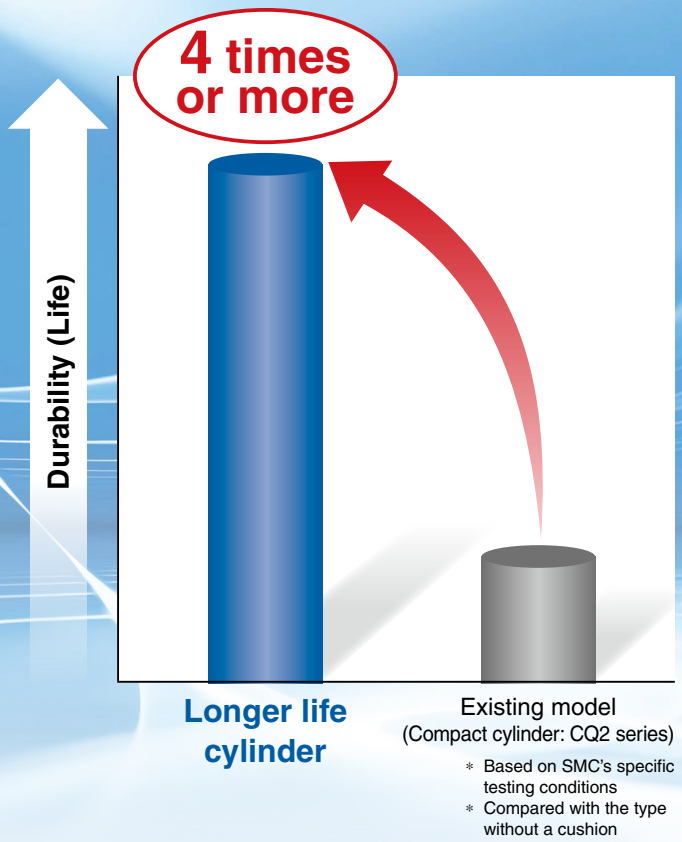
High Durability Series

Longer Life Cylinder

New

RoHS

New technology offers at least 4 times better durability



＊ Based on SMC's specific testing conditions
＊ Compared with the type without a cushion

- **The maintenance intervals will be extended**

- **Employs the same specification and dimensions as the existing models, CQ2 Compact Cylinder series**

High Durability Series

High Durability Series is the series name for the "special specification" that offers superior durability and environmental resistance compared to standard products.

Series Variations

Series	Action	Model	Bore size						Cushion	Standard stroke
			12	16	20	25	32	40		
Compact cylinder CQ2 series 	Double acting, Single rod	**CQ2-XB24**	●	●	●	●	●	●	None, Rubber bumper	ø12, ø16: 5 to 30 ø20, ø25: 5 to 50 ø32, ø40: 5 to 100

CQ2-XB24

SMC

CAT.ES20-273A Ⓐ

High Durability Series

Longer Life Cylinder
Double Acting, Single Rod
CQ2-XB24

RoHS

ø12, ø16, ø20, ø25, ø32, ø40

How to Order

Without auto switch ø12 to ø25

CQ2 B 20 □ – 30 D □ – XB24

Without auto switch ø32, ø40

CQ2 B 32 □ – 30 D □ Z – XB24

With auto switch

CDQ2 B 32 □ – 30 D M Z – M9BW □ – XB24

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽ ❾

With auto switch magnet
The overall length of the cylinder with an auto switch magnet is longer than that of the cylinder without an auto switch magnet by the length of the built-in magnet. For details, refer to the dimensions of each size.

Longer life cylinder

❶ Mounting

B	Through-hole
A	Both ends tapped
L	Foot bracket
LC	Compact foot bracket
F	Rod flange
G	Head flange
D	Double clevis

∗ Mounting brackets are shipped together with the product but do not come assembled.
∗ For cylinders with mounting options "L," "LC," or "F," the cylinder rod protrusion dimensions (Dimensions L and L1) vary from the standard cylinder.

❷ Bore size

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

❸ Port thread type

Nil	M thread	ø12 to ø25
	Rc	
TN	NPT	ø32, ø40
TF	G	

∗ For cylinders without an auto switch magnet, M threads are compatible only with ø32-5 mm stroke.

❹ Cylinder stroke

(The minimum stroke data for the cylinder with an auto switch is equivalent to that for the CQ2 Compact Cylinder series. For details, refer to the **Web Catalog**.) [mm]

Bore size	Standard stroke
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

❺ Action

D	Double acting

❻ Body option

Nil	Rod end female thread
M	Rod end male thread
C	With rubber bumper

∗ Combination of body options is available. CM

❼ Auto switch mounting groove

Z	ø12 to ø25	2 surfaces
	ø32, ø40	4 surfaces

❽ Auto switch

Nil	Without auto switch

∗ For applicable auto switches, refer to the table below.

