SMC

THE PNEUMATICS CATALOG

North American Edition



customer-focused
SOLUTIONS









Courtesy of Steven Engineering, Inc. • 230 Ryan Way, South San Francisco, CA 94080-6370 • Main Office: (650) 588-9200 • Outside Local Area: (800) 258-9200 • www.stevenengineering.com



Actuators
Product Selector Page 1.1



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Compressed Air Safety



Compressed air represents a source of considerable potential energy and, as with electricity, precautions must be taken to prevent accidents.

Compressed air should never impinge upon the body. Ports, pipes etc. must never be blocked by hand. Before connecting any pneumatic equipment to compressed air supply, mountings, fittings, pipework, and electrical connections should be checked for security, and all plastic protection plugs removed. No pipework alterations or removal of fittings should be attempted with air supplies connected.

Air and electrical supplies must be disconnected before any adjustment, maintenance or dismantling of machinery is started.

The maximum allowable operating pressures, temperature, loads etc. must be strictly observed. Refer to individual catalogs for this information, and any other operating or application limitations.

When fluorine rubber seals ('Viton' used on high temperature equipment) are subjected to temperatures in excess of 400°C / 750°F the Fluoroelastomer decomposes. The products of decomposition are extremely hazardous – including Hydrofluoric Acid. Following any fire, or high temperature accident, if charred or black sticky seals are found and the presence of Viton is suspected, do not touch the equipment, and contact SMC Customer Service for advice.

Compressed Air Safety – Actuators

1. Air supply to any pneumatic actuator must be isolated and the supply lines to each cylinder port exhausted before adjusting, dismounting or dismantling.

2. Actuators, being moving parts, must be safe guarded. Consult SMC Customer Service.

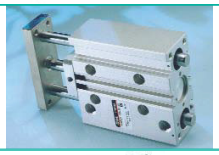
3. Electrical installation of auto switches must be undertaken by a person competent to undertake electrical work.

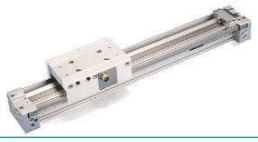
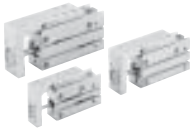
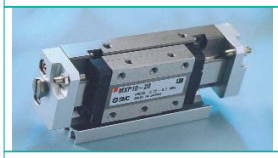
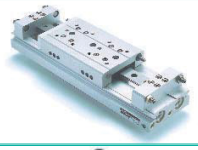
4. The security of all mountings, attachments and air connections must be checked before commissioning or restoring the air supply after adjustment or maintenance.

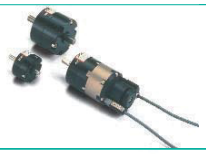
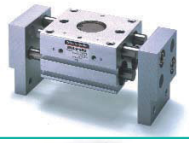
5. Cushion screws on air cushioned cylinders should be adjusted with air supply isolated from the actuators, to avoid any possibility of adjusters blowing out under pressure.

Actuators

	Series	Page Number
	**NCJ2** Linear Actuator / Air Cylinder	1.1
	**CJP** Linear Actuator / Pin Cylinder	1.17
	**NCJP** Linear Actuator / Pin Cylinder	1.18
	**CG1** Linear Actuator / Air Cylinder	1.20
	**NCG** Linear Actuator / Air Cylinder	1.32
	**NCM** Stainless Steel Linear Actuator / Air Cylinder	1.46
	**CA1** Linear Actuator / Air Cylinder	1.56
	**NCA1** Linear Actuator / Air Cylinder	1.64
	**CLA** Fine Lock Air Cylinder	1.86
	**NCQ2/CQ2** Linear Actuator / Compact Air Cylinder (JB Floating Joints: Page 1.124)	1.93

	Series	Page Number
	**CXS / CXSW** Linear Actuator / Dual Rod Cylinder	1.125
	**NCX2** Linear Actuator / Slide Unit	1.128
	**CE1** Cylinder Scale and Preset Output Controller	1.131
	**C95** Linear Actuator / ISO Air Cylinder	1.134
	**MGG** Linear Actuator / Guide Cylinder	1.141
	**MGP** Linear Actuator / Compact Guide Cylinder	1.144
	**MGQ** Linear Actuator / Compact Guide Cylinder	1.147
	**NCY2** Linear Actuator / Rodless Cylinder	1.149
	**MY1B** Linear Actuator / Rodless Cylinder - Mechanical Joint Type	1.155
	**MY1M** Linear Actuator / Rodless Cylinder - Mechanical Joint Type	1.160
	**MY1C** Linear Actuator / Rodless Cylinder - Mechanical Joint Type	1.165

	Series	Page Number
	**MY1H** Linear Actuator / Rodless Cylinder - Mechanical Joint Type	**1.170**
	**ML2B** Linear Actuator / Stroke Reading Rodless Cylinder With Brake	**1.175**
	**MXF** Low Profile Slide Table	**1.180**
	**MXS** Precision Slide Table	**1.183**
	**MXH** Precision Slide Table	**1.187**
	**MXP** Precision Slide Table	**1.188**
	**MXQ** Precision Slide Table	**1.190**
	**MXU** Compact Slide Table	**1.191**
	**MXW** Long Stroke Slide Table	**1.192**
	**RSQ** Linear Actuator / Stopper Cylinder	**1.193**
	**RSH** Heavy Duty Stopper Cylinder	**1.196**

	Series	Page Number
	**MK2** Rotary Clamp Cylinder	**1.198**
	**MRQ** Rotary Cylinder	**1.203**
	**NCRA1** Rotary Actuator - Rack and Pinion Type	**1.206**
	**NCRB** Rotary Actuator - Vane Type	**1.211**
	**NCRB1BW** Rotary Actuator - Vane Type	**1.212**
	**MSQ** Rotary Table	**1.215**
	**MSUB** Rotary Table	**1.218**
	**MHQ2 / MHC2** Air Grippers	**1.221**
	**MHL2** Air Grippers - Wide Type	**1.225**
	**MHQ** Air Grippers - Parallel Internal/External Holding Type	**1.230**
	**MHR** Rotary Actuated Air Chuck	**1.232**

	Series	Page Number
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	**MHT** Toggle Type Air Chuck	1.242
	**MHW** Air Chuck - 180° Angular Gripper	1.244
	**MHY2** Cam Type Air Chuck - 180° Angular Gripper	1.247
	**NRB** Shock Absorber	1.250
	**RB** Shock Absorber	1.252
	**RBQ** Shock Absorber	1.254
	Thread Codes	1.77

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**	lbsf
	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*	

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**	**-**	**-**	**-**	Force
	4	*0.38*	*0.8*	*1.1*	*1.5*	*1.9*	*2.3*	*2.6*	-	-	-	Kgf
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*	



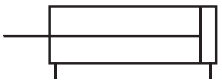
SERIES NCJ2
BORE SIZES Ø6•10•16

- 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

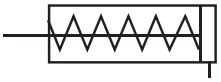
MADE IN USA

SYMBOLS

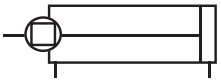
Double Acting/Single Rod



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)

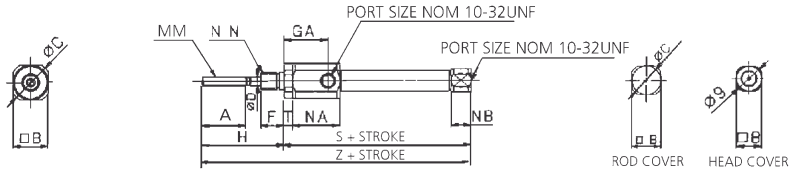
PART NUMBER OF MOUNTING BRACKETS

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

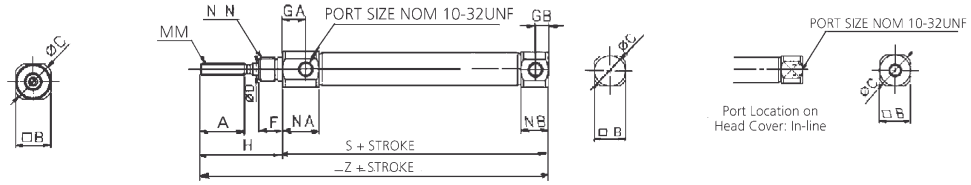
DIMENSIONS SEE NEXT PAGE ☞

Dimensions (inch)
Standard Double Acting Single Rod Basic Type NCJ2B_-_

NCJ2B6



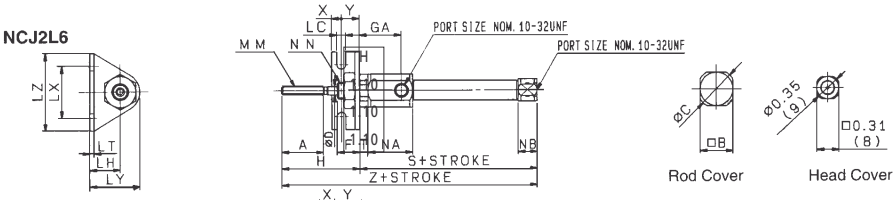
NCJ2B10, 16



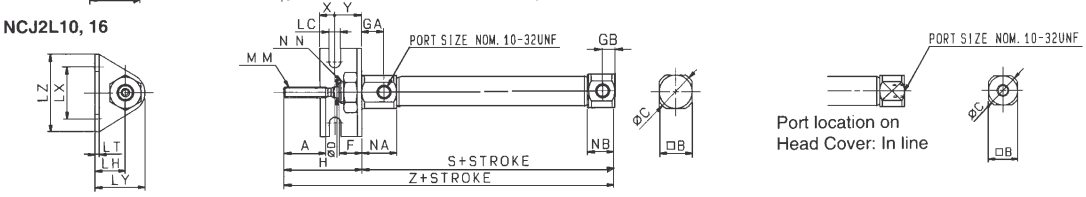
Bore Size	A	B	C	D	F	GA	GB	H	MM	NN	NA	NB	T	S	Z
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.57	-	1.10	No5-40UNC	1/4-28UNF	0.63	0.28	0.12	1.93	3.03
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.31	0.196	1.10	No6-40UNF	5/16-24UNF	0.49	0.37	-	1.81	2.91
ø16 (5/8")	0.60	0.71	0.79	0.196	0.31	0.31	0.196	1.10	No10-32UNF	3/8-24UNF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

Dimensions (inch)
Standard Double Acting Single Rod Foot Type NCJ2L_-_

NCJ2L6



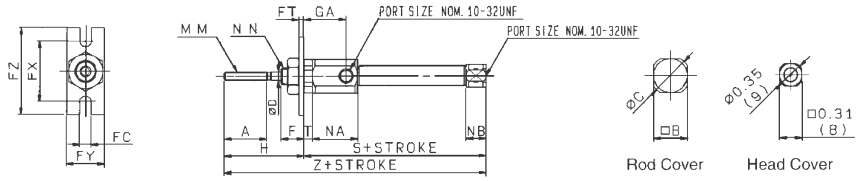
NCJ2L10, 16



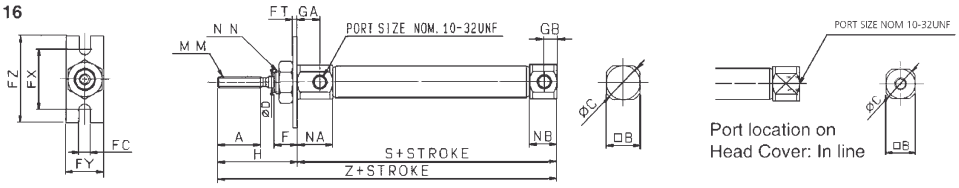
Bore Size	A	B	C	D	F	GA	GB	H	LC	LH	LT	LX	LY	LZ	MM	NN	NA	NB	T	X	Y	S	Z
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.57	-	1.10	0.13	0.43	0.06	0.74	0.71	1.10	No5-40UNC	1/4-28UNF	0.63	0.28	0.12	0.14	0.26	1.93	3.03
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.31	0.196	1.10	0.17	0.55	0.06	0.87	0.83	1.26	No6-40UNF	5/16-24UNF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



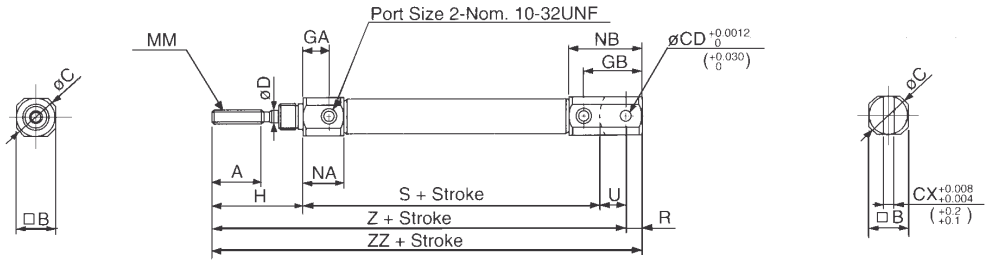
NCJ2F10, 16



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

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

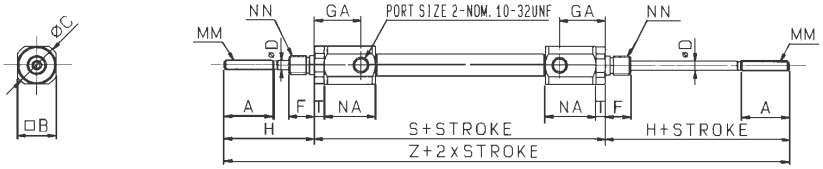
Technical Specifications

Fluid		Air
Proof Pressure		1MPa / 145 PSI
Maxlmum 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)

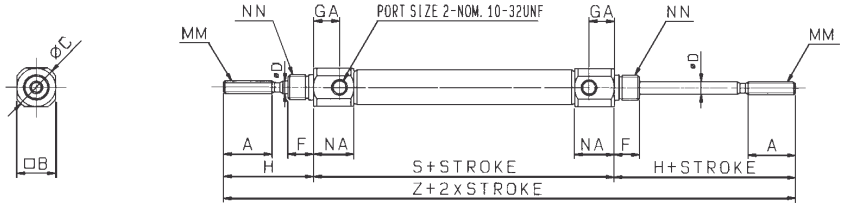
Dimensions (inch)

Standard Double Acting Double Rod Basic Type NCJ2WB_-_

NCJ2WB6



NCJ2WB10, 16

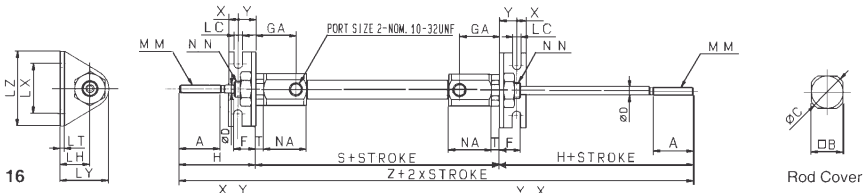


Bore Size*	A	B	C	D	F	GA	H	MM	NN	NA	T	S	Z
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.57	1.10	No5-40UNC	1/4-28UNF	0.63	0.12	2.40	4.61
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.31	1.10	No6-40UNF	5/16-24UNF	0.49	-	1.93	4.13
ø16 (5/8")	0.60	0.71	0.79	0.196	0.31	0.31	1.10	No10-32UNF	3/8-24UNF	0.49	-	1.97	4.17

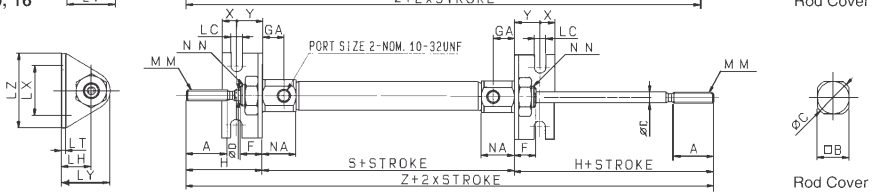
* In case of Auto Switches with ø6 Bore, add 5mm to S and Z.

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

NCJ2WL6



NCJ2WL10, 16

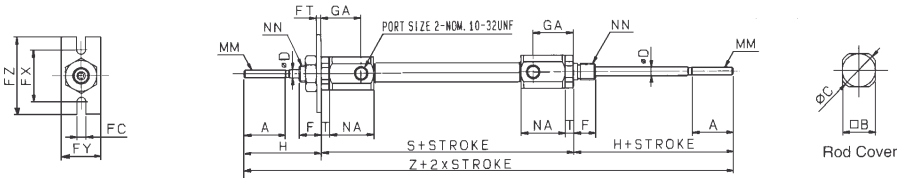


Bore Size*	A	B	C	D	F	GA	H	LC	LH	LT	LX	LY	LZ	MM	NN	NA	T	X	Y	S	Z
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.57	1.10	0.13	0.43	0.06	0.74	0.71	1.10	No5-40UNC	1/4-28UNF	0.63	0.12	0.14	0.26	2.40	4.61
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.31	1.10	0.17	0.55	0.06	0.87	0.83	1.26	No6-40UNF	5/16-24UNF	0.49	-	0.21	0.38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

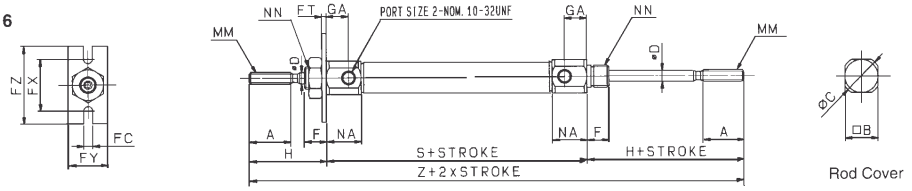
* In case of Auto Switches with ø6 Bore, add 5mm to S and Z.

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

NCJ2WF6



NCJ2WF10, 16

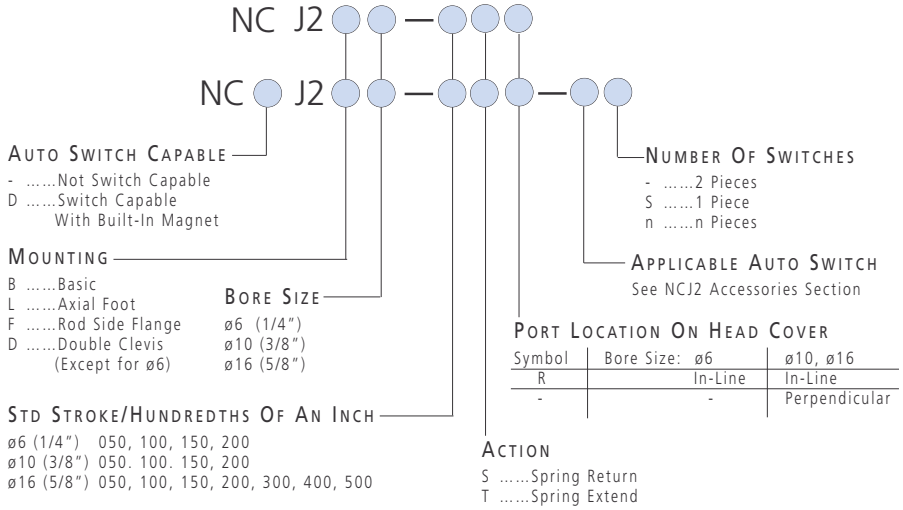


Bore Size*	A	B	C	D	F	FC	FT	FX	FY	FZ	GA	H	MM	NN	NA	T	S	Z
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.13	0.06	0.74	0.55	1.10	0.57	1.10	No5-40UNC	1/4-28UNF	0.63	0.12	2.40	4.61
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.17	0.06	0.87	0.55	1.26	0.31	1.10	No6-40UNF	5/16-24UNF	0.49	-	1.93	4.13
ø16 (5/8")	0.60	0.71	0.79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

How To Order

NCJ2 Standard Single Acting Spring Return / Spring Extend



Part Number of Mounting Brackets

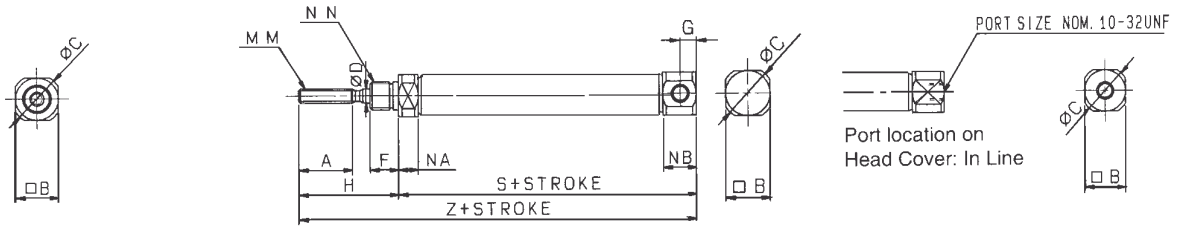
Mounting Bracket	Bore Size (mm)		
	6	10	16
Foot	NCJ-L006B	NCJ-L010B	NCJ-L016B
Flange	NCJ-F006B	NCJ-F010B	NCJ-F016B

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)

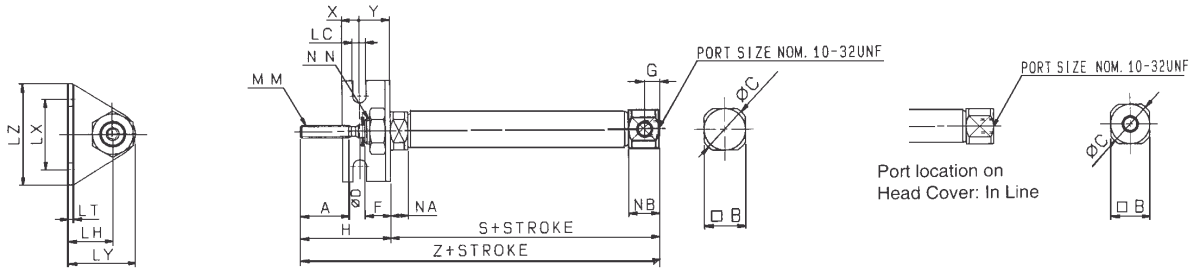
Dimensions
See Next Page ☞

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

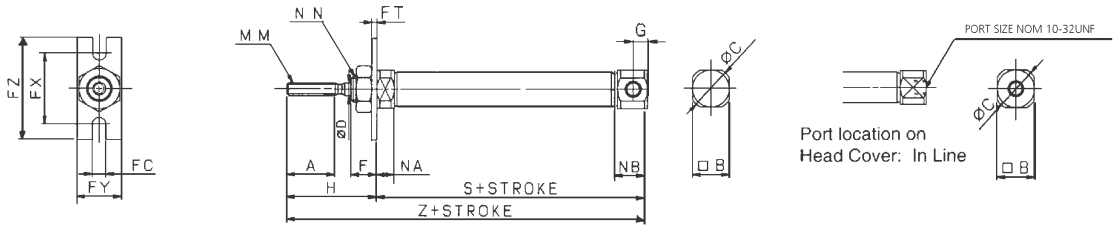
Dimensions (inch)
Standard Single Acting Spring Return Foot Type NCJ2L_-_S



																				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

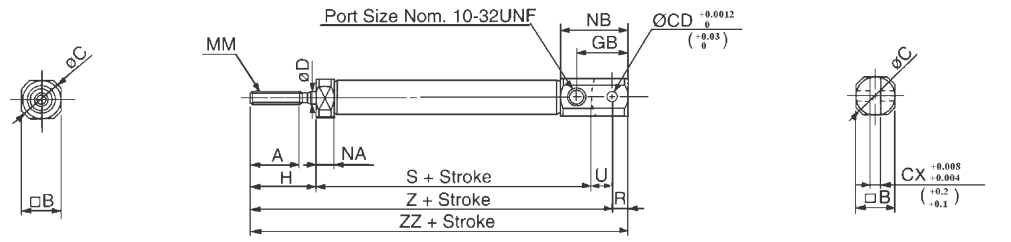
Dimensions (inch)
Standard Single Acting Spring Return Rod Side Flange Type NCJ2F_-_S



																			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.

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



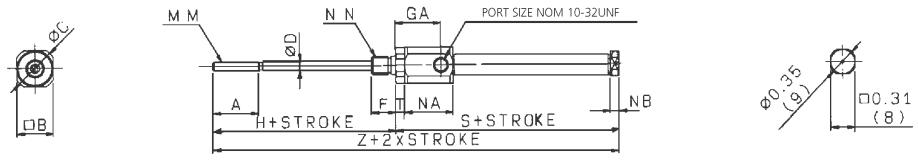
ZZ						
50	100	150	200	300	400	500
3.14	3.35	3.64	4.12	-	-	-
3.32	3.53	3.81	4.30	4.72	5.33	6.10

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

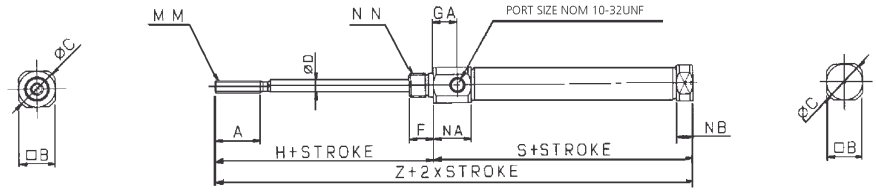
Note) Clevis Pin Included

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

NCJ2B6



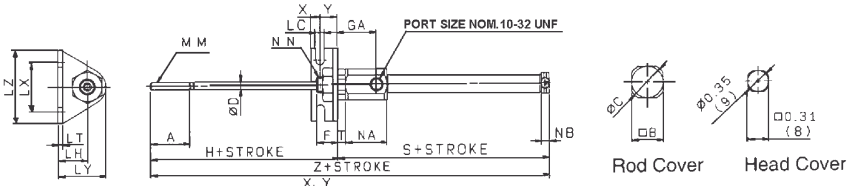
NCJ2B10, 16



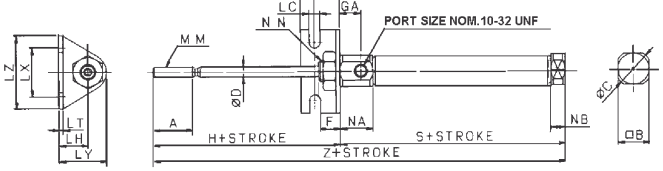
Bore Size	A	B	C	D	F	GA	H	MM	NN	NA	NB	T	S							Z						
													50	100	150	200	300	400	500	50	100	150	200	300	400	500
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.57	1.10	No5-40UNC	1/4-28UNF	0.63	0.12	0.12	1.92	2.20	2.45	2.94	-	-	-	3.02	3.31	3.56	4.04	-	-	-
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.31	1.10	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

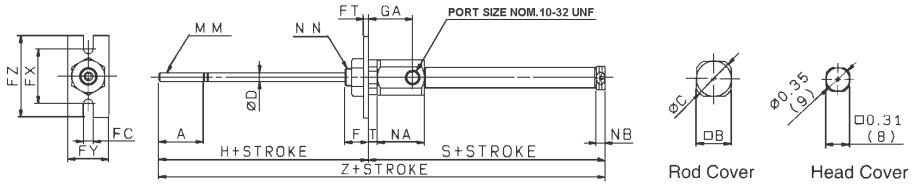
Bore Size*	A	B	C	D	F	GA	H	LC	LH	LT	LX	LY	LZ	MM	NN	NA	NB	T	X	Y	S						
																					50	100	150	200	300	400	500
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.57	1.10	0.13	0.43	0.06	0.74	0.71	1.10	No5-40UNC	1/4-28UNF	0.63	0.12	0.12	0.14	0.26	1.92	2.20	2.45	2.94	-	-	-
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	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.

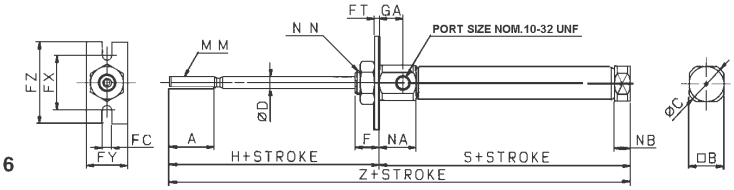
Z						
50	100	150	200	300	400	500
3.02	3.31	3.56	4.04	-	-	-
3.02	3.23	3.52	4.00	-	-	-
3.04	3.25	3.54	4.02	4.44	5.06	5.83

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

NCJ2F6



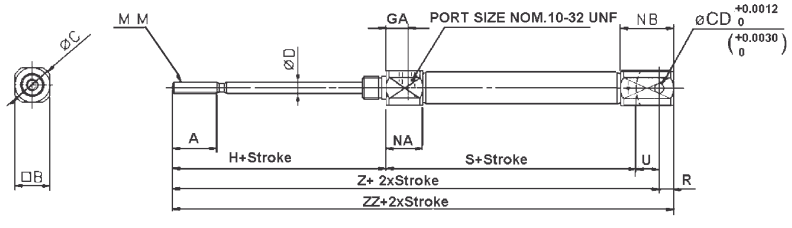
NCJ2F10, 16



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

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

Number Of Switches
- ……2 Pieces
S ……1 Piece
n ……n Pieces

Applicable Auto Switch
See NCJ2 Accessories Section

Port Location On Head Cover
R ……In-Line
- ……Perpendicular

Part Number of Mounting Brackets

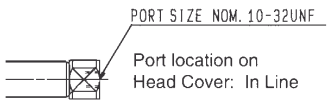
Mounting Bracket	Bore Size (mm) 10	16
Foot	NCJ-L010B	NCJ-L016B
Flange	NCJ-F010B	NCJ-F016B

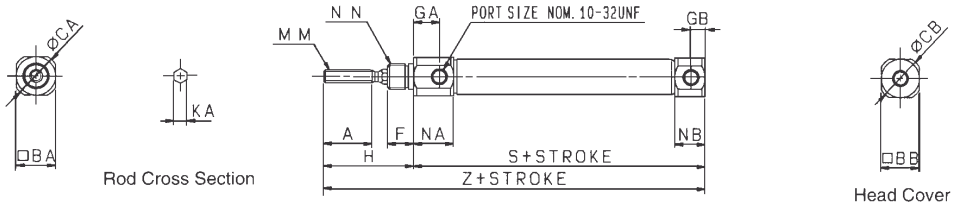
Technical Specifications

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_-_

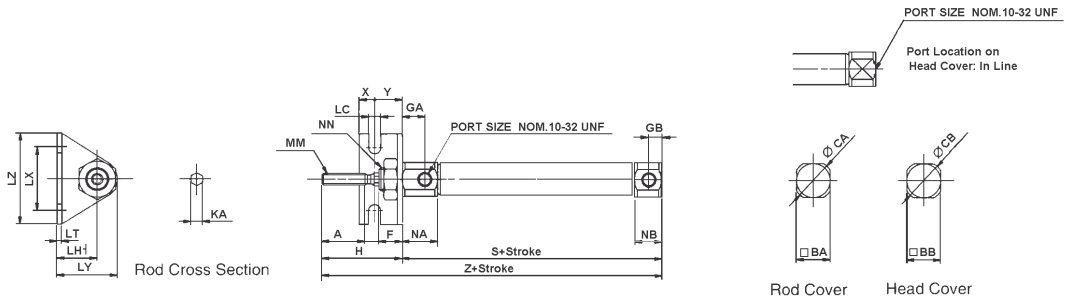




Bore Size	A	BA	BB	CA	CB	F	GA	GB	H	KA	MM	NN	NA	NB	S	Z
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	0.31	0.196	1.10	0.17	No6-40UNF	3/8-24UNF	0.49	0.37	1.81	2.91
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	0.31	0.31	0.196	1.10	0.20	No10-32UNF	7/16-20UNF	0.49	0.37	1.85	2.95

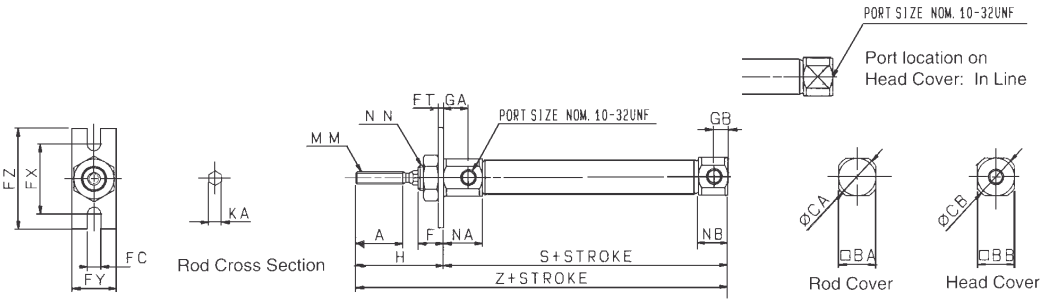
Dimensions See Next Page ☞

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



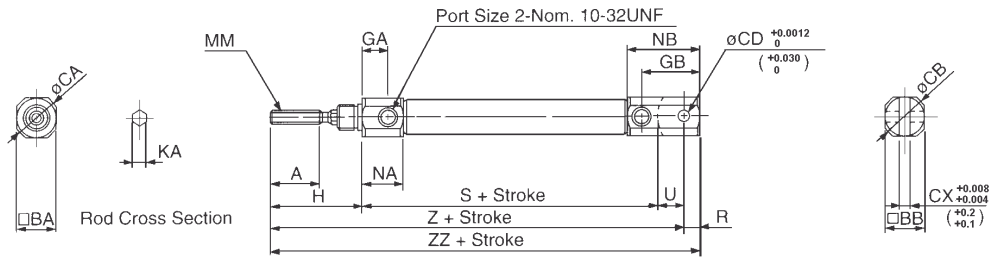
Bore Size	A	BA	BB	CA	CB	F	GA	GB	H	KA	LC	LH	LT	LX	LY	LZ	MM	NN	NA	NB	X	Y	S	Z
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	0.31	0.196	1.10	0.17	0.20	0.55	0.09	1.18	0.94	1.38	No6-40UNF	3/8-24UNF	0.49	0.37	0.21	0.38	1.81	2.91
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	0.31	0.31	0.196	1.10	0.20	0.20	0.55	0.09	1.18	0.94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

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

Applicable Auto Switch
See NCJ2 Accessories Section

Port Location On Head Cover
R ……In-Line
- ……Perpendicular

Number Of Switches
- ……2 Pieces
S ……1 Piece
n ……n Pieces

Part Number of Mounting Brackets

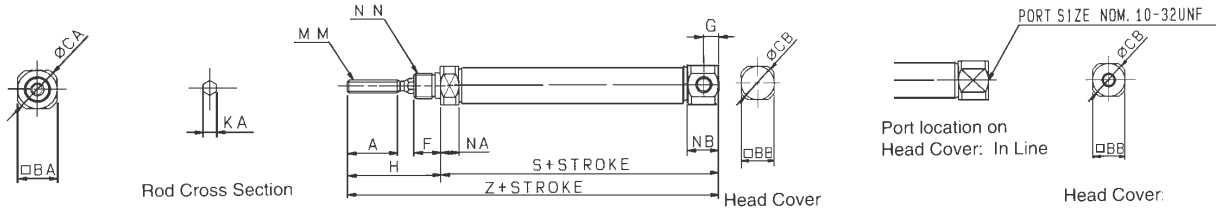
Mounting Bracket	Bore Size (mm) 10	16
Foot	NCJ-L010B	NCJ-L016B
Flange	NCJ-F010B	NCJ-F016B

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)

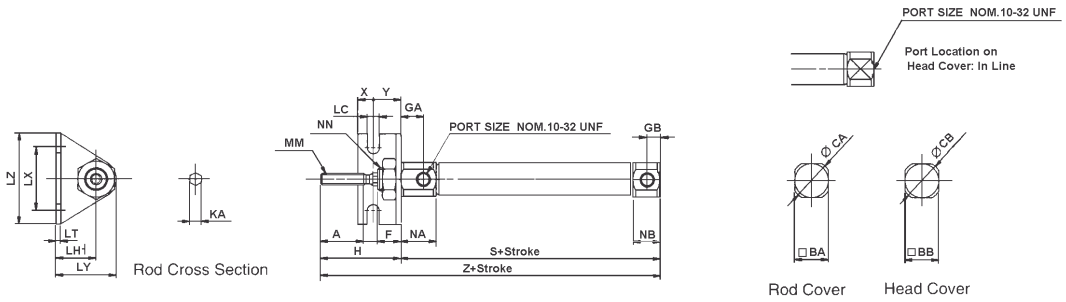
Non-Rotating Single Acting Spring Return Basic Type NCJ2KB_-_S



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 ☞

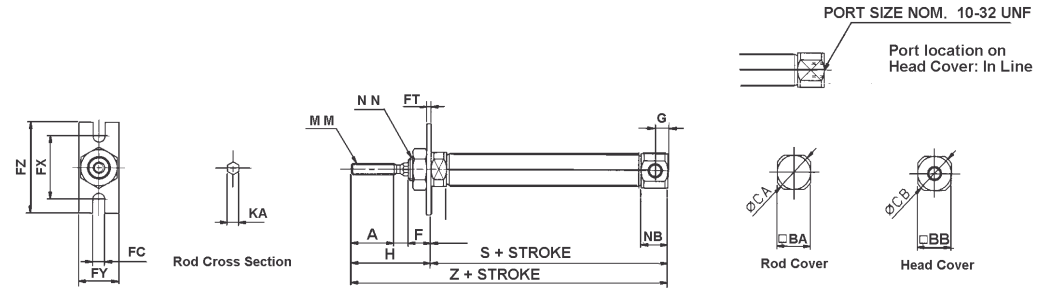
DIMENSIONS (INCH)
NON-ROTATING SINGLE ACTING SPRING RETURN FOOT TYPE NCJ2KL_-_S



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

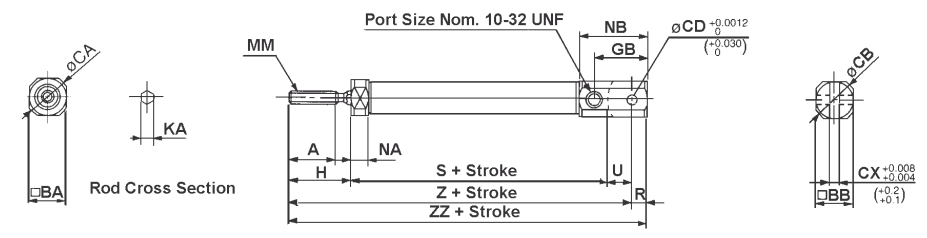
Z						
50	100	150	200	300	400	500
2.91	3.11	3.40	3.89	-	-	-
2.93	3.13	3.42	3.91	4.32	4.94	5.71

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

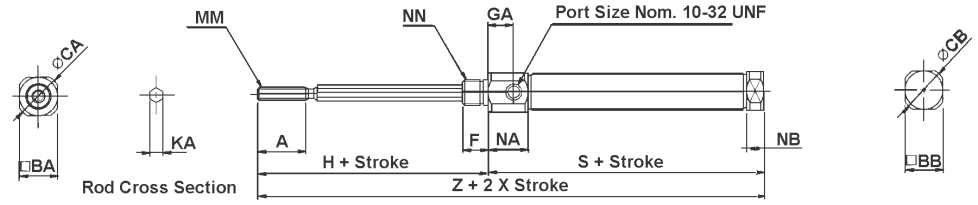
DIMENSIONS (INCH)
NON-ROTATING SINGLE ACTING SPRING RETURN DOUBLE CLEVIS TYPE NCJ2KD_-_S



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

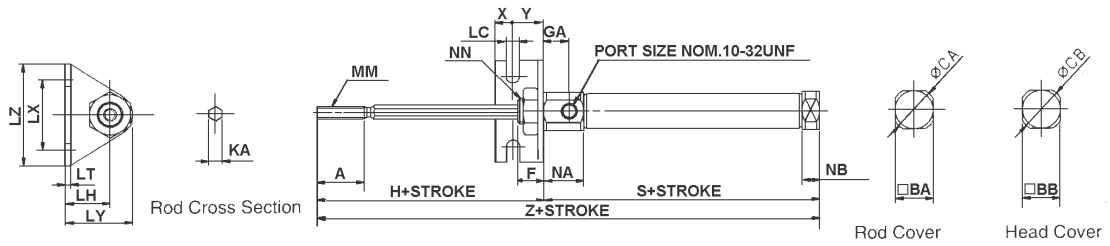
Bore Size	A	BA	BB	CA	CB	CD	CX	GB	H	KA	MM	NA	NB	R	U	S							Z						
																50	100	150	200	300	400	500	50	100	150	200	300	400	500
ø10 (3/8")	0.60	0.47	0.47	0.55	0.55	.187	.188	0.75	0.79	0.17	No6-40UNF	0.22	0.93	0.24	0.31	1.80	2.01	2.30	2.78	-	-	-	2.91	3.11	3.40	3.89	-	-	-
ø16 (5/8")	0.60	0.71	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

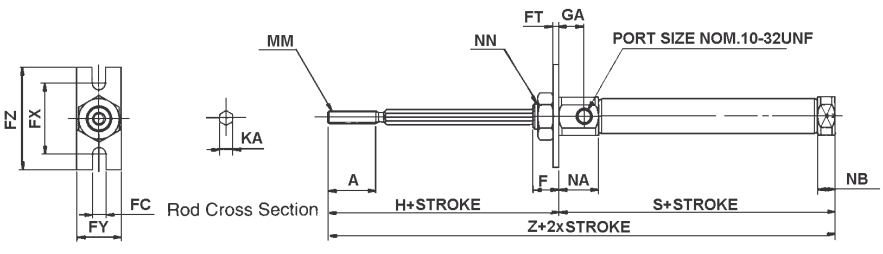
DIMENSIONS (INCH)
NON-ROTATING SINGLE ACTING SPRING EXTEND FOOT TYPE NCJ2KL_-_T



																							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

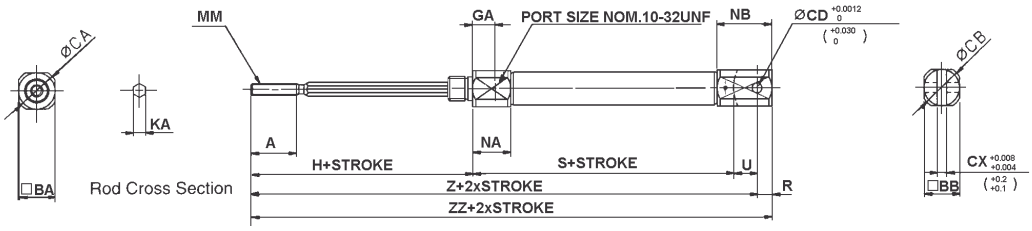
DIMENSIONS (INCH)
NON-ROTATING SINGLE ACTING SPRING EXTEND ROD SIDE FLANGE TYPE NCJ2KF_-_T



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

ALSO AVAILABLE:
- XB13 OPTION - LOW SPEED
- XC22 - VITON SEALS

PLEASE CONSULT SMC CUSTOMER SERVICE

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
SERIES NCJ2 AUTO SWITCHES

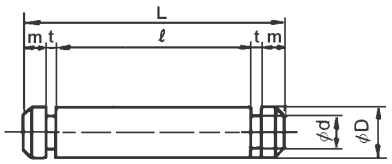
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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

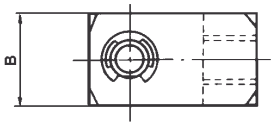
ACCESSORIES
SERIES NCJ2 REAR CLEVIS PIN

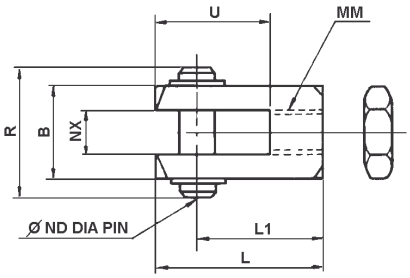


PART NO	BORE SIZE	øD	L	ød	e	M	t
NCD-J010	ø10 (3/8")	0.188	0.59	0.147	0.48	0.03	0.03
NCD-J016	ø16 (5/8")	0.187	0.90	0.147	0.72	0.06	0.03

Note) includes 2 Retaining Ring

ACCESSORIES
SERIES NCJ2 PISTON ROD CLEVIS



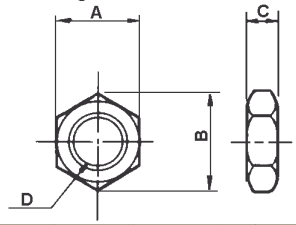


PART NO	BORE SIZE	B	R	NX	øND	U	MM	L	L1
NY-J010B	ø10 (3/8")	0.39	0.54	0.188	0.188	0.56	No6-40UNF	0.94	0.75
NY-J016B	ø16 (5/8")	0.39	0.54	0.188	0.188	0.56	No10-32UNF	0.94	0.75

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

ACCESSORIES
SERIES NCJ2 MOUNTING NUT

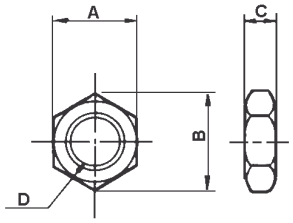
Mounting Nut



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

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

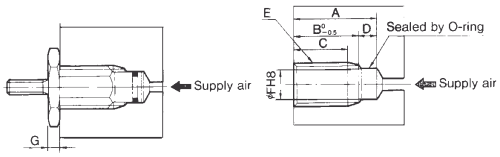
TECHNICAL SPECIFICATIONS

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

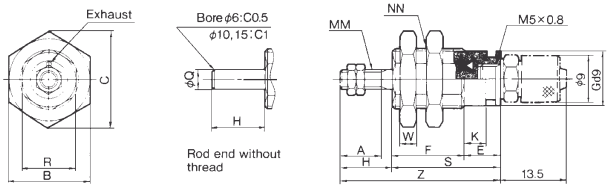


DIMENSIONS
RECOMMENDED MOUNTING HOLE DIMENSIONS FOR PLUG MOUNT



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

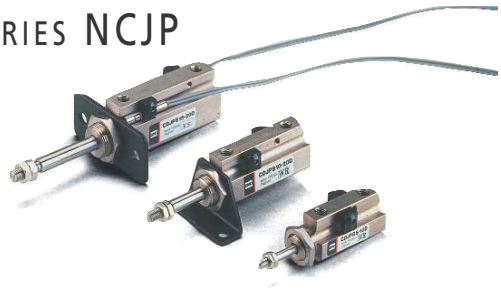
ACCESSORIES
CJP PIN CYLINDER-SINGLE ACTING

'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

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, please consult SMC Customer Service

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)			

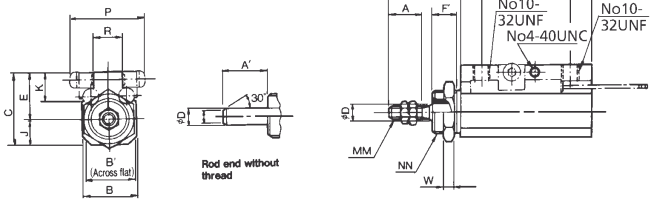
SYMBOLS



STROKE

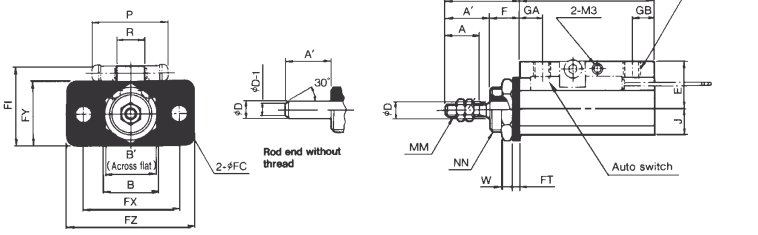
Bore Size mm (inch)	Stroke inch
ø6 …(1/4")	1/4, 3/8, 1/2, 3/4
ø10 …(3/8")	1/4, 3/8, 1/2, 3/4, 1, 1-1/4
ø15 …(5/8")	1/4, 3/8, 1/2, 3/4, 1, 1-1/4

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

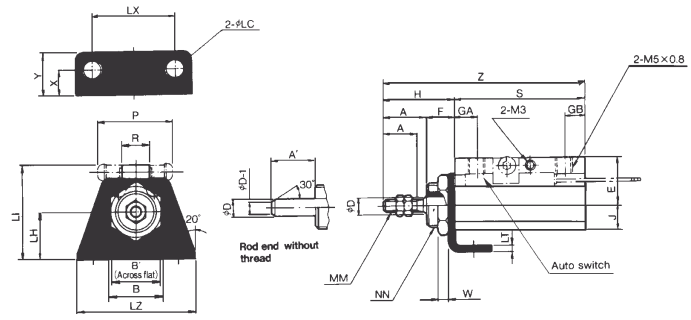
DIMENSIONS
FLANGE MOUNT: C•JPF



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

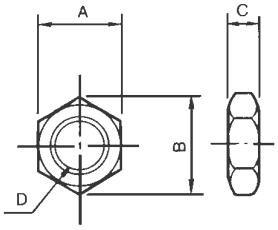
DIMENSIONS
FOOT MOUNT



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

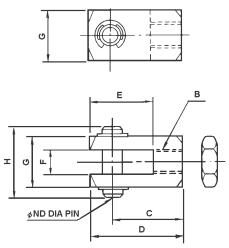
DIMENSIONS
MOUNTING NUT



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

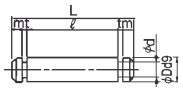
Bore Size	Part No	A	B	C	D
ø6 (1/4")	JM-005	0.31	0.11	0.36	5-40UNC
ø10 (3/8")	JM-02	0.38	0.43	0.13	10-32UNF
ø15 (5/8")	JM-02	0.38	0.43	0.13	10-32UNF

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

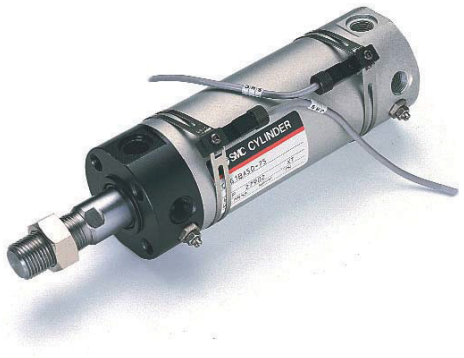


Bore Size	Part No	øD	L	ød	ℓ	m	t
ø6 (1/4")	NCT-P006	.125	0.81	.095	0.70	0.03	0.018
ø10 (3/8")	NCT-P010	.188	0.94	.147	0.81	0.04	0.029
ø15 (5/8")	NCT-P015	.188	1.25	.147	1.11	0.04	0.029

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

MADE IN CANADA MADE IN USA



TECHNICAL SPECIFICATIONS

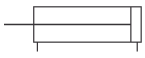
Fluid		Air
Proof pressure		0.15MPa / 218PSI
Max operating pressure		0.99MPa / 144PSI
Min operating pressure		0.05 MPa / 7PSI
Ambient and fluid temperature		-10~60°C / 14~140°F
Piston velocity		50~700mm/sec (ø80~ø100) 2~28in/s
Thread tolerance		JIS 2 class
Stroke length tolerance	ø20~63	up to ~1000st: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

CONSTRUCTION SPECIFICATIONS

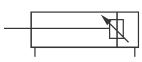
Rod cover	Aluminium alloy (Hard black alumite)
Body	Aluminium alloy (Hard alumite)
Piston rod	Carbon steel (hard chrome plated)

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, please consult SMC Customer Service

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

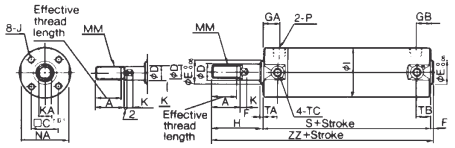
ACCESSORIES
SWITCH BANDS
FOR SWITCHES D-B5, D-B6, G5, K5

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

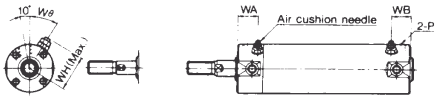


Bore (mm)	Stroke range (mm)	Effective thread length	A	□C	øD	øE	F	GA	GB	øI	J	K	KA	MM	NA	P	S	TA	TB	*TC
20	~200	15.5	18	14	8	12	2	12	12	26	M4x0.7 Depth 7	4	6	M8x1.25	24	1/8	69	11	11	M5x0.8
25	~300	19.5	22	16.5	10	14	2	12	12	31	M5x0.8 Depth 7.5	5	8	M10x1.25	29	1/8	69	11	11	M6x0.75
32	~300	19.5	22	20	12	18	2	12	11	38	M5x0.8 Depth 8	5.5	10	M10x1.25	36	1/8	71	11	10	M8x1.0
40	~300	27	30	26	16	25	2	13	12	47	M6x1 Depth 12	6	14	M14x1.5	44	1/8	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	1/4	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	1/4	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	3/8	108	—	—	—
100	~300	37	40	60	30	50	3	20	20	110	M12x1.75 Depth 22	11	26	M26x1.5	100	1/2	108	—	—	—

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

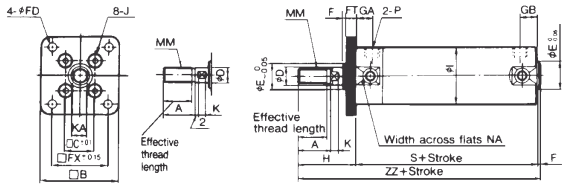
Bore (mm)	Without gaiter H	Z
20	35	106
25	40	111
32	40	113
40	50	130
50	58	150
63	58	150
80	71	182
100	71	182

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	1/8	14	13	28.5	25°
40	1/8	15	14	33	20°
50	1/4	16	15	40.5	20°
63	1/4	16	15	47.5	20°
80	3/8	22	22	60.5	20°
100	1/2	22	22	71	20°

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

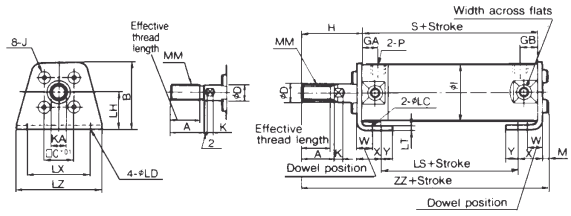


Bore (mm)	Stroke range (mm)	Effective thread length	A	□B	□C	ØD	ØE	GA	GB	øI	J	K	KA	MM	* NA	P	S
20	~200	15.5	18	40	14	8	12	12	12	26	M4x0.7	4	6	M8x1.25	24	1/8	69
25	~300	19.5	22	44	16.5	10	14	12	12	31	M5x0.8	5	8	M10x1.25	29	1/8	69
32	~300	19.5	22	53	20	12	18	12	11	38	M5x0.8	5.5	10	M10x1.25	36	1/8	71
40	~300	27	30	61	26	16	25	13	12	47	M6x1	6	14	M14x1.5	44	1/8	78
50	~300	32	35	76	32	20	30	14	13	58	M8x1.25	7	18	M18x1.5	55	1/4	90
63	~300	32	35	92	38	20	32	14	13	72	M10x1.5	7	18	M18x1.5	69	1/4	90
80	~300	37	40	104	50	25	40	20	20	89	M10x1.5	11	22	M22x1.5	80	3/8	108
100	~300	37	40	128	60	30	50	20	20	110	M12x1.75	11	26	M26x1.5	100	1/2	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

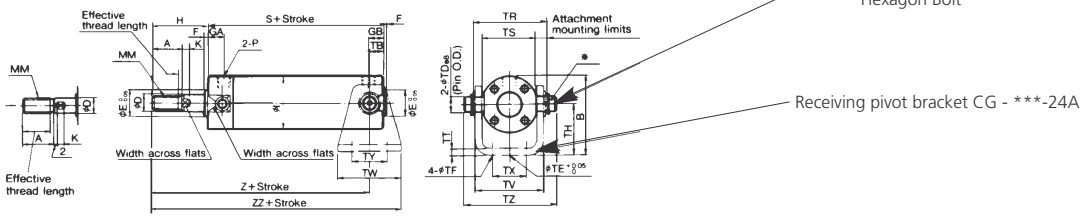
DIMENSIONS
FOOT MOUNT



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)



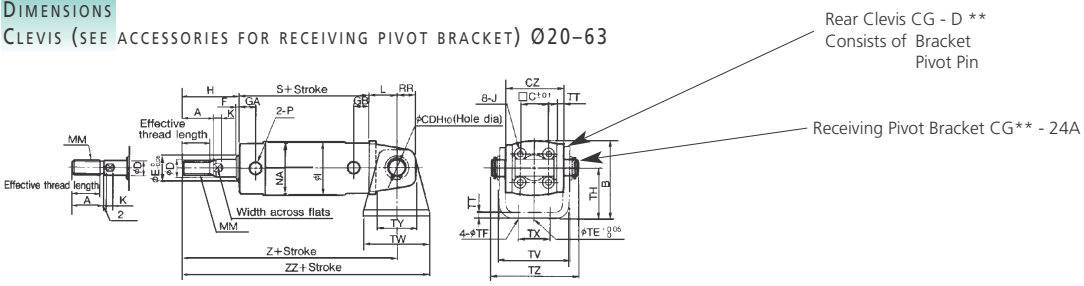
Bore (mm)	Stroke range (mm)	Effective thread length	A	B	øD	øE	F	GA	GB	øI	K	KA	MM	NA	P	S	TB	øTDe8	øTE	øTF
20	~200	15.5	18	38	8	12	2	12	12	26	4	6	M8x1.25	24	1/8	69	11	8 -0.025 -0.047	10	5.5
25	~300	19.5	22	45.5	10	14	2	12	12	31	5	8	M10x1.25	29	1/8	69	11	10 -0.025 -0.047	10	5.5
32	~300	19.5	22	54	12	18	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

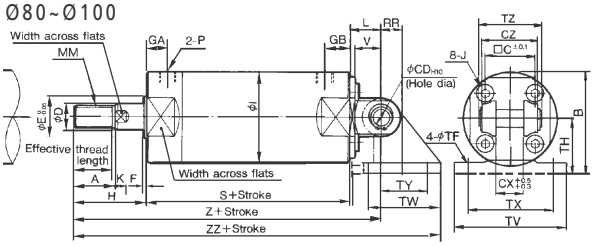
MORE DIMENSIONS
SEE NEXT PAGE ☞

DIMENSIONS

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



Ø80~Ø100

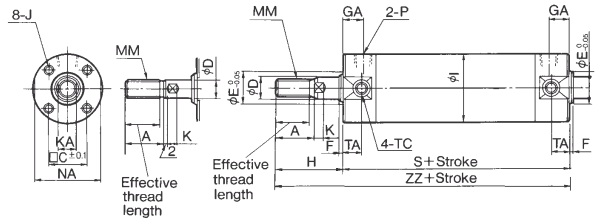


Bore (mm)	V	øTE	øTF	TH	TT	TV	TW	TX	TY	TZ	H	Z	ZZ
20	—	10	5.5	25	3.2	35.8	42	16	28	43.4	35	118	139
25	—	10	5.5	30	3.2	39.8	42	20	28	48	40	125	146
32	—	10	6.6	35	4.5	49.4	48	22	28	59.4	40	131	155
40	—	10	6.6	40	4.5	58.4	56	30	30	71.4	50	150	178
50	—	20	9	50	6	72.4	64	36	36	86	58	173	205
63	—	20	11	60	8	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	K A	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

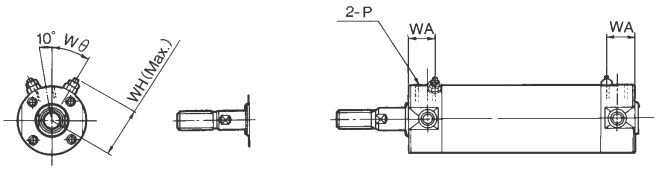


ϕ20, ϕ25

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



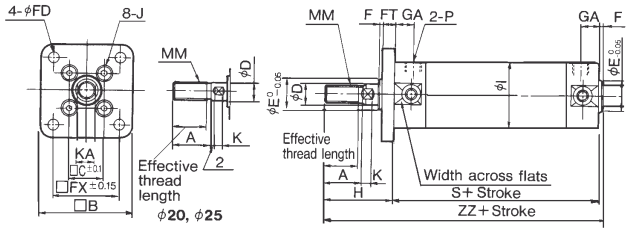
ϕ20, ϕ25

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)

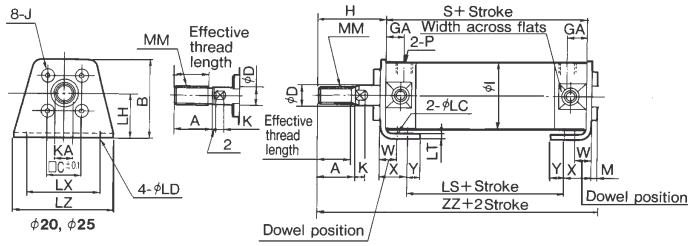


ϕ20, ϕ25

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

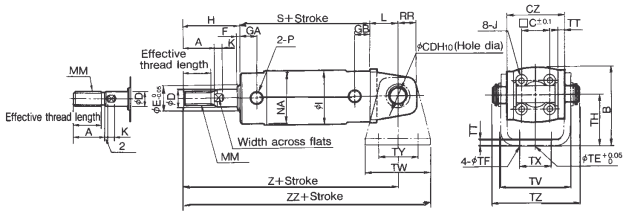
DIMENSIONS
FOOT MOUNT

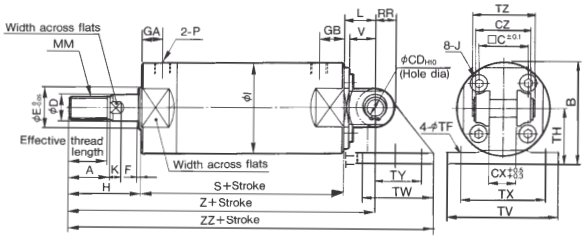


Bore (mm)	Stroke range (mm)	Eff. thread length	A	B	□C	ØD	GA	ØI	J	K	KA	M
20	191 - 350	15.5	18	34	14	8	12	26	M4x0.7	4	6	3
25	291 - 400	19.5	22	38.5	16.5	10	12	31	M5x0.8	5	8	3.5
32	289 - 450	19.5	22	45	20	12	12	38	M5x0.8	5.5	10	3.5
40	285 - 400	27	30	54.5	26	16	13	47	M5x0.8	6	14	4
50	285 - 1200	32	35	70.5	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)

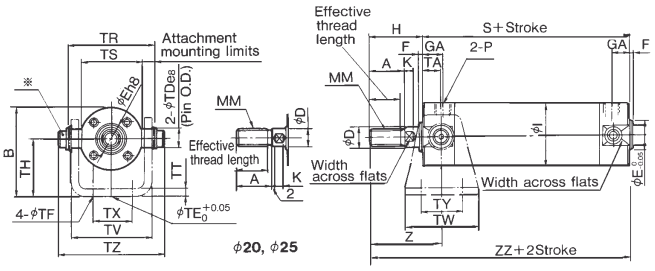




Bore (mm)	Stroke range (mm)	Effective thread length	A	B	□C	ØD	ØE	F	GA	GB	ØI	J	K	KA	MM	NA	P	S ØCD$_{H10}$
20	191 - 350	15.5	18	38	14	8	12	2	12	12	26	M4X0.7	4	6	M8X1.5	24	1/8	7 8 $^{+0.058}_{0}$
25	291 - 400	19.5	22	45.5	16.5	10	14	2	12	12	31	M5X0.8	5	8	M10X11.25	29	1/8	7710$^{+0.058}_{0}$
32	289 - 450	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

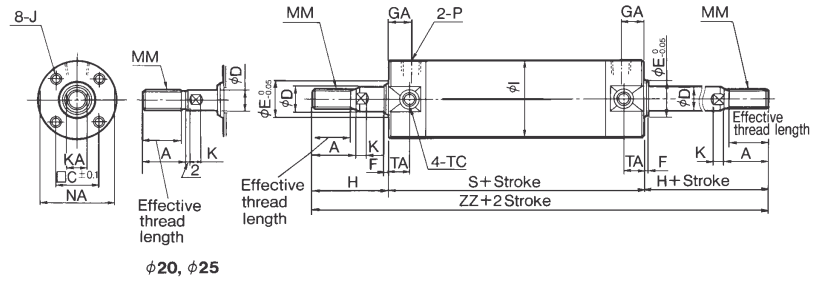
DIMENSIONS
TRUNNION (CAN ALSO BE FITTED TO NOSE END)



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

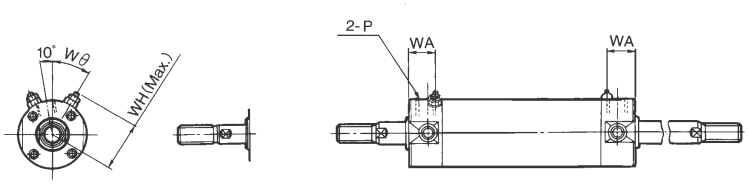
DIMENSIONS
RUBBER CUSHION TYPE DOUBLE ROD CG1WBN



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

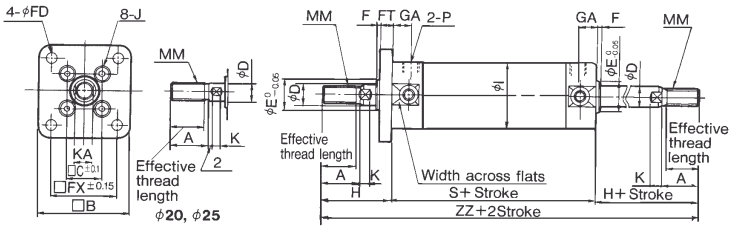
Bore (mm)	K	KA	MM	NA	P	S	TA	**TC H	ZZ
20	4	6	M8x1.25	24	1/8	77	11	M5x0.8 35	147
25	5	8	M10x1.25	29	1/8	77	11	M6x0.75 40	157
32	5.5	10	M10x1.25	36	1/8	79	11	M8x1.0 40	159
40	6	14	M14x1.5	44	1/8	87	12	M10x1.25 50	187
50	7	18	M18x1.5	55	1/4	102	13	M12x1.25 58	218
63	7	18	M18x1.5	69	1/4	102	13	M14x1.5 58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

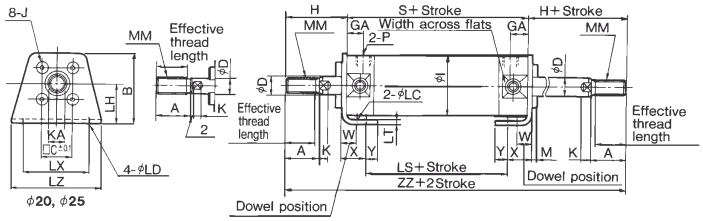


Bore (mm)	Stock range (mm)	Effective thread length	A	□B	□C	ØD	E	F	□FX	FD	FT	GA
20	~200	15.5	18	40	14	8	12	2	28	5.5	6	12
25	~300	19.5	22	44	16.5	10	14	2	32	5.5	7	12
32	~300	19.5	22	53	20	12	18	2	38	6.6	7	12
40	~300	27	30	61	26	16	25	2	46	6.6	8	13
50	~300	32	35	76	32	20	30	2	58	9	9	14
63	~300	32	35	92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

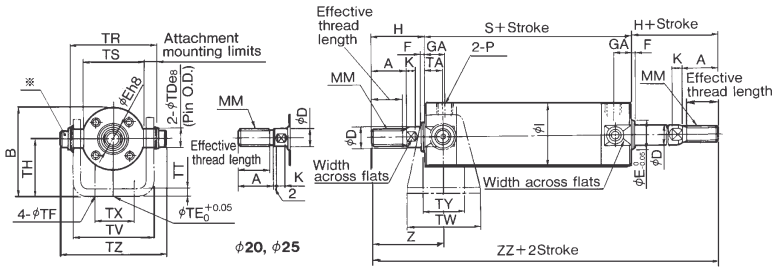


Bore (mm)	Stock range (mm)	Effective thread length	A	B	□C	ØD	GA	ØI	J	K	KA	M
20	~200	15.5	18	34	14	8	12	26	M4x0.7	4	6	3
25	~300	19.5	22	38.5	16.5	10	12	31	M5x0.8	5	8	3.5
32	~300	19.5	22	45	20	12	12	38	M5x0.8	5.5	10	3.5
40	~300	27	30	54.5	26	16	13	47	M6x1	6	14	4
50	~300	32	35	70.5	32	20	14	58	M8x1.25	7	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 H	Without gaiter ZZ
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



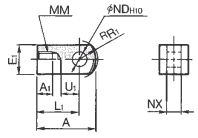
*Consists of pin, flat washer, and hexagon socket cap bolt

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

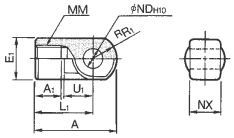
DIMENSIONS
SINGLE ROD CLEVIS

I-G02, G03



Material: Rolled steel

I-G04, G05, G08, G10

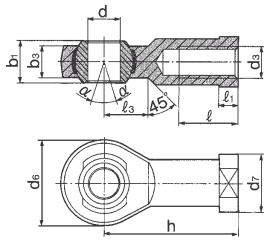


Material: Cast iron

Part no	Applicable bore (mm)	A	A1	E1	L1	MM	øR1	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

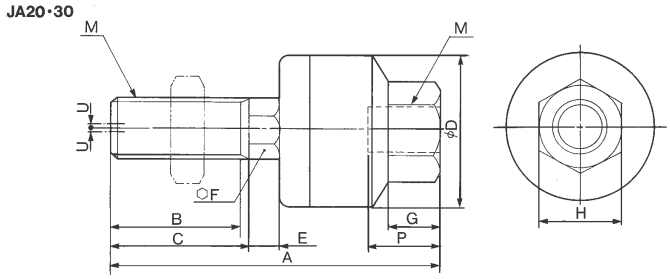
PISTON ROD BALL JOINT DIN 648



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

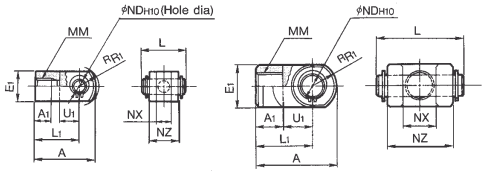
DIMENSIONS
FLOATING JOINT/SERIES JA

JA20-30



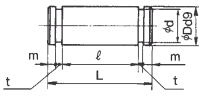
Cylinder Bore (mm)	Part No.	M	A	B	C	D	E	F	G	H	Thread depth	Allowable eccentricity Umm	Max. angular misalignment	Max. Compressive (kN)	Mass (kg)
Ø20	JA20-8-125	M8 x 1.25	44	17.5	–	21	4.5	7	7	13	8	0.5	±5°	2.5	0.07
Ø25	JA30-10-125	M10 x 1.25	49.5	19.5	–	24	5	8	8	17	9	0.5	±5°	2.5	0.07
Ø32	JA30-10-125	M10 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	ND_{H10}	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

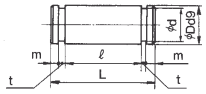
DIMENSIONS
ROD JOINT PIN



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)

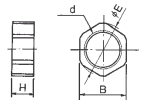


Material: Carbon steel

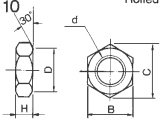
Part no	Applicable bore (mm)	øDd9	L	ød	ℓ	m	t	Applicable retaining pin
CD-G02	20	8 $^{-0.040}_{-0.076}$	43.4	7.6	38.6	1.5	0.9	C-8 type for pivot
CD-G25	25	10 $^{-0.040}_{-0.075}$	48	9.6	42.6	1.55	1.15	C-10 type for pivot
CD-G03	32	12 $^{-0.050}_{-0.093}$	59.4	11.5	54	1.55	1.15	C-12 type for pivot
CD-G04	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

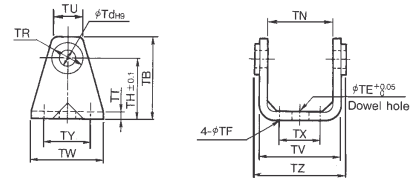


Material: Rolled steel

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

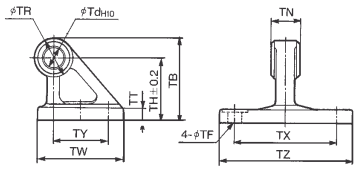
DIMENSIONS
TRUNNION BRACKET

$\phi 20 \sim \phi 63$



Material: Rolled steel

$\phi 80 \sim \phi 100$

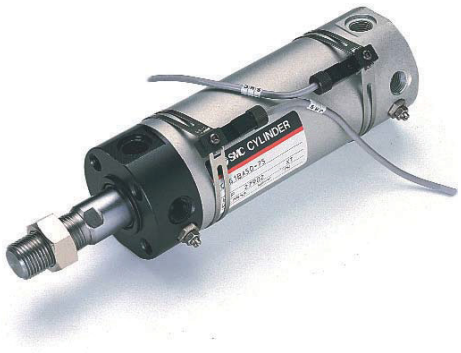


Part no	Applicable bore (mm)	TB	øTd	øTE	øTF	TH	TN
CG-020-24A	20	36	8 $^{+0.036}_{0}$	10	5.5	25	29 $^{+0.4}_{+0.1}$
CG-025-24A	25	43	10 $^{+0.036}_{0}$	10	5.5	30	33 $^{+0.4}_{+0.1}$
CG-032-24A	32	50	12 $^{+0.043}_{0}$	10	6.6	35	40 $^{+0.5}_{+0.1}$
CG-040-24A	40	58	14 $^{+0.043}_{0}$	10	6.6	40	49 $^{+0.5}_{+0.1}$
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



MADE IN CANADA

MADE IN USA

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.*

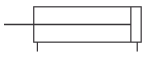
NO OF SWITCHES
- .....2 Pieces
S .....1 Piece
n .....n number of switches

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

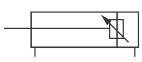
CONSTRUCTION SPECIFICATIONS

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

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N303

ACCESSORIES
AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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"

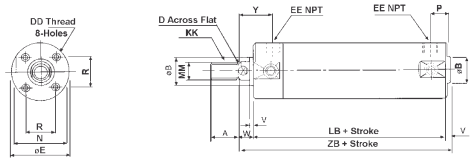
TECHNICAL SPECIFICATIONS
STANDARD SERIES NCG

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

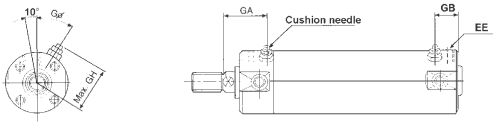
Bore Size	Bumper Design	Air Cushion Design
20	CG1N20-PS	CG1A20-PS
25	CG1N25-PS	CG1A25-PS
32	CG1N32-PS	CG1A32-PS
40	CG1N40-PS	CG1A40-PS
50	CG1N50-PS	CG1A50-PS
63	CG1N63-PS	CG1A63-PS

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)

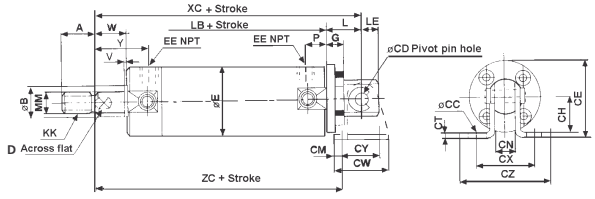
Bore Size	GA	GB	GH	Gø	EE
20	1.05	0.55	0.90	30°	10-32 UNF
25	1.17	0.55	0.98	30°	10-32 UNF
32	1.43	0.51	1.12	25°	1/8 NPT
40	1.47	0.55	1.30	20°	1/8 NPT
50	1.82	0.59	1.60	20°	1/4 NPT
63	1.82	0.59	1.87	20°	1/4 NPT

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_-_

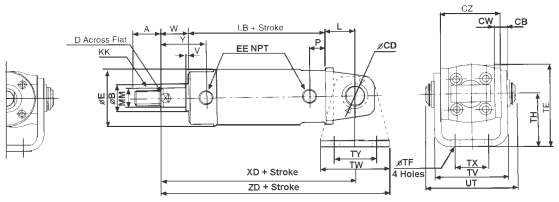


Bore Size	CC	Single Clevis (inch)								
		CE	CH	CM	CN	CT	CW	CX	CY	CZ
20	0.27	1.39	0.87	0.18	0.38	0.12	1.10	1.25	0.75	1.95
25	0.27	1.49	0.87	0.18	0.38	0.12	1.10	1.25	0.75	1.95
32	0.27	1.63	0.87	0.10	0.50	0.12	1.10	1.38	0.75	2.07
40	0.27	2.31	1.38	0.25	0.62	0.18	1.50	1.86	1.00	2.60
50	0.26	2.52	1.38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

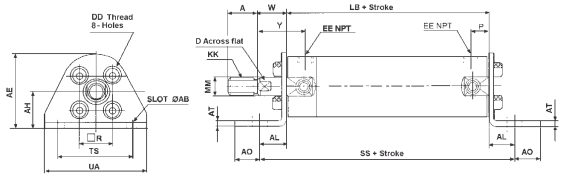


BORE SIZE	DOUBLE CLEVIS (INCH)							
	TY	TF	TV	TE	TH	TX	TW	UT
20	1.10	0.22	1.39	1.50	0.98	0.63	1.66	1.71
25	1.10	0.22	1.55	1.79	1.18	0.79	1.66	1.89
32	1.10	0.28	1.93	2.13	1.38	0.87	1.88	2.34
40	1.18	0.28	2.28	2.50	1.57	1.18	2.20	2.81
50	1.42	0.35	2.83	3.11	1.97	1.42	2.52	3.39
63	1.81	0.43	3.54	3.78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

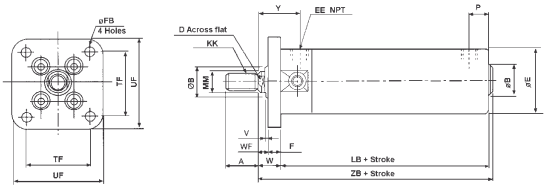
BORE SIZE	STROKE RANGE	LB	ZB
20	8.01~20	3.02	3.60
25	12.01~25	3.02	3.72
32	12.01~40	3.09	4.05
40	12.01~45	3.41	4.37
50	12.01~55	4.00	5.27
63	12.01~55	4.00	5.27

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_-_



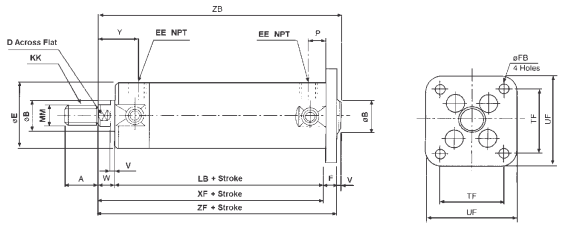
Long Stroke (inch)

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

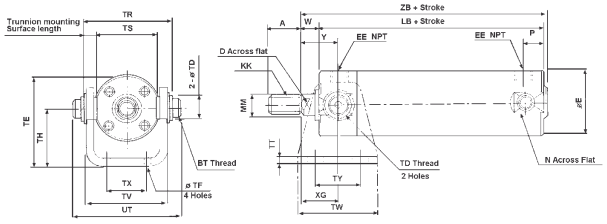
Bore Size	Max Std Stroke	A	B	D	E	EE	F	FB	KK	LB	MM	P	TF	UF	V	WF	W	Y	ZB
20	8	0.50	0.472 $^{0}_{-0.0011}$	0.24	1.02	1/8	0.24	0.22	1/4-28 UNF	2.70	0.315	0.47	1.10	1.57	0.08	0.26	0.50	0.97	3.28
25	12	0.50	0.551 $^{0}_{-0.0011}$	0.31	1.22	1/8	0.28	0.22	5/16-24 UNF	2.70	0.394	0.47	1.26	1.73	0.08	0.34	0.62	1.09	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

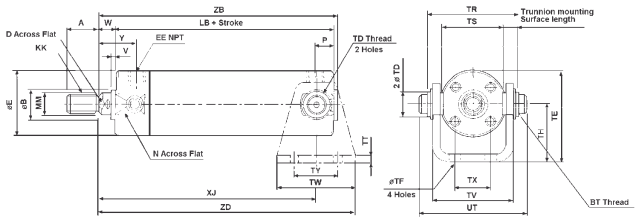
LONG STROKE (INCH)

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	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

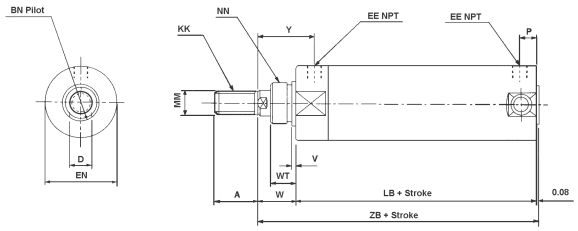
DIMENSIONS
REAR TRUNNION TYPE NC(D)GTN_-_ AND NC(D)GTA_-_



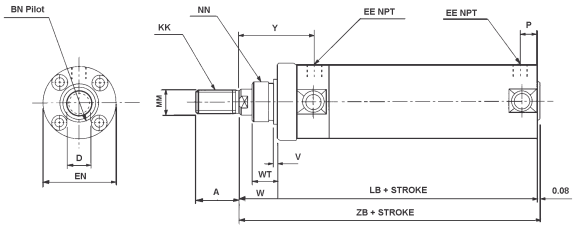
Bore Size	Max Std Stroke	A	B	D	E	EE	KK	LB	MM	N	P	V	W	XJ	Y	ZB	ZD
20	8	0.50	0.472 $^{0}_{-0.0011}$	0.24	1.02	1/8	1/4-28 UNF	2.70	0.315	0.94	0.47	0.08	0.50	2.77	0.97	3.28	3.60
25	12	0.50	0.551 $^{0}_{-0.0011}$	0.31	1.22	1/8	5/16-24 UNF	2.70	0.394	1.14	0.47	0.08	0.62	2.89	1.09	3.40	3.72
32	12	0.75	0.709 $^{0}_{-0.0011}$	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

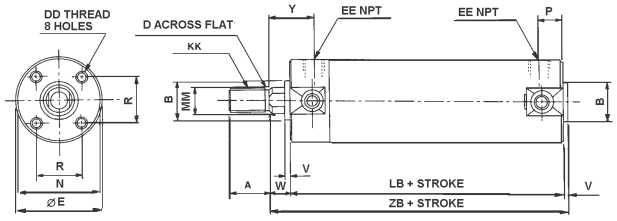
Fluid		Air
Max Operating Pressure		1MPa / 145PSI
Min Operating Pressure		0.06MPa / 8PSI
Ambient and Fluid Temperature		5~60°C / 40~140°F
Piston Speed		50~500mm/s / 2~20in/sec
Cushion		Rubber Cushion
Lubrication		Non-Lube
Non-Rotating Accuracy	ø20, ø25	±1°
	ø32	±8°
	ø40~ø63	±0.5°
Mounting Style		Basic, 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

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

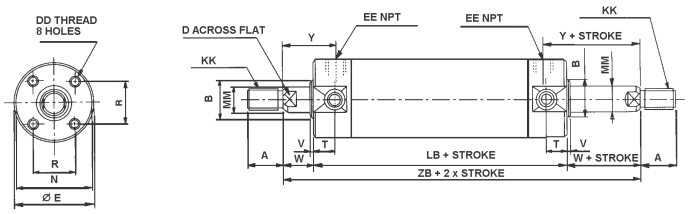
REPAIR KITS
DOUBLE ROD SERIES NCGW

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)

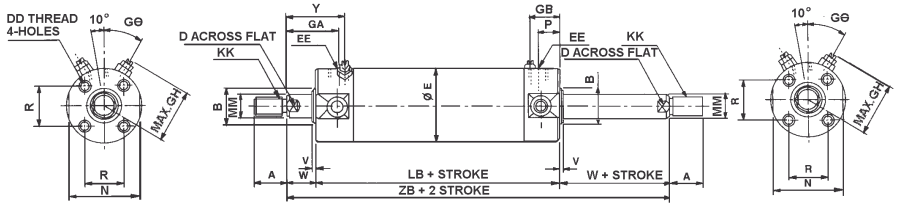
DIMENSIONS
NON-ROTATING ROD SERIES NCGW

NC(D)GWN_-_



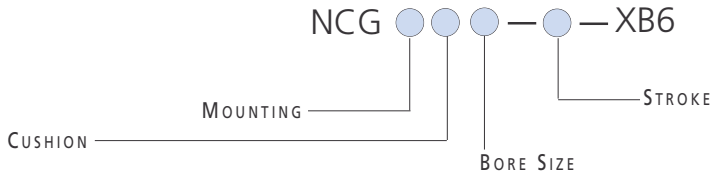
Bore Size	Max Std Stroke	MM	KK	A	B	D	E	EE	LB	N	R	T	V	W	Y	ZB
20	14	0.315	1/4-28	0.50	0.472 $^{0}_{-0.0011}$	0.24	1.02	1/8	3.02	0.94	0.55	0.43	0.08	0.50	0.97	4.02
25	16	0.394	5/16-24	0.50	0.551 $^{0}_{-0.0011}$	0.31	1.22	1/8	3.02	1.14	0.65	0.43	0.08	0.62	1.09	4.26
32	18	0.472	7/16-20	0.75	0.709 $^{0}_{-0.0011}$	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

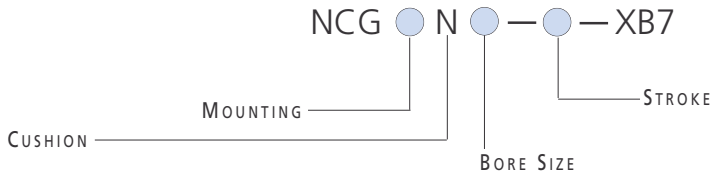


TECHNICAL SPECIFICATIONS
SERIES NCG - XB6 OPTION

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

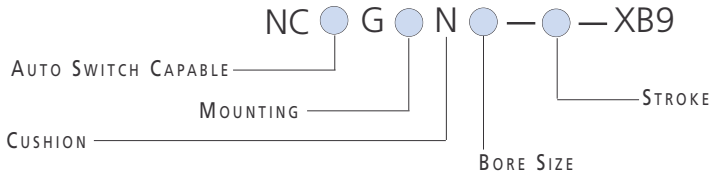


TECHNICAL SPECIFICATIONS
SERIES NCG - XB7 OPTION

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

How To Order
Series NCG Air Cylinder Options
Low Speed Cylinder - XB9 Option

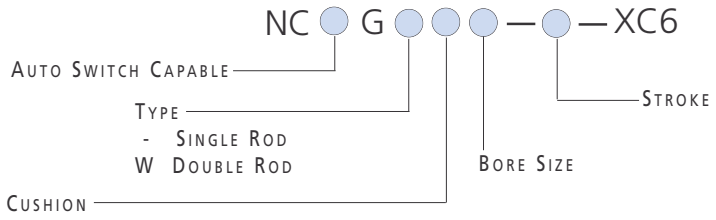


Technical Specifications
Series NCG - XB9 Option

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

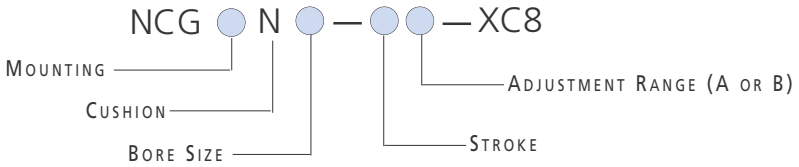


Technical Specifications
Series NCG - XC6 Option

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

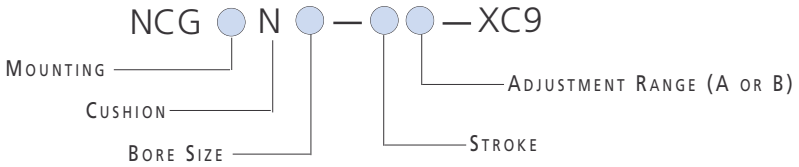


TECHNICAL SPECIFICATIONS
SERIES NCG - XC8 OPTION

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

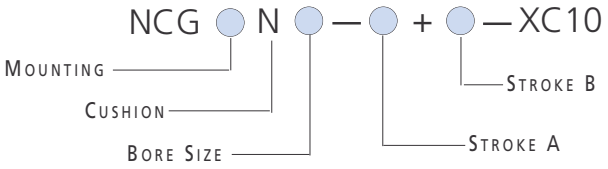


TECHNICAL SPECIFICATIONS
SERIES NCG - XC9 OPTION

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

Note: See Catalog N303 for more information

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

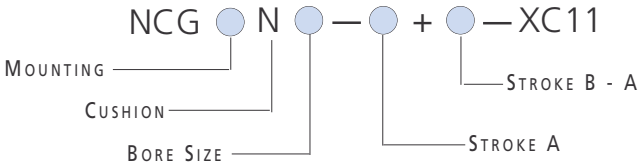


TECHNICAL SPECIFICATIONS
SERIES NCG - XC10 OPTION

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

Note: See Catalog N303 for more information

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



TECHNICAL SPECIFICATIONS
SERIES NCG - XC11 OPTION

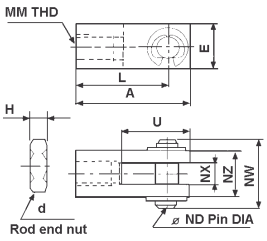
Bore (mm)	ø20, 25, 32, 40, 50, 63
Action	Double Acting
Fluid	Air
Maximum Operating Pressure	1MPa / 145 PSI
Minimum Operating Pressure	0.05MPa / 7 PSI
Piston Velocity	2 ~ 40 in/sec (5~1000mm/s)
Cushion	Rubber Cushion
Ambient and Fluid Temperature	5~60°C / 40 ~ 140°F
Stroke Range	ø20: ~8 inches (0~208mm) 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

Note: See Catalog N303 for more information

ACCESSORIES
SERIES NCG
PISTON ROD CLEVIS

Inch

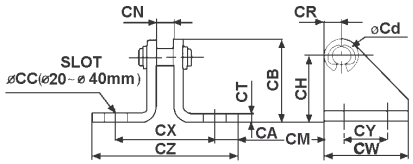
Part No	Bore (mm)	A	d	E	H	L	MM	ND	NX	NW	NZ	U
NY-075	20	1.19	1/4-28 UNF	0.51	0.16	0.94	1/4-28 UNF	0.25	0.25	0.71	0.51	0.69
NY-106	25	1.19	5/16-24 UNF	0.51	0.19	0.94	5/16-24 UNF	0.25	0.25	0.71	0.51	0.69
NY-125	32 • 40	1.69	7/16-20 UNF	0.75	0.25	1.32	7/16-20 UNF	0.38	0.38	1.02	0.75	0.94
NY-G050	50 • 63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

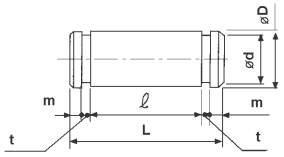
Part No	Bore (mm)	CA	CB	CC	Cd	CH	CM	CN	CR	CT	CX	CW	CY	CZ
NCG-PC020	20 & 25	0.35	1.18	0.27	0.25	0.87	0.18	0.38	0.31	0.12	1.25	1.10	0.75	1.95
NCG-PC032	32	0.35	1.18	0.27	0.25	0.87	0.18	0.50	0.31	0.12	1.37	1.10	0.75	1.07
NCG-PC040	40	0.36	1.75	0.27	0.25	1.38	0.25	0.63	0.37	0.18	1.87	1.50	1.00	2.60
NCG-PC050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

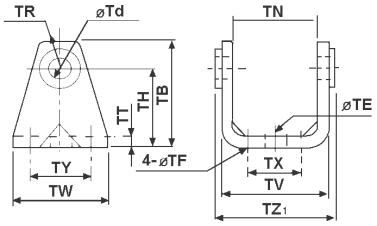
Inch

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

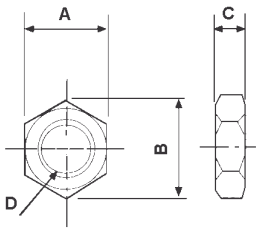
Part No	Bore (mm)	TB	øTD	øTE	øTF	TH	TN	TR	TT	TV	TW	TX	TY	TZ
NCG-P020	20	1.42	0.315	0.39	0.22	0.98	1.14	0.51	0.12	1.39	1.65	0.63	1.10	1.50
NCG-P025	25	1.69	0.394	0.39	0.22	1.18	1.30	0.59	0.12	1.55	1.65	0.79	1.10	1.65
NCG-P032	32	1.97	0.472	0.39	0.27	1.38	1.57	0.67	0.18	1.93	1.89	0.87	1.10	2.10
NCG-P040	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



MADE IN CANADA

MADE IN USA

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

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

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

Auto Switch Capable (see Accessories)

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

LEAD WIRE LENGTH
- 0.5m
L 3m

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, please consult SMC Customer Service

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

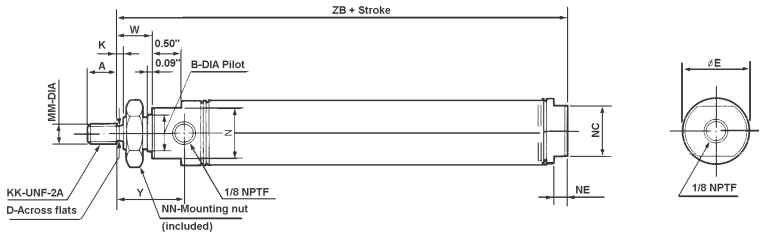
TECHNICAL SPECIFICATIONS
STAINLESS STEEL CYLINDER SERIES NCM

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

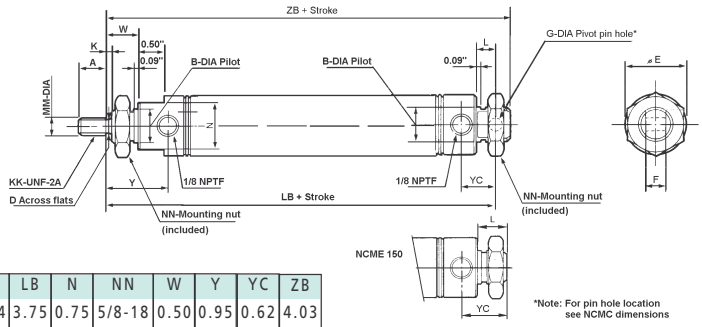
MOUNTING	STANDARD STROKE (INCH)	MAXIMUM STROKE
Front Nose Mounting	1/2, 1, 2, 3, 4, 5, 6	12
Double End Mounting Rear End Mounting	1/2, 1, 2, 3, 4, 5, 6, 7, 8, 10, 12	32
Double Rod	1/2. 1, 2, 3, 4, 5, 6	12

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



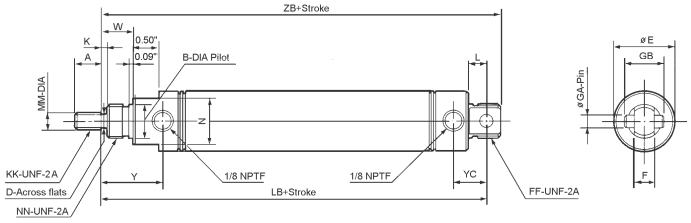
Bore (Inch)	MM	KK	A	B	D	E	K	N	NC	NE	NN	W	Y	ZB
075 (3/4")	0.250	1/4-28	0.50	0.624	-	0.86	-	0.75	0.62	0.12	5/8-18	0.50	0.95	2.97
088 (7/8")	0.250	1/4-28	0.50	0.624	-	0.93	-	0.75	0.75	0.18	5/8-18	0.50	0.95	2.94
106 (1 1/16")	0.312	5/16-24	0.50	0.624	0.25	1.12	0.12	0.88	0.88	0.24	5/8-18	0.62	1.17	3.25
125 (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

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



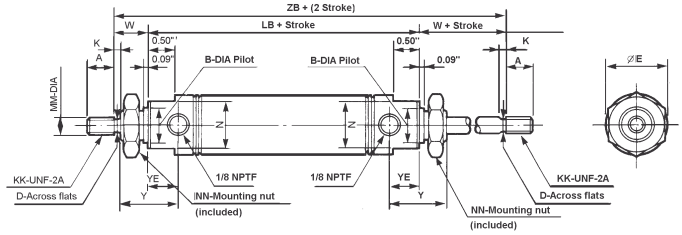
Bore (Inch)	MM	KK	A	B	D	E	F	G	K	L	LB	N	NN	W	Y	YC	ZB
075 (3/4")	0.250	1/4-28	0.50	0.624	-	0.86	0.38	0.251	-	0.34	3.75	0.75	5/8-18	0.50	0.95	0.62	4.03
088 (7/8")	0.250	1/4-28	0.50	0.624	-	0.93	0.38	0.251	-	0.34	3.56	0.75	5/8-18	0.50	0.95	0.62	3.84
106 (1 1/16")	0.312	5/16-24	0.50	0.624	0.25	1.12	0.38	0.251	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

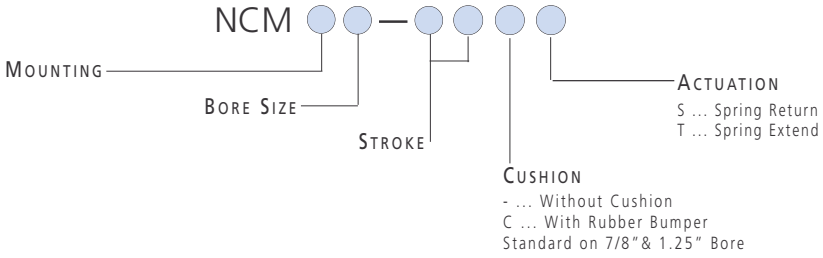
SINGLE ACTING - SPRING RETURN / SPRING EXTEND SERIES NCM

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

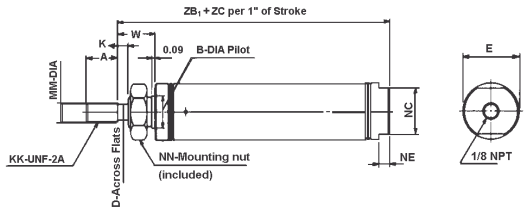
AIR CYLINDER SERIES NCM

SINGLE ACTING - SPRING RETURN / SPRING EXTEND



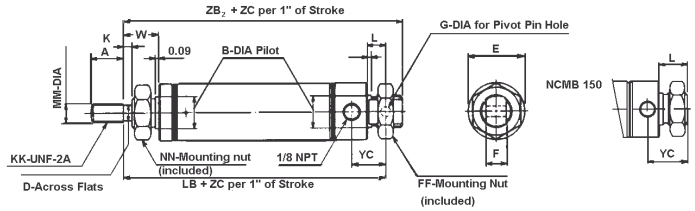
DIMENSIONS

FRONT NOSE MOUNTING / SPRING RETURN NCMB_-_S

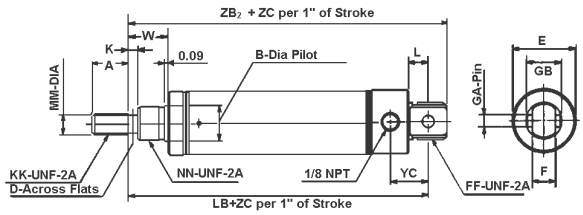


DIMENSIONS

DOUBLE END MOUNTING / SPRING RETURN NCME_-_S

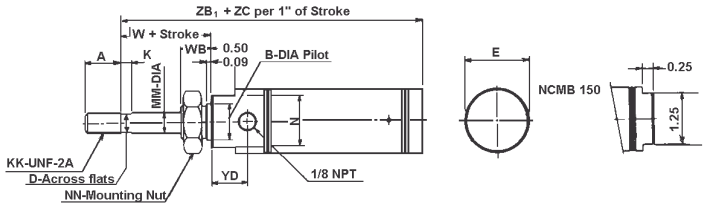


DIMENSIONS
REAR PIVOT MOUNTING / SPRING RETURN NCMC_-_S

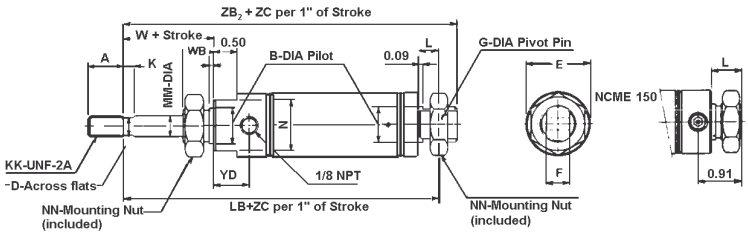


Bore (Inch)	MM	KK	A	B	D	E	F	FF	G	GA	GB	K	L	LB	NC	NE	NN	W	YC	ZB_1	ZB_2	ZB
075 (3/4")	0.250	1/4-28	0.50	0.496	-	0.86	0.38	5/8-18	0.251	0.250	0.75	-	0.34	2.28	0.62	0.12	1/2-20	0.44	0.62	1.50	2.56	1.69
088 (7/8")	0.250	1/4-28	0.50	0.624	-	0.93	0.38	5/8-18	0.251	0.250	0.75	-	0.34	2.47	0.75	0.18	5/8-18	0.50	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

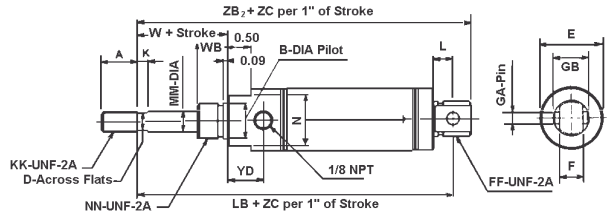
DIMENSIONS
FRONT NOSE MOUNTING / SPRING EXTEND NCMB_-_T



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

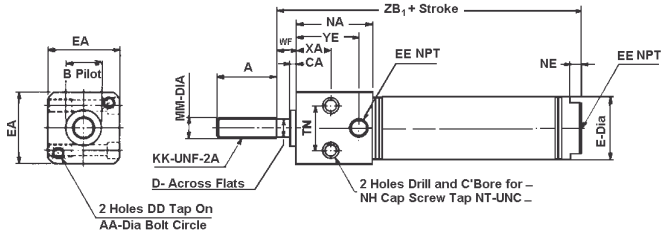
TECHNICAL SPECIFICATIONS
BLOCK TYPE MOUNT CYLINDER SERIES NCM

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

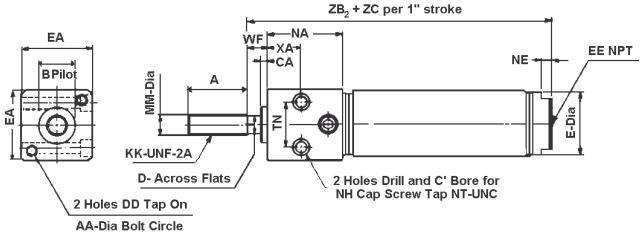
TECHNICAL SPECIFICATIONS
STANDARD STROKE LIST SERIES NCM

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

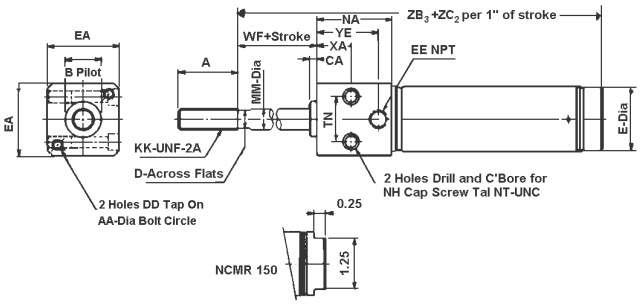
DIMENSIONS
DOUBLE ACTING NC(D)MR



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

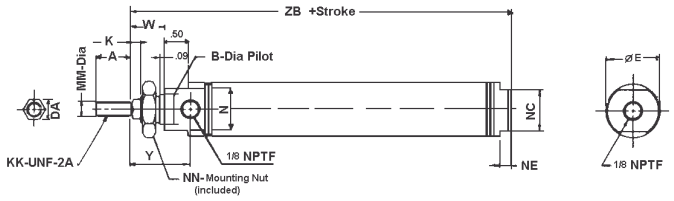
TECHNICAL SPECIFICATIONS
NON-ROTATING ROD CYLINDER SERIES NCM

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

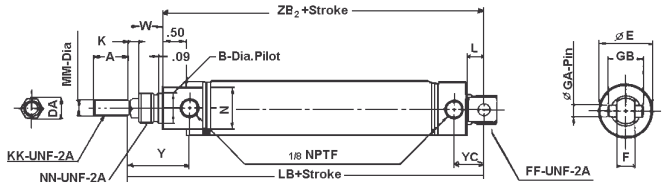
TECHNICAL SPECIFICATIONS
STANDARD STROKE LIST SERIES NCM

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	

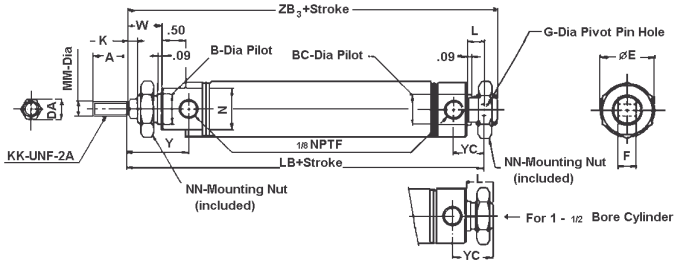
DIMENSIONS
FRONT NOSE MOUNTING NC(D)MKB



DIMENSIONS
REAR PIVOT MOUNTING NC(D)MKC

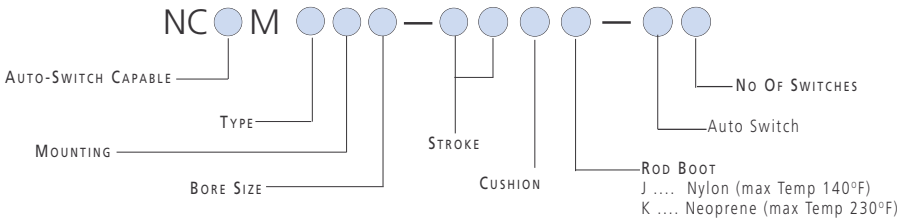


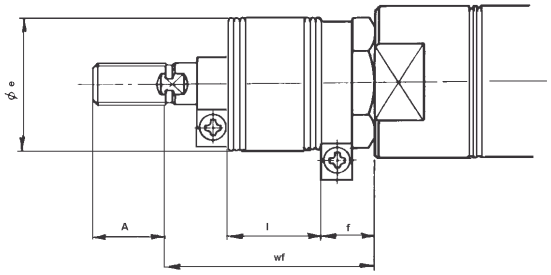
DIMENSIONS
DOUBLE END MOUNTING NC(D)MKE



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 (Inch)	A	øe	f	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
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 (Inch)	ℓ 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

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

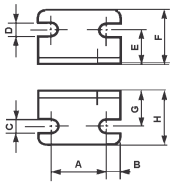
Mounting	Standard Stroke linch)	Maximum Stroke
Front Nose	1/2, 1, 1 1/2, 2, 3, 4, 5, 6	6
Double End Rear Pivot	1/2, 1, 1 1/2, 2, 3, 5, 6, 8, 10, 12	12

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		

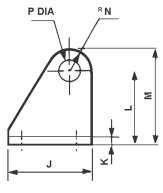
TECHNICAL SPECIFICATIONS STANDARD STROKE LIST SERIES NCM

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



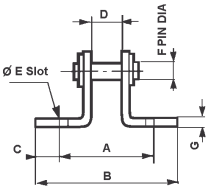
ACCESSORIES
SERIES NCM
PIVOT BRACKET (REAR PIVOT) NCMC

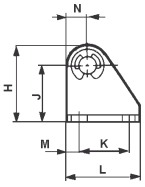
Part No	Applicable Bore	A	B	C	D	E	F	G	H	J	K	L	M	N	øP
NCM-PC075	3/4"; 7/8"; 1 1/16"; 1 1/4"	0.75	0.18	0.27	0.27	0.44	0.79	0.44	0.79	1.10	0.12	0.88	1.18	0.31	0.255
NCM-PC150	1 1/2"	1	0.25	0.27	0.27	0.62	0.98	0.62	0.98	1.50	0.12	1.38	1.75	0.38	0.38



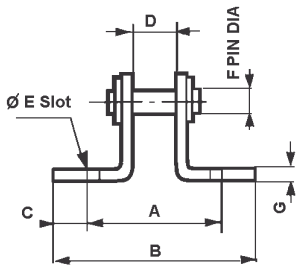
ACCESSORIES
SERIES NCM
PIVOT BRACKET (END MOUNT) NCME

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



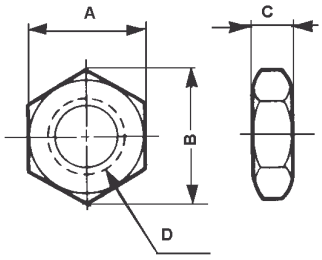


ACCESSORIES
SERIES NCM
PIVOT BRACKET (DOUBLE END) NCME



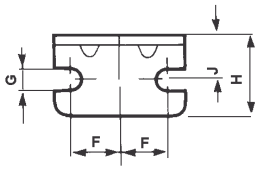
Part No	Applicable Bore	A	B	C	D	øE	F	G	H	J	K	L	M	N
NCM-PE075	3/4"; 7/8"; 1 1/16"	1.25	1.95	0.35	0.38	0.27	0.25	0.12	1.18	0.88	0.75	1.10	0.18	0.31
NCM-PE150	1 1/4"; 1 1/2"	1.38	2.08	0.35	0.50	0.27	0.25	0.12	1.18	0.88	0.75	1.10	0.18	0.31

ACCESSORIES
SERIES NCM
MOUNTING NUTS (NOSE MOUNT THREAD)

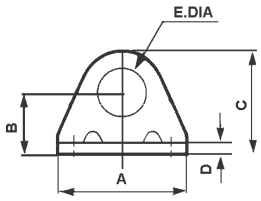


Part No	Applicable Bore	A	B	C	D
JM-08	3/4"; 7/8"; 1 1/16"	0.94	1.08	0.38	5/8-18 UNF
JM-10	1 1/4"; 1 1/2"	1.12	1.30	0.42	3/4-16 UNF

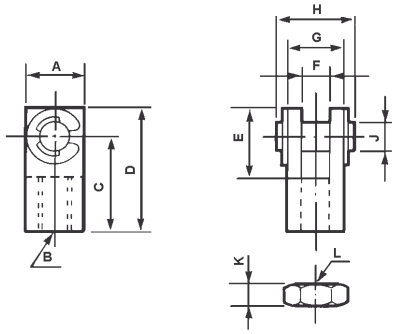
ACCESSORIES
SERIES NCM
FOOT BRACKET



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

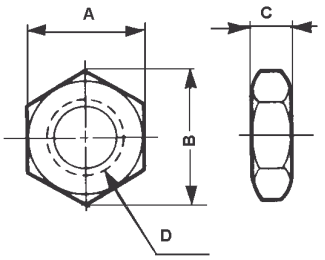


ACCESSORIES
SERIES NCM
ROD CLEVIS



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

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 *For calculation of side loading consult your SMC Sales Office.



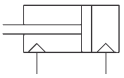
MADE IN CANADA

MADE IN USA

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

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

APPLICABLE AUTO SWITCHES
See Accessories Section

SUFFIX SYMBOL FOR CYLINDER
Gaiter
J ……Nylon tarpaulin
K ……Neoprene cloth

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

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT: E209

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

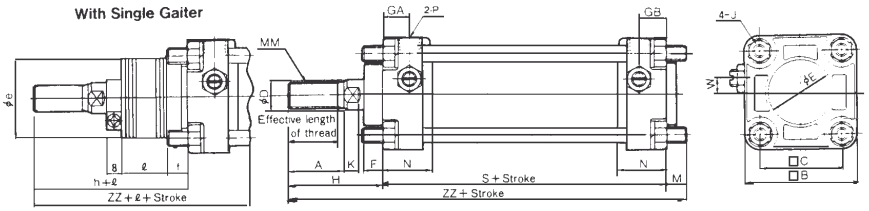
BT-03 .....(32/40Ø)
BT-04 .....(50/63Ø)
BT-06 .....(80/100Ø)

ACCESSORIES
AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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

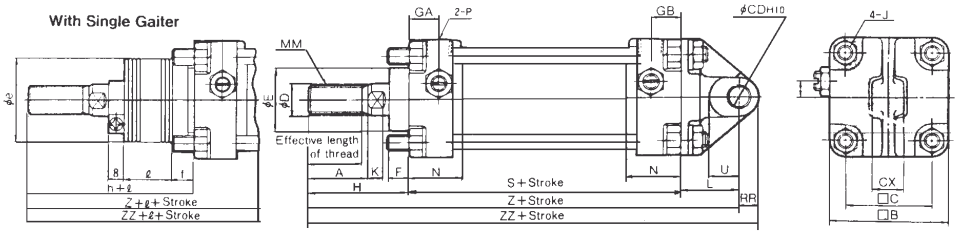


+ = Stroke addition

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

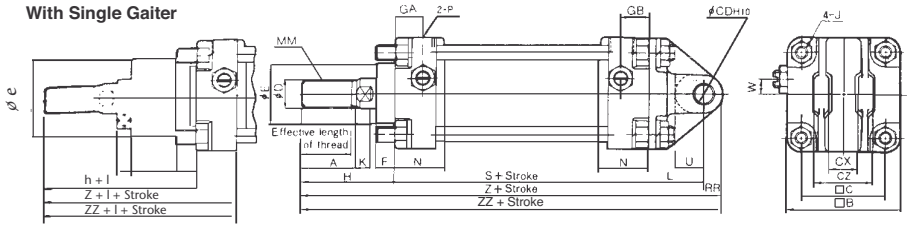
Bore size (mm)	Stroke range (mm)		Effective length of thread	A	❑ B	❑ C	øD	øE	F	GA	GB	J	K	MM	N	P	S	W
	Without gaiter	with gaiter																	
40	**~ 500**	**20 ~ 500**	**27**	**30**	**60**	**44**	**16**	**32**	**10**	**15**	**15**	**M 8 x 1.25**	**6**	**M 14 x 1.5**	**27**	**1/4**	**84**	**8**
50	**~ 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)	PR	U	ØCD^{H10}	CX	Without gaiter			With gaiter					
					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



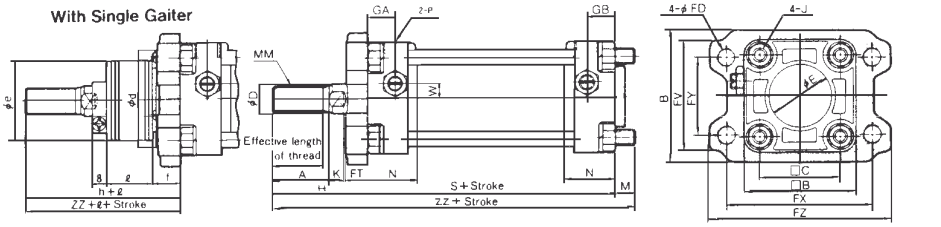
+ = Stroke addition

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



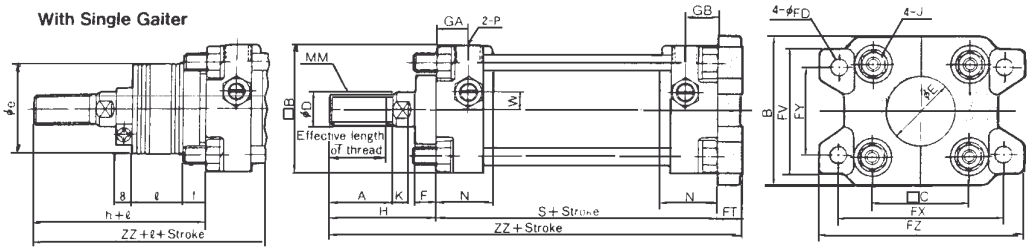
+ = Stroke addition

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



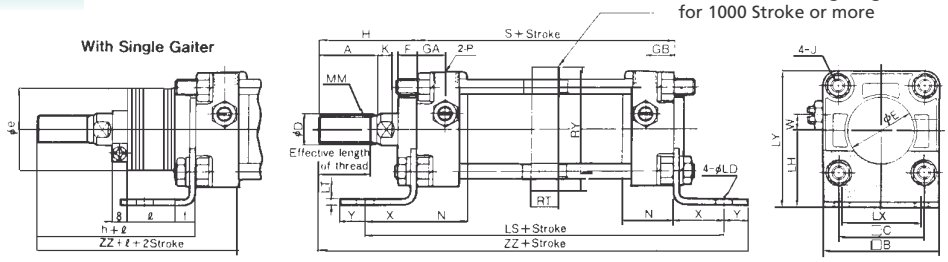
Bore size (mm)	Stroke range (mm)		Effective length of thread	A	B	□B	□C	øD	øE	F	GA	GB	J	K	MM	N	P	S	W
	Without gaiter	with gaiter																	
40	~ 500	20 ~ 500	27	30	71	60	44	16	32	10	15	15	M 8 x 1.25	6	M 14 x 1.5	27	1/4	84	8
50	~ 600	20 ~ 600	32	35	81	70	52	20	40	10	17	17	M 8 x 1.25	7	M 18 x 1.5	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

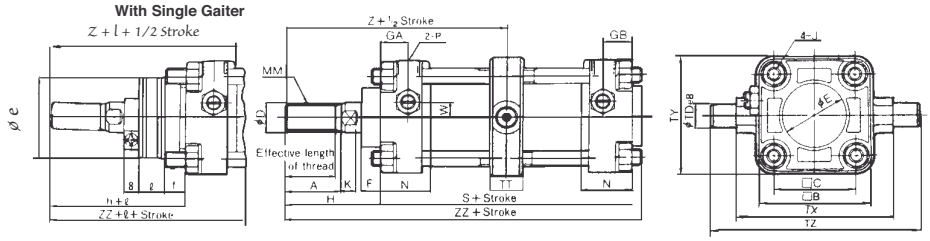
Bore size (mm)	X	Y	øLD	LH	LS	LT	LX	LY	Without gaiter		With gaiter				
									H	ZZ	øe	f	h	ℓ	ZZ
40	27	13	9.0	40	138	3.2	42	70	51	175	43	11.2	59	1/4 stroke	183
50	27	13	9.0	45	144	3.2	50	80	58	188	52	11.2	66		196
63	34	16	11.5	50	166	3.2	59	93	58	206	52	11.2	66		214
80	44	16	13.5	65	204	4.5	76	116	71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

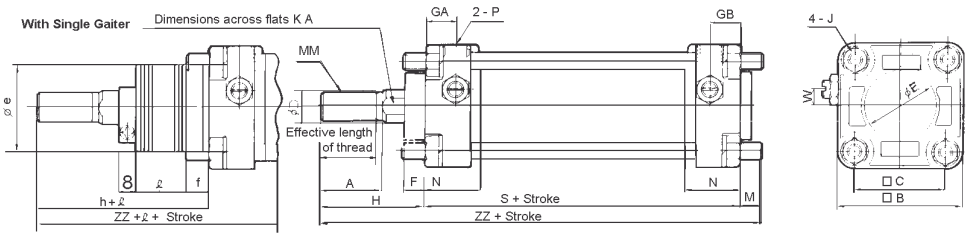
DIMENSIONS
TRUNNION - C□A1T



Bore size (mm)	Stroke range (mm) Without gaiter	Stroke range (mm) 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		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	1/4 Stroke	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

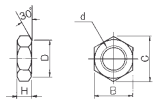


Bore size (mm)	Stroke range (mm) No gaiter	Gaiter	Effective length of thread	A	B	C	ØD	ØE	F	GA	GB	J	KA	MM	N	P	S	W
40	~500	20~500	27	30	60	44	16	32	10	15	15	M8x1.25	14	M14x1.5	27	1/4	84	8
50	~600	20~600	32	35	70	52	20	40	10	17	17	M8x1.25	18	M18x.5	30	3/8	90	0
63	~600	20~600	3	35	85	64	20	40	10	17	17	M10x1.25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

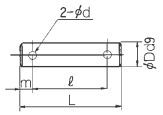
DIMENSIONS
PISTON ROD MOUNTING ACCESSORIES

ROD END NUT (STANDARD ACCESSORIES)



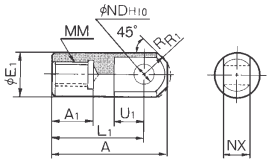
Part No.	Applicable bore size (mm)	d	H	B	C	D
NT-04	40	M 14 x 1.5	8	22	25.4	21
NT-05	50•63	M 18x 1.5	11	27	31.2	26
NT-08	80	M 22 x 1.5	13	32	37.0	31
NT-10	100	M 26 x 1.5	16	41	47.3	39

CLEVIS PIN



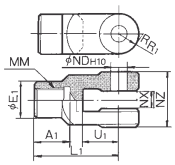
Part No.	Applicable bore size (mm)		Dd9	L	l	m	d Through hole dia.	Applicable split pin
	Clevis	Knucle						
CDP-2	40	-	10-0.040 -0.076	41.2	33.2	4	2-3	3x18 I
CDP-3	50	40•50•63	12 -0.050 -0.093	49.7	41.7	4	2-3	3x18 I
CDP-4	63	-	16 -0.050 -0.093	64	54	5	2-4	4x25 I
CDP-5	-	80	18 -0.050 -0.093	70	60	5	2-4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

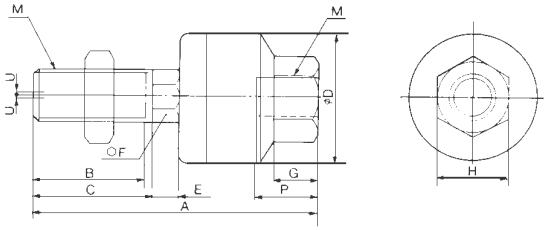
Y TYPE DOUBLE ROD CLEVIS



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

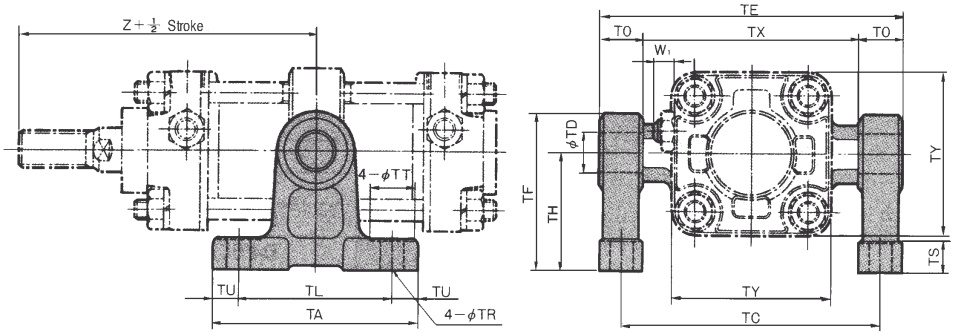
FLOATING JOINT

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

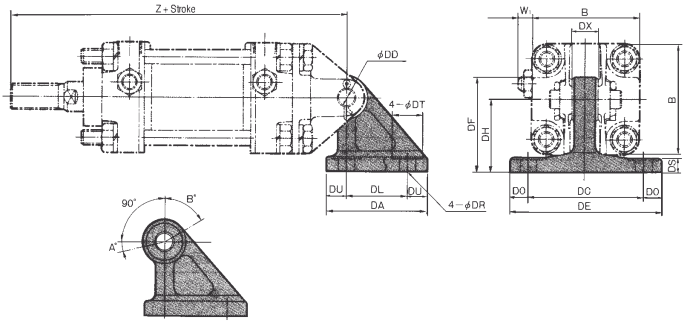
DIMENSIONS
TRUNNION MOUNTING BRACKET



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	DD-H10
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

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.*



MADE IN CANADA

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
Please contact SMC Customer Service

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
* *(Contact SMC Customer Service)*

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

AUTO SWITCH
For further information, please consult SMC Customer Service.

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 Please Consult SMC Customer Service.
**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 Consult SMC Customer Service For larger Sizes

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N304-EX

AIR CYLINDER SERIES NCA1 HEAVY DUTY LARGE BORE AIR CYLINDERS

MADE IN CANADA

- 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

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
Please contact SMC Customer Service

STANDARD STROKE
Inches
Example: 04 = 4" Stroke

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

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

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 *
** Contact SMC Customer Service*

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

AUTO SWITCH
For further information, please consult SMC Customer Service.

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 Please Consult SMC Customer Service
**Note: Cushions not recommended for Strokes below 3"

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	Please contact SMC Customer Service for Larger Sizes

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N304-EX

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

MADE IN CANADA

MADE IN USA



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

AUTO SWITCH
See Auto Switch Accessories

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

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

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	Consult SMC
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	

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N304 & CAT:N304-EX

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. For Option Kits, please contact your local SMC Sales office. One Kit required per cylinder.

