

Compact Cylinder: Guide Rod Type

Series CQM

ø12, ø16, ø20, ø25, ø32, ø40, ø50

Lateral load resisting

2-4 times

* Compared to compact cylinder Series CQ

Non-rotating accuracy

±0.2° or less

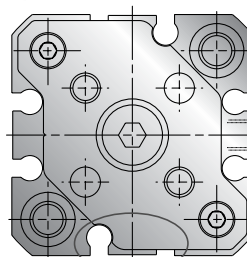
Refer to page 7-5-4 for details.

Guide Rod

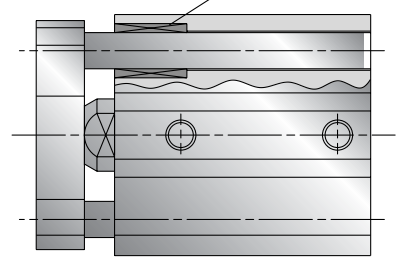
Load can be directly mounted.

Mounting dimensions compatible with Series CQS, CQ2.

External dimensions



Slide bearing



Auto switch is mountable/removable even when the plate is retracted.

CUJ

CU

CQS

CQM

CQ2

RQ

MU

D-

-X

20-

Data

Series Variations

Series	Bore size (mm)	Standard stroke (mm)												Cushion		
		5	10	15	20	25	30	35	40	45	50	75	100			
CQM	12, 16	●	●	●	●	●	●	●	●	●	●	●	●	●	●	Rubber bumper
	20, 25	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	32, 40	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	50	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

Compact Cylinder: Guide Rod Type Double Acting, Single Rod

Series CQM

ø12, ø16, ø20, ø25, ø32, ø40, ø50

How to Order

Without auto switch

CQM B 20 10

With auto switch

CDQM B 20 10 M9B S

With auto switch
Mounting

B	Through-hole (standard)
A	Both end tapped style (ø32 to ø50)

Bore size

12	12 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm

Note 1) Cylinder bodies of ø12 to ø25 are common for both B (Through-hole) and A (Both end tapped) types. Symbol to order is unified to "B" for those sizes.

Note 2) Please contact SMC for the other mounting types.

Thread type

Symbol	Port thread	Mounting thread	Bore size
Nil	M thread	M thread	ø12 to ø25
	Rc		
	NPT		
TF	G	Inch thread	ø12 to ø25 ø32 to ø50
NN	M thread NPT		

Note 3) M thread to be used for without auto switch type of ø32, 5 stroke exceptionally.

Number of auto switches

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

Auto switch type

Nil	Without auto switch (Built-in magnet)
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* For the applicable auto switch model, refer to the table below.
* Auto switches are shipped together, (but not assembled).
(Except D-P5DWL type)

Cylinder stroke (mm)

For "Standard Stroke" and "Manufacture of intermediate of Stroke", refer to page 7-5-3.

Applicable Auto Switch/Refer to page 7-9-1 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (output)	Load voltage		Rail mounting		Direct mounting		Lead wire length (m)*				Applicable load				
					DC	AC	ø32 to ø50		ø12 to ø50		0.5 (Nil)	3 (L)	5 (Z)	None (N)	IC circuit	Relay, PLC			
							Perpendicular	In-line	Perpendicular	In-line									
Reed switch	-	Grommet	Yes	3-wire (NPN equiv.)	-	5 V	-	A76H	A96V	A96	●	●	-	-	IC circuit	-			
				2-wire	-	200 V	A72	A72H	-	-	●	●	-	-	-	-	-	-	
					24 V	12 V	100 V	A73	A73H	-	-	●	●	●	-	-	-	-	-
						5 V, 12 V	-	A80	A80H	A90V	A90	●	●	-	-	-	-	IC circuit	-
						12 V	-	-	-	A93V	A93	●	●	-	-	-	-	-	-
						12 V	-	-	-	-	-	●	●	●	●	-	-	-	-
Diagnostic indication (2-color indication)	Grommet	Yes	-	-	-	A79W	-	-	-	●	●	-	-	-	-				
Solid state switch	-	Grommet	Yes	3-wire (NPN)	5 V, 12 V	-	F7NV	F79	M9NV	M9N	●	●	○	-	IC circuit	-			
				3-wire (PNP)			F7PV	F7P	M9PV	M9P	●	●	○	-	-	-			
		Connector		2-wire	12 V	-	F7BV	F79	M9BV	M9B	●	●	○	-	-	-	-		
				3-wire (NPN)			J79C	-	-	-	●	●	●	●	-	-	-		
		Diagnostic indication (2-color indication)		Grommet	3-wire (PNP)	24 V	5 V, 12 V	-	F7NWW	F79W	F9NWW	F9NW	●	●	○	-	IC circuit	-	
					3-wire (PNP)				-	F7PW	F9PWV	F9PW	●	●	○	-	-	-	
		Water resistant (2-color indication)		Grommet	2-wire	12 V	-	-	F7BWW	J79W	F9BWW	F9BW	●	●	○	-	-	-	
									-	-	F7BA	-	F9BA	-	●	●	○	-	-
		Magnetic field resistant (2-color indication)		Grommet	2-wire	5 V, 12 V	-	-	F7BAV	-	-	-	-	●	●	○	-	-	
									-	-	P5DW	-	-	-	-	●	●	-	-

* Lead wire length symbols: 0.5 m..... Nil (Example) A73C
3 m..... L A73CL
5 m..... Z A73CZ
None..... N A73CN

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

- In addition to the models in the above table, there are some other auto switches that are applicable. For more information, please refer to page 7-5-11.
- D-P5DWL type: ø40 and ø50 only available.

Made to Order Specifications → Please contact SMC.

- -50 Without indicator light
- -61 Flexible lead wire
- Pre-wire connector

Compact Cylinder: Guide Rod Type Double Acting, Single Rod Series CQM



⚠ Caution

This product should not be used as a stopper.

