ACTUATORS

Actuators

Actuators

Actuators

Actuators

AIR CYLINDER FORCE GUIDE

Cylinder Forces shown in the tables below are for both Extension and Retraction types. Lines in **bold** type show Extension Forces, using the full piston area. Lines in *italic* type show Retraction forces with various S Size Piston Rods.

Bore Size	Rod Diameter	Effective Area	Pressure Differential Across Cylinder Ports (PSI)					
Inches	Inches	Inch ²	25	50	75	100	125	150
0.75	**None**	**0.44**	**11**	**22.1**	**33.1**	**44.2**	**55.2**	**66.3**
	0.250	*0.39*	*9.8*	*19.6*	*29.5*	*39.3*	*49.1*	*58.9*
	0.315	*0.36*	*9.1*	*18.2*	*27.3*	*36.4*	*45.5*	*54.6*
0.88	**None**	**0.60**	**15**	**30.1**	**45.1**	**60.1**	**75.2**	**90.2**
	0.250	*0.55*	*13.8*	*27.6*	*41.4*	*55.2*	*69*	*82.8*
1.00	**None**	**0.79**	**19.6**	**39.3**	**58.9**	**78.5**	**98.2**	**117.8**
	0.39	*0.67*	*16.6*	*33.3*	*49.9*	*66.6*	*83.2*	*99.9*
1.06	**None**	**0.89**	**22.2**	**44.3**	**66.5**	**88.7**	**110.8**	**133**
	0.312	*0.81*	*20.3*	*40.5*	*60.8*	*81*	*101.3*	*121.5*
1.25	**None**	**1.23**	**30.7**	**61.4**	**92**	**122.7**	**153.4**	**184.1**
	0.47	*1.05*	*26.3*	*52.7*	*79*	*105.4*	*131.7*	*158.1*
	0.437	*1.08*	*26.9*	*53.9*	*80.8*	*107.7*	*134.6*	*161.6*
1.50	**None**	**1.77**	**44.2**	**88.4**	**132.5**	**176.7**	**220.9**	**265.1**
	0.437	*1.62*	*40.4*	*80.9*	*121.3*	*161.7*	*202.1*	*242.6*
	0.625	*1.46*	*36.5*	*73*	*109.5*	*146*	*182.5*	*219.1*
	0.63	*1.46*	*36.4*	*72.8*	*109.2*	*145.5*	*181.9*	*218.3*
2.00	**None**	**3.14**	**78.5**	**157.1**	**235.6**	**314.2**	**392.7**	**471.2**
	0.625	*2.83*	*70.9*	*141.7*	*212.6*	*283.5*	*354.3*	*425.2*
	0.79	*2.65*	*66.3*	*132.6*	*198.9*	*265.1*	*331.4*	*397.7*
2.50	**None**	**4.91**	**122.7**	**245.4**	**368.2**	**490.9**	**613.6**	**736.3**
	0.625	*4.60*	*115*	*230.1*	*345.1*	*460.2*	*575.2*	*690.3*
	0.79	*4.42*	*110.5*	*220.9*	*331.4*	*441.9*	*552.3*	*662.8*
3.25	**None**	**8.30**	**207.4**	**414.8**	**622.2**	**829.6**	**1037**	**1244.4**
	1.00	*7.51*	*187.8*	*375.5*	*563.3*	*751*	*938.8*	*1126.6*
4.00	**None**	**12.57**	**314.2**	**628.3**	**942.5**	**1256.6**	**1570.8**	**1885**
	1.00	*11.78*	*294.5*	*589*	*883*	*1178.1*	*1472.6*	*1767.1*

lbsf

Pressures along the top of the tables do not represent air supply pressure; they are differential pressures across the two cylinder parts; in practice, the air supply line must supply another 5% of pressure to make up for cylinder loss and must supply another 25% ~ 50% additional pressure to make up for flow losses in lines and valving so the cylinder will have sufficient travel speed. For pressures not shown, use the effective areas in the third column as power factors, multiply effective area times differential pressure to obtain theoretical cylinder force.

Bore Size	Rod Diameter	Effective Area	Pressure Differential Across Cylinder Ports (Bar)								
mm	mm		2	3	4	5	6	7	8	9	10
8	**None**	**0.50**	**1**	**1.5**	**2**	**2.5**	**3**	**3.5**	**-**	**-**	**-**
	4	*0.38*	*0.8*	*1.1*	*1.5*	*1.9*	*2.3*	*2.6*	-	-	-
10	**None**	**0.79**	**1.6**	**2.4**	**3.1**	**3.9**	**4.7**	**5.5**	**-**	**-**	
	4	*0.66*	*1.3*	*2*	*2.6*	*3.3*	*4*	*4.6*	-	-	-
12	**None**	**1.13**	**2.3**	**3.4**	**4.5**	**5.7**	**6.8**	**7.9**	**-**	**-**	**-**
	6	*0.85*	*1.7*	*2.5*	*3.4*	*4.2*	*5.1*	*5.9*	-	-	-
16	**None**	**2.01**	**4**	**6**	**8**	**10.1**	**12.1**	**14.1**	**-**	**-**	**-**
	6	*1.73*	*3.5*	*5.2*	*6.9*	*8.6*	*10.4*	*12.1*	-	-	-
20	**None**	**3.14**	**6.3**	**9.4**	**12.6**	**15.7**	**18.8**	**22**	**25.1**	**28.3**	**31.4**
	8	*2.64*	*5.3*	*7.9*	*10.6*	*13.2*	*15.8*	*18.5*	*21.1*	*23.8*	*26.4*
25	**None**	**4.91**	**9.8**	**14.7**	**19.6**	**24.5**	**29.5**	**34.4**	**39.3**	**44.2**	**49.1**
	10	*4.12*	*8.2*	*12.4*	*16.5*	*20.6*	*24.7*	*28.9*	*33*	*37.1*	*41.2*
32	**None**	**8.04**	**16.1**	**24.1**	**32.2**	**40.2**	**48.3**	**56.3**	**64.3**	**72.4**	**80.4**
	12	*6.91*	*13.8*	*20.7*	*27.6*	*34.6*	*41.5*	*48.4*	*55.3*	*62.2*	*69.1*
40	**None**	**12.57**	**25.1**	**37.7**	**50.3**	**62.8**	**75.4**	**88**	**100.5**	**113.1**	**125.7**
	16	*10.56*	*21.1*	*31.7*	*42.2*	*52.8*	*63.3*	*73.9*	*84.4*	*95*	*105.6*
50	**None**	**19.63**	**39.3**	**58.9**	**78.5**	**98.2**	**117.8**	**137.4**	**157.1**	**176.7**	**196.3**
	20	*16.46*	*33*	*49.5*	*66*	*82.5*	*99*	*115.5*	*131.9*	*148.4*	*164.9*
63	**None**	**31.17**	**62.3**	**93.5**	**124.7**	**155.9**	**187**	**218.2**	**249.4**	**280.6**	**311.7**
	20	*28.03*	*56.1*	*84.1*	*112.1*	*140.2*	*168.2*	*196.2*	*224.2*	*252.3*	*280.3*
80	**None**	**50.27**	**100.5**	**150.8**	**201.1**	**251.3**	**301.6**	**351.9**	**402.1**	**452.4**	**502.7**
	25	*45.36*	*90.7*	*136.1*	*181.4*	*226.8*	*272.1*	*317.5*	*362.9*	*408.2*	*453.6*
100	**None**	**78.54**	**157.1**	**235.6**	**314.2**	**392.7**	**471.2**	**549.8**	**628.3**	**706.9**	**785.4**
	30	*71.47*	*142.9*	*214.4*	*285.9*	*357.4*	*428.8*	*500.3*	*571.8*	*643.2*	*714.7*

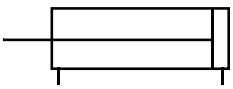
Force Kgf

SERIES NCJ2
BORE SIZES Ø6•10•16

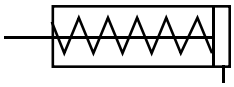
- Double Acting Single Rod / Double Rod
- Single Spring Return / Extend
- Compact and Lightweight
- Auto Switch Sensing Optional
- Non Rotating Piston Rod Optional
- High Accuracy Mounting

SYMBOLS

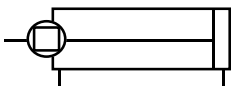
Double Acting/Single Rod



Single Acting/Spring Return



Double Acting/Single Rod Non-Rotating



HOW TO ORDER
NCJ2 STANDARD DOUBLE ACTING SINGLE ROD CYLINDER

NC J2 — — —

NC ○ J2 — — — — ○

SPECIAL OPTIONS
XB6 ...High Temperature
XB7 ...Low Temperature
XB9 ...Low Speed Operation

AUTO SWITCH CAPABLE
- .....Without (Basic)
D .....With Built-In Magnet

MOUNTING
B .....Basic
D .....Double Clevis
(Except ø6)
L .....Axial Foot
F .....Rod Side Flange

STD STROKE/HUNDREDTHS OF AN INCH
ø6 (1/4") 050, 100, 150, 200
ø10 (3/8") 050. 100. 150, 200, 300, 400, 500, 600
ø16 (5/8") 050, 100, 150, 200, 300, 400, 500, 600, 700, 800

PORT LOCATION ON HEAD COVER

Symbol	Bore Size: ø6	ø10, ø16
R	In-Line	In-Line
-	-	Perpendicular

APPLICABLE AUTO SWITCH
See NCJ2 Accessories Section

NUMBER OF SWITCHES
- .....2 Pieces
S .....1 Piece
n .....n Pieces

TECHNICAL SPECIFICATIONS

Fluid		Air
Proof Pressure		1MPa / 145 PSI
MaxImum Operating Pressure		0.7MPa / 100 PSI
Minimum Operating Pressure	ø6	0.1MPa / 17 PSI
	ø10, ø16	0.05MPa / 8.5 PSI
Ambient and Fluid Temperature		-10°C~+70°C / 14~158°F
Cushion		Rubber Cushion (Standard)
Lube		None (Non-lube)
Stroke Tolerance		$^{+1.0}_{0}$mm $^{+0.04}_{0}$inch
Piston Speed		2~29.5 in/s (50~750mm/s)
Allowable Kinetic Energy	ø6	0.10lbf in (0.12kgf cm)
	ø10	0.30lbf in (0.35kgf cm)
	ø16	0.78lbf in (0.9kgf cm)

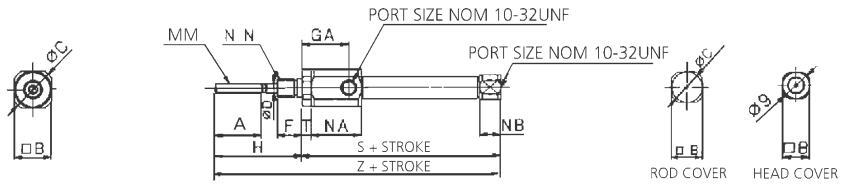
PART NUMBER OF MOUNTING BRACKETS

Mounting Bracket	Bore Size (mm)		
	6	10	16
Foot	NCJ-L006B	NCJ-L010B	NCJ-L016B
Flange	NCJ-F006B	NCJ-F010B	NCJ-F016B

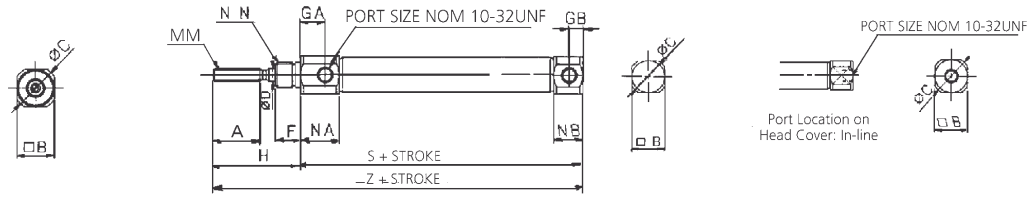
DIMENSIONS
SEE NEXT PAGE ☞

DIMENSIONS (INCH)
STANDARD DOUBLE ACTING SINGLE ROD BASIC TYPE NCJ2B_-_

NCJ2B6



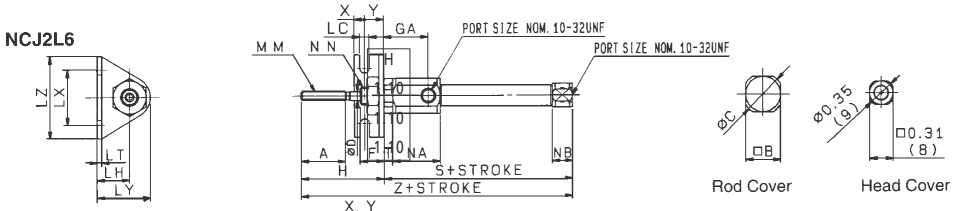
NCJ2B10, 16



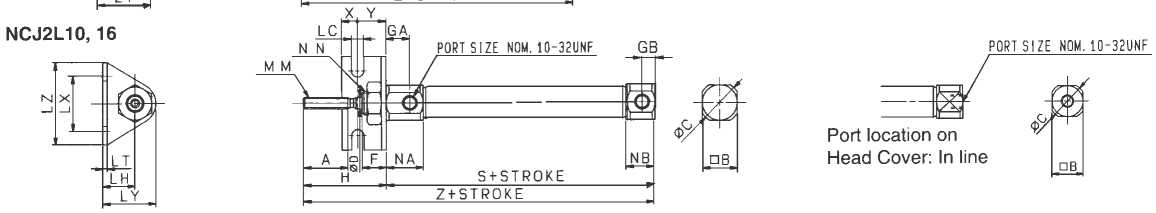
Bore Size	A	B	C	D	F	GA	GB	H	MM	NN	NA	NB	T	S	Z
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.57	-	1.10	No5-40UNC	1/4-28UNF	0.63	0.28	0.12	1.93	3.03
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.31	0.196	1.10	No6-40UNF	5/16-24UNF	0.49	0.37	-	1.81	2.91
ø16 (5/8")	0.60	0.71	0.79	0.196	0.31	0.31	0.196	1.10	No10-32UNF	3/8-24UNF	0.49	0.37	-	1.85	2.95

DIMENSIONS (INCH)
STANDARD DOUBLE ACTING SINGLE ROD FOOT TYPE NCJ2L_-_

NCJ2L6



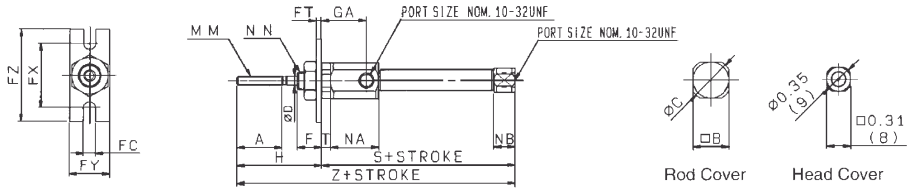
NCJ2L10, 16



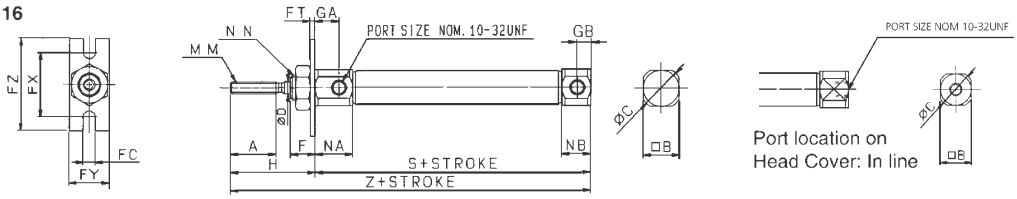
Bore Size	A	B	C	D	F	GA	GB	H	LC	LH	LT	LX	LY	LZ	MM	NN	NA	NB	T	X	Y	S	Z
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.57	-	1.10	0.13	0.43	0.06	0.74	0.71	1.10	No5-40UNC	1/4-28UNF	0.63	0.28	0.12	0.14	0.26	1.93	3.03
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.31	0.196	1.10	0.17	0.55	0.06	0.87	0.83	1.26	No6-40UNF	5/16-24UNF	0.49	0.37	-	0.21	0.38	1.81	2.91
ø16 (5/8")	0.60	0.71	0.79	0.196	0.31	0.31	0.196	1.10	0.20	0.55	0.09	1.18	0.94	1.38	No10-32UNF	3/8-24UNF	0.49	0.37	-	0.21	0.38	1.85	2.95

DIMENSIONS (INCH)
STANDARD DOUBLE ACTING SINGLE ROD ROD SIDE FLANGE TYPE NCJ2F_-_

NCJ2F6



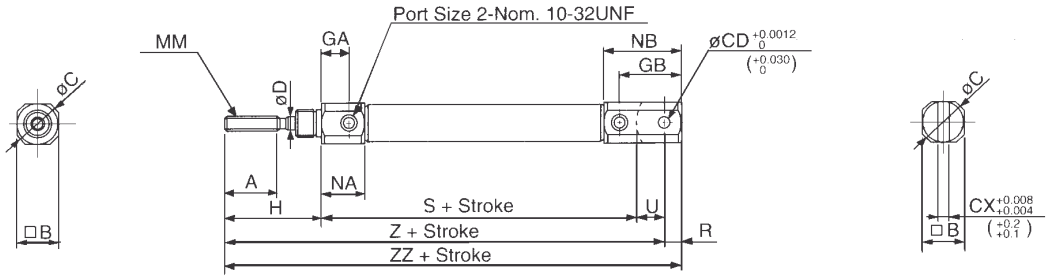
NCJ2F10, 16



Bore Size	A	B	C	D	F	FC	FT	FX	FY	FZ	GA	GB	H	MM	NN	NA	NB	T	S	Z
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.13	0.06	0.74	0.55	1.10	0.57	-	1.10	No5-40UNC	1/4-28UNF	0.63	0.28	0.12	1.93	3.03
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.17	0.06	0.87	0.55	1.26	0.31	.196	1.10	No6-40UNF	5/16-24UNF	0.49	0.37	-	1.81	2.91
ø16 (5/8")	0.60	0.71	0.79	0.196	0.31	0.20	0.09	1.18	0.79	1.38	0.31	.196	1.10	No10-32UNF	3/8-24UNF	0.49	0.37	-	1.85	2.95

DIMENSIONS (INCH)
STANDARD DOUBLE ACTING SINGLE ROD DOUBLE CLEVIS TYPE NCJ2D_-_

NCJ2D10, 16



Bore Size	A	B	C	CD	CX	D	GA	GB	H	MM	NA	NB	R	S	U	Z	ZZ
ø10 (3/8")	0.60	0.47	0.55	0.187	0.188	0.157	0.31	0.75	1.10	No6-40UNF	0.49	0.93	0.24	1.81	0.31	3.22	3.46
ø16 (5/8")	0.60	0.71	0.79	0.187	0.188	0.196	0.31	0.91	1.10	No10-32UNF	0.49	1.08	0.31	1.85	0.39	3.35	3.66

SERIES NCJ2

HOW TO ORDER

NCJ2 STANDARD DOUBLE ACTING DOUBLE ROD CYLINDER

NC J2W ○○ — ○ — ○

NC ○ J2W ○○ — ○ — ○ ○ — ○

SPECIAL OPTIONS
XB6 ...High Temperature
XB7 ...Low Temperature

AUTO SWITCH CAPABLE
- .....Not Switch Capable
D .....Switch Capable
Built-In Magnet

NUMBER OF SWITCHES
- .....2 Pieces
S .....1 Piece
n .....n Pieces

MOUNTING
B .....Basic
L .....Axial Foot
F .....Rod Side Flange

APPLICABLE AUTO SWITCH
See NCJ2 Accessories Section

BORE SIZE
ø6 (1/4")
ø10 (3/8")
ø16 (5/8")

STD STROKE/HUNDREDTHS OF AN INCH
ø6 (1/4") 050, 100, 150, 200
ø10 (3/8") 050. 100. 150, 200
ø16 (5/8") 050, 100, 150, 200

PART NUMBER OF MOUNTING BRACKETS

Mounting Bracket	Bore Size (mm)		
	6	10	16
Foot	NCJ-L006B	NCJ-L010B	NCJ-L016B
Flange	NCJ-F006B	NCJ-F010B	NCJ-F016B

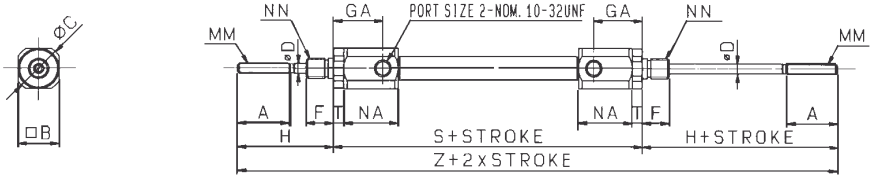
TECHNICAL SPECIFICATIONS

Fluid		Air
Proof Pressure		1MPa / 145 PSI
MaxImum Operating Pressure		0.7MPa / 100 PSI
Minimum Operating Pressure	ø6	0.14MPa / 21 PSI
	ø10, ø16	0.1MPa / 14 PSI
Ambient and Fluid Temperature		-10°C~+70°C (14~158°F)
Cushion		Rubber Cushion (Standard)
Lube		None (Non-lube)
Stroke Tolerance		$^{+0.4}_{0}$mm
Piston Speed		2~29.5 in/s (50~750mm/s)
Allowable Kinetic Energy	ø6	0.10lbf in (0.12kgf cm)
	ø10	0.30lbf in (0.35kgf cm)
	ø16	0.78lbf in (0.9kgf cm)

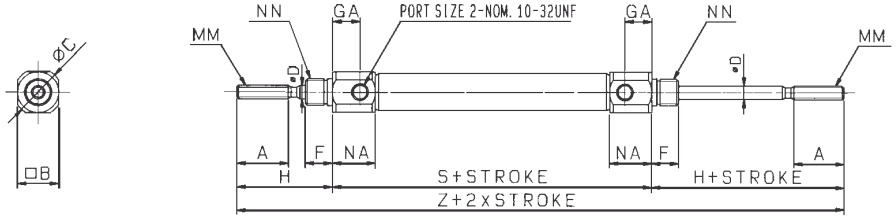
DIMENSIONS (INCH)

STANDARD DOUBLE ACTING DOUBLE ROD BASIC TYPE NCJ2WB_-_

NCJ2WB6



NCJ2WB10, 16

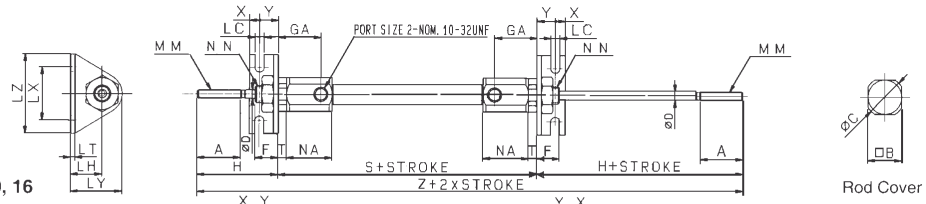


Bore Size*	A	B	C	D	F	GA	H	MM	NN	NA	T	S	Z
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.57	1.10	No5-40UNC	1/4-28UNF	0.63	0.12	2.40	4.61
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.31	1.10	No6-40UNF	5/16-24UNF	0.49	-	1.93	4.13
ø16 (5/8")	0.60	0.71	0.79	0.196	0.31	0.31	1.10	No10-32UNF	3/8-24UNF	0.49	-	1.97	4.17

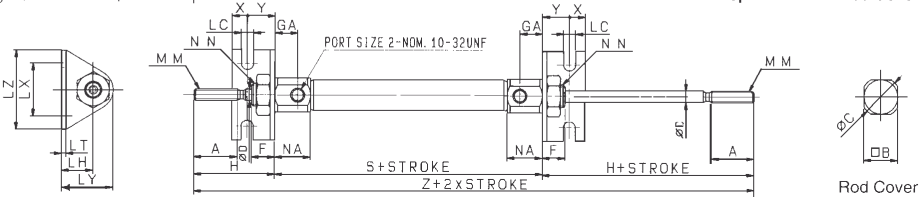
* In case of Auto Switches with ø6 Bore, add 5mm to S and Z.

DIMENSIONS (INCH)
STANDARD DOUBLE ACTING DOUBLE ROD FOOT TYPE NCJ2WL_-_

NCJ2WL6



NCJ2WL10, 16

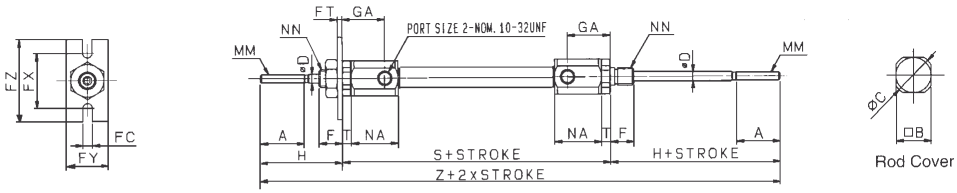


Bore Size*	A	B	C	D	F	GA	H	LC	LH	LT	LX	LY	LZ	MM	NN	NA	T	X	Y	S	Z
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.57	1.10	0.13	0.43	0.06	0.74	0.71	1.10	No5-40UNC	1/4-28UNF	0.63	0.12	0.14	0.26	2.40	4.61
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.31	1.10	0.17	0.55	0.06	0.87	0.83	1.26	No6-40UNF	5/16-24UNF	0.49	-	0.21	0.38	1.93	4.13
ø16 (5/8")	0.60	0.71	0.79	0.196	0.31	0.31	1.10	0.20	0.55	0.09	1.18	0.94	1.38	No10-32UNF	3/8-24UNF	0.49	-	0.21	0.38	1.97	4.17

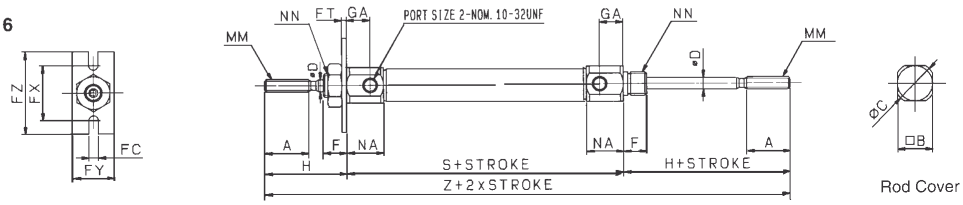
* In case of Auto Switches with ø6 Bore, add 5mm to S and Z.

DIMENSIONS (INCH)
STANDARD DOUBLE ACTING DOUBLE ROD FLANGE TYPE NCJ2WF_-_

NCJ2WF6



NCJ2WF10, 16



Bore Size*	A	B	C	D	F	FC	FT	FX	FY	FZ	GA	H	MM	NN	NA	T	S	Z
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.13	0.06	0.74	0.55	1.10	0.57	1.10	No5-40UNC	1/4-28UNF	0.63	0.12	2.40	4.61
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.17	0.06	0.87	0.55	1.26	0.31	1.10	No6-40UNF	5/16-24UNF	0.49	-	1.93	4.13
ø16 (5/8")	0.60	0.71	0.79	0.196	0.31	0.20	0.09	1.18	0.79	1.38	0.31	1.10	No10-32UNF	3/8-24UNF	0.49	-	1.97	4.17

* In case of Auto Switches with ø6 Bore, add 5mm to S and Z.

SERIES NCJ2

HOW TO ORDER

NCJ2 STANDARD SINGLE ACTING SPRING RETURN / SPRING EXTEND

NC J2 ○○ — ○○○

NC ○ J2 ○○ — ○○○ — ○○

AUTO SWITCH CAPABLE
- ……Not Switch Capable
D ……Switch Capable With Built-In Magnet

MOUNTING
B ……Basic
L ……Axial Foot
F ……Rod Side Flange
D ……Double Clevis (Except for ø6)

BORE SIZE
ø6 (1/4")
ø10 (3/8")
ø16 (5/8")

STD STROKE/HUNDREDTHS OF AN INCH
ø6 (1/4") 050, 100, 150, 200
ø10 (3/8") 050. 100. 150, 200
ø16 (5/8") 050, 100, 150, 200, 300, 400, 500

ACTION
S ……Spring Return
T ……Spring Extend

PORT LOCATION ON HEAD COVER

Symbol	Bore Size: ø6	ø10, ø16
R	In-Line	In-Line
-	-	Perpendicular

NUMBER OF SWITCHES
- ……2 Pieces
S ……1 Piece
n ……n Pieces

APPLICABLE AUTO SWITCH
See NCJ2 Accessories Section

PART NUMBER OF MOUNTING BRACKETS

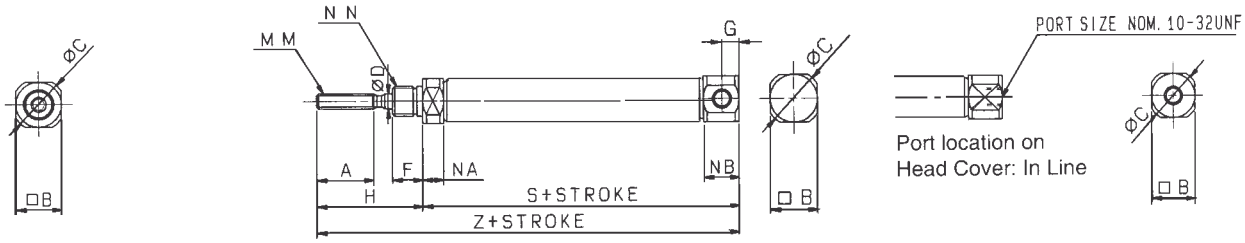
Mounting Bracket	Bore Size (mm) 6	10	16
Foot	NCJ-L006B	NCJ-L010B	NCJ-L016B
Flange	NCJ-F006B	NCJ-F010B	NCJ-F016B

TECHNICAL SPECIFICATIONS

Fluid		Air
Proof Pressure		1MPa / 145 PSI
MaxImum Operating Pressure		0.7MPa / 100 PSI
Minimum Operating Pressure	ø6	0.35MPa / 50 PSI
	ø10, ø16	0.14MPa / 21 PSI
Ambient and Fluid Temperature		-10°C~+70°C / 14~158°F
Cushion		Rubber Cushion (Standard)
Lube		None (Non-lube)
Stroke Tolerance		$^{+0.4}_{0}$mm
Piston Speed		2~29.5 in/s (50~750mm/s)
Allowable Kinetic Energy	ø6	0.10lbf in (0.12kgf cm)
	ø10	0.30lbf in (0.35kgf cm)
	ø16	0.78lbf in (0.9kgf cm)

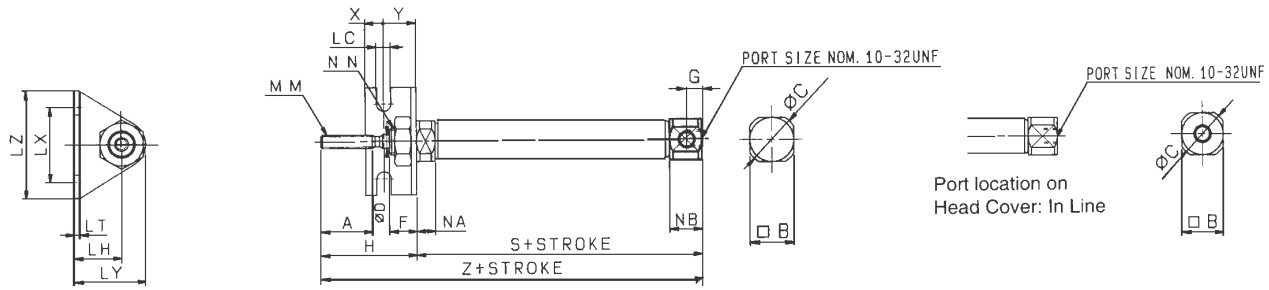
DIMENSIONS SEE NEXT PAGE ☞

DIMENSIONS (INCH)
STANDARD SINGLE ACTING SPRING RETURN BASIC TYPE NCJ2B_-_S



												S							Z						
Bore Size	A	B	C	D	F	G	H	MM	NN	NA	NB	50	100	150	200	300	400	500	50	100	150	200	300	400	500
ø6 (1/4")	0.60	0.31	0.35	0.125	0.31	-	1.10	No5-40UNC	1/4-28UNF	0.12	0.28	1.45	1.73	1.98	2.47	-	-	-	2.55	2.84	3.09	3.57	-	-	-
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	.196	1.10	No6-40UNF	5/16-24UNF	0.21	0.37	1.80	2.01	2.30	2.78	-	-	-	2.91	3.11	3.40	3.89	-	-	-
ø16 (5/8")	0.60	0.71	0.79	0.196	0.31	.196	1.10	No10-32UNF	3/8-24UNF	0.21	0.37	1.82	2.03	2.32	2.80	3.22	3.83	4.61	2.93	3.13	3.42	3.91	4.32	4.94	5.71

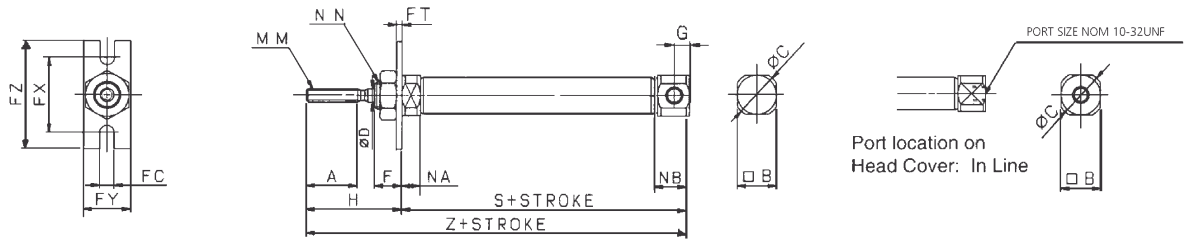
DIMENSIONS (INCH)
STANDARD SINGLE ACTING SPRING RETURN FOOT TYPE NCJ2L_-_S



																			S						
Bore Size	A	B	C	D	F	G	H	LC	LH	LT	LX	LY	LZ	MM	NN	NA	NB	X	Y	50	100	150	200	300	400	500
ø6 (1/4")	0.60	0.31	0.35	0.125	0.31	-	1.10	0.13	0.43	0.06	0.74	0.71	1.10	No5-40UNC	1/4-28UNF	0.12	0.28	0.14	0.26	1.45	1.73	1.98	2.47	-	-	-
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	.196	1.10	0.17	0.55	0.06	0.87	0.83	1.26	No6-40UNF	5/16-24UNF	0.21	0.37	0.21	0.38	1.80	2.01	2.30	2.78	-	-	-
ø16 (5/8")	0.60	0.71	0.79	0.196	0.31	.196	1.10	0.20	0.55	0.09	1.18	0.94	1.38	No10-32UNF	3/8-24UNF	0.21	0.37	0.21	0.38	1.82	2.03	2.32	2.80	3.2	3.83	4.61

Z						
50	100	150	200	300	400	500
2.55	2.84	3.09	3.57	-	-	-
2.91	3.11	3.40	3.89	-	-	-
2.93	3.13	3.42	3.91	4.32	4.94	5.71

DIMENSIONS (INCH)
STANDARD SINGLE ACTING SPRING RETURN ROD SIDE FLANGE TYPE NCJ2F_-_S

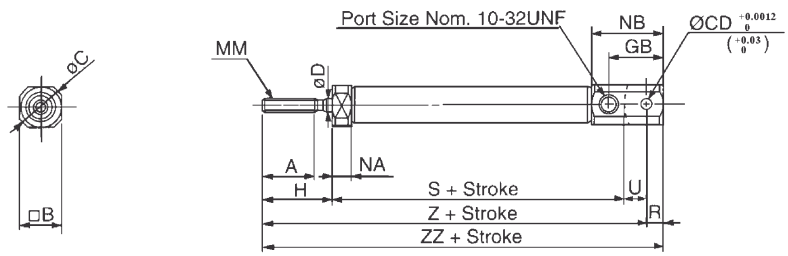


																				S							Z						
Bore Size	A	B	C	D	F	FC	FT	FX	FY	FZ	G	H	MM	NN	NA	NB	50	100	150	200	300	400	500	50	100	150	200	300	400	500
ø6 (1/4")	0.60	0.31	0.35	0.125	0.31	0.13	0.06	0.74	0.55	1.10	-	1.10	No5-40UNC	1/4-28UNF	0.12	0.28	1.45	1.73	1.98	2.47	-	-	-	2.55	2.84	3.09	3.57	-	-	-
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.17	0.06	0.87	0.55	1.26	.196	1.10	No6-40UNF	5/16-24UNF	0.21	0.37	1.80	2.01	2.30	2.78	-	-	-	2.91	3.11	3.40	3.89	-	-	-
ø16 (5/8")	0.60	0.71	0.79	0.196	0.31	0.20	0.09	1.18	0.79	1.10	.196	1.10	No10-32UNF	3/8-24UNF	0.21	0.37	1.82	2.03	2.32	2.80	3.22	3.83	4.61	2.93	3.13	3.42	3.91	4.32	4.94	5.71

* In case of Auto Switches with ø6 Bore, add 5mm to S and Z.

SERIES NCJ2

DIMENSIONS (INCH)
STANDARD SINGLE ACTING SPRING RETURN DOUBLE CLEVIS TYPE NCJ2D_-_S



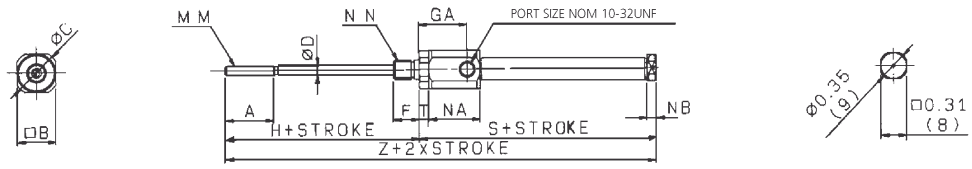
ZZ						
50	100	150	200	300	400	500
3.14	3.35	3.64	4.12	-	-	-
3.32	3.53	3.81	4.30	4.72	5.33	6.10

Bore Size	A	B	C	CD	CX	D	GB	H	MM	NA	NB	R	U	S							Z						
														50	100	150	200	300	400	500	50	100	150	200	300	400	500
ø10 (3/8")	0.60	0.47	0.55	0.187	0.188	0.157	0.75	0.79	No6-40UNF	0.22	0.93	0.24	0.31	1.80	2.01	2.30	2.78	-	-	-	2.91	3.11	3.40	3.89	-	-	-
ø16 (5/8")	0.60	0.71	0.79	0.187	0.188	0.196	0.91	0.79	No10-32UNF	0.22	1.08	0.31	0.39	1.82	2.03	2.32	2.80	3.22	3.83	4.61	3.00	3.21	3.50	3.98	4.40	5.02	5.79

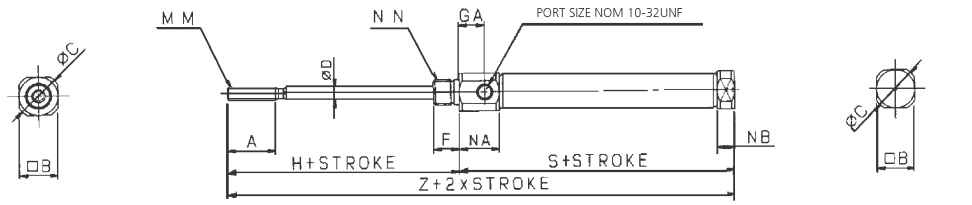
Note) Clevis Pin Included

DIMENSIONS (INCH)
STANDARD SINGLE ACTING SPRING EXTEND BASIC TYPE NCJ2B_-_T

NCJ2B6



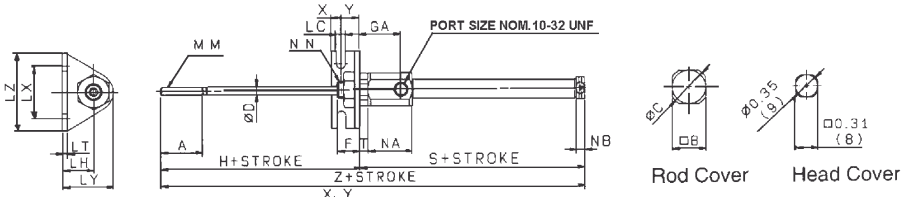
NCJ2B10, 16



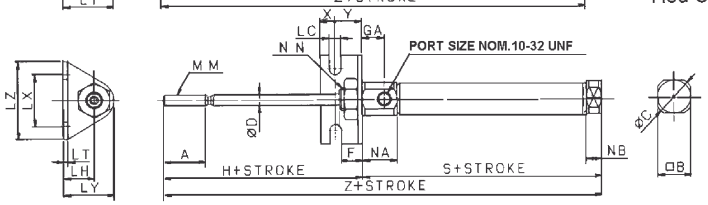
Bore Size	A	B	C	D	F	GA	H	MM	NN	NA	NB	T	S							Z						
													50	100	150	200	300	400	500	50	100	150	200	300	400	500
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.57	1.10	No5-40UNC	1/4-28UNF	0.63	0.12	0.12	1.92	2.20	2.45	2.94	-	-	-	3.02	3.31	3.56	4.04	-	-	-
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.31	1.10	No6-40UNF	5/16-24UNF	0.49	0.22	-	1.92	2.13	2.42	2.90	-	-	-	3.02	3.23	3.52	4.00	-	-	-
ø16 (5/8")	0.60	0.71	0.79	0.196	0.31	0.31	1.10	No10-32UNF	3/8-24UNF	0.49	0.22	-	1.94	2.15	2.44	2.92	3.34	3.95	4.72	3.04	3.25	3.54	4.02	4.44	5.06	5.83

DIMENSIONS (INCH)
STANDARD SINGLE ACTING SPRING EXTEND FOOT TYPE NCJ2L_-_T

NCJ2L6



NCJ2L10, 16



Continued ..... NCJ2 Single Acting Spring Extend Foot Type

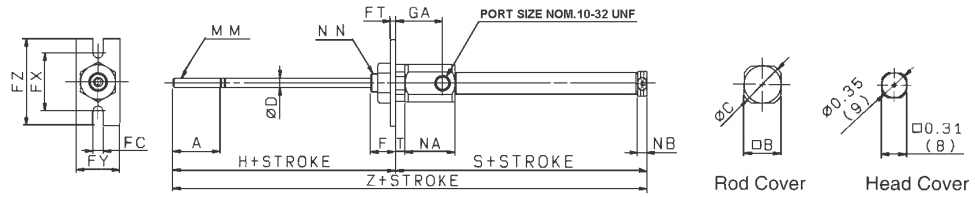
Bore Size*	A	B	C	D	F	GA	H	LC	LH	LT	LX	LY	LZ	MM	NN	NA	NB	T	X	Y	S						
																					50	100	150	200	300	400	500
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.57	1.10	0.13	0.43	0.06	0.74	0.71	1.10	No5-40UNC	1/4-28UNF	0.63	0.12	0.12	0.14	0.26	1.92	2.20	2.45	2.94	-	-	-
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.31	1.10	0.17	0.55	0.06	0.87	0.83	1.26	No6-40UNF	5/16-24UNF	0.49	0.22	-	0.21	0.38	1.92	2.13	2.42	2.90	-	-	-
ø16 (5/8")	0.60	0.71	0.79	0.196	0.31	0.31	1.10	0.20	0.55	0.09	1.18	0.94	1.38	No10-32UNF	3/8-24UNF	0.49	0.22	-	0.21	0.38	1.94	2.15	2.44	2.92	3.34	3.95	4.72

* In case of Auto Switches with ø6 Bore, add 5mm to S and Z.

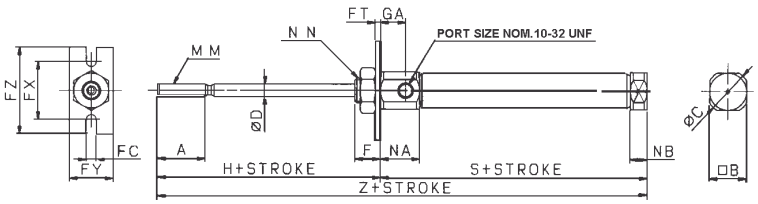
Z						
50	100	150	200	300	400	500
3.02	3.31	3.56	4.04	-	-	-
3.02	3.23	3.52	4.00	-	-	-
3.04	3.25	3.54	4.02	4.44	5.06	5.83

DIMENSIONS (INCH)
STANDARD SINGLE ACTING SPRING EXTEND ROD SIDE FLANGE TYPE NCJ2F_-_T

NCJ2F6



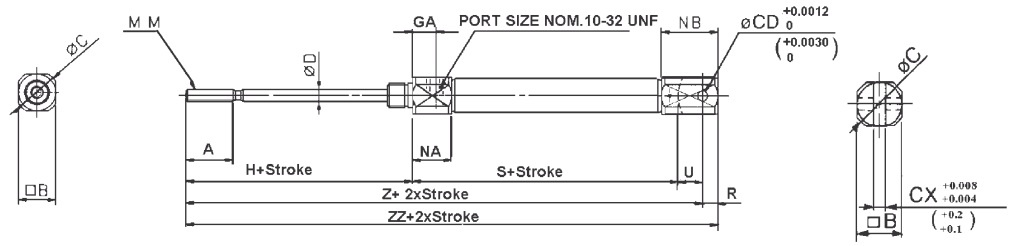
NCJ2F10, 16



Bore Size*	A	B	C	D	F	FC	FT	FX	FY	FZ	GA	H	MM	NN	NA	NB	T	S							Z						
																		50	100	150	200	300	400	500	50	100	150	200	300	400	500
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.13	0.06	0.74	0.55	1.10	0.57	1.10	No5-40UNC	1/4-28UNF	0.63	0.12	0.12	1.92	2.20	2.45	2.94	-	-	-	3.02	3.31	3.56	4.04	-	-	-
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.17	0.06	0.87	0.55	1.26	0.31	1.10	No6-40UNF	5/16-24UNF	0.49	0.22	-	1.92	2.13	2.42	2.90	-	-	-	3.02	3.23	3.52	4.00	-	-	-
ø16 (5/8")	0.60	0.71	0.79	0.196	0.31	0.20	0.09	1.18	0.79	1.38	0.31	1.10	No10-32UNF	3/8-24UNF	0.49	0.22	-	1.94	2.15	2.44	2.92	3.34	3.95	4.72	3.04	3.25	3.54	4.02	4.44	5.06	5.83

* In case of Auto Switches with ø6 Bore, add 5mm to S and Z.

DIMENSIONS (INCH)
STANDARD SINGLE ACTING SPRING EXTEND DOUBLE CLEVIS TYPE NCJ2D_-_T



ZZ						
50	100	150	200	300	400	500
3.73	3.94	4.23	4.71	-	-	-
3.91	4.12	4.41	4.89	5.31	5.92	6.69

*Clevis Pin Included

Bore Size	A	B	C	CD	CX	D	GA	H	MM	NA	NB	R	U	S							Z						
														50	100	150	200	300	400	500	50	100	150	200	300	400	500
ø10 (3/8")	0.60	0.47	0.55	0.187	0.188	0.157	0.31	1.10	No6-40UNF	0.49	0.93	0.24	0.31	2.08	2.29	2.57	3.06	-	-	-	3.50	3.70	3.99	4.48	-	-	-
ø16 (5/8")	0.60	0.71	0.79	0.187	0.188	0.196	0.31	1.10	No10-32UNF	0.49	1.08	0.31	0.39	2.10	2.31	2.59	3.08	3.50	4.11	4.88	3.59	3.80	4.09	4.57	4.99	5.61	6.38

SERIES NCJ2

HOW TO ORDER

NCJ2 NON-ROTATING DOUBLE ACTING SINGLE ROD CYLINDER

NC J2K — — —

NC J2K — — — —

AUTO SWITCH CAPABLE
- ……Not Switch Capable
D ……Switch Capable With Built-In Magnet

MOUNTING
B ……Basic
D ……Double Clevis
L ……Axial Foot
F ……Rod Side Flange

BORE/STD STROKE(HUNDREDTHS OF AN INCH)
ø10 (3/8") 050. 100. 150, 200, 300, 400, 500, 600
ø16 (5/8") 050, 100, 150, 200, 300, 400, 500, 600, 700, 800

PORT LOCATION ON HEAD COVER
R ……In-Line
- ……Perpendicular

APPLICABLE AUTO SWITCH
See NCJ2 Accessories Section

NUMBER OF SWITCHES
- ……2 Pieces
S ……1 Piece
n ……n Pieces

PART NUMBER OF MOUNTING BRACKETS

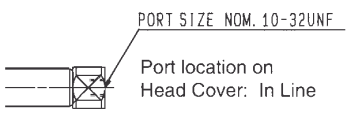
Mounting Bracket	Bore Size (mm) 10	16
Foot	NCJ-L010B	NCJ-L016B
Flange	NCJ-F010B	NCJ-F016B

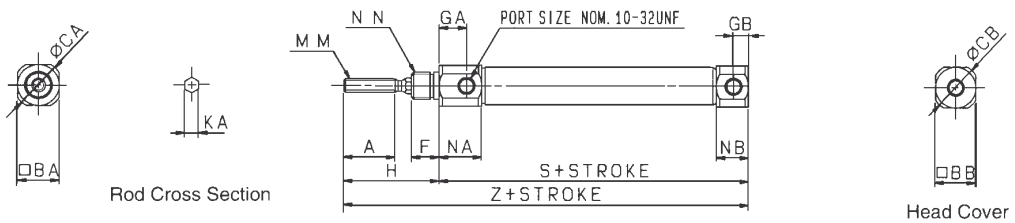
TECHNICAL SPECIFICATIONS

Fluid		Air
Proof Pressure		1MPa / 145 PSI
MaxImum Operating Pressure		0.7MPa / 100 PSI
Minimum Operating Pressure		0.05MPa / 8.5 PSI
Ambient and Fluid Temperature		-10°C~+70°C / 14~160°F
Cushion		Rubber Cushion (Standard)
Lubrication		None (Non-lube)
Stroke Tolerance		$^{+0.4}_{0}$mm
Non-Rotating Accuracy		ø10: ±1.5° / ø16: ±1°
Piston Speed		2~29.5 in/s (50~750mm/s)
Allowable Kinetic Energy	ø10	0.30lbf in (0.35kgf cm)
	ø16	0.78lbf in (0.9kgf cm)

DIMENSIONS (INCH)

NON-ROTATING DOUBLE ACTING SINGLE ROD BASIC TYPE NCJ2KB_-_

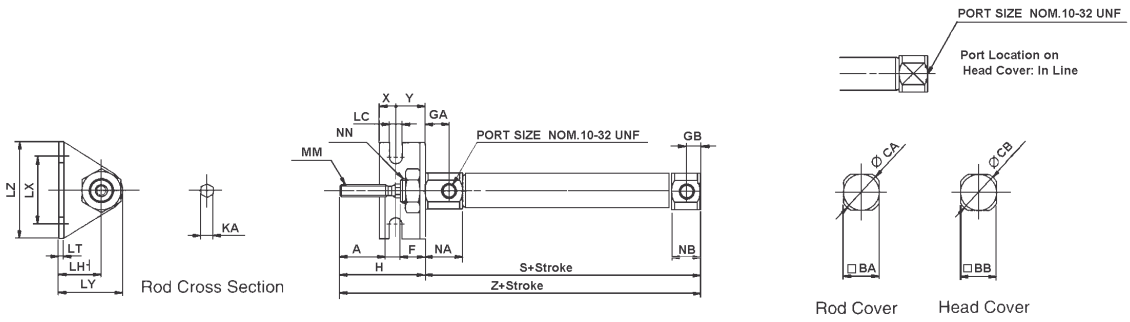




Bore Size	A	BA	BB	CA	CB	F	GA	GB	H	KA	MM	NN	NA	NB	S	Z
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	0.31	0.196	1.10	0.17	No6-40UNF	3/8-24UNF	0.49	0.37	1.81	2.91
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	0.31	0.31	0.196	1.10	0.20	No10-32UNF	7/16-20UNF	0.49	0.37	1.85	2.95

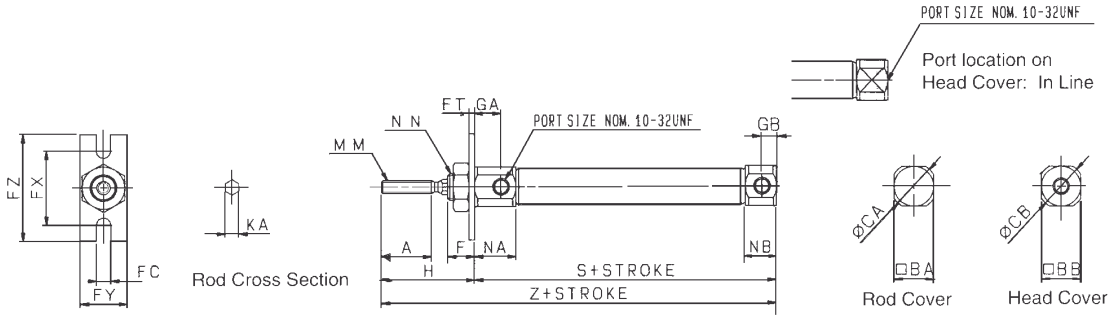
DIMENSIONS SEE NEXT PAGE ☞

DIMENSIONS (INCH)
NON-ROTATING DOUBLE ACTING SINGLE ROD FOOT TYPE NCJ2KL_-_



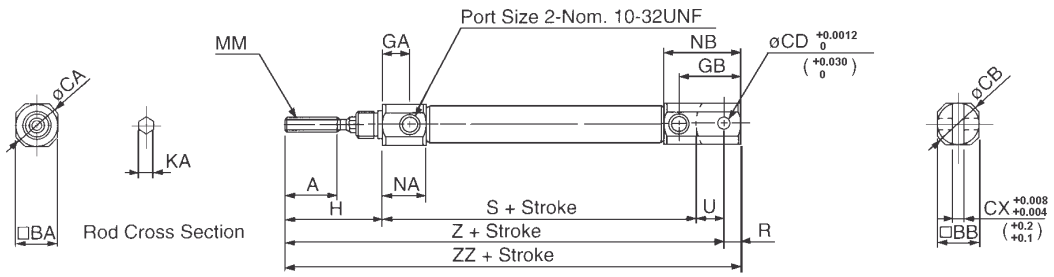
Bore Size	A	BA	BB	CA	CB	F	GA	GB	H	KA	LC	LH	LT	LX	LY	LZ	MM	NN	NA	NB	X	Y	S	Z
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	0.31	0.196	1.10	0.17	0.20	0.55	0.09	1.18	0.94	1.38	No6-40UNF	3/8-24UNF	0.49	0.37	0.21	0.38	1.81	2.91
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	0.31	0.31	0.196	1.10	0.20	0.20	0.55	0.09	1.18	0.94	1.65	No10-32UNF	7/16-20UNF	0.49	0.37	0.21	0.38	1.85	2.95

DIMENSIONS (INCH)
NON-ROTATING DOUBLE ACTING SINGLE ROD ROD SIDE FLANGE TYPE NCJ2KF_-_



Bore Size	A	BA	BB	CA	CB	F	FC	FT	FX	FY	FZ	GA	GB	H	KA	MM	NN	NA	NB	S	Z
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	0.20	0.09	1.14	0.79	1.38	0.31	0.196	1.10	0.17	No6-40UNF	3/8-24UNF	0.49	0.37	1.81	2.91
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	0.31	0.20	0.09	1.18	0.79	1.38	0.31	0.196	1.10	0.20	No10-32UNF	7/16-20UNF	0.49	0.37	1.85	2.95

DIMENSIONS (INCH)
NON-ROTATING DOUBLE ACTING SINGLE ROD DOUBLE CLEVIS TYPE NCJ2KD_-_



Bore Size	A	BA	BB	CA	CB	CD	CX	GA	GB	H	KA	MM	NA	NB	R	S	U	Z	ZZ
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	.187	.188	0.31	0.75	1.10	0.17	No6-40UNF	0.49	0.93	0.24	1.81	0.31	3.22	3.46
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	.187	.188	0.31	0.91	1.10	0.20	No10-32UNF	0.49	1.08	0.31	1.85	0.39	3.35	3.66

SERIES NCJ2

HOW TO ORDER

NCJ2 NON-ROTATING SINGLE ACTING SPRING RETURN / SPRING EXTEND CYLINDER

NC J2K — — — — —

NC J2K — — — — — —

AUTO SWITCH CAPABLE
- ……Not Switch Capable
D ……Switch Capable With Built-In Magnet

MOUNTING
B ……Basic
D ……Double Clevis
L ……Axial Foot
F ……Rod Side Flange

BORE SIZE
ø10
ø16

STD STROKE/HUNDREDTHS OF AN INCH
ø10 (3/8") 050. 100. 150, 200
ø16 (5/8") 050, 100, 150, 200, 300, 400, 500

ACTION
S ……Spring Return
T ……Spring Extend

PORT LOCATION ON HEAD COVER
R ……In-Line
- ……Perpendicular

APPLICABLE AUTO SWITCH
See NCJ2 Accessories Section

NUMBER OF SWITCHES
- ……2 Pieces
S ……1 Piece
n ……n Pieces

PART NUMBER OF MOUNTING BRACKETS

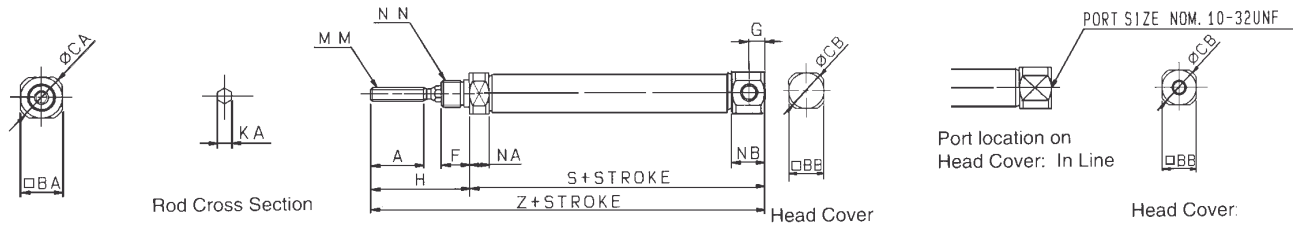
Mounting Bracket	Bore Size (mm) 10	16
Foot	NCJ-L010B	NCJ-L016B
Flange	NCJ-F010B	NCJ-F016B

TECHNICAL SPECIFICATIONS

Fluid		Air
Proof Pressure		1MPa / 145 PSI
MaxImum Operating Pressure		0.7MPa / 100 PSI
Minimum Operating Pressure		0.14MPa / 21 PSI
Ambient and Fluid Temperature		-10°C~+70°C / 14~160°F
Cushion		Rubber Cushion (Standard)
Lubrication		None (Non-lube)
Stroke Tolerance		$^{+0.4}_{0}$mm
Non-Rotating Accuracy		ø10: ±1.5° / ø16: ±1°
Piston Speed		2~29.5 in/s (50~750mm/s)
Allowable Kinetic Energy	ø10	0.30lbf in (0.35kgf cm)
	ø16	0.78lbf in (0.9kgf cm)

DIMENSIONS (INCH)

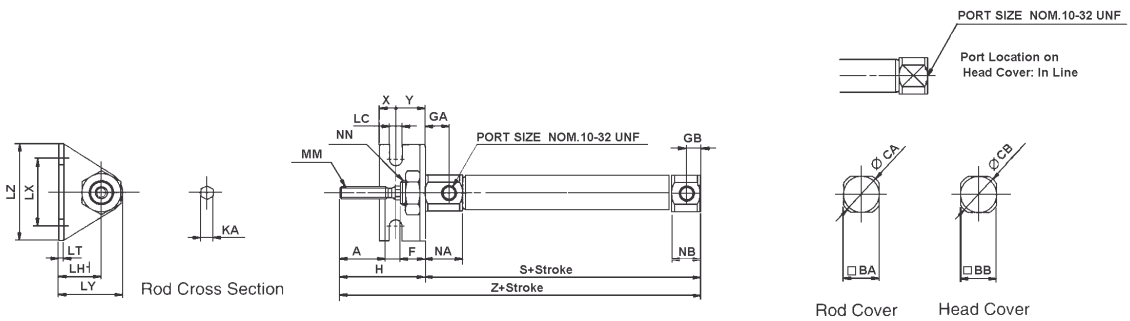
NON-ROTATING SINGLE ACTING SPRING RETURN BASIC TYPE NCJ2KB_-_S



Bore Size	A	BA	BB	CA	CB	F	G	H	KA	MM	NN	NA	NB	S 50	S 100	S 150	S 200	S 300	S 400	S 500	Z 50	Z 100	Z 150	Z 200	Z 300	Z 400	Z 500
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	0.196	1.10	0.17	No6-40UNF	3/8-24UNF	0.21	0.37	1.80	2.01	2.30	2.78	-	-	-	2.91	3.11	3.40	3.89	-	-	-
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	0.31	0.196	1.10	0.20	No10-32UNF	7/16-20UNF	0.21	0.37	1.82	2.03	2.32	2.80	3.22	3.83	4.61	2.93	3.13	3.42	3.91	4.32	4.94	5.71

MORE DIMENSIONS SEE NEXT PAGE ☞

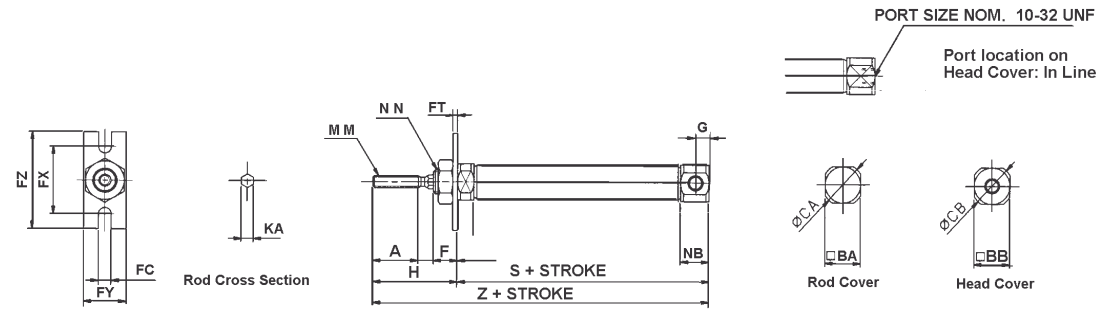
DIMENSIONS (INCH)
NON-ROTATING SINGLE ACTING SPRING RETURN FOOT TYPE NCJ2KL_-_S



Bore Size	A	BA	BB	CA	CB	F	H	KA	LC	LH	LT	LX	LY	LZ	MM	NN	NA	NB	X	Y	S						
																					50	100	150	200	300	400	500
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	1.10	0.17	0.20	0.55	0.09	1.18	0.94	1.38	No6-40UNF	3/8-24UNF	0.21	0.37	0.21	0.38	1.80	2.01	2.30	2.78	-	-	-
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	0.31	1.10	0.20	0.20	0.55	0.09	1.18	0.94	1.65	No10-32UNF	7/16-20UNF	0.21	0.37	0.21	0.38	1.82	2.03	2.32	2.80	3.22	3.83	4.61

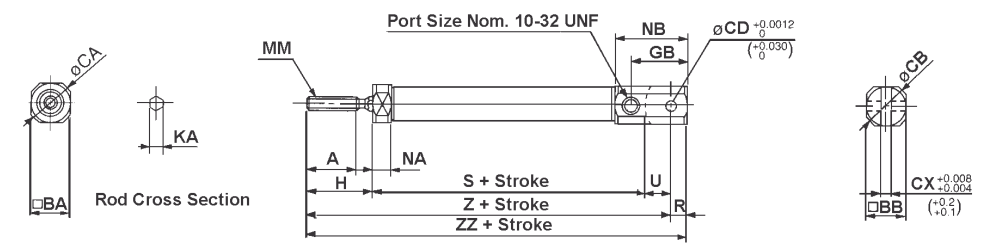
Z						
50	100	150	200	300	400	500
2.91	3.11	3.40	3.89	-	-	-
2.93	3.13	3.42	3.91	4.32	4.94	5.71

DIMENSIONS (INCH)
NON-ROTATING SINGLE ACTING SPRING RETURN ROD SIDE FLANGE TYPE NCJ2KF_-_S



Bore Size	A	BA	BB	CA	CB	F	G	FC	FT	FX	FY	FZ	H	KA	MM	NN	NA	NB	S							Z						
																			50	100	150	200	300	400	500	50	100	150	200	300	400	500
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	.196	0.20	0.09	1.18	0.79	1.38	1.10	0.17	No6-40UNF	3/8-24UNF	0.21	0.37	1.80	2.01	2.30	2.78	-	-	-	2.91	3.11	3.40	3.89	-	-	-
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	0.31	.196	0.20	0.09	1.18	0.79	1.38	1.10	0.20	No10-32UNF	7/16-20UNF	0.21	0.37	1.82	2.03	2.32	2.80	3.22	3.83	4.61	2.93	3.13	3.42	3.91	4.32	4.94	5.71

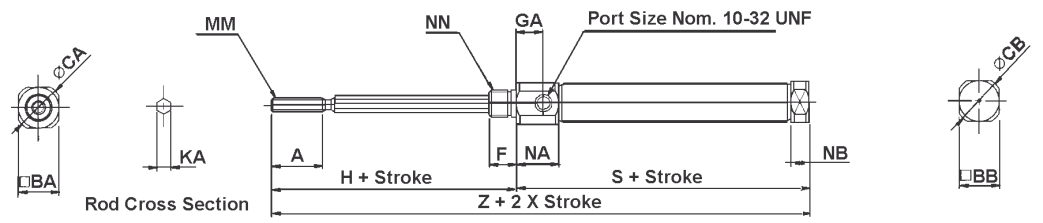
DIMENSIONS (INCH)
NON-ROTATING SINGLE ACTING SPRING RETURN DOUBLE CLEVIS TYPE NCJ2KD_-_S



ZZ						
50	100	150	200	300	400	500
3.14	3.35	3.64	4.12	-	-	-
3.32	3.53	3.81	4.30	4.72	5.33	6.10

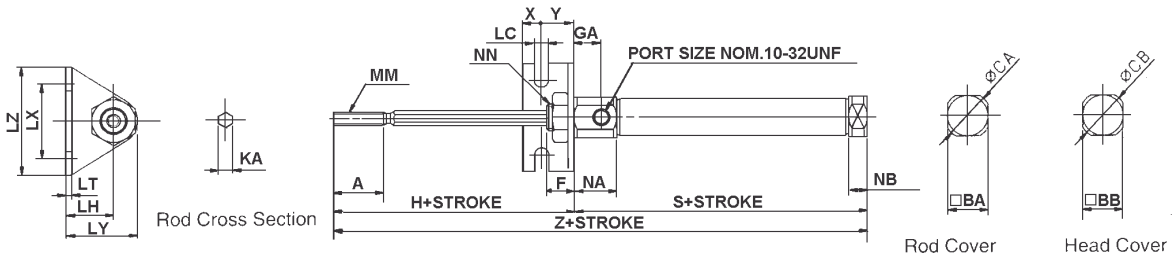
Bore Size	A	BA	BB	CA	CB	CD	CX	GB	H	KA	MM	NA	NB	R	U	S							Z						
																50	100	150	200	300	400	500	50	100	150	200	300	400	500
ø10 (3/8")	0.60	0.47	0.47	0.55	0.55	.187	.188	0.75	0.79	0.17	No6-40UNF	0.22	0.93	0.24	0.31	1.80	2.01	2.30	2.78	-	-	-	2.91	3.11	3.40	3.89	-	-	-
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	.187	.188	0.91	0.79	0.20	No10-32UNF	0.22	1.08	0.31	0.39	1.82	2.03	2.32	2.80	3.22	3.83	4.61	2.93	3.21	3.50	3.98	4.40	5.02	5.79

DIMENSIONS (INCH)
NON-ROTATING SINGLE ACTING SPRING EXTEND BASIC TYPE NCJ2KB_-_T



														S							Z						
Bore Size	A	BA	BB	CA	CB	F	GA	H	KA	MM	NN	NA	NB	50	100	150	200	300	400	500	50	100	150	200	300	400	500
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	0.31	1.10	0.17	No6-40UNF	3/8-24UNF	0.49	0.22	1.92	2.13	2.42	2.90	-	-	-	3.02	3.23	3.52	4.00	-	-	-
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	0.31	0.31	1.10	0.20	No10-32UNF	7/16-20UNF	0.49	0.22	1.94	2.15	2.44	2.92	3.34	3.95	4.72	3.04	3.25	3.54	4.02	4.44	5.06	5.83

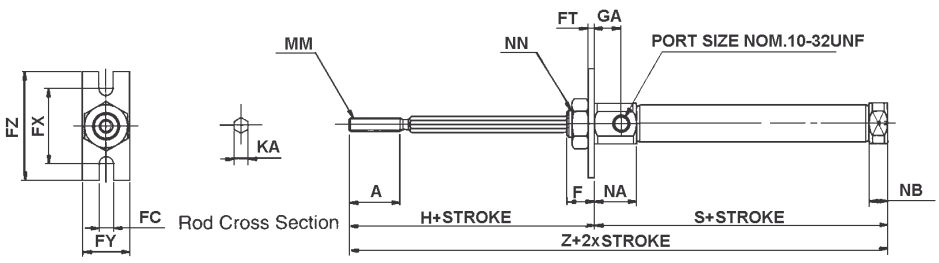
DIMENSIONS (INCH)
NON-ROTATING SINGLE ACTING SPRING EXTEND FOOT TYPE NCJ2KL_-_T



																					S						
Bore Size	A	BA	BB	CA	CB	F	GA	H	KA	LC	LH	LT	LX	LY	LZ	MM	NN	NA	NB	X	Y	50	100	150	200	300	400	500
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	0.31	1.10	0.17	0.20	0.55	0.09	1.18	0.94	1.38	No6-40UNF	3/8-24UNF	0.49	0.22	0.21	0.38	1.92	2.13	2.42	2.90	-	-	-
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	0.31	0.31	1.10	0.20	0.20	0.55	0.09	1.18	0.94	1.65	No10-32UNF	7/16-20UNF	0.49	0.22	0.21	0.38	1.94	2.15	2.44	2.92	3.34	3.95	4.72

Z						
50	100	150	200	300	400	500
3.02	3.23	3.52	4.00	-	-	-
3.04	3.25	3.54	4.02	4.44	5.06	5.83

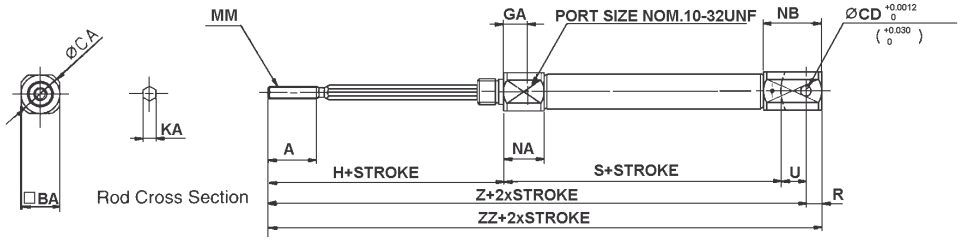
DIMENSIONS (INCH)
NON-ROTATING SINGLE ACTING SPRING EXTEND ROD SIDE FLANGE TYPE NCJ2KF_-_T



ACCESSORIES SEE NEXT PAGE ☞

																						S							Z						
Bore Size	A	BA	BB	CA	CB	F	FC	FT	FX	FY	FZ	GA	H	KA	MM	NN	NA	NB	50	100	150	200	300	400	500	50	100	150	200	300	400	500
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	0.20	0.09	1.18	0.79	1.38	0.31	1.10	0.17	No6-40UNF	3/8-24UNF	0.49	0.22	1.92	2.13	2.42	2.90	-	-	-	3.02	3.23	3.52	4.00	-	-	-
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	0.31	0.20	0.09	1.18	0.79	1.38	0.31	1.10	0.20	No10-32UNF	7/16-20UNF	0.49	0.22	1.94	2.15	2.44	2.92	3.34	3.95	4.72	3.04	3.25	3.54	4.02	4.44	5.06	5.83

DIMENSIONS (INCH)
NON-ROTATING SINGLE ACTING SPRING EXTEND DOUBLE CLEVIS TYPE NCJ2KD_-_T



ZZ						
50	100	150	200	300	400	500
3.73	3.94	4.23	4.71	-	-	-
3.91	4.12	4.41	4.89	5.31	5.92	6.69

																S							Z						
Bore Size	A	BA	BB	CA	CB	CD	CX	GA	H	KA	MM	NA	NB	R	U	50	100	150	200	300	400	500	50	100	150	200	300	400	500
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	.187	.188	0.31	0.10	0.17	No6-40UNF	0.49	0.93	0.24	0.31	2.08	2.29	2.57	3.06	-	-	-	3.50	3.70	3.99	4.48	-	-	-
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	.187	.188	0.31	0.10	0.20	No10-32UNF	0.49	1.08	0.31	0.39	2.10	2.31	2.59	3.08	3.50	4.11	4.88	3.59	3.80	4.09	4.57	4.99	5.61	6.38

HOW TO ORDER
SERIES NCJ2 HIGH TEMPERATURE RESISTANT CYLINDER - XB6 OPTION

NCJ2 ○ ○ ○ — ○ — XB6

- .....Single Rod
W.....Double Rod

MOUNTING | BORE SIZE | STROKE

TECHNICAL SPECIFICATIONS

Applicable Cylinder Bore Size	ø6, ø10, ø16
Action	Double Acting (Single/Double Rod)
Ambient and Fluid Temperature	-10°C~+150°C / 14~300°F
Packing Material	Fluorocarbon Rubber
Special Grease	Teflon® based Grease
Mounting Type	Basic, Foot, Rod Side Flange

HOW TO ORDER
SERIES NCJ2 LOW TEMPERATURE RESISTANT CYLINDER - XB7 OPTION

NCJ2 ○ ○ ○ — ○ — XB7

- .....Single Rod
W.....Double Rod

MOUNTING | BORE SIZE | STROKE

TECHNICAL SPECIFICATIONS

Applicable Cylinder Bore Size	ø6, ø10, ø16
Action	Double Acting (Single/Double Rod)
Ambient and Fluid Temperature	-55°C~+70°C / -67~160°F
Packing Material	NBR
Special Grease	Teflon® based Grease
Mounting Type	Basic, Foot, Rod Side Flange

HOW TO ORDER
SERIES NCJ2 LOW FRICTION CYLINDER - XB9 OPTION

NCJ2 ○ ○ ○ — ○ — XB9

- .....Single Rod
W.....Double Rod

MOUNTING | BORE SIZE | STROKE

TECHNICAL SPECIFICATIONS

Applicable Cylinder Bore Size	ø6, ø10, ø16
Action	Double Acting (Single/Double Rod)
Ambient and Fluid Temperature	-55°C~+70°C / -67~160°F
Piston Velocity	10 ~ 50 mm/s (-4 ~ 2in/s)
Mounting Type	Basic, Axial Foot, Rod Side Flange

SERIES NCJ2

ACCESSORIES
SERIES NCJ2 AIR CYLINDER

NCY2 ACCESSORIES	PART NO	APPLICABLE DIAMETER
Rear Clevis Pin	NCD-J010	ø10
	NCD-J016	ø16
Double Rod Clevis	NY-J010B	ø10
	NY-J016B	ø16
Rod Jam Nut	JM-005	ø8
	JM-006	ø10
	JM-02	ø16
Mounting Nut	JM-025	ø8
	JM-03	ø10
	JM-04	ø16

ACCESSORIES
AUTO SWITCHES

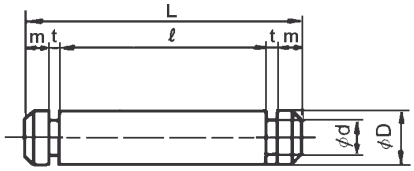
Note: Pre-wired Switches with 3/4 Pin Connectors available

MODEL	LEAD WIRE ENTRY	APPLICATIONS	LOAD VOLTAGE	MAX LOAD CURRENT/LOAD CURRENT RANGE
D-C73	Grommet	PLC	24 VDC	5 ~ 40 mA
			110VAC	5 ~ 20 mA
D-C76	Grommet	PLC	4 ~ 8 VDC	20 mA
D-C80	Grommet	PLC	24V AC/DC or less	50mA
			48V AC/DC	40mA
			100V AC/DC	20mA
D-C73C	Connector	PLC	24 VDC	5 ~ 40 mA
D-C80C	Connector	PLC	24V AC/DC or less	50 mA
D-H7A1	Grommet	PLC	28 VDC	40 mA
D-H7A2	Grommet	PLC	28 VDC	80 mA
D-H7B	Grommet	24VDC	24 VDC	5 ~ 40 mA
D-H7C	Connector	PLC	(10~28 VDC)	

ACCESSORIES
SERIES NCJ2 SWITCH BANDS

BORE SIZE	PART NO
ø6	BJ2-006
ø10	BJ2010
ø16	BJ2-016

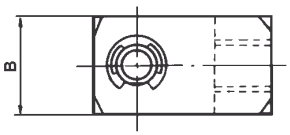
ACCESSORIES
SERIES NCJ2 REAR CLEVIS PIN

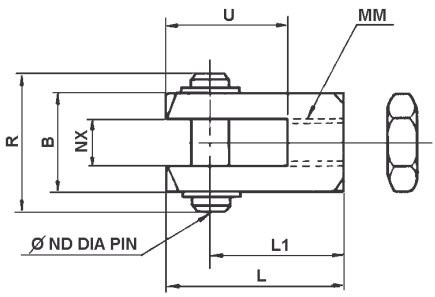


PART NO	BORE SIZE	øD	L	ød	e	M	t
NCD-J010	ø10 (3/8")	0.188	0.59	0.147	0.48	0.03	0.03
NCD-J016	ø16 (5/8")	0.187	0.90	0.147	0.72	0.06	0.03

Note) includes 2 Retaining Ring

ACCESSORIES
SERIES NCJ2 PISTON ROD CLEVIS

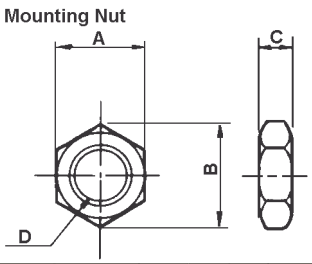




PART NO	BORE SIZE	B	R	NX	øND	U	MM	L	L1
NY-J010B	ø10 (3/8")	0.39	0.54	0.188	0.188	0.56	No6-40UNF	0.94	0.75
NY-J016B	ø16 (5/8")	0.39	0.54	0.188	0.188	0.56	No10-32UNF	0.94	0.75

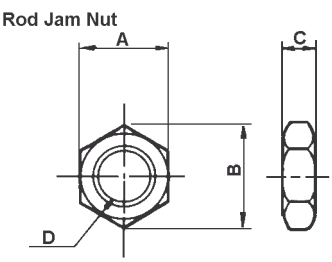
Note) includes Rod Jam Nut, Clevis Pin and 2 Retaining Rings

ACCESSORIES
SERIES NCJ2 MOUNTING NUT



PART NO	BORE SIZE	A	B	C	D
JM-025	ø6 (1/4")	0.44	0.50	0.16	1/4-28UNF
JM-03	ø10 (3/8")	0.50	0.58	0.19	5/16-24UNF
JM-04	ø16 (5/8")	0.56	0.65	0.23	3/8-24UNF

ACCESSORIES
SERIES NCJ2 ROD JAM NUT



PART NO	BORE SIZE	A	B	C	D
JM-005	ø6 (1/4")	0.31	0.11	0.11	5-40UNC
JM-006	ø10 (3/8")	0.31	0.36	0.11	6-40UNF
JM-02	ø16 (5/8")	0.38	0.43	0.13	10-32UNF

PIN CYLINDER SERIES CJP
SINGLE ACTING

- Bore sizes 6,10,15mm
- Panel mount or plug mount design
- With or without piston rod thread
- Ultra compact design

HOW TO ORDER
CJP PIN CYLINDER-SINGLE ACTING

CJPB ○ — ○ H6 — ○

MOUNTING
B .....Panel Mount
S .....Plug Mount

BORE SIZE
6
10
15

STROKE (MM)
5
10
15

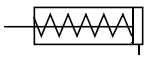
HOSE NIPPLE FOR
H6 ...Ø6x4MM I/D TUBE
H4 ...ø4x2.5MM I/D TUBE

PISTON ROD THREAD
- .....With
B .....Without

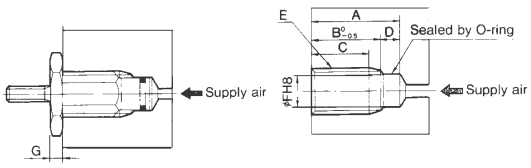
TECHNICAL SPECIFICATIONS

Action		Single Acting-Spring Retracted
Max Operating Pressure		0.7MPa / 100PSI
Min Operating Pressure	Ø6	0.2MPa / 30PSI
	Ø10, Ø15	0.15MPa / 22PSI
Proof Pressure		1.05MPa / 150PSI
Ambient and Fluid Temperature		-10~+70°C / 14~160°F
Lubrication		Not required
Cushion		N/A
Stroke Tolerance		$^{+1.0}_{-0}$
Rod End Thread		Male Thread / Without Thread
Mounting Method	Panel Mount type	Plug Mount kit as accessory

SYMBOL

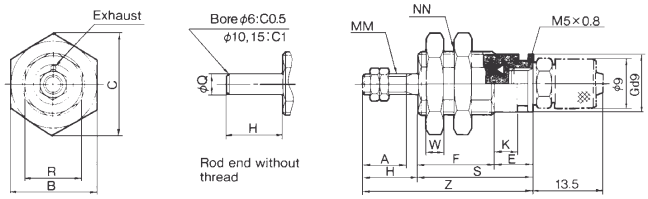


DIMENSIONS
RECOMMENDED MOUNTING HOLE DIMENSIONS FOR PLUG MOUNT



Bore size (mm)	Stroke	A	B	C	D	E	ØF	G
6	5	16	12.5	10	3.5	M10x1.0	8.5	3
	10	23	19.5	17				
	15	30	26.5	24				
10	5	17	13.5	10.5	3.5	M15x1.5	12	4
	10	23.5	20	17				
	15	30.5	27	24				
15	5	19	14.5	11.5	4.5	M22x1.5	19	5
	10	25	20.5	17.5				
	15	31.5	27	24				

DIMENSIONS
PANEL MOUNT TYPE: CJPB



Bore size (mm)	A	B	C	E	F 5st	F 10st	F 15st	ØG	H	K	MM	NN	R	S 5st	S 10st	S 15st	W	Z 5st	Z 10st	Z 15st	Q
6	7	12	13.9	6	12.5	19.5	26.5	8.5	9	3.5	M3X0.5	M10X1.0	9	18.5	25.5	32.5	3	27.5	34.5	41.5	3
10	10	19	22	6	14.5	21	28	12	12	3.5	M4x0.7	M15x1.5	13	20.5	27	34	4	32.5	39	46	5
15	12	27	31	7	16.5	22.5	29	19	14	4.2	M5x0.8	M22x1.5	20	23.5	29.5	36	5	37.5	43.5	50	6

ACCESSORIES
CJP PIN CYLINDER-SINGLE ACTING

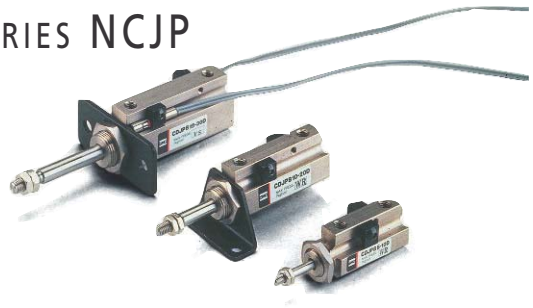
'O' Ring for Plug Mount
SO-012-14 .....(6mm)
SO-013-6 .....(10mm)
SO-014-5 .....(15mm)

Fixed Orifice Fitting
CJ-H4-M5 .....Ø4mm Tube
CJ-H6-M5 .....Ø6mm Tube

SERIES NCJP

PIN CYLINDER SERIES NCJP DOUBLE ACTING

- Bore Sizes 6,10,15mm
- 5 Mounting Options
- Magnetic Piston Standard
- Compact Design



TECHNICAL SPECIFICATIONS

Action	Double Action
Max Operating Pressure	0.7MPa / 100PSI
Min Operating Pressure	6 (1/4") : 0.12MPa (20 PSI) 10 (3/8") : 0.06 MPa (8.8 PSI)
Proof Pressure	0.99 MPa / 150 PSI
Ambient & Fluid Temp	5 ~ 60°C / 40 ~ 140°F
Lubrication	Not Required (Pre-Lubricated at Factory)
Rod End Thread	Male Thread/Without Thread
Type Of Mounting	Nose, Flange, Foot, Clevis, Trunnion

HOW TO ORDER NCJP PIN CYLINDER-DOUBLE ACTING

NCDJP ○ ○ — ○ D — ○ — ○ ○ L

AUTO SWITCH
- ……Standard
D ……With Auto Switch

MOUNT TYPE
B ……Nose Mount
*D …Clevis Mount
F ……Flange Mount
L ……Foot Mount
*T …Trunnion Mount

Note) * Auto Switch Capability is not offered on these mount types

BORE SIZE
ø6 …1/4
ø10 …3/8
ø15 …5/8

STROKE
025 …1/4"
037 …3/8"
050 …1/2"
075 …3/4"
100 …1"
125 …1 1/4"

ROD END THREAD
- ……With Thread
B ……W/O Thread

SWITCH TYPE
See Auto Switch Accessories

NO OF SWITCHES
- ……2 Switches
S ……1 Switch

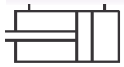
LEAD WIRE LENGTH
- ……0.5m
L ……3m

AUTO SWITCH SPECIFICATIONS

Note: Pre-wired Switches with 3/4 Pin Connectors available

Switch Model	D-90	D-97	D-90A	D-93A
Applications	Relay/PLC, Sequencer, IC Circuit			
Voltage Rating	≤24V	24VDC	≤24V 100VAC	24VDC 100VAC
Maximum Current	50MA	5~40MA	50MA 20MA	5~40/ 5~20MA
Internal Voltage Drop	0	2.4V	0	2.4V
Leakage Current	0			
Switching Time	1.2Ms			
Indicator Light	No	Yes	No	Yes
Electrical Entry	Grommet			
Lead Wire	2 Wire, 10 Inches Long			
Shock Rating	30G			
Insulation Resistance	50M or more @ 500VDC (between lead wire and case)			
Min Beakdown Voltage	1000VAC for 1 sec (between lead wire and case)			
Ambient Temperature	40~140°F (5~60°C)			
Housing	IEC Standard IP67, JIS0920 (Water Proof, Oil Proof)			

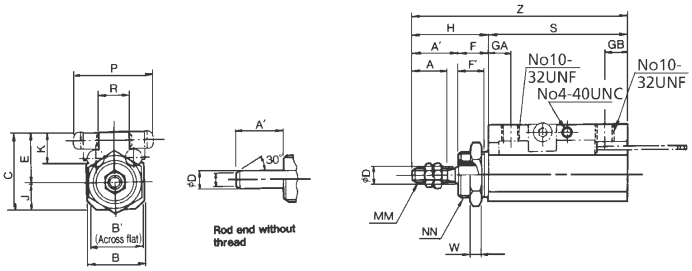
SYMBOLS



STROKE

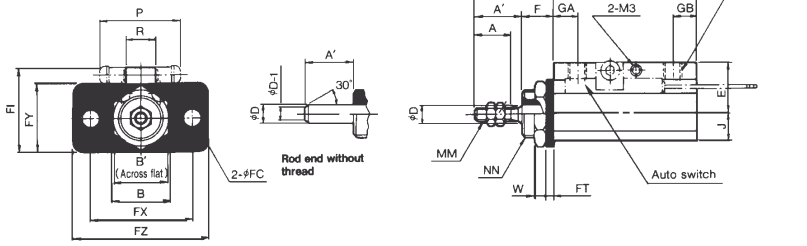
Bore Size mm (inch)	Stroke inch
ø6 …(1/4")	1/4, 3/8, 1/2, 3/4
ø10 …(3/8")	1/4, 3/8, 1/2, 3/4, 1, 1-1/4
ø15 …(5/8")	1/4, 3/8, 1/2, 3/4, 1, 1-1/4

DIMENSIONS NOSE MOUNT: NC•JPB



Bore Size	A	A'	B	B'	C	øD	F	GA	GB	H	J	L	MM	NN	S 025	S 037	S 050	S 075	S 125	W	Z 025	Z 037	Z 050	Z 075	Z 125	With Auto Switch P
ø6 (1/4")	0.38	0.50	0.55	0.56	0.65	0.125	0.31	0.24	0.24	0.81	0.24	0.43	No5-40UNC	3/8-24UNF	1.26	1.38	1.50	1.76	-	0.13	2.07	2.19	2.31	2.57	-	0.79
ø10 (3/8")	0.50	0.63	0.59	0.69	0.79	0.197	0.37	0.24	0.28	1	0.28	0.50	No10-32UNF	1/2-20UNF	1.26	1.38	1.50	1.76	2.26	0.16	2.26	2.38	2.50	2.76	3.26	0.83
ø15 (5/8")	0.50	0.63	0.79	0.75	0.97	0.236	0.44	0.24	0.28	1.06	0.36	0.56	No10-32UNF	9/16-UNF	1.26	1.38	1.50	1.76	2.26	0.19	2.32	2.44	2.56	2.82	3.32	0.91

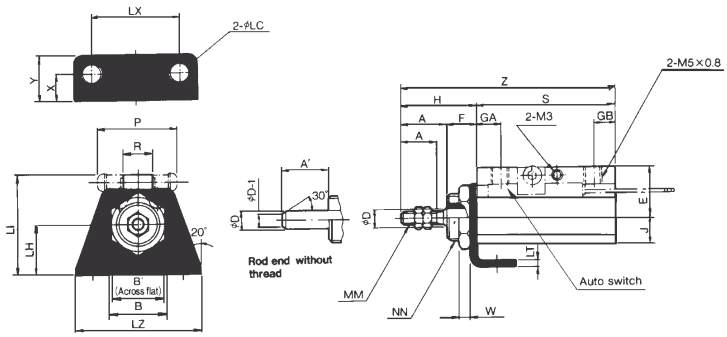
DIMENSIONS
FLANGE MOUNT: C•JPF



Bore Size	øFC	FI	FT	FX	FY	FZ
ø6 (1/4")	0.13	0.73	0.06	0.94	0.63	1.26
ø10 (3/8")	0.18	0.87	0.06	1.10	0.71	1.46
ø15 (5/8")	0.22	1.05	0.09	1.42	0.87	1.93

Bore Size	A	A'	B	B'	øD	E	F	GA	GB	H	J	L	MM	NN	S					W	Z					With Auto Switch
															025	037	050	075	125		025	037	050	075	125	P
ø6 (1/4")	0.38	0.50	0.55	0.56	0.125	0.41	0.31	0.24	0.24	0.81	0.24	0.43	No5-40UNC	3/8-24UNF	1.26	1.38	1.50	1.76	-	0.13	2.07	2.19	2.31	2.57	-	0.79
ø10 (3/8")	0.50	0.63	0.59	0.69	0.197	0.51	0.37	0.24	0.28	1	0.28	0.50	No10-32UNF	1/2-20UNF	1.26	1.38	1.50	1.76	2.26	0.16	2.26	2.38	2.50	2.76	3.26	0.83
ø15 (5/8")	0.50	0.63	0.79	0.75	0.236	0.61	0.44	0.24	0.28	1.06	0.36	0.56	No10-32UNF	9/16-UNF	1.26	1.38	1.50	1.76	2.26	0.19	2.32	2.44	2.56	2.82	3.32	0.91

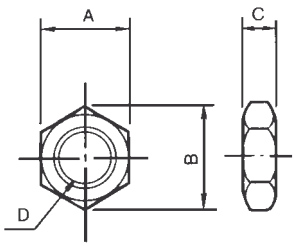
DIMENSIONS
FOOT MOUNT



Bore Size	X	Y	øLC	LH	LT	LX	LZ
ø6 (1/4")	0.26	0.41	0.13	0.44	0.06	0.75	1.10
ø10 (3/8")	0.28	0.47	0.18	0.51	0.06	0.94	1.30
ø15 (5/8")	0.41	0.67	0.22	0.69	0.09	1.18	1.69

Bore Size	A	A'	B	B'	øD	F	GA	GB	H	J	L	MM	NN	S						W	Z					With Auto Switch
														025	037	050	075	125		025	037	050	075	125	P
ø6 (1/4")	0.38	0.50	0.55	0.56	0.125	0.31	0.24	0.24	0.81	0.24	0.43	No5-40UNC	3/8-24UNF	1.26	1.38	1.50	1.76	-		0.13	2.07	2.19	2.31	2.57	-	0.79
ø10 (3/8")	0.50	0.63	0.59	0.69	0.197	0.37	0.24	0.28	1	0.28	0.50	No10-32UNF	1/2-20UNF	1.26	1.38	1.50	1.76	2.26		0.16	2.26	2.38	2.50	2.76	3.26	0.83
ø15 (5/8")	0.50	0.63	0.79	0.75	0.236	0.44	0.24	0.28	1.06	0.36	0.56	No10-32UNF	9/16-UNF	1.26	1.38	1.50	1.76	2.26		0.19	2.32	2.44	2.56	2.82	3.32	0.91

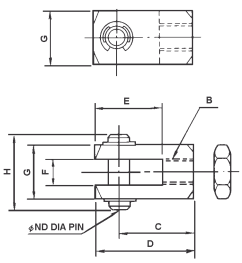
DIMENSIONS
MOUNTING NUT



Bore Size	Part No	A	B	C	D
ø6 (1/4")	NSNP-P006	0.56	0.65	0.13	3/8-24UNF
ø10 (3/8")	NSNP-P010	0.69	0.79	0.16	1/2-20UNF
ø15 (5/8")	NSNP-P015	0.75	0.86	0.19	9/16-18UNF

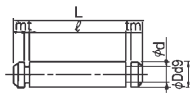
Bore Size	Part No	A	B	C	D
ø6 (1/4")	JM-005	0.31	0.11	0.36	5-40UNC
ø10 (3/8")	JM-02	0.38	0.43	0.13	10-32UNF
ø15 (5/8")	JM-02	0.38	0.43	0.13	10-32UNF

DIMENSIONS
PISTON ROD CLEVIS



Bore Size	Part No	G	H	F	øND	E	B	D	C
ø6 (1/4")	NY-P006	0.32	0.44	.125	.125	0.38	No5-40UNC	0.56	0.44
ø10 (3/8")	NY-J015	0.39	0.54	.188	.188	0.56	No10-32UNF	0.94	0.75
ø15 (5/8")	NY-J015	0.39	0.54	.188	.188	0.56	No10-32UNF	0.94	0.75

DIMENSIONS
CLEVIS AND TRUNNION PIN



Bore Size	Part No	øD	L	ød	ℓ	m	t
ø6 (1/4")	NCT-P006	.125	0.81	.095	0.70	0.03	0.018
ø10 (3/8")	NCT-P010	.188	0.94	.147	0.81	0.04	0.029
ø15 (5/8")	NCT-P015	.188	1.25	.147	1.11	0.04	0.029

AIR CYLINDER SERIES CG1
BORE SIZES Ø20~100MM

- Double acting
- Clean line
- A substantial reduction in overall length compared to tie-rod designed cylinders
- High velocity
- Magnetic piston for auto switch sensing as an option
- Non-rotate option available

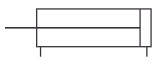
TECHNICAL SPECIFICATIONS

Fluid		Air
Proof pressure		0.15MPa / 218PSI
Max operating pressure		0.99MPa / 144PSI
Min operating pressure		0.05 MPa / 7PSI
Ambient and fluid temperature		-10~60°C / 14~140°F
Piston velocity		50~700mm/sec (ø80~ø100) 2~28in/s
Thread tolerance		JIS 2 class
Stroke length tolerance	ø20~63	up to ~1000st: $^{+1.4}_{0}$mm
Lubrication		None required

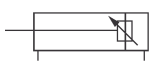
CONSTRUCTION SPECIFICATIONS

Rod cover	Aluminium alloy (Hard black alumite)
Body	Aluminium alloy (Hard alumite)
Piston rod	Carbon steel (hard chrome plated)

SYMBOLS
RUBBER CUSHIONED



AIR CUSHIONED



HOW TO ORDER
AIR CYLINDER SERIES CG1

CDG1B ○ ○ — ○ — ○ ○

PISTON
- ……Basic
D ……Magnetic

CUSHION
N ……Rubber
A ……Air

BORE SIZE
20 …Ø20
25 …Ø25
32 …Ø32
40 …Ø40
50 …Ø50
63 …Ø63
80 …Ø80
100 …Ø100

STROKE
25
50
75
100
125
150
175
200
250 …Not 20mm bore
300 …Not 20mm bore

NO OF SWITCHES
- ……2 Pieces
S ……1 Piece
n ……n Pieces

AUTO SWITCH TYPE
See Accessories Section

LONG STROKE - DOUBLE END - CAP CONSTRUCTION

CDG1B ○ ○ — ○ — ○ ○

PISTON
- ……Basic
D ……Magnetic

CUSHION
N ……Rubber
A ……Air

BORE SIZE
20 …Ø20
25 …Ø25
32 …Ø32
40 …Ø40
50 …Ø50
63 …Ø63
80 …Ø80
100 …Ø100

STROKE
Ø20 - 191 - 350mm
Ø25 - 291 - 400mm
Ø32 - 289 - 450mm
Ø40 - 285 - 800mm
Ø50 - 285 - 1200mm
Ø63 - 284 - 1200mm
Ø80 - 284 - 1400mm
Ø100 - 284 - 1500mm

NO OF SWITCHES
- ……2 Pieces
S ……1 Piece
n ……n Pieces

AUTO SWITCH TYPE
See Accessories Section

DOUBLE PISTON ROD

CDG1WB ○ ○ — ○ — ○ ○

PISTON
- ……Basic
D ……Magnetic

CUSHION
N ……Rubber
A ……Air

BORE SIZE
20 …Ø20
25 …Ø25
32 …Ø32
40 …Ø40
50 …Ø50
63 …Ø63
80 …Ø80
100 …Ø100

STROKE
Ø20 - upto 350mm
Ø25 - upto 400mm
Ø32 - upto 450mm
Ø40 - upto 800mm
Ø50 - upto 1200mm
Ø63 - upto 1200mm
Ø80 - upto 1400mm
Ø100 - upto 1500mm

NO OF SWITCHES
- ……2 Pieces
S ……1 Piece
n ……n Pieces

AUTO SWITCH TYPE
See Accessories Section

ACCESSORIES
AIR CYLINDER SERIES CG1

Bore size mm / Mounting accessory	20	25	32	40	50	63	80	100
Foot (2 pcs)	CG-L020	CG-L025	CG-L032	CG-L040	CG-L050	CG-L063	CG-L080	CG-L100
Flange	CG-F020	CG-F025	CG-F032	CG-F040	CG-F050	CG-F063	CG-F080	CG-F100
Pins	CG-T020	CG-T025	CG-T032	CG-T040	CG-T050	CG-T063	N/A	N/A
Clevis	CG-D020	CG-D025	CG-D032	CG-D040	CG-D050	CG-D063	CG-D080	CG-D100
Single rod clevis	I-G02	I-G03	I-G03	I-G04	I-G05	I-G05	I-G08	I-G10
Double rod clevis	Y-G02	Y-G03	Y-G03	Y-G04	Y-G05	Y-G05	Y-G08	Y-G10
Rod clevis pin	IY-G02	IY-G03	IY-G03	IY-G04	IY-G05	IY-G05	IY-G08	IY-G10
Rear clevis pin	CD-G02	CD-G25	CD-G03	CD-G04	CD-G05	CD-G06	IY-G08	IY-G10
Trunnion bracket	CG-020-24A	CG-025-24A	CG-032-24A	CG-040-24A	CG-050-24A	CG-063-24A	CG-080-24A	CG-100-24A
Seal kit (Rubber cushion)	CG1N20-PS	CG1N25-PS	CG1N32-PS	CG1N40-PS	CG1N50-PS	CG1N63-PS	CG1N80-PS	CG1N100-PS
Seal kit (Air cushion)	CG1A20-PS	CG1A25-PS	CG1A32-PS	CG1A40-PS	CG1A50-PS	CG1A63-PS	CG1A80-PS	CG1A100-PS
Floating Joint	JA20-8-125	JA30-10-125	JA30-10-125	JA40-14-150	JA63-18-150	JA63-18-150	JA80-22-150	JA100-26-150
Piston Rod Ball Joint	KJ8D	KJ10D	KJ10D	-	-	-	-	-
Piston Rod Nut	NT-02	NT-03	NT-03	NT-04	NT-05	NT-05	NT-08	NT-10

ACCESSORIES
AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available

REED SWITCHES Model Number	Operating Voltage	Maximum Current or Operating Current Range (mA)	Indicator Light/ Wire
D-B54	24VDC 110VAC 220VAC	5~50mA 5~25mA 5~12.5mA	Yes/2 Wire
D-B53	24VDC	5~50mA	Yes/2 Wire
D-B64	24VDC 110VAC 220VAC	50mA 25mA 12.5mA	No/2 Wire
D-B73 D-C73 D-C73C	24VDC 110VAC	5~40mA 5~20mA	Yes/2 Wire
D-B76 D-C76	4~8VDC	20mA	Yes/2 Wire
D-B80 D-C80 D-C80C	24V 48V 110V	50mA 40mA 20mA	No/2 Wire

SOLID STATE SWITCHES Model Number	Operating Voltage	Maximum Current or Operating Current Range (mA)	Indicator Light/ Wire
D-G59	24VDC (10~28VDC)	40mA	Yes/3 Wire (NPN)
D-G5P	-	80mA or less	Yes/3 Wire (PNP)
D-K59	24VDC (10~28VDC)	5~40mA	Yes/2 Wire
D-5NTL	24VDC (10~28VDC)	80mA or less	Yes/3 Wire (NPN)
D-H7A1	24VDC (10~28VDC)	40mA	Yes/3 Wire (NPN)
D-H7A2	-	80mA or less	Yes/3 Wire (PNP)
D-H7B	24VDC (10~28VDC)	5~40mA	Yes/2 Wire
D-H7C	24VDC (10~28VDC)	5~40mA	Yes/2 Wire
D-G59W	24VDC (10~28VDC)	40mA or less	Yes/3 Wire (NPN)
D-G5PW	-	80mA or less	Yes/3 Wire (PNP)
D-K59W	24VDC (10~28VDC)	5~40mA	Yes/2 Wire
D-G59F	-	40mA or less	Yes/4 Wire (NPN)
D-G79	24VDC (10~28VDC)	150mA or less	Yes/3 Wire (NPN)
D-H7PW	-	80mA or less	Yes/3 Wire (PNP)
D-H7BAL	24VDC (10~28VDC)	5~40mA or less	Yes/2 Wire
D-H7LF	26VDC or less	40mA or less	Yes/4 Wire (NPN)
D-H7NF	28VDC or less	40mA or less	Yes/4 Wire (NPN)
D-G5BAL	24VDC (10~28VDC)	5~40mA or less	Yes/2 Wire
D-H7PW	-	80mA or less	No/3 Wire (NPN)
D-H7BW	24VDC (10~28VDC)	5~40mA	Yes/2 Wire

ACCESSORIES
SWITCH BANDS
FOR SWITCHES D-B7, D-B8, D-G7, K7

BM1-01 .....Ø20
BM1-02 .....Ø25
BM1-32 .....Ø32
BM1-04 .....Ø40
BM1-05 .....Ø50
BM1-06 .....Ø63

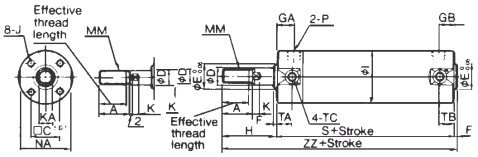
ACCESSORIES
SWITCH BANDS
FOR SWITCHES D-B5, D-B6, G5, K5

BA-01 .....Ø20
BA-02 .....Ø25
BA-32 .....Ø32
BA-04 .....Ø40
BA-05 .....Ø50
BA-06 .....Ø63
BA-08 .....Ø80
BA-10 .....Ø100

ACCESSORIES
SWITCH BANDS
FOR SWITCHES D-C7, D-C8, D-H7

BMA2-020 .....Ø20
BMA2-025 .....Ø25
BMA2-032 .....Ø32
BMA2-040 .....Ø40
BMA2-050 .....Ø50
BMA2-063 .....Ø63

DIMENSIONS
RUBBER CUSHION TYPE CDG1BN

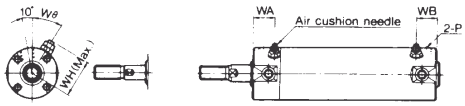


Bore (mm)	Stroke range (mm)	Effective thread length	A	□C	øD	øE	F	GA	GB	øI	J	K	KA	MM	NA	P	S	TA	TB	*TC
20	~200	15.5	18	14	8	12	2	12	12	26	M4x0.7 Depth 7	4	6	M8x1.25	24	⅛	69	11	11	M5x0.8
25	~300	19.5	22	16.5	10	14	2	12	12	31	M5x0.8 Depth 7.5	5	8	M10x1.25	29	⅛	69	11	11	M6x0.75
32	~300	19.5	22	20	12	18	2	12	11	38	M5x0.8 Depth 8	5.5	10	M10x1.25	36	⅛	71	11	10	M8x1.0
40	~300	27	30	26	16	25	2	13	12	47	M6x1 Depth 12	6	14	M14x1.5	44	⅛	78	12	10	M10x1.25
50	~300	32	35	32	20	30	2	14	13	58	M8x1.25 Depth 16	7	18	M18x1.5	55	¼	90	13	12	M12x1.25
63	~300	32	35	38	20	32	2	14	13	72	M10x1.5 Depth 16	7	18	M18x1.5	69	¼	90	13	12	M14x1.5
80	~300	37	40	50	25	40	3	20	20	89	M10x1.5 Depth 22	11	22	M22x1.5	80	⅜	108	—	—	—
100	~300	37	40	60	30	50	3	20	20	110	M12x1.75 Depth 22	11	26	M26x1.5	100	½	108	—	—	—

*Trunnion mounting threads in flats NA are not available for Ø80, Ø100 bores

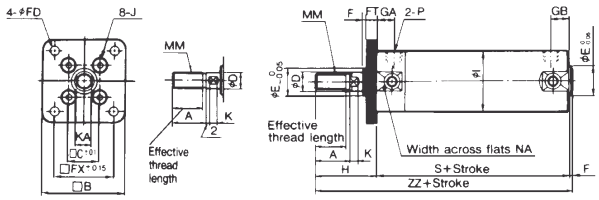
Bore (mm)	Without gaiter H	Z
20	35	106
25	40	111
32	40	113
40	50	130
50	58	150
63	58	150
80	71	182
100	71	182

DIMENSIONS
AIR CUSHION TYPE CDG1BA



Bore (mm)	P	WA	WB	WH	WØ
20	M5x0.8	14	14	23	30°
25	M5x0.8	14	14	25	30°
32	⅛	14	13	28.5	25°
40	⅛	15	14	33	20°
50	¼	16	15	40.5	20°
63	¼	16	15	47.5	20°
80	⅜	22	22	60.5	20°
100	½	22	22	71	20°

DIMENSIONS
FLANGE MOUNT (CAN BE FITTED TO EITHER END OF CYLINDER)

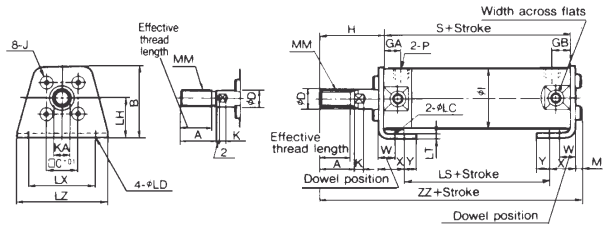


Bore (mm)	Stroke range (mm)	Effective thread length	A	□B	□C	ØD	ØE	GA	GB	øI	J	K	KA	MM	* NA	P	S
20	~200	15.5	18	40	14	8	12	12	12	26	M4x0.7	4	6	M8x1.25	24	⅛	69
25	~300	19.5	22	44	16.5	10	14	12	12	31	M5x0.8	5	8	M10x1.25	29	⅛	69
32	~300	19.5	22	53	20	12	18	12	11	38	M5x0.8	5.5	10	M10x1.25	36	⅛	71
40	~300	27	30	61	26	16	25	13	12	47	M6x1	6	14	M14x1.5	44	⅛	78
50	~300	32	35	76	32	20	30	14	13	58	M8x1.25	7	18	M18x1.5	55	¼	90
63	~300	32	35	92	38	20	32	14	13	72	M10x1.5	7	18	M18x1.5	69	¼	90
80	~300	37	40	104	50	25	40	20	20	89	M10x1.5	11	22	M22x1.5	80	⅜	108
100	~300	37	40	128	60	30	50	20	20	110	M12x1.75	11	26	M26x1.5	100	½	108

*Trunnion mounting threads in flats NA are not available for Ø80, Ø100 bores

Bore (mm)	F	□FX	ØFD	FT	H	ZZ
20	2	28	5.5	6	35	106
25	2	32	5.5	7	40	111
32	2	38	6.6	7	40	113
40	2	46	6.6	8	50	130
50	2	58	9	9	58	150
63	2	70	11	9	58	150
80	3	82	11	11	71	182
100	3	100	14	14	71	182

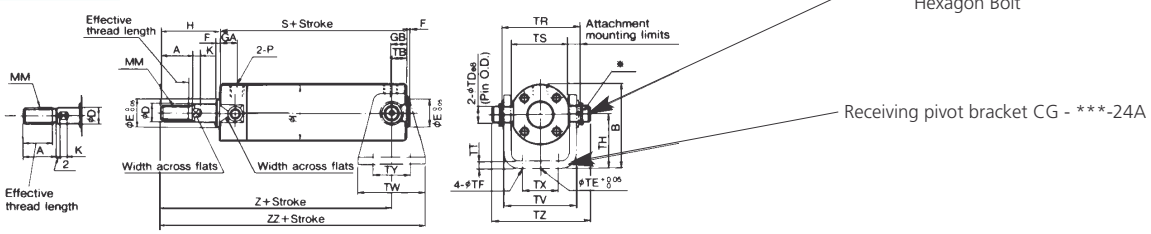
DIMENSIONS
FOOT MOUNT



Bore (mm)	Stroke range (mm)	Effective thread length	A	□C	ØD	GA	GB	ØI	J	K	KA	M	MM	*NA	P	S	W	X	Y	ØLC	ØLD	LH	LS	LT	LX	LZ	H	ZZ
20	~200	15.5	18	14	8	12	12	26	M4x0.7	4	6	3	M8x1.25	24	1/8	69	10	15	7	4	5.5	20	45	3	32	44	35	110
25	~300	19.5	22	16.5	10	12	12	31	M5x0.8	5	8	3.5	M10x1.25	29	1/8	69	10	15	7	4	5.5	22	45	3	36	49	40	115.5
32	~300	19.5	22	20	12	12	11	38	M5x0.8	5.5	10	3.5	M10x1.25	36	1/8	71	10	16	8	4	6.6	25	45	3	44	58	40	117.5
40	~300	27	30	26	16	13	12	47	M6x1	6	14	4	M14x1.5	44	1/8	78	10	16.5	9	4	6.6	30	51	3	54	71	50	135
50	~300	32	35	32	20	14	13	58	M8x1.25	7	18	5	M18x1.5	55	1/4	90	17.5	22	11	5	9	40	55	4.5	66	86	58	157.5
63	~300	32	35	38	20	14	13	72	M10x1.5	7	18	5	M18x1.5	69	1/4	90	17.5	22	13	5	11	45	55	4.5	82	106	58	157.5
80	~300	37	40	50	25	20	20	89	M10x1.5	11	22	5	M22x1.5	80	3/8	108	20	28.5	14	6	11	55	60	4.5	100	125	71	188.5
100	~300	37	40	60	30	20	20	110	M12x1.75	11	26	7	M26x1.5	100	1/2	108	20	30	16	6	14	65	60	6	120	150	71	192

*Trunnion mounting threads in flats NA are not available for Ø80, Ø100 bores

DIMENSIONS
TRUNNION (CAN ALSO BE FITTED TO NOSE END OF CYLINDER)



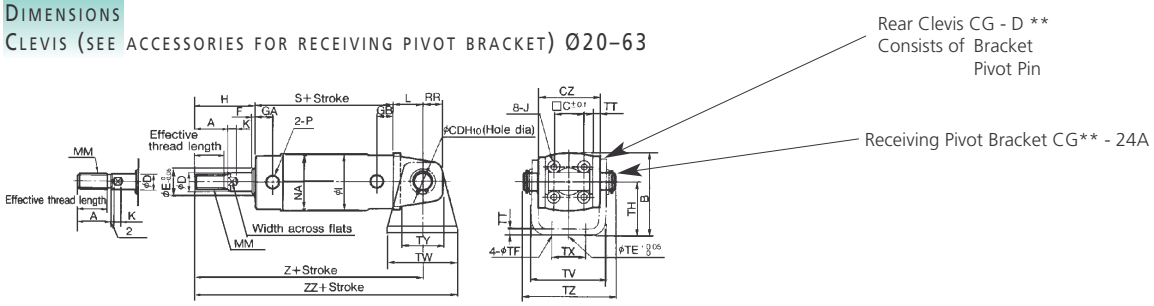
Bore (mm)	Stroke range (mm)	Effective thread length	A	B	øD	øE	F	GA	GB	øI	K	KA	MM	NA	P	S	TB	øTDe8	øTE	øTF
20	~200	15.5	18	38	8	12	2	12	12	26	4	6	M8x1.25	24	1/8	69	11	8 -0.025 -0.047	10	5.5
25	~300	19.5	22	45.5	10	14	2	12	12	31	5	8	M10x1.25	29	1/8	69	11	10 -0.025 -0.047	10	5.5
32	~300	19.5	22	54	12	18	2	12	11	38	5.5	10	M10x1.25	36	1/8	71	10	12 -0.032 -0.059	10	6.6
40	~300	27	30	63.5	16	25	2	13	12	47	6	14	M14x1.5	44	1/8	78	10	14 -0.032 -0.059	10	6.6
50	~300	32	35	79	20	30	2	14	13	58	7	18	M18x1.5	55	1/4	90	12	16 -0.032 -0.059	20	9
63	~300	32	35	96	20	32	2	14	13	72	7	18	M18x1.5	69	1/4	90	12	18 -0.032 -0.059	20	11

Bore (mm)	TH	TR	TS	TT	TV	TW	TX	TY	TZ	H	Z	ZZ
20	25	39	28	3.2	35.8	42	16	28	47.6	35	93	114
25	30	43	33	3.2	39.8	42	20	28	53	40	98	119
32	35	54.5	40	4.5	49.4	48	22	28	67.7	40	101	125
40	40	65.5	49	4.5	58.4	56	30	30	78.7	50	118	146
50	50	80	60	6	72.4	64	36	36	98.6	58	136	168
63	60	98	74	8	90.4	74	46	46	119.2	58	136	173

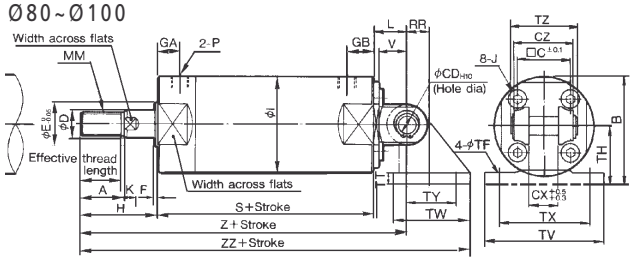
MORE DIMENSIONS
SEE NEXT PAGE ☞

DIMENSIONS

CLEVIS (SEE ACCESSORIES FOR RECEIVING PIVOT BRACKET) Ø20–63



Ø80~Ø100

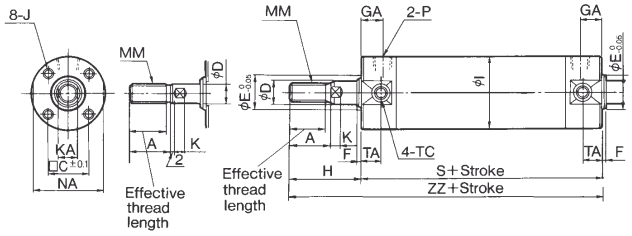


Bore (mm)	V	øTE	øTF	TH	TT	TV	TW	TX	TY	TZ	H	Z	ZZ
20	—	10	5.5	25	3.2	35.8	42	16	28	43.4	35	118	139
25	—	10	5.5	30	3.2	39.8	42	20	28	48	40	125	146
32	—	10	6.6	35	4.5	49.4	48	22	28	59.4	40	131	155
40	—	10	6.6	40	4.5	58.4	56	30	30	71.4	50	150	178
50	—	20	9	50	6	72.4	64	36	36	86	58	173	205
63	—	20	11	60	8	90.4	74	46	46	105.4	58	178	215
80	25	—	11	55	11	110	72	85	45	64	71	214	272.5
100	31	—	13.5	65	12	130	93	100	60	72	71	222	298.5

Bore (mm)	Stroke range (mm)	Effective thread length	A	□B	□C	ØD	ØE	F	GA	GB	ØI	J	K	KA	MM	NA	P	S	øCDH10	CX	CZ	L	RR
20	~200	15.5	18	38	14	8	12	2	12	12	26	M4x0.7	4	6	M8x1.5	24	1/8	69	$8^{+0.058}_{0}$	—	29	14	11
25	~300	19.5	22	45.5	16.5	10	14	2	12	12	31	M5x0.8	5	8	M10x1.25	29	1/8	69	$10^{+0.058}_{0}$	—	33	16	13
32	~300	19.5	22	54	20	12	18	2	12	11	38	M5x0.8	5.5	10	M10x1.25	36	1/8	71	$12^{+0.070}_{0}$	—	40	20	15
40	~300	27	30	63.5	26	16	25	2	13	12	47	M6x1	6	14	M14x1.5	44	1/8	78	$14^{+0.070}_{0}$	—	49	22	18
50	~300	32	35	79	32	20	30	2	14	13	58	M8x1.25	7	18	M18x1.5	55	1/4	90	$16^{+0.070}_{0}$	—	60	25	20
63	~300	32	35	96	38	20	32	2	14	13	72	M10x1.5	7	18	M18x1.5	69	1/4	90	$18^{+0.070}_{0}$	—	74	30	22
80	~300	37	40	99.5	50	25	40	3	20	20	89	M10x1.5	11	22	M22x1.5	80	3/8	108	$18^{+0.070}_{0}$	28	56	35	18
100	~300	37	40	120	60	30	50	3	20	20	110	M12x1.75	11	26	M26x1.5	100	1/2	108	$22^{+0.084}_{0}$	32	64	43	22

DIMENSIONS
RUBBER CUSHION TYPE
LONG STROKE CG1BN

Bore (mm)	Stroke range (mm)	Effective thread length	A	□C	ØD	ØE	F	GA	ØI	J
20	191 - 350	15.5	18	14	8	12	2	12	26	M4x0.7 depth 7
25	291 - 400	19.5	22	16.5	10	14	2	12	31	M5x0.8 depth 7.5
32	289 - 450	19.5	22	20	12	18	2	12	38	M5x0.8 depth 8
40	285 - 800	27	30	26	16	25	2	13	47	M6x1 depth 12
50	285 - 1200	32	35	32	20	30	2	14	58	M8x1.25 depth 16
63	284 - 1200	32	35	38	20	32	2	14	72	M10x1.5 depth 16
80	284 - 1400	37	40	50	25	40	3	20	89	M10x1.5 depth 22
100	284 - 1500	37	40	60	30	50	3	20	110	M12x1.75 depth 22

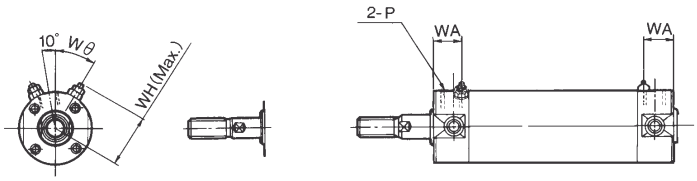


ϕ20, ϕ25

Bore	K (mm)	KA	MM	NA	P	S	TA	**TC	H	ZZ
20	4	6	M8x1.25	24	1/8	77	11	M5x0.8	35	114
25	5	8	M10x1.25	29	1/8	77	11	M6x0.75	40	119
32	5.5	10	M10x1.25	36	1/8	79	11	M8x1.0	40	121
40	6	14	M14x1.5	44	1/8	87	12	M10x1.25	50	139
50	7	18	M18x1.5	55	1/4	102	13	M12x1.25	58	162
63	7	18	M18x1.5	69	1/4	102	13	M14x1.5	58	162
80	11	22	M22x1.5	80	3/8	122	-	-	71	196
100	11	26	M26x1.5	100	1/2	122	-	-	71	196

**Trunnion mounting threads in flats NA are not available for Ø80, Ø100 bores.

DIMENSIONS
AIR CUSHION TYPE
LONG STROKE CG1BA



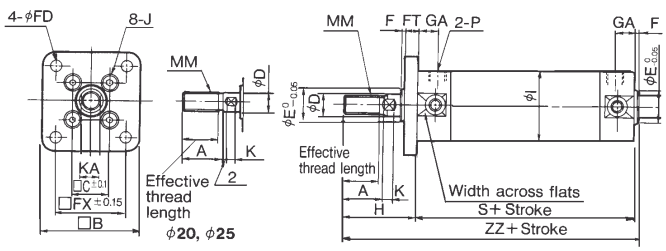
ϕ20, ϕ25

AIR CUSHION TYPE

Bore (mm)	P	WA	WH	Wu
20	M5x0.8	14	23	30°
25	M5x0.8	14	25	30°
32	1/8	14	28.5	25°
40	1/8	15	33	20°
50	1/4	16	40.5	20°
63	1/4	16	47.5	20°
80	3/8	22	60.5	20°
100	1/2	22	71	20°

For those dimensions not shown please refer to Rubber Cushion Type.

DIMENSIONS
FLANGE MOUNT
(CAN BE FITTED TO EITHER END OF CYLINDER)

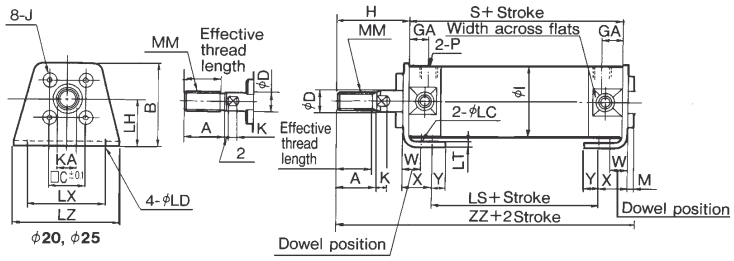


ϕ20, ϕ25

Bore (mm)	Stroke range (mm)	Effective thread length	A	□B	□C	ØD	ØE	F	□FX	ØFD	FT	GA
20	191 - 350	15.5	18	40	14	8	12	2	28	5.5	6	12
25	291 - 400	19.5	22	44	16.5	10	14	2	32	5.5	7	12
32	289 - 450	19.5	22	53	20	12	18	2	38	6.6	7	12
40	285 - 400	27	30	61	26	16	25	2	46	6.6	8	13
50	285 - 1200	32	35	76	32	20	30	2	58	9	9	14
63	284 - 1200	32	35	92	38	20	32	2	70	11	9	14
80	284 - 1400	37	40	104	50	25	40	3	82	11	11	20
100	284 - 1500	37	40	128	60	30	50	3	100	14	14	20

Bore (mm)	ØI	J	K	KA	MM	*NA	P	S	H	ZZ
20	26	M4x0.7	4	6	M8x1.25	24	1/8	77	35	114
25	31	M5x0.8	5	8	M10x1.25	29	1/8	77	40	119
32	38	M5x0.8	5.5	10	M10x1.25	36	1/8	79	40	121
40	47	M6x1	6	14	M14x1.5	44	1/8	87	50	139
50	58	M8x1.25	7	18	M18x1.5	55	1/4	102	58	162
63	72	M10x1.5	7	18	M18x1.5	69	1/4	102	58	162
80	89	M10x1.5	11	22	M22x1.5	80	3/8	122	71	196
100	110	M12x1.75	11	26	M26x1.5	100	1/2	122	71	196

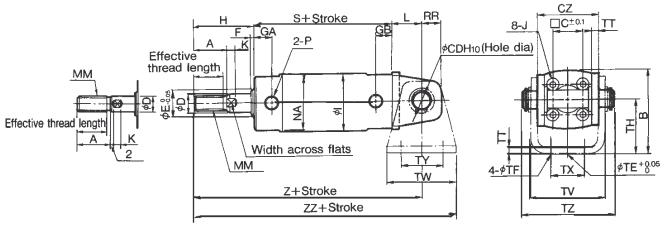
DIMENSIONS
FOOT MOUNT

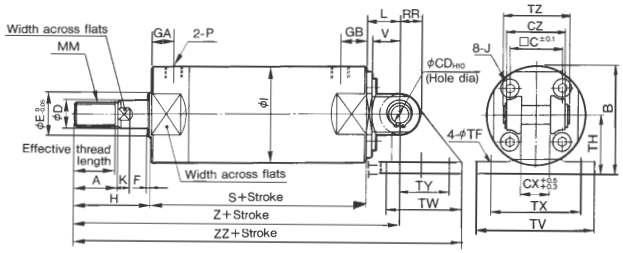


Bore (mm)	Stroke range (mm)	Eff. thread length	A	B	□C	ØD	GA	ØI	J	K	KA	M
20	191 - 350	15.5	18	34	14	8	12	26	M4x0.7	4	6	3
25	291 - 400	19.5	22	38.5	16.5	10	12	31	M5x0.8	5	8	3.5
32	289 - 450	19.5	22	45	20	12	12	38	M5x0.8	5.5	10	3.5
40	285 - 400	27	30	54.5	26	16	13	47	M5x0.8	6	14	4
50	285 - 1200	32	35	70.5	32	20	14	58	M6x1	7	18	5
63	284 - 1200	32	35	82.5	38	20	14	72	M8x1.25	7	18	5
80	284 - 1400	37	40	101	50	25	20	89	M8x1.25	11	22	5
100	284 - 1500	37	40	101	60	30	20	110	M12x1.75	11	26	7

MM	*NA	P	S	W	X	Y	ØLC	ØLD	LH	LS	LT	LX	LZ	H	ZZ
M8x1.25	24	1/8	77	10	15	7	4	5.5	20	53	3	32	44	35	118
M10x1.25	29	1/8	77	10	15	7	4	5.5	22	53	3	36	49	40	123.5
M10x1.25	36	1/8	79	10	16	8	4	6.6	25	53	3	44	58	40	125.5
M14x1.5	44	1/8	87	10	16.5	9	4	6.6	30	60	3	54	71	50	144
M18x1.5	55	1/4	102	17.5	22	11	5	9	40	67	4.5	66	86	58	169.5
M18x1.5	69	1/4	102	17.5	22	13	5	11	45	67	4.5	82	106	58	169.5
M22x1.5	80	3/8	122	20	28.5	14	6	11	55	74	4.5	100	125	71	202.5
M26x1.5	100	1/2	122	20	30	16	6	14	65	74	6	120	150	71	206

DIMENSIONS
CLEVIS (SEE ACCESSORIES FOR RECEIVING PIVOT BRACKET)

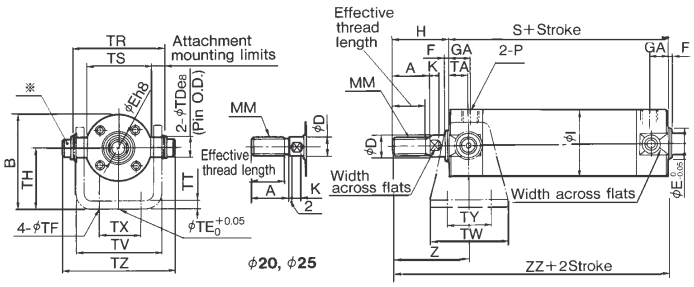




Bore (mm)	Stroke range (mm)	Effective thread length	A	B	□C	ØD	ØE	F	GA	GB	ØI	J	K	KA	MM	NA	P	S ØCDH10
20	191 - 350	15.5	18	38	14	8	12	2	12	12	26	M4X0.7	4	6	M8X1.5	24	1/8	7 8 $^{+0.058}_{0}$
25	291 - 400	19.5	22	45.5	16.5	10	14	2	12	12	31	M5X0.8	5	8	M10X11.25	29	1/8	7710 $^{+0.058}_{0}$
32	289 - 450	19.5	22	54	20	12	18	2	12	12	38	M5X0.8	5.5	10	M10X1.25	36	1/8	7912 $^{+0.070}_{0}$
40	285 - 800	27	30	63.5	26	16	25	2	13	13	47	M6X1	6	14	M14X1.5	44	1/8	8714 $^{+0.070}_{0}$
50	285 - 1200	32	35	79	32	20	30	2	14	14	58	M8X1.25	7	18	M18X1.5	55	1/4	10216 $^{+0.070}_{0}$
63	284 - 1200	32	35	96	38	20	32	2	14	14	72	M10X1.5	7	18	M18X1.5	69	1/4	10218 $^{+0.070}_{0}$
80	284 - 1400	37	40	99.5	50	25	40	3	20	20	89	M10X1.5	11	22	M22X1.5	80	3/8	12218 $^{+0.070}_{0}$
100	284 - 1500	37	40	120	60	30	50	3	20	20	110	M12X1.75	11	26	M26X1.5	100	1/2	12222 $^{+0.08}$

Bore (mm)	CX	CZ	L	RR	V	ØTE	ØTF	TH	TT	TV	TW	TX	TY	TZ	Without Gaiter H	Z	ZZ	Applicable Pin
20	-	29	14	11	-	10	5.5	25	3.2	35.8	42	16	28	43.4	35	126	147	CD-G02
25	-	33	16	13	-	10	5.5	30	3.2	39.8	42	20	28	48	40	133	154	CD-G25
32	-	40	20	15	-	10	6.6	35	4.5	49.4	48	22	28	59.4	40	139	163	CD-G03
40	-	49	22	18	-	10	6.6	40	4.5	58.4	56	30	30	71.4	50	159	187	CD-G04
50	-	60	25	20	-	20	9	50	6	72.4	64	36	36	86	58	185	217	CD-G05
63	-	74	30	22	-	20	11	60	8	90.4	74	46	46	1.5.4	58	190	227	CD-G06
80	28	56	35	18	25	-	11	55	11	110	72	85	45	64	71	228	286.5	IY-G08
100	32	64	43	22	31	-	13.5	65	12	130	93	100	60	72	71	236	312.5	IY-G10

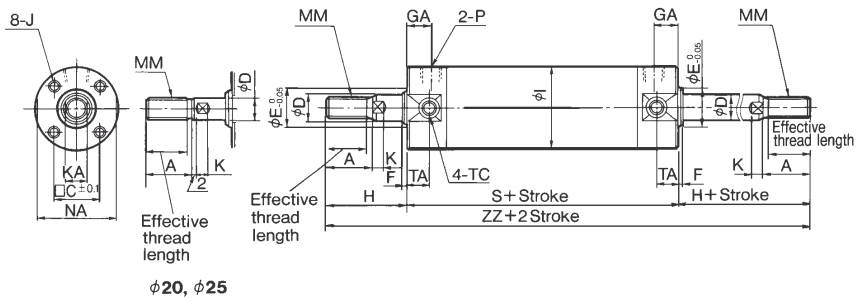
DIMENSIONS
TRUNNION (CAN ALSO BE FITTED TO NOSE END)



Bore (mm)	Stroke range (mm)	Effective thread length	A	B	ØD	ØE	F	GA	ØI	K	KA	MM	NA	P	S
20	191 - 350	15.5	18	38	8	12	2	12	26	4	6	M8x1.25	24	1/8	77
25	291 - 400	19.5	22	45.5	10	14	2	12	31	5	8	M10x1.25	29	1/8	77
32	289 - 450	19.5	22	54	12	18	2	12	38	5.5	10	M10x1.25	36	1/8	79
40	285 - 800	27	30	63.5	16	25	2	13	47	6	14	M14x1.5	44	1/8	87
50	285 - 1200	32	35	79	20	30	2	14	58	7	18	M18x1.5	55	1/4	102
63	284 - 1200	32	35	96	20	32	2	14	72	7	18	M18x1.5	69	1/4	102

Bore (mm)	TA	ØTDe8	ØTE	ØTF	TH	TR	TS	TT	TV	TW	TX	TY	TZ	Without gaiter H	Z	ZZ
20	11	$8^{-0.025}_{-0.047}$	10	5.5	25	39	28	3.2	35.8	42	16	28	47.6	35	46	114
25	11	$10^{-0.025}_{-0.047}$	10	5.5	30	43	33	3.2	39.8	42	20	28	53	40	51	119
32	11	$12^{-0.032}_{-0.059}$	10	6.6	35	54.5	40	4.5	49.4	48	22	28	67.7	40	51	121
40	12	$14^{-0.032}_{-0.059}$	10	6.6	40	65.5	49	4.5	58.4	56	30	30	78.7	50	62	139
50	13	$16^{-0.032}_{-0.059}$	20	9	50	80	60	6	72.4	64	36	36	98.6	58	71	162
63	13	$18^{-0.032}_{-0.059}$	20	11	60	98	74	8	90.4	74	46	46	119.2	58	71	162

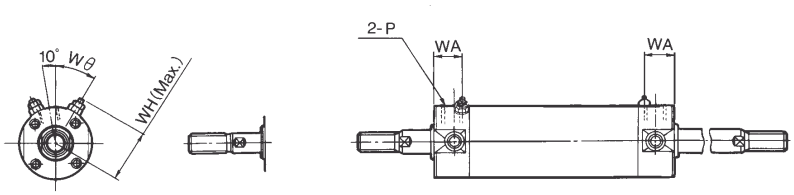
DIMENSIONS
RUBBER CUSHION TYPE DOUBLE ROD CG1WBN



Bore (mm)	Stroke range (mm)	Effective thread length	A	□C	ØD	ØE	F	GA	ØI	J
20	; 200	15.5	18	14	8	12	2	12	26	M4x0.7 depth 7
25	; 300	19.5	22	16.5	10	14	2	12	31	M5x0.8 depth 7.5
32	; 300	19.5	22	20	12	18	2	12	38	M5x0.8 depth 8
40	; 300	27	30	26	16	25	2	13	47	M6x1 depth 12
50	; 300	32	35	32	20	30	2	14	58	M8x1.25 depth 16
63	; 300	32	35	38	20	32	2	14	72	M10x1.5 depth 16
80	; 300	37	40	50	25	40	3	20	89	M10x1.5 depth 22
100	; 300	37	40	60	30	50	3	20	110	M12x1.75 depth 22

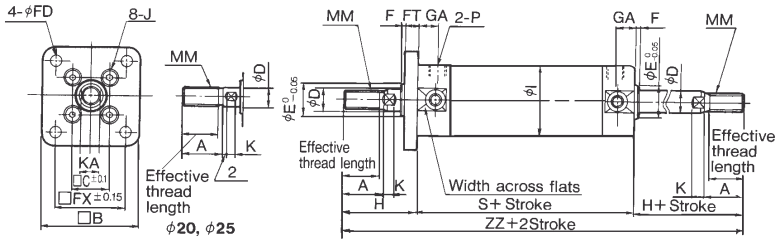
Bore (mm)	K	KA	MM	NA	P	S	TA	**TC	H	ZZ
20	4	6	M8x1.25	24	1/8	77	11	M5x0.8	35	147
25	5	8	M10x1.25	29	1/8	77	11	M6x0.75	40	157
32	5.5	10	M10x1.25	36	1/8	79	11	M8x1.0	40	159
40	6	14	M14x1.5	44	1/8	87	12	M10x1.25	50	187
50	7	18	M18x1.5	55	1/4	102	13	M12x1.25	58	218
63	7	18	M18x1.5	69	1/4	102	13	M14x1.5	58	218
80	11	22	M22x1.5	80	3/8	122	-	-	71	264
100	11	26	M26x1.5	100	1/2	122	-	-	71	264

DIMENSIONS
AIR CUSHION TYPE
DOUBLE ROD CG1WBA



Bore (mm)	P	WA	WH	Wθ
20	M5x0.8	14	23	30°
25	M5x0.8	14	25	30°
32	1/8	14	28.5	25°
40	1/8	15	33	20°
50	1/4	16	40.5	20°
63	1/4	16	47.5	20°
80	3/8	22	60.5	20°
100	1/2	22	71	20°

DIMENSIONS
FLANGE MOUNT (CAN BE FITTED TO EITHER END OF CYLINDER)
DOUBLE ROD CYLINDER

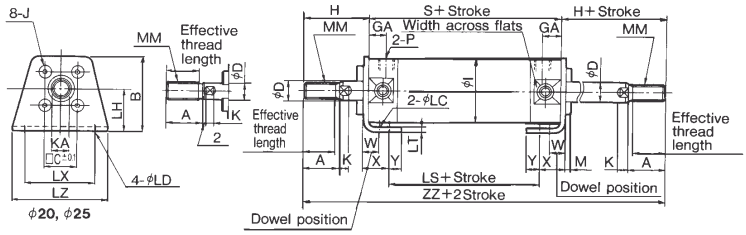


Bore (mm)	Stock range (mm)	Effective thread length	A	□B	□C	ØD	E	F	□FX	FD	FT	GA
20	~200	15.5	18	40	14	8	12	2	28	5.5	6	12
25	~300	19.5	22	44	16.5	10	14	2	32	5.5	7	12
32	~300	19.5	22	53	20	12	18	2	38	6.6	7	12
40	~300	27	30	61	26	16	25	2	46	6.6	8	13
50	~300	32	35	76	32	20	30	2	58	9	9	14
63	~300	32	35	92	38	20	32	2	70	11	9	14
80	~300	37	40	104	50	25	40	3	82	11	11	20
100	~300	37	40	128	60	30	50	3	100	14	14	20

Bore (mm)	ØI	J	K	KA	MM	*NA	P	S	H	Z
20	26	M4x0.7	4	6	M8x1.25	24	1/8	77	35	147
25	31	M5x0.8	5	8	M10x1.25	29	1/8	77	40	157
32	38	M5x0.8	5.5	10	M10x1.25	36	1/8	79	40	159
40	47	M6x1	6	14	M14x1.5	44	1/8	87	50	187
50	58	M8x1.25	7	18	M18x1.5	55	1/4	102	58	218
63	72	M10x1.5	7	18	M18x1.5	69	1/4	102	58	218
80	89	M10x1.5	11	22	M22x1.5	80	3/8	122	71	264

*Trunnion mounting threads in flats NA are not available for Ø80, Ø100 bores.

DIMENSIONS
FOOT MOUNT
DOUBLE ROD CYLINDER

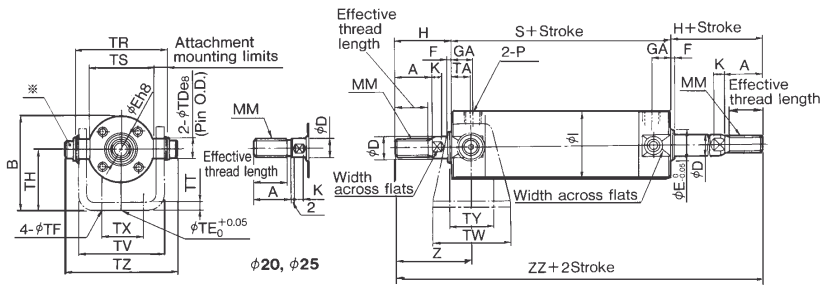


Bore (mm)	Stock range (mm)	Effective thread length	A	B	□C	ØD	GA	ØI	J	K	KA	M
20	~200	15.5	18	34	14	8	12	26	M4x0.7	4	6	3
25	~300	19.5	22	38.5	16.5	10	12	31	M5x0.8	5	8	3.5
32	~300	19.5	22	45	20	12	12	38	M5x0.8	5.5	10	3.5
40	~300	27	30	54.5	26	16	13	47	M6x1	6	14	4
50	~300	32	35	70.5	32	20	14	58	M8x1.25	7	18	5
63	~300	32	35	82.5	38	20	14	72	M10x1.5	7	18	5
80	~300	37	40	101	50	25	20	89	M10x1.5	11	22	5
100	~300	37	40	101	60	30	20	110	M12x1.75	11	26	7

*Trunnion mounting threads in flats NA are not available for Ø80, Ø100 bores.

