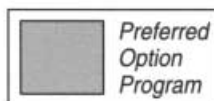


Series NCQ2/CQ2

Compact Cylinders

The Preferred Option Program: "Quick Delivery and Service Assurance"



The product series in this catalog utilizes SMC's Preferred Option Program, a unique program intended to emphasize the model configurations that are most readily available where the catalog presents an extensive variety of choices. All other options are available, whereas they may be stocked in lesser quantities or manufactured to order. Special arrangements can be made for repeating (blanket) orders of these product models. Contact your sales representative for further details.



Targeting new trends in the advancement of industrial automation, SMC has developed a category of products recognized as especially significant and of universal importance. We refer to these products as "Z Products". These revolutionary products, whether simple or complex, provide SMC customers with superior performance and availability at a very affordable cost.



Compact Cylinder: Standard/ Double Acting Single Rod NCQ2 / CQ2 Series

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

How To Order

NCQ2 **B** **H** **20** **F** **30** **D** **C**

W/ Auto Switch **NCQDQ2** **B** **H** **20** **F** **30** **D** **C** **A73** **S**

Mounting

B	Through hole	F	Rod side flange
A	Both ends tapped	G	Head side flange
L	Foot	D	Double Clevis

Style

-	Air pressure
H	See note 1) Air Hydro

Note 1) The available air-hydro bore sizes: ø20~ø100, CQ2 only.

Bore Size

12	12mm (1/2" Nom.)	40	40mm (1-1/2" Nom.)
16	16mm (5/8" Nom.)	50	50mm (2" Nom.)
20	20mm (3/4" Nom.)	63	63mm (2-1/2" Nom.)
25	25mm (1" Nom.)	80	80mm (3-1/4" Nom.)
32	32mm (1-1/4" Nom.)	100	100mm (4" Nom.)

Piping

-	Threaded ports
F	See note 2) Built-in one-touch fitting

Note 2) Available built-in one touch fitting bore size: ø32~ø63.
Not applicable for Air-Hydro type CQ2

Cylinder Stroke (mm)

Please refer to p.3 for standard strokes

Action

D	Double
----------	--------

Auto Switch

-	2 pcs.
S	1 pcs.
n	n pcs.

Auto Switch Capability

-	Without Auto Switch
---	---------------------

Auto Switch Specifications

Type	Autoswitch		Indicator light	Wire (Output type)	Load Voltage		
	Perpendicular entry	In-line entry			DC	AC	
Reed switch	—	A76H	Yes	3 Wire	—	5V	
	A72	A72H			—	200V	
	A73	A73H			12V	100V	
	A80	A80H	No	2 Wire	24V	5V, 12V	
	A73C	—				12V	—
	A80C	—				5V, 12V	24V
	A79W	—				—	—
Solid State Switch	F7NV	F79	Yes	3 Wire NPN	24V	5V, 12V	
	F7PV	F7P		3 Wire PNP			
	F7BV	J79		2 Wire	12V		
	J79C	—					
	F7NVV	F79W		3 Wire NPN	24V	5V, 12V	
	—	F7PW		3 Wire PNP			
	F7BVV	J79W		2 Wire			12V
	—	F7BAL		3 Wire NPN	4 Wire NPN	24V	5V, 12V
	—	F7NTL					
	—	F79F					
	—	F7LF					

Mounting Kits

Bore Size (mm)	Note 4) Foot	Flange	Note 6) Double clevis
12	(N)CQ-L012	(N)CQ-F012	(N)CQ-D012
16	(N)CQ-L016	(N)CQ-F016	(N)CQ-D016
20	(N)CQ-L020	(N)CQ-F020	(N)CQ-D020
25	(N)CQ-L025	(N)CQ-F025	(N)CQ-D025
32	(N)CQ-L032	(N)CQ-F032	(N)CQ-D032
40	(N)CQ-L040	(N)CQ-F040	(N)CQ-D040
50	(N)CQ-L050	(N)CQ-F050	(N)CQ-D050
63	(N)CQ-L063	(N)CQ-F063	(N)CQ-D063
80	(N)CQ-L080	(N)CQ-F080	(N)CQ-D080
100	(N)CQ-L100	(N)CQ-F100	(N)CQ-D100

Note 4) If foot bracket is required for a cylinder, order a pair

Note 5) Each bracket comes with the following accessories;
Foot / Flange; Body mounting bolt
Double clevis; Clevis pin, Axis C style snap ring,
Body mounting bolt

Note 6) The double-clevis is packaged with clevis pin and snap ring.

• Load length 0.5m.....Std. Connector A80C 5m.....Z Connector A80CZ
3m.....L A80CL No lead.....N A80CN

Body Option

-	Std. (Female thread)
C	Note 3) W/ rubber cushion
M	Male thread
F	Head end boss

* Body option combination is available such as CM, FC, FM, and FCM.

Note 3) W/ Rubber cushion is not available for the air-hydraulic type.



Standard /
Double Acting Single rod

(N)CQ2 Series

Model



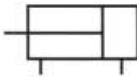
Bore Size		12	16	20	25	32	40	50	63	80	100	
Air-Pressure Type	Mounting	Through hole (std)	●	●	●	●	●	●	●	●	●	
		Both ends tapped	●	●	●	●	●	●	●	●	●	
	Built-In Magnet		●	●	●	●	●	●	●	●	●	
	Piping Method	Threaded PT or NPT	M5x 0.8	M5x 0.8	M5x 0.8	M5x 0.8	Note 1 M5x 0.8 1/8	1/8	1/4	1/4	3/8	3/8
		Built-In One Touch Fitting	-	-	-	-	Note 2 6/4	6/4	8/6	8/6	-	-
	Rod End Male Thread		●	●	●	●	●	●	●	●	●	●
W/Rubber Cushion		●	●	●	●	●	●	●	●	●	●	
W/Head End boss		●	●	●	●	●	●	●	●	●	●	
Air-Hydro Type	Mounting	Through hole (std)	-	-	●	●	●	●	●	●	●	
		Both ends tapped	-	-	●	●	●	●	●	●	●	
	Built-In Magnet		-	-	●	●	●	●	●	●	●	
	Piping Method	Threaded PT or NPT	-	-	M5x 0.8	M5x 0.8	Note 1 M5x 0.8 1/8	1/8	1/4	1/4	3/8	3/8
		W/ Head End boss	-	-	●	●	●	●	●	●	●	●
	Rod End Male Thread		-	-	●	●	●	●	●	●	●	●
W/ Head End boss		-	-	●	●	●	●	●	●	●	●	

Note 1) In cases without autoswitch, only 5 stroke uses M5x0.8

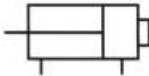
Note 2) In case of built-in fitting, the external tube dimension for ø 32, 5 stroke and 10 stroke are the same.

Standard Specifications

Double acting/
Single rod



Head end boss



Model	Air Pressure (Non-Lube)	Air-hydraulic
Media	Air	Hydraulic oil
Proof Pressure	217psi {15.3kgf/cm ² }	
Max. Operating Pressure	145psi {10.2kgf/cm ² }	
Ambient and Media temp.	15~160°F{-10°C~+70°C} (At freezing temp. air must be dry)	
Rubber cushion	None	-
Rod end thread	Female Thread (std.)	
Rod end thread tolerance	JIS Class II	
Stroke Length tolerance	+1.0 0 mm	
Mounting	Through hole (std.)	
Piston Speed	2~20in/s (50~500mm/s)	.002~8 in/s(0.5~200mm/s)

Min. Operating Pressure

psi

Bore size	12	16	20	25	32	40	50	63	80	100
Air pressure type (non-lube)	10.15	10.15	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25
Air-hydro	-	-	26.1	26.1	26.1	14.5	14.5	14.5	14.5	14.5

Cautions

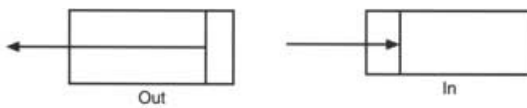
- When mounting, completely flush piping and be careful that dust and chips do not enter the cylinder.
- The Piston rod load should always be aligned with the cylinder axis.
 - Cylinder installation requires accurate alignment.
 - When used as a stopper, avoid side loading of the piston rod.
- Prevent damage to the piston rod. A damaged piston rod will lead to damage of the rod seal and result in leakage.

Standard stroke

Air pressure type (non-lube)		mm	Air-Hydro		mm
Bore size	Standard stroke		Bore size	Standard stroke	
12,16	5,10,15,20,25,30		20,25	5,10,15,20,25,30,35,40,45,50	
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	
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	
50,63	10,15,20,25,30,35,40,45,50,75,100		80,100	45,50,75,100	

• Available intermediate stroke.

Intermediate strokes in 1mm increments are available by installing a spacer into the STD. stroke cylinder. Contact an SMC representative for ø40-ø100 intermediate stroke cylinder with bumper. Example] CQ2B50-57D can be made by installing a 18 mm (w)spacer into the std. cylinder CQ2B50-75D. 5mm Incremental Stroke (spacers) done as standard.



Weight/Double acting: Single rod type

lbs

Double Acting Single Rod lbf

Bore size	Rod direction	Operating pressures PSI		
		50	75	100
12	OUT	8.7	13.1	17.5
	IN	6.6	9.8	13.1
16	OUT	15.6	23.4	31.2
	IN	11.7	17.5	23.4
20	OUT	24.3	36.5	48.6
	IN	18.2	27.3	36.5
25	OUT	38.0	57.0	76.0
	IN	29.3	43.9	58.5
32	OUT	62.3	93.5	125
	IN	46.8	70.1	93.5
40	OUT	97.4	146	195
	IN	81.8	123	164
50	OUT	152	228	304
	IN	128	192	256
63	OUT	242	362	483
	IN	217	326	434
80	OUT	390	584	779
	IN	352	527	703
100	OUT	609	913	1217
	IN	554	831	1108

Bore size	Stroke											
	5	10	15	20	25	30	35	40	45	50	75	100
12	0.088	0.104	0.119	0.135	0.150	0.165	-	-	-	-	-	-
16	0.135	0.159	0.183	0.207	0.232	0.256	-	-	-	-	-	-
20	0.021	0.247	0.291	0.335	0.381	0.426	0.470	0.516	0.560	0.604	-	-
25	0.260	0.306	0.353	0.399	0.448	0.494	0.540	0.587	0.633	0.681	-	-
32	0.346	0.397	0.445	0.496	0.547	0.595	0.644	0.697	0.747	0.798	1.15	1.40
40	0.600	0.648	0.697	0.745	0.794	0.842	0.891	0.939	0.988	1.04	1.37	1.62
50	-	0.884	0.968	1.05	1.13	1.21	1.30	1.38	1.46	1.55	2.11	2.43
63	-	1.43	1.51	1.60	1.69	1.78	1.87	1.96	2.04	2.13	2.77	3.23
80	-	3.18	3.38	3.58	3.78	3.98	4.18	4.38	4.58	4.78	6.24	7.27
100	-	4.87	5.10	5.34	5.57	5.80	6.04	6.27	6.50	6.74	8.38	9.52

Weight Adder

lbs.

Bore size	12	16	20	25	32	40	50	63	80	100
Both ends tapped	0.004	0.004	0.013	0.013	0.013	0.013	0.013	0.042	0.099	0.099
Rod end M thread	Thread	0.003	0.007	0.013	0.026	0.057	0.060	0.117	0.117	0.265
	Nut	0.002	0.004	0.009	0.018	0.037	0.037	0.071	0.071	0.108
Head end boss	0.002	0.003	0.004	0.007	0.011	0.015	0.029	0.055	0.099	0.212
W/ rubber cushion	0.000	0.000	-0.004	-0.007	-0.007	-0.015	-0.020	-0.040	-0.068	-0.123
W/ one touch fitting	-	-	-	-	0.026	0.026	0.046	0.046	-	-
Foot mounting*	0.121	0.148	0.362	0.410	0.315	0.342	0.536	0.714	1.535	2.342
Rod side flange*	0.126	0.152	0.306	0.355	0.397	0.472	0.822	1.233	2.328	3.010
Head side flange*	0.119	0.143	0.293	0.335	0.364	0.437	0.767	1.177	2.242	2.886
Double clevis**	0.071	0.086	0.194	0.271	0.333	0.432	0.867	1.222	2.445	4.161

* (incl. mounting bolt) ** (incl. pin, snap ring, bolt)

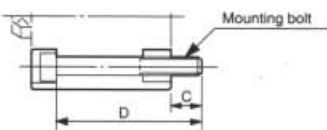
How to obtain the total weight (lbs)

NCQ2D32-20DCM

Std wt.:	NCQ2B32-20D	.496
Wt. adder:	Mounting end (both) tap	0.013
	Rod end M thread	.057
	W/ rubber cushion	-0.007
	Double clevis	.333
	Total	.892

Mounting Bolt For (N)CQ2

Special long mounting bolt for through hole mounting is available as an option.
 How to Order:
 Specify the required bolts
 Example) Bolt M3x35L 4pcs.



Thread	Pitch
M3	0.5
M5	0.8
M6	1.0
M8	1.25
M10	1.5

Model	C	D	Mounting bolt
(N)CQ2B12-5D	6.5	25	M3x25L
-10D		30	x30L
-15D		35	x35L
-20D		40	x40L
-25D		45	x45L
-30D		50	x50L
(N)CQ2B16-5D	5	25	M3x25L
-10D		30	x30L
-15D		35	x35L
-20D		40	x40L
-25D		45	x45L
-30D		50	x50L
(N)CQ2B20-5D	7.5	25	M5x25L
-10D		30	x30L
-15D		35	x35L
-20D		40	x50L
-25D		45	x45L
-30D		50	x50L
-35D		55	x55L
-40D		60	x60L
(N)CQ2B25-5D	9.5	30	M5x30L
-10D		35	x35L
-15D		40	x40L
-20D		45	x45L
-25D		50	x50L
-30D		55	x55L
-35D		60	x60L
-40D		65	x65L
-45D		70	x70L
-50D		75	x75L

Model	C	D	Mounting bolt	
(N)CQ2B32-5D	9	30	M5x30L	
-10D		35	x35L	
-15D		40	x40L	
-20D		45	x45L	
-25D		50	x50L	
-30D		55	x55L	
-35D		60	x60L	
-40D		65	x65L	
-45D		70	x70L	
-50D		75	x75L	
(N)CQ2B40-5D	7.5	35	M5x35L	
-10D		40	x40L	
-15D		45	x45L	
-20D		50	x50L	
-25D		55	x55L	
-30D		60	x60L	
-35D		65	x65L	
-40D		70	x70L	
-45D		75	x75L	
-50D		80	x80L	
(N)CQ2B50-10D	12.5	115	x115L	
-10D		140	x140L	
(N)CQ2B50-10D		12.5	45	M6x45L
-15D			50	x50L
-20D			55	x55L
-25D			60	x60L
-30D			65	x65L
-35D			70	x70L
-40D			75	x75L
-45D			80	x80L
-50D	85		x85L	
-75D	120		x120L	
-100D	145	x145L		

Model	C	D	Mounting bolt
(N)CQ2B63-10D	14.5	50	M8x50L
-15D		55	x55L
-20D		60	x60L
-25D		65	x65L
-30D		70	x70L
-35D		75	x75L
-40D		80	x80L
-45D		85	x85L
-50D		90	x90L
-75D		125	x125L
(N)CQ2B80-10D	15	55	M10x55L
-15D		60	x60L
-20D		65	x65L
-25D		70	x70L
-30D		75	x75L
-35D		80	x80L
-40D		85	x85L
-45D		90	x90L
-50D		95	x95L
-75D		130	x130L
(N)CQ2B100-10D	15.5	65	M10x65L
-15D		70	x70L
-20D		75	x75L
-25D		80	x80L
-30D		85	x85L
-35D		90	x90L
-40D		95	x95L
-45D		100	x100L
-50D		105	x105L
-75D		140	x140L
-100D	165	x165L	

Clean Room Series Air Cylinder

10 — **CQ2B** Bore Size — Stroke D (M)

- Clean series
10- Relief type
11- Vacuum type
- $\phi 12, \phi 16, \phi 20, \phi 25, \phi 32, \phi 40, \phi 50, \phi 63$

The double sealing structure of the rod end is designed to exhaust the air through a relief port directly to the outside of clean room. Can be used for class 100 clean room application.



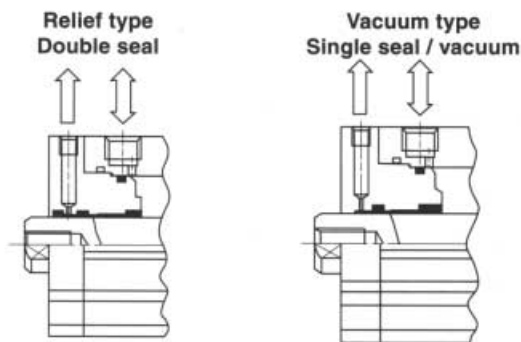
Specifications

Action	Double acting single rod
Bore Size	$\phi 12, \phi 16, \phi 20, \phi 25, \phi 32, \phi 40, \phi 50, \phi 63$
Proof pressure	217psi, {15.3kgf / cm ² }
Max. operating pressure	145psi {10.2kgf / cm ² }
Rubber cushion	None
Piping	Threaded piping
Piston speed	2~20 in / sec (50~500mm / s)
Mounting	Through hole
Auto switch capability	Capable

Consult SMC for more detailed information.

Note) In case of $\phi 12$ with auto switch, rubber cushion is standard.

Construction



The **relief porting type** exhausts the air between the two rod seals, offering less dust and contamination (1/20 of conventional cylinders).

The **Vacuum type** structure is exactly the same as 10 Series. However, removing the outer seal allows atmospheric air to be drawn out by vacuum through the clearance between the rod and cover.

By doing so, the dust generated from the outside becomes almost non-existent. Can be used for higher degree of cleanliness than a standard cylinder.

Copper Free Series Air Cylinder

20 — **CQ2B** Bore Size — Stroke D (C) (M)

- Copper Free series
- $\phi 50, \phi 63, \phi 80, \phi 100$

Changed surface treatment and material to electroless nickel plated and copper free, respectively, to remove copper ion so that no interference will occur when used in cathode ray tube manufacturing process.

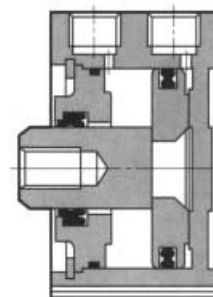


Specifications

Action	Double acting single rod
Bore Size	$\phi 50, \phi 63, \phi 80, \phi 100$
Proof pressure	217psi, {15.3kgf / cm ² }
Max. operating pressure	145psi {10.2kgf / cm ² }
Rubber cushion	With & without
Piping	Threaded piping
Piston speed	2~20 in / sec (50~500mm / s)
Mounting	Through hole, both ends tapping
Auto switch capability	Capable

Consult SMC for more detailed information.

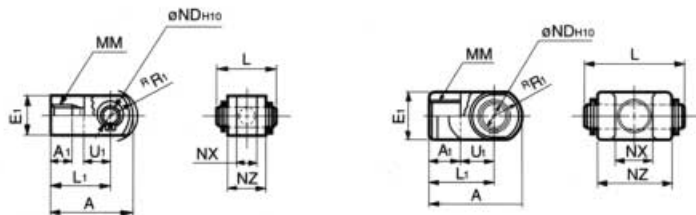
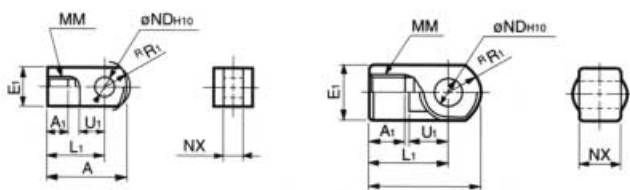
Construction



Accessories

SINGLE ROD CLEVIS (ROD EYE)

DOUBLE ROD CLEVIS (ROD EYE)



CQ2 - Single Rod Clevis

mm

Part Number	Applicable bore size	A	A ₁	E ₁	L ₁	MM	^R R ₁	U ₁	ND _{H10}	NX
I-G012	12	21.5	6	□10	16	M5x0.8	6.3	7	5 ^{+0.048} ₀	5 ^{-0.2} _{-0.4}
I-Z015	16	32	8	□12	25	M6x1	8.1	14	5 ^{+0.048} ₀	6.4 ^{-0.1} _{-0.3}
I-G02	20	34	8.5	□16	25	M8x1.25	10.3	11.5	8 ^{+0.058} ₀	8 ^{-0.2} _{-0.4}
I-G03	25	41	10.5	□20	30	M10x1.25	12.8	14	10 ^{+0.058} ₀	10 ^{-0.2} _{-0.4}
I-G04	32,40	42	14	∅22	30	M14x1.5	12	14	10 ^{+0.058} ₀	18 ^{-0.3} _{-0.5}
I-G05	50,63	56	18	∅28	40	M18x1.5	16	20	14 ^{+0.070} ₀	22 ^{-0.3} _{-0.5}
I-G08	80	71	21	∅38	50	M22x1.5	21	27	18 ^{+0.070} ₀	28 ^{-0.3} _{-0.5}
I-G10	100	79	21	∅44	55	M26x1.5	24	31	22 ^{+0.084} ₀	32 ^{-0.3} _{-0.5}

CQ2 - Double Rod Clevis

mm

Part Number	Applicable bore size	A	A ₁	E ₁	L ₁	MM	^R R ₁	U ₁	ND _{H10}	NX	NZ	L	PIN PART NO.
Y-G012	12	21.5	6	□10	16	M5x0.8	6.3	7	5 ^{+0.048} ₀	5 ^{-0.2} _{-0.4}	10	14.6	IY-G012
Y-Z015A	16	28	11	□12	21	M6x1	8.1	10	5 ^{+0.048} ₀	6.5 ^{-0.2} ₀	12	16.6	IY-J015
Y-G02	20	34	8.5	□16	25	M8x1.25	10.3	11.5	8 ^{+0.058} ₀	8 ^{-0.2} _{-0.4}	16	21	IY-G02
Y-G03	25	41	10.5	□20	30	M10x1.25	12.8	14	10 ^{+0.058} ₀	10 ^{-0.2} _{-0.4}	20	25.6	IY-G03
Y-G04	32,40	42	16	∅22	30	M14x1.5	12	14	10 ^{+0.058} ₀	18 ^{-0.3} _{-0.5}	36	41.6	IY-G04
Y-G05	50,63	56	20	∅28	40	M18x1.5	16	20	14 ^{+0.070} ₀	22 ^{-0.3} _{-0.5}	44	50.6	IY-G05
Y-G08	80	71	23	∅38	50	M22x1.5	21	27	18 ^{+0.070} ₀	28 ^{-0.3} _{-0.5}	56	64	IY-G08
Y-G10	100	79	24	∅44	55	M26x1.5	24	31	22 ^{+0.084} ₀	32 ^{-0.3} _{-0.5}	64	72	IY-G10

Clevis, Pin and Snap Ring are in the package

NCQ2 - Single Rod Clevis

mm

Part Number	Applicable bore size	A	A ₁	E ₁	L ₁	MM	^R R ₁	U ₁	ND _{H10} Inch	NX
RCS-01	12	21.5	6	□10	16	#8-32UNC	6.3	7	3/16 ^{+0.002} ₀	5 ^{-0.2} _{-0.4}
RCS-015	16	32	6	□12	25	#8-32UNC	12	14	3/16 ^{+0.002} ₀	6.4 ^{-0.1} _{-0.3}
RCS-02	20	34	6	□16	25	#10-32UNF	10.3	11.5	5/16 ^{+0.002} ₀	8 ^{-0.2} _{-0.4}
RCS-025	25	41	8	□20	30	1/4-28UNF	18	14	3/8 ^{+0.002} ₀	10 ^{-0.2} _{-0.4}
RCS-03	32	42	16	∅22	30	5/16-24UNF	12	14	3/8 ^{+0.002} ₀	18 ^{-0.3} _{-0.5}
RCS-04	40	42	11	∅22	30	3/8-24UNF	12	14	3/8 ^{+0.002} ₀	18 ^{-0.3} _{-0.5}
RCS-05	50, 63	56	18	∅28	40	1/2-20UNF	16	20	1/2 ^{+0.003} ₀	22 ^{-0.3} _{-0.5}
RCS-08	80	71	21	∅38	50	5/8-18UNF	21	27	3/4 ^{+0.003} ₀	28 ^{-0.3} _{-0.5}
RCS-10	100	79	21	∅44	55	3/4-16UNF	24	31	7/8 ^{+0.003} ₀	32 ^{-0.3} _{-0.5}

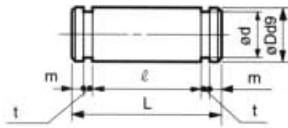
Clevis Pin and Retaining Rings not included, see RCSK "xx" on page 7

NCQ2 - Double Rod Clevis

mm

Part Number	Applicable bore size	A	A ₁	E ₁	L ₁	MM	^R R ₁	U ₁	ND _{H10} Inch	NX	NZ	L
RCD-01	12	21.5	6	□10	16	#8-32UNC	6.3	7	3/16 ^{+0.002} ₀	5 ^{-0.2} _{-0.4}	10	14
RCD-015	16	28	6	□12	21	#8-32UNC	12	10	3/16 ^{+0.002} ₀	6.5 ^{+0.2} _{+0.1}	12	16
RCD-02	20	34	6	□16	25	#10-32UNF	10.3	11.5	5/16 ^{+0.002} ₀	8 ^{-0.2} _{-0.4}	16	21
RCD-025	25	41	8	□20	30	1/4-28UNF	18	14	3/8 ^{+0.002} ₀	10 ^{-0.2} _{-0.4}	20	25
RCD-03	32	42	16	∅22	30	5/16-24UNF	12	14	3/8 ^{+0.002} ₀	18 ^{+0.5} _{+0.3}	36	41
RCD-04	40	42	16	∅22	30	3/8-24UNF	12	14	3/8 ^{+0.002} ₀	18 ^{+0.5} _{+0.3}	36	41
RCD-05	50,63	56	20	∅28	40	1/2-20UNF	16	20	1/2 ^{+0.003} ₀	22 ^{+0.5} _{+0.3}	44	50
RCD-08	80	71	23	∅38	50	5/8-18UNF	21	27	3/4 ^{+0.003} ₀	28 ^{+0.5} _{+0.3}	56	64
RCD-10	100	79	24	∅44	55	3/4-16UNF	24	31	7/8 ^{+0.003} ₀	32 ^{+0.5} _{+0.3}	64	72

Clevis Pin and Retaining Rings not included, see RCSK "xx" on page 7



CQ2 - Double Rod Clevis Pin

mm

Part Number	Applicable bore size	Dd9	L	d	ℓ	m	t	Snap ring
IY-G012	12	5 ^{-0.030} / _{-0.060}	14.6	4.8	10.2	1.5	0.7	Axial C style 5
IY-J015	16	5 ^{-0.030} / _{-0.060}	16.6	4.8	12.2	1.5	0.7	Axial C style 5
IY-G02	20	8 ^{-0.040} / _{-0.076}	21	7.6	16.2	1.5	0.9	Axial C style 8
IY-G03	25	10 ^{-0.040} / _{-0.076}	25.6	9.6	20.2	1.55	1.15	Axial C style 10
IY-G04	32, 40	10 ^{-0.040} / _{-0.076}	41.6	9.6	36.2	1.55	1.15	Axial C style 10
IY-G05	50, 63	14 ^{-0.050} / _{-0.093}	50.6	13.4	44.2	2.05	1.15	Axial C style 14
IY-G08	80	18 ^{-0.050} / _{-0.093}	64	17	56.2	2.55	1.35	Axial C style 18
IY-G10	100	22 ^{-0.065} / _{-0.117}	72	21	64.2	2.55	1.35	Axial C style 22

NCQ2 - Double Rod Clevis Pin

mm

Part Number	Applicable bore size	D	L	d	ℓ	m	t
PS-01	12	4.77 ^{-0.03} / _{-0.06}	14	4.45	10.2	1.44	0.46
PS-015	16	4.77 ^{-0.03} / _{-0.06}	16	4.45	12.2	1.44	0.46
PS-02	20	7.94 ^{-0.040} / _{-0.076}	21	7.37	16.2	1.66	0.74
PS-025	25	9.53 ^{-0.046} / _{-0.076}	25	8.94	20.2	1.66	0.74
PS-03	32, 40	9.53 ^{-0.040} / _{-0.076}	41	8.94	36.2	1.66	0.74
PS-05	50, 63	12.7 ^{-0.05} / _{-0.076}	50	11.89	44.2	1.9	1.0
PS-08	80	19.05 ^{-0.065} / _{-0.117}	64	17.89	56.2	2.73	1.17
PS-10	100	22.23 ^{-0.065} / _{-0.117}	72	20.85	64.2	2.73	1.17

Kits

NCQ2 Double Rod Clevis

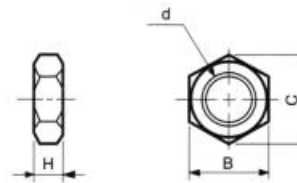
Kit Part Number	Applicable bore size	Includes		
		Clevis (1)	Pin (1)	Retaining Rings (2)
RCDK-01	12	RCD-01	PS-01	PC-01
RCDK-015	16	RCD-015	PS-015	PC-01
RCDK-02	20	RCD-02	PS-02	PC-02
RCDK-025	25	RCD-025	PS-025	PC-03
RCDK-03	32	RCD-03	PS-03	PC-03
RCDK-04	40	RCD-04	PS-04	PC-03
RCDK-05	50,63	RCD-05	PS-05	PC-05
RCDK-08	80	RCD-08	PS-08	PC-08
RCDK-10	100	RCD-10	PS-10	PC-10

NCQ2 Single Rod Clevis (Rod Eye)

Kit Part Number	Applicable bore size	Includes		
		Clevis (1)	Pin (1)	Retaining Rings (2)
RCSK-01	12	RCS-01	PS-01	PC-01
RCSK-015	16	RCS-015	PS-015	PC-01
RCSK-02	20	RCS-02	PS-02	PC-02
RCDK-025	25	RCS-025	PS-025	PC-03
RCSK-03	32	RCS-03	PS-03	PC-03
RCSK-04	40	RCS-04	PS-03	PC-03
RCSK-05	50,63	RCS-05	PS-05	PC-05
RCSK-08	80	RCS-08	PS-08	PC-08
RCSK-10	100	RCS-10	PS-10	PC-10

NCQ2 Rod Clevis Pin

Kit Part Number	Applicable bore size	Includes	
		Pin (1)	Retaining Rings (2)
PRA-01	12	PS-01	PC-01
PRA-015	16	PS-015	PC-01
PRA-02	20	PS-02	PC-02
PRA-025	25	PS-025	PC-03
PRA-03	32,40	PS-03	PC-03
PRA-05	50, 63	PS-05	PC-05
PRA-08	80	PS-08	PC-08
PRA-10	100	PS-10	PC-10



CQ2 - Jam Nut

mm

Part Number	Applicable bore size	d	H	B	C
NTJ-015A	12	M5x0.8	4	8	9.2
NT-015A	16	M6x1	5	10	11.5
NT-02	20	M8x1.25	5	13	15.0
NT-03	25	M10x1.25	6	17	19.6
NT-04	32, 40	M14x1.5	8	22	25.4
NT-05	50, 63	M18x1.5	11	27	31.2
NT-08	80	M22x1.5	13	32	37.0
NT-10	100	M26x1.5	16	41	47.3
NT-12	125,140	M30x1.5	18	46	53.1
NT-16	160	M36x1.5	21	55	63.5

NCQ2 - Jam Nut

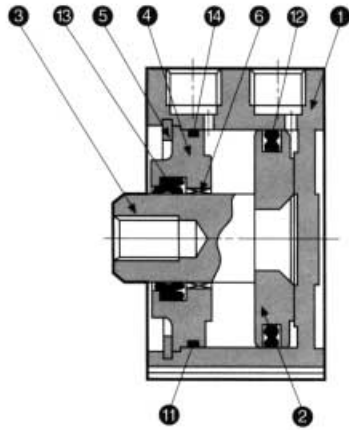
mm

Model	Applicable bore size	d	H	B	C
JM-01	12, 16	8-32 UNC	3.3	8.7	10
JM-02	20	10-32 UNF	3.3	9.5	11
JM-025	25	1/4-28 UNF	4.1	11.2	13
JM-03	32	5/16-24 UNF	4.8	12.7	14.7
JM-04	40	3/8-24 UNF	5.6	14.3	16.5
JM-05	50, 63	1/2-20 UNF	7.9	19.1	22
JM-08	80	5/8-18 UNF	9.7	23.8	27.4
JM-10	100	3/4-16 UNF	10.7	28.7	33

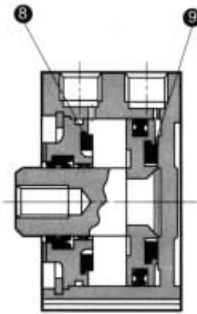
NOTE: Jam Nut Included when option "M" is ordered

Compact Cylinder: Standard / Double Acting Single Rod

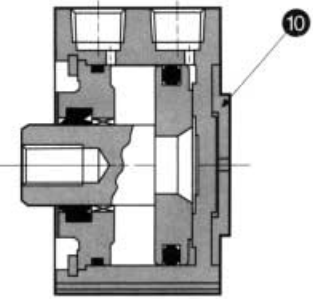
Construction / Part List



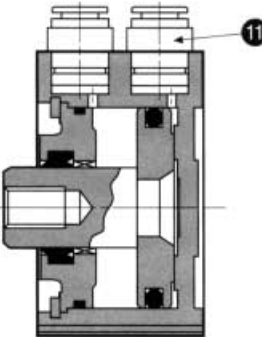
Double Acting / Single Rod



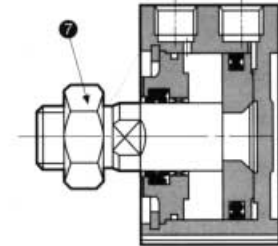
With Cushion



End Boss Head End



One Touch Fittings



Male Thread With Jam Nut

Parts list

No.	Description	Material	Remarks
1	Cylinder tube	Aluminum alloy	Hard anodized
2	*Piston	Aluminum alloy	Chromate
3	*Piston rod	Stainless steel	ø12~25
		Carbon steel	ø32~100, hard chrome plated
4	Collar	Bearing grade aluminum	ø12~40, black anodized
		Aluminum alloy casting	ø50~100, black painted
5	Retaining ring	Carbon tool steel	Phosphate coating

No.	Description	Material	Remarks
6	Bushing	Leaded tin bronze casting	Used for only ø50 and above
7	Rod end nut	Carbon steel	Nickel plated
8	Bumper A	polyurethane rubber	
9	Bumper B	polyurethane rubber	
10	End boss	Aluminum alloy	Hard anodizing
11	One touch fittings	—	ø32~ø63

* Piston and piston rod are connected (one-piece).
For bore size 12-ø25 rubber cushion using stainless steel piston rod.

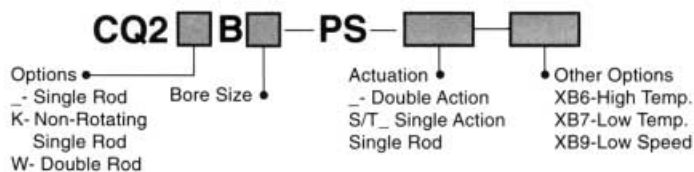
Seal List

No.	Description	Material	Parts No.									
			ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
12	Piston seal	NBR	NLP-12-7L	NLP-16A	NLP-20A	NLP-25A	NLP-32A	NLP-40A	NLP-50A	NLP-63B	NLP-80B	NLP-100B
13	Rod seal	NBR	DYR-6K	DYR-8K	DYR-10SK	DYR-12	DYR-16	PDU-16Z	PDU-20Z	PDU-20Z	PDU-25Z	PDU-30Z
14	Gasket	NBR	SP-013-6	C14	C18	C22	C29	C36	C46	C60	C75	C95

Air Hydro (CQ2 only)

No.	Description	Material	Parts No.							
			ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
12	Piston seal	NBR	RPS-20A	RPS-25A	RPS-32A	RPS-40A	RPS-50A	RPS-63A	RPS-80A	RPS-100A
13	Rod seal	NBR	PS-10	PS-12	PS-16	HDU-16	HDU-20	HDU-20	HDU-25	HDU-30
14	Gasket	NBR	C18	C22	C29	C36	C46	C60	C75	C95

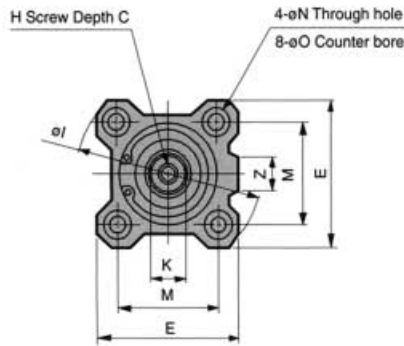
Seal Kit Part Numbers



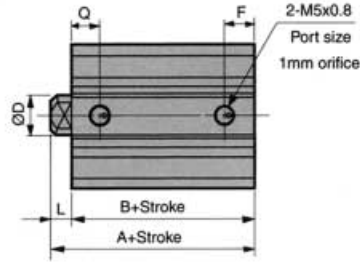
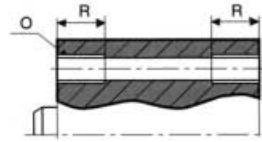
(N)CQ2 Series

Bore Size $\phi 12 \sim \phi 25$

Through Hole / (N)CQ2B



Both ends tapped



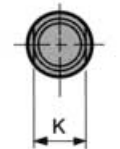
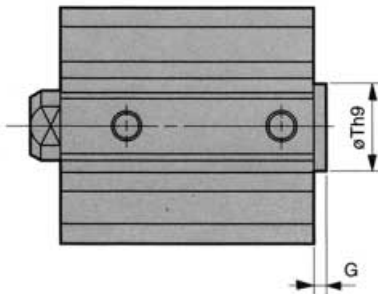
(N)CQ2A Both Ends Tapped

Bore size	CQ2 O	NCQ2 inch O	R
12	M4x0.7	8-32 UNC	7
16	M4x0.7	8-32 UNC	7
20	M6x1.0	1/4 - 20 UNC	10
25	M6x1.0	1/4 - 20 UNC	10

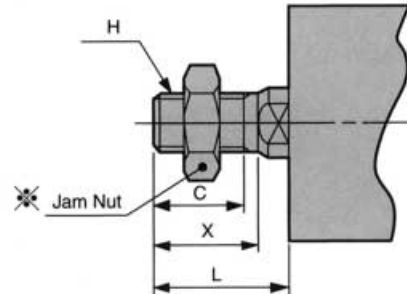
Standard

Bore size	Stroke	A	B	CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 inch H	I	K	L	M	N	O	Q	Z
12	5~30	20.5	17	6	5.4	6	25	5	M3x0.5	#8-32	32	5	3.5	15.5	3.5	6.5 depth 3.5	7.5	-
16	5~30	22	18.5	8	5.4	8	29	5.5	M4x0.7	#8-32	38	6	3.5	20	3.5	6.5 depth 3.5	8	10
20	5~50	24	19.5	7	7	10	36	5.5	M5x0.8	#10-32	47	8	4.5	25.5	5.5	9 depth 7	9	10
25	5~50	27.5	22.5	12	10	12	40	5.5	M6x1.0	1/4 - 28 UNF	52	10	5	28	5.5	9 depth 7	11	10

Note) The external dimensions of cylinder with rubber cushion are the same as that of the above standard.



Piston Rod



End Boss (CQ2 only) mm

Bore size	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 $^{0}_{-0.043}$

NCQ2 Male Rod End mm

Bore size	X	H inch	L	K
12	8	#8-32UNC	11.5	5
16	8	#8-32UNC	11.5	6
20	8	#10-32UNF	12.5	8
25	9.5	1/4-28UNF	14.5	10

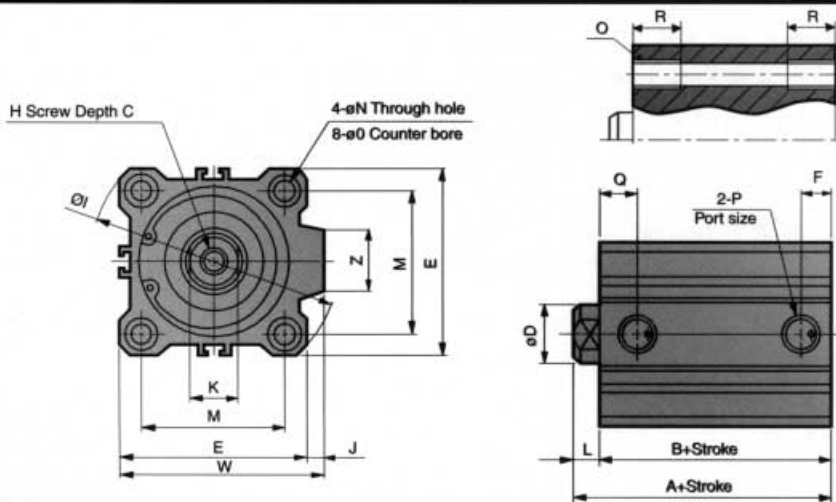
CQ2 Male Rod End mm

Bore size	C	X	H	L	K
12	9	10.5	M5x0.8	14	5
16	10	12	M6x1.0	15.5	6
20	12	14	M8x1.25	18.5	8
25	15	17.5	M10x1.25	22.5	10

Note 1) Rod side End Boss is offered as an option.
(Add - XC36 at the end of part no.)

✳ Rod end nut and accessories detail: see p. 6.
"C" dim. not applicable.

Bore Size $\phi 32 \sim \phi 100$



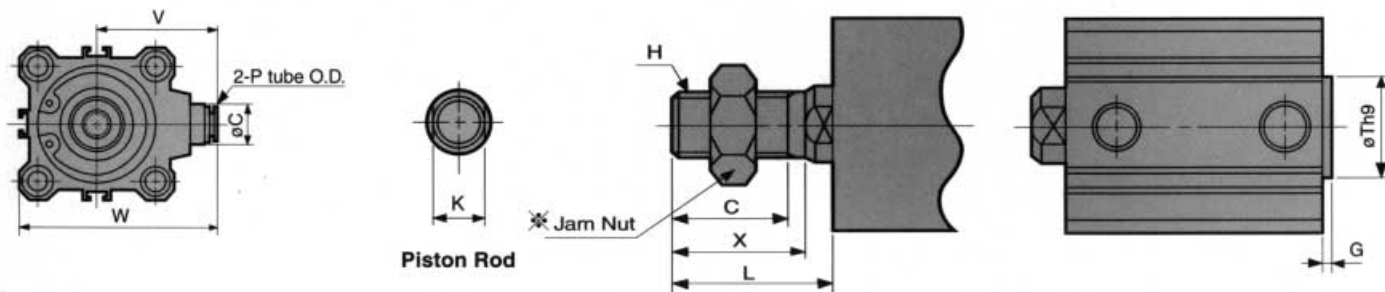
(N)CQ2A
Both Ends Tapped

Bore size	CQ2 O	NCQ2 inch O	R
32	M6x1.0	1/4 20 UNC	10
40	M6x1.0	1/4 - 20 UNC	10
50	M8x1.25	5/16 - 18 UNC	14
63	M10x1.5	7/16 - 14 UNC	18
80	M12x1.75	1/2 - 13 UNC	22
100	M12x1.75	1/2 - 13 UNC	22

Standard

Bore size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 Inch H	I	J	K	L	M	N	O	P	Orifice	Q	W	Z
32	5	30	23	13	13.3	16	45	5.5	M8x1.25	5/16-24UNF	60	4.5	14	7	34	5.5	9 depth 7	M5x0.8	1.7	11.5	49.5	14
	10~50	40	33					7.5										10.5				
40	5~50	36.5	29.5	13	18.3	16	52	8	M8x1.25	3/8-24UNF	69	5	14	7	40	5.5	9 depth 7	1/8	2	11	57	14
	75, 100	46.5	39.5																			
50	10~50	38.5	30.5	15	17.6	20	64	10.5	M10x1.5	1/2-20UNF	86	7	17	8	50	6.6	11 depth 8	1/4	2.2	10.5	71	19
	75, 100	48.5	40.5																			
63	10~50	44	36	15	17.6	20	77	10.5	M10x1.5	1/2-20UNF	103	7	17	8	60	9	14 depth 10.5	1/4	3	15	84	19
	75, 100	54	46																			
80	10~50	53.5	43.5	21	24.3	25	98	12.5	M16x2.0	5/8-18UNF	132	6	22	10	77	11	17.5 depth 13.5	3/8	4	16	104	26
	75, 100	63.5	53.5																			
100	10~50	65	53	27	27	30	117	13	M20x2.5	3/4-16UNF	156	6.5	27	12	94	11	17.5 depth 13.5	3/8	5	23	123.5	26
	75, 100	75	63																			

Note 1) The external dimensions of cylinder with rubber cushion are the same as that of the above standard.
2) In case of built-in fitting type, bore size $\phi 32$, 5 stroke has the same external dimensions as 10 stroke.



One Touch Fittings

Bore size	C	P	V	W
32	13	6	38	60.5
40	13	6	42	68
50	16	8	50	82
63	16	8	56.5	95

NCQ2 Male Rod End

Bore size	X	H Inch	L	K
32	12.7	5/16-24UNF	19.7	14
40	16	3/8-24UNF	23	14
50	19.5	1/2-20UNF	27.5	17
63	19.5	1/2-20UNF	27.5	17
80	25.5	5/8-18UNF	35.5	22
100	28.5	3/4-16UNF	40.5	27

CQ2 Male Rod End

Bore size	C	X	H	L	K
32	20.5	23.5	M14x1.5	28.5	14
40	20.5	23.5	M14x1.5	28.5	14
50	26	28.5	M18x1.5	33.5	17
63	26	28.5	M18x1.5	33.5	17
80	32.5	35.5	M22x1.5	43.5	22
100	32.5	35.5	M26x1.5	43.5	27

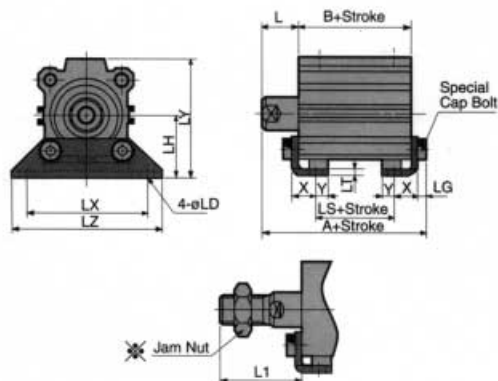
End Boss (CQ2 only)

Bore size	G	Th9
32	2	21 ⁰ _{-0.052}
40	2	28 ⁰ _{-0.052}
50	2	35 ⁰ _{-0.062}
63	2	35 ⁰ _{-0.062}
80	2	43 ⁰ _{-0.062}
100	2	59 ⁰ _{-0.074}

"C" dimension not applicable
*Rod end nut and accessories are detailed on p. 6.

(Note) With rod end inlets an option.
(Add - XC36 at the end of part no.)

Compact Cylinder: Standard / Double Acting Single Rod



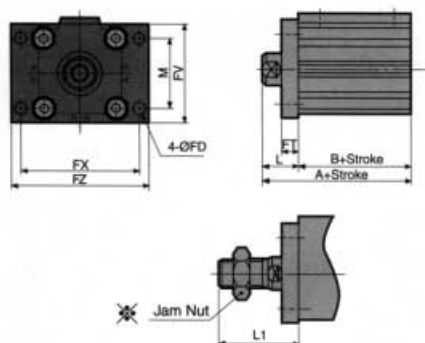
Foot / (N)CQ2L

mm

Bore size	Stroke	A	B	L	CQ2 L1	NCQ2 L1	LD	LG	LH	LS	LT	LX	LY	LZ	X	Y
32	5-50	47.2	23	17	38.5	29.7	6.6	4	30	7	3.2	57	57	71	11.2	5.8
	75, 100	57.2	33							17						
40	5-50	53.7	29.5	17	38.5	33	6.6	4	33	13.5	3.2	64	64	78	11.2	7
	75, 100	63.7	39.5							23.5						
50	10-50	56.7	30.5	18	43.5	37.5	9	5	39	7.5	3.2	79	78	95	14.7	8
	75, 100	66.7	40.5							17.5						
63	10-50	62.2	36	18	43.5	37.5	11	5	46	10	3.2	95	91.5	113	16.2	9
	75, 100	72.2	46							20						
80	10-50	75	43.5	20	53.5	45.5	13	7	59	13.5	4.5	118	114	140	19.5	11
	75, 100	85	53.5							23.5						
100	10-50	88	53	22	53.5	50.5	13	7	71	19	6	137	136	162	23	12.5
	75, 100	98	63							29						

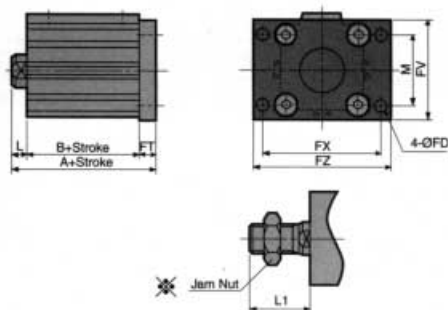
Rod Flange / (N)CQ2F

mm



Bore size	Stroke	A	B	FD	FT	FV	FX	FZ	L	CQ2 L1	NCQ2 L1	M
32	5-50	40	23	5.5	8	48	56	65	17	38.5	29.7	34
	75, 100	50	33									
40	5-50	46.5	29.5	5.5	8	54	62	72	17	38.5	33	40
	75, 100	56.5	39.5									
50	10-50	48.5	30.5	6.6	9	67	76	89	18	43.5	37.5	50
	75, 100	58.5	40.5									
63	10-50	54	36	9	9	80	92	108	18	43.5	37.5	60
	75, 100	64	46									
80	10-50	63.5	43.5	11	11	99	116	134	20	53.5	45.5	77
	75, 100	73.5	53.5									
100	10-50	75	53	11	11	117	136	154	22	53.5	50.5	94
	75, 100	85	63									

Head Flange / (N)CQ2G_{mm}

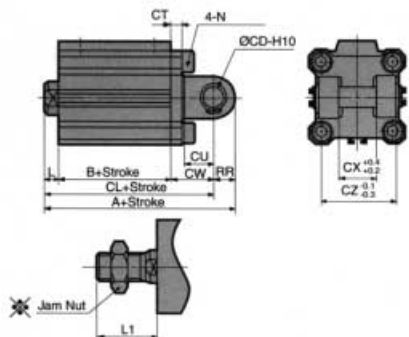


Bore size	Stroke	A	L	CQ2 L1	NCQ2 L1
32	5-50	38	7	28.5	19.7
	75, 100	48			
40	5-50	44.5	7	28.5	23
	75, 100	54.5			
50	10-50	47.5	8	33.5	27.5
	75, 100	57.5			
63	10-50	53	8	33.5	27.5
	75, 100	63			
80	10-50	64.5	10	43.5	35.5
	75, 100	74.5			
100	10-50	76	12	43.5	40.5
	75, 100	86			

* Dimensions for the head flange cylinder are the same as rod flange except A, L, L1.

Double Clevis / (N)CQ2D

mm



Bore size	Stroke	A	B	CQ2 CD	NCQ2 Inch CD	CL	CT	CU	CW	CX	CZ	L	CQ2 L1	NCQ2 L1	CQ2 N	NCQ2 Inch N	RR
32	5-50	60	23	10	3/8	50	5	14	20	18	36	7	28.5	19.7	M6x1.0	1/4-20	10
	75, 100	70	33			60											
40	5-50	68.5	29.5	10	3/8	58.5	6	14	22	18	36	7	28.5	23	M6x1.0	1/4-20	10
	75, 100	78.5	39.5			68.5											
50	10-50	80.5	30.5	14	1/2	66.5	7	20	28	22	44	8	33.5	27.5	M8x1.25	5/16-18	14
	75, 100	90.5	40.5			76.5											
63	10-50	88	36	14	1/2	74	8	20	30	22	44	8	33.5	27.5	M10x1.5	7/16-14	14
	75, 100	98	46			84											
80	10-50	109.5	43.5	18	5/8	91.5	10	27	38	28	56	10	43.5	35.5	M12x1.75	1/2-13	18
	75, 100	119.5	53.5			101.5											
100	10-50	132	53	22	7/8	110	13	31	45	32	64	12	43.5	40.5	M12x1.75	1/2-13	22
	75, 100	142	63			120											

* Rod end nut and accessories detail: see p. 6.

* Clevis pin and snap ring are included in the package.



Compact Cylinder
With Autoswitch

(N)CDQ2 Series

Standard Specifications

Model	Air pressure type (Non-lube type)	Air-hydro type
Media	Air	Hydraulic oil
Ambient and fluid temp.	15~140°F(-10°C~+60°C)(At freezing temp. air must be dry)	

The rest of the specifications are the same as that of standard (See p. 3).

Auto Switch Mounting Available / Minimum Stroke

# of Auto Switch Mounting	D-F7□V D-J79C	D-A7 D-A8 D-A73C D-A80C	D-F7□WV	D-A7□H D-A80H D-F7□ D-J79	D-A79W	D-F7□W D-J79W D-F7BAL D-F79F	D-F7LF
1pcs	5mm	5mm	10mm	15mm	15mm	20mm	25mm
2pcs	5mm	10mm	15mm	15mm	20mm	20mm	25mm



Auto Switch Mounting / Parts No.

