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Compact Cylinder: Non-rotating Rod
Double Acting, Single Rod
Series CQ2K
ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63

How to Order

Without auto switch ø12 to ø25

CQ2K B 20 – 30 D —

Without auto switch ø32 to ø63

CQ2K B 32 – 30 D Z –

With auto switch

CDQ2K B 32 – 30 D Z – M9BW –

With auto switch
(Built-in magnet)

Non-rotating rod

Mounting

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

∗ Mounting brackets are shipped together, (but not assembled).
∗ Cylinder mounting bolts are not included. Order them separately referring to "Mounting Bolt for C(D)Q2KB" on pages 82 and 84.

Bore size

12 Note 1)	12 mm	**32**	32 mm
16	16 mm	**40**	40 mm
20	20 mm	**50**	50 mm
25	25 mm	**63**	63 mm

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

Port thread type

Nil	M thread	ø12 to ø25
	Rc	ø32 to ø63
TN	NPT	
TF	G	
F	Built-in one-touch fittings Note 2)	

Note 2) Bore sizes available with one-touch fittings are ø32 to ø63.
∗ For cylinders without auto switch, M threads are compatible only for ø32-5 mm stroke model.

Cylinder stroke (mm)
Refer to the next page for standard strokes.

Action

D	Double acting

Body option

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

∗ Combination of body options ("FM") is available.

Auto switch mounting groove

Z	ø12 to ø25	2 surfaces
	ø32 to ø63	4 surfaces

Auto switch

Nil	Without auto switch

∗ Refer to the below table for applicable auto switches.

Number of auto switches

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

Made to Order
Refer to the next page for details.

Built-in Magnet Cylinder Model

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch.
(Example) CDQ2KL32-30DZ

Applicable Auto Switches

Refer to pages 1263 to 1371 in Best Pneumatics No. 2 for further information on auto switches.
Refer to the individual catalog (ES20-201) for the D-P3DW type.

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)	24 V	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 indication)			3-wire (NPN)		5 V, 12 V	M9NWV	M9NW	●	●	●	○	—	○	IC circuit	
				3-wire (PNP)			M9PWV	M9PW	●	●	●	○	—	○		
				2-wire		12 V	M9BWV	M9BW	●	●	●	○	—	○	—	
	Water resistant (2-color indication)			3-wire (NPN)		5 V, 12 V	M9NAV**	M9NA**	○	○	●	○	—	○	IC circuit	
				3-wire (PNP)			M9PAV**	M9PA**	○	○	●	○	—	○		
				2-wire		12 V	M9BAV**	M9BA**	○	○	●	○	—	○	—	
	Magnetic field resistant (2-color indication)			2-wire (Non-polar)		—	—	P3DW	●	—	●	●	—	○		
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	A96V	A96	●	—	●	—	—	—	IC circuit	—
			No	2-wire	24 V	12 V	100 V	A93V	A93	●	—	●	—	—	—	—	Relay, PLC
						5 V, 12 V	100 V or less	A90V	A90	●	—	●	—	—	—	IC circuit	

∗∗ Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance. Consult with SMC regarding water resistant types with the above model numbers.

∗ 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

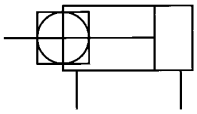
∗ Solid state auto switches marked with "○" are produced upon receipt of order.
∗ The D-P3DW□ type is available from ø32 to ø63 only.

∗ There are other applicable auto switches other than the listed above. For details, refer to page 175.
∗ For details about auto switches with pre-wired connector, refer to pages 1328 and 1329 in Best Pneumatics No. 2.



Symbol

Non-rotating rod



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 temperature	Without auto switch: –10 to 70°C (No freezing) With auto switch: –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 Note 1)	0.038	0.055	0.09	0.15	0.26	0.46	0.77
Stroke length tolerance	$^{+1.0\ \text{mm}\ \text{Note 2)}}_{0}$							
Rod non-rotating accuracy	±2°	±1°			±0.8°			

∗ ø12 with auto switch: With rubber bumper (Standard)
Note 1) For cylinders with rubber bumper (ø12 with auto switch only)
Note 2) Stroke length tolerance does not include the amount of bumper change.

Made to Order

Made to Order

(For details, refer to pages 177 to 207.)

Symbol	Specifications
-XA□	Special rod end shape
-XB10	Intermediate stroke (Exclusive body type): ø40 to ø63
-XC8	Adjustable stroke cylinder/Adjustable extension type
-XC9	Adjustable stroke cylinder/Adjustable retraction type
-XC10	Dual stroke cylinder/Double rod
-XC11	Dual stroke cylinder/Single rod
-XC26	With split pins for double clevis pin/ double knuckle joint pin and flat washers
-X1876	Cylinder tube: With concave boss on head end

Refer to pages 169 to 175 for the specifications of cylinders with auto switches.

- Auto switch proper mounting position (detection at stroke end) and its mounting height
- Minimum stroke for auto switch mounting
- Operating range
- Auto switch mounting brackets/Part no.

Standard Strokes

(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

Manufacture of Intermediate Strokes

Type	A spacer is installed in the standard stroke body.	
Part no.	Refer to “How to Order” for the standard model number. (P. 78)	
Description	Strokes in 1 mm intervals are available by installing a spacer in the standard stroke cylinder.	
Stroke range	Bore size	Stroke range
	12, 16	1 to 29
	20, 25	1 to 49
	32 to 63	1 to 99
Example	Part no.: CQ2KB50-57DZ CQ2KB50-75DZ with 18 mm width spacer inside The B dimension is 115.5 mm.	