Bore (mm)	MM	*NA	P	S	W	X	Y	ØLC	ØLD	LH	LS	LT	LX	LZ	Without gaiter ZZ	H
20	M8x1.25	24	1/8	77	10	15	7	4	5.5	20	53	3	32	44	35	147
25	M10x1.25	29	1/8	77	10	15	7	4	5.5	22	53	3	36	49	40	157
32	M10x1.25	36	1/8	79	10	16	8	4	6.6	25	53	3	44	58	40	159
40	M14x1.5	44	1/8	87	10	16.5	9	4	6.6	30	60	3	54	71	50	187
50	M18x1.5	55	1/4	102	17.5	22	11	5	9	40	67	4.5	66	86	58	218
63	M18x1.5	69	1/4	102	17.5	22	13	5	11	45	67	4.5	82	106	58	218
80	M22x1.5	80	3/8	122	20	28.5	14	6	11	55	74	4.5	100	125	71	264
100	M26x1.5	100	1/2	122	20	30	16	6	14	65	74	6	120	150	71	264

DIMENSIONS
TRUNNION (CAN BE FITTED TO EITHER END OF CYLINDER)
DOUBLE ROD CYLINDER



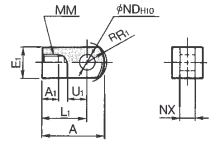
*Consists of pin, flat washer, and hexagon socket cap bolt

Bore (mm)	Stock Range (mm)	Effective Thread Length	A	B	ØD	E	F	GA	ØI	K	KA	MM	NA	P	S
20	~200	15.5	18	38	8	12	2	12	26	4	6	M8x1.25	24	1/8	77
25	~300	19.5	22	45.5	10	14	2	12	31	5	8	M10x1.25	29	1/8	77
32	~300	19.5	22	54	12	18	2	12	38	5.5	10	M10x1.25	36	1/8	79
40	~300	27	30	63.5	16	25	2	13	47	6	14	m14x1.5	44	1/8	87
50	~300	32	35	79	20	30	2	14	58	7	18	M18x1.5	55	1/4	102
63	~300	32	35	96	20	32	2	14	72	7	18	M18x1.5	69	1/4	102

Bore (mm)	TA	ØTDe8	ØTE	ØTF	TH	TR	TS	TT	TV	TW	TX	TY	TZ	Without Gaiter H	Z	ZZ
20	11	$8^{-0.025}_{-0.047}$	10	5.5	25	39	28	3.2	35.8	42	16	28	47.6	35	46	147
25	11	$10^{-0.025}_{-0.047}$	10	5.5	30	43	33	3.2	39.8	42	20	28	53	40	51	157
32	11	$12^{-0.032}_{-0.059}$	10	6.6	35	54.5	40	4.5	49.4	48	22	28	67.7	40	51	159
40	12	$14^{-0.032}_{-0.059}$	10	6.6	40	65.5	49	4.5	58.4	56	30	30	78.7	50	62	187
50	13	$16^{-0.032}_{-0.059}$	20	9	50	80	60	6	72.4	64	36	36	98.6	58	71	218
63	13	$18^{-0.032}_{-0.059}$	20	11	60	98	74	8	90.4	74	46	46	119.2	58	71	218

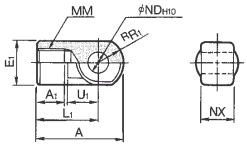
DIMENSIONS
SINGLE ROD CLEVIS

I-G02, G03



Material : Rolled steel

I-G04, G05, G08, G10

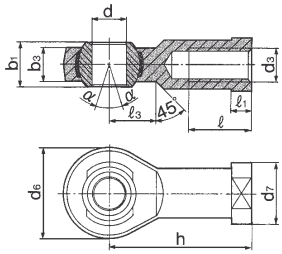


Material : Cast iron

Part no	Applicable bore (mm)	A	A1	E1	L1	MM	RR1	U1	NDH10	NX
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, 32	41	10.5	□20	30	M10x1.25	12.8	14	$10^{+0.058}_{0}$	$10^{-0.2}_{-0.4}$
I-G04	40	42	14	ø20	30	M14x1.5	12	14	$10^{+0.058}_{0}$	$18^{-0.3}_{-0.5}$
I-G05	50, 63	56	18	ø28	40	M18x1.5	16	20	$14^{+0.070}_{0}$	$22^{-0.3}_{-0.5}$
I-G08	80	71	21	ø38	50	M22x1.5	21	27	$18^{+0.070}_{0}$	$28^{-0.3}_{-0.5}$
I-G10	100	79	21	ø44	55	M26x1.5	24	31	$22^{+0.084}_{0}$	$32^{-0.3}_{-0.5}$

DIMENSIONS
ACCESSORIES

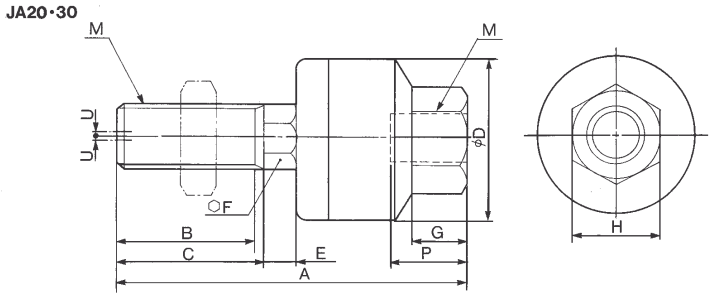
PISTON ROD BALL JOINT DIN 648



Bore size	Model	Thread d3	dH7	h	d6	b3	b1	l	d7	α°	l3
Ø20	KJ8D	M8	8	36	24	9	12	16	16	13	12
Ø25	KJ10D	M10X1.25	10	43	28	10.5	14	20	19	13	14
Ø32	KJ10D	M10X1.25	10	43	28	10.5	14	20	19	13	14

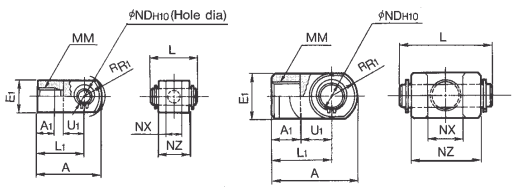
DIMENSIONS
FLOATING JOINT/SERIES JA

JA20-30



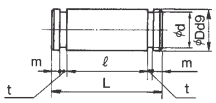
Cylinder Bore (mm)	Part No.	M	A	B	C	D	E	F	G	H	Thread depth	Allowable eccentricity Umm	Max. angular misalignment	Max. Compressive (kN)	Mass (kg)
Ø20	JA20-8-125	M8 x 1.25	44	17.5	–	21	4.5	7	7	13	8	0.5	±5°	2.5	0.07
Ø25	JA30-10-125	M10 x 1.25	49.5	19.5	–	24	5	8	8	17	9	0.5	±5°	2.5	0.07
Ø32	JA30-10-125	M10 x 1.25	49.5	19.5	–	24	5	8	8	17	9	0.5	±5°	2.5	0.07

DIMENSIONS
DOUBLE ROD CLEVIS



Part no	Applicable bore (mm)	A	A1	E1	L1	MM	RR1	U1	NDH10	NX	NZ	L	Applicable retaining pin
Y-G02	20	34	8.5	□16	25	M8x1.25	10.3	11.5	$8^{+0.058}_{0}$	$8^{+0.4}_{+0.2}$	16	21	IY-G02
Y-G03	25, 32	41	10.5	□20	30	M10x1.25	12.8	14	$10^{+0.058}_{0}$	$10^{+0.4}_{+0.2}$	20	25.6	IY-G03
Y-G04	40	42	16	ø20	30	M14x1.5	12	14	$10^{-0.058}_{0}$	$18^{+0.5}_{+0.3}$	36	41.6	IY-G04
Y-G05	50, 63	56	20	ø28	40	M18x1.5	16	20	$14^{+0.070}_{0}$	$22^{+0.5}_{+0.3}$	44	50.6	IY-G05
Y-G08	80	71	23	ø38	50	M22x1.5	21	27	$18^{+0.070}_{0}$	$28^{+0.5}_{+0.3}$	56	64	IY-G08
Y-G10	100	79	24	ø44	55	M26x1.5	24	31	$22^{+0.084}_{0}$	$32^{+0.5}_{+0.3}$	64	72	IY-G10

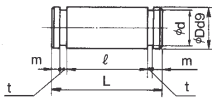
DIMENSIONS
ROD JOINT PIN



Material: Carbon steel

Part no	Applicable bore (mm)	ØDd9	L	Ød	ℓ	m	t	Applicable retaining pin
IY-G02	20	$8^{-0.040}_{-0.076}$	21	7.6	16.2	1.5	0.9	C-8 type for pivot
IY-G03	25, 32	$10^{-0.040}_{-0.076}$	25.6	9.6	20.2	1.55	1.15	C-10 type for pivot
IY-G04	40	$10^{-0.040}_{-0.076}$	41.6	9.6	36.2	1.55	1.15	C-10 type for pivot
IY-G05	50, 63	$14^{-0.050}_{-0.093}$	50.6	13.4	44.2	2.05	1.15	C-14 type for pivot
IY-G08	80	$18^{-0.050}_{-0.093}$	64	17	56.2	2.55	1.35	C-18 type for pivot
IY-G10	100	$22^{-0.055}_{-0.177}$	72	21	64.2	2.55	1.35	C-22 type for pivot

DIMENSIONS
CLEVIS PIN (INCLUDED WITH CLEVIS, CIRCLIPS NOT SHOWN)

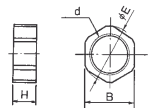


Material: Carbon steel

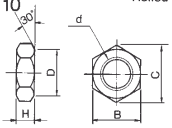
Part no	Applicable bore (mm)	øDd9	L	ød	ℓ	m	t	Applicable retaining pin
CD-G02	20	8 $^{-0.040}_{-0.076}$	43.4	7.6	38.6	1.5	0.9	C-8 type for pivot
CD-G25	25	10 $^{-0.040}_{-0.075}$	48	9.6	42.6	1.55	1.15	C-10 type for pivot
CD-G03	32	12 $^{-0.050}_{-0.093}$	59.4	11.5	54	1.55	1.15	C-12 type for pivot
CD-G04	40	14 $^{-0.050}_{-0.093}$	71.4	13.4	65	2.05	1.15	C-14 type for pivot
CD-G05	50	16 $^{-0.050}_{-0.093}$	86	15.2	79.6	2.05	1.15	C-16 type for pivot
CD-G06	63	18 $^{-0.050}_{-0.093}$	105.4	17	97.8	2.45	1.35	C-18 type for pivot

DIMENSIONS
ROD END NUT

NT-G02, G03



NT-G04, G05
NT-08, 10

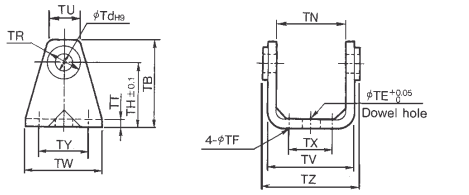


Material: Rolled steel

Part no	Applicable bore (mm)	d	H	B	C	D
NT-02	20	M8x1.25	5	13	15.0	12.5
NT-03	25, 32	M10x1.25	6	17	19.6	16.5
NT-04	40	M14x1.5	8	22	24.5	21.0
NT-05	50, 63	M18x1.5	11	27	31.2	26
NT-08	80	M22x1.5	13	32	37.0	31
NT-10	100	M26x1.5	16	41	47.3	39

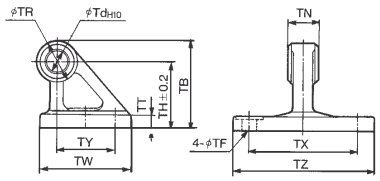
DIMENSIONS
TRUNNION BRACKET

$\phi 20 \sim \phi 63$



Material: Rolled steel

$\phi 80 \sim \phi 100$



Part no	Applicable bore (mm)	TB	øTd	øTE	øTF	TH	TN
CG-020-24A	20	36	8 $^{+0.036}_{0}$	10	5.5	25	29 $^{+0.4}_{+0.1}$
CG-025-24A	25	43	10 $^{+0.036}_{0}$	10	5.5	30	33 $^{+0.4}_{+0.1}$
CG-032-24A	32	50	12 $^{+0.043}_{0}$	10	6.6	35	40 $^{+0.5}_{+0.1}$
CG-040-24A	40	58	14 $^{+0.043}_{0}$	10	6.6	40	49 $^{+0.5}_{+0.1}$
CG-050-24A	50	70	16 $^{+0.043}_{0}$	20	9	50	60 $^{+0.5}_{+0.1}$
CG-063-24A	63	82	18 $^{+0.043}_{0}$	20	11	60	74 $^{+0.7}_{+0.1}$
CG-080-24A	80	73	18 $^{+0.070}_{0}$	—	11	55	28 $^{-0.1}_{-0.3}$
CG-100-24A	100	90	22 $^{+0.084}_{0}$	—	13.5	65	32 $^{-0.1}_{-0.3}$

Part no	Applicable bore (mm)	øTR	TT	TU	TV	TW	TX	TY	TZ
CG-020-24A	20	13	3.2	18.1	35.8	42	16	28	38
CG-025-24A	25	15	3.2	20.7	39.8	42	20	28	42
CG-032-24A	32	17	4.5	23.6	49.4	48	22	28	53.4
CG-040-24A	40	21	4.5	27.3	58.4	56	30	30	64.4
CG-050-24A	50	24	6	29.7	72.4	64	36	36	78.8
CG-063-24A	63	26	8	34.3	90.4	74	46	46	96.6
CG-080-24A	80	36	11	—	—	72	85	45	110
CG-100-24A	100	50	12	—	—	93	100	60	130

AIR CYLINDER SERIES NCG
BORE SIZES 3/4"~2 1/2"

- Double acting
- Clean line
- A substantial reduction in overall length compared to tie-rod designed cylinders
- High velocity
- Magnetic piston for auto switch sensing as an option
- Non-rotate option available

HOW TO ORDER AIR CYLINDER SERIES NCG

NC ○ G ○ ○ ○ ○ — ○ ○ B73 S ○

AUTO-SWITCH
- Without Auto Switch
D - With Auto Switch Capability /Built-in Magnet

STYLE
- .....Standard Cylinder
K .....Non Rotating Rod
W ..... Double Rod

MOUNTING
B .....Basic
C .....Single Clevis
L .....Foot
F .....Front Flange
G .....Rear Flange
U .....Front Trunnion
T .....Rear Trunnion
D .....Double Clevis
N .....Front Nose Mount

CUSHION
N ... Urethane Bumper (Std)
A ... Adjustable Air Cushion

BORE SIZE
20 ...3/4"
25 ...1"
32 ...1 1/4"
40 ...1 1/2"
50 ...2"
63 ...2 1/2"

STROKE
Stroke/inch

STROKE
Stroke/Hundredths of an inch

AUTO SWITCH CAPABLE
- ... W/O Auto Switch
** For **Reed** and **Solid State Switch** details, refer to Accessories ~ Auto Switches on the following page.*

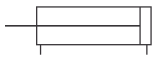
NO OF SWITCHES
- .....2 Pieces
S .....1 Piece
n .....n number of switches

OPTIONS
XC6 ...Stainless Steel Rod
XB6 ...High Temperature
XB7 ...Low Temperature
XB9 ...Low Speed
XC8 ...Stroke Adjustment/Extend
XC9 ...Stroke Adjustment/Retract
XC10 Dual Stroke
XC11 3 Position Tandem
XC37 Enlarged Orifice

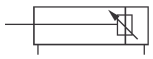
CONSTRUCTION SPECIFICATIONS

Rod cover	Aluminum alloy (Black Anodizing)
Body	Aluminum alloy (Hard Alumite)
Piston rod	Carbon steel (Hard Chrome Plated)

SYMBOLS RUBBER CUSHIONED



AIR CUSHIONED



STOCK STROKE LIST FOR ALL STYLES SERIES NCG

BORE SIZE	STANDARD STOCKED STROKE	MAXIMUM STANDARD STROKE
20	1, 2, 3, 4, 5, 6, 8	20
25	1, 2, 3, 4, 5, 6, 8, 10, 12	25
32	1, 2, 3, 4, 5, 6, 8, 10, 12	40
40	1, 2, 3, 4, 5, 6, 8, 10, 12	45
50	1, 2, 3, 4, 5, 6, 8, 10, 12	55
63	1, 2, 3, 4, 5, 6, 8, 10, 12	55

ACCESSORIES
MOUNTING BRACKET SERIES NCG

Bore Size Inches / Mounting Accessory	3/4	1	1 1/4	1 1/2	2	2 1/2
Foot (2 pcs)	NCG-L020	NCG-L025	NCG-L032	NCG-L040	NCG-L050	NCG-L063
Flange	NCG-F020	NCG-F025	NCG-F032	NCG-F040	NCG-F050	NCG-F063
Trunnion	NCG-T020	NCG-T025	NCG-T032	NCG-T040	NCG-T050	NCG-T063
Double Clevis	NCG-D020	NCG-D025	NCG-D032	NCG-D040	NCG-D050	NCG-D063
Trunnion Bracket	NCG-P020	NCG-P025	NCG-P032	NCG-P040	NCG-P050	NCG-P063
Single Clevis	NCG-C020	NCG-C025	NCG-C032	NCG-C040	NCG-C050	NCG-C063

ACCESSORIES
AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available

REED SWITCHES Model Number	Operating Voltage	Maximum Current or Operating Current Range (mA)	Indicator Light/ Wire
D-B54	24VDC 110VAC 220VAC	5~50mA 5~25mA 5~12.5mA	Yes/2 Wire
D-B53	24VDC	5~50mA	Yes/2 Wire
D-B64	24VDC 110VAC 220VAC	50mA 25mA 12.5mA	No/2 Wire
D-B73 D-C73 D-C73C	24VDC 110VAC	5~40mA 5~20mA	Yes/2 Wire
D-B76 D-C76	4~8VDC	20mA	Yes/2 Wire
D-B80 D-C80 D-C80C	24V 48V 110V	50mA 40mA 20mA	No/2 Wire

SOLID STATE SWITCHES Model Number	Operating Voltage	Maximum Current or Operating Current Range (mA)	Indicator Light/ Wire
D-G59	24VDC (10~28VDC)	40mA	Yes/3 Wire (NPN)
D-G5P	-	80mA or less	Yes/3 Wire (PNP)
D-K59	24VDC (10~28VDC)	5~40mA	Yes/2 Wire
D-5NTL	24VDC (10~28VDC)	80mA or less	Yes/3 Wire (NPN)
D-H7A1	24VDC (10~28VDC)	40mA	Yes/3 Wire (NPN)
D-H7A2	-	80mA or less	Yes/3 Wire (PNP)
D-H7B	24VDC (10~28VDC)	5~40mA	Yes/2 Wire
D-H7C	24VDC (10~28VDC)	5~40mA	Yes/2 Wire
D-G59W	24VDC (10~28VDC)	40mA or less	Yes/3 Wire (NPN)
D-G5PW	-	80mA or less	Yes/3 Wire (PNP)
D-K59W	24VDC (10~28VDC)	5~40mA	Yes/2 Wire
D-G59F	-	40mA or less	Yes/4 Wire (NPN)
D-G79	24VDC (10~28VDC)	150mA or less	Yes/3 Wire (NPN)
D-H7PW	-	80mA or less	Yes/3 Wire (PNP)
D-H7BAL	24VDC (10~28VDC)	5~40mA or less	Yes/2 Wire
D-H7LF	26VDC or less	40mA or less	Yes/4 Wire (NPN)
D-H7NF	28VDC or less	40mA or less	Yes/4 Wire (NPN)
D-G5BAL	24VDC (10~28VDC)	5~40mA or less	Yes/2 Wire
D-H7PW	-	80mA or less	No/3 Wire (NPN)
D-H7BW	24VDC (10~28VDC)	5~40mA	Yes/2 Wire

ACCESSORIES
SWITCH BANDS
FOR SWITCHES D-B7, D-B8, D-G7

BM1-01 .....3/4"
BM1-02 .....1"
BM1-32 .....1 1/4"
BM1-04 .....1 1/2"
BM1-05 .....2"
BM1-06 .....2 1/2"

ACCESSORIES
SWITCH BANDS
FOR SWITCHES D-B5, D-B6, D-G5, D-K5

BA-01 .....3/4"
BA-02 .....1"
BA-32 .....1 1/4"
BA-04 .....1 1/2"
BA-05 .....2"
BA-06 .....2 1/2"

ACCESSORIES
SWITCH BANDS
FOR SWITCHES D-C75, D-C8, D-H7

BMA1-020 .....3/4"
BMA2-025 .....1"
BMA2-032 .....1 1/4"
BMA2-040 .....1 1/2"
BMA2-050 .....2"
BMA2-063 .....2 1/2"

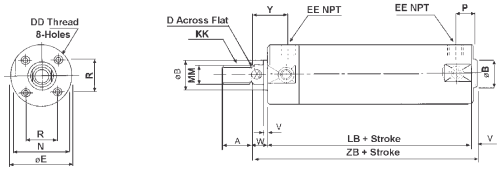
TECHNICAL SPECIFICATIONS
STANDARD SERIES NCG

Fluid	Air
Proof Pressure	1.5MPa / 215 PSI
Max Operating Pressure	1MPa / 145 PSI
Min Operating Pressure	0.05MPa / 7 PSI
Ambient and Fluid Temperature	10~60°C / 40~140°F
Piston Velocity	50~1000mm/s / 2 ~ 40 in/sec
Cushion	Urethane Bumper or Adjustable Air Cushion
Lubrication	Non-Lube
Mounting	Basic, Foot, Front & Rear Flange, Front & Rear Trunnion, Double & Single Clevis, Front Nose

REPAIR KIT
STANDARD SERIES NCG

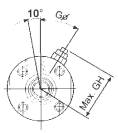
Bore Size	Bumper Design	Air Cushion Design
20	CG1N20-PS	CG1A20-PS
25	CG1N25-PS	CG1A25-PS
32	CG1N32-PS	CG1A32-PS
40	CG1N40-PS	CG1A40-PS
50	CG1N50-PS	CG1A50-PS
63	CG1N63-PS	CG1A63-PS

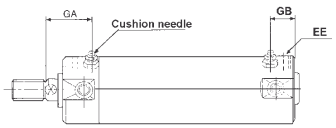
DIMENSIONS
BASIC MODEL SERIES NCG
RUBBER CUSHION TYPE NC(D)GBN



Bore Size	Max Std Stroke	A	B	D	DD	E	EE	KK	LB	MM	N	P	R	V	W	Y	ZB
20	8	0.50	0.472 $^{0}_{-0.0011}$	0.24	8-32x0.28	1.02	1/8	1/4-28 UNF	2.70	0.315	0.94	0.47	0.55	0.08	0.50	0.97	3.28
25	12	0.50	0.551 $^{0}_{-0.0011}$	0.31	10-32x0.30	1.22	1/8	5/16-24 UNF	2.70	0.394	1.14	0.47	0.65	0.08	0.62	1.09	3.40
32	12	0.75	0.709 $^{0}_{-0.0011}$	0.39	10-32x0.30	1.50	1/8	7/16-20 UNF	2.78	0.472	1.42	0.43	0.79	0.08	0.88	1.35	3.74
40	12	0.75	0.984 $^{0}_{-0.0013}$	0.55	1/4-28x0.47	1.85	1/8	7/16-20 UNF	3.06	0.630	1.73	0.47	1.02	0.08	0.88	1.39	4.02
50	12	0.88	1.181 $^{0}_{-0.0013}$	0.71	5/16-24x0.63	2.28	1/4	1/2-20 UNF	3.53	0.787	2.17	0.51	1.26	0.08	1.19	1.74	4.80
63	12	0.88	1.260 $^{0}_{-0.0015}$	0.71	3/8-24x0.63	2.83	1/4	1/2-20 UNF	3.53	0.787	2.72	0.51	1.50	0.08	1.19	1.74	4.80

DIMENSIONS
AIR CUSHION TYPE NC(D)GBA





ADJUSTABLE AIR CUSHION MODEL (INCH)

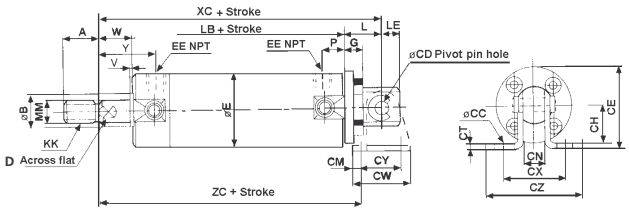
Bore Size	GA	GB	GH	Gø	EE
20	1.05	0.55	0.90	30°	10-32 UNF
25	1.17	0.55	0.98	30°	10-32 UNF
32	1.43	0.51	1.12	25°	1/8 NPT
40	1.47	0.55	1.30	20°	1/8 NPT
50	1.82	0.59	1.60	20°	1/4 NPT
63	1.82	0.59	1.87	20°	1/4 NPT

LONG STROKE (INCH)

Bore Size	Stroke Range	LB	ZB
20	8.01~20	3.02	3.60
25	12.01~25	3.02	3.72
32	12.01~40	3.09	4.05
40	12.01~45	3.41	4.37
50	12.01~55	4.00	5.27
63	12.01~55	4.00	5.27

Note: Long Stroke design is a three piece construction: Rod Cover, Head Cover and Tube Body

DIMENSIONS
SINGLE CLEVIS TYPE NC(D)GCN_-_ AND NC(D)GCA_-_

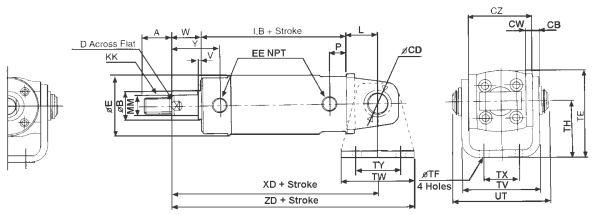


Bore Size	CC	Single Clevis (inch)								
		CE	CH	CM	CN	CT	CW	CX	CY	CZ
20	0.27	1.39	0.87	0.18	0.38	0.12	1.10	1.25	0.75	1.95
25	0.27	1.49	0.87	0.18	0.38	0.12	1.10	1.25	0.75	1.95
32	0.27	1.63	0.87	0.10	0.50	0.12	1.10	1.38	0.75	2.07
40	0.27	2.31	1.38	0.25	0.62	0.18	1.50	1.86	1.00	2.60
50	0.26	2.52	1.38	0.25	0.75	0.25	1.50	2.12	1.00	3.00
63	0.26	3.17	1.75	0.25	0.75	0.25	1.50	2.12	1.00	3.00

Note: Single Clevis Bracket must be ordered separately

Bore Size	Max Std Stroke	A	øB	øCD	CN	D	øE	EE	G	KK	LB	LE	MM	P	V	W	Y	XC	ZC
20	8	0.50	0.472 $^{0}_{-0.0011}$	0.25	0.38	0.24	1.02	1/8	0.31	1/4-28 UNF	2.70	0.28	0.315	0.47	0.08	0.50	0.97	3.91	3.63
25	12	0.50	0.551 $^{0}_{-0.0011}$	0.25	0.38	0.31	1.22	1/8	0.33	5/16-24 UNF	2.70	0.28	0.394	0.47	0.08	0.62	1.09	4.00	3.72
32	12	0.75	0.709 $^{0}_{-0.0011}$	0.25	0.50	0.39	1.50	1/8	0.61	7/16-20 UNF	2.78	0.39	0.472	0.43	0.08	0.88	1.35	4.72	4.59
40	12	0.75	0.984 $^{0}_{-0.0013}$	0.375	0.62	0.55	1.85	1/8	0.39	7/16-20 UNF	3.06	0.38	0.630	0.47	0.08	0.88	1.39	4.81	4.25
50	12	0.88	1.181 $^{0}_{-0.0013}$	0.375	0.75	0.71	2.28	1/4	0.47	1/2-20 UNF	3.53	0.44	0.787	0.51	0.08	1.19	1.74	5.63	5.50
63	12	0.88	1.260 $^{0}_{-0.0015}$	0.375	0.75	0.71	2.83	1/4	0.47	1/2-20 UNF	3.53	0.44	0.787	0.51	0.08	1.19	1.74	5.63	5.50

DIMENSIONS
DOUBLE CLEVIS TYPE NC(D)GDN_-_ AND NC(D)GDA_-_

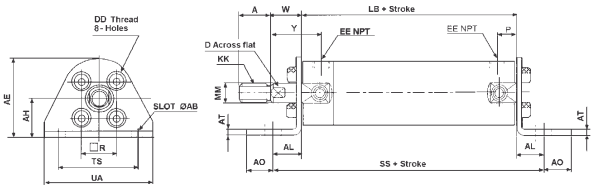


BORE SIZE	DOUBLE CLEVIS (INCH)							
	TY	TF	TV	TE	TH	TX	TW	UT
20	1.10	0.22	1.39	1.50	0.98	0.63	1.66	1.71
25	1.10	0.22	1.55	1.79	1.18	0.79	1.66	1.89
32	1.10	0.28	1.93	2.13	1.38	0.87	1.88	2.34
40	1.18	0.28	2.28	2.50	1.57	1.18	2.20	2.81
50	1.42	0.35	2.83	3.11	1.97	1.42	2.52	3.39
63	1.81	0.43	3.54	3.78	2.36	1.81	2.92	4.15

BORE SIZE	MAX STD STROKE	A	øB	CB	øCD	CW	CZ	D	øE	EE	KK	L	LB	MM	P	V	W	XD	Y	ZD
20	8	0.50	0.472 $^{0}_{-0.0011}$	0.12	0.31	0.12	1.14	0.24	1.02	1/8	1/4-28 UNF	0.55	2.70	0.315	0.47	0.08	0.50	3.75	0.97	4.58
25	12	0.50	0.551 $^{0}_{-0.0011}$	0.12	0.39	0.12	1.30	0.31	1.22	1/8	5/16-24 UNF	0.63	2.70	0.394	0.47	0.08	0.62	3.95	1.09	4.78
32	12	0.75	0.709 $^{0}_{-0.0011}$	0.18	0.47	0.18	1.57	0.39	1.50	1/8	7/16-20 UNF	0.79	2.78	0.472	0.43	0.08	0.88	4.45	1.35	5.39
40	12	0.75	0.984 $^{0}_{-0.0013}$	0.18	0.55	0.18	1.93	0.55	1.85	1/8	7/16-20 UNF	0.87	3.06	0.630	0.47	0.08	0.88	4.81	1.39	5.91
50	12	0.88	1.181 $^{0}_{-0.0013}$	0.24	0.63	0.24	2.36	0.71	2.28	1/4	1/2-20 UNF	0.98	3.53	0.787	0.51	0.08	1.19	5.70	1.74	6.96
63	12	0.88	1.260 $^{0}_{-0.0015}$	0.31	0.71	0.31	2.91	0.71	2.83	1/4	1/2-20 UNF	1.18	3.53	0.787	0.51	0.08	1.19	5.90	1.74	7.38

Note: Double Clevis Bracket and Double Bracket Pin must be ordered separately

DIMENSIONS
FOOT TYPE NC(D)GLN_-_ AND NC(D)GLA_-_



LONG STROKE (INCH)

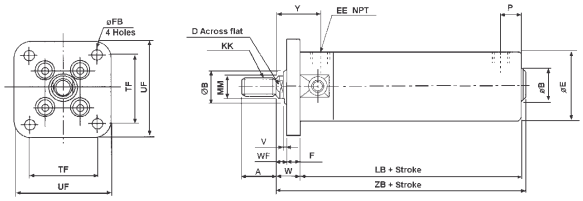
BORE SIZE	STROKE RANGE	LB	ZB
20	8.01~20	3.02	3.60
25	12.01~25	3.02	3.72
32	12.01~40	3.09	4.05
40	12.01~45	3.41	4.37
50	12.01~55	4.00	5.27
63	12.01~55	4.00	5.27

Note: Long Stroke design is a three piece construction: Rod Cover, Head Cover and Tube Body

BORE SIZE	MAX STD STROKE	A	AB	AE	AH	AL	AO	AT	D	DD	EE	KK	LB	MM	P	R	SS	TS	UA	W	Y
20	8	0.50	0.27	1.44	0.81	0.56	0.44	0.12	0.24	8-32x0.28	1/8	1/4-28 UNF	2.70	0.315	0.47	0.55	3.82	1.50	1.88	0.50	0.97
25	12	0.50	0.27	1.52	0.81	0.56	0.44	0.12	0.31	10-32x0.30	1/8	5/16-24 UNF	2.70	0.394	0.47	0.65	3.82	1.50	1.88	0.62	1.09
32	12	0.75	0.28	1.83	1.00	0.75	0.75	0.12	0.39	10-32x0.30	1/8	7/16-20 UNF	2.78	0.472	0.43	0.79	4.28	1.88	2.50	0.88	1.35
40	12	0.75	0.28	2.02	1.00	0.72	0.78	0.12	0.55	1/4-28x0.47	1/8	7/16-20 UNF	3.06	0.630	0.47	1.02	4.50	1.88	2.50	0.88	1.39
50	12	0.88	0.34	2.84	1.50	1.00	0.62	0.25	0.71	5/16-24x0.63	1/4	1/2-20 UNF	3.53	0.787	0.51	1.26	5.53	2.24	3.12	1.19	1.74
63	12	0.88	0.34	3.29	1.75	1.00	0.62	0.25	0.71	3/8-24x0.63	1/4	1/2-20 UNF	3.53	0.787	0.51	1.50	5.53	2.88	3.75	1.19	1.74

MORE DIMENSIONS
SEE NEXT PAGE ☞

DIMENSIONS
FRONT FLANGE TYPE NC(D)GFN_-_ AND NC(D)GFA_-_



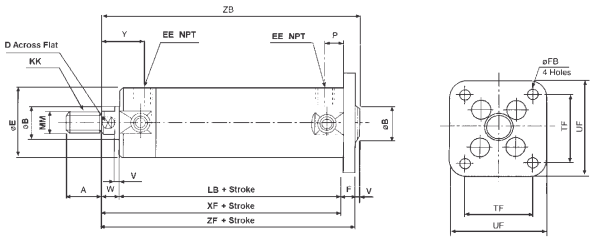
LONG STROKE (INCH)

BORE SIZE	STROKE RANGE	LB	ZB
20	8.01~20	3.02	3.60
25	12.01~25	3.02	3.72
32	12.01~40	3.09	4.05
40	12.01~45	3.41	4.37
50	12.01~55	4.00	5.27
63	12.01~55	4.00	5.27

Note: Long Stroke design is a three piece construction: Rod Cover, Head Cover and Tube Body

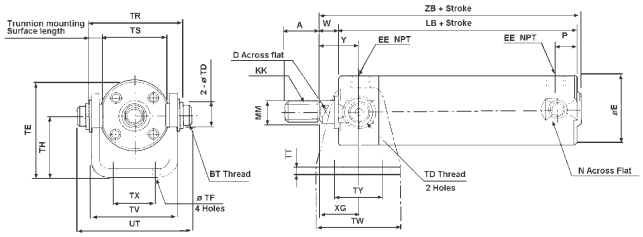
BORE SIZE	MAX STD STROKE	A	B	D	E	EE	F	FB	KK	LB	MM	P	TF	UF	V	WF	W	Y	ZB
20	8	0.50	0.472 $^{0}_{-0.0011}$	0.24	1.02	1/8	0.24	0.22	1/4-28 UNF	2.70	0.315	0.47	1.10	1.57	0.08	0.26	0.50	0.97	3.28
25	12	0.50	0.551 $^{0}_{-0.0011}$	0.31	1.22	1/8	0.28	0.22	5/16-24 UNF	2.70	0.394	0.47	1.26	1.73	0.08	0.34	0.62	1.09	3.40
32	12	0.75	0.709 $^{0}_{-0.0011}$	0.39	1.50	1/8	0.28	0.28	7/16-20 UNF	2.78	0.472	0.43	1.50	2.09	0.08	0.60	0.88	1.35	3.74
40	12	0.75	0.984 $^{0}_{-0.0013}$	0.55	1.85	1/8	0.31	0.28	7/16-20 UNF	3.06	0.630	0.47	1.81	2.40	0.08	0.57	0.88	1.39	4.02
50	12	0.88	1.181 $^{0}_{-0.0013}$	0.71	2.28	1/4	0.35	0.35	1/2-20 UNF	3.53	0.787	0.51	2.28	3.00	0.08	0.84	1.19	1.74	4.80
63	12	0.88	1.260 $^{0}_{-0.0015}$	0.71	2.83	1/4	0.35	0.43	1/2-20 UNF	3.53	0.787	0.51	2.76	3.62	0.08	0.84	1.19	1.74	4.80

DIMENSIONS
REAR FLANGE TYPE NC(D)GGN_-_ AND NC(D)GGA_-_



BORE SIZE	MAX STD STROKE	A	B	D	E	EE	F	FB	KK	LB	MM	P	TF	UF	V	W	XF	Y	ZB	ZF
20	8	0.50	0.472 $^{0}_{-0.0011}$	0.24	1.02	1/8	0.24	0.22	1/4-28 UNF	2.70	0.315	0.47	1.10	1.57	0.08	0.50	3.20	0.97	3.52	3.44
25	12	0.50	0.551 $^{0}_{-0.0011}$	0.31	1.22	1/8	0.28	0.28	5/16-24 UNF	2.70	0.394	0.47	1.26	1.73	0.08	0.62	3.32	1.09	3.68	3.60
32	12	0.75	0.709 $^{0}_{-0.0011}$	0.39	1.50	1/8	0.28	0.28	7/16-20 UNF	2.78	0.472	0.43	1.50	2.09	0.08	0.88	3.66	1.35	4.02	3.94
40	12	0.75	0.984 $^{0}_{-0.0013}$	0.55	1.85	1/8	0.31	0.28	7/16-20 UNF	3.06	0.630	0.47	1.81	2.40	0.08	0.88	3.94	1.39	4.33	4.25
50	12	0.88	1.181 $^{0}_{-0.0013}$	0.71	2.28	1/4	0.35	0.35	1/2-20 UNF	3.53	0.787	0.51	2.28	3.00	0.08	1.19	4.72	1.74	5.15	5.07
63	12	0.88	1.260 $^{0}_{-0.0015}$	0.71	2.83	1/4	0.35	0.43	1/2-20 UNF	3.53	0.787	0.51	2.76	3.62	0.08	1.19	4.72	1.74	5.15	5.07

DIMENSIONS
FRONT TRUNNION TYPE NC(D)GUN_-_ AND NC(D)GUA_-_



BORE SIZE	MAX STD STROKE	A	D	øE	EE	KK	LB	MM	N	P	W	XG	Y	ZB
20	8	0.50	0.24	1.02	1/8	1/4-28 UNF	2.70	0.315	0.94	0.47	0.50	0.93	0.97	3.28
25	12	0.50	0.31	1.22	1/8	5/16-24 UNF	2.70	0.394	1.14	0.47	0.62	1.05	1.09	3.40
32	12	0.75	0.39	1.50	1/8	7/16-20 UNF	2.78	0.472	1.42	0.43	0.88	1.31	1.35	3.74
40	12	0.75	0.55	1.85	1/8	7/16-20 UNF	3.06	0.630	1.73	0.47	0.88	1.35	1.39	4.02
50	12	0.88	0.71	2.28	1/4	1/2-20 UNF	3.53	0.787	2.17	0.51	1.19	1.70	1.74	4.80
63	12	0.88	0.71	2.83	1/4	1/2-20 UNF	3.53	0.787	2.72	0.51	1.19	1.70	1.74	4.80

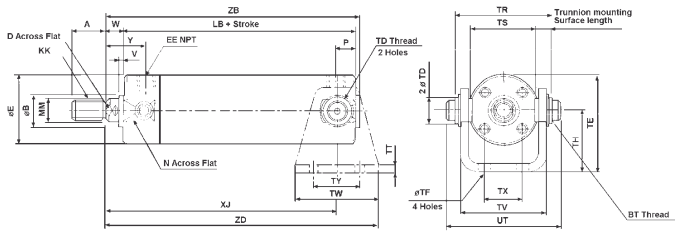
BORE SIZE	TE	TH	TR	TS	TT	TX	TW	TY	TF	TV	TD	UT	BT
20	1.50	0.98	1.54	1.10	0.12	0.63	1.66	1.10	0.22	1.39	0.315	1.87	M5x0.8
25	1.79	1.18	1.69	1.30	0.12	0.79	1.66	1.10	0.22	1.55	0.394	2.09	M6x0.75
32	2.13	1.38	2.15	1.58	0.18	0.87	1.88	1.10	0.28	1.93	0.472	2.67	M8x1.8
40	2.50	1.57	2.58	1.93	0.18	1.18	2.20	1.18	0.28	2.28	0.551	3.10	M10x1.25
50	3.11	1.97	3.15	2.36	0.24	1.42	2.52	1.42	0.35	2.83	0.630	3.88	M12x1.25
63	3.78	2.36	3.86	2.91	0.31	1.81	2.91	1.81	0.43	3.54	0.709	4.69	M14x1.5

LONG STROKE (INCH)

BORE SIZE	STROKE RANGE	LB	ZB
20	8.01~20	3.02	3.60
25	12.01~25	3.02	3.72
32	12.01~40	3.09	4.05
40	12.01~45	3.41	4.37
50	12.01~55	4.00	5.27
63	12.01~55	4.00	5.27

Note: Long Stroke design is a three piece construction: Rod Cover, Head Cover and Tube Body

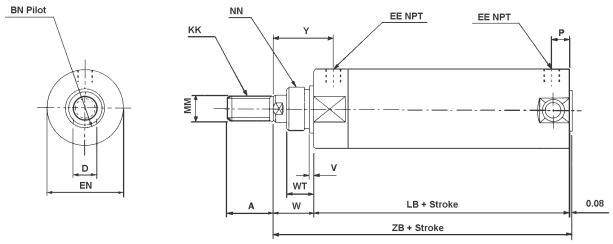
DIMENSIONS
REAR TRUNNION TYPE NC(D)GTN_-_ AND NC(D)GTA_-_



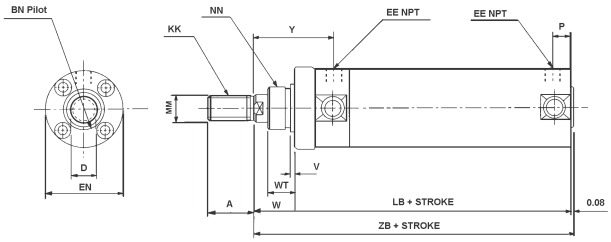
BORE SIZE	MAX STD STROKE	A	B	D	E	EE	KK	LB	MM	N	P	V	W	XJ	Y	ZB	ZD
20	8	0.50	$0.472\ ^{0}_{-0.0011}$	0.24	1.02	1/8	1/4-28 UNF	2.70	0.315	0.94	0.47	0.08	0.50	2.77	0.97	3.28	3.60
25	12	0.50	$0.551\ ^{0}_{-0.0011}$	0.31	1.22	1/8	5/16-24 UNF	2.70	0.394	1.14	0.47	0.08	0.62	2.89	1.09	3.40	3.72
32	12	0.75	$0.709\ ^{0}_{-0.0011}$	0.39	1.50	1/8	7/16-20 UNF	2.78	0.472	1.42	0.43	0.08	0.88	3.27	1.35	3.74	4.21
40	12	0.75	$0.984\ ^{0}_{-0.0013}$	0.55	1.85	1/8	7/16-20 UNF	3.06	0.630	1.73	0.47	0.08	0.88	3.54	1.39	4.02	4.64
50	12	0.88	$1.181\ ^{0}_{-0.0013}$	0.71	2.28	1/4	1/2-20 UNF	3.53	0.787	2.17	0.51	0.08	1.19	4.25	1.74	4.80	5.51
63	12	0.88	$1.260\ ^{0}_{-0.0015}$	0.71	2.83	1/4	1/2-20 UNF	3.53	0.787	2.72	0.51	0.08	1.19	4.25	1.74	4.80	5.71

BORE SIZE	TE	TH	TR	TS	TT	TX	TW	TY	øTF	TV	øTD	UT	BT
20	1.50	0.98	1.54	1.10	0.12	0.63	1.66	1.10	0.22	1.39	0.315	1.87	M5x0.8
25	1.79	1.18	1.69	1.30	0.12	0.79	1.66	1.10	0.22	1.55	0.394	2.09	M6x0.75
32	2.13	1.38	2.15	1.58	0.18	0.87	1.88	1.10	0.28	1.93	0.472	2.67	M8x1.8
40	2.50	1.57	2.58	1.93	0.18	1.18	2.20	1.18	0.28	2.28	0.551	3.10	M10x1.25
50	3.11	1.97	3.15	2.36	0.24	1.42	2.52	1.42	0.35	2.83	0.630	3.88	M12x1.25
63	3.78	2.36	3.86	2.91	0.31	1.81	2.92	1.81	0.43	3.54	0.709	4.69	M14x1.5

DIMENSIONS
FRONT NOSE MOUNT TYPE NC(D)GNN_-_ AND NC(D)GNA_-_ (BORE SIZE 20 AND 25)



DIMENSIONS
FRONT NOSE MOUNT TYPE NC(D)GNN_-_ AND NC(D)GNA_-_ (BORE SIZE 32, 40, 50 AND 63)



Bore Size	Max Std Stroke	A	BN	D	EE	EN	KK	LB	MM	NN	P	V	W	WT	Y	ZB
20	8	0.55	0.749 $^{+0.0002}_{-0.0030}$	0.24	1/8	1.12	1/4-28	2.60	0.315	3/4-16	0.47	0.12	0.88	0.63	1.25	3.56
25	12	0.55	0.749 $^{+0.0002}_{-0.0030}$	0.31	1/8	1.24	5/16-24	2.60	0.394	3/4-16	0.47	0.12	0.88	0.63	1.25	3.56
32	12	0.83	0.749 $^{+0.0002}_{-0.0030}$	0.39	1/8	1.63	7/16-20	3.15	0.472	3/4-16	0.43	0.12	0.88	0.63	1.75	4.11
40	12	0.75	1.058 $^{+0.0002}_{-0.0030}$	0.55	1/8	2.00	7/16-20	3.62	0.630	1-1/4	0.47	0.19	1.25	0.88	2.32	4.95
50	12	0.88	1.374 $^{0}_{-0.0040}$	0.71	1/4	2.38	1/2-20	4.12	0.787	1 1/4-12	0.51	0.12	1.19	0.81	2.33	5.39
63	12	0.88	1.500 $^{0}_{-0.0039}$	0.71	1/4	2.87	1/2-20	4.19	0.787	1 3/8-12	0.51	0.12	1.19	0.81	2.40	5.46

TECHNICAL SPECIFICATIONS
NON-ROTATING ROD SERIES NCGK

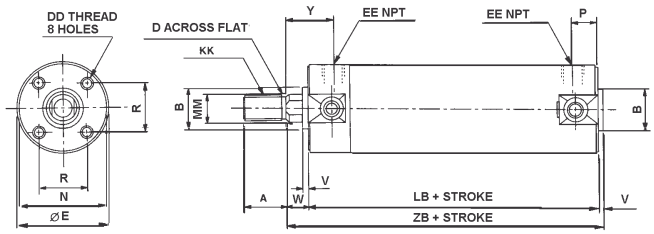
Fluid		Air
Max Operating Pressure		1MPa / 145PSI
Min Operating Pressure		0.06MPa / 8PSI
Ambient and Fluid Temperature		5~60°C / 40~140°F
Piston Speed		50~500mm/s / 2~20in/sec
Cushion		Rubber Cushion
Lubrication		Non-Lube
Non-Rotating Accuracy	ø20, ø25	±1°
	ø32	±8°
	ø40~ø63	±0.5°
Mounting Style		Basic, Axial Foot, Rod Side Flange, Head Side Flange, Rod Side Trunnion, Head Side Trunnion, Clevis, Front Nose (not availble on ø20 and ø25) (ø32~ø63 as Special)

REPAIR KITS
NON-ROTATING ROD SERIES NCGK

Bore Size	Bumper Design
20	CG1KN20-PS
25	CG1KN25-PS
32	NCGK032-PS
40	CG1KN40-PS
50	CG1KN50-PS
63	CG1KN63-PS

Kit contains: 1 rod seal, 1 piston seal and 2 cylinder tube seals

DIMENSIONS
NON-ROTATING ROD SERIES NCGK



LONG STROKE (INCH)

Bore Size	Stroke Range	LB	ZB
20	8.01~20	3.02	3.60
25	12.01~25	3.02	3.72
32	12.01~40	3.09	4.05
40	12.01~45	3.41	4.37
50	12.01~55	4.00	5.27
63	12.01~55	4.00	5.27

Note: Long Stroke design is a three piece construction: Rod Cover, Head Cover and Tube Body

Bore Size	Max Std Stroke	MM	KK	A	BN h8	D	DD	E	EE	LB	N	P	R	V	W	Y	ZB
20	8	0.362	1/4-28	0.50	0.472 $^{0}_{-0.0011}$	0.31	8-32x0.28	1.02	1/8	2.70	0.94	0.47	0.55	0.08	0.50	0.97	3.28
25	12	0.433	5/16-24	0.50	0.551 $^{0}_{-0.0011}$	0.39	10-32x0.30	1.22	1/8	2.70	1.14	0.47	0.65	0.08	0.62	1.09	3.40
32	12	0.551	7/16-20	0.75	0.709 $^{0}_{-0.0011}$	0.47	10-32x0.30	1.50	1/8	2.78	1.42	0.43	0.79	0.08	0.88	1.35	3.74
40	12	0.630	7/16-20	0.75	0.984 $^{0}_{-0.0013}$	0.55	1/4-28x0.47	1.85	1/8	3.06	1.73	0.47	1.02	0.08	0.88	1.39	4.02
50	12	0.787	1/2-20	0.88	1.181 $^{0}_{-0.0013}$	0.71	5/16-24x0.63	2.28	1/4	3.53	2.17	0.51	1.26	0.08	1.19	1.74	4.80
63	12	0.787	1/2-20	0.88	1.260 $^{0}_{-0.0015}$	0.71	3/8-24x0.63	2.83	1/4	3.53	2.72	0.51	1.50	0.08	1.19	1.74	4.80

SERIES NCG

TECHNICAL SPECIFICATIONS
DOUBLE ROD SERIES NCGW

Fluid	Air
Max Operating Pressure	1MPa / 145PSI
Min Operating Pressure	0.08MPa / 12PSI
Ambient and Fluid Temperature	5~60°C / 40~140°F
Piston Speed	50~1000mm/s (ø20~ø63) 2~40in/sec
Cushion	Rubber or Air Cushion
Lubrication	Non-Lube
Mounting Style	Basic, Axial Foot, Flange, Rod Side Trunnion

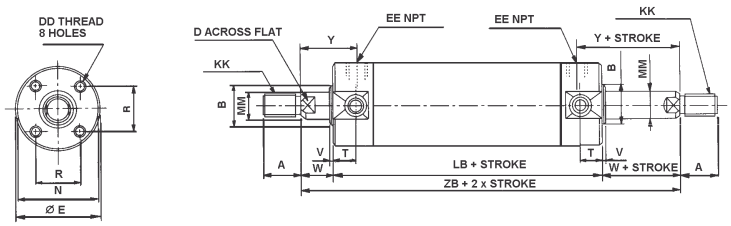
REPAIR KITS
DOUBLE ROD SERIES NCGW

Bore Size	Bumper Design	Air Cushion Design
20	CG1WN20-PS	CG1WA20-PS
25	CG1WN25-PS	CG1WA25-PS
32	CG1WN32-PS	CG1WA32-PS
40	CG1WN40-PS	CG1WA40-PS
50	CG1WN50-PS	CG1WA50-PS
63	CG1WN63-PS	CG1WA63-PS

Kit contains: 2 rod seals, 1 piston seal, 2 cylinder tube seals, 2 cushion valve seals (Air Cushion design only)

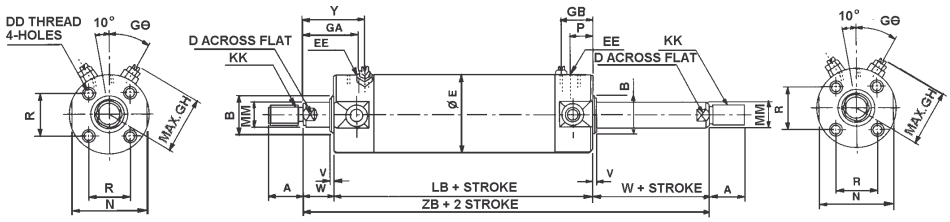
DIMENSIONS
NON-ROTATING ROD SERIES NCGW

NC(D)GWN_-_



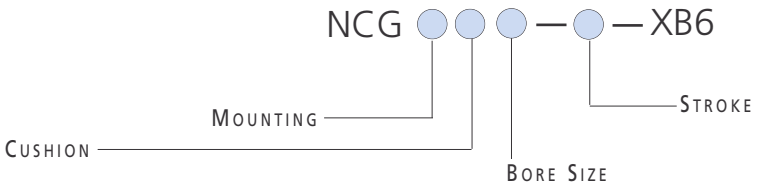
Bore Size	Max Std Stroke	MM	KK	A	B	D	E	EE	LB	N	R	T	V	W	Y	ZB
20	14	0.315	1/4-28	0.50	0.472 $^{0}_{-0.0011}$	0.24	1.02	1/8	3.02	0.94	0.55	0.43	0.08	0.50	0.97	4.02
25	16	0.394	5/16-24	0.50	0.551 $^{0}_{-0.0011}$	0.31	1.22	1/8	3.02	1.14	0.65	0.43	0.08	0.62	1.09	4.26
32	18	0.472	7/16-20	0.75	0.709 $^{0}_{-0.0011}$	0.39	1.50	1/8	3.09	1.42	0.79	0.43	0.08	0.88	1.35	4.85
40	31	0.630	7/16-20	0.75	0.984 $^{0}_{-0.0013}$	0.55	1.85	1/8	3.41	1.73	1.02	0.47	0.08	0.88	1.39	5.17
50	47	0.787	1/2-20	0.88	1.181 $^{0}_{-0.0013}$	0.71	2.28	1/4	4.00	2.17	1.26	0.51	0.08	1.19	1.74	6.38
63	47	0.787	1/2-20	0.88	1.260 $^{0}_{-0.0015}$	0.71	2.83	1/4	4.00	2.72	1.50	0.51	0.08	1.19	1.74	6.38

NC(D)GWA_-_



Bore Size	Max Std Stroke	MM	KK	A	B	D	DD	E	EE	GA	GB	GH	GO	LB	N	P	R	V	W	Y	ZB
20	14	0.315	1/4-28	0.50	0.472 $^{0}_{-0.0011}$	0.24	8-32x0.28	1.02	10-32 UNF	1.05	0.55	0.90	30°	3.02	0.94	0.47	0.55	0.08	0.50	0.97	4.02
25	16	0.394	5/16-24	0.50	0.551 $^{0}_{-0.0011}$	0.31	10-32x0.30	1.22	10-32 UNF	1.17	0.55	0.98	30°	3.02	1.14	0.47	0.65	0.08	0.62	1.09	4.26
32	18	0.472	7/16-20	0.75	0.709 $^{0}_{-0.0011}$	0.39	10-32x0.30	1.50	1/8	1.43	0.51	1.12	25°	3.09	1.42	0.43	0.79	0.08	0.88	1.35	4.85
40	31	0.630	7/16-20	0.75	0.984 $^{0}_{-0.0013}$	0.55	1/4-28x0.47	1.85	1/8	1.47	0.55	1.30	20°	3.41	1.73	0.47	1.02	0.08	0.88	1.39	5.17
50	47	0.787	1/2-20	0.88	1.181 $^{0}_{-0.0013}$	0.71	5/16-24x0.63	2.28	1/4	1.82	0.59	1.60	20°	4.00	2.17	0.51	1.26	0.08	1.19	1.74	6.38
63	47	0.787	1/2-20	0.88	1.260 $^{0}_{-0.0015}$	0.71	3/8-24x0.63	2.83	1/4	1.82	0.59	1.87	20°	4.00	2.72	0.51	1.50	0.08	1.19	1.74	6.38

HOW TO ORDER
SERIES NCG AIR CYLINDER OPTIONS
HIGH TEMPERATURE RESISTANT CYLINDER - XB6 OPTION

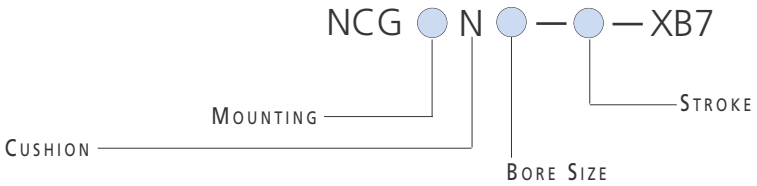


TECHNICAL SPECIFICATIONS
SERIES NCG - XB6 OPTION

Bore (mm)		ø20, 25,32,40,50,63
Action		Double Acting
Fluid		Air
Ambient Temperature Range		-20~150°C / -4~+300°F
Action Velocity		50~500mm/s / 2~20 in/sec
Cushion	ø20, 25, 32	Type: N = Without Cushion
	ø40, 50, 63	Type: A = With Air Cushion
Lubrication		Teflon® based Grease
Mounting Style		Basic, Axial Foot, Rod Side Flange, Head Side Flange, Rod Side Trunnion, Head Side Trunnion, Single Clevis, Double Clevis, Nose
Auto Switch Capable		No

Note: Major dimensions are the same as those of the Double Acting Single Rod

HOW TO ORDER
SERIES NCG AIR CYLINDER OPTIONS
LOW TEMPERATURE RESISTANT CYLINDER - XB7 OPTION



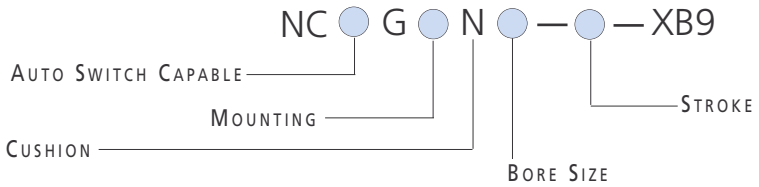
TECHNICAL SPECIFICATIONS
SERIES NCG - XB7 OPTION

Bore (mm)	ø20, 25,32,40
Action	Double Acting
Fluid	Air
Ambient Temperature Range	-30~70°C / -22~+158°F
Piston Velocity	50~500mm/s / 2~20 in/sec
Cushion	No
Material	Seals: Low Nitrile Rubber Wearing Ring: Resin
Lubrication	Teflon® based Grease
Mounting Style	Basic, Axial Foot, Rod Side Flange, Head Side Flange, Rod Side Trunnion, Head Side Trunnion, Single Clevis, Double Clevis, Nose
Auto Switch Capable	No

Note: Major dimensions are the same as those of the Double Acting Single Rod

SERIES NCG

HOW TO ORDER
SERIES NCG AIR CYLINDER OPTIONS
LOW SPEED CYLINDER - XB9 OPTION

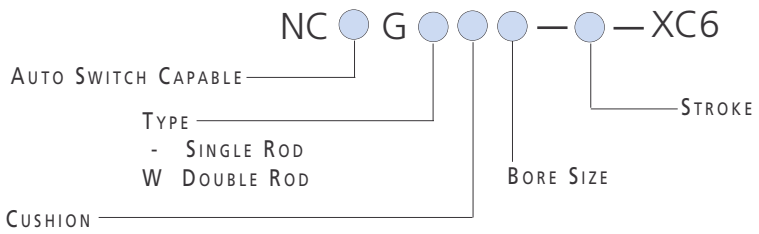


TECHNICAL SPECIFICATIONS
SERIES NCG - XB9 OPTION

Bore (mm)	ø20, 25,32,40,50,63
Action	Double Acting
Fluid	Air
Maximum Operating Pressure	1MPa / 145 PSI
Minimum Operating Pressure	0.05MPa / 8 PSI
Piston Velocity	10~50mm/s / 0.4 ~ 2 in/sec
Mounting Style	Basic, Axial Foot, Rod Side Flange, Head Side Flange, Rod Side Trunnion, Head Side Trunnion, Clevis
Auto Switch Capable	Yes

Note: Major dimensions are the same as those of the Double Acting Single Rod

HOW TO ORDER
SERIES NCG AIR CYLINDER OPTIONS
STAINLESS PISTON ROD - XC6 OPTION

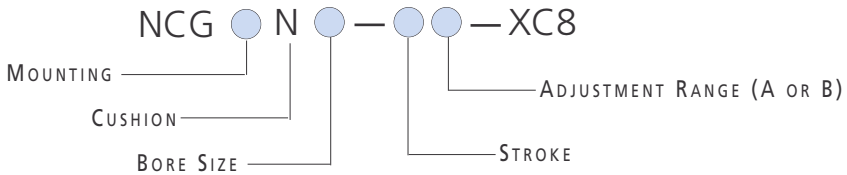


TECHNICAL SPECIFICATIONS
SERIES NCG - XC6 OPTION

Bore (mm)	ø20, 25,32,40,50,63
Action	Double Acting/Single Rod, Double Rod
Piston Rod & Rod End Nut Material	Stainless Steel
Maximum Operating Pressure	1MPa / 145 PSI
Minimum Operating Pressure	Single Rod: 8 PSI / Double Rod: 11 PSI
Piston Velocity	50~1000mm/s / 2 ~ 40 in/sec
Mounting Style	Basic, Axial Foot, Flange, Trunnion
Auto Switch Capable	Yes

Note: Major dimensions are the same as those of the Double Acting Single or Double Rod

HOW TO ORDER
SERIES NCG AIR CYLINDER OPTIONS
STROKE ADJUSTMENT (EXTEND) - XC8 OPTION

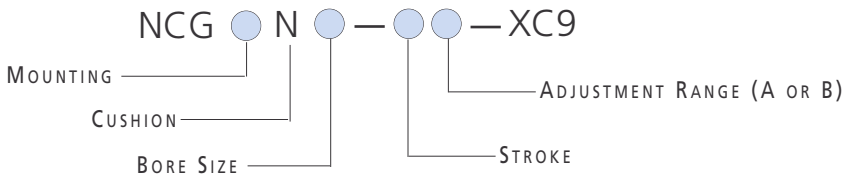


TECHNICAL SPECIFICATIONS
SERIES NCG - XC8 OPTION

Bore (mm)	ø20, 25, 32, 40, 50, 63
Action	Double Acting
Fluid	Air
Maximum Operating Pressure	1MPa / 145 PSI
Minimum Operating Pressure	0.07MPa / 11 PSI
Piston Velocity	Out Stroke: 50~500mm/s / 2 ~ 20 in/sec Return Stroke: 50~1000mm/s / 2 ~ 40 in/sec
Cushion	Rubber Cushion
Ambient and Fluid Temperature	5 ~ 60°C / 40 ~ 140°F
Stroke Adjustment Range (Adjustment Symbol)	A: 0 ~ 1 inch B: 0 ~ 2 inches
Stroke Adjustment System	Stopper Adjustment
Mounting Style	Basic, Axial Foot, Rod Side Flange, Rod Side Trunnion, Head Side Trunnion, Nose

Note: See Catalog N303 for more information

HOW TO ORDER
SERIES NCG AIR CYLINDER OPTIONS
STROKE ADJUSTMENT (RETRACT) - XC9 OPTION

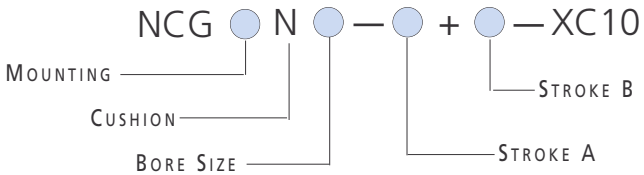


TECHNICAL SPECIFICATIONS
SERIES NCG - XC9 OPTION

Bore (mm)	ø20, 25, 32, 40, 50, 63
Action	Double Acting
Fluid	Air
Maximum Operating Pressure	1MPa / 145 PSI
Minimum Operating Pressure	0.05MPa / 7 PSI
Piston Velocity	Out Stroke: 50~1000mm/s / 2 ~ 40 in/sec Return Stroke: 50~500mm/s / 2 ~ 20 in/sec
Cushion	Rubber Cushion
Ambient and Fluid Temperature	5 ~ 60°C / 40 ~ 140°F
Stroke Adjustment Range (Adjustment Symbol)	A: ~ 25.4mm / 1 inch B: ~ 50.8mm / 2 inches
Stroke Adjustment System	Adjusting Bolt
Mounting Style	Basic, Axial Foot, Rod Side Flange, Rod Side Trunnion, Head Side Flange, Head Side Trunnion, Nose

SERIES NCG

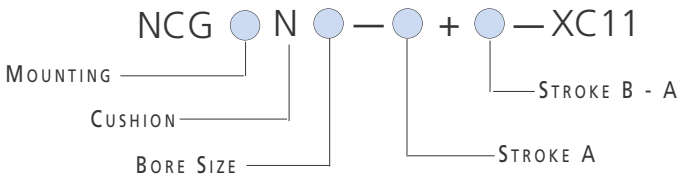
HOW TO ORDER
SERIES NCG AIR CYLINDER OPTIONS
DUAL STROKE - XC10 OPTION



TECHNICAL SPECIFICATIONS
SERIES NCG - XC10 OPTION

Bore (mm)	ø20, 25, 32, 40, 50, 63
Action	Double Acting
Fluid	Air
Maximum Operating Pressure	1MPa / 145 PSI
Minimum Operating Pressure	0.05MPa / 7 PSI
Piston Velocity	50~1000mm/s / 2 ~ 40 in/sec
Cushion	Rubber Cushion
Ambient and Fluid Temperature	5~60°C / 40 ~ 140°F
Mounting Style	Basic, Axial Foot, Flange, Trunnion

HOW TO ORDER
SERIES NCG AIR CYLINDER OPTIONS
3 POSITION TANDEM - XC11 OPTION



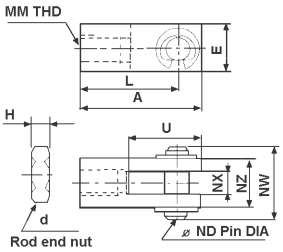
TECHNICAL SPECIFICATIONS
SERIES NCG - XC11 OPTION

Bore (mm)	ø20, 25, 32, 40, 50, 63
Action	Double Acting
Fluid	Air
Maximum Operating Pressure	1MPa / 145 PSI
Minimum Operating Pressure	0.05MPa / 7 PSI
Piston Velocity	2 ~ 40 in/sec (5~1000mm/s)
Cushion	Rubber Cushion
Ambient and Fluid Temperature	5~60°C / 40 ~ 140°F
Stroke Range	ø20: ~8 inches (0~208mm) ø25 ~ ø63: ~12 inches (0~305mm)
Mounting Style	Basic, Axial Foot, Flange, Rod Side Flange, Head Side Flange, Rod Side Trunnion, Head Side Trunnion, Clevis

ACCESSORIES
SERIES NCG
PISTON ROD CLEVIS

Inch

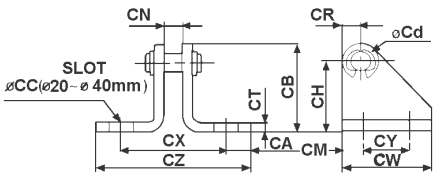
Part No	Bore (mm)	A	d	E	H	L	MM	ND	NX	NW	NZ	U
NY-075	20	1.19	1/4-28 UNF	0.51	0.16	0.94	1/4-28 UNF	0.25	0.25	0.71	0.51	0.69
NY-106	25	1.19	5/16-24 UNF	0.51	0.19	0.94	5/16-24 UNF	0.25	0.25	0.71	0.51	0.69
NY-125	32 • 40	1.69	7/16-20 UNF	0.75	0.25	1.32	7/16-20 UNF	0.38	0.38	1.02	0.75	0.94
NY-G050	50 • 63	1.69	1/2-20 UNF	0.75	0.31	1.32	1/2-20 UNF	0.38	0.38	1.02	0.75	0.94



ACCESSORIES
SERIES NCG
SINGLE CLEVIS BRACKET

Inch

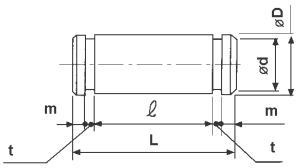
Part No	Bore (mm)	CA	CB	CC	Cd	CH	CM	CN	CR	CT	CX	CW	CY	CZ
NCG-PC020	20 & 25	0.35	1.18	0.27	0.25	0.87	0.18	0.38	0.31	0.12	1.25	1.10	0.75	1.95
NCG-PC032	32	0.35	1.18	0.27	0.25	0.87	0.18	0.50	0.31	0.12	1.37	1.10	0.75	1.07
NCG-PC040	40	0.36	1.75	0.27	0.25	1.38	0.25	0.63	0.37	0.18	1.87	1.50	1.00	2.60
NCG-PC050	50	0.44	1.75	0.76	0.38	1.38	0.25	0.75	0.37	0.24	2.12	1.50	1.00	3.00
NCG-PC063	63	0.44	2.12	0.76	0.38	1.75	0.25	0.75	0.37	0.24	2.12	1.50	1.00	3.00



ACCESSORIES
SERIES NCG
SINGLE CLEVIS PIN

Inch

Part No	Bore (mm)	øD	L	ød	ℓ	m	t
NCG-SP020	20	0.25	0.83	0.21	0.65	0.06	0.03
NCG-SP025	25	0.25	0.83	0.21	0.65	0.06	0.03
NCG-SP032	32	0.25	0.98	0.21	0.76	0.08	0.03
NCG-SP040	40	0.38	1.24	0.30	1.00	0.08	0.04
NCG-SP050	50	0.38	1.50	0.30	1.24	0.09	0.04
NCG-SP063	63	0.38	1.50	0.30	1.24	0.09	0.04



ACCESSORIES
SERIES NCG
DOUBLE CLEVIS PIN

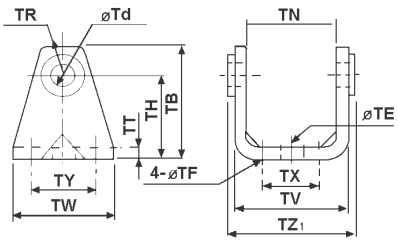
Inch

Part No	Bore (mm)	øD	L	ød	ℓ	m	t
NCD-G02	20	0.315	1.71	0.30	1.52	0.06	0.04
NCD-G025	25	0.394	1.89	0.38	1.68	0.06	0.05
NCD-G03	32	0.472	2.34	0.45	2.12	0.06	0.05
NCD-G04	40	0.551	2.81	0.53	2.56	0.08	0.05
NCD-G05	50	0.630	3.38	0.60	3.13	0.08	0.05
NCD-G06	63	0.709	4.15	0.67	3.85	0.10	0.05

ACCESSORIES
SERIES NCG
TRUNNION BRACKET AND DOUBLE CLEVIS BRACKET

Inch

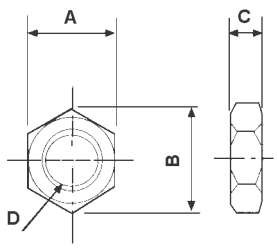
Part No	Bore (mm)	TB	øTD	øTE	øTF	TH	TN	TR	TT	TV	TW	TX	TY	TZ
NCG-P020	20	1.42	0.315	0.39	0.22	0.98	1.14	0.51	0.12	1.39	1.65	0.63	1.10	1.50
NCG-P025	25	1.69	0.394	0.39	0.22	1.18	1.30	0.59	0.12	1.55	1.65	0.79	1.10	1.65
NCG-P032	32	1.97	0.472	0.39	0.27	1.38	1.57	0.67	0.18	1.93	1.89	0.87	1.10	2.10
NCG-P040	40	2.28	0.551	0.39	0.27	1.57	1.93	0.83	0.18	2.28	2.20	1.18	1.18	2.53
NCG-P050	50	2.75	0.630	0.79	0.35	1.97	2.36	0.91	0.24	2.83	2.52	1.42	1.42	3.10
NCG-P063	63	3.23	0.709	0.79	0.43	2.36	2.91	0.98	0.31	3.54	2.91	1.81	1.81	3.80



ACCESSORIES
SERIES NCG
ROD JAM NUT

Inch

Part No	Bore (mm)	B	C	A	D
JM-025	20	0.50	0.16	0.44	1/4-28 UNF
JM-03	25	0.58	0.19	0.50	5/16-24 UNF
JM-045	32 • 40	0.79	0.26	0.69	7/16-20 UNF
JM-05	50 • 63	0.87	0.32	0.75	1/2-20 UNF



AIR CYLINDER SERIES NCM
STAINLESS STEEL CYLINDERS

- Double Acting
- Single Acting / Spring Return / Extended
- Non-Rotate Option Available
- Double Rod
- Magnetic Piston for Auto Switch sensing as an option
- Polished Stainless Steel Tubes
- Clear Anodized Aluminum Head Covers
- All Stainless Steel Version Available

HOW TO ORDER
AIR CYLINDER SERIES NCM

NC ○ M ○○○ — ○○○○○○ — ○○ — ○

AUTO-SWITCH
- Standard Cylinder
D - With Auto Switch Capability /Built-in Magnet

(Not available as standard on Single Acting models XB6 & XB7)

TYPE
- .....Standard Cylinder
K .....Non Rotating Rod
W ..... Double Rod

MOUNTING
B .....Front Nose Mount
C .....Rear Pivot
E .....Double End
R .....Block Mount

BORE SIZE
075 ...3/4"
088 ...7/8"
106 ...1 1/16"
125 ...1 1/4"
150 ...1 1/2"

STROKE
Stroke/inch

STROKE
Stroke/Hundredths of an inch

CUSHION
- ... No Cushion
C ... Rubber Bumper

Auto Switch Capable (see Accessories)

NO OF SWITCHES
- ....2 Pieces
S ....1 Piece
n ....n Pieces

LEAD WIRE LENGTH
- 0.5m
L 3m

ROD BOOT
J .... Nylon
K .... Neoprene

ACTUATUION
- ... Double Acting
S ... Spring Return
T ... Spring Extend

OPTIONS
XB6 ...High Temperature
XB7 ...Low Temperature
XB9 ...Low Friction
XC6 ...Stainless Steel Rod

*Rubber Bumpers are no additional cost on 7/8" and 1 1/4" bore size cylinders. They are options on the other bore sizes. The 'C' after the stroke must be included

DIMENSIONS
SERIES NCM

*Rubber Bumper change in overall length

MODEL / BORE	075	088	106	125	150
NCMB					
NCMC	NO CHANGE	STANDARD	0.125	STANDARD	0.125
NCME					
NCMW	NO CHANGE	STANDARD	0.125	STANDARD	0.125
NCDMW	NO CHANGE	STANDARD	0.500	STANDARD	0.125

Note: When ordered without Rubber Bumper, overall length decreases 0.25 inch

ACCESSORIES
AUTO SWITCHES SERIES NCM

Note: Pre-wired Switches with 3/4 Pin Connectors available

AUTO SWITCHES MODEL NUMBER	OPERATING VOLTAGE	MAXIMUM CURRENT OR OPERATING CURRENT RANGE (mA)	INDICATOR LIGHT /WIRE
D-B54	24VDC 110VAC 220VAC	5~50mA 5~25mA 5~12.5mA	Yes/Reed/2
D-B53	24VDC	5~50mA	Yes/Reed/2
D-B64	24VDC 110VAC 220VAC	50mA 25mA 12.5mA	Yes/Reed/2
D-C73	24VAC 110VAC	5~40mA 5~20mA	Yes/Reed/2
D-G59 D-H7A1	28VDC or less	40mA	Yes/Solid State 3 Wire NPN
D-K59	24V (10~20VDC)	5~150mA	Solid State 2 Wire

ACCESSORIES
AUTO SWITCH MOUNTING BAND SERIES NCM

AUTO SWITCH TYPE MODEL	BORE SIZE 075	088	106	125	150
D-G59 D-B54 D-B64 D-K59 D-B53	NBA-075	NBA-088	NBA-106	NBA-125	NBA-150
D-C73 D-H7A1	NBM2-075	NBM2-088	NBM2-106	NBM2-125	NBM2-150

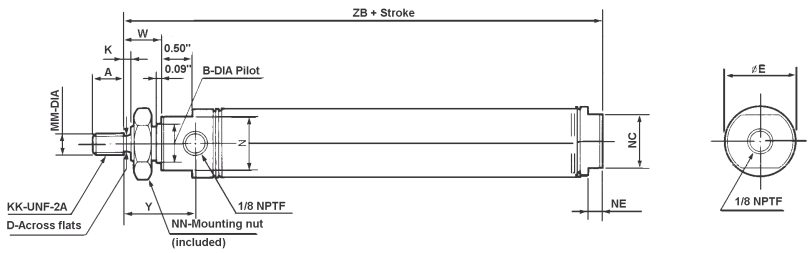
TECHNICAL SPECIFICATIONS
STAINLESS STEEL CYLINDER SERIES NCM

Bore Size (inch)	075 (3/4")	088 (7/8")	106 (1 1/6")	125 (1 1/4")	150 (1 1/2")
Fluid	Air				
Max Operating Pressure	1.75MPa / 250 PSI				
Min Operating Pressure	0.06MPa / 8 PSI				
Ambient and Fluid Temp	5~60°C / 40~140°F				
Piston Speed	No Cushion: 2 ~20 in/sec ; Rubber Cushion: 2~30 in/sec				
Bumper	Optional	Urethane	Optional	Urethane	Optional
Lubrication	Not required (Pre-lubricated at Factory)				
Double Acting Cylinder	Single Rod / Double Rod				

TECHNICAL SPECIFICATIONS
STANDARD STROKE LIST SERIES NCM

MOUNTING	STANDARD STROKE (INCH)	MAXIMUM STROKE
Front Nose Mounting	1/2, 1, 2, 3, 4, 5, 6	12
Double End Mounting Rear End Mounting	1/2, 1, 2, 3, 4, 5, 6, 7, 8, 10, 12	32
Double Rod	1/2. 1, 2, 3, 4, 5, 6	12

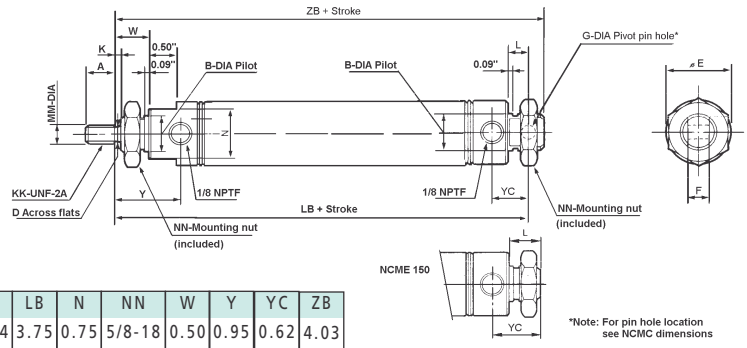
DIMENSIONS
DOUBLE ACTING / SINGLE ROD **SERIES NCM**
FRONT NOSE MOUNTING NC(D)MB



Bore (Inch)	MM	KK	A	B	D	E	K	N	NC	NE	NN	W	Y	ZB
075 (3/4")	0.250	1/4-28	0.50	0.624	-	0.86	-	0.75	0.62	0.12	5/8-18	0.50	0.95	2.97
088 (7/8")	0.250	1/4-28	0.50	0.624	-	0.93	-	0.75	0.75	0.18	5/8-18	0.50	0.95	2.94
106 (1 1/16")	0.312	5/16-24	0.50	0.624	0.25	1.12	0.12	0.88	0.88	0.24	5/8-18	0.62	1.17	3.25
125 (1 1/4")	0.437	7/16-20	0.75	0.749	0.38	1.32	0.25	1.06	1.06	0.25	3/4-16	0.88	1.62	4.00
150 (1 1/2")	0.437	7/16-20	0.75	0.749	0.38	1.56	0.25	1.25	1.25	0.25	3/4-16	0.88	1.50	3.69

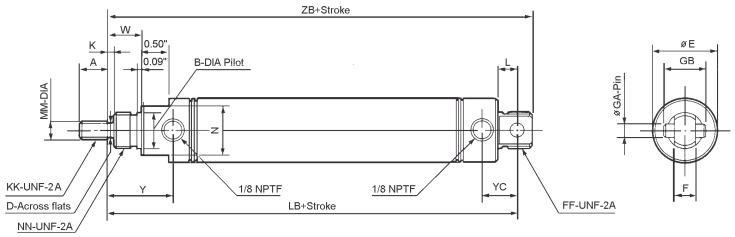
SERIES NCM

DIMENSIONS
DOUBLE ACTING / SINGLE ROD **SERIES NCM**
DOUBLE END MOUNTING NC(D)ME



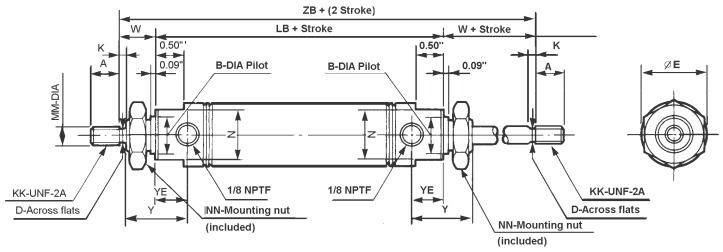
Bore (Inch)	MM	KK	A	B	D	E	F	G	K	L	LB	N	NN	W	Y	YC	ZB
075 (3/4")	0.250	1/4-28	0.50	0.624	-	0.86	0.38	0.251	-	0.34	3.75	0.75	5/8-18	0.50	0.95	0.62	4.03
088 (7/8")	0.250	1/4-28	0.50	0.624	-	0.93	0.38	0.251	-	0.34	3.56	0.75	5/8-18	0.50	0.95	0.62	3.84
106 (1 1/16")	0.312	5/16-24	0.50	0.624	0.25	1.12	0.38	0.251	0.12	0.34	3.84	0.88	5/8-18	0.62	1.17	0.62	4.12
125 (1 1/4")	0.437	7/16-20	0.75	0.749	0.38	1.32	0.50	0.251	0.25	0.41	4.72	1.06	3/4-16	0.88	1.62	0.78	5.12
150 (1 1/2")	0.437	7/16-20	0.75	0.749	0.38	1.56	-	-	0.25	0.63	-	1.25	3/4-16	0.88	1.50	0.91	4.75

DIMENSIONS
DOUBLE ACTING / SINGLE ROD **SERIES NCM**
REAR PIVOT MOUNTING NC(D)MC



Bore (Inch)	MM	KK	A	B	D	E	F	FF	GA	GB	K	L	LB	N	NN	W	Y	YC	ZB
075 (3/4")	0.250	1/4-28	0.50	0.624	-	0.86	0.38	5/8-18	0.250	0.75	-	0.34	3.75	0.75	5/8-18	0.50	0.95	0.62	4.03
088 (7/8")	0.250	1/4-28	0.50	0.624	-	0.93	0.38	5/8-18	0.250	0.75	-	0.34	3.56	0.75	5/8-18	0.50	0.95	0.62	3.84
106 (1 1/16")	0.312	5/16-24	0.50	0.624	0.25	1.12	0.38	5/8-18	0.250	0.75	0.12	0.34	3.84	0.88	5/8-18	0.62	1.17	0.62	4.12
125 (1 1/4")	0.437	7/16-20	0.75	0.749	0.38	1.32	0.50	5/8-18	0.250	0.75	0.25	0.41	4.72	1.06	3/4-16	0.88	1.62	0.78	5.12
150 (1 1/2")	0.437	7/16-20	0.75	0.749	0.38	1.56	0.62	-	0.375	1.00	0.25	0.50	4.38	1.25	3/4-16	0.88	1.50	0.78	4.75

DIMENSIONS
DOUBLE ACTING / DOUBLE ROD **SERIES NCM**

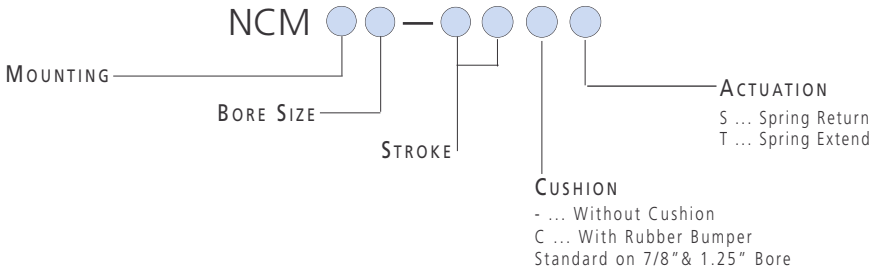


Bore (Inch)	MM	KK	A	B	D	E	K	LB	N	NN	W	Y	YE	ZB
075 (3/4")	0.250	1/4-28	0.50	0.624	-	0.86	-	3.00	0.75	5/8-18	0.50	0.95	0.45	4.00
088 (7/8")	0.250	1/4-28	0.50	0.624	-	0.93	-	2.91	0.75	5/8-18	0.50	0.95	0.45	3.91
106 (1 1/16")	0.312	5/16-24	0.50	0.624	0.25	1.12	0.12	2.75	0.88	5/8-18	0.62	1.05	0.55	4.00
125 (1 1/4")	0.437	7/16-20	0.75	0.749	0.38	1.32	0.25	3.81	1.06	3/4-16	0.88	1.37	0.74	5.56
150 (1 1/2")	0.437	7/16-20	0.75	0.749	0.38	1.56	0.25	3.38	1.25	3/4-16	0.88	1.25	0.62	5.12

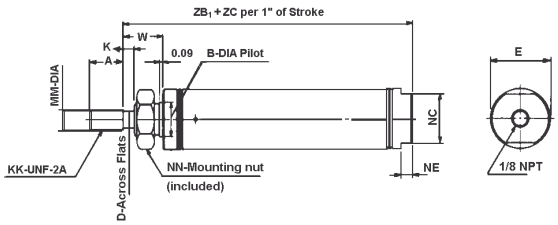
TECHNICAL SPECIFICATIONS
SINGLE ACTING - SPRING RETURN / SPRING EXTEND SERIES NCM

Bore Size (inch)	075 (3/4")	088 (7/8")	106 (1 1/6")	125 (1 1/4")	150 (1 1/2")
Fluid	Air				
Max Operating Pressure	1.75MPa / 250 PSI				
Min Operating Pressure	0.18MPa / 25 PSI				
Ambient and Fluid Temp	5~60°C / 40~140°F				
Piston Speed	50~500mm/s / 2 ~20 in/sec				
Bumper	Optional	Urethane (Std)	Optional	Urethane (Std)	Optional
Lubrication	Not required (Pre-lubricated at Factory)				
Stroke (inch)	1/2, 1, 1 1/2, 2, 3, 4 (Max 6)				

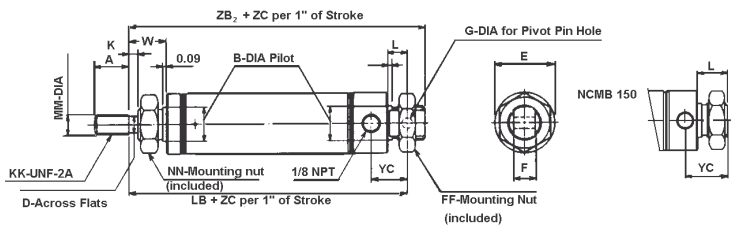
HOW TO ORDER
AIR CYLINDER SERIES NCM
SINGLE ACTING - SPRING RETURN / SPRING EXTEND



DIMENSIONS
FRONT NOSE MOUNTING / SPRING RETURN NCMB_-_S

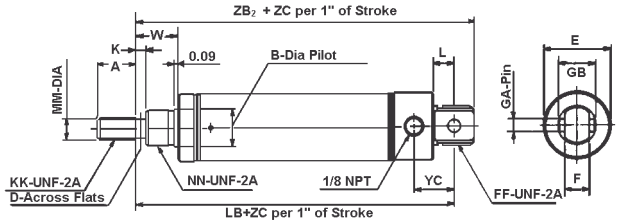


DIMENSIONS
DOUBLE END MOUNTING / SPRING RETURN NCME_-_S



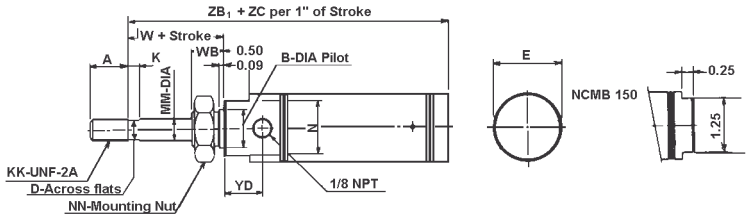
SERIES NCM

DIMENSIONS
REAR PIVOT MOUNTING / SPRING RETURN NCMC_-_S

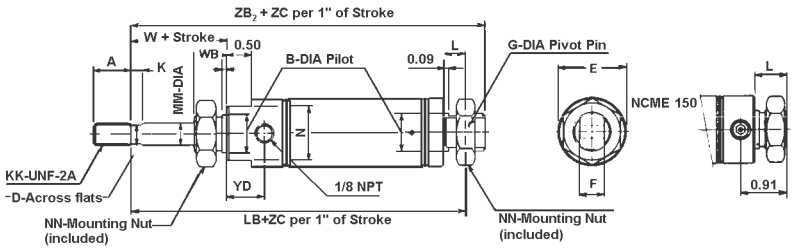


Bore (Inch)	MM	KK	A	B	D	E	F	FF	G	GA	GB	K	L	LB	NC	NE	NN	W	YC	ZB_1	ZB_2	ZB
075 (3/4")	0.250	1/4-28	0.50	0.496	-	0.86	0.38	5/8-18	0.251	0.250	0.75	-	0.34	2.28	0.62	0.12	1/2-20	0.44	0.62	1.50	2.56	1.69
088 (7/8")	0.250	1/4-28	0.50	0.624	-	0.93	0.38	5/8-18	0.251	0.250	0.75	-	0.34	2.47	0.75	0.18	5/8-18	0.50	0.62	1.84	2.75	1.56
106 (1 1/16")	0.312	5/16-24	0.50	0.624	0.25	1.12	0.38	5/8-18	0.251	0.250	0.75	0.12	0.34	2.66	0.88	0.24	5/8-18	0.62	0.62	2.06	2.94	1.56
125 (1 1/4")	0.437	7/16-20	0.75	0.749	0.38	1.32	0.50	3/4-16	0.251	0.250	0.75	0.25	0.41	3.38	1.06	0.25	3/4-16	0.88	0.78	2.66	3.78	1.81
150 (1 1/2")	0.437	7/16-20	0.75	0.749	0.38	1.56	0.62	-	-	0.375	1.00	0.25	0.50	3.12	1.25	0.25	3/4-16	0.88	0.78	2.44	3.50	1.69

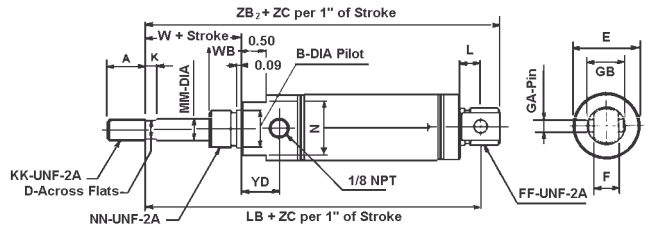
DIMENSIONS
FRONT NOSE MOUNTING / SPRING EXTEND NCMB_-_T



DIMENSIONS
DOUBLE END MOUNTING / SPRING EXTEND NCME_-_T



DIMENSIONS
REAR PIVOT MOUNTING / SPRING EXTEND NCMC_-_T



Bore (Inch)	MM	KK	A	B	D	E	F	FF	G	GA	GB	K	L	LB	N	NN	W	WB	YD	ZB_1	ZB_2	ZC
075 (3/4")	0.250	1/4-28	0.50	0.624	-	0.86	0.38	5/8-18	0.251	0.250	0.75	-	0.34	2.44	0.75	5/8-18	0.50	0.50	0.45	2.10	2.72	2.69
088 (7/8")	0.250	1/4-28	0.50	0.624	-	0.93	0.38	5/8-18	0.251	0.250	0.75	-	0.34	2.62	0.75	5/8-18	0.50	0.50	0.45	2.27	2.91	2.56
106 (1 1/16")	0.312	5/16-24	0.50	0.624	0.25	1.12	0.38	5/8-18	0.251	0.250	0.75	0.12	0.34	2.78	0.88	5/8-18	0.62	0.50	0.55	2.42	3.06	2.81
125 (1 1/4")	0.437	7/16-20	0.75	0.749	0.38	1.32	0.50	3/4-16	0.251	0.250	0.75	0.25	0.41	3.76	1.06	3/4-16	0.88	0.62	0.75	3.34	4.16	2.81
150 (1 1/2")	0.437	7/16-20	0.75	0.749	0.38	1.56	0.62	-	-	0.375	1.00	0.25	0.50	3.88	1.25	3/4-16	0.88	0.62	0.63	3.16	4.26	3.00

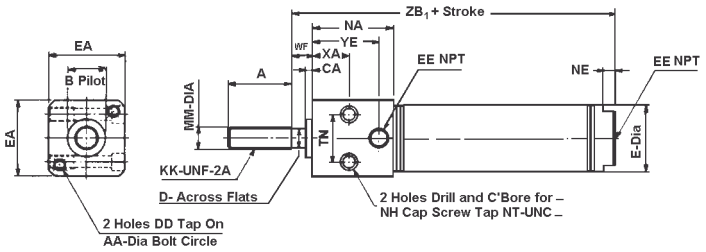
TECHNICAL SPECIFICATIONS
BLOCK TYPE MOUNT CYLINDER SERIES NCM

Bore Size (inch)	3/4" ; 1 1/16" ; 1 1/2"
Fluid	Air
Max Operating Pressure	1.75MPa / 250 PSI
Min Operating Pressure	Double Acting: 0.06MPa / 8 PSI Single Acting: 0.18MPa / 25 PSI
Ambient and Fluid Temp	5~60°C / 40~140°F
Piston Speed	50~500mm/s / 2 ~20 in/sec
Cushion	None

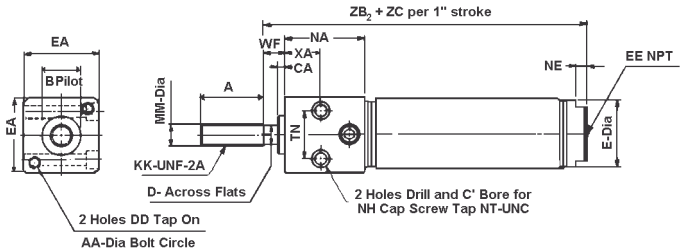
TECHNICAL SPECIFICATIONS
STANDARD STROKE LIST SERIES NCM

Type	Standard Stroke (inch)	Max Stroke
Double Acting	1/2, 1, 1 1/2, 2, 3, 4, 5, 6	12
Single Acting	1/2, 1, 1 1/2, 2, 3, 4	6

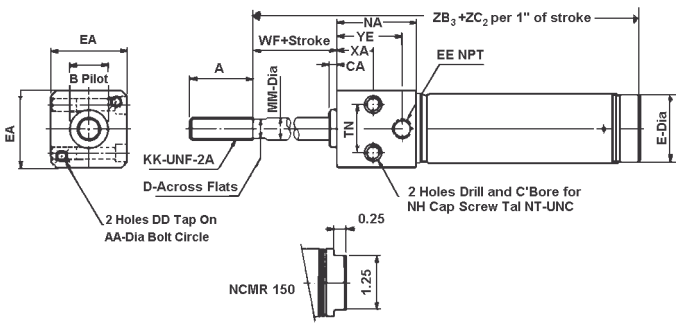
DIMENSIONS
DOUBLE ACTING NC(D)MR



DIMENSIONS
SINGLE ACTING / SPRING RETURN NC(D)MR_-_S



DIMENSIONS
SINGLE ACTING / SPRING EXTEND NC(D)MR_-_T



Bore (Inch)	MM	KK	A	AA	B	CA	D	DD	E	EA	EE	NA	NE	NH	NT	TN	WF	YE	XA	ZB_1	ZB_2	ZB_3	ZC_1	ZC_2
075 (3/4")	0.250	1/4-28	0.75	1.00	0.625	0.093	0.22	10-32 UNF	0.81	1.00	1/8	1.12	0.12	10-32 UNF	1/4-20	0.62	0.34	0.88	0.38	3.22	2.66	2.35	1.69	2.69
106 (1 1/16")	0.312	5/16-24	0.75	1.25	0.750	0.093	0.25	10-32 UNF	1.12	1.25	1/8	1.47	0.24	10-32 UNF	1/4-20	0.81	0.47	1.22	0.62	3.75	3.38	2.93	1.81	2.81
150 (1 1/2")	0.437	7/16-20	1.25	1.75	1.000	0.125	0.38	1/4-20UNF	1.56	1.75	1/4	1.93	0.25	1/4-20UNC	5/16-18	1.12	0.38	1.57	0.88	4.19	3.69	3.69	2.00	3.00

SERIES NCM

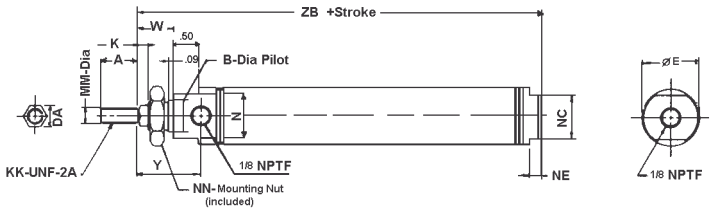
TECHNICAL SPECIFICATIONS
NON-ROTATING ROD CYLINDER SERIES NCM

Bore Size (inch)	3/4"	7/8"	1 1/16"	1 1/4"	1 1/2"
Fluid	Air				
Max Operating Pressure	1.75MPa / 250 PSI				
Min Operating Pressure	0.06MPa / 8 PSI				
Ambient and Fluid Temp	5~60°C / 40~140°F				
Piston Speed	50~500mm/s / 2 ~20 in/sec				
Rod Material	SUS303				
Cushion	None	Urethane(Std)	None	Urethane (Std)	None

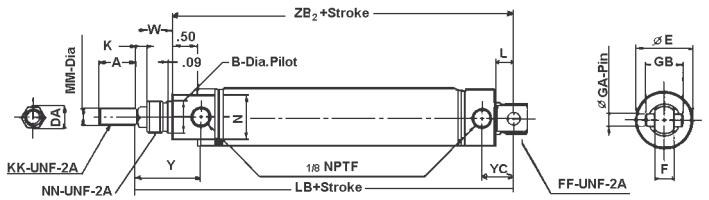
TECHNICAL SPECIFICATIONS
STANDARD STROKE LIST SERIES NCM

Type	Standard Stroke (inch)	Max Stroke
Front Nose	1/2, 1, 1 1/2, 2, 3, 5, 6	6
Double End	1/2, 1, 1 1/2, 2, 3, 4,	12
Rear Pivot	5, 6, 8, 10, 12	

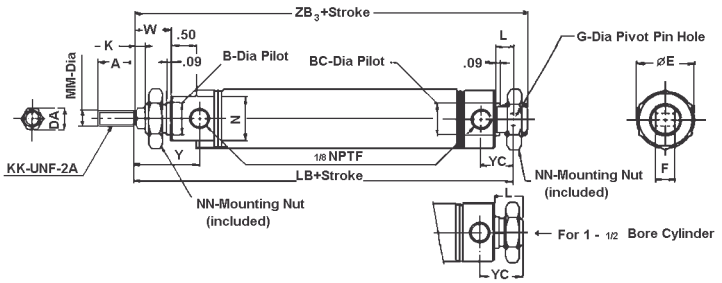
DIMENSIONS
FRONT NOSE MOUNTING NC(D)MKB



DIMENSIONS
REAR PIVOT MOUNTING NC(D)MKC

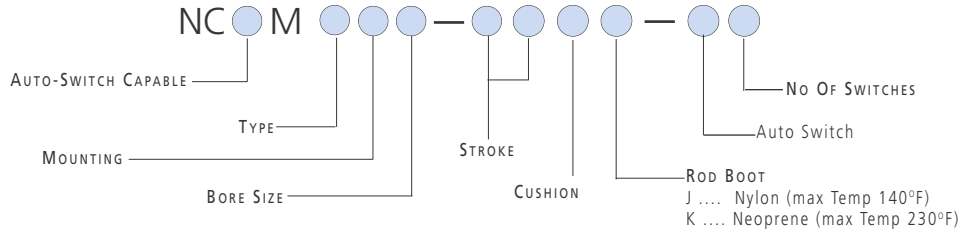


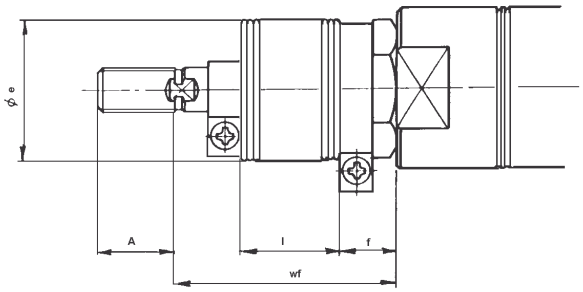
DIMENSIONS
DOUBLE END MOUNTING NC(D)MKE



Bore (Inch)	MM	KK	A	B	BC	DA	E	F	FF	G	GA	GB	K	L	LB	N	NC	NE	NN	W	Y	YC	ZB_1	ZB_2	ZB_3
075 (3/4")	0.250	1/4-28	0.50	0.624	0.624	0.25	0.86	0.38	5/8-18	.251	.250	.75	0.25	0.34	4	0.75	0.62	0.12	5/8-18	0.75	1.20	0.62	3.22	4.28	4.28
088 (7/8")	0.250	1/4-28	0.50	0.624	0.624	0.25	0.93	0.38	5/8-18	.251	.250	.75	0.25	0.34	3.55	0.75	0.75	0.18	5/8-18	0.75	1.20	0.62	3.19	3.83	3.83
106 (1 1/16")	0.312	5/16-24	0.50	0.624	0.624	0.38	1.12	0.38	5/8-18	.251	.250	.75	0.25	0.34	3.97	0.88	0.88	0.24	5/8-18	0.75	1.30	0.62	3.38	4.25	4.25
125 (1 1/4")	0.375	3/8-24	0.88	0.749	0.749	0.44	1.32	0.50	-	.251	-	-	0.25	0.41	4.46	1.06	1.06	0.25	3/4-16	0.88	1.62	0.78	4.00	5.06	5.06
150 (1 1/2")	0.375	3/8-24	0.88	0.874	0.749	0.44	1.56	-	-	-	.375	1	0.38	0.63	-	1.25	1.25	0.25	7/8-14	1.12	1.81	0.91	4.00	-	4.81

HOW TO ORDER SERIES NCM
DOUBLE ACTING CYLINDER / ROD BOOT





Bore				Wf										
(Inch)	A	øe	f	0~2	2.1~4	4.1~6	6.1~8	8.1~10	10.1~12	12.1~14	14.1~16	16.1~20	20.1~24	24.1~28
3/4"	0.50	1.18	0.51	1.81	2.31	2.81	3.31	3.81	4.31	4.81	5.31	-	-	-
7/8"	0.50	1.18	0.51	1.81	2.31	2.81	3.31	3.81	4.31	4.81	5.31	-	-	-
1 1/16"	0.50	1.18	0.51	1.81	2.31	2.81	3.31	3.81	4.31	4.81	5.31	-	-	-
1 1/4"	0.75	1.38	0.55	1.94	2.44	2.94	3.44	3.94	4.44	4.94	5.44	6.44	7.44	8.44
1 1/2"	0.75	1.38	0.55	1.94	2.44	2.94	3.44	3.94	4.44	4.94	5.44	6.44	7.44	8.44

Bore	ℓ										
(Inch)	0~2	2.1~4	4.1~6	6.1~8	8.1~10	10.1~12	12.1~14	14.1~16	16.1~20	20.1~24	24.1~28
3/4"	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	-	-	-
7/8"	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	-	-	-
1 1/16"	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	-	-	-
1 1/4"	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	5.00	6.00	7.00
1 1/2"	0.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00	5.00	6.00	7.00

TECHNICAL SPECIFICATIONS SERIES NCM
HIGH TEMPERATURE - XB6 OPTION

Bore Size (inch)	075 (3/4")	088 (7/8")	106 (1 1/6")	125 (1 1/4")	150 (1 1/2")
Fluid	Air				
Max Operating Pressure	1.75MPa / 250 PSI				
Min Operating Pressure	0.06MPa / 8 PSI				
Ambient and Fluid Temp	-20~150°C / -4~300°F				
Piston Speed	50~500mm/s / 2 ~20 in/sec				
Cushion	None				
Action	Double Acting				
Auto Switch Capable	No				

TECHNICAL SPECIFICATIONS
STANDARD STROKE LIST SERIES NCM

Mounting	Standard Stroke (inch)	Maximum Stroke
Front Nose	1/2, 1, 1 1/2, 2, 3, 4, 5, 6	6
Double End Rear Pivot	1/2, 1, 1 1/2, 2, 3, 5, 6, 8, 10, 12	12

SERIES NCM

TECHNICAL SPECIFICATIONS SERIES NCM
LOW TEMPERATURE - XB7 OPTION

Bore Size (inch)	075 (3/4")	088 (7/8")	106 (1 1/6")	125 (1 1/4")	150 (1 1/2")
Fluid	Air				
Max Operating Pressure	1.75MPa / 250 PSI				
Min Operating Pressure	0.06MPa / 8 PSI				
Ambient and Fluid Temp	-30~70°C / -22~158°F				
Piston Speed	50~500mm/s / 2 ~20 in/sec				
Cushion	None				
Action	Double Acting				
Auto Switch Capable	No				

TECHNICAL SPECIFICATIONS STANDARD STROKE LIST SERIES NCM

Mounting	Standard Stroke linch)	Maximum Stroke
Front Nose	1/2, 1, 1 1/2, 2, 3, 4, 5, 6	6
Double End Rear Pivot	1/2, 1, 1 1/2, 2, 3, 5, 6, 8, 10, 12	12

TECHNICAL SPECIFICATIONS SERIES NCM
LOW FRICTION / SPEED - XB9 OPTION

Bore Size (inch)	075 (3/4")	088 (7/8")	106 (1 1/6")	125 (1 1/4")	150 (1 1/2")
Fluid	Air				
Max Operating Pressure	1.75MPa / 250 PSI				
Min Operating Pressure	0.06MPa / 8 PSI				
Ambient and Fluid Temp	5~60°C / 40~140°F				
Piston Speed	50~500mm/s / 2 ~20 in/sec				
Cushion	None	Urethane	None	Urethane	None
Action	Double Acting				
Rod Material	SUS304				
Auto Switch Capable	Yes				

TECHNICAL SPECIFICATIONS STANDARD STROKE LIST SERIES NCM

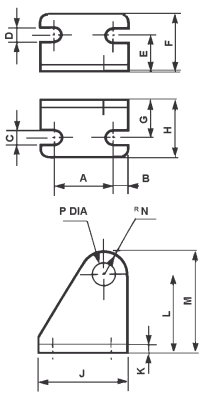
Mounting	Standard Stroke linch)	Maximum Stroke
Front Nose	1/2, 1, 1 1/2, 2, 3, 4, 5, 6	6
Double End Rear Pivot	1/2, 1, 1 1/2, 2, 3, 5, 6, 8, 10, 12	12

TECHNICAL SPECIFICATIONS SERIES NCM
STAINLESS STEEL ROD - XC6 OPTION

Bore Size (inch)	1 1/16"	1 1/4"	1 1/2"
Fluid	Air		
Max Operating Pressure	1.75MPa / 250 PSI		
Min Operating Pressure	0.06MPa / 8 PSI		
Ambient and Fluid Temp	-23~74°C / -10~165°F		
Piston Speed	50~500mm/s / 2 ~20 in/sec		
Cushion	None	Urethane	None
Rod Material	SUS304		
Auto Switch Capable	Yes		

TECHNICAL SPECIFICATIONS STANDARD STROKE LIST SERIES NCM

Mounting	Standard Stroke linch)
Front Nose	1/2, 1, 1 1/2, 2, 3, 4, 5, 6
Double End Rear Pivot	1/2, 1, 1 1/2, 2, 3, 5, 6, 8, 10, 12

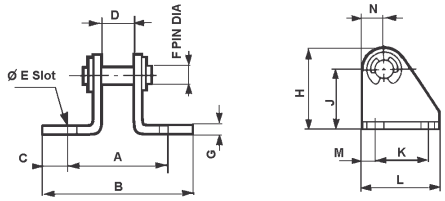


ACCESSORIES **SERIES NCM**
PIVOT BRACKET (REAR PIVOT) NCMC

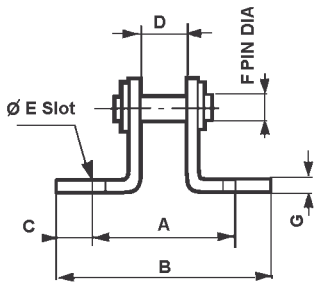
Part No	Applicable Bore	A	B	C	D	E	F	G	H	J	K	L	M	N	øP
NCM-PC075	3/4"; 7/8"; 1 1/16"; 1 1/4"	0.75	0.18	0.27	0.27	0.44	0.79	0.44	0.79	1.10	0.12	0.88	1.18	0.31	0.255
NCM-PC150	1 1/2"	1	0.25	0.27	0.27	0.62	0.98	0.62	0.98	1.50	0.12	1.38	1.75	0.38	0.38

ACCESSORIES **SERIES NCM**
PIVOT BRACKET (END MOUNT) NCME

Part No	Applicable Bore	A	B	C	D	øE	F	G	H	J	K	L	M	N
NCM-PE075	3/4"; 7/8"; 1 1/16"	1.25	1.95	0.35	0.38	0.27	0.25	0.12	1.18	0.88	0.75	1.10	0.18	0.31
NCM-PE125	1 1/4"; 1 1/2"	1.38	2.08	0.35	0.50	0.27	0.25	0.12	1.18	0.88	0.75	1.10	0.18	0.31

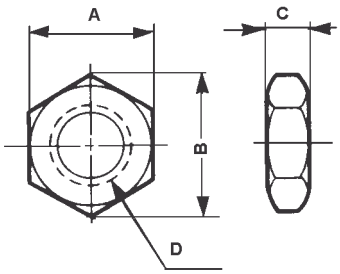


ACCESSORIES
SERIES NCM
PIVOT BRACKET (DOUBLE END) NCME



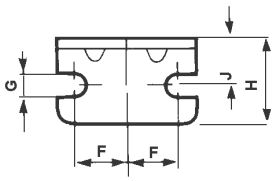
Part No	Applicable Bore	A	B	C	D	øE	F	G	H	J	K	L	M	N
NCM-PE075	3/4"; 7/8"; 1 1/16"	1.25	1.95	0.35	0.38	0.27	0.25	0.12	1.18	0.88	0.75	1.10	0.18	0.31
NCM-PE150	1 1/4"; 1 1/2"	1.38	2.08	0.35	0.50	0.27	0.25	0.12	1.18	0.88	0.75	1.10	0.18	0.31

ACCESSORIES
SERIES NCM
MOUNTING NUTS (NOSE MOUNT THREAD)

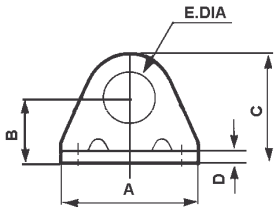


Part No	Applicable Bore	A	B	C	D
JM-08	3/4"; 7/8"; 1 1/16"	0.94	1.08	0.38	5/8-18 UNF
JM-10	1 1/4"; 1 1/2"	1.12	1.30	0.42	3/4-16 UNF

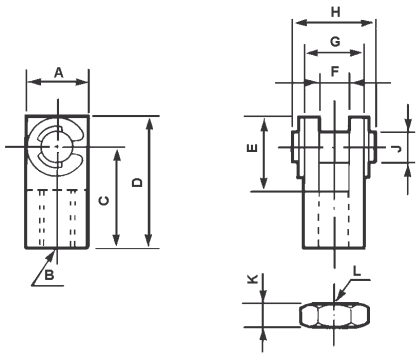
ACCESSORIES
SERIES NCM
FOOT BRACKET



Part No	Applicable Bore	A	B	C	D	E	F	G	H	J
NCM-L075	3/4"; 7/8"; 1 1/16"	1.89	0.81	1.36	0.12	0.63	0.75	0.27	0.98	0.56
NCM-L150	1 1/4"; 1 1/2"	2.52	1.00	1.75	0.12	0.75	0.94	0.27	1.50	0.75
NCM-K150	1 1/4"; 1 1/2"	2.52	1.00	1.75	0.12	0.88	0.94	0.27	1.50	0.75

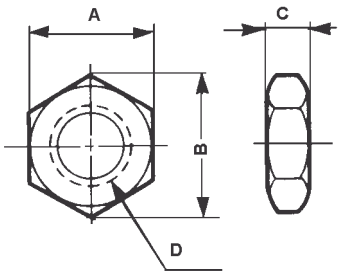


ACCESSORIES
SERIES NCM
ROD CLEVIS



Part No	Applicable Bore	A	B	C	D	E	F	G	H	J	K	L
NY-075	3/4"; 7/8"	0.51	1/4-28	0.94	1.18	0.69	0.25	0.51	0.71	0.25	0.16	1/4-28
NY-106	1 1/16	0.51	5/16-24	0.94	1.18	0.69	0.25	0.51	0.71	0.25	0.19	5/16-24
NY-125	1 1/4"; 1 1/2"	0.75	7/16-20	1.31	1.69	0.94	0.38	0.75	1.02	0.38	0.25	7/16-20

ACCESSORIES
SERIES NCM
JAM NUT (ROD THREAD)



Part No	Applicable Bore	A	B	C	D
JM-025	3/4"; 7/8"	0.44	0.51	0.16	1/4-28 UNF
JM-03	1 1/16	0.50	0.50	0.19	5/16-24 UNF
JM-045	1 1/4"; 1 1/2"	0.69	0.79	0.26	7/16-20 UNF

SERIES CA1

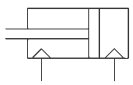
AIR CYLINDER SERIES CA1

- Auto switch sensing optional
- Bore sizes Ø40, 50, 63, 80, 100
- Non-rotating piston rod & double rod types available
- Ultra low friction, maximum 5%
- Long life, high efficiency
- Hard anodized barrel
- Locking/finelock head available (Series CLA)
- High impact resistant anodized barrel

TECHNICAL SPECIFICATIONS

Type (Bore sizes Ø40, 50, 63)	Standard	Double Rod	Non Rotating Piston Rod	
Fluid	Air	Air	Air	
Lubrication	Non-lube	Non-lube	Non-lube	
Proof pressure	1.5MPa	1.5MPa	1.5MPa	(213PSI)
Max. operating pressure	0.99MPa	0.99MPa	0.99MPa	(141PSI)
Min. operating pressure	0.05MPa	0.08MPa	0.05MPa	(7PSI)
Ambient & fluid temperature	5~60°c	5~60°c	5~60°c	(40~140°F)
Piston speed	50~500mm/s	50~500mm/s	50~500mm/s	(2~20in/s)
Stroke tolerance	~250 $^{st\ +1.0}_{0}$ 251~1.000 $^{st\ +1.4}_{0}$ 1.001~1.500 $^{st\ +1.8}_{0}$	~250 $^{st\ +1.0}_{0}$ 251~750 $^{st\ +1.4}_{0}$	~250 $^{st\ +1.0}_{0}$ Ø40:251~500 $^{st\ +1.4}_{0}$ Ø50, Ø63:251~600 $^{st\ +1.4}_{0}$	
Mounting	Basic, foot, flange, single & double clevis center trunnion	Basic, foot, front flange, center trunnion	Basic, foot, front flange, rear flange, single clevis, rear trunnion	
Non-rotating accuracy	n/a	n/a	±0.50°	
Allowable rotational torque	n/a	n/a	4.5kgf/cm	

SYMBOLS



Double acting

HOW TO ORDER SERIES CA1 AIR CYLINDER

C ○ A1 ○ ○ N ○ — ○ ○ — ○ ○

MAGNETIC PISTON OPTION
- ……Basic
D ……With Magnetic Piston

PISTON ROD OPTION
K ……Non-Rotating Cylinder (Ø40, Ø50, Ø63)
W ……Double Rod
- ……Single Rod

MOUNTING
B ……Basic
C ……Single Detachable Rear Clevis
D ……Detachable Rear Clevis
F ……Front Flange Mounting
G ……Rear Flange Mounting
L ……Foot Mounting
T ……Trunnion

BORE SIZE
40 …40mm
50 …50mm
63 …63mm
80 …80mm
100 …100mm

STANDARD STROKE

Bore size (mm)	Standard stroke (mm)
40	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500
50	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600
63	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600
80	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700
100	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700

SUFFIX SYMBOL FOR CYLINDER

Gaiter
J ……Nylon tarpaulin
K ……Neoprene cloth

Cushion
R ……Head end
H ……Rod end
- ……Both end
N ……None

APPLICABLE AUTO SWITCHES
See Accessories Section

NO OF SWITCHES
- ……2 Pieces
S ……1 Piece

ACCESSORIES
SERIES CA1 AIR CYLINDER

Mounting Accessories	Accessories				
	40	50	63	80	100
Foot (2 pieces)	CA1-L04	CA1-L05	CA1-L06	CA1-L08	CA1-L10
Flange	CA1-F04	CA1-F05	CA1-F06	CA1-F08	CA1-F10
Double rear Clevis	CA1-D04	CA1-D05	CA1-D06	CA1-D08	CA1-D10
Single rear clevis	CA1-C04	CA1-C05	CA1-C06	CA1-C08	CA1-C10
Single rod clevis	I-04	I-05	I-05	I-08	I-10
Double rod Clevis	Y-04C	Y-05C	Y-05C	Y-08C	Y-10C
Rear off-set mounting bracket	CA1-B04	CA1-B05	CA1-B06	CA1-B08	CA1-B10
Floating joint	JA40-14-150	JA 63–18–150	JA 63–18–150	JA80–22–150	JA100–26–150
Piston rod nut	NT-04	NT-05	NT-05	NT-08	NT-10
Seal kit (NBR)	CAIN40A-PS	CAIN50A-PS	CAIN63A-PS	CAIN80A-PS	CAIN100-PS

ACCESSORIES
TRUNNION

A trunnion type must be ordered as part of the cylinder assembly by substituting 'T' for 'B' and specify position.

ACCESSORIES
SWITCH BANDS

BA04 – 40Ø
BA05 – 50Ø
BA06 – 63Ø
BA08 – 80Ø
BA10 – 100Ø

ACCESSORIES
TIE ROD MOUNTS

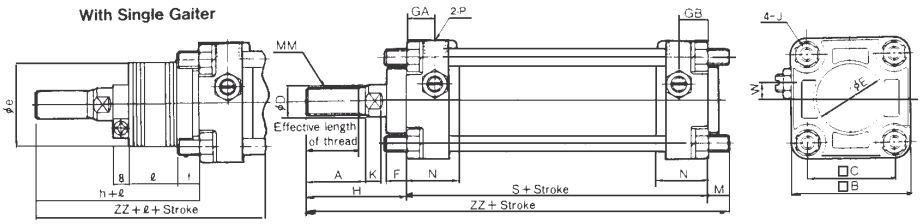
BT-03 .....(32/40Ø)
BT-04 .....(50/63Ø)
BT-06 .....(80/100Ø)

ACCESSORIES
AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available

Switch Type	Lead wire entry	Model	Power Source	Load voltage	Load current	Lead wire length	Indicator lamp
2 wire Tie rod mount Reed	Grommet	D–A53L	-	24v DC	5–50 mA	3 metre	LED
2 wire Tie rod mount reed	Grommet	D–A54L	-	24v DC 100v AC 200v AC	5–50 mA 5–25 mA 5–12.5 mA	3 metre	LED
2 wire Band mount reed	Grommet	D–B53L	-	24v DC	5–50mA	3 metre	LED
2 wire Band mount reed	Grommet	D–B54L	-	24v DC 100v AC 200v AC	5–50 mA 5-25 mA 5–12.5 mA	3 metre	LED
3 wire Solid state NPN tie rod	Grommet	D–F59L	5, 12, 24v DC	28v DC or less	40 mA or less	3 metre	LED
3 wire Solid state PNP tie rod	Grommet	D–F5PL	5, 12, 24v DC	–	80 mA or less	3 metre	LED
2 wire Solid State tie rod	Grommet	D–J5IL	-	80-260v AC	5-80mA	3 metre	LED
2 wire Solid State tie rod	Grommet	D–J59L	-	10-28v DC	5-40mA	3 metre	LED
2 wire Solid State Band Mount	Grommet	D–K59L	-	10-28v DC	5-40mA	3 metre	LED
2 wire Band mount reed	Plug Conduit entry	D–A34	-	24v DC 100v AC 200v AC	5-50mA 5-25mA 5-12.5mA	-	LED
2 wire Band mount reed	DIN plug cable entry	D–A44	-	24v DC 100v AC 200v AC	5-50mA 5-25mA 5-12.5mA	-	LED

DIMENSIONS
MOUNTING BASIC CYLINDER C□A1B

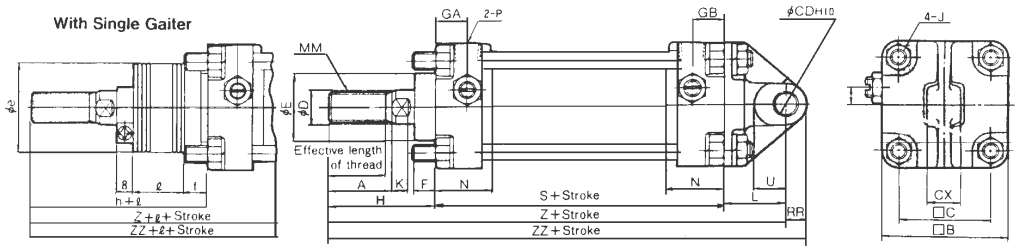


+ = Stroke addition

Bore size (mm)	Stroke range (mm)		Effective length of thread	A	❑ B	❑ C	øD	øE	F	GA	GB	J	K	M	MM	N	P	S	W
	Without gaiter	with gaiter																	
40	~ 500	20 ~ 500	27	30	60	44	16	32	10	15	15	M 8 x 1.25	6	11	M 14 x 1.5	27	1/4	84	8
50	~ 600	20 ~ 600	32	35	70	52	20	40	10	17	17	M 8 x 1.25	7	11	M 18 x 1.5	30	3/8	90	0
63	~ 600	20 ~ 600	32	35	85	64	20	40	10	17	17	M 10 x 1.25	7	14	M 18 x 1.5	31	3/8	98	0
80	~ 750	20 ~ 750	37	40	102	78	25	52	14	21	21	M 12 x 1.75	11	17	M 22 x 1.5	37	1/2	116	0
100	~ 750	20 ~ 750	37	40	116	92	30	52	14	21	21	M 12 x 1.75	11	17	M 26 x 1.5	40	1/2	126	0

Bore (mm)	Without Gaiter		With Gaiter				
	H	ZZ	øe	f	h	l	ZZ
40	51	146	65	15	59	1/4 Stroke	154
50	58	159	75	15	66		167
63	58	170	75	15	66		178
80	71	204	80	15	80		213
100	72	215	90	15	81		224

DIMENSIONS
REAR MALE CLEVIS - SINGLE CLEVIS C□A1C (BASIC CYLINDER + CA1–C●● FITTED)



+ = Stroke addition

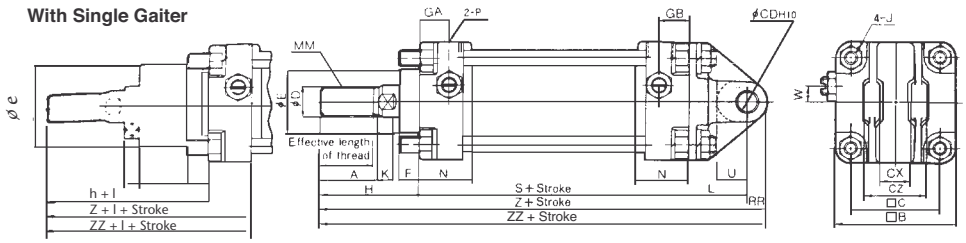
Bore size (mm)	Stroke range (mm)		Effective length of thread	A	❑ B	❑ C	øD	øE	F	GA	GB	J	K	MM	N	P	S	W
	Without gaiter	with gaiter																
40	**~ 500**	**20 ~ 500**	**27**	**30**	**60**	**44**	**16**	**32**	**10**	**15**	**15**	**M 8 x 1.25**	**6**	**M 14 x 1.5**	**27**	**1/4**	**84**	**8**
50	**~ 600**	**20 ~ 600**	**32**	**35**	**70**	**52**	**20**	**40**	**10**	**17**	**17**	**M 8 x 1.25**	**7**	**M 18 x 1.5**	**30**	**3/8**	**90**	**0**
63	**~ 600**	**20 ~ 600**	**32**	**35**	**85**	**64**	**20**	**40**	**10**	**17**	**17**	**M 10 x 1.25**	**7**	**M 18 x 1.5**	**31**	**3/8**	**98**	**0**
80	**~ 750**	**20 ~ 750**	**37**	**40**	**102**	**78**	**25**	**52**	**14**	**21**	**21**	**M 12 x 1.75**	**11**	**M 22 x 1.5**	**37**	**1/2**	**116**	**0**
100	**~ 750**	**20 ~ 750**	**37**	**40**	**116**	**92**	**30**	**52**	**14**	**21**	**21**	**M 12 x 1.75**	**11**	**M 26 x 1.5**	**40**	**1/2**	**126**	**0**

Bore size (mm)					Without gaiter			With gaiter					
	PR	U	ØCD^{H10}	CX	H	Z	ZZ	Øe	f	h	l	Z	ZZ
40	10	16	$10^{+0.058}_{0}$	$15.0^{-0.1}_{-0.3}$	51	165	175	43	11.2	59	1/4 stroke	173	183
50	12	19	$12^{+0.070}_{0}$	$18.0^{-0.1}_{-0.3}$	58	183	195	52	11.2	66	1/4 stroke	191	203
63	16	23	$16^{+0.070}_{0}$	$25.0^{-0.1}_{-0.3}$	58	196	212	52	11.2	66	1/4 stroke	204	220
80	20	28	$20^{+0.084}_{0}$	$31.5^{-0.1}_{-0.3}$	71	235	255	65	12.5	80	1/4 stroke	244	264
100	25	36	$25^{+0.084}_{0}$	$35.5^{-0.1}_{-0.3}$	72	256	281	65	14.0	81	1/4 stroke	265	290

MORE DIMENSIONS SEE NEXT PAGE ☞

DIMENSIONS
DOUBLE REAR CLEVIS C□A1D (BASIC CYLINDER WITH CA1–D●● FITTED)

With Single Gaiter



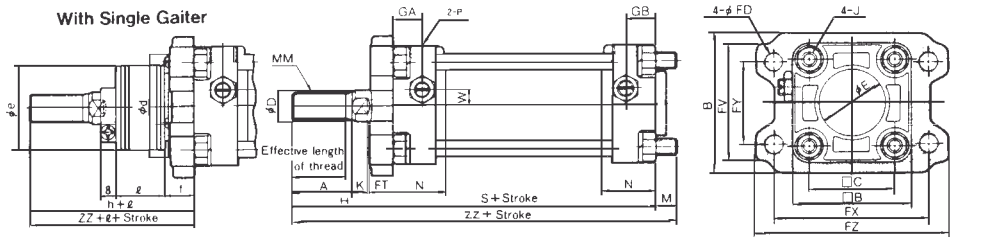
+ = Stroke addition

Bore size (mm)	Stroke range (mm)		Effective length of thread	A	❑ B	❑ C	øD	øE	F	GA	GB	J	K	MM	N	P	S	W
	Without gaiter	with gaiter																
40	~ 500	20 ~ 500	27	30	60	44	16	32	10	15	15	M 8 x 1.25	6	M 14 x 1.5	27	1/4	84	8
50	~ 600	20 ~ 600	32	35	70	52	20	40	10	17	17	M 8 x 1.25	7	M 18 x 1.5	30	3/8	90	0
63	~ 600	20 ~ 600	32	35	85	64	20	40	10	17	17	M 10 x 1.25	7	M 18 x 1.5	31	3/8	98	0
80	~ 750	20 ~ 750	37	40	102	78	25	52	14	21	21	M 12 x 1.75	11	M 22 x 1.5	37	1/2	116	0
100	~ 750	20 ~ 750	37	40	116	92	30	52	14	21	21	M 12 x 1.75	11	M 26 x 1.5	40	1/2	126	0

Bore size (mm)	PR	U	ØCD H10	CX	CZ	Without gaiter			With gaiter					
						H	Z	ZZ	*øe	f	h	ℓ	z	zz
40	10	16	10 +0.058 0	15.0 +0.3 +0.1	29.5	51	165	175	43	11.2	59	1/4 Stroke	173	183
50	12	19	12 +0.070 0	18.0 +0.3 +0.1	38	58	183	195	52	11.2	66	1/4 Stroke	191	203
63	16	23	16 +0.070 0	25.0 +0.3 +0.1	49	58	196	212	52	11.2	66	1/4 Stroke	204	220
80	20	28	20 +0.084 0	31.5 +0.3 +0.1	61	71	235	255	65	12.5	80	1/4 Stroke	244	264
100	25	36	25 +0.084 0	35.5 +0.3 +0.1	64	72	256	281	65	14.5	81	1/4 Stroke	265	290

DIMENSIONS
FRONT FLANGE C□A1F (BASIC CYLINDER WITH CA1–F●● FITTED)

With Single Gaiter



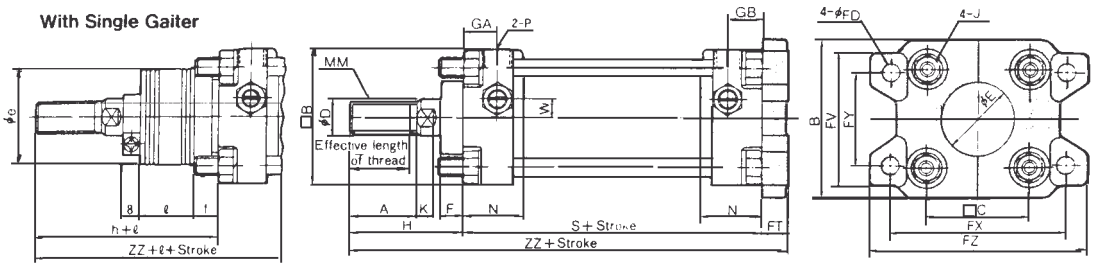
+ = Stroke addition

Bore size (mm)	Stroke range (mm)		Effective length of thread	A	❑ B	❑ C	øD	øE	GA	GB	J	K	M	MM	N	P	S	W
	Without gaiter	with gaiter																
40	~ 800	20 ~ 800	27	30	60	44	16	32	15	15	M 8 x 1.25	6	11	M 14 x 1.5	27	1/4	84	8
50	~ 1000	20 ~ 1000	32	35	70	52	20	40	17	17	M 8 x 1.25	7	11	M 18 x 1.5	30	3/8	90	0
63	~ 1000	20 ~ 1000	32	35	85	64	20	40	17	17	M 10 x 1.25	7	14	M 18 x 1.5	31	3/8	98	0
80	~ 1000	20 ~ 1000	37	40	102	78	25	52	21	21	M 12 x 1.75	11	17	M 22 x 1.5	37	1/2	116	0
100	~ 1000	20 ~ 1000	37	40	116	92	30	52	21	21	M 12 x 1.75	11	17	M 26 x 1.5	40	1/2	126	0

Bore Size (mm)	FV	øFD	FT	FX	FY	FZ	Without gaiter		With gaiter					
							H	ZZ	* ød	øe	f	h	ℓ	ZZ
40	60	9.0	12	80	42	100	51	146	52	43	15	59	1/4 stroke	154
50	70	9.0	12	90	50	110	58	159	58	52	15	66		167
63	86	11.5	15	105	59	130	58	170	58	52	17.5	66		178
80	102	13.5	18	130	76	160	71	204	80	65	21.5	80		213
100	116	13.5	18	150	92	180	72	215	80	65	21.5	81		224

DIMENSIONS
REAR FLANGE C□A1G (BASIC CYLINDER WITH CA1-F●● FITTED)

With Single Gaiter



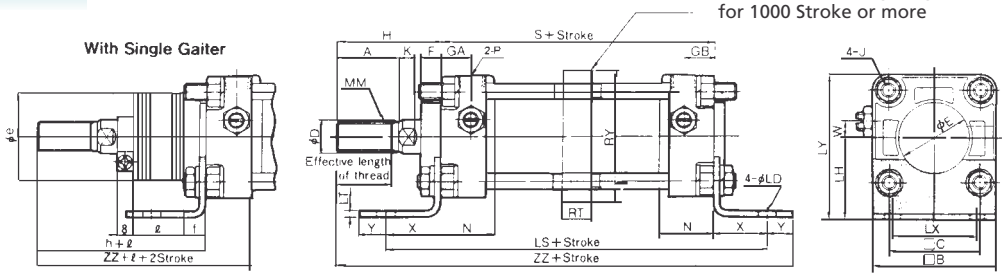
Bore size (mm)	Stroke range (mm)		Effective length of thread	A	B	❑ B	❑ C	øD	øE	F	GA	GB	J	K	MM	N	P	S	W
	Without gaiter	with gaiter																	
40	~ 500	20 ~ 500	27	30	71	60	44	16	32	10	15	15	M 8 x 1.25	6	M 14 x 1.5	27	1/4	84	8
50	~ 600	20 ~ 600	32	35	81	70	52	20	40	10	17	17	M 8 x 1.25	7	M 18 x 1.5	30	3/8	90	0
63	~ 600	20 ~ 600	32	35	101	85	64	20	40	10	17	17	M 10 x 1.25	7	M 18 x 1.5	31	3/8	98	0
80	~ 750	20 ~ 750	37	40	119	102	78	25	52	14	21	21	M 12 x 1.75	11	M 22 x 1.5	37	1/2	116	0
100	~ 750	20 ~ 750	37	40	133	116	92	30	52	14	21	21	M 12 x 1.75	11	M 26 x 1.5	40	1/2	126	0

Bore Size (mm)	FV	øFD	FT	FX	FY	FZ	Without gaiter		With gaiter				
							H	ZZ	øe	f	h	ℓ	ZZ
40	60	9.0	12	80	42	100	51	147	43	11.2	59	1/4 stroke	155
50	70	9.0	12	90	50	110	58	160	52	11.2	66		168
63	86	11.5	15	105	59	130	58	171	52	11.2	66		179
80	102	13.5	18	130	76	160	71	205	65	12.5	80		214
100	116	13.5	18	150	92	180	72	216	65	14.0	81		225

DIMENSIONS
FOOT MOUNT - C□A1L (BASIC CYLINDER WITH CA1-L●● FITTED)

Tie-Rod Reinforcing Ring/Available for 1000 Stroke or more

With Single Gaiter



Bore size (mm)	Stroke range (mm)		Effective length of thread	A	❑ B	❑ C	øD	øE	F	GA	GB	J	K	MM	N	P	S	W
	Without gaiter	with gaiter																
40	~ 500	20 ~ 500	27	30	60	44	16	32	10	15	15	M 8 x 1.25	6	M 14 x 1.5	27	1/4	84	8
50	~ 600	20 ~ 600	32	35	70	52	20	40	10	17	17	M 8 x 1.25	7	M 18 x 1.5	30	3/8	90	0
63	~ 600	20 ~ 600	32	35	85	64	20	40	10	17	17	M 10 x 1.25	7	M 18 x 1.5	31	3/8	98	0
80	~ 750	20 ~ 750	37	40	102	78	25	52	14	21	21	M 12 x 1.75	11	M 22 x 1.5	37	1/2	116	0
100	~ 750	20 ~ 750	37	40	116	92	30	52	14	21	21	M 12 x 1.75	11	M 26 x 1.5	40	1/2	126	0

Bore size (mm)	X	Y	øLD	LH	LS	LT	LX	LY	Without gaiter		With gaiter				
									H	ZZ	øe	f	h	ℓ	ZZ
40	27	13	9.0	40	138	3.2	42	70	51	175	43	11.2	59	1/4 stroke	183
50	27	13	9.0	45	144	3.2	50	80	58	188	52	11.2	66		196
63	34	16	11.5	50	166	3.2	59	93	58	206	52	11.2	66		214
80	44	16	13.5	65	204	4.5	76	116	71	247	65	12.5	80		256
100	43	17	13.5	75	212	6.0	92	133	72	258	65	14.0	81		267

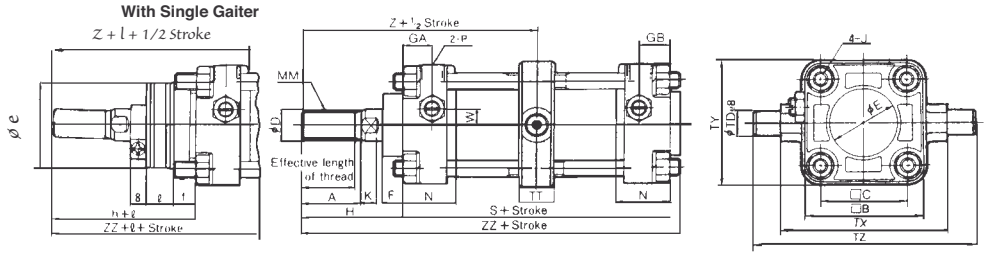
Long Strokes

Bore Size (mm)	Stroke range (mm)	RT	RY
40	501 ~ 800	-	-
50	601 ~ 1200	30	76
63	601 ~ 1200	40	92
80	751 ~ 1400	45	112
100	751 ~ 1500	50	136

MORE DIMENSIONS SEE NEXT PAGE ☞

DIMENSIONS
TRUNNION - C□A1T

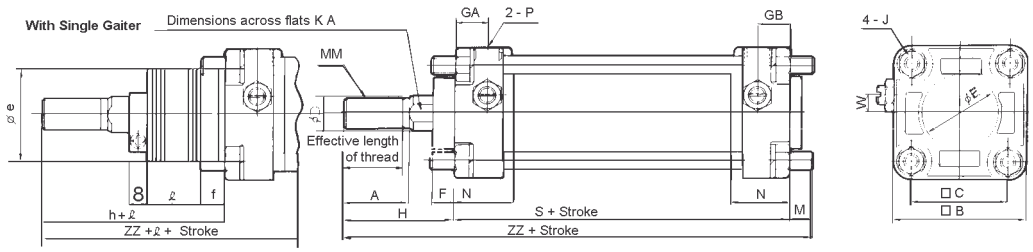
With Single Gaiter



Bore size (mm)	Stroke range (mm) Without gaiter	with gaiter	Effective length of thread	A	❑ B	❑ C	øD	øE	F	GA	GB	J	K	MM	N	P	S	W
40	~ 500	20 ~ 500	27	30	60	44	16	32	10	15	15	M 8 x 1.25	6	M 14 x 1.5	27	1/4	84	8
50	~ 600	20 ~ 600	32	35	70	52	20	40	10	17	17	M 8 x 1.25	7	M 18 x 1.5	30	3/8	90	0
63	~ 600	20 ~ 600	32	35	85	64	20	40	10	17	17	M 10 x 1.25	7	M 18 x 1.5	31	3/8	98	0
80	~ 750	20 ~ 750	37	40	102	78	25	52	14	21	21	M 12 x 1.75	11	M 22 x 1.5	37	1/2	116	0
100	~ 750	20 ~ 750	37	40	116	92	30	52	14	21	21	M 12 x 1.75	11	M 26 x 1.5	40	1/2	126	0

Bore Size (mm)	øTDe8		TT	TX	TY	TZ	Without gaiter H	Z	ZZ	With gaiter * øe	f	h	ℓ	Z	ZZ
40	15	-0.032 -0.059	22	85	62	117	51	93	140	43	11.2	59	1/4 Stroke	101	148
50	15	-0.032 -0.059	22	95	74	127	58	103	154	52	11.2	66		111	162
63	18	-0.032 -0.059	28	110	90	148	58	107	162	52	11.2	66		115	170
80	25	-0.040 -0.073	34	140	110	192	71	129	194	65	12.5	80		138	203
100	25	-0.040 -0.073	40	162	130	214	72	135	206	65	14.5	81		144	215

DIMENSIONS
NON ROTATE BASIC MOUNTING - C□A1KB

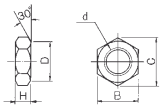


Bore size (mm)	Stroke range (mm) No gaiter	Gaiter	Effective length of thread	A	B	C	ØD	ØE	F	GA	GB	J	KA	MM	N	P	S	W
40	~500	20~500	27	30	60	44	16	32	10	15	15	M8x1.25	14	M14x1.5	27	1/4	84	8
50	~600	20~600	32	35	70	52	20	40	10	17	17	M8x1.25	18	M18x.5	30	3/8	90	0
63	~600	20~600	3	35	85	64	20	40	10	17	17	M10x1.25	18	M18x1.5	31	3/8	98	0

Bore size (mm)	No gaiter H	ZZ	With gaiter Øe	f	h	l	ZZ
40	51	146	43	11.2	59	1/4 stroke	154
50	58	459	52	11.2	66	1/4 stroke	167
63	58	179	52	11.2	66	1/4 stroke	178

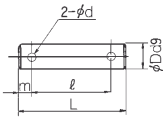
DIMENSIONS
PISTON ROD MOUNTING ACCESSORIES

ROD END NUT (STANDARD ACCESSORIES)



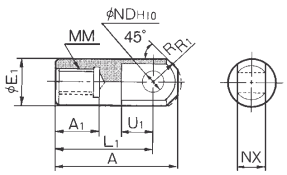
Part No.	Applicable bore size (mm)	d	H	B	C	D
NT-04	40	M 14 x 1.5	8	22	25.4	21
NT-05	50•63	M 18x 1.5	11	27	31.2	26
NT-08	80	M 22 x 1.5	13	32	37.0	31
NT-10	100	M 26 x 1.5	16	41	47.3	39

CLEVIS PIN



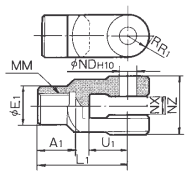
Part No.	Applicable bore size (mm)		Dd9	L	l	m	d Through hole dia.	Applicable split pin
	Clevis	Knucle						
CDP-2	40	-	10-0.040 -0.076	41.2	33.2	4	2-3	3x18 I
CDP-3	50	40•50•63	12 -0.050 -0.093	49.7	41.7	4	2-3	3x18 I
CDP-4	63	-	16 -0.050 -0.093	64	54	5	2-4	4x25 I
CDP-5	-	80	18 -0.050 -0.093	70	60	5	2-4	4x25 I
CDP-6	80	100	20 -0.065 -0.117	76	66	5	2-4	4x25 I
CDP-7	100	-	25 -0.065 -0.117	81.5	69.5	6	2-4	4x36 I

I TYPE SINGLE ROD CLEVIS



Part No.	Applicable bore size (mm)	A	A1	øE	L	MM	R1	U1	NDH10	NX
I-04	40	69	22	24	55	M 14 x 1.25	15.5	20	12+0.070 0	16-0.1 -0.3
I-05	50•63	74	27	28	60	M 18x 1.5	15.5	20	12+0.070 0	16-0.1 -0.3
I-08	80	91	37	36	71	M 22 x 1.5	22.5	26	18+0.070 0	28 -0.1 -0.3
I-10	100	105	37	40	83	M 26 x 1.5	24.5	28	20+0.084 0	30 -0.1 -0.3

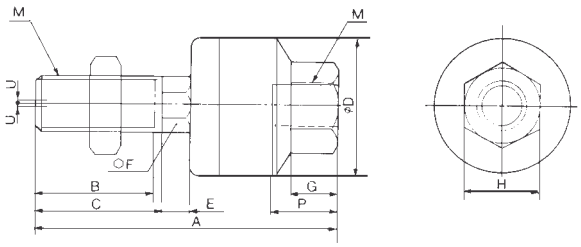
Y TYPE DOUBLE ROD CLEVIS



Part No.	Applicable bore size (mm)	A1	øE	L	MM	R1	NZ	U1	NDH10	NX
Y-04C	40	22	24	55	M 14 x 1.5	13	38	25	12+0.070 0	16-0.1 -0.3
Y-05C	50•63	27	28	60	M 18x 1.5	15	38	27	12+0.070 0	16-0.1 -0.3
Y-08C	80	37	36	71	M 22 x 1.5	19	55	28	18+0.070 0	28 -0.1 -0.3
Y-10C	100	37	40	83	M 26 x 1.5	21	61	38	20+0.084 0	30 -0.1 -0.3

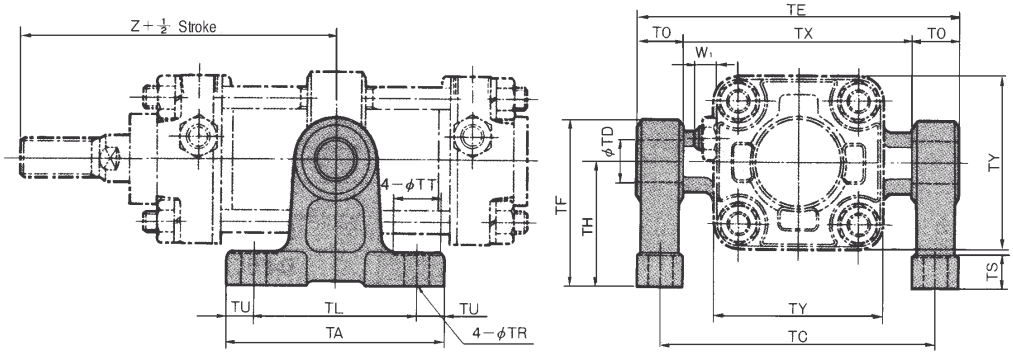
FLOATING JOINT

JA40-100



Ø Cylinder Bore (mm)	Nominal Thread Dia.	Pitch	A	B	C	D	E	F	G	H	Max. Screwed depth P	Allowable eccentricity U	Max. Operating tension & compressed power kgf(kN)	Weight kgf
40	14	1.5	60	20	–	31	6	11	11	22	13	0.75	600(6)	0.16
50•63	18	1.5	74.5	25	–	41	7.5	14	13.5	27	15	1	1100(11)	0.31
80	22	1.5	89.5	29	–	50	9.5	19	16	32	18	1.25	1800(18)	0.58
100	26	1.5	110	35	-	59.5	11.5	24	20	41	24	2	2800(28)	1.08

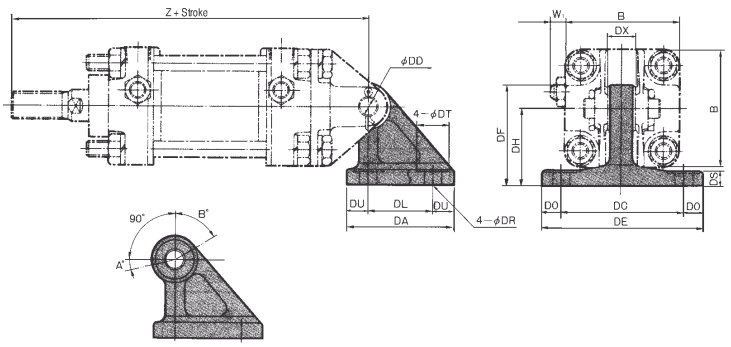
DIMENSIONS
TRUNNION MOUNTING BRACKET



Part No	Applicable bore size (mm)	TA	TL	TU	TC	TX	TE	TO	TR	TT	TS	TH	TF	TY	W1	Z	TD-H10
CA1-SO4	40	80	60	10	102	85	119	17	9	17	12	45	60	62	10	93	15 +0.070 0
	50	80	60	10	112	95	129	17	9	17	12	45	60	74	10	103	15 +0.070 0
CA1-SO6	63	100	70	15	130	110	150	20	11	22	14	55	73	90	10	107	18 +0.070 0
CA1-SO8	80	120	90	15	166	140	192	26	13.5	24	17	75	100	110	12	129	25 +0.084 0
	100	120	90	15	188	162	214	26	13.5	24	17	75	100	130	12	135	25 +0.084 0

DIMENSIONS
OFF-SET MOUNTING BRACKET

Applicable bore size	A°	B°	A°+B°+90°
40 ~ 100	12°	60°	162°



Part No	Applicable bore size (mm)	DA	DL	DU	DC	DX	DE	DO	DR	DT	DS	DH	DF	B	W1	Z	DDH10
CA1-B04	40	57	35	11	65	15	85	10	9	17	8	40	52	60	10	165	10 +0.058 0
CA1-B05	50	57	35	11	65	18	85	10	9	17	8	40	52	70	10	183	12 +0.070 0
CA1-BO6	63	67	40	13.5	80	25	105	12.5	11	22	10	50	66	85	10	196	16 +0.070 0
CA1-BO8	80	93	60	16.5	100	31.5	130	15	13.5	24	12	65	90	102	12	235	20 +0.084 0
CA1-B10	100	93	60	16.5	100	35.5	130	15	13.5	24	12	65	90	116	12	256	25 +0.084 0

SERIES NCA1

AIR CYLINDER SERIES NCA1
HEAVY DUTY AIR CYLINDERS
BORE SIZES 1.5" TO 14"

- Steel and Stainless Steel Construction
- Replaceable Rod Gland
- Auto Switch Sensing Option (Stainless Steel and Composite Tube Only)
- Non-Rotating Piston Rod & Through Rod Types Available

Hydraulic Service / 250PSI Non Shock (H option)

- Full Range of NFPA Interchangeable Mounting Configurations

• *Mounting Dimensions are in accordance with ANSI/(NFPA) T3.6.7 R2-1996, Fluid Power Systems and Products - Square Head Industrial Cylinders - Mounting Dimensions.*

HOW TO ORDER
SERIES NCA1 AIR CYLINDER

NC ○ A1 ○ ○ ○ ○ — ○ ○ ○ ○ — ○ ○ — X ○ T ○

AUTO SWITCH
- .....Standard
D .....w/Auto S (Stainless Steel Composite Tube Only)

STYLE
- .....Standard Cylinder
W .....Double Rod
K ..... Non-rotating Piston Rod (5 to 14ø)

MOUNTING / SINGLE ROD ONLY
EA .....**ME3** - Head Square Mount (8 to 14"ø)
EB .....**ME4** - Cap Square Mount (8 too 14"ø)
F .....**MF1** - Front Flange (1.5 to 6"ø)
G .....**MF2** - Rear Flange (1.5 to 6"ø)
M .....**MF5** - Front Flange (1.5 to 6"ø)
N .....**MF6** - Rear Flange (1.5 to 6"ø)
X .....**MP1** - Double Rear Clevis (1.5 to 14"ø)
D .....**MP2** - Double Detachable Rear Clevis/Female (1.5 to 14"ø)
E .....**MP3** - Cap Fixed Eye (1.5 to 14"ø)
C .....**MP4** - Single Detachable Rear Clevis/Male (1.5 to 14"ø)
L .....**MS1** - Foot Mount (1.5 to 14"ø)
S .....**MS2** - Side Lug (1.5 to 14"ø)
O .....**MS3** - Centerline Lug (1.5 to 14"ø)
R .....**MS4** - Side-Tapped (1.5 to 14"ø)
P .....**MS7** - Front Lug Mount (1.5 to 14"ø)
J .....**MT2** - Cap Trunnion (1.5 to 14"ø)
U .....**MT1** - Head Trunnion (1.5 to 14"ø)
T .....**MT4** - Center Trunnion (1.5 to 14"ø) *See below
B .....**MX0** - Basic/No Mount (1.5 to 14"ø)
BA ..... **MX1** - Extended Tie-Rods; Head/Cap (1.5 to 14"ø)
BB ..... **MX2** - Extended Tie-Rods; Cap (1.5 to 14"ø)
BC ..... **MX3** - Extended Tie-Rods; Head (1.5 to 14"ø)

How To Order MT4 With Non Standard XI Dimension
NCA1 T ○ - ○ - XC14 (XI = 4.25) T ○

Specify XI Dimension in inches
Construction Type

STYLE
- .....Pneumatic
H .....Hydraulic

BORE SIZE	ROD ø	ROD THREAD ø
150 .....1.5"	5/8"	7/16-20
200 .....2"	5/8"	7/16-20
250 .....2.5"	5/8"	7/16-20
325 .....3.25"	1"	3/4-16
400 .....4"	1"	3/4-16
500 .....5"	1"	3/4-16
600 .....6"	1-3/8"	1-14
800 .....6"	1-3/8"	1-14
1000.....10"	1-3/8	1 1/4-12
1200.....12"	2'	1 1/2-12
1400.....14"	2-1/2"	1 7/8-12

Up to 32" Bore available

STANDARD STROKE
Inches
Example: 04 = 4" Stroke

STROKE
Hundredths Of An Inch
Example: 25 = 0.25 (1/4) Inch Stroke

CONSTRUCTION TYPE
(PLEASE SEE PAGE 1 FOR CONSTRUCTION DETAILS)
ST ... Steel Construction (1.5~14"ø)
SS ... All Stainless Steel (1.5~14"ø)
SCT ... Steel w/ Composite Tube (1.5 - 14"ø)
SSCT ... Stainless Steel w/ Composite Tube (1.5- 14"ø)

OPTIONS
A.....Special Rod Thread
B5 .....Oversized Rod (See Chart below)
B6 .....High Temperature
C3 .....Port and Cushion Location
C6 .....Stainless Steel Piston Rod
C8 .....Adjustable Stroke Extended Piston Rod
C9 .....Adjustable Stroke Return Piston Rod
C10 ...Dual Operation/Double Rod Piston Rod
C11 ...Dual Operation/Single Rod Piston Rod
C12 ...Tandum Cylinder

NO OF SWITCHES
- .....2 Pieces
S .....1 Piece
n .....Number of Switches

AUTO SWITCH

ROD BOOT
- .....Without Boot
k .....Neoprene Boot

AIR CUSHION
- .....Both Ends
N .....None
H .....Head End
R .....Rod End
*Note: Non Adjustable Cushions are available on units above 4" Bore

**Note: Cushions not recommended for Strokes below 3"

OPTION
SERIES NCA1 AIR CYLINDER (1.5~6"ø BORE)
OVERSIZED ROD - XB5 OPTION

When ordering an oversized rod, please order the following way to represent the rod size required.