Bore size (mm)	Part No.	Note	Applicable auto switch
12•16•20•25	BQ-1	•Auto switch mounting screw (M3x0.5x8L) •Square nut	D-A7 • A8 D-A7OH • A80H D-AOC • A80C D-F79 D-F79W J-J79C
32•40•50• 63•89•100• 125•140•160	BQ-2	•Auto switch mounting screw (m3x0.5x8L) •Auto switch spacer •Auto switch mounting nut	

How To Order

Auto Switch How To Order: See p. 2

Auto Switch Specification

Reed switch type

Auto switch model	D-A72 A72H	D-A73,A73H		D-A76H	D-A80,A80H			D-A73C	D-A80C	Two color indicator lamp D-A79W
Application	Relay, PLC			IC circuit	Relay, PLC, IC circuit			Relay, PLC	Relay, PLC, IC circuit	Relay, PLC
Load voltage	200VAC	100VAC	24VDC	4~8VDC	24VAC/ VDC or less	48VAC/ VDC	100VAC/ VDC	24VDC	24VAC/ VDC	24VDC
Max. load current or load current range	5~10mA	5~20mA	5~40mA	Max. 20mA	Max. 50mA	Max. 40mA	Max. 20mA	5~40mA	Max. 50mA	5~40mA
Internal voltage drop	2.4V or less			0.8V or less	0			2.4V or less	0	4V or less
Leak current	0									
Response time	1.2ms									
Indicator lamp	ON: Red light emitting diode			None			ON: Red light emitting diode	None	Response position: Red light emitting diode Best response position: Green light emitting diode	
Lead wire entry	Grommet (D-A7 0 H, 80H: Horizontal cable access)							Connector	Grommet	
Lead wire	Note) Oil proof vinyl ø 3.4, 0.2mm ² ,0.5m									
Impact resistance	30G									
Insulation resistance	50MΩ or more under the test voltage 500 VDC (Between case and cable)									
Withstand voltage	1500 VAC 1 min (Between case and cable)									
Ambient temperature	-10° ~60°C									
Protection structure	IEC spec IP67, JISC0920 (Water proof). Oil proof									

Note) • D-A76H: 3 wires {Brown (red), Black (white), Blue (black)},
Others: 2 wires {Brown (red), Black (white)} - Lead wire length: 0.5m(Standard), 3m(Option)

Solid State Switch Type

Auto switch model	PNP 3 wire type D-F7P	2 wire type D-F7BV	2 wire type D-J79(C)	PNP 3 wire type two color indicator lamp D-F79W	2 wire type two color indicator lamp D-F7BWV
Application	Relay, PLC	Relay, PLC		Relay, PLC, IC circuit	Relay, PLC
Power source	5, 12, 24VDC (4.5~28VDC)	-		4.5~28VDC	-
Current consumption	OFF:1mA or less ON:15mA or less	-		OFF:1mA or less ON:12mA or less	-
Load voltage	—	24VDC (10~28VDC)		28VDC or less	24VDC (10~28VDC)
Max. load current or load current range	Max. 80mA	5~40mA		Max. 40mA	5~40mA
Internal voltage drop	0.8V or less	4V or less		1.5V or less (0.8V or less at 10mA of load current)	4V or less
Leak current	24VDC: 100 μA or less	24VDC: 0.8mA or less		100μA or less at 24VDC	24VDC: 0.8mA or less

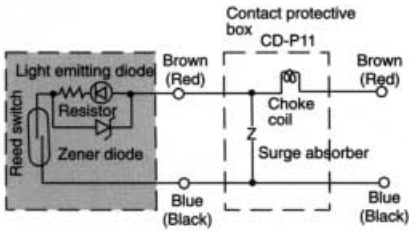
Auto switch model	NPN 3 wire type D-F7NV	NPN 4 wire type two color indicator lamp D-F79F	NPN 4 wire type two color indicator lamp D-F7LF	NPN 3 wire type two color indicator lamp D-F79W	2 wire type two color indicator lamp D-J79W
Application	Relay, PLC, IC circuit	Relay, PLC, IC circuit		Relay, PLC, IC circuit	Relay, PLC
Power source	5, 12, 24VDC (4.5~28VDC)	4.5~28VDC	24VDC (20~26VDC)	12V, 24VDC	-
Current consumption	OFF:1mA or less ON:12mA or less	OFF:1mA or less ON:10mA or less	20mA or less	10mA	-
Load voltage	28VDC or less	28VDC or less	26VDC or less	28VDC or less	24VDC (10~28VDC)
Max. load current or load current range	Max. 40mA	Max. 40mA		Max. 40mA	5~40mA
Internal voltage drop	1.5V or less (0.8V or less at 10mA of load current)	1.5V or less (0.8V or less at 10mA of load current)	0.8V or less	1.5V or less (0.8V or less at 10mA of load current)	4V or less
Leak current	100μA or less at 24VDC	100μA or less at 24VDC		100μA or less at 24VDC	0.8mA or less at 24VDC

Auto switch model	NPN 3 wire type D-F79	PNP 3 wire type D-F7PV	NPN 3 wire type D-F7NTL	2 wire type D-F7BAL	NPN 3 wire type two color indicator lamp D-F7NWW
Application	Relay, PLC, IC circuit	Relay, PLC, IC circuit	Relay, PLC, IC circuit	Relay, PLC	Relay, PLC
Power source	5, 12, 24VDC (4.5~28VDC)	4.5~28VDC	4.5~28VDC	-	12~24VDC
Current consumption	OFF:1mA or less ON:12mA or less	15mA or less	OFF:1mA or less ON:10mA or less	-	10mA or less
Load voltage	28VDC or less	-	28VDC or less	24VDC (10~28VDC)	28VDC or less
Max. load current or load current range	Max. 40mA	Max. 80mA	Max. 80mA	5~40mA	Max. 40mA
Internal voltage drop	1.5V or less (0.8V or less at 10mA of load current)	0.8V or less	2V or less (0.8V or less at 10mA)	4V or less	1.5V or less (0.8V or less at 10mA of load current)
Leak current	100μA or less at 24VDC	100μA or less at 24VDC	100μA or less at 24VDC	0.8mA at 24VDC	100μA or less at 24VDC
Response time	1ms or less				
Indicator lamp	ON: Red light emitting diode			Response position:Red light emitting diode Best response position: Green light emitting diode	
Lead wire entry	Grommet ("C" Connector)				
Lead wire	Note: Oil proof vinyl ø 3.4, 0.2mm ² ,05.m length (L, 3m option)				
Impact resistance	100G				
Insulation resistance	50MΩ or more under the test voltage 500VDC (Between case and cable)				
Withstand voltage	1000 VAC 1 min (Between case and cable)				
Ambient temperature	-10°~60°C				
Protection structure	IEC spec IP67, JIS C0920 (Water proof). Oil proof				

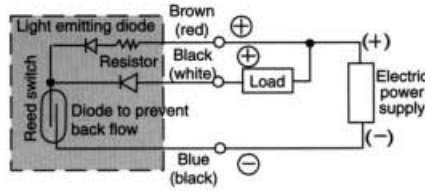
Auto Switch Internal Circuit

Reed Switch Type

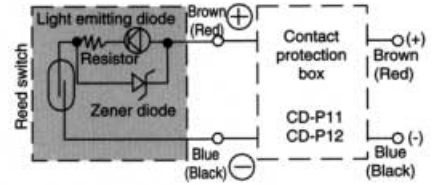
D-A72, D-A72H



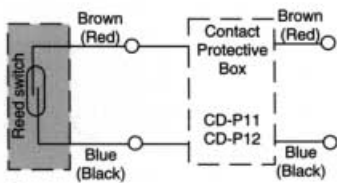
D-A76H



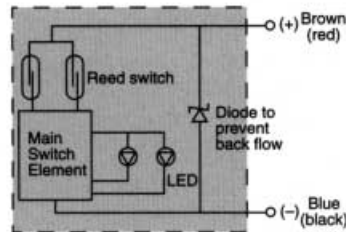
D-A73, D-A73H, D-A73C



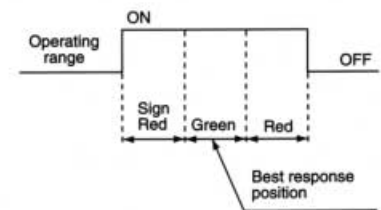
D-A80, D-A80H, D-A80C



Two color indicator lamp, D-A79W

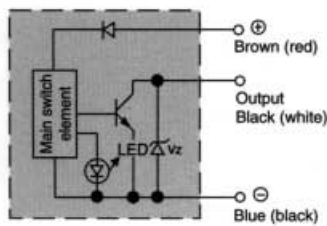


Indicator lamp / How to sign

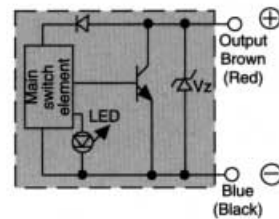


Solid State Type

D-F79, D-F7NTL, D-F7NV, 3 wire type



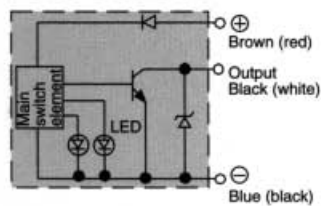
D-J79, D-J79C, D-F7BV, 2 wire type



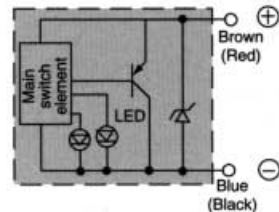
•Interchangeable with reed switch
Solid state switches are interchangeable with reed switches.
(Solid State Type) (Reed Switch Type)

D-F79 ↔ D-A7
D-J79

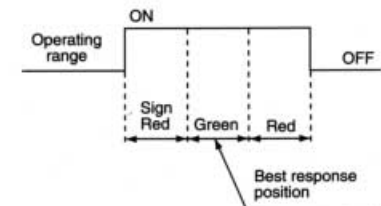
Two color indicator lamp, D-F7NWV, D-F79W



Two color indicator lamp, D-F7BAL, D-F7BWV



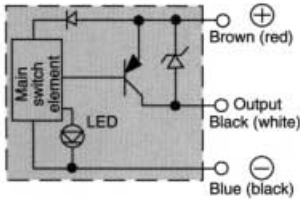
Two Color Indicator lamp / How to sign



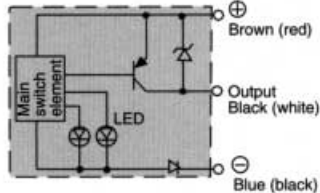
Auto Switch Internal Circuit

Solid State Type

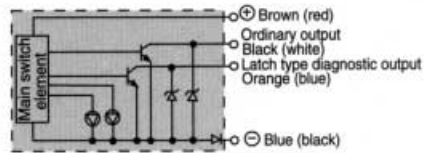
D-F7P, D-F7PV



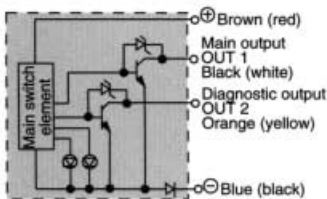
D-F7PW, D-J79W



D-F7LF

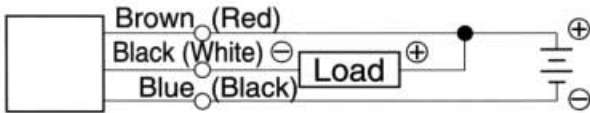


D-F79F



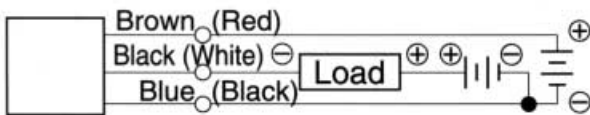
Auto Switch Connection / Solid State Type

3 wire system (When power source for switch and load is common)

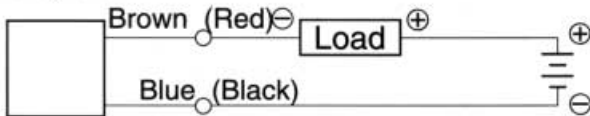


Brown (red) lead wire: Connect to power source ⊕ (Power source ⊕ terminal) to operate main circuit of switch. In case of 2 wire systems connect with ⊖ side of load.
 Black (white) lead wire: Connect to load (to input of programmable controller and outlet relay).
 Blue (black) lead wire: Connect to power source ⊖ (Power source GND terminal).

3 wire system (When power source for switch and load is not common)



2 wire system



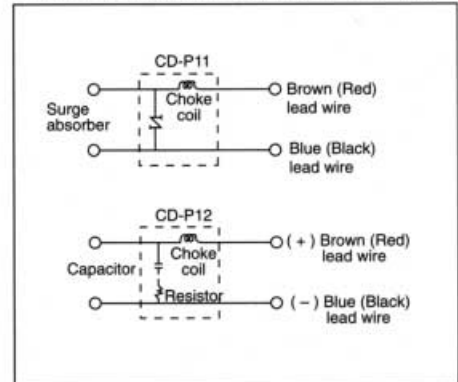
Contact Protection

D-A7 type and D-A8 type have no built-in contact protection circuit. Use this box for induction loads, 5 meters or more of lead wires, or 100VAC applications.

Model	Operating voltage	Length of lead wire
CD-P11	100VAC	Switch connecting side 0.5m
CD-P12	24VDC	Load connecting side 0.5m

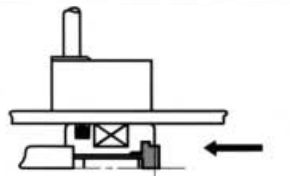
※ D-A8 type switches are used for 100VAC or less; since there is no voltage limitation, you can select a suitable model for your needs.

Contact Protection Box / Internal Circuit

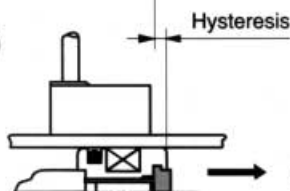


Auto Switch Hysteresis

Switch Contact Point (ON)



Switch Contact Point (OFF)



() : Previous color

※ Hysteresis is less than 2mm

Weight Chart

lbs

Bore size (mm)	Cylinder Stroke											
	5	10	15	20	25	30	35	40	45	50	75	100
12	0.110	0.126	0.141	0.157	0.172	0.187	-	-	-	-	-	-
16	0.157	0.181	0.207	0.232	0.256	0.280	-	-	-	-	-	-
20	0.229	0.271	0.315	0.359	0.406	0.450	0.494	0.540	0.584	0.631	-	-
25	0.284	0.331	0.395	0.423	0.472	0.518	0.564	0.613	0.657	0.706	-	-
32	0.571	0.598	0.624	0.650	0.701	0.750	0.800	0.851	0.902	0.961	1.22	1.47
40	0.752	0.805	0.858	0.908	0.953	0.997	1.05	1.09	1.14	1.20	1.44	1.68
50	-	1.10	1.17	1.25	1.34	1.43	1.50	1.58	1.66	1.78	2.18	2.50
63	-	1.60	1.69	1.78	1.87	1.97	2.06	2.15	2.23	2.38	2.84	3.29
80	-	3.53	3.74	3.95	4.16	4.36	4.57	4.78	4.99	5.28	6.31	7.33
100	-	5.55	5.68	5.81	6.05	6.29	6.52	6.75	6.97	7.31	8.45	9.59

Weight Adder

lbs

Bore Size	ø12	ø16	ø20	ø25	ø32
Both ends tapped	0.002	0.002	0.007	0.007	0.013
Rod end					
Thread	0.003	0.007	0.013	0.026	0.057
Nut	0.002	0.004	0.009	0.018	0.037
Boss mtg	0.002	0.003	0.004	0.007	0.011
W/ Cushion	0.000	-0.002	-0.004	-0.007	-0.007
W/ One touch	-	-	-	-	0.026
Foot	0.108	0.137	0.324	0.373	0.315
Rod flange	0.119	0.148	0.289	0.337	0.397
Head flange	0.115	0.139	0.273	0.318	0.364
Double clevis	0.064	0.077	0.172	0.251	0.333
Bore Size	ø40	ø50	ø63	ø80	ø100
Both ends tapped	0.013	0.013	0.042	0.099	0.099
Rod end					
Thread	0.060	0.117	0.117	0.265	0.386
Nut	0.037	0.071	0.071	0.108	0.256
Boss mtg	0.015	0.029	0.055	0.099	0.212
W/ Cushion	-0.015	-0.020	-0.040	-0.068	-0.123
W/ One touch	0.026	0.046	0.046	-	-
Foot	0.342	0.536	0.714	1.535	2.342
Rod flange	0.472	0.822	1.233	2.328	3.010
Head flange	0.437	0.767	1.177	2.242	2.886
Double clevis	0.432	0.867	1.222	2.445	4.161

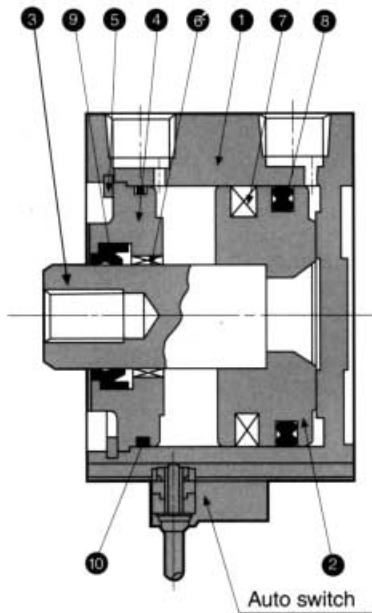
How to calculate weight (lbs)

When mounting auto switch, add for additional mounting bracket weight

(N)CDQ2D32-20DCM
 Std Wt.: (N)CDQ2B32-20D .65
 Wt. adder: Both ends tapped .013
 Jam nut .037
 W/ rubber cushion -.007
 Clevis mounting .333
 Total 1.026

Autoswitch Mounting Bracket Weight

Part no.	Applicable cylinder bore size	Weight lbs.
BQ-1	12- 25	.003
BQ-2	32- 100	.003



Parts List

No.	Description	Material	Remarks
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromate
3	Piston rod	Stainless steel	Bore ø12-ø25
		Carbon steel	Bore ø32-ø100, hard chrome plated
4	Collar	Aluminum alloy	Bore ø12-ø40, Black anodized
		Aluminum alloy casting	Bore ø50-ø100, Black paint
5	Retaining ring	Carbon tool steel	Phosphate coating
6	Bushing	Leaded tin bronze casting	Bore ø50-ø100
7	Magnet	----	

Seals List

No.	Description	Material	Parts No.									
			ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
8	Piston seal	NBR	NLP-12-7L	NLP-16A	NLP-20A	NLP-25A	NLP-32A	NLP-40A	NLP-50A	NLP-63B	NLP-80B	NLP-100B
9	Rod seal	NBR	DYR-6K	DYR-8K	DYR-10SK	DYR-12	DYR-16	PDU-16Z	PDU-20Z	PDU-20Z	PDU-25Z	PDU-30Z
10	Gasket	NBR	SO-013-6	C14	C18	C22	C29	C36	C46	C60	C75	C95

Air Hydro

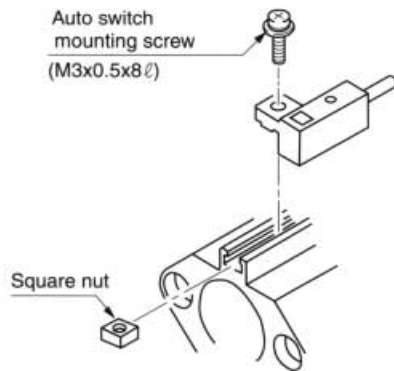
No.	Description	Material	Parts No.							
			ø20	ø25	ø32	ø40	ø50	ø63	ø80	ø100
8	Piston seal	NBR	RPS-20A	RPS-25A	RPS-32A	RPS-40A	RPS-50A	RPS-63A	RPS-80A	RPS-100A
9	Rod seal	NBR	PS-10	PS-12	PS-16	HDU-16	HDU-20	HDU-20	HDU-25	HDU-30
10	Gasket	NBR	C18	C22	C29	C36	C46	C60	C75	C95

How To Install Auto Switch

Install auto switch in the following manner

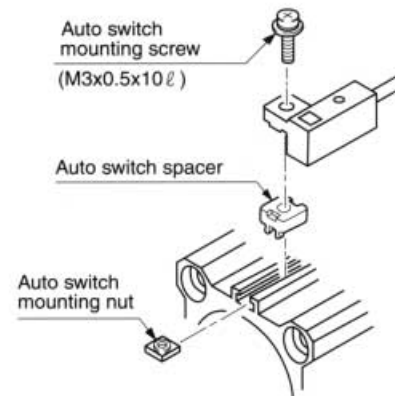
ø12~ø25 (1/2~1Nom.)

Bracket Kit BQ-1



ø32~ø100 (1-1/4~4Nom.)

Bracket Kit BQ-2



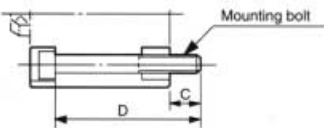
Mounting Bolt For (N)CDQ2/With Auto Switch

Special long mounting bolt for through hole mounting is available as an option.

How to Order:

Specify the required bolts

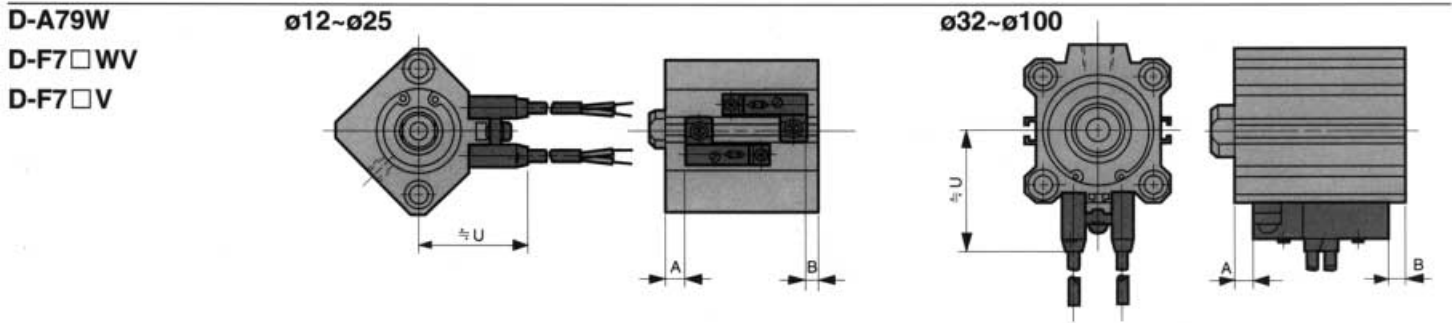
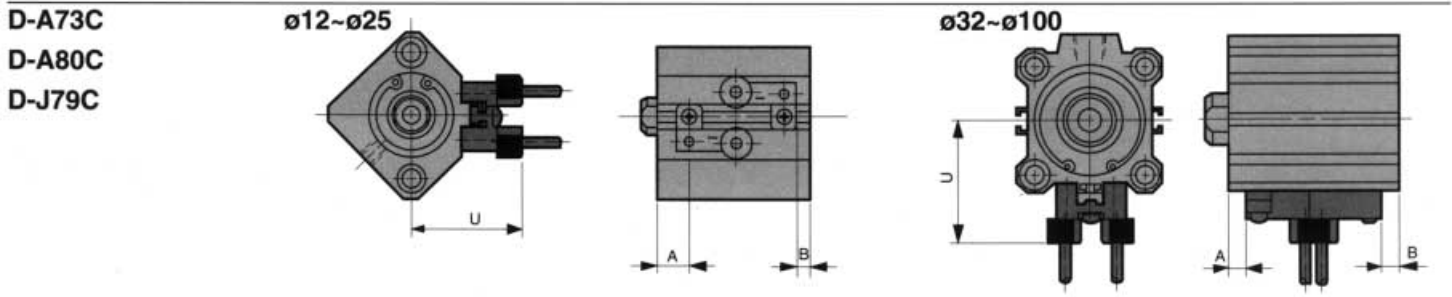
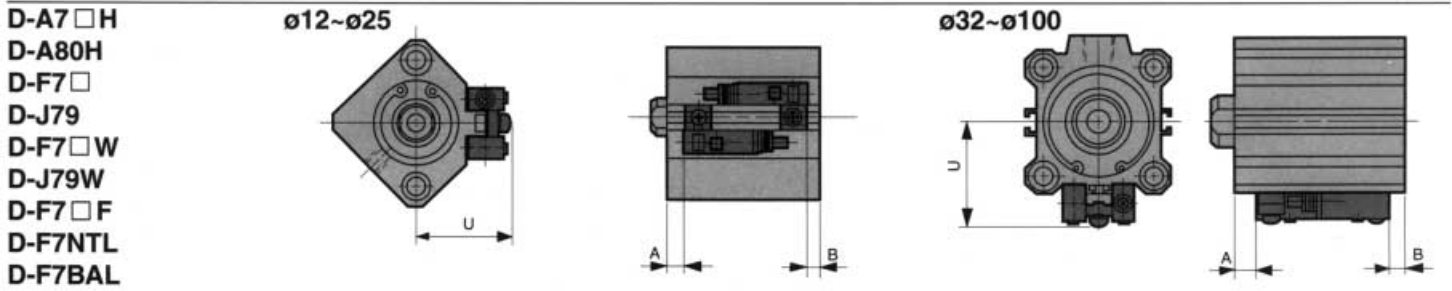
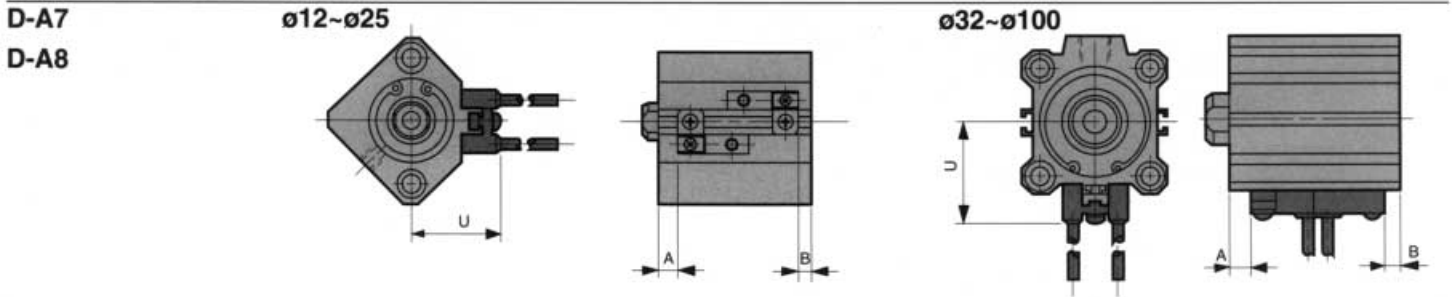
Example) Bolt M3x35L 4pcs.



Thread	Pitch
M3	0.5
M5	0.8
M6	1.0
M8	1.25
M10	1.5

Model	C	D	Mounting bolt
(N)CDQ2B12-5D	5.5	35	M3x35L
-10D		40	x40L
-15D		45	x45L
-20D		50	x50L
-25D		55	x55L
-30D		60	x60L
(N)CDQ2B16-5D	8	40	M3x40L
-10D		45	x45L
-15D		50	x50L
-20D		55	x55L
-25D		60	x60L
-30D		65	x65L
(N)CDQ2B20-5D	10.5	40	M5x40L
-10D		45	x45L
-15D		50	x50L
-20D		55	x55L
-25D		60	x60L
-30D		65	x65L
-35D		70	x70L
-40D		75	x75L
-45D		80	x80L
-50D		85	x85L
(N)CDQ2B25-5D	9.5	40	M5x40L
-10D		45	x45L
-15D		50	x50L
-20D		55	x55L
-25D		60	x60L
-30D		65	x65L
-35D		70	x70L
-40D		75	x75L
-45D		80	x80L
-50D		85	x85L
(N)CDQ2B32-5D	9	40	M5x40L
-10D		45	x45L
-15D		50	x50L
-20D		55	x55L
-25D		60	x60L
-30D		65	x65L
-35D		70	x70L
-40D		75	x75L
-45D		80	x80L
-50D		85	x85L
(N)CDQ2B40-5D	7.5	45	M5x45L
-10D		50	x50L
-15D		55	x55L
-20D		60	x60L
-25D		65	x65L
-30D		70	x70L
-35D		75	x75L
-40D		80	x80L
-45D		85	x85L
-50D		90	x90L
(N)CDQ2B50-10D	12.5	115	x115L
-100D		140	x140L
(N)CDQ2B50-10D		55	M6x55L
-15D		60	x60L
-20D		65	x65L
-25D		70	x70L
-30D		75	x75L
-35D		80	x80L
-40D		85	x85L
-45D		90	x90L
-50D	95	x95L	
-75D	120	x120L	
-100D	145	x145L	
(N)CDQ2B63-10D	14.5	60	M8x60
-15D		65	x65
-20D		70	x70
-25D		75	x75
-30D		80	x80
-35D		85	x85
-40D		90	x90
-45D		95	x95
-50D		100	x100
-75D		125	x125
(N)CDQ2B80-10D	15	65	M10x65
-15D		70	x70
-20D		75	x75
-25D		80	x80
-30D		85	x85
-35D		90	x90
-40D		95	x95
-45D		100	x100
-50D		105	x105
-75D		130	x130
(N)CQ2B100-10D	15.5	75	M10x75
-15D		80	x80
-20D		85	x85
-25D		90	x90
-30D		95	x95
-35D		100	x100
-40D		105	x105
-45D		110	x110
-50D		115	x115
-75D		140	x140
-100D	165	x165	

Auto Switch Mounting Data



Auto Switch Mounting Position

Bore Size (mm)	D-A7•A8		D-A7□H•A80H D-A73C•A80C D-F7□•J79 D-F7□V•J79C		D-A79W		D-F7BAL D-F7PW D-F7□F D-J79W		D-F79W D-F7□WV	
	A	B	A	B	A	B	A	B	A	B
12	4.5	5.5	5	6	2	3	9	10	5.5	6.5
16	7.5	5	8	5.5	5	2.5	12	9.5	8.5	6
20	7.5	6.5	8	7	5	4	12	11	8.5	7.5
25	7.5	7	8	7.5	5	4.5	12	11.5	8.5	8
32	9.0	6	9.5	6.5	6.5	3.5	13.5	10.5	10	7
40	13	8.5	13.5	9	10.5	6	17.5	13	14	9.5
50	11	11.5	11.5	12	8.5	9	15.5	16	12	12.5
63	13.5	14.5	14	15	11	12	18	19	14.5	15.5
80	17.5	18	18	18.5	15	15.5	22	22.5	18.5	19
100	21	24	21.5	24.5	18.5	21.5	25.5	28.5	22	25

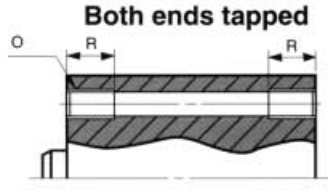
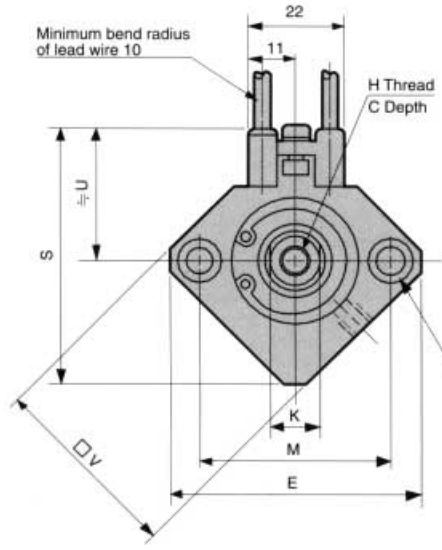
Auto Switch Mounting Height

Bore Size (mm)	D-A7 A8	D-A7□H D-A80H D-F7□ D-J79 D-F7□W	D-J79W D-F7BAL D-F7□F D-F7NTL	D-A73C D-A80C D-F7□WV	D-F7□V	D-J79C	D-A79W
	U	U	U	U	U	U	U
12	19.5	20.5	26.5	23	26	22	
16	22.5	23.5	29.5	26	29	25	
20	24.5	25.5	31.5	28	31	27	
25	27.5	28.5	34.5	31	34	30	
32	31.5	32.5	38.5	35	38	34	
40	35	36	42	38.5	41.5	37.5	
50	41	42	48	44.5	47.5	43.5	
63	47.5	48.5	54.5	51	54	50	
80	57.5	58.5	64.5	61	64	60	
100	67.5	68.5	74.5	71	74	70	

(N)CDQ2 Series

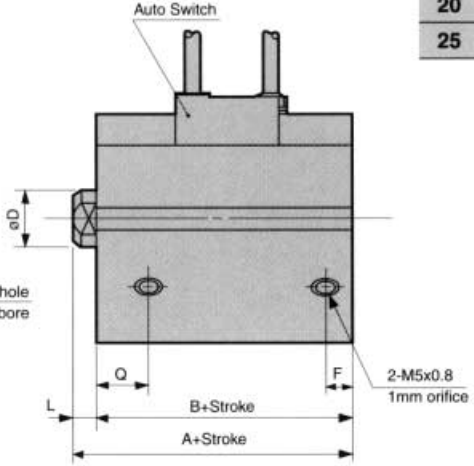
Bore Size $\phi 12 \sim \phi 25$

Through Hole / (N)CDQ2B



Both Ends Tapped

Bore size	CQ2 O	NCQ2 inch O	R
12	M4x0.7	8-32 UNC	7
16	M4x0.7	8-32 UNC	7
20	M6x1.0	1/4 - 20 UNC	10
25	M6x1.0	1/4 - 20 UNC	10



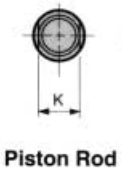
The above Auto Switch mounting is used for D-A73 and D-A80

Auto Switch set position and mounting height: See p. 19

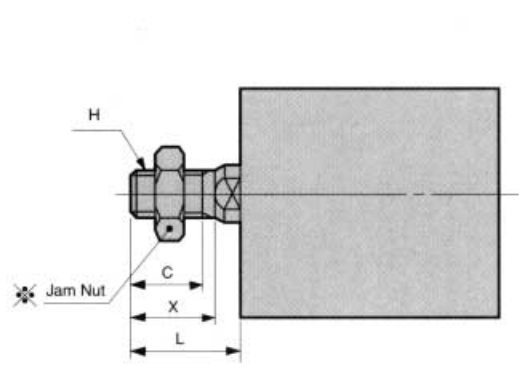
Standard

Bore size	Stroke	A	B	CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 inch H	K	L	M	N	O	Q	S	U	V
12	5~30	31.5	28	6	5.4	6	32	6.5	M3x0.5	#8-32	5	3.5	22	3.5	6.5 depth 3.5	11	35.5	19.5	25
16	5~30	34	30.5	8	5.4	8	38	5.5	M4x0.7	#8-32	6	3.5	28	3.5	6.5 depth 3.5	10	41.5	22.5	29
20	5~50	36	31.5	7	7	10	47	5.5	M5x0.8	#10-32	8	4.5	36	5.5	9 depth 7	10.5	48	24.5	36
25	5~50	37.5	32.5	12	10	12	52	5.5	M6x1.0	1/4 - 28 UNF	10	5	40	5.5	9 depth 7	11	53.5	27.5	40

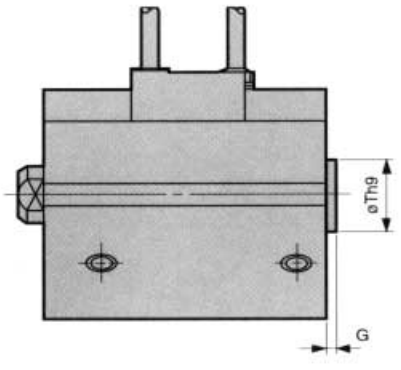
Note 2) The external dimensions of cylinder with rubber cushion are the same as that of the above standard.



Piston Rod



Jam Nut



NCQ2 Male Rod End mm

Bore size	X	H	L	K
12	8	#8-32UNC	11.5	5
16	8	#8-32UNC	11.5	6
20	8	#10-32UNF	12.5	8
25	9.5	1/4-28UNF	14.5	10

CQ2 Male Rod End mm

Bore size	C	X	H	L	K
12	9	10.5	M5x0.8	14	5
16	10	12	M6x1.0	15.5	6
20	12	14	M8x1.25	18.5	8
25	15	17.5	M10x1.25	22.5	10

End Boss (CQ2 only) mm

Bore size	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 $^{0}_{-0.043}$

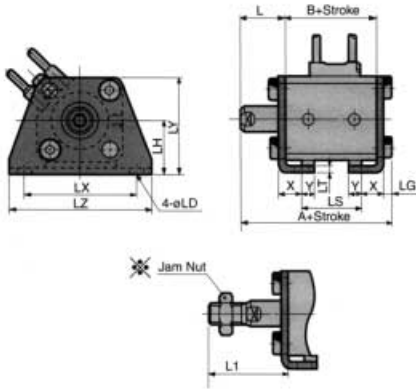
"C" dim. not applicable

For further info on Jam Nut and accessories detail: see p. 6.

Note 1) End Boss for Rod End is offered as an option.
(Add -XC36 at the end of part no.)

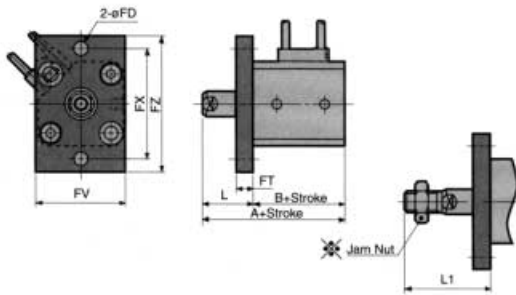
Compact Cylinder: Standard / Double Acting Single Rod With Switches

Foot / (N)CDQ2L



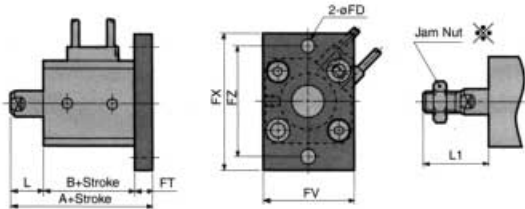
Bore size (mm)	Stroke range (mm)	mm															
		A	B	L	CQ2 L1	NCQ2 L1	LD	LG	LH	LS	LT	LX	LY	LZ	X	Y	
12	5-30	46.3	28	13.5	24	21.5	4.5	2.8	17	16	2	34	29.5	44	8	4.5	
16	5-30	48.8	30.5	13.5	25.5	21.5	4.5	2.8	19	18.5	2	38	33.5	48	8	5	
20	5-50	53.2	31.5	14.5	28.5	22.5	6.6	4	24	19.5	3.2	48	42	62	9.2	5.8	
25	5-50	54.7	32.5	15	32.5	24.5	6.6	4	26	17.5	3.2	52	46	66	10.7	5.8	

Rod Side Flange / (N)CDQ2F



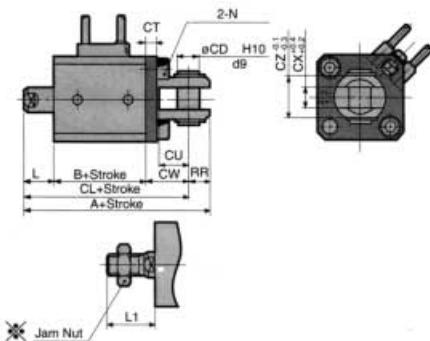
Bore size (mm)	Stroke range (mm)	mm										
		A	B	FD	FT	FV	FX	FZ	L	CQ2 L1	NCQ2 L1	
12	5-30	41.5	28	4.5	5.5	25	45	55	13.5	24	21.5	
16	5-30	44	30.5	4.5	5.5	30	45	55	13.5	25.5	21.5	
20	5-50	46	31.5	6.6	8	39	48	60	14.5	28.5	22.5	
25	5-50	47.5	32.5	6.6	8	42	52	64	15	32.5	24.5	

Head Side Flange / (N)CDQ2G



Bore size (mm)	Stroke range (mm)	mm			
		A	L	CQ2 L1	NCQ2 L1
12	5-30	37	3.5	14	11.5
16	5-30	39.5	3.5	15.5	11.5
20	5-50	44	4.5	18.5	12.5
25	5-50	45.5	5	22.5	14.5

*Dimensions for the head flange cylinder are the same as rod flange except A, L, L1.

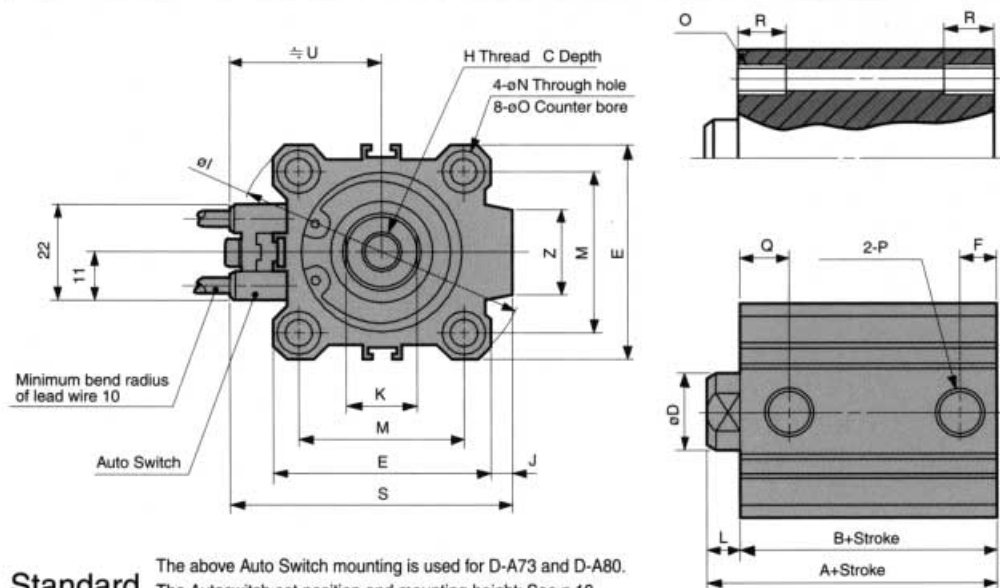


Double Clevis / (N)CDQ2D

Bore size (mm)	Stroke range (mm)	mm															
		A	B	CQ2 CD	NCQ2 inch CD	CL	CT	CU	CW	CX	CZ	L	CQ2 L1	NCQ2 L1	CQ2 N	NCQ2 inch N	RR
12	5-30	51.5	28	5	3/16	45.5	4	7	14	5	10	3.5	14	11.5	M4x0.7	8-32	6
16	5-30	55	30.5	5	3/16	49	4	10	15	6.5	12	3.5	15.5	11.5	M4x0.7	8-32	6
20	5-50	63	31.5	8	5/16	54	5	12	18	8	16	4.5	18.5	12.5	M6x1.0	1/4-20	9
25	5-50	67.5	32.5	10	3/8	57.5	5	14	20	10	20	5	22.5	14.5	M6x1.0	1/4-20	10

* Rod end nut and accessories detail: see p. 6.
 ** Clevis pin and snap rings are included in the package.

Bore Size $\phi 32 \sim \phi 100$



(N)CDQ2A
Both Ends Tapped

Bore size	CQ2 O	NCQ2 inch O	R
32	M6x1.0	1/4 20 UNC	10
40	M6x1.0	1/4 - 20 UNC	10
50	M8x1.25	5/16 - 18 UNC	14
63	M10x1.5	7/16 - 14 UNC	18
80	M12x1.75	1/2 - 13 UNC	22
100	M12x1.75	1/2 - 13 UNC	22

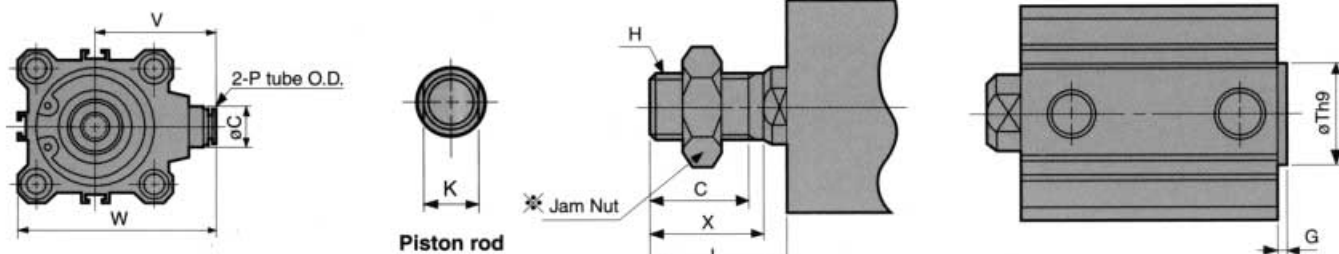
The above Auto Switch mounting is used for D-A73 and D-A80.
The Autoswitch set position and mounting height: See p.19

Standard

Bore size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 Inch H	I	J	K	L	M	N	O	P	Orifice	Q	S	U	Z
32	5~50	40	33	13	13.3	16	45	7.5	M8x1.25	5/16-24UNF	60	4.5	14	7	34	5.5	9 depth 7	1/8	1.7	10.5	58.5	31.5	14
	75, 100	46.5	39.5	13	18.3	16	52	8	M8x1.25	3/8-24UNF	69	5	14	7	40	5.5	9 depth 7	1/8	2	11	66	35	14
50	5~50	48.5	40.5	15	17.6	20	64	10.5	M10x1.5	1/2-20UNF	86	7	17	8	50	6.6	11 depth 8	1/4	2.2	10.5	80	41	19
	75, 100	54	46	15	17.6	20	77	10.5	M10x1.5	1/2-20UNF	103	7	17	8	60	9	14 depth 10.5	1/4	3	15	93	47.5	19
63	10~50	63.5	53.5	21	24.3	25	98	12.5	M16x2.0	5/8-18UNF	132	6	22	10	77	11	17.5 depth 13.5	3/8	4	16	112.5	57.5	26
	75, 100	75	63	27	27	30	117	13	M20x2.5	3/4-16UNF	156	6.5	27	12	94	11	17.5 depth 13.5	3/8	5	23	132.5	67.5	26

Note 2) The external dimensions of cylinder with rubber cushion are the same as that of the above standard.

* Rod end nut and accessories are detailed on p. 6.



One Touch Fittings NCDQ2 Male Rod End

Bore size	C	P	V	W
32	13	6	38	60.5
40	13	6	42	68
50	16	8	50	82
63	16	8	56.5	95

Bore size	X	H	L	K
32	12.7	5/16-24UNF	19.7	14
40	16	3/8-24UNF	23	14
50	19.5	1/2-20UNF	27.5	17
63	19.5	1/2-20UNF	27.5	17
80	25.5	5/8-18UNF	35.5	22
100	28.5	3/4-16UNF	40.5	27

CDQ2 Male Rod End

Bore size	C	X	H	L	K
32	20.5	23.5	M14x1.5	28.5	14
40	20.5	23.5	M14x1.5	28.5	14
50	26	28.5	M18x1.5	33.5	17
63	26	28.5	M18x1.5	33.5	17
80	32.5	35.5	M22x1.5	43.5	22
100	32.5	35.5	M26x1.5	43.5	27

End Boss (CDQ2 only)

Bore size	G	Th9
32	2	21 ⁰ _{-0.052}
40	2	28 ⁰ _{-0.052}
50	2	35 ⁰ _{-0.062}
63	2	35 ⁰ _{-0.062}
80	2	43 ⁰ _{-0.062}
100	2	59 ⁰ _{-0.074}

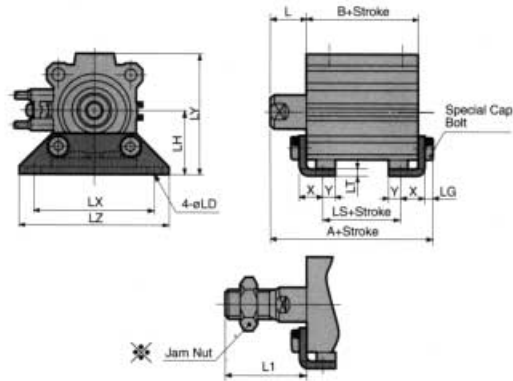
* Rod end nut and accessories are detailed on p. 6.

"C" dim. not applicable

Note) With End Boss is offered as an option.

(Add - XC36 at the end of part no.)

Compact Cylinder: Standard / Double Acting Single Rod With Switches



Foot / (N)CDQ2L

Bore size	Stroke	mm														
		A	B	L	CQ2 L1	NCQ2 L1	LD	LG	LH	LS	LT	LX	LY	LZ	X	Y
32	5-50	57.2	33	17	38.5	29.7	6.6	4	30	17	3.2	57	57	71	11.2	5.8
	75, 100															
40	5-50	63.7	39.5	17	38.5	33	6.6	4	33	23.5	3.2	64	64	78	11.2	7
	75, 100															
50	10-50	66.7	40.5	18	43.5	37.5	9	5	39	17.5	3.2	79	78	95	14.7	8
	75, 100															
63	10-50	72.2	46	18	43.5	37.5	11	5	46	20	3.2	95	91.5	113	16.2	9
	75, 100															
80	10-50	85	53.5	20	53.5	45.5	13	7	59	23.5	4.5	118	114	140	19.5	11
	75, 100															
100	10-50	98	63	22	53.5	50.5	13	7	71	29	6	137	136	162	23	12.5
	75, 100															

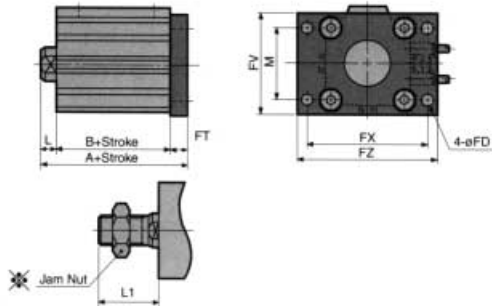
Rod Flange / (N)CDQ2F

Bore size	Stroke	mm										
		A	B	FD	FT	FV	FX	FZ	L	CQ2 L1	NCQ2 L1	M
32	5-50	50	33	5.5	8	48	56	65	17	38.5	29.7	34
	75, 100											
40	5-50	56.5	39.5	5.5	8	54	62	72	17	38.5	33	40
	75, 100											
50	10-50	58.5	40.5	6.6	9	67	76	89	18	43.5	37.5	50
	75, 100											
63	10-50	64	46	9	9	80	92	108	18	43.5	37.5	60
	75, 100											
80	10-50	73.5	53.5	11	11	99	116	134	20	53.5	45.5	77
	75, 100											
100	10-50	85	63	11	11	117	136	154	22	53.5	50.5	94
	75, 100											

Head Flange / (N)CDQ2G

Bore size	Stroke	mm			
		A	L	CQ2 L1	NCQ2 L1
32	5-50	48	7	28.5	19.7
	75, 100				
40	5-50	54.5	7	28.5	23
	75, 100				
50	10-50	57.5	8	33.5	27.5
	75, 100				
63	10-50	63	8	33.5	27.5
	75, 100				
80	10-50	74.5	10	43.5	35.5
	75, 100				
100	10-50	86	12	43.5	40.5
	75, 100				

* Dimensions for the head flange cylinder are the same as rod flange except A, L, L1.



Double Clevis / (N)CDQ2D

Bore size	Stroke	mm															
		A	B	CQ2 CD	NCQ2 Inch CD	CL	CT	CU	CW	CX	CZ	L	CQ2 L1	NCQ2 L1	CQ2 N	NCQ2 Inch N	RR
32	5-50	70	33	10	3/8	60	5	14	20	18	36	7	28.5	19.7	M6x1.0	1/4-20	10
	75, 100																
40	5-50	78.5	39.5	10	3/8	68.5	6	14	22	18	36	7	28.5	23	M6x1.0	1/4-20	20
	75, 100																
50	10-50	90.5	40.5	14	1/2	76.5	7	20	28	22	44	8	33.5	27.5	M8x1.25	5/16-18	14
	75, 100																
63	10-50	98	46	14	1/2	84	8	20	30	22	44	8	33.5	27.5	M10x1.5	7/16-14	14
	75, 100																
80	10-50	119.5	53.5	18	5/8	101.5	10	27	38	28	56	10	43.5	35.5	M12x1.75	1/2-13	18
	75, 100																
100	10-50	142	63	22	7/8	120	13	31	45	32	64	12	43.5	40.5	M12x1.75	1/2-13	22
	75, 100																

* Rod end nut and accessories detail: see p. 6.

* Clevis pin and snap ring are included in the package.



Compact Cylinder: Standard/ Double Acting Double Rod NCQ2W / CQ2W Series

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

How To Order

NCQ2W **B** **H** **20** **F** **30** **D** **C**

W/ Auto Switch **NCQDQ2W** **B** **H** **20** **F** **30** **D** **C** **A73** **S**

PT, metric
N NPT, inch

W/ Auto Switch
(built-in magnet)

Mounting
B Through hole
A Both ends tapped
F Rod side flange
L Foot

Style
H See note 1) Air Hydro

Bore Size

12	12mm (1/2" Nom.)	40	40mm (1-1/2" Nom.)
16	16mm (5/8" Nom.)	50	50mm (2" Nom.)
20	20mm (3/4" Nom.)	63	63mm (2-1/2" Nom.)
25	25mm (1" Nom.)	80	80mm (3-1/4" Nom.)
32	32mm (1-1/4" Nom.)	100	100mm (4" Nom.)

Piping
F See note 2) Built-in one-touch fitting

Cylinder Stroke (mm)
Please refer to p.25 for standard strokes

Action
D Double

Auto Switch

-	2 pcs.
S	1 pcs.
n	n pcs.

Auto Switch Capability
- Without Auto Switch

Preferred Option Program

Type	Autoswitch		Indicator light	Wire (Output type)	Load Voltage		
	Perpendicular entry	In-line entry			DC	AC	
Reed switch	—	A76H	Yes	3 Wire	—	5V	
	A72	A72H			—	200V	
	A73	A73H			12V	100V	
	A80	A80H	No	2 Wire	24V	5V, 12V	100V
	A73C	—				12V	—
	A80C	—				5V, 12V	24V
	A79W	—				—	—
Solid State Switch	F7NV	F79	Yes	3 Wire NPN	24V	5V, 12V	
	F7PV	F7P		3 Wire PNP			
	F7BV	J79		2 Wire	12V		
	J79C	—		3 Wire NPN	24V	5V, 12V	
	F7NWV	F79W		3 Wire PNP			
	—	F7PW		2 Wire	12V		
	F7BWV	J79W		3 Wire NPN	24V	5V, 12V	
	—	F7BAL		4 Wire NPN			
	—	F7NTL		3 Wire NPN	12V		
	—	F79F		3 Wire NPN	5V, 12V		
—	F7LF	4 Wire NPN	—				

Mounting Kits

Bore Size (mm)	Note 4) Foot	Flange
12	(N)CQ-L012	(N)CQ-F012
16	(N)CQ-L016	(N)CQ-F016
20	(N)CQ-L020	(N)CQ-F020
25	(N)CQ-L025	(N)CQ-F025
32	(N)CQ-L032	(N)CQ-F032
40	(N)CQ-L040	(N)CQ-F040
50	(N)CQ-L050	(N)CQ-F050
63	(N)CQ-L063	(N)CQ-F063
80	(N)CQ-L080	(N)CQ-F080
100	(N)CQ-L100	(N)CQ-F100

Note 4) If foot bracket is required for a cylinder, order a pair

Note 5) Each bracket comes with the following accessories:
Foot / Flange; Body mounting bolt

Body Option

-	Std. (Female thread)
C	Note 3) W/ rubber cushion
M	Male thread

* Body option combination is available such as CM, FC, FM, and FCM.

Note 3) W/ Rubber cushion is not available for the air-hydraulic type.

• Load length 0.5m.....Std. Connector A80C 5m.....Z Connector A80CZ
3m.....L A80CL No lead.....N A80CN



Standard /
Double Acting Double rod

(N)CQ2W Series



Model

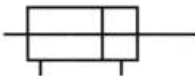
Bore Size		12	16	20	25	32	40	50	63	80	100	
Air-Pressure Type	Mounting	Through hole (std)	●	●	●	●	●	●	●	●	●	
		Both ends tapped	●	●	●	●	●	●	●	●	●	
	Built-In Magnet		●	●	●	●	●	●	●	●	●	
	Piping Method	Threaded PT or NPT	M5x 0.8	M5x 0.8	M5x 0.8	M5x 0.8	Note 1 M5x 0.8 1/8	1/8	1/4	1/4	3/8	3/8
		Built-In One Touch Fitting	-	-	-	-	Note 2 6/4	6/4	8/6	8/6	-	-
	Rod End M Thread		●	●	●	●	●	●	●	●	●	●
W/Rubber Cushion		●	●	●	●	●	●	●	●	●	●	
Air-Hydro Type	Mounting	Through hole (std)	-	-	●	●	●	●	●	●	●	
		Both ends tapped	-	-	●	●	●	●	●	●	●	
	Built-In Magnet		-	-	●	●	●	●	●	●	●	
	Piping Method	Threaded PT or NPT	-	-	M5x 0.8	M5x 0.8	Note 1 M5x 0.8 1/8	1/8	1/4	1/4	3/8	3/8
Rod End M Thread		-	-	●	●	●	●	●	●	●	●	

Note 1) In cases without autoswitch, only 5 stroke uses M5x0.8

Note 2) In case of built-in fitting, the external tube dimension for ø 32, 5 stroke and 10 stroke are the same.

Standard Specifications

Double acting/
Double rod



Model	Air Pressure (Non-Lube)	Air-hydro
Media	Air	Hydraulic oil
Proof Pressure	217psi {15.3kgf/cm ² }	
Max. Operating Pressure	145psi {10.2kgf/cm ² }	
Ambient and Media temp.	15~160°F{-10°C~+70°C} (At freezing temp. air must be dry)	
Rubber cushion	None	-
Rod end thread	Female Thread (std.)	
Rod end thread tolerance	JIS Class II	
Stroke Length tolerance	+1.0 0 mm	
Mounting	Through hole (std.)	
Piston Speed	2~20in/s (50~500mm/s)	.002~8 in/s(0.5~200mm/s)

Min. Operating Pressure

psi

Bore size	12	16	20	25	32	40	50	63	80	100
Air pressure type (non-lube)	10.15	10.15	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25
Air-hydro	-	-	26.1	26.1	26.1	14.5	14.5	14.5	14.5	14.5

Cautions

① When mounting, completely flush piping and be careful that dust and chips do not enter the cylinder.

② • The Piston rod load should always be aligned with the cylinder axis.

• Cylinder installation requires accurate alignment.

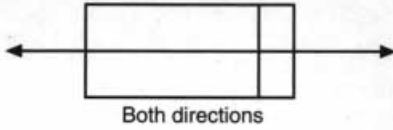
• When used as a stopper, avoid side loading of the piston rod.

③ Prevent damage to the piston rod. A damaged piston rod will lead to damage of the rod seal and result in leakage.

Standard Stroke

Air pressure type (non-lube)		mm	Air-Hydro		mm
Bore size	Standard stroke		Bore size	Standard stroke	
12,16	5,10,15,20,25,30		20,25	5,10,15,20,25,30,35,	
20,25	5,10,15,20,25,30,35,40,45,50		32,40	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,	
50,63	10,15,20,25,30,35,40,		80,100	45,50	
80,100	45,50,75,100				

• Available with intermediate stroke. Available as special order.



Weight/Double Acting: Double Rod Type

Bore size	Rod direction	Operating pressures PSI		
		lbF		
		50	75	100
12	BOTH	6.6	9.8	13.1
16	BOTH	11.7	17.5	23.4
20	BOTH	18.2	27.3	36.5
25	BOTH	29.3	43.9	58.5
32	BOTH	46.8	70.1	93.5
40	BOTH	81.8	123	164
50	BOTH	128	192	256
63	BOTH	217	326	434
80	BOTH	352	527	703
100	BOTH	554	831	1108

Bore size	Stroke									
	5	10	15	20	25	30	35	40	45	50
12	0.093	0.108	0.123	0.139	0.154	0.170	-	-	-	-
16	0.130	0.150	0.170	0.190	0.209	0.229	-	-	-	-
20	0.196	0.229	0.262	0.295	0.329	0.362	0.395	0.428	0.461	0.494
25	0.262	0.300	0.337	0.375	0.412	0.450	0.487	0.525	0.562	0.600
32	0.423	0.485	0.538	0.591	0.644	0.697	0.750	0.803	0.856	0.908
40	0.644	0.712	0.781	0.849	0.917	0.986	1.054	1.122	1.191	1.259
50	-	1.164	1.263	1.363	1.462	1.561	1.660	1.760	1.859	1.958
63	-	1.491	1.574	1.660	1.746	1.832	1.918	2.004	2.090	2.176
80	-	2.736	2.922	3.107	3.292	3.477	3.663	3.838	4.033	4.218
100	-	4.644	4.906	5.169	5.431	5.693	5.956	6.218	6.480	6.743

Weight Adder

Bore size	12	16	20	25	32	40	50	63	80	100	
Both ends tapped	0.004	0.004	0.013	0.013	0.013	0.013	0.013	0.042	0.099	0.099	
Rod end M thread	Thread	0.007	0.013	0.026	0.053	0.115	0.119	0.234	0.234	0.529	0.772
	Nut	0.004	0.009	0.018	0.035	0.075	0.075	0.141	0.141	0.216	0.512
W/ rubber cushion	0.000	0.000	-0.004	-0.004	-0.007	-0.015	-0.026	-0.044	-0.075	-0.126	
W/ one touch fitting	-	-	-	-	0.026	0.026	0.046	0.046	-	-	
Foot mounting*	0.126	0.157	0.375	0.430	0.351	0.377	0.589	0.770	1.621	2.463	
Rod side flange*	0.126	0.152	0.306	0.355	0.397	0.472	0.822	1.233	2.328	3.010	

*(Includ. mounting bolt)

lbs.

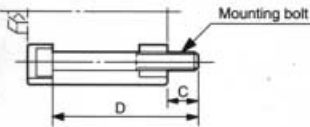
How to obtain the total weight (lbs)

NCQ2WL32-20DCM

Std wt.:	NCQ2B32-20D	_____	.591
Wt. adder:	Mounting end (both) tap	_____	.351
	Rod end M thread	_____	.115
	W/ rubber cushion	_____	-0.007
	Foot	_____	.351
	Total	_____	1.401

Mounting Bolt For (N)CQ2

Special long mounting bolt for through hole mounting is available as an option.
 How to Order:
 Specify the required bolts
 Example) Bolt M3x35L 4pcs.