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")

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N304 & CAT:N304-EX

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	-

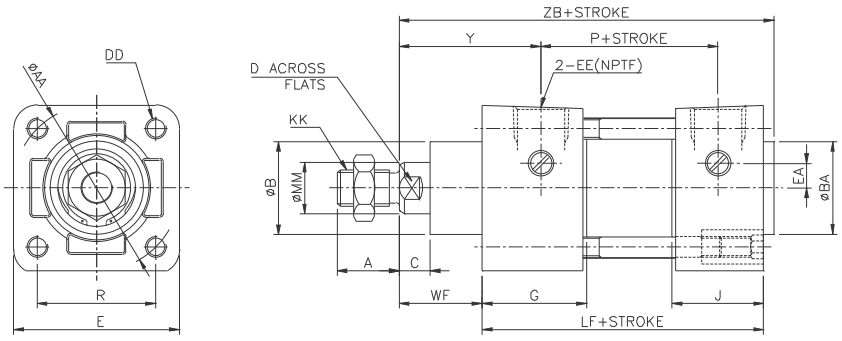
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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.
Please consult SMC Customer Service

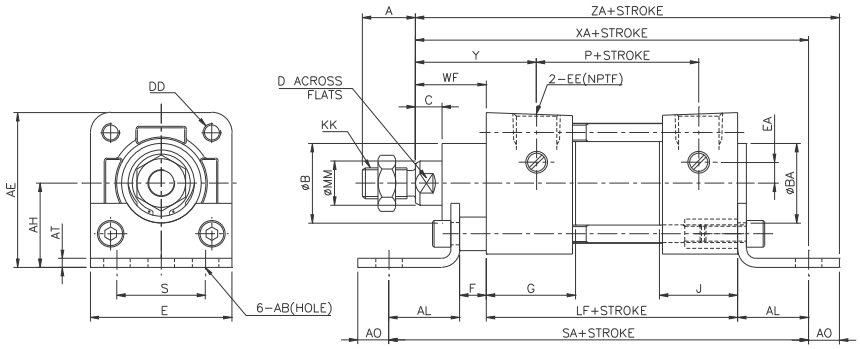
Dimensions
Basic Type NC□A1B



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

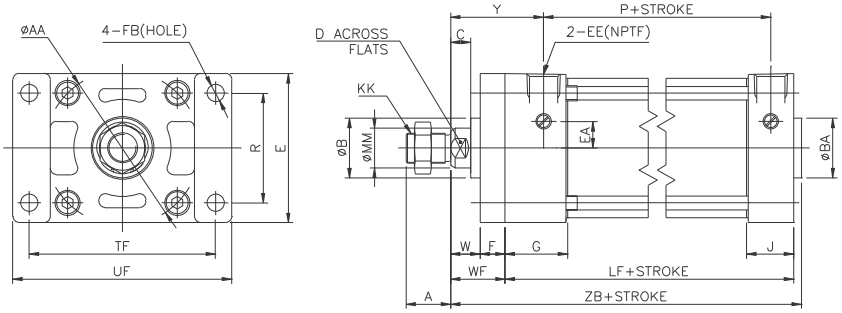
Dimensions
Foot Mounting Type NC□A1L



+ = 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

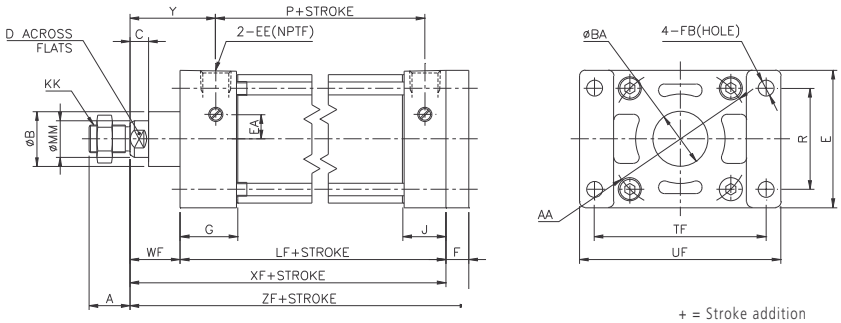
Dimensions
Front Flange Type NC□A1F



+ = 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

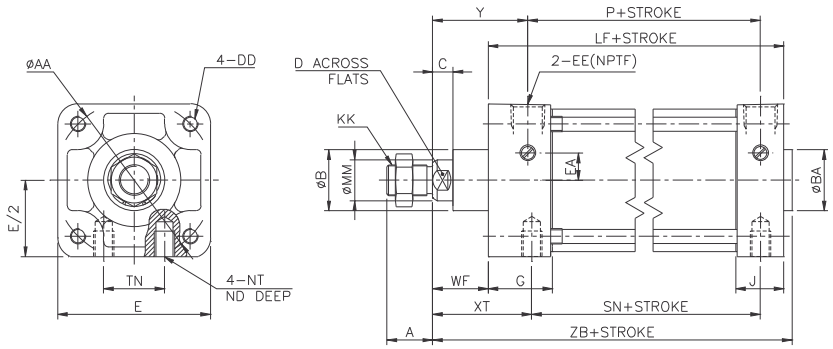
DIMENSIONS
REAR FLANGE TYPE NC□A1G



+ = 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

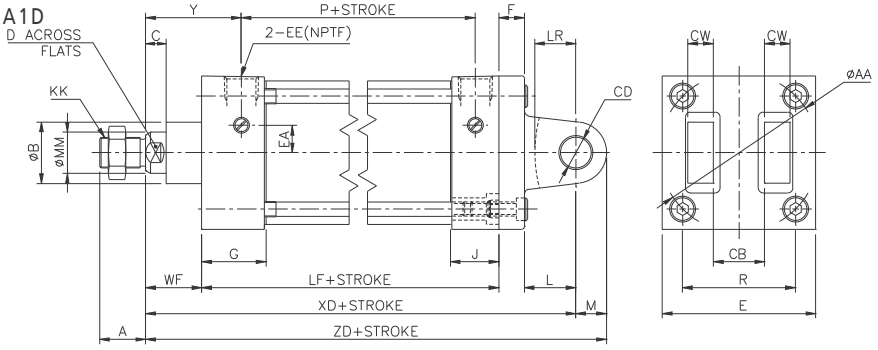
DIMENSIONS
SIDE-TAPPED TYPE NC□A1R



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

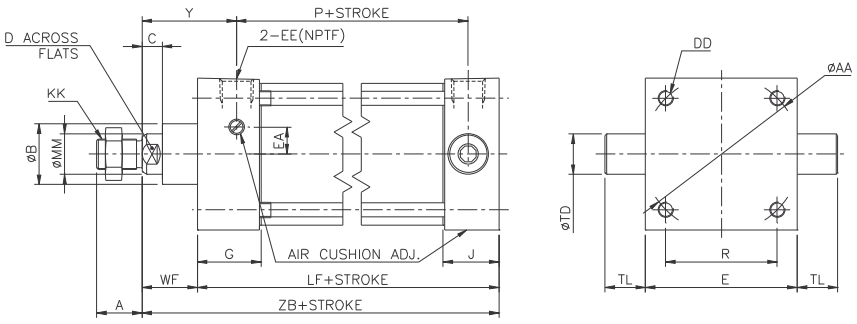
MORE DIMENSIONS
SEE NEXT PAGE ☞

DIMENSIONS
DETACHABLE REAR CLEVIS TYPE - NC□A1D



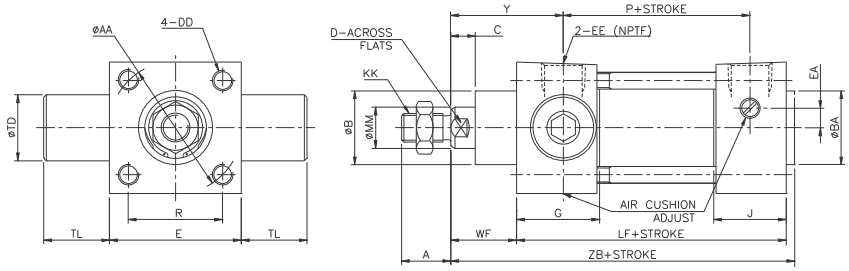
BORE (INCH)	MM	KK	A	AA	B	C	CB	CD	CW	D	DD	E	EA	EE	F	G	J	L	LR	M	WF	XD	Y	LF	P	ZD
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	3/4	1/2	1/2	9/16	1/4-28	2	0.3	3/8	3/8	1.26	1.1	3/4	5/8	1/2	1	5 3/4	1.71	3 5/8	2.36	6 1/4
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	3/4	1/2	1/2	9/16	5/16-24	2 1/2	0.3	3/8	3/8	1.26	1.06	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

Dimensions
Head Trunnion Type NC□A1J



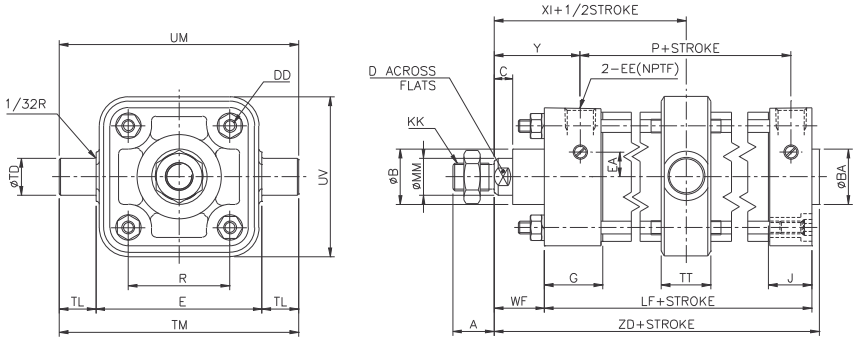
Bore (Inch)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	J	R	TD $^{0}_{0.001}$	TL	WF	Y	LF	P	ZB
150 (1.5″)	5/8	7/16-20	3/4	2.02	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	1.1	1.43	1	1	1	1.71	3 5/8	2.36	4 5/8
200 (2″)	5/8	7/16-20	3/4	2.6	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	1.06	1.84	1	1	1	1.71	3 5/8	2.40	4 5/8
250 (2.5″)	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



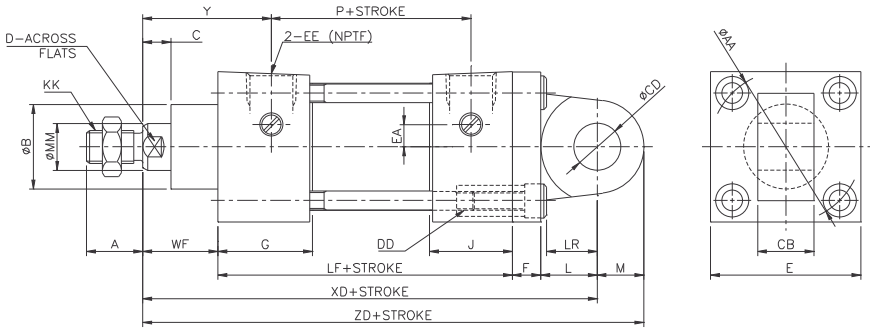
Bore (Inch)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	G	J	R	TD $^{0}_{0.001}$	TL	WF	Y	LF	P	ZB
150 (1.5″)	5/8	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	1.1	1.43	1	1	1	1.71	3 5/8	2.36	4 3/4
200 (2″)	5/8	7/16-20	3/4	2.6	1 1/8	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	1.06	1.84	1	1	1	1.71	3 5/8	2.40	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



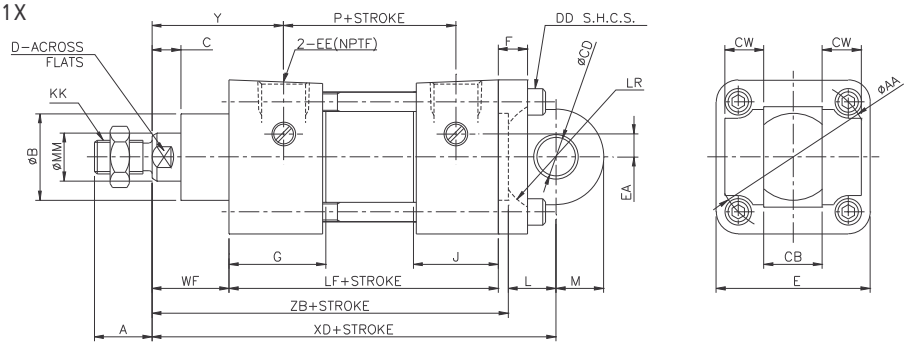
Bore (Inch)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	G	J	R	TD $^{0}_{0.001}$	TL	TM	TT	UM	UV	WF	Y	LF	P	XI	ZB
150 (1.5″)	5/8	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	1.1	1.43	1	1	2 1/2	1.18	4 1/2	2	1	1.71	3 5/8	2.36	2.89	4 3/4
200 (2″)	5/8	7/16-20	3/4	2.6	1 1/8	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	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



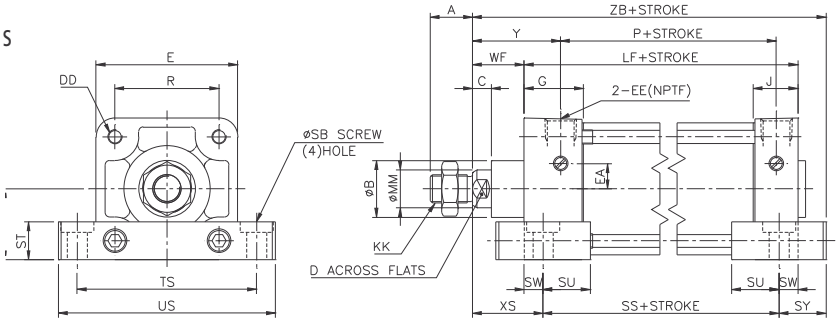
BORE (INCH)	MM	KK	A	AA	B	C	CB	CD	D	DD	E	EA	EE	F	G	J	L	LR	M	WF	XD	Y	LF	P	ZD
150 (1.5″)	5/8	7/16-20	3/4	2.02	1 1/8	3/8	3/4	1/2	9/16	1/4-28	2	0.3	3/8	3/8	1.26	1.1	3/4	5/8	1/2	1	5 3/4	1.71	3 5/8	2.36	6 1/4
200 (2″)	5/8	7/16-20	3/4	2.6	1 1/8	3/8	3/4	1/2	9/16	5/16-24	2 1/2	0.3	3/8	3/8	1.26	1.06	3/4	5/8	1/2	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



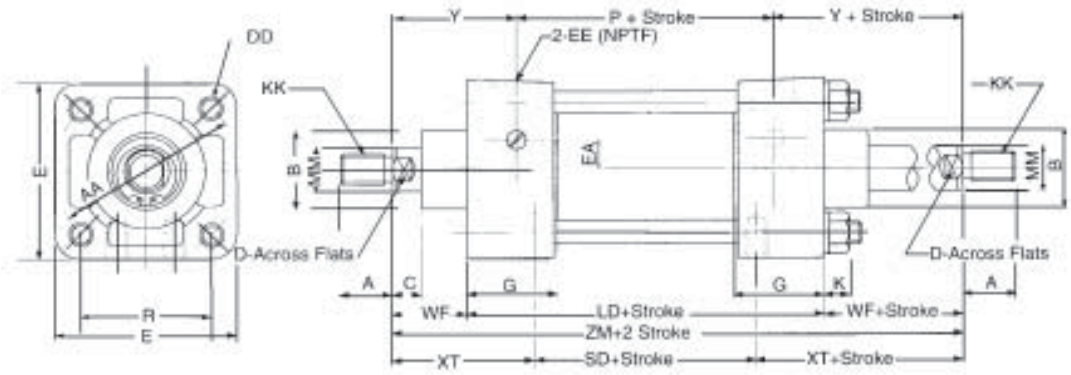
BORE (INCH)	MM	KK	A	AA	B	C	CB	CD	CW	D	DD	E	EA	EE	F	G	J	L	LR	M	WF	XD	Y	LF	P	ZB
150 (1.5″)	5/8	7/16-20	3/4	2.02	1 1/8	3/8	3/4	1/2	1/2	9/16	1/4-28	2	0.3	3/8	3/8	1.26	1.1	0.62	0.75	0.62	1	5 3/8	1.71	3 5/8	2.36	4.75
200 (2″)	5/8	7/16-20	3/4	2.6	1 1/8	3/8	3/4	1/2	1/2	9/16	5/16-24	2 1/2	0.3	3/8	3/8	1.26	1.06	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



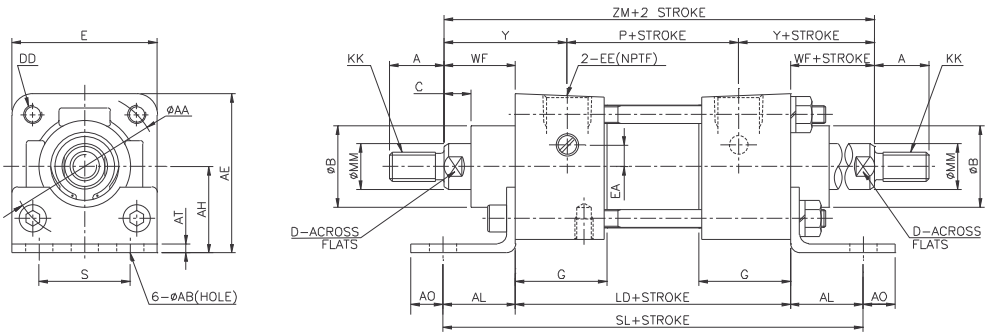
BORE (INCH)	MM	KK	A	B	C	D	DD	E	EA	EE	G	J	LF	P	R	SB	SS	ST	SU	SW	SY	TS	US	WF	XS	Y	ZB
150 (1.5″)	5/8	7/16-20	3/4	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	1.1	3.63	2.36	1.43	3/8	2.88	5/8	0.94	3/8	0.94	2.75	3.50	1	1.38	1.71	5.19
200 (2″)	5/8	7/16-20	3/4	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	1.06	3.63	2.4	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

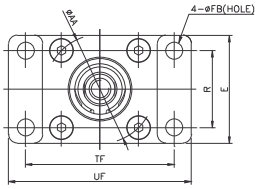
Dimensions
Double Rod Foot Mounting Type NC□A1WL

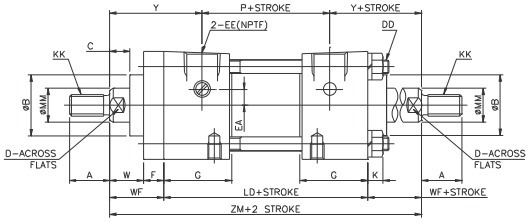


Bore (Inch)	MM	KK	A	AA	AB	AE	AH	AL	AO	AT	B	BA	C	D	DD	E	EA	EE	G	K	S	WF	Y	P	LD	SL	ZM
150 (1.5")	5/8	7/16-20	3/4	2.02	3/8	2 3/16	1 3/16	1	7/16	1/8	1 1/8	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	0.281	1 1/4	1	1.71	2.36	3.78	5.78	5.78
200 (2")	5/8	7/16-20	3/4	2.6	3/8	2 11/16	1 7/16	1	9/16	1/8	1 1/8	1 1/8	3/8	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 ☞

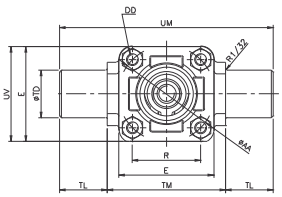
DIMENSIONS
DOUBLE ROD FRONT FLANGE MOUNTING TYPE NC□A1WF

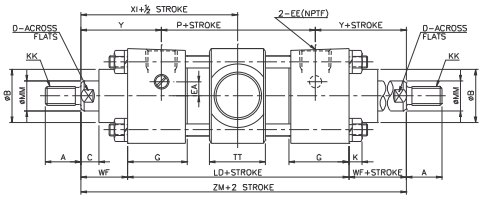




BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	F	FB	G	K	R	TF	UF	W	WF	Y	LD	P	ZM
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	0.375	0.312	1.26	0.281	1.43	2.75	3.375	0.625	1	1.71	3.78	2.36	5.78
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	0.375	0.375	1.26	0.343	1.84	3.375	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

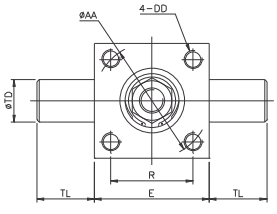
DIMENSIONS
DOUBLE ROD CENTER TRUNNION MOUNTING TYPE NC□A1WT

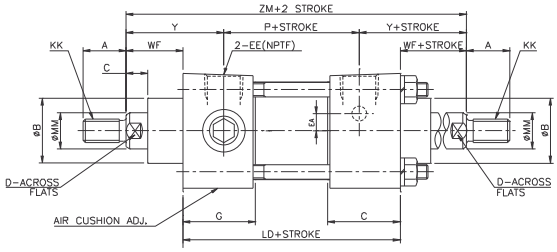




BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	K	R	TD 0 0.001	TL	TM	TT	UM	UV	WF	Y	LD	P	XI	ZM
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	0.375	9/16	1/4-28	2	0.3	3/8	1.26	0.281	1.43	1	1	2.5	1.18	4.5	2	1	1.71	3.78	2.36	2.89	5.78
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	0.375	9/16	5/16-24	2 1/2	0.3	3/8	1.26	0.343	1.84	1	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

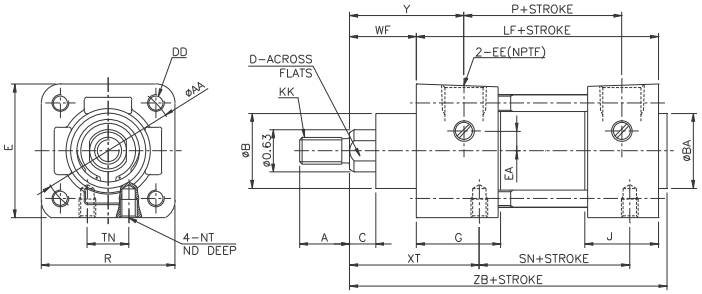
DIMENSIONS
DOUBLE ROD ROD TRUNNION TYPE NC□A1WU





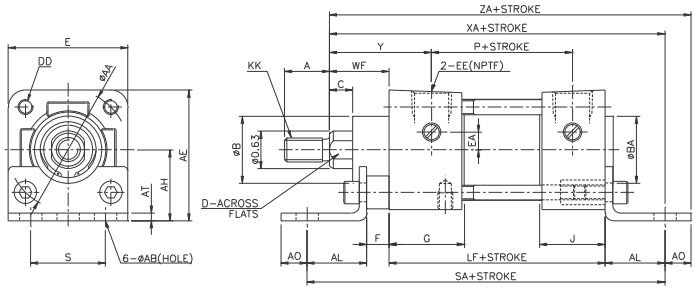
BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	K	LD	P	R	TD 0 0.001	TL	WF	Y	ZM
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	0.281	3.78	2.36	1.43	1	1	1	1.71	5.78
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	0.343	3.82	2.4	1.84	1	1	1	1.71	5.82
250 (2.5")	5/8	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

DIMENSIONS
NON-ROTATING ROD BASIC TYPE - NC□A1KB



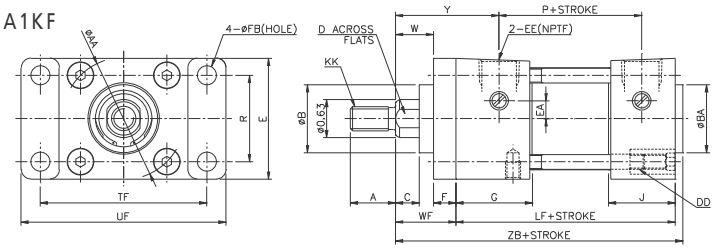
BORE (INCH)	KK	A	AA	B	BA	C	D	DD	E	EA	EE	G	J	R	WF	Y	LF	P	ZB	TN	XT	SN
150 (1.5")	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	0.551	1/4-28	2	0.3	3/8	1.26	1.1	1.43	1	1.71	3 5/8	2.36	4 3/4	5/8	1 15/16	2 1/4
200 (2")	7/16-20	3/4	2.6	1 1/8	1 1/8	3/8	0.551	5/16-24	2 1/2	0.3	3/8	1.26	1.06	1.84	1	1.71	3 5/8	2.40	4 3/4	7/8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

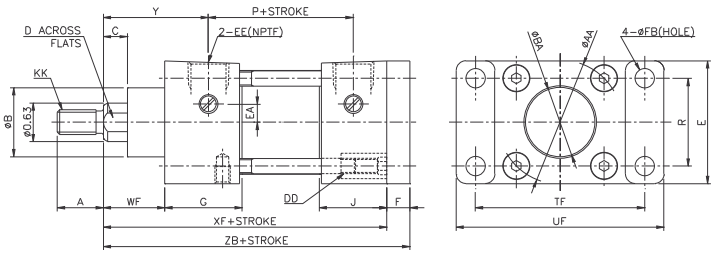
DIMENSIONS
NON-ROTATING ROD FRONT FLANGE MOUNTING TYPE NC□A1KF



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

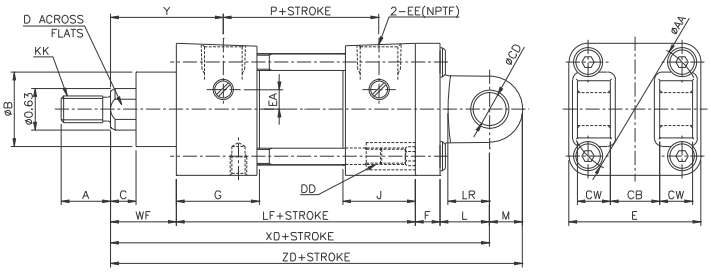
MORE DIMENSIONS
SEE NEXT PAGE ☞

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



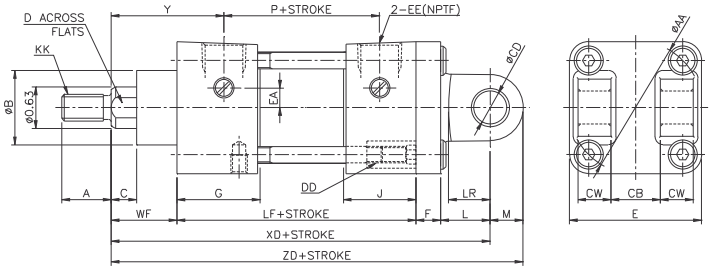
BORE (INCH)	KK	A	AA	B	BA	C	D	DD	E	EA	EE	F	FB	G	J	R	TF	UF	WF	Y	P	XF	ZF
150 (1.5")	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	0.551	1/4-28	2	0.3	3/8	0.375	0.312	1.26	1.1	1.43	2.75	3.375	1	1.71	2.36	4.675	5
200 (2")	7/16-20	3/4	2.6	1 1/8	1 1/8	3/8	0.551	5/16-24	2.5	0.3	3/8	0.375	0.375	1.26	1.06	1.84	3.375	4.125	1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



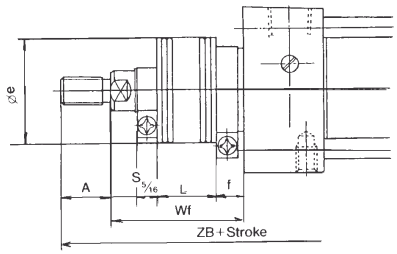
BORE (INCH)	KK	A	AA	B	BA	C	D	DD	E	EA	EE	G	J	R	TD $^{0}_{0.001}$	TL	TM	TT	UM	UV	WF	Y	LF	P	XI	ZB
150 (1.5")	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	0.551	1/4-28	2	0.3	3/8	1.26	1.1	1.43	1	1	2.5	1.18	4.5	2	1	1.71	3 5/8	2.36	2.89	4.75
200 (2")	7/16-20	3/4	2.60	1 1/8	1 1/8	3/8	0.551	5/16-24	2.5	0.3	3/8	1.26	1.06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

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	ℓ 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

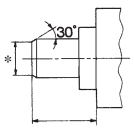
TO CHANGE ROD THREAD FROM STANDARD THREAD FORM, USE THE FOLLOWING FORMAT:

How To Order

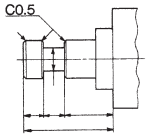
The NCA1 series cylinders are available with a variety of special rod end modifications to suit your application through our simple special ordering process. The Simple Special System is a global effort to quickly and efficiently respond to our customer requests for a non standard catalog option. The 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

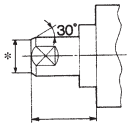
Symbol: A1



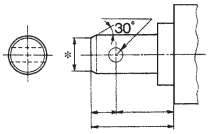
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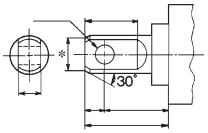
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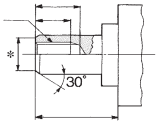
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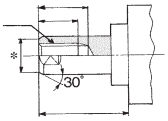
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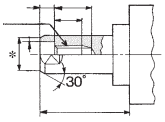
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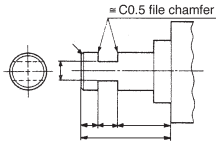
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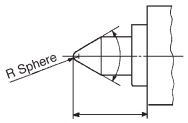
Symbol: A8



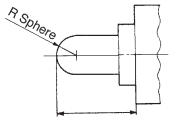
Symbol: A9



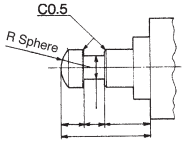
Symbol: A10



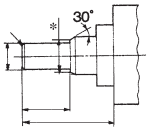
Symbol: A11



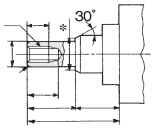
Symbol: A12



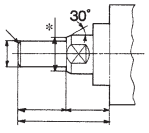
Symbol: A13



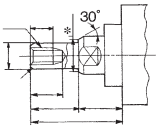
Symbol: A14



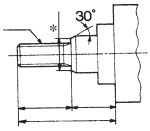
Symbol: A15



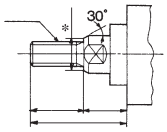
Symbol: A16



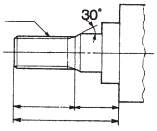
Symbol: A17



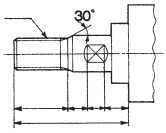
Symbol: A18



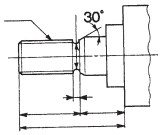
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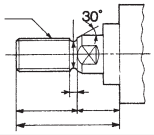
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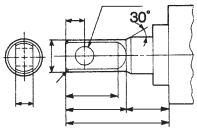
Symbol: A21



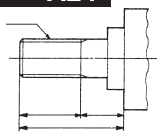
Symbol: A22



Symbol: A23

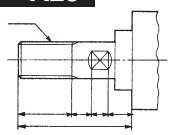


Symbol: A24



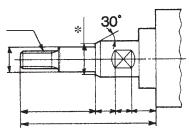
Note) Series CQ2 is not available.

Symbol: A25

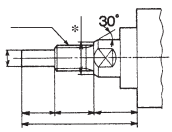


Note) Series CQ2 is not available.

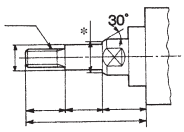
Symbol: A26



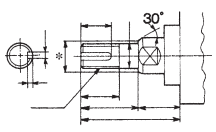
Symbol: A27



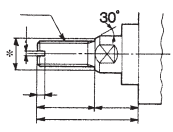
Symbol: A28



Symbol: A29



Symbol: A30



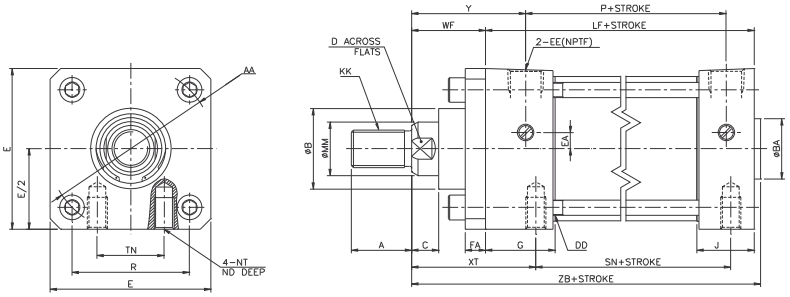
TECHNICAL SPECIFICATIONS

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

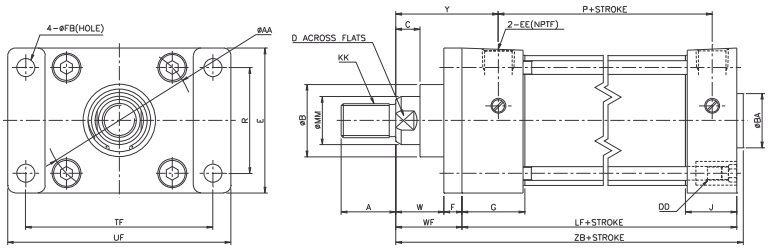
OVERSIZED ROD BASIC TYPE NC□A1B (XB5)



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

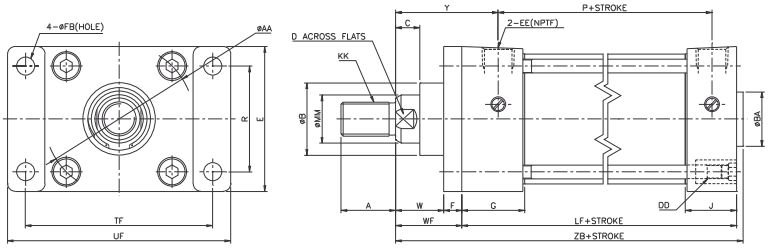
DIMENSIONS

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	115/16	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

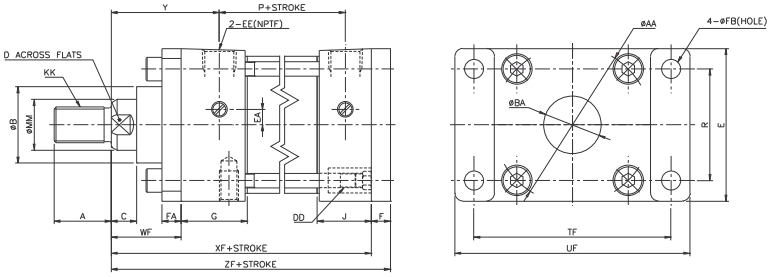
DIMENSIONS
OVERSIZED ROD FRONT FLANGE MOUNTING TYPE NC□A1F (XB5)



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

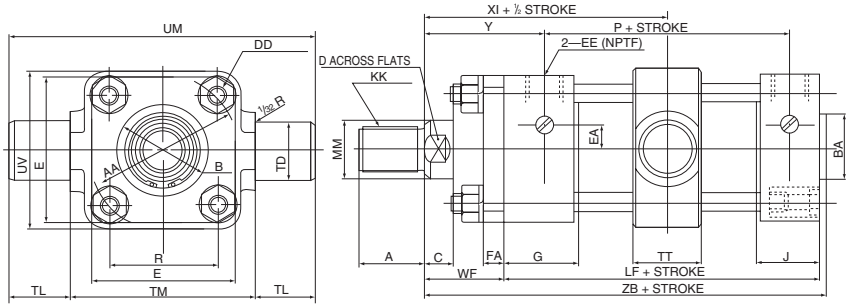
DIMENSIONS
OVERSIZED ROD REAR FLANGE MOUNTING TYPE NC□A1G (XB5)

MORE DIMENSIONS
SEE NEXT PAGE ☞



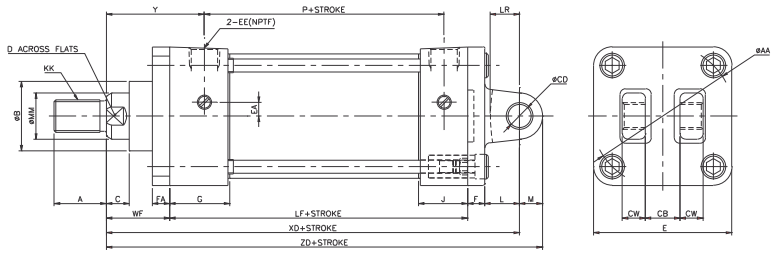
BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	F	FA	G	J	R	TF	UF	WF	Y	P	XF	ZF
200 (2")	1	3/4-16	1 1/8	2.6	1.5	1 1/8	1/2	7/8	5/16-24	2 1/2	0.3	3/8	3/8	3/8	1.26	1.06	1.84	3 3/8	4 1/8	1 3/8	2.09	2.40	5	5 3/8
250 (2.5")	1	3/4-16	1 1/8	3.1	1.5	1 1/8	1/2	7/8	5/16-24	3	0	3/8	3/8	3/8	1.3	1.06	2.19	3 7/8	4 5/8	1 3/8	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)



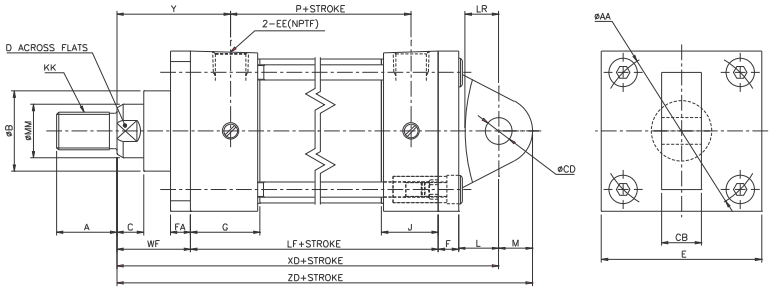
BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	FA	G	J	R	TD $^{0}_{0.001}$	TL	TM	TT	UM	UV	WF	Y	LF	P	XI	ZB
200 (2")	1	3/4-16	1 1/8	2.6	1.5	1 1/8	1/2	7/8	5/16-24	2 1/2	0.3	3/8	3/8	1.26	1.06	1.84	1	1	3	1.18	5	2.56	1 3/8	2.09	3 5/8	2.40	3.29	5 1/8
250 (2.5")	1	3/4-16	1 1/8	3.1	1.5	1 1/8	1/2	7/8	5/16-24	3	0	3/8	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)



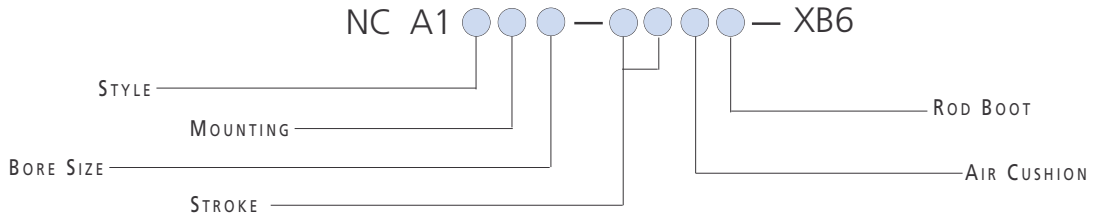
Bore (Inch)	MM	KK	A	AA	B	C	CB	CD	CW	D	DD	E	EA	EE	F	FA	G	J	L	LR	M	WF	XD	Y	LF	P	ZD
200 (2″)	1	3/4-16	1 1/8	2.6	1.5	1/2	3/4	1/2	1/2	7/8	5/16-24	2 1/2	0.3	3/8	3/8	3/8	1.26	1.06	3/4	5/8	1/2	1 3/8	6 1/8	2.09	3 5/8	2.40	6 5/8
250 (2.5″)	1	3/4-16	1 1/8	3.1	1.5	1/2	3/4	1/2	1/2	7/8	5/16-24	3	0	3/8	3/8	3/8	1.3	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

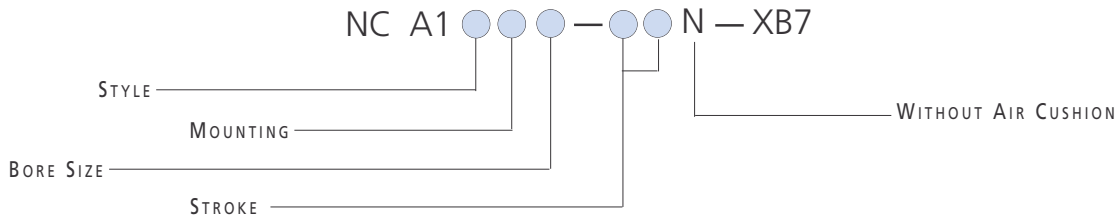
HOW TO ORDER
SERIES NCA1 AIR CYLINDER OPTIONS
HIGH TEMPERATURE - XB6 OPTION



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

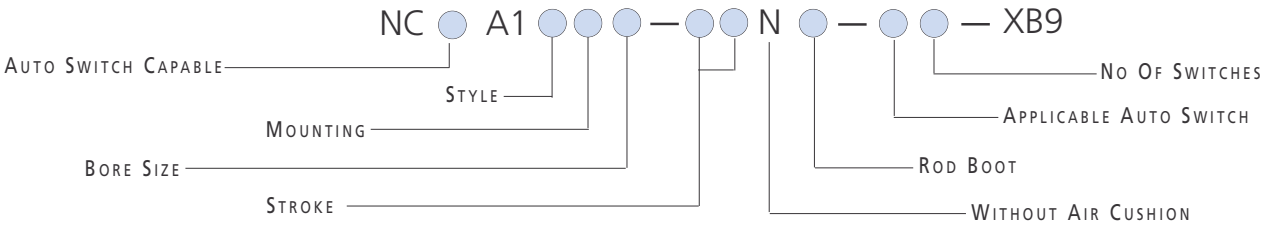
HOW TO ORDER
SERIES NCA1 AIR CYLINDER OPTIONS
LOW TEMPERATURE - XB7 OPTION



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

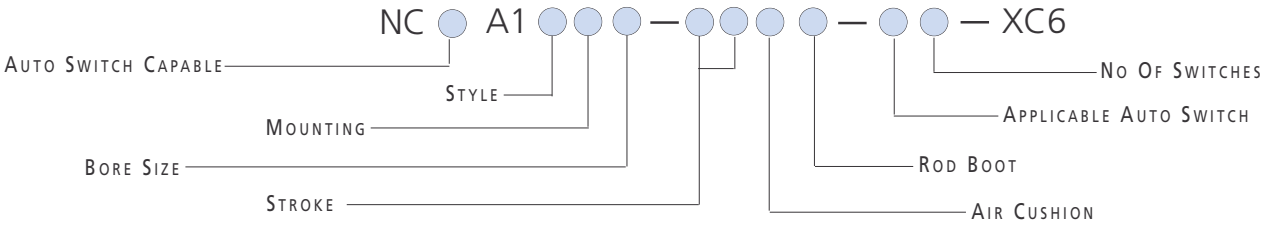
How To Order
Series NCA1 Air Cylinder Options
Low Speed - XB9 Option



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

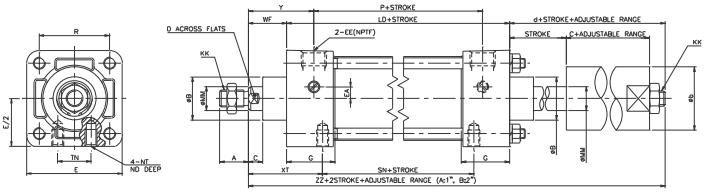
HOW TO ORDER
SERIES NCA1 AIR CYLINDER OPTIONS
ADJUSTABLE STROKE - EXTEND - XC8 OPTION

NC ○ A1 ○○ — ○○ A — XC8

- AUTO SWITCH CAPABLE
- MOUNTING
- BORE SIZE
- STROKE
- ADJUSTABLE RANGE
  A: 0~1"
  B: 0~2"

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

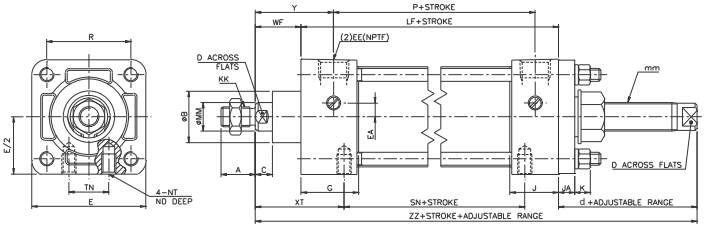
HOW TO ORDER
SERIES NCA1 AIR CYLINDER OPTIONS
ADJUSTABLE STROKE - RETURN - XC9 OPTION

NC ○ A1 ○○ — ○○ A — XC9

- AUTO SWITCH CAPABLE
- MOUNTING
- BORE SIZE
- STROKE
- ADJUSTABLE RANGE
  A: 0~1"
  B: 0~2"

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

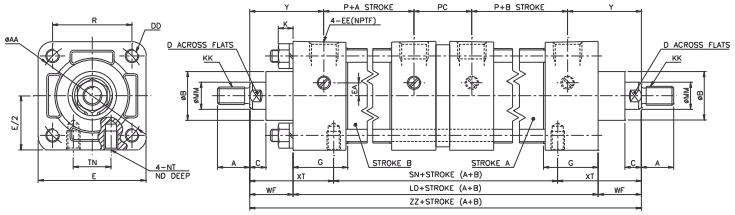
HOW TO ORDER
SERIES NCA1 AIR CYLINDER OPTIONS
DUAL OPERATION - DOUBLE ROD - XC10 OPTION

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

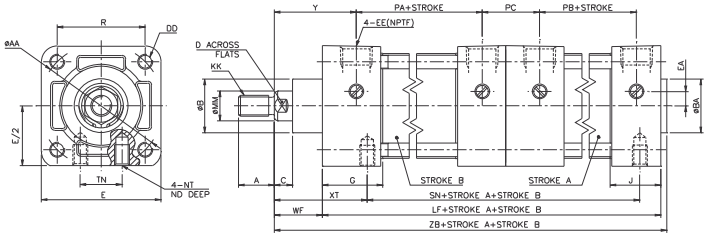
HOW TO ORDER
SERIES NCA1 AIR CYLINDER OPTIONS
DUAL OPERATION - SINGLE ROD - XC11 OPTION

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

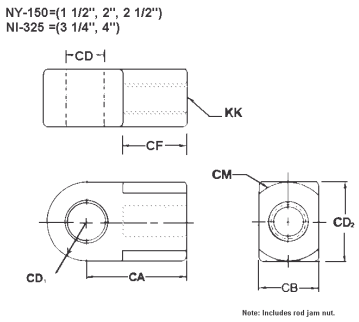
Bore Size	1.5 / 2 / 2.5 / 3.25 / 4
Fluid	Air
Max Operating Pressure	1.75MPa / 250PSI
Min Operating Pressure	0.06MPa / PSI
Ambient & Media Temperature	5~60°C / 40~140°F
Piston Speed	50~500mm/s / 2~20in/s
Cushion	Air Cushion Standard
Mounting Types	Basic, Foot, Flange Side Tapped, Clevis, Side Lug



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

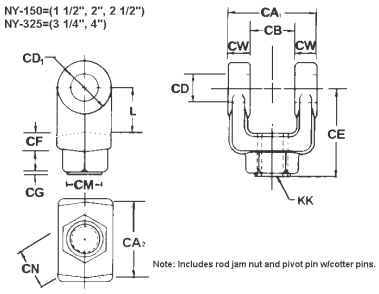
ACCESSORIES
SERIES NCA1 - PISTON ROD EYE

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



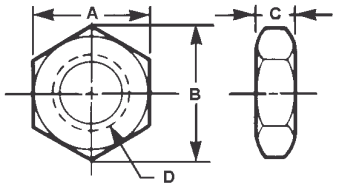
ACCESSORIES
SERIES NCA1 - PISTON ROD CLEVIS

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



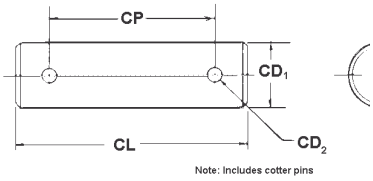
ACCESSORIES
SERIES NCA1 - ROD JAM NUT

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



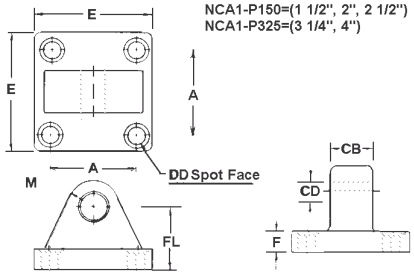
ACCESSORIES
SERIES NCA1 - PIVOT PIN

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



FINE LOCK AIR CYLINDER SERIES CLA Ø40~100MM

MADE IN CANADA

MADE IN USA

- 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

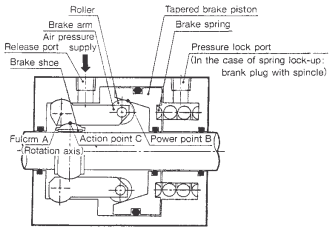
PORT THREADS
- …… PT Port
X1US .. NPT Port Imperial Thread
XC18 …NPT Port Only

DIMENSIONS SEE NEXT PAGE ☞

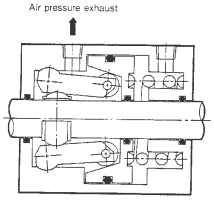
TECHNICAL SPECIFICATIONS
FINELOCK TYPE (CONSTRUCTION) SERIES CLA

Construction

Spring lock-up



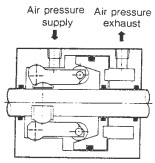
Lock releasing



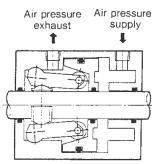
Locking

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



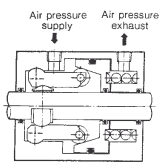
Lock releasing



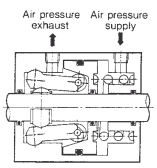
Locking

Air pressure drives the brake piston.

Spring and air pressure lock-up



Lock releasing

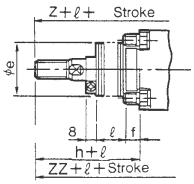


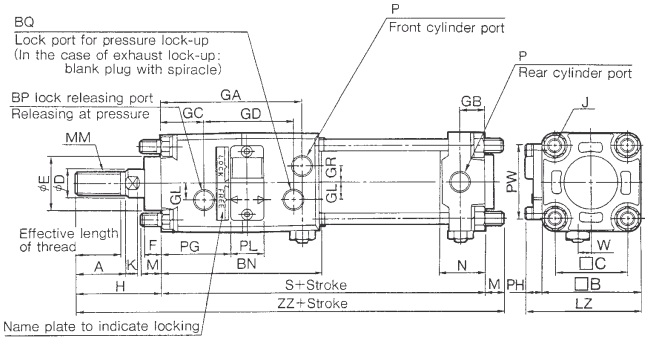
Locking

Air pressure and spring force combine to drive brake piston.

DIMENSIONS
BASIC TYPE CLAB

WITH ROD BOOT



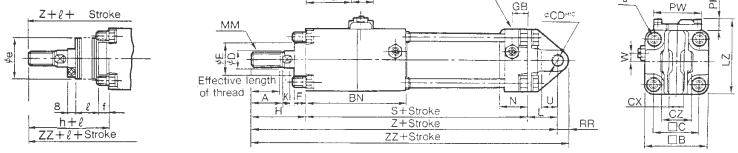


Bore	Stroke Range		Effective Length	A	❒B	BN	BP	BQ	❒C	øD	øE	F	GA	GB	GC	GD	GL	GR	J	K	LZ	M	MM	MM
Size	W/O Boot	W/Boot	Of Thread																					X1US
40	~500	20~500	27	30	60	96	1/4	1/4	44	16	32	10	85	15	26	54	10	10	M8x1.25	6	71	11	M14x1.5	7/16-20
50	~600	20~600	32	35	70	108	1/4	1/4	52	20	40	10	95	17	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	N	P	PG	PH	PL	PW	S	W	Without Boot		With Boot				
Size									H	ZZ	øe	f	h	ℓ	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

DIMENSIONS
DOUBLE CLEVIS TYPE CLAD

WITH ROD BOOT

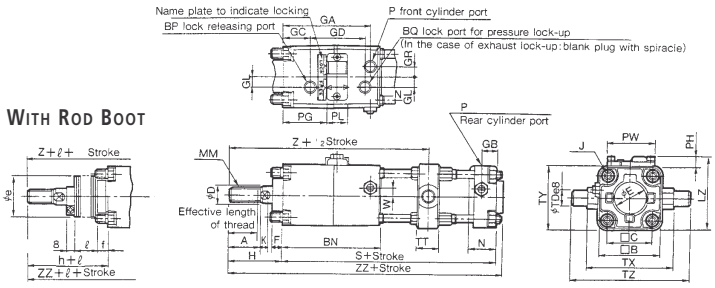


Bore	Stroke Range		Effective Length	A	❒B	BN	BP	BQ	❒C	øD	øE	F	GA	GB	GC	GD	GL	GR	J	K	L	LZ	MM	MM
Size	W/O Boot	W/Boot	Of Thread																					X1US
40	~500	20~500	27	30	60	96	1/4	1/4	44	16	32	10	85	15	26	54	10	10	M8x1.25	6	30	71	M14x1.5	7/16-20
50	~600	20~600	32	35	70	108	1/4	1/4	52	20	40	10	95	17	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	N	P	PG	PH	PL	PW	RR	S	U	W	øCD H10	Without Boot			With Boot					
Size												H	Z	ZZ	øe	f	h	ℓ	Z	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

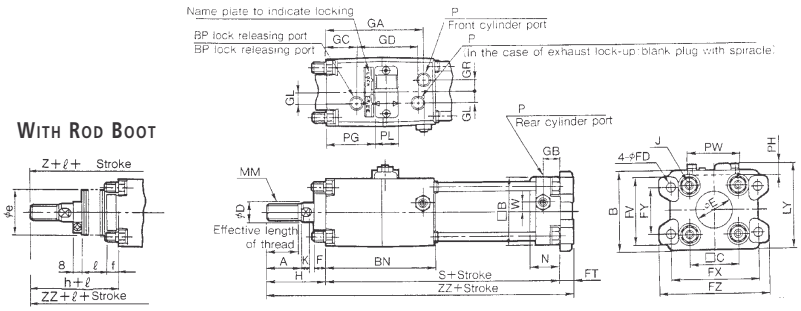


Bore	Stroke Range		Effective Length	A	❒B	BN	BP	BQ	❒C	øD	øE	F	GA	GB	GC	GD	GL	GR	J	K	LZ	MM	MM
Size	W/O Boot	W/Boot	Of Thread																				X1US
40	~500	20~500	27	30	60	96	1/4	1/4	44	16	32	10	85	15	26	54	10	10	M8x1.25	6	71	M14x1.5	7/16-20
50	~600	20~600	32	35	70	108	1/4	1/4	52	20	40	10	95	17	27	59	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	N	P	PG	PH	PL	PW	S	W	øTDe8	TT	TX	TY	TZ	Without Boot			With Boot					
Size														H	Z	ZZ	øe	f	h	ℓ	Z	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

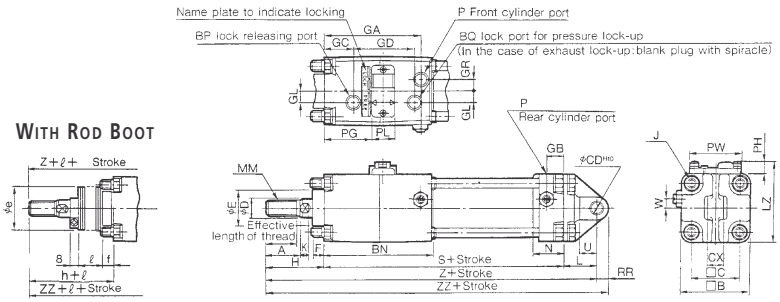


Bore Size	Stroke Range W/O Boot	Stroke Range W/Boot	Effective Length Of Thread	A	B	❒B	BN	BP	BQ	❒C	øD	øE	F	GA	GB	GC	GD	GL	GR	J	K	LY	MM	MM X1US
40	~500	20~500	27	30	70	60	96	1/4	1/4	44	16	32	10	85	15	26	54	10	10	M8x1.25	6	76.5	M14x1.5	7/16-20
50	~600	20~600	32	35	81	70	108	1/4	1/4	52	20	40	10	95	17	27	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

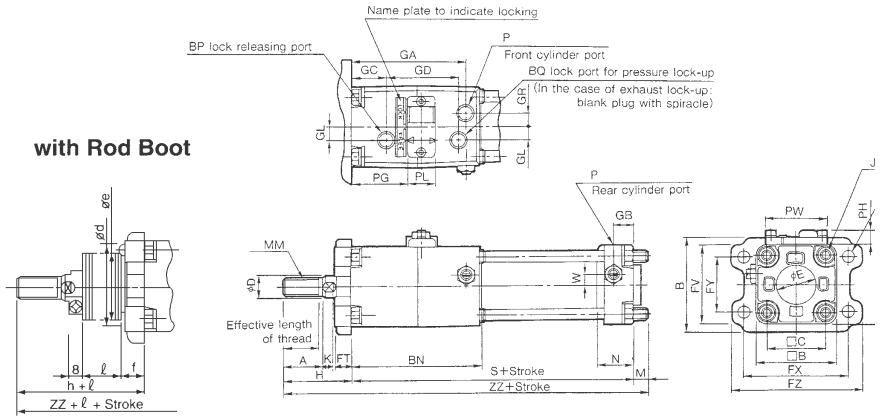
WITH ROD BOOT



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	$10^{0\sim0.058}$	$15^{-0.3\sim-0.1}$	51	234	244	43	11.2	59		242	252
50	30	3/8	46	10	21	50	12	168	19	0	$10^{0\sim0.07}$	$18^{-0.3\sim-0.1}$	58	261	273	52	11.2	66	1/4	269	281
63	31	3/8	48.5	13	23	60	16	182	23	0	$16^{0\sim0.07}$	$25^{-0.3\sim-0.1}$	58	280	296	52	11.2	66	Stroke	288	304
80	37	1/2	55	15	23	70	20	208	28	0	$20^{0\sim0.084}$	$31.5^{-0.3\sim-0.1}$	71	327	347	65	12.5	80		336	356
100	40	1/2	56.5	15	25	80	25	226	36	0	$25^{0\sim0.084}$	$35.5^{-0.3\sim-0.1}$	72	356	381	65	14	81		365	390

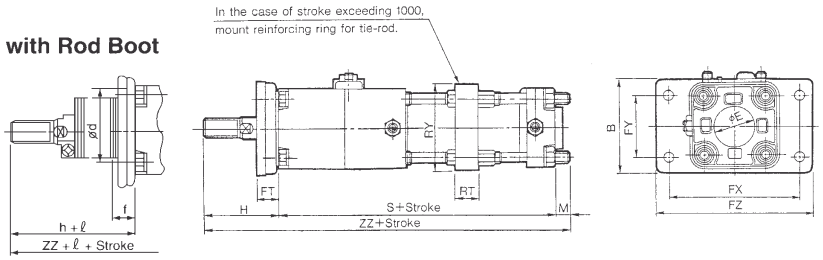
DIMENSIONS
FRONT FLANGE TYPE CLAF



Bore	Stroke Range		Effective Length	A	B	❐B	BN	BP	BQ	❐C	øD	øE	GA	GB	GC	GD	GL	GR	J	K	LZ	M	MM	MM
Size	W/O Boot	W/Boot	Of Thread																					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	N	P	PG	PH	PL	PW	S	W	FV	øFD	FT	FX	FY	FZ	Without Boot		With Boot					
Size															H	ZZ	øe	ød	f	h	ℓ	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

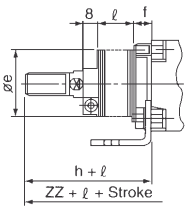
DIMENSIONS
LONG STROKE FRONT FLANGE TYPE CLAF

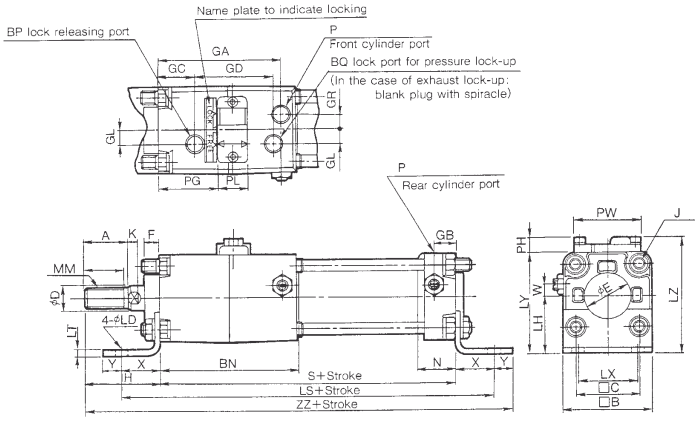


Bore	Stroke Range	B	M	RT	RY	FT	FX	FY	FZ	Without Boot		With Boot	
Size	mm									H	ZZ	f	ZZ
50	1001~1200	88	6	30	76	20	120	58	144	67	241	19	240
63	1001~1200	105	10	40	92	23	140	64	170	71	263	19	258
80	1001~1400	124	12	45	112	28	164	84	198	87	307	21	300
100	1001~1500	140	12	50	136	29	180	100	220	89	327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

DIMENSIONS
FOOT TYPE CLAL

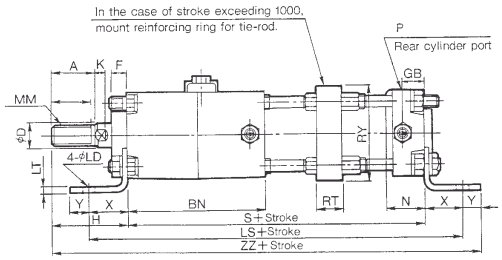
with Rod Boot





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, please consult SMC Customer Service

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

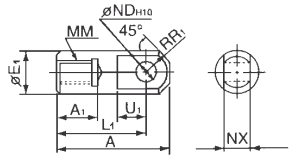
ACCESSORIES
MOUNTING TYPE SERIES CLA

Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

Model		Type	Load Voltage	Max Load Current or Load Current Range	Internal Voltage	Indicator Lamp
Mounting Type						
Band	Tie Rod					
-	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

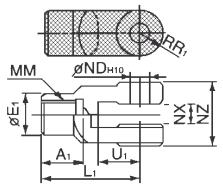
I Type Single Knuckle Joint



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	$12^{0\sim0.070}$	$16^{-0.3\sim-0.1}$
I-05	50 / 63	74	27	28	60	M18x1.5	15.5	20	$12^{0\sim0.070}$	$16^{-0.3\sim-0.1}$
I-08	80	91	37	36	71	M22x1.5	22.5	26	$18^{0\sim0.070}$	$28^{-0.3\sim-0.1}$
I-10	100	106	37	40	83	M26x1.5	24.5	26	$20^{0\sim0.084}$	$30^{-0.3\sim-0.1}$

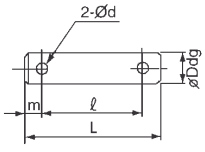
Y Type Double Knuckle Joint



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	$12^{0\sim0.070}$	$16^{-0.3\sim-0.1}$	38
Y-05d	50 / 63	27	28	60	M18x1.5	15	27	$12^{0\sim0.070}$	$16^{-0.3\sim-0.1}$	38
Y-08d	80	37	36	71	M22x1.5	19	28	$18^{0\sim0.070}$	$28^{-0.3\sim-0.1}$	55
Y-10d	100	37	40	83	M26x1.5	21	38	$20^{0\sim0.084}$	$30^{-0.3\sim-0.1}$	61

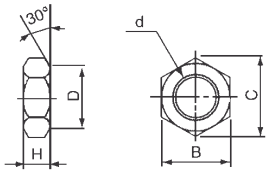
I Type Single Knuckle Joint



Material: Carbon Steel

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

MADE IN USA

MADE IN CANADA
APRIL 1999

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

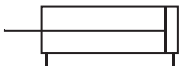
PSI

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

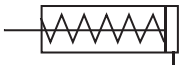
*Temperature Note:15~160°F = -10~70°C

SYMBOLS

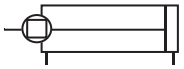
Double Acting / Single Rod Type



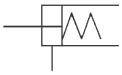
Single Acting Spring Return Type



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

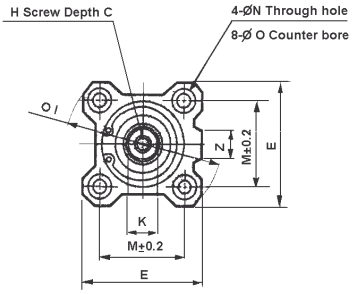
NOTE: FOR BORE SIZES 125, 140 & 160MM, PLEASE REFER TO PAGE 1.116

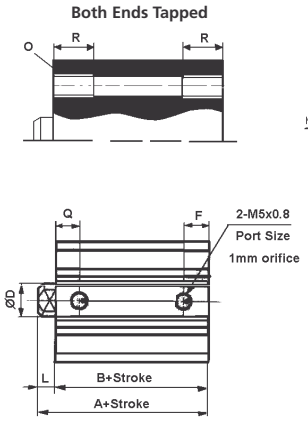
HOW TO ORDER DOUBLE ACTING SINGLE ROD - STANDARD STROKE

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

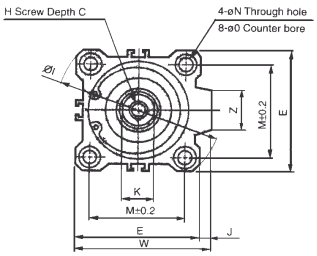
DIMENSIONS
SEE FOLLOWING PAGES ☞

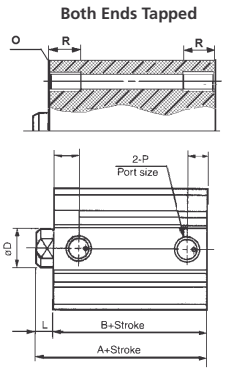
DIMENSIONS
THROUGH HOLE ø12 ~ ø25 SERIES (N)CQ2B





DIMENSIONS
THROUGH HOLE ø32 ~ 100 SERIES (N)CQ2B





DIMENSIONS
SERIES (N)CQ2A BOTH ENDS TAPPED

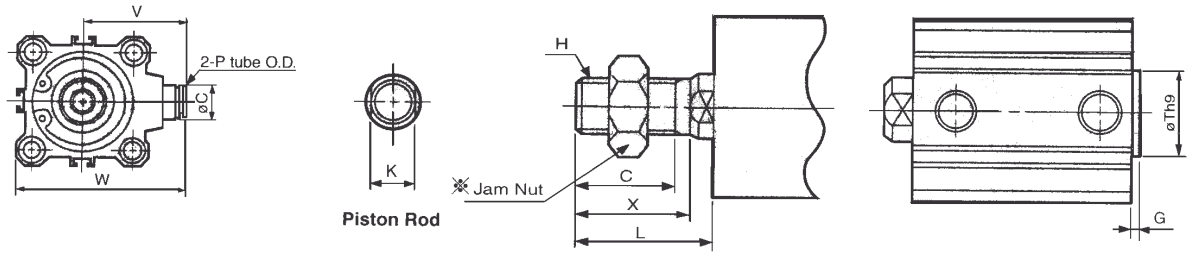
Bore Size mm	CQ2 (mm) O	NCQ2 (inch) O	R mm
12	M4x0.7	8-32UNC	7
16	M4x0.7	8-32UNC	7
20	M6x1.0	1/4-20UNC	10
25	M6x1.0	1/4-20UNC	10
32	M6x1.0	1/4-20UNC	10
40	M6x1.0	1/4-20UNC	10
50	M8x1.25	5/16-18UNC	14
63	M10x1.5	7/16-14UNC	18
80	M12x1.75	1/2-13UNC	22
100	M12x1.75	1/2-13UNC	22

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
Note) For information regarding Mounting Positions: Foot Type, Rod Flange, Head Flange, Double Clevis, refer to CAT:N320

DIMENSIONS
WITHOUT AUTO SWITCH SERIES (N)CQ2 - 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
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

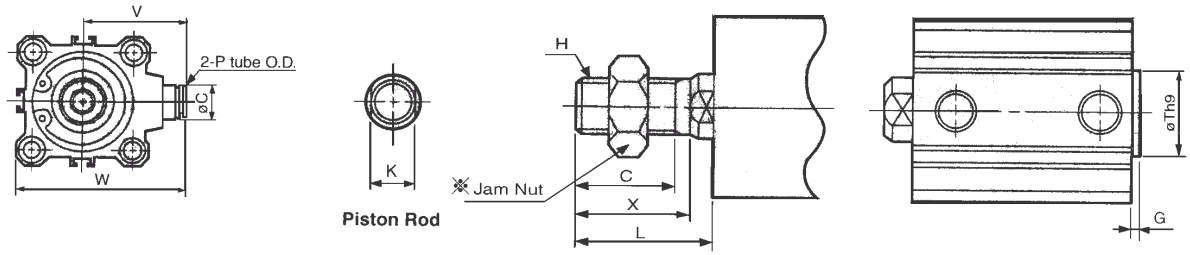
CQ2 MALE ROD END

Bore 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
80	32.5	35.5	M22x1.5	43.5	22
100	32.5	35.5	M26X1.5	43.5	27

END BOSS (CQ2 ONLY)

Bore Size	G 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 $^{-0.062}_{-0}$
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 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
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

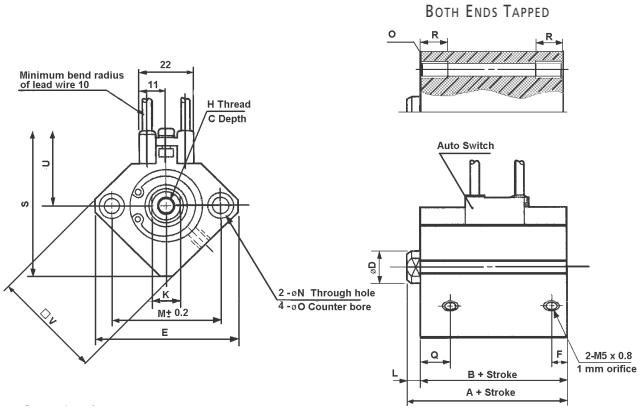
Bore Size	C mm	X mm	H	L mm	K mm
12	9	10.5	M5X0.8	14	5
16	10	12	M6X1	15.5	6
20	12	14	M8X1.25	18.5	8
25	15	17.5	M10X1.25	22.5	10
32	20.5	23.5	M14x1.5	28.5	14
40	20.5	23.5	M14x1.5	28.5	14
50	26	28.5	M18X1.5	33.5	17
63	26	28.5	M18X1.5	33.5	17
80	32.5	35.5	M22x1.5	43.5	22
100	32.5	35.5	M26X1.5	43.5	27

END BOSS (CQ2 ONLY)

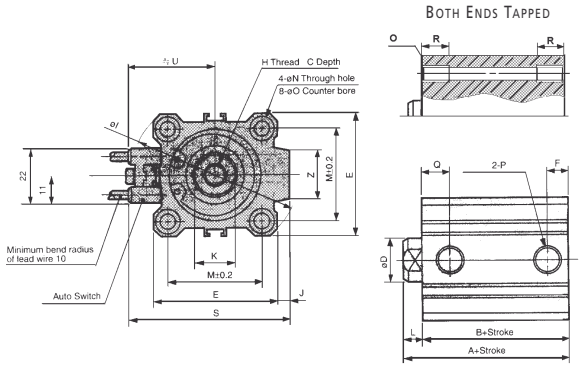
Bore Size	G mm	Th9
12	1.5	15 $^{-0.043}_{-0}$
16	1.5	20 $^{-0.052}_{-0}$
20	2	13 $^{-0.043}_{-0}$
25	2	15 $^{-0.043}_{-0}$
32	2	21 $^{-0.052}_{-0}$
40	2	28 $^{-0.052}_{-0}$
50	2	35 $^{-0.062}_{-0}$
63	2	35 $^{-0.062}_{-0}$
80	2	43 $^{-0.062}_{-0}$
100	2	59 $^{-0.074}_{-0}$

Note) For other mounting positions and dimensions, refer to Cat:N320
Note) For information regarding Mounting Positions: Foot Type, Rod Flange, Head Flange, Double Clevis, refer to CAT:N320

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

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 (50 ~ 500mm/s	0.002 ~ 8 in/sec 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

STROKE (MM)

ACTION
D ……Double Acting

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

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

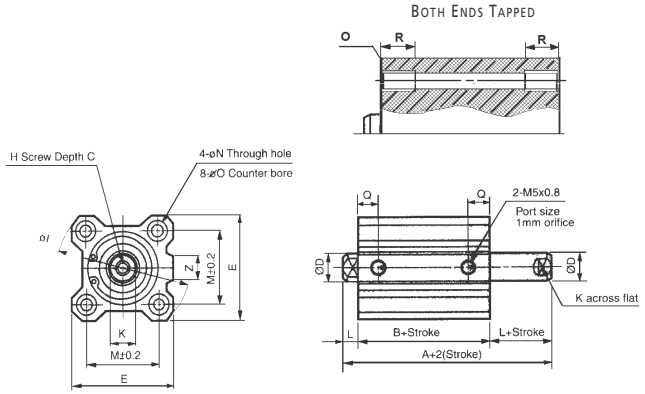
NO OF AUTO SWITCH
- ……2 Pieces
S ……1 piece
n ……n Pieces

HOW TO ORDER

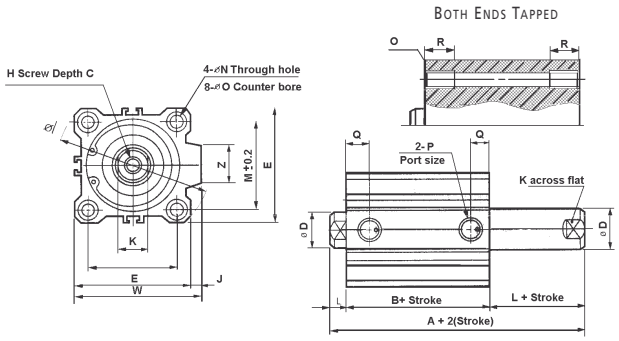
DOUBLE ACTING DOUBLE ROD - STANDARD STROKE

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

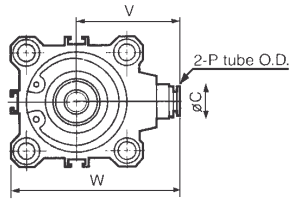
Bore Size	CQ2 O	NCQ2 (inch) O	R
12	M4x0.7	8-32UNC	7
16	M4x0.7	8-32UNC	7
20	M6x1.0	1/4-20UNC	10
25	M6x1.0	1/4-20UNC	10
32	M6x1.0	1/4-20UNC	10
40	M6x1.0	1/4-20UNC	10
50	M8x1.25	5/16-18UNC	14
63	M10x1.5	7/16-14UNC	18
80	M12x1.75	1/2-13UNC	22
100	M12x1.75	1/2-13UNC	22

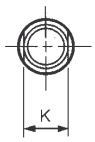
DIMENSIONS (MM)
DOUBLE ACTING DOUBLE ROD SERIES (N)CQ2W

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

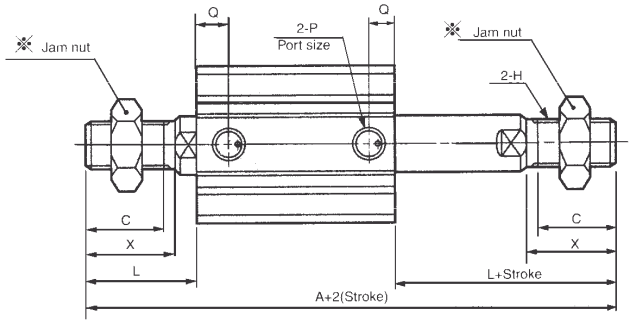
Note) The external dimensions of cylinder with rubber cushion are the same as those of the above standard

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

Note) For more information regarding Mounting Positions: Foot Type, Rod Side Flange, refer to CAT:N320

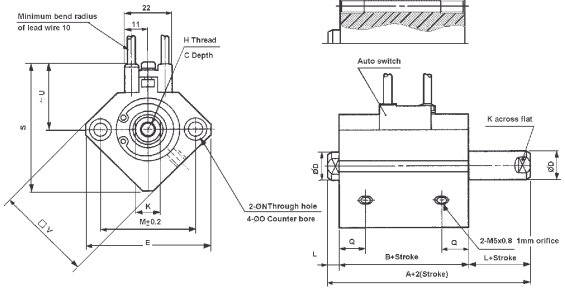
NCQ2 MALE ROD END

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

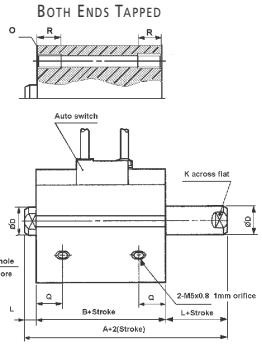
CQ2 MALE ROD END

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

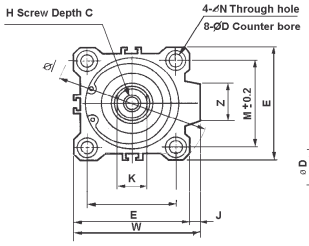
DIMENSIONS
THROUGH HOLE ø12 ~ ø25 SERIES (N)CDQ2WB



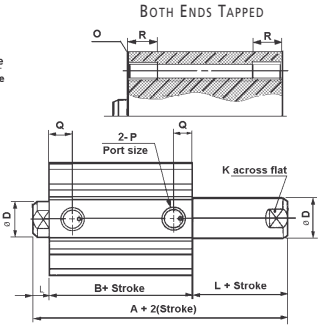
BOTH ENDS TAPPED



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

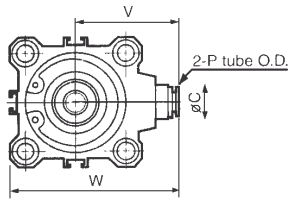
SEE DIMENSIONS ON NEXT PAGE

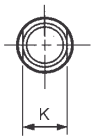
Dimensions (mm)
Standard ø12 ~ ø100 Series (N)CDQ2W

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

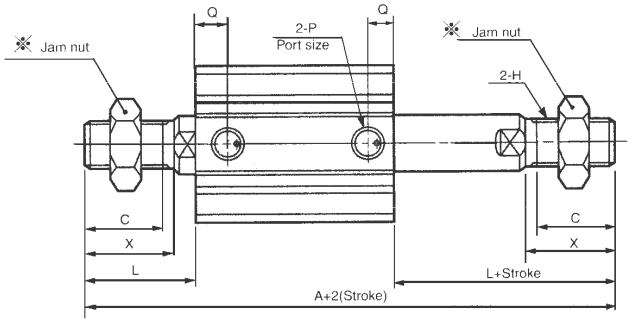
Note) The external dimensions of cylinder with rubber cushion are the same as those of the above standard

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

Note) For information regarding Mounting Positions: Foot Type, Rod Side Flange, refer to CAT:N320

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

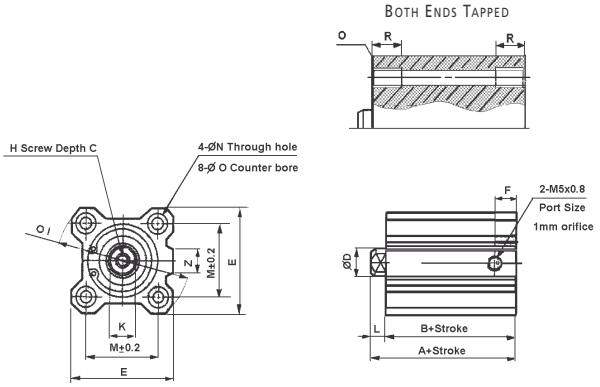
HOW TO ORDER

SINGLE ACTING SINGLE ROD - STANDARD STROKE

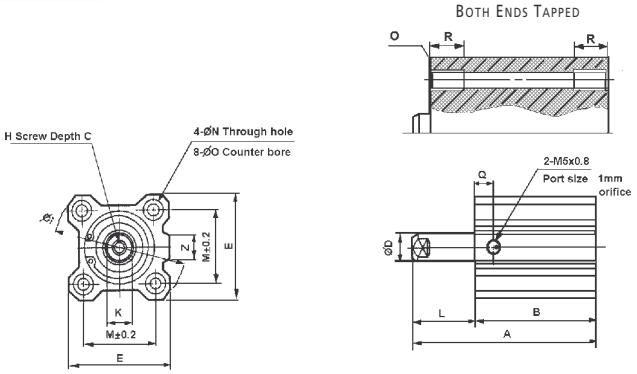
Bore Size	Stroke
12, 16, 20, 25, 32, 40	5, 10
50	10, 20

MORE DIMENSIONS SEE NEXT PAGE ☞

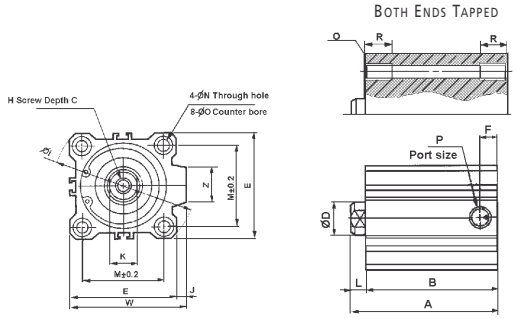
Dimensions
Spring Return
Through Hole ø12 ~ ø25 Series (N)CQ2B-S



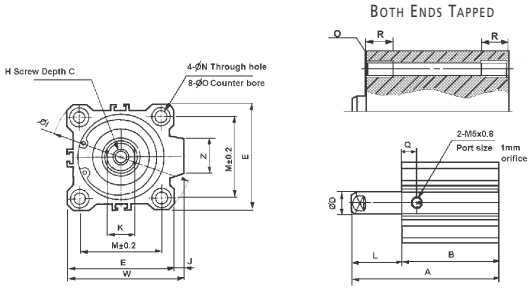
Dimensions
Spring Extended
Through Hole ø12 ~ ø25 Series (N)CQ2B-T



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

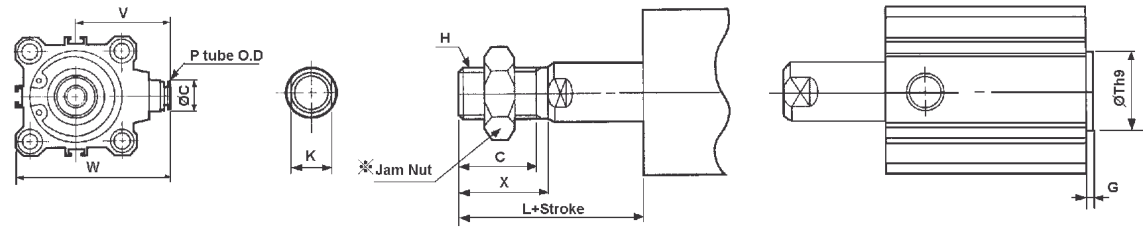
Note) Except for A, L & Q, all other dimensions apply to both Spring Return and Spring Extend

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

BOTH ENDS TAPPED (N)CDQ2A

Bore 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

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



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

NCQ2 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

CQ2 MALE ROD END

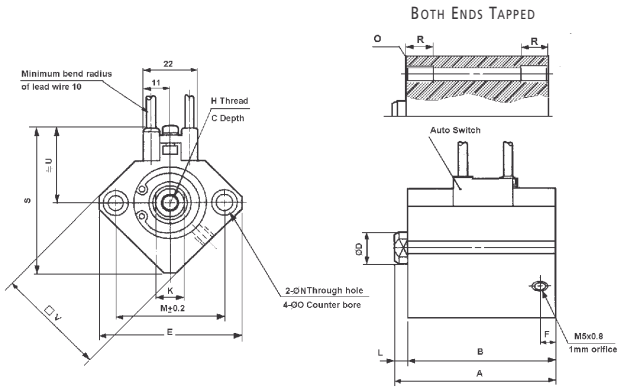
Bore Size	C mm	X mm	H mm	L mm	K mm
12	9	10.5	M5X0.8	14	5
16	10	12	M6X1	15.5	6
20	12	14	M8X1.25	18.5	8
25	15	17.5	M10X1.25	22.5	10
32	20.5	23.5	M14x1.5	28.5	14
40	20.5	23.5	M14x1.5	28.5	14
50	26	28.5	M18X1.5	33.5	17

END BOSS (CQ2 ONLY)

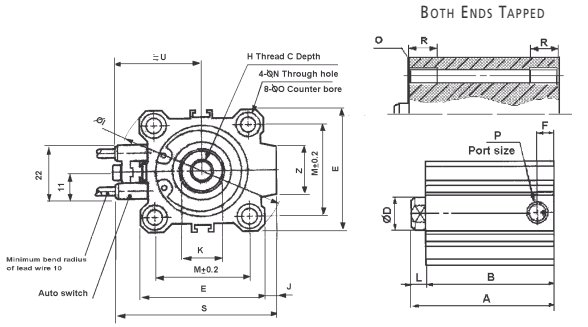
Bore Size	G mm	Th9 mm
12	1.5	$15^{-0.043}_{-0}$
16	1.5	$20^{-0.052}_{-0}$
20	2	$13^{-0.043}_{-0}$
25	2	$15^{-0.043}_{-0}$
32	2	$21^{-0.052}_{-0}$
40	2	$28^{-0.052}_{-0}$
50	2	$35^{-0.062}_{-0}$

Note) For information regarding Mounting Positions: Foot Type, Rod Side Flange, Head Side Flange, Double Clevis, refer to CAT:N320

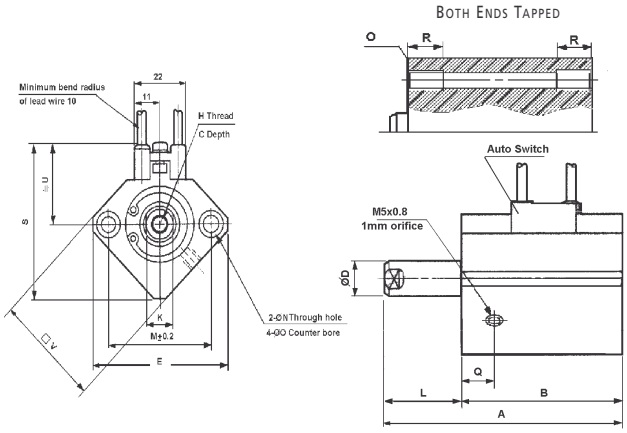
Dimensions
Spring Return
Through Hole ø12 ~ ø25 Series (N)CDQ2B-S



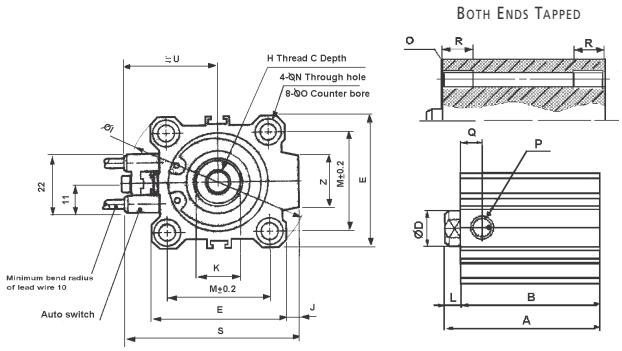
Dimensions
Spring Return
Through Hole ø32 ~ ø50 Series (N)CDQ2B-S



Dimensions
Spring Extended
Through Hole ø12 ~ ø25 Series (N)CDQ2B-T



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 Size	Stroke (mm)	A 5st	A 10st	A 20st	B 5st	B 10st	B 20st	CQ2 C	NCQ2 C	D	E
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 Size	Stroke (mm)	A 5st	A 10st	A 20st	L 5st	L 10st	L 20st	Q
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 Size	Stroke (mm)	F	CQ2(mm) H	NCQ2 H	i	J	K	L	M	N	O	P	Orifice	S	U	V	Z
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

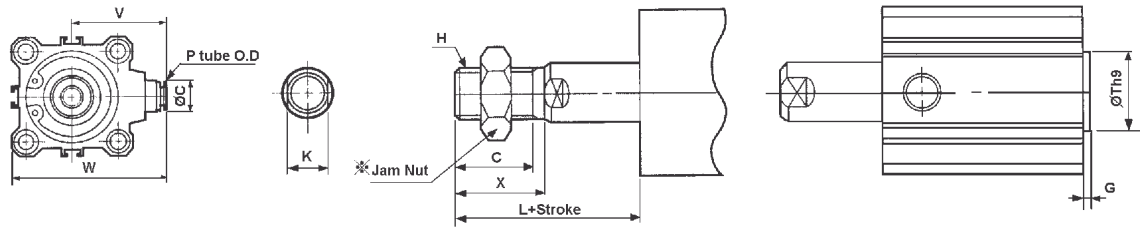
Note) Except for A, L & Q, all other dimensions apply to both Spring Return and Spring Extend

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

BOTH ENDS TAPPED (N)CDQ2A

Bore 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

DIMENSIONS
WITH AUTO SWITCH SPRING RETURN / EXTENDED
SINGLE 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

NCQ2 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

CQ2 MALE ROD END

Bore Size	C mm	X mm	H	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

END BOSS (CQ2 ONLY)

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

Note) For information regarding Mounting Positions: Foot Type, Rod Side Flange, Head Side Flange, Double Clevis, refer to CAT:N320

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)

Auto Switch Capable
See Accessories: Auto Switch

No Of Auto Switch
- ……2 Pieces
S ……1 piece
n ……n Pieces

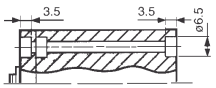
How To Order
Non-Rotating Double Acting Single Rod - Standard Stroke

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

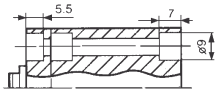
More Dimensions See Next Page ☞

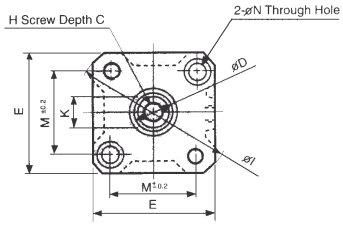
DIMENSIONS
THROUGH HOLE ø12 ~ ø25 SERIES (N)CQ2KB

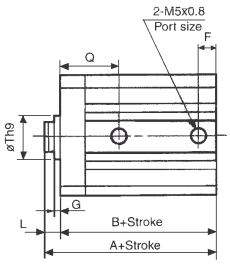
ø12~ø16
Both Ends Tapped



ø20~ø25
Both Ends Tapped

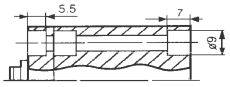


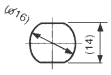




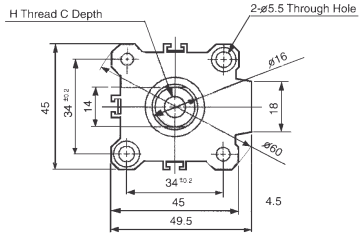
DIMENSIONS
THROUGH HOLE ø32 SERIES (N)CQ2KB

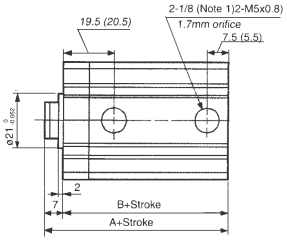
ø32
Both Ends Tapped





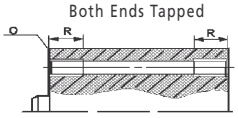
Piston Rod

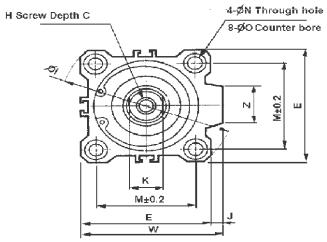


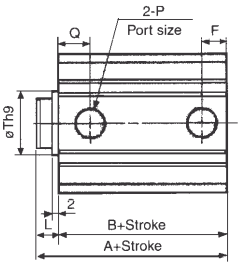


DIMENSIONS
THROUGH HOLE ø40 ~ ø63 SERIES (N)CQ2KB

ø40~ø63
Both Ends Tapped







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

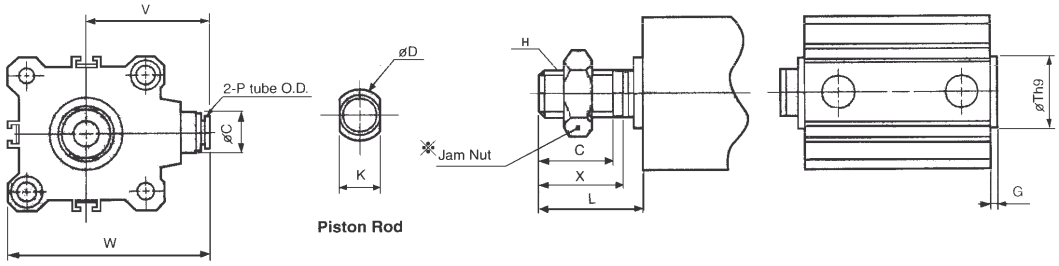
BOTH ENDS TAPPED (N)CQ2KA

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	$15^{-0.043}_{-0}$	-	-
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	$20^{-0.052}_{-0}$	-	-
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	$13^{-0.043}_{-0}$	-	-
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	$15^{-0.043}_{-0}$	-	-
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	$28^{-0.052}_{-0}$	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	$35^{-0.062}_{-0}$	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	$35^{-0.062}_{-0}$	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

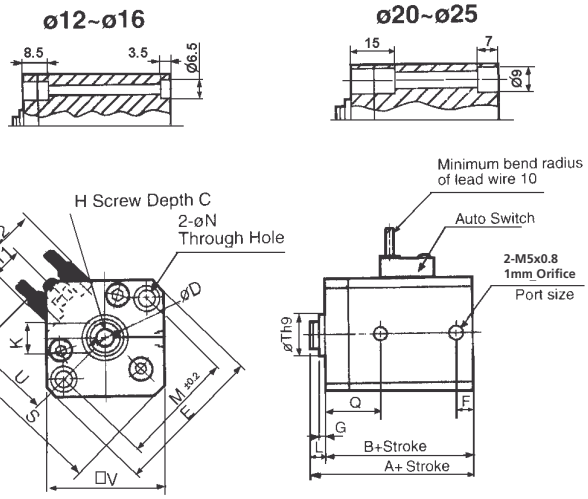
Bore Size	C mm	X mm	H mm	L mm	K mm
12	9	10.5	M5X0.8	14	5
16	10	12	M6X1	15.5	6
20	12	14	M8X1.25	18.5	8
25	15	17.5	M10X1.25	22.5	10
32	20.5	23.5	M14x1.5	28.5	14
40	20.5	23.5	M14x1.5	28.5	14
50	26	28.5	M18X1.5	33.5	18
63	26	28.5	M18X1.5	33.5	18

END BOSS (CQ2 ONLY)

Bore Size	G mm	Th9 mm
12	1.5	$15^{-0.043}_{-0}$
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	$35^{-0.062}_{-0}$

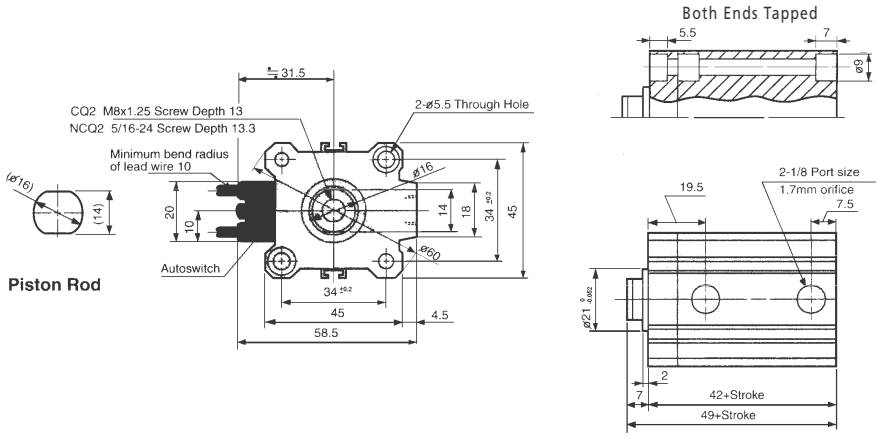
Note) For information regarding Mounting Positions: Foot Type, Rod Side Flange, Head Side Flange, Double Clevis, refer to CAT:N320

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

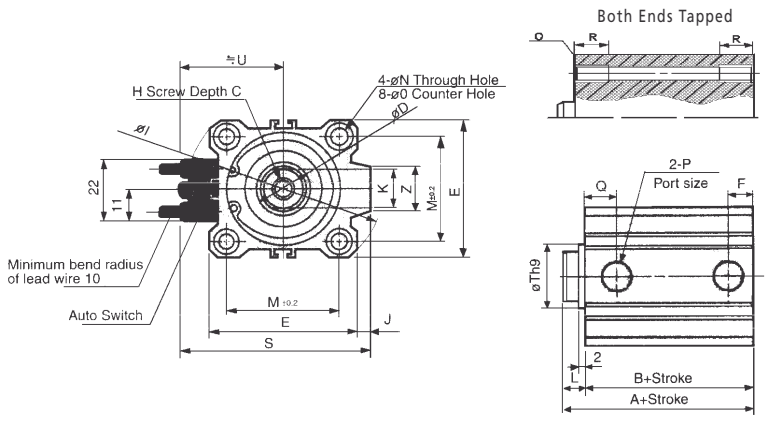


ø12~ø25

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



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



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

BOTH ENDS TAPPED (N)CDQ2KA

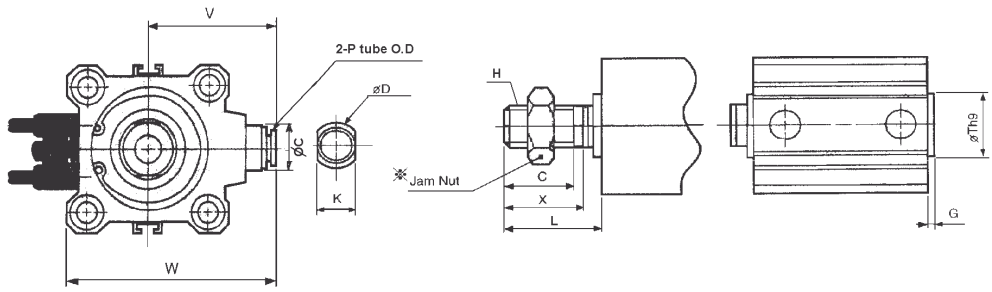
Bore Size	CQ2 (mm) O	NCQ2 (in) O	R
12	M4x0.7	8-32UNC	7
16	M4x0.7	8-32UNC	7
20	M6x1	1/4-20UNC	10
25	M6x1	1/4-20UNC	10
32	M6x1	1/4-20UNC	10
40	M6x1	1/4-20UNC	10
50	M8x1.25	5/16-18UNC	14
63	M10x1.5	7/16-14UNC	18

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	$35^{-0.062}_{-0}$

Note) For information regarding Mounting Positions: Foot Type, Rod Side Flange, Head Side Flange, Double Clevis, refer to CAT:N320

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

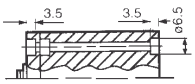
TECHNICAL SPECIFICATIONS
NON-ROTATING
DOUBLE ACTING DOUBLE ROD TOLERANCE

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

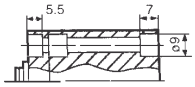
MORE DIMENSIONS
SEE NEXT PAGE ☞

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

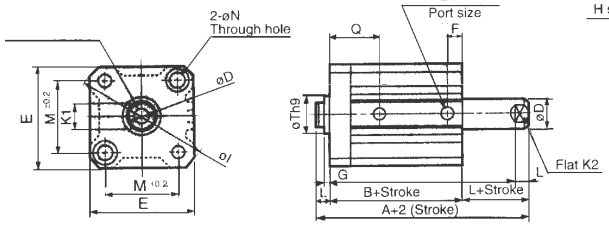
ø12, ø16



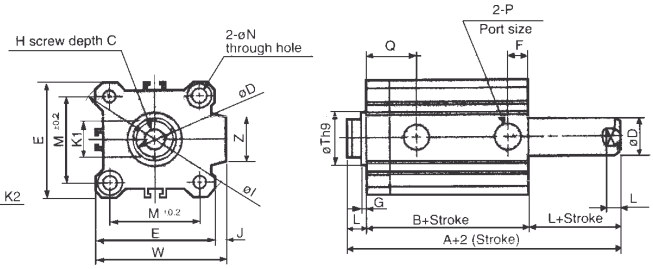
ø20~ø32



ø12~ø25

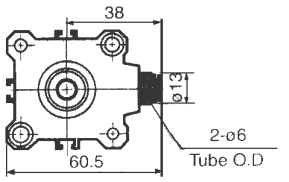


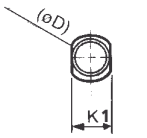
ø32



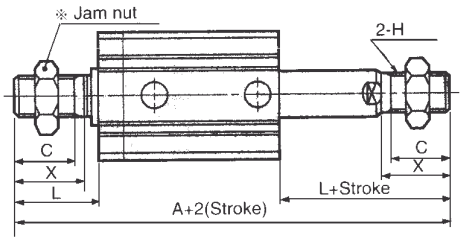
Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 H	i	J	K1	K2	L	M	N	P	Orifice	Q	Th9	W	Z
12	5~30	37.2	30.2	6	5.4	6	25	10	M3x0.5	8-32	32	-	5.2	5	3.5	15.5	3.5	M5x0.8	1	15	$15^{-0.043}_{-0}$	-	-
16	5~30	38	31	8	5.4	8	29	10	M4x0.7	8-32	38	-	6	6	3.5	20	3.5	M5x0.8	1	15	$20^{-0.052}_{-0}$	-	-
20	5~50	43	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	$13^{-0.043}_{-0}$	-	-
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	$15^{-0.043}_{-0}$	-	-
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	$21^{-0.052}_{-0}$	49.5	18
	10~50								1.25	24UNF								1/8					

DIMENSIONS
ONE TOUCH FITTING ø32 SERIES (N)CQ2KWB





Piston Rod



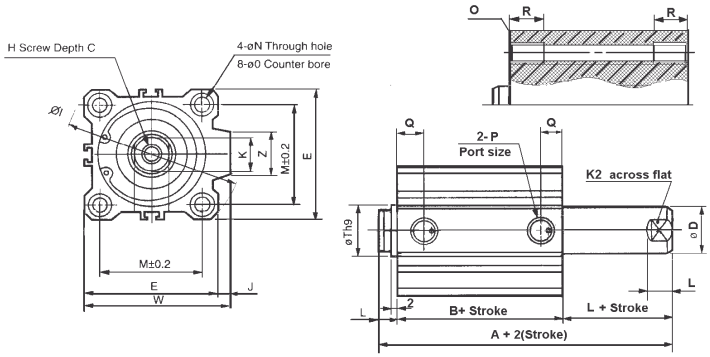
NCQ2 MALE ROD END

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



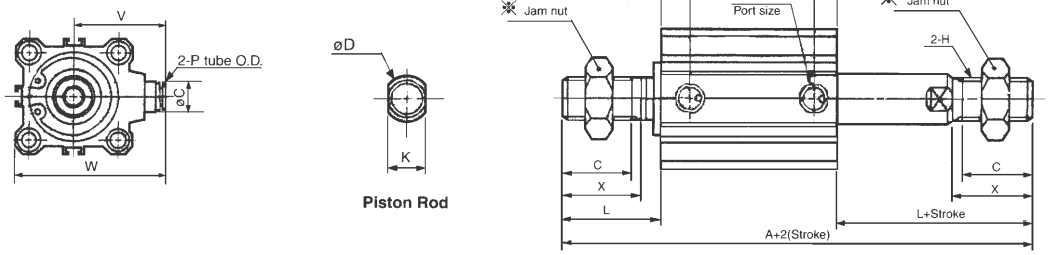
Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 H	i	J	K	K2	L	M	N	O	P	Orifice	Q	Th9	W	Z
40	5~50	54	40	13	18.3	16	52	M8x1.25	3/8-24UNF	69	5	14	14	7	40	5.5	9 Depth7	1/8	2	14	$28^{-0.052}_{-0}$	57	18
50	10~50	56.5	40.5	13	17.6	20	64	M10x1.5	1/2x20UNF	86	7	18	17	8	50	6.6	11 Depth8	1/4	2.2	14	$35^{-0.062}_{-0}$	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	$35^{-0.062}_{-0}$	84	22

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

BOTH ENDS TAPPED (N)CQ2KWA

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
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

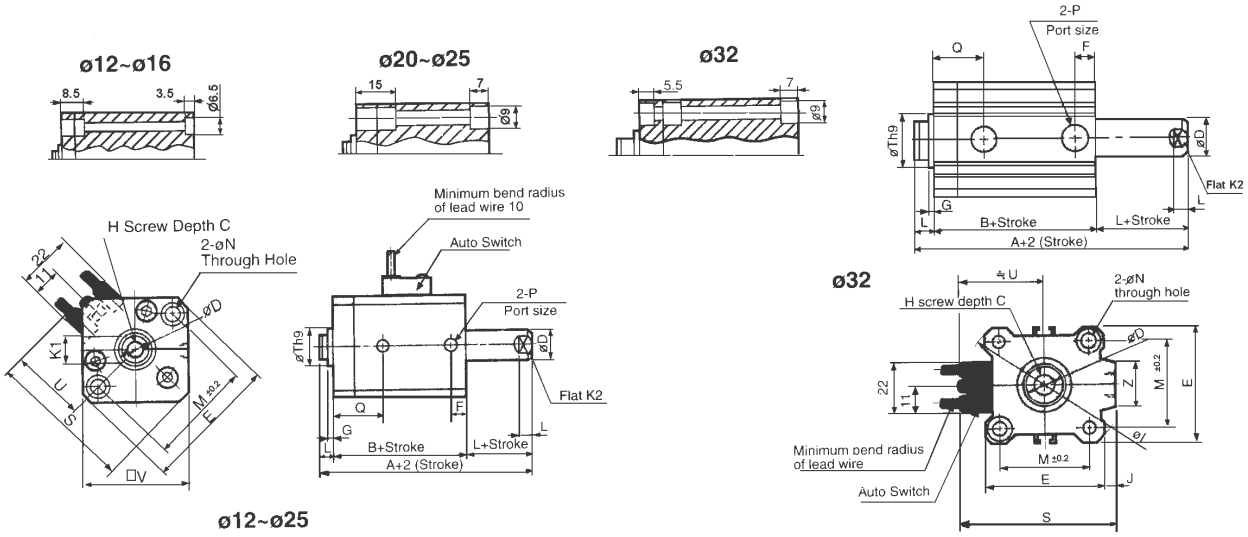
NCQ2 MALE ROD END

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

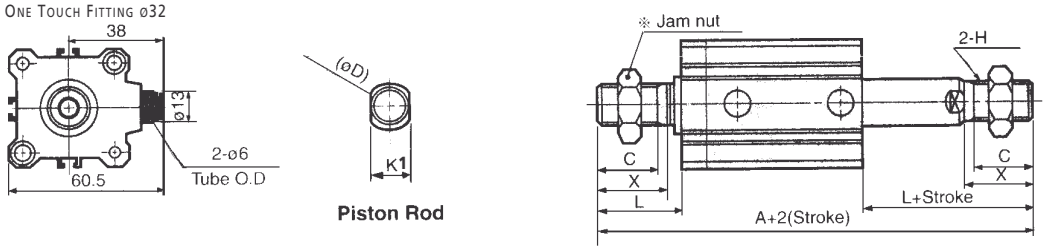
Bore Size	C mm	X mm	H mm	L mm	K mm	A mm
40	20.5	23.5	M14x1.5	28.5	14	97
50	26	28.5	M18x1.5	33.5	18	107.5
63	26	28.5	M18x1.5	33.5	18	109

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



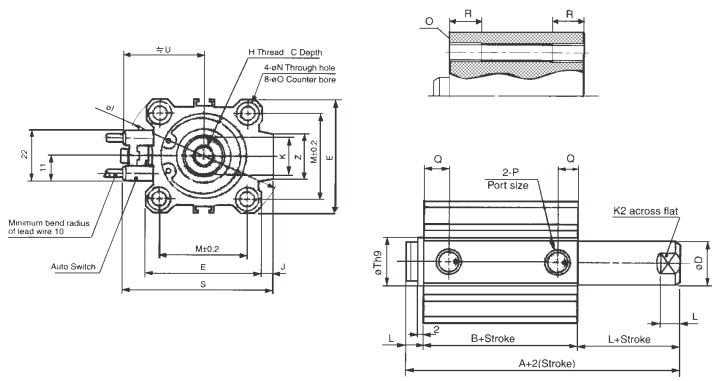
NCQ2 Male Rod End

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



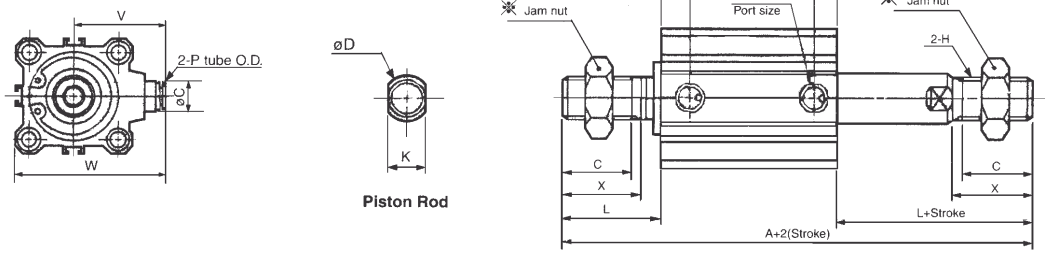
Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 H	i	J	K	K2	L	M	N	O	P*	Q	S	Th9	U	Z
40	5~50	64	50	13	18.3	16	52	M8x1.25	3/8-24UNF	69	5	14	14	7	40	5.5	9 Depth7	1/8	14	66	$28^{-0.052\sim0}$	35	18
50	10~50	66.5	50.5	15	17.6	20	64	M10x1.5	1/2-20UNF	86	7	18	17	8	50	6.6	11 Depth8	1/4	14	80	$35^{-0.062\sim0}$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

DIMENSIONS
DOUBLE ACTING DOUBLE ROD SERIES (N)CDQ2KWB



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

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

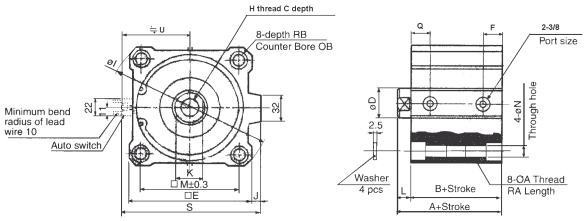
How To Order

Large Bore Double Acting Single / Double Rod Standard Stroke

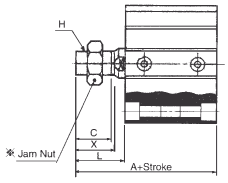
Bore Size	Stroke
125	10, 20, 30, 40, 45,
140	50, 75, 100, 125, 150,
160	175, 200, 250, 300

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

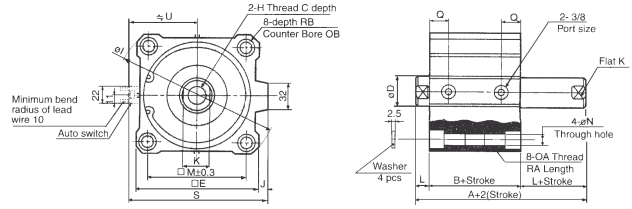
Bore Size	A mm	C mm	H	L mm	X mm
125	141	42	M30x1.5	58	45
140	141	42	M30x1.5	58	40
160	155	47	M36x1.5	64	50

NCQ2 MALE ROD END

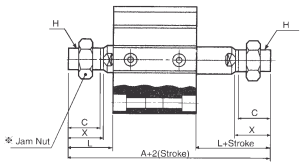
Bore Size	A mm	C mm	H inch	L mm	X mm
125	141	42	1-1/4"-12	58	45
140	141	42	1-1/4"-12	58	45
160	155	47	1-3/8"-12	64	50

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

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

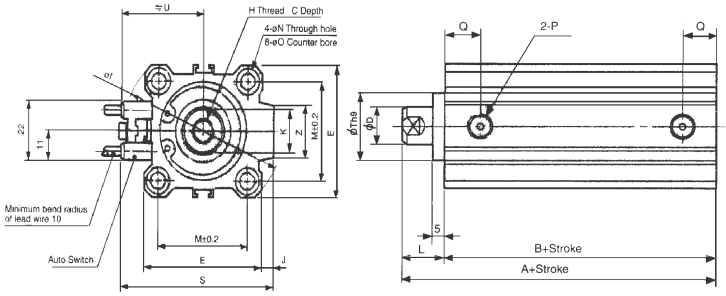
No Of Auto Switch
- ……2 Pieces
S ……1 piece
n ……n Pieces

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

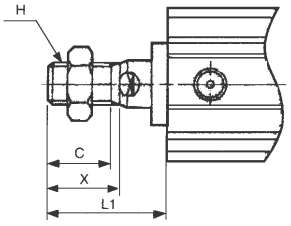
DIMENSIONS (mm)
LONG STROKE SERIES (N)CDQ2



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	$22^{-0.052}_{-0}$	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	$28^{-0.052}_{-0}$	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	$35^{-0.062}_{-0}$	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	$35^{-0.062}_{-0}$	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	$43^{-0.062}_{-0}$	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	$59^{-0.074}_{-0}$	67.5	26

DIMENSIONS
LONG STROKE SERIES (N)CDQ2



NCQ2 MALE ROD END

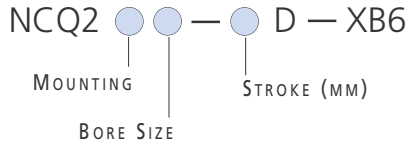
Bore Size	X mm	H inch	L1 mm
32	12.7	5/16-24UNF	29.7
40	16	3/8-24UNF	33
50	19.5	1/2-20UNF	37.5
63	19.5	1/2-20UNF	37.5
80	25.5	5/8-18UNF	45.5
100	28.5	3/4-16UNF	50.5

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

Accessories
Series NCQ2/CQ2
High Temperature Resistant Cylinder - XB6 Option

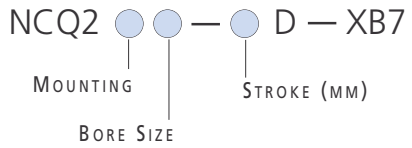


Technical Specifications
Series (N)CQ2
High Temperature Resistant Cylinder - XB6 Option

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

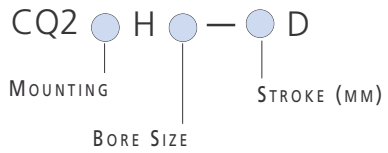


Technical Specifications
Series (N)CQ2
Low Temperature Resistant Cylinder - XB7 Option

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

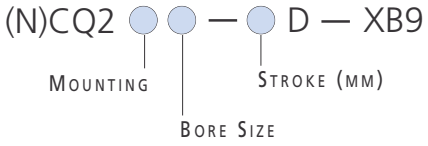


Technical Specifications
Series CQ2
Air Hydro Cylinder - Option

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

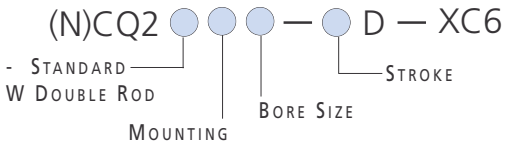


Technical Specifications
Series (N)CQ2
Low Speed Cylinder - XB9 Option

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

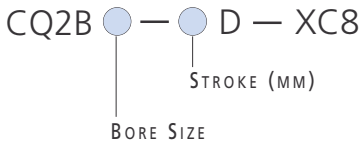


TECHNICAL SPECIFICATIONS
SERIES (N)CQ2
STAINLESS STEEL PISTON ROD - XC6 OPTION

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

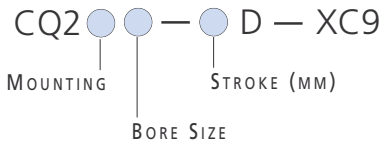


Note) For more information, refer to CAT:N320 & E210

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

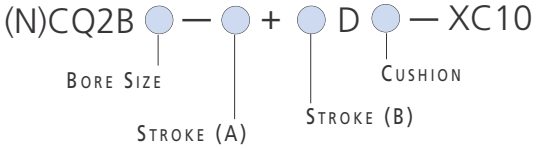


Note) For more information, refer to CAT:N320 & E210

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



Note) For more information, refer to CAT:N320 & E210

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

Accessories
Series NCQ2/CQ2
Dual Stroke Cylinder / Single Rod Type - XC11 Option

(N)CQ2B ○ — ○ + ○ D ○ — XC11

- ○ (1st): Bore Size
- ○ (2nd): Stroke (A)
- ○ (3rd): Stroke (B-A)
- ○ (4th): Cushion

Note) For more information, refer to CAT:N320 & E210

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

- ○ (1st): Mounting
- ○ (2nd): Bore Size
- ○ (3rd): Stroke

Note) For more information, refer to CAT:N320 & E210

Technical Specifications
Series (N)CQ2
Coil Scraper - XC35 Option

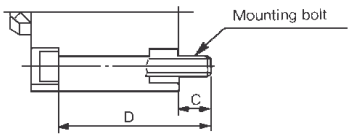
Bore Size	ø32, 40, 50, 63, 80, 100
Fluid	Air

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

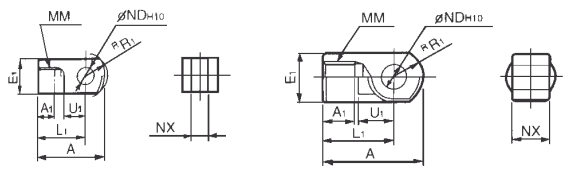
Accessories
Mounting Bolt For Series NCQ2/CQ2



Thread	Pitch
M3	0.5
M5	0.8
M6	1
M8	1.25
M10	1.5

Note) For dimensions and types, refer to CAT:N320

ACCESSORIES (MM)
SERIES NCQ2/CQ2
SINGLE ROD CLEVIS (ROD EYE)



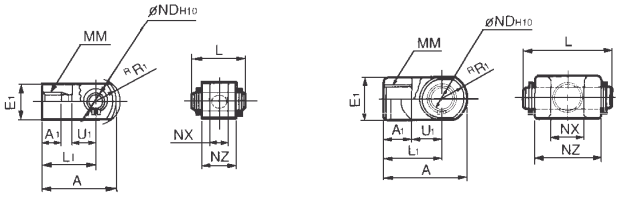
CQ2 SINGLE ROD CLEVIS

Part No	Bore Size	A	A_1	E_1	L_1	MM	R1	U_1	ND_{H10}	NX
I-G012	12	21.5	6	❑10	16	M5x0.8	6.3	7	5 $^{0}_{-0.048}$	5 $^{-0.4}_{-0.2}$
I-Z015	16	32	8	❑12	25	M6x1	8.1	14	5 $^{0}_{-0.048}$	6.4 $^{-0.3}_{-0.1}$
I-G02	20	34	8.5	❑16	25	M8x1.25	10.3	11.5	8 $^{0}_{-0.058}$	8 $^{-0.4}_{-0.2}$
I-G03	25	41	10.5	❑20	30	M10x1.25	12.8	14	10 $^{0}_{-0.058}$	10 $^{-0.4}_{-0.2}$
I-G04	32, 40	42	14	ø22	30	M14x1.5	12	14	10 $^{0}_{-0.058}$	18 $^{-0.5}_{-0.3}$
I-G05	50, 63	56	18	ø28	40	M18x1.5	16	20	14 $^{0}_{-0.070}$	22 $^{-0.5}_{-0.3}$
I-G08	80	71	21	ø38	50	M22x1.5	21	27	18 $^{0}_{-0.070}$	28 $^{-0.5}_{-0.3}$
I-G10	100	79	21	ø44	55	M26x1.5	24	31	22 $^{0}_{-0.084}$	32 $^{-0.5}_{-0.3}$

NCQ2 SINGLE ROD CLEVIS

Part No	Bore Size	A	A_1	E_1	L_1	MM	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 $^{-0.4}_{-0.2}$
RCS-015	16	32	6	❑12	25	8-32UNC	12	14	3/16 $^{0}_{-0.002}$	6.4 $^{-0.3}_{-0.1}$
RCS-02	20	34	6	❑16	25	10-32UNF	10.3	11.5	5/16 $^{0}_{-0.002}$	8 $^{-0.4}_{-0.2}$
RCS-025	25	41	8	❑20	30	1/4-28UNF	18	14	3/8 $^{0}_{-0.002}$	10 $^{-0.4}_{-0.2}$
RCS-03	32	42	16	ø22	30	5/16-24UNF	12	14	3/8 $^{0}_{-0.002}$	18 $^{-0.5}_{-0.3}$
RCS-04	40	42	11	ø22	30	3/8-24UNF	12	14	3/8 $^{0}_{-0.002}$	18 $^{-0.5}_{-0.3}$
RCS-05	50, 63	56	18	ø28	40	1/2-20UNF	16	20	1/2 $^{0}_{-0.003}$	22 $^{-0.5}_{-0.3}$
RCS-08	80	71	21	ø38	50	5/8-18UNF	21	27	3/4 $^{0}_{-0.003}$	28 $^{-0.5}_{-0.3}$
RCS-10	100	79	21	ø44	55	3/4-16UNF	24	31	7/8 $^{0}_{-0.003}$	32 $^{-0.5}_{-0.3}$

ACCESSORIES (MM)
SERIES NCQ2/CQ2
DOUBLE ROD CLEVIS (ROD EYE)



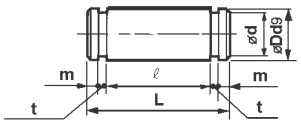
CQ2 DOUBLE ROD CLEVIS

Part No	Bore Size	A	A_1	E_1	L_1	MM	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 $^{-0.4}_{-0.2}$	10	14.6	IY-G012
Y-Z015A	16	28	11	❑12	21	M6x1	8.1	10	5 $^{0}_{-0.048}$	6.5 $^{-0.3}_{-0.1}$	12	16.6	IY-J015
Y-G02	20	34	8.5	❑16	25	M8x1.25	10.3	11.5	8 $^{0}_{-0.058}$	8 $^{-0.4}_{-0.2}$	16	21	IY-G02
Y-G03	25	41	10.5	❑20	30	M10x1.25	12.8	14	10 $^{0}_{-0.058}$	10 $^{-0.4}_{-0.2}$	20	25.6	IY-G03
Y-G04	32, 40	42	16	ø22	30	M14x1.5	12	14	10 $^{0}_{-0.058}$	18 $^{-0.5}_{-0.3}$	36	41.6	IY-G04
Y-G05	50, 63	56	20	ø28	40	M18x1.5	16	20	14 $^{0}_{-0.070}$	22 $^{-0.5}_{-0.3}$	44	50.6	IY-G05
Y-G08	80	71	23	ø38	50	M22x1.5	21	27	18 $^{0}_{-0.070}$	28 $^{-0.5}_{-0.3}$	56	64	IY-G08
Y-G10	100	79	24	ø44	55	M26x1.5	24	31	22 $^{0}_{-0.084}$	32 $^{-0.5}_{-0.3}$	64	72	IY-G10

NCQ2 DOUBLE ROD CLEVIS

Part No	Bore Size	A	A_1	E_1	L_1	MM	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 $^{-0.4}_{-0.2}$	10	14.6
RCD-015	16	28	6	❑12	21	8-32UNC	12	10	3/16 $^{0}_{-0.002}$	6.4 $^{-0.3}_{-0.1}$	12	16.6
RCD-02	20	34	6	❑16	25	10-32UNF	10.3	11.5	5/16 $^{0}_{-0.002}$	8 $^{-0.4}_{-0.2}$	16	21
RCD-025	25	41	8	❑20	30	1/4-28UNF	18	14	3/8 $^{0}_{-0.002}$	10 $^{-0.4}_{-0.2}$	20	25.6
RCD-03	32	42	16	ø22	30	5/16-24UNF	12	14	3/8 $^{0}_{-0.002}$	18 $^{-0.5}_{-0.3}$	36	41.6
RCD-04	40	42	16	ø22	30	3/8-24UNF	12	14	3/8 $^{0}_{-0.002}$	18 $^{-0.5}_{-0.3}$	36	41.6
RCD-05	50, 63	56	20	ø28	40	1/2-20UNF	16	20	1/2 $^{0}_{-0.003}$	22 $^{-0.5}_{-0.3}$	44	50.6
RCD-08	80	71	23	ø38	50	5/8-18UNF	21	27	3/4 $^{0}_{-0.003}$	28 $^{-0.5}_{-0.3}$	56	64
RCD-10	100	79	24	ø44	55	3/4-16UNF	24	31	7/8 $^{0}_{-0.003}$	32 $^{-0.5}_{-0.3}$	64	72

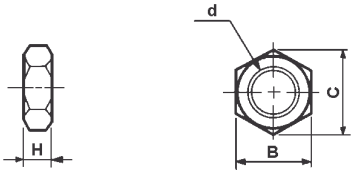
ACCESSORIES
SERIES NCQ2/CQ2
DOUBLE ROD CLEVIS PIN



CQ2 DOUBLE ROD CLEVIS PIN

Part No	Bore Size	Dd9	L	d	ℓ	m	t	Snap Ring
IY-G012	12	5 $^{-0.06}_{-0.03}$	14.6	4.8	10.2	1.5	0.7	Axial C Style 5
IY-J015	16	5 $^{-0.06}_{-0.03}$	16.6	4.8	12.2	1.5	0.7	Axial C Style 5
IY-G02	20	8 $^{-0.076}_{-0.04}$	21	7.6	16.2	1.5	0.9	Axial C Style 5
IY-G03	25	10 $^{-0.076}_{-0.04}$	25.6	9.6	20.2	1.55	1.15	Axial C Style 5
IY-G04	32, 40	10 $^{-0.076}_{-0.04}$	41.6	9.6	36.2	1.55	1.15	Axial C Style 5
IY-G05	50, 63	14 $^{-0.093}_{-0.05}$	50.6	13.4	44.2	2.05	1.15	Axial C Style 5
IY-G08	80	18 $^{-0.093}_{-0.05}$	64	17	56.2	2.55	1.35	Axial C Style 5
IY-G10	100	22 $^{-0.117}_{-0.065}$	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, please consult SMC Customer Service

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

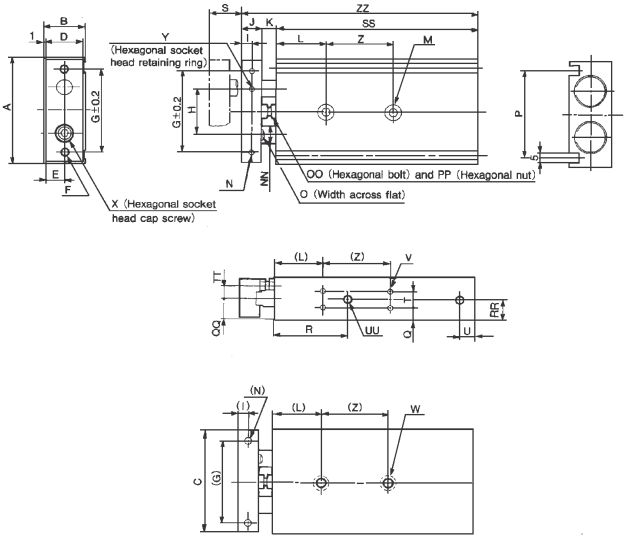
Accessories
Auto Switches

Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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



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

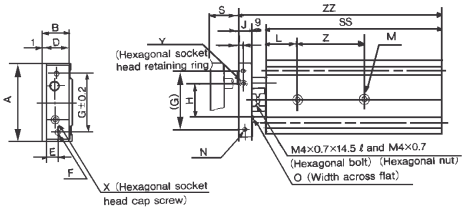
Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	NN	O	OO
CXS•25-10 to 100	80	30	78	28	14	2-M6x1.0 (Penetration)	60	35	6	12	12	30	2-Ø6.9 Through hole 2-Ø11 Depth of counter bore 6.3	2-M5x0.8 Depth of thread 7.5	Ø12	10	M6x1.0x18.5ℓ

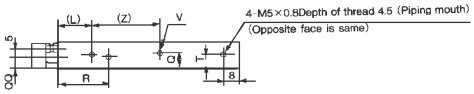
Model	P	PP	Q	QQ	R	RR	S	SS	T	TT	U	UU	V	W	X	Y	Z	ZZ
CXS•25-10	64	M6x1.0	8.5	15	46	15	10	82	13	9	9	4-1/8 Depth of thread 6.5 (Port) (Opposite face is same)	8-M5x0.8 Depth of thread 7.5 (Opposite face is same)	2-M8 x 1.25 Depth of thread 12	M6 x 1.0 x 14ℓ	M6x1.0x5ℓ	30	106
CXS•25-20							20	92										116
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

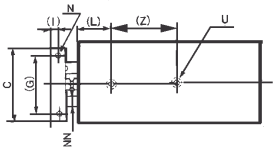
Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	NN	O	OO
CXS•32-10 to 100	98	38	96	36	18	2-M6x1.0 (Penetration)	75	44	8	16	14	30	2-Ø6.9 Through hole 2-Ø11 Depth of counter bore 6.3	2-M5x0.8 Depth of thread 8	Ø16	13	M8x1.25x23ℓ

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

DIMENSIONS
CXS SERIES DUAL ROD CYLINDER 10, 15







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

AUTO SWITCH TYPE
See Accessories Section for CXS

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

OPTIONS
- .....None
XB11..Long Stroke

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

SEE INSIDE FRONT COVER FOR

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

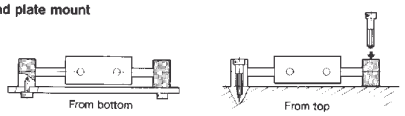
Type		Non-Lube Type / Air-Hydro Type
Fluid		Air / LP Oil
Proof Pressure		1.5MPa / 220 PSI
Max Operating Pressure		1MPa / 150 PSI
Min Operating Pressure	NCX2N10	0.15MPa / 22 PSI
	NCX2N1S	0.15MPa / 22 PSI
	NCX2N2S	0.1MPa / 15 PSI
Ambient and Operating Fluid Temp		5 ~ 60°C / 40 ~ 140°F
Piston Speed (Non-Lube 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. If this is not possible, please contact a SMCRepresentative.

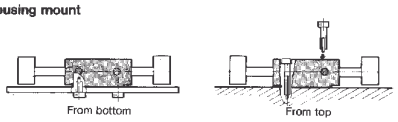
SELECTOR

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)

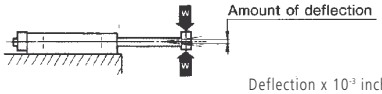
For a concentrated load at the center of the housing.



