

Compact Cylinder: Non-rotating Rod Double Acting, Single Rod

CQ2K Series

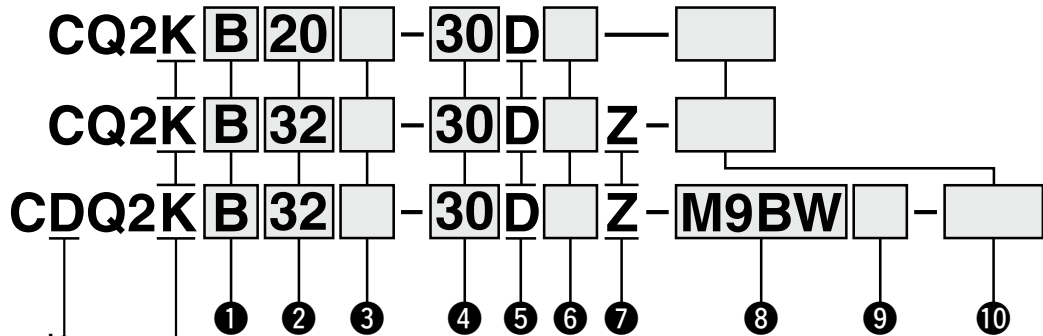
ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63

How to Order

Without auto switch
ø12 to ø25

Without auto switch
ø32 to ø63

With auto switch



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.

1 Mounting

B	Through-hole	ø12 to ø63
A	Both ends tapped	
L	Foot	ø40, ø50, ø63
LC	Compact foot	
F	Rod flange	
G	Head flange	
D	Double clevis	

- * Mounting brackets are shipped together with the product but do not come assembled.
- * A through-hole type mounting bolt is available as an option. For details:
Without auto switch magnet ⇨ p. 81
With auto switch magnet ⇨ p. 82
- * For cylinders with mounting options "L," "LC," or "F," the cylinder rod protrusion dimensions (Dimensions L and L₁) vary from the standard cylinder. When only ordering the cylinder, order the rod end length increased by 10 mm (-XC2) cylinder.
For details ⇨ p. 166

4 Cylinder stroke

(For details on the minimum stroke for auto switch mounting ⇨ p. 145) [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
50, 63	10, 15, 20, 25, 30, 35, 40 45, 50, 75, 100

- * For the manufacturing of intermediate strokes ⇨ p. 79

2 Bore size

12 ^{*1}	12 mm
16	16 mm
20	20 mm
25	25 mm
32	32 mm
40	40 mm
50	50 mm
63	63 mm

- *1 When ø12 with auto switch magnet is required, the body option should be with rubber bumper (C).
Example) CDQ2KB12-30DCZ

3 Port thread type

Nil	M thread	ø12 to ø25
	Rc	
TN	NPT	ø32 to ø63
TF	G	
F	Built-in One-touch fittings ^{*1}	

- *1 The bore sizes available with One-touch fittings are ø32 to ø63.
- * For cylinders without an auto switch magnet, M threads are compatible only with ø32-5 mm stroke.

5 Action

D	Double acting
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6 Body option

Nil	Rod end female thread
F	With boss on head end
C	With rubber bumper (ø12 with auto switch magnet only)
M	Rod end male thread

- * Combined body options "FM" can be selected.

Compact Cylinder: Non-rotating Rod Double Acting, Single Rod **CQ2K Series**



7 Auto switch mounting groove

Z	ø12 to ø25	2 surfaces
	ø32 to ø63	4 surfaces

8 Auto switch

Nil	Without auto switch
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* For applicable auto switches, refer to the table below.

9 Number of auto switches

Nil	2
S	1
n	n

10 Made to order common specifications

For details ⇨ p. 79

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) CDQ2KB32-30DZ

For details on **auto switch mounting** ⇨ p. 139 to 152

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

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		Auto switch model		Lead wire length [m]					Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)	5 (Z)	None (N)		Relay, PLC	IC circuit	
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	24 V	5 V, 12 V	—	M9NV	M9N	●	●	●	○	—			○
				3-wire (PNP)				M9PV	M9P	●	●	●	○	—	○		
				2-wire				M9BV	M9B	●	●	●	○	—	○		
				3-wire (NPN)				M9NVV	M9NV	●	●	●	○	—	○		
	3-wire (PNP)			M9PWW				M9PW	●	●	●	○	—	○	IC circuit		
	2-wire			M9BWW				M9BW	●	●	●	○	—	○			
	3-wire (NPN)			M9NAV*1				M9NA*1	○	○	●	○	—	○	IC circuit		
	3-wire (PNP)			M9PAV*1				M9PA*1	○	○	●	○	—	○			
	2-wire	M9BAV*1	M9BA*1	○	○	●	○	—	○	—							
	2-wire (Non-polar)	—	P3DWA	●	—	●	—	○	○								
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	24 V	5 V, 12 V	100 V or less	A96V	A96	●	—	●	—	—	—	IC circuit	—
				2-wire				A93V*2	A93	●	●	●	●	—	—	—	—
			No	2-wire		5 V, 12 V		A90V	A90	●	—	●	—	—	—	IC circuit	

*1 Water-resistant type auto switches can be mounted on the models on page 77, but SMC cannot guarantee water resistance. Please contact SMC regarding water-resistant types with the model numbers on page 77.

*2 The 1 m lead wire is only applicable to the D-A93.

* 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

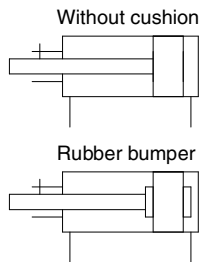
* Solid state auto switches marked with "○" are produced upon receipt of order.
* The D-P3DWA□ type is only available in sizes ø25 to ø63.

