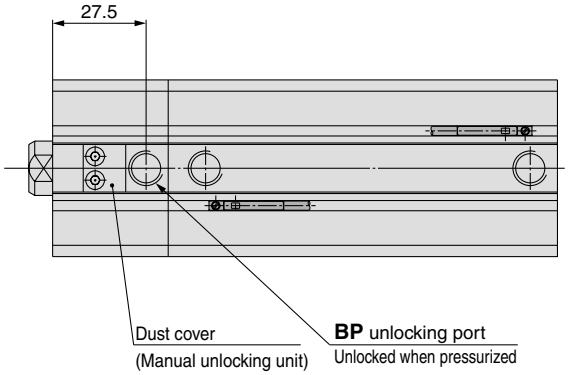
Basic style (Through-hole): C□LQB40



Extension locking



Retraction locking



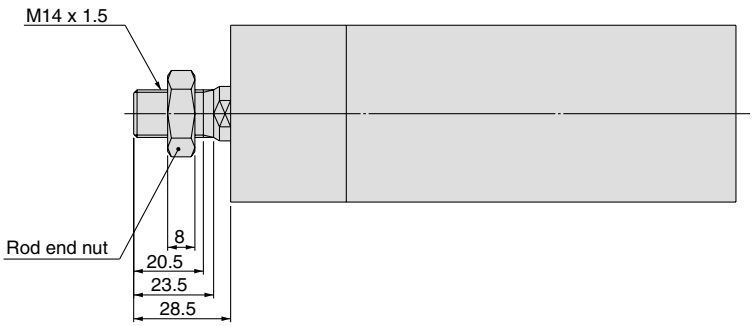
A, B Dimensions (mm)

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch	
		A	**B**	**A**	**B**
40	10 to 50	70.5	29.5	80.5	39.5
	75, 100	80.5	39.5		

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

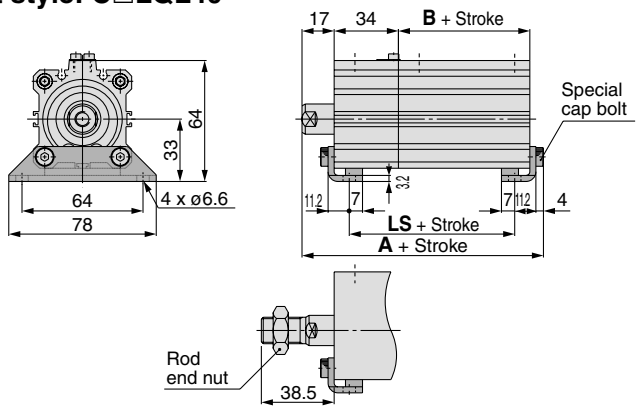
∗ Dimensions for cylinders with a rubber bumper are the same as the standard type above.
∗∗ Refer to page 832 for details of rod end nuts and accessory brackets.

Rod end male thread



Dimensions: ø40

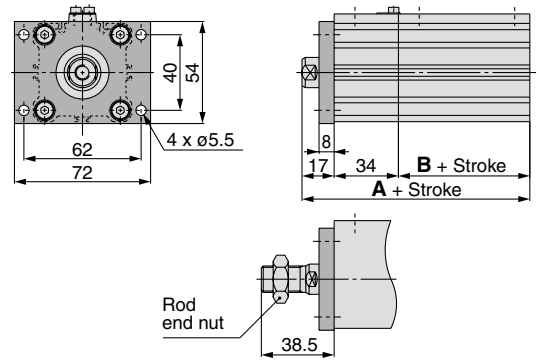
Foot style: C□LQL40



Foot Style (mm)

Bore size (mm)	Stroke range	Without auto switch			With auto switch		
		A	B	LS	A	B	LS
40	10 to 50	87.7	29.5	47.5	97.7	39.5	57.5
	75, 100	97.7	39.5	57.5			

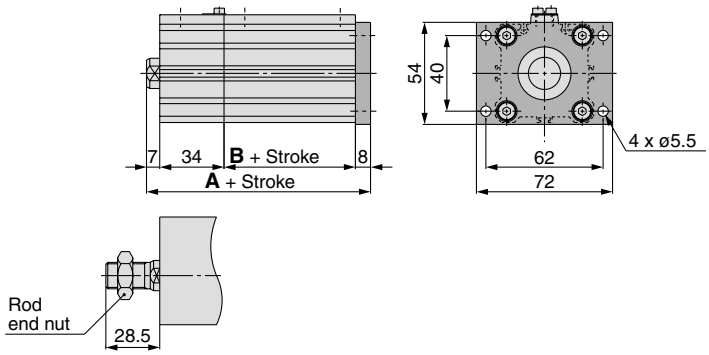
Rod side flange style: C□LQF40



Rod Side Flange Style (mm)

Bore size (mm)	Stroke range	Without auto switch		With auto switch	
		A	B	A	B
40	10 to 50	80.5	29.5	90.5	39.5
	75, 100	90.5	39.5		

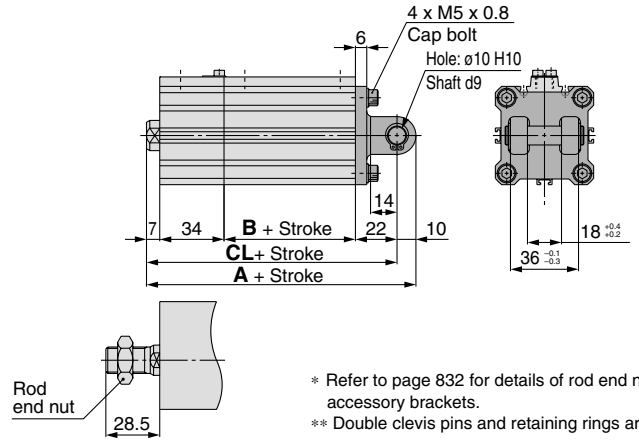
Head Side flange style: C□LQG40



Head Side Flange Style (mm)