XB5 _ CDN

E 1"
G 1 3/8"
H 1 3/4"
J 2"
K 2 1/2"
L 3"
M 3 1/2"
Z

AIR CYLINDER SERIES NCA1 HEAVY DUTY LARGE BORE AIR CYLINDERS

- Steel Construction
- Stainless Steel Version Available
- Available in Bore Sizes 8" to 14" and Up To 32" Available
- Replaceable Rod Gland Design

AIR CYLINDER SERIES NCA1 MEDIUM DUTY LARGE BORE AIR CYLINDERS

- Aluminum Construction (5" to 8" Bore)
- Replaceable Rod Gland Design
- Auto Switch Capable

- Full Range of NFPA Interchangeable Mounting Configurations

• Mounting Dimensions are in accordance with ANSI/(NFPA) T3.6.7 R2-1996, Fluid Power Systems and Products - Square Head Industrial Cylinders - Mounting Dimensions.

HOW TO ORDER SERIES NCA1 AIR CYLINDER

NC ○ A1 ○ ○ ○ ○ — ○ ○ ○ ○ — ○ ○ — X ○ T ⬭

AUTO SWITCH
- ……Standard
D ……Auto Switch Capable

STYLE
- ……Standard
W……Double Rod
K ……Non-Rotating Piston Rod

MOUNTING / SINGLE ROD ONLY
EA ……**ME3** - Head Square Mount (8"ø)
EB ……**ME4** - Cap Square Mount (8"ø)
F ……**MF1** - Front Flange (5 to 6"ø)
G ……**MF2** - Rear Flange (5 to 6"ø)
M ……**MF5** - Front Flange (5 to 6"ø)
N ……**MF6** - Rear Flange (5 to 6"ø)
X ……**MP1** - Double Rear Clevis (5 to 8"ø)
D ……**MP2** - Double Detachable Rear Clevis/Female (5 to 8"ø)
E ……**MP3** - Cap Fixed Eye (8"ø only)
C ……**MP4** - Single Detachable Rear Clevis/Male (5 to 8"ø)
L ……**MS1** - Foot Mount (5 to 8"ø)
S ……**MS2** - Side Lug (8"ø only)
O ……**MS3** - Centerline Lug (8"ø only)
R ……**MS4** - Side-Tapped (5 to 8"ø)
P ……**MS7** - Front Lug Mount (5 to 8"ø)
U ……**MT1** - Head Trunnion (5 to 8"ø)
J ……**MT2** - Cap Trunnion (5 to 8"ø)
T ……**MT4** - Center Trunnion (5 to 8"ø) *See below
B ……**MX0** - Basic / No Mount (5 to 8"ø)
BA ….. **MX1** - Extended Tie-Rods; Head/Cap (5 to 8"ø)
BB ….. **MX2** - Extended Tie-Rods; Cap (5 to 8"ø)
BC ….. **MX3** - Extended Tie-Rods; Head (5 to 8"ø)

How To Order MT4 With Non Standard XI Dimension
NCA1 T ○ - ○ - XC14 (XI = 4.25) T ○
Specify XI Dimension in inches
Construction Type

STYLE
- ……Pneumatic
H ……Hydraulic

BORE SIZE	ROD Ø	ROD THREAD Ø
500 ……5"	1"	3/4-16
600 ……6"	1-3/8"	1-14
800 ……8"	1-3/8"	1-14

Up to 32" Bore available

STANDARD STROKE
Inches
Example: 04 = 4" Stroke

STROKE
Hundredths Of An Inch
Example: 25 = 0.25
(1/4) Inch Stroke

AIR CUSHION
- ……..Both Ends
N ……..None
H ……..Head End
R ……..Rod End
*Note: Non Adjustable Cushions are available on units above 4" Bore

**Note: Cushions not recommended for Strokes below 3"

ROD BOOT
- ……Without Boot
K …… Neoprene Boot

NO OF SWITCHES
- ……2 Pieces
S ……1 Piece
n ……Number of Pieces

AUTO SWITCH

OPTIONS
A……..Special Rod Thread
B5 ……Oversized Rod (See Chart below for Bore Sizes above 4")
B6 ……High Temperature
C3 ……Port and Cushion Location
C6 ……Stainless Steel Piston Rod
C8 ……Adjustable Stroke Extended Piston Rod
C9 ……Adjustable Stroke Return Piston Rod
C10 …Dual Operation/Double Rod Piston Rod
C11 …Dual Operation/Single Rod Piston Rod

CONSTRUCTION TYPE
AT ……Aluminum Tube (5~8"ø)
ACT …Composite Tube (5~8"ø)

OPTION
SERIES NCA1 AIR CYLINDER (5~14"Ø BORE) OVERSIZED ROD - XB5 OPTION

When ordering an oversized rod, please order the following way to represent the rod size required.

XB5 _ CDN

G	1 3/8"
H	1 3/4"
J	2"
K	2 1/2"
L	3"
M	3 1/2"
Z	

SERIES NCA1

AIR CYLINDER SERIES NCA1

- Auto Switch Sensing Optional
- Bore Sizes 150, 200, 250, 325, 400
- Non-Rotating Piston Rod & Double Rod types available
- Long Life, High Efficiency
- Hard Anodized Barrel

TECHNICAL SPECIFICATIONS

Type	Standard	Double Rod	Non Rotating Piston Rod	
Fluid	Air	Air	Air	
Lubrication	Non-lube	Non-lube	Non-lube	
Max Operating Pressure	250PSI	250PSI	250PSI	(1.75MPa)
Min Operating Pressure	7PSI(10.05MPa)	8PSI(10.06MPa)	15PSI(10.1MPa)	
Ambient & Fluid Temperature	40~140°F	40~140°F	40~140°F	(5~60°C)
Piston Speed	2~20in/s	2~20in/s	2~20in/s	(50~500mm/s)
Mounting	Basic, foot, front flange, rear flange, clevis side tapped, center trunnion head trunnion, side lug rod trunnion	Basic, foot, flange, center trunnion side tapped	Basic, foot, front flange, rear flange, rear clevis, center trunnion side tapped side lug	
Non-Rotating Accuracy	n/a	n/a	±0.50°	

HOW TO ORDER SERIES NCA1 AIR CYLINDER

NC ○ A1 ○ ○ ○ — ○ ○ ○ ○ — ○ ○ — ○

AUTO SWITCH
- ……Standard
D ……w/Auto Switch (Magnetic Piston)

STYLE
- ……Standard Cylinder
K ……Non-Rotating Cylinder
W ……Double Rod
M ……Male Rod Stud

MOUNTING
B ……MX0 / Basic
L ……MS1 / Foot
F ……MF1 / Front Flange
G ……MF2 / Rear Flange
R ……MS4 / Side-Tapped
D ……MP2 / Detachable Rear Clevis
T ……MT4 / Center Trunnion
C ……MP4 / Single Detachable Rear Clevis
X ……MP1 / Double Rear Clevis
S ……MS2 / Side
U ……MT1 / Rod Trunnion
J ……MT2 / Head Trunnion

BORE SIZE
150 …1.5″
200 …2″
250 …2.5″
325 …3.25″
400 …4″

STANDARD STROKE
Inches

STROKE
Hundredths Of An Inch

AIR CUSHION
- ……Both Ends
N ……None
H ……Head End
R ……Rod End

ROD BOOT
- ……Without Boot
J ……Nylon Boot
K ……Neoprene Boot

NO OF SWITCHES
- ……2 Pieces
S ……1 Piece
n ……n Pieces

AUTO SWITCH
See Auto Switch Accessories

OPTIONS
XA……Special Thread Form
XB5……Oversized Rod
XB6……High Temperature
XB7……Low Temperature
XB9……Low Speed
XC6……Stainless Steel Piston Rod
XC8……Adjustable Stroke Extended
XC9……Adjustable Stroke Return
XC10……Dual Operation/Double Rod
XC11……Dual Operation/Single Rod

STANDARD STROKES SERIES NCA1

Bore Size (inches)	Standard Stroke (inches)	Maximum Stroke (inches)
1.5″	1, 2, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20	
2″, 2.5″	1, 2, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20, 24	
3.25″, 4″	1, 2, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20, 24. 28	

MOUNTING BRACKET
SERIES NCA1 AIR CYLINDER

Mounting Bracket / Bore	Part Number				
	150(1.5")	200(2")	250(2.5")	325(3.25")	400(4")
*Foot	NCA1-L150	NCA1-L200	NCA1-L250	NCA1-L325	NCA1-L400
Flange	NCA1-F150	NCA1-F200	NCA1-F250	NCA1-F325	NCA1-F400
Clevis	NCA1-D150	NCA1-D200	NCA1-D250	NCA1-D325	NCA1-D400
NCA1-C150-400	NCA1-C150	NCA1-C200	NCA1-C250	NCA1-C325	NCA1-C400
*NCA1-S150-400	NCA1-S150	NCA1-S200	NCA1-S250	NCA1-S325	NCA1-S400
NCA1-X150-400	NCA1-X150	NCA1-X200	NCA1-X250	NCA1-X325	NCA1-X400

* These Kits are for Standard Single Rod Double Acting Cylinders without Options.

ACCESSORIES
TRUNNION

A trunnion type must be ordered as part of the cylinder assembly by substituting 'T' for 'B' and specify position.

ACCESSORIES
AUTO SWITCH MOUNTING BRACKETS
D-A5, D-A6, D-F5, D-J5

NBT-150 .....150 (1.5")
NBT-200 .....200 (2")
NBT-200 .....250 (2.5")
NBT-325 .....325 (3.25")
NBT-325 .....400 (4")

ACCESSORIES
AUTO SWITCHES - REED TYPE

Model Number	Operating Voltage	Max Current or Operating Current Range (mA)	Indicator Light/Wire Output
D-A53	24VDC	5~20mA	Yes
D-A54	24VDC 100VAC 200VAC	5~20mA 5~25mA 5~125mA	Yes
D-A56	4~8VDC	20mA	Yes
D-A59W	24VDC	5~40mA	Yes
D-A64	24VAC/DC 100VAC 200VAC	50mA 25mA 12.5mA	-
D-A67	24VDC	30mA	-

Note: Pre-wired Switches with 3/4 Pin Connectors available

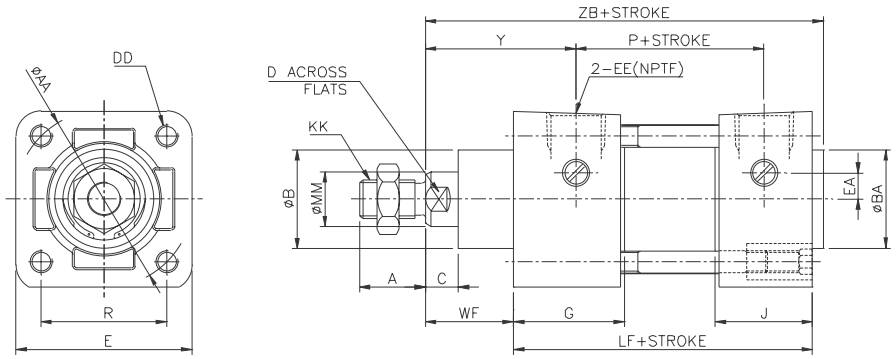
ACCESSORIES
AUTO SWITCHES - SOLID STATE TYPE

Model Number	Operating Voltage	Max Current or Operating Current Range (mA)	Indicator Light/Wire Output
D-F59	28VDC or less	150mA	3 Wire (NPN)
D-F5P	-	100mA	3 Wire (PNP)
D-J51	80~260VAC	5~80mA	2 Wire
D-J59	24VDC (10~28VDC)	5~150mA	2 Wire
D-F59W	28VDC	80mA	3 Wire (NPN)
D-F59PW	-	80mA	3 Wire (PNP)
D-J59W	24VDC (10~28VDC)	5~40mA	2 Wire
D-F58AL	24VDC (10~28VDC)	5~40mA	2 Wire (NPN)
D-F59F	28VDC	40mA	4 Wire (NPN)
D-F5NTL	28VDC	80mA	3 Wire (NPN)

Note: Pre-wired Switches with 3/4 Pin Connectors available.

SERIES NCA1

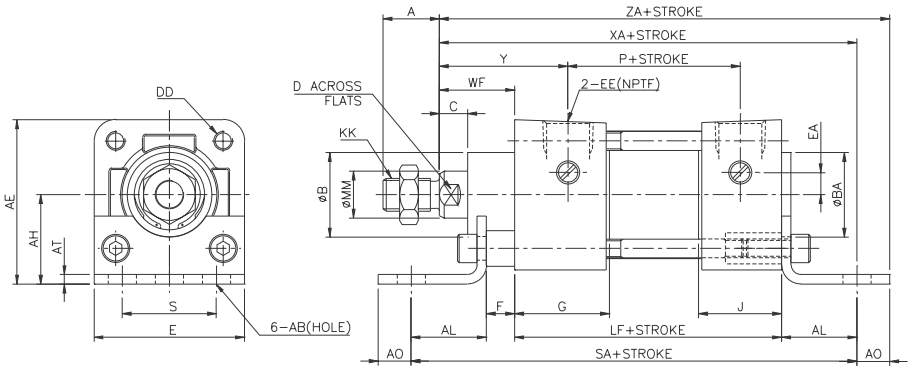
DIMENSIONS
BASIC TYPE NC□A1B



BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	G	J	R	WF	Y	LF	P	ZB
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	1.1	1.43	1	1.71	3 5/8	2.36	4 3/4
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	1.06	1.84	1	1.71	3 5/8	2.4	4 3/4
250 (2.5")	5/8	7/16-20	3/4	3.1	1 1/8	1 1/8	3/8	9/16	5/16-24	3	0	3/8	1.3	1.06	2.19	1	1.75	3 3/4	2.48	4 7/8
325 (3.25")	1	3/4-16	1 1/8	3.9	1 1/2	1 1/2	1/2	7/8	3/8-24	3 3/4	0	1/2	1.57	1.18	2.76	1 3/8	2.34	4 1/4	2.72	5 53/64
400 (4")	1	3/4-16	1 1/8	4.7	1 1/2	1 1/2	1/2	7/8	3/8-24	4 1/2	0	1/2	1.57	1.18	3.32	1 3/8	2.34	4 1/4	2.72	5 53/64

+ = Stroke addition

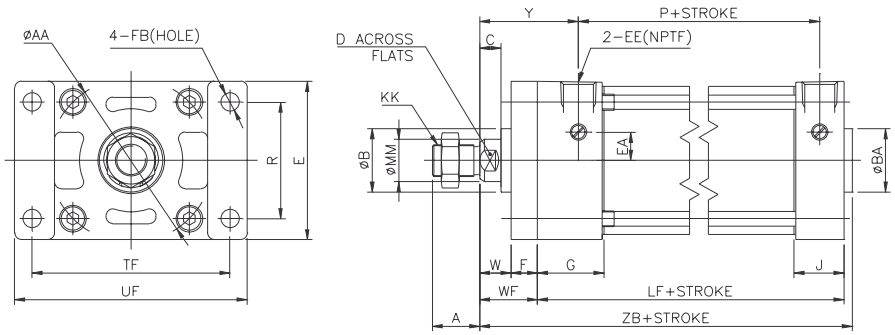
DIMENSIONS
FOOT MOUNTING
TYPE NC□A1L



+ = Stroke addition

BORE (INCH)	MM	KK	A	AA	AB	AE	AH	AL	AO	AT	B	BA	C	D	DD	E	EA	EE	F	G	J	S	WF	Y	P	LF	SA	XA	ZA
150 (1.5")	5/8	7/16-20	3/4	2.02	3/8	2 3/16	1 3/16	1	7/16	1/8	1 1/8	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	3/8	1.26	1.1	1 1/4	1	1.71	2.36	3 5/8	6	5 5/8	6 1/16
200 (2")	5/8	7/16-20	3/4	2.6	3/8	2 11/16	1 7/16	1	9/16	1/8	1 1/8	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	3/8	1.26	1.06	1 3/4	1	1.71	2.4	3 5/8	6	5 5/8	6 3/16
250 (2.5")	5/8	7/16-20	3/4	3.1	3/8	3 1/8	1 5/8	1	9/16	1/8	1 1/8	1 1/8	3/8	9/16	5/16-24	3	0	3/8	3/8	1.3	1.06	2 1/4	1	1.75	2.48	3 3/4	6 1/8	5 3/4	6 5/16
325 (3.25")	1	3/4-16	1 1/8	3.9	1/2	3 13/16	1 15/16	1 1/4	3/4	11/64	1 1/2	1 1/2	1/2	7/8	3/8-24	3 3/4	0	1/2	5/8	1.57	1.18	2 3/4	1 3/8	2.34	2.72	4 1/4	7 3/8	6 7/8	7 5/8
400 (4")	1	3/4-16	1 1/8	4.7	1/2	4 1/2	2 1/4	1 1/4	3/4	15/64	1 1/2	1 1/2	1/2	7/8	3/8-24	4 1/2	0	1/2	5/8	1.57	1.18	3 1/2	1 3/8	2.34	2.72	4 1/4	7 3/8	6 7/8	7 5/8

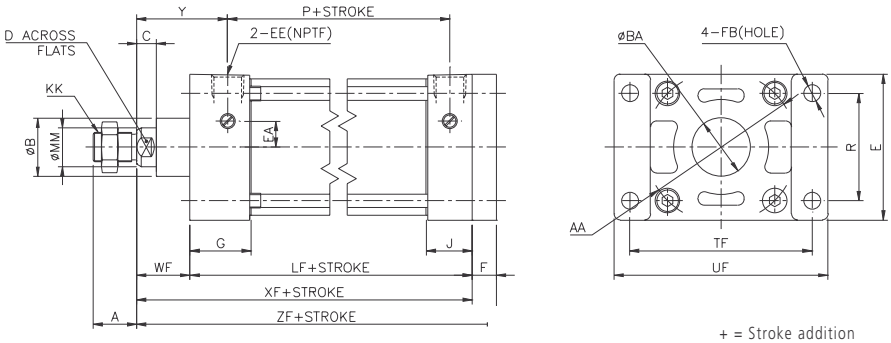
DIMENSIONS
FRONT FLANGE TYPE NC□A1F



+ = Stroke addition

BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	F	FB	G	J	R	TF	UF	W	WF	Y	LF	P	ZB
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	3/8	5/16	1.26	1.1	1.43	2 3/4	3 3/8	5/8	1	1.71	3 5/8	2.36	4 3/4
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	3/8	3/8	1.26	1.06	1.84	3 3/8	4 1/8	5/8	1	1.71	3 5/8	2.4	4 3/4
250 (2.5")	5/8	7/16-20	3/4	3.1	1 1/8	1 1/8	3/8	9/16	5/16-24	3	0	3/8	3/8	3/8	1.3	1.06	2.19	3 7/8	4 5/8	5/8	1	1.75	3 3/4	2.48	4 7/8
325 (3.25")	1	3/4-16	1 1/8	3.9	1 1/2	1 1/2	1/2	7/8	3/8-24	3 3/4	0	1/2	1/2	7/16	1.57	1.18	2.76	4 11/16	5 1/2	3/4	1 3/8	2.34	4 1/4	2.72	5 53/64
400 (4")	1	3/4-16	1 1/8	4.7	1 1/2	1 1/2	1/2	7/8	3/8-24	4 1/2	0	1/2	1/2	7/16	1.57	1.18	3.32	5 7/16	6 1/4	3/4	1 3/8	2.34	4 1/4	2.72	5 53/64

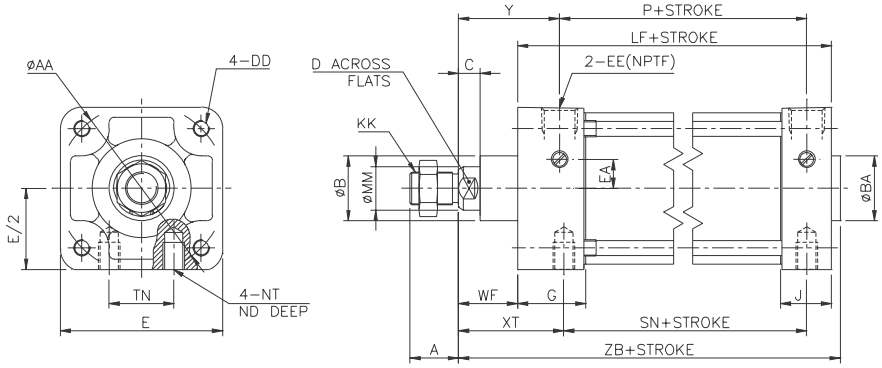
DIMENSIONS
REAR FLANGE TYPE NC□A1G



+ = Stroke addition

BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	F	FB	G	J	R	TF	UF	WF	Y	P	XF	ZF
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	3/8	5/16	1.26	1.1	1.43	2 3/4	3 3/8	1	1.71	2.36	4 5/8	5
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	3/8	3/8	1.26	1.06	1.84	3 3/8	4 1/8	1	1.71	2.4	4 5/8	5
250 (2.5")	5/8	7/16-20	3/4	3.1	1 1/8	1 1/8	3/8	9/16	5/16-24	3	0	3/8	3/8	3/8	1.3	1.06	2.19	3 7/8	4 5/8	1	1.75	2.48	4 3/4	5 1/8
325 (3.25")	1	3/4-16	1 1/8	3.9	1 1/2	1 1/2	1/2	7/8	3/8-24	3 3/4	0	1/2	5/8	7/16	1.57	1.18	2.76	4 11/16	5 1/2	1 3/8	2.34	2.72	5 5/8	6 1/4
400 (4")	1	3/4-16	1 1/8	4.7	1 1/2	1 1/2	1/2	7/8	3/8-24	4 1/2	0	1/2	5/8	7/16	1.57	1.18	3.32	5 7/16	6 1/4	1 3/8	2.34	2.72	5 5/8	6 1/4

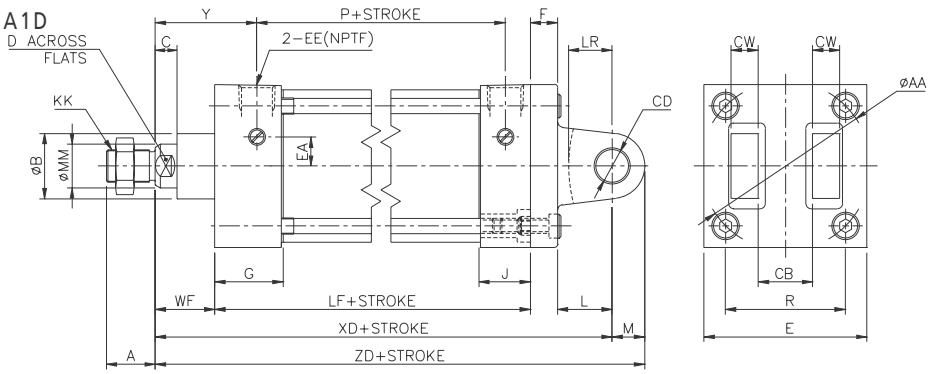
DIMENSIONS
SIDE-TAPPED TYPE NC□A1R



BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	E/2	EA	EE	G	J	ND	NT	TN	WF	XT	Y	LF	P	SN	ZB
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	9/16	1/4-28	2	1	0.3	3/8	1.26	1.1	9/32	1/4-20	5/8	1	1 15/16	1.71	3 5/8	2.36	2 1/4	4 3/4
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	1 1/8	3/8	9/16	5/16-24	2 1/2	1 1/4	0.3	3/8	1.26	1.06	7/16	5/16-18	7/8	1	1 15/16	1.71	3 5/8	2.4	2 1/4	4 3/4
250 (2.5")	5/8	7/16-20	3/4	3.1	1 1/8	1 1/8	3/8	9/16	5/16-24	3	1 1/2	0	3/8	1.3	1.06	19/32	3/8-16	1 1/4	1	1 15/16	1.75	3 3/4	2.48	2 3/8	4 7/8
325 (3.25")	1	3/4-16	1 1/8	3.9	1 1/2	1 1/2	1/2	7/8	3/8-24	3 3/4	1 7/8	0	1/2	1.57	1.18	5/8	1/2-13	1 1/2	1 3/8	2 7/16	2.34	4 1/4	2.72	2 5/8	5 53/64
400 (4")	1	3/4-16	1 1/8	4.7	1 1/2	1 1/2	1/2	7/8	3/8-24	4 1/2	2 1/4	0	1/2	1.57	1.18	5/8	1/2-13	2 1/16	1 3/8	2 7/16	2.34	4 1/4	2.72	2 5/8	5 53/6

MORE DIMENSIONS
SEE NEXT PAGE ☞

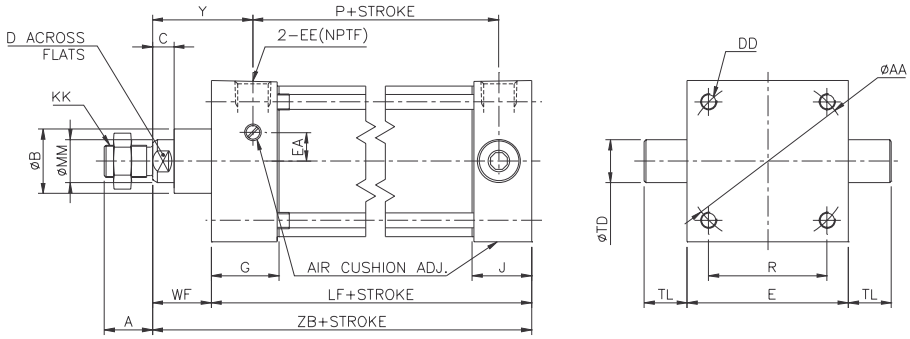
DIMENSIONS
DETACHABLE REAR CLEVIS TYPE - NC□A1D



BORE (INCH)	MM	KK	A	AA	B	C	CB	CD	CW	D	DD	E	EA	EE	F	G	J	L	LR	M	WF	XD	Y	LF	P	ZD
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	3/4	1/2	1/2	9/16	1/4-28	2	0.3	3/8	3/8	1.26	1.1	3/4	5/8	1/2	1	5 3/4	1.71	3 5/8	2.36	6 1/4
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	3/4	1/2	1/2	9/16	5/16-24	2 1/2	0.3	3/8	3/8	1.26	1.06	3/4	5/8	1/2	1	5 3/4	1.71	3 5/8	2.4	6 1/4
250 (2.5")	5/8	7/16-20	3/4	3.1	1 1/8	3/8	3/4	1/2	1/2	9/16	5/16-24	3	0	3/8	3/8	1.3	1.06	3/4	5/8	1/2	1	5 7/8	1.75	3 3/4	2.48	6 3/8
325 (3.25")	1	3/4-16	1 1/8	3.9	1 1/2	1/2	1 1/4	3/4	5/8	7/8	3/8-24	3 3/4	0	1/2	5/8	1.57	1.18	1 1/4	1	3/4	1 3/8	7 1/2	2.34	4 1/4	2.72	8 1/4
400 (4")	1	3/4-16	1 1/8	4.7	1 1/2	1/2	1 1/4	3/4	5/8	7/8	3/8-24	4 1/2	0	1/2	5/8	1.57	1.18	1 1/4	1	3/4	1 3/8	7 1/2	2.34	4 1/4	2.72	8 1/4

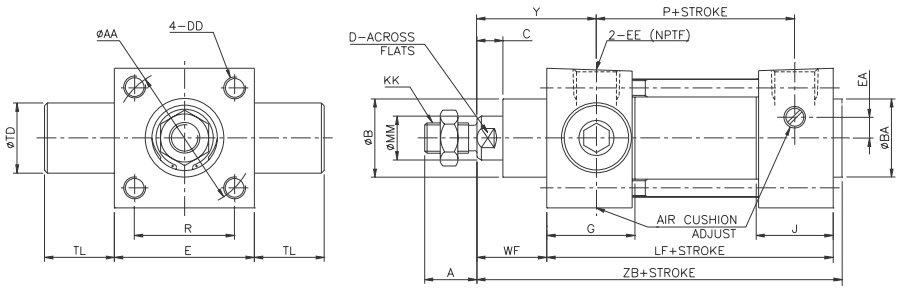
SERIES NCA1

DIMENSIONS
HEAD TRUNNION TYPE NC□A1J



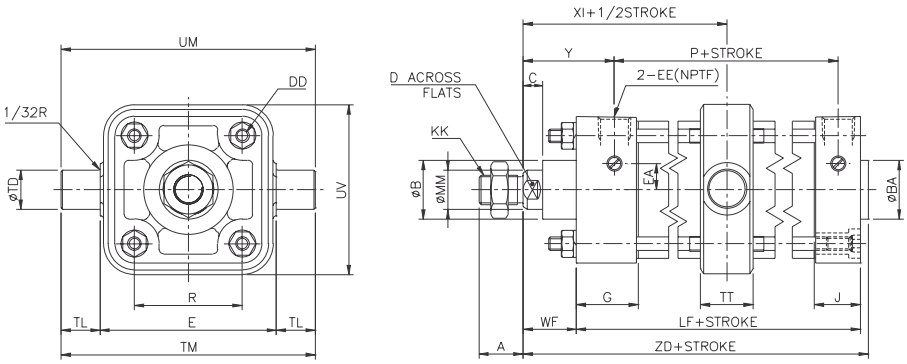
BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	J	R	TD $^{0}_{0.001}$	TL	WF	Y	LF	P	ZB
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	1.1	1.43	1	1	1	1.71	3 5/8	2.36	4 5/8
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	1.06	1.84	1	1	1	1.71	3 5/8	2.40	4 5/8
250 (2.5")	5/8	7/16-20	3/4	3.1	1 1/8	3/8	9/16	5/16-24	3	0	3/8	1.3	1.06	2.19	1	1	1	1.75	3 3/4	2.48	4 3/4
325 (3.25")	1	3/4-16	1 1/8	3.9	1 1/2	1/2	7/8	3/8-24	3 3/4	0	1/2	1.57	1.18	2.76	1	1	1 3/8	2.34	4 1/4	2.72	5 5/8
400 (4")	1	3/4-16	1 1/8	4.7	1 1/2	1/2	7/8	3/8-24	4 1/2	0	1/2	1.57	1.18	3.32	1	1	1 3/8	2.34	4 1/4	2.72	5 5/8

DIMENSIONS
ROD TRUNNION TYPE NC□A1U



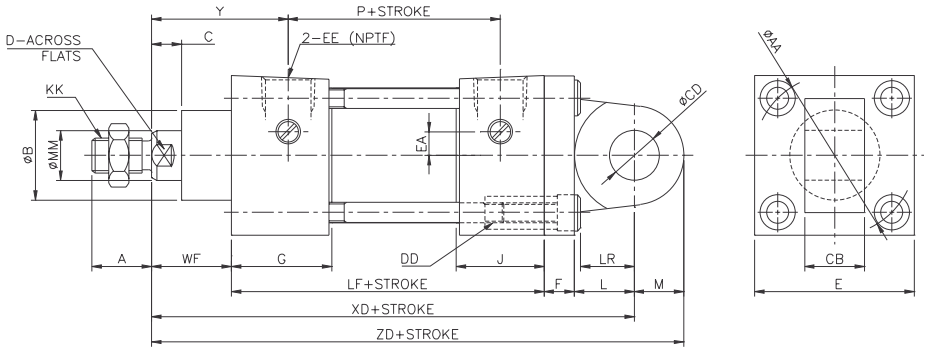
BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	G	J	R	TD $^{0}_{0.001}$	TL	WF	Y	LF	P	ZB
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	1.1	1.43	1	1	1	1.71	3 5/8	2.36	4 3/4
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	1.06	1.84	1	1	1	1.71	3 5/8	2.40	4 3/4
250 (2.5")	5/8	7/16-20	3/4	3.1	1 1/8	1 1/8	3/8	9/16	5/16-24	3	0	3/8	1.3	1.06	2.19	1	1	1	1.75	3 3/4	2.48	4 7/8
325 (3.25")	1	3/4-16	1 1/8	3.9	1 1/2	1 1/2	1/2	7/8	3/8-24	3 3/4	0	1/2	1.57	1.18	2.76	1	1	1 3/8	2.34	4 1/4	2.72	5 53/64
400 (4")	1	3/4-16	1 1/8	4.7	1 1/2	1 1/2	1/2	7/8	3/8-24	4 1/2	0	1/2	1.57	1.18	3.32	1	1	1 3/8	2.34	4 1/4	2.72	5 53/64

DIMENSIONS
CENTER TRUNNION TYPE NC□A1T



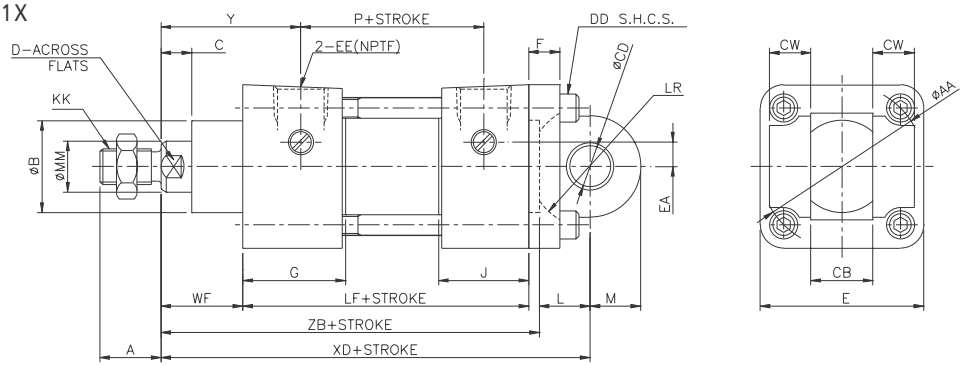
BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	G	J	R	TD $^{0}_{0.001}$	TL	TM	TT	UM	UV	WF	Y	LF	P	XI	ZB
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	1.1	1.43	1	1	2 1/2	1.18	4 1/2	2	1	1.71	3 5/8	2.36	2.89	4 3/4
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	1.06	1.84	1	1	3	1.18	5	2.56	1	1.71	3 5/8	2.40	2.91	4 3/4
250 (2.5")	5/8	7/16-20	3/4	3.1	1 1/8	1 1/8	3/8	9/16	5/16-24	3	0	3/8	1.3	1.06	2.19	1	1	3 1/2	1.18	5 1/2	3.39	1	1.75	3 3/4	2.48	2.99	4 7/8
325 (3.25")	1	3/4-16	1 1/8	3.9	1 1/2	1 1/2	1/2	7/8	3/8-24	3 3/4	0	1/2	1.57	1.18	2.76	1	1	4 1/2	1.34	6 1/2	4.33	1 3/8	2.34	4 1/4	2.72	3.7	553/64
400 (4")	1	3/4-16	1 1/8	4.7	1 1/2	1 1/2	1/2	7/8	3/8-24	4 1/2	0	1/2	1.57	1.18	3.32	1	1	5 1/4	1.57	7 1/4	5.12	1 3/8	2.34	4 1/4	2.72	3.74	553/64

DIMENSIONS
SINGLE REAR CLEVIS TYPE NC□A1C



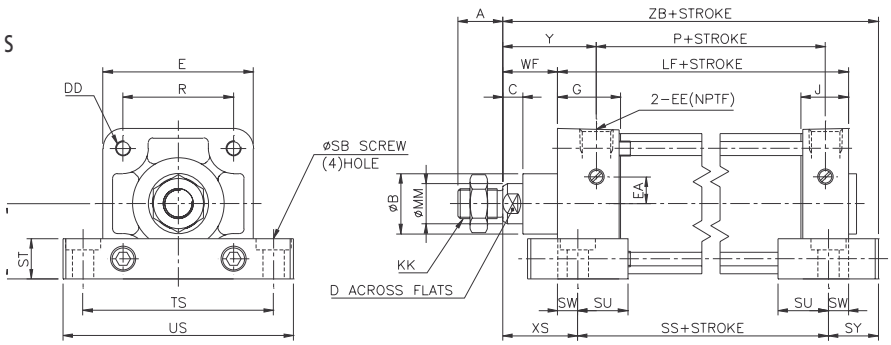
BORE (INCH)	MM	KK	A	AA	B	C	CB	CD	D	DD	E	EA	EE	F	G	J	L	LR	M	WF	XD	Y	LF	P	ZD
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	3/4	1/2	9/16	1/4-28	2	0.3	3/8	3/8	1.26	1.1	3/4	5/8	1/2	1	5 3/4	1.71	3 5/8	2.36	6 1/4
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	3/4	1/2	9/16	5/16-24	2 1/2	0.3	3/8	3/8	1.26	1.06	3/4	5/8	1/2	1	5 3/4	1.71	3 5/8	2.4	6 1/4
250 (2.5")	5/8	7/16-20	3/4	3.1	1 1/8	3/8	3/4	1/2	9/16	5/16-24	3	0	3/8	3/8	1.3	1.06	3/4	5/8	1/2	1	5 7/8	1.75	3 3/4	2.48	6 3/8
325 (3.25")	1	3/4-16	1 1/8	3.9	1 1/2	1/2	1 1/4	3/4	7/8	3/8-24	3 3/4	0	1/2	5/8	1.57	1.18	1 1/4	1	3/4	1 3/8	7 1/2	2.34	4 1/4	2.72	8 1/4
400 (4")	1	3/4-16	1 1/8	4.7	1 1/2	1/2	1 1/4	3/4	7/8	3/8-24	4 1/2	0	1/2	5/8	1.57	1.18	1 1/4	1	3/4	1 3/8	7 1/2	2.34	4 1/4	2.72	8 1/4

DIMENSIONS
DOUBLE REAR CLEVIS TYPE NC□A1X



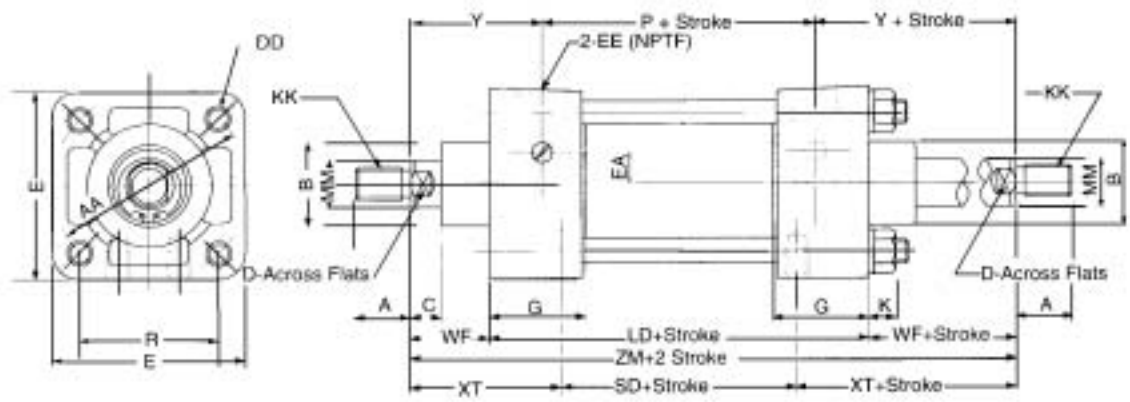
BORE (INCH)	MM	KK	A	AA	B	C	CB	CD	CW	D	DD	E	EA	EE	F	G	J	L	LR	M	WF	XD	Y	LF	P	ZB
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	3/4	1/2	1/2	9/16	1/4-28	2	0.3	3/8	3/8	1.26	1.1	0.62	0.75	0.62	1	5 3/8	1.71	3 5/8	2.36	4.75
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	3/4	1/2	1/2	9/16	5/16-24	2 1/2	0.3	3/8	3/8	1.26	1.06	0.62	0.75	0.62	1	5 3/8	1.71	3 5/8	2.40	4.75
250 (2.5")	5/8	7/16-20	3/4	3.1	1 1/8	3/8	3/4	1/2	1/2	9/16	5/16-24	3	0	3/8	3/8	1.30	1.06	0.62	0.75	0.62	1	5 1/2	1.75	3 3/4	2.48	4.88
325 (3.25")	1	3/4-16	1 1/8	3.9	1 1/2	1/2	1 1/4	3/4	5/8	7/8	3/8-24	3 3/4	0	1/2	5/8	1.57	1.18	1.05	1.25	0.87	1 3/8	6 7/8	2.34	4 1/4	2.72	5.83
400 (4")	1	3/4-16	1 1/8	4.7	1 1/2	1/2	1 1/4	3/4	5/8	7/8	3/8-24	4 1/2	0	1/2	5/8	1.57	1.18	1.05	1.25	0.87	1 3/8	6 7/8	2.34	4 1/4	2.72	5.83

DIMENSIONS
SIDE LUG MOUNTING TYPE NC□A1S



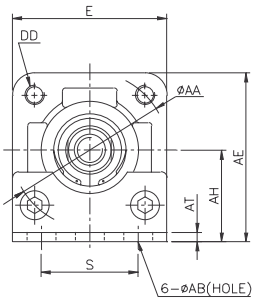
BORE (INCH)	MM	KK	A	B	C	D	DD	E	EA	EE	G	J	LF	P	R	SB	SS	ST	SU	SW	SY	TS	US	WF	XS	Y	ZB
150 (1.5")	5/8	7/16-20	3/4	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	1.1	3.63	2.36	1.43	3/8	2.88	5/8	0.94	3/8	0.94	2.75	3.50	1	1.38	1.71	5.19
200 (2")	5/8	7/16-20	3/4	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	1.06	3.63	2.4	1.84	3/8	2.88	5/8	0.94	3/8	0.94	3.25	4	1	1.38	1.71	5.19
250 (2.5")	5/8	7/16-20	3/4	1 1/8	3/8	9/16	5/16-24	3	0	3/8	1.3	1.06	3.75	2.48	2.19	3/8	3	3/4	0.94	3/8	0.94	3.75	4.50	1	1.38	1.75	5.31
325 (3.25")	1	3/4-16	1 1/8	1 1/2	1/2	7/8	3/8-24	3 3/4	0	1/2	1.57	1.18	4.25	2.72	2.76	1/2	3.25	1	1.25	1/2	1.25	4.75	5.75	1.38	1.88	2.34	6.38
400 (4")	1	3/4-16	1 1/8	1 1/2	1/2	7/8	3/8-24	4 1/2	0	1/2	1.57	1.18	4.25	2.72	3.32	1/2	3.25	1	1.25	1/2	1.25	5.50	6.50	1.38	1.88	2.34	6.38

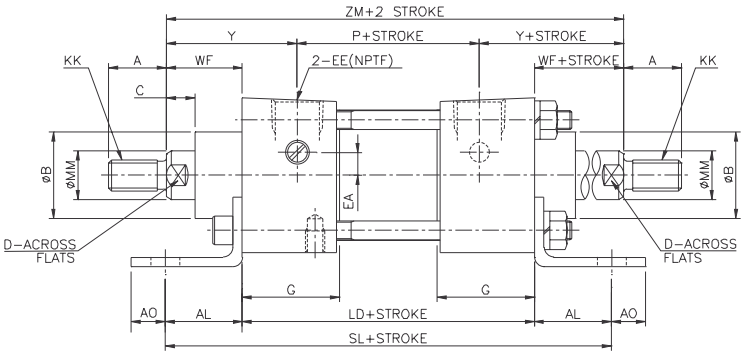
DIMENSIONS
DOUBLE ROD BASIC TYPE NC□A1WB



BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	K	LD	P	R	WF	Y	ZM	XT	SD
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	0.281	3.78	2.36	1.43	1	1.71	5.78	1 15/16	1.9
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	0.343	3.82	2.4	1.84	1	1.71	5.82	1 15/16	1.94
250 (2.5")	5/8	7/16-20	3/4	3.1	1 1/8	3/8	9/16	5/16-24	3	0	3/8	1.3	0.343	3.98	2.48	2.19	1	1.75	5.98	1 15/16	2.1
325 (3.25")	1	3/4-16	1 1/8	3.9	1 1/2	1/2	7/8	3/8-24	3 3/4	0	1/2	1.57	0.421	4.64	2.72	2.76	1 3/8	2.34	7.4	2 7/16	2.52
400 (4")	1	3/4-16	1 1/8	4.7	1 1/2	1/2	7/8	3/8-24	4 1/2	0	1/2	1.57	0.421	4.64	2.72	3.32	1 3/8	2.34	7.4	2 7/16	2.52

DIMENSIONS
DOUBLE ROD FOOT MOUNTING TYPE NC□A1WL

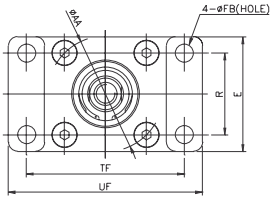


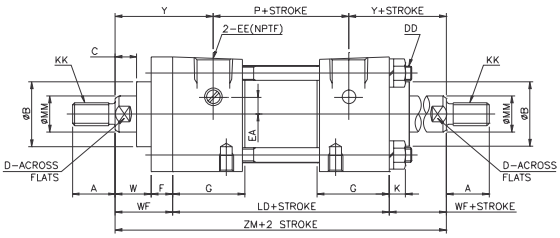


BORE (INCH)	MM	KK	A	AA	AB	AE	AH	AL	AO	AT	B	BA	C	D	DD	E	EA	EE	G	K	S	WF	Y	P	LD	SL	ZM
150 (1.5")	5/8	7/16-20	3/4	2.02	3/8	2 3/16	1 3/16	1	7/16	1/8	1 1/8	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	0.281	1 1/4	1	1.71	2.36	3.78	5.78	5.78
200 (2")	5/8	7/16-20	3/4	2.6	3/8	2 11/16	1 7/16	1	9/16	1/8	1 1/8	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	0.343	1 3/4	1	1.71	2.4	3.82	5.82	5.82
250 (2.5")	5/8	7/16-20	3/4	3.1	3/8	3 1/8	1 5/8	1	9/16	1/8	1 1/8	1 1/8	3/8	9/16	5/16-24	3	0	3/8	1.3	0.343	2 1/4	1	1.75	2.48	3.98	5.98	5.98
325 (3.25")	1	3/4-16	1 1/8	3.9	1/2	3 13/16	1 15/16	1 1/4	3/4	11/64	1 1/2	1 1/2	1/2	7/8	3/8-24	3 3/4	0	1/2	1.57	0.421	2 3/4	1 3/8	2.34	2.72	4.64	7.14	7.4
400 (4")	1	3/4-16	1 1/8	4.7	1/2	4 1/2	2 1/4	1 1/4	3/4	15/64	1 1/2	1 1/2	1/2	7/8	3/8-24	4 1/2	0	1/2	1.57	0.421	3 1/2	1 3/8	2.34	2.72	4.64	7.14	7.4

MORE DIMENSIONS SEE NEXT PAGE ☞

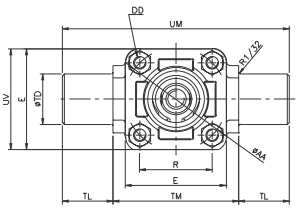
DIMENSIONS
DOUBLE ROD FRONT FLANGE MOUNTING TYPE NC□A1WF

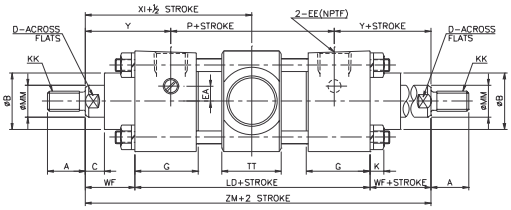




BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	F	FB	G	K	R	TF	UF	W	WF	Y	LD	P	ZM
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	0.375	0.312	1.26	0.281	1.43	2.75	3.375	0.625	1	1.71	3.78	2.36	5.78
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	0.375	0.375	1.26	0.343	1.84	3.375	4.125	0.625	1	1.71	3.82	2.4	5.82
250 (2.5")	5/8	7/16-20	3/4	3.1	1 1/8	3/8	9/16	5/16-24	3	0	3/8	0.375	0.375	1.3	0.343	2.19	3.875	4.625	0.625	1	1.75	3.98	2.48	5.98
325 (3.25")	1	3/4-16	1 1/8	3.9	1 1/2	1/2	7/8	3/8-24	3 3/4	0	1/2	0.625	0.437	1.57	0.421	2.76	4.687	5.5	0.75	1 3/8	2.34	4.64	2.72	7.4
400 (4")	1	3/4-16	1 1/8	4.7	1 1/2	1/2	7/8	3/8-24	4 1/2	0	1/2	0.625	0.437	1.57	0.421	3.32	5.437	6.25	0.75	1 3/8	2.34	4.64	2.72	7.4

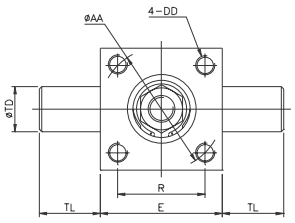
DIMENSIONS
DOUBLE ROD CENTER TRUNNION MOUNTING TYPE NC□A1WT

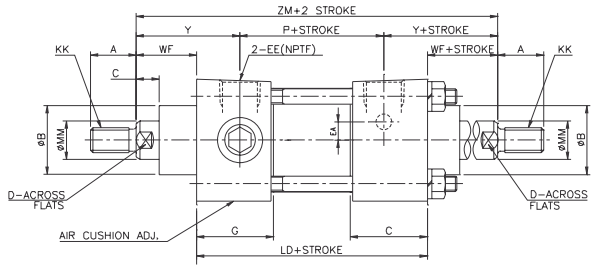




BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	K	R	TD $^{0}_{0.001}$	TL	TM	TT	UM	UV	WF	Y	LD	P	XI	ZM
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	0.375	9/16	1/4-28	2	0.3	3/8	1.26	0.281	1.43	1	1	2.5	1.18	4.5	2	1	1.71	3.78	2.36	2.89	5.78
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	0.375	9/16	5/16-24	2 1/2	0.3	3/8	1.26	0.343	1.84	1	1	3	1.18	5	2.56	1	1.71	3.82	2.4	2.91	5.82
250 (2.5")	5/8	7/16-20	3/4	3.1	1 1/8	0.375	9/16	5/16-24	3	0	3/8	1.3	0.343	2.19	1	1	3.5	1.18	5.5	3.39	1	1.75	3.98	2.48	2.99	5.98
325 (3.25")	1	3/4-16	1 1/8	3.9	1 1/2	0.5	7/8	3/8-24	3 3/4	0	1/2	1.57	0.421	2.76	1	1	4.5	1.34	6.5	4.33	1 3/8	2.34	4.64	2.72	3.7	7.4
400 (4")	1	3/4-16	1 1/8	4.7	1 1/2	0.5	7/8	3/8-24	4 1/2	0	1/2	1.57	0.421	3.32	1	1	5.25	1.57	7.25	5.12	1 3/8	2.34	4.64	2.72	3.74	7.4

DIMENSIONS
DOUBLE ROD ROD TRUNNION TYPE NC□A1WU

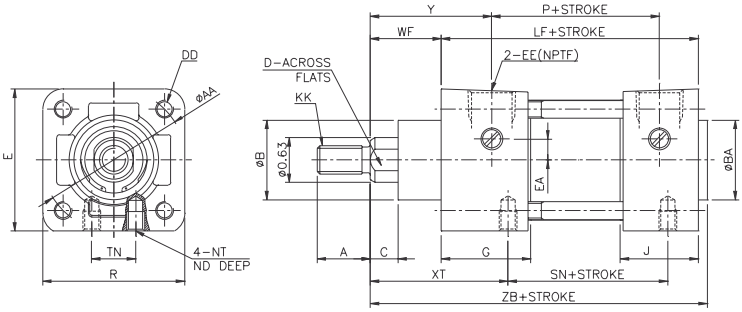




BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	K	LD	P	R	TD $^{0}_{0.001}$	TL	WF	Y	ZM
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	0.281	3.78	2.36	1.43	1	1	1	1.71	5.78
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	0.343	3.82	2.4	1.84	1	1	1	1.71	5.82
250 (2.5")	5/8	7/16-20	3/4	3.1	1 1/8	3/8	9/16	5/16-24	3	0	3/8	1.3	0.343	3.98	2.48	2.19	1	1	1	1.75	5.98
325 (3.25")	1	3/4-16	1 1/8	3.9	1 1/2	1/2	7/8	3/8-24	3 3/4	0	1/2	1.57	0.421	4.64	2.72	2.76	1	1	1 3/8	2.34	7.4
400 (4")	1	3/4-16	1 1/8	4.7	1 1/2	1/2	7/8	3/8-24	4 1/2	0	1/2	1.57	0.421	4.64	2.72	3.32	1	1	1 3/8	2.34	7.4

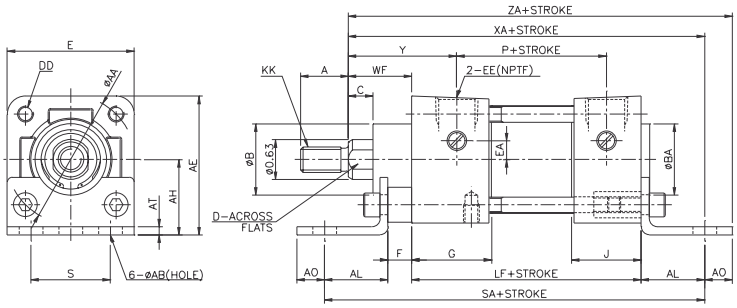
SERIES NCA1

DIMENSIONS
NON-ROTATING ROD BASIC TYPE - NC□A1KB



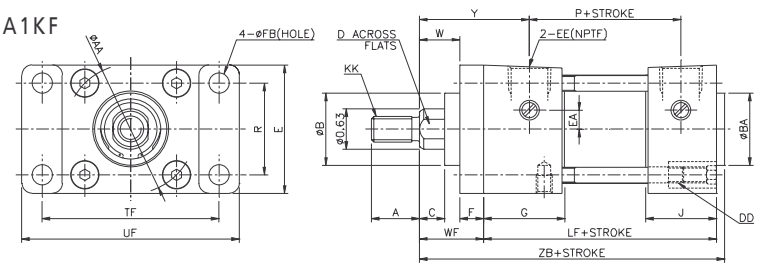
BORE (INCH)	KK	A	AA	B	BA	C	D	DD	E	EA	EE	G	J	R	WF	Y	LF	P	ZB	TN	XT	SN
150 (1.5")	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	0.551	1/4-28	2	0.3	3/8	1.26	1.1	1.43	1	1.71	3 5/8	2.36	4 3/4	5/8	1 15/16	2 1/4
200 (2")	7/16-20	3/4	2.6	1 1/8	1 1/8	3/8	0.551	5/16-24	2 1/2	0.3	3/8	1.26	1.06	1.84	1	1.71	3 5/8	2.40	4 3/4	7/8	1 15/16	2 1/4
250 (2.5")	7/16-20	3/4	3.1	1 1/8	1 1/8	3/8	0.551	5/16-24	3	0	3/8	1.30	1.06	2.19	1	1.75	3 3/4	2.48	4 7/8	1 1/4	1 15/16	2 3/8

DIMENSIONS
NON-ROTATING ROD FOOT MOUNTING TYPE NC□A1KL



BORE (INCH)	KK	A	AA	AB	AE	AH	AL	AO	AT	B	BA	C	D	DD	E	EA	EE	F	G	J	S	WF	Y	P	LF	SA	XA	ZA
150 (1.5")	7/16-20	3/4	2.02	0.375	2.187	1.187	1	0.437	0.125	1 1/8	1 1/8	3/8	0.551	1/4-28	2	0.3	3/8	0.375	1.26	1.1	1.25	1	1.71	2.36	3 5/8	6	5 5/8	6.062
200 (2")	7/16-20	3/4	2.60	0.375	2.687	1.437	1	0.562	0.125	1 1/8	1 1/8	3/8	0.551	5/16-24	2.5	0.3	3/8	0.375	1.26	1.06	1.75	1	1.71	2.40	3 5/8	6	5 5/8	6.187
250 (2.5")	7/16-20	3/4	3.10	0.375	3.125	1.625	1	0.562	0.125	1 1/8	1 1/8	3/8	0.551	5/16-24	3	0	3/8	0.375	1.30	1.06	2.25	1	1.75	2.48	3 3/4	6 1/4	5 3/4	6.312

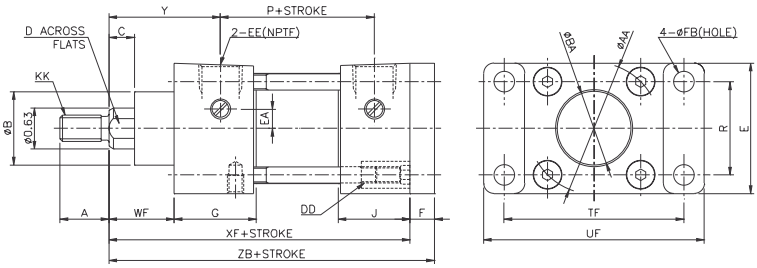
DIMENSIONS
NON-ROTATING ROD FRONT FLANGE MOUNTING TYPE NC□A1KF



BORE (INCH)	KK	A	AA	B	BA	C	D	DD	E	EA	EE	F	FB	G	J	R	TF	UF	W	WF	Y	LF	P	ZB
150 (1.5")	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	0.551	1/4-28	2	0.3	3/8	0.375	0.312	1.26	1.1	1.43	2.75	3.375	5/8	1	1.71	3 5/8	2.36	4.75
200 (2")	7/16-20	3/4	2.6	1 1/8	1 1/8	3/8	0.551	5/16-24	2.5	0.3	3/8	0.375	0.375	1.26	1.06	1.84	3.375	4.125	5/8	1	1.71	3 5/8	2.40	4.75
250 (2.5")	7/16-20	3/4	3.1	1 1/8	1 1/8	3/8	0.551	5/16-24	2.5	0.3	3/8	0.375	0.375	1.30	1.06	2.19	3.875	4.625	5/8	1	1.75	3 3/4	2.48	4.875

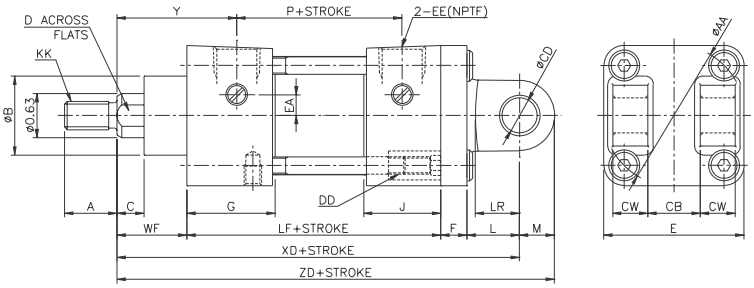
MORE DIMENSIONS SEE NEXT PAGE ☞

DIMENSIONS
NON-ROTATING ROD REAR FLANGE MOUNTING TYPE NC□A1KG



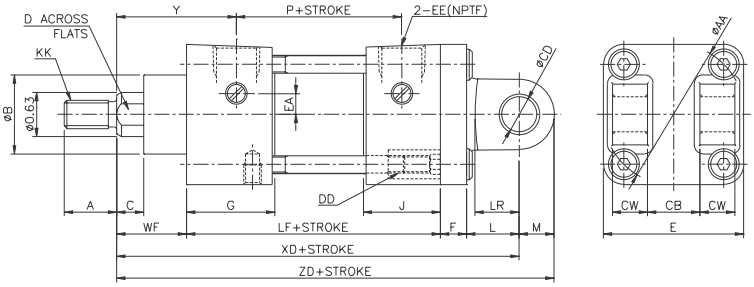
BORE (INCH)	KK	A	AA	B	BA	C	D	DD	E	EA	EE	F	FB	G	J	R	TF	UF	WF	Y	P	XF	ZF
150 (1.5")	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	0.551	1/4-28	2	0.3	3/8	0.375	0.312	1.26	1.1	1.43	2.75	3.375	1	1.71	2.36	4.675	5
200 (2")	7/16-20	3/4	2.6	1 1/8	1 1/8	3/8	0.551	5/16-24	2.5	0.3	3/8	0.375	0.375	1.26	1.06	1.84	3.375	4.125	1	1.71	2.40	4.675	5
250 (2.5")	7/16-20	3/4	3.1	1 1/8	1 1/8	3/8	0.551	5/16-24	2.5	0	3/8	0.375	0.375	1.30	1.06	2.19	3.875	4.625	1	1.75	2.48	4.75	5.125

DIMENSIONS
NON-ROTATING ROD DETACHABLE REAR CLEVIS MOUNTING TYPE NC□A1KD



BORE (INCH)	KK	A	AA	B	C	CB	CD	CW	D	DD	E	EA	EE	FF	G	J	L	LR	M	WF	XD	Y	LF	P	ZD
150 (1.5")	7/16-20	3/4	2.02	1 1/8	3/8	3/4	1/2	1/2	0.551	1/4-28	2	0.3	3/8	0.375	1.26	1.1	3/4	0.625	1/2	1	5.75	1.71	3 5/8	2.36	6.25
200 (2")	7/16-20	3/4	2.6	1 1/8	3/8	3/4	1/2	1/2	0.551	5/16-24	2.5	0.3	3/8	0.375	1.26	1.06	3/4	0.625	1/2	1	5.75	1.71	3 5/8	2.40	6.25
250 (2.5")	7/16-20	3/4	3.1	1 1/8	3/8	3/4	1/2	1/2	0.551	5/16-24	3	0	3/8	0.375	1.30	1.06	3/4	0.625	1/2	1	5.875	1.75	3 3/4	2.48	6.375

DIMENSIONS
NON-ROTATING ROD CENTER TRUNNION MOUNTING TYPE NC□A1KT



BORE (INCH)	KK	A	AA	B	BA	C	D	DD	E	EA	EE	G	J	R	TD $^{0}_{0.001}$	TL	TM	TT	UM	UV	WF	Y	LF	P	XI	ZB
150 (1.5")	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	0.551	1/4-28	2	0.3	3/8	1.26	1.1	1.43	1	1	2.5	1.18	4.5	2	1	1.71	3 5/8	2.36	2.89	4.75
200 (2")	7/16-20	3/4	2.60	1 1/8	1 1/8	3/8	0.551	5/16-24	2.5	0.3	3/8	1.26	1.06	1.84	1	1	3	1.18	5	2.56	1	1.71	3 5/8	2.4	2.91	4.75
250 (2.5")	7/16-20	3/4	3.10	1 1/8	1 1/8	3/8	0.551	5/16-24	3	0	3/8	1.30	1.06	2.19	1	1	3.5	1.18	5.5	3.39	1	1.75	3 3/4	2.48	2.99	4.875

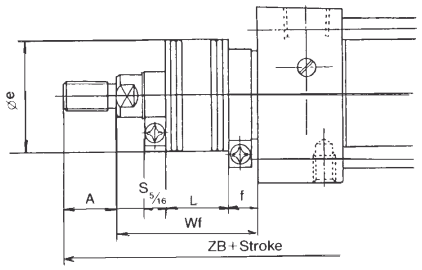
SERIES NCA1

DIMENSIONS

ROD BOOT TYPE NC□A1□□-□ J

BOOT MATERIAL

Suffix Code	Material	Maximum Temperature
J	Nylon	140OF (60°C)
K	Neoprene	230OF (110°C)



BORE (INCH)	A	øe	F	STROKE										
				0~2	2.1~4	4.1~6	6.1~8	8.1~10	10.1~12	12.1~14	14.1~16	16.1~20	20.1~24	24.1~28
150 (1.5")	0.75	1.375	0.734										-	-
200 (2")	0.75	1.375	0.734										6	-
250 (2.5")	0.75	1.375	0.734	0.5	1	1.5	2	2.5	3	3.5	4	5	6	-
325 (3.25")	1.125	1.968	0.984										6	7
400 (4")	1.125	1.968	0.984										6	7

BORE (INCH)	Wf										
	0~2	2.1~4	4.1~6	6.1~8	8.1~10	10.1~12	12.1~14	14.1~16	16.1~20	20.1~24	24.1~28
150 (1.5")	1.937	2.437	2.937	3.437	3.937	4.437	4.937	5.437	6.437	-	-
200 (2")	1.937	2.437	2.937	3.437	3.937	4.437	4.937	5.437	6.437	7.437	-
250 (2.5")	1.937	2.437	2.937	3.437	3.937	4.437	4.937	5.437	6.437	7.437	-
325 (3.25")	2.312	2.812	3.312	3.812	4.312	4.812	5.312	5.812	6.812	7.812	8.812
400 (4")	2.312	2.812	3.312	3.812	4.312	4.812	5.312	5.812	6.812	7.812	8.812

BORE (INCH)	ZB										
	0~2	2.1~4	4.1~6	6.1~8	8.1~10	10.1~12	12.1~14	14.1~16	16.1~20	20.1~24	24.1~28
150 (1.5")	5.689	6.187	6.687	7.187	7.687	8.187	8.687	9.187	10.187	-	-
200 (2")	5.689	6.187	6.687	7.187	7.687	8.187	8.687	9.187	10.187	11.187	-
250 (2.5")	5.812	6.312	6.812	7.312	7.812	8.312	8.812	9.937	10.312	11.312	-
325 (3.25")	6.765	7.265	7.765	8.265	8.765	9.265	9.765	10.265	11.265	12.265	13.265
400 (4")	6.765	7.265	7.765	8.265	8.765	9.265	9.765	10.265	11.265	12.265	13.265

HOW TO ORDER

ROD BOOT TYPE

N C □ A 1 □ □ □ - □ □ □ □ - □ □ - □

- AUTO SWITCH
- STYLE
- MOUNTING
- BORE SIZE
- STROKE
- CUSHION
- ROD BOOT
  - - ..... Without
  - J ..... Nylon
  - K ..... Neoprene
- AUTO SWITCH APPLICABLE
- NO OF SWITCHES
- OPTIONS

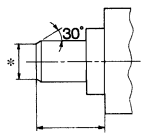
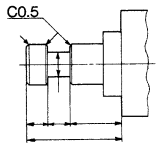
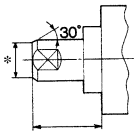
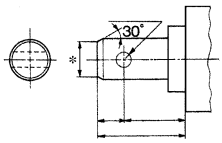
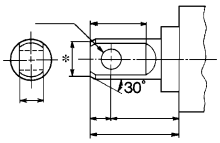
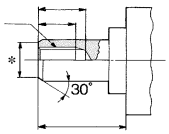
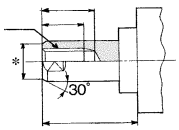
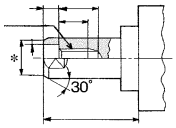
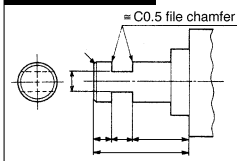
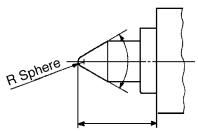
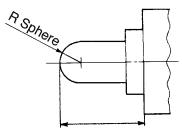
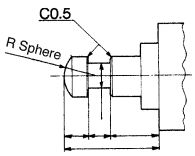
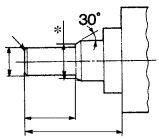
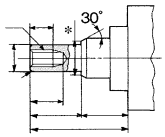
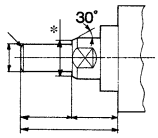
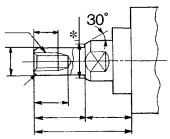
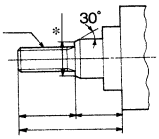
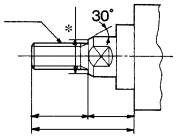
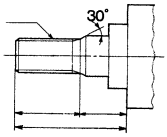
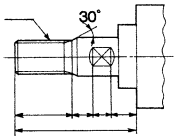
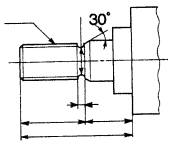
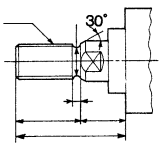
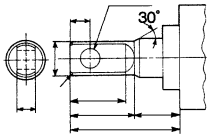
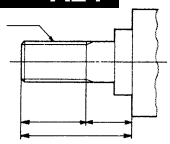
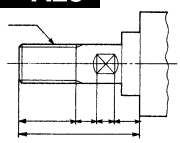
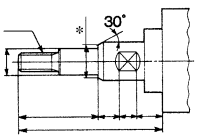
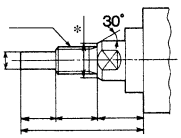
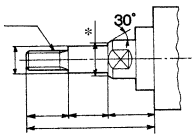
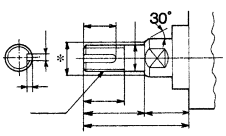
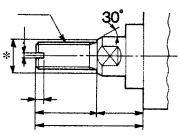
HOW TO ORDER
SERIES NCA1 AIR CYLINDER OPTIONS
SPECIAL ROD THREAD - XA OPTION

TO CHANGE ROD THREAD FROM STANDARD THREAD FORM, USE THE FOLLOWING FORMAT:

How To Order

The NCA1 series cylinders are available with a variety of special rod end modifications to suit your application through our simple special ordering process. The Simple Special System is a global effort to quickly and efficiently respond to our customer requests for a non standard catalog option. The chart below outlines the applicable types available. To order the correct rod end modification please contact your local SMC Sales Office or SMC Technical Sales Representative.

Rod End Shape

Symbol: **A1** 	Symbol: **A2** 	Symbol: **A3** 	Symbol: **A4** 	Symbol: **A5** 
Symbol: **A6** 	Symbol: **A7** 	Symbol: **A8** 	Symbol: **A9** 	Symbol: **A10** 
Symbol: **A11** 	Symbol: **A12** 	Symbol: **A13** 	Symbol: **A14** 	Symbol: **A15** 
Symbol: **A16** 	Symbol: **A17** 	Symbol: **A18** 	Symbol: **A19** 	Symbol: **A20** 
Symbol: **A21** 	Symbol: **A22** 	Symbol: **A23** 	Symbol: **A24**  Note) Series CQ2 is not available.	Symbol: **A25**  Note) Series CQ2 is not available.
Symbol: **A26** 	Symbol: **A27** 	Symbol: **A28** 	Symbol: **A29** 	Symbol: **A30** 

SERIES NCA1

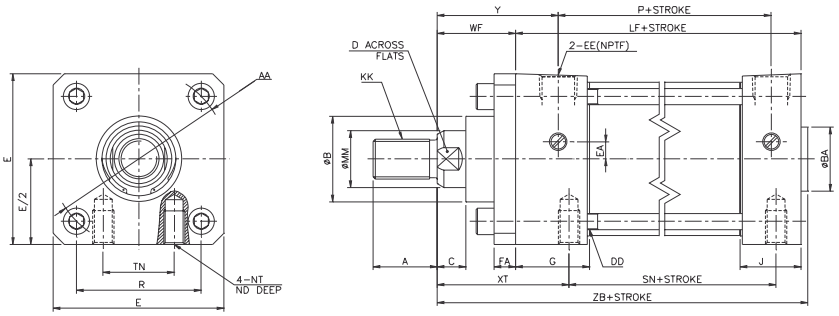
TECHNICAL SPECIFICATIONS

OVERSIZED ROD - XB5 OPTION

Bore Size	2 / 2.5 / 3.25 / 4
Fluid	Air
Max Operating Pressure	1.75MPa / 250PSI
Min Operating Pressure	0.06MPa / 8PSI
Ambient & Media Temperature	5~60°C / 40~140°F
Piston Speed	2~20in/s (50~500mm/s)
Cushion	Air Cushion Standard
Mounting Types	Basic, foot, Flange Center Trunnion, Side-Tapped

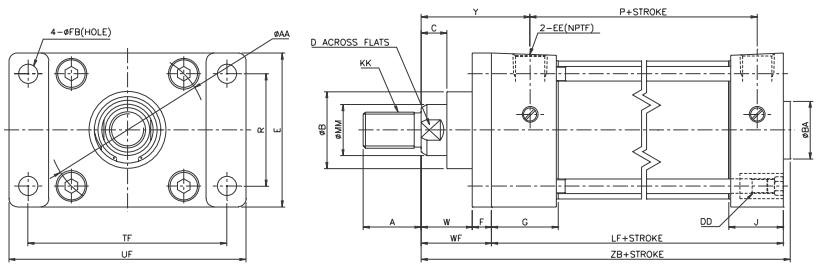
DIMENSIONS

OVERSIZED ROD BASIC TYPE NC□A1B (XB5)



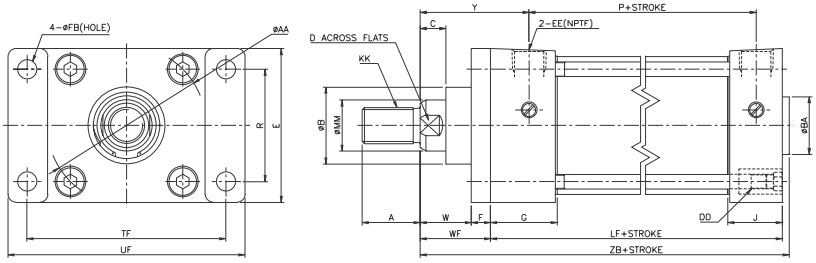
BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	FA	G	J	R	ND	NT	TN	WF	XT	Y	LF	P	SN	ZB
200 (2")	1	3/4-16	1 1/8	2.6	1.5	1 1/8	1/2	7/8	5/16-24	2 1/2	0.3	3/8	3/8	1.26	1.06	1.84	7/16	5/16-18	7/8	1 3/8	2 5/16	2.09	3 5/8	2.40	2 1/4	5 1/8
250 (2.5")	1	3/4-16	1 1/8	3.1	1.5	1 1/8	1/2	7/8	5/16-24	3	0	3/8	3/8	1.3	1.06	2.19	19/32	3/8-18	1 1/4	1 3/8	2 5/16	2.13	3 3/4	2.48	2 3/8	5 1/4
325 (3.25")	1 3/8	1-14	1 5/8	3.9	2	1 1/2	5/8	1 1/4	3/8-24	3 3/4	0	1/2	5/8	1.57	1.18	2.76	5/8	1/2-13	1 1/2	1 5/8	2 11/16	2.59	4 1/4	2.72	2 5/8	6 5/64
400 (4")	1 3/8	1-14	1 5/8	4.7	2	1 1/2	5/8	1 1/4	3/8-24	4 1/2	0	1/2	5/8	1.57	1.18	3.32	5/8	1/2-13	2 1/10	1 5/8	2 11/16	2.59	4 1/4	2.72	2 5/8	6 5/64

OVERSIZED ROD FOOT MOUNTING TYPE NC□A1L (XB5)



BORE (INCH)	MM	KK	A	AA	AB	AE	AH	AL	AO	AT	B	BA	C	D	DD	E	EA	EE	FA	G	J	S	WF	Y	P	LF	SA	XA	ZA
200 (2")	1	3/4-16	1 1/8	2.6	3/8	2 11/16	1 7/16	1	9/16	1/8	1.5	1 1/8	1/2	7/8	5/16-24	2 1/2	0.3	3/8	3/8	1.26	1.06	1 3/4	1 3/8	2.09	2.40	3 5/8	6	6	6 9/16
250 (2.5")	1	3/4-16	1 1/8	3.1	3/8	3 1/8	1 5/8	1	9/16	1/8	1.5	1 1/8	1/2	7/8	5/16-24	3	0	3/8	3/8	1.3	1.06	2 1/4	1 3/8	2.13	2.48	3 3/4	6 1/8	6 1/8	6 11/16
325 (3.25")	1 3/8	1-14	1 5/8	3.9	1/2	3 13/16	1 15/16	1 1/4	3/4	11/64	2	1 1/2	5/8	1 1/4	3/8-24	3 3/4	0	1/2	5/8	1.57	1.18	2 3/4	1 5/8	2.59	2.72	4 1/4	7 3/8	7 3/8	7 7/8
400 (4")	1 3/8	1-14	1 5/8	4.7	1/2	4 1/2	2 1/4	1 1/4	3/4	11/64	2	1 1/2	5/8	1 1/4	3/8-24	4 1/2	0	1/2	5/8	1.57	1.18	3 1/2	1 5/8	2.59	2.72	4 1/4	7 3/8	7 3/8	7 7/8

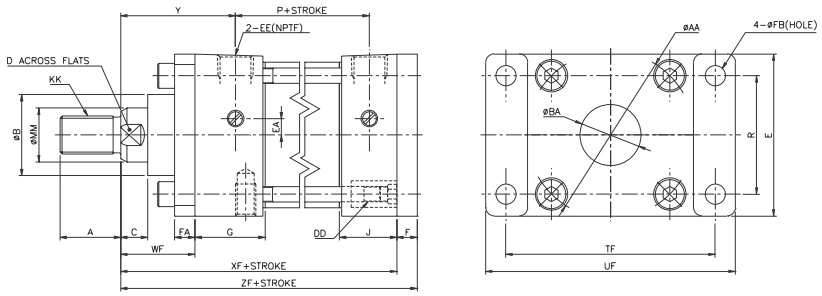
DIMENSIONS
OVERSIZED ROD FRONT FLANGE MOUNTING TYPE NC□A1F (XB5)



BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	F	FB	G	J	R	TF	UF	W	WF	Y	LF	P	ZB
200 (2″)	1	3/4-16	1 1/8	2.6	1.5	1 1/8	1/2	7/8	5/16-24	2 1/2	0.3	3/8	3/8	3/8	1.26	1.06	1.84	3 3/8	4 1/8	1	1 3/8	2.09	3 5/8	2.40	5 1/8
250 (2.5″)	1	3/4-16	1 1/8	3.1	1.5	1 1/8	1/2	7/8	5/16-24	3	0	3/8	3/8	3/8	1.30	1.06	2.19	3 7/8	4 5/8	1	1 3/8	2.13	3 3/4	2.48	5 1/4
325 (3.25″)	1 3/8	1-14	1 5/8	3.9	2	1 1/2	5/8	1 1/4	3/8-24	3 3/4	0	1/2	5/8	7/16	1.57	1.18	2.76	4 11/16	5 1/2	1	1 5/8	2.59	4 1/4	2.72	6 5/64
400 (4″)	1 3/8	1-14	1 5/8	4.7	2	1 1/2	5/8	1 1/4	3/8-24	4 1/2	0	1/2	5/8	7/16	1.57	1.18	3.32	5 7/16	6 1/4	1	1 5/8	2.59	4 1/4	2.72	6 5/64

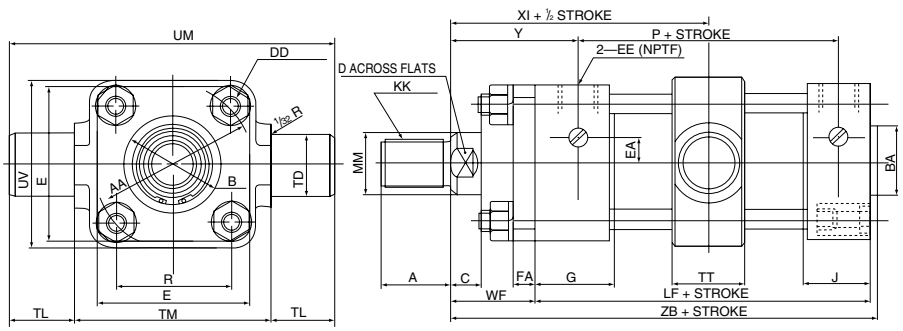
DIMENSIONS
OVERSIZED ROD REAR FLANGE MOUNTING TYPE NC□A1G (XB5)

MORE DIMENSIONS SEE NEXT PAGE ☞



BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	F	FA	G	J	R	TF	UF	WF	Y	P	XF	ZF
200 (2″)	1	3/4-16	1 1/8	2.6	1.5	1 1/8	1/2	7/8	5/16-24	2 1/2	0.3	3/8	3/8	3/8	1.26	1.06	1.84	3 3/8	4 1/8	1 3/8	2.09	2.40	5	5 3/8
250 (2.5″)	1	3/4-16	1 1/8	3.1	1.5	1 1/8	1/2	7/8	5/16-24	3	0	3/8	3/8	3/8	1.3	1.06	2.19	3 7/8	4 5/8	1 3/8	2.13	2.48	5 1/8	5 1/2
325 (3.25″)	1 3/8	1-14	1 5/8	3.9	2	1 1/2	5/8	1 1/4	3/8-24	3 3/4	0	1/2	5/8	5/8	1.57	1.18	2.76	4 11/16	5 1/2	1 5/8	2.59	2.72	5 7/8	6 1/2
400 (4″)	1 3/8	1-14	1 5/8	4.7	2	1 1/2	5/8	1 1/4	3/8-24	4 1/2	0	1/2	5/8	5/8	1.57	1.18	3.32	5 7/16	6 1/4	1 5/8	2.59	2.72	5 7/8	6 1/2

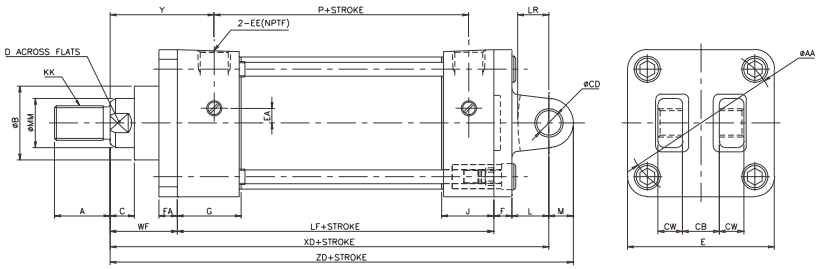
DIMENSIONS
OVERSIZED ROD CENTER TRUNNION MOUNTING TYPE NC□A1T (XB5)



BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	FA	G	J	R	TD 0 0.001	TL	TM	TT	UM	UV	WF	Y	LF	P	XI	ZB
200 (2″)	1	3/4-16	1 1/8	2.6	1.5	1 1/8	1/2	7/8	5/16-24	2 1/2	0.3	3/8	3/8	1.26	1.06	1.84	1	1	3	1.18	5	2.56	1 3/8	2.09	3 5/8	2.40	3.29	5 1/8
250 (2.5″)	1	3/4-16	1 1/8	3.1	1.5	1 1/8	1/2	7/8	5/16-24	3	0	3/8	3/8	1.3	1.06	2.19	1	1	3 1/2	1.18	5 1/2	3.39	1 3/8	2.13	3 3/4	2.48	3.37	5 1/4
325 (3.25″)	1 3/8	1-14	1 5/8	3.9	2	1 1/2	5/8	1 1/4	3/8-24	3 3/4	0	1/2	5/8	1.57	1.18	2.76	1	1	4 1/2	1.34	6 1/2	4.33	1 5/8	2.59	4 1/4	2.72	3.95	6 5/64
400 (4″)	1 3/8	1-14	1 5/8	4.7	2	1 1/2	5/8	1 1/4	3/8-24	4 1/2	0	1/2	5/8	1.57	1.18	3.32	1	1	5 1/4	1.57	7 1/4	5.12	1 5/8	2.59	4 1/4	2.72	3.99	6 5/64

DIMENSIONS

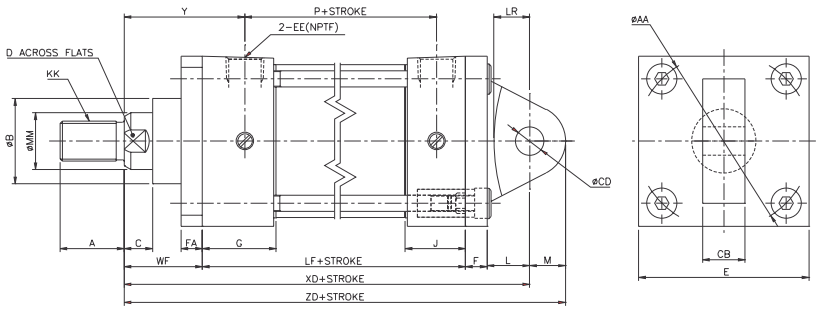
OVERSIZED ROD DETACHABLE REAR CLEVIS MOUNTING TYPE NC□A1D (XB5)



BORE (INCH)	MM	KK	A	AA	B	C	CB	CD	CW	D	DD	E	EA	EE	F	FA	G	J	L	LR	M	WF	XD	Y	LF	P	ZD
200 (2")	1	3/4-16	1 1/8	2.6	1.5	1/2	3/4	1/2	1/2	7/8	5/16-24	2 1/2	0.3	3/8	3/8	3/8	1.26	1.06	3/4	5/8	1/2	1 3/8	6 1/8	2.09	3 5/8	2.40	6 5/8
250 (2.5")	1	3/4-16	1 1/8	3.1	1.5	1/2	3/4	1/2	1/2	7/8	5/16-24	3	0	3/8	3/8	3/8	1.3	1.06	3/4	5/8	1/2	1 3/8	6 1/4	2.13	3 3/4	2.48	6 3/4
325 (3.25")	1 3/8	1-14	1 5/8	3.9	2	5/8	1 1/4	3/4	3/4	1 1/4	3/8-24	3 3/4	0	1/2	5/8	5/8	1.57	1.18	1 1/4	1	3/4	1 5/8	7 3/4	2.59	4 1/4	2.72	8 1/2
400 (4")	1 3/8	1-14	1 5/8	4.7	2	5/8	1 1/4	3/4	3/4	1 1/4	3/8-24	4 1/2	0	1/2	5/8	5/8	1.57	1.18	1 1/4	1	3/4	1 5/8	7 3/4	2.59	4 1/4	2.72	8 1/2

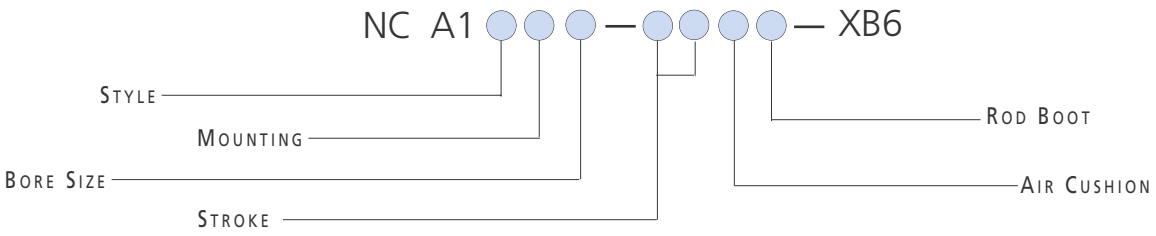
DIMENSIONS

OVERSIZED ROD SINGLE DETACHABLE REAR CLEVIS MOUNTING TYPE NC□A1C (XB5)



BORE (INCH)	MM	KK	A	AA	B	C	CB	CD	CW	D	DD	E	EA	EE	F	FA	G	J	L	LR	M	WF	XD	Y	LF	P	ZD
200 (2")	1	3/4-16	1 1/8	2.6	1.5	1/2	3/4	1/2	1/2	7/8	5/16-24	2 1/2	0.3	3/8	3/8	3/8	1.26	1.06	3/4	5/8	1/2	1 3/8	6 1/8	2.09	3 5/8	2.40	6 5/8
250 (2.5")	1	3/4-16	1 1/8	3.1	1.5	1/2	3/4	1/2	1/2	7/8	5/16-24	3	0	3/8	3/8	3/8	1.3	1.06	3/4	5/8	1/2	1 3/8	6 1/4	2.13	3 3/4	2.48	6 3/4
325 (3.25")	1 3/8	1-14	1 5/8	3.9	2	5/8	1 1/4	3/4	3/4	1 1/4	3/8-24	3 3/4	0	1/2	5/8	5/8	1.57	1.18	1 1/4	1	3/4	1 5/8	7 3/4	2.59	4 1/4	2.72	8 1/2
400 (4")	1 3/8	1-14	1 5/8	4.7	2	5/8	1 1/4	3/4	3/4	1 1/4	3/8-24	4 1/2	0	1/2	5/8	5/8	1.57	1.18	1 1/4	1	3/4	1 5/8	7 3/4	2.59	4 1/4	2.72	8 1/2

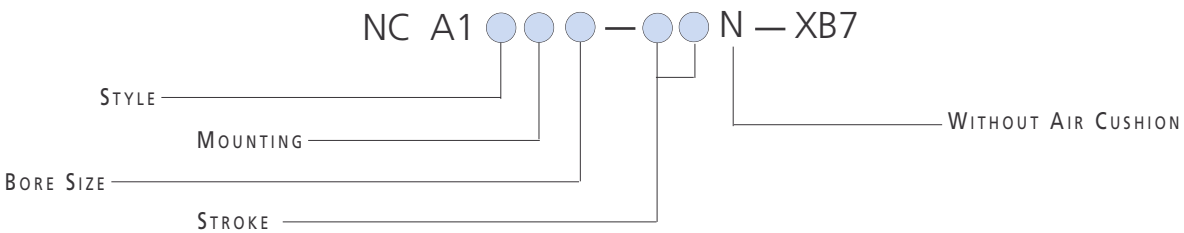
HOW TO ORDER
SERIES NCA1 AIR CYLINDER OPTIONS
HIGH TEMPERATURE - XB6 OPTION



TECHNICAL SPECIFICATIONS
HIGH TEMPERATURE - XB6 OPTION

Bore Size	1.5 / 2 / 2.5 / 3.25 / 4
Fluid	Air
Max Operating Pressure	1.75MPa / 250PSI
Min Operating Pressure	0.06MPa / 8PSI
Ambient & Media Temperature	-10~149°C / 14~300°F
Seal Material	FluoroRubber
Piston Speed	50~500mm/s / 2~20in/s
Cushion	Air Cushion Standard
Mounting Types	Basic, foot, Flange Head Flange, Rear Clevis, Center Trunnion, Side-Tapped Rod Trunnion, Head Trunnion, Side Lug

HOW TO ORDER
SERIES NCA1 AIR CYLINDER OPTIONS
LOW TEMPERATURE - XB7 OPTION

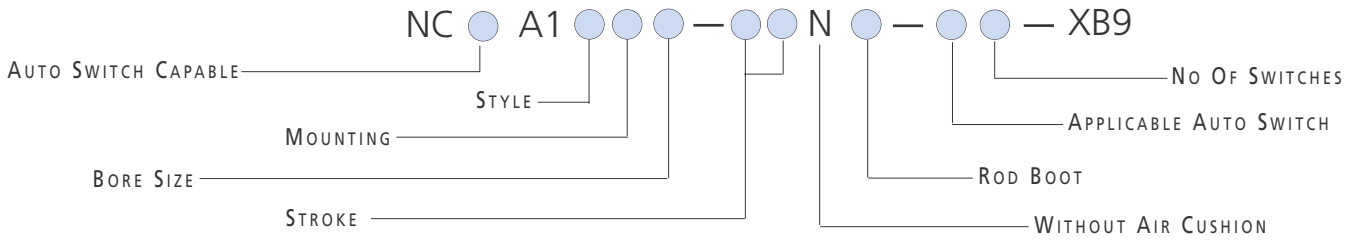


TECHNICAL SPECIFICATIONS
LOW TEMPERATURE - XB7 OPTION

Bore Size	1.5 / 2 / 2.5 / 3.25 / 4
Fluid	Air
Max Operating Pressure	1.75MPa / 250PSI
Min Operating Pressure	0.06MPa / 8PSI
Ambient & Media Temperature	-30~60°C / -22~140°F
Seal Material	Low Durometer Nitrile Rubber
Piston Speed	50~500mm/s / 2~20in/s
Cushion	Air Cushion Standard
Mounting Types	Basic, foot, Flange Head Flange, Rear Clevis, Center Trunnion, Side-Tapped Rod Trunnion, Head Trunnion, Side Lug

SERIES NCA1

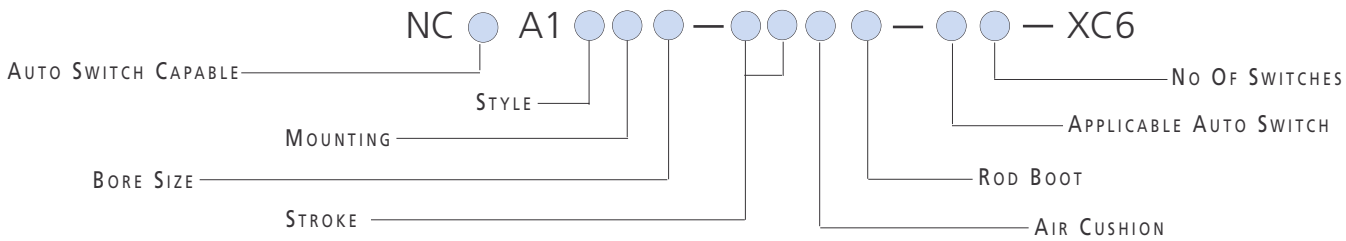
HOW TO ORDER
SERIES NCA1 AIR CYLINDER OPTIONS
LOW SPEED - XB9 OPTION



TECHNICAL SPECIFICATIONS
LOW SPEED - XB9 OPTION

Bore Size	1.5 / 2 / 2.5 / 3.25 / 4
Fluid	Air
Max Operating Pressure	1.75MPa / 250PSI
Min Operating Pressure	0.06MPa / 8PSI
Ambient & Media Temperature	5~60°C / 40~140°F
Piston Speed	10~50mm/s / 0.4~2in/s
Cushion	Air Cushion Standard
Mounting Types	Basic, Foot, Flange Head Flange, Rear Clevis, Center Trunnion, Side-Tapped. Head Trunnion, Rod Trunnion, Side Lug

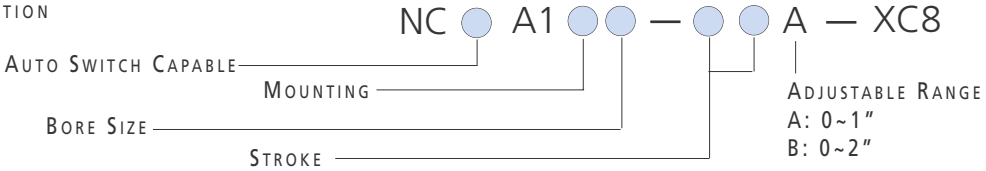
HOW TO ORDER
SERIES NCA1 AIR CYLINDER OPTIONS
STAINLESS STEEL ROD - XC6 OPTION



TECHNICAL SPECIFICATIONS
STAINLESS STEEL ROD - XC6 OPTION

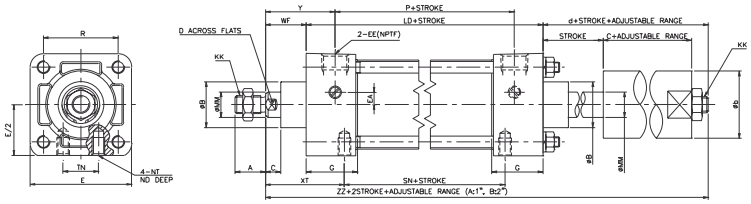
Bore Size	1.5 / 2 / 2.5 / 3.25 / 4
Fluid	Air
Max Operating Pressure	1.75MPa / 250PSI
Min Operating Pressure	0.06MPa / 8PSI
Rod Material	SUS304
Ambient & Media Temperature	5~60°C / 40~140°F
Piston Speed	50~500mm/s / 2~20in/s
Cushion	Air Cushion Standard
Mounting Types	Basic, Foot, Flange Head Flange, Clevis, Center Trunnion, Side-Tapped. Head Trunnion, Rod Trunnion, Side Lug

HOW TO ORDER
SERIES NCA1 AIR CYLINDER OPTIONS
ADJUSTABLE STROKE - EXTEND - XC8 OPTION



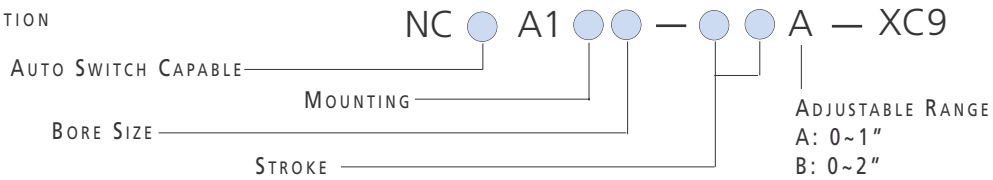
TECHNICAL SPECIFICATIONS
ADJUSTABLE STROKE - EXTEND - XC8 OPTION

Bore Size	1.5 / 2 / 2.5 / 3.25 / 4
Fluid	Air
Max Operating Pressure	1.75MPa / 250PSI
Min Operating Pressure	0.06MPa / 8PSI
Ambient & Media Temperature	5~60°C / 40~140°F
Piston Speed	50~500mm/s / 2~20in/s
Cushion	Air Cushion Standard
Mounting Types	Basic, Foot, Flange Center Trunnion, Side Tapped



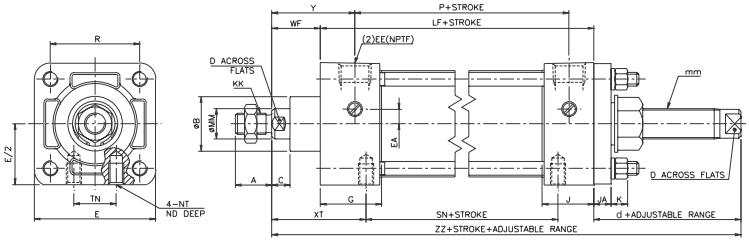
BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	K	R	WF	Y	LD	P	ZZ	b	c	d
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	9/32	1.43	1	1.71	3.78	2.36	6.58	1 1/2	1.25	1.80
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	11/32	1.84	1	1.71	3.82	2.40	7.01	1 21/32	1.64	2.19
250 (2.5")	5/8	7/16-20	3/4	3.1	1 1/8	3/8	9/16	5/16-24	3	0	3/8	1.30	11/32	2.19	1	1.75	3.98	2.48	7.17	1 21/32	1.64	2.19
325 (3.25")	1	3/4-16	1 1/8	3.9	1 1/2	1/2	7/8	3/8-24	3 3/4	0	1/2	1.57	27/64	2.76	1 3/8	2.34	4.64	2.72	9.38	2 9/32	2.48	3.37
400 (4")	1	3/4-16	1 1/8	4.7	1 1/2	1/2	7/8	3/8-24	4 1/2	0	1/2	1.57	27/64	3.32	1 3/8	2.34	4.64	2.72	9.38	2 9/32	2.48	3.37

HOW TO ORDER
SERIES NCA1 AIR CYLINDER OPTIONS
ADJUSTABLE STROKE - RETURN - XC9 OPTION



TECHNICAL SPECIFICATIONS
ADJUSTABLE STROKE - EXTEND - XC8 OPTION

Bore Size	1.5 / 2 / 2.5 / 3.25 / 4
Fluid	Air
Max Operating Pressure	1.75MPa / 250PSI
Min Operating Pressure	0.06MPa / 8PSI
Ambient & Media Temperature	5~60°C / 40~140°F
Piston Speed	50~500mm/s / 2~20in/s
Cushion	Air Cushion Standard
Mounting Types	Basic, Foot, Flange Center Trunnion, Side Tapped



BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	J	JA	K	R	WF	Y	LF	P	ZZ	TN	XT	SN	d	mm
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	1.1	11/32	9/32	1.43	1	1.71	3 5/8	2.36	6.44	5/8	115/16	2 1/4	1.81	M16x1.5
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	1.06	11/32	11/32	1.84	1	1.71	3 5/8	2.40	6.44	7/8	115/16	2 1/4	1.81	M16x1.5
250 (2.5")	5/8	7/16-20	3/4	3.1	1 1/8	3/8	9/16	5/16-24	3	0	3/8	1.30	1.06	11/32	11/32	2.19	1	1.75	3 3/4	2.48	6.44	1 1/4	115/16	2 3/8	1.69	M16x1.5
325 (3.25")	1	3/4-16	1 1/8	3.9	1 1/2	1/2	7/8	3/8-24	3 3/4	0	1/2	1.57	1.10	5/8	27/64	2.76	1 3/8	2.34	4 1/4	2.72	8.02	1 1/2	2 7/16	2 5/8	2.40	M24x1.5
400 (4")	1	3/4-16	1 1/8	4.7	1 1/2	1/2	7/8	3/8-24	4 1/2	0	1/2	1.57	1.10	5/8	27/64	3.32	1 3/8	2.34	4 1/4	2.72	8.02	2 1/16	2 7/16	2 5/8	2.40	M24x1.5

SERIES NCA1

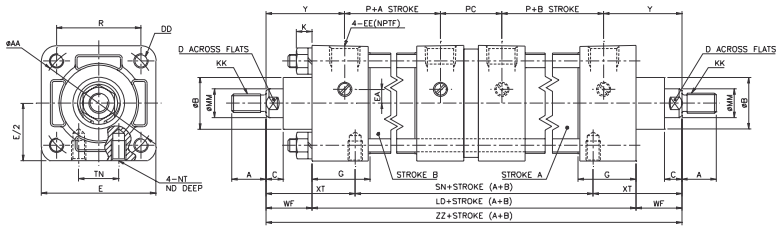
HOW TO ORDER
SERIES NCA1 AIR CYLINDER OPTIONS
DUAL OPERATION - DOUBLE ROD - XC10 OPTION

NC ○ A1 ○○ — ○ N + ○ R — XC10

- AUTO SWITCH CAPABLE
- MOUNTING
- BORE SIZE
- STROKE A
- STROKE B
- CUSHIONS
  - BOTH ENDS
  - N NONE
  - H HEAD END
  - R ROD END

TECHNICAL SPECIFICATIONS
DUAL OPERATION - DOUBLE ROD - XC10 OPTION

Bore Size	1.5 / 2 / 2.5 / 3.25 / 4
Fluid	Air
Max Operating Pressure	1.75MPa / 250PSI
Min Operating Pressure	0.06MPa / 8PSI
Ambient & Media Temperature	5~60°C / 40~140°F
Piston Speed	50~500mm/s / 2~20in/s
Cushion	Air Cushion Standard
Mounting Types	Basic, Foot, Flange Side Tapped



BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	K	R	WF	Y	LD	P	PC	ZZ	SN	TN	XT
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	9/32	1.43	1	1.71	7.44	2.36	1.30	9.44	5.56	5/8	115/16
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	11/32	1.84	1	1.71	7.52	2.40	1.30	9.52	5.64	7/8	115/16
250 (2.5")	5/8	7/16-20	3/4	3.1	1 1/8	3/8	9/16	5/16-24	3	0	3/8	1.30	11/32	2.19	1	1.75	7.76	2.48	1.30	9.76	5.88	1 1/4	115/16
325 (3.25")	1	3/4-16	1 1/8	3.9	1 1/2	1/2	7/8	3/8-24	3 3/4	0	1/2	1.57	27/64	2.76	1 3/8	2.34	8.94	2.72	1.57	11.69	6.82	1 1/2	2 7/16
400 (4")	1	3/4-16	1 1/8	4.7	1 1/2	1/2	7/8	3/8-24	4 1/2	0	1/2	1.57	27/64	3.32	1 3/8	2.34	8.94	2.72	1.57	11.69	6.82	2 1/16	2 7/16

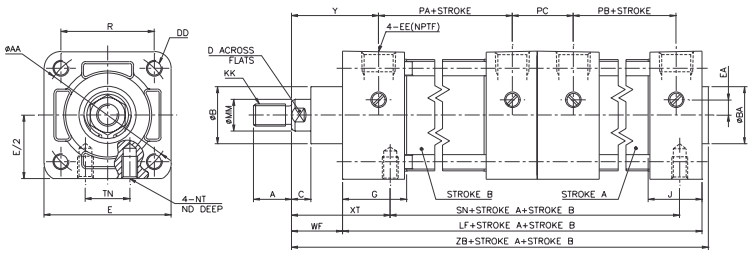
HOW TO ORDER
SERIES NCA1 AIR CYLINDER OPTIONS
DUAL OPERATION - SINGLE ROD - XC11 OPTION

NC ○ A1 ○○ — ○ R + ○ H — XC11

- AUTO SWITCH CAPABLE
- MOUNTING
- BORE SIZE
- STROKE A
- STROKE B - A
- CUSHIONS
  - BOTH ENDS
  - N NONE
  - H HEAD END
  - R ROD END

TECHNICAL SPECIFICATIONS
DUAL OPERATION - SINGLE ROD - XC11 OPTION

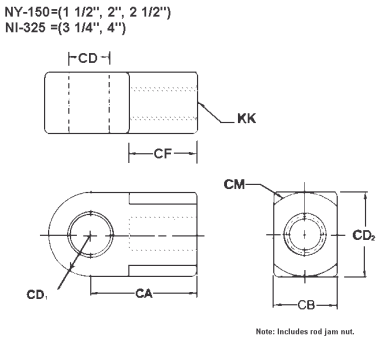
Bore Size	1.5 / 2 / 2.5 / 3.25 / 4
Fluid	Air
Max Operating Pressure	1.75MPa / 250PSI
Min Operating Pressure	0.06MPa / PSI
Ambient & Media Temperature	5~60°C / 40~140°F
Piston Speed	50~500mm/s / 2~20in/s
Cushion	Air Cushion Standard
Mounting Types	Basic, Foot, Flange Side Tapped, Clevis, Side Lug



BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	G	J	NT	TN	WF	XT	Y	LF	PA	PB	PC	SN	ZB
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	1.1	1/4-20	5/8	1	1 15/16	1.71	7.26	2.36	2.40	1.24	5.89	8.39
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	1.06	5/16-18	7/8	1	1 15/16	1.71	7.26	2.40	2.44	1.20	5.89	8.39
250 (2.5")	5/8	7/16-20	3/4	3.1	1 1/8	1 1/8	3/8	9/16	5/16-24	3	0	3/8	1.30	1.06	3/8-16	1 1/4	1	1 15/16	1.75	7.38	2.48	2.52	1.12	6.01	8.50
325 (3.25")	1	3/4-16	1 1/8	3.9	1 1/2	1 1/2	1/2	7/8	3/8-24	3 3/4	0	1/2	1.57	1.18	1/2-13	1 1/2	1 3/8	2 7/16	2.34	8.52	2.72	2.76	1.51	6.89	10.1
400 (4")	1	3/4-16	1 1/8	4.7	1 1/2	1 1/2	1/2	7/8	3/8-24	4 1/2	0	1/2	1.57	1.18	1/2-13	2 1/16	1 3/8	2 7/16	2.34	8.52	2.72	2.76	1.51	6.89	10.1

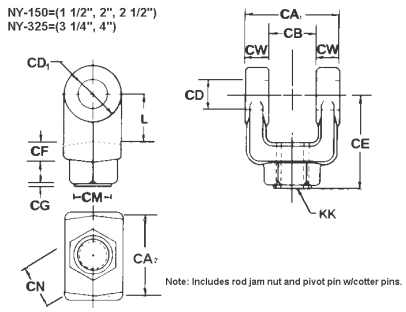
ACCESSORIES
SERIES NCA1 - PISTON ROD EYE

PART NO	CA	CB	CF	CB	CD_1	CD_2	CM	KK	DEPTH
NI-150	1.50	.75 0 -0.1	0.937	0.50 +.004 +.002	.50	1.0	1.0	7/16-20 2B	0.75
NI-325	2.06	1.25 0 -0.1	1.937	0.75 +.004 +.002	.75	1.5	1.5	3/4-16 2B	1.12



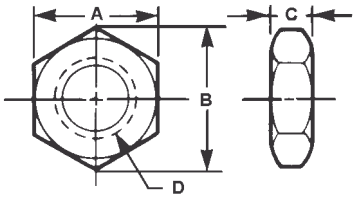
ACCESSORIES
SERIES NCA1 - PISTON ROD CLEVIS

PART NO	CA_1	CA_2	CB	CD	CD_1	CE	CF	CG	CM	CN	CW	KK-TAP	L
NY-150	1.765	1.65	.765 +0.01 0	0.50 +.004 +.002	1.0	1.50	.38	.03	0.88	1.00	.50	7/16-20 2B	0.75
NY-325	2.515	2.40	1.265 +0.01 0	0.75 +.004 +.002	1.5	2.38	.56	.03	1.12	1.25	.62	3/4-16 2B	1.25



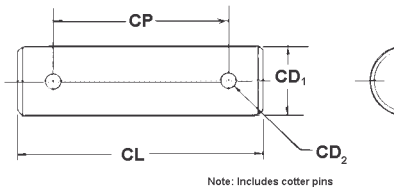
ACCESSORIES
SERIES NCA1 - ROD JAM NUT

PART NO	APPLICABLE BORE	A	B	C	D
JM-045	1.5", 2", 2.25"	0.69	0.79	0.26	7/16-20 UNF
JM-10	3.25", 4"	1.12	1.30	0.42	3/4-16 UNF



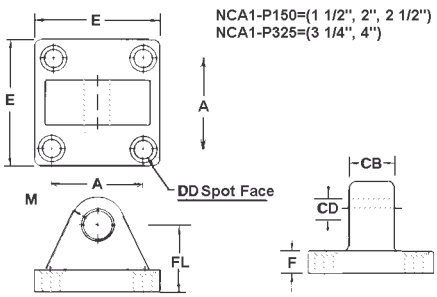
ACCESSORIES
SERIES NCA1 - PIVOT PIN

PART NO	CD_1	CD_2	GL	CP
NCDP-150	0.50 0 -.002	.106	2.28	1.94
NCDP-325	0.75 0 -.002	.140	3.10	2.72



ACCESSORIES
SERIES NCA1 - EYE BRACKET

PART NO	A	E	CB	CD	DD SPOT FACE	F	FL	M
NCA1-P150	1.62	2.50	0.75 0 -.01	0.50 +.004 +.002	.40	.59	.38	1.12	.50
NCA1-P325	2.56	3.50	1.25 0 -.01	0.75 +.004 +.002	.53	.78	.62	1.88	.75



SERIES CLA

FINE LOCK AIR CYLINDER SERIES CLA Ø40~100MM

- High Intermediate Stopping Accuracy
- 3 Types of Locking Mechanisms
- Locks in either Extended or Retracted Direction
- 5 Bore Sizes Available
- Auto Switch Capable

TECHNICAL SPECIFICATIONS SERIES CLA

Fluid	Air
Proof Ppressure	1.5MPa / 214PSI
Max Operating Pressure	1.52MPa / 217 PSI
Min Operating Pressure	1MPa / 145 PSI
Piston Speed	50~500mm/s / 2~20in/s
Ambient and Fluid Temperature	-10 ~ 60°C / 14~140°F
Cushion	Yes
Thread tolerance	JIS 2 class
Stroke tolerance	~200 : $^{+1.0}_{0}$, 250~1000 : $^{+1.4}_{0}$, 1001~1500 : $^{+1.}$
Mounting	Basic, Foot, Front flange, rear flange, Single clevis, rear trunnion.

*Maximum Piston Speed at which locking is possible is limited by the Maximum Allowable Kinetic Energy.

TECHNICAL SPECIFICATIONS STANDARD STROKE

Bore Size (mm)	Standard Stroke (mm)
40	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500
50	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600
63	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600
80	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700
100	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600, 700

HOW TO ORDER SERIES CLA

C ○ LA ○ N ○ — ○ ○ — ○ ○ ○ — ○

MAGNET
- ……Without
D ……For Autoswitches

MOUNTING
B ……Basic
L ……Foot
F ……Front flange
G ……Rear flange
C ……Single clevis (rear)
D ……Double clevis (rear)
T ……Centre trunnion

BORE
40, 50, 63, 80, 100

STROKE
See Standard Stroke Specification Table

SUFFIX SYMBOL
J ……Nylon Gaiter (Rod Boot)
K ……Neoprene Gaiter (Rod Boot)
- ……Both Ends (With Cushion)
N ……No Cushioning
R ……Front Cushion only
H ……Rear Cushion only

LOCK UP TYPE
E ……Spring lock
D ……Spring and air lock up
P ……Air lock up

APPLICABLE AUTO SWITCH
Refer to Auto Switch Accessories Section

NUMBER OF SWITCHES
- ……2 Pieces
S ……1 Piece
n ……n Pieces

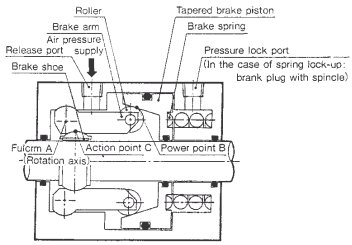
PORT THREADS
- …… PT Port
X1US .. NPT Port Imperial Thread
XC18 …NPT Port Only

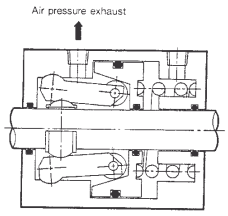
DIMENSIONS SEE NEXT PAGE ☞

TECHNICAL SPECIFICATIONS
FINELOCK TYPE (CONSTRUCTION) SERIES CLA

Construction

Spring lock-up

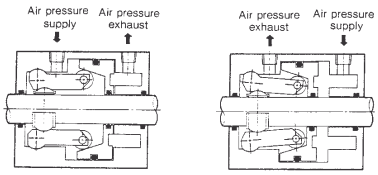




Lock releasing　　Locking

Spring force applied tapered brake piston is enlarged by the wedge effect and even more strengthened to $\frac{AB}{AC}$ times by the effect of lever, works on the brake shoe, then turns into a large power which tightens the piston rod to lock it.
To release lock up, apply air pressure to releasing port to kill the spring force.

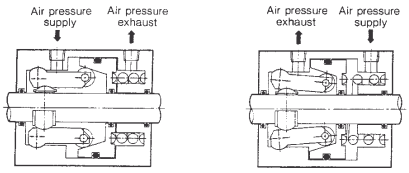
Air pressure lock-up



Lock releasing　　Locking

Air pressure drives the brake piston.

Spring and air pressure lock-up

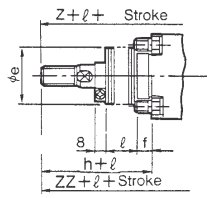


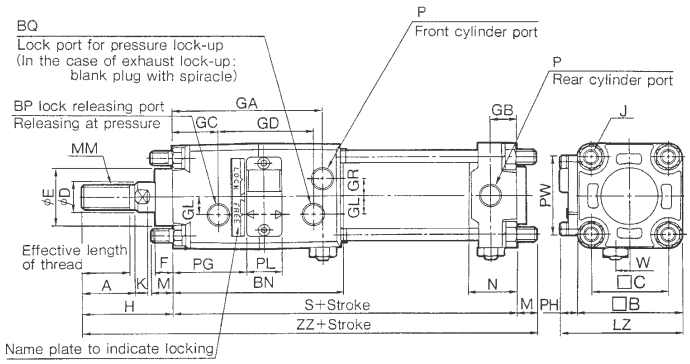
Lock releasing　　Locking

Air pressure and spring force combine to drive brake piston.