* There are applicable auto switches other than those listed above. For details ⇨ p. 152

Standard	Double Acting, Single Rod	CQ2
Standard	Double Acting, Double Rod	CQ2W
Standard	Single Acting, Spring Return, Bent	CQ2
Large Bore Size	Double Acting, Single Rod	CQ2
Large Bore Size	Double Acting, Double Rod	CQ2W
Anti-lateral Load	Double Acting, Single Rod	CQ2S
Long Stroke	Double Acting, Single Rod	CQ2
Non-rotating Rod	Double Acting, Single Rod	CQ2K
Non-rotating Rod	Double Acting, Double Rod	CQ2KW
Water Resistant	Double Acting, Single Rod	CQ2-RV
Water Resistant	Double Acting, Double Rod	CQ2W-RV
Axial Piping	Double Acting, Single Rod	CQP2
Axial Piping	Single Acting, Spring Return, Bent	CQP2
With End Lock	Double Acting, Single Rod	CBQ2
Auto Switch		
Made to Order		

CQ2K Series

Symbol



Made to Order Common Specifications (For details ⇨ p. 155 to 188)

Symbol	Specifications
-XA□	Change of rod end shape
-XB6	Heat-resistant cylinder (-10 to 150°C)
-XB10	Intermediate stroke (Using exclusive body)
-XC2(A)	Rod end length increased by 10 mm (For foot and flange bracket)
-XC8	Adjustable stroke cylinder/Adjustable extension type
-XC9	Adjustable stroke cylinder/Adjustable retraction type
-XC10	Dual stroke cylinder/Double rod type
-XC11	Dual stroke cylinder/Single rod type
-XC26	With split pins for double clevis pin/ double knuckle joint pin and flat washers
-XC27	Double clevis pin/Double knuckle joint pin material: Stainless steel 304
-XC36	With boss on rod end*1
-XC85	Grease for food processing equipment
-X1876	Cylinder tube: With concave boss on head end

*1 The standard model can be used for the type with boss on the rod end (-XC36).

* Stainless steel accessories are also available.
For details ⇨ p. 26

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 pages 189 and 190 before handling the products.

Specifications

Bore size [mm]	12	16	20	25	32	40	50	63
Action	Double acting, Single rod							
Fluid	Air							
Proof pressure	1.5 MPa							
Maximum operating pressure	1.0 MPa							
Minimum 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							
Allowable kinetic energy [J]	0.022 0.043*1	0.038	0.055	0.09	0.15	0.26	0.46	0.77
Stroke length tolerance	+1.0 mm ^{±2} 0							
Rod non-rotating accuracy	±2°	±1°			±0.8°			

*1 For cylinders with rubber bumper (ø12 with auto switch magnet only)

*2 Stroke length tolerance does not include the amount of bumper change.

* ø12 with auto switch magnet: With rubber bumper (Standard)

Manufacturing of Intermediate Strokes

Type	A spacer is installed in the standard stroke body.	Exclusive body (-XB10)		
Part no.	Refer to "How to Order" for the standard model number. (⇨ p. 77)	Suffix "-XB10" to the end of standard model number. (⇨ p. 77)		
Description	Strokes in 1 mm increments are available by installing a spacer in the standard stroke cylinder.	Strokes in 1 mm increments are available by using an exclusive body with the specified stroke.		
Stroke range	Bore size	Stroke range	Bore size	Stroke range
	12, 16	1 to 29	—	—
	20, 25	1 to 49	40	6 to 99
	32 to 63	1 to 99	50, 63	11 to 99
Example	Part no.: CQ2KB50-57DZ CQ2KB50-75DZ with 18 mm width spacer inside The B dimension is 115.5 mm.		Part no.: CQ2KB50-57DZ-XB10 Makes 57 mm stroke tube. The B dimension is 97.5 mm.	

Mounting Bracket Part Nos.

Bore size [mm]	Foot*1	Compact foot*1	Flange	Double clevis	Double clevis pivot bracket
40	CQ-L040	CQ-LC040	CQ-F040	CQ-D040	CQ-C040
50	CQ-L050	CQ-LC050	CQ-F050	CQ-D050	CQ-C050
63	CQ-L063	CQ-LC063	CQ-F063	CQ-D063	CQ-C063

*1 When ordering foot and compact foot brackets, order 2 pieces per cylinder.

* Parts included with each type of bracket are as follows.

Foot, Compact foot, Flange: Body mounting bolts

Double clevis: Clevis pin, Type C retaining rings for axis, Body mounting bolts

* For details on accessory brackets (Options) ⇨ p. 21 to 27

* Foot, compact foot, flange brackets, etc., cannot be retrofitted for through-hole mounting (B).

Dimensions of Each Mounting Bracket

The dimensions of each mounting bracket are the same as those of the standard type, double acting, single rod (except the configuration of the piston rod). Refer to pages 21 to 25.

Weight

Without Auto Switch Magnet

Bore size [mm]	Cylinder stroke [mm]											
	5	10	15	20	25	30	35	40	45	50	75	100
12	60	67	74	81	88	95	—	—	—	—	—	—
16	58	67	76	85	94	103	—	—	—	—	—	—
20	103	117	131	145	159	173	187	201	215	229	—	—
25	137	152	167	182	197	212	227	242	257	272	—	—
32	196	215	234	253	272	291	310	329	347	366	506	601
40	205	226	248	269	291	312	333	355	376	398	570	682
50	—	356	390	424	457	491	525	559	592	626	901	1075
63	—	524	563	602	641	680	720	759	798	837	1173	1375

With Auto Switch Magnet

Bore size [mm]	Cylinder stroke [mm]											
	5	10	15	20	25	30	35	40	45	50	75	100
12	71	77	83	89	96	102	—	—	—	—	—	—
16	74	82	89	97	105	113	—	—	—	—	—	—
20	119	132	144	156	168	180	192	204	217	229	—	—
25	162	177	192	208	223	238	254	269	284	300	—	—
32	227	247	266	286	306	326	345	365	385	404	504	604
40	240	261	283	305	326	348	369	391	413	434	546	658
50	—	433	466	499	532	565	598	630	663	697	869	1041
63	—	622	660	698	736	774	812	850	888	926	1124	1321

Theoretical Output



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	841	1400	1960
	OUT	935	1560	2180

Additional Weight

Bore size [mm]	12	16	20	25	32	40	50	63
Both ends tapped	—	—	—	—	—	6	6	19
Rod end male thread	Male thread	1.5	3	6	12	26	27	53
	Nut	1	2	4	8	17	17	32
With boss on head end	0.7	1.3	2	3	5	7	13	25
Built-in One-touch fittings	—	—	—	—	12	12	21	21
Foot (Including mounting bolts)	—	—	—	—	—	138	219	297
Compact foot (Including mounting bolts)	—	—	—	—	—	109	172	234
Rod flange (Including mounting bolts)	—	—	—	—	—	213	372	558
Head flange (Including mounting bolts)	—	—	—	—	—	198	348	534
Double clevis (Including pin, retaining rings, bolts)	—	—	—	—	—	196	393	554

Calculation: (Example) **CDQ2KD40-25DMZ**

- Basic weight: CDQ2KB40-25DZ 326 g
 - Additional weight: Both ends tapped 6 g
 - Rod end male thread 44 g
 - Double clevis 196 g
- 572 g

Add each weight of auto switches when auto switches are mounted.