Thread	Pitch
M3	0.5
M5	0.8
M6	1.0
M8	1.25
M10	1.5

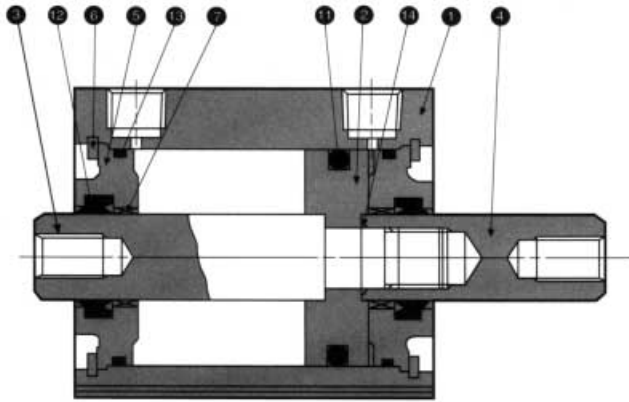
Model	C	D	Mounting bolt
(N)CQ2WB12-5D	8.3	35	M3x35L
-10D		40	x40L
-15D		45	x45L
-20D		50	x50L
-25D		55	x55L
-30D		60	x60L
(N)CQ2WB16-5D	7.5	35	M3x35L
-10D		40	x40L
-15D		45	x45L
-20D		50	x50L
-25D		55	x55L
-30D		60	x60L
(N)CQ2WB20-5D	6	30	M5x30L
-10D		35	x35L
-15D		40	x40L
-20D		45	x45L
-25D		50	x50L
-30D		55	x55L
(N)CQ2WB25-5D	8	35	M5x35L
-10D		40	x40L
-15D		45	x45L
-20D		50	x50L
-25D		55	x55L
-30D		60	x60L
-35D	65	x65L	
-40D	70	x70L	
-45D	75	x75L	
-50D	80	x80L	

Model	C	D	Mounting bolt
(N)CQ2WB32-5D	6.5	35	M5x35L
-10D		40	x40L
-15D		45	x45L
-20D		50	x50L
-25D		55	x55L
-30D		60	x60L
(N)CQ2WB40-5D	7	45	M5x45L
-10D		50	x50L
-15D		55	x55L
-20D		60	x60L
-25D		65	x65L
-30D		70	x70L
(N)CQ2WB50-10D	12.5	55	M6x55L
-15D		60	x60L
-20D		65	x65L
-25D		70	x70L
-30D		75	x75L
-35D		80	x80L
-40D	85	x85L	
-45D	90	x90L	
-50D	95	x95L	

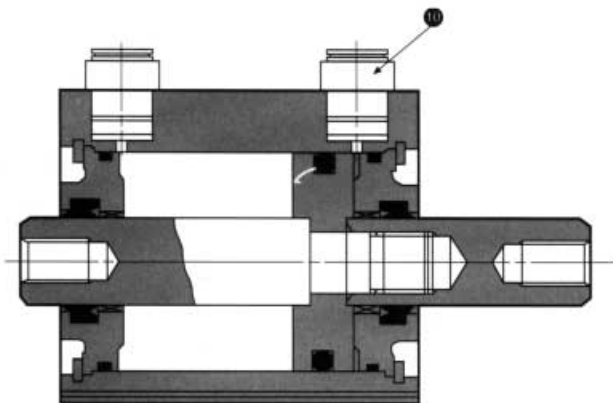
Model	C	D	Mounting bolt
(N)CQ2WB63-10D	13.5	55	M8x55L
-15D		60	x60L
-20D		65	x65L
-25D		70	x70L
-30D		75	x75L
-35D		80	x80L
(N)CQ2WB80-10D	12.5	60	M10x60L
-15D		65	x65L
-20D		70	x70L
-25D		75	x75L
-30D		80	x80L
-35D		85	x85L
(N)CQ2WB100-10D	13	70	M10x70L
-15D		75	x75L
-20D		80	x80L
-25D		85	x85L
-30D		90	x90L
-35D		95	x95L
-40D	100	x100L	
-45D	105	x105L	
-50D	110	x110L	

Compact Cylinder: Standard / Double Acting Double Rod

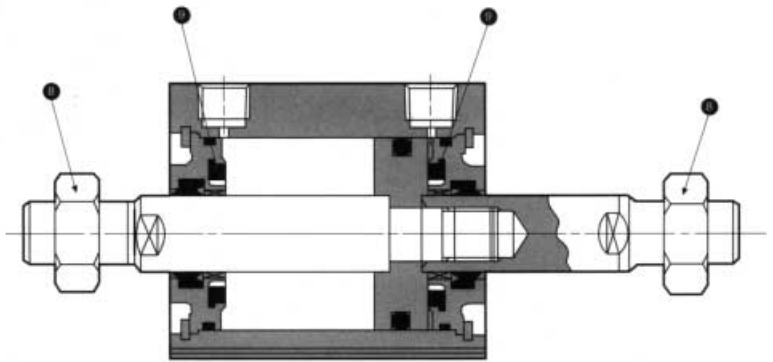
Construction / Part List



Double Acting / Double Rod



One Touch Fittings



W / Cushion & Male Rod Thread

Parts List

No.	Description	Material	Remarks
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromate
3	Piston rod A	Stainless steel	Bore $\phi 12-\phi 25$
		Carbon steel	Bore $\phi 32-\phi 100$, hard chrome plated
4	Piston rod B	Stainless steel	Bore $\phi 12-\phi 25$
		Carbon steel	Bore $\phi 32-\phi 100$, hard chrome plated
5	Collar	Bearing grade aluminum	Bore $\phi 12-\phi 40$, Black anodized
		Aluminum alloy casting	Bore $\phi 50-\phi 100$, Black paint
6	Retaining ring	Carbon tool steel	Phosphate coating
7	Bushing	Leaded tin bronze casting	Used for only $\phi 50$ and above
8	Rod end nut	Carbon steel	Nickel plated
9	Bumper	Polyurethane rubber	-
10	One touch fittings	-	Bore $\phi 32-\phi 63$
14	Piston gasket	NBR	-

Seals List

No.	Description	Material	Parts No.										
			$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$	
11	Piston seal	NBR	NLP-12-7L	NLP-16A	NLP-20A	NLP-25A	NLP-32A	NLP-40A	NLP-50A	NLP-63B	NLP-80B	NLP-100B	
12	Rod seal	NBR	DYR-6K	DYR-8K	DYR-10SK	DYR-12	DYR-16	PDU-16Z	PDU-20Z	PDU-20Z	PDU-25Z	PDU-30Z	
13	Gasket	NBR	SO-013-6	C14	C18	C22	C29	C36	C46	C60	C75	C95	

Air Hydro (CQ2 only)

No.	Description	Material	Parts No.							
			$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	$\phi 50$	$\phi 63$	$\phi 80$	$\phi 100$
11	Piston seal	NBR	RPS-20A	RPS-25A	RPS-32A	RPS-40A	RPS-50A	RPS-63A	RPS-80A	RPS-100A
12	Rod seal	NBR	PS-10	PS-12	PS-16	HDU-16	HDU-20	HDU-20	HDU-25	HDU-30
13	Gasket	NBR	C18	C22	C29	C36	C46	C60	C75	C95

Copper Free Series Air Cylinder

20 — CQ2WB Bore Size Stroke D (C) (M)

- Copper Free Series
- $\phi 50, \phi 63, \phi 80, \phi 100$

To protect against adverse effects on cathode ray tube, due to copper ion and fluorine contained in resin, the copper free series uses electroless nickel plated material, no copper is exposed allowing the generation of copper ions.

Note) Available as Standard Copper Free: $\phi 12-\phi 40$

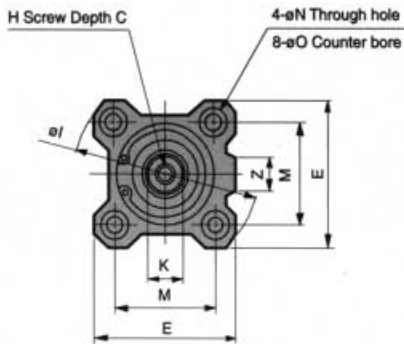
Seal Kit Part Numbers

CQ2 **B** **PS** **—** **—** **—**

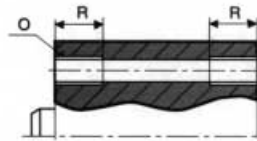
- Options:
 - Single Rod
 - K- Non-Rotating Single Rod
 - W- Double Rod
- Bore Size:
 - Bore Size
- Actuation:
 - Double Action
 - S/T- Single Action Single Rod
- Other Options:
 - XB6-High Temp.
 - XB7-Low Temp.
 - XB9-Low Speed

Bore Size $\phi 12 \sim \phi 25$

Through Hole / (N)CQ2WB

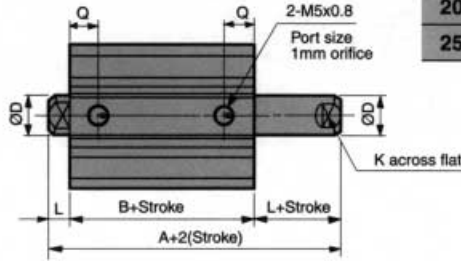


Both ends tapped



(N)CQ2WA
Both Ends Tapped

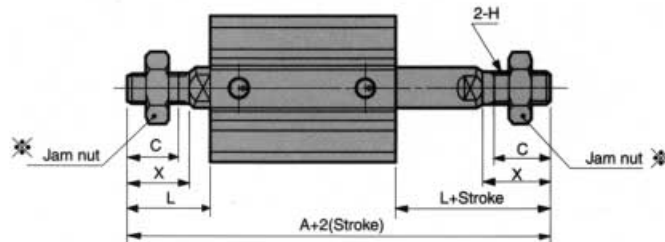
Bore size	CQ2 O	NCQ2 inch O	R
12	M4x0.7	8-32 UNC	7
16	M4x0.7	8-32 UNC	7
20	M6x1.0	1/4 - 20 UNC	10
25	M6x1.0	1/4 - 20 UNC	10



Standard

Bore size	Stroke	A	B	CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 inch H	I	K	L	M	N	O	Q	Z
12	5~30	32.2	25.2	6	5.4	6	25	M3x0.5	#8-32	32	5	3.5	15.5	3.5	6.5 depth 3.5	10	-
16	5~30	33	26	8	5.4	8	29	M4x0.7	#8-32	38	6	3.5	20	3.5	6.5 depth 3.5	10	10
20	5~50	35	26	7	7	10	36	M5x0.8	#10-32	47	8	4.5	25.5	5.5	9 depth 7	9.5	10
25	5~50	39	29	12	10	12	40	M6x1.0	1/4-28 UNF	52	10	5	28	5.5	9 depth 7	11	10

Note) The external dimension of cylinder with rubber cushion are the same as that of the above standard.



NCQ2 Male Rod End

Bore size	X	H inch	L	K	A
12	8	#8-32UNC	11.5	5	48.2
16	8	#8-32UNC	11.5	6	49
20	8	#10-32UNF	12.5	8	51
25	9.5	1/4-28UNF	14.5	10	58

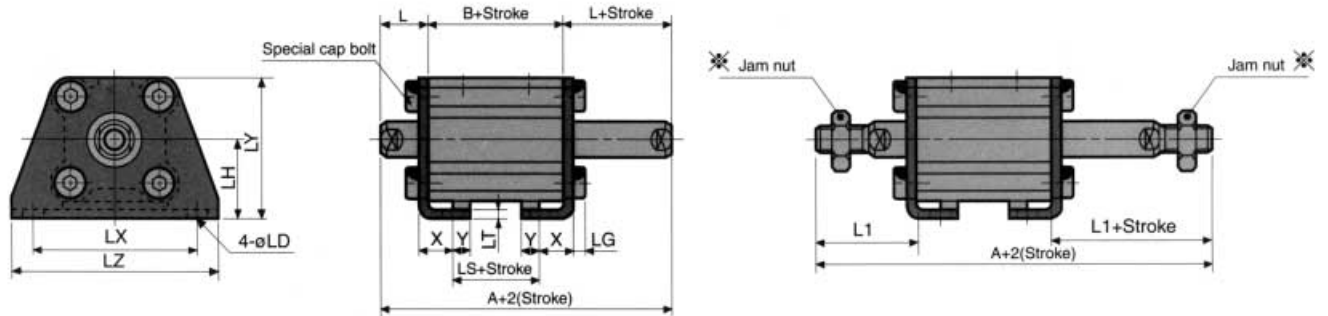
CQ2 Male Rod End

Bore size	C	X	H	L	K	A
12	9	10.5	M5x0.8	14	5	53.2
16	10	12	M6x1.0	15.5	6	57
20	12	14	M8x1.25	18.5	8	63
25	15	17.5	M10x1.25	22.5	10	74

✳ Rod end nut and accessories detail: see p. 6.

"C" dim. not applicable

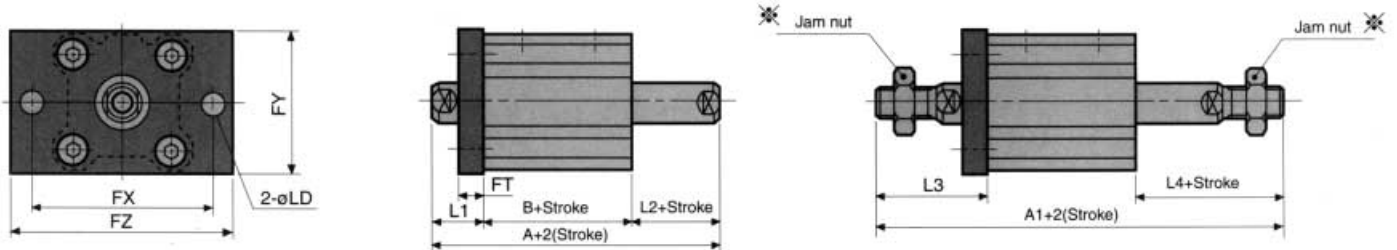
Series (N)CQ2W
Compact Cylinder: Standard / Double Acting Double Rod



Foot / (N)CQ2WL

Bore size	Stroke	A	CQ2 A1	NCQ2 A1	B	L	CQ2 L1	NCQ2 L1	LD	LG	LH	LS	LT	LX	LY	LZ	X	Y
12	5-30	52.2	73.2	68.2	25.2	13.5	24	21.5	4.5	2.8	17	13.2	2	34	29.5	44	8	4.5
16	5-30	53	77	69	26	13.5	25.5	21.5	4.5	2.8	19	14	2	38	33.5	48	8	5
20	5-50	55	83	71	26	14.5	28.5	22.5	6.6	4	24	14	3.2	48	42	62	9.2	5.8
25	5-50	59	94	78	29	15	32.5	24.5	6.6	4	26	14	3.2	52	46	66	10.7	5.8

mm



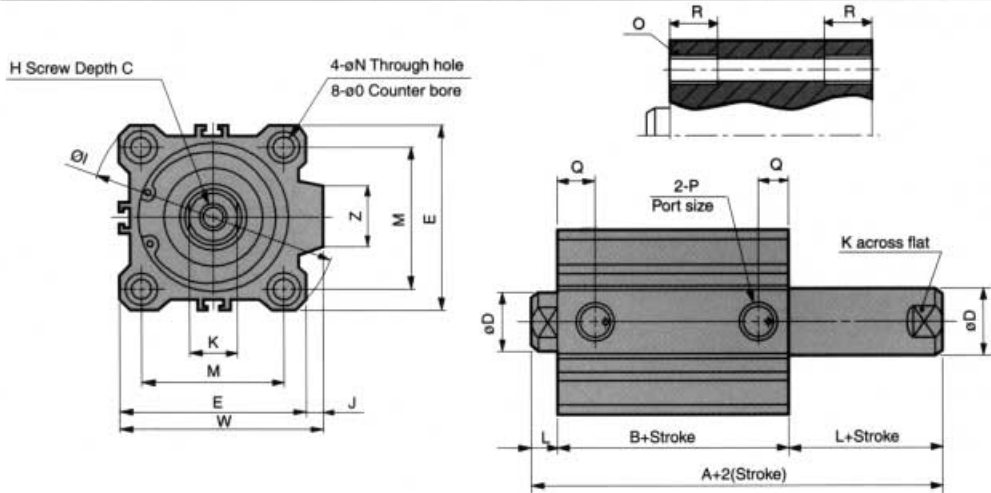
Flange / (N)CQ2WF

Bore size	Stroke	A	CQ2 A1	NCQ2 A1	B	FD	FT	FV	FX	FZ	L1	L2	CQ2 L3	NCQ2 L3	CQ2 L4	NCQ2 L4
12	5-30	42.2	63.2	58.2	25.2	4.5	5.5	25	45	55	13.5	3.5	24	21.5	14	11.5
16	5-30	43	67	59	26	4.5	5.5	30	45	55	13.5	3.5	25.5	21.5	15.5	11.5
20	5-50	45	73	61	26	6.6	8	39	48	60	14.5	4.5	28.5	22.5	18.5	12.5
25	5-50	49	84	68	29	6.6	8	42	52	64	15	5	32.5	24.5	22.5	14.5

mm

⊗ Rod end nut and accessories detail: see p.6.

Bore Size $\phi 32 \sim \phi 100$



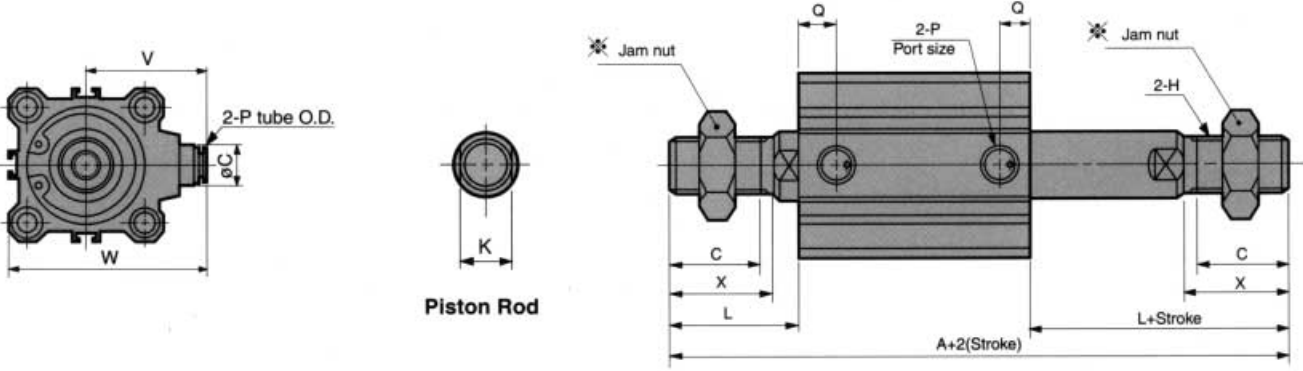
(N)CQ2WA
Both Ends Tapped

Bore size	CQ2 O	NCQ2 inch O	R
32	M6x1.0	1/4 20 UNC	10
40	M6x1.0	1/4 - 20 UNC	10
50	M8x1.25	5/16 - 18 UNC	14
63	M10x1.5	7/16 - 14 UNC	18
80	M12x1.75	1/2 - 13 UNC	22
100	M12x1.75	1/2 - 13 UNC	22

Standard

Bore size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 Inch H	I	J	K	L	M	N	O	P	Orifice	Q	W	Z
32	5 10~50	44.5	30.5	13	13.3	16	45	M8x1.25	5/16-24UNF	60	4.5	14	7	34	5.5	9 depth 7	M5x0.8 1/8	1.7	12.5	49.5	14
40	5~50	54	40	13	18.3	16	52	M8x1.25	3/8-24UNF	69	5	14	7	40	5.5	9 depth 7	1/8	2	14	57	14
50	10~50	56.5	40.5	15	17.6	20	64	M10x1.5	1/2-20UNF	86	7	17	8	50	6.6	11 depth 8	1/4	2.2	14	71	19
63	10~50	58	42	15	17.6	20	77	M10x1.5	1/2-20UNF	103	7	17	8	60	9	14 depth 10.5	1/4	3	15.5	84	19
80	10~50	71	51	21	24.3	25	98	M16x2.0	5/8-18UNF	132	6	22	10	77	11	17.5 depth 13.5	3/8	4	18	104	26
100	10~50	84.5	60.5	27	27	30	117	M20x2.5	3/4-16UNF	156	6.5	27	12	94	11	17.5 depth 13.5	3/8	5	22	123.5	26

Note 1) The external dimensions of cylinder with rubber cushion are the same as that of the above standard.
2) In case of built-in fitting type, bore size $\phi 32$, 5 stroke has the same external dimensions as 10 stroke.



One Touch Fittings

Bore size	C	P	V	W
32	13	6	38	60.5
40	13	6	42	68
50	16	8	50	82
63	16	8	56.5	95

NCQ2 Male Rod End

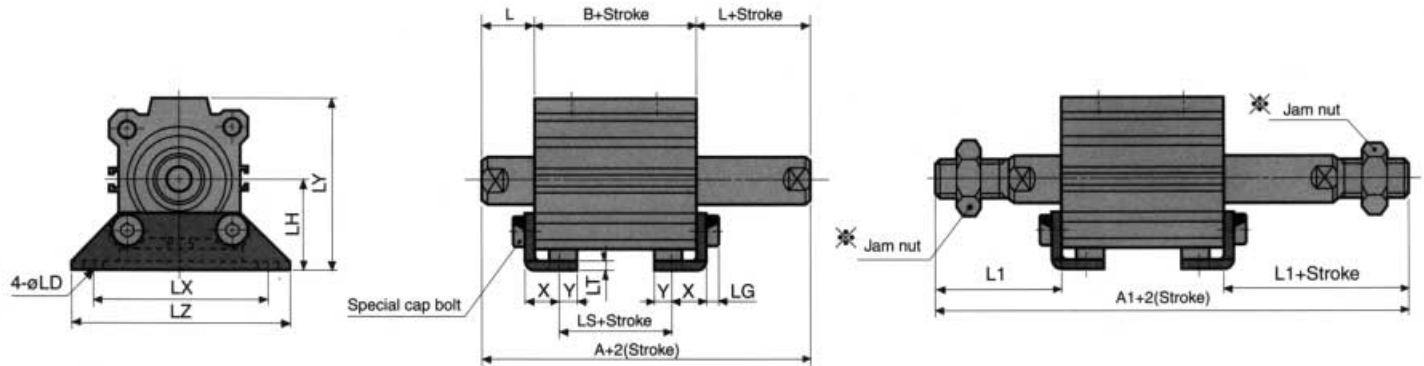
Bore size	X	H Inch	L	K	A
32	12.7	5/16-24UNF	19.7	14	69.9
40	16	3/8-24UNF	23	14	86
50	19.5	1/2-20UNF	27.5	17	95.5
63	19.5	1/2-20UNF	27.5	17	97
80	25.5	5/8-18UNF	35.5	22	122
100	28.5	3/4-16UNF	40.5	27	141.5

CQ2 Male Rod End

Bore size	C	X	H	L	K	A
32	20.5	23.5	M14x1.5	28.5	14	87.5
40	20.5	23.5	M14x1.5	28.5	14	97
50	26	28.5	M18x1.5	33.5	17	107.5
63	26	28.5	M18x1.5	33.5	17	109
80	32.5	35.5	M22x1.5	43.5	22	138
100	32.5	35.5	M26x1.5	43.5	27	147.5

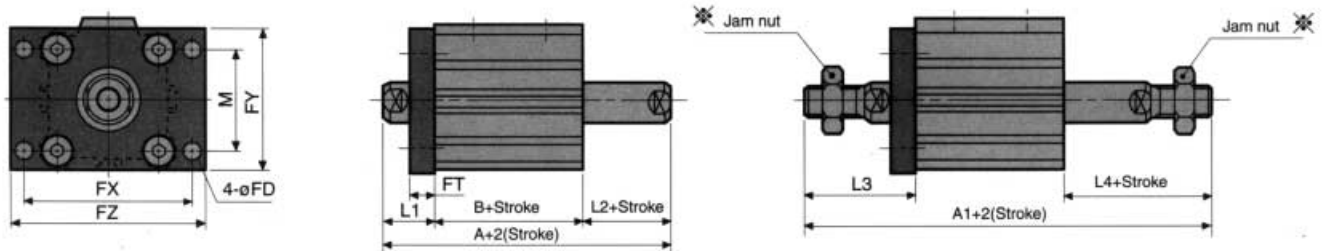
* Rod end nut and accessories are detailed on pg. 6. "C" dim. not applicable

Compact Cylinder: Standard / Double Acting Double Rod



Foot / (N)CQ2WL

Bore size	Stroke	A	CQ2 L1	NCQ2 A1	B	L	CQ2 L1	NCQ2 L1	LD	LG	LH	LS	LT	LX	LY	LZ	X	Y
32	5-50	64.5	107.5	89.9	30.5	17	38.5	29.7	6.6	4	30	14.5	3.2	57	57	71	11.2	5.8
40	5-50	74	117	106	40	17	38.5	33	6.6	4	33	24	3.2	64	64	78	11.2	7
50	10-50	76.5	127.5	115.5	40.5	18	43.5	37.5	9	5	39	17.5	3.2	79	78	95	14.7	8
63	10-50	78	129	117	42	18	43.5	37.5	11	5	46	16	3.2	95	91.5	113	16.2	9
80	10-50	91	158	142	51	20	53.5	45.5	13	7	59	21	4.5	118	114	140	19.5	11
100	10-50	104.5	167.5	161.5	60.5	22	53.5	50.5	13	7	71	26.5	6	137	136	162	23	12.5



Flange / (N)CQ2WF

Bore size	Stroke	A	A1	NCQ2 A1	B	FD	FT	FV	FX	FZ	L1	L2	L3	NCQ2 L3	L4	NCQ2 L4	M
32	5-50	54.5	97.5	79.9	30.5	5.5	8	48	56	65	17	7	38.5	29.7	28.5	19.7	34
40	5-50	64	107	96	40	5.5	8	54	62	72	17	7	38.5	33	28.5	23	40
50	10-50	66.5	117.5	105.5	40.5	6.6	9	67	76	89	18	8	43.5	37.5	33.5	27.5	50
63	10-50	68	119	107	42	9	9	80	92	108	18	8	43.5	37.5	33.5	27.5	60
80	10-50	81	148	132	51	11	11	99	116	134	20	10	53.5	45.5	43.5	35.5	77
100	10-50	94.5	157.5	151.5	60.5	11	11	117	136	154	22	12	53.5	50.5	43.5	40.5	94

※ Rod end nut and accessories are detailed on p. 6.



Standard /
Double Acting Double rod

(N)CDQ2W Series

Standard Specifications

Model	Air Pressure (Non-Lube)	Air-hydraulic
Media	Air	Hydraulic oil
Ambient and Media temp.	15 ~140°F(-10°C~+60°C) (At freezing temp. air must be dry)	

The rest of the specifications are the same as that of standard (See p. 24)

NOTE 1 Part Number for Auto Switches
Please refer to p. 24 for part order sequence

NOTE 2 Auto Switch Minimum Strokes and Specifications
Please refer to p. 13 for minimum stroke with Auto Switches and Specifications



Weight Adder

Bore size	12	16	20	25	32	40	50	63	80	100
Both ends tapped	0.002	0.002	0.007	0.007	0.013	0.013	0.013	0.042	0.099	0.099
Rod end M thread	Thread	0.007	0.013	0.026	0.053	0.115	0.119	0.234	0.234	0.529
	Nut	0.004	0.009	0.018	0.035	0.075	0.075	0.141	0.141	0.216
W/ rubber cushion	0.000	0.000	-0.004	-0.004	-0.007	-0.015	-0.026	-0.042	-0.075	-0.126
W/ one touch fitting	-	-	-	-	0.026	0.026	0.046	0.046	-	-
Foot mounting*	0.115	0.143	0.337	0.390	0.351	0.377	0.589	0.770	1.621	2.463
Rod side flange*	0.119	0.148	0.289	0.337	0.397	0.472	0.822	1.233	2.328	3.010

*(incl. mounting bolt)

Weight / Double Acting: Double Rod Type

Bore size	Stroke									
	5	10	15	20	25	30	35	40	45	50
12	0.121	0.139	0.157	0.174	0.192	0.209	-	-	-	-
16	0.194	0.218	0.243	0.267	0.291	0.315	-	-	-	-
20	0.298	0.335	0.373	0.410	0.448	0.485	0.523	0.560	0.598	0.635
25	0.401	0.439	0.476	0.514	0.551	0.589	0.626	0.664	0.701	0.739
32	0.545	0.598	0.650	0.703	0.756	0.809	0.862	0.915	0.968	1.021
40	0.816	0.884	0.953	1.021	1.089	1.158	1.226	1.294	1.363	1.431
50	-	1.427	1.526	1.625	1.724	1.824	1.923	2.022	2.121	2.220
63	-	1.837	1.923	2.009	2.095	2.181	2.267	2.353	2.439	2.525
80	-	3.308	3.493	3.678	3.863	4.048	4.234	4.419	4.604	4.789
100	-	5.515	5.777	6.039	6.302	6.564	6.827	7.089	7.351	7.614

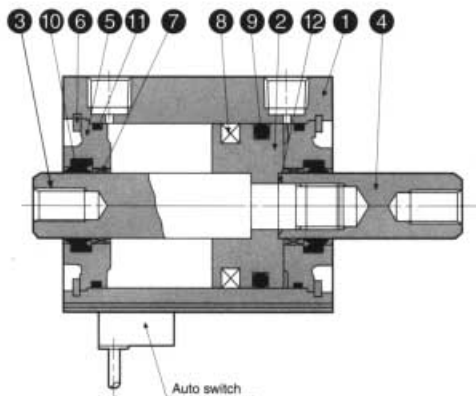
How to calculate weight (lbs)

(N)CDQ2L32-20DCM
Std Wt.: (N)CDQ2B32-20D_.703
Wt. adder: Both ends tapped_.013
Jam nut_.075
W/ rubber cushion_.007
Foot mounting_.351
Total 1.135

When mounting auto switch, add for additional mounting bracket weight

Auto Switch Mounting Bracket Weight

Part no.	Applicable cylinder bore size	Weight lbs.
BQ-1	12~ 25	.003
BQ-2	32~ 100	.003



Parts List

No.	Description	Material	Remarks
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromate
3	Piston rod A	Stainless steel	Bore ϕ 12- ϕ 25
		Carbon steel	Bore ϕ 32- ϕ 100, hard chrome plated
4	Piston rod B	Stainless steel	Bore ϕ 12- ϕ 25
		Carbon steel	Bore ϕ 32- ϕ 100, hard chrome plated
5	Collar	Aluminum alloy	Bore ϕ 12- ϕ 40, Black anodized
		Aluminum alloy casting	Bore ϕ 50- ϕ 100, Black paint
6	Retaining ring	Carbon tool steel	Phosphate coating
7	Bushing	Leaded tin bronze casting	Bore ϕ 50- ϕ 100
8	Magnet	----	
12	Piston Gasket	NBR	

Seals List

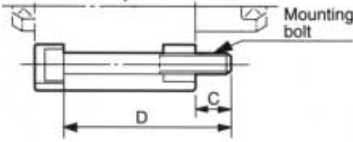
No.	Description	Material	Parts No.									
			ϕ 12	ϕ 16	ϕ 20	ϕ 25	ϕ 32	ϕ 40	ϕ 50	ϕ 63	ϕ 80	ϕ 100
9	Piston seal	NBR	NLP-12-7L	NLP-16A	NLP-20A	NLP-25A	NLP-32A	NLP-40A	NLP-50A	NLP-63B	NLP-80B	NLP-100B
10	Rod seal	NBR	DYR-6K	DYR-8K	DYR-10SK	DYR-12	DYR-16	PDU-16Z	PDU-20Z	PDU-20Z	PDU-25Z	PDU-30Z
11	Gasket	NBR	SO-013-6	C14	C18	C22	C29	C36	C46	C60	C75	C95

Air Hydro (CQ2 only)

No.	Description	Material	Parts No.							
			ϕ 20	ϕ 25	ϕ 32	ϕ 40	ϕ 50	ϕ 63	ϕ 80	ϕ 100
9	Piston seal	NBR	RPS-20A	RPS-25A	RPS-32A	RPS-40A	RPS-50A	RPS-63A	RPS-80A	RPS-100
10	Rod seal	NBR	PS-10	PS-12	PS-16	HDU-16	HDU-20	HDU-20	HDU-25	HDU-30
11	Gasket	NBR	C18	C22	C29	C36	C46	C60	C75	C95

Mounting Bolt For (N)CDQ2W/ With Auto Switch

Special long mounting bolt for through hole mounting is available as an option.
 How to Order:
 Specify the required bolts
 Example) Bolt M3x35L 4pcs.



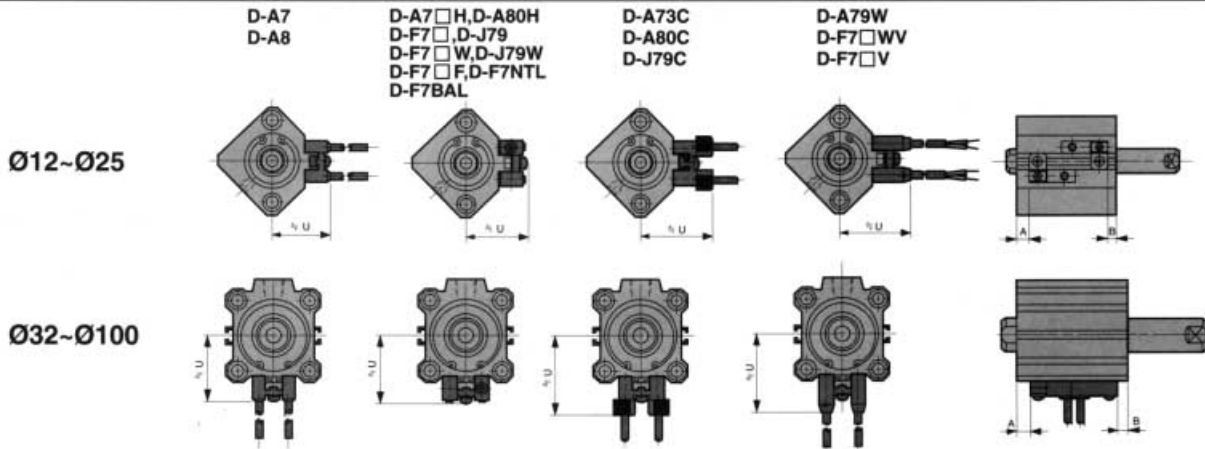
Thread	Pitch
M3	0.5
M5	0.8
M6	1.0
M8	1.25
M10	1.5

Model	C	D	Mounting bolt
(N)CDQ2WB12-5DC	6.1	40	M3x40L
-10DC		45	x45L
-15DC		50	x50L
-20DC		55	x55L
-25DC		60	x60L
-30DC		65	x65L
(N)CDQ2WB16-5D	7.5	45	M3x45L
-10D		50	x50L
-15D		55	x55L
-20D		60	x60L
-25D		65	x65L
-30D		70	x70L
(N)CDQ2WB20-5D	9	45	M5x45L
-10D		50	x50L
-15D		55	x55L
-20D		60	x60L
-25D		65	x65L
-30D		70	x70L
-35D		75	x75L
-40D		80	x80L
-45D		85	x85L
-50D		90	x90L
(N)CDQ2WB25-5D	8	45	M5x45L
-10D		50	x50L
-15D		55	x55L
-20D		60	x60L
-25D		65	x65L
-30D		70	x70L
-35D		75	x75L
-40D		80	x80L
-45D		85	x85L
-50D		90	x90L

Model	C	D	Mounting bolt
(N)CDQ2WB32-5D	6.5	45	M5x45L
-10D		50	x50L
-15D		55	x55L
-20D		60	x60L
-25D		65	x65L
-30D		70	x70L
-35D		75	x75L
-40D		80	x80L
-45D		85	x85L
-50D		90	x90L
(N)CDQ2WB40-5D	7	55	M5x55L
-10D		60	x60L
-15D		65	x65L
-20D		70	x70L
-25D		75	x75L
-30D		80	x80L
-35D		85	x85L
-40D		90	x90L
-45D		95	x95L
-50D		100	x100L
(N)CDQ2WB50-10D	12.5	65	M6x65L
-15D		70	x70L
-20D		75	x75L
-25D		80	x80L
-30D		85	x85L
-35D		90	x90L
-40D		95	x95L
-45D		100	x100L
-50D		105	x105L

Model	C	D	Mounting bolt
(N)CDQ2WB63-10D	13.5	65	M8x65L
-15D		70	x70L
-20D		75	x75L
-25D		80	x80L
-30D		85	x85L
-35D		90	x90L
-40D		95	x95L
(N)CDQ2WB80-10D	12.5	70	M10x70L
-15D		75	x75L
-20D		80	x80L
-25D		85	x85L
-30D		90	x90L
-35D		95	x95L
-40D		100	x100L
(N)CDQ2WB100-10D	13	80	M10x80L
-15D		85	x85L
-20D		90	x90L
-25D		95	x95L
-30D		100	x100L
-35D		105	x105L
-40D		110	x110L
-45D		115	x115L
-50D		120	x120L

Auto Switch Mounting Data



Auto Switch Mounting Position

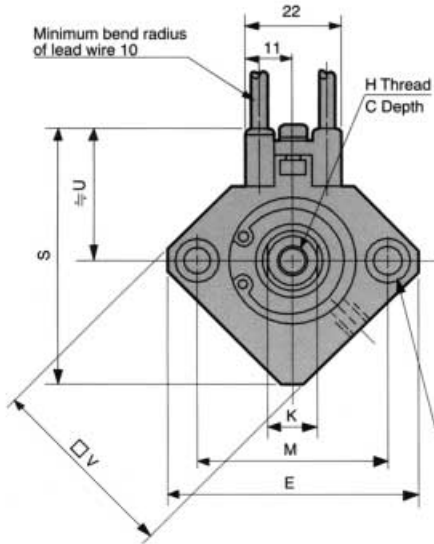
Bore Size (mm)	D-A7•A8		D-A7□H•A80H D-A73C•A80C D-F7□•J79 D-F7□V•J79C		D-A79W		D-F7BAL D-F7PW D-F7□F D-J79W		D-F79W D-F7□VW	
	A	B	A	B	A	B	A	B	A	B
12	4.5	10	5	10.5	2	7.5	9	14.5	5.5	11
16	7.5	10.5	8	11	5	8	12	15	8.5	11.5
20	7.5	13	8	13.5	5	10.5	12	17.5	8.5	14
25	7.5	13	8	13.5	5	10.5	12	17.5	8.5	14
32	9.0	13.5	9.5	14	6.5	11	13.5	18	10	14.5
40	13	19	13.5	19.5	10.5	16.5	17.5	23.5	14	20
50	11	21.5	11.5	22	8.5	19	15.5	26	12	22.5
63	13.5	20.5	14	21	11	18	18	25	14.5	21.5
80	17.5	29	18	29.5	15	26.5	22	33.5	18.5	30
100	21	31.5	21.5	32	18.5	29	25.5	36	22	32.5

Auto Switch Mounting Height

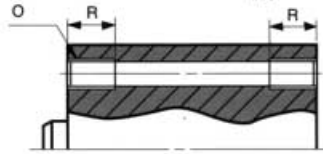
Bore Size (mm)	D-A7 A8	D-A7□H D-A80H D-F7□ D-J79 D-F7□W	D-J79W D-F7BAL D-F7□F D-F7NTL D-F7□V	D-A73C D-A80C D-F7□VW	D-F7□V	D-J79C	D-A79W
	U	U	U	U	U	U	U
12	19.5	20.5	26.5	23	26	22	
16	22.5	23.5	29.5	26	29	25	
20	24.5	25.5	31.5	28	31	27	
25	27.5	28.5	34.5	31	34	30	
32	31.5	32.5	38.5	35	38	34	
40	35	36	42	38.5	41.5	37.5	
50	41	42	48	44.5	47.5	43.5	
63	47.5	48.5	54.5	51	54	50	
80	57.5	58.5	64.5	61	64	60	
100	67.5	68.5	74.5	71	74	70	

Bore Size $\phi 12 \sim \phi 25$

Through Hole / (N)CDQ2WB

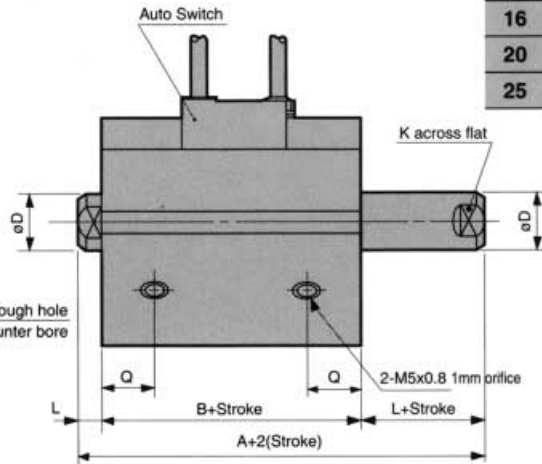


Both Ends Tapped



(N)CDQ2WA Both Ends Tapped

Bore size	CQ2 O	NCQ2 inch O	R
12	M4x0.7	8-32 UNC	7
16	M4x0.7	8-32 UNC	7
20	M6x1.0	1/4 - 20 UNC	10
25	M6x1.0	1/4 - 20 UNC	10



The above Auto Switch mounting is used for D-A73 and D-A80

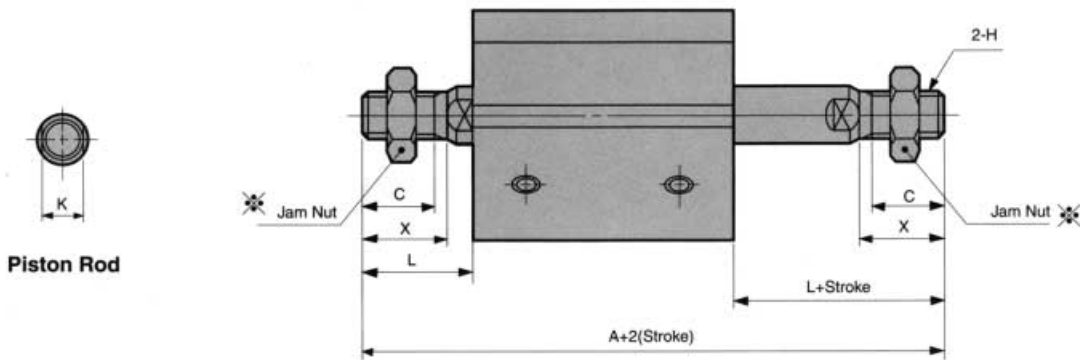
Auto Switch set position and mounting height: See p. 33

Standard

Bore size	Stroke	A	B	CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 inch H	K	L	M	N	O	Q	S	U	V	
12	5~30	39.4	32.4	6	5.4	6	32	M3x0.5	#8-32	5	3.5	22	3.5	6.5 depth 3.5	3.5	10.5	35.5	19.5	25
16	5~30	43	36	8	5.4	8	38	M4x0.7	#8-32	6	3.5	28	3.5	6.5 depth 3.5	10	41.5	22.5	29	
20	5~50	47	38	7	7	10	47	M5x0.8	#10-32	8	4.5	36	5.5	9 depth 7	10.5	48	24.5	36	
25	5~50	49	39	12	10	12	52	M6x1.0	1/4 - 28 UNF	10	5	40	5.5	9 depth 7	11	53.5	27.5	40	

Note 2) The external dimensions of cylinder with rubber cushion are the same as that of the above standard.

✳ For further info on Jam Nut and accessories detail: see p. 6.



NCQ2 Male Rod End

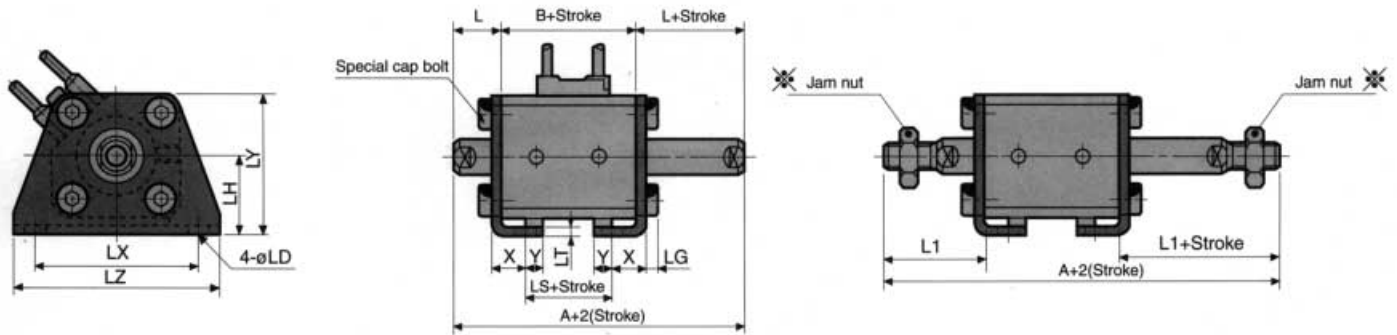
Bore size	X	H Inch	L	K	A
12	8	#8-32UNC	11.5	5	55.4
16	8	#8-32UNC	11.5	6	59
20	8	#10-32UNF	12.5	8	63
25	9.5	1/4-28UNF	14.5	10	68

"C" dim. not applicable

CQ2 Male Rod End

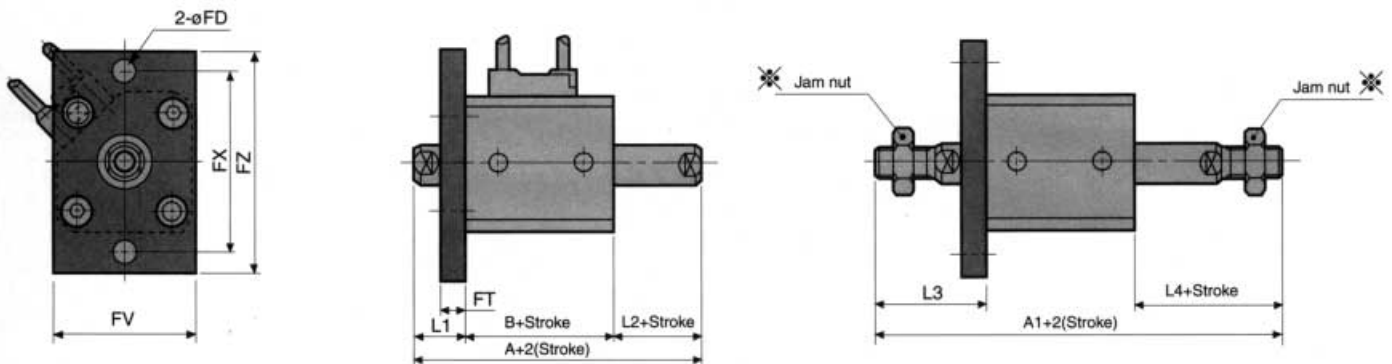
Bore size	C	X	H	L	K	A
12	9	10.5	M5x0.8	14	5	60.4
16	10	12	M6x1.0	15.5	6	67
20	12	14	M8x1.25	18.5	8	75
25	15	17.5	M10x1.25	22.5	10	84

Compact Cylinder: Standard / Double Acting Double Rod With Switches



Foot / (N)CDQ2WL

Bore size	Stroke	A	CQ2 A1	NCQ2 A1	B	L	CQ2 L1	NCQ2 L1	LD	LG	LH	LS	LT	LX	LY	LZ	X	Y
12	5-30	59.4	80.4	75.4	32.4	13.5	24	21.5	4.5	2.8	17	20.4	2	34	29.5	44	8	4.5
16	5-30	63	87	79	36	13.5	25.5	21.5	4.5	2.8	19	24	2	38	33.5	48	8	5
20	5-50	67	95	83	38	14.5	28.5	22.5	6.6	4	24	26	3.2	48	42	62	9.2	5.8
25	5-50	69	104	88	39	15	32.5	24.5	6.6	4	26	24	3.2	52	46	66	10.7	5.8

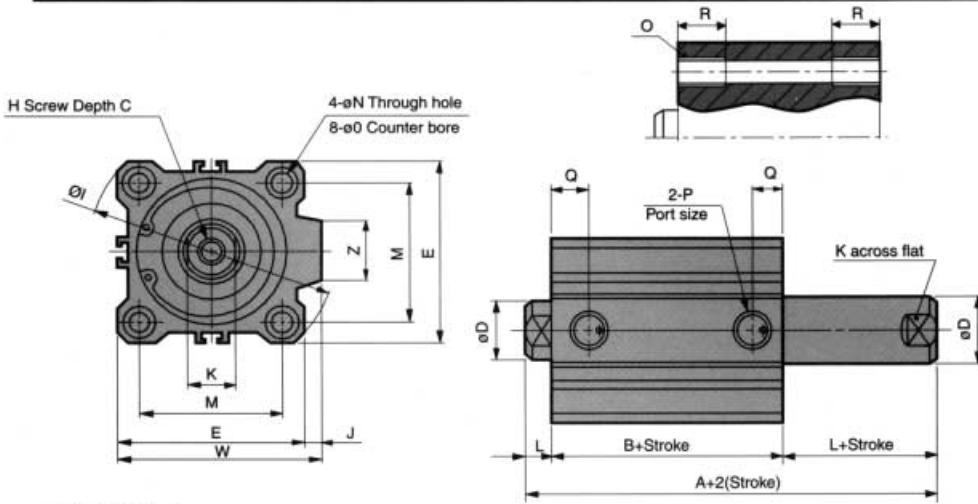


Flange / (N)CDQ2WF

Bore size	Stroke	A	A1	NCQ2 A1	B	FD	FT	FV	FX	FZ	L1	L2	L3	NCQ2 L3	L4	NCQ2 L4
12	5-30	49.4	70.4	65.4	32.4	4.5	5.5	25	45	55	13.5	3.5	24	21.5	14	11.5
16	5-30	53	77	69	36	4.5	5.5	30	45	55	13.5	3.5	25.5	21.5	15.5	11.5
20	5-50	57	85	73	38	6.6	8	39	48	60	14.5	4.5	28.5	22.5	18.5	12.5
25	5-50	59	94	78	39	6.6	8	42	52	64	15	5	32.5	24.5	22.5	14.5

※ Rod end nut and accessories are detailed on p. 6.

Bore Size $\phi 32 \sim \phi 100$



(N)CDQ2WA
Both Ends Tapped

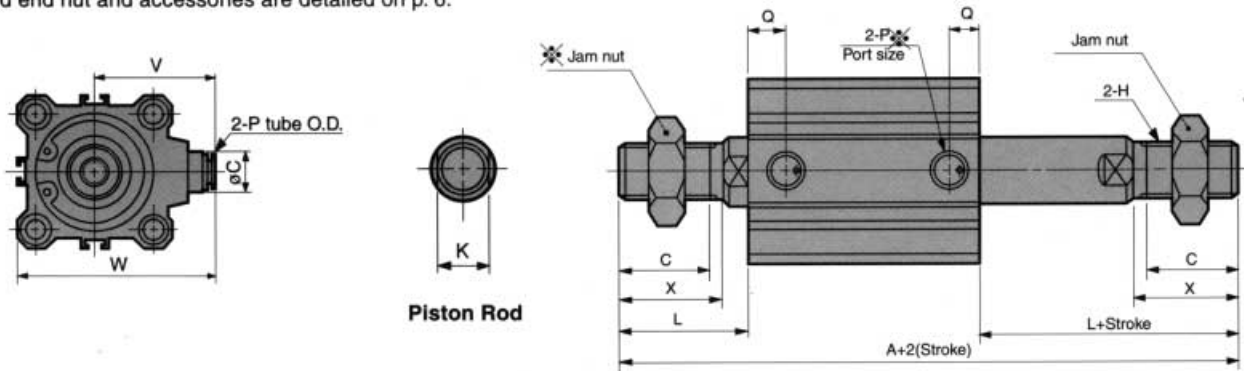
Bore size	CQ2 O	NCQ2 inch O	R
32	M6x1.0	1/4 - 20 UNC	10
40	M6x1.0	1/4 - 20 UNC	10
50	M8x1.25	5/16 - 18 UNC	14
63	M10x1.5	7/16 - 14 UNC	18
80	M12x1.75	1/2 - 13 UNC	22
100	M12x1.75	1/2 - 13 UNC	22

Standard

Bore size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 Inch H	I	J	K	L	M	N	O	P	Orifice	Q	S	U	Z
32	5~50	54.5	40.5	13	13.3	16	45	M8x1.25	5/16-24UNF	60	4.5	14	7	34	5.5	9 depth 7	1/8	1.7	12.5	58.5	31.5	14
40	5~50	64	50	13	18.3	16	52	M8x1.25	3/8-24UNF	69	5	14	7	40	5.5	9 depth 7	1/8	2	14	66	35	14
50	10~50	66.5	50.5	15	17.6	20	64	M10x1.5	1/2-20UNF	86	7	17	8	50	6.6	11 depth 8	1/4	2.2	14	80	41	19
63	10~50	68	52	15	17.6	20	77	M10x1.5	1/2-20UNF	103	7	17	8	60	9	14 depth 10.5	1/4	3	15.5	93	47.5	19
80	10~50	81	61	21	24.3	25	98	M16x2.0	5/8-18UNF	132	6	22	10	77	11	17.5 depth 13.5	3/8	4	18	112.5	57.5	26
100	10~50	94.5	70.5	27	27	30	117	M20x2.5	3/4-16UNF	156	6.5	27	12	94	11	17.5 depth 13.5	3/8	5	22	132.5	67.5	26

Note 2) The external dimensions of cylinder with rubber cushion are the same as that of the above standard.

* Rod end nut and accessories are detailed on p. 6.



One Touch Fittings

Bore size	C	P	V	W
32	13	6	38	60.5
40	13	6	42	68
50	16	8	50	82
63	16	8	56.5	95

NCQ2 Male Rod End

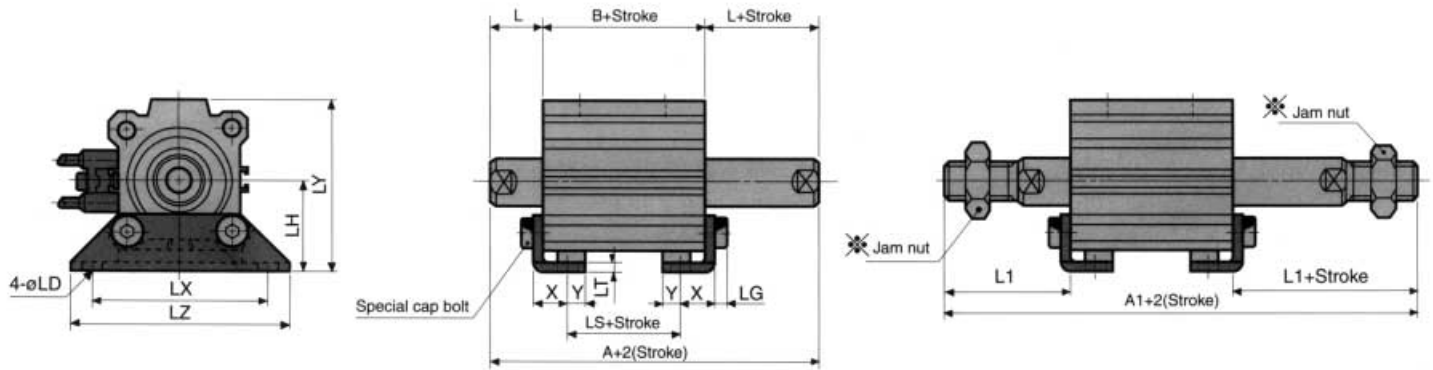
Bore size	X	H Inch	L	K	A
32	12.7	5/16-24UNF	19.7	14	79.9
40	16	3/8-24UNF	23	14	96
50	19.5	1/2-20UNF	27.5	17	105.5
63	19.5	1/2-20UNF	27.5	17	107
80	25.5	5/8-18UNF	35.5	22	132
100	28.5	3/4-16UNF	40.5	27	151.5

"C" dim. not applicable

CQ2 Male Rod End

Bore size	C	X	H	L	K	A
32	20.5	23.5	M14x1.5	28.5	14	97.5
40	20.5	23.5	M14x1.5	28.5	14	107
50	26	28.5	M18x1.5	33.5	17	117.5
63	26	28.5	M18x1.5	33.5	17	119
80	32.5	35.5	M22x1.5	43.5	22	148
100	32.5	35.5	M26x1.5	43.5	27	157.5

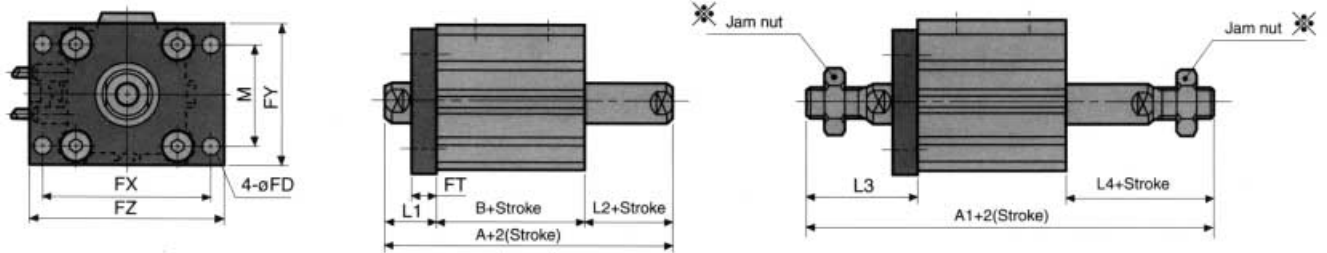
Compact Cylinder: Standard / Double Acting Double Rod With Switches



Foot / (N)CDQ2WL

Bore size	Stroke	A	CQ2 A1	NCQ2 A1	B	L	CQ2 L1	NCQ2 L1	LD	LG	LH	LS	LT	LX	LY	LZ	X	Y
32	5~50	74.5	117.5	99.9	40.5	17	38.5	29.7	6.6	4	30	24.5	3.2	57	57	71	11.2	5.8
40	5~50	84	127	116	50	17	38.5	33	6.6	4	33	34	3.2	64	64	78	11.2	7
50	10~50	86.5	137.5	125.5	50.5	18	43.5	37.5	9	5	39	27.5	3.2	79	78	95	14.7	8
63	10~50	88	139	127	52	18	43.5	37.5	11	5	46	26	3.2	95	91.5	113	16.2	9
80	10~50	101	168	152	61	20	53.5	45.5	13	7	59	31	4.5	118	114	140	19.5	11
100	10~50	114.5	177.5	171.5	70.5	22	53.5	50.5	13	7	71	36.5	6	137	136	162	23	12.5

※ Rod end nut and accessories are detailed on p. 6.



Flange / (N)CDQ2WF

Bore size	Stroke	A	A1	NCQ2 A1	B	FD	FT	FV	FX	FZ	L1	L2	L3	NCQ2 L3	L4	NCQ2 L4	M
32	5~50	64.5	107.5	89.9	40.5	5.5	8	48	56	65	17	7	38.5	29.7	28.5	19.7	34
40	5~50	74	117	106	50	5.5	8	54	62	72	17	7	38.5	33	28.5	23	40
50	10~50	76.5	127.5	115.5	50.5	6.6	9	67	76	89	18	8	43.5	37.5	33.5	27.5	50
63	10~50	78	129	117	52	9	9	80	92	108	18	8	43.5	37.5	33.5	27.5	60
80	10~50	91	158	142	61	11	11	99	116	134	20	10	53.5	45.5	43.5	35.5	77
100	10~50	104.5	167.5	161.5	70.5	11	11	117	136	154	22	12	53.5	50.5	43.5	40.5	94

※ Rod end nut and accessories are detailed on p. 6.



Compact Cylinder: Standard/ Single Acting Single Rod NCQ2 / CQ2 Series

ø12, ø16, ø20, ø25, ø32, ø40, ø50

How To Order

W/ Auto Switch NCQ2 **B 20 F 10 S M**

W/ Auto Switch NCDQ2 **B 20 F 10 S M A73 S**

Mounting

B	Through hole	F	Rod side flange
A	Both ends tapped	G	Head side flange
L	Foot	D	Double Clevis

Bore Size

12	12mm (1/2" Nom.)	32	32mm (1-1/4" Nom.)
16	16mm (5/8" Nom.)	40	40mm (1-1/2" Nom.)
20	20mm (3/4" Nom.)	50	50mm (2" Nom.)
25	25mm (1" Nom.)		