Type

Bore size (mm)				12	16	20	25	32	40	50	63
Pneumatic	Mounting	Through-hole (Standard)		●	●	●	●	●	●	●	●
		Both ends tapped		—	—	—	—	—	●	●	●
	Built-in magnet			●	●	●	●	●	●	●	●
	Piping	Pipe thread	—	M5 x 0.8	M5 x 0.8	M5 x 0.8	M5 x 0.8	Note 1) M5 x 0.8 Rc1/8	Rc1/8	Rc1/4	Rc1/4
			TN	—	—	—	—	NPT1/8	NPT1/8	NPT1/4	NPT1/4
			TF	—	—	—	—	G1/8	G1/8	G1/4	G1/4
		Built-in one-touch fittings		—	—	—	—	ø6/4 Note 2)	ø6/4	ø8/6	ø8/6
	Rod end male thread			●	●	●	●	●	●	●	●
	With boss on head end			●	●	●	●	●	●	●	●

Note 1) ø32 without auto switch: M5 x 0.8 is used for 5 mm stroke piping dimension. Thus, do not enter a symbol for the port thread type.
Note 2) The dimensions of the ø32-5 mm stroke with built-in one-touch fittings are the same as those of the 10 mm stroke cylinder tube.

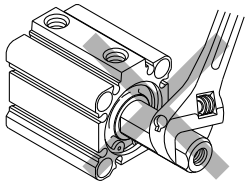
Retaining Ring Installation/Removal

⚠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.

Mounting

1. Install or remove loads while the piston rod width across flat is secured.



2. Using a non-rotating rod cylinder
   Avoid using the air cylinder in such a way that rotational torque would be applied to the piston rod. If rotational torque is applied, the non-rotating guide will deform, causing a loss of non-rotating accuracy.
   Use the below table as a guide for the allowable rotational torque ranges.

Allowable rotational torque	12	16	20	25	32	40	50	63
N·m or less	0.04	0.15	0.20	0.25	0.44	0.44	0.44	0.44

   Operate the cylinder in such a way that the load to the piston rod is always applied in the axial direction.

3. When a work piece is secured to the end of the piston rod, ensure that the piston rod is retracted entirely, and place a wrench on the portion of the rod that protrudes beyond the section. Also, tighten in a way that prevents the tightening torque from being applied to the non-rotating guide.

Mounting Brackets/Part No.

Bore size (mm)	Foot Note 1)	Flange	Double clevis
40	CQ-L040	CQ-F040	CQ-D040
50	CQ-L050	CQ-F050	CQ-D050
63	CQ-L063	CQ-F063	CQ-D063

Note 1) When ordering a foot bracket, order 2 pieces per cylinder.
Note 2) Parts belonging to each bracket are as follows.
Foot or Flange: Body mounting bolts
Double clevis: Clevis pin, Body mounting bolts, Type C retaining rings for axis

Theoretical Output

(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	841	1400	1960
	OUT	935	1560	2180

Weight

Weight

(g)

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

Additional Weight

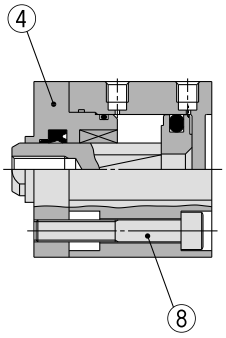
(g)

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	53
	Nut	1	2	4	8	17	17	32	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)		—	—	—	—	—	153	242	316
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

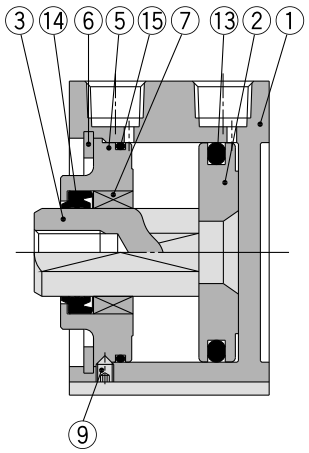
Calculation: (Example) **CQ2KD40-20DMZ**
- Basic weight: CQ2KB40-20DZ ····· 269 g
- Additional weight: Both ends tapped ····· 6 g
  Rod end male thread····· 44 g
  Double clevis ····· 196 g
  515 g

Construction

Standard (ø12 to ø32)

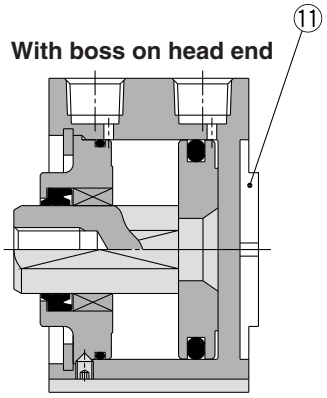


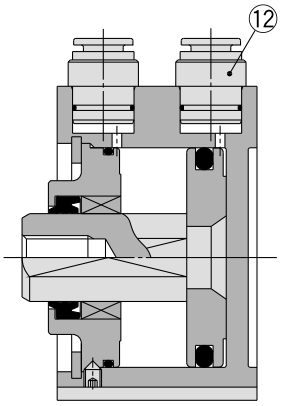
Standard (ø40 to ø63)