❾ Number of auto switches

Nil	2
S	1
n	n

Cylinder Model with Auto Switch Magnet

If a cylinder with an auto switch magnet and without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example) CDQ2L32-25DZ-XB24

Applicable Auto Switches / Refer to the **Web Catalog** for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Perpendicular	Auto switch model: In-line	Lead wire length [m]: 0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)	Pre-wired connector	Applicable load	
Solid state auto switch	——	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—	○	IC circuit	Relay, PLC
				3-wire (PNP)			M9PV	M9P	●	●	●	○	—	○		
				2-wire	12 V		M9BV	M9B	●	●	●	○	—	○	—	
	Diagnostic indication (2-color indicator)			3-wire (NPN)	5 V, 12 V		M9NWV	M9NW	●	●	●	○	—	○	IC circuit	
				3-wire (PNP)			M9PWV	M9PW	●	●	●	○	—	○		
				2-wire			M9BWV	M9BW	●	●	●	○	—	○	—	
	Water resistant (2-color indicator)			3-wire (NPN)	5 V, 12 V		M9NAV*1	M9NA*1	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)			M9PAV*1	M9PA*1	○	○	●	○	—	○		
				2-wire	12 V		M9BAV*1	M9BA*1	○	○	●	○	—	○	—	
	Magnetic field resistant (2-color indicator)			2-wire (Non-polar)	—		—	P3DWA	●	—	●	●	—	○		
Reed auto switch	——	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	●	●	●	—	○	IC circuit	—
				2-wire	24 V	12 V	100 V	A93V	A93	●	●	●	●	—	○*2	—	Relay, PLC
			No			5 V, 12 V	100 V or less	A90V	A90	●	●	●	●	—	○*2	IC circuit	

∗1 Water-resistant type auto switches can be mounted on the models, but SMC cannot guarantee water resistance. A water-resistant type cylinder is recommended for use in an environments which requires water resistance.
∗2 The load voltage used is 24 VDC.

∗ 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

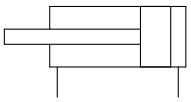
∗ Auto switches marked with a "○" are produced upon receipt of order.
∗ The D-P3DWA type is only available in sizes ø25 to ø40.

∗ Since there are applicable auto switches other than those listed above, refer to the **Web Catalog** for details.
∗ The installation of auto switches is equivalent to that for the CQ2 Compact Cylinder series. For details, refer to the **Web Catalog**.

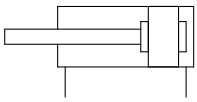
SMC

Symbol

Without cushion



Rubber bumper



Made to Order Common Specifications

Click here for details

Symbol	Specifications
-XA□	Change of rod end shape

∗ Only applicable to the -XA6, 7, 17, and 18

The mounting pitch and shape of this product with auto switch are the same as those of the Compact Cylinder CQ2 series with auto switch.
For details, refer to the **Web Catalog**.

- Auto Switch Proper Mounting Position (Detection at stroke end) and Mounting Height
- Min. Stroke for Auto Switch Mounting
- Operating Range
- Auto Switch Mounting Brackets/Part Nos.

Moisture Control Tube
IDK Series

When operating an actuator with a small bore size and a short stroke at a high frequency, dew condensation (water droplets) may occur inside the piping depending on the conditions.
Simply connecting the moisture control tube to the actuator will prevent dew condensation from occurring. For details, refer to the **Web Catalog**.

⚠ Precautions

Refer to page 10 before handling the products.

Specifications

Bore size [mm]		12	16	20	25	32	40
Action		Double acting, Single rod					
Fluid		Air					
Proof pressure		1.5 MPa					
Max. operating pressure		1.0 MPa					
Min. operating pressure		0.07 MPa		0.05 MPa			
Ambient and fluid temperatures		Without auto switch magnet: –10 to 70°C With auto switch magnet: –10 to 60°C (No freezing)					
Lubrication		Not required (Non-lube)					
Piston speed		50 to 500 mm/s					
Cushion		Without cushion or with rubber bumper					
Allowable kinetic energy [J]	**Without cushion**	0.022	0.038	0.055	0.09	0.15	0.26
	With rubber bumper	0.043	0.075	0.11	0.18	0.29	0.52
Stroke length tolerance		$^{+1.0}_{0}$ mm ∗1					

∗1 Stroke length tolerance does not include the amount of bumper change.

Mounting Bracket Part Nos.

Bore size [mm]		Foot bracket∗1	Compact foot bracket∗1	Flange	Double clevis	Double clevis pivot bracket
12	Without auto switch magnet	CQ-L012	CQ-LC012	CQ-F012	CQ-D012	CQ-C012
	With auto switch magnet	CQ-LZ12	CQ-LCZ12			
16	Without auto switch magnet	CQ-L016	CQ-LC016	CQ-F016	CQ-D016	CQ-C016
	With auto switch magnet	CQ-LZ16	CQ-LCZ16			
20	Without auto switch magnet	CQ-L020	CQ-LC020	CQ-F020	CQ-D020	CQ-C020
	With auto switch magnet	CQ-LZ20	CQ-LCZ20			
25	Without auto switch magnet	CQ-L025	CQ-LC025	CQ-F025	CQ-D025	CQ-C025
	With auto switch magnet	CQ-LZ25	CQ-LCZ25			
32		CQ-L032	CQ-LC032	CQ-F032	CQ-D032	CQ-C032
40		CQ-L040	CQ-LC040	CQ-F040	CQ-D040	CQ-C040

∗1 When ordering a foot bracket or compact foot bracket, the required quantity will be different depending on the bore size.
ø12 to ø25:
- Without auto switch magnet: Order 2 pieces per cylinder.
- With auto switch magnet: Order 1 piece per cylinder. (Part number for a set of 2 brackets)

ø32, ø40:
- Order 2 pieces per cylinder.

