

Compact Cylinder/Guide Rod Type

Series CQM

ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100

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 ends tapped (ø32 to ø100)

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

Note 2) Contact SMC for the other mounting types.

Bore size

12	12mm	40	40mm
16	16mm	50	50mm
20	20mm	63	63mm
25	25mm	80	80mm
32	32mm	100	100mm

Thread type

Symbol	Port thread	Mounting thread	Bore size
Nil	M thread	M thread	ø12 to ø25
	Rc		
TN	NPT		
TF	G	Inch thread	ø12 to ø25 ø32 to ø100
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 cylinder)

* Refer to the table below for auto switch model numbers.

* Auto switches are packed together when shipped (unassembled). (Except for D-P5DWL)

Cylinder stroke (mm)

Refer to the next page for standard and intermediate strokes.

Applicable Auto Switches/Refer to page 7-9-1 of Best Pneumatics vol. 7 for detailed auto switch specifications.

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 ø100		ø12 to ø100		0.5 (Nil)	3 (L)	5 (Z)	None (N)				
							Perpendicular	In-line	Perpendicular	In-line								
Reed switch	—	Grommet	Yes	3-wire (NPN equiv.)	—	5 V	—	—	A76H	A96V	A96	●	●	—	—	IC circuit	Relay, PLC	
				2-wire	24 V	100 V	A72	A72H	—	—	●	●	—	—	—			
			12 V				A73	A73H	—	—	●	●	●	—		IC circuit		
			5 V, 12 V				A80	A80H	A90V	A90	●	●	—	—	—			
		12 V	—				—	A93V	A93	●	●	—	—	—				
		12 V	A73C	—	—	—	●	●	●	●	IC circuit							
	5 V, 12 V	A80C	—	—	—	●	●	●	●	—								
	—	—	—	A79W	—	—	—	●	●		—	—	—					
Diagnostic indication (2-color display)	Grommet	Yes																
Solid state switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	F7NV	F79	M9NV	M9N	●	●	○	—	IC circuit	Relay, PLC	
				3-wire (PNP)				F7PV	F7P	M9PV	M9P	●	●	○	—			—
		Connector		2-wire				12 V	F7BV	J79	M9BV	M9B	●	●	○	—		
				J79C				—	—	—	●	●	●	●	IC circuit			
	Grommet	3-wire (NPN)	5 V, 12 V	F7NVV	F79W	F9NVV	F9NW	●	●	○	—	—						
		3-wire (PNP)		—	F7PW	F9PWV	F9PW	●	●	○	—		—					
		2-wire		F7BWW	J79W	F9BWW	F9BW	●	●	○	—	—						
				—	F7BA	—	F9BA	—	●	○	—		—					
				F7BAV	—	—	—	—	●	○	—			—				
				—	P5DW	—	—	—	●	●	—				—			

* Lead wire length symbols: 0.5 m.....Nil (Example) A73C

3 m.....L
5 m.....Z
None.....N

A73CL
A73CZ
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 12.
- D-P5DWL type: ø40 to ø100 only available.

Made to Order Specifications → Refer to page 7-9-36 of Best Pneumatics Vol. 7.

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

Compact Cylinder/Guide Rod Type **Series CQM**



⚠ Caution

- ① Do not use the product as a stopper.
- ② Do not disassemble and modify the product.

Specifications

Model	Pneumatic (non-lube) type	
Action	Double acting, Single rod	
Fluid	Air	
Proof pressure	1.5 MPa	
Maximum operating pressure	1.0 MPa	
Minimum operating pressure	ø12, ø16	0.12 MPa
	ø20 to ø100	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-holes	
Piston speed	ø12 to ø40	50 to 500 mm/s
	ø50 to ø100	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
50,63,80,100	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

Manufacture of Intermediate Stroke

Description		Intermediate stroke range	
Spacers are installed in a cylinder with standard stroke.		Bore size (mm)	Intermediate stroke range (mm)
Bore size (mm)	Description	12, 16	1 to 29
		20, 25	1 to 49
12 to 32	Available in 1 mm stroke increments	32	1 to 99
		40 to 100	5 to 95

Example) Part number: CQMB32-57

Constructed by installing an 18 mm spacer in the standard stroke cylinder CQMB32-75. B dimension: 108 mm.