Bore size (mm)	Stroke range	Without auto switch		With auto switch	
		A	B	A	B
40	10 to 50	78.5	29.5	88.5	39.5
	75, 100	88.5	39.5		

Double clevis style: C□LQD40



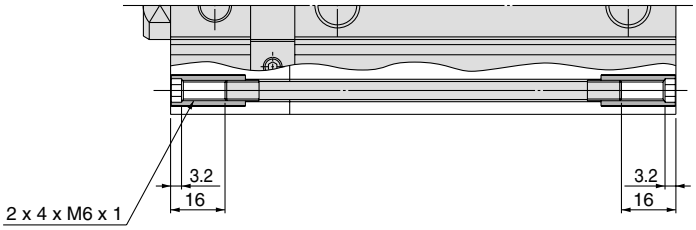
Double Clevis Style (mm)

Bore size (mm)	Stroke range	Without auto switch			With auto switch		
		A	B	CL	A	B	CL
40	10 to 50	102.5	29.5	92.5	112.5	39.5	102.5
	75, 100	112.5	39.5	102.5			

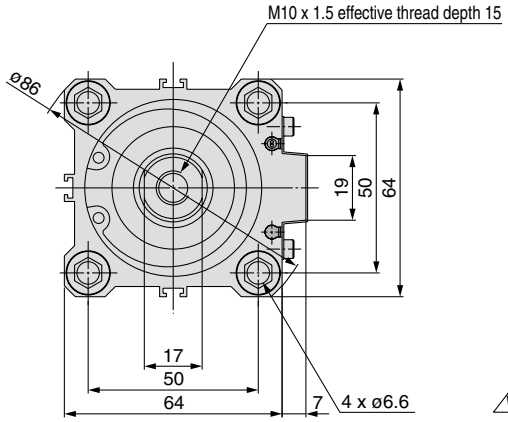
∗ Refer to page 832 for details of rod end nuts and accessory brackets.
∗∗ Double clevis pins and retaining rings are included.

Dimensions: ø50

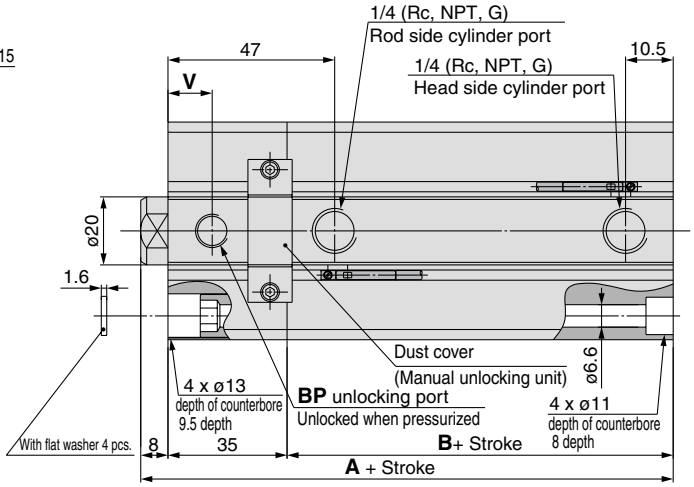
Both ends tapped style: C□LQA50



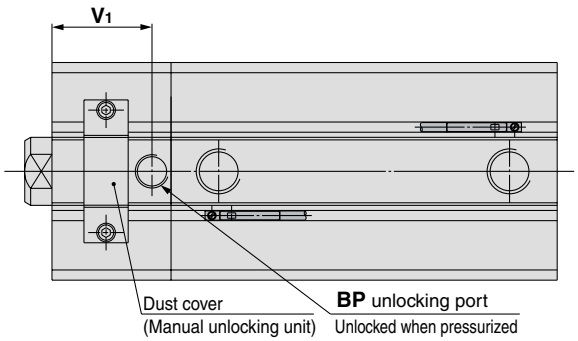
Basic style (Through-hole): C□LQB50



Extension locking



Retraction locking



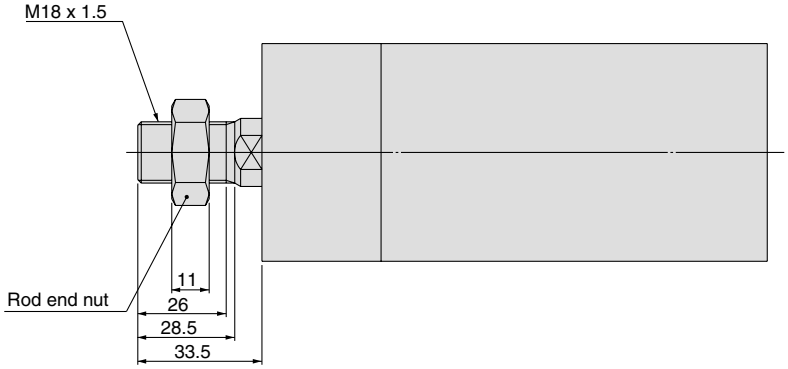
A, B Dimensions (mm)

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch	
		A	B	A	B
50	10 to 50	73.5	30.5	83.5	40.5
	75, 100	83.5	40.5		

Port thread type	BP	V	V1
Rc	1/8	13	28
NPT			
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 832 for details of rod end nuts and accessory brackets.