∗ Parts included with each type of bracket are as follows.
Foot bracket, Compact foot bracket, Flange: Body mounting bolts
Double clevis: Clevis pin, Type C retaining rings for axis, Body mounting bolts

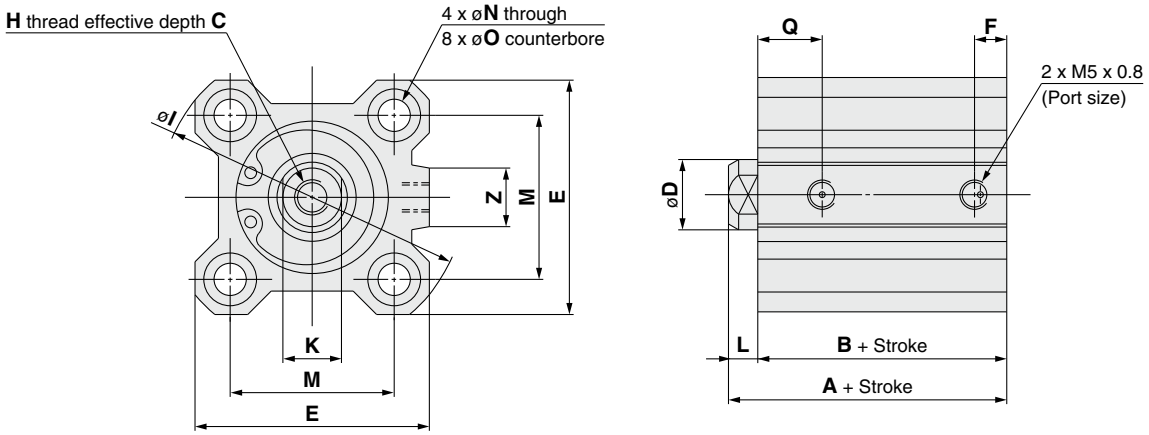
∗ Foot brackets, compact foot brackets, and flanges, etc., cannot be retrofitted for through-hole mounting (B).

The allowable kinetic energy, allowable loads at the rod end, theoretical output, weight, and mounting bolts for a through hole are equivalent to those of the Compact Cylinder CQ2 series. For details, refer to the Web Catalog.

Bore Size

ø12 to ø25 Without Auto Switch Magnet

Through-hole: CQ2B

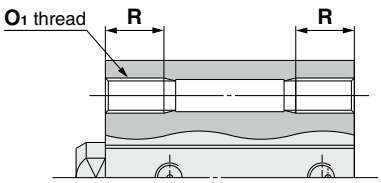


[mm]

Bore size [mm]	Stroke range [mm]	A	B	C	D	E	F	H	I	K	L	M	N	O	Q	Z
12	5 to 30	20.5	17	6	6	25	5	M3 x 0.5	32	5	3.5	15.5	3.5	6.5 depth 3.5	7.5	—
16	5 to 30	22	18.5	8	8	29	5.5	M4 x 0.7	38	6	3.5	20	3.5	6.5 depth 3.5	8	10
20	5 to 50	24	19.5	7	10	36	5.5	M5 x 0.8	47	8	4.5	25.5	5.5	9 depth 7	8	10
25	5 to 50	27.5	22.5	12	12	40	5.5	M6 x 1.0	52	10	5	28	5.5	9 depth 7	9	10

∗ For details on the mounting brackets ⇨ p. 6

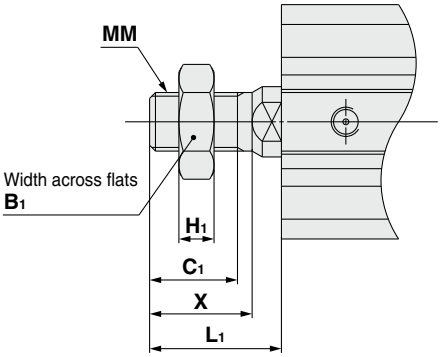
Both ends tapped



[mm]

Bore size [mm]	O_1	R
12	M4 x 0.7	7
16	M4 x 0.7	7
20	M6 x 1.0	10
25	M6 x 1.0	10

Rod end male thread



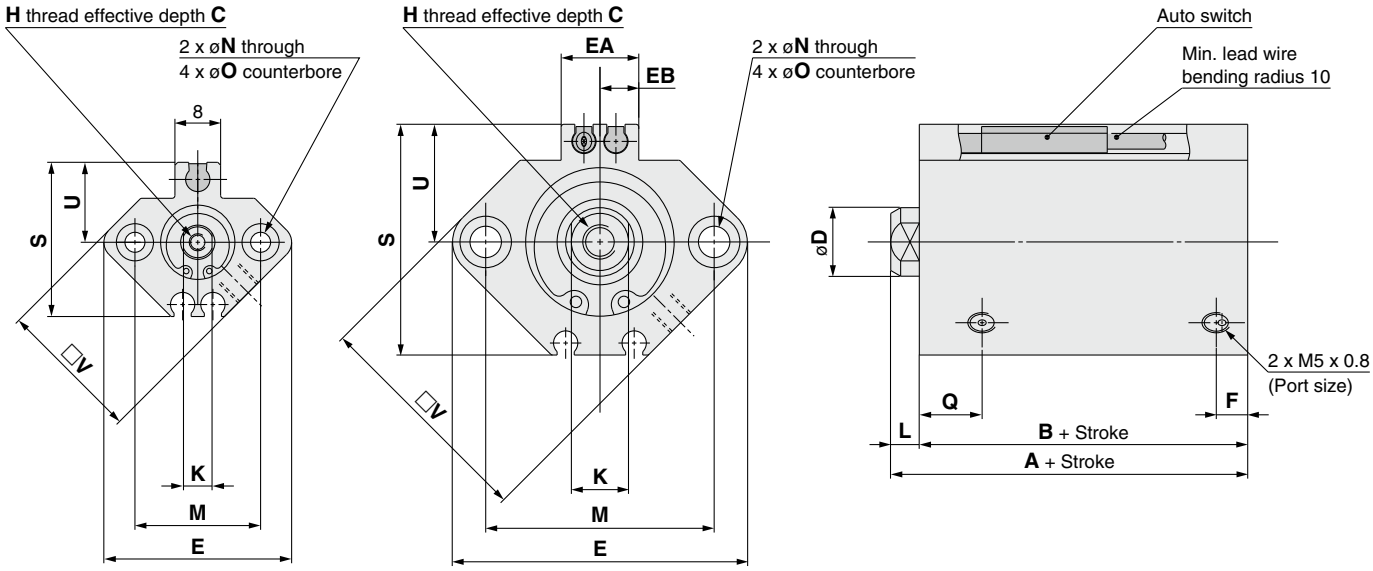
[mm]