DIMENSIONS
BASIC TYPE CLAB

WITH ROD BOOT





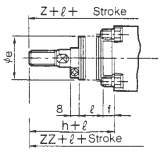
Bore Size	Stroke Range W/O Boot	Stroke Range W/Boot	Effective Length Of Thread	A	□B	BN	BP	BQ	□C	øD	øE	F	GA	GB	GC	GD	GL	GR	J	K	LZ	M	MM	MM X1US
40	~500	20~500	27	30	60	96	1/4	1/4	44	16	32	10	85	15	26	54	10	10	M8x1.25	6	71	11	M14x1.5	7/16-20
50	~600	20~600	32	35	70	108	1/4	1/4	52	20	40	10	95	17	27	59	13	12	M8x1.25	7	80	11	M18x1.5	3/4-16
63	~600	20~600	32	35	86	115	1/4	1/4	64	20	40	10	102	17	26	67	18	15	M10x1.25	7	99	14	M18x1.5	3/4-16
80	~750	20~750	37	40	102	129	1/4	1/4	78	25	52	14	113	21	30	72	23	17	M12x1.75	11	117	17	M22x1.5	3/4-16
100	~750	20~750	37	40	116	140	1/4	1/4	92	30	52	14	124	21	31	76	25	19	M12x1.75	11	131	17	M26x1.5	1-14

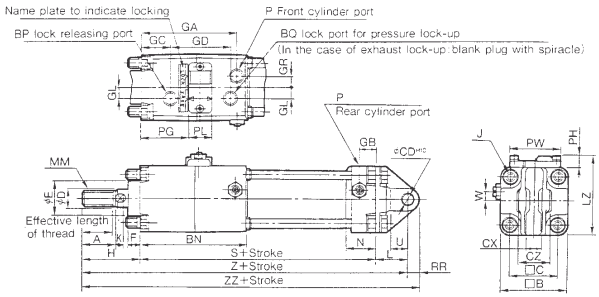
Bore Size	N	P	PG	PH	PL	PW	S	W	Without Boot H	Without Boot ZZ	With Boot øe	With Boot f	With Boot h	With Boot ℓ	With Boot ZZ
40	27	1/4	42	11	20	45	153	8	51	215	43	11.2	59		223
50	30	3/8	46	10	21	50	168	0	58	237	52	11.2	66	1/4	245
63	31	3/8	48.5	13	23	60	182	0	58	254	52	11.2	66	Stroke	262
80	37	1/2	55	15	23	70	208	0	71	296	65	12.5	80		305
100	40	1/2	56.5	15	25	80	226	0	72	315	65	14	81		324

SERIES CLA

DIMENSIONS
DOUBLE CLEVIS TYPE CLAD

WITH ROD BOOT



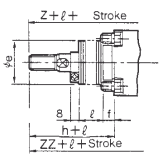


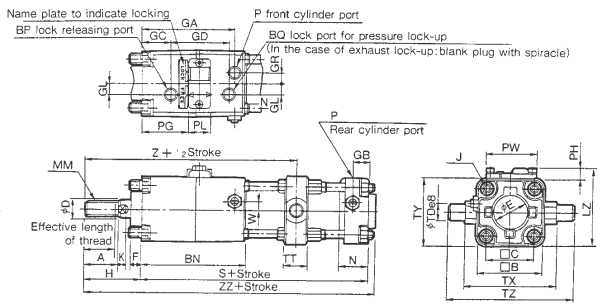
Bore Size	Stroke Range W/O Boot	Stroke Range W/Boot	Effective Length Of Thread	A	□B	BN	BP	BQ	□C	øD	øE	F	GA	GB	GC	GD	GL	GR	J	K	L	LZ	MM	MM X1US
40	~500	20~500	27	30	60	96	1/4	1/4	44	16	32	10	85	15	26	54	10	10	M8x1.25	6	30	71	M14x1.5	7/16-20
50	~600	20~600	32	35	70	108	1/4	1/4	52	20	40	10	95	17	27	59	13	12	M8x1.25	7	30	80	M18x1.5	3/4-16
63	~600	20~600	32	35	86	115	1/4	1/4	64	20	40	10	102	17	26	67	18	15	M10x1.25	7	40	99	M18x1.5	3/4-16
80	~750	20~750	37	40	102	129	1/4	1/4	78	25	52	14	113	21	30	72	23	17	M12x1.75	11	48	117	M22x1.5	3/4-16
100	~750	20~750	37	40	116	140	1/4	1/4	92	30	52	14	124	21	31	76	25	19	M12x1.75	11	50	131	M26x1.5	1-14

Bore Size	N	P	PG	PH	PL	PW	RR	S	U	W	øCD H10	Without Boot H	Without Boot Z	Without Boot ZZ	With Boot øe	With Boot f	With Boot h	With Boot ℓ	With Boot Z	With Boot ZZ
40	27	1/4	42	11	20	45	10	153	16	8	10 0~0.058	51	234	244	43	11.2	59		242	252
50	30	3/8	46	10	21	50	12	168	19	0	10 0~0.070	58	261	273	52	11.2	66	1/4	269	281
63	31	3/8	48.5	13	23	60	16	182	23	0	16 0~0.070	58	280	296	52	11.2	66	Stroke	288	304
80	37	1/2	55	15	23	70	20	208	28	0	20 0~0.084	71	327	347	65	12.5	80		336	356
100	40	1/2	56.5	15	25	80	25	226	36	0	25 0~0.084	72	356	281	65	14	81		365	390

DIMENSIONS
TRUNNION TYPE CLAT

WITH ROD BOOT



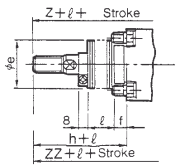


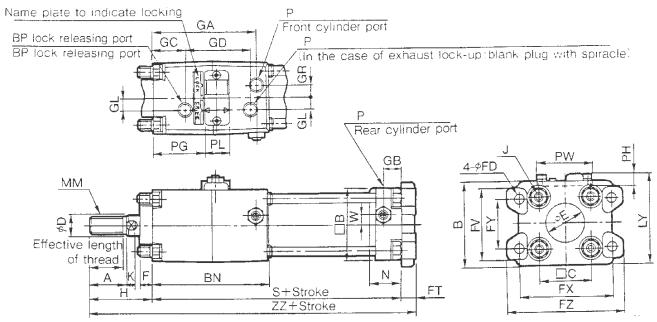
Bore Size	Stroke Range W/O Boot	Stroke Range W/Boot	Effective Length Of Thread	A	□B	BN	BP	BQ	□C	øD	øE	F	GA	GB	GC	GD	GL	GR	J	K	LZ	MM	MM X1US
40	~500	20~500	27	30	60	96	1/4	1/4	44	16	32	10	85	15	26	54	10	10	M8x1.25	6	71	M14x1.5	7/16-20
50	~600	20~600	32	35	70	108	1/4	1/4	52	20	40	10	95	17	27	59	13	12	M8x1.25	7	80	M18x1.5	3/4-16
63	~600	20~600	32	35	86	115	1/4	1/4	64	20	40	10	102	17	26	67	18	15	M10x1.25	7	99	M18x1.5	3/4-16
80	~750	20~750	37	40	102	129	1/4	1/4	78	25	52	14	113	21	30	72	23	17	M12x1.75	11	117	M22x1.5	3/4-16
100	~750	20~750	37	40	116	140	1/4	1/4	92	30	52	14	124	21	31	76	25	19	M12x1.75	11	131	M26x1.5	1-14

Bore Size	N	P	PG	PH	PL	PW	S	W	øTDe8	TT	TX	TY	TZ	Without Boot H	Without Boot Z	Without Boot ZZ	With Boot øe	With Boot f	With Boot h	With Boot ℓ	With Boot Z	With Boot ZZ
40	27	1/4	42	11	20	45	153	8	15 0.059~0.032	22	85	62	117	51	162	209	43	11.2	59		170	217
50	30	3/8	46	10	21	50	168	0	15 0.059~0.032	22	95	74	127	58	181	232	52	11.2	66	1/4	189	240
63	31	3/8	48.5	13	23	60	182	0	18 0.059~0.032	28	110	90	148	58	191	248	52	11.2	66	Stroke	199	256
80	37	1/2	55	15	23	70	208	0	25 0.073~0.04	34	149	110	192	71	221	286	65	12.5	80		230	295
100	40	1/2	56.5	15	25	80	226	0	25 0.073~0.04	40	162	130	214	72	235	306	65	14	81		244	315

DIMENSIONS
REAR FLANGE TYPE CLAG

WITH ROD BOOT



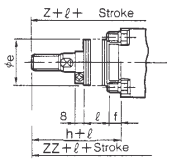


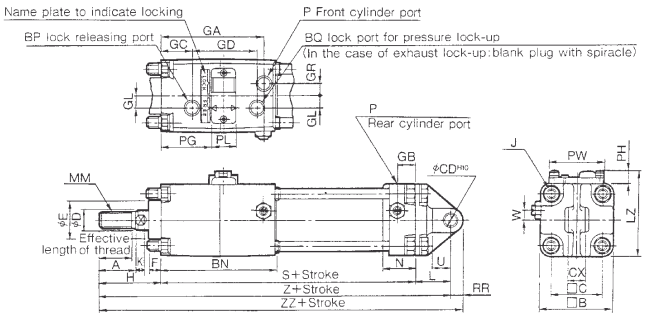
Bore Size	Stroke Range W/O Boot	Stroke Range W/Boot	Effective Length Of Thread	A	B	□B	BN	BP	BQ	□C	øD	øE	F	GA	GB	GC	GD	GL	GR	J	K	LY	MM	MM X1US
40	~500	20~500	27	30	70	60	96	1/4	1/4	44	16	32	10	85	15	26	54	10	10	M8x1.25	6	76.5	M14x1.5	7/16-20
50	~600	20~600	32	35	81	70	108	1/4	1/4	52	20	40	10	95	17	27	59	13	12	M8x1.25	7	85.5	M18x1.5	3/4-16
63	~600	20~600	32	35	101	86	115	1/4	1/4	64	20	40	10	102	17	26	67	18	15	M10x1.25	7	106.5	M18x1.5	3/4-16
80	~750	20~750	37	40	119	102	129	1/4	1/4	78	25	52	14	113	21	30	72	23	17	M12x1.75	11	125.5	M22x1.5	3/4-16
100	~750	20~750	37	40	133	116	140	1/4	1/4	92	30	52	14	124	21	31	76	25	19	M12x1.75	11	139.5	M26x1.5	1-14

Bore Size	N	P	PG	PH	PL	PW	S	W	FV	øFD	FT	FX	FY	FZ	Without Boot H	Without Boot ZZ	With Boot øe	With Boot f	With Boot h	With Boot ℓ	With Boot ZZ
40	27	1/4	42	11	20	45	153	8	60	9	12	80	42	100	51	216	43	11.2	59		224
50	30	3/8	46	10	21	50	168	0	70	9	12	90	50	110	58	238	52	11.2	66	1/4	246
63	31	3/8	48.5	13	23	60	182	0	86	11.5	15	105	59	130	58	255	52	11.2	66	Stroke	263
80	37	1/2	55	15	23	70	208	0	102	13.5	18	130	76	160	71	297	65	12.5	80		306
100	40	1/2	56.5	15	25	80	226	0	116	13.5	18	150	92	180	72	316	65	14	81		325

DIMENSIONS
SINGLE CLEVIS TYPE CLAC

WITH ROD BOOT



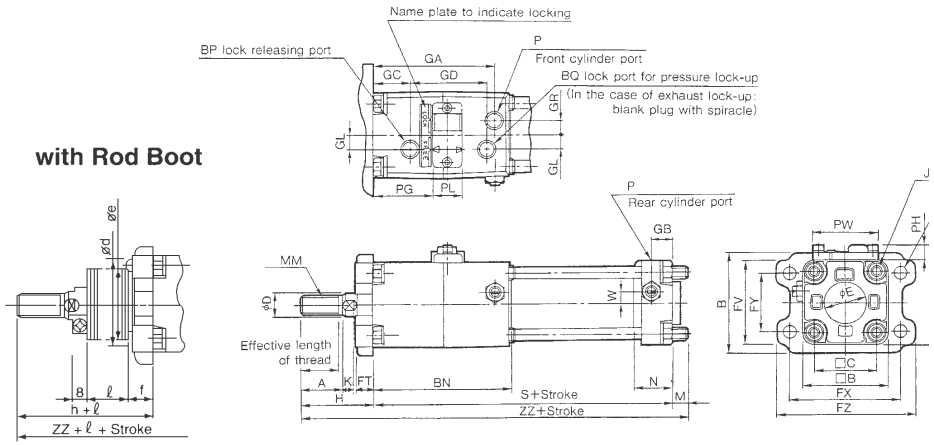


Bore Size	Stroke Range W/O Boot	Stroke Range W/Boot	Effective Length Of Thread	A	□B	BN	BP	BQ	□C	øD	øE	F	GA	GB	GC	GD	GL	GR	J	K	L	LZ	MM	MM X1US
40	~500	20~500	27	30	60	96	1/4	1/4	44	16	32	10	85	15	26	54	10	10	M8x1.25	6	30	71	M14x1.5	7/16-20
50	~600	20~600	32	35	70	108	1/4	1/4	52	20	40	10	95	17	27	59	13	12	M8x1.25	7	30	80	M18x1.5	3/4-16
63	~600	20~600	32	35	86	115	1/4	1/4	64	20	40	10	102	17	26	67	18	15	M10x1.25	7	40	99	M18x1.5	3/4-16
80	~750	20~750	37	40	102	129	1/4	1/4	78	25	52	14	113	21	30	72	23	17	M12x1.75	11	48	117	M22x1.5	3/4-16
100	~750	20~750	37	40	116	140	1/4	1/4	92	30	52	14	124	21	31	76	25	19	M12x1.75	11	58	131	M26x1.5	1-14

Bore Size	N	P	PG	PH	PL	PW	RR	S	U	W	øCD H10	CX	Without Boot H	Without Boot Z	Without Boot ZZ	With Boot øe	With Boot f	With Boot h	With Boot ℓ	With Boot Z	With Boot ZZ
40	27	1/4	42	11	20	45	10	153	16	8	10 $^{0}_{-0.058}$	15 $^{-0.3}_{-0.1}$	51	234	244	43	11.2	59		242	252
50	30	3/8	46	10	21	50	12	168	19	0	10 $^{0}_{-0.07}$	18 $^{-0.3}_{-0.1}$	58	261	273	52	11.2	66	1/4	269	281
63	31	3/8	48.5	13	23	60	16	182	23	0	16 $^{0}_{-0.07}$	25 $^{-0.3}_{-0.1}$	58	280	296	52	11.2	66	Stroke	288	304
80	37	1/2	55	15	23	70	20	208	28	0	20 $^{0}_{-0.084}$	31.5 $^{-0.3}_{-0.1}$	71	327	347	65	12.5	80		336	356
100	40	1/2	56.5	15	25	80	25	226	36	0	25 $^{0}_{-0.084}$	35.5 $^{-0.3}_{-0.1}$	72	356	381	65	14	81		365	390

DIMENSIONS
FRONT FLANGE TYPE CLAF

with Rod Boot

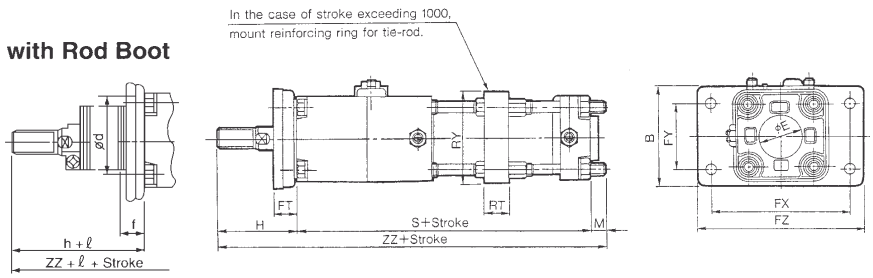


Bore Size	Stroke Range W/O Boot	Stroke Range W/Boot	Effective Length Of Thread	A	B	□B	BN	BP	BQ	□C	øD	øE	GA	GB	GC	GD	GL	GR	J	K	LZ	M	MM	MM X1US
40	~800	20~800	27	30	71	60	96	1/4	1/4	44	16	32	85	15	26	54	10	10	M8x1.25	6	71	11	M14x1.5	7/16-20
50	~1000	20~1000	32	35	81	70	108	1/4	1/4	52	20	40	95	17	27	59	13	12	M8x1.25	7	80	11	M18x1.5	3/4-16
63	~1000	20~1000	32	35	101	86	115	1/4	1/4	64	20	40	102	17	26	67	18	15	M10x1.25	7	99	14	M18x1.5	3/4-16
80	~1000	20~1000	37	40	119	102	129	1/4	1/4	78	25	52	113	21	30	72	23	17	M12x1.75	11	117	17	M22x1.5	3/4-16
100	~1000	20~1000	37	40	133	116	140	1/4	1/4	92	30	52	124	21	31	76	25	19	M12x1.75	11	131	17	M26x1.5	1-14

Bore Size	N	P	PG	PH	PL	PW	S	W	FV	øFD	FT	FX	FY	FZ	Without Boot H	Without Boot ZZ	With Boot øe	With Boot ød	With Boot f	With Boot h	With Boot ℓ	With Boot ZZ
40	27	1/4	42	11	20	45	153	8	60	9	12	80	42	100	51	215	43	52	15	59		223
50	30	3/8	46	10	21	50	168	0	70	9	12	90	50	110	58	237	52	58	15	66	1/4	245
63	31	3/8	48.5	13	23	60	182	0	86	11.5	15	105	59	130	58	254	52	58	17.5	66	Strok	262
80	37	1/2	55	15	23	70	208	0	102	13.5	18	130	76	160	71	296	65	80	21.5	80	e	305
100	40	1/2	56.5	15	25	80	226	0	116	13.5	18	150	92	180	72	315	65	80	21.5	81		324

DIMENSIONS
LONG STROKE FRONT FLANGE TYPE CLAF

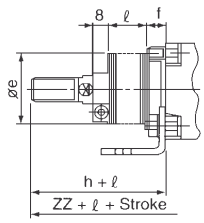
with Rod Boot

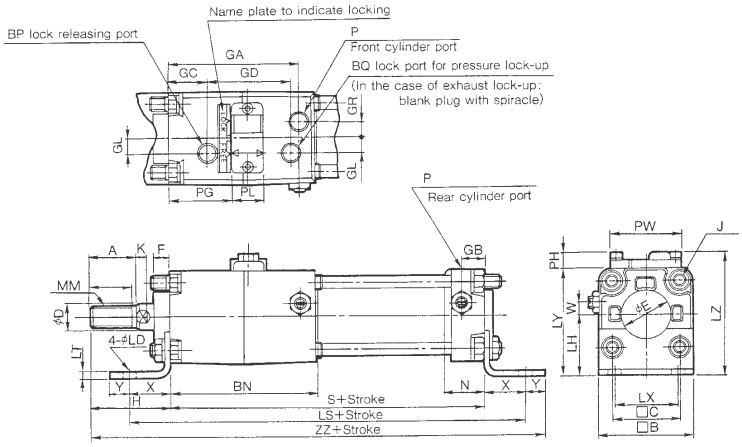


Bore Size	Stroke Range mm	B	M	RT	RY	FT	FX	FY	FZ	Without Boot H	Without Boot ZZ	With Boot f	With Boot ZZ
50	1001~1200	88	6	30	76	20	120	58	144	67	241	19	240
63	1001~1200	105	10	40	92	23	140	64	170	71	263	19	258
80	1001~1400	124	12	45	112	28	164	84	198	87	307	21	300
100	1001~1500	140	12	50	136	29	180	100	220	89	327	21	319

DIMENSIONS
FOOT TYPE CLAL

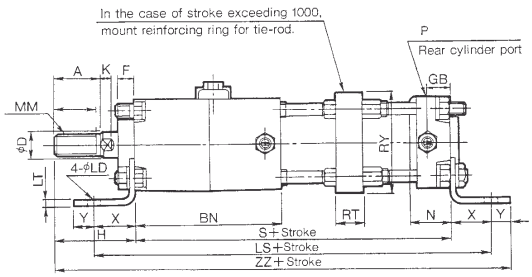
with Rod Boot





DIMENSIONS
LONG STROKE FOOT TYPE CLAL

Long stroke
(ϕ50～ϕ100)



Bore Size	Stroke Range W/O Boot	Stroke Range W/Boot	Effective Length Of Thread	A	B	□B	BN	BP	BQ	□C	øD	øE	F	GA	GB	GC	GD	GL	GR	J	K	MM	MM X1US
40	~500	20~500	27	30	70	60	96	1/4	1/4	44	16	32	10	85	15	26	54	10	10	M8x1.25	6	M14x1.5	7/16-20
50	~600	20~600	32	35	81	70	108	1/4	1/4	52	20	40	10	95	17	27	59	13	12	M8x1.25	7	M18x1.5	3/4-16
63	~600	20~600	32	35	101	86	115	1/4	1/4	64	20	40	10	102	17	26	67	18	15	M10x1.25	7	M18x1.5	3/4-16
80	~750	20~750	37	40	119	102	129	1/4	1/4	78	25	52	14	113	21	30	72	23	17	M12x1.75	11	M22x1.5	3/4-16
100	~750	20~750	37	40	133	116	140	1/4	1/4	92	30	52	14	124	21	31	76	25	19	M12x1.75	11	M26x1.5	1-14

Bore Size	N	P	PG	PH	PL	PW	S	W	X	Y	øLD	LH	LS	LT	LX	LY	LZ	Without Boot H	Without Boot ZZ	With Boot øe	With Boot f	With Boot h	With Boot ℓ	With Boot ZZ
40	27	1/4	42	11	20	45	153	8	27	13	9	40	207	3.2	42	70	81	51	244	43	11.2	59		252
50	30	3/8	46	10	21	50	168	0	27	13	9	45	222	3.2	50	80	90	58	266	52	11.2	66	1/4	274
63	31	3/8	48.5	13	23	60	182	0	34	16	11.5	50	250	3.2	59	93	106	58	290	52	11.2	66	Strok	298
80	37	1/2	55	15	23	70	208	0	44	16	11.5	65	296	4.5	76	116	131	71	339	65	12.5	80	e	348
100	40	1/2	56.5	15	25	80	226	0	43	17	13.5	75	312	6	92	133	148	72	358	65	14	81		367

DIMENSIONS
LONG STROKE FOOT TYPE CLAL

Bore Size	Stroke Range mm	RT	RY
40	501~800	-	-
50	601~1000	-	-
	1001~1200	30	76
63	601~1000	-	-
	1001~1200	40	92
80	751~1000	-	-
	1001~1400	45	112
100	751~1000	-	-
	1001~1500	50	136

ACCESSORIES
MOUNTING BRACKETS SERIES CLA

Bore Size	40	50	63	80	100
Foot *	CA1-L04	CA1-L05	CA1-L06	CA1-L08	CA1-L10
Flange	CA1-F04	CA1-F05	CA1-F06	CA1-F08	CA1-F10
Single Clevis	CA1-C04	CA1-C05	CA1-C06	CA1-C08	CA1-C10
Double Clevis	CA1-D04	CA1-D05	CA1-D06	CA1-D08	CA1-D10

ACCESSORIES
AUTO SWITCH BANDS

Note: Pre-wired Switches with 3/4 Pin Connectors available

Switch Model		Part No	Applicable Bore Size
D-A5 / A6	D-F5 / J5	BT-04	40 / 50
		BT-06	63
		BT-08	80 / 100
D-B5 / B6	D-G5 / K5	BA-04	40
		BA-05	50
		BA-06	63
		BA-08	80
		BA-10	100
D-A3		BA3-040	40
		BA3-050	50
		DA3-063	63
		DA3-080	80
		DA3-100	100

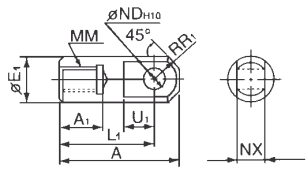
ACCESSORIES
MOUNTING TYPE SERIES CLA

Note: Pre-wired Switches with 3/4 Pin Connectors available

Model Mounting Type Band	Model Mounting Type Tie Rod	Type	Load Voltage	Max Load Current or Load Current Range	Internal Voltage	Indicator Lamp
-	D-A56	Reed	4~8 VDC	20mA	0,8V or less	ON: Red LED
D-B53	D-A53	Reed	24VDC	5~50mA	2.4V or less	ON: Red LED
D-B54	D-A54	Reed	24VDC, 100VAC, 200VAC	5~50mA, 5~25mA, 5~12.5mA	2.4V or less	ON: Red LED
-	D-A67	Reed	Max 24 VAC	30mA	-	None
D-B64	D-A64	Reed	24VAC/DC, 100VAC, 200VAC	50mA, 25mA, 12.5mA	-	None
D-A33	D-A33C	Reed	24 VDC	5~50mA	2.4V or less	ON: Red LED
D-A34	D-A34C	Reed	24VDC, 100VDC, 200VDC	5~50mA, 5~25mA, 5~12.5mA	2.4V or less	ON: Red LED
D-A44	D-A44C	Reed	24VDC, 100VDC, 200VDC	5~50mA, 5~25mA, 5~12.5mA	4V or less	ON: Red LED
D-B59W	D-A59W	Reed	24VDC	5~40mA	0.8V or less	ON: Red LED; Green: Best Position
D-G59	D-F59	3 Wire NPN	28 VDC	10mA	0.8V or less	ON: Red LED
D-G5P	D-F5P	3 Wire PNP	-	80mA	14V or less	ON: Red LED
-	D-J51	2 Wire	80~260 VAC	5~80mA	3V or less	ON: Red LED
D-K59	D-J59	2 Wire	10~28 VDC	5~40mA	0.8V or less	ON: Red LED
D-G39	D-G39C	3 Wire	28VDC	40mA	3V or less	ON: Red LED
D-K39	D-K39C	2 Wire	10~28 VDC	5~40mA	2V or less	ON: Red LED; Green: Best Position
D-G59W	D-J59W	3 Wire NPN	28 VDC	40mA	4V or less	ON: Red LED; Green: Best Position
D-G5PW	D-F5PW	3 Wire PNP	-	80mA	4V or less	ON: Red LED; Green: Best Position
D-G5BAL	D-F5BAL	2 Wire	10~28 VDC	5~40mA	4V or less	ON: Red LED; Green: Best Position
D-G5NTL	D-F5NTL	3 Wire NPN	28 VDC or less	80mA	2V or less	ON: Red LED
D-G59F	D-F59F	4 Wire NPN	28 VDC	40mA	0.8V or less	ON: Red LED; Green: Best Position
-	D-F5LF	4 Wire NPN	26 VDC	40mA	0.8V or less	ON: Red LED; Green: Best Position

ACCESSORIES
KNUCKLE JOINTS

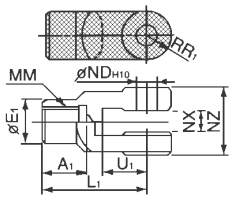
I Type Single Knuckle Joint



Material: Free Cutting Sulfer Steel

Part No	Bore Size mm	A	A_1	$øE_1$	L_1	MM	R_1	U_1	$øND^{H10}$	NX
I-04	40	69	22	24	55	M14x1.5	15.5	20	12 $^{0~-0.070}$	16 $^{-0.3~-0.1}$
I-05	50 / 63	74	27	28	60	M18x1.5	15.5	20	12 $^{0~-0.070}$	16 $^{-0.3~-0.1}$
I-08	80	91	37	36	71	M22x1.5	22.5	26	18 $^{0~-0.070}$	28 $^{-0.3~-0.1}$
I-10	100	106	37	40	83	M26x1.5	24.5	26	20 $^{0~-0.084}$	30 $^{-0.3~-0.1}$

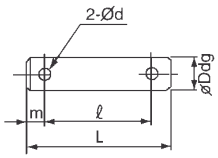
Y Type Double Knuckle Joint



Material: Cast Iron

Part No	Bore Size mm	A	$øE_1$	L_1	MM	R_1	U_1	$øND^{H10}$	NX	NZ
Y-04d	40	22	24	55	M14x1.5	13	25	12 $^{0~-0.070}$	16 $^{-0.3~-0.1}$	38
Y-05d	50 / 63	27	28	60	M18x1.5	15	27	12 $^{0~-0.070}$	16 $^{-0.3~-0.1}$	38
Y-08d	80	37	36	71	M22x1.5	19	28	18 $^{0~-0.070}$	28 $^{-0.3~-0.1}$	55
Y-10d	100	37	40	83	M26x1.5	21	38	20 $^{0~-0.084}$	30 $^{-0.3~-0.1}$	61

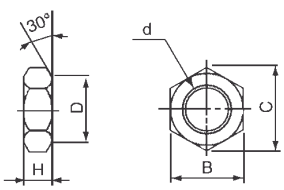
I Type Single Knuckle Joint



Material: Carbon Steel

Part No	Bore Size mm Clevis	Bore Size mm Knuckle	$øND^{H10}$	L	ℓ	m	ød Through Hole Diameter	Applicable Split Pin
CDP-2A	40	-	10 $^{-0.076~-0.046}$	46	38	4	3	ø3x18ℓ
CDP-3A	50	40/50/63	12 $^{-0.093~-0.05}$	55.5	47.5	4	3	ø3x18ℓ
CDP-4A	63	-	16 $^{-0.093~-0.05}$	71	61	5	4	ø4x25ℓ
CDP-5A	-	80	18 $^{-0.093~-0.05}$	76.5	66.5	5	4	ø4x25ℓ
CDP-6A	80	100	20 $^{-0.117~-0.065}$	83	73	5	4	ø4x25ℓ
CDP-7A	100	-	25 $^{-0.117~-0.065}$	88	78	6	4	ø4x36ℓ

Y Type Double Knuckle Joint



Material: Rolled Steel

Part No	Bore Size mm	d	H	B	C	D
NT-04	40	M14x1.5	8	22	25.4	21
NT-05	50 / 63	M18x1.5	11	27	31.2	26
NT-08	80	M22x1.5	13	32	37	31
NT-10	100	M26x1.5	16	41	47.3	39

COMPACT CYLINDER SERIES NCQ2

- Compact, light weight, space-saving design
- Magnetic Piston Option
- Single or double acting
- Non-rotating piston rod option
- Wide Range at Bore Sizes: Ø12 - 160mm

TECHNICAL SPECIFICATIONS

DOUBLE ACTING SINGLE ROD - SERIES NCQ2/CQ2

Model	Air Pressure	Air Hydraulic
Fluid	Air	Hydraulic Oil
Proof Pressure	1.5MPa / 217 PSI	
Max Operating Pressure	1MPa / 145PSI	
Ambient and Fluid Temp	15~160°F (at freezing temp, air must be dry)*	
Rubber Cushion	None	-
Rod End Thread	Female Thread (Standard)	
Rod End Thread Tolerance	JIS Class II	
Stroke Length Tolerance	0 ~ 0.1 mm	
Piston Speed	2 ~ 20 in/sec	0.002 ~ 8 in/sec
	(50~500mm/s	0.05~200mm/s)

MINIMUM OPERATING PRESSURE

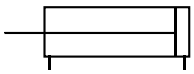
PSI

Bore Size	12	16	20	25	32	40	50	63	80	100
Air Pressure	10.15	10.15	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25
Air Hydraulic	-	-	26.1	26.1	26.1	14.5	14.5	14.5	14.5	14.5

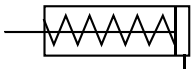
*Temperature Note:15~160°F = -10~70°C

SYMBOLS

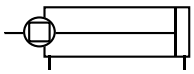
Double Acting / Single Rod Type



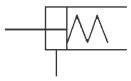
Single Acting Spring Return Type



Non-Rotating Piston Rod Type



Single Acting Spring Extended



HOW TO ORDER

NCQ2/CQ2 DOUBLE ACTING SINGLE ROD

NC ○ Q2 ○ ○ ○ ○ ○ — ○ D ○ — ○ ○

MEASUREMENT
- ……PT - Metric
N ……NPT - Inch

AUTO SWITCH
- ……Not Auto Switch Capable
D ……Auto Switch Capable (With Built-In Magnet)

MOUNTING
B ……Through Hole
A ……Both Ends Tapped
L ……Foot
F ……Rod Side Flange
G ……Head Side Flange
D ……Double Clevis

STYLE
- ……Air Pressure
H ……Air Hydro (The available Air Hydro Bore Sizes: ø20 ~ ø100 CQ2 only)

BORE SIZES (MM)
12 16 20 25 32
40 50 63 80 100

STROKE (MM)

PIPING
- ……Thread Ports
F ……Built-In One-Touch Fitting (Bore Sizes ø32 ~ ø63 Not applicable for Air Hydro Type CQ2 Only

ACTION
D ……Double Acting

BODY OPTION
- ……Standard (Female Thread
C ……With Rubber Cushion (Not available for Air Hydraulic Type)
M ……Male Thread
F ……Head End Boss (CQ2 Only)

AUTO SWITCH CAPABLE
See Accessories: Auto Switch

NO OF AUTO SWITCH
- ……2 Pieces
S ……1 piece
n ……n Pieces

NOTE: FOR BORE SIZES 125, 140 & 160MM, PLEASE REFER TO PAGE 1.116

HOW TO ORDER

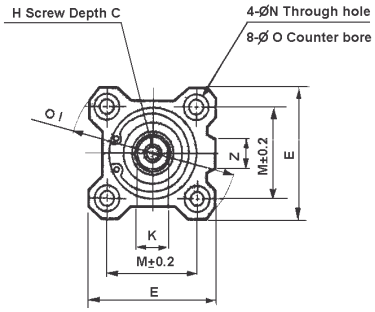
DOUBLE ACTING SINGLE ROD - STANDARD STROKE

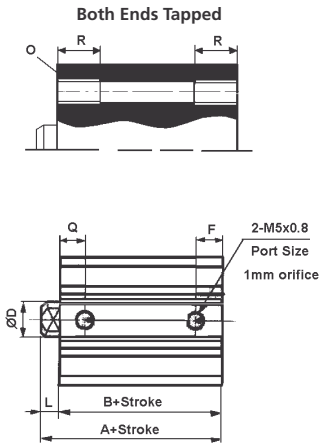
Bore Size	Air Pressure Type	Air Hydro Type
12, 16	5, 10, 15, 20, 25, 30	-
20, 25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
32, 40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50, 63, 80 100	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

DIMENSIONS
SEE FOLLOWING PAGES ☞

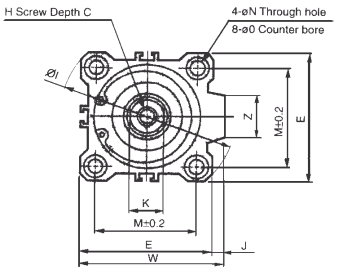
SERIES NCQ2/CQ2

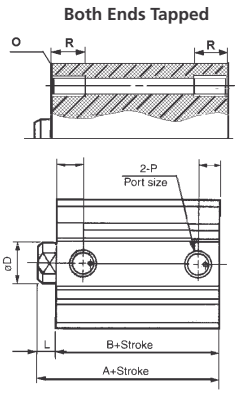
DIMENSIONS
THROUGH HOLE ø12 ~ ø25 SERIES (N)CQ2B





DIMENSIONS
THROUGH HOLE ø32 ~ 100 SERIES (N)CQ2B





DIMENSIONS
SERIES (N)CQ2A BOTH ENDS TAPPED

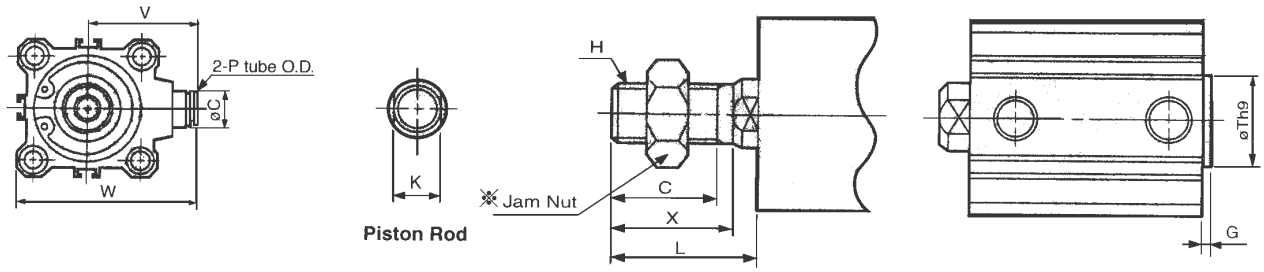
Bore Size mm	CQ2 (mm) O	NCQ2 (inch) O	R mm
12	M4x0.7	8-32UNC	7
16	M4x0.7	8-32UNC	7
20	M6x1.0	1/4-20UNC	10
25	M6x1.0	1/4-20UNC	10
32	M6x1.0	1/4-20UNC	10
40	M6x1.0	1/4-20UNC	10
50	M8x1.25	5/16-18UNC	14
63	M10x1.5	7/16-14UNC	18
80	M12x1.75	1/2-13UNC	22
100	M12x1.75	1/2-13UNC	22

DIMENSIONS (MM)
SERIES (N)CQ2 STANDARD

Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 H	i	J	K	L	M	N	O	P	Orifice	Q	W	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 Depth3.5	-	-	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 Depth3.5	-	-	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 Depth7	-	-	9	-	10
25	5~50	27.5	22.5	12	10	12	40	5.5	M6x1	1/4-28UNF	52	-	10	5	28	5.5	9 Depth7	-	-	11	-	10
32	5	30	23	13	13.3	16	45	5.5	M8x	5/16-	60	4.5	14	7	34	5.5	9 Depth7	M5x0.8	1.7	11.5	49.5	18
	10~50							7.5	1.25	24UNF								1/8		10.5		
	75, 100	40	33															1/8				
40	5~50	36.5	29.5	13	18.3	16	52	8	M8x	3/8-	69	5	14	7	40	5.5	9 Depth7	1/8	2	11	57	18
	75, 100	46.5	39.5						1.25	24UNF												
50	10~50	38.5	30.5	15	17.6	20	64	10.5	M10x	1/2-	86	7	17	8	50	6.6	11 Depth8	1/4	2.2	10.5	71	22
	75, 100	48.5	40.5						1.5	20UNF												
63	10~50	44	36	15	17.6	20	77	10.5	M10x	1/2-	103	7	17	8	60	9	14 Depth	1/4	3	15	84	22
	75, 100	54	46						1.5	20UNF							10.5					
80	10~50	53.5	43.5	21	24.3	25	98	12.5	M16x	5/8-	132	6	22	10	77	11	17.5 Depth	3/8	4	16	104	26
	75, 100	63.5	53.5						2	18UNF							13.5					
100	10~50	65	53	27	27	30	117	13	M20x	3/4-	156	6.5	27	12	94	11	17.5 Depth	3/8	5	23	123.5	26
	75 100	75	63						2.5	16UNF							13.5					

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

DIMENSIONS
WITHOUT AUTO SWITCH SERIES (N)CQ2 - PIPING & BODY OPTIONS



ONE TOUCH FITTINGS

Bore	C	P	V	W
Size	mm	mm	mm	mm
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	X	H	L	K
Size	mm	inch	mm	mm
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
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

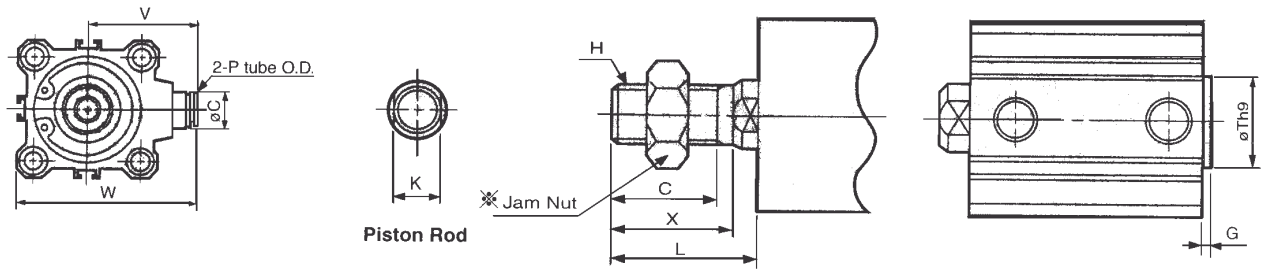
CQ2 MALE ROD END

Bore	C	X	H	L	K
Size	mm	mm	mm	mm	mm
12	9	10.5	M5X0.8	14	5
16	10	12	M6X1	15.5	6
20	12	14	M8X1.25	18.5	8
25	15	17.5	M10X1.25	22.5	10
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	G	Th9
Size	mm	mm
12	1.5	$15^{-0.043-0}$
16	1.5	$20^{-0.052-0}$
20	2	$13^{-0.043-0}$
25	2	$15^{-0.043-0}$
32	2	$21^{-0.052-0}$
40	2	$28^{-0.052-0}$
50	2	$35^{-0.062-0}$
63	2	$35^{-0.062-0}$
80	2	$43^{-0.062-0}$
100	2	$59^{-0.074-0}$

DIMENSIONS
WITH AUTO SWITCH SERIES (N)CDQ2 - PIPING & BODY OPTIONS



ONE TOUCH FITTINGS

Bore	C	P	V	W
Size	mm	mm	mm	mm
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	X	H	L	K
Size	mm	inch	mm	mm
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
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

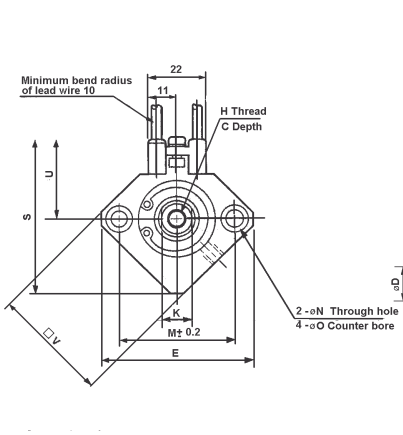
Bore	C	X	H	L	K
Size	mm	mm		mm	mm
12	9	10.5	M5X0.8	14	5
16	10	12	M6X1	15.5	6
20	12	14	M8X1.25	18.5	8
25	15	17.5	M10X1.25	22.5	10
32	20.5	23.5	M14x1.5	28.5	14
40	20.5	23.5	M14x1.5	28.5	14
50	26	28.5	M18X1.5	33.5	17
63	26	28.5	M18X1.5	33.5	17
80	32.5	35.5	M22x1.5	43.5	22
100	32.5	35.5	M26X1.5	43.5	27

END BOSS (CQ2 ONLY)

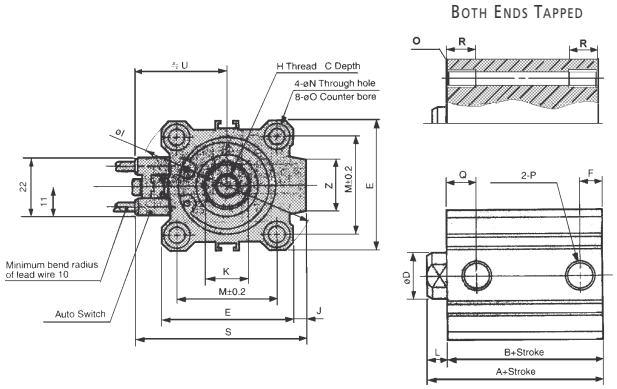
Bore	G	Th9
Size	mm	
12	1.5	$15^{-0.043-0}$
16	1.5	$20^{-0.052-0}$
20	2	$13^{-0.043-0}$
25	2	$15^{-0.043-0}$
32	2	$21^{-0.052-0}$
40	2	$28^{-0.052-0}$
50	2	$35^{-0.062-0}$
63	2	$35^{-0.062-0}$
80	2	$43^{-0.062-0}$
100	2	$59^{-0.074-0}$

SERIES NCQ2/CQ2

DIMENSIONS
THROUGH HOLE ø12~ø25 SERIES (N)CDQ2



DIMENSIONS
THROUGH HOLE ø32~ø100 SERIES (N)CDQ2



DIMENSIONS
SERIES (N)CDQ2A BOTH ENDS TAPPED

Bore Size mm	CQ2 (mm) O	NCQ2 (inch) O	R mm
12	M4x0.7	8-32UNC	7
16	M4x0.7	8-32UNC	7
20	M6x1.0	1/4-20UNC	10
25	M6x1.0	1/4-20UNC	10
32	M6x1.0	1/4-20UNC	10
40	M6x1.0	1/4-20UNC	10
50	M8x1.25	5/16-18UNC	14
63	M10x1.5	7/16-14UNC	18
80	M12x1.75	1/2-13UNC	22
100	M12x1.75	1/2-13UNC	22

DIMENSIONS (MM)
STANDARD ø12 ~ ø100 SERIES (N)CDQ2

Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 H	i	J	K	L	M	N	O	P	Orifice	Q	S	U	Z	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 Depth3.5	-	-	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 Depth3.5	-	-	10	41.5	25.5	-	29
20	5~50	36	31.5	7	7	10	47	5.5	M5x0.8	10-32	-	-	8	4.5	36	5.5	9 Depth7	-	-	10.5	48	24.5	-	36
25	5~50	37.5	32.5	12	10	12	52	5.5	M6x1	1/4-28UNF	-	-	10	5	40	5.5	9 Depth7	-	-	11	53.5	27.5	-	40
32	5~50 75, 100	40	33	13	13.3	16	45	7.5	M8x 1.25	5/16-24UNF	60	4.5	14	7	34	5.5	9 Depth7	1/8	1.7	10.5	58.5	31.5	18	-
40	5~50 75, 100	46.5	39.5	13	18.3	16	52	8	M8x 1.25	3/8-24UNF	69	5	14	7	40	5.5	9 Depth7	1/8	2	11	66	35	18	-
50	10~50 75, 100	48.5	40.5	15	17.6	20	64	10.5	M10x 1.5	1/2-20UNF	86	7	17	8	50	6.6	11 Depth8	1/4	2.2	10.5	80	41	22	-
63	10~50 75, 100	54	46	15	17.6	20	77	10.5	M10x 1.5	1/2-20UNF	103	7	17	8	60	9	14 Depth 10.5	1/4	3	15	93	47.5	22	-
80	10~50 75, 100	63.5	53.5	21	24.3	25	98	12.5	M16x 2	5/8-18UNF	132	6	22	10	77	11	17.5 Depth 13.5	3/8	4	16	112.5	57.5	26	-
100	10~50 75 100	75	63	27	27	30	117	13	M20x 2.5	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) The external dimensions of cylinder with rubber cushion are the same as those of the above standard

SERIES NCQ2/CQ2

TECHNICAL SPECIFICATIONS

DOUBLE ACTING DOUBLE ROD - SERIES NCQ2/CQ2

Model	Air Pressure	Air Hydraulic
Fluid	Air	Hydraulic Oil
Proof Pressure	1.52MPa / 217 PSI	
Max Operating Pressure	1 MPa / 145PSI	
Ambient and Fluid Temp	15~160°F (at freezing temp, air must be dry)*	
Rubber Cushion	None	-
Rod End Thread	Female Thread (Standard)	
Rod End Thread Tolerance	JIS Class II	
Stroke Length Tolerance	0 ~ 0.1 mm	
Piston Speed	2 ~ 20 in/sec	0.002 ~ 8 in/sec
	(50 ~ 500mm/s	0.05 ~ 200mm/s)

*Temperature Note : 15~160°F = -10 ~70°C

MINIMUM OPERATING PRESSURE

PSI

Bore Size	12	16	20	25	32	40	50	63	80	100
Air Pressure	10.15	10.15	7.25	7.25	7.25	7.25	7.25	7.25	7.25	7.25
Air Hydraulic	-	-	26.1	26.1	26.1	14.5	14.5	14.5	14.5	14.5

HOW TO ORDER

NCQ2W/CQ2W DOUBLE ACTING DOUBLE ROD

NC ○ Q2W ○ ○ ○ ○ — ○ D ○ — ○ ○

MEASUREMENT
- ……PT - Metric
N ……NPT - Inch

AUTO SWITCH CAPABLE
- ……Not Auto Switch Capable
D ……Auto Switch Capable
(With Built-In Magnet)

MOUNTING
B ……Through Hole
A ……Both Ends Tapped
L ……Foot
F ……Rod Side Flange

STYLE
- ……Air Pressure
H ……Air Hydro (The available Air Hydro Bore Sizes: ø20 ~ ø100 CQ2 only)

BORE SIZES (MM)
12 16 20 25 32
40 50 63 80 100

PIPING
- ……Thread Ports
F ……Built-In One-Touch Fitting (Bore Sizes ø32 ~ ø63 Not applicable for Air Hydro Type CQ2 Only

STROKE (MM)

ACTION
D ……Double Acting

BODY OPTION
- ……Standard (Female Thread
C ……With Rubber Cushion (Not available for Air Hydraulic Type)
M ……MAle Thread
F ……Head End Boss

AUTO SWITCH CAPABLE
See Accessories: Auto Switch

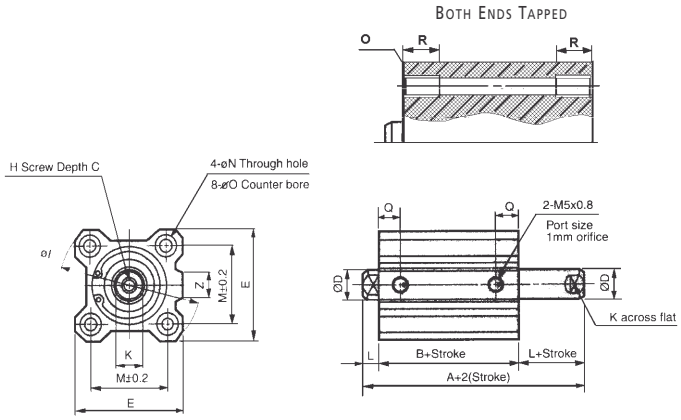
NO OF AUTO SWITCH
- ……2 Pieces
S ……1 piece
n ……n Pieces

HOW TO ORDER

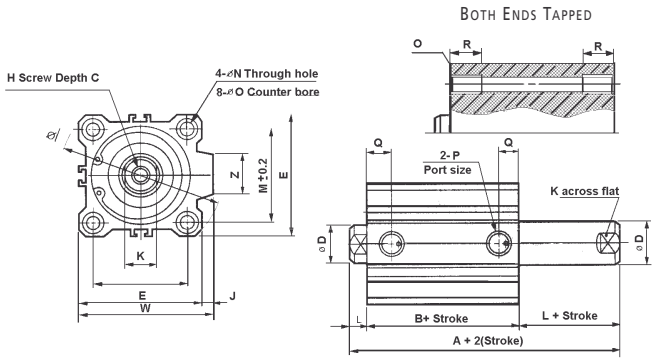
DOUBLE ACTING DOUBLE ROD - STANDARD STROKE

Bore Size	Air Pressure Type	Air Hydro Type
12, 16	5, 10, 15, 20, 25, 30	-
20, 25	5, 10, 15, 20, 25, 30	5, 10, 15, 20, 25,
32, 40	35, 40, 45, 50, 75, 100	30, 35, 40, 45, 50
50, 63, 80 100	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100	10, 15, 20, 25, 30, 35, 40, 45, 50

DIMENSIONS
THROUGH HOLE ø12 ~ ø25 SERIES (N)CQ2W



DIMENSIONS
THROUGH HOLE ø32 ~ ø100 SERIES (N)CQ2W



DIMENSIONS
SERIES (N)CQ2WA BOTH ENDS TAPPED

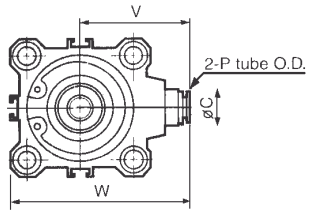
Bore Size	CQ2 O	NCQ2 (inch) O	R
12	M4x0.7	8-32UNC	7
16	M4x0.7	8-32UNC	7
20	M6x1.0	1/4-20UNC	10
25	M6x1.0	1/4-20UNC	10
32	M6x1.0	1/4-20UNC	10
40	M6x1.0	1/4-20UNC	10
50	M8x1.25	5/16-18UNC	14
63	M10x1.5	7/16-14UNC	18
80	M12x1.75	1/2-13UNC	22
100	M12x1.75	1/2-13UNC	22

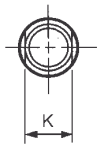
DIMENSIONS (MM)
DOUBLE ACTING DOUBLE ROD SERIES (N)CQ2W

Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 H	i	J	K	L	M	N	O	P	Orifice	Q	W	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 Depth3.5	-	-	10	-	-
16	5~30	33	26	8	5.4	8	29	M4x0.7	8-32	38	-	6	3.5	20	3.5	6.5 Depth3.5	-	-	10	-	10
20	5~50	35	26	7	7	10	36	M5x0.8	10-32	47	-	8	4.5	25.5	5.5	9 Depth7	-	-	9.5	-	10
25	5~50	39	29	12	10	12	40	M6x1	1/4-28UNF	52	-	10	5	28	5.5	9 Depth7	-	-	11	-	10
32	5	44.5	30.5	13	13.3	16	45	M8x1.25	5/16x24UNF	60	4.5	14	7	34	5.5	9 Depth7	M5x0.8	1.7	12.5	49.5	18
	10~50																1/8				
40	5~50	54	40	13	18.3	16	52	M8x1.25	3/8x24UNF	69	5	14	7	40	5.5	9 Depth7	1/8	2	14	57	18
50	10~50	56.5	40.5	15	17.6	20	64	M10x1.5	1/2x20UNF	86	7	17	8	50	6.6	11 Depth8	1/4	2.2	14	71	22
63	10~50	58	42	15	17.6	20	77	M10x1.5	1/2x20UNF	103	7	17	8	60	9	14 Depth 10.5	1/4	3	15.5	84	22
80	10~50	71	51	21	24.3	25	98	M16x2	5/8x18UNF	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	3/4x16UNF	156	6.5	27	12	94	11	17.5 Depth 13.5	3/8	5	22	123.5	26

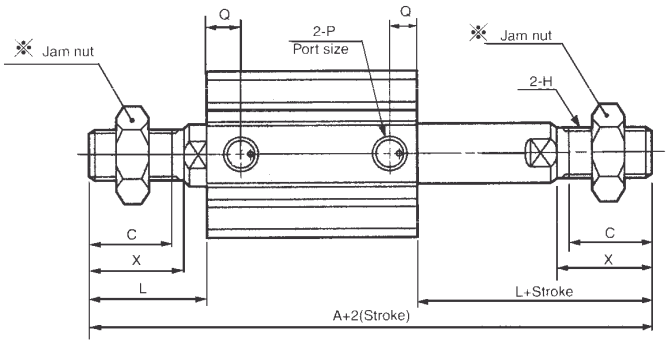
Note) The external dimensions of cylinder with rubber cushion are the same as those of the above standard

DIMENSIONS
DOUBLE ACTING DOUBLE ROD SERIES (N)CQ2W





Piston Rod



ONE TOUCH FITTINGS

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

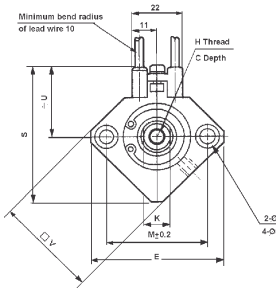
NCQ2 MALE ROD END

Bore Size	X mm	H inch	L mm	K mm	A mm
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
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

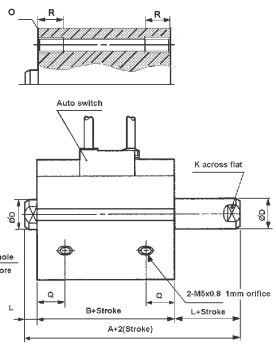
CQ2 MALE ROD END

Bore Size	C mm	X mm	H mm	L mm	K mm	A mm
12	9	10.5	M5X0.8	14	5	53.2
16	10	12	M6X1	15.5	6	57
20	12	14	M8X1.25	18.5	8	63
25	15	17.5	M10X1.25	22.5	10	74
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

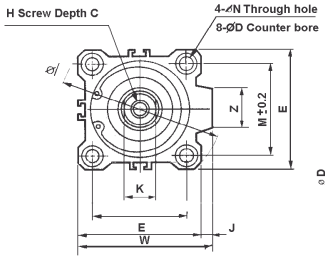
DIMENSIONS
THROUGH HOLE ø12 ~ ø25 SERIES (N)CDQ2WB



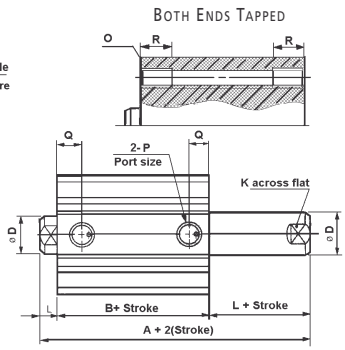
BOTH ENDS TAPPED



DIMENSIONS
THROUGH HOLE ø32 ~ ø100 SERIES (N)CDQ2WB



BOTH ENDS TAPPED



BOTH ENDS TAPPED (N)CDQ2WA (mm)

Bore Size	CQ2 (mm) O	NCQ2 (in) O	R
12	M4x0.7	8-32UNC	7
16	M4x0.7	8-32UNC	7
20	M6x1	1/4-20UNC	10
25	M6x1	1/4-20UNC	10
32	M6x1	1/4-20UNC	10
40	M6x1	1/4-20UNC	10
50	M8x1.25	5/16-18UNC	14
63	M10x1.5	7/16-14UNC	18
80	M12x1.75	1/2-13UNC	22
100	M12x1.75	1/2-13UNC	22

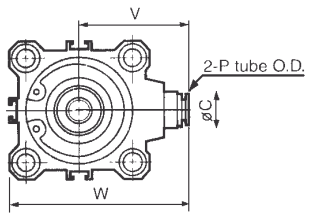
SEE DIMENSIONS ON NEXT PAGE ☞

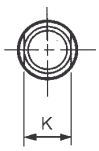
DIMENSIONS (MM)
STANDARD ø12 ~ ø100 SERIES (N)CDQ2W

Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 H	i	J	K	L	M	N	O	P	Orifice	Q	S	U	V	Z
12	5~30	39.4	32.4	6	5.4	6	32	M3x0.5	8-32	-	-	5	3.5	22	3.5	6.5 Depth3.5	-	-	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 Depth3.5	-	-	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 Depth7	-	-	10.5	48	24.5	36	-
25	5~50	49	39	12	10	12	52	M6x1	1/4-28UNF	-	-	10	5	40	5.5	9 Depth7	-	-	11	53.5	27.5	40	-
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 Depth7	1/8	1.7	12.5	58.5	31.5	-	18
40	5~50	64	50	13	18.3	16	52	M8x1.25	3/8-24UNF	69	5	14	7	40	5.5	9 Depth7	1/8	2	14	66	35	-	18
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 Depth8	1/4	2.2	14	80	41	-	22
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	-	22
80	10~50	81	61	21	24.3	25	98	M16x2	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

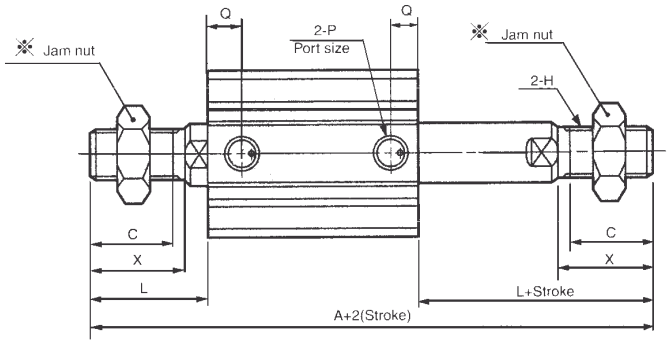
Note) The external dimensions of cylinder with rubber cushion are the same as those of the above standard

DIMENSIONS
WITH AUTO SWITCH SERIES (N)CDQ2W - PIPING & BODY OPTIONS





Piston Rod



ONE TOUCH FITTINGS

Bore Size	C mm	P mm	V mm	W mm
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 mm	H inch	L mm	K mm	A mm
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
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

CQ2 MALE ROD END

Bore Size	C mm	X mm	H	L mm	K mm	A mm
12	9	10.5	M5X0.8	14	5	60.4
16	10	12	M6X1	15.5	6	67
20	12	14	M8X1.25	18.5	8	75
25	15	17.5	M10X1.25	22.5	10	84
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

SERIES NCQ2/CQ2

TECHNICAL SPECIFICATIONS

SINGLE ACTING SINGLE ROD - SERIES NCQ2/CQ2

Fluid	Air
Proof Pressure	1.5MPa / 217 PSI
Max Operating Pressure	1MPa / 145PSI
Ambient and Fluid Temp	-10~70°C (at freezing temp, air must be dry) 15~160°F
Rubber Cushion	None
Rod End Thread	Female Thread (Standard)
Rod End Thread Tolerance	JIS Class II
Stroke Length Tolerance	0 ~ 0.1 mm
Mounting	Through Hole (Standard)
Piston Speed	50~500mm/s / 2 ~ 20 in/sec

MINIMUM OPERATING PRESSURE

1MPa = 145PSI

Bore Size	12	16	20	25	32	40	50
Min Operating Pressure (PSI)	36	36	26	26	25	22	18

HOW TO ORDER

NCQ2/CQ2 SINGLE ACTING SINGLE ROD

NC ○ Q2 ○ ○ ○ — ○ ○ ○ — ○ ○

MEASUREMENT
Nil ...PT - Metric
N .....NPT - Inch

AUTO SWITCH
Nil ...W/O Auto Switch
D .....With AutoSwitch (Built-In Magnet)

MOUNTING
B .....Through Hole
A .....Both Ends Tapped
L .....Foot
F .....Rod Side Flange
G .....Head Side Flange
D .....Double Clevis

BORE SIZE
12, 16, 20, 25, 32, 40, 50

PIPING
- .....Threaded Ports
F .....Built-In One-Touch Fitting (Bore Sizes ø32 ~ ø50 CQ2 Only)

STROKE (MM)

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

ACTION
S .....Spring Return
T .....Spring Extended

BODY OPTION
- .....Standard (Female Thread)
M .....Male Thread
F .....Head End Boss

AUTO SWITCH CAPABLE
See Accessories: Auto Switch

NO OF AUTO SWITCH
- .....2 Pieces
S .....1 piece
n .....n Pieces

HOW TO ORDER

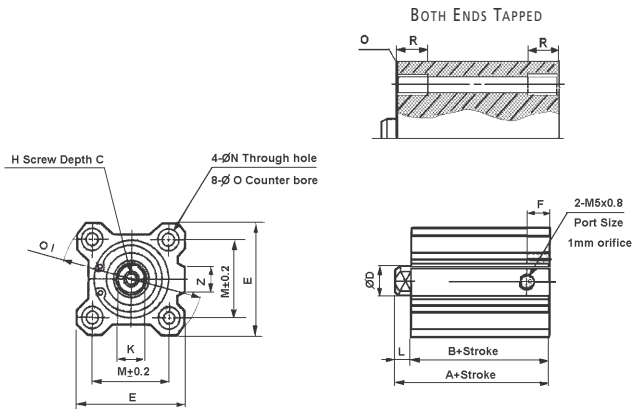
SINGLE ACTING SINGLE ROD - STANDARD STROKE

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

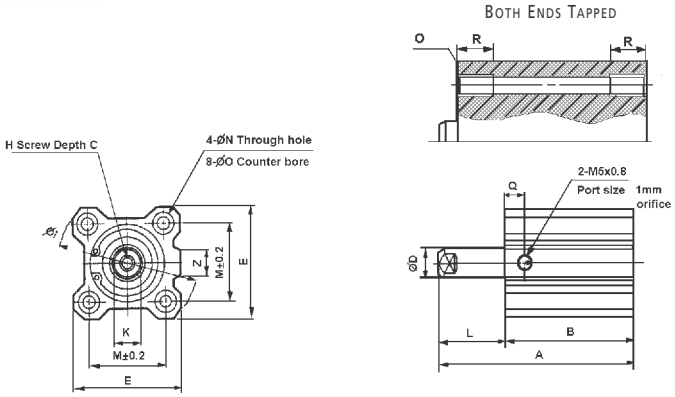
MORE DIMENSIONS SEE NEXT PAGE ☞

SERIES NCQ2/CQ2

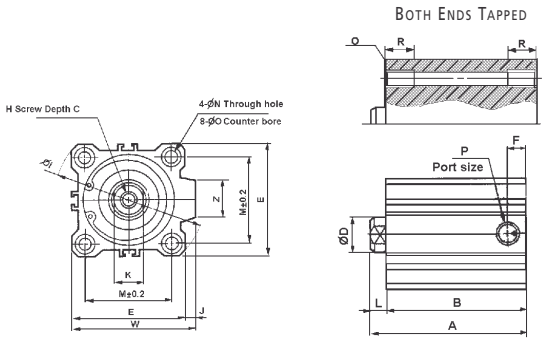
DIMENSIONS
SPRING RETURN
THROUGH HOLE ø12 ~ ø25 SERIES (N)CQ2B-S



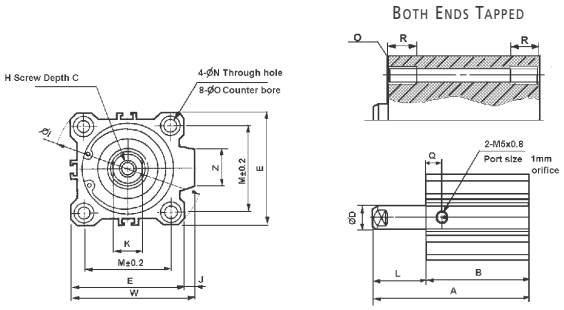
DIMENSIONS
SPRING EXTENDED
THROUGH HOLE ø12 ~ ø25 SERIES (N)CQ2B-T



DIMENSIONS
SPRING RETURN
THROUGH HOLE ø32 ~ ø50 SERIES (N)CQ2B-S



DIMENSIONS
SPRING EXTENDED
THROUGH HOLE ø32 ~ ø50 SERIES (N)CQ2B-T



DIMENSIONS (MM)
SINGLE ACTING SINGLE ROD SERIES (N)CQ2B-S

Bore	Stroke	A			B			CQ2	NCQ2	D	E
Size	(mm)	5st	10st	20st	5st	10st	20st	C	C		
12	5, 10	25.5	30.5	-	22	27	-	6	5.4	6	25
16	5, 10	27	32	-	23.5	28.5	-	8	5.4	8	29
20	5, 10	29	34	-	24.5	29.5	-	7	7	10	36
25	5, 10	32.5	37.5	-	27.5	32.5	-	12	10	12	40
32	5, 10	35	40	-	28	33	-	13	13.3	16	45
40	5, 10	41	46.5	-	34.5	39.5	-	13	18.3	16	52
50	10, 20	-	48.5	58.5	-	40.5	50.5	15	17.6	20	64

DIMENSIONS (MM)
SERIES (N)CQ2B-T

Bore	Stroke	A			L			Q		
Size	(mm)	5st	10st	20st	5st	10st	20st	5st	10st	20st
12	5,10	30.5	40.5	-	8.5	13.5	-	7.5		
16	5,10	32	42	-	8.5	13.5	-	8		
20	5, 10	34	44	-	9.5	14.5	-	9		
25	5, 10	37.5	47.5	-	10	15	-	11		
32	5, 10	40	50	-	12	17	-	11.5	10.5	-
40	5, 10	46.5	56.5	-	12	17	-	11	11	-
50	10, 20	-	58.5	78.5	-	18	28	-	10.5	10.5

Bore	Stroke	F			CQ2(mm)	NCQ2	i	J	K	L	M	N	O	P			Orifice	W	Z
Size	(mm)	5st	10st	20st	H	H								5st	10st	20st			
12	5, 10		5		M3x0.5	8-32	32	-	5	3.5	15.5	3.5	6.5 Depth3.5		-		-	-	-
16	5, 10		5.5		M4x0.7	8-32	38	-	6	3.5	20	3.5	6.5 Depth3.5		-		-	-	10
20	5, 10		5.5		M5x0.8	10-32	47	-	8	4.5	25.5	5.5	9 Depth7		-		-	-	10
25	5, 10		5.5		M6x1	1/4-28UNF	52	-	10	5	28	5.5	9 Depth7		-		-	-	10
32	5, 10	5.5	7.5	-	M8x1.25	5/16-24UNF	60	4.5	14	7	34	5.5	9 Depth7	M5x0.8	1/8	-	1.7	49.5	18
40	5, 10	8	8	-	M8x1.25	3/8-24UNF	69	5	14	7	40	5.5	9 Depth7	1/8	1/8	-	2	57	18
50	10, 20	-	10.5	10.5	M10x1.5	1/2-20UNF	86	7	17	8	50	6.6	11 Depth8	-	1/4	1/4	2.2	71	22

Note) Except for A, L & Q, all other dimensions apply to both Spring Return and Spring Extend

DIMENSIONS (MM)

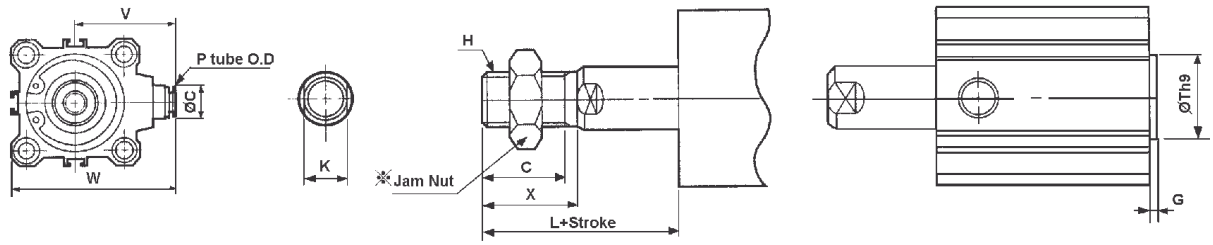
SINGLE ACTING SINGLE ROD BOTH ENDS TAPPED SERIES (N)CDQ2A
SPRING RETURN / EXTENDED

BOTH ENDS TAPPED (N)CDQ2A

Bore	CQ2 (mm)	NCQ2 (in)	
Size	O	O	R
12	M4x0.7	8-32UNC	7
16	M4x0.7	8-32UNC	7
20	M6x1	1/4-20UNC	10
25	M6x1	1/4-20UNC	10
32	M6x1	1/4-20UNC	10
40	M6x1	1/4-20UNC	10
50	M8x1.25	5/16-18UNC	14

DIMENSIONS

SINGLE ACTING SINGLE ROD SERIES (N)CQ2 - PIPING & BODY OPTIONS
SPRING RETURN / EXTENDED



ONE TOUCH FITTINGS

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

NCQ2 MALE ROD END

Bore	X	H	L	K
Size	mm	inch	mm	mm
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
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

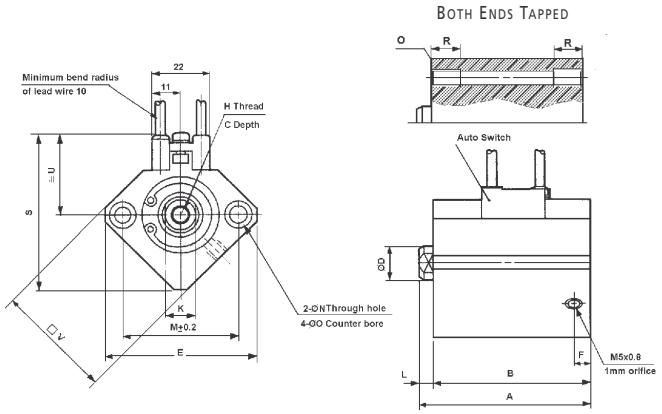
Bore	C	X	H	L	K
Size	mm	mm	mm	mm	mm
12	9	10.5	M5X0.8	14	5
16	10	12	M6X1	15.5	6
20	12	14	M8X1.25	18.5	8
25	15	17.5	M10X1.25	22.5	10
32	20.5	23.5	M14x1.5	28.5	14
40	20.5	23.5	M14x1.5	28.5	14
50	26	28.5	M18X1.5	33.5	17

END BOSS (CQ2 ONLY)

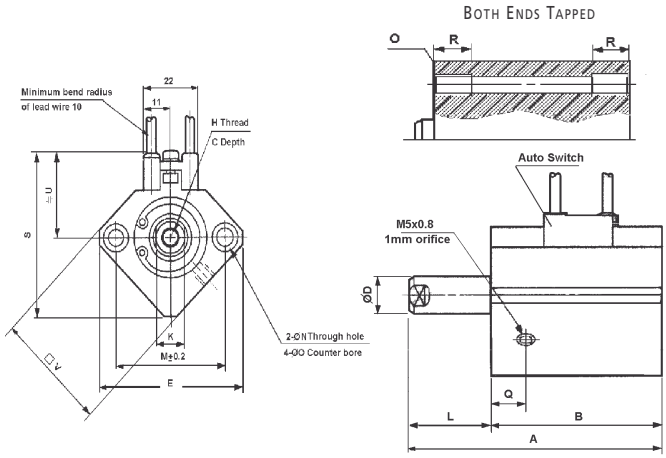
Bore	G	Th9
Size	mm	mm
12	1.5	$15^{-0.043-0}$
16	1.5	$20^{-0.052-0}$
20	2	$13^{-0.043-0}$
25	2	$15^{-0.043-0}$
32	2	$21^{-0.052-0}$
40	2	$28^{-0.052-0}$
50	2	$35^{-0.062-0}$

SERIES NCQ2/CQ2

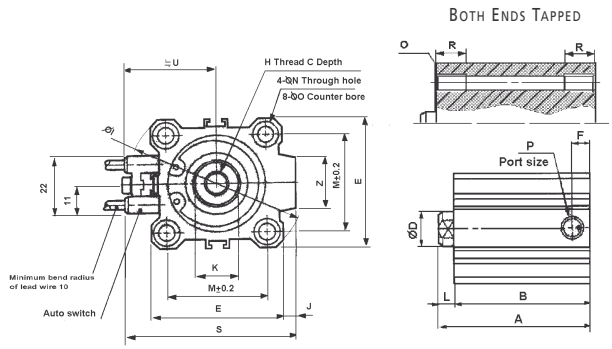
DIMENSIONS
SPRING RETURN
THROUGH HOLE ø12 ~ ø25 SERIES (N)CDQ2B-S



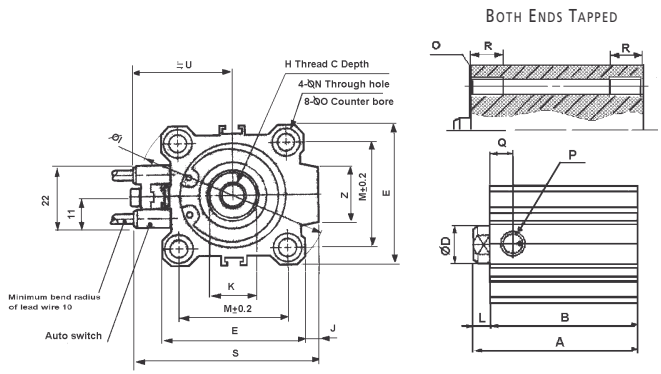
DIMENSIONS
SPRING EXTENDED
THROUGH HOLE ø12 ~ ø25 SERIES (N)CDQ2B-T



DIMENSIONS
SPRING RETURN
THROUGH HOLE ø32 ~ ø50 SERIES (N)CDQ2B-S



DIMENSIONS
SPRING EXTENDED
THROUGH HOLE ø32 ~ ø50 SERIES (N)CDQ2B-T



DIMENSIONS (MM)
WITH AUTO SWITCH / SINGLE ACTING SINGLE ROD SERIES (N)CDQ2-S

Bore	Stroke	A			B			CQ2	NCQ2	D	E
Size	(mm)	5st	10st	20st	5st	10st	20st	C	C		
12	5, 10	36.5	41.5	-	33	38	-	6	5.4	6	32
16	5, 10	39	44	-	35.5	40.5	-	8	5.4	8	38
20	5, 10	41	46	-	36.5	41.5	-	7	7	10	47
25	5, 10	42.5	47.5	-	37.5	42.5	-	12	10	12	52
32	5, 10	45	50	-	38	43	-	13	13.3	16	45
40	5, 10	51.5	56.5	-	44.5	41.5	-	13	18.3	16	52
50	10, 20	-	58.5	68.5	-	50.5	60.5	15	17.6	20	64

DIMENSIONS (MM)
SERIES (N)CDQ2B-T

Bore	Stroke	A			L			Q
Size	(mm)	5st	10st	20st	5st	10st	20st	
12	5,10	45.9	55.9	-	8.5	13.5	-	11
16	5,10	44	54	-	8.5	13.5	-	10
20	5, 10	46	56	-	9.5	14.5	-	10.5
25	5, 10	47.5	57.5	-	10	15	-	11
32	5, 10	50	50	-	12	17	-	10.5
40	5, 10	56.5	66.5	-	12	17	-	11
50	10, 20	-	68.5	88.5	-	18	28	10.5

Bore	Stroke	F	CQ2(mm)	NCQ2	i	J	K	L	M	N	O	P	Orifice	S	U	V	Z
Size	(mm)		H	H													
12	5, 10	6.5	M3x0.5	8-32	-	-	5	3.5	22	3.5	6.5 Depth3.5	-	-	35.5	19.5	25	-
16	5, 10	5.5	M4x0.7	8-32	-	-	6	3.5	28	3.5	6.5 Depth3.5	-	-	41.5	22.5	29	-
20	5, 10	5.5	M5x0.8	10-32	-	-	8	4.5	36	5.5	9 Depth7	-	-	48	24.5	36	-
25	5, 10	5.5	M6x1	1/4-28UNF	-	-	10	5	40	5.5	9 Depth7	-	-	53.5	27.5	40	-
32	5, 10	7.5	M8x1.25	5/16-24UNF	60	4.5	14	7	34	5.5	9 Depth7	1/8	1.7	58.5	31.5	-	18
40	5, 10	8	M8x1.25	3/8-24UNF	69	5	14	7	40	5.5	9 Depth7	1/8	2	66	35	-	18
50	10, 20	10.5	M10x1.5	1/2-20UNF	86	7	17	8	50	6.6	11 Depth8	1/4	2.2	80	41	-	22

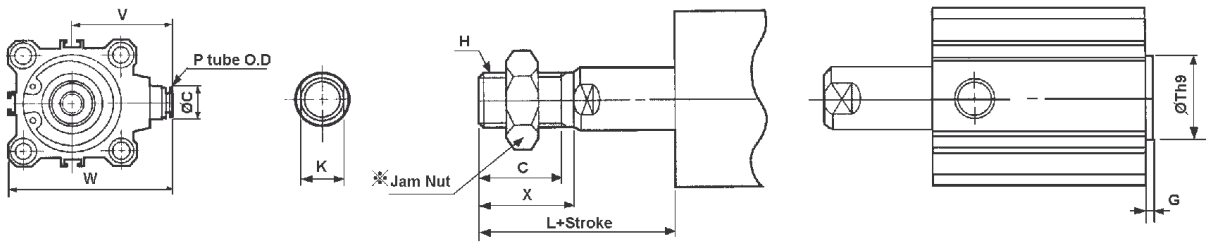
Note) Except for A, L & Q, all other dimensions apply to both Spring Return and Spring Extend

DIMENSIONS
WITH AUTO SWITCH SPRING RETURN / EXTENDED
SINGLE ACTING SINGLE ROD BOTH ENDS TAPPED SERIES (N)CDQ2A

BOTH ENDS TAPPED (N)CDQ2A

Bore	CQ2 (mm)	NCQ2 (in)	
Size	O	O	R
12	M4x0.7	8-32UNC	7
16	M4x0.7	8-32UNC	7
20	M6x1	1/4-20UNC	10
25	M6x1	1/4-20UNC	10
32	M6x1	1/4-20UNC	10
40	M6x1	1/4-20UNC	10
50	M8x1.25	5/16-18UNC	14
63	M10x1.5	7/16-14UNC	18
80	M12x1.75	1/2-13UNC	22
100	M12x1.75	1/2-13UNC	22

DIMENSIONS
WITH AUTO SWITCH SPRING RETURN / EXTENDED
SINGLE ACTING SINGLE ROD SERIES (N)CDQ2 - PIPING & BODY OPTIONS



ONE TOUCH FITTINGS

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

NCQ2 MALE ROD END

Bore	X	H	L	K
Size	mm	inch	mm	mm
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
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

Bore	C	X	H	L	K
Size	mm	mm		mm	mm
12	9	10.5	M5X0.8	14	5
16	10	12	M6X1	15.5	6
20	12	14	M8X1.25	18.5	8
25	15	17.5	M10X1.25	22.5	10
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)

Bore	G	Th9
Size	mm	
12	1.5	$15^{-0.043}_{-0}$
16	1.5	$20^{-0.052}_{-0}$
20	2	$13^{-0.043}_{-0}$
25	2	$15^{-0.043}_{-0}$
32	2	$21^{-0.052}_{-0}$
40	2	$28^{-0.052}_{-0}$
50	2	$35^{-0.062}_{-0}$

SERIES NCQ2/CQ2

TECHNICAL SPECIFICATIONS NON-ROTATING DOUBLE ACTING SINGLE ROD - SERIES NCQ2K/CQ2K

Model	Air Pressure (Non-Lube)
Fluid	Air
Proof Pressure	1.5MPa / 217 PSI
Max Operating Pressure	1MPa / 145PSI
Ambient and Fluid Temp	-10~70°C / 15~160°F
Rubber Cushion	None / ø12WSwitches must have Rubber Cushion
Rod End Thread	Female Thread (Standard)
Rod End Thread Tolerance	JIS Class II
Stroke Length Tolerance	0 ~ 0.1 mm
Mounting	Through Hole (Standard)
Piston Speed	50 ~ 500mm/s / 2 ~ 20 in/sec

MINIMUM OPERATING PRESSURE

1MPa = 145PSI

Bore Size	12	16	20	25	32	40	50	63
Min Operating Pressure (PSI)	10.15	10.15	7.25	7.25	7.25	7.25	7.25	7.25

HOW TO ORDER NCQ2K/CQ2K NON-ROTATING DOUBLE ACTING SINGLE ROD

NC ○ Q2K ○ ○ ○ — ○ D ○ — ○ ○

MEASUREMENT
- ……PT - Metric
N ……NPT - Inch

AUTO SWITCH CAPABLE
- ……Not Auto Switch Capable
D ……Auto Switch Capable
(With Built-in Magnet)

MOUNTING
ø12~63 B Through Hole
ø40, 50, 63 A Both Ends Tapped
L Foot
F Rod Side Flange
G Head Side Flange
D Double Clevis

BORE SIZE
12, 16, 20, 25, 32, 40, 50, 63

STROKE (MM)

PIPING
- ……Threaded Ports
F ……Built-In One-Touch Fitting (Bore Sizes ø32 ~ ø63 CQ2 Only)

ACTION
D ……Double Acting

BODY OPTION
- ……Standard (Female Thread)
C ……With Rubber Cushion
(ø12 Only W/Switch)
M ……Male Thread
F ……Head End Boss (CQ2 Only)

NO OF AUTO SWITCH
- ……2 Pieces
S ……1 piece
n ……n Pieces

AUTO SWITCH CAPABLE
See Accessories: Auto Switch

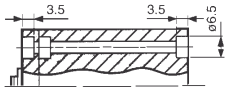
HOW TO ORDER NON-ROTATING DOUBLE ACTING SINGLE ROD - STANDARD STROKE

Bore Size	Stroke
12, 16	5, 10, 15, 20, 25, 30
20, 25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
32, 40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50, 63	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

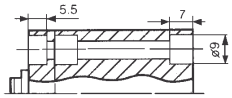
MORE DIMENSIONS SEE NEXT PAGE ☞

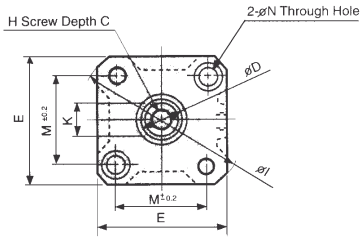
DIMENSIONS
THROUGH HOLE ø12 ~ ø25 SERIES (N)CQ2KB

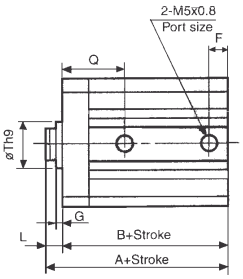
ø12~ø16
Both Ends Tapped



ø20~ø25
Both Ends Tapped

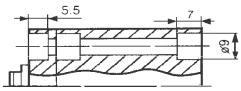


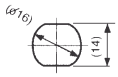




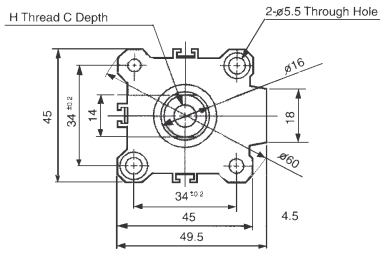
DIMENSIONS
THROUGH HOLE ø32 SERIES (N)CQ2KB

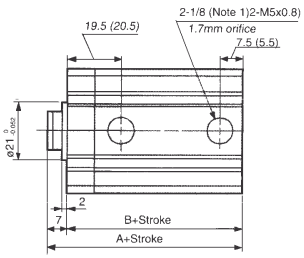
ø32
Both Ends Tapped





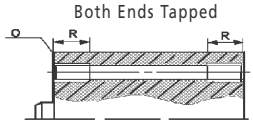
Piston Rod

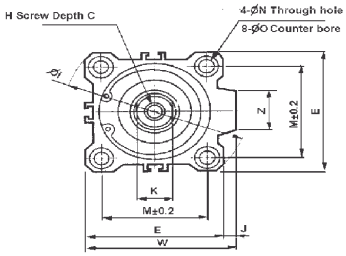


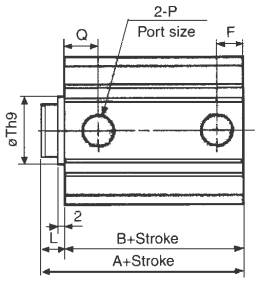


DIMENSIONS
THROUGH HOLE ø40 ~ ø63 SERIES (N)CQ2KB

ø40~ø63
Both Ends Tapped







DIMENSIONS (MM)
NON-ROTATING
DOUBLE ACTING SINGLE ROD BOTH ENDS TAPPED SERIES (N)CQ2KA

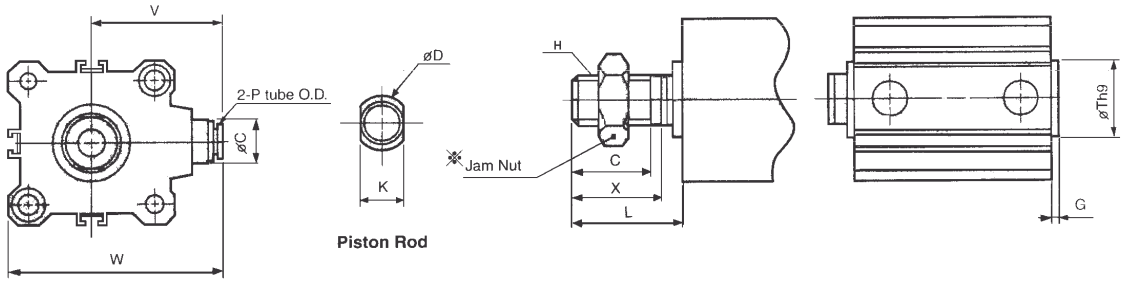
BOTH ENDS TAPPED (N)CQ2KA

Bore Size	CQ2 (mm) O	NCQ2 (in) O	R
40	M6x1	1/4-20UNC	10
50	M8x1.25	5/16-18UNC	14
63	M10x1.5	7/16-14UNC	18

DIMENSIONS
NON-ROTATING DOUBLE ACTING SINGLE ROD
SERIES (N)CQ2K STANDARD

Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	F	G	CQ2 H	NCQ2 H	i	J	K	L	M	N	O	P	Orifice	Q	Th9	W	Z
12	5~30	25.5	22	6	5.4	6	25	5	1.5	M3x0.5	8-32	32	-	5.2	3.5	15.5	3.5	-	-	-	12.5	$15^{-0.043\sim0}$	-	-
16	5~30	27	23.5	8	5.4	8	29	5.5	1.5	M4x0.7	8-32	38	-	6	3.5	20	3.5	-	-	-	13	$20^{-0.052\sim0}$	-	-
20	5~30	32	27.5	7	7	10	36	5.5	5.5	M5x0.8	10-32	47	-	8	4.5	25.5	5.5	-	-	-	17	$13^{-0.043\sim0}$	-	-
25	5~30	35.5	30.5	12	10	12	40	5.5	2	M6x1	1/4-28UNF	52	-	10	5	28	5.5	-	-	-	19	$15^{-0.043\sim0}$	-	-
40	5~50	36.5	29.5	13	18.3	16	52	8	2	M8x 1.25	3/8-24UNF	69	5	14	7	40	5.5	9 Depth7	1/8	2	11	$28^{-0.052\sim0}$	57	18
	75, 100	46.5	39.5																					
50	5~50	38.5	30.5	15	17.6	20	64	10.5	2	M10x 1.5	1/2-20UNF	86	7	18	8	50	6.6	11 Depth8	1/4	2.2	10.5	$35^{-0.062\sim0}$	71	22
	75, 100	48.5	40.5																					
63	10~50	44	36	15	17.6	20	77	10.5	2	M10x 1.5	1/2-20UNF	103	7	18	8	60	9	14 Depth 10.5	1/4	3	15	$35^{-0.062\sim0}$	84	22
	75, 100	54	46																					

DIMENSIONS
DOUBLE ACTING SINGLE ROD SERIES (N)CQ2K - PIPING & BODY OPTIONS



ONE TOUCH FITTINGS

Bore Size	C mm	P mm	V mm	W mm
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 mm	H inch	L mm	K mm
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
32	12.7	5/16-24UNF	17.7	14
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

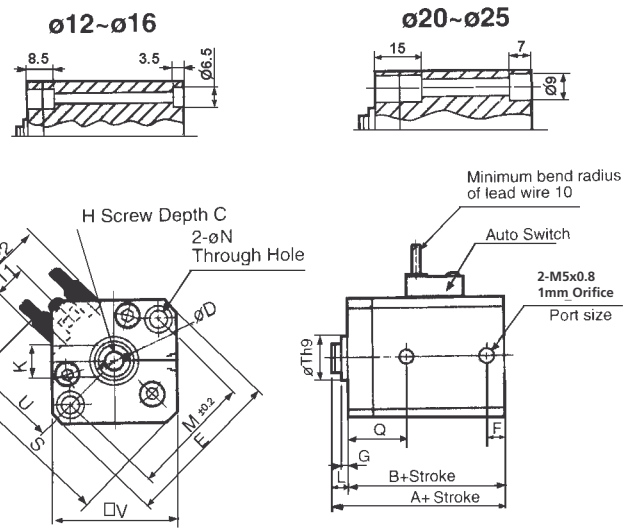
CQ2 MALE ROD END

Bore Size	C mm	X mm	H mm	L mm	K mm
12	9	10.5	M5X0.8	14	5
16	10	12	M6X1	15.5	6
20	12	14	M8X1.25	18.5	8
25	15	17.5	M10X1.25	22.5	10
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	18
63	26	28.5	M18X1.5	33.5	18

END BOSS (CQ2 ONLY)

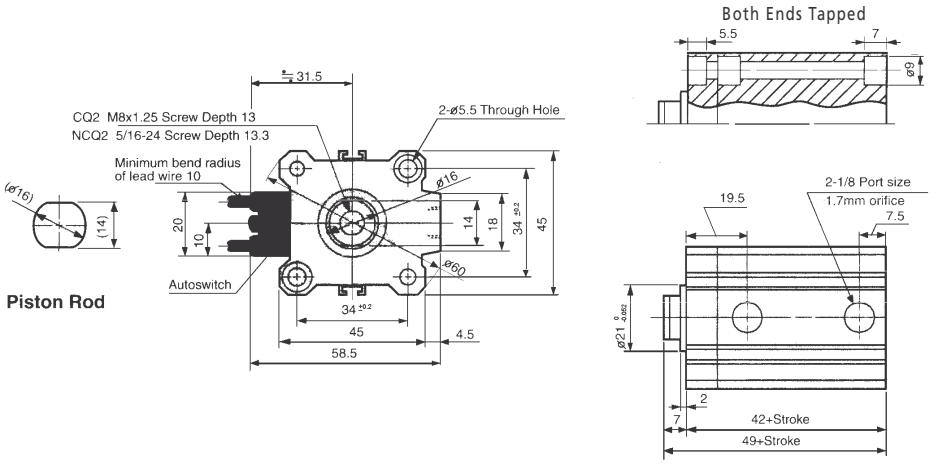
Bore Size	G mm	Th9 mm
12	1.5	$15^{-0.043\sim0}$
16	1.5	$20^{-0.052\sim0}$
20	2	$13^{-0.043\sim0}$
25	2	$15^{-0.043\sim0}$
32	2	$21^{-0.052\sim0}$
40	2	$28^{-0.052\sim0}$
50	2	$35^{-0.062\sim0}$
63	2	$35^{-0.062\sim0}$

DIMENSIONS
WITH AUTO SWITCH
THROUGH HOLE ø12 ~ ø25 SERIES (N)CDQ2KB

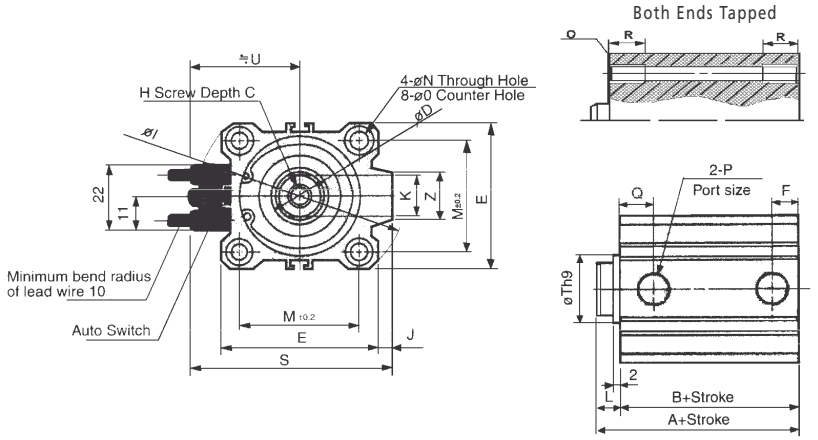


DIMENSIONS
WITH AUTO SWITCH
THROUGH HOLE ø32 SERIES (N)CDQ2KB

ø12~ø25



DIMENSIONS
WITH AUTO SWITCH
THROUGH HOLE ø40 ~ ø63 SERIES (N)CDQ2KB



SERIES NCQ2/CQ2

DIMENSIONS (MM)
WITH AUTO SWITCH NON-ROTATING
DOUBLE ACTING SINGLE ROD BOTH ENDS TAPPED SERIES (N)CDQ2KA

BOTH ENDS TAPPED (N)CDQ2KA

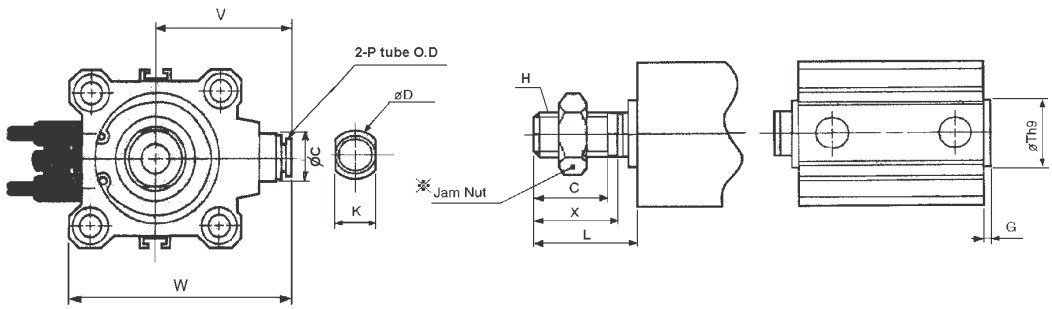
Bore Size	CQ2 (mm) O	NCQ2 (in) O	R
12	M4x0.7	8-32UNC	7
16	M4x0.7	8-32UNC	7
20	M6x1	1/4-20UNC	10
25	M6x1	1/4-20UNC	10
32	M6x1	1/4-20UNC	10
40	M6x1	1/4-20UNC	10
50	M8x1.25	5/16-18UNC	14
63	M10x1.5	7/16-14UNC	18

Bore Size	Stroke (mm)	Th9 mm
12	5~30	$15^{-0.043}_{-0}$
16	5~30	$20^{-0.052}_{-0}$
20	5~50	$13^{-0.043}_{-0}$
25	5~50	$15^{-0.043}_{-0}$
40	5~50	$28^{-0.052}_{-0}$
	75, 100	
50	5~50	$35^{-0.062}_{-0}$
	75, 100	
63	10~50	$35^{-0.062}_{-0}$
	75, 100	

DIMENSIONS (MM)
NON-ROTATING DOUBLE ACTING SINGLE ROD
WITH AUTO SWITCH SERIES (N)CDQ2K STANDARD

Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	F	G	CQ2 H	NCQ2 H	i	J	K	L	M	N	O	P	Orifice	Q	S	U	V	Z
12	5~30	36.5	33	6	5.4	6	32	6.5	1.5	M3x0.5	8-32	-	-	5.2	3.5	22	3.5	-	-	-	16	35.5	19.5	25	-
16	5~30	39	35.5	8	5.4	8	38	5.5	1.5	M4x0.7	8-32	-	-	6	3.5	28	3.5	-	-	-	15	41.5	22.5	29	-
20	5~50	44	39.5	7	7	10	47	5.5	2	M5x0.8	10-32	-	-	8	4.5	36	5.5	-	-	-	18.5	48	24.5	36	-
25	5~50	45.5	40.5	12	10	12	52	5.5	2	M6x1	1/4-28UNF	-	-	10	5	40	5.5	-	-	-	19	53.5	27.5	40	-
40	5~50	46.5	39.5	13	18.3	16	52	8	2	M8x 1.25	3/8-24UNF	69	5	14	7	40	5.5	9 Depth7	1/8	2	11	66	35	-	18
	75, 100																								
50	5~50	48.5	40.5	15	17.5	20	64	10.5	2	M10x 1.5	1/2-20UNF	86	7	18	8	50	6.6	11 Depth8	1/4	2.2	10.5	80	41	-	22
	75, 100																								
63	10~50	54	46	15	17.5	20	77	10.5	2	M10x 1.5	1/2-20UNF	103	7	18	8	60	9	14 Depth 10.5	1/4	3	15	93	47.5	-	22
	75, 100																								

DIMENSIONS
WITH AUTO SWITCH
DOUBLE ACTING SINGLE ROD SERIES (N)CDQ2 - PIPING & BODY OPTIONS



ONE TOUCH FITTINGS

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

NCDQ2 MALE ROD END

Bore Size	X mm	H inch	L mm	K mm
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
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

CDQ2 MALE ROD END

Bore Size	C mm	X mm	H mm	L mm	K mm
12	9	10.5	M5X0.8	14	5
16	10	12	M6X1	15.5	6
20	12	14	M8X1.25	18.5	8
25	15	17.5	M10X1.25	22.5	10
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

END BOSS (CQ2 ONLY)

Bore Size	G mm	Th9 mm
12	1.5	$15^{-0.043}_{-0}$
16	1.5	$20^{-0.052}_{-0}$
20	2	$13^{-0.043}_{-0}$
25	2	$15^{-0.043}_{-0}$
32	2	$21^{-0.052}_{-0}$
40	2	$28^{-0.052}_{-0}$
50	2	$35^{-0.062}_{-0}$
63	2	$35^{-0.062}_{-0}$

TECHNICAL SPECIFICATIONS
NON-ROTATING
DOUBLE ACTING DOUBLE ROD - SERIES (N)CQ2KW

Model	Air Pressure (Non-Lube)
Fluid	Air
Proof Pressure	1.5MPa / 217 PSI
Max Operating Pressure	1MPa / 145PSI
Ambient and Fluid Temp	-10~70°C / 15~160°F
Rubber Cushion	None / ø12WSwitches must have Rubber Cushion
Rod End Thread	Female Thread (Standard)
Rod End Thread Tolerance	JIS Class II
Stroke Length Tolerance	0 ~ 0.1 mm
Mounting	Through Hole (Standard)
Piston Speed	50~500mm/s / 2 ~ 20 in/sec

MINIMUM OPERATING PRESSURE

1MPa = 145PSI

Bore Size	12	16	20	25	32	40	50	63
Min Operating Pressure (PSI)	10.15	10.15	7.25	7.25	7.25	7.25	7.25	7.25

HOW TO ORDER
(N)CQ2KW NON-ROTATING DOUBLE ACTING DOUBLE ROD

NC ○ Q2 KW ○ ○ ○ — ○ D ○ — ○ ○

MEASUREMENT
- ……PT - Metric
N ……NPT - Inch

AUTO SWITCH CAPABLE
- ……Not Auto Switch Capable
D ……AutoSwitch Capable
(With Built-in Magnet)

MOUNTING
ø12~63 B (Through Hole)
ø40, 50, 63 A (Both Ends Tapped)

BORE SIZE
12, 16, 20, 25, 32, 40, 50, 63

PIPING
- ……Threaded Ports
F ……Built-In One-Touch Fitting (Bore Sizes ø32 ~ ø63 CQ2 Only)

STROKE (MM)

ACTION
D ……Double Acting

BODY OPTION
- ……Standard (Female Thread)
C ……With Rubber Cushion
(ø12W Switch)
M ……Male Thread

AUTO SWITCH CAPABLE

NO OF AUTO SWITCH
- ……2 Pieces
S ……1 piece
n ……n Pieces

HOW TO ORDER
NON-ROTATING DOUBLE ACTING DOUBLE ROD - STANDARD STROKE

Bore Size	Stroke
12, 16	5, 10, 15, 20, 25, 30
20, 25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
32, 40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50, 63	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

TECHNICAL SPECIFICATIONS
NON-ROTATING
DOUBLE ACTING DOUBLE ROD TOLERANCE

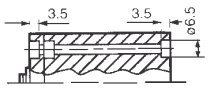
Bore Size	Accuracy
12,	±2°
16, 20, 25	±1°
32, 40, 50, 63	±0.8°

MORE DIMENSIONS
SEE NEXT PAGE ☞

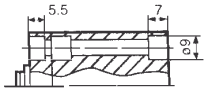
SERIES NCQ2/CQ2

DIMENSIONS (MM)
THROUGH HOLE ø12 ~ ø32 SERIES (N)CQ2KWB

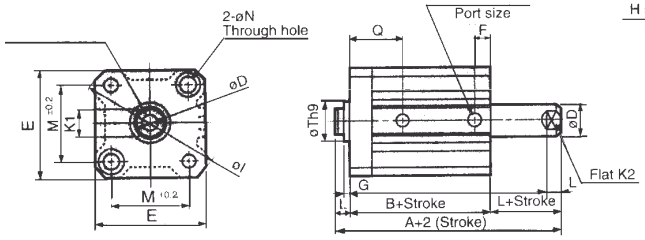
ø12, ø16



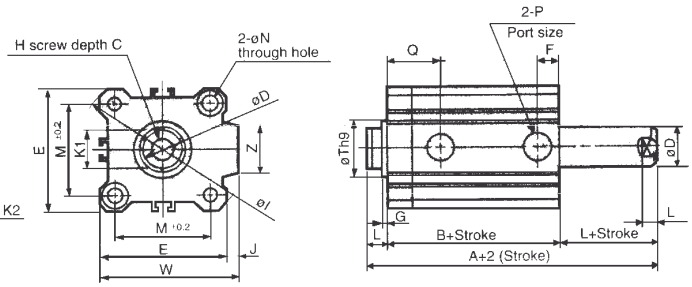
ø20~ø32



ø12~ø25

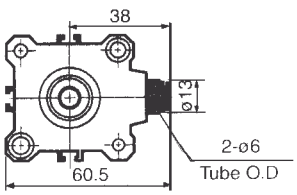


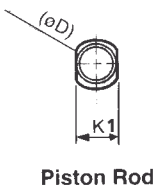
ø32



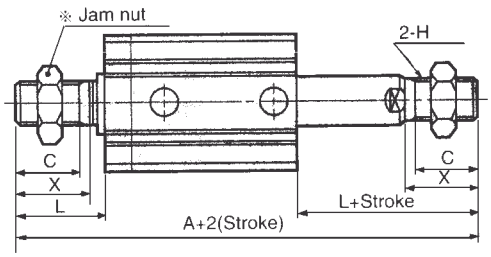
Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 H	i	J	K1	K2	L	M	N	P	Orifice	Q	Th9	W	Z
12	5~30	37.2	30.2	6	5.4	6	25	10	M3x0.5	8-32	32	-	5.2	5	3.5	15.5	3.5	M5x0.8	1	15	$15^{-0.043\sim0}$	-	-
16	5~30	38	31	8	5.4	8	29	10	M4x0.7	8-32	38	-	6	6	3.5	20	3.5	M5x0.8	1	15	$20^{-0.052\sim0}$	-	-
20	5~50	43	34	7	7	10	36	9.5	M5x0.8	10-32	47	-	8	8	4.5	25.5	5.5	M5x0.8	1	17.5	$13^{-0.043\sim0}$	-	-
25	5~50	47	37	12	10	12	40	11	M6x1	1/4-28UNF	52	-	10	10	5	28	5.5	M5x0.8	1	19	$15^{-0.043\sim0}$	-	-
32	5	53.5	39.5	13	13.3	16	45	12.5	M8x	5/16-	60	4.5	14	14	7	34	5.5	M5x0.8	1.7	21.5	$21^{-0.052\sim0}$	49.5	18
	10~50								1.25	24UNF								1/8					

DIMENSIONS
ONE TOUCH FITTING ø32 SERIES (N)CQ2KWB





Piston Rod



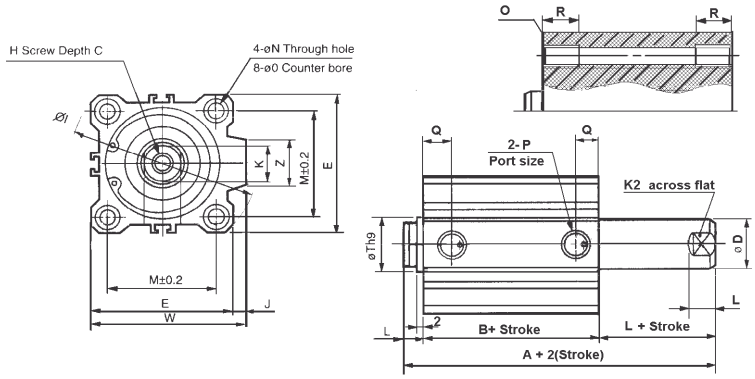
NCQ2 MALE ROD END

Bore Size	X mm	H inch	L mm	K1 mm	A mm
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 mm	X mm	H mm	L mm	K1 mm	A mm
12	9	10.5	M5X0.8	14	5.2	58.2
16	10	12	M6X1	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

DIMENSIONS (MM)
THROUGH HOLE ø40 ~ ø63 SERIES (N)CQ2KWB



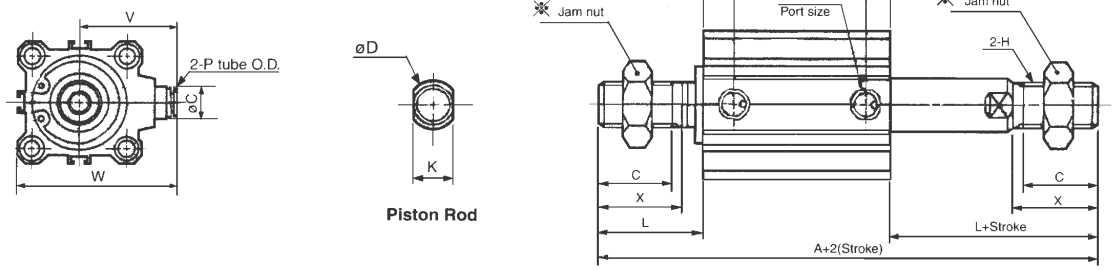
DIMENSIONS (MM)
BOTH ENDS TAPPED SERIES (N)CQ2KWA

BOTH ENDS TAPPED (N)CQ2KWA

Bore	CQ2 (mm)	NCQ2 (in)	
Size	O	O	R
40	M6x1	1/4-20UNC	10
50	M8x1.25	5/16-18UNC	14
63	M10x1.5	7/16-14UNC	18

Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 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 Depth7	1/8	2	14	$28^{-0.052\sim0}$	57	18
50	10~50	56.5	40.5	13	17.6	20	64	M10x1.5	1/2x20UNF	86	7	18	17	8	50	6.6	11 Depth8	1/4	2.2	14	$35^{-0.062\sim0}$	71	22
63	10~50	58	42	15	17.6	20	77	M10x1.5	1/2x20UNF	103	7	18	17	8	60	9	14Depth10.5	1/4	3	15.5	$35^{-0.062\sim0}$	84	22

DIMENSIONS
DOUBLE ACTING DOUBLE ROD SERIES (N)CQ2KWB



ONE TOUCH FITTINGS

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

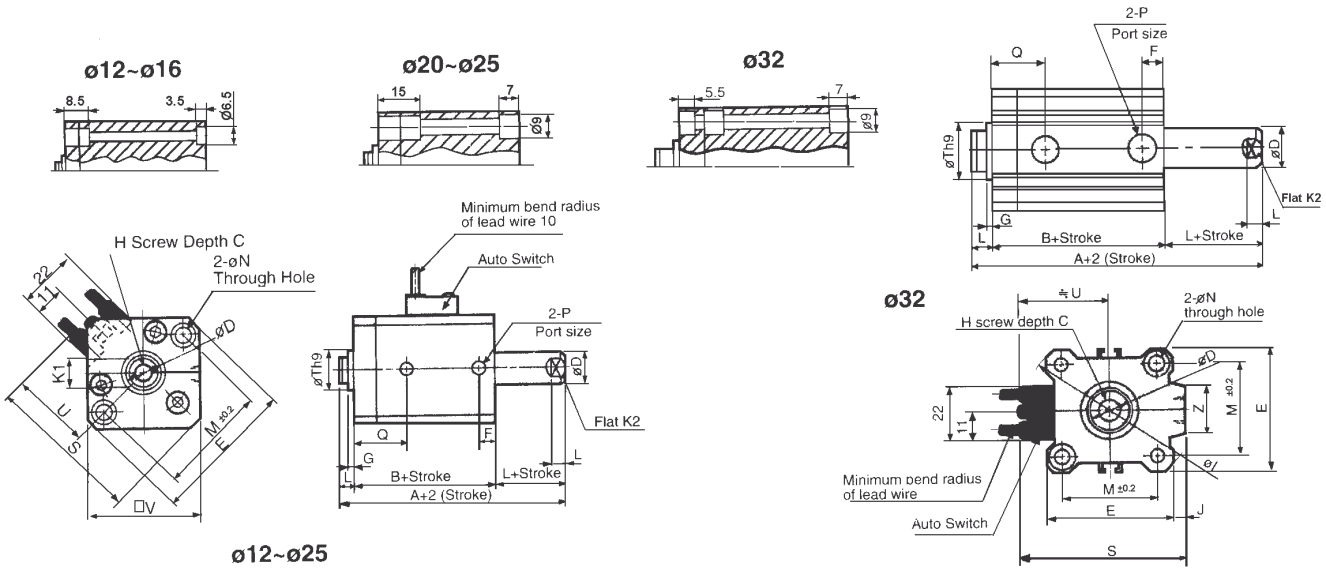
NCQ2 MALE ROD END

Bore Size	X mm	H inch	L mm	K mm	A mm
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 mm	X mm	H mm	L mm	K mm	A mm
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

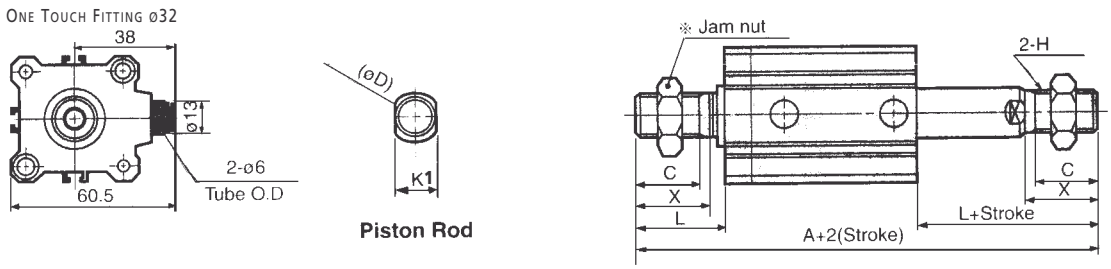
DIMENSIONS (MM)
WITH AUTO SWITCH
THROUGH HOLE ø12 ~ ø32 SERIES (N)CDQ2KWB



Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 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	M3x0.5	8-32	-	-	5	3.5	22	3.5	M5x0.8	15.5	35.5	$15^{-0.043-0}$	19.5	25	-
16	5~30	48	41	8	5.4	8	38	10	M4x0.7	8-32	-	-	6	3.5	28	3.5	M5x0.8	15	41.5	$20^{-0.052-0}$	22.5	29	-
20	5~50	55	46	7	7	10	47	10.5	M5x0.8	10-32	-	-	8	4.5	36	5.5	M5x0.8	18.5	48	$13^{-0.043-0}$	24.5	36	-
25	5~50	57	47	12	10	12	52	11	M6x1	1/4-28UNF	-	-	10	5	40	5.5	M5x0.8	19	53.5	$15^{-0.043-0}$	27.5	40	-
32	5~50	63.5	49.5	13	13.3	16	45	12.5	M8x1.25	5/16-24UNF	60	4.5	14	7	34	5.5	1/8	21.5	58.5	$21^{-0.052-0}$	31.5	-	18

DIMENSIONS
DOUBLE ACTING DOUBLE ROD (N)CDQ2KWB

ONE TOUCH FITTING ø32



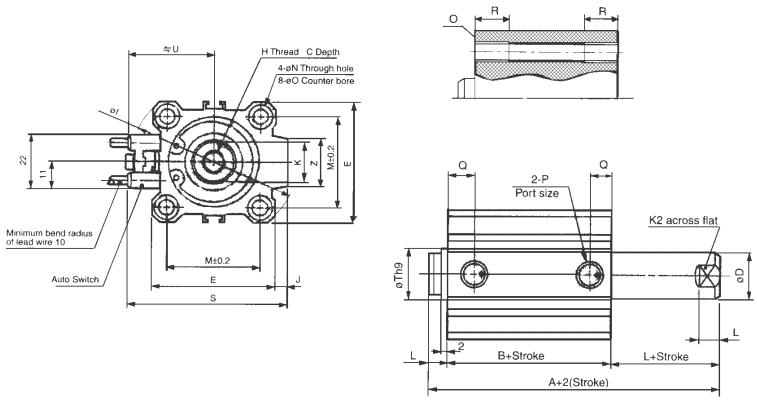
NCQ2 MALE ROD END

Bore Size	X mm	H inch	L mm	K1 mm	A mm
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 mm	X mm	H	L mm	K1 mm	A mm
12	9	10.5	M5X0.8	14	5.2	58.2
16	10	12	M6X1	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

DIMENSIONS (MM)
WITH AUTO SWITCH
THROUGH HOLE ø40 ~ ø63 SERIES (N)CDQ2KWB



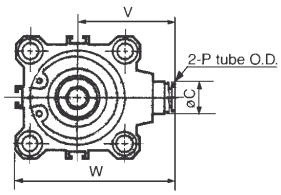
DIMENSIONS (MM)
WITH AUTO SWITCH NON-ROTATING
DOUBLE ACTING SINGLE ROD BOTH ENDS TAPPED SERIES (N)CDQ2KWA

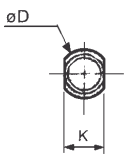
BOTH ENDS TAPPED

Bore Size	CQ2 (mm) O	NCQ2 (in) O	R
40	M6x1	1/4-20UNC	10
50	M8x1.25	5/16-18UNC	14
63	M10x1.5	7/16-14UNC	18

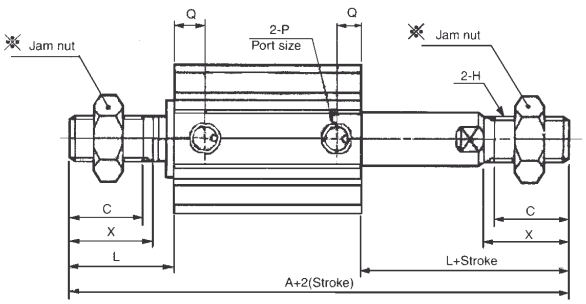
Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 H	i	J	K	K2	L	M	N	O	P*	Q	S	Th9	U	Z
40	5~50	64	50	13	18.3	16	52	M8x1.25	3/8-24UNF	69	5	14	14	7	40	5.5	9 Depth7	1/8	14	66	$28^{-0.052\sim0}$	35	18
50	10~50	66.5	50.5	15	17.6	20	64	M10x1.5	1/2-20UNF	86	7	18	17	8	50	6.6	11 Depth8	1/4	14	80	$35^{-0.062\sim0}$	41	22
63	10~50	68	52	15	17.6	20	77	M10x1.5	1/2-20UNF	103	7	18	17	8	60	9	14 Depth10.5	1/4	15.5	93	$35^{-0.062\sim0}$	47.5	22

DIMENSIONS
DOUBLE ACTING DOUBLE ROD SERIES (N)CDQ2KWB





Piston Rod



ONE TOUCH FITTINGS

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

NCQ2 MALE ROD END

Bore Size	X mm	H inch	L mm	K mm	A mm
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 mm	X mm	H mm	L mm	K mm	A mm
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

SERIES NCQ2/CQ2

TECHNICAL SPECIFICATIONS

LARGE BORE COMPACT CYLINDER STANDARD
DOUBLE ACTING SINGLE / DOUBLE ROD - SERIES (N)C(D)Q2(W)B

Fluid		Air
Proof Pressure		1.5MPa / 217 PSI
Max Operating Pressure		1MPa / 145PSI
Ambient and Media Temp	W/O Auto Switch	15~160°F (at freezing temp; air must be dry) -10~70°C
	W/Auto Switch	15~140°F (at freezing temp; air must be dry) -10~60°C
Cushion		Rubber Cushion
Rod End Thread		Female Thread (Standard)
Piston Speed		50~500mm/s / 2 ~ 20 in/sec

HOW TO ORDER

(N)C(D)Q2(W)B LARGE BORE STANDARD DOUBLE ACTING SINGLE / DOUBLE ROD

NC ○ Q2 ○ B ○ — ○ D C ○ — ○ ○

MEASUREMENT
- ……PT - Metric
N ……NPT - Inch

AUTO SWITCH CAPABLE
- ……Not Auto Switch Capable
D ……AutoSwitch Capable
(With Built-in Magnet)

TYPE
- ……Standard
W ……Double Rod

MOUNTING
B ……Through Hole
w/Both Ends Tapped

BORE SIZE
125, 140, 160

STROKE (MM)

ACTION
D ……Double Acting

CUSHION
C ……Rubber Cushion

BODY OPTION
- ……Standard (Female Thread)
M ……Male Thread

AUTO SWITCH CAPABLE
See Accessories: Auto Switch

NO OF AUTO SWITCH
- ……2 Pieces
S ……1 piece
n ……n Pieces

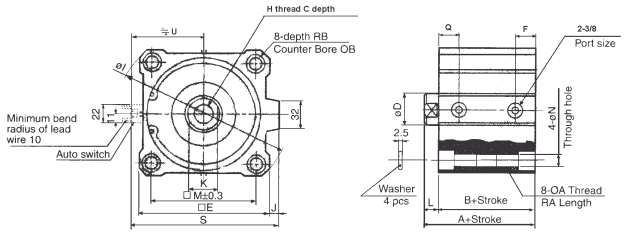
HOW TO ORDER

LARGE BORE DOUBLE ACTING SINGLE / DOUBLE ROD STANDARD STROKE

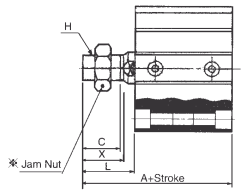
Bore Size	Stroke
125	10, 20, 30, 40, 45,
140	50, 75, 100, 125, 150,
160	175, 200, 250, 300

MORE DIMENSIONS SEE NEXT PAGE ☞

DIMENSIONS (MM)
LARGE BORE STANDARD DOUBLE ACTING SINGLE ROD SERIES (N)CQ2



Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 H	i	J	K	L	M	N	CQ2 OA	NCQ2 OA	OB	Q	RA	RB	S	U	Orifice
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	M14x2	9/16-12	21.2	24.5	25	18.4	163	81	6
140	50,75,100,	99	83	30	30	36	158	24.5	M22x2.5	3/4-16	210	10	32	16	128	12.5	M14x2	9/16-12	21.2	24.5	25	18.4	178	89	7
160	125,150,175,	108	91	33	33	40	178	27.5	M24x3	3/4-16	238	10	36	17	144	14.5	M16x2	5/8-11	24.2	27.5	28	21.2	198	99	8
	200,250,300																								



CQ2 MALE ROD END

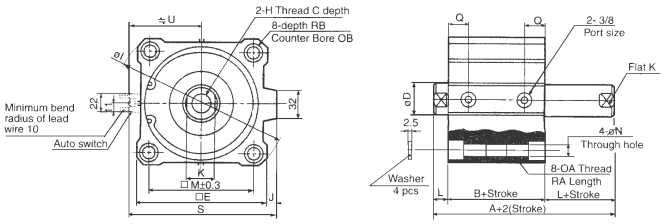
Bore Size	A mm	C mm	H	L mm	X mm
125	141	42	M30x1.5	58	45
140	141	42	M30x1.5	58	40
160	155	47	M36x1.5	64	50

NCQ2 MALE ROD END

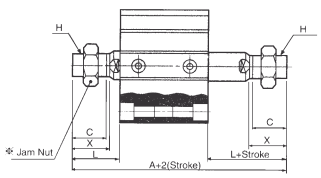
Bore Size	A mm	C mm	H inch	L mm	X mm
125	141	42	1-1/4"-12	58	45
140	141	42	1-1/4"-12	58	45
160	155	47	1-3/8"-12	64	50

Note) Dimensions are the same for Standard and Switch Capable

DIMENSIONS (MM)
LARGE BORE STANDARD DOUBLE ACTING DOUBLE ROD SERIES (N)CQ2W



Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 H	i	J	K	L	M	N	CQ2 OA	NCQ2 OA	OB	Q	RA	RB	S	U	Orifice	CQ2 C
125	10,20,30,40,	115	83	30*	30	36	142	24.5	M22x2.5	3/4-16	190	11	32	16	114	12.5	M14x2	9/16-12	21.2	24.5	25	18.4	163	81	6	*(22.5)
140	50,75,100,	115	83	30*	30	36	158	24.5	M22x2.5	3/4-16	210	10	32	16	128	12.5	M14x2	9/16-12	21.2	24.5	25	18.4	178	89	7	*(22.5)
160	125,150,175,	125	91	33*	33	40	178	27.5	M24x3	3/4-16	238	10	36	17	144	14.5	M16x2	5/8-11	24.2	27.5	28	21.2	198	99	8	*(26.5)
	200,250,300																									Note) Thread Depth for 10 Stroke



CCQ2 MALE ROD END

Bore Size	A mm	C mm	H	L mm	X mm
125	199	42	M30x1.5	58	45
140	199	42	M30x1.5	58	40
160	219	47	M36x1.5	64	50

NCQ2 MALE ROD END

Bore Size	A mm	C mm	H inch	L mm	X mm
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

Note) Dimensions are the same for Standard and Switch Capable

SERIES NCQ2/CQ2

TECHNICAL SPECIFICATIONS

LONG STROKE COMPACT CYLINDER STANDARD
DOUBLE ACTING SINGLE ROD - SERIES (N)C(D)Q2

Fluid		Air
Proof Pressure		1.5MPa / 217 PSI
Max Operating Pressure		1MPa / 145PSI
Ambient and Media Temp	W/O Auto Switch	15~160°F (at freezing temp; air must be dry) -10~70°C
	W/Auto Switch	15~140°F (at freezing temp; air must be dry) -10~60°C
Cushion		Rubber Cushion
Rod End Thread		Female Thread (Standard)
Rod End Thread Tolerance		JIS Class II
Piston Speed		50~500mm/s / 2 ~ 20 in/sec

HOW TO ORDER

(N)C(D)Q2 LONG STROKE STANDARD DOUBLE ACTING SINGLE ROD

NC ○ Q2 ○ ○ — ○ D C ○ — ○ ○

MEASUREMENT
- ……PT - Metric
N ……NPT - Inch

AUTO SWITCH CAPABLE
- ……Not Auto Switch Capable
D ……Auto Switch Capable
(With Built-in Magnet)

MOUNTING
A ……Both Ends Tapped
L ……Foot
F ……Rod Side Flange
G ……Head Side Flange
D ……Double Clevis

BORE SIZE
32, 40, 50, 63, 80, 100

STROKE (MM)
See Table below

ACTION
D ……Double Acting

CUSHION
C ……Rubber Cushion

BODY OPTION
- ……Standard (Female Thread)
C ……With Rubber Cushion
(ø12W Switch)
M ……Male Thread

AUTO SWITCH CAPABLE

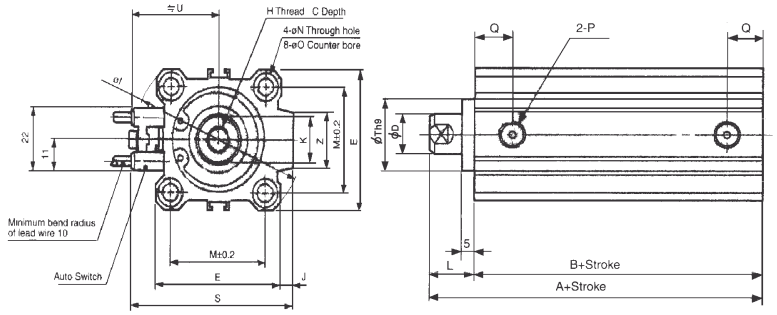
NO OF AUTO SWITCH
- ……2 Pieces
S ……1 piece
n ……n Pieces

HOW TO ORDER

LONG STROKE DOUBLE ACTING SINGLE ROD STANDARD STROKE

Bore Size	Stroke
32, 40, 50, 63, 80, 100	125, 150, 175, 200, 250, 300

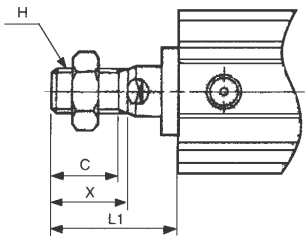
DIMENSIONS (MM)
LONG STROKE SERIES (N)CDQ2



Note) Dimensions are the same for Standard and Switch Capable

Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 H	i	J	K	L	M	CQ2 O	NCQ2 O	P*	Q	R	S	Th9	U	Z
32		62.5	45.5	13	13.3	16	45	M8x1.25	5/16-24UNF	60	4.5	14	17	34	M6x1	1/4-20UNF	1/8	12.5	10	58.5	$22^{-0.052\sim0}$	31.5	18
40	125, 150	72	55	13	18.3	16	52	M8x1.25	3/8-24UNF	69	5	14	17	40	M6x1	1/4-20UNF	1/8	14	10	66	$28^{-0.052\sim0}$	35	18
50	175, 200	73.5	55.5	15	17.6	20	64	M10x1.5	1/2-20UNF	86	7	17	18	50	M8x1.25	5/16-18UNF	1/4	14	14	80	$35^{-0.062\sim0}$	41	22
63	250, 300	75	57	15	17.6	20	77	M10x1.5	1/2-20UNF	103	7	17	18	60	M10x1.5	7/16-14UNF	1/4	16.5	18	93	$35^{-0.062\sim0}$	47.5	22
80		86	66	21	24.3	25	98	M16x2	5/8-18UNF	132	6	22	20	77	M12x1.75	1/2-13UNF	3/8	19	22	112.5	$43^{-0.062\sim0}$	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	1/2-13UNF	3/8	23	22	132.5	$59^{-0.074\sim0}$	67.5	26

DIMENSIONS
LONG STROKE SERIES (N)CDQ2



NCQ2 MALE ROD END

Bore Size	X mm	H inch	L1 mm
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

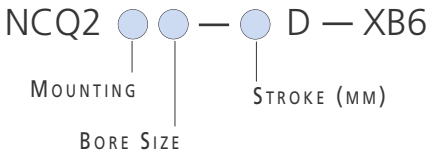
CQ2 MALE ROD END

Bore Size	C mm	X mm	H	L1 mm
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

Note) Dimensions are the same for Standard and Switch Capable

SERIES NCQ2/CQ2

ACCESSORIES
SERIES NCQ2/CQ2
HIGH TEMPERATURE RESISTANT CYLINDER - XB6 OPTION

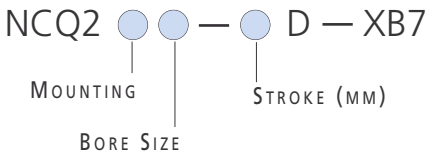


TECHNICAL SPECIFICATIONS
SERIES (N)CQ2
HIGH TEMPERATURE RESISTANT CYLINDER - XB6 OPTION

Bore Size	ø12, 16, 20, 25, 32, 40, 50, 63, 80, 100
Fluid	Air
Temperature	150°C / 300°F
Action	Double Acting
Lubrication	Non-Lube
Material	Seal - FluoroRubber
Auto Switch Capable	No

Note) Major dimensions are the same as those of the Double Acting Single Rod or Double Rod

ACCESSORIES
SERIES NCQ2/CQ2
LOW TEMPERATURE RESISTANT CYLINDER - XB7 OPTION

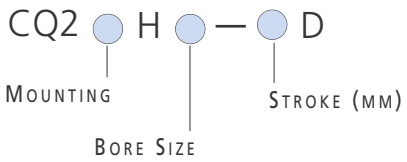


TECHNICAL SPECIFICATIONS
SERIES (N)CQ2
LOW TEMPERATURE RESISTANT CYLINDER - XB7 OPTION

Bore Size	ø12, 16, 20, 25, 32, 40
Fluid	Air
Temperature	-50°C / -58°F
Action	Double Acting
Lubrication	Non-Lube
Material	Seal - Low Nitrile Rubber
Auto Switch Capable	No

Note) Major dimensions are the same as those of the Double Acting Single Rod

ACCESSORIES
SERIES CQ2
AIR HYDRO CYLINDER - OPTION

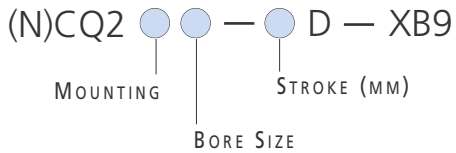


TECHNICAL SPECIFICATIONS
SERIES CQ2
AIR HYDRO CYLINDER - OPTION

Bore Size	ø20, 25, 32, 40, 50, 63, 80, 100
Fluid	Air
Action	Double Acting
Proof Pressure	1.5MPa / 213 PSI
Maximum Operating Pressure	1MPa / 145 PSI
Minimum Operating Pressure	0.18MPa / 26 PSI
Auto Switch Capable	Yes

Note) Major dimensions are the same as those of the Double Acting Single Rod or Double Rod

ACCESSORIES
SERIES NCQ2/CQ2
LOW SPEED CYLINDER - XB9 OPTION



TECHNICAL SPECIFICATIONS
SERIES (N)CQ2
LOW SPEED CYLINDER - XB9 OPTION

Bore Size	ø12, 16, 20, 25, 32, 40, 50, 63, 80, 100
Fluid	Air
Action	Double Acting
Maximum Operating Pressure	1MPa / 145 PSI
Minimum Operating Pressure	0.05MPa / 7 PSI
Piston Velocity	10 ~ 50mm/s / 0.4 ~ 2 in/sec
Auto Switch Capable	Yes

Note) Major dimensions are the same as those of the Double Acting Single Rod or Double Rod

ACCESSORIES
SERIES NCQ2/CQ2
STAINLESS STEEL PISTON ROD - XC6 OPTION

(N)CQ2 ○ ○ ○ — ○ D — XC6

- STANDARD
W DOUBLE ROD

MOUNTING
BORE SIZE
STROKE

TECHNICAL SPECIFICATIONS
SERIES (N)CQ2
STAINLESS STEEL PISTON ROD - XC6 OPTION

Bore Size	ø12, 16, 20, 25, 32, 40, 50, 63, 80, 100
Fluid	Air
Action	Double Acting
Lubrication	Non-Lube
Material	303 or 304 Stainless

Note) Major dimensions are the same as those of the Double Acting Single Rod or Double Rod

ACCESSORIES
SERIES CQ2
ADJUSTABLE STROKE CYLINDER / EXTEND TYPE - XC8 OPTION

CQ2B ○ — ○ D — XC8

STROKE (MM)
BORE SIZE

TECHNICAL SPECIFICATIONS
SERIES CQ2
ADJUSTABLE STROKE CYLINDER / EXTEND TYPE - XC8 OPTION

Bore Size	ø12, 16, 20, 25, 32, 40, 50, 63, 80, 100
Fluid	Air
Action	Double Acting
Lubrication	Non-Lube
Stroke Adjustment System	Adjusting Bolt
Stroke Adjustment Range	10mm
Auto Switch Capable	Yes

ACCESSORIES
SERIES CQ2
ADJUSTABLE STROKE CYLINDER / RETRACT TYPE - XC9 OPTION

CQ2 ○ ○ — ○ D — XC9

MOUNTING
STROKE (MM)
BORE SIZE

TECHNICAL SPECIFICATIONS
SERIES CQ2
ADJUSTABLE STROKE CYLINDER / RETRACT TYPE - XC9 OPTION

Bore Size	ø12, 16, 20, 25, 32, 40, 50, 63, 80, 100
Fluid	Air
Action	Double Acting
Lubrication	Non-Lube
Stroke Adjustment System	Adjusting Bolt
Stroke Adjustment Range	10mm
Auto Switch Capable	Yes

ACCESSORIES
SERIES NCQ2/CQ2
DUAL STROKE CYLINDER / DOUBLE ROD TYPE - XC10 OPTION

(N)CQ2B ○ — ○ + ○ D ○ — XC10

BORE SIZE
STROKE (A)
STROKE (B)
CUSHION

TECHNICAL SPECIFICATIONS
SERIES (N)CQ2
DUAL STROKE CYLINDER / DOUBLE ROD TYPE - XC10 OPTION

Bore Size	ø12, 16, 20, 25, 32, 40, 50, 63, 80, 100
Fluid	Air
Action	Double Acting
Lubrication	Non-Lube
Cushion	Rubber Cushion Available

SERIES NCQ2/CQ2

ACCESSORIES
SERIES NCQ2/CQ2
DUAL STROKE CYLINDER / SINGLE ROD TYPE - XC11 OPTION

(N)CQ2B ○ — ○ + ○ D ○ — XC11

- ○ BORE SIZE
- ○ STROKE (A)
- ○ STROKE (B-A)
- ○ CUSHION

TECHNICAL SPECIFICATIONS
SERIES (N)CQ2
DUAL STROKE CYLINDER / SINGLE ROD TYPE - XC11 OPTION

Bore Size	ø12, 16, 20, 25, 32, 40, 50, 63, 80, 100
Fluid	Air
Action	Double Acting
Lubrication	Non-Lube
Cushion	Rubber Cushion Available

ACCESSORIES
SERIES NCQ2/CQ2
COIL SCRAPER - XC35 OPTION

(N)CQ2 ○ ○ — ○ D — XC35

- ○ MOUNTING
- ○ BORE SIZE
- ○ STROKE

TECHNICAL SPECIFICATIONS
SERIES (N)CQ2
COIL SCRAPER - XC35 OPTION

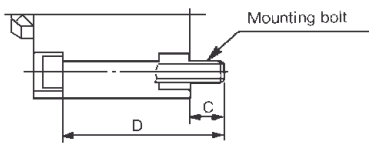
Bore Size	ø32, 40, 50, 63, 80, 100
Fluid	Air

ACCESSORIES
MOUNTING KITS SERIES NCQ2/CQ2

Bore Size (mm)	Foot*	Flange	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

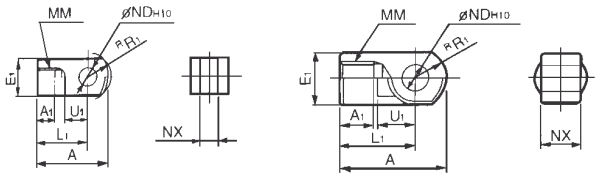
Note) * If Foot Bracket is required for a cylinder, order a pair
Note)** The Double Clevis is packaged with Clevis Pin and Snap Ring

ACCESSORIES
MOUNTING BOLT FOR SERIES NCQ2/CQ2



Thread	Pitch
M3	0.5
M5	0.8
M6	1
M8	1.25
M10	1.5

ACCESSORIES (MM)
SERIES NCQ2/CQ2
SINGLE ROD CLEVIS (ROD EYE)



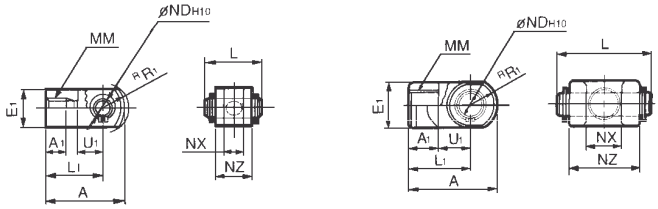
CQ2 SINGLE ROD CLEVIS

Part No	Bore Size	A	A_1	E_1	L_1	MM	$^{R}R1$	U_1	ND_{H10}	NX
I-G012	12	21.5	6	❑10	16	M5x0.8	6.3	7	$5^{0-0.048}$	$5^{-0.4\sim-0.2}$
I-Z015	16	32	8	❑12	25	M6x1	8.1	14	$5^{0-0.048}$	$6.4^{-0.3\sim-0.1}$
I-G02	20	34	8.5	❑16	25	M8x1.25	10.3	11.5	$8^{0-0.058}$	$8^{-0.4\sim-0.2}$
I-G03	25	41	10.5	❑20	30	M10x1.25	12.8	14	$10^{0-0.058}$	$10^{-0.4\sim-0.2}$
I-G04	32, 40	42	14	ø22	30	M14x1.5	12	14	$10^{0-0.058}$	$18^{-0.5\sim-0.3}$
I-G05	50, 63	56	18	ø28	40	M18x1.5	16	20	$14^{0-0.070}$	$22^{-0.5\sim-0.3}$
I-G08	80	71	21	ø38	50	M22x1.5	21	27	$18^{0-0.070}$	$28^{-0.5\sim-0.3}$
I-G10	100	79	21	ø44	55	M26x1.5	24	31	$22^{0-0.084}$	$32^{-0.5\sim-0.3}$

NCQ2 SINGLE ROD CLEVIS

Part No	Bore Size	A	A_1	E_1	L_1	MM	$^{R}R1$	U_1	ND_{H10}	NX
RCS-01	12	21.5	6	❑10	16	8-32UNC	6.3	7	$3/16^{0-0.002}$	$5^{-0.4\sim-0.2}$
RCS-015	16	32	6	❑12	25	8-32UNC	12	14	$3/16^{0-0.002}$	$6.4^{-0.3\sim-0.1}$
RCS-02	20	34	6	❑16	25	10-32UNF	10.3	11.5	$5/16^{0-0.002}$	$8^{-0.4\sim-0.2}$
RCS-025	25	41	8	❑20	30	1/4-28UNF	18	14	$3/8^{0-0.002}$	$10^{-0.4\sim-0.2}$
RCS-03	32	42	16	ø22	30	5/16-24UNF	12	14	$3/8^{0-0.002}$	$18^{-0.5\sim-0.3}$
RCS-04	40	42	11	ø22	30	3/8-24UNF	12	14	$3/8^{0-0.002}$	$18^{-0.5\sim-0.3}$
RCS-05	50, 63	56	18	ø28	40	1/2-20UNF	16	20	$1/2^{0-0.003}$	$22^{-0.5\sim-0.3}$
RCS-08	80	71	21	ø38	50	5/8-18UNF	21	27	$3/4^{0-0.003}$	$28^{-0.5\sim-0.3}$
RCS-10	100	79	21	ø44	55	3/4-16UNF	24	31	$7/8^{0-0.003}$	$32^{-0.5\sim-0.3}$

ACCESSORIES (MM)
SERIES NCQ2/CQ2
DOUBLE ROD CLEVIS (ROD EYE)



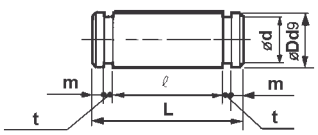
CQ2 DOUBLE ROD CLEVIS

Part No	Bore Size	A	A_1	E_1	L_1	MM	$^{R}R1$	U_1	ND_{H10}	NX	NZ	L	PIN Part #
Y-G012	12	21.5	6	❑10	16	M5x0.8	6.3	7	$5^{0-0.048}$	$5^{-0.4\sim-0.2}$	10	14.6	IY-G012
Y-Z015A	16	28	11	❑12	21	M6x1	8.1	10	$5^{0-0.048}$	$6.5^{-0.3\sim-0.1}$	12	16.6	IY-J015
Y-G02	20	34	8.5	❑16	25	M8x1.25	10.3	11.5	$8^{0-0.058}$	$8^{-0.4\sim-0.2}$	16	21	IY-G02
Y-G03	25	41	10.5	❑20	30	M10x1.25	12.8	14	$10^{0-0.058}$	$10^{-0.4\sim-0.2}$	20	25.6	IY-G03
Y-G04	32, 40	42	16	ø22	30	M14x1.5	12	14	$10^{0-0.058}$	$18^{-0.5\sim-0.3}$	36	41.6	IY-G04
Y-G05	50, 63	56	20	ø28	40	M18x1.5	16	20	$14^{0-0.070}$	$22^{-0.5\sim-0.3}$	44	50.6	IY-G05
Y-G08	80	71	23	ø38	50	M22x1.5	21	27	$18^{0-0.070}$	$28^{-0.5\sim-0.3}$	56	64	IY-G08
Y-G10	100	79	24	ø44	55	M26x1.5	24	31	$22^{0-0.084}$	$32^{-0.5\sim-0.3}$	64	72	IY-G10

NCQ2 DOUBLE ROD CLEVIS

Part No	Bore Size	A	A_1	E_1	L_1	MM	$^{R}R1$	U_1	ND_{H10}	NX	NZ	L
RCD-01	12	21.5	6	❑10	16	8-32UNC	6.3	7	$3/16^{0-0.002}$	$5^{-0.4\sim-0.2}$	10	14.6
RCD-015	16	28	6	❑12	21	8-32UNC	12	10	$3/16^{0-0.002}$	$6.4^{-0.3\sim-0.1}$	12	16.6
RCD-02	20	34	6	❑16	25	10-32UNF	10.3	11.5	$5/16^{0-0.002}$	$8^{-0.4\sim-0.2}$	16	21
RCD-025	25	41	8	❑20	30	1/4-28UNF	18	14	$3/8^{0-0.002}$	$10^{-0.4\sim-0.2}$	20	25.6
RCD-03	32	42	16	ø22	30	5/16-24UNF	12	14	$3/8^{0-0.002}$	$18^{-0.5\sim-0.3}$	36	41.6
RCD-04	40	42	16	ø22	30	3/8-24UNF	12	14	$3/8^{0-0.002}$	$18^{-0.5\sim-0.3}$	36	41.6
RCD-05	50, 63	56	20	ø28	40	1/2-20UNF	16	20	$1/2^{0-0.003}$	$22^{-0.5\sim-0.3}$	44	50.6
RCD-08	80	71	23	ø38	50	5/8-18UNF	21	27	$3/4^{0-0.003}$	$28^{-0.5\sim-0.3}$	56	64
RCD-10	100	79	24	ø44	55	3/4-16UNF	24	31	$7/8^{0-0.003}$	$32^{-0.5\sim-0.3}$	64	72

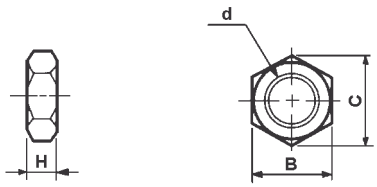
ACCESSORIES
SERIES NCQ2/CQ2
DOUBLE ROD CLEVIS PIN



CQ2 DOUBLE ROD CLEVIS PIN

Part No	Bore Size	Dd9	L	d	ℓ	m	t	Snap Ring
IY-G012	12	$5^{-0.06\sim-0.03}$	14.6	4.8	10.2	1.5	0.7	Axial C Style 5
IY-J015	16	$5^{-0.06\sim-0.03}$	16.6	4.8	12.2	1.5	0.7	Axial C Style 5
IY-G02	20	$8^{-0.076\sim-0.04}$	21	7.6	16.2	1.5	0.9	Axial C Style 5
IY-G03	25	$10^{-0.076\sim-0.04}$	25.6	9.6	20.2	1.55	1.15	Axial C Style 5
IY-G04	32, 40	$10^{-0.076\sim-0.04}$	41.6	9.6	36.2	1.55	1.15	Axial C Style 5
IY-G05	50, 63	$14^{-0.093\sim-0.05}$	50.6	13.4	44.2	2.05	1.15	Axial C Style 5
IY-G08	80	$18^{-0.093\sim-0.05}$	64	17	56.2	2.55	1.35	Axial C Style 5
IY-G10	100	$22^{-0.117\sim-0.065}$	72	21	64.2	2.55	1.35	Axial C Style 5

ACCESSORIES
SERIES NCQ2/CQ2
JAM NUT



CQ2 JAM NUT

Part No	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
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
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

Accessories
Auto Switch Specifications

Note: Pre-wired Switches with 3/4 Pin Connectors available

Type	Auto Switch		Indicator Light	Wire (Output Type)	Load Voltage		
	Perpendicular Entry	Inline Entry			DC		AC
Reed Switch	-	D-A76H	Yes	3 Wire	-	5V	-
	D-A72	D-A72H		2 Wire	-	-	200V
	D-A73	D-A73H			24V	-	100V
	D-A80	D-A80H	No		24V/48V/100V AC/DC		
	D-A73C	-	Yes		24V	-	-
	D-A80C	-	No		24V	-	24V
	D-A79W	-	Yes		24V	-	-
		D-A90	No	2 Wire	24V/48V/100V AC/DC		
		D-A93	Yes	2 Wire	24V	-	100V
		D-A96	Yes	3 Wire	48V	-	-
Solid State Switch	D-F7NV	D-F79	Yes	3 Wire NPN	24V	5V, 12V	-
	D-F7PV	D-F7P		3 Wire PNP			
	D-F7BV	D-J79		2 Wire		-	
	D-J79C	-					
	D-F7NWV	D-F79W		3 Wire NPN		5V, 12V	
	-	D-F7PW		3 Wire PNP			
	D-F7BWV	D-J79W		2 Wire		-	
	-	D-F7BAL					
	-	D-F7NTL		3 Wire NPN		5V, 12V	
	-	D-F79F		4 Wire NPN			
	-	D-F7LF				-	
		D-F9N		3 Wire	28V or less	-	
		D-F9P		3 Wire		-	
		D-F9B		2 Wire	24V	-	

Accessories
Series NCQ2/CQ2
Double Rod Clevis Pin

NCQ2 Double Rod Clevis Pin

Part No	Bore Size	D	L	d	ℓ	m	t
PS-01	12	$4.77^{-0.06}_{-0.03}$	14	4.45	10.2	1.44	0.46
PS-015	16	$4.77^{-0.06}_{-0.03}$	16	4.45	12.2	1.44	0.46
PS-02	20	$7.94^{-0.076}_{-0.04}$	21	7.37	16.2	1.66	0.74
PS-03	25	$9.53^{-0.076}_{-0.04}$	25	8.94	20.2	1.66	0.74
PS-04	32, 40	$9.53^{-0.076}_{-0.04}$	41	8.94	36.2	1.66	0.74
PS-05	50, 63	$12.7^{-0.076}_{-0.05}$	50	11.89	44.2	1.9	1
PS-08	80	$19.05^{-0.117}_{-0.065}$	64	17.89	56.2	2.73	1.17
PS-10	100	$22.23^{-0.117}_{-0.065}$	72	20.85	64.2	2.73	1.17

Accessories
Series NCQ2/CQ2
Jam Nut

NCQ2 Jam Nut

Part No	Bore Size	d	H	B	C
JM-01	12	8-32UNC	3.3	8.7	10
JM-02	16	10-32UNF	3.3	9.5	11
JM-025	20	1/4-28UNF	4.1	11.2	13
JM-03	25	5/16-24UNF	4.8	12.7	14.7
JM-04	32, 40	3/8-24UNF	5.6	14.3	16.5
JM-05	50, 63	1/2-20UNF	7.9	19.1	22
JM-08	80	5/8-18UNF	9.7	23.8	27.4
JM-10	100	3/4-16UNF	10.7	28.7	33

Note) Jam Nut included when Option "M" is ordered

Floating Joint
Compact Cylinder Exclusive
Series JB

- Compact for (N)CQ2 Compact Cylinders up to 100mm
- Absorbs both Angular and Eccentric Misalignment
- Reduces Mounting Time of Actuator
- Long Life - Dust-tight Cover
- Do not use for Rotation because of Non-Rotating Shaft Coupling

How To Order
NCQ2/CQ2 Double Acting Single Rod

JB ○ — ○

Applicable Cylinder Bore (mm)

Mark	Applicable Cylinder Bore (mm)
12	12
16	16
20	20
25	25
40	32 • 40
63	50 • 63
80	80
100	100

Nominal Screw Thread Designation

Nominal Screw Thread Designation	Nominal Screw Thread Designation Of Applicable Cylinder
3-050	M3x0.5
4-070	M4x0.7
5-080	M5x0.8
6-100	M6x1
8-125	M8x1.25
10-150	M10x1.5
16-200	M16x2
20-250	M20x2.5

DUAL ROD CYLINDER SERIES CXS
SINGLE ROD TYPE

- Bore Sizes Ø6, Ø10, Ø15, Ø20, Ø25, Ø32
- A Slim Compact Dual Rod Cylinder with high precision non-rotating accuracy.
- Slide or Ball Bush Bearing Option
- Auto Switches housed in cylinder body
- Adjustable Stroke {on Retract Position Only (0~5mm)}
- 4 Alternative Mounting Positions
- 2 Porting Locations
- Through Hole Mounting

TECHNICAL SPECIFICATIONS

Cylinder Bore Size (mm)	6	10	15	20	25	32
Fluid	Air (Non-Lubricated)					
Min Operating Pressure	0.15MPa / 22PSI	0.1MPa / 14.5PSI		0.05 MPa / 7PSI		
Max Operating Pressure	0.7 MPa / 100PSI					
Proof Pressure	1.05 MPa / 150PSI					
Ambient & Fluid Temperature	5~60°C / 40~140°F					
Piston Speed	30~300mm/s / 1.1~12in/s					
Port Size	M5 x 0.8				1/8PT	
Stroke Adjustment Range	0 ~ -5mm against Basic Stroke					
Bearing	Side Bearing, Ball Bush Bearing (Same Dimensions)					
Cushion	Rubber Bumper for Extend and Adjustable (0~5mm) Damper for Retract Position					

NON ROTATING ACCURACY

Cylinder Bore Size (mm)	CXSM (Slide Bearing)	CXSL (Ball Bush Bearing)
6	±0.1°	±0.1°
10	±0.1°	±0.15°
15	±0.07°	±0.13°
20	±0.06°	±0.11°
25	±0.05°	±0.1°
32	±0.04°	±0.08°

HOW TO ORDER CXS SERIES DUAL ROD CYLINDER

CXS ○ ○ — ○ — ○ ○

TYPE OF BEARING
M .....Slide Bearing Type
L .....Ball Bush Bearing Type

BORE (MM)
6
10
15
20
25
32

AUTO SWITCH TYPE
See Accessories Section

NO OF SWITCHES
- .....2 Pieces
S .....1 Piece

BORE SIZE / STANDARD STROKE (MM)
6 .....10, 20, 30, 40, 50
10 ...10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 75
15 ...10, 15, 20, 25, 30, 35, 40, 35, 50, 60, 70, 75, 80, 90, 100
20 ...10, 15, 20, 25, 30, 35, 40, 35, 50, 60, 70, 75, 80, 90, 100
25 ...10, 15, 20, 25, 30, 35, 40, 35, 50, 60, 70, 75, 80, 90, 100
32 ...10, 15, 20, 25, 30, 35, 40, 35, 50, 60, 70, 75, 80, 90, 100

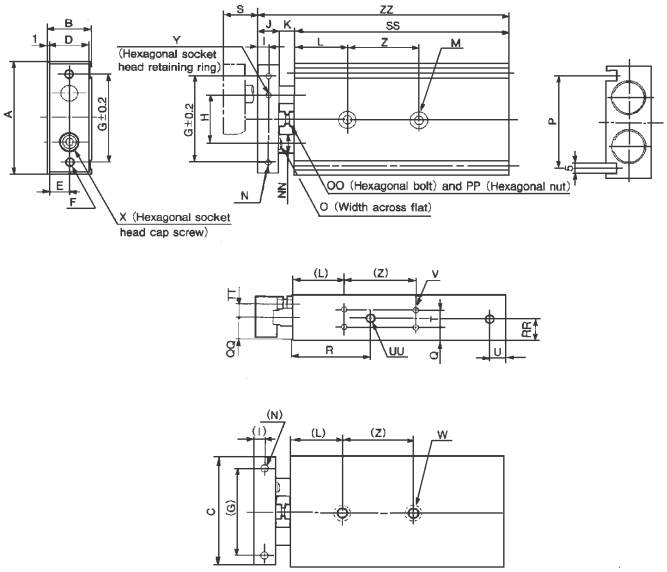
ACCESSORIES AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available

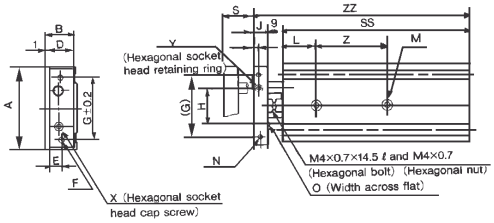
Model		Load Voltage	Load Current	Power Source	Internal Voltage Drop	Indicator Lamp	Lead Wire Length
Part No Grommet type	Part No Connector type						
D-Z73L		Reed	24VDC 100VAC	5~40mA 5~20mA		Max 2.4V	ON:RED LED
D-Z80L		Reed	24VDC/AC or less 100VDC/AC	Max 50mA Max 20mA			None
D-Y59AL		3 Wire Solid State NPN	28VDC or less	Max 150mA	5~28VDC	0.8V Max	ON:RED LED
D-Y7PL		3 Wire Solid State PNP	28VDC or less	Max 100mA	5~28VDC	0.8V Max	ON:RED LED
D-Y59BL		2 Wire Solid State	28VDC or less	5~150mA		3V Max	ON:RED LED

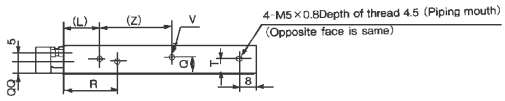
DIMENSIONS SEE NEXT PAGE ☞

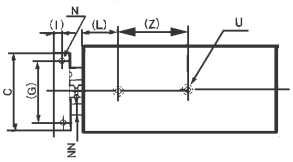
DIMENSIONS
CXS SERIES DUAL ROD CYLINDER 20, 25, 32



DIMENSIONS
CXS SERIES DUAL ROD CYLINDER 10, 15







Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	NN	O	OO
CXS•20-10 to 100	64	25	62	23	11.5	2-M5x0.8 (Penetration)	50	28	6	12	12	30	2-Ø5.5 Through hole 2-Ø9.5 Depth of counter bore 5.3	2-M4x 0.7 Depth of thread 6	Ø10	8	M6x1.0x18.5ℓ

Model	P	PP	Q	QQ	R	RR	S	SS	T	TT	U	UU	V	W	X	Y	Z	ZZ
CXS•20-10	53	M6x1.0	7.75	12.5	45	7.75	10	80	9.5	6.5	8	4-M5x0.8 Depth ofthread4.5(Port) (Opposite face is same)	8-M4x0.7 Depth of thread 6 (Opposite face is same)	2-M6x1.0 Depth of thread 10	M6x1.0x12ℓ	M5x0.8x5ℓ	30	104
CXS•20-20							20	90										114
CXS•20-30							30	100									40	124
CXS•20-40							40	110										134
CXS•20-50							50	120										144
CXS•20-75							75	145									60	169
CXS•20-100							100	170										194

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	NN	O	OO
CXS•25-10 to 100	80	30	78	28	14	2-M6x1.0 (Penetration)	60	35	6	12	12	30	2-Ø6.9 Through hole 2-Ø11 Depth of counter bore 6.3	2-M5x0.8 Depth of thread 7.5	Ø12	10	M6x1.0x18.5ℓ

Model	P	PP	Q	QQ	R	RR	S	SS	T	TT	U	UU	V	W	X	Y	Z	ZZ
CXS•25-10	64	M6x1.0	8.5	15	46	15	10	82	13	9	9	4-1/8 Depth of thread 6.5 (Port) (Opposite face is same)	8-M5x0.8 Depth of thread 7.5 (Opposite face is same)	2-M8 x 1.25 Depth of thread 12	M6 x 1.0 x 14ℓ	M6x1.0x5ℓ	30	106
CXS•25-20							20	92										116
CXS•25-30							30	102									40	126
CXS•25-40							40	112										136
CXS•25-50							50	122										146
CXS•25-75							75	147									60	171
CXS•25-100							100	172										196

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	NN	O	OO
CXS•32-10 to 100	98	38	96	36	18	2-M6x1.0 (Penetration)	75	44	8	16	14	30	2-Ø6.9 Through hole 2-Ø11 Depth of counter bore 6.3	2-M5x0.8 Depth of thread 8	Ø16	13	M8x1.25x23ℓ

Model	P	PP	Q	QQ	R	RR	S	SS	T	TT	U	UU	V	W	X	Y	Z	ZZ
CXS•32-10	76	M8x1.25	9	19	56	19	10	92	20	11.5	10	4-⅛ Depth of thread 6.5 (Port) (Opposite face is same)	8-M5x0.8 Depth of thread 7.5 (Opposite face is same)	2-M8 x1.25 Depth of thread 12	M8 x1.25x16ℓ	M8x1.25x8ℓ	40	122
CXS•32-20							20	102										132
CXS•32-30							30	112									50	142
CXS•32-40							40	122										152
CXS•32-50							50	132										162
CXS•32-75							75	157									70	187
CXS•32-100							100	182										212

SERIES CXS

Model	A	B	C	D	E	F	G	H	I	J	L	M	N	NN	O	P	Q	QQ	R	S	SS	T	U	V	X	Y	Z	ZZ
CXS•10-10	46	17	44	15	7.5	2-M4 x 0.7 (Penetration)	35	20	4	8	20	2-Ø3.4 Through hole 2-Ø6.5 Depth of counter bore 3.3	2-M3 x0.5 Depth of thread 5	Ø6	5	33.6	8.5	7	30	10	65	7	2-M4 x 0.7 Depth of thread 7	4-M3x0.5 Depth of thread 4.5 (Opposite face is same)	M3x0.5x10ℓ	M3x0.5x5ℓ	30	82
CXS•10-20																				20	75							92
CXS•10-30																				30	85						40	102
CXS•10-40																				40	95							112
CXS•10-50																				50	105							122
CXS•15-10	58	20	56	18	9	2-M5 x 0.8 (Penetration)	45	25	5	10	30	2-Ø4.3 Through hole 2-Ø8 Depth of counter bore 4.4	2-M4 x0.7 Depth of thread 6	Ø8	6	48	10	10	38.5	10	70	10	2-M5 x 0.8 Depth of thread 8	4-M4x0.7 Depth of thread 5 (Opposite face is same)	M5x0.8x10ℓ	M4x0.7x4ℓ	25	89
CXS•15-20																				20	80							99
CXS•15-30																				30	90						35	109
CXS•15-40																				40	100							119
CXS•15-50																				50	110							129

DUAL ROD CYLINDER SERIES CXSW
DOUBLE ROD TYPE

- Bore Sizes ø6, ø10, ø15, ø20, ø25, ø32
- Based on Series CXS
- Through Rod ensures 2 to 3 times the allowable load of CXS
- Side Play of Plate End <0.03mm
- High Non-Rotating Accuracy
- Adjustable Stroke Mechanism on Both Sides

TECHNICAL SPECIFICATIONS

Cylinder Bore Size (mm)	6	10	15	20	25	32
Fluid	Air (Non-Lubricated)					
Min Operating Pressure	0.15MPa / 22PSI			0.1MPa / 14.5PSI		
Max Operating Pressure	0.7 MPa / 100PSI					
Proof Pressure	1.05MPa / 150PSI					
Ambient & Fluid Temperature	5~60°C / 40~140°F					
Operating Piston Speed	50~500mm/s / 2~20in/s					
Port Size	M5 x 0.8				1/8	
Stroke Adjustment Range	0 ~ -10mm (Extend Side: 5mm; Retracted End: 5mm)					
Bearing	Side Bearing, Ball Bush Bearing (Same Dimensions)					
Cushion	With Damper (Both Sides)					

HOW TO ORDER
CXSW SERIES DUAL ROD CYLINDER

CXSW ○ ○ — ○ — ○ ○ — ○

TYPE OF BEARING
M .....Slide Bearing Type
L .....Ball Bush Bearing Type

BORE (MM)
6
10
15
20
25
32

BORE SIZE / STANDARD STROKE (MM)
6 .....10, 20, 30, 40, 50
10 ...10, 20, 30, 40, 50
15 ...10, 20, 30, 40, 50
20 ...10, 20, 30, 40, 50, 75, 100
25 ...10, 20, 30, 40, 50, 75, 100
32 ...10, 20, 30, 40, 50, 75, 100

BORE SIZE / LONG STROKE (MM) [XB11]
10 ...75, 100, 125, 150
15 ...75, 100, 125, 150
20 ...125, 150, 175, 200
25 ...125, 150, 175, 200
32 ...125, 150, 175, 200

AUTO SWITCH TYPE
See Accessories Section for CXS

NO OF SWITCHES
- .....2 Pieces
S .....1 Piece

OPTIONS
- .....None
XB11..Long Stroke

SLIDE UNIT SERIES NCX2

- Bore sizes 10,15,25mm
- Slide bearing construction
- High accuracy positioning
- Magnetic sensing standard
- Mounting hole for shock absorber
- End plate housing mounting option

TECHNICAL SPECIFICATIONS

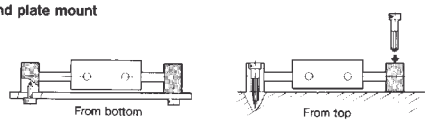
Type		Non-Lube Type / Air-Hydro Type
Fluid		Air / LP Oil
Proof Pressure		1.5MPa / 220 PSI
Max Operating Pressure		1MPa / 150 PSI
Min Operating Pressure	NCX2N10	0.15MPa / 22 PSI
	NCX2N1S	0.15MPa / 22 PSI
	NCX2N2S	0.1MPa / 15 PSI
Ambient and Operating Fluid Temp		5 ~ 60°C / 40 ~ 140°F
Piston Speed (Non-Lube Type)		See List Below
Cushion		With Shock Absorber (Option)
Stroke Adjustment Range		2~25.4mm / +0.08 ~ -1 inch
Note 1) Max Movable Load	NCX2N10	1Kg / 2.2 lb
	NCX2N1S	3Kg / 6.6 lb
	NCX2N2S	6Kg / 13.2 lb
Non Rotating Accuracy (Except for bending of Piston Rod)	NCX2N10	±0.1°
	NCX2N1S	±0.04°
	NCX2N2S	±0.02°

Note 1) please position the center of gravity of the load and the slide unit as close as possible.