Specifications

Type	Pneumatic (non-lube)	
Action	Double acting, Single rod	
Fluid	Air	
Proof pressure	1.5 MPa	
Maximum operating pressure	1.0 MPa	
Minimum operating pressure	ø12, 16	0.12 MPa
	ø20 to 50	0.1 MPa
Ambient and fluid temperature	Without auto switch: -10°C to 70°C (with no freezing) With auto switch: -10°C to 60°C (with no freezing)	
Cushion	Rubber bumper on both ends	
Stroke length tolerance	+1.0 mm 0	
Mounting	Through-hole	
Piston speed	ø12 to 40	50 to 500 mm/s
	ø50	50 to 300 mm/s

Standard Stroke

Bore size (mm)	Standard stroke (mm)
12, 16	5, 10, 15, 20, 25, 30
20, 25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
32, 40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

Manufacture of Intermediate Stroke

Description		Intermediate stroke range	
Spacers are installed in a standard stroke cylinder.		Bore size (mm)	Intermediate stroke range (mm)
		12, 16	1 to 29
Bore size (mm)	Description	20, 25	1 to 49
12 to 32	Available in 1 mm stroke increments	32	1 to 99
40, 50	Available in 5 mm stroke increments	40, 50	5 to 95

Example) Part no.: CQMB32-57 It is produced by installing a 18 mm spacer in a standard stroke cylinder CQMB32-75. B dimension: 108 mm.

Weight

Without Auto Switch

Bore size (mm)	Cylinder stroke (mm)												Unit: g
	5	10	15	20	25	30	35	40	45	50	75	100	
12	44	52	60	69	77	86	—	—	—	—	—	—	—
16	56	67	77	87	97	108	—	—	—	—	—	—	—
20	92	107	122	137	152	167	183	198	213	227	—	—	—
25	125	143	162	180	198	216	234	252	270	288	—	—	—
32	182	205	228	250	274	297	320	343	366	389	553	669	—
40	269	295	320	345	370	396	421	446	471	497	692	823	—
50	—	500	540	580	620	661	701	740	780	821	1133	1341	—

With Auto Switch (Built-in magnet)

Bore size (mm)	Cylinder stroke (mm)												Unit: g
	5	10	15	20	25	30	35	40	45	50	75	100	
12	52	59	68	77	84	93	—	—	—	—	—	—	—
16	66	77	87	97	107	118	—	—	—	—	—	—	—
20	122	138	153	168	182	197	213	227	242	257	—	—	—
25	168	186	205	223	240	258	277	295	313	331	—	—	—
32	241	264	287	309	333	356	379	401	425	448	564	680	—
40	345	371	396	421	447	473	498	523	548	574	705	836	—
50	—	618	658	698	738	779	819	858	898	939	1147	1355	—

Add each weight of auto switches and mounting brackets.
For the auto switch weight, refer to page 7-9-1.

Theoretical Output

Bore size (mm)	Operating direction	Operating pressure (MPa)			Unit: N
		0.3	0.5	0.7	
12	IN	25	42	59	
	OUT	34	57	79	
16	IN	45	75	106	
	OUT	60	101	141	
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	

Auto Switch Mounting Bracket Weight

Mounting bracket part no.	Applicable cylinder bore size	Weight (g)
BQ-2	ø32 to ø50	1.5
BQP1-050	ø40, ø50	16

Series CQM

Plate Non-rotating Accuracy

Non-rotating accuracy without load is designed to be same or less than the figures shown in the table below at the retracted cylinder end (plate).

Bore size (mm)	Non-rotating accuracy
12, 16	±0.2°
20 to 50	±0.1°

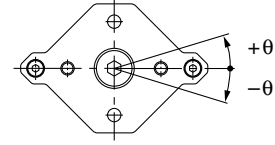
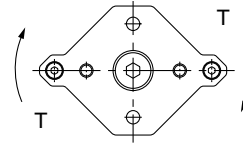


Plate Allowable Rotational Torque

Make sure to operate strictly within the allowable rotation torque range to the plate.

Operation outside of this range may result in shorter service life or damage to the device.



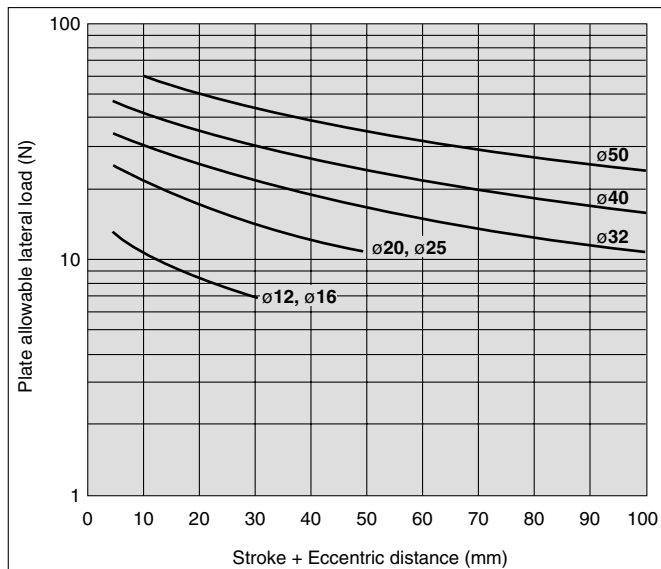
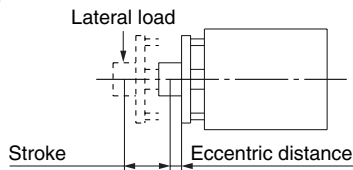
Unit: N·m

Bore size (mm)	Cylinder stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
12	0.11	0.10	0.08	0.07	0.07	0.06	—	—	—	—	—	—
16	0.15	0.12	0.11	0.10	0.09	0.08	—	—	—	—	—	—
20	0.37	0.32	0.28	0.25	0.23	0.21	0.19	0.18	0.17	0.16	—	—
25	0.40	0.35	0.31	0.28	0.25	0.23	0.21	0.20	0.18	0.17	—	—
32	0.66	0.59	0.53	0.49	0.45	0.42	0.39	0.36	0.34	0.32	0.25	0.20
40	1.06	0.96	0.88	0.81	0.75	0.70	0.65	0.61	0.58	0.55	0.43	0.36
50	—	1.70	1.56	1.45	1.35	1.26	1.19	1.12	1.06	1.01	0.80	0.67

Plate Allowable Lateral Load

Make sure to operate strictly within the allowable lateral load range to the plate.

Operation outside of this range may result in shorter service life or damage to the device.