Standard	Double Acting, Double Rod	CQ2
Standard	Double Acting, Double Rod	CQ2W
Standard	Single Acting, Single Rod	CQ2
Standard	Single Acting, Single Rod	CQ2S
Large Bore Size	Double Acting, Double Rod	CQ2W
Large Bore Size	Double Acting, Double Rod	CQ2
Anti-lateral Load	Double Acting, Single Rod	CQ2K
Long Stroke	Double Acting, Single Rod	CQ2K
Non-rotating Rod	Double Acting, Single Rod	CQ2KW
Non-rotating Rod	Double Acting, Double Rod	CQ2KW
Water Resistant	Double Acting, Single Rod	CQ2-RV
Water Resistant	Double Acting, Double Rod	CQ2W-RV
Axial Piping	Double Acting, Single Rod	CQP2
Axial Piping	Double Acting, Single Rod	CQP2
With End Lock	Double Acting, Single Rod	CBQ2
Auto Switch		Auto Switch
Made to Order		Made to Order

CQ2K Series

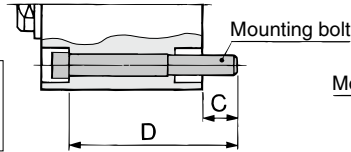
Through-hole Type Mounting Bolt for the CQ2K: Without Auto Switch Magnet

Mounting bolt for the through-hole mounting of the CQ2KB is available as an option.
Refer to the following for ordering procedures.
Order the actual number of bolts that will be used.
For models with an auto switch magnet ⇨ p. 82

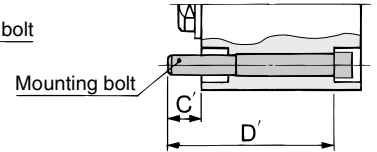
Example) CQ-M3 x 30L 2 pcs.

Type: Hexagon socket head cap screw
Material: Chromium molybdenum steel
Surface treatment: Zinc chromated

Head end mounting



Rod end mounting



Cylinder model	C	D	Mounting bolt part no.	C'	D'	Mounting bolt part no.		
CQ2KB12-5D	6.5	30	CQ-M3 x 30L	6.5	30	CQ-M3 x 30L		
-10D		35	x 35L		35	x 35L		
-15D		40	x 40L		40	x 40L		
-20D		45	x 45L		45	x 45L		
-25D		50	x 50L		50	x 50L		
-30D		55	x 55L		55	x 55L		
CQ2KB16-5D	5	30	CQ-M3 x 30L	5	30	CQ-M3 x 30L		
-10D		35	x 35L		35	x 35L		
-15D		40	x 40L		40	x 40L		
-20D		45	x 45L		45	x 45L		
-25D		50	x 50L		50	x 50L		
-30D		55	x 55L		55	x 55L		
CQ2KB20-5D	8	35	CQ-M5 x 35L	9.5	35	CQ-M5 x 35L		
-10D		40	x 40L		40	x 40L		
-15D		45	x 45L		45	x 45L		
-20D		50	x 50L		50	x 50L		
-25D		55	x 55L		55	x 55L		
-30D		60	x 60L		60	x 60L		
-35D		65	x 65L		65	x 65L		
-40D		70	x 70L		70	x 70L		
-45D		75	x 75L		75	x 75L		
-50D		80	x 80L		80	x 80L		
CQ2KB25-5D		10	40		CQ-M5 x 40L	6.5	35	CQ-M5 x 35L
-10D			45		x 45L		40	x 40L
-15D	50		x 50L	45	x 45L			
-20D	55		x 55L	50	x 50L			
-25D	60		x 60L	55	x 55L			
-30D	65		x 65L	60	x 60L			
-35D	70		x 70L	65	x 65L			
-40D	75		x 75L	70	x 70L			
-45D	80		x 80L	75	x 75L			
-50D	85		x 85L	80	x 80L			
CQ2KB32-5DZ	8.5	40	CQ-M5 x 40L	10	40	CQ-M5 x 40L		
-10DZ		45	x 45L		45	x 45L		
-15DZ		50	x 50L		50	x 50L		
-20DZ		55	x 55L		55	x 55L		
-25DZ		60	x 60L		60	x 60L		
-30DZ		65	x 65L		65	x 65L		
-35DZ		70	x 70L		70	x 70L		
-40DZ		75	x 75L		75	x 75L		
-45DZ		80	x 80L		80	x 80L		
-50DZ		85	x 85L		85	x 85L		
-75DZ		120	x 120L		120	x 120L		
-100DZ		145	x 145L		145	x 145L		