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

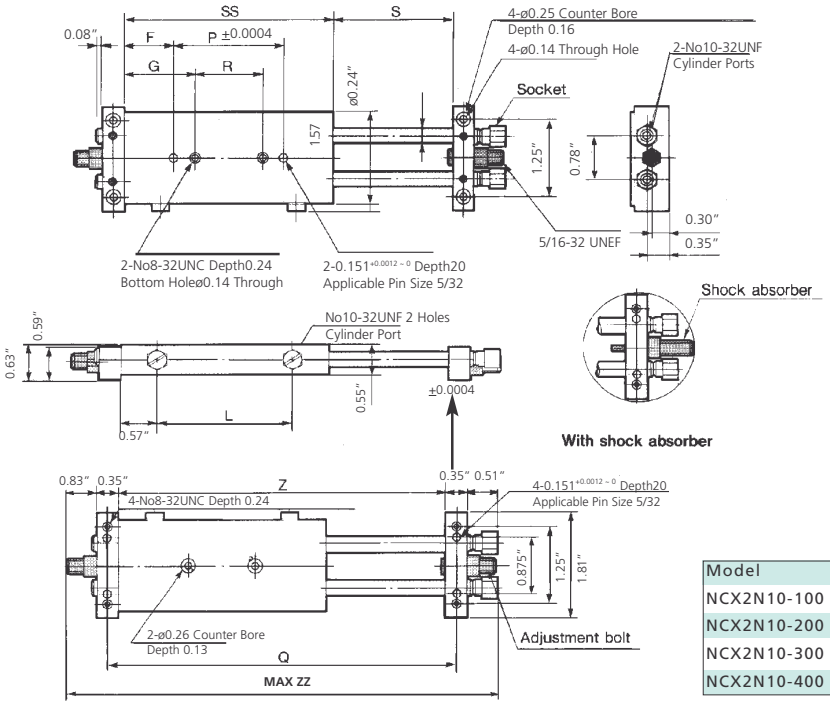
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

Model	Type	Operating Voltage	Maximum Current
D-A73	Reed	200VAC	5 ~ 10mA
D-A73H		24VDC	5 ~ 40mA
D-E73A		100VAC	5 ~ 20mA
D-A80	Reed	24VAC/DC or less	50mA
D-A80H		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

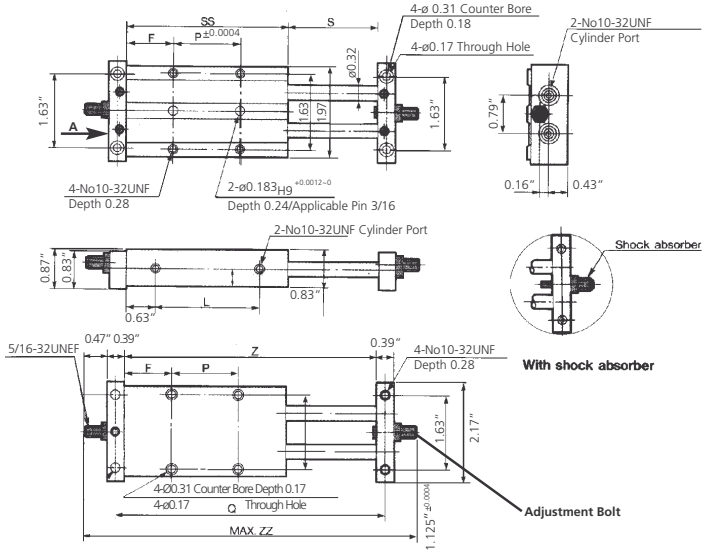
Slide Unit	Shock Absorber/Cap Type
NCX2N10	NRB031-025/NRBC031-025
NCDBX2N10	
NCDPX2N10	
NCX2N15	NRB031-025/NRBC031-025
NCDBX2N15	
NCDPX2N15	
NCX2N25	NRB050-030/NRBC050-030
NCDBX2N25	
NCDPX2N25	

DIMENSIONS
BASIC TYPE N10 SERIES NCX2



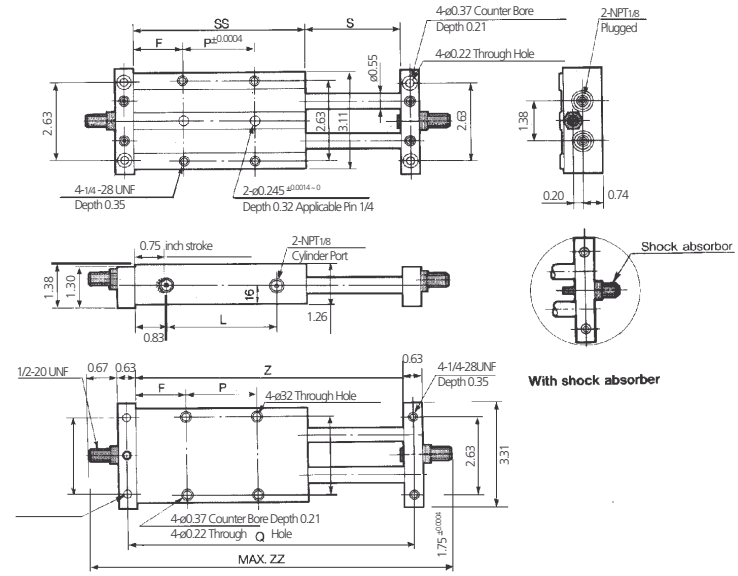
Model	F	G	L	P	Q	R	S	SS	Z	Adjust Bolt ZZ
NCX2N10-100	0.73	0.98	1.55	1.25	4.13	0.75	1.08	2.70	3.78	6.14
NCX2N10-200	1.23	1.48	2.55	1.25	6.13	0.75	2.08	3.70	5.78	8.14
NCX2N10-300	1.10	1.35	3.55	2.50	8.13	2.00	3.08	4.70	7.78	10.14
NCX2N10-400	1.60	1.85	4.55	2.50	10.13	2.00	4.08	5.70	9.78	12.14

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

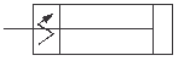
- Incremental position measurement to 0.1mm
- Compact cylinder design
- 21 standard sizes
- Non rotating piston rod
- End of stroke confirmation by standard autoswitches
- Use with counter or directly to PLC with high speed counting



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



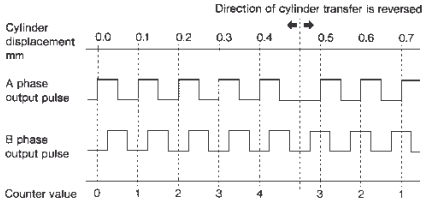
SENSOR SPECIFICATIONS

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)

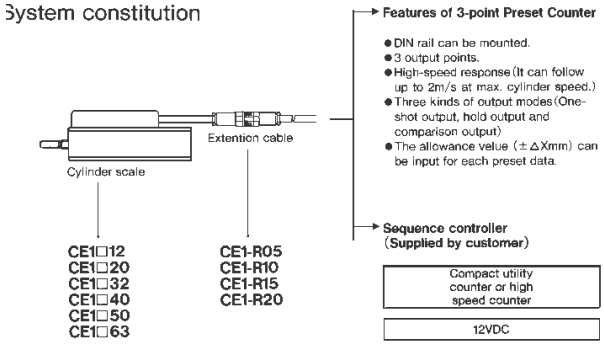
PRESET COUNTER SPECIFICATIONS

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

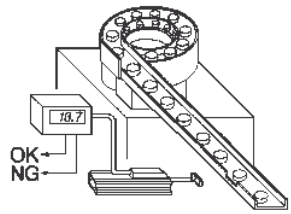
Lead wire color	Contact symbol
White	A
Blue	COM
Yellow	B
Brown	COM
Red	12V
Black, Sealed	GND

HOW TO ORDER
SEE NEXT PAGE ☞

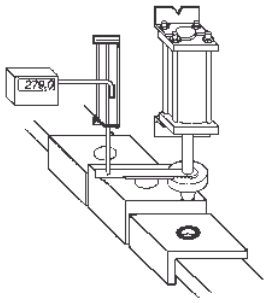
APPLICATIONS
SEE NEXT PAGE ☞

Applications

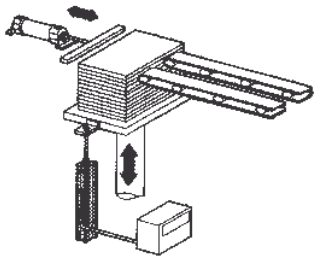
Parts inspection



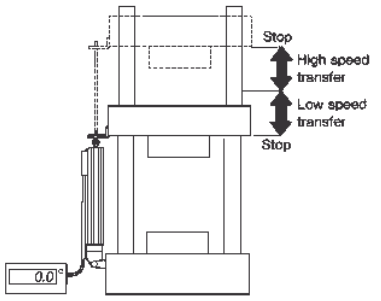
Confirmation of press-fitting



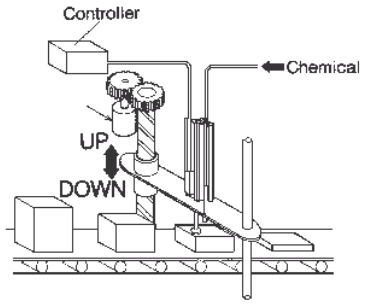
Detection of lifter position



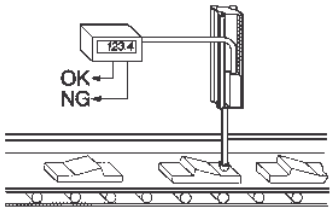
Detection of mold deceleration position



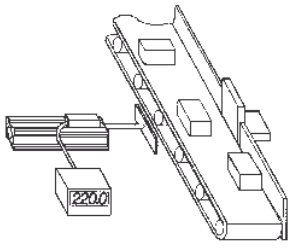
Adjustment of nozzle height



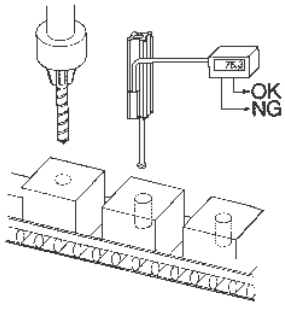
Directional discrimination



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

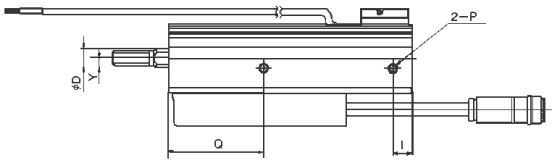
How To Order
Preset Counter Series CEU1

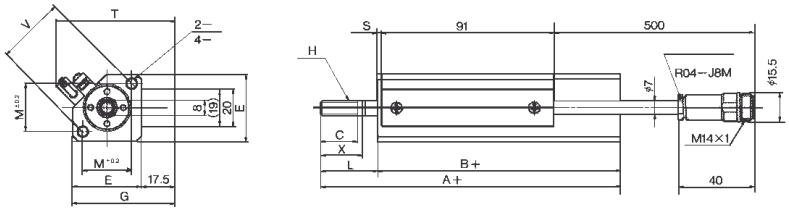
CEU1 ○ — D

Control Output

Nil ...NPN Open Collector
P .....PNP Open Collector

Dimensions
Cylinder Scale Series CE1 Ø12, Ø20





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

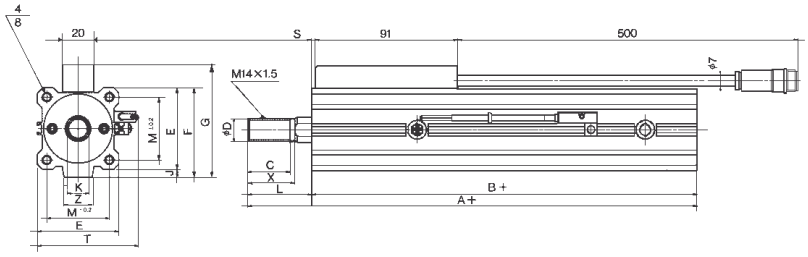
Accessories
Autoswitches

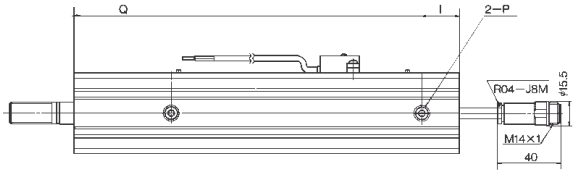
See Series CDQ2 in Actuators Section of Catalog

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

MADE IN USA

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

*For calculation of side loading, please consult SMC Customer Service



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

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
For longer strokes, please contact SMC Customer Service

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

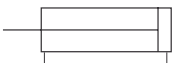
APPLICABLE AUTO SWITCH
See Accessories Section

OPTION
- ..... G Port
XC18 ... NPT Ports

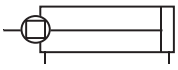
MORE ACCESSORIES SEE NEXT PAGE ☞
DIMENSIONS SEE NEXT PAGE ☞

SYMBOLS

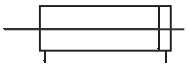
Double Action



Non-Rotating



Through Rod

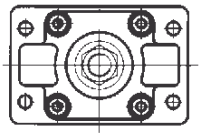
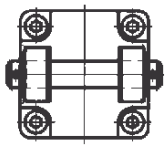
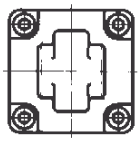


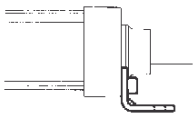
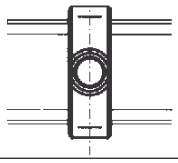
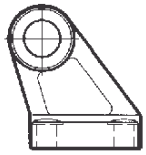
Construction – Aluminum
Barrel – Anodized Aluminum
Piston rod – C45 Hard Chrome
Ø32 - Non Rotate, Stainless Steel Piston Rod

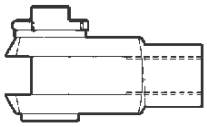
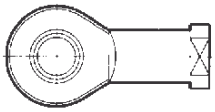
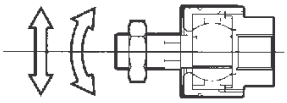
ACCESSORIES
AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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

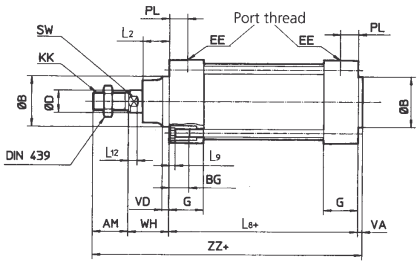
Bore	GKM Rod Clevis	KJ Piston Rod Ball Joint	JA Floating Joint
			
32	GKM10-20	KJ10DM10x1.25	JA30-10-125
40	GKM12-24	KJ12DM12x1.25	JA40-12-125
50/63	GKM16-32	KJ16DM16x1.5	JA50-16-150
80/100	GKM20-40	KJ20DM20x1.5	JAH50-20-150

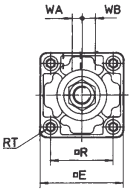
ACCESSORIES
C 95 REPAIR KITS

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

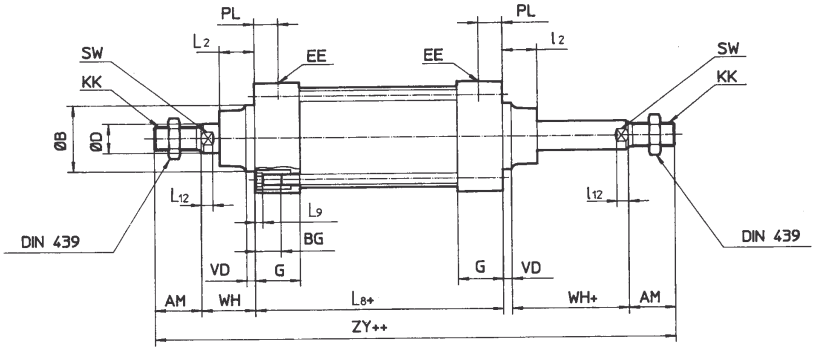




Diameter	AM	ØB	ØD	EE	PL	RT	L12	KK	SW	G	BG	ℓ8	VD	VA	WA	WB	WH	ZZ	ZY
32	22	30	12	G1/8	13	M6	6	M10X1.25	10	27	16	94	4	4	4	6.5	26	146	190
40	24	35	16	G1/4	14	M6	6.5	M12X1.25	13	27	16	105	4	4	4	9	30	163	213
50	32	40	20	G1/4	15.5	M8	8	M16X1.5	16	31.5	16	106	6	4	5	10.5	37	179	244
63	32	45	20	G3/8	16.5	M8	8	M16X1.5	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

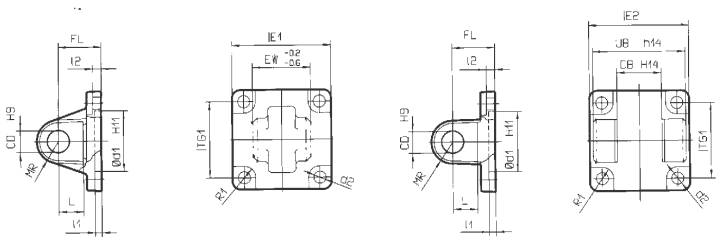


=(2Y + 2 x Stroke)

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

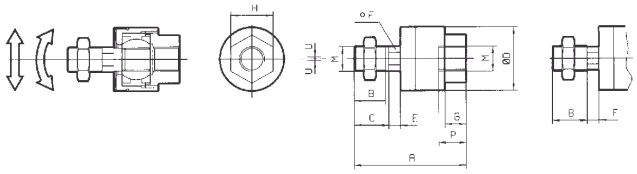
REAR FEMALE CLEVIS - D



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

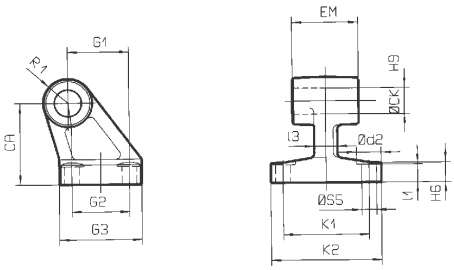
MORE DIMENSIONS
SEE NEXT PAGE ☞

DIMENSIONS
FLOATING JOINT - JA : STEEL, ZINC CHROMATE PLATED



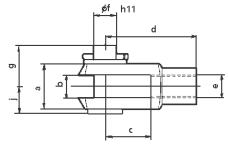
Cyl. Diameter	Model No	M	A	B	C	ØD	E	F	G	H	P	U	Load (KN)	Weight (g)	Angular Deflection
32	JA30-10-125	M10X1.25	49.5	19.5	-	24	5	8	8	17	9	0.5	2.5	70	±5
40	JA40-12-125	M12X1.25	60	20	-	31	6	11	11	22	13	0.75	4.4	160	±5
50/63	JA50-16-150	M16X1.5	71.5	22	-	41	7.5	14	13.5	27	15	1	11	300	±5
80/100	JAH50-20-150	M20X1.5	101	28	31	59.5	11.5	24	16	32	18	2	18	1080	±5

DIMENSIONS
ANGLED REAR CLEVIS FOOT - E



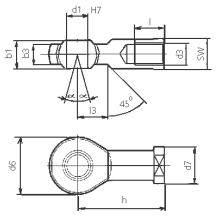
Diameter	Model No	Ød2	ØCK	ØS5	K1	K2	l3	G1	ℓ1	G2	EM	G3	CA	H6	R1
32	E5032	11	10	6.6	38	51	10	21	7	18	26	31	32	8	10
40	E5040	11	12	6.6	41	54	10	24	9	22	28	35	36	10	11
50	E5050	15	12	9	50	65	12	33	11	30	32	45	45	12	12
63	E5063	15	16	9	52	67	14	37	11	35	40	50	50	12	15
80	E5080	18	16	11	66	86	18	47	12.5	40	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

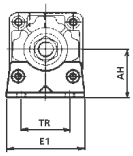
DIMENSIONS
PISTON ROD BALL JOINT - KJ: STEEL, ZINC CHROMATE PLATED

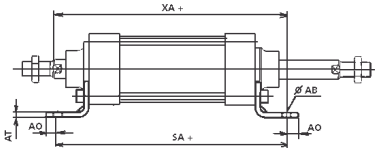


Cyl. Diameter	Model No	d3	d1	h	d6	b3	b1	1	d7	α	13	sw
32	KJ10D	M10X1.25	10	43	28	10.5	14	20	19	13°	14	17
40	KJ12D	M12X1.25	12	50	32	12	16	22	22	13°	16	19
50/63	KJ16D	M16X1.5	16	64	42	15	21	28	27	15°	26	32
80/100	KJ20D	M20X1.5	20	77	50	18	25	33	34	15°	26	32

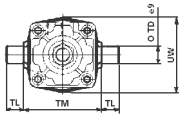
DIMENSIONS
MOUNTING ACCESSORIES

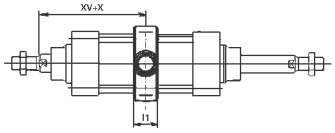
FOOT, L



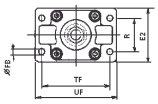


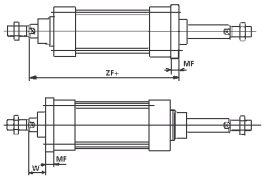
CENTRE TRUNNION, T





FLANGE, F

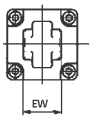


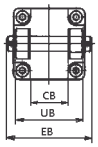


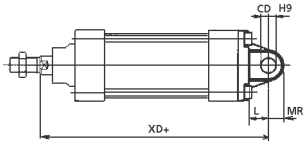
Rear Mounting

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	l1	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

FOR DETAILED INFORMATION ON SERIES C95 ACCESSORIES, PLEASE REFER TO CAT:N306

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

NOTE: PART NUMBER IS FOR GUIDE UNIT ONLY, APPLICABLE BASIC TYPE C95 CYLINDER SHOULD BE ORDERED SEPARATELY. PLEASE CONSULT SMC CANADA CUSTOMER SERVICE.

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

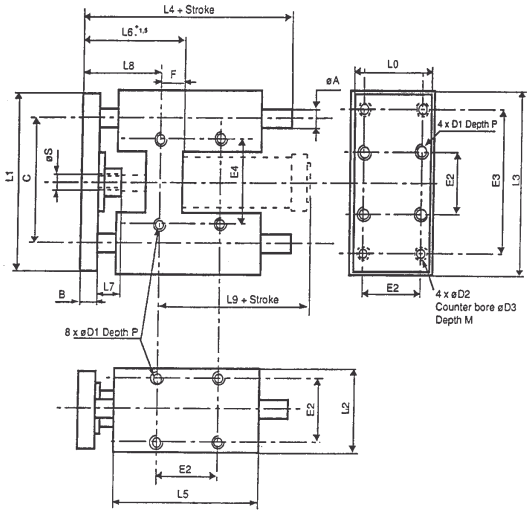
STROKE
20, 50, 80, 100, 125, 160, 200, 250, 320, 400, 500

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

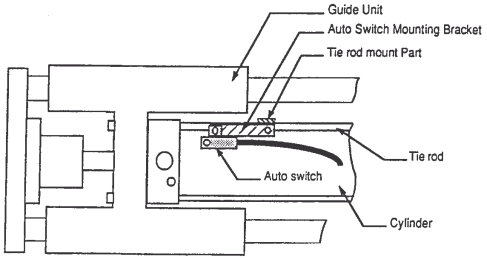
C95 Series
VDMA 24562

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

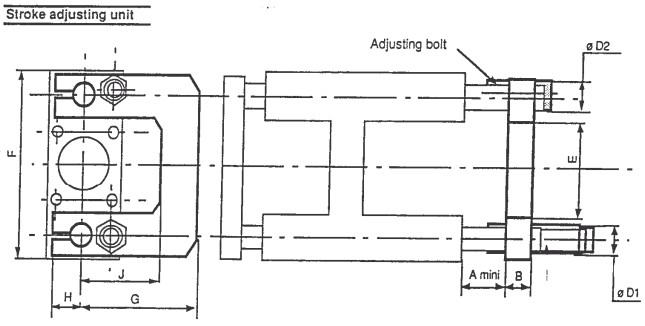
- With Adjusting Bolt
- With One Shock Absorber (Order Separately)



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



MADE IN CANADA

MADE IN USA

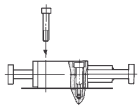
TECHNICAL SPECIFICATIONS

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*				

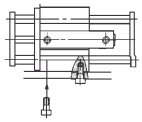
FOR INFORMATION ON BORE SIZES 63, 80 AND 100MM, PLEASE CONSULT SMC CUSTOMER SERVICE

MOUNTINGS

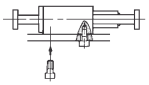
❶Top face mounting



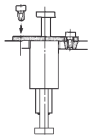
❸Left and right side mounting



❷Bottom face mounting



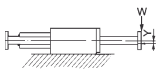
❹Front face flange mountin



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
For longer strokes, please contact your local SMC Sales Office

TYPE OF SWITCHES
See Auto Switch Accessories

NO OF SWITCHES
- .....2 Switches
S .....1 Switch
n .....n Switches

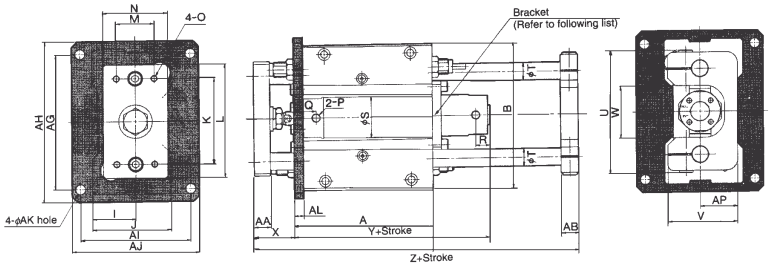
OPTIONS
- .....None
XC18..NPT Port

FOR INFORMATION ON BORE SIZES 63, 80 AND 100MM, PLEASE CONSULT SMC CUSTOMER SERVICE

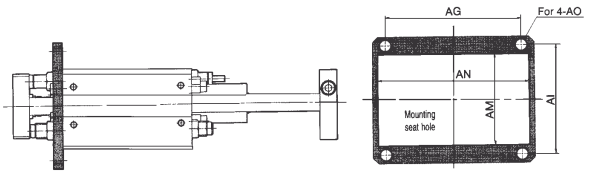
DIMENSIONS
SEE NEXT PAGE ☞

SEE INSIDE FRONT COVER FOR

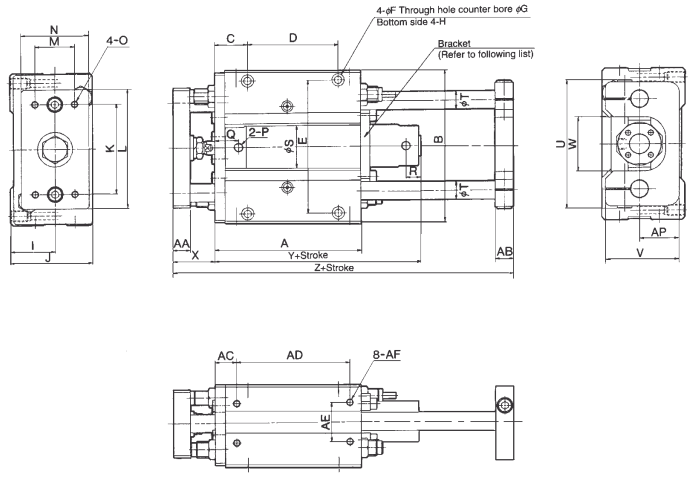
DIMENSIONS FLANGE MOUNT



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	75, 100, 125, 150, 200, 250, 300	134	150	92	108	9	9	75	135	M8
32		134	150	102	118	9	9	85	140	M8
40		170	186	134	150	9	12	105	175	M8
50		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	75, 100, 125, 150, 200, 250, 300	109	15	13	16.5	85	30	M6X1depth12	30	130	26.5	65	113	6.6	11depth8	M10X1.5depth18	35	65	70	100
32		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		182	23	21	22	150	45	M10X1.5 depth 20	50	194	37	120	170	11	17depth12	M14x2depth25	55	103	115	152
63		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	75, 100, 125, 150, 200, 250, 300	35	54	M6X1depth13	1/8	21	14	31	13	100	57	42	37	80	175
32		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		56	90	M10X1.5depth21	1/4	26	15	58	25	164	94	70	55	104	285
63		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

Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

FOR INFORMATION ON BORE SIZES 63, 80 AND 100MM, PLEASE CONSULT SMC CUSTOMER SERVICE

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



MADE IN CANADA
JANUARY 2000

MADE IN USA

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

BORE SIZE
12 ...12mm
16 ...16mm
20 ...20mm
25 ...25mm
32 ...32mm
40 ...40mm
50 ...50mm
63 ...63mm
80 ...80mm
100 ...100mm

PORTING
- .....PT
N .....NPT

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

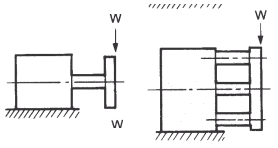
ACCESSORIES AUTO SWITCHES SERIES MGP

Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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 or less
								12V	
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

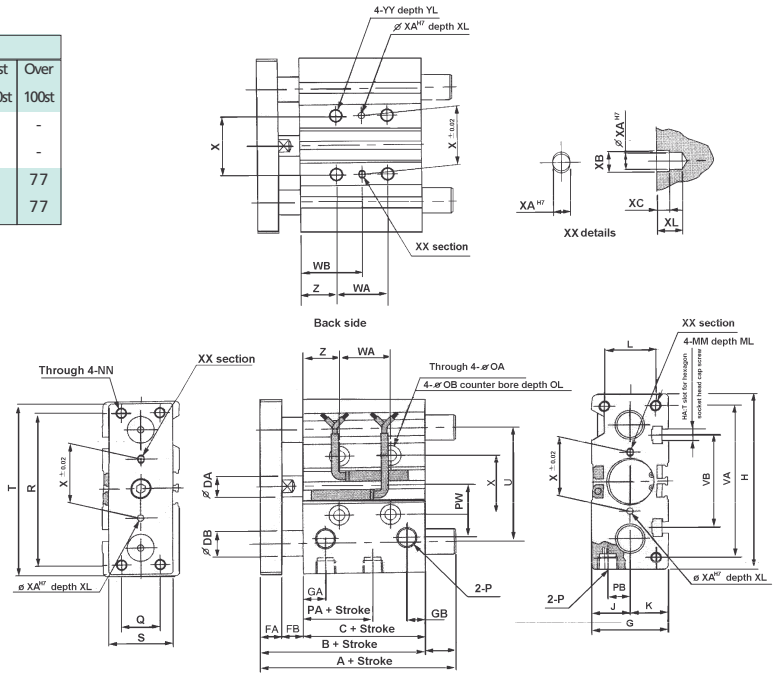
Bore Size (mm)	Standard Stroke (mm)	WA			WB		
		Under 30st	Over 30st Under 100st	Over 100st	Under 30st	Over 30st Under 100st	Over 100st
12	10, 20, 30, 40, 50, 75, 100	20	40	-	15	25	-
16		24	44	-	17	27	-
20	20, 30, 40, 50, 75, 100,125 150, 175, 200	24	44	120	29	39	77
25		24	44	120	29	39	77

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

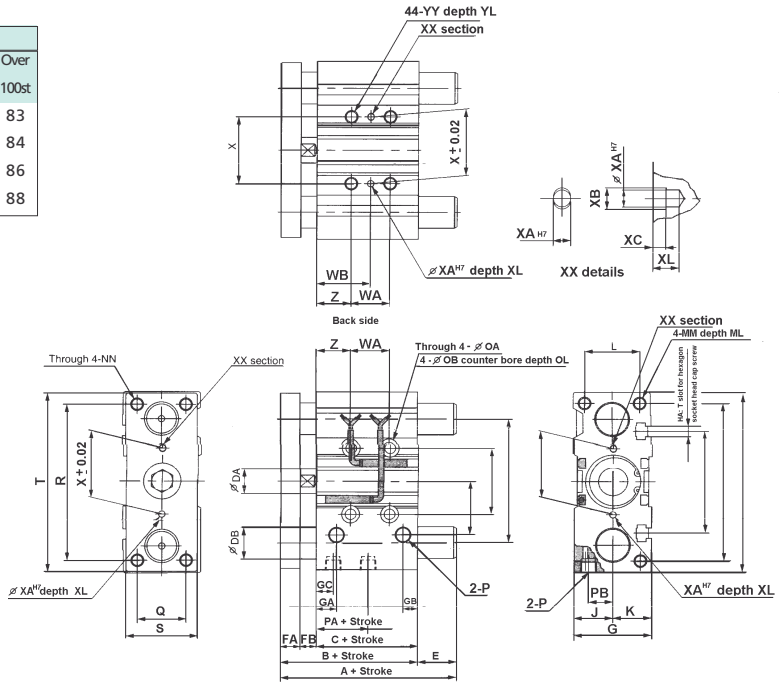
Bore Size (mm)	Standard Stroke (mm)	WA			WB		
		25st	50, 75, 100st	Over 100st	25st	50, 75, 100st	Over 100st
32	25, 50, 75, 100, 125, 150, 175, 200	24	48	124	33	45	83
40		24	48	124	34	46	84
50		24	48	124	36	48	86
63		28	52	128	38	50	88

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

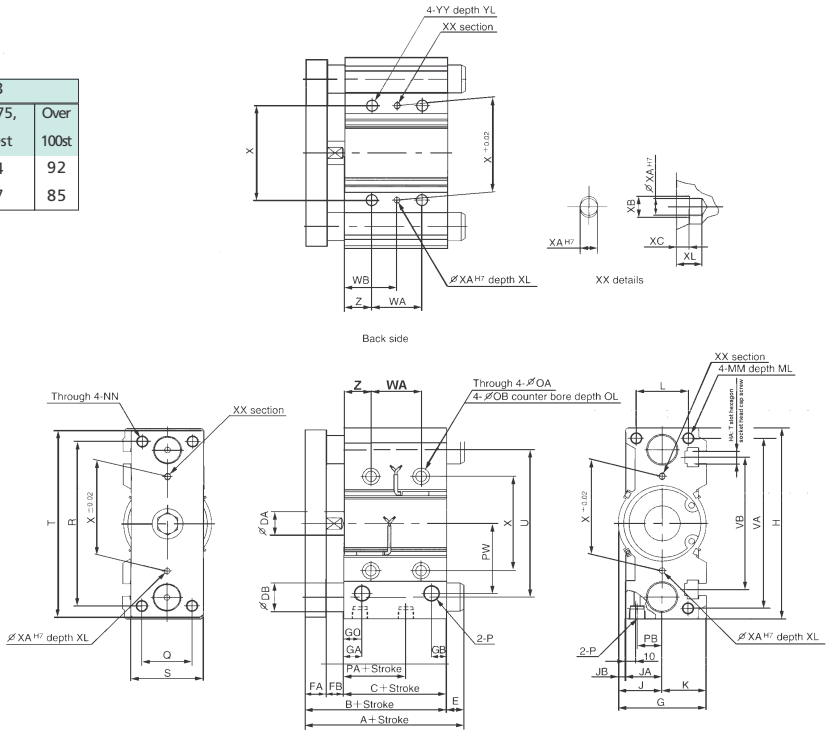
Bore Size (mm)	Standard Stroke (mm)	WA			WB		
		25st	50, 75, 100st	Over 100st	25st	50, 75, 100st	Over 100st
80	25, 50, 75, 100, 125, 150, 175, 200	28	52	128	42	54	92
100		48	72	148	35	47	85

MGPM (Slide Bearing) Dimensions A, DB, E

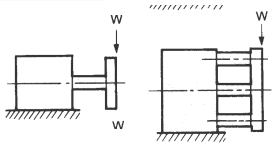
Bore Size (mm)	A		DB	E	
	25, 50st	Over 50st		25, 50st	Over 50st
80	115	142	30	18.5	45.5
100	137	162	36	21	46

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



LOAD DATA



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



MADE IN USA

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, please consult SMC Customer Service

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

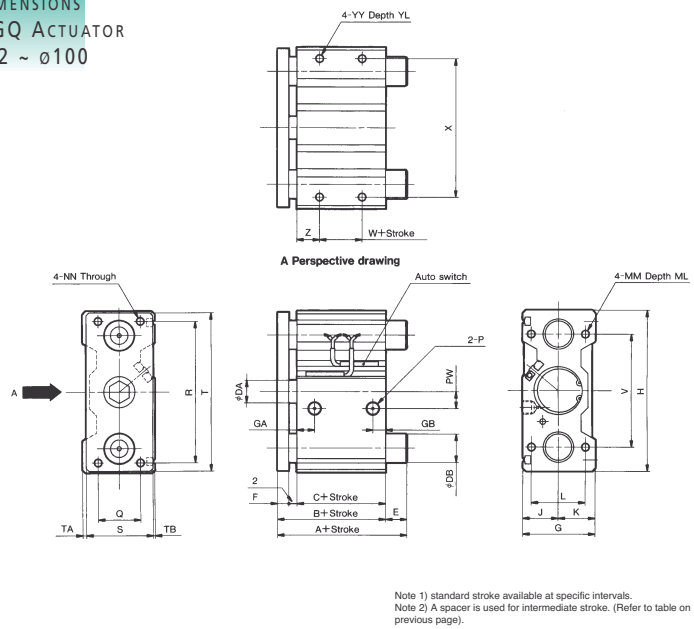
OPTIONS
- .....None
XC18..NPT Ports

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.

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

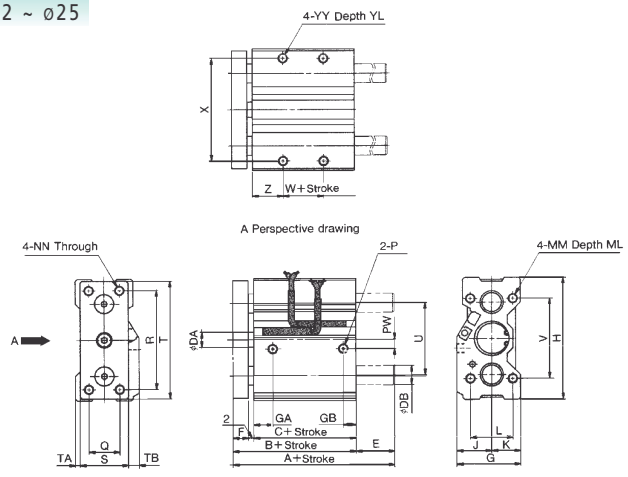
Other dimensions are the same as for slide bearing.

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	A		DB	E	
(mm)	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	A		DB	E	
(mm)	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

MADE IN CANADA MADE IN USA

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

If the weight of your mounting fittings exceed the above limits, please contact your local SMC Sales Office.

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 1/100TH OF AN INCH

STROKE (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

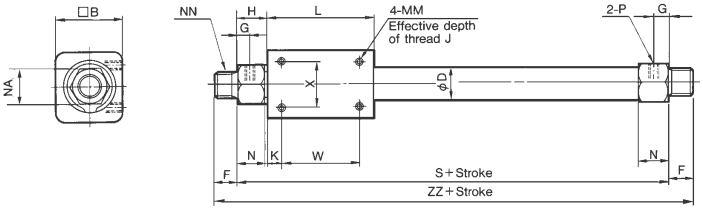
ACCESSORIES NCY2 RODLESS CYLINDER

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)

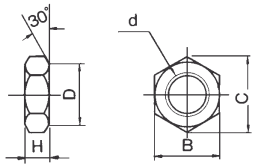
Note: Avoid using an intermediate stop to prevent the Magnetic Piston from de-coupling

DIMENSIONS
NCY2B6•10•15



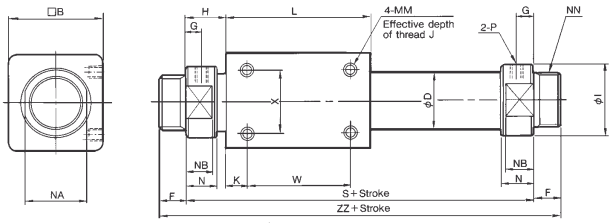
Model	Stroke Range	øD	□B	F	G	H	K	L	N	NA	MM	J	NN	P	S	W	X	ZZ
NCY2B6	~12 inch	0.30	0.67	0.37	0.20	0.56	0.19	1.38	0.41	0.55	No 5-40UNC	0.16	3/8-24 UNF	No 10-32 UNF	2.50	1.00	0.39	3.24
NCY2B10	~20 inch	0.47	0.98	0.37	0.20	0.50	0.19	1.50	0.44	0.55	No 5-40UNC	0.18	3/8-24 UNF	No 10-32 UNF	2.50	1.13	0.63	3.24
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

MADE IN CANADA

MADE IN USA

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

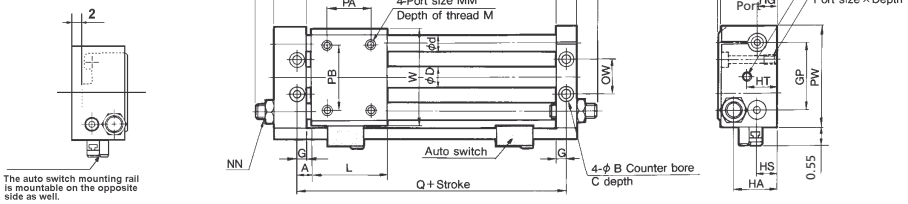
Seal Kits		Shock Absorber	
ø6	CY2S6-PS	ø6	NRB37-025
ø10	CY2S10-PS	ø10	NRB37-025
ø15	CY2S15-PS	ø15	NRB50-030
ø25	CY2S25-PS	ø25	NRB56-045
ø32	CY2S32-PS	ø32	NRB75-045
ø40	CY2S40-PS	ø40	NRB75-045

ACCESSORIES
SERIES NCY2
AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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	5 ~ 40 mA
		100VAC	5 ~ 20mA
D-A76H	Reed	4 ~ 8 VDC	20mA
D-A80, D-A80H	Reed	24VAC/DC or less	50mA
		48AC/DC	40mA
		100VAC/DC	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

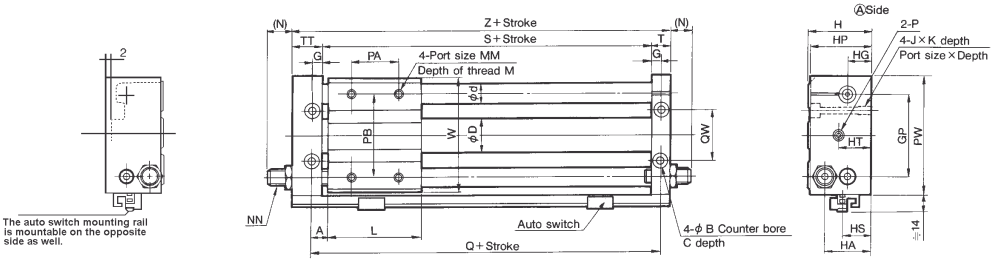
DIMENSIONS
NC(D)Y2S 6 • 10



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	~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
NCDY2S6																					
NCY2S10	~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
NCDY2S10																					

Model	P	*PA	PB	PW	Q	QW	S	T	TT	W	Z
NCY2S6	No10-32UNF	1.00	1.00	1.97	2.13	0.63	1.73	0.39	0.63	1.81	2.75
NCDY2S6											
NCY2S10	No10-32UNF	1.00	1.50	2.36	2.38	0.88	1.86	0.49	0.81	2.28	3.16
NCDY2S10											

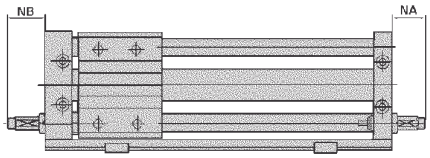
DIMENSIONS
NC(D)Y2S 15 • 25• 32 • 40



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

See "Shock Absorber" in CAT:N371 for details

HOW TO ORDER
SERIES NCY2
BASIC TYPE - LOW SPEED RODLESS CYLINDER - OPTION

NCY2 B ○○ — ○ — XB13

- ○ (1st): BORE SIZE
- ○ (2nd): MAGNETIC HOLDING POWER
- ○ (3rd): STROKE (INCH)

HOW TO ORDER
SERIES NCY2
SLIDER TYPE - LOW SPEED RODLESS CYLINDER - OPTION

NC(D)Y2 S ○○ — ○○ — ○ — XB13

- ○ (1st): BORE SIZE
- ○ (2nd): MAGNETIC HOLDING POWER
- ○ (3rd): STROKE (INCH)
- ○ (4th): STROKE ADJUSTMENT
- ○ (5th): 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

- ○ (1st): BORE SIZE
- ○ (2nd): MAGNETIC HOLDING POWER
- ○ (3rd): STROKE (INCH)

HOW TO ORDER
SERIES NCY2
SLIDER TYPE - AIR HYDRO RODLESS CYLINDER - OPTION

NC(D)Y2 S ○○ — ○○ — ○ — X116

- ○ (1st): BORE SIZE
- ○ (2nd): MAGNETIC HOLDING POWER
- ○ (3rd): STROKE (INCH)
- ○ (4th): STROKE ADJUSTMENT
- ○ (5th): 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

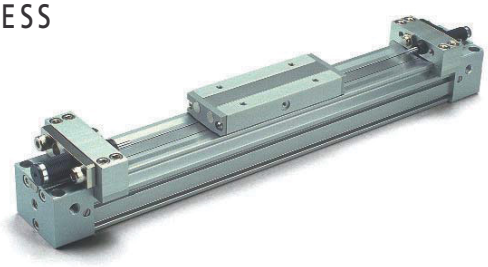
Model	HT	P	Restriction Diameter
NCY2S25	20	Rc(PT)1	7.5
NCY2S32	24		
NCY2S40	25	Rc(PT)1/4	10

See Technical Drawing in CAT:330

MADE IN CANADA

MADE IN USA

MECHANICAL JOINT TYPE RODLESS CYLINDER: BASIC TYPE
BORE SIZES
Ø16,25,32,40,50,63,80,100



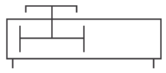
- Compact Body Dimensions
- Various Mounting Options
- Long Life Seal System
- Built-In Magnet for Auto Switch Sensing
- Extended Range of Bore Size

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

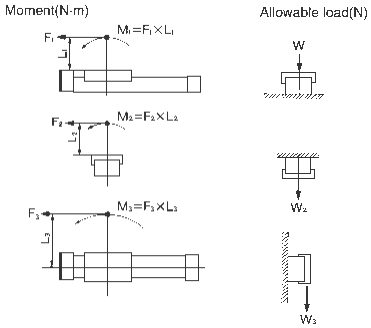


DIMENSIONS SEE NEXT PAGE ☞

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

MOMENT (NM)



FOR SIZING INFORMATION, PLEASE REFER TO CAT:E253 OR CAT:N331, OR CONSULT SMC CUSTOMER SERVICE

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

G — PIPING
- .....Standard
G .....Centralized Piping Type

Standard Stroke (mm)
100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1200, 1400, 1600, 1800, 2000

(For longer strokes please consult your local SMC Sales Office)

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

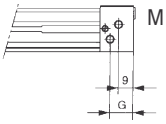
NO OF STROKE ADJUSTING UNIT
- .....2 Pieces
S .....1 Piece

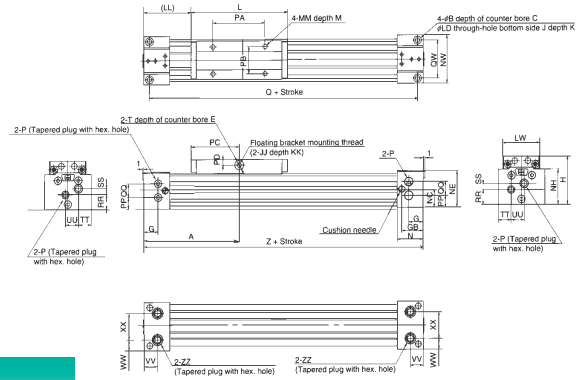
APPLICABLE AUTO SWITCHES
See Accessories Section

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

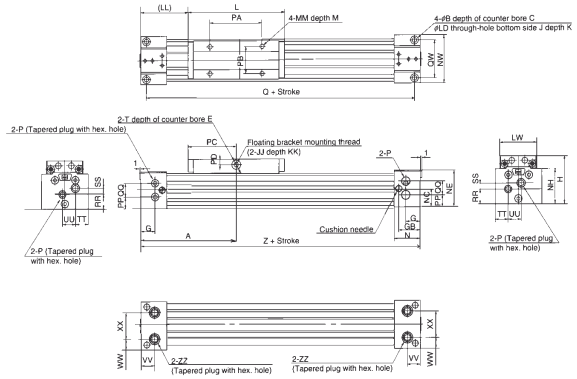
PORTS
- .....PT Ports
XC18 ...NPT Ports (25~63 Only)

DIMENSIONS
CENTRALIZED PIPING TYPE Ø16~40

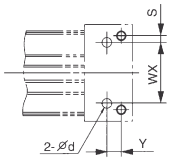


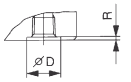


DIMENSIONS
CENTRALIZED PIPING TYPE Ø50~100



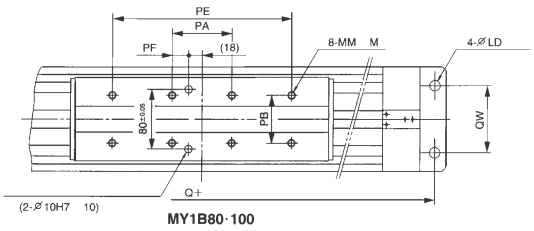
DIMENSIONS
MACHINING OF MOUNTING SURFACE



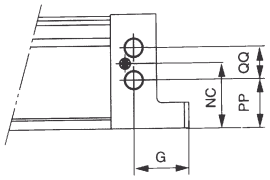


Ø16,20,25,32,40,50,63,80,100 bottom piping

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

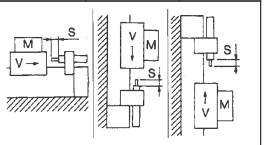
Model	A	B	C	E	G	GB	H	J	JJ	K	KK	L	LD	LL	LW	M
MY1B16	80	6	3.5	2	14	17	37	M5x0.8	M4x0.7	10	7.5	80	3.5	40	30	6
MY1B20	100	7.5	4.5	2	12.5	20.5	46	M6X1	M4x0.7	12	11	100	4.8	50	37	8
MY1B25	110	9	5.5	2	16	24.5	54	M6x1	M5x0.8	9.5	9	110	5.6	55	42	9
MY1B32	140	11	6.5	2	19	30	68	M8x1.25	M5X0.8	16	10	140	6.8	70	52	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

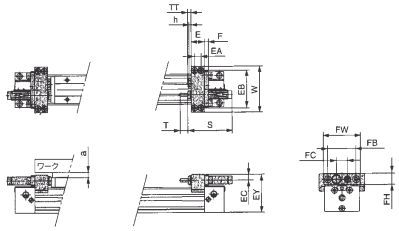
STROKE ADJUSTING UNIT

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"



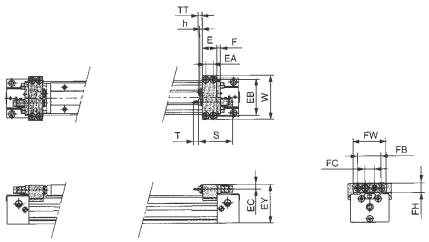
Since the EY size of type H unit is greater than the table top height (H dimension), when a workpiece is loaded that is larger than the full length (L dimension) of the slide table allow a clearance of size "a" or larger at the workpiece side.

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	

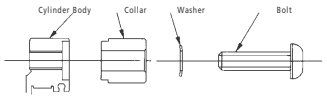
MORE DIMENSIONS SEE NEXT PAGE ☞

ACCESSORIES
AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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

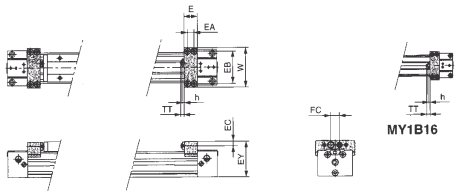


Fixing bolt maximum torque

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

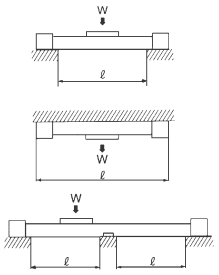
(dimensions applicable to centralized piping type also)
With adjusting bolt "A"

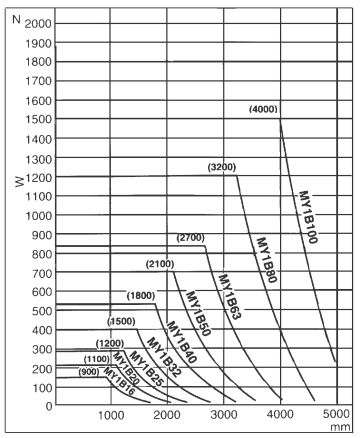


Model	E	EA	EB	EC	EY	FC	h	TT	W
MY-A16A	14.6	7	34.4	4.2	36.5	-	2.4	5.4 (Max11)	43
MY-A20A	19	9	43	5.8	45.6	13	3.2	6(Max12)	53
MY-A25A	20	10	49	6.5	53.5	13	3.5	5(Max16.5)	60
MY-A32A	25	12	61	8.5	67	17	4.5	8(Max20)	74
MY-A40A	31	15	76	9.5	81.5	17	4.5	9(Max25)	94

TECHNICAL SPECIFICATIONS

Unsupported span length not to exceed lengths shown by graph.



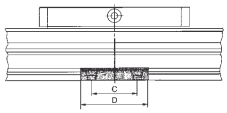


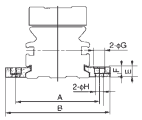
In case of Long Stroke

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.

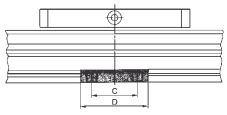
DIMENSIONS
SIDE SUPPORT BRACKET

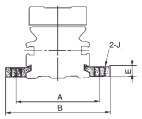
COUNTERBORED (SIDE SUPPORT A)





TAPPED (SIDE SUPPORT B)

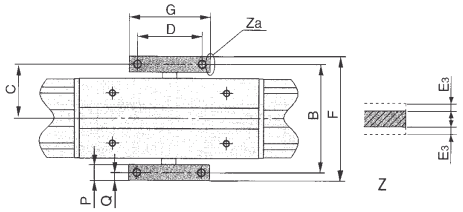




FOR INFORMATION ON SIZING, PLEASE CONTACT SMC CUSTOMER SERVICE OR YOUR SMC TECHNICAL SALES REPRESENTATIVE

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

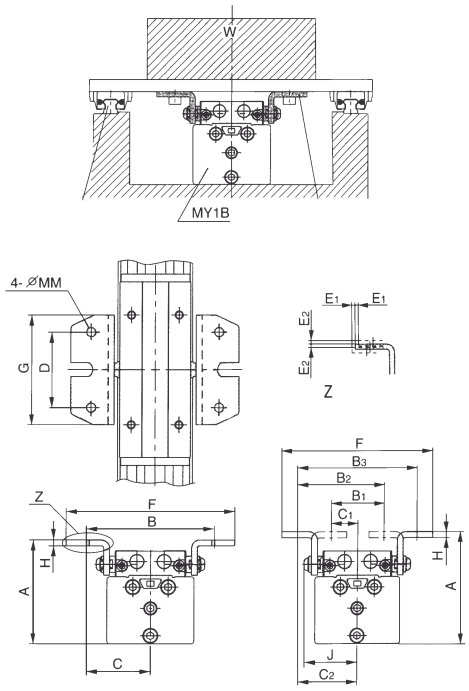
DIMENSIONS
FLOATING JOINT DRIVE ADAPTOR MY-J16•20•50•63



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

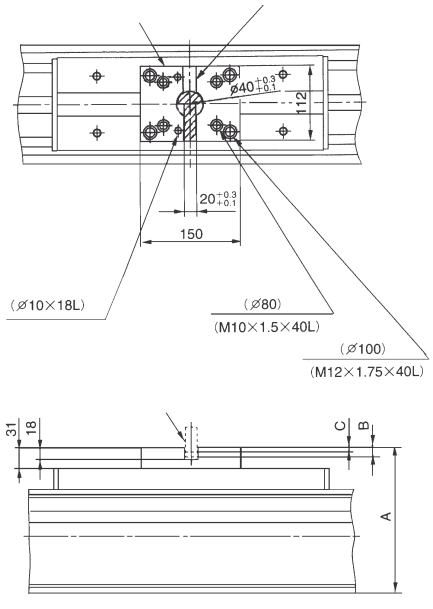
DIMENSIONS
FLOATING JOINT DRIVE ADAPTOR MY-J25•32•40



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



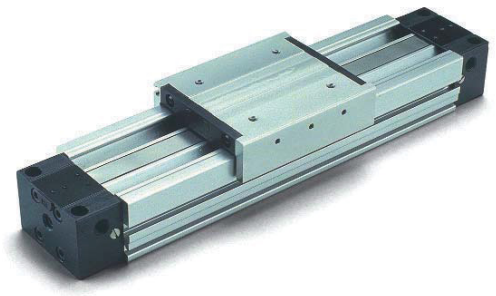
Part N°	Cylinder	A	B(max)	C(min)	Torque (Nm)
MY-J80	MY1B80	181	15	9	25
MY-J100	MY1B100	221	15	9	44

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

MADE IN CANADA

MADE IN USA

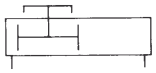


TECHNICAL SPECIFICATIONS

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

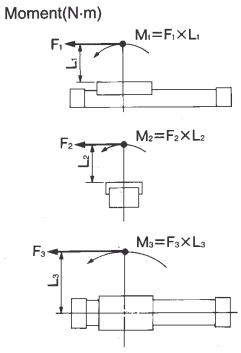
The Operating Speed must not exceed 1000mm/s when air cushion alone is used.

SYMBOLS

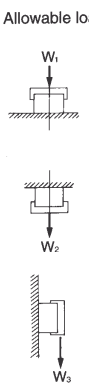


ALLOWABLE MOMENT AND MAXIMUM ALLOWABLE LOAD

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

(For longer strokes please consult your local SMC Sales Office).

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

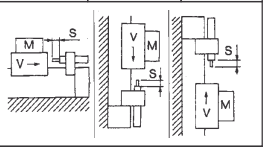
Applicable Cylinder		Ø 16		Ø20			Ø25			Ø32		
Part Number and description		A	L	A	L	H	A	L	H	A	L	H
Stroke Adjusting Range				Any position on the whole stroke								
Fine Adjusting Range (mm)			0~-5.6		0~- 6			0~11.5			0~-12	
Shock Absorber Type		-	RB0806	-	RB0806	RB1007	-	RB1007	RB1412	-	RB1412	RB2015
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		

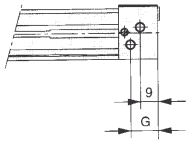
g: Gravitational acceleration =9.81m/s²
v: Speed of colliding object (m/s)
M: Weight of colliding object (kg)
F: Cylinder thrust (N)
s: Shock absorber stroke (m)
The speed of the colliding object is measured in the moment of impact with the shock absorber.
(Note) The absorption capacity of each unit 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, please consult SMC Customer Service

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

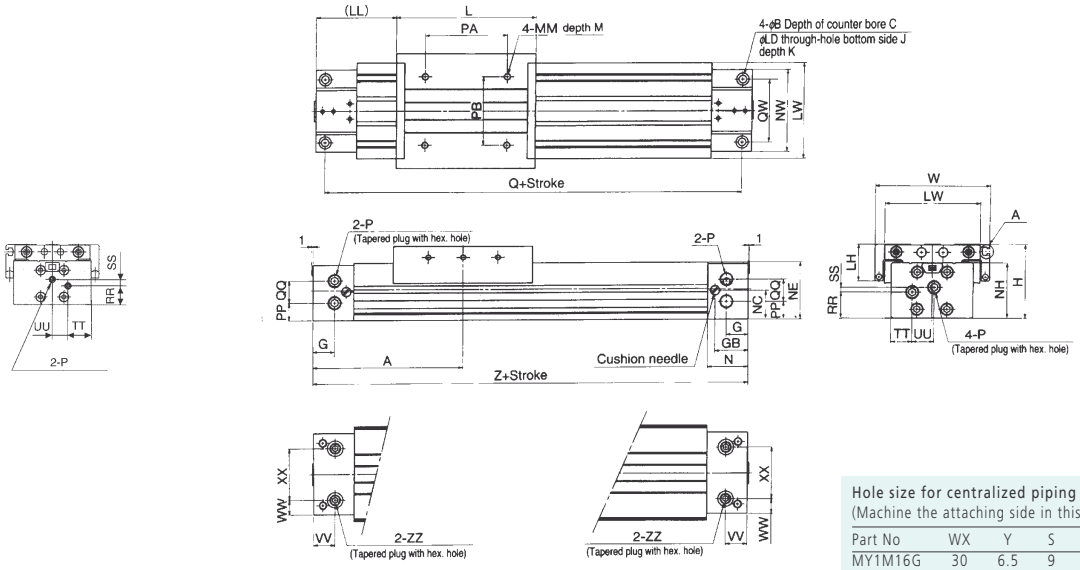
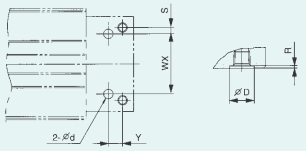


TABLE OF DIMENSIONS
SEE NEXT PAGE

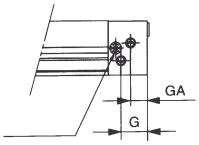
Hole size for centralized piping at bottom.
(Machine the attaching side in this size).

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

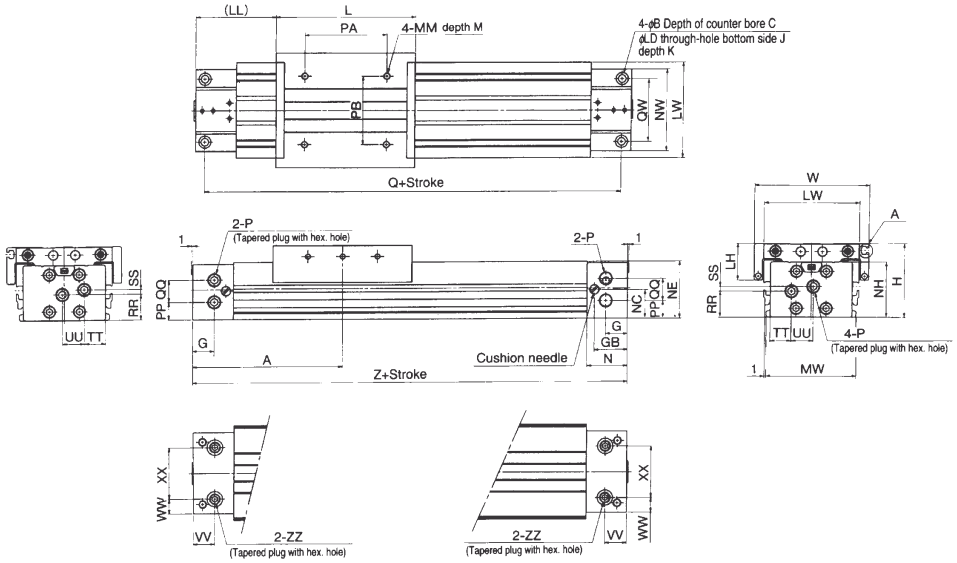
Ø16,20,25,32,40,50,63 bottom piping

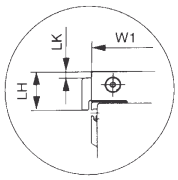


DIMENSIONS
CENTRALIZED PIPING TYPE: Ø25 ~Ø63



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

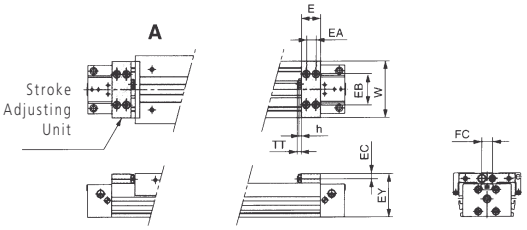
ACCESSORIES
STROKE ADJUSTING UNIT

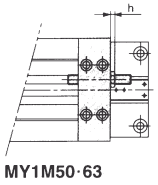
Unit A Including adjusting bolt
Unit L low load shock absorber and adjusting bolt
Unit H High load shock absorber and adjusting bolt

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

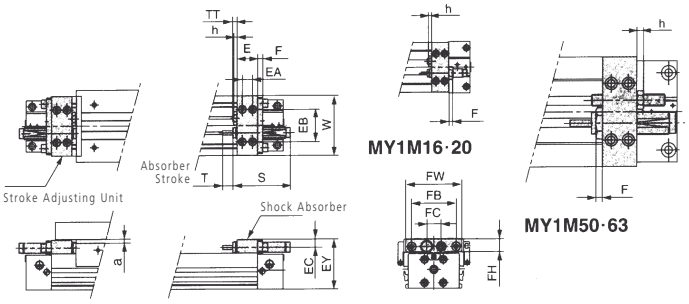




Part No	E	EA	EB	EC	EY	FC	h	TT	W
MYM-A16A	14.6	7.3	30	5.8	39.5	14	3.6	5.4(MAX11)	58
MYM-A20A	20	10	32	5.8	45.5	14	3.6	5(MAX11)	58
MYM-A25A	24	12	38	6.5	53.5	13	3.5	5(MAX16.5)	70
MYM-A32A	29	14	50	8.5	67	17	4.5	8(MAX20)	88
MYM-A40A	35	17	57	10	83	17	4.5	9(MAX25)	104
MYM-A50A	40	20	62	14	106	26	5.5	13(MAX33)	128
MYM-A63A	52	26	77	14	129	31	5.5	13(MAX38)	152

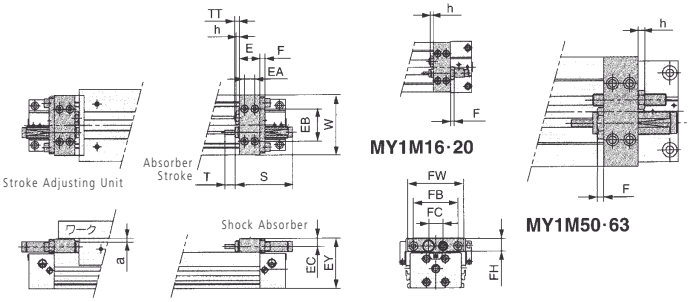
(dimensions applicable to centralized piping type also)
With adjusting bolt "A"

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"

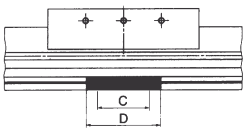


Since the EY size of type H unit is greater than the table top height (H dimension), when a workpiece is loaded that is larger than the full length (L dimension) of the slide table allow a clearance of size "a" or larger at the workpiece side.

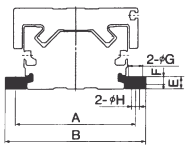
Part No	E	EA	EB	EC	EY	F	FB	FC	FH	h	S	T	TT	W	Shock Absorber	a
MYM-A20H	20	10	32	7.7	50	5	-	14	-	3.5	46.7	7	5(MAX11)	58	RB1007	5
MYM-A25H	24	12	38	9	57.5	6	52	17	16	4.5	67.3	12	5(MAX16.5)	70	RB1412	4.5
MYM-A32H	29	14	50	11.5	73	8	67	22	22	5.5	73.2	15	8(MAX20)	88	RB2015	6
MYM-A40H	35	17	57	12	87	8	78	22	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

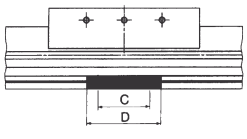
DIMENSIONS
SIDE SUPPORT UNIT

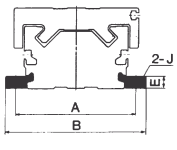
SIDE SUPPORT A: COUNTERBORE TYPE



SIDE SUPPORT B: THREADED THROUGH HOLE



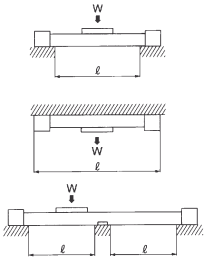


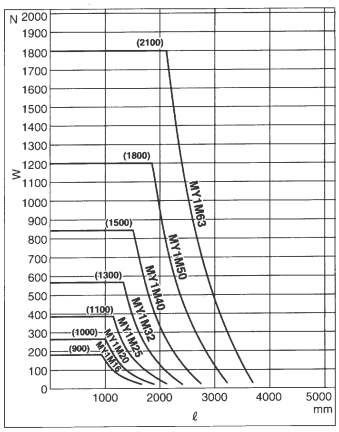


Part No	Cylinder	Side Support A	Side Support B	A	B	C	D	E	F	G	H	J
MY-S16A/B	MY1C16	MY-S16A	MY-S16B	61	71.6	15	26	4.9	3	6.5	3.4	M4X0.7
MY-S20A/B	MY1C20	MY-S20A	MY-S20B	67	79.6	25	38	6.4	4	8	4.5	M5X0.8
MY-S25A/B	MY1C25	MY-S25A	MY-S25B	81	95	35	50	8	5	9.5	5.5	M6X1
MY-S32A/B	MY1C32	MY-S32A	MY-S32B	100	118	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

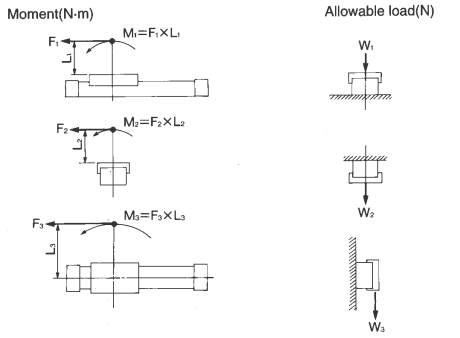
For long stroke operation, the cylinder tube may be deflected depending on weight and load; in that case, support the center on the cylinder with a side support so that the supporting interval will be lower than the value shown in the diagram.

FOR INFORMATION ON SIZING, PLEASE CONTACT SMC CUSTOMER SERVICE OR YOUR SMC TECHNICAL SALES REPRESENTATIVE

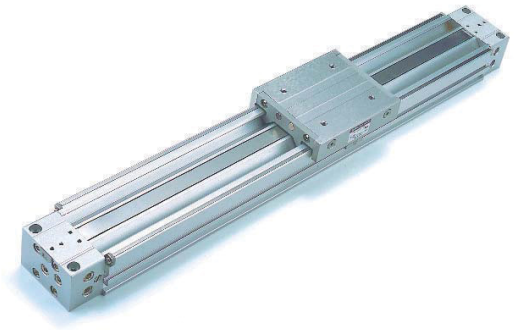
ALLOWABLE MOMENT AND MAXIMUM ALLOWABLE LOAD

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

(For longer strokes please consult your local SMC Sales Office)

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 ADJ UNITS
- … 2 Pieces
S ……1 Piece

APPLICABLE AUTO SWITCHES
See Accessories Section

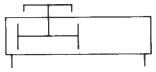
NO OF SWITCHES
- …2 Pieces
S …1 Piece
n …n Pieces

ACCESSORIES AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

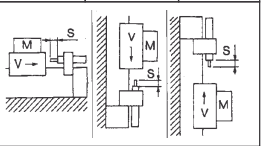
Bore Size	Model Grommet	Connector	Switch Type	Load Voltage	Load Current	Power Source	Internal Voltage Drop	Indicator Lamp
16 & 20	D-A90L	-	Reed	24 V/48V/100 V AC/DC	50mA/40mA/20mA	-	-	None
16 & 20	D-A93L	-	Reed	24VDC / 100 VAC	5-40mA 5-20mA	-	2.7V max	ON: Red LED
16 & 20	D-F9BL	-	2 wire Solid state	-	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	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

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

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E253 & N332

STROKE ADJUSTING UNIT SPECIFICATIONS

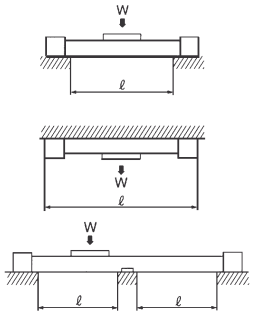
Applicable Cylinder	MY1C16		MY1C20			MY1C25			MY1C32		
Stroke Adjustment Unit Type	A	L	A	L	H	A	L	H	A	L	H
Stroke Adjusting Range	Any position on the whole stroke										
Fine Adjusting Range (mm)	0~-5.6		0~-6			0~11.5			0~-12		
Shock Absorber Type	-	RB0806	-	RB0806	RB1007	-	RB1007	RB1412	-	RB1412	RB2015
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		

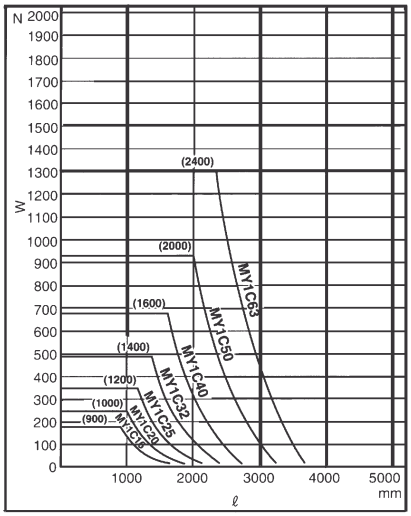
Applicable Cylinder	MY1C40			MY1C50			MY1C63		
Stroke Adjustment Unit Type	A	L	H	A	L	H	A	L	H
Stroke Adjusting Range	Any position on the whole stroke								
Fine Adjusting Range (mm)	0~-16			0~-20			0~-25		
Shock Absorber Type	-	RB1412	RB2015	-	RB2015	RB2725	-	RB2015	RB2725
Max Absorbing Energy (J)	-	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.

FOR INFORMATION ON SIZING, PLEASE CONTACT SMC CUSTOMER SERVICE OR YOUR SMC TECHNICAL SALES REPRESENTATIVE





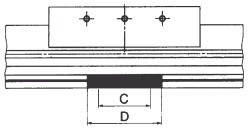
In case of Long Stroke

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.

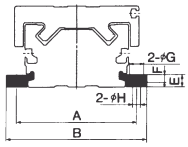
DIMENSIONS

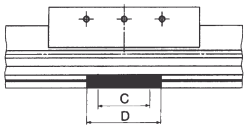
SIDE SUPPORT UNIT

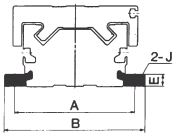
SIDE SUPPORT A: COUNTERBORE TYPE



SIDE SUPPORT B: THREADED THROUGH HOLE

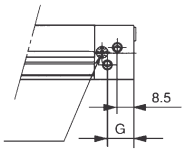




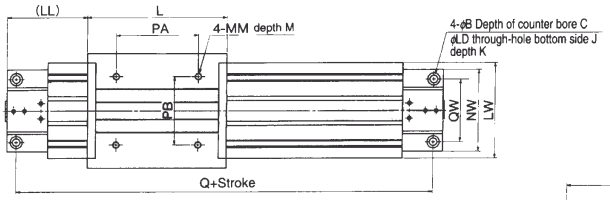


Part No	Cylinder	Side Support A	Side Support B	A	B	C	D	E	F	G	H	J
MY-S16A/B	MY1C16	MY-S16A	MY-S16B	61	71.6	15	26	4.9	3	6.5	3.4	M4X0.7
MY-S20A/B	MY1C20	MY-S20A	MY-S20B	67	79.6	25	38	6.4	4	8	4.5	M5X0.8
MY-S25A/B	MY1C25	MY-S25A	MY-S25B	81	95	35	50	8	5	9.5	5.5	M6X1
MY-32A/B	MY1C32	MY-S32A	MY-S32B	100	118	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



Section "A" Details

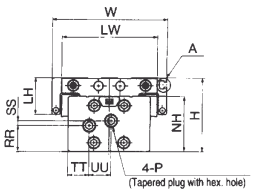
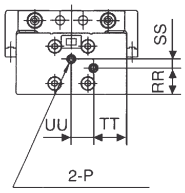
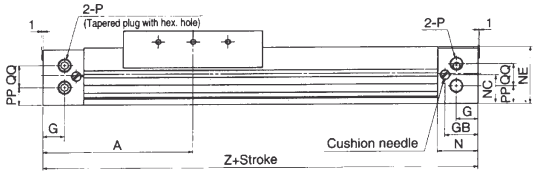
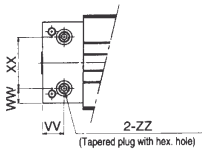
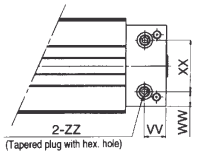


TABLE OF DIMENSIONS
SEE NEXT PAGE



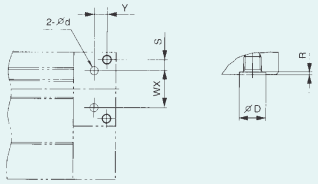






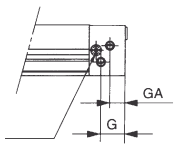
Hole size for centralized piping at bottom.
(Machine the attaching side in this size).

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

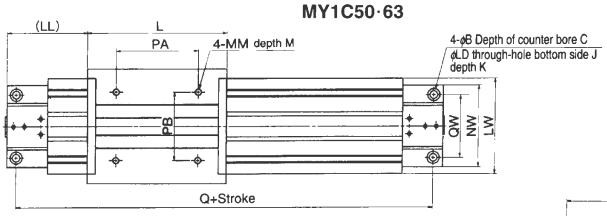


Ø16,20,25,32,40,50,63 bottom piping

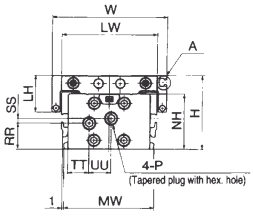
DIMENSIONS
CENTRALIZED PIPING TYPE Ø25~63

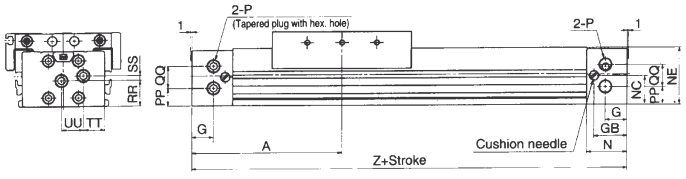


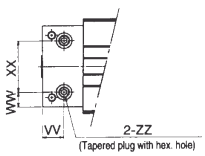
MY1C50·63



Section "A" Details







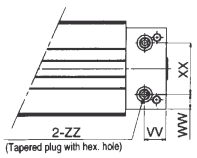


TABLE OF DIMENSIONS
SEE NEXT PAGE

DIMENSIONS
CENTRALIZED PIPING TYPE

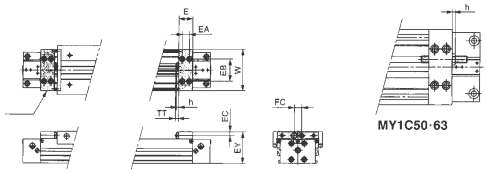
Part No	A	B	C	G	GB	H	J	K	L	LD	LH	LK	(LL)
MY1C16	80	6	3.5	8.5	16.2	40	M5X0.8	10	80	3.6	22.5	-	40
MY1C20	100	7.5	4.5	10.5	20	4	M6X1	12	100	4.8	23	-	50
MY1C25	110	9	5.5	16	24.5	54	M6X1	9.5	102	5.6	27	-	59
MY1C32	140	11	6.5	19	30	68	M8X1.25	16	132	6.8	35	-	74
MY1C40	170	14	8.5	23	36.5	84	M10X1.5	15	162	8.6	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

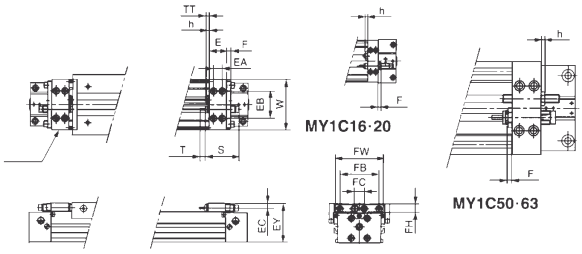
DIMENSIONS
ACCESSORIES: STROKE ADJUSTING UNIT

(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	

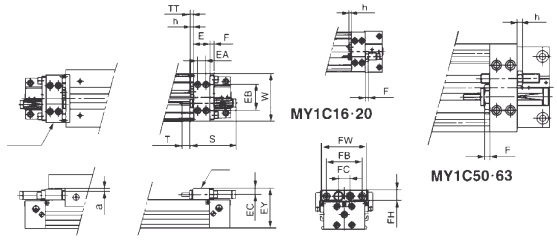
DIMENSIONS
ACCESSORIES: HIGH LOAD SHOCK ABSORBER + ADJUSTING BOLT "H"



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"

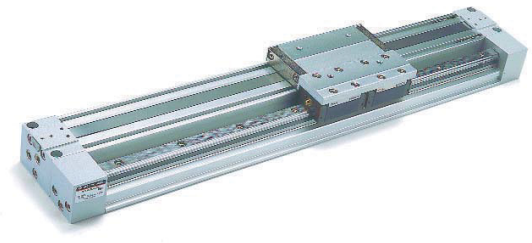


Part No.	Cylinder	E	EA	EB	EC	EY	F	FB	FC	FH	FW	h	S	T	TT	W	Shock Absorber
MYM-A16L	MY1C16	14.6	7.3	30	5.8	39.5	4	-	14	-	-	3.6	40.8	6	5.4(MAX11)	58	RB0806
MYM-A20L	MY1C20	20	10	32	5.8	45.5	4	-	14	-	-	3.6	40.8	6	5(MAX11)	58	RB0806
MYM-A25L	MY1C25	24	12	38	6.5	53.5	6	54	13	13	66	3.5	46.7	7	5(MAX16.5)	70	RB1007
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

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.



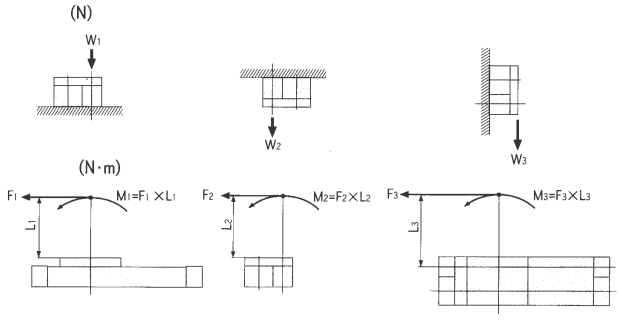
MECHANICAL JOINT TYPE RODLESS CYLINDER: HIGH PRECISION GUIDE TYPE BORE SIZES Ø16,20,25,32,40

- 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

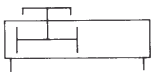
The threshold limit values of allowable moment and maximum load vary with the guide type, attachment position and piston speed.

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

(For longer strokes please consult your local SMC Sales Office).

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, please consult SMC Customer Service

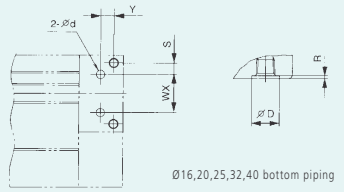
Bore Size	Model Grommet	Connector	Switch Type	Load Voltage	Load Current	Power Source	Internal Voltage Drop	Indicator Lamp
16 & 20	D-A90L	-	Reed	24V/48V AC/DC 100V AC/DC	50mA/40mA 20mA	-		None
16 & 20	D-A93L	-	Reed	24V AC 100V DC	5-40mA 5-20mA	-	2.7V max	ON: red LED
16 & 20	D-F9BL	-	2 wire solid state	-	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 ☞

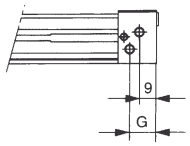
DIMENSIONS
CENTRALIZED PIPING TYPE Ø16~Ø40

Hole Size for Centralized Piping at bottom.
(Machine the attaching side in this size).

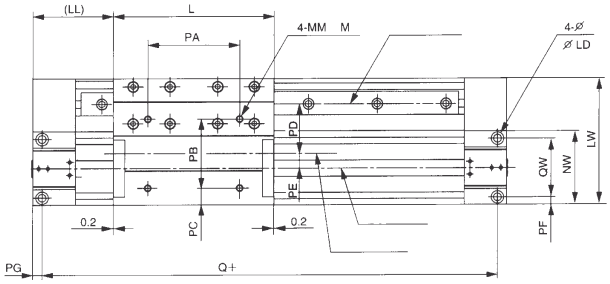
Part No	WX	Y	S	d	D	R	Gasket
MY1H16G	22	6.5	4	4	8.4	1.1	C6
MY1H20G	24	8	6	4	8.4	1.1	
MY1H25G	28	9	7	6	11.4	1.1	C9
MY1H32G	32	11	9.5	6	11.4	1.1	
MY1H40G	36	14	11.5	8	13.4	1.1	C11.2

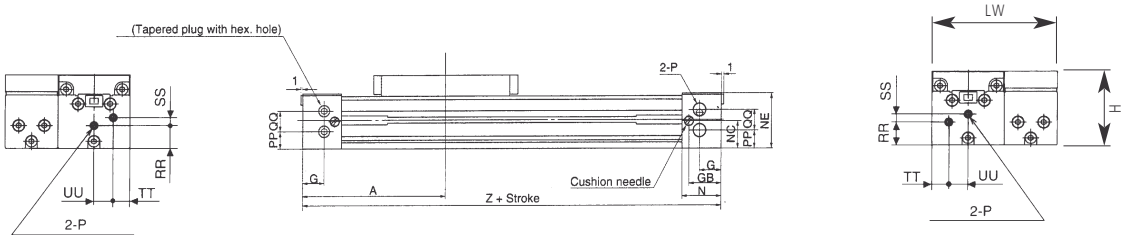


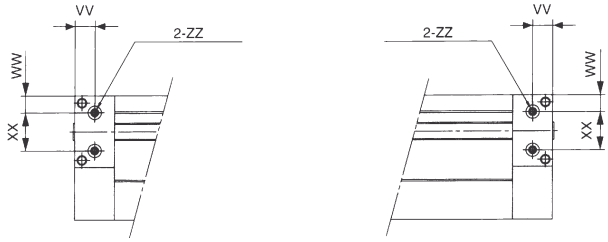
Ø16,20,25,32,40 bottom piping



MY1H16







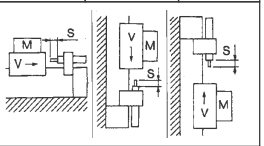
Part No	A	B	C	G	GB	H	J	K	L	LD	(LL)	LW	M
MY1H16	80	6	3.5	14	17	40	\M5X0.8	10	80	3.5	40	60	7
MY1H20	100	7.5	4.5	12.5	20.5	46	M6X1	12	100	4.8	50	78	8
MY1H25	110	9	5.5	16	24.5	54	M6X1	9.5	114	5.6	53	90	9
MY1H32	140	11	6.5	19	30	68	M8X1.25	16	140	6.8	70	110	13
MY1H40	170	14	8.5	23	36.5	84	M10X1.5	15	170	8.6	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)1/16
MY1H32	17	264	16	23	4	16	16	51	19	16	32	280	Rc(PT)1/16
MY1H40	18.5	322	24	27	10.5	20	22	59	23	19.5	36	340	Rc(PT)1/8

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

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

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E253 & N332

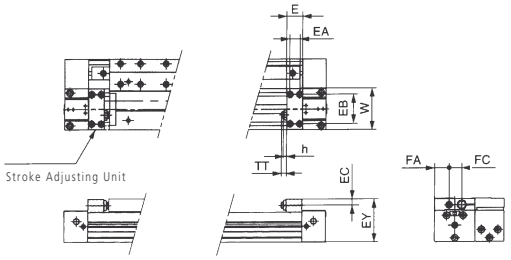
STROKE ADJUSTING UNIT SPECIFICATIONS

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					

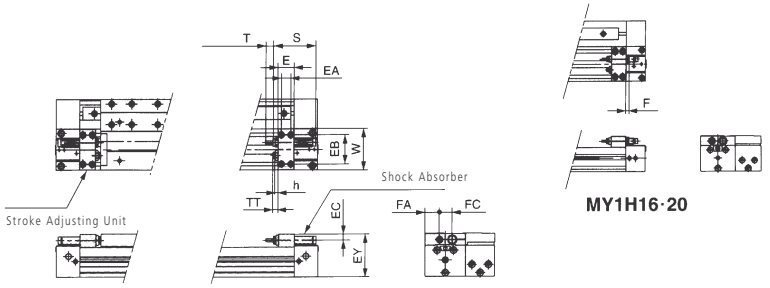
DIMENSIONS
ACCESSORIES: STROKE ADJUSTING UNIT

(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

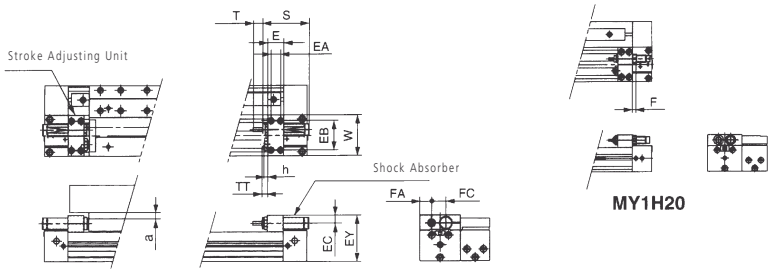
DIMENSIONS
ACCESSORIES: HIGH LOAD SHOCK ABSORBER + ADJUSTING BOLT "H"



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.

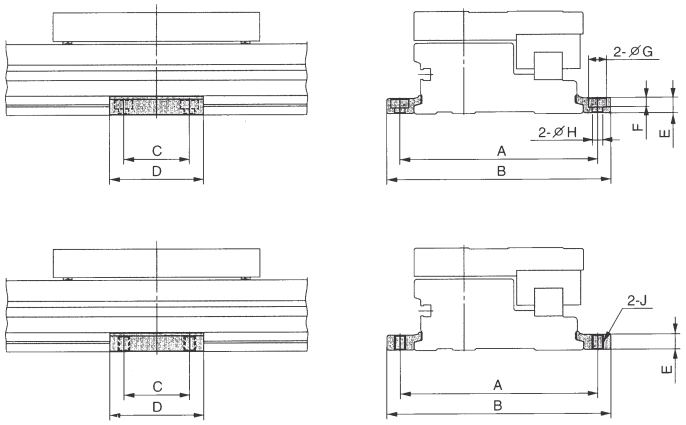
Part No	Cylinder	E	EA	EB	EC	EY	F	FA	FC	h	S	T	TT	W	Shock Absorber	a
MYH-A20H	MY1H20	19	10	33	7.8	49.6	5	14.3	15.7	3.5	46.7	7	6(MAX12)	45	RB1007	4
MYH-A25H	MY1H25	18	9	40	9	57	-	18	17.5	4.5	67.3	12	5(MAX16.5)	53	RB1412	3.5
MYH-A32H	MY1H32	25	14	45.6	12.5	73	-	18.5	22.5	5.5	73.2	15	8(MAX20)	64	RB2015	5.5
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

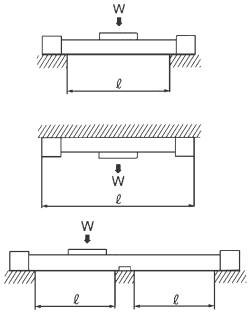


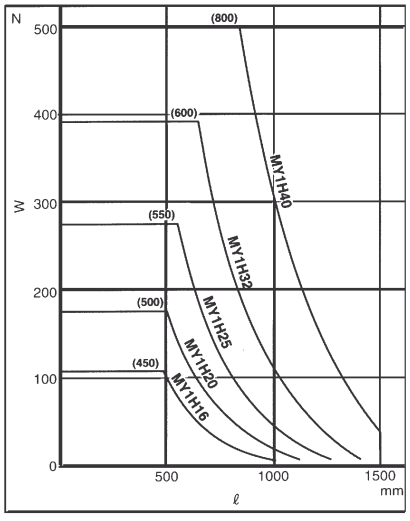
Part No	Model	Side Support A	Side Support B	A	B	C	D	E	F	G	H	J
MY-S16A/B	MY1H16	MY-S16A	MY-S16B	71	81.6	15	26	4.9	3	6.5	3.4	M4X0.7
MY-S20A/B	MY1H20	MY-S20A	MY-S20B	91	103.6	25	38	6.4	4	8	4.5	M5X0.8
MY-S25A/B	MY1H25	MY-S25A	MY-S25B	105	119	35	50	8	5	9.5	5.5	M6X1
MY-S32A/B	MY1H32	MY-S32A	MY-S32B	130	148	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.

FOR INFORMATION ON SIZING, PLEASE CONTACT SMC CUSTOMER SERVICE OR YOUR SMC TECHNICAL SALES REPRESENTATIVE



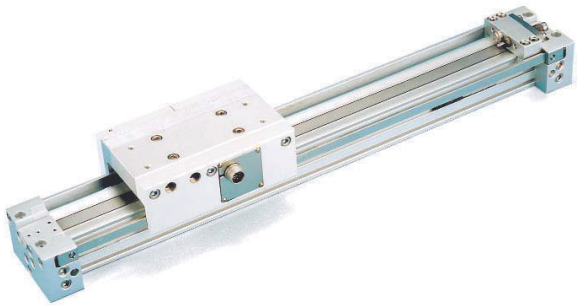


In case of Long Stroke

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

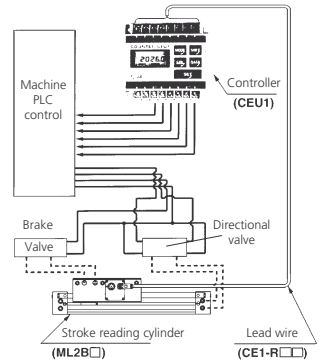
SENSOR SPECIFICATIONS

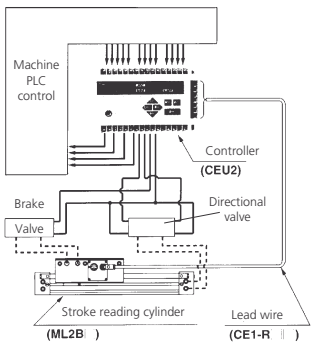
Cable	Connector: R04-J8M7. 3. Tajima Musen Denki Company
Max Transmission Distance	20m (6 core twisted pair shielded wire)
Position Detection Method	Magnetive Scaled Piston Rod & Detection Head
	(50cm cable. Incremental type)
Magnetive Field Resistance	145 Gauss
Power Supply	DC12V ±10% (ripple less than 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.

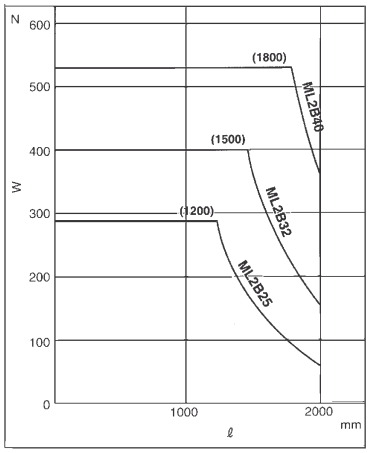


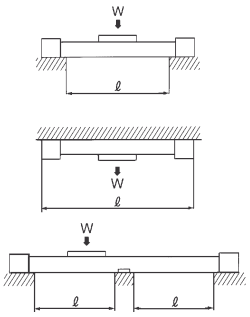


TECHNICAL SPECIFICATIONS
IN CASE OF LONG STROKE

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.



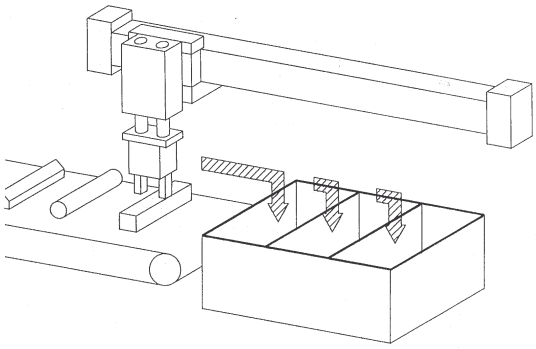


Unsupported span length not to exceed lengths shown by graph.

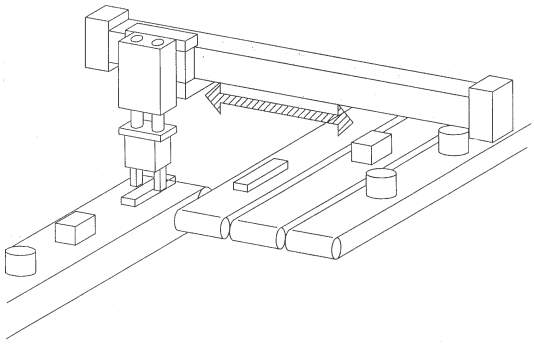
SEE INSIDE FRONT COVER FOR

TECHNICAL SPECIFICATIONS APPLICATIONS

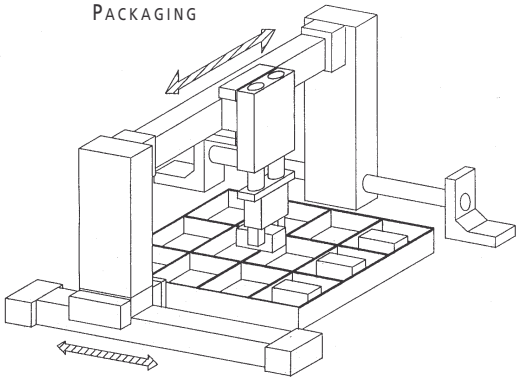
PICK & PLACE



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 AUTOSWITCHES
- 2
S 1
n .....n

AUTOSWITCH TYPE
Reed and Solid State
See Accessories Section

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

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, please consult SMC Customer Service

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

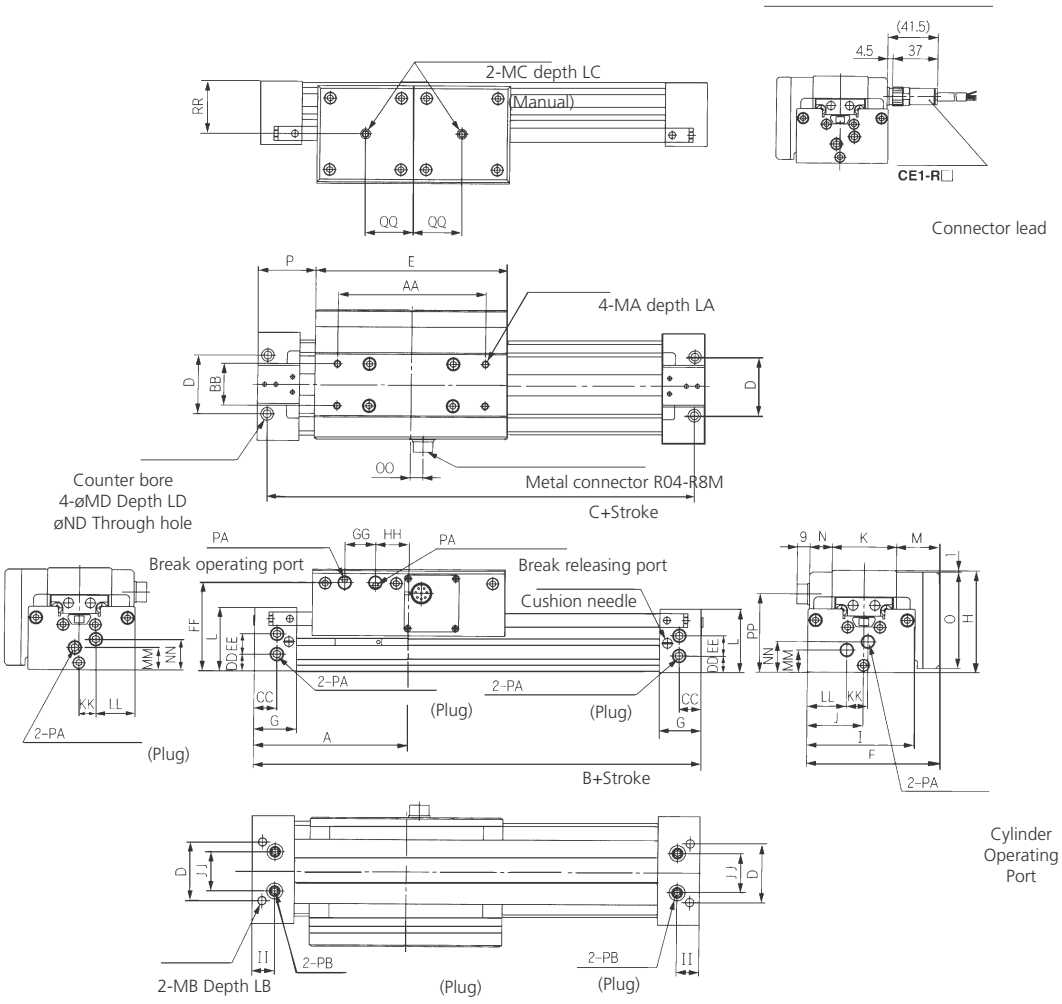
Bore Size	Ø25	Ø32	Ø40
Model	MY-A25L	MY-A32L	MY-A40L

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 ☞

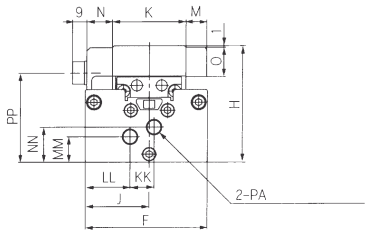
DIMENSIONS
Stroke Reading Rodless Cylinder Series ML2B



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

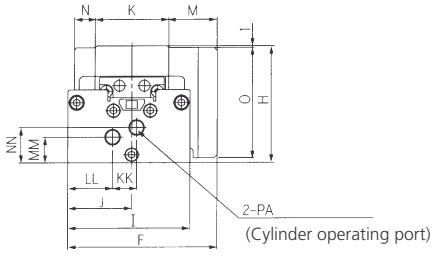


(Cylinder operating port)

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

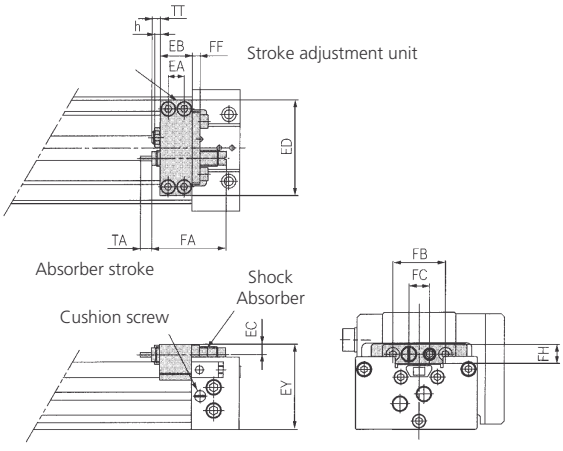


(Cylinder operating port)

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

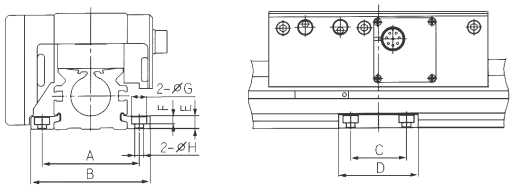
Model	O	KK	LL	MM	NN	PA
ML2B25	69	15	28	16	22	Rc (PT) 1/8
ML2B32	84	16	30.5	21.5	26	Rc (PT) 1/8
ML2B40	102	17.5	37.5	24.5	37.5	Rc (PT) 1/4

DIMENSIONS STROKE ADJUSTING UNIT

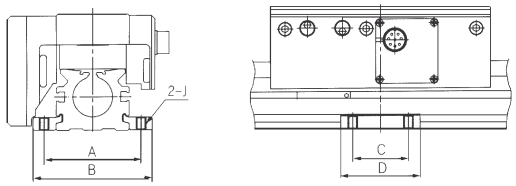


Model	h	EA	EB	EC	ED	EY	FA	FB	FC	FF	FH	TA	TT
ML2B25	3.5	10	20	6.5	60	53.5	46.7	33	13	6	12	7	MAX. 16.5
ML2B32	4.5	12	25	8.5	74	67	67.3	43	17	6	16	12	MAX. 20
ML2B40	4.5	15	31	9.5	94	81.5	67.3	43	17	6	16	12	MAX. 25

DIMENSIONS SIDE SUPPORT UNIT COUNTER BORED (SIDE SUPPORT A)



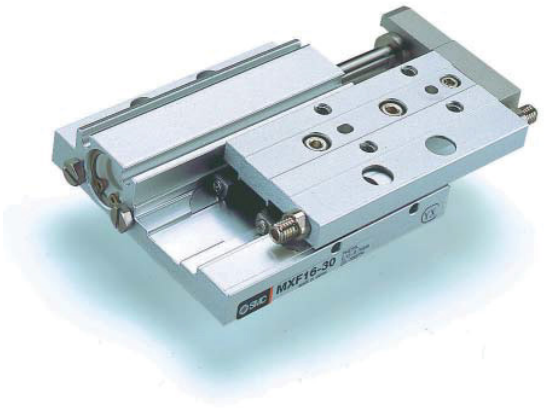
DIMENSIONS SIDE SUPPORT UNIT TAPPED (SIDE SUPPORT B)



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

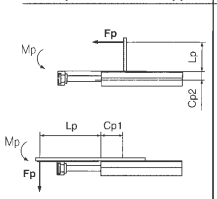
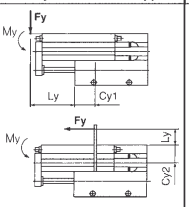
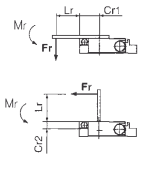
Bore Size (mm)	Ø8	Ø12	Ø16	Ø20
Port size	M3x0.5	M5.0.8	M5.0.8	M5.0.8
Fluid	Air			
Action	Double Acting			
Operating pressure	0.15 ~ 0.7MPa / 22 ~ 102PSI			
Proof pressure	1.05MPa / 153PSI			
Ambient and fluid temp.	-10 ~ +60°C / 14 ~ 140°F			
Operating speed range	50 – 500mm/s / 2 ~ 20in/s			
Cushion	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 ☞

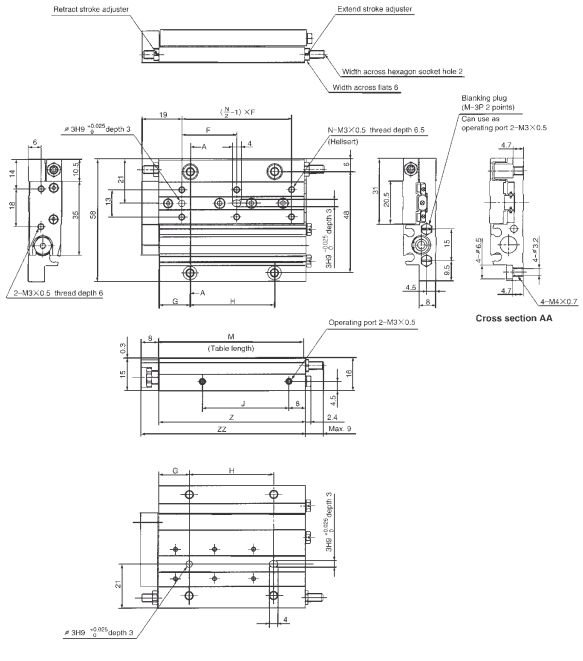
ACCESSORIES
AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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

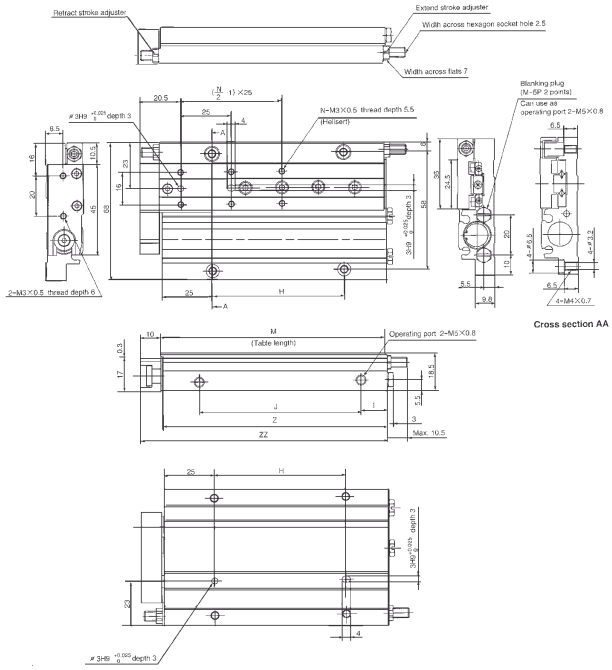
FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E242

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

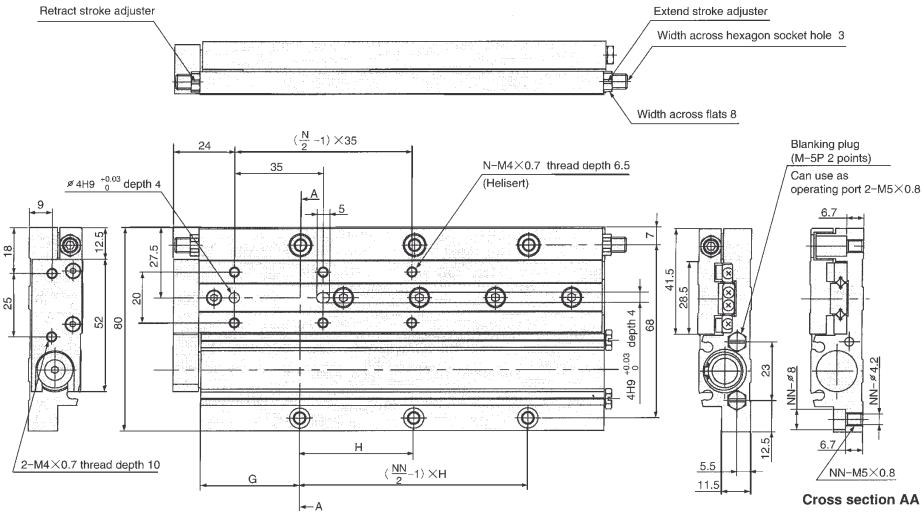
DIMENSIONS
MXF12

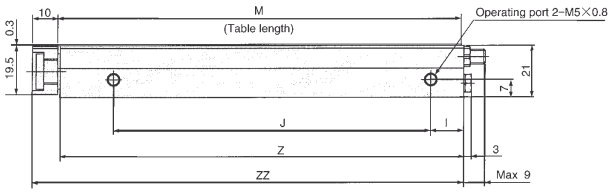


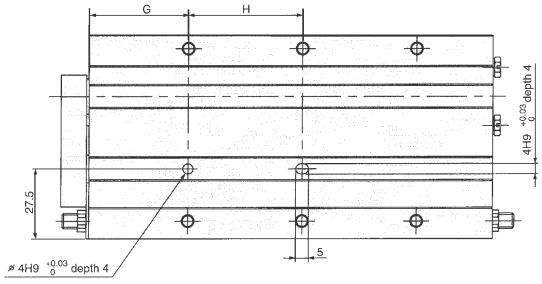
Model	N	H	I	J	M	Z	ZZ
MXF12-20	4	22	11	36	65	65	76
MXF12-30	4	30	12	45	75	75	86

DIMENSIONS
SEE NEXT PAGE ☞

DIMENSIONS MXF16

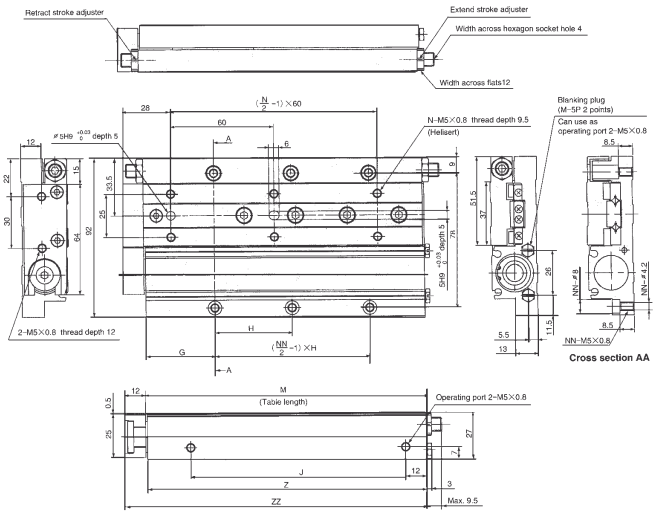


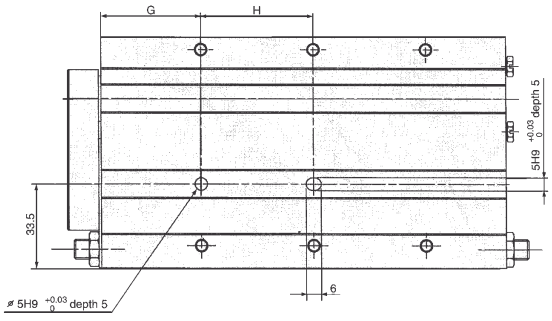




Model	N	G	H	NN	I	J	M	Z	ZZ
MXF16–30	4	29	25	4	12	50	83	83	94
MXF16–50	6	29	55	4	12	80	113	113	124
MXF16–75	6	39	45	6	13	125	159	159	170

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

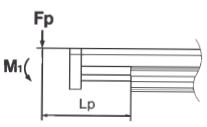
Size	Ø6	Ø8	Ø12	Ø16	Ø20	Ø25
Port Size	M3x0.5	M5x0.8			Rc(PT) 1/8	
Fluid	Air					
Operating Pressure	0.15 ~ 0.7 MPa / 22 ~ 102PSI					
Proof Pressure	1.05MPa / 153PSI					
Ambient & Fluid Temperature	-10~ +60°C / 40 ~ 140°F					
Lubrication	Not Required					
Auto Switches	Autoswitch Capable as Standard					
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

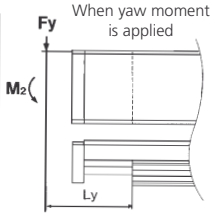
TECHNICAL SPECIFICATIONS
FORMULA FOR CALCULATION OF ALLOWABLE STATIC LOAD, FP, FY, AND FR

When pitch moment is applied



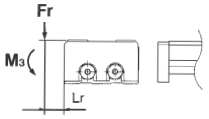
$$Fp = \frac{M_1 \times 1000}{Lp + Cp} \text{ (N)}$$

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.

Note) For further information on allowable loadings for the MXS series, please contact your local SMC Sales Office.

TECHNICAL SPECIFICATIONS
ALLOWABLE STATIC MOMENT

Cylinder Bore (mm)	Stroke(mm)	Allowable Static Moment: Common to M1, M2, and M3 (N•m) 10	20	30	40	50	75	100	125	150	Moment Center Distance (mm) 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 ☞

SEE INSIDE FRONT COVER FOR

HOW TO ORDER

ALSO AVAILABLE - MXS _ L SERIES SYMMETRIC TYPE, PLEASE CONSULT SMC CUSTOMER SERVICE FOR TECHNICAL DETAILS

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; please contact SMC Customer Service for details and availability.

*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, please consult SMC Customer Service

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, please consult SMC Customer Service

ACCESSORIES SHOCK ABSORBERS

MXS Model	MXS8	MXS12	MXS16	MXS20	MXS25
Shock Absorber Model	RB0805	RB0806	RB1007	RB1411	RB1412

For Shock Absorber Specifications, please contact SMC Customer Service.

ACCESSORIES SOLID STATE SWITCH

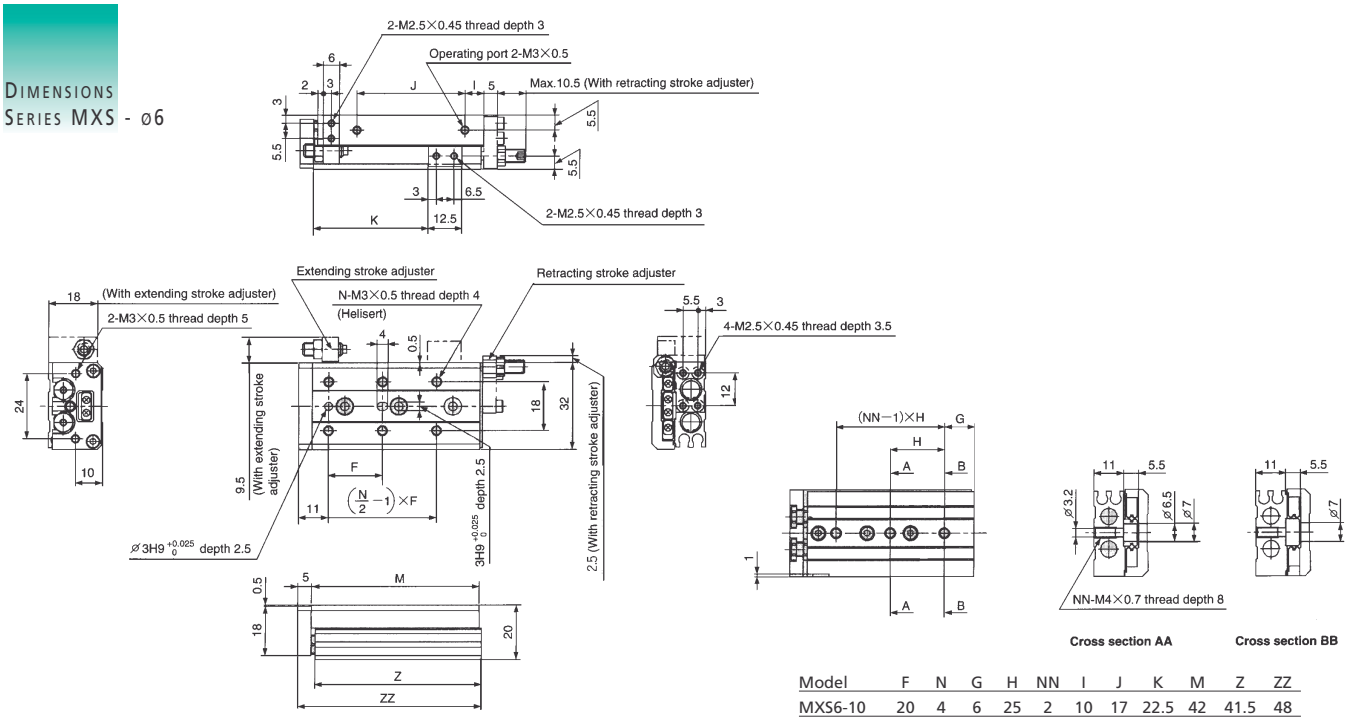
Auto Switch No	Output Type	Load Voltage	Max Load Current and Load Current Range	Internal Voltage Drop	Leakage Current	Applications
D-F9NL *D-F9NVL	NPN type	28VDC or less	50mA or less	0.4V or less	24VDC at 10μA or less	PLC
D-F9PL *D-F9PVL	PNP type			1.5V or less		
D-F9BL *D-F9BVL	-	24VDC (10~28VDC)	5~30mA	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 ☞

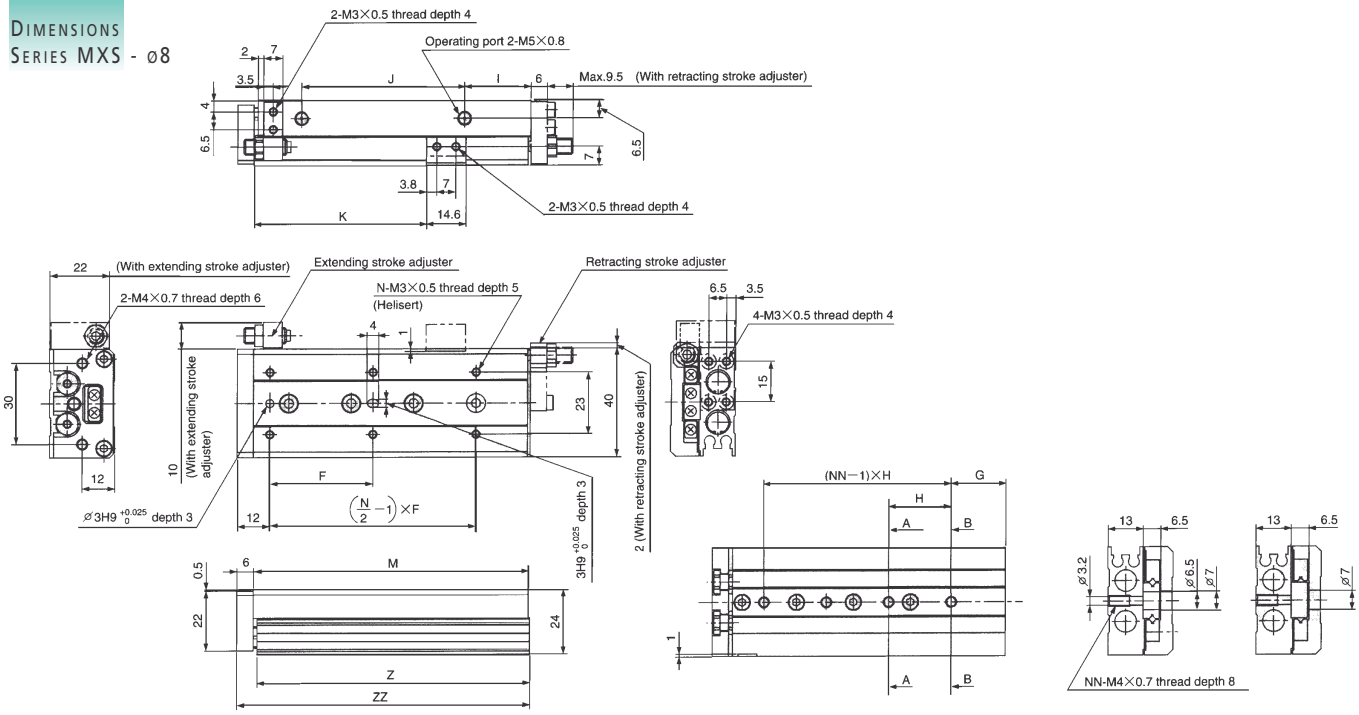
Note: For dimension details of MXS with the stroke adjuster, buffers, end lock or axial piping, please contact your local SMC Sales Office.