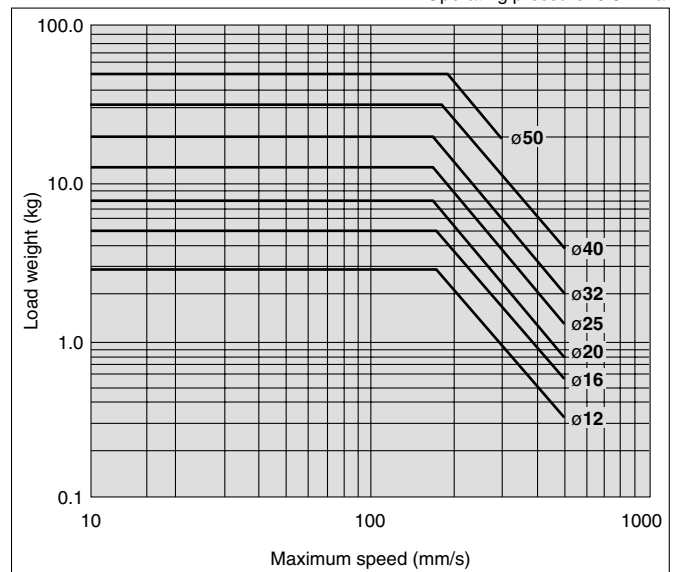


Allowable Kinetic Energy

Make sure to operate strictly within the allowable range of the load weight and maximum speed.

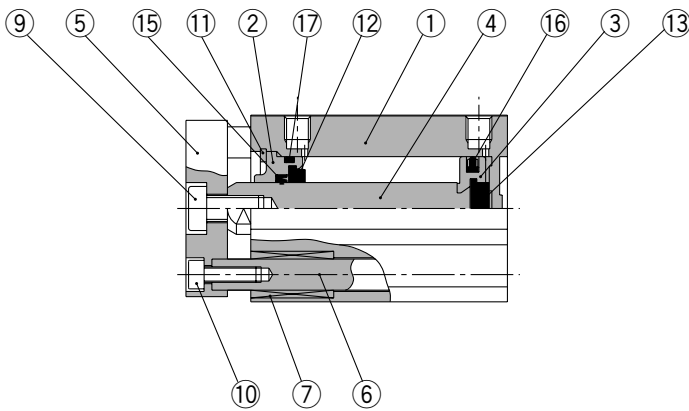
Operation outside of this range may cause excessive impact, which may result in the damage to the device.

Operating pressure: 0.5 MPa

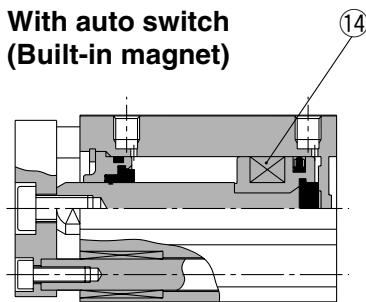


Construction

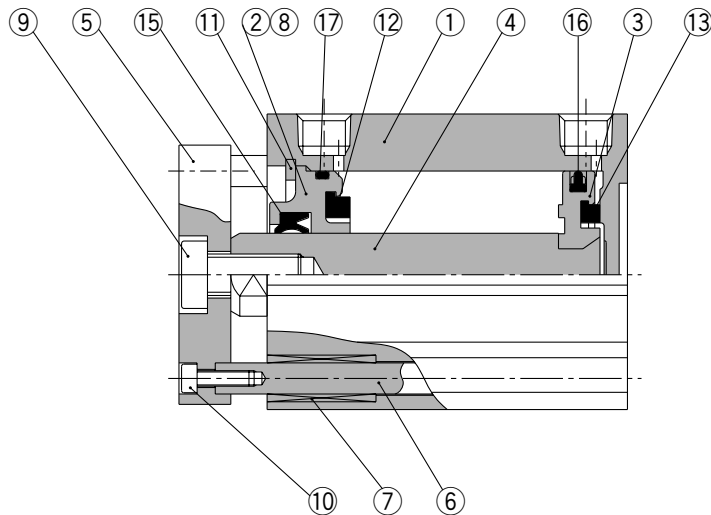
ø12 to 25



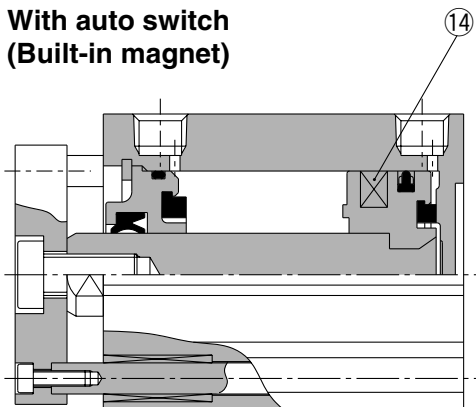
With auto switch
(Built-in magnet)



ø32 to 50



With auto switch
(Built-in magnet)



CUJ

CU

CQS

CQM

CQ2

RQ

MU

D-

-X

20-

Data

Component Parts

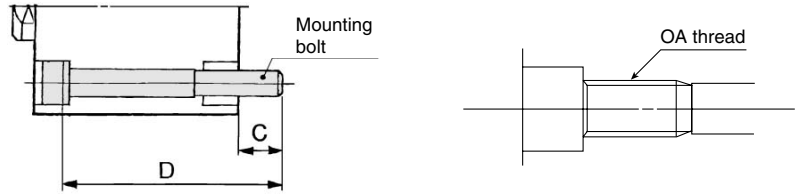
No.	Description	Material	Note
①	Cylinder tube	Aluminum alloy	Hard anodized
②	Collar	Aluminum alloy	ø12 to ø40 Anodized
		Aluminum alloy casted	ø50 Chromated, Coated
③	Piston	Aluminum alloy	Chromated
④	Piston rod	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø50 Hard chrome plated
⑤	Plate	Aluminum alloy	Anodized
⑥	Guide rod	Stainless steel	Hard chrome plated
⑦	Bushing	Oil-impregnated sintered alloy	
⑧	Bushing	Bronze casting	ø50 only
⑨	Hexagon socket head cap screw	Carbon steel	Nickel plated
⑩	Hexagon socket head cap screw	Carbon steel	Nickel plated
⑪	Snap ring	Carbon tool steel	Phosphate coated
⑫	Bumper A	Urethan	
⑬	Bumper B	Urethan	
⑭	Magnet	—	
⑮	Rod seal	NBR	
⑯	Piston seal	NBR	
⑰	Gasket	NBR	

Series CQM

Mounting Bolt

Mounting method: Mounting bolt for through-hole style of CQMB is available as an option.

Ordering: Add the word "Bolt" in front of the bolts to be used.
Example) Bolt M3 x 25 ℓ 2 pcs.



Note) To install a through-hole type mounting bolt, bore size 12 to 25 mm, make sure to use the flat washer that is provided.