Weight

Theoretical Output

Unit: N

Bore size (mm)	Operating direction	Operating pressure (MPa)		
		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
63	IN	840	1400	1960
	OUT	936	1560	2184
80	IN	1362	2270	3178
	OUT	1509	2515	3521
100	IN	2145	3575	5005
	OUT	2355	3925	5495

Auto Switch Mounting Bracket Weight

Mounting bracket part no.	Applicable cylinder bore size	Weight (g)
BQ-2	ø32 to ø100	1.5
BQP1-050	ø40 to ø100	16

Without Auto Switch

Unit: g

Bore size (mm)	Cylinder stroke (mm)											
	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
63	—	745	795	845	894	944	993	1043	1093	1143	1535	1791
80	—	1400	1479	1559	1639	1719	1800	1880	1959	2039	2671	3067
100	—	2365	2468	2571	2674	2776	2880	2983	3086	3188	4053	4574

With Auto Switch (Built-in magnet)

Unit: g

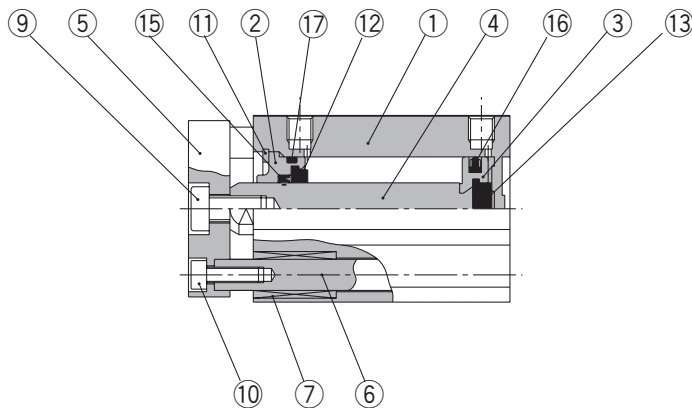
Bore size (mm)	Cylinder stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
12	52	59	68	77	84	93	—	—	—	—	—	—
16	66	77	87	97	107	118	—	—	—	—	—	—
20	122	138	153	168	182	197	213	227	242	257	—	—
25	168	186	205	223	240	258	277	295	313	331	—	—
32	241	264	287	309	333	356	379	401	425	448	564	680
40	345	371	396	421	447	473	498	523	548	574	705	836
50	—	618	658	698	738	779	819	858	898	939	1147	1355
63	—	903	953	1003	1052	1102	1152	1201	1251	1301	1557	1813
80	—	1661	1740	1820	1900	1980	2061	2141	2220	2300	2695	3090
100	—	2745	2848	2950	3053	3156	3260	3362	3465	3568	4088	4609

Add each weight of auto switches and mounting brackets.

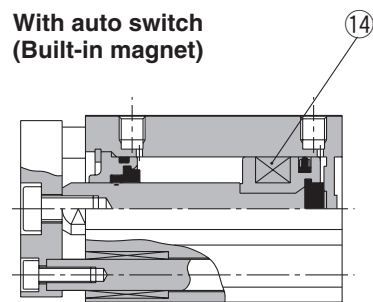
Refer to pages 16 to 19 for auto switch weight.

Construction

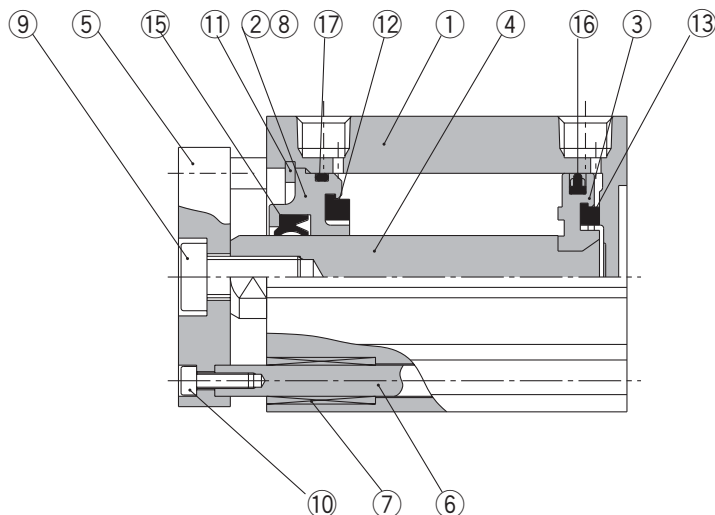
ø12 to ø25



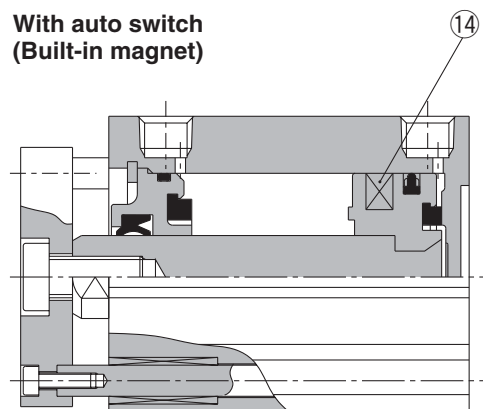
With auto switch
(Built-in magnet)



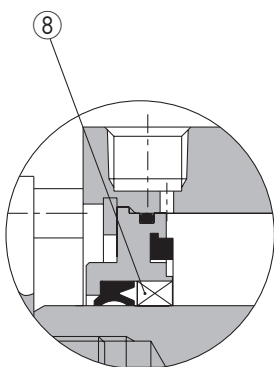
ø32 to ø100



With auto switch
(Built-in magnet)



