

MCQV3L series

END LOCK CYLINDER



Technical data



Caution for safety
(Read before installing)

R: Rod cover

H: Head cover



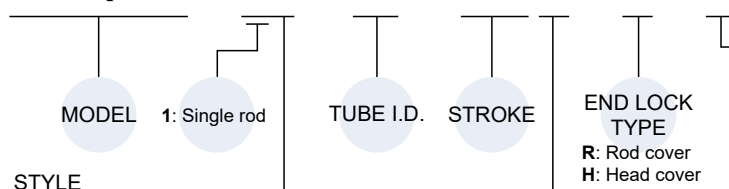
Table for standard stroke

Tube I.D.	Stroke (mm)
ø63,80	50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600

* Please contact us if the stroke is out of specification.

Order example

MCQV3L — 11 — 63 — 100M — R — T



STYLE

Code	Symbol	Description
1 1		Double acting / Male thread
		Rod cover
		Head cover

* Rc or NPT thread are also available, please contact us.

M: Magnet

Features

■ Non lubrication

Special housing and bushing enables self lubrication of piston rod.

■ High quality long service life

Hard anodised aluminium cylinder tubes offer a high resistance to corrosion and low internal friction.

■ ISO 15552 standard specification

Conforms to ISO 15552 specification enabling worldwide interchangeability.

Specification

Model		MCQV3L	
Tube I.D. (mm)		63	80
Medium		Air	
Operating perssure range		0.15~1 MPa	
Proof pressure		1.5 MPa	
Ambient temperature		-5~+60°C (No freezing)	
Available speed range		50~500 mm/sec	
Holding force		Max. 2710 N	Max. 3690 N
Backlash		1mm or less	
Sensor switch		RDC(V), RQC(V)  , RDT, RQT  , RCA 	
Sensor switch holder	R°C(V)	DT7-1	DT7-2
	R*T	DT-1	DT-2
	RCA	HV2	HV3

Cylinder weight

Unit: kg

Model		Basic weight MCQV3L-11	Basic weight (magnet) MCQV3L-11	Stroke 25 mm MCQV3L-11
Tube I.D.	End lock type			
ø63	R	2.42	2.45	0.13
	H	2.48	2.51	0.13
ø80	R	4.08	4.13	0.2
	H	4.14	4.19	0.2

* Accessories weight please refer to MCQV3 series .

Accessories & Connector

Accessories							
Code	LB (Purchase 2 pcs)	CA	CA2	CB	CB2	CDB (Purchase CB+PIN)	CDB2 (Purchase CB2+PIN)
Mounting Tube I.D.							
ø63	LB-Q2-63	CA-Q2-63	CA2-Q2-63	CB-Q2-63	CB2-Q2-63	CDB-Q2-63	CDB2-Q2-63
ø80	LB-Q2-80	CA-Q2-80	CA2-Q2-80	CB-Q2-80	CB2-Q2-80	CDB-Q2-80	CDB2-Q2-80

	Accessories				Rod nut
Code	FAC	FBC	FAC2	FBC2	NUT
Mounting Tube I.D.					
ø63	FAC-Q2-63		FAC2-Q2-63		NUT-M16x1.5x8Hx24B
ø80	FAC-Q2-80		FAC2-Q2-80		

Accessories △ Factory-installed, not available for separate purchase or field assembly				Connector		
Code	TA	TB	TC	Y	I	YS (Y+Floating pin)
Mounting Tube I.D.						
ø63	TC-Q2-63			Y-Q2-50	I-Q2-50	YS-Q2-50
ø80	TC-Q2-80			Y-Q2-80	I-Q2-80	YS-Q2-80

Pin

Applicable	YS connector	Y&I connector	CA&CB accessories
Code	PIN-S	PIN-Y-P (with split pin)	PIN-CB-P (with split pin)
Fig Tube I.D.			
ø63	PIN-Q2-50-S	PIN-Q2-50-2-P	PIN-Q2-63-1-P
ø80	PIN-Q2-80-S	PIN-Q2-80-2-P	PIN-Q2-80-1-P

* Dimension please refer to MCQV3 series .