Piping

-	Threaded ports
F	See note 2) Built-in one-touch fitting

Note 2) Available built-in one touch fitting bore size: ø32-ø50.

Cylinder Stroke (mm)
Please refer to p.39 for standard strokes

Action

S	Spring return
T	Spring extended

Auto Switch Specifications

Type	Autoswitch		Indicator light	Wire (Output type)	Load Voltage		
	Perpendicular entry	In-line entry			DC	AC	
Reed switch	—	A76H	Yes	3 Wire	—	5V	
	A72	A72H			—	200V	
	A73	A73H		No	2 Wire	12V	100V
	A80	A80H	5V, 12V			100V	
	A73C	—	12V			—	
	A80C	—	5V, 12V			24V	
	A79W	—	Yes	—	—		
Solid State Switch	F7NV	F79	Yes	3 Wire NPN	24V	5V, 12V	
	F7PV	F7P		3 Wire PNP		12V	
	F7BV	J79		2 Wire	12V		
	J79C	—		3 Wire NPN	24V	5V, 12V	
	F7NWV	F79W				3 Wire PNP	—
	—	F7PW				2 Wire	12V
	F7BWV	J79W		3 Wire NPN	24V	5V, 12V	
	—	F7BAL				12V	
	—	F7NTL				5V, 12V	
	—	F79F				—	
	—	F7LF		4 Wire NPN	—		

Auto Switch Capability

-	Without Auto Switch
---	---------------------

Auto Switch

-	2 pcs.
S	1 pcs.
n	n pcs.

Preferred Option Program

Mounting Kits

Bore Size (mm)	Note 4) Foot	Flange	Note 6) Double clevis
12	(N)CQ-L012	(N)CQ-F012	(N)CQ-D012
16	(N)CQ-L016	(N)CQ-F016	(N)CQ-D016
20	(N)CQ-L020	(N)CQ-F020	(N)CQ-D020
25	(N)CQ-L025	(N)CQ-F025	(N)CQ-D025
32	(N)CQ-L032	(N)CQ-F032	(N)CQ-D032
40	(N)CQ-L040	(N)CQ-F040	(N)CQ-D040
50	(N)CQ-L050	(N)CQ-F050	(N)CQ-D050
63	(N)CQ-L063	(N)CQ-F063	(N)CQ-D063
80	(N)CQ-L080	(N)CQ-F080	(N)CQ-D080
100	(N)CQ-L100	(N)CQ-F100	(N)CQ-D100

Note 4) If foot bracket is required for a cylinder, order a pair

Note 5) Each bracket comes with the following accessories:
Foot / Flange; Body mounting bolt
Double clevis; Clevis pin, Axis C style snap ring,
Body mounting bolt

Note 6) The double-clevis is packaged with clevis pin and snap ring.

• Load length 0.5m.....Std. Connector A80C 5m.....Z Connector A80CZ
3m.....L A80CL No lead.....N A80CN

Body Option

-	Std. (Female thread)
M	Male thread
F	Head end boss

* Body option combination is available such as FM.



Compact Cylinder: Standard /
Single Acting Single Rod

(N)CQ2 Series



Model

		Bore Size		12	16	20	25	32	40	50
Air-Pressure Type	Mounting	Through hole (std)	●	●	●	●	●	●	●	●
		Both ends tapped	●	●	●	●	●	●	●	●
	Built-In Magnet		●	●	●	●	●	●	●	●
	Piping Method	Threaded PT on NPT	M5x 0.8	M5x 0.8	M5x 0.8	M5x 0.8	Note 1 M5x 0.8 1/8	1/8	1/4	
		Built-In One Touch Fitting	-	-	-	-	Note 2 6/4	6/4	8/6	
	Rod End Male Thread		●	●	●	●	●	●	●	●
W/Head End boss		●	●	●	●	●	●	●	●	

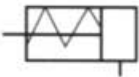
Note 1) In cases without autoswitch, only 5 stroke uses M5x0.8

Note 2) In case of built-in fitting, the external tube dimension for ø 32, 5 stroke and 10 stroke are the same.

Standard Specifications

Model	Air Pressure (Non-Lube)
Media	Air
Proof Pressure	217psi (15.3kgf/cm ²)
Max. Operating Pressure	145psi (10.2kgf/cm ²)
Ambient and Media temp.	15~160°F (-10°C~+70°C) (At freezing temp. air must be dry)
Rubber cushion	None
Rod end thread	Female Thread (std.)
Rod end thread tolerance	JIS Class II
Stroke Length tolerance	+1.0 0 mm
Mounting	Through hole (std.)
Piston Speed	2~20in/s (50~500mm/s)

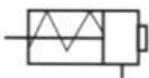
Single Acting/
Spring Return



Single Acting/
Spring Extend



Head end boss



Cautions

- When mounting, completely flush piping and be careful that dust and chips do not enter the cylinder.
- The Piston rod load should always be aligned with the cylinder axis.
 - Cylinder installation requires accurate alignment.
 - When used as a stopper, avoid side loading of the piston rod.
- Prevent damage to the piston rod. A damaged piston rod will lead to damage of the rod seal and result in leakage.

Theoretical Output Force lbs.

Type	Bore size (mm)	Operating Pressure (psi)		
		43	72	100
Extend	12	4.7	9.9	14.8
	16	10.1	19.3	28.3
	20	17.8	31.9	46.1
	25	28.3	50.4	72.6
	32	47.4	83.6	119.8
	40	76.0	132.4	189.1
	50	120.3	208.6	295.8
Retract	12	3.1	7.0	10.8
	16	5.4	12.1	19.1
	20	16.0	26.5	37.1
	25	25.4	42.5	59.3
	32	40.7	67.9	94.9
	40	71.3	118.7	166.1
	50	111.3	185.5	258.5

Spring Force lbs.

Type	Bore size (mm)	Spring Force	
		Comp.	Rest
Spring Return	12	2.9	0.9
	16	3.4	1.3
	20	3.4	1.3
	25	4.7	2.5
	32	6.7	3.6
	40	8.8	4.7
	50	12.1	5.6
Spring Extend	12	2.5	5.6
	16	4.7	0.6
	20	6.1	1.2
	25	6.5	2.2
	32	6.5	4.5
	40	6.5	4.5
	50	18.7	5.6

Standard Stroke

Bore size	Stroke
12, 16, 20	5, 10
25, 32, 40	
50	10, 20

Min. Operating Pressure

Bore size	Single Acting (extend, retract) psi
12	36
16	36
20	26
25	26
32	25

Compact Cylinder: Standard / Single Acting Single Rod

Weight Adder

lbs.

Bore size	12	16	20	25	32	40	50
Both ends tapped	0.004	0.004	0.013	0.013	0.013	0.013	0.013
Rod end M thread	Thread	0.003	0.007	0.013	0.026	0.057	0.117
	Nut	0.002	0.004	0.009	0.018	0.037	0.071
Head end boss	0.002	0.003	0.004	0.007	0.011	0.015	0.029
W/ one touch fitting	-	-	-	-	0.013	0.013	0.023
Foot mounting	0.121	0.148	0.362	0.410	0.315	0.342	0.536
Rod side flange	0.126	0.152	0.306	0.355	0.397	0.472	0.822
Head side flange	0.119	0.143	0.293	0.335	0.364	0.437	0.767
Double rear clevis	0.071	0.086	0.194	0.271	0.333	0.432	0.867

Weight/Single Acting: Single Rod

lbs.

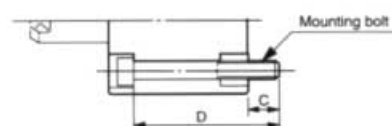
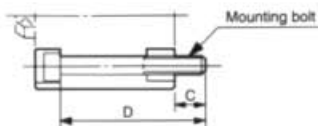
Type	Bore size (mm)	Stroke		
		5	10	20
Spring Extend	12	0.06	0.08	-
	16	0.09	0.11	-
	20	0.14	0.17	-
	25	0.19	0.22	-
	32	0.29	0.34	-
	40	0.45	0.50	-
Spring Retract	12	-	0.81	0.97
	16	0.06	0.08	-
	20	0.09	0.11	-
	25	0.15	0.17	-
	32	0.20	0.23	-
	40	0.31	0.35	-
Spring Retract	50	0.48	0.52	-
	50	-	0.88	1.01

How to obtain the total weight (lbs) (N)CQ2D32-10SM

Std wt.:	(N)CQ2B32-20S	0.34
Wt. adder:	Both ends tapped	0.013
	Male rod end	0.057
	Double rear clevis	0.333
	Total	0.743

Mounting Bolt For (N)CQ2

Special long mounting bolt for through hole mounting is available as an option.
How to Order:
Specify the required bolts
Example) Bolt M3x25L 4pcs.



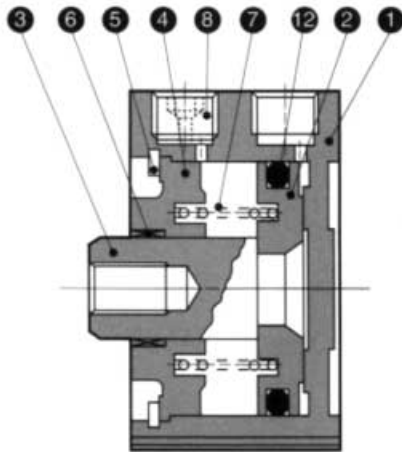
Thread	Pitch
M3	0.5
M5	0.8
M6	1.0
M8	1.25
M10	1.5

Model	C	D	Mounting bolt
(N)CQ2B12-5S	6.5	25	M3x25L
-10S		30	x30L
(N)CQ2B16-5S	5	25	M3x25L
-10S		30	x30L
(N)CQ2B20-5S	7.5	25	M5x25L
-10S		30	x30L
(N)CQ2B25-5S	9.5	30	M5x30L
-10S		35	x35L
(N)CQ2B32-5S	9	30	M5x30L
-10S		35	x35L
(N)CQ2B40-5S	7.5	35	M5x35L
-10S		40	x40L
(N)CQ2B50-10S	12.5	45	M6x45L
-20S		55	x55L

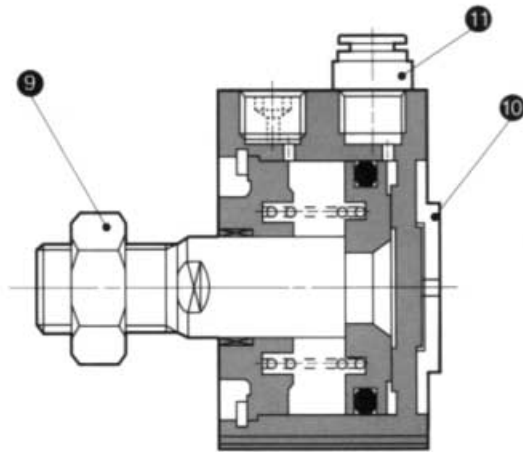
Model	C	D	Mounting bolt
(N)CQ2B12-5T	6.5	25	M3x25L
-10T		30	x30L
(N)CQ2B16-5T	5	25	M3x25L
-10T		30	x30L
(N)CQ2B20-5T	7.5	25	M5x25L
-10T		30	x30L
(N)CQ2B25-5T	9.5	30	M5x30L
-10T		35	x35L
(N)CQ2B32-5T	9	30	M5x30L
-10T		35	x35L
(N)CQ2B40-5T	7.5	35	M5x35L
-10T		40	x40L
(N)CQ2B50-10T	12.5	45	M6x45L
-20T		55	x55L

Series (N)CQ2
Compact Cylinder: Standard / Single Acting Single Rod

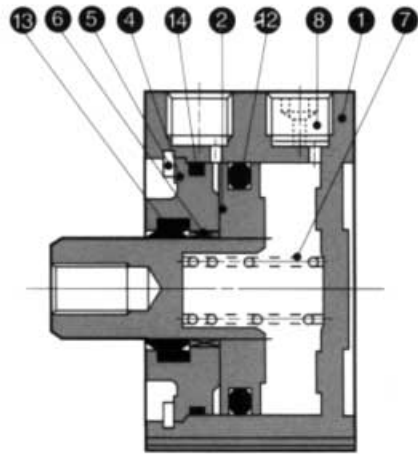
Construction / Part List



Spring Return



One Touch Fitting
End Boss
Rod End Nut



Spring Extend

Parts List

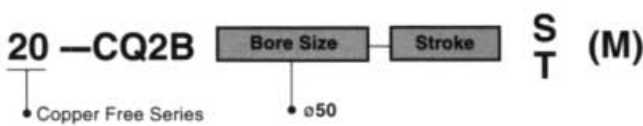
No.	Description	Material	Remarks
1	Cylinder tube	Aluminum alloy	Hard anodized
2	*Piston	Aluminum alloy	Chromate
3	Piston rod	Stainless steel	Bore ø12-ø25
		Carbon steel	Bore ø32-ø50, hard chrome plated
4	Collar	Bearing grade aluminum	Bore ø12-ø40, Black anodized
		Aluminum alloy casting	Bore ø50, Black paint
5	Retaining ring	Carbon tool steel	Phosphate coating
6	Bushing	Leaded tin bronze casting	Used for only ø50
7	Return spring	Piano wire	Zinc chromate
8	Plug	Steel alloy	Black zinc chromate
9	Rod end nut	Carbon steel	Nickel plated
10	End boss	Aluminum alloy	ø20-ø50 Anodized
11	One touch fittings	-	Bore ø32-ø50
14	Piston gasket	NBR	-

* The Piston and Piston rod (T type) is one piece construction made of stainless steel

Seals List

No.	Description	Material	Parts No.						
			ø12	ø16	ø20	ø25	ø32	ø40	ø50
12	Piston seal	NBR	NLP-12-7L	NLP-16L	NLP-20L	NLP-25L	NLP-32L	NLP-40L	NLP-50L
13	Rod seal	NBR	DYR-6K	DYR-8K	DYR-10SK	DYR-12	DYR-16	DYR-16Z	DYR-20Z
14	Gasket	NBR	SO-013-6	C14	C18	C22	C29	C36	C46

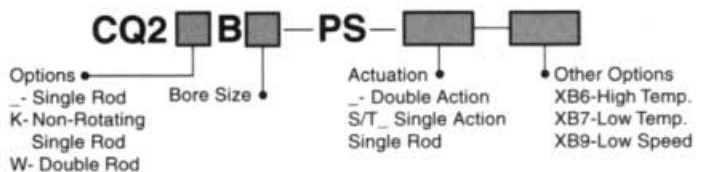
Copper Free Series Air Cylinder (CQ2 only)



To protect against adverse effects on the cathode ray tubes due to copper ion and fluorine contained in resin, the copper free series uses electroless nickel plated material, no copper is exposed allowing the generation of copper ions.

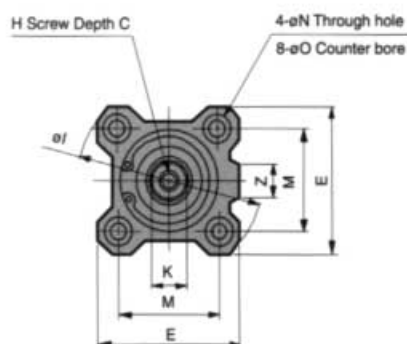
Note) Available as Standard Copper Free: ø12-ø40

Seal Kit Part Numbers

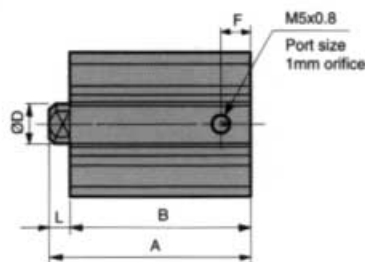
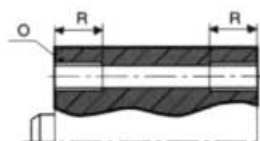


Bore Size $\phi 12 \sim \phi 25$ Spring Return

Through Hole / (N)CQ2B



Both Ends Tapped

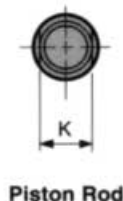
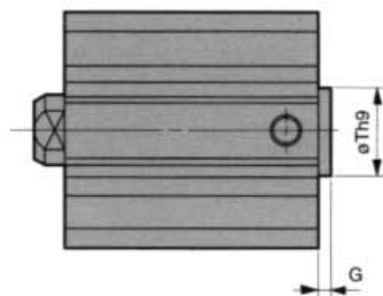


(N)CQ2A Both Ends Tapped

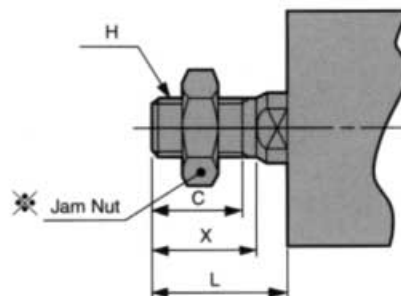
Bore size	CQ2 O	NCQ2 inch O	R
12	M4x0.7	8-32 UNC	7
16	M4x0.7	8-32 UNC	7
20	M6x1.0	1/4 - 20 UNC	10
25	M6x1.0	1/4 - 20 UNC	10

Standard / Spring Return (S)

Bore size	Stroke	A		B		CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 inch H	I	K	L	M	N	O	Z
		5st	10st	5st	10st														
12	5, 10	25.5	30.5	22	27	6	5.4	6	25	5	M3x0.5	#8-32	32	5	3.5	15.5	3.5	6.5 depth 3.5	-
16	5, 10	27	32	23.5	28.5	8	5.4	8	29	5.5	M4x0.7	#8-32	38	6	3.5	20	3.5	6.5 depth 3.5	10
20	5, 10	29	34	24.5	29.5	7	7	10	36	5.5	M5x0.8	#10-32	47	8	4.5	25.5	5.5	9 depth 7	10
25	5, 10	32.5	37.5	27.5	32.5	12	10	12	40	5.5	M6x1.0	1/4-28 UNF	52	10	5	28	5.5	9 depth 7	10



Piston Rod



End Boss (CQ2) mm

Bore size	G	Th9
12	1.5	15 $_{-0.043}^0$
16	1.5	20 $_{-0.052}^0$
20	2	13 $_{-0.043}^0$
25	2	15 $_{-0.043}^0$

NCQ2 Male Rod End mm

Bore size	X	H inch	L	K
12	8	#8-32UNC	11.5	5
16	8	#8-32UNC	11.5	6
20	8	#10-32UNF	12.5	8
25	9.5	1/4-28UNF	14.5	10

CQ2 Male Rod End mm

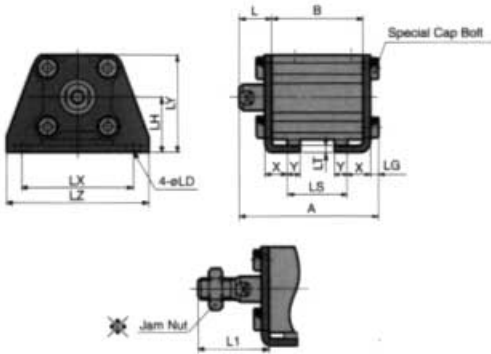
Bore size	C	X	H	L	K
12	9	10.5	M5x0.8	14	5
16	10	12	M6x1.0	15.5	6
20	12	14	M8x1.25	18.5	8
25	15	17.5	M10x1.25	22.5	10

Note 1) Rod side End Boss is offered as an option.
(Add - XC36 at the end of part no.)

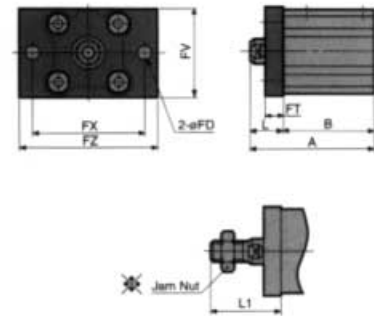
⊗ Rod end nut and accessories detail: see p. 6.
"C" dim. not applicable

Compact Cylinder: Standard / Single Acting Single Rod (S)

Foot / (N)CQ2L

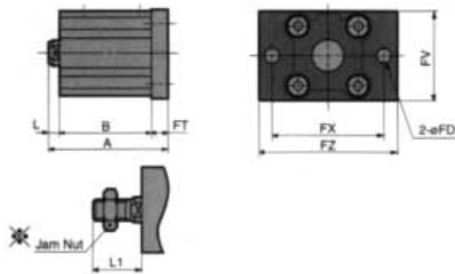


Bore size	Stroke	A		B		L	CQ2 L1	NCQ2 L1	LD	LG	LH	LS	
		5st	10st	5st	10st							5st	10st
12	5, 10	40.3	45.3	22	27	13.5	24	21.5	4.5	2.8	17	10	15
16	5, 10	41.8	46.8	23.5	28.5	13.5	25.5	21.5	4.5	2.8	19	11.5	16.5
20	5, 10	46.2	51.2	24.5	29.5	14.5	28.5	22.5	6.6	4	24	12.5	17.5
25	5, 10	49.7	54.7	27.5	32.5	15	32.5	24.5	6.6	4	26	12.5	17.5
Bore size	Stroke	LT	LX	LY	LZ	X	Y						
12	5, 10	2	34	29.5	44	8	4.5						
16	5, 10	2	38	33.5	48	8	5						
20	5, 10	3.2	48	42	62	9.2	5.8						
25	5, 10	3.2	52	46	66	10.7	5.8						



Rod Side Flange / (N)CQ2F

Bore size (mm)	Stroke (mm)	A		B		FD	FT	FV	FX	FZ	L	CQ2 L1	NCQ2 L1
		5st	10st	5st	10st								
12	5, 10	35.5	40.5	22	27	4.5	5.5	25	45	55	13.5	24	21.5
16	5, 10	37	42	23.5	28.5	4.5	5.5	30	45	55	13.5	25.5	21.5
20	5, 10	39	44	24.5	29.5	6.6	8	39	48	60	14.5	28.5	22.5
25	5, 10	42.5	47.5	27.5	32.5	6.6	8	42	52	64	15	32.5	24.5

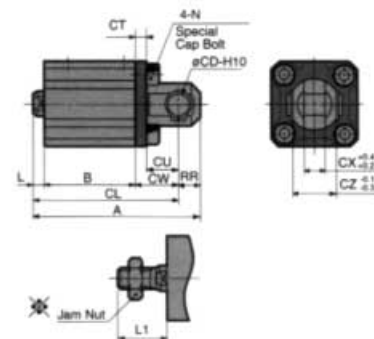


Head Side Flange / (N)CQ2G mm

Bore size (mm)	Stroke range (mm)	A		L	CQ2 L1	NCQ2 L1
		5st	10st			
12	5, 10	31	36	3.5	14	11.5
16	5, 10	32.5	37.5	3.5	15.5	11.5
20	5, 10	37	42	4.5	18.5	12.5
25	5, 10	40.5	45.5	5	22.5	14.5

*Dimensions for the head flange cylinder are the same as rod flange except A, L, L1.

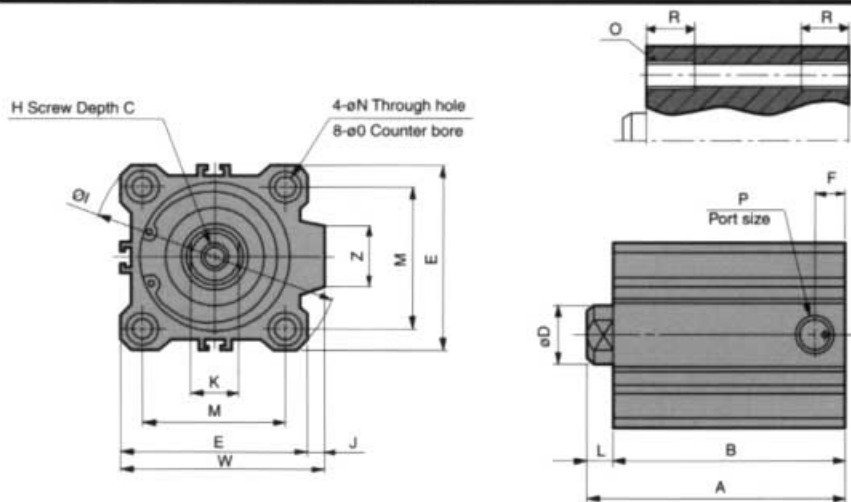
Double Clevis / (N)CQ2D



Bore size	Stroke	A		B		CQ2 CD	NCQ2 Inch CD	CL		CT	CU	CW	CX	CZ	L
		5st	10st	5st	10st			5st	10st						
12	5, 10	45.5	50.5	22	27	5	3/16	39.5	44.5	4	7	14	5	10	3.5
16	5, 10	48	53	23.5	28.5	5	3/16	42	47	4	10	15	6.5	12	3.5
20	5, 10	56	61	24.5	29.5	8	5/16	47	52	5	12	18	8	16	4.5
25	5, 10	62.5	67.5	27.5	32.5	10	3/8	52.5	57.5	5	14	20	10	20	5
Bore size	Stroke	CQ2 L1	NCQ2 L1	CQ2 N	NCQ2 N	NCQ2 Inch CD	RR								
12	5, 10	14	11.5	M4x0.7	8-32	8-32	6								
16	5, 10	15.5	11.5	M4x0.7	8-32	8-32	6								
20	5, 10	18.5	12.5	M6x1.0	1/4-20	1/4-20	9								
25	5, 10	22.5	14.5	M6x1.0	1/4-20	1/4-20	10								

* Rod end nut and accessories detail: see p. 6.
 ** Clevis pin and snap rings are included in the package.

Bore Size $\phi 32 \sim \phi 50$ Spring Return



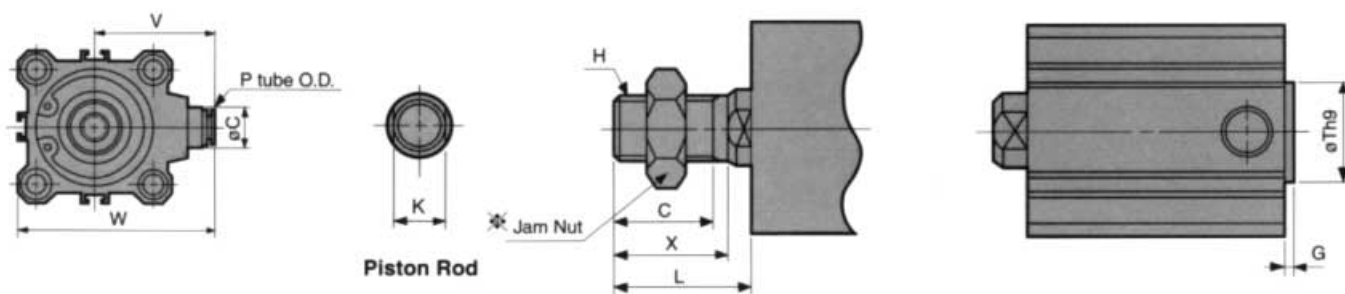
(N)CQ2A Both Ends Tapped

Bore size	CQ2 O	NCO2 inch O	R
32	M6x1.0	1/4 20 UNC	10
40	M6x1.0	1/4 - 20 UNC	10
50	M8x1.25	5/16 - 18 UNC	14

Standard / Spring Return(s)

Bore size	Stroke	A			B			CQ2 C	NCO2 C	D	E	F			CQ2 H	NCO2 Inch H	I	J	K
		5st	10st	20st	5st	10st	20st					5st	10st	20st					
32	5, 10	35	40	-	28	33	-	13	13.3	16	45	5.5	7.5	-	M8x1.25	5/16-24UNF	60	4.5	14
40	5, 10	41.5	46.5	-	34.5	39.5	-	13	18.3	16	52	8	8	-	M8x1.25	3/8-24UNF	69	5	14
50	10, 20	-	48.5	58.5	-	40.5	50.5	15	17.6	20	64	-	10.5	10.5	M10x1.5	1/2-20UNF	86	7	17

Bore size	Stroke	L	M	N	O	P			Orifice	W	Z
						5st	10st	20st			
32	5, 10	7	34	5.5	9depth7	M5x0.8	1/8	-	1.7	49.5	14
40	5, 10	7	40	5.5	9depth7	1/8	-	2	57	14	
50	10, 20	8	50	6.6	11depth8	-	1/4	2.2	71	19	



One Touch Fittings mm

Bore size	C	P	V	W
32	13	6	38	60.5
40	13	6	42	68
50	16	8	50	82

NCO2 Male Rod End mm

Bore size	X	H Inch	L	K
32	12.7	5/16-24UNF	19.7	14
40	16	3/8-24UNF	23	14
50	19.5	1/2-20UNF	27.5	17

CQ2 Male Rod End mm

Bore size	C	X	H	L	K
32	20.5	23.5	M14x1.5	28.5	14
40	20.5	23.5	M14x1.5	28.5	14
50	26	28.5	M18x1.5	33.5	17

End Boss (CQ2 only) mm

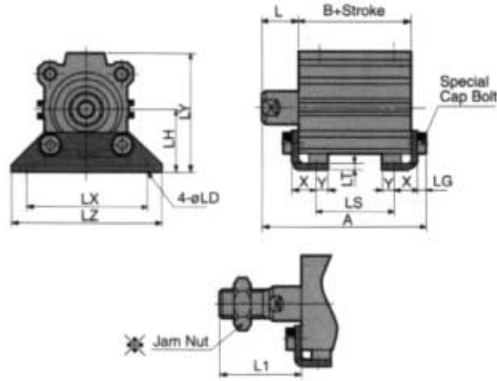
Bore size	G	Th9
32	2	21 $\phi_{.052}$
40	2	28 $\phi_{.052}$
50	2	35 $\phi_{.062}$

"C" dim. not applicable

*Rod end nut and accessories are detailed on p. 6.

Note) With rod end inlets an option.
(Add - XC36 at the end of part no.)

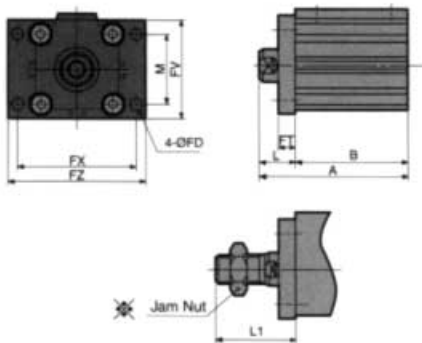
Compact Cylinder: Standard / Single Acting Single Rod(s)



Foot / (N)CQ2L

mm

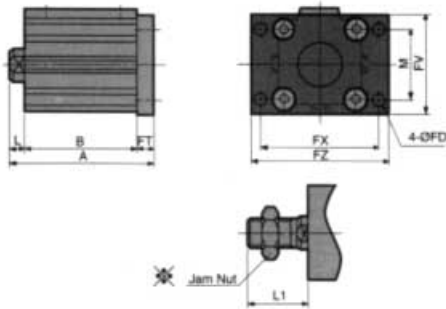
Bore size	Stroke	A			B			L	CQ2 L1	NCQ2 L1	LD	LG	LH	LS		
		5st	10st	20st	5st	10st	20st							5st	10st	20st
32	5, 10	52.2	57.2	-	28	33	-	17	38.5	29.7	6.6	4	30	12	17	-
40	5, 10	58.7	63.7	-	34.5	39.5	-	17	38.5	33	6.6	4	33	18.5	23.5	-
50	10, 20	-	66.7	76.7	-	40.5	50.5	18	43.5	37.5	9	5	39	-	17.5	27.5
Bore size	Stroke	LT	LX	LY	LZ	X	Y									
32	5, 10	3.2	57	57	71	11.2	5.8									
40	5, 10	3.2	64	64	78	11.2	7									
50	10, 20	3.2	79	78	95	14.7	8									



Rod Flange / (N)CQ2F

mm

Bore size	Stroke	A			B			FD	FT	FV	FX	FZ	L	CQ2 L1	NCQ2 L1	M
		5st	10st	20st	5st	10st	20st									
32	5, 10	45	50	-	28	33	-	5.5	8	48	56	65	17	38.5	29.7	34
40	5, 10	51.5	56.5	-	34.5	39.5	-	5.5	8	54	62	72	17	38.5	33	40
50	10, 20	-	58.5	68.5	-	40.5	50.5	6.6	9	67	76	89	18	43.5	37.5	50

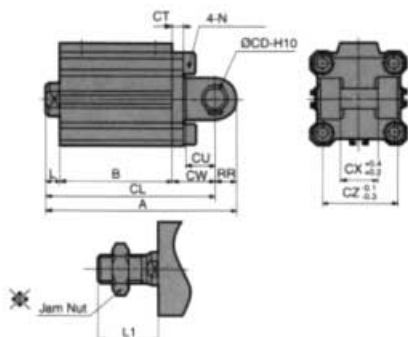


Head Flange / (N)CQ2G

mm

Bore size	Stroke	A			L	CQ2 L1	NCQ2 L1
		5st	10st	20st			
32	5, 10	43	48	-	7	28.5	19.7
40	5, 10	49.5	54.5	-	7	28.5	23
50	10, 20	-	57.5	67.5	8	33.5	27.5

* Dimensions for the head flange cylinder are the same as rod flange except A, L, L1.



Double Clevis / (N)CQ2D

mm

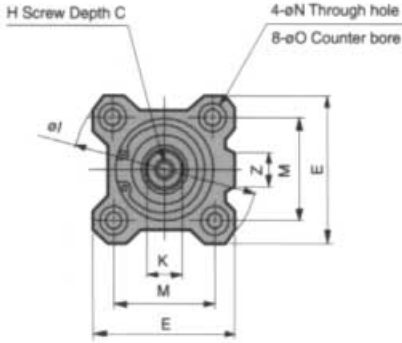
Bore size	Stroke	A			B			CQ2 CD	NCQ2 Inch CD	CL			CT	CU	CW	CX
		5st	10st	20st	5st	10st	20st			5st	10st	20st				
32	5, 10	65	70	-	28	33	-	10	3/8	55	60	-	5	14	20	18
40	5, 10	73.5	78.5	-	34.5	39.5	-	10	3/8	63.5	68.5	-	6	14	22	18
50	10, 20	-	90.5	100.5	-	40.5	50.5	14	1/2	-	76.5	86.5	7	20	28	22
Bore size	Stroke	CZ	CQ2 L	L1	NCQ2 L1	CQ2 N	NCQ2 Inch N	RR								
32	5, 10	36	7	28.5	19.7	M6x1.0	1/4-20	10								
40	5, 10	36	7	28.5	23	M6x1.0	1/4-20	10								
50	10, 20	44	8	33.5	27.5	M8x1.25	5/16-18	14								

* Rod end nut and accessories detail: see p. 6.

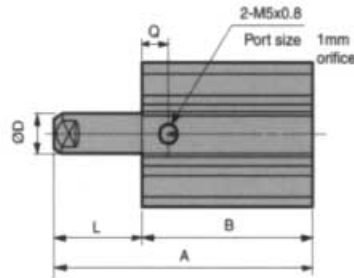
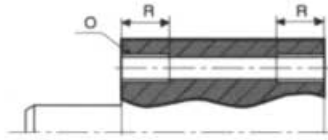
* Clevis pin and snapping are included in the package.

Bore Size $\phi 12 \sim \phi 25$ Spring Extended

Through Hole / (N)CQ2B



Both ends tapped



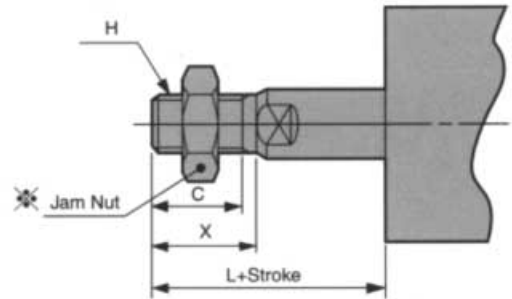
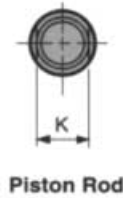
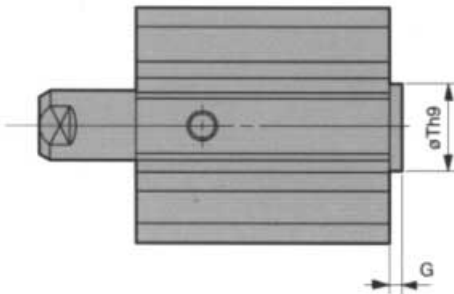
(N)CQ2A
Both Ends Tapped

Bore size	CQ2 O	NCQ2 inch O	R
12	M4x0.7	8-32 UNC	7
16	M4x0.7	8-32 UNC	7
20	M6x1.0	1/4 - 20 UNC	10
25	M6x1.0	1/4 - 20 UNC	10

Standard / Spring Extend (T)

Bore size	Stroke	A		B		CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 inch H	I	K	L	
		5st	10st	5st	10st									5st	10st
12	5, 10	30.5	40.5	22	27	6	5.4	6	25	M3x0.5	#8-32	32	5	8.5	13.5
16	5, 10	32	42	23.5	28.5	8	5.4	8	29	M4x0.7	#8-32	38	6	8.5	13.5
20	5, 10	34	44	24.5	29.5	7	7	10	36	M5x0.8	#10-32	47	8	9.5	14.5
25	5, 10	37.5	47.5	27.5	32.5	12	10	12	40	M6x1.0	1/4-28 UNF	52	10	10	15

Bore size	Stroke	M	N	O	Q	Z
12	5, 10	15.5	3.5	6.5 depth 3.5	7.5	-
16	5, 10	20	3.5	6.5 depth 3.5	8	10
20	5, 10	25.5	5.5	9 depth 7	9	10
25	5, 10	28	5.5	9 depth 7	11	10



End Boss (CQ2) mm

Bore size	G	Th9
12	1.5	15 $\phi_{0.043}$
16	1.5	20 $\phi_{0.052}$
20	2	13 $\phi_{0.043}$
25	2	15 $\phi_{0.043}$

NCQ2 Male Rod End mm

Bore size	X	H inch	L	K
12	8	#8-32UNC	11.5	5
16	8	#8-32UNC	11.5	6
20	8	#10-32UNF	12.5	8
25	9.5	1/4-28UNF	14.5	10

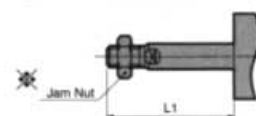
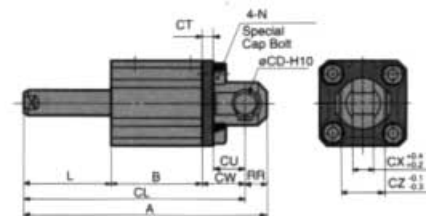
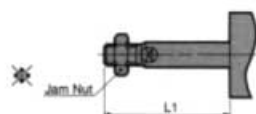
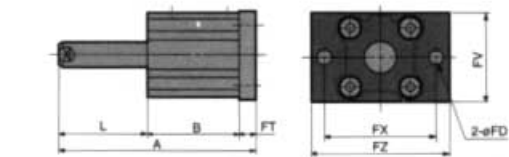
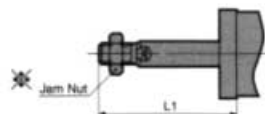
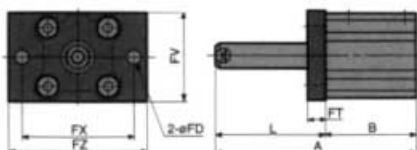
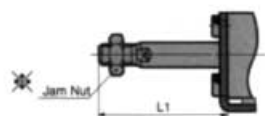
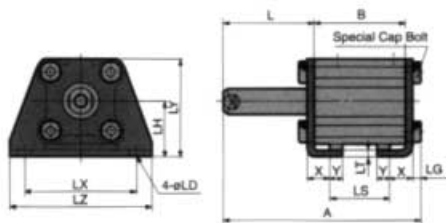
CQ2 Male Rod End mm

Bore size	C	X	H	L	K
12	9	10.5	M5x0.8	14	5
16	10	12	M6x1.0	15.5	6
20	12	14	M8x1.25	18.5	8
25	15	17.5	M10x1.25	22.5	10

Note 1) Rod side End Boss is offered as an option.
(Add - XC36 at the end of part no.)

"C" dim. not applicable
* Rod end nut and accessories detail: see p. 6.

Compact Cylinder: Standard / Single Acting Single Rod (T)



Foot / (N)CQ2L

Bore size	Stroke	A		B		L		CQ2 L1		NCQ2 L1		LD	LG	LH	LS	
		5st	10st	5st	10st	5st	10st	5st	10st	5st	10st				5st	10st
12	5, 10	45.3	55.3	22	27	18.5	23.5	29	34	26.5	31.5	4.5	2.8	17	10	15
16	5, 10	46.8	56.8	23.5	28.5	18.5	23.5	30.5	35.5	26.5	31.5	4.5	2.8	19	11.5	16.5
20	5, 10	51.2	61.2	24.5	29.5	19.5	24.5	33.5	38.5	27.5	32.5	6.6	4	24	12.5	17.5
25	5, 10	54.7	64.7	27.5	32.5	20	25	37.5	42.5	29.5	34.5	6.6	4	26	12.5	17.5
Bore size	Stroke	LT	LX	LY	LZ	X	Y									
12	5, 10	2	34	29.5	44	8	4.5									
16	5, 10	2	38	33.5	48	8	5									
20	5, 10	3.2	48	42	62	9.2	5.8									
25	5, 10	3.2	52	46	66	10.7	5.8									

Rod Flange / (N)CQ2F

Bore size	Stroke	A		B		FD	FT	FV	FX	FZ	L		CQ2 L1		NCQ2 L1	
		5st	10st	5st	10st						5st	10st	5st	10st		
12	5, 10	40.5	50.5	22	27	4.5	5.5	25	45	55	18.5	23.5	29	34	26.5	31.5
16	5, 10	42	52	23.5	28.5	4.5	5.5	30	45	55	18.5	23.5	30.5	35.5	26.5	31.5
20	5, 10	44	54	24.5	29.5	6.6	8	39	48	60	19.5	24.5	33.5	38.5	27.5	32.5
25	5, 10	47.5	57.5	27.5	32.5	6.6	8	42	52	64	20	25	37.5	42.5	29.5	34.5

Head Flange / (N)CQ2G

Bore size	Stroke	A		L		CQ2 L1		NCQ2 L1	
		5st	10st	5st	10st	5st	10st	5st	10st
12	5, 10	36	46	8.5	13.5	19	24	16.5	21.5
16	5, 10	37.5	47.5	8.5	13.5	20.5	25.5	16.5	21.5
20	5, 10	42	52	9.5	14.5	23.5	28.5	17.5	22.5
25	5, 10	45.5	55.5	10	15	27.5	32.5	19.5	24.5

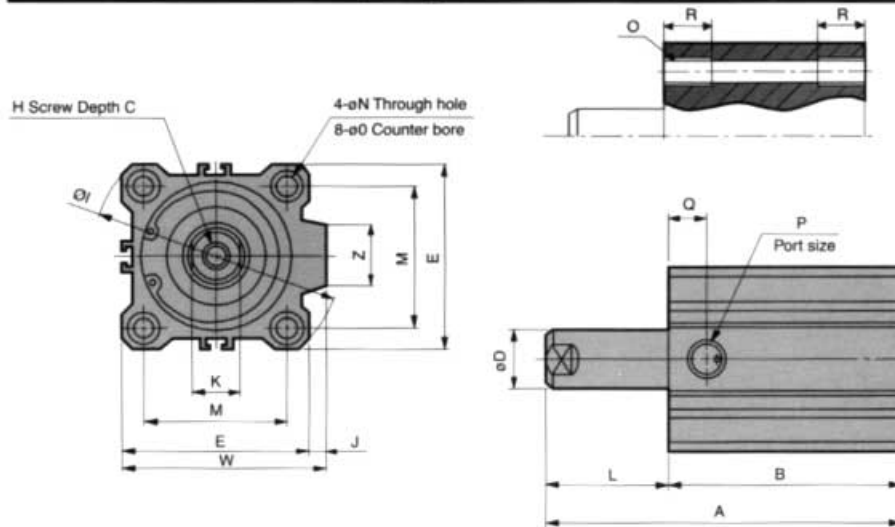
*Dimensions for the head flange cylinder are the same as rod flange except A, L, L1.

Double Clevis / (N)CQ2D

Bore size	Stroke	A		B		CQ2 CD	NCQ2 Inch CD	CL		CT	CU	CW	CX	CZ	L	
		5st	10st	5st	10st			5st	10st						5st	10st
12	5, 10	50.5	60.5	22	27	5	3/16	44.5	54.5	4	7	14	5	10	8.5	13.5
16	5, 10	53	63	23.5	28.5	5	3/16	47	57	4	10	15	6.5	12	8.5	13.5
20	5, 10	61	71	24.5	29.5	8	5/16	52	62	5	12	18	8	16	9.5	14.5
25	5, 10	67.5	77.5	27.5	32.5	10	3/8	57.5	67.5	5	14	20	10	20	10	15
Bore size	Stroke	CQ2 L1		NCQ2 L1		CQ2 N	NCQ2 Inch N	RR								
12	5, 10	19	24	16.5	21.5				M4x0.7	8-32	6					
16	5, 10	20.5	25.5	16.5	21.5	M4x0.7	8-32	6								
20	5, 10	23.5	28.5	17.5	22.5	M6x1.0	1/4-20	9								
25	5, 10	27.5	32.5	19.5	24.5	M6x1.0	1/4-20	10								

* Rod end nut and accessories detail: see p. 6.
 ** Clevis pin and snap rings are included in the package.

Bore Size $\phi 32\sim\phi 50$ Spring Extend



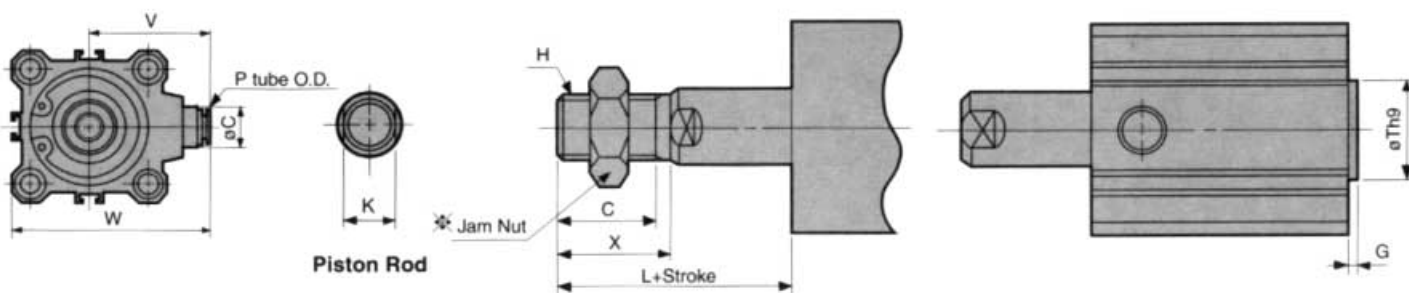
(N)CQ2A
Both Ends Tapped

Bore size	CQ2 O	NCQ2 inch O	R
32	M6x1.0	1/4 20 UNC	10
40	M6x1.0	1/4 - 20 UNC	10
50	M8x1.25	5/16 - 18 UNC	14

Standard / Spring Extend (T)

Bore size	Stroke	A			B			CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 Inch H	I	J	K	L		
		5st	10st	20st	5st	10st	20st										5st	10st	20st
32	5, 10	40	50	-	28	33	-	13	13.3	16	45	M8x1.25	5/16-24UNF	60	4.5	14	12	17	-
40	5, 10	46.5	56.5	-	34.5	39.5	-	13	18.3	16	52	M8x1.25	3/8-24UNF	69	5	14	12	17	-
50	10, 20	-	58.5	78.5	-	40.5	50.5	15	17.5	20	64	M10x1.5	1/2-20UNF	86	7	17	-	18	28

Bore size	Stroke	M	N	O	P			Q			Orifice	W	Z
					5st	10st	20st	5st	10st	20st			
32	5, 10	34	5.5	9depth7	M5x 0.8	1/8	-	11.5	10.5	-	1.7	49.5	14
40	5, 10	40	5.5	9depth7	1/8	-	11	11	-	2	57	14	
50	10, 20	50	6.6	11depth8	-	1/4	-	10.5	10.5	2.2	71	19	



One Touch Fittings mm

Bore size	C	P	V	W
32	13	6	38	60.5
40	13	6	42	68
50	16	8	50	82

NCQ2 Male Rod End mm

Bore size	X	H Inch	L	K
32	12.7	5/16-24UNF	19.7	14
40	16	3/8-24UNF	23	14
50	19.5	1/2-20UNF	27.5	17

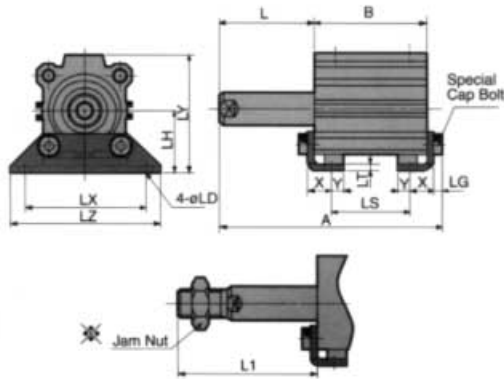
CQ2 Male Rod End mm

Bore size	C	X	H	L	K
32	20.5	23.5	M14x1.5	28.5	14
40	20.5	23.5	M14x1.5	28.5	14
50	26	28.5	M18x1.5	33.5	17

End Boss (CQ2 only) mm

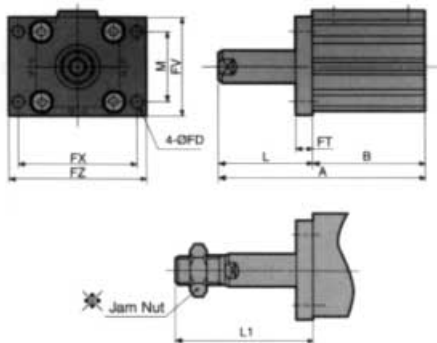
Bore size	G	Th9
32	2	21 $^{0}_{-0.052}$
40	2	28 $^{0}_{-0.052}$
50	2	35 $^{0}_{-0.062}$

Compact Cylinder: Standard / Single Acting Single Rod (T)



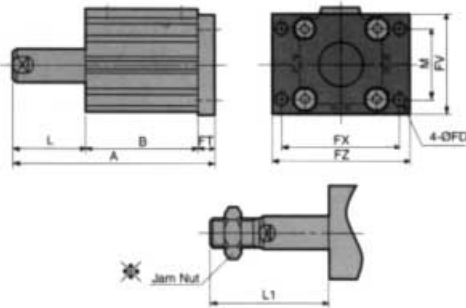
Foot / (N)CQ2L

Bore size	Stroke	A			B			L			CQ2 L1			NCQ2 L1		
		5st	10st	20st	5st	10st	20st	5st	10st	20st	5st	10st	20st	5st	10st	20st
32	5, 10	57.2	67.2	-	28	33	-	22	27	-	43.5	48.5	-	34.7	39.7	-
40	5, 10	63.7	73.7	-	34.5	39.5	-	22	27	-	43.5	48.5	-	38	43	-
50	10, 20	-	76.7	96.7	-	40.5	50.5	-	28	38	-	53.5	63.5	-	47.5	57.5
Bore size	Stroke	LD	LG	LH	LS			LT	LX	LY	LZ	X	Y			
					5st	10st	20st									
32	5, 10	6.6	4	30	12	17	-	3.2	57	57	71	11.2	5.8			
40	5, 10	6.6	4	33	18.5	23.5	-	3.2	64	64	78	11.2	7			
50	10, 20	9	5	39	-	17.5	27.5	3.2	79	78	95	14.7	8			



Rod Flange / (N)CQ2F

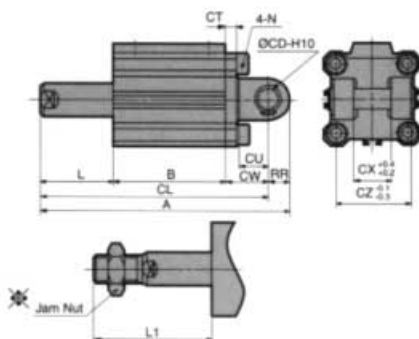
Bore size	Stroke	A			B			FD	FT	FV	FX	FZ	L		
		5st	10st	20st	5st	10st	20st						5st	10st	20st
32	5, 10	50	60	-	28	33	-	5.5	8	48	56	65	22	27	-
40	5, 10	56.5	66.5	-	34.5	39.5	-	5.5	8	54	62	72	22	27	-
50	10, 20	-	68.5	88.5	-	40.5	50.5	6.6	9	67	76	89	-	28	38
Bore size	Stroke	CQ2 L1			NCQ2 L1			M							
		5st	10st	20st	5st	10st	20st								
32	5, 10	43.5	48.5	-	34.7	39.7	-	34							
40	5, 10	43.5	48.5	-	38	43	-	40							
50	10, 20	-	53.5	63.5	42.5	-	57.5	50							



Head Flange / (N)CQ2G

Bore size	Stroke	A			L			CQ2 L1			NCQ2 L1		
		5st	10st	20st	5st	10st	20st	5st	10st	20st	5st	10st	20st
32	5, 10	48	58	-	12	17	-	33.5	38.5	-	24.7	29.7	-
40	5, 10	45.5	64.5	-	12	17	-	33.5	38.5	-	28	33	-
50	10, 20	-	67.5	87.5	-	18	28	-	43.5	53.5	-	37.5	47.5

* Dimensions for the head flange cylinder are the same as rod flange except A, L, L1.



Double Clevis / (N)CQ2D

Bore size	Stroke	A			B			CQ2 CD	NCQ2 Inch CD	CL			CT	CU	CW	CX
		5st	10st	20st	5st	10st	20st			5st	10st	20st				
32	5, 10	70	80	-	28	33	-	10	3/8	60	70	-	5	14	20	18
40	5, 10	78.5	88.5	-	34.5	39.5	-	10	3/8	68.5	78.5	-	6	14	22	18
50	10, 20	-	100.5	120.5	-	40.5	50.5	14	1/2	-	86.5	106.5	7	20	28	22
Bore size	Stroke	CZ	L			CQ2 L1			NCQ2 L1			CQ2 N	NCQ2 Inch N	RR		
			5st	10st	20st	5st	10st	20st	5st	10st	20st					
32	5, 10	36	12	17	-	33.5	38.5	-	24.7	29.7	-	M6x1.0	1/4-20	10		
40	5, 10	36	12	17	-	33.5	38.5	-	28	33	-	M6x1.0	1/4-20	10		
50	10, 20	44	-	18	28	-	43.5	53.5	-	37.5	47.5	M8x1.25	5/16-18	14		

* Rod end nut and accessories detail: see p. 6.

* Clevis pin and snap ring are included in the package.



Compact Cylinder: Single Rod Single Acting With Auto Switch

(N)CDQ2 Series



Standard Specifications

Model	Air pressure type (Non-lube type)
Media	Air
Ambient and fluid temp.	15~140°F (-10°C~+60°C)(At freezing temp. Air must be dry.)

The rest of the specifications are the same as that of standard (See p. 39).

Auto Switch Mounting Available / Minimum Stroke

# of Auto Switch Mounting	D-F7□V D-J79C	D-A7 D-A8 D-A73C D-A80C	D-F7□WV	D-A7□H D-A80H D-F7□ D-J79	D-A79W	D-F7□W D-J79W D-F7BAL D-F79F	D-F7LF
1pcs	5mm	5mm	10mm	15mm	15mm	20mm	25mm
2pcs	5mm	10mm	15mm	15mm	20mm	20mm	25mm

Note) See page 13 for Auto Switch Specifications

How To Order

Auto Switch How To Order: See p. 38

Weight/Single Acting: Single Rod

Type	Bore size (mm)	Cylinder Stroke (mm)			lbs.
		5	10	20	
Spring Extend	12	0.11	0.12	-	
	16	0.16	0.18	-	
	20	0.24	0.27	-	
	25	0.32	0.36	-	
	32	0.42	0.47	-	
	40	0.62	0.67	-	
Spring Return	50	-	1.07	1.23	
	12	0.12	0.15	-	
	16	0.16	0.18	-	
	20	0.27	0.29	-	
	25	0.35	0.39	-	
	32	0.44	0.48	-	
40	0.64	0.69	-		
50	-	1.14	1.27		

Weight Adder

Bore size	12	16	20	25	32	40	50
Both ends tapped	0.002	0.002	0.007	0.007	0.013	0.013	0.013
Rod end M thread	Thread	0.003	0.007	0.013	0.026	0.057	0.117
	Nut	0.002	0.004	0.009	0.018	0.037	0.071
Head end boss	0.002	0.003	0.004	0.007	0.011	0.015	0.029
W/ one touch fitting	-	-	-	-	0.013	0.013	0.023
Foot mounting	0.108	0.137	0.324	0.373	0.315	0.342	0.536
Rod side flange	0.119	0.148	0.289	0.337	0.397	0.472	0.822
Head side flange	0.115	0.139	0.273	0.318	0.364	0.437	0.767
Double rear clevis	0.064	0.077	0.172	0.251	0.333	0.432	0.867

When mounting auto switch, add for additional mounting bracket weight

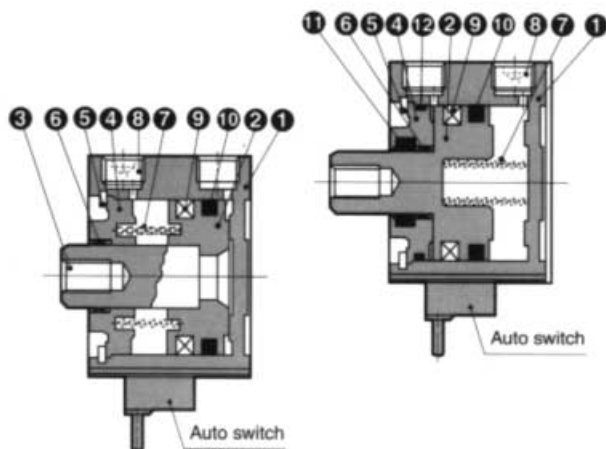
Auto Switch Mounting Bracket Weight

Part no.	Applicable cylinder bore size	Weight lbs.
BQ-1	12~ 25	.003
BQ-2	32~ 50	.003

How to obtain the total weight (lbs) (N)CDQ2D32-10SM

Std wt.:	(N)CQ2B32-20S	0.47
Wt. adder:	Both ends tapped	0.013
	Male rod end	0.057
	Double rear clevis	0.333
	Total	0.873

Construction / Parts List



Parts List

No.	Description	Material	Remarks
1	Cylinder tube	Aluminum alloy	Hard anodized
2	*Piston	Aluminum alloy	Chromate
3	Piston rod	Stainless steel	Bore ø12-ø25
		Carbon steel	Bore ø32-ø100, hard chrome plated
4	Collar	Brass	Bore ø12-ø40, Black anodized
		Aluminum alloy	Bore ø50, Black paint
5	Retaining ring	Carbon tool steel	Phosphate coating
6	Bushing	Leaded tin bronze casting	Used for ø50 only
7	Return spring	Piano wire	Zinc chromate
8	Plug	Steel alloy	Black zinc chromate
9	Magnet	-	

* Note) The Piston and Piston rod assembly is made of one piece of stainless steel. (T-Type) 20~50 bore.