DIMENSIONS SERIES MXS - ø6



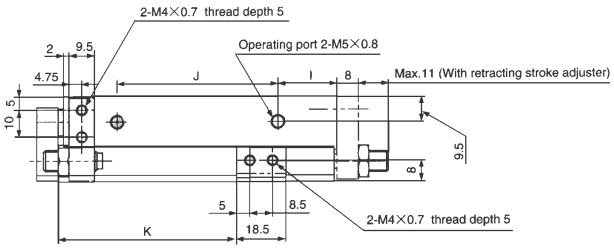
Model	F	N	G	H	NN	I	J	K	M	Z	ZZ
MXS6-10	20	4	6	25	2	10	17	22.5	42	41.5	48
MXS6-20	30	4	6	35	2	10	27	32.5	52	51.5	58
MXS6-30	20	6	11	20	3	7	40	42.5	62	61.5	68
MXS6-40	28	6	13	30	3	19	50	52.5	84	83.5	90
MXS6-50	38	6	17	24	4	25	60	62.5	100	99.5	106

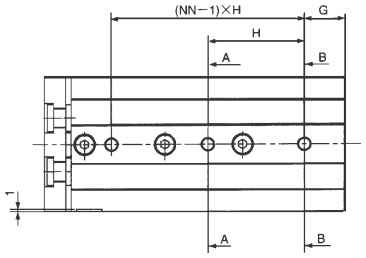
DIMENSIONS SERIES MXS - ø8

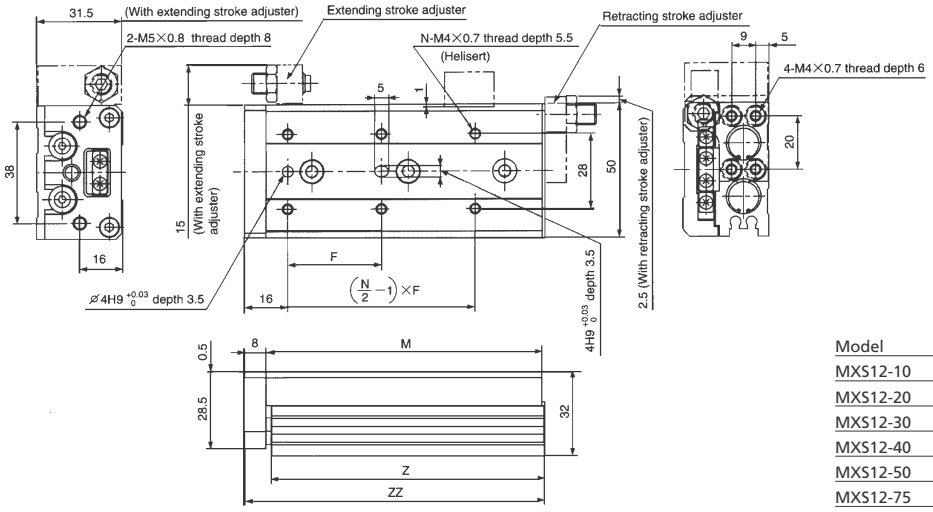


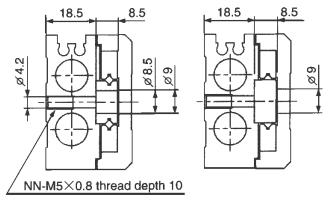
Model	F	N	G	H	NN	I	J	K	M	Z	ZZ
MXS8-10	25	4	9	28	2	13	19.5	23.5	49	48.5	56
MXS8-20	25	4	12	30	2	8.5	29	33.5	54	53.5	61
MXS8-30	40	4	13	20	3	9.5	39	43.5	65	64.5	72
MXS8-40	50	4	15	28	3	10.5	56	53.5	83	82.5	90
MXS8-50	38	6	20	23	4	24.5	60	63.5	101	100.5	108
MXS8-75	50	6	27	28	5	38.5	96	88.5	151	150.5	158

DIMENSIONS SERIES MXS - ø12



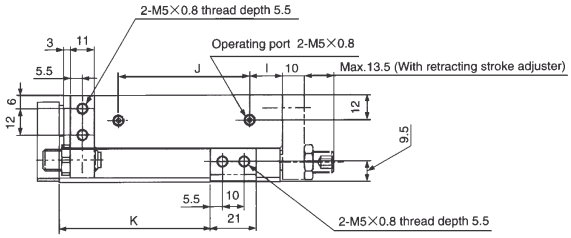


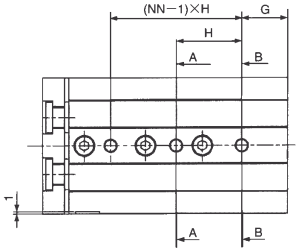


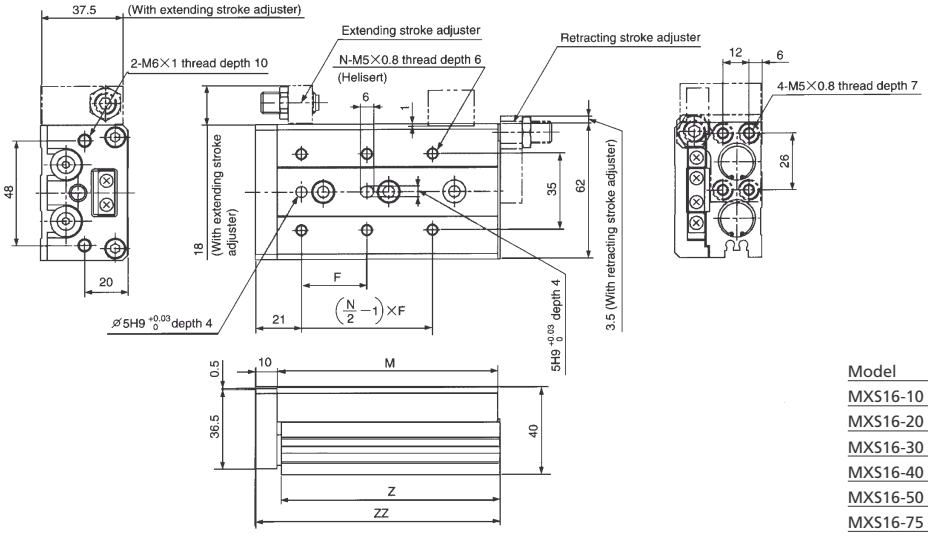


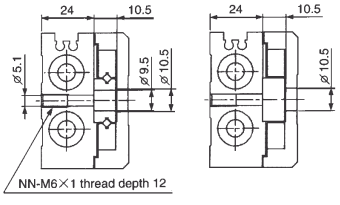
Model	F	N	G	H	NN	I	J	K	M	Z	ZZ
MXS12-10	35	4	15	40	2	10	40	26.5	71	70	80
MXS12-20	35	4	15	40	2	10	40	36.5	71	70	80
MXS12-30	35	4	15	40	2	10	40	46.5	71	70	80
MXS12-40	50	4	17	25	3	10	52	56.5	83	82	92
MXS12-50	35	6	15	36	3	22	60	66.5	103	102	112
MXS12-75	55	6	25	36	4	43	85	91.5	149	148	158
MXS12-100	65	6	35	38	5	52	130	116.5	203	202	212

DIMENSIONS SERIES MXS - ø16







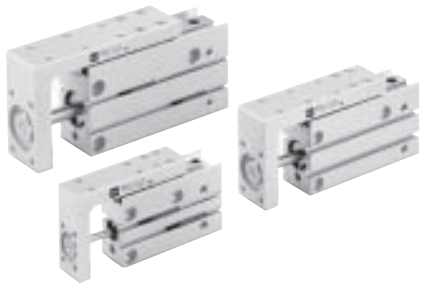


Model	F	N	G	H	NN	I	J	K	M	Z	ZZ
MXS16-10	35	4	16	40	2	10	40	29	76	75	87
MXS16-20	35	4	16	40	2	10	40	39	76	75	87
MXS16-30	35	4	16	40	2	10	40	49	76	75	87
MXS16-40	40	4	16	50	2	10	50	59	86	85	97
MXS16-50	30	6	21	30	3	15	30	69	101	100	112
MXS16-75	55	6	26	35	4	40	70	94	151	150	162
MXS16-100	65	6	39	35	5	55	70	119	199	198	210
MXS16-125	70	8	19	35	7	68	70	144	249	248	260

FOR SERIES MXS ø20 AND ø25 BORE SIZE DIMENSIONS, PLEASE CONSULT SMC CUSTOMER SERVICE

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			

FOR FURTHER TECHNICAL INFORMATION ON SERIES MXH, PLEASE CONSULT SMC CUSTOMER SERVICE

ACCESSORIES AUTO SWITCHES SERIES MXH

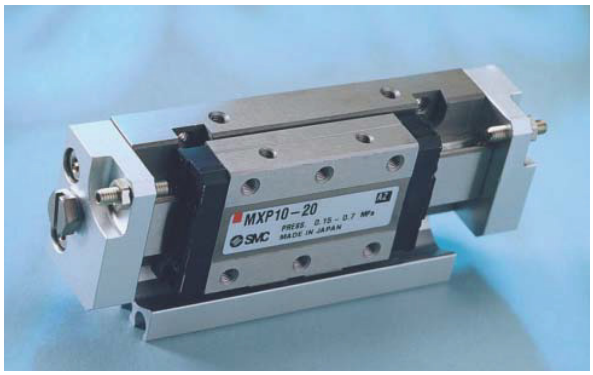
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

Type	Special Function	Electrical Entry	Indication Light	Wiring (Output)	Load Voltage DC	Load Voltage DC	Load Voltage AC	Auto Switch Part No Electrical Entry Direction: Perpendicular	Auto Switch Part No Electrical Entry Direction: In-Line	Lead Wire Length (m): 0.5 (Nil)	Lead Wire Length (m): 3 (L)	Lead Wire Length (m): 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	•	•	•		

SEE INSIDE FRONT COVER FOR

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

FOR MORE TECHNICAL INFORMATION ON SERIES MXP, PLEASE REFER TO CAT:N347

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, please consult SMC Customer Service

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

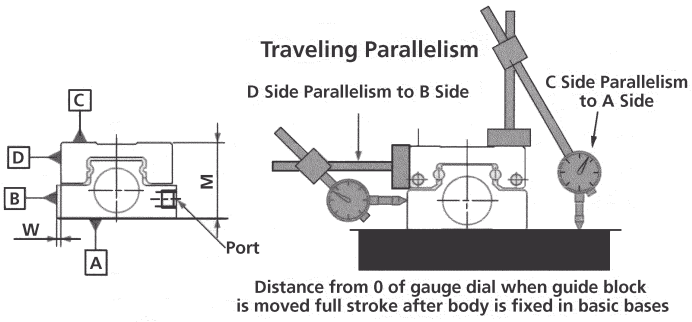
Model	MXPJ6
Bore Size (mm)	ø6
Piping Port	M3 x 0.8
Fluid Used	Air
Action	Double Acting
Operating Pressure	0.15 ~ 0.7MPa / 22 ~ 102PSI
Ambient & Fluid Temperature	-10~60°C / 14 ~ 140°F
Operating Speed Range	50 ~ 500mm/s / 2 ~ 20in/s
Cushion	Rubber Bumper
Lubrication	Not Required
Tolerance of Stroke Length	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 Tolerance of W		±0.05 mm			



FOR MORE TECHNICAL INFORMATION ON SERIES MXP, PLEASE REFER TO CAT:N347

SEE INSIDE FRONT COVER FOR

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

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

TYPE OF AUTO SWITCHES
- .....Without
*With Auto Switch, see Accessories Section

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

FOR MORE TECHNICAL INFORMATION ON SERIES MXQ, PLEASE REFER TO CAT:E266

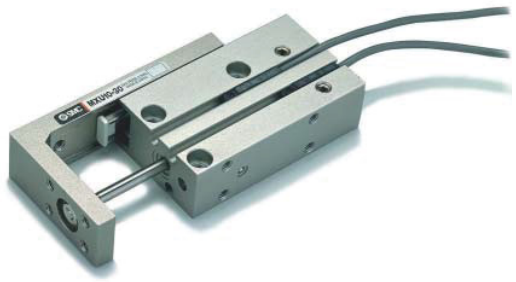
ACCESSORIES AUTO SWITCHES SERIES MXQ

Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

Type	Special Function	Electrical Entry	Indication Light	Wiring (Output)	Load Voltage DC	Load Voltage DC	Load Voltage AC	Auto Switch Part No Electrical Entry Direction: Perpendicular	Auto Switch Part No: In-Line	Lead Wire Length (m): 0.5 (Nil)	Lead Wire Length (m): 3 (L)	Applicable Load	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

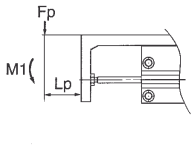
NO OF SWITCHES
- ...2 Pieces
S ...1 Piece

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	-

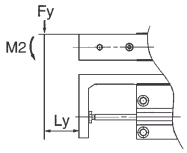
PRODUCT SPECIFICATIONS MAX. LOAD WEIGHT (G)

Model	Max Loading Weight
MXU6	100
MXU10	200
MXU16	400



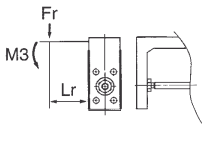
$$Fp=\frac{M1\times1000}{Lp+Cp+(St/2)}\ (N)$$

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

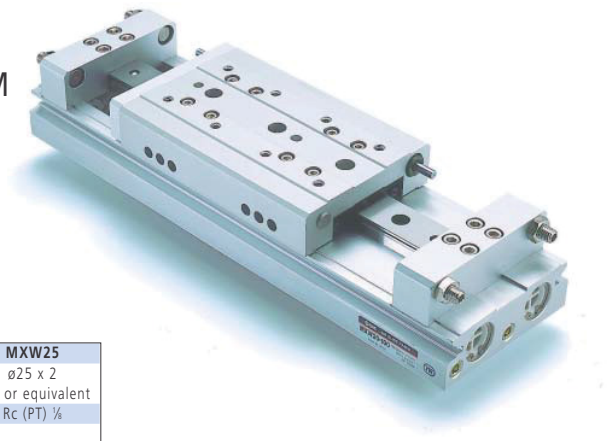
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

Type	Electrical Entry	Auto Switch	Application	Load Voltage	Load Current	Internal Voltage Drop	Indicator Lamp
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	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

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

TYPE OF AUTO SWITCHES
See Accessories Section

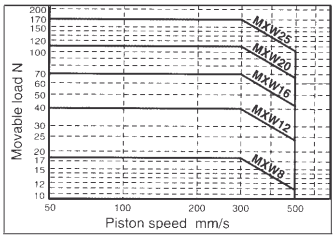
OPTIONS
- . . . . .Standard (with Urethane Bumper)
B . . . . .With Shock Absorber, 2pcs

FOR SERIES MXW DIMENSIONS, PLEASE CONTACT SMC CUSTOMER SERVICE

PRODUCT SELECTOR ALLOWABLE MOMENT

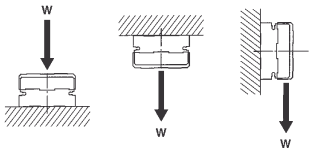
Model	Pitch Moment Mp/Mep	Yaw Moment My/Mey	Roll Moment Mr
MXW8	5	5	3
MXW12	10	10	6
MXW16	20	20	12
MXW20	40	40	25
MXW25	110	110	65

W

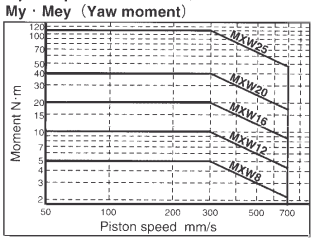


PRODUCT SELECTOR MOVABLE LOAD (N)

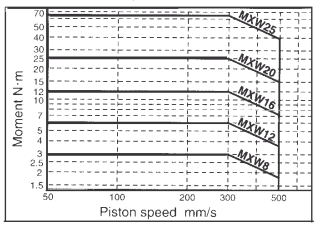
Model	W
MXW8	18
MXW12	40
MXW16	70
MXW20	110
MXW25	170



Mp · Mep (Pitch moment)
My · Mey (Yaw moment)



Mr (Roll moment)



ACCESSORIES AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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

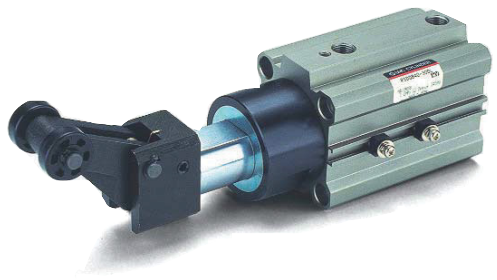
TECHNICAL SPECIFICATIONS

MADE IN USA

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, please consult SMC Customer Service

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

STROKE (MM)
ø20 ...10, 15, 20
ø32 ...10, 15, 20
ø40 ...20, 25, 30
ø50 ...20, 25, 30

BORE SIZE
20 ...20mm
32 ...32mm
40 ...40mm
50 ...50mm

MOUNTING OPTIONS
B .....Through Hole (Standard)
A .....Both Ends Tapped

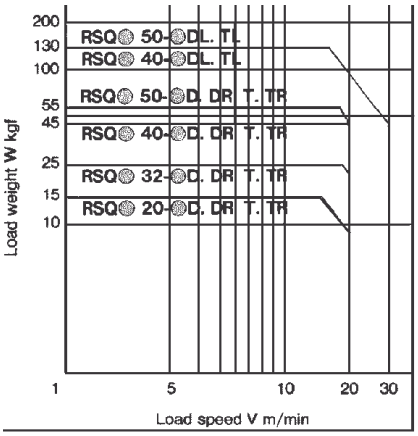
AUTO SWITCH CAPABLE
- .....Without Magnet
D .....Auto Switch Capable
(With Built-in Magnet)

DIMENSIONS
SEE NEXT PAGE ☞

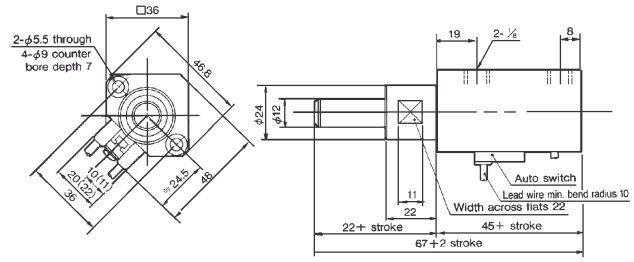
SEE INSIDE FRONT COVER FOR

PRODUCT SELECTOR

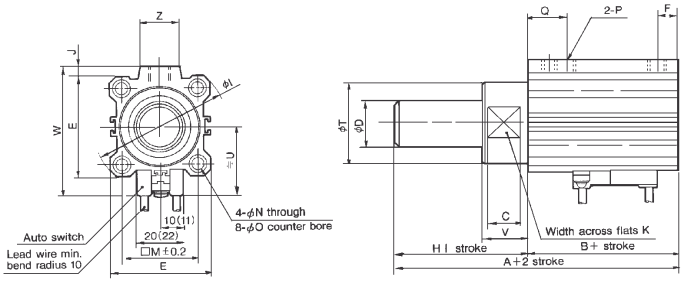
In the case of load speed 15m/min and load weight 30kgf. The intersection point of 15m/min (X-axis) and 30kgf (Y-axis) will fall within the maximum operating range of the cylinder RSQ•40.



DIMENSIONS
ROUND BAR TYPE RS(D)QB20



DIMENSIONS
ROUND BAR TYPE RS(D)QB32,40,50

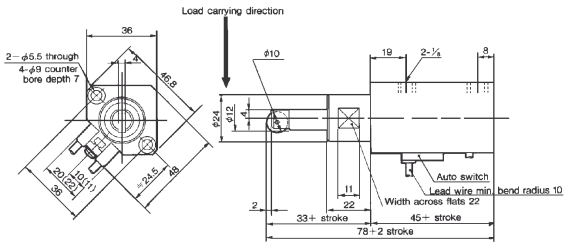


Bore	A	B	C	ØD	E	F	H	ØI	J	K	M	ØN	Ø0 counter bore
32	68	48	15	20	45	7.5	20	60	4.5	32	34	5.5	9 depth 7
40	80.5	52.5	18	25	52	8	28	69	5	41	40	5.5	9 depth 7
50	82	54	21	25	64	8	28	86	7	50	50	6.6	11 depth 8

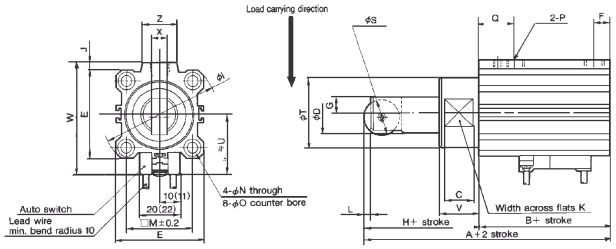
Bore	O Thread	P	Q	R	ØT	U	V	W	Z
32	M6X1	1/8	20	10	36	31.5	20	58.5	18
40	M6X1	1/8	24.5	10	44	35	28	66	18
50	M8X1.25	1/8	24.5	14	56	41	28	80	22

MORE IMENSIONS
SEE NEXT PAGE ☞

DIMENSIONS
ROLLER TYPE RS(D)QB20

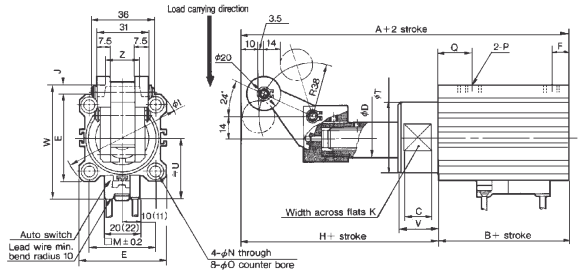


DIMENSIONS
ROLLER TYPE RS(D)QB32•40•50



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

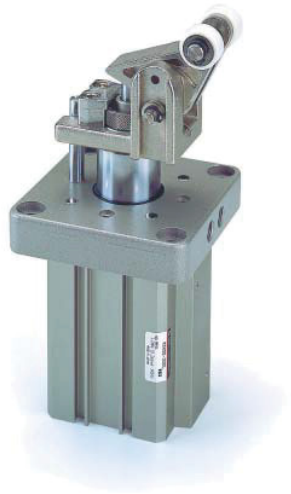


Bore (mm)	A	B	C	ØD	E	F	H	ØI	J	K	M	ØN	Ø0 counter bore	O thread	P	Q	R	ØT	U	V	W	Z
40	152.5	52.5	18	25	52	8	100	69	5	41	40	5.5	9 depth 7	M6X1	1/8	24.5	10	44	35	28	66	18
50	154	54	21	25	64	8	100	86	7	50	50	6.6	11 depth 8	M8X1.25	1/8	24.5	14	56	41	28	80	22

SEE INSIDE FRONT COVER FOR

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

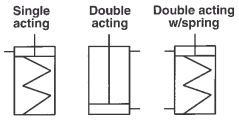
OPTION
D .....With Locking Mechanism
C .....With Cancel Cap
*S .....Lever Detection Switch

*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

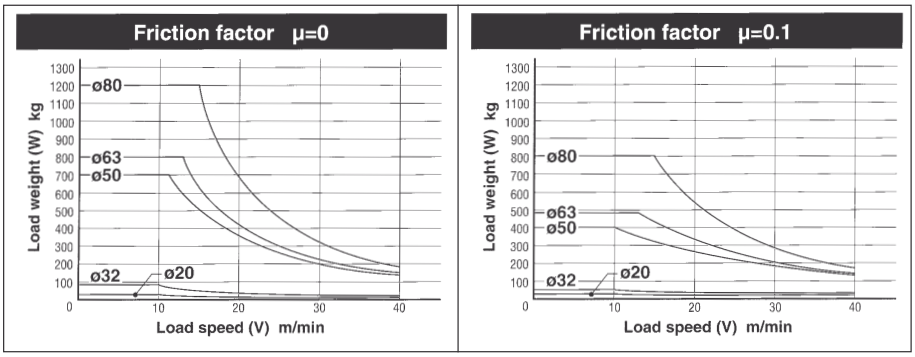
Type	Electrical Entry	Auto Switch Inline Type	Perpendicular Type	Load Voltage	Load Current	Internal Voltage Drop	Indicator Lamp
Reed	Grommet	D-Z76L		4-8V DC	Max 20mA	0.8V	ON: RED LED
Reed	Grommet	D-Z73L		24V DC 100V AC	5~40mA 5~20mA	Max 2.4V	ON: RED LED
Reed	Grommet	D-Z80L		48V AC/DC 24V AC/DC 100V AC/DC	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, please consult SMC Customer Service

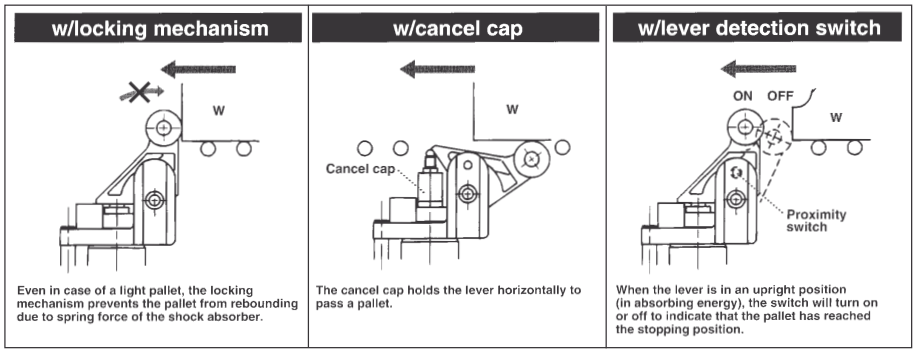
DIMENSIONS
SEE NEXT PAGE ☞

PRODUCT SELECTOR

OPERATING RANGE



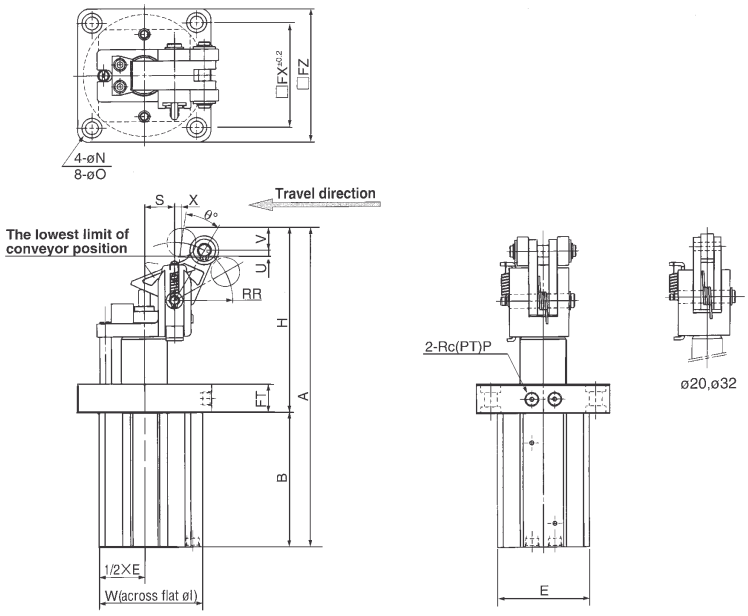
OPTIONS



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

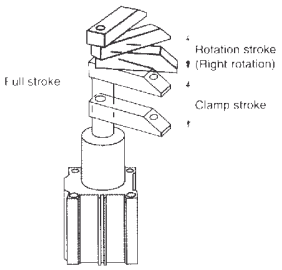
Symbol	Clamp Stroke	Bore Size
10	10mm	...Ø20~Ø40
20	20mm	...Ø20~Ø63
50	50mm	...Ø50~Ø63

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



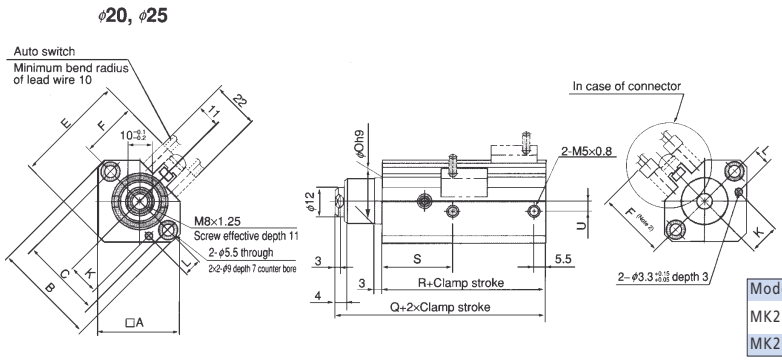
FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E239

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°	

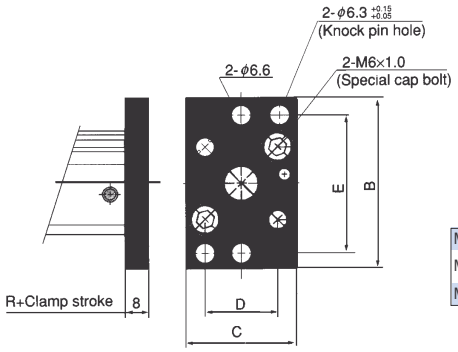
*) Maximum Beanding Moment applied to the Piston Rod Side
**) At 0.5MPa
***) Direction of Rotation viewed from the Rod Side when the Piston Rod is retracting

DIMENSIONS
ROTARY CLAMP CYLINDER Ø20, 25MM SERIES MK2



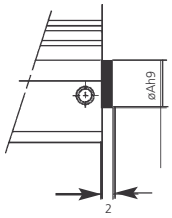
Model	A	B	C	E	F	K	L	Oh9	Q	R	S	U
MK2B20	36	46.8	36	48	24.5	13.5±0.15	7.5±0.15	20	75.5	62.5	31	4
MK2B25	40	52	40	53.8	27.5	16±0.15	8±0.15	23	78.5	65.5	32	5

DIMENSIONS
HEAD SIDE FLANGE Ø20, 25 SERIES MK2



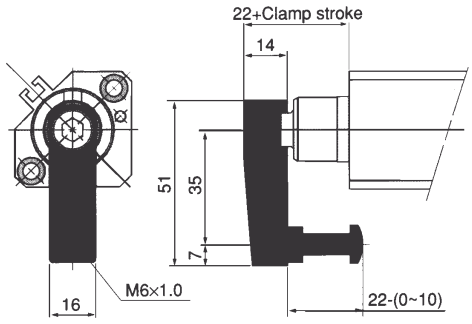
Model	B	C	D	E
MK2G20	60	39	25.5	48
MK2G25	64	42	28	52

HEAD SIDE WITH BOSS MOUNT

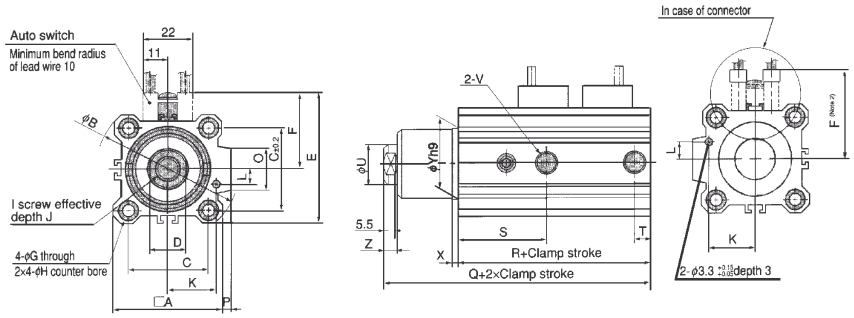


Model	øAh9
MK2□20-□□F	13
MK2□25-□□F	15

DIMENSIONS
WITH ARM MK2B 20/25-••

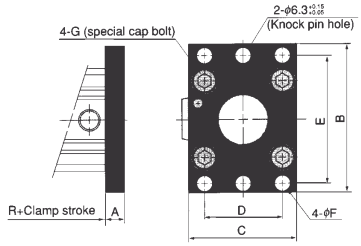


DIMENSIONS
ROTARY CLAMP CYLINDER Ø32, 40, 50, 63 mm SERIES MK2
THROUGH HOLE AND BOTH ENDS TAPPED (STANDARD)



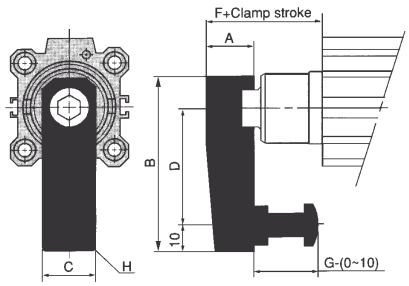
Model	A	B	C	D	E	F	G	H	I	J	K	L	O	P	Q	R	S	T	U	V	X	Yh9	Z
MK2B32	45	60	34	14 -0.1 -0.2	54	31.5	5.5	9 depth 7	M10X1.5	12	20 ±0.15	7±0.15	14	4.5	101.5	76	37	7.5	16	Rc (PT) 1/8	3	30.0 -0.062	6.5
MK2B40	52	69	40	14 -0.1 -0.2	61	35	5.5	9 depth 7	M10X1.5	12	24±0.15	7±0.15	14	5	102.5	70	29.5	8	16	Rc (PT) 1/8	3	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

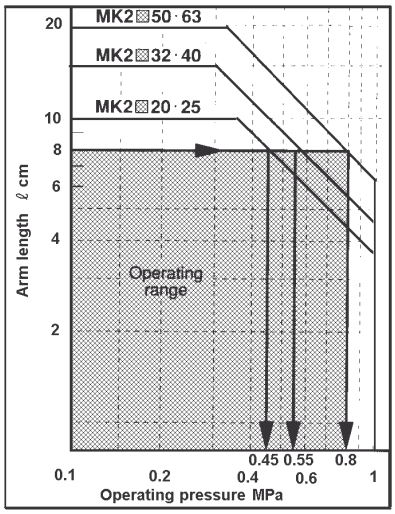
DIMENSIONS
WITH ARM 32/40/50/63-•• SERIES MK2



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

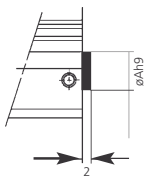
•WHEN ARMS ARE TO BE MADE SEPARATELY, THEIR LENGTH AND WEIGHT SHOULD BE WITHIN THE FOLLOWING RANGE.



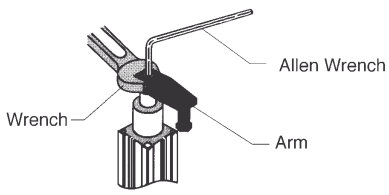
•TO ATTACH AND DETACH THE ARM TO AND FROM THE PISTON ROD, FIX THE ARM WITH A WRENCH OR VISE AND THEN TIGHTEN THE BOLT. (EXCESSIVE FORCE IN THE DIRECTION OF ROTATION APPLIED TO THE PISTON ROD MAY DAMAGE THE INTERNAL MECHANISM.)

REFER TO THE FOLLOWING TABLE FOR TIGHTENING TORQUE FOR MOUNTING.

HEAD SIDE WITH BOSS MOUNT

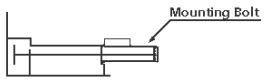


Model	øAh9
MK2□32-□□F	21 -0.052
MK2□40-□□F	28 -0.052
MK2□50-□□F	35 -0.062
MK2□63-□□F	35 -0.062



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

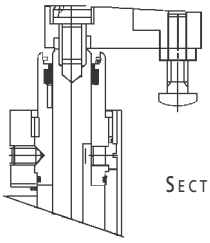
Note: be sure to use a flat washer to mount cylinders via through holes.

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E239

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, please consult SMC Customer Service

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

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E239

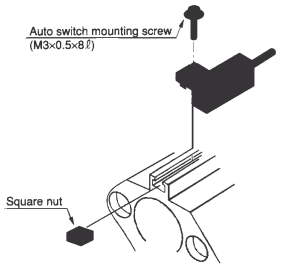
ACCESSORIES
AUTO SWITCH SPECS / RAIL MOUNTING

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)

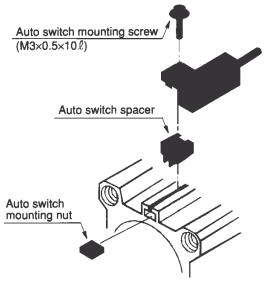
ACCESSORIES
SERIES MK2 - AUTO SWITCH INSTALLATION

HOW TO INSTALL THE AUTO SWITCH

ϕ20, ϕ25

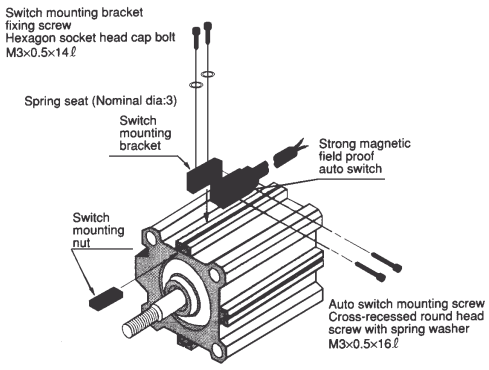


ϕ32 ~ ϕ63



ACCESSORIES
SERIES MK2

STRONG MAGNETIC FIELD PROOF AUTO SWITCH (Ø40~Ø63)



SERIES MRQ
BORE SIZES 32, 40

MADE IN USA

- 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

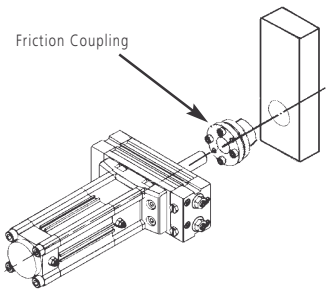
PORT THREADS
- .....PT 1/8
XN ...NPT 1/8

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

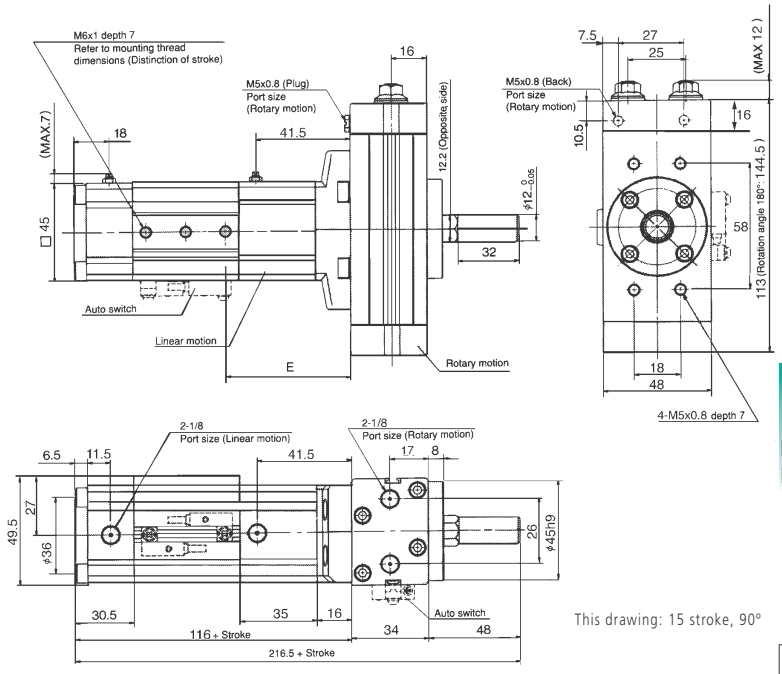
Size	Zero Max
32	ETP-K-12-C
40	ETP-K-14-C



DIMENSIONS
SEE NEXT PAGE ☞

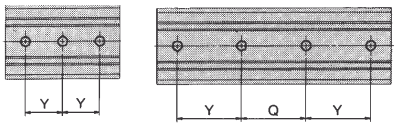
SEE INSIDE FRONT COVER FOR

DIMENSIONS
BASIC TYPE Ø32MM



This drawing: 15 stroke, 90°

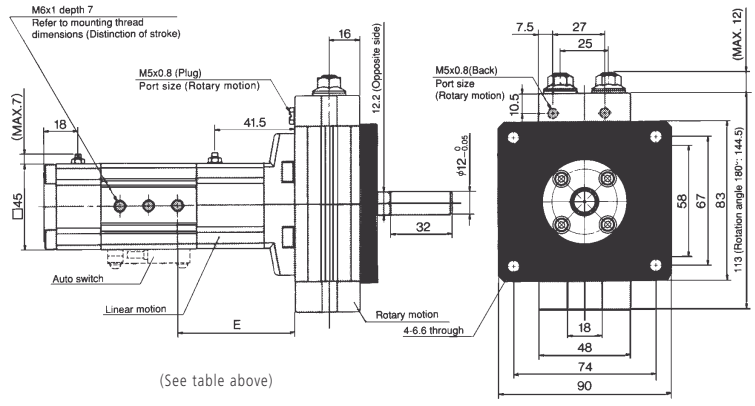
DIMENSIONS
MOUNTING THREAD (VARIATIONS WITH STROKE)



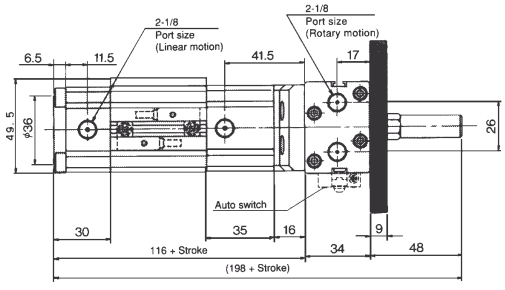
(mm)

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

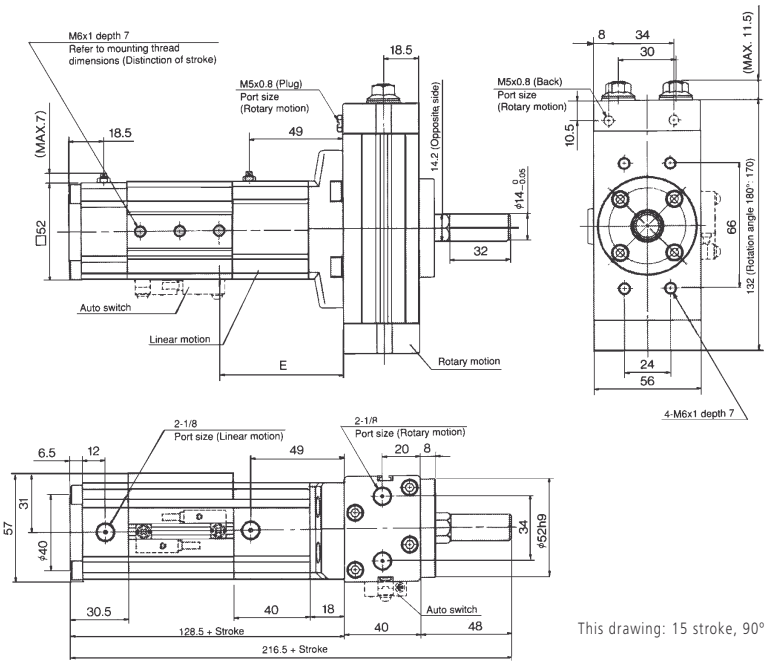


(See table above)



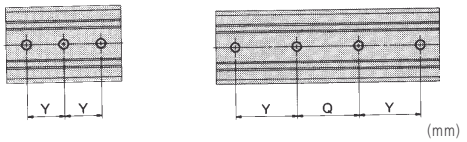
This drawing: 15 stroke, 90°

DIMENSIONS
BASIC TYPE Ø40MM



This drawing: 15 stroke, 90°

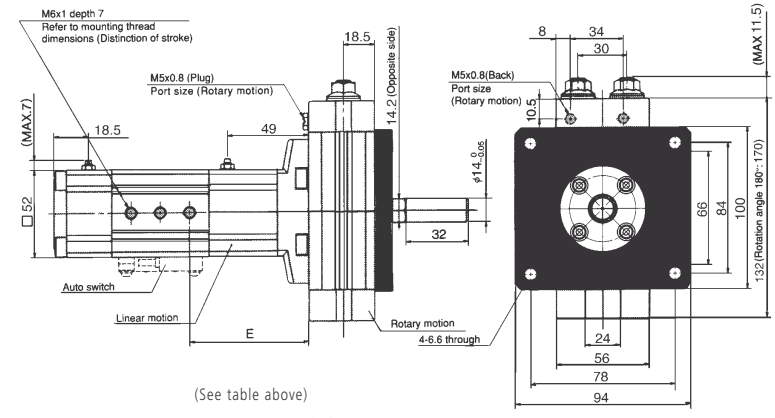
DIMENSIONS
MOUNTING THREAD (VARIATIONS WITH STROKE)



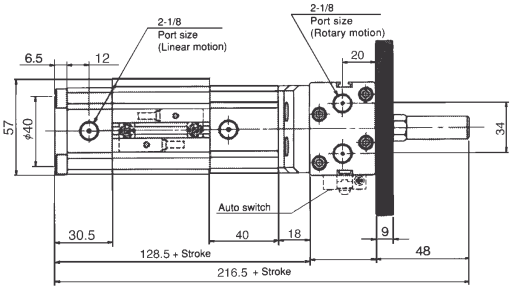
(mm)

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 ROTARY ACTUATOR BORE SIZES Ø30, 50, 63, 80, 100MM SERIES NCRA1

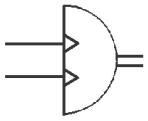
- 90°,180° rotation
- Optional magnetic piston for autoswitches
- Low friction resistance



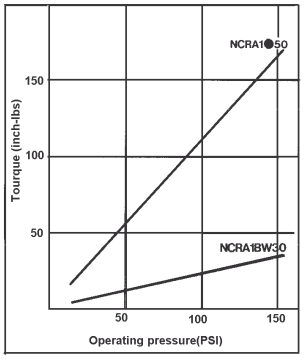
TECHNICAL

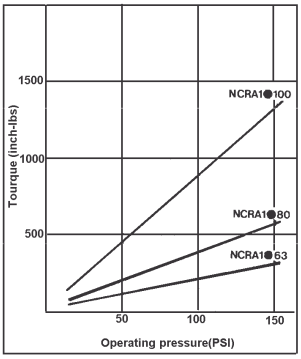
Fluid	Air (No Lubrication)				
Proof Pressure	1.5MPa / 225 PSI				
Max Operating Pressure	1MPa / 150 PSI				
Min Operating Pressure	0.1MPa / 15 PSI				
Ambient and Operating Fluid Temperature	5 ~ 60°C / 40 ~ 140°F				
Piston Diameter (mm)	30	50	63	80	100
Min Speed sec/90°	1	2	3	4	5
Max Speed sec/90°	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°

ADJUSTABLE CUSHION
C ……Both End Cushion

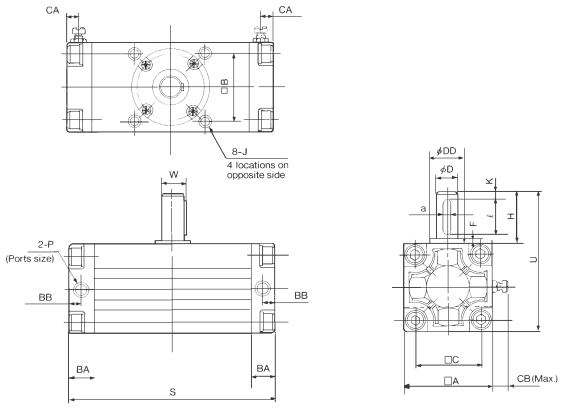
AUTO SWITCH TYPE
See Accessories Section

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, please consult SMC Customer Service

DIMENSIONS
WITHOUT AUTO SWITCH
SINGLE ROD END NCRA1BS50~100

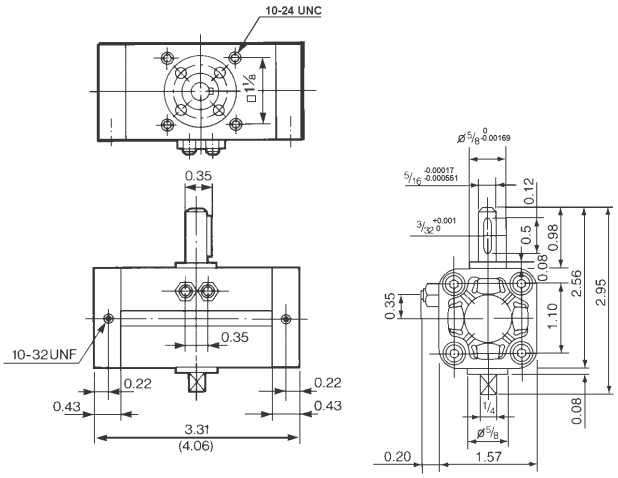


Model	P (NPTF)	❑A	❑B	❑C	❑D	❑DD	F	H	J	K	S*	U	W	BA	BB	CA	CB	KEY a	KEY Tolerance	KEY ℓ
NCRA1BS50-__	1/8	2.44	1 7/8	1.81	9/16 -0.000236 -0.000669	1 0 -0.00205	0.1	1.42	5/16-18UNC Depth0.31	0.2	5.67 (6.97)	3.86	0.62	0.67	0.33	0.33	0.51	1/8		1
NCRA1BS63-__	1/8	2.99	2 3/8	2.24	5/8 -0.000236 -0.000669	1 1/8 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

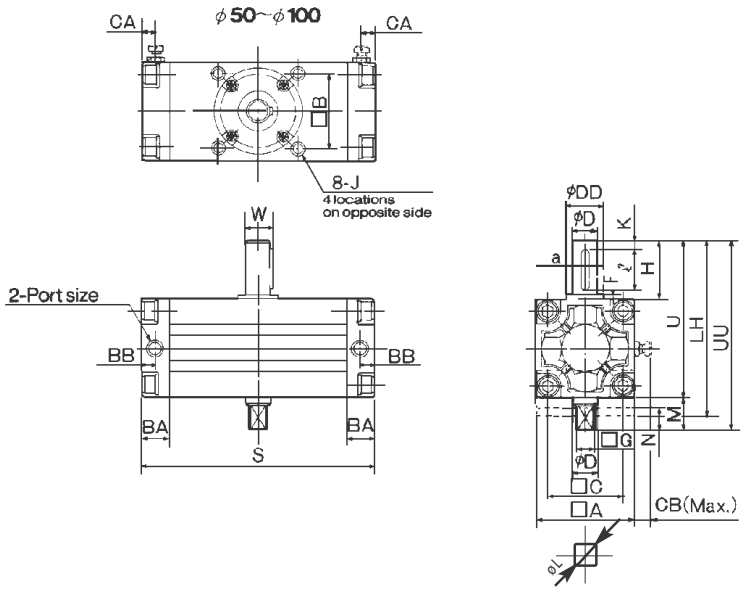
* (In Parentheses) are the dimensions for rotations of 180° and 190°

MORE DIMENSIONS SEE NEXT PAGE ☞

DIMENSIONS
WITHOUT AUTO SWITCH
DOUBLE ROD END NCRA1BW30



DIMENSIONS
WITHOUT AUTO SWITCH
DOUBLE ROD END NCRA1BW50~100

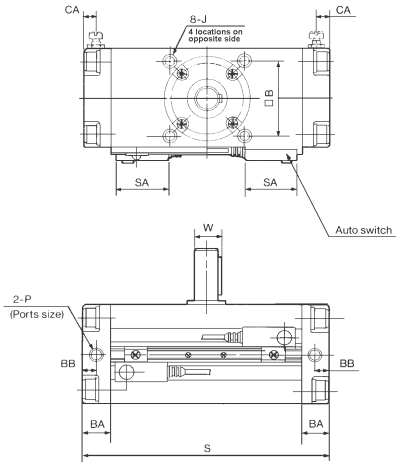


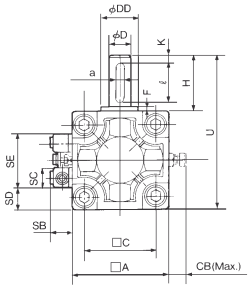
Model	P (NPTF)	❑A	❑B	❑C	❑D	❑DD	F	❑G	H	J	K	øL	M	N	S*	U	UU	W
NCRA1BW50-__	1/8	2.44	1 7/8	1.81	9/16 -0.000236 -0.000669	1 0 -0.00205	0.1	7/16	1.42	5/16-18UNC Depth0.31	0.2	9/16	0.79	0.59	5.67 (6.97)	3.86	4.65	0.62
NCRA1BW63-__	1/8	2.99	2 3/8	2.24	5/8 -0.000236 -0.000669	1 1/8 0 -0.00244	0.1	1/2	1.61	3/8-16UNC 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	KEY Tolerance	KEY 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°

DIMENSIONS
SINGLE ROD END WITH AUTO SWITCH NCDRA1_S_



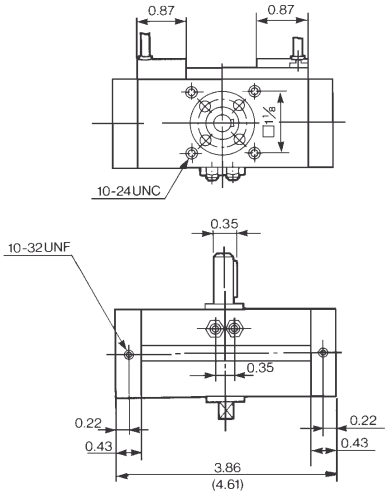


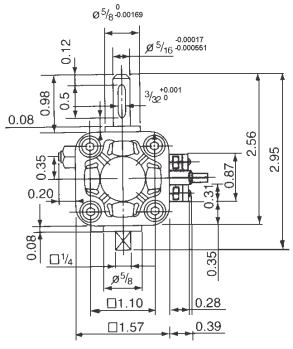
Model	KEY		
	a	Tolerance	ℓ
NCDRA1BS_50-__-A__	1/8		1
NCDRA1BS_63-__-A__	3/16	+0.001	1.25
NCDRA1BS80-__-A__	3/16	0	1.5
NCDRA1BS100-__-A__	1/4		1.75

* (In Parentheses) are the dimensions for rotations of 180° and 190°

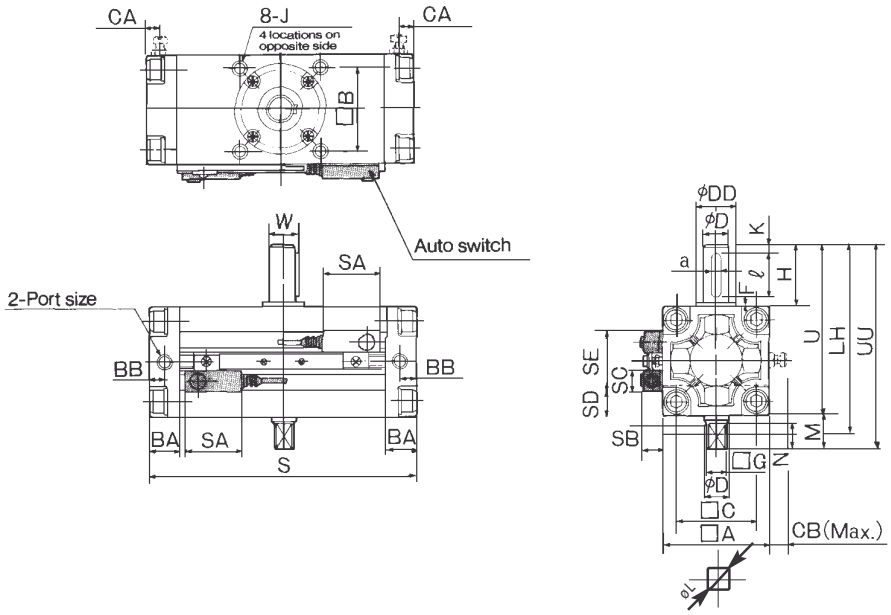
Model	P (NPTF)	❑A	❑B	❑C	❑D	❑DD	F	H	J	K	S*	U	W	BA	BB	CA	CB	SA	SB	SC	SD	SE
NCDRA1BS_50-__-A__	1/8	2.44	1 7/8	1.81	9/16 -0.000236 -0.000669	1 0 -0.00205	0.1	1.42	5/16-18UNC Depth0.31	0.2	5.67 (6.97)	3.86	0.62	0.67	0.33	0.33	0.51	1.3	0.53	0.47	0.55	1.34
NCDRA1BS_63-__-A__	1/8	2.99	2 3/8	2.24	5/8 -0.000236 -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





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

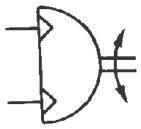
* (In Parentheses) are the dimensions for rotations of 180° and 190°

VANE TYPE ROTARY ACTUATOR: BORE SIZES Ø50•80•100MM SERIES NCRB



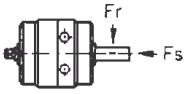
- 90°,180°,270° rotation
- Special vane seal design eliminates leakage
- Low operating and start-up torque
- Long operating life

SYMBOLS



TECHNICAL SPECIFICATIONS

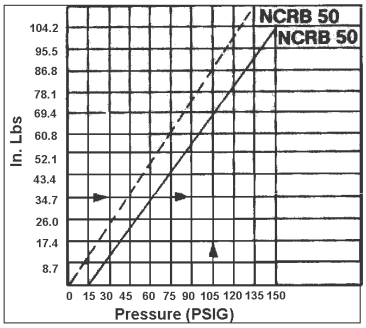
Media	Compressed Air
Working Pressure	0.1 ~ 1.5MPa / 15 ~ 220 PSI
Ambient Temperature	5 ~ 60°C / 40 ~ 140°F
Rotation Angle	90°, 180°, 270°
Seal Material	Buna N
Drive Shaft	Double Shaft, One side with key and groove, other side is a square shaft



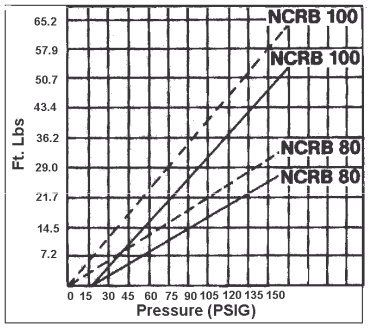
Maximum shaft loading and kinetic energy

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

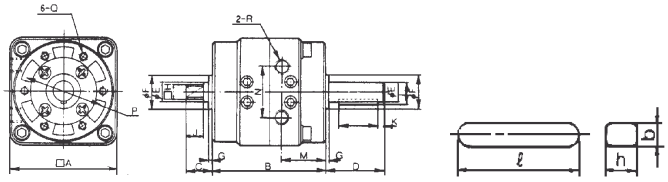


Actual _____



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 ○ — ○ ○

BORE (MM)
50 ...2"
80 ...3.14"
100 ...4"

OPTIONS
L .....Mounting Brackets

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 ROTARY ACTUATOR: BORE SIZES Ø10•15•20•30MM SERIES NCRB1BW

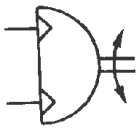
- 90°,180°,270° rotation
- High reliability and long life
- Light weight
- Optional auto switch and adjustable rotation



TECHNICAL SPECIFICATIONS

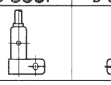
Model	CRB1BW10	CRB1BW15	CBR1BW20	CRB1BW30
Rotation	90°/ 180° / 270°			
Fluid	Air			
Proof Pressure	1.05MPa / 153PSI			1.5MPa / 218PSI
Operating Pressure Range	0.14 ~ 0.7MPa / 20~100PSI			0.1~0.23MPa/15~40PSI
Rotation Speed Range (s/90°)	0.03~0.3			0.04~0.3
Maximum 90°	5	4	4	4
Operating 180°	3.5	3	3	3
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



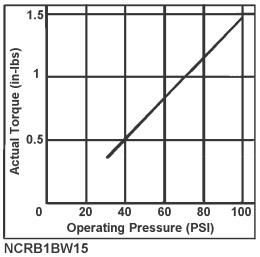
FITTING LOCATION AND ROTATION OF AUTO SWITCH

Mounting direction	Switch with right hand mounting	Switch with left hand mounting
Type	D-⚫⚫⚫1	D-⚫⚫⚫2

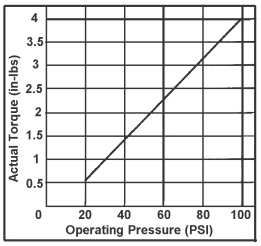


TORQUE SPECIFICATIONS

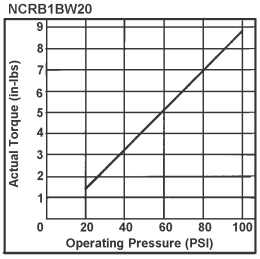
NCRB1BW10



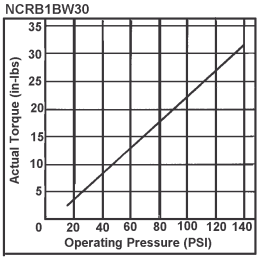
NCRB1BW15



NCRB1BW20



NCRB1BW30



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

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

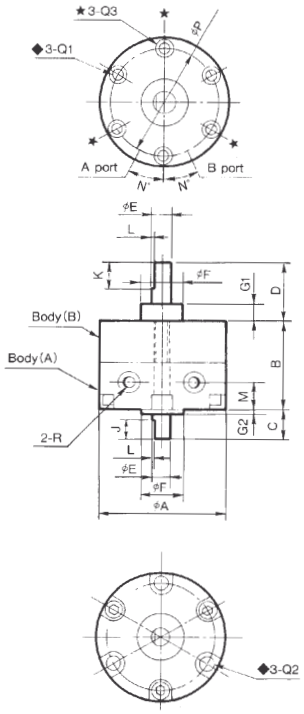
TYPE OF AUTO SWITCH

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N350

DIMENSIONS SEE NEXT PAGE ☞
ACCESSORIES SEE NEXT PAGE ☞

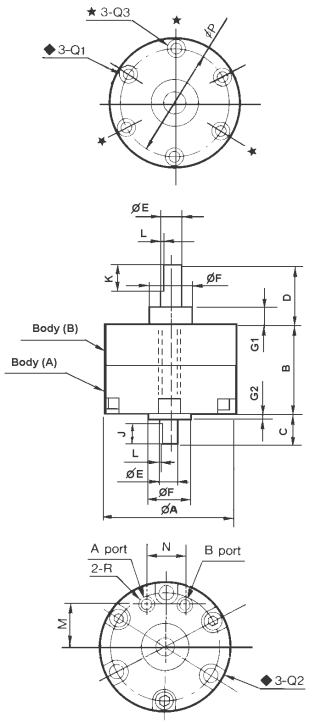
VANE TYPE SERIES NCRB1BW

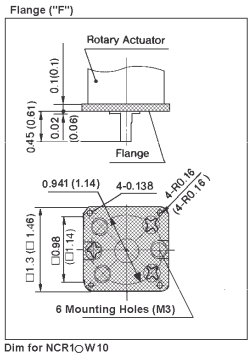
DIMENSIONS WITH SIDE PORTS NCRB1_W_-_S ROTARY ACTUATOR



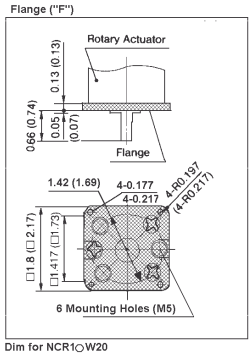
DIMENSIONS WITH TOP PORTS NCRB1_W_-_SE ROTARY ACTUATOR

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	Tolerances	F	Tolerance	G	G1	G2	J	K	L	M	N	P	Q (Depth) Q1	Q2	Q3	R 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

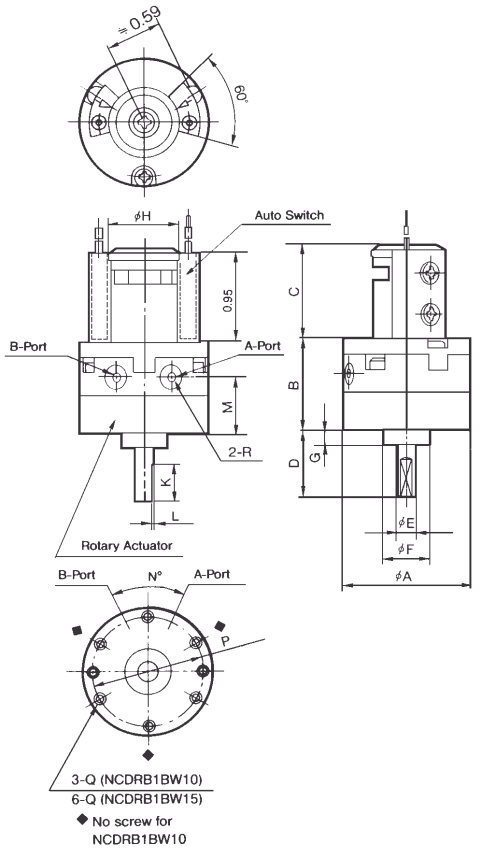
Flange Mounting Assembly	
Model	Part No
NC_R1FW10	P211170-2
NC_R1FW15	P211190-2
NC_R1FW20	P211160-2
NC_R1FW30	P211180-2

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N350

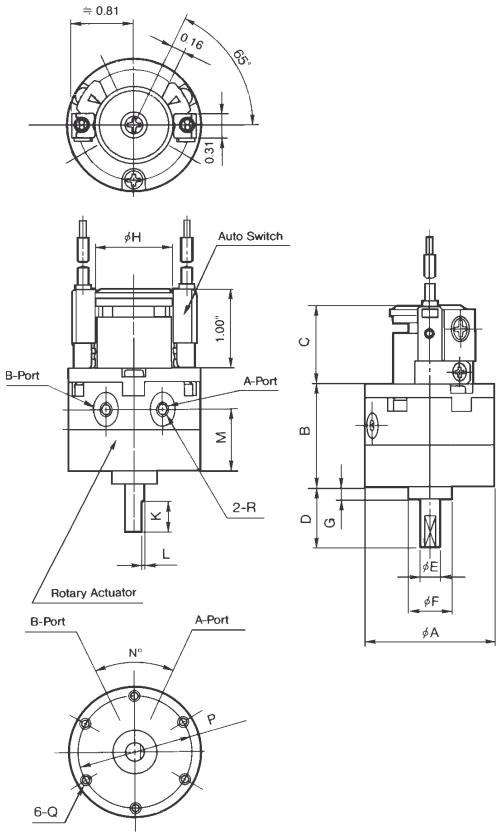
MORE DIMENSIONS SEE NEXT PAGE ☞

MORE ACCESSORIES SEE NEXT PAGE ☞

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

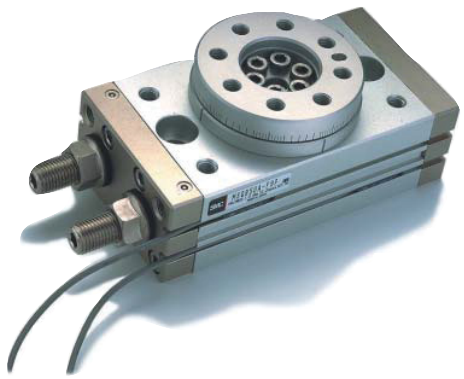
ACCESSORIES
AUTO SWITCH SPECIFICATIONS

Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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 ☞

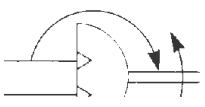
DIMENSIONS SEE NEXT PAGE ☞

AUTO SWITCH SPECIFICATIONS SOLID STATE TYPE

Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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 5V or less	24V DC at 1mA or less	24V DC PLC
D-F9BW D-F9BWV								

SYMBOLS



SEE INSIDE FRONT COVER FOR

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

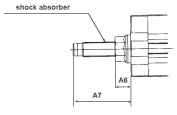
With Auto Switch see Page

No of Auto Switches
- .....2 Pieces
S .....1 Piece
n .....n Pieces

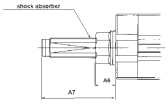
Size	Decrease in oscillation angle
MSQB10	Approx 10.2°
MSQB20	Approx 7.2°
MSQB30	Appror 6.5°
MSQB50	Approx 8.2°
MSQB70	Approx 7°
MSQB100	Approx 6.1°
MSQB200	Approx 4.9°

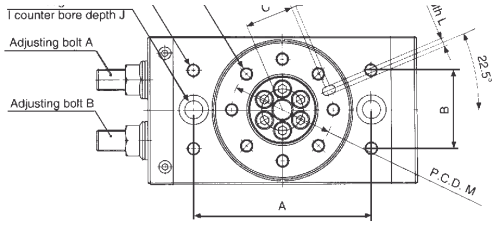
Dimensions
Rotary Table Series MSQB

Shock Absorber MSQB10/20/30R



Shock Absorber MSQB50R



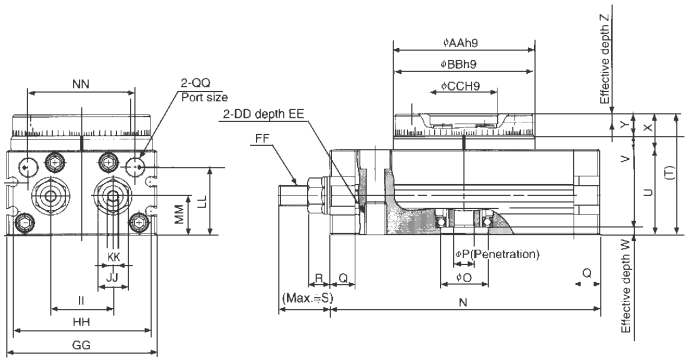


Types of Shock Absorber

Model	Type of Shock Absorber
MSQB10	RBA0805-X692
MSQB20	RBA1006-X692
MSQB30	RBA1006-X692
MSQB50	RBA1411-X692

Dimensions

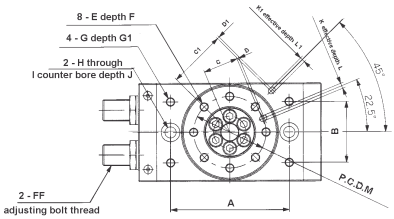
Model	A6 (mm)	A7 (mm)
MSQB10	8.6	31.5
MSQB20	10.6	34.7
MSQB30	10.6	34.7
MSQB50	14	51.7

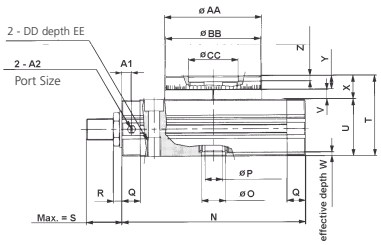


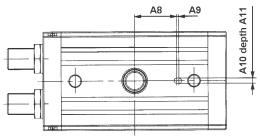
Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
MSQB10	60	27	15	2	M5X0.8	8	M5X0.8	6.8	11	6.5	3H9	3.5	32	92	15H9	5	9.5	8.6	17.7	47	34	4.5	3	13	8	4
MSQB20	76	34	20.5	2	M6X1	10	M6X1	8.6	14	8.5	4H9	4.5	43	117	17H9	9	12	10.6	25	54	37	6.5	2.5	17	10	6
MSQB30	84	37	23	2	M6X1	10	M6X1	8.6	14	8.5	4H9	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

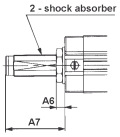
DIMENSIONS
ROTARY TABLE SERIES MSQB 70, 100, 200







SHOCK ABSORBER
MSQB70/100/200R

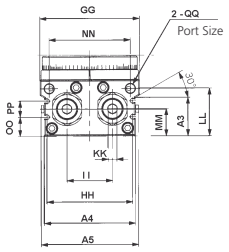


TYPES OF SHOCK ABSORBER

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

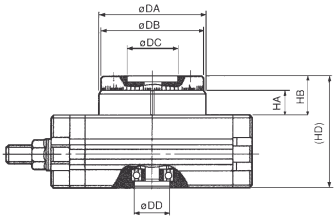


Model	A	B	C	D	C1	D1	E	F	G	G1	H	I	J	K	L	K1	L1	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
MSQB70	110	57	32.5	2	54	2	M8x1.25	12.5	M8x1.25	10	10.4	17.5	10.5	5	5.5	5	3.5	67	170	22	16	17	8	34.2	75	53	9	3.5	22	12.5	5
MSQB100	130	66	37.5	2	59	2	M10x1.5	14.5	M8x1.25	10	10.4	17.5	10.5	6	6.5	6	4.5	77	189	24	19	17	8	34.3	86	59	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



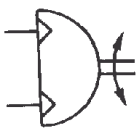
ALL DIMENSIONS EXCEPT FOR THIS TABLE ARE THE SAME AS FOR BASIC MODEL



ROTARY TABLE
VANE TYPE SIZES 1, 3, 7, 20
SERIES MSUB

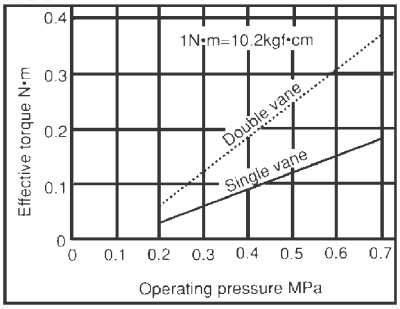
- ±10° Rotation Range Adjustment
- Free Mount Body Type
- Easy Alignment
- Smooth Operation
- High Reliability / Long Life
- Auto Switch Option

SYMBOLS

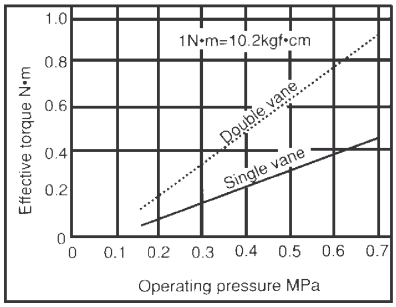


TORQUE SPECIFICATIONS

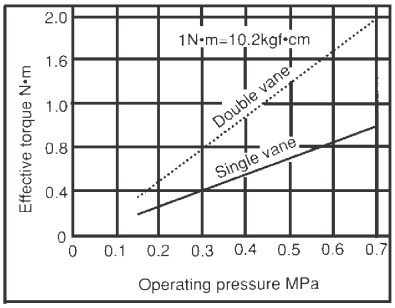
MSUB1



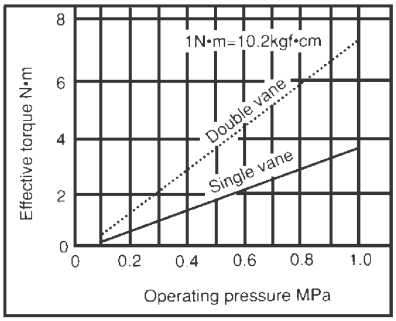
MSUB3



MSUB7



MSUB20



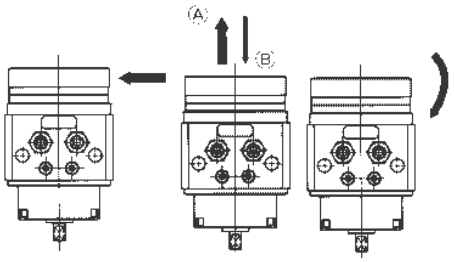
TECHNICAL SPECIFICATIONS

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 ☞

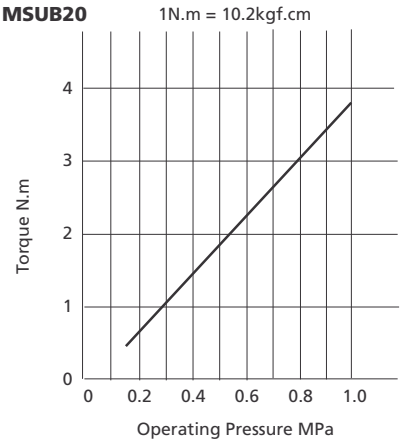
ALLOWABLE LOAD

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.)

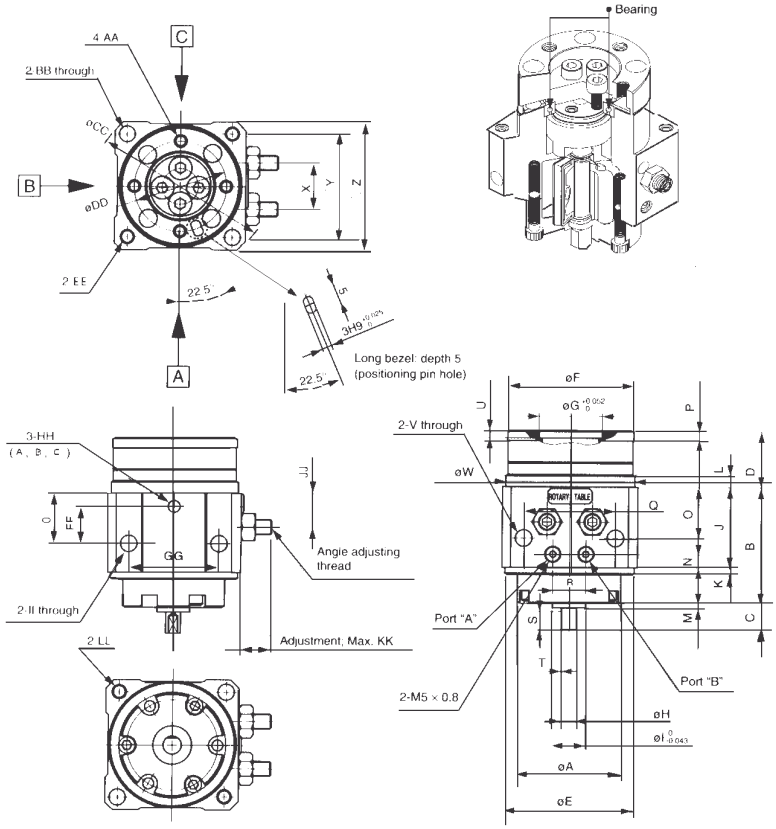


Size	Allowable Radial Load (N)	Allowable Thrust Load (N)		Allowable Moment (Nm)
3	40	A 30	B 15	0.7
7	50	60	30	0.9
20	60	80	40	2.9

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

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N355

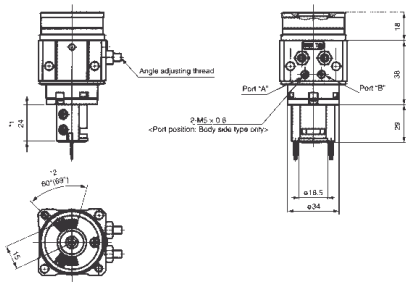
Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N
MSUB-3□S	34	38	9	18	$42h9^{0}_{-0.062}$	$41h9^{0}_{-0.062}$	21H9	$5g6^{-0.004}_{-0.012}$	12h9	26	2	3	1.5	5
MSUB-7□S	42	48.5	10	21.5	$48h9^{0}_{-0.062}$	$47h9^{0}_{-0.062}$	26H9	$6g6^{-0.004}_{-0.012}$	14h9	30.5	2.5	4.5	1.5	5
MSUB-20□S	50	60	13	22	$53.5h9^{0}_{-0.074}$	$52h9^{0}_{-0.074}$	30H9	$8g6^{-0.005}_{-0.014}$	16h9	34	4	5	2	6

FOR DIMENSIONAL INFORMATION ON MSUB1, PLEASE REFER TO CAT:N355

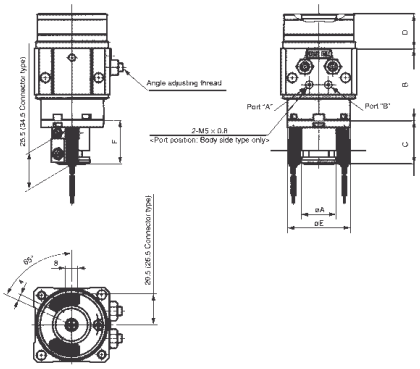
O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE
16	3.5	29	10.5	6	0.5	2.5	4.5	$42h9^{0}_{-0.062}$	14	36	44	M4x0.7 depth 7	4.5	58	30	M4x0.7 depth 8
19.5	4.5	36	11	7	0.5	2.5	5.5	$48h9^{0}_{-0.062}$	19	41	50	M4x0.7 depth 8	5.5	67	37	M5x0.8 depth 10
21.5	4.5	43	13	8	1	3	6.6	$53.5h9^{0}_{-0.074}$	22	45	56	M5x0.8 depth 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

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	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, please consult SMC Customer Service

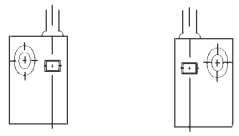
ACCESSORIES
SWITCH UNIT MODEL NO.

Type	Unit Model No.
MDSUB3	P211090-1
MDSUB7	P211060-1
MDSUB20	P211080-1

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N355

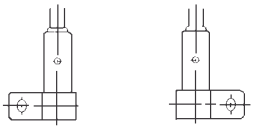
ACCESSORIES
AUTO SWITCHES TYPE FOR RIGHT/LEFT HAND

MDSUB1-3



Left hand D-□992 | Right hand D-□991

MDSUB7-20

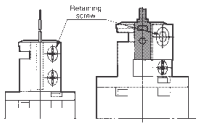


Left hand D-□□□2 | Right hand D-□□□1

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.



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)

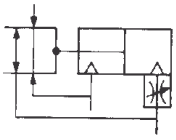
Fluid			Air
Operating Pressure	Double Acting Type		Ø10 ~ Ø25: 0.1 ~ 0.6MPa / 14.5 ~ 90PSI
	Single Acting Type	Normally Open Type	Ø10~25: 0.25 ~ 0.6MPa / 37 ~ 90PSI
Ambient and Fluid Temperature			0 ~ 60°C / 32 ~ 140°F
Repeatability			±0.01mm
Maximum Operating Frequency			180 c.pm
Lubrication			Not required
Action			Double Acting type, Single Acting type (N.O)
Auto Switch			See Accessories

PRODUCT SELECTOR (HOLDING FORCE)

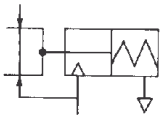
Action		Model	Bore Size (mm)	Holding Force @0.5MPa / 73PSI (Effective) (N)	Opening Stroke (Included) (mm)
Double acting type		MHQ2-6D	6	Outside holding force: 3.4 Inside holding force: 6.2	4
		MHQ2-10D	10	11	4
		MHQ2-16D	16	35	6
		MHQ2-20D	20	43	10
		MHQ2-25D	25	64	14
Single acting type	Normally open 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

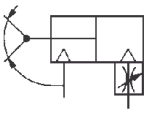
PRODUCT SELECTOR

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	

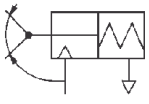
*@ 0.5MPa / 73PSI

SYMBOLS

ANGULAR TYPE
DOUBLE ACTING

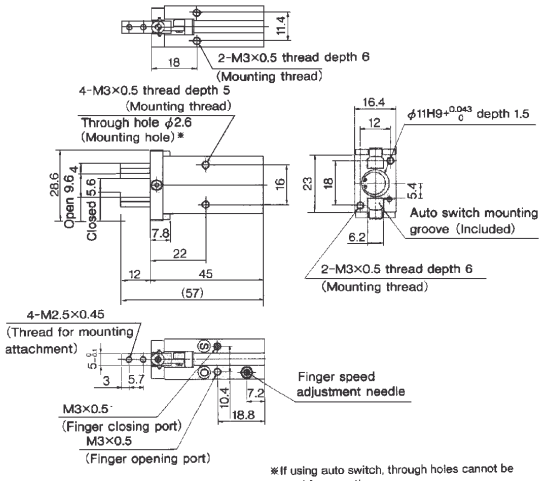


ANGULAR TYPE
SINGLE ACTING



DIMENSIONS
SEE NEXT PAGE ☞

DIMENSIONS
PARALLEL TYPE
MHQ2-10D/S

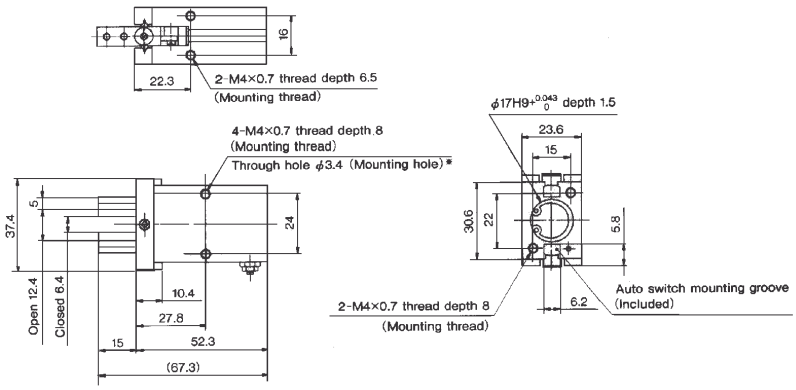


*If using auto switch, through holes cannot be used for mounting.

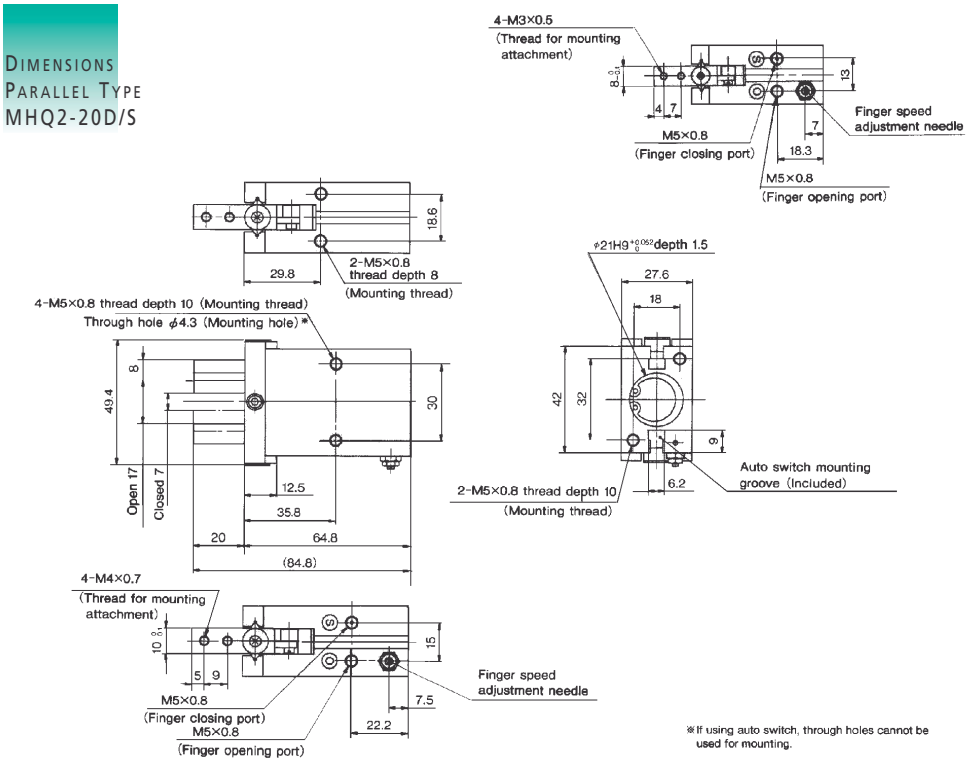
NOTE

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

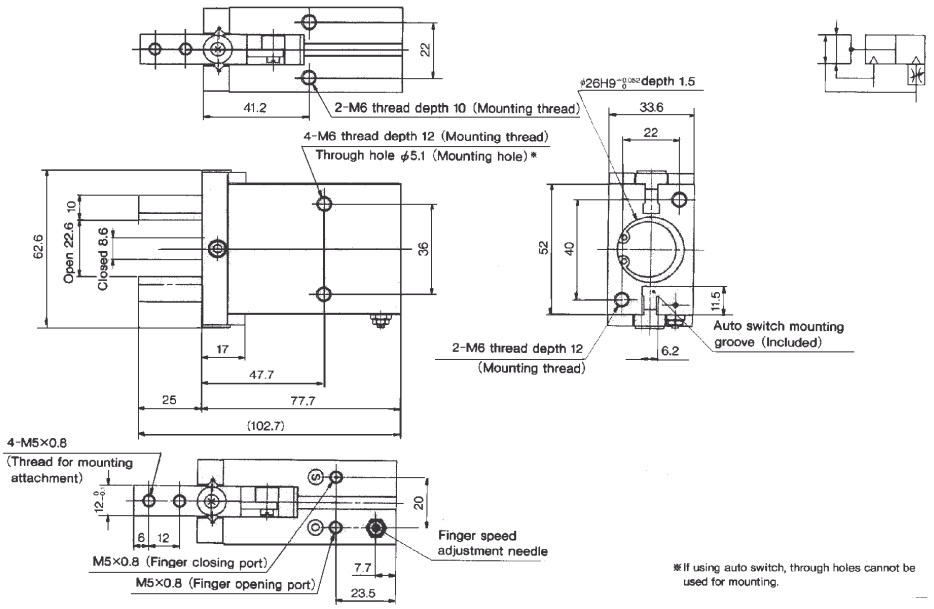


*If using auto switch, through holes cannot be used for mounting.

*If using auto switch, through holes cannot be used for mounting.

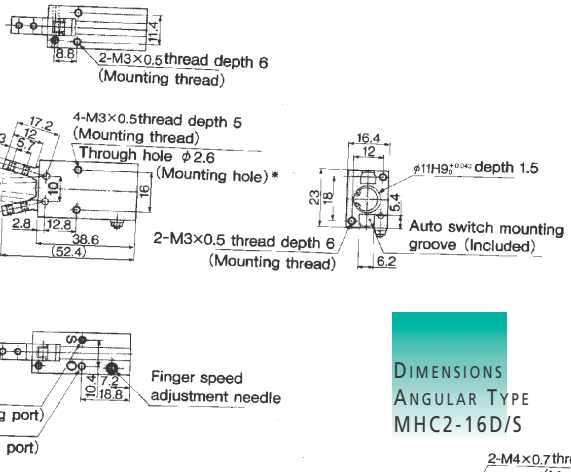
MORE DIMENSIONS
SEE NEXT PAGE ☞

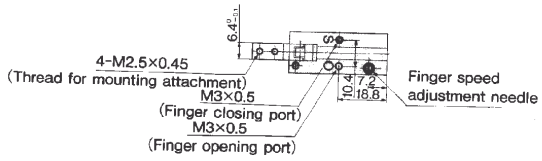
DIMENSIONS PARALLEL TYPE MHQ2-25D/S



※ If using auto switch, through holes cannot be used for mounting.

DIMENSIONS ANGULAR TYPE MHC2-10D/S

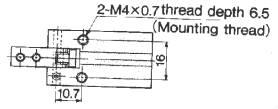


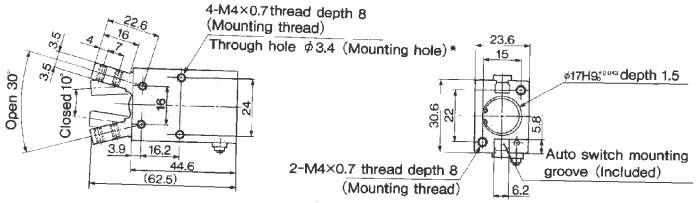


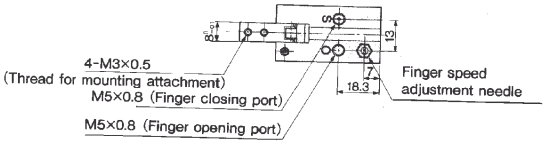
NOTE

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



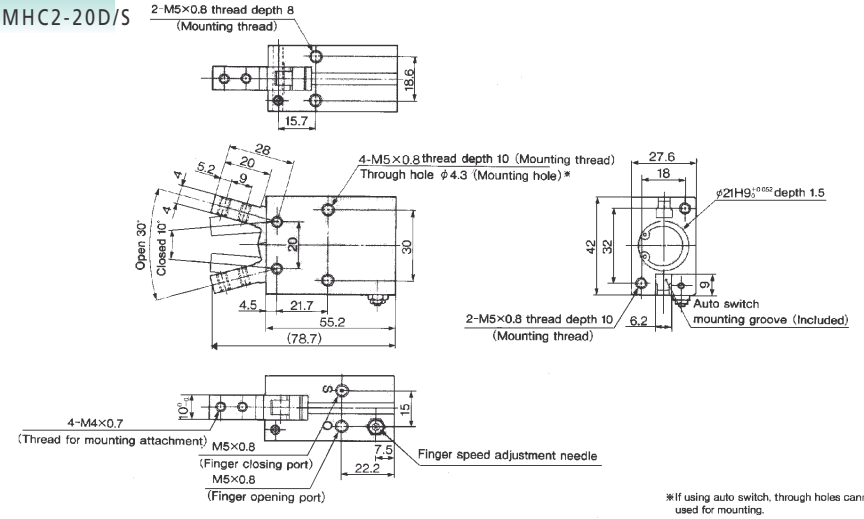




※ If using auto switch, through holes cannot be used for mounting.

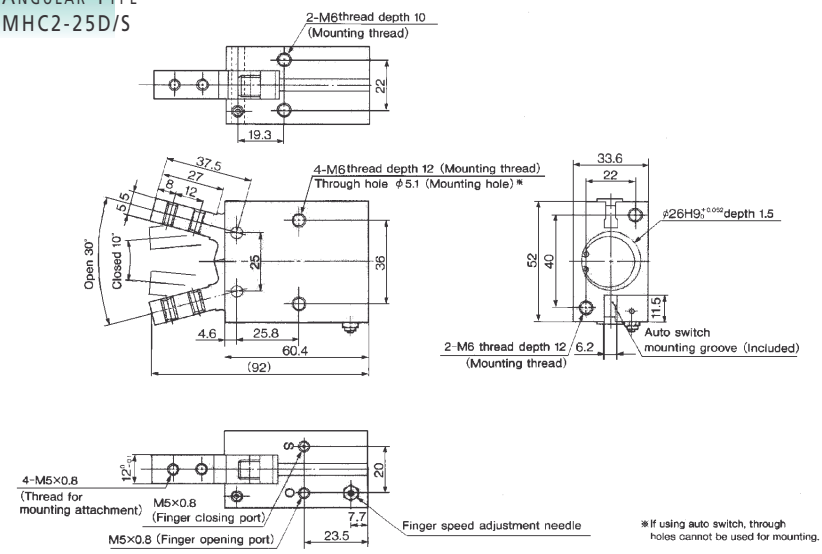
ACCESSORIES SEE NEXT PAGE ☞
HOW TO ORDER SEE NEXT PAGE ☞

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

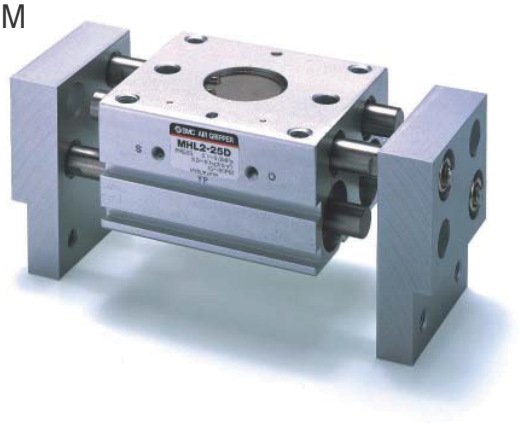
ACCESSORIES
AUTO SWITCH SPECIFICATIONS

Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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)

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

TYPE OF AUTO SWITCHES
See Accessories Section

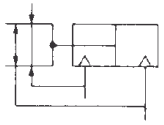
LEAD WIRE LENGTH
- 0.5m
L 3m

ACCESSORIES
AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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

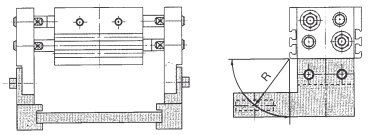


FOR MORE TECHNIAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N360

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.

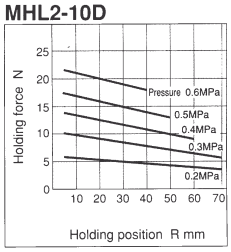


R : Holding position (mm)

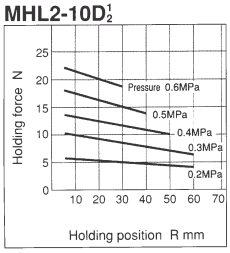
1N = 0.2248lbf
1MPa = 145PSI

Effective Holding Force

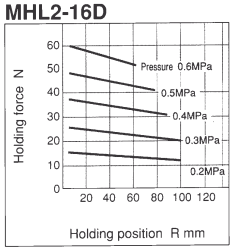
MHL2-10D



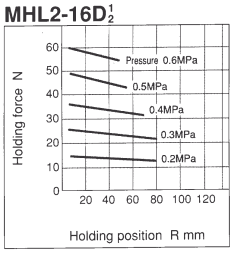
MHL2-10D$_2^1$



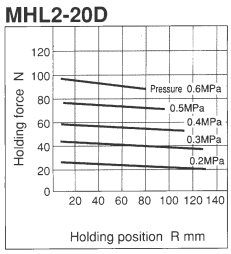
MHL2-16D



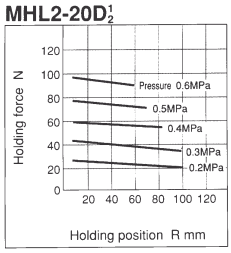
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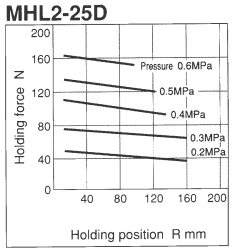
MHL2-20D



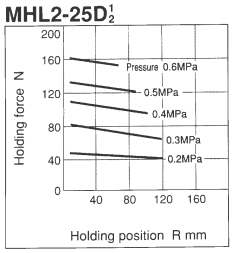
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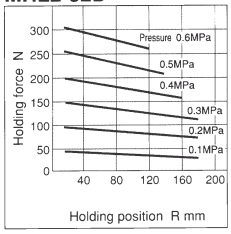
MHL2-25D



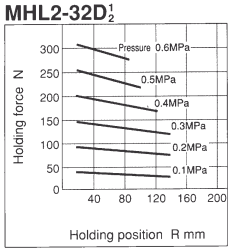
MHL2-25D$_2^1$



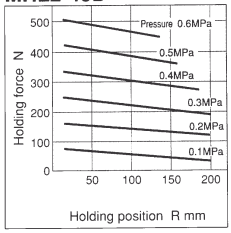
MHL2-32D



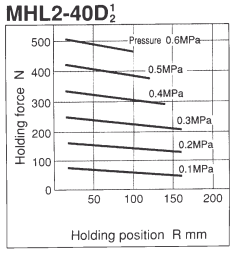
MHL2-32D$_2^1$



MHL2-40D



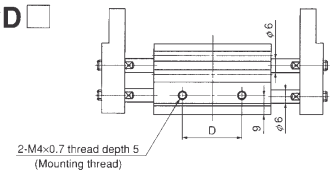
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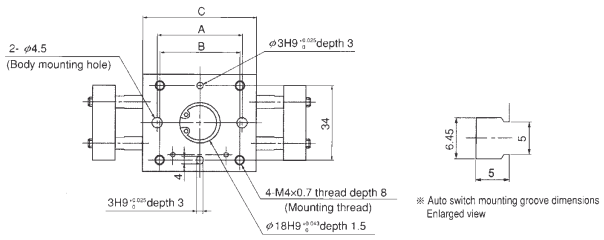


DIMENSIONS
SEE NEXT PAGE ☞

DIMENSIONS
AIR CHUCK SERIES MHL

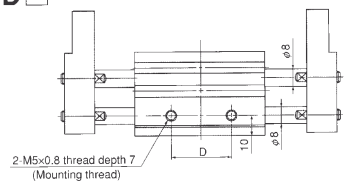
MHL2-10D□

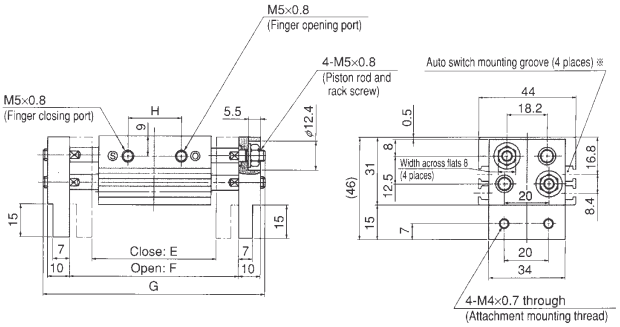


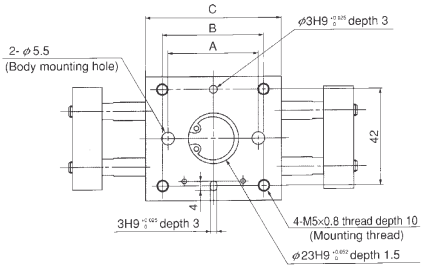


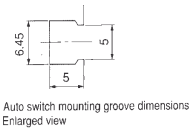
DIMENSIONS
AIR CHUCK SERIES MHL

MHL2-16D□

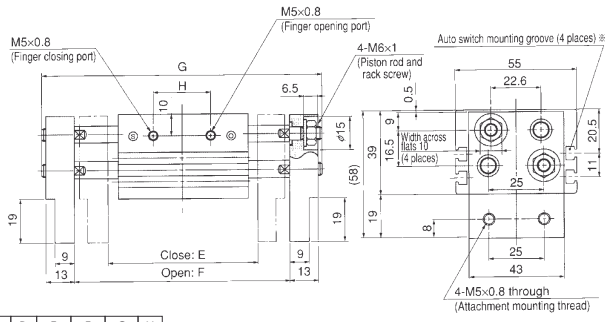








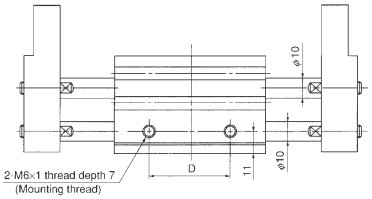
Model	A	B	C	D	E	F	G	H
MHL2-10D	38	36	51	26	56	76	100	24
MHL2-10D1	54	52	67	42	78	118	142	39
MHL2-10D2	72	70	85	60	96	156	180	57

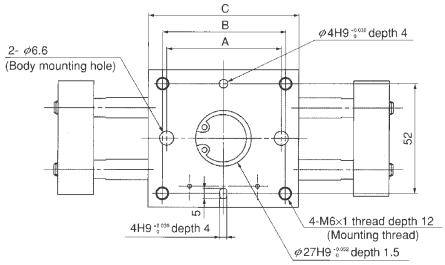


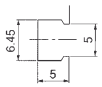
Model	A	B	C	D	E	F	G	H
MHL2-16D	40	45	60	28	68	98	128	26
MHL2-16D1	70	75	90	58	110	170	200	50
MHL2-16D2	90	95	110	78	130	210	240	70

DIMENSIONS
AIR CHUCK SERIES MHL

MHL2-20D□



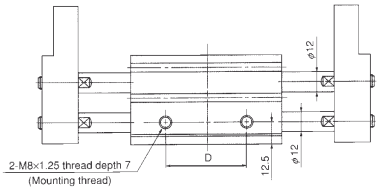


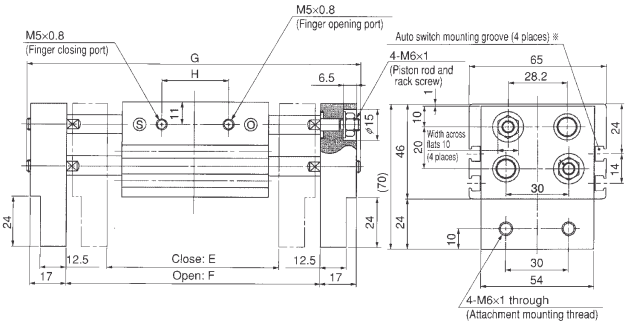


※ Auto switch mounting groove dimensions
Enlarged view

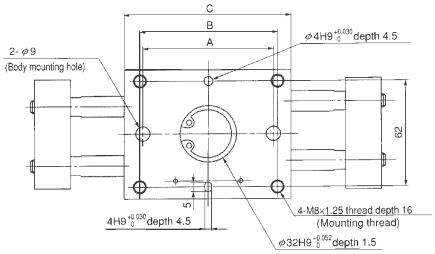
DIMENSIONS
AIR CHUCK SERIES MHL

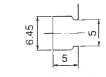
MHL2-25D□



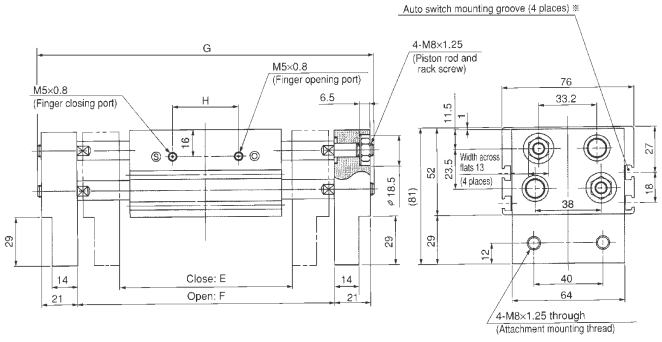


Model	A	B	C	D	E	F	G	H
MHL2-20D	54	58	71	38	82	122	160	32
MHL2-20D1	96	100	113	80	142	222	260	68
MHL2-20D2	116	120	133	100	162	262	300	88





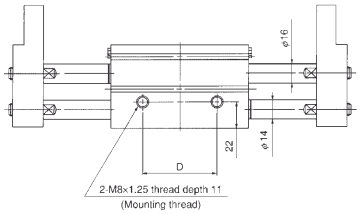
※ Auto switch mounting groove dimensions
Enlarged view

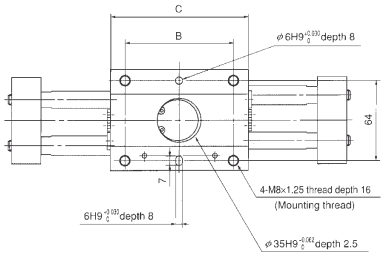


Model	A	B	C	D	E	F	G	H
MHL2-25D	66	70	88	48	100	150	196	38
MHL2-25D1	120	124	142	102	182	282	328	86
MHL2-25D2	138	142	160	120	200	320	366	104

DIMENSIONS
AIR CHUCK SERIES MHL

MHL2-32D□



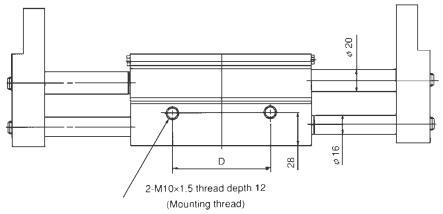


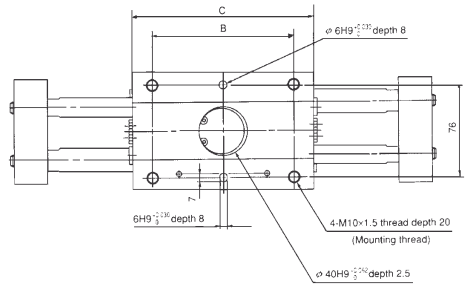


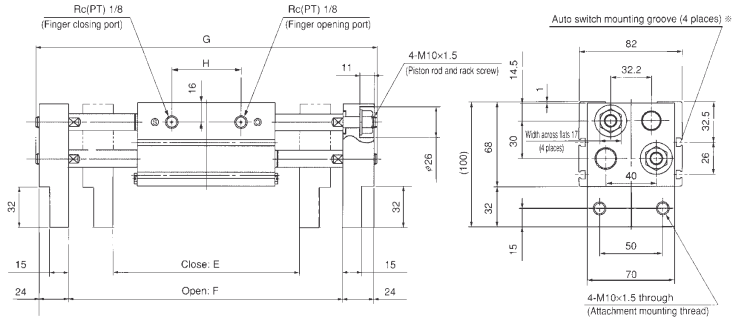
※ Auto switch mounting groove dimensions
Enlarged view

DIMENSIONS
AIR CHUCK SERIES MHL

MHL2-40D□



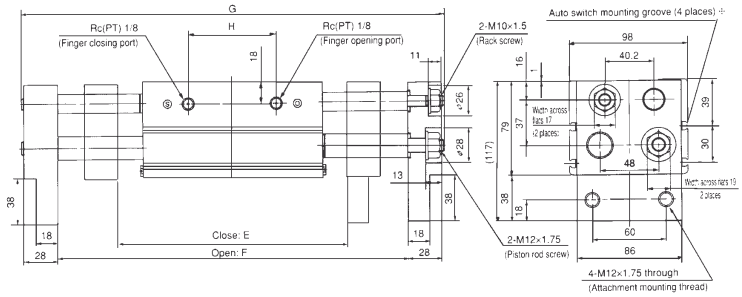




Model	B	C	D	E	F	G	H
MHL2-32D	86	110	60	150	220	272	56
MHL2-32D1	134	158	108	198	318	370	104
MHL2-32D2	178	202	152	242	402	454	148



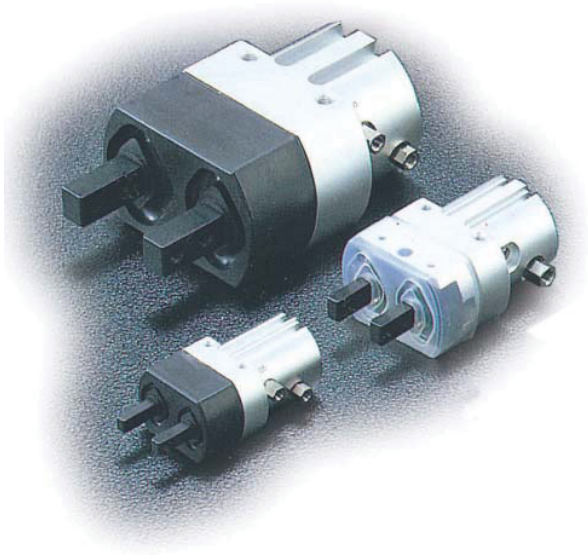
※ Auto switch mounting groove dimensions
Enlarged view



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

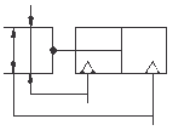
Action	Model	Cylinder bore (mm)	(Note1) Holding force (Effective) N (kgf)	Opening stroke (Total) (mm)	(Note 2) Weight (g)
Double acting	MHQJ2-10D	10	10.7(1.1)	4	90
	MHQJ2-16D	16	34.3(3.5)	6	180
	MHQJ2-20D	20	42.2(4.3)	10	340
	MHQJ2-25D	25	62.8(6.4)	14	640

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

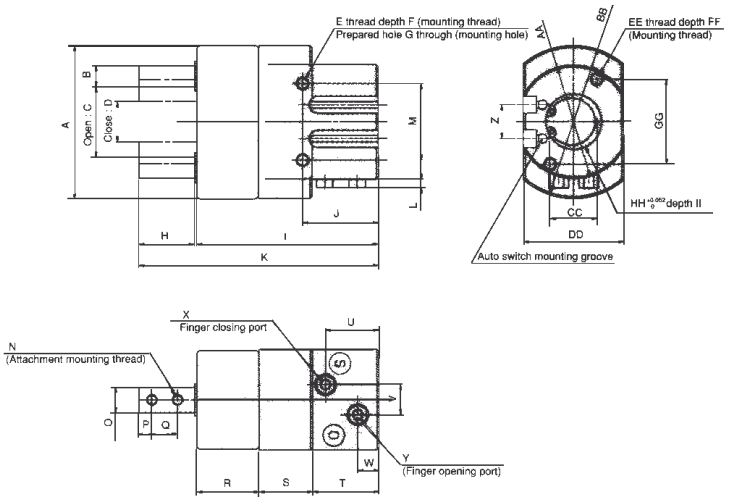
ACCESSORIES AUTO SWITCHES

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, please consult SMC Customer Service

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N360

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

0	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

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N360

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, please consult SMC Customer Service

HOW TO ORDER SERIES MHR

MDHR ○○ — 10R — ○○○

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*

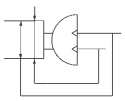
Connection Port
E .....End (Axial) Port
R .....Side Port
*Note: Ø20 and 30 only available for 2 finger type only

Type Of Auto Switches
See Accessories Section

Lead Wire Length
- 0.5m
L 3m

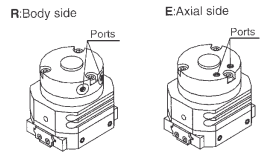
No Of Switches
- .....2 Pieces
S .....1 Piece

SYMBOLS

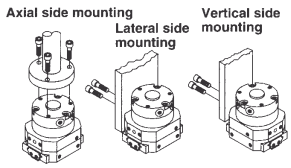


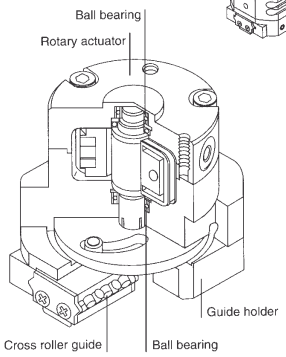
FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N360

PRODUCT SELECTOR MOUNTING



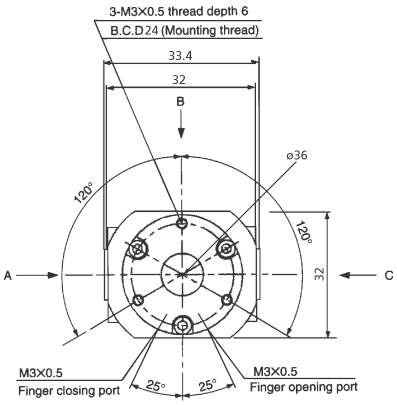
Mounting can be done from 3 directions.



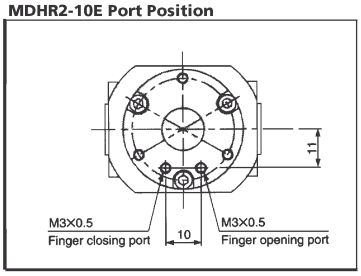


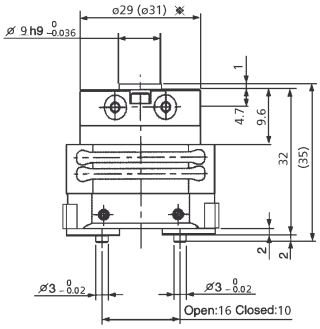
FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N360

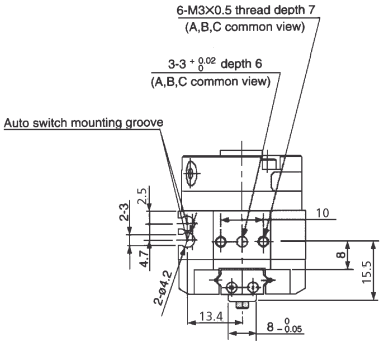
DIMENSIONS WITH AUTO SWITCH (BUILT-IN MAGNET): MDHR2-10R/10E

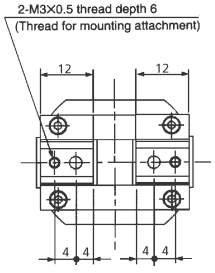


MDHR2-10E Port Position





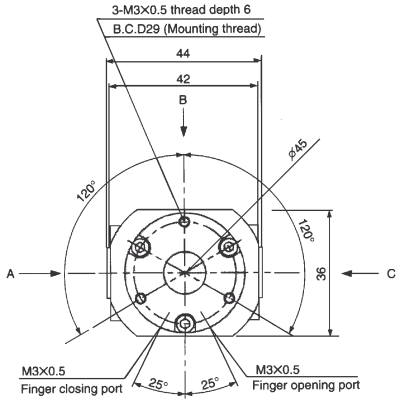




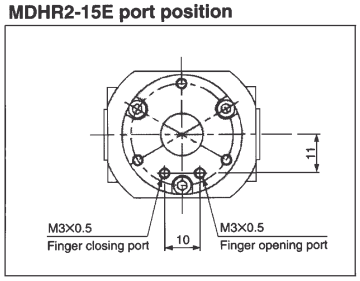
DIMENSIONS SEE NEXT PAGE ☞

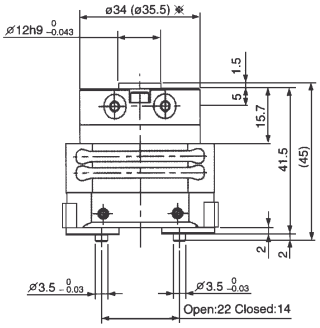
DIMENSIONS
WITH AUTO SWITCH (BUILT-IN MAGNET): MDHR2-15R/15E

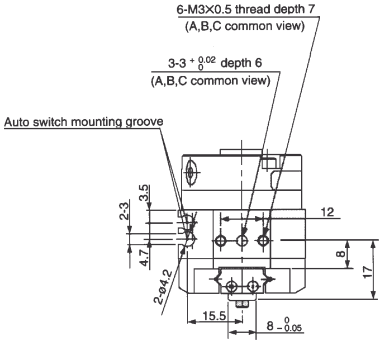
DIMENSIONS SEE NEXT PAGE ☞

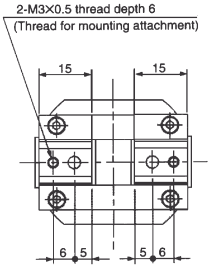


MDHR2-15E port position

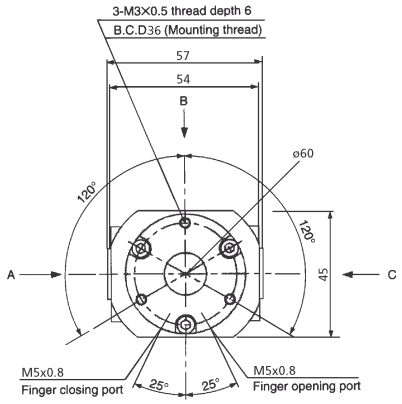




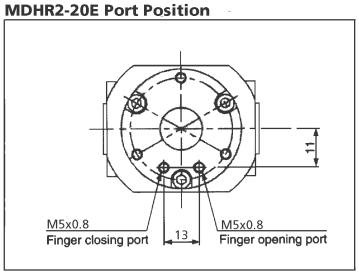


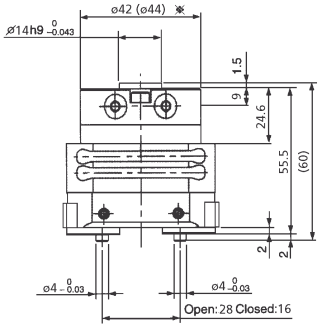


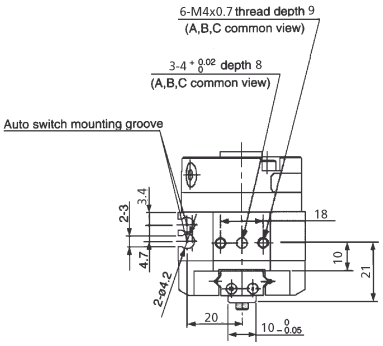
DIMENSIONS
WITH AUTO SWITCH (BUILT-IN MAGNET): MDHR2-20R/20E

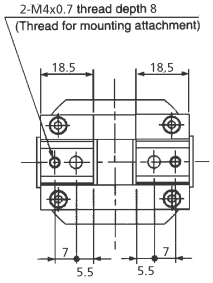


MDHR2-20E Port Position



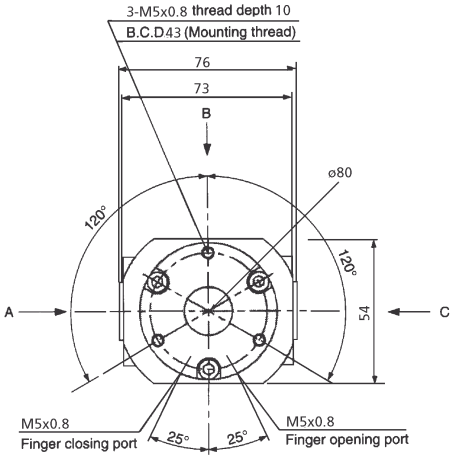




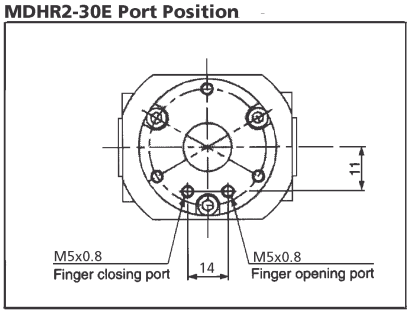


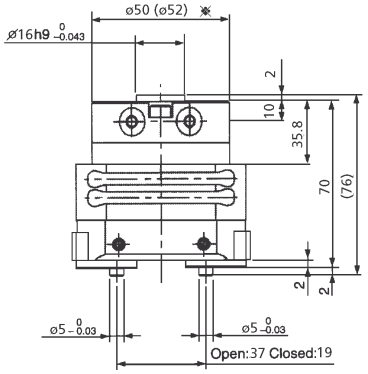
FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N360

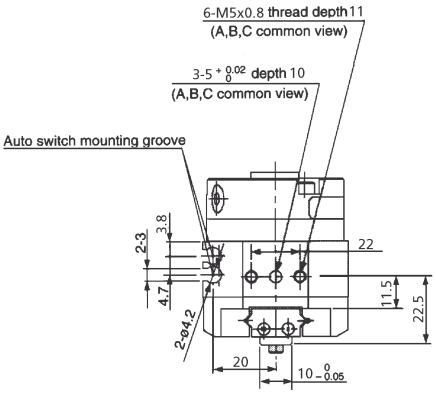
DIMENSIONS
WITH AUTO SWITCH (BUILT-IN MAGNET): MDHR2-30R/30E

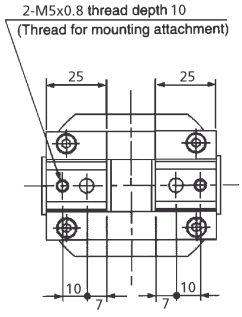


MDHR2-30E Port Position





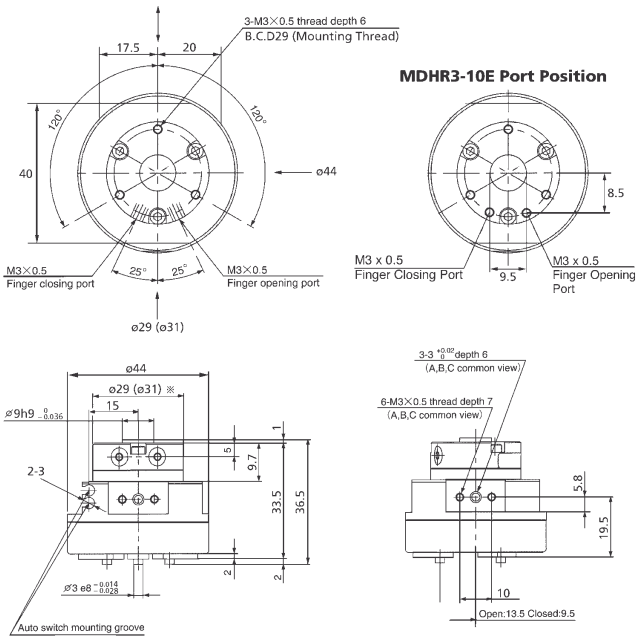




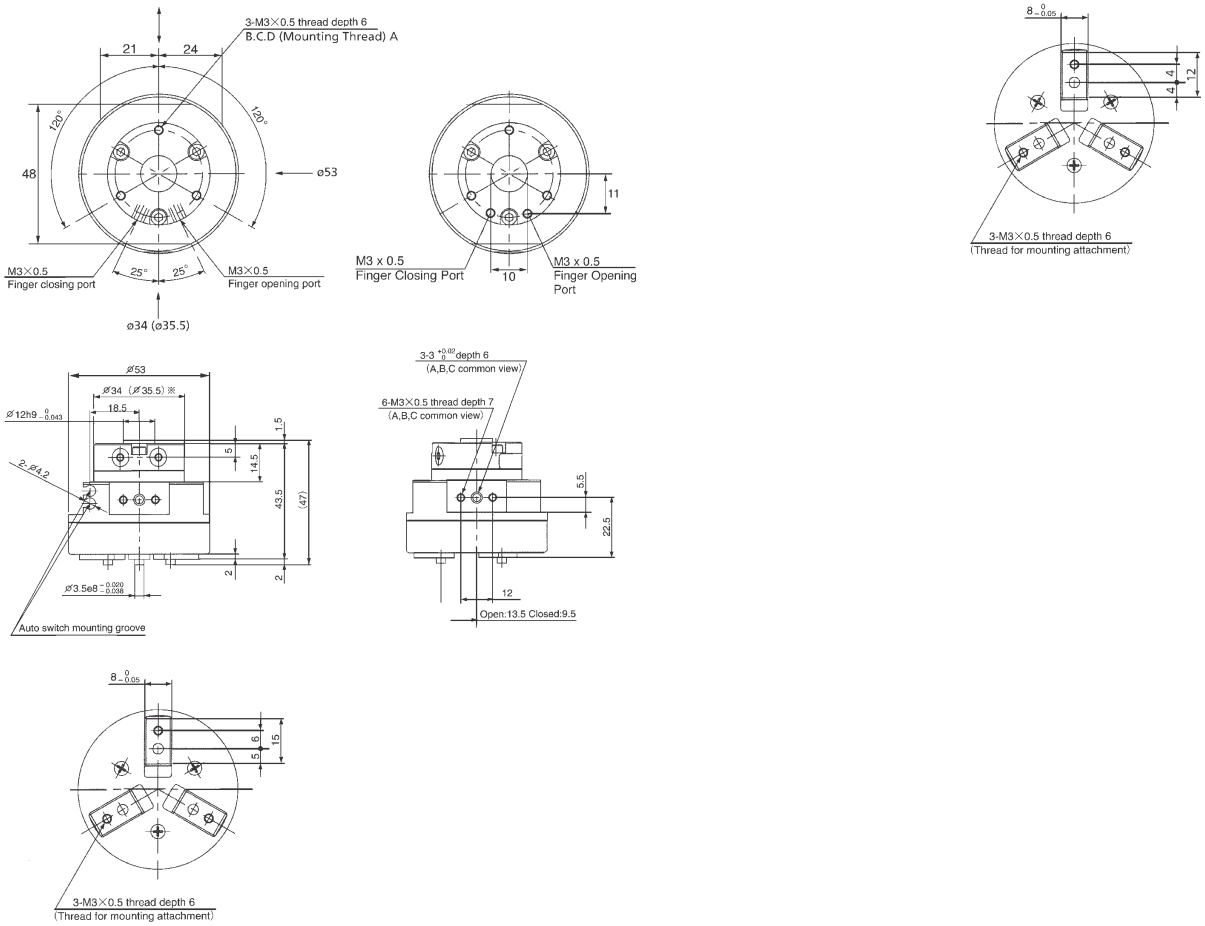
DIMENSIONS
SEE NEXT PAGE ☞

For more technical information on this series, please refer to CAT:N360

Dimensions With Auto Switch (built-in magnet): MDHR3-10R/10E



Dimensions With Auto Switch (built-in magnet): MDHR3-15R/15E



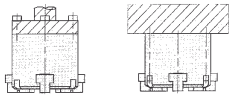
PRECISION AIR CHUCK
SERIES MHS
BORE SIZE Ø16, 20, 25, 32, 40, 50, 63, 80, 100, 125MM

- 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)

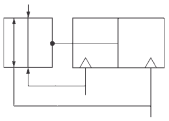
Action
D.....Double Acting

Auto Switch Type
See Accessories Section

Lead Wire Length
- 0.5m
L 3m

No Of Switches
- 2Pieces
S .....1 Piece

SYMBOLS

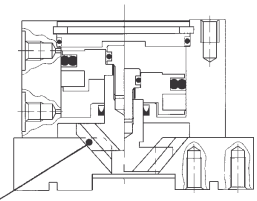


FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N367

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

FOR MHS2 AND MHS4 DIMENSIONS AND MORE TECHNICAL INFORMATION, REFER TO CAT:E246 & CAT:N367

SEE INSIDE FRONT COVER FOR

For more technical information on this series, please refer to cat:N367

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, please consult SMC Customer Service

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			

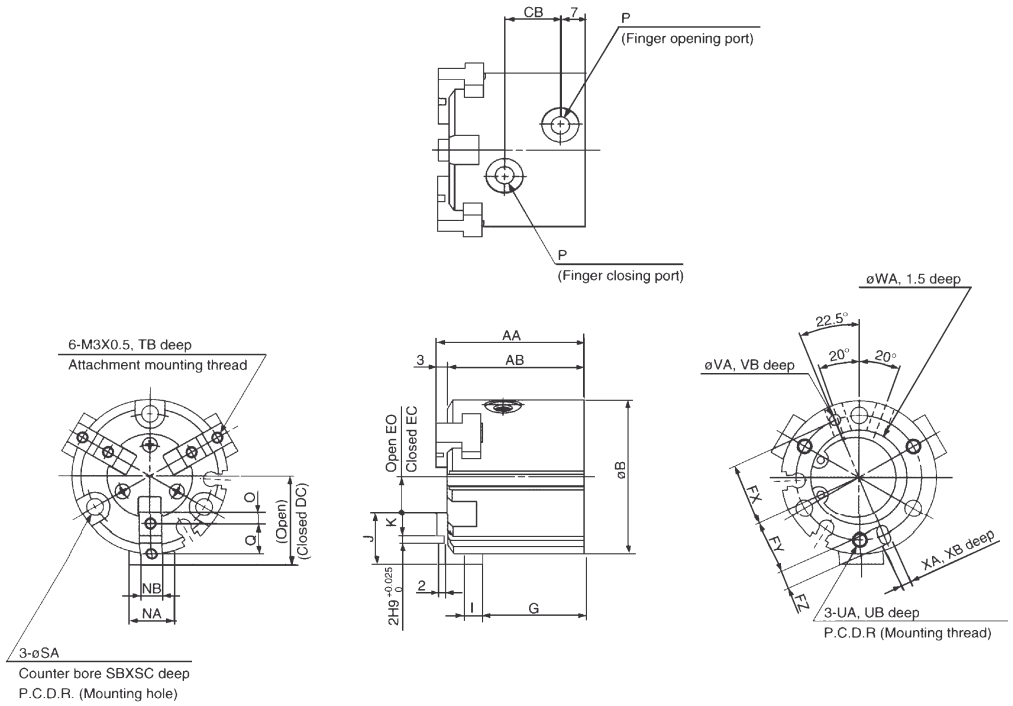
Accessories
Water Resistance, Two Color Indication Solid State Auto Switches
Applicable Cylinder Bore: Ø32 to 125mm

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

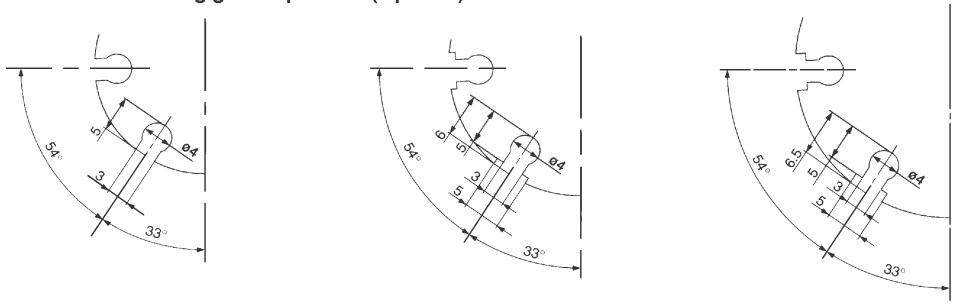
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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

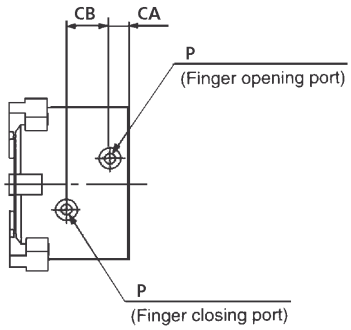
Part No	P	Q	R	SA	SB	SC	TB	UA	UB	VA	VB	WA
MHS3-16D	M3x0.5	6	25	3.4	6.5	8	5	M3x0.5	4.5	2H9 0~0.025	2	17H9 0~0.043
MHS3-20D	M5x0.8	7	29	3.4	6.5	9.5	6	M3x0.5	6	2H9 0~0.025	2	21H9 0~0.052
MHS3-25D	M5x0.8	8	34	4.5	8	10	6	M4x0.7	6	3H9 0~0.025	3	26H9 0~0.052

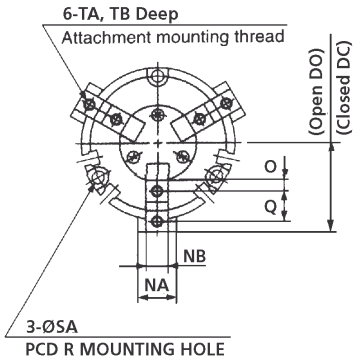
Part No	XA	XB
MHS3-16D	2H9 0~0.025	2
MHS3-20D	2H9 0~0.025	2
MHS3-25D	3H9 0~0.025	3

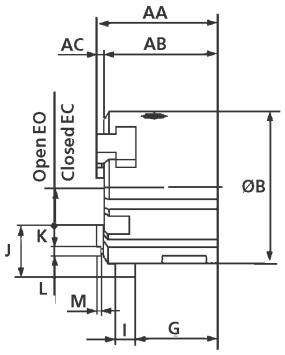
(mm)

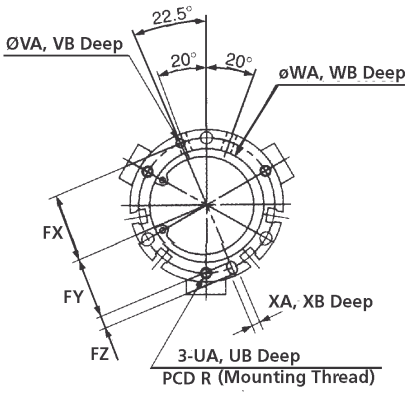
NOTE) FOR MHS2 AND MHS4 DIMENSIONS AND MORE TECHNICAL INFORMATION, REFER TO CAT:E246

DIMENSIONS
MHS3-32D, 40D, 50D, 63D, 80D

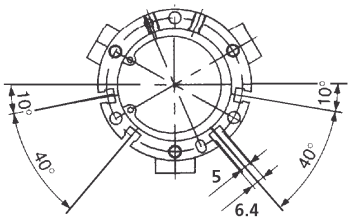








Auto switch mounting groove position



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

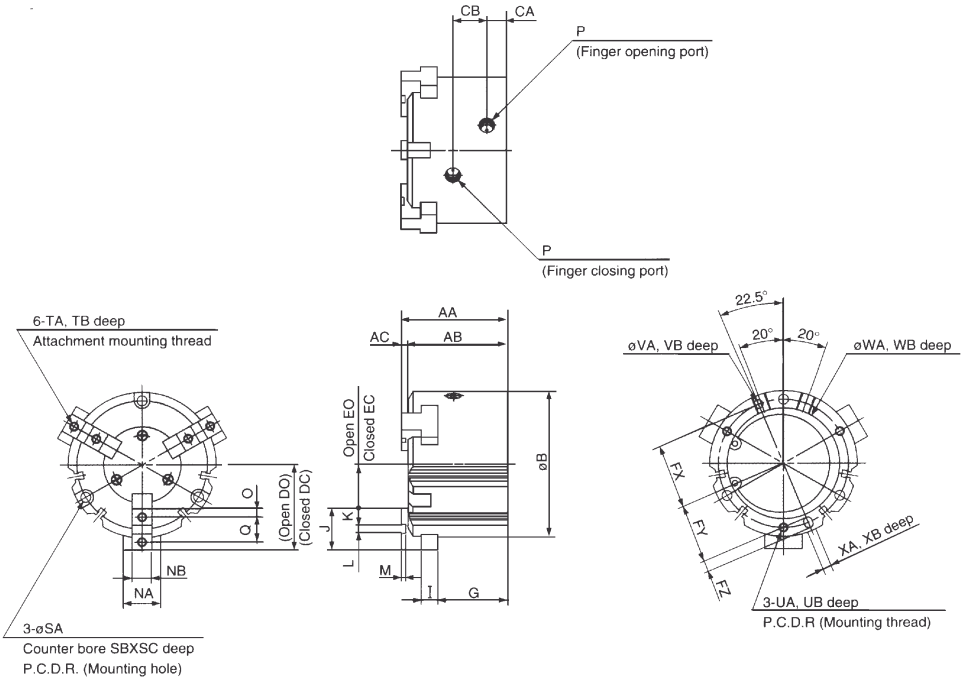
Part No	NA	NB	O	P	Q	R	SA	SB	SC	TA	TB	UA	UB	VA
MHS3-32D	14	8H9 -0.036~0	4.5	M5x0.8	11	44	4.5	8	9	M4x0.7	8	M4x0.7	6	3H9 0~0.025
MHS3-40D	16	8h9 -0.036~0	4.5	M5x0.8	12	53	5.5	9.5	9	M4x0.7	8	M5x0.8	7.5	4H9 0~0.03
MHS3-50D	18	10h9 -0.036~0	5	M5x0.8	14	62	5.5	9.5	12	M5x0.8	10	M5x0.8	10	4H9 0~0.03
MHS3-63D	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

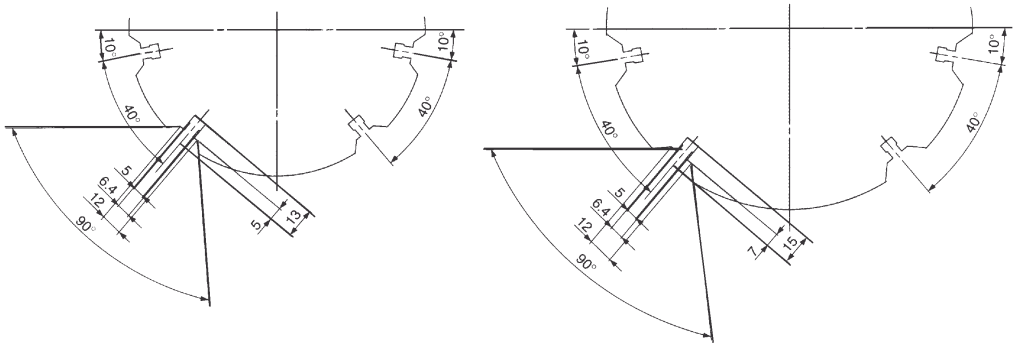
(mm)

NOTE) FOR MHS2 AND MHS4 DIMENSIONS AND MORE TECHNICAL INFORMATION, REFER TO CAT:E246

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

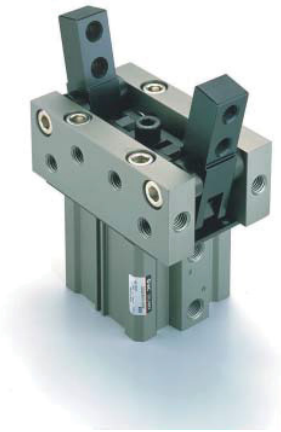
Part No	UB	VA	VB	WA	WB	XA	XB
MHS3-100D	16	8H9 0~0.036	6	102H9 0~0.087	4	8H9 0~0.036	6
MHS3-125D	20	10H9 0~0.036	8	130H9 0~0.1	6	10H9 0~0.036	8

(mm)

NOTE) FOR MHS2 AND MHS4 DIMENSIONS AND MORE TECHNICAL INFORMATION, REFER TO CAT:E246

TOGGLE TYPE AIR CHUCK SERIES MHT

- High gripping force
- Toggle mechanism
- Maintains grip even when the pressure drops
- Magnetic sensing is standard

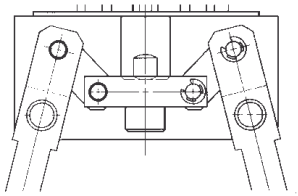


TECHNICAL SPECIFICATIONS

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 ☞

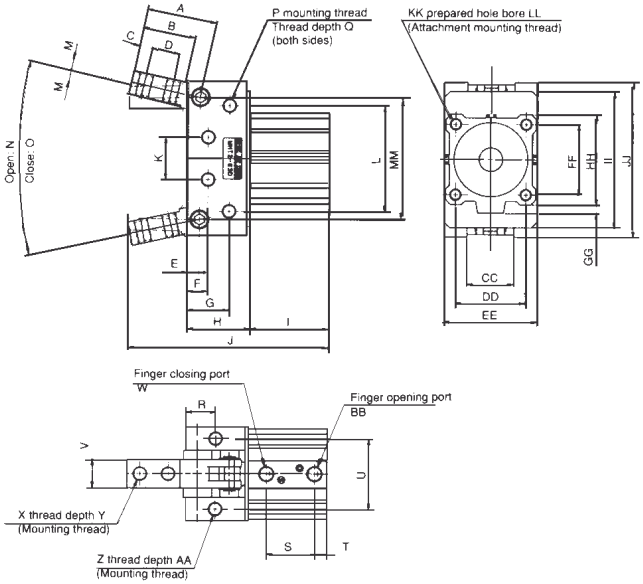
FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N360

ACCESSORIES AUTO SWITCHES

Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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



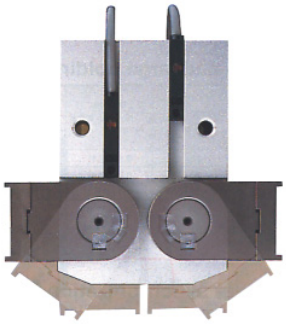
Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N
MHT2-32D	42	32	8	16	8	12	28	41.6	48	(123.6)	18	50	5.5	28°
MHT2-40D	48	37	10	18	8	12	28	42	54.5	(136.5)	24	60	7	27°
MHT2-50D	54	40	10	22	10	16	35	52.5	60.5	(157)	30	80	8	23°
MHT2-63D	60	45	11	24	10	17	35	53.2	66	(169.2)	36	90	10	23°

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

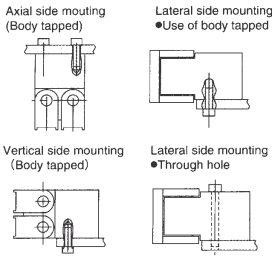
Fluid	Air
Operating Pressure	0.15~0.7 MPa (22~102PSI)
Ambient & Fluid Temperature	-10~60°C / 14~140°F
Repeatability	±0.2mm
Max Operating Frequency	Ø20/25 60 cpm
	Ø32~50 30 cpm
Lubrication	Not Required
Action	Double Acting

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

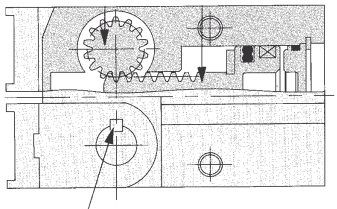


MOUNTING OPTIONS

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.