Order example of self-assembled

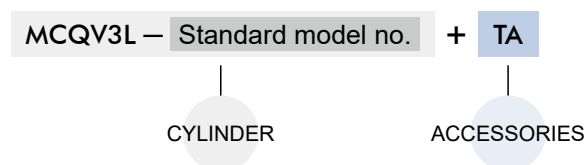
The tube I.D. ø63 of LB accessories, Y connector and pin.

No.	Order number	Qty
1	LB-Q2-63	2
2	Y-Q2-50	1
3	PIN-Q2-50-2-P	1

* To order accessories/ connectors/ pin separately, please place orders separately according to the order codes in the above table.

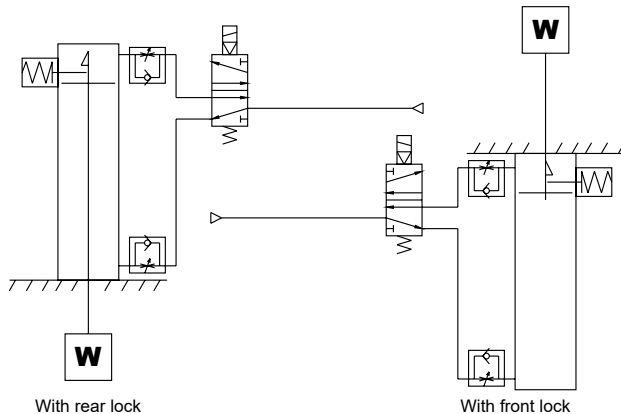
Order example of factory assembled

△ Cylinders and accessories are distinguished by the symbol " + ".



Use recommended air pressure circuit

- The circuit layout must be settled properly. The recommended circuit design is shown below.



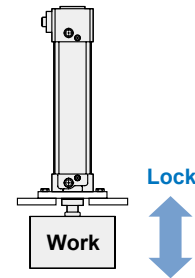
Precautions

- Do not use 3-way solenoid valves. The cylinder cannot be locked when compressed air is trapped in the lock side port. And the lock may be released due to the air leakage of solenoid valve, even it was locked successfully.
- Do not adjust or mount the cylinder when the lock is on.
- The operation load do not exceed 50% of the cylinder maximum output.
- Do not operate a workpiece with multiple end-lock cylinders simultaneously.
- Use an one-way speed control valve with meter-out circuit layout design. The lock cannot be released when the circuit layout is meter-in design.
- Operate the lock only when the cylinder is at the either end-position of stroke.
- The air supply must be higher than 0.15 MPa to operate the lock.
- The lock will be on when automatically when the pressure of the lock is lower than 0.1 MPa or less.
- There are many conditions that will cause the exhaust speed to reduce. The examples are shown below.
 - When the exhausting route length is too long.
 - When the one-way speed control valve is too far from cylinder port.
 - When the silencer of the solenoid valve is blocked or clogged.
- When the cushion needle is fully closed, the piston rod may not be able to reach the end of its stroke. When the cushion needle is fully closed and the cylinder is locked, the lock may not be able to be released.

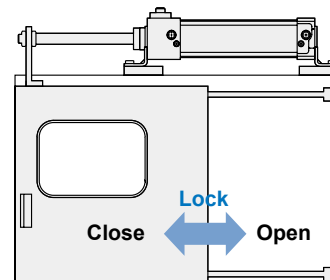
Maintains the cylinder's original position even if the air supply is interrupted.

Prevention of dropping at the rising end

With rear lock



Locking of door With front lock



END LOCK CYLINDER

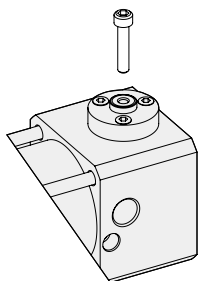
Manual Lock Releasing

- 1 Install a bolt into the locking rod and pull it up by hands. When your hands release, the locking rod will move back by spring force and continue locking.