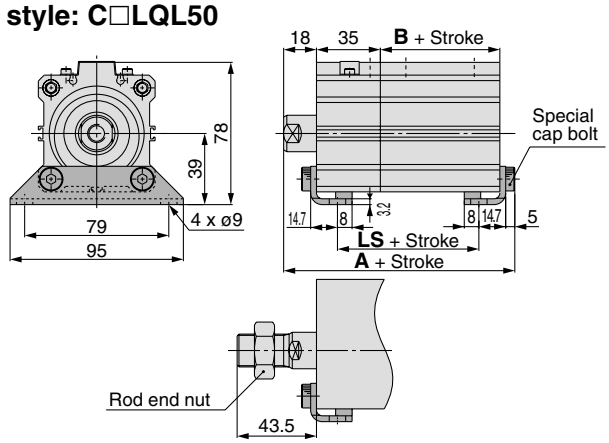
Rod end male thread



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

Dimensions: ø50

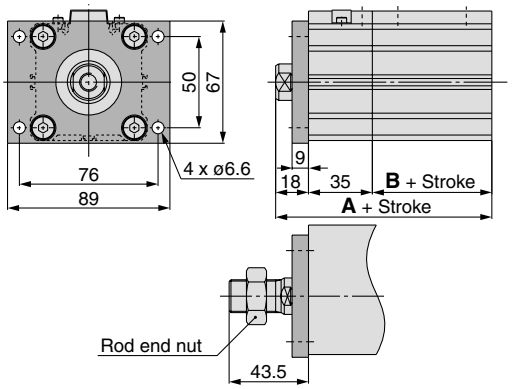
Foot style: C□LQL50



Foot Style (mm)

Bore size (mm)	Stroke range	Without auto switch			With auto switch		
		A	B	LS	A	B	LS
50	10 to 50	91.7	30.5	42.5	101.7	40.5	52.5
	75, 100	101.7	40.5	52.5			

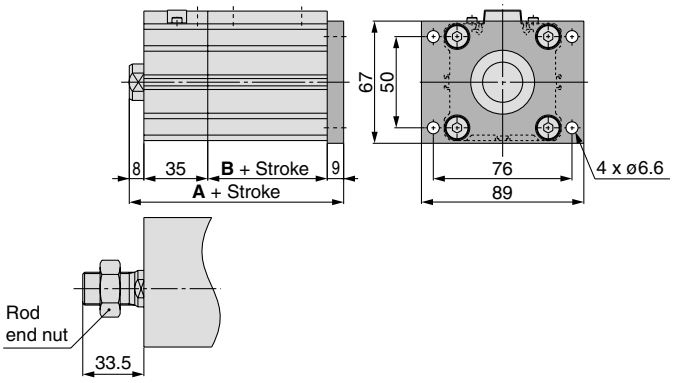
Rod side flange style: C□LQF50



Rod Side Flange Style (mm)

Bore size (mm)	Stroke range	Without auto switch		With auto switch	
		A	B	A	B
50	10 to 50	83.5	30.5	93.5	40.5
	75, 100	93.5	40.5		

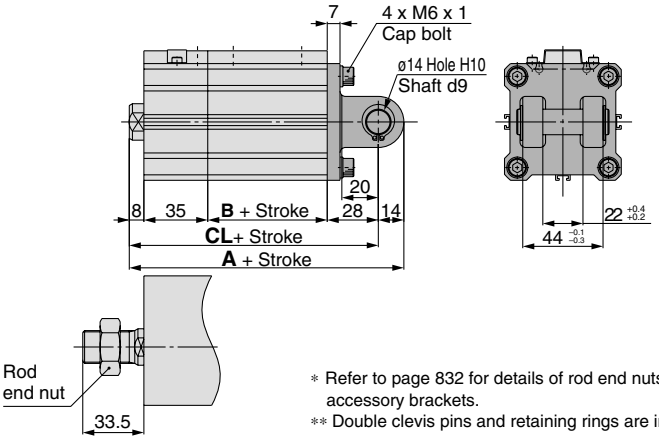
Head Side flange style: C□LQG50



Head Side Flange Style (mm)

Bore size (mm)	Stroke range	Without auto switch		With auto switch	
		A	B	A	B
50	10 to 50	82.5	30.5	92.5	40.5
	75, 100	92.5	40.5		

Double clevis style: C□LQD50



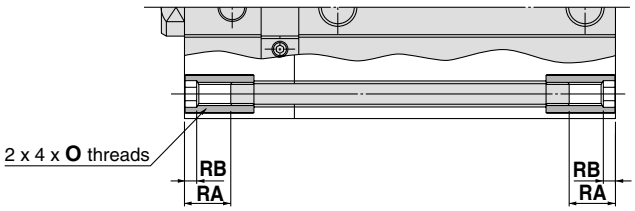
Double Clevis Style (mm)

Bore size (mm)	Stroke range	Without auto switch			With auto switch		
		A	B	CL	A	B	CL
50	10 to 50	115.5	30.5	101.5	125.5	40.5	111.5
	75, 100	125.5	40.5	111.5			

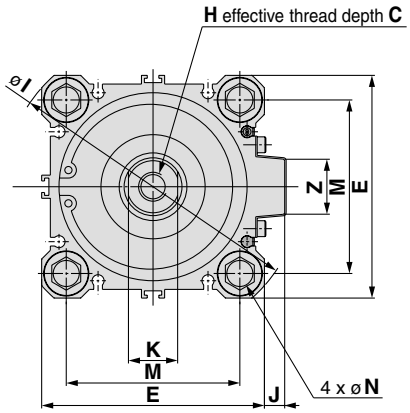
∗ Refer to page 832 for details of rod end nuts and accessory brackets.
∗∗ Double clevis pins and retaining rings are included.