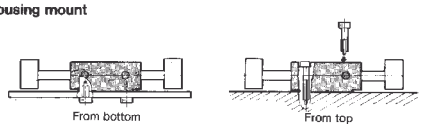
SELECTOR

Either the housing or the plate can be fixed depending upon the application.
Note: on the B type mounting (see "How to Order"), the air supply is connected to the housing which is static. On the P type mounting, the air supply is connected to either end plate with the opposite end plugged.

End plate mount



Housing mount



PISTON ROD AIR HYDRO TYPE

Model	End Plate Mounted	Housing Mounted
NCX2H15	*	0.2 ~ 2in/sec
NCX2H25	0.2 ~ 1.6in/sec	0.2 ~ 4in/sec

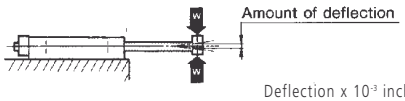
PISTON ROD DEFLECTION (REFERENCE FACTOR)

For a concentrated load at the center of the housing.

Model	Load (lb)	Stroke Inch	
		4	8
NCX2N10	2	2.8	-
NCX2N15	6	3.2	11
NCX2N25	13	0.8	3.2

PISTON ROD DEFLECTION (REFERENCE FACTOR)

For a concentrated load at the center of the end plate.



Deflection x 10^{-3} inch

Model	Load (lb)	Stroke (Inch)			
		2	4	6	8
NCX2N10	0.5	2.4	11.8	-	-
NCX2N15	1	3.5	8.7	14.7	39.4
NCX2N25	2	12	3.5	6.3	9.8
Note) Values are the total amount of vertical deflection					

HOW TO ORDER NCX2 SERIES SLIDE UNIT

NC D ○ X 2 N ○ — ○ ○ — ○ ○

AUTOSWITCH CAPABLE
- ……Without Auto Switch
D ……With Auto Switch

MOUNTING
B ……Housing fixed
P ……End plate fixed

TYPE
N …Non-Lube
H …Air Hydro Type (except ø10)

BORE (MM)
10, 15, 25

STROKE (INCH)

100 …	1
200 …	2
300 …	3
400 …	4
500 …	5
600 …	6
700 …	7
800 …	8

STROKE ADJUSTMENT
- ……With Adjustment Bolts (Std)
B ……With Shock Absorber
BC …With Cap Type Shock Absorber
BCS …With One Cap Type Shock Absorber

AUTO SWITCH
See Accessories

NO OF AUTO SWITCHES
- ……2 Pieces
S ……1 Piece

DIMENSIONS SEE NEXT PAGE ☞

ACCESSORIES
AUTO SWITCHES

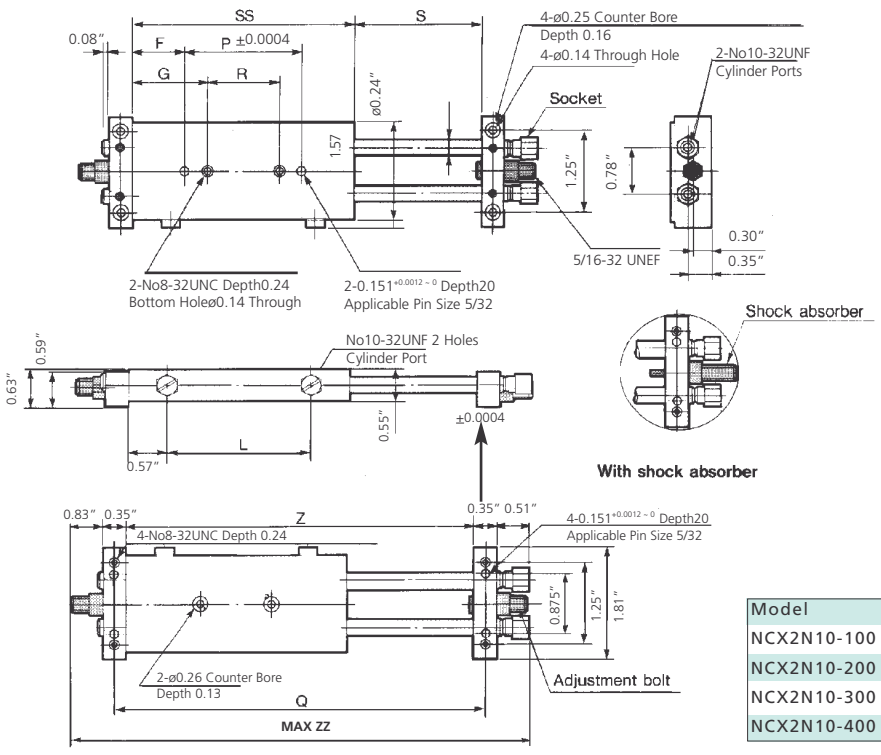
Note: Pre-wired Switches with 3/4 Pin Connectors available

Model	Type	Operating Voltage	Maximum Current
D-A73		200VAC	5 ~ 10mA
D-A73H	Reed	24VDC	5 ~ 40mA
D-E73A		100VAC	5 ~ 20mA
D-A80		24VAC/DC or less	50mA
D-A80H	Reed	48VAC/DC or less	40mA
D-E80A		100VAC/DC or less	20mA
D-A76H	Reed	4 ~ 8 VDC	20mA
D-E76A			
D-A73C	Reed	24VDC	5 ~ 40mA
D-A80C	Reed	24VAC/DC or less	50mA
D-F79	3 Wire Solid State NPN	28VDC or less	150mA or less
D-F7P	3 Wire Solid State PNP	-	100mA or less
D-J79	2 Wire Solid State	24VDC (10~28V)	5 ~ 150mA
D-F7NV	3 Wire Solid State NPN	28CVDC or less	150mA or less
D-F7PV	3 Wire Solid State PNP	-	100mA or less
D-F7BV	2 Wire Solid State	24VDC (10 ~ 28V)	5 ~ 150mA
D-F7PW	3 Wire Solid State PNP	-	20mA or less
D-J79W	2 Wire	24VDC (10 ~ 28V)	5 ~ 40mA
D-F7BAL	2 Wire Solid State	24VDC (10 ~ 28V)	5 ~ 40mA
D-J79C	2 Wire Solid State	24VDC (10 ~ 28V)	5 ~ 150mA
D-F7LF	4 Wire Solid State NPN	26VDC or less	40mA or less
D-F7NF	4 Wire Solid State NPN	28VDC or less	40mA or less
D-F7NYTL	3 Wire Solid State NPN	28VDC or less	80mA or less

ACCESSORIES
APPLICABLE SHOCK ABSORBERS SERIES NCX2

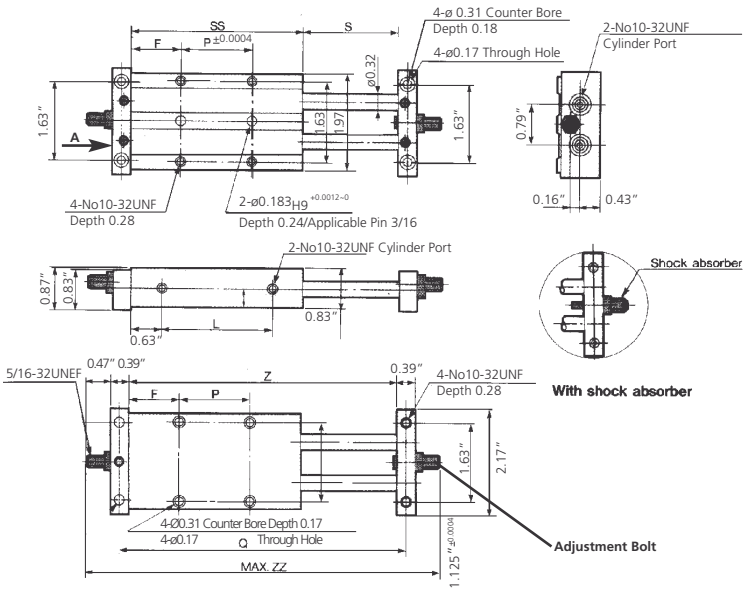
Slide Unit	Shock Absorber/Cap Type
NCX2N10	
NCDBX2N10	NRB031-025/NRBC031-025
NCDPX2N10	
NCX2N15	
NCDBX2N15	NRB031-025/NRBC031-025
NCDPX2N15	
NCX2N25	
NCDBX2N25	NRB050-030/NRBC050-030
NCDPX2N25	

DIMENSIONS
BASIC TYPE N10 SERIES NCX2



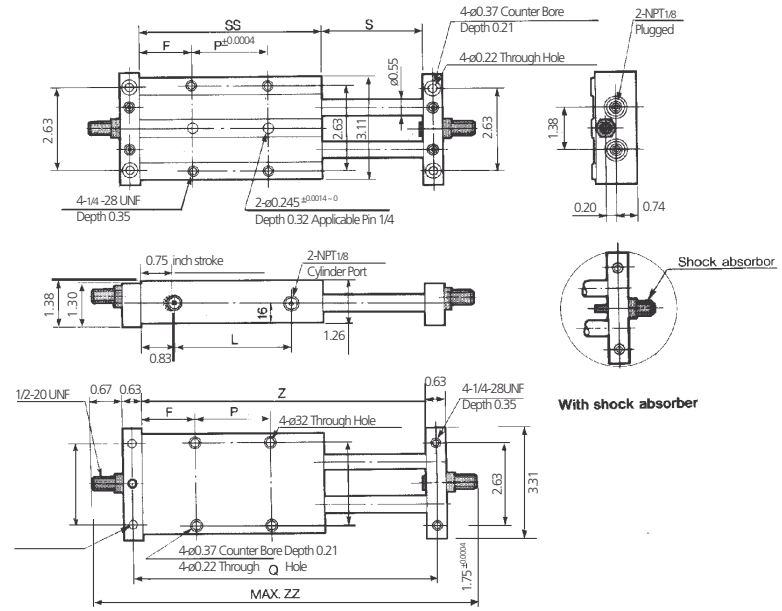
Model	F	G	L	P	Q	R	S	SS	Z	Adjust Bolt ZZ
NCX2N10-100	0.73	0.98	1.55	1.25	4.13	0.75	1.08	2.70	3.78	6.14
NCX2N10-200	1.23	1.48	2.55	1.25	6.13	0.75	2.08	3.70	5.78	8.14
NCX2N10-300	1.10	1.35	3.55	2.50	8.13	2.00	3.08	4.70	7.78	10.14
NCX2N10-400	1.60	1.85	4.55	2.50	10.13	2.00	4.08	5.70	9.78	12.14

DIMENSIONS
BASIC TYPE (N)15 SERIES NCX2



Model	F	L	P	Q	S	SS	Z	Adjust Bolt ZZ
NCX2_15-100	1.02	1.52	0.75	4.25	1.08	2.78	3.86	5.98
NCX2_15-200	1.14	2.52	1.50	6.25	2.08	3.78	5.86	7.98
NCX2_15-300	1.64	3.52	1.50	8.25	3.08	4.78	7.86	9.98
NCX2_15-400	1.39	4.52	3.00	10.25	4.08	5.78	9.86	11.98
NCX2_15-500	1.89	5.52	3.00	12.25	5.08	6.78	11.86	13.98
NCX2_15-600	2.39	6.52	3.00	14.25	6.08	7.78	13.86	15.98
NCX2_15-700	2.89	7.52	3.00	16.25	7.08	8.78	15.86	17.98
NCX2_15-800	3.39	8.52	3.00	18.25	8.08	9.78	17.86	19.98

DIMENSIONS
BASIC TYPE (N)25 SERIES NCX2



Model	F	L	P	Q	S	SS	Z	Adjust Bolt ZZ
NCX2_25-100	1.15	1.80	1.00	5	1.08	3.29	4.37	6.97
NCX2_25-200	1.15	2.64	2.00	7	2.08	4.29	6.37	8.97
NCX2_25-300	1.65	3.64	2.00	9	3.08	5.29	8.37	10.97
NCX2_25-400	1.65	4.64	3.00	11	4.08	6.29	10.37	12.97
NCX2_25-500	2.15	5.64	3.00	13	5.08	7.29	12.37	14.97
NCX2_25-600	2.65	6.64	3.00	15	6.08	8.29	14.37	16.97
NCX2_25-700	3.15	7.64	3.00	17	7.08	9.29	16.37	18.97
NCX2_25-800	3.65	8.64	3.00	19	8.08	10.29	18.37	20.97

CYLINDER SCALE AND PRESET OUTPUT CONTROLLER SERIES CE1

- Incremental position measurement to 0.1mm
- Compact cylinder design
- 21 standard sizes
- Non rotating piston rod
- End of stroke confirmation by standard autoswitches
- Use with counter or directly to PLC with high speed counting

CYLINDER SPECIFICATIONS

Fluid	Air
Proof Pressure	1.5MPa / 218PSI
Max Operating Pressure	0.98MPa / 140PSI
Min Operating Pressure	Ø12: 0.07MPa / 10PSI Ø20~Ø63 0.05MPa / 17PSI
Ambient and Fluid Temperature	5~60°C / 40~140°F
Humidity	25~85%RH (without dew drop)
Piston Speed	70 ~ 500mm/s max
Lubrication	Non-lube
Stroke Tolerance	Ø12, Ø20 : +1.0mm, 0 Ø32~63 : +1.0mm, 0
Air Cushion	Ø12~Ø32 : None Ø40~Ø63 : Yes
Non Rotating Accuracy	Ø12: ±2° Ø20: ±1° Ø32~Ø63: ±0.8°
Mounting	Both ends tapped (Standard), Foot type, Flange type, Double clevis type
Auto Switch	Reed switch, Solid state auto switch

SYMBOLS

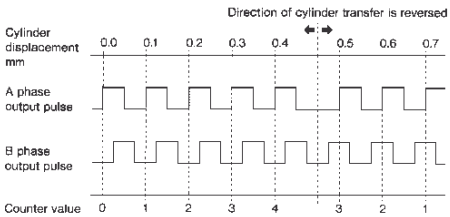
SENSOR SPECIFICATIONS

Cable	7,6 cores twist
Max transmission distance	20m 6 cores cable
Detection method	Magnetic analysis by built-in magnet non-rotating piston rod
Withstand magnetic field	145 Guass
Power supply	12VDC±10% (Ripple: within 1%)
Power consumption	40mA
Discrimination	0.1mm/Pulse
Repeatability	0.1mm±0.05mm
Output mode	Open collector (35VDC, 80mA)
Output signal	Phase A/B phase difference output
Withstand voltage	500VAC, 1 min. (between case and cable)
Insulation resistance	400VDC, 50M or more
Vibration resistance	33.3Hz 6.8G
Impact resistance	30G
Protection structure	IP-66 (IEC standard)

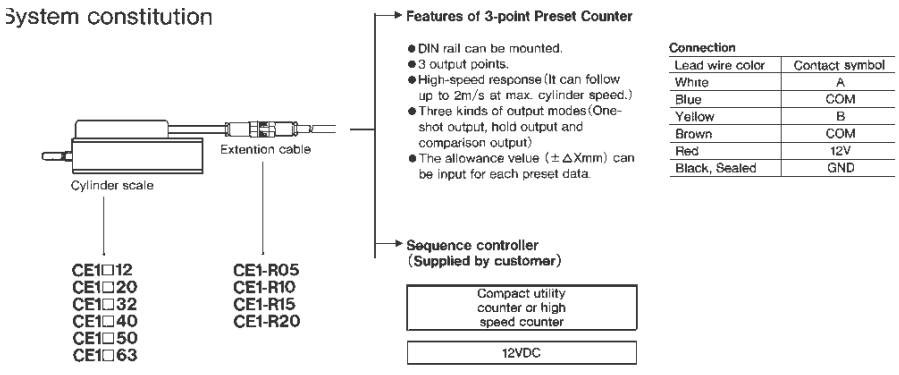
PRESET COUNTER SPECIFICATIONS

Model	3-point preset counter
Mounting	Surface mounting (DIN rail or screwing)
Operation	Adding and subtracting type
Operation Mode	Running mode, data setting mode
Resetting	External resetting
Display	LCD (with back light)
Input	90° phase difference
No of Digits	5-digit display (-9999.9 to 9999.9)
Storage for Power Failure	E^2 ROM (FL display after it was written at 65 thousand times of writing)
Input	No voltage input
Input Signal	Counting input, resetting signal
Resetting Input	RS and COM pin are short-circuited with 10 ms or above (Pulse input)
Counting Speed	20 Kcps
External Power Supply	12V±10%, 60mA
Control Output	CEU1-D: NPN (30VDC, 50mA) CEU1P-D: PNP (30VDC, 50mA)
Output Mode	Comparison/hold/one-shot (100 ms fixed)
Supply Voltage	24VDC ± 10%
Output Delay Time	5 ms max
Power Consumption	10VA
Weight	250g

Relation between cylinder scale displacement and output pulse



System constitution



Connection

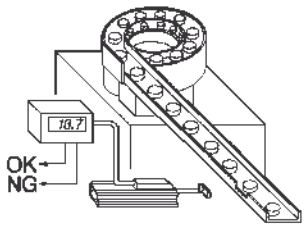
Lead wire color	Contact symbol
White	A
Blue	COM
Yellow	B
Brown	COM
Red	12V
Black, Sealed	GND

HOW TO ORDER SEE NEXT PAGE ☞

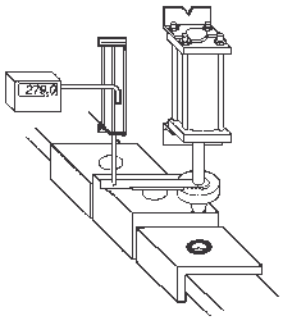
APPLICATIONS SEE NEXT PAGE ☞

APPLICATIONS

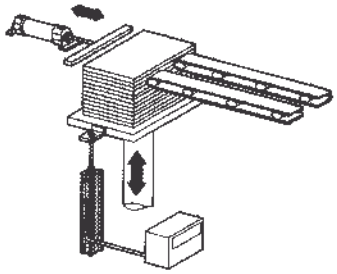
Parts inspection



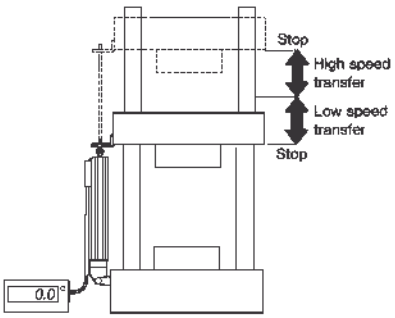
Confirmation of press-fitting



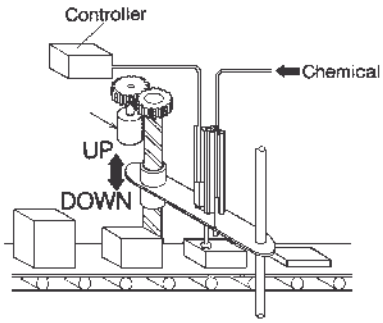
Detection of lifter position



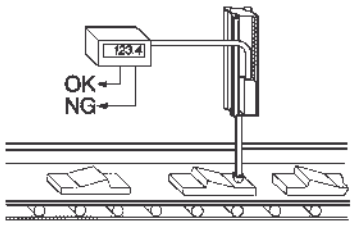
Detection of mold deceleration position



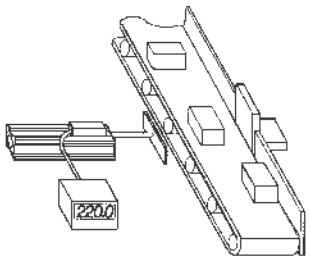
Adjustment of nozzle height



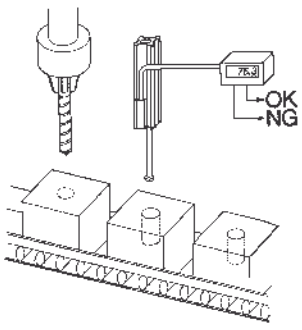
Directional discrimination



Discrimination between vertical direction and horizontal direction



Inspection of machined holes



HOW TO ORDER CYLINDER SCALE SERIES CE1

CE1B ○ — ○

BORE (MM)

12	...Ø12
20	...Ø20
32	...Ø32
40	...Ø40
50	...Ø50
63	...Ø63

STROKE

25	...25mm
50	...50mm
100	...100mm
200	...200mm
300	...300mm
500	...500mm

HOW TO ORDER SEE NEXT PAGE ☞

BORE/STROKE AVAILABILITY

Ø12...25, 50, 100
Ø20...25, 50, 100, 200
Ø32...50, 100, 200, 300
Ø40...100, 200, 300, 500
Ø50...200, 300, 500
Ø63...200, 300, 500

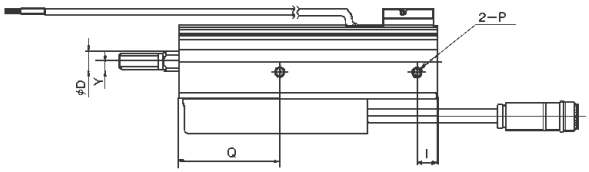
HOW TO ORDER
PRESET COUNTER SERIES CEU1

CEU1 ○ — D

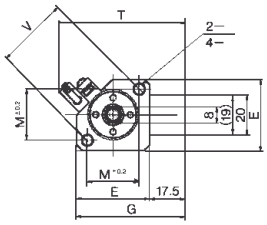
CONTROL OUTPUT

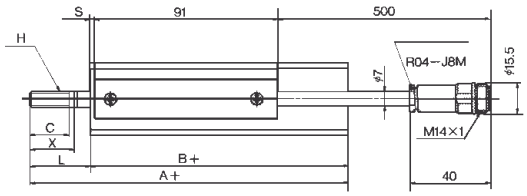
Nil ...NPN Open Collector
P .....PNP Open Collector

DIMENSIONS
CYLINDER SCALE SERIES CE1 Ø12, Ø20



ACCESSORIES
AUTOSWITCHES





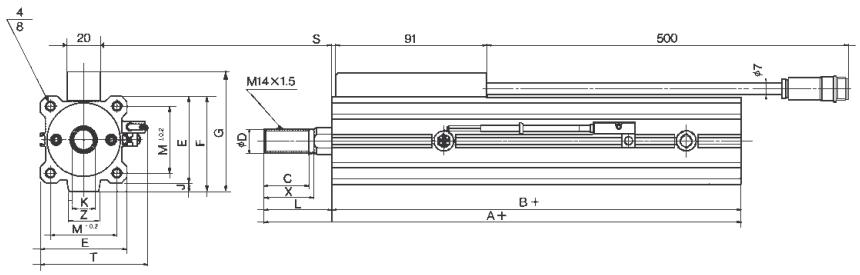
Bore (mm)	Available Stroke	A	B	C	D	E	G	H	I	K	L
12	25, 50, 100	94	69	15	6	25	42.5	M5x0.8	16	5.2	25
20	25, 50, 100, 200	106	78	15.5	10	36	53.5	M8x1.25	10	8	28

Bore (mm)	M	N	O	P	Q	R	S	T	V	X	Y
12	15.5	3.5	M4x0.7	M5x0.8	47	7	2	53.5	22	18	7
20	25.5	5.5	M6x1	M5x0.8	50	15	2	62.5	36	18	5

ACCESSORIES
CONNECTOR AND EXTENSION CABLE

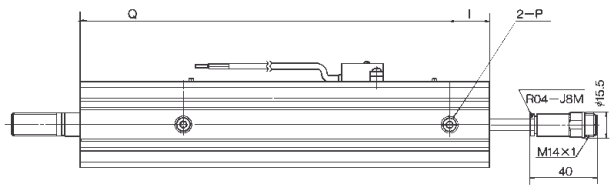
CE1-R05 .....5 meter
CE1-R10 .....10 meter
CE1-R15 .....15 meter
CE1-R20 .....20 meter

DIMENSIONS
CYLINDER SCALE SERIES CE1 Ø32, Ø40, Ø50, Ø63



ACCESSORIES
CYLINDER MOUNTING

Mounting Option	Ø12	Ø20	Ø32	Ø40	Ø50	Ø63
Foot Bracket - pair	CQ-L012	CQ-L020	CQ-L032	CQ-L040	CQ-L050	CQ-L063
Flange	CQ-F012	CQ-F020	CQ-F032	CQ-F040	CQ-F050	CQ-F063
Rear Female Clevis	CQ-D012	CQ-D020	CQ-D032	CQ-D040	CQ-D050	CQ-D063



Bore (mm)	Available Stroke	A	B	C	D	E	F	G	H	I	J	K
Ø32	50, 100, 200, 300	131	90	27	16	45	49.5	64	M14x1.5	14	4.5	14
Ø40	100, 200, 300, 500	177	136	27	16	52	57	71.5	M14x1.5	24	5	15
Ø50	200, 300, 500	194	144	32	20	64	71	85.5	M18x1.5	22.5	7	18
Ø63	200, 300, 500	196	145	32	20	77	84	98.5	M18x1.5	21	7	18

Bore (mm)	L	M	N	O	P	Q	R	S	T	X	Z
Ø32	41	34	5.5	M6X1	Rc(PT)1/8	56	20	2.5	57.5	30	18
Ø40	41	40	5.5	M6X1	Rc(PT)1/8	62	20	2.5	64.5	30	18
Ø50	51	50	6.6	M8X1.25	Rc(PT)1/4	61.5	20	2.5	76.5	35	22
Ø63	51	60	9	M10X1.5	Rc(PT)1/4	64	20	2.5	89.5	35	22

SERIES C95

AIR CYLINDER SERIES C95 Ø32–100MM

- Conforms to VDMA24562, ISO6431, DIN & CETOP
- Magnetic Auto Switch Options
- Ultra Low Friction
- Improved Resistance to Side Loading
- Non-Rotating Piston Rod Option
- Improved Cushioning Efficiency
- Through-Rod Type Available

TECHNICAL SPECIFICATIONS

Piston Diameter (mm)	32	40	50	63	80	100
Piston Rod Diameter	12	16	20	20	25	30
Piston Rod Thread	M10x1.25	M12x1.25	M15x1.5	M15x1.5	M20x1.5	M20x1.5
Port Size (G or NPT)	1/8	1/4	1/4	3/8	3/8	1/2
Cushioning Stroke (mm)	19	19	24	24	30	30
Max Standard Stroke *	500	500	500	500	500	500

Fluid ..... Compressed Air Filtered to < 10 micron
Maximum Working Pressure ..... 0.05 - 1 MPa / 7~145PSI
Working Temperature ..... -10°C to + 60°C / 14~140°F
Mounting Position ..... Any
Piston Speed ..... 50 - 1000 mm/s / 2~40in/s
Standard Strokes (mm) 25,50,80,100,125,160,200,250,320,400,500
(DIN ISO 4393) ..... other stroke lengths in accordance with ISO 497 R10
Stroke Tolerance ..... < 250mm : + 1.0 / 0mm
..... <1000mm : 1.4 / 0mm
*For longer stroke lengths see "How to Order"

ACCESSORIES
AUTO SWITCH
TIE ROD MOUNTING BRACKETS

BT-03 ..... Ø32/Ø40
BT-05 ..... Ø50/Ø63
BT-06 ..... Ø80/Ø100

MORE ACCESSORIES SEE NEXT PAGE ☞

DIMENSIONS SEE NEXT PAGE ☞

HOW TO ORDER C95 AIR CYLINDERS

C95 ○○ B ○ — ○○○ — ○○ — ○

PISTON ROD
S ..... Basic
K ..... Non-Rotating

PISTON
- ..... Basic
D ..... Magnetic

BORE IN MM
32
40
50
63
80
100

STANDARD STROKE IN MM
25, 50, 80, 100
125, 160, 200, 250
320, 400, 500

ROD TYPE
- ..... Single Rod
W ..... Through Rod

AIR CUSHION
- ..... Both Ends
N ..... None
H ..... Head End Only
C ..... Rod End Only

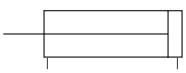
NO OF SWITCHES
- ..... 2 Pieces
S ..... 1 Piece
n ..... n Pieces

APPLICABLE AUTO SWITCH
See Accessories Section

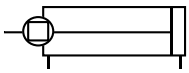
OPTION
- ..... G Port
XC18 ... NPT Ports

SYMBOLS

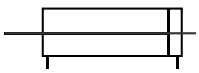
Double Action



Non-Rotating



Through Rod

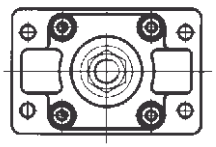
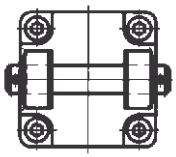
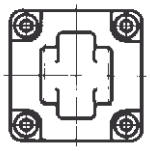


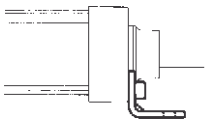
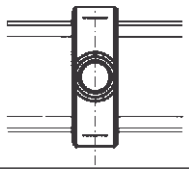
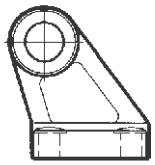
Construction – Aluminum
Barrel – Anodized Aluminum
Piston rod – C45 Hard Chrome
Ø32 - Non Rotate, Stainless
Steel Piston Rod

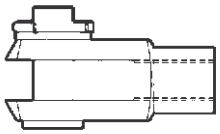
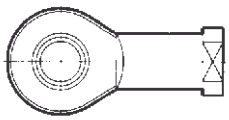
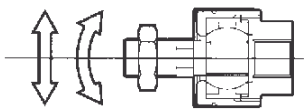
ACCESSORIES
AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available

MODEL	TYPE	LOAD VOLTAGE	LOAD CURRENT	POWER SOURCE	INTERNAL VOLTAGE	INDICATOR LAMP
D-A53L	REED	24VDC	5~50mA	-	2.4V or less	ON:Red L.E.D
D-A54L	REED	24VDC 100VAC 200VAC	5~50mA 5~25mA 5~12.5mA	-	2.4V or less	ON:Red L.E.D
D-A64L	REED	24VDC/AC OR LESS 100VAC 200VAC	MAX 50mA MAX 25mA MAX 12.5mA	-	0	NONE
D-F59L	3 WIRE SOLID STATE NPN	28VDC OR LESS	MAX 450mA	5~24VDC	1.5V or less (0.8V or less at 10mA of Load Current)	ON:Red L.E.D
D-F5PL	3 WIRE SOLID STATE PNP	-	MAX 80mA	5~24VDC	0.8V or less	ON:Red L.E.D
D-J59L	2 WIRE SOLID STATE	10~28VDC	5~ 40mA	-	4V or less	ON:Red L.E.D

Bore	F Flange incl. bolts & washers	D Female Rear Clevis incl. bolts & washers	C Male Rear Clevis incl. bolts & washers
			
32	F5032	D5032	C5032
40	F5040	D5040	C5040
50	F5050	D5050	C5050
63	F5063	D5063	C5063
80	F5080	D5080	C5080
100	F5100	D5100	C5100

Bore	L Foot (two pieces)	T Trunnion	E Angled Rear Clevis Foot
			
32	L5032	A trunnion type must be ordered as part of the cylinder assembly by substituting 'T' for 'B' in the part number.	E5032
40	L5040		E5040
50	L5050		E5050
63	L5063		E5063
80	L5080		E5080
100	L5100		E5100

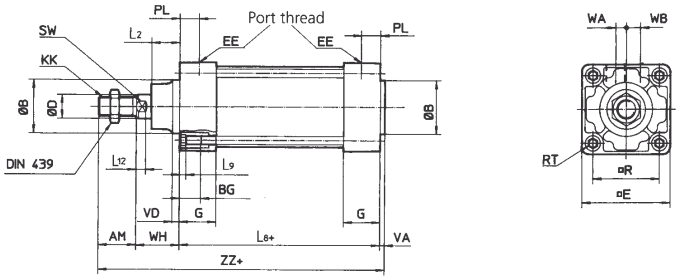
Bore	GKM Rod Clevis	KJ Piston Rod Ball Joint	JA Floating Joint
			
32	GKM10-20	KJ10DM10x1.25	JA30-10-125
40	GKM12-24	KJ12DM12x1.25	JA40-12-125
50/63	GKM16-32	KJ16DM16x1.5	JA50-16-150
80/100	GKM20-40	KJ20DM20x1.5	JAH50-20-150

ACCESSORIES
C 95 REPAIR KITS

Bore	Piston Rod Nut	Seal Kit (Nitrile)	Seal Kit (High Temp')	Seal Kit Non-rotating)
32	M10 x 1.25	CS95-32	CS95-32-XB6	CSK95-32
40	M12 x 1.25	CS95-40	CS95-40-XB6	CSK95-40
50	M16 x 1.5	CS95-50	CS95-50-XB6	CSK95-50
63	M16 x 1.5	CS95-63	CS95-63-XB6	CSK95-63
80	M20 x 1.5	CS95-80	CS95-80-XB6	CSK95-80
100	M20 x 1.5	CS95-100	CS95-100-XB6	CSK95-100

DIMENSIONS
SEE NEXT PAGE ☞

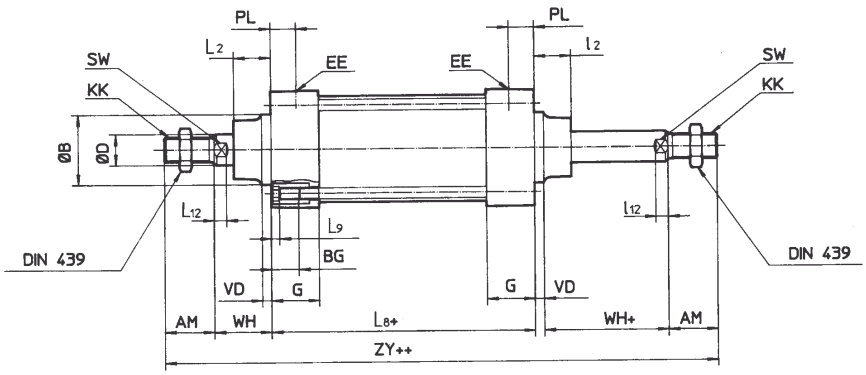
DIMENSIONS BASIC CYLINDER



Diameter	AM	ØB	ØD	EE	PL	RT	L12	KK	SW	G	BG	ℓ8	VD	VA	WA	WB	WH	ZZ	ZY
32	22	30	12	G1/8	13	M6	6	M10X1.25	10	27	16	94	4	4	4	6.5	26	146	190
40	24	35	16	G1/4	14	M6	6.5	M12X1.25	13	27	16	105	4	4	4	9	30	163	213
50	32	40	20	G1/4	15.5	M8	8	M16X1.5	16	31.5	16	106	6	4	5	10.5	37	179	244
63	32	45	20	G3/8	16.5	M8	8	M16X1.5	16	31.5	16	121	6	4	9	12	37	194	259
80	40	45	25	G3/8	19	M10	10	M20X1.5	21	38	16	128	8	4	11.5	14	46	218	300
100	40	55	30	G1/2	19	M10	10	M20X1.5	21	38	16	138	8	4	17	15	51	233	320

Diameter	E	R	L2	L9
32	46	32.5	15	4
40	52	38	17	4
50	65	46.5	24	5
63	75	56.5	24	5
80	95	72	30	5
100	114	89	32	5

DIMENSIONS C95SBØ-HUB - W

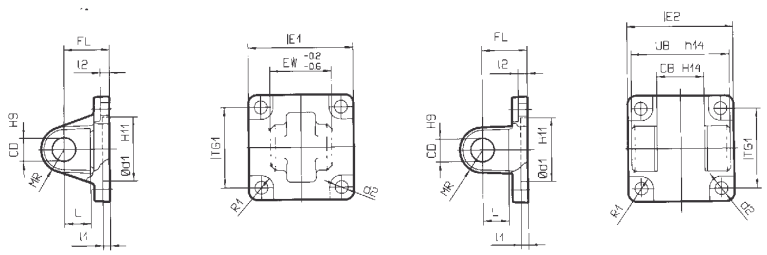


=(2Y + 2 x Stroke)

Diameter	AM	ØB	ØD	EE	PL	l12	KK	SW	G	BG	l8	VD	WH	ZY	l2	l9
32	22	30	12	G1/8	13	6	M10x1.25	10	27	16	94	4	26	190	15	4
40	24	35	16	G1/4	14	6.5	M12x1.25	13	27	16	105	4	30	213	17	4
50	32	40	20	G1/4	15.5	8	M16x1.5	16	31.5	16	106	6	37	244	24	5
63	32	45	20	G3/8	16.5	8	M16x1.5	16	31.5	16	121	6	37	259	24	5
80	40	45	25	G3/8	19	10	M10x1.5	21	38	16	128	8	46	300	30	5
100	40	55	30	G1/2	19	10	M20x1.5	21	38	16	138	8	51	320	32	5

DIMENSIONS REAR MALE CLEVIS - C

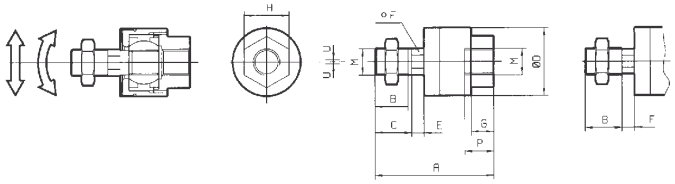
REAR FEMALE CLEVIS - D



Diameter	Model No C type	Model No D type	E1	EW	TG1	FL	ℓ1	L	ℓ2	Ød1	CD	MR	d2	R1	E2	UB	CB
32	C5032	D5032	45	26	32.5	22	5	12	5.5	30	10	0.5	6.6	6.5	48	45	26
40	C5040	D5040	51	28	38	25	5	15	5.5	35	12	12	6.6	6.5	56	52	28
50	C5050	D5050	64	32	46.5	27	5	15	6.5	40	12	12	9	8.5	64	60	32
63	C5063	D5063	74	40	56.5	32	5	20	6.5	45	16	16	9	8.5	75	70	40
80	C5080	D5080	94	50	72	36	5	20	10	45	16	16	11	11	95	90	50
100	C5100	D5100	113	60	89	41	5	25	10	55	20	20	11	12	115	110	60

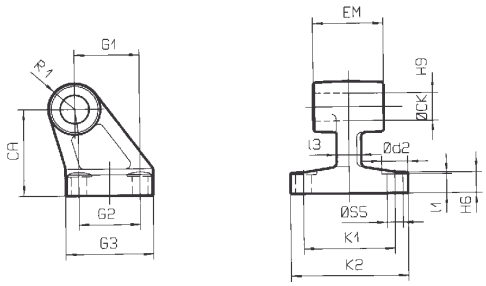
MORE DIMENSIONS SEE NEXT PAGE ☞

DIMENSIONS
FLOATING JOINT - JA : STEEL, ZINC CHROMATE PLATED



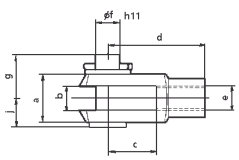
Cyl. Diameter	Model No	M	A	B	C	ØD	E	F	G	H	P	U	Load (KN)	Weight (g)	Angular Deflection
32	JA30-10-125	M10X1.25	49.5	19.5	-	24	5	8	8	17	9	0.5	2.5	70	±5
40	JA40-12-125	M12X1.25	60	20	-	31	6	11	11	22	13	0.75	4.4	160	±5
50/63	JA50-16-150	M16X1.5	71.5	22	-	41	7.5	14	13.5	27	15	1	11	300	±5
80/100	JAH50-20-150	M20X1.5	101	28	31	59.5	11.5	24	16	32	18	2	18	1080	±5

DIMENSIONS
ANGLED REAR CLEVIS FOOT - E



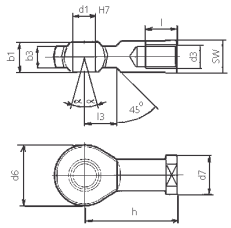
Diameter	Model No	Ød2	ØCK	ØS5	K1	K2	13	G1	ℓ1	G2	EM	G3	CA	H6	R1
32	E5032	11	10	6.6	38	51	10	21	7	18	26	31	32	8	10
40	E5040	11	12	6.6	41	54	10	24	9	22	28	35	36	10	11
50	E5050	15	12	9	50	65	12	33	11	30	32	45	45	12	12
63	E5063	15	16	9	52	67	14	37	11	35	40	50	50	12	15
80	E5080	18	16	11	66	86	18	47	12.5	40	50	60	63	14	15
100	E5100	18	20	11	76	96	20	55	13.5	50	60	70	71	15	19

DIMENSIONS
PISTON ROD CLEVIS - GKM: STEEL, ZINC CHROMATE PLATED



Cyl. Diameter	Model No	e	b	d	Øf	g	c	j	a
32	GKM10-20	M10X1.25	10	40	10	18	20	12	20
40	GKM12-24	M12X1.25	12	48	12	23	24	15	24
50/63	GKM16-32	M16X1.5	16	64	16	29	32	19	32
80/100	GKM20-40	M20X1.5	20	80	20	33.5	40	24	40

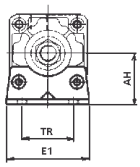
DIMENSIONS
PISTON ROD BALL JOINT - KJ: STEEL, ZINC CHROMATE PLATED

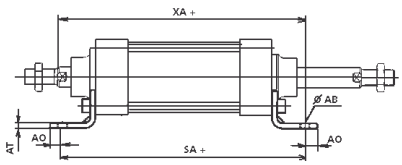


Cyl. Diameter	Model No	d3	d1	h	d6	b3	b1	l	d7	α	l3	sw
32	KJ10D	M10X1.25	10	43	28	10.5	14	20	19	13°	14	17
40	KJ12D	M12X1.25	12	50	32	12	16	22	22	13°	16	19
50/63	KJ16D	M16X1.5	16	64	42	15	21	28	27	15°	26	32
80/100	KJ20D	M20X1.5	20	77	50	18	25	33	34	15°	26	32

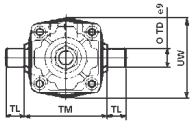
DIMENSIONS
MOUNTING ACCESSORIES

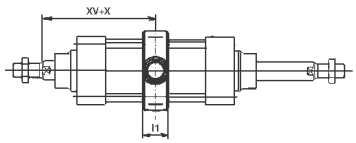
FOOT, L



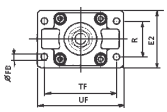


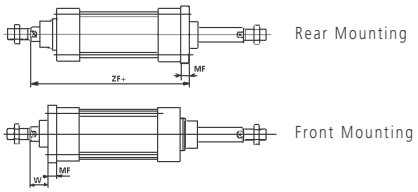
CENTRE TRUNNION, T





FLANGE, F

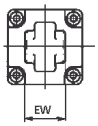


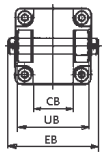


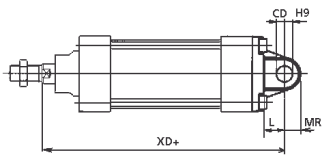
Rear Mounting

Front Mounting

REAR CLEVIS







Rear Male Clevis, C

Front Female Clevis, D

Diameter	E1	R	W	MF	ZF	ØFB	CD	EB	L	XD	UB	CB	EW	MR	TR	AO	AT	XA	SA
32	48	32	16	10	130	7	10	65	12	142	45	26	26	9.5	32	10	4	144	142
40	55	36	20	10	145	9	12	75	15	160	52	28	28	12	36	11	4	163	161
50	68	45	25	12	155	9	12	80	15	170	60	32	32	12	45	12	5	175	170
63	80	50	25	12	170	9	16	90	20	190	70	40	40	16	50	12	5	190	185
80	100	63	30	16	190	12	16	110	20	210	90	50	50	16	63	14	6	215	210
100	120	75	35	16	205	14	20	140	25	230	110	60	60	20	75	16	6	230	220

Diameter	AH	ØAB	I1	XV	TL	ØTD	TM	UW	TF	UF	E2
32	32	7	18	73	12	12	50	49	64	79	50
40	36	9	22	82.5	16	16	63	58	72	90	55
50	45	9	24	90	16	16	75	71	90	110	70
63	50	9	28	97.5	20	20	90	87	100	120	80
80	63	12	34	110	20	20	110	110	126	153	100
100	71	14	40	120	25	25	132	136	150	178	120

ACCESSORIES
HOW TO ORDER
MOUNTING BRACKET

CYLINDER MODEL :	C95❑32	C95❑40	C95❑50	C95❑63	C95❑80	C95❑100
TRUNNION MOUNTING BRACKET *	MB-S03	MB-S04	MC-S04	MB-S06	MB-S06	MB-S10
MOUNTING PLATE (DOUBLE CLEVIS)	MB-B03	MB-B03	MB-B05	MB-B05	MB-B08	MB-B08

* WHEN ORDERING TRUNNION MOUNTING BRACKET, ORDER 2 PIECES FOR 1 CYLINDER

ACCESSORIES
TRUNNION MOUNTING BRACKET

MOUNTING BRACKET MODEL	BORE SIZE (MM)
MB-S03	32
MB-S04	40
MB-S04	50
MB-S06	63
MB-S06	80
MB-S10	100

ACCESSORIES
MOUNTING PLATE (DOUBLE CLEVIS)

MOUNTING PLATE MODEL	BORE SIZE (MM)
E5032	32
E5040	40
E5050	50
E5063	63
E5080	80
E5100	100

ACCESSORIES
ROTATING ANGLE

BORE SIZE	A°	B°	A°+B°+90°
32 • 40	25°	45°	160°
50 • 63	40°	60°	190°
80 • 100	30°	55°	175°

ACCESSORIES
HOW TO ORDER
ROD END NUT (STANDARD)

PART NUMBER	BORE SIZE (MM)
NT-03	32
M12 x 1.25 (C95)	40
M16 x 1.5 (C95)	50 • 63
M20 x 1.5 (C95)	80 • 100

ACCESSORIES
HOW TO ORDER
PISTON ROD CLEVIS (DIN 71752)

PART NUMBER	BORE SIZE (MM)
GKM10-20	32
GKM12-24	40
GKM16-32	50 • 63
GKM20-40	80 • 100

ACCESSORIES
HOW TO ORDER
SPHERICAL ROD EYE (DIN 648)

PART NUMBER	BORE SIZE (MM)
KJ10 D M10 x 1.25	32
KJ12 D M12 x 1.25	40
KJ16 D M16 x 1.5	50 • 63
KJ20 D M20 x 1.5	80 • 100

ACCESSORIES
HOW TO ORDER
FLOATING JOINT

PART NUMBER	BORE SIZE (MM)
JA30-10-125	32
JA40-12-125	40
JA50-16-150	50 • 63
JAH50-20-150	80 • 100

GUIDE UNITS FOR SERIES C95 AIR CYLINDERS Ø32–100MM

- Ball Bush and Slide Bearing Options
- High Resistance to Side Load
- High Non-Rotating Accuracy
- Direct Mounting Facility
- Stroke Adjusting Unit Option

HOW TO ORDER GUIDE UNITS SLIDE BEARING TYPE

GUM (F) ○ — ○

BORE SIZE
32 ...ø32mm
40 ...ø40mm
50 ...ø50mm
63 ...ø63mm
80 ...ø80mm
100 ...ø100mm

STROKE
20, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500

HOW TO ORDER GUIDE UNITS BALL BUSH BEARING TYPE

GUL (F) ○ — ○

BORE SIZE
32 ...ø32mm
40 ...ø40mm
50 ...ø50mm
63 ...ø63mm
80 ...ø80mm
100 ...ø100mm

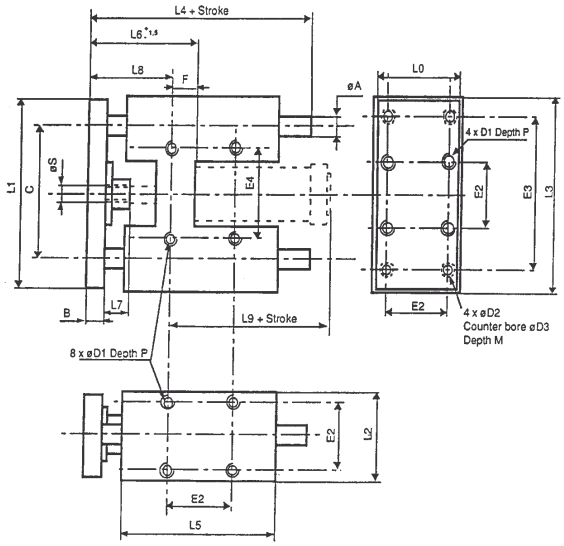
STROKE
20, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500

DIMENSIONS
SEE NEXT PAGE ☞

DIMENSIONS (MM)
C95 GUIDE UNITS

Diameter	A	B	C	D1	D2	D3	E2	E3	E4	F	L0	L1	L2
32	12	12	74	m6	6.6	11	33	78	61	4	45	92	50
40	16	15	87	M6	6.6	11	38	84	69	18	55	112	58
50	20	19	104	M8	9	15	47	100	85	24	68	134	70
63	20	19	119	M8	9	15	57	105	100	20	80	148	85
80	25	22	148	M10	11	18	72	130	130	25	100	180	105
100	25	22	173	M10	11	18	89	150	150	30	120	206	13

Diameter	L3L	L4	L5	L6	L7	L8	L9	M	P	S
32	97	147	120	64	20	60	102	6.5	12	M10x1.25
40	116	167	125	81	25	63	127	6	12	M12x1.25
50	137	195	140	94	25	70	134	9	16	M16x1.5
63	152	195	160	94	25	75	145	9	16	M16x1.5
80	189	241	195	114	30	89	157	11	20	M20x1.5



ACCESSORIES
HOW TO ORDER
AUTO SWITCH MOUNTING BRACKET

Diameter (mm)	Cylinder	Minimum Stroke (mm)	Part Number Tie Rod Mount Part Auto Switch Mounting Bracket
32	25	BT-03	SFX415
40	25	BT-03	SFX415
50	25	BT-04	SFX415
63	25	BT-04	SFX415
80	50	BT-06	SFX416
100	50	BT-06	SFX416

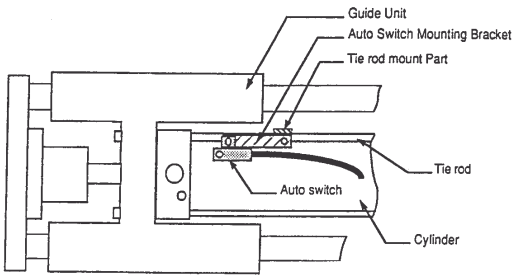
C95 Series
VDMA 24562

Note) Add on a bracket for auto switch tie rod mounting type on Cylinder Series C95 in order to control Extended Cylinder Position.

ACCESSORIES
HOW TO ORDER
STROKE ADJUSTING UNIT (ø12 UP TO ø63)

Diameter (mm)	Cylinder	Guide Rod Length	Part Number Shock Absorber	Part Number Stroke Adjusting Unit
32	C95		RBC1412	SFY(F)133
40	Series		RBC2015	SFY(F)134
50	VDMA		RBC2015	SFY(F)135
63	24562		RBC2015	SFY(F)136

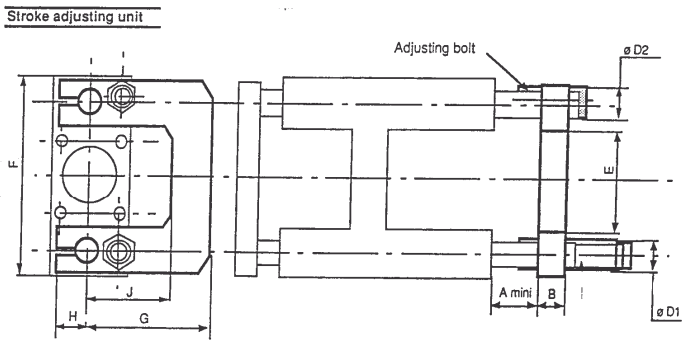
- With Adjusting Bolt
- With One Shock Absorber (Order Separately)



ACCESSORIES - DIMENSIONS
AUTO SWITCH MOUNTING BRACKET
CYLINDER SERIES C95

An auto switch mounting bracket will be added on the tie rod mount part to keep the accessibility of the screw to adjust the auto switch position.

PRECAUTIONS:
Minimum cylinder stroke
Cylinders ø32 up to ø63 Minimum stroke:25mm
Cylinders ø80, ø100 Minimum stroke: 50mm



A minimum length will have to be added on for stroke adjusting unit. (mm)

Diameter	A	B	D1	D2	E	F	G	H	J	Mini Add On Stroke
ø12/16	27	10	M10x1	M6	25	67	52	14	34	37
ø20/25	35.5	12	M14x1.5	M8	41	82	64	17	44	48
ø32	35.5	15	M14x1.5	M8	51	95	78	17	53	51
ø40	45	20	M20x1.5	M10	59	114	87	25	62	65
ø50	45	25	M20x1.5	M10	72	135	98	28	68	70
ø63	45	25	M25x1.5	M10	86	150	118	28	88	70

GUIDE CYLINDER SERIES MGG
BORE SIZES Ø20, 25, 32, 40, Ø50, 63, 80, 100MM

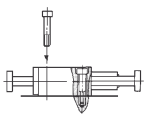
- Ball Bush or Slide Bearing Types
- High Resistance to Side Load
- High Non-Rotating Accuracy
- Magnetic Sensing Standard
- Includes Built-in Shock Absorber
- Extension Stroke is adjustable (By moving Rear Plate)
- Various Mountings possible

TECHNICAL SPECIFICATIONS

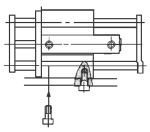
Model		MGG**20	MGG**25	MGG**32	MGG**40	MGG**50
Basic Cylinder		CDG1BN20	CDG1BN25	CDG1BN32	CDG1BN40	CDG1BN50
Bore Size (mm)		20	25	32	40	50
Action		Double Acting				
Fluid		Air				
Proof Pressure		1.5MPa / 218PSI				
Max Operating Pressure		1.0 MPa / 145PSI				
Min Operating Pressure		0.15MPa / 22PSI (At horizontal non-load)				
Ambient and Fluid Temperature		-10 ~ 70°C / 14 ~ 160°F				
Piston Speed		50 ~ 1000mm/s / 2 ~ 40in/s				
Cushion	Basic Cylinder	Rubber Cushion				
	Guide Part	Shock Absorber Built-in (2pcs)				
Adjustable Stroke Range		0 ~ - 10 mm	0 ~ -15mm < (Adjusting bolts built-in) (2pcs) >			
Lubrication		Non-lube				
Thread Tolerance		JIS 2 class				
Stroke Tolerance		+1.9/+0.2mm				
Performance of Non-Rotating	Slide Bearing	±0.06°				
(expect for Bending of Guide Rod)	Ball Bush Bearing	±0.03*				

MOUNTINGS

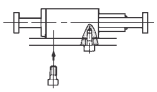
❶Top face mounting



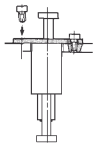
❸Left and right side mounting



❷Bottom face mounting



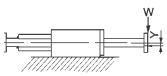
❹Front face flange mountin



MAX. TIP LOAD FOR 300MM STROKE

Bore	MGGM	MGGL
20	20N	23N
25	26N	28N
32	42N	45N
40	65N	45N
50	110N	45N

Slide Bearing



HOW TO ORDER GUIDE CYLINDER SERIES MGG

MGG ○○○ — ○ — ○○ — XC18

BEARING
L .....Ball Bush Bearing
M .....Slide Bearing

MOUNTING
B .....Basic Type
F .....Flange Type

BORE SIZE
20 ...Ø20 •
25 ...Ø25 •
32 ...Ø32 •
40 ...Ø40 •
50 ...Ø50 •
63 ...Ø63
80 ...Ø80
100 ...Ø100

• Local Production Available

STROKE
75
100
125
150
200
250
300

TYPE OF SWITCHES
See Auto Switch Accessories

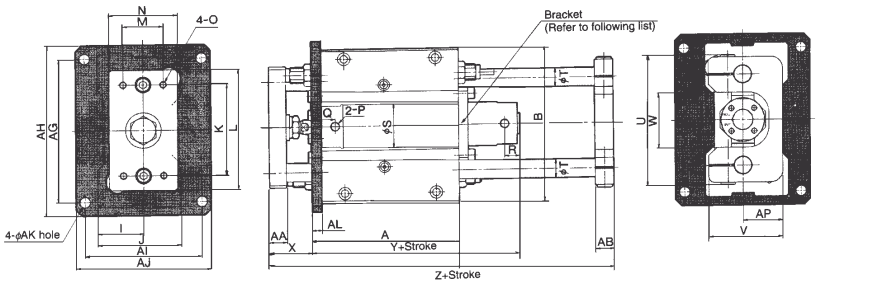
NO OF SWITCHES
- .....2 Switches
S .....1 Switch
n .....n Switches

OPTIONS
- .....None
XC18..NPT Port

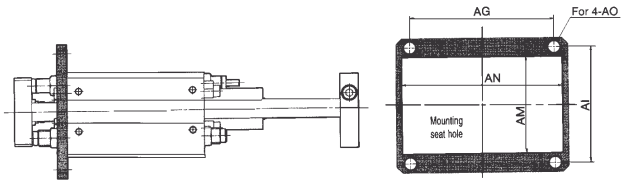
DIMENSIONS SEE NEXT PAGE ☞

SERIES MGG

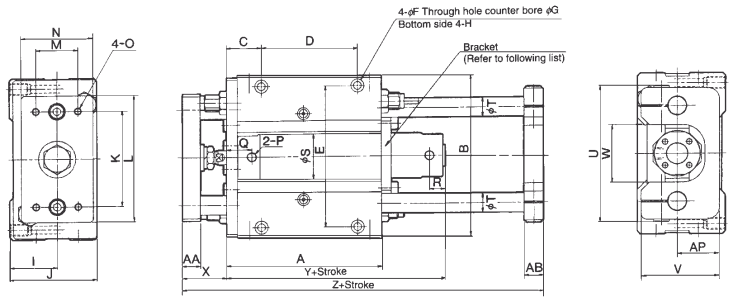
DIMENSIONS FLANGE MOUNT

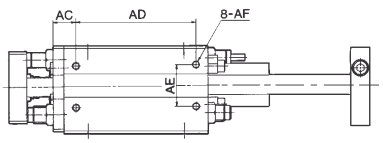


Bore Size (mm)	Stroke range (mm)	AG	AH	AI	AJ	AK	AL	AM	AN	AO
20	75,100,125,150,200	112	125	82	95	6.6	9	65	115	M6
25		134	150	92	108	9	9	75	135	M8
32		134	150	102	118	9	9	85	140	M8
40	75, 100, 125, 150,	170	186	134	150	9	12	105	175	M8
50	200, 250, 300	190	210	140	160	11	12	115	200	M10
63		228	250	158	180	14	12	135	234	M12
80		262	284	178	200	14	16	155	268	M12
100		300	326	200	226	16	16	175	310	M14



DIMENSIONS BASIC TYPE





LONG STROKE

Bore size (mm)	Stroke range (mm)	R	Y
20	250 ~ 400	14	88
25	350 ~ 500	14	88
32	350 ~ 600	14	90
40	350 ~ 800	15	101
50	350 ~ 1000	16	116
63	350 ~ 1100	16	119
80	350 ~ 1200	23	145
100	350 ~ 1300	23	145

BRACKET MOUNTING STROKE

Bore Size (mm)	Bracket Mounting Stroke
20	100st or more
25	125st or more
32	150st or more
40	200st or more
50	250st or more
63	300st or more
80	400st or more
100	500st or more

Bore Size (mm)	Stroke range (mm)	A	AA	AB	AC	AD	AE	AF	AP	B	C	D	E	F	G	H	I	J	K	L
20	75, 100, 125, 150, 200	99	11	13	16.5	75	30	M5X0.8depth10	25	108	24	60	92	5.5	9.5depth6	M8X1.25depth14	30	55	60	80
25		109	15	13	16.5	85	30	M6X1depth12	30	130	26.5	65	113	6.6	11depth8	M10X1.5depth18	35	65	70	100
32	75, 100,	129	15	16	19	100	35	M6X1depth12	35	135	29	80	118	6.6	11depth8	M10X1.5depth18	40	73	80	106
40		152	18	19	22	120	40	M8X1.25 depth 16	45	170	32	100	150	9	14depth10	M12x1.75depth21	50	93	95	134
50	125, 150, 200,	182	23	21	22	150	45	M10X1.5 depth 20	50	194	37	120	170	11	17depth12	M14x2depth25	55	103	115	152
63	250, 300	200	25	25	15	170	50	M12x1.75depth24	60	228	30	140	200	13.5	20depth14.5	M16x2depth28	65	117	135	180
80		230	30	27	15	200	55	M12x1.75depth24	70	262	30	170	230	13.5	20depth20.5	M16x2depth28	75	138	160	214
100		280	32	30	17.5	245	70	M14x2depth28	80	304	35	210	274	15	23depth17	M18x2.5depth32	85	153	190	245

Bore Size (mm)	Stroke range (mm)	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
20	75, 100, 125, 150, 200	25	45	M6X1depth9	1/8	21	14	26	12	86	48	36	30	80	157
25		35	54	M6X1depth13	1/8	21	14	31	13	100	57	42	37	80	175
32	75, 100,	35	60	M6X2depth13	1/8	21	13	38	16	114	65	48	37	82	201
40		50	75	M8X1.25depth16	1/8	25	14	47	20	140	84	58	44	92	238
50	125, 150, 200,	56	90	M10X1.5depth21	1/4	26	15	58	25	164	94	70	55	104	285
63	250, 300	66	100	M12x1.75depth23	1/4	29	14	72	30	192	108	86	54	107	308
80		76	115	M12x1.75depth28	3/8	40	19	89	35	224	128	104	66	131	355
100		80	125	M14x2depth30	1/2	40	19	110	40	262	143	128	66	131	410

ACCESSORIES
AUTO SWITCHES

Applicable Cylinder and Switch Type				
			Indicator Lamp	
Bore Size (mm)	Auto Switch Model	Electrical Entry	Provided	Not Provided
Ø20, Ø25, Ø32, Ø40, Ø50	Reed Switch D-C7 type, D-C8 type, D-B5 type, D-B6 type Solid State switch D-H7 type, D-G5 type, D-K5 type	Grommet•Connector	D-C7 • B5 type D-H7 type 2 colour indication D-B59W type D-G59W type D-K59W type	D-C8 • B6 type

REED SWITCH

Type	Auto Switch No	Load Voltage	Max. Load current and load current range (mA)	Indicator lamp (Lit at ON condition)	Contact protection circuit	Applications	Lead wire entry
D-C7 type • D-C8 type	D-C73L	24VDC	5~40	•	None	Relay Sequence Controller	Grommet
D-C7 type • D-C8 type	D-C73L	100VAC	5~ 20	•	None	Relay Sequence Controller	Grommet
D-C7 type • D-C8 type	D-C76L	4 ~ 8VDC	20	•	None	IC Circuit	Grommet
D-C7 type • D-C8 type	D-C80L	24VAC/DC or less	50	None	None	IC Circuit, Relay, Sequence Controller	Grommet
D-C7 type • D-C8 type	D-C80L	48VAC/DC	40	None	None	IC Circuit, Relay, Sequence Controller	Grommet
D-C7 type • D-C8 type	D-C80L	100VAC/DC	20	None	None	IC Circuit, Relay, Sequence Controller	Grommet
D-C7 type • D-C8 type	D-C73CL	24VDC	5 ~ 40	•	None	Sequence Controller	Connector
D-C7 type • D-C8 type	D-C80CL	24VAC/DC or less	50	None	None	Relay, Sequence Controller	Connector
D-B5 type • D-B6 type	D-B54L	24VDC	5 ~ 50	•	•	Relay, Sequence Controller	Grommet
D-B5 type • D-B6 type	D-B54L	100VAC	5 ~ 25	•	•	Relay, Sequence Controller	Grommet
D-B5 type • D-B6 type	D-B54L	200VAC	5 ~ 12.5	•	•	Relay, Sequence Controller	Grommet
D-B5 type • D-B6 type	D-B53L	24VDC	5 ~ 50	•	None	Sequence Controller	Grommet
D-B5 type • D-B6 type	D-B64L	24VAC/DC or less	50	None	•	Relay, Sequence Controller	Grommet
D-B5 type • D-B6 type	D-B64L	100VAC	25	None	•	Relay, Sequence Controller	Grommet
D-B5 type • D-B6 type	D-B64L	200VAC	12.5	None	•	Relay, Sequence Controller	Grommet
D-B5 type • D-B6 type	D-B59WL	24VDC	5 ~ 40	•	•	Relay, Sequence Controller	Grommet

• Use a contact protective box (P14) for the following cases with D-C7•C8 type. (Connection t inductive load, lead wire of 5m or more and when using 100VAC.
• Lead wire length: 0.5 (standard), 3m (option).
• For D-B59W, the indicator lamp is a two colour indication system with a red light inside the sensitive region and a green light at the optimum position.

SOLID STATE SWITCH

Type	Auto Switch Number	Output Type	Power Voltage (Power Voltage Range)	Load Voltage Load Current
D-H7A type•D-G5 type	D-H7A1L	NPN	5/12/24VDC	28VDC or less 40mA or less
D-H7A type•D-G5 type	D-H7A2L	PNP	5/12/24VDC	28VDC or less 80mA or less
D-H7A type•D-G5 type	D-G59WL	NPN	5/12/24VDC	28VDC or less 40mA or less
D-H7B type•D-H7C type•D-K5 type	D-H7BL	–	–	24VDC (10-28VDC) 5 ~ 40mA
D-H7B type•D-H7C type•D-K5 type	D-H7CL	–	–	24VDC (10-28VDC) 5 ~ 40mA
D-H7B type•D-H7C type•D-K5 type	D-K59WL	–	–	24VDC (10 ~ 28VDC) 5 ~ 40 mA

	Internal Voltage Drop	Indicator Lamp (Lit at ON condition)	Applications	Lead Wire Entry
D-H7A type•D-G5 type	1.5V or less	•	IC circuit, Relay, Sequence controller	Grommet (3 wire system)
D-H7A type•D-G5 type	0.8V or less	•	IC circuit, Relay, Sequence controller	Grommet (3 wire system)
D-H7A type•D-G5 type	1.5V or less	•	IC circuit, Relay, Sequence controller	Grommet (3 wire system)
D-H7B type•D-H7C type•D-K5 type	4V or less	•	24VDC Relay, Sequence Controller	Grommet (2 wire system)
D-H7B type•D-H7C type•D-K5 type	4V or less	•	24VDC Relay, Sequence Controller	Connector (2 wire system)
D-H7B type•D-H7C type•D-K5 type	4V or less	•	24VDC Relay, Sequence controller	Grommet (2 wire system)

• Lead wire length: 0.5m (standard), 3m (option)
* For D-G59W, D-K59W, the indicator lamp is a two colour indication system with a red light inside the sensitive region and a green light at the optimum

ACCESSORIES
SWITCH BANDS

Auto Switch Band Part Numbers					
Auto Switch Type	Bore size (mm)				
	20	25	32	40	50
D-C7/C8•D-H7 type	BMA2-020	BMA2-025	BMA2-032	BMA2-040	BMA2-050
D-B5/B6•D-G5/K5 type	BA-01	BA-02	BA-32	BA-04	BA-05

SERIES MGP

COMPACT GUIDE CYLINDER SERIES MGP Ø12, 16, 20, 25, 32, 40, 50, 63, 80, 100MM

- Ball Bush or Slide Bearing Type
- High Resistance to Side Load
- High Non-rotating Accuracy
- Magnetic Sensing Standard
- Direct Mount Facility
- Space Saving Cylinder
- Smaller Bore Size also available
- Smaller Bore Size also available
- Through Hole Mounting
- 2 Porting Locations

TECHNICAL SPECIFICATIONS SERIES MGP

Action	Double Acting
Fluid	Air
Proof Pressure	1.5MPa / 218PSI
Max Operating Pressure	1.0MPa / 145PSI
Min Operating Pressure	**ø12, ø16**: 0.12MPa / 17.4PSI **ø20-ø100**: 0.1MPa / 14.5PSI
Ambient and Fluid Temp	-10 ~ +60°C / 14 ~ 140°F
Operating Piston Speed	**ø12~ø63**: 50~500mm/s / 2~20in/s **ø80, ø100**: 50~400mm/s / 2~16in/s
Cushion	Rubber Bumper - both ends
Lubrication	Not Required
Stroke Tolerance	0 ~ 1.5mm

HOW TO ORDER COMPACT GUIDE CYLINDER

MGP ○ ○ ○ — ○ — ○ ○

TYPE OF BEARING
M .....Slide Bearing
L .....Ballbush Bearing

PORTING
- .....PT
N .....NPT

BORE SIZE
12 ...12mm
16 ...16mm
20 ...20mm
25 ...25mm
32 ...32mm
40 ...40mm
50 ...50mm
63 ...63mm
80 ...80mm
100 ...100mm

STROKE (MM)
See table with Standard Stroke

AUTO SWITCH TYPE
See Accessories: Auto Switch

NO OF SWITCHES
- .....2 Pieces
S .....1 Piece

LOAD DATA PERMISSIBLE LATERAL LOAD

W (N) 1N = 0.102kgf

		Stroke (mm)											
Bore Size	Model	10	20	25	30	40	50	75	100	125	150	175	200
12	MGPM	24	19		17	14	13	26	22	-	-	-	-
12	MGPL	37	27		22	35	30	23	18	-	-	-	-
16	MGPM	38	31		27	23	21	37	32	-	-	-	-
16	MGPL	54	40		32	54	47	35	28	-	-	-	-
20	MGPM		49		43	38	35	87	75	66	59	54	49
20	MGPL		58		48	101	90	70	58	62	54	48	43
25	MGPM		69		60	54	49	116	100	88	79	71	65
25	MGPL		82		68	132	118	93	77	80	70	62	55
32	MGPM			203			164	182	159	142	127	116	106
32	MGPL			113			78	130	107	130	114	101	90
40	MGPM			203			164	182	159	142	127	116	106
40	MGPL			113			78	129	106	130	114	101	90
50	MGPM			296			245	273	241	216	195	179	164
50	MGPL			120			83	178	148	148	129	114	102
63	MGPM			296			245	273	241	216	195	179	164
63	MGPL			117			81	176	145	145	126	111	99
80	MGPM			352			297	368	329	298	272	251	232
80	MGPL			125			99	281	240	208	184	163	147
100	MGPM			515			445	498	450	410	377	349	325
100	MGPL			138			108	395	340	297	263	235	211

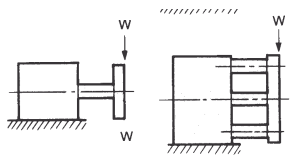
ACCESSORIES AUTO SWITCHES SERIES MGP

Note: Pre-wired Switches with 3/4 Pin Connectors available

Auto Switch Model No		Type	Special Function	Electrical Entry	Indicator	Wiring (Output)	Lead voltage		
Electrical Entry Direction							DC		AC
Perpendicular	Inline								
-	D-Z76	Reed Switch	-	Grommet	Available	3 Wire	-	5V	-
-	D-Z73					2 Wire	24V	-	100V
-	D-Z80				Not Available			5V	100V
								12V	or less
D-Y69A	D-Y59A	Solid State Switch	-	Grommet	Available	3 Wire NPN	24V	5V	-
D-Y69B	D-Y59B					2 Wire		12V	
D-Y7NWV	D-Y7NW		Diagnostic Indication (2 Color Indication)			3 Wire NPN		12V	
D-Y7PWV	D-Y7PW					3 Wire PNP		5V	
D-Y7BWV	D-Y7BW					2 Wire		12V	
-	D-Y7BAL		Water Resistant (2 Color Indication)					12V	

Model	Standard Stroke (mm)	Intermediate Stroke
MGP M, L 12, 16	10, 20, 30, 40, 50, 75, 100	A Spacer of 5, 10, 15 and 20mm is used for intermediate stroke (5 stroke pitch) except standard stroke.
MGP M, L 20, 25	20, 30, 40, 50, 75, 100, 125, 150, 175, 200	
MGP M, L 32, 40, 50, 63, 80, 100	25, 50, 75, 100, 125, 150, 175, 200	

PERMISSIBLE LATERAL LOAD W



Newtons

NON ROTATING ACCURACY

Ø12•16: Slide bearing .....±0.08°
Ball bush bearing ...±0.10°
Ø20•25: Slide bearing .....±0.07°
Ball bush bearing ...±0.09°
Ø32•40: Slide bearing .....±0.06°
Ball bush bearing ...±0.08°
Ø50•63: Slide bearing .....±0.05°
Ball bush bearing ...±0.06°
Ø80•100: Slide bearing .....±0.04°
Ball bush bearing ±0.05°
(Except for bending of Guide Rod)

DIMENSIONS SEE NEXT PAGE ☞

DIMENSIONS
SERIES MGP COMMON DIMENSIONS FOR MGPL & MGPM

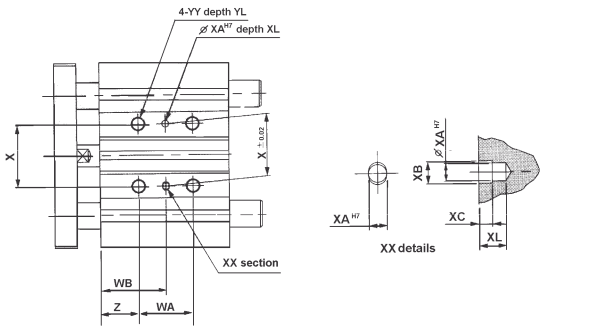
Bore Size (mm)	B	C	DA	FA	FB	G	GA	GB	GC	H	HA	J	JA	JB	K	L	MM	ML	NN	OA	OB	OL
12	42	29	6	8	5	26	11	7.5	-	58	M4	13	-	-	13	18	M4x0.7	10	M4x0.7	4.3	8	4.5
16	46	33	8	8	5	30	11	8	-	64	M4	15	-	-	15	22	M5x0.8	12	M5x0.8	4.3	8	4.5
20	53	37	10	10	6	36	10.5	8.5	-	83	M5	18	-	-	18	24	M5x0.8	13	M5x0.8	5.6	9.5	5.5
25	53.5	37.5	12	10	6	42	11.5	9	-	93	M5	21	-	-	21	30	M6x1.0	15	M6x1.0	5.6	9.5	5.5
32	59.5	37.5	16	12	10	48	12.5	9	12.5	112	M6	24	-	-	24	34	M8x1.25	20	M8x1.25	6.6	11	7.5
40	66	44	16	12	10	54	14	10	14	120	M6	27	-	-	27	40	M8x1.25	20	M8x1.25	6.6	11	7.5
50	72	44	20	16	12	64	14	11	12	148	M8	32	-	-	32	46	M10x1.5	22	M10x1.5	8.6	14	9
63	77	49	20	16	12	78	16.5	13.5	16.5	162	M10	39	-	-	39	58	M10x1.5	22	M10x1.5	8.6	14	9
80	96.5	56.5	25	22	18	91.5	19	15.5	14.5	202	M12	45.5	38	7.5	46	54	M12x1.75	30	M12x1.75	10.6	17.5	8
100	116	66	30	25	25	111.5	23	19	18	240	M14	55.5	45	10.5	56	62	M14x2.0	32	M14x2.0	12.5	20	8

Bore Size (mm)	P	PA	PB	PW	Q	R	S	T	U	VA	VB	X	XA	XB	XC	XL	YL	YY	Z
12	M5x0.8	13	8	18	14	48	22	56	41	50	37	23	3	3.5	3	6	10	M5x0.8	5
16	M15x0.8	15	10	19	16	54	25	62	46	56	38	24	3	3.5	3	6	10	M5x0.8	5
20	Rc1/8	12.5	10.5	25	18	70	30	81	54	72	44	28	3	3.5	3	6	12	M6x1.0	17
25	Rc1/8	12.5	13.5	28.5	26	78	38	91	64	82	50	34	4	4.5	3	6	12	M6x1.0	17
32	Rc1/8	7	15	34	30	96	44	110	78	98	63	42	4	4.5	3	6	16	M8x1.25	21
40	Rc1/8	13	18	38	30	104	44	118	86	106	72	50	4	4.5	3	6	16	M8x1.25	22
50	Rc1/4	9	21.5	47	40	130	60	146	110	130	92	66	5	6	4	8	20	M10x1.5	24
63	Rc1/4	14	28	55	50	130	70	158	124	142	110	80	5	6	4	8	20	M10x1.5	24
80	Rc3/8	14.5	25.5	74	52	174	75	198	156	180	140	100	6	7	5	10	24	M12x1.75	28
100	Rc3/8	17.5	32.5	89	64	210	90	236	188	210	166	124	6	7	5	10	28	M14x2	11

DIMENSIONS
SERIES MGP ø12 ~ ø25

MGP ø12 ~ ø25

Bore Size (mm)	Standard Stroke (mm)	WA			WB		
		Under 30st	Over 300st Under 100st	Over 100st	Under 30st	Over 300st Under 100st	Over 100st
12	10, 20, 30, 40, 50,	20	40	-	15	25	-
16	75, 100	24	44	-	17	27	-
20	20, 30, 40, 50, 75,	24	44	120	29	39	77
25	100,125 150, 175, 200	24	44	120	29	39	77

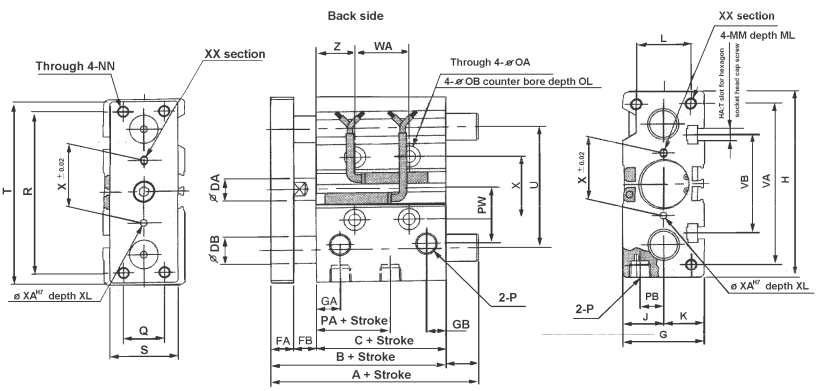


MGPM (Slide Bearing) Dimensions A, DB, E

Bore Size (mm)	A		DB	E	
	Under 50st	Over 50st		Under 50st	Over 50st
12	42	60.5	8	0	18.5
16	46	64.5	10	0	18.5
20	53	84.5	12	0	31.5
25	53.5	85	16	0	31.5

MGPL (Ball Bush Bearing) Dimensions A, DB, E

Bore Size (mm)	A			DB	E		
	Under 30st	>30st <100st	Over 100st		Under 30st	Over 30st Under 100st	Over 100st
12	43	55	-	6	1	13	-
16	49	65	-	8	3	19	-
20	63	80	108	10	10	27	51
25	63.5	85.5	108.5	13	16	32	51



DIMENSIONS
SERIES MGP ø32 ~ ø63

MGP ø32 ~ ø63

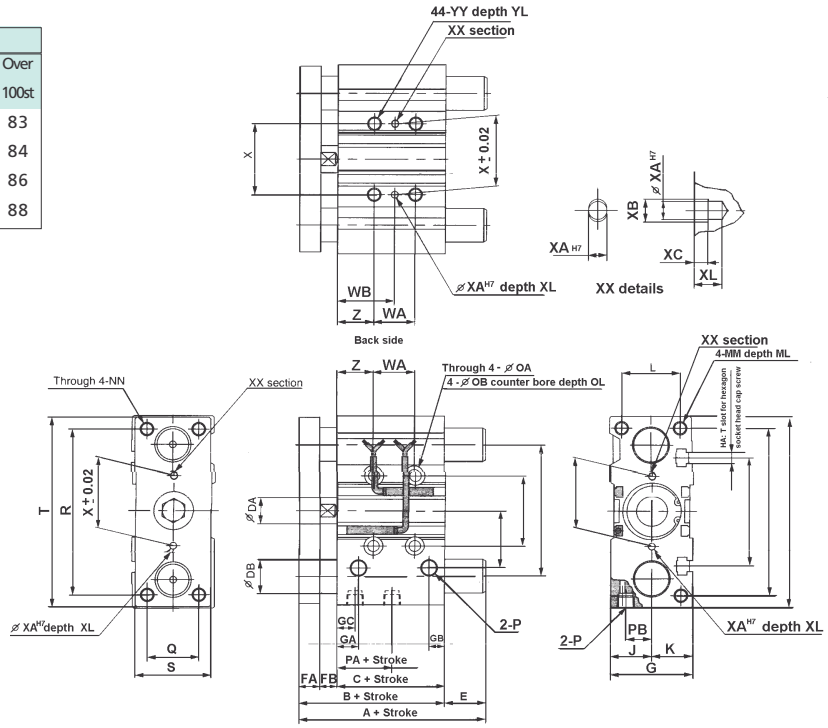
Bore Size (mm)	Standard Stroke (mm)	WA			WB		
		25st	50, 75, 100st	Over 100st	25st	50, 75, 100st	Over 100st
32	25, 50, 75, 100, 125, 150, 175, 200	24	48	124	33	45	83
40		24	48	124	34	46	84
50		24	48	124	36	48	86
63		28	52	128	38	50	88

MGPM (Slide Bearing) Dimensions A, DB, E

Bore Size (mm)	A		DB	E	
	25, 50st	Over 50st		25, 50st	Over 50st
32	97	102	20	37.5	42.5
40	97	102	20	31	36
50	106.5	118	25	34.5	46
63	106.5	118	25	29.5	41

MGPL (Ball Bush Bearing) Dimensions A, DB, E

Bore Size (mm)	A			DB	E		
	25, 50st	75, 100st	Over 100st		25, 50st	75, 100st	Over 100st
32	81	98	118	16	21.5	38.5	58.5
40	81	98	118	16	15	32	52
50	93	114	134	20	21	42	62
63	93	114	134	20	16	37	57



DIMENSIONS
SERIES MGP ø80 ~ ø100

MGP ø80 ~ ø100

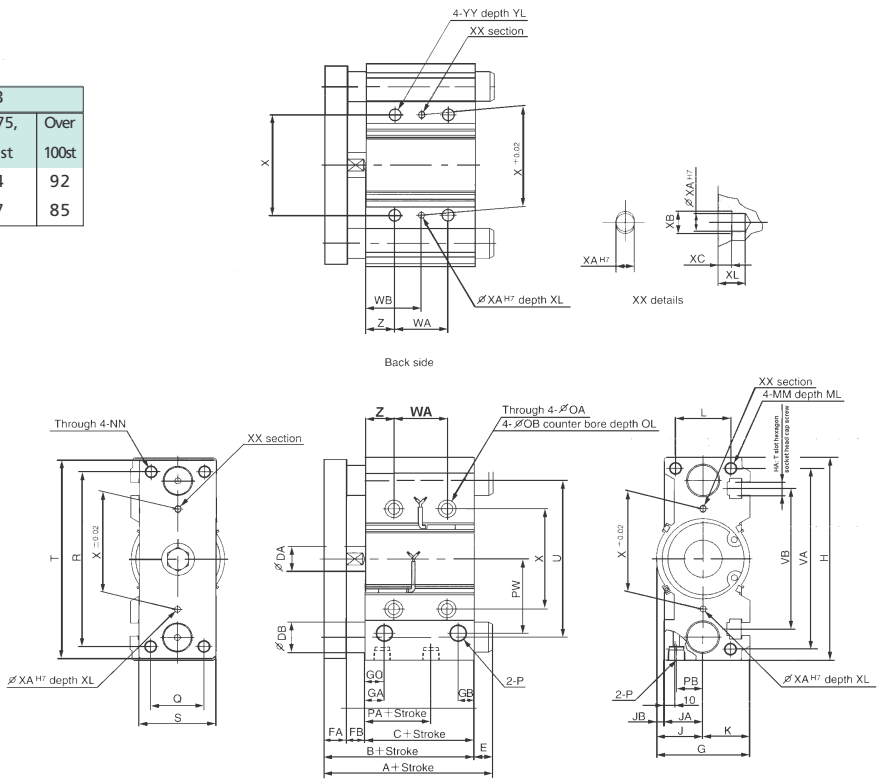
Bore Size (mm)	Standard Stroke (mm)	WA			WB		
		25st	50, 75, 100st	Over 100st	25st	50, 75, 100st	Over 100st
80	25, 50, 75, 100, 125, 150, 175, 200	28	52	128	42	54	92
100		48	72	148	35	47	85

MGPM (Slide Bearing) Dimensions A, DB, E

Bore Size (mm)	A		DB	E	
	25, 50st	Over 50st		25, 50st	Over 50st
80	115	142	30	18.5	45.5
100	137	162	36	21	46

MGPL (Ball Bush Bearing) Dimensions A, DB, E

Bore Size (mm)	A			DB	E		
	25st	50st	Over 75st		25st	50st	Over 75st
80	109.5	130	160	25	13	33.5	63.5
100	121	147	180	30	5	31	64



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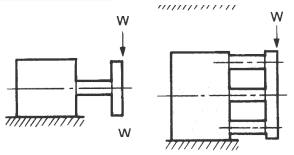


Newtons

		Stroke (mm)							
Bore Size	Model	10	20	25	30	40	50	75	100
12	MGQM	21	18		15	13	12		
12	MGQL	27	22		17	21	19		
16	MGQM	34	28		25	22	19		
16	MGQL	38	30		26	37	33		
20	MGQM		51		44	38	34	57	49
20	MGQL		55		47	78	69	53	44
25	MGQM		70		60	53	47	77	65
25	MGQL		71		61	77	72	59	51
32	MGQM			196			167	137	108
32	MGQL			88			59	275	216
40	MGQM			196			167	137	108
40	MGQL			88			59	275	216
50	MGQM			294			255	215	176
50	MGQL			137			88	392	313
63	MGQM			294			255	215	176
63	MGQL			137			88	392	313
80	MGQM			353			304	255	206
80	MGQL			235			157	863	686
100	MGQM			539			470	412	343
100	MGQL			470			313	1370	1070

COMPACT GUIDE CYLINDER SERIES MGQ Ø12, 16, 20, 25, 32, 40, 50, 63, 80, 100MM

- Ball Bush or Slide Bearing Type
- High Resistance to Side Load
- High Non-rotating Accuracy
- Magnetic Sensing Standard
- Direct Mount Facility
- Space Saving Cylinder

TECHNICAL SPECIFICATIONS

Operation	Double Acting
Fluid	Air
Proof Pressure	1.5MPa / 218PSI
Max Operating Pressure	1.0MPa / 145PSI
Min Operating Pressure	Ø12m, Ø160 : 12MPa / 18PSI
	Ø20 ~ Ø100 : 0.1MPa / 14.5PSI
Ambient and Fluid Temperature	-10 ~ 60°C / 14 ~ 140°F
Piston Speed	Ø12 ~ Ø63 : 50 ~ 600 mm/s / 2 ~ 24in/s
	Ø80 ~ Ø100 : 50 ~ 400 mm/s / 2 ~ 16in/s
Cushion	Rubber cushion at both sides
Lubrication	Non-lubrication
Stroke Tolerance	0 ~ 1.5mm

NON ROTATING ACCURACY

Ø12•16: Slide bearing ±0.08°
Ball bush bearing ±0.10°
Ø20•25: Slide bearing ±0.07°
Ball bush bearing ±0.09°
Ø32•40: Slide bearing ±0.06°
Ball bush bearing ±0.08°
Ø50•63: Slide bearing ±0.05°
Ball bush bearing ±0.06°
Ø80•100: Slide bearing ±0.04
Ball bush bearing ±0.05
(Except for bending of Guide Rod)

ACCESSORIES AUTOSWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available

DIMENSIONS SEE NEXT PAGE ☞

Model		Load Voltage	Load Current	Power Source	Internal Voltage Drop	Indicator Lamp	Lead Wire Length
Part No Grommet type	Part No Connector type						
D-Z73L	Reed	24VDC 100VAC	5~40mA 5~20mA		Max 2.4V	ON:RED LED	3m
D-Z80L	Reed	24VDC/AC or less 100VDC/AC	Max 50mA Max 20mA			None	3m
D-Y59AL	3 Wire Solid State NPN	28VDC or less	Max 150mA	5~28VDC	0.8V Max	ON:RED LED	3m
D-Y7PL	3 Wire Solid State PNP	28VDC or less	Max 100mA	5~28VDC	0.8V Max	ON:RED LED	3m
D-Y59BL	2 Wire Solid State	28VDC or less	5~150mA		3V Max	ON:RED LED	3m

HOW TO ORDER COMPACT GUIDE CYLINDER

MGQ ○○ — ○ — ○○ — ○

TYPE OF BEARING
M .....Slide Bearing
L .....Ball Bush Bearing

BORE SIZE
12 ...12mm
16 ...16mm
20 ...20mm
25 ...25mm
32 ...32mm
40 ...40mm
50 ...50mm
63 ...63mm
80 ...80mm
100 ...100mm

CYLINDER STROKE (MM)
Standard - 10, 20, 25, 30, 40, 50, 75, 100

AUTO SWITCH TYPE
See Accessories Section

NO OF AUTO SWITCH
- .....2 Pieces
S .....1 Piece

OPTIONS
- .....None
XC18..NPT Ports

TECHNICAL SPECIFICATIONS

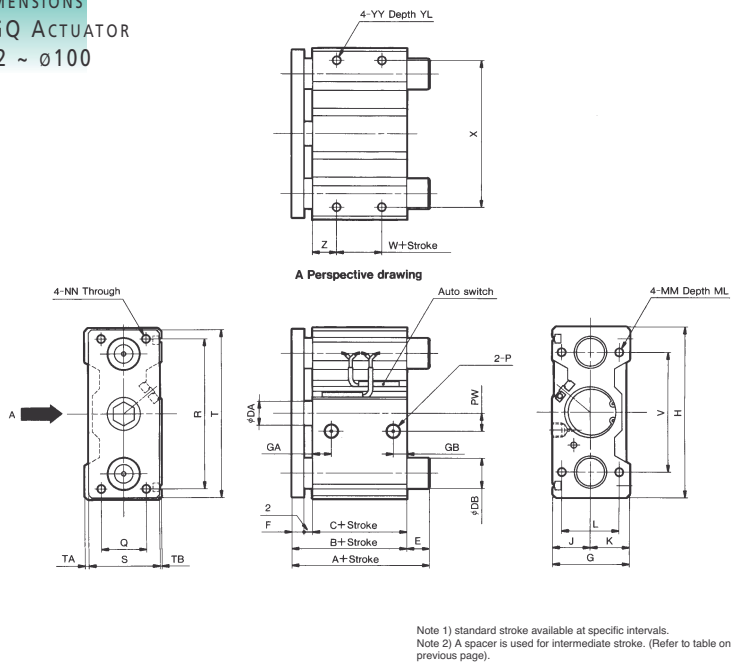
MODEL / STANDARD STROKE TABLE SERIES MGQ

Model	Type Of Bearing	Model, Bore Size (mm)	Standard Stroke (mm)
MGQM	Slide Bearing	MGQ$^{M}_{L}$12, 16	10, 20, 30, 40, 50
MGQL	Ball Bush Bearing	MGQ$^{M}_{L}$20, 25	20, 30, 40, 50, 75, 100
		MGQ$^{M}_{L}$32, 40, 50, 63, 80, 100	25, 50, 75, 100

• Intermediate Stroke
As to intermediate stroke (5, 10, 15, 20, 30, 35 .....), spacer of 5, 10, 15, 20mm width will be used.

SERIES MGQ

DIMENSIONS MGQ ACTUATOR ø32 ~ ø100



Note 1) standard stroke available at specific intervals.
Note 2) A spacer is used for intermediate stroke. (Refer to table on previous page).

MGQL (BALL BUSH BEARING)

Bore size	A		DB	E	
	25,50st	75,100st		25,50st	75,100st
32	53	90	16	5.5	42.5
40	54	90	16	0	36
50	60	102	20	4	46
63	61	102	20	0	41
80	84	143	25	9.5	68.5
100	89	153	30	5	69

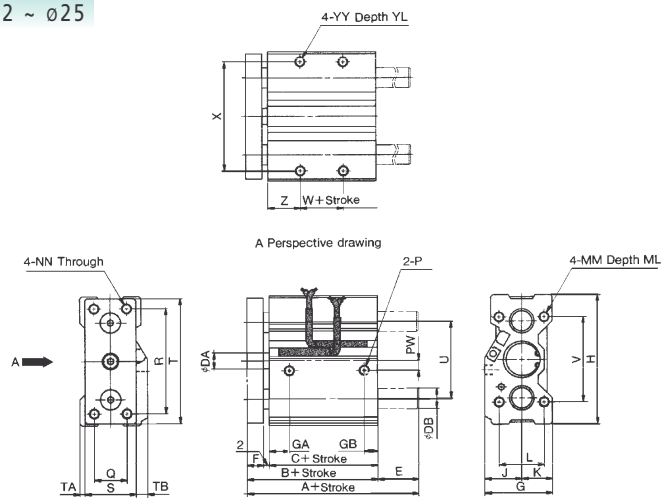
Other dimensions are the same as for slide bearing.

MGQM (SLIDE BEARING)

Bore Size (mm)	A	DB	E
32	71.5	20	24
40	71.5	20	17.5
50	81	25	25
63	81	25	20
80	93	28	18.5
100	105	36	21

Bore size	A	B	C	DA	DB	E	F	G	GA	GB	H	J	K	L	MM	ML	NN	P	PW
12	39	39	29	6	8	0	8	29	11	7.5	58	16	13	18	M4 x 0.7	10	M4 x 0.7	M5	7
16	43	43	33	8	10	0	8	33	11	8	64	18	15	22	M5 x 0.8	13	M5 x 0.8	M5	5
20	47	47	37	10	12	0	8	36	10.5	8.5	74	19	17	26	M5 x 0.8	13	M5 x 0.8	1/8	7
25	47.5	47.5	37.5	12	16	0	8	42	11.5	9	88	21	21	32	M6 x 1.0	15	M6 x 1.0	1/8	8
32	71.5	47.5	37.5	16	20	24	8	51	12.5	9	114	25	26	38	M8 x 1.25	16	M8 x 1.25	1/8	15
40	71.5	54	44	16	20	17.5	8	51	14	10	124	25	26	38	M8 x 1.25	16	M8x1.25	1/8	21
50	81	56	44	20	25	25	10	59	14	11	140	29	30	44	M10 x 1.5	20	M10 x 1.5	1/4	27
63	81	61	49	20	25	20	10	72	16.5	13.5	150	35.5	36.5	44	M10 x 1.5	20	M10 x 1.5	1/4	33
80	93	74.5	56.5	25	28	18.5	16	92	19	15.5	188	45.5	46.5	56	M12 x 1.75	24	M12 x 1.75	3/8	37
100	105	84	66	30	36	21	16	112	23	19	224	55.5	56.5	62	M14 x 2	28	M14 x 2	3/8	40

DIMENSIONS MGQ ACTUATOR ø12 ~ ø25



Bore size	Q	R	S	T	TA	TB	V	W	X	YY	YL	Z
12	14	48	22	56	2	5	40	5	50	M4 x 0.7	7	12
16	16	52	25	62	2.5	5.5	42	7	54	M5 x 0.8	8	13
20	18	60	30	72	2	4	52	10	64	M5 x 0.8	8	13
25	26	70	38	86	2	2	62	10	76	M6 x 1.0	9	14
32	30	96	48	112	2	1	80	5	100	M8 x 1.25	11	16
40	30	106	48	122	2	1	90	10	110	M8 x 1.25	11	17
50	40	120	56	138	2	1	100	10	124	M10 x 1.5	12.5	17
63	50	130	69	148	2	1	110	10	132	M10 x 1.5	15	19
80	60	160	88	185	2.5	1.5	140	15	166	M12 x 1.75	18	21
100	80	190	108	221	2.5	1.5	170	15	200	M14 X 2	21	25

MGQM (Slide Bearing) ø12 ~ ø25

Bore Size (mm)	A		DB	E	
	50st or less	75st, 100st		50st or less	75st, 100st
12	39	-	8	0	-
16	43	-	10	0	-
20	47	61.5	12	0	14.5
25	47.5	62	16	0	14.5

MGQL (Ball Bush Bearing) ø12 ~ ø25

Bore Size (mm)	A		DB	E	
	30st or less	40st or more		30st or less	40st or more
12	43	55	6	4	16
16	49	65	8	6	22
20	57	74	10	10	27
25	63.5	79.5	13	16	32

SERIES NCY2 RODLESS CYLINDER

- Bore sizes: 6, 10, 15, 25, 32, 40mm
- Mounting Space reduced by half
- Basic or Guided Designs
- High Load Capability
- Long Stroke Availability
- No leakage, long life
- Shock Absorbers (Optional) in Guided Slider Type

TECHNICAL SPECIFICATIONS
BASIC TYPE NCY2B

Media	Air
Test Pressure	1MPa / 152 PSI
Max Operating Oressure	ø6 & 10: 0.6MPa / 85 PSI ; ø15~40: 0.7MPa / 101PSI
Min Operating Pressure	0.18MPa / 26 PSI
Ambient & Fluid Temperature	-10 ~ 60°C / 14 ~ 140°F
Piston Speed	50~400mm/s / 2 ~ 16 in/sec
Cushion	Rubber Custion at both ends
Lubrication	Not Required
Stroke Tolerance (mm)	0 ~ 9.9st: $^{+0.394}_{0}$, 10 ~ 39.4st: $^{+0.55}_{0}$, 39.5st ~ : $^{+0.7}_{0}$
Mounting Nut	Standardized for Basic Type only (2 pieces)

RETAINING FORCE(LBF)

1 Kg = 2.2 lbs
1N = 0.101972kgf

Magnetic Holding Power	ø6	ø10	ø15	ø25	ø32	ø40
H Type	4.85	13.33	33.95	89.70	145.50	227.94

WEIGHT LIMITATIONS OF MOUNTING FITTINGS

Model	Maximum Weight (N)
NCY2B6H	2
NCY2B10H	4
NCY2B15•	10
NCY2B25•	12
NCY2B32•	15
NCY2B40•	20

The NCY2 series does not allow direct mounting of the load.
The load must be guided by other means. The mounting fittings for the load should be designed to meet the weight limits shown in this table.

HOW TO ORDER NCY2B RODLESS CYLINDER

NCY2 B ○○ — ○○ — ○

TYPE
B .....Basic

BORE (MM)
6 .....1/4"
10 ...3/8"
15 ...5/8"
25 ...1"
32 ...1 1/4"
40 ...1 1/2"

MAGNETIC HOLDING POWER
H .....Heavy Duty

STROKE (INCH)

STROKE 1/100TH OF AN INCH

OPTIONS
X116 ....Air Hydro
XB13 ....Low Speed

Bore Size	Standard Stroke (inch)	Maximum Stroke (inch)
ø6	2, 3, 4, 5, 6, 8, 10	12
ø10	2, 3, 4, 5, 6, 8, 10	20
ø15	5, 10, 15, 20, 25, 30	40
ø25	5, 10, 15, 20, 25, 30, 40	80
ø32	5, 10, 15, 20, 25, 30, 40	80
ø40	5, 10, 15, 20, 25, 30, 40	80

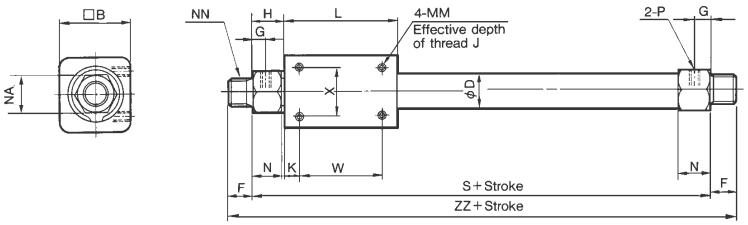
ACCESSORIES NCY2 RODLESS CYLINDER

SEAL KITS
ø6 ....CY2B6-PS
ø10 ....CY2B10-PS
ø15 ....CY2B15-PS
ø25 ....CY2B25-PS
ø32 ....CY2B32-PS
ø40 ....CY2B40-PS

NON-GUIDED MOUNTINGNUT
NSNJ-015 (Ø6/10/15)
NSN-03 (Ø25/32)
NSN-04 (Ø40)

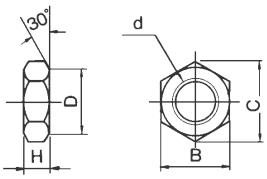
Note: Avoid using an intermediate stop to prevent the Magnetic Piston from de-coupling

DIMENSIONS
NCY2B6•10•15



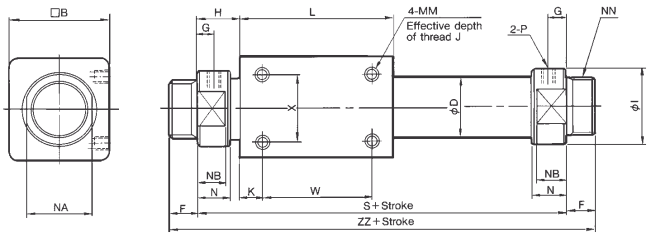
Model	Stroke Range	øD	□B	F	G	H	K	L	N	NA	MM	J	NN	P	S	W	X	ZZ
NCY2B6	~12 inch	0.30	0.67	0.37	0.20	0.56	0.19	1.38	0.41	0.55	No 5-40UNC	0.16	3/8-24 UNF	No 10-32 UNF	2.50	1.00	0.39	3.24
NCY2B10	~20 inch	0.47	0.98	0.37	0.20	0.50	0.19	1.50	0.44	0.55	No 5-40UNC	0.18	3/8-24 UNF	No 10-32 UNF	2.50	1.13	0.63	3.24
NCY2B15	~40 inch	0.67	1.38	0.37	0.22	0.50	0.37	2.24	0.43	0.67	No 8-32 UNC	0.24	3/8-24 UNF	No 10-32 UNF	3.25	1.50	0.75	3.99

DIMENSIONS
MOUNTING NUT



Part No	Applicable Bore Size	d	B	C	D	H
NSNJ-015	ø6, ø10, ø15	3/8-24 UNF	0.55	0.64	0.55	0.12
NSN-03	ø25, ø32	1-12 UNF	1.26	1.57	1.22	0.31
NSN-04	ø40	1 1/4-12 UNF	1.61	1.86	1.54	0.43

DIMENSIONS
NCY2B25•32•40



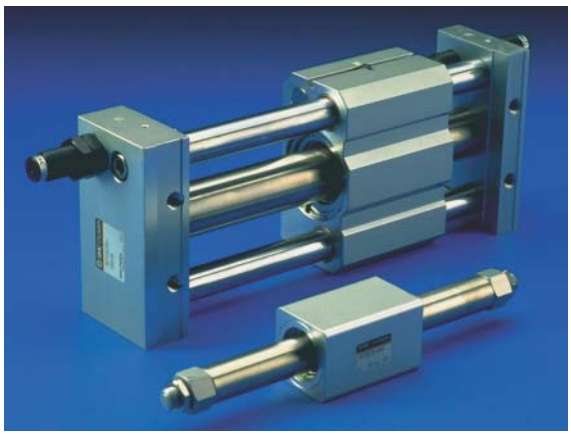
Model	Stroke Range	øD	□B	F	G	H	øI	K	L	N	NA	NB	MM	J	NN	P	S	W	X	ZZ
NCY2B25	~80 inch	1.09	1.81	0.50	0.31	0.81	1.34	0.38	2.76	0.59	1.18	0.51	No 10-32UNC	0.31	1-12 UNF	NPT 1/8	4.38	2.00	1.25	5.38
NCY2B32	~80 inch	1.38	2.36	0.63	0.35	0.87	1.58	0.51	3.15	0.67	1.42	0.59	1/4-28 UNC	0.31	1-12 UNF	NPT 1/8	4.88	2.13	1.63	6.14
NCY2B40	~80 inch	1.69	2.76	0.63	0.43	1.13	1.97	0.56	3.62	0.81	1.81	0.75	1/4-28 UNC	0.39	1 1/4-12 UNF	NPT 1/4	5.88	2.50	1.63	7.14

DIMENSIONS
SEE NEXT PAGE ☞

TECHNICAL SPECIFICATIONS

SLIDE BEARING TYPE NCY2S

Fluid	Air
Proof Pressure	1.05MPa / 152 PSI
Max Operating Pressure	0.7MPa / 101 PSI
Min Operating Pressure	0.18MPa / 26 PSI
Ambient and Fluid Temp	-10 ~ 60°C / 14 ~ 140°F
Operating Piston Speed	50 ~ 400mm/s / 2 ~ 16 in/sec
Cushion	Urethane Cushion at both ends
Lubrication	Not required
Stroke Tolerance (Inch)	0 ~ 9.9st: $^{+0.394}_{0}$, 10 ~ 39.4st: $^{+0.55}_{0}$, 39.5st ~ : $^{+0.07}_{0}$



Top: NCY2 Slide Bearing Type
Bottom: NCY2 Basic Type

RETAINING FORCE(LBF)

1 Kg = 2.2 lbs
1N = 0.101972kgf

Magnetic Holding Power	ø6	ø10	ø15	ø25	ø32	ø40
H Type	4.85	13.33	33.95	89.70	145.50	227.94

HOW TO ORDER

NCY2S MAGNETICALLY COUPLED RODLESS CYLINDER

NC ○ Y2 S ○ ○ — ○ ○ ○ — ○ ○ ○

AUTO SWITCH CAPABLE
- .....Basic
D .....With Auto Switch

MOUNTING
S .....Slider Type

BORE SIZE

mm	inch
6	1/4
10 ...	3/8
15 ...	5/8
25 ...	1
32 ...	1 1/4
40 ...	1 1/2

MAGNETIC HOLDING POWER
H .....Heavy Duty

STROKE (INCH)

STROKE 1/100TH OF AN INCH

STROKE ADJUSTMENT
- .....Adjustment Bolt
B .....W/Shock Absorber
BC .....W/Cap Type Shock Absorber
BCS .....W/One Cap Type Shock Absorber

APPLICABLE AUTO SWITCH
See Accessories: Auto Switch

NO OF SWITCHES
- .....2 Pieces
S .....Single Piece
n .....n Pieces

OPTIONS
X116 ....Air Hydro
XB13 ....Low Speed

Bore Size	Standard Stroke (inch)	Maximum Stroke (inch)
ø6	2, 3, 4, 5, 6, 8, 10	12
ø10	2, 3, 4, 5, 6, 8, 10	20
ø15	5, 10, 15, 20, 25, 30	30
ø25	5, 10, 15, 20, 25, 30, 40	60
ø32	5, 10, 15, 20, 25, 30, 40	60
ø40	5, 10, 15, 20, 25, 30, 40	60

ACCESSORIES
SERIES NCY2
NCY2S RODLESS CYLINDER

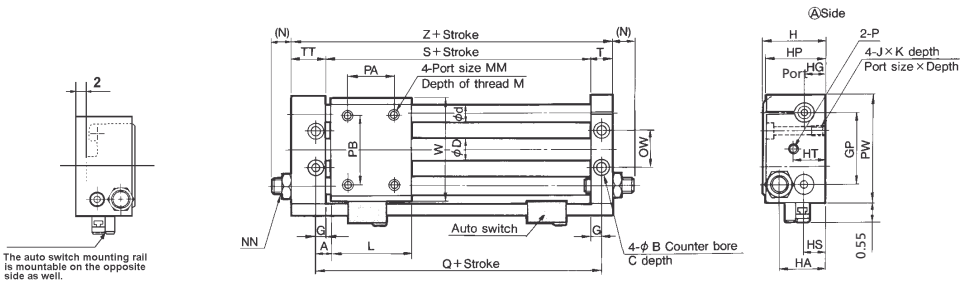
Seal Kits		Shock Absorber	
ø6	CY2S6-PS	ø6	NRB37-025
ø10	CY2S10-PS	ø10	NRB37-025
ø15	CY2S15-PS	ø15	NRB50-030
ø25	CY2S25-PS	ø25	NRB56-045
ø32	CY2S32-PS	ø32	NRB75-045
ø40	CY2S40-PS	ø40	NRB75-045

ACCESSORIES
SERIES NCY2
AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available

Model	Type	Load Voltage	Max Load Current and Load Current Range (mA)
D-A72, D-A72H	Reed	200VAC	5 ~10 mA
D-A73, D-A73H	Reed	24VDC 100VAC	5 ~ 40 mA 5 ~ 20mA
D-A76H	Reed	4 ~ 8 VDC	20mA
D-A80, D-A80H	Reed	24VAC/DC or less 48AC/DC 100VAC/DC	50mA 40mA 20mA
D-A73C	Reed	24VDC	5 ~40 mA
D-A-80C	Reed	24VAC/DC or less	50mA
D-F79	3 Wire Solid State NPN	28VDC or less	40mA or less
D-F7P	3 Wire Solid State PNP	-	80mA or less
D-J79	2 Wire Solid State	24VDC (10~28VDC)	5 ~ 40mA
D-F7NV	3 Wire Solid State NPN	28VDC or less	40mA or less
D-F7PV	3 Wire Solid State PNP	-	80mA or less
D-F7BV	2 Wire Solid State	24VDC (10~28VDC)	5 ~ 40mA
D-F7PW	3 Wire Solid State PNP	-	80mA or less
D-J79W	2 Wire Solid State	24VDC (10~28VDC)	5 ~40mA
D-F7BAL	2 Wire Solid State	24VDC (10~28VDC)	5 ~40mA
D-J79C	2 Wire Solid State	24VDC (10~28VDC)	5 ~ 40mA
D-F7LF	4 Wire Solid State NPN	26VDC or less	40mA or less
D-F79F	4 Wire Solid State NPN	28VDC or less	40mA or less
D-F7NTL	3 Wire Solid State NPN	28VDC or less	80mA or less

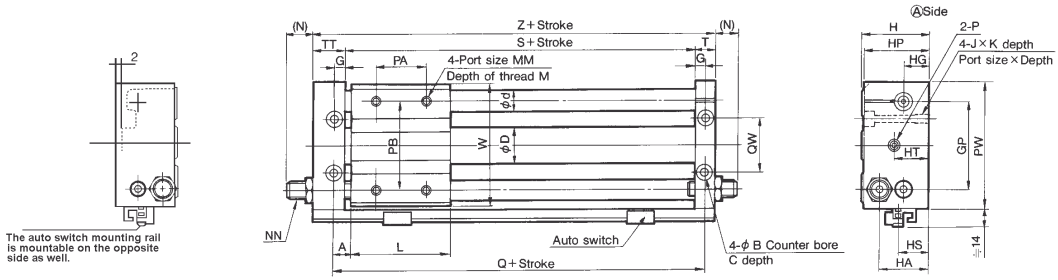
DIMENSIONS
NC(D)Y2S 6 • 10



Model	Stroke Range	A	øB	C	øD	ød	G	GP	H	HA	HG	HP	HS	HT	J x K	L	LD	M	MM	(N)	NN
NCY2S6 NCDY2S6	~12 inch	0.26	0.26	0.13	0.30	0.31	0.20	1.26	1.06	0.75	0.31	1.02	0.31	0.67	No8-32UNCx0.26	1.57	.14	0.24	No8-32UNC	0.35	3/8-32UNEF
NCY2S10 NCDY2S10	~20 inch	0.31	0.31	0.17	0.47	0.39	0.26	1.57	1.37	1.00	0.51	1.30	0.55	0.74	No10-32UNFx0.37	1.77	.17	0.24	No8-32UNC	0.37	3/8-32UNEF

Model	P	*PA	PB	PW	Q	QW	S	T	TT	W	Z
NCY2S6 NCDY2S6	No10-32UNF	1.00	1.00	1.97	2.13	0.63	1.73	0.39	0.63	1.81	2.75
NCY2S10 NCDY2S10	No10-32UNF	1.00	1.50	2.36	2.38	0.88	1.86	0.49	0.81	2.28	3.16

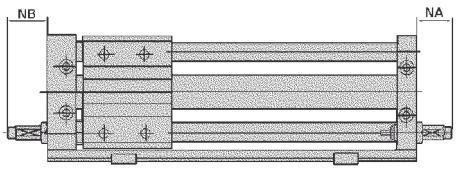
DIMENSIONS
NC(D)Y2S 15 • 25• 32 • 40



Model	Stroke Range	A	øB	C	øD	ød	G	GP	H	HA	HG	HP	HS	HT	J x K	L	LD	M	MM	(N)	NN
NC(D)Y2S15	~30 inch	0.32	0.38	0.20	0.65	0.47	0.26	2.05	1.63	1.14	0.56	1.54	0.59	0.88	1/4-28UNFx0.37	2.36	.22	0.31	No10-32UNF	0.28	1/2-20UNF
NC(D)Y2S25	~60 inch	0.37	0.44	0.26	1.04	0.63	0.33	2.76	2.13	1.57	0.79	2.09	0.91	0.79	5/16-24UNFx0.39	2.76	.28	0.39	1/4-28UNF	0.46	9/16-18UNF
NC(D)Y2S32	~60 inch	0.45	0.55	0.31	1.32	0.79	0.37	3.39	2.63	1.97	0.97	2.52	1.06	0.97	3/8-24UNFx0.59	3.35	.34	0.47	5/16-24UNF	0.50	3/4-16UNF
NC(D)Y2S40	~60 inch	0.51	0.55	0.31	1.64	0.98	0.41	4.09	3.00	2.05	0.99	2.91	1.18	0.99	3/8-24UNFx0.59	3.74	.34	0.47	5/16-24UNF	0.39	3/4-16UNF

Model	P	*PA	PB	PW	Q	QW	S	T	TT	W	Z
NC(D)Y2S15	No10-32UNF	1.25	2.00	2.95	3.00	1.13	2.48	0.49	0.89	2.83	3.86
NC(D)Y2S25	NPT 1/8	1.50	2.75	3.94	3.50	1.63	2.84	0.65	1.00	3.82	4.57
NC(D)Y2S32	NPT 1/8	1.63	3.00	4.80	4.25	2.00	3.51	0.73	1.12	4.69	5.36
NC(D)Y2S40	NPT 1/4	2.50	4.13	5.71	4.75	2.50	3.93	0.81	1.40	5.59	6.14

DIMENSIONS
NCY2S SLIDE BEARING TYPE WITH SHOCK ABSORBER NRB



Type	Applicable Shock Absorber	NA	NB
NC❑Y2S6	NRB37-025	30	24
NC❑Y2S10		27	19
NC❑Y2S15	NRB50-030	33	23
NC❑Y2S25	NRB56-045	49	40
NC❑Y2S32	NRB75-045	48	38
NC❑Y2S40		47	32

SERIES NCY2

HOW TO ORDER
SERIES NCY2
BASIC TYPE - LOW SPEED RODLESS CYLINDER - OPTION

NCY2 B ○○ — ○ — XB13

- ○ (Bore Size) — BORE SIZE
- ○ (Magnetic Holding Power) — MAGNETIC HOLDING POWER
- ○ (Stroke (inch)) — STROKE (INCH)

HOW TO ORDER
SERIES NCY2
SLIDER TYPE - LOW SPEED RODLESS CYLINDER - OPTION

NC(D)Y2 S ○○ — ○○ — ○ — XB13

- ○ (Bore Size) — BORE SIZE
- ○ (Magnetic Holding Power) — MAGNETIC HOLDING POWER
- ○ (Stroke (inch)) — STROKE (INCH)
- ○ (Stroke Adjustment) — STROKE ADJUSTMENT
- ○ (Switch) — SWITCH

TECHNICAL SPECIFICATIONS
BASIC TYPE - XB13 OPTION SERIES NCY2

Type	Basic Type / Slider Type
Bore Size (mm)	ø6 ~ ø40
Fluid	Air
Piston Speed	7 ~ 50mm/s

HOW TO ORDER
SERIES NCY2
BASIC TYPE - AIR HYDRO RODLESS CYLINDER - OPTION

NCY2 B ○○ — ○ — X116

- ○ (Bore Size) — BORE SIZE
- ○ (Magnetic Holding Power) — MAGNETIC HOLDING POWER
- ○ (Stroke (inch)) — STROKE (INCH)

HOW TO ORDER
SERIES NCY2
SLIDER TYPE - AIR HYDRO RODLESS CYLINDER - OPTION

NC(D)Y2 S ○○ — ○○ — ○ — X116

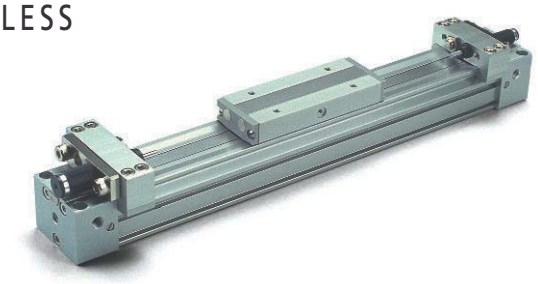
- ○ (Bore Size) — BORE SIZE
- ○ (Magnetic Holding Power) — MAGNETIC HOLDING POWER
- ○ (Stroke (inch)) — STROKE (INCH)
- ○ (Stroke Adjustment) — STROKE ADJUSTMENT
- ○ (Switch) — SWITCH

TECHNICAL SPECIFICATIONS
BASIC TYPE - X116 OPTION SERIES NCY2

Type	Basic Type / Slider Type
Bore Size (mm)	ø25 ~ ø40
Fluid	Hydraulic Fluid
Piston Speed	15 ~ 300mm/s

Model	HT	P	Restriction Diameter
NCY2S25	20	Rc(PT)1	7.5
NCY2S32	24		
NCY2S40	25	Rc(PT)1/4	10

MECHANICAL JOINT TYPE RODLESS CYLINDER: BASIC TYPE
BORE SIZES
Ø16,25,32,40,50,63,80,100



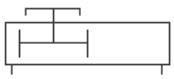
- Compact Body Dimensions
- Various Mounting Options
- Long Life Seal System
- Built-In Magnet for Auto Switch Sensing
- Extended Range of Bore Size

TECHNICAL SPECIFICATIONS

Bore Size (mm)		Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
Fluid		Filtered, Non-lubricated Air								
Operation type		Double Acting Type								
Operating pressure		0.1 ~ 0.8 MPa / 14.5 ~ 16PSI								
Proof pressure		1.2MPa / 175PSI								
Ambient & fluid temp		5 ~ 60°C / 40 ~ 140°F								
Operating piston speed		100 ~ 1500 mm/s / 4 ~ 60in/s								
Cushioning		Air cushioning, both sides (standard)								
Cushion stroke (mm)		12	15	15	19	24	30	37	40	40
Stroke tolerance (mm)		<1000 $^{+1.8}_{0}$ 1001~3000 $^{+2.8}_{0}$	<2700 $^{+1.8}_{0}$ 2701~5000 $^{+2.8}_{0}$							
Port Size	Port Size Front/side	M5 X 0.8	M5 X 0.8	Rc(PT)1/8	Rc(PT)1/8	Rc(PT)1/4	Rc(PT)3/8	Rc(PT)3/8	Rc(PT)1/2	Rc(PT)1/2
	Bottom (centralised)	Ø4	Ø4	Ø5	Ø6	Ø8	Ø10	Ø11	Ø16	Ø18

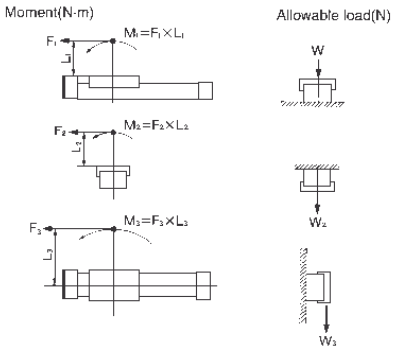
The Operating Speed must not exceed 1000mm/s when air cushion alone is used.

SYMBOLS



DIMENSIONS SEE NEXT PAGE ☞

MOMENT (NM)



APPLICATION ALLOWABLE LOAD (N)

Model	Bore Size	Allowable Moment (N-m)			Allowable Load (N)		
MY1B	(mm)	M1	M2	M3	W1	W2	W3
MY1B	Ø16	2.5	0.3	0.8	150.0	30.0	17
MY1B	Ø20	5.0	0.6	1.5	210.0	42.0	30
MY1B	Ø25	10.0	1.2	3.0	290.0	58.0	54
MY1B	Ø32	20.0	2.4	6.0	400.0	80.0	88
MY1B	Ø40	40.0	4.8	12.0	530.0	106.0	140
MY1B	Ø50	78.0	9.3	23.4	700.0	140.0	200
MY1B	Ø63	160.0	19.0	48.0	830.0	166.0	290
MY1B	Ø80	315.0	37.0	94.5	1200.0	240.0	420
MY1B	Ø100	615.0	73.0	184.5	1500.0	300.0	600

HOW TO ORDER MY1B RODLESS CYLINDER

MY1B ○ G — ○ ○ ○ — ○ ○ — ○

MY1B: Mechanical Joint Rodless Cylinder Basic Type

BORE SIZE
16 – 16mmØ•
25 – 25mmØ•
32 – 32mmØ•
40 – 40mmØ•
50 – 50mmØ•
63 – 63mmØ•
80 – 80mmØ
100– 100mmØ

• Local Production Available

PIPING
- .....Standard
G .....Centralized Piping Type

Standard Stroke (mm)
100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1200, 1400, 1600, 1800, 2000

STROKE ADJUSTING UNIT
- .....No Adjusting Unit
A .....With Adjusting Bolt
L .....Low Load Absorber & Adjusting Bolt
H .....High Load Shock Absorber & Adj Bolt
AL ...With One Unit A & One Unit L each
AH ...With One Unit A & One Unit H each
LH ...With One Unit L & One Unit H each

NO OF STROKE ADJUSTING UNIT
- .....2 Pieces
S .....1 Piece

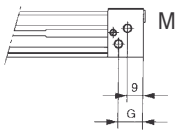
APPLICABLE AUTO SWITCHES
See Accessories Section

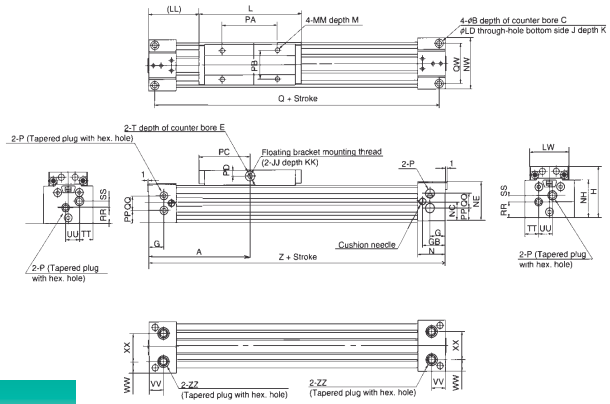
NO OF SWITCHES
- .....2 Pieces
S .....1 Piece
n .....n Pieces

PORTS
- .....PT Ports
XC18 ...NPT Ports (25~63 Only)

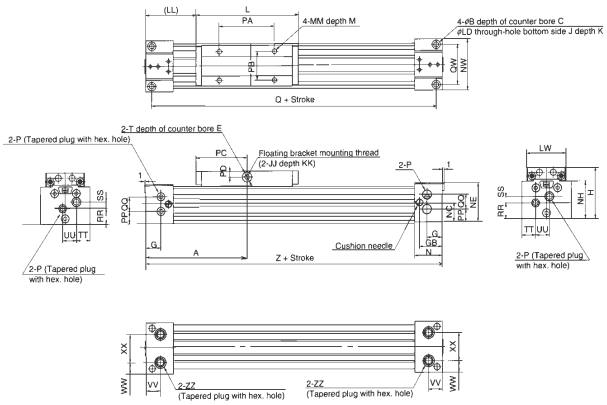
SERIES MY1B

DIMENSIONS
CENTRALIZED PIPING TYPE Ø16~40

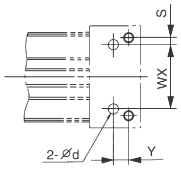


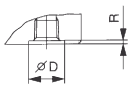


DIMENSIONS
CENTRALIZED PIPING TYPE Ø50~100



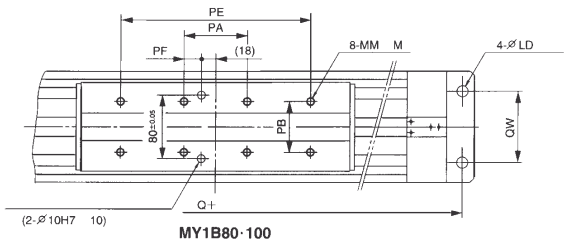
DIMENSIONS
MACHINING OF MOUNTING SURFACE



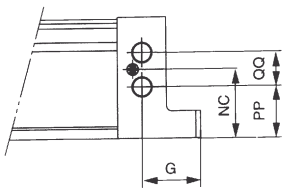


Ø16,20,25,32,40,50,63,80,100 bottom piping

Model	WX	Y	S	d	D	R	Gasket N°
MY1B16G	22	6.5	4	4	8.4	1.1	C6
MY1B20G	24	8	6	4	8.4	1.1	C6
MY1B25G	28	9	7	6	11.4	1.1	C9
MY1B32G	32	11	9.5	6	11.4	1.1	C9
MY1B40G	36	14	11.5	8	13.4	1.1	C11.2
MY1B50G	47	15.5	14.5	10	17.5	1.1	C15
MY1B63G	56	15	18	10	17.5	1.1	C15
MY1B80G	90	45	-	18	26	1.8	P22
MY1B100G	120	50	-	18	26	1.8	P22



MY1B80·100



MY1B80·100

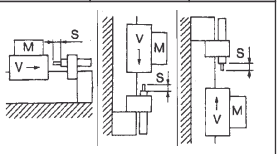
Model	A	B	C	E	G	GB	H	J	JJ	K	KK	L	LD	LL	LW	M
MY1B16	80	6	3.5	2	14	17	37	M5x0.8	M4x0.7	10	7.5	80	3.5	40	30	6
MY1B20	100	7.5	4.5	2	12.5	20.5	46	M6X1	M4x0.7	12	11	100	4.8	50	37	8
MY1B25	110	9	5.5	2	16	24.5	54	M6x1	M5x0.8	9.5	9	110	5.6	55	42	9
MY1B32	140	11	6.5	2	19	30	68	M8x1.25	M5X0.8	16	10	140	6.8	70	52	12
MY1B40	170	14	8.5	2	23	36.5	84	M10x1.5	M6X1	15	13	170	8.6	85	64	12
MY1B50	200	14	8.5	3	23.5	37	94	M12x1.75	M6x1	25	20	200	9	100	80	14
MY1B63	230	17	10.5	3	25	39	116	M16x2	M8x1.25	28	27	230	11	115	96	16
MY1B80	345	-	-	-	60	71.5	150	-	-	-	-	340	14	175	112	20
MY1B100	400	-	-	-	70	79.5	190	-	-	-	-	400	18	200	140	25

Model	MM	N	NC	NE	NH	NN	NW	P	PA	PB	PC	PD	PE	PF	PP	Q
MY1B16	M4x0.7	20	14	27.8	27	-	37	M5x0.8	40	20	40	4.5	-	-	7.5	153
MY1B20	M5x0.8	25	17.5	34	33.5	-	45	M5X0.8	50	25	50	5	-	-	11.5	191
MY1B25	M5x0.8	30	20	40.5	39	-	53	Rc(PT)1/8	60	30	55	6	-	-	12	206
MY1B32	M6x1	37	25	50	49	-	64	Rc(PT)1/8	80	35	70	10	-	-	17	264
MY1B40	M6x1	45	30.5	63	61.5	-	75	Rc(PT)1/4	100	40	85	12	-	-	18.5	322
MY1B50	M8x1.25	47	38	76.5	75	-	92	Rc(PT)3/8	120	50	100	8.5	-	-	24	384
MY1B63	M8x1.25	50	51	100	95	-	112	Rc(PT)3/8	140	60	115	9.5	-	-	37.5	440
MY1B80	M10x1.5	85	71	124	124	35	140	Rc(PT)1/2	80	65	-	-	240	22	53	660
MY1B100	M12x1.75	95	88	157	157	45	176	Rc(PT)1/2	120	85	-	-	280	42	69	760

Model	QQ	QW	RR	SS	T	TT	UU	VV	YW	WW	XX	YY	Z	ZZ
MY1B16	9	30	11	3	7	9	10.5	10	32	7.5	22	-	160	M5x0.8
MY1B20	11	36	14.5	5	8	10.5	12	12.5	40	10.5	24	-	200	M5x0.8
MY1B25	16	42	16	6	10	14.5	15	16	46	12.5	28	-	220	Rc(PT)1/16
MY1B32	16	51	23	4	10	16	16	19	55	16	32	-	280	Rc(PT)1/16
MY1B40	24	59	27	10.5	14	20	22	23	67	19.5	36	-	340	Rc(PT)1/18
MY1B50	27	-	34	10	384	22.5	23.5	23.5	-	22.5	47	-	400	Rc(PT)1/14
MY1B63	29.5	-	13.5	45.5	440	27	29	25	-	28	56	-	460	Rc(PT)1/14
MY1B80	35	90	15	61	-	30	40	60	140	25	90	28	690	Rc(PT)1/12
MY1B100	38	120	20	75	-	40	48	70	176	28	120	35	800	Rc(PT)1/12

CUSHION CAPACITY SPECIFICATIONS

Calculation of absorption energy of stroke adjusting unit with shock absorber

Collision Types	Horizontal collision	Vertical collision (downward)	Vertical collision (upwards)
			
Kinetic energy E_1	½ MV^2		
Thrust energy E_2	F•s	F•s+Mgs	F•s-Mgs
Absorption energy E_3	E_1+E_2		

g: Gravitational acceleration =9.81m/s²
v: Speed of colliding object (m/s)
M: Weight of colliding object (kg)
F: Cylinder thrust (N)
s: Shock absorber stroke (m)

The speed of the colliding object is measured in the moment of impact with the shock absorber. (Note) The absorption capacity of each unit shown here is given for the mounted shock absorber when used at full stroke. When the effective stroke of the absorber decreases as a result of stroke adjustment, the absorption capacity decreases dramatically. Therefore, when the shock absorber is close to the allowable energy limit, the shock absorbers stroke should be adjusted for maximum travel.