The bolt size, inner spring pulling force and the stroke of locking rod are listed below.

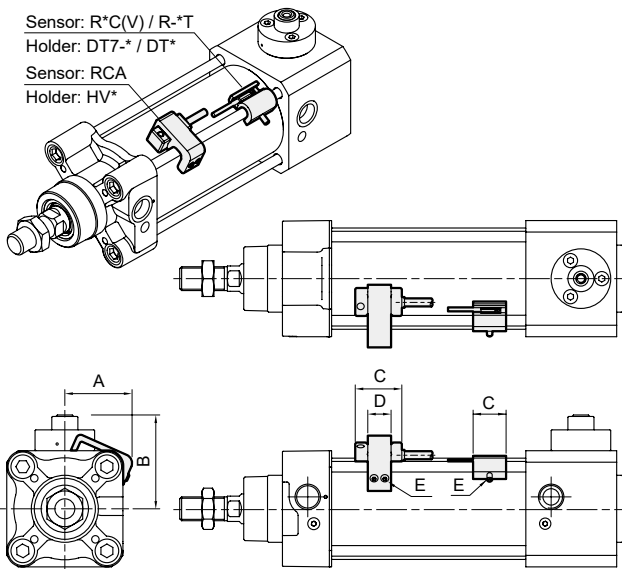
MODEL	Thread size	Pulling force	Stroke (mm)
MCQV3L-63	M6×1.0×20 L	24.5 N	4
MCQV3L-80	M6×1.0×20 L	24.5 N	5

- 2 The bolt must be uninstalled after manual lock releasing, or the weight of bolt may cause some performance problems of the lock.



Installation of sensor switch

Sensor: R*C(V) / R*T
Holder: DT7-* / DT*
Sensor: RCA
Holder: HV*

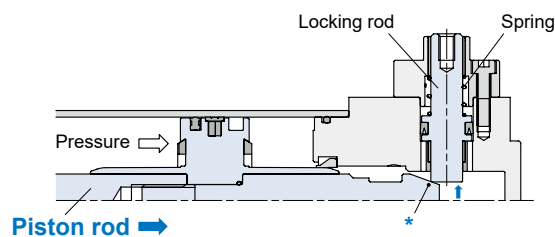


Code Tube I.D.	Sensor switch	Holder	A	B	C	D	E
63	R*C(V)	DT7-1	37	50	25	-	M4×12L
	R*T	DT-1					
	RCA	HV2	42.5	50	26	13	M4×10L
80	R*C(V)	DT7-2	46.5	60	25	-	M4×12L
	R*T	DT-2					
	RCA	HV3	49.5	60	26	13	M4×10L

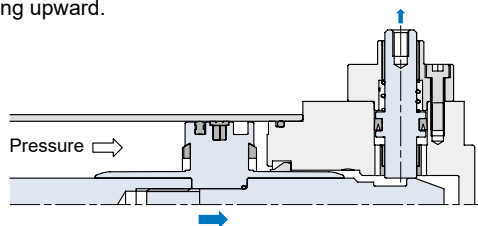
Working Principle

- Both front locking type and rear locking type have the same mechanism. The pictures below shows that how a rear locking type cylinder works.

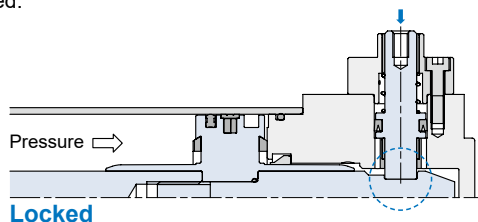
- 1 When the air pressure is input from front cap, the piston will move backward. After the piston nears the end of the stroke, the slope of chamfered rod (the position of *mark) will touch the locking rod.