Dimensions: ø63, ø80, ø100

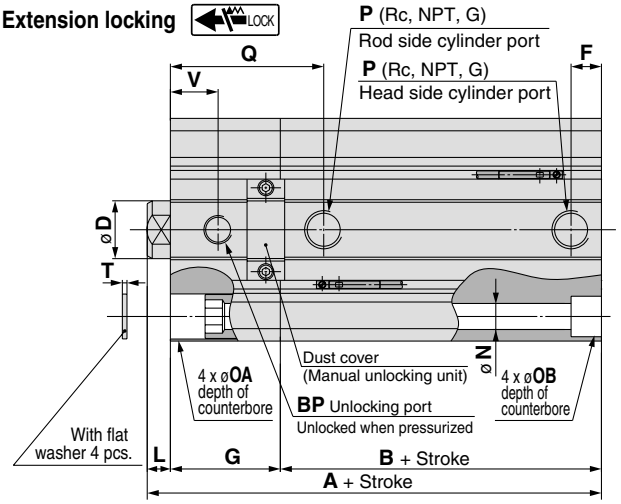
Both ends tapped style: C□LQA63/80/100



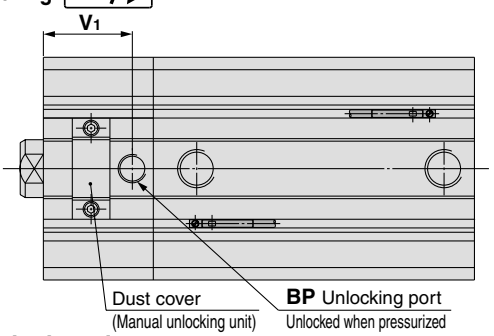
Basic style (Through-hole): C□LQB63/80/100



Extension locking



Retraction locking

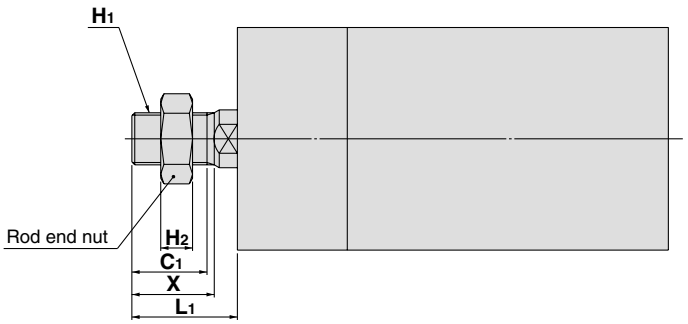


Retraction Locking

(mm)

Bore size (mm)	V1		
	Rc	NPT	G
63	30.5		33
80	35.5		37.7
100	40.5		41.5

Rod end male thread



Rod End Male Thread

(mm)

Bore size (mm)	C1	X	H1	H2	L1
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 832 for details of rod end nuts and accessory brackets.

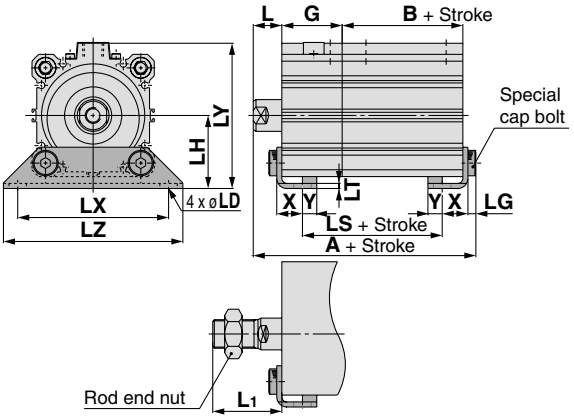
Note) Be sure to use the attached flat washers when mounting a cylinder from the rod side.

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		BP			C	D	E	F	G	H	I	J	K	L	M	N	O	OA	OB	P	Q	RA	RB	T	V	Z
		A	B	A	B	Rc	NPT	G																						
63	10 to 50	82	36	92	46	1/8	M5 x 0.8		15	20	77	10.5	38	M10 x 1.5	103	7	17	8	60	9	M8 x 1.25	15.6 depth 12	14 depth 10.5	1/4	53	16	4.2	1.6	16.5	19
	75, 100	92	46																											
80	10 to 50	96.5	43.5	106.5	53.5	1/8	1/8		21	25	98	12.5	43	M16 x 2.0	132	6	22	10	77	11	M10 x 1.5	19.6 depth 15.5	17.5 depth 13.5	3/8	59	16	4.2	2	18.5	26
	75, 100	106.5	53.5																											
100	10 to 50	115	53	125	63	1/4	1/4		27	30	117	13	50	M20 x 2.5	156	6.5	27	12	94	11	M10 x 1.5	19.6 depth 15.5	17.5 depth 13.5	3/8	73	16	4.2	2	23	26
	75, 100	125	63																											

Dimensions: ø63, ø80, ø100

Foot style: CLQL/CDLQL

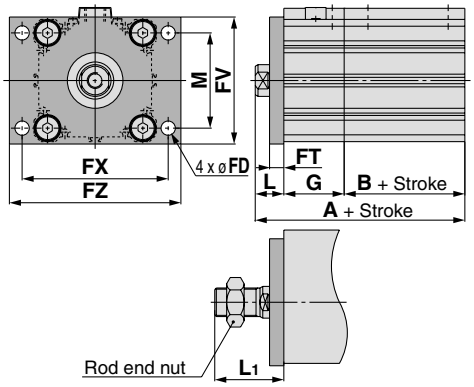


Foot Style (mm)

Bore size (mm)	Stroke range	Without auto switch A	B	LS	With auto switch A	B	LS	G	L
63	10 to 50	100.2	36	48	110.2	46	58	38	18
	75, 100	110.2	46	58					
80	10 to 50	118	43.5	56.5	128	53.5	66.5	43	20
	75, 100	128	53.5	66.5					
100	10 to 50	138	53	69	148	63	79	50	22
	75, 100	148	63	79					

Bore size (mm)	L1	LD	LG	LH	LT	LX	LY	LZ	X	Y
63	43.5	11	5	46	3.2	95	91.5	113	16.2	9
80	53.5	13	7	59	4.5	118	114	140	19.5	11
100	53.5	13	7	71	6	137	136	162	23	12.5