STROKE ADJUSTING UNIT SPECIFICATIONS

A: With adjusting bolt
L: Low load shock absorber
H: High load shock absorber

Applicable Cylinder	MY1B16	MY1B20			MY1B25		
Stroke Adjustment Unit Type	A	A	L	H	A	L	H
Stroke Adjusting Range (mm)	Any position on the whole stroke						
Fine Adjusting Range	0 -5.6	0 - 6			0 - 11.5		
Shock Absorber Type	-	-	RB0806	RB1007	-	RB1007	RB1412
Max. Absorber Energy (J)	-	-	2.9	5.9	-	5.9	19.6
Adsorption Stroke (mm)	-	-	6	7	-	7	12
Max. Collision Speed (mm/s)	200	200	1500		200	1500	
Max. Use Frequency (cycles/min)	-	-	80	70	-	70	45
Spring Force (N)							
Extended	-	-	1.96	4.22	-	4.22	6.86
Retracted	-	-	4.22	6.86	-	6.86	15.98
Operating Temperature	5-60°C / 40~140°F						

Applicable Cylinder	Ø32			Ø40		
Stroke Adjustment Unit Type	A	L	H	A	L	H
Stroke Adjusting Range (mm)	Any position on the whole stroke					
Fine Adjusting Range	0 - 12			0 - 16		
Shock Absorber Type	-	RB1412	RB2015	-	RB1412	RB2015
Max. Absorber Energy (J)	-	19.6	58.8	-	19.6	58.8
Adsorption Stroke (mm)	-	12	15	-	12	15
Max. Collision Speed (mm/s)	200	1500		200	1500	
Max. Use Frequency	-	45	25	-	45	25
Spring Force (N)						
Extended	-	6.86	8.34	-	6.86	8.34
Retracted	-	15.98	20.5	-	15.98	20.5
Operating Temperature	5-60°C / 40~140°F					

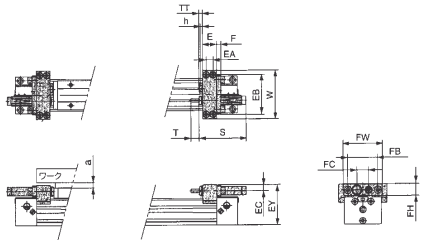
Note: The absorption capacity of each unit shown here is given for the mounted shock absorber when used at full stroke. When the effective stroke of the absorber decreases as a result of stroke adjustment, the absorption capacity decreases dramatically. Therefore, when the shock absorber is used close to the allowable energy limit, the absorbers stroke should be adjusted for maximum travel.

ACCESSORIES
STROKE ADJUSTING UNIT

Unit A Including adjusting bolt
Unit L low load shock absorber and adjusting bolt
Unit H High load shock absorber and adjusting bolt

Bore Size / Unit No	Ø16	Ø20	Ø25	Ø32	Ø40
Unit A	MY-A16A	MY-A20A	MY-A25A	MY-A32A	MY-A40A
Unit L	-	MY-A20L	MY-A25L	MY-A32L	MY-A40L
Unit H	-	MY-A20H	MY-A25H	MY-A32H	MY-A40H

DIMENSIONS
ACCESSORIES: HIGH LOAD SHOCK ABSORBER + ADJUSTING BOLT "H"

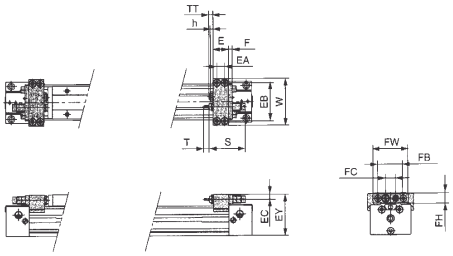


Since the EY size of type H unit is greater than the table top height (H dimension), when a workpiece is loaded that is larger than the full length (L dimension) of the slide table allow a clearance of size "a" or larger at the workpiece side.

Model	E	EA	EB	EC	EY	F	FB	FC	FH
MY-A20H	20	10	49	6.5	47.5	6	33	13	12
MY-A25H	20	10	57	8.5	57.5	6	43	17	16
MY-A32H	25	12	74	11.5	73	6	57	22	22
MY-A40H	31	15	82	12	87	6	57	22	22

Model	FW	h	S	T	TT	W	Shock Absorber	a
MY-A20H	46	3.5	46.7	7	5(MAX11)	60	RB1007	2.5
MY-A25H	56	4.5	67.3	12	5(MAX16.5)	70	RB1412	4.5
MY-A32H	74	5.5	73.2	15	8(MAX20)	90	RB2015	6
MY-A40H	74	5.5	73.2	15	9(MAX25)	100		4

DIMENSIONS
ACCESSORIES: LOW LOAD SHOCK ABSORBER + ADJUSTING BOLT "L"



Model	E	EA	EB	EC	EY	F	FB	FC	FH	FW	h	S	T	TT	W	Shock Absorber No.
MY-A20L	19	9	43	5.8	45.6	4	-	13	-	-	3.2	40.8	6	6(MAX12)	53	RB0806
MY-A25L	20	10	49	6.5	53.5	6	33	13	12	46	3.5	46.7	7	5(MAX16.5)	60	RB1007
MY-A32L	25	12	61	8.5	67	6	43	17	16	56	4.5	67.3	12	8(MAX20)	74	RB1412
MY-A40L	31	15	76	9.5	81.5	6	43	17	16	56	4.5	67.5	12	8(MAX25)	94	

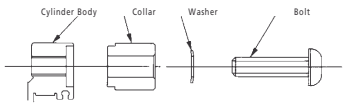
MORE DIMENSIONS SEE NEXT PAGE ☞

ACCESSORIES
AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available

Bore Size	Model Grommet	Connector	Switch Type	Load Voltage	Load Current	Power Source	Internal Voltage drop	Indicator Lamp
16 & 20	D-A90L	-	Reed	24V AC/DC 100V AC/DC	50 mA 20 mA	-		None
16 & 20	D-A93L	-	Reed	24V 100V	5-40mA 5-20 mA	-	2.6V max	ON: Red LED
16 & 20	D-F9BL	-	2 wire Solid State	<28 V DC	5-30 mA	-	4.5V max	ON: Red LED
16 & 20	D-F9NL	-	3 wire Solid State NPN	<28 V DC	50 mA	10-28V DC	0.4V max	ON: Red LED
16 & 20	D-F9PL	-	3 wire Solid State PNP	<28 V DC	50mA	10-28V DC	1.5V max	ON: Red LED
25 - 100	D-Z73L	-	Reed	24 V DC 100 V AC	5-40mA 5-20mA	-	2.4V max	ON: Red LED
25 - 100	D-Z80L	-	Reed	24V AC/DC 100 V AC/DC	50mA 20mA	-		None
25 - 100	D-Y7NWL	-	3 wire Solid State NPN - 2 color	<28 V DC	40mA	5-28V DC	1.5V max	ON: Red/Green LED
25 - 100	D-Y7PWL	-	3 wire Solid State PNP - 2 color		100mA	5-28V DC	0.8V max	ON: Red/Green LED
25 - 100	D-Y7BWL	-	2 wire Solid State 2 color	10 - 28 V DC	5-40mA	-	4V max	ON: Red/Green LED

TECHNICAL SPECIFICATIONS
FIXING BOLT ASSEMBLY

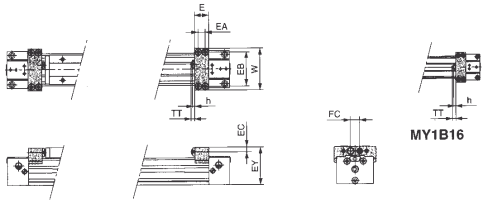


Fixing bolt maximum torque

Part Number	Torque N:m
MY-J16	1.5
MY-J20	1.5
MY-J25	3
MY-J32	5
MY-J40	5
MY-J50	5
MY-J63	13

DIMENSIONS
ACCESSORIES: STROKE ADJUSTING UNIT

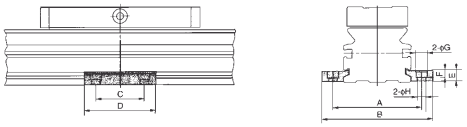
(dimensions applicable to centralized piping type also)
With adjusting bolt "A"



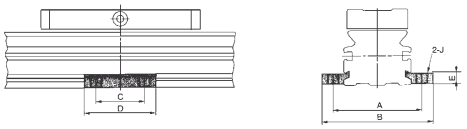
Model	E	EA	EB	EC	EY	FC	h	TT	W
MY-A16A	14.6	7	34.4	4.2	36.5	-	2.4	5.4 (Max11)	43
MY-A20A	19	9	43	5.8	45.6	13	3.2	6(Max12)	53
MY-A25A	20	10	49	6.5	53.5	13	3.5	5(Max16.5)	60
MY-A32A	25	12	61	8.5	67	17	4.5	8(Max20)	74
MY-A40A	31	15	76	9.5	81.5	17	4.5	9(Max25)	94

DIMENSIONS
SIDE SUPPORT BRACKET

COUNTERBORED (SIDE SUPPORT A)



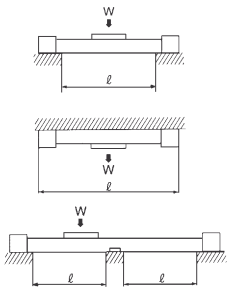
TAPPED (SIDE SUPPORT B)

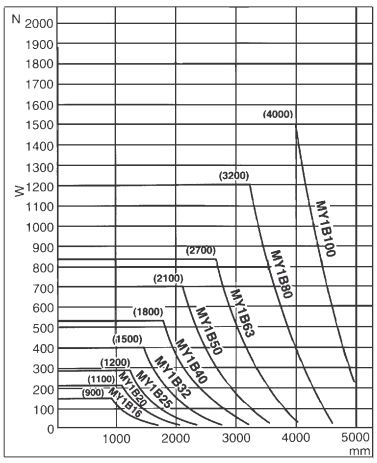


Part N°	Cylinder	A	B	C	D	E	F	G	H	J
MY-S16⅞	MY1B16	43	53.6	15	26	4.9	3	6.5	3.4	M4X0.7
MY-S20⅞	MY1B20	53	65.6	25	38	6.4	4	8	4.5	M5X0.8
MY-S25⅞	MY1B25	61	75	35	50	8	5	9.5	5.5	M6X1
	MY1B32	70	84							M6X1
MY-S32⅞	MY1B40	87	105	45	64	11.7	6	11	6.6	M8x1.25
	MY1B50	113	131							M8x1.25
MY-S40⅞	MY1B63	136	158	55	80	14.8	8.5	14	9	M10x1.5
MY-S63⅞	MY1B80	170	200	70	100	18.5	10.5	17.5	11	M12x1.75
	MY1B100	206	236							M12x1.75

TECHNICAL SPECIFICATIONS

Unsupported span length not to exceed lengths shown by graph.

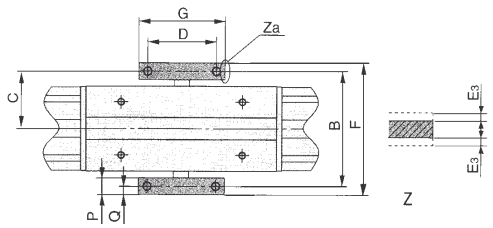


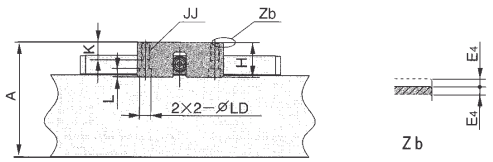


In case of Long Stroke

For long stroke operation, the cylinder tube may be deflected depending on weight and load; in that case, support the center on the cylinder with a side support so that the supporting interval will be lower than the value shown in the diagram.

DIMENSIONS
FLOATING JOINT DRIVE ADAPTOR MY-J16•20•50•63

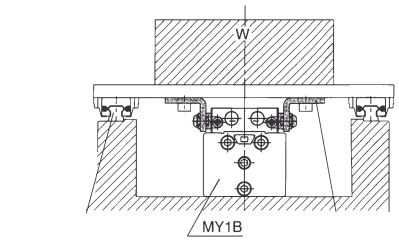


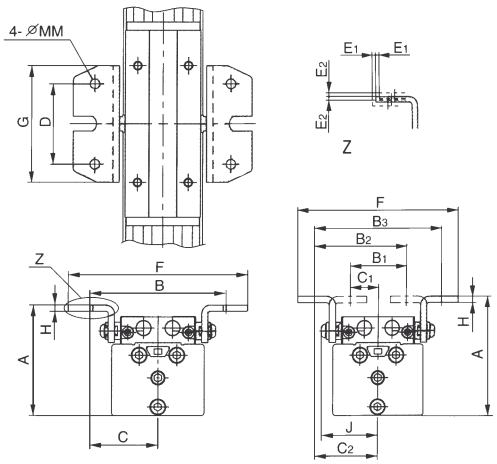


Part N°	Cylinder	A	B	C	D	F	G	H
MY-J16	MY1B16	45	45	22.5	30	52	38	18
MY-J20	MY1B20	55	52	26	35	59	50	21
MY-J50	MY1B50	110	110	55	70	126	90	37
MY-J63	MY1B63	131	130	65	80	149	100	37

Part N°	Cylinder	JJ	K	L	P	Q	E3	E4	LD
MY-J16	MY1B16	M4X0.7	10	4	7	3.5	1	1	6
MY-J20	MY1B20	M4X0.7	10	4	7	3.5	1	1	6
MY-J50	MY1B50	M8X1.25	20	7.5	16	8	2.5	2.5	11
MY-J63	MY1B63	M10X1.5	20	9.5	19	9.5	2.5	2.5	14

DIMENSIONS
FLOATING JOINT DRIVE ADAPTOR MY-J25•32•40

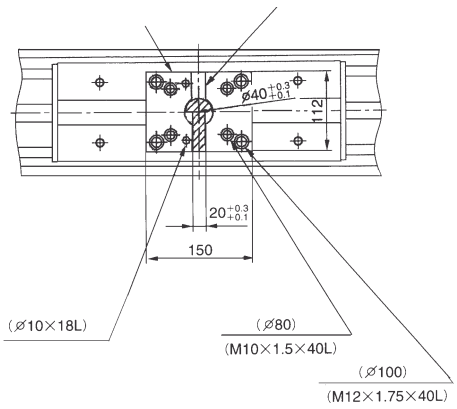


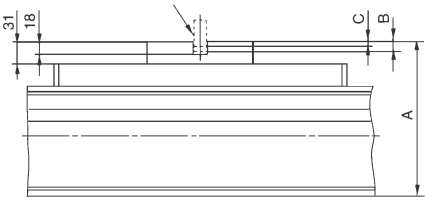


Part N°	Cylinder	TYPE 1								
		D	G	H	J	MM	A	B	C	F
MY-J25	MY1B25	40	60	3.2	35	5.5	63	78	39	100
MY-J32	MY1B32	55	80	4.5	40	6.5	76	94	47	124
MY-J40	MY1B40	74	100	4.5	47	6.5	92	112	56	144

Part N°	Cylinder	TYPE 2								
		A	B1	B2	B3	C1	C2	F	E1	E2
MY-J25	MY1B25	65	28	53	78	14	39	96	1	1
MY-J32	MY1B32	82	40	64	88	20	44	111	1	1
MY-J40	MY1B40	98	44	76	108	22	54	131	1	1

DIMENSIONS
FLOATING JOINT DRIVE ADAPTOR MY-J80&100

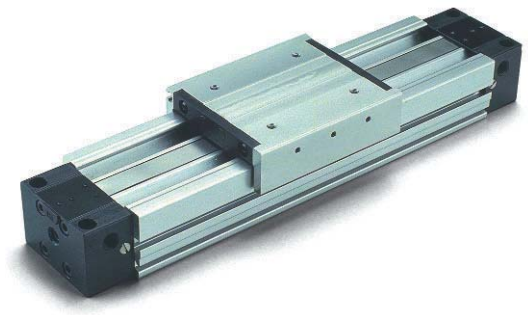




Part N°	Cylinder	A	B(max)	C(min)	Torque (Nm)
MY-J80	MY1B80	181	15	9	25
MY-J100	MY1B100	221	15	9	44

MECHANICAL JOINT TYPE RODLESS CYLINDER: SLIDE BEARING GUIDE BORE SIZES Ø16,20,25,32,40,50,63

- Compact Body Dimensions
- Resin Slide Bearing Guide
- Various Mounting Options
- Built-in Magnet for Auto-Switch Sensing
- Extended Range of Bore Sizes

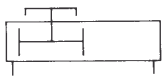


TECHNICAL SPECIFICATIONS

Bore Size (mm)		Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63
Fluid		Filtered, Non-lubricated Air						
Operation Type		Double Acting Type						
Operating Pressure		0.15 ~ 0.8 MPa / 22~116PSI						
Proof Pressure		1.2MPa / 174PSI						
Ambient & Fluid Temperature		5 ~ 60°C / 40~140°F						
Operating Piston Speed		100 ~ 1500 mm/s / 4 ~ 60in/s						
Cushioning		Air Cushioning, both sides (Standard)						
Cushion Stroke (mm)		12	15	15	19	24	30	37
Stroke Tolerance (mm)		<1000 $^{+1.8}_{0}$ 1001~3000 $^{+2.8}_{0}$	<2700 $^{+1.8}_{0}$ 2701~5000 $^{+2.8}_{0}$					
Port Size	Front/side	M5 X 0.8	M5 X 0.8	Rc(PT)1/8	Rc(PT)1/8	Rc(PT)1/4	Rc(PT)3/8	Rc(PT)3/8
	Bottom (centralised)	Ø4	Ø4	Ø5	Ø6	Ø8	Ø10	Ø11

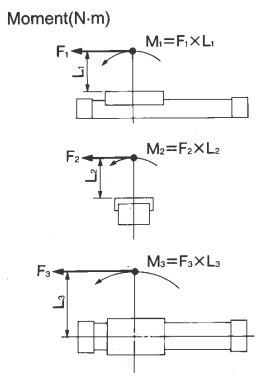
The Operating Speed must not exceed 1000mm/s when air cushion alone is used.

SYMBOLS

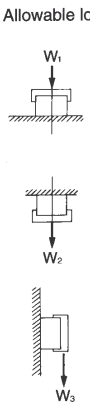


ALLOWABLE MOMENT AND MAXIMUM ALLOWABLE LOAD

MOMENT (NM)



ALLOWABLE LOAD (N)



The threshold limit values of allowable moment and maximum load vary with the guide type, attachment position and piston speed.

Model	Bore Size (mm)	Allowable Moment (N-m) M1	M2	M3	Allowable Load (N) W1	W2	W3
MY1M	Ø16	6.0	3.0	1.0	180.0	70.00	21.00
MY1M	Ø20	10.0	5.2	1.7	260.0	104.00	30.00
MY1M	Ø25	15.0	9.0	2.4	380.0	150.00	45.00
MY1M	Ø32	30.0	15.0	5.0	570.0	230.00	66.00
MY1M	Ø40	59.0	24.0	8.0	840.0	330.00	100.00
MY1M	Ø50	115.0	38.0	15.0	1200.0	480.00	140.00
MY1M	Ø63	140.0	60.0	19.0	1800.0	720.00	210.00

HOW TO ORDER MY1M RODLESS CYLINDER

MY1M ○ G — ○ ○ ○ — ○ ○ — ○

BORE SIZE
Ø16 – 16mm●
Ø20 – 20mm●
Ø25 – 25mm●
Ø32 – 32mm●
Ø40 – 40mm●
Ø50 – 50mm●
Ø63 – 63mm●
●Local Production Available

PIPING
- .....Standard
G .....Centralized Piping Type

Standard Stroke (mm)
100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1200, 1400, 1600, 1800, 2000

STROKE ADJUSTING UNIT
- .....No Adjusting Unit
A .....With Adjusting Bolt
L .....Low Load Absorber & Adjusting Bolt
H .....High Load Shock Absorber & Adj Bolt
AL ...With One Unit A & One Unit L each
AH ...With One Unit A & One Unit H each
LH ...With One Unit L & One Unit H each

NO OF STROKE ADJUSTING UNITS
- .....2 Pieces
S .....1 Piece

APPLICABLE AUTO SWITCHES
See Accessories Section

NO OF SWITCHES
- ...2 Pieces
S ...1 Piece
n ...n Pieces

PORTS
- .....PT Ports
XC18 NPT Ports (ø25~ø40 Only)

DIMENSIONS SEE NEXT PAGE ☞

STROKE ADJUSTING UNIT SPECIFICATIONS

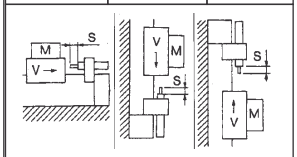
Applicable Cylinder	Ø 16		Ø20			Ø25			Ø32		
Part Number and description	A	L	A	L	H	A	L	H	A	L	H
Stroke Adjusting Range	Any position on the whole stroke										
Fine Adjusting Range (mm)	0~-5.6		0~- 6			0~11.5			0~-12		
Shock Absorber Type	-	RB0806	-	RB0806	RB1007	-	RB1007	RB1412	-	RB1412	RB2015
Max Absorbing Energy (J)	-	2.9	-	2.9	5.9	-	5.9	19.6	-	19.6	58.8
Absorption Stroke (mm)	-	6	-	6	7	-	7	12	-	12	15
Max Collision Speed (mm/s)		200	1500	200	1500 1500	1500	200	1500	1500	200	1500
Max Use Frequency (cycles/min)		-	80	-	80 25	70	-	70	45	-	45
Spring Force Extended	-	1.96	-	1.96	4.22	-	4.22	6.86	-	6.86	8.34

Applicable Cylinder	Ø40			Ø50			Ø63		
Part Number and description	A	L	H	A	L	H	A	L	H
Stroke Adjusting Range	Any position on whole stroke								
Fine Adjusting Range (mm)	0~-16			0~-20			0~-25		
Shock Absorber Type	-	RB1412	RB2015	-	RB2015	RB2725	-	RB2015	RB2725
Max Absorbing Energy (J)	-	19.6	58.8	-	58.8	147	-	58.8	147
Absorption Stroke (mm)	-	12	15	-	15	25	-	15	25
Max Collision Speed (mm/s)	200	1500	1500	200	1500	1500	200	1500	1500
Max Use Frequency (cycles/min)	-	45	25	-	25	10	-	25	10
Spring Force Extended	-	6.86	8.34	-	8.34	8.83	-	8.34	8.83
Retracted	-	15.98	20.50	-	20.50	20.01	-	20.50	20.01
Operating Temp erature	5 - 60°C / 40~140°F								

A: With adjusting bolt
L: With low load shock absorber
H: With high load shock absorber

CUSHION CAPACITY SPECIFICATIONS

Calculation of absorption energy of stroke adjusting unit with shock absorber

Collision Types	Horizontal collision	Vertical collision (downward)	Vertical collision (upwards)
			
Kinetic energy E_1	½ MV^2		
Thrust energy E_2	F•s	F•s+Mgs	F•s-Mgs
Absorption energy E_3	E_1+E_2		

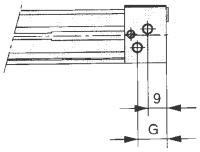
g: Gravitational acceleration =9.81m/s²
v: Speed of colliding object (m/s)
M: Weight of colliding object (kg)
F: Cylinder thrust (N)
s: Shock absorber stroke (m)
The speed of the colliding object is measured in the moment of impact with the shock absorber.
(Note) The absorption capacity of each unit shown here is given for the mounted shock absorber when used at full stroke. When the effective stroke of the absorber decreases as a result of stroke adjustment, the absorption capacity decreases dramatically. Therefore, when the shock absorber is close to the allowable energy limit, the shock absorbers stroke should be adjusted for maximum travel.

ACCESSORIES AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available

Bore Size	Model Grommet	Connector	Switch Type	Load Voltage	Load Current	Power Source	Internal Voltage drop	Indicator Lamp
16 & 20	D-A90L	-	Reed	24V AC/DC 48V AC/DC 100V AC/DC	50 mA 40mA 20 mA	-		None
16 & 20	D-A93L	-	Reed	24V DC 100V AC	5-40mA 5-20 mA	-	2.7V max	ON: Red LED
16 & 20	D-F9BL	-	2 wire Solid State	-	5-40 mA	-	4.0V or less	ON: Red LED
16 & 20	D-F9NL	-	3 wire Solid State NPN	-	40 mA	4.5-28V DC	1.5V or less	ON: Red LED
16 & 20	D-F9PL	-	3 wire Solid State PNP	-	80mA	4.5-28V DC	0.8V or less	ON: Red LED
25 - 63	D-Z73L	-	Reed	24 V DC 100 V AC	5-40mA 5-20mA	-	2.4V or less	ON: Red LED
25 - 63	D-Z80L	-	Reed	24V AC/DC 48V AC/DC 100 V AC/DC	50mA 40mA 20mA	-		None
25 - 63	D-Y7NWL	-	3 wire Solid State NPN - 2 color	-	40mA	4.5-28V DC	1.5V max	ON: Red/Green LED
25 - 63	D-Y7PWL	-	3 wire Solid State PNP - 2 color		80mA	4.5-28V DC	0.8V max	ON: Red/Green LED
25 - 63	D-Y7BWL	-	2 wire Solid State 2 color	10 - 28 V DC	5-40mA	-	4V max	ON: Red/Green LED

DIMENSIONS
CENTRALIZED PIPING TYPE: Ø16 AND Ø20



MY1B16

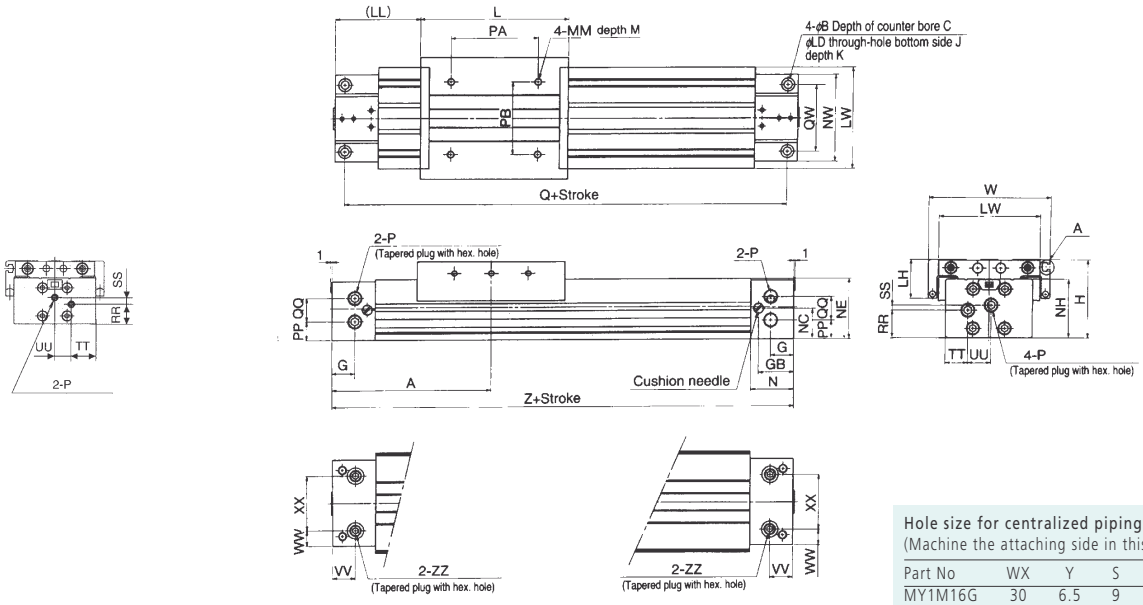
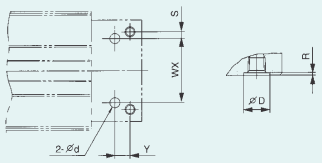


TABLE OF DIMENSIONS
SEE NEXT PAGE

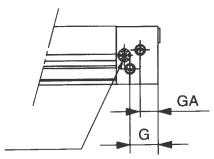
Hole size for centralized piping at bottom.
(Machine the attaching side in this size).

Part No	WX	Y	S	d	D	R	Gasket No
MY1M16G	30	6.5	9	4	8.4	1.1	C6
MY1M20G	32	8	6.5	4	8.4	1.1	C6
MY1M25G	38	9	4	6	11.4	1.1	C9
MY1M32G	48	11	6	6	11.4	1.1	C9
MY1M40G	54	14	9	8	13.4	1.1	C11.2
MY1M50G	74	18	8	10	17.5	1.1	C15
MY1M63G	92	18	9	10	17.5	1.1	C15

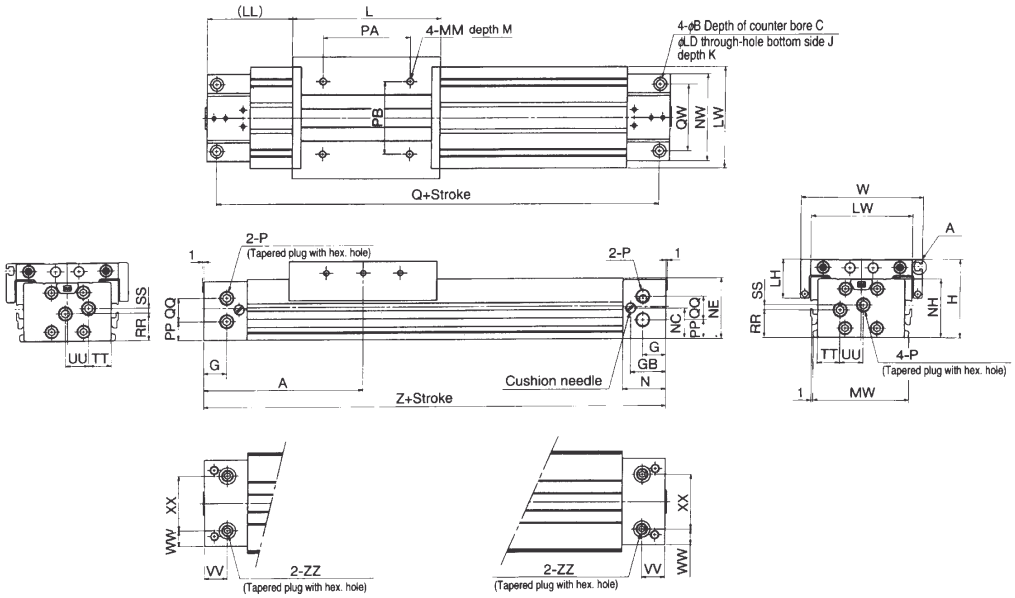
Ø16,20,25,32,40,50,63 bottom piping

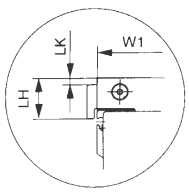


DIMENSIONS
CENTRALIZED PIPING TYPE: Ø25 ~Ø63



MY1M50·63





MY1M50·63

TABLE OF DIMENSIONS
SEE NEXT PAGE

DIMENSIONS
CENTRALIZED PIPING TYPE

Part No	A	B	C	G	GA	GB	H	J	K	L	LD	LH	(LL)
MY1M16	80	6	3.5	13.5	-	16.2	40	M5X0.8	10	80	3.6	17.5	40
MY1M20	100	7.5	4.5	12.5	-	20	46	M6X1	12	100	4.8	18	50
MY1M25	110	9	5.5	16	-	24.5	54	M6X1	9.5	102	5.6	27	59
MY1M32	140	11	6.5	19	-	30	68	M8X1.25	16	132	6.8	35	74
MY1M40	170	14	8.5	23	-	36.5	84	M10X1.5	15	162	8.6	38	89
MY1M50	200	17	10.5	27	25	37.5	107	M14X2	28	200	11	29	100
MY1M63	230	19	12.5	29.5	27.5	39.5	130	M16X2	32	230	13.5	32.5	115

Part No	LW	M	MM	MW	N	NC	NE	NH	NW	P	PA	PB	PP	Q
MY1M16	54	6	M4X0.7	-	20	13.5	28	27.7	56	M5X0.8	40	40	7.5	153
MY1M20	58	7.5	M5X0.8	-	25	17	34	33.7	60	M5X0.8	50	40	11.5	191
MY1M25	70	10	M5X0.8	66	30	21	41.8	40.5	60	Rc(PT)1/8	60	50	13	206
MY1M32	88	13	M6X1	80	37	26	52.3	50	74	Rc(PT)1/8	80	60	18	264
MY1M40	104	13	M6X1	96	45	32	65.3	63.5	94	Rc(PT)1/4	100	80	16.5	322
MY1M50	128	15	M8X1.25	-	47	43.5	84.5	83.5	118	Rc(PT)3/8	120	90	26	380
MY1M63	152	16	M10X1.5	-	50	56	105	103	142	Rc(PT)3/8	140	110	42	436

Part No	QQ	QW	RR	SS	TT	UU	VV	W	W1	WW	XX	LK	Z	ZZ
MY1M16	9	48	11	2.5	15	14	10	68	-	13	30	-	160	M5X0.8
MY1M20	10	45	14.5	5	18	12	12.5	72	-	14	32	-	200	M5X0.8
MY1M25	16	46	19	3.5	15.5	16	16	84	-	11	38	-	220	Rc(PT)1/16
MY1M32	16	60	24	4	21	16	19	102	-	13	48	-	280	Rc(PT)1/16
MY1M40	26	72	25.5	10.5	22.5	24.5	23	118	-	20	54	-	340	Rc(PT)1/8
MY1M50	28	90	35	10	35	24	28	144	128	22	74	2	400	Rc(PT)1/4
MY1M63	30	110	49	13	43	28	30	168	152	25	92	5.5	460	Rc(PT)1/4

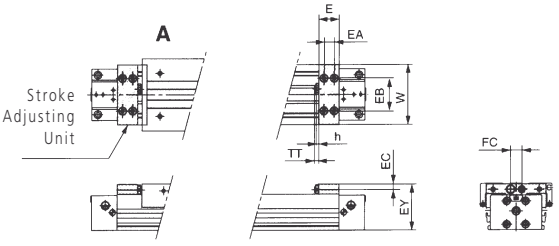
ACCESSORIES
STROKE ADJUSTING UNIT

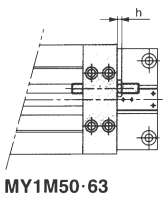
Unit A Including adjusting bolt
Unit L low load shock absorber and adjusting bolt
Unit H High load shock absorber and adjusting bolt

Stroke adjusting unit No.

Bore Size / Unit N°	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63
Unit A	MYM-A16A	MYM-A20A	MYM-A25A	MYM-A32A	MYM-A40A	MYM-A50A	MYM-A63A
Unit L	MYM-A16L	MYM-A20L	MYM-A25L	MYM-A32L	MYM-A40L	MYM-A50L	MYM-A63L
Unit H	—	MYM-A20H	MYM-A25H	MYM-A32H	MYM-A40H	MYM-A50H	MYM-A63H

DIMENSIONS
ACCESSORIES: STROKE ADJUSTING UNIT

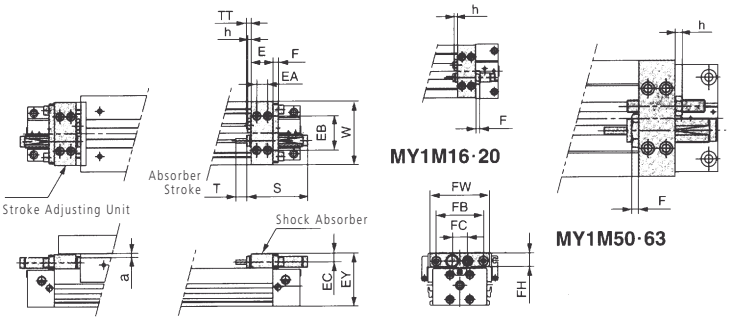




Part No	E	EA	EB	EC	EY	FC	h	TT	W
MYM-A16A	14.6	7.3	30	5.8	39.5	14	3.6	5.4(MAX11)	58
MYM-A20A	20	10	32	5.8	45.5	14	3.6	5(MAX11)	58
MYM-A25A	24	12	38	6.5	53.5	13	3.5	5(MAX16.5)	70
MYM-A32A	29	14	50	8.5	67	17	4.5	8(MAX20)	88
MYM-A40A	35	17	57	10	83	17	4.5	9(MAX25)	104
MYM-A50A	40	20	62	14	106	26	5.5	13(MAX33)	128
MYM-A63A	52	26	77	14	129	31	5.5	13(MAX38)	152

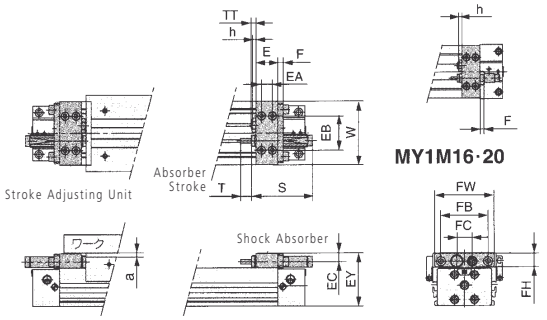
(dimensions applicable to centralized piping type also)
With adjusting bolt "A"

DIMENSIONS
ACCESSORIES: LOW LOAD SHOCK ABSORBER + ADJUSTING BOLT "L"



Part No	E	EA	EB	EC	EY	F	FB	FC	FH	h	TT	W	Shock Absorber
MYM-A16L	14.6	7.3	30	5.8	39.5	4	-	14		3.6	5.4(MAX11)	58	RB0806
MYM-A20L	20	10	32	5.8	45.5	4	-	14	-	3.6	5(MAX11)	58	RB0806
MYM-A25L	24	12	38	6.5	53.5	6	54	13	13	3.5	5(MAX16.5)	70	RB1007
MYM-A32L	29	14	50	8.5	67	6	67	17	16	4.5	8(MAX20)	88	RB1412
MYM-A40L	35	17	57	10	83	6	78	17	17.5	4.5	9(MAX25)	104	RB1412
MYM-A50L	40	20	62	14	106	6	-	26	-	5.5	13(MAX33)	128	RB2015
MYM-A63L	52	26	77	14	129	6	-	31	-	5.5	13(MAX38)	152	RB2015

DIMENSIONS
ACCESSORIES: HIGH LOAD SHOCK ABSORBER + ADJUSTING BOLT "H"



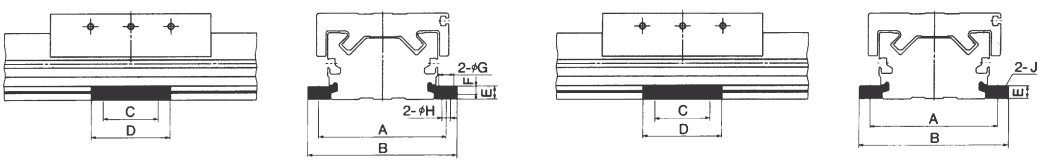
Since the EY size of type H unit is greater than the table top height (H dimension), when a workpiece is loaded that is larger than the full length (L dimension) of the slide table allow a clearance of size "a" or larger at the workpiece side.

Part No	E	EA	EB	EC	EY	F	FB	FC	FH	h	S	T	TT	W	Shock Absorber	a
MYM-A20H	20	10	32	7.7	50	5	-	14	-	3.5	46.7	7	5(MAX11)	58	RB1007	5
MYM-A25H	24	12	38	9	57.5	6	52	17	16	4.5	67.3	12	5(MAX16.5)	70	RB1412	4.5
MYM-A32H	29	14	50	11.5	73	8	67	22	22	5.5	73.2	15	8(MAX20)	88	RB2015	6
MYM-A40H	35	17	57	12	87	8	78	22	22	5.5	73.2	15	9(MAX25)	104	RB2015	4
MYM-A50H	40	20	66	18.5	115	8	-	27	-	8	99	25	13(MAX33)	128	RB2725	9
MYM-A63H	52	26	77	19	138.5	8	-	31	-	8	99	25	13(MAX38)	152	RB2725	9.5

DIMENSIONS
SIDE SUPPORT UNIT

SIDE SUPPORT A: COUNTERBORE TYPE

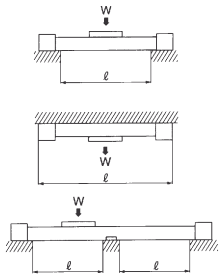
SIDE SUPPORT B: THREADED THROUGH HOLE

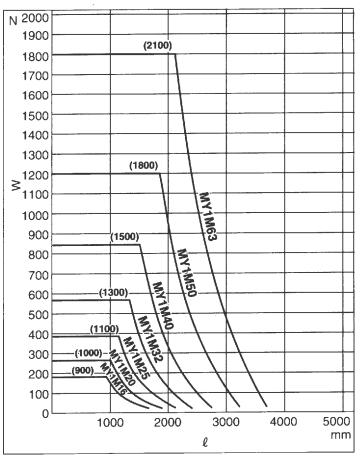


Part No	Cylinder	Side Support A	Side Support B	A	B	C	D	E	F	G	H	J
MY-S16A/B	MY1C16	MY-S16A	MY-S16B	61	71.6	15	26	4.9	3	6.5	3.4	M4X0.7
MY-S20A/B	MY1C20	MY-S20A	MY-S20B	67	79.6	25	38	6.4	4	8	4.5	M5X0.8
MY-S25A/B	MY1C25	MY-S25A	MY-S25B	81	95	35	50	8	5	9.5	5.5	M6X1
MY-S32A/B	MY1C32	MY-S32A	MY-S32B	100	118	45	64	11.7	6	11	6.6	M8X1.25
MY-S40A/B	MY1C40	MY-S40A	MY-S40B	120	142	55	80	14.8	8.5	14	9	M10X1.5
	MY1C50	MY-S50A	MY-S50B	142	164	-	-	-	-	-	-	-
MY-S63A/B	MY1C63	MY-S63A	MY-S63B	172	202	70	100	18.3	10.5	17.5	11.5	M12X1.75

TECHNICAL SPECIFICATIONS

Unsupported span length not to exceed lengths shown by graph.





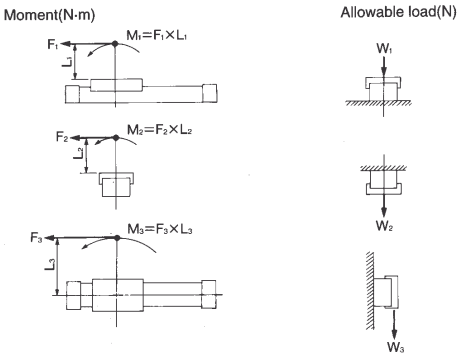
In case of Long Stroke

For long stroke operation, the cylinder tube may be deflected depending on weight and load; in that case, support the center on the cylinder with a side support so that the supporting interval will be lower than the value shown in the diagram.

ALLOWABLE MOMENT AND MAXIMUM ALLOWABLE LOAD

The threshold limit values of allowable moment and maximum load vary with the guide type, attachment position and piston speed.

MOMENT (NM) ALLOWABLE LOAD (N)



Model	Bore Size (mm)	Allowable Moment (N.m) M1	M2	M3	Allowable Load (N) W1	W2	W3
MY1C	Ø16	6.00	3.00	2.00	180.00	70.00	21.00
	Ø20	10.00	5.00	3.00	250.00	100.00	30.00
	Ø25	15.00	8.50	5.00	350.00	140.00	42.00
	Ø32	30.00	14.00	10.00	490.00	210.00	60.00
	Ø40	60.00	23.00	20.00	680.00	300.00	82.00
	Ø50	115.00	35.00	35.00	930.00	420.00	115.00
	Ø63	150.00	50.00	50.00	1300.00	600.00	160.00

MECHANICAL JOINT TYPE RODLESS CYLINDER: CAM FOLLOWER GUIDE TYPE BORE SIZES Ø16,25,32,40,50,63

- Compact Body Dimensions
- Cam Follower Guide Type
- Direct Mounting is possible
- Built-in Magnet for Auto-Switch Sensing
- Centralized Piping Facility
- Same Foot Print as MY1M Series

TECHNICAL SPECIFICATIONS

Bore Size (mm)	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63
Fluid	Filtered, Non-Lubricated Air						
Operation Type	Double Acting Type						
Operating Pressure	0.1 ~ 0.8 MPa / 14.5 ~ 116PSI						
Proof Pressure	1.2MPa / 174PSI						
Ambient & Fluid Temp	5 ~ 60°C / 40 ~ 140°F						
Operating Piston Speed	100 ~ 1500mm/s / 4 ~ 60in/s						
Cushioning	Air Cushioning, both sides (Standard)						
Cushion Stroke (mm)	12	15	15	19	24	30	37
Stroke Tolerance (mm)	1000 $^{+1.8}$ 1001~ 3000 $^{+2.8}$	2700 $^{+1.8}$ 2701 ~ 5000 $^{+2.8}$					
Port Size Front/side	M5x0.8	M5 x0.8	Rc(PT)1/8	Rc(PT)1/8	Rc(PT)1/4	Rc(PT)3/8	Rc(PT)3/8
Bottom (centralized)	Ø4	Ø4	Ø5	Ø6	Ø8	Ø10	Ø11

The Operating Speed must not exceed 1000mm/s when air cushion alone is used.

HOW TO ORDER MY1C RODLESS CYLINDER

MY1C ○ G — ○ ○ ○ — ○ ○

BORE SIZE
Ø16 – 16mm
Ø25 – 25mm
Ø32 – 32mm
Ø40 – 40mm
Ø50– 50mm
Ø63 – 63mm

PIPING
- ... Standard
G .....Centralized Piping Type

Standard Stroke (mm)
100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1200, 1400, 1600, 1800, 2000

STROKE ADJUSTING UNIT
- .....No Adjusting Unit
A .....With Adjusting Bolt
L .....Low Load Absorber & Adjusting Bolt
H .....High Load Shock Absorber & Adj Bolt
AL ...With One Unit A & One Unit L each
AH ...With One Unit A & One Unit H each
LH ...With One Unit L & One Unit H each

NO OF SWITCHES
- ...2 Pieces
S ...1 Piece
n ...n Pieces

APPLICABLE AUTO SWITCHES
See Accessories Section

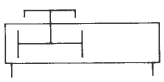
NO OF STROKE ADJ UNITS
- ... 2 Pieces
S .....1 Piece

ACCESSORIES AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available

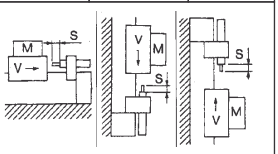
Bore Size	Model Grommet	Connector	Switch Type	Load Voltage	Load Current	Power Source	Internal Voltage Drop	Indicator Lamp
16 & 20	D-A90L	-	Reed	24 V/48V/100 V AC/DC	50mA/40mA/20mA	-	-	None
16 & 20	D-A93L	-	Reed	24VDC / 100 VAC	5-40mA 5-20mA	-	2.7V max	ON: Red LED
16 & 20	D-F9BL	-	2 wire Solid state	-	5-30mA	-	4.0V or less	ON: Red LED
16 & 20	D-F9NL	-	3 wire Solid state NPN	-	40mA	4.5-28V DC	1.5V or less	ON: Red LED
16 & 20	D-F9PL	-	3 wire Solid state PNP	-	80mA	4.5 - 28V DC	0.8V or less	ON: Red LED
25 - 63	D-Z73L	-	Reed	24V DC 100 V AC	5-40mA 5-20mA	-	2.4V or less	ON: Red LED
25 - 63	D-Z80L	-	Reed	24 V/48V/100 V AC/DC	50mA/40mA/20mA	-	-	None
25 - 63	D-Y7NWL	-	3 wire Solid State, NPN - 2 color	-	40mA	4.5-28V DC	1.5V max	ON:Red/Green LED
25 - 63	D-Y7PWL	-	3 wire Solid State, PNP - 2 color	-	80mA	4.5-28V DC	0.8V max	ON: Red/Green LED
25 - 63	D-Y7BWL	-	2 wire Solid State, 2 color	10 - 28 V DC	5 - 40mA	-	4V max	ON: Red/Green LED

SYMBOLS



CUSHION CAPACITY SPECIFICATIONS

Calculation of absorption energy of stroke adjusting unit with shock absorber

Collision Types	Horizontal collision	Vertical collision (downward)	Vertical collision (upwards)
			
Kinetic energy E_1	$\frac{1}{2} MV^2$		
Thrust energy E_2	F•s	F•s+Mgs	F•s-Mgs
Absorption energy E_3	E_1+E_2		

g: Gravitational acceleration =9.81m/s²
v: Speed of colliding object (m/s)
M: Weight of colliding object (kg)
F: Cylinder thrust (N)
s: Shock absorber stroke (m)
The speed of the colliding object is measured in the moment of impact with the shock absorber.
(Note) The absorption capacity of each unit shown here is given for the mounted shock absorber when used at full stroke. When the effective stroke of the absorber decreases as a result of stroke adjustment, the absorption capacity decreases dramatically. Therefore, when the shock absorber is close to the allowable energy limit, the shock absorbers stroke should be adjusted for maximum travel.

ACCESSORIES

STROKE ADJUSTING UNIT

Unit A Including adjusting bolt
Unit L low load shock absorber and adjusting bolt
Unit H High load shock absorber and adjusting bolt

Stroke adjusting unit No.

Bore Size	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63
Unit N°							
Unit A	MYM-A16A	MYM-A20A	MYM-A25A	MYM-A32A	MYM-A40A	MYM-A50A	MYM-A63A
Unit L	MYM-A16L	MYM-A20L	MYM-A25L	MYM-A32L	MYM-A40L	MYM-A50L	MYM-A63L
Unit H	—	MYM-A20H	MYM-A25H	MYM-A32H	MYM-A40H	MYM-A50H	MYM-A63H

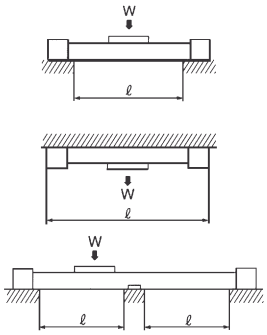
STROKE ADJUSTING UNIT SPECIFICATIONS

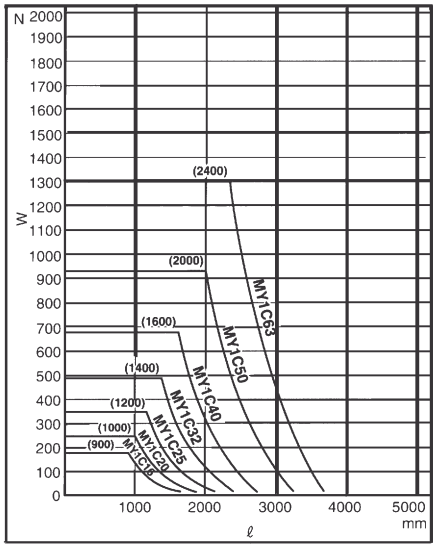
Applicable Cylinder	MY1C16		MY1C20			MY1C25			MY1C32		
Stroke Adjustment Unit Type	A	L	A	L	H	A	L	H	A	L	H
Stroke Adjusting Range	Any position on the whole stroke										
Fine Adjusting Range (mm)	0~-5.6		0~-6			0~11.5			0~-12		
Shock Absorber Type	-	RB0806	-	RB0806	RB1007	-	RB1007	RB1412	-	RB1412	RB2015
Max Absorbing Energy (J)	-	2.9	-	2.9	5.9	-	5.9	19.6	-	19.6	58.8
Absorption Stroke (mm)	-	6	-	6	7	-	7	12	-	12	15
Max Collision Speed (mm/s)	200	1500	200	1500	1500	200	1500	1500	200	1500	1500
Max Use Frequency (cycles/min)	-	80	-	80	70	-	70	45	-	45	25
Spring Force (N) Extended	-	1.96	-	1.96	4.22	-	4.22	6.86	-	6.86	8.34
Retracted	-	4.22	-	4.22	6.86	-	6.86	15.98	-	15.98	20.50
Operating Temp (C)	5~60°C / 40~140°F		5~60°C / 40~140°F			5~60°C / 40~140°F			5~60°C / 40~140°F		

Applicable Cylinder	MY1C40			MY1C50			MY1C63		
Stroke Adjustment Unit Type	A	L	H	A	L	H	A	L	H
Stroke Adjusting Range	Any position on the whole stroke								
Fine Adjusting Range (mm)	0~-16			0~-20			0~-25		
Shock Absorber Type	-	RB1412	RB2015	-	RB2015	RB2725	-	RB2015	RB2725
Max Absorbing Energy (J)	-	19.6	58.8	-	58.8	147	-	58.8	147
Absorption Stroke (mm)	-	12	15	-	15	25	-	15	25
Max Collision Speed (mm/s)	200	1500	1500	200	1500	1500	200	1500	1500
Max Use Frequency (cycles/min)	-	42	25	-	25	10	-	25	10
Spring Force (N) Extended	-	6.86	8.34	-	8.34	8.83	-	8.34	8.83
Retracted	-	15.98	20.50	-	20.50	20.01	-	20.50	20.01
Operating Temperature	5~60°C / 40~140°F			5~60°C / 40~140°F			5~60°C / 40~140°F		

TECHNICAL SPECIFICATIONS

Unsupported span length not to exceed lengths shown by graph.





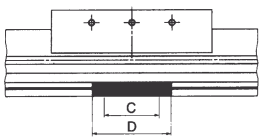
In case of Long Stroke

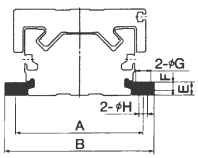
For long stroke operation, the cylinder tube may be deflected depending on weight and load; in that case, support the center on the cylinder with a side support so that the supporting interval will be lower than the value shown in the diagram.

DIMENSIONS

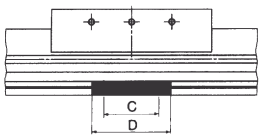
SIDE SUPPORT UNIT

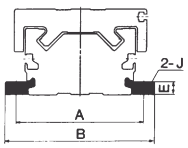
SIDE SUPPORT A: COUNTERBORE TYPE





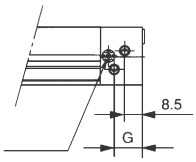
SIDE SUPPORT B: THREADED THROUGH HOLE





Part No	Cylinder	Side Support A	Side Support B	A	B	C	D	E	F	G	H	J
MY-S16A/B	MY1C16	MY-S16A	MY-S16B	61	71.6	15	26	4.9	3	6.5	3.4	M4X0.7
MY-S20A/B	MY1C20	MY-S20A	MY-S20B	67	79.6	25	38	6.4	4	8	4.5	M5X0.8
MY-S25A/B	MY1C25	MY-S25A	MY-S25B	81	95	35	50	8	5	9.5	5.5	M6X1
MY-32A/B	MY1C32	MY-S32A	MY-S32B	100	118	45	64	11.7	6	11	6.6	M8X1.25
MY-S40A/B	MY1C40	MY-S40A	MY-S40B	120	142	55	80	14.8	8.5	14	9	M10X1.5
MY-S40A/B	MY1C50	MY-S40A	MY-S40B	142	164	55	80	14.8	8.5	14	9	M10X1.5
MY-S63A/B	MY1C63	MY-S63A	MY-S63B	172	202	70	100	18.3	10.5	17.5	11.5	M12X1.75

DIMENSIONS
CENTRALIZED PIPING TYPE Ø16~20



MY1C16

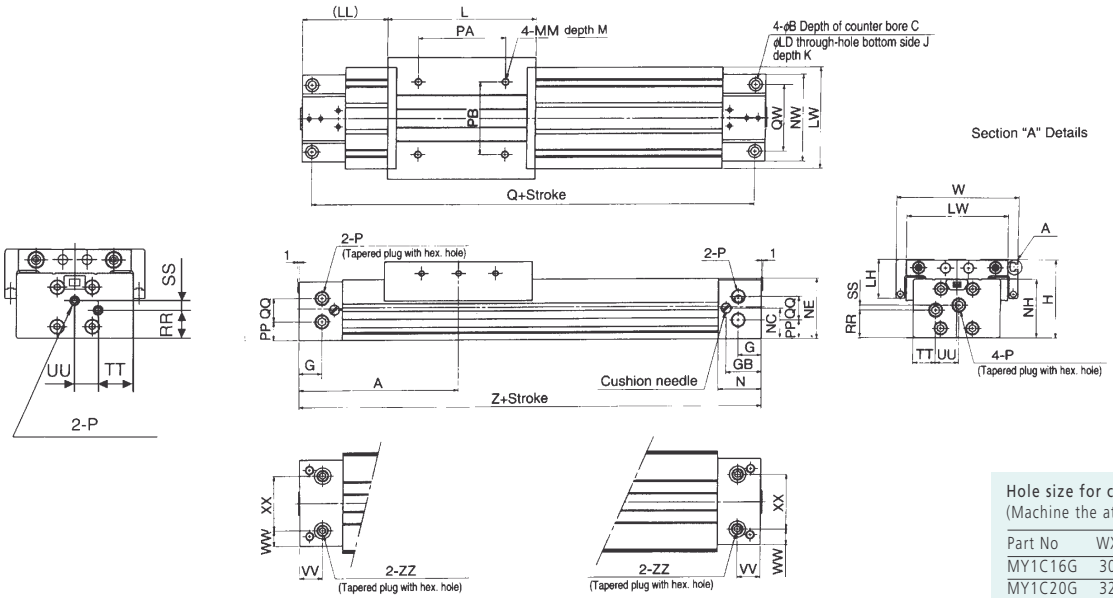
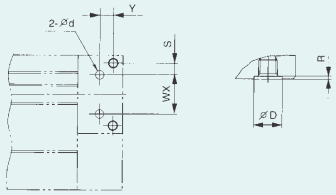


TABLE OF DIMENSIONS
SEE NEXT PAGE

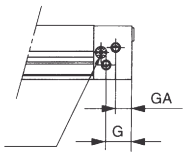
Hole size for centralized piping at bottom.
(Machine the attaching side in this size).

Part No	WX	Y	S	d	D	R	Gasket
MY1C16G	30	6.5	9	4	8.4	1.1	C6
MY1C20G	32	8	6.5	4	8.4	1.1	C6
MY1C25G	38	9	4	6	11.4	1.1	C9
MY1C32G	48	11	6	6	11.4	1.1	C9
MY1C40G	54	14	9	8	13.4	1.1	C11.2
MY1C50G	74	18	8	10	17.5	1.1	C15
MY1C63G	92	18	9	10	17.5	1.1	C15



Ø16,20,25,32,40,50,63 bottom piping

DIMENSIONS
CENTRALIZED PIPING TYPE Ø25~63



MY1C50·63

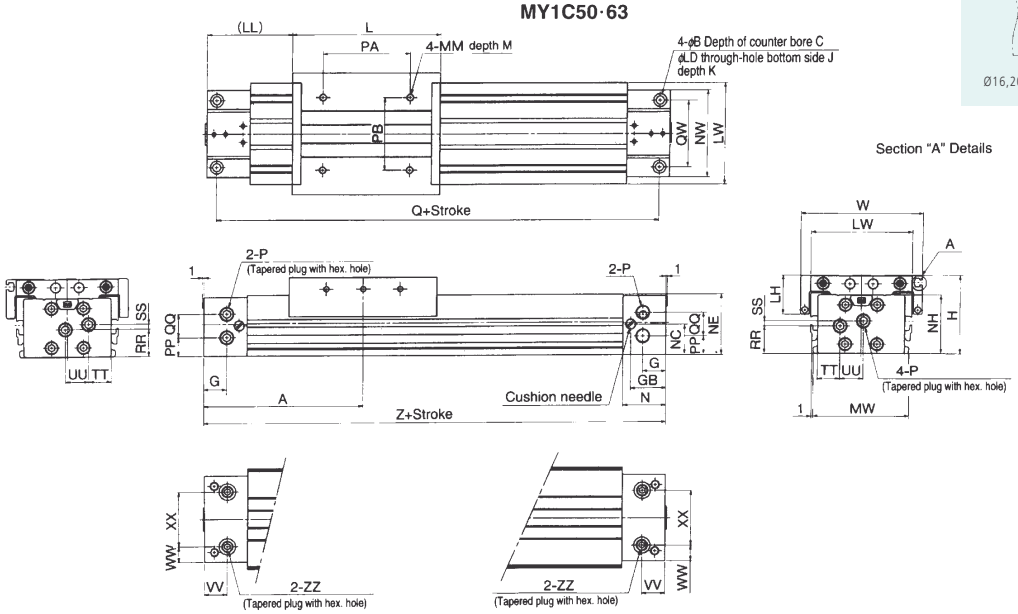


TABLE OF DIMENSIONS
SEE NEXT PAGE

DIMENSIONS
CENTRALIZED PIPING TYPE

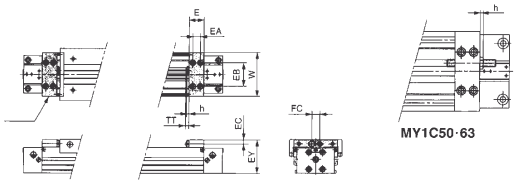
Part No	A	B	C	G	GB	H	J	K	L	LD	LH	LK	(LL)
MY1C16	80	6	3.5	8.5	16.2	40	M5X0.8	10	80	3.6	22.5	-	40
MY1C20	100	7.5	4.5	10.5	20	4	M6X1	12	100	4.8	23	-	50
MY1C25	110	9	5.5	16	24.5	54	M6X1	9.5	102	5.6	27	-	59
MY1C32	140	11	6.5	19	30	68	M8X1.25	16	132	6.8	35	-	74
MY1C40	170	14	8.5	23	36.5	84	M10X1.5	15	162	8.6	38	-	89
MY1C50	200	17	10.5	25	37.5	107	M14X2	28	200	11	29	2	100
MY1C63	230	19	12.5	27.5	39.5	130	M16X2	32	230	13.5	32.5	5.5	115

Part No	LW	M	MM	MW	N	NC	NE	NH	NW	P	PA	PB	PP	Q
MY1C16	54	6	M4X0.7	-	20	13.5	27.7	27.7	56	M5X0.8	40	40	7.5	153
MY1C20	58	7.5	M5X0.8	-	25	17	33.7	33.7	60	M5X0.8	50	40	11.5	191
MY1C25	70	10	M5X0.8	66	30	21	41.8	40.5	60	Rc(PT)1/8	60	50	13	206
MY1C32	88	13	M6X1	80	37	26	52.3	50	74	Rc(PT)1/8	80	60	18	264
MY1C40	104	13	M6X1	96	45	32	65.3	63.5	94	Rc(PT)1/4	100	80	16.5	322
MY1C50	128	15	M8X1.25	-	47	43.5	84.5	83.5	118	Rc(PT)3/8	120	90	26	380
MY1C63	152	16	M10X1.5	-	50	56	104	103	142	Rc(PT)3/8	140	110	42	436

Part No	QQ	QW	RR	SS	TT	UU	VV	W	W1	WW	XX	Z	ZZ
MY1C16	9	48	11	2.5	15	14	10	68	-	13	30	160	M5X0.8
MY1C20	10	45	14.5	5	18	12	12.5	72	-	14	32	200	M5X0.8
MY1C25	16	46	19	3.5	15.5	16	16	84	-	11	38	220	Rc(PT)1/16
MY1C32	16	60	24	4	21	16	19	102	-	13	48	280	Rc(PT)1/16
MY1C40	26	72	25.5	10.5	22.5	24.5	23	118	-	20	54	340	Rc(PT)1/8
MY1C50	28	90	35	10	35	24	28	144	128	22	74	400	Rc(PT)1/4
MY1C63	30	110	49	13	43	28	30	168	152	25	92	460	Rc(PT)1/4

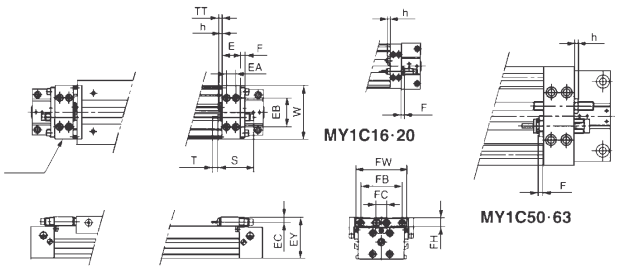
DIMENSIONS
ACCESSORIES: STROKE ADJUSTING UNIT

(dimensions applicable to centralized piping type also)
With adusting bolt "A"



Part No	Cylinder	WX	Y	S	d	D	R	Gasket
MY1M-A16A	MY1C16G	30	6.5	9	4	8.4	1.1	C6
MY1M-A20A	MY1C20G	32	8	6.5	4	8.4	1.1	
MY1M-A25A	MY1C25G	38	9	4	6	11.4	1.1	C9
MY1M-A32A	MY1C32G	48	11	6			1.1	
MY1M-A40A	MY1C40G	54	14	9	8	13.4	1.1	C11.2
MY1M-A50A	MY1C50G	74	18	8	10	17.5	1.1	C15
MY1M-A63A	MY1C63G	92	18	9	10	17.5	1.1	

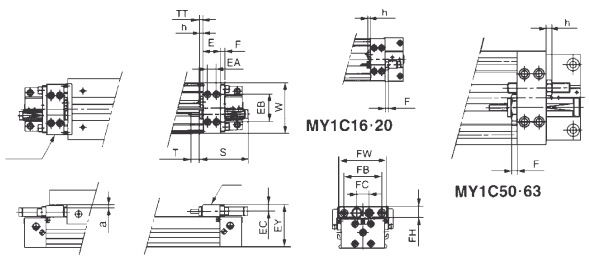
DIMENSIONS
ACCESSORIES: HIGH LOAD SHOCK ABSORBER + ADJUSTING BOLT "H"



Since the EY size of type H unit is greater than the table top height (H dimension), when a workpiece is loaded that is larger than the full length (L dimension) of the slide table allow a clearance of size "a" or larger at the workpiece side.

Part No.	Cylinder	E	EA	EB	EC	EY	F	FB	FC	FH	FW	h	S	T	TT	W	Shock Absorber	a
MYM-A20H	MY1C20	20	10	32	7.7	50	5	-	14	-	-	3.5	46.7	7	5(MAX11)	58	RC1007	5
MYM-A25H	MY1C25	24	12	38	9	57.5	6	52	17	16	66	4.5	67.3	12	5(MAX16.5)	70	RB1412	4.5
MYM-A32H	MY1C32	29	14	50	11.5	73	8	67	22	22	82	5.5	73.2	15	8(MAX20)	88	RB2015	6
MYM-A40H	MY1C40	35	17	57	12	87	8	78	22	22	95	5.5	73.2	15	9(MAX25)	104	RB2015	4
MYM-A50H	MY1C50	40	20	66	18.5	115	8	-	27	-	-	8	99	25	13(MAX33)	128	RB2725	9
MYM-A63H	MY1C63	52	26	77	19	138.5	8	-	31	-	-	8	99	25	13(MAX38)	152	RB2725	9.5

DIMENSIONS
ACCESSORIES: LOW LOAD SHOCK ABSORBER + ADJUSTING BOLT "L"



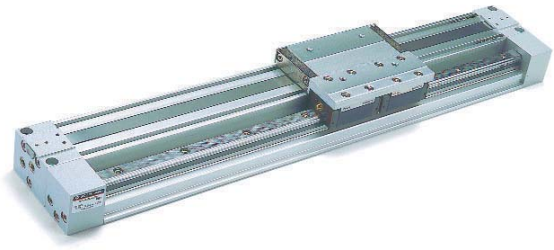
Part No.	Cylinder	E	EA	EB	EC	EY	F	FB	FC	FH	FW	h	S	T	TT	W	Shock Absorber
MYM-A16L	MY1C16	14.6	7.3	30	5.8	39.5	4	-	14	-	-	3.6	40.8	6	5.4(MAX11)	58	RB0806
MYM-A20L	MY1C20	20	10	32	5.8	45.5	4	-	14	-	-	3.6	40.8	6	5(MAX11)	58	RB0806
MYM-A25L	MY1C25	24	12	38	6.5	53.5	6	54	13	13	66	3.5	46.7	7	5(MAX16.5)	70	RB1007
MYM-A32L	MY1C32	29	14	50	8.5	67	6	67	17	16	80	4.5	67.3	12	8(MAX20)	88	RB1412
MYM-A40L	MY1C40	35	17	57	10	83	6	78	17	17.5	91	4.5	67.3	12	9(MAX25)	104	RB1412
MYM-A50L	MY1C50	40	20	62	14	106	6	-	26	-	-	5.5	73.2	15	13(MAX33)	128	RB2015
MYM-A63L	MY1C63	52	26	77	14	129	6	-	31	-	-	5.5	73.2	15	13(MAX38)	152	RB2015

Linear Actuator: Rodless Cylinder
Series MY1H

Technical Specifications

Bore size (mm)		Ø16	Ø20	Ø25	Ø32	Ø40
Fluid		Filtered, Non-lubricated Air				
Operation Type		Double Acting Type				
Operating Pressure		0.1~0.8MPa / 14.5 ~ 116PSI				
Proof Pressure		1.2MPa / 174PSI				
Ambient & Fluid Temperature		5 ~ 60°C / 40 ~ 140°F				
Operating Piston Speed		100 ~ 1500mm/s / 4 ~ 60in/s				
Cushioning		Air Cushioning, Both Sides (Standard)				
Cushion Stroke (mm)		12	15	15	19	24
Stroke Tolerance (mm)				+1.8 0		
Port Size	Front/Side	M5x0.8	M5X0.8	Rc(PT)1/8	Rc(PT)1/8	Rc(PT)1/4
	Bottom (centralised)	Ø 4	Ø4	Ø5	Ø6	Ø8

The Operating Speed must not exceed 1000mm/s when air cushion alone is used.



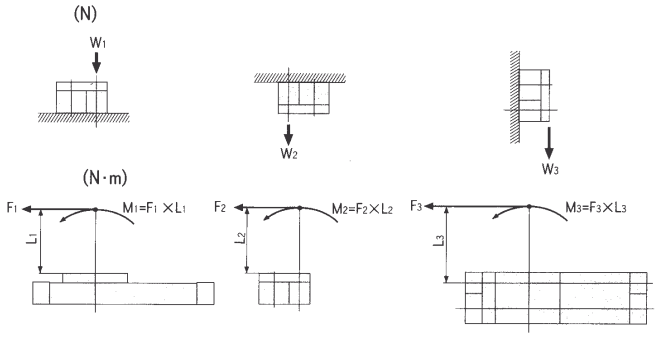
Mechanical Joint Type Rodless Cylinder: High Precision Guide Type Bore sizes Ø16,20,25,32,40

- Compact Body Dimensions
- High Precision Guide Type
- Direct Mounting is possible
- Built-in Magnet for Auto-Switch Sensing
- Centralized Piping Facility

Allowable Moment and Maximum Allowable load

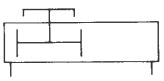
The threshold limit values of allowable moment and maximum load vary with the guide type, attachment position and piston speed.

Moment (Nm) Allowable load (N)



Model	Bore Size (mm)	Allowable Moment (N-m) M1	M2	M3	Allowable Load (N) W1	W2	W3
MY1H	Dia 16	3.7	4.9	3.7	108.0	108.0	108.0
	Dia 20	11	16	11	176.0	176.0	176.0
	Dia 25	23	26	23	275.0	275.0	275.0
	Dia 32	39	50	39	392.0	392.0	392.0
	Dia 40	50	50	39	500.0	500.0	500.0

Symbols



How To Order MY1H Rodless Cylinder

MY1H ○ G — ○ ○ ○ — ○ ○

Bore Size
Ø16 – 16mm
Ø20 – 20mm
Ø25 – 25mm
Ø32 – 32mm
Ø40 – 40mm

Piping
- ……Standard
G ……Centralized Piping Type

Standard Stroke (mm)
100, 150, 200, 250, 300,
350, 400, 450, 500, 550, 600

Stroke Adjusting Unit
- ……No Adjusting Unit
A ……With Adjusting Bolt
L ……Low Load Absorber & Adjusting Bolt
H ……High Load Shock Absorber & Adj Bolt
AL …With One Unit A & One Unit L each
AH …With One Unit A & One Unit H each
LH …With One Unit L & One Unit H each

No Of Stroke Adjusting Units
- ……2 Pieces
S ……1 Piece

Applicable Auto Switches
See Accessories Section

No Of Switches
- ……2 Pieces
S ……1 Piece
n ……n Pieces

Accessories Auto Switches

Note: Pre-wired Switches with 3/4 Pin Connectors available

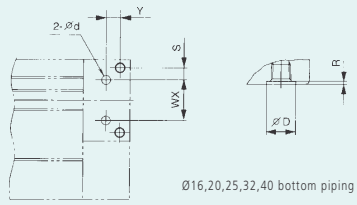
Bore Size	Model Grommet	Connector	Switch Type	Load Voltage	Load Current	Power Source	Internal Voltage Drop	Indicator Lamp
16 & 20	D-A90L	-	Reed	24V/48V AC/DC 100V AC/DC	50mA/40mA 20mA	-		None
16 & 20	D-A93L	-	Reed	24V AC 100V DC	5-40mA 5-20mA	-	2.7V max	ON: red LED
16 & 20	D-F9BL	-	2 wire solid state	-	5-30mA	-	4.0V max	ON: red LED
16 & 20	D-F9NL	-	3 wire solid state NPN	-	40mA	4.5-28V DC	1.5V max	ON: red LED
16 & 20	D-F9PL	-	3 wire solid state PNP	-	80mA	4.5-28V DC	0.8V max	ON: red LED
25-40	D-Z73L	-	Reed	24V DC 100V AC	5-40mA 5-20mA	-	2.4V max	ON: red LED
25-40	D-Z80L	-	Reed	24V/48V AC/DC 100V AC/DC	50mA/40mA 20mA	-		None
25-40	D-Y7NWL	-	3 wire solid state NPN - 2 color	-	40mA	4.5-28V DC	1.5V max	ON: red/green LED
25-40	D-Y7PWL	-	3 wire solid state PNP - 2 color		80mA	4.5-28V DC	0.8V max	ON: red/green LED
25-40	D-Y7BWL	-	2 wire solid state 2 color	10-28V DC	5-40mA	-	4V max	ON: red/green LED

Dimensions See Next Page ☞

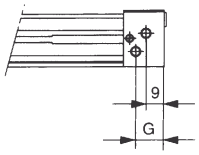
DIMENSIONS
CENTRALIZED PIPING TYPE Ø16~Ø40

Hole Size for Centralized Piping at bottom.
(Machine the attaching side in this size).

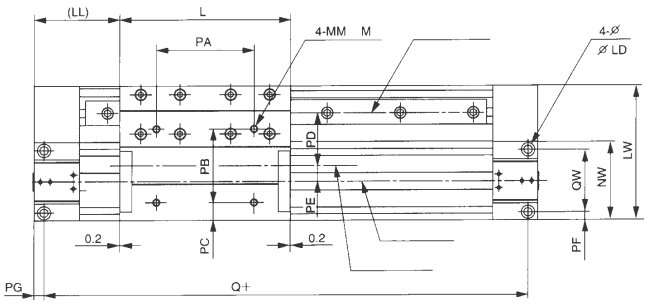
Part No	WX	Y	S	d	D	R	Gasket
MY1H16G	22	6.5	4	4	8.4	1.1	C6
MY1H20G	24	8	6	4	8.4	1.1	
MY1H25G	28	9	7	6	11.4	1.1	C9
MY1H32G	32	11	9.5	6	11.4	1.1	
MY1H40G	36	14	11.5	8	13.4	1.1	C11.2

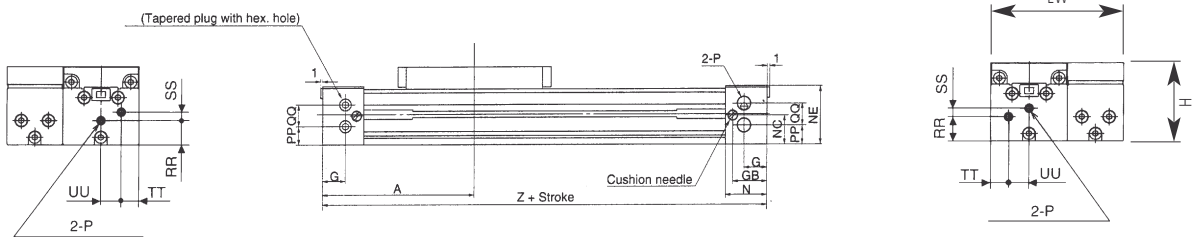


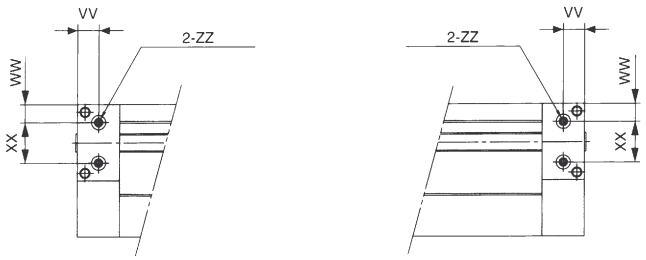
Ø16,20,25,32,40 bottom piping



MY1H16







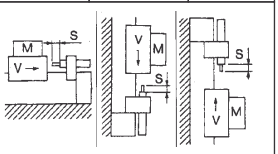
Part No	A	B	C	G	GB	H	J	K	L	LD	(LL)	LW	M
MY1H16	80	6	3.5	14	17	40	\M5X0.8	10	80	3.5	40	60	7
MY1H20	100	7.5	4.5	12.5	20.5	46	M6X1	12	100	4.8	50	78	8
MY1H25	110	9	5.5	16	24.5	54	M6X1	9.5	114	5.6	53	90	9
MY1H32	140	11	6.5	19	30	68	M8X1.25	16	140	6.8	70	110	13
MY1H40	170	14	8.5	23	36.5	84	M10X1.5	15	170	8.6	85	121	13

Part No	MM	N	NC	NE	NW	P	PA	PB	PC	PD	(PE)	PF	PG
MY1H16	M4X0.7	20	14	27.8	37	M5X0.8	40	40	7.5	21	9	3.5	3.5
MY1H20	M5X0.8	25	17.5	34	45	M5X0.8	50	40	14.5	27	12	4.5	4.5
MY1H25	M5X0.8	30	20	40.5	53	Rc(PT)1/8	60	50	14.5	32	13	5.5	7
MY1H32	M6X1	37	25	50	64	Rc(PT)1/8	80	60	15	42	13	6.5	8
MY1H40	M6X1	45	30.5	63	75	Rc(PT)1/4	100	80	20.5	37.5	23	8	9

Part No	PP	Q	QQ	RR	SS	TT	UU	QW	VV	WW	XX	Z	ZZ
MY1H16	7.5	153	9	11	3	9	10.5	30	10	7.5	22	160	M5X0.8
MY1H20	11.5	191	11	14.5	5	10.5	12	36	12.5	10.5	24	200	M5X0.8
MY1H25	12	206	16	16	6	14.5	15	42	16	12.5	28	220	Rc(PT)1/8
MY1H32	17	264	16	23	4	16	16	51	19	16	32	280	Rc(PT)1/8
MY1H40	18.5	322	24	27	10.5	20	22	59	23	19.5	36	340	Rc(PT)1/4

CUSHION CAPACITY SPECIFICATIONS

Calculation of Absorption Energy of Stroke Adjusting Unit with Shock Absorber

Collision Types	Horizontal Collision	Vertical Collision (downward)	Vertical Collision (upwards)
			
Kinetic Energy E_1	$\frac{1}{2}MV^2$		
Thrust Energy E_2	F•s	F•s+Mgs	F•s-Mgs
Absorption Energy E_3	E_1+E_2		

g: Gravitational Acceleration =9.81m/s²
v: Speed of Colliding Object (m/s)
M: Weight of Colliding Object (kg)
F: Cylinder Thrust (N)
s: Shock Absorber Stroke (m)
The speed of the colliding object is measured in the moment of impact with the shock absorber.
(Note) The absorption capacity of each unit shown here is given for the mounted shock absorber when used at full stroke. When the effective stroke of the absorber decreases as a result of stroke adjustment, the absorption capacity decreases dramatically. Therefore, when the shock absorber is close to the allowable energy limit, the shock absorbers stroke should be adjusted for maximum travel.

ACCESSORIES
STROKE ADJUSTING UNIT

Unit A Including Adjusting Bolt
Unit L Low Load Shock Absorber and Adjusting Bolt
Unit H High Load Shock Absorber and Adjusting Bolt

Side Support Unit

Bore Size					
Unit N°	Ø16	Ø20	Ø25	Ø32	Ø40
Unit A	MYH-A16A	MYH-A20A	MYH-A25A	MYH-A32A	MYH-A40A
Unit L	MYH-A16L	MYH-A20L	MYH-A25L	MYH-A32L	MYH-A40L
Unit H	—	MYH-A20H	MYH-A25H	MYH-A32H	MYH-A40H

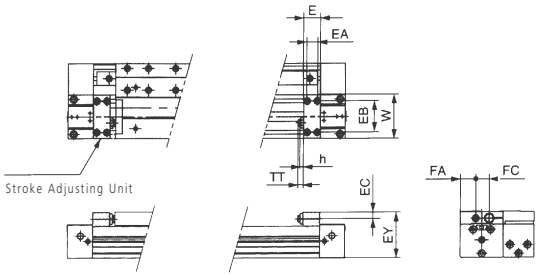
STROKE ADJUSTING UNIT SPECIFICATIONS

Applicable Cylinder	MY1H16		MY1H20			MY1H25		
Stroke Adjustment unit type	A	L	A	L	H	A	L	H
Stroke Adjusting Range	Any position on the whole stroke							
Fine Adjusting Range (mm)	0 ~ -5.6		0 ~ -6			0 ~ 11.5		
Shock Absorber Type	-	RB0806	-	RB0806	RB1007	-	RB1007	RB1412
Max Absorbing Energy (J)	-	2.9	-	2.9	5.9	-	5.9	19.6
Absorption Stroke (mm)	-	6	-	6	7	-	7	12
Max Collision Speed	200	1500	200	1500		200	1500	
Max Use Frequency (cycles/min)	-	80	-	80	70	-	70	45
Spring Force (N) Extended	-	1.96	-	1.96	4.22	-	4.22	6.86
Retracted	-	4.22	-	4.22	6.86	-	6.86	15.98
Operating Temperature	5~60°C / 40~140°F							

Applicable Cylinder	MY1H32			MY1H40		
Stroke Adjustment unit type	A	L	H	A	L	H
Stroke Adjusting Range	Any position on the whole stroke					
Fine Adjusting Range (mm)	0~-12			0~-16		
Shock Absorber Type	-	RB1412	RB2015	-	RB1412	RB2015
Max Absorbing Energy (J)	-	19.6	58.8	-	19.6	58.8
Absorption Stroke (mm)	-	12	15	-	12	15
Max Collision Speed	200	1500		200	1500	
Max Use Frequency	-	45	25	-	42	25
Spring Force (N) Extended	-	6.86	8.34	-	6.86	8.34
Retracted	-	15.98	20.50	-	15.98	20.50
Operating Temperature	5~60°C / 40~140°F					

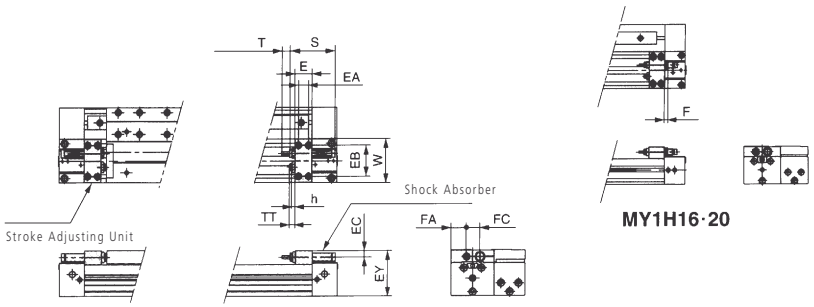
DIMENSIONS
ACCESSORIES: STROKE ADJUSTING UNIT

(Dimensions Applicable to Centralized Piping Type also)
With Adusting Bolt "A"



Part No.	Cylinder	E	EA	EB	EC	EY	FA	FC	h	TT	W
MY1A16A	MY1H16	14.6	7	28	6	39.5	11.5	13	3.2	5.4(MAX11)	37
MY1A20A	MY1H20	19	10	33	6	45.5	15	14	3.2	6(MAX12)	45
MY1A25A	MY1H25	18	9	40	7.5	53.5	20	17	3.5	5(MAX16.5)	53
MY1A32A	MY1H32	25	14	45.6	9.5	67.5	23	20	4.5	8(MAX20)	64
MY1A40A	MY1H40	31	19	55	11	82	24.5	26	4.5	9(MAX25)	75

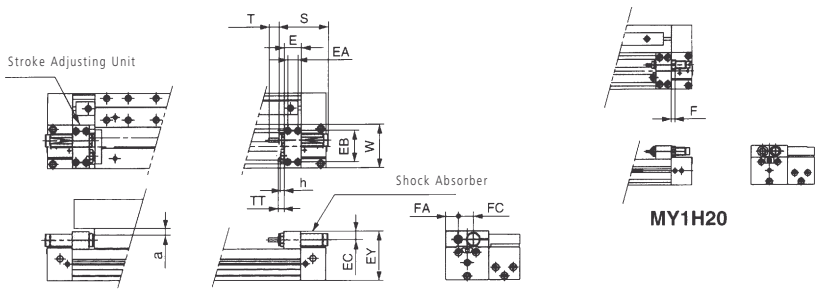
DIMENSIONS
ACCESSORIES: HIGH LOAD SHOCK ABSORBER + ADJUSTING BOLT "H"



Since the EY size of type H unit is greater than the table top height (H dimension), when a workpiece is loaded that is larger than the full length (L dimension) of the slide table allow a clearance of size "a" or larger at the workpiece side.

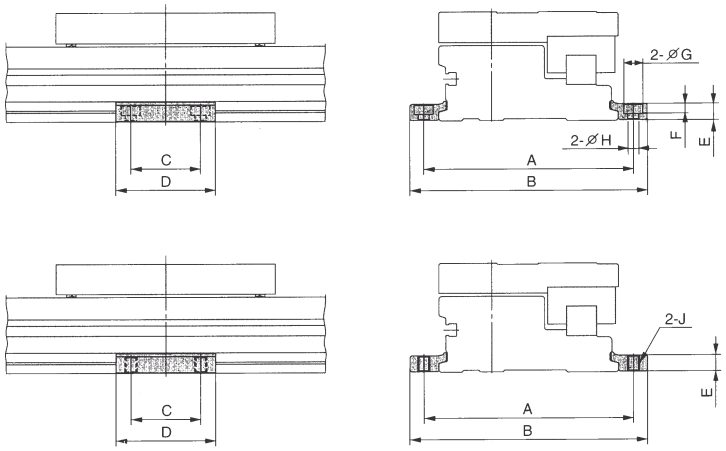
Part No	Cylinder	E	EA	EB	EC	EY	F	FA	FC	h	S	T	TT	W	Shock Absorber	a
MYH-A20H	MY1H20	19	10	33	7.8	49.6	5	14.3	15.7	3.5	46.7	7	6(MAX12)	45	RB1007	4
MYH-A25H	MY1H25	18	9	40	9	57	-	18	17.5	4.5	67.3	12	5(MAX16.5)	53	RB1412	3.5
MYH-A32H	MY1H32	25	14	45.6	12.5	73	-	18.5	22.5	5.5	73.2	15	8(MAX20)	64	RB2015	5.5
MYH-A40H	MY1H40	31	19	55	12.5	86	-	26.5	22	5.5	73.2	15	9(MAX25)	75	RB2015	2.5

DIMENSIONS
ACCESSORIES: LOW LOAD SHOCK ABSORBER + ADJUSTING BOLT "L"



Part No	Cylinder	E	EA	EB	EC	EY	F	FA	FC	h	S	T	TT	W	Shock Absorber
MYH-A16L	MY1H16	14.6	7	28	6	39.5	4	11.5	13	3.2	40.8	6	5.4(MAX11)	37	RB0806
MYH-A20L	MY1H20	19	10	33	6	45.5	4	15	14	3.2	40.8	6	6(MAX12)	45	RB0806
MYH-A25L	MY1H25	18	9	40	7.5	53.5	-	20	17	3.5	46.7	7	5(MAX16.5)	53	RB1007
MYH-A32L	MY1H32	25	14	45.6	9.5	67.5	-	23	20	4.5	67.3	12	8(MAX20)	64	RB1412
MYH-A40L	MY1H40	31	19	55	11	82	-	24.5	26	4.5	67.3	12	9(MAX25)	75	RB1412

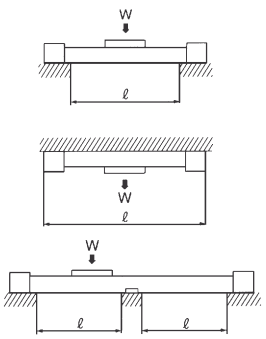
DIMENSIONS
SIDE SUPPORT UNIT

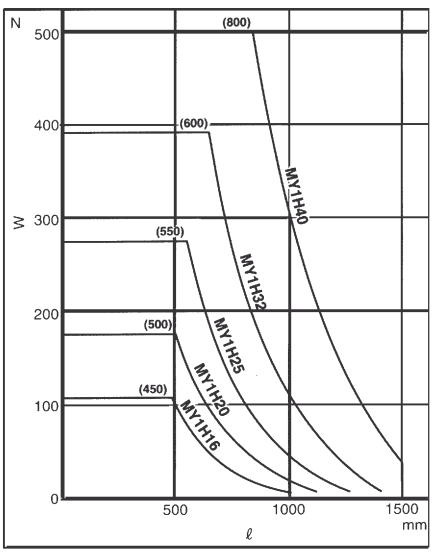


Part No	Model	Side Support A	Side Support B	A	B	C	D	E	F	G	H	J
MY-S16A/B	MY1H16	MY-S16A	MY-S16B	71	81.6	15	26	4.9	3	6.5	3.4	M4X0.7
MY-S20A/B	MY1H20	MY-S20A	MY-S20B	91	103.6	25	38	6.4	4	8	4.5	M5X0.8
MY-S25A/B	MY1H25	MY-S25A	MY-S25B	105	119	35	50	8	5	9.5	5.5	M6X1
MY-S32A/B	MY1H32	MY-S32A	MY-S32B	130	148	45	64	11.7	6	11	6.6	M8X1.25
MY-S40A/B	MY1H40	MY-S40A	MY-S40B	145	167	55	80	14.8	8.5	14	9	M10X1.5

TECHNICAL SPECIFICATIONS

Unsupported span length not to exceed lengths shown by graph.



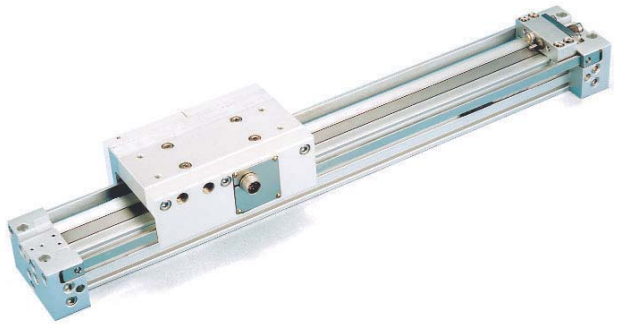


In case of Long Stroke

For long stroke operation, the cylinder tube may be deflected depending on weight and load; in that case, support the center on the cylinder with a side support so that the supporting interval will be lower than the value shown in the diagram.

STROKE READING RODLESS CYLINDER SERIES ML2B
HYBRID RODLESS CYLINDER COMBINING SCALE & BRAKE

- Positional Accuracy to ±0.5mm
- Brake and/or Scale Reading Options
- Compatible with CEU 1 and CEU 2 Series Controllers
- Optional Stroke Adjusting Unit including Shock Absorber and Stopper Bolt
- Compact Space Saving Design



CYLINDER SPECIFICATIONS

Bore Size		ø25	ø32	ø40
Operating Fluid		Air		
Operaing Method	Cylinder	Double Acting Type		
	Brake	Integrated Pneumatic and Spring		
Operating Pressure	Cylinder	0.1~0.8MPa / 14.5~118PSI		
	Brake	0.3~0.5MPa / 44~73PSI		
Proof Pressure		1.2MPa / 175PSI		
Piston Speed		100~1500mm/s (during positioning, 100~500mm/s)		
Ambient Temperature		5~50°C / 40~122°F		
Cushion		Both Sides Air Cushion		
Brake Type		Integrated Pneumatic and Spring		
Lubrication		None		
Stroke's Tolerance		0 ~ +1.8		
Hardware		JIS Class 2		
Port Size	Front & Side Port	Rc(PT)1/8		Rc(PT)1/4
	Bottom Port	Rc(PT) 1/16		Rc(PT)1/8

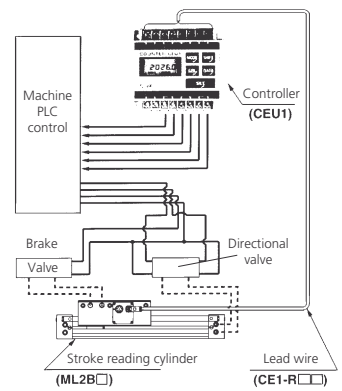
SENSOR SPECIFICATIONS

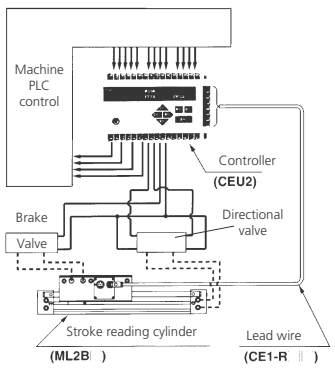
Cable	Connector: R04-J8M7. 3. Tajima Musen Denki Company
Max Transmission Distance	20m (6 core twisted pair shielded wire)
Position Detection Method	Magnetive Scaled Piston Rod & Detection Head
	(50cm cable. Incremental type)
Magnetive Field Resistance	145 Gauss
Power Supply	DC12V ±10% (ripple less than 1%)
Current Consumption	40mA
Resolution	0.1mm / pulse
Repeatability	0.1mm ±0.05mm
Output Type	Open Collector (DC35V, 80mA)
Output Signal	Phase A & B with differential Output
Max. Response Speed	500mm/s (sensor 1500mm/s)
Proof Voltage	AC500V 1 min. (Case to 12E)
Insulation Resistance	DC500V above 50MV (Case to 12E)
Shock Resistance	33.3 3HZ6. 8G. 2 hours at X. Y and 4 hours at Z
	JIS D1061 as standard
Impact Resistance	30G. 3 times at each axis

Extension Cable (option)	5m, 10m, 15m, 20m
	(Connector: R04-P8F7. 3. Tajima Musen Denki Company)

CONTROLLER SPECIFICATIONS

The ML2B Series can be controlled from either CEU1 or CEU2 Series Controllers.
For detailed Controller Specification and Accessories refer to CE1 & CE2 pages.

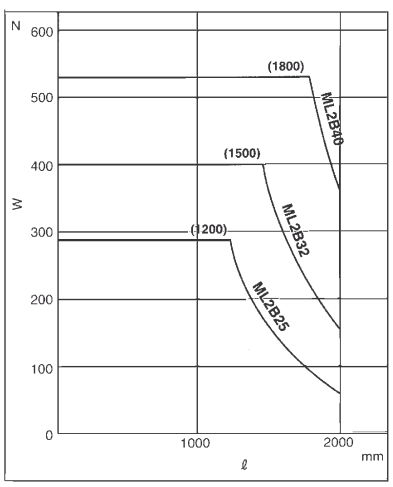


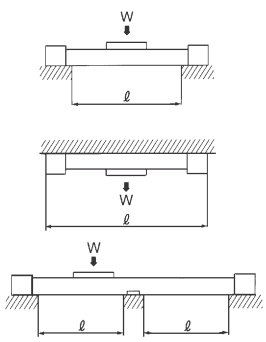


TECHNICAL SPECIFICATIONS
IN CASE OF LONG STROKE

For long stroke operation, the cylinder tube may be deflected accordingly to the dead weight and load. In that case, support the medium position with a side support so that the supporting interval (l) will be lower than the value shown in the diagram.

Note): If the cylinder tube mounting accuracy is not good enough, the side support may cause poor operation. Level the cylinder tube before mounting.

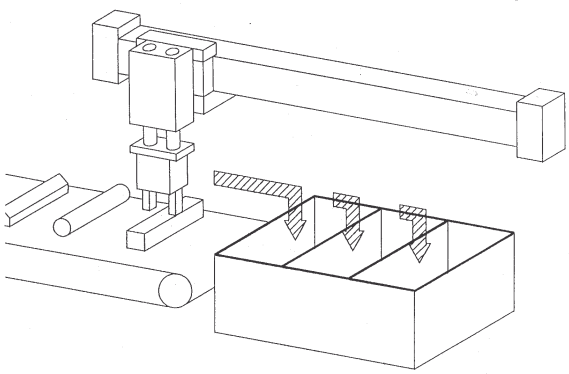




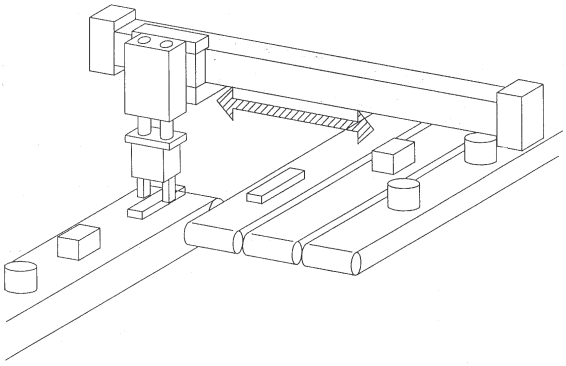
Unsupported span length not to exceed lengths shown by graph.

TECHNICAL SPECIFICATIONS APPLICATIONS

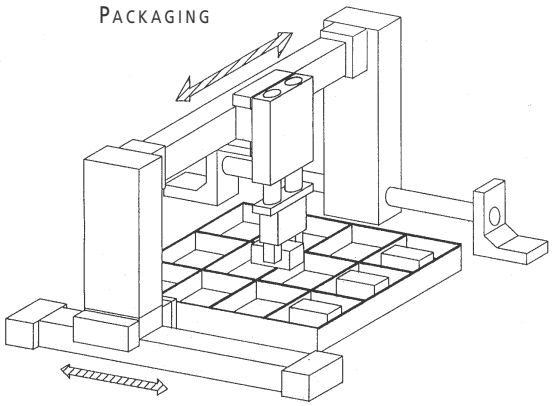
PICK & PLACE



TRANSFER



PACKAGING



HOW TO ORDER SERIES ML2B

ML2 B 25 ○ — 500 L ○ — Z73 ○

MOUNTING
B .....Standard

BORE SIZE
25 ...25mm
32 ...32mm
40 ...40mm

CONTROL METHOD
- .....Brake and scale
S .....With scale only
B .....With Brake only

STANDARD STROKE

Bore size (mm)	Standard Stroke
25	100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1200, 1400, 1600, 1800, 2000
32	100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1200, 1400, 1600, 1800, 2000
40	100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1200, 1400, 1600, 1800, 2000

NO OF STROKE ADJUSTMENT UNIT
- 2
S 1

STROKE ADJUSTMENT UNIT
Nil ...Without Adjusting Bolt
L .....With Shock Absorber and Adjusting Bolt

Shock Absorber Model

Model	ø25	ø32	ø40
.....	RB1007	RB1412	RB1412

AUTOSWITCH TYPE
Reed and Solid State
See Accessories Section

NO OF AUTOSWITCHES
- 2
S 1
n .....n

OPTION

Stroke	Adjustment Unit
25	MY-A25L
32	MY-A32L
40	MY-A40L

STROKE ADJUSTMENT UNIT

25	MY-S25L	MY-S25B
32	MY-S32L	MY-S25B
40	MY-S40L	MY-S32B

MORE HOW TO ORDER SEE NEXT PAGE ☞

How To Order Controller

CEU2

OUTPUT METHOD
- ……NPN Open Collector
P ……PNP Open Collector

How To Order 3 points preset counter

CEU1

OUTPUT METHOD
- ……NPN Open Collector
P ……PNP Open Collector

COUNTER OPERATING POWER SUPPLY
- ……AC80~120V
D ……DC24V ±5%

How To Order Extension Cable

CE1-R

LENGTH OF CABLE
05 …5m
10 …10m
15 …15m
20 …20m

POSTSCRIPT
- ……Extension Cable
C ……Extension Cable & Connector

CONNECTOR'S CONNECTION

Symbol	Color Wire Connection
A	White
B	Yellow
C, D	Brown, Blue
E	Red
F	Black
G	(Shield)

Accessories
Auto Switches for ML2B ø25, 32, 40

Note: Pre-wired Switches with 3/4 Pin Connectors available

Model	Switch Type	Load Voltage	Load Current Range	Internal Voltage Drop	Indicator Light
D-Z73	Reed	24VDC	5~40mA	2.4V or less	ON: Red
		100VAC	5~20mA	2.4V or less	ON: Red
D-Z76	Reed	4~8VDC	20mA	0.8V or less	ON: Red
D-Z80	Reed	24VAC/DC or less	50mA	-	-
		48VAC/DC or less	40mA	-	-
		100VAC/DC or less	20mA	-	-
D-Y7NW	3 Wire Solid State NPN	28VDC or less	40mA or less	1.5V or less (0.8V or less at 5mA)	ON: Red/Green
D-Y7NWY	3 Wire Solid State NPN	28VDC or less	40mA or less	1.5V or less (0.8V or less at 5mA)	ON: Red/Green
D-Y7PW	3 Wire Solid State PNP	-	40mA or less	1.5V or less (0.8V or less at 5mA)	ON: Red/Green
D-Y7PWV	3 Wire Solid State PNP	-	40mA or less	1.5V or less (0.8V or less at 5mA)	ON: Red/Green
D-Y7BW	2 Wire Solid State	24VDC (10~28V)	5~30mA	1mA or less at 24VDC	ON: Red/Green
D-Y7BWV	2 Wire Solid State	24VDC (10~28V)	5~30mA	1mA or less at 24VDC	ON: Red/Green

Accessories
Stroke Adjusting Unit

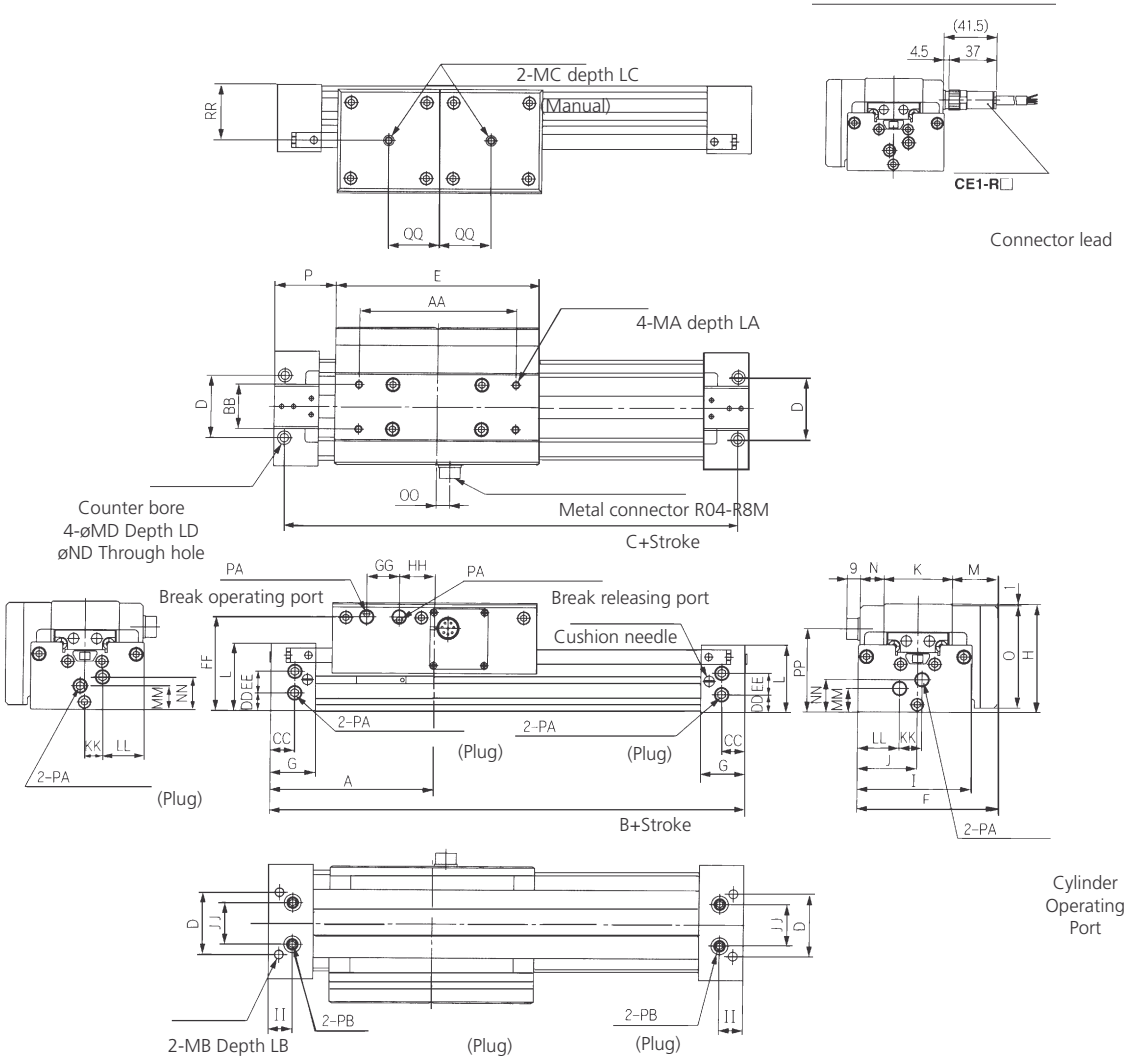
Bore Size	Ø25	Ø32	Ø40
Model	MY-A25L	MY-A32L	MY-A40L

Accessories
Side Support

Bore Size	Ø25	Ø32	Ø40
Side Support A	MY-S25A	MY-S25A	MY-S32A
Side Support B	MY-S25B	MY-S25B	MY-S32B

DIMENSIONS
SEE NEXT PAGE ☞

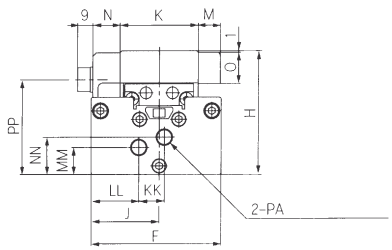
DIMENSIONS
Stroke Reading Rodless Cylinder Series ML2B



Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	AA	BB	CC	DD	EE	FF	GG	HH	II	JJ
ML2B25	110	220	206	42	138	93.5	30	73	76.5	40	46	45.5	30.5	16	69	41	106	30	16	12	13.5	63.5	22	24	16	28
ML2B32	140	280	264	51	168	107.5	37	88	91	46.5	58	54	32	15	84	56	133	36	19	15	16	77.5	27	32	19	32
ML2B40	170	340	322	59	204	130.5	45	106	110	55	68	64	41.5	19	102	68	164	40	23	16.5	22	95	35	37	23	36

Model	KK	LL	MM	NN	OO	PP	QQ	RR	MA	LA	MB	LB	MC	LC	MD	LD	ND	PA	PB
ML2B25	15	28	16	22	9	56	34.5	37.5	M5x0.8	9	M6x1	9.5	M5x0.8	9.5	9	5.5	5.6	Rc (PT) 1/8	Rc (PT) 1/16
ML2B32	16	30.5	21.5	26	10	62.5	42	45	M6x1	12	M8x1.25	15	M6x1	12	11	6.5	6.8	Rc (PT) 1/8	Rc (PT) 1/16
ML2B40	17.5	37.5	24.5	37.5	23	77	51	54	M8x1.25	14	M10x1.5	15	M8x1.25	12	14	8.5	8.6	Rc (PT) 1/4	Rc (PT) 1/8

DIMENSIONS SCALE ONLY

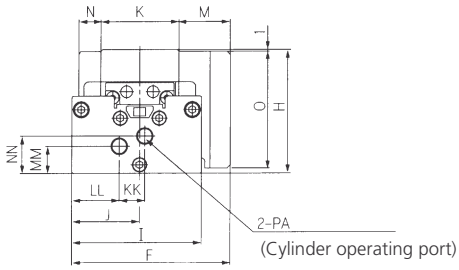


(Cylinder operating port)

Model	F	H	J	K	M	N	O
ML2B25	76.5	73	40	46	13	16	18.5
ML2B32	91	88	46.5	58	15	15	19.5
ML2B40	110	106	55	68	19	19	21.5

Model	KK	LL	MM	NN	PA	PP
ML2B25	15	28	16	22	Rc (PT) 1/8	56
ML2B32	16	30.5	21.5	26	Rc (PT) 1/8	62.5
ML2B40	17.5	37.5	24.5	37.5	Rc (PT) 1/4	77

DIMENSIONS BRAKE ONLY

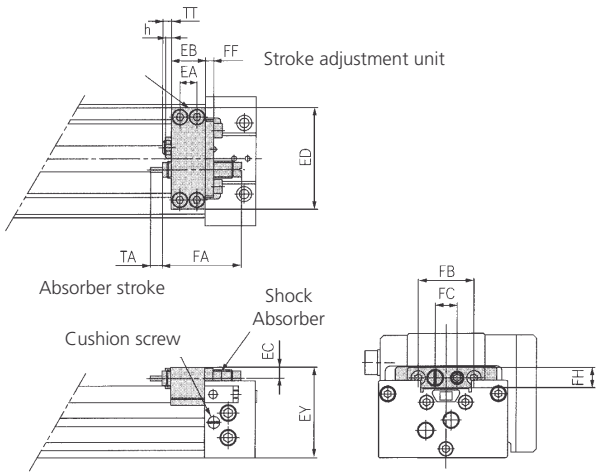


(Cylinder operating port)

Model	F	H	I	J	K	M	N
ML2B25	93.5	73	76.5	40	46	30.5	16
ML2B32	107.5	88	91	46.5	58	32	15
ML2B40	130.5	106	110	55	68	41.5	19

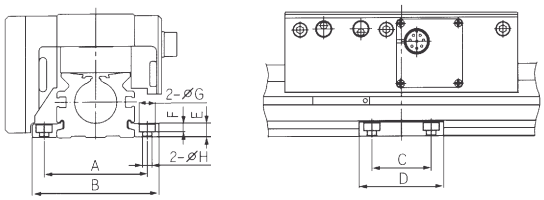
Model	O	KK	LL	MM	NN	PA
ML2B25	69	15	28	16	22	Rc (PT) 1/8
ML2B32	84	16	30.5	21.5	26	Rc (PT) 1/8
ML2B40	102	17.5	37.5	24.5	37.5	Rc (PT) 1/4

DIMENSIONS STROKE ADJUSTING UNIT

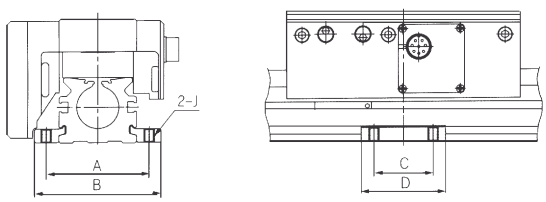


Model	h	EA	EB	EC	ED	EY	FA	FB	FC	FF	FH	TA	TT
ML2B25	3.5	10	20	6.5	60	53.5	46.7	33	13	6	12	7	MAX. 16.5
ML2B32	4.5	12	25	8.5	74	67	67.3	43	17	6	16	12	MAX. 20
ML2B40	4.5	15	31	9.5	94	81.5	67.3	43	17	6	16	12	MAX. 25

DIMENSIONS SIDE SUPPORT UNIT COUNTER BORED (SIDE SUPPORT A)



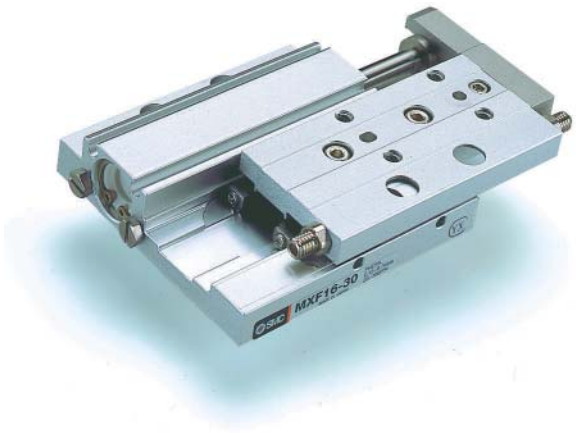
DIMENSIONS SIDE SUPPORT UNIT TAPPED (SIDE SUPPORT B)



Part No.	Applicable Cylinder	A	B	C	D	E	F	G	H	J
MY-S25$^{A}_{B}$	ML2B25	61	75	35	50	8	5	9.5	5.5	M6x1
	ML2B32	70	84							
MY-S32$^{A}_{B}$	ML2B40	87	105	45	64	11.7	6	11	6.6	M8x1.25

LOW PROFILE SLIDE TABLE SERIES MXF BORE SIZES Ø8, 12, 16, 20MM

- Slim body - Parallel arrangement of guide and cylinder
- Front and top mounting options
- High rigidity, high precision
- Standard stroke adjustment



TECHNICAL SPECIFICATIONS

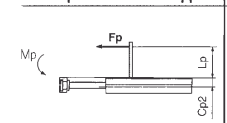
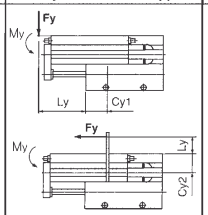
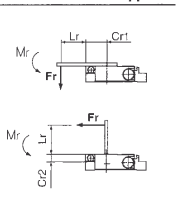
Bore Size (mm)	Ø8	Ø12	Ø16	Ø20
Port size	M3x0.5	M5.0.8	M5.0.8	M5.0.8
Fluid	Air			
Action	Double Acting			
Operating pressure	0.15 ~ 0.7MPa / 22 ~ 102PSI			
Proof pressure	1.05MPa / 153PSI			
Ambient and fluid temp.	-10 ~ +60°C / 14 ~ 140°F			
Operating speed range	50 – 500mm/s / 2 ~ 20in/s			
Cushion	Rubber Bumper both ends			
Lubrication	Non-lube			
Stroke tolerance	+1mm – 0mm			
Stroke adjustment range	5mm per end			
Construction	Body/Table	Aluminum Alloy		
	Rail/Guide	Carbon Tool Steel		

PRODUCT SELECTOR ALLOWABLE STATIC MOMENT

Model Stroke (mm)	Allowable Static Moment: Mp, My, Mr, (N.m)						Correction Value For Moment Centre Distance mm					
	10	20	30	50	75	100	Cp1	Cp2	Cy1	Cy2	Cr1	Cr2
MXF8	0.56	0.78	0.98	-	-	-	*6	10	*6	21	21	10
MXF12	-	1.65	2.22	3.34	-	-	10	11	10	23	23	11
MXF16	-	-	3.41	5.69	7.96	-	10	12	10	28	28	12
MXF20	-	-	6.66	9.14	13.70	18.27	11	17	11	34	34	17

*Note) 16mm only for MXF8-10.

■Formula for calculation of allowable static load,Fp,Fy and Fr

When pitch moment is applied	When yaw moment is applied	When roll moment is applied
		
$Fp = \frac{Mp \times 1000}{(Lp + Cp)}$ (N)	$Fy = \frac{My \times 1000}{(Ly + Cy)}$ (N)	$Fr = \frac{Mr \times 1000}{(Lr + Cr)}$ (N)
Lp: Distance between body and load point (mm) Cp: Correction value for moment center distance (mm)	Ly: Distance between body and load point (mm) Cy: Correction value for moment center distance (mm)	Lr: Distance between body and load point (mm) Cr: Correction value for moment center distance (mm)

HOW TO ORDER MXF SLIDE TABLE

MXF ○ — ○ — ○ ○

NO OF SWITCHES
- ...2 Pieces
S ...1 Piece
n ...n Pieces

TYPE OF AUTO SWITCHES
See Accessories Section

BORE SIZE
Ø8 .....10, 20, 30
Ø12 .....20, 30, 50
Ø16 .....30, 50, 75
Ø20 .....30, 50, 75, 100

STROKE (MM)

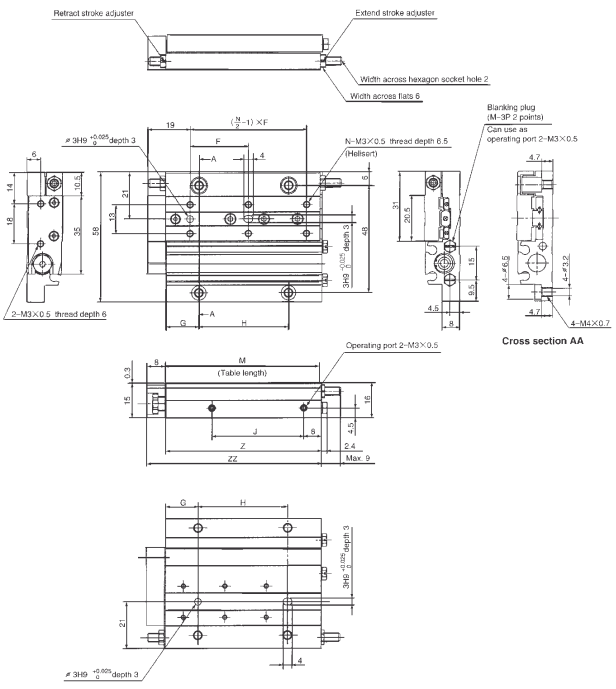
DIMENSIONS SEE NEXT PAGE ☞

ACCESSORIES
AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available

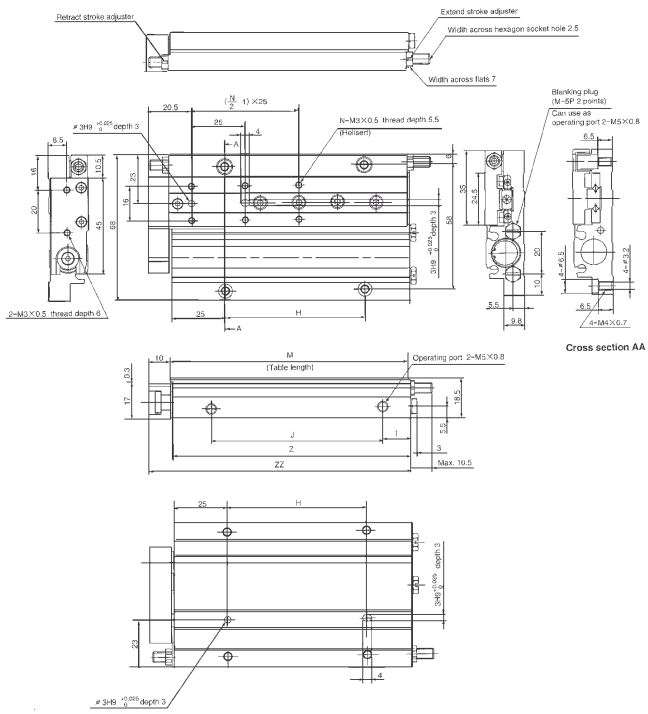
Type	Electrical Entry	Auto Switch	Application	Load Voltage	Load	Internal	Indicator
Reed	Grommet	D-A90L	PLC	24VAC/DC	50mA	0	No
				48VAC/DC	40mA		
				100VAC/DC	20mA		
Reed	Grommet	D-A93L	PLC	24VDC	5 ~ 40mA	2.6V or less	Yes
				100VDC	5 ~ 20mA		
Solid State	Grommet	D-F9NL	24VDC PLC	28VDC or Less	50mA or less	0.4V or less	Yes
Solid State	Grommet	D-F9PL	24VDC PLC	-	50mA or less	1.5V or less	Yes
Solid State	Grommet	D-F9B	24VDC PLC	24VDC (10~28VDC)	5 ~ 30mA	4.5V or less	Yes
Solid State (2 Color Ind)	Grommet	D-F9NWL	24VDC PLC	28VDC or Less	50mA or less	0.4V or less	Yes
Solid State (2 Color Ind)	Grommet	D-F9PW	24VDC PLC	-	50mA or less	5V or less	Yes

DIMENSIONS
MXF8



Model	F	N	G	H	J	M	Z	ZZ
MXF8-10	20	4	13.5	22	21	49	49.5	58
MXF8-20	26	4	14.5	26	26	54	54.5	63
MXF8-30	26	6	14.5	40	41	69	69.5	78

DIMENSIONS
MXF12

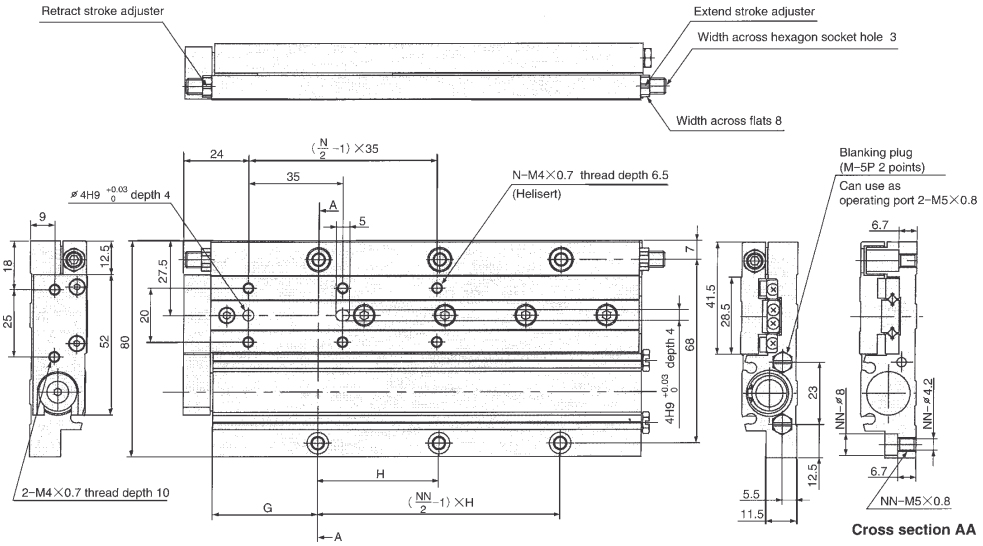


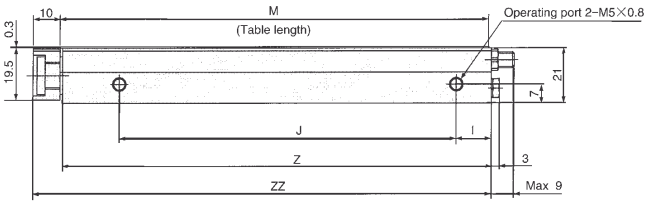
Model	N	H	I	J	M	Z	ZZ
MXF12-20	4	22	11	36	65	65	76
MXF12-30	4	30	12	45	75	75	86

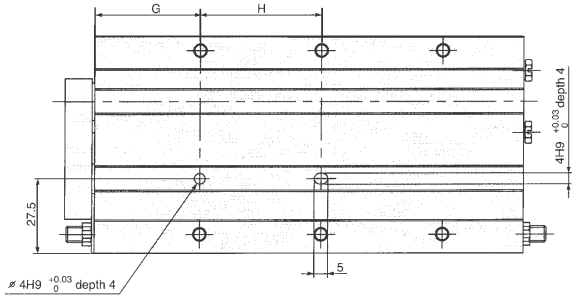
DIMENSIONS
SEE NEXT PAGE ☞

Low Profile Slide Table
Series MXF

Dimensions MXF16

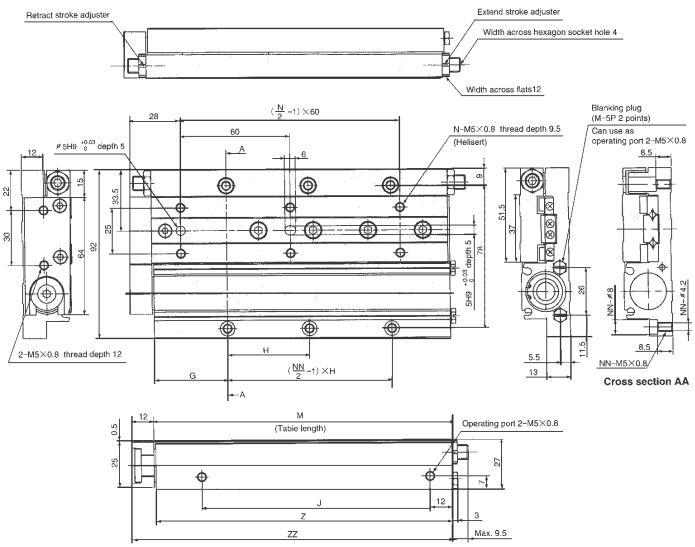


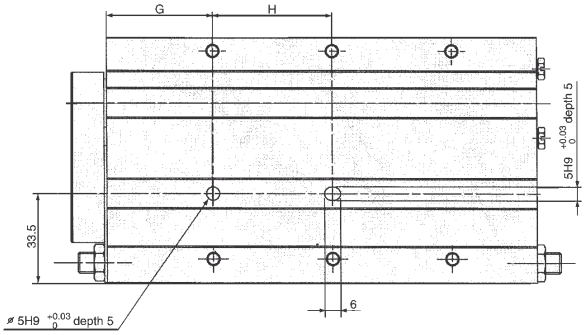




Model	N	G	H	NN	I	J	M	Z	ZZ
MXF16−30	4	29	25	4	12	50	83	83	94
MXF16−50	6	29	55	4	12	80	113	113	124
MXF16−75	6	39	45	6	13	125	159	159	170

Dimensions MXF20





Model	N	G	H	NN	J	M	Z	ZZ
MXF20-30	4	29	30	4	40	91	91	104
MXF20-50	4	36	45	4	77	113	113	126
MXF20-75	6	40	45	6	125	162	162	175
MXF20-100	6	59	60	6	175	211	211	224

SERIES MXS
BORE SIZES Ø6, 8, 12, 16, 20, 25MM
INTEGRATED SLIDE TABLE AND DUAL ROD PNEUMATIC CYLINDER

- Cross Roller Bearing Guides
- Adjustable Stroke Option
- Endlock can be specified
- End of Stroke Buffer available
- Six Body Sizes released
- Base, Through Body and End Face Mounting possible
- Auto Switch capable as standard
- Location Dowel Holes in Worktable

TECHNICAL SPECIFICATIONS
STOCK STROKES

Size	Strokes Available (mm)
MXS6	10,20,30,40,50
MXS8	10,20,30,40,50,75
MXS12	10,20,30,40,50,75,100
MXS16	10,20,30,40,50,75,100,125
MXS20	10,20,30,40,50,75,100,125,150
MXS25	10,20,30,40,50,75,100,125,150

Note 1): Endlock

Mounted onto the rear face of the cylinder, this automatically operating lock engages when the MXS is in the retracted position to prevent the load from moving in the event of air failure or machine shutdown. Usually used when the MXS is mounted vertically with a suspended load.

Note 2): Axial Piping

Allows piping through the rear face of the MXS (opposite the piston rod) instead of the body side adjacent to the piston.

Note 3): End of stroke buffer.

Spring loaded workpiece mounting plate for obstacle detection and protection of workpiece. An autoswitch can be mounted to indicate operation of the buffer, operated by a magnet on the piston. By reversing the direction of the switch, NO or NC operation is achievable.

TECHNICAL SPECIFICATIONS

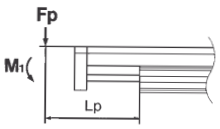
Size	Ø6	Ø8	Ø12	Ø16	Ø20	Ø25
Port Size	M3x0.5	M5x0.8			Rc(PT) 1/8	
Fluid	Air					
Operating Pressure	0.15 ~ 0.7 MPa / 22 ~ 102PSI					
Proof Pressure	1.05MPa / 153PSI					
Ambient & Fluid Temperature	-10~ +60°C / 40 ~ 140°F					
Lubrication	Not Required					
Auto Switches	Autoswitch Capable as Standard					
Speed	50 ~ 500mm/s / 2 ~ 20in/s					
Piston Rod Diameter (mm)	3	4	6	8	10	12
	Optional Buffer Specification.					
Operating Stroke (mm)	5		10			
Buffer Load at 0mm stroke (N)	3	5	10	13	17	21
Buffer Load at max stroke (N)	6	8	13	17	25	29

TECHNICAL SPECIFICATIONS
COMBINATION OF OPTIONS POSSIBLE WITH STROKE ADJUSTERS:

Stroke Adjuster	No Option	Buffer Spring F	End Lock R	Axial Piping P	Buffer + End Lock FR	Buffer + Axial Piping FP
None	YES	YES	YES	YES	YES	YES
AS (Front)	YES	YES	YES	YES	YES	YES
AT (Rear)	YES	YES	NO	NO	NO	NO
A (Both ends)	YES	YES	NO	NO	NO	NO

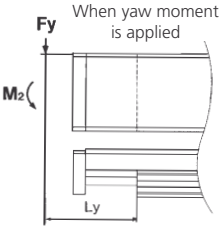
TECHNICAL SPECIFICATIONS
FORMULA FOR CALCULATION OF ALLOWABLE STATIC LOAD, FP, FY, AND FR

When pitch moment is applied



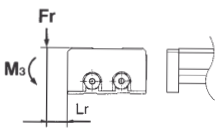
$$Fp = \frac{M_1 \times 1000}{Lp + Cp} \text{ (N)}$$

When yaw moment is applied



$$Fy = \frac{M_2 \times 1000}{Ly + Cy} \text{ (N)}$$

When roll moment is applied



$$Fr = \frac{M_3 \times 1000}{Lr + Cr} \text{ (N)}$$

Lp : Distance between body and load point (mm)
Cp: Correction value for moment center distance (mm)

Ly : Distance between body and load point (mm)
Cy: Correction value for moment center distance (mm)

Lr : Distance between body and load point (mm)
Cr : Correction value for moment center distance (mm)

★ Portable weight should be 1/10 or less of the allowable static load in consideration of the overhang or inertia.

TECHNICAL SPECIFICATIONS
ALLOWABLE STATIC MOMENT

Cylinder Bore (mm)	Stroke(mm)	Allowable Static Moment: Common to M1, M2, and M3 (N•m)									Moment Center Distance (mm)		
		10	20	30	40	50	75	100	125	150	Cp	Cy	Cr
MXS6		0.70	0.98	1.22	1.22	1.22	-	-	-	-	11	13	16
MXS8		2.06	2.06	2.78	3.59	4.17	4.17	-	-	-	11	13	20
MXS12		4.26	4.26	4.26	5.81	7.11	9.95	9.95	-	-	24	26	25
MXS16		8.33	8.33	8.33	8.33	11.42	17.13	22.84	22.84	-	27	30	31
MXS20		13.79	13.79	13.79	13.79	19.31	24.83	35.87	35.87	35.87	34	36	38
MXS25		21.73	21.73	21.73	21.73	30.42	39.11	47.80	47.80	47.80	42	44	46

HOW TO ORDER
SEE NEXT PAGE ☞

SERIES MXS

HOW TO ORDER

MXS ● — ● ● ● — ● ●

BORE SIZES
6, 8, 12, 16, 20, 25

STROKE
See table of available strokes on previous page

STROKE ADJUSTER
- .....None
AS ...Front
AT ...Rear
A .....Both ends

OPTION
- .....None
F .....Buffer spring (See note 3, previous page)
R .....End lock (See note 1, previous page)*
P .....Axial piping (see note 2, previous page)
FR ...Buffer and end lock*
FP.....Buffer and axial piping

Optional Shock Absorber Kits are available

*End Lock Option is not available for MXS6
Note) for combination with adjuster option, refer to table below.

Adjuster option \ Functional option	-	F	R	P	FR	FP
-	O	O	O	O	O	O
AS	O	O	O	O	O	O
AT	O	O	X	X	X	X
A	O	O	X	X	X	X

O : Available X : Not Available

NO OF AUTO SWITCHES
- .....2 Pieces
S .....1 Piece
n .....n Pieces

TYPE OF AUTO SWITCHES
See Accessories Section

ACCESSORIES REED SWITCH

Note: Pre-wired Switches with 3/4 Pin Connectors available

Auto Switch No.	Load voltage	Max. load current and load current range	Internal voltage drop	Indicator lamp (Lit at ON condition)	Applications
D-A90L D-A90VL	24v AC/DC or less	50mA	0	None	PLC
	48v AC/DC or less	40mA			
	100v AC/DC or less	20mA			
D-A93L D-A93VL	24VDC	5~40mA	2.6V or less	•	PLC
	100VAC	5~20mA			
D-A96L, D-A96VL	4~8VDC	20mA	0.8V or less	•	PLC

ACCESSORIES APPLICABLE AUTO SWITCH MODEL

Applicable bore size	Auto switch model		Lead wire entry	
ø6, ø8, ø12, ø16, ø20, ø25	Reed switch	D-A90	Grommet	2 wire system, inline
		D-A93		
		D-A96		3 wire system, inline
		D-A90V		2 wire system, perpendicular
		D-A93V		
		D-A96V		3 wire system, perpendicular
	Solid state switch	D-F9N		3 wire system, NPN type inline
		D-F9P		3 wire system, PNP type inline
		D-F9B		2 wire system, inline
		D-F9NV		3 wire system, NPN type perpendicular
		D-F9PV		3 wire system, PNP type perpendicular
		D-F9BV		2 wire system, perpendicular

Note: Pre-wired Switches with 3/4 Pin Connectors available

ACCESSORIES SHOCK ABSORBERS

MXS Model	MXS8	MXS12	MXS16	MXS20	MXS25
Shock Absorber Model	RB0805	RB0806	RB1007	RB1411	RB1412

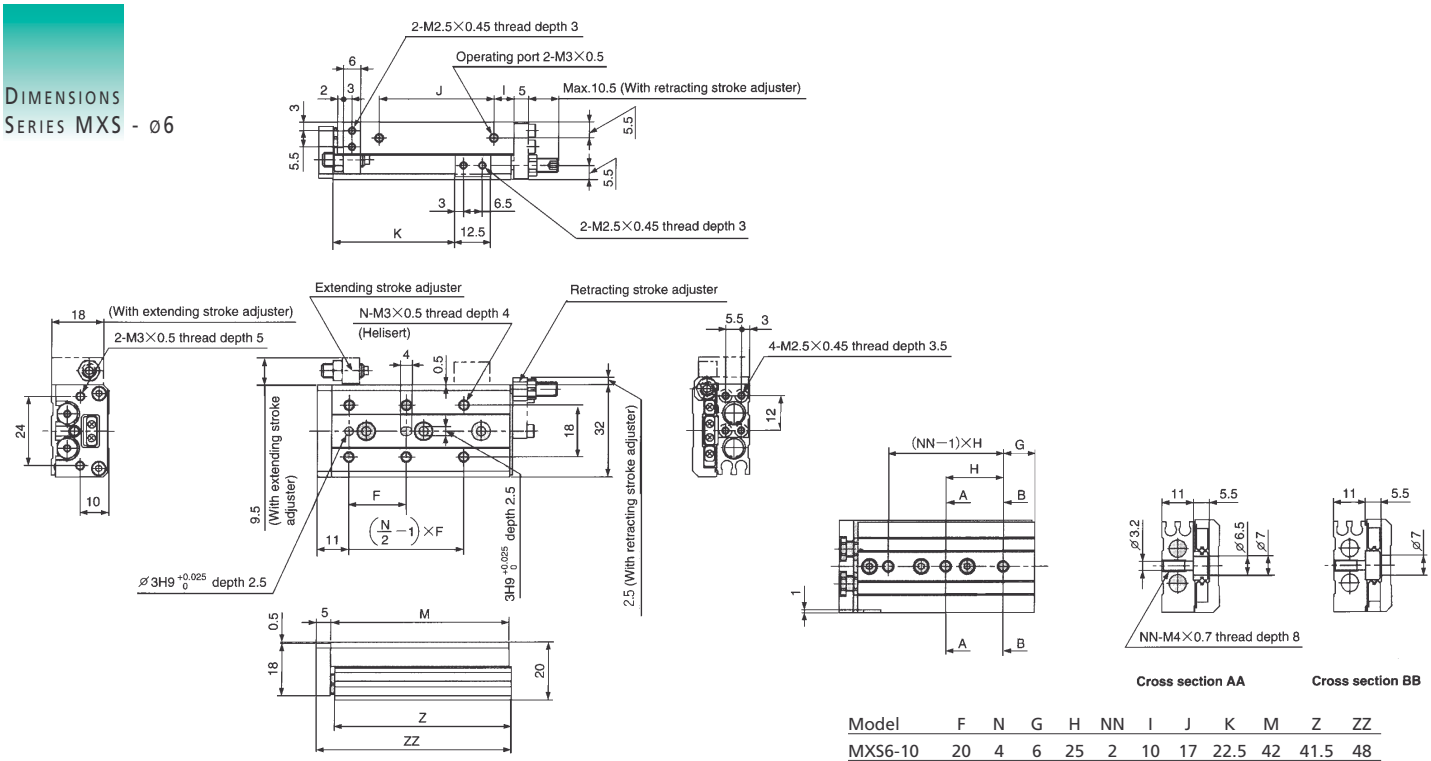
ACCESSORIES SOLID STATE SWITCH

Auto Switch No	Output Type	Load Voltage	Max Load Current and Load Current Range	Internal Voltage Drop	Leakage Current	Applications
D-F9NL *D-F9NVL	NPN type	28VDC or less	50mA or less	0.4V or less	24VDC at 10µA or less	PLC
D-F9PL *D-F9PVL	PNP type			1.5V or less		
D-F9BL *D-F9BVL	-	24VDC (10~28VDC)	5~30mA	4.5V or less	24VDC at 1mA or less	24VDC PLC

* These switches are applicable to the obstacle detection system on MXS ●–●●F type cylinders.