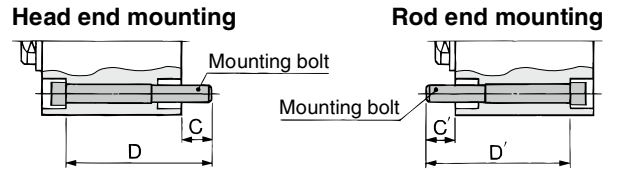
Cylinder model	C, C'	D, D'	Mounting bolt part no.	
CQ2KB40-5DZ	7.5	35	CQ-M5 x 35L	
-10DZ		40	x 40L	
-15DZ		45	x 45L	
-20DZ		50	x 50L	
-25DZ		55	x 55L	
-30DZ		60	x 60L	
-35DZ		65	x 65L	
-40DZ		70	x 70L	
-45DZ		75	x 75L	
-50DZ		80	x 80L	
-75DZ	12.5	115	x 115L	
-100DZ		140	x 140L	
CQ2KB50-10DZ		12.5	45	CQ-M6 x 45L
-15DZ			50	x 50L
-20DZ			55	x 55L
-25DZ			60	x 60L
-30DZ			65	x 65L
-35DZ			70	x 70L
-40DZ			75	x 75L
-45DZ			80	x 80L
-50DZ	85		x 85L	
-75DZ	120		x 120L	
-100DZ	145	x 145L		
CQ2KB63-10DZ	14.5	50	CQ-M8 x 50L	
-15DZ		55	x 55L	
-20DZ		60	x 60L	
-25DZ		65	x 65L	
-30DZ		70	x 70L	
-35DZ		75	x 75L	
-40DZ		80	x 80L	
-45DZ		85	x 85L	
-50DZ		90	x 90L	
-75DZ		125	x 125L	
-100DZ	150	x 150L		

Through-hole Type Mounting Bolt for the CDQ2KB: With Auto Switch Magnet

Mounting bolt for the through-hole mounting of the CDQ2KB is available as an option.
Refer to the following for ordering procedures.
Order the actual number of bolts that will be used.
For models without an auto switch magnet ⇨ p. 81

Example) CQ-M3 x 35L 2 pcs.

Type: Hexagon socket head cap screw
Material: Chromium molybdenum steel
Surface treatment: Zinc chromated



Cylinder model	C	D	Mounting bolt part no.	C'	D'	Mounting bolt part no.
CDQ2KB12-5DCZ	5.5	35	CQ-M3 x 35L	5.5	40	CQ-M3 x 40L
-10DCZ		40	x 40L		45	x 45L
-15DCZ		45	x 45L		50	x 50L
-20DCZ		50	x 50L		55	x 55L
-25DCZ		55	x 55L		60	x 60L
-30DCZ		60	x 60L		65	x 65L
CDQ2KB16-5DZ	8	40	CQ-M3 x 40L	8	45	CQ-M3 x 45L
-10DZ		45	x 45L		50	x 50L
-15DZ		50	x 50L		55	x 55L
-20DZ		55	x 55L		60	x 60L
-25DZ		60	x 60L		65	x 65L
-30DZ		65	x 65L		70	x 70L
CDQ2KB20-5DZ	10.5	40	CQ-M5 x 40L	7.5	45	CQ-M5 x 45L
-10DZ		45	x 45L		50	x 50L
-15DZ		50	x 50L		55	x 55L
-20DZ		55	x 55L		60	x 60L
-25DZ		60	x 60L		65	x 65L
-30DZ		65	x 65L		70	x 70L
-35DZ		70	x 70L		75	x 75L
-40DZ		75	x 75L		80	x 80L
-45DZ		80	x 80L		85	x 85L
-50DZ		85	x 85L		90	x 90L
CDQ2KB25-5DZ	9.5	40	CQ-M5 x 40L	6.5	45	CQ-M5 x 45L
-10DZ		45	x 45L		50	x 50L
-15DZ		50	x 50L		55	x 55L
-20DZ		55	x 55L		60	x 60L
-25DZ		60	x 60L		65	x 65L
-30DZ		65	x 65L		70	x 70L
-35DZ		70	x 70L		75	x 75L
-40DZ		75	x 75L		80	x 80L
-45DZ		80	x 80L		85	x 85L
-50DZ		85	x 85L		90	x 90L
CDQ2KB32-5DZ	8.5	50	CQ-M5 x 50L	10	50	CQ-M5 x 50L
-10DZ		55	x 55L		55	x 55L
-15DZ		60	x 60L		60	x 60L
-20DZ		65	x 65L		65	x 65L
-25DZ		70	x 70L		70	x 70L
-30DZ		75	x 75L		75	x 75L
-35DZ	80	x 80L	80	x 80L		
CDQ2KB32-40DZ	8.5	85	CQ-M5 x 85L	10	85	CQ-M5 x 85L
-45DZ		90	x 90L		90	x 90L
-50DZ		95	x 95L		95	x 95L
-75DZ		120	x 120L		120	x 120L
-100DZ		145	x 145L		145	x 145L

Cylinder model	C, C'	D, D'	Mounting bolt part no.
CDQ2KB40-5DZ	7.5	45	CQ-M5 x 45L
-10DZ		50	x 50L
-15DZ		55	x 55L
-20DZ		60	x 60L
-25DZ		65	x 65L
-30DZ		70	x 70L
-35DZ		75	x 75L
-40DZ		80	x 80L
-45DZ		85	x 85L
-50DZ		90	x 90L
CDQ2KB50-10DZ	12.5	55	CQ-M6 x 55L
-15DZ		60	x 60L
-20DZ		65	x 65L
-25DZ		70	x 70L
-30DZ		75	x 75L
-35DZ		80	x 80L
-40DZ		85	x 85L
-45DZ		90	x 90L
-50DZ		95	x 95L
-75DZ		120	x 120L
-100DZ	145	x 145L	
CDQ2KB63-10DZ	14.5	60	CQ-M8 x 60L
-15DZ		65	x 65L
-20DZ		70	x 70L
-25DZ		75	x 75L
-30DZ		80	x 80L
-35DZ		85	x 85L
-40DZ		90	x 90L
-45DZ		95	x 95L
-50DZ		100	x 100L
-75DZ		125	x 125L
-100DZ	150	x 150L	

Standard
Double Acting, Single Rod **CQ2**
Double Acting, Double Rod **CQ2W**
Single Acting, Spring Return **CQ2**

Large Bore Size
Double Acting, Single Rod **CQ2**
Double Acting, Double Rod **CQ2W**

Anti-lateral Load
Double Acting, Single Rod **CQ2**
Double Acting, Double Rod **CQ2W**

Long Stroke
Double Acting, Single Rod **CQ2**
Double Acting, Double Rod **CQ2W**

Non-rotating Rod
Double Acting, Single Rod **CQ2K**
Double Acting, Double Rod **CQ2KW**

Water Resistant
Double Acting, Single Rod **CQ2-RV**
Double Acting, Double Rod **CQ2W-RV**