Seals List

No.	Description	Material	Parts No.						
			ø12	ø16	ø20	ø25	ø32	ø40	ø50
10	Piston seal	NBR	NLP-12-7L	NLP-16L	NLP-20L	NLP-25L	NLP-32L	NLP-40L	NLP-50L
11	Rod seal	NBR	DYR-6K	DYR-8K	DYR-10SK	DYR-12	DYR-16	PDU-16Z	PDU-20Z
12	Gasket	NBR	SO-013-6	C14	C18	C22	C29	C36	C46

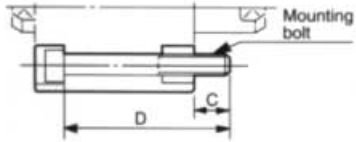
Mounting Bolt For Single Acting Single Rod (S) / With Auto Switch

Special long mounting bolt for through hole mounting is available as an option.

How to Order:

Specify the required bolts

Example) Bolt M3x35L 4pcs.



Thread	Pitch
M3	0.5
M5	0.8
M6	1.0
M8	1.25
M10	1.5

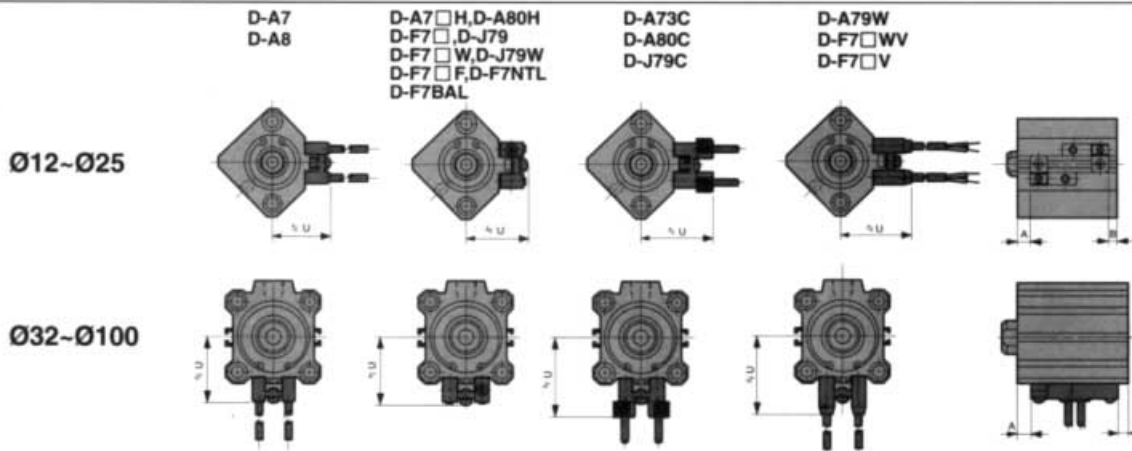
Spring Return

Model	C	D	Mounting bolt
(N)CDQ2B12-5S	5.5	35	M3x35L
-10S		40	x40L
(N)CDQ2B16-5S	8	40	M3x40L
-10S		45	x45L
(N)CDQ2B20-5S	10.5	40	M5x40L
-10S		45	x45L
(N)CDQ2B25-5S	9.5	40	M5x40L
-10S		45	x45L
(N)CDQ2B32-5S	9	40	M5x40L
-10S		45	x45L
(N)CDQ2B40-5S	7.5	45	M5x45L
-10S		50	x50L
(N)CDQ2B50-10S	12.5	55	M6x55L
-20S		65	x65L

Spring Extend

Model	C	D	Mounting bolt
(N)CDQ2B12-5T	6.1	40	M3x40L
-10T		45	x45L
(N)CDQ2B16-5T	8	40	M3x40L
-10T		45	x45L
(N)CDQ2B20-5T	10.5	40	M5x40L
-10T		45	x45L
(N)CDQ2B25-5T	9.5	40	M5x40L
-10T		45	x45L
(N)CDQ2B32-5T	9	40	M5x40L
-10T		45	x45L
(N)CDQ2B40-5T	7.5	45	M5x45L
-10T		50	x50L
(N)CDQ2B50-10T	12.5	55	M6x55L
-20T		65	x65L

Auto Switch Mounting Data



Auto Switch Mounting Position / S (T)

Bore Size (mm)	D-A7•A8		D-A7□H•A80H D-A73C•A80C D-F7□V•J79C		D-A79W		D-F7BAL D-F7PW D-F7□F D-J79W		D-F79W D-F7□VW	
	A	B	A	B	A	B	A	B	A	B
12	4.5	5.5(10)	5	6(10.5)	2	3(7.5)	9	10(14.5)	5.5	6.5(11)
16	7.5(5.5)	5(7)	8(6)	5.5(7.5)	5(3)	2.5(4.5)	12(10)	9.5(11.5)	8.5(6.5)	6(8)
20	7.5	6.5	8	7	5	4	12	11	8.5	7.5
25	7.5	7	8	7.5	5	4.5	12	11.5	8.5	8
32	9	6	9.5	6.5	6.5	3.5	13.5	10.5	10	7
40	13	8.5	13.5	9	10.5	6	17.5	13	14	9.5
50	11	11	11.5	12	8.5	9	15.5	16	12	12.5

Dimensions in parenthesis refer to spring extend (T) versions

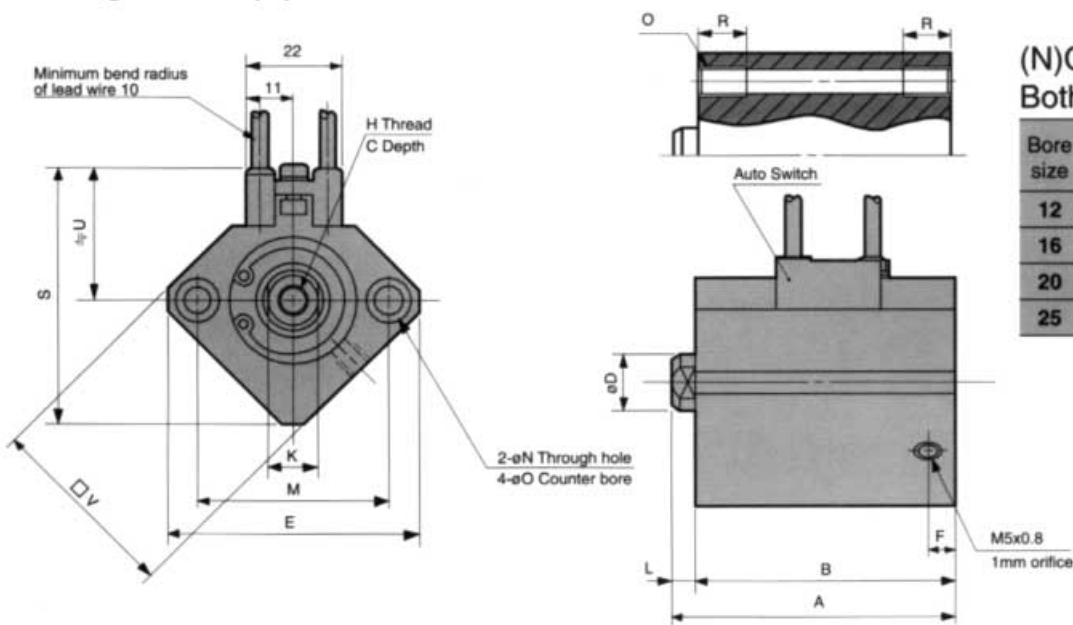
Auto Switch Mounting Height

Bore Size (mm)	D-A7 A8	D-A7□H D-A80H D-F7□ D-J79 D-F7□W	D-J79W D-F7BAL D-F7□F D-F7NTL	D-A73C D-A80C D-F7□VW	D-F7□V	D-J79C	D-A79W
	U	U	U	U	U	U	U
12	19.5	20.5	26.5	23	26	22	
16	22.5	23.5	29.5	26	29	25	
20	24.5	25.5	31.5	28	31	27	
25	27.5	28.5	34.5	31	34	30	
32	31.5	32.5	38.5	35	38	34	
40	35	36	42	38.5	41.5	37.5	
50	41	42	48	44.5	47.5	43.5	

(N)CDQ2 Series

Bore Size $\varnothing 12 \sim \varnothing 25$ Spring Return

Through Hole / (N)CDQ2B



(N)CDQ2A Both Ends Tapped

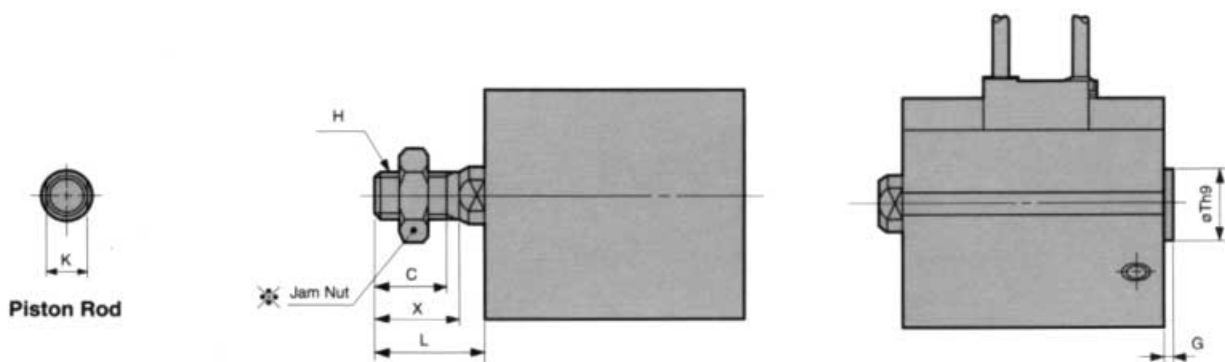
Bore size	CQ2 \varnothing	NCQ2 inch \varnothing	R
12	M4x0.7	8-32 UNC	7
16	M4x0.7	8-32 UNC	7
20	M6x1.0	1/4 - 20 UNC	10
25	M6x1.0	1/4 - 20 UNC	10

The above Auto Switch mounting is used for D-A73 and D-A80

Auto Switch set position and mounting height: See p. 51

Standard / Spring Return (S)

Bore size	Stroke	A		B		CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 inch H	K	L	M	N	O	S	U	V
		5st	10st	5st	10st															
12	5, 10	36.5	41.5	33	38	6	5.4	6	32	6.5	M3x0.5	#8-32	5	3.5	22	3.5	6.5 depth 3.5	35.5	19.5	25
16	5, 10	39	44	35.5	40.5	8	5.4	8	38	5.5	M4x0.7	#8-32	6	3.5	28	3.5	6.5 depth 3.5	41.5	22.5	29
20	5, 10	41	46	36.5	41.5	7	7	10	47	5.5	M5x0.8	#10-32	8	4.5	36	5.5	9 depth 7	48	24.5	36
25	5, 10	42.5	47.5	37.5	42.5	12	10	12	52	5.5	M6x1.0	1/4-28 UNF	10	5	40	5.5	9 depth 7	53.5	27.5	40



NCQ2 Male Rod End

Bore size	X	H Inch	L	K
12	8	#8-32UNC	11.5	5
16	8	#8-32UNC	11.5	6
20	8	#10-32UNF	12.5	8
25	9.5	1/4-28UNF	14.5	10

CQ2 Male Rod End

Bore size	C	X	H	L	K
12	9	10.5	M5x0.8	14	5
16	10	12	M6x1.0	15.5	6
20	12	14	M8x1.25	18.5	8
25	15	17.5	M10x1.25	22.5	10

End Boss (CQ2)

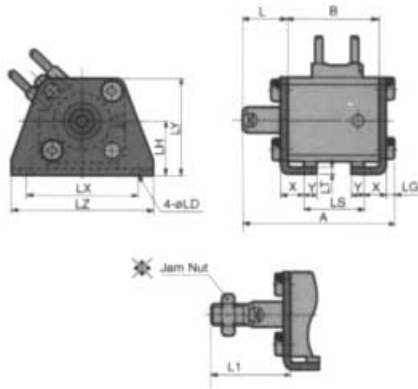
Bore size	G	Th9
12	1.5	15 $\begin{smallmatrix} 0 \\ -0.043 \end{smallmatrix}$
16	1.5	20 $\begin{smallmatrix} 0 \\ -0.052 \end{smallmatrix}$
20	2	13 $\begin{smallmatrix} 0 \\ -0.043 \end{smallmatrix}$
25	2	15 $\begin{smallmatrix} 0 \\ -0.043 \end{smallmatrix}$

*C" dim. not applicable

☒ For further info on Jam Nut and accessories detail: see p. 6.

Note 1) End Boss for Rod End is offered as an option.
(Add - XC36 at the end of part no.)

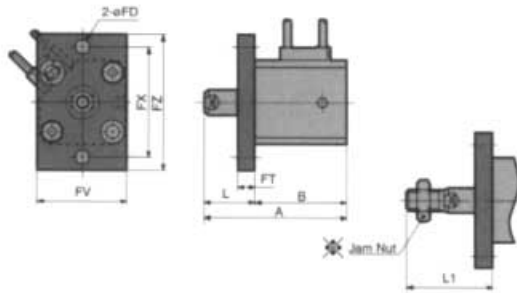
Compact Cylinder: Standard / Single Acting Single Rod(S) With Switches



Foot / (N)CDQ2L

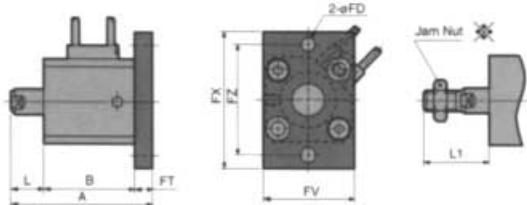
Bore size	Stroke	A		B		L	CQ2 L1	NCQ2 L1	LD	LG	LH	LS	
		5st	10st	5st	10st							5st	10st
12	5, 10	51.3	56.3	33	38	13.5	24	21.5	4.5	2.8	17	21	26
16	5, 10	53.8	58.8	35.5	40.5	13.5	25.5	21.5	4.5	2.8	19	23.5	28.5
20	5, 10	58.2	63.2	36.5	41.5	14.5	28.5	22.5	6.6	4	24	24.5	29.5
25	5, 10	59.7	64.7	37.5	42.5	15	32.5	24.5	6.6	4	26	22.5	27.5

Bore size	Stroke	LT	LX	LY	LZ	X	Y
12	5, 10	2	34	29.5	44	8	4.5
16	5, 10	2	38	33.5	48	8	5
20	5, 10	3.2	48	42	62	9.2	5.8
25	5, 10	3.2	52	46	66	10.7	5.8



Rod Side Flange / (N)CDQ2F

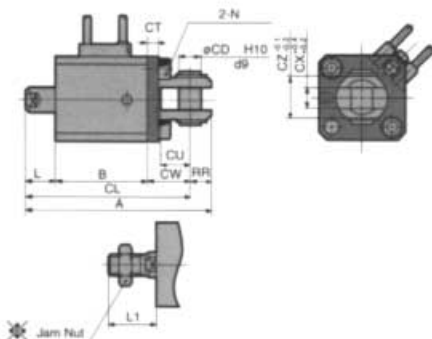
Bore size (mm)	Stroke (mm)	A		B		FD	FT	FV	FX	FZ	L	CQ2 L1	NCQ2 L1
		5st	10st	5st	10st								
12	5, 10	46.5	51.5	33	38	4.5	5.5	25	45	55	13.5	24	21.5
16	5, 10	49	54	35.5	40.5	4.5	5.5	30	45	55	13.5	25.5	21.5
20	5, 10	51	56	36.5	41.5	6.6	8	39	48	60	14.5	28.5	22.5
25	5, 10	52.5	57.5	37.5	42.5	6.6	8	42	52	64	15	32.5	24.5



Head Side Flange / (N)CDQ2G

Bore size (mm)	Stroke range (mm)	A		L	CQ2 L1	NCQ2 L1
		5st	10st			
12	5, 10	46.4	51.4	3.5	14	11.5
16	5, 10	44.5	49.5	3.5	15.5	11.5
20	5, 10	49	54	4.5	18.5	12.5
25	5, 10	50.5	55.5	5	22.5	14.5

*Dimensions for the head flange cylinder are the same as rod flange except A, L, L1.



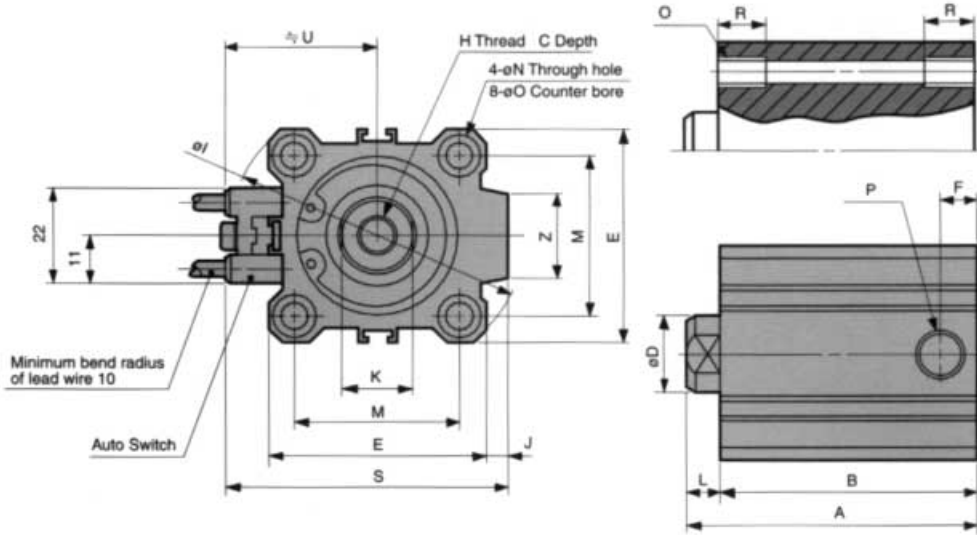
Double Clevis / (N)CDQ2D

Bore size	Stroke	A		B		CQ2 CD	NCQ2 Inch CD	CL		CT	CU	CW	CX	CZ
		5st	10st	5st	10st									
12	5, 10	56.5	61.5	33	38	5	3/16	50.5	55.5	4	7	14	5	10
16	5, 10	60	65	35.5	40.5	5	3/16	54	59	4	10	15	6.5	12
20	5, 10	68	73	36.5	41.5	8	5/16	59	64	5	12	18	8	16
25	5, 10	72.5	77.5	37.5	42.5	10	3/8	62.5	67.5	5	14	20	10	20

Bore size	Stroke	L	CQ2 L1	NCQ2 L1	CQ2 N	NCQ2 Inch N	RR
12	5, 10	3.5	14	11.5	M4x0.7	8-32	6
16	5, 10	3.5	15.5	11.5	M4x0.7	8-32	6
20	5, 10	4.5	18.5	12.5	M6x1.0	1/4-20	9
25	5, 10	5	22.5	14.5	M6x1.0	1/4-20	10

* Rod end nut and accessories detail: see p. 6.
 * Clevis pin and snap rings are included in the package.

Bore Size $\phi 32 \sim \phi 50$ Spring Return



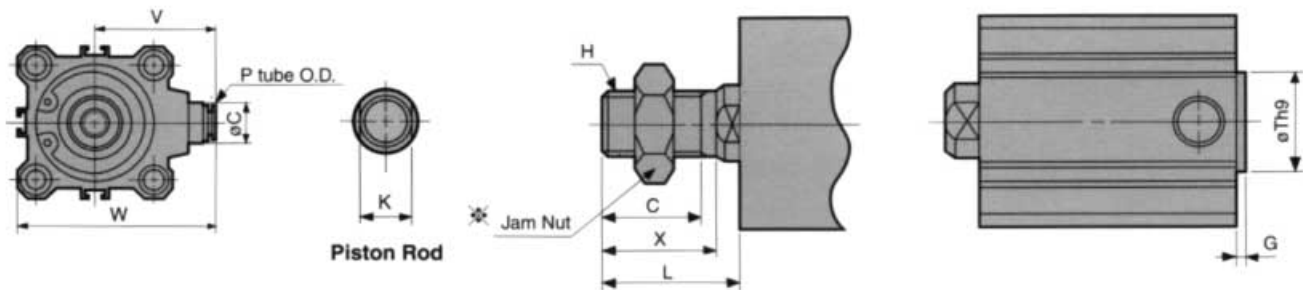
(N)CDQ2A
Both Ends Tapped

Bore size	CQ2 O	NCQ2 inch O	R
32	M6x1.0	1/4 20 UNC	10
40	M6x1.0	1/4 - 20 UNC	10
50	M8x1.25	5/16 - 18 UNC	14

Standard / Spring Return (S) The above Auto Switch mounting is used for D-A73 and D-A80. The Auto Switch set position and mounting height: See p.51

Bore size	Stroke	A			B			CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 Inch H	I	J	K	L
		5st	10st	20st	5st	10st	20st											
32	5, 10	45	50	-	38	43	-	13	13.3	16	45	7.5	M8x1.25	5/16-24UNF	60	4.5	14	7
40	5, 10	51.5	56.5	-	44.5	49.5	-	13	18.3	16	52	8	M8x1.25	3/8-24UNF	69	5	14	7
50	10, 20	-	58.5	68.5	-	50.5	60.5	15	17.6	20	64	10.5	M10x1.5	1/2-20UNF	86	7	17	8

Bore size	Stroke	M	N	O	P	Orifice	S	U	Z
32	5, 10	34	5.5	9depth7	1/8	1.7	58.5	31.5	14
40	5, 10	40	5.5	9depth7	1/8	2	66	35	14
50	10, 20	50	6.6	11depth8	1/4	2.2	80	41	19



One Touch Fittings mm

Bore size	C	P	V	W
32	13	6	38	60.5
40	13	6	42	68
50	16	8	50	82

NCDQ2 Male Rod End mm

Bore size	X	H Inch	L	K
32	12.7	5/16-24UNF	19.7	14
40	16	3/8-24UNF	23	14
50	19.5	1/2-20UNF	27.5	17

CDQ2 Male Rod End mm

Bore size	C	X	H	L	K
32	20.5	23.5	M14x1.5	28.5	14
40	20.5	23.5	M14x1.5	28.5	14
50	26	28.5	M18x1.5	33.5	17

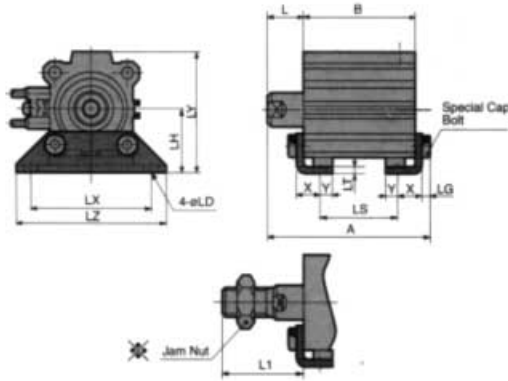
End Boss (CQ2) mm

Bore size	G	Th9
32	2	21 ± 0.052
40	2	28 ± 0.052
50	2	35 ± 0.062

*Rod end nut and accessories are detailed on p. 6.
"C" dim. not applicable

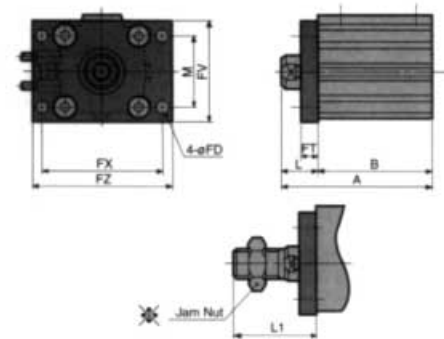
Note) With rod end inlets an option.
(Add - XC36 at the end of part no.).

Compact Cylinder: Standard / Single Acting Single Rod (S) With Switches



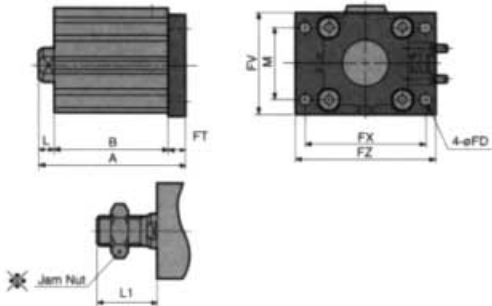
Foot / (N)CDQ2L

Bore size	Stroke	A						B			mm					
		5st	10st	20st	5st	10st	20st	L	CQ2 L1	NCQ2 L1	LD	LG	LH	LS		
32	5, 10	62.2	67.2	-	38	43	-	17	38.5	29.7	6.6	4	30	22	27	-
40	5, 10	68.7	73.7	-	44.5	49.5	-	17	38.5	33	6.6	4	33	28.5	33.5	-
50	10, 20	-	76.7	86.7	-	50.5	60.5	18	43.5	37.5	9	5	39	-	27.5	37.5
Bore size	Stroke	LX	LY	LZ	X	Y										
32	5, 10	57	57	71	11.2	5.8										
40	5, 10	64	64	78	11.2	7										
50	10, 20	79	78	95	14.7	8										



Rod Flange / (N)CDQ2F

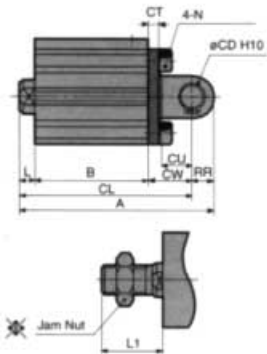
Bore size	Stroke	A						B			mm					
		5st	10st	20st	5st	10st	20st	FD	FT	FV	FX	FZ	L	CQ2 L1	NCQ2 L1	M
32	5, 10	55	60	-	38	43	-	5.5	8	48	56	65	17	38.5	29.7	34
40	5, 10	61.5	66.5	-	44.5	49.5	-	5.5	8	54	62	72	17	38.5	33	40
50	10, 20	-	68.5	78.5	-	50.5	60.5	6.6	9	67	76	89	18	43.5	37.5	50



Head Flange / (N)CDQ2G

Bore size	Stroke	A			L	mm	
		5st	10st	20st		CQ2 L1	NCQ2 L1
32	5, 10	53	58	-	7	28.5	19.7
40	5, 10	59.5	64.5	-	7	28.5	23
50	10, 20	-	67.5	77.5	8	33.5	27.5

* Dimensions for the head flange cylinder are the same as rod flange except A, L, L1.

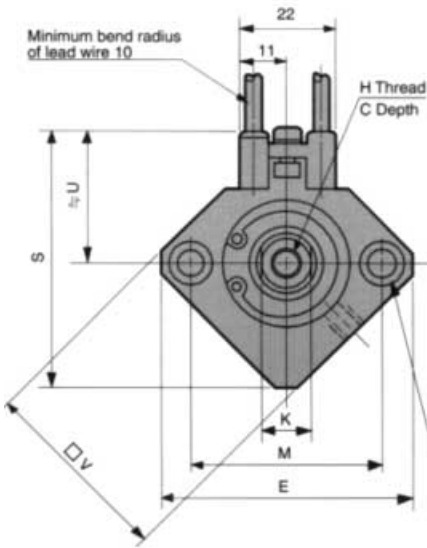


Double Clevis / (N)CDQ2D

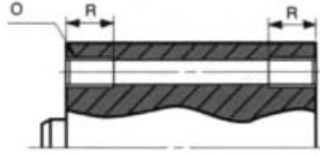
Bore size	Stroke	A			B			CQ2 CD	CQ2 Inch CD	CL			CT	CU	CW
		5st	10st	20st	5st	10st	20st			5st	10st	20st			
32	5, 10	75	80	-	38	43	-	10	3/8	65	70	-	5	14	20
40	5, 10	83.5	88.5	-	44.5	49.5	-	10	3/8	73.5	78.5	-	6	14	22
50	10, 20	-	100.5	110.5	-	50.5	60.5	14	1/2	-	86.5	96.5	7	20	28
Bore size	Stroke	CX	CZ	L	CQ2 L1	NCQ2 L1	CQ2 N	NCQ2 Inch N	RR						
32	5, 10	18	36	7	28.5	19.7	M6x1.0	1/4-20	10						
40	5, 10	18	36	7	28.5	23	M6x1.0	1/4-20	10						
50	10, 20	22	44	8	33.5	27.5	M8x1.25	5/16-18	14						

* Rod end nut and accessories detail: see p. 6.
 ** Clevis pin and snap ring are included in the package.

Through Hole / (N)CDQ2B

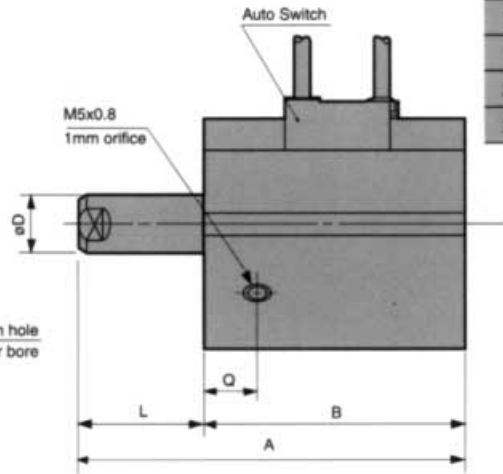


Both ends tapped



(N)CDQ2A
Both Ends Tapped

Bore size	CQ2 O	NCQ2 inch O	R
12	M4x0.7	8-32 UNC	7
16	M4x0.7	8-32 UNC	7
20	M6x1.0	1/4 - 20 UNC	10
25	M6x1.0	1/4 - 20 UNC	10



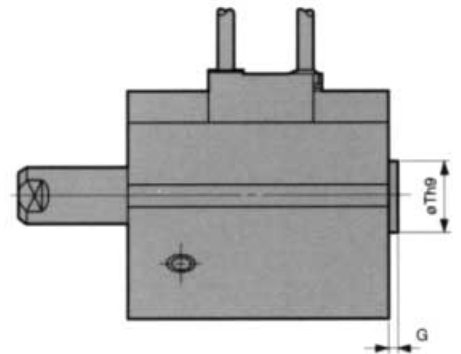
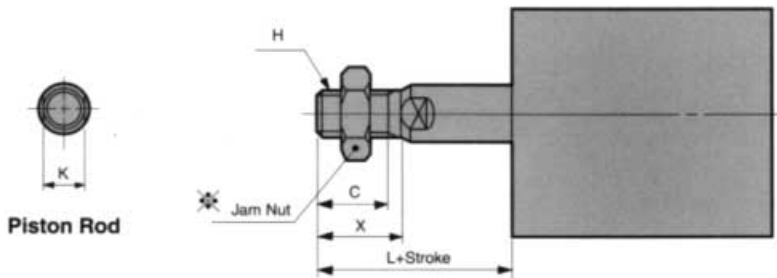
The above Autoswitch mounting is used for D-A73 and D-A80

Autoswitch set position and mounting height: See p. 51

Standard / Spring Extend (T)

Bore size	Stroke	A		B		CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 inch H	K	L		M
		5st	10st	5st	10st								5st	10st	
12	5, 10	45.9	55.9	37.4	42.4	6	5.4	6	32	M3x0.5	#8-32	5	8.5	13.5	22
16	5, 10	44	54	35.5	40.5	8	5.4	8	38	M4x0.7	#8-32	6	8.5	13.5	28
20	5, 10	46	56	36.5	41.5	7	7	10	47	M5x0.8	#10-32	8	9.5	14.5	36
25	5, 10	47.5	57.5	37.5	42.5	12	10	12	52	M6x1.0	1/4-28 UNF	10	10	15	40

Bore size	Stroke	N	O	Q	S	U	V
12	5, 10	3.5	6.5 depth 3.5	11	35.5	19.5	25
16	5, 10	3.5	6.5 depth 3.5	10	41.5	22.5	29
20	5, 10	5.5	9 depth 7	10.5	48	24.5	36
25	5, 10	5.5	9 depth 7	11	53.5	27.5	40



NCQ2 Male Rod End mm

Bore size	X	H Inch	L	K
12	8	#8-32UNC	11.5	5
16	8	#8-32UNC	11.5	6
20	8	#10-32UNF	12.5	8
25	9.5	1/4-28UNF	14.5	10

CQ2 Male Rod End mm

Bore size	C	X	H	L	K
12	9	10.5	M5x0.8	14	5
16	10	12	M6x1.0	15.5	6
20	12	14	M8x1.25	18.5	8
25	15	17.5	M10x1.25	22.5	10

End Boss (CQ2)

Bore size	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 $^{0}_{-0.043}$

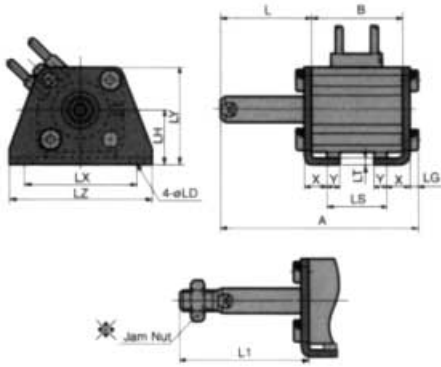
"C" dim. not applicable

☒ For further info on Jam Nut and accessories detail: see p. 6.

Note 1) End Boss for Rod End is offered as an option.
(Add - XC36 at the end of part no.)

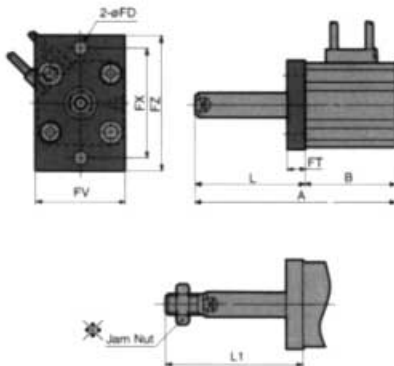
Compact Cylinder: Standard / Single Acting Single Rod (T) With Switches

Foot / (N)CDQ2L



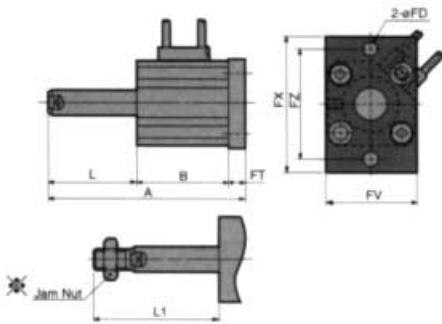
Bore size	Stroke	A		B		L		CQ2 L1		NCQ2 L1		LD	LG	LH	LS	
		5st	10st	5st	10st	5st	10st	5st	10st	5st	10st				5st	10st
12	5, 10	60.7	70.7	37.4	42.4	18.5	23.5	29	34	26.5	31.5	4.5	2.8	17	21	26
16	5, 10	58.8	68.8	35.5	40.5	18.5	23.5	30.5	35.5	26.5	31.5	4.5	2.8	19	23.5	28.5
20	5, 10	63.2	73.2	36.5	41.5	19.5	24.5	33.5	38.5	27.5	32.5	6.6	4	24	24.5	29.5
25	5, 10	64.7	74.7	37.5	42.5	20	25	37.5	42.5	29.5	34.5	6.6	4	26	22.5	27.5

Bore size	Stroke	LT	LX	LY	LZ	X	Y
12	5, 10	2	34	29.5	44	8	4.5
16	5, 10	2	38	33.5	48	8	5
20	5, 10	3.2	48	42	62	9.2	5.8
25	5, 10	3.2	52	46	66	10.7	5.8



Rod Flange / (N)CDQ2F

Bore size	Stroke	A		B		FD	FT	FV	FX	FZ	L		CQ2 L1		NCQ2 L1	
		5st	10st	5st	10st						5st	10st	5st	10st	5st	10st
12	5, 10	55.9	65.9	37.4	42.4	4.5	5.5	25	45	55	18.5	23.5	29	34	26.5	31.5
16	5, 10	54	64	35.5	40.5	4.5	5.5	30	45	55	18.5	23.5	30.5	35.5	26.5	31.5
20	5, 10	56	66	36.5	41.5	6.6	8	39	48	60	19.5	24.5	33.5	38.5	27.5	32.5
25	5, 10	57.5	67.5	37.5	42.5	6.6	8	42	52	64	20	25	37.5	42.5	29.5	34.5

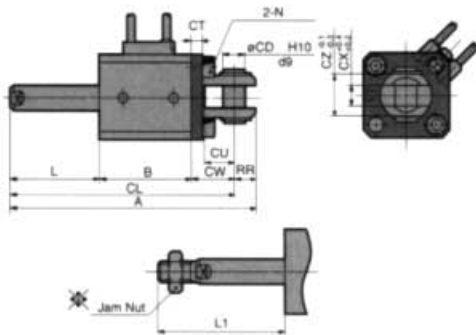


Head Flange / (N)CDQ2G

Bore size	Stroke	A		L		CQ2 L1		NCQ2 L1	
		5st	10st	5st	10st	5st	10st	5st	10st
12	5, 10	51.4	61.4	8.5	13.5	19	24	16.5	21.5
16	5, 10	49.5	59.5	8.5	13.5	20.5	25.5	16.5	21.5
20	5, 10	54	64	9.5	14.5	23.5	28.5	17.5	22.5
25	5, 10	55.5	65.5	10	15	27.5	32.5	19.5	24.5

*Dimensions for the head flange cylinder are the same as rod flange except A, L, L1.

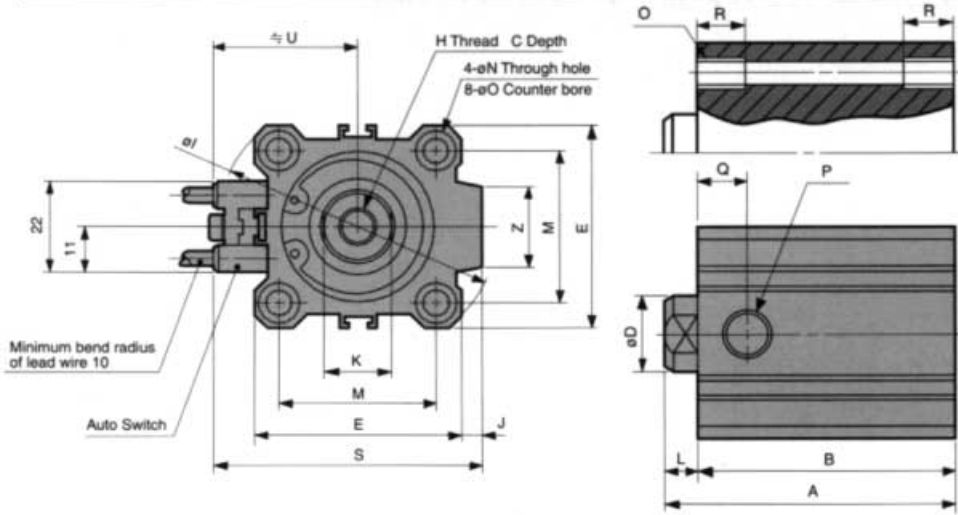
Double Clevis / (N)CDQ2D



Bore size	Stroke	A		B		CQ2 CD	NCQ2 Inch CD	CL		CT	CU	CW	CX	CZ	L	
		5st	10st	5st	10st			5st	10st						5st	10st
12	5, 10	65.9	75.9	37.4	42.4	5	3/16	59.9	69.9	4	7	14	5	10	8.5	13.5
16	5, 10	65	75	35.5	40.5	5	3/16	59	69	4	10	15	6.5	12	8.5	13.5
20	5, 10	73	83	36.5	41.5	8	5/16	64	74	5	12	18	8	16	9.5	14.5
25	5, 10	77.5	87.5	37.5	42.5	10	3/8	67.5	77.5	5	14	20	10	20	10	15

Bore size	Stroke	CQ2 L1	NCQ2 L1	CQ2 N	NCQ2 Inch N	RR
12	5, 10	19	24	M4x0.7	8-32	6
16	5, 10	20.5	25.5	M4x0.7	8-32	6
20	5, 10	23.5	28.5	M6x1.0	1/4-20	9
25	5, 10	27.5	32.5	M6x1.0	1/4-20	10

* Rod end nut and accessories detail: see p. 6.
 * Clevis pin and snap rings are included in the package.



(N)CDQ2A
Both Ends Tapped

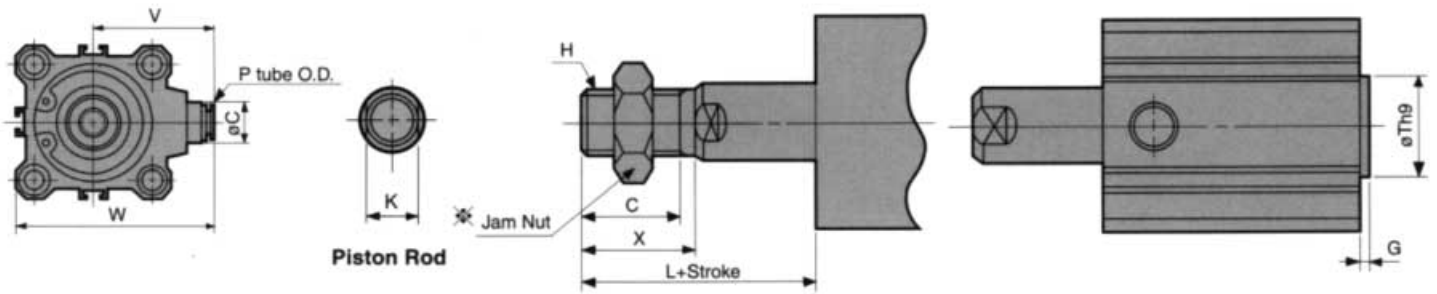
Bore size	CQ2 O	NCQ2 inch O	R
32	M6x1.0	1/4 20 UNC	10
40	M6x1.0	1/4 - 20 UNC	10
50	M8x1.25	5/16 - 18 UNC	14

Standard / Spring Extend (T)

The above Auto Switch mounting is used for D-A73 and D-A80.
The Auto Switch set position and mounting height: See p.51

Bore size	Stroke	A			B			CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 Inch H	I	J	K	L		
		5st	10st	20st	5st	10st	20st										5st	10st	20st
32	5, 10	50	60	-	38	43	-	13	13.3	16	45	M8x1.25	5/16-24UNF	60	4.5	14	12	17	-
40	5, 10	56.5	66.5	-	44.5	49.5	-	13	18.3	16	52	M8x1.25	3/8-24UNF	69	5	14	12	17	-
50	10, 20	-	68.5	88.5	-	50.5	60.5	15	17.5	20	64	M10x1.5	1/2-20UNF	86	7	17	-	18	28

Bore size	Stroke	M	N	O	P	Orifice	Q	S	U	Z
32	5, 10	34	5.5	9depth7	1/8	1.7	10.5	58.5	31.5	14
40	5, 10	40	5.5	9depth7	1/8	2	11	66	35	14
50	10, 20	50	6.6	11depth8	1/4	2.2	10.5	80	41	19



One Touch Fittings mm

Bore size	C	P	V	W
32	13	6	38	60.5
40	13	6	42	68
50	16	8	50	82

NCDQ2 Male Rod End mm

Bore size	X	H	L	K
32	12.7	5/16-24UNF	19.7	14
40	16	3/8-24UNF	23	14
50	19.5	1/2-20UNF	27.5	17

CDQ2 Male Rod End mm

Bore size	C	X	H	L	K
32	20.5	23.5	M14x1.5	28.5	14
40	20.5	23.5	M14x1.5	28.5	14
50	26	28.5	M18x1.5	33.5	17

End Boss (CQ2) mm

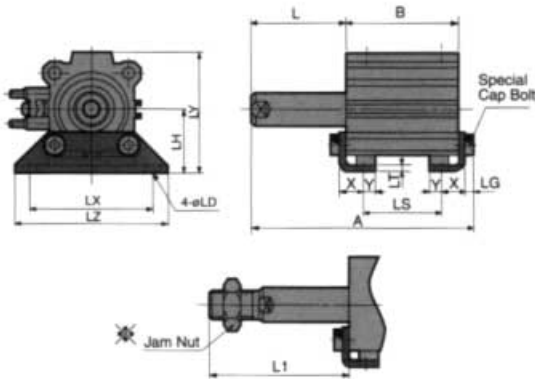
Bore size	G	Th9
32	2	21 $\begin{smallmatrix} 0 \\ -0.052 \end{smallmatrix}$
40	2	28 $\begin{smallmatrix} 0 \\ -0.052 \end{smallmatrix}$
50	2	35 $\begin{smallmatrix} 0 \\ -0.062 \end{smallmatrix}$

"C" dim. not applicable

* Rod end nut and accessories are detailed on p. 6.

Note) With End Boss is offered as an option.
(Add - XC36 at the end of part no.)

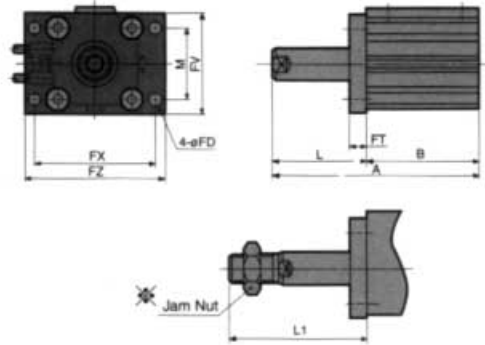
Compact Cylinder: Standard / Single Acting Single Rod (T) With Switches



Foot / (N)CDQ2L

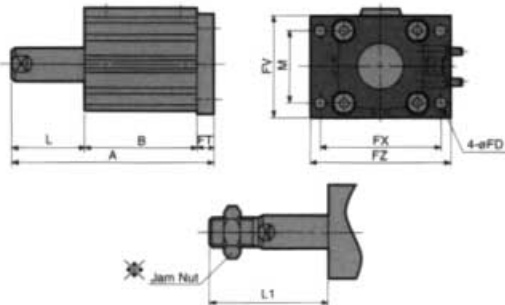
Bore size	Stroke	A			B			L			CQ2 L1			NCQ2 L1			mm
		5st	10st	20st	5st	10st	20st	5st	10st	20st	5st	10st	20st	5st	10st	20st	
32	5, 10	67.2	77.2	-	38	43	-	22	27	-	43.5	48.5	-	34.7	39.7	-	
40	5, 10	73.7	83.7	-	44.5	49.5	-	22	27	-	43.5	48.5	-	38	43	-	
50	10, 20	-	86.7	106.7	-	50.5	60.5	-	28	38	-	53.5	63.5	-	47.5	57.5	
Bore size	Stroke	LD	LG	LH	LS			LT	LX	LY	LZ	X	Y				
					5st	10st	20st										
32	5, 10	6.6	4	30	22	27	-	3.2	57	57	71	11.2	5.8				
40	5, 10	6.6	4	33	28.5	33.5	-	3.2	64	64	78	11.2	7				
50	10, 20	9	5	39	-	27.5	37.5	3.2	79	78	95	14.7	8				

Rod Flange / (N)CDQ2F



Bore size	Stroke	A			B			FD	FT	FV	FX	FZ	L			mm
		5st	10st	20st	5st	10st	20st						5st	10st	20st	
32	5, 10	60	70	-	38	43	-	5.5	8	48	56	65	22	27	-	
40	5, 10	66.5	76.5	-	44.5	49.5	-	5.5	8	54	62	72	22	27	-	
50	10, 20	-	78.5	98.5	-	50.5	60.5	6.6	9	67	76	89	-	28	38	
Bore size	Stroke	CQ2 L1			NCQ2 L1			M								
		5st	10st	20st	5st	10st	20st									
32	5, 10	43.5	48.5	-	34.7	39.7	-	34								
40	5, 10	43.5	48.5	-	38	43	-	40								
50	10, 20	-	53.5	63.5	-	47.5	57.5	50								

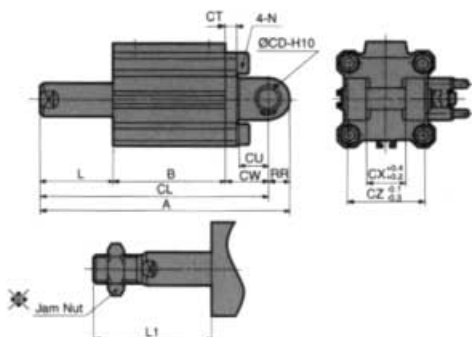
Head Flange / (N)CDQ2G



Bore size	Stroke	A			L			CQ2 L1			NCQ2 L1			mm
		5st	10st	20st	5st	10st	20st	5st	10st	20st	5st	10st	20st	
32	5, 10	58	68	-	12	17	-	33.5	38.5	-	24.7	29.7	-	
40	5, 10	64.5	74.5	-	12	17	-	33.5	38.5	-	28	33	-	
50	10, 20	-	77.5	97.5	-	18	28	-	43.5	53.5	-	37.5	47.5	

* Dimensions for the head flange cylinder are the same as rod flange except A, L, L1.

Double Clevis / (N)CDQ2D



Bore size	Stroke	A			B			CQ2/NCQ2		CL			CT	CU	CW	CX	mm
		5st	10st	20st	5st	10st	20st	CD	CD	5st	10st	20st					
32	5, 10	80	90	-	38	43	-	10	3/8	70	80	-	5	14	18	20	
40	5, 10	88.5	98.5	-	44.5	49.5	-	10	3/8	78.5	88.5	116.5	6	14	18	22	
50	10, 20	-	110.5	130.5	-	50.5	60.5	14	1/2	-	96.5	-	7	20	22	28	
Bore size	Stroke	CZ	L			CQ2 L1			NCQ2 L1			CQ2 N	NCQ2 N	RR			
			5st	10st	20st	5st	10st	20st	5st	10st	20st						
32	5, 10	36	12	17	-	33.5	38.5	-	24.7	29.7	-	M6x1.0	1/4-20	10			
40	5, 10	36	12	17	-	33.5	38.5	-	28	33	-	M6x1.0	1/4-20	10			
50	10, 20	44	-	18	28	-	43.5	53.5	-	37.5	47.5	M8x1.25	5/16-18	14			

* Rod end nut and accessories detail: see p. 6.

* * Clevis pin and snap ring are included in the package.



Compact Cylinder: Standard/ Double Acting Single Rod Non-Rotating NCQ2K / CQ2K Series

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

How To Order

W/ Auto Switch NCQ2K B 20 F 30 D M

W/ Auto Switch NCDQ2K B 20 F 30 D M A73 S

PT, metric
N NPT, inch

W/ Auto Switch
(built-in magnet)

Non-Rotating Rod

Mounting

B	Through hole	ø12~ø63
A	Both ends tapped	
L	Foot	
F	Rod side flange	ø40, ø50 ø63
G	Head side flange	
D	Double Clevis	

Bore Size

12	12mm (1/2" Nom.)	32	32mm (1-1/4" Nom.)
16	16mm (5/8" Nom.)	40	40mm (1-1/2" Nom.)
20	20mm (3/4" Nom.)	50	50mm (2" Nom.)
25	25mm (1" Nom.)	63	63mm (2-1/2" Nom.)

Note 1) In case of ø12 w/ switch, be sure to indicate w/ cushion (C) to body option.
Example: CDQ2KB12-30DC

Piping

-	Threaded ports
F	See note 2) Built-in one-touch fitting

Note 2) Available built-in one touch fitting bore size: ø32~ø63.
Not applicable for Air-Hydro, CQ2.

Cylinder Stroke (mm)
Please refer to p.61 for standard strokes

Action

D	Double
----------	--------

Mounting Kits

Bore Size (mm)	Note 4) Foot	Flange	Note 6) Double clevis
40	(N)CQ-L040	(N)CQ-F040	(N)CQ-D040
50	(N)CQ-L050	(N)CQ-F050	(N)CQ-D050
63	(N)CQ-L063	(N)CQ-F063	(N)CQ-D063

Note 4) If foot bracket is required for a cylinder, order a pair
Note 5) Each bracket comes with the following accessories:
Foot / Flange; Body mounting bolt
Double clevis; Clevis pin, Axis C style snap ring,
Body mounting bolt
Note 6) The double-clevis is packaged with clevis pin and snap ring.

Preferred
Option
Program

Auto Switch

-	2 pcs.
S	1 pcs.
n	n pcs.

Auto Switch Capability

-	Without Auto Switch
---	---------------------

Auto Switch Specifications

Type	Autoswitch		Indicator light	Wire (Output type)	Load Voltage		
	Perpendicular entry	In-line entry			DC	AC	
Reed switch	—	A76H	Yes	3 Wire	—	5V	
	A72	A72H			—	200V	
	A73	A73H		No	2 Wire	12V	100V
	A80	A80H				5V, 12V	100V
	A73C	—	No	24V	12V	—	
	A80C	—	No		5V, 12V	24V	
	A79W	—	Yes		—	—	
	Solid State Switch	F7NV	F79	Yes	3 Wire NPN	24V	5V, 12V
F7PV		F7P	3 Wire PNP				
F7BV		J79	2 Wire		12V		
J79C		—					
F7NWV		F79W	3 Wire NPN		24V	5V, 12V	
—		F7PW	3 Wire PNP				
F7BWV		J79W	2 Wire		12V		
—		F7BAL					
—		F7NTL	3 Wire NPN		24V	5V, 12V	
—		F79F					
—		F7LF	4 Wire NPN		—	—	

• Load length 0.5m.....Std. Connector A80C 5m.....Z Connector A80CZ
3m.....L A80CL No lead.....N A80CN

Body Option

-	Std. (Female thread)
C	W/ rubber cushion(only ø12 w/ switch)
M	Male thread
F	Head end boss

* Body option combination is available as FM.



Standard Non-Rotating /
Double Acting Single Rod

(N)CQ2K Series

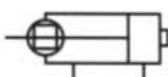
Model



Double acting/
Single rod non-rotating



Head end boss



Precautions

- ❶ Flush away dust and cutting particles thoroughly in the porting tube to prevent the contamination of cylinder inside.
- ❷ • The Piston rod load should always be aligned with the cylinder axis.
 - Cylinder installation requires accurate alignment.
 - When using cylinder as a stopper, be sure to use a guide to avoid a direct impact from piston rod size loads.
- ❸ Prevent damage to the piston rod. A damaged piston rod will lead to damage of the rod seal and result in leakage.
- ❹ Use C type snap ring pliers when removing an orifice snap ring during disassembly.
- ❺ When using a non-rotating type cylinder,
 - Avoid an impact caused by torque from piston rod rotation or the rotation guide could be deformed and fail to maintain rotation accuracy.

The allowable range of rotation torque is shown in the table below as a guideline.

Allowable Rotation Torque	12	16	20	25	32	40	50	63
kgf·cm or less	0.4	1.5	2.0	2.5	4.5	4.5	4.5	4.5

- The orientation of piston rod load must be parallel to a cylinder axial.

When piping

- When fixing a workpiece to the piston rod end, be sure the piston rod is fully retracted.

Bore Size		12	16	20	25	32	40	50	63	
Air-Pressure Type	Mounting	Through hole (std)	●	●	●	●	●	●	●	
		Both ends tapped	-	-	-	-	-	●	●	●
	Built-In Magnet		●	●	●	●	●	●	●	
	Piping Method	Threaded PT or NPT	M5x 0.8	M5x 0.8	M5x 0.8	M5x 0.8	Note 1 M5x 0.8 1/8	1/8	1/4	1/4
		Built-In One Touch Fitting	-	-	-	-	Note 2 6/4	6/4	8/6	8/6
	Rod End Male Thread		●	●	●	●	●	●	●	●
W/Head End Boss		●	●	●	●	●	●	●	●	

Note 1) In cases without Auto Switch, only 5 stroke uses M5x0.8

Note 2) In case of built-in fitting, the external tube dimension for ø32, 5 stroke and 10 stroke are the same

Standard Specifications

Model	Air Pressure (Non-Lube)
Media	Air
Proof Pressure	217psi {15.3kgf/cm ² }
Max. Operating Pressure	145psi {10.2kgf/cm ² }
Ambient and Media temp.	15~160°F{-10°C~+70°C} (At freezing temp. air must be dry)
Rubber cushion	Note 3 - None
Rod end thread	Female Thread (std.)
Rod end thread tolerance	JIS Class II
Stroke Length tolerance	+1.0 0 mm
Mounting	Through hole (std.)
Piston Speed	2~20in/s (50~500mm/s)

Note 3) ø12 w/ switches must have rubber cushion

Min. Operating Pressure

Bore size	12	16	20	25	32	40	50	63
Air pressure type (non-lube)	10.15	10.15	7.25	7.25	7.25	7.25	7.25	7.25

Non-Rotating Tolerance

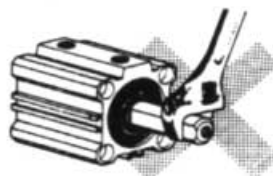
Bore size	12	16	20	25	32	40	50	63
Accuracy	±2°	±1°			±0.8°			

Standard Stroke

Air pressure type (non-lube)		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 80,100	10,15,20,25,30,35,40,45,50,75,100	

• Available intermediate stroke. Intermediate strokes, in 1mm increments are available by installing a spacer into the STD. stroke cylinder. Contact an SMC representative for ø40-ø100 intermediate stroke cylinder with bumper. Example] (N)CQ2KB50-57D can be made by installing a 18 mm (w)spacer into the std. cylinder (N)CQ2KB50-75D. 5mm Incremental Stroke (spacers) done as standard.

For theoretical output force see page 4.



Compact Cylinder: Standard / Double Acting Single Rod Non-Rotating

Weight / Double Acting: Single Rod Non-Rotating lbs.