Mounting Bolt for CQM/Without Auto Switch

Model	C	D	Mounting bolt
CQMB12-5	6.5	25	M3 x 25 ℓ
-10		30	x 30 ℓ
-15		35	x 35 ℓ
-20		40	x 40 ℓ
-25		45	x 45 ℓ
-30		50	x 50 ℓ
CQMB16-5	6.5	25	M3 x 25 ℓ
-10		30	x 30 ℓ
-15		35	x 35 ℓ
-20		40	x 40 ℓ
-25		45	x 45 ℓ
-30		50	x 50 ℓ
CQMB20-5	6.5	25	M5 x 25 ℓ
-10		30	x 30 ℓ
-15		35	x 35 ℓ
-20		40	x 40 ℓ
-25		45	x 45 ℓ
-30		50	x 50 ℓ
-35		55	x 55 ℓ
-40		60	x 60 ℓ
-45		65	x 65 ℓ
-50		70	x 70 ℓ

Model	C	D	Mounting bolt
CQMB25-5	8.5	30	M5 x 30 ℓ
-10		35	x 35 ℓ
-15		40	x 40 ℓ
-20		45	x 45 ℓ
-25		50	x 50 ℓ
-30		55	x 55 ℓ
-35		60	x 60 ℓ
-40		65	x 65 ℓ
-45		70	x 70 ℓ
-50		75	x 75 ℓ
CQMB32-5	9	30	M5 x 30 ℓ
-10		35	x 35 ℓ
-15		40	x 40 ℓ
-20		45	x 45 ℓ
-25		50	x 50 ℓ
-30		55	x 55 ℓ
-35		60	x 60 ℓ
-40		65	x 65 ℓ
-45		70	x 70 ℓ
-50		75	x 75 ℓ
-75	110	x 110 ℓ	
-100	135	x 135 ℓ	

Model	C	D	Mounting bolt
CQMB40-5	7.5	35	M5 x 35 ℓ
-10		40	x 40 ℓ
-15		45	x 45 ℓ
-20		50	x 50 ℓ
-25		55	x 55 ℓ
-30		60	x 60 ℓ
-35		65	x 65 ℓ
-40		70	x 70 ℓ
-45		75	x 75 ℓ
-50		80	x 80 ℓ
-75	115	x 115 ℓ	
-100	140	x 140 ℓ	
CQMB50-10	12.5	45	M6 x 45 ℓ
-15		50	x 50 ℓ
-20		55	x 55 ℓ
-25		60	x 60 ℓ
-30		65	x 65 ℓ
-35		70	x 70 ℓ
-40		75	x 75 ℓ
-45		80	x 80 ℓ
-50		85	x 85 ℓ
-75		120	x 120 ℓ
-100	145	x 145 ℓ	

Mounting Bolt for CDQM/With Auto Switch (Built-in magnet)

Model	C	D	Mounting bolt
CDQMB12-5	6.5	30	M3 x 30 ℓ
-10		35	x 35 ℓ
-15		40	x 40 ℓ
-20		45	x 45 ℓ
-25		50	x 50 ℓ
-30		55	x 55 ℓ
CDQMB16-5	6.5	30	M3 x 30 ℓ
-10		35	x 35 ℓ
-15		40	x 40 ℓ
-20		45	x 45 ℓ
-25		50	x 50 ℓ
-30		55	x 55 ℓ
CDQMB20-5	6.5	35	M5 x 35 ℓ
-10		40	x 40 ℓ
-15		45	x 45 ℓ
-20		50	x 50 ℓ
-25		55	x 55 ℓ
-30		60	x 60 ℓ
-35		65	x 65 ℓ
-40		70	x 70 ℓ
-45		75	x 75 ℓ
-50		80	x 80 ℓ

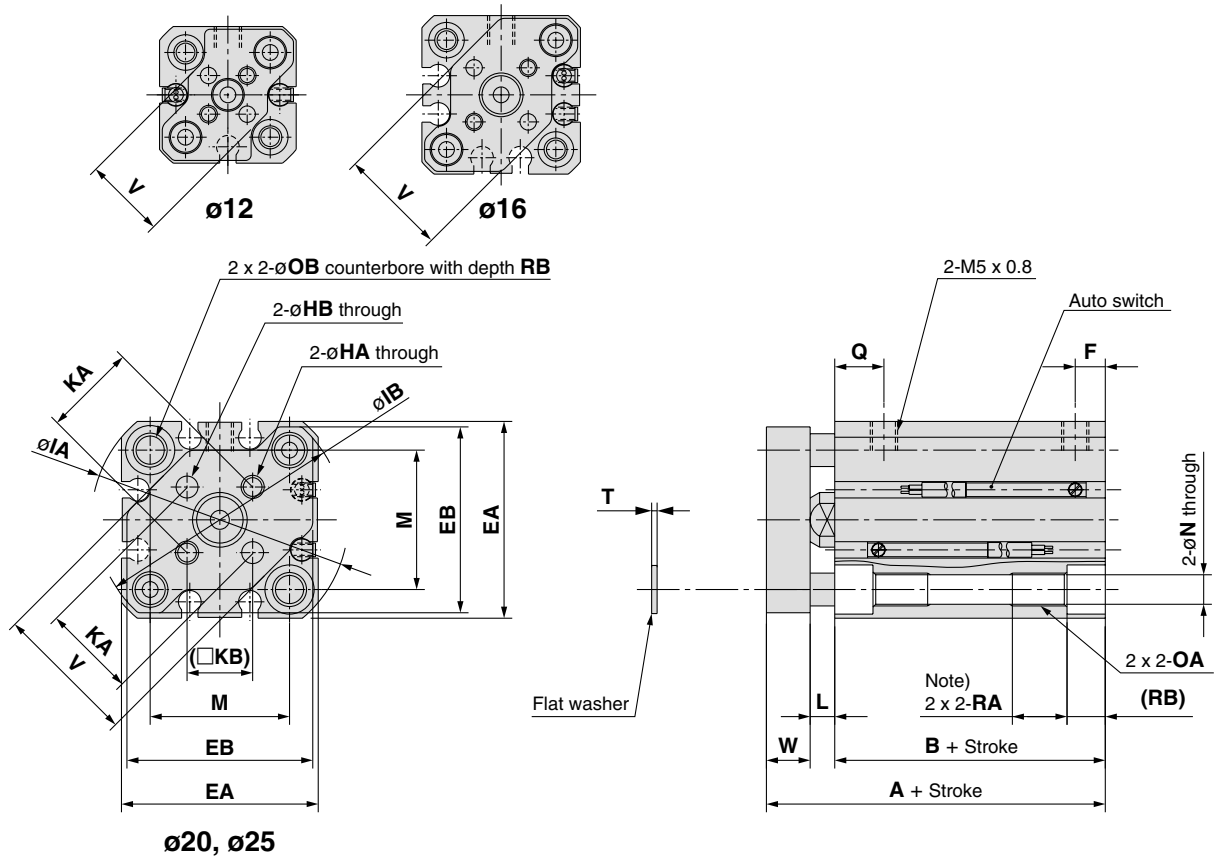
Model	C	D	Mounting bolt
CDQMB25-5	8.5	40	M5 x 40 ℓ
-10		45	x 45 ℓ
-15		50	x 50 ℓ
-20		55	x 55 ℓ
-25		60	x 60 ℓ
-30		65	x 65 ℓ
-35		70	x 70 ℓ
-40		75	x 75 ℓ
-45		80	x 80 ℓ
-50		85	x 85 ℓ
CDQMB32-5	9	40	M5 x 40 ℓ
-10		45	x 45 ℓ
-15		50	x 50 ℓ
-20		55	x 55 ℓ
-25		60	x 60 ℓ
-30		65	x 65 ℓ
-35		70	x 70 ℓ
-40		75	x 75 ℓ
-45		80	x 80 ℓ
-50		85	x 85 ℓ
-75	110	x 110 ℓ	
-100	135	x 135 ℓ	