Axial Piping
Double Acting, Single Rod **CQP2**
Single Acting, Spring Return **CQP2**

With End Lock
Double Acting, Single Rod **CBQ2**

Auto Switch

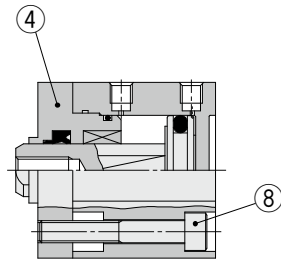
Made to Order

CQ2K Series

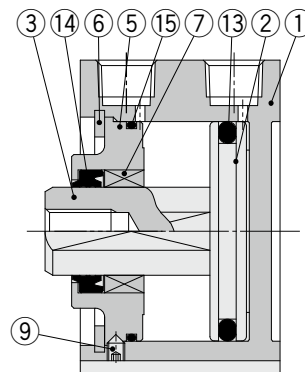
Construction

Without auto switch magnet

ø12 to ø32

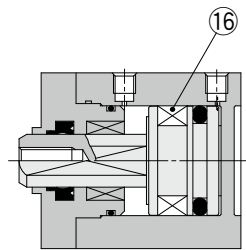


ø40 to ø63

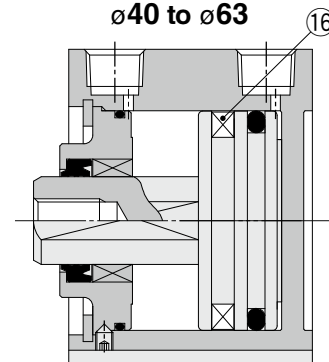


With auto switch magnet

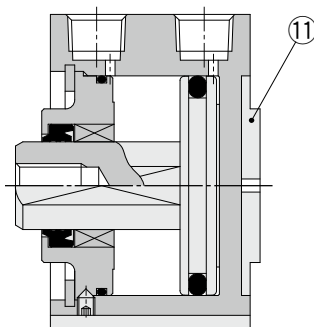
ø12 to ø32



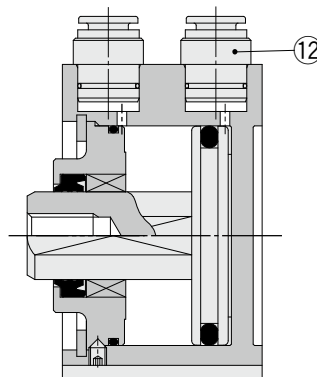
ø40 to ø63



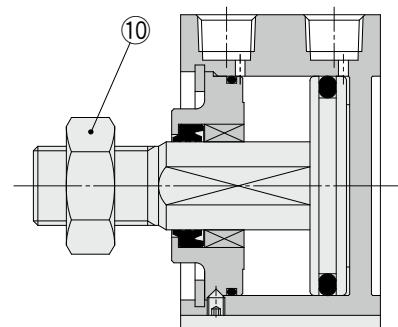
With boss on head end



Built-in One-touch fittings



Rod end male thread



Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	
3	Piston rod	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø63, Hard chrome plating
4	Rod cover	Brass	ø12, Electroless nickel plating
		Aluminum alloy	ø16 to ø32, Anodized
5	Collar	Aluminum alloy	ø40 to ø63, Anodized
6	Retaining ring	Carbon tool steel	Phosphate coated
7	Bushing	Oil-impregnated sintered alloy	ø16 to ø63
8	Hexagon socket head cap screw	Alloy steel	ø12 to ø32, Nickel plating
9	Hexagon socket head set screw	Alloy steel	ø40 to ø63, Nickel plating
10	Rod end nut	Carbon steel	Zinc chromated
11	Centering location ring	Aluminum alloy	ø20 to ø63, Anodized
12	One-touch fitting	—	ø32 to ø63
13	Piston seal	NBR	
14	Rod seal	NBR	
15	Tube gasket	NBR	
16	Magnet	—	

Replacement Parts/Seal Kit

Bore size [mm]	Kit no.	Contents
12	CQ2KB12-PS	Set of nos. 13, 14, 15
16	CQ2KB16-PS	
20	CQ2KB20-PS	
25	CQ2KB25-PS	
32	CQ2KB32-PS	
40	CQ2KB40-PS	
50	CQ2KB50-PS	
63	CQ2KB63-PS	

* Seal kit includes 13, 14, 15. Order the seal kit based on each bore size.

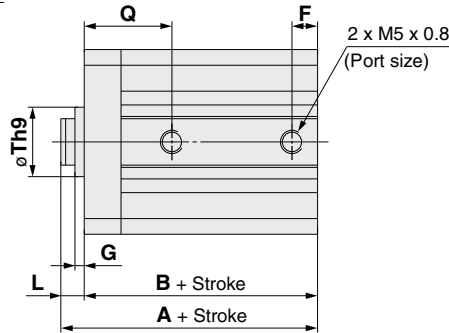
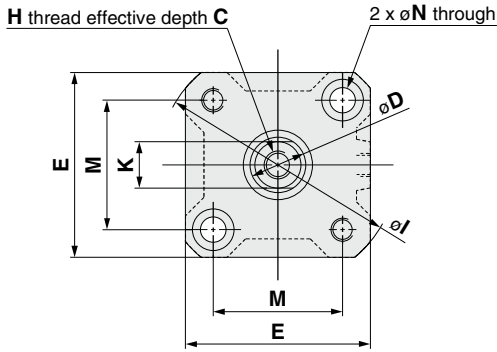
* The seal kit does not include a grease pack. Order it separately.