Bore size (mm)	Cylinder Stroke (mm)											
	5	10	15	20	25	30	35	40	45	50	75	100
12	0.13	0.15	0.16	0.18	0.19	0.21	-	-	-	-	-	-
16	0.13	0.15	0.17	0.19	0.21	0.23	-	-	-	-	-	-
20	0.23	0.26	0.29	0.32	0.35	0.38	0.41	0.44	0.47	0.50	-	-
25	0.30	0.34	0.37	0.40	0.43	0.47	0.50	0.53	0.57	0.60	-	-
32	0.45	0.49	0.54	0.58	0.62	0.67	0.71	0.76	0.80	0.84	0.89	0.93
40	0.47	0.52	0.58	0.63	0.68	0.73	0.78	0.83	0.88	0.93	0.98	1.03
50	-	0.84	0.92	1.00	1.08	1.17	1.25	1.33	1.41	1.49	1.57	1.66
60	-	1.21	1.31	1.40	1.49	1.58	1.68	1.77	1.86	1.95	2.05	2.14

How to obtain the total weight (lbs)

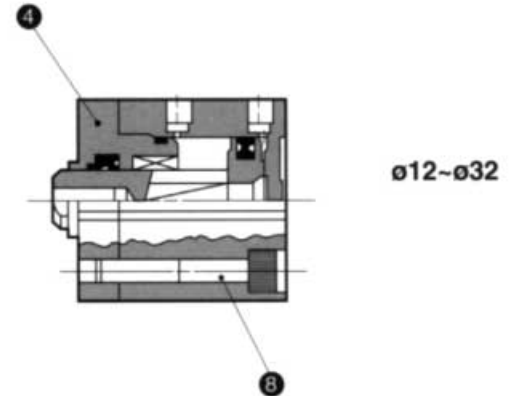
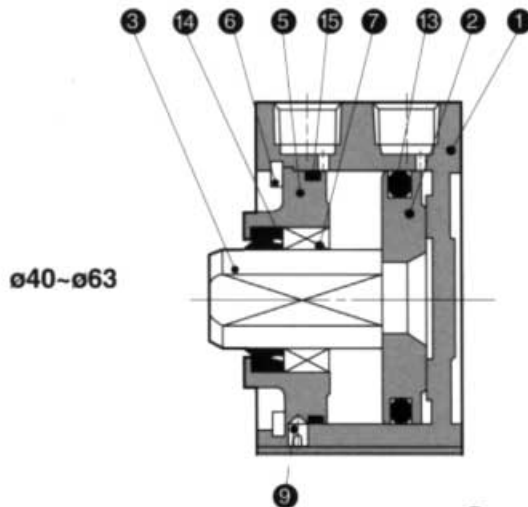
(N)CQ2KD40-20DM

Std wt.:	(N)CQ2KB40-20D	0.63
Wt. adder:	Both ends tapped	0.013
	Male rod end	0.097
	Double rear clevis	0.432
	Total	1.172

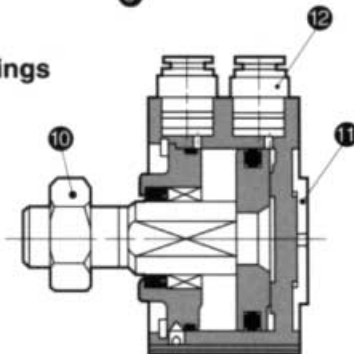
Weight Adder

Bore size	12	16	20	25	32	40	50	63
Both ends tapped	-	-	-	-	-	0.013	0.013	0.042
Rod end M thread	Thread	0.003	0.007	0.013	0.026	0.057	0.060	0.117
	Nut	0.002	0.004	0.009	0.018	0.037	0.037	0.071
Head end boss	0.002	0.003	0.004	0.007	0.011	0.015	0.029	0.055
W/ one touch fitting	-	-	-	-	0.026	0.026	0.046	0.046
Foot mounting	-	-	-	-	-	0.340	0.534	0.712
Rod side flange	-	-	-	-	-	0.470	0.820	1.230
Head side flange	-	-	-	-	-	0.437	0.767	1.177
Double rear clevis	-	-	-	-	-	0.432	0.867	1.222

Construction / Parts List



One Touch Fittings Male Rod End



Parts List

No.	Description	Material	
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromate
3	Piston rod	Stainless steel	Bore ø12-ø25
		Carbon steel	Bore ø32-ø63, hard chrome plated
4	Collar	Brass	Bore ø12 Black anodized
		Aluminum alloy	Bore ø16-ø32, Black paint
5	Collar	Aluminum alloy	Bore ø40-ø63, Black anodized
6	Retaining ring	Carbon tool steel	Phosphate coating
7	Bushing	Sintered alloy	Bore ø16-ø63, oil impregnated
8	Bolt	Steel alloy	Bore ø12-ø32, Nickel plated
9	Set screw	Steel alloy	Bore ø40-ø63, black coating
10	Rod end nut	Carbon steel	Nickel plated
11	End boss	Aluminum alloy	Hard anodized
12	One touch fittings	-	Bore ø32-ø63

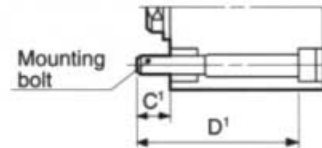
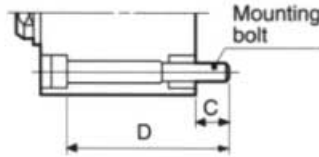
Seals List

No.	Description	Material	Parts No.							
			ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63
13	Piston seal	NBR	NLP-12-7L	NLP-16A	NLP-20A	NLP-25A	NLP-32A	NLP-40A	NLP-50A	NLP-63B
14	Rod seal	NBR	SS-6x5.2Q	SS-8x6K2Q	SS-10x8Q	SS-12	SS-16S	SS-16S	SS-20S	SS-20S
15	Gasket	NBR	SO-013-6	C14	C18	C22	C29	C36	C46	C60

Note: Seal kit part numbers refer to p8.

Mounting Bolt For (N)CQ2K

Special long mounting bolt for through hole mounting is available as an option.
 How to Order:
 Specify the required bolts



Example)

Bolt M3x35L $\phi 12-\phi 32$ 2pc.
 $\phi 40-\phi 63$ 4pc.

Thread	Pitch
M3	0.5
M5	0.8
M6	1.0
M8	1.25
M10	1.5

Model	C	D	Mounting bolt	C'	D'	Mounting bolt
(N)CQ2KB12-5D		30	M3x30L		30	M3x30L
-10D	6.5	35	x35L	6.5	35	x35L
-15D		40	x40L		40	x40L
-20D		45	x45L		45	x45L
-25D		50	x50L		50	x50L
-30D		55	x55L		55	x55L
(N)CQ2KB16-5D		30	x30L		30	x30L
-10D	5	35	x35L	5	35	x35L
-15D		40	x40L		40	x40L
-20D		45	x45L		45	x45L
-25D		50	x50L		50	x50L
-30D		55	x55L		55	x55L
(N)CQ2KB20-5D		35	M5x35L		35	M5x35L
-10D	8	40	x40L	9.5	40	x40L
-15D		45	x45L		45	x45L
-20D		50	x50L		50	x50L
-25D		55	x55L		55	x55L
-30D		60	x60L		60	x60L
-35D		65	x65L		65	x65L
-40D		70	x70L		70	x70L
-45D		75	x75L		75	x75L
-50D		80	x80L		80	x80L
(N)CQ2KB25-5D			40		M5x40L	
-10D	10	45	x45L	6.5	40	x40L
-15D		50	x50L		45	x45L
-20D		55	x55L		50	x50L
-25D		60	x60L		55	x55L
-30D		65	x65L		60	x60L
-35D		70	x70L		65	x65L
-40D		75	x75L		70	x70L
-45D		80	x80L		75	x75L
-50D		85	x85L		80	x80L
(N)CQ2KB32-5D			40		M5x40L	
-10D	8.5	45	x45L	10	45	x45L
-15D		50	x50L		50	x50L
-20D		55	x55L		55	x55L
-25D		60	x60L		60	x60L
-30D		65	x65L		65	x65L
-35D		70	x70L		70	x70L
-40D		75	x75L		75	x75L
-45D		80	x80L		80	x80L
-50D		85	x85L		85	x85L
-75D		120	x120L		120	x120L
-100D	145	x145L	145	x145L		

Model	C	D	Mounting bolt	C'	D'	Mounting bolt
(N)CQ2KB40-5D		35	M5x35L		35	M5x35L
-10D	7.5	40	x40L	7.5	40	x40L
-15D		45	x45L		45	x45L
-20D		50	x50L		50	x50L
-25D		55	x55L		55	x55L
-30D		60	x60L		60	x60L
-35D		65	x65L		65	x65L
-40D		70	x70L		70	x70L
-45D		75	x75L		75	x75L
-50D		80	x80L		80	x80L
-75D		115	x115L		115	x115L
-100D	140	x140L	140	x140L		
(N)CQ2KB50-10D		45	M6x45L		45	M6x45L
-15D	12.5	50	x50L	12.5	50	x50L
-20D		55	x55L		55	x55L
-25D		60	x60L		60	x60L
-30D		65	x65L		65	x65L
-35D		70	x70L		70	x70L
-40D		75	x75L		75	x75L
-45D		80	x80L		80	x80L
-50D		85	x85L		85	x85L
-75D		120	x125L		120	x120L
-100D		145	x140L		145	x145L
(N)CQ2KB63-10D		50	M8x50L		50	M8x50L
-15D	14.5	55	x55L	14.5	55	x55L
-20D		60	x60L		60	x60L
-25D		65	x65L		65	x65L
-30D		70	x70L		70	x70L
-35D		75	x75L		75	x75L
-40D		80	x80L		80	x80L
-45D		85	x85L		85	x85L
-50D		90	x90L		90	x90L
-75D		125	x125L		125	x125L
-100D		150	x150L		150	x150L

Copper Free Series Air Cylinder

20 —CQ2KB Bore Size Stroke D (M)

• Copper Free Series

• $\phi 16, \phi 20, \phi 25, \phi 32, \phi 40, \phi 50, \phi 63$

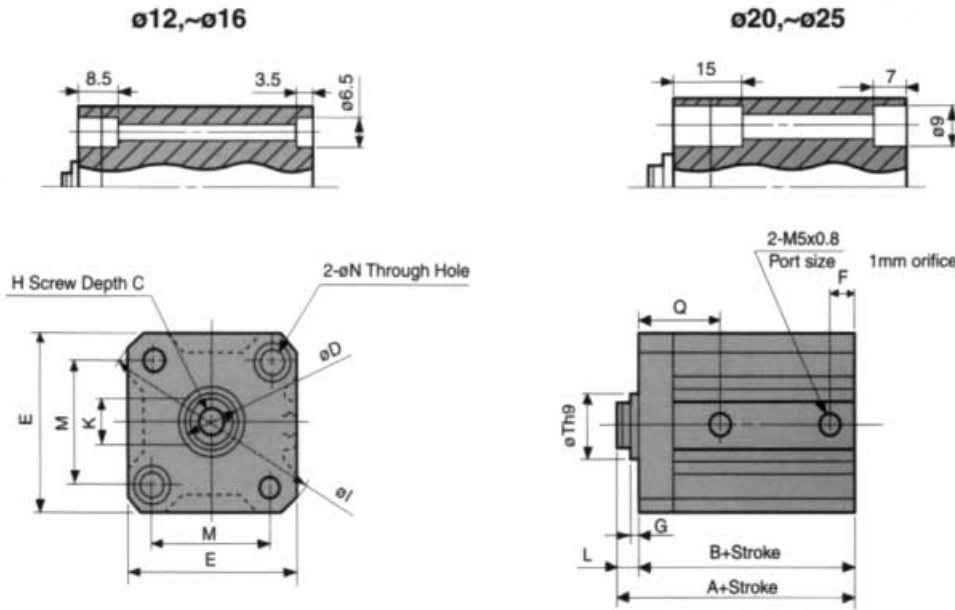
To protect against adverse effects on cathode ray tubes due to copper ion and fluorine contained in resin, the copper free series uses electroless nickel plated material, no copper is exposed allowing the generation of copper ions.

Standard Specifications

Model	20- Non-Rotating
Bore Size	$\phi 16, \phi 20, \phi 25, \phi 32, \phi 40, \phi 50, \phi 63$
Proof Pressure	217psi (15.3kgf/cm ²)
Max. Operating Pressure	145psi (10.2kgf/cm ²)
Rubber cushion	None
Porting	Threaded
Piston Speed	2~20in/s (50~500mm/s)
Mounting	Through hole
Auto Switch	Capable

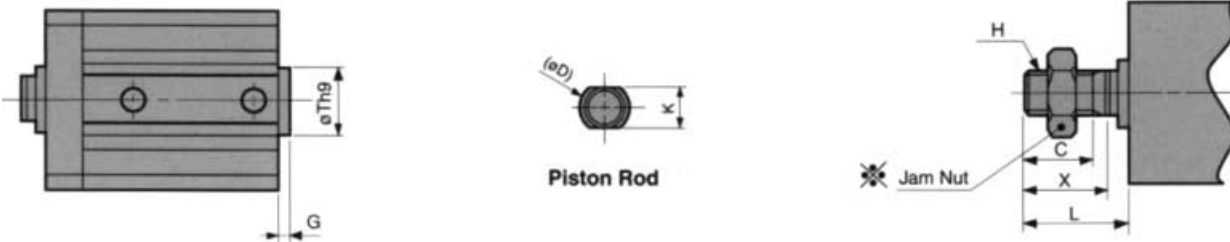
Bore Size $\phi 12 \sim \phi 25$

Through Hole / (N)CQ2KB



Standard

Bore size	Stroke	A	B	CQ2 C	NCQ2 C	D	E	F	G	CQ2 H	NCQ2 inch H	I	L	M	N	Q	Th9
12	5~30	25.5	22	6	5.4	6	25	5	1.5	M3x0.5	#8-32	32	3.5	15.5	3.5	12.5	15 $\phi_{0.043}$
16	5~30	27	23.5	8	5.4	8	29	5.5	1.5	M4x0.7	#8-32	38	3.5	20	3.5	13	20 $\phi_{0.052}$
20	5~50	32	27.5	7	7	10	36	5.5	2	M5x0.8	#10-32	47	4.5	25.5	5.5	17	13 $\phi_{0.043}$
25	5~50	35.5	30.5	12	10	12	40	5.5	2	M6x1.0	1/4 - 28 UNF	52	5	28	5.5	19	15 $\phi_{0.043}$



End Boss (CQ2)_{mm}

Bore size	G	Th9
12	1.5	15 $\phi_{0.043}$
16	1.5	20 $\phi_{0.052}$
20	2	13 $\phi_{0.043}$
25	2	15 $\phi_{0.043}$

NCQ2 Male Rod End _{mm}

Bore size	X	H inch	L	K
12	8	#8-32UNC	11.5	5.2
16	8	#8-32UNC	11.5	6
20	8	#10-32UNF	12.5	8
25	9.5	1/4-28UNF	16.5	10

CQ2 Male Rod End _{mm}

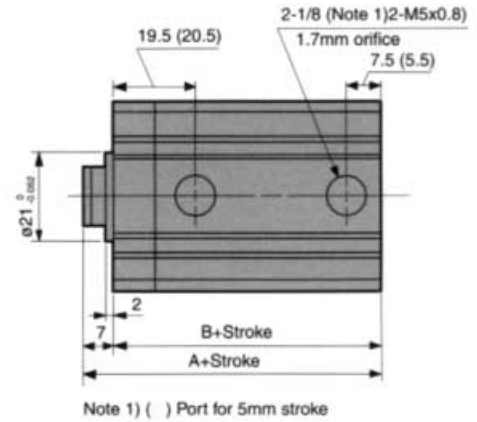
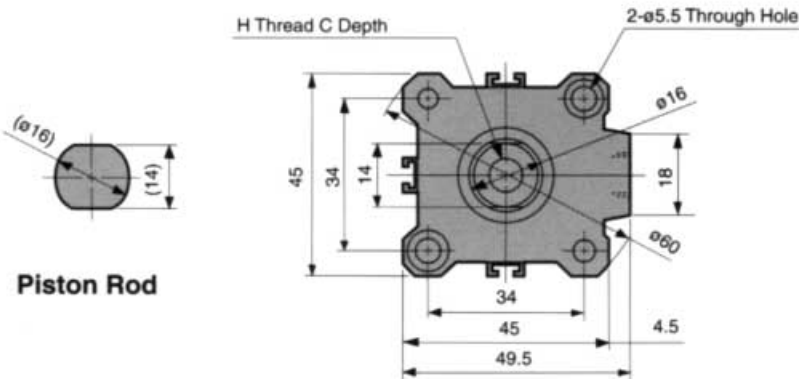
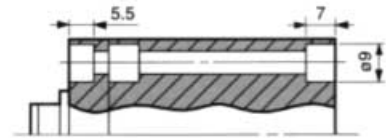
Bore size	C	X	H	L	K
12	9	10.5	M5x0.8	14	5.2
16	10	12	M6x1.0	15.5	6
20	12	14	M8x1.25	18.5	8
25	15	17.5	M10x1.25	22.5	10

"C" dim. not applicable

✳ Rod end nut and accessories detail: see p. 6.

Bore Size $\phi 32$

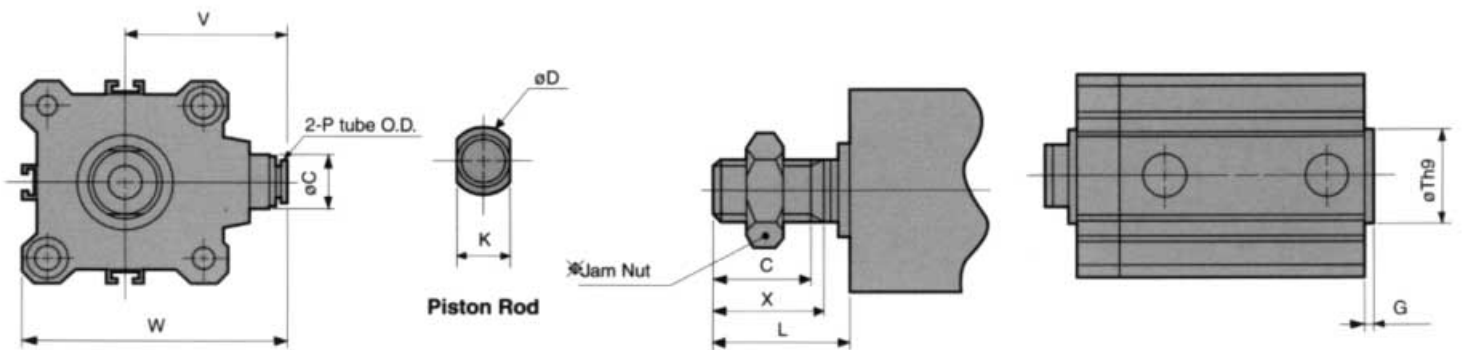
Through Hole / (N)CQ2KB



Piston Rod

Standard

Bore size	Stroke	A	B	CQ2 H	NCQ2 Inch H	CQ2 C	NCQ2 C
32	5-50	39	32	M8x1.25	5/16-24	13	13.3
	75, 100	49	42				



One Touch Fittings mm

Bore size	C	P	V	W
32	13	6	38	60.5

NCQ2 Male Rod End mm

Bore size	X	H Inch	L	K
32	12.7	5/16-24UNF	17.7	14

CQ2 Male Rod End mm

Bore size	C	X	H	L	K
32	20.5	23.5	M14x1.5	28.5	14

End Boss (CQ2 only) mm

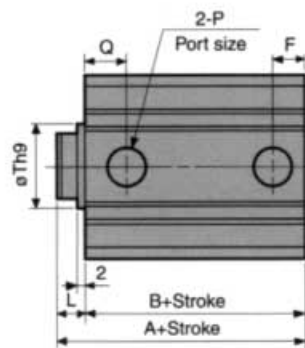
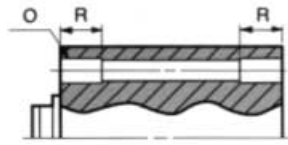
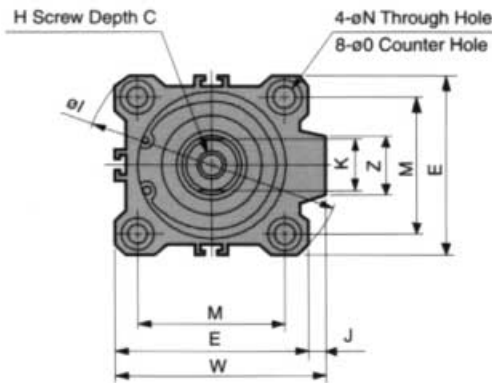
Bore size	G	Th9
32	2	21 ± 0.052

*"C" dim. not applicable

*Rod end nut and accessories are detailed on p. 6.

Bore Size $\phi 40 \sim \phi 63$

Through Hole / (N)CQ2KB

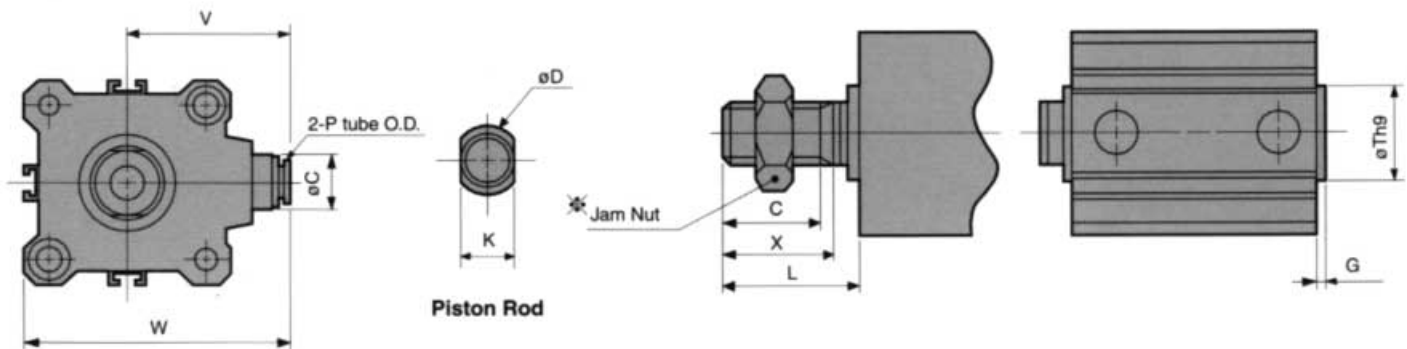


(N)CQ2KA
Both Ends Tapped

Bore size	CQ2 O	NCQ2 Inch O	R
40	M6x1.0	1/4 - 20 UNC	10
50	M8x1.25	5/16 - 18 UNC	14
63	M10x1.5	7/16 - 14 UNC	18

Standard

Bore size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 Inch H	I	J	L	M	N	O	P	Orifice	Q	Th9	W	Z
40	5-50	36.5	29.5	13	18.3	16	52	8	M8x1.25	3/8-24UNF	69	5	7	40	5.5	9 depth 7	1/8	2	11	28 ⁰ _{-0.052}	57	14
	75, 100	46.5	39.5																			
50	5-50	38.5	30.5	15	17.6	20	64	10.5	M10x1.5	1/2-20UNF	86	7	8	50	6.6	11 depth 8	1/4	2.2	10.5	35 ⁰ _{-0.062}	71	19
	75, 100	48.5	40.5																			
63	10-50	44	36	15	17.6	20	77	10.5	M10x1.5	1/2-20UNF	103	7	8	60	9	14 depth 10.5	1/4	3	15	35 ⁰ _{-0.062}	84	19
	75, 100	54	46																			



One Touch Fittings

Bore size	C	P	V	W
40	13	6	42	68
50	16	8	50	82
63	16	8	56.5	95

CQ2 only

NCQ2 Male Rod End

Bore size	X	H	L	K
40	16	3/8-24UNF	21	14
50	19.5	1/2-20UNF	23.5	18
63	19.5	1/2-20UNF	23.5	18

"C" dim. not applicable

* Rod end nut and accessories are detailed on p. 6.

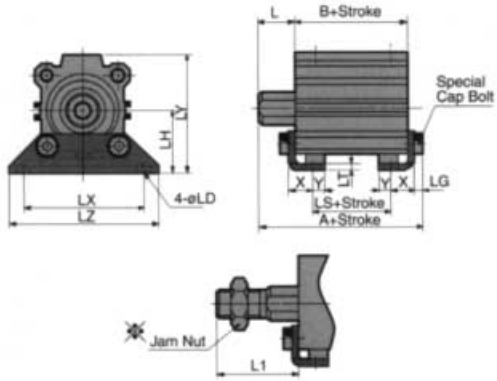
CQ2 Male Rod End

Bore size	C	X	H	L	K
40	20.5	23.5	M14x1.5	28.5	14
50	26	28.5	M18x1.5	33.5	18
63	26	28.5	M18x1.5	33.5	18

End Boss (CQ2)

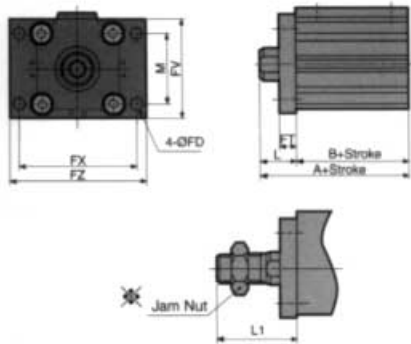
Bore size	G	Th9
40	2	28 ⁰ _{-0.052}
50	2	35 ⁰ _{-0.062}
63	2	35 ⁰ _{-0.062}

Compact Cylinder: Standard / Double Acting Single Rod Non-Rotating



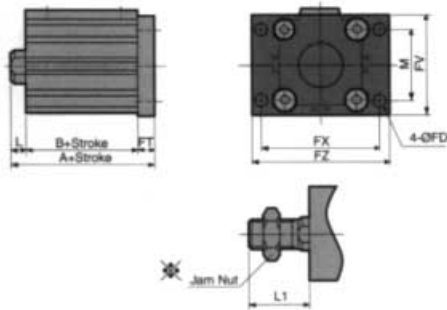
Foot / (N)CQ2KL

Bore size (mm)	Stroke range (mm)	A	B	L	CQ2		LD	LG	LH	LS	LT	LX	LY	LZ	X	Y
					L1	L1										
40	5-50	53.7	29.5	17	38.5	31	6.6	4	33	13.5	3.2	64	64	78	11.2	7
	75, 100	63.7	39.5							23.5						
50	10-50	56.7	30.5	18	43.5	33.5	9	5	39	7.5	3.2	79	78	95	14.7	8
	75, 100	66.7	40.5							17.5						
63	10-50	62.2	36	18	43.5	33.5	11	5	46	10	3.2	95	91.5	113	16.2	9
	75, 100	72.2	46							20						



Rod Flange / (N)CQ2KF

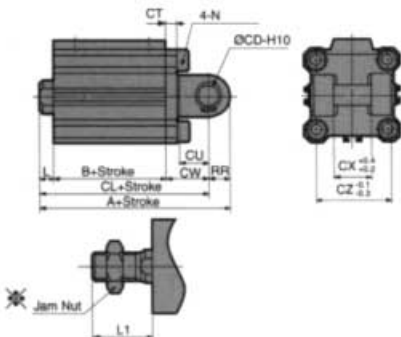
Bore size (mm)	Stroke range (mm)	A	B	FD	FT	FV	FX	FZ	L	CQ2		M
										L1	L1	
40	5-50	46.5	29.5	5.5	8	54	62	72	17	38.5	31	40
	75, 100	56.5	39.5									
50	10-50	48.5	30.5	6.6	9	67	76	89	18	43.5	33.5	50
	75, 100	58.5	40.5									
63	10-50	54	36	9	9	80	92	108	18	43.5	33.5	60
	75, 100	64	46									



Head Flange / (N)CQ2KG_{mm}

Bore size (mm)	Stroke range (mm)	A	L	CQ2	
				L1	L1
40	5-50	44.5	7	28.5	21
	75, 100	54.5			
50	10-50	47.5	8	33.5	23.5
	75, 100	57.5			
63	10-50	53	8	33.5	23.5
	75, 100	63			

✳ Dimensions for the head flange cylinder are the same as rod flange except A, L, L1.



Double Clevis / (N)CQ2KD

Bore size (mm)	Stroke range (mm)	A	B	CQ2 CD	NCQ2 Inch CD	CL	CT	CU	CW	CX	CZ	L	CQ2		NCQ2		RR
													L1	L1	N	Inch N	
40	5-50	68.5	29.5	10	3/8	58.5	6	14	22	18	36	7	28.5	21	M6x1.0	1/4-20	10
	75, 100	78.5	39.5			68.5											
50	10-50	80.5	30.5	14	1/2	66.5	7	20	28	22	44	8	33.5	23.5	M8x1.25	5/16-18	14
	75, 100	90.5	40.5			76.5											
63	10-50	88	36	14	1/2	74	8	20	30	22	44	8	33.5	23.5	M10x1.5	7/16-14	14
	75, 100	98	46			84											

✳ Rod end nut and accessories detail: see p. 6.
 ✳✳ Clevis pin and snap rings are included in the package.



Standard Non-Rotating / Double Acting Single Rod w/ Auto Switch

(N)CDQ2K Series



Standard Specifications

Model	Air pressure type (Non-lube type)
Media	Air
Ambient and fluid temp.	15~140°F(-10°C~+60°C)(At freezing temp. Air must be dry.)

The rest of the specifications are the same as that of standard (See p. 39).

Auto Switch Mounting Available / Minimum Stroke

# of Auto Switch Mounting	D-F7□V D-J79C	D-A7 D-A8 D-A73C D-A80C	D-F7□WV	D-A7□H D-A80H D-F7□ D-J79	D-A79W	D-F7□W D-J79W D-F7BAL D-F79F	D-F7LF
1pcs	5mm	5mm	10mm	15mm	15mm	20mm	25mm
2pcs	5mm	10mm	15mm	15mm	20mm	20mm	25mm

Note) See pg.13 for Auto Switch Specifications.

How To Order

Auto Switch How To Order: See p. 60

Weight Chart

Bore size (mm)	Cylinder Stroke (mm)										lbs	
	5	10	15	20	25	30	35	40	45	50		75
12	0.17	0.18	0.20	0.21	0.22	0.24	-	-	-	-	-	-
16	0.19	0.21	0.22	0.24	0.26	0.28	-	-	-	-	-	-
20	0.30	0.34	0.37	0.40	0.43	0.46	0.49	0.52	0.55	0.58	-	-
25	0.39	0.43	0.46	0.50	0.53	0.57	0.60	0.64	0.67	0.71	-	-
32	0.52	0.56	0.61	0.65	0.70	0.74	0.78	0.83	0.87	0.92	1.14	1.36
40	0.56	0.61	0.66	0.71	0.76	0.81	0.86	0.91	0.96	1.01	1.27	1.52
50	-	1.02	1.10	1.19	1.27	1.35	1.43	1.51	1.59	1.68	2.08	2.49
63	-	1.44	1.53	1.63	1.72	1.81	1.91	2.00	2.09	2.18	2.65	3.11

Weight Adder

Bore size	12	16	20	25	32	40	50	63
Both ends tapped	-	-	-	-	-	0.013	0.015	0.037
Rod end M thread	Thread	0.003	0.007	0.013	0.026	0.057	0.060	0.117
	Nut	0.002	0.004	0.009	0.018	0.037	0.037	0.071
Head end boss	0.002	0.003	0.004	0.007	0.011	0.015	0.029	0.055
W/ one touch fitting	-	-	-	-	0.011	0.026	0.046	0.046
Foot mounting	-	-	-	-	-	0.340	0.534	0.712
Rod side flange	-	-	-	-	-	0.470	0.820	1.230
Head side flange	-	-	-	-	-	0.437	0.767	1.177
Double rear clevis	-	-	-	-	-	0.432	0.867	1.222

When mounting auto switch, add for additional mounting bracket weight

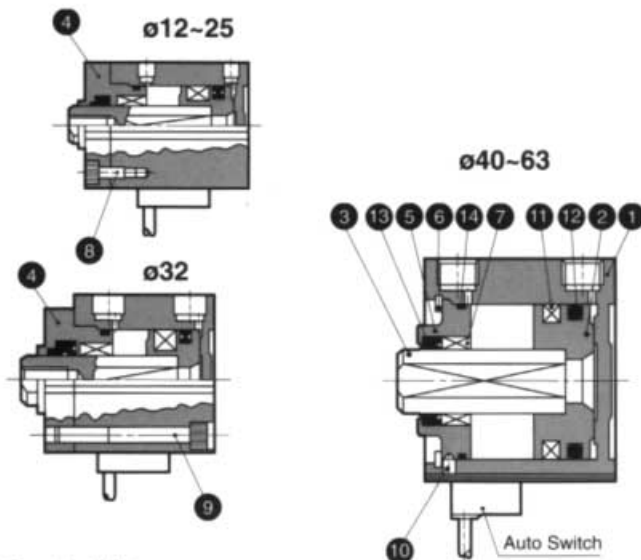
Auto Switch Mounting Bracket Weight

Part no.	Applicable cylinder bore size	Weight lbs.
BQ-1	ø12~ ø25	.003
BQ-2	ø32~ ø63	.003

How to obtain the total weight (lbs) (N)CDQ2KD40-25DM

Std wt.:	(N)CDQ2KB40-25D	0.64
Wt. adder:	Both ends tapped	0.013
	Male rod end	0.097
	Double rear clevis	0.432
	Total	1.182

Construction / Parts List



Parts List

No.	Description	Material	Remarks
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromate
3	Piston rod	Stainless steel	Bore ø12~ø25
		Carbon steel	Bore ø32~ø63, hard chrome plated
4	Collar	Brass	Bore ø12, Black chromate
		Aluminum alloy	Bore ø16~ø32, Black anodized
5	Collar	Aluminum alloy	Bore ø40~ø63, Black anodized
6	Retaining ring	Carbon tool steel	Phosphate coating
7	Bushing	Sintered alloy	ø16~ø63, Oil impregnated
8	Bolt	Steel alloy	ø12~ø25, Black chromate
9	Bolt	Steel alloy	ø32, Nickel plated
10	Set screw	Steel alloy	ø40~ø63, black coating
11	Magnet	-	

Seals List

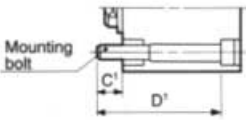
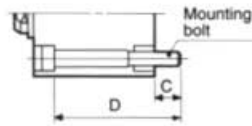
No.	Description	Material	Parts No.							
			ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63
13	Piston seal	NBR	NLP-12-7L	NLP-16A	NLP-20A	NLP-25A	NLP-32A	NLP-40A	NLP-50A	NLP-63B
14	Rod seal	NBR	SS-6X5.2Q	SS-8X6K2Q	SS-10X8Q	SS-12	SS-16S	SS-16S	SS-20S	SS-20S
15	Gasket	NBR	SO-013-6	C14	C18	C22	C29	C36	C46	C60

Mounting Bolt For (N)CDQ2K / with Auto Switch

Special long mounting bolt for through hole mounting is available as an option.
How to Order:
Specify the required bolts

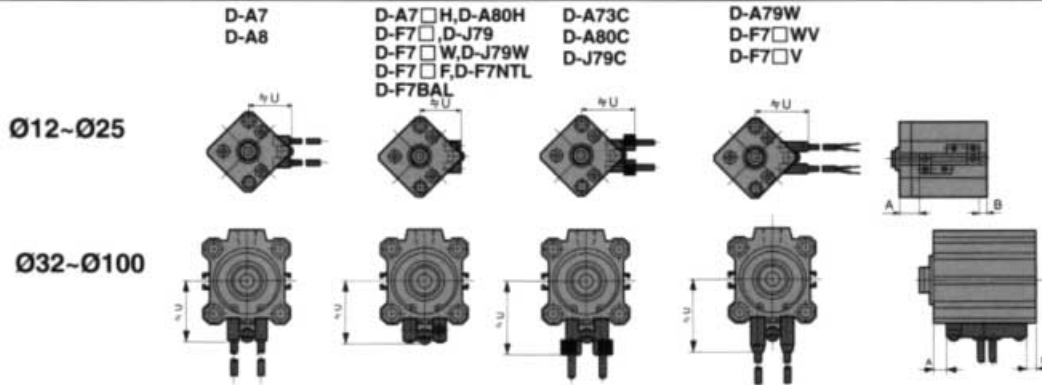
Example)
Bolt M3x35L ø12-ø32 2pc.
ø40-ø63 4pc.

Thread	Pitch
M3	0.5
M5	0.8
M6	1.0
M8	1.25
M10	1.5



Model	C	D	Mounting bolt	C'	D'	Mounting bolt	Model	C	D	Mounting bolt	C'	D'	Mounting bolt
(N)CDQ2KB12-5DC	5.5	35	M3x35L	5.5	40	M3x40L	(N)CDQ2KB32-40D	8.5	85	M5x85L	10	85	M5x85L
-10DC		40	x40L		45	x45L	-45D		90	x90L			
-15DC		45	x40L		50	x50L	-50D		95	x95L			
-20DC		50	x50L		55	x55L	-75D		120	x120L			
-25DC		55	x55L		60	x60L	-100D		145	x145L			
-30DC		60	x60L		65	x65L	(N)CDQ2KB40-5D		45	M5x45L		45	M5x45L
(N)CDQ2KB16-5D	8	40	M3x40L	8	45	M3x45L	-10D	50	x50L	50	x50L		
-10D		45	x45L		50	x50L	-15D	55	x55L	55	x55L		
-15D		50	x50L		55	x55L	-20D	60	x60L	60	x60L		
-20D		55	x55L		60	x60L	-25D	65	x65L	65	x65L		
-25D		60	x60L		65	x65L	-30D	70	x70L	70	x70L		
-30D		65	x65L		70	x70L	-35D	75	x75L	75	x75L		
(N)CDQ2KB20-5D	10.5	40	M5x40L	7.5	45	M5x45L	-40D	80	x80L	80	x80L		
-10D		45	x45L		50	x50L	-45D	85	x85L	85	x85L		
-15D		50	x50L		55	x55L	-50D	90	x90L	90	x90L		
-20D		55	x55L		60	x60L	-75D	115	x115L	115	x115L		
-25D		60	x60L		65	x65L	-100D	140	x140L	140	x140L		
-30D		65	x65L		70	x70L	(N)CDQ2KB50-10D	55	M6x55L	55	M6x55L		
-35D		70	x70L		75	x75L	-15D	60	x60L	60	x60L		
-40D		75	x75L		80	x80L	-20D	65	x65L	65	x65L		
-45D		80	x80L		85	x85L	-25D	70	x70L	70	x70L		
-50D		85	x85L		90	x90L	-30D	75	x75L	75	x75L		
(N)CDQ2KB25-5D	9.5	40	M5x40L	6.5	45	M5x45L	-35D	80	x80L	80	x80L		
-10D		45	x45L		50	x50L	-40D	85	x85L	85	x85L		
-15D		50	x50L		55	x55L	-45D	90	x90L	90	x90L		
-20D		55	x55L		60	x60L	-50D	95	x95L	95	x95L		
-25D		60	x60L		65	x65L	-75D	120	x120L	120	x120L		
-30D		65	x65L		70	x70L	-100D	145	x145L	145	x145L		
-35D		70	x70L		75	x75L	(N)CDQ2KB63-10D	60	M8x60L	60	M8x60L		
-40D		75	x75L		80	x80L	-15D	65	x65L	65	x65L		
-45D		80	x80L		85	x85L	-20D	70	x70L	70	x70L		
-50D		85	x85L		90	x90L	-25D	75	x75L	75	x75L		
(N)CDQ2KB32-5D	8.5	50	M5x50L	10	50	M5x50L	-30D	80	x80L	80	x80L		
-10D		55	x55L		55	x55L	-35D	85	x85L	85	x85L		
-15D		60	x60L		60	x60L	-40D	90	x90L	90	x90L		
-20D		65	x65L		65	x65L	-45D	95	x95L	95	x95L		
-25D		70	x70L		70	x70L	-50D	100	x100L	100	x100L		
-30D		75	x75L		75	x75L	-75D	125	x125L	125	x125L		
-35D		80	x80L		80	x80L	-100D	150	x150L	150	x150L		

Auto Switch Mounting Data



Auto Switch Mounting Postion

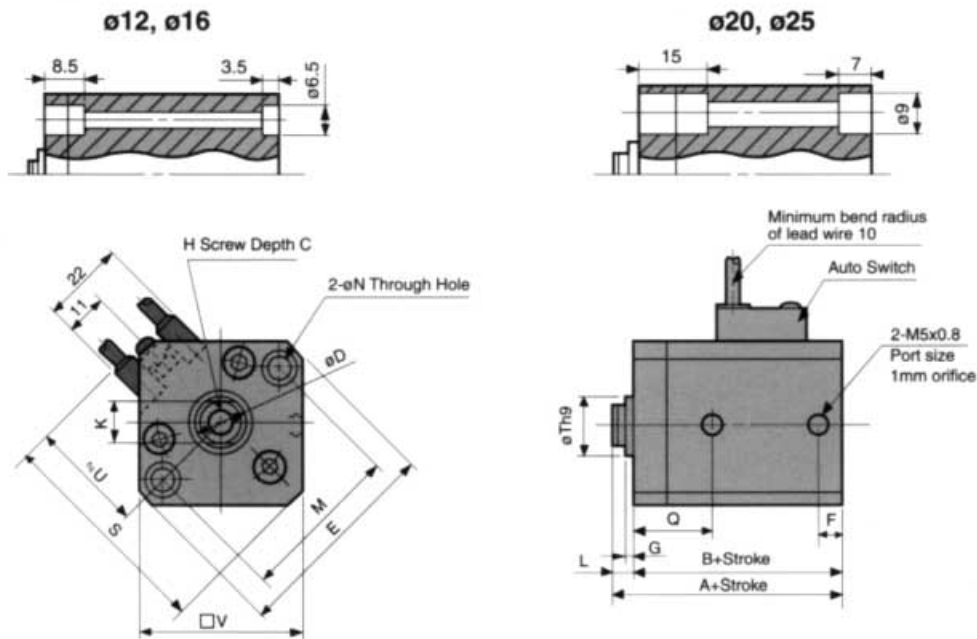
Bore Size (mm)	D-A7•A8		D-A7□H•A80H D-A73C•A80C D-F7□V•J79C		D-A79W		D-F7PW D-F7□F D-J79W		D-F79W D-F7□VW	
	A	B	A	B	A	B	A	B	A	B
12	9.5	5.5	10	6	7	3	14	10	10.5	6.5
16	12.5	5	13	5.5	10	2.5	17	9.5	13.5	6
20	15.5	6.5	16	7	13	4	20	11	16.5	7.5
25	15.5	7	16	7.5	13	4.5	20	11.5	16.5	8
32	18	6	15.5	6.5	15.5	3.5	22.5	10.5	19	7
40	13	8.5	13.5	9	10.5	6	17.5	13	14	9.5
50	11	11.5	11.5	12	8.5	9	15.5	16	12	12.5
63	13.5	14.5	14	15	11	12	18	19	14.5	15.5

Auto Switch Mounting Height

Bore Size (mm)	D-A7 A8		D-A7□H D-J79W D-A80H D-F7BAL D-F7□ D-F7□F D-J79 D-F7NTL D-F7□W		D-A73C D-A80C D-F7□VW	D-F7□V	D-J79C	D-A79W
	U	U	U	U	U	U	U	U
12	19.5	20.5	26.5	23	26	22		
16	22.5	23.5	29.5	26	29	25		
20	24.5	25.5	31.5	28	31	27		
25	27.5	28.5	34.5	31	34	30		
32	31.5	32.5	38.5	35	38	34		
40	35	36	42	38.5	41.5	37.5		
50	41	42	48	44.5	47.5	43.5		
63	47.5	48.5	54.5	51	54	50		

Bore Size $\phi 12 \sim \phi 25$

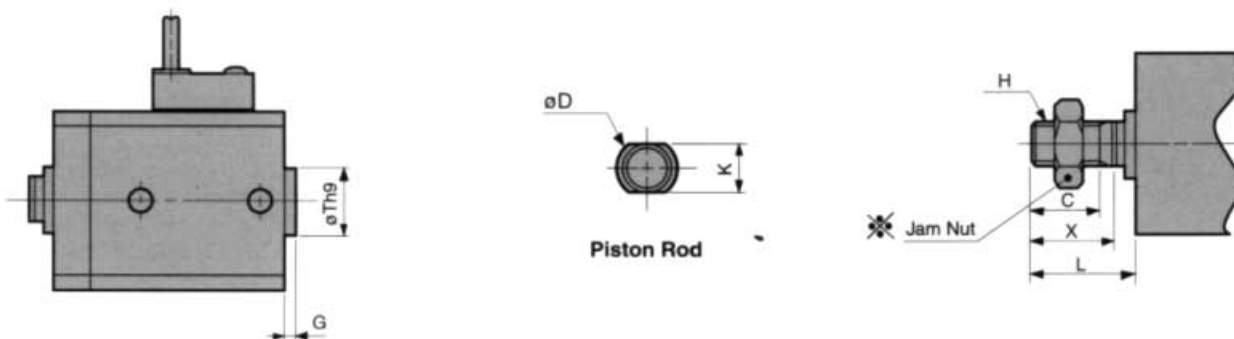
Through Hole / (N)CDQ2KB



The Auto Switch mounting shown above is used for D-A73 and D-A80.
The Auto Switch set position and mounting height: See p.69.

Standard

Bore size	Stroke	A	B	CQ2 C	NCQ2 C	D	E	F	G	CQ2 H	NCQ2 inch H	L	M	N	Q	S	Th9	U	V
12	5~30	36.5	33	6	5.4	6	32	6.5	1.5	M3x0.5	#8-32	3.5	22	3.5	16	35.5	15 $\phi_{.043}$	19.5	25
16	5~30	39	35.5	8	5.4	8	38	5.5	1.5	M4x0.7	#8-32	3.5	28	3.5	15	41.5	20 $\phi_{.052}$	22.5	29
20	5~50	44	39.5	7	7	10	47	5.5	2	M5x0.8	#10-32	4.5	36	5.5	18.5	48	13 $\phi_{.043}$	24.5	36
25	5~50	45.5	40.5	12	10	12	52	5.5	2	M6x1.0	1/4 - 28 UNF	5	40	5.5	19	53.5	15 $\phi_{.043}$	27.5	40



End Boss (CQ2) mm

Bore size	G	Th9
12	1.5	15 $\phi_{.043}$
16	1.5	20 $\phi_{.052}$
20	2	13 $\phi_{.043}$
25	2	15 $\phi_{.043}$

NCDQ2 Male Rod End mm

Bore size	X	H inch	L	K
12	8	#8-32UNC	11.5	5.2
16	8	#8-32UNC	11.5	6
20	8	#10-32UNF	12.5	8
25	9.5	1/4-28UNF	16.5	10

CDQ2 Male Rod End mm

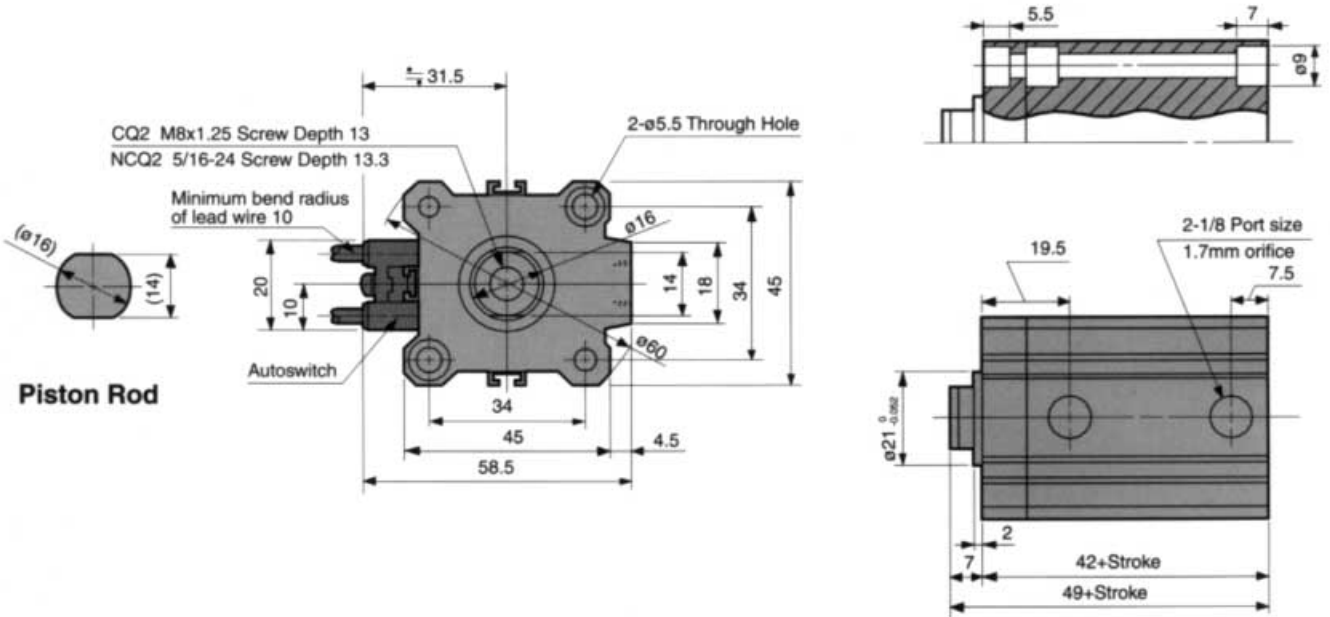
Bore size	C	X	H	L	K
12	9	10.5	M5x0.8	14	5.2
16	10	12	M6x1.0	15.5	6
20	12	14	M8x1.25	18.5	8
25	15	17.5	M10x1.25	22.5	10

"C" dim. not applicable.

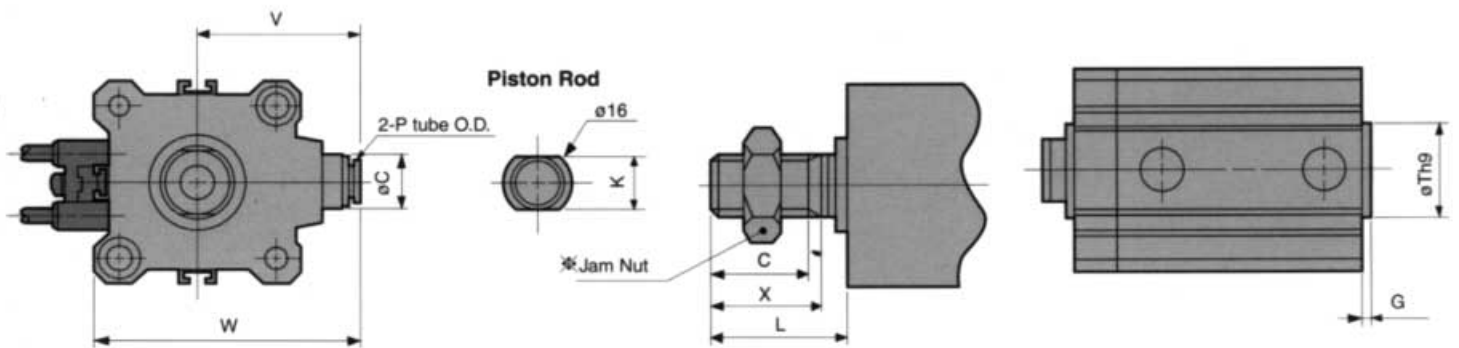
☒ Rod end nut and accessories detail: see p. 6.

Bore Size $\phi 32$

Through Hole / (N)CDQ2KB



The Auto Switch mounting is used for D-A73 and D-A80.
 The Auto Switch set position and mounting height: See p.69.



One Touch Fittings

Bore size	C	P	V	W
32	13	6	38	60.5

CQ2 only

NCQ2 Male Rod End

Bore size	X	H Inch	L	K
32	12.7	5/16-24UNF	17.7	14

*"C" dim. not applicable.

*Rod end nut and accessories are detailed on p. 6.

CQ2 Male Rod End

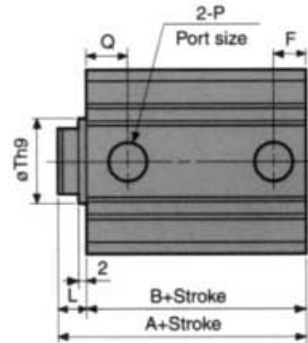
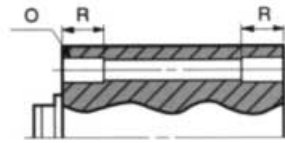
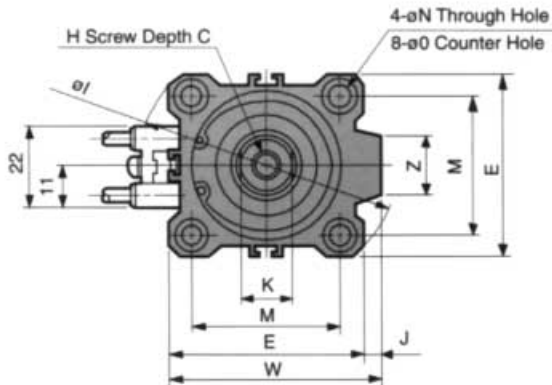
Bore size	C	X	H	L	K
32	20.5	23.5	M14x1.5	28.5	14

End Boss (CQ2 only)

Bore size	G	Th9
32	2	21 $\phi_{.052}$

Bore Size $\phi 40 \sim \phi 63$

Through Hole / (N)CDQ2KB



(N)CDQ2KA Both Ends Tapped

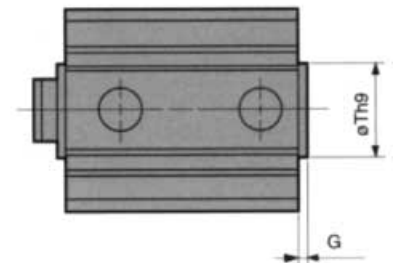
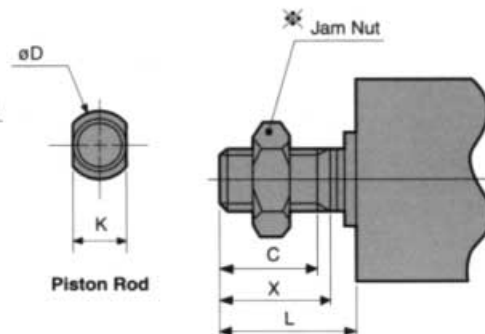
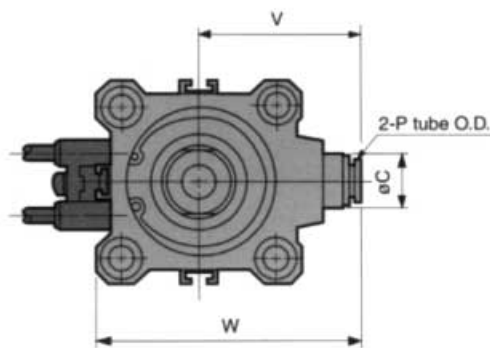
Bore size	CQ2 O	NCQ2 inch O	R
40	M6x1.0	1/4 - 20 UNC	10
50	M8x1.25	5/16 - 18 UNC	14
63	M10x1.5	7/16 - 14 UNC	18

The above Auto Switch mounting is used for D-A73 and D-A80.

The Auto Switch set position and mounting height: See p.69.

Standard

Bore size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 inch H	I	J	K	L	M	N	O	P	Q	Orifice	S	Th9	U	Z
40	5-50	46.5	39.5	13	18.3	16	52	8	M8x1.25	3/8-24UNF	69	5	14	7	40	5.5	9 depth 7	1/8	11	2	66	28 ⁰ _{-0.052}	35	14
	75, 100																							
50	10-50	48.5	40.5	15	17.5	20	64	10.5	M10x1.5	1/2-20UNF	86	7	18	8	50	6.6	11 depth 8	1/4	10.5	2.2	80	35 ⁰ _{-0.062}	41	19
	75, 100																							
63	10-50	54	46	15	17.5	20	77	10.5	M10x1.5	1/2-20UNF	103	7	18	8	60	9	14 depth 10.5	1/4	15	3	93	35 ⁰ _{-0.062}	47.5	19
	75, 100																							



One Touch Fittings NCDQ2 Male Rod End

Bore size	C	P	V	W
40	13	6	42	68
50	16	8	50	82
63	16	8	56.5	95

"C" dim. not applicable.

* Rod end nut and accessories are detailed on p. 6.

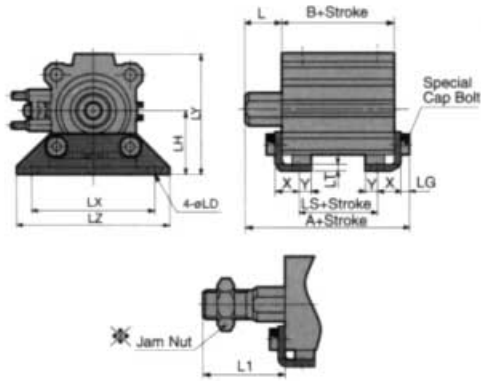
CDQ2 Male Rod End

Bore size	C	X	H	L	K
40	20.5	23.5	M14x1.5	28.5	14
50	26	28.5	M18x1.5	33.5	18
63	26	28.5	M18x1.5	33.5	18

End Boss CQ2

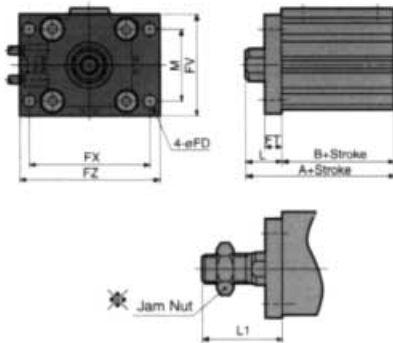
Bore size	G	Th9
40	2	28 ⁰ _{-0.052}
50	2	35 ⁰ _{-0.062}
63	2	35 ⁰ _{-0.062}

Compact Cylinder: Standard / Double Acting Single Rod Non-Rotating



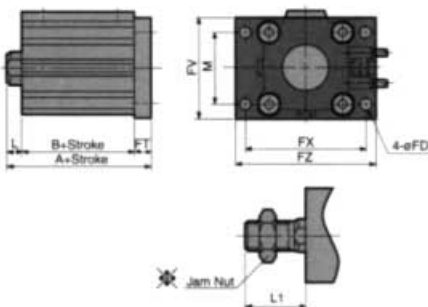
Foot / (N)CDQ2KL

Bore size (mm)	Stroke range (mm)	mm															
		A	B	L	CC2 L1	NCQ2 L1	LD	LG	LH	LS	LT	LX	LY	LZ	X	Y	
40	5-50	63.7	39.5	17	38.5	31	6.6	4	33	23.5	3.2	64	64	78	11.2	7	
	75, 100																
50	10-50	66.7	40.5	18	43.5	33.5	9	5	39	17.5	3.2	79	78	95	14.7	8	
	75, 100																
63	10-50	72.2	46	18	43.5	33.5	11	5	46	20	3.2	95	91.5	113	16.2	9	
	75, 100																



Rod Flange / (N)CDQ2KF

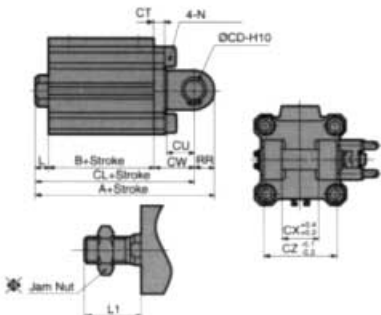
Bore size (mm)	Stroke range (mm)	mm											
		A	B	FD	FT	FV	FX	FZ	L	CC2 L1	NCQ2 L1	M	
40	5-50	56.5	39.5	5.5	8	54	62	72	17	38.5	31	40	
	75, 100												
50	10-50	58.5	40.5	6.6	9	67	76	89	18	43.5	33.5	50	
	75, 100												
63	10-50	64	46	9	9	80	92	108	18	43.5	33.5	60	
	75, 100												



Head Flange / (N)CDQ2KG

Bore size (mm)	Stroke range (mm)	mm			
		A	L	CC2 L1	NCQ2 L1
40	5-50	54.5	7	28.5	21
	75, 100				
50	10-50	57.5	8	33.5	23.5
	75, 100				
63	10-50	63	8	33.5	23.5
	75, 100				

※ Dimensions for the head flange cylinder are the same as rod flange except A, L, L1.