Model	C	D	Mounting bolt
CDQMB40-5	7.5	45	M5 x 45 ℓ
-10		50	x 50 ℓ
-15		55	x 55 ℓ
-20		60	x 60 ℓ
-25		65	x 65 ℓ
-30		70	x 70 ℓ
-35		75	x 75 ℓ
-40		80	x 80 ℓ
-45		85	x 85 ℓ
-50		90	x 90 ℓ
-75	115	x 115 ℓ	
-100	140	x 140 ℓ	
CDQMB50-10	12.5	55	M6 x 55 ℓ
-15		60	x 60 ℓ
-20		65	x 65 ℓ
-25		70	x 70 ℓ
-30		75	x 75 ℓ
-35		80	x 80 ℓ
-40		85	x 85 ℓ
-45		90	x 90 ℓ
-50		95	x 95 ℓ
-75		120	x 120 ℓ
-100	145	x 145 ℓ	

Compact Cylinder: Guide Rod Type Double Acting, Single Rod Series CQM

Dimensions

ø12 to ø25



CUJ

CU

CQS

CQM

CQ2

RQ

MU

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Data

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch		With auto switch		EA	EB	F	HA		OA		HB	IA	IB
		A	B	A	B				—	NN	—	NN			
12	5 to 30	26.5	17	31.5	22	25	24	5	M3 x 0.5	4-40UNC	M4 x 0.7	8-32UNC	3	32	31.5
16	5 to 30	26.5	17	31.5	22	29	28	5	M3 x 0.5	4-40UNC	M4 x 0.7	8-32UNC	3	38	37
20	5 to 50	32	19.5	42	29.5	36	34	5.5	M4 x 0.7	6-32UNC	M6 x 1.0	1/4-20UNC	4	47	45.5
25	5 to 50	35.5	22.5	45.5	32.5	40	38	5.5	M5 x 0.8	10-32UNF	M6 x 1.0	1/4-20UNC	5	52	50.5

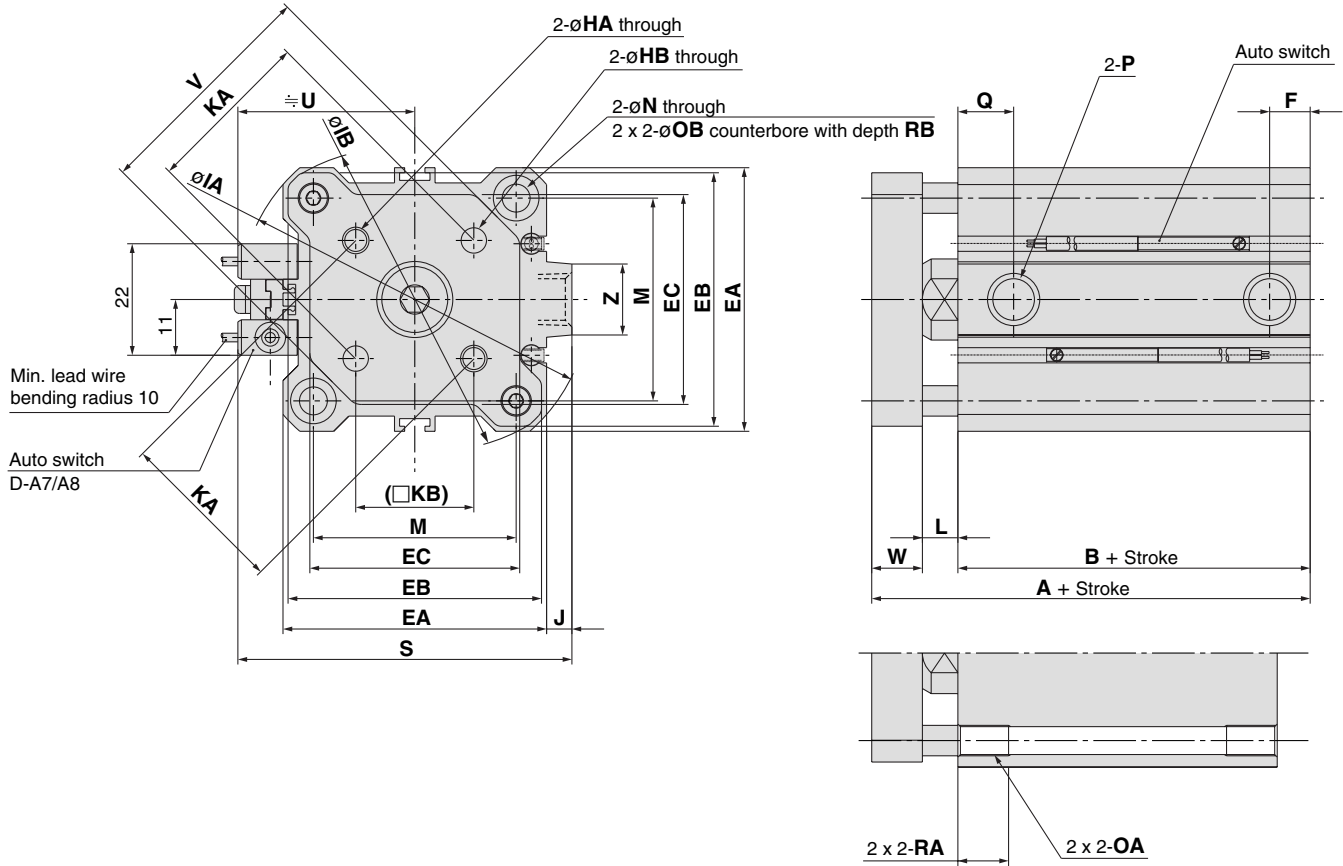
Bore size (mm)	KA	KB	L	M	N	OB	Q	RA	RB	T	V	W
12	10	7.1	3.5	15.5	3.5	6.5	7.5	7	4	0.5	14.9	6
16	14	9.9	3.5	20	3.5	6.5	7.5	7	4	0.5	20	6
20	17	12	4.5	25.5	5.4	9	9	10	7	1	26	8
25	22	15.6	5	28	5.4	9	11	10	7	1	30	8