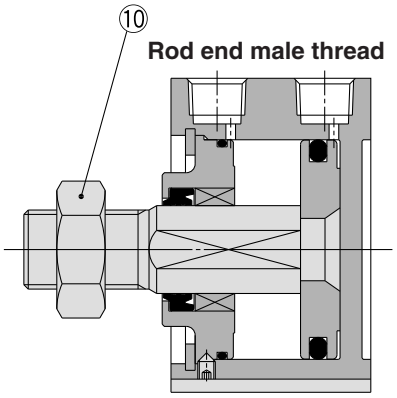
Built-in one-touch fittings

With boss on head end





Rod end male thread



Component Parts

No.	Description	Material	Note
1	**Cylinder tube**	Aluminum alloy	Hard anodized
2	**Piston**	Aluminum alloy	Chromated
3	**Piston rod**	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø63, Hard chrome plated
4	**Rod cover**	Brass	ø12, Electroless nickel plated
		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 plated
9	Hexagon socket head set screw	Alloy steel	ø40 to ø63, Nickel plated
10	**Rod end nut**	Carbon steel	Nickel plated
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	

Replacement Parts/Seal Kit

Bore size (mm)	Kit no.	Contents
12	CQ2KB12-PS	Kits include items ⑬, ⑭, ⑮ from the table.
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.
∗ Since the seal kit does not include a grease pack, order it separately.
Grease pack part no.: GR-S-010 (10 g)

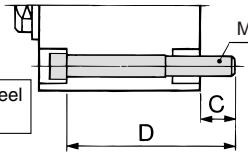
Mounting Bolt for CQ2KB/Without Auto Switch

Mounting method: Mounting bolt for 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.

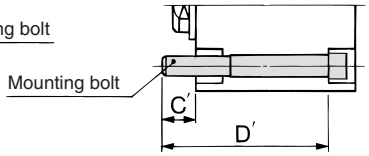
Example) CQ-M3x30L 2 pcs.

Material: Chromium molybdenum steel
Surface treatment: Nickel plated

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

Copper and Fluorine-free Series (For CRT Manufacturing Process)

20 — CQ2KB | **Bore size** | — | **Stroke** | **D(M)Z**

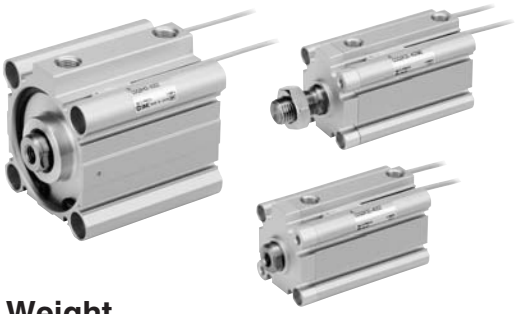
- **Copper and fluorine-free series**
- **ø16, ø20, ø25, ø32 ø40, ø50, ø63**

For preventing the influence of copper ions or halogen ions during CRT manufacturing processes, copper and fluorine materials are not used in the component parts.

Specifications

Bore size (mm)	16	20	25	32	40	50	63
Action	Double acting, Single rod						
Proof pressure	1.5 MPa						
Max. operating pressure	1.0 MPa						
Rubber bumper	None						
Piping	Pipe thread						
Piston speed	50 to 500 mm/s						
Mounting	Through-hole						
Auto switch	Mountable						

Non-rotating Rod: Double Acting, Single Rod
Series CDQ2K
With Auto Switch



Refer to the below pages for further information on auto switches.

Auto switch proper mounting position and its mounting height	P.169 to 175
Minimum stroke for auto switch mounting	
Operating range	
Auto switch mounting brackets/Part no.	

Weight

Weight

(g)

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

Additional Weight

(g)

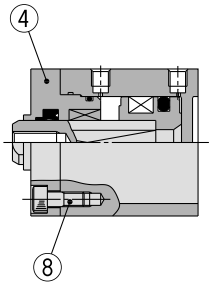
Bore size (mm)		**12**	**16**	**20**	**25**	**32**	**40**	**50**	**63**
Both ends tapped		—	—	—	—	—	6	6	19
Rod end male thread	Male thread	1.5	3	6	12	26	27	53	53
	Nut	1	2	4	8	17	17	32	32
With boss on head end		0.7	1.3	2	3	5	7	13	25
Built-in one-touch fittings		—	—	—	—	12	12	21	21
Foot (Including mounting bolts)		—	—	—	—	—	153	242	316
Rod flange (Including mounting bolts)		—	—	—	—	—	213	372	558
Head flange (Including mounting bolts)		—	—	—	—	—	198	348	534
Double clevis (Including pin, retaining rings and 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

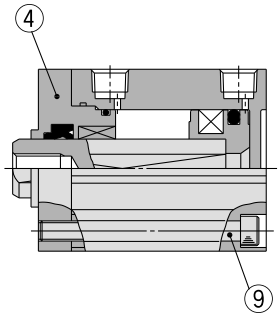
Add each weight of auto switches when auto switches are mounted.

Construction

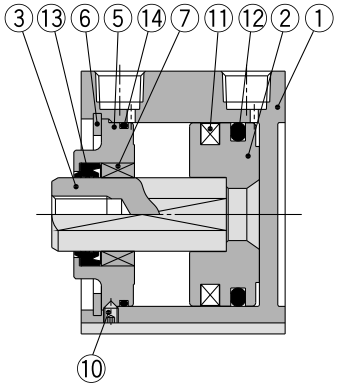
ø12 to ø25



ø32



ø40 to ø63



Component Parts

No.	Description	Material	Note
1	**Cylinder tube**	Aluminum alloy	Hard anodized
2	**Piston**	Aluminum alloy	Chromated
3	**Piston rod**	Stainless steel	ø12 to ø25
		Carbon steel	ø32 to ø63, Hard chrome plated
4	**Rod cover**	Brass	ø12, Electroless nickel plated
		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 ø25, Nickel plated
9	Hexagon socket head cap screw	Alloy steel	ø32, Nickel plated
10	Hexagon socket head set screw	Alloy steel	ø40 to ø63, Nickel plated
11	**Magnet**	—	
12	**Piston seal**	NBR	
13	**Rod seal**	NBR	
14	**Tube gasket**	NBR	