Rod side flange style: CLQF/CDLQF

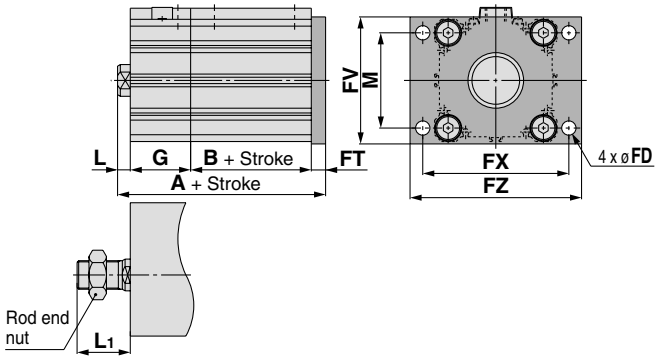


Rod Side Flange Style (mm)

Bore size (mm)	Stroke range	Without auto switch A	B	With auto switch A	B	FD	FT
63	10 to 50	92	36	102	46	9	9
	75, 100	102	46				
80	10 to 50	106.5	43.5	116.5	53.5	11	11
	75, 100	116.5	53.5				
100	10 to 50	125	53	135	63	11	11
	75, 100	135	63				

Bore size (mm)	FV	FX	FZ	G	L	L1	M
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

Head Side flange style: CLQG/CDLQG

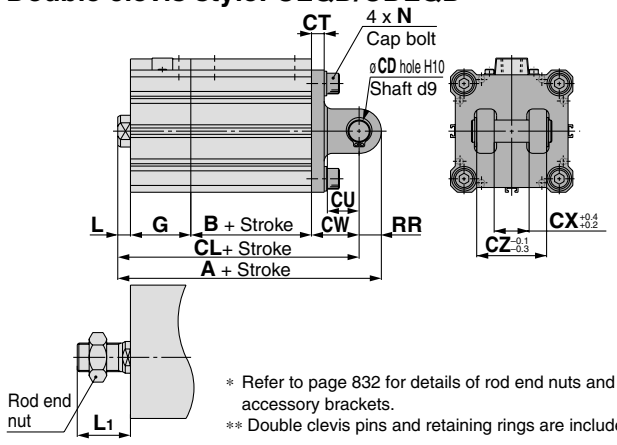


Head Side Flange Style (mm)

Bore size (mm)	Stroke range	Without auto switch A	B	With auto switch A	B	FD	FT
63	10 to 50	91	36	101	46	9	9
	75, 100	101	46				
80	10 to 50	107.5	43.5	117.5	53.5	11	11
	75, 100	117.5	53.5				
100	10 to 50	126	53	136	63	11	11
	75, 100	136	63				

Bore size (mm)	FV	FX	FZ	G	L	L1	M
63	80	92	108	38	8	33.5	60
80	99	116	134	43	10	43.5	77
100	117	136	154	50	12	43.5	94

Double clevis style: CLQD/CDLQD



Head Side Flange Style (mm)

Bore size (mm)	Stroke range	Without auto switch A	B	CL	With auto switch A	B	CL	CD	CT
63	10 to 50	126	36	112	136	46	122	14	8
	75, 100	136	46	122					
80	10 to 50	152.5	43.5	134.5	162.5	53.5	144.5	18	10
	75, 100	162.5	53.5	144.5					
100	10 to 50	182	53	160	192	63	170	22	13
	75, 100	192	63	170					

Bore size (mm)	CU	CW	CX	CZ	G	L	L1	N	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

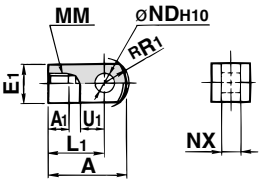
∗ Refer to page 832 for details of rod end nuts and accessory brackets.
∗∗ Double clevis pins and retaining rings are included.

Accessory Bracket Dimensions

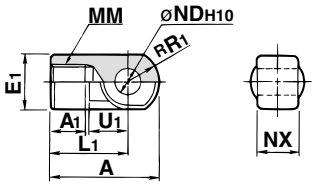
Single Knuckle Joint

I-G02, I-G03

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



Material: Rolled steel



Material: Cast iron

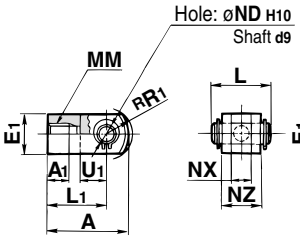
(mm)

Part no.	Applicable bore size (mm)	A	A1	E1	L1	MM	RR1	U1	ND	NX
I-G02	**20**	34	8.5	□16	25	M8 x 1.25	10.3	11.5	$8^{+0.058}_{0}$	$8^{-0.2}_{-0.4}$
I-G03	**25**	41	10.5	□20	30	M10 x 1.25	12.8	14	$10^{+0.058}_{0}$	$10^{-0.2}_{-0.4}$
I-G04	**32, 40**	42	14	ø22	30	M14 x 1.5	12	14	$10^{+0.058}_{0}$	$18^{-0.3}_{-0.5}$
I-G05	**50, 63**	56	18	ø28	40	M18 x 1.5	16	20	$14^{+0.070}_{0}$	$22^{-0.3}_{-0.5}$
I-G08	**80**	71	21	ø38	50	M22 x 1.5	21	27	$18^{+0.070}_{0}$	$28^{-0.3}_{-0.5}$
I-G10	**100**	79	21	ø44	55	M26 x 1.5	24	31	$22^{+0.084}_{0}$	$32^{-0.3}_{-0.5}$

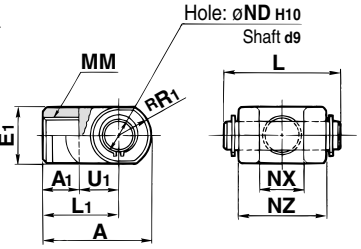
Double Knuckle Joint

Y-G02, Y-G03

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



Material: Rolled steel



Material: Cast iron

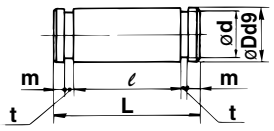
(mm)