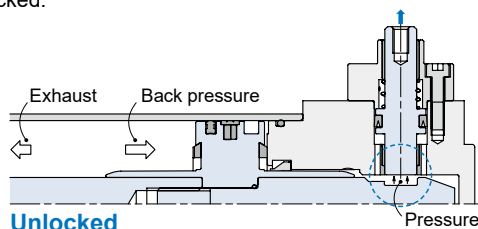
- 2 The locking rod will be guided with the slope and keeps moving upward.



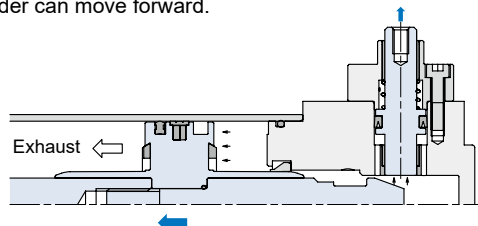
- 3 The locking rod will be pushed into the locking slot of the piston rod by the spring force. At this time, the cylinder is locked.



- 4 When the air pressure is input from rear cap, the piston will start moving forward. At the same time, the locking rod will be pushed up by the compressed air and make the piston rod unlocked.



- 5 As the locking rod is no longer locking the piston rod, the cylinder can move forward.

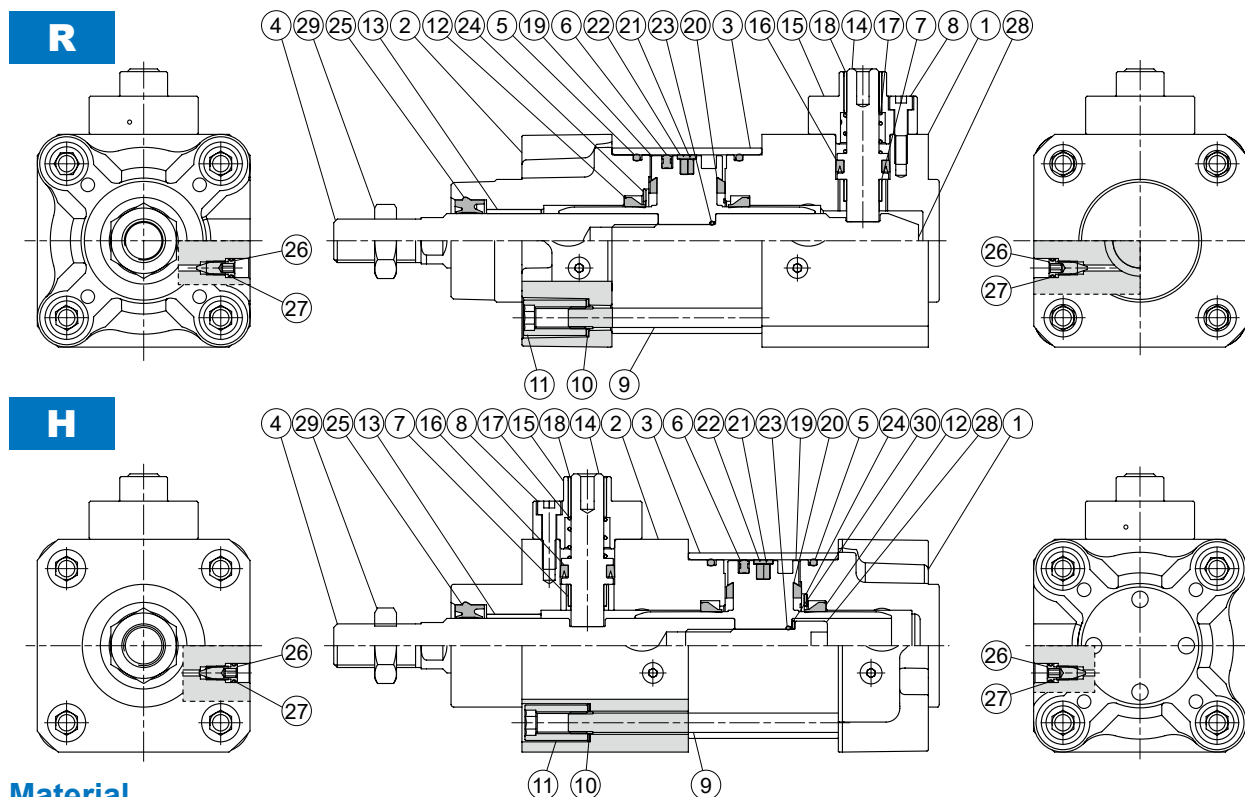


MCQV3L Inside structure & Parts list

END LOCK CYLINDER



Mindman



Material

No.	Part name	Material	Q'ty	Repair kits (inclusion)
1	Head cover	Aluminum alloy	1	
2	Rod cover	Aluminum alloy	1	
3	Cylinder tube	Aluminum alloy	1	