Replacement Parts/Seal Kit (Pneumatic type (Non-lube))

Bore size (mm)	Kit no.	Contents
12	CQ2KB12-PS	Kits include items ⑫, ⑬, ⑭ from the table.
16	CQ2KB16-PS	
20	CQ2KB20-PS	
25	CQ2KB25-PS	
32	CQ2KB32-PS	
40	CQ2KB40-PS	
50	CQ2KB50-PS	
63	CQ2KB63-PS	

∗ Seal kit includes ⑫, ⑬, ⑭. Order the seal kit, based on each bore size.
∗ Since the seal kit does not include a grease pack, order it separately.
Grease pack part no.: GR-S-010 (10 g)

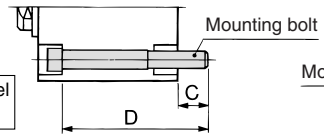
Mounting Bolt for CDQ2KB/With Auto Switch

Mounting method: Mounting bolt for 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.

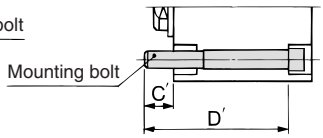
Example) CQ-M3x35L 2 pcs.

Material: Chromium molybdenum steel
Surface treatment: Nickel plated

Head end mounting



Rod end mounting

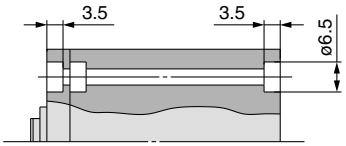


Cylinder model	C	D	Mounting bolt part no.	C'	D'	Mounting bolt part no.
CDQ2KB12-5DCZ	5.5	35	CQ-M3 x 35L	5.5	40	CQ-M3 x 40L
-10DCZ		40	x 40L		45	x 45L
-15DCZ		45	x 45L		50	x 50L
-20DCZ		50	x 50L		55	x 55L
-25DCZ		55	x 55L		60	x 60L
-30DCZ		60	x 60L		65	x 65L
CDQ2KB16-5DZ	8	40	CQ-M3 x 40L	8	45	CQ-M3 x 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

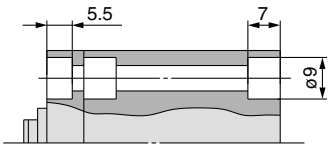
Cylinder model	C	D	Mounting bolt part no.	C'	D'	Mounting bolt part no.
CDQ2KB32-40DZ	8.5	85	CQ-M5 x 85L	10	85	CQ-M5 x 85L
-45DZ		90	x 90L		90	x 90L
-50DZ		95	x 95L		95	x 95L
-75DZ		120	x 120L		120	x 120L
-100DZ		145	x 145L		145	x 145L
CDQ2KB40-5DZ	7.5	45	CQ-M5 x 45L	7.5	45	CQ-M5 x 45L
-10DZ		50	x 50L		50	x 50L
-15DZ		55	x 55L		55	x 55L
-20DZ		60	x 60L		60	x 60L
-25DZ		65	x 65L		65	x 65L
-30DZ		70	x 70L		70	x 70L
-35DZ		75	x 75L		75	x 75L
-40DZ		80	x 80L		80	x 80L
-45DZ		85	x 85L		85	x 85L
-50DZ		90	x 90L		90	x 90L
-75DZ		115	x 115L		115	x 115L
-100DZ		140	x 140L		140	x 140L
CDQ2KB50-10DZ	12.5	55	CQ-M6 x 55L	12.5	55	CQ-M6 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
-40DZ		85	x 85L		85	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
CDQ2KB63-10DZ	14.5	60	CQ-M8 x 60L	14.5	60	CQ-M8 x 60L
-15DZ		65	x 65L		65	x 65L
-20DZ		70	x 70L		70	x 70L
-25DZ		75	x 75L		75	x 75L
-30DZ		80	x 80L		80	x 80L
-35DZ		85	x 85L		85	x 85L
-40DZ		90	x 90L		90	x 90L
-45DZ		95	x 95L		95	x 95L
-50DZ		100	x 100L		100	x 100L
-75DZ		125	x 125L		125	x 125L
-100DZ		150	x 150L		150	x 150L