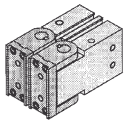
HOW TO ORDER MHW2 SERIES

MHW2 — ○ D ○

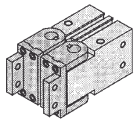
BORE SIZE
20 ...Ø20mm
25 ...Ø25mm
32 ...Ø32mm
40 ...Ø40mm
50 ...Ø50mm

FINGER OPTION
-. .....Standard Type
1 .....Right Angle Type

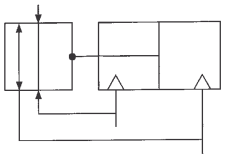
Flat finger type method (standard)



Right angle finger type



SYMBOLS



ACCESSORIES AUTOSWITCHES

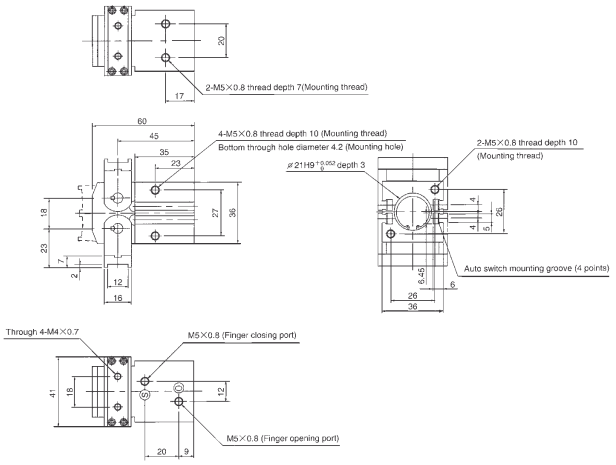
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

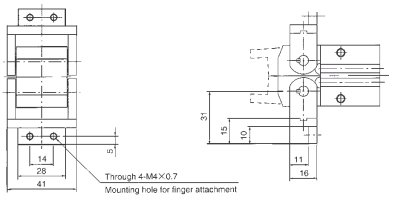
Auto Swith No	D-Y59AL	D-Y69AL	D-Y59BL	D-Y69BL
Lead Wire Entry	In-line	Perpendicular	In-line	Perpendicular
Wiring Method	3 wire NPN		2 wire	
Application	PLC		24VDC PLC	
Power Source	5, 12, 24VDC		–	
Current Consumption	1mA or less at OFF		–	
	12mA or less at ON		–	
Load Voltage	28VDC or less		240VDC (10~28 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			

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N360

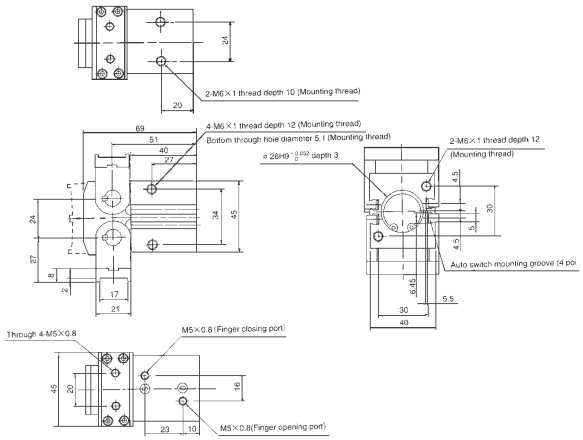
DIMENSIONS SEE NEXT PAGE ☞

DIMENSIONS
FLAT FINGER TYPE MHW2-20D

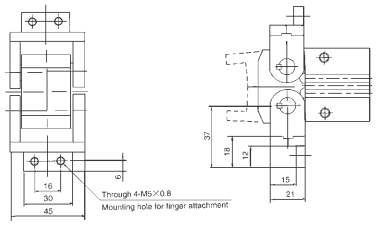




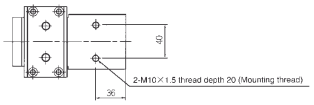
DIMENSIONS
FLAT FINGER TYPE MHW2-25D

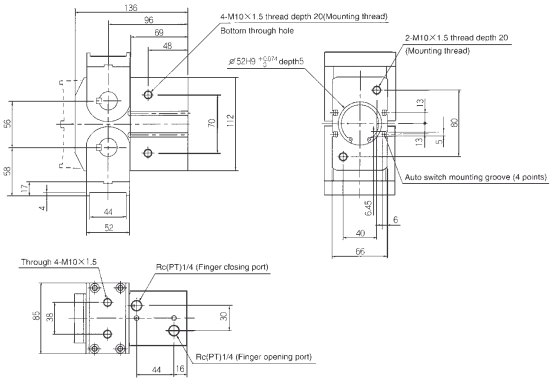


MHW2-25D1
Right angle finger type

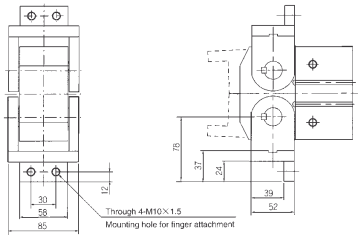


DIMENSIONS
FLAT FINGER TYPE MHW2-50D



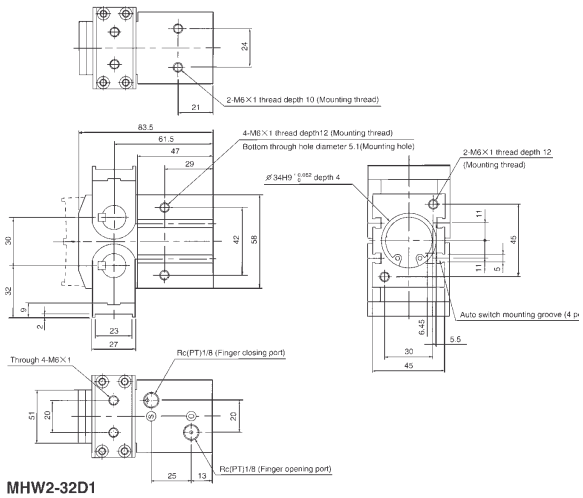


MHW2-50D1
Right angle finger type

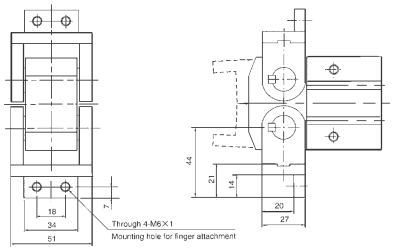


For more technical information on this series, please refer to CAT:N360

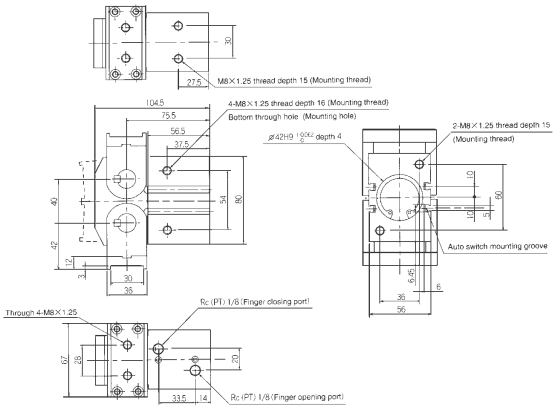
Dimensions
Flat Finger Type MHW2-32D



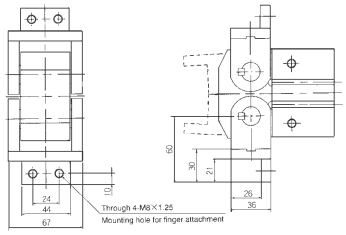
MHW2-32D1
Right angle finger type



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

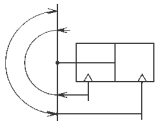
Auto Switch Type
See Accessories Section

Lead Wire Length
- .....0.5m (Std)
L 3m

No Of Switches
- 2Pieces
S .....1 Piece

FOR MORE INFORMATION ON THE MHY2 SERIES, PLEASE REFER TO CAT:E248

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, please consult SMC Customer Service

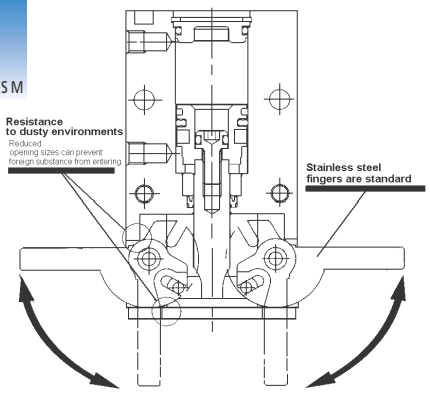
Electrical Entry		Type	Special	Electrical	Indicator	Wiring	Load Voltage			Applicable
Perpendicular	In-Line		Function	Entry		Output	DC		AC	Load
F9NV	F9N		-			3 Wire NPN				
F9PV	F9P		-			3 Wire PNP				
F9BV	F9B	Solid	-			2 Wire				
F9NWV	F9NW	State	Diagnosis	Grommet	With	3 Wire NPN	24V	12V	-	Relay PLC
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, please consult SMC Customer Service

TECHNICAL SPECIFICATIONS

Model	Cylinder ID	Effective Holding Force	Opening Angle (Both Sides)		Weight (g)
	mm	Nm (At 0.5MPa / 73PSI)	Opening Side	Closing Side	(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

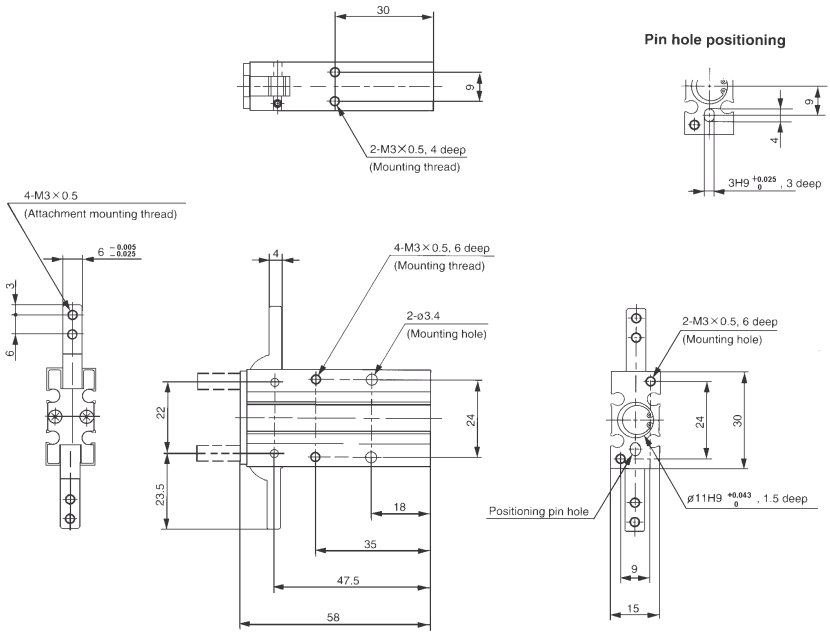
MECHANISM



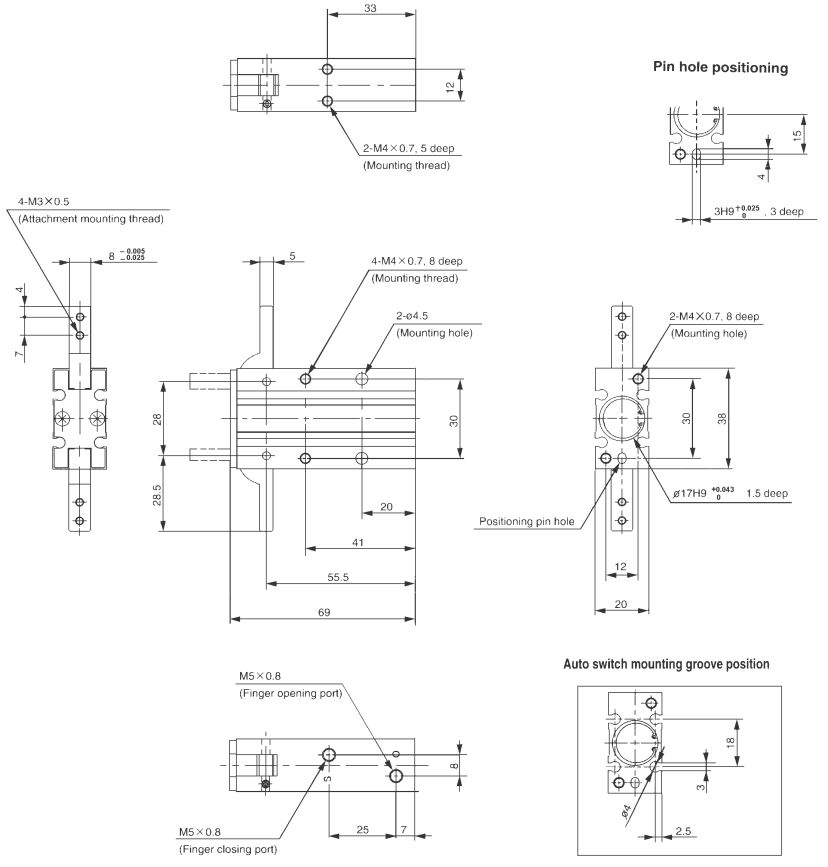
DIMENSIONS SEE NEXT PAGE ☞

SEE INSIDE FRONT COVER FOR

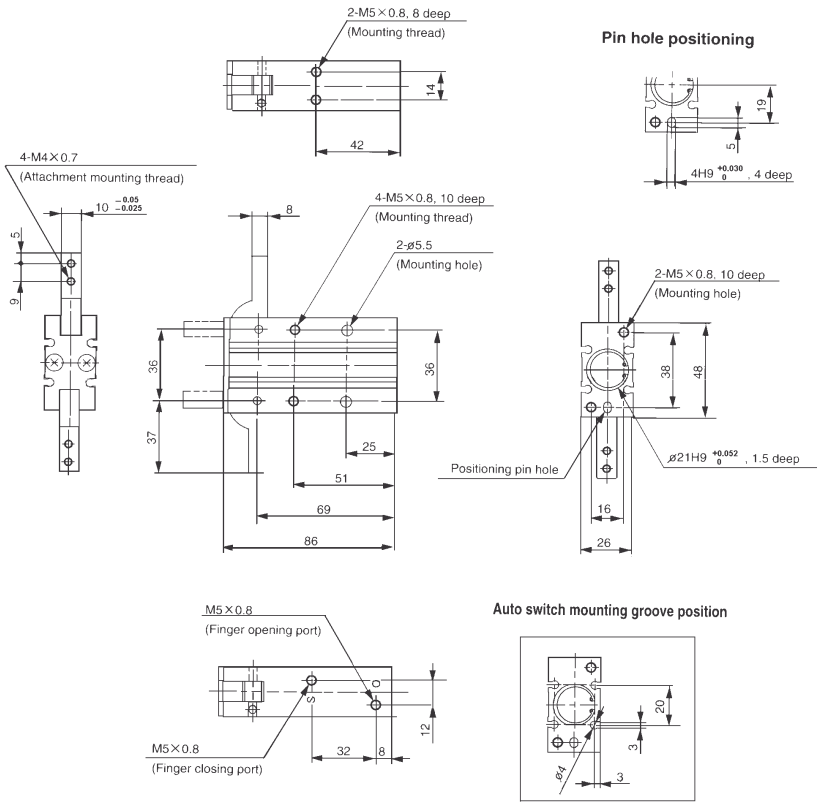
DIMENSIONS
SERIES MHY2-10D



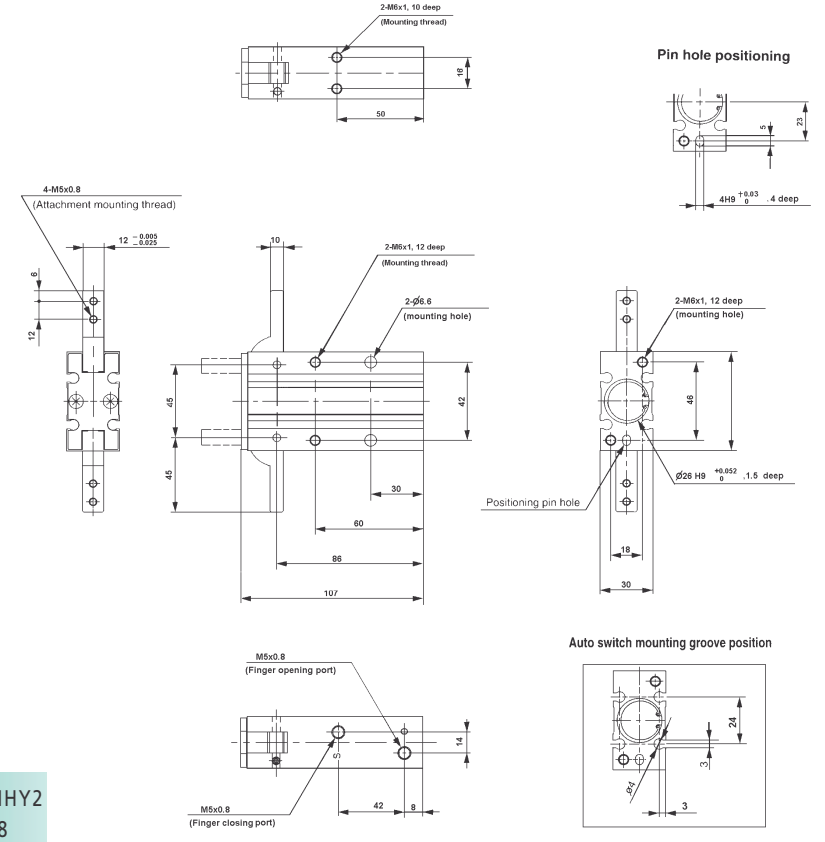
DIMENSIONS
SERIES MHY2-16D



DIMENSIONS
SERIES MHY2-20D



DIMENSIONS
SERIES MHY2-25D



FOR MORE INFORMATION ON THE MHY2 SERIES, PLEASE REFER TO CAT:E248

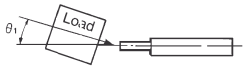
Shock Absorber Series NRB

- Automatic adjustment to the most appropriate absorption performance
- High resistance to load deviation
- Double seal enclosure
- Compact design

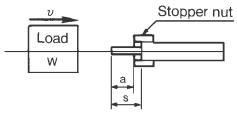


Precaution

1. Load should always be aligned with the axis of piston rod. (In the case of allowable eccentricity of 3° and more, please contact your SMC regional centre.



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

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

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

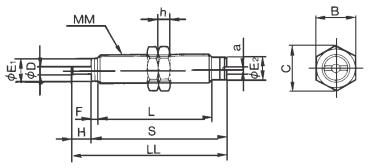
For more technical information on this series, please refer to CAT:N371

Accessories Spare Cap (Outer Cap)

NRB08C …… NRBC031/NRBC037
NRB10C …… NRBC050
NRB14C …… NRBC056/NRBC075
NRB20C …… NRBC100

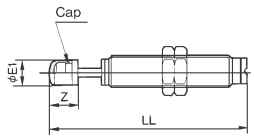
Dimensions See Next Page ☞

DIMENSIONS
BASIC TYPE NRB031•NRB037



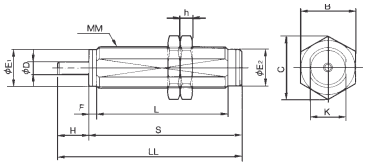
Model	Shock Absorber										Nut			
	a	øD	øE1	øE2	F	H	L	LL	MM	S	B	C	h	K
NRB031-025	0.06	0.11	0.27	0.27	0.09	0.25	1.31	1.85	5/16-32UNEF	1.60	7/16	0.55	0.09	-
NRB037-025	0.06	0.11	0.33	0.33	0.15	0.25	1.24	1.84	3/8-32UNEF	1.59	1/2	0.58	0.09	-

DIMENSIONS
WITH CAP NRBC031•NRBC037



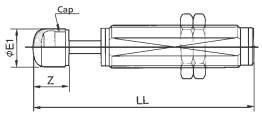
Parts Number	Dimensions		
	øE1	LL	Z
NRB031-025	0.27	2.25	0.41
NRB037-025	0.27	2.25	0.41

DIMENSIONS
BASIC TYPE NRB050•NRB056



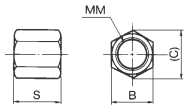
Model	Shock Absorber										Nut			
	A	øD	øE1	øE2	F	H	L	LL	MM	S	B	C	h	K
NRB050-030	-	0.12	0.42	0.42	0.15	0.30	1.48	2.12	1/2-20UNF	1.82	3/4	0.86	0.20	0.43
NRB056-045	-	0.20	0.48	0.47	0.14	0.45	2.31	3.10	9/16-18UNF	2.65	3/4	0.86	0.24	0.49
NRB075-045	-	0.20	0.65	0.67	0.20	0.45	2.26	3.19	3/4-16UNF	2.74	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



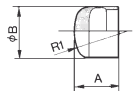
Parts Number	Dimensions		
	øE1	LL	Z
NRB050-030	0.31	2.50	0.39
NRB056-045	0.47	3.65	0.53
NRB075-045	0.47	3.65	0.53
NRB100-60	0.71	4.14	0.67

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

Shock Absorber Series RB

- Automatic Adjustment to the most appropriate absorption performance
- High Resistance to load deviation
- Double Seal Enclosure
- Compact Design



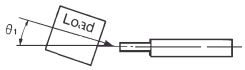
Technical Specifications

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

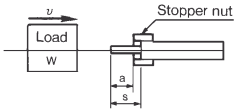
*At maximum energy absorption per cycle. Maximum operation cycle/min can increase in proportion to energy absorption

Precaution

1. Load should always be aligned with the axis of piston rod. (In the case of allowable eccentricity of 3° and more, please contact SMC Customer Service



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

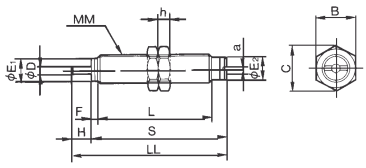
Accessories Spare Cap

*RB08C
*RB10C
*RB14C
*RB20C
*RB27C

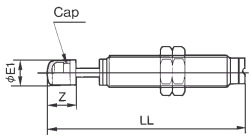
*For replacement only on RBC

Dimensions See Next Page ☞

DIMENSIONS
BASIC TYPE RB0806•RB1007

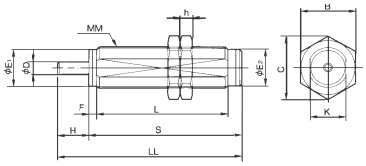


DIMENSIONS
WITH CAP RBC0806•RBC1007

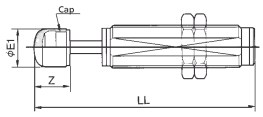


Model		Basic type										With cap			Hexagonal nut		
Basic type	With cap	ØD	ØE1	ØE2	F	H	a	L	LL	MM	S	ØE1	LL	Z	B	C	h
RB0806	RBC0806	2.8	6.8	6.8	2.4	6	1.4	33.2	46.6	M8 x 1.0	40.6	6.8	57.1	10.5	12	13.9	4
RB1007	RBC1007	3	8.6	8.6	2.7	7	1.4	39	53.7	M10 x 1.0	46.7	8.0	63.7	10	14	16.2	4

DIMENSIONS
BASIC TYPE RB1412•RB2015•RB2725

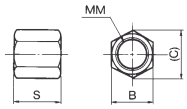


DIMENSIONS
WITH CAP RBC0806•RBC1007



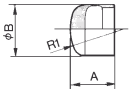
Model		Basic type										With cap			Hexagonal nut		
Basic type	With cap	ØD	ØE1	ØE2	F	H	K	L	LL	MM	S	ØE1	LL	Z	B	C	h
RB1412	RBC1412	5	12.2	12	3.5	12	12	58.2	79.3	M14 x 1.5	67.3	12	92.8	13.5	19	21.9	6
RB2015	RBC2015	6	18.2	18	4	18	18	62.2	88.2	M20 x 1.5	73.2	18	105.2	17	27	31.2	6
RB2725	RBC2725	8	25.2	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

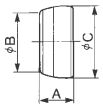
- Compact Design
- Interchangeable Damper Optional
- Double Seal Enclosure



TECHNICAL SPECIFICATIONS
RBQ SERIES SHOCK ABSORBER

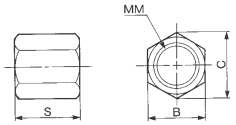
Model:	Basic Type	RBQ1604	RBQ2007	RBQ2508	RBQ3009	RBQ3213
	With Damper	RBQC1604	RBQC2007	RBQC2508	RBQC3009	RBQC3213
Max Energy Absorption/Stroke (Nm)		0.2	1.2	2	3.4	5
Stroke (mm)		4	7	8	8.5	13
Max Impact Speed (m/s)		3	3	3	3	3
Max Operational Cycle/Min		60	60	45	45	30
Max Allowable Thrust (kgf)		30	50	70	100	120
Ambient Temperature		-10 ~ 80°C / 14 ~176°F				
Spring Performance:	Extended	0.62	1.3	1.6	2.2	2.5
	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

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E224

RBQ ○○○

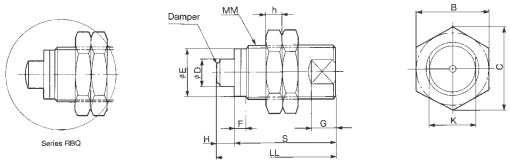
MODEL
- ……Basic Type
C ……With Damper

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		Body Dimensions									Hexagonal Nut		
Basic Type	With Damper	ØD	ØE	F	H	K	G	LL	MM	S	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

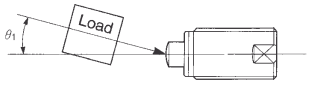
REPLACEMENT DAMPERS

RBQC ○ C — DAMPER

APPLICABLE MODEL
16 …RBQC1604
20 …RBQC2007
25 …RBQC2508
35 …RBQC3009
32 …RBQC3213

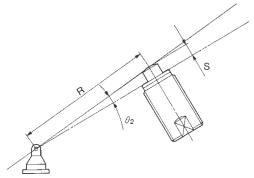
PRECAUTIONS

Load should always be aligned with the axis of piston rod.



Allowable eccentricity θ1≤5°

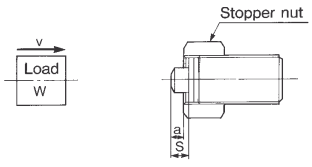
For rotation impact, load should always be aligned perpendicular to the axis of shock absorber and allowable rotation angle at stroke end should always be u2<5°.



Installation conditions for rotation impact (mm)

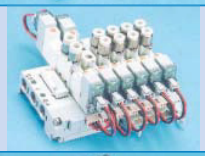
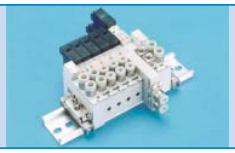
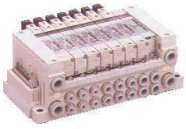
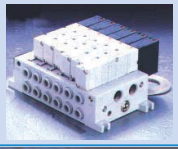
Model	S (Stroke)	θ2 (Allowable Rotation Angle)	R (Min Installation Angle)
RBQ•1604	4	5°	51
RBQ•2007	7	5°	89
RBQ•2508	8	5°	102
RBQ•3009	8.5	5°	108
RBQ•3213	13	5°	166

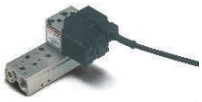
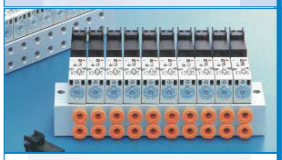
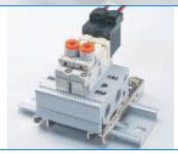
Adjustment of the stopper nut (to adjust the length a) will control the suspension time of the impacting object.

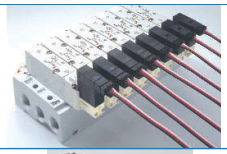
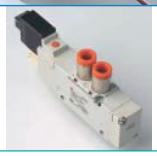
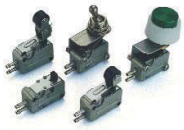


The shock absorber shall not be used under conditions where it will be exposed to cutting oil, water and other types of fluid, otherwise malfunction may result.

Valves

	Series	Page Number
	**SX3000 / SX5000** Solenoid Valve	2.1
	**SY100** 3/2 Direct Acting / Solenoid Spring Valve M3 Ported	2.5
	**SY3000/5000/7000** Body Ported Solenoid Valve	2.8
	**SY3000/5000/7000** Base Mounted Solenoid Valve	2.13
	**VQ100** 3/2 Direct Acting / Solenoid Spring Valve M3-M5 Ported	2.19
	**VQ0000** 5 Port Metal/Rubber Seal Ultra High Speed Solenoid Valve	2.21
	**VQ1000** 5 Port Metal/Rubber Seal Ultra High Speed Solenoid Valve	2.26
	**VQ2000** 5 Port Metal/Rubber Seal Ultra High Speed Solenoid Valve	2.35
	**VQ4000** 5 Port Metal/Rubber Seal Base Mounted Plug In Type	2.42
	**VQ1000** 5/2, 5/3 Spool & Sleeve, Ultra High Speed Solenoid Valve	2.46

	**VX21/22/23** 2 Port Solenoid Valve Direct Operated Type	2.48
	**VXD21** 2 Port Solenoid Valve Pilot Operated Type	2.50
	**VX31/32/33** 3 Port Solenoid Valve Direct Operated Type	2.52
	**VXZ22** 2 Port Solenoid Valve Pilot Operated Type / Differential Pressure Operation Type	2.54
	**VZ100** 3/2 Direct Acting Solenoid Valve M5 Ported	2.56
	**VZ300** 3/2 Pilot Operated Solenoid Spring Valve M5 Ported	2.58
	**VZ500** 3/2 Pilot Operated Solenoid Spring Valve	2.62
	**NVFS** 5 Port Pilot Operated Base Mounted Plug In Type	2.66
	**VQD1000** 4 Port Direct Operated Poppet Solenoid Valve	2.79
	**VQZ100/200/300** 3 Port Solenoid Valve Base Mounted / Plug Lead Type	2.80
	**VQZ100/200/300** 3 Port Solenoid Valve Body Ported / Plug Lead Type	2.82

	**VQZ1000/2000/3000** 5 Port Solenoid Valve Base Mounted / Plug Lead Type	**2.84**
	**VQZ1000/2000/3000** 5 Port Solenoid Valve Body Ported / Plug Lead Type	**2.87**
	**(N)VH** 4/2, 4/3 Hand Valve	**2.90**
	**(N)VM400** 3/2 Mechanical Valve	**2.91**
	**(N)VM800** 3/2 Mechanical Valve	**2.92**
	**(N)VM1000** 3/2 Normally Closed Micro Mechanical Valve	**2.93**
	**(N)VZM550** 5/2 Mechanical Valve	**2.94**
	**(N)VR2110** Time Delay Valve	**2.95**
	**(N)VR1210/1220** Shuttle Valve	**2.95**

	**(N)AK** Check Valve	**2.96**
	**(N)AQ** Quick Exhaust Valve	**2.96**
	**AQ200/300** Miniature In-Line Quick Exhaust Valve	**2.97**
	**ASP** Speed Controller With Pilot Check Valve	**2.98**
	**(N)ASV** Adjustable Quick Exhaust Valve With Integral Exhaust Restrictor And Silencer	**2.100**

Z VALVE SERIES OVERVIEW

Z Valve Family

Innovative

Cost effective

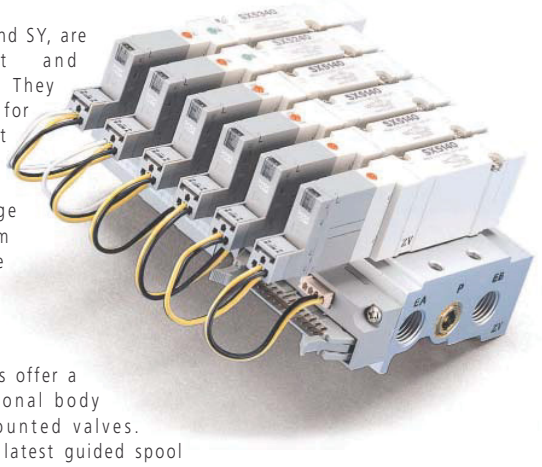
Versatile

SMC Pneumatics has again confirmed its technological leadership in the world pneumatics market with the release of the Z valve series.

The result of a major research and development program is a family of three valve ranges whose generic name 'Z' is literally translated as infinity or ultimate.

The Z valve family comprises of three associated yet different product series, VQ, SX and SY, which provide cost effective solutions to pneumatic problems through the extensive range of valve and manifold configurations that are available.

The new Z valves give you major advances in solenoid pilot valve technology, spool design and manifold features that allow benefits in extended life cycle, high flow and low power consumption.



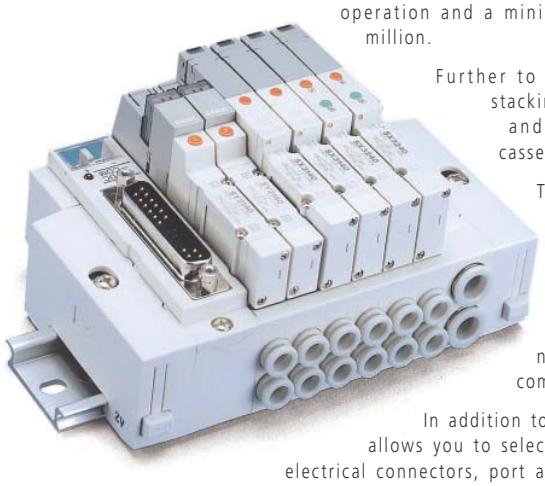
All three series, VQ, SX and SY, are compact, lightweight and aesthetic in appearance. They offer particular strengths for different requirements but have a commonality of major features and benefits across the range to give you maximum versatility, performance and reliability in your quest for competitive advantage.

Both the SX and SY series offer a wide range of conventional body ported and subbase mounted valves. These valves feature the latest guided spool with slimline water resistant seals which protect it against airline condensate carryover. This, together with the low power consumption, high speed solenoid pilot operator, allows a minimum life cycle in excess of fifty million.

In the case of the SX series, a further space saving is achieved by locating both solenoid operators at one end of the valve.

Aluminum bar manifolds, featuring either threaded ports or integrated push-in connectors, together with modular stacking manifolds, allow the valves to be mounted conveniently in the required layout. Also available is a pre-wired, plug-in modular manifold which can be ordered for use on a DIN rail system.

The VQ series incorporates matched lapped and ground stainless steel spool and sleeve design with the new solenoid pilot operator to provide you with high speed operation and a minimum expected life cycle in excess of two hundred million.



Further to the body ported, subbase mounted and modular stacking manifold types, the VQ series also offers two new and innovative multiple valve variants, the flip and cassette types.

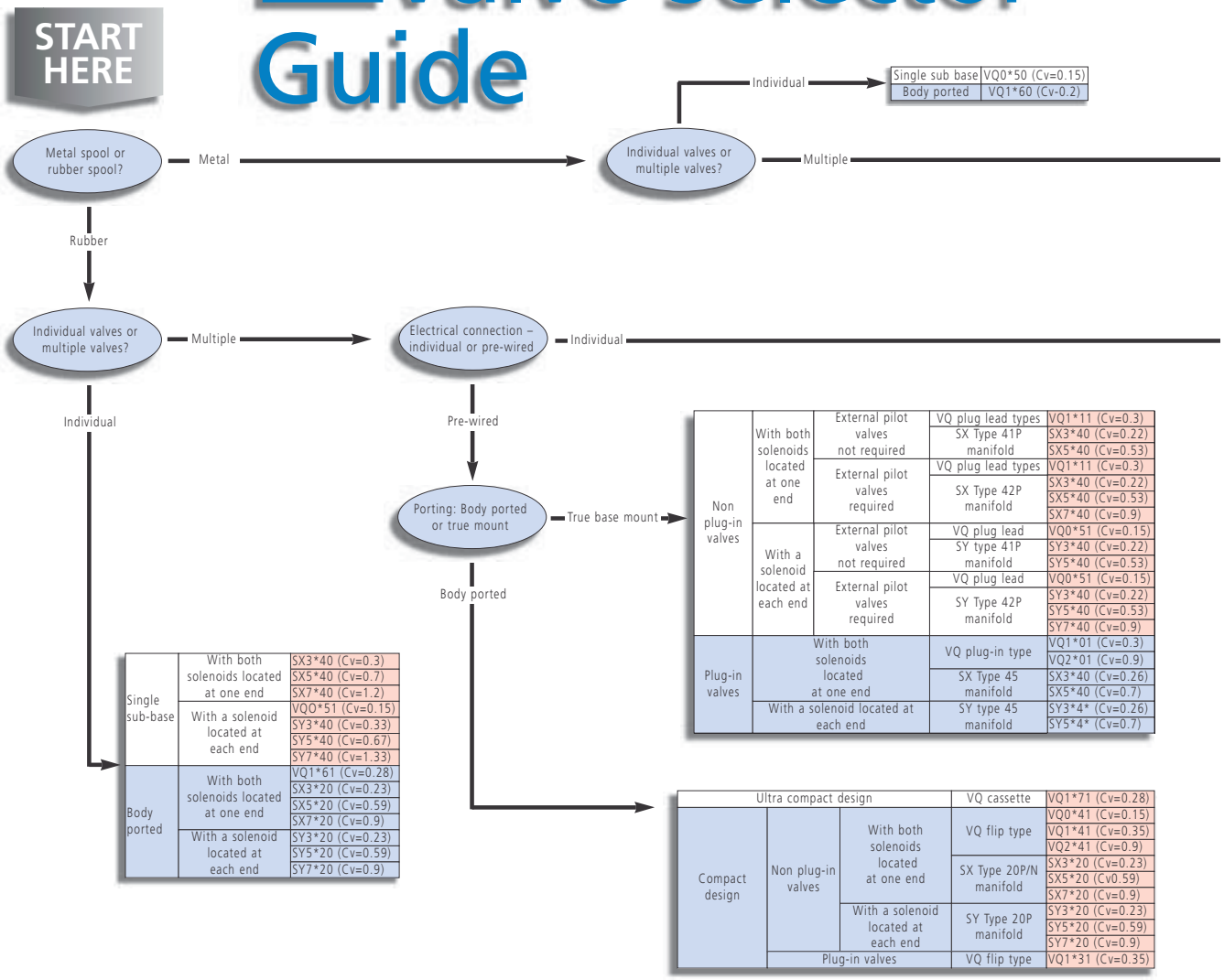
The flip type integrates both the valve and base in a super compact arrangement which still allows ease of interchangeability. The cassette type allows modular slices to be clipped onto a DIN rail for another flexible and compact manifold assembly.

The provision of the solenoid electrics in either negative common or positive common will allow compatibility with any chosen control device.

In addition to the above features, the new SMC Z family of valves allows you to select from a comprehensive range of mounting brackets, electrical connectors, port adapters, manifold accessories and serial transmission devices to provide the complete solution for your application.

Should you require the assistance of SMC staff for any reason concerning the use and application of the Z family, please contact your local SMC Sales Office.

Z Valve Selector Guide



Single sub base	VQ0*50 (Cv=0.15)
Body ported	VQ1*60 (Cv-0.2)

Single sub-base	With both solenoids located at one end	SX3*40 (Cv=0.3)	SX5*40 (Cv=0.7)	SX7*40 (Cv=1.2)
	With a solenoid located at each end	VQ0*51 (Cv=0.15)	SY3*40 (Cv=0.33)	SY5*40 (Cv=0.67)	SY7*40 (Cv=1.33)
Body ported	With both solenoids located at one end	VQ1*61 (Cv=0.28)	SX3*20 (Cv=0.23)	SX5*20 (Cv=0.59)	SX7*20 (Cv=0.9)
	With a solenoid located at each end	SY3*20 (Cv=0.23)	SY5*20 (Cv=0.59)	SY7*20 (Cv=0.9)

Non plug-in valves	With both solenoids located at one end	External pilot valves not required	VQ plug lead types	VQ1*11 (Cv=0.3)
			SX Type 41P manifold	SX3*40 (Cv=0.22)
				SX5*40 (Cv=0.53)
		External pilot valves required	VQ plug lead types	VQ1*11 (Cv=0.3)
			SX Type 42P manifold	SX3*40 (Cv=0.22)
				SX5*40 (Cv=0.53)
				SX7*40 (Cv=0.9)
	With a solenoid located at each end	External pilot valves not required	VQ plug lead	VQ0*51 (Cv=0.15)
			SY type 41P manifold	SY3*40 (Cv=0.22)
				SY5*40 (Cv=0.53)
		External pilot valves required	VQ plug lead	VQ0*51 (Cv=0.15)
			SY Type 42P manifold	SY3*40 (Cv=0.22)
				SY5*40 (Cv=0.53)
				SY7*40 (Cv=0.9)
Plug-in valves	With both solenoids located at one end		VQ plug-in type	VQ1*01 (Cv=0.3)
				VQ2*01 (Cv=0.9)
			SX Type 45 manifold	SX3*40 (Cv=0.26)
				SX5*40 (Cv=0.7)
	With a solenoid located at each end		SY type 45 manifold	SY3*4* (Cv=0.26)
				SY5*4* (Cv=0.7)

Ultra compact design			VQ cassette	VQ1*71 (Cv=0.28)
Compact design	Non plug-in valves	With both solenoids located at one end	VQ flip type	VQ0*41 (Cv=0.15)
				VQ1*41 (Cv=0.35)
				VQ2*41 (Cv=0.9)
			SX Type 20P/N manifold	SX3*20 (Cv=0.23)
				SX5*20 (Cv0.59)
				SX7*20 (Cv=0.9)
		With a solenoid located at each end	SY Type 20P manifold	SY3*20 (Cv=0.23)
				SY5*20 (Cv=0.59)
				SY7*20 (Cv=0.9)
	Plug-in valves		VQ flip type	VQ1*31 (Cv=0.35)

How To Use This Guide

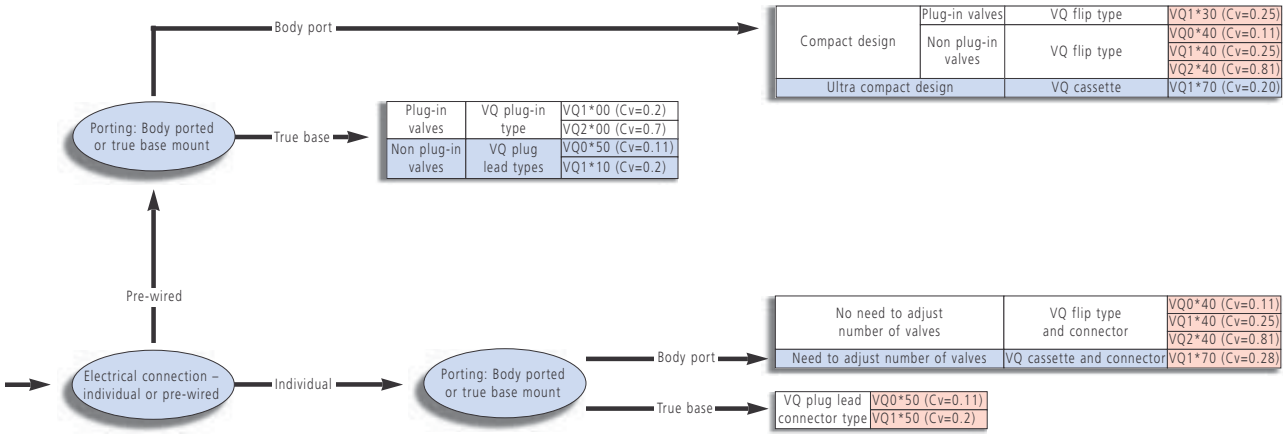
START in the top left hand corner of the page and make your first decision – metal spool or rubber spool?

Follow your decision line until you come to another choice. ie. individual or multiple valves.

Keep following your decision line until you arrive at a table. Starting at the left of the table, make your first of two possible choices. Follow your choice one column to the right, and make your next decision.

Remember, at each stage across the table you may only select one of the options immediately to the right of the current box. Do not deviate up or down. Eventually you will arrive at a selection in the right hand column (shaded pink). Now choose the valve with your required Cv.

Z VALVE SELECTOR GUIDE



Compact design	Plug-in valves	VQ flip type	VQ1*30 (Cv=0.25)
	Non plug-in valves	VQ flip type	VQ0*40 (Cv=0.11)
			VQ1*40 (Cv=0.25)
			VQ2*40 (Cv=0.81)
Ultra compact design		VQ cassette	VQ1*70 (Cv=0.20)

Plug-in valves	VQ plug-in type	VQ1*00 (Cv=0.2)
		VQ2*00 (Cv=0.7)
Non plug-in valves	VQ plug lead types	VQ0*50 (Cv=0.11)
		VQ1*10 (Cv=0.2)

No need to adjust number of valves	VQ flip type and connector	VQ0*40 (Cv=0.11)
		VQ1*40 (Cv=0.25)
		VQ2*40 (Cv=0.81)
Need to adjust number of valves	VQ cassette and connector	VQ1*70 (Cv=0.28)

VQ plug lead connector type	VQ0*50 (Cv=0.11)
	VQ1*50 (Cv=0.2)



External pilot valves not required		SX Type 41 manifold	SX3*40 (Cv=0.22)
			SX5*40 (Cv=0.53)
		VQ plug lead connector type	VQ0*11 (Cv=0.15)
			VQ1*11 (Cv=0.3)
External pilot valves required	Need to add/remove manifold stations	SX Type 45 manifold	SX3*40 (Cv=0.22)
			SX5*40 (Cv=0.53)
	No need to add or remove manifold stations	SX Type 42 manifold	SX3*40 (Cv=0.22)
			SX5*40 (Cv=0.53)
			SX7*40 (Cv=0.9)
		VQ plug lead connector type	VQ0*11 (Cv=0.15)
			VQ1*11 (Cv=0.3)

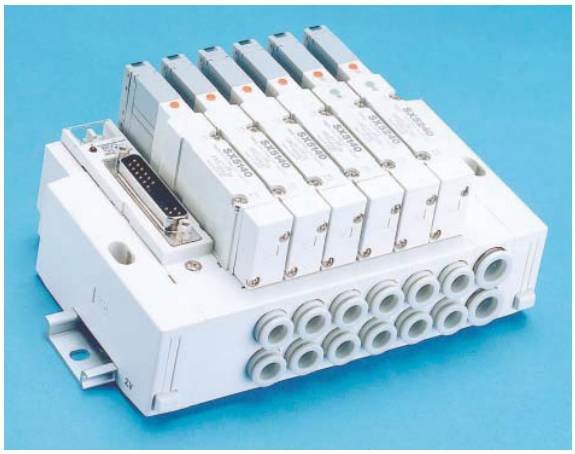
External pilot type valves required	No need to add or remove manifold stations	SY Type 42 manifold	SY3*40 (Cv=0.22)
			SY5*40 (Cv=0.53)
			SY7*40 (Cv=0.9)
	Need to add or remove manifold stations	SY Type 45 manifold	SY3*40 (Cv=0.22)
			SY5*40 (Cv=0.53)
External pilot type valves not required		SY Type 41 manifold	SY3*40 (Cv=0.22)
			SY5*40 (Cv=0.53)

Number of valves variable fixed	With both solenoids located at one end	VQ cassette, connector	VQ1*71 (Cv=0.28)
	With a solenoid located at each end	SY cassette	SY3*60 (Cv=0.2)
Number of valves	With both solenoids located at one end	VQ flip plus connector	VQ0*41 (Cv=0.15)
			VQ1*41 (Cv=0.35)
			VQ2*41 (Cv=0.9)
		SX Type 20 manifold	SX3*20 (Cv=0.23)
			SX5*20 (Cv=0.59)
			SX7*20 (Cv=0.9)
	With a solenoid located at each end	SY Type 20 manifold	SY3*20 (Cv=0.23)
			SY5*20 (Cv=0.59)
			SY7*20 (Cv=0.9)

- When a valve type has been selected, please consult the relevant catalog page in the following section, or your local SMC Sales Office for how to order information and details of stocked products.
- If you require further assistance or explanation with this guide, please contact your local SMC Sales Office.
- This guide does not cover "made to order" options and variants e.g. SY body ported external pilot types. Further information is available from catalogs E135-A (SY), E131-B (VQ), E139-A (SX) or your local SMC Sales Office.
- The VQ flip type valves offer only two position versions – three position bodies are not available.
- A true sub-base mount valve is defined as: "The valve body can be removed from the manifold without disturbing any pneumatic piping" ie all pneumatic connections are made to the manifold, not the valve.

SERIES SX3000, 5000
SOLENOID VALVE

- Sizes Available SX3000 and SX5000
- Compact and Lightweight Design
- Low Power Consumption: 0.6W
- Large Flow Capacity
- Long Life exceeding 50 million cycles



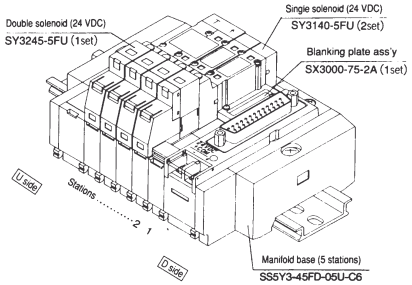
BASE MOUNTED TYPE
STACKING TYPE MANIFOLD
DIN RAIL MOUNTED, PLUG-IN TYPE
45F TYPE (D-SUB CONNECTOR)

TECHNICAL SPECIFICATIONS

Series		SX3000	SX5000
Fluid		Air / Lubrication Not Required	
Internal Pilot	2 Position Single	0.15 ~ 0.7 (22 ~ 100)	
Operating Pressure	2 Position Double	0.1 ~ 0.7 (14.5 ~ 100)	
Range MPa (PSI)	3 Position	0.2 ~ 0.7 (30 ~ 100)	
External Pilot	2 Position Single	0.25 ~ 0.7 (37 ~ 100)	
Operating Pressure	2 Position Double	0.25 ~ 0.7 (37 ~ 100)	
Range MPa (PSI)	3 Position	0.25 ~ 0.7 (37 ~ 100)	
Ambient & Fluid Temperature °C / °F		Max 50°C / 122°F	
Max Operating	2 Position Single	10	5
Frequency Hz	3 Position	3	3
Manual Override		Non Locking Push Type, Push Locking, Slotted Type	
Lubrication		Not Required	
Mounting Piston		Free	
Impact / Vibration Resistance		150 / 30 (8.3 ~ 2000 Hz	
Protection Structure		Dust Proof	

How to Order Valve / Manifold Ass'y (Example)

Ordering example (45F type / D-sub connector (25-pole))



SS5Y3-45FD-05U-C6 ····· 1set (45F type D-sub connector 5-station manifold base no.)
* SY3000-75-2A ····· 1set (Blanking plate ass'y no.)
* SY3140-5FU ····· 2set (Single solenoid no.)
* SY3245-5FU ····· 1set (Double solenoid no.)

▶ * When ordering Double Solenoid Valves / 3 Position (Dual Body Type), please keep in mind that they require two manifold stations.

SERIES SX3000, 5000
BASE MOUNTED, DIN RAIL
PLUG-IN STACKING TYPE MANIFOLD

HOW TO ORDER

SERIES SX3000/5000 VALVE TYPES 45F, 45P

SX ○○ 40— ○○ L0Z ○

SERIES
3 .....SX3000
5 .....SX5000

CONFIGURATION
1 .....2 Position Single
2 .....2 Position Double
3 .....3 Position Closed Center
4 .....3 Position Exhaust Center
5 .....3 Position Pressure Center

VOLTAGE
5 .....24VDC
6 .....12 VDC

COMMON SPECIFICATIONS
Nil ...Positive Common
N .....Negative Common

MANUAL OVERRIDE
- .....Non Locking Push Type
D .....Push Locking Slotted Type

How To Order
Series SX Manifold 45F Type / D-Sub Connector

SS5X ○ — 45 ○ F ○ — ○ ○ — ○ — ○ — ○

Manifold Series
3 .....SX3000
5 .....SX5000

Common Specifications
Nil ...Positive Common
N .....Negative Common

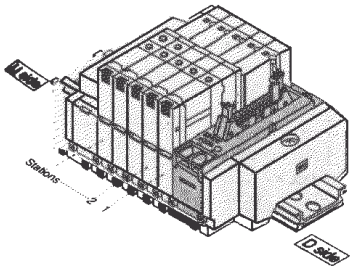
Connector Box Mounting
U .....U Side
D .....D Side

Valve Stations
02-10 .....Double Wiring Specifications
11-20 .....Applicable up to 20 Solenoids.
Use Manifold Specifications Form to specify wiring

SUP/EXH Block Assembly Mounting Positions
U .....U Side - 2 ~ 10 Stations
D .....D Side - 2 ~ 10 Stations
B .....Both Sides - 2 ~ 20 Stations
*M ...Special Specifications

Voltage
- 24VDC
12V ...12 VDC

Option
When a longer than Standard DIN Rail is required, enter the number of Manifold Station that corresponds with the length of DIN Rail needed (20 Stations Max)



Base Mounted Type
Stacking Type Manifold
DIN Rail Mounted, Plug-In Type
45P Type (Flat Cable Type)

A, B Port Size

SX3000

Metric	Imperial
C4 ...One Touch Fittings for ø4	N3 ..One Touch Fittings for ø5/32"
C6 ..One Touch Fittings for ø6	N7 ..One Touch Fittings for ø1/4"

SX5000

Metric	Imperial
C4 ...One Touch Fittings for ø4	N3 ...One Touch Fittings for ø5/32"
C6 ...One Touch Fittings for ø6	N7 ...One Touch Fittings for ø1/4"
C8 ...One Touch Fittings for ø8	N9 ...One Touch Fittings for ø5/16"

* Mixed Porting Available by Special Order
Consult SMC Customer Service

Note) OTF = One Touch Fittings

How To Order
Series SX Manifold 45P Type / Flat Cable Type

SS5X ○ — 45 ○ P ○ ○ — ○ ○ — ○ — ○ — ○

Manifold Series
3 .....SX3000
5 .....SX5000

Common Specifications
Nil ...Positive Common
N .....Negative Common

Connector Poles

Symbol	Poles	Station
-	26	2~20
B	20	2~16
H	10	2~8

Connector Mounting Position
U .....U Side
D .....D Side

Valve Stations (Blanking Plate Assembly are included)

26 Pole (P) Connector			20 Pole (PG) Connector			10 Pole (PH) Connector		
Symbol	Station	Note	Symbol	Station	Note	Symbol	Station	Note
02	2	Double	02	2	Double	02	2	Double
..	..	Wiring	..	..	Wiring	..	..	Wiring
10	10	Specs	08	08	Specs	04	04	Specs
11	11	Applicable up to 20 Solenoids	09	09	Applicable up to 16 Solenoids	05	05	Applicable up to 8 Solenoids
..	..	Use Manifold Specs Form to	..	..	Use Manifold Specs Form to	..	..	Use Manifold Specs Form to
20	20	specify wiring	16	16	specify wiring	08	08	specify wiring

SUP/EXH Block Assembly Mounting Positions
U .....U Side - 2 ~ 10 Stations
D .....D Side - 2 ~ 10 Stations
B .....Both Sides - 2 ~ 20 Stations
*M ...Special Specifications (by Special Order)

A, B Port Size

SX3000

Metric	Imperial
C4 ...OTF for ø4	N3 ...OTF for ø5/32"
C6 ...OTF for ø6	N7 ...OTF for ø1/4"

SX5000

Metric	Imperial
C4 ...OTF for ø4	N3 ...OTF for ø5/32"
C6 ...OTF for ø6	N7 ...OTF for ø1/4"
C8 ...OTF for ø8	N9 ...OTF for ø5/16"

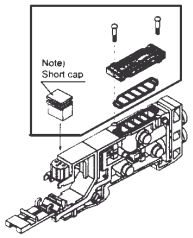
* Mixed Porting Available by Special Order
Consult SMC Customer Service

Voltage
- 24VDC
12V ...12 VDC

Option
When a longer than Standard DIN Rail is required, enter the number of Manifold Station that corresponds with the length of DIN Rail needed (20 Stations Max)

OPTIONS
SERIES SX MANIFOLD OPTIONS

■ Blanking plate ass'y



Series	Ass'y no.
SX3000	SX3000-75-2A
SX5000	SX5000-76-2A

Note) When mounting a blanking plate, be sure to mount a short cap.

■ SUP block disc

When supplying manifold with more than one pressure, insert block disc in between stations subjected to different pressures.



Series	Part no.
SX3000	SX3000-77-1A
SX5000	SX5000-77-1A

■ EXH block disc

When valve exhaust affects the other stations on the circuit or when externally piloted, dual pressure valve is used on a standard manifold, insert EXH block disc(s) in between stations to isolate exhaust.



Series	Part no.
SX3000	SX3000-77-1A
SX5000	SX5000-77-1A

■ Block disc indication seal

These seals are stuck on the block with SUP and EXH block discs inside for confirmation from outside. (3 sheets respectively)

VZ3000-123-1A (Both for SX3000, 5000)

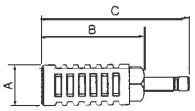
Label for SUP block disc | Label for EXH block disc | Label for SUP, EXH block disc



Note) When ordering block disc installed at the factry, labels will be attached to the manifold showing the locations.

■ Silencer for one-touch fitting

The silencer plugs directly into the one-touch fittings of the manifold.

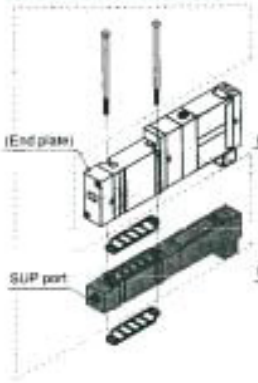


(mm)

Series	Model	Effective area	A	B	C
SX3000 (ø8)	AN203-KM8	14mm²	ø16	26	51
SX5000 (ø10)	AN200-KM10	26mm²	ø22	53.8	80.8
	AN300-KM10	30mm²	ø25	70	97

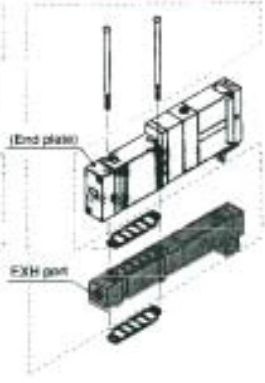
OPTIONS
SERIES SX MANIFOLD OPTIONS

■ Individual SUP spacer ass'y



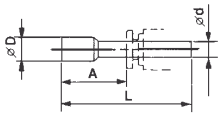
Series	Ass'y no.	Port size
SX3000	SX3000-38-3A	M5×0.8
SX5000	SX5000-38-3A	1/8"

■ Individual EXH spacer ass'y



Series	Ass'y no.	Port size
SX3000	SX3000-39-3A	M5×0.8
SX5000	SX5000-39-3A	1/8"

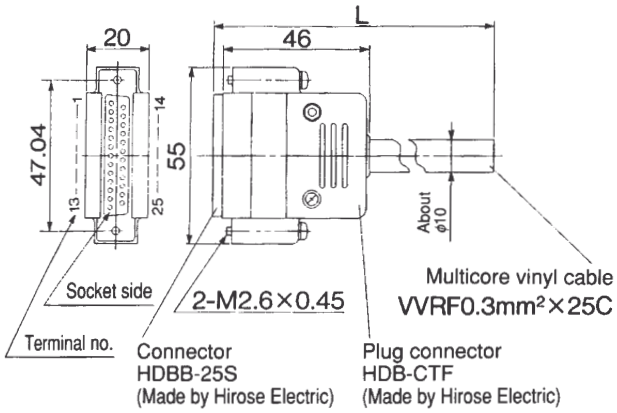
PORT PLUGS



Inserts easily into unused cylinder ports and/or SUP/EXH Ports. The minimum quantity to order is 10 pieces.

Applicable Fitting Size ød	Model	A	L	D
ø4mm	KQP-04	16	32	6
ø5/32"	KQP-03	16	32	6
ø6mm	KQP-06	18	35	8
ø1/4"	KQP-07	18	35	8
ø8mm	KQP-08	20.5	39	10
ø5/16"	KQP-09	20.5	39	10
ø10mm	KQP-10	22	43	12
ø3/8"	KQP-11	22	43	12

D-SUB CONNECTOR (25 POLE) / CABLE ASSEMBLY VXZS3000-21A1/2/3



D-Sub Connector Cable Assembly

Cable Length (L)	Assembly No	Note
1.5m	VVZS3000-21A-1	Cable 25
3m	VVZS3000-21A-2	- Core
5m	VVZS3000-21A-3	x 24AWG

** For other commercial connectors, use a 25-pole female connector made in conformity with MIL-C-24308.*

Electric Characteristics

Item	Characteristics
Conductor Resistance /km, 20°C	65 or less
Voltage Limit V, 1 min, AC	1000
Insulation Resistance M km, 20°C	5 or more

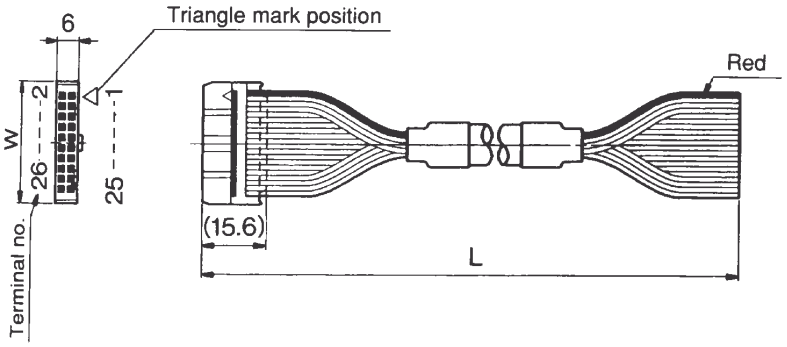
Note) The minimum bending radius od D-Sub Connector Cable Assembly is 20mm.

Wire color table by terminal number of D-sub connector cable ass'y

Terminal No.	Lead wire color	Dot marking
1	Black	–
2	Brown	–
3	Red	–
4	Orange	–
5	Yellow	–
6	Pink	–
7	Blue	–
8	Violet	White
9	Gray	Black
10	White	Black
11	White	Red
12	Yellow	Red
13	Orange	Red
14	Yellow	Black
15	Pink	Black
16	Blue	White
17	Violet	–
18	Gray	–
19	Orange	Black
20	Red	White
21	Brown	White
22	Pink	Red
23	Gray	Red
24	Black	White
25	White	–

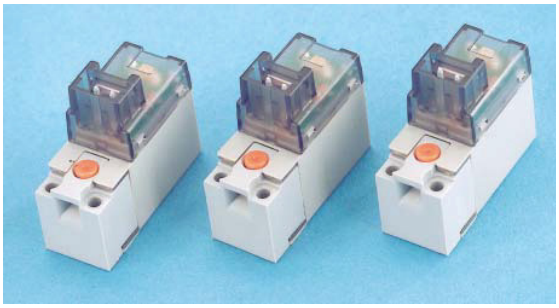
■ Flat Cable Connector / Cable Ass'y

AXT100-FC□-$\frac{1}{3}$



ACCESSORIES
FLAT CABLE CONNECTOR ASSEMBLY

Cable Length	10 Pole	20 Pole	26 Pole
1.5m	AXT100-FC10-1	AXT100-FC20-1	AXT100-FC26-1
3m	AXT100-FC10-2	AXT100-FC20-2	AXT100-FC26-2
5m	AXT100-FC10-3	AXT100-FC20-3	AXT100-FC26-3
Connector Width	17.2	30	37.5



3/2 Direct Acting Solenoid/Spring Valves M3 Ported

- Direct Two-Port Solenoid Valve
- Compact Size
- Power Saving Version

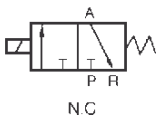
Technical Specifications

Type	2 Port Direct Solenoid Valve
Function	Normally Closed, Normally Open
Fluid	Air
Operating Pressure Range	0~0.7MPa (0~100PSI) Vacuum P Port - 100KPa ~ 0.6MPa / -14.5~85PSI R Port - 100KPa ~ 0.06MPa / -14.5~85PSI
Ambient Temperature	Max 50°C / 122°F
Effective Orifice (Cv)	0.14mm2 (0.008) Standard 0.22mm2 (0.012) Large Flow
Power Consumption	0.75W - ø0.8; 0.52W - ø0.6
Allowable Voltage Fluctuation	±10%
Lead Wire Type	M L & Grommet
Lead Wire Specification	HVSF 0.3mm2 ø1.55mm
Response Time	<10ms

Safety

Observe Operating Pressure Ranges - see Technical Specifications for details

Symbols



NC

Model Series SY100

1KPa = 0.145PSI

Type Of Actuation	Model	Type	Operating Pressure Range MPa/PSI	Vacuum Application MPa P Port	Vacuum Application MPa R Port	Effective Area mm² (Cv Factor)
NC	SY113	Standard	0 ~ 0.7 / 0 ~ 101	-100KPa~0.6	-100KPa~0	0.14
NC	SY114					(0.008)
NC	SY113A	Large Flow	0 ~ 0.7 / 0 ~ 101	-100KPa~0.6	-100KPa~0	0.22
NC	SY114A	Capacity				(0.012)
NO	SY123	Standard	0 ~ 0.7 / 0 ~ 101	-100KPa~0	-100KPa~0.6	0.14
NO	SY124					(0.008)
NO	SY123A	Large Flow	0 ~ 0.7 / 0 ~ 101	-100KPa~0	-100KPa~0.6	0.22
NO	SY124A	Capacity				(0.012)

Note 1) In case of SY123/4 and SY123/4 A, Supply Air to R Port, P Port will be the Exhaust Port
Note 2) Value for DC, add 1g for AC

How To Order
See Next Page ☞

How To Order SY100

Body Ported SY1 ○○○ — ○○○○ — ○ M3 — ○
Base Mounted SY1 ○○○ — ○○○○ — ○

Type Of Actuation
1 .....Normally Closed
2 .....Normally Open

Model Type
3 .....Body Ported
4 .....Base Mounted

Type
- .....Standard
A .....Large Flow Capacity

Voltage
5 .....24 VDC
6 .....12 VDC
V .....6 VDC
S .....5 VDC
R .....3 VDC
1 .....100 VAC 50/60 Hz
3 .....110 VAC 50/60 Hz
.....115 VAC 50/60 Hz
2 .....200 VAC 50/60 Hz
4 .....220 VAC 50/60 Hz
.....230 VAC 50/60 Hz

Electrical Entry
G .....Grommett (Lead Wire Length: 300mm)
H .....Grommett (Lead Wire Length: 600mm)
L .....L Type Plug with Lead Wire
LN ...L Type Plug without Lead Wire
LO ...L Type Plug without Connector
M .....M Type Plug with Lead Wire
MN ...M Type Plug without Lead Wire
MO ...M Type Plug without Connector

Indicator Light & Surge Suppressor
- .....Without
S .....With Surge Voltage Suppressor
Z .....With Indicator Light and Surge Voltage Suppressor
U .....As Option Z above but non Polar Type
• "U" type: 24, 12 VDC only
• For AC types, there is no "S" Specification since it is integral with Converter

Manual Override
- .....Non-Locking Push Type
D .....Push-Locking Slotted Type
B .....Locking Slotted Type
E .....Push-Locking Lever Type

Piping
Body Ported
- .....For Manifold
P .....For Body Ported Type t0 P, R, A Port

Base Mounted
- .....Without Subplate
M3 ...With Subplate

Bracket
- .....Without Bracket
F .....With Bracket

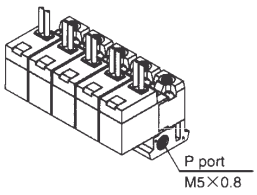
How To Order Connector Assembly Number

DC	:	SY100 - 30 - 4A - ○
100VAC	:	SY100 - 30 - 1A - ○
200VAC	:	SY100 - 30 - 2A - ○
Other Voltages Of AC	:	SY100 - 30 - 3A - ○

Lead Wire Length
Nil 300mm
6 600mm
10 1000mm
15 1500mm
20 2000mm
25 2500mm
30 3000mm
50 5000mm

Common SUP · Common EXH

Type 30



How to Order

SS3Y1 – 30 – 05 – F

Stations

02	2 stations
⋮	⋮
10	10 stations

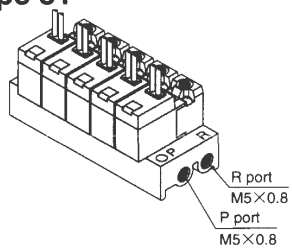
Applicable valves

SY113-□□□□-M3
SY113A-□□□□-M3

Applicable blank plate ass'y
SY100-77-1A

Note) Piping to exhaust port is not possible.

Type 31



How to Order

SS3Y1 – 31 – 05

Stations

02	2 stations
⋮	⋮
20	20 stations

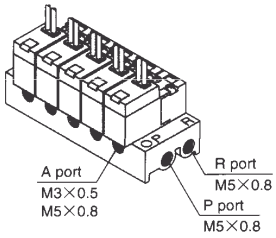
Applicable valves Note)

SY113-□□□□-M3
SY113A-□□□□-M3
SY123-□□□□-M3
SY123A-□□□□-M3

Applicable blank plate ass'y
SY100-77-1A

Note) SY113(A) and SY123(A) cannot be mounted on the same manifold.

Type S41



How to Order

SS3Y1 – S41 – 05 – M3

Stations

02	2 stations
⋮	⋮
20	20 stations

A port size

M3	M3×0.5
M5	M5×0.8

Applicable valves Note)

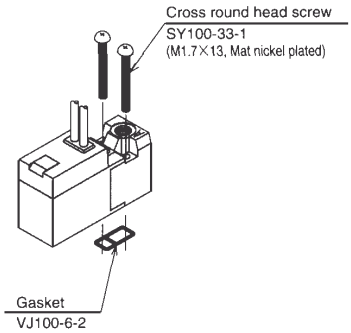
SY114-□□□□
SY114A-□□□□
SY124-□□□□
SY124A-□□□□

Applicable blank plate ass'y
SY100-77-1A

Note) SY114(A) and SY124(A) cannot be mounted on the same manifold.

Combination with Solenoid Valve and Gasket Manifold Base

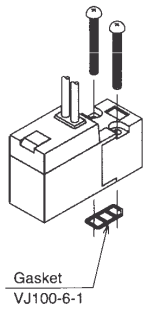
Body ported



Applicable base

- Sub-plate (for body ported)
- SS3Y1-type 30 | Manifold base
- SS3Y1-type 31 | Manifold base

Base mounted

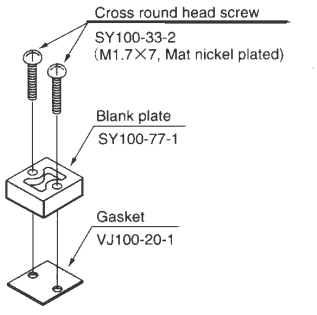


Applicable base

- Sub-plate
- SS3Y1-type S41 Manifold base

Blank Plate Ass'y

Parts no. : SY100-77-1A



Applicable base

- Sub-plate
- SS3Y1-type 30 | Manifold base
- SS3Y1-type 31 | Manifold base
- SS3Y1-type S41 | Manifold base



BODY PORTED VALVE SY3000/5000/7000

- Low Power Consumption : 0.5W
- Compact Design, Large Flow Capacity
- High Life Expectancy ; >50 million cycles
- Quick Response Time

TECHNICAL SPECIFICATIONS

Series		SY3000	SY5000	SY7000
Fluid		Air, Lubrication Not Required		
Internal Pilot Operating Pressure Range	2 Position Single	0.15 ~ 0.7MPa / 22 ~ 100PSI		
	2 Position Double	0.1 ~ 0.7MPa / 15 ~ 100PSI		
	3 Position	0.2 ~ 0.7MPa / 30 ~ 100PSI		
Ambient & Fluid Temperature		-10 ~ 50°C / 14 ~122°F		
Max Operating Frequency / Hz	2 Position Single/Double	10	5	3
	3 Position	3	3	3
Manual Override		Non Locking Push Type Push Locking Slotted Type Push Locking Lever Type		
Pilot Exhaust		Common Exhaust for Main & Pilot		
Mounting Position		Free		
Cv Factor		0.23	0.59	0.87

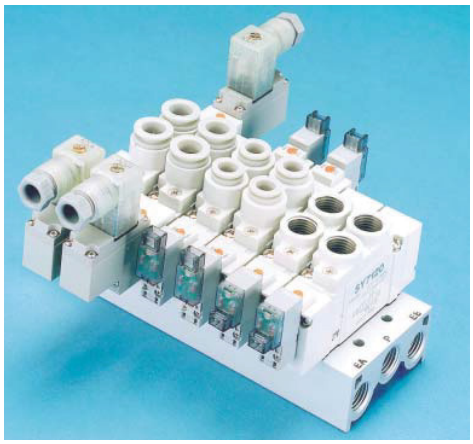
MODEL RESPONSE TIME SERIES SY3/5/7000

Model	Configuration	Response Time ms 71 PSI / 0.5MPa	
		W/O Indicator Light & Surge Suppressor	With Indicator Light & Surge Suppressor
SY3000	2 Position Single	12 or less	15 or less
	2 Position Double	10 or less	13 or less
	3 Position	15 or less	20 or less
SY5000	2 Position Single	19 or less	26 or less
	2 Position Double	18 or less	22 or less
	3 Position	32 or less	38 or less
SY7000	2 Position Single	31 or less	38 or less
	2 Position Double	27 or less	30 or less
	3 Position	50 or less	56 or less

HOW TO ORDER SEE NEXT PAGE ☞

BODY PORTED/BAR MANIFOLD INDIVIDUAL WIRING TYPE SY3000/5000/7000

- Direct Piping to Main Body of Valve
- Up to 20 Valve Stations
- Threaded and Push-In Fittings
- Lightweight Aluminum Construction
- Combination of Fittings possible



HOW TO ORDER
BODY PORTED/BAR MANIFOLD W/INDIVIDUAL LEAD WIRE
SY3/5/7000

SS5Y ○ 20 — ○ — ○

MANIFOLD SERIES
3 .....SY3000
5 .....SY5000
7 .....SY7000

VALVE STATIONS
02 ...2 Stations
to
20 ...20 Stations

THREAD TYPE
- .....PT
00T ...NPTF

HOW TO ORDER
BODY PORTED W/INDIVIDUAL LEAD WIRE SY3/5/7000

SY ○ ○ 20 — ○ ○ ○ — ○ — ○

SERIES
3 .....SY3000
5 .....SY5000
7 .....SY7000

CONFIGURATION
1 .....2 Position Single
2 .....2 Position Double
3 .....3 Position Closed Center
4 .....3 Position Exhaust Center
5 .....3 Position Pressure Center

VOLTAGE
3 .....110VAC
5 .....24 VDC
6 .....12 VDC
*1 ...100VAC
*2 ...220VAC
*V ...6 VDC
*S ...5 VDC
*R ...3 VDC
* Special Order

ELECTRICAL ENTRY
D .....With Connector (SY5000, 7000 Only)
DZ ...Connector w/Light & Surge Suppressor
(SY5000, 7000 Only)
LZ.....Lead Wire w/Light & Surge Suppressor
G .....Grommett (Lead Wire Length: 300mm)
H .....Grommett (Lead Wire Length: 600mm)
L .....L Type Plug with Lead Wire
LO ...L Type Plug without Connector
LOZ ...W/O Lead Wire, w/Light & Surge Suppressor
M .....M Type Plug with Lead Wire
MO ...M Type Plug without Connector
MZ ...M Type Lead Wire w/Light & Surge Suppressor

MANUAL OVERRIDE
- .....Non-Locking Push Type
D .....Push-Locking Slotted Type
E .....Push-Locking Lever Type

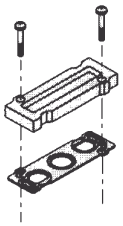
BRACKET
- .....Without Bracket
F1 ...With Foot Bracket
F2 ...With Side Bracket

A, B PORT SIZE

Symbol	Port Size	Applicable Series
Metric (mm)		
M5	...M5x0.8	SY3000
C4	...One Touch Fitting ø4	SY3000
C6	...One Touch Fitting ø6	SY3000, SY5000
01	...PT 1/8"	SY5000
C8	...One Touch Fitting ø8	SY5000, SY7000
02	...PT 1/4"	SY7000
C10	...One Touch Fitting ø10	SY7000
Imperial (Inch)		
M5	...10-32Nom	SY3000
N3	...One Touch Fitting ø5/32"	SY3000
N7	...One Touch Fitting ø1/4"	SY3000
N7T	...One Touch Fitting ø1/4"	SY5000
01T	...NPTF 1/8"	SY5000
N9T	...One Touch Fitting ø5/16"	SY5000, SY7000
02T	...NPTF 1/4"	SY7000
N11T	..One Touch Fitting ø3/8"	SY7000

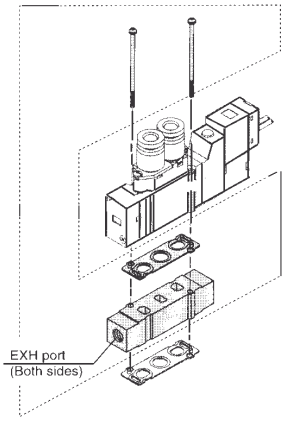
MANIFOLD OPTIONS

BLANKING PLATE ASSEMBLY



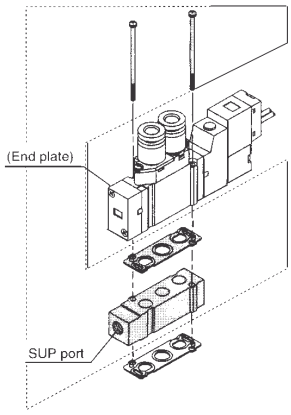
	Ass'y part no.
SY3000	SY3000-26-1A
SY5000	SY5000-26-1A
SY7000	SY7000-26-1A

INDIVIDUAL/EXH SPACER ASSEMBLY



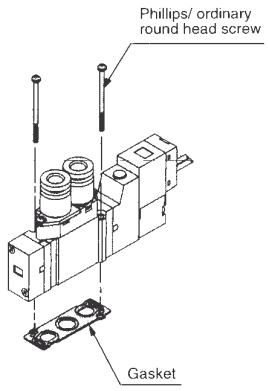
Series	Assembly No	Port Size
SY3000	SY3000-39-1A	M5 (10-32Nom)
SY5000	SY5000-39-1A	PT 1/8
SY5000	SY5000-39-1TA	NPTF 1/8
SY7000	SY7000-39-1A	PT 1/4
SY7000	SY7000-39-1TA	NPTF 1/4

INDIVIDUAL/SUP SPACER ASSEMBLY



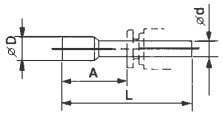
Series	Assembly No	Port Size
SY3000	SY3000-38-1A	M5 (10-32Nom)
SY5000	SY5000-38-1A	PT 1/8
SY5000	SY5000-38-1TA	NPTF 1/8
SY7000	SY7000-38-1A	PT 1/4
SY7000	SY7000-38-1TA	NPTF 1/4

BOLT / GASKET



	Phillips/ordinary round head screw	Gasket
SY3000	SY3000-23-4 (M2×21)	SY3000-11-3
SY5000	M3×26 (Non-gloss nickel plating)	SY5000-11-1
SY7000	M4×31 (Non-gloss nickel plating)	SY7000-11-1

PORT PLUGS



Inserts easily into unused cylinder ports and/or SUP/EXH Ports. The minimum quantity to order is 10 pieces.

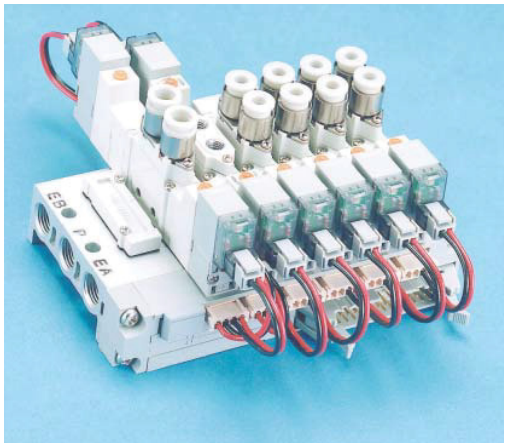
Applicable Fitting Size ød	Model	A	L	D
ø4mm	KQP-04	16	32	6
ø5/32"	KQP-03	16	32	6
ø6mm	KQP-06	18	35	8
ø1/4"	KQP-07	18	35	8
ø8mm	KQP-08	20.5	39	10
ø5/16"	KQP-09	20.5	39	10
ø10mm	KQP-10	22	43	12
ø3/8"	KQP-11	22	43	12

BRACKET ASSEMBLY NUMBER (IF ORDERED SEPARATELY)

F1 Type	SX3/5/7000-16-2A (With Mounting Screw)
F2 Type	SX3/5/7000-16-1A (With Mounting Screw)

Body Ported/Bar Manifold Flat Cable Type SY3000/5000/7000

- Direct Piping to Main Body of Valve
- Up to 20 Valve Stations
- Threaded and Push-In Fittings
- Lightweight Aluminum Construction
- Combination of Fittings possible



How To Order
Body Ported w/Flat Cable Manifold
SY3/5/7000

SY ○ ○ 20 — ○ L0U ○ — ○

Series
3 .....SY3000
5 .....SY5000
7 .....SY7000

Configuration
1 .....2 Position Single
2 .....2 Position Double
3 .....3 Position Closed Center
4 .....3 Position Exhaust Center
5 .....3 Position Pressure Center

Voltage
5 .....24 VDC
6 .....12 VDC

Manual Override
- .....Non-Locking Push Type
D .....Push-Locking Slotted Type
E .....Push-Locking Lever Type

A, B Port Size

Symbol	Port Size	Applicable Series
Metric (mm)		
M5	...M5x0.8	SY3000
C4	...One Touch Fitting ø4	SY3000
C6	...One Touch Fitting ø6	SY3000, SY5000
01	...PT 1/8"	SY5000
C8	...One Touch Fitting ø8	SY5000, SY7000
02	...PT 1/4"	SY7000
C10	...One Touch Fitting ø10	SY7000
Imperial (Inch)		
M5	...10-32Nom	SY3000
N3	...One Touch Fitting ø5/32"	SY3000
N7	...One Touch Fitting ø1/4"	SY3000
N7T	...One Touch Fitting ø1/4"	SY5000
01T	...NPTF 1/8"	SY5000
N9T	...One Touch Fitting ø5/16"	SY5000, SY7000
02T	...NPTF 1/4"	SY7000
N11T	..One Touch Fitting ø3/8"	SY7000

How To Order
Flat Ribbon Cable manifold SY3/5/7000

SS5Y ○ 20P — ○ — ○

Manifold Series
3 .....SY3000
5 .....SY5000
7 .....SY7000

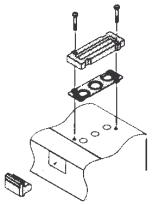
Valve Stations
03 ...3 Stations
to
12 ...12 Stations
*SS5Y3 has 4 ~ 12 Stations

Thread Type
- .....PT
**T ...NPTF

See inside front cover for

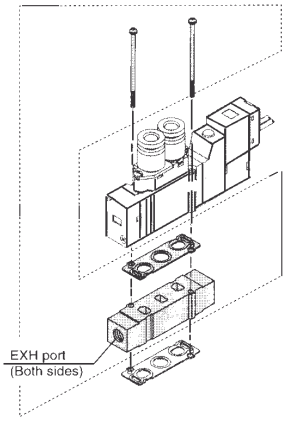
Manifold Options

Blank Plate Assembly



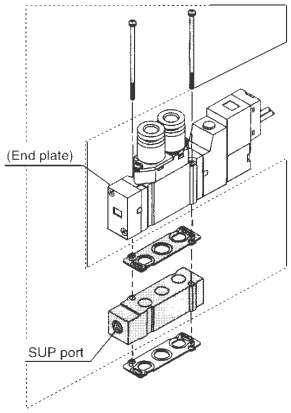
	Ass'y part no.
SY3000	SY3000-26-3A
SY5000	SY5000-26-3A
SY7000	SY7000-26-3A

Individual/EXH Spacer Assembly



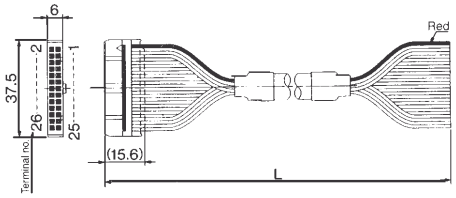
Series	Assembly No	Port Size
SY3000	SY3000-39-1A	M5 (10-32Nom)
SY5000	SY5000-39-1A	PT 1/8
SY5000	SY5000-39-1TA	NPTF 1/8
SY7000	SY7000-39-1A	PT 1/4
SY7000	SY7000-39-1TA	NPTF 1/4

Individual/SUP Spacer Assembly



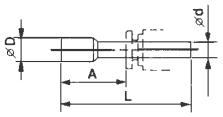
Series	Assembly No	Port Size
SY3000	SY3000-38-1A	M5 (10-32Nom)
SY5000	SY5000-38-1A	PT 1/8
SY5000	SY5000-38-1TA	NPTF 1/8
SY7000	SY7000-38-1A	PT 1/4
SY7000	SY7000-38-1TA	NPTF 1/4

Flat Ribbon Cable Assembly AXT100-FC26(1/2/3)



Cable Length (L)	Assembly Number	Note
1.5m	AXT100-FC26-1	Cable 26 CoreX28AWG
3m	AXT100-FC26-2	Cable 26 CoreX28AWG
5m	AXT100-FC26-3	Cable 26 CoreX28AWG

Port Plugs



Inserts easily into unused cylinder ports and/or SUP/EXH Ports. The minimum quantity to order is 10 pieces.

Applicable Fitting Size ød	Model	A	L	D
ø4mm	KQP-04	16	32	6
ø5/32"	KQP-03	16	32	6
ø6mm	KQP-06	18	35	8
ø1/4"	KQP-07	18	35	8
ø8mm	KQP-08	20.5	39	10
ø5/16"	KQP-09	20.5	39	10
ø10mm	KQP-10	22	43	12
ø3/8"	KQP-11	22	43	12



BASE MOUNTED VALVE
SY3000/5000/7000

- Low Power Consumption : 0.5W
- Compact Design, Large Flow Capacity
- High Life Expectancy ; >50 million cycles
- Quick Response Time
- Serial Interface Option

TECHNICAL SPECIFICATIONS

Series			SY3000	SY5000	SY7000
Fluid			Air, Lubrication Not Required		
Internal Pilot Operating Pressure Range	2 Position Single		22 ~ 100PSI / 0.15 ~ 0.7MPa		
	2 Position Double		25 ~ 100PSI / 0.1 ~ 0.7MPa		
	3 Position		30 ~ 100PSI / 0.2 ~ 0.7MPa		
External Pilot Operating Pressure Range	Pilot Pressure Range	2 Position Single	37 ~ 100PSI / 0.25 ~ 0.7MPa		
		2 Position	37 ~ 100PSI / 0.25 ~ 0.7MPa		
		3 Position	37 ~ 100PSI / 0.25 ~ 0.7MPa		
Ambient & Fluid Temperature			-10 ~ 50°C / 14 ~ 122°F		
Max Operating Frequency / Hz	2 Position Single/Double		10	5	5
	3 Position		10	3	3
Pilot Exhaust	Internal Pilot		Common Exhaust for Main & Pilot		
	External Pilot		Individual Exhaust for Pilot Valve		
Mounting Position			Free		
Cv Factor			0.3	0.7	1.2

MODEL
RESPONSE TIME SERIES SY3/5/7000

Model	Configuration	Response Time ms 71 PSI / 0.5MPa	
		W/O Indicator Light & Surge Suppressor	With Indicator Light & Surge Suppressor
SY3000	2 Position Single	12 or less	15 or less
	2 Position Double	10 or less	13 or less
	3 Position	15 or less	20 or less
SY5000	2 Position Single	19 or less	26 or less
	2 Position Double	18 or less	22 or less
	3 Position	32 or less	38 or less
SY7000	2 Position Single	31 or less	38 or less
	2 Position Double	27 or less	30 or less
	3 Position	50 or less	56 or less

HOW TO ORDER
SEE NEXT PAGE ☞

Base Mounted/Bar Manifold Individual Wiring Type SY3000/5000/7000



- Facilitates maintenance when valves are changed
- Up to 20 Valve Stations
- Threaded and Push-In Fittings
- Lightweight Aluminum Construction
- Vacuum Low Pressure Combination System is Available (Type 42 Only)

How To Order
Base Mounted/Bar Manifold w/Individual lead wire SY3/5/7000

SS5Y ○ — 4 ○ — ○ — ○

Manifold Series
3 .....SY3000
5 .....SY5000
7 .....SY7000 (Type 42 Only)

1 .....Compact Type
2 .....External Pilot Capable Type

Valve Stations
02 ...2 Stations
to
20 ...20 Stations

A, B Port Size
Metric (mm)
M5 ...M5x0.8 (SY3000 Type 41 Only)
01 ...Rc(PT)1/8 (SY5000 Type 41 & SY3000 Type 42 Only)
02 ...RC(PT)1/4 (SY5000 Type 42 Only)
C4 ...One Touch Fittings for ø4 (SY3000 Only)
C6 ...One Touch Fittings for ø6 (SY3000 & SY5000 Only)
C8 ...One Touch Fittings for ø8 (SY5000 Only)
C10 ...One Touch Fittings for ø10 (SY7000 Only)
Imperial (Inch)
M5T...10~32Nom (SY3000 Type41 Only)
01T ...1/8NPTF (SY5000 Type 41 & SY3000 Type 42 Only)
02T ...1/4NPTF (SY5000 Type 42 Only_
N3T ...One Touch Fittings for ø5/32 (SY3000 Only)
N7T ...One Touch Fittings for ø1/4" (SY3000 & 5000 Only)
N9T ...One Touch Fittings for ø5/16" (SY5000 Only)
N11T..One Touch Fittings for ø3/8" (SY7000 Only)

How To Order
Base Mounted Valve w/Individual lead wire SY3/5/7000

SY ○ ○ 40 ○ — ○ ○ ○ ○

Series
3 .....SY3000
5 .....SY5000
7 .....SY7000

Configuration
1 .....2 Position Single
2 .....2 Position Double
3 .....3 Position Closed Center
4 .....3 Position Exhaust Center
5 .....3 Position Pressure Center

Pilot Type
- .....Internal Pilot
R .....External Pilot

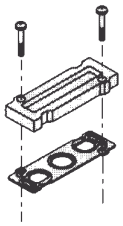
Voltage
*1 ...100VAC
*2 ...200VAC
3 .....110VAC
*4 ...220VAC (D, DO Only)
5 .....24 VDC
6 .....12 VDC
*2 ...200VAC (L M Only)
*4 ...220VAC (L, M Only)
* Special Order

Individual Light & Surge Voltage Suppressor
- .....Without
S .....With Surge Suppressor
Z .....With Indicator Light and Surge Voltage Suppressor
U .....With Indicator Light and Surge Voltage Suppressor (Non-Polar Type)

Electrical Entry
D .....DIN Connector
DO ...DIN without Connector
G .....Grommett (300mm)
H .....Grommett (600mm)
L .....L Type Plug Connector (300mm)
LN ...L Type Connector without Lead Wire
LO ...L Type Plug without Connector
M .....M Type Plug with Lead Wire
MN ...M Type Plug without Connector
MO ...M Type Plug without Connector

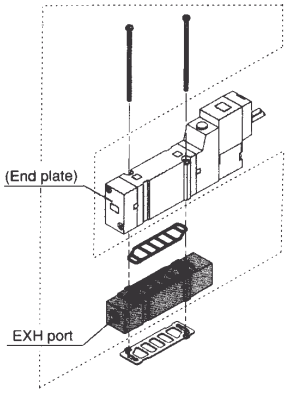
MANIFOLD OPTIONS

BLANKING PLATE ASSEMBLY



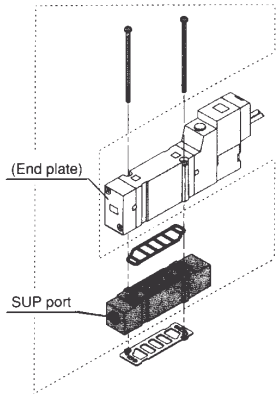
Series	Assembly Part No
SY3000	SY3000-26-2A
SY5000	SY5000-26-2A
SY7000	SY7000-26-2A

INDIVIDUAL/EXH SPACER ASSEMBLY



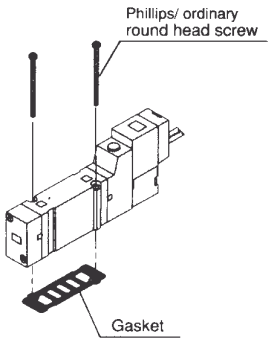
Series	Assembly No	Port Size
SY3000	SY3000-39-2A	M5x0.8 (10-32Nom)
SY5000	SY5000-39-2A	PT 1/8
SY5000	SY5000-39-2TA	NPTF 1/8
SY7000	SY7000-39-2A	PT 1/4
SY7000	SY7000-39-2TA	NPTF 1/4

INDIVIDUAL/SUP SPACER ASSEMBLY



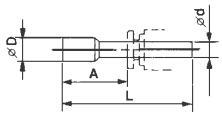
Series	Assembly No	Port Size
SY3000	SY3000-38-2A	M5x0.8 (10-32Nom)
SY5000	SY5000-38-2A	PT 1/8
SY5000	SY5000-38-2TA	NPTF 1/8
SY7000	SY7000-38-2A	PT 1/4
SY7000	SY7000-38-2TA	NPTF 1/4

BOLT / GASKET



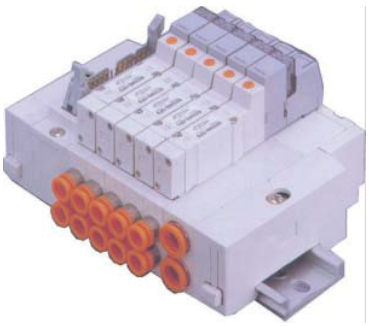
Series	Phillips /Ordinary Round Head Screw	Gasket
SY3000	SY3000-23-4 (M2x21)	SY3000-11-8
SY5000	M3x26 (Non Glare Nickel Plating)	SY5000-11-2
SY7000	M4 x 31 (Non Glare Nickel Plating)	SY7000-11-2

PORT PLUGS



Inserts easily into an unused cylinder port and/or SUP/EXH Ports. The minimum quantity to order is 10 pieces.

Applicable Fitting Size ød	Model	A	L	D
ø4mm	KQP-04	16	32	6
ø5/32"	KQP-03	16	32	6
ø6mm	KQP-06	18	35	8
ø1/4"	KQP-07	18	35	8
ø8mm	KQP-08	20.5	39	10
ø5/16"	KQP-09	20.5	39	10
ø10mm	KQP-10	22	43	12
ø3/8"	KQP-11	22	43	12



Base Mounted Plug-In DIN Rail Mounted Stacking Type Manifold SY3000/5000

- Number of Stations can be increased on DIN Rail
- Easy Electrical Connection
- Threaded or Push In Fittings
- Compact, Lightweight and Aesthetic

How To Order
Base Mounted Manifold 45F Type (D-Sub Connector 25 Pole)

SS5Y ○ 45 ○ F ○ — ○○ — ○ — ○ — ○

Series
3 .....SY3000
5 .....SY5000

Common Specifications
Nil ...Positive Common
N .....Negative Common

Connector Box Mounting Position
U .....U Side
D .....D Side

Valve Stations
02 ...2 Stations
to
20 ...20 Stations
*Single Wiring Specs
(Up to 20 Solenoid Valves)

SUP/EXH Block Assembly Mounting Position
U .....U Side/2~10 Stations
D .....D Side/2~10 Stations
B .....Both Sides/2~20 Stations
*N ...Special Spec

A, B Port Size
Metric (mm)
C4 ...One Touch Fittings ø4 (SY3000, SY5000)
C6 ...One Touch Fittings ø6 (SY3000, SY5000)
C8 ...One Touch Fittings ø8 (SY5000)
Imperial (Inch)
N3 ...One Touch Fittings ø5/32" (SY3000, SY5000)
N7 ...One Touch Fittings ø1/4" (SY3000, SY5000)
N9 ...One Touch Fittings ø5/16" (SY5000)

Note: Mixed Porting available by Special Order

Voltage
- 24VDC
12V ...12VDC

L Option
Where a longer than Standard DIN Rail is required, enter the number of manifold stations that corresponds with the length of DIN Rail needed (20 Stations max)

How To Order
Base Mounted Valve 45F, 45P Type

SY ○ ○ 4 ○ — ○ FU ○

Series
3 .....SY3000
5 .....SY5000

Configuration
1 .....2 Position Single
2 .....2 Position Double
3 .....3 Position Closed Center
4 .....3 Position Exhaust Center
5 .....3 Position Pressure Center

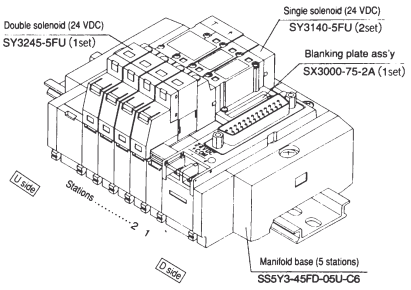
0 .....2 Position Single
5 .....2/3 Position Double (Dual Type)

Manual Override
- .....Non Locking Push Type
D .....Push Locking Slotted Type
E .....Push Locking Lever Type

Voltage
5 .....24 VDC
6 .....12 VDC

How to Order Valve / Manifold Ass'y (Example)

Ordering example (45F type / D-sub connector (25-pole))



SS5Y3-45FD-05U-C6 ···· 1set (45F type D-sub connector 5-station manifold base no.)
* SY3000-75-2A ···· 1set (Blanking plate ass'y no.)
* SY3140-5FU ···· 2set (Single solenoid no.)
* SY3245-5FU ···· 1set (Double solenoid no.)

* When ordering Double Solenoid Valves / 3 Position (Dual Body Type), please keep in mind that they require two manifold stations.

How To Order
Series SY Manifold 45P Type / Flat Cable Type

SS5Y ○ — 45 ○ P ○ ○ — ○ ○ — ○ — ○ — ○

Manifold Series
3 .....SY3000
5 .....SY5000

Common Specifications
Nil ...Positive Common
N .....Negative Common

Connector Poles

Symbol	Poles	Station
-	26	2~20
B	20	2~16
H	10	2~8

Connector Mounting Position
U .....U Side
D .....D Side

Valve Stations (Blanking Plate Assembly are included)

26 Pole (P) Connector			20 Pole (PG) Connector			10 Pole (PH) Connector		
Symbol	Station	Note	Symbol	Station	Note	Symbol	Station	Note
02	2	Single	02	2	Single	02	2	Single
..	..	Wiring Specs	..	..	Wiring Specs	..	..	Wiring Specs
20	20	Applicable up to 20 Solenoid	16	16	Applicable up to 16 Solenoids	08	08	Applicable up to 8 Solenoids

A, B Port Size

SY3000

Metric (mm)	Imperial (Inch)
C4 ...OTF for ø4	N3 ...OTF for ø5/32"
C6 ...OTF for ø6	N7 ...OTF for ø1/4"

SY5000

Metric (mm)	Imperial (Inch)
C4 ...OTF for ø4	N3 ...OTF for ø5/32"
C6 ...OTF for ø6	N7 ...OTF for ø1/4"
C8 ...OTF for ø8	N9 ...OTF for ø5/16"

* Mixed Porting Available by Special Order
Consult SMC Customer Service

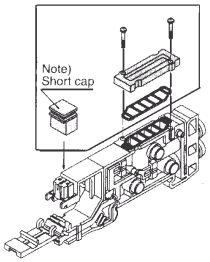
SUP/EXH Block Assembly Mounting Positions
U .....U Side - 2 ~ 10 Stations
D .....D Side - 2 ~ 10 Stations
B .....Both Sides - 2 ~ 20 Stations
*M ...Special Specifications (by Special Order)

Voltage
- 24VDC
12V ...12 VDC

Option
When a longer than Standard DIN Rail is required, enter the number of Manifold Station that corresponds with the length of DIN Rail needed (20 Stations Max)

Manifold Options

■ Blank plate ass'y



	Ass'y part no.
SY3000	SY3000-75-2A
SY5000	SY5000-76-2A

Note) ·When mounting a blank plate, be sure to mount a short cap.
·Two pcs. are necessary for the double, 3-position type (dual body type).

■ SUP block disc

When supplying manifold with more than one pressure, insert block disc in between stations subjected to different pressures.



	Part no.
SY3000	SX3000-77-1A
SY5000	SX5000-77-1A

■ EXH block disc

When valve exhaust affects the other stations on the circuit or when externally piloted, dual pressure valve is used on a standard manifold, insert EXH block disc(s) in between stations to isolate exhaust.



	Part no.
SY3000	SX3000-77-1A
SY5000	SX5000-77-1A

■ Block disc indication label

These labels are stuck on the block with SUP and EXH block discs inside for confirmation from outside. (3 sheets respectively)

VZ3000-123-1A (Both for SX3000 / 5000)

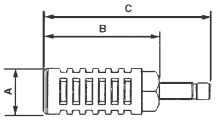
Lebel for SUP block disc | Lebel for EXH block disc | Lebel for SUP / EXH block disc



Note) When ordering block disc installed at the factory, labels will be attached to the manifold showing the locations.

■ Silencer for One-touch fitting

The silencer plugs directly into the One-touch fittings(R port) of the manifold.

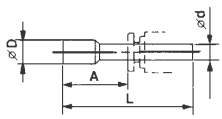


(mm)

	Part no.	Effective orifice	A	B	C
SY3000 (ø8)	AN203-KM8	14mm²	ø16	26	51
SY5000 (ø10)	AN200-KM10	26mm²	ø22	53.8	80.8
	AN300-KM10	30mm²	ø25	70	97

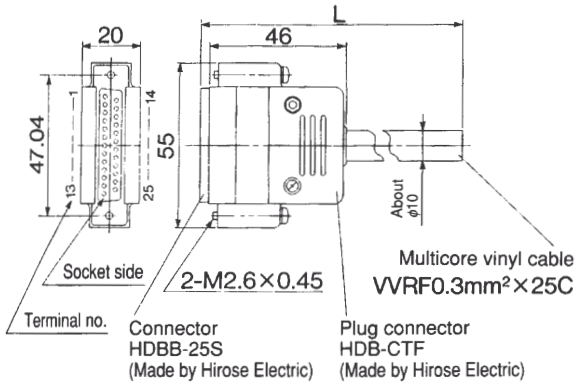
Applicable Fitting Size ød	Model	A	L	D
ø4mm	KQP-04	16	32	6
ø5/32"	KQP-03	16	32	6
ø6mm	KQP-06	18	35	8
ø1/4"	KQP-07	18	35	8
ø8mm	KQP-08	20.5	39	10
ø5/16"	KQP-09	20.5	39	10
ø10mm	KQP-10	22	43	12
ø3/8"	KQP-11	22	43	12

Port Plugs



Inserts easily into an unused cylinder port and/or SUP/EXH Ports. The minimum quantity to order is 10 pieces.

Cable Assemblies for Type 45 Pre-wired Manifolds



D-Sub Connector Cable Assembly

Cable Length (L)	Assembly No	Note
1.5m	VVZS3000-21A-1	Cable 25
3m	VVZS3000-21A-2	- Core
5m	VVZS3000-21A-3	x 24AWG

** For other commercial connectors, use a 25-pole female connector made in conformity with MIL-C-24308.*

Electric Characteristics

Item	Characteristics
Conductor Resistance /km, 20°C	65 or less
Voltage Limit V, 1 min, AC	1000
Insulation Resistance M km, 20°C	5 or more

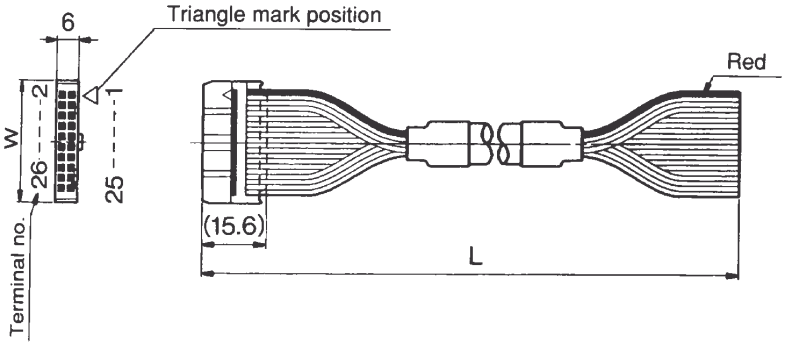
Note) The minimum bending radius of D-Sub Connector Cable Assembly is 20mm.

Wire color table by terminal number of D-sub connector cable ass'y

Terminal No.	Lead wire color	Dot marking
1	Black	–
2	Brown	–
3	Red	–
4	Orange	–
5	Yellow	–
6	Pink	–
7	Blue	–
8	Violet	White
9	Gray	Black
10	White	Black
11	White	Red
12	Yellow	Red
13	Orange	Red
14	Yellow	Black
15	Pink	Black
16	Blue	White
17	Violet	–
18	Gray	–
19	Orange	Black
20	Red	White
21	Brown	White
22	Pink	Red
23	Gray	Red
24	Black	White
25	White	–

■ Flat Cable Connector / Cable Ass'y

AXT100-FC□-$\frac{1}{3}$



Accessories
Flat Cable Connector Assembly

Cable Length	10 Pole	20 Pole	26 Pole
1.5m	AXT100-FC10-1	AXT100-FC20-1	AXT100-FC26-1
3m	AXT100-FC10-2	AXT100-FC20-2	AXT100-FC26-2
5m	AXT100-FC10-3	AXT100-FC20-3	AXT100-FC26-3
Connector Width	17.2	30	37.5

3/2 Direct Acting Solenoid Valve M3-M5 Port Series VQ100

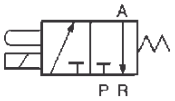
- High Speed Repeatable Response - on 3.5ms, off 1.5ms
- Long Life Expectancy - 200 million cycles
- Compact Lightweight Construction -10mm Body Width
- Low Power Consumption 1 Watt (0.5 Watt Option)
- Latching, Clean Room and Vacuum Valve Options Available
- Normally Open Version Available
- LED Indication and Surge Suppression is Standard
- Cv = 0.02 Standard (Cv = 0.04 Option Available)
- Locking Manual Override Available (Standard on Latching Version)



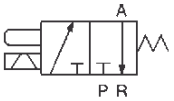
Technical Specifications

Application	1 Watt, 0.8MPa (117PSI) / 6.5 Watt, 0.7MPa (101PSI)
Type of Actuation	Direct Operated 3 Port Poppet Type (Normally Closed)
Fluid	Air - inert gas
Max Operating Pressure	0.8MPa (117PSI) / 0.7MPa (101PSI)
Min Operating Pressure	0MPa (0PSI)
Effective Area	P-A ... 0.28mm² (Cv 0.016) / 0.14mm² (Cv 0.008)
	A-R ... 0.36 mm² (Cv 0.02) / 0.20mm² (Cv 0.011)
Response Time	ON: 3.5ms OFF: 1.5ms
Ambient and Fluid Temperature	-10 - +50°C (14 ~ 122°F)
Lubrication	Not Required
Manual Override	Non Locking Push Type/Locking Optional
Mounting Position	Free
Protection Structure	Dust Proof
Weight	12.6g (L M Connector Type without Subplate)
Coil Rated Voltage	DC ... 24V 12V
Allowable Voltage Range	±10% of Rated Voltage
Coil Insulation	Class B or equivalent
Power Consumption	DC ... 1W / 0.5W
Electrical Entry	Plug In Type, L/M Type Connector (With Lamp/Surge Voltage Suppressor), Grommet

Symbols Standard



Symbols Latching Option



How To Order Solenoid Valve Series VQ100

VQ1 ○ 0 ○ — ○ ○ ○ — ○

Function
1 ... Normally Closed

Specifications
- ... Standard (1W DC)
Y ... Low Wattage (0.5W DC)
L** ... Latching Type (Positive Common)
N** ... Negative Common
U* ... High Flow

* Optional Type
** Not Available for Plug-in Type

Coil Rated Votage
1 ... AC100V with Lamp/Surge
5 ... DC 24V with Lamp/Surge
6 ... DC 12V with Lamp/Surge

Port Size
- ... Without Subplate
M3 ... With Subplate
M5 ... With Subplate

Manual Override
- ... Non Locking Recessed Type
... Locking Type: Locking Recessed Type
B ... Locking Tool Type

Electrical Entry
F ... Plug-in Type with Lamp/Surge Voltage Suppressor: only for Plug-in Type
LO ... Plug Lead Type: L Type Connector with Lamp/Surge Voltage Suppressor without Connector
L ... Plug Lead Type:
... L Type Connector with Lead Wire, Indicator Light and Surge Voltage Suppressor
M ... Plug Lead Type:
... M Type Connector with Lead Wire, Indicator Light and Surge Voltage Suppressor
MO ... Plug Lead Type:
... M Type Connector with Indicator Light and Surge Voltage Suppressor
G ... Grommet Type

Accessories Cable Assemblies

Negative common standard

Single	AXT661-14-AN-*
Latching	AXT661-13-AN-*

Positive common (option available)

Single	AXT661-14-A-*
Latching	AXT661-13-A-*

* Cable length code

Nil	300mm
6	600mm
10	1000mm
20	2000mm
30	3000mm

See inside front cover for

Series VQ100 Manifolds

- Plug-In Version available up to 18 Stations for use with VQ110-*F Valves (VV3Q11)
- Standard Option for Individual Wiring up to 20 Stations for use with VQ110 - *LO Valves (VV3Q12)



How To Order Manifolds Series VQ100

VV3Q1 ○ — ○ ○ ○ ○ — ○

Manifold Base Type
1 .....Plug In Unit
2 .....Plug Lead Unit

Number of Stations
02 ...2 Stations
to
18 ...18 Stations
Available upto 20 Stations
for Plug Lead Type

Electrical Entry
C .....Multi Connector Type

Option
- .....None
D .....DIN Rail Mount

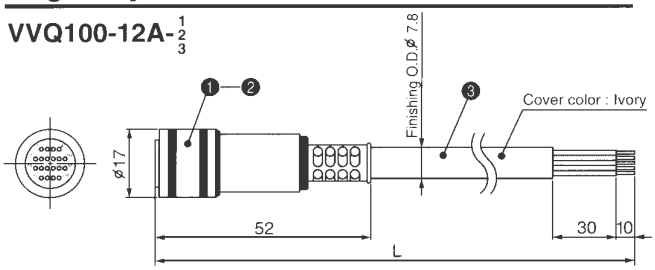
Cable Length
1 .....With 1.5m Cable
2 .....With 3m Cable
3 .....With 5m Cable

Electrical Entry Position
U .....Upper
S .....Side

Accessories
Plug Assembly Series VQ100

Plug Ass'y

VVQ100-12A- 1 2 3



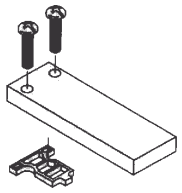
❶	Plug	RP13A-12PS-20SC <Made by Hirose Electric>
❷	Female contact	RP19-SC-222 <Made by Hirose Electric>
❸	Vinyl multi-core cable	VVRF 0.2mm² 20-core

Cable Length

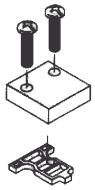
Model	L dimensions
VVQ100-12A-1	1.5m
VVQ100-12A-2	3m
VVQ100-12A-3	5m

Accessories
VQ100 Manifolds

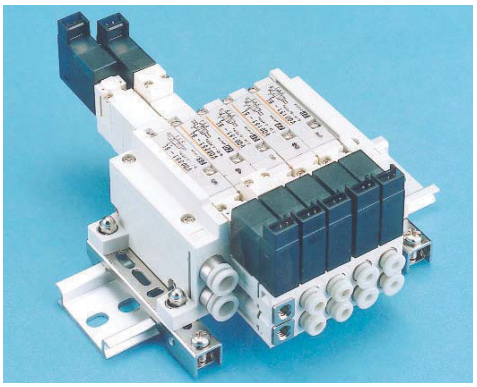
Blanking Plate Kit
for VV3Q11 .....VVQ100-10A-1
(includes fixing screws x2
and gasket



Blanking Plate Kit
for VV3Q12 .....VVQ100-10A-2
(includes fixing screws x2
and gasket



5 Port Metal Seal/Rubber Seal Ultra High Speed Solenoid Valve Series VQ0000



- High Speed Response from new Solenoid Design.
- Long Life: Over 200 Million Cycles can be achieved with the Special Plunger and Poppet Valve Construction of the Patent Pilot Valve.
- Space Saving Design
- Four Options for Electrical Connection.
- Indicator light and Voltage Surge Suppressor
- Ease of Assembly and Maintenance.
- Optimum performance from Metal Seal Valves is achieved when used with a Mist Separator.

Technical Specifications

Type of Seal		Metal	Rubber
Fluid		Air, Inert Gas	Air, Inert Gas
Min Operating Pressure			
Max Operating Pressure (Note1)		0.75MPa / 109 PSI	0.75MPa / 109 PSI
Effective Area (Cv Factor) mm²			
Response Time (Note 2)	Single	Max 12m sec	Max 15m sec
	Double	Max 10m sec	Max 13m sec
	3-position	Max 20m sec	Max 25m sec
Life		200 million cycles or more	200 million cycles
Ambient and Fluid Temp (Note 3)		-10 to +50°C (14~122°F)	-5 to +50°C (23~122°F)
Lubricant (Note 4)		Not required	Not required
Manual Override		Non locking push type	Non locking push type
Protection Structure		Dustproof	Dustproof

	Metal	Rubber
Single	0.1MPa/14.5PSI	0.15MPa/22PSI
Double	0.1MPa/14.5PSI	0.1MPa/14.5PSI
3-Position	0.1MPa/14.5PSI	0.2MPa/29PSI

	Metal	Rubber
Single	2.5 (0-14)	2.7(0-15)
Double	2.5 (0-14)	2.7 (0-15)
3-Position	2.0 (0-11)	2.7 (0-15)

(Note 1) Contact SMC Customer Service for 145 PSI (10 Bar).
(Note 2) Calculated on the basis of JIS B 8375-1981 (Supply pressure 0.5 MPa {5.1 Bar}; the above valve shows reponse time checked when the valve is equipped with an indicator light and surge voltage suppressor).
(Note 3) Use dry air to prevent dew condensation in the case when temperature is low.
(Note 4) Perfect dry air (dew point equals to -30°C) No grease on main valve.

Special types (Contact SMC for details and availability):
i Pressure centre function
ii External pilot
iii Low power consumption (0.5W)
iv Positive common wiring

Symbols

1	2 position single (A B, R1 P R2)
2	2 position double (A B, R1 P R2)
3	3 position closed center (A B, R1 P R2)
4	3 position exhaust center (A B, R1 P R2)
5	3 position pressure center (A B, R1 P R2)

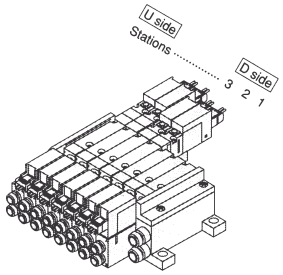
Solenoid Specifications

Coil rated voltage	12 VDC, 24 VDC	100/110 VAC
Allowable voltage	∓10% of rated voltage	∓10% of rated voltage
Type of coil insulation	Class B	Class B
Power consumption (Note 1)	1W	Inrush/Holding: 1.1 VA (11mA)
Electrical entry	Plug in or connector type	Plug in or connector type

(Note 1) Contact SMC for the low power consumption (0.5W) type

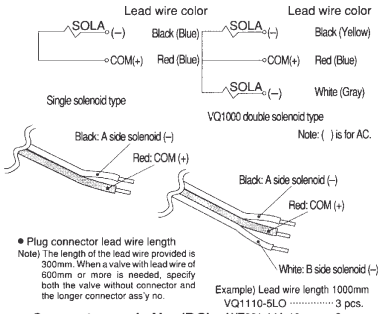
C -Kit (Connector) Series VQ0000

- Type which has lead wires in plug connected to each valve individually.



Wiring Specifications

- Negative common.
- The lead wires are connected to the valve as shown below.
  Connect each to the power supply side.



● Plug connector lead wire length
Note) The length of the lead wire provided is 300mm. When a valve with lead wire of 600mm or more is needed, specify both the valve without connector and the longer connector ass'y no.

Example) Lead wire length 1000mm
VQ1110-5LO ····· 3 pcs.
AXT661-14A-10 ····· 3 pcs.

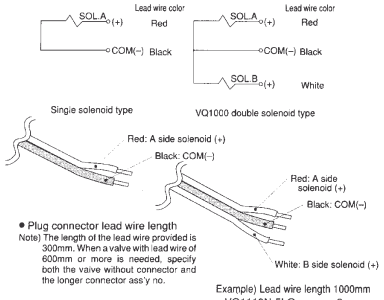
Connector ass'y No. (DC)

Lead wire length	No. for single & VQ0000 double types	No. for VQ1000 double type
Socket (3 pcs.)	AXT661-12A	
300mm	AXT661-14A	AXT661-13A
600mm	AXT661-14A-6	AXT661-13A-6
1000mm	AXT661-14A-10	AXT661-13A-10
2000mm	AXT661-14A-20	AXT661-13A-20
3000mm	AXT661-14A-30	AXT661-13A-30

Note) Regarding the AC type, AXT661-31A-is applies to the single type and AXT661-32A-is to the double type.

Wiring Specifications

- Positive common, Eg Serial Transmission.
- The lead wires are connected to the valve as shown below.
  Connect each to the power supply side.



● Plug connector lead wire length
Note) The length of the lead wire provided is 300mm. When a valve with lead wire of 600mm or more is needed, specify both the valve without connector and the longer connector ass'y no.

Example) Lead wire length 1000mm
VQ1110N-5LO ····· 3 pcs.
AXT661-14AN-10 ····· 3 pcs.

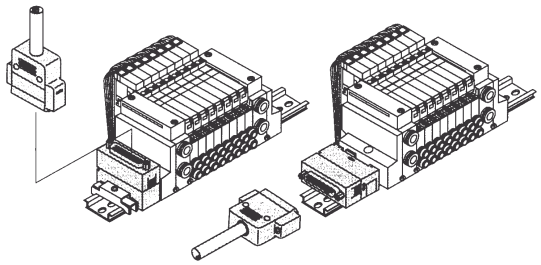
Connector ass'y No.

Lead wire length	No. for single & VQ0000 double types	No. for VQ1000 double type
Socket (3 pcs.)	AXT661-12A	
300mm	AXT661-14AN	AXT661-13AN
600mm	AXT661-14AN-6	AXT661-13AN-6
1000mm	AXT661-14AN-10	AXT661-13AN-10
2000mm	AXT661-14AN-20	AXT661-13AN-20
3000mm	AXT661-14AN-30	AXT661-13AN-30

Note) Use negative COM type valves for negative COM specification manifolds.

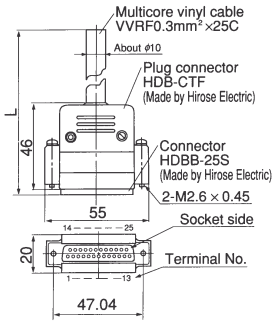
F Kit (D-sub connection) Series VQ0000

- The D-sub connector permits simple rationalization and installation labor saving for electrical connection.
- The D-sub connector (25-pin std., 15-pin option) conforms with MIL permitting use of commercial connectors with wide interchangeability.
- Top or side connector receptacle position can be selected in accordance with the available mounting space.
- Standard max 8 stations (Optional 16 stations possible).