Double Clevis / (N)CDQ2KD

Bore size (mm)	Stroke range (mm)	mm															
		A	B	CC2 CD	NCQ2 Inch CD	CL	CT	CU	CW	CX	CZ	L	CC2 L1	NCQ2 L1	CC2 N	NCQ2 Inch N	RR
40	5-50	78.5	39.5	10	3/8	68.5	6	14	22	18	36	7	28.5	21	M6x1.0	1/4-20	10
	75, 100																
50	10-50	90.5	40.5	14	1/2	76.5	7	20	28	22	44	8	33.5	23.5	M8x1.25	5/16-18	14
	75, 100																
63	10-50	98	46	14	1/2	84	8	20	30	22	44	8	33.5	23.5	M10x1.5	7/16-14	14
	75, 100																

※ Rod end nut and accessories detail: see p. 6.

※※ Clevis pin and snap rings are included in the package.



Compact Cylinder: Standard/
 Double Acting Double Rod Non-Rotating
NCQ2KW / CQ2KW Series
 ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63

How To Order

NCQ2KW B 20 F 30 D M

W/ Auto Switch NCQ2KW B 20 F 30 D M A73 S

Preferred
Option
Program

PT, metric -

NPT, inch N

W/ Auto Switch (built-in magnet)

Mounting

B	Through hole	ø12~ø63
A	Both ends tapped	ø40~ø63

Bore Size

12	12mm (1/2" Nom.)	32	32mm (1-1/4" Nom.)
16	16mm (5/8" Nom.)	40	40mm (1-1/2" Nom.)
20	20mm (3/4" Nom.)	50	50mm (2" Nom.)
25	25mm (1" Nom.)	63	63mm (2-1/2" Nom.)

Piping

-	Threaded ports
F	See note 1) Built-in one-touch fitting

Note 1) Available built-in one touch fitting bore sizes: ø32~ø63. Special order. Not applicable for Air-Hydro type, CQ2.

Cylinder Stroke (mm)

Please refer to p.75 for standard strokes

Action

D	Double
----------	--------

Body Option

-	Std. (Female thread)
C	Note 2) W/ rubber cushion
M	Male thread

Note 2) ø12 w/ switches must have rubber cushion.

Auto Switch

-	2 pcs.
S	1 pcs.
n	n pcs.

Auto Switch Capability

-	Without Auto Switch
---	---------------------

Auto Switch Specifications

Type	Autoswitch		Indicator light	Wire (Output type)	Load Voltage		
	Perpendicular entry	In-line entry			DC	AC	
Reed switch	-	A76H	Yes	3 Wire	-	5V	
	A72	A72H			-	200V	
	A73	A73H	No	2 Wire	24V	12V	100V
	A80	A80H				5V, 12V	100V
	A73C	-	No	12V		-	
	A80C	-	No	5V, 12V		24V	
	A79W	-	Yes	-	-		
	Solid State Switch	F7NV	F79	Yes	3 Wire NPN	24V	5V, 12V
F7PV		F7P	3 Wire PNP		-		
F7BV		J79	Yes	2 Wire	24V	12V	
J79C		-		3 Wire NPN		5V, 12V	
F7NWV		F79W	3 Wire PNP	-			
-		F7PW	3 Wire PNP	-			
F7BWV		J79W	Yes	2 Wire	24V	12V	
-		F7BAL		3 Wire NPN		5V, 12V	
-		F7NTL	Yes	4 Wire NPN	24V	-	
-		F79F		-			
-	F7LF	-	-	-			

• Load length 0.5m.....Std. Connector A80C 5m.....Z Connector A80CZ
 3m.....L A80CL No lead.....N A80CN

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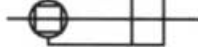


Standard /
Non-Rotating Double rod

(N)CQ2KW Series



Non-rotating
Double rod



Precautions

- ❶ Flush away dust and cutting particles thoroughly in the porting tube to prevent the contamination of cylinder inside.
 - ❷ • The Piston rod load should always be aligned with the cylinder axis.
 - Cylinder installation requires accurate alignment.
 - When using cylinder as a stopper, be sure to use a guide to avoid a direct impact from piston rod size loads.
 - ❸ Prevent damage to the piston rod. A damaged piston rod will lead to damage of the rod seal and result in leakage.
 - ❹ Use C type snap ring pliers when removing an orifice snap ring during disassembly.
 - ❺ When using a non-rotating type cylinder,
 - Avoid an impact caused by torque from piston rod rotation or the rotation guide could be deformed and fail to maintain rotation accuracy.
- The allowable range of rotation torque is shown in the table below as a guideline.

Allowable Rotation Torque	12	16	20	25	32	40	50	63
kgf•cm or less	0.4	1.5	2.0	2.5	4.5	4.5	4.5	4.5

- The orientation of piston rod load must be the parallel to a cylinder axial.

When piping

- When fixing a workpiece at the piston rod end, be sure the piston rod is fully retracted. Then, tighten the rod flat extended to the outside using a wrench.

Model

Bore Size		12	16	20	25	32	40	50	63
Air-Pressure Type	Mounting	Through hole (std)	●	●	●	●	●	●	●
		Both ends tapped	●	●	●	●	●	●	●
Built-In Magnet		●	●	●	●	●	●	●	●
Piping Method	Threaded PT or NPT	M5x 0.8	M5x 0.8	M5x 0.8	M5x 0.8	Note 1 M5x 0.8 1/8	1/8	1/4	1/4
	Built-In One Touch Fitting	-	-	-	-	Note 2 6/4	6/4	8/6	8/6
Rod End Male Thread		●	●	●	●	●	●	●	●

Note 1) In cases without Auto Switch, only 5 stroke uses M5x0.8

Note 2) In case of built-in fitting, the external tube dimension for ø32, 5 stroke and 10 stroke are the same

Standard Specifications

Model	Air Pressure (Non-Lube)
Media	Air
Proof Pressure	217psi (15.3kgf/cm ²)
Max. Operating Pressure	145psi (10.2kgf/cm ²)
Ambient and Media temp.	15~160°F(-10°C~+70°C) (At freezing temp. air must be dry)
Rubber cushion	Note 3 - None
Rod end thread	Female Thread (std.)
Rod end thread tolerance	JIS Class II
Stroke Length tolerance	+1.0 0 mm
Mounting	Through hole (std.)
Piston Speed	2~20in/s (50~500mm/s)

Note 3) ø12 w/ switches must have rubber cushion

Min. Operating Pressure

Bore size	12	16	20	25	32	40	50	63
Air pressure type (non-lube)	10.15	10.15	7.25	7.25	7.25	7.25	7.25	7.25

Non-Rotating Tolerance

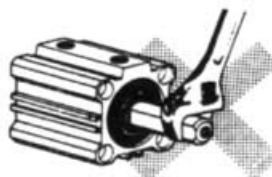
Bore size	12	16	20	25	32	40	50	63
Accuracy	±2°	±1°			±0.8°			

Standard Stroke

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
50,63	10,15,20,25,30,35,40,45,50

- Available intermediate stroke. Intermediate strokes in 1mm increments are available by installing a spacer into the STD. stroke cylinder. Contact an SMC representative for ø40-ø100 intermediate stroke cylinder with bumper. Example] (N)CQ2KWB50-48D can be made by installing a 2 mm (w)spacer into the std. cylinder (N)CQ2KWB50-50D. 5mm Incremental Stroke (spacers) done as standard.

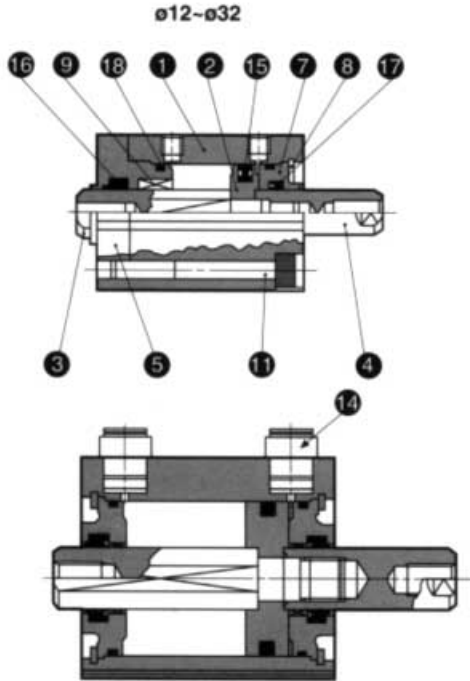
For theoretical output see chart on p26.





Standard / Double Acting Double Rod Non-Rotating (N)CQ2KW Series

Construction / Part List



Weight / Single Acting: Single Rod

lbs.

Bore size	Stroke									
	5	10	15	20	25	30	35	40	45	50
12	0.14	0.15	0.17	0.18	0.20	0.21	-	-	-	-
16	0.14	0.16	0.19	0.21	0.23	0.26	-	-	-	-
20	0.22	0.26	0.29	0.32	0.36	0.39	0.42	0.45	0.49	0.52
25	0.30	0.34	0.38	0.42	0.45	0.49	0.53	0.57	0.60	0.64
32	0.53	0.59	0.64	0.69	0.75	0.80	0.85	0.90	0.96	1.01
40	0.77	0.84	0.91	0.97	1.04	1.11	1.18	1.25	1.32	1.38
50	-	1.21	1.31	1.41	1.51	1.61	1.70	1.80	1.90	2.00
63	-	1.70	1.79	1.87	1.96	2.05	2.13	2.22	2.30	2.39

Weight Adder

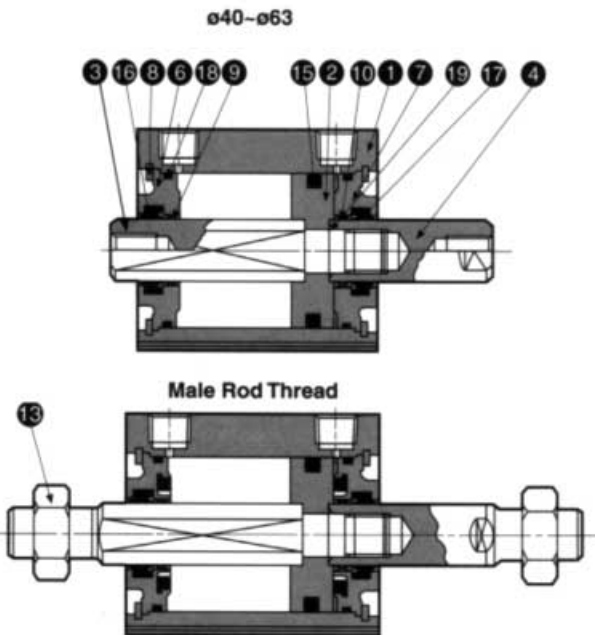
lbs.

Bore size	12	16	20	25	32	40	50	63
Both ends tapped	-	-	-	-	-	0.013	0.015	0.037
Rod end M thread	Thread	0.007	0.013	0.022	0.049	0.110	0.110	0.229
	Nut	0.004	0.009	0.018	0.035	0.075	0.075	0.141
W/ one touch fitting	-	-	-	-	0.011	0.011	0.021	0.021

How to obtain the total weight (lbs)

(N)CQ2KWA40-20DM

Std wt.:	(N)CQ2KWB40-20D	0.97
Wt. adder:	Both ends tapped	0.013
	Male rod end	0.185
	Total	1.168



Parts List

No.	Description	Material	Remarks
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromate
3	Piston rod A	Stainless steel	Bore ø12-ø25
		Carbon steel	Bore ø32-ø63, hard chrome plated
4	Piston rod B	Stainless steel	Bore ø12-ø25
		Carbon steel	Bore ø32-ø63, hard chrome plated
5	Collar	Brass	Bore ø12 Black chromate
		Aluminum alloy	Bore ø16-ø32, Black anodized
6	Collar	Aluminum alloy	Bore ø40-ø63, Black anodized
7	Collar	Bearing grade aluminum	Bore ø12-ø40, Black anodized
		Aluminum alloy	Bore ø50-ø63, Black anodized
8	Retaining ring	Carbon tool steel	phosphate coating
9	Bushing	Sintered alloy	ø16-ø63
10	Bushing	Lead tin bronze casting	ø12-ø25, Black chromate
11	Bolt	Steel alloy	ø12-ø32, Black chromate
12	Set screw	Steel alloy	ø40-ø63, Black coating
13	Rod end nut	Carbon steel	Nickel plated
14	One touch fittings	-	ø32-ø63
19	Piston gasket	NBR	-

Seals List

No.	Description	Material	Parts No.							
			ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63
15	Piston seal	NBR	NLP-12-7L	NLP-16A	NLP-20A	NLP-25A	NLP-32A	NLP-40A	NLP-50A	NLP-63B
16	Rod seal	NBR	SS-6X5.2Q	SS-8X6K2Q	SS-10X8Q	SS-12	SS-16S	SS-16S	SS-20S	SS-20S
17	Rod seal	NBR	DYR-6K	DYR-8K	DYR-10SK	DYR-12	DYR-16	PDU-16Z	PDU-20Z	PDU-20Z
18	Gasket	NBR	SO-013-6	C14	C18	C22	C29	C36	C46	C60

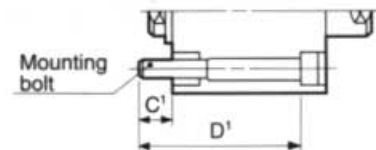
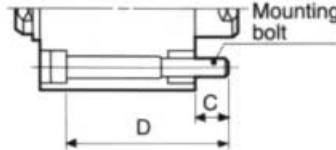
Mounting Bolt For (N)CDQ2KW

Special long mounting bolt for through hole mounting is available as an option.

How to Order:
Specify the required bolts

Example)
Bolt M3x35L $\phi 12$ - $\phi 32$ 2pc.
 $\phi 40$ - $\phi 63$ 4pc.

Thread	Pitch
M3	0.5
M5	0.8
M6	1.0
M8	1.25
M10	1.5



Model	C	D	Mounting bolt	C'	D'	Mounting bolt
(N)CQ2KWB12-5D		40	M3x40L		40	M3x40L
-10D	8.3	45	x45L	8.3	45	x45L
-15D		50	x50L		50	x50L
-20D		55	x55L		55	x55L
-25D		60	x60L		60	x60L
-30D		65	x65L		65	x65L
(N)CQ2KWB16-5D		40	M3x40L		40	M3x40L
-10D	7.5	45	x45L	7.5	45	x45L
-15D		50	x50L		50	x50L
-20D		55	x55L		55	x55L
-25D		60	x60L		60	x60L
-30D		65	x65L		65	x65L
(N)CQ2KWB20-5D		40	M5x40L		40	M5x40L
-10D	6.5	45	x45L	8	45	x45L
-15D		50	x50L		50	x50L
-20D		55	x55L		55	x55L
-25D		60	x60L		60	x60L
-30D		65	x65L		65	x65L
-35D		70	x70L		70	x70L
-40D		75	x75L		75	x75L
-45D		80	x80L		80	x80L
-50D		85	x85L		85	x85L
(N)CQ2KWB25-5D			45		M5x45L	
-10D	8.5	50	x50L	10	50	x50L
-15D		55	x55L		55	x55L
-20D		60	x60L		60	x60L
-25D		65	x65L		65	x65L
-30D		70	x70L		70	x70L
-35D		75	x75L		75	x75L
-40D		80	x80L		80	x80L
-45D		85	x85L		85	x85L
-50D		90	x90L		90	x90L
(N)CQ2KWB32-5D			50		M5x50L	
-10D	11	55	x55L	7.5	50	x50L
-15D		60	x60L		55	x55L
-20D		65	x65L		60	x60L
-25D		70	x70L		65	x65L
-30D		75	x75L		70	x70L
-35D		80	x80L		75	x75L
-40D		85	x85L		80	x80L
-45D		90	x90L		85	x85L
-50D		95	x95L		90	x90L

Model	C	D	Mounting bolt	
(N)CQ2KWB40-5D		45	M5x45L	
-10D	7	50	x50L	
-15D		55	x55L	
-20D		60	x60L	
-25D		65	x65L	
-30D		70	x70L	
-35D		75	x75L	
-40D		80	x80L	
-45D		85	x85L	
-50D		90	x90L	
(N)CQ2KWB50-10D			55	M6x55L
-15D	12.5	60	x60L	
-20D		65	x65L	
-25D		70	x70L	
-30D		75	x75L	
-35D		80	x80L	
-40D		85	x85L	
-45D		90	x90L	
-50D		95	x95L	
(N)CQ2KWB63-10D			55	M8x55L
-15D		13.5	60	x60L
-20D	65		x65L	
-25D	70		x70L	
-30D	75		x75L	
-35D	80		x80L	
-40D	85		x85L	
-45D	90		x90L	
-50D	95		x95L	

Copper Free Series Air Cylinder

20 —CQ2KWB Bore Size Stroke D (M)

• Copper Free Series

• $\phi 16$, $\phi 20$, $\phi 25$, $\phi 32$, $\phi 40$, $\phi 50$, $\phi 63$

To protect against adverse effects on cathode ray tubes due to copper ion and fluorine contained in resin, the copper free series uses electroless nickel plated material, no copper is exposed allowing the generation of copper ions.

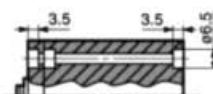
Standard Specifications

Model	20- Non-Rotating
Bore Size	$\phi 16$, $\phi 20$, $\phi 25$, $\phi 32$, $\phi 40$, $\phi 50$, $\phi 63$
Proof Pressure	217psi {15.3kgf/cm ² }
Max. Operating Pressure	145psi {10.2kgf/cm ² }
Rubber cushion	None
Porting	Threaded
Piston Speed	2-20in/s (50-500mm/s)
Mounting	Through hole
Auto Switch	Capable

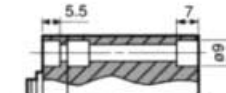
Bore Size $\phi 12 \sim \phi 32$

Through Hole / (N)CQ2KWB

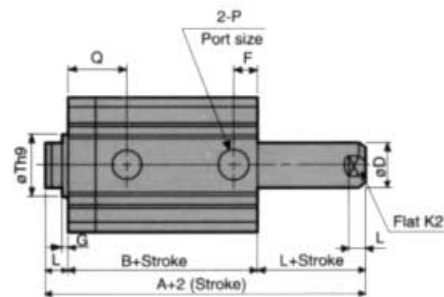
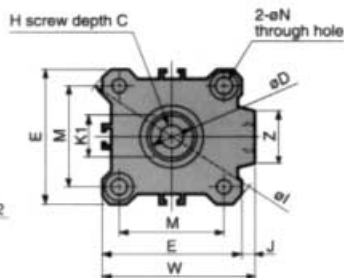
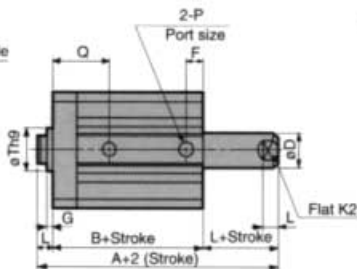
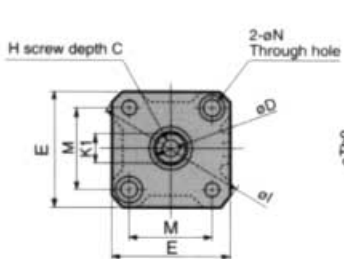
$\phi 12, \phi 16$



$\phi 20 \sim \phi 32$



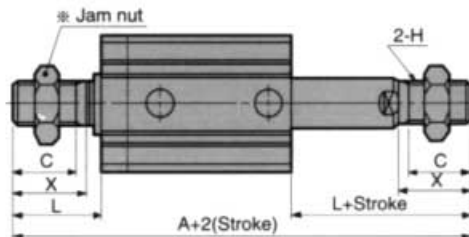
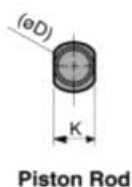
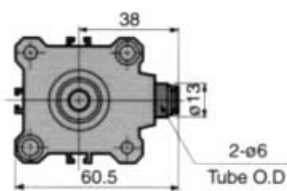
$\phi 12 \sim \phi 25$



Standard

Bore size	Stroke	A	B	CQ2 C	NCQ2 C	D	E	F	G	CQ2 H	NCQ2 inch H	I	J	K1	K2	L	M	N	P	Orifice	Q	Th9	W	Z	
12	5~30	37.2	30.2	6	5.4	6	25	10	1.5	M3x0.5	#8-32	32	-	5.2	5	3.5	15.5	3.5	M5x0.8	1	15	15	$0_{-0.043}$	-	-
16	5~30	38	31	8	5.4	8	29	10	1.5	M4x0.7	#8-32	38	-	6	6	3.5	20	3.5	M5x0.8	1	15	20	$0_{-0.052}$	-	-
20	5~50	43	34	7	7	10	36	9.5	2	M5x0.8	#10-32	47	-	8	8	4.5	25.5	5.5	M5x0.8	1	17.5	13	$0_{-0.043}$	-	-
25	5~50	47	37	12	10	12	40	11	2	M6x1.0	1/4-28 UNF	52	-	10	10	5	28	5.5	M5x0.8	1	19	15	$0_{-0.043}$	-	-
32	5	53.5	39.5	13	13.3	16	45	12.5	2	M8x1.25	5/16-24 UNF	60	4.5	14	14	7	34	5.5	M5x0.8	1.7	21.5	21	$0_{-0.052}$	49.5	14
	1/8																								

One Touch Fitting / $\phi 32$



NCQ2 Male Rod End

Bore size	X	H Inch	L	K1	A
12	8	#8-32UNC	11.5	5.2	53.2
16	8	#8-32UNC	11.5	6	54
20	8	#10-32UNF	12.5	8	59
25	9.5	1/4-28UNF	14.5	10	66
32	12.7	5/16-24UNF	19.7	14	78.9

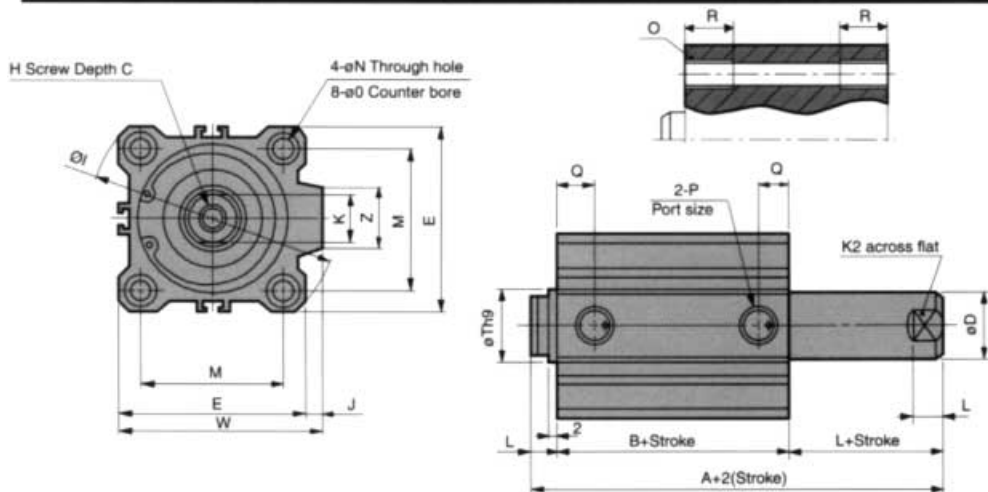
CQ2 Male Rod End

Bore size	C	X	H	L	K1	A
12	9	10.5	M5x0.8	14	5.2	58.2
16	10	12	M6x1.0	15.5	6	62
20	12	14	M8x1.25	18.5	8	71
25	15	17.5	M10x1.25	22.5	10	82
32	20.5	23.5	M14x1.5	28.5	14	96.5

"C" dim. not applicable.

* Rod end nut and accessories detail: see p. 6.

Bore Size $\phi 40\sim\phi 63$

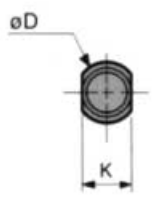
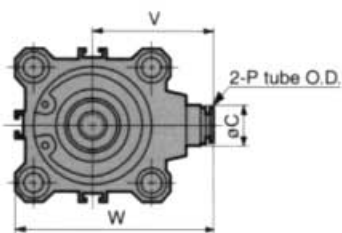


(N)CQ2KWA Both Ends Tapped

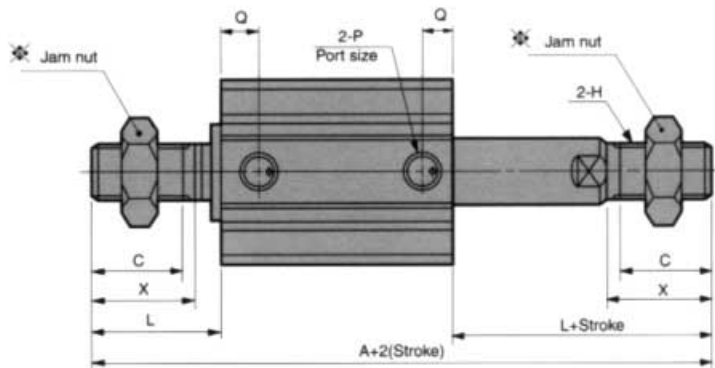
Bore size	CQ2 O	NCQ2 inch O	R
40	M6x1.0	1/4 - 20 UNC	10
50	M8x1.25	5/16 - 18 UNC	14
63	M10x1.5	7/16 - 14 UNC	18

Standard

Bore size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 inch H	I	J	K	K2	L	M	N	O	P	Orifice	Q	Th9	W	Z
40	5-50	54	40	13	18.3	16	52	M8x1.25	3/8-24UNF	69	5	14	14	7	40	5.5	9 depth 7	1/8	2	14	28 $\phi_{0.052}$	57	14
50	10-50	56.5	40.5	15	17.6	20	64	M10x1.5	1/2-20UNF	86	7	18	17	8	50	6.6	11 depth 8	1/4	2.2	14	35 $\phi_{0.052}$	71	19
63	10-50	58	42	15	17.6	20	77	M10x1.5	1/2-20UNF	103	7	18	17	8	60	9	14 depth 10.5	1/4	3	15.5	35 $\phi_{0.052}$	84	19



Piston Rod



One Touch Fittings

Bore size	C	P	V	W
40	13	6	42	68
50	16	8	50	82
63	16	8	56.5	95

NCQ2 Male Rod End

Bore size	X	H Inch	L	K	A
40	16	3/8-24UNF	23	14	86
50	19.5	1/2-20UNF	27.5	18	95.5
63	19.5	1/2-20UNF	27.5	18	97

CQ2 Male Rod End

Bore size	C	X	H	L	K	A
40	20.5	23.5	M14x1.5	28.5	14	97
50	26	28.5	M18x1.5	33.5	18	107.5
63	26	28.5	M18x1.5	33.5	18	109

"C" dim. not applicable.

✳ Rod end nut and accessories are detailed on p. 6.



Standard /
Double Acting Double Rod Non-Rotating

(N)CDQ2KW Series



Standard Specifications

Model	Air Pressure (Non-Lube)
Media	Air
Ambient and Media temp.	15~140°F(-10°C~+60°C) (Dry air)

NOTE 1	Part Number for Auto Switches
	Please refer to p. 74 for part order sequence

The rest of the specifications are the same as that of standard (See p. 75)

Weight Adder

Bore size	12	16	20	25	32	40	50	63
Both ends tapped	-	-	-	-	-	0.013	0.013	0.042
Rod end M thread	Thread	0.007	0.013	0.026	0.053	0.115	0.119	0.234
	Nut	0.004	0.009	0.018	0.035	0.075	0.075	0.141
W/ one touch fitting	-	-	-	-	0.026	0.026	0.046	0.046

How to calculate weight (lbs.)

(N)CDQ2KWA40-20DM
Std Wt.: (N)CDQ2KWB40-20D _ 1.21
Wt. adder: Both ends tapped _ .013
Jam nut _ .194
Total 1.417

Auto Switch Mounting Available / Minimum Stroke

# of Auto Switch Mounting	D-F7□V D-J79C	D-A7 D-A8 D-A73C D-A80C	D-F7□WV	D-A7□H D-A80H D-F7□ D-J79	D-A79W	D-F7□W D-J79W D-F7BAL D-F79F	D-F7LF
1pcs	5mm	5mm	10mm	15mm	15mm	20mm	25mm
2pcs	5mm	10mm	15mm	15mm	20mm	20mm	25mm

Note) See pg.13 for Auto Switch Specifications.

When mounting auto switch, add for additional mounting bracket weight

Auto Switch Mounting Bracket Weight

Part no.	Applicable cylinder bore size	Weight lbs.
BQ-1	ø12~ø25	.003
BQ-2	ø32~ø63	.003

Weight / Single Acting: Single Rod

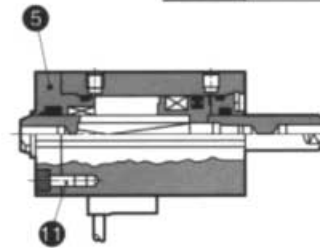
Bore size	Stroke									
	5	10	15	20	25	30	35	40	45	50
12	0.18	0.20	0.22	0.23	0.25	0.27	-	-	-	-
16	0.23	0.25	0.28	0.30	0.32	0.35	-	-	-	-
20	0.37	0.41	0.45	0.49	0.52	0.56	0.60	0.64	0.67	0.71
25	0.51	0.55	0.58	0.62	0.66	0.70	0.73	0.77	0.81	0.85
32	0.60	0.65	0.70	0.75	0.81	0.86	0.91	0.97	1.02	1.07
40	1.01	1.08	1.15	1.21	1.28	1.35	1.42	1.49	1.56	1.63
50	-	1.50	1.60	1.70	1.80	1.90	2.00	2.09	2.19	2.29
63	-	2.00	2.08	2.17	2.26	2.34	2.43	2.51	2.60	2.69

Parts List

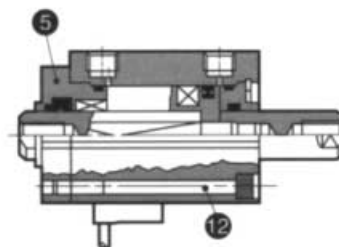
No.	Description	Material	Remarks
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromate
3	Piston rod A	Stainless steel	Bore ø12~ø25
		Carbon steel	Bore ø32~ø63, hard chrome plated
4	Piston rod B	Stainless steel	Bore ø12~ø25
		Carbon steel	Bore ø32~ø63, hard chrome plated
5	Collar	Brass	Bore ø12 Black chromate
		Aluminum alloy	Bore ø16~ø32, Black anodized
6	Collar	Aluminum Alloy	Bore ø40~ø63, Black anodized
7	Collar	Bearing grade aluminum	Bore ø12~ø40, Black anodized
		Aluminum Alloy	Bore ø50~ø63, Black anodized
8	Retaining ring	Carbon tool steel	phosphate coating
9	Bushing	Sintered alloy	Bore ø16~ø63
10	Bushing	Lead tin bronze casting	ø12~ø25, Black chromate
11	Bolt	Steel alloy	ø12~ø25, Black chromate
12	Bolt	Steel alloy	ø32, Nickel plated
13	Set screw	Steel alloy	ø40~ø63, Black coating
14	Magnet	-	-
19	Piston gasket	NBR	-

Seals List

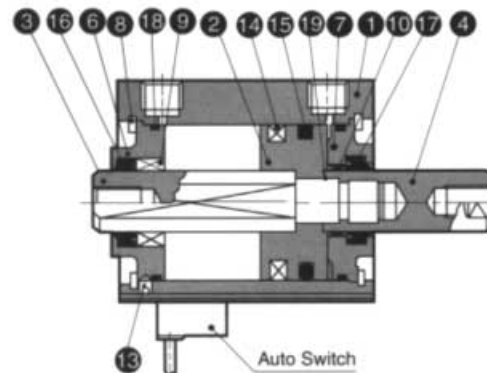
No.	Description	Material	Parts No.							
			ø12	ø16	ø20	ø25	ø32	ø40	ø50	ø63
15	Piston seal	NBR	NLP-12-7L	NLP-16A	NLP-20A	NLP-25A	NLP-32A	NLP-40A	NLP-50A	NLP-63B
16	Rod seal	NBR	SS-6X5.2Q	SS-8X6.2Q	SS-10X8Q	SS-12	SS-16S	SS-16S	SS-20S	SS-20S
17	Rod seal	NBR	DYR-6K	DYR-8K	DYR-10SK	DYR-12	DYR-16	PDU-16Z	PDU-20Z	PDU-20Z
18	Gasket	NBR	SO-013-6	C14	C18	C22	C29	C36	C46	C60



ø12~ø25



ø32



ø40~ø63

Mounting Bolt For (N)CDQ2KWB / with Auto Switch

Special long mounting bolt for through hole mounting is available as an option.

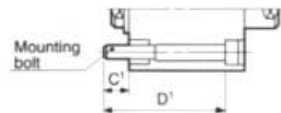
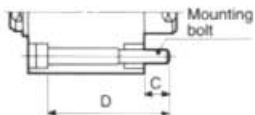
How to Order:

Specify the required bolts

Example)

Bolt M3x40L $\phi 12$ - $\phi 32$ 2pc.
 $\phi 40$ - $\phi 63$ 4pc.

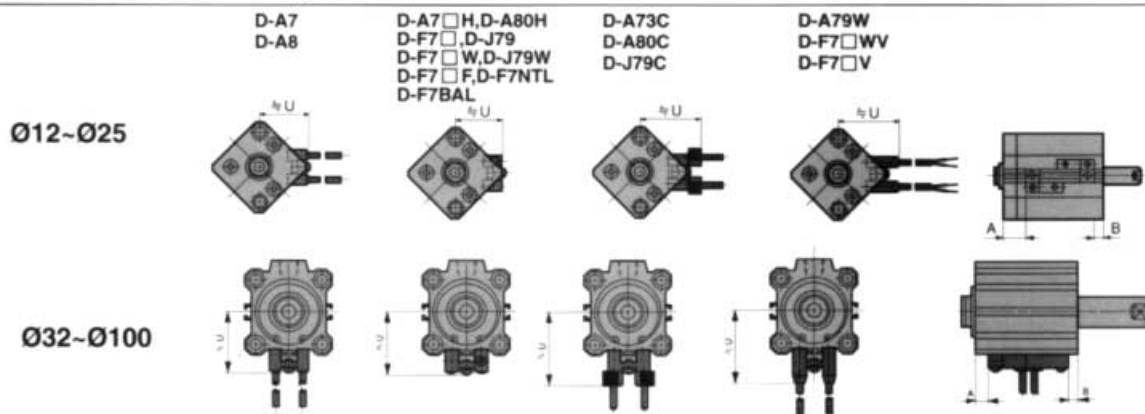
Thread	Pitch
M3	0.5
M5	0.8
M6	1.0
M8	1.25
M10	1.5



Model	C	D	Mounting bolt	C'	D'	Mounting bolt
(N)CDQ2KWB12-5DC	6.1	40	M3x40L	6.1	45	M3x45L
-10DC		45	x45L		50	x50L
-15DC		50	x50L		55	x55L
-20DC		55	x55L		60	x60L
-25DC		60	x60L		65	x65L
-30DC	65	x65L	70	x70L		
(N)CDQ2KWB16-5D	7.5	45	M3x45L	7.5	50	M3x50L
-10D		50	x50L		55	x55L
-15D		55	x55L		60	x60L
-20D		60	x60L		65	x65L
-25D		65	x65L		70	x70L
-30D	70	x70L	75	x75L		
(N)CDQ2KWB20-5D	9	45	M5x45L	11	55	M5x55L
-10D		50	x50L		60	x60L
-15D		55	x55L		65	x65L
-20D		60	x60L		70	x70L
-25D		65	x65L		75	x75L
-30D	70	x70L	80	x80L		
-35D	75	x75L	85	x85L		
-40D	80	x80L	90	x90L		
-45D	85	x85L	95	x95L		
-50D	90	x90L	100	x100L		
(N)CDQ2KWB25-5D	8	45	M5x45L	10	55	M5x55L
-10D		50	x50L		60	x60L
-15D		55	x55L		65	x65L
-20D		60	x60L		70	x70L
-25D		65	x65L		75	x75L
-30D	70	x70L	80	x80L		
-35D	75	x75L	85	x85L		
-40D	80	x80L	90	x90L		
-45D	85	x85L	95	x95L		
-50D	90	x90L	100	x100L		
(N)CDQ2KWB32-5D	11	60	M5x60L	7.5	55	M5x55L
-10D		65	x65L		60	x60L
-15D		70	x70L		65	x65L
-20D		75	x75L		70	x70L
-25D		80	x80L		75	x75L
-30D	85	x85L	80	x80L		
-35D	90	x90L	85	x85L		
-40D	95	x95L	90	x90L		
-45D	100	x100L	95	x95L		
-50D	105	x105L	100	x100L		

Model	C	D	Mounting bolt
(N)CDQ2KWB40-5D	7	55	M5x55L
-10D		60	x60L
-15D		65	x65L
-20D		70	x70L
-25D		75	x75L
-30D	80	x80L	
-35D	85	x85L	
-40D	90	x90L	
-45D	95	x95L	
-50D	100	x100L	
(N)CDQ2KWB50-10D	12.5	65	M6x65L
-15D		70	x70L
-20D		75	x75L
-25D		80	x80L
-30D		85	x85L
-35D	90	x90L	
-40D	95	x95L	
-45D	100	x100L	
-50D	105	x105L	
(N)CDQ2KWB63-10D	13.5	65	M8x65L
-15D		70	x70L
-20D		75	x75L
-25D		80	x80L
-30D		85	x85L
-35D	90	x90L	
-40D	95	x95L	
-45D	100	x100L	
-50D	105	x105L	

Auto Switch Mounting Data



Auto Switch Mounting Postion

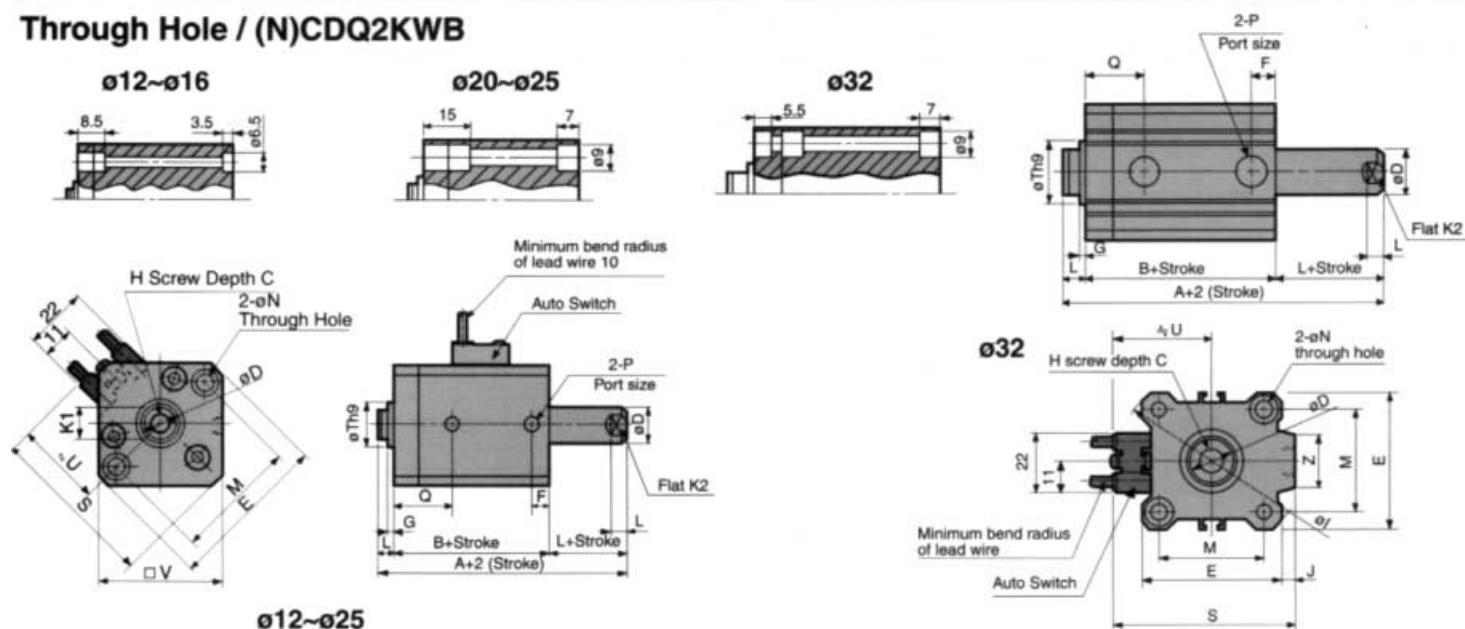
Bore Size (mm)	D-A7•A8		D-A7□H•A80H D-A73C•A80C D-F7□•J79 D-F7□V•J79C				D-A79W		D-F7BAL D-F7PW D-F7□F D-J79C		D-F79W D-F7□WV	
	A	B	A	B	A	B	A	B	A	B	A	B
12	9.5	10	10	10.5	7	7.5	14	14.5	10.5	11		
16	12.5	10.5	13	11	10	8	17	15	13.5	11.5		
20	15.5	13	16	13.5	13	10.5	20	17.5	16.5	14		
25	15.5	13	16	13.5	13	10.5	20	17.5	16.5	14		
32	18	13.5	18.5	14	15.5	11	22.5	18	19	14.5		
40	13	19	13.5	19.5	10.5	16.5	17.5	23.5	14	20		
50	11	21.5	11.5	22	8.5	19	15.5	26	12	22.5		
63	13.5	20.5	14	21	11	18	18	25	14.5	21.5		

Auto Switch Mounting Height

Bore Size (mm)	D-A7 A8	D-A7□H D-A80H D-F7□ D-J79	D-J79W D-F7BAL D-F7□F D-F7NTL D-F7□W	D-A73C D-A80C D-F7□WV	D-F7□V	D-J79C	D-A79W
	U	U	U	U	U	U	U
12	19.5	20.5	26.5	23	26	22	
16	22.5	23.5	29.5	26	29	25	
20	24.5	25.5	31.5	28	31	27	
25	27.5	28.5	34.5	31	34	30	
32	31.5	32.5	38.5	35	38	34	
40	35	36	42	38.5	41.5	37.5	
50	41	42	48	44.5	47.5	43.5	
63	47.5	48.5	54.5	51	54	50	

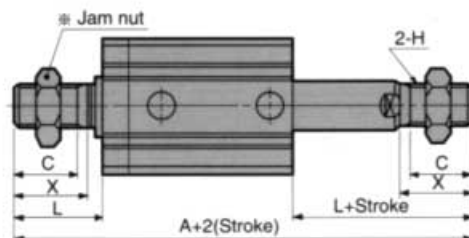
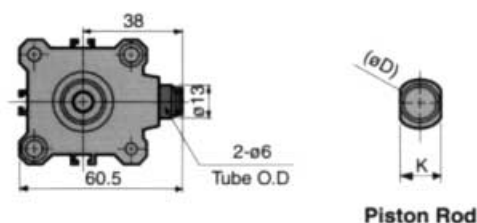
Bore Size $\phi 12\sim\phi 32$

Through Hole / (N)CDQ2KWB



Standard

Bore size	Stroke	A	B	CQ2 C	NCQ2 C	D	E	F	G	CQ2 H	NCQ2 inch H	I	J	K2	L	M	N	P*	Q	S	Th9	U	V	Z	
12	5~30	44.4	37.4	6	5.4	6	32	10.5	1.5	M3x0.5	#8-32	-	-	5	3.5	22	3.5	M5x0.8	15.5	35.5	15	0.043	19.5	25	-
16	5~30	48	41	8	5.4	8	38	10	1.5	M4x0.7	#8-32	-	-	6	3.5	28	3.5	M5x0.8	15	41.5	20	0.052	22.5	29	-
20	5~50	55	46	7	7	10	47	10.5	2	M5x0.8	#10-32	-	-	8	4.5	36	5.5	M5x0.8	18.5	48	13	0.043	24.5	36	-
25	5~50	57	47	12	10	12	52	11	2	M6x1.0	1/4-28 UNF	-	-	10	5	40	5.5	M5x0.8	19	53.5	15	0.043	27.5	40	-
32	5~50	63.5	49.5	13	13.3	16	45	12.5	2	M8x1.25	5/16-24 UNF	60	4.5	14	7	34	5.5	1/8	21.5	58.5	21	0.052	31.5	-	18

* Orifice size $\phi 12\sim\phi 25$: 1mm, $\phi 32$: 1.7mmOne Touch Fitting / $\phi 32$ 

NCDQ2 Male Rod End

Bore size	X	H Inch	L	K1	A
12	8	#8-32UNC	11.5	5.2	60.4
16	8	#8-32UNC	11.5	6	64
20	8	#10-32UNF	12.5	8	71
25	9.5	1/4-28UNF	14.5	10	76
32	12.7	5/16-24UNF	19.7	14	88.9

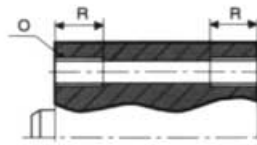
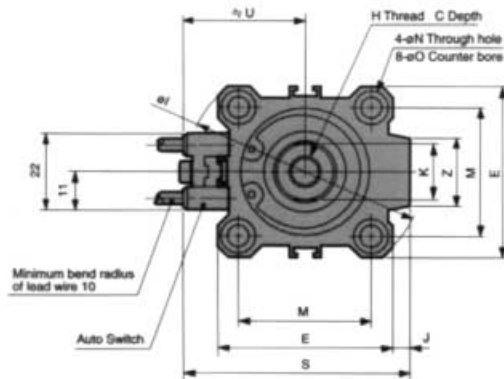
CDQ2 Male Rod End

Bore size	C	X	H	L	K1	A
12	9	10.5	M5x0.8	14	5.2	65.4
16	10	12	M6x1.0	15.5	6	72
20	12	14	M8x1.25	18.5	8	83
25	15	17.5	M10x1.25	22.5	10	92
32	20.5	23.5	M14x1.5	28.5	14	106.5

"C" dim. not applicable.

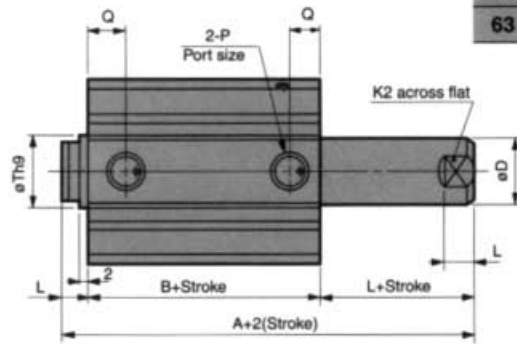
* Rod end nut and accessories detail: see p. 6.

Bore Size $\phi 40 \sim \phi 63$



(N)CDQ2KWA
Both Ends Tapped

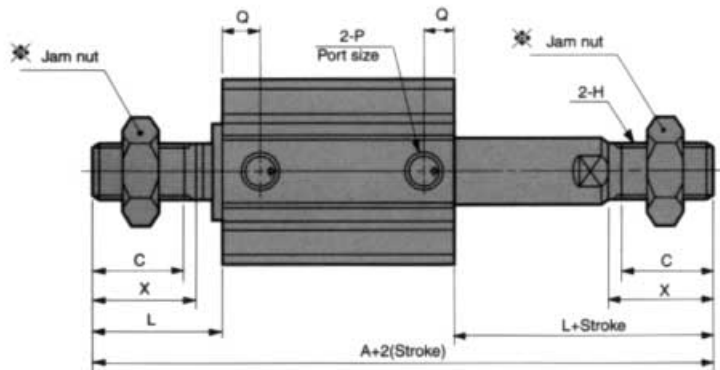
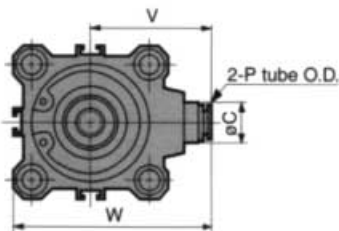
Bore size	CQ2 O	NCQ2 Inch O	R
40	M6x1.0	1/4 - 20 UNC	10
50	M8x1.25	5/16 - 18 UNC	14
63	M10x1.5	7/16 - 14 UNC	18



Standard

Bore size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 Inch H	I	J	K	K2	L	M	N	O	P*	Q	S	Th9	U	Z	
40	5~50	64	50	13	18.3	16	52	M8x1.25	3/8-24UNF	69	5	14	14	7	40	5.5	9 depth 7	1/8	14	66	28	$\delta_{.052}$	35	14
50	10~50	66.5	50.5	15	17.6	20	64	M10x1.5	1/2-20UNF	86	7	18	17	8	50	6.6	11 depth 8	1/4	14	80	35	$\delta_{.062}$	41	19
63	10~50	68	52	15	17.6	20	77	M10x1.5	1/2-20UNF	103	7	18	17	8	60	9	14 depth 10.5	1/4	15.5	93	35	$\delta_{.062}$	47.5	19

*Orifice size: $\phi 40=2\text{mm}$, $\phi 50=2.2\text{mm}$, $\phi 63=3\text{mm}$
 The above Auto Switch is used for D-A73 and D-A80.
 The Auto Switch set position and mounting height: See p.81



One Touch Fittings

Bore size	C	P	V	W
40	13	6	42	68
50	16	8	50	82
63	16	8	56.5	95

NCQ2 Male Rod End

Bore size	X	H Inch	L	K	A
40	16	3/8-24UNF	23	14	96
50	19.5	1/2-20UNF	27.5	18	105.5
63	19.5	1/2-20UNF	27.5	18	107

CQ2 Male Rod End

Bore size	C	X	H	L	K	A
40	20.5	23.5	M14x1.5	28.5	14	107
50	26	28.5	M18x1.5	33.5	18	117.5
63	26	28.5	M18x1.5	33.5	18	119

"C" dim. not applicable.
 ⚙ Rod end nut and accessories are detailed on p. 6.



Large Bore Compact Cylinder: Standard / Double Acting Single Rod NCQ2 / CQ2 Series

ø125, ø140, ø160

How To Order

NCQ2B 125 30 D C M

NCDQ2B 125 30 D C M A73 S

W/ Auto Switch

Mounting

B Through hole w/ both ends tapped

PT, metric
N NPT, inch

W/ Auto Switch
(built-in magnet)

Bore Size

125	125mm (5" Nom.)
140	140mm (5-5/8" Nom.)
160	160mm (6-3/8" Nom.)

Cylinder Stroke (mm)
Please refer to p.85 for standard strokes

Action

D Double

Cushion

C Rubber cushion

Body Option

-	Std. (Female thread)
M	Male thread

Preferred Option Program

Auto Switch

-	2 pcs.
S	1 pcs.
n	n pcs.

Auto Switch Capability

-	Without Auto Switch
---	---------------------

Auto Switch Specifications

Type	Autoswitch		Indicator light	Wire (Output type)	Load Voltage	
	Perpendicular entry	In-line entry			DC	AC
Reed switch	—	A76H	Yes	3 Wire	—	5V
	A72	A72H			—	200V
	A73	A73H			12V	100V
	A80	A80H	No	2 Wire	24V	5V, 12V
	A73C	—	No			12V
	A80C	—	No			5V, 12V
	A79W	—	Yes			—
Solid State Switch	F7NV	F79	Yes	3 Wire NPN	24V	5V, 12V
	F7PV	F7P		3 Wire PNP		
	F7BV	J79		2 Wire	12V	
	J79C	—				
	F7NWV	F79W		3 Wire NPN	24V	5V, 12V
	—	F7PW		3 Wire PNP		
	F7BWV	J79W		2 Wire		
	—	F7BAL				
	—	F7NTL		3 Wire NPN	24V	5V, 12V
	—	F79F		4 Wire NPN		
—	F7LF					

Load length 0.5m.....Std. Connector A80C 5m.....Z Connector A80CZ
3m.....L A80CL No lead.....N A80CN



Compact Cylinder: Standard / Large Bore Double Acting Single Rod

(N)CQ2 Series



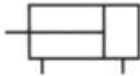
Model

Bore Size		125	140	160	
Air-Pressure Type	Mounting	Through hole (std) Both ends tapped	●	●	●
	Built-in Magnet		●	●	●
	Piping Method	Threaded PT or NPT	3/8	3/8	3/8
	Rod End Male Thread		●	●	●
	W/Rubber Cushion		●	●	●

Standard Specifications

Media	Air	
Proof Pressure	217psi (15.3kgf/cm ²)	
Max. Operating Pressure	145psi (10.2kgf/cm ²)	
Min. Operating Pressure	7.23(0.51kgf/cm ²)	
Ambient and Media temp.	w/out Autoswitch	15~160°F(-10°C~+70°C) (At freezing temp. air must be dry)
	w/ Autoswitch	15~140°F(-10°C~+60°C) (At freezing temp. air must be dry)
Rubber cushion	Rubber Cushion (std.)	
Rod end thread	Female Thread (std.)	
Rod end thread tolerance	JIS Class 2	
Stroke Length tolerance	+1.4 0 mm	
Mounting	Through hole, both ends tapped	
Piston Speed	2~20in/s (50~500mm/s)	

Double acting/
Single rod



Standard Stroke

Bore size	Standard stroke
125, 140, 160	10, 20, 30, 40, 50, 75, 100, 125, 150, 175, 200, 250, 300

• Available intermediate strokes
Intermediate strokes in 5mm increments are available by installing a spacer into the STD. stroke cylinder.
Example] (N)CQ2B125-160DCis done by installing a 15mm (w)spacer into the std. cylinder in (N)CQ2B125-175DC.

Weight / Large Bore Single Acting: Single Rod

Bore Size (mm)	Stroke (mm)												
	10	20	30	40	50	75	100	125	150	175	200	250	300
125	12.08	12.66	13.23	13.80	14.38	15.81	17.22	18.65	20.09	21.52	22.95	25.82	28.69
140	14.31	14.95	15.61	16.27	16.93	18.57	20.22	21.85	23.51	25.14	26.79	30.08	33.36
160	19.76	20.53	21.32	22.12	22.91	24.89	26.88	28.86	30.85	32.83	34.82	38.79	42.73

Cautions

❶ When mounting, completely flush piping and be careful that dust and chips do not enter the cylinder.

❷ • The Piston rod load should always be aligned with the cylinder axis.
• Cylinder installation requires accurate alignment.
• When used as a stopper, avoid side loading of the piston rod.

❸ Prevent damage to the piston rod. A damaged piston rod will lead to damage of the rod seal and result in leakage.

(N)CQ2 Large Bore Min. Stroke w/ Switches

Switch Qty	D-F7□V D-J79C D-F7□ D-J79	D-A7, D-A8 D-A73C, D-A80C D-A7□H D-A80H	D-F7□WV D-F7□W, D-J79W D-F7BAL D-F7NF, D-F7LF	D-A79W
1 pc	5mm	5mm	10mm	15mm
2 pcs	5mm	10mm	15mm	20mm

Theoretical Force

Bore size (mm)	Rod direction	Operating Pressure (psi)		
		50	75	100
125	IN	872	1308	1743
	OUT	951	1426	1901
140	IN	1114	1670	2227
	OUT	1192	1789	2385
160	IN	1479	2218	2957
	OUT	1557	2336	3115

Large Bore Compact Cylinder: Standard / Double Acting Single Rod

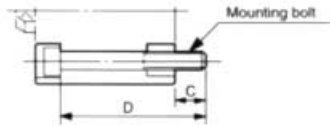
Mounting Bolt For CQ2

Special long mounting bolt for through hole mounting is available as an option.

How to Order:

Specify the required bolts

Example) Bolt M12x100L 4pcs.



Model Bore Stroke	CQ2 ø125•140 °C	D	Mounting bolt
10	22.9	100	M12x100L
20		110	x110L
30		120	x120L
40		130	x130L
50		140	x140L
75		165	x165L
100		190	x190L
125		215	x215L
150		240	x240L
175		265	x265L
200		290	x290L
250	340	x340L	
300	390	x390L	

Model Bore Stroke	CQ2 ø160 °C	D	Mounting bolt
10	27.7	110	M14x110L
20		120	x120L
30		130	x130L
40		140	x140L
50		150	x150L
75		175	x175L
100		200	x200L
125		225	x225L
150		250	x250L
175		275	x275L
200		300	x300L
250	350	x350L	
300	400	x400L	

* The "C" dimension includes the thickness of the standard mounting washer.
 ** Mounting bolt and dimensions are the same for switch capable design.

Mounting Washers

	ø125, 140	ø160
CQ2	M12S(CQ2)	M14S(CQ2)
NCQ2	M12S(CQ2)	JIUSP-96025

How to obtain the total weight (lbs)

(N)CDQ2B125-30DCM

Std wt.:	(N)CDQ2B125-30DC	13.23
Wt. adder:	Magnet	0.132
	Male rod w/ nut	1.037
	Total	14.399 lbs.