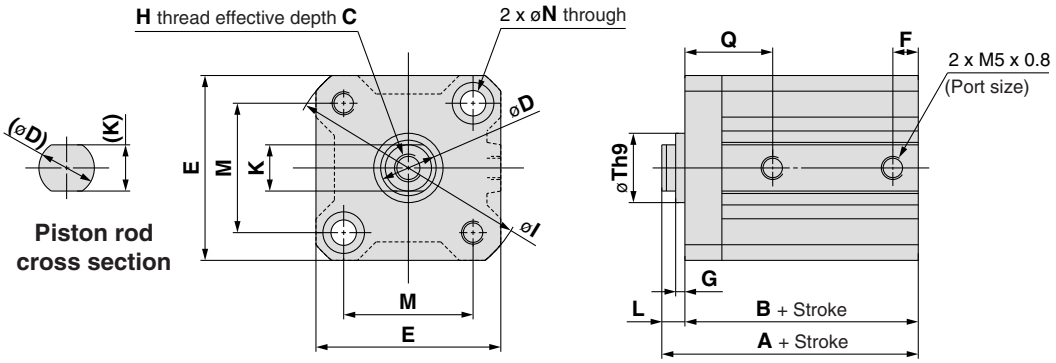
Standard (Through-hole): CQ2KB

ø12, ø16

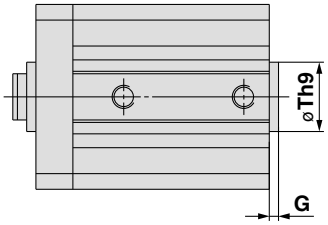


ø20, ø25





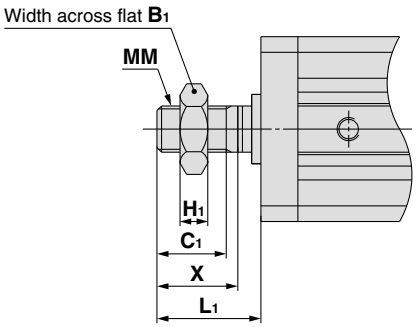
With boss on head end



With Boss on Head End (mm)

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	$15^{0}_{-0.043}$

Rod end male thread



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

Standard (mm)

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	17	$13^{0}_{-0.043}$
25	5 to 50	35.5	30.5	12	12	40	5.5	2	M6 x 1.0	52	10	5	28	5.5	19	$15^{0}_{-0.043}$

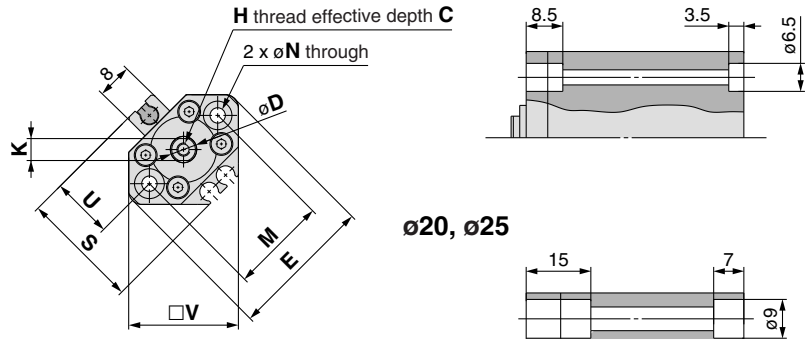
∗ For details about the rod end nut and accessory brackets, refer to page 19.

Dimensions

ø12 to ø25/With Auto Switch

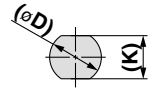
Standard (Through-hole): CDQ2KB

ø12, ø16

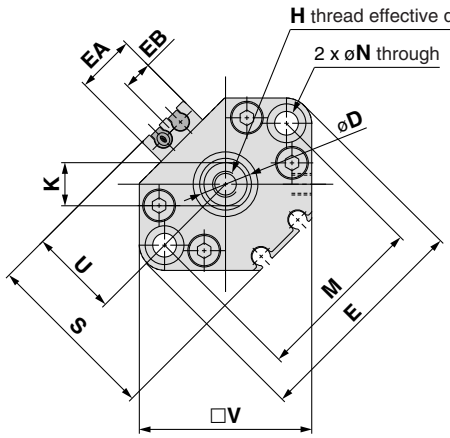


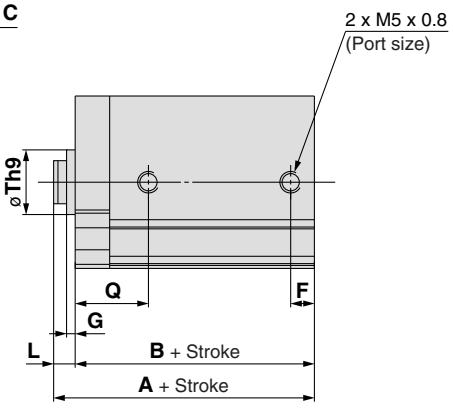
ø20, ø25

ø12



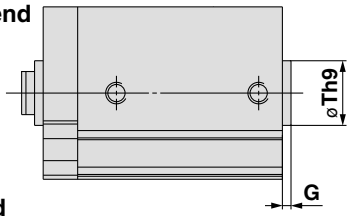
Piston rod cross section



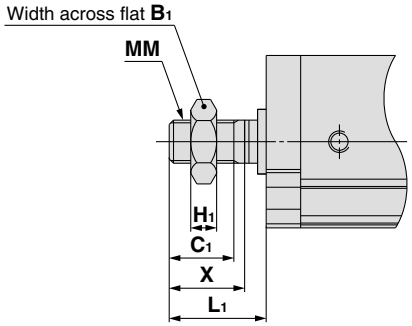


ø16 to ø25

With boss on head end



Rod end male thread



Rod End Male Thread (mm)

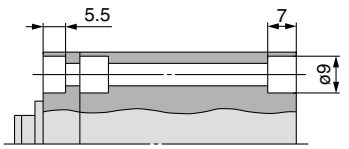
Bore size (mm)	B_1	C_1	H_1	L_1	MM	X
12	8	9	4	14	M5 x 0.8	10.5
16	10	10	5	15.5	M6 x 1.0	12
20	13	12	5	18.5	M8 x 1.25	14
25	17	15	6	22.5	M10 x 1.25	17.5

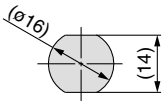
Standard For auto switch proper mounting position and its mounting height, refer to pages 169 to 175. (mm)

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	18.5	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	19	40.5	$15^{0}_{-0.043}$	21	40

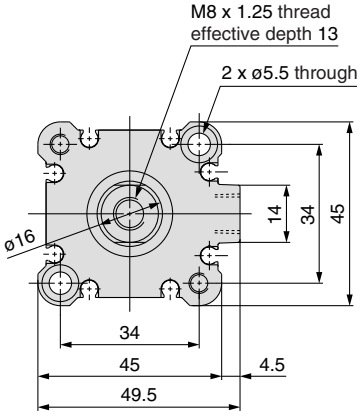
∗ For details about the rod end nut and accessory brackets, refer to page 19.