4	Piston rod	Carbon steel	1	
5	O-ring	NBR	2	●
6	Piston packing	NBR	1	●
7	Bush	Bearing alloy	1	
8	Hex bolt	Carbon steel	3	
9	Tie rod	Carbon steel	4	
10	Washer	Carbon steel	8	
11	Tie rod nut	Carbon steel	8	
12	Cushion packing	NBR	2	●
13	Bush	Bearing alloy	1	
14	Locking rod	Carbon steel	1	
15	Fixing holder	Aluminum alloy	1	
16	Piston ring	NBR	1	●
17	Single action spring	Stainless steel	1	
18	Guide rod bushing	Copper alloy	1	
19	Piston	Aluminum alloy	1	
20	Cushion pad	NBR	2	
21	Magnet ring	Magnet material	1	
22	Wear ring	Resin	1	
23	O-ring	NBR	1	●
24	Washer	Carbon steel	1	
25	Rod packing	NBR	1	
26	Needle valve	Copper alloy	1	
27	O-ring	NBR	2	●
28	Piston nut	Carbon steel	2	
29	Piston rod nut	Carbon steel	1	
30	Cushion pad	NBR	1	

Repair kits

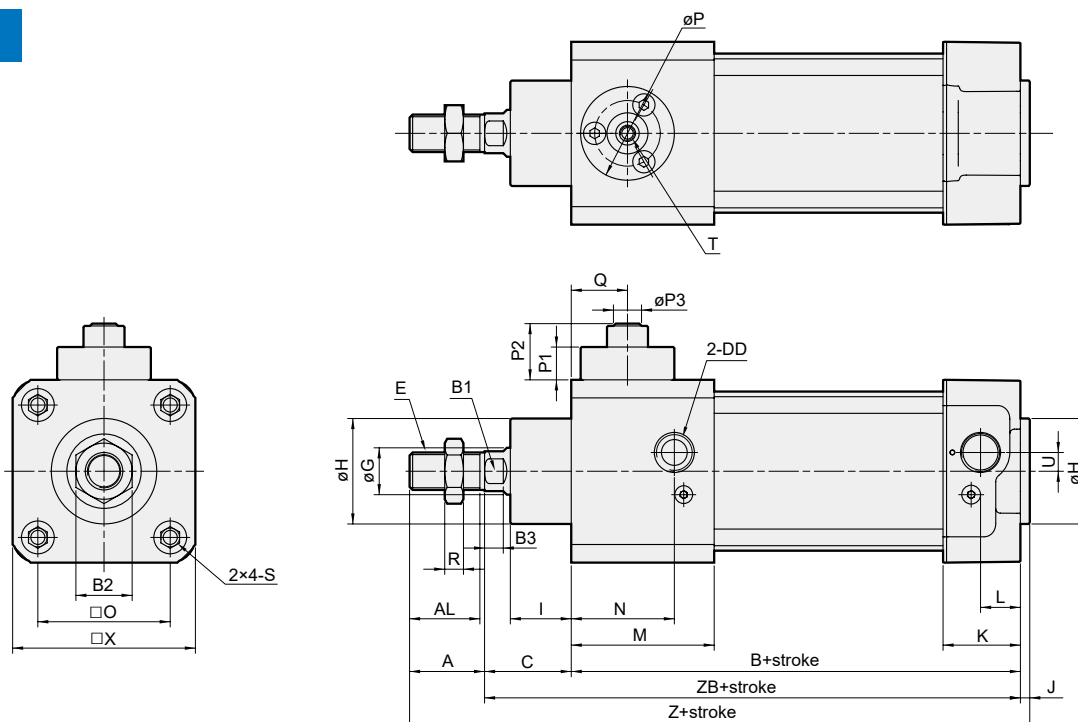
Tube I.D.	Repair kits
ø63	PS-MCQV3L-63
ø80	PS-MCQV3L-80