Note) For the following bore/stroke sizes, the through-hole is threaded.
 Standard without auto switch: ø12 and ø16; 5 stroke, ø25; 5 to 10 stroke
 Built-in magnet with auto switch: ø20; 5 stroke

Series CQM

Dimensions

ø32 to ø50



Both ends tapped style (CQMA)

Bore size (mm)	Stroke range (mm)	Without auto switch								With auto switch								EA	EB	EC	
		A	B	F	Q	P				A	B	F	Q	P							
						—	TN	TF	NN					—	TN	TF	NN				
32	5	40	23	5.5	11.5	M5 x 0.8	—	—	M5 x 0.8	50	33	7.5	10.5	Rc1/8	NPT1/8	G1/8	NPT1/8	45	43	34.4	
	10 to 50	7.5	10.5	Rc1/8	NPT1/8	G1/8	NPT1/8														
	75, 100	50	33	8	11	Rc1/8	NPT1/8	G1/8	NPT1/8					56.5	39.5	8	11				Rc1/8
40	5 to 50	46.5	29.5	10.5	10.5	Rc1/4	NPT1/4	G1/4	NPT1/4	60.5	40.5	10.5	10.5	Rc1/4	NPT1/4	G1/4	NPT1/4	64	62	53.4	
	75, 100	56.5	39.5																		
	10 to 50	50.5	30.5																		
50	75, 100	60.5	40.5																		

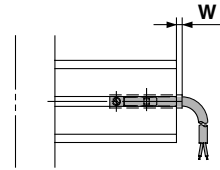
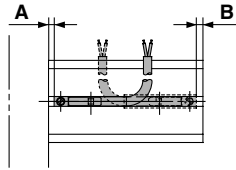
Bore size (mm)	HA		OA		HB	IA	IB	J	KA	KB	L	M	N	OB	RA	RB	S	U	V	W	Z
	—, TN, TF	NN	—, TN, TF	NN																	
32	M5 x 0.8	10-32UNF	M6 x 1.0	1/4-20UNC	5	60	58.5	4.5	28	19.8	7	34	5.5	9	10	7	58.5	31.5	38	10	14
40	M5 x 0.8	10-32UNF	M6 x 1.0	1/4-20UNC	5	69	67.5	5	33	23.3	7	40	5.5	9	10	7	66	35	46	10	14
50	M6 x 1.0	1/4-20UNC	M8 x 1.25	5/16-18UNC	6	86	84.5	7	42	29.7	8	50	6.6	11	14	8	80	41	58	12	19

Proper Auto Switch Mounting Position (Detection at stroke end) and Its Mounting Height

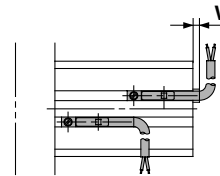
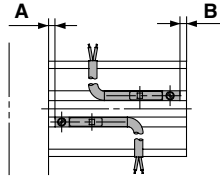
Reed switch
D-A9□

Solid state switch
D-M9□
D-F9BAL
D-F9□W

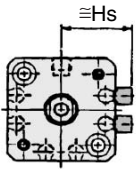
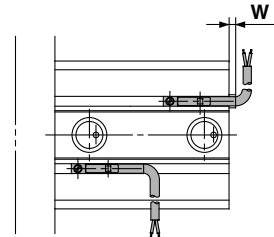
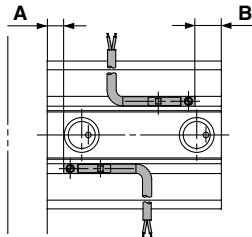
ø12



ø16/20/25



ø32/40/50



* Mounting height "Hs" exists only for the D-F9BAL type.

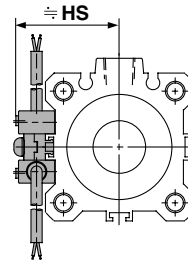
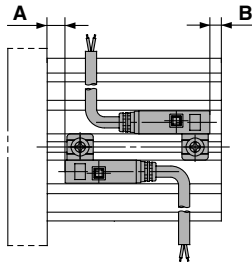
Auto switch model	D-A9□			D-M9□ D-F9□W			D-F9BAL				
	Symbol	A	B	W	A	B	W	A	B	W	HS
Bore size (mm)	12	1.5	0	1.5 (4)	5.5	4.5	5.5	4.5	3.5	14.5	16.5
	16	2	0	2 (4.5)	6	4	6	5	3	15	18.5
	20	6	3.5	-1.5 (1)	10	7.5	2.5	9	6.5	11.5	22
	25	7	5.5	-3.5 (-1)	11	9.5	0.5	10	8.5	9.5	24
	32	8	5	-3 (-0.5)	12	9	1	11	8	10	26.5
	40	12	7.5	-5.5 (-3)	16	11.5	-1.5	15	10.5	7.5	30
50	10	10.5	-8.5 (-6.5)	14	14.5	-4.5	13	13.5	4.5	36	

The dimension inside () is for D-A93.