Part no.	Applicable bore size (mm)	A	A1	E1	L1	MM	RR1	U1	ND
Y-G02	**20**	34	8.5	□16	25	M8 x 1.25	10.3	11.5	$8^{+0.058}_{0}$
Y-G03	**25**	41	10.5	□20	30	M10 x 1.25	12.8	14	$10^{+0.058}_{0}$
Y-G04	**32, 40**	42	16	ø22	30	M14 x 1.5	12	14	$10^{+0.058}_{0}$
Y-G05	**50, 63**	56	20	ø28	40	M18 x 1.5	16	20	$14^{+0.070}_{0}$
Y-G08	**80**	71	23	ø38	50	M22 x 1.5	21	27	$18^{+0.070}_{0}$
Y-G10	**100**	79	24	ø44	55	M26 x 1.5	24	31	$22^{+0.084}_{0}$

Part no.	Applicable bore size (mm)	NX	NZ	L	Applicable pin part no.
Y-G02	**20**	$8^{+0.4}_{+0.2}$	16	21	IY-G02
Y-G03	**25**	$10^{+0.4}_{+0.2}$	20	25.6	IY-G03
Y-G04	**32, 40**	$18^{+0.5}_{+0.3}$	36	41.6	IY-G04
Y-G05	**50, 63**	$22^{+0.5}_{+0.3}$	44	50.6	IY-G05
Y-G08	**80**	$28^{+0.5}_{+0.3}$	56	64	IY-G08
Y-G10	**100**	$32^{+0.5}_{+0.3}$	64	72	IY-G10

∗ Knuckle pins and retaining rings are included.

Knuckle Pin (Common with double clevis pin)

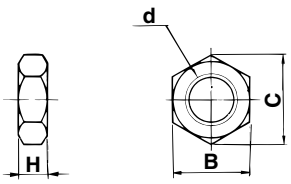


Material: Carbon steel
(mm)

Part no.	Applicable bore size (mm)	D	L	d	l	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**	$10^{-0.040}_{-0.076}$	25.6	9.6	20.2	1.55	1.15	Type C 10 for axis
IY-G04	**32, 40**	$10^{-0.040}_{-0.076}$	41.6	9.6	36.2	1.55	1.15	Type C 10 for axis
IY-G05	**50, 63**	$14^{-0.050}_{-0.093}$	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**	$22^{-0.065}_{-0.117}$	72	21	64.2	2.55	1.35	Type C 22 for axis

∗ Retaining rings are included.

Rod End Nut



Material: Rolled steel
(mm)

Part no.	Applicable bore size (mm)	d	H	B	C
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.

YA – **03**

- **Mounting bracket**

YA	Type A mounting bracket
YB	Type B mounting bracket
YU	Joint

- **Applicable air cylinder bore**

03	ø32, ø40
05	ø50, ø63
08	ø80
10	ø100

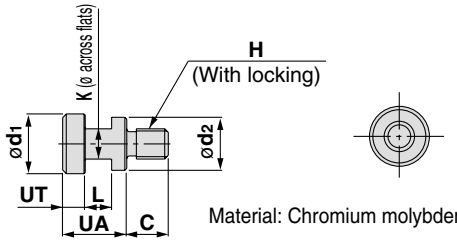
Bore size (mm)	Joint	Applicable mounting bracket	
		Type A mounting bracket	Type B mounting bracket
32, 40	YU-03	YA-03	YB-03
50, 63	YU-05	YA-05	YB-05
80	YU-08	YA-08	YB-08
100	YU-10	YA-10	YB-10

Allowable Eccentricity

Bore size (mm)	**32**	**40**	**50**	**63**	**80**	**100**
Eccentricity tolerance	±1				±1.5	±2
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

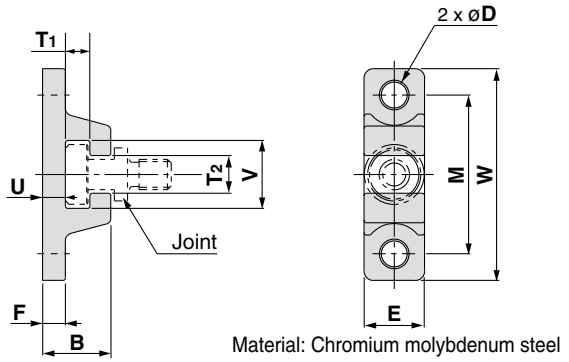


Material: Chromium molybdenum steel

(mm)

Part no.	Applicable bore size (mm)	**UA**	**C**	**d1**	**d2**	**H**	**K**	**L**	**UT**	Mass (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



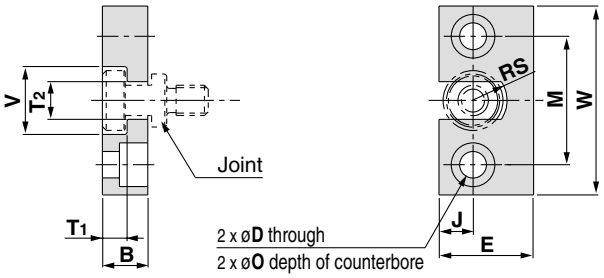
Material: Chromium molybdenum steel

(mm)

Part no.	Bore size (mm)	**B**	**D**	**E**	**F**	**M**	**T1**	**T2**
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**	Mass (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



Material: Stainless steel

(mm)

Part no.	Bore size (mm)	**B**	**D**	**E**	**J**	**M**	**O**
YB-03	**32, 40**	12	7	25	9	34	11.5 depth 7.5
YB-05	**50, 63**	12	9	32	11	42	14.5 depth 8.5
YB-08	**80**	16	11	38	13	52	18 depth 12
YB-10	**100**	19	14	50	17	62	21 depth 14