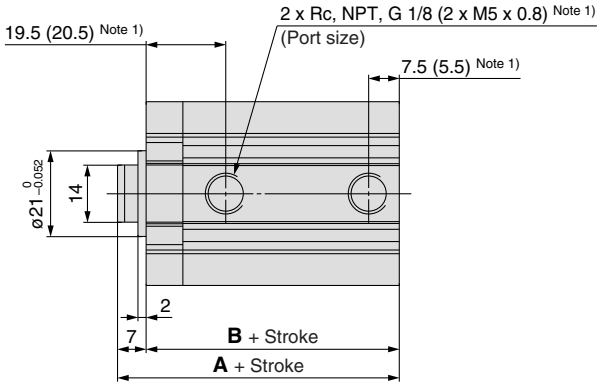
ø32/Without Auto Switch





Piston rod cross section



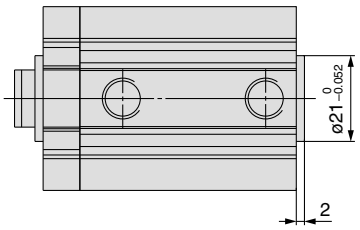


Note 1) ( ): Stroke 5 mm

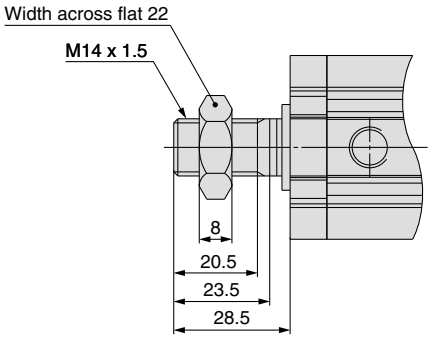
(mm)

Stroke range (mm)	A	B
5 to 50	39	32
75, 100	49	42

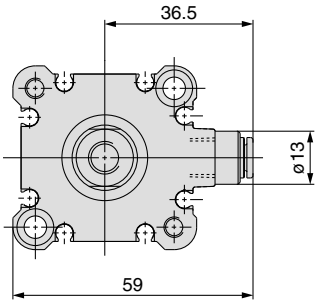
With boss on head end

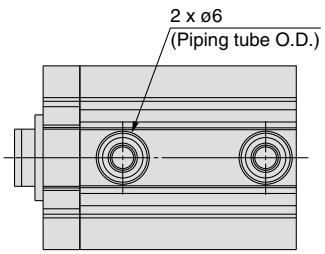


Rod end male thread



Built-in one-touch fittings: ø32



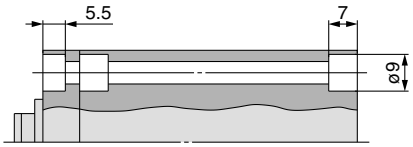


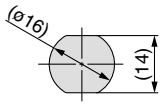
Note 2) The dimensions of the ø32-5 mm stroke with built-in one-touch fittings are the same as those of the 10 mm stroke cylinder tube.

∗ For details about the rod end nut and accessory brackets, refer to page 19.