Bore size [mm]	B_1	C_1	H_1	L_1	MM	X
12	8	9	4	14	M5 x 0.8	10.5
16	10	10	5	15.5	M6 x 1.0	12
20	13	12	5	18.5	M8 x 1.25	14
25	17	15	6	22.5	M10 x 1.25	17.5

Bore Size

ø12 to ø25 With Auto Switch Magnet

Through-hole: CDQ2B



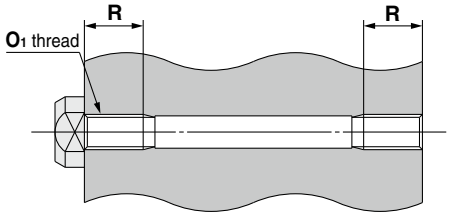
ø12 ø16 to ø25

[mm]

Bore size [mm]	Stroke range [mm]	A	B	C	D	E	EA	EB	F	H	K	L	M	N	O	Q	S	U	V
12	5 to 30	31.5	28	6	6	33	—	—	6.5	M3 x 0.5	5	3.5	22	3.5	6.5 depth 3.5	11	27.5	14	25
16	5 to 30	34	30.5	8	8	37	13.2	6.6	5.5	M4 x 0.7	6	3.5	28	3.5	6.5 depth 3.5	10	29.5	15	29
20	5 to 50	36	31.5	7	10	47	13.6	6.8	5.5	M5 x 0.8	8	4.5	36	5.5	9 depth 7	8	35.5	18	36
25	5 to 50	37.5	32.5	12	12	52	13.6	6.8	5.5	M6 x 1.0	10	5	40	5.5	9 depth 7	9	40.5	21	40

∗ For details on the mounting brackets ⇨ p. 6

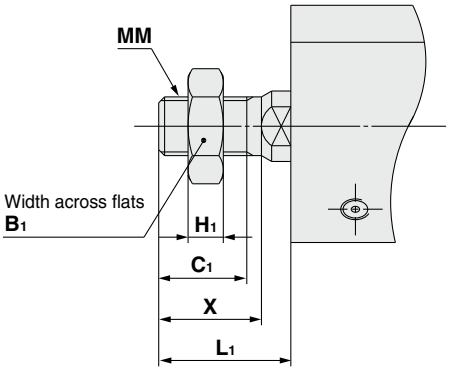
Both ends tapped



[mm]

Bore size [mm]	O_1	R
12	M4 x 0.7	7
16	M4 x 0.7	7
20	M6 x 1.0	10
25	M6 x 1.0	10

Rod end male thread



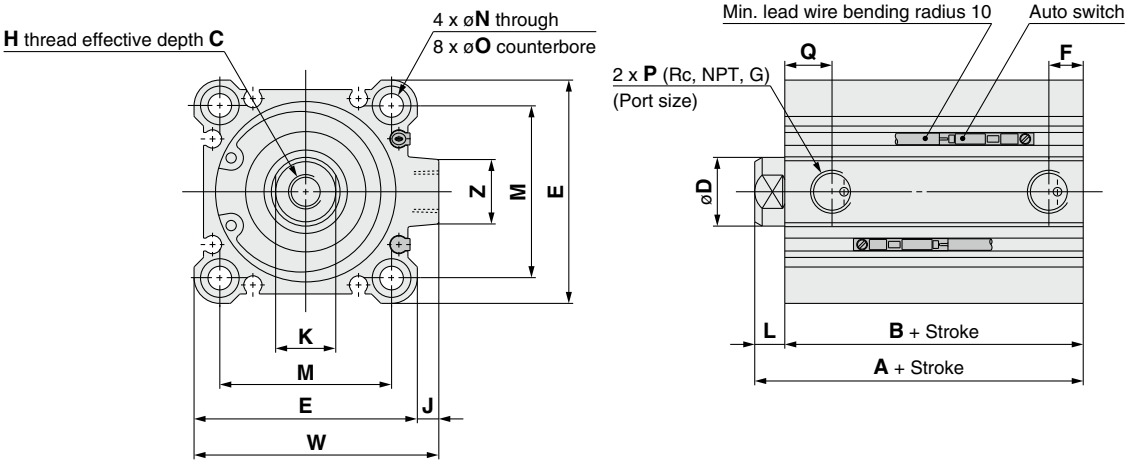
[mm]

Bore size [mm]	B_1	C_1	H_1	L_1	MM	X
12	8	9	4	14	M5 x 0.8	10.5
16	10	10	5	15.5	M6 x 1.0	12
20	13	12	5	18.5	M8 x 1.25	14
25	17	15	6	22.5	M10 x 1.25	17.5

Bore Size

ø32, ø40 With/Without Auto Switch Magnet

Through-hole: C□Q2B



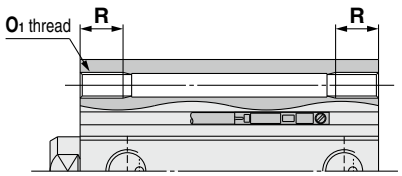
[mm]