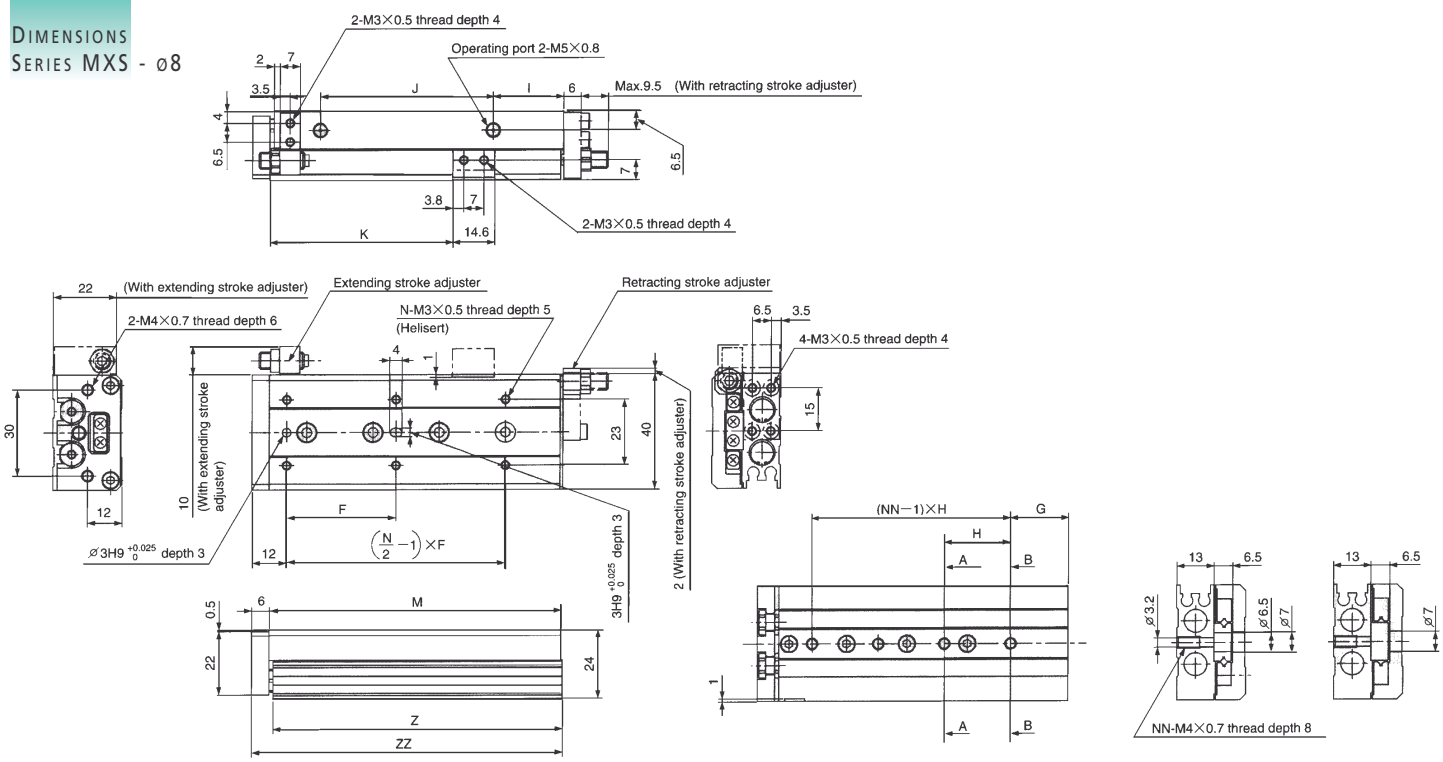
DIMENSIONS SEE NEXT PAGE ☞

DIMENSIONS SERIES MXS - ø6



Model	F	N	G	H	NN	I	J	K	M	Z	ZZ
MXS6-10	20	4	6	25	2	10	17	22.5	42	41.5	48
MXS6-20	30	4	6	35	2	10	27	32.5	52	51.5	58
MXS6-30	20	6	11	20	3	7	40	42.5	62	61.5	68
MXS6-40	28	6	13	30	3	19	50	52.5	84	83.5	90
MXS6-50	38	6	17	24	4	25	60	62.5	100	99.5	106

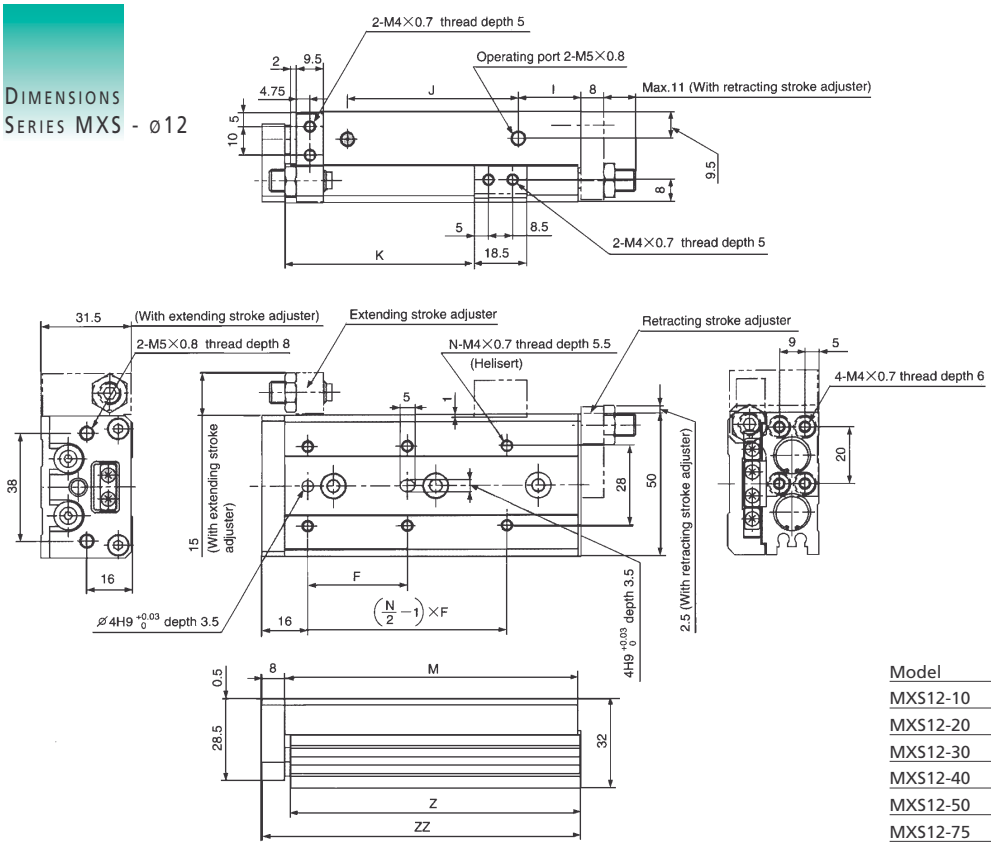
DIMENSIONS SERIES MXS - ø8

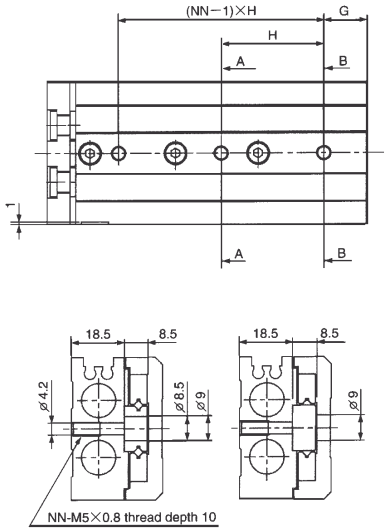


Model	F	N	G	H	NN	I	J	K	M	Z	ZZ
MXS8-10	25	4	9	28	2	13	19.5	23.5	49	48.5	56
MXS8-20	25	4	12	30	2	8.5	29	33.5	54	53.5	61
MXS8-30	40	4	13	20	3	9.5	39	43.5	65	64.5	72
MXS8-40	50	4	15	28	3	10.5	56	53.5	83	82.5	90
MXS8-50	38	6	20	23	4	24.5	60	63.5	101	100.5	108
MXS8-75	50	6	27	28	5	38.5	96	88.5	151	150.5	158

SERIES MXS

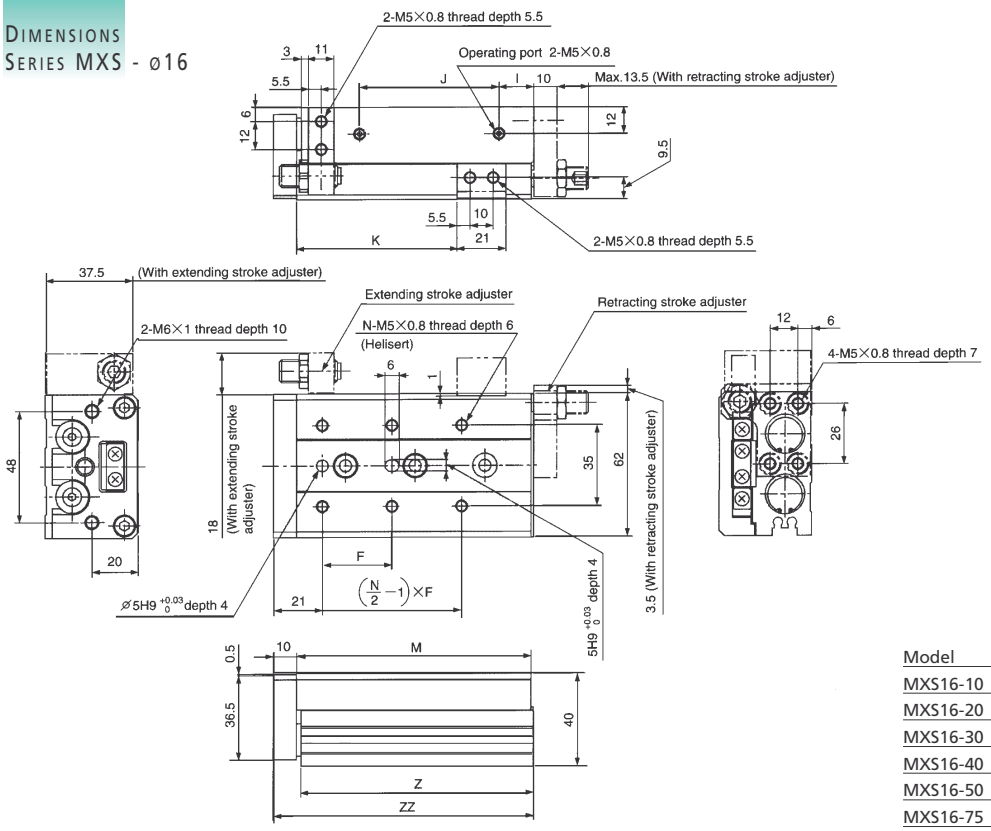
DIMENSIONS SERIES MXS - ø12

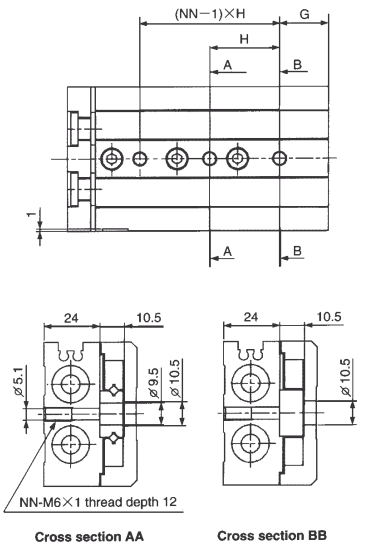




Model	F	N	G	H	NN	I	J	K	M	Z	ZZ
MXS12-10	35	4	15	40	2	10	40	26.5	71	70	80
MXS12-20	35	4	15	40	2	10	40	36.5	71	70	80
MXS12-30	35	4	15	40	2	10	40	46.5	71	70	80
MXS12-40	50	4	17	25	3	10	52	56.5	83	82	92
MXS12-50	35	6	15	36	3	22	60	66.5	103	102	112
MXS12-75	55	6	25	36	4	43	85	91.5	149	148	158
MXS12-100	65	6	35	38	5	52	130	116.5	203	202	212

DIMENSIONS SERIES MXS - ø16

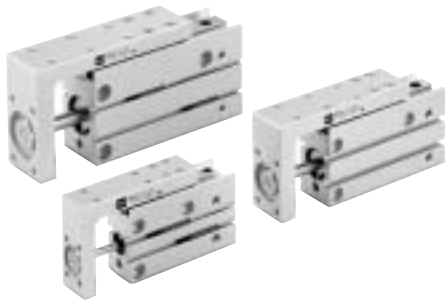




Model	F	N	G	H	NN	I	J	K	M	Z	ZZ
MXS16-10	35	4	16	40	2	10	40	29	76	75	87
MXS16-20	35	4	16	40	2	10	40	39	76	75	87
MXS16-30	35	4	16	40	2	10	40	49	76	75	87
MXS16-40	40	4	16	50	2	10	50	59	86	85	97
MXS16-50	30	6	21	30	3	15	30	69	101	100	112
MXS16-75	55	6	26	35	4	40	70	94	151	150	162
MXS16-100	65	6	39	35	5	55	70	119	199	198	210
MXS16-125	70	8	19	35	7	68	70	144	249	248	260

SERIES MXH
BORE SIZES Ø6, 10, 16, 20MM
COMPACT SLIDE TABLE

- Excellent Rigidity, Linearity and Non-Rotating Accuracy
- Suitable for Short Pitch Mounting
- 4 Mounting Directions
- Piping is possible from 3 Directions



HOW TO ORDER SERIES MXH

MXH ○ — ○ — A90 ○

BORE SIZE / STANDARD STROKE (MM)

ø6 ... 5, 10, 15, 20, 25, 30, 40, 50, 60
ø10 ... 5, 10, 15, 20, 25, 30, 40, 50, 60
ø16 ... 5, 10, 15, 20, 25, 30, 40, 50, 60
ø20 ... 5, 10, 15, 20, 25, 30, 40, 50, 60

TYPE OF AUTO SWITCHES

- .....Without
*With Auto Switch, see Accessories Section

NO OF SWITCHES

- .....2 Pieces
S .....1 Piece

TECHNICAL SPECIFICATIONS SERIES MXH

Bore Size (mm)	6	10	16	20
Guide Rail Width (mm)	5	7	9	12
Fluid Used	Air			
Action	Double Acting Type			
Port Size	M5 x 0.8			
Min Operating Pressure	17.4PSI 0.12MPa	8.7PSI 0.06MPa	8.7PSI 0.06MPa	7.3PSI 0.05MPa
Max Operating Pressure	100PSI / 0.7MPa			
Proof Pressure	152PSI / 1.05MPa			
Ambient & Fluid Temperature	W/O Auto Switch: 14~158°F / -10~70°C (without freezing) With Auto Switch: 14~140°F / -10~60°C (without freezing)			
Piston Speed	2 ~ 20in/s / 50 ~ 500mm/s			
Lubrication	Non-lube			
Cushion	Rubber Bumpers at both ends			
Stroke Length Tolerence (mm)	0 ~ +1.0			
Auto Switches (Optional)	Reed Switch D-A9* / Solid State Switch D-F9* See Accessories Section			

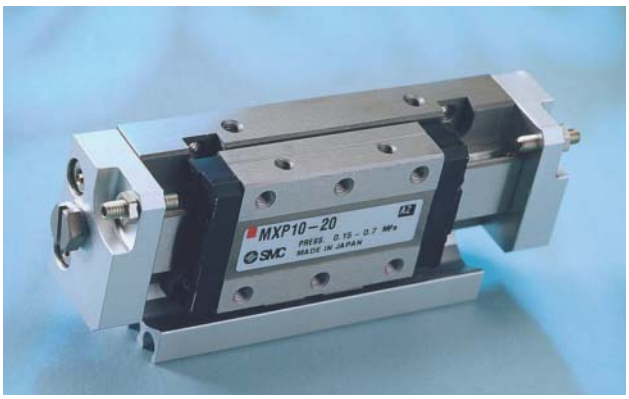
ACCESSORIES AUTO SWITCHES SERIES MXH

Note: Pre-wired Switches with 3/4 Pin Connectors available

Type	Special Function	Electrical Entry	Indication Light	Wiring (Output)	Load Voltage DC		AC	Auto Switch Part No Electrical Entry Direction Perpendicular	In-Line	Lead Wire Length (m) 0.5 (Nil)	3 (L)	5(Z)	Applicable Load	
Reed Switch	-	Grommet	No	2 Wire	24V	5V,12V	100V or less	A90V	A90	•	•	-	IC Circuit	Relay PLC
	-		Yes	2 Wire	24V	12V	100	A93V	A93	•	•	-	-	Relay PLC
	-		Yes	3 Wire (Equivalent to NPN)	-	5V	-	A96V	A96	•	•	-	IC Circuit	-
Solid State Switch	-	Grommet	Yes	3 Wire (NPN)	24V	12V	-	F9NV	F9N	•	•	-	-	Relay PLC
	-			3 Wire (PNP)				F9PV	F9P	•	•	-		
	-			2 Wire				F9BV	F9B	•	•	-		
	Diagnostic Output (2 Color Indication)			3 Wire (NPN)				F9NWV	F9NW	•	•	•		
				3 Wire (PNP)				F9PWV	F9PW	•	•	•		
				2 Wire				F9BWV	F9BW	•	•	•		

SERIES MXP
BORE SIZES Ø10, 12, 16MM
PRECISION AIR SLIDE TABLE

- High Rigidity and High Accuracy
- With Built-in Cylinder Guide
- Parallelism: 0.02mm
- Traveling Parallelism: 0.004mm



HOW TO ORDER SERIES MXP

MXP ○ — ○ ○ — F9N ○

BORE SIZE / STROKE (MM)

ø10	10, 20
ø12	15, 25
ø16	20, 30

AUTO SWITCH

- .....Without Magnet and Rail
N* ...Without Magnet and Rail
Auto Switch cannot be mounted on N type

AUTO SWITCH TYPE

- .....Without Auto Switch
See Accessories Section for Auto Switch Part No

NO OF SWITCHES

- .....2 Pieces
S .....1 Piece
n .....n Pieces

TECHNICAL SPECIFICATIONS SERIES MXP

Model	MXP10	MXP12	MXP16
Bore Size (mm)	10	12	16
Piping Port	M5 x 0.8		
Fluid Used	Air		
Action	Double Acting		
Operating Pressure	0.15 ~ 0.7MPa / 22 ~ 102PSI		
Ambient & Fluid Temperature	-10~60°C / 14 ~ 140°F		
Operating Speed Range	50 ~ 500mm/s / 2 ~ 20in/s		
Cushion	Bumper		
Lubrication	Not Required		
Stroke Adjuster	Standard Option		
Stroke Adjuster Range	Each 0 ~ 3mm at both ends		
Auto Switch	Reed Switch (See Accessories Section)		
	Solid State Switch (See Accessories Section)		
Tolerance of Stroke Length	0 ~ 1mm		

SPECIFICATIONS THEORETICAL OUTPUT DATA SERIES MXP

Bore Size (mm)	Piston Area (in^2)	Operating Pressure (PSI) 25	40	60	80	100
10	0.122	3.1	4.9	7.3	9.8	12.2
12	0.175	4.4	7.0	10.5	14.0	17.5
16	0.312	7.8	12.5	18.7	24.9	31.2

ACCESSORIES AUTO SWITCHES SERIES MXP

Note: Pre-wired Switches with 3/4 Pin Connectors available

Type	Special Function	Electrical Entry	Indication Light	Wiring (Output)	Load Voltage DC		AC	Auto Switch Part No Electrical Entry Direction Perpendicular	In-Line	Lead Wire Length (m) 0.5 (Nil)	3 (L)	Applicable Load	
	-		Without	2 Wire	24V	5V, 12V	100V or less	**A90V**	**A90**	•	•	IC Circuit	Relay PLC
Reed Switch	-	Grommet	With	2 Wire	24V	12V	100V	**A93V**	**A93**	•	•	-	Relay PLC
	-		With	3 Wire (Equivalent to NPN)	-	5V	-	**A96V**	**A96**	•	•	IC Circuit	-
Solid	-			3 Wire (NPN)				**F9NV**	**F9N**	•	•		
	-			3 Wire (PNP)				**F9PV**	**F9P**	•	•		
State	-	Grommet	With	2 Wire	24V	12V	-	**F9BV**	**F9B**	•	•	-	Relay PLC
	Diagnostic			3 Wire (NPN)				**F9NWV**	**F9NW**	•	•		
Switch	Output			3 Wire (PNP)				**F9PWV**	**F9PW**	•	•		
	(2 Color Indication)			2 Wire				**F9BWV**	**F9BW**	•	•		

SERIES MXPJ6
BORE SIZES Ø6MM
PRECISION AIR SLIDE TABLE

HOW TO ORDER SERIES MXPJ6

MXPJ6 —

STANDARD STROKE
5 .....5mm
10 .....10mm

SPECIFICATIONS
THEORETICAL OUTPUT DATA SERIES MXPJ6

Bore Size (mm)	Piston Area (in²)	Operating Pressure (PSI) 25	40	60	80	100
6	0.043	1.1	1.7	2.6	3.5	4.3

1 lbf = 4.4482N

TECHNICAL SPECIFICATIONS SERIES MXPJ6

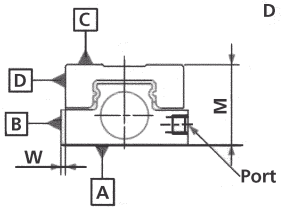
Model	MXPJ6
Bore Size (mm)	ø6
Piping Port	M3 x 0.8
Fluid Used	Air
Action	Double Acting
Operating Pressure	0.15 ~ 0.7MPa / 22 ~ 102PSI
Ambient & Fluid Temperature	-10~60°C / 14 ~ 140°F
Operating Speed Range	50 ~ 500mm/s / 2 ~ 20in/s
Cushion	Rubber Bumper
Lubrication	Not Required
Tolerance of Stroke Length	0 ~ 1mm

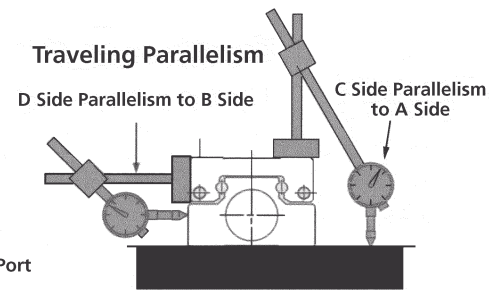
ACCESSORIES
RAIL ASSEMBLY FOR AUTO SWITCH MOUNTING

Applicablr Size	Part No of Switch Rail	Note
MXP10-10	MXP-AD10-10	
MXP10-20	MXP-AD10-20	
MXP12-15	MXP-AD12-15	With Magnet and Mounting Screw
MXP12-25	MXP-AD12-25	
MXP16-20	MXP-AD10-20	
MXP16-30	MXP-AD12-25	

SPECIFICATIONS
TRAVELING PARALLELISM SERIES MXP

		MXPJ6	MXP10	MXP12	MXP16
Parallelism	C Side Parallelism to A Side	0.02 mm			
	D Side Parallelism to B Side	0.02 mm			
Traveling Parallelism	C Side Parallelism to A Side	0.004 mm			
	D Side Parallelism to B Side	0.004 mm			
Dimension Tolerance of M		±0.05 mm			
Dimension of Tolerance W		±0.05 mm			





Distance from 0 of gauge dial when guide block is moved full stroke after body is fixed in basic bases

SERIES MXQ
BORE SIZES Ø6, 8, 12, 16, 20, 25MM
AIR SLIDE TABLE

- High Precision and Compact
- With Recirculating Linear Ball Bearings
- Cylinder with Built-in Guide Rail and Table
- Location Dowel Holes in Worktable

HOW TO ORDER SERIES MXQ

MXQ ○ ○ — ○ ○ ○ — ○ ○

SYMMETRIC TYPE
-I .....Standard
L .....Symmetric

BORE SIZE / STROKE (MM)
ø6 ...10, 20, 30, 40, 50
ø8 ...10, 20, 30, 40, 50, 75
ø12 ...10, 20, 30, 40, 50, 75, 100
ø16 ...10, 20, 30, 40, 50, 75, 100, 125
ø20 ...10, 20, 30, 40, 50, 75, 100, 125, 150
ø25 ...10, 20, 30, 40, 50, 75, 100, 125, 150

ADJUSTER OPTIONS
- .....Without Adjuster
AS ...Rubber Stopper / Front End
AT ...Rubber Stopper / Back End
A .....Rubber Stopper / Both Ends
BS* ...Shock Absorber / Front End
BT* ...Shock Absorber / Back End
B* ...Shock Absorber / Both Ends
CS ...Metal Stopper / Front End
CT ...Metal Stopper / Back End
C .....Metal Stopper / Both Ends

* Not Available with MXQ6

FUNCTIONAL OPTIONS
-I .....Standard
F .....With Buffer
R* ...With End Lock
P .....Axial Piping
FR* ...With Buffer and End Lock
FP.....With Buffer and Axial Piping

* Not Available for MXQ6

TYPE OF AUTO SWITCHES
- .....Without
*With Auto Switch, see Accessories Section

NO OF SWITCHES
- .....2 Pieces
S .....1 Piece
n .....n Pieces

TECHNICAL SPECIFICATIONS SERIES MXQ

Bore Size (mm)	6	8	12	16	20	25
Piping Port	M5 x 0.8				Rc(PT)1/8	
Fluid Used	Air					
Action	Double Acting					
Operating Pressure	0.15 ~ 0.7MPa / 22 ~ 100PSI					
Proof Pressure	1.05MPa / 150PSI					
Ambient & Fluid Temperature	-10~60°C / 14 ~ 140°F					
Operating Speed Range	50 ~ 500mm/s (Adjuster Option, Metal Stopper: 50~200mm/s)					
	2 ~ 20in/s				2 ~ 8in/s	
Cushion	Rubber Cushion (Standard, Adjuster Option, Rubber Stopper)					
	Shock Absorber (Adjuster Option,Shock Absorber)					
	None (Adjuster Option, Metal Stopper)					
Lubrication	Not Required					

ACCESSORIES SHOCK ABSORBER SERIES MXQ

Model	Type
MXQ8	RB0805
MXQ12	RB0806
MXQ16	RB1007
MXQ20	RB1411
MXQ25	RB1412

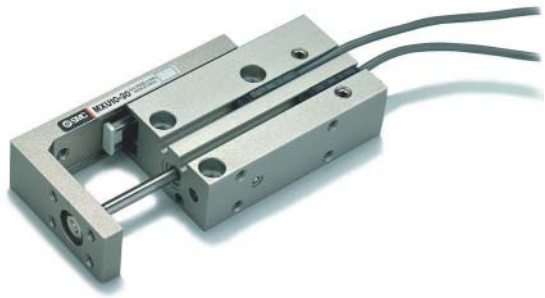
ACCESSORIES AUTO SWITCHES SERIES MXQ

Note: Pre-wired Switches with 3/4 Pin Connectors available

Type	Special Function	Electrical Entry	Indication Light	Wiring (Output)	Load Voltage DC		Load Voltage AC	Auto Switch Part No Electrical Entry Direction Perpendicular	In-Line	Lead Wire Length (m) 0.5 (Nil)	3 (L)	Applicable Load	
	-		Without	2 Wire	24V	5V, 12V	100V or less	A90V	A90	•	•	IC Circuit	Relay PLC
Reed Switch	-	Grommet	With	2 Wire	24V	12V	100V	A93V	A93	•	•	-	Relay PLC
	-		With	3 Wire (Equivalent to NPN)	-	5V	-	A96V	A96	•	•	IC Circuit	-
Solid	-			3 Wire (NPN)				F9NV	F9N	•	•		
	-			3 Wire (PNP)				F9PV	F9P	•	•		
State	-	Grommet	With	2 Wire	24V	12V	-	F9BV	F9B	•	•	-	Relay PLC
	Diagnostic			3 Wire (NPN)				F9NWV	F9NW	•	•		
Switch	Output			3 Wire (PNP)				F9PWV	F9PW	•	•		
	(2 Color Indication)			2 Wire				F9BWV	F9BW	•	•		

COMPACT SLIDE SERIES MXU
BORE SIZES Ø6, 10, 16MM

- Accurate Linear Guided Worktable
- Precise Linear Movement and High Non-Rotating Accuracy
- Multi-Mounting Options
- Rubber Cushion as standard
- No Lubrication necessary



TECHNICAL SPECIFICATIONS

Bore Size		Ø6	Ø10	Ø16
Port Size			M5x0.8	
Fluid			Air	
Action			Double Acting	
Max Operating Pressure			0.7MPa / 102PSI	
Proof Pressure			1.05MPa / 153PSI	
Ambient and Fluid Temp	W/O Auto Switch		-10 +70°C / 14~160°F	
	With Auto Switch		-10 +60°C / 14~140°F	
Operating Speed Range			50 - 500mm/s / 2~20in/s	
Cushion			Rubber Bumper both sides	
Lubrication			Non-Lube	
Stroke Tolerance			+1.0 -0	
Construction	Body/Table		Aluminum Alloy	
	Rail/Guide		Carbon Tool Steel	

HOW TO ORDER MXU COMPACT SLIDE

MXU — — —

BORE SIZE
Ø16
Ø10
Ø16

STROKE (MM)
5, 10, 15, 20,
25, 30

TYPE OF AUTO SWITCHES
See Accessories Section

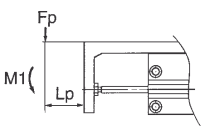
NO OF SWITCHES
- ...2 Pieces
S ...1 Piece

PRODUCT SPECIFICATION ALLOWABLE MOMENT

Model	Stroke	M1	M2	M3	Cp.Cy	Cr
MXU6	5	0.046	0.040	0.049	28.3	7.5
	10	0.046	0.040	0.049	28.3	-
	15	0.061	0.053	0.062	31.5	-
	20	0.061	0.053	0.062	34	-
	25	0.076	0.066	0.074	38.5	-
	30	0.076	0.066	0.074	41	-
MXU10	5	0.047	0.041	0.109	28.5	9.5
	10	0.047	0.041	0.109	31	-
	15	0.080	0.069	0.169	36	-
	20	0.080	0.069	0.169	38.5	-
	25	0.103	0.089	0.212	44	-
	30	0.103	0.089	0.212	46	-
MXU16	5	0.115	0.099	0.296	37.5	12
	10	0.115	0.099	0.296	37.5	-
	15	0.153	0.132	0.380	46	-
	20	0.153	0.132	0.380	46	-
	25	0.190	0.165	0.464	50	-
	30	0.190	0.165	0.464	52.5	-

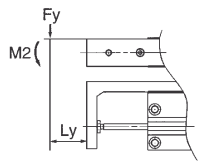
PRODUCT SPECIFICATIONS MAX. LOAD WEIGHT (G)

Model	Max Loading Weight
MXU6	100
MXU10	200
MXU16	400



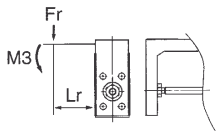
$$Fp=\frac{M1\times1000}{Lp+Cp+(St/2)}\ (N)$$

Lp: Distance between table and loading point (mm)
Cp: Moment center position distance compensation amount (mm)
St: Stroke (mm)



$$Fy=\frac{M2\times1000}{Ly+Cy+(St/2)}\ (N)$$

Ly: Distance between table and loading point (mm)
Cy: Moment center position distance compensation amount (mm)
St: Stroke (mm)



$$Fr=\frac{M3\times1000}{Lr+Cr}\ (N)$$

Lr: Distance between table and loading point (mm)
Cr: Moment center position distance compensation amount (mm)

ACCESSORIES AUTO SWITCHES

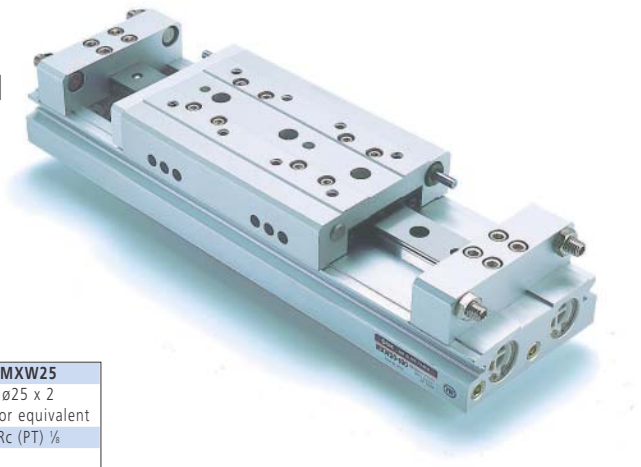
Note: Pre-wired Switches with 3/4 Pin Connectors available

Type	Electrical Entry	Auto Switch	Application	Load Voltage	Load Current	Internal Voltage Drop	Indicator Lamp
Reed	Grommet	D-A90L		24VAC/DC	50mA	0	No
			PLC	48VAC/DC	40mA	-	-
				100VAC/DC	20mA	-	-
Reed	Grommet	D-A93L	PLC	24VDC	5 - 40mA	2.6V or less	Yes
				100VDC	5 - 20mA		
Solid State	Grommet	D-F9NL	24VD PLC	28VDC or less	50mA or less	0.4V or less	Yes
Solid State	Grommet	D-F9PL	24VDC PLC	28VDC or less	50mA or less	1.5V or less	Yes
Solid State	Grommet	D-F9BL	24VD PLC	28VDC 10-28VDC	5 - 30mA	4.5V or less	Yes

DIMENSIONS SEE NEXT PAGE ☞

LONG STROKE SLIDE TABLE SERIES MXW BORE SIZES: Ø8/12/16/20/25MM

- Light Weight and Compact
- High Rigidity and Precision
- Multi Mounting Options
- Rubber Cushion as Standard
- Optional Stroke Adjustment
- Optional Integral Shock Absorber



TECHNICAL SPECIFICATIONS

Model	MXW8	MXW12	MXW16	MXW20	MXW25
Bore Size	ø8 x 2 ø11 or equivalent	Ø12 x 2 Ø17 or equivalent	Ø16 x 2 Ø22.6 or equivalent	Ø20 x 2 Ø28.3 or equivalent	ø25 x 2 ø35 or equivalent
Port Size	M5 x 0.8	M5 x 0.8	M5 x 0.8	Rc (PT) ⅛	Rc (PT) ⅛
Fluid	Air				
Action	Double Acting				
Op. Pressure	0.15 - 0.7MPa / 22~102PSI				
Proof Pressure	1.05MPa / 153PSI				
Ambient & Fluid Temp.	-10 ~ +60°C / 40~140°F				
Op. Speed Range	50 ~ 500mm/s / 2 ~ 20in/s				
Cushion Standard	Urethane Bumper both ends				
Cushion Option	Shock Absorber both ends				
Lubrication	Non-lube				
Stroke Adj. Range	One Side 5mm Both Sides 10mm				
Construction Body/Table	Aluminum Alloy				
Construction Rail/Guide	High Carbon Chrome Bearing				

HOW TO ORDER LONG STROKE SLIDE TABLE MXW

MXW ○ — ○ ○ ○ ○

BORE SIZE
ø8 ……
Ø12 ……
Ø16 ……
Ø20 ……
ø25 ……

NO OF SWITCHES
- . . . . .2 Pieces
S . . . . .1 Piece
n . . . . .n Pieces

TYPE OF AUTO SWITCHES
See Accessories Section

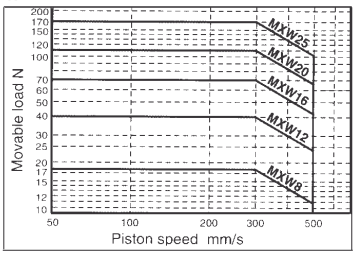
STROKE OPTIONS (MM)
For ø8 . . .25, 50, 75, 100, 125, 150
For Ø12 . .50, 75, 100, 125, 150
For Ø16 . .75, 100, 125, 150, 175, 200
For Ø20 . .100, 125, 150, 175, 200, 225, 250
For ø25 . . .100, 125, 150, 175, 200, 225, 250, 300

OPTIONS
- . . . . .Standard (with Urethane Bumper)
B . . . . .With Shock Absorber, 2pcs

PRODUCT SELECTOR ALLOWABLE MOMENT

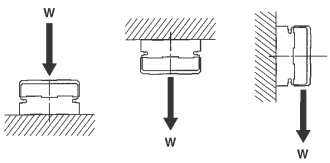
Model	Pitch Moment Mp/Mep	Yaw Moment My/Mey	Roll Moment Mr
MXW8	5	5	3
MXW12	10	10	6
MXW16	20	20	12
MXW20	40	40	25
MXW25	110	110	65

W

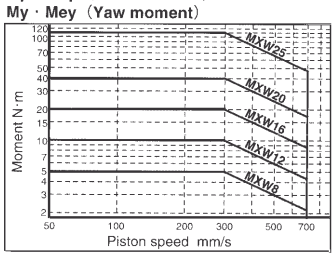


PRODUCT SELECTOR MOVABLE LOAD (N)

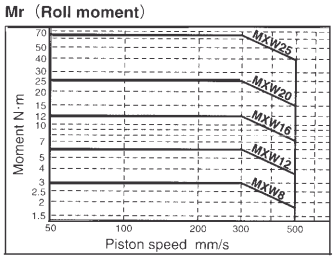
Model	W
MXW8	18
MXW12	40
MXW16	70
MXW20	110
MXW25	170



Mp · Mep (Pitch moment)
My · Mey (Yaw moment)



Mr (Roll moment)



ACCESSORIES AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available

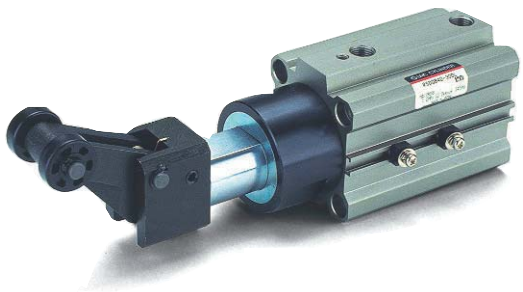
Type	Electrical Entry	Auto Switch	Application	Load Voltage	Load Current	Internal V Drop	Indicator Lamp (ON)
Reed	Grommet	D-A90L	PLC	24VAC/DC 48VAC/DC 100VAC/DC	50mA 40mA 20mA	0	No
Reed	Grommet	D-A93L	PLC	24VDC 100VDC	5 ~ 40mA 5 ~ 20mA	2.6V or Less	Yes
Solid State	Grommet	D-F9NL NPN	24VDC PLC	28VDC or Less	50mA or Less	0.4V or Less	Yes
Solid State	Grommet	D-F9PL PNP	24VDC PLC	-	50mA or Less	1.5V or Less	Yes
Solid State	Grommet	D-F9BL	24VDC PLC	24VDC (10~28VDC)	5 ~30mA	4.5V or Less	Yes
Solid State (2 Color)	Grommet	D-F9NWL	24VDC PLC	28VDC or Less	50mA or Less	0.4V or Less	Yes
Solid State (2 Color)	Grommet	D-F9PW	24VDC PLC	-	50mA or Less	5V or Less	Yes

TECHNICAL SPECIFICATIONS

Action	Double acting Single acting (Spring extend type)
Rod End Configuration	Round bar type, Roller type, Lever type incorporating shock absorber (Only Ø40,Ø50)
Fluid	Air
Proof Pressure	1.5 MPa / 218PSI
Max Operating Pressure	0.99 MPa / 144PSI
Ambient & Fluid Temperature	-10 ~ +60°C / 14 ~ 140°F
Lubrication	Non-lube
Cushion	Rubber Cushion
Stroke Length Tolerance	$^{+1.4}_{0}$
Mounting Options	Through Hole, Both Ends Tapped

STOPPER CYLINDER SERIES RSQ
BORE SIZES Ø20, 32, 40, 50MM

- High Side Impact Resistance for Conveyor Automation
- 3 Varieties of Rod Design (i) Lever Type incorporating Shock Absorber
  (ii) Roller End Type
  (iii) Round Bar Type
- Magnetic Piston Optional



ACCESSORIES
AUTO SWITCHES

Type	Elect Entry	Auto Switch	Application	Load Voltage	Max Current or Pperaing Current Range	Internal Voltage Drop	Current Consumption	Indicator Lamp	Lead Wre Length
Reed	Grommet	D-A73L	PLC	200V AC	5-10mA	Max 2.4V	–	LED	3m
				24V DC	5-40mA				
				100V AC	5-20mA				
Reed	Grommet	D-A80L	PLC	Max 24V ACDC	50mA	0	–	None	3m
				48V ACDC	40mA				
				100V ACDC	20mA				
Solid State NPN	Grommet	D-F79L	PLC	Max 28V DC	Max 12mA	0.8V	Max 12mA	LED	3m
Solid State PNP	Grommet	D-F7PL	PLC	–	Max 15mA	0.8V	Max15mA	LED	3m
Reed	Connector	D-A73CL	PLC	200V AC	5-10mA	Max 2.4V	–	LED	3m
				24V DC	5-40mA				
				100V AC	5-20mA				
Reed	Connector	D-A80CL	PLC	max 24V ACDC	50mA	0	–	None	3m
				48V ACDC	40mA				
				100V ACDC	20mA				

Note: Pre-wired Switches with 3/4 Pin Connectors available

ACCESSORIES
STOPPER CYLINDER SERIES RSQ

Auto Switches
Reed Type
With Lamp.....D-A79L
Without Lamp D-A80L
Solid State Type (NPN) D-F79L

HOW TO ORDER
STOPPER CYLINDER SERIES RS(D)Q

RS D Q ○ ○ — ○ D ○ — ○ — XC18

ADDITIONAL SYMBOL
XC18 ...NPT Air Port

AUTO SWITCHES
See Auto Swirch Accessories

ROD END
- .....Plain Bar
L .....Lever
R .....Roller

AUTO SWITCH CAPABLE
- .....Without Magnet
D .....Auto Switch Capable
(With Built-in Magnet)

MOUNTING OPTIONS
B .....Through Hole (Standard)
A .....Both Ends Tapped

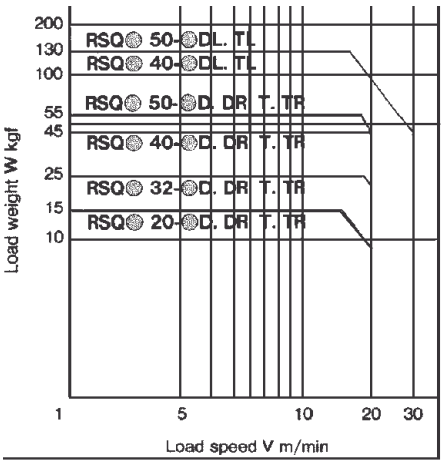
BORE SIZE
20 ...20mm
32 ...32mm
40 ...40mm
50 ...50mm

STROKE (MM)
ø20 ...10, 15, 20
ø32 ...10, 15, 20
ø40 ...20, 25, 30
ø50 ...20, 25, 30

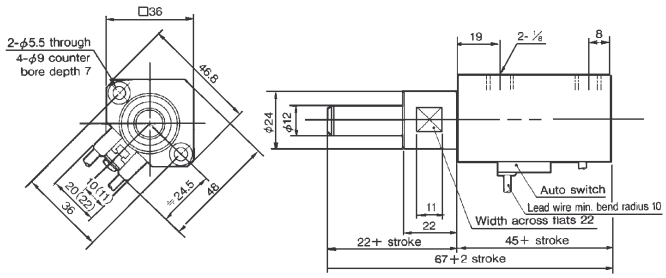
DIMENSIONS SEE NEXT PAGE ☞

PRODUCT SELECTOR

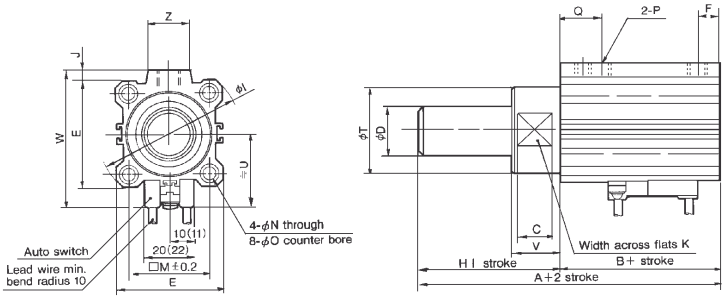
In the case of load speed 15m/min and load weight 30kgf. The intersection point of 15m/min (X-axis) and 30kgf (Y-axis) will fall within the maximum operating range of the cylinder RSQ•40.



DIMENSIONS ROUND BAR TYPE RS(D)QB20



DIMENSIONS ROUND BAR TYPE RS(D)QB32,40,50

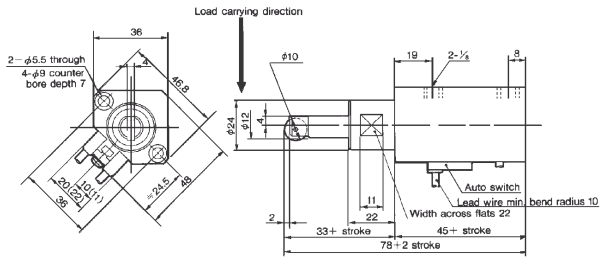


Bore	A	B	C	ØD	E	F	H	ØI	J	K	M	ØN	Ø0 counter bore
32	68	48	15	20	45	7.5	20	60	4.5	32	34	5.5	9 depth 7
40	80.5	52.5	18	25	52	8	28	69	5	41	40	5.5	9 depth 7
50	82	54	21	25	64	8	28	86	7	50	50	6.6	11 depth 8

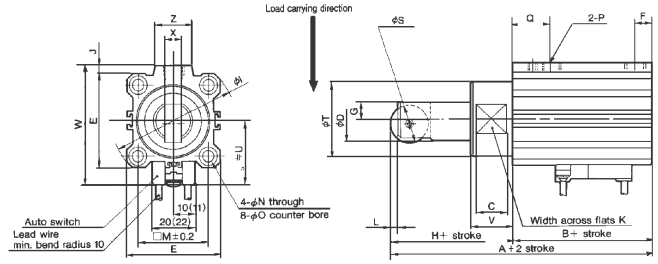
Bore	O Thread	P	Q	R	ØT	U	V	W	Z
32	M6X1	1/8	20	10	36	31.5	20	58.5	18
40	M6X1	1/8	24.5	10	44	35	28	66	18
50	M8X1.25	1/8	24.5	14	56	41	28	80	22

MORE IMENSIONS SEE NEXT PAGE ☞

DIMENSIONS
ROLLER TYPE RS(D)QB20

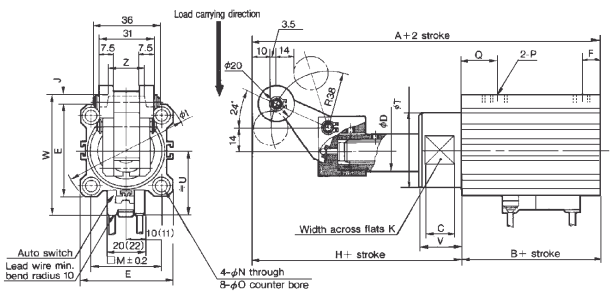


DIMENSIONS
ROLLER TYPE RS(D)QB32•40•50



Bore	A	B	C	ØD	E	F	G	H	ØI	J	K	L	M	ØN	Ø0 counter bore	O Thread	P	Q	ØS	ØT	U	V	W	X	Z
32	87	48	15	20	45	7.5	8	39	60	4.5	32	3	34	5.5	9 depth 7	M6X1	1/8	20	18	36	31.5	20	58.5	8	18
40	105.5	52.5	18	25	52	8	10	53	69	5	41	4	40	5.5	9 depth 7	M6X1	1/8	24.5	24	44	35	28	66	9	18
50	107	54	21	25	64	8	10	53	86	7	50	4	50	6.6	11 depth 8	M8X1.25	1/8	24.5	24	56	41	28	80	9	22

DIMENSIONS
LEVER TYPE RS(D)QB40•50



Bore (mm)	A	B	C	ØD	E	F	H	ØI	J	K	M	ØN	Ø0 counter bore	O thread	P	Q	R	ØT	U	V	W	Z
40	152.5	52.5	18	25	52	8	100	69	5	41	40	5.5	9 depth 7	M6X1	1/8	24.5	10	44	35	28	66	18
50	154	54	21	25	64	8	100	86	7	50	50	6.6	11 depth 8	M8X1.25	1/8	24.5	14	56	41	28	80	22

STOPPER CYLINDER SERIES RSH
BORE SIZES Ø20, 32, 50, 63, 80MM

- Designed for Heavy Duty Applications.
- Three Actuating Options: Single, Double Acting and Double Acting with Spring.
- Fitted with Adjustable Shock Absorber.
- Stopping Direction can be changed every 90°
- Ideal for Stopping Pallets Softly on Conveyors.

HOW TO ORDER RSH STOPPER CYLINDER

RSH ○ — ○ ○ ○ — ○ — ○ ○

BORE SIZE
20 .....20mm
32 .....32mm
50 .....50mm
63 .....63mm
80 .....80mm

STROKE (MM)
15 .....Ø20
20 .....Ø32
30 .....Ø50~63
40 .....Ø80

ACTION
D .....Double Acting
B .....Double Acting With Spring
T .....Single Acting / Retracted

ROLLER MATERIAL
L .....Resin
M .....Rolled Steel

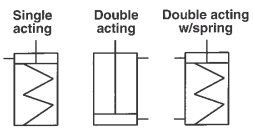
OPTION
D .....With Locking Mechanism
C .....With Cancel Cap
*S .....Lever Detection Switch

*Note) For lever detection

NO OF SWITCHES
- ...2Pieces
S ...1 Piece

TYPE OF AUTO SWITCHES
See Accessories Section

SYMBOLS



TECHNICAL SPECIFICATIONS

Bore	Ø20	Ø32	Ø50	Ø63	Ø80
Action	Double & Single Acting (Spring Extended)				
	Double Acting with Spring				
Rod End Configuration	Lever Type with Built-in Shock Absorber				
Fluid	Air				
Proof pressure	1.5 MPa / 218PSI				
Max Operating Pressure	1.0 MPa / 145PSI				
Ambient & Fluid Temperature	Without Auto Switch -10° ~ 70°C (Air should not be frozen) 14~160°F				
	With Auto Switch -10° ~ 60°C (Air should not be frozen) 14~140°F				
Lubrication	Non-lube				
Cushion	Rubber Cushion				
Stroke Length Tolerance	$^{+1.4}_{-0}$				
Mounting	Flange				

ACCESSORIES AUTO SWITCHES

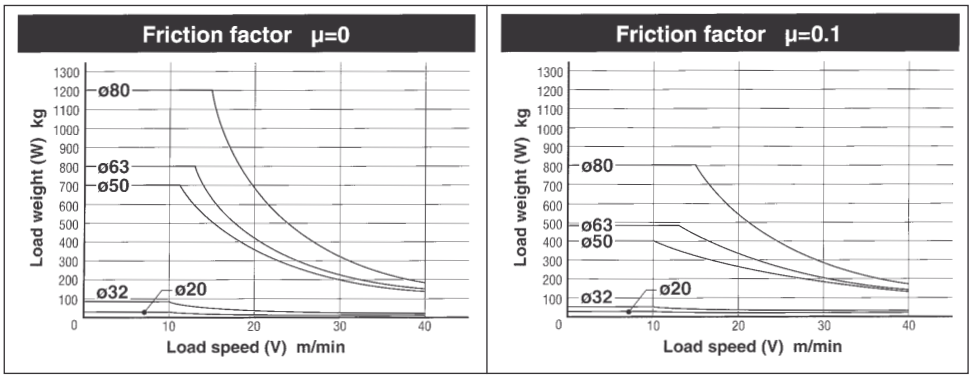
Type	Electrical Entry	Auto Switch Inline Type	Perpendicular Type	Load Voltage	Load Current	Internal Voltage Drop	Indicator Lamp
Reed	Grommet	D-Z76L		4-8V DC	Max 20mA	0.8V	ON: RED LED
Reed	Grommet	D-Z73L		24V DC 100V AC	5~40mA 5~20mA	Max 2.4V	ON: RED LED
Reed	Grommet	D-Z80L		48V AC/DC 24V AC/DC 100V AC/DC	Max 40 mA Max 50 mA Max 20mA	0V	None
Solid State NPN	Grommet	D-Y59AL	D-Y69AL	5V DC 12V DC 24V DC	Max 150mA	Max 0.8V	ON: RED LED
Solid State PNP	Grommet	D-Y7PL	D-Y7PVL	5V DC 12V DC 24V DC	Max 100mA	Max 0.8V	ON: RED LED
Solid State 2-Wire	Grommet	D-Y59BL	D-Y69BL	12V DC 24V DC	5~150mA	Max 3.0V	ON: RED LED
Solid State NPN	Grommet	D-Y7NWL	D-Y7NWVL	5V DC 12V DC 24V DC	Max 40mA	1.5V Max	ON: RED/GREEN
Solid State PNP	Grommet	D-Y7PWL	D-Y7PWVL	5V DC 12V DC 24V DC	Max 40mA	0.8V Max	ON: RED/GREEN
Solid State 2-Wire	Grommet	D-Y7BWL	D-YBWVL	12V DC 24V DC	5~40mA	4V Max	ON: RED/GREEN

Note: Pre-wired Switches with 3/4 Pin Connectors available

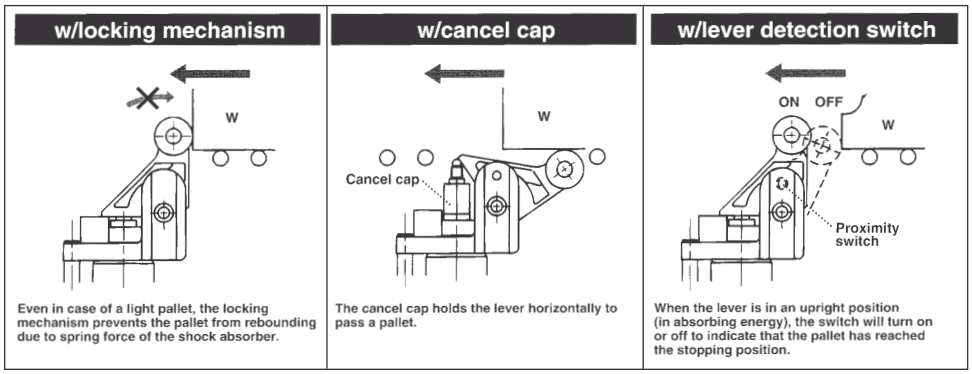
DIMENSIONS SEE NEXT PAGE ☞

PRODUCT SELECTOR

OPERATING RANGE



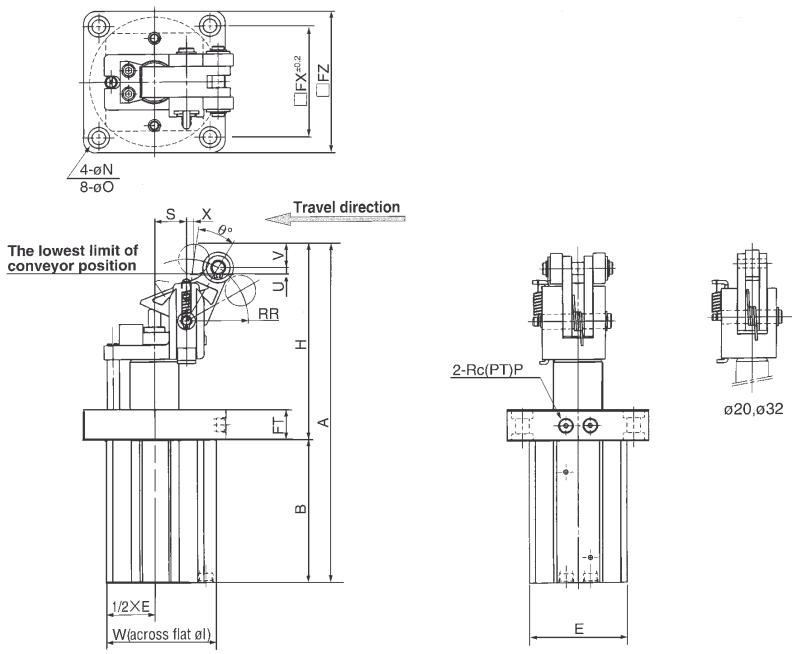
OPTIONS



DIMENSIONS

RSH STOPPER CYLINDER

Bore (mm)	Stroke	A	B	E	FT	FX 0.2	FZ	H	ØI	N	O	P	RR	S	U	V	W	X	q °
Ø20	15	144	70	36	8	40	48	74	47	4.4	-	M5X0.8	25	12	3	10.3	40	3	28
Ø32	20	160	73	46	16	53	67	87	60	6.6	11depth5	1/8	25	12	3	10.3	51.5	3	28
Ø50	30	221	93	64	20	73	93	128	85	9	14depth5	1/8	40	21	5.5	15.5	72	5	24
Ø63	30	251.5	107	77	25	90	114	144.5	103	11	18depth6	1/4	47	24.5	6.4	16	87.5	5	24
Ø80	40	299.5	128	98	25	110	138	171.5	132	13	20depth6	1/4	54	31	6.7	19.4	109	6	23



ROTARY CLAMP CYLINDER SERIES MK2
BORE SIZES Ø20 - 63MM

- Compact Equipment Design
- Strong Clamping Force
- Left or Right Rotation
- Auto Switch is attachable

HOW TO ORDER ROTARY CLAMP CYLINDER SERIES MK2

MK2 ○○ — ○○○ — ○ ○

MOUNTING TYPE
B .....Through hole, both ends tapped (Standard)
G .....Head Side Flange

BORE
20 ...Ø20mm
25 ...Ø25mm
32 ...Ø32mm
40 ...Ø40mm
50 ...Ø50mm
63 ...Ø63mm

CLAMP STROKE

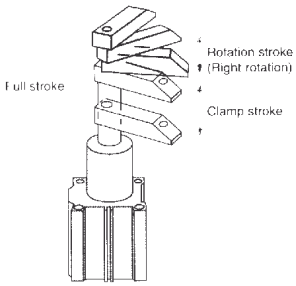
Symbol	Clamp Stroke	Bore Size
10	10mm	Ø20~Ø40
20	20mm	Ø20~Ø63
50	50mm	Ø50~Ø63

ROTATION DIRECTION
R .....Clockwise
L .....Counter Clockwise

BODY OPTION
- .....Standard (Female Thread)
F .....Head Side with Base Mount
N .....With Arm

APPLICABLE AUTO SWITCH

NO OF SWITCHES
- .....2 Pieces
S .....Single Piece



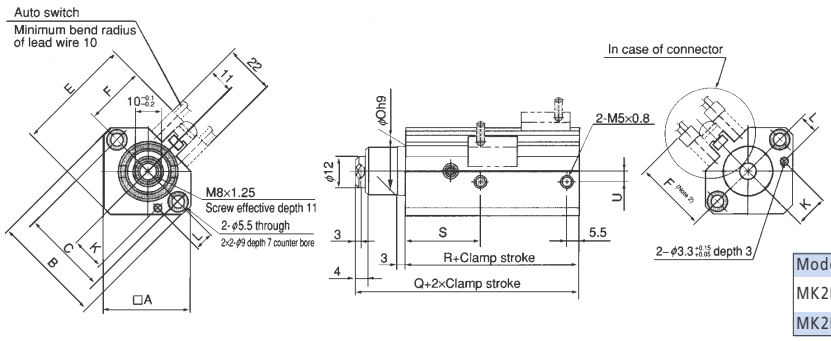
TECHNICAL SPECIFICATIONS SERIES MK2

Bore Size (mm)	20	25	32	40	50	63
Operation	Double Acting					
Rotary Angle	90°±10°					
Rotary Direction***)	R: Clockwise / L: CounterClockwise					
Rotary Stroke (mm)	9.5		15		19	
Clamp Stroke (mm)	10 • 20				20• 50	
Allowable Moment N-m*)	7	13	27	47	107	182
Theoretical Clamp Force N**)	100	185	300	525	825	1400
Fluid	Air					
Proof Pressure	1.5MPa / 218PSI					
Operating Pressure Range	0.1 ~ 1MPa / 14.5~145PSI					
Ambient and Fluid Temperature	Without Auto Switch -10~+70°C (No Freezing) 14~160°F With Auto Switch -10~+60°C (No Freezing) 14~140°F					
Lubrication	Non-Lube					
Port Size	M5x0.8		Rc(PT)1/8		Rc(PT)1/4	
Mounting	Through Hole - Both Ends Tapped, Common - Head Side Flange					
Cushion	Rubber Cushion					
Stroke Tolerance (mm)	+0.6 / -0.4					
Piston Speed	50~200mm/s					
Performance of Non-Rotating	±1.2°		±0.9°		±0.7°	

*) Maximum Beanding Moment applied to the Piston Rod Side
**) At 0.5MPa
***) Direction of Rotation viewed from the Rod Side when the Piston Rod is retracting

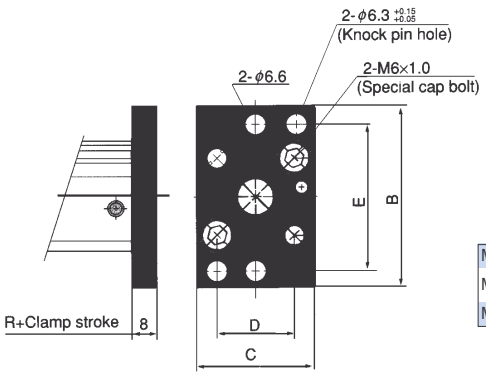
DIMENSIONS
ROTARY CLAMP CYLINDER Ø20, 25MM SERIES MK2

ϕ20, ϕ25



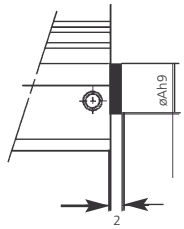
Model	A	B	C	E	F	K	L	Oh9	Q	R	S	U
MK2B20	36	46.8	36	48	24.5	13.5±0.15	7.5±0.15	$20^{0}_{-0.052}$	75.5	62.5	31	4
MK2B25	40	52	40	53.8	27.5	16±0.15	8±0.15	$23^{0}_{-0.052}$	78.5	65.5	32	5

DIMENSIONS
HEAD SIDE FLANGE Ø20, 25 SERIES MK2



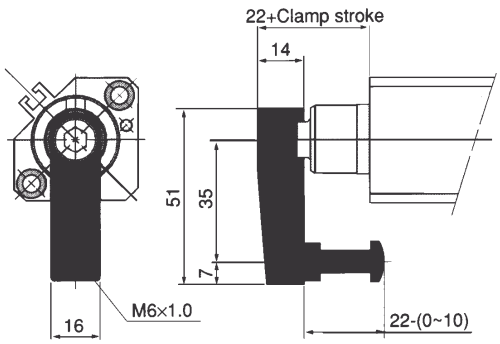
Model	B	C	D	E
MK2G20	60	39	$25.5^{\pm0.1}$	$48^{\pm0.15}$
MK2G25	64	42	$28^{\pm0.1}$	$52^{\pm0.15}$

HEAD SIDE WITH BOSS MOUNT

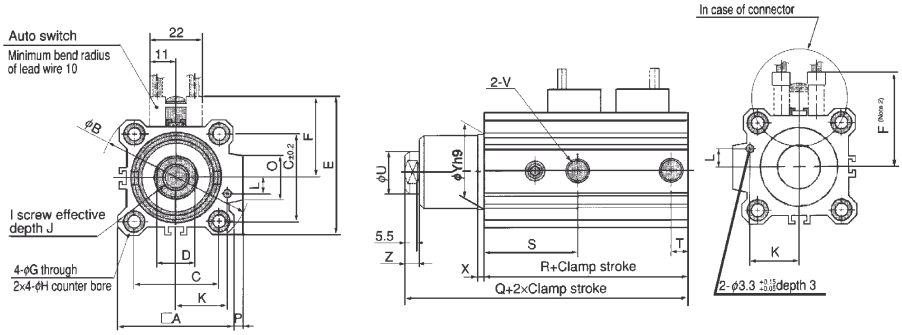


Model	øAh9
MK2❑20-❑❑F	$13^{0}_{-0.043}$
MK2❑25-❑❑F	$15^{0}_{-0.043}$

DIMENSIONS
WITH ARM MK2B 20/25-••

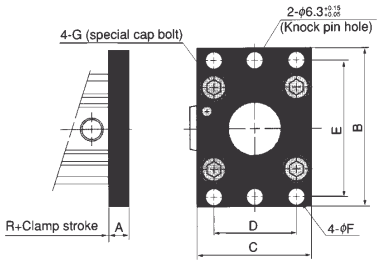


DIMENSIONS
ROTARY CLAMP CYLINDER Ø32, 40, 50, 63 mm SERIES MK2
THROUGH HOLE AND BOTH ENDS TAPPED (STANDARD)



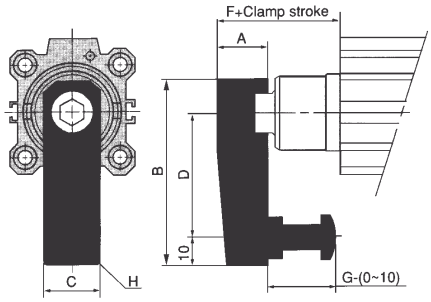
Model	A	B	C	D	E	F	G	H	I	J	K	L	O	P	Q	R	S	T	U	V	X	Yh9	Z
MK2B32	45	60	34	14 -0.1 -0.2	54	31.5	5.5	9 depth 7	M10X1.5	12	20 ±0.15	7±0.15	14	4.5	101.5	76	37	7.5	16	Rc (PT) 1/8	3	30 -0 -0.062	6.5
MK2B40	52	69	40	14 -0.1 -0.2	61	35	5.5	9 depth 7	M10X1.5	12	24±0.15	7±0.15	14	5	102.5	70	29.5	8	16	Rc (PT) 1/8	3	30 -0 -0.062	6.5
MK2B50	64	86	50	17 -0.1 -0.2	73	41	6.6	11 depth 8	M12X1.75	15	30±0.15	8±0.15	19	7	122	81.5	34	10.5	20	Rc (PT) 1/4	3.5	37 -0 -0.062	7.5
MKB63	77	103	60	17 -0.1 -0.2	86	47.5	9	14 depth 10.5	M12X1.75	15	35±0.15	9±0.15	19	7	125	85	35	10.5	20	Rc (PT) 1/4	3.5	48 -0 -0.062	7.5

DIMENSIONS
HEAD SIDE FLANGE Ø32, 40, 50, 63
SERIES MK2



Model	A	B	C	D	E	F	G
M2K-F032	8	65	48	34±0.1	56±0.15	5.5	M6x1.0
MK2-F040	8	72	54	40±0.1	62±0.15	5.5	M6x1.0
MK2-F050	9	89	67	50±0.1	76±0.15	6.6	M8x1.25
MK2-F063	9	108	80	60±0.1	92±0.15	9	M10x1.5

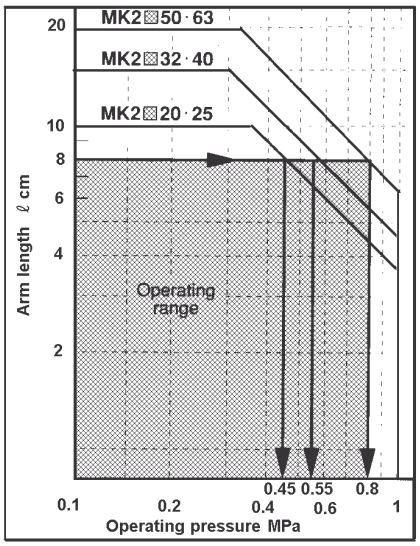
DIMENSIONS
WITH ARM 32/40/50/63-•• SERIES MK2



Model	A	B	C	D	F	G	H
MK2B32	18	67	20	45	39	25	M8X1.25
MK2B40	18	67	20	45	46	25	M8X1.25
MK2B50	22	88	22	65	58	40	M10X1.5
MK2B63	22	88	22	65	57.5	40	M10x1.5

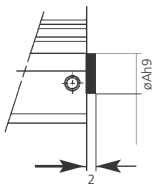
PRECAUTIONS FOR MAKING AND MOUNTING ARMS

•WHEN ARMS ARE TO BE MADE SEPARATELY, THEIR LENGTH AND WEIGHT SHOULD BE WITHIN THE FOLLOWING RANGE.

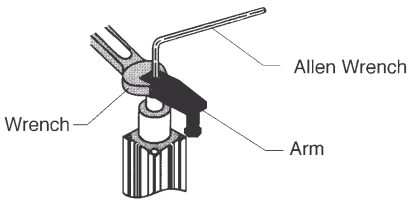


•TO ATTACH AND DETACH THE ARM TO AND FROM THE PISTON ROD, FIX THE ARM WITH A WRENCH OR VISE AND THEN TIGHTEN THE BOLT. (EXCESSIVE FORCE IN THE DIRECTION OF ROTATION APPLIED TO THE PISTON ROD MAY DAMAGE THE INTERNAL MECHANISM.)
REFER TO THE FOLLOWING TABLE FOR TIGHTENING TORQUE FOR MOUNTING.

HEAD SIDE WITH BOSS MOUNT

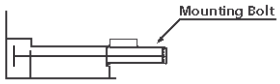


Model	øAh9
MK2❑32-❑❑F	21 0 -0.052
MK2❑40-❑❑F	28 0 -0.052
MK2❑50-❑❑F	35 0 -0.062
MK2❑63-❑❑F	35 0 -0.062



Bore Size	Standard Tightening Torque (Nm)
20, 25mm	4 - 6
32, 40mm	8 - 10
50, 63mm	14 - 16

ACCESSORIES
MK2B MOUNTING BOLT



Mounting Method: A Through Hole Type
Mounting Bolt is available

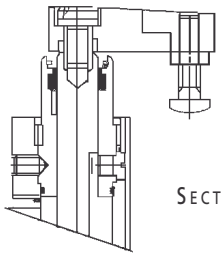
Model	C	D	Mounting Bolt
MK2B20-10	8.5	75	M5x75ℓ
MK2B20-20	8.5	85	M5x85ℓ
MK2B25-10	10.5	80	M5x80ℓ
MK2B25-20	10.5	90	M5x90ℓ
MK2B32-10	10	90	M5x90ℓ
MK2B32-20	10	100	M5x100ℓ
MK2B40-10	6	80	M5x80ℓ
MK2B40-20	6	90	M5x90ℓ
MK2B50-20	10.5	105	M6x105ℓ
MK2B50-50	10.5	135	M6x135ℓ
MK2B63-20	9	105	M8x105ℓ
MK2B63-50	9	135	M8x135ℓ

Note: be sure to use a flat washer to mount cylinders via through holes.

ACCESSORIES
MOUNTING ATTACHMENT PART NO / FLANGE

Bore Size (mm)	Part No.
20	MK2-F020
25	MK2-F025
32	MK2-F032
40	MK2-F040
50	MK2-F050
63	MK2-F063

Part No includes:
Boss Mount Ring
Set Pin
Bolt for attachment to cylinder body.



SECTION THROUGH ARM

ACCESSORIES
OPTION PART NO/ARM

Bore size (mm)	Part No.
20	MK2-A020
25	MK2-A020
32	MK2-A032
40	MK2-A032
50	MK2-A050
63	MK2-A050

Part No includes:
Clamp Bolt
Hexagonal Socket Head Cap Screw
Hexagonal Nut
Spring Seat Washer

ACCESSORIES
AUTO SWITCH SPECS ø32 ~ ø63 / DIRECT MOUNTING

Reed Auto Switch	Load Voltage	Max Load Current & Load Current Range	Internal Voltage Drop	Indicator Lamp (Lit at ON Cond)
D-A90	24V AC/DC or less	50mA	0	None
D-A90V	48V AC/DC or less	40mA		
	100V AC/DC or less	20mA		
D-A93	24VDC	5 ~ 40mA	2.6V or less	Yes
D-A93V	100VAC	5 ~ 20mA		
D-A96	4 ~ 8VDC	20mA	0.8V or less	Yes
D-A96V				

Solid State Auto Switch	Output Type	Power Source	Current Consumption	Load Voltage	Max Load Current and Load Current Range	Internal Voltage Drop	Leakage Current
D-F9N	NPN	24VDC	8mAor less	28VDC or less	50mA or less	0.4V or less	24VDC at10μ or less
D-F9NV		(10-28					
D-F9P	PNP	VDC)	10mA or less	-		1.5V or less	
D-F9PV							
D-F9B	-	-	-	24VDC (10-28VDC)	5-30mA	4.5V or less	24VDC at 1mA or less
D-F9BV							

Note: Pre-wired Switches with 3/4 Pin Connectors available

ACCESSORIES
AUTO SWITCH SPECS ø20 ~ ø63 / RAIL MOUNTING

Reed Auto Switch	Load Voltage	Max Load Current & Load Current Range	Indicator Lamp (Lit at ON Cond)	Protection Circuit for Contact Breaker Point
D-A72; A72H	200VAC	5~10mA	Yes	None
D-A73; A73H	24VDC	5~40mA	Yes	None
	100VAC	5~20mA		
D-A76H	4-8VDC	20mA	Yes	None
D-A80; A80H	24VAC/DC or less	50mA	None	None
	48VAC/DC	40mA		
	100VAC/DC	20mA		
D-A73C	24VDC	5~40mA	Yes	None
D-A80C	24VAC/DC or less	50mA	None	None
D-A79W (2 COLOR SIGNS)	24VDC	5~40mA	Yes *)	None

*) The Indicator Lamp for D-A79W is red for the sensitivity position and green for the optimal position

ACCESSORIES
AUTO SWITCH MOUNTING BRACKET

BQ-1 ..... Ø20, Ø25
BQ-2 ..... Ø32~Ø63

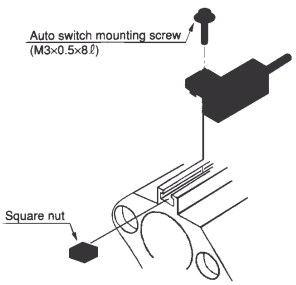
ACCESSORIES
AUTO SWITCH SPECS / RAIL MOUNTING

Solid State Auto Switch	Output Wiring	Load Current	Internal Voltage Drop Load Current (at10mA)	Indicator Lamp Lit at ON Cond (2 Color Signs)	Function
D-F79	3 Wire System NPN	150mA or less	0.8V	●	-
D-F7P	3 Wire System PNP	100mA or less	or less	●	-
D-J79	2 Wire System	5~150mA	3V or less	●	-
D-F7NV	3 Wire System NPN	150mA or less	0.8V	●	-
D-F7PV	3 Wire System PNP	100mA or less	or less	●	-
D-F7BV	2 Wire System	5~150mA	3V	●	-
D-J79C			or less	●	-
D-F79W	3 Wire System NPN / PNP	80mA or less	0.8V or less	◎	-
D-J79W	2 Wire System	5~40mA	4V or less	◎	-
D-F7NWV	3 Wire System NPN	80mA or less	0.8V or less	◎	-
D-F7BWV	2 Wire System	6~40mA	4V	◎	-
D-F7BAL		5~40mA	or less	◎	Improved Water Resistance
D-F79F	4 Wire System NPN	40mA or less	0.8V	◎	With Diagnosis Output
D-F7LF			or less	◎	W/Latch Type Diagonsis Output
D-F7NTL	3 Wire System	80mA or less	5V	●	With 200 ms off delay time
D-P5DWL	2 Wire System	6~40mA	or less	◎	Strong Magnetic Field Proof
D-P5DWBL				◎	Strong Magnetic Field Proof (Special Cable)

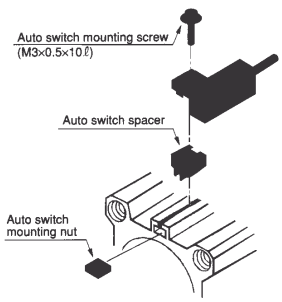
ACCESSORIES
SERIES MK2 - AUTO SWITCH INSTALLATION

HOW TO INSTALL THE AUTO SWITCH

ϕ20, ϕ25

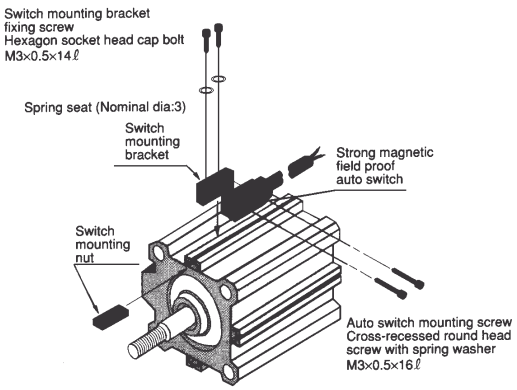


ϕ32 ~ ϕ63



ACCESSORIES
SERIES MK2

STRONG MAGNETIC FIELD PROOF AUTO SWITCH (Ø40~Ø63)



SERIES MRQ
BORE SIZES 32, 40

- A Combination of Linear and Rotary Movement (independently-Controlled)
- High Effective Torque
- Smooth Rotary Motion
- 90° or 180° Rotation
- Magnets are incorporated for Auto Switch Sensing
- Rotation Angle has Adjustable Stops

TECHNICAL SPECIFICATIONS

Fluid	Air (Not Lubricated)
Max Operating Pressure	0.71MPa / 103PSI
Min Operating Pressure	0.15MPa / 22PSI
Ambient & Fluid Temperature	0 ~ +60°C / 32 ~ 140°F
Mounting	Basic • Rod Side Flange

TORQUE

Linear Motion Size	Rotary Motion Output*	Allowable Kinetic Energy (J)	Backlash
Ø32	1.0Nm	0.023 max	2° or less
Ø40	1.9Nm	0.028 max	2° or less

*@0.5MPa Pressure

ACCESSORIES
FLANGE +4 FIXING SCREWS

Ø32 .....P317010-7
Ø40 .....P317020-7

HOW TO ORDER
MRQ ROTARY CYLINDER

MRQB S — ○ ○ ○ — ○ ○ — ○

TYPE
B .....Basic
F .....Flange

LINEAR MOTION
Bore size
32 ...Ø32
40 ...Ø40

STROKE
10, 25, 40, 50, 75, 100

AIR CUSHION
C .....with Cushioning on linear motion
N .....without Cushioning on linear motion

ROTATION ANGLE
A .....90°
B .....180°

AUTO SWITCHES
See Auto Switch Accessories

NO OF SWITCHES

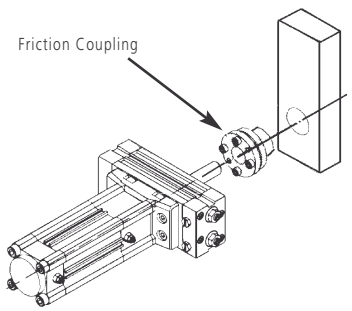
PORT THREADS
- .....PT 1/8
XN ...NPT 1/8

ACCESSORIES
AUTO SWITCHES

MODEL							
Part no	Part no						
Grommet Type	Connector Type	TYPE	LOAD VOLTAGE	LOAD CURRENT	POWER SOURCE	INTERNAL VOLTAGE DROP	INDICATOR LAMP
D-A73L	D-A73CL	REED	24VDC 100VAC	5~40mA 5~20mA		MAX 2.4V	ON:RED LED
D-A80L	D-A80CL	REED	24VDC/AC OR LESS 100VDC/AC	MAX 50mA MAX 20mA		0	NONE
D-F79L	~	3 WIRE SOLID STATE NPN	28VDC OR LESS	MAX 150mA	5~28VDC	0.8V MAX	ON:RED LED
D-F7PL	~	3 WIRE SOLID STATE PNP	28VDC OR LESS	MAX 100mA	5~28VDC	0.8V MAX	ON:RED LED
D-J79L	D-J79CL	2 WIRE SOLID STATE	28VDC OR LESS	5~ 150mA	~	3V MAX	ON:RED LED

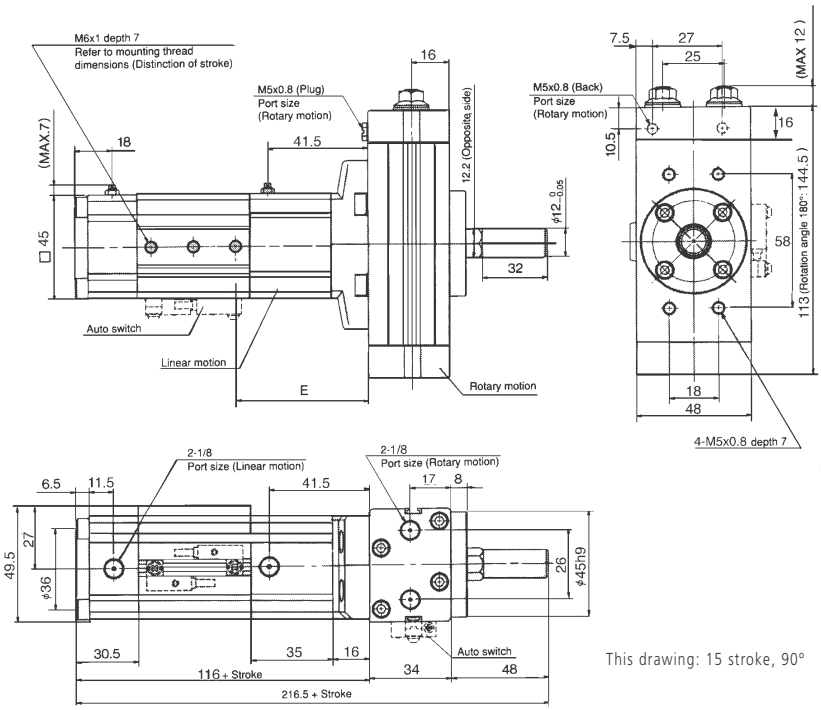
ACCESSORIES
FRICTION COUPLING

Size	Zero Max
32	ETP-K-12-C
40	ETP-K-14-C



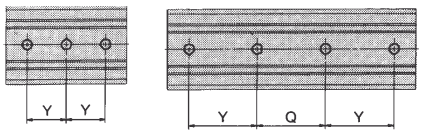
DIMENSIONS SEE NEXT PAGE ☞

DIMENSIONS
BASIC TYPE Ø32MM



This drawing: 15 stroke, 90°

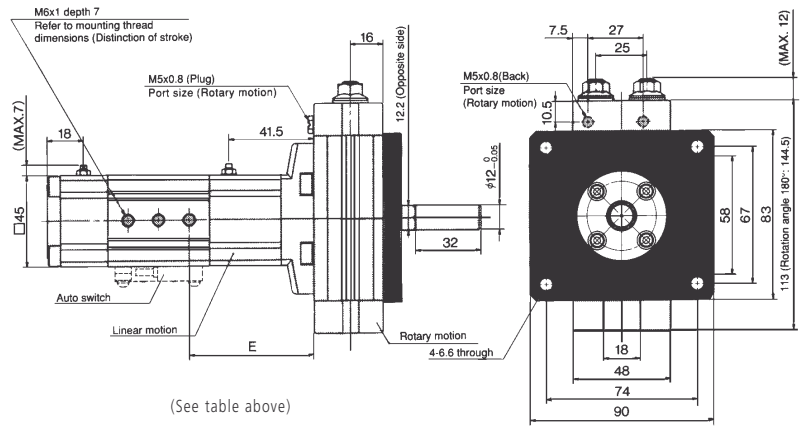
DIMENSIONS
MOUNTING THREAD (VARIATIONS WITH STROKE)



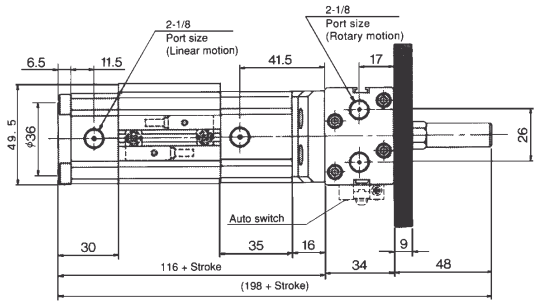
(mm)

Mounting thread 3 pcs.							Mounting thread 4 pcs.			
Stroke	5	10	15	20	25	30	40	50	75	100
Y	12.5	12.5	15	15	20	20	15	17.5	25	30
Q	—	—	—	—	—	—	20	20	20	30
E	58.5	61	51	63.5	61	63.5	63.5	66	71	73.5

DIMENSIONS
WITH FLANGE Ø32MM

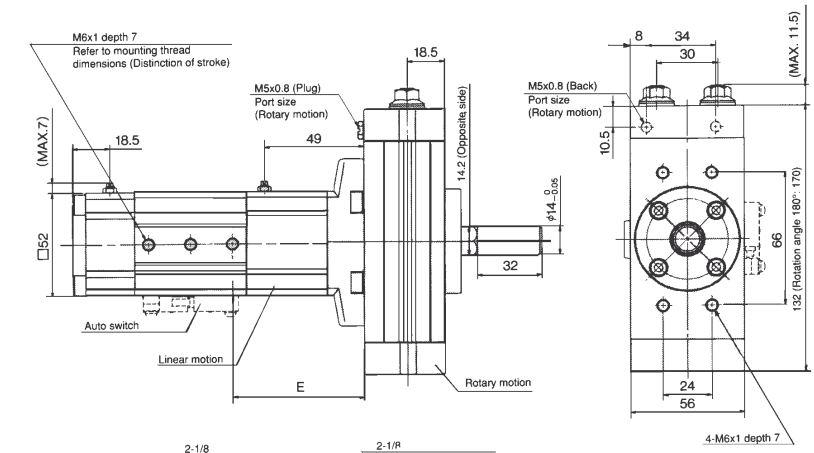


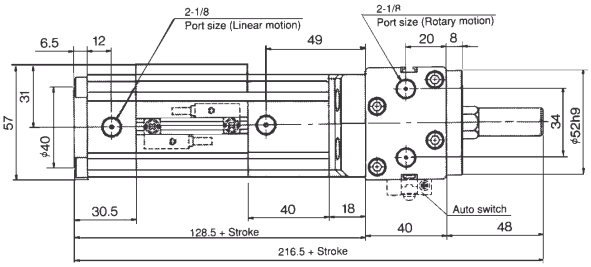
(See table above)



This drawing: 15 stroke, 90°

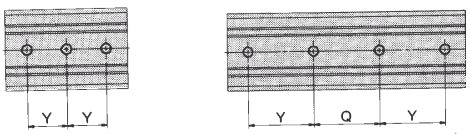
DIMENSIONS
BASIC TYPE Ø40MM





This drawing: 15 stroke, 90°

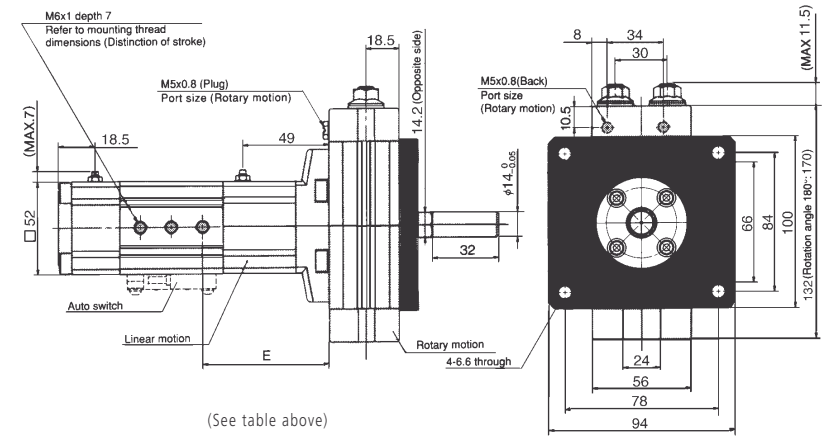
DIMENSIONS
MOUNTING THREAD (VARIATIONS WITH STROKE)



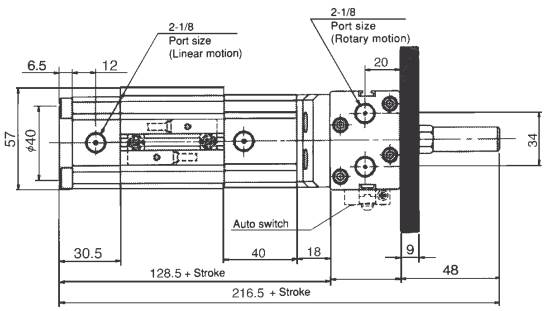
(mm)

Mounting thread 3 pcs.						Mounting thread 4 pcs.				
Stroke	5	10	15	20	25	30	40	50	75	100
Y	12.5	15	15	20	20	15	17.5	17.5	25	30
Q	—	—	—	—	—	20	20	20	20	30
E	68	68	70.5	68	70.5	68	70.5	75.5	80.5	83

DIMENSIONS
FLANGE Ø40MM



(See table above)



This drawing: 15 stroke, 90°

RACK & PINION TYPE SERIES NCRA1

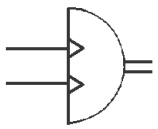
RACK & PINION TYPE ROTARY ACTUATOR BORE SIZES Ø30, 50, 63, 80, 100MM SERIES NCRA1

- 90°,180° rotation
- Optional magnetic piston for autoswitches
- Low friction resistance

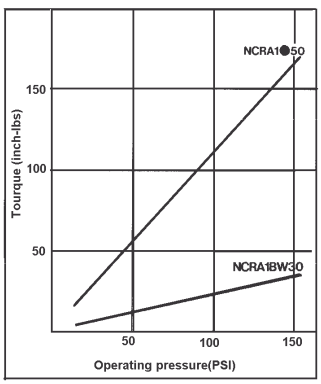
TECHNICAL

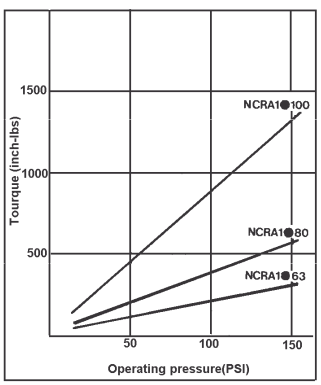
Fluid	Air (No Lubrication)				
Proof Pressure	1.5MPa / 225 PSI				
Max Operating Pressure	1MPa / 150 PSI				
Min Operating Pressure	0.1MPa / 15 PSI				
Ambient and Operating Fluid Temperature	5 ~ 60°C / 40 ~ 140°F				
Piston Diameter (mm)	30	50	63	80	100
Min Speed sec/90°	1	2	3	4	5
Max Speed sec/90°	0.2				
Stroke Tolerance	Adjustable ±6°	+4° -0°			
Allowable Kinetic Energy (Nm)	0.01	0.05	0.12	0.16	0.55

SYMBOLS



TORQUE SPECIFICATIONS SERIES NCRA1





DIMENSIONS SEE NEXT PAGE ☞

HOW TO ORDER NCRA1 ROTARY ACTUATOR

NC ○ RA1BW ○ — ○ — ○ — ○

PISTON
- ……Basic
D ……Magnetic

SHAFT
S ……Single Rod End
W……Double Rod End
: 30mm Bore
Double Rod End Only

BORE (MM)
30 …1 3/16″
50 …2″
63 …2 1/2″
80 …3 1/8″
100 …4″

ROTATION
90 …90°
180 …180°

AUTO SWITCH TYPE
See Accessories Section

ADJUSTABLE CUSHION
C ……Both End Cushion

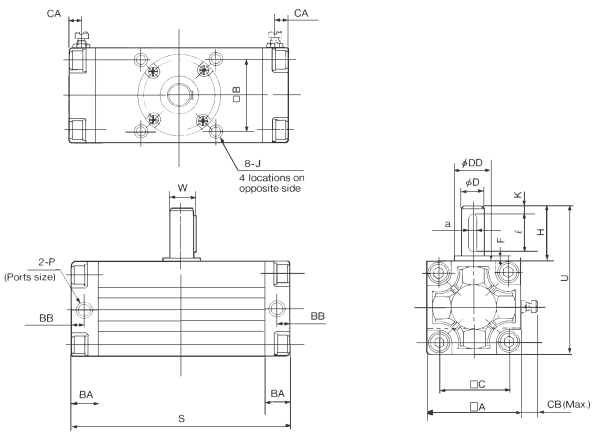
RACK & PINION TYPE SERIES NCRA1

ACCESSORIES
AUTO SWITCHES

	Part No. Grommet Type	Part No Connector Type	Type	Load Voltage	Load Current	Power Source	Internal Voltage Drop	Indicator Lamp	Lead Wire Length
Diameter 30mm	D-A73L	D-A73CL	Reed	24VDC 100VAC	5~40mA 5~20mA		Max 2.4V	ON:RED L.E.D	
	D-A80L	D-A80CL	Reed	24VDC/AC or less 100VDC/AC	Max 50mA Max 20mA			None	
	D-F79L	~	3 Wire Solid State NPN	28VDC or less	Max 150mA	5~28VDC	0.8V Max	ON:RED L.E.D	
	D-F7PL	~	3 Wire Solid State PNP	28VDC or less	Max 100mA	5~28VDC	0.8V Max	ON:RED L.E.D	
	D-J79L	D-J79CL	2 Wire Solid State	28VDC or less	5~150mA	~	3V Max	ON:RED L.E.D	
Diameter 50 ~ 100	D-A53L		Reed	24VDC 100VAC		5~50mA	2.4V or less	ON:Red L.E.D	3m
	D-A54L		Reed	24VDC 100VAC		5~50mA	2.4V or less	ON:Red L.E.D	3m
	D-A64L		Reed	24VDC/AC or less 100VDC/AC 200VAC/DC		Max 50mA		None	3m
	D-F59L		3 Wire Solid State NPN	28VDC or less	Max 150mA	5~24VDC	0.8V or less	ON:Red L.E.D	3m
	D-F5PL		3 Wire Solid State PNP	28VDC or less	Max 100mA	5~24VDC	0.8V or less	ON:Red L.E.D	3m
	D-J59L		2 Wire Solid State	10~28VDC	5~ 150mA	-	3V or less	ON:Red L.E.D	3m
Ambient Temperature	-10~60DEG C								
Protection Structure	IP67								

Note: Pre-wired Switches with 3/4 Pin Connectors available

DIMENSIONS
WITHOUT AUTO SWITCH
SINGLE ROD END NCRA1BS50~100



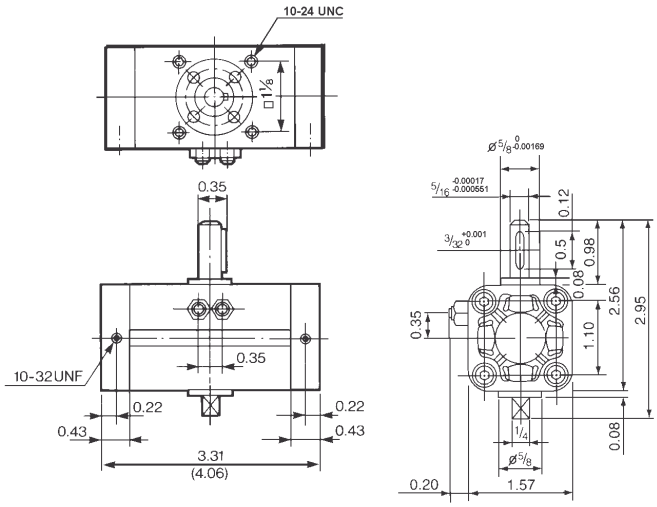
Model	P (NPTF)	❑A	❑B	❑C	❑D	❑DD	F	H	J	K	S*	U	W	BA	BB	CA	CB	KEY a	KEY Tolerance	KEY ℓ
NCRA1BS50-__	1/8	2.44	1 7/8	1.81	9/16 -0.000236 -0.000669	1 0 -0.00205	0.1	1.42	5/16-18UNC Depth0.31	0.2	5.67 (6.97)	3.86	0.62	0.67	0.33	0.33	0.51	1/8		1
NCRA1BS63-__	1/8	2.99	2 3/8	2.24	5/8 -0.000236 -0.000669	1 1/8 0 -0.00244	0.1	1.61	3/8-16UNC Depth0.47	0.2	6.42 (7.93)	4.61	0.70	0.79	0.39	0.39	0.55	3/16	+0.001	1.25
NCRA1BS80-__	1/4	3.62	2 7/8	2.76	3/4 -0.000276 -0.000787	1 3/8 0 -0.00244	0.12	1.97	1/2-13UNC Depth0.51	0.2	7.32 (9.06)	5.59	0.83	0.93	0.47	0.47	0.71	3/16	0	1.5
NCRA1BS100-__	3/8	4.41	3 3/8	3.35	1 -0.000276 -0.000787	1 5/8 0 -0.00244	0.16	2.36	1/2-13UNC Depth0.55	0.2	9.65(12.24)	6.77	1.11	0.98	0.49	0.49	0.71	1/4		1.75

* (In Parentheses) are the dimensions for rotations of 180° and 190°

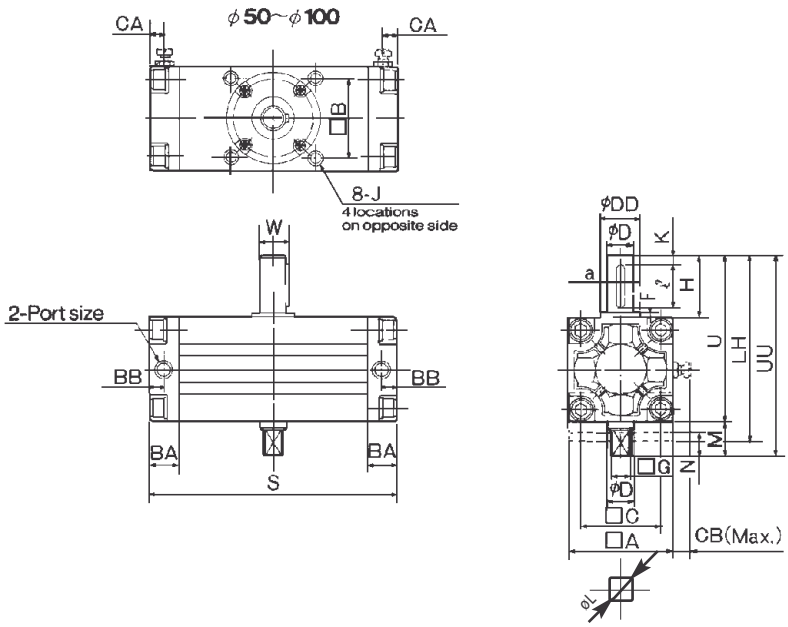
MORE DIMENSIONS SEE NEXT PAGE ☞

RACK & PINION TYPE SERIES NCRA1

DIMENSIONS
WITHOUT AUTO SWITCH
DOUBLE ROD END NCRA1BW30



DIMENSIONS
WITHOUT AUTO SWITCH
DOUBLE ROD END NCRA1BW50~100



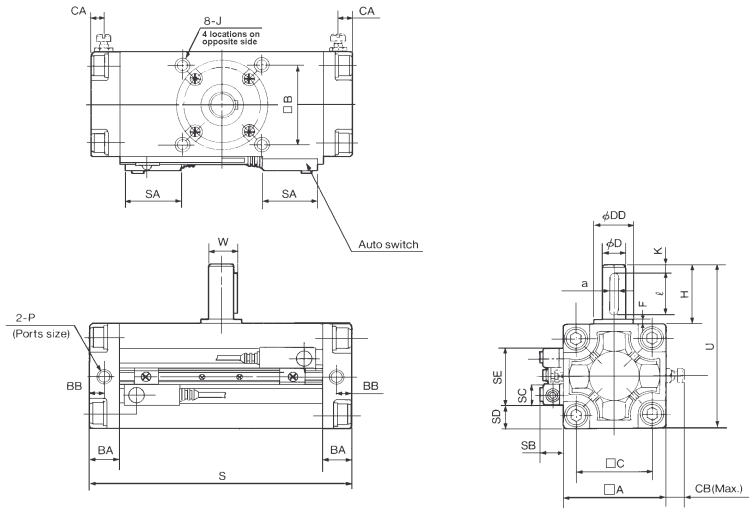
Model	P (NPTF)	❑A	❑B	❑C	❑D	❑DD	F	❑G	H	J	K	øL	M	N	S*	U	UU	W
NCRA1BW50-__	1/8	2.44	1 7/8	1.81	9/16 -0.000236 -0.000669	1 0 -0.00205	0.1	7/16	1.42	5/16-18UNC Depth0.31	0.2	9/16	0.79	0.59	5.67 (6.97)	3.86	4.65	0.62
NCRA1BW63-__	1/8	2.99	2 3/8	2.24	5/8 -0.000236 -0.000669	1 1/8 0 -0.00244	0.1	1/2	1.61	3/8-16UNC Depth0.47	0.2	5/8	0.87	0.67	6.42 (7.93)	4.61	5.47	0.70
NCRA1BW80-__	1/4	3.62	2 7/8	2.76	3/4 -0.000276 -0.000787	1 3/8 0 -0.00244	0.12	5/8	1.97	1/2-13UNC Depth0.51	0.2	3/4	0.98	0.79	7.32 (9.06)	5.59	6.57	0.83
NCRA1BW100-__	3/8	4.41	3 3/8	3.35	1 -0.000276 -0.000787	1 5/8 0 -0.00244	0.16	3/4	2.36	1/2-13UNC Depth0.55	0.2	1	1.18	0.98	9.65(12.24)	6.77	7.95	1.11

Model	BA	BB	CA	CB	KEY a	Tolerance	ℓ
NCRA1BW50-__	0.67	0.33	0.33	0.51	1/8		1
NCRA1BW63-__	0.79	0.39	0.39	0.55	3/16	+0.001	1.25
NCRA1BW80-__	0.93	0.47	0.47	0.71	3/16	0	1.5
NCRA1BW100-__	0.98	0.49	0.49	0.71	1/4		1.75

* (In Parentheses) are the dimensions for rotations of 180° and 190°

RACK & PINION TYPE SERIES NCRA1

DIMENSIONS
SINGLE ROD END WITH AUTO SWITCH NCDRA1_S_

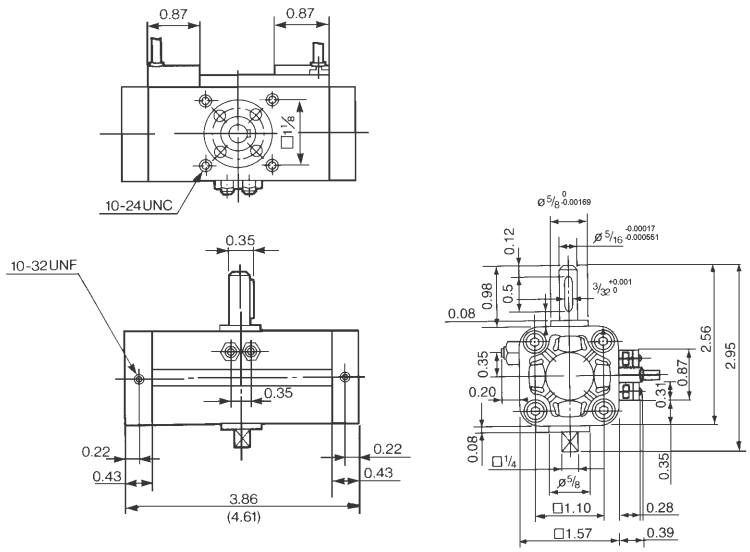


Model	KEY		
	a	Tolerance	ℓ
NCDRA1BS_50-__-A__	1/8		1
NCDRA1BS_63-__-A__	3/16	+0.001	1.25
NCDRA1BS80-__-A__	3/16	0	1.5
NCDRA1BS100-__-A__	1/4		1.75

* (In Parentheses) are the dimensions for rotations of 180° and 190°

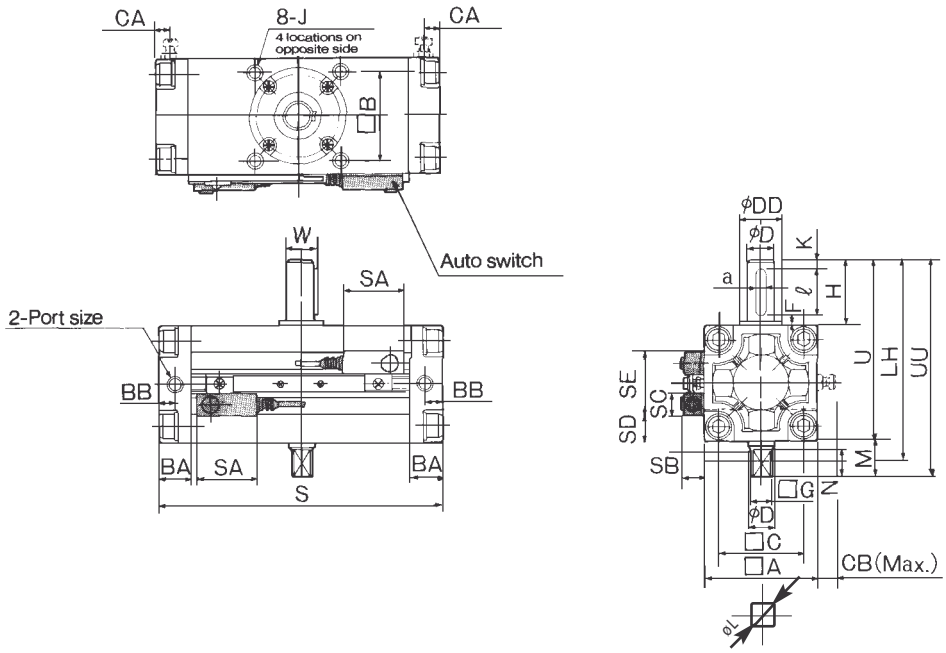
Model	P (NPTF)	❑A	❑B	❑C	❑D	❑DD	F	H	J	K	S*	U	W	BA	BB	CA	CB	SA	SB	SC	SD	SE
NCDRA1BS_50-__-A__	1/8	2.44	1 7/8	1.81	9/16 -0.000236 -0.000669	1 0 -0.00205	0.1	1.42	5/16-18UNC Depth0.31	0.2	5.67 (6.97)	3.86	0.62	0.67	0.33	0.33	0.51	1.3	0.53	0.47	0.55	1.34
NCDRA1BS_63-__-A__	1/8	2.99	2 3/8	2.24	5/8 -0.000236 -0.000669	1 1/8 0 -0.00244	0.1	1.61	3/8-16UNC Depth0.47	0.2	6.42 (7.93)	4.61	0.70	0.79	0.39	0.39	0.55	1.3	0.57	0.47	0.83	1.34
NCDRA1BS80-__-A__	1/4	3.62	2 7/8	2.76	3/4 -0.000276 -0.000787	1 3/8 0 -0.00244	0.12	1.97	1/2-13UNC Depth0.51	0.2	7.32 (9.06)	5.59	0.83	0.93	0.47	0.47	0.71	1.3	0.61	0.47	1.14	1.34
NCDRA1BS100-__-A__	3/8	4.41	3 3/8	3.35	1 -0.000276 -0.000787	1 5/8 0 -0.00244	0.16	2.36	1/2-13UNC Depth0.55	0.2	9.65(12.24)	6.77	1.11	0.98	0.49	0.49	0.71	1.3	0.63	0.47	1.54	1.34

DIMENSIONS
DOUBLE ROD END WITH AUTO SWITCH NCDRA1BW30



RACK & PINION TYPE SERIES NCRA1

DIMENSIONS
DOUBLE ROD END WITH AUTO SWITCH NCDRA1BW50~100



Model	P (NPTF)	❑A	❑B	❑C	❑D	❑DD	F	❑G	H	J	K	øL	M	N	S*	U	UU	W
NCDRA1BW50-__-A__	1/8	2.44	1 7/8	1.81	9/16 -0.000236 -0.000669	1 0 -0.00205	0.1	7/16	1.42	5/16-18UNC Depth0.31	0.2	9/16	0.79	0.59	6.14 (7.44)	3.86	4.65	0.62
NCDRA1BW63-__-A__	1/8	2.99	2 3/8	2.24	5/8 -0.000236 -0.000669	1 1/8 0 -0.00244	0.1	1/2	1.61	3/8-16UNC Depth0.47	0.2	5/8	0.87	0.67	6.89 (8.41)	4.61	5.47	0.70
NCDRA1BW80-__-A__	1/4	3.62	2 7/8	2.76	3/4 -0.000276 -0.000787	1 3/8 0 -0.00244	0.12	5/8	1.97	1/2-13UNC Depth0.51	0.2	3/4	0.98	0.79	7.83 (9.57)	5.59	6.57	0.83
NCDRA1BW100-__-A__	3/8	4.41	3 3/8	3.35	1 -0.000276 -0.000787	1 5/8 0 -0.00244	0.16	3/4	2.36	1/2-13UNC Depth0.55	0.2	1	1.18	0.98	10.2(12.80)	6.77	7.95	1.11

Model	BA	BB	CA	CB	SA	SB	SC	SD	SE	KEY a	KEY Tolerance	KEY ℓ
NCDRA1BW50-__-A__	0.67	0.33	0.33	0.51	1.3	0.53	0.47	0.55	1.34	1/8		1
NCDRA1BW63-__-A__	0.79	0.39	0.39	0.55	1.3	0.57	0.47	0.83	1.34	3/16	+0.001	1.25
NCDRA1BW80-__-A__	0.93	0.47	0.47	0.71	1.3	0.71	0.47	1.14	1.34	3/16	0	1.5
NCDRA1BW100-__-A__	0.98	0.49	0.49	0.71	1.3	0.71	0.47	1.54	1.34	1/4		1.75

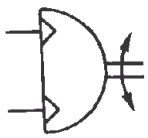
* (In Parentheses) are the dimensions for rotations of 180° and 190°

VANE TYPE SERIES NCRB

VANE TYPE ROTARY ACTUATOR: BORE SIZES Ø50•80•100MM SERIES NCRB

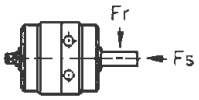
- 90°,180°,270° rotation
- Special vane seal design eliminates leakage
- Low operating and start-up torque
- Long operating life

SYMBOLS



TECHNICAL SPECIFICATIONS

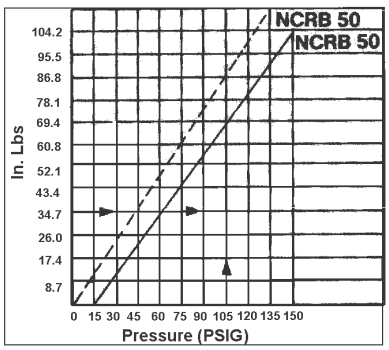
Media	Compressed Air
Working Pressure	0.1 ~ 1.5MPa / 15 ~ 220 PSI
Ambient Temperature	5 ~ 60°C / 40 ~ 140°F
Rotation Angle	90°, 180°, 270°
Seal Material	Buna N
Drive Shaft	Double Shaft, One side with key and groove, other side is a square shaft



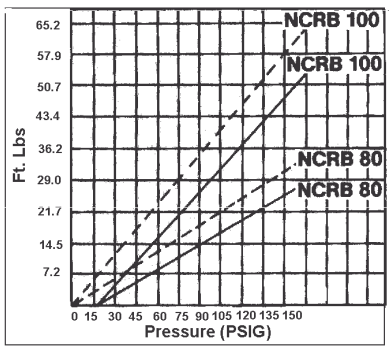
Maximum shaft loading and kinetic energy

Type	Fr (N)	Fs (N)	E max (Nm)
NCRB50	250	200	0.084
NCRB80	500	500	0.040
NCRB100	600	550	0.061

TORQUE SPECIFICATIONS SERIES NCRB

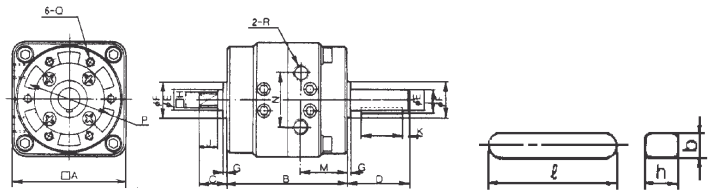


Actual _____



Theoretical _ _ _ _ _ _ _ _ _ _

DIMENSIONS (INCH) NCRB50~100



Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	b	h	ℓ
NCRB50	2.64	3.38	0.77	1.55	0.47	0.98	0.12	0.39	0.51	0.20	0.53	1.34	1.18	1.97	M6x1x10	NPT 1/8"	0.16	0.16	0.79
NCRB80	3.74	4.06	0.93	2.11	0.67	1.18	0.12	0.51	0.63	0.20	0.75	1.57	1.77	2.75	M8x1.25x13	NPT 1/4"	0.20	0.20	1.42
NCRB100	4.92	4.92	1.18	2.56	0.98	1.77	0.16	0.75	0.87	0.20	1.10	1.97	1.97	3.15	M10x1.5x13	NPT 1/4"	0.28	0.28	1.57

HOW TO ORDER NCRB ROTARY ACTUATOR

NCRB ● — ● ●

- OPTIONS
  - L .....Mounting Brackets
- BORE (MM)
  - 50 ...2"
  - 80 ...3.14"
  - 100 ...4"
- ROTATION
  - 90 ...90°
  - 180 ...180°
  - 270 ...270°

OPTIONS BRACKETS NCRB50~100

Model	Bracket No	Includes
NCRB50	CRB50-Y-1	2"L" Brackets
NCRB80	CRB80-Y-1	with 8 Mounting
NCRB100	CRB100-Y-1	Screws

VANE TYPE SERIES NCRB1BW

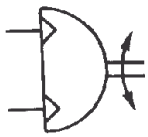
VANE TYPE ROTARY ACTUATOR: BORE SIZES Ø10•15•20•30MM SERIES NCRB1BW

- 90°,180°,270° rotation
- High reliability and long life
- Light weight
- Optional auto switch and adjustable rotation

TECHNICAL SPECIFICATIONS

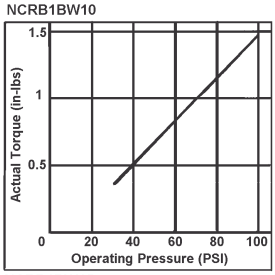
Model	CRB1BW10	CRB1BW15	CBR1BW20	CRB1BW30
Rotation	90°/ 180° / 270°			
Fluid	Air			
Proof Pressure	1.05MPa / 153PSI			1.5MPa / 218PSI
Operating Pressure Range	0.14 ~ 0.7MPa / 20~100PSI			0.1~0.23MPa/15~40PSI
Rotation Speed Range (s/90°)	0.03~0.3			0.04~0.3
Maximum 90°	5	4	4	4
Operating 180°	3.5	3	3	3
Cycle (Nz) 270°	2.5	2	2	2
Ambient and Op Fluid Temp	5 ~ 60°C / 40 ~ 140°F			
Lubrication	No Lubrication Required			
Type Of Shaft	Double End Shaft / Both With Flat			
Type Of Mounting	Basic, Flange			
Rotation Tolerance	+5° -0	+4° -0		

SYMBOLS

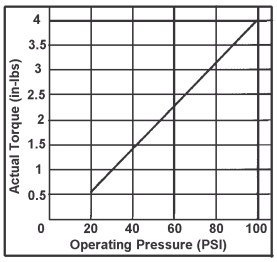


TORQUE SPECIFICATIONS

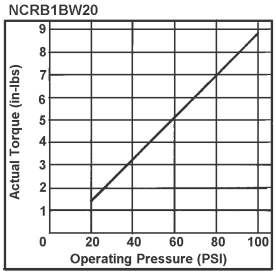
NCRB1BW10



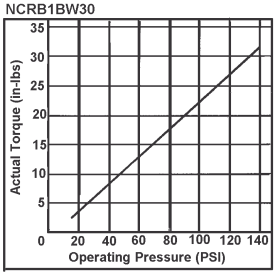
NCRB1BW15



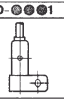
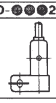
NCRB1BW20



NCRB1BW30



FITTING LOCATION AND ROTATION OF AUTO SWITCH

Mounting direction	Switch with right hand mounting	Switch with left hand mounting
Type	D-●●●1	D-●●●2
		

HOW TO ORDER NCRB1BW ROTARY ACTUATOR

NCDRB1BW ● — ● S ● — ● ●

AUTO SWITCH
D ...W/ Auto Switch Magnet
- ...Without Magnet

MOUNTING
B ...Basic
F ...Flange

BORE (MM)
10
15
20
30

ROTATION
90 ...90°
180 ...180°
270 ...270°

PORT LOCATION
- .....Side Ports
E .....Top Ports

TYPE OF AUTO SWITCH

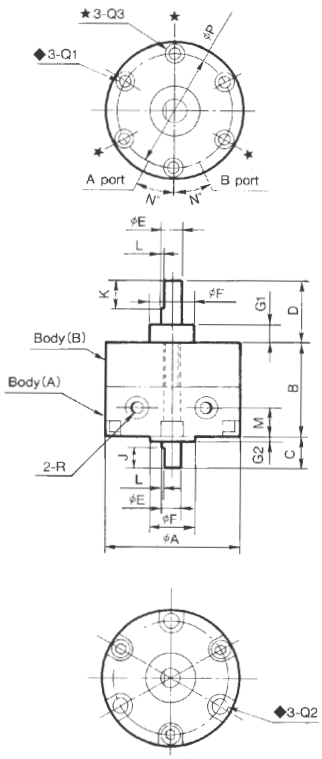
LENGTH OF LEAD WIRE
- .....Grommet 0.5m Lead W
L .....Grommet 5m Lead W
C .....Connector 0.5m Lead W
CL ...Connector 3m Lead W
CN ...Connector No Lead Wire

DIMENSIONS SEE NEXT PAGE ☞

ACCESSORIES SEE NEXT PAGE ☞

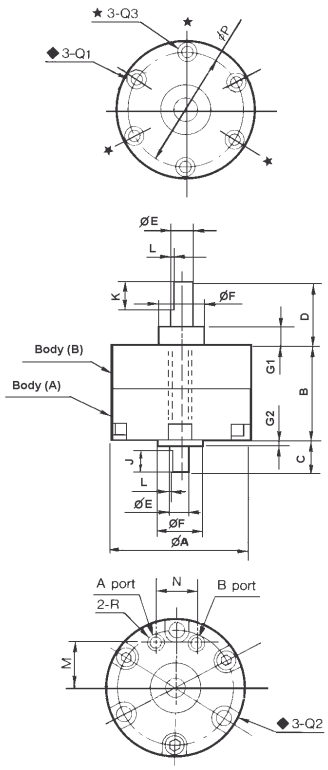
VANE TYPE SERIES NCRB1BW

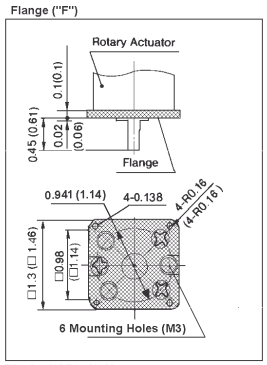
DIMENSIONS WITH SIDE PORTS NCRB1_W_-_S ROTARY ACTUATOR



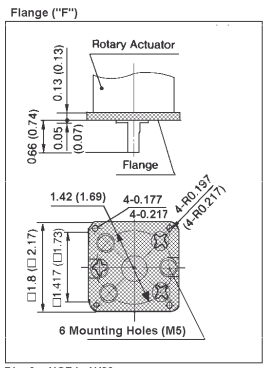
DIMENSIONS WITH TOP PORTS NCRB1_W_-_SE ROTARY ACTUATOR

Top ports: NCRB1○W○-○SE





Dim for NCR1○W10
( ): Dim for NCRB1○W15



Dim for NCR1○W20
( ): Dim for NCRB1○W30

Model (Dimensions in Inches)	A	B	C	D	E		F		G		J	K	L	M	N	P	Q (Depth)			R		
						Tolerances		Tolerance	G1	G2							Q1	Q2	Q3	90°	180°	270°
NCRB1_W10-_S	1.14	0.59	0.31	0.55	5/32	-0.00015	3/8	0	0.12	0.04	0.20	0.35	0.02	0.20	25	0.95	5-40UNC	0.14	-	10-32UNF		M3
NCRB1_W10-_SE						-0.00045		-0.0012						0.33	0.37		(0.2)	(0.26)		M3		
NCRB1_W15-_S	1.34	0.79	0.35	0.71	3/16	-0.00015	15/32	0	0.16	0.06	0.24	0.39	0.02	0.20	25	1.14	5-40UNC	0.14	5-40UNC	10-32UNF		M3
NCRB1_W15-_SE						-0.00045		-0.0016						0.43	0.39		(0.39)	(0.24)	(0.2)	M3		
NCRB1_W20-_S	1.65	1.14	0.39	0.79	15/64	-0.00015	9/16	0	0.18	0.06	0.28	0.39	0.02	0.35	25	1.42	8-32UNC	0.18	8-32UNC	10-32UNF		
NCRB1_W20-_SE						-0.00045		-0.0016						0.55	0.51		(0.53)	(0.43)	(0.3)			
NCRB1_W30-_S	1.97	1.57	0.51	0.87	5/16	-0.00002	5/8	0	0.20	0.08	0.31	0.47	0.04	0.39	25	1.69	10-24UNC	0.21	10-24UNC	10-32UNF		
NCRB1_W30-_SE						-0.00006		-0.0016						0.61	0.55		(0.71)	(0.65)	(0.4)			

ACCESSORIES NCRB1BW ROTARY ACTUATOR

SWITCH MOUNTING CLAMP ASSEMBLY	
Model	Part No
NCDRB1BW10	P211170-1
NCDRB1BW15	P211190-1
NCDRB1BW20	P211160-1
NCDRB1BW30	P211180-1

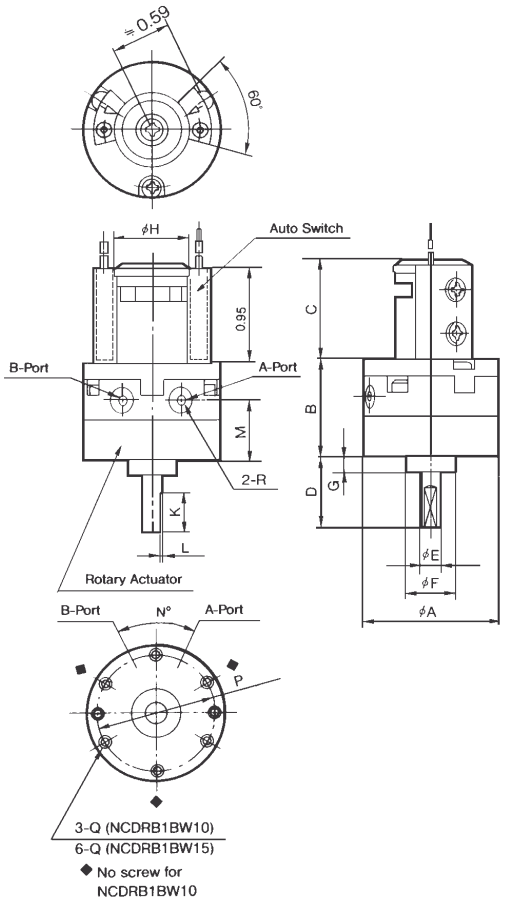
FLANGE MOUNTING ASSEMBLY	
Model	Part No
NC_R1FW10	P211170-2
NC_R1FW15	P211190-2
NC_R1FW20	P211160-2
NC_R1FW30	P211180-2

MORE DIMENSIONS SEE NEXT PAGE ☞

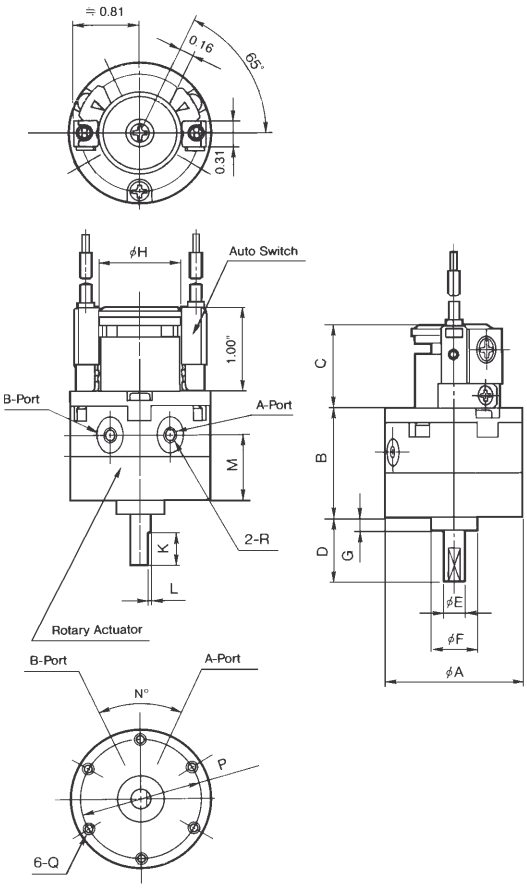
MORE ACCESSORIES SEE NEXT PAGE ☞

VANE TYPE SERIES NCRB1BW

DIMENSIONS SERIES NCDRB1BW10~15



DIMENSIONS SERIES NCDRB1BW20~30



Model (Dimensions in Inches)	A	B	C	D	E	Tolerances	F	Tolerance	G	H	K	L	M	N	P	Q (Depth)	R
NCDRB1BW10	1.14	0.75	0.98	0.55	5/32	-0.00015 -0.00045	0.35	0 -0.0014	0.12	0.73	0.35	0.02	0.39	50	0.94	5-40 (0.2)	M5 (10-32NOM) M3
NCDRB1BW15	1.34	0.94	0.98	0.71	3/16	-0.00001 -0.00017	0.47	0 -0.0017	0.16	0.73	0.39	0.02	0.59	50	1.14	5-40 (0.2)	M5 (10-32NOM) M3
NCDRB1BW20	1.65	1.32	1.00	0.79	15/64	-0.00015 -0.00045	9/16	0 -0.0016	0.18	0.98	0.39	0.02	0.79	50	1.42	8-32UNC (0.28)	10-32UNF
NCDRB1BW30	1.97	1.79	1.00	0.87	5/16	-0.0002 -0.0006	5/8	0 -0.0016	0.20	0.98	0.47	0.04	1.18	50	1.69	10-24UNC (0.40)	10-32UNF

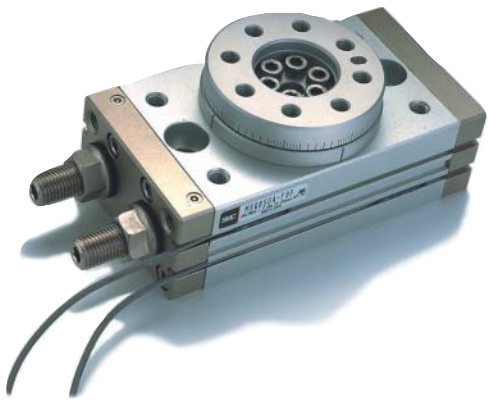
ACCESSORIES
AUTO SWITCH SPECIFICATIONS

Note: Pre-wired Switches with 3/4 Pin Connectors available

Series	Model LH Mount	Model RH Mount	Type	Load Voltage	Load Current	Power Source	Internal Voltage Drop	Indicator Lamp
NCRB1BW10	D-97L	-	Reed	24VDC	5~40mA		Max 2.4V	ON: Red LED
	D-90L	-	Reed	24VDC or less	Max 50mA			None
	D-S992L	D-S991L	3 Wire Solid State NPN	28VDC or less	Max 150mA	5~28VDC	1.5V Max	ON: Red LED
	D-T992L	D-T991L	2 Wire Solid State	10~28 VDC	5~150mA		4V Max	ON: Red LED
NCRB1BW20	D-R732L	D-R731L	Reed	24VDC; 100VAC	5~40mA; 5~20mA		Max2.4V	ON: Red LED
NCRB1BW30	D-R802L	D-R801L	Reed	24VDC/AC or less; 100VDC/AC	Max 50mA; Max 20mA	5~28VDC		None
	D-S792L	D-S791L	3 Wire Solid State NPN	28VDC or less	Max 150mA		0.8V Max	ON: Red LED
	D-T792L	D-T791L	2 Wire Solid State	10~28 VDC	5~150mA		3V Max	ON: Red LED

COMPACT ROTARY TABLE
RACK AND PINION TYPE SERIES MSQ
BORE SIZES: 10, 20, 30, 50, 70, 100, 200

- Operating Range of table is 0~190° by Angle Adjusting Screw
- Double Rack and Single Pinion Construction eliminates backlash
- Hollow Shaft Standard for Wiring and Piping
- Smooth Rotary Motion



TECHNICAL SPECIFICATIONS

Bore Size		10	20	30	50	70	100	200
Fluid		Air (Non-lubricated)						
Maximum Operating Pressure		1Mpa / 145PSI						
Minimum Operating Pressure		0.1Mpa / 14.5PSI						
Ambient and Fluid Temperature		0~60°C / 32~140°F (no freezing)						
Cushion		Rubber Cushion						
Allowable Kinetic Energy	Adjusting Bolt	0.007J	0.025J	0.048J	0.081J	0.24J	0.32J	0.56J
	Shock Absorber	0.039J	0.116J	0.116J	0.294J	1.1J	1.6J	2.9J
Angle Adjusting Range		0 ~ 190°						
Maximum Rotation Angle		190°						
Stable Rotation Time Regulation Range	Adjusting Bolt	0.2 ~ 1.0s/90°				0.2~1.5	0.2~2.0	0.2~2.5
	Shock Absorber	0.2 ~ 0.7s/90°				0.2 ~ 1.0s/90°		
Piston Diameter		Ø15	Ø18	Ø21	Ø25	Ø28	Ø32	Ø40
Port Size		M5 x 0.8		Rc 1/8				

THEORETICAL OUTPUT TABLE

NEWTONS

Size	Operating Pressure (MPa)									
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
10	0.18	0.36	0.53	0.71	0.89	1.07	1.25	1.42	1.60	1.78
20	0.37	0.73	1.10	1.47	1.84	2.20	2.57	2.93	3.29	3.66
30	0.55	1.09	1.64	2.18	2.73	3.19	3.82	4.37	4.91	5.45
50	0.93	1.85	2.78	3.71	4.64	5.57	6.50	7.43	8.35	9.28
70	1.36	2.72	4.07	5.43	6.79	8.15	9.50	10.9	12.2	13.6
100	2.03	4.05	6.08	8.11	10.1	12.2	14.2	16.2	18.2	20.3
200	3.96	7.92	11.9	15.8	19.8	23.8	27.7	31.7	35.6	39.6

AUTO SWITCH SPECIFICATIONS REED TYPE

Auto Switch No	Load Voltage	Max Load Current and Load Current Range	Internal Voltage Drop	Indicator Lamp (Lit at ON Condition)	Applications
D-A90L D-A90VL	24V AC/DC or less	50mA	0	None	PLC
	48V AC/DC or less	40mA			
	100V AC/DC or less	20mA			
D-A93L D-A93VL	24V DC	5~40mA	2.6V or less	•	PLC
	100V AC	5~20mA			
D-A96L D-A96VL	4~8V DC	20mA	0.8V or less	•	PLC

HOW TO ORDER SEE NEXT PAGE ☞

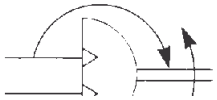
DIMENSIONS SEE NEXT PAGE ☞

AUTO SWITCH SPECIFICATIONS SOLID STATE TYPE

Note: Pre-wired Switches with 3/4 Pin Connectors available

Auto Switch No	Output Type	Power Source	Current Consumption	Load Voltage	Max Load Current and Load Current Range	Internal Voltage Drop	Leakage Current	Applications
D-F9N D-F9NV	NPN	24V DC (10~28 VDC)	8mA or less	28V DC or less	50mA or less	0.4V or less	24V DC at 10μA or less	PLC
D-F9N D-F9NWV			12mA or less					
D-F9P D-F9PV	PNP		10mA or less			1.5V or less		
D-F9PW D-F9PWV								
D-F9B D-F9BV	-			24V DC (10~28V DC)	5~30mA	4.5V or less	24V DC at 1mA or less	24V DC PLC
D-F9BW D-F9BWV						5V or less		

SYMBOLS



ROTARY TABLE
SERIES MSQ

HOW TO ORDER
ROTARY TABLE SERIES MSQ

MSQ B ○ A — ○ ○

TYPE
A .....High Precision
B .....Basic

BORE SIZE
10 ...Ø10mm
20 ...Ø20mm
30 ...Ø30mm
50 ...Ø50mm
70 ...Ø70mm
100 ...Ø100mm
200 ...Ø200mm
Note) MSQA up to Bore Size 50 only

OPTION
A .....with Adjusting Bolt
R .....with Shock Absorber

AUTO SWITCH TYPE
- .....Without Auto Switch

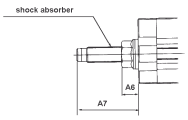
With Auto Switch see Page

NO OF AUTO SWITCHES
- .....2 Pieces
S .....1 Piece
n .....n Pieces

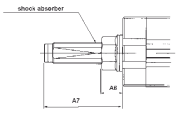
Size	Decrease in oscillation angle
MSQB10	Approx 10.2°
MSQB20	Approx 7.2°
MSQB30	Approx 6.5°
MSQB50	Approx 8.2°
MSQB70	Approx 7°
MSQB100	Approx 6.1°
MSQB200	Approx 4.9°

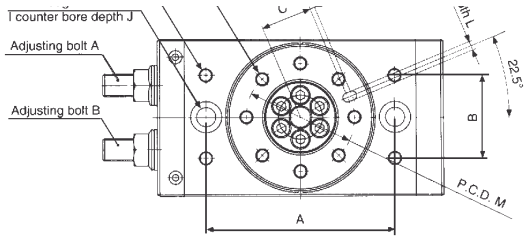
DIMENSIONS
ROTARY TABLE SERIES MSQB

SHOCK ABSORBER MSQB10/20/30R



SHOCK ABSORBER MSQB50R



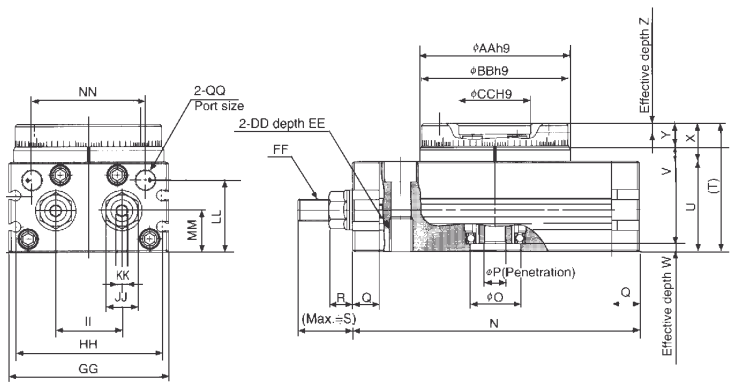


TYPES OF SHOCK ABSORBER

Model	Type of Shock Absorber
MSQB10	RBA0805-X692
MSQB20	RBA1006-X692
MSQB30	RBA1006-X692
MSQB50	RBA1411-X692

DIMENSIONS

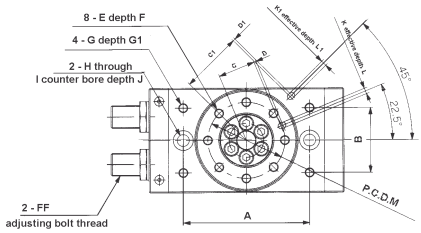
Model	A6 (mm)	A7 (mm)
MSQB10	8.6	31.5
MSQB20	10.6	34.7
MSQB30	10.6	34.7
MSQB50	14	51.7

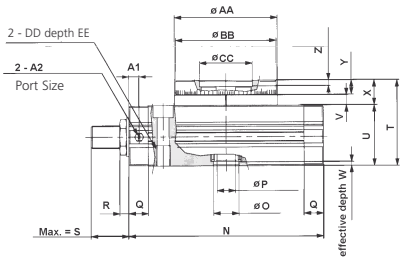


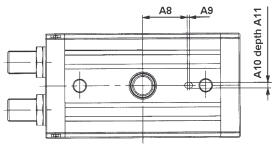
Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
MSQB10	60	27	15	2	M5X0.8	8	M5X0.8	6.8	11	6.5	3H9	3.5	32	92	15H9	5	9.5	8.6	17.7	47	34	4.5	3	13	8	4
MSQB20	76	34	20.5	2	M6X1	10	M6X1	8.6	14	8.5	4H9	4.5	43	117	17H9	9	12	10.6	25	54	37	6.5	2.5	17	10	6
MSQB30	84	37	23	2	M6X1	10	M6X1	8.6	14	8.5	4H9	4.5	48	127	22H9	9	12	10.6	25	57	40	6.5	3	17	10	4.5
MSQB50	100	50	26.5	2	M8X1.25	12	M8X1.25	10.5	18	10.5	5H9	5.5	55	152	26H9	10	15.5	14	31.4	66	46	7.5	3	20	12	5

Model	AA	BB	CC	DD	EE	FF	GG	HH	II	JJ	KK	LL	MM	NN	OO	PP	QQ
MSQB10	46	45	20	M8X1.25	12	M8X1	50	45	20	12	4	27.8	15.5	34.5	9	13	M5X0.8
MSQB20	61	60	28	M10X1.5	15	M10X1	65	60	27.5	14	5	28.5	16	51	10	12	M5X0.8
MSQB30	67	65	32	M10X1.5	15	M10X1	70	65	29	14	5	32	18.5	50	11.5	14	⅛
MSQB50	77	75	35	M12X1.75	18	M14X1.5	80	75	38	19	6	37.5	22	63	14.5	15	⅛

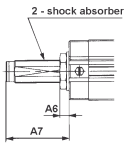
DIMENSIONS
ROTARY TABLE SERIES MSQB 70, 100, 200







SHOCK ABSORBER
MSQB70/100/200R

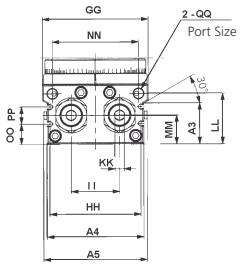


TYPES OF SHOCK ABSORBER

Model	Type of Shock Absorber
MSQB70	RBA2015-X821
MSQB100	RBA2015-X821
MSQB200	RBA2725-X821

DIMENSIONS

Model	A6 (mm)	A7 (mm)
MSQB70	8	55.4
MSQB100	8	55.5
MSQB200	8	74.2

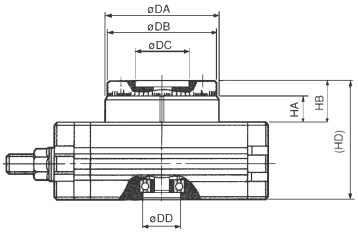


Model	A	B	C	D	C1	D1	E	F	G	G1	H	I	J	K	L	K1	L1	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
MSQB70	110	57	32.5	2	54	2	M8x1.25	12.5	M8x1.25	10	10.4	17.5	10.5	5	5.5	5	3.5	67	170	22	16	17	8	34.2	75	53	9	3.5	22	12.5	5
MSQB100	130	66	37.5	2	59	2	M10x1.5	14.5	M8x1.25	10	10.4	17.5	10.5	6	6.5	6	4.5	77	189	24	19	17	8	34.3	86	59	12	3.5	27	14.5	6
MSQB200	150	80	44	2	69	2	M12x1.75	16.5	M12x1.75	13	14.2	20	12.5	8	8.5	8	4.5	90	240	32	24	24	8	40.2	106	74	15	5.5	32	16.5	9

Model	AA	BB	CC	DD	EE	FF	GG	HH	II	KK	LL	MM	NN	OO	PP	QQ	A1	A2	A3	A4	A5	A8	A9	A10	A11
MSQB70	90	88	46	M12x1.75	18	M20x1.5	92	79	42	8	44.5	25.5	75	18	15	Rc 1/8	9	M5x0.8	36	84	90	39	2	5	3.5
MSQB100	100	98	56	M12x1.75	18	M20x1.5	102	90	50	8	50.5	29.5	85	22	15	Rc 1/8	9	M5x0.8	42	95	101	49	2	6	4.5
MSQB200	118	116	64	M16x2	25	M27x1.5	120	108	60	10	65.5	36.5	103	29	15	Rc 1/8	9	M5x0.8	57	113	119	54	2	8	6.5

DIMENSIONS (MM)
HIGH PRECISION ROTARY TABLE SERIES MSQA 10, 20, 30, 50

Model	DA(h8)	DB(h8)	DC(h8)	DD(h8)	HA	HB	HD
MSQA10	46	45	20	15	10	18.5	52.5
MSQA20	61	60	28	17	15.5	26	63
MSQA30	67	65	32	22	16.5	27	67
MSQA50	77	75	35	26	17.5	30	76



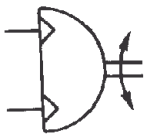
ALL DIMENSIONS EXCEPT FOR THIS TABLE ARE THE SAME AS FOR BASIC MODEL

ROTARY TABLE
VANE TYPE SIZES 1, 3, 7, 20
SERIES MSUB

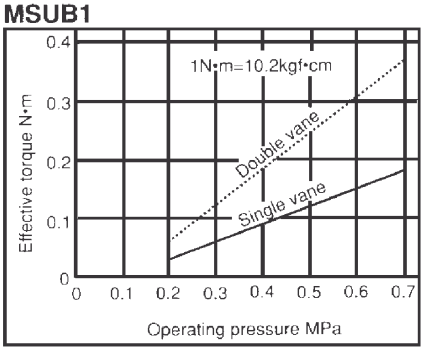
- ±10° Rotation Range Adjustment
- Free Mount Body Type
- Easy Alignment
- Smooth Operation
- High Reliability / Long Life
- Auto Switch Option

TORQUE SPECIFICATIONS

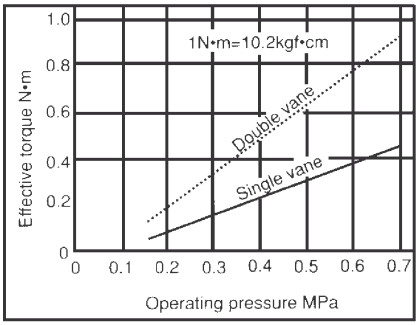
SYMBOLS



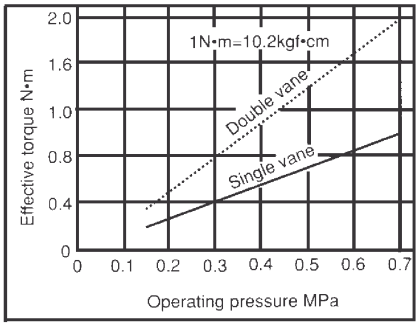
MSUB1



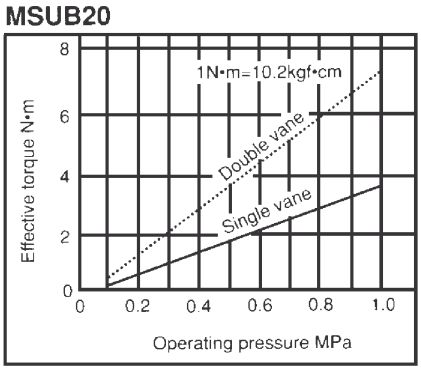
MSUB3



MSUB7



MSUB20



TECHNICAL SPECIFICATIONS

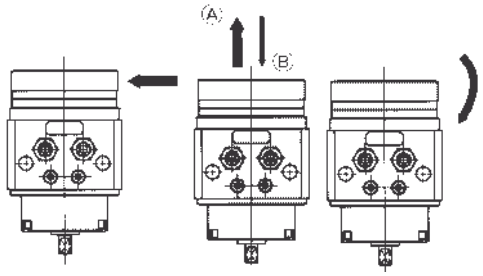
Model		MSUB1		MSUB3		MSUB7		MSUB20	
Vane type		Single Vane		Single Vane		Single Vane		Single Vane	
Rotation Angle (note 1)		90°±10°	180°±10°	90°±10°	180°±10°	90°±10°	180°±10°	90°±10°	180°±10°
Fluid		Air (non lube)		Air (non lube)		Air (non lube)		Air (non lube)	
Proof Pressure MPa / PSI		1.05MPa / 153PSI		1.05MPa / 153PSI		1.05MPa / 153PSI		1.5MPa / 220PSI	
Ambient and Fluid Pressure		5~60°C / 40~140°F		5~60°C / 40~140°F		5~60°C / 40~140°F		5~60°C / 40~140°F	
Operating Pressure Range MPa / PSI		0.2~0.7MPa / 29~102PSI		0.15~0.7MPa / 22~102PSI		0.15~0.7MPa / 22~102PSI		0.15~1.0MPa / 22~145PSI	
Stable Rotation Time Regulation Range sec/90°		0.07~0.3		0.07~0.3		0.07~0.3		0.07~0.3	
Axial Load	Allowable Radial Load	20N		40N		50N		60N	
	Allowable Thurst Load (note 2)	15N		30N		60N		80N	
		10N		15N		30N		40N	
	Allowable Moment	0.3N.m		0.7N.m		0.9N.m		2.9N.m	
Bearing		Bearing		Bearing		Bearing		Bearing	
Port Position		Body Side or Axial Direction		Body Side or Axial Direction		Body Side or Axial Direction		Body Side or Axial Direction	
Port Size	Body Size	M3 x 0.5		M5 x 0.8		M5 x 0.8		M5 x 0.8	
	Axial Direction			M3 x 0.5					

DIMENSIONS SEE NEXT PAGE ☞

HOW TO ORDER SEE NEXT PAGE ☞

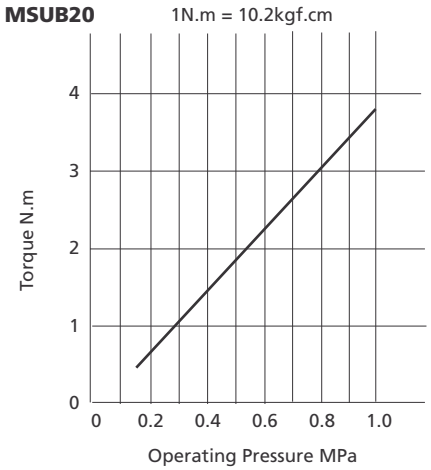
ALLOWABLE LOAD

Set the load and moment applied to the table at the allowable values in the table below. (Set values exceeding the allowable values cause excessive play of the table, deterioration of accuracy, and breakage of parts.)