Grease pack part no.: GR-S-010 (10 g)

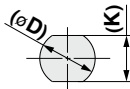
Bore Size

∅12 to ∅25 Without Auto Switch Magnet

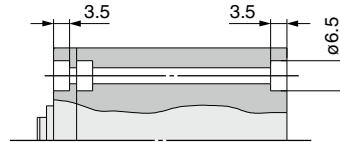
Through-hole: CQ2KB



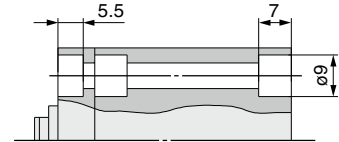
Piston rod cross section



∅12, ∅16



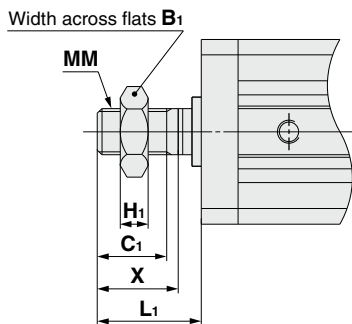
∅20, ∅25



Bore size [mm]	Stroke range [mm]	A	B	C	D	E	F	G	H	I	K	L	M	N	Q	Th9
12	5 to 30	25.5	22	6	6	25	5	1.5	M3 x 0.5	32	5.2	3.5	15.5	3.5	12.5	15 ⁰ _{-0.043}
16	5 to 30	27	23.5	8	8	29	5.5	1.5	M4 x 0.7	38	6	3.5	20	3.5	13	20 ⁰ _{-0.052}
20	5 to 50	32	27.5	7	10	36	5.5	2	M5 x 0.8	47	8	4.5	25.5	5.5	16	13 ⁰ _{-0.043}
25	5 to 50	35.5	30.5	12	12	40	5.5	2	M6 x 1.0	52	10	5	28	5.5	17	15 ⁰ _{-0.043}

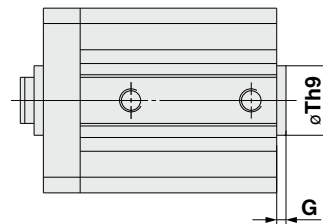
* For details on the rod end nut and accessory brackets ⇨ p. 26, 27

Rod end male thread



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

With boss on head end



Bore size [mm]	G	Th9
12	1.5	15 ⁰ _{-0.043}
16	1.5	20 ⁰ _{-0.052}
20	2	13 ⁰ _{-0.043}
25	2	15 ⁰ _{-0.043}

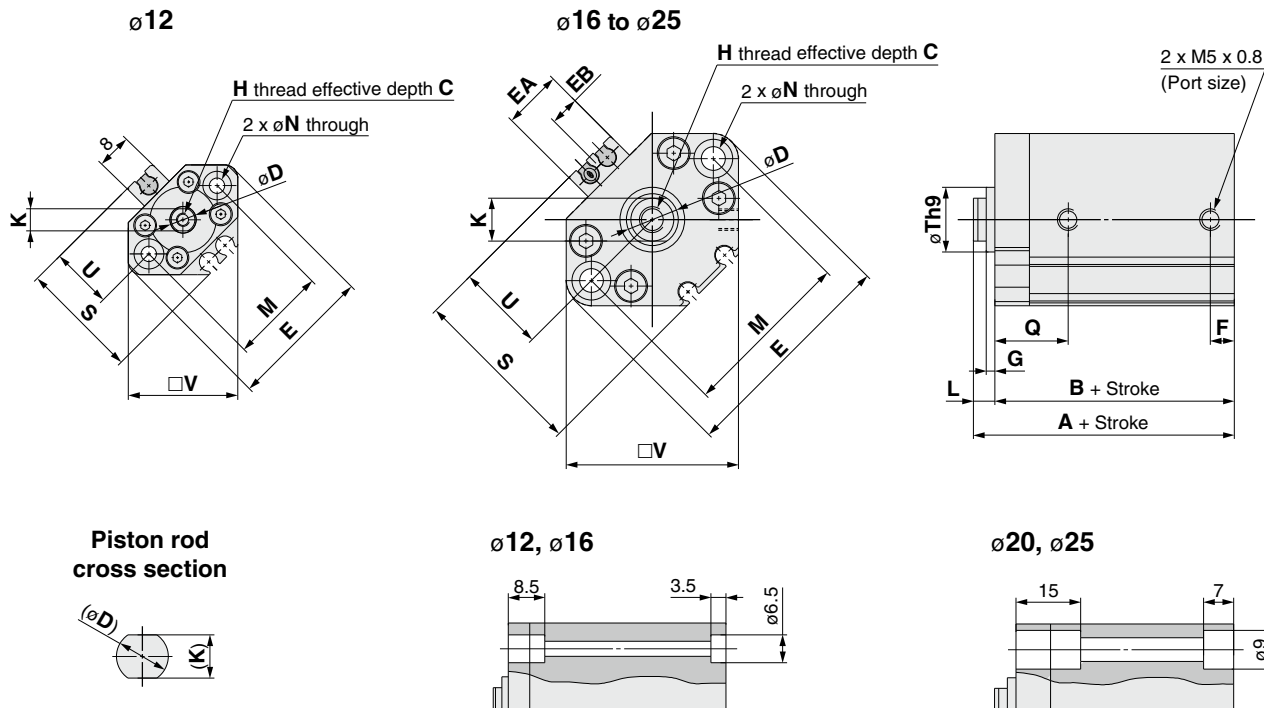
Standard	Double Acting, Single Rod	CQ2
Standard	Double Acting, Double Rod	CQ2W
Standard	Single Acting, Spring Return	CQ2
Large Bore Size	Double Acting, Single Rod	CQ2
Large Bore Size	Double Acting, Double Rod	CQ2W
Anti-lateral Load	Double Acting, Single Rod	CQ2S
Long Stroke	Double Acting, Single Rod	CQ2
Long Stroke	Double Acting, Double Rod	CQ2K
Non-rotating Rod	Double Acting, Single Rod	CQ2KW
Non-rotating Rod	Double Acting, Double Rod	CQ2KW
Water Resistant	Double Acting, Single Rod	CQ2-RV
Water Resistant	Double Acting, Double Rod	CQ2W-RV
Axial Piping	Double Acting, Single Rod	CQP2
Axial Piping	Double Acting, Double Rod	CQP2
Axial Piping	Single Acting, Spring Return	CQP2
With End Lock	Double Acting, Single Rod	CBQ2
Auto Switch		
Made to Order		