VVZS3000-21A-$\frac{1}{3}$

(The D-sub connector cable ass'y can be ordered individually or included with a specific manifold model no. Refer to "How to Order/Manifold".)



Note) Types with 15-pin are also available.

D-Sub connector cable assembly (Option)

Cable Length (L)	Assembly No.	Note
1.5m	VVZS3000-21A-1	Cable 25-core x 24AWG
3m	VVZS3000-21A-2	
5m	VVZS3000-21A-3	

*For other commercial connectors, use a 25-pin female connector made in conformity with MIL-C-24308

Electric Characteristics

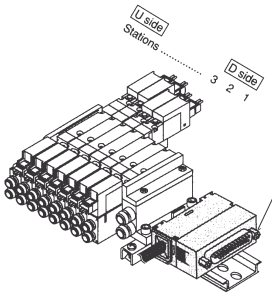
Item	Characteristics
Conductor resistance Ω/km, 20°C	65 or less
Voltage limit V, 1 min, AC	1000
Insulation resistance MΩkm, 20°C	5 or more

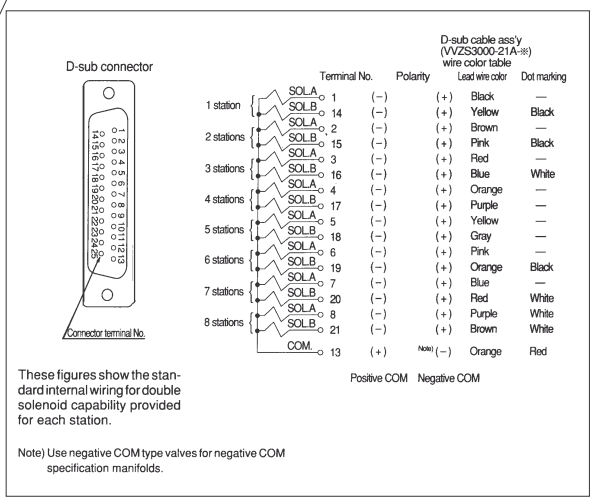
Note) The min. bending radius of D-Sub cable assembly is 20mm.

Where color table by terminal number of D-Sub connector cable assembly:

Terminal No.	lead wire colour	Dot marking
1	Black	-
2	Brown	-
3	Red	-
4	Orange	-
5	Yellow	-
6	Pink	-
7	Blue	-
8	Violet	White
9	Grey	Black
10	White	Black
11	White	Red
12	Yellow	Red
13	Orange	Red
14	Yellow	Black
15	Pink	Black
16	Blue	White
17	Violet	-
18	Grey	-
19	Orange	Black
20	Red	White
21	Brown	White
22	Pink	Red
23	Grey	Red
24	Black	White
25	White	-

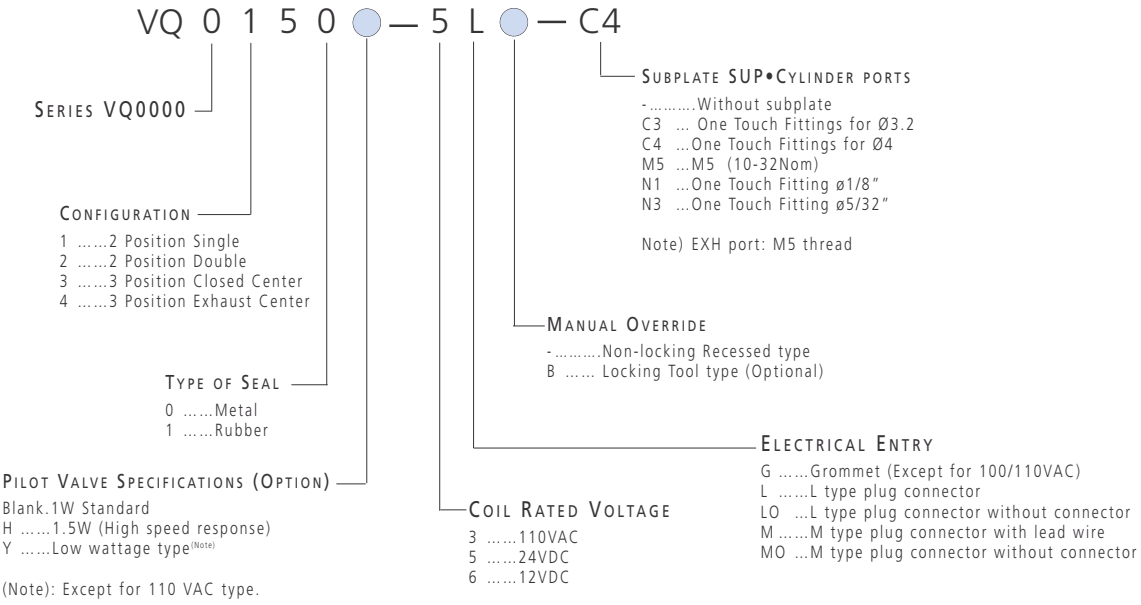
Electrical Wiring Specifications



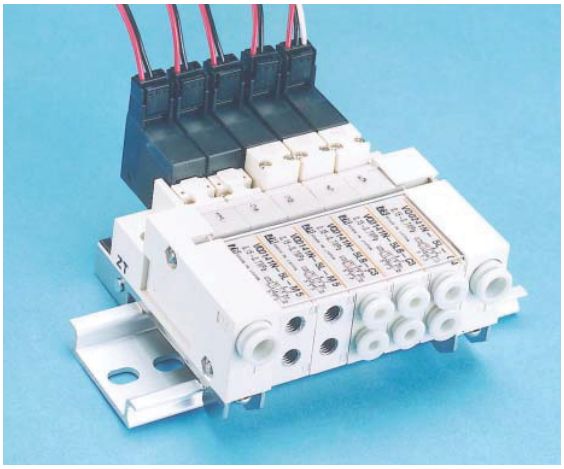


These figures show the standard internal wiring for double solenoid capability provided for each station.

How To Order Base Mounted Type Valve Single Unit VQ0000



Body Ported Type
Plug Lead Unit/Flip Type



How To Order Manifold

VVQ5Q 0 4 — 08 F S1 — D ○ — ○

Series
0 .....VQ0000

Type of Manifold
4 .....Plug lead unit flip type

Number Of Stations
01 ...1 Station
• ..... •
• ..... •
• ..... •
16 ...16 Stations

The number of stations differs from kit to kit

Kit • Electrical entry • Cable length

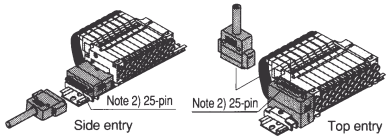
SUP/EXH Port
- .....Metric (mm)
00T ...Imperial (Inch)

DIN rail/Option
- .....None (C Kit only)
Note 2) D...DIN Rail Mounted
N...With Nameplate
Note3) Note 4) S...Built-in Silencer (Direct Exhaust)

Note 1) When more than one option is desired, combine symbols in alphabetical order.
Example) -DNS
Note 2) All F. P. and S kits are of DIN rail mounted type, so include suffix "D".
Note 3) All VQ0000 series are provided with a built-in silencer (direct exhaust) so include suffix "S".
Note 4) F.P. and S kits are provided with an exhaust on one side while C kits are with an exhaust on both sides.

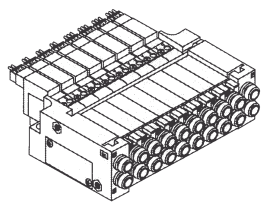
FOR FURTHER TECHNICAL INFORMATION ON THIS SERIES, REQUEST CAT:E137, E138, N238, N239

F kit (D-sub connection)



Connector Location				
Top (vertical)	Side (horizontal)			
Kit F U0	Kit F S0	Without cable	Note1) Max. 8 stations	
U1	S1	With cable (1.5m)		
U2	S2	With cable (3m)		
U3	S3	With cable (5m)		

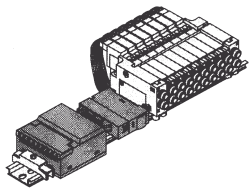
C kit (Connector)



C	Connector	Max. 16 stations

S kit (Serial transmission unit)

Compatible only with 24VDC valves.



Kits			
0	Without SI unit	Max. 16 stations (Single)	
A	With general type SI unit		
B	With SI unit for Mitsubishi, MELSEC-A	Max. 8 stations (Double)	
C	With SI unit for Omron, SYSMAC		
D	With SI unit for Sharp. New satellite		

Note 1) The max. standard stations are 8. With single wiring, arrangement of up to 16 stations is possible. Specify the arrangement of stations using the manifold specification form for more than 8 stations.
Note 2) Other than those above, F and P kits with different number of pins are available.

How To Order Valve

VQ 0 1 4 0 N — 5 L ○ — C6

Series
0 .....VQ0000

Configuration

1	2 position single (A B / R1 P R2)
2	2 position double (latching) (A B / R1 P R2)

Type of Seal
0 ..... Metal
1 ..... Rubber

Pilot Valve Specifications
- .....1W (Standard)
H.....1.5W (High speed reponse)
Note) Y.....Low Wattage (0.5W)
N .....Negative Common

Coil Voltage
3 .....110VAC
5 .....24VDC
6 .....12VDC
} With indicator light and surge voltage suppressor.

Cylinder Ports

C3	One Touch Fittings for ø3.2
C4	One Touch Fittings for ø4
M5	M5 (10-32Nom)
N1	One Touch Fittings ø1/8"
N3	One Touch Fittings ø5/32"

Manual Override

(Blank) Non-locking recessed type	Note1) B Locking tool type
	

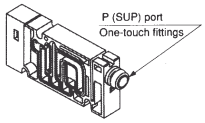
Configuration

L:L type Plug connector with lead wire	
LO:L type Plug connector without connection	
M:M type Plug connector with lead wire	
MO:M type Plug connector without connection	

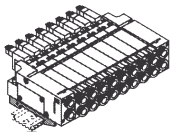
Note1) LO and MO valves are used for F, P, and S kits.
Note 2) The plug connector and lead wire are attached to the manifold.
Note 3) The connector direction in the case of L and M types is based on the pilot valve.
Note 4) Grommet type (G) is also available for C-kit, single type of VQ0000/1000/2000. (Except for 110VAC)

Accessories
Manifold Options

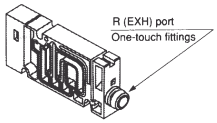
Individual SUP spacer
VVQ0000-P-4-C4



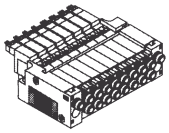
DIN rail mounted bracket [-D]
VVQ0000-57A-4



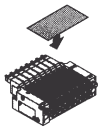
Individual EXH spacer
VVQ0000-R-4-C4



Built in silencer, Direct exhaust [-S]



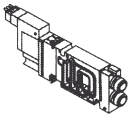
Nameplate [-N4]
VVQ0000-N4-Station



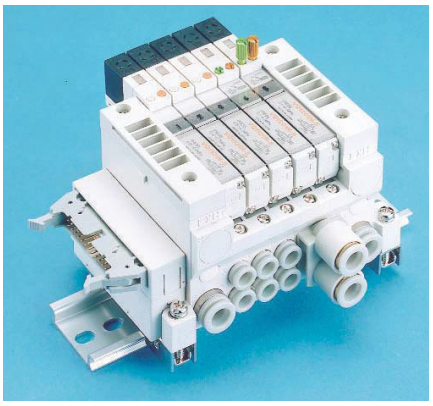
Blanking plug KQP 23 04 06 08 01 03



P R PR block valve VQ□ 1 2 4 0 1 -□-□□□-P R PR



5 Port Metal Seal/Rubber Seal Ultra High Speed Solenoid Valve Series VQ1000



- High Speed Response from new Solenoid Design.
- Long Life: Over 200 Million Cycles can be with Patent Pilot Valve design.
- Indicator light and Voltage Surge Suppressor
- Space Saving Design
- Five Options for Manifold Electrical Connection.
- Plug lead and Plug In valve manifold options.
- New cassette type manifold available.

Technical Specifications

Type of Seal		Metal	Rubber
Fluid		Air, inert gas	Air, inert gas
Min Operating Pressure	Single	0.1MPa/14.5PSI	0.15MPa/22PSI
	Double	0.1MPa/14.5PSI	0.1MPa/14.5PSI
	3-position	0.1MPa/14.5PSI	0.2MPa/29PSI
Max Operating Pressure (Note 1.)		0.75MPa/109PSI	0.75MPa/109PSI
Effective Area	Single	3.6 (0.2)	5.4 (0.3)
(Cv Factor) mm^2	Double	3.6 (0.2)	5.4 (0.30
	3-position	3.6 (0.2)	5.4 (0.3)
Response Time	Single	Max 12ms	Max 15ms
(Note 2).	Double	Max 10ms	Max 15ms
	3-position	Max 20ms	Max 25ms
Life		200 million cycles or more	
Ambient and Fluid Temperature (Note 3)		-10 to +50°C (14~122°F)	-5 to +50°C (23~122°F)
Lubricant (Note 4)		Not required	Not required
Manual Override		Non-locking, Push	Non-locking, Push
Protection		Dustproof	Dustproof

(Note 1) Contact SMC Customer Service for 145PSI (10 Bar).

(Note 2) Calculated on the basis of JIS B 8375-1981 (Supply pressure 0.5 MPa {5.1 bar}; the above valve shows reponse time checked when the valve is equipped with an indicator light and surge voltage suppressor).

(Note 3) Use dry air to prevent dew condensation in the case when temperature is low.

(Note 4) Perfect dry air (dew point equals to -30°C) No grease on main valve.

Special types (Contact SMC Customer Service for details and availability):
i Pressure centre function
ii External pilot
iii Low power consumption (0.5W)
iv Positive common wiring

Solenoid Specifications

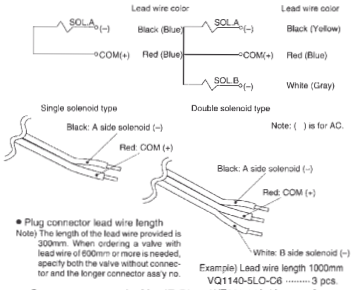
Coil Rated Voltage	12 VDC, 24 VDC	100/110 VAC
Allowable Voltage	∓10% of Rated Voltage	∓10% of Rated Voltage
Type of Coil Insulation	Class B	Class B
Power Consumption (Note 1)	1W	Inrush/Holding: 1.1 VA (11mA)
Electrical Entry	Plug In or Connector Type	Plug In or Connector Type

(Note 1) Contact SMC for the low power consumption (0.5W) type.

Wiring Specifications Positive COM

Wiring Specifications/Positive COM ●

● The lead wires are connected to the valve as shown below. Connect each to the power supply side.



● Plug connector lead wire length

Note) The length of the lead wire provided is 300mm. When ordering a valve with lead wire of 600mm or more is needed, specify both the valve without connector and the longer connector ass'y no.

Example) Lead wire length 1000mm
VQ1140-5LO-C6 ····· 3 pcs.
AXT661-14A-10 ····· 3 pcs.

Connector ass'y No.(DC)

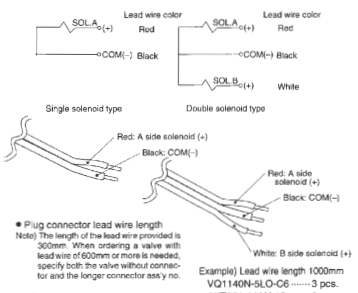
Lead wire length	Single type No.	Double type No.
Socket only (3 pcs.)	AXT661-12A	
300mm	AXT661-14A	AXT661-13A
600mm	AXT661-14A-6	AXT661-13A-6
1000mm	AXT661-14A-10	AXT661-13A-10
2000mm	AXT661-14A-20	AXT661-13A-20
3000mm	AXT661-14A-30	AXT661-13A-30

Note) Regarding the AC type, AXT661-31A-⊠ applies to the single type and AXT661-32A-⊠ to the double type.

Wiring Specifications Negative COM (option)

Wiring Specifications/Negative COM (Option) ●

● The lead wires are connected to the valve as shown below. Connect each to the power supply side.



● Plug connector lead wire length

Note) The length of the lead wire provided is 300mm. When ordering a valve with lead wire of 600mm or more is needed, specify both the valve without connector and the longer connector ass'y no.

Example) Lead wire length 1000mm
VQ1140N-5LO-C6 ····· 3 pcs.
AXT661-14AN-10 ····· 3 pcs.

Connector ass'y No.

Lead wire length	Single type No.	Double type No.
Socket only (3 pcs.)	AXT661-13AN	
300mm	AXT661-14AN	AXT661-13AN
600mm	AXT661-14AN-6	AXT661-13AN-6
1000mm	AXT661-14AN-10	AXT661-13AN-10
2000mm	AXT661-14AN-20	AXT661-13AN-20
3000mm	AXT661-14AN-30	AXT661-13AN-30

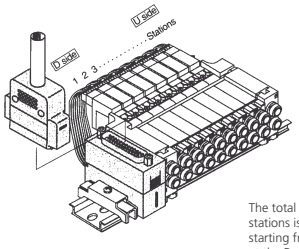
Note) Use negative COM type valves for negative COM specification manifolds.

Symbols

1	2 position single A B R1 P R2
2	2 position double A B R1 P R2
3	3 position closed center A B R1 P R2
4	3 position exhaust center A B R1 P R2
5	3 position pressure center A B R1 P R2

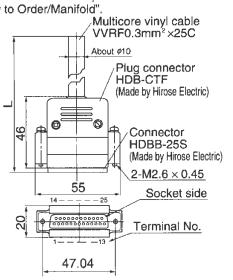
F KIT D-SUB CONNECTOR (25 PIN) SERIES VQ1000

- The D-Sub Connector permits simple rationalization and installation labor saving for Electrical Connection.
- The D-Sub Connector (25-pin std., 15-pin option) conforms with MIL permitting use of commercial connectors with wide interchangeability.
- Top or Side Connector Receptacle Position can be selected in accordance with the available mounting space.
- Standard max 8 stations (Optional 16 stations possible).



The total number of stations is tabulated starting from station one at the D side.

(The D-sub connector cable ass'y can be ordered individually or included with a specific manifold model no. Refer to "How to Order/Manifold".)



D-sub connector cable ass'y (Option)

Cable length (L)	Ass'y No.	Note
1.5m	VVZS3000-21A-1	Cable 25-core × 24AWG
3m	VVZS3000-21A-2	
5m	VVZS3000-21A-3	

※ For other commercial connectors, use a 25-pin female connector made in conformity with MIL-C-24308.

Examples of connector makers
- Fujitsu Ltd.
- Japan Aviation Electronics Industry, Ltd.
- Japan Solderless Terminal Sales Co., Ltd.

Electric characteristics

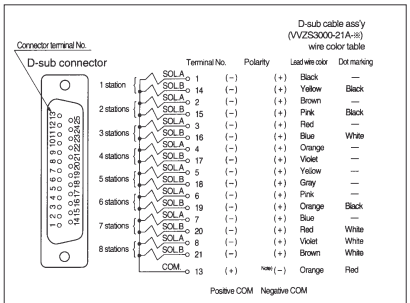
Item	Characteristic
Conductor resistance Ω/km, 20°C	65 or less
Voltage limit V, 1min, AC	1000
Insulation resistance MΩkm, 20°C	5 or more

Note) The min. bending radius of D-sub cable ass'y is 20 mm.

Wire color table by terminal number of D-sub connector cable ass'y:

Terminal No.	Lead wire color	Dot marking
1	Black	–
2	Brown	–
3	Red	–
4	Orange	–
5	Yellow	–
6	Pink	–
7	Blue	–
8	Violet	White
9	Gray	Black
10	White	Black
11	White	Red
12	Yellow	Red
13	Orange	Red
14	Yellow	Black
15	Pink	Black
16	Blue	White
17	Violet	–
18	Gray	–
19	Orange	Black
20	Red	White
21	Brown	White
22	Pink	Red
23	Gray	Red
24	Black	White
25	White	–

Note) Types with 15-pin are also available.

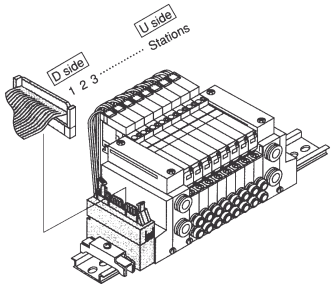


These figures show the standard internal wiring for double solenoid capability provided for each station. Specify the number of stations by the manifold specifications for items with more than 8 stations.

Note) Use negative COM type valves for negative COM specification manifolds.

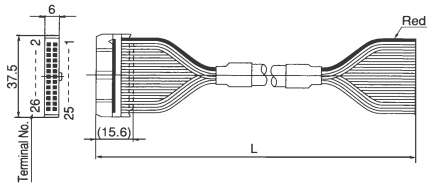
P KIT (FLAT CABLE CONNECTION) SERIES VQ1000

- MIL Flat Cable Connector permits simple rationalization and installation labor savings for Electrical Connection.
- The Connector (26 pin; 10-, 16-, and 20 pin optional) conforms with MIL spec permitting use of widely interchangeable commercial connectors.
- Top or Side Receptable Position can be selected in accordance with the available mounting space.
- Standard max 8 Stations (Optional 16 Stations optional).



AXT100-FC26- $\frac{1}{3}$

(Flat cable connector ass'y can be ordered individually or included with a specific manifold model no. Refer to "How to Order/Manifold".)



Flat cable connector ass'y (Option)

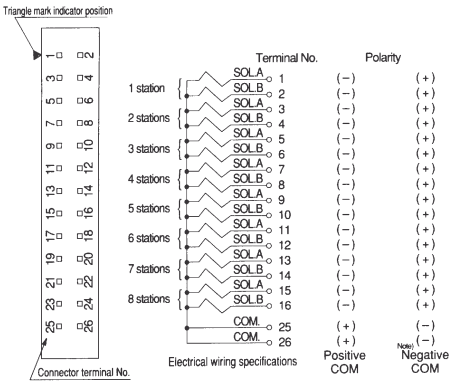
Cable length (L)	Ass'y parts No.	Note
1.5m	AXT100-FC26-1	Cable 26-core × 28AWG
3m	AXT100-FC26-2	
5m	AXT100-FC26-3	

※ For other commercial connectors, use a 26-pin type with strain relief made in conformity with MIL-C-83503.

Examples of connector makers
- Hirose Electric Co., Ltd.
- Sumitomo 3-M Ltd.
- Fujitsu Ltd.
- Japan Aviation Electronics Industry, Ltd.
- Japan Solderless Terminal Sales Co., Ltd.

Note: Types with 10-, 16-, or 20-pin are also available.

Flat cable connector

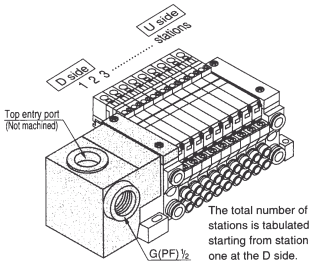


These figures show the standard internal wiring for double solenoid capability provided for each station.

Note) Use negative COM valves for negative COM specification manifolds.

T Kit (Terminal Block Board) Series VQ1000

- This Kit has a small Terminal Block inside a junction box. The Electrical Entry Port G (PF) 1/2 permits connection of Conduit Fittings.
- Max 12 Stations.

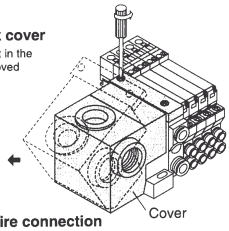


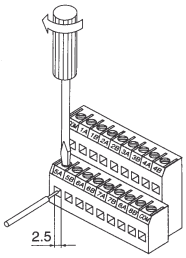
The total number of stations is tabulated starting from station one at the D side.

Open the terminal block cover for wire connection.

Sequence 1. How to remove terminal block cover

Loosen the screws on the terminal block cover and open it in the direction shown by the arrow. The cover can then be removed from the terminal block.



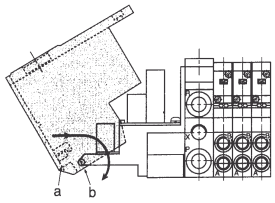


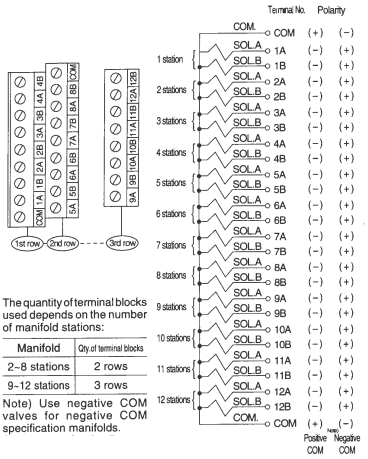
Sequence 2. Wire connection

The diagram on the right shows the terminal block wiring schematic. All stations are provided with double solenoid wiring. Insert each lead wire into the terminal opening and tighten the screw directly above.

Sequence 3. How to replace terminal block cover

Hook groove "b" on shaft "a" and close the cover. Then tighten the screws.





The quantity of terminal blocks used depends on the number of manifold stations:

Manifold	Qty.of terminal blocks
2~8 stations	2 rows
9~12 stations	3 rows

Note) Use negative COM valves for negative COM specification manifolds.

How To Order

Body Ported Valve - Single Unit

VQ1 1 6 0 N — 5 L ○ — C6

Series VQ1000

Configuration

1 .....2 Position single
2 .....2 Position double (latching)
3 .....3 Position closed centre
4 .....3 Position exhaust centre
5 .....3 Position pressure centre

Type of Seal

0 .....Metal
1 .....Rubber

Pilot Valve Specifications (Option)

- .....1W Standard
H .....1.5W (High speed response)
Y .....Low wattage type(Note)
N .....Negative common wiring

(Note): Except for 110 VAC type.

Coil Rated Voltage

3 .....110VAC
5 .....24VDC
6 .....12VDC

Electrical Entry

G .....Grommet (Except for latching type and 100/110VAC)
L .....L type plug connector with lead wire
LO ...L type plug connector without connector
M .....M type plug connector with lead wire
MO ...M type plug connector without connector

Manual Override

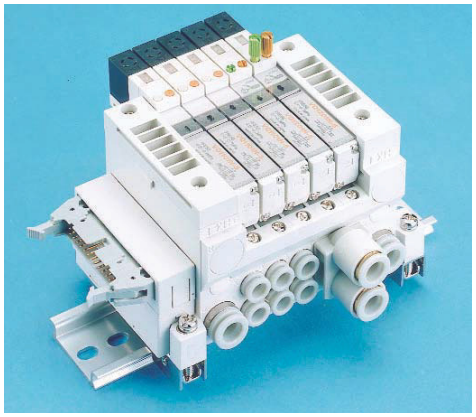
- .....Non locking recessed type
Note)B Locking tool type*
*C ...Locking knob type
Note) Locking type (B) is standard for double (latching) type.
Indicate "B" in model no.
•Option

Subplate SUP Cylinder Ports

C3 ...One Touch Fittings for Ø3.2
C4 ...One Touch Fittings for Ø4
C6 ...One Touch Fittings for Ø6
M5 ...M5 (10-32Nom)
N1 ...One Touch Fittings ø1/8"
N3 ...One Touch Fittings ø5/32"
N7 ...One Touch Fittings ø1/4"

(Note) EXH Port is a Direct Exhaust Type (with Built In Silencer)

Base Mounted Type Plug In Unit VQ1000



How To Order Manifold

VV5Q 1 1 — 08 C6 F U1 — N

Series:
1 .....VQ1000

Type of Manifold
1 .....Plug In Unit - Base Mounted

Number Of Stations
01 ...1 Station
• ..... •
• ..... •
• ..... •
16 ...16 Stations

Cylinder ports
C3 ...One Touch Fittings for Ø3.2
C4 ...One Touch Fittings for Ø4
C6 ...One Touch Fittings for Ø6
M5 ...M5 (10-32Nom)
N1 ...One Touch Fittings ø1/8"
N3 ...One Touch Fittings ø5/32"
N7 ...One Touch Fittings ø1/4"
* Mixed Ports Available

Note1) Insert code L (upward) or B (downward) for elbow type fittings for all manifold stations. Example) B6: Elbow one touch fittings for downward (bottom) piping.
Note2) LM for models with elbow fittings and mixed cylinder port sizes.

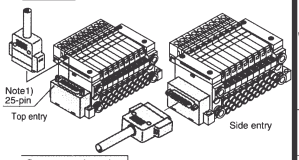
Option

Symbol	Option	VQ1000
(Blank)	None	•
B	Check valve for prevention of back pressure	•
D	DIN Rail Mounted Type	•
J	With Vacuum Ejector Unit	•
N	With Nameplate	•
R	External Pilot capable	•
S	Built-in Silencer (Direct Exhaust)	•

Note 1) When more than one option is desired Combined symbols in alphabetical order. Example) • BRS
Note 2) Models with a suffix "-B" have checked valves for prevention of back pressure at all manifold stations.
Note 3) In the case of the external pilot "-R", order solenoid valves with the external pilot specification "R".
Note4) Contact SMC for details of vacuum ejector unit. Combination of ejector option "J" and nameplate "N" is not possible.

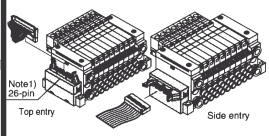
Kit•Electrical entry•Cable length

F kit (D-sub connection)



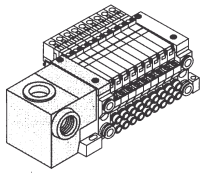
Connector location					
Top (vertical)		Side (horizontal)			
kit F	U0	kit F	S0	Without cable	Max. 12 stations
	U1		S1	With cable (1.5m)	
	U2		S2	With cable (3m)	
	U3		S3	With cable (5m)	

P kit (Flat cable connection)



Connector location					
Top (vertical)		Side (horizontal)			
kit P	U0	kit P	S0	Without cable	Max. 12 stations
	U1		S1	With cable (1.5m)	
	U2		S2	With cable (3m)	
	U3		S3	With cable (5m)	

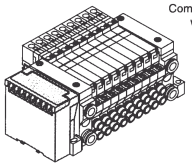
T kit Note2) **(Terminal block board)**



kit T	0	Terminal block board	Max. 12 stations

S kit (Serial transmission unit)

Compatible only with 24VDC valves.



kit S	0	Without SI unit	Max. 16 stations (Single)
	A	With general type SI unit	
	B	With SI unit for Mitsubishi, MELSEC-A	
	C	With SI unit for Omron, SYSMAC	
	D	With SI unit for Sharp, New satellite	

Note 1) Besides the above, the number of pins for F and P kits is different, as well.
Note 2) G and T kits are applicable only to VQ1000.

How To Order Valve

VQ 1 1 0 0 N — 5 ○ ○

Series
0 .....VQ1000

Symbols

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

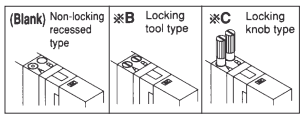
Type of Seal
0 .....Metal
1 .....Rubber

Pilot Valve Specifications
- .....1W (Standard)
H .....1.5W (High Speed response)
Y .....Low wattage (0.5W)
N .....Negative common (blank is positive common)

Coil Voltage
3 .....110VAC
5 .....24VDC
6 .....12VDC

Indicator light and surge voltage suppressor
- ..... Yes
E .....No

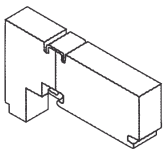
Manual Override



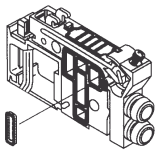
*Option

Accessories
Manifold Options

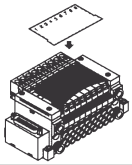
Blanking plate assembly
VVQ1000-10A-5



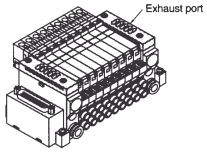
SUP block plate
VVQ1000-16A- P / R / PR



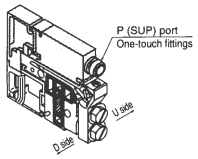
Nameplate [-N]
VVQ1000-N5-Station
(1-Max. stations)



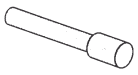
Built in silencer
Direct exhaust [-S]



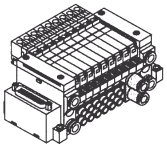
Individual SUP spacer
VVQ1000-P-1-C6



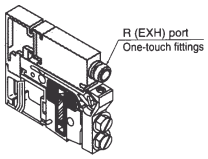
Planking plug
KQP- 23 / 04 / 06 / 08 / 10 / 01 / 03 / 07



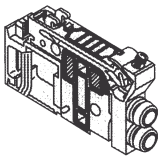
2 stations matching fittings assembly
VVQ1000-52A-C8 (VQ1000)



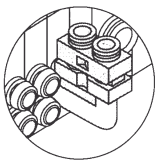
Individual EXH spacer
VVQ1000-R-1-C6



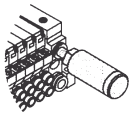
EXH block base assembly
VVQ1000-19A- F / P / L - C3 / C4 / C6 / M5 / N1 / N3 / N7 (VQ1000)



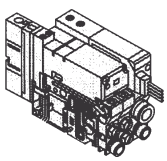
Elbow fittings assembly
VVQ1000-F-L- C3 / C4 / C6 / M5 / N1 / N3 / N7 (VQ1000)



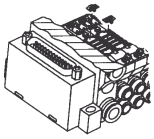
Silencer (EXH port)



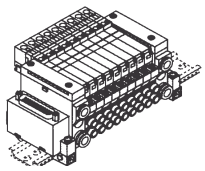
Vacuum ejector unit
VVQ1000-J A/B M (VQ1000)



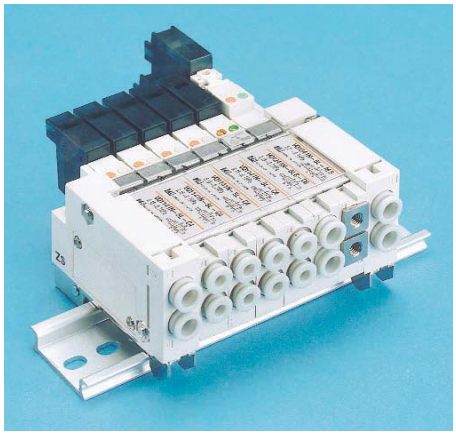
Check valve for prevention of of back pressure assembly [-B]
VVQ1000-18A



DIN rail mountedbracket [-D]
VVQ1000-57A



Body Ported Type
Plug Lead Unit/Flip Type
Series VQ1000



How To Order Manifold

VV5Q 1 4 — 08 F S1 — D

Series VQ1000

Type of Manifold
4 .....Plug in unit/flip type

Kit

Number Of Stations
01 ...1 Station
• ..... •
• ..... •
• ..... •
16 ...16 Stations
The number of stations differs from kit to kit.

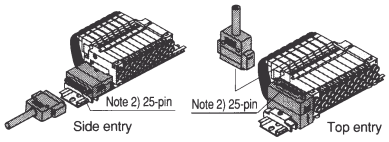
DIN Rail/Option

Symbol	Option
-	None (C kit only)
Note2) D	DIN Rail Mounted Type
N	With Nameplate
Note3) S	Built-in Silencer (Direct Exhaust)

Note 1) When more than one option is desired Combined symbols in alphabetical order. Example) • DNS
Note 2) All F, P, and S kits are of DIN rail mounted type.So include suffix "D".
Note 3) F, P, and S kits are provided with an exhaust on one side while C kits are with an exhaust on both sides.

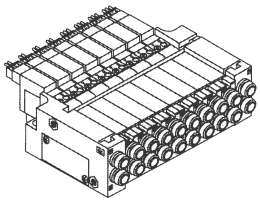
Kit • Electrical Entry Cable Length

F kit (D-sub connection)



Connector Location					
Top (vertical)		Side (horizontal)			
Kit F	U0	Kit F	S0	Without cable	Note1) Max. 8 stations
	U1		S1	With cable (1.5m)	
	U2		S2	With cable (3m)	
	U3		S3	With cable (5m)	

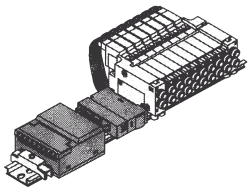
C kit (Connector)



C	Connector	Max. 16 stations

S kit (Serial transmission unit)

Compatible only with 24VDC valves.



Kits			
0	Without SI unit	Max. 16 stations (Single)
A	With general type SI unit	
B	With SI unit for Mitsubishi, MELSEC-A	Max. 8 stations (Double)
C	With SI unit for Omron, SYSMAC	
D	With SI unit for Sharp, New satellite	

Note 1) The max. standard stations are 8. With single wiring arangement of up to 16 stations is possible. Specify the arrangement of stations using the manifold specification formfor more than 8 stations.
Note 2) Other than those above, F and P kits with different number of pins are available.

How To Order Valve

VQ1 1 4 0 Y — 5 L ○ — C6

Series
1 .....VQ1000

Configuration

1	2 position single
2	2 position double (latchind) Metal seal / Rubber seal
Note)3	3 position closed center
Note)4	3 position exhaust center
Note)5	3 position pressure center

Note) 3 position types need two stations
Note) F,P,T, and S kits need connector assembly when increasing the valve station.

Type of Seal
0 .....Metal
1 .....Rubber

Pilot Valve Specifications
- .....1W (Standard)
H .....1.5W (High pressure)
Y .....Low wattage (0.5W)
N .....Negative common
Note) Except for AC and double (latching) type.

Coil Voltage
3 .....110VAC (50/60Hz)
5 .....24VDC
6 .....12VDC
Note) The C kit is applicable to 200/220VAC.
Contact SMC for other Kits.

Electrical Entry

G: grommet C kit single type only. (Except for AC).		
L: L type plug connector with lead wire		With indicator light and surge voltage suppressor
L: O type plug connector without connector		With indicator light and surge voltage suppressor
M: M type plug connector without connector		With indicator light and surge voltage suppressor
MO: M type plug connector without connector		With indicator light and surge voltage suppressor

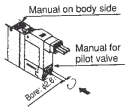
Note) LO and MO valves are used for F,P,T, and S kits. The plug connector and lead wire are attached to the manifold.

Cylinder Ports
C3 ...One Touch Fittings for Ø3.2
C4 ...One Touch Fittings for Ø4
C6 ...One Touch Fittings for Ø6
M5 ...M5 (10-32Nom)
N1 ...One Touch Fittings ø1/8"
N3 ...One Touch Fittings ø5/32"
N7 ...One Touch Fittings ø1/4"

Manual Override

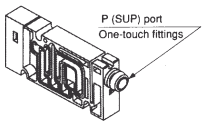
Non-locking push type	B Push-locking tool type	C Push-locking lever type

Standard model of a double (latching) type should be selected a push-locking type. Clearly write a symbol "B" oe "C". A manual override for pilot valve is provided to the standard model for double type.

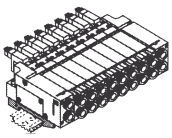


Accessories
Manifold Options

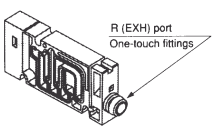
Individual SUP Spacer
VVQ1000-P-4-C6



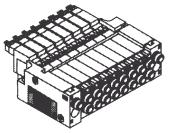
DIN Rail Mounted Bracket [-D]
VVQ1000-57A-4



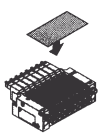
Individual EXH Spacer
VVQ1000-R-4-C6



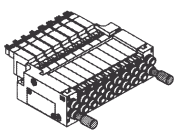
Built In Silencer, Direct Exhaust
[-S]



Nameplate [-N4]
VVQ1000-N4 Station (1-Max. stations)



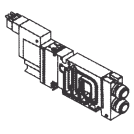
Silencer (EXH port)
AN103-X233 (VQ1000)



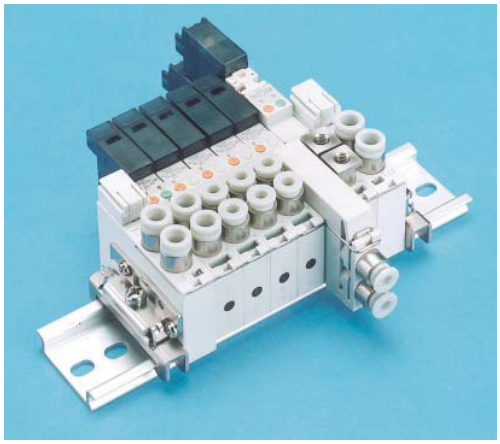
Blanking Plug
KQP- 23 04 06 08 10 12 07



P R PR Block Valve
VQ□1 4 0 1 □-□□ P R PR



Body Ported Type
Plug Lead Unit/Cassette Type
Series VQ1000



How To Order Manifold

VV5Q1 7 — 08 F U1 — D ○ — ○

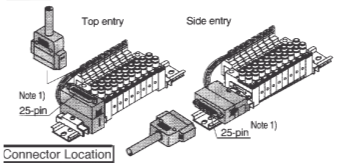
Series VQ1000

Type of Manifold
7 .....Plug Lead unit/cassette type

Number Of Stations
01 ...1 Station
• .....
• .....
• .....
16 ...16 Stations
The number of stations differs from kit to kit.

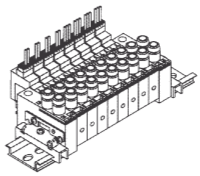
Kit • Electrical Entry Cable Length

F kit (D-sub connection)



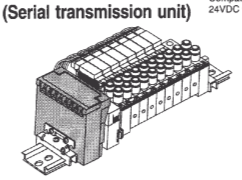
Connector Location					
Top (vertical)	Side (horizontal)				
U0	S0		Without cable	Note 2)	Max. 8 stations
U1	S1	Kit F	With cable (1.5m)		
U2	S2		With cable (3m)		
U3	S3		With cable (5m)		

C kit (Connector)



C	Connector	Max. 16 stations	

S kit (Serial transmission unit) Compatible only with 24VDC valves.



0	Without SI unit	kit S	Max. 16 stations (Single)
A	With general type SI unit		
B	With SI unit for Mitsubishi, MELSEC-A		
C	With SI unit for Omron, SYSMAC		Max. 8 stations (Double)
D	With SI unit for Sharp, New satellite		

Note 1) Other than those above, F and P kits with different number of pins are available.
Note 2) The max. standard stations are 8. With single wiring, arrangement of up to 16 stations is possible.

SUP/EXH Port
- .....Metric (mm)
00T ...Imperial (Inch)

DIN rail/option

Note 1)	D	DIN rail mounted type
	N	With Nameplate

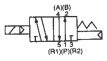
Note 1) Manifold is of a DIN rail mounted type, and so suffix "D" should be indicated.
Note 2) When the "N" option is desired, write as "DN".

How To Order Valve

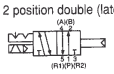
VQ1 1 7 0 N — 5 M ○ — C6

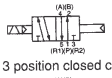
Series
1 .....VQ1000

Configuration
2 position single

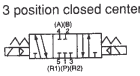


2 position double (latchind)


Metal seal


Rubber seal

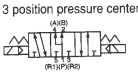
3 position closed center



3 position exhaust center



3 position pressure center



Type of Seal
0 .....Metal
1 .....Rubber

Pilot Valve Specifications
- .....1W (Standard)
H .....1.5W (High Speed response)
N .....Negative Common
Note) Y Low wattage (0.5W)

Note) Except for 100/110VAC type.

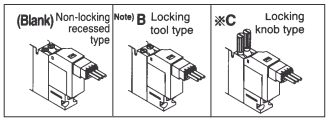
Coil Voltage
3 .....110VAC
5 .....24VDC
6 .....12VDC

With indicator light and surge voltage suppressor

Cylinder Ports
C3 ...One Touch Fittings for Ø3.2
C4 ...One Touch Fittings for Ø4
C6 ...One Touch Fittings for Ø6
M5 ...M5 (10-32Nom)
N1 ...One Touch Fittings ø1/8"
N3 ...One Touch Fittings ø5/32"
N7 ...One Touch Fittings ø1/4"

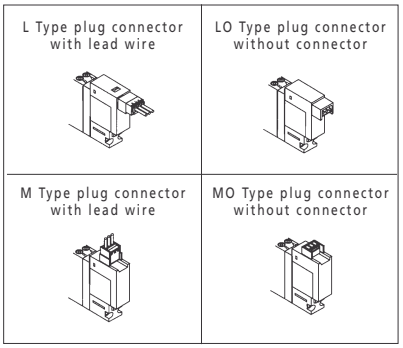
Note 1) The code is L for Elbow Piping for all Manifold Stations.
Example L6: Elbow with One Touch Fittings.

Manual Override



Note) Locking type (B) is used for the double (latching) type as standard. Must include "B" suffix.

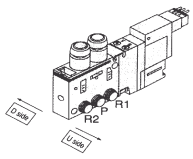
Electrical Entry



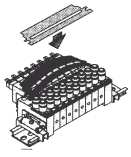
Note 1) LO and MO valves are used for F,P, and S kits.
Plug connector and lead wire layers are attached to the manifold.
Note 2) Grommet type (G) is also available for C kit type.
(Except for latching type and 100/110VAC)

Accessories
Manifold Options

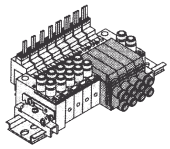
SUP-EXH Block Push Assembly
VVQ1000-87A-B-50



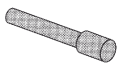
Nameplate [-N7]
VVQ1000-N7 Station (1- Max. Stations)



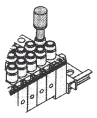
Elbow Fittings Assembly
VVQ1000-F7-L C3 C4 C6



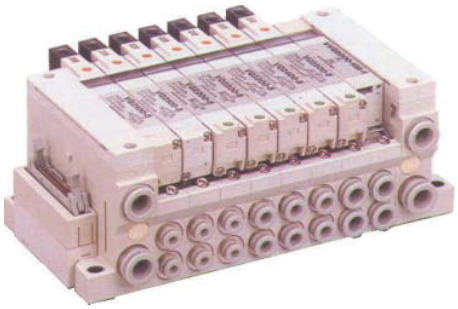
Blanking Plug
KQP - 23 04 06 01 03 07



Silencer
AN103-X233



5 Port Metal Seal/Rubber Seal Ultra High Speed Solenoid Valve Series VQ2000



- High Speed Response from new Solenoid Design.
- Long Life: Over 200 Million Cycles can be achieved with Patent Pilot Valve design.
- Indicator Light and Voltage Surge Suppressor
- Space Saving Design
- Plug Lead and Plug In manifold options.

Technical Specifications

Type of Seal		Metal	Rubber
Fluid		Air, inert gas	Air, inert gas
Min Operating Pressure	Single	0.1MPa / 14.5PSI	0.15MPa / 22PSI
	Double	0.1MPa / 14.5PSI	0.1MPa / 14.5PSI
	3-position	0.1MPa / 14.5PSI	0.2MPa / 29PSI
Max Operating Pressure (Note 1.)		0.75MPa / 109PSI	0.75MPa / 109PSI
Effective Area	Single	14.4 (0.8)	16.2 (0.9)
(Cv Factor) mm^2	Double	14.4 (0.8)	16.2 (0.9)
	3-position	12.6 (0.7)	14.4 (0.8)
Response Time	Single	Max 23ms	Max 24ms
(Note 2).	Double	Max 18ms	Max 23ms
	3-position	Max 28ms	Max 33ms
Life Expectancy		200 million cycles or more	
Ambient and Fluid Temperature (Note 3)		-10 to +50°C / 14~122°F	-5 to +50°C / 23~122°F
Lubricant (Note 4)		Not required	Not required
Manual Override		Non-locking, momentary	
Protection		Dustproof	Dustproof

(Note 1) Contact us for 10 bar.
(Note 2) Calculated on the basis of JIS B 8375-1981 (Supply pressure 0.5 MPa {5.1 bar}; the above valve shows reponse time checked when the valve is equipped with an indicator light and surge voltage suppressor).
(Note 3) Use dry air to prevent dew condensation in the case when temperature is low.
(Note 4) Perfect dry air (dew point equals to -30°C) No grease on main valve.

Special types (Contact SMC for details and availability):
i Pressure center function
ii External pilot
iii Low power consumption (0.5W)
iv Positive common wiring

C Kit (Connector) Series VQ2000

- Type which has lead wires in plug connected to each valve individually.
- Max. 16 stations

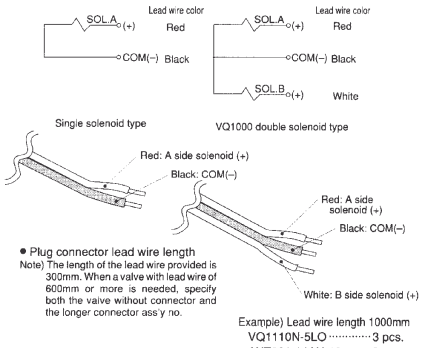
Solenoid Specifications

Coil rated voltage	12 VDC, 24 VDC	100/110 VAC
Allowable voltage	±10% of rated voltage	±10% of rated voltage
Type of coil insulation	Class B	Class B
Power consumption (Note 1)	1W	Inrush/Holding: 1.1 VA (11mA)
Electrical entry	Plug-in or Connector type	Plug-in or Connector type

(Note 1) Contact SMC for the low power consumption (0.5W) type.

Wiring Specifications Negative COM

● The lead wires are connected to the valve as shown below. Connect each to the power supply side.



● Plug connector lead wire length
Note) The length of the lead wire provided is 300mm. When a valve with lead wire of 600mm or more is needed, specify both the valve without connector and the longer connector ass'y no.

Example) Lead wire length 1000mm
VQ1110N-5LO ····· 3 pcs.
AXT661-14AN-10 ····· 3 pcs.

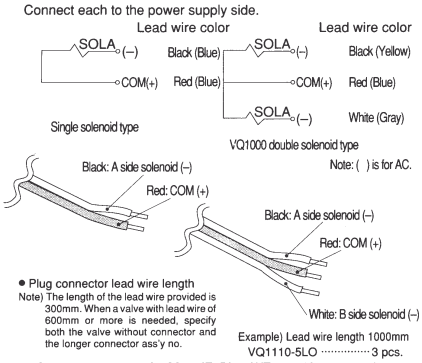
Connector ass'y No.

Lead wire length	No. for single & VQ0000 double types	No. for VQ1000 double type
Socket (3 pcs.)	AXT661-12A	
300mm	AXT661-14AN	AXT661-13AN
600mm	AXT661-14AN-6	AXT661-13AN-6
1000mm	AXT661-14AN-10	AXT661-13AN-10
2000mm	AXT661-14AN-20	AXT661-13AN-20
3000mm	AXT661-14AN-30	AXT661-13AN-30

Note) Use negative COM type valves for negative COM specification manifolds.

Wiring Specifications Positive COM (Option)

● The lead wires are connected to the valve as shown below. Connect each to the power supply side.



● Plug connector lead wire length
Note) The length of the lead wire provided is 300mm. When a valve with lead wire of 600mm or more is needed, specify both the valve without connector and the longer connector ass'y no.

Example) Lead wire length 1000mm
VQ1110-5LO ····· 3 pcs.
AXT661-14A-10 ····· 3 pcs.

Connector ass'y No. (DC)

Lead wire length	No. for single & VQ0000 double types	No. for VQ1000 double type
Socket (3 pcs.)	AXT661-12A	
300mm	AXT661-14A	AXT661-13A
600mm	AXT661-14A-6	AXT661-13A-6
1000mm	AXT661-14A-10	AXT661-13A-10
2000mm	AXT661-14A-20	AXT661-13A-20
3000mm	AXT661-14A-30	AXT661-13A-30

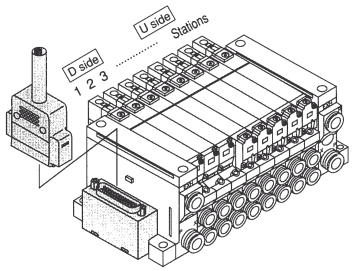
Note) Regarding the AC type, AXT661-31A-※ applies to the single type and AXT661-32A-※ to the double type.

Symbols

1	2 position single (A B, R1 P R2)
2	2 position double (A B, R1 P R2)
3	3 position closed center (A B, R1 P R2)
4	3 position exhaust center (A B, R1 P R2)
5	3 position pressure center (A B, R1 P R2)

F KIT (D-SUB CONNECTION) SERIES VQ2000

- The D-sub connector permits simple rationalization and installation labor savings for electrical connection.
- The D-sub connector (25-pin std., 15-pin option) conforms with MIL permitting use of commercial connectors with wide interchangeability.
- Top or side connector receptacle position can be selected in accordance with the available mounting space.
- Standard max 8 stations (Optional 16 stations possible).



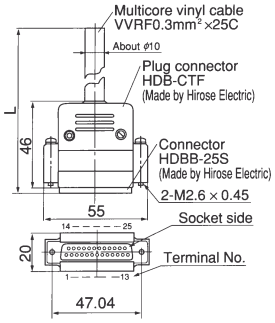
VV5Q21

The total number of stations is tabulated starting from station one at the D side.

D-sub connector (25-pin)

VVZS3000-21A- $\frac{1}{3}$

(The D-sub connector cable ass'y can be ordered individually or included with a specific manifold model no. Refer to "How to Order/Manifold".)



Cable Length (L)	Assembly No.	Note
1.5m	VVZS3000-21A-1	Cable 25-core x24AWG
3m	VVZS3000-21A-2	
5m	VVZS3000-21A-3	

* For other commercial connectors, use a 25-pin female connector made in conformity with MIL-C-24308.

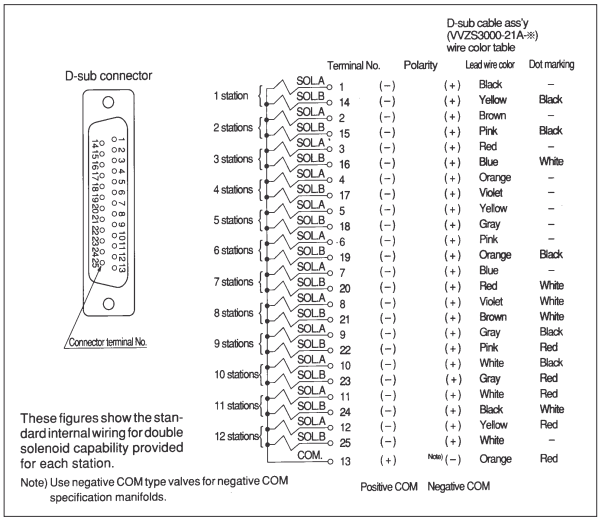
Item	Characteristics
Conductor resistance Ω, 20°C	65 or less
Voltage limit V, 1 min, AC	1000
Insulation resistance MΩkm, 20°C	5 or more

Note: The min. bending radius of D-sub assembly is 20mm.

Terminal No.	Lead wire colour	Dot marking
1	Black	-
2	Brown	-
3	Red	-
4	Orange	-
5	Yellow	-
6	Pink	-
7	Blue	-
8	Violet	White
9	Grey	Black
10	White	Black
11	White	Red
12	Yellow	Red
13	Orange	Red
14	Yellow	Black
15	Pink	Black
16	Blue	White
17	Violet	-
18	Grey	-
19	Orange	Black
20	Red	White
21	Brown	White
22	Pink	Red
23	Grey	Red
24	Black	White
25	White	-

Note: Type with 15 pin are also available.

Electrical Wiring Specifications

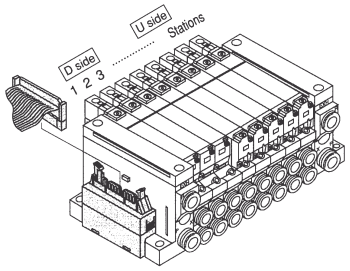


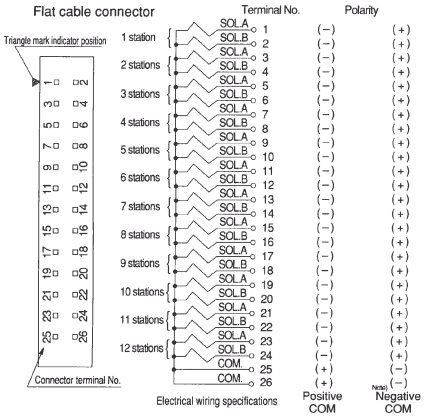
These figures show the standard internal wiring for double solenoid capability provided for each station.

Note) Use negative COM type valves for negative COM specification manifolds.

P KIT (FLAT CABLE CONNECTION) SERIES VQ2000

- MIL type flat cable connector permits simple rationalization and installation labor savings for electrical connection.
- The connector (26 pin; 10-, 16-, and 20 pin optional) conforms with MIL spec permitting use of widely interchangeable commercial connectors.
- Top or side receptacle position can be selected in accordance with the available mounting space.
- Standard max 8 stations (Optional 16 stations optional).



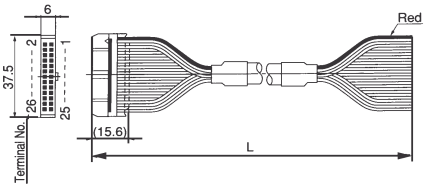


These figures show the standard internal wiring for double solenoid capability provided for each station.

Note) Use negative COM valves for negative COM specification manifolds.

AXT100-FC26- $\frac{1}{3}$

(Flat cable connector ass'y can be ordered individually or included with a specific manifold model no. Refer to "How to Order/Manifold.")



Flat cable connector ass'y (Option)

Cable length (L)	Ass'y No	Note
1.5m	AXT100-FC26-1	Cable 26-core × 28AWG
3m	AXT100-FC26-2	
5m	AXT100-FC26-3	

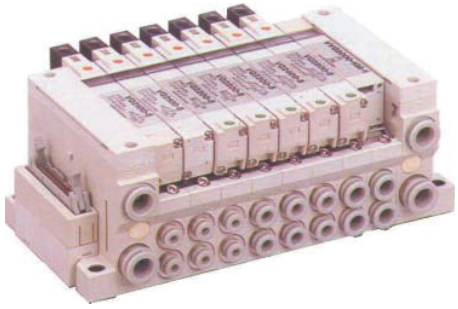
※ For other commercial connectors, use 26-pin type with strain relief made in conformity with MIL-C-83503.

Examples of connector makers

- Hirose Electric Co., Ltd.
- Sumitomo 3-M Ltd.
- Fujitsu Ltd.
- Japan Aviation Electronics Industry, Ltd.
- Japan Solderless Terminal Sales Co., Ltd.

Note) Types with 10-, 16-, or 20-pin are also available.

Base Mounted Type Plug In Unit VQ2000



How To Order Manifold

VV5Q 2 1 — 08 C6 F U1 — N

Series:
2 .....VQ2000

Type of Manifold
1 .....Plug in unit

Number Of Stations
01 ...1 Station
• ..... •
• ..... •
• ..... •
16 ...16 Stations
The number of stations differ from kit to kit

Cylinder ports
C4 ...One Touch Fittings for Ø4
C6 ...One Touch Fittings for Ø6
C8 ...One Touch Fittings for Ø8
M5 ...M5 (10-32Nom)
N3 ...One Touch Fittings ø5/32"
N7 ...One Touch Fittings ø1/4"
N9 ...One Touch Fittings ø5/16"
* Mixed Ports Available

Kit

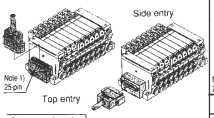
Option

Symbol	Option	VQ2000
(Blank)	None	•
B	Check valve for prevention of back pressure	•
D	DIN Rail Mounted Type	•
K	Special Wiring	•
N	With Nameplate	•
R	External Pilot Capable	•
S	Built-in Silencer (Direct Exhaust)	•

Note 1) When more than one option is desired Combined symbols in alphabetical order. Example) • BRS
Note 2) In the case of the external pilot "-R", order solenoid valves with the external pilot specification "R"

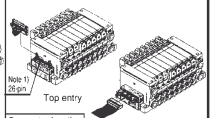
Kit•Electrical entry•Cable length

F kit (D-sub connector)



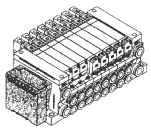
Connector location					
Top (vertical)		Side (horizontal)			
	U0		S0	Without cable	Note2) 2~12 stations
Kit F	U1	Kit F	S1	With cable (1.5m)	
	U2		S2	With cable (3m)	
	U3		S3	With cable (5m)	

P kit (Flat cable connector)



Connector location					
Top (vertical)		Side (horizontal)			
	U0		S0	Without cable	Note2) 2~12 stations
Kit P	U1	Kit P	S1	With cable (1.5m)	
	U2		S2	With cable (3m)	
	U3		S3	With cable (5m)	

S kit (Serial transmission unit)



The valve is equipped with a lamp/surge voltage suppressor, and the voltage is 24VDC. The dustproof type SI unit is also applicable.

Kit S			Note2) 2~8 stations
	0	Without SI unit	
	A	With general type SI unit	
	B	With SI unit for Mitsubishi, MELSEC-A	
	C	With SI unit for Omron, SYSMAC	
	D	With SI unit for Sharp, New satellite	
	F1	16-point serial kit applicable to NKE uni-wire system	
	F2	8-point serial kit applicable to NKE uni-wire system	

Note 1) Besides the above, the number of pins for F and P kits is different, as well.
Note 2) As optional specifications, the maximum number of stations can be increased based on special wiring specifications.

How To Order Valve

VQ 2 1 0 0 N — 5 ○ ○

Series
2 .....VQ2000

Symbols

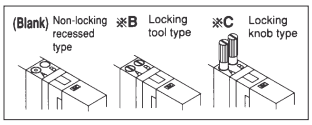
1	2 position single (A B / R1 P R2)
2	2 position double (A B / R1 P R2)
3	3 position closed center (A B / R1 P R2)
4	3 position exhaust center (A B / R1 P R2)
5	3 position pressure center (A B / R1 P R2)

Type of Seal
0 .....Metal
1 .....Rubber

Note: Contact SMC for 200, 220 VAC specifications

Coil Voltage
3 .....110VAC
5 .....24VDC
6 .....12VDC

Manual Override



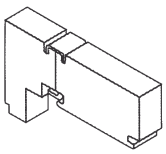
*Option

Indicator light and surge voltage suppressor
(Blank).. Yes
E .....No

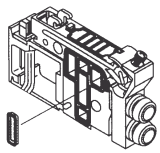
Pilot Valve Specifications
- .....1W (Standard)
H .....1.5W (High Speed response)
Y .....Low wattage (0.5W)
N .....Negative common
R .....External Pilot

Accessories
Manifold Options

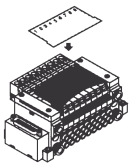
Blanking plate assembly
VVQ2000-10A-1



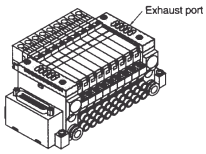
SUP Block plate
VVQ2000-16A



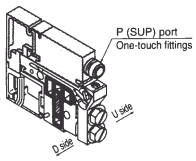
Nameplate [-N]
VVQ2000-N-Station (1-Max. stations)



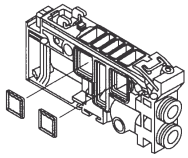
Built in silencer
Direct Exhaust [-S]



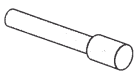
Individual SUP spacer
VVQ2000-P-1-C8



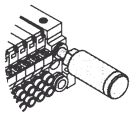
EXH Block Plate
VVQ2000-19A (Q2000)



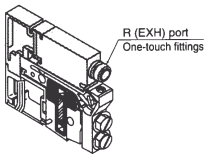
Blanking plug
KQP- 04 06 03 07



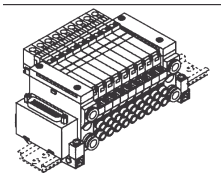
Silencer (EXH port)
AN200-KM10



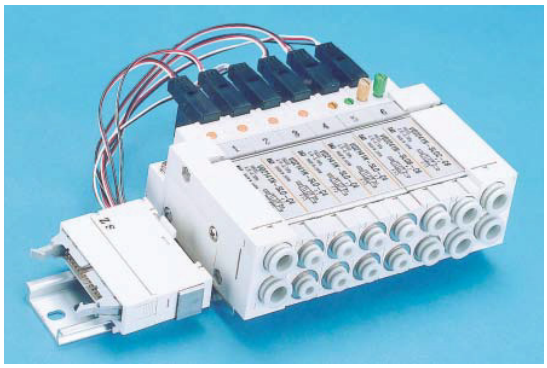
Individual EXH spacer
VVQ2000-R-1-C8



DIN rail mounted bracket [-D]
VVQ2000-57A



BODY PORTED TYPE
PLUG LEAD UNIT/FLIP TYPE
VQ2000



HOW TO ORDER MANIFOLD

VV5Q 2 4 — 08 F S1 — D ○ — ○

SERIES
2 .....VQ2000

TYPE OF MANIFOLD
4 .....Plug lead unit/flip type

NUMBER OF STATIONS
01 ...1 Station
• ..... •
• ..... •
• ..... •
16 ...16 Stations
The number of stations differ from kit to kit

DIN RAIL/OPTION

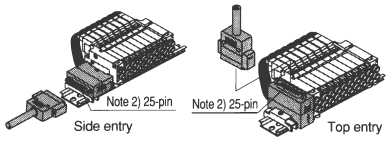
Symbol	Option
(Blank)	None (C Kit only)
Note 2) D	DIN Rail Mounted Type
N	With Nameplate
Note 2) Note 3) S	Built-in Silencer (Direct Exhaust)

Note 1) When more than one option is desired Combined symbols in alphabetical order. Example) • DNS
Note 2) All F.P. and S. kits are of DIN rail mounted type, so include suffix "D".
Note 3) F.P. and S. kits are provided with an exhaust on one side, while C kits are with an exhaust on both sides.

SUP/EXH PORT
- .....Metric (mm)
00T ...Imperial (Inch)

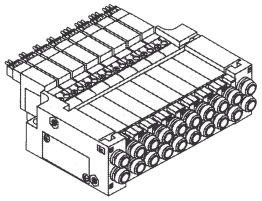
KIT•ELECTRICAL ENTRY•CABLE LENGTH

F kit (D-sub connection)



Connector Location					
Top (vertical)		Side (horizontal)			
Kit F	U0	Kit F	S0	Without cable	Note1) Max. 8 stations
	U1		S1	With cable (1.5m)	
	U2		S2	With cable (3m)	
	U3		S3	With cable (5m)	

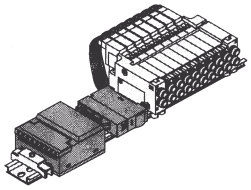
C kit (Connector)



C	Connector	Max. 16 stations

S kit (Serial transmission unit)

Compatible only with 24VDC valves.



Kit s	0	Without SI unit	Max. 16 stations (Single)
	A	With general type SI unit	
	B	With SI unit for Mitsubishi, MELSEC-A	Max. 8 stations (Double)
	C	With SI unit for Omron, SYSMAC	
	D	With SI unit for Sharp. New satellite	

Note 1) The max. standard stations are 8. With single wiring, arrangement of up to 16 stations is possible.

Note 2) Other than those above, Fand P kits with different number of pins are available.

How To Order Valve

VQ2 1 4 0 N — 5 L ○ — C6

Series
2 .....VQ2000

Configuration

1	2 position single A B R1 P R2
2	2 position double (latching) A B R1 P R2

Type of Seal
0 .....Metal
1 .....Rubber

Pilot Valve Specifications
- .....1W (Standard)
H .....1.5W (High Speed response)
Note 1) Y Low wattage (0.5W)
N .....Negative common

Note) Except for double (latching) type.

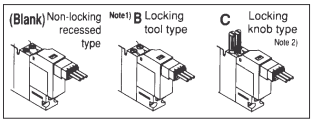
Coil Voltage
3 .....110VAC
5 .....24VDC
6 .....12VDC

With indicator light and surge voltage suppressor

Note1) See "Option Specifications" for negative COM specifications.
Contact SMC for 200, 220VAC
Note2) F, P, and S kits need connector assembly when increasing the valve station. See "Option Specifications" for types.

Cylinder Ports
C4 ...One Touch Fittings for Ø4
C6 ...One Touch Fittings for Ø6
C8 ...One Touch Fittings for Ø8
N3 ...One Touch Fittings ø5/32"
N7 ...One Touch Fittings ø1/4"
N9 ...One Touch Fittings ø5/16"

Manual Override



Note 1) Locking type (B) is used for the double (latching) type as VQ1000/2000 standard. Must include "B" suffix.
Note 2) Not available for VQ0000

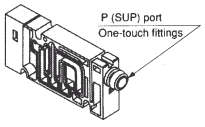
Electrical Entry

L:L Type plug connector with lead wire	Pilot valve
LO:L Type plug connector without connector	
M:M Type plug connector with lead wire	
MO:M Type plug connector without connector	

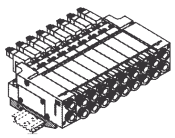
G ...Grommet C Kit
Single Type Only

Accessories
Manifold Options

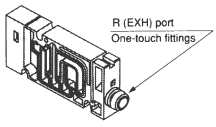
Individual SUP spacer
VVQ2000-P-4-C8



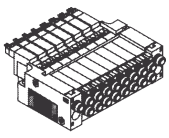
DIN Rail mounted bracket [-D]
VVQ2000-57A- 4



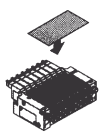
Individual EXH spacer
VVQ2000-R-4-C8



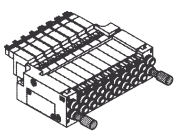
Built in silencer
Direct exhaust [-S]



Nameplate [-N4]
VVQ2000-N4 station
(1-Max. station.)



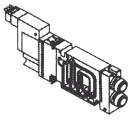
Silencer (EXH port)
AN203-KM8 (VVQ2000)



Blanking plug
KQP- 04 06 03 07

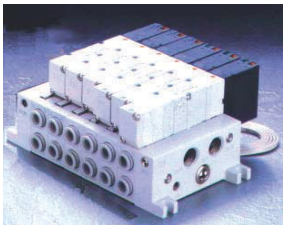


P
R
PR **Block valve** VQ□½4⁰₁-□-□□-P R PR



5 PORT METAL SEAL/RUBBER SEAL BASE MOUNTED / PLUG IN TYPE SERIES VQ4000

- High Speed and Long Life
- Compact Design with Large Flow Capacity
- Various Centralized Wiring Options
- Optional IP65 Available
- Dust Proof, Jet Proof



TECHNICAL SPECIFICATIONS SERIES VQ4000

Valve Specifications	Type Of Seal		Metal Seal	Rubber Seal
	Fluid		Air Inert Gas	Air Inert Gas
	Maximum Operating Pressure		1MPa (145PSI)	
	Minimum Operating Pressure	Single	0.15MPa (22PSI)	0.20MPa (29PSI)
		Double	0.15MPa (22PSI)	0.15MPa (22PSI)
		3 Position	0.15MPa (22PSI)	0.20MPa (29PSI)
	Proof Pressure		1.5MPa (220PSI)	
	Ambient & Fluid Temperature		-10 ~ 50°C / 14~122°F	-5 ~ 50°C / 23~122°F
	Lubrication		Not Required	
	Manual Override		Pushing Type/Slotted Locking Type (Tool Type) Option	
	Shock/Vibration Resistance		150/30 m/s²	
	Enclosure		Dust Proof (Available to IP65 Type)	
Solenoid Specifications	Coil Rated Voltage		12, 24VDC and 100, 110, 200, 220VAC (50/60Hz)	
	Allowable Voltage		±10% of Rated Voltage	
	Coil Insulation		Class B	
	Power Consumption (Current Value)	24VDC	1WDC (42mA), 0.5WDC (21mA)	
		12VDC	1WDC (83mA, 0.5WDC (42mA)	
		100VAC	Inrush 1.2VA (12mA), Holding 1.2VA (12mA)	
		110VAC	Inrush 1.3VA (11.7mA), Holding 1.3VA (11.7mA)	
		200VAC	Inrush 2.4VA (12mA), Holding 2.4VA (12mA)	
		220VAC	Inrush 2.6VA (11.7mA), Holding 2.6VA (11.7mA)	

SYMBOLS

1	2 position single A B R1 P R2
2	2 position double A B R1 P R2
3	3 position closed center A B R1 P R2
4	3 position exhaust center A B R1 P R2
5	3 position pressure center A B R1 P R2

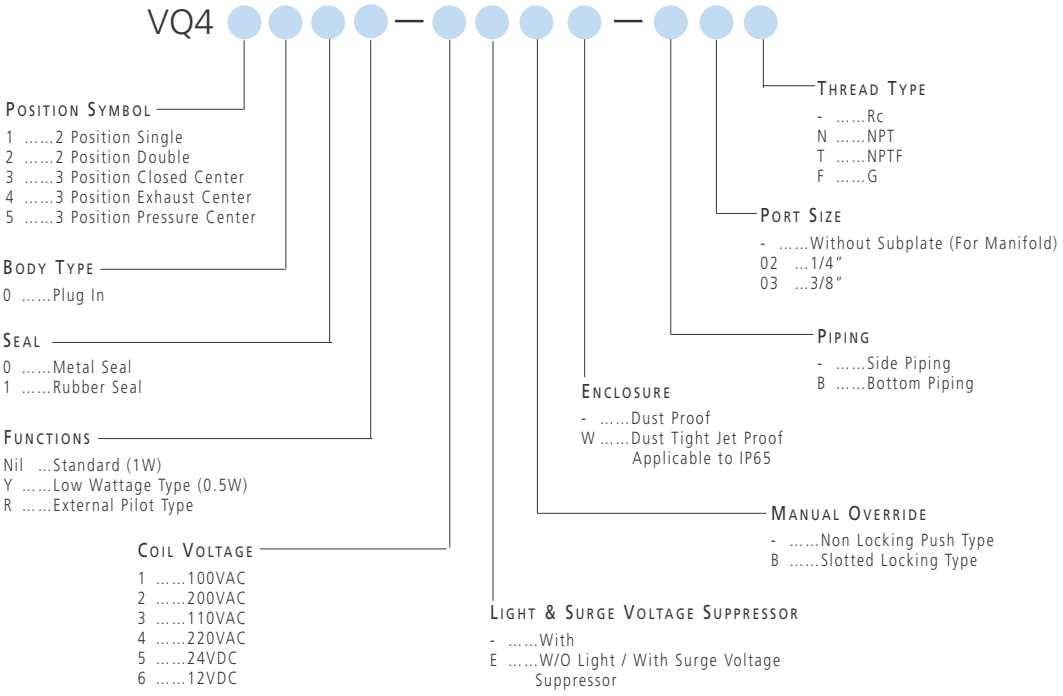
MODEL SERIES VQ4000

	Number Of Solenoids	Type		Note 1) Effective Area mm2 (Cv)	Response Time ms Note 2) Standard 1W	Response Time ms Note 2) Low Wattage and AC
2 Positions	Single	Metal Seal	VQ41(0, 5)0	36.0 (2.0)	20 or less	22 or less
		Rubber Seal	VQ41(0, 5)0	39.6 (2.2)	25 or less	27 or less
	Double	Metal Seal	VQ42(0, 5)0	36.0 (2.0)	12 or less	12 or less
		Rubber Seal	VQ42(0, 5)0	39.6 (2.2)	15 or less	15 or less
3 Positions	Closed Center	Metal Seal	VQ43(0, 5)0	32.4 (1.8)	45 or less	47 or less
		Rubber Seal	VQ43(0, 5)0	36.0 (2.0)	50 or less	52 or less
	Exhaust Center	Metal Seal	VQ44(0, 5)0	36.0 (2.0)	45 or less	47 or less
		Rubber Seal	VQ44(0, 5)0	39.6 (2.2)	50 or less	52 or less
	Pressure Center	Metal Seal	VQ45(0, 5)0	36.0 (2.0)	45 or less	47 or less
		Rubber Seal	VQ45(0, 5)0	39.6 (2.2)	50 or less	52 or less

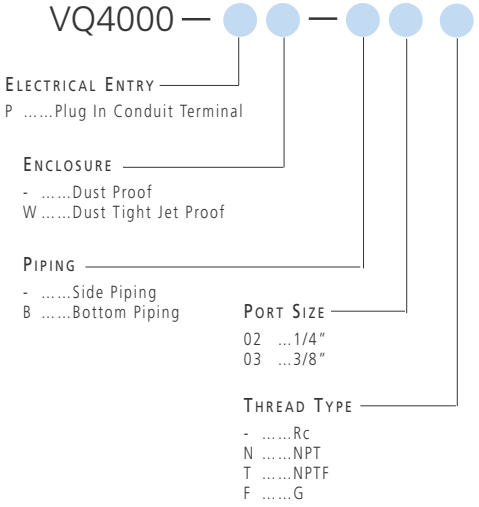
Note 1) VAlue for Valve on Subplate and Cylinder Port Rc 3/8

Note 2) As per JISB8375-1981 (Supply Pressure; o.5 MPa (5.1 kgf/cm²);
with Indicator Light and Surge Voltage Suppressor; Clean Air)

How To Order Series VQ4000



How To Order Subplate Series VQ4000



HOW TO ORDER MANIFOLD SERIES VQ4000

VV5Q4 1 — ● ● ● ● ● — ●

MANIFOLD TYPE
1 .....Plug In Unit

NO OF STATIONS
02 ...2 Stations
n .....n Stations
Max & Min
depends on Kit
Refer to Section

PORT SIZE
C8 ...One Touch Fitting for ø8
C10 ...One Touch Fitting for ø10
C12 ...One Touch Fitting for ø12
N7 ...One Touch Fitting for ø1/4"
N9 ...One Touch Fitting for ø5/16"
N11 ...One Touch Fitting for ø3/8"
02 ...1/4"
03 ...3/8"
B ..... Bottom Piping 1/4"
CM ...Mixed Size

THREAD TYPE
- .....Rc
N .....NPT
T .....NPTF
F .....G

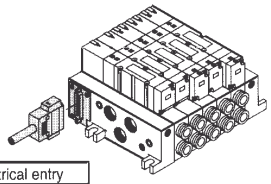
KIT / ELECTRICAL ENTRY / CABLE LENGTH

CONTROL UNIT
Refer to CAT:E150 for details

OPTION
- .....None
CD ...Exhaust Cleaner; For D Side Mounting (NOTE 2)
CU ...Exhaust Cleaner; For U Side Mounting (NOTE 2, 3)
K .....Specail Wiring Spec (Other than Double Wiring) (NOTE 4)
N .....Name Plate (T Kit Only)
SD ...Direct Jet with Silencer Box; D Side Exhaust
SU ...Direct Jet Silencer Box; U Side Exhaust (NOTE 4)
W .....Enclosure IP65 (Except F Kit)
NOTE 1) WHEN SPECIFYING MORE THAN ONE OPTION, COMBINE SYMBOLS IN APLHABETICAL ORDER
NOTE 2) COMBINATION OF CU/CD AND SU/SD IS NOT POSSIBLE
NOTE 3) COMBINATION OF T AND S KITS IS NOT POSSIBLE
NOTE 4) SPECIFY THE WIRING SPECIFICATIONS BY MEANS OF THE MANIFOLD SPECIFICATION FORM (EXCEPT L KIT)

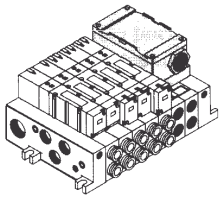
Kit/Electrical entry/Cable length

F Kit (D sub-connector)



Electrical entry					
D side		U side			
Kit F	D0	Kit F	U0	Without cable	Note 2) 2 to 12 stations
	D1		U1	Cable length 1.5m	
	D2		U2	Cable length 3m	
	D3		U3	Cable length 5m	

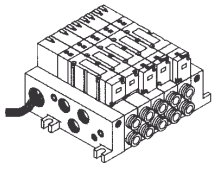
T Kit (Terminal box kit)



Applicable to IP65

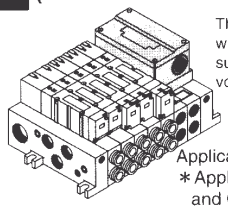
Kit T	0	Terminal box	3 to 12 stations Note 2)

L Kit (Lead wire kit)



Electrical entry					
D side		U side		Applicable to IP65	
Kit L	D0	Kit L	U0	Cable length 0.6m	2 to 16 stations
	D1		U1	Cable length 1.5m	
	D2		U2	Cable length 3m	

S Kit (Serial transmission kit)

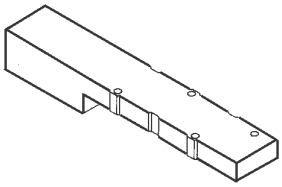
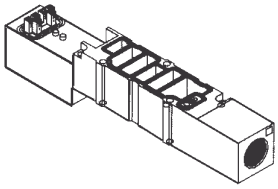
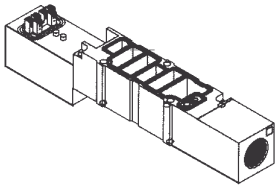
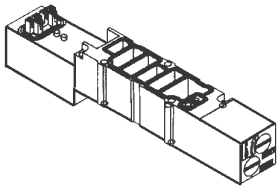
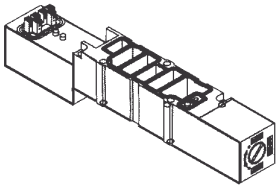
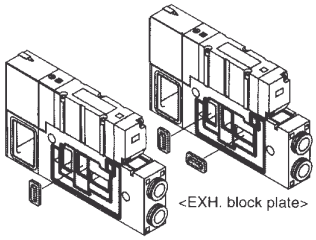
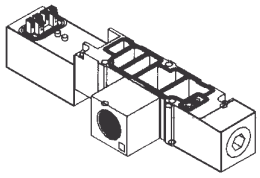
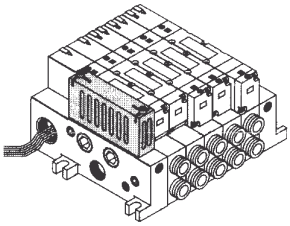
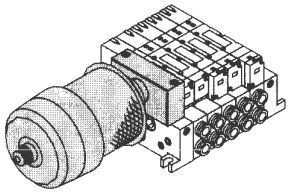


The valve is equipped with a lamp/surge voltage suppressor, and the voltage is 24VDC.

Applicable to IP65
* Applicable to INPUT and OUTPUT type.

Kit S	O	Without SI unit
	A	With general type SI unit
	B	With SI unit for Mitsubishi: MELSECNET/MINI-S3 data link system
	C	With SI unit for OMRON: SYSBUS wire system
	D	With SI unit for Sharp: New satellite I/O link system
	F1	With SI unit for NKE: Wiring saving system (16 points output)
	J1	With SI unit for Sanks: S-LINK system 16 points output
	J2	With SI unit for Sanks: S-LINK system 8 points output
	K	With SI unit for Fuji electric: T link mini system
	Q	With SI unit for Device Net and OMRON: Compo Bus
	R1	With SI unit for OMRON: Compo Bus/S (16 points)
	R2	With SI unit for OMRON: Compo Bus/S (8 points)
	BM□	With SI unit for Mitsubishi: MELSECNET/MINI-S 3 data link system
		Input unit {□: Stations (0 to 2)}

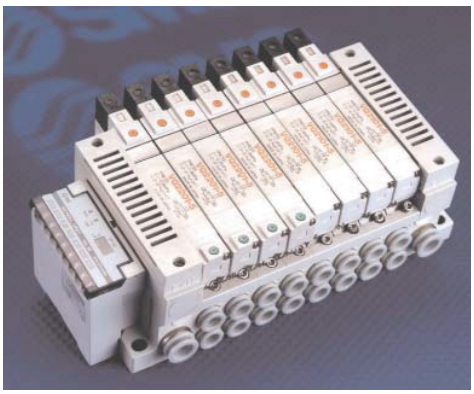
OPTIONS
MANIFOLD SERIES VQ4000

Blank plate ass'y **VVQ4000-10A-1** 	Individual SUP. spacer **VVQ4000-P-1-03** 	Individual EXH. spacer **VVQ4000-R-1-03** 
Speed controller spacer **VVQ4000-20A-1** 	SUP. stop valve spacer **VVQ4000-37A-1** 	SUP. EXH. block plate **VVQ4000-16A**  <EXH. block plate> <SUP. block plate>
Release valve spacer **VVQ4000-24A-1D** Note) 	Built-in silencer (Direct exhaust) [-S D/U] Note) 	For exhaust cleaner mounting [-C D/U] Note)  Applicable exhaust cleaner AMC 610-10

(Note) Combination of external pilot specification and release valve spacer, built-in silencer box direct exhaust, exhaust cleaner mounting type is not available.

5/2, 5/3 Spool & Sleeve, Ultra High Speed Solenoid Valve Series VQ1000

- Choice of Five Supported Protocols
- 512 Points through 32 Transmission Terminals
- 100m Minimum Transmission Distance
- Communication Speeds up to 500K Baud - Protocol Dependent
- "Plug In" System: easy assembly and maintenance
- High Speed Response from new Solenoid Design
- Long Life: Over 200 million cycles can be achieved by means of a special plunger and poppet valve construction within the pilot valve (patented)
- Space Saving Design
- Electrical Connection by D Sub Connector
- Indicator Light (2 Color on Double Solenoid Valve)
- Interface Integral with Manifold
- The VQ Valve incorporates a 2 Stage Armature allowing the valve to open before the armature completes its stroke



Symbols



2 Position Single



2 Position Double



3 Position Closed Centre



3 Position Exhaust Centre

Technical Specifications

Type of Seal		Metal
Fluid		Air, Inert Gas
Min Operating Pressure		{1.0 Bar} 14.5PSI
Max Operating Pressure (Note 1)		{8.2 Bar} 119PSI
Effective Area (Cv Factor) mm²		3.6 (0.20)
Response Time (Note 2)	Single	Max 12m sec
	Double	Max 10m sec
	3-Position	Max 20m sec
Life		100 million cycles or more
Ambient and Fluid Temperature (Note 3)		-10 to +50°C / 14~122°F
Lubricant (Note 4)		Not required
Manual Override		Non-Locking Push Type
Protection Structure		Dustproof

(Note 1) Calculated on the basis of JIS B 8375-1981 (Supply pressure 0.5MPa{5.1 Bar}; the above valve shows response time checked when the valve is equipped with an indicator light and surge voltage suppressor).
(Note 2) Use dry air to prevent dew condensation in the case when temperature is low.
(Note 3) Perfect dry air (dew point equals to -30°C). Non grease on main valve. Mist separation required.

Note: The VQ valves used with Serial Transmission Manifolds must be positive common type which differs from valves used on 'D' Sub-connector manifolds.

Note: Valves and Manifold to be ordered as separate items.

Note: Switch Identification and setting information is attached to the SI Interface. The terminal abbreviation "FG" means Frame Ground - ie chassis earth.

Example: A seven station manifold, complete with Omron Sysmac series including with Diameter 4 one touch fittings and DIN rail mount, with 5 off single solenoid valves and 2 off double solenoid valves is ordered as follows :
VV5Q11-07C4SC-D 1 off
VQ1100-5 5 off
VQ1200-2 2 off

Solenoid Specifications

Allowable Voltage	±10% of Rated Voltage
External Power Supply	24VDC
Current Consumption	1.0A max
Type of Coil Insulation	Class B
Power Consumption	1.0WDC

How To Order Manifold

VV5Q1 1 — ○ ○ S ○ — ○

Manifold Base Type
1 .....Plug-in type

No of Stations*
02 ...2 stations
to
16 ...16 stations

Porting
C3 ...3.2mm fittings for Ø3.2mm tube
C4 ...4mm fittings for Ø4mm tube
C6 ...6mm fittings for Ø6mm tube
M5 ...M5x0.8
N1 ...ø1/8" Fittings for ø1/8" Tube
N3 ...ø5/32" Fittings for ø5/32" Tube
N7 ...ø1/4" Fittings for ø1/4" Tube

Interface
B .....Mitsubishi Melsec - A
C .....Omron Sysmac
D .....Sharp New Satelite
E .....Matsushita Mewnet
G .....Allen Bradley
Note) More options are available, consult SMC for complete information.

Option
B .....Back Pressure Prevention Valve
D .....DIN Rail Mounting
S .....Built-in (TOP) silencer: not piped exhaust

***Note**
2~8 station manifolds are wired for single or double solenoid operation.
Please consult your local SMC Sales Office when ordering manifolds of 9 stations and above.

How To Order Valves

VQ1 ○ 00 — 5

Symbol
1 .....2-position
.....single
2 .....2-position
.....double
3 .....3-position
.....closed centre
4 .....3-position
.....exhaust centre

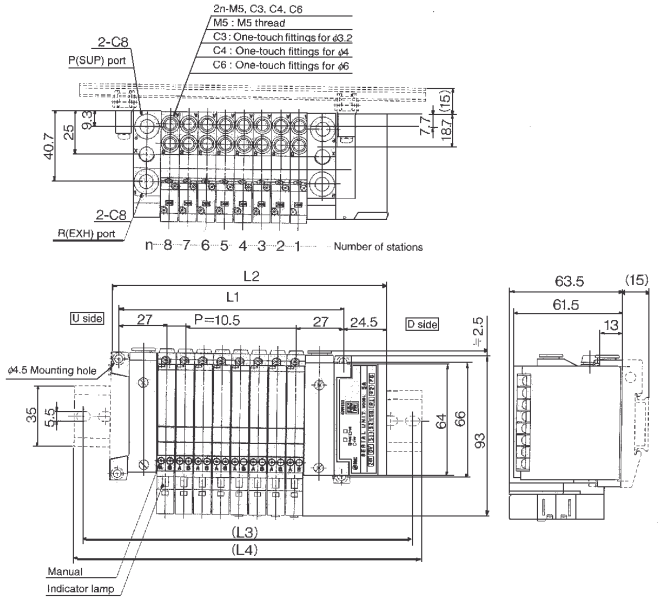
Body Type
0 .....Plug-in Base Type

Type of Seal
0 .....Metal Seal
1 .....Rubber Seal

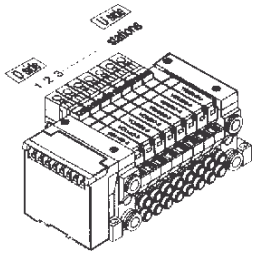
Voltage
5 .....24VDC with indicator light and surge voltage suppressor

Dimensions
See Next Page ☞

DIMENSIONS



L/n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	64.5	75	85.5	96	106.5	117	127.5	138	148.5	159	169.5	180	190.5	201	211.5
L2	93.5	104	114.5	125	135.5	146	156.5	167	177.5	188	198.5	209	219.5	230	240.5
(L3)	125	125	137.5	150	16+2.5	175	187.5	187.5	200	212.5	225	237.5	250	250	262.5
(L4)	135.5	135.5	148	160.5	173	185.5	198	198	210.5	223	235.5	248	260.5	260.5	273



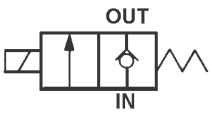
Stations are counted from the D side



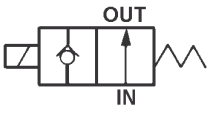
2 Port Solenoid Valve Direct Operated Type Series VX21/22/23

- Compact and Lightweight
- Large Flow Capacity
- Can be quickly disassembled and reassembled
- High Reliability Molded Coil
- Proper Selection of Body and Sealing Materials permits Application of a Wide Variety of Fluid

Symbols



Energized Open Type



Energized Closed Type

Technical Specifications

Energized Open Type Series VX

1MPa = 145PSI

Port Size	Orifice mmø	Flow Rate Cv	Flow Rate Effective Area (mm²)	Model	Maximum Operating Pressure Differential MPa: Water AC	Water DC	Air AC	Air DC	Oil AC	Oil DC	Steam AC	Maximum System Pressure MPa	Proof Pressure MPa
1/8	2	0.17	3	VX2110-01	2	1.5	2	1.5	1.5	1.5	1	Water	
(6A)	3	0.33	6	VX2120-01	0.9	0.5	1.1	0.6	0.5	0.5	1	•	
	4.5	0.61	11	VX2130-01	0.4	0.2	0.45	0.2	0.2	0.15	0.45	Oil	
	2	0.17	3	VX2110-02	2	1.5	2	1.5	1.5	1.5	1	•	
	3	0.33	6	VX2120-02	0.9	0.5	1.1	0.6	0.5	0.5	1	Air	5
	3	0.33	6	VX2220-02	1.7	1.5	2	1.5	1.2	1.2	1	3	
	3	0.33	6	VX2320-02	2.5	3	3	3	1.7	2	-		
	4.5	0.61	11	VX2130-02	0.4	0.2	0.45	0.2	0.2	0.15	0.45	••	
1/4	4.5	0.61	11	VX2230-02	0.6	0.35	0.75	0.35	0.35	0.3	0.75	Steam	
(8A)	4.5	0.61	11	VX2330-02	0.85	0.9	1	0.9	0.55	0.85	1		
	6	1.05	19	VX2240-02	0.35	0.15	0.4	0.15	0.2	0.1	0.4	1	
	6	1.05	19	VX2340-02	0.55	0.3	0.5	0.35	0.35	0.3	0.5		
	8	1.7	31	VX2250-02	0.13	0.08	0.15	0.08	0.1	0.08	0.15	Water	
	8	1.7	31	VX2350-02	0.17	0.2	0.2	0.2	0.14	0.2	0.2	Oil • Air	
	10	1.9	34	VX2260-02	0.08	0.03	0.08	0.03	0.05	0.03	0.08	3	3
	10	1.9	34	VX2360-02	0.1	0.07	0.1	0.07	0.08	0.07	0.1	Steam 0.05	
	3	0.33	6	VX2220-03	1.7	1.5	2	1.5	1.2	1.2	1	Water	
	3	0.33	6	VX2320-03	2.5	3	3	3	1.7	2	-	•	
	4.5	0.61	11	VX2230-03	0.6	0.35	0.75	0.35	0.35	0.3	0.75	Oil • Air	
	4.5	0.61	11	VX2330-03	0.85	0.9	1	0.9	0.55	0.85	1	3	5
3/8	6	1.05	19	VX2240-03	0.35	0.15	0.4	0.15	0.2	0.1	0.4	Steam	
(10A)	6	1.05	19	VX2340-03	0.55	0.3	0.5	0.35	0.35	0.3	0.5	1	
	8	1.7	31	VX2250-03	0.13	0.08	0.15	0.08	0.1	0.08	0.15	Water	
	8	1.7	31	VX2350-03	0.17	0.2	0.2	0.2	0.14	0.2	0.2	•	
	10	2.4	43	VX2260-03	0.08	0.03	0.08	0.03	0.05	0.03	0.08	Oil • Air	
	10	2.4	43	VX2360-03	0.1	0.07	0.1	0.07	0.08	0.07	0.1	1	3
1/2	10	2.4	43	VX2260-04	0.08	0.03	0.08	0.03	0.05	0.03	0.08	Steam	
(15A)	10	2.4	43	VX2360-04	0.1	0.07	0.1	0.07	0.08	0.07	0.1	0.5	

How To Order
See Next Page ☞

Technical Specifications

Energized Closed Type Series VX

1MPa = 145PSI

Port Size	Orifice mmø	Flow Rate Cv	Flow Rate Effective Area (mm²)	Model	Maximum Operating Pressure Differential MPa Water	Air	Oil	Steam AC	Maximum System Pressure MPa	Proof Pressure MPa
1/8	2	0.17	3	VX2112-01	0.9	1.5	0.8	1		
(6A)	3	0.33	6	VX2122-01	0.45	0.7	0.45	0.7		
	4.5	0.61	11	VX2132-01	0.2	0.3	0.2	0.3		
	2	0.17	3	VX2112-02	0.9	1.5	0.8	1	Water	
	3	0.33	6	VX2122-02	0.45	0.7	0.45	0.7	•	
	3	0.33	6	VX2222-02	0.8	1	0.7	1	Oil	
	3	0.33	6	VX2322-02	1.2	1.6	1	-	•	
1/4	4.5	0.61	11	VX2132-02	0.2	0.3	0.2	0.3	Air	
(8A)	4.5	0.61	11	VX2232-02	0.3	0.45	0.3	0.45	3	5
	4.5	0.61	11	VX2332-02	0.6	0.8	0.6	0.8		
	6	1.05	19	VX2242-02	0.15	0.25	0.15	0.25	••	
	6	1.05	19	VX2342-02	0.35	0.45	0.35	0.45		
	3	0.33	6	VX2222-03	0.8	1	0.7	1	Steam	
	3	0.33	6	VX2322-03	1.2	1.6	1	-		
	4.5	0.61	11	VX2232-03	0.3	0.45	0.3	0.45	1	
3/8	4.5	0.61	11	VX2332-03	0.6	0.8	0.6	0.87		
(10A)	6	1.05	19	VX2242-03	0.15	0.25	0.15	0.25		
	6	1.05	19	VX2342-03	0.35	0.45	0.35	0.45		

Accessories

Bracket Series VX

Type	Part Number
VX2120	
VX2120	VX070-020
VX2130	
VX2220	
VX2230	
VX2240	VX070-022
VX2320	
VX2330	
VX2340	
VX2250	
VX2260	VX070-029
VX2350	
VX2360	

How To Order Series VX

VX21
22
23

Orifice No
1 .....2mmø
2 .....3mmø
3 .....4.5mmø
4 .....6mmø
5 .....8mmø Energized Open Type Only
6 .....10mmø Energized Open Type Only

Valve Body Type
0 .....Energized Open Type/Single
2 .....Energized Closed Type/Single

Option
- .....Standard (Air, Water, Oil)

Port Size
01 ...1/8
02 ...1/4
03 ...3/8
04 ...1/2 Energized Open Type Only

Thread
- .....Rc(PT)
T .....NPTF
F .....G(PF)
N .....NPT

Voltage
1 .....100VAC
2 .....200VAC
3 .....110VAC
4 .....220VAC
5 .....24VDC
6 .....12VDC
7 .....240VAC
8 .....48VAC

Electrical Entry
D .....DIN Connector

Options
Nil ...None
S .....With Surge Voltage Suppressor
L .....With Indicator Light
Z .....With Indicator Light and Surge Voltage Suppressor

Bracket
Nil ...Without
B .....With Bracket

Dimensions

Type Port Size Orifice Xeries VX21/22/23

Solenoid Valve Type (Port Size)			Orifice Size (Number)					
VX21	VX22	VX23	1	2	3	4	5	6
			2mmø	3mmø	4.5mmø	6mmø	8mmø	10mmø
01 (1/8)	-	-	●	●	●	-	-	-
02 (1/4)	-	-	●	●	●	-	-	-
-	02 (1/4)	02 (1/4)	-	●	●	●	●	●
-	03 (3/8)	03 (3/8)	-	●	●	●	●	●
-	04 (1/2)	04 (1/2)	-	-	-	-	-	●

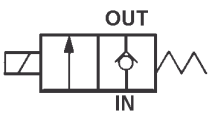
FOR DIMENSIONS AND MORE TECHNICAL DETAILS ON THIS SERIES, PLEASE REFER TO CAT:E701

2 Port Solenoid Valve Pilot Operated Type Series VXD21

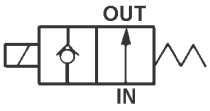
- Compact and Lightweight
- Large Flow Capacity
- Can be quickly disassembled and reassembled
- High Reliability Molded Coil
- Proper Selection of Body and Sealing Materials permits Application of a Wide Variety of Fluid



Symbols



Energized Open Type



Energized Closed Type

Technical Specifications
Energized Open Type Series VXD

1MPa = 145PSI

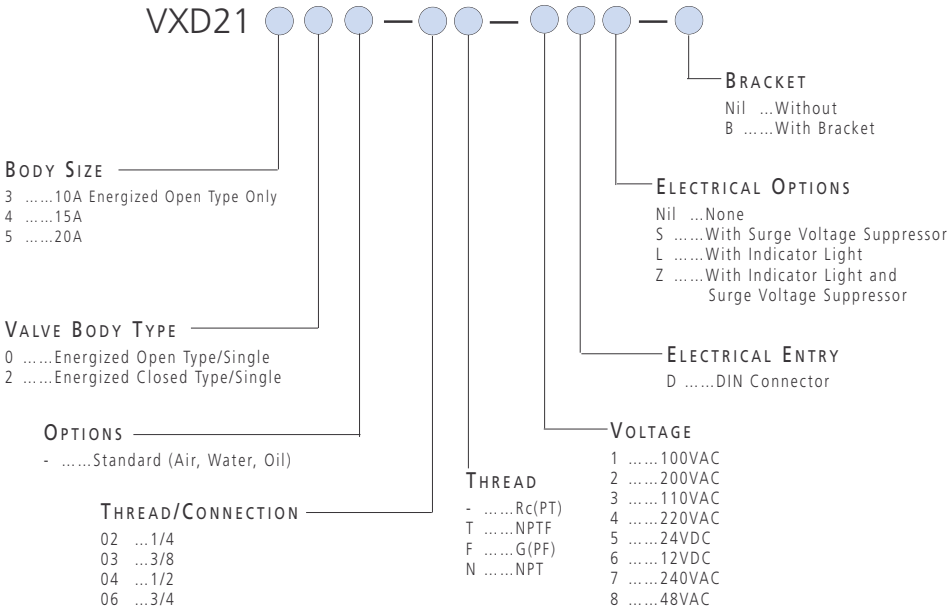
Connection	Orifice mmø	Flow Rate Cv	Flow Rate Effective Area (mm²)	Model	Minimum Operating Pressure Differential MPa	Maximum Operating Pressure Differential MPa						Maximum System Pressure MPa
						Water		Air		Oil		
						AC	DC	AC	DC	AC	DC	
1/4	10	1.9	34	VXD2130-02	0.02	0.7	0.5	0.9	0.7	0.5	0.4	
3/8	10	2.4	43	VXD2130-03	0.02	0.7	0.5	0.9	0.7	0.5	0.4	
3/8	15	4.5	80	VXD2140-03	0.02	1	1	1	1	0.7	0.7	1.5
1/2	10	2.4	43	VXD2130-04	0.02	0.02	0.5	0.9	0.7	0.5	0.4	
1/2	15	5.5	100	VXD2140-04	0.02	1	1	1	1	0.7	0.7	
3/4	20	9.5	170	VXD2150-06	0.02	1	1	1	1	0.7	0.7	

Technical Specifications
Energized Closed Type Series VXD

1MPa = 145PSI

Connection	Orifice mmø	Flow Rate Cv	Flow Rate Effective Area (mm²)	Model	Minimum Operating Pressure Differential MPa	Maximum Operating Pressure Differential MPa		Maximum System Pressure MPa
						Water / Air	Oil	
3/8	15	4.5	80	VXD2142-03	0.02	0.7	0.6	
1/2	15	5.5	100	VXD2142-04	0.02	0.7	0.6	1.5
3/4	20	9.5	170	VXD2152-06	0.02	0.7	0.6	

How To Order Series VXD



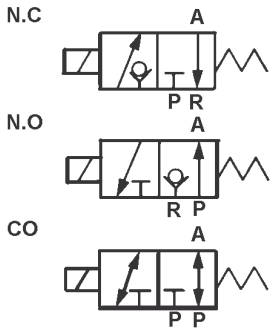
FOR DIMENSIONS AND MORE TECHNICAL DETAILS ON THIS SERIES, PLEASE REFER TO CAT:E701



3 PORT SOLENOID VALVE DIRECT OPERATED TYPE SERIES VX31/32/33

- Compact and Lightweight
- Large Flow Capacity
- Can be quickly disassembled and reassembled
- High Reliability Molded Coil
- Proper Selection of Body and Sealing Materials permits Application of a Wide Variety of Fluid

SYMBOLS

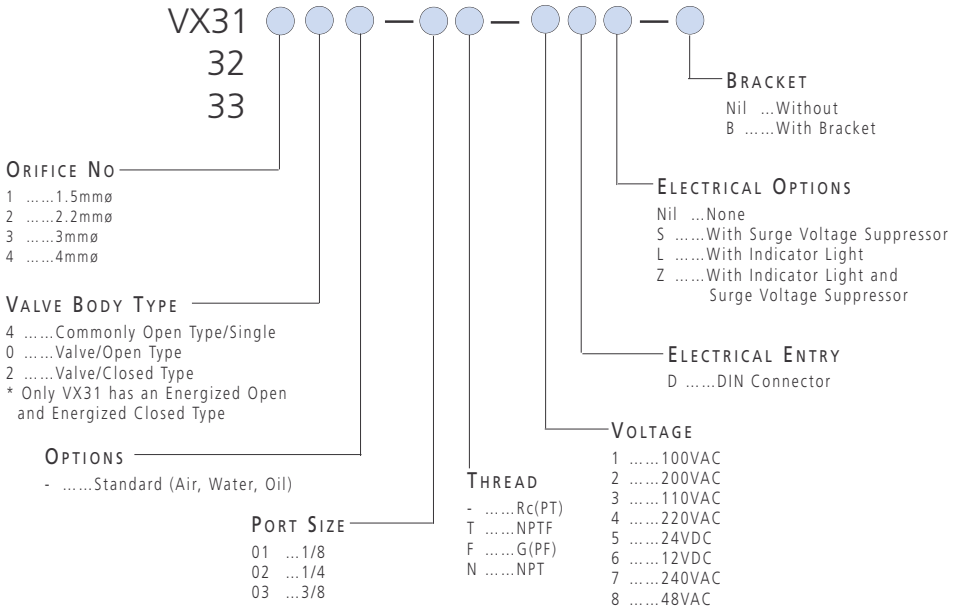


TECHNICAL SPECIFICATIONS SERIES VX31/32/33

1MPa = 145PSI

Port Size	Orifice mmø	Flow Rate Cv	Flow Rate Effective Area (mm²)	Model	Maximum Operating Pressure Differential MPa		Maximum System Pressure MPa
					No AC AC	CO AC / DC	
1/8	1.5	0.08	1.4	VX311(0/2/4)-01	1	0.6	
(6A)	2.2	0.16	2.8	VX312(0/2/4)-01	0.5	0.3	
	3	0.24	4.3	VX313(0/2/4)-01	0.3	0.2	Water
	1.5	0.08	1.4	VX311(0/2/4)-02	1	0.6	•
	2.2	0.16	2.8	VX312(0/2/4)-02	0.5	0.3	Oil
	2.2	0.19	3.4	VX3224-02	-	0.6	•
	2.2	0.19	3.4	VX3324-02	-	1	Air
1/4	3	0.24	4.3	VX313(0/2/4)-02	0.3	0.2	2
(8A)	3	0.33	6	VX3234-02	-	0.3	
	3	0.33	6	VX3334-02	-	0.6	••
	4	0.5	9	VX3244-02	-	0.15	Steam
	4	0.5	9	VX3344-02	-	0.3	
	2.2	0.19	3.4	VX3224-03	-	0.6	1
	2.2	0.19	3.4	VX3324-03	-	1	
3/8 (10A)	3	0.33	6	VX3234-03	-	0.3	
	3	0.33	6	VX3334-03	-	0.6	
	4	0.5	9	VX3244-03	-	0.15	
	4	0.5	9	VX3344-03	-	0.3	

How To Order
Series VX31/32/33



FOR DIMENSIONS AND MORE TECHNICAL DETAILS ON THIS SERIES, PLEASE REFER TO CAT:E701

2 Port Solenoid Valve
Pilot Operated Type
Differential Pressure Operation Type
Series VXZ22



- Compact, Lightweight
- Large Valve Capacity
- Zero Differential Pressure Operation
- Low Power Consumption, Long Life
- High Reliability Molded Coil
- Easy Change Of Valve Type from Normally Closed to Normally Open

Technical Specifications
Normally Closed Type Series VXZ

1MPa = 145PSI

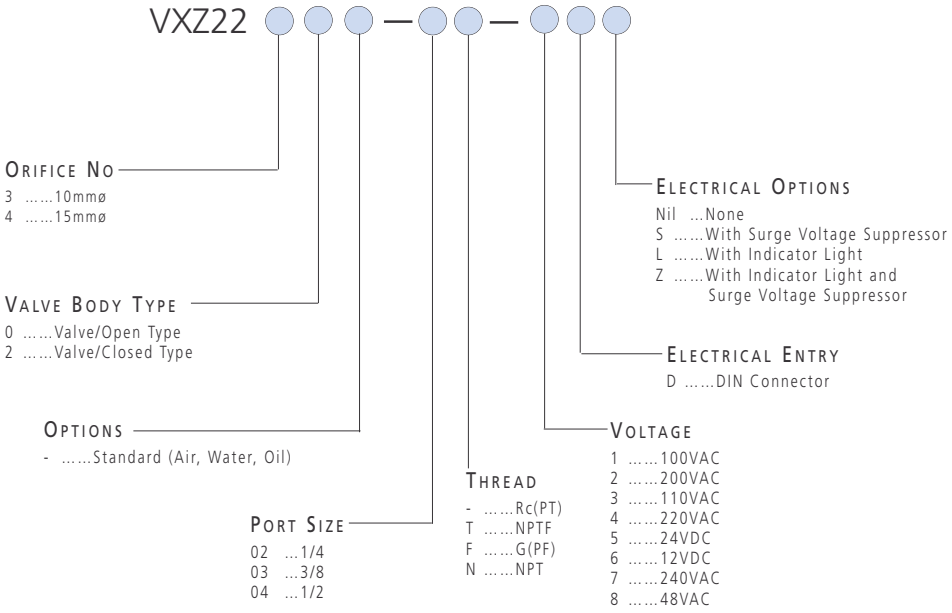
Port Size	Orifice Size mmø	Flow Rate Cv	Flow Rate Effective Orifice (mm²)	Model	Maximum Operating Pressure Differential MPa						Maximum System Pressure MPa
					Water		Air		Oil		
					AC	DC	AC	DC	AC	DC	
1/4	10	1.9	34	VXZ2230-02	1	0.7	1	0.7	0.7	0.7	1.5
3/8	10	2.4	43	VXZ2230-03	1	0.7	1	0.7	0.7	0.7	
1/2	15	5.3	95	VXZ2240-04	1	0.7	1	0.7	0.7	0.7	

Technical Specifications
Normally Open Type Series VXZ

1MPa = 145PSI

Port Size	Orifice Size mmø	Flow Rate Cv	Flow Rate Effective Orifice (mm²)	Model	Maximum Operating Pressure Differential MPa						Maximum System Pressure MPa
					Water		Air		Oil		
					AC	DC	AC	DC	AC	DC	
1/4	10	1.9	34	VXZ2232-02	0.7	0.6	0.7	0.6	0.7	0.6	1.5
3/8	10	2.4	43	VXZ2232-03	0.7	0.6	0.7	0.6	0.7	0.6	
1/2	15	5.3	95	VXZ2242-04	0.7	0.6	0.7	0.6	0.7	0.6	

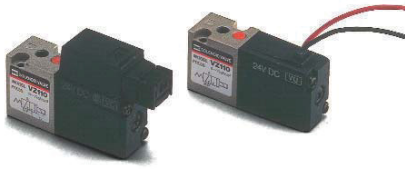
How To Order Series VXZ



FOR DIMENSIONS AND MORE TECHNICAL DETAILS ON THIS SERIES, PLEASE REFER TO CAT:E705

3/2 DIRECT ACTING SOLENOID VALVE 10-32NOM PORTED

- N/O or N/C Option
- 10-32Nom Body Ported, possible to Manifold Mount
- Cv 0.05
- Optional Lamp and Surge Voltage Suppressor
- Suitable for Pressure or Vacuum



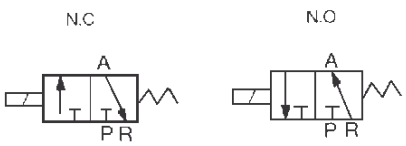
TECHNICAL SPECIFICATIONS

Fluid	Air
Ambient and Fluid Temperature	Max 50°C / 122°F
Response Time	15ms or less
Max Operating Frequency	15c/s
Manual Override	Non-locking type
Lubrication	Not required (Use turbine oil ±1 (ISO VG32) if lubrication is provided)
Enclosure	Dust Proof

SOLENOID SPECIFICATIONS

Electrical Entry			Grommet (G), Plug connector (M)
Voltages	AC		240V, 110V, 24V
	DC		12V, 24V
Allowable Voltage			-15~+10% of rated voltage
Coil Insulation			Class E or equivalent (120°C)
Temperature Rise			45°C or less / 113°F or less
Power Consumption	DC		1.8W/2.1W (W/LED)
Apparent Power	AC	Inrush	4.5VA/50Hz, 4.2VA/60Hz
		Holding	3.5VA/50Hz, 3VA/60Hz
Surge Voltage Suppressor			DC: Diode, AC: ZNR
Indicator Light			DC: LED (Red), AC: Neon lamp

SYMBOLS



(N)VZ110 (N)VZ120

ACCESSORIES

(N)VZ100 SOLENOID VALVE

DXT170-123-A-30 .....Plug with 3m lead
DXT170-34-1A .....Foot bracket with screws

FLOW SPECIFICATIONS

Body Type	Model	Type Of Actuation	Operating Pressure Range kgf/cm²	Vacuum Application P Port	Vacuum Application R Port	Effective Orifice mm² (Cv Factor)	Port Size	Weight
Body Ported	(N)VZ110-••-M5	NC	0 ~ 7MPa 0 ~ 100PSI	22in-Hg 0~85PSI	VAC ~0PSI	P->A 0.6 (0,034) A->R 0.9 (0.05)	10-32Nom (M5x0.8)	0.15g
	(N)VZ110-••-M5	NO	0 ~ 5MPa 0 ~ 70PSI	22in-Hg 0~85PSI	VAC ~55PSI	R->A 0.6 (0.034) A->P 0.6 (0.034		

Note: In case of (N)VZ120 Supply Air to 'R' Port. "P" Port will be the Exhaust Port.

SAFETY

Observe Operating Pressure Ranges - see Technical Specifications for details

HOW TO ORDER

(N)VZ100 SOLENOID VALVE

(N)VZ1 ○ — ○ ○ ○ — M5 — ○

BODY OPTION
10 ...3/2 NC
20 ...3/2 NO

VOLTAGE
1 .....100V AC
2 .....200V AC
3 .....110V AC
4 .....220V AC
5 .....24V DC
6 .....12V DC

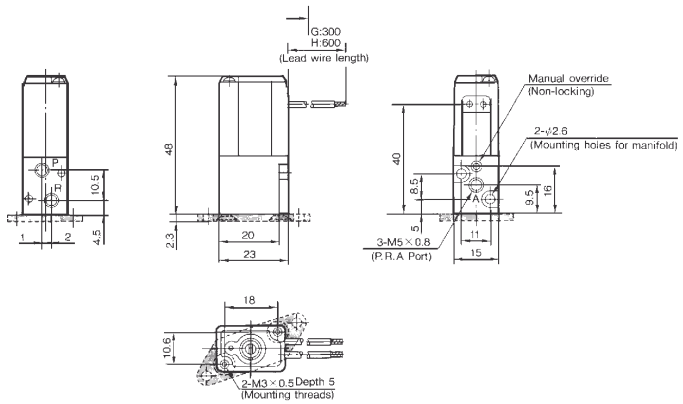
LAMP & SURGE VOLTAGE SUPPRESSOR
Nil ...Without
Z .....With Indicator Light & Surge Suppressor
S .....With Surge Suppressor

ELECTRICAL ENTRY
D .....DIN Connector
G .....Grommet (300mm lead)
H .....Grommet (600mm Lead)
L .....L Type Plug Connector w/Lead Wire (300mm Lead)
M .....M Type Plug Connector w/Lead Wire (300mm Lead)
LO ...L Type Plug Connector w/o Connector
MO ...M Type Plug Connector w/o Connector

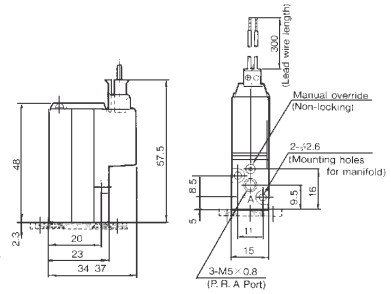
OPTION
F Bracket

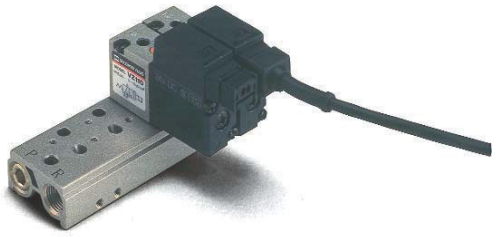
DIMENSIONS SEE NEXT PAGE ☞

Dimensions
(N)VZ100 Body Ported Grommet Type



Dimensions
(N)VZ100 Body Ported MN Plug Type





Series (N)VZ100 Manifolds

2 – 9 station manifold with a common supply and exhaust.

How To Order Manifold Type 20 Top Ported

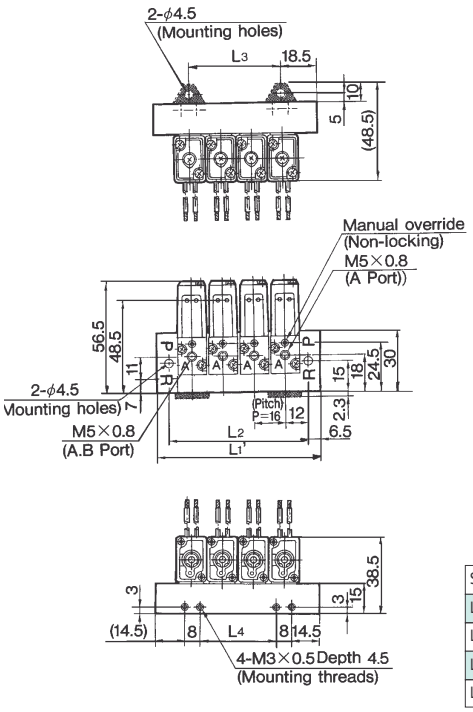
(N)VV4Z1—20—1—

Stations
02 ...2 Stations
to
20 ...20 Stations

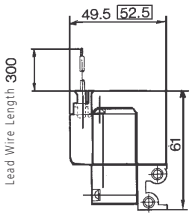
Thread Type
- .....PT
00T ...NPTF

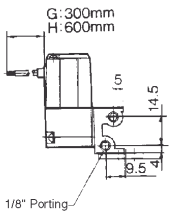
Option
F .....Bracket

Dimensions
Manifold Type 20 Top Ported Grommet Type



Dimensions
Manifold Type 20 Top Ported M Plug Type





Accessories
Manifold Type 20 Top Ported

DXT170-25-1A .....Blanking Plate Assembly

Stations (n)	2	3	4	5	6	7	8	9	10
L1	53	69	85	101	117	133	149	165	181
L2	40	56	72	88	104	120	136	152	168
L3	16	32	48	64	80	96	112	128	144
L4	8	24	40	56	72	88	104	120	136

3/2 PILOT OPERATED SOLENOID/SPRING VALVE 10-32NOM



- N/O or N/C Option
- 10-32Nom Body Ported or Sub Base Manifold Mounted
- Cv 0.2 ~ 0.25
- Optional Lamp and Surge Voltage Suppressor
- Solenoid Coils are integral and must not be removed
- These valves are supplied without leads which must be ordered separately (see Accessories Section).

TECHNICAL SPECIFICATIONS

Fluid	Air and Inert Gases
Operating Pressure Range	20 ~ 100PSI (1.5-7kgf/cm²)
Ambient and Fluid Temperature	Max 50°C / 122°F
Response Time	20ms or less
Max Operating Frequency	50 Cycles per Second
Manual Override	Non-Locking Push Type
Pilot Exhaust	Individual, Common
Lubrication	Not Required; If Lubrication is provided, use SMC Lubricant
Enclosure	Dust Proof

Model		Type of Actuation	Effective Orifice mm2/(Cv factor)
Body Ported Type	(N)VZ312	NC	3.6 (0.2)
	(N)VZ322	NO	
Base Mounted Type (with Subplate)	(N)VZ314	NC	4.5 (0.25)
	(N)VZ324	NO	

SOLENOID SPECIFICATIONS

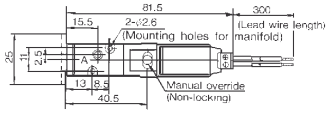
Electrical Entry		Grommet (G), Plug Connector (MN)
Voltages	AC	24V, 110V, 240V
	DC	12V, 24V
Allowable voltage		-15~+10% of rated voltage
Coil insulation		Class E or equivalent
Temperature rise		45°C or less / 113°F or less
Power consumption DC		1.8W/2.1W (W/LED)
Apparent power AC	Inrush	4.5VA/50Hz, 4.2VA/60Hz
	Holding	3.5VA/50Hz, 3VA/60Hz
Surge voltage suppressor		DC: Diode, AC: ZNR
Indicator light		DC: LED (Red), AC: Neon lamp

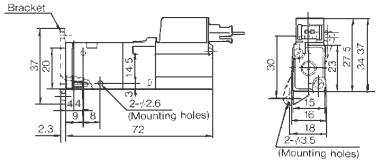
SYMBOLS



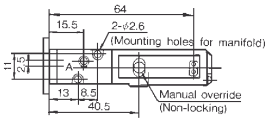
(N)VZ312 (N)VZ322

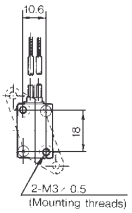
DIMENSIONS
SERIES (N)VZ300 BODY PORTED M PLUG TYPE

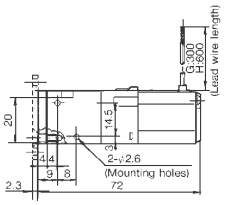


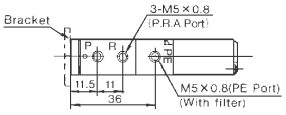


DIMENSIONS
SERIES (N)VZ300 BODY PORTED GROMMET TYPE









SAFETY

Observe Operating Pressure Ranges - see Technical Specifications for details

HOW TO ORDER SEE NEXT PAGE ☞

How To Order
(N)VZ300 Solenoid Valve

(N)VZ3 ○ ○ — ○ ○ ○ — ○ ○ — ○

Body Option
12 ...3/2 NC Body Ported
22 ...3/2 NO Body Ported
14 ...3/2 NC Base Mounted
24 ...3/2 NO Base Mounted

Body Option
- .....Individual Pilot Exhaust
M .....Commom Exhaust for Main and Pilot Valve
R .....External Pilot

Voltage
1 .....100VAC
2 .....200VAC
3 .....110VAC
4 .....220VAC
5 .....24VDC
6 .....12VDC

Electrical Entry
D .....DIN Connector
G .....Grommet (300mm Lead)
H .....Grommet (600mm Lead)
L .....L Type Plug Connector with Lead Wire (300mm)
M ..... M Type Plug Connector with Lead Wire (300mm)
LO ...L Type Plug Connector w/o Connector
MO ...M Type Plug Connector w/o Connector

Lamp & Surge Voltage Suppressor
- .....Without
Z .....With (Except Grommet Type & 24V AC)
S .....With Surge Suppressor

Manual Override
- .....Non-Locking Push Type
B .....Slotted Locking Type
C .....Knob Locking Type

Porting
- .....Without SubPlate
01 ...1/8PT SubPlate
01T ...1/8NPTF Subplate
M5 ...M5x0.8 (Body Ported)

Options
- .....Without Bracket
F .....Foot Bracket

Accessories
(N)VZ300 Solenoid Valve

DXT170-123-A-30 .....Plug with 3m lead
DXT170-34-1B .....Bracket

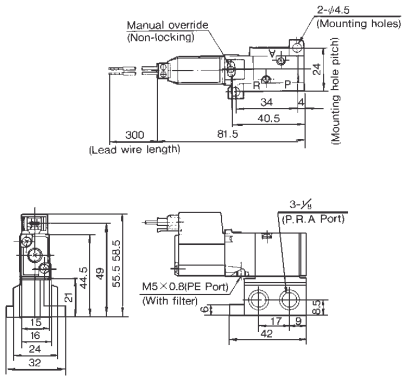
Series (N)VZ300 Manifolds

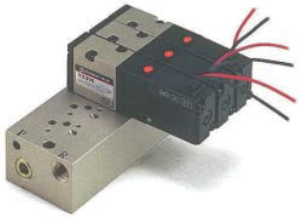
A Single Sub-base and 3 different Manifold Designs.

(i) Side Entry Single Sub-base for use with the Base Mounted Valve (Type 40).
(ii) 2-10 Station Type 20 Mmanifold for use with the Body Ported Valve (Type 20).
(iii) 2-10 Station Type 40 Side Entry Manifold for use with the Base Mounted Valve (Type 40).
(iv) 2 - 10 Station Type 40 Bottom Entry Manifold for use with the Base Mounted Valve (Type 40).