Part no.	Bore size (mm)	**RS**	**T1**	**T2**	**V**	**W**	Mass (g)
YB-03	**32, 40**	9	6.5	10	18	50	80
YB-05	**50, 63**	11	6.5	12	22	60	120
YB-08	**80**	14	8.5	16	28	75	230
YB-10	**100**	18	10.5	18	36	90	455

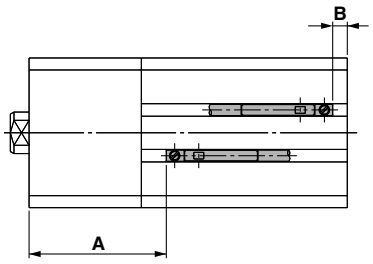
Minimum Auto Switch Mounting Stroke

(mm)

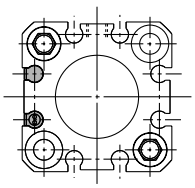
No. of auto switches mounted	D-M9□V D-F7□V D-J79C	D-A9□V D-A7□ D-A80 D-A73C D-A80C	D-A9□ D-M9□	D-M9□WV D-M9□AVL D-F7□WV D-F7BAVL	D-M9□W D-M9□AL D-A7□H D-A80H D-F7□ D-J79	D-A79W	D-F7□W D-J79W D-F7BAL D-F79F	D-P4DWL
1 pc.	5	5	10	10	15	15	20	15
2 pcs.	5	10	10	15	15	20	20	15

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

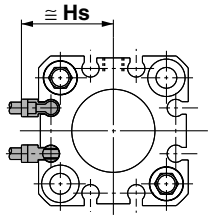
ø20, ø25



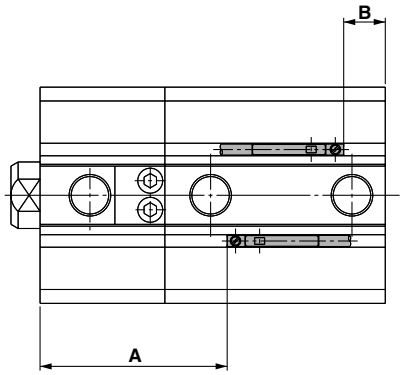
D-A9□
D-M9□
D-M9□W
D-M9□AL



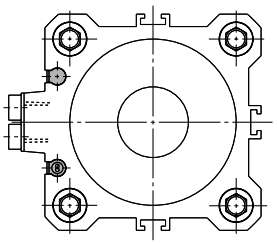
D-A9□V
D-M9□V
D-M9□WV
D-M9□AVL



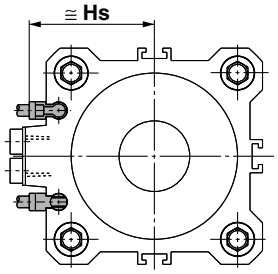
ø32 to ø100



D-A9□
D-M9□
D-M9□W
D-M9□AL



D-A9□V
D-M9□V
D-M9□WV
D-M9□AVL



Auto Switch Proper Mounting Position (mm)

Auto switch model / Bore size (mm)	D-A9□ D-A9□V		D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□AL D-M9□AVL	
	A	B	A	B
20	33	3.5	37	7.5
25	38	5.5	42	9.5
32	40	5	44	9
40	46	7.5	50	11.5
50	45	10.5	49	14.5
63	50.5	13.5	54.5	17.5
80	59.5	17	63.5	21
100	70	23	74	27

Auto Switch Mounting Height (mm)

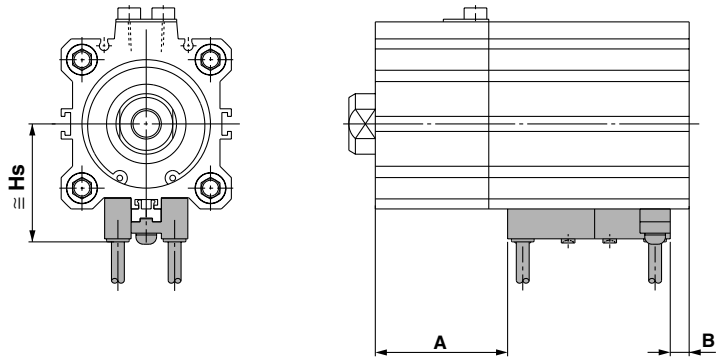
Auto switch model / Bore size (mm)	D-A9□V	D-M9□V D-M9□WV D-M9□AVL
	Hs	Hs
20	22.5	25
25	24.5	27
32	27	29
40	30.5	32.5
50	36.5	38.5
63	40	42
80	50	52
100	60	62

Note) Adjust the auto switch after confirming the operating conditions in the actual setting.

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

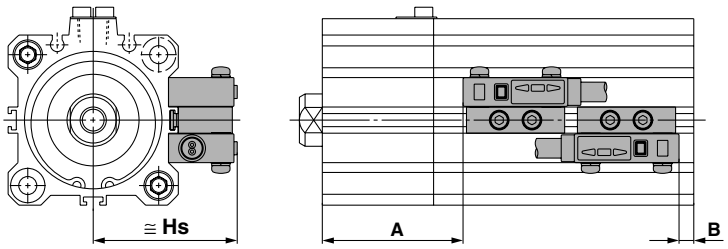
ø32 to ø100

D-A7□
D-A80
D-A7□H
D-A80H
D-F7□
D-J79
D-F7□W
D-J79W
D-F79F
D-F7NTL
D-F7BAL
D-A73C
D-A80C
D-J79C
D-A79W
D-F7□WV
D-F7□V
D-F7BAVL



ø40 to ø100

D-P4DWL



Auto Switch Proper Mounting Position

(mm)

Auto switch model / Bore size (mm)	D-A73 D-A80		D-A72/A7□H D-A80H/A73C D-A80C/F7BAVL D-F7BAL/F79F D-F7□W/F7□ D-J79/F7□V D-J79C/J79W D-F7□WV		D-F7NTL		D-A79W		D-P4DWL	
	A	B	A	B	A	B	A	B	A	B
20	—	—	—	—	—	—	—	—	—	—
25	—	—	—	—	—	—	—	—	—	—
32	41	6	41.5	6.5	46.5	11.5	38.5	3.5	—	—
40	47	8.5	47.5	9	52.5	14	44.5	6	43	4.5
50	46	11.5	46.5	12	51.5	17	43.5	9	42	7.5
63	51.5	14.5	52	15	57	20	49	12	47.5	10.5
80	60.5	18	61	18.5	66	23.5	58	15.5	56.5	14
100	71	24	71.5	24.5	76.5	29.5	68.5	21.5	67	20

Note) Adjust the auto switch after confirming the operating conditions in the actual setting.