Bore size [mm]	Stroke range [mm]	Without auto switch magnet				With auto switch magnet				C	D	E	H	J	K	L	M	N
		A	B	F	P	A	B	F	P									
32	5	30	23	5.5	M5 x 0.8	40	33	7.5	1/8	13	16	45	M8 x 1.25	4.5	14	7	34	5.5
	10 to 50			7.5	1/8													
	75, 100	40	33															
40	5 to 50	36.5	29.5	7.5	1/8	46.5	39.5	7.5	1/8	13	16	52	M8 x 1.25	5	14	7	40	5.5
	75, 100	46.5	39.5															

Bore size [mm]	O	Q	W	Z
32	9 depth 7	10	49.5	14
40	9 depth 7	12.5	57	15

∗ For details on the mounting brackets ⇨ p. 6

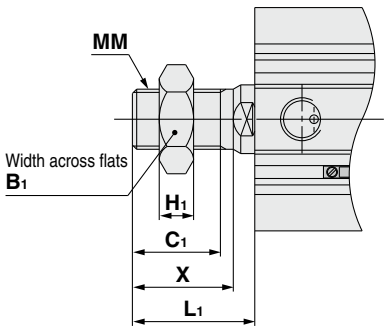
Both ends tapped



[mm]

Bore size [mm]	O_1	R
32	M6 x 1.0	10
40	M6 x 1.0	10

Rod end male thread



[mm]

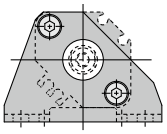
Bore size [mm]	B_1	C_1	H_1	L_1	MM	X
32	22	20.5	8	28.5	M14 x 1.5	23.5
40	22	20.5	8	28.5	M14 x 1.5	23.5

CQ2-XB24
Mounting Brackets

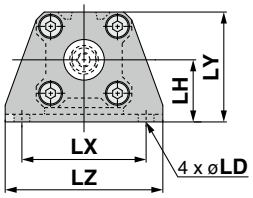
Foot Bracket

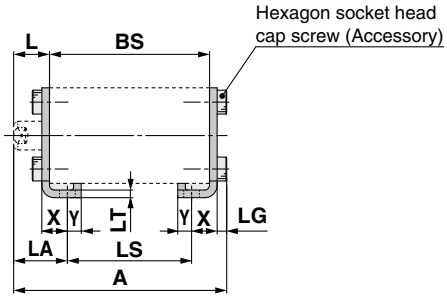
ø12 to ø25

With auto switch magnet
CQ-LZ□□

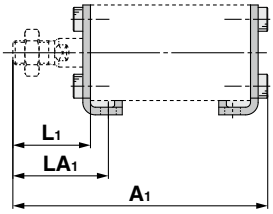


Without auto switch magnet
CQ-L0□□

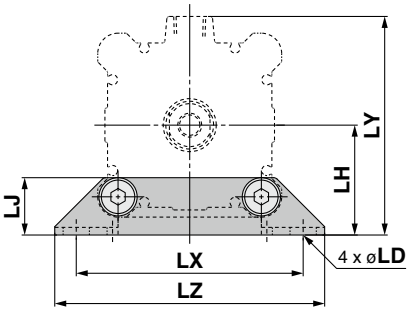


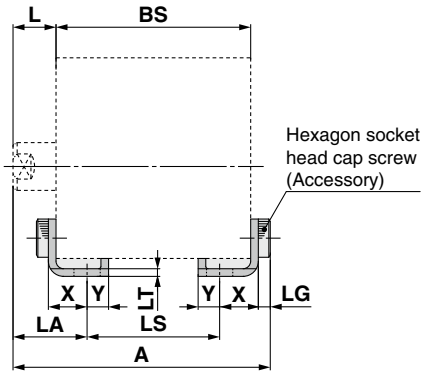


Rod end male thread

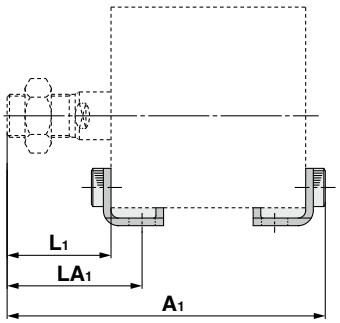


ø32, ø40





Rod end male thread



∗ The foot bracket cannot be retrofitted for through-hole mounting (B).

∗ BS indicates the overall length of the cylinder tube to be used.

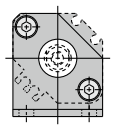
[mm]

Bore size [mm]	Part no.	A	A1	L	L1	LA	LA1	LD	LG	LH	LJ	LS	LT	LX	LY	LZ	X	Y
12	CQ-L012	BS + 18.3	BS + 28.8	13.5	24	19.5	30	4.5	2.8	17	—	BS-12	2	34	29.5	44	8	4.5
	CQ-LZ12																	
16	CQ-L016	BS + 18.3	BS + 30.3	13.5	25.5	19.5	31.5	4.5	2.8	19	—	BS-12	2	38	33.5	48	8	5
	CQ-LZ16																	
20	CQ-L020	BS + 21.7	BS + 35.7	14.5	28.5	20.5	34.5	6.6	4	24	—	BS-12	3.2	48	42	62	9.2	5.8
	CQ-LZ20																	
25	CQ-L025	BS + 22.2	BS + 39.7	15	32.5	22.5	40	6.6	4	26	—	BS-15	3.2	52	46	66	10.7	5.8
	CQ-LZ25																	
32	CQ-L032	BS + 24.2	BS + 45.7	17	38.5	25	46.5	6.6	4	30	18.5	BS-16	3.2	57	57	71	11.2	5.8
40	CQ-L040	BS + 24.2	BS + 45.7	17	38.5	25	46.5	6.6	4	33	18.5	BS-16	3.2	64	64	78	11.2	7