ø50 to ø100

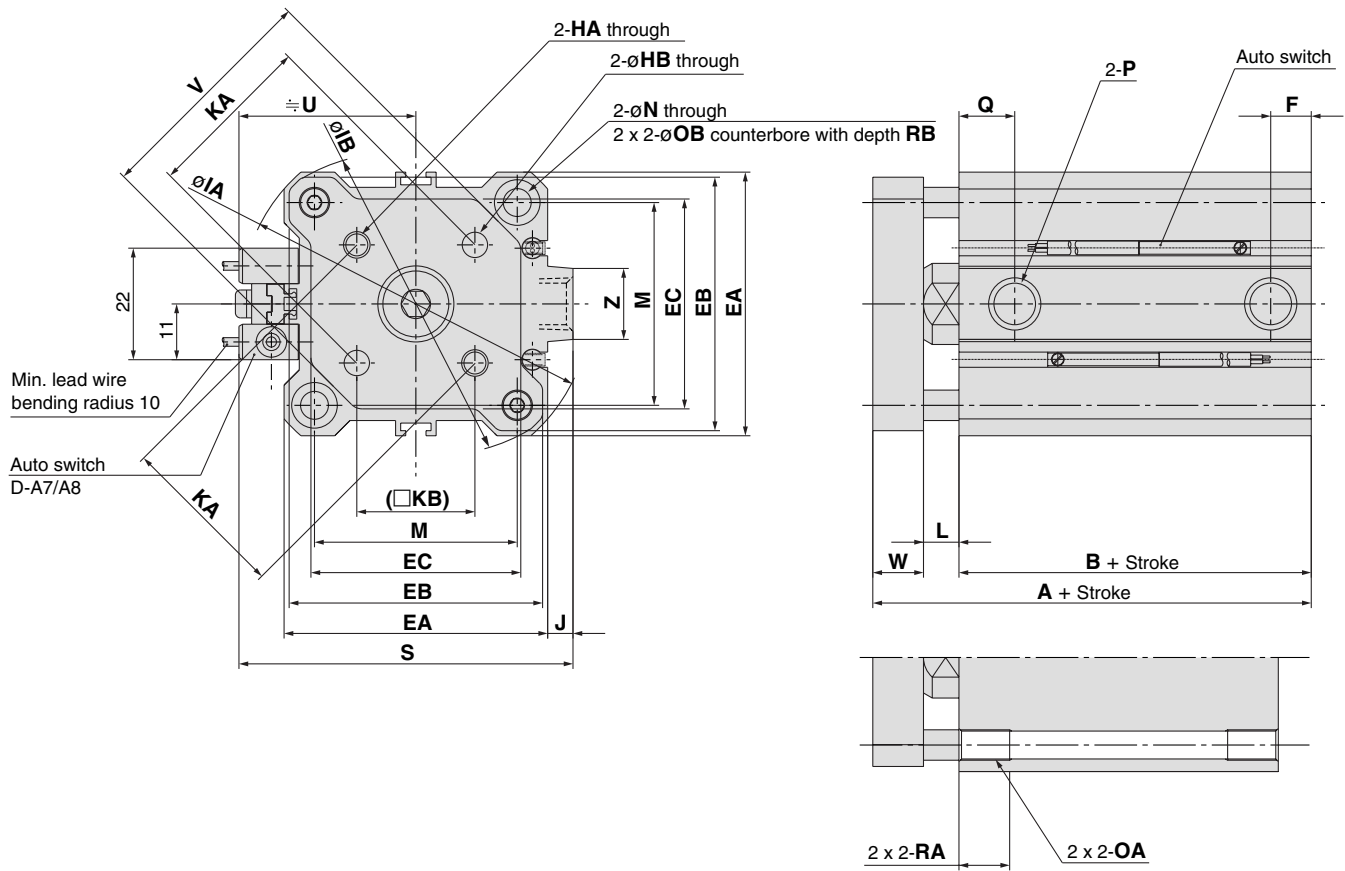


Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Collar	Aluminum alloy	ø12 to ø40 Anodized
		Aluminum alloy casted	ø50 to ø100 Chromated, Coated
3	Piston	Aluminum alloy	Chromated
4	Piston rod	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø100 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 alloy	ø50 to ø100
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	

Dimensions

ø32 to ø50



Both ends tapped (CQMA)

(mm)																				
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																	
40	5 to 50	46.5	29.5	8	11	Rc1/8	NPT1/8	G1/8	NPT1/8	56.5	39.5	8	11	Rc1/8	NPT1/8	G1/8	NPT1/8	52	50	41.4
	75, 100	56.5	39.5																	
50	10 to 50	50.5	30.5	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	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 ^{+0.2} ₀	60	58.5	4.5	28 ± 0.2	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 ^{+0.2} ₀	69	67.5	5	33 ± 0.2	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 ^{+0.2} ₀	86	84.5	7	42 ± 0.2	29.7	8	50	6.6	11	14	8	80	41	58	12	19