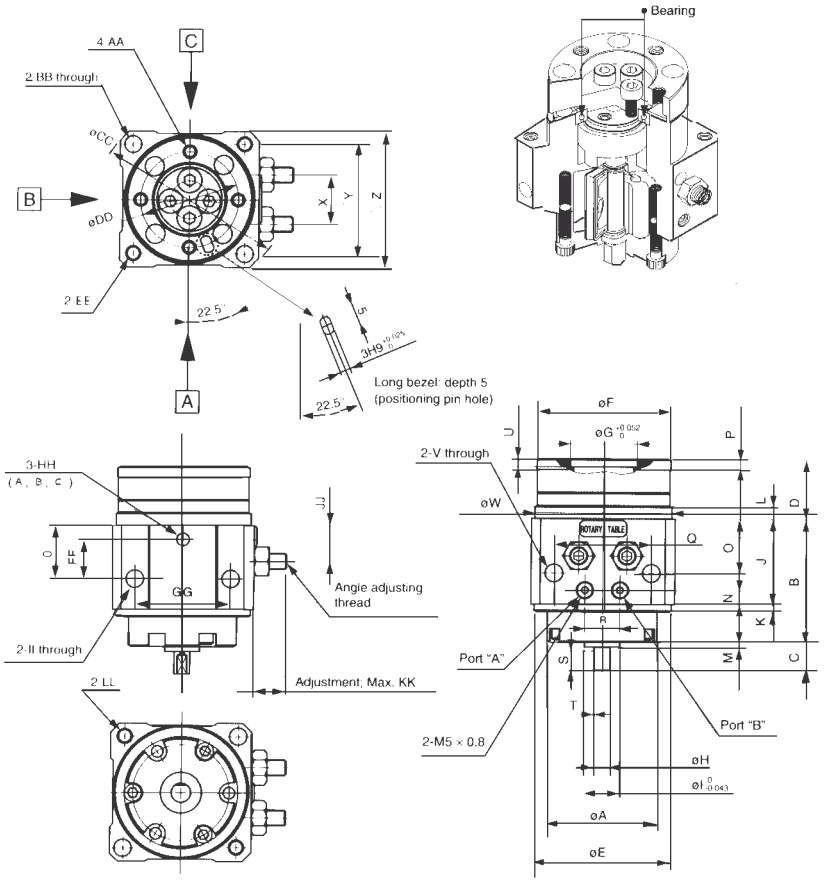


Size	Allowable Radial Load (N)	Allowable Thrust Load (N)		Allowable Moment (Nm)
3	40	A 30	B 15	0.7
7	50	60	30	0.9
20	60	80	40	2.9

TORQUE SPECIFICATIONS



DIMENSIONS
ROTARY TABLE - VANE TYPE SERIES MSUB



HOW TO ORDER
ROTARY TABLE - VANE TYPE SERIES MSUB

MDSUB ○ — ○ S ○ — ○

AUTOSWITCHES
D .....With Magnet
- .....W/O Magnet

NOMINAL TORQUE
1 .....MSUB1
3 .....MSUB3
7 .....MSUB7
20 ...MSUB20

NO OF VANES
S .....Single
D .....Double

OPERATING ANGLE
90 ...90°
180 ...180°
Angle adjusting range is ±5° for both ends

CONNECTING PORT POSTION
Nil ...Side

APPLICABLE AUTO SWITCHES
See Accessories Section

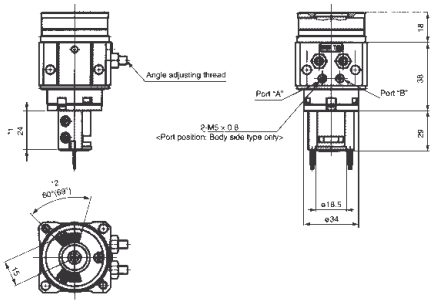
Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N
MSUB-3□S	34	38	9	18	42h9 $^{0}_{-0.062}$	41h9 $^{0}_{-0.062}$	21H9	5g6 $^{-0.004}_{-0.012}$	12h9	26	2	3	1.5	5
MSUB-7□S	42	48.5	10	21.5	48h9 $^{0}_{-0.062}$	47h9 $^{0}_{-0.062}$	26H9	6g6 $^{-0.004}_{-0.012}$	14h9	30.5	2.5	4.5	1.5	5
MSUB-20□S	50	60	13	22	53.5h9 $^{0}_{-0.074}$	52h9 $^{0}_{-0.074}$	30H9	8g6 $^{-0.005}_{-0.014}$	16h9	34	4	5	2	6

O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE
16	3.5	29	10.5	6	0.5	2.5	4.5	42h9 $^{0}_{-0.062}$	14	36	44	M4x0.7 depth 7	4.5	58	30	M4x0.7 depth 8
19.5	4.5	36	11	7	0.5	2.5	5.5	48h9 $^{0}_{-0.062}$	19	41	50	M4x0.7 depth 8	5.5	67	37	M5x0.8 depth 10
21.5	4.5	43	13	8	1	3	6.6	53.5h9 $^{0}_{-0.074}$	22	45	56	M5x0.8 depth 8	6.6	76	42	M6x1 depth 12

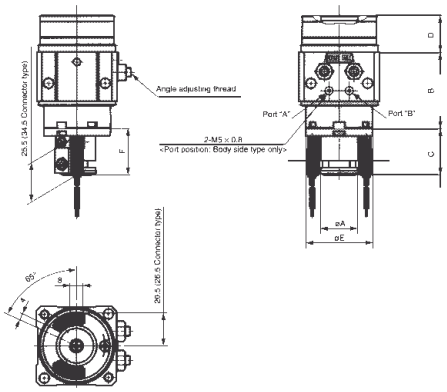
FF	GG	HH	II	JJ	KK	LL
12	29	3H9 $^{+0.025}_{0}$ depth 5	4.5	10.5	6.25	M4x0.7 depth 8
13	36	4H9 $^{+0.030}_{0}$ depth 6	5.5	12.5	8.25	M5x0.8 depth 10
14	43	4H9 $^{+0.030}_{0}$ depth 6	6.6	14	8.75	M6x1 depth 12

Rotary Table
Series MSUB

Dimensions
Auto switch mounting for MDSUB1, 3



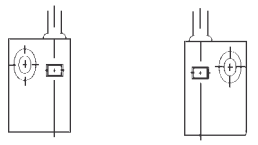
Dimensions
Auto switch mounting for MDSUB7, 20



Model	A	B	C	D	E	F
MDSUB7	25	48.5	30	21.5	42	30
MDSUB20	25	60	31	22	50	31

Accessories
Auto Switches Type for Right/Left hand

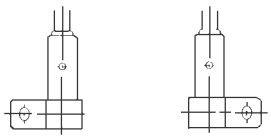
MDSUB1-3



Left hand D-□992

Right hand D-□991

MDSUB7-20



Left hand D-□□□2

Right hand D-□□□1

Accessories
Auto Switches

	Type	Auto Switch Model		Application	Operating Voltage	Max Current or Operating Current Range
		Switch with right hand mounting	Switch with left hand mounting			
MDSUB1, MDSUB3	D-9	D-90L		PLC	24VAC DC or less	50mA
		D90AL			24VAC DC or less	50mA
					100VAC, DC	20mA
		D-97L		PLC	24VDC	5~40mA
		D-93A			24VDC	5~40mA
					100VAC	5~20Ma
MDSUB7, MDSUB20	D-R7	D-R731L	D-R732L	PLC	100VAC	5~20Ma
					24VDC	5~40Ma
	D-R8	D-R801L	D-R802L	PLC	24VAC, DC or less	50mA
					48VAC, DC	40mA
					100VAC, DC	20mA
	D-S7	D-S791L	D-S792L	PLC	5, 12, 24VDC	150mA
	D-S99	D-S991L	D-S992L			
	D-T7	D-T791L	D-T792L	PLC	24VDC	5~150mA
	D-T99	D-T991L	D-T992L			

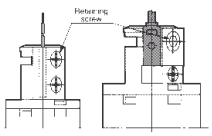
- Response time 1.2ms
- Shock resistance
- Reed switch type 300m/s2
  Solid state type 1000m/s
- Ambient temperature ..... 5~60°C
- Length of lead wire ..... 0.5m (standard)

Note: Pre-wired Switches with 3/4 Pin Connectors available

Rotation Sensing Range Of Auto Switch And Hysteresis

Model	Rotation	Hysteresis
MDSUB1, 3	110°	10°
MDSUB7, 20	90°	10°

Accessories
Auto Switch Position Setting



MDSUB1, 3 MDSUB7, 20

Loosen the retaining screw and shift the switch and set it at any position to suit your need. Then re-tighten the retaining screw. However, excessive tightening can cause damage to the screw, and result in problems. Be sure to use about 0.5N m tightening torque.

Accessories
Switch unit model no.

Type	Unit Model No.
MDSUB3	P211090-1
MDSUB7	P211060-1
MDSUB20	P211080-1

AIR CHUCKS SERIES MH

AIR CHUCKS: SERIES MHQ PARALLEL INTERNAL & EXTERNAL HOLDING TYPE: SERIES MHC ANGULAR TYPE

- Double or Single Acting
- Double Piston Mechanism creates high gripping force
- Magnetic Sensing is Standard
- Internal Speed Control
- Internal Damper

TECHNICAL SPECIFICATION MHQ (PARALLEL TYPE)

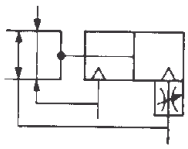
Fluid			Air
Operating Pressure	Double Acting Type		Ø10 ~ Ø25: 0.1 ~ 0.6MPa / 14.5 ~ 90PSI
	Single Acting Type	Normally Open Type	Ø10~25: 0.25 ~ 0.6MPa / 37 ~ 90PSI
Ambient and Fluid Temperature			0 ~ 60°C / 32 ~ 140°F
Repeatability			±0.01mm
Maximum Operating Frequency			180 c.pm
Lubrication			Not required
Action			Double Acting type, Single Acting type (N.O)
Auto Switch			See Accessories

PRODUCT SELECTOR (HOLDING FORCE)

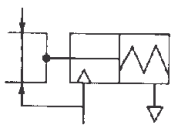
Action		Model	Bore Size (mm)	Holding Force @0.5MPa / 73PSI (Effective) (N)	Opening Stroke (Included) (mm)
Double acting type		MHQ2-6D	6	Outside holding force: 3.4 Inside holding force: 6.2	4
		MHQ2-10D	10	11	4
		MHQ2-16D	16	35	6
		MHQ2-20D	20	43	10
		MHQ2-25D	25	64	14
Single acting type	Normally open type	MHQ2-6S	6	Outside holding force: 1.9 Inside holding force: 1.1	4
		MHQ2-10S	10	8	4
		MHQ2-16S	16	27	6
		MHQ2-20S	20	34	10
		MHQ2-25S	25	50	14

SYMBOLS

PARALLEL TYPE
DOUBLE ACTING TYPE: Ø10~Ø25



PARALLEL TYPE
SINGLE ACTING TYPE: NORMALLY OPEN



TECHNICAL SPECIFICATION MHC (ANGULAR TYPE)

Fluid		Air
Operating Pressure	Double Acting Type	0.1 ~ 0.6MPa / 14.5~90PSI
	Single Acting Type	0.25 ~ 0.6 MPa / 37~90PSI
Ambient and Fluid Temperature		0~60°C / 32~140°F
Repeatability of Closing Position		±0.01mm
Maximum Operating Frequency		180c.p.m
Lubrication		Not required
Action		Double Acting / Single Acting (NO)
Auto Switch		See accessories

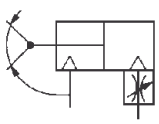
PRODUCT SELECTOR

Action	Model	Bore Size (mm)	Holding Moment* (Effective) (Nm)	Opening Angle (Included)
Double Acting Type	MHC2-10D	10	0.1	30°~-10°
	MHC2-16D	16	0.4	
	MHC2-20D	20	0.7	
	MHC2-25D	25	1.4	
Single Acting Type	MHC2-10S	10	0.07	30°~-10°
	MHC2-16S	16	0.3	
	MHC2-20S	20	0.55	
	MHC2-25S	25	1.1	

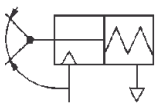
*@ 0.5MPa / 73PSI

SYMBOLS

ANGULAR TYPE
DOUBLE ACTING

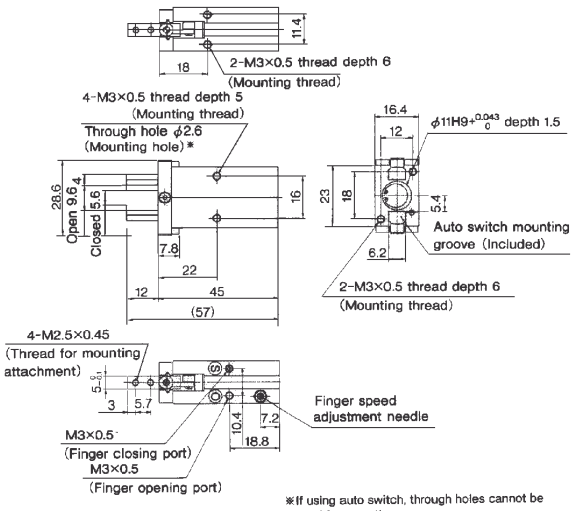


ANGULAR TYPE
SINGLE ACTING



DIMENSIONS SEE NEXT PAGE ☞

DIMENSIONS
PARALLEL TYPE
MHQ2-10D/S

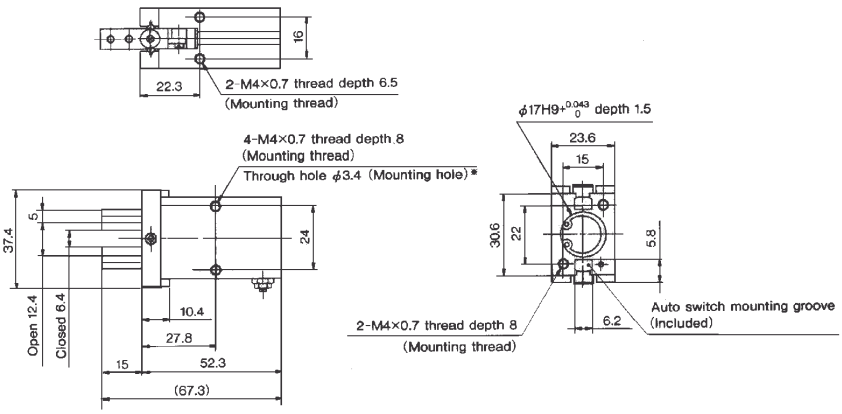


*If using auto switch, through holes cannot be used for mounting.

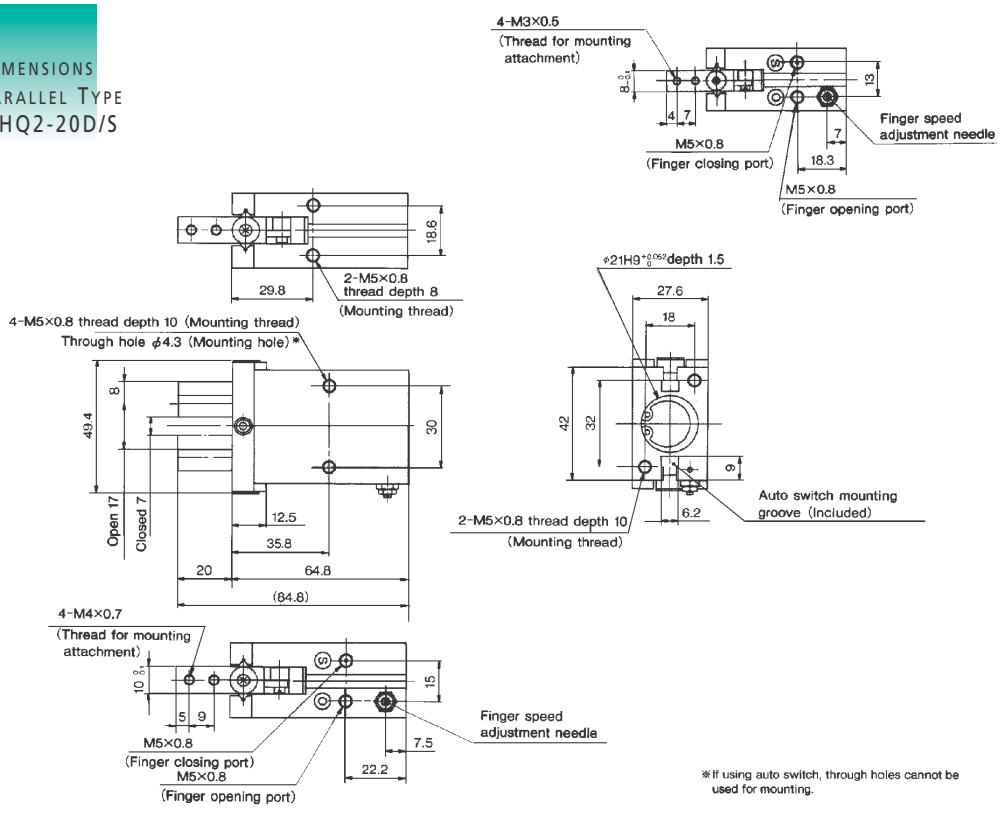
NOTE

The "Finger speed adjustment needle" shown is an air vent on the single acting type.
The "Finger opening port" shown is plugged on the single acting type.

DIMENSIONS
PARALLEL TYPE
MHQ2-16D/S



DIMENSIONS
PARALLEL TYPE
MHQ2-20D/S

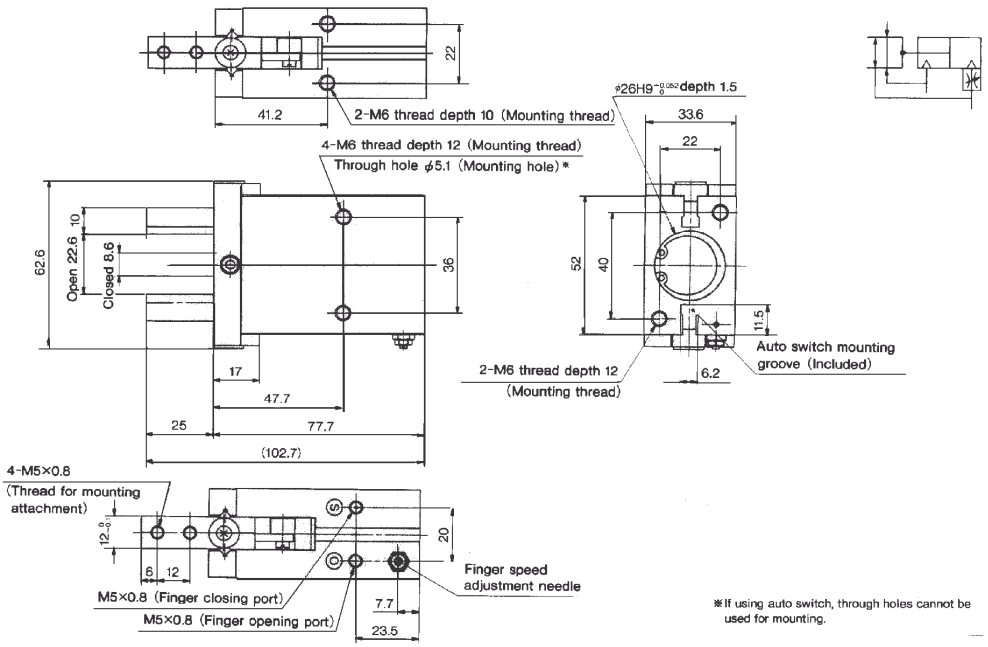


*If using auto switch, through holes cannot be used for mounting.

*If using auto switch, through holes cannot be used for mounting.

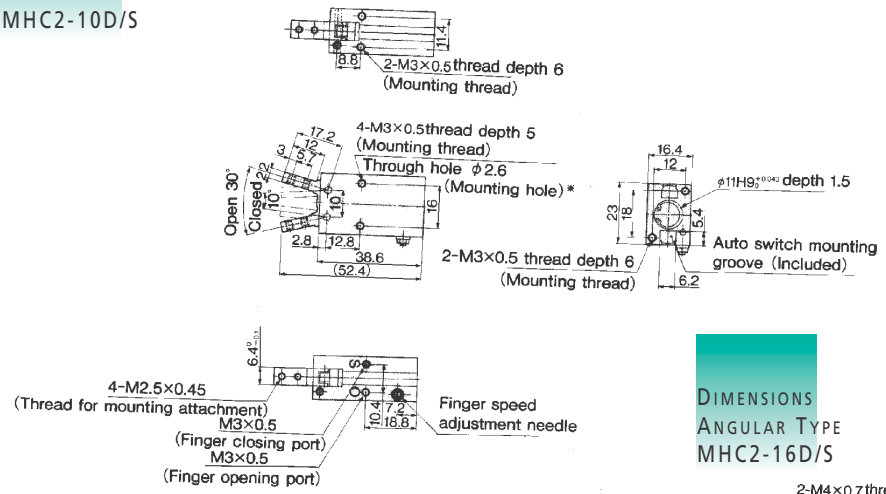
MORE DIMENSIONS
SEE NEXT PAGE ☞

DIMENSIONS PARALLEL TYPE MHQ2-25D/S



*If using auto switch, through holes cannot be used for mounting.

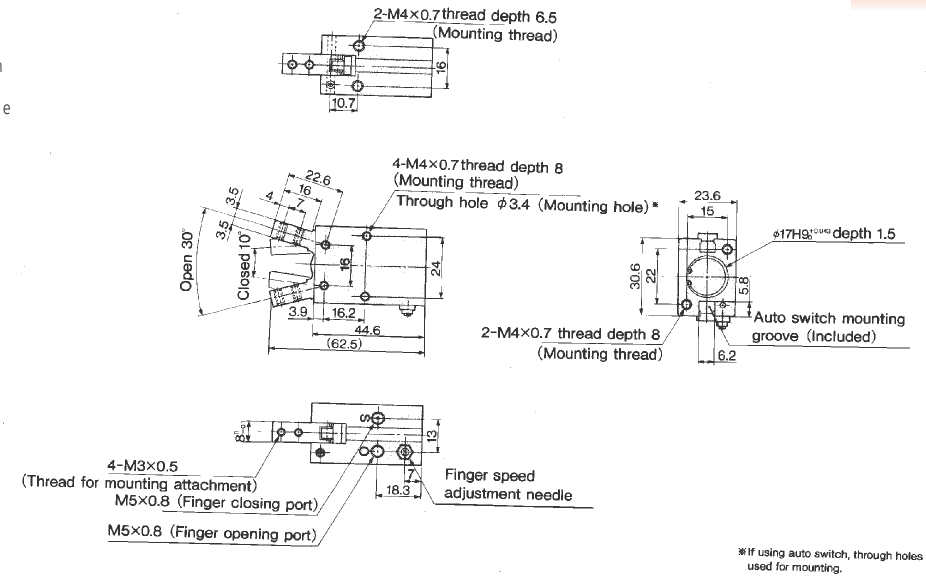
DIMENSIONS ANGULAR TYPE MHC2-10D/S



NOTE

The "Finger speed adjustment needle" shown is an air vent on the single acting type.
The "Finger opening port" shown is plugged on the single acting type.

DIMENSIONS ANGULAR TYPE MHC2-16D/S

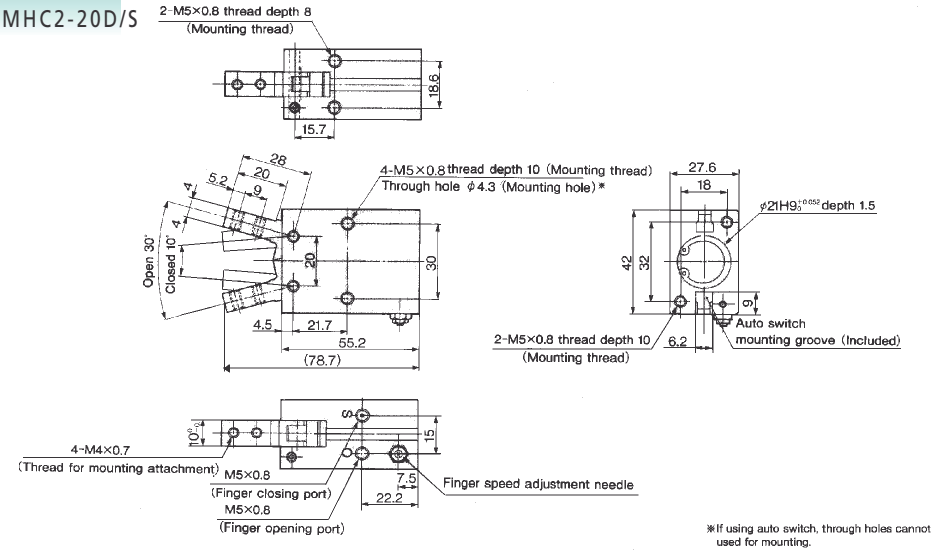


*If using auto switch, through holes cannot be used for mounting.

ACCESSORIES SEE NEXT PAGE ☞
HOW TO ORDER SEE NEXT PAGE ☞

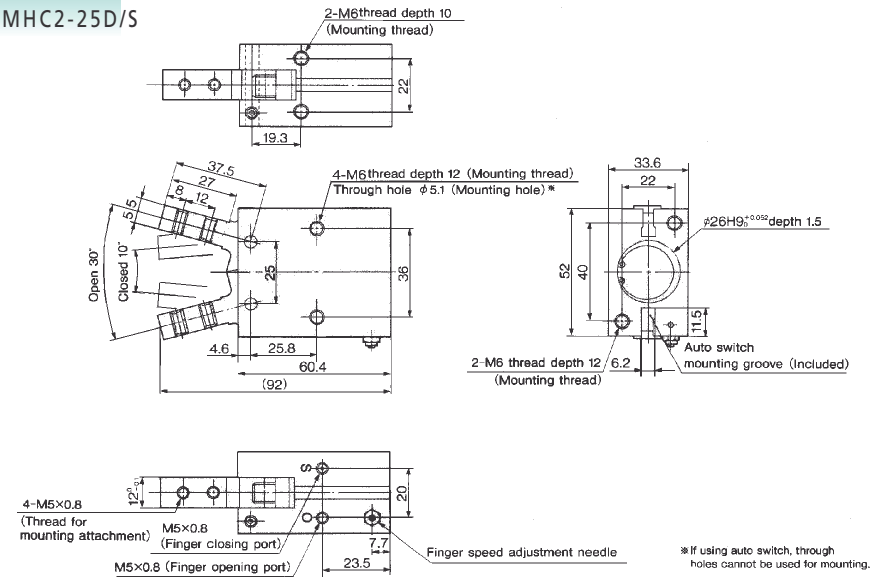
AIR CHUCKS SERIES MH

DIMENSIONS ANGULAR TYPE MHC2-20D/S



*If using auto switch, through holes cannot be used for mounting.

DIMENSIONS ANGULAR TYPE MHC2-25D/S



*If using auto switch, through holes cannot be used for mounting.

HOW TO ORDER SERIES MHQ/MHQC AIR CHUCKS

MH ○ — ○ ○ — ○ ○ ○

FUNCTION
Q2 ...Parallel
C2 ...Angular

BORE SIZE
10 ...10mm
16 ...16mm
20 ...20mm
25 ...25mm

ACTION
D .....Double
S .....Single (Normally Open)
C .....Single (Normally Closed)
MHQ2 Only

TYPE OF AUTO SWITCHES
See Accessories Section

LEAD WIRE LENGTH
- 0.5m
L 3m

NO OF SWITCHES
- .....2 Pieces
S .....1 Piece

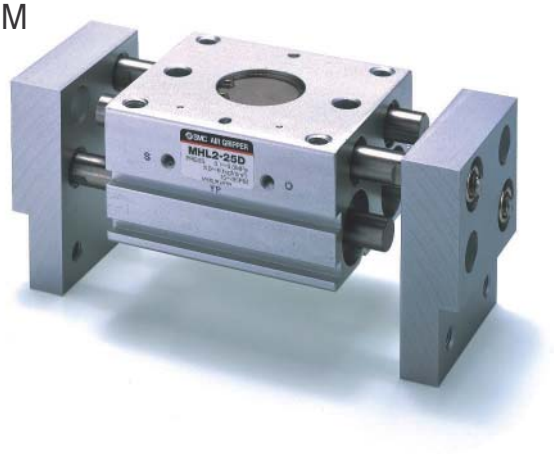
ACCESSORIES AUTO SWITCH SPECIFICATIONS

Note: Pre-wired Switches with 3/4 Pin Connectors available

Model		Type	Load Voltage	Load Current	Power Source	Internal Voltage Drop	Indicator Lamp
Part No. Grommet type	Part No. Connector type						
D-Y59AL		3 Wire Solid State NPN	28VDC or less	Max 150mA	5~28VDC	0.8V Max	ON:RED LED
D-Y7PL		3 Wire Solid State PNP	28VDC or less	Max 100mA	5~28VDC	0.8V Max	ON:RED LED
D-Y59BL		2 Wire Solid State	28VDC or less	5~ 150mA		3V Max	ON:RED LED

AIR CHUCK WIDE TYPE SERIES MHL2
BORE SIZES Ø10, 12, 16, 20, 25, 32, 40MM

- Parallel Opening-Type Air Chuck
- Built-in Dust-proof Mechanism
- Finger Motion Synchronized Rack and Pinion Mechanism
- High Holding Force
- Auto Switch Available



TECHNICAL SPECIFICATIONS

MORE TECHNICAL SPECIFICATIONS SEE NEXT PAGE ☞

Model	MHL2-10D MHL2-10D1 MHL2-10D2	MHL2-16D MHL2-16D1 MHL2-16D2	MHL2-20D MHL2-20D1 MHL2-20D2	MHL25D MHL25D1 MHL25D2	MHL2-32D MHL2-32D1 MHL2-32D2	MHL2-40D MHL2-40D1 MHL2-40D2
Cylinder Bore (mm)	10	16	20	25	32	40
Fluid	Air					
Action	Double Acting					
Operating Pressure MPa / PSI	0.15~0.6 / 22~87	0.1~0.6 / 14.5~87				
Ambient and Fluid Temperature	-10 ~ 60°C / 14 ~ 140°F					
Repeatability	±0.1					
Max Operating Frequency	60 c.p.m.					
Lubrication	Non-lube					
Note: Effective holding force N when pressure is 0.5 MPa (73PSI)	14	45	74	131	228	396
Weight (Standard Type) (g)	280	585	1,025	1,690	2,905	5,270

Note: when holding point R = 40mm Refer to the "effective holding force" data for the holding force at each holding point

HOW TO ORDER AIR CHUCH SERIES MHL2

MHL2 — ● ● ● — ● ● ●

BORE SIZE
10 ...10mm
16 ...16mm
20 ...20mm
25 ...25mm
32 ...32mm
40 ...40mm

ACTION
D .....Double Acting

STROKE

	Model	Bore Size(mm)					
		10	16	20	25	32	40
-	MHL2-●●D	20	30	40	50	70	100
1	MHL2-●●D1	40	60	80	100	120	160
2	MHL2-●●D2	60	80	100	120	160	200

• Opening/closing stroke values (mm)

TYPE OF AUTO SWITCHES
See Accessories Section

LEAD WIRE LENGTH
- 0.5m
L 3m

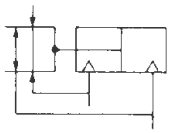
NO OF SWITCHES
- .....2 Pieces
S .....1 Piece
n .....n Pieces

ACCESSORIES AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available

Auto Switch Number	D-Y59AL	D-Y69AL	D-Y59BL	D-Y69BL	D-Y7BWL	D-Y7BWVL	D-Y7NWL	D-Y7NWVL	D-Y7BAL
Electrical Entry	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular	In-line
Wiring	Three wire type NPN		Two wire type		Two-wire type	Two-wire type	Three-wire type NPN	Three-wire type NPN	Two-wire type
Application	PLC		24VDC PLC		24VDC PLC		PLC		24VDC PLC
Supply Voltage	5 12 24vDC		–		–	–	5 12 24vDC (4.5~28vDC)		–
Current Consumption	OFF: 1mA max ON: 12mA max		–		–	–	10mA max		–
Load Voltage	28vDC max		24vDC (10~28vDC)				28vDC max		–
Load Current	150mA max		5~150mA		5~40mA		40mA max		5~40mA max
Internal Voltage Drop	0.4v max at 50mA, 0.8v max at 150mA		24vDC (10~28vDC)		4V max		1.5v max (0.8mA max at load current 10mA)		4v max
Leakage Current	10mA max at 24vDC		1mA max at 24vDC				10mA max at 24vDC		1mA at 24vDC
Indicator Lamp	Red LED lights when power is turned on		Two Color Indication. Operating Position – Red LED. Most Sensitive Position – Green LED						

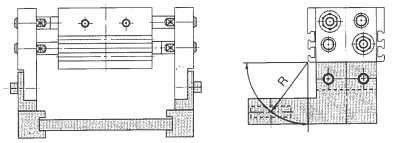
SYMBOLS



TECHNICAL SPECIFICATIONS

Holding Position

- The work holding point should be within the range shown in accordance with the operating pressure in the "Effective Holding Force" graphs.
- When the work holding point is out of the limit range, an excessive unbalanced load is applied to fingers and guides, causing excessive play of fingers and exercising an adverse effect on the life.

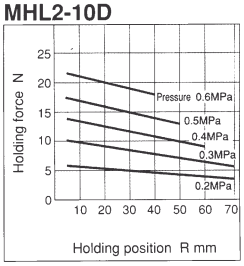


R : Holding position (mm)

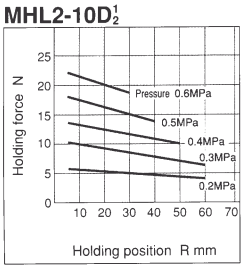
1N = 0.2248lbf
1MPa = 145PSI

Effective Holding Force

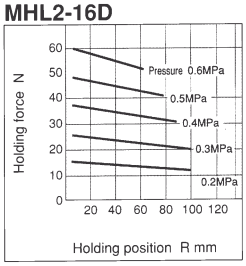
MHL2-10D



MHL2-10D$_2^1$



MHL2-16D



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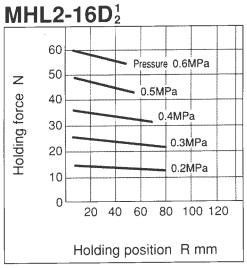
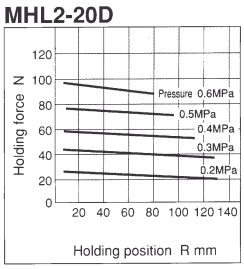


MHL2-20D



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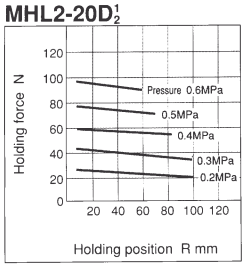
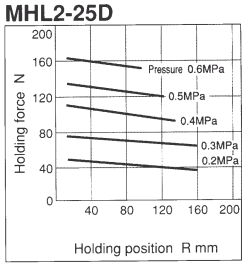
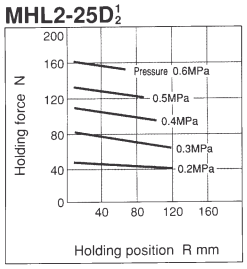


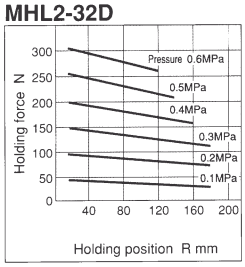
MHL2-25D



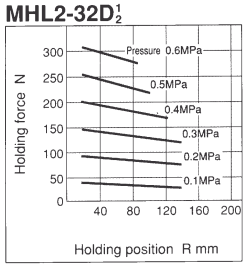
MHL2-25D$_2^1$



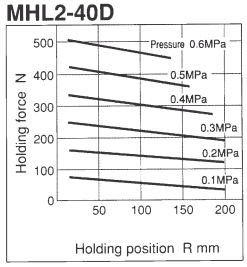
MHL2-32D



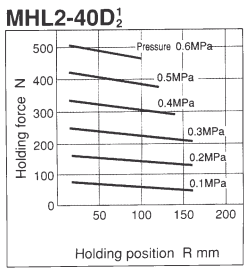
MHL2-32D$_2^1$



MHL2-40D



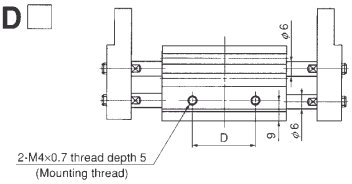
MHL2-40D$_2^1$

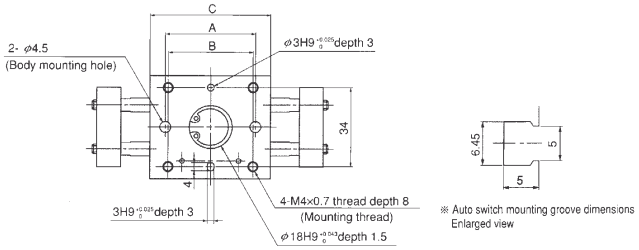


DIMENSIONS
SEE NEXT PAGE ☞

DIMENSIONS
AIR CHUCK SERIES MHL

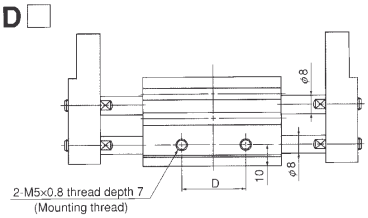
MHL2-10D□

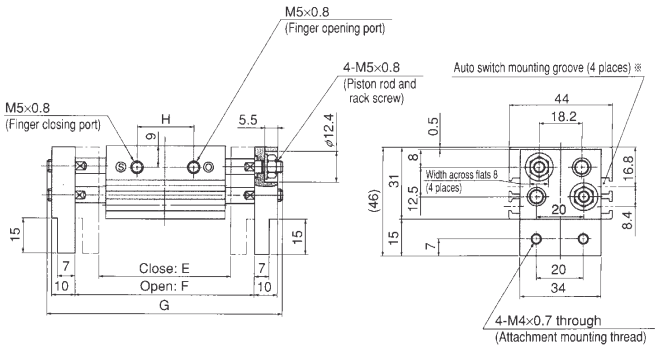


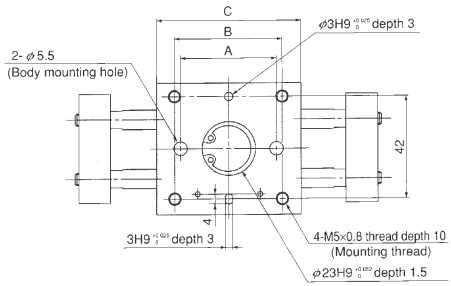


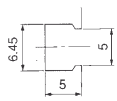
DIMENSIONS
AIR CHUCK SERIES MHL

MHL2-16D□



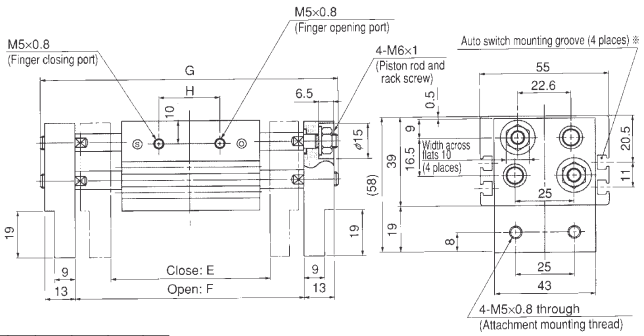






※ Auto switch mounting groove dimensions
Enlarged view

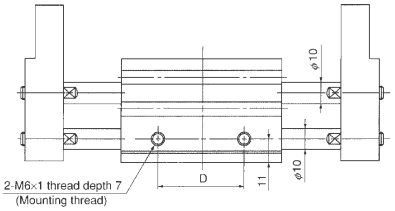
Model	A	B	C	D	E	F	G	H
MHL2-10D	38	36	51	26	56	76	100	24
MHL2-10D1	54	52	67	42	78	118	142	39
MHL2-10D2	72	70	85	60	96	156	180	57

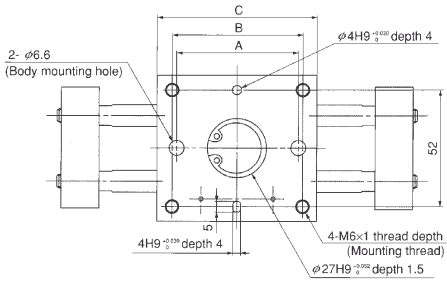


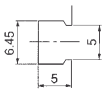
Model	A	B	C	D	E	F	G	H
MHL2-16D	40	45	60	28	68	98	128	26
MHL2-16D1	70	75	90	58	110	170	200	50
MHL2-16D2	90	95	110	78	130	210	240	70

DIMENSIONS
AIR CHUCK SERIES MHL

MHL2-20D□



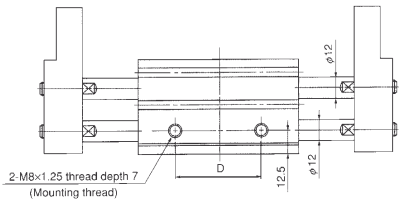


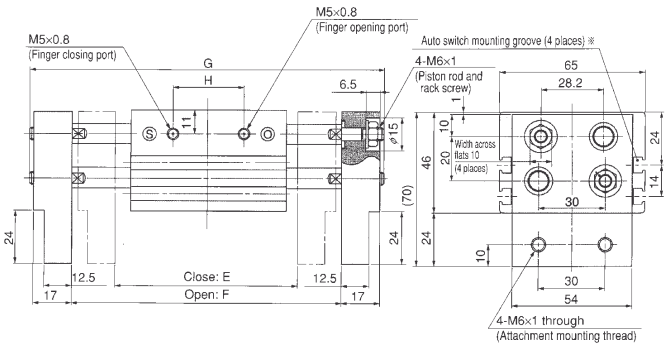


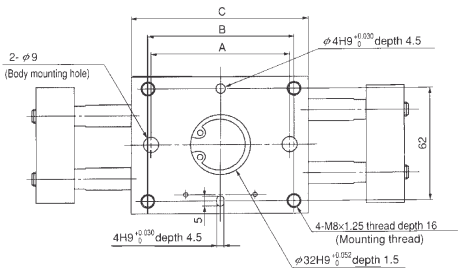
※ Auto switch mounting groove dimensions
Enlarged view

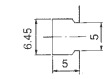
DIMENSIONS
AIR CHUCK SERIES MHL

MHL2-25D□



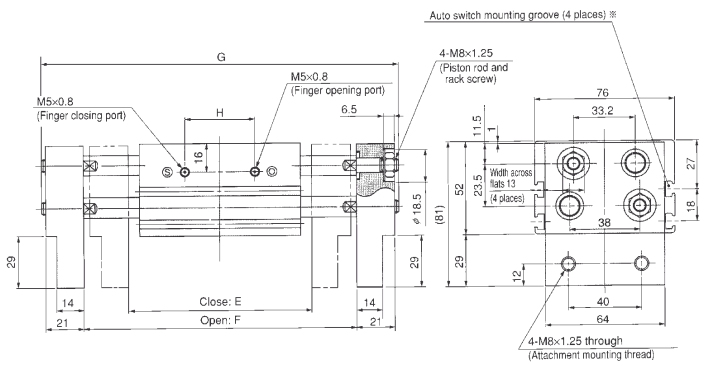






※ Auto switch mounting groove dimensions
Enlarged view

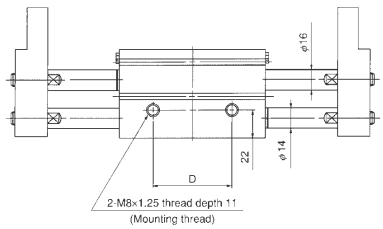
Model	A	B	C	D	E	F	G	H
MHL2-20D	54	58	71	38	82	122	160	32
MHL2-20D1	96	100	113	80	142	222	260	68
MHL2-20D2	116	120	133	100	162	262	300	88

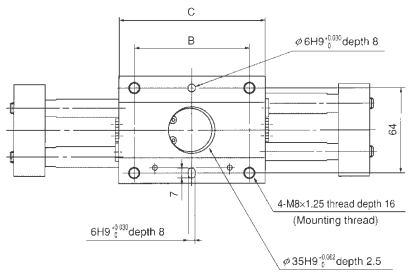


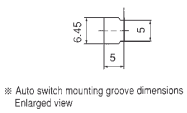
Model	A	B	C	D	E	F	G	H
MHL2-25D	66	70	88	48	100	150	196	38
MHL2-25D1	120	124	142	102	182	282	328	86
MHL2-25D2	138	142	160	120	200	320	366	104

DIMENSIONS
AIR CHUCK SERIES MHL

MHL2-32D□

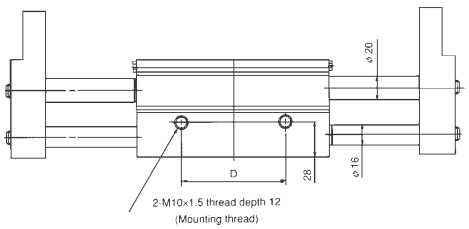


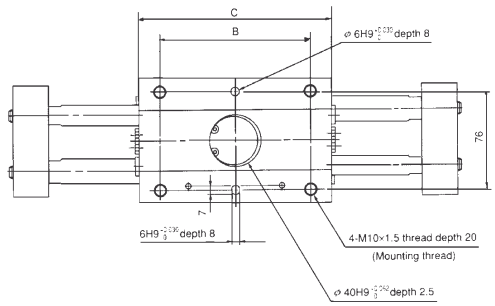


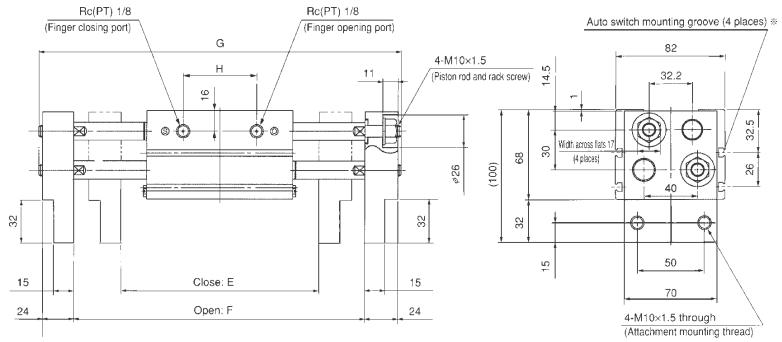


DIMENSIONS
AIR CHUCK SERIES MHL

MHL2-40D□

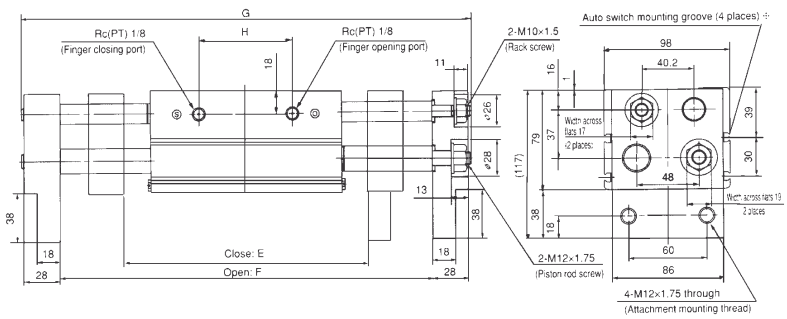






※ Auto switch mounting groove dimensions
Enlarged view

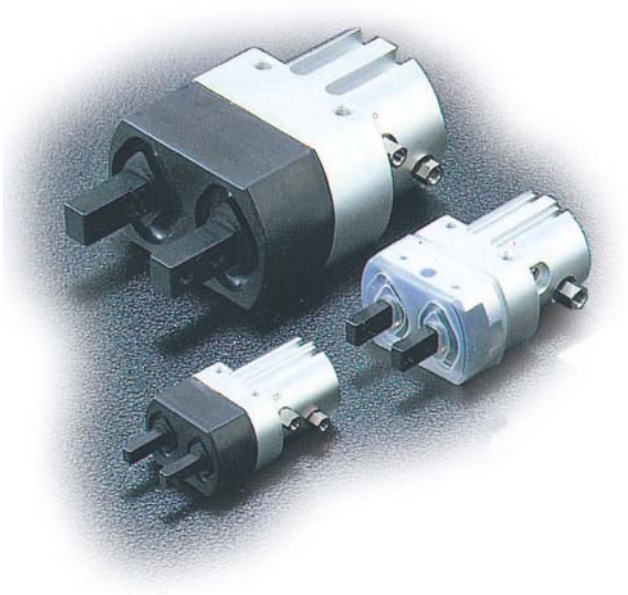
Model	B	C	D	E	F	G	H
MHL2-32D	86	110	60	150	220	272	56
MHL2-32D1	134	158	108	198	318	370	104
MHL2-32D2	178	202	152	242	402	454	148



Model	B	C	D	E	F	G	H
MHL2-40D	116	148	80	188	288	348	72
MHL2-40D1	174	206	138	246	406	466	130
MHL2-40D2	214	246	178	286	486	546	170

PARALLEL INTERNAL/EXTERNAL HOLDING TYPE AIR CHUCK WITH DUST COVER SERIES MHQJ2

- Parallel Gripping Action
- Suitable for Dusty Environments
- Optional Dust Cover Materials
- Magnetic Sensing as standard
- Double Acting



TECHNICAL SPECIFICATIONS

Fluid			Air
Operating Pressure	Double Acting		0.1~0.6MPa / 14.5~87PSI
	Single Acting	N.O.	0.25~0.6MPa / 37~87PSI
		N.C.	
Ambient and Fluid Temperature			-10~60°C / 14~140°F
Repeatability			±0.01mm
Max Operating Frequency			180cpm
Lubrication			Non-lube
Action			Double Acting; Single Acting
Auto Switch (Option)			Solid-state auto switch (2-wire type, 3 wire type)

MODEL SPECIFICATIONS

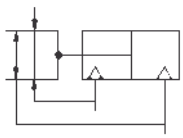
Action	Model	Cylinder bore (mm)	(Note1) Holding force (Effective) N (kgf)	Opening stroke (Total) (mm)	(Note 2) Weight (g)
Double acting	MHQJ2-10D	10	10.7(1.1)	4	90
	MHQJ2-16D	16	34.3(3.5)	6	180
	MHQJ2-20D	20	42.2(4.3)	10	340
	MHQJ2-25D	25	62.8(6.4)	14	640

Note 1: At 0.5MPa The outside and inside holding forces for the double acting type are indicated. The effective holding force shows the value in the middle of the opening stroke.

Note 2: The Auto Switch weight is excluded.

SYMBOL

Double acting



HOW TO ORDER AIR CHUCK SERIES MHQJ2

MHQJ2 — ○ D ○ — ○ ○

BORE SIZE
10 ...10mm
16 ...16mm
20 ...20mm
25 ...25mm

ACTION
D .....Double Acting
S .....Single Acting (NO)
C .....Single Acting (NC)

DUST COVER MATERIAL
- .....Chloroprene rubber (CR)
F .....Fluororubber (FKM)
S .....Silicone rubber (Si)

TYPE OF SWITCHES
See Accessories Section

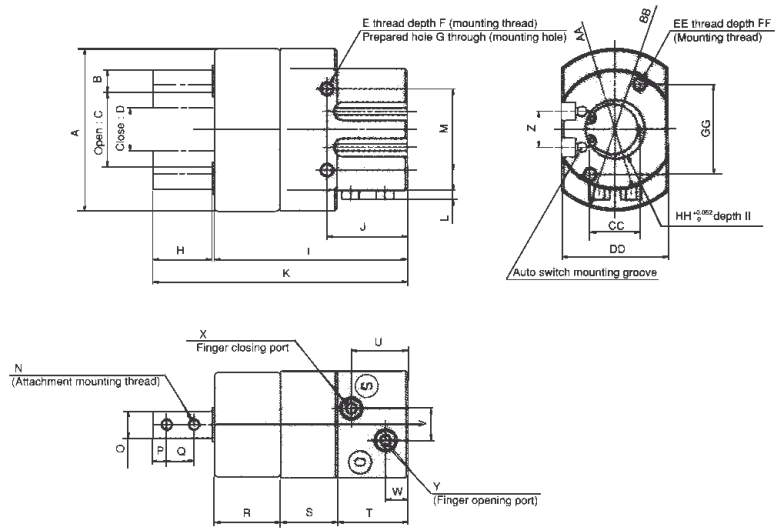
NO OF SWITCHES
-I .....2 Pieces
S .....1 Piece

ACCESSORIES AUTO SWITCHES

Model							
Part No Grommet type	Electrical Entry	Type	Load Voltage	Load Current	Power Source	Internal Voltage Drop	Indicator Lamp
D-F9NL	In-line	3 wire solid state NPN	28VDC or less	Max 50mA	10~28VDC	0.4V max	ON: RED LED
D-F9PL	In-line	3 wire solid state PNP	28VDC or less	Max 50mA	10~28VDC	1.5V max	ON:RED LED
D-F9BL	In-line	2 wire solid state	28VDC or less	5~30mA	~	4.5V max	ON: RED LED

Note: Pre-wired Switches with 3/4 Pin Connectors available

DIMENSIONS
AIR CHUCK SERIES MHQJ2



Note: A port on one side of a single acting type is a breather hole.

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N
MHQJ2-10❐	34	4	15	11	4-M3x0.5	5	206	13	(51)	28.5	65	4.5	16	4-M2.5x0.45
MHQJ2-16❐	46	5	20.6	14.6	4-M4x0.7	8	3.4	15	(60)	31	76	5.9	24	4-M3x0.5
MHQJ2-20❐	57	8	26	16	4-M5x0.8	10	4.3	21	(72)	35	94	5	30	4-M4x0.7
MHQJ2-25❐	72	10	33	19	4-M6x1.0	12	5.1	26	(85)	35.5	112	3.9	36	4-M5x0.8

O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC
$5\ ^{0}_{-0.1}$	3	5.7	15	10	26	22	6	11	M3x0.5	M3x0.5	6	26	34	12
$8\ ^{0}_{-0.1}$	4	7	19	13	28	22	10	11	M5x0.8	M5x0.8	10	34	46	15
$10\ ^{0}_{-0.1}$	5	9	23	18	31	25	12	10	M5x0.8	M5x0.8	14	44	57	18
$12\ ^{0}_{-0.1}$	6	12	29	25	31	25	14	10	M5x0.8	M5x0.8	16	53	72	22

DD	EE	FF	GG	HH	II
25	2-M3x0.5	6	18	11H9	1.5
32	2-M4x0.7	8	22	17H9	1.5
39	2-M5x0.8	10	32	21H9	1.5
47	2-M6x1.0	12	40	26H9	1.5

AIR CHUCK SERIES MHR BORE SIZES: Ø10, 15, 20, 30MM

- 2 and 3 Finger Versions
- Auto Switch Available
- High Positioning Accuracy
- Compact Design
- Mounting Options: Axial, Lateral and Vertical
- Clean Room Applications

TECHNICAL SPECIFICATIONS

Model Specifications		2 Finger Type				3 Finger Type	
Nominal Size		10	15	20	30	10	15
Action		Double acting					
Holding Force N	Outside holding force	12	24	33	58	7	13
at 0.5MPa / 73PSI	Inside holding force	12	25	34	59	6.5	12
Opening/Closing Stroke	Finger closing width (mm)	10	14	16	19	16	19
(Both sides)	Finger opening width (mm)	16	22	28	37	22	27
	Stroke (mm)	6	8	12	18	6	8
Weight (g)		100(95)	180(175)	390(380)	760(740)	120(125)	225(230)
Connection Port		M3x0.5	M3x0.5	M5x0.8	M5x0.8	M3x0.5	M3x0.5
Repeatability		0.01mm	0.01mm	0.01mm	0.01mm	0.01mm	0.01mm
Fluid		Air	Air	Air	Air	Air	Air
Operating Pressure		0.2~0.6MPa	0.15~0.6MPa			0.2~0.6MPa	0.15~0.6MPa
		(29~87PSI)	22~87PSI			29~87PSI	22~87PSI
Ambient and Fluid Temperature		0~60°C(32~140°F)				0~60°C(32~140°F)	
Max Operating Frequency		180 c.p.m				180 c.p.m	
Lubrication		Non lube				Non lube	
Relief Port (Clean Room only)		M3x0.5	M5x0.8			M3x0.5	

ACCESSORIES
AUTO SWITCHES

Auto Switch Model No	D-F9NL	D-F9NVL	D-F9PL	D-F9PVL	D-F9BL	D-F9BVL
Electrical Entry	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring	3 Wire	3 Wire	3 Wire	3 Wire	2 Wire	2 Wire
Output	NPN	NPN	PNP	PNP	-	-
Applications	24VDC relay, Sequence Controller					
Supply Voltage	24VDC (10 ~ 28VDC)					
Current Consumption	8mA or Less	8mA or Less	10mA or Less	10mA or Less	-	-
Load Voltage	28VDC or Less	28VDC or Less	-	-	24VDC(10~28VDC)	24VDC(10~28VDC)
Load Current	50mA or Less	50mA or Less	50mA or Less	50mA or Less	5~30mA	5~30mA
Internal Voltage Drop	0.4V or Less	0.4V or Less	1.5V or Less	1.5V or Less	4.5V or Less	4.5V or Less
Leakage Current	10μA or Less at 24VDC				1mA or Less at 24VDC	
Indicator Lamp	ON: Red Light emitting diode					

Note: Pre-wired Switches with 3/4 Pin Connectors available

HOW TO ORDER SERIES MHR

MDHR ○○ — 10 R — ○○○

Auto Switch
- .....Standard
D ....W/Magnet

No of Fingers
2 .....2 Fingers
3 .....3 Fingers

Application
- .....Standard
C.....Clean room

Nominal Size
Ø10, 15, 20, 30*

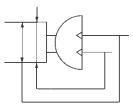
Connection Port
E .....End (Axial) Port
R .....Side Port
*Note: Ø20 and 30 only
available for 2 finger type only

Type Of Auto Switches
See Accessories Section

Lead Wire Length
- 0.5m
L 3m

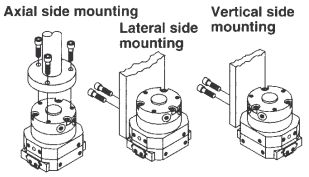
No Of Switches
- .....2 Pieces
S .....1 Piece

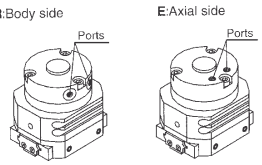
SYMBOLS

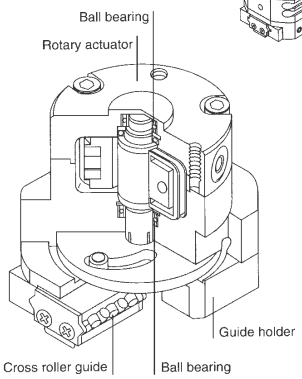


PRODUCT SELECTOR MOUNTING

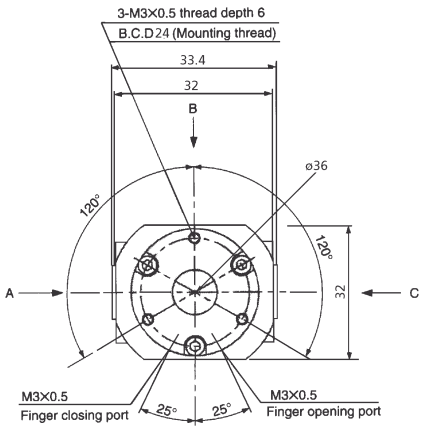
Mounting can be done from 3 directions.

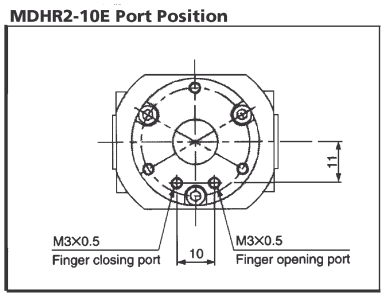


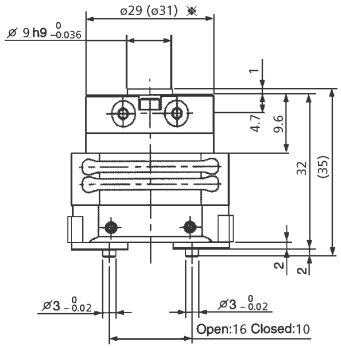


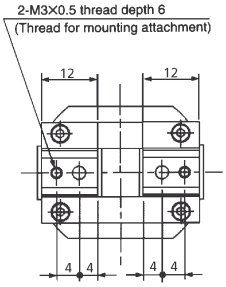


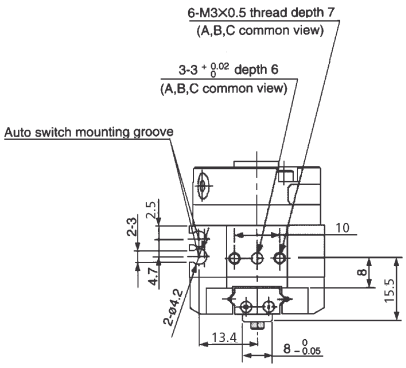
DIMENSIONS
WITH AUTO SWITCH (BUILT-IN MAGNET): MDHR2-10R/10E







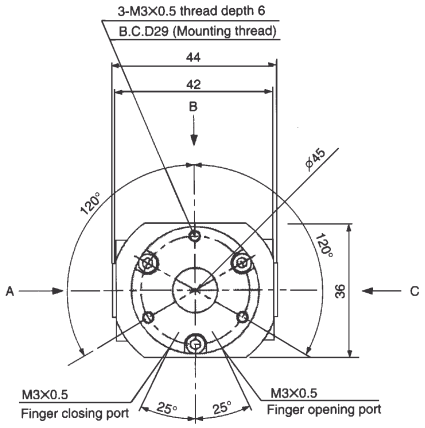




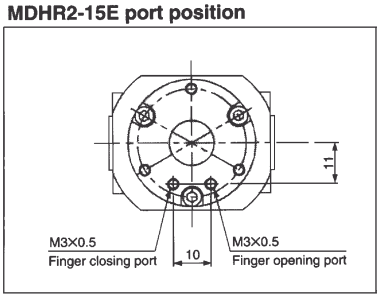
DIMENSIONS
SEE NEXT PAGE ☞

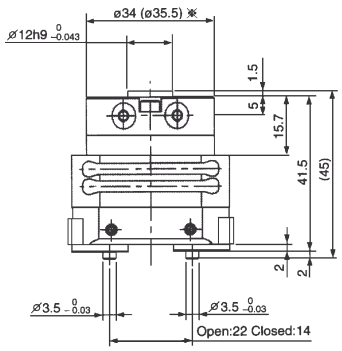
DIMENSIONS WITH AUTO SWITCH (BUILT-IN MAGNET): MDHR2-15R/15E

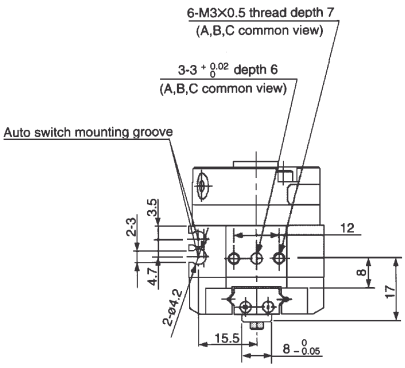
DIMENSIONS SEE NEXT PAGE ☞

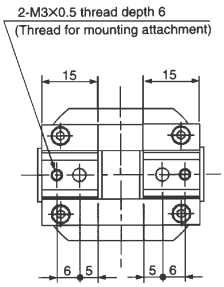


MDHR2-15E port position

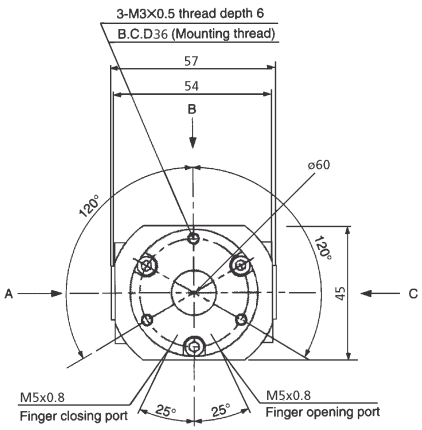




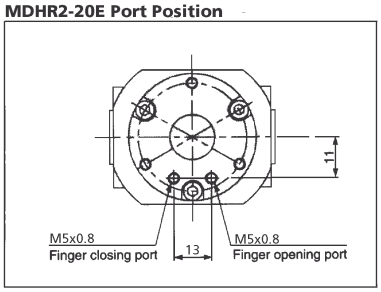


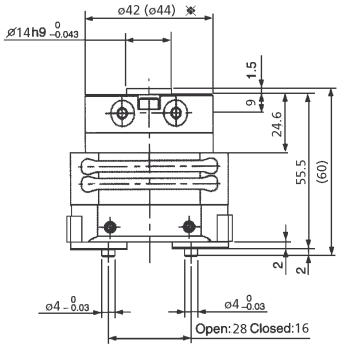


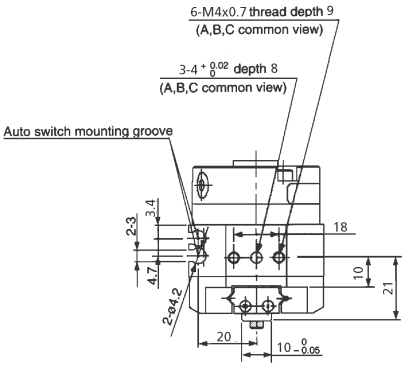
DIMENSIONS WITH AUTO SWITCH (BUILT-IN MAGNET): MDHR2-20R/20E

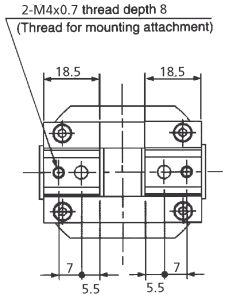


MDHR2-20E Port Position

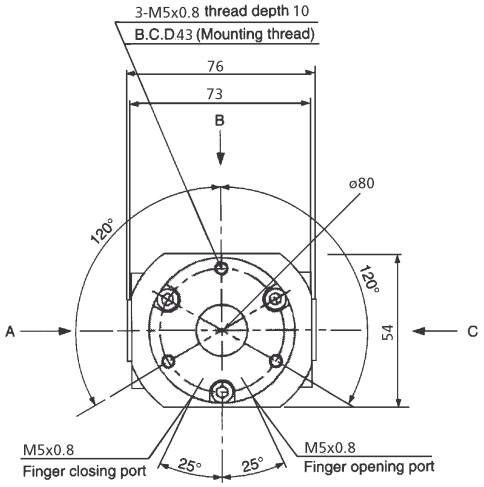




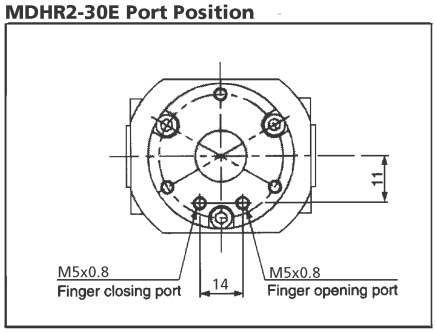


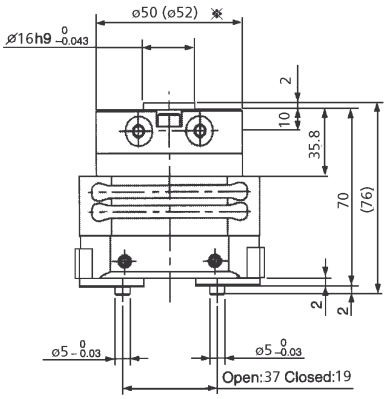


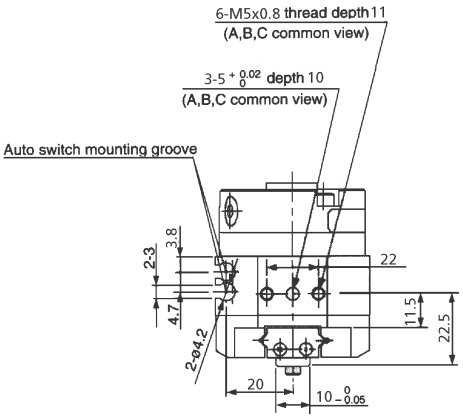
DIMENSIONS
WITH AUTO SWITCH (BUILT-IN MAGNET): MDHR2-30R/30E

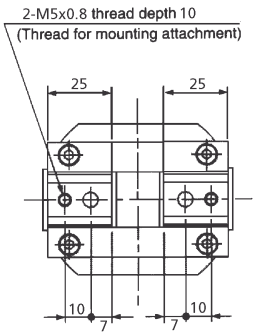


MDHR2-30E Port Position



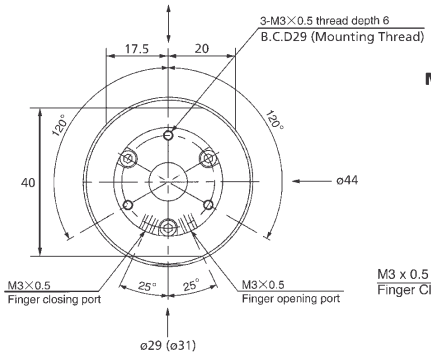


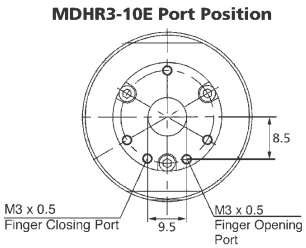


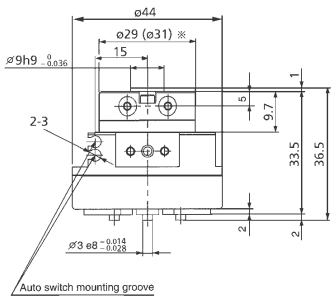


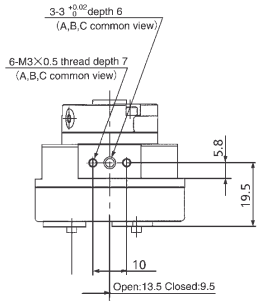
DIMENSIONS
SEE NEXT PAGE ☞

DIMENSIONS WITH AUTO SWITCH (BUILT-IN MAGNET): MDHR3-10R/10E

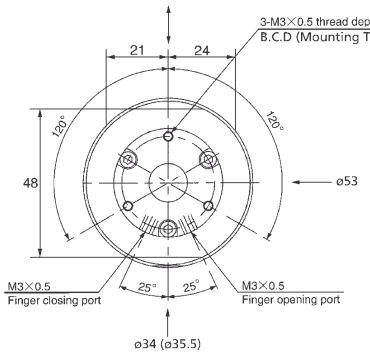


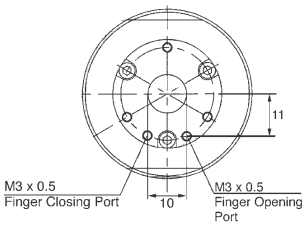


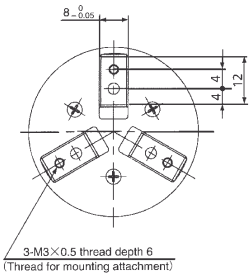


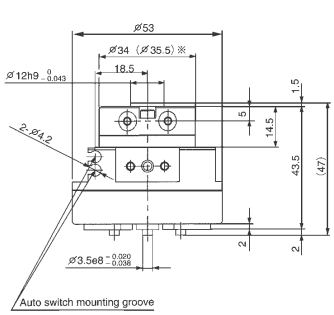


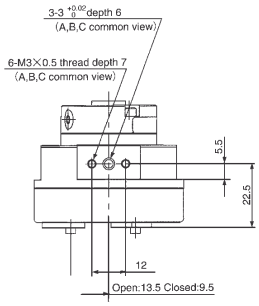
DIMENSIONS WITH AUTO SWITCH (BUILT-IN MAGNET): MDHR3-15R/15E

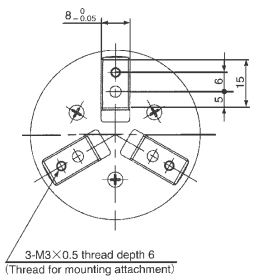










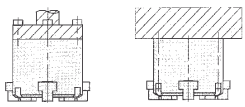


PRECISION AIR CHUCK SERIES MHS BORE SIZE Ø16, 20, 25, 32, 40, 50, 63, 80, 100, 125MM

- Auto Switch Available
- Wedge Cam Structure
- High Accuracy 0.01 Repeatability
- Light Weight Compact Construction

PRODUCT SELECTOR INSTALLATION

Installation is possible from two directions.



Body tapped Through hole mounting

Helisert is used to mounting female thread.

A durable helisert is used to reinforce the female thread.

HOW TO ORDER MHS SERIES

MHS 3 — ○ D — ○ ○ ○

No Of Fingers
2.....2 Fingers
3.....3 Fingers
4.....4 Fingers

Cylinder Bore
16 .....Ø16mm
20 .....Ø20mm
25 .....Ø25mm
32 .....Ø32mm
40 .....Ø40mm
50 .....Ø50mm
63 .....Ø63mm
80 .....Ø80mm
100 ....Ø100mm (MHS3 Only)
125 ....Ø125mm (MHS3 Only)
200 ....Ø200mm (MHS4 Only)

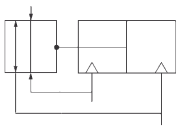
Action
D.....Double Acting

Auto Switch Type
See Accessories Section

Lead Wire Length
- 0.5m
L 3m

No Of Switches
- 2Pieces
S .....1 Piece

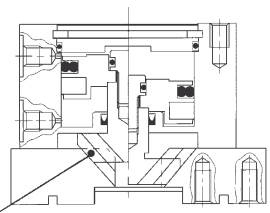
SYMBOLS



TECHNICAL SPECIFICATIONS SERIES MHS

Model	MHS3-16D	MHS3-20D	MHS3-25D	MHS3-32D	MHS3-40D	MHS3-50D	MHS3-63D	MHS3-80D	MHS3-100D	MHS3-125D
Bore	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125
Fluid	Air									
Operating Pressure	0.2 - 0.6 MPa (29~87PSI)			0.1 - 0.6MPa (14.5~87PSI)						
Ambient & Fluid Temperature	-10 - 60°C / 14 ~ 140°F									
Repeatability	+0.01 -0.01									
Maximum Operating Cycle	120c.p.m	120c.p.m	120c.p.m	60c.p.m	60c.p.m	60c.p.m	60c.p.m	30c.p.m	30c.p.m	30c.p.m
Lubrication	Non Lube									
Action	Double Acting									

TECHNICAL SPECIFICATIONS



Wedge cam structure

ACCESSORIES
SOLID STATE AUTO SWITCHES
APPLICABLE CYLINDER BORE: Ø16, 20, 25MM

Auto Switch No	D-F9N	D-F9NV	D-F9B	D-F9BV
Lead Wire Entry	In-line	Perpendicular	In-line	Perpendicular
Wiring Method	3 Wire	3 Wire	2 Wire	2 Wire
Output Method	NPN	NPN	-	-
Application	24VDC PLC			
Power Source	24VDC (10-28VDC)	24VDC (10-28VDC)	-	-
Current Consumption	8mA max	8mA max	-	-
Load Voltage	28VDC max	28VDC max	24VDC (10-28VDC)	24VDC (10-28VDC)
Load Current	50mA max	50mA max	5-30mA	5-30mA
Internal Voltage Drop	0.4V max	0.4V max	4.5V max	4.5V max
Leak Current	10µA max at 24VDC	-	1mA max. at 24VDC	-
Indicator Lamp	ON: Red Light emitting diode			

Note: Pre-wired Switches with 3/4 Pin Connectors available

ACCESSORIES
SOLID STATE AUTO SWITCHES
APPLICABLE CYLINDER BORE: Ø32 TO 125MM

Auto Switch No	D-Y59A	D-Y69A	D-Y59B	D-Y69B
Lead Wire Entry	In-line	Perpendicular	In-line	Perpendicular
Wiring Method	3 Wire	3 Wire	2 Wire	2 Wire
Application	PLC		25VDC PLC	
Power Source	5.12.24VDC	5.12.24VDC	-	-
Current Consumption	OFF: 1mA max	OFF: 1mA max	-	-
	ON: 12mA max	ON: 12mA max	-	-
Load Voltage	28VDC max	28VDC max	24VDC (10-28VDC)	24VDC (10-28VDC)
Load Current	150mA max	150mA max	5-150mA	5-150mA
Internal Voltage Drop	0.4V max. at 50mA	0.4V max at 50mA	3V max	3V max
	0.8V max at 150mA	0.8V max at 150mA		
Leak Current	10µA max at 24VDC	-	1mA max. at 24VDC	-
Indicator Lamp	ON: Red Light emitting diode			

ACCESSORIES
TWO COLOR INDICATION SOLID STATE AUTO SWITCHES
APPLICABLE CYLINDER BORE: Ø32 TO 125MM

Auto Switch No	D-Y7NW	D-Y7NWV	D-Y7BW	D-Y7BWV
Lead Wire Entry	In-line	Perpendicular	In-line	Perpendicular
Wiring Method	3 Wire	3 Wire	2 Wire	2 Wire
Application	PLC		25VDC PLC	
Power Source	5.12.24VDC (4.5-28VDC)		-	-
Current Consumption	10mA max	10mA max	-	-
Load Voltage	28VDC max	28VDC max	24VDC (10-28VDC)	24VDC (10-28VDC)
Load Current	40mA max	40mA max	5-40mA	5-40mA
Internal Voltage Drop	1.5V max	1.5V max	4V max	4V max
	(8µA max. at Load current 10mA)			
Leak Current	10µA max at 24VDC	-	1mA max at 24VDC	-
Indicator Lamp	Operating Position - Red light emitting diode			
	Most Sensitive Position - Green light emitting diode			

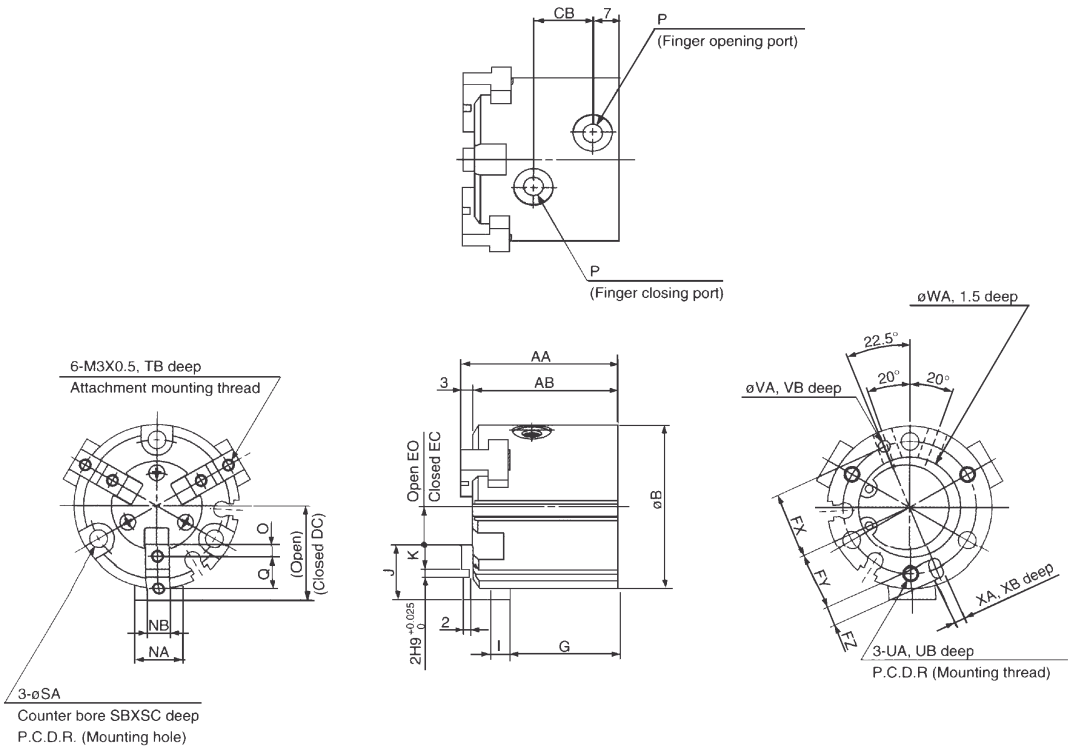
ACCESSORIES
WATER RESISTANCE, TWO COLOR INDICATION SOLID STATE AUTO SWITCHES
APPLICABLE CYLINDER BORE: Ø32 TO 125MM

Auto Switch No	D-Y7BAL
Lead Wire Entry	In-line
Wiring Method	2 Wire
Application	24VDC PLC
Load Voltage	24VDC (10 - 28VDC)
Load Current	5 - 40mA
Internal Voltage Drop	4V max
Leak Current	1mA max at 24VDC
Indicator Lamp	Operating position - Red Light emitting diode
	Most Sensitive position - Green Light emitting diode

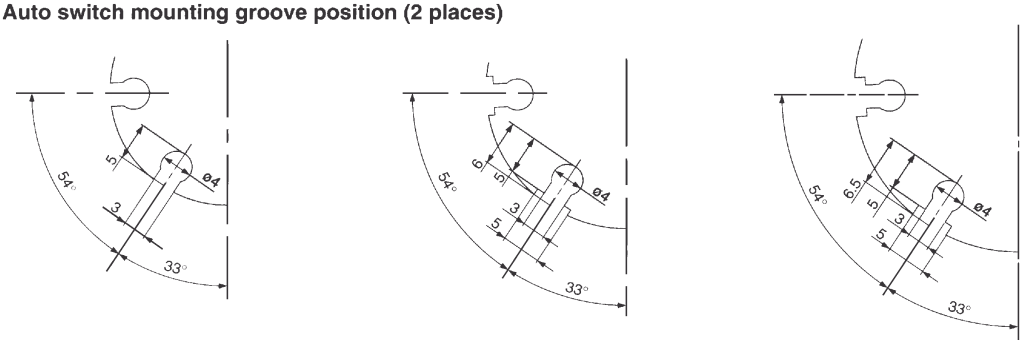
Note: Pre-wired Switches with 3/4 Pin Connectors available

DIMENSIONS SEE NEXT PAGE ☞

DIMENSIONS
MHS3-16D, 20D, 25D



Auto switch mounting groove position (2 places)



MHS3-16D MHS3-20D MHS3-25D

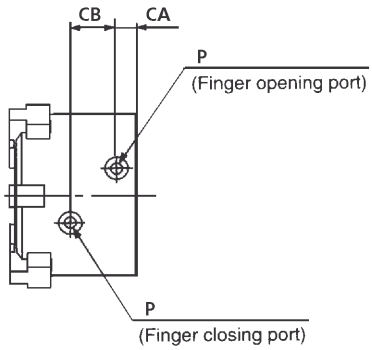
Part No	AA	AB	B	CB	DC	DO	EC	EO	FX	FY	FZ	G	I	J	K	NA	NB	O
MHS3-16D	35	32	30	11	15	17	5	7	12.5	11	3	25	4	10	4	8	5h9 -0.03~0	2
MHS3-20D	38	35	36	13	18	20	6	8	14.5	13	3	27	5	12	5	10	6h9 -0.03-0	2.5
MHS3-25D	40	37	42	15	21	24	7	10	17	14.5	5	28	5	14	6	12	6h9 -0.03-0	3

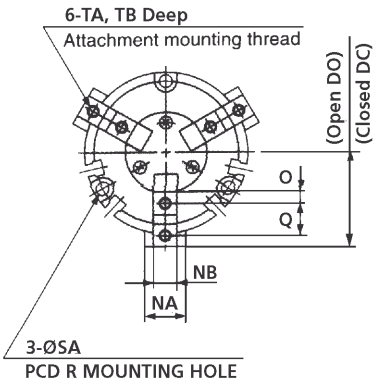
Part No	P	Q	R	SA	SB	SC	TB	UA	UB	VA	VB	WA
MHS3-16D	M3x0.5	6	25	3.4	6.5	8	5	M3x0.5	4.5	2H9 0~0.025	2	17H9 0~0.043
MHS3-20D	M5x0.8	7	29	3.4	6.5	9.5	6	M3x0.5	6	2H9 0~0.025	2	21H9 0~0.052
MHS3-25D	M5x0.8	8	34	4.5	8	10	6	M4x0.7	6	3H9 0~0.025	3	26H9 0~0.052

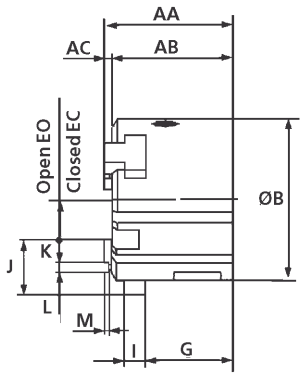
Part No	XA	XB
MHS3-16D	2H9 0~0.025	2
MHS3-20D	2H9 0~0.025	2
MHS3-25D	3H9 0~0.025	3

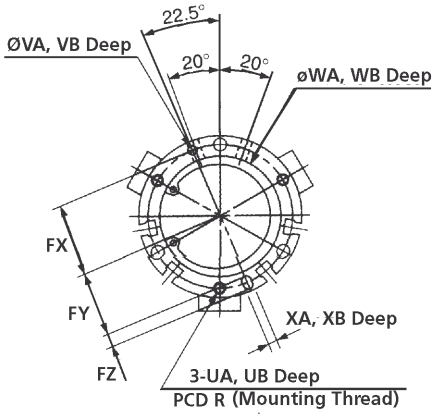
(mm)

DIMENSIONS
MHS3-32D, 40D, 50D, 63D, 80D

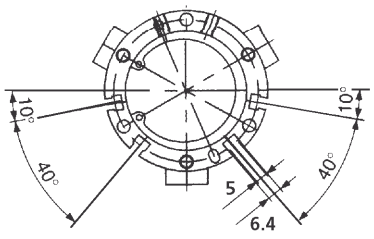








Auto switch mounting groove position



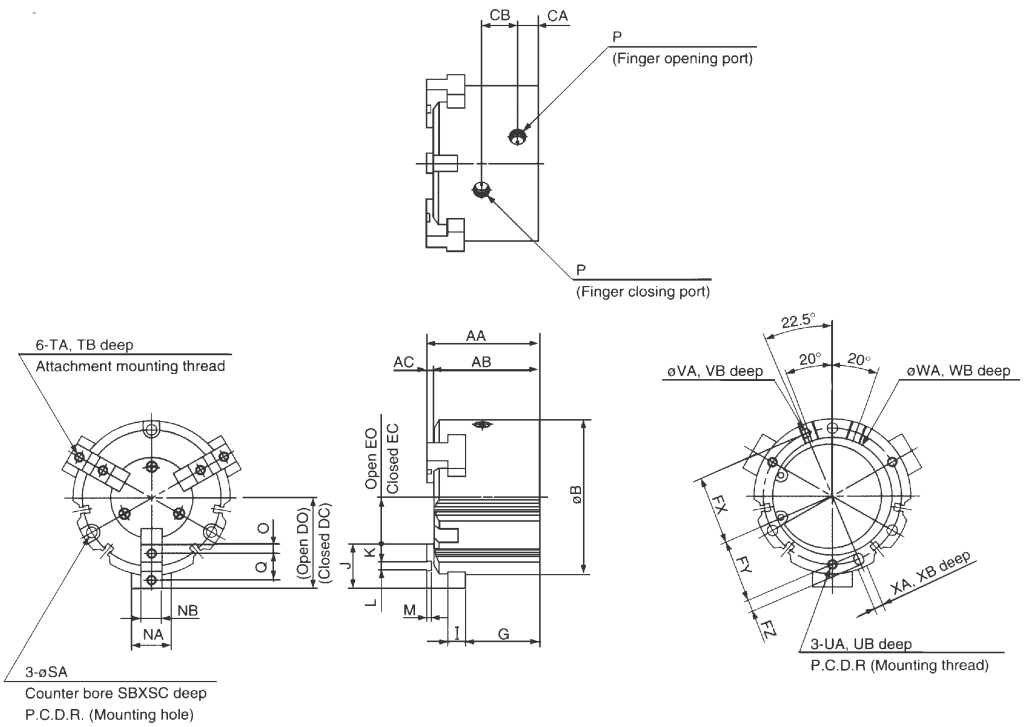
Part No	AA	AB	AC	B	CA	CB	DC	DO	EC	EO	FX	FY	FZ	G	I	J	K	L	M
MHS3-32D	44	41	3	52	8	16	28	32	8	12	22	19.5	5	30.5	6	20	9	2H9 0~0.025	2
MHS3-40D	47	44	3	62	9	17	31	35	10	14	26.5	23.5	6	32	7	21	9	3H9 0~0.025	2
MHS3-50D	55	52	3	70	9	20	35	41	11	17	31	28	6	37.5	9	24	10	4H9 0~0.03	2
MHS3-63D	66	62	4	86	12	22	43	51	15	23	38	34.5	7	44	11	28	11	6H9 0~0.03	3
MHS3-80D	82	77	5	106	13.5	27	53.5	63.5	21.5	31.5	47.5	43.5	8	56	12	32	12	8H9 0~0.036	4

Part No	NA	NB	O	P	Q	R	SA	SB	SC	TA	TB	UA	UB	VA
MHS3-32D	14	8H9 -0.036~0	4.5	M5x0.8	11	44	4.5	8	9	M4x0.7	8	M4x0.7	6	3H9 0~0.025
MHS3-40D	16	8h9 -0.036~0	4.5	M5x0.8	12	53	5.5	9.5	9	M4x0.7	8	M5x0.8	7.5	4H9 0~0.03
MHS3-50D	18	10h9 -0.036~0	5	M5x0.8	14	62	5.5	9.5	12	M5x0.8	10	M5x0.8	10	4H9 0~0.03
MHS3-63D	24	12H9 -0.043~0	5.5	M5x0.8	17	76	6.6	11	14	m5x0.8	10	M6x1	9	5H9 0~0.03
MHS3-80D	28	14h9 -0.043~0	6	Rc(PT)1/8	20	95	6.6	11	19	M6x1	12	M6x1	12	6H9 0~0.03

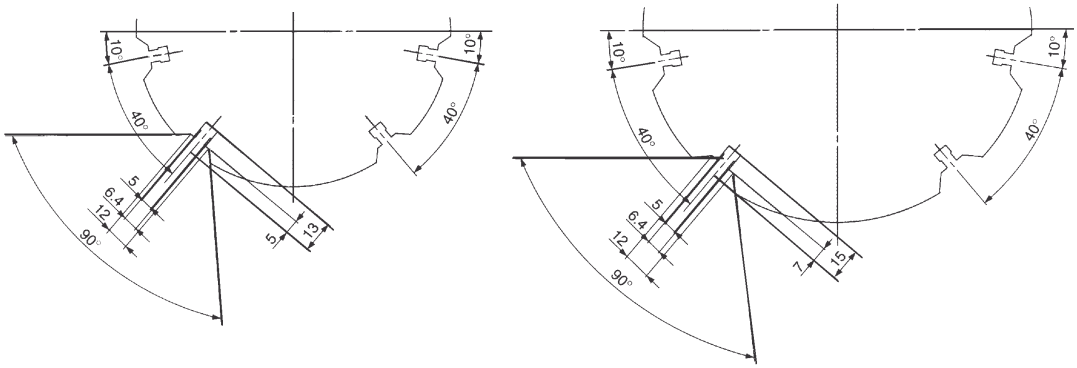
Part No	VB	WA	WB	XA
MHS3-32D	3	34H9 0~0.062	2	3H9 0~0.025
MHS3-40D	4	42H9 0~0.062	2	4H9 0~0.03
MHS3-50D	4	52H9 0~0.074	2	4H9 0~0.03
MHS3-63D	5	65H9 0~0.074	2.5	5H9 0~0.03
MHS3-80D	6	82H9 0~0.087	3	6H9 0~0.03

(mm)

DIMENSIONS
MHS3-100D, 125D



Auto swith mounting groove position (4 places)



MHS3-100D MHS3-125D

Part No	AA	AB	AC	B	CA	CB	DC	DO	EC	EO	FX	FY	FZ	G	I	J	K	L
MHS3-100D	96	90	6	134	18	30.6	66	78	28	40	59	54	10	63	15	38	15	8H9 0~0.036
MHS3-125D	122	114	8	166	23.5	38	82	98	30	46	74	68	12	84	18	52	21	10H9 0~0.036

Part No	M	NA	NB	O	P	Q	R	SA	SB	SC	TA	TB	UA
MHS3-100D	4	34	18h9 -0.043~0	7.5	Rc(PT)1/4	23	118	9	14	21	M4x1.25	16	M8x1.25
MHS3-125D	6	40	22h9 -0.052~0	10.5	Rc(PT)3/8	31	148	11	17.5	34	M10x1.5	20	M10x1.5

Part No	UB	VA	VB	WA	WB	XA	XB
MHS3-100D	16	8H9 0~0.036	6	102H9 0~0.087	4	8H9 0~0.036	6
MHS3-125D	20	10H9 0~0.036	8	130H9 0~0.1	6	10H9 0~0.036	8

(mm)

TOGGLE TYPE AIR CHUCK SERIES MHT

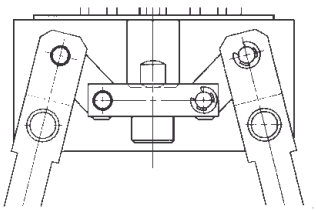
- High gripping force
- Toggle mechanism
- Maintains grip even when the pressure drops
- Magnetic sensing is standard

TECHNICAL SPECIFICATIONS

Model	MHT2-32D	MHT2-40D	MHT2-50D	MHT2-63D
Bore size mm	32	40	50	63
Fluid	Air			
Action	Double Acting			
Operating Pressure	0.1 ~ 0.6MPa / 14.5~87PSI			
Ambient & fluid temperature	-5 - 60°C / 23~140°F			
Lubrication	Not required			
Finger opening angle	-3° ~ 28°	-3° ~ 27°	-3° ~ 23°	
Weight	0.80kg	1.09kg	1.96kg	2.8kg
Effective holding moment N.m at 0.5MPa / 73PSI	12.4	36.0	63.0	106

MOUNTING CONFIGURATIONS

THE TOGGLE MECHANISM HOLDS THE COMPONENT EVEN WHEN THE PRESSURE DROPS



When fingers are closing, the toggle mechanism is actuated to produce strong and stable holding force. The component can be held even when the pressure drops.

HOW TO ORDER

TOGGLE TYPE AIR CHUCK SERIES MHT

MHT2 — ○ D

BORE SIZE

32 ...32mm
40 ...40mm
50 ...50mm
63 ...63mm

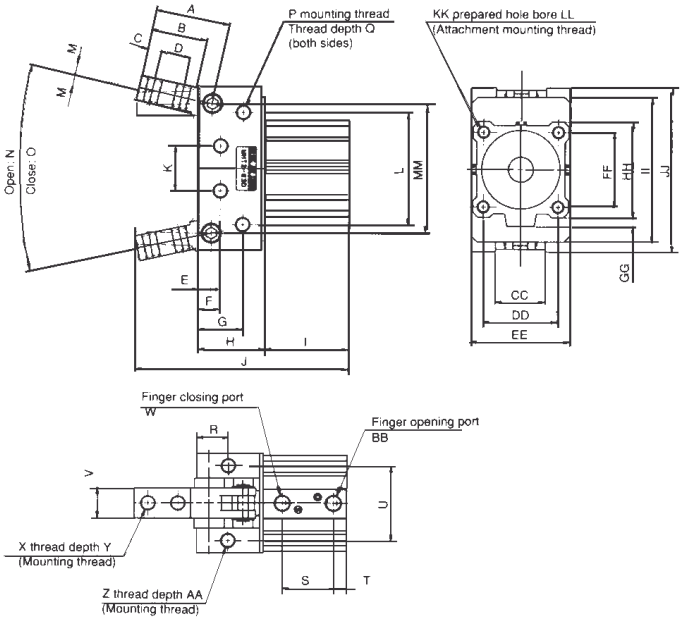
DIMENSIONS SEE NEXT PAGE ☞

ACCESSORIES AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available

Model							
Part no	Part no						
Grommet Type	Connector Type	Type	Load Voltage	Load Current	Power Source	Internal Voltage Drop	Indicator Lamp
D-A73L	D-A73CL	Reed	24VDC 100VAC	5~40mA 5~20mA		Max 2.4V	ON:RED LED
D-A80L	D-A80CL	Reed	24VDC/AC or less 100VDC/AC	Max 50 mA Max 20mA	0	None	
D-F79L	~	3 Wire Solid state NPN	28VDC or less	Max 150mA	5~28VDC	0.8V max	ON:RED LED
D-F7PL	~	3 Wire Solid state PNP	28VDC or less	Max 100mA	5~28VDC	0.8V max	ON:RED LED
D-J79L	D-J79CL	2 wire Solid state	28VDC or less	5~150mA	~	3V max	ON:RED LED

DIMENSIONS
TOGGLE TYPE AIR CHUCK SERIES MHT



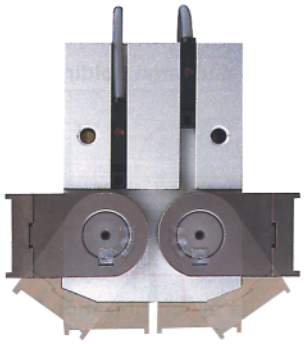
Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N
MHT2-32D	42	32	8	16	8	12	28	41.6	48	(123.6)	18	50	5.5	28°
MHT2-40D	48	37	10	18	8	12	28	42	54.5	(136.5)	24	60	7	27°
MHT2-50D	54	40	10	22	10	16	35	52.5	60.5	(157)	30	80	8	23°
MHT2-63D	60	45	11	24	10	17	35	53.2	66	(169.2)	36	90	10	23°

Model	0	P	Q	R	S	T	U	V	W	X	Z	AA	BB	CC
MHT2-32D	-3°	4-M6	10	20	30	7.5	34	15(0,-0.1)	1/8	4-M6	4-M6	15	1/8	22
MHT2-40D	-3°	4-M8	10	20	35.5	8	40	18(0,-0.1)	1/8	4-M8	4-M8	12	1/8	29
MHT2-50D	-2°	4-M10	12	25	39.5	10.5	52	20(0,-0.1)	1/4	4-M10	4-M10	12	1/4	36
MHT2-63D	-2°	4-M12	17	25	40.5	10.5	60	24(0,-0.1)	1/4	4-M12	4-M12	10	1/4	40

Model	DD	EE	FF	GG	HH	II	JJ	KK	LL	MM
MHT2-32D	34±0.2	46	34±0.2	4.5	❒45	74	86	4-M6	10	68
MHT2-40D	40±0.2	53	40±0.2	5	❒52	82	96	4-M6	10	74
MHT2-50D	50±0.2	66	50±0.2	7	❒64	110	124	4-M8	14	100
MHT2-63D	60±0.2	80	60±0.2	7	❒77	116	132	4-M10	18	104

AIR CHUCK SERIES MHW 180° ANGULAR GRIPPER

- Shorter Length
- Rack & Pinion Mechanism
- Dust Proof Construction
- Four Mounting Options



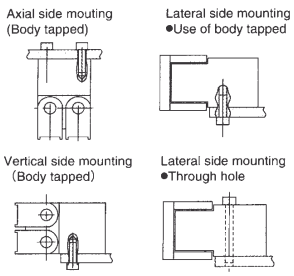
TECHNICAL SPECIFICATIONS SERIES MHW

Fluid	Air
Operating Pressure	0.15~0.7 MPa (22~102PSI)
Ambient & Fluid Temperature	-10~60°C / 14~140°F
Repeatability	±0.2mm
Max Operating Frequency	Ø20/25 60 cpm
	Ø32~50 30 cpm
Lubrication	Not Required
Action	Double Acting

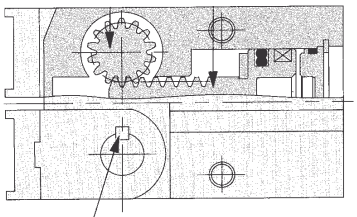
Model	Cylinder ID mm	Effective Holding Force Nm	Opening Angle (both sides)		Weight g
			Opening Side	Closing Side (when fingers are in contact with each other)	
MHW2-20D	20	0.30	180°	-5°	300
MHW2-25D	25	0.73		-6°	510
MHW2-32D	32	1.61		-5°	905
MHW2-40D	40	3.70		-5°	2135
MHW2-50D	50	8.27		-4°	5100

MOUNTING OPTIONS

A variety of mounting
Mounting from 4 directions possible



MECHANISM



Key connection is ideal for impact resistance.
Key connection between finger and rotation axis prevents finger angles lippage due to impact.

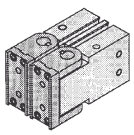
HOW TO ORDER MHW2 SERIES

MHW2 — ○ D ○

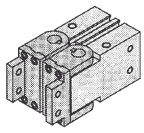
BORE SIZE
20 ...Ø20mm
25 ...Ø25mm
32 ...Ø32mm
40 ...Ø40mm
50 ...Ø50mm

FINGER OPTION
-. .....Standard Type
1 .....Right Angle Type

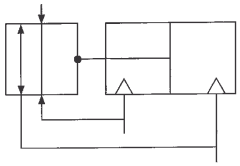
Flat finger type method (standard)



Right angle finger type



SYMBOLS



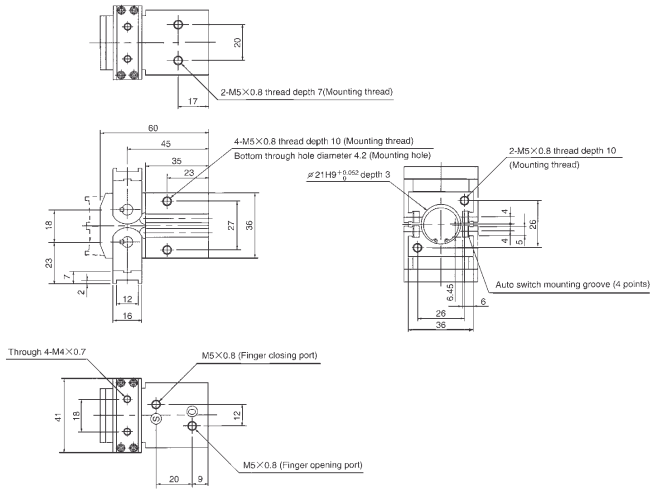
ACCESSORIES AUTOSWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available

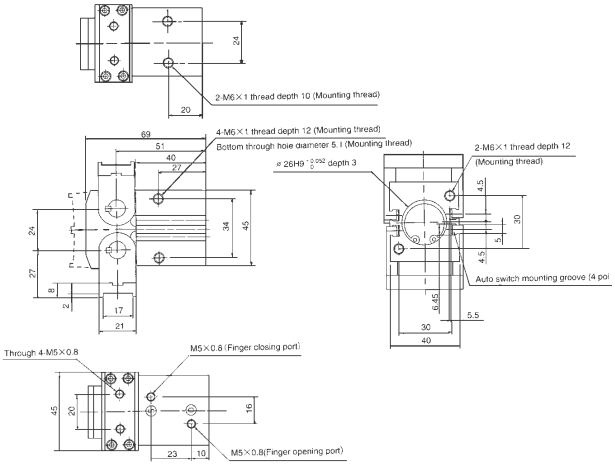
Auto Swith No	D-Y59AL	D-Y69AL	D-Y59BL	D-Y69BL
Lead Wire Entry	In-line	Perpendicular	In-line	Perpendicular
Wiring Method	3 wire NPN		2 wire	
Application	PLC		24VDC PLC	
Power Source	5, 12, 24VDC		–	
Current Consumption	1mA or less at OFF		–	
	12mA or less at ON		–	
Load Voltage	28VDC or less		240VDC (10~28 VDC)	
Load Current	150mA or less		5~150mA	
Internal Voltage Drop	0.4V or less at 50mA		3V or less	
	0.8V or less at 150mA		3V or less	
Current Leakage	10μA or less at 24VDC		1mA or less at 24VDC	
Indicator Lamp	ON: Red light emitting diode			

DIMENSIONS SEE NEXT PAGE ☞

DIMENSIONS
FLAT FINGER TYPE MHW2-20D

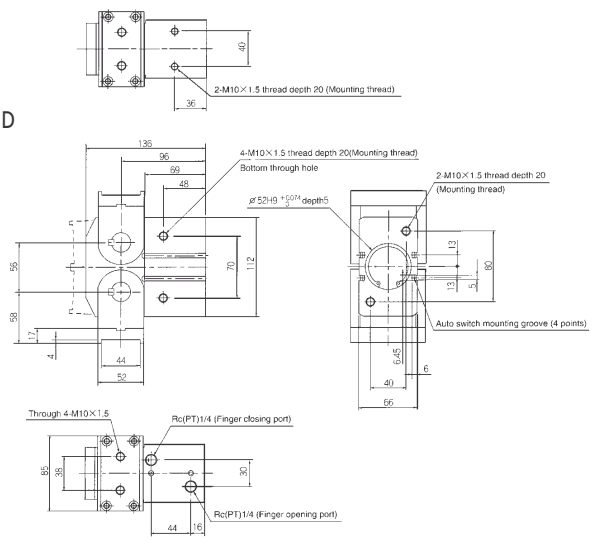


DIMENSIONS
FLAT FINGER TYPE MHW2-25D

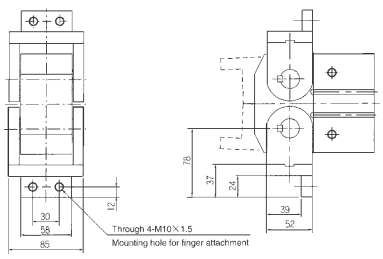


MHW2-25D1
Right angle finger type

DIMENSIONS
FLAT FINGER TYPE MHW2-50D

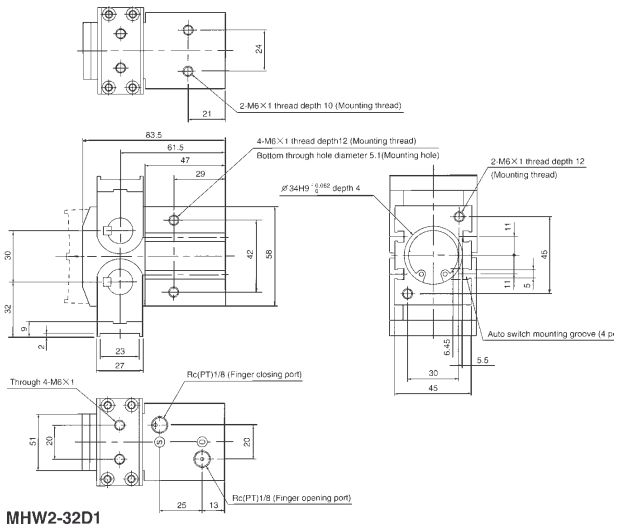


MHW2-50D1
Right angle finger type

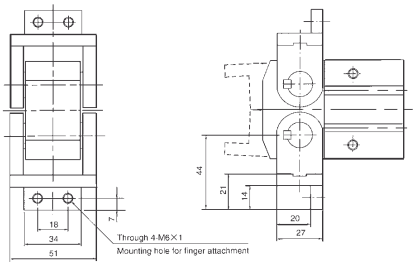


SERIES MHW

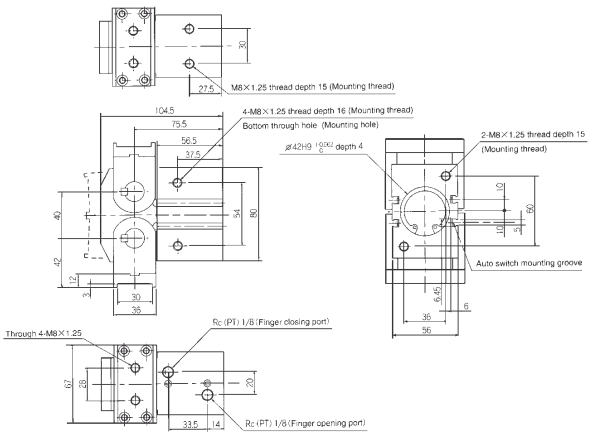
DIMENSIONS
FLAT FINGER TYPE MHW2-32D



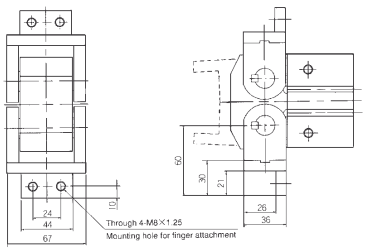
MHW2-32D1
Right angle finger type



DIMENSIONS
FLAT FINGER TYPE MHW2-40D



MHW2-40D1
Right angle finger type



CAM TYPE AIR CHUCK
SERIES MHY2
180° ANGULAR GRIPPER

- Light and Compact
- Available in Small Bore Sizes
- Cam Type Mechanism
- Resistant to Dusty Environments
- Auto Switch Capable (Standard)

HOW TO ORDER MHY2 SERIES

MHY2 — ○ D — ○ ○ ○

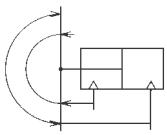
Bore Size
10 .....10mm
16 .....16mm
20 .....20mm
25 .....25mm

Auto Switch Type
See Accessories Section

Lead Wire Length
- .....0.5m (Std)
L 3m

No Of Switches
- 2Pieces
S .....1 Piece

SYMBOLS



TECHNICAL SPECIFICATIONS SERIES MHY2

Fluid	Air
Operating Pressure	0.1~0.6MPa / 14.5~87PSI
Ambient & Fluid Temperature	-10°C ~ 60°C / 14~140°F
Repeatability	+0.2mm
Maximum Operating Frequency	60 cpm
Lubrication	Not Required
Action	Double Action

ACCESSORIES SERIES MHY2 AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available

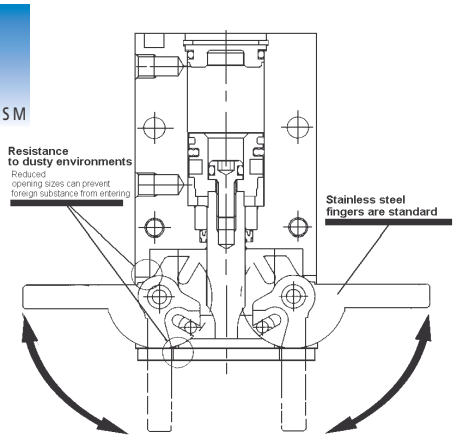
Electrical Entry		Type	Special	Electrical	Indicator	Wiring	Load Voltage			Applicable
Perpendicular	In-Line		Function	Entry		Output	DC		AC	Load
F9NV	F9N	Solid State	-	Grommet	With	3 Wire NPN	24V	12V	-	Relay PLC
F9PV	F9P		-			3 Wire PNP				
F9BV	F9B		-			2 Wire				
F9NWV	F9NW		Diagnosis			3 Wire NPN				
F9PWV	F9PW		(2 Color			3 Wire PNP				
F9BWV	F9BW		Indication)			2 Wire				
-	F9BA		Improved Water Resistance (2 Color Indication)			2 Wire				

Note: Pre-wired Switches with 3/4 Pin Connectors available

TECHNICAL SPECIFICATIONS

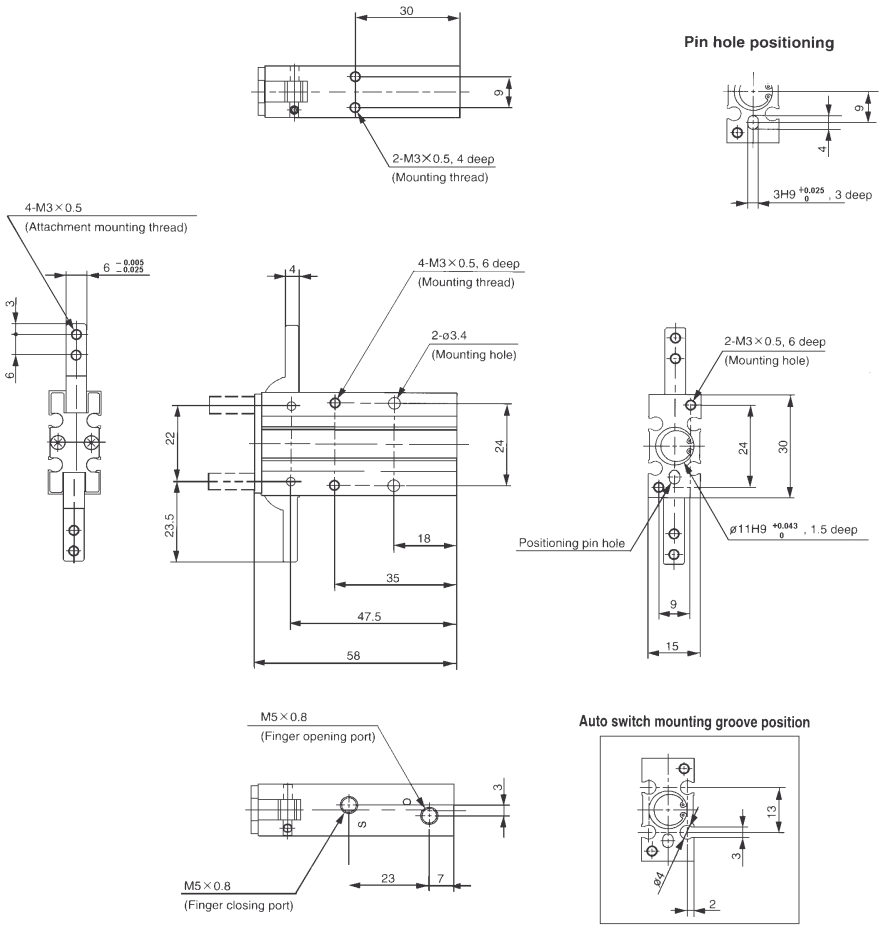
Model	Cylinder ID mm	Effective Holding Force Nm (At 0.5MPa / 73PSI)	Opening Angle (Both Sides) Opening Side	Closing Side	Weight (g) (W/O Auto S)
MHY2-10D	10	0.16	180°	-3°	70
MHY2-16D	16	0.54	180°	-3°	150
MHY2-20D	20	1.10	180°	-3°	320
MHY2-25D	25	2.28	180°	-3°	560

MECHANISM

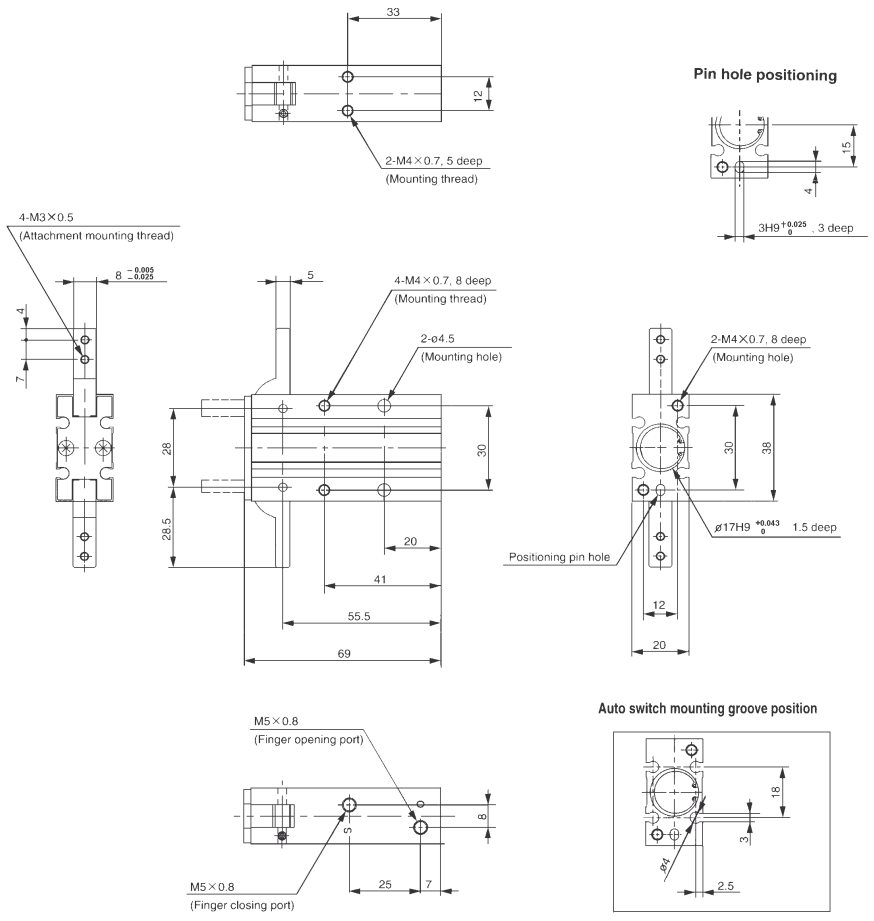


DIMENSIONS SEE NEXT PAGE ☞

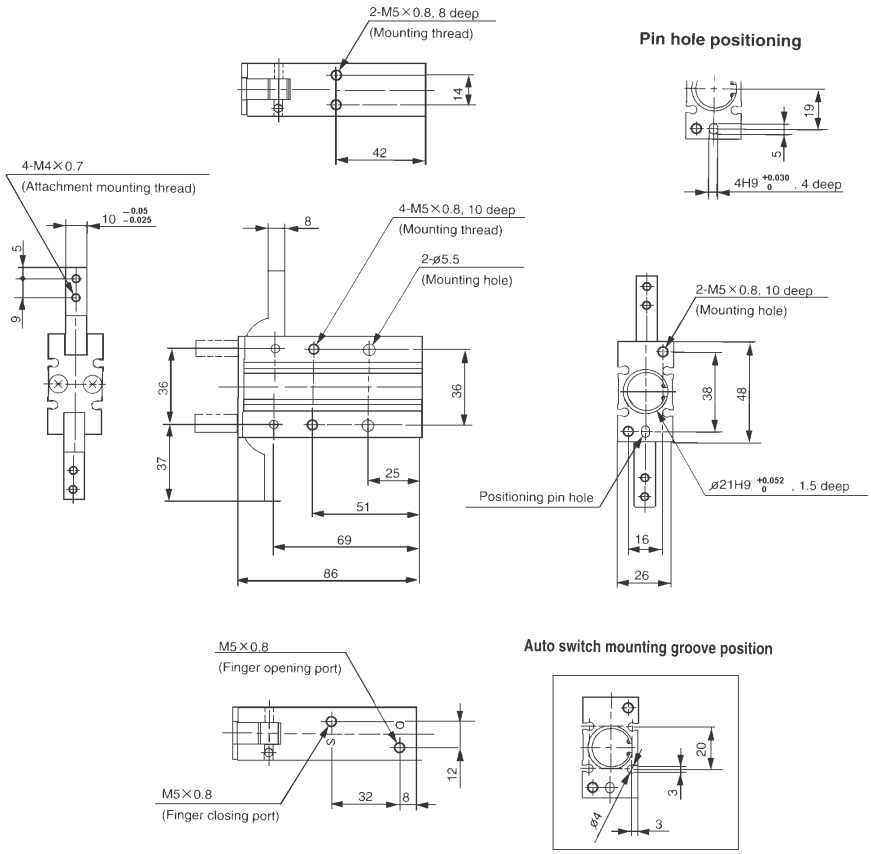
DIMENSIONS
SERIES MHY2-10D



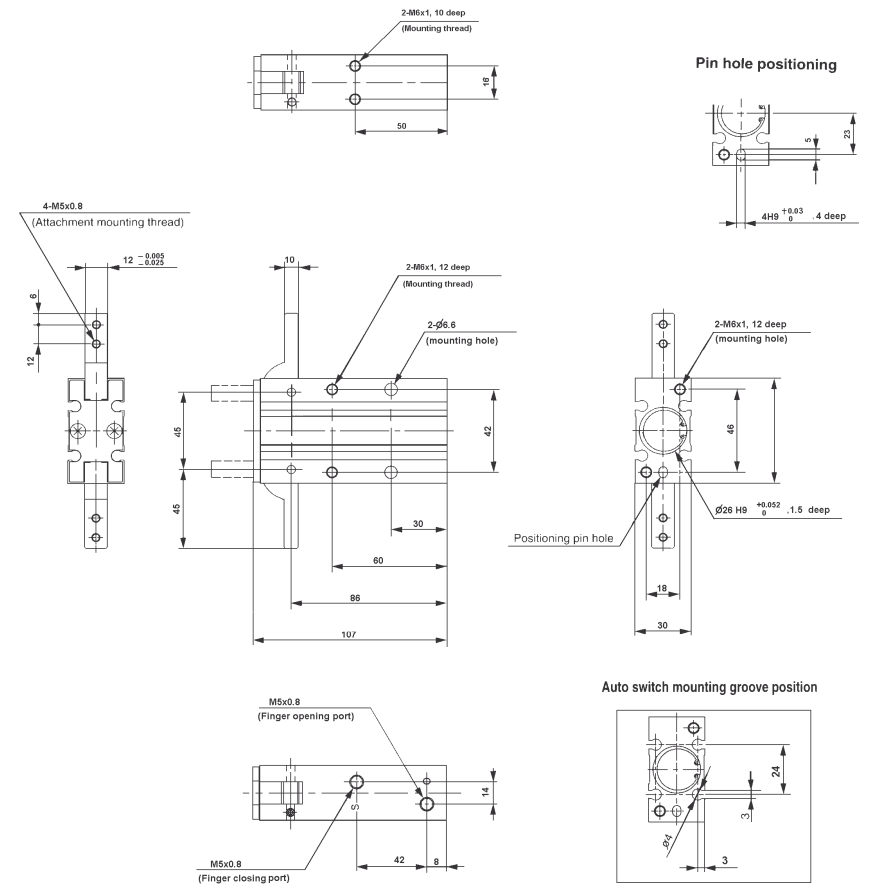
DIMENSIONS
SERIES MHY2-16D



DIMENSIONS
SERIES MHY2-20D



DIMENSIONS
SERIES MHY2-25D



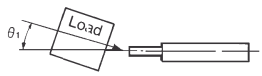
SERIES NRB

SHOCK ABSORBER SERIES NRB

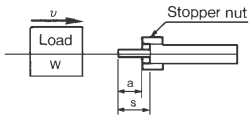
- Automatic adjustment to the most appropriate absorption performance
- High resistance to load deviation
- Double seal enclosure
- Compact design

PRECAUTION

1. Load should always be aligned with the axis of piston rod.



2. Adjustment of the stopper nut (to adjust the length a) will control the suspension time of the impacting object.



S: Stroke of Shock Absorber

TECHNICAL SPECIFICATIONS

Model			NRB(C)031-025	NRB(C)037-025	NRB(C)050-030	NRB(C)056-045	NRB(C)075-045	NRB(C)100-060
Capacity	Inch-lb/cycle (kgf-m/cycle)		25(0.3)	25(0.3)	50(0.6)	170(2)	170(2)	500(6)
Stroke	Inch (mm)		0.26(6)	0.25(6)	0.30(7)	0.45(12)	0.45(12)	0.50(15)
Velocity	ft/s (m/s)		16(5)					
Frequency	cycle/min		80	80	70	45	45	25
Temperature	°F (°C)		14~176(-10~80)					
Spring Force	lbs (kgf)	Extended	0.77(0.35)	0.77(0.35)	1.43(0.65)	1.54(0.70)	1.54(0.70)	1.87(0.85)
		Compressed	1.65(0.75)	1.65(0.75)	2.12(0.96)	3.59(1.63)	3.59(1.63)	4.59(2.08)
Weight	lbs (gf)		0.03(15)	0.04(20)	0.08(35)	0.13(60)	0.26(120)	0.53(240)
Optional		Stop Nut	NRB031S	NRB037S	NRB050S	NRB056S	NRB075S	NRB100S
		Mounting Nuts -2	Standard					

HOW TO ORDER SHOCK ABSORBER SERIES NRB

NRB ○○ — ○ ○

- CAP
  - ……W/O Cap
  - C ……With Cap
- O D THREAD-STROKE
- OPTION
  - - ……Without S Nut
  - S ……With Stopper Nut

ACCESSORIES STOPPER NUT

STOPPER NUT	APPLICABLE MODEL
NRB031S	NRB031-025
NRB037S	NRB037-025
NRB050S	NRB050-030
NRB056S	NRB056-045
NRB075S	NRB075-045
NRB100S	NRB100-060

ACCESSORIES SPARE CAP (OUTER CAP)

NRB08C NRBC031/NRBC037
NRB10C NRBC050
NRB14C NRBC056/NRBC075
NRB20C NRBC100

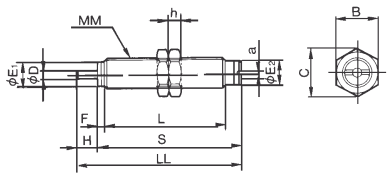
HOW TO ORDER CAP TYPE SPARE PART NUMBERS (OUTER CAP ONLY) SERIES NRB

NRB 08 C

- APPLICABLE MODEL
  - 08 …NRBC031/NRBC037
  - 10 …NRBC050
  - 14 …NRBC056/NRBC075
  - 20 …NRBC100
- CAP

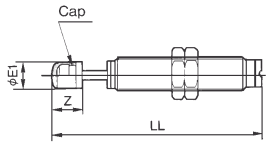
DIMENSIONS SEE NEXT PAGE ☞

DIMENSIONS
BASIC TYPE NRB031•NRB037



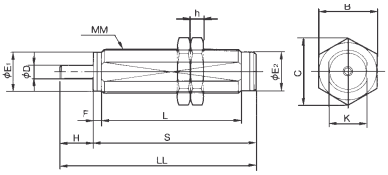
Model	Shock Absorber										Nut			
	a	øD	øE1	øE2	F	H	L	LL	MM	S	B	C	h	K
NRB031-025	0.06	0.11	0.27	0.27	0.09	0.25	1.31	1.85	5/16-32UNEF	1.60	7/16	0.55	0.09	-
NRB037-025	0.06	0.11	0.33	0.33	0.15	0.25	1.24	1.84	3/8-32UNEF	1.59	1/2	0.58	0.09	-

DIMENSIONS
WITH CAP NRBC031•NRBC037



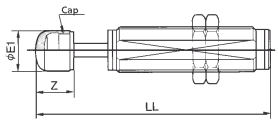
Parts Number	Dimensions		
	øE1	LL	Z
NRB031-025	0.27	2.25	0.41
NRB037-025	0.27	2.25	0.41

DIMENSIONS
BASIC TYPE NRB050•NRB056



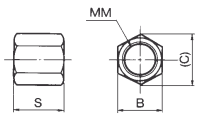
Model	Shock Absorber										Nut			
	A	øD	øE1	øE2	F	H	L	LL	MM	S	B	C	h	K
NRB050-030	-	0.12	0.42	0.42	0.15	0.30	1.48	2.12	1/2-20UNF	1.82	3/4	0.86	0.20	0.43
NRB056-045	-	0.20	0.48	0.47	0.14	0.45	2.31	3.10	9/16-18UNF	2.65	3/4	0.86	0.24	0.49
NRB075-045	-	0.20	0.65	0.67	0.20	0.45	2.26	3.19	3/4-16UNF	2.74	5/16	1.08	0.24	0.68
NRB100-060	-	0.24	0.87	0.87	0.21	0.50	2.37	3.35	1-12UNF	2.85	1 5/16	1.51	0.31	0.87

DIMENSIONS
WITH CAP NRBC056•NRBC075•NRBC100



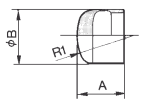
Parts Number	Dimensions		
	øE1	LL	Z
NRB050-030	0.31	2.50	0.39
NRB056-045	0.47	3.65	0.53
NRB075-045	0.47	3.65	0.53
NRB100-60	0.71	4.14	0.67

DIMENSIONS
STOPPER NUT



Part No	Dimensions			
	B	C	S	MM
NRB031S	7/16	(0.51)	5/16	5/16-32UNEF
NRB037S	1/2	(0.56)	19/64	3/8-32UNEF
NRB050S	3/4	(0.86)	27/64	1/2-20UNF
NRB056S	3/4	(0.86)	1/2	9/16-18UNF
NRB075S	15/16	(1.08)	5/8	3/4-16UNF
NRB100S	5/16	(1.51)	3/4	1-12UNF

DIMENSIONS
CAP



Part No	Dimensions		
	A	øB	R1
NRB08C	0.26	0.27	0.24
NRB10C	0.35	0.34	0.29
NRB14C	0.49	0.47	0.39
NRB20C	0.63	0.71	0.79

SERIES RB

SHOCK ABSORBER SERIES RB

- Automatic Adjustment to the most appropriate absorption performance
- High Resistance to load deviation
- Double Seal Enclosure
- Compact Design

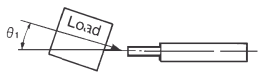
TECHNICAL SPECIFICATIONS

Model	Basic type	RB0806	RB1007	RB1412	RB2015	RB2725
	With cap	RBC0806	RBC1007	RBC1412	RBC2015	RBC2725
Max Energy Absorption/Stroke (Nm)		3	6	20	60	150
Stroke (mm)		6	7	12	15	25
Max Impact Speed		5m/sec (196in/s)				
Max Angle of Impact		3°				
Max Operation Cycle/Min		80	70	45	25	10
Ambient Temperature		−10~+80°C / 14~176°F				
Spring Force	Extended (N)	3.5	6.5	7.0	8.5	9
	Compressed (N)	7.5	9.6	6.3	20.9	20.4
Weight (g)		15	25	65	150	360
Option	Stopper Nut	RB08S	RB10S	RB14S	RB20S	RB27S

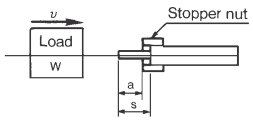
*At maximum energy absorption per cycle. Maximum operation cycle/min can increase in proportion to energy absorption

PRECAUTION

1. Load should always be aligned with the axis of piston rod.



2. Adjustment of the stopper nut (to adjust the length a) will control the suspension time of the impacting object.



S: Stroke of shock absorber

HOW TO ORDER SHOCK ABSORBER SERIES RB

RB ○ ○

CAP
- ……Without
C ……With

O/D THREAD-STROKE
0806
1007
1412
2015
2725

ACCESSORIES STOPPER NUT

STOPPER NUT	APPLICABLE MODEL
RB08S	RB0806
RB10S	RB1007
RB14S	RB1412
RB20S	RB2015
RB27S	RB2725

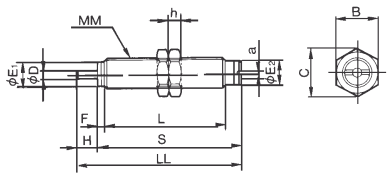
ACCESSORIES SPARE CAP

*RB08C
*RB10C
*RB14C
*RB20C
*RB27C

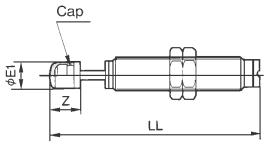
*For replacement only on RBC

DIMENSIONS SEE NEXT PAGE ☞

Dimensions
Basic Type RB0806•RB1007

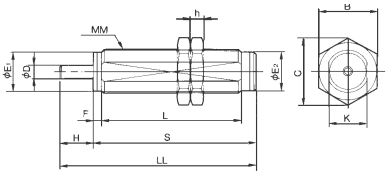


Dimensions
With Cap RBC0806•RBC1007

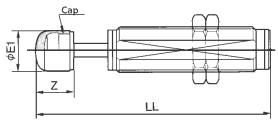


Model		Basic type										With cap			Hexagonal nut		
Basic type	With cap	ØD	ØE1	ØE2	F	H	a	L	LL	MM	S	ØE1	LL	Z	B	C	h
RB0806	RBC0806	2.8	6.8	6.8	2.4	6	1.4	33.2	46.6	M8 x 1.0	40.6	6.8	57.1	10.5	12	13.9	4
RB1007	RBC1007	3	8.6	8.6	2.7	7	1.4	39	53.7	M10 x 1.0	46.7	8.0	63.7	10	14	16.2	4

Dimensions
Basic Type RB1412•RB2015•RB2725

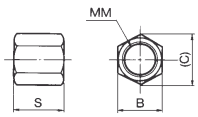


Dimensions
With Cap RBC0806•RBC1007



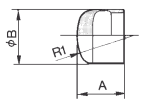
Model		Basic type										With cap			Hexagonal nut		
Basic type	With cap	ØD	ØE1	ØE2	F	H	K	L	LL	MM	S	ØE1	LL	Z	B	C	h
RB1412	RBC1412	5	12.2	12	3.5	12	12	58.2	79.3	M14 x 1.5	67.3	12	92.8	13.5	19	21.9	6
RB2015	RBC2015	6	18.2	18	4	18	18	62.2	88.2	M20 x 1.5	73.2	18	105.2	17	27	31.2	6
RB2725	RBC2725	8	25.2	25	5	25	25	86	124	M27 x 1.5	99	25	147	23	36	41.6	6

Dimensions
Stopper Nut



Parts No.	Dimensions			
	B	C	S	MM
RB08S	12	13.9	6.5	M8 x 1.0
RB10S	14	16.2	8	M10 x 1.0
RB14S	19	21.9	11	M14 x 1.5
RB20S	27	31.2	16	M20 x 1.5
RB27S	36	41.6	22	M27 x 1.5

Dimensions
Cap



Parts No.	Dimensions		
	A	ØB	R1
RB08C	6.5	6.8	6
RB10C	9	8.7	7.5
RB14C	12.5	12	10
RB20C	16	18	20
RB27C	21	25	25

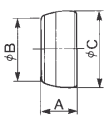
SHOCK ABSORBER SERIES RBQ

- Compact Design
- Interchangeable Damper Optional
- Double Seal Enclosure

TECHNICAL SPECIFICATIONS
RBQ SERIES SHOCK ABSORBER

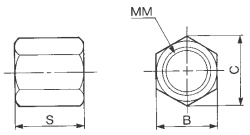
Model: Basic Type / With Damper	RBQ1604 / RBQC1604	RBQ2007 / RBQC2007	RBQ2508 / RBQC2508	RBQ3009 / RBQC3009	RBQ3213 / RBQC3213
Max Energy Absorption/Stroke (Nm)	0.2	1.2	2	3.4	5
Stroke (mm)	4	7	8	8.5	13
Max Impact Speed (m/s)	3	3	3	3	3
Max Operational Cycle/Min	60	60	45	45	30
Max Allowable Thrust (kgf)	30	50	70	100	120
Ambient Temperature	-10 ~ 80°C / 14 ~176°F				
Spring Performance: Extended	0.62	1.3	1.6	2.2	2.5
Spring Performance: Compressed	1.37	2.83	3.86	4.51	5.53
Weight (gf)	28	60	110	182	240
OD thread (mm)	M16	M20	M25	M30	M32
Max Tightening Torque (kgf*m)	1.5	2.4	3.5	8	9
Stopper Nut Option	RBQ16S	RBQ20S	RBQ25S	RBQ30S	RBQ33S

SPARE PARTS DAMPER



Parts No	A	ØB	ØC
RBQC16C	3.5	4	4.7
RBQC20C	4.5	8	8.3
RBQC25C	5	8.3	9.3
RBQC30C	6	11.3	12.4
RBQC32C	6.6	13.1	14.4

OPTION STOPPER NUT



Parts No	B	C	S	MM
RBQ16S	22	25.4	12	M16x1.5
RBQ20S	27	31.2	16	M20x1.5
RBQ25S	32	37	18	M25x1.5
RBQ30S	41	47.3	20	M30x1.5
RBQ32S	41	47.3	25	M32x1.5

HOW TO ORDER SHOCK ABSORBER SERIES RBQ

RBQ ○ ○ ○

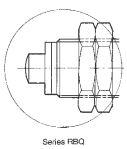
MODEL
- ……Basic Type
C ……With Damper

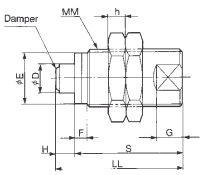
OD THREAD
16
20
25
30
32

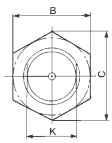
STROKE
04
07
08
09
13

* Stopper nut must be ordered as a separate item.
RBQ16S RBQ20S RBQ25S
RBQ30S RBQ32S

DIMENSIONS SERIES RBQ







Model: Basic Type	With Damper	ØD	ØE	F	H	K	G	LL	MM	Body Dimensions: S	Hexagonal Nut: B	C	h
RBQ1604	RBQC1604	6	14.2	3.5	4	14	7	31	M16x1.5	27	22	25.4	6
RBQ2007	RBQC2007	10	18.2	4	7	18	9	44.5	M20x1.5	37.5	27	31.2	6
RBQ2508	RBQC2508	12	23.2	4	8	23	10	52	M25x1.5	44	32	37	6
RBQ3009	RBQC3009	16	28.2	5	8.5	28	12	61.5	M30x1.5	53	41	47.3	6
RBQ3213	RBQC3213	18	30.2	5	13	30	13	76	M32x1.5	63	41	47.3	6

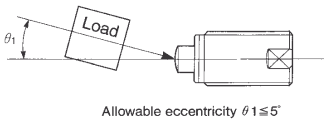
REPLACEMENT DAMPERS

RBQC ○ C — DAMPER

APPLICABLE MODEL
16 …RBQC1604
20 …RBQC2007
25 …RBQC2508
35 …RBQC3009
32 …RBQC3213

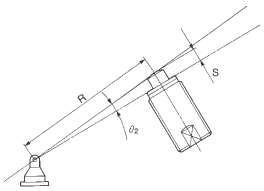
PRECAUTIONS

Load should always be aligned with the axis of piston rod.



Allowable eccentricity θ1≦5°

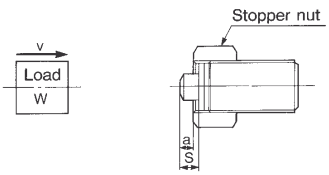
For rotation impact, load should always be aligned perpendicular to the axis of shock absorber and allowable rotation angle at stroke end should always be u2<5°.



Installation conditions for rotation impact (mm)

Model	S (Stroke)	u2 (Allowable Rotation Angle)	R (Min Installation Angle)
RBQ•1604	4	5°	51
RBQ•2007	7	5°	89
RBQ•2508	8	5°	102
RBQ•3009	8.5	5°	108
RBQ•3213	13	5°	166

Adjustment of the stopper nut (to adjust the length a) will control the suspension time of the impacting object.



The shock absorber shall not be used under conditions where it will be exposed to cutting oil, water and other types of fluid, otherwise malfunction may result.