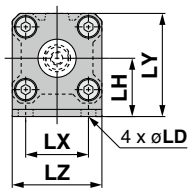
Compact Foot Bracket

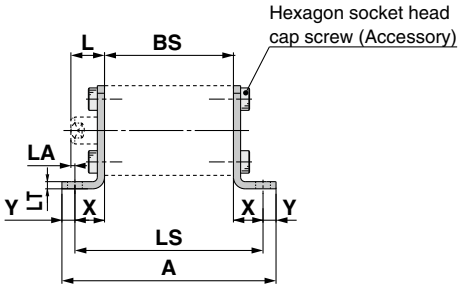
ø12 to ø25

With auto switch magnet
CQ-LCZ□□

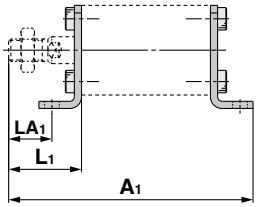


Without auto switch magnet
CQ-LC0□□

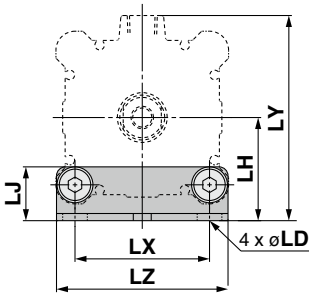


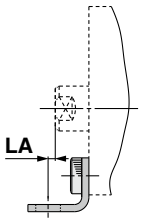


Rod end male thread

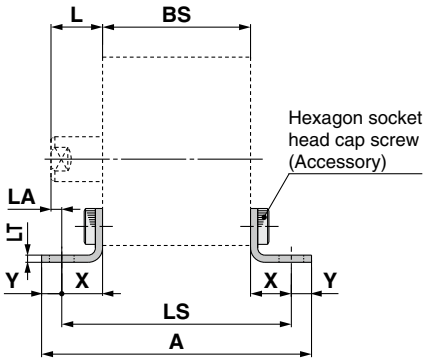


ø32, ø40

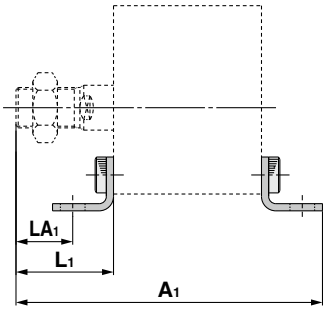




ø63 to ø100



Rod end male thread



∗ The compact foot bracket cannot be retrofitted for through-hole mounting (B).

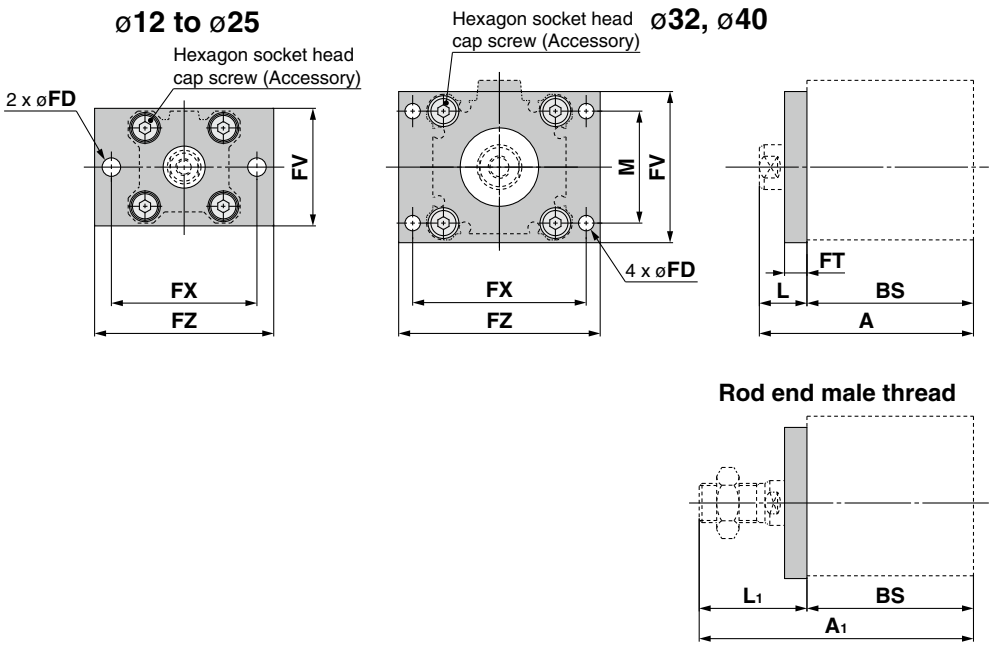
∗ BS indicates the overall length of the cylinder tube to be used.

[mm]