Weight Adder

Bore size	lbs.			
	ø125	ø140	ø160	
Rod end M thread	Thread	0.684	0.684	1.058
	Nut	0.353	0.353	0.573
Auto switch magnet		0.132	0.154	0.176

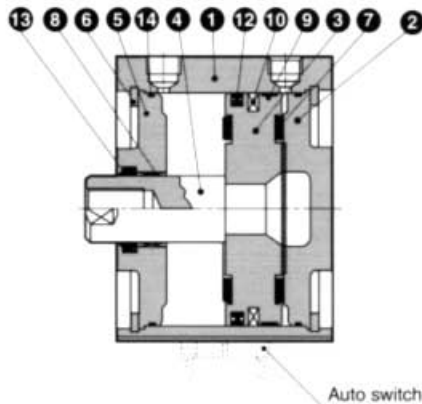
Thread	Pitch
M12	1.72
M14	2

When mounting auto switch, add for additional mounting bracket weight

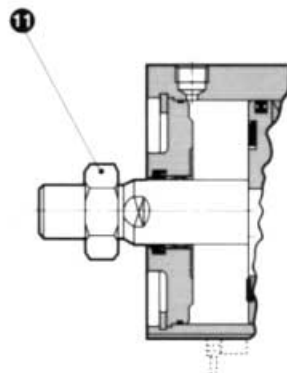
Auto Switch Mounting Bracket Weight

Part no.	Applicable cylinder bore size	Weight lbs.
BQ-2	125~160	.003

Construction / Parts List



Double Acting / Single Rod



Male Thread with Jam Nut

Parts List

No.	Description	Material	Remarks
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Head cover	Aluminum alloy	Black anodized
3	Piston	Aluminum alloy	Chromate
4	Piston rod	Carbon steel	Hard chrome plated
5	Collar	Aluminum alloy	Black anodized
6	Retaining ring	Carbon tool steel	Phosphate coating
7	Bumper	Polyurethane rubber	
8	Bushing	Sintered alloy	Oil impregnated
9	Wear ring	Phenolic	
10	Magnet	-	(N)CDQ2 only
11	Rod end nut	Carbon steel	

Seals List

No.	Description	Material	Parts No.		
			ø125	ø140	ø160
12	Piston seal	NBR	NLP-125A	NLP-140A	NLP-150A
13	Rod seal	NBR	PDU-36Z	PDU-36Z	PDU-40Z
14	Gasket	NBR	C120	C135	C155



Large Bore Compact Cylinder: Standard / Double Acting Double Rod NCQ2W / CQ2W Series

ø125, ø140, ø160

How To Order

NCQ2WB 125 30 D C M

W/ Auto Switch NCDQ2WB 125 30 D C M A73 S

PT, metric
NPT, inch

W/ Auto Switch (built-in magnet)

W Double rod

Mounting
B Through hole w/ both ends tapped

Bore Size

125	125mm (5" Nom.)
140	140mm (5-5/8" Nom.)
160	160mm (6-3/8" Nom.)

Cylinder Stroke (mm)
Please refer to p.89 for standard strokes

Action
D Double

Cushion
C Rubber cushion

Body Option

-	Std. (Female thread)
M	Male thread

Preferred
Option
Program

Auto Switch

-	2 pcs.
S	1 pcs.
n	n pcs.

Auto Switch Capability

-	Without Auto Switch
---	---------------------

Auto Switch Specifications

Type	Autoswitch		Indicator light	Wire (Output type)	Load Voltage	
	Perpendicular entry	In-line entry			DC	AC
Reed switch	—	A76H	Yes	3 Wire	—	5V
	A72	A72H			—	200V
	A73	A73H			12V	100V
	A80	A80H	No	2 Wire	24V	5V, 12V
	A73C	—	No			12V
	A80C	—	No			5V, 12V
	A79W	—	Yes			—
Solid State Switch	F7NV	F79	Yes	3 Wire NPN	24V	5V, 12V
	F7PV	F7P		3 Wire PNP		
	F7BV	J79		2 Wire	12V	
	J79C	—		3 Wire NPN	24V	5V, 12V
	F7NWV	F79W		3 Wire PNP		
	—	F7PW		2 Wire	12V	
	F7BWV	J79W		3 Wire NPN	24V	5V, 12V
	—	F7BAL		4 Wire NPN		
	—	F7NTL		2 Wire	12V	
	—	F79F		3 Wire NPN	24V	5V, 12V
—	F7LF	4 Wire NPN				

Load length 0.5m.....Std. Connector A80C 5m.....Z Connector A80CZ
3m.....L A80CL No lead.....N A80CN



Compact Cylinder: Standard /
Large Bore Double Acting Double Rod

(N)CQ2W Series



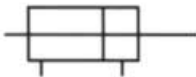
Model

Bore Size		125	140	160	
Air-Pressure Type	Mounting	Through hole (std)	●	●	●
		Both ends tapped	●	●	●
	Built-In Magnet		●	●	●
	Piping Method	Threaded	3/8	3/8	3/8
		PT or NPT			
Rod End Male Thread		●	●	●	
W/Rubber Cushion		●	●	●	

Standard Specifications

Media	Air	
Proof Pressure	217psi (15.3kgf/cm ²)	
Max. Operating Pressure	145psi (10.2kgf/cm ²)	
Min. Operating Pressure	7.23(0.51kgf/cm ²)	
Ambient and Media temp.	w/out Autoswitch	15~160°F(-10°C~+70°C) (At freezing temp. air must be dry)
	w/ Autoswitch	15~140°F(-10°C~+60°C) (At freezing temp. air must be dry)
Rubber cushion	Rubber Cushion (std.)	
Rod end thread	Female Thread (std.)	
Rod end thread tolerance	JIS Class 2	
Stroke Length tolerance	+1.4 0 mm	
Mounting	Through hole, both ends tapped	
Piston Speed	2~20in/s (50~500mm/s)	

Double acting/
Double rod



Standard Stroke

Bore size	Standard stroke
125, 140, 160	10, 20, 30, 40, 50, 75, 100, 125, 150, 175, 200, 250, 300

Weight / Large Bore Single Acting: Double Rod

Bore Size (mm)	Stroke (mm)												
	10	20	30	40	50	75	100	125	150	175	200	250	300
125	12.59	13.27	13.98	14.73	15.48	17.35	19.21	21.08	22.95	24.83	26.70	30.45	34.18
140	14.84	15.59	16.38	17.20	18.04	20.13	22.20	24.28	26.37	28.44	30.52	34.68	38.85
160	20.42	21.37	22.31	23.33	24.34	26.86	29.39	31.91	34.44	36.96	39.49	44.54	49.59

Cautions

- When mounting, completely flush piping and be careful that dust and chips do not enter the cylinder.
- The Piston rod load should always be aligned with the cylinder axis.
 - Cylinder installation requires accurate alignment.
 - When used as a stopper, avoid side loading of the piston rod.
- Prevent damage to the piston rod. A damaged piston rod will lead to damage of the rod seal and result in leakage.

(N)CQ2 Large Bore Min. Stroke w/ Switches

Switch Qty	D-F7□V D-J79C D-F7□ D-J79	D-A7, D-A8 D-A73C, D-A80C D-A7□H D-A80H	D-F7□WV D-F7□W, D-J79W D-F7BAL D-F7NF, D-F7LF	D-A79W
1 pc	5mm	5mm	10mm	15mm
2 pcs	5mm	10mm	15mm	20mm

Theoretical Force

Bore size (mm)	Operating Pressure (psi)		
	50	75	100
125	872	1308	1743
140	1114	1670	2227
160	1479	2218	2957

Large Bore Compact Cylinder: Standard / Double Acting Double Rod

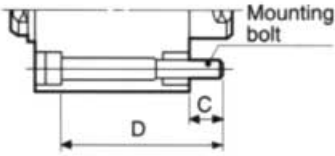
Mounting Bolt For CQ2W

Special long mounting bolt for through hole mounting is available as an option.

How to Order:

Specify the required bolts.

Example) Bolt M12x100L 4pcs.



Model Bore Stroke	CQ2 ø125*140 *C	D	Mounting bolt
10	22.9	100	M12x100L
20		110	x110L
30		120	x120L
40		130	x130L
50		140	x140L
75		165	x165L
100		190	x190L
125		215	x215L
150		240	x240L
175		265	x265L
200	290	x290L	
250	340	x340L	
300	390	x390L	

Model Bore Stroke	CQ2 ø160 *C	D	Mounting bolt
10	27.7	110	M14x110L
20		120	x120L
30		130	x130L
40		140	x140L
50		150	x150L
75		175	x175L
100		200	x200L
125		225	x225L
150		250	x250L
175		275	x275L
200	300	x300L	
250	350	x350L	
300	400	x400L	

* The "C" dimension includes the thickness of the standard mounting washer.
 ** Mounting bolt and dimensions are the same for switch capable design.

Mounting Washers

	ø125, 140	ø160
CQ2	M12S(CQ2)	M14S(CQ2)
NCQ2	M12S(CQ2)	UIUSP-96025

How to obtain the total weight (lbs)

(N)CDQ2WB125-30DCM

Std wt.:	(N)CDQ2WB125-30DCM	13.98
Wt. adder:	Magnet	0.132
	Male rod w/ nut	2.073
	Total	16.185 lbs.

Weight Adder

Bore size	ø125	ø140	ø160
Rod end M thread	1.367	1.367	2.117
Nut	0.706	0.706	1.147
Autoswitch magnet	0.132	0.154	0.176

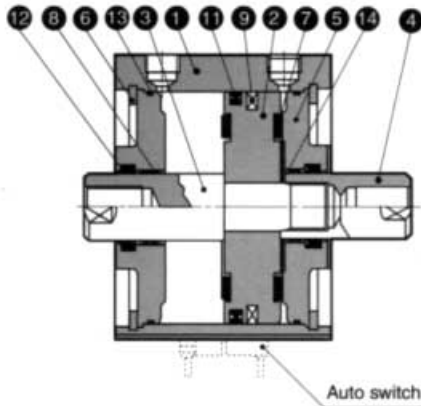
Thread	Pitch
M12	1.72
M14	2

When mounting autoswitch, add for additional mounting bracket weight

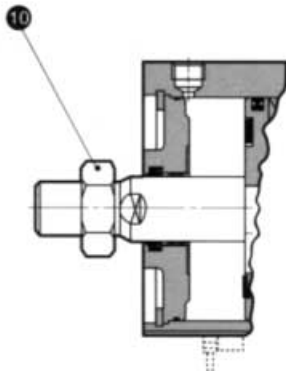
Autoswitch Mounting Bracket Weight

Part no.	Applicable cylinder bore size	Weight lbs.
BQ-2	125 ~ 160	.003

Construction / Parts List



Double Acting / Double Rod



Male Thread with Jam Nut

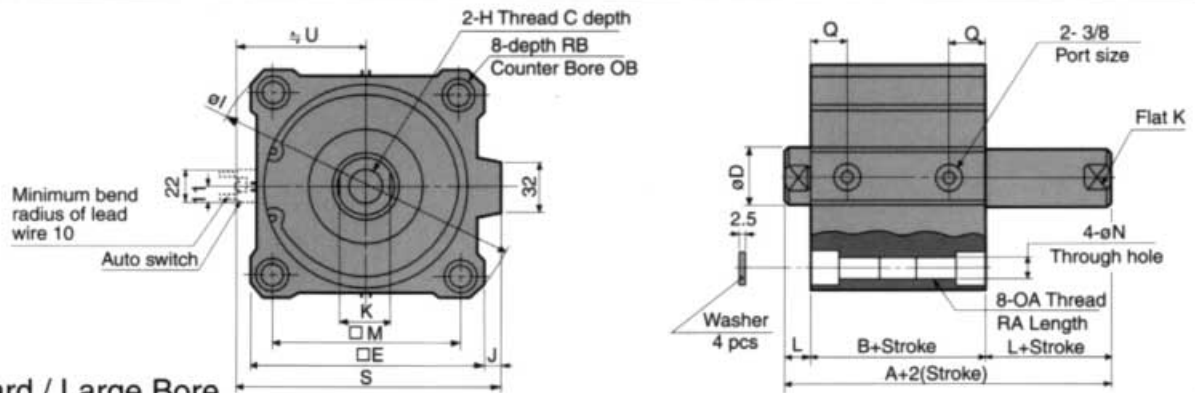
Parts List

No.	Description	Material	Remarks
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromate
3	Piston rod A	Carbon steel	Hard chrome plated
4	Piston rod B	Carbon steel	Hard chrome plated
5	Collar	Aluminum alloy	Black anodized
6	Retaining ring	Carbon tool steel	Phosphate coating
7	Bumper	Polyurethane rubber	-
8	Bushing	Lead bronze alloy	-
9	Magnet	-	(N)CDQ2 only
10	Rod end nut	Rolled steel	Nickel plated
14	Gasket	NBR	-

Seals List

No.	Description	Material	Parts No.		
			ø125	ø140	ø160
11	Piston seal	NBR	NLP-125A	NLP-140A	NLP-160A
12	Rod seal	NBR	PDU-36Z	PDU-36Z	PDU-40Z
13	Gasket	NBR	C120	C135	C155

Large Bore Compact Cylinder: Standard / Double Acting Double Rod



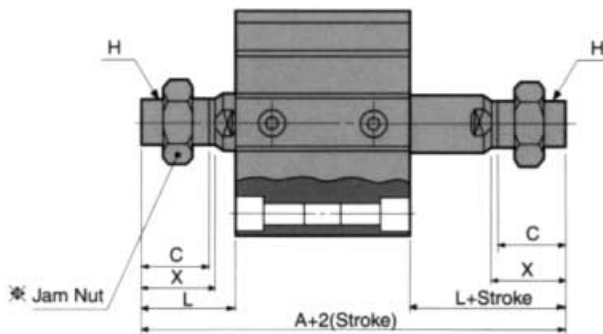
Standard / Large Bore

Bore size	Stroke	A	B	CQ2 C Note 3	NCQ2 C	D	E	CQ2 H	NCQ2 Inch H	I	J	K	L	M	CQ2 N	NCQ2 N	CQ2 OA
125	10, 20, 30, 40, 50, 75, 100, 125, 150, 175,	115	83	30 (22.5)	30	36	142	M22x2.5	3/4 - 16	190	11	32	16	114	12.5	12.2	M14x2
140	200, 250, 300	115	83	30 (22.5)	30	36	158	M22x2.5	3/4 - 16	210	10	32	16	128	12.5	12.2	M14x2
160		125	91	33 (26.5)	33	40	178	M24x3	3/4 - 16	238	10	36	17	144	14.5	13.7	M16x2

Bore size	Stroke	NCQ2 Inch OA	OB	Q	RA	RB	S	U	Orifice
125	10, 20, 30, 40, 50, 75, 100, 125, 150, 175,	9/16 - 12	21.2	24.5	25	18.4	163	81	6
140		9/16 - 12	21.2	24.5	25	18.4	178	89	7
160		5/8 - 11	24.2	27.5	28	21.2	198	99	8

Note 1) When mounting cylinder with through hole, be sure to use washer.
 Note 2) Dimensions are the same for standard and switch capable.

Note 3) Thread depth for 10 stroke ()



CQ2 Male Rod End

Bore size	A	C	H	L	X
125	199	42	M30x1.5	58	45
140	199	42	M30x1.5	58	45
160	219	47	M36x1.5	64	50

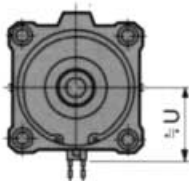
NCQ2 Male Rod End

Bore size	A	C	H	L	X
125	199	42	1-1/4 - 12	58	45
140	199	42	1-1/4 - 12	58	45
160	219	47	1-3/8 - 12	64	50

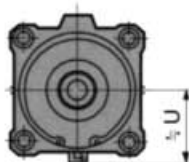
*Rod end nut and accessories are detailed on p. 6.

Auto Switch Mounting Data

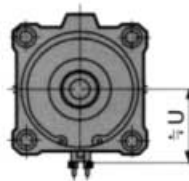
D-A7
D-A8



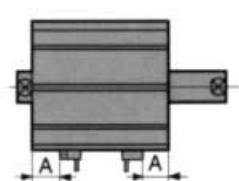
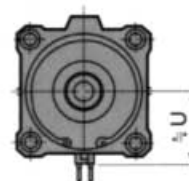
D-A7 □ H, D-A80H
D-F7 □, D-J79
D-F7 □ W, D-J79W
D-F7 □ F, D-F7NTL
D-F7BAL



D-A73C
D-A80C
D-J79C



D-A79W
D-F7 □ WV
D-F7 □ V



Auto Switch Mounting Position

Bore Size (mm)	D-A7 D-A8	D-A7 □ H-A80H D-A73C-A80C D-F7 □ F-F7 □ V D-J79C, J79	D-A79W	D-F7NTL	D-F7PW D-J79W D-F79F D-F7LF D-F7BAL	D-F79W D-F7 □ WV
	A	A	A	A	A	A
125	32.5	33	30	38	37	33.5
140	32.5	33	30	38	37	33.5
160	36.5	37	34	42	41	37.5

Auto Switch Mounting Height

Bore Size (mm)	D-A7 D-A8	D-A7 □ H D-A80H D-F7 □ D-J79	D-J79W D-F7BAL D-F7 □ F D-F7NTL	D-A73C D-A80C D-F7 □ WV	D-F7 □ V	D-J79C	D-A79W
	U	U	U	U	U	U	U
125	81	81	87	83.5	85.5	82.5	
140	89	89	95	91.5	93.5	90.5	
160	99	99	105	101.5	103.5	100.5	



Long Stroke Compact Cylinder: Standard / Double Acting Single Rod NCQ2 / CQ2 Series

ø32, ø40, ø50, ø63, ø80, ø100

How To Order

PT, metric
- PT, metric
N NPT, inch

W/ Auto Switch
W/ Auto Switch (built-in magnet)

Mounting

A	Both ends tapped
L	Foot
F	Rod side flange
G	Head side flange
D	Double Clevis

Bore Size

32	32mm (1-1/4" Nom.)
40	40mm (1-1/2" Nom.)
50	50mm (2" Nom.)
63	63mm (2-1/2" Nom.)
80	80mm (3-1/4" Nom.)
100	100mm (4" Nom.)

Cylinder Stroke (mm)
Please refer to p.93 for standard strokes

Action

D	Double
----------	--------

Cushion

C	Rubber cushion
----------	----------------

Body Option

-	Std. (Female thread)
M	Male thread

Preferred Option Program

Auto Switch

-	2 pcs.
S	1 pcs.
n	n pcs.

Auto Switch Capability

-	Without Auto Switch
---	---------------------

Auto Switch Specifications

Type	Autoswitch		Indicator light	Wire (Output type)	Load Voltage	
	Perpendicular entry	In-line entry			DC	AC
Reed switch	—	A76H	Yes	3 Wire	—	5V
	A72	A72H			—	200V
	A73	A73H			—	100V
	A80	A80H	No	2 Wire	24V	12V
	A73C	—	No			5V, 12V
	A80C	—	No			12V
	A79W	—	Yes			5V, 12V
Solid State Switch	F7NV	F79	Yes	3 Wire NPN	24V	5V, 12V
	F7PV	F7P		3 Wire PNP		
	F7BV	J79		2 Wire	12V	
	J79C	—		3 Wire NPN	5V, 12V	
	F7NWV	F79W				
	—	F7PW		3 Wire PNP		
	F7BWV	J79W		2 Wire	12V	
	—	F7BAL		3 Wire NPN	5V, 12V	
	—	F7NTL				
	—	F79F		4 Wire NPN	—	
—	F7LF					

Load length 0.5m.....Std. Connector A80C 5m.....Z Connector A80CZ
3m.....L A80CL No lead.....N A80CN

Mounting Kit

Bore Size (mm)	Note 1) Foot	Flange	Note 3) Double clevis
32	(N)CQ-L032	(N)CQ-F032	(N)CQ-D032
40	(N)CQ-L040	(N)CQ-F040	(N)CQ-D040
50	(N)CQ-L050	(N)CQ-F050	(N)CQ-D050
63	(N)CQ-L063	(N)CQ-F063	(N)CQ-D063
80	(N)CQ-L080	(N)CQ-F080	(N)CQ-D080
100	(N)CQ-L100	(N)CQ-F100	(N)CQ-D100

Note 1) If foot bracket is required for a cylinder, order a pair

Note 2) Each bracket comes with the following accessories:
Foot / Flange: Body mounting bolt
Double clevis: Clevis pin, Axis C style snap ring, Body mounting bolt

Note 3) The double-clevis is packaged with clevis pin and snap ring.



Long Stroke Compact Cylinder Standard / Double Acting Single Rod

(N)CQ2 Series

Model

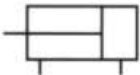
Bore Size		32	40	50	63	80	100
Air Type	Built-In Magnet	●	●	●	●	●	●
	Piping Method	1/8	1/8	1/4	1/4	3/8	3/8
	Threaded PT or NPT						
Rod End Male Thread		●	●	●	●	●	●



Standard Specifications

Media	Air
Proof Pressure	217psi {15.3kgf/cm ² }
Max. Operating Pressure	145psi {10.2kgf/cm ² }
Ambient and Media temp.	15~160°F(-10°C~+70°C) (At freezing temp. air must be dry)
Lubrication	Non-Lube
Rubber cushion	Rubber Cushion (std.)
Rod end thread	Female Thread (std.)
Rod end thread tolerance	JIS Class 2
Stroke Length tolerance	+ ^{1.4} ₀ mm
Mounting	Both ends tapped
Piston Speed	2~20 in/sec (50~500mm/s)

Double acting/
Single rod



Standard Stroke

Bore size	Standard stroke
32, 40, 50, 63, 80, 100	125, 150, 175, 200, 250, 300

• Available intermediate strokes
Intermediate strokes in 5mm increment are available by installing a spacer into the STD. stroke cylinder.
Example] (N)CQ2B50-165DC is done by installing a 10mm spacer into the std. cylinder in (N)CQ2B50-175DC.

Copper Free Series Air Cylinder

20 —CQ2A Bore Size Stroke D (C) (M)

• Copper Free Series (CQ2 only)

• ø32, ø40, ø50, ø63, ø80, ø100

To protect against adverse effects on cathode ray tubes due to copper ion and fluorine contained in resin, the copper free series uses electroless nickel plated material, no copper is exposed allowing the generation of copper ions.

Specifications (Copper Free)

Operating	Double Acting Single Rod.
Bore size	ø32, ø40, ø50, ø63, ø80, ø100
Proof pressure	217 psi {15.3kgf/cm ² }
Max. operating pressure	145 psi {10.2kgf/cm ² }
Rubber cushion	Available Standard
Piping method	Threaded
Piston speed	2 ~20 in/sec (50~500mm/s)
Mounting	Through Hole - Both Ends Tapped
Auto Switch	Auto Switch Capable

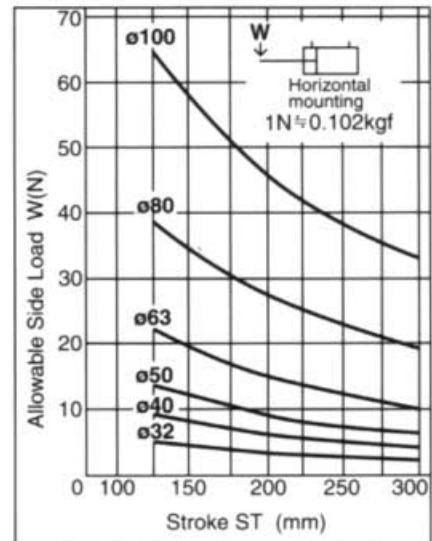
Cautions

- When mounting, completely flush piping and be careful that dust and chips do not enter the cylinder.
- The Piston rod load should always be aligned with the cylinder axis.
 - Cylinder installation requires accurate alignment.
- When used as a stopper, avoid side loading of the piston rod.
- Prevent damage to the piston rod. A damaged piston rod will lead to damage of the rod seal and result in leakage.

Min. Operating Pressure

Bore size	Min. Operating Pressure
32, 40, 50, 63, 80, 100	7.25

Rod End Allowable Side Load



Long Stroke Compact Cylinder: Standard / Double Acting Single Rod

Weight / Long Stroke Single acting: Single rod

Bore size (mm)	Stroke					
	125	150	175	200	250	300
32	1.66	1.89	2.13	2.36	2.82	3.29
40	2.08	2.34	2.60	2.86	3.38	3.90
50	3.24	3.64	4.04	4.43	5.24	6.04
63	3.99	4.45	4.91	5.38	6.29	7.21
80	6.88	7.62	8.36	9.10	10.59	12.07
100	10.93	11.85	12.77	13.27	15.53	17.36

Weight Adder

Bore size		32	40	50	63	80	100
Rod end M thread	Thread	0.057	0.060	0.117	0.117	0.265	0.386
	Nut	0.037	0.037	0.071	0.071	0.108	0.256
Foot mounting		0.324	0.351	0.558	0.785	1.510	2.476
Rod side flange		0.364	0.437	0.767	1.177	2.242	2.886
Head side flange		0.364	0.437	0.767	1.177	2.242	2.886
Double rear clevis		0.333	0.432	0.867	1.222	2.445	4.161
Auto switch magnet		0.020	0.030	0.032	0.052	0.053	0.084

How to obtain the total weight (lbs) (N)CQ2D32-200DCM

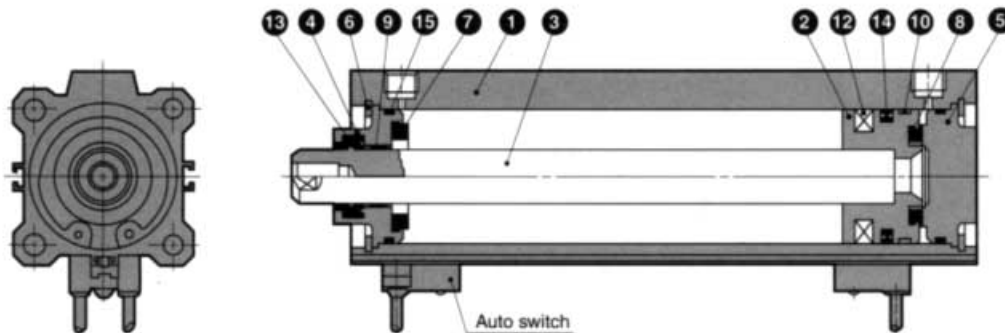
Std wt.:	(N)CQ2A32-200DC	_____	2.36
Wt. adder:	Rod end male w/ nut	_____	0.094
	Double clevis	_____	0.333
	Total		2.787 lbs.

When mounting auto switch, add for additional mounting bracket weight

Auto Switch Mounting Bracket Weight

Part no.	Applicable cylinder bore size	Weight lbs.
BQ-2	32 - 100	.003

Construction / Parts List



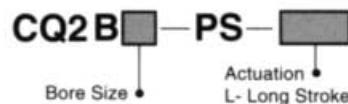
Parts List

No.	Description	Material	Remarks
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Chromate
3	Piston rod	Carbon steel	Hard chrome plated
4	Collar	Aluminum alloy	Black anodized
5	Head cover	Aluminum alloy	Black anodized
6	Retaining ring	Carbon tool steel	Phosphate coating
7	Bumper A	Polyurethane rubber	
8	Bumper B	Polyurethane rubber	
9	Bushing	Sintered alloy	ø16-ø63, oil impregnated
10	Wear ring	Phenolic	
11	Rod end nut	Carbon steel	Nickel plated
12	Magnet	-	-

Seals List

No.	Description	Material	Parts No.					
			ø32	ø40	ø50	ø63	ø80	ø100
13	Rod seal	NBR	DYR-16	PDU-16Z	PDU-20Z	PDU-20Z	PDU-25Z	PDU-30Z
14	Piston seal	NBR	NLP-32A	NLP-40A	NLP-50A	NLP-63B	NLP-80B	NLP-100B
15	Gasket	NBR	C29	C36	C46	C60	C75	C95

Seal Kit Part Numbers





Long Stroke Compact Cylinder
With Autoswitch

(N)CDQ2 Series



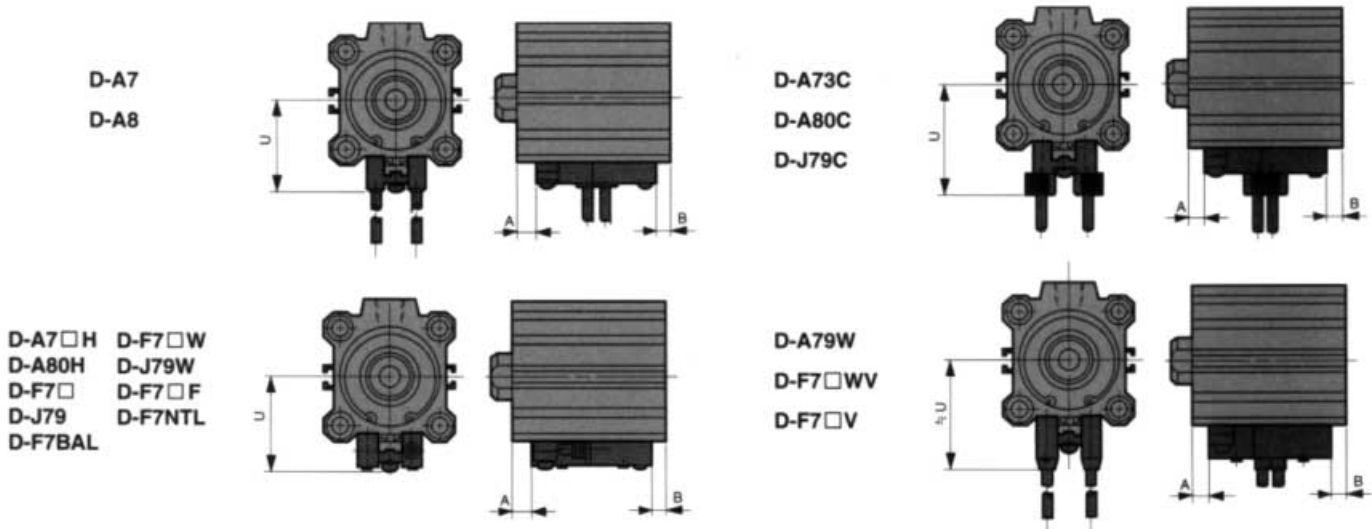
Standard Specifications

Model	Air pressure
Ambient and Media temp.	15~140°F(-10°C~+60°C) (At freezing temp. Air must be dry.)

How To Order

Auto Switch How To Order: See p. 92

Auto Switch Mounting Data



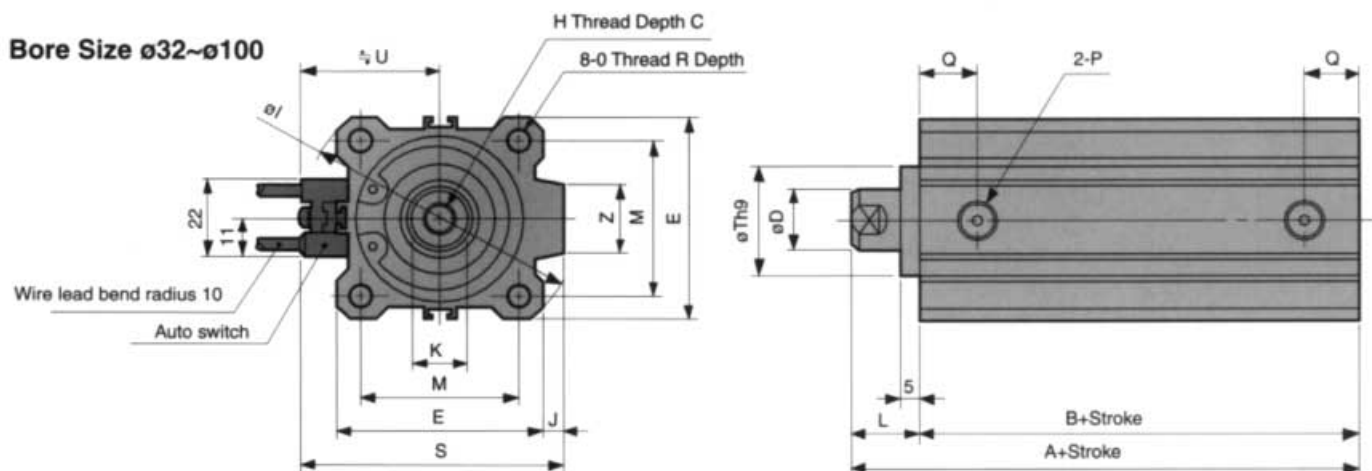
Auto Switch Mounting Position

Bore Size (mm)	mm									
	D-A7•A8		D-A7□H•A80H D-A73C•A80C D-F7□•J79 D-F7□V•J79C		D-A79W		D-F7BAL D-F7PW D-F7□F D-J79W		D-F79W D-F7□WV	
	A	B	A	B	A	B	A	B	A	B
32	9.5	17.5	10	18	7	15	14	22	10.5	18.5
40	13	23.5	13.5	24	10.5	21	17.5	28	14	24.5
50	11	24	11.5	24.5	8.5	21.5	15.5	28.5	12	25
63	13.5	25.5	14	26	11	23	18	30	14.5	26.5
80	16.5	31.5	17	32	14	29	21	36	17.5	32.5
100	19.5	38	20	38.5	17	35.5	24	42.5	20.5	39

Auto Switch Mounting Height

Bore Size (mm)	mm						
	D-A7 A8	D-A7□H D-A80H D-F7□ D-J79 D-F7□W	D-J79W D-F7BAL D-F7□F D-F7NTL	D-A73C D-A80C D-F7□WV	D-F7□V	D-J79C	D-A79W
	U	U	U	U	U	U	
32	31.5	32.5	38.5	35	38	34	
40	35	36	42	38.5	41.5	37.5	
50	41	42	48	44.5	47.5	43.5	
63	47.5	48.5	54.5	51	54	50	
80	57.5	58.5	64.5	61	64	60	
100	67.5	68.5	74.5	71	74	70	

Long Stroke Compact Cylinder: Standard / Double Acting Single Rod

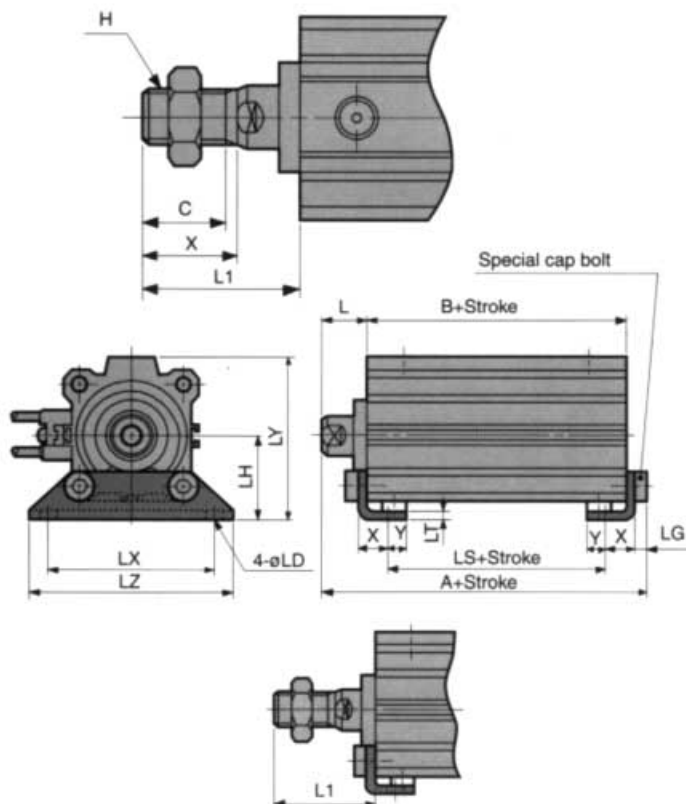


Standard / Long Stroke

Bore size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 Inch H	I	J	K	L	M	CQ2 O	NCQ2 Inch O	P*	Q	R	S	Th9	U	Z	
32	125, 150	62.5	45.5	13	13.3	16	45	M8x1.25	5/16-24UNF	60	4.5	14	17	34	M6x1.0	1/4-20UNC	1/8	12.5	10	58.5	22	ø.052	31.5	14
40		72	55	13	18.3	16	52	M8x1.25	3/8-24UNF	69	5	14	17	40	M6x1.0	1/4-20UNC	1/8	14	10	66	28	ø.052	35	14
50	175, 200	73.5	55.5	15	17.6	20	64	M10x1.5	1/2-20UNF	86	7	17	18	50	M8x1.25	5/16-18UNC	1/4	14	14	80	35	ø.062	41	19
63		75	57	15	17.6	20	77	M10x1.5	1/2-20UNF	103	7	17	18	60	M10x1.5	7/16-14UNC	1/4	16.5	18	93	35	ø.062	47.5	19
80	250, 300	86	66	21	24.3	25	98	M16x2.0	5/8-18UNF	132	6	22	20	77	M12x1.75	1/2-13UNC	3/8	19	22	112.5	43	ø.062	57.5	26
100		97.5	75.5	27	27	30	117	M20x2.5	3/4-16UNF	156	6.5	27	22	94	M12x1.75	1/2-13UNC	3/8	23	22	132.5	59	ø.074	67.5	26

*Orifice for bore size ø32=1.7, ø40=2, ø50=2.2, ø63=3, ø80=4, and ø100=5

Note 1) Dimensions are the same for Standard and Switch Capable.



NCQ2 Male Rod End

Bore size	X	H Inch	L1
32	12.7	5/16-24UNF	29.7
40	16	3/8-24UNF	33
50	19.5	1/2-20UNF	37.5
63	19.5	1/2-20UNF	37.5
80	25.5	5/8-18UNF	45.5
100	28.5	3/4-16UNF	50.5

CQ2 Male Rod End

Bore size	C	X	H	L1
32	20.5	23.5	M14x1.5	38.5
40	20.5	23.5	M14x1.5	38.5
50	26	28.5	M18x1.5	43.5
63	26	28.5	M18x1.5	43.5
80	32.5	35.5	M22x1.5	53.5
100	32.5	35.5	M26x1.5	53.5

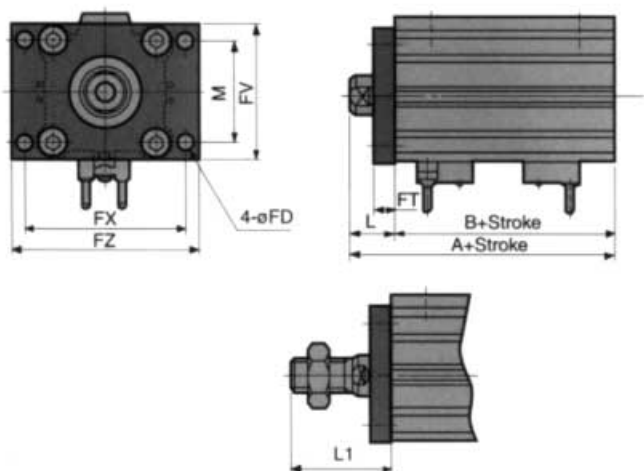
※ Rod end nut and accessories are detailed on p. 6.
NCQ2 "C" dim. not applicable.

Foot / (N)CQ2L

Bore size	A	B	L	CQ2 L1	NCQ2 L1	LD	LG	LH	LS	LT	LX	LY	LZ	X	Y
32	69.7	45.5	17	38.5	29.7	6.6	4	30	29.5	3.2	57	57	71	11.2	5.8
40	79.2	55	17	38.5	33	6.6	4	33	39	3.2	64	64	78	11.2	7
50	81.7	55.5	18	43.5	37.5	9	5	39	32.5	3.2	79	78	95	14.7	8
63	83.2	57	18	43.5	37.5	11	5	46	31	3.2	95	91.5	113	16.2	9
80	97.5	66	20	53.5	45.5	13	7	59	36	4.5	118	114	140	19.5	11
100	110.5	75.5	22	53.5	50.5	13	7	71	41.5	6	137	136	162	23	12.5

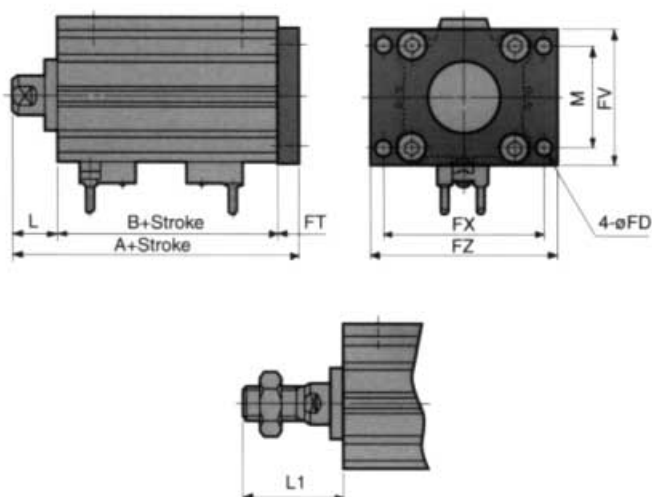
Note 1) Dimensions are the same for Standard and Switch Capable.

Long Stroke Compact Cylinder: Standard / Double Acting Single Rod



Rod Flange / (N)CQ2F

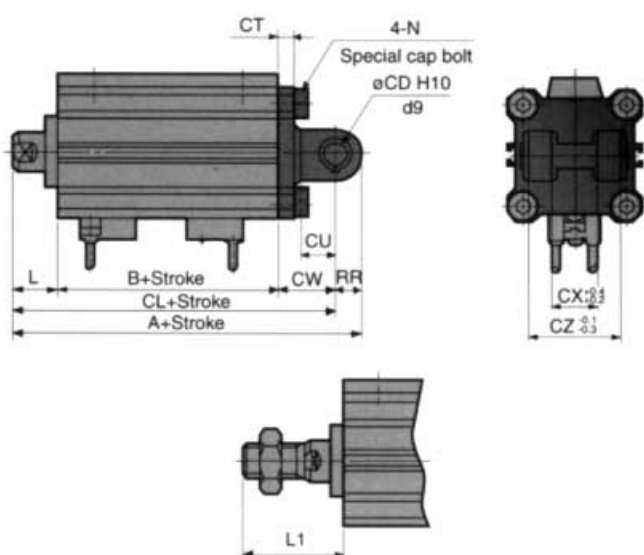
Bore size	Stroke (mm)	mm										
		A	B	FD	FT	FV	FX	FZ	L	CQ2 L1	NCQ2 L1	M
32	125, 150 175, 200 250, 300	62.5	45.5	5.5	8	48	56	65	17	38.5	29.7	34
40		72	55	5.5	8	54	62	72	17	38.5	33	40
50		73.5	55.5	6.6	9	67	76	89	18	43.5	37.5	50
63		75	57	9	9	80	92	108	18	43.5	37.5	60
80		86	66	11	11	99	116	134	20	53.5	45.5	77
100	97.5	75.5	11	11	117	136	154	22	53.5	50.5	94	



Head Flange / (N)CQ2G

Bore size	Stroke (mm)	mm		
		A	CQ2 L1	NCQ2 L1
32	125, 150 175, 200 250, 300	70.5	38.5	29.7
40		80	38.5	33
50		82.5	43.5	37.5
63		84	43.5	37.5
80		97	53.5	45.5
100	108.5	53.5	50.5	

* Dimensions for the head flange cylinder are the same as rod flange except A, L, L1.



Double Clevis / (N)CQ2D

Bore size	Stroke (mm)	mm										
		A	B	CQ2 CD	NCQ2 Inch CD	CL	CT	CU	CW	CX	CZ	L
32	125, 150 175, 200 250, 300	92.5	45.5	10	3/8	82.5	5	14	20	18	36	17
40		104	55	10	3/8	94	6	14	22	18	36	17
50		115.5	55.5	14	1/2	101.5	7	20	28	22	44	18
63		119	57	14	1/2	105	8	20	30	22	44	18
80		142	66	18	5/8	124	10	27	38	28	56	20
100	164.5	75.5	22	7/8	142.5	13	31	45	32	64	22	
Bore size	Stroke (mm)	CQ2 L1	NCQ2 L1	CQ2 N		NCQ2 Inch N		RR				
32	125, 150 175, 200 250, 300	38.5	29.7	M6x1.0		1/4-20		10				
40		38.5	33	M6x1.0		1/4-20		10				
50		43.5	37.5	M8x1.25		5/16-18		14				
63		43.5	37.5	M10x1.5		7/16-14		14				
80		53.5	45.5	M12x1.75		1/2-13		18				
100	53.5	50.5	M12x1.75		1/2-13		22					

* Rod end nut and accessories detail: see p. 6.

* * Clevis pin and snap ring are included in the package.

Other Options: XB6, XB7, XB9, Air Hydro

High Temperature Resisting Cylinder

(N)CQ2 Mounting style Bore Size Stroke D -XB6

The cylinder seals have been changed to be of heat-resistant material and special grease has been added to enable its use under high-temperature conditions of up to (150°C.) 300°F.

Specifications

Bore Size	ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100
Action	Double acting
Fluid	Air
Lubrication	Non-lube
Material	Packing-fluorocarbon
Mounting style	Through hole (Standard) Both ends tapped

* Major dimensions are the same as that of the double acting single rod or double rod and no auto switch can be attached.

Low Temperature Resisting Cylinder

(N)CQ2 Mounting style Bore Size Stroke D -XB7

The cylinder seals have been changed to be of cold-resistant material and special grease has been added to enable its use under low-temperature conditions of down to (-40°C).

Specifications

Bore Size	ø12, ø16, ø20, ø25, ø32, ø40
Action	Double acting
Fluid	Air
Lubrication	Non-lube
Material	Packing-Low-nitrile rubber
Mounting style	Through hole (Standard) Both ends tapped

* Major dimensions are the same as that of the double acting single rod and no auto switch can be attached.

Air Hydro Cylinder

CQ2 Mounting style H Bore Size Stroke D

Specifications

Bore Size	ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100
Action	Double acting
Fluid	Air
Proof pressure	213 psi (15kgf/cm ²)
Max. operating pressure	140 psi (9.9kgf/cm ²)
Min. operating pressure	26 psi (1.8kgf/cm ²)

* Major dimensions are the same as that of the double acting single rod or double rod, and auto switch can be attached.

CQ2 only - Special order

Low Speed Cylinder

(N)CQ2 Mounting style Bore Size Stroke D -XB9

There is no stick-slip phenomenon at a low-speed drive of 0.4~2 in/sec (10~50mm/sec), and all strokes drive at a constant speed smoothly.

Specifications

Bore Size	ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100
Action	Double acting
Fluid	Air
Max. operating pressure	140psi (9.9kgf/cm ²)
Min. operating pressure	7psi (0.5kgf/cm ²)
Piston velocity	.4~2 in/sec (10~50mm/sec)

* Major dimensions are the same as that of the double acting single rod, and auto switch can be attached.

(N)CQ2 Mounting style Bore Size Stroke D -XB13

There is no stick-slip phenomenon at a low-speed drive of 0.2~2 in/sec (5~50mm/sec), and all strokes drive at a constant speed smoothly.

Specifications

Bore Size	ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100
Action	Double acting
Fluid	Air
Max. operating pressure	140psi (9.9kgf/cm ²)
Min. operating pressure	7psi (0.5kgf/cm ²)
Piston velocity	.2~2 in/sec (5~50mm/sec)

* Major dimensions are the same as that of the double acting single rod, and auto switch can be attached.

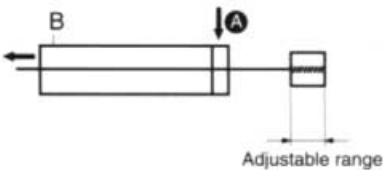
Series CQ2
Stroke Adjustment Options: XC8, XC9

Adjustable Stroke Cylinder /
Extend Type

(N)CQ2B Bore Size Stroke D -XC8

The extend stroke of the cylinder can be adjusted by the stop collar at the head side from full stroke 0~10mm.

Symbol

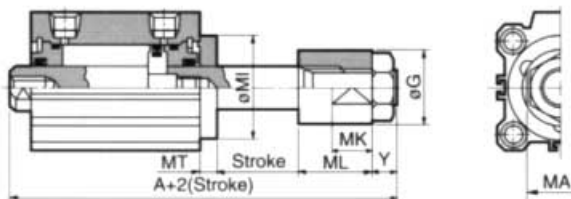


Specifications

Bore Size	ø12,ø16,ø20,ø25,ø32,ø40,ø50,ø63,ø80,ø100
Action	Double acting
Lubrication	Non-Lube
Fluid	Air
Stroke adjustment system	Adjusting bolt
Stroke adjustment range	10mm
Mounting style	Through hole

Note) Seal Kit is the same as that of the Double rod (W) option on page 27.

Construction / Major Dimensions



Bore Size (mm)	A	Y	MA	MI	MK	ML	øG	Standard stroke range
12	57.7 (64.9)	5	11	□25	7	19	14	30
16	58.5 (68.5)	5	11	□28	7	19	14	
20	67.5 (79.5)	6.5	17	□36	10	22.5	20	
25	71 (81)	6.5	17	□40	10	22.5	20	
32	78.5 (88.5)	9	24	Ø38	14	26	27	50
40	88 (98)	9	24	Ø46	14	26	27	
50	100.5 (110.5)	14	30	Ø57	16	30	35	
63	102 (112)	12	30	Ø68	16	30	35	
80	125 (135)	14	41	Ø90	20	38	48	
100	138.5 (148.5)	14	41	Ø110	20	38	48	

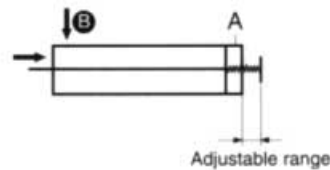
() Dimension for Auto Switch capable

Adjustable Stroke Cylinder /
Retract Type

(N)CQ2 Mountingstyle Bore size Stroke D -XC9

The retract stroke of the cylinder can be adjusted from 0~10mm with the adjustment bolt.

Symbol

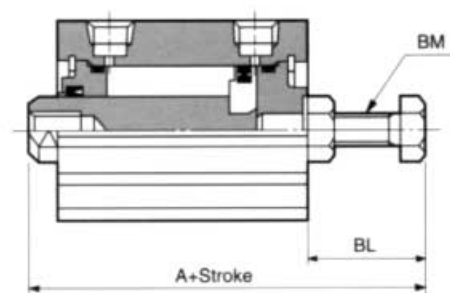


Specifications

Bore Size	ø12,ø16,ø20,ø25,ø32,ø40,ø50,ø63,ø80,ø100
Action	Double acting
Lubrication	Non-Lube
Fluid	Air
Stroke adjustment system	Adjusting bolt
Stroke adjustment range	10mm
Mounting style	Through hole (Standard), both ends tapped

Note) Seal Kit is the same as that of the Single rod kit on page 8.

Dimensions



Bore Size (mm)	A	BL	BM	Standard stroke range
12	52 (59.2)	23.3	M5x0.8	30
16	53 (63)	23.5	M6x1	
20	61 (73)	30.5	M8x1.25	
25	63.5 (73.5)	29.5	M8x1.25	
32	65.5 (75.5)	28	M8x1.25	50
40	84 (94)	37	M12x1.5	
50	84.5 (94.5)	36	M12x1.5	
63	88.5 (98.5)	38.5	M16x1.5	
80	109.5 (119.5)	48.5	M20x1.5	
100	125 (135)	52.5	M24x1.5	

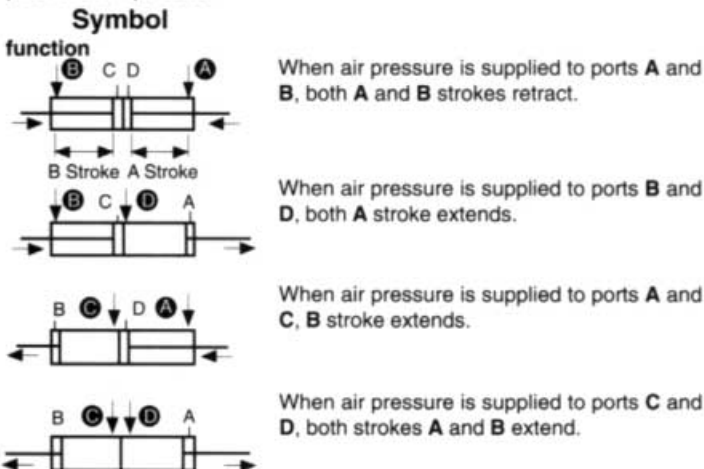
() Dimension for Auto Switch capable

Dual Stroke & 3 Position Tandem Options: XC10, XC11

Dual Stroke Cylinder / Double Rod Type

(N)CQ2B Bore Size — Stroke A + Stroke B D C -XC10

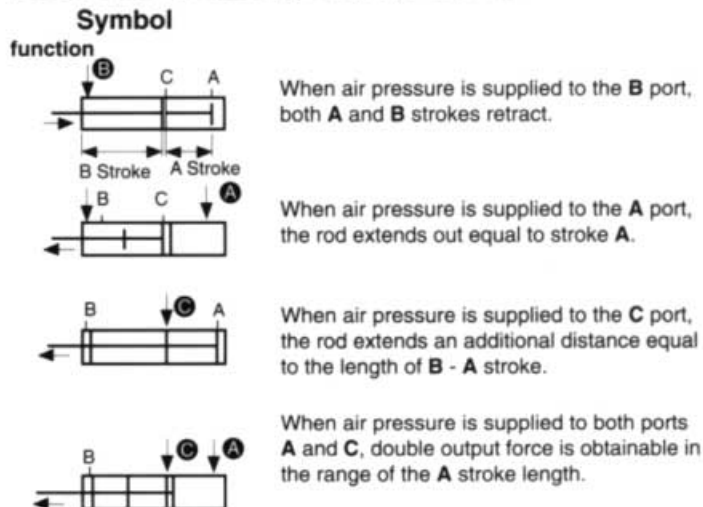
Two cylinders are constructed as one cylinder in a back-to-back configuration allowing the cylinder stroke to be controlled in three steps. Four positions are possible.



Dual Stroke Cylinder / Single Rod Type

(N)CQ2B Bore Size — Stroke A + Stroke B-A D C -XC11

Two cylinders in tandem without connected piston rods allow 3 positions to be obtained when actuating in the proper sequence.

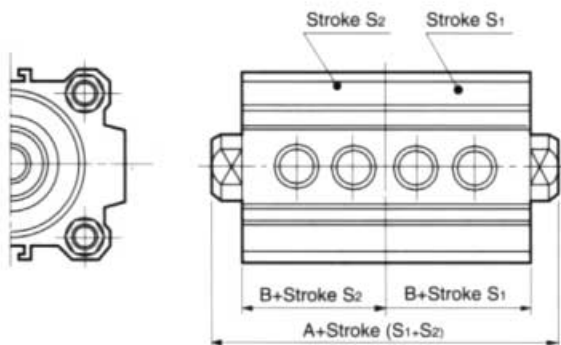


Specifications

Bore Size	ø12,ø16,ø20,ø25,ø32,ø40,ø50,ø63,ø80,ø100
Action	Double acting
Lubrication	Non-Lube
Fluid	Air
Mounting style	Tapped (one end only)
Rubber cushion	Available

Note) Seal Kit is the same as Qty 2 Single Rod Kits on p8.

Dimensions



Bore Size (mm)	Stroke range S ₁ & S ₂	A		B	
		50 stroke or less	75,100	50 stroke or less	75,100
12	5-30	41 (63)	-	17 (28)	-
16		44 (68)	-	18.5 (30.5)	-
20	5-50	48 (72)	-	19.5 (31.5)	-
25		55 (75)	-	22.5 (32.5)	-
32	5-100	60 (80)	80 (80)	23 (33)	33 (33)
40		73 (93)	93 (93)	29.5 (39.5)	39.5 (39.5)
50	10-100	77 (97)	97 (97)	30.5 (40.5)	40.5 (40.5)
63		88 (108)	108 (108)	36 (46)	46 (46)
80		107 (127)	127 (127)	43.5 (53.5)	53.5 (53.5)
100		130 (150)	150 (150)	53 (63)	63 (63)

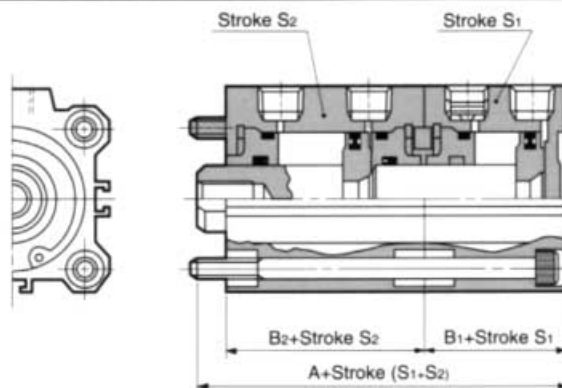
() Dimension for Auto Switch capable

Specifications

Bore Size	ø12,ø16,ø20,ø25,ø32,ø40,ø50,ø63,ø80,ø100
Action	Double acting
Lubrication	Non-Lube
Fluid	Air
Mounting style	Through hole
Rubber cushion	Available

Note) Seal Kit CQ2B □ -PS-XC11

Construction / Major Dimensions



Bore Size (mm)	Stroke range S ₁ & S ₂	A	B ₁	B ₂
		50 stroke or less	75,100	50 stroke or less
12	5-30	45.7 (63.9)	17 (28)	25.2 (32.4)
16		48 (70)	18.5 (30.5)	26 (36)
20	5-50	50 (74)	19.5 (31.5)	26 (38)
25		56.5 (76.5)	22.5 (32.5)	29 (39)
32	5-100	60.5 (80.5)	23 (33)	30.5 (40.5)
40		76.5 (96.5)	29.5 (39.5)	40 (50)
50	10-50	79 (99)	30.5 (40.5)	40.5 (50.5)
63		86 (106)	36 (46)	42 (52)
80		104.5 (124.5)	43.5 (53.5)	51 (61)
100		125.5 (145.5)	53 (63)	60.5 (70.5)

() Dimension for Auto Switch capable

Stainless Steel Piston Rod

(N)CQ2 -XC6

(N)CQ2W -XC6

This is used for enhanced corrosion resistance in wet environments.

Specifications

Bore Size	ø12, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100
Action	Double acting
Fluid	Air
Lubrication	Non-lube
Material	303 or 304 Stainless
Mounting	Through hole (Standard) Both ends tapped

✳ Major dimensions are the same as that of the double acting single rod and double rod.

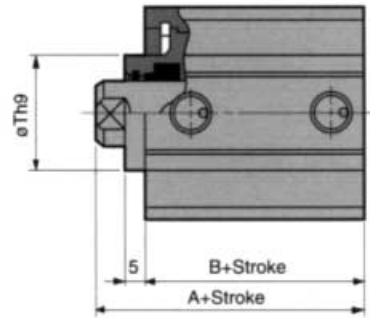
Coil Scraper

(N)CQ2 -XC35

This special rod scraper is designed to remove weld flash and other undesirable contaminants.

Specifications

See Standard Specifications p3	
Media	Air
Bore sizes	ø32, ø40, ø50, ø63, ø80, ø100



(mm)

Bore size (mm)	A		B		Th9
	1-50 stroke	51-100 stroke	1-50 stroke	51-100 stroke	
32	35(45)	45(45)	23(33)	33(33)	23 ⁰ _{-0.052}
40	41.5(51.5)	51.5(51.5)	29.5(39.5)	39.5(39.5)	28 ⁰ _{-0.052}
50	43.5(53.5)	53.5(53.5)	30.5(40.5)	40.5(40.5)	35 ⁰ _{-0.062}
63	49(59)	59(59)	36(46)	46(46)	35 ⁰ _{-0.062}
80	58.5(68.5)	68.5(68.5)	43.5(53.5)	53.5(53.5)	43 ⁰ _{-0.062}
100	70(80)	80(80)	53(63)	63(63)	59 ⁰ _{-0.074}

() Dimension for Auto Switch capable

Note) Other dimensions are the same as those on pg. 11.