



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

PT, metric
N NPT, inch

W/ Auto Switch (built-in magnet)

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.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
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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
	A80	A80H				5V, 12V
	A73C	—				12V
	A80C	—	No	—	5V, 12V	24V
	A79W	—	Yes	—	—	—
Solid State Switch	F7NV	F79	—	3 Wire NPN	24V	5V, 12V
	F7PV	F7P		3 Wire PNP		
	F7BV	J79	—	2 Wire	24V	12V
	J79C	—		—		
	F7NWV	F79W	Yes	3 Wire NPN	24V	5V, 12V
	—	F7PW		3 Wire PNP		
	F7BWV	J79W	—	2 Wire	24V	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



Compact Cylinder: Standard / Large Bore Double Acting Single Rod

(N)CQ2 Series



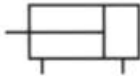
Model

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

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.

(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

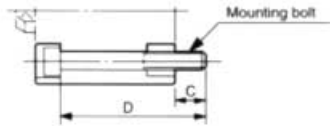
Mounting Bolt For CQ2

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	CQ2 ø125•140	D	Mounting bolt
Stroke	°C		
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	CQ2 ø160	D	Mounting bolt
Stroke	°C		
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

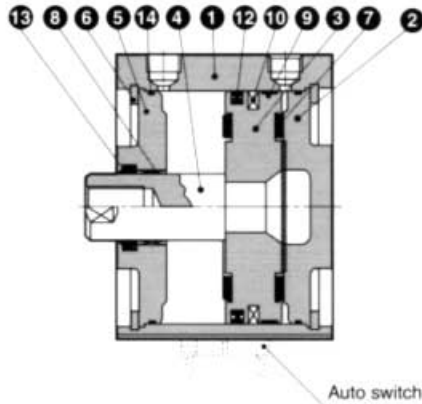
Thread	Pitch
M12	1.72
M14	2

When mounting auto switch, add for additional mounting bracket weight

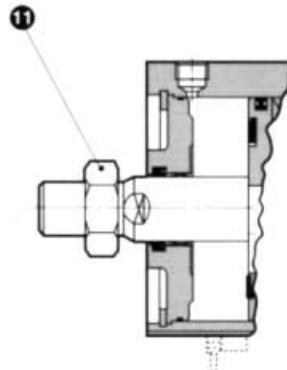
Auto Switch Mounting Bracket Weight

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

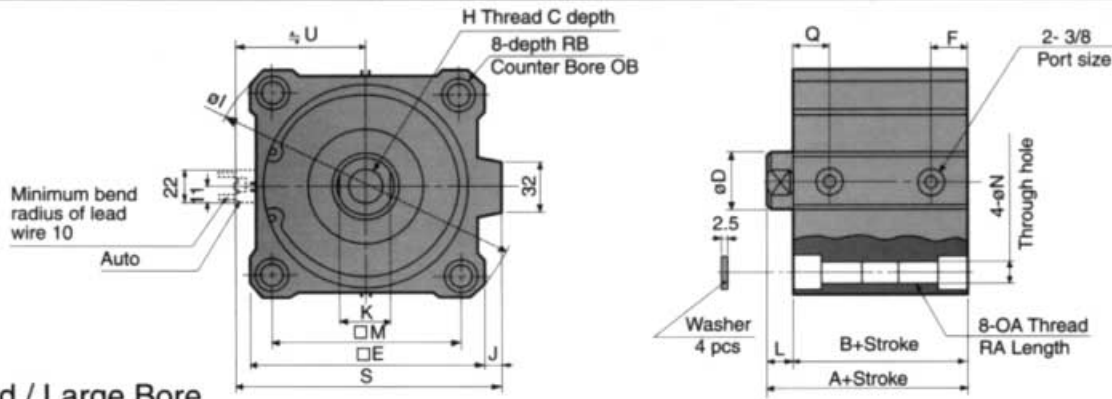
Parts List

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 Single Rod



Standard / Large Bore

Bore size	Stroke	A	B	CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 Inch H	I	J	K	L	M	CQ2 N	NCQ2 N	CQ2 OA
125	10, 20, 30, 40,	99	83	30	30	36	142	24.5	M22x2.5	3/4-16	190	11	32	16	114	12.5	12.2	M14x2
	50, 75, 100, 125, 150, 175, 200, 250, 300																	
140	10, 20, 30, 40,	99	83	30	30	36	158	24.5	M22x2.5	3/4-16	210	10	32	16	128	12.5	12.2	M14x2
	50, 75, 100, 125, 150, 175, 200, 250, 300																	
160	10, 20, 30, 40,	108	91	33	33	40	178	27.5	M24x3	3/4-16	238	10	36	17	144	14.5	13.7	M16x2
	50, 75, 100, 125, 150, 175, 200, 250, 300																	

Bore size	Stroke	NCQ2 Inch OA	OB	Q	RA	RB	S	U	Orifice
125	10, 20, 30, 40,	9/16-12	21.2	24.5	25	18.4	163	81	6
140	50, 75, 100, 125, 150, 175,	9/16-12	21.2	24.5	25	18.4	178	89	7
160	200, 250, 300	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.

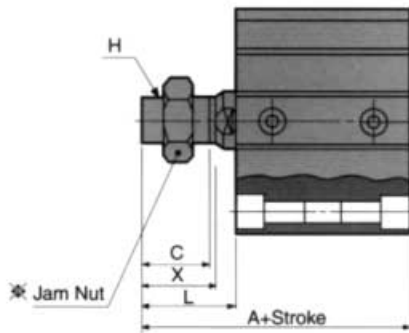
CQ2 Male Rod End

Bore size	A	C	H	L	X
125	141	42	M30x1.5	58	45
140	141	42	M30x1.5	58	45
160	155	47	M36x1.5	64	50

NCQ2 Male Rod End

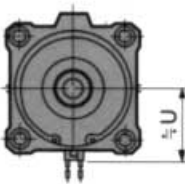
Bore size	A	C	NCQ2 H Inch	L	X
125	141	42	1-1/4"-12	58	45
140	141	42	1-1/4"-12	58	45
160	155	47	1-3/8"-12	64	50

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

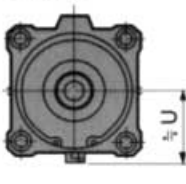


Auto Switch Mounting Data

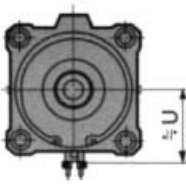
D-A7
D-A8



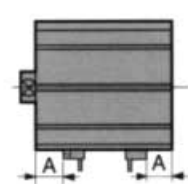
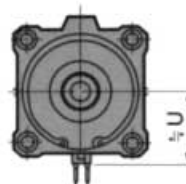
D-A7□H, D-A80H
D-F7□, D-J79
D-F7□W, D-J79W
D-F7□F, D-F7NTL
D-F7BAL



D-A73C
D-A80C
D-J79C



D-A79W
D-F7□WV
D-F7□V

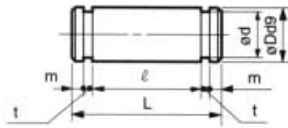


Auto Switch Mounting Postion

Bore Size (mm)	D-A7 D-A8	D-A7□H-A80H D-A73C-A80C D-F7□+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	80	81	87	83.5	85.5	82.5	
140	88	89	95	91.5	93.5	90.5	
160	98	99	105	101.5	103.5	100.5	



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