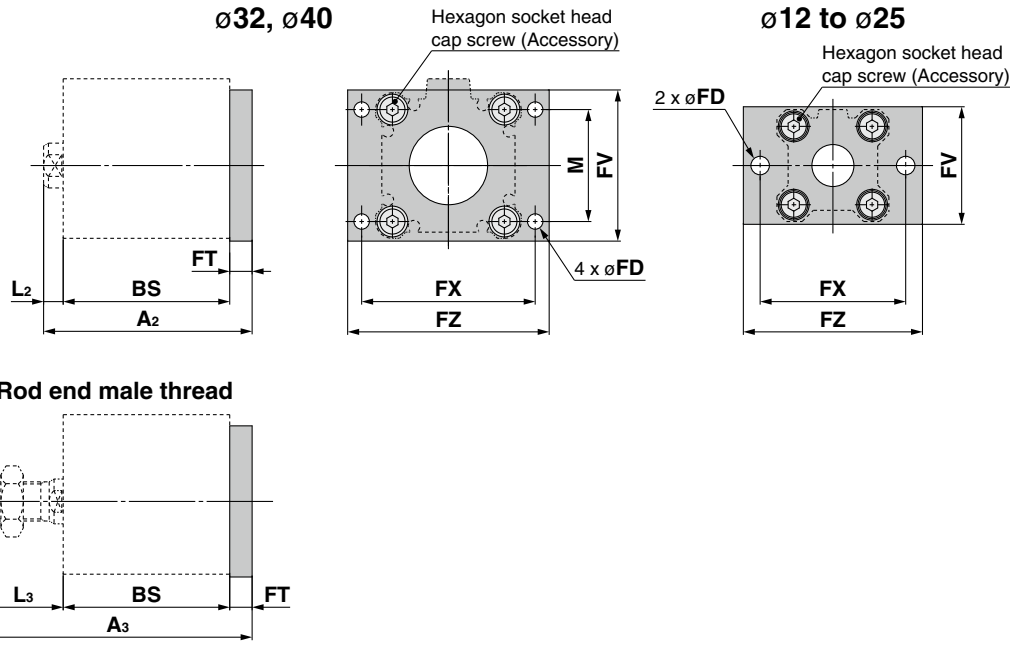
Bore size [mm]	Part no.	A	A1	L	L1	LA	LA1	LD	LH	LJ	LS	LT	LX	LY	LZ	X	Y
12	CQ-LC012	BS + 27.6	BS + 37.8	13.5	24	4.2	14.7	4.5	17	—	BS + 18.6	2	15.5	29.5	25	9.3	4.5
	CQ-LCZ12																
16	CQ-LC016	BS + 28.6	BS + 39.8	13.5	25.5	4.2	16.2	4.5	19	—	BS + 18.6	2	20	33.5	29	9.3	5
	CQ-LCZ16																
20	CQ-LC020	BS + 38	BS + 47.5	14.5	28.5	1.3	15.3	6.6	24	—	BS + 26.4	3.2	25.5	42	36	13.2	5.8
	CQ-LCZ20																
25	CQ-LC025	BS + 38	BS + 51.5	15	32.5	1.8	19.3	6.6	26	—	BS + 26.4	3.2	28	46	40	13.2	5.8
	CQ-LCZ25																
32	CQ-LC032	BS + 39	BS + 58	17	38.5	3.3	24.8	6.6	30	18.5	BS + 27.4	3.2	34	57	45	13.7	5.8
40	CQ-LC040	BS + 41.4	BS + 59.2	17	38.5	3.3	24.8	6.6	33	18.5	BS + 27.4	3.2	40	64	52	13.7	7

Flange

Rod flange



Head flange



∗ The flange cannot be retrofitted for through-hole mounting (B).

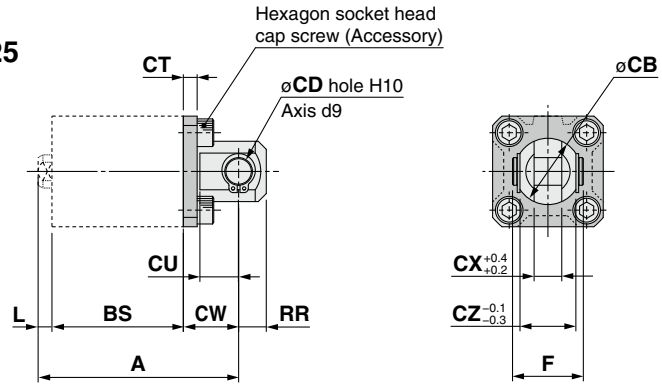
∗ BS indicates the overall length of the cylinder tube to be used.

[mm]

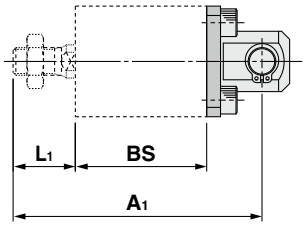
Bore size [mm]	Part no.	A	A_1	A_2	A_3	FD	FT	FV	FX	FZ	L	L_1	L_2	L_3	M
12	CQ-F012	BS + 13.5	BS + 24	BS + 9	BS + 19.5	4.5	5.5	25	45	55	13.5	24	3.5	14	—
16	CQ-F016	BS + 13.5	BS + 25.5	BS + 9	BS + 21	4.5	5.5	30	45	55	13.5	25.5	3.5	15.5	—
20	CQ-F020	BS + 14.5	BS + 28.5	BS + 12.5	BS + 26.5	6.6	8	39	48	60	14.5	28.5	4.5	18.5	—
25	CQ-F025	BS + 15	BS + 32.5	BS + 13	BS + 30.5	6.6	8	42	52	64	15	32.5	5	22.5	—
32	CQ-F032	BS + 17	BS + 38.5	BS + 15	BS + 36.5	5.5	8	48	56	65	17	38.5	7	28.5	34
40	CQ-F040	BS + 17	BS + 38.5	BS + 15	BS + 36.5	5.5	8	54	62	72	17	38.5	7	28.5	40

Double Clevis

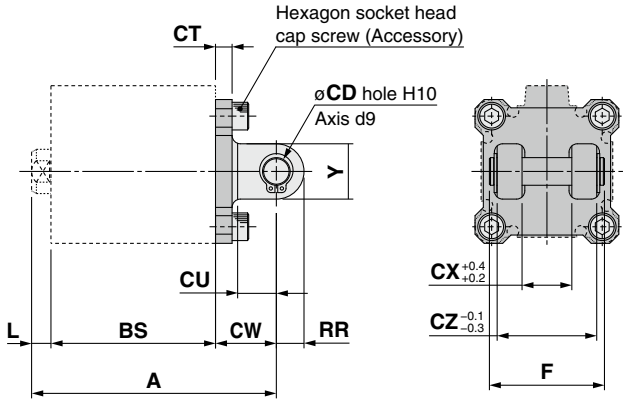
ø12 to ø25



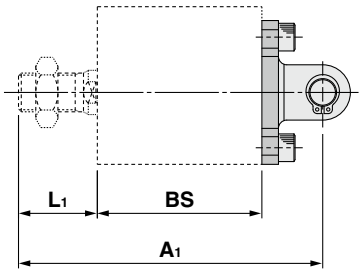
Rod end male thread



ø32, ø40



Rod end male thread



∗ The double clevis cannot be retrofitted for through-hole mounting (B).