CQ2K Series

Bore Size

∅12 to ∅25 With Auto Switch Magnet

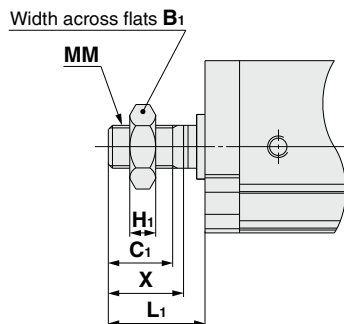
Through-hole: CDQ2KB



Bore size [mm]	Stroke range [mm]	A	B	C	D	E	EA	EB	F	G	H	K	L	M	N	Q	S	Th9	U	V
12	5 to 30	36.5	33	6	6	33	—	—	6.5	1.5	M3 x 0.5	5.2	3.5	22	3.5	16	27.5	15 ⁰ _{-0.043}	14	25
16	5 to 30	39	35.5	8	8	37	13.2	6.6	5.5	1.5	M4 x 0.7	6	3.5	28	3.5	15	29.5	20 ⁰ _{-0.052}	15	29
20	5 to 50	44	39.5	7	10	47	13.6	6.8	5.5	2	M5 x 0.8	8	4.5	36	5.5	16	35.5	13 ⁰ _{-0.043}	18	36
25	5 to 50	45.5	40.5	12	12	52	13.6	6.8	5.5	2	M6 x 1.0	10	5	40	5.5	17	40.5	15 ⁰ _{-0.043}	21	40

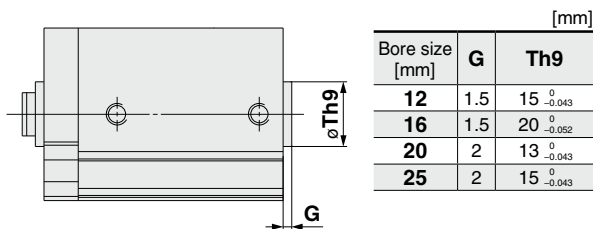
* For details on the rod end nut and accessory brackets ⇨ p. 26, 27
 * For the auto switch proper mounting position and mounting height ⇨ p. 139 to 145

Rod end male thread



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

With boss on head end

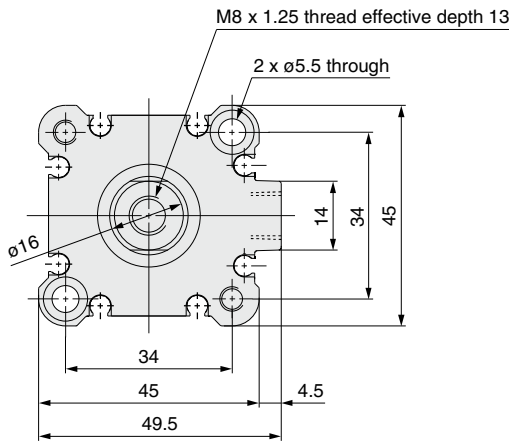


Bore size [mm]	G	Th9
12	1.5	15 ⁰ _{-0.043}
16	1.5	20 ⁰ _{-0.052}
20	2	13 ⁰ _{-0.043}
25	2	15 ⁰ _{-0.043}

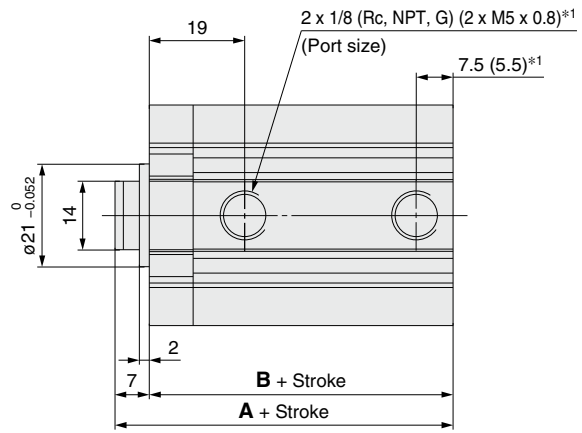
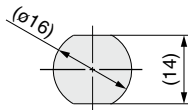
Bore Size

∅32 With/Without Auto Switch Magnet

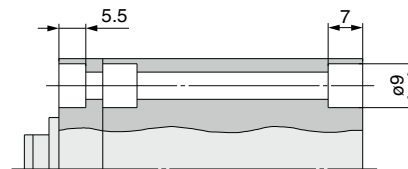
Through-hole: **C□Q2KB**



Piston rod cross section

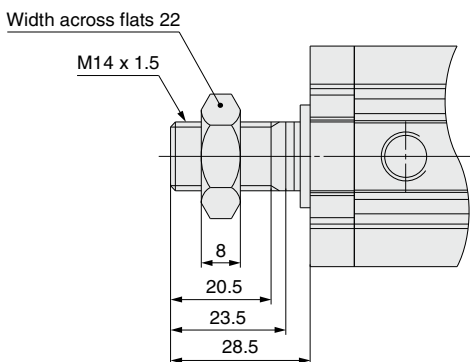


*1 (): For the 5 mm stroke

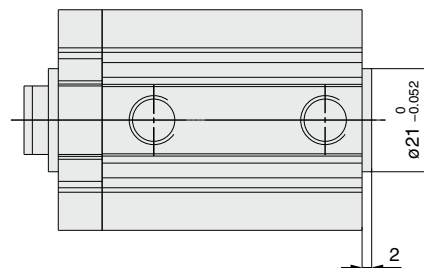


Stroke range [mm]	Without auto switch magnet		With auto switch magnet	
	A	B	A	B
5 to 50	39	32	49	42
75, 100	49	42		

Rod end male thread



With boss on head end



The dimensions with built-in One-touch fittings are equivalent to those of the standard type, double acting, single rod. ⇨ p. 19

Dimensions of Each Mounting Bracket

The dimensions of each mounting bracket are the same as those of the standard type, double acting, single rod (except the configuration of the piston rod). Refer to pages 21 to 25.