Auto Switch Mounting Height

(mm)

Auto switch model / Bore size (mm)	D-A7□ D-A80	D-A7□H D-A80H D-F7□ D-J79 D-F7□W D-J79W D-F7BAL D-F79F D-F7NTL	D-A73C D-A80C	D-F7□V D-F7□WV D-F7BAVL	D-J79C	D-A79W	D-P4DWL
	Hs	Hs	Hs	Hs	Hs	Hs	Hs
20	—	—	—	—	—	—	—
25	—	—	—	—	—	—	—
32	31.5	32.5	38.5	35	38	34	—
40	35	36	42	38.5	41.5	37.5	44
50	41	42	48	44.5	47.5	43.5	50
63	47.5	48.5	54.5	51	54	50	56.5
80	57.5	58.5	64.5	61	64	60	66.5
100	67.5	68.5	74.5	71	74	70	76.5

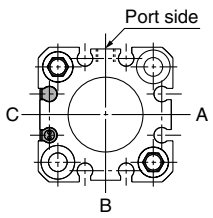
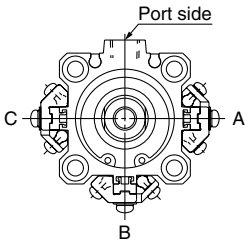
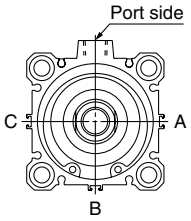
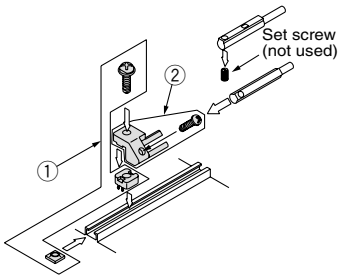
Operating Range

(mm)

Auto switch model	Bore size (mm)							
	20	25	32	40	50	63	80	100
D-A9□/A9□V	10	10	9.5	9.5	9.5	11.5	9	11.5
D-M9□/M9□V D-M9□W/M9□WV D-M9□AL/M9□AVL	4.5	4.5	5	5	6	6.5	6.5	7.5
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-F7BAL/F7BAVL D-F7NTL/F79F	—	—	6	6	6	6.5	6.5	7
D-P4DWL	—	—	—	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 brackets BQ2-012 are not used for sizes over ø32 of D-A9□(V)/M9□(V)/M9□W(V)/M9□A(V)L types.
The above values indicate the operating range when mounted with the conventional auto switch installation groove.

Auto Switch Mounting Bracket: Part. No.

Auto switch mounting surface / Auto switch model	Bore size (mm)			
	ø20, ø25	ø32, ø40, ø50		ø63, ø80, ø100
				
	Auto switch mounting surface	Auto switch mounting surface		Auto switch mounting surface
	Port, A, B, C sides	Port side	A, B, C sides	Port, A, B, C sides
D-A9□ D-A9□V D-M9□ D-M9□V D-M9□W D-M9□WV D-M9□AL D-M9□AVL	Auto switch mounting bracket not required.	Auto switch mounting bracket not required.	1. BQ-2 2. BQ2-012 Two kinds of auto switch mounting brackets are used as a set. 	Auto switch mounting bracket not required.

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 ø32 to ø50, 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 Bracket: Part. No.

Auto switch model	Bore size (mm)					
	32	40	50	63	80	100
D-A7□/A80 **D-A73C/A80C** **D-A7□H/A80H** **D-A79W** **D-F7□/J79** **D-F7□V** **D-J79C** **D-F7□W/J79W** **D-F7□WV** **D-F7BAL/F7BAVL** **D-F79F/F7NTL**	BQ-2					
D-P4DWL	—	BQP1-050				

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-F7BAL/F7BAVL 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 1817 for the details of BBA2.
Note 2) When mounting D-M9□A(V)L on a port other than the ports for ø32, ø40 and ø50, order auto switch mounting brackets BQ2-012S, BQ-2 and stainless steel screw set BBA2 separately.

Auto Switch Mounting Bracket Mass

Auto switch mounting bracket part no.	Mass (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 1719 to 1827.

Auto switch type	Model	Electrical entry (Fetching direction)	Features
Reed	D-A73	Grommet (Perpendicular)	—
	D-A80		Without indicator light
	D-A73H, A76H	Grommet (In-line)	—
	D-A80H		Without indicator light
Solid state	D-F7NV, F7PV, F7BV	Grommet (Perpendicular)	—
	D-F7NWV, F7BWV		Diagnostic indication(2-color indication)
	D-F7BAVL		Water resistant (2-color indication)
	D-F79, F7P, J79	Grommet (In-line)	—
	D-F79W, F7PW, J79W		Diagnostic indication(2-color indication)
	D-F7BAL		Water resistant (2-color indication)
	D-F7NTL		With timer
	D-P5DWL		Magnetic field resistant (2-color indication)

∗ For solid state auto switches, auto switches with a pre-wired connector are also available. Refer to pages 1784 and 1785 for details.
∗ Normally closed (NC = b contact) solid state auto switches (D-F9G/F9H types) are also available. Refer to page 1746 for details.
∗ D-A7/A8/F7/J7 types cannot be mounted on ø20 and ø25.