MCQV3L Dimensions $\varnothing 63, \varnothing 80$

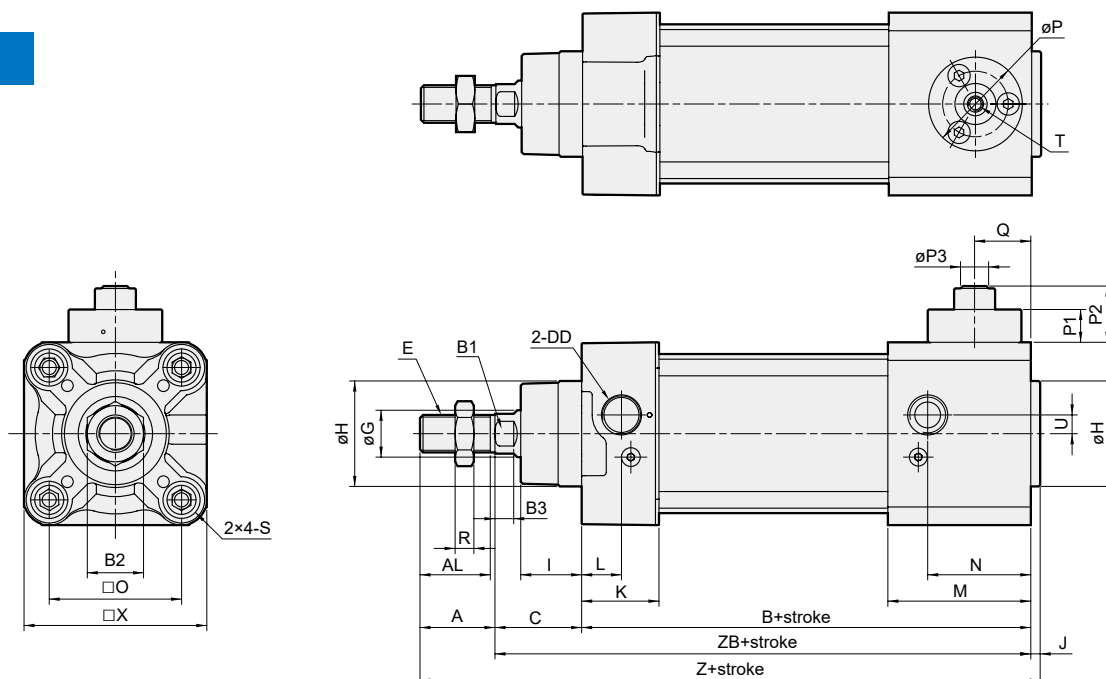
END LOCK CYLINDER



R



H



Code Tube I.D.	A	AL	B	B1	B2	B3	C	DD	E	G	H	I	J	K	L	M	N	O	P	P1	P2	P3	Q	R
63	32	30	149	17	24	8	37	G3/8	M16×1.5	20	45	26	4	33	17	61	44	56.5	40	14	24	12	24	8
80	40	38	168	22	30	10	46	G3/8	M20×1.5	25	45	32.5	4	35.5	20.5	75.5	60.5	72	50	12	16	14	26	10

Code Tube I.D.	S	T	U	X	Z	ZB
63	M8×1.25	M6×1.0	8	78	222	186
80	M10×1.5	M6×1.0	9	95	258	214