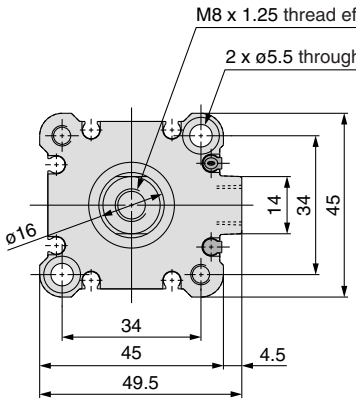
Dimensions

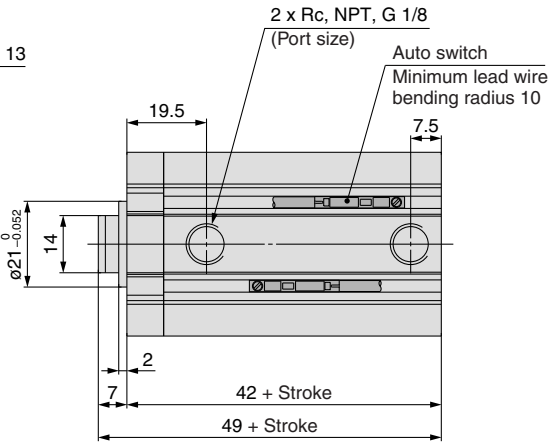
ø32/With Auto Switch



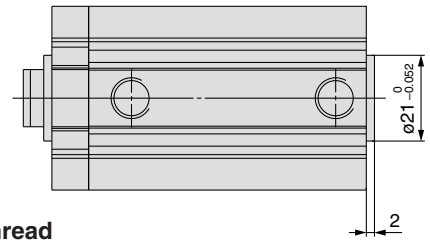


Piston rod cross section

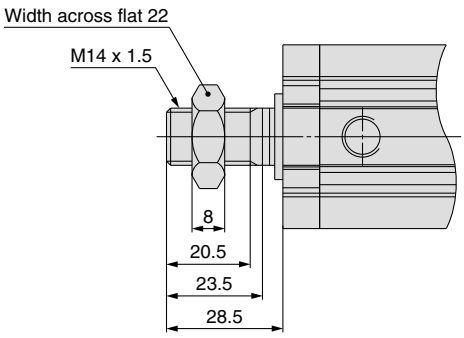




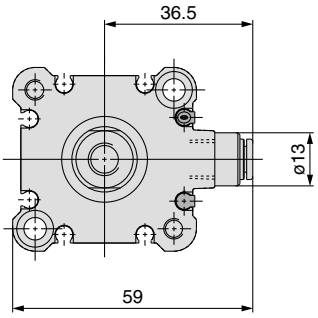
With boss on head end

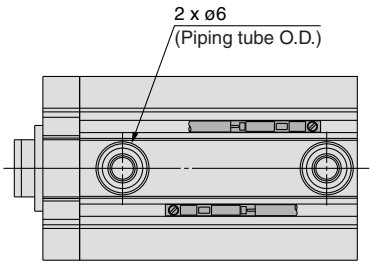


Rod end male thread



Built-in one-touch fittings: ø32





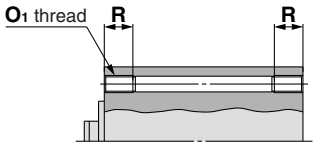
∗ For details about the rod end nut and accessory brackets, refer to page 19.

ø40 to ø63/With Auto Switch

(In the case of without auto switches, the A and B dimensions will be only changed. Refer to the dimension table.)

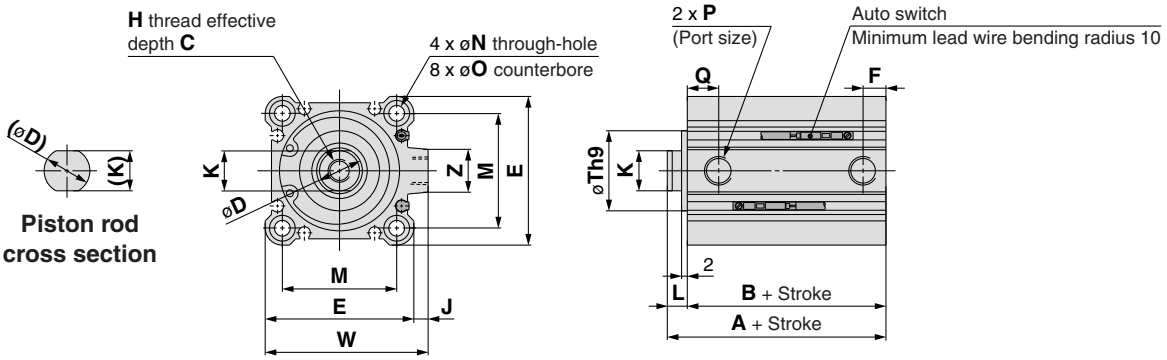
Both ends tapped: CDQ2KA

Standard (Through-hole): CDQ2KB

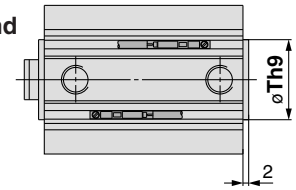


Both Ends Tapped (mm)

Bore size (mm)	O1	R
40	M6 x 1.0	10
50	M8 x 1.25	14
63	M10 x 1.5	18



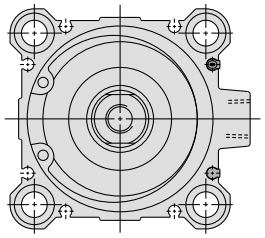
With boss on head end



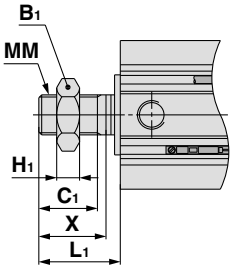
With Boss on Head End (mm)

Bore size (mm)	Th9
40	$28^{\ 0}_{-0.052}$
50	$35^{\ 0}_{-0.062}$
63	$35^{\ 0}_{-0.062}$

Rod end male thread



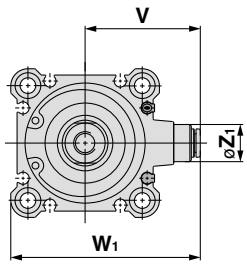
Cylinder tube form ø63

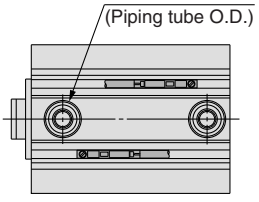


Rod End Male Thread (mm)

Bore size (mm)	B1	C1	H1	L1	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

Built-in one-touch fittings: ø40 to ø63





Built-in One-touch Fittings (mm)

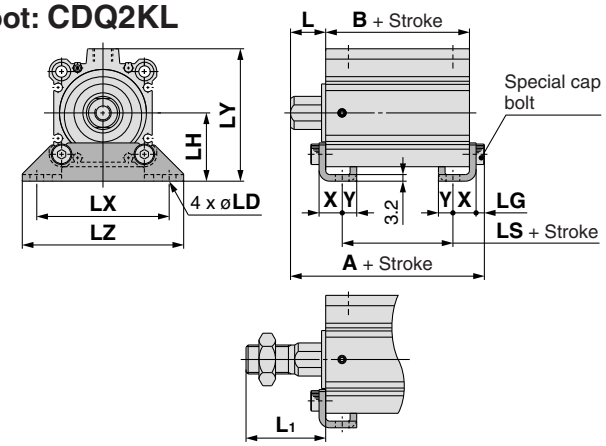
Bore size (mm)	Z1	P1	V	W1
40	13	6	40.5	66.5
50	16	8	50	82
63	16	8	56.5	95