∗ BS indicates the overall length of the cylinder tube to be used.

[mm]

Bore size [mm]	Part no.	A	A_1	CB	CD	CT	CU	CW	CX	CZ	F	L	L_1	RR	Y
12	CQ-D012	BS + 17.5	BS + 28	12	5	4	7	14	5	10	14.6	3.5	14	6	—
16	CQ-D016	BS + 18.5	BS + 30.5	14	5	4	10	15	6.5	12	16.6	3.5	15.5	6	—
20	CQ-D020	BS + 22.5	BS + 36.5	20	8	5	12	18	8	16	21	4.5	18.5	9	—
25	CQ-D025	BS + 25	BS + 42.5	24	10	5	14	20	10	20	25.6	5	22.5	10	—
32	CQ-D032	BS + 27	BS + 48.5	—	10	5	14	20	18	36	41.6	7	28.5	10	20
40	CQ-D040	BS + 29	BS + 50.5	—	10	6	14	22	18	36	41.6	7	28.5	10	20

CQ2-XB24 / Specific Product Precautions

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For actuator and auto switch precautions, refer to the "Handling Precautions for SMC Products," the "Operation Manual," and compact cylinder CQ2 series specific product precautions on the SMC website: https://www.smcworld.com

Mounting

⚠Caution

This cylinder is designed to create compact mechanical equipment and promote space saving. Thus, if it is used in the same manner as existing cylinders such as tie-rod cylinders, it may degrade the performance. Pay sufficient attention to the operating conditions when using.

1. Allowable lateral load

Lateral load that can apply to the piston rod end is limited. If a cylinder is used with a lateral load over the limit, it may cause air leakage due to abnormal friction of seals, galling of cylinder tubes and pistons, or abnormal friction of the bearing part. The lateral load applied to the piston rod must be within the allowable range indicated in this catalog. When the load exceeds the limit, install a guide or change the bore size to suit the load in order to make the load within the allowable range.

2. Connection with a workpiece

When a workpiece is mounted on the piston rod end, connect them aligning the center of piston rod and a workpiece. If they are off-center, lateral load is generated and phenomena mentioned in 1. may occur. In order not to apply the off-center load, use of a floating joint or simple joint is recommended.

3. Simultaneous use of multiple cylinders

It is difficult to control the speed of pneumatic cylinders. The following conditions cause speed change: change in supply pressure, load, temperature and lubrication, performance difference of each cylinder, deterioration of each part over time, etc. A speed controller can be used to control the speed of multiple cylinders simultaneously for a short period of time, but depending on conditions, it may not work as desired. If multiple cylinders cannot operate simultaneously, unreasonable force is applied to the piston rod because cylinder positions may not be the same. This may cause abnormal friction of seals and bearings, and galling of cylinder tubes and pistons. Do not use an application to operate several cylinders simultaneously by adjusting cylinder speed. If this is inevitable, use a high rigid guide against load, so that the cylinder is not damaged even when the each cylinder output is slightly different.

Retaining Ring Installation/Removal

⚠Caution

1. For installation and removal, use an appropriate pair of pliers (tool for installing a type C retaining ring).

2. Even if a proper plier (tool for installing a type C retaining ring) is used, it is likely to inflict damage to a human body or peripheral equipment, as a retaining ring may be flown out of the tip of a plier (tool for installing a type C retaining ring). Be much careful with the popping of a retaining ring. Besides, be certain that a retaining ring is placed firmly into the groove of rod cover before supplying air at the time of installment.

Durability of The Cylinder

The durability of a longer life cylinder has been evaluated by comparison with the existing cylinders under SMC's test conditions.
The durability of a cylinder depends on the customer's operating conditions and operating environment.
Therefore, durability of four times or longer will not be guaranteed under all conditions.

⚠ Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of **"Caution," "Warning"** or **"Danger."** They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)*1), and other safety regulations.

⚠ Caution: **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

⚠ Warning: **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

⚠ Danger : **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

*1) ISO 4414: Pneumatic fluid power – General rules relating to systems.
ISO 4413: Hydraulic fluid power – General rules relating to systems.
IEC 60204-1: Safety of machinery – Electrical equipment of machines.
(Part 1: General requirements)
ISO 10218-1: Manipulating industrial robots – Safety.
etc.

⚠ Warning

1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

3. Do not service or attempt to remove product and machinery/ equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

⚠ Caution

1. The product is provided for use in manufacturing industries.

The product herein described is basically provided for peaceful use in manufacturing industries.
If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.
If anything is unclear, contact your nearest sales branch.

Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following "Limited warranty and Disclaimer" and "Compliance Requirements".
Read and accept them before using the product.

Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.*2)
   Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.
   This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

*2) **Vacuum pads are excluded from this 1 year warranty.**
A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.
Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

⚠ Caution

SMC products are not intended for use as instruments for legal metrology.

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.