Reed switch
D-A7□H
D-A80H

Solid state switch
D-F7□
D-J79
D-F7□W
D-J79W
D-F7BAL
D-F79F
D-F7NTL

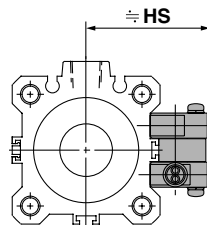
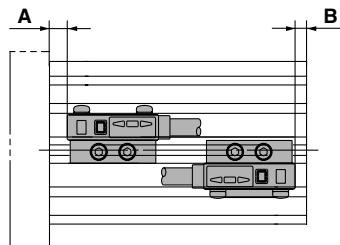
ø32/40/50



Auto switch model	D-A7□H D-A80H			D-F7□ D-J79 D-F7□W			D-J79W D-F7BAL D-F79F			D-F7NTL	
	Symbol	A	B	Hs	A	B	Hs	A	B	Hs	
Bore size (mm)	32	9.5	6.5	32.5	9.5	6.5	32.5	14.5	11.5	32.5	
	40	13.5	9	36	13.5	9	36	18.5	14	36	
	50	11.5	12	42	11.5	12	42	16.5	17	42	

Solid state switch
D-P5DW

ø40, 50



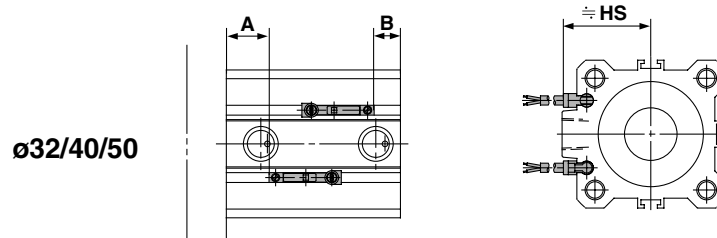
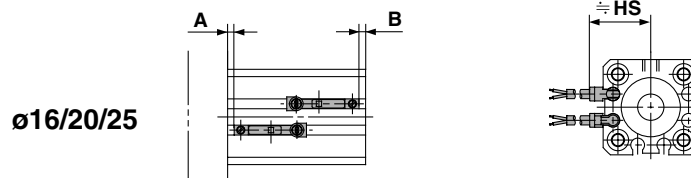
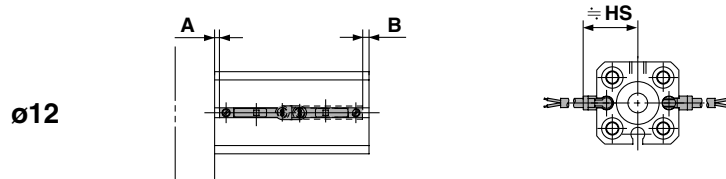
Auto switch model		D-P5DW		
Symbol	A	B	Hs	
Bore size (mm)	40	9	4.5	44
	50	7	7.5	50

Series CQM

Proper Auto Switch Mounting Position (Detection at stroke end) and Its Mounting Height

Reed switch
D-A9□V

Solid state switch
D-M9□V
D-F9□WV

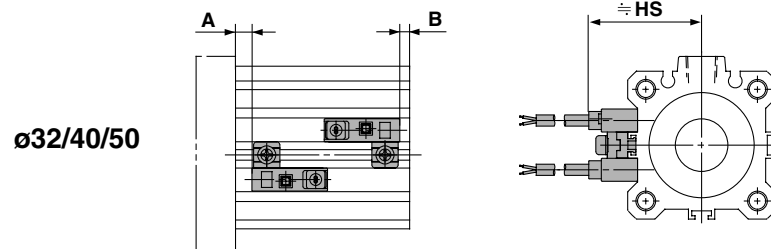


(mm)

Auto switch model		D-A9□V			D-M9□V, D-F9□WV		
Symbol		A	B	Hs	A	B	Hs
Bore size (mm)	12	1.5	0	17	5.5	4.5	19
	16	2	0	19	6	4	21
	20	6	3.5	22.5	10	7.5	24
	25	7	5.5	24.5	11	9.5	26
	32	8	5	27	12	9	29
	40	12	7.5	30.5	16	11.5	32.5
	50	10	10.5	36.5	14	14.5	42

Reed switch
D-A7□
D-A80
D-A73C
D-A80C
D-A79W

Solid state switch
D-F7□V
D-J79C
D-F7□WV
D-F7BAVL



(mm)

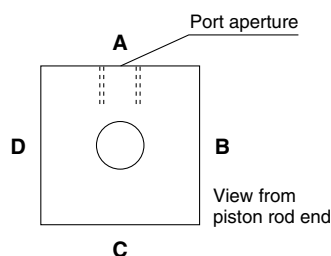
Auto switch model		D-A7□ D-A80			D-A73C D-A80C			D-A79W			D-F7□V D-F7BAVL D-F7□WV			D-J79C		
Symbol		A	B	Hs	A	B	Hs	A	B	Hs	A	B	Hs	A	B	Hs
Bore size (mm)	32	9 (9.5)	6 (6.5)	31.5	9.5	6.5	38.5	6.5	3.5	34	9.5	6.5	35	9.5	6.5	38
	40	13 (13.5)	8.5 (9)	35	13.5	9	42	10.5	6	37.5	13.5	9	38.5	13.5	9	41.5
	50	11 (11.5)	11.5 (12)	41	11.5	12	48	12	8.5	43.5	11.5	12	44.5	11.5	12	47.5

The dimension inside () is for D-A72.

Compact Cylinder: Guide Rod Type Double Acting, Single Rod Series CQM

Number of surfaces and grooves where an auto switch can be mounted (as direct mounting).

The number of the surfaces and grooves where an auto switch can be mounted, by switch type, are shown in the table below.



Switch type Bore size (mm)	D-A9□, M9□, F9□				D-A7□, A8□, F7□, J7□			
	A (Mounting groove no.)	B (Mounting groove no.)	C (Mounting groove no.)	D (Mounting groove no.)	A (Mounting groove no.)	B (Mounting groove no.)	C (Mounting groove no.)	D (Mounting groove no.)
12	—	○ (1)	○ (1)	○ (1)	—	—	—	—
16	—	○ (2)	○ (2)	○ (2)	—	—	—	—
20	—	○ (2)	○ (2)	○ (2)	—	—	—	—
25	—	○ (2)	○ (2)	○ (2)	—	—	—	—
32	○ (2)	—	—	—	—	○	○	○
40	○ (2)	—	—	—	—	○	○	○
50	○ (2)	—	—	—	—	○	○	○

Operating Range

Auto switch model	Bore size (mm)						
	12	16	20	25	32	40	50
D-F7□, D-F7□V D-J79, D-J79C D-F7□W, D-F7□WV D-J79W D-F7BAL, D-F7BAVL D-F7NTL, D-F79F	—	—	—	—	6	6	6
D-F9□W, D-F9□WV D-F9BAL	3	4	5	5.5	5.5	5.5	5.5
D-A7□, D-A80 D-A9□(V)	—	—	—	—	12	11	10
D-M9□, D-M9□V	2	2.5	3.5	3.5	4	4	4

* The operating ranges are provided as guidelines including hystereses and are not guaranteed values (assuming approximately ±30% variations). They may vary significantly with ambient environments.

Auto Switch Mounting Bracket Part No.