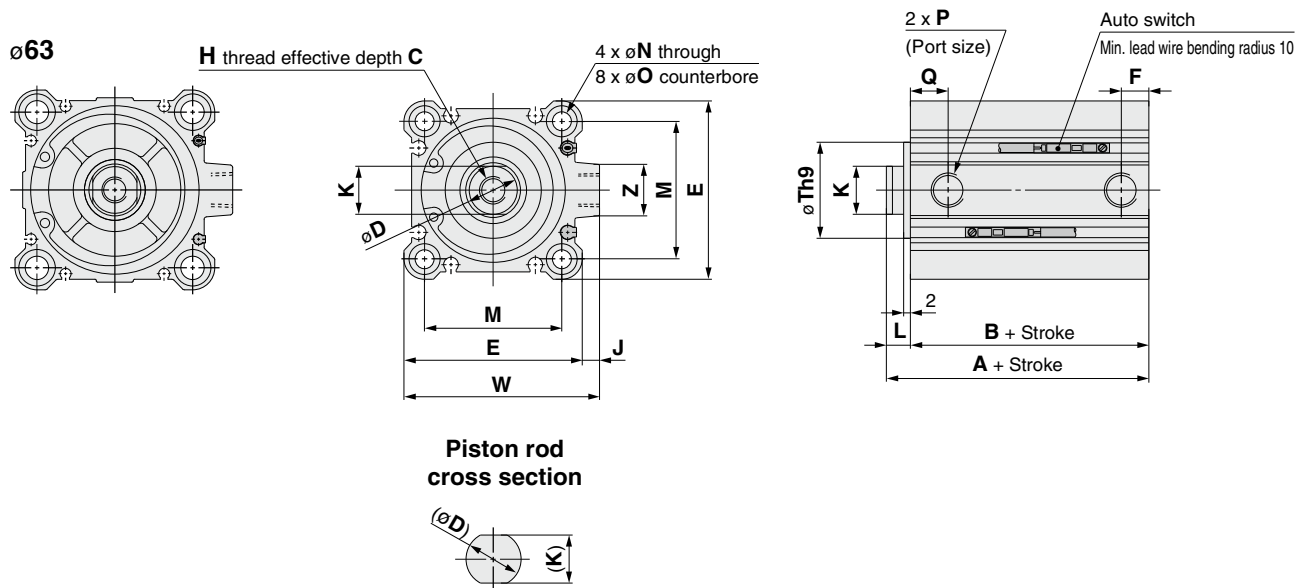
Standard	Double Acting, Single Rod	CQ2
Standard	Double Acting, Double Rod	CQ2W
Standard	Single Acting, Spring Return, Double Rod	CQ2
Large Bore Size	Double Acting, Single Rod	CQ2
Large Bore Size	Double Acting, Double Rod	CQ2W
Anti-lateral Load	Double Acting, Single Rod	CQ2□S
Long Stroke	Double Acting, Single Rod	CQ2
Long Stroke	Double Acting, Double Rod	CQ2W
Non-rotating Rod	Double Acting, Single Rod	CQ2K
Non-rotating Rod	Double Acting, Double Rod	CQ2KW
Water Resistant	Double Acting, Single Rod	CQ2-RV
Water Resistant	Double Acting, Double Rod	CQ2W-RV
Axial Piping	Double Acting, Single Rod	CQP2
Axial Piping	Double Acting, Double Rod	CQP2
With End Lock	Double Acting, Single Rod	CBQ2
With End Lock	Double Acting, Double Rod	CBQ2
Auto Switch	Double Acting, Single Rod	CQ2
Auto Switch	Double Acting, Double Rod	CQ2W
Made to Order	Double Acting, Single Rod	CQ2
Made to Order	Double Acting, Double Rod	CQ2W

CQ2K Series

Bore Size

∅40 to ∅63 With/Without Auto Switch Magnet

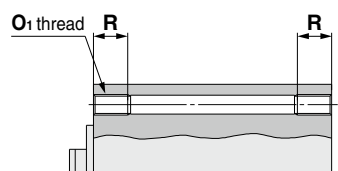
Through-hole: C□Q2KB



Bore size [mm]	Stroke range [mm]	Without auto switch magnet		With auto switch magnet		C	D	E	F	H	J	K	L	M	N	O	P	Q	Th9	W	Z
		A	B	A	B																
40	5 to 50	36.5	29.5	46.5	39.5	13	16	52	7.5	M8 x 1.25	5	14	7	40	5.5	9 depth 7	1/8	12.5	28 ⁰ _{-0.052}	57	15
	75, 100	46.5	39.5																		
50	10 to 50	38.5	30.5	48.5	40.5	15	20	64	10.5	M10 x 1.5	7	18	8	50	6.6	11 depth 8	1/4	10.5	35 ⁰ _{-0.062}	71	19
	75, 100	48.5	40.5																		
63	10 to 50	44	36	54	46	15	20	77	10.5	M10 x 1.5	7	18	8	60	9	14 depth 10.5	1/4	15	35 ⁰ _{-0.062}	84	19
	75, 100	54	46																		

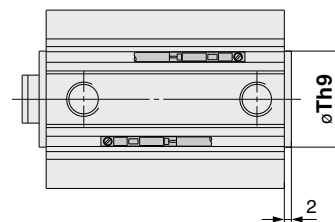
* For details on the rod end nut and accessory brackets ⇨ p. 26, 27

Both ends tapped



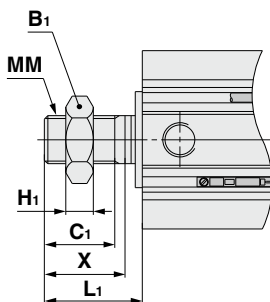
Bore size [mm]	O ₁	R
40	M6 x 1.0	10
50	M8 x 1.25	14
63	M10 x 1.5	18

With boss on head end



Bore size [mm]	Th9
40	28 ⁰ _{-0.052}
50	35 ⁰ _{-0.062}
63	35 ⁰ _{-0.062}

Rod end male thread



Bore size [mm]	B ₁	C ₁	H ₁	L ₁	MM	X
40	22	20.5	8	28.5	M14 x 1.5	23.5
50	27	26	11	33.5	M18 x 1.5	28.5
63	27	26	11	33.5	M18 x 1.5	28.5

The dimensions with built-in One-touch fittings are equivalent to those of the standard type, double acting, single rod. ⇨ p. 19, 20

Dimensions of Each Mounting Bracket

The dimensions of each mounting bracket are the same as those of the standard type, double acting, single rod (except the configuration of the piston rod). Refer to pages 21 to 25.