Dimensions
Single Sub-base Side Ported
M Type Plug Connector





How To Order Manifold Type 20 Top Ported

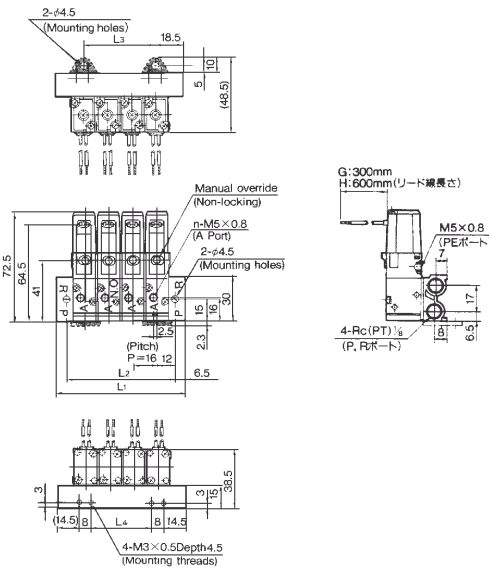
(N)VV3Z3 — 20 1 —

Number of Stations
02 ...2 stations
to
20 ...20 stations

Thread Type
- .....PT
00T ...NPTF

FOR FURTHER TECHNICAL INFORMATION ON THIS SERIES, REQUEST CAT:E120

Dimensions Manifold Type 20 Top Ported



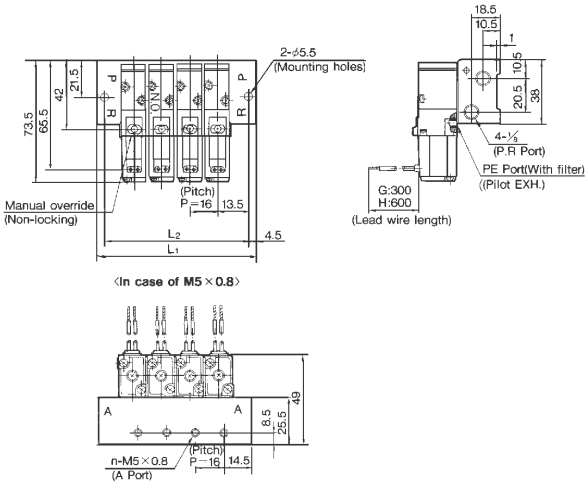
Stations (n)	2	3	4	5	6	7	8	9	10
L1	53	69	85	101	117	133	149	165	181
L2	40	56	72	88	104	120	136	152	168
L3	16	32	48	64	80	96	112	128	144
L4	8	24	40	56	72	88	104	120	136

Accessories

DXT170-25-1A .....Blanking Plate Kit
DXT170-34-1A .....Foot Mount Kit

FOR FURTHER TECHNICAL INFORMATION ON THIS SERIES, REQUEST CAT:E120

Dimensions Manifold Type 40 Side Ported



〈In case of M5×0.8〉

Stations (n)		2	3	4	5	6	7	8	9	10
M5x0.8	L1	52	68	84	100	116	132	148	164	180
	L2	43	59	75	91	107	123	139	155	171

How To Order Manifold Type 40 Side Ported

(N)VV3Z3 — 40 — 1 —

Number of Stations
02 ...2 Stations
to
20 ...20 Stations

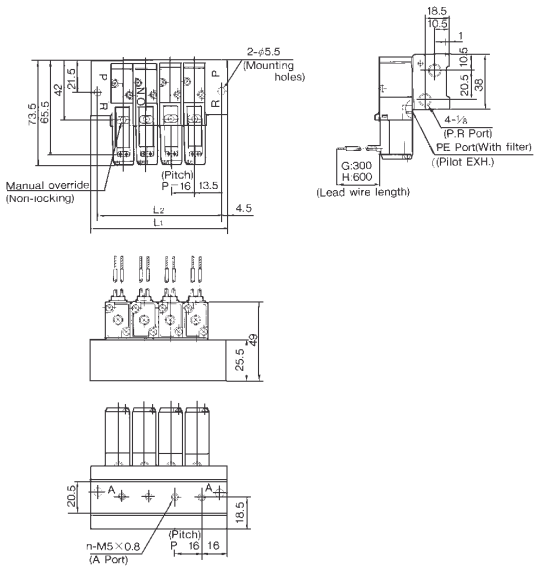
Size Of A, B Port
M5 ...10-32Nom (P, R Port PT)
M5T...10-32Nom (P, R Port NPTF)
B3T ...One Touch Fitting 5/32"
B7T ...One Touch Fitting 1/4"

Accessories Manifold Type 40 Side Ported Type G

DXT200-8-1A .....Blanking Plate Kit

FOR FURTHER TECHNICAL INFORMATION ON THIS SERIES, REQUEST CAT:E120

DIMENSIONS
MANIFOLD TYPE 40 BOTTOM PORTED



Stations (n)		2	3	4	5	6	7	8	9	10
M5x0.8	L1	52	68	84	100	116	132	148	164	180
	L2	43	59	75	91	107	123	139	155	171

HOW TO ORDER
MANIFOLD TYPE 40 BOTTOM PORTED

(N)VV3Z3 — 40 — ○ 2 — ○

NUMBER OF STATIONS
02 ...2 stations
to
20 ...20 stations

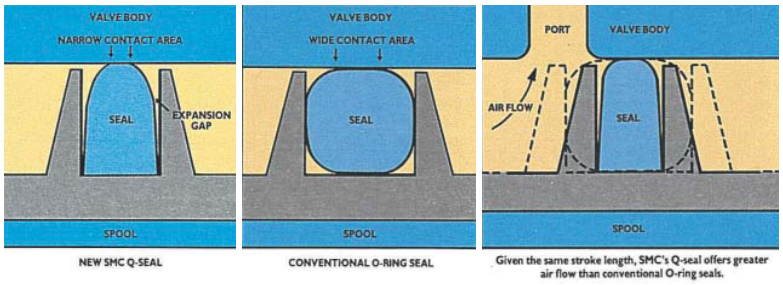
SIZE OF A, B PORT
M5 ...10-32Nom (P, R Port PT)
M5T...10-32Nom (P, R Port NPTF)
01T ...1/8" NPTF

ACCESSORIES
MANIFOLD TYPE 40 SIDE PORTED

DXT200-8-1A .....Blanking Plate Kit

FOR FURTHER TECHNICAL INFORMATION ON THIS SERIES, REQUEST CAT:E120

THE Q SEAL



AS PART OF A LONG TERM DEVELOPMENT PROGRAM TO IMPROVE THE PERFORMANCE AND DURABILITY OF PNEUMATIC VALVE SEALS, SMC HAS DEVELOPED A NEW TYPE OF SEAL WHICH OVERCOMES THE PROBLEMS INHERENT WITH TRADITIONAL O-RINGS AND BONDED SEALS - CALLED Q SEAL, IT FEATURES A SPECIAL PROFILE WHICH REDUCES SLIDING RESISTANCE TO A MINIMUM, ENHANCES BOTH LONG TERM RELIABILITY AND AIR FLOW CHARACTERISTICS AND PROVIDES BI-DIRECTIONAL PORT ACCESS.



3/2 Pilot Operated Solenoid / Spring Valve

- N/O or N/C Option
- 1/8 Body Ported, Sub Base or Manifold Mounted (1 to 10 Stations)
- Cv 0.5
- Optional Lamp and Surge Voltage Suppressor
- Solenoid Coils are integral and must not be removed
- These valves are supplied without leads which must be ordered separately (see Accessories Section)

Technical Specifications

Fluid	Air
Operating Pressure Range	20 ~ 100PSI (1.5-7kgf/cm²)
Ambient and Fluid Temperature	Max 50°C / 122°F
Response Time	20ms or less
Max Operating Frequency	50 Cycles per Second
Manual Override	Non-Locking Push Type
Pilot Exhaust	Individual, Common
Lubrication	Not Required; If Lubrication is provided, use SMC Lubricant
Enclosure	Dust Proof

Model		Type of Actuation	Effective Orifice mm² (Cv Factor)
Body Ported Type	(N)VZ512	NC	9.0 (0.5)
	(N)VZ522	NO	
Base Mounted Type (with Subplate)	(N)VZ514	NC	9.0 (0.5)
	(N)VZ524	NO	

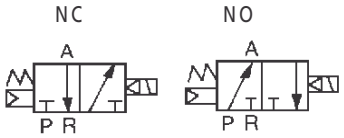
Solenoid Specifications

Electrical Entry		Grommet (G), Plug Connector (M)
Voltages	AC	240Hz, 110V50/60Hz, 24V50/60Hz
	DC	12V, 24V
Allowable Voltage		-15~+10% of rated voltage
Coil Insulation		Class E or equivalent (120°C)
Temperature Rise		45°C or less / 115°F or less
Power Consumption DC		1.8W/2.1W (W/LED)
Apparent Power AC	Inrush	4.5VA/50Hz, 4.2VA/60Hz
	Holding	3.5VA/50Hz, 3VA/60Hz
Surge Voltage Suppressor		DC: Diode, AC: ZNR
Indicator Light		DC: LED (Red), AC: Neon lamp

Safety

Observe operating pressure ranges - see technical specifications for details

Symbols



Accessories

(N)VZ500 Solenoid Valve

DXT170-123-A-30 .....Plug with 3m lead
DXT201-19-1A .....Bracket

How To Order

(N)VZ500 Solenoid Valve

(N)VZ5 ○○ — ○○○ — ○ — ○

Body Option
12 ...3/2 NC Body Ported
22 ...3/2 NO Body Ported
14 ...3/2 NC Base Mounted
24 ...3/2 NO Base Mounted

Body Option
- .....Individual Pilot Exhaust
M .....Common Exhaust for Main and Pilot Valve
R .....External Pilot

Voltage
1 .....100V AC
3 .....110V AC
4 .....220V AC
5 .....24V DC
6 .....12V DC

Electrical Entry
D .....DIN Connector
G .....Grommet (300mm lead)
H .....Grommet (600mm Lead)
L .....L Type Plug Connector with Lead Wire (300mm)
M ..... M Type Plug Connector with Lead Wire (300mm)
LO ...L Type Plug Connector w/o Connector
MO ...M Type Plug Connector w/o Connector

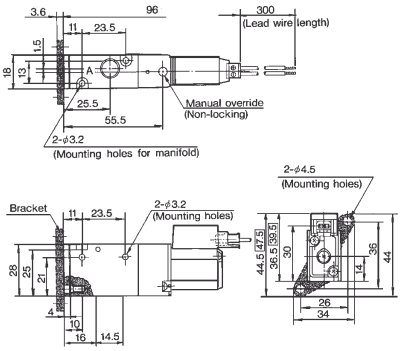
Porting
- .....Without Sub Plate
01T ...1/8" Sub Plate
02T ...1/4" Sub Plate
01T ...1/8 (Body Ported)

Options
- .....Without Bracket
F .....Foot Bracket

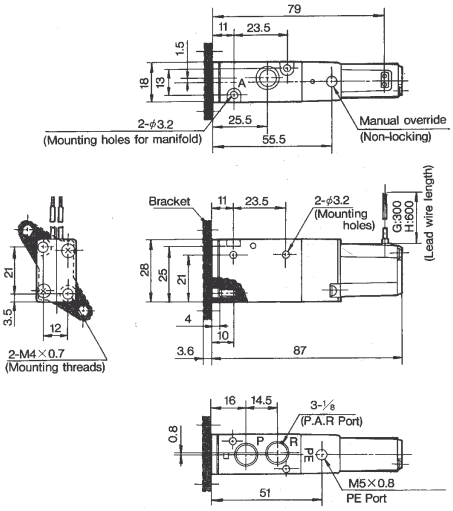
Lamp & Surge Voltage Suppressor
- .....Without
Z .....With (Except Grommet Type & 24V AC)
S .....With Surge Suppressor

Dimensions See Next Page ☞

DIMENSIONS
SERIES (N)VZ500 BODY PORTED MN PLUG TYPE



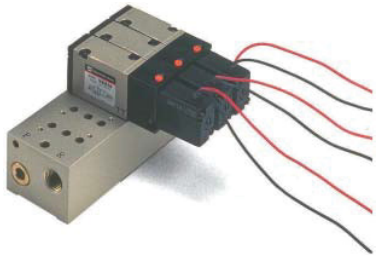
DIMENSIONS
SERIES (N)VZ500 BODY PORTED GROMMET TYPE



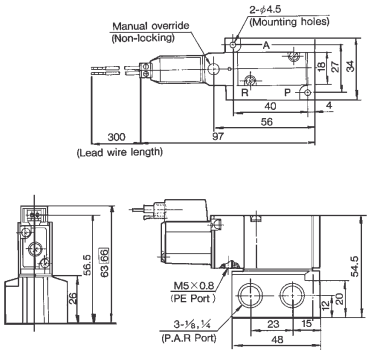
SERIES (N)VZ500 MANIFOLDS

A Single Sub Base and 3 Different Manifold Design.

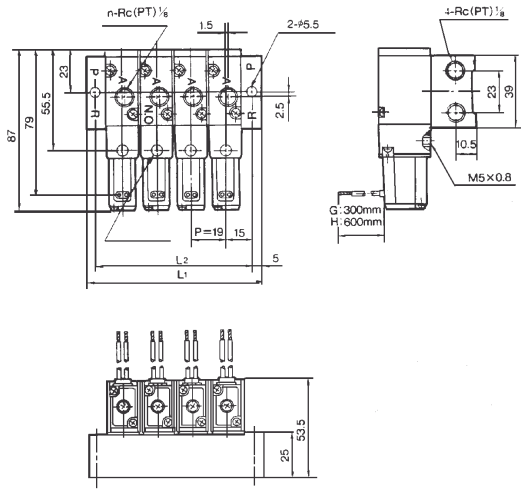
(i) Side Entry Single Sub-base for use with the Base Mounted Valve (Type 40).
(ii) 2-10 Station Type 21 Manifold for use with the Body Ported Valve (Type 20).
(iii) 2-10 Station Type 41 Side Entry Manifold for use with the Base Mounted Valve (Type 40).
(iv) 2 - 10 Station Type 41 Bottom Entry Manifold for use with the Base Mounted Valve (Type 40).



DIMENSIONS
SINGLE SUB-BASE SIDE PORTED TYPE M



Dimensions
Manifold Type 20 Top Ported Grommet Type



Stations (n)	2	3	4	5	6	7	8	9	10
L_1	59	78	97	116	135	154	173	192	211
L_2	49	68	87	106	125	144	163	182	201

How To Order
Manifold Type 20 Top Ported

(N)VV3Z5 — 20 — ○ 1 — ○

Number of Stations
02 ...2 Stations
to
20 ...20 Stations

Thread Type
- .....PT
00T ...NPTF

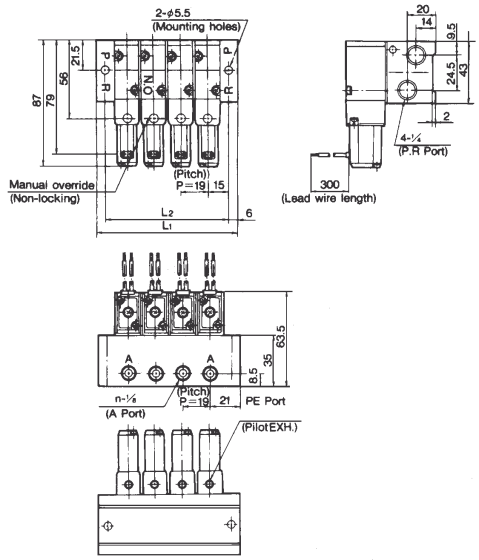
FOR FURTHER TECHNICAL INFORMATION ON THIS SERIES, REQUEST CAT:E120

Accessories
Manifold Type 20 Top Ported

DXT201-15-1A .....Blanking Plate Kit

FOR FURTHER TECHNICAL INFORMATION ON THIS SERIES, REQUEST CAT:E120

Dimensions
Manifold Type 41 Side Ported Grommet Type



Stations (n)	2	3	4	5	6	7	8	9	10
L_1	61	80	99	118	137	156	175	194	213
L_2	49	68	87	106	125	144	163	182	201

How To Order
Manifold Type 41 Side Ported

(N)VV3Z5 — 41 — ○ 1 — 01T

Number of Stations
02 ...2 stations
to
20 ...20 stations

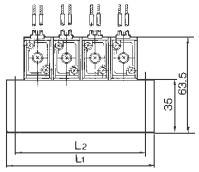
Size Of A, B Port
01T ...1/8" NPTF
B7T ...One Touch Fitting 1/4"
B9T ...One Touch Fitting 5/16"

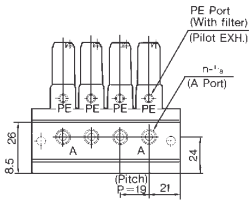
Accessories
Manifold Type 41 Side Ported

DXT201-15-1A .....Blanking Plate Pit

FOR FURTHER TECHNICAL INFORMATION ON THIS SERIES, REQUEST CAT:E120

DIMENSIONS
MANIFOLD TYPE 41 BOTTOM PORTED GROMMET TYPE





FOR ALL OTHER DETAILS, REFER TO TYPE 41 SIDE PORTED MANIFOLD.

Stations (n)	2	3	4	5	6	7	8	9	10
L_1	61	80	99	118	137	156	175	194	213
L_2	49	68	87	106	125	144	163	182	201

HOW TO ORDER
MANIFOLD TYPE 41 BOTTOM PORTED

(N)VV3Z5 — 41 — ○ 2 — 01T

NUMBER OF STATIONS
02 ...2 Stations
to
20 ...20 Stations

THREAD TYPE
- .....PT
T .....NPTF

ACCESSORIES
MANIFOLD TYPE 41 BOTTOM PORTED

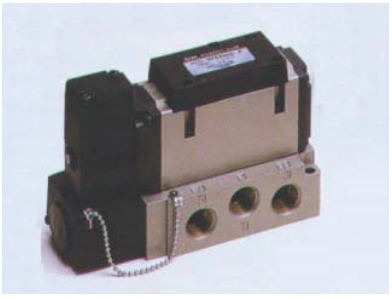
DXT201-15-1A .....Blanking Plate Kit

FOR FURTHER TECHNICAL INFORMATION ON THIS SERIES, REQUEST CAT:E120

SERIES NVFS 2000, 3000, 4000, 5000, 6000
5 PORT PILOT OPERATED
BASE-MOUNTED / PLUG-IN TYPE

- Large Flow Capacity
- Low Power Consumption
- Long Life
- Ease Maintenance
- Many Variations Available

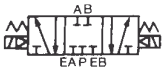
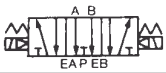
For further information, consult SMC Customer Service



MODEL NVFS2000

Position	Number Of Solenoid	Type Plug-In	Port Size (NPTF)	Cv Factor	Response Time (ms)
2 Position	Single	NVFS2100	1/8	0.7	15 or less
			1/4	0.83	
	Double	NVFS2200	1/8	0.7	13 or less
			1/4	0.83	
3 Position	Closed Center	NVFS2300	1/8	0.65	20 or less
			1/4	0.67	
	Exhaust Center	NVFS2400	1/8	0.65	20 or less
			1/4	0.67	
	Pressure Center	NVFS2500	1/8	0.65	20 or less
			1/4	0.67	
	Perfect (Double Check)	NVFS2600	1/8	0.4	25 or less
			1/4	0.4	

SYMBOLS

2 position	3 position
Single	Closed center
	
Double	Exhaust center
	
	Pressure center
	
	Perfect (double check)
	

TECHNICAL SPECIFICATIONS STANDARD

Valve	Fluid		Air and Inert Gas
	Max Operating Pressure		150 PSI (1MPa)
	Min Operating Pressure	2 Position	15 PSI (0.1MPa)
		3 Position	22 PSI (0.15MPa)
	Ambient & Fluid Temperature		14~140°F (-10~60°C)
	Lubrication		Not Required
	Pilot Operator Manual Override		Non Locking Push Type (Flush)
	Protection Construction		Dust Proof
Electrical	Rated Voltage	AC	110VAC50/60Hz, 220V50/60Hz, 24V50/60Hz
		DC	12V, 24V
	Allowable Voltage Range		-15 ~ 10% Rated Voltage
	Coil Insulation		Class B or Equivalent
	Apparent Power AC (Power Consumption)	InRush	5.0VA/60Hz, 5.6VA/50Hz
		Holding	2.3VA(1.5W)/60Hz, 3.4VA(2.1W)/50Hz
	Power Consumption DC		1.8W
	Electrical Entry	Plug In	Conduit Terminal (Base Access)

TECHNICAL SPECIFICATIONS OPTIONAL

Pilot Type		External Pilot Type
Manual Override	Pilot Operator	Non Locking Push Type (Extended), Lock Type (Tool), Lock Type (Lever)
Voltage	AC	100V50/60Hz, 200V50/60Hz
	DC	6V, 48V, 100V
Porting		Bottom Ported Subplate
Option		W/Indicator Light & Surge Voltage Suppressor

How To Order NVFS2000

NVFS 2 ○ 00 ○ — ○ F ○ ○ — ○ ○

POSITION
1 .....2 Position Single
2 .....2 Position Double
3 .....3 Position Closed Center
4 .....3 Position Exhaust Center
5 .....3 Position Pressure Center
6 .....3 Position Perfect

BODY TYPE
0 .....Plug-In Type

PILOT OPERATOR
- .....Internal
R .....External (Special Order)

VOLTAGE
1 .....100VAC (Special Order)
2 .....200VAC (Special Order)
3 .....110VAC
4 .....220VAc
5 .....24VDC
6 .....12VDC
9 .....Others (Special Order)

ELECTRICAL ENTRY
F .....Through Base

OPTIONS
- .....None
Z .....With Indicator Light and Surge Voltage Suppressor

MANUAL OVERRIDE
- .....Non Locking Push Type (Flush)
*A ...Non Locking Push Type (Extended)
B .....Lock Type (Screw Type)
*C ...Lock Type (Lever)

Note) * Special Order

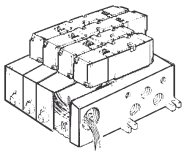
PORTING
- .....Side
*B ...Bottom
Note) *1/8 NPTF Only

PORT SIZE
- .....Without Subplate
01T ...1/8 NPTF
02T ...1/4 NPTF
* Bottom Ported 1/8 NPTF Only

How To Order Manifold

Plug in Type: Connector with Lead Wire (" wire harness")

●The insert plug is attached to the manifold block and is connected with valve side. Connect leads with corresponding power supply.



NVV5FS2-01-06 1-01T

Series NVFS2000 Manifold valve

Plug-in Type Connector with Lead wire
(AXT624-52A-D1-3)

Stations

02	2 stations
⋮	⋮
15	15 stations

Symbol

Symbol	Port specifications P	Port specifications EA, EB	Porting Specifications (A,B)
1	Common	Common	Side Bottom
*2†	Mixed		

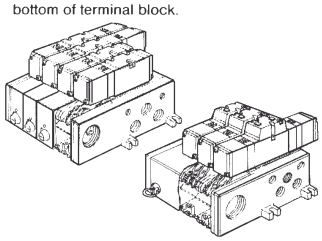
*Special Order
† Bottom porting specification with "-02T" is 1/8" P,A,B bottom and 1/4" A,B side.

Symbol	P, EA, EB	A, B
01T	¼NPTF	⅛NPTF
02T	¼NPTF	¼NPTF

Unit type conduit cover: AXT625-28-3A
Unit type conduit retainer: AXT625-87

Plug-in Type: With Terminal Blocks

●Lead wires of solenoid valve are connected with the terminals on upper surface of terminal block, corresponding lead wires from power source can be wired at the bottom of terminal block.



NVV5FS2 – 01T 1 – 08 1 – 02T

Series NVFS2000 Manifold valve

Plug-in type With terminal block

Junction cover/ classification

–	Unit type individual station cover
1	One-pc. type cover

Note: Individual cover part no. above.

Stations

02	2 stations
⋮	⋮
15	15 stations

Symbol

Symbol	Port specifications P	Port specifications EA, EB	Porting Specifications (A,B)
1	Common	Common	Side Bottom
*2†	Mixed		

*Special Order
† Bottom porting specification with "-02T" is 1/8" P,A,B bottom and 1/4" A,B side

Port size

Symbol	P, EA, EB	A, B
01T	¼NPTF	⅛NPTF
02T	¼NPTF	¼NPTF

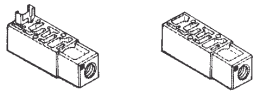
How To Order Manifold / Option Parts Assembly

Manifold /Option Parts Ass'y

SUP Relocation spacer

An individual SUP spacer on manifold block can form individual P port for the valve.

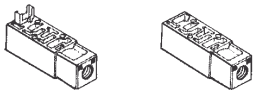
Body type		Plug-in type
Part No.	1/8NPTF	NVVFS2000-P-01T-1
	1/4NPTF	NVVFS2000-P-02T-1



EXH Relocation spacer

An individual EXH spacer on manifold block can form individual EXH port for the valve.

Body type		Plug-in type
Part No.	1/8NPTF	NVVFS2000-R-01T-1
	1/4NPTF	NVVFS2000-R-02T-1



SUP gallery block disc

When supplying manifold with more than one pressure, insert block disc in between stations subjected to different pressures.

Body type	Plug-in type	
Part No.	AXT625-12A	

EXH gallery block disc

When valve exhaust affects the other stations on the circuit or when externally piloted, dual pressure valve is used on a standard manifold, insert EXH block disc(s) in between stations to isolate valve exhaust.

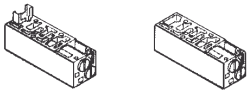
Body type	Plug-in type	
Part No.	AXT625-12A	



Interface speed control

Needle valve on the manifold block can control cylinder speed by throttling exhaust.

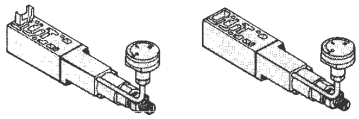
Body type	Plug-in type	
Part No.	NVVFS2000-20A-1	NVVFS2000-20A-2



Interface regulator

Spacer type regulator on manifold block controls supply pressure to the valve. With standard gauge.

Body type	Plug-in type
Pressure Regulation P	NARBF2000-00-P-1

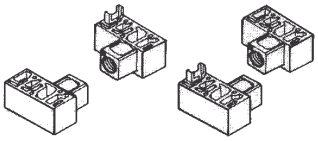


Air Shutoff valve spacer

The concurrent use of air shutoff valve spacer with NVFS21O0 controls supply of air pressure to the manifold (3-way dump valve). Specify location in **first (L)** or **last (R)** station of manifold.

Body type	Plug-in type
Part No.	NVVFS2000-24A-1 L/R

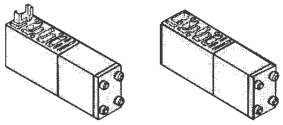
Note) L: U side mount R: D side mount



Double Check "Perfect" spacer

The concurrent use of perfect spacer with built-in double check valve can stop the cylinder at mid-position and hold for extended time without being affected by the air leakage across spool seals.

Body type	Plug-in type
Part No.	NVVFS2000-22A-1



Blank plate

When disassembling valve for maintenance purposes or when spare manifold stations are required, install Blank plate on the manifold block.

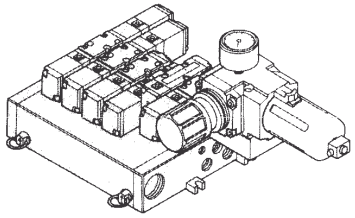
Body type	Plug-in type	
Part No.	VVFS2000-10A	

Manifold /Option

Control Unit

Plug-in type

- Filter/Regulator, Pressure switch, and Air shutoff valve all combine to form one unit.
- Piping work eliminated.

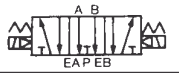


For more information,
Please refer to catalog N233

Model
NVFS3000

Position	Number Of Solenoid	Type Plug-In	Port Size (NPTF)	Cv Factor	Response Time (ms)
2 Position	Single	NVFS3100	1/4	1.8	20 or less
			3/8	2	
	Double	NVFS3200	1/4	1.8	15 or less
			3/8	2	
3 Position	Closed Center	NVFS3300	1/4	1.8	40 or less
			3/8	2	
	Exhaust Center	NVFS3400	1/4	1.8	40 or less
			3/8	2	
	Pressure Center	NVFS3500	1/4	1.8	40 or less
			3/8	2	
	Perfect (Double Check)	NVFS3600	1/4	1.1	50 or less
			3/8	1.2	

Symbols

2 position	3 position
Single	Closed center
	
Double	Exhaust center
	
	Pressure center
	
	Perfect (double check)
	

Technical Specifications Standard

Valve	Fluid		Air and Inert Gas
	Max Operating Pressure		150 PSI (1MPa)
	Min Operating Pressure		22 PSI (0.15MPa)
	Ambient & Fluid Temperature		14~140°F (-10~60°C)
	Lubrication		Not Required
	Pilot Operator Manual Override		Non Locking Push Type (Flush)
	Protection Construction		Dust Proof
Electrical	Rated Voltage	AC	110VAC50/60Hz, 220V50/60Hz, 24V50/60Hz
		DC	12V, 24V
	Allowable Voltage Range		-15 ~ 10% Rated Voltage
	Coil Insulation		Class B or Equivalent
	Apparent Power AC (Power Consumption)	InRush	5.0VA/60Hz, 5.6VA/50Hz
		Holding	2.3VA(1.5W)/60Hz, 3.4VA(2.1W)/50Hz
	Power Consumption DC		1.8W
	Electrical Entry	Plug In	Conduit Terminal (Base Access)

Technical Specifications Optional

Pilot Type		External Pilot Type
Manual Override	Main Valve	Direct Manual Override Type
	Pilot Operator	Non Locking Push Type (Extended), Lock Type (Tool), Lock Type (Lever)
Voltage	AC	100V50/60Hz, 200V50/60Hz
	DC	6V, 48V, 100V
Porting		Bottom Ported Subplate
Option		W/Indicator Light & Surge Voltage Suppressor

How To Order NVFS3000

NVFS 3 ○ 0 ○ ○ — ○ F ○ ○ — ○ ○

POSITION
1 .....2 Position Single
2 .....2 Position Double
3 .....3 Position Closed Center
4 .....3 Position Exhaust Center
5 .....3 Position Pressure Center
6 .....3 Position Perfect

BODY TYPE
0 .....Plug-In Type

MANUAL OPTION
0 .....Standard
1 .....Std & Direct Manual (Special Order)

PILOT OPERATOR
- .....Internal
R .....External (Special Order)

VOLTAGE
1 .....100VAC (Special Order)
2 .....200VAC (Special Order)
3 .....110VAC
4 .....220VAc
5 .....24VDC
6 .....12VDC
9 .....Others (Special Order)

ELECTRICAL ENTRY
F .....Through Base

OPTIONS
- .....None
Z .....With Indicator Light and Surge Voltage Suppressor

MANUAL OVERRIDE
- .....Non Locking Push Type (Flush)
*A ...Non Locking Push Type (Extended)
B .....Lock Type (Screw Type)
*C ...Lock Type (Lever)

Note) * Special Order

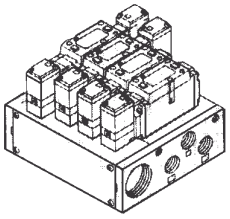
PORTING
- .....Side
*B ...Bottom
Note) *1/8 NPTF Only

PORT SIZE
- .....Without Subplate
02T ...1/4 NPTF
03T ...3/8 NPTF*
* Not available for Bottom Ported

How To Order Manifold

Plug-in Type: With Terminal Blocks

●Lead wires of solenoid valve are connected with the terminals on upper surface of terminal block, corresponding lead wires from power source can be wired at the bottom of terminal block.



NVV5FS3 — 01T — 06 1 — 02T

Series NVFS3000 Manifold valve

Plug-in type With terminal block

Stations

02	2 stations
⋮	⋮
10	10 stations

Porting Symbol

Symbol	Port specifications		Porting Specifications (A,B)
	P	EA, EB	
1	Common	Common	Side
※2			Bottom (Option)
	Mixed		

※ Special Order.

Port size

Symbol	A, B
02T	1/4NPTF
03T	3/8NPTF

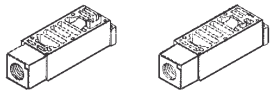
※ Bottom ported 1/4NPTF only.

Manifold/Option Parts

SUP Relocation spacer

An individual SUP spacer on manifold block can form individual P port for the valve.

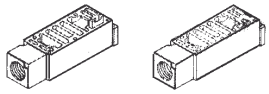
Body type	Plug-in type
Part No.	NVVFS3000-P-03T-1



EXH Relocation spacer

An individual EXH spacer on the manifold block can form individual R port for the valve.

Body type	Plug-in type
Part No.	NVVFS3000-R-03T-1



SUP gallery block disc

When supplying manifold with more than one pressure, insert block disc in between stations subjected to different pressures.

Body type	Plug-in type
Part No.	AXT636-1A

EXH gallery block disc

When valve exhaust affects the other stations on the circuit or when externally piloted, dual pressure valve is used on a standard manifold, insert EXH block disc(s) in between stations to separate valve exhaust.

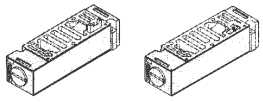
Body type	Plug-in type
Part No.	AXT636-1A



Interface Speed Control

Needle valve on the manifold block can control cylinder speed by throttling exhaust.

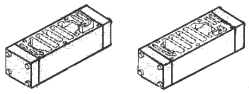
Body type	Plug-in type
Part No.	NVVFS3000-20A-1



Double Check "Perfect" spacer

The concurrent use of perfect spacer with built-in double check valve can stop the cylinder at mid-position and hold for extended time without being affected by normal air leakage across spool seals.

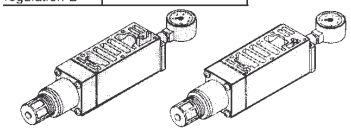
Body type	Plug-in type
Part No.	NVVFS3000-22A-1



Interface regulator

Spacer type regulating valve on manifold block can regulate the pressure to the valve.

Body type	Plug-in type
Pressure regulation P	NARBF3000-N0-P-1
Pressure regulation A	NARBF3000-N0-A-1
Pressure regulation B	NARBF3000-N0-B-1



Blank plate

When disassembling valve for maintenance purposes or when spare manifold stations are required, install Blank plate on the manifold block.

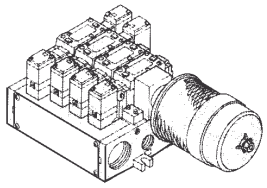
Body type	Plug-in type
Part No.	VVFS3000-10A

Manifold Options

Exhaust Cleaner Unit

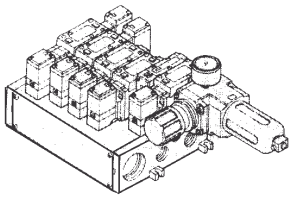
Plug-in type

- Valve exhaust noise damping: 35dB or more.
- Oil mist collection: Rate of collection 99.9% or more.
- Piping process reduced.



Control Unit

- Filter/Regulator, Pressure switch, and Air shutoff valve all combine to form one unit.
- Piping work eliminated.

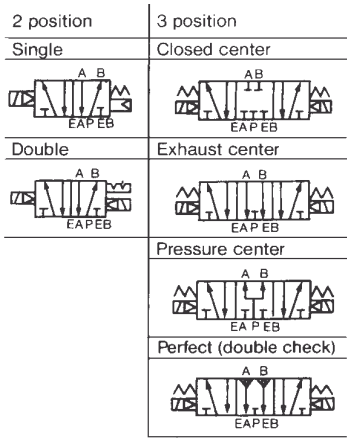


For more information, refer to catalog N233

Model
NVFS4000

Position	Number Of Solenoid	Type Plug-In	Port Size (NPTF)	Cv Factor	Response Time (ms)
2 Position	Single	NVFS4100	3/8	3.3	40 or less
			1/2	6	
	Double	NVFS4200	3/8	3.3	15 or less
			1/2	3.6	
3 Position	Closed Center	NVFS4300	3/8	2.8	50 or less
			1/2	3	
	Exhaust Center	NVFS4400	3/8	2.8	50 or less
			1/2	3	
	Pressure Center	NVFS4500	3/8	3.2	50 or less
			1/2	3.4	
	Perfect (Double Check)	NVFS4600	3/8	1.7	55 or less
			1/2	1.8	

Symbols



Technical Specifications Standard

Valve	Fluid		Air and Inert Gas
	Max Operating Pressure		150 PSI (1MPa)
	Min Operating Pressure	2 Position	15 PSI (0.1MPa)
		3 Position	22 PSI (0.15MPa)
	Ambient & Fluid Temperature		Note 1) 14~140°F (-10~60°C)
	Lubrication		Note 2) Not Required
	Pilot Operator Manual Override		Non Locking Push Type (Flush)
	Protection Construction		Dust Proof
Electrical	Rated Voltage	AC	110VAC50/60Hz, 220V50/60Hz, 24V50/60Hz
		DC	12V, 24V
	Allowable Voltage Range		-15 ~ 10% Rated Voltage
	Coil Insulation		Class B or Equivalent
	Apparent Power AC (Power Consumption)	InRush	5.0VA/60Hz, 5.6VA/50Hz
		Holding	2.3VA(1.5W)/60Hz, 3.4VA(2.1W)/50Hz
	Power Consumption DC		1.8W
	Electrical Entry	Plug In	Conduit Terminal (Base Access)

Note 1) Use Dry Air at Low Temperature
Note 2) Use Turbine Oil No 1 (ISOVG32), if lubricated

Technical Specifications Optional

Pilot Type		External Pilot Type
Manual Override	Main Valve	Direct Manual Override Type
	Pilot Operator	Non Locking Push Type (Extended), Lock Type (Tool), Lock Type (Lever)
Voltage	AC	100V50/60Hz, 200V50/60Hz
	DC	6V, 48V, 100V
Porting		Bottom Ported Subplate
Option		W/Indicator Light & Surge Voltage Suppressor

HOW TO ORDER NVFS4000

NVFS 4 ○ 0 ○ ○ — ○ F ○ ○ — ○ ○

POSITION
1 .....2 Position Single
2 .....2 Position Double
3 .....3 Position Closed Center
4 .....3 Position Exhaust Center
5 .....3 Position Pressure Center
6 .....3 Position Perfect

BODY TYPE
0 .....Plug-In Type

MANUAL OPTION
0 .....Standard
1 .....Std & Direct Manual (Special Order)

PILOT OPERATOR
- .....Internal
R .....External (Special Order)

VOLTAGE
1 .....100VAC (Special Order)
2 .....200VAC (Special Order)
3 .....110VAC
4 .....220VAc
5 .....24VDC
6 .....12VDC
9 .....Others (Special Order)

ELECTRICAL ENTRY
F .....Through Base

OPTIONS
- .....None
Z .....With Indicator Light and Surge Voltage Suppressor

MANUAL OVERRIDE
- .....Non Locking Push Type (Flush)
*A ...Non Locking Push Type (Extended)
B .....Lock Type (Screw Type)
*C ...Lock Type (Lever)

Note) * Special Order

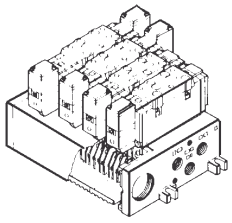
PORTING
- .....Side
*B ...Bottom
Note) *1/8 NPTF Only

PORT SIZE
- .....Without Subplate
03T ...3/8 NPTF
*04T..1/2 NPTF
* EA, EB: 3/8 NPTF
Bottom Ported: 3/8 Only

HOW TO ORDER MANIFOLD

Plug-in Type: With Terminal Block

●Lead wires of solenoid valve are connected with the terminals on upper surface of terminal block, corresponding lead wires from power source can be wired at the bottom of terminal block.



NVV5FS4 — 01T — 06 1 — 03T

Series NVFS4000 Manifold valve

Plug-in type With terminal block

Stations

02	2 stations
⋮	⋮
10	10 stations

Symbol

Suffix	Port specifications		Porting specifications (A,B)
	P	EA, EB	
1	Common	Common	Side
※2			※Bottom
	Mixed		

* Special order.

Port size

Suffix	P, EA, EB	A, B
03T	½ NPTF	⅜ NPTF
04T		½ NPTF

※ Bottom ported 3/8NPTF only.

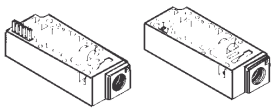
HOW TO ORDER MANIFOLD / OPTION PARTS ASSEMBLY

Manifold / Option Parts

SUP Relocation spacer

An individual SUP spacer on manifold block can form individual P port for the valve.

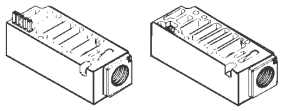
Body type	Plug-in type
Part No.	NVVFS4000-P-03T-1



EXH Relocation spacer

An individual EXH spacer on manifold block can form individual R port for the valve.

Body type	Plug-in type
Part No.	NVVFS4000-R-04T-1



SUP gallery block disc

When supplying manifold with more than one pressure, insert block disc in between stations subjected to different pressures.

Body type	Plug-in type
Part No.	AXT634-10A



SUP block disc

EXH gallery block disc

When valve exhaust affects the other stations on the circuit or when the reverse pressure valve is used on a standard manifold, insert EXH block disc(s) in between stations to separate valve exhaust.

Body type	Plug-in type
Parts No.	AXT634-11A

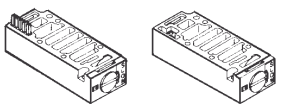


EXH block disc

Interface speed control

Needle valve on the manifold block can control cylinder speed by throttling exhaust.

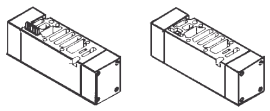
Body type	Plug-in type
Part No.	NVVFS4000-20A-1



Double Check "Perfect" spacer

The concurrent use of perfect spacer with built-in double check valve can stop the cylinder at mid-position and hold for extended time without being affected by normal air leakage across the spool seals.

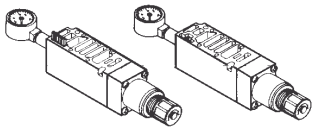
Body type	Plug-in type
Part No.	NVVFS4000-22A-1



Interface regulator

Spacer tyne regulating valve on manifold block can regulate the pressure to the valve. With std. gauge.

Body type	Plug-in type
Pressure Regulation P	NARBF4000-N0-P-1
Pressure Regulation A	NARBF4000-N0-A-1
Pressure Regulation B	NARBF4000-N0-B-1



Blank plate: VVFS4000-10A

When disassembling valve for maintenance purposes or when spare manifold stations are required, install Blank plate on the manifold block.

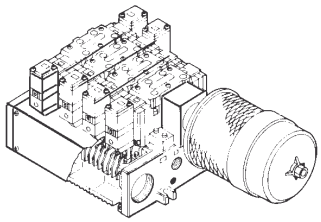
Body type	Plug-in type
Part No.	VVFS4000-10A

Manifold Options

With exhaust cleaner unit

Plug-in type

- Valve exhause noise damping: 35db or more.
- Oil mist collection: Rate of collection 99.9% or more.
- Piping process reduced.

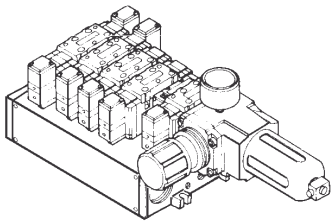


For more information,
refer to catalog N233

With Control Unit

Plug-in type

- Filter/Regulator, Pressure Switch, and Air shutoff valve all combine to form one unit.
- Piping work eliminated.

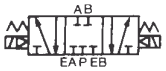
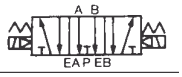


For more information,
refer to catalog N233

MODEL
NVFS5000

Position	Number Of Solenoid	Type Plug-In	Port Size (NPTF)	Cv Factor	Response Time (ms)
2 Position	Single	NVFS5100	3/8 1/2 3/4	4.4 5.4 5.7	45 or less
	Double	NVFS5200	3/8 1/2 3/4	4.4 5.4 5.7	25 or less
3 Position	Closed Center	NVFS5300	3/8 1/2 3/4	3.7 4.6 4.8	55 or less
	Exhaust Center	NVFS5400	3/8 1/2 3/4	3.9 4.8 5	55 or less
	Pressure Center	NVFS5500	3/8 1/2 3/4	3.9 4.8 4.9	55 or less
	Perfect (Double Check)	NVFS5600	3/8 1/2 3/4	2.2 2.7 2.8	60 or less

SYMBOLS

2 position	3 position
Single	Closed center
	
Double	Exhaust center
	
	Pressure center
	
	Perfect (double check)
	

TECHNICAL SPECIFICATIONS STANDARD

Valve	Fluid		Air and Inert Gas
	Max Operating Pressure		150 PSI (1MPa)
	Min Operating Pressure		15 PSI (0.15MPa)
	Ambient & Fluid Temperature		Note 1) 14~140°F (-10~60°C)
	Lubrication		Note 2) Not Required
	Pilot Operator Manual Override		Non Locking Push Type (Flush)
	Protection Construction		Dust Proof
Electrical	Rated Voltage	AC	110VAC50/60Hz, 220V50/60Hz, 24V50/60Hz
		DC	12V, 24V
	Allowable Voltage Range		-15 ~ 10% Rated Voltage
	Coil Insulation		Class B or Equivalent
	Apparent Power AC (Power Consumption)	InRush	5.0VA/60Hz, 5.6VA/50Hz
		Holding	2.3VA(1.5W)/60Hz, 3.4VA(2.1W)/50Hz
	Power Consumption DC		1.8W
	Electrical Entry	Plug In	Conduit Terminal (Base Access)

TECHNICAL SPECIFICATIONS OPTIONAL

Pilot Type		External Pilot Type
Manual Override	Main Valve	Direct Manual Override Type
	Pilot Operator	Non Locking Push Type (Extended), Lock Type (Tool), Lock Type (Lever)
Voltage	AC	100V50/60Hz, 200V50/60Hz
	DC	6V, 48V, 100V
Porting		Bottom Ported Subplate
Option		W/Indicator Light & Surge Voltage Suppressor

Note 1) Use Dry Air at Low Temperature
Note 2) Use Turbine Oil No 1 (ISOVG32), if lubricated

How To Order NVFS5000

NVFS 5 ○ 0 ○ ○ — ○ F ○ ○ — ○ ○

POSITION
1 .....2 Position Single
2 .....2 Position Double
3 .....3 Position Closed Center
4 .....3 Position Exhaust Center
5 .....3 Position Pressure Center
6 .....3 Position Perfect

BODY TYPE
0 .....Plug-In Type

MANUAL OPTION
0 .....Standard
1 .....Std & Direct Manual (Special Order)

PILOT OPERATOR
- .....Internal
R .....External (Special Order)

VOLTAGE
1 .....100VAC (Special Order)
2 .....200VAC (Special Order)
3 .....110VAC
4 .....220VAc
5 .....24VDC
6 .....12VDC
9 .....Others (Special Order)

ELECTRICAL ENTRY
F .....Through Base

OPTIONS
- .....None
Z .....With Indicator Light and Surge Voltage Suppressor

MANUAL OVERRIDE
- .....Non Locking Push Type (Flush)
*A ...Non Locking Push Type (Extended)
B .....Lock Type (Screw Type)
*C ...Lock Type (Lever)

Note) * Special Order

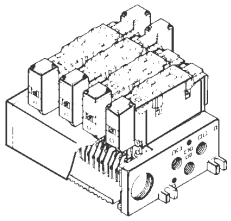
PORTING
- .....Side
*B ...Bottom
Note) *1/8 NPTF Only

PORT SIZE
- .....Without Subplate
03T ...3/8 NPTF
04T ...1/2 NPTF
06T ...3/4 NPTF

How To Order Manifold

Plug-in Type: With Terminal Block

●Lead wires of solenoid valve are connected with the terminals on upper surface of terminal block, corresponding lead wires from power source can be wired at the bottom of terminal block.



NVV5FS5 – 01T – 06 1 – 04T

Series NVFS5000 Manifold valve

Plug-in type With terminal block

Stations

02	2 stations
⋮	⋮
10	10 stations

Symbol

Suffix	Port specifications		Porting specifications (A, B)
	P	EA, EB	
1	Common	Common	Side
※2			※ Bottom
	Mixed		

※Special order

Port size

Suffix	P, EA, EB	A, B
04T	¾ NPTF	½ NPTF
06T		¾ NPTF

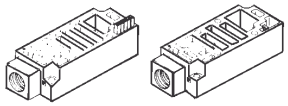
※ Bottom ported 1/2NPTF only.

Manifold / Option Part's Ass'y

SUP Relocation spacer

An individual SUP spacer on manifold block can form individual P port for the valve.

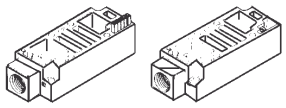
Body type	Plug-in type
Part No.	NVVFS5000-P-04T-1



EXH Relocation spacer

An individual EXH spacer on manifold block can form individual R port for the valve

Body type	Plug-in type
Part No.	NVVFS5000-R-04T-1



SUP gallery block disc

When supplying manifold with more than one pressure, insert block disc in between stations subjected to different pressures.

Body type	Plug-in type
Part No.	AXT628-12A



SUP block disc

EXH gallery block disc

When valve exhaust affects the other stations on the circuit or when externally piloted, dual pressure valve is used on a standard manifold, insert EXH block disc(s) in between stations to separate valve exhaust.

Body type	Plug-in type
Part No.	AXT512-14-1A

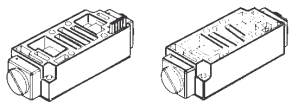


EXH block disc

Interface speed control

Needle valve on the manifold block can control cylinder speed by throttling exhaust.

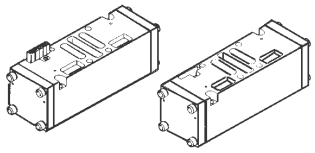
Body type	Plug-in type
Part No.	NVVFS5000-20A-1



Double Check "Perfect" spacer

The concurrent use of perfect spacer with built-in double check valve can stop the cylinder at mid-position and hold for extended time without being affected by normal air leakage across the spool seals.

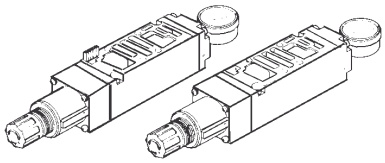
Body type	Plug-in type
Part No.	NVVFS5000-22A-1



Interface regulator

Spacer type regulating valve on manifold block can regulate the pressure to the valve.

Body type	Plug-in type
Pressure Regulation P	NARBF5000-N0-P-1
Pressure Regulation A	NARBF5000-N0-A-1
Pressure Regulation B	NARBF5000-N0-B-1



Blank plate

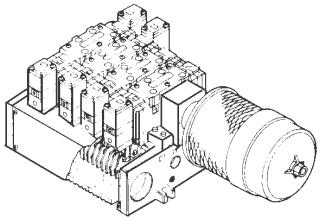
When disassembling valve for maintenance purposes or when spare manifond stations are required, install Blank plate on the manifold block.

Body type	Plug-in type
Part No.	VVFS5000-10A

Manifold Options

With Exhaust Cleaner Plug-in type

- Valve exhaust noise damping: 35dB or more.
- Oil mist collection: Rate of collection 99.9% or more.
- Piping process reduced.



For more information, Please refer to catalog N233

Model
NVFS6000

Position	Number Of Solenoid	Type Plug-In	Port Size (NPTF)	Cv Factor	Response Time (ms)
2 Position	Single	NVFS6100	3/4"	9	60 or less
			1"	10	
	Double	NVFS6200	3/4"	9	60 or less
			1"	10	

Symbols

2 position

Single



Double



Technical Specifications Standard

Valve	Fluid	Air and Inert Gas
	Max Operating Pressure	145 PSI (1.2MPa)
	Min Operating Pressure	15 PSI (0.1MPa)
	Proof Pressure	220PSI (1.5MPa)
	Ambient & Fluid Temperature	14~140°F (-10~60°C)
	Lubrication	Not Required
	Pilot Operator Manual	Non Locking Push Type (Flush)
	Override	Dust Proof
Electrical	Protection Construction	110VAC50/60Hz, 24VDC, Others
	Rated Voltage	-15 ~ 10% Rated Voltage
	Allowable Voltage Range	Class B or Equivalent (130°C)
	Coil Insulation	5.0VA/60Hz, 5.6VA/50Hz
	Apparent Power AC InRush	2.3VA(1.5W)/60Hz, 3.4VA(2.1W)/50Hz
	(Power Consumption) Holding	1.8W
	Power Consumption DC	Conduit Terminal
	Electrical Entry	With Indicator Light and Surge
	Option	Voltage Suppressor (FZ Style)

For more technical information on this series, please consult SMC customer service

How To Order NVFS6000

NVFS 6 ○ 0 ○ ○ ○ — ○ F ○ — ○

Position
1 .....2 Position Single
2 .....2 Position Double

Body Type
0 .....Plug-In Type

Option
0 .....Standard
1 .....Std & Direct Manual (Special Order)

Pilot Operator
- .....Internal
R .....External (Special Order)

Voltage
1 .....100VAC (Special Order)
2 .....200VAC (Special Order)
3 .....110VAC
4 .....220VAc
5 .....24VDC
6 .....12VDC
9 .....Others (Special Order)

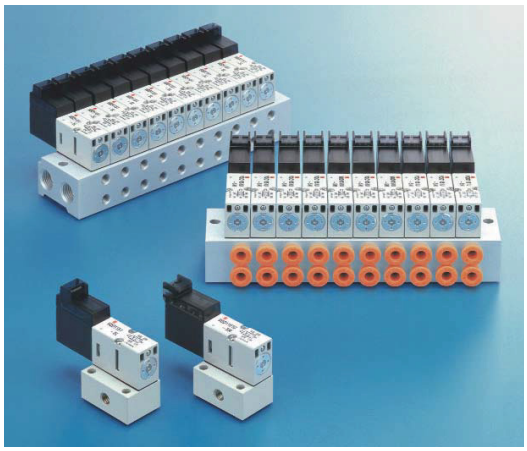
Electrical Entry
F .....Through Base

Porting
- .....Side
*B ...Bottom
Note) *1/8 NPTF Only

Port Size
- .....Without Subplate
06T ...3/4 NPTF
10T ...1" NPTF

4 Port Direct Operated Poppet Solenoid Valve Series VQD1000

- High Speed Coil with Stable Response Times
- Large Flow Capacity in a Compact Lightweight (34g) Valve
- Vacuum Applications are possible (up to 10 Torr)
- Clean Room Specifications are available as Special
- Copper Free Specifications is Standard



Technical Specifications Series VD1000

Valve Specifications	Standard Type (2W)	High Flow Capacity (4W Power Saving Type)
Valve Structure	4 Port Direct Operated Poppet Valve	
Fluid	Air, Inert Gas	
Max Operating Pressure	0.7MPa (7.1kgf/cm²)	
Min Operating Pressure/Vacuum	0MPa / 10 Torr	
Effective Area (Cv Factor)	0.9mm² (Cv 0.05)	1.5mm² (Cv 0.08)
Response Time	ON: 4ms / OFF: 2ms	
Ambient & Fluid Temperature	-10 ~ 50°C	
Lubrication	Not Required	
Manual Override	Non-Locking Push Type	
Shock Resistance/Vibration Resistance	150 / 30m/s²	
Mounting Orientation	Free	
Enclosure	Dust Proof	
Weight	34g (without Sub-Plate)	
Electrical Specifications		
Coil Rated Voltage DC	24V, 12V	
Allowable Voltage Fluctuation	±10% of Rated Voltage	
Type of Coil Insulation	Class B	
Power Consumption DC	2W	4W (Power Saving) (Inrush: 4W; Holding: 2W)
Electrical Entry	L Type Plug Connector, M Type Plug Connector (With Light and Surge Suppressor)	

Notes :

- The 4W Power Saving Circuit, has an inrush power demand of 4W for 10ms when first energized. After this, Holding Power falls to 2W.
- A Clean Room version is available to specified order - please contact your local SMC Sales Office for further information.
- The VQD1000 is used either on a Single Sub-base or Manifold Mounted. Body Ported versions have not been developed.
- Can be used as a 3 Port Valve by plugging either the A or B Port.

How To Order Series VQD1000 Solenoid Valve

VQD1151 ● — ● ● — ●

VQD Series
4 Port Direct Operated Poppet Valve (Single Solenoid)

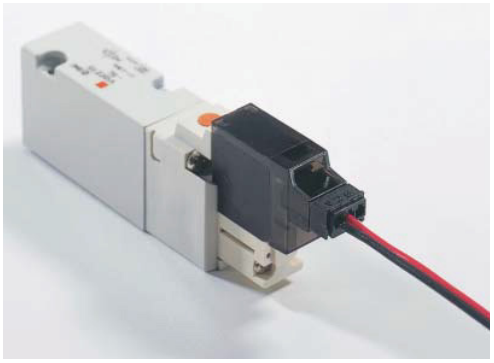
Valve Option
- .....Standard (2W)
V* ...Vacuum (2W)
U* ...High Flow (4W)
W .....High Flow, Vacuum (4W)
*Power Saving Type

Rated Voltage
5 .....24VDC
6 .....12VDC
Note) Consult SMC for other Voltages

Electrical Entry
L .....Plug Lead Type
L Type Plug Connector with Lead Wire; w/Light and Surge Suppressor
LO ...Plug Lead Type
L Type Plug Connector without Lead Wire; w/Light and Surge Suppressor
M .....Plug Lead Type
M Type Plug Connector with Lead Wire; w/Light and Surge Suppressor
MO ...Plug Lead Type
M Type Plug Connector without Lead Wire; w/Light and Surge Suppressor

Sub-Plate Port Size
- .....Without Sun-Plate
M5 ...M5 Thread

3 Port Solenoid Valve Base Mounted / Plug Lead Type Series VQZ100/200/300



Technical Specifications Series VQZ100/200/300

Valve Specifications	Type Of Seal	Metal Seal	Rubber Seal
	Fluid	Air, Inert Gas	Air, Inert Gas
	Maximum Operating Pressure	0.7MPa / 102PSI (High Pressure Type 0.8MPa / 116PSI)	
	Minimum Operating Pressure	0.1MPa / 14.5PSI	0.15MPa / 22PSI
	Ambient & Fluid Temperature	-10° to 50°C	-10° to 50°C
	Max Operating Frequency	20Hz	5Hz
	Proof Pressure	1.5MPa / 218PSI	
	Lubrication	Not Required	
	Manual Override	Non-Locking Push Type/Slotted Locking Type	
	Shock/Vibration Resistance	150/30 m/s²	
	Enclosure	Dust Proof	
Solenoid Specifications	Coil Rated Voltage	12, 24VDC and 100, 110, 200, 220VAC	
	Allowable Voltage	±10% of Rated Voltage	
	Coil Insulation	Class B	
	24VDC	1WDC (42mA), 1.5WDC (63mA), 0.5WDC (21mA)	
	12VDC	1WDC (83mA), 1.5WDC (125mA), 0.5WDC (42mA)	
Power Consumption (Current Value)	100VAC	Inrush 1.2VA (12mA), Holding 1.2VA (12mA)	
	110VAC	Inrush 1.3VA (11.7mA), Holding 1.3VA (11.7mA)	
	200VAC	Inrush 2.4VA (12mA), Holding 2.4VA (12mA)	
	220VAC	Inrush 2.6VA (11.7mA), Holding 2.6VA (11.7mA)	

For further techical information on Series VQZ100 / 200 / 300, please refer to CAT:E146 or contact your local SMC Representative.

How To Order Series VQZ100/200/300 Base Mounted Plug Lead Type

VQZ ○○ 5 ○ — ○○○ — ○

Series
1 .....VQZ100 Body Width 10mm
2 .....VQZ200 Body Width 15mm
3 .....VQZ300 Body Width 18mm

Symbol
1 .....Normally Closed Metal Seal
2 .....Normally Open Metal Seal (VQZ200/300 Only)
3 .....Normally Closed Rubber Seal (VQZ200/300 Only)
4 .....Normally Open Rubber Seal (VQZ200/300 Only)

Body Type
5 .....Base Mounted

Function
- .....Standard Type (1W)
H .....High Pressure Type (1.5W) *Note 1) Note 2)*
Y .....Low Wattage Type (0.5W) *Note 1)*
R .....External Pilot
Note 1) Applicable to DC Specification
Note 2) Optional Specification
Note 3) When specifying more than one option, combine symbols in alphabetical order.

Coil Voltage
1* ...100VAC (50/60Hz)
2* ...200VAC (50/60Hz)
3* ...110VAC (50/60Hz)
4* ...220VAC (50/60Hz)
5 .....24VDC
6 .....12VDC
9* ...Other (Special Voltage)

Manual Override
- .....Non Locking Push Type (Tool Type)
B .....Slotted Locking Type (Tool Type)

Electrical Entry
L .....L Type Plug Connector with Lead Wire
LO ...L Type Plug Terminal without Connector
M .....M Type Plug Connector with Lead Wire
MO ...M Type Plug Terminal without Connector
Y .....DIN Connector (VQZ200/300)
YO ...Terminal without Connector (VQZ200/300)
YZ ...DIN Connector (VQZ200/300)
YOS ...DIN Terminal without Connector (VQZ200/300)

Port Size {2(A) Port} : VQZ100

Symbol	Port Size
CP	Without Sub-Plate
01	Rc(PT)1/8

Port Size {4(A), 2(B) Port} : VQZ200/300

Symbol	Port Size
-	Without Sub-Plate (VQZ1000/2000/3000)
01	Rc(PT)1/8 (VQZ1000/2000)
02	Rc(PT)1/4 (VQZ1000)
03	Rc(PT)3/8 (VQZ1000/2000)

Model
Series VQZ100/200/300

Series	Valve Construction	Type		Effective Area mm² (Cv) Note 1)	Response Time ms Standard : 1W High Pressure: 1.5W	Response Time ms Low Wattage and AC	Weight Note 2)
VQZ100	Normally Closed	Poppet	VQZ115	5.4 (0.3)	10 or less	13 or less	25
VQZ200	Normally Closed	Metal	VQZ215	10.8 (0.6)	14 or less	18 or less	53
	Normally Closed	Rubber	VQZ235	12.6 (0.7)	15 or less	20 or less	53
	Normally Open	Metal	VQZ225	10 (0.55)	14 or less	18 or less	53
	Normally Open	Rubber	VQZ245	12.6 (0.7)	15 or less	20 or less	53
VQZ300	Normally Closed	Metal	VQZ315	16.2 (0.9	17 or less	22 or less	77
	Normally Closed	Rubber	VQZ235	21.6 (1.2)	25 or less	33 or less	77
	Normally Open	Metal	VQZ325	15.3 (0.85)	17 or less	22 or less	77
	Normally Open	Rubber	VQZ345	21.6 (1.2)	25 or less	33 or less	77

Note 1) Value for Sub-Plate and Maximum Diameter

Note 2) Weight without Sub-Plate

How To Order
Series VQZ100/200/300 Base Mounted Plug Lead Type Manifold

VV3QZ ● 5 — ● ● C — ●

Series
1 .....VQZ100
2 .....VQZ200
3 .....VQZ300

Manifold Type
5 .....Base Mounted

No Of Stations
02 ...2 Stations
"
20 ...20 Stations

Kit
C .....Connector

Option
- .....None
D .....DIN Rail Mounting Type (With DIN Rail Standard Length)
DO ...DIN Rail Mounting Type (Without DIN Rail) Note 1)
R .....External Pilot

Note 1) Order DIN Rail Separately

Port Size {2(A) Port}

Symbol	Port Size
C3*	One Touch Fitting for ø3.2 (VQZ100)
C4*	One Touch Fitting for ø4 (VQZ100/200)
C6*	One Touch Fitting for ø6 (VQZ100/200/300)
C8	One Touch Fitting for ø8 (VQZ200/300)
C10	One Touch Fitting for ø10 (VQZ300)
M5*	M5 Thread (VQZ100)
01	Rc(PT)1/8 (VQZ200)
02	Rc(PT)1/4 (VQZ300)
CM	Mixture of Port Size (VQZ100/200/300) *Specify the Mixture Port, Port Plug by means of the Manifold Specification Form. For Mixture Port and Port Plug, it is available only by One Touch Fitting Type.*
CP	With Port Plug (For Top Piping)

** Applies to VQZ100 Manifold: For Lateral Piping*

How To Order
Series VQZ100/200/300 Base Mounted Plug Lead Type Valve

VQZ ● ● 5 ● — ● ● ● — ●

Series
1 .....VQZ100
2 .....VQZ200
3 .....VQZ300

Symbol
1 .....NC -Metal Seal
2 .....NO -Metal Seal (VQZ2/300)
3 .....NC -Rubber Seal (VQZ2/300)
4 .....NO -Rubber Seal (VQZ2/300)

Body Type
5 .....Base Mounted

Function
- .....Standard Type (1W)
H .....High Pressure Type (1.5W)
Y .....(Low Wattage Type (0.5W)
R .....External Pilot

Coil Voltage
1* ...100VAC (50/60Hz)
2* ...200VAC (50/60Hz)
3* ...110VAC (50/60Hz)
4* ...220VAC (50/60Hz)
5 .....24VDC
6 .....12VDC
9* ...Others

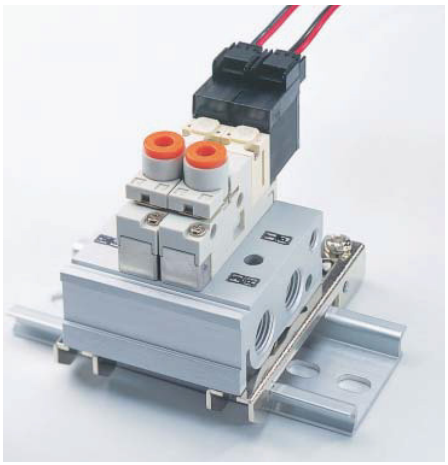
Electrical Entry
L .....L Type Plug Connector with Lead Wire
LO ...L Type Plug Terminal without Connector
M .....M Type Plug Connector with Lead Wire
MO ...M Type Plug Terminal without Connector
Y .....DIN Connector (VQZ200/300)
YO ...Terminal without Connector (VQZ200/300)
YZ ...DIN Connector (VQZ200/300)
YOS ...DIN Terminal without Connector (VQZ200/300)

Manual Override
- .....Non Locking Push Type (Tool Type)
B .....Slotted Locking Type (Tool Type)

Port Size : VQZ100 Only

C3	One Touch Fitting for ø3.2
C4	One Touch Fitting for ø4
C6	One Touch Fitting for ø6
M5	M5 Thread (VQZ100)
CP	With Port Plug (With Lateral Piping)

3 Port Solenoid Valve Body Ported / Plug Lead Type Series VQZ100/200/300



Technical Specifications Series VQZ100/200/300

Valve Specifications	Type Of Seal	Metal Seal	Rubber Seal
	Fluid	Air, Inert Gas	Air, Inert Gas
	Maximum Operating Pressure	0.7MPa / 102PSI (High Pressure Type 0.8MPa / 116PSI)	
	Minimum Operating Pressure	0.1MPa / 14.5PSI	0.15MPa / 22PSI
	Ambient & Fluid Temperature	-10° to 50°C	-10° to 50°C
	Max Operating Frequency	20Hz	5Hz
	Proof Pressure	1.5MPa / 218PSI	
	Lubrication	Not Required	
	Manual Override	Non-Locking Push Type/Slotted Locking Type	
	Shock/Vibration Resistance	150/30 m/s²	
	Enclosure	Dust Proof	
Solenoid Specifications	Coil Rated Voltage	12, 24VDC and 100, 110, 200, 220VAC	
	Allowable Voltage	±10% of Rated Voltage	
	Coil Insulation	Class B	
	24VDC	1WDC (42mA), 1.5WDC (63mA), 0.5WDC (21mA)	
	12VDC	1WDC (83mA), 1.5WDC (125mA), 0.5WDC (42mA)	
	Power 100VAC	Inrush 1.2VA (12mA), Holding 1.2VA (12mA)	
	Consumption 110VAC	Inrush 1.3VA (11.7mA), Holding 1.3VA (11.7mA)	
	(Current Value) 200VAC	Inrush 2.4VA (12mA), Holding 2.4VA (12mA)	
	220VAC	Inrush 2.6VA (11.7mA), Holding 2.6VA (11.7mA)	

For further techical information on Series VQZ100 / 200 / 300, please refer to CAT:E147 or contact your local SMC Representative.

How To Order Series VQZ100/200/300 Body Ported Plug Lead Type

VQZ ○○ 2 ○ — ○ ○ ○ — ○ — PR ○

Bracket
- . .None
F . .With Bracket

Applicable to VQZ100 Only

Series
1 .....VQZ100 Body Width 10mm
2 .....VQZ200 Body Width 15mm
3 .....VQZ000 Body Width 18mm

Port Size 2(A) Port : VQZ100/200/300
C3 ...One Touch Fitting ø3.2 (VQZ100 Only)
C4 ...One Touch Fitting ø4 (VQZ100/200)
C6 ...One Touch Fitting ø6
C8 ...One Touch Fitting ø8 (VQZ300)
C10 ...One Touch Fitting ø10 (VQZ300)
M5 ...M5 Thread (VQZ100/200)
02 ...Rc(PT)1/4 (VQZ300)

Symbol
1 .....Normally Closed Metal Seal
2 .....Normally Open Metal Seal (VQZ200/300 Only)
3 .....Normally Closed Rubber Seal (VQZ200/300 Only)
4 .....Normally Open Rubber Seal (VQZ200/300 Only)

Manual Override
- .....Non Locking Push Type (Tool Type)
B .....Slotted Locking Type (Tool Type)

Body Type
2 .....Body Ported

Function
- .....Standard Type (1W)
H .....High Pressure Type (1.5W) *Note 1) Note 2)*
Y .....Low Wattage Type (0.5W) *Note 1)*
R .....External Pilot
Note 1) Applicable to DC Specification
Note 2) Optional Specification
Note 3) When specifying more than one option, combine symbols in alphabetical order.

Coil Voltage
1* ...100VAC (50/60Hz)
2* ...200VAC (50/60Hz)
3* ...110VAC (50/60Hz)
4* ...220VAC (50/60Hz)
5 .....24VDC
6 .....12VDC
9* ...Other (Special Voltage)

Electrical Entry
L .....L Type Plug Connector with Lead Wire
LO ...L Type Plug Terminal without Connector
M .....M Type Plug Connector with Lead Wire
MO ...M Type Plug Terminal without Connector
Y .....DIN Connector (VQZ200/300)
YO ...Terminal without Connector (VQZ200/300)
YZ ...DIN Connector (VQZ200/300)
YOS ...DIN Terminal without Connector (VQZ200/300)

Series VQZ100/200/300 Body Ported

Model
Series VQZ100/200/300

Series	Valve Construction	Type		Effective Area mm² (Cv) Note 1)	Response Time ms Standard : 1W High Pressure: 1.5W	Response Time ms Low Wattage and AC	Weight Note 2)
VQZ100	Normally Closed	Poppet	VQZ115	5.4 (0.3)	10 or less	13 or less	25
VQZ200	Normally Closed	Metal	VQZ215	10.8 (0.6)	14 or less	18 or less	53
	Normally Closed	Rubber	VQZ235	12.6 (0.7)	15 or less	20 or less	53
	Normally Open	Metal	VQZ225	10 (0.55)	14 or less	18 or less	53
	Normally Open	Rubber	VQZ245	12.6 (0.7)	15 or less	20 or less	53
VQZ300	Normally Closed	Metal	VQZ315	16.2 (0.9	17 or less	22 or less	77
	Normally Closed	Rubber	VQZ235	21.6 (1.2)	25 or less	33 or less	77
	Normally Open	Metal	VQZ325	15.3 (0.85)	17 or less	22 or less	77
	Normally Open	Rubber	VQZ345	21.6 (1.2)	25 or less	33 or less	77

Note 1) Value for Sub-Plate and Maximum Diameter

Note 2) Weight without Sub-Plate

How To Order
Series VQZ100/200/300 Body Ported Plug Lead Type Manifold

VV3QZ ● 2 — ● C — ●

Series
1 .....VQZ100
2 .....VQZ200
3 .....VQZ300

Manifold Type
2 .....Body Ported

No Of Stations
02 ...2 Stations
"
20 ...20 Stations

Kit
C .....Connector

DIN Rail Mount
- .....None
D .....DIN Rail Mounting Type (With DIN Rail Standard Length)
DO ...DIN Rail Mounting Type (Without DIN Rail) Note 1)

Note 1) Order DIN Rail Separately

How To Order
Series VQZ100/200/300 Body Ported Plug Lead Type Valve

VQZ ● ● 2 ● — ● ● ● — ●

Series
1 .....VQZ100
2 .....VQZ200
3 .....VQZ300

Symbol
1 .....NC -Metal Seal
2 .....NO -Metal Seal (VQZ2/300)
3 .....NC -Rubber Seal (VQZ2/300)
4 .....NO -Rubber Seal (VQZ2/300)

Body Type
2 .....Body Ported

Function
- .....Standard Type (1W)
H .....High Pressure Type (1.5W)
Y .....(Low Wattage Type (0.5W)
R .....External Pilot

Coil Voltage
1* ...100VAC (50/60Hz)
2* ...200VAC (50/60Hz)
3* ...110VAC (50/60Hz)
4* ...220VAC (50/60Hz)
5 .....24VDC
6 .....12VDC
9* ...Others

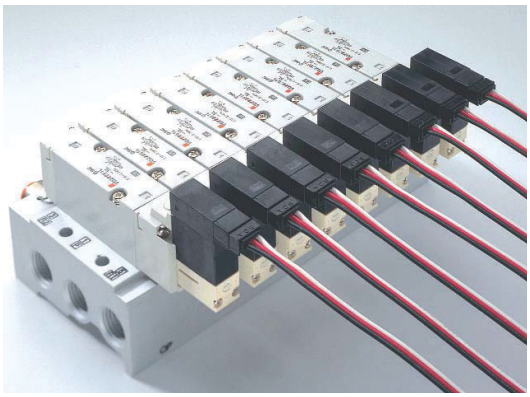
Electrical Entry
L .....L Type Plug Connector with Lead Wire
LO ...L Type Plug Terminal without Connector
M .....M Type Plug Connector with Lead Wire
MO ...M Type Plug Terminal without Connector
Y .....DIN Connector (VQZ200/300)
YO ...Terminal without Connector (VQZ200/300)
YZ ...DIN Connector (VQZ200/300)
YOS ...DIN Terminal without Connector (VQZ200/300)

Manual Override
- .....Non Locking Push Type (Tool Type)
B .....Slotted Locking Type (Tool Type)

Port Size 2(A) Port

C3	One Touch Fitting for ø3.2 (VQZ100)
C4	One Touch Fitting for ø4 (VQZ100/200)
C6	One Touch Fitting for ø6 (VQZ100/200/300)
C10	One Touch Fitting for ø10 (VQZ300)
M5	M5 Thread (VQZ100/200)
02	Rc(PT)1/4 (VQZ300)

5 Port Solenoid Valve Base Mounted / Plug Lead Type Series VQZ1000/2000/3000



- High Speed and Long Life
- Compact Design with Large Flow Capacity
- Metal or Rubber Seal Main Valve Construction Options
- Optional IP65 Rated DIN Connector Type Available
- DIN Rail Mounting Available
- Built-In One Touch Fitting for Easier Piping
- Piping Direction can be changed on VQZ100
- Both 3 and 5 Port Valves can be mounted on the same manifold
- Possible to have all Solenoids on same side of Manifold

Technical Specifications
Series VQZ1000/2000/3000

For further techical information on Series VQZ1000 / 2000 / 3000, please refer to CAT:E146 or contact your local SMC Representative.

Series VQZ1000/2000/3000 Base Mounted Cv Factor			
	1	2	3
Metal Spool	0.2	0.6	0.9
Rubber Spool	0.35	0.7	1.2

Valve Specifications	Type Of Seal		Metal Seal	Rubber Seal
	Fluid		Air, Inert Gas	Air, Inert Gas
	Maximum Operating Pressure		0.7MPa / 102PSI (High Pressure Type 0.8MPa / 116PSI)	
	Minimum Operating Pressure	Single (2 Pos)	0.10MPa / 14.5PSI	0.15MPa / 22PSI
		Double (2 Pos)	Only for VQZ3000 / 3 Pos	0.10MPa / 14.5PSI
		3 Position	0.15MPa / 22PSI	0.20MPa / 29PSI
	Ambient & Fluid Temperature		-10° to 50°C / 14 to 122°F	-10° to 50°C / 14 to 122°F
	Max Operating Frequency	2 Position S & D	20Hz	5Hz
		3 Position	10Hz	3Hz
	Proof Pressure		1.5MPa / 218PSI	
	Lubrication		Not Required	
	Manual Override		Non-Locking Push Type/Slotted Locking Type	
	Shock/Vibration Resistance		150/30 m/s²	
	Enclosure		Dust Proof	
Solenoid Specifications	Coil Rated Voltage		12, 24VDC and 100, 110, 200, 220VAC	
	Allowable Voltage		±10% of Rated Voltage	
	Coil Insulation		Class B	
	Power Consumption (Current Value)	24VDC	1WDC (42mA), 1.5WDC (63mA), 0.5WDC (21mA)	
		12VDC	1WDC (83mA), 1.5WDC (125mA), 0.5WDC (42mA)	
		100VAC	Inrush 1.2VA (12mA), Holding 1.2VA (12mA)	
		110VAC	Inrush 1.3VA (11.7mA), Holding 1.3VA (11.7mA)	
		200VAC	Inrush 2.4VA (12mA), Holding 2.4VA (12mA)	
		220VAC	Inrush 2.6VA (11.7mA), Holding 2.6VA (11.7mA)	

How To Order
Series VQZ Base Mounted Plug Lead Type

VQZ ○○ 5 ○○ — ○ ○ ○ — ○

Series
1 .....VQZ1000 Body Width 10mm
2 .....VQZ2000 Body Width 15mm
3 .....VQZ3000 Body Width 18mm

Positions
1 .....2 Position Single
2 .....2 Position Double
3 .....3 Position Closed Center
4 .....3 Position Exhaust Center
5 .....3 Position Pressure Center

Body Type
5 .....Base Mounted

Seal
0 .....Metal Seal
1 .....Rubber Seal

Function
- .....Standard Type (1W)
H .....High Pressure Type (1.5W) *Note 1) Note 2)*
Y .....Low Wattage Type (0.5W) *Note 1)*
R .....External Pilot

Note 1) Applicable to DC Specification
Note 2) Optional Specification
Note 3) When specifying more than one option, combine symbols in alphabetical order.

Coil Voltage
1* ...100VAC (50/60Hz)
2* ...200VAC (50/60Hz)
3* ...110VAC (50/60Hz)
4* ...220VAC (50/60Hz)
5 .....24VDC
6 .....12VDC
9* ...Other (Special Voltage)

Electrical Entry
L .....L Type Plug Connector with Lead Wire
LO ...L Type Plug Terminal without Connector
M .....M Type Plug Connector with Lead Wire
MO ...M Type Plug Terminal without Connector
Y .....DIN Connector (VQZ2000/3000)
YO ...Terminal without Connector (VQZ2000/3000)
YZ ...DIN Connector (VQZ2000/3000)
YOS ...DIN Terminal without Connector (VQZ2000/3000)

Manual Override
- .....Non Locking Push Type (Tool Type)
B .....Slotted Locking Type (Tool Type)

Port Size {4(A), 2(B) Port}

Symbol	Port Size
-	Without Sub-Plate (VQZ1000/2000/3000)
01	Rc(PT)1/8 (VQZ1000/2000)
02	Rc(PT)1/4 (VQZ1000)
03	Rc(PT)3/8 (VQZ1000/2000)

5 Port Solenoid Valve
Base Mounted / Plug Lead Type
Series VQZ1000/2000/3000
Manifold / Connector Kit

Technical Specifications
Series VQZ1000/2000/3000 Manifold

Note 1) Threaded Port Type

Series	Base Model	Piping Applications			Applicable Valve	Applicable Stations	Manifold Base Note 1) Weight g
		Piping	Port Size				
			1(P), 3/5(R)	4(A), 2(B)			
VQZ1000	VV5QZ15-□□□	In-Line	Rc(PT) 1/8	C3(ø3.2) C4(ø4) C6(ø6) M5(M5Thread)	VQZ1□50 VQZ1□51	2 to 20 Stations	2 Stations: 105 Addition per Station: 27
VQZ2000	VV5QZ25-□□□	In-Line	Rc(PT) 1/4	C4(ø4) C6(ø6) C8(ø8) Rc(PT)1/8	VQZ2□50 VQZ2□51	2 to 20 Stations	2 Stations: 105 Addition per Station: 54
VQZ3000	VV5QZ35-□□□	In-Line	1(P)Port Rc(PT)3/8 3•5(R)Port Rc(PT)1/4	C6(ø6) C8(ø8) C10(ø10) Rc(PT)1/4	VQZ3□50 VQZ3□51	2 to 20 Stations	2 Stations: 398 Addition per Station: 102

How To Order
Series VQZ Base Mounted Plug Lead Type Manifold

VV5QZ ● 5 — ● ● C — ●

Series
1 .....VQZ1000
2 .....VQZ2000
3 .....VQZ3000

Manifold Type
5 .....Base Mounted

No Of Stations
02 ...2 Stations
"
20 ...20 Stations

Port Size {4(A), 2(B) Port}

Symbol	Port Size
C3	One Touch Fitting for ø3.2 (VQZ1000)
C4	One Touch Fitting for ø4 (VQZ1000/2000)
C6	One Touch Fitting for ø6 (VQZ1000/2000/3000)
C8	One Touch Fitting for ø8 (VQZ2000/3000)
C10	One Touch Fitting for ø10 (VQZ3000)
M5	M5 Thread (VQZ2000/3000)
01	Rc(PT)1/8 (VQZ2000)
02	Rc(PT)1/4 (VQZ3000)
CM	Mixture of Port Size (VQZ1000/2000/3000)

When ordering Port Mixture and/or with Port Plug, suffix it in Manifold Specs. Port Mixture and Port Plug are available only for One Touch Type.

Option
- .....None
D .....DIN Rail Mounting Type (With DIN Rail Standard Length)
DO ...DIN Rail Mounting Type (Without DIN Rail) Note 1)
N .....With Name Plate Note 2)
R .....External Pilot

Note 1) Order DIN Rail Separately
Note 2) Suitable for VQZ2000 and VQZ3000

Kit
C .....Connector

How To Order
Series VQZ Base Mounted Plug Lead Type Valve

VQZ ● ● 5 ● ● — ● ● ●

Series
1 .....VQZ1000 Body Width 10mm
2 .....VQZ2000 Body Width 15mm
3 .....VQZ3000 Body Width 18mm

Positions
1 .....2 Position Single
2 .....2 Position Double
3 .....3 Position Closed Center
4 .....3 Position Exhaust Center
5 .....3 Position Pressure Center

Body Type
5 .....Base Mounted

Seal
0 .....Metal Seal
1 .....Rubber Seal

Function
- .....Standard Type (1W)
H .....High Pressure Type (1.5W) *Note 1) Note 2)*
Y .....Low Wattage Type (0.5W) *Note 1)*
R .....External Pilot

Note 1) Applicable to DC Specification
Note 2) Optional Specification
Note 3) When specifying more than one option, combine symbols in alphabetical order.

Coil Voltage
1* ...100VAC (50/60Hz)
2* ...200VAC (50/60Hz)
3* ...110VAC (50/60Hz)
4* ...220VAC (50/60Hz)
5 .....24VDC
6 .....12VDC
9* ...Other (Special Voltage)

Electrical Entry

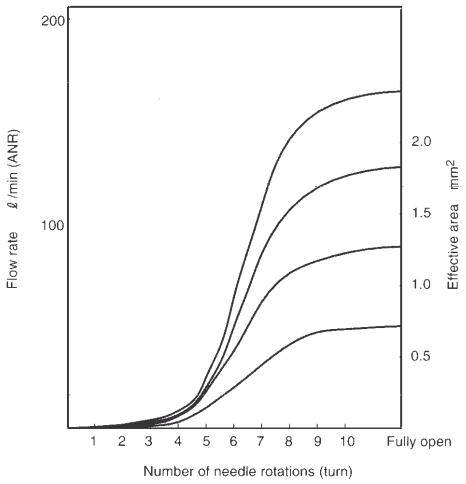
	Light & Surge Voltage Suppressor
L .....L Type Plug Connector with Lead Wire	With
LO ...L Type Plug Terminal without Connector	With
M .....M Type Plug Connector with Lead Wire	With
MO ...M Type Plug Terminal without Connector	With
Y .....DIN Connector (VQZ2000/3000)	Without
YO ...Terminal without Connector (VQZ2000/3000)	Without
YZ ...DIN Connector (VQZ2000/3000)	With
YOS ...DIN Terminal without Connector (VQZ2000/3000)	With (w/o Light)

Manual Override
- .....Non Locking Push Type (Tool Type)
B .....Slotted Locking Type (Tool Type)

Compact Body Type with Built-in Speed Controller - For VQZ2000 Only

- Speed Controllers are built into the valve body (Rubber Seal Models only), making it easier to adjust cylinder speed.
- Needle valve is equipped with a mechanism to prevent it from being pulled out.

Note) Compact body type valves and standard valves are not interchangeable. Compact valves cannot be mounted on a standard manifolds and vice versa.



How To Order
Series VQZ Compact Body Type Manifold

VV5QZ 2 5 C - ❑ ❑ C

Series
2 . . . . .VQZ2000

Manifold Type
5 . . . . .Base Mounted Type

Compact Body Type

Number Of Stations
02 . . . .2 Stations
"
20 . . .20 Stations

Port Size {4(A), 2 (B) Port}
C3 . . . .One Touch Fitting ø3.2
C4 . . . .One Touch Fitting ø4
C6 . . . .One Touch Fitting ø6
01 . . . .Rc(PT)1/8

Note) The One Touch Fittings on the compact manifold are pressed in and therefore cannot be changed out.

For additional technical information on this series, please contact SMC Customer Service

Manifold Options for VQZ1000/2000/3000:
- Blank Plate Assembly
- Individual SUP Spacer
- Individual EXH Spacer
- Port Plug

Manifold Option for VQZ2000:
- Interface Speed Controller

Manifold Option for VQZ2000/3000:
- Nameplate (N)

Other Manifold Options for Series VQZ:
- DIN Rail
- Fitting Blank Plug
- EXH Port Silencer
- Latching Solenoid Type
- Latching Type Valve
- Latching Type Valve / Manual Override

Manifold Option Parts:
- Perfect Check Block
- Perfect Check Block with Valve or Manifold

How To Order
Series VQZ Valve

VQZ2 ❑ 5 ❑❑❑ - ❑❑❑ - C

Symbol
1 . . . . .2 Position Single
2 . . . . .2 Position Double
3 . . . . .3 Position Closed Center
4 . . . . .3 Position Exhaust Center
5 . . . . .3 Position Pressure Center

Body Type
5 . . . . .Base Mounted

Seal Type
0 . . . . .Metal Seal
1 . . . . .Rubber Seal

Speed Controller
- . . . . .Without
S . . . . .With Speed C
Available with Rubber Seal Valve Only

Pilot Valve Specifications
- . . . . .Standard type (1W)
H* . . . .High Pressure type (1.5W)
Y* . . . .Low Wattage Type (0.5W)
**Option for DC Coil Voltage Only*

Coil Voltage
1 . . . . .100VAC (50/60Hz)
2 . . . . .200VAC (50/60Hz)
3 . . . . .110VAC (50/60Hz)
4 . . . . .220VAC (50/60Hz)
5 . . . . .24VDC
6 . . . . .12VDC
9 . . . . .Others

Electrical Entry
L* . . . .L Type Plug Connector with Lead Wire
LO* . . .L Type Plug Terminal without Connector
M* . . . .M Type Plug Connector with Lead Wire
MO* . . .M Type Plug Terminal without Connector
**With Light and Surge Voltage Suppressor*

Manual Override
- . . . . .Non locking Push Type (Tool Type)
B . . . . .Slotted Locking Type (Tool Type)

Compact Body Type

5 PORT SOLENOID VALVE
BODY PORTED / PLUG LEAD TYPE
SERIES VQZ1000/2000/3000

- High Speed and Long Life
- Compact Design with Large Flow Capacity
- Metal or Rubber Seal Main Valve Construction Options
- Optional IP65 Rated DIN Connector Type Available
- DIN Rail Mounting Available
- Built-In One Touch Fitting for Easier Piping
- Both 3 and 5 Port Valves can be mounted on the same manifold
- Possible to have all Solenoids on same side of Manifold



TECHNICAL SPECIFICATIONS SERIES VQZ1000/2000/3000

FOR FURTHER TECHICAL INFORMATION ON SERIES VQZ1000 / 2000 / 3000, PLEASE REFER TO CAT:E147 OR CONTACT YOUR LOCAL SMC REPRESENTATIVE.

Series VQZ1000/2000/3000 Body Ported Cv Factor			
	1	2	3
Metal Spool	0.15	0.45	0.7
Rubber Spool	0.3	0.6	0.9

Valve Specifications	Type Of Seal		Metal Seal	Rubber Seal
	Fluid		Air, Inert Gas	Air, Inert Gas
	Maximum Operating Pressure		0.7MPa (High Pressure Type 0.8MPa)	
	Minimum Operating Pressure	Single (2 Pos)	0.10MPa	0.15MPa (22PSI)
		Double (2 Pos)	Only for VQZ3000 / 3 Pos	0.10MPa
		3 Position	0.15MPa (22PSI)	0.20MPa (29PSI)
	Ambient & Fluid Temperature		-10° to 50°C	-10° to 50°C
	Max Operating Pressure	2 Position S & D	20Hz	5Hz
		3 Position	10Hz	3Hz
	Proof Pressure		1.5MPa	
	Lubrication		Not Required	
	Manual Override		Non-Locking Push Type/Slotted Locking Type	
	Shock/Vibration Resistance		150/30 m/s²	
	Enclosure		Dust Proof	
Solenoid Specifications	Coil Rated Voltage		12, 24VDC and 100, 110, 200, 220VAC	
	Allowable Voltage		±10% of Rated Voltage	
	Coil Insulation		Class B	
	Power Consumption (Current Value)	24VDC	1WDC (42mA), 1.5WDC (63mA), 0.5WDC (21mA)	
		12VDC	1WDC (83mA), 1.5WDC (125mA), 0.5WDC (42mA)	
		100VAC	Inrush 1.2VA (12mA), Holding 1.2VA (12mA)	
		110VAC	Inrush 1.3VA (11.7mA), Holding 1.3VA (11.7mA)	
		200VAC	Inrush 2.4VA (12mA), Holding 2.4VA (12mA)	
		220VAC	Inrush 2.6VA (11.7mA), Holding 2.6VA (11.7mA)	

HOW TO ORDER SERIES VQZ BODY PORTED PLUG LEAD TYPE

VQZ ○○ 2 ○○ — ○○○ — ○ — ○

SERIES
1 .....VQZ1000 Body Width 10mm
2 .....VQZ2000 Body Width 15mm
3 .....VQZ3000 Body Width 18mm

POSITIONS
1 .....2 Position Single
2 .....2 Position Double
3 .....3 Position Closed Center
4 .....3 Position Exhaust Center
5 .....3 Position Pressure Center
8 .....3 Port Normally Closed
9 .....3 Port Normally Open

BODY TYPE
2 .....Body Ported

SEAL
0 .....Metal Seal
1 .....Rubber Seal

FUNCTION
- .....Standard Type (1W)
H .....High Pressure Type (1.5W) *Note 1) Note 2)*
Y .....Low Wattage Type (0.5W) *Note 1)*
R .....External Pilot

Note 1) Applicable to DC Specification
Note 2) Optional Specification
Note 3) When specifying more than one option, combine symbols in alphabetical order.

COIL VOLTAGE
1* ...100VAC (50/60Hz)
2* ...200VAC (50/60Hz)
3* ...110VAC (50/60Hz)
4* ...220VAC (50/60Hz)
5 .....24VDC
6 .....12VDC
9* ...Other (Special Voltage)

MANUAL OVERRIDE
- .....Non Locking Push Type (Tool Type)
B .....Slotted Locking Type (Tool Type)

ELECTRICAL ENTRY
L .....L Type Plug Connector with Lead Wire
LO ...L Type Plug Terminal without Connector
M .....M Type Plug Connector with Lead Wire
MO ...M Type Plug Terminal without Connector
Y .....DIN Connector (VQZ2000/3000)
YO ...Terminal without Connector (VQZ2000/3000)
YZ ...DIN Connector (VQZ2000/3000)
YOS ...DIN Terminal without Connector (VQZ2000/3000)

PORT SIZE {4(A), 2(B) PORT}

Symbol	Port Size
C3	One Touch Fitting ø3.2 (VQZ1000)
C4	One Touch Fitting ø4 (VQZ1000/3000)
C6	One Touch Fitting ø6 (VQZ1000/2000/3000)
C8	One Touch Fitting ø8 (VQZ3000)
C10	One Touch Fitting ø10 (VQZ3000)
M5	M5 Thread (VQZ1000/2000)
02	Rc(PT)1/4 (VQZ3000

BRACKET
- .....None
F .....With Bracket (Applicable to Single)

5 Port Solenoid Valve
Body Ported / Plug Lead Type
Series VQZ1000/2000/3000
Manifold / Connector Kit

Technical Specifications
Series VQZ1000/2000/3000 Manifold

Series	Base Model	Piping Applications			Applicable Valve	Applicable Stations	Manifold Base Weight g
		Piping	Port Size				
			1(P), 3/5(R)	4(A), 2(B)			
VQZ1000	VV5QZ12-□□□	Top	Rc(PT) 1/8	C3(ø3.2) C4(ø4) C6(ø6) M5(M5Thread)	VQZ1□20 VQZ1□21	2 to 20 Stations	2 Stations: 64 Addition per Station: 18
VQZ2000	VV5QZ22-□□□	Top	Rc(PT) 1/8	C4(ø4) C6(ø6) M5(M5Thread)	VQZ2□20 VQZ2□21	2 to 20 Stations	2 Stations: 86 Addition per Station: 26
VQZ3000	VV5QZ32-□□□	Top	Rc(PT)1/4	C6(ø6) C8(ø8) C10(ø10) Rc(PT)1/4	VQZ3□20 VQZ3□21	2 to 20 Stations	2 Stations: 181 Addition per Station: 53

How To Order
Series VQZ Body Ported Plug Lead Type Manifold

VV5QZ ● 2 — ● C — ●

Series
1 .....VQZ1000
2 .....VQZ2000
3 .....VQZ3000

Manifold Type
2 .....Body Ported

No Of Stations
02 ...2 Stations
"
20 ...20 Stations

Kit
C .....Connector

DIN Rail Mount
- .....None
D .....DIN Rail Mounting Type (With DIN Rail Standard Length)
DO ...DIN Rail Mounting Type (Without DIN Rail) Note 1)

Note) Order DIN Rail Separately

How To Order
Series VQZ Body Ported Plug Lead Type Valve

VQZ ● ● 2 ● ● — ● ● ● — ●

Series
1 .....VQZ1000 Body Width 10mm
2 .....VQZ2000 Body Width 15mm
3 .....VQZ3000 Body Width 18mm

Positions
1 .....2 Position Single
2 .....2 Position Double
3 .....3 Position Closed Center
4 .....3 Position Exhaust Center
5* ...3 Position Pressure Center
8 .....3 Port for Mixture Mounting NC
9 .....3 Port for Mixture Mounting NO
** Except for VQZ1000 and Metal Seal Type*

Body Type
2 .....Body Ported

Seal
0 .....Metal Seal
1 .....Rubber Seal

Function
- .....Standard Type (1W)
H .....High Pressure Type (1.5W) *Note 1) Note 2)*
Y .....Low Wattage Type (0.5W) *Note 1)*
R .....External Pilot
Note 1) Applicable to DC Specification
Note 2) Optional Specification
Note 3) When specifying more than one option, combine symbols in alphabetical order.

Coil Voltage
1* ...100VAC (50/60Hz)
2* ...200VAC (50/60Hz)
3* ...110VAC (50/60Hz)
4* ...220VAC (50/60Hz)
5 .....24VDC
6 .....12VDC
9* ...Other (Special Voltage)

Manual Override
- .....Non Locking Push Type (Tool Type)
B .....Slotted Locking Type (Tool Type)

Electrical Entry

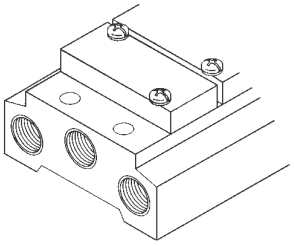
		Light & Surge Voltage Suppressor
L	.....L Type Plug Connector with Lead Wire	With
LO	...L Type Plug Terminal without Connector	With
M	.....M Type Plug Connector with Lead Wire	With
MO	...M Type Plug Terminal without Connector	With
Y	.....DIN Connector (VQZ2000/3000)	Without
YO	...Terminal without Connector (VQZ2000/3000)	Without
YZ	...DIN Connector (VQZ2000/3000)	With
YOS	...DIN Terminal without Connector (VQZ2000/3000)	With (w/o Light)

Port Size {4(A), 2(B) Port}
C3 ...One Touch Fitting for ø3.2 (VQZ1000)
C4 ...One Touch Fitting for ø4 (VQZ1000/2000)
C6 ...One Touch Fitting for ø6 (VQZ1000/2000/3000)
C8 ...One Touch Fitting for ø8 (VQZ3000)
C10 ...One Touch Fitting for ø10 (VQZ3000)
M5 ...M5 Thread (VQZ1000/2000)
02 ...Rc(PT)1/4 (VQZ3000)

Manifold Option

Series VQZ1000/2000/3000 Blank Plate Assembly

Blank Plate Assembly
VVQZ1000-10A-2
VVQZ2000-10A-2
VVQZ3000-10A-2



- Used to reserve a valve mounting space on the manifold for future use

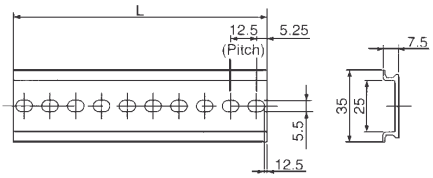
Manifold Option

Series VQZ1000/2000/3000 DIN Rail

DIN Rail
AXT100 - DR - ❑

- Suffix number into ❑ from the Dimension Table below.

- To order a manifold with DIN Rail already attached, insert 'D' at the end of the manifold part number. The DIN Rail is approximately 30mm longer than the length of the manifold.



L Dimension

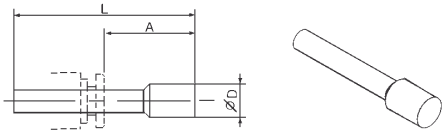
Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L Dimension	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5
Number	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
L Dimension	273	285.5	298	310.5	323	335.5	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5	498	510.5

Manifold Option

Series VQZ1000/2000/3000 Fitting Blank Plug

Fitting Blank Plug
KQP-23-X19
KQP-04-X19
KQP-06-X19
KQP-08-X19
KQP-10-X19

- Color: White



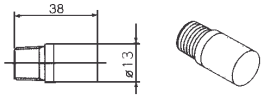
Dimensions

Applicable Fitting Size ød	Part Number	A	L	D
3.2	KQP-23-X19	16	31.5	3.2
4	KQP-04-X19	16	32	6
6	KQP-06-X19	18	35	8
8	KQP-08-X19	20.5	39	10
10	KQP-10-X19	22	43	12

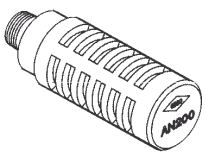
Manifold Option

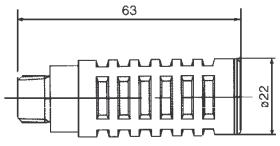
Series VQZ1000/2000/3000 EXH Port Silencer

Silencer is installed in the EXH Port



AN110-01





AN200-02

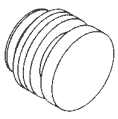
Type	Silencer P/N
VQZ1000	AN110-01
VQZ2000	AN200-02
VQZ3000	AN200-02

Manifold Option

Series VQZ1000/2000/3000 Port Plug

Port Plug
VVQZ100-CP (For VQZ1000/VQZ2000)
VVQZ2000-CP (For VQZ3000)

- Used to block an unused cylinder port when using a 4 way valve as a 3 way valve



Manifold Option Parts Available:
- Perfect Check Block
- Perfect Check Block with Valve or Manifold

Other Manifold Options:
- Latching Solenoid Type
- Latching Type Valve
- Latching Type Valve with Manual Override

4/2, 4/3 HAND VALVE SERIES (N)VH

- Durable High Flow Rotary Panel Mounting Hand Valves
- Three Body Sizes with Ports from 1/4 ~ 3/4
- Having 4 Ports, this valve is available in 2 position or 3 Position Closed or Exhaust Center
- White Color to match Bright Operating Environments



TECHNICAL SPECIFICATIONS

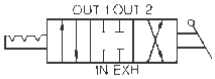
Fluid	Air
Max Operating Pressure	1MPa / 145PSI (VH2/3/400) 0.7MPa / 100PSI (VH600)
Ambient & Fluid Temperature	-5 ~ 60°C / 23 ~ 140°F
Operation Angle	90°C / 194°F

SYMBOLS

2 position



Closed center



Exhaust center



HOW TO ORDER (N)VH SERIES

(N)VH ○○○ — ○○

BODY SIZE
2 .....1/4 Port
3 .....3/8 Port
4 .....1/2 Port
6 .....1 Port

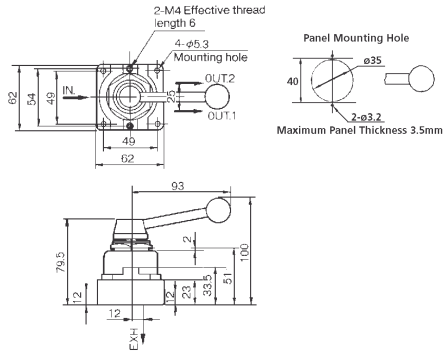
PIPING/MOUNTING
0 .....Side / Body
1 .....Side / Panel
2 .....Bottom / Body
3 .....Bottom / Panel

POSITION SYMBOL
0 .....3 Position/Closed Center
1 .....3 Position/Exhaust Center
2 .....2 Position

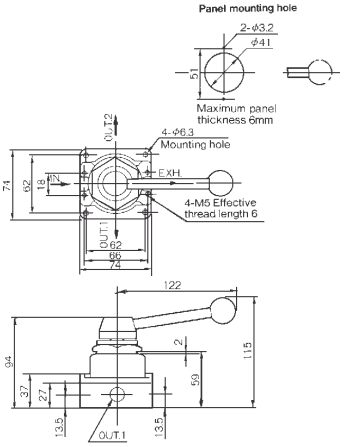
THREAD
- .....Rc* Remove (N) when ordering
N .....NPT
F .....G* Remove (N) when ordering

PORTING
02 ...1/4 (Body Size 2)
03 ...3/8 (Body Size 3)
04 ...1/2 (Body Size 4)
06 ...3/4 (Body Size 4)

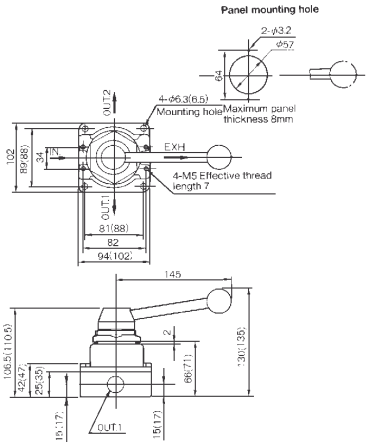
DIMENSIONS (N)VH SERIES BODY SIZE 200



DIMENSIONS (N)VH SERIES BODY SIZE 300



DIMENSIONS (N)VH SERIES BODY SIZE 400



3/2 Mechanical Valve 1/8 (N)VM400 Series

- 3/2 Normally Open or Normally Closed Valve
- Many Different Actuators
- Cv 0.38 Flow



Technical Specifications

Fluid	Air
Operating Pressure	0 ~ 1MPa / 0 ~ 145PSI
Ambient & Fluid Temperature	5 ~ 60°C / 41 ~ 140°F
Effective Orifice (Cv Factor)	7mm²(0.38)
Recommended Lubricant	SMC Lubricant (ISO VG32)
Port Size	1/8

How To Order (N)VM400 Valve

(N)VM430 — ○ 01 — ○○

Thread
- ..... PT
N ..... NPT* Remove (N) when ordering

Port Size
01 ... 1/8"

Actuator
00 ... Basic Type
01 ... Roller Lever
02 ... One Way Trip
05 ... Straight Plunger
06 ... Roller Plunger
07 ... Cross Roller Plunger
08 ... Toggle
30 ... Push Button–Mushroom
..... Push Button–Mushroom Lock Down
(Red only) order Valve VM430-01-00 plus Actuator Type XT34
32 ... Push Button–Extended
33 ... Push Button–Flush
34 ... Twist Selector
36 ... Key Selector

Push Button Color
R ..... Red
G ..... Green
B ..... Black
S ..... Steel

How To Order (N)VM400 ACTUATOR ONLY

..... Part No. ... Application

Mechanical Operation

Basic .....
Roller Lever ..... VM-01A ..... Polyacetal roller
Roller Lever ..... VM-01AS ..... Hardened Steel Roller
One Way Trip ..... VM-02A ..... Polyacetal roller
One Way Trip ..... VM-02AS ..... Hardened Steel Roller
Straight Plunger VM-05A
Roller Plunger ..... VM-06A ..... Polyacetal roller
Roller Plunger ..... VM-06AS ..... Hardened Steel Roller
Cross Roller Plunger ..... VM-07A ..... Polyacetal roller
Cross Roller Plunger ..... VM-07AS ..... Hardened Steel Roller

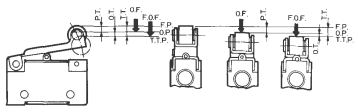
Manual Operation

Toggle ..... VM-08A .....
Push Button–Mushroom ... VM-30AR ..... Red
Push Button–Mushroom ... VM-30AB ..... Black
Push Button–Mushroom ... VM-30AG ..... Green
Push Button–Mushroom Lock down
..... XT34-11-21R Red
Push Button–Extended ..... VM-32AR ..... Red
Push Button–Extended ..... VM-32AB ..... Black
Push Button–Extended ..... VM-32AG ..... Green
Push Button–Flush ..... VM-33A .....
Twist Selector ..... VM-34AR ..... Red
Twist Selector ..... VM-34AB ..... Black
Twist Selector ..... VM-34AG ..... Green
Key Selector ..... VM-36A .....

Safety

If these valves are used for guarding or safety interlock systems, installation and application should be as per BS5304: 1988. Careful note should be taken of the operating principles and design of different ranges of mechanical valves when specifying valves for safety related systems.

Key to Dimensional Tables



F.O.F. (Full Operating Force) ... Required force to total travel position
P.T. (Pre Travel) ..... From free position to initial valve opening position
O.T. (Over Travel) ..... From initial valve opening position to total travel position
T.T. (Total Travel) ..... From free position to total travel position

3/2 MECHANICAL VALVE 1/8 (N)VM800 SERIES

- 3/2 Normally Open or Normally Closed Valve
- A Variety Of Actuator Types Available
- Robust Design

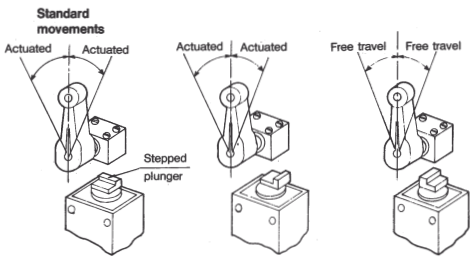


TECHNICAL SPECIFICATIONS

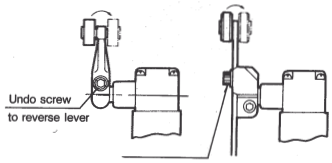
Fluid	Air
Operating Pressure	0 ~ 9.9 Bar / 0 ~ 144PSI
Ambient and Fluid Temperature	5 ~ 60°C / 41 ~ 140°F
Effective Orifice (Cv Ffactor)	6mm²(0.33)
Recommended Lubricant	Turbine Oil #1 (ISO VG32)
Port Size	1/8

APPLICATIONS

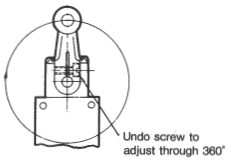
Movement is changeable



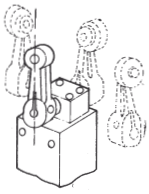
Roller can be mounted to inside of lever



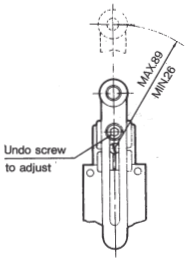
Lever location can be changed

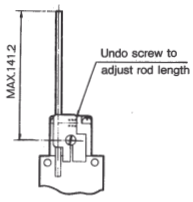


Head direction can be changed



Lever length adjustment





HOW TO ORDER (N)VM800 VALVE

(N)VM830 — ○ 01 — ○

NO OF PORTS
3 .....3 Ports

THREAD
- .....PT
N .....NPT
* Remove (N) when ordering

ACTUATOR
00 ...Basic Type
01 ...Roller Lever
13 ...Adjustable Roller Lever
14 ...Adjustable Rod Lever

HOW TO ORDER NVM800 ACTUATOR ONLY

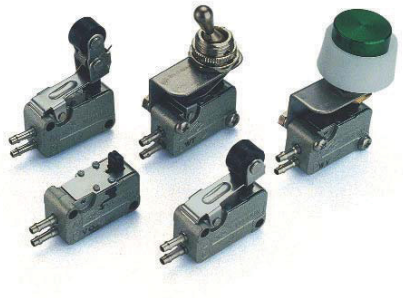
Roller lever VM-01F
Adjustable roller lever VM-13F
Adjustable rod lever VM14F

TECHNICAL SPECIFICATIONS

Type of Valve	NC Poppet Type
Number of Ports	3
Total Travel	4.8mm (Basic)
Piping	Side
Fluid	Air
Operating Pressure	0 ~ 8 Bar / 10 ~ 116PSI
Ambient and Fluid Temperature	5 ~ 60°C / 41 ~ 140°F
Effective Orifice (Cv Factor)	1mm²(0.055)
Lubrication	Not Required Use Turbine Oil #1 (ISO VG32) if lubrication is provided
Fitting	w/Hose Nipple
Weight (Basic)	20gf

3/2 N.C. MICRO MECHANICAL VALVE (N)VM1000 SERIES

- 3/2 Normally Closed Valve
- 5 Different Actuators
- Cv 0.055 Flow
- Built-in Hose Nipple Connection
- Suitable for Ø4mm OD, 2.5mm ID Nylon Tube
- Over travel after Actuation (Mechanical Operation Type)
- Interchangable with V3 Electrical Switches



HOW TO ORDER (N)VM1000

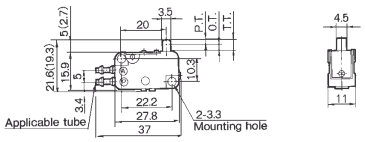
(N)VM1000 — 4N —

NO OF PORTS
0 .....3 Ports
1 .....2 Ports

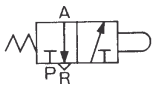
ACTUATOR
00 ...Basic Type
01 ...Roller Lever
02 ...One way Trip
08 ...Toggle
32 ...Push Button

PUSH BUTTON COLOR
R .....Red
G .....Green
B .....Black

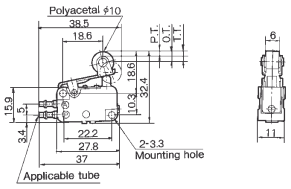
DIMENSIONS (N)VM1000 BASIC VALVE



SYMBOLS (N)M1000 BASIC VALVE



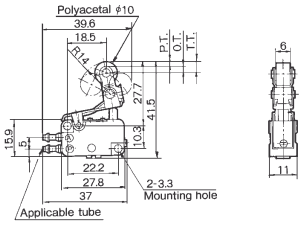
DIMENSIONS (N)VM1000 ROLLER LEVER



SYMBOLS (N)VM1000 ROLLER LEVER

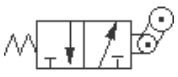


DIMENSIONS (N)VM1000 ONE WAY TRIP

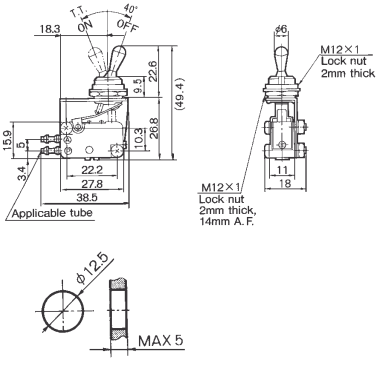


PT= Pre-travel
OT= Over travel
TT= Total travel

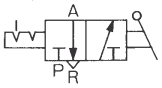
SYMBOLS (N)VM1000 ONE WAY



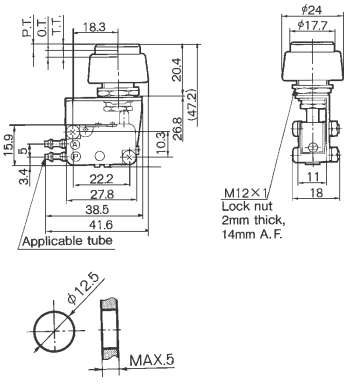
DIMENSIONS (N)VM1000 TOGGLE



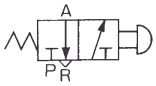
SYMBOLS (N)VM1000 TOGGLE



DIMENSIONS (N)VM1000 PUSH BUTTON

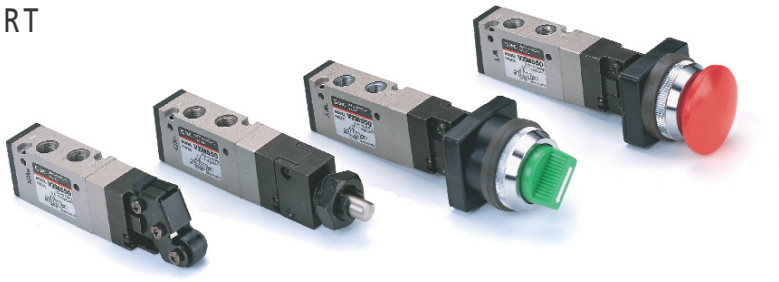


SYMBOLS (N)VM1000 PUSH BUTTON



5/2 Mechanical Valve 1/8 Port Series (N)VZM550

- Many Different Actuators
- High Flow Cv 0.6
- High Cycle Rate
- Long Life
- Interfaces with VZ5000 2–10 Station Type 21 Manifold



How To Order (N)VZM550 Valve

(N)VZM550 — 01 — ○ ○

Body Option
0 .....Standard
1 .....External Pilot

Thread
- .....PT
N .....NPT
* Remove (N) when ordering

Port Size
01 ...1/8"

Actuator
00 ...Basic Type
01 ...Roller Lever
02 ...One Way Trip
05 ...Straight Plunger
06 ...Roller Plunger
08 ...Toggle
30 ...Push Button–Mushroom
32 ...Push Button–Extended
33 ...Push Button–Flush
34 ...Twist Selector
35 ...5/3 Twist Selector
37 ...Push-Pull

Push Button Color
R .....Red
G .....Green
B .....Black
S .....Steel

How To Order (N)VZM550 ACTUATOR ONLY

Part No Application

Mechanical Operation

Basic.....
Roller Lever .....VM-01C .....Polyacetal roller
Roller Lever .....VM-01CS ...Hard steel roller
One Way Trip .....VM-02C .....Polyacetal roller
One Way Trip .....VM-02CS ...Hard steel roller
Straight Plunger .....VM-05C .....
Roller Plunger .....VM-06C .....Polyacetal roller
Roller Plunger .....VM-06CS ...Hard steel roller

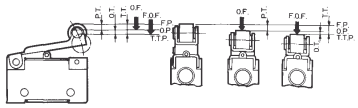
Manual Operation

Toggle.....VM-08C .....
Push Button–Mushroom ...VM-30CR ...Red
Push Button–Mushroom ...VM-30CB ...Black
Push Button–Mushroom ...VM-30CG ...Green
Push Button–Extended .....VM-32CR ...Red
Push Button–Extended .....VM-32CB ...Black
Push Button–Extended .....VM-30CG ...Green
Push Button–Flush .....VM-33C .....
Twist Selector .....VM-34CR ...Red
Twist Selector .....VM-34CB ...Black
Twist Selector .....VM-34CG ...Green
Key Selector .....VM-36C .....
Push-Pull.....Black

Technical Specifications

Fluid	Air, Inert gas
Operating Pressure	1.5~7 Bar / 22~101PSI
Ambient & Fluid Temperature	5 ~ 60°C / 41 ~ 140°F
Effective Orifice (Cv Factor)	10.8mm²(0.6)
Maximum Frequency	300c.p.m.
Lubrication	Not Required
Port Size	Main Valve 1/8 Pilot Valve (EXH) M5x0.8

Key to Dimensional Tables



F.O.F. (Full Operating Force) ...Required force to total travel position
P.T. (Pre Travel).....From free position to initial valve opening position
O.T. (Over Travel).....From initial valve opening position to total travel position
T.T. (Total Travel) .....From free position to total travel position

Accessories

Manifold Type 21 Top Ported

DXT199-22-1A .....Blanking plate kit

For more technical information on this series, please refer to CAT:E104 and N261

Caution

Valves with certain operators cannot be mounted side by side. Check valve dimensions

Safety

If these valves are used for guarding or safety interlock systems, installation and application should be as per BS5304: 1988. Careful note should be taken of the operating principles and design of different ranges of mechanical valves when specifying valves for safety related systems.

TIME DELAY VALVE SERIES (N)VR2110

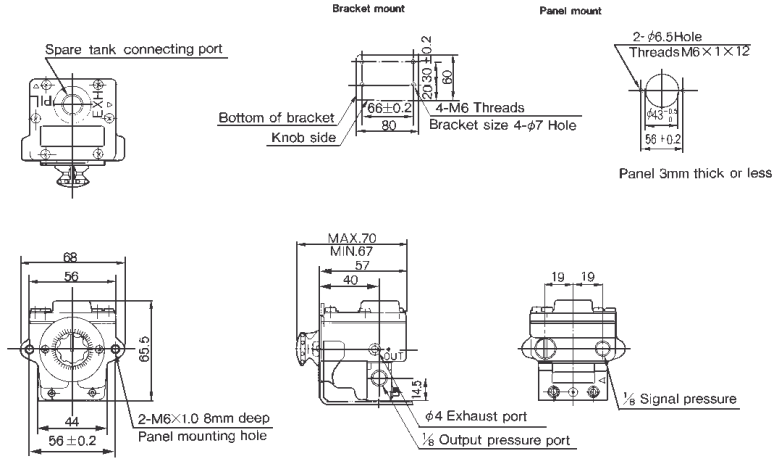
A combination of adjustable orifice and fixed flow allows transmission of a pneumatic signal after a fixed time period.