Standard (mm)

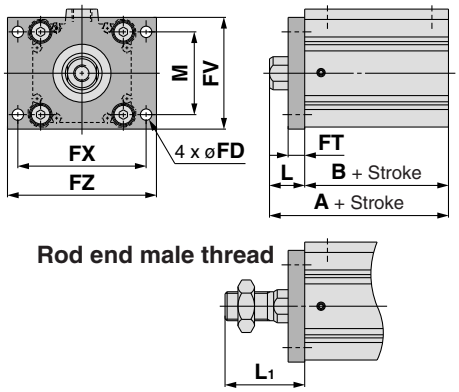
Bore size (mm)	Stroke range (mm)	Without auto switch A	Without auto switch B	With auto switch A	With auto switch B	C	D	E	F	H	J	K	L	M	N	O	P	Q	Th9	W	Z
40	5 to 50	36.5	29.5	46.5	39.5	13	16	52	8	M8 x 1.25	5	14	7	40	5.5	9 depth 7	1/8	11	$28^{\ 0}_{-0.052}$	57	15
	75, 100	46.5	39.5																		
50	10 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 about the rod end nut and accessory brackets, refer to page 19.

Foot: CDQ2KL

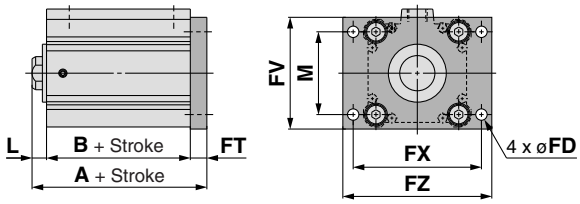


Rod flange: CDQ2KF

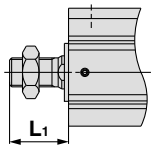


Rod end male thread

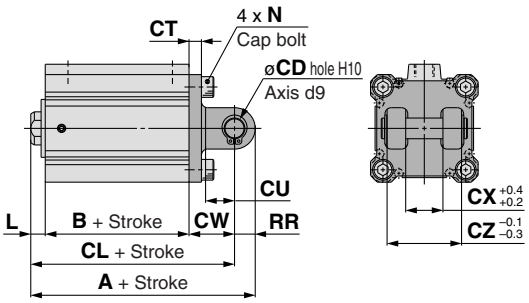
Head flange: CDQ2KG



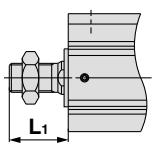
Rod end male thread



Double clevis: CDQ2KD



Rod end male thread



∗ For details about the rod end nut and accessory brackets, refer to page 19.
∗ Double clevis pin and retaining rings are included.

Foot

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch A	B	LS	With auto switch A	B	LS	L	L1	LD
40	5 to 50	53.7	29.5	13.5	63.7	39.5	23.5	17	38.5	6.6
	75, 100	63.7	39.5	23.5						
50	10 to 50	56.7	30.5	7.5	66.7	40.5	17.5	18	43.5	9
	75, 100	66.7	40.5	17.5						
63	10 to 50	62.2	36	10	72.2	46	20	18	43.5	11
	75, 100	72.2	46	20						

Bore size (mm)	LG	LH	LX	LY	LZ	X	Y
40	4	33	64	64	78	11.2	7
50	5	39	79	78	95	14.7	8
63	5	46	95	91.5	113	16.2	9

Foot bracket material: Carbon steel
Surface treatment: Nickel plated

Rod Flange

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch A	B	With auto switch A	B	FD	FT	FV	FX	FZ
40	5 to 50	46.5	29.5	56.5	39.5	5.5	8	54	62	72
	75, 100	56.5	39.5							
50	10 to 50	48.5	30.5	58.5	40.5	6.6	9	67	76	89
	75, 100	58.5	40.5							
63	10 to 50	54	36	64	46	9	9	80	92	108
	75, 100	64	46							

Bore size (mm)	L	L1	M
40	17	38.5	40
50	18	43.5	50
63	18	43.5	60

Flange bracket material: Carbon steel
Surface treatment: Nickel plated

Head Flange

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch A	With auto switch A	L	L1
40	5 to 50	44.5	54.5	7	28.5
	75, 100	54.5			
50	10 to 50	47.5	57.5	8	33.5
	75, 100	57.5			
63	10 to 50	53	63	8	33.5
	75, 100	63			

∗ The dimensions except A, L and L1 are the same as those of the rod flange.

Flange bracket material: Carbon steel
Surface treatment: Nickel plated

Double Clevis

(mm)

Bore size (mm)	Stroke range (mm)	Without auto switch A	B	CL	With auto switch A	B	CL	CD	CT	CU
40	5 to 50	68.5	29.5	58.5	78.5	39.5	68.5	10	6	14
	75, 100	78.5	39.5	68.5						
50	10 to 50	80.5	30.5	66.5	90.5	40.5	76.5	14	7	20
	75, 100	90.5	40.5	76.5						
63	10 to 50	88	36	74	98	46	84	14	8	20
	75, 100	98	46	84						

Bore size (mm)	CW	CX	CZ	L	L1	N	RR
40	22	18	36	7	28.5	M6 x 1.0	10
50	28	22	44	8	33.5	M8 x 1.25	14
63	30	22	44	8	33.5	M10 x 1.5	14

Double clevis bracket material: Cast iron
Surface treatment: Painted

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