Bore size (mm)	Mounting bracket part no.	Note	Applicable auto switch	
			Reed switch	Solid state switch
32, 40 50	BQ-2	<ul style="list-style-type: none"> Switch mounting screw (M3 x 0.5 x 10 ℓ) Switch spacer Switch mounting nut 	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 D-F7NTL
40, 50	BQP1-050	<ul style="list-style-type: none"> Switch mounting bracket Switch mounting nut Hexagon socket head cap bolt (M3 x 0.5 x 14 ℓ spring washer 2 pcs.) Round head Phillips screw (M3 x 0.5 x 16 ℓ spring washer 2 pcs.) 	—	D-P5DWL

[Mounting screws set made of stainless steel]

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

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

"D-F7BAL/F7BAVL" switch is set on the cylinder with the stainless steel screws above when shipped. When a switch is shipped independently, "BBA2" screws are attached.

Minimum Auto Switch Mounting Stroke

Bore size (mm)	Auto switch model Number of auto switch	Bore size (mm)						
		D-A9□	D-A9□V	D-M9□	D-F9□W	D-M9□V	D-F9□WV	D-F9BAL
12 to 25	2 pcs.	10	10	15	15	5	10	25
	1 ps.	10	5	15	15	5	10	25
32, 40, 50	2 pcs.	10	10	10	15	5	15	20
	1 pc.	10	5	10	15	5	10	20

Bore size (mm)	Auto switch model Number of auto switch	Bore size (mm)							
		D-F7□V	D-A7□ D-A8□ D-A73C D-A80C	D-F7□WV D-F7BAVL	D-A7□H D-A80H D-F7□ D-J79	D-A79W	D-F7□W D-J79W D-F7BAL D-F7NT D-F79F	D-P5DW	
32, 40, 50	2 pcs.	5	10	15	15	20	20	15	
	1 pc.	5	5	10	15	15	20	15	

Other than the applicable auto switches listed in "How to Order", the following auto switches can be mounted.
For detailed specifications, refer to page 7-9-1.

Type	Model	Electrical entry	Features	Applicable bore size (mm)
Solid state switch	D-F7NTL	Grommet (In-line)	With timer	32 to 50

* With pre-wire connector is available for D-F7NTL type, too. Please contact SMC for details.

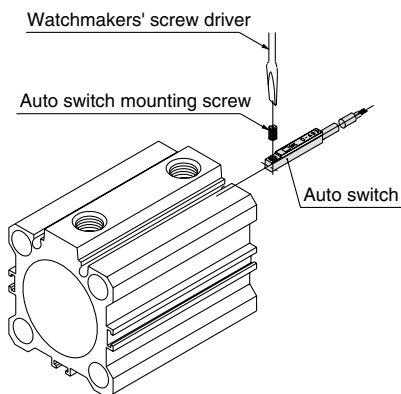
* Please contact SMC for detailed normally closed solid (N.C. = b contact) state auto switches such as D-F9G and D-F9H.

Series CQM

Mounting of Auto Switch

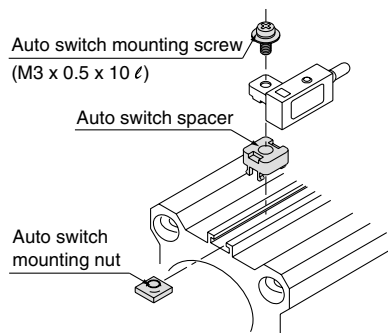
To mount auto switches, follow the instruction illustrated below.

ø12 to ø50/Direct mounting



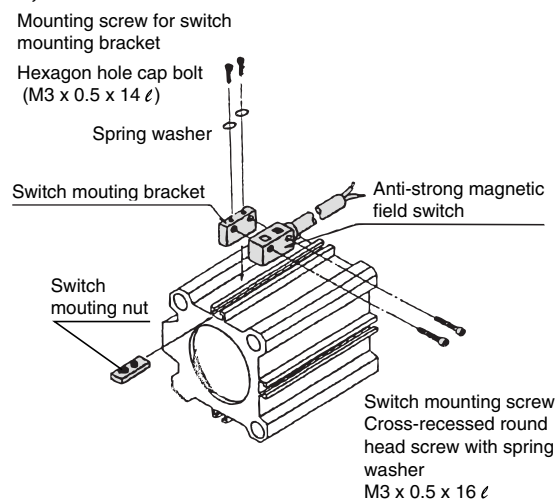
- Use a watchmakers screwdriver with a handle 5 to 6 mm in diameter when tightening the auto switch mounting screw. Tightening torque should be set 0.10 to 0.20 N·m.

ø32 to ø50/Rail mounting



- Tightening torque of auto switch mounting screw should be set 0.5 to 0.7 N·m.
- * In the case of cylinders with built-in magnets, unassembled auto switch mounting brackets are packed together when shipped.

ø40, ø50/D-P5DWL



1. Mount the switch mounting bracket onto the switch mounting nut by tightening mounting screw for bracket fixing lightly through the mounting hole on the top of bracket.
2. Insert the switch mounting bracket assembly (bracket + nut) into the mounting groove and set it at the auto switch mounting position.
3. Push the auto switch mounting screw lightly into the auto switch through the mounting hole to fix switch mounting bracket tentatively.
4. After reconfirming the detecting position, tighten the mounting screw for switch mounting bracket and switch mounting screw, and fix the auto switch. (Tightening torque should be 0.5 to 0.7 N·m.)

Series CQM



Specific Product Precautions

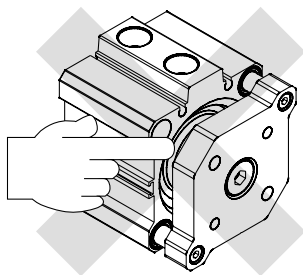
Be sure to read before handling.

Mounting

⚠ Warning

1. Do not put hands or fingers between the plate and cylinder tubing.

Never put hands or fingers in the gap between the plate and cylinder tubing when the piston rods are retracted. Due to the heavy power output of the cylinder, failure to comply with this directive may result in trapping and subsequent injury to the human body.



⚠ Caution

1. Do not scratch or dent the sliding parts of the piston rod and guide rods.

Damage to seals may cause air leakage or faulty operation.

2. Mounting of workpiece

When screwing a bolt onto the threaded portion of the plate surface, be certain that the guide rods are fully extended - to the end.

Also, be careful that the tightening torque is not applied to the guide rods.

Others

⚠ Caution

1. This product should not be used as a stopper.

CUJ

CU

CQS

CQM

CQ2

RQ

MU

D-

-X

20-

Data