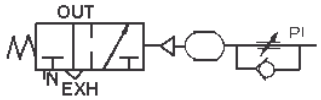
TECHNICAL SPECIFICATIONS

Supply Pressure	0 ~ 1MPa / 0 ~ 145 PSI
Signal Pressure	0.25 ~ 0.8MPa / 32 ~ 116PSI
Time Delay	0.5 ~ 60 Sec
Effective Orifice (Cv Factor)	2.5mm² (0.14)
Port Size	1/8 PT / NPT

DIMENSIONS TIME DELAY VALVE



SYMBOLS



HOW TO ORDER TIME DELAY VALVE

NVR2110-N01 (1/8 NPT)
VR2110-01 (1/8 PT)

SHUTTLE VALVE SERIES (N)VR1210, (N)VR1220

3 Ported Check Valve with one output and 2 pneumatic signal input ports

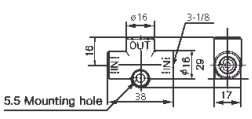


TECHNICAL SPECIFICATIONS

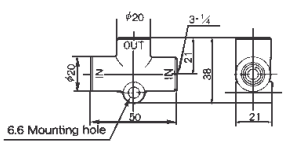
Series	(N)VR1210-01	(N)VR1220-02
Max Operating Pressure	1MPa / 145 PSI	
Min Operating Pressure	0.05MPa / 8 PSI	
Effective Orifice (Cv Factor)	7mm²(0.38)	15mm²(0.81)
Port Size	1/8 PT / NPT	1/4 PT / NPT

DIMENSIONS SHUTTLE VALVE

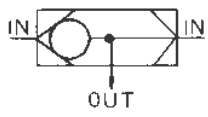
(N)VR1210



(N)VR1220



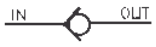
SYMBOLS



HOW TO ORDER SHUTTLE VALVE

NVR1210-N01 (1/8 NPT)
NVR1220-N02 (1/4 NPT)
VR1210-01 (1/8 PT)
VR1220-02 (1/4 PT)

SYMBOLS





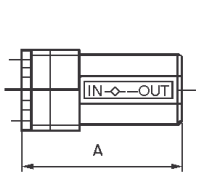
CHECK VALVE SERIES (N)AK

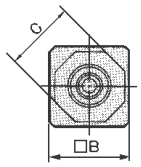
- High Flow Capacity
- Low Cracking Pressure: 0.2 Bar
- Port Sizes from ⅛ ~ 1 PT, NPT

TECHNICAL SPECIFICATIONS

Fluid	Air
Proof Pressure	1.5MPa / 218 PSI
Max Operating Pressure	1MPa / 145 PSI
Min Operating Pressure	0.02MPa / 3 PSI
Ambient & Fluid Temperature	5 ~ 60°C / 41 ~ 140°F

DIMENSIONS SERIES (N)AK





Model	Port Size	A	B	C
(N)AK2001-N01, 02	3/8, 1/4	50	25	22
(N)AK4000-N02, 03, 04	1/4, 3/4, 1/2	67	36	36
(N)AK6000-N06, 10	3/4, 1	95	50	50

HOW TO ORDER SERIES (N)AK

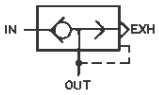
BODY SIZE.....PORT SIZE NPT . . .EFFECTIVE ORIFICE*

NAK2000-N01.. ⅛ 25
NAK2000-N02.. ¼ 27.5
NAK4000-N02.. ¼ 47
NAK4000-N03.. ⅜ 85
NAK4000-N04.. ½ 95
NAK6000-N06.. ¾ 200
NAK6000-N10.. 1 230

Note: When ordering PT Ports, remove 'N' from the model number.
Eg: AK2000-01

*S (mm²) is Effective Orifice
Figure given for A-R Direction (Exhaust Flow)

SYMBOLS





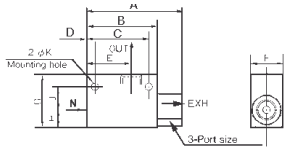
QUICK EXHAUST VALVE SERIES (N)AQ

- High Exhaust Characteristics
- Port Sizes from M5 ~ ¾ PT, NPT
- High Flow Capacity

TECHNICAL SPECIFICATIONS

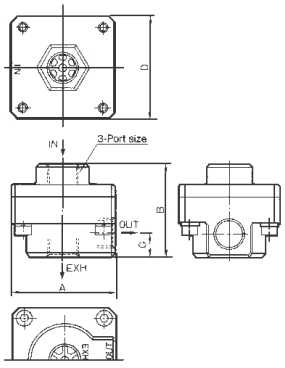
Fluid		Air
Proof Pressure		1.5MPa / 218 PSI
Max Operating Pressure	(N)AQ1500~1510	0.7MPa / 101 PSI
	(N)AQ2000~5000	1MPa / 145 PSI
Min Operating Pressure	(N)AQ1500~1510	0.1MPa / 14.5 PSI
	(N)AQ2000~5000	0.05MPa / 8 PSI
Ambient & Fluid Temperature		5 ~ 60°C / 41 ~ 140°F

DIMENSIONS SERIES (N)AQ1500, 1510



Model	Port Size	A	B	C	D	E	F	G	H	J	øK
(N)AQ1500-M5	M5x0.8	23	20	14	3	12.5	12	15	5.5	6.5	3.1
(N)AQ1510-N01	1/8	45	33	25	4	21	15	25	8	11	4.3

DIMENSIONS SERIES (N)AQ2000, 3000, 5000



Model	Port Size	A	B	C	D
(N)AQ2000-N01, 02	1/8, 1/4	45	40	10	45
(N)AQ3000-N02, 03	1/4, 3/8	56	50	12.5	56
(N)AQ5000-N4, 06	1/2, 3/4	85	75	18	85

HOW TO ORDER SERIES (N)AK

BODY SIZE.....PORT SIZE NPT . . .EFFECTIVE ORIFICE*

NAQ1500-M5 ....M5 . . .2.8
NAQ1510-N01 ...⅛ 5.8
NAQ2000-N01 ...⅛ 25
NAQ2000-N02 ...¼ 40
NAQ3000-N02 ...¼ 42
NAQ3000-N03 ...⅜ 70
NAQ5000-N04 ...½ 115
NAQ5000-N06 ...¾ 180

Note: When ordering PT Ports, remove 'N' from the model number.
Eg: AQ1510-01

*S (mm²) is Effective Orifice
Figure given for A-R Direction (Exhaust Flow)

MINIATURE IN-LINE QUICK EXHAUST VALVES SERIES AQ200/300

- Option of Built-in Silencer or Facility to pipe Exhaust away
- Minimizes Installation Time and Cost
- Integral One Touch fittings
- Accepts Nylon and Polyurethane Tubing
- Compact Lightweight Design



TECHNICAL SPECIFICATIONS

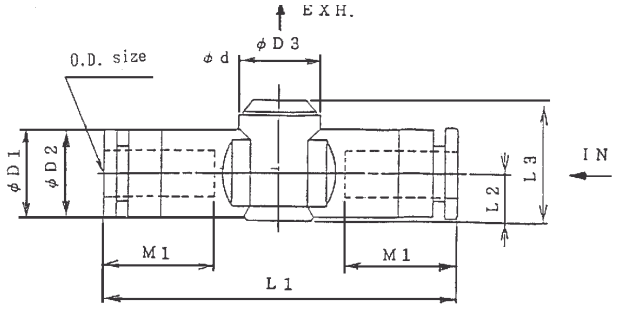
Proof Pressure .....1.5MPa (218 PSI)
Max Operating Pressure .....1MPa (145 PSI)
Min Operating Pressure .....0.1MPa (14.5 PSI)
Ambient and Fluid Temperatures ...0~60°C / 32~140°F
Applicable Tube Materials .....Nylon, Soft Nylon, Polyurethane

NOTE: observe maximum recommended operating pressures for tube when using Soft Nylon or Polyurethane

FLOW COMPARISON

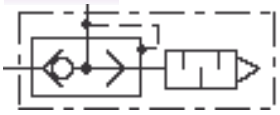
Models	Tube size		Effective area mm²	
	Ø4	Ø6	In-Out	Out-Exh
AQ240F-04-*	•		1.7	2.5
AQ240F-06-*		•	2.4	2.7
AQ340F-06-*		•	4	4

DIMENSIONS
SERIES AQ240F/340F WITH SILENCER

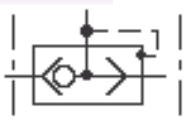


Models	O.D size d	D1	D2	D3	L1	L2	L3	M1	Weight
AQ240F-04-00	4	9.5	8.9	10	39.3	5	14.1	13	4.2
AQ240F-06-00	6	11.5	11	10	43.9	6	15.2	14	5.2
AQ340F-06-00	6	11.5	11	11.8	45.2	6.3	20	14	10.4

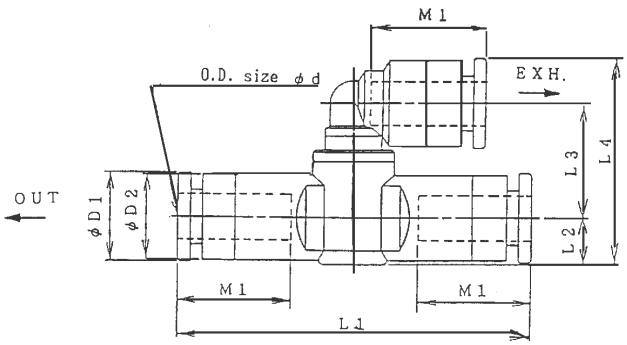
SYMBOLS
WITH BUILT-IN SILENCER



SYMBOLS
WITHOUT SILENCER



DIMENSIONS
SERIES AQ240F/340F WITH EXHAUST TAKE OFF



Models	O.D size d	D1	D2	L1	L2	L3	L4	M1	Weight
AQ240F-04-04	4	9.5	8.9	39.3	5	13.7	23.4	13	5.7
AQ240F-06-06	6	11.5	11	43.9	6	14.7	26.5	14	7.3
AQ340F-06-06	6	11.5	11	45.2	6.3	19.6	31.7	14	12.5

HOW TO ORDER
SERIES AQ240F/340F

AQ ○ 40 ○ — ○ — ○

BODY SIZE
2 .....M5
3 .....⅛

TUBE CONNECTION
F .....Built-in One Touch Tube Connection

OD SIZE
Metric
04 ...Ø4mm
06 ...Ø6mm
Imperial
07 ...1/4"

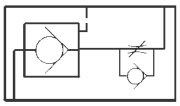
EXHAUST PORT
Metric
00 ...Built-in Silencer
04 ...Ø4mm
06 ...Ø6mm
Imperial
00 ...Built-in Silencer
07 ...1/4"



SPEED CONTROLLER WITH PILOT CHECK VALVE SERIES ASP

- Integrated Pilot Check Valve and Speed Controller
- Temporary Intermediate Stop and Speed Control of Cylinders is possible
- 360° Freedom for Tube Mounting Direction

SYMBOLS



TECHNICAL SPECIFICATIONS

Proof Pressure	1.5MPa (218 PSI)
Max Operating Pressure	1MPa (145 PSI)
Min Operating Pressure	0.1MPa (14.5 PSI)
Pilot Check Valve Actuation Pressure	50≥ of Operating Pressure
Ambient and Fluid Temperatures	-5~60°C (W/O Freezing) 23~140°F
Number Of needle Rotations	10
Applicable Tube Material	Nylon, Soft Nylon, Polyurethane

TECHNICAL SPECIFICATIONS
FLOW RATE AND EFFECTIVE SECTIONAL AREA

Model		ASP330F	ASP430F		ASP530F		ASP630F	
Tube	mm	ø6, ø8	ø6	ø8	ø8	ø10	ø10	ø12
Outside	inch	ø1/4"	-	ø1/4"	ø5/16"	ø3/8"	-	ø3/8"
Diameter		ø5/16"	-	ø5/16"	-	-	-	ø1/2"
Controlled	Flow Rate ℓ/min	180	330	350	600	750	1100	1190
Flow	(ANR)(N ℓ/m)							
(Free Flow)	Effective Sectional Area mm²	2.9	5.2	5.4	9.3	11.6	16	18.4

HOW TO ORDER SERIES ASP

ASP ○ 30F — ○ — ○ S

BODY SIZE
3 .....1/8 Standard
4 .....1/4 Standard
5 .....3/8 Standard
6 .....1/2 Standard

TYPE
3 .....Universal

WITH ONE TOUCH FITTINGS

PORT SIZE

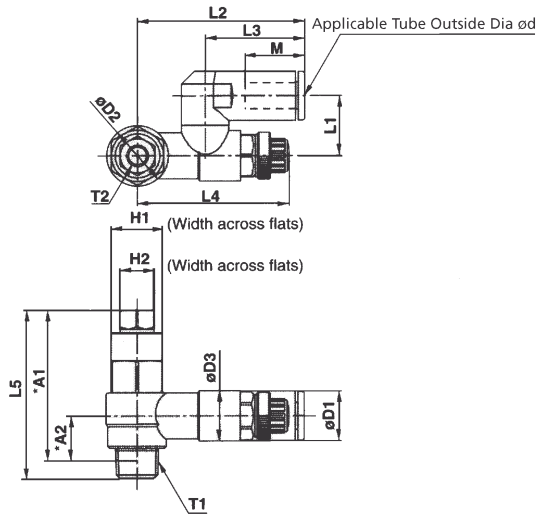
Symbol	Cylinder Side	Pilot Port
01 ...	R(PT)1/8	M5x0.8
02 ...	R(PT)1/4	Rc(PT)1/8
03 ...	R(PT)3/8	Rc(PT)1/8
04 ...	R(PT)1/2	Rc(PT)1/4
F02 ...	R(PT)1/4	G(PF)1/8
F03 ...	R(PT)3/8	G(PF)1/8
F04 ...	R(PT)1/2	G(PF)1/4
N01 ...	NPT1/8	10-32UNF
N02 ...	NPT1/4	NPT1/8
N03 ...	NPT3/8	NPT1/8
N04 ...	NPT1/2	NPT1/4

APPLICABLE TUBE OUTSIDE DIAMETER

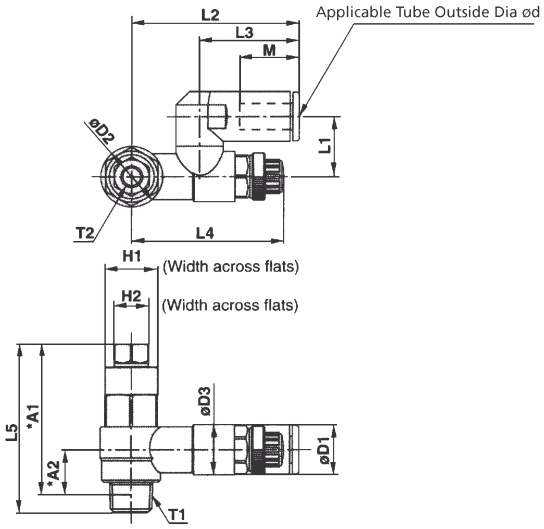
Metric (mm)	Imperial (inch)
06 ...ø6	07 ...ø1/4"
08 ...ø8	09 ...ø5/16"
10 ...ø10	11 ...ø3/8"
12 ...ø12	13 ...ø1/2"

WITH SEALS

DIMENSIONS (MM) SERIES ASP



DIMENSIONS (INCH) SERIES ASP



Model	d	T1	T2	H1	H2	D1	D2	D3	L1	L2	L3	L4 Max	L4 Min	L5	*A1	*A2	M	Weight g
ASP330F-01-06S	6	R(PT)1/8	M5x0.8	12	8	11.6	14.2	11.8	14	38.4	22.9	39.6	34.6	39.5	35.2	10.5	13.7	32
ASP330F-01-08S	8	R(PT)1/8	M5x0.8	12	8	15.2	14.2	11.8	15.8	44.7	28.2	38.9	33.9	39.5	35.2	10.5	18.7	35
ASP430F-02-06S	6	R(PT)1/4	Rc(PT)1/8	17	12	12.8	18.5	15	18	43.4	25.2	41.7	36.7	48.7	42.4	10.9	16.8	65
ASP430F-02-08S	8	R(PT)1/4	Rc(PT)1/8	17	12	15.2	18.5	15	19.7	46.4	28.2	41.7	36.7	48.7	42.4	10.9	18.7	68
ASP530F-03-08S	8	R(PT)3/8	Rc(PT)1/8	19	12	15.2	23	19.8	20.3	51.3	28.2	46.9	41.9	56.2	50	14.4	18.7	107
ASP530F-03-10S	10	R(PT)3/8	Rc(PT)1/8	19	12	18.5	23	19.8	23.1	54.1	32.6	46.9	41.9	56.2	50	14.4	20.8	110
ASP630F-04-10S	10	R(PT)1/2	Rc(PT)1/4	24	17	18.5	28.6	26.5	25.9	64.2	32.6	64.8	57.3	70.3	61.8	18.3	20.8	212
ASP630F-04-12S	12	R(PT)1/2	Rc(PT)1/4	24	17	20.9	28.6	26.5	25.9	66	34.4	64.8	57.3	70.3	61.8	18.3	21.8	215

Model	d	T1	T2	H1	H2	D1	D2	D3	L1	L2	L3	L4 Max	L4 Min	L5	*A1	*A2	M	Weight g
ASP330F-N01-07S	1/4"	NPT1/8	10-32UNF	1/2"	8	13.2	14.2	11.8	15.8	42.2	25.6	38.9	33.9	39.5	35.1	10.5	17	35
ASP330F-N01-09S	5/16"	NPT1/8	10-32UNF	1/2"	8	15.2	14.2	11.8	15.8	44.7	28.2	38.9	33.9	39.5	35.1	10.5	18.7	35
ASP430F-N02-07S	1/4"	NPT1/4	NPT1/8	11/16"	1/2"	13.2	18.5	15	18	43.9	25.6	41.7	36.7	48.7	42.6	10.9	17	68
ASP430F-N02-09S	5/16"	NPT1/4	NPT1/8	11/16"	1/2"	15.2	18.5	15	18	46.4	28.2	41.7	36.7	48.7	42.6	10.9	18.7	68
ASP530F-N03-09S	5/16"	NPT3/8	NPT1/8	19	1/2"	15.2	23	19.8	20.3	51.3	28.2	46.9	41.9	56.2	50.3	14.4	18.7	107
ASP530F-N03-11S	3/8"	NPT3/8	NPT1/8	19	1/2"	18.5	23	19.8	23.1	54.1	32.6	46.9	41.9	56.2	50.3	14.4	20.8	116
ASP630F-N04-11S	3/8"	NPT1/2	NPT1/4	15/16"	11/16"	18.5	28.6	26.5	25.9	64.2	32.6	64.8	57.3	70.3	61.8	18.3	20.8	220
ASP630F-N04-13S	1/2"	NPT1/2	NPT1/4	15/16"	11/16"	21.7	28.6	26.5	26.5	66.3	34.7	64.8	57.3	70.3	61.8	18.3	21.8	230

Adjustable Quick Exhaust Valve with Integral Exhaust Restrictor and Silencer Series (N)ASV

- Three Functions from a Single Component
- Minimizes Installation Time and Cost
- Accepts Nylon and Polyurethane Tubing
- Wide Variety of Sizes M3 to ½
- Integral One Touch Fitting - 4mm to 12mm
- Excellent Control Characteristics
- Compact Design

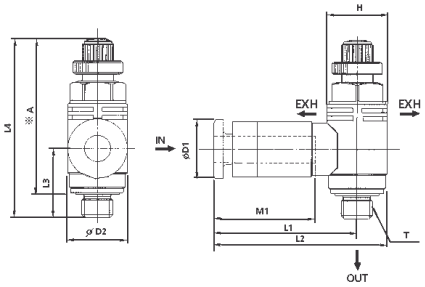


Technical Specifications

Proof Pressure .....1.5 MPa (222 PSI)
Max Operating Pressure .....1 MPa (148 PSI)
Min Operating Pressure .....0.1 MPa (14.5 PSI)
Ambient & Fluid Temperature 0~60°C / 32~140°F
Suitable Tube Material .....Nylon, soft nylon, polyurethane

Note: observe maximum recommended operating pressures for tube when using soft nylon or polyurethane

Dimensions Series (N)ASV Elbow Type



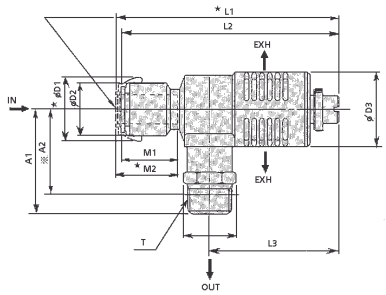
Model	Applicable Tube OD	T	H	D1	D2	L1	L2	L3	L4 Max	L4 Min	*A Max	*A Min	M1	Weight g
ASV120F-M3-04	4	M3x0.5	5.5	9.5	7	21.5	25	9.8	28.6	26.1	25.8	23.3	13	5
ASV220F-M5-04	4	M5x0.8	8	9.5	9.6	22.8	27.6	11.1	31.4	28.6	27.7	24.9	13	8
ASV220F-M5-06	6	M5x0.8	8	11.5	9.6	23.9	28.7	11.1	31.4	28.6	27.7	24.9	14	9

* Assembled height

Flow Comparison

Model	Port thread	Tube O.D (mm) 4	6	8	10	12	Effective area In-Out	Out-Exh
ASV120F-M3	M3x0.5	•					0.3	0.3
ASV220F-M5	M5x0.8	•	•				1.3	1.3
ASV310F-01	PT1/8		•	•			7	8
ASV310F-02	PT1/4		•	•			7	8
ASV410F-01	PT1/8			•	•		13.5	14
ASV410F-02	PT1/4			•	•		13.5	14
ASV410F-03	PT3/8			•	•		13.5	14
ASV510F-02	PT1/4				•	•	23	27
ASV510F-03	PT3/8				•	•	27	29
ASV510F-04	PT1/2				•	•	27	29

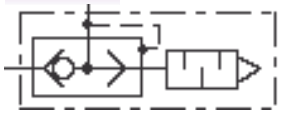
Dimensions Series (N)ASV Tee Type



Model	Applicable tube O.D	T	H	D1	D2	D3	L1 Max	L1 Min	L2 Max	L2 Min	L3 Max	L3 Min	A1	A2	M1	M2	Weight g
ASV310F-01-06S	6	R(PT)1/8	10	16.8	12.8	17.6	71.9	65.9	69.9	63.9	45.8	39.8	27.4	23.4	17	19	22
ASV310F-01-08S	8	R(PT)1/8	10	19.3	15.2	17.6	73.8	67.8	71.8	65.8	45.8	39.8	27.4	23.4	19	21	23
ASV310F-02-06S	6	R(PT)1/4	14	16.8	12.8	17.6	71.9	65.9	69.9	63.9	45.8	39.8	31.4	25.4	17	19	30
ASV310F-02-08S	8	R(PT)1/4	14	19.3	15.2	17.6	73.8	67.8	71.8	65.8	45.8	39.8	31.4	25.4	19	21	31
ASV410F-01-08S	8	R(PT)1/8	12	19.3	15.2	24	83.1	75.6	81.1	73.6	52.8	45.3	30.7	26.7	19	21	39
ASV410F-01-10S	10	R(PT)1/8	12	23.3	18.5	24	85.2	77.7	83.2	75.7	52.8	45.3	30.7	26.7	21	23	41
ASV410F-02-08S	8	R(PT)1/4	14	19.3	15.2	24	83.1	75.6	81.1	73.6	52.8	45.3	34.7	28.7	19	21	47
ASV410F-02-10S	10	R(PT)1/4	14	23.3	18.5	24	85.2	77.7	83.2	75.7	52.8	45.3	34.7	28.7	21	23	49
ASV410F-03-08S	8	R(PT)3/8	17	19.3	15.2	24	83.1	75.6	81.1	73.6	52.8	45.3	36.7	30.4	19	21	61
ASV410F-03-10S	10	R(PT)3/8	17	23.3	18.5	24	85.2	77.7	83.2	75.7	52.8	45.3	36.7	30.4	21	23	63
ASV510F-02-10S	10	R(PT)1/4	17	23.3	18.5	30	90.2	84.2	88.2	82.2	55.6	49.6	39.8	33.8	21	23	69
ASV510F-02-12S	12	R(PT)1/4	17	25.7	20.9	30	91.8	85.8	89.8	83.8	55.6	49.6	39.8	33.8	22	24	74
ASV510F-03-10S	10	R(PT)3/8	17	23.3	18.5	30	90.2	84.2	88.2	82.2	55.6	49.6	41.8	35.5	21	23	73
ASV510F-03-12S	12	R(PT)3/8	17	25.7	20.9	30	91.8	85.8	89.8	83.8	55.6	49.6	41.8	35.5	22	24	78
ASV510F-04-10S	10	R(PT)1/2	22	23.3	18.5	30	90.2	84.2	88.2	82.2	55.6	49.6	45.8	37.6	21	23	95
ASV510F-04-12S	12	R(PT)1/2	22	25.7	20.9	30	91.8	85.8	89.8	83.8	55.6	49.6	45.8	37.6	22	24	100

Height to centre based on nominal thread engagement

Symbols With Built-in Silencer



How To Order Series (N)ASV

(N)ASV ○○ 0 F — ○○ — ○○

Body Size
1 .....M3
2 .....M5
3 .....⅛
4 .....¼
5 .....⅜

Body Type
1 .....Tee
2 .....Elbow

Port Thread
M3 ...M3x0.5
M5 ...M5x0.8
01 ...1/8
02 ...1/4
03 ...3/8
04 ...1/2

Tubing Diameter

Metric (mm)	Imperial (inch)
04 ...Ø4mm	07 ...ø1/4"
06 ...Ø6mm	09 ...ø5/16"
08 ...Ø8mm	11 ...ø3/8"
10 ...Ø10mm	13 ...ø1/2"
12 ...Ø12mm	

Thread
- .....PT* Remove (N) when ordering
N .....NPT

Thread Seal
- M3, M5
S .....⅛ - ½

TUBE RELEASING TOOL TG–1, TG-2

- Switchable for all manifolds with integral ø4mm and 6mm One-touch fittings (TG-1) or ø1/8" and 1/4" One-touch fittings (TG-2)
- Easy change between 4mm and 6mm tube size fittings or 1/8" and 1/4" tube size fittings
- Simplifies removal of tubing by simultaneously depressing collett and gripping tube
- Can be used one handed in confined spaces



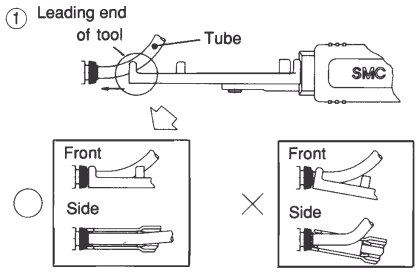
TG-1 Tube Releasing Tool
Available in Blue
For 4mm and 6mm Tube Size Fittings

TG-2 Tube Releasing Tool
Available in Red
For 1/8" and 1/4" Tube Size Fittings

USAGE

Operation

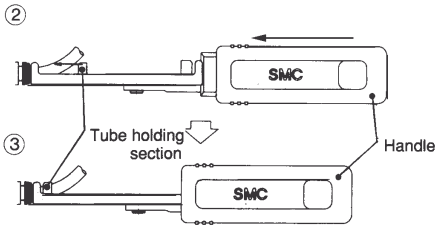
❶ Insert the tool straight along the tube in the fittings mounting direction until the leading end of the tool reaches the leading end of the release bush.



❷ After inserting the tool into the leading end of the release bush, firmly grip the handle of the tool and push it in until the tube holding section strikes against the stroke end.

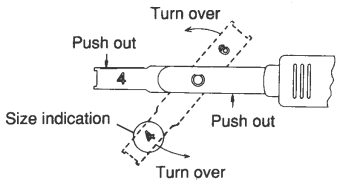
[Note: Insufficient insertion may not release tubing.]

❸ After inserting the tube holding section up to the stroke end, release the force. The returning force of the spring releases the tube held with the tool.

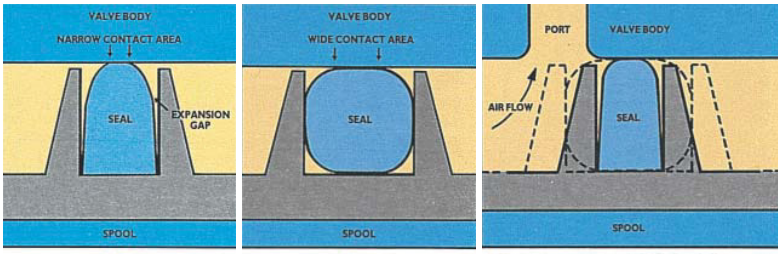


Size change

Push and turn the nose of the tool in the directions of arrows simultaneously to release it from the fixed state. Turn the nose by 180° and fix it. The applicable tube size is shown on the back side.



THE Q SEAL



NEW SMC Q-SEAL | CONVENTIONAL O-RING SEAL | Given the same stroke length, SMC's Q-seal offers greater air flow than conventional O-ring seals.

AS PART OF A LONG TERM DEVELOPMENT PROGRAM TO IMPROVE THE PERFORMANCE AND DURABILITY OF PNEUMATIC VALVE SEALS, SMC HAS DEVELOPED A NEW TYPE OF SEAL WHICH OVERCOMES THE PROBLEMS INHERENT WITH TRADITIONAL O-RINGS AND BONDED SEALS - CALLED Q SEAL, IT FEATURES A SPECIAL PROFILE WHICH REDUCES SLIDING RESISTANCE TO A MINIMUM, ENHANCES BOTH LONG TERM RELIABILITY AND AIR FLOW CHARACTERISTICS AND PROVIDES BI-DIRECTIONAL PORT ACCESS.

Flow Control Equipment

	Series	Page Number
	(N)AS1001-4001 Speed Controller With One-Touch Fittings - In-Line Type	3.1
	(N)AS Speed Controller With Uni One-Touch Fittings	3.2
	(N)AS1000-4000 Speed Controller - In-Line Type	3.4
	(N)AS3500 Speed Controller - In-Line Locking Type	3.5
	(N)AS500-600 Speed Controller High Flow - In-Line Type	3.5
	(N)AS1000-4000 Speed Controller Body Ported - Elbow Type	3.6
	(N)ASN2 Exhaust Restrictor With Silencer	3.7

SPEED CONTROLLER WITH ONE-TOUCH FITTINGS: IN-LINE TYPE SERIES (N)AS1001-4001

- Minimizes Installation Time and Cost
- Accepts Nylon and Polyurethane Tubing
- Wide Variety Of Sizes
- Speed may accurately be controlled even at low velocity
- Constant Speed easily set
- Retaining prevents accidental loss of needle





TECHNICAL SPECIFICATIONS

Proof Pressure	1.05MPa / 150PSI
Max Operating Pressure	0.7MPa / 100PSI
Min Operating Pressure	0.1MPa / 14.5PSI
Ambient and Fluid Temp	0 ~ 60°C / 32 ~ 140°F
No Of Needle Revolutions	10 Turns / 8 Turns (AS1001F)
Applicable Tube Material	Nylon, Soft Nylon, Polyurethane

SYMBOLS



HOW TO ORDER (N)AS1000-4000

NAS ○ 1F — ○○

AREA CODE
- ... Japanese
N ...North American

BODY SIZE
100 ...M5 (04, 06)
200 ...1/8 (04, 06)
205 ...1/4 (06, 08)
300 ...3/8 (06, 08, 10, 12)
400 ...1/2 (10, 12)

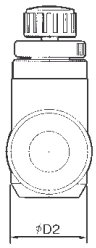
WITH ONE-TOUCH FITTINGS

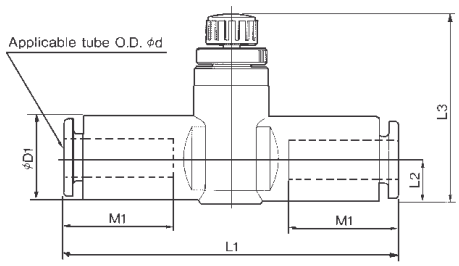
OPTION
- ... None
K .....Lock Nut Hexagonal Width across Flat (Special Order)
N .....Nickel Plating

APPLICABLE TUBE OD

mm	Inch
23.....ø32	01.....ø1/8"
04.....ø4	03.....ø5/32"
06.....ø6	05.....ø3/16"
08.....ø8	07.....ø1/4"
10.....ø10	09.....ø5/16"
12.....ø12	11.....ø3/8"
	13.....ø1/2"

DIMENSIONS (N)AS1000-4000







Model (Metric)	Applicable Tube OD : d	D1	D2	L1	L2	L3 Max	L3 Min	M1	Weight gf
	3.2	7.8		41.1	4.4	23.4	20.6	14.5	5.8
AS1001F	4	8.9	10	42.3	4.9	24	21.2		6.2
	6	11		47	6	25	22.2	15.5	7.2
AS2001F	4	8.9	11.8	43.8	5.2	32.6	27.6	14.5	11.4
	6	11		48.5	6.3	33.7	28.7	15.5	12.4
AS2051F	6	11	14.8	50.7	6	34.4	29.4	15.5	19.4
	8	15.2		59.8	8.1	36.5	31.5	18	30.3
	6	13.2		59	7.4	38.3	33.3	17	40.8
AS3001F	8	15.2	19.8	64.4	8.2	39.1	34.1	18	45.5
	10	18.5		71.6	9.8	40.6	35.6	21	54.3
	12	20.9		76	11	41.8	36.8	22	60.2
AS4001F	10	18.5	26.5	82.1	11.3	51.1	43.6	21	97.3
	12	20.9				52.1	44.6	22	103.4

Model (Inch)	Applicable Tube OD : d	D1	D2	L1	L2	L3 Max	L3 Min	M1	Weight gf
NAS1001F	1/8"	7.8	10	41.1	4.4	23.4	20.6	14.5	5.8
	5/32"	8.9		42.3	4.9	24	21.2		6.2
	5/32"	8.9		43.8	5.2	32.6	27.6	14.5	11.4
NAS2001F	3/16"	11.4	11.8	50	6.2	33.6	28.6	16.5	17.1
	1/4"	13.2		52.2	7.1	34.5	29.5	17	20.1
	3/16"	11.4		52.2	6.2	34.6	29.6	16.5	24
NAS2051F	1/4"	13.2	14.8	54.4	7.1	35.5	30.5	17	25.1
	5/16"	15.2		59.8	8.1	36.5	31.5	18	30.3
	1/4"	13.2		59	7.4	38.3	33.3	17	41.2
NAS3001F	5/16"	15.2	19.8	64.4	8.2	39.1	34.1	18	45.5
	3/8"	17.9		70.8	9.5	40.3	35.3	21	52.9
NAS4001F	3/8"	17.9	26.5	76.9	10.3	51	43.5	21	96.3
	1/2"	21.7		83.1	11.6	52.4	44.9	22	105.9

SPEED CONTROLLERS WITH UNI* ONE-TOUCH FITTINGS

- Minimizes Installation Time and Cost
- Accepts Nylon and Polyurethane Tubing
- Wide Variety Of Sizes
- Body swivels 360°
- Speed may accurately be controlled even at low velocity
- Constant Speed easily set
- Retaining prevents accidental loss of needle

*Note) Except M5 Threaded Type







TECHNICAL SPECIFICATIONS

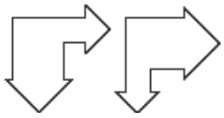
Fluid	Air
Max Operating Pressure	1MPa / (145PSI)
Min Operating Pressure	0.1MPa / (14.5PSI)
Proof Pressure	1.5MPa / 220PSI
Ambient and Fluid Temperature	0 ~ 60°C / 32 ~ 140°F
No Of Needle Revolutions	10 Turns / 8 Turns *
Applicable Tube Material	Nylon, Soft Nylon, Polyurethane
Mounting Thread	Uni Thread
Thread Sealant	Gasket

* Note) AS12*1F, 13*1F

SYMBOLS

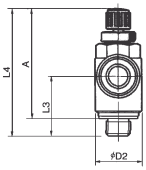


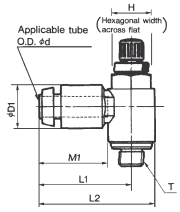
Meter-out Meter-in



Indication On Product

DIMENSIONS (MM) AS SERIES WITH ONE TOUCH FITTINGS ELBOW TYPE



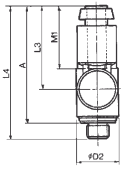


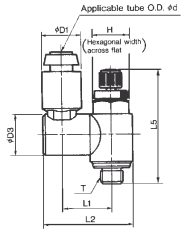
Model Elbow Type (Metric)	Applicable Tube OD ød mm	T Uni Thread	H	øD1	øD2	L1	L2	L3	L4 Max	L4 Min	*A Max	*A Min	M	Weight g
AS22□1F-U01-23	3.2	1/8	12	7.8	14.2	20.8	27.9	14.3	36.1	31.1	30.5	25.5	14.5	16.1
AS22□1F-U01-04	4			8.9		21.1	28.2						14.5	16.2
AS22□1F-U01-06	6			11		22.5	29.6						15.5	16.5
AS22□1F-U01-08	8			15.2		25.3	32.4						18.5	19
AS22□1F-U01-10	10			18.5		33.1	40.2	15					21	20.9
AS22□1F-U02-04	4	1/4	17	8.9	18.5	23.3	32.5	17.2	39.4	34.4	32	26.6	14.5	31.1
AS22□1F-U02-06	6			11		23.9	33.1						15.5	31.3
AS22□1F-U02-08	8			15.2		27.2	36.4						18.5	33.6
AS22□1F-U02-10	10			18.5		33.9	43.2	19					21	35.5
AS32□1F-U03-06	6	3/8	19	11	23	26.4	37.9	19.4	45	40	37.6	32.6	15.5	52.5
AS32□1F-U03-08	8			15.2		29.5	41						18.5	54.9
AS32□1F-U03-10	10			18.5		31.8	43.3						21	56.8
AS32□1F-U03-12	12			20.9		32.8	44.3						22	58.4
AS42□1F-U04-10	10	1/2	24	18.5	28.6	33.6	47.9	22.4	54.6	47.1	44.5	37	21	93.7
AS42□1F-U04-12	12			20.9		34.6	48.9						22	95

DIMENSIONS (INCH) AS SERIES WITH ONE TOUCH FITTINGS ELBOW TYPE

Model Elbow Type (Inch)	Applicable Tube OD d Inch	T Uni Thread	H	øD1	øD2	L1	L2	L3	L4 Max	L4 Min	*A Max	*A Min	M	Weight g
NAS22□1F-U01-01	1/8"	1/8	12	7.8	14.2	20.8	27.9	14.3	36.1	31.1	30.5	25.5	14.5	16.1
NAS22□1F-U01-03	5/32"			8.9		21.1	28.2						14.5	16.2
NAS22□1F-U01-05	3/16"			11.4		23.1	30.2						16.5	17.5
NAS22□1F-U01-07	1/4"			13.2		23.9	31						17	18.1
NAS22□1F-U02-09	5/16"			15.2		25.3	32.4						18.5	19
NAS22□1F-U02-03	5/32"	1/4	17	8.9	18.5	23.3	32.5	17.2	39.4	34.4	32	26.6	14.5	31.1
NAS22□1F-U02-05	3/16"			11.4		24.9	34.2						16.5	32.4
NAS22□1F-U02-07	1/4"			13.2		25.2	34.5						17	32.9
NAS22□1F-U02-09	5/16"			15.2		27.2	36.4						18.5	33.6
NAS32□1F-U02-11	3/8"	3/8	19	17.9	23	33.9	43.2	19					21	35.3
NAS32□1F-U03-07	1/4"			13.2		27.8	39.3	19.4	45	40	37.6	32.6	17	53.9
NAS32□1F-U03-09	5/16"			15.2		29.5	41						18.5	54.9
NAS32□1F-U03-11	3/8"			17.9		31.8	43.3						21	56.6
NAS42□1F-U04-11	3/8"	1/2	24	17.9	28.6	33.6	47.9	22.4	54.6	47.1	44.5	37	21	93.6
NAS42□1F-U04-13	1/2"			21.7		35.2	49.5						22	95.4

Dimensions (mm)
AS Series With One Touch Fittings
Universal Type





Model Elbow Type (Metric)	Applicable Tube OD ød mm	T Uni Thread	H	$øD_1$	$øD_2$	$øD_3$	L_1	L_2	L_3	L_4	L_5 Max	L_5 Min	*A Max	*A Min	M	Weight g
AS22□1F-U01-23	3.2	1/8	12	7.8	14.2	9.3	13.4	24.8	18.9	33.2	36.1	31.1	30.5	25.5	14.5	16.9
AS22□1F-U01-04	4			8.9		9.3	13.4	24.8	18.9	33.2					14.5	17
AS22□1F-U01-06	6			11		10.9	14.5	27.1	20.6	34.9					15.5	17.7
AS22□1F-U01-08	8			15.2		12.9	16.2	30.9	24.7	38.2					18.5	20.9
AS22□1F-U02-04	4	1/4	17	8.9	18.5	9.3	15.6	29.2	18.9	36.1	39.4	34.4	32	26.6	14.5	31.7
AS22□1F-U02-06	6			11		10.9	16.7	31.4	20.6	37.8					15.5	32.4
AS22□1F-U02-08	8			15.2		12.9	18.3	35.2	24.4	40.8					18.5	35.7
AS22□1F-U02-10	10			18.5		12.9	19.6	38.1	26.8	43.2					21	39.2
AS32□1F-U03-06	6	3/8	19	11	23	10.9	18.9	35.9	20.6	41.6	45	40	37.6	32.6	15.5	53.6
AS32□1F-U03-08	8			15.2		12.9	20.6	39.7	24.4	42.8					18.5	56.9
AS32□1F-U03-10	10			18.5		16.2	22.5	43.3	28.3	47.7					21	60.4
AS32□1F-U03-12	12			20.9		16.2	23.5	45.5	29.3	48.7					22	62.2
AS42□1F-U04-10	10	1/2	24	18.5	28.6	16.2	25.3	48.9	28.3	50.7	54.6	47.1	44.5	37	21	97.1
AS42□1F-U04-12	12			20.9		19.4	26.8	51.6	30.8	53.2					22	99.8

Dimensions (Inch)
AS Series With One Touch Fittings
Universal Type

Model Elbow Type (Inch)	Applicable Tube OD d Inch	T Uni Thread	H	$øD_1$	$øD_2$	$øD_3$	L_1	L_2	L_3	L_4	L_5 Max	L_5 Min	*A Max	*A Min	M	Weight g
NAS23□1F-U01-01	1/8"	1/8	12	7.8	14.2	9.3	13.4	24.8	18.9	33.2	36.1	31.1	30.5	25.5	14.5	16.9
NAS23□1F-U01-03	5/32"			8.9		9.3	13.4	24.8	18.9	33.2					14.5	17
NAS23□1F-U01-05	3/16"			11.4		10.3	14.2	27	21.5	35.9					16.5	18.6
NAS23□1F-U01-07	1/4"			13.2		11.4	15.2	28.9	22.3	36.3					17	19.4
NAS23□1F-U01-09	5/16"			15.2		12.9	16.2	30.9	24.7	38.2					18.5	20.9
NAS23□1F-U02-03	5/32"	1/4	17	8.9	18.5	9.3	15.6	29.2	18.9	36.1	39.4	34.4	32	26.6	14.5	31.7
NAS23□1F-U02-05	3/16"			11.4		10.3	16.4	31.1	21.5	38.8					16.5	33.2
NAS23□1F-U02-07	1/4"			13.2		11.4	17.4	33.2	22.3	39.5					17	33.9
NAS23□1F-U02-09	5/16"			15.2		12.9	18.3	35.2	24.4	40.8					18.5	35.7
NAS23□1F-U02-11	3/8"	3/8	19	17.9	23	12.9	19.6	38.1	26.8	43.2					29.4	39
NAS33□1F-U03-07	1/4"			13.2		11.4	19.6	37.7	22.3	43.3	45	40	37.6	32.6	17	55.4
NAS33□1F-U03-09	5/16"			15.2		12.9	20.6	39.7	24.4	42.8					18.5	56.9
NAS33□1F-U03-11	3/8"			17.9		16.2	22.5	42.9	28.3	47.7					21	60.2
NAS43□1F-U04-11	3/8"	1/2	24	17.9	28.6	16.2	25.3	48.6	28.3	50.7	54.6	47.1	44.5	37	21	96.4
NAS43□1F-U04-13	1/2"			21.7		19.4	26.8	52.5	30.8	53.2					22	99.9

How To Order
(N)AS Series With One-Touch Fittings

NAS ○ ○ ○ 1F — ○ ○

Area Code
- ……Japan, Asia, Australia, UK
N ……Canada, USA

Body Size
1 ……M5
2 ……1/8, 1/4 Standard
3 ……3/8 Standard
4 ……1/2 Standard

Type
2 ……Elbow
3 ……Universal

With One-Touch Fittings

Control Method
0 ……Meter Out
1 ……Meter In

Applicable Tube OD

MM	Inch
23 …ø3.2	01 …1/8
04 …ø4	03 …5/32
06 …ø6	05 …3/16
08 …ø8	07 …1/4
10 …ø10	09 …5/16
12 …ø12	11 …3/8
	13 …1/2

Thread Port Size

M5 …M5	U32 ..10-32UNF
U01 ..1/8	01 … 1/8
U02 ..1/4	02 … 1/4
U03 ..3/8	03 … 3/8
U04 ..1/2	04 … 1/2

SPEED CONTROLLER IN-LINE TYPE SERIES (N)AS1000-4000

- Compact Size saves space
- Speed may accurately be controlled even at low velocity
- Constant Speed easily set
- Retaining prevents accidental loss of needle
- Panel Mount Option available



SYMBOLS



Meter-out

HOW TO ORDER SERIES (N)AS1000-4000

NAS ○ 000 — ○ ○ — 3

AREA CODE
- ……Japan, Asia, Australia, UK
N ……Canada, USA

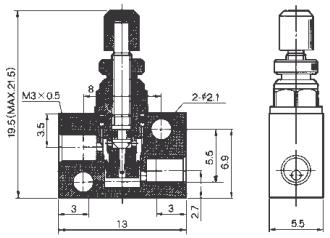
BODY SIZE
1 ……M3, M5
2 ……1/8, 1/4 Standard
3 ……3/8 Standard
4 ……1/2 Standard

PORT THREAD
- ……R(PT)
N ……NPT

PORT SIZE
M3 …M3x0.5
M5 …M5x0.8
01 …1/8 (10-32Nom)
02 …1/4
03 …3/8
04 …1/2

PANEL MOUNT VERSION

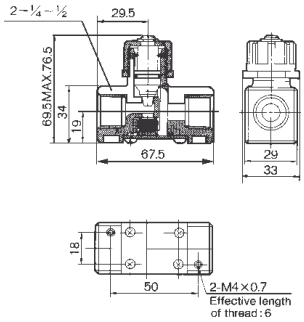
DIMENSIONS SERIES (N)AS1000-M3



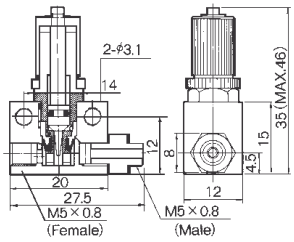
TECHNICAL SPECIFICATIONS

Proof Pressure	1.5MPa / 220PSI	
Max Operating Pressure	1MPa / 145PSI	
Min Operating Pressure	0.05MPa / 8PSI	
Ambient and Fluid Temperature	5 ~ 60°C / 40 ~ 140°F	
No Of Needle Rotations	8 ~ 10Turns	
Panel Cut Out Dimensions	AS1000	Not Applicable
	AS2000	ø16.5
	AS3000	ø16.5
	AS4000	ø25

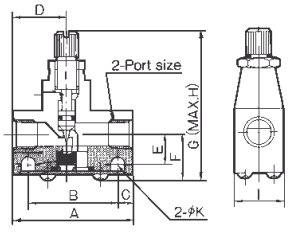
DIMENSIONS SERIES (N)AS4000



DIMENSIONS SERIES (N)AS1000-M5



DIMENSIONS SERIES (N)AS2000, 3000



Model	Port Size	A	B	C	D	E	F	G	H	I	øK
(N)AS2000-01	1/8	40	30	5	17	10	15.5	50	54.5	16	4.5
(N)AS2000-02	3/4	40	30	5	23	11.5	17	51.5	56	20	4.5
(N)AS3000-02, 03	1/4, 3/8	56	45.5	5.25	25	13.2	20.6	61	68	26	5.5

SPEED CONTROLLER: IN-LINE LOCKING TYPE: SERIES (N)AS3500



- Lock Speed Setting at the touch of a button
- Speed Control Setting clearly marked for Repeatability
- Speed may accurately be controlled even at low velocity
- Constant Speed easily set
- Control Knob constructed of metal to withstand heavy usage
- Retaining prevents accidental loss of needle

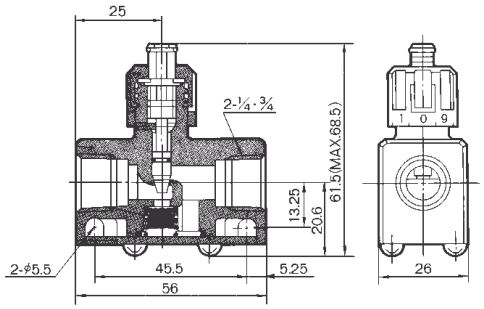
SYMBOLS



TECHNICAL SPECIFICATIONS

Proof Pressure	1.5MPa / 220PSI
Maximum Operating Pressure	1MPa / 145PSI
Minimum Operating Pressure	0.5MPa / 8PSI
Ambient and Fluid Temperature	5~60°C / 40~140°F
Number of Needle Rotations	8 Turns

DIMENSIONS (N)AS3500



HOW TO ORDER (N)AS3500 LOCKING TYPE

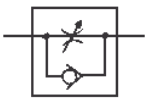
AS3500-02.....1/4PT
AS3500-03.....3/8PT
NAS3500-N02 .....1/4NPT
NAS3500-N03 .....3/8NPT

SPEED CONTROLLER: HIGH FLOW IN-LINE TYPE SERIES (N)AS500-600



- Even at low speeds may be accurately controlled
- Constant Speed easily set
- Retaining prevents accidental loss

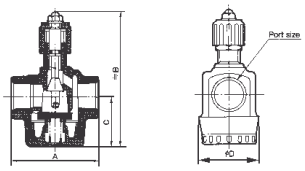
SYMBOLS



TECHNICAL SPECIFICATIONS

Proof Pressure	1.5MPa / 220PSI
Maximum Operating Pressure	1MPa / 145PSI
Minimum Operating Pressure	0.05MPa / 8PSI
Ambient and Fluid Temperature	5 ~ 60°C / 40~140°F
Number of Needle Rotations	10 Turns

DIMENSIONS (N)AS500-600



Model	Port Size	A	B	C	øD
(N)AS500	3/4	74	115	42	50
(N)AS600	1	90	158	55	62

HOW TO ORDER (N)AS500-600

NAS ○ 0 — ○ ○

- AREA CODE: N .....North America
- BODY SIZE: 50 ...¾, 60 ...1
- TYPE: - .....R(PT), N .....NPT
- PORT SIZE: 06 ...¾, 10 ...1

Speed Controller Body Ported: Elbow Type Series (N)AS1000-4000

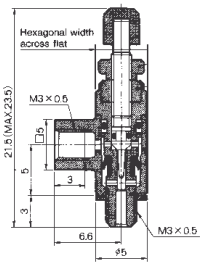
- Minimizes Installation Time and Cost
- Body swivels 360°
- Speed may be accurately controlled even at low velocity
- Constant Speed easily set
- Retaining prevents accidental loss of needle
- Tamper-Resistant Type Available



Technical Specifications

Proof Pressure	1.5MPa / 220PSI
Maximum Operating Pressure	1MPa / 145PSI
Minimum Operating Pressure	0.1MPa / 14.5PSI
Ambient and Fluid Temperature	5 ~ 60°C / 40~140°F
Number of Needle Rotations	8 Turns

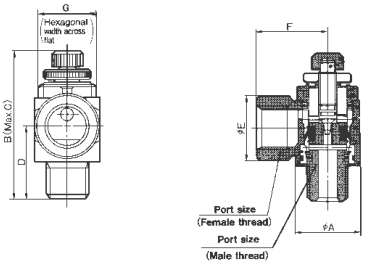
Dimensions (N)AS1200-M3 Elbow Type



Symbols



Dimensions (N)AS1200, 2200, 3200, 4200



Model	Port Size	øA	B	C	D	E	F	G
(N)AS1200-M5	M5x0.8	9	28.3	25.5	10.3	□9	10	8
(N)AS2200-01	1/8	14.6	36.4	31.4	14.1	14.3	18	12
(N)AS2200-02	1/4	19.5	40.8	35.8	18	18	27.2	17
(N)AS3200-03	3/8	24.3	46.9	41.9	20.8	22.6	30	19
(N)AS4200-04	1/2	28.5	55.6	49.4	26.7	27.5	33.5	24

How To Order (N)AS1000-4000

NAS ○ 200 — ○ ○ — ○ — ○

Area Code
N .....North America

Body Size
1 .....M3, M5
2 ..... 1/8, 1/4
3 ..... 3/8
4 ..... 1/2

Direct Connection Type

Port Thread
- .....R(PT)
N .....NPT

Port Size
M3 ...M3x0.5
M5 ...M5x0.8
01 ... 1/8
02 ... 1/4
03 ... 3/8
04 ... 1/2

Option
- .....Nil
S .....Sealant

Option
- .....Nil
T .....Tamper-Resistant
D .....Tamper-Resistant
Flat Head Screw Driver
Adjustment Type



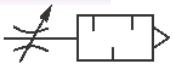
EXHAUST RESTRICTOR WITH SILENCER SERIES (N)ASN2

- Over 20dB Sound Reduction
- Cylinder Speed easily set
- Retaining prevents accidental loss of needle
- Increased Flow
- Increased Silencing Effect
- Overall Length reduced

TECHNICAL SPECIFICATIONS

Proof Pressure	1.5MPa / 220 PSI
Operating Pressure Range	0 ~1MPa / 145PSI
Ambient & Fluid Temperature	5 ~ 60°C / 40~140°F
Number of Needle Rotations	8 Turns

SYMBOLS



HOW TO ORDER SERIES (N)ASN2

NASN2 — ○ ○ — ○

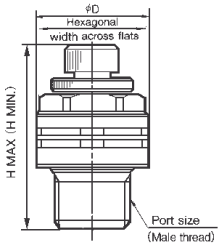
AREA CODE
- ……Japanese
N ……North America

PORT THREAD
- ……R(PT)
N ……NPT

PORT SIZE
M5 …M5x0.8
01 …⅛
02 …¼
03 …⅜
04 …½

OPTION
S ……W/Sealant

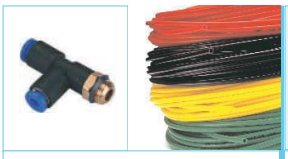
DIMENSIONS SERIES (N)ASN



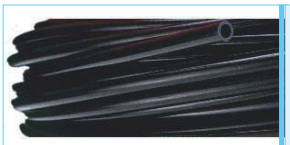
Model	Port Size	øD	H		Hexagonal Width
			Min	Max	Across Flats
(N)ASN2-M5	M5x0.8	10	20.5	23.3	8
(N)ASN2-01	1/8	15	30	34	14
(N)ASN2-02	1/4	20	34.2	38.2	17
(N)ASN2-03	3/8	25	37	41	21
(N)ASN2-04	1/2	30	49	55	24

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E201 & N372

Fittings

	Series	Page Number
	Sizing Of Tubing Systems Tube & Fittings	4.1
	M3, M5, 1/8 Miniature Fittings	4.2
	KJ One-Touch Mini Fittings	4.4
	KQ (Black) / KQ2 (White) Uni One-Touch Fittings	4.7
	KQ (Black) / KQ2 (White) Sealant Type	4.11
	KQ (Black) / KQ2 (White) Extended Range One-Touch Fittings	4.20
	KS/KX Rotary One-Touch Fittings	4.22
	KC Self-Seal Fittings	4.25
	KM One-Touch Fitting Manifolds	4.26
	KDM Rectangular Multi Connector	4.28

Tubing

	Series	Page Number
	**TS, TISA** Soft Nylon Tubing	4.30
	**TU, TIUB** Polyurethane Tubing	4.30
	**TFU** Polyurethane Flat Tubing	4.31
	**TCU** Polyurethane Coil Tubing	4.31
	**TM** Multitube Holder	4.32
	**TK** Tube Cutter	4.32

SIZING OF TUBING SYSTEMS

The calculation of the valve system flow factor (Cv) is required for each application. The tube and fittings between air source and the application are part of this system as each length of pipe and each fitting has a pressure drop.

Each SMC element can be individually defined in terms of effective orifice.

The overall Cv of a tube and valve system is calculated by combining the Cv of each element as follows:

$$\frac{1}{Cv^2_{syst}} = \frac{1}{Cv_1^2} + \frac{1}{Cv_2^2} + \frac{1}{Cv_3^2} \text{ etc}$$

Quick approximate calculation can be made by assuming 50% of system pressure drop is made at the valve and 50% in the tube system.

If our calculated Cv for the system including valve and fittings is Cv_{syst}, then:

required Cv for valve = $Cv_{syst} \times \sqrt{2}$

for fittings and tube = $Cv_{syst} \times \sqrt{2}$

If tube system has 3 meters of nylon pipe and 6 KQ fittings we can consider this as 9 (3 + 6) elements so Cv for each fitting element needs to be:

$$Cv_{syst} \times \sqrt{2} \times \sqrt{9}$$

9 elements assumed all equal ΔP
(assumption 50% ΔP valves 50% ΔP tube etc)

The SMC fittings are quoted with effective orifice of S in mm². (18mm² ≃ Cv1)

Thus if system Cv required was 0.6

valve to be used has a Cv of 0.85

each fitting system element used will have a Cv of $0.6 \times \sqrt{2} \times \sqrt{9} = 2.55$

Cv2.55 ≡ 46mm²

From this catalog, SMC fitting KQH10-U01 has S>46mm2 ∴ use tube system Ø10mm

Tube Fittings: Miniature



Miniature Fittings: M3, M5, 1/8

- Compact and Space-Saving
- Tube has a large retaining force
- Hose Nipple ensures easy removal
- Accepts Nylon Tubes, Soft Nylon Tube and Polyurethane

Product Selector

Manifold:
M-5M



1/8 female diverted to 9 x M5

Product Selector

Barb Fitting for Soft Tube:
M-3AU-4
M-5AU-4
M-5AU-6



Product Selector

Barb Elbow for Soft Tube:
M-3ALU-4
M-5ALU-6



Product Selector

Universal Elbow:
M-3UL
M-5UL



Product Selector

Universal Tee:
M-3UT
M-5UT



Product Selector

Nipple:
M-3N
M-5N



Product Selector

Plug:
M-3P
M-5P

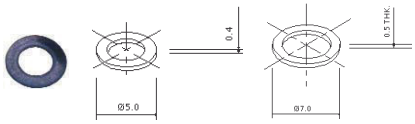


Product Selector

Gasket:

More Selections See Next Page ☞
How To Order See Next Page ☞

M-3G M-5G1



Product Selector

Hose Nipple:
M-5H-4
M-5H-6



Product Selector

Elbow:
M-5L



Product Selector

Hose Elbow:
M-5HL-4
M-5HL-6

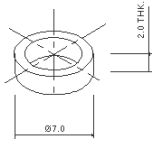


Uses Gasket M-5GH

Product Selector

Gasket:
M-5GH

Similar to Picture M-3G (above)
Use with M-5HL



Product Selector

Tee:
M-5T



TUBE FITTINGS: MINIATURE

PRODUCT SELECTOR

EXTENSION FITTING:
M-5J



PRODUCT SELECTOR

UNIVERSAL NIPPLE:
M-5UN



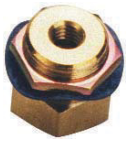
PRODUCT SELECTOR

BULKHEAD:
M-5E



PRODUCT SELECTOR

BULKHEAD REDUCER:
M-5ER



M5 female to ⅛ female taper

PRODUCT SELECTOR

REDUCING BUSHING:
M-5B



M5 female to ⅛ male taper

PRODUCT SELECTOR

STRAIGHT ADAPTOR:
M-01H-4
M-01H-6



PRODUCT SELECTOR

STRAIGHT BARB CONNECTOR:
M-01AU-4
M-01AU-6



TECHNICAL SPECIFICATIONS

Applicable Tube Material		Nylon	Soft Nylon	Polyurethane
Applicable Tube Dia* OD/ID (mm)	M3	—	ø4/ø2.5	ø4/ø2.5
	M5 ⅛	ø4/ø2.5 ø6/ø4	ø4/ø2.5 ø6/ø4	ø4/ø2.5, ø6/ø4
Max Operating Pressure		1MPa / 145PSI	0.8MPa / 116PSI	0.5MPa / 73PSI
Port Size		M3, M5, ⅛		
Thread		JIS B0209 class 2 (Metric coarse thread), JIS B0203 (Taper pipe thread)		

*Dimensions to BS5409 Part 1

HOW TO ORDER MINIATURE FITTINGS

M — ○ ○ — ○

PORT SIZE
3 .....M3
5 .....M5
01 ...⅛

CONFIGURATION
See Product Selectors

TUBE SIZE (WHERE APPLICABLE)
3 .....3.8mm OD - 2mm ID
4 .....4mm OD - 2.5mm ID
6 .....6mm OD - 4mm ID

PRODUCT SELECTOR

MALE/MALE NIPPLE:
1/8-1/8 HEX
1/4-1/4 HEX
3/8-3/8 HEX
1/2-1/2 HEX
3/4-3/4 HEX



PRODUCT SELECTOR

FLUSH TAPER PLUGS:
⅛, ¼, ⅜, ½, ¾



HOW TO ORDER MALE/MALE NIPPLE

⅛.....BFAPP122-A
¼.....BFAPP122-B
⅜.....BFAPP122-C
½.....BFAPP122-D
¾.....BFAPP122-E

HOW TO ORDER FLUSH TAPER PLUGS:

⅛ .....PLUG⅛
¼ .....PLUG¼
⅜ .....PLUG⅜
½ .....PLUG½

ONE-TOUCH MINI FITTINGS SERIES KJ

- For use with SMC miniature valves and actuators. M3 & M5 ported
- Compact One-Touch Collet Design allows easy disassembly with strong tube gripping
- For use from 10 Torr vacuum to 1MPa pressure
- Electroless Nickel Plated as standard



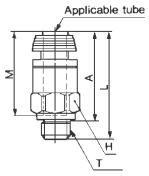
TECHNICAL SPECIFICATIONS

Fluid ..... Air
Max Operating Pressure ..... 1MPa / 145PSI
Operating Vacuum Pressure ..... 10 Torr~ (0.2PSI)
Ambient and Fluid Temperature ... 0~60°C / 32~140°F
Thread ..... Thread Portion ..... JISB0211, class 2 (Metric Coarse Thread)
..... Nut ..... JISB0211, class 2 (Metric Fine Thread)
Seal ..... Flat Gasket
Possible to use joint avoiding copper material ..... C3604BD component, with electroless nickel plating

PRODUCT SELECTOR

MALE CONNECTOR: KJH





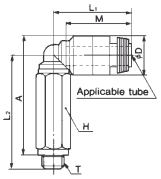
Applicable Tube O.D (mm)	Thread T	Model	H (Hex)	L	A	M	Effective Orifice (mm²) Nylon/Urethane	Weight (g)
3.2	M3x0.5	KJH23-M3	7	18	15.5	14.5	0.9	1.6
3.2	M5x0.8	KJH23-M5	7	18.5	15.5	14.5	3/2.5	2.1
3.2	R(PT)1/8	KJH23-01S	10	16.5	12.5	14.5	3/2.5	5
4	M3x0.5	KJH04-M3	8	18	15.5	14.5	0.9	1.9
4	M5x0.8	KJH04-M5	8	18.5	15.5	14.5	4	2.4
4	R(PT)1/8	KJH04-01S	10	17.5	13.5	14.5	4	3.4
6	M5x0.8	KJH06-M5	10	20	16.5	15.5	4	3.4
6	R(PT)1/8	KJH06-01S	10	21.5	17.5	15.5	10	5.1

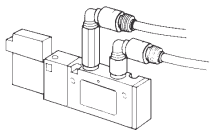
Applicable Tube O.D (inch)	Thread T	Model	H (Hex)	L	A	M	Minimum Hole Diameter	Weight (g)
1/8	10-32UNF	KJH01-32	7	18.5	15.5	-	2.3	2.1
1/8	1/16	KJH01-33S	9.5	21.5	17.5	-	2.5	5.3
1/8	1/8	KJH01-34S	11.11	16.5	12.5	-	2.5	5
5/32	10-32UNF	KJH03-32	8	18.5	15.5	-	2.3	2.4
5/32	1/16	KJH03-33S	9.5	22	18	-	3	5.2
5/32	1/8	KJH03-34S	11.11	17.5	13.5	-	3	5.1
1/4	10-32UNF	KJH07-32	-	20.5	17.5	-	2.3	5.1
1/4	1/16	KJH07-33S	-	24	20	-	3.5	6.1
1/4	1/8	KJH07-34S	-	21	17	-	4.6	5.1

PRODUCT SELECTOR

EXTENDED MALE ELBOW: KJW







Applicable Tube O.D (mm)	Thread T	Model	H (Hex)	ØD	L1	L2	A	M	Effective Orifice (mm²) Nylon/Urethane	Weight (g)
3.2	M3x0.5	JKW23-M3	7	7.8	17	22.5	24	14.5	0.8	5
3.2	M5x0.8	KJW23-M5	7	7.8	17	25	26	14.5	2.6/2.2	6.3
3.2	R(PT)1/8	KJW23-01S	10	7.8	17	25	25	14.5	2.6/2.2	10.4
4	M3x0.5	KJW04-M3	7	8.9	17.5	23	25	14.5	0.8	5
4	M5x0.8	KJW04-M5	7	8.9	17.5	25.5	27	14.5	3.5	6.4
4	R(PT)1/8	KJW04-01S	10	8.9	17.5	25.5	26	14.5	3.5	10.6
6	M5x0.8	KJW06-M5	7	11	17.5	26.5	29	15.5	3.5	6.9
6	R(PT)1/8	KJW06-01S	10	11	19.5	28.5	30	15.5	9	11.5

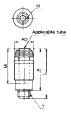
Applicable Tube O.D (inch)	Thread T	Model	H (Hex)	ØD	L1	L2	A	M	Minimum Hole Diameter	Weight (g)
1/8	10-32UNF	KJW01-32	7	7.8	17	25	26	14.5	2.3	6.3
1/8	1/16	KJW01-33S	9.5	7.8	17	25	25	14.5	2.5	8.6
1/8	1/8	KJW01-34S	11.11	7.8	17	25	25	14.5	2.5	10.5
5/32	10-32UNF	KJW03-32	7	8.9	17.5	25.5	27	14.5	2.3	6.4
5/32	1/16	KJW03-33S	9.5	8.9	17.5	25.5	26	14.5	2.5	8.7
5/32	1/8	KJW03-34S	11.11	8.9	17.5	25.5	26	14.5	2.5	10.6
1/4	10-32UNF	KJW07-32	7	11.9	17.5	27	30	15.5	2.3	7.3
1/4	1/16	KJW07-33S	9.5	11.9	17.5	27	29	15.5	2.5	9.6
1/4	1/8	KJW07-34S	11.11	11.9	19.5	29.5	31.5	15.5	4.6	12.1

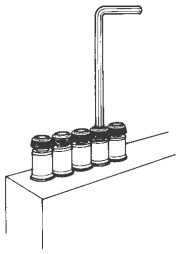
MORE SELECTIONS SEE NEXT PAGE ☞

TUBE FITTINGS: ONE TOUCH MINI

PRODUCT SELECTOR

HEXAGON SOCKET HEAD MALE CONNECTOR: KJS



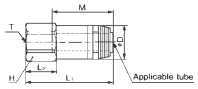


Applicable Tube O.D (mm)	Thread T	Model	H (Hex)	ØD	L	A	M	Effective Orifice (mm²) Nylon/Urethane	Weight (g)
3.2	M3x0.5	KJS23-M3	1.5	7	18	15.5	14.5	1.4	1.4
3.2	M5x0.8	KJS23-M5	2	7	21.5	18	14.5	2.5	2.9
4	M3x0.5	KJS04-M3	1.5	8	18	15.5	14.5	1.4	1.5
4	M5x0.8	KJS04-M5	2.5	8	20.5	17	14.5	4	2.6
4	R(PT)1/8	KJS04-01S	3	9.8	21.5	17.5	14.5	4	5.3
6	M5x0.8	KJS06-M5	2.5	10	21.5	18	15.5	4	3.2
6	R(PT)1/8	KJS06-01S	4	10	22	18	15.5	10	5

Applicable Tube O.D (inch)	Thread T	Model	H (Hex)	ØD	L	A	M	Minimum Hole Diameter	Weight (g)
1/8	10-32UNF	KJS01-32	1.98	7	21.5	18.5	14.5	2	2.9
5/32	10-32UNF	KJS03-32	2.5	8	20.5	17.5	14.5	2.5	2.6
5/32	1/16	KJS03-33S	2.78	8	21.5	17.5	14.5	2.8	2.8
5/32	1/8	KJS03-34S	2.78	10.3	21.5	17.5	14.5	2.8	4.2
1/4	10-32UNF	KJS07-32	2.38	10.3	21.5	18	15.5	2.4	4.2
1/4	1/16	KJS07-33S	3.57	10.3	23	19	15.5	3.6	5
1/4	1/8	KJS07-34S	4.76	10.3	22	18	15.5	4.8	4.4

PRODUCT SELECTOR

FEMALE UNION: KJF



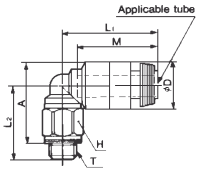
Applicable Tube O.D (mm)	Thread T	Model	H (Hex)	ØD	L	A	M	Effective Orifice (mm²) Nylon/Urethane	Weight (g)
3.2	M3x0.5	KJF23-M3	7	7	18.5	6	14.5	3/2.5	2.6
3.2	M5x0.8	KJF23-M5	7	7	21	7.5	14.5	3/2.5	2.9
4	M3x0.5	KJF04-M3	8	8	18	5.5	14.5	4	3.2
4	M5x0.8	KJF04-M5	8	8	20.5	7.5	14.5	4	3.8
6	M5x0.8	KJF06-M5	10	10	20	7	15.5	10	5.1

Applicable Tube O.D (inch)	Thread T	Model	H (Hex)	ØD	L	A	M	Minimum Hole Diameter	Weight (g)
1/8	10-32UNF	KJF01-32	7	6.9	20.5	7.5	14.5	2.5	2.9
5/32	10-32UNF	KJF03-32	8	7.9	20.5	7.5	14.5	3	3.8
1/4	10-32UNF	KJF07-32	11.11	10.3	20	7	15.5	3	4.8

PRODUCT SELECTOR

MALE ELBOW: KJL





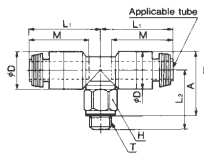
Applicable Tube O.D (mm)	Thread T	Model	H (Hex)	ØD	L1	L2	A	M	Effective Orifice (mm²) Nylon/Urethane	Weight (g)
3.2	M3x0.5	KJL23-M3	7	7.8	17	12.5	14	14.5	0.8	2
3.2	M5x0.8	KJL23-M5	7	7.8	17	13	14	14.5	2.6/2.2	2.6
3.2	R(PT)1/8	KJL23-01S	10	7.8	17	15	15	14.5	2.6/2.2	6.7
4	M3x0.5	KJL04-M3	7	8.9	17.5	13	15	14.5	0.8	2.2
4	M5x0.8	KJL04-M5	7	8.9	17.5	13.5	15	14.5	3.5	2.7
4	R(PT)1/8	KJL04-01S	10	8.9	17.5	15.5	16	14.5	3.5	6.8
6	M5x0.8	KJL06-M5	7	11	17.5	14.5	17	15.5	3.5	3.1
6	R(PT)1/8	KJL06-01S	10	11	19.5	16.5	18	15.5	9	6.1

Applicable Tube O.D (inch)	Thread T	Model	H (Hex)	ØD	L1	L2	A	M	Minimum Hole Diameter	Weight (g)
1/8	10-32UNF	KJL01-32	7	7.8	17	13	14	14.5	2.3	2.6
1/8	1/16	KJL01-33S	9.5	7.8	17	18.5	16.3	14.5	2.5	4.4
1/8	1/8	KJL01-34S	11.11	7.8	17	15.5	15.5	14.5	2.5	5.2
5/32	10-32UNF	KJL03-32	7	8.9	17.5	13.5	15	14.5	2.3	2.7
5/32	1/16	KJL03-33S	9.5	8.9	17.5	17	17.5	14.5	2.5	4.5
5/32	1/8	KJL03-34S	11.11	8.9	17.5	16	16.5	14.5	2.5	6.8
1/4	10-32UNF	KJL07-32	7	11.9	17.5	15	18	15.5	2.3	3.3
1/4	1/16	KJL07-33S	9.5	11.9	17.5	18.5	20.5	15.5	2.5	5.3
1/4	1/8	KJL07-34S	11.11	11.9	19.5	17.5	19.5	15.5	4.6	6.4

PRODUCT SELECTOR

BRANCH TEE: KJT





Applicable Tube O.D (mm)	Thread T	Model	H (Hex)	ØD	L1	L2	A	M	Effective Orifice (mm²) Nylon/Urethane	Weight (g)
3.2	M3x0.5	KJT23-M3	7	7.8	17	13	14.5	14.5	0.9	2.6
3.2	M5x0.8	KJT23-M5	7	7.8	17	13.5	14.5	14.5	3.2/2.7	3.1
3.2	R(PT)1/8	KJT23-01S	10	7.8	17	15.5	15.5	14.5	3.2/2.7	7.3
4	M3x0.5	KJT04-M3	7	8.9	17	13.5	15.5	14.5	0.9	3
4	M5x0.8	KJT04-M5	7	8.9	17	14	15.5	14.5	4.5	3.5
4	R(PT)1/8	KJT04-01S	10	8.9	17	16	16.5	14.5	4.5	7.6
6	M5x0.8	KJT06-M5	7	11	17.5	15	17.5	15.5	4.5	4.2
6	R(PT)1/8	KJT06-01S	10	11	19	17.5	19	15.5	11	7.1

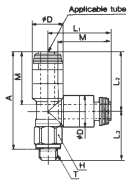
Applicable Tube O.D (inch)	Thread T	Model	H (Hex)	ØD	L1	L2	A	M	Minimum Hole Diameter	Weight (g)
1/8	10-32UNF	KJT01-32	7	7.8	17	13.5	14.5	14.5	2.3	3.1
1/8	1/16	KJT01-33S	9.5	7.8	17	17	16.5	14.5	2.5	6.5
1/8	1/8	KJT01-34S	11.11	7.8	17	16	15.5	14.5	2.5	7.3
5/32	10-32UNF	KJT03-32	7	8.9	17	14	15.5	14.5	2.3	3.5
5/32	1/16	KJT03-33S	9.5	8.9	17	17.5	18	14.5	2.5	6.8
5/32	1/8	KJT03-34S	11.11	8.9	17	16.5	17	14.5	2.5	7.6
1/4	10-32UNF	KJT07-32	7	11.9	17.5	15.5	18.5	15.5	2.3	4.4
1/4	1/16	KJT07-33S	9.5	11.9	17.5	18.5	20.5	15.5	2.5	7.2
1/4	1/8	KJT07-34S	11.11	11.9	19	18	20	15.5	4.6	8

HOW TO ORDER
SEE NEXT PAGE ☞

PRODUCT SELECTOR

MALE RUN TEE: KJY





Applicable Tube O.D (mm)	Thread T	Model	H (Hex)	ØD	L1	L2	L3	A	M	Effective Orifice (mm²) Nylon/Urethane	Weight (g)
3.2	M3x0.5	KJY23-M3	7	7.8	17	16.5	12.5	26.5	14.5	0.9	2.7
3.2	M5x0.8	KJY23-M5	7	7.8	17	16.5	13	26.5	14.5	3.2/2.7	3.2
3.2	R(PT)1/8	KJY23-01S	10	7.8	17	16.5	15	27.5	14.5	3.2/2.7	7.3
4	M3x0.5	KJY04-M3	7	8.9	17.5	16.5	13	27	14.5	0.9	3.1
4	M5x0.8	KJY04-M5	7	8.9	17.5	16.5	13.5	27	14.5	4.5	3.5
4	R(PT)1/8	KJY04-01S	10	8.9	17.5	16.5	15.5	28	14.5	4.5	7.6
6	M5x0.8	KJY06-M5	7	11	19	19	14.5	30.5	15.5	4.5	4.3
6	R(PT)1/8	KJY06-01S	10	11	19.5	18.5	16.5	31	15.5	11	7.1

Applicable Tube O.D (inch)	Thread T	Model	H (Hex)	ØD	L1	L2	L3	A	M	Minimum Hole Diameter	Weight (g)
1/8	10-32UNF	KJY01-32	7	7.8	17	16.5	13	26.5	14.5	2.3	3.2
1/8	1/16	KJY01-33S	9.5	7.8	17	16.5	16.5	29	14.5	2.5	5
1/8	1/8	KJY01-34S	11.11	7.8	17	16.5	15.5	28	14.5	2.5	7.3
5/32	10-32UNF	KJY03-32	7	8.9	17.5	16.5	13.5	27	14.5	2.3	3.5
5/32	1/16	KJY03-33S	9.5	8.9	17.5	16.5	17	29.5	14.5	2.5	5.3
5/32	1/8	KJY03-34S	11.11	8.9	17.5	16.5	16	28.5	14.5	2.5	7.6
1/4	10-32UNF	KJY07-32	7	11.9	19.5	19.5	15	31.5	15.5	2.3	4.6
1/4	1/16	KJY07-33S	9.5	11.9	19.5	19.5	18	33.5	15.5	2.5	6.7
1/4	1/8	KJY07-34S	11.11	11.9	19	19	17	32	15.5	4.6	7.5

HOW TO ORDER SERIES KJ

KJ ○ ○ — ○

CONFIGURATION

E.....Bulkhead Union
F.....Female
H .....Male Connector
.....Straight Union
.....Different Diameter Straight
L.....Elbow (Male, Union, Plug-In, Reducer)
R .....Plug-In Reducer
S.....Hex Socket Head Male Connector
T.....Tee (Branch, Union, Different Diameter)
U .....Union Y, Branch Y, Different Diameter Union, Plug-In Y
W .....Extended Elbow
X .....Different Diameter Plug-In
Y .....Male Run Tee

TUBE OD

23 ...ø3.2mm
04 ...ø4mm
06 ...ø6mm
01 ...ø1/8"
03 ...ø5/32"
07 ...ø1/4"

CONNECTION THREAD

M3 ...M3x0.5mm
M5 ...M5x0.8mm
1/8(PT)
32 ...10-32UNF
33S ...1/16 NPT
34S ...1/8 NPT

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E501 & CAT:N500



FITTINGS WITH UNI-THREAD
SERIES KQ: BLACK BODY FITTINGS
SERIES KQ2: WHITE BODY FITTINGS

SERIES KQ2 ONE TOUCH FITTINGS

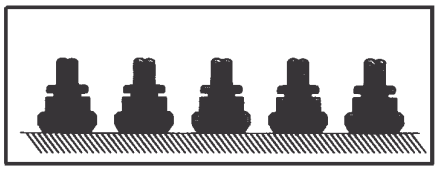


- Wide Range of Pressures low vacuum to 0.1MPa
- Wide Range of Applicable Tube Systems (4mm to 16mm)
- Minimized Resistance to Air Flow
- Easy and quick installation of tube
- A unique thread concept allows for compatability with parallel and taper female threads. Uni-thread fits all female thread types* (Rc, Rp, G, NPT, NPTF, BSP, BSPT)
- No Thread Sealant required
- Space-Saving
- Uniform Mounting Height improves appearance
- Cuts assembly time by over 60%

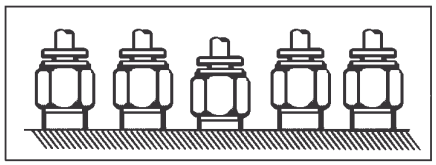
SERIES KQ: BLACK BODY FITTINGS AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS AVAILABLE IN THE USA

- Constant mounting height saves space

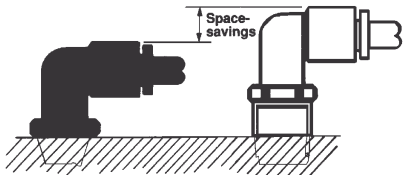
Lower height of screwed-in fittings save space and improves appearance



Uni-Threads



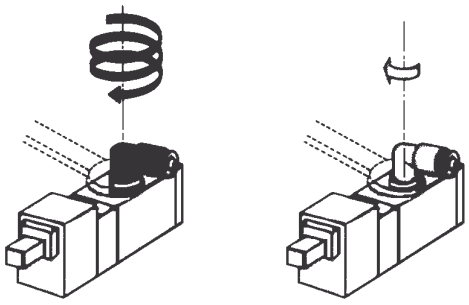
Conventional Threads



- Screw-In Time is reduced to ⅓

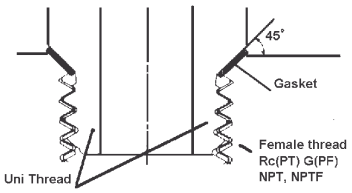
Existing Tapered Thread Series: 2 to 3 turns with a wrench after manual tightening

Uni-Thread Series: ¹⁄₂₄ to ⅛ turn with a wrench after manual tightening



Thread Type	Manual Tightening Time +Tool Tightening Time	Total	Ratio
Uni-Thread	6 sec + 4 sec	10 sec	1/3
Conventional Thread	4 sec + 26 sec	30 sec	1

UNITHREAD CONSTRUCTION



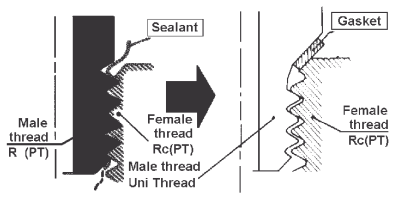
UNI THREAD RIDGE SHAPE

A new ridge shape has been created as a Uni-Thread for common application to Rc(PT), G(PF) NPT, and NPTF female threads with different thread diameters, pitches, tapered angles, ridge shapes, etc..

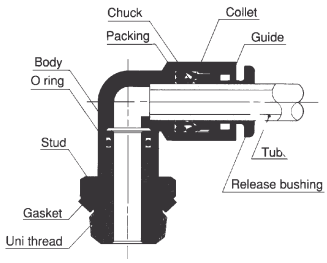
GASKET CONSTRUCTION

A gasket made of stainless sheet covered with laminated NBR on both sides is seated on the chamfer of a female thread to materialize a perfect sealing construction irrespective of the difference in thread diameters due to the difference in the types of female threads, variation in tolerance, difference in the size of chamfer.

(It is applicable to any female thread with ordinary chamfer.)



PARTS DESCRIPTION



TECHNICAL SPECIFICATIONS

Fluid	Air
Max Operating Pressure	0.1MPa / 145PSI
Operating Vacuum Pressure	0.001MPa (Absolute) 0.2PSI
Applicable Tube Material	Nylon,Soft Nylon,Polyurethane
Proof Pressure	3MPa / 435PSI
Ambient Fluid Temperature	0 - 60°C / 32 ~ 140°F

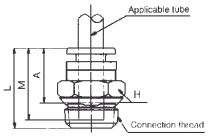
SERIES KQ: BLACK BODY FITTINGS AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS AVAILABLE IN THE USA

PRODUCT SELECTOR

MALE CONNECTOR : KQH (KQ2H)

Use to pipe in the same direction from female threaded portion. Most general type.





Applicable Tube OD (mm)	Connection Thread	Model	H (width Across Flats)	L	A	M	Effective Orifice (mm²) Nylon
4	1/8	KQH04-U01	10	18.5	14.5	16	5.6
4	1/4	KQH04-U02	14	18	12	16	5.6
6	1/8	KQH06-U01	12	19.5	15.5	17	13.1
6	1/4	KQH06-U02	14	19.5	13	17	13.1
6	3/8	KQH06-U03	17	18.5	12.5	17	13.1
8	1/8	KQH08-U01	14	25	21	18.5	26.1
8	1/4	KQH08-U02	14	21.5	15.5	18.5	26.1
8	3/8	KQH08-U03	17	21	15	18.5	26.1
10	1/8	KQH10-U01	17	28	23	21	41.5
10	1/4	KQH10-U02	17	28	22	21	41.5
10	3/8	KQH10-U03	17	24	18	21	41.5
10	1/2	KQH10-U04	22	22	14	21	41.5
12	1/4	KQH12-U02	19	30.5	24.5	22	58.3
12	3/8	KQH12-U03	19	25.5	19.5	22	58.3
12	1/2	KQH12-U04	22	24.5	16.5	22	58.3
16	3/8	KQH16-U03	24	33.5	27.5	24	81
16	1/2	KQH16-U04	24	28.5	20.5	24	113

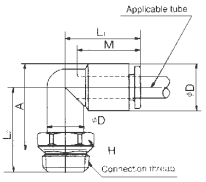
Applicable Tube OD (Inch)	Connection Thread Uni Thread	Model	H (width Across Flats)	L	A	M	Minimum Hole Diameter
1/8	1/8	KQH01-U01	11.11	19	15	15.5	2.5
1/8	1/4	KQH01-U02	14.29	17.5	11.5	15.5	2.5
5/32	1/8	KQH03-U01	11.11	19.5	15.5	16	3
5/32	1/4	KQH03-U02	14.29	19	13	16	3
3/16	1/8	KQH05-U01	12.7	19	15	16	3.5
3/16	1/4	KQH05-U02	14.29	17.5	11.5	16	3.5
1/4	1/8	KQH07-U01	14.29	22.5	18.5	17	4.6
1/4	1/4	KQH07-U02	14.29	20.5	14.5	17	4.6
1/4	3/8	KQH07-U03	17.46	18.5	12.5	17	4.6
5/16	1/8	KQH09-U01	14.29	25.5	21.5	18.5	6
5/16	1/4	KQH09-U02	14.29	21.5	15.5	18.5	6
5/16	3/8	KQH09-U03	17.46	21	15	18.5	6
3/8	1/4	KQH11-U02	17.46	28	22	21	7
3/8	3/8	KQH11-U03	17.46	28	22	21	7
3/8	1/2	KQH11-U04	22.23	22	14	21	7
1/2	1/4	KQH13-U02	22.23	30	24	22	33
1/2	3/8	KQH13-U03	22.23	28.5	22.5	22	30
1/2	1/2	KQH13-U04	22.23	25	17	22	28

PRODUCT SELECTOR

MALE ELBOW : KQL (KQ2L)

Use to pipe in right angle to female threaded portion. Most general type.





Applicable Tube OD mm	Connection Thread	Model	H	øD1	øD2	L1	L2	A	M	Effective Orifice (mm²) Nylon
4	1/8	KQL04-U01	10	10.4	10	18	20	21.5	16	4.2
4	1/4	KQL04-U02	14	10.4	10	18	22	21.5	16	4.2
6	1/8	KQL06-U01	10	12.8	10	20	21.5	23.5	17	11.4
6	1/4	KQL06-U02	14	12.8	10	20	23	23.5	17	11.4
6	3/8	KQL06-U03	17	12.8	10	20	24	23.5	17	11.4
8	1/8	KQL08-U01	12	15.2	12	23	22.5	26	18.5	21.6
8	1/4	KQL08-U02	14	15.2	12	23	24.5	26	18.5	21.6
8	3/8	KQL08-U03	17	15.2	12	23	25.5	27	18.5	21.6
10	1/8	KQL10-U01	17	18.5	17	26.5	25	29.5	21	21.6
10	1/4	KQL10-U02	17	18.5	17	26.5	26.5	30	21	35.2
10	3/8	KQL10-U03	17	18.5	17	26.5	27	30.5	21	35.2
10	1/2	KQL10-U04	22	18.5	17	26.5	30	31.5	21	35.2
12	1/4	KQL12-U02	17	20.9	17	28.5	27	31.5	22	50.2
12	3/8	KQL12-U03	17	20.9	17	28.5	28	32.5	22	50.2
12	1/2	KQL12-U04	22	20.9	17	28.5	31	33.5	22	50.2
16	3/8	KQL16-U03	22	26.5	21	33	40.5	33	24	71
16	1/2	KQL16-U04	22	26.5	21	33	40.5	35	24	100

H: Width Across Flats

Applicable Tube OD Inch	Connection Thread	Model	H	øD1	øD2	L1	L2	A	M	Minimum Hole Diameter
1/8	1/8	KQL01-U01	11.11	9.6	10	17.5	20	21	15.5	2.5
1/8	1/4	KQL01-U02	14.29	9.6	10	17.5	22	21	15.5	2.5
5/32	1/8	KQL03-U01	11.11	10.4	10	18	20	21.5	16	3
5/32	1/4	KQL03-U02	14.29	10.4	10	18	22.5	21.5	16	3
3/16	1/8	KQL05-U01	11.11	11.4	10	19.5	20.5	22.5	16	3.5
3/16	1/4	KQL05-U02	14.29	11.4	10	19.5	20.5	22.5	16	3.5
1/4	1/8	KQL07-U01	11.11	13.2	10	20.5	21.5	24	17	4.6
1/4	1/4	KQL07-U02	14.29	13.2	10	20.5	23.5	24.5	17	4.6
1/4	3/8	KQL07-U03	17.46	13.2	10	20.5	24.5	25	17	4.6
5/16	1/8	KQL09-U01	14.29	15.2	12	23.5	22.5	26	18.5	6
5/16	1/4	KQL09-U02	14.29	15.2	12	23.5	24.5	26.5	18.5	6
5/16	3/8	KQL09-U03	17.46	15.2	12	23.5	25.5	27	18.5	6
3/8	1/4	KQL11-U02	17.46	17.9	17	25.5	26.5	29.5	21	7
3/8	3/8	KQL11-U03	17.46	17.9	17	25.5	27	30	21	7
3/8	1/2	KQL11-U04	17.46	17.9	17	25.5	30	31	21	7
1/2	1/4	KQL13-U02	17.46	21.7	17	28	28.5	33	22	9
1/2	3/8	KQL13-U04	17.46	21.7	17	28	28.5	33.5	22	9.6
1/2	1/2	KQL13-U04	22.23	21.7	17	28	32	35	22	9.6

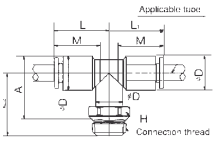
H: Width Across Flats

PRODUCT SELECTOR

BRANCH TEE : KQT (KQ2T)

Use to branch line from female thread of both side 90° direction.





MORE SELECTIONS SEE NEXT PAGE ☞

Applicable Tube OD mm	Connection Thread	Model	H	øD1	øD2	L1	L2	A	M	Effective Orifice (mm²) Nylon
4	1/8	KQT04-U01	10	10.4	10	18	20	21.5	16	6.0
4	1/4	KQT04-U02	14	10.4	10	18	22	21.5	16	6.0
6	1/8	KQT06-U01	10	12.8	10	20	21.5	23.5	17	13.9
6	1/4	KQT06-U02	14	12.8	10	20	23	23.5	17	13.9
6	3/8	KQT06-U03	17	12.8	10	20	24	24.5	17	13.9
8	1/8	KQT08-U01	12	15.2	12	23	22.5	26	18.5	26.3
8	1/4	KQT08-U02	14	15.2	12	23	24.5	26	18.5	26.3
8	3/8	KQT08-U03	17	15.2	12	23	25.5	27	18.5	26.3
10	1/8	KQT10-U01	17	18.5	17	26.5	25	29.5	21	40.8
10	1/4	KQT10-U02	17	18.5	17	26.5	26.5	30	21	40.8
10	3/8	KQT10-U03	17	18.5	17	26.5	27	30.5	21	40.8
10	1/2	KQT10-U04	22	18.5	17	26.5	30	31.5	21	40.8
12	1/4	KQT12-U02	17	20.9	17	28.5	27	31.5	22	57.2
12	3/8	KQT12-U03	17	20.9	17	28.5	28	32.5	22	57.2
12	1/2	KQT12-U04	22	20.9	17	28.5	31	33.5	22	57.2
16	3/8	KQT16-U03	22	26.5	21	33	40.5	33	24	71
16	1/2	KQT16-U04	22	26.5	21	33	40.5	35	24	100

H: Width Across Flats

Applicable Tube OD Imch	Connection Thread	Model	H	øD1	øD2	L1	L2	A	M	Minimum Hole Diameter
1/8	1/8	KQT01-U01	11.11	9.6	10	17.5	20	21	15.5	2.5
1/8	1/4	KQT01-U02	14.29	9.6	10	17.5	22	21	15.5	2.5
5/32	1/8	KQT03-U01	11.11	10.4	10	18	20	21.5	16	3
5/32	1/4	KQT03-U02	14.29	10.4	10	18	22.5	21.5	16	3
3/16	1/8	KQT05-U01	11.11	11.4	10	19.5	20.5	22.5	16.5	3.5
3/16	1/4	KQT05-U02	14.29	11.4	10	19.5	23	22.5	16.5	3.5
1/4	1/8	KQT07-U01	11.11	13.2	10	20.5	21.5	24	17	4.6
1/4	1/4	KQT07-U02	14.29	13.2	10	20.5	23.5	24.5	17	4.6
1/4	3/8	KQT17-U03	17.46	13.2	10	20.5	24.5	25	17	4.6
5/16	1/8	KQT09-U01	12.7	15.2	12	23.5	22.5	26	18.5	6
5/16	1/4	KQT09-U02	14.29	15.2	12	23.5	24.5	26.5	18.5	6
5/16	3/8	KQT09-U03	17.46	15.2	12	23.5	25.5	27	18.5	6
3/8	1/4	KQT11-U01	17.46	17.9	17	25.5	26.5	29.5	21	7
3/8	3/8	KQT11-U02	17.46	17.9	17	25.5	27	30	21	7
3/8	1/2	KQT11-U03	17.46	17.9	17	25.5	30	31	21	7
1/2	1/4	KQT13-U02	17.46	21.7	17	28	28.5	33	22	9
1/2	3/8	KQT13-U03	17.46	21.7	17	28	28.5	33.5	22	9.6
1/2	1/2	KQT13-U04	22.23	21.7	17	28	32	35	22	9.6

H: Width Across Flats

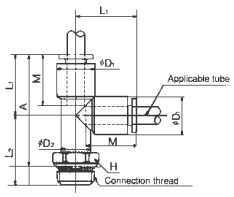
SERIES KQ: BLACK BODY FITTINGS AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS AVAILABLE IN THE USA

PRODUCT SELECTOR

MALE RUN TEE : KQY (KQ2Y)

Use to branch line in the same direction from female thread and in 90° direction.





Applicable Tube OD mm	Connection Thread Uni thread	Model	H (Width Across Flats)	øD1	øD2	L1	L2	A	M	Effective Orifice (mm² Nylon
4	⅛	KQY04-U01	10	10.4	10	18	20	34	16	6.4
4	¼	KQY04-U02	14	10.4	10	18	22	34.5	16	6.4
6	⅛	KQY06-U01	10	12.8	10	20	21.5	37.5	17	13.4
6	¼	KQY06-U02	14	12.8	10	20	23	37	17	13.4
6	⅜	KQY06-U03	17	12.8	10	20	24	38	17	13.4
8	⅛	KQY08-U01	12	15.2	12	23	22.5	41.5	18.5	25.6
8	¼	KQY08-U02	14	15.2	12	23	24.5	41.5	18.5	25.6
8	⅜	KQY08-U03	17	15.2	12	23	25.5	42.5	18.5	25.6
10	⅛	KQY10-U01	17	18.5	17	26.5	25	46.5	21	40
10	¼	KQY10-U02	17	18.5	17	26.5	26.5	47.5	21	40
10	⅜	KQY10-U03	17	18.5	17	26.5	27	48	21	40
10	½	KQY10-U04	22	18.5	17	26.5	30	49	21	40
12	¼	KQY12-U02	17	20.9	17	28.5	27	49.5	22	57.4
12	⅜	KQY12-U03	17	20.9	17	28.5	28	50.5	22	57.4
12	½	KQY12-U04	22	20.9	17	28.5	31	51.5	22	57.4
16	⅜	KQY16-U03	22	26.5	21	33	40.5	66	24	81
16	½	KQY16-U04	22	26.5	21	33	40.5	63	24	113

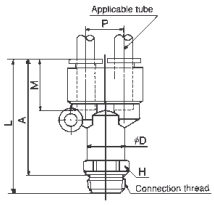
Applicable Tube OD Inch	Connection Thread Uni thread	Model	H (Width Across Flats)	øD1	øD2	L1	L2	A	M Minimum Hole Diameter
1/8	1/8	KQY01-U01	11.11	9.6	10	17.5	20	33.5	15.5 2.5
1/8	1/4	KQY01-U02	14.29	9.6	10	17.5	22	33.5	15.5 2.5
5/32	1/8	KQY03-U01	11.11	10.4	10	18	20	34	16 3
5/32	1/4	KQY03-U02	14.29	10.4	10	18	22.5	34.5	16 3
3/16	1/8	KQY05-U01	11.11	11.4	10	19.5	20.5	36	16.5 3.5
3/16	1/4	KQY05-U02	14.29	11.4	10	19.5	23	36.5	16.5 3.5
1/4	1/8	KQY07-U01	11.11	13.2	10	20.5	21.5	38	17 4.6
1/4	1/4	KQY07-U02	14.29	13.2	10	20.5	23.5	37.5	17 4.6
1/4	3/8	KQY07-U03	17.46	13.2	10	20.5	24.5	39	17 4.6
5/16	1/8	KQY09-U01	12.7	15.2	12	23.5	22.5	42	18.5 6
5/16	1/4	KQY09-U02	14.29	15.2	12	23.5	24.5	42	18.5 6
5/16	3/8	KQY09-U03	17.46	15.2	12	23.5	25.5	43	18.5 6
3/8	1/4	KQY11-U02	17.46	17.9	17	25.5	26.5	46	21 7
3/8	3/8	KQY11-U03	17.46	17.9	17	25.5	27	46.5	21 7
3/8	1/2	KQY11-U04	22.23	17.9	17	25.5	30	47.5	21 7
1/2	1/4	KQY13-U02	17.46	21.7	17	28	28.5	50.5	22 9
1/2	3/8	KQY13-U03	17.46	21.7	17	28	28.5	50.5	22 9.6
1/2	1/2	KQY13-U04	22.23	21.7	17	28	32	52	22 9.6

PRODUCT SELECTOR

BRANCH "Y" : KQU (KQ2U)

Use to branch line in the same direction from female thread.





Applicable Tube OD mm	Connection Thread Uni Thread	Model	H (Width Across Flats)	øD	L	P	A	M	Effective Orifice (mm²) Nylon
4	⅛	KQU04-U01	11	10.4	40	10.4	36	16	4.2
4	¼	KQU04-U02	14	10.4	42	10.4	36	16	4.2
6	⅛	KQU06-U01	13	12.8	43.5	12.8	39.5	17	13.4
6	¼	KQU06-U02	14	12.8	45	12.8	39	17	13.4
6	⅜	KQU06-U03	17	12.8	46	12.8	40	17	13.4
8	⅛	KQU08-U01	17	15.2	50.5	15.2	46.5	18.5	25.6
8	¼	KQU08-U02	17	15.2	52	15.2	46	18.5	25.6
8	⅜	KQU08-U03	17	15.2	51.5	15.2	45.5	18.5	25.6
10	¼	KQU10-U02	19	18.5	57.5	18.5	51.5	21	40
10	⅜	KQU10-U03	19	18.5	57.5	18.5	51.5	21	40
10	½	KQU10-U04	22	18.5	59	18.5	51	21	40
12	¼	KQU12-U02	22	20.9	61	20.9	55	22	57.4
12	⅜	KQU12-U03	22	20.9	61	20.9	55	22	57.4
12	½	KQU12-U04	22	20.9	62.5	20.9	54.5	22	57.4

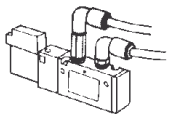
Applicable Tube OD Inch	Connection Thread Uni Thread	Model	H (Width Across Flats)	øD	L	P	A	M	Minimum Hole Diameter
1/8	1/8	KQU01-U01	12.7	9.6	38.5	9.6	34.5	15.5	2.5
1/8	1/4	KQU01-U02	14.29	9.6	40.5	9.6	34.5	15.5	2.5
5/32	1/8	KQU03-U01	12.7	10.4	40	10.4	36	16	3
5/32	1/4	KQU03-U02	14.29	10.4	42	10.4	36	16	3
3/16	1/8	KQU05-U01	12.7	11.4	42	11.4	38	16.5	3.5
3/16	1/4	KQU05-U02	14.29	11.4	44.5	11.4	39	16.5	3.5
1/4	1/8	KQU07-U01	14.29	13.2	44.5	13.2	40.5	17	4.6
1/4	1/4	KQU07-U02	14.29	13.2	46	13.2	40	17	4.6
1/4	3/8	KQU07-U03	17.46	13.2	46.5	13.2	40.5	17	4.6
5/16	1/8	KQU09-U03	17.46	15.2	50.5	15.2	46.5	18.5	6
5/16	1/4	KQU09-U04	17.46	15.2	52	15.2	46	18.5	6
5/16	3/8	KQU09-U02	17.46	15.2	51.5	15.2	45.5	18.5	6
3/8	1/4	KQU11-U02	19.05	17.9	56.5	17.9	50.5	21	7
3/8	3/8	KQU11-U03	19.05	17.9	56.5	17.9	50.5	21	7
3/8	1/2	KQU11-U04	22.23	17.9	59	17.9	51	21	7
1/2	1/4	KQU13-U02	22.23	21.7	61	21.7	55	22	9.6
1/2	3/8	KQU13-U03	22.23	21.7	61	21.7	55	22	9.6
1/2	1/2	KQU13-U04	22.23	21.7	62.7	21.7	54.7	22	9.6

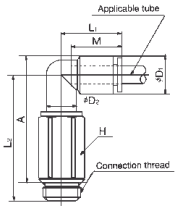
PRODUCT SELECTOR

EXTENDED MALE ELBOW : KQW (KQ2W)

Basically use in the same way as elbow union.
Point of difference is that it is used to prevent interference of joints for stereopiping.







Applicable Tube OD mm	Connection Thread Uni Thread	Model	H (Width Across Flats)	øD1	øD2	L1	L2	A	M	Effective Orifice (mm²) Nylon
4	⅛	KQW04-U01	10	10.4	10	18	34.5	35.5	16	4
4	¼	KQW04-U02	14	10.4	10	18	37	38.5	16	4
6	⅛	KQW06-U01	10	12.8	10	20	38.5	41	17	10.9
6	¼	KQW06-U02	14	12.8	10	20	40.5	41	17	10.9
6	⅜	KQW06-U03	17	12.8	10	20	41.5	42	17	10.9
8	⅛	KQW08-U01	12	15.2	12	23	43.5	47.5	18	20.5
8	¼	KQW08-U02	14	15.2	12	23	45.5	47	18	20.5
8	⅜	KQW08-U03	17	15.2	12	23	46.5	48	18	20.5
10	¼	KQW10-U02	17	18.5	17	26.5	52.5	56	21	33.5
10	⅜	KQW10-U03	17	18.5	17	26.5	52.5	56	21	33.5
10	½	KQW10-U04	22	18.5	17	26.5	54.5	56	21	33.5
12	¼	KQW12-U02	17	20.9	17	28.5	54	58.5	22	47.7
12	⅜	KQW12-U03	17	20.9	17	28.5	54	58.5	22	47.7
12	½	KQW12-U04	22	20.9	17	28.5	56	58.5	22	47.7

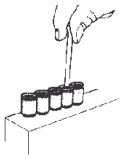
Applicable Tube OD Inch	Connection Thread Uni Thread	Model	H (Width Across Flats)	øD1	øD2	L1	L2	A	M	Minimum Hole Diameter
1/8	1/8	KQW01-U01	11.11	9.6	10	17.5	35	35.5	15.5	2.5
1/8	1/4	KQW01-U02	14.29	9.6	10	17.5	36	35	15.5	2.5
5/32	1/8	KQW03-U01	11.11	10.4	10	18	35.5	36.5	16	3
5/32	1/4	KQW03-U02	14.29	10.4	10	18	41.5	41	16	3
3/16	1/8	KQW05-U01	11.11	11.4	10	19.5	36	37.5	16.5	3.5
3/16	1/4	KQW05-U02	14.29	11.4	10	19.5	40	40	16.5	3.5
1/4	1/8	KQW07-U01	11.11	13.2	10	20.5	39	41.5	17	4.6
1/4	1/4	KQW07-U02	14.29	13.2	10	20.5	41	41.5	17	4.6
1/4	3/8	KQW07-U03	17.46	13.2	10	20.5	42	42.5	17	4.6
5/16	1/8	KQW09-U01	12.7	15.2	12	23.5	40	43.5	18.5	6
5/16	1/4	KQW09-U02	14.29	15.2	12	23.5	45	47	18.5	6
5/16	3/8	KQW09-U03	17.46	15.2	12	23.5	45.5	47	18.5	6
3/8	1/4	KQW11-U02	17.46	17.9	17	25.5	51	54	21	7
3/8	3/8	KQW11-U03	17.46	17.9	17	25.5	51.5	54.5	21	7
3/8	1/2	KQW11-U04	22.23	17.9	17	25.5	55.5	56.5	21	7
1/2	1/4	KQW13-U02	17.46	21.7	17	28	53	58	22	9
1/2	3/8	KQW13-U03	17.46	21.7	17	28	53.5	58.5	22	9.6
1/2	1/2	KQW13-U04	22.23	21.7	17	28	57.5	60.5	22	9.6

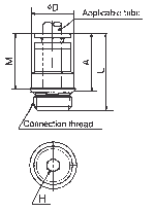
PRODUCT SELECTOR

HEXAGON SOCKET HEAD MALE CONNECTOR : KQS (KQ2S)

Male connector for narrow space to tighten hexagon socket head in body by hexagon wrench.







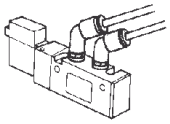
Applicable Tube OD mm	Connection Thread Uni Thread	Model	H (Width Across Flats)	øD	L	A	M	Effective Orifice (mm²) Nylon
4	1/8	KQS04-U01	3	10	23	18	16	4.1/3.6
6	1/8	KQS06-U01	4	11.8	24	19	17	10/9.9
6	1/4	KQS06-U02	4	13.5	25	18.5	17	10.7/10
8	1/8	KQS08-U01	5	14	29	22	18.5	17.2/16.2
8	1/4	KQS08-U02	6	14	28	21.5	18.5	23.3/16.2
8	3/8	KQS08-U03	6	17	26.5	20	18.5	23.3/16.2
10	1/8	KQS10-U01	5	17	31.5	24.5	21	17.2/10
10	1/4	KQS10-U02	8	17	28.5	22	21	39/26.6
10	3/8	KQS10-U03	8	17	26.5	20	21	39/26.6
10	1/2	KQS10-U04	8	21	27	19	21	39/26.6
12	1/4	KQS12-U02	8	19	35	25.5	22	46/44.5
12	3/8	KQS12-U03	9	19	28	19	22	60/44.5
12	1/2	KQS12-U04	9	21	27	19	22	60/44.5

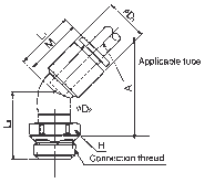
PRODUCT SELECTOR

45° MALE ELBOW : KQK (KQ2K)

Use to tubing toward 45° from the thread part.
Intermediate type between the male connector and the male elbow.







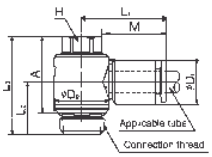
Applicable Tube OD mm	Connection Thread Uni Thread	Model	H (Width Across Flats)	øD1	øD2	L1	L2	A	M	Effective Orifice (mm²) Nylon
4	1/8	KQK04-U01	10	10.4	10	17	18.5	30	16	3.4
4	1/4	KQK04-U02	14	10.4	10	17	20.5	30.5	16	3.4
6	1/8	KQK06-U01	10	12.8	10	18	18.5	31	17	8.7
6	1/4	KQK06-U02	14	12.8	10	18	20.5	31	17	8.7
6	3/8	KQK06-U03	17	12.8	10	18	21.5	32	17	8.7
8	1/8	KQK08-U01	12	15.2	12	20.5	20	35	18.5	19.7
8	1/4	KQK08-U02	14	15.2	12	20.5	22	35	18.5	19.7
8	3/8	KQK08-U03	17	15.2	12	20.5	23	36	18.5	19.7
10	1/8	KQK10-U01	17	18.5	17	24	22	38	21	30.9
10	1/4	KQK10-U02	17	18.5	17	24	23.5	40.5	21	30.9
10	3/8	KQK10-U03	17	18.5	17	24	24	41	21	30.9
10	1/2	KQK10-U04	22	18.5	17	24	27	42	21	30.9
12	1/4	KQK12-U02	17	20.9	17	25	24	42	22	44.5
12	3/8	KQK12-U03	17	20.9	17	25	24.5	42.5	22	44.5
12	1/2	KQK12-U04	22	20.9	17	25	27.5	43.5	22	44.5

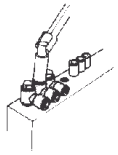
PRODUCT SELECTOR

UNIVERSAL MALE ELBOW : KQV (KQ2V)

Elbow union for a narrow space to clamp the hexagon head of body with box wrench.







Applicable Tube OD mm	Connection Thread Uni Thread	Model	H (Width Across Flats)	øD1	øD2	L1	L2	L3	A	M	Effective Orifice (mm²) Nylon
4	1/8	KQV04-U01	8	10.4	13.4	22	13.5	25.5	21.5	16	2.9
6	1/8	KQV06-U01	8	12.8	13.4	24	13.5	25.5	21.5	17	7.5
6	1/4	KQV06-U02	10	12.8	15.4	23.5	15.5	28	22	17	7.5
8	1/8	KQV08-U01	12	15.2	17.6	28.5	14.5	27.5	23.5	18.5	11.2
8	1/4	KQV08-U02	12	15.2	17.6	28.5	16.5	29.5	23.5	18.5	11.2
8	3/8	KQV08-U03	14	15.2	20.6	27.5	18.5	34	28	18.5	14.3
10	1/4	KQV10-U02	14	18.5	20.6	31	18.5	34	28	21	27
10	3/4	KQV10-U03	14	18.5	20.6	31	18.5	34	28	21	27
12	3/8	KQV12-U03	17	20.9	25.2	34	20	36.5	30.5	22	39
12	1/2	KQV12-U04	17	20.9	25.2	34	22.5	39.5	31.5	22	39

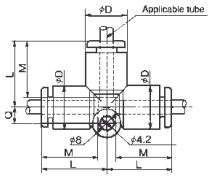
SERIES KQ: BLACK BODY FITTINGS AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS AVAILABLE IN THE USA

PRODUCT SELECTOR

UNION TEE : KQT (KQ2T)

Use to branch connection of tubes of both side 90° direction.





UNION TEE : KQT (KQ2T)

Applicable Tube OD Inch	Model	øD	L	Q	M	Minimum Hole Dia
1/8	KQT01-00	9.6	17.5	4.3	15.5	2.5
5/32	KQT03-00	10.4	18	4.5	16	3
3/16	KQT05-00	11.4	19.5	4.8	16.5	3.5
1/4	KQT07-00	13.2	20.5	5.3	17	4.6
5/8	KQT09-00	15.2	23	6	18.5	6
3/8	KQT11-00	17.9	26	6.6	21	7
1/2	KQT13-00	21.7	29	7.8	22	9.6

UNION TEE : KQT (KQ2T)

Applicable Tube OD mm	Model	øD	L	Q	M	Effective Orifice (mm²)	
						Nylon	Urethane
3.2	KQT23-00	9.6	17.5	4.3	15.5	3.4	2.9
4	KQT04-00	10.4	18	4.5	16	6.4	6.4
6	KQT06-00	12.8	20	5.3	17	13.4	13.4
8	KQT08-00	15.2	23	6	18.5	25.6	17.7
10	KQT10-00	18.5	26.5	6.8	21	40	28.4
12	KQT12-00	20.9	28.5	7.5	22	57.4	45.4
16	KQT16-00	26.5	33	10	24	100	(84)

Note) Parenthesized Dimensions are for Soft Nylon

DIFFERENT DIAMETER UNION TEE : KQT (KQ2T)

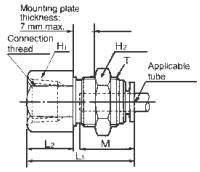
Applicable Tube OD mm		Model	øD1	øD2	L1	L2	Q	M1	M2	Effective Orifice (mm²)	
A	B									Nylon	Urethane
3.2	4	KQT23-04	10.4	9.6	18.3	17.5	4.3	16	15.5	3.8	3.5
4	6	KQT04-06	12.8	10.4	19.3	18	4.5	17	16	7.1	6.5
6	8	KQT06-08	15.2	12.8	22.7	20	5.3	18.5	17	16.4	16.4
8	10	KQT08-10	18.5	15.2	26.4	23	6	21	18.5	36	27.2
10	12	KQT10-12	20.9	18.5	28.4	26.5	6.8	22	21	56	44.5

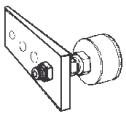
PRODUCT SELECTOR

BULKHEAD CONNECTOR : KQE (KQ2E)

Use for connection of a tube and a male thread for installation on panel.







Applicable Tube OD mm	Connection Thread Rc(PT)	Model	T (M)	H1 (Width Across Flats)	H2 (Width Across Flats)	L1	L2	Mounting Hole	M	Effective Orifice (mm²) Nylon/Ureth
3.2	1/4	KQE23-02	M12x1	17	14	31.5	15.5	13	15.5	3.4/2.9
4	1/8	KQE04-01	M12x1	14	14	27.5	11	13	16	5.6
4	1/4	KQE04-02	M12x1	17	14	31	15	13	16	5.6
6	1/8	KEQ06-01	M14x1	17	17	28	11	15	17	13.1
6	1/4	KQE06-02	M14x1	17	17	31.5	15	15	17	13.1
6	3/8	KQE06-03	M14x1	19	17	33.5	17	15	17	13.1
8	1/4	KQE08-02	M16x1	17	19	33	12	17	18.5	26.1/18
8	3/8	KQE08-03	M16x1	19	19	35	15	17	18.5	26.1/18
10	1/4	KEQ10-02	M20x1	22	24	35	12	21	21	41.5/29.5
10	3/8	KQE10-03	M20x1	24	24	34.5	15	21	21	41.5/29.5
12	3/8	KQE12-03	M22x1	24	27	37	15	23	22	58.3/46.1
12	1/2	KQE12-04	M22x1	24	27	41	18	23	22	58.3/46.1
16	3/8	KQE16-03	M26x1.5	30	30	39	14	27	24	96(96)
16	1/2	KQE16-04	M26x1.5	30	30	41	18	27	24	113(96)

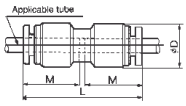
Applicable Tube OD Inch	Connection Thread Rc(PT)	Model	T UNF	H1 (Width Across Flats)	H2 (Width Across Flats)	L1	L2	Mounting Hole	M	Minimum Hole Diameter
1/8	1/4	KQE01-35	1/2-20	17.46	17.46	31.5	15	14	15.5	2.5
5/32	1/4	KQE03-35	1/2-20	17.46	17.46	31.5	15	14	16	3
3/16	1/8	KQE05-34	9/16-18	17.46	17.46	28.5	13	15	16.5	3.5
1/4	1/4	KEQ07-35	9/16-18	17.46	17.46	30.5	14.5	15	17	4.6
5/16	3/8	KQE09-36	3/4-16	22.23	22.23	35.5	15	20	18.5	6
3/8	3/8	KQE11-36	1/8-14	25.4	25.4	35.5	14.5	23	21	7
1/2	3/8	KQE13-36	1-12	28.57	28.57	36.5	14.5	26	22	9.6
1/2	1/2	KQE13-37	1-12	28.57	28.57	40.5	18.5	26	22	9.6

PRODUCT SELECTOR

STRAIGHT UNION : KQH (KQ2H)

Use to connect tubes in the same direction.





Applicable Tube OD mm	Model	øD	L	M	Effective Orifice (mm²) Nylon/ Urethane
3.2	KQH23-00	9.6	31.5	15.5	3.4/2.9
4	KQH04-00	10.4	32.5	16	5.6/5.6
6	KQH06-00	12.8	34.5	17	13.1/13.1
8	KQH08-00	15.2	38.5	18.5	26.1/18
10	KQH10-00	18.5	42.5	21	41.5/29.5
12	KQH12-00	20.9	44.5	22	58.3/46.1

Applicable Tube OD Inch	Model	øD	L	M	Minimum Hole Diameter
1/8	KQH01-00	9.6	31.5	15.5	2.5
5/32	KQH03-00	10.4	32.5	16	3
3/16	KQH05-00	11.4	34	16.5	3.5
1/4	KQH07-00	13.2	34.5	17	4.6
5/16	KQH09-00	15.2	38.5	18.5	6
3/8	KQH11-00	17.9	42.5	21	7
1/2	KQH13-00	21.7	44.5	22	9.6

DIFFERENT DIAMETER STRAIGHT UNION : KQH (KQ2H)

Applicable Tube OD mm		Model	øD	L	M1	M2	Effective Orifice (mm²)	
A	B						Nylon	Urethane
3.2	4	KQH23-04	10.4	32.5	15.5	16	3.2	2.7
4	6	KQH04-06	12.8	34.5	16	17	4.2	4.2
6	8	KQH06-08	15.2	38.5	17	18.5	10.7	10.7
8	10	KQH08-10	18.5	42	18.5	21	24.1	16.7
10	12	KQH10-12	20.9	44.5	21	22	37.6	28.2

SERIES KQ2 ONE TOUCH FITTINGS

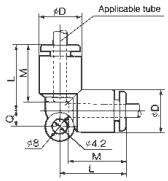


PRODUCT SELECTOR

UNION ELBOW : KQL (KQ2L)

Use to connect tubes in right angle.





Applicable Tube OD mm	Model	øD	L	Q	M	Effective Orifice (mm²) Nylon/Urethane
3.2	KQL23-00	9.6	17.5	4.3	15.5	3/2.5
4	KQL04-00	10.4	18	4.5	16	4.2/4.2
6	KQL06-00	12.8	20	5.3	17	11.4/11.4
8	KQL08-00	15.2	23	6	18.5	21.6/14.9
10	KQL10-00	18.5	26.5	6.8	21	35.2/25
12	KQL12-00	20.9	28.5	7.5	22	50.2/39.7
16	KQL16-00	26.5	33	10	24	100/(84)

Applicable Tube OD Inch	Model	øD	L	Q	M	Minimum Hole Diameter
1/8	KQL01-00	9.6	17.5	4.3	15.5	2.5
5/32	KQL03-00	10.4	18	4.5	16	3
3/16	KQL05-00	11.4	19.5	4.8	16.5	3.5
1/4	KQL07-00	13.2	20.5	5.3	17	4.6
5/16	KQL09-00	15.2	23	6	18.5	6
3/8	KQL11-00	17.9	26	6.6	21	7
1/2	KQL13-00	21.7	29	7.8	22	9.6

PRODUCT SELECTOR

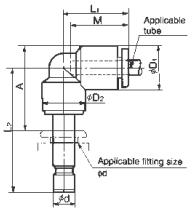
PLUG-IN ELBOW : KQL (KQ2L)

Use to change by 90° in a tube fetching direction from one-touch fittings.

REDUCER ELBOW : KQL (KQ2L)

Use to change by 90° in tube fetching direction from one-touch fittings and to size down.





SERIES KQ: BLACK BODY FITTINGS AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS AVAILABLE IN THE USA

Plug-in Elbow: KQL/KQ2L

Applicable Tube OD mm	Applicable Fitting Size ø	Model	øD1	øD2	L1	L2	A	M	Effective Orifice (mm²) Nylon/Urethane
3.2	3.2	KQL23-99	9.6	10	17.5	33	22	15.5	3/2.5
4	4	KQL04-99	10.4	10	18	32	21	16	4.2/4.2
6	6	KQL06-99	12.8	10	20	34.5	24	17	11.4/11.4
8	8	KQL08-99	15.2	12	23	37.5	26	18.5	21.6/14.9
10	10	KQL10-99	18.5	17	26.5	41	29	21	35.2/25
12	12	KQL12-99	20.9	17	28.5	43.5	32	22	50.2/39.7

Reducer Elbow: KQL/KQ2L

Applicable Tube OD mm	Applicable Fitting Size ø	Model	øD1	øD2	L1	L2	A	M	Effective Orifice (mm²) Nylon/Urethane
3.2	4	KQL23-04	9.6	10	17.5	33	21.5	15.5	3/2.5
4	6	KQL04-06	10.4	10	18	33	21.5	16	4.2/4.2
4	8	KQL04-08	10.4	10	18	35	22	16	4.2/4.2
6	8	KQL06-08	12.8	10	20	36.5	24.5	17	11.4/11.4
6	10	KQL06-10	12.8	10	20	38.5	24	17	11.4/11.4
8	10	KQL08-10	15.2	12	23	39.5	26	18.5	21.6/14.9
8	12	KQL08-12	15.2	12	23	40.5	26	18.5	21.6/14.9
10	12	KQL10-12	18.5	17	26.5	42	30	21	35.2/25

Plug-in Elbow: KQL/KQ2L

Applicable Tube OD Inch	Applicable Fitting Size ø	Model	øD1	øD2	L1	L2	A	M	Minimum Hole Diameter
1/8	3.2(1/8)	KQL01-99	9.6	10	17.5	33	22	15.5	2
5/32	4(5/32)	KQL03-99	10.4	10	18	33	22	16	2.5
3/16	4.8(3/16)	KQL05-99	11.4	10	19.5	34	23.5	16.5	3.5
1/4	6.3(1/4)	KQL07-99	13.2	10	20.5	35.5	25	17	4.6
5/16	8(5/16)	KQL09-99	15.2	12	23.5	38.5	27	18.5	6
3/8	9.5(3/8)	KQL11-99	17.9	17	25.5	42	30	21	7
1/2	12.7(1/2)	KQL13-99	21.7	17	28	44.5	34	22	9.6

Reducer Elbow: KQL/KQ2L

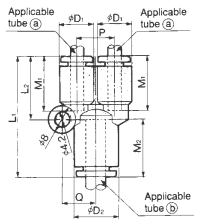
Applicable Tube OD Inch	Applicable Fitting Size ø	Model	øD1	øD2	L1	L2	A	M	Effective Orifice
1/8	4(5/32)	KQL01-03	9.6	10	17.5	33	21.5	15.5	2.5
1/8	4.8(3/16)	KQL01-05	9.6	10	17.5	33	21.5	15.5	2.5
5/32	4.8(3/16)	KQL03-05	10.4	10	18	33.5	22.5	16	3
5/32	6.3(1/4)	KQL03-07	10.4	10	18	34	22.5	16	3
3/16	6.3(1/4)	KQL05-07	11.4	10	19.5	34.5	23.5	16.5	3.5
3/16	8(5/16)	KQL05-09	11.4	10	19.5	36.5	24	16.5	3.5
1/4	8(5/16)	KQL07-09	13.2	10	20.5	37.5	25.5	17	4.6
1/4	9.5(3/8)	KQL07-11	13.2	10	20.5	39.5	25	17	4.6
5/16	9.5(3/8)	KQL09-11	15.2	12	23.5	40.5	27.5	18.5	6
5/16	12.7(1/2)	KQL09-73	15.2	12	23.5	41.5	27.5	18.5	6
3/8	12.7(1/2)	KQL11-13	17.9	17	25.5	30	30	21	7

PRODUCT SELECTOR

UNION "Y" : KQU (KQ2U) & DIFFERENT DIAMETER UNION 'Y' KQU (KQ2U)

Use to branch connection of tubes in the same direction.





UNION "Y" : KQU (KQ2U)

Applicable Tube OD mm	Model	øD1	L1	L2	P	Q	M	Effective Orifice (mm²) Nylon/Urethane
3.2	KQU23-00	9.6	33	17.5	9.6	9	15.5	3.4/2.9
4	KQU04-00	10.4	34	18	10.4	9.7	16	4.2/4.2
6	KQU06-00	12.8	37	20	12.8	11.7	17	13.4/13.4
8	KQU08-00	15.2	42.5	24.5	15.2	13.7	18.5	25.6/17.7
10	KQU10-00	18.5	48	27.5	18.5	16.1	21	40/28.4
12	KQU12-00	20.9	51	30	20.9	18.1	22	57.4/45.4

DIFFERENT DIA. UNION 'Y' KQU (KQ2U)

Applicable Tube OD mm		Model	øD1	øD2	L1	L2	P	Q	M1	M2	Effective Orifice (mm²) Nylon/Urethane
a	b										
3.2	4	KQU23-04	9.6	10.4	33.5	17.5	9.6	9	15.5	16	3.2/2.7
4	6	KQU04-06	10.4	12.8	35	18	10.4	9.7	16	17	4.2/4.2
6	8	KQU06-08	12.8	15.2	39.5	20	12.8	11.7	17	18.5	13.4/13.4
8	10	KQU08-10	15.2	18.5	45	24.5	15.2	13.7	18.5	21	25.6/17.7
10	12	KQU10-12	18.5	20.9	49	27.5	18.5	16.1	21	22	40/28.4

UNION "Y" : KQU (KQ2U)

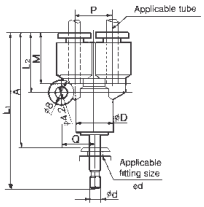
Applicable Tube OD Inch	Model	øD1	L1	L2	P	Q	M	Minimum Hole Diameter
1/8	KQU01-00	9.6	33	17.5	9.6	9	15.5	2.5
5/32	KQU03-00	10.4	34	18	10.4	9.7	16	3
3/16	KQU05-00	11.4	36.5	20.5	11.4	10.6	16.5	3.5
1/4	KQU07-00	13.2	38	21.5	13.2	12	17	4.6
5/16	KQU09-00	15.2	42.5	24.5	15.2	13.7	18.5	6

PRODUCT SELECTOR

PLUG-IN "Y" : KQU (KQ2U)

Use to branch tubing in the same direction from one-touch fittings.





Applicable Tube OD mm	Applicable Fitting Size ød	Model	øD1	L1	L2	P	Q	A	M	Effective Orifice (mm²) Nylon/Urethane
3.2	3.2	KQU23-99	9.6	52	17.5	9.6	9	36.5	15.5	3.4/2.9
4	4	KQU04-99	10.4	53	18	10.4	9.7	37	16	4.2/4.2
6	6	KQU06-99	12.8	57	20	12.8	11.7	40	17	13.4163.4
8	8	KQU08-99	15.2	64.5	24.5	15.2	13.7	46	18.5	25.6/17.7
10	10	KQU10-99	18.5	71.5	27.5	18.5	16.1	50.5	21	40/28.4
12	12	KQU12-99	20.9	75.5	30	20.9	18.1	53.5	22	57.4/45.4

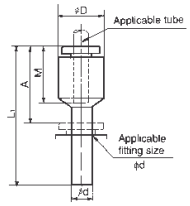
Applicable Tube OD Inch	Applicable Fitting Size ød	Model	øD1	L1	L2	P	Q	A	M	Minimum Hole Diameter
1/8	3.2(1/8)	KQU01-99	9.6	52	17.5	9.6	9	36.5	15.5	2
5/32	4(5/32)	KQU03-99	10.4	53	18	10.4	9.7	37	16	2.5
3/16	4.8(3/16)	KQU05-99	11.4	56	20.5	11.4	10.6	39.5	16.5	3.5
1/4	6.3(1/4)	KQU07-99	13.2	58	21.5	13.2	12	41	17	4.6
5/16	8(5/16)	KQU09-99	15.2	64.5	24.5	15.2	13.7	46	18.5	6

PRODUCT SELECTOR

PLUG-IN REDUCER: KQR(KQ2R)

Use to change size of one-touch fittings.





Applicable Tube OD mm	Applicable Fitting Size ød	Model	øD	L	A	M	Effective Orifice (mm²) Nylon/Urethane
3.2	4	KQR23-04	9.2	34	17.5	15.5	3.4/2.9
4	6	KQR04-06	10.4	34.5	17.5	16	5.6/5.6
4	8	KQR04-08	10.4	36.5	18.5	16	5.6/5.6
4	10	KQR04-10	12.8	39.5	18.5	16	5.6/5.6
6	4	KQR06-04	12	37.5	21.5	17	4/4
6	8	KQR06-08	12.8	37	18.5	17	13.1/13.1
6	10	KQR06-10	12.8	39.5	18	17	13.1/13.1
6	12	KQR06-12	12.8	42	20	17	13.1/13.1
8	10	KQR08-10	15.2	41	20	18.5	26.1/18
8	12	KQR08-12	15.2	42	20	18.5	26.1/18
10	12	KQR10-12	17	42	20	21	41.5/32.8
10	16	KQR10-16	21	50.5	26.5	21	41.5/(29.5)
12	16	KQR12-16	21	50.5	26.5	22	58.3/(46.1)

Note: ( ) Dimensions are for Soft Nylon

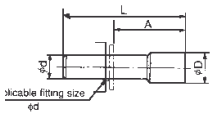
Applicable Tube OD Inch	Applicable Fitting Size ød Inch	Model	øD	L	A	M	Minimum Hole Diameter
1/8	9(5/32)	KQR01-03	10	37	21	15.5	2.5
1/8	4.8(3/16)	KQR01-05	10	37.5	21	15.5	2.5
5/32	4.8(3/16)	KQR03-05	11	38	21.5	16	3
5/32	6.3(1/4)	KQR03-07	11	36	19	16	3
3/16	6.3(1/4)	KQR05-07	12	39	22	16.5	3.5
3/16	8(5/16)	KQR05-09	12	38	19.5	16.5	3.5
1/4	8(5/16)	KQR07-09	14	41.5	23	17	4.6
1/4	9.5(3/8)	KQR07-11	14	40	20	17	4.6
5/16	9.5(3/8)	KQR09-11	16	45.5	25	18.5	6
5/16	12.7(1/2)	KQR09-13	16	42.5	21	18.5	6
3/8	12.7(1/2)	KQR11-13	48	44.5	22.5	21	7

PRODUCT SELECTOR

PLUG : KQP (KQ2P)

Use to shut no use one-touch fittings.





Applicable Fitting Size ød mm	Model	øD	L	A
3.2	KQP-23	3.2	31.5	16
4	KQP-04	6	32	16
6	KQP-06	8	35	18
8	KQP-08	10	39	20.5
10	KQP-10	12	43	22
12	KQP-12	14	46	24
16	KQP-14	21	47	23

Applicable Fitting Size ød Inch	Model	øD	L	A
3.2(1/8)	KQP-01	5	31.5	16
4(5/32)	KQP-03	6	32	16
4.8(3/16)	KQP-05	6.8	34	17.5
6.3(1/4)	KQP-07	8.5	35	18
8(5/16)	KQP-09	10	39	20.5
9.5(3/8)	KQP-11	11.5	43	22
12.7(1/2)	KQP-13	15	46	24

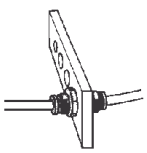
SERIES KQ: BLACK BODY FITTINGS AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS AVAILABLE IN THE USA

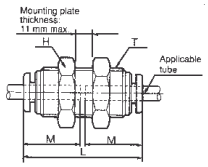
PRODUCT SELECTOR

BULKHEAD UNION : KQE (KQ2E)

Use to junction connection of tubes for installation of panel.







Applicable Tube OD mm	Model	T (M)	H (Width Across Flats)	L	Mounting Hole	M	Effective Orifice (mm²) Nylon/Urethane
3.2	KQE23-00	M12x1	14	31.5	13	15.5	3.4/2.9
4	KQE04-00	M12x1	14	32.5	13	16	5.6/5.6
6	KQE06-00	M14x1	17	34.5	15	17	13.1/13.1
8	KQE08-00	M16x1	19	38	17	18.5	26.1/18
10	KQE10-00	M20x1	24	42.5	21	21	41.5/29.5
12	KQE12-00	M22x1	27	44.5	23	22	58.3/46.1
16	KQE16-00	M26x1.5	30	49.5	27	24	113/(96)

Note: ( ) Dimensions are for Soft Nylon

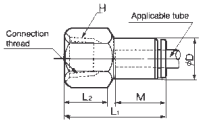
Applicable Tube OD Inch	Model	T (UNF)	H (Width Across Flats)	L	Mounting Hole	M	Minimum Hole Diameter
1/8	KQE01-00	1/2-20	17.46	31.5	13.5	15.5	2.5
5/32	KQE03-00	1/2-20	17.46	32.5	13.5	16	3
3/16	KQE05-00	3/16-18	17.46	34	15.08	16.5	3.5
1/4	KQE07-00	5/16-18	17.46	34.5	15.08	17	4.6
5/16	KQE09-00	3/4-16	22.23	38	19.8	18.5	6
3/8	KQE11-00	1/8-14	25.4	42.5	23	21	7
1/2	KQE13-00	1-12	28.6	44.5	26.2	22	9.6

PRODUCT SELECTOR

FEMALE UNION : KQF (KQ2F)

Use to pipe from male thread portion such as pressure gauge.





Applicable Tube OD mm	Connection Thread Uni Thread	Model	H (Width Across Flats)	øD	L1	L2	M	Effective Orifice (mm²) Nylon
4	1/8	KQF04-01	14	10	27	11	16	5.6
4	1/4	KQF04-02	17	10	31	14	16	5.6
6	1/8	KQF06-01	14	12	27.5	11	17	13.1
6	1/4	KQF06-02	17	12	31	13	17	13.1
6	3/8	KQF06-03	19	12	33.5	15	17	13.1
8	1/8	KQF08-01	14	14	29	11	18.5	26.1
8	1/4	KQF08-02	17	14	32.5	13	18.5	26.1
8	3/8	KQF08-03	19	14	33.5	14	18.5	26.1
10	1/4	KQF10-02	17	17	34.5	14	21	41.5
10	3/8	KQF10-03	19	17	36.5	15	21	41.5
12	1/4	KQF12-02	19	19	35	14	22	58.3
12	3/8	KQF12-03	19	19	37	14	22	58.3
12	1/2	KQF12-04	24	19	41	18	22	58.3

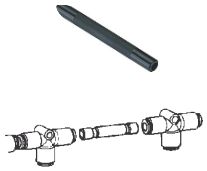
PRODUCT SELECTOR

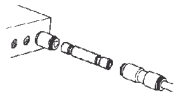
NIPPLE : KQN (KQ2N)

Use to connect the one-touch fittings

DIFFERENT DIAMETER NIPPLE : KQN (KQ2N)

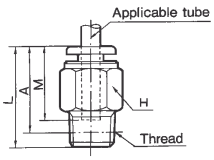
Use to connect different size one-touch fittings.





PRODUCT SELECTOR
MALE CONNECTOR: KQH (KQ2H)





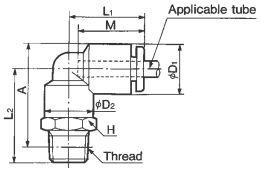
Applicable Tube OD (mm)	Thread R(PT)	Model	H (Hex)	L	•A	M	Effective 0rifice (mm²) Nylon	Effective 0rifice (mm²) Urethane	Weight (g)
3.2	M5x0.8	KQH23-M5	8.7	22.5	20	15.5	3.4	2.9	5
3.2	1/8	KQH23-01S	10	22	18	15.5	3.4	2.9	9
3.2	1/4	KQH23-02S	14	21	15	15.5	3.4	2.9	16
4	M5x0.8	KQH04-M5	9.8	23.5	20	16	4	4	8
4	1/8	KQH04-01S	10	22	18	16	5.6	5.6	9
4	1/4	KQH04-02S	14	21	15	16	5.6	5.6	16
6	M5x0.8	KQH06-M5	11.8	24	20.5	17	4	4	9
6	1/8	KQH06-01S	12	22.5	18.5	17	13.1	13.1	10
6	1/4	KQH06-02S	14	23	17	17	13.1	13.1	15
6	3/8	KQH06-03S	17	23	16.5	17	13.1	13.1	27
8	1/8	KQH08-01S	14	28	24	18.5	26.1	18	21
8	1/4	KQH08-02S	14	26.5	20.5	18.5	26.1	18.0	19
8	3/8	KQH08-03S	17	23.5	17	18.5	26.1	18.0	26
10	1/8	KQH10-01S	17	30	26	21	41.5	29.5	19
10	1/4	KQH10-02S	17	33.5	27.5	21	41.5	29.5	30
10	3/8	KQH10-03S	17	29	22.5	21	41.5	29.5	30
10	1/2	KQH10-04S	22	27	19	21	41.5	29.5	53
12	1/4	KQH12-02S	19	34.5	28.5	22	58.3	46.1	42
12	3/8	KQH12-03S	19	30	23.5	22	58.3	46.1	34
12	1/2	KQH12-04S	22	30	22	22	58.3	46.1	51
16	3/8	KQH16-03S	24	38.5	32	24	81	(81)	61
16	1/2	KQH16-04S	24	34.5	26.5	24	113	(96)	47

• Reference dimensions after PT thread installation.
Note: The dimensions in brackets are for Soft Nylon.

Applicable Tube OD (Inch)	Thread UNF NPT	Model	H (Hex)	L	•A	M	Minimum Hole Diameter	Weight (g)
1/8	UNF10-32	KQH01-32	8.7	22.5	20	15.5	2.3	5
1/8	1/16	KQH01-33S	11.11	22	18	15.5	2.5	7
1/8	1/8	KQH01-34S	11.11	22	18	15.5	2.5	9
1/8	1/4	KQH01-35S	14.29	21	15	16	2.5	16
5/32	UNF10-32	KQH03-32	9.8	22.5	20	16	2.5	5
5/32	1/16	KQH03-33S	11.11	22	18	16	3	7
5/32	1/8	KQH03-34S	11.11	22	18	16	3	9
5/32	1/4	KQH03-35S	14.29	21	15	16	3	16
3/16	1/8	KQH05-34S	12.7	22	18	16	3.5	11
3/16	1/4	KQH05-35S	14.29	21	15	16	3.5	12
1/4	1/8	KQH07-34S	14.29	22.5	18.5	17	4.6	10
1/4	1/4	KQH07-35S	14.29	23	17	17	4.6	15
1/4	3/8	KQH07-36S	17.46	23	16.5	17	4.6	27
5/16	1/8	KQH09-34S	14.29	28.5	24.5	18.5	6	15
5/16	1/4	KQH09-35S	14.29	26.5	20.5	18.5	6	16
5/16	3/8	KQH09-36S	17.46	23.5	17	18.5	6	24
3/8	1/4	KQH11-35S	17.46	33.5	27.5	21	7	31
3/8	3/8	KQH11-36S	17.46	29	22.5	21	7	29
3/8	1/2	KQH11-37S	22.23	27	19	21	7	46
1/2	1/4	KQH13-35S	22.23	34.5	28.5	22	9	44
1/2	3/8	KQH13-36S	22.23	33.5	27	22	9.6	44
1/2	1/2	KQH13-37S	22.23	30	22	22	9.6	44

PRODUCT SELECTOR
MALE ELBOW: KQL (KQ2L)





Applicable Tube OD (mm)	Thread R(PT)	Model	H (Hex)	ØD1	ØD2	L1	L2	•A	M	Effective 0rifice (mm2) Nylon/Urethane	Weight (g)
3.2	M5x0.8	KQL23-M5	8	9.6	8	17.5	15	16	15.5	3/2.5	6
3.2	1/8	KQL23-01S	10	9.6	10	17.5	21.5	22.5	15.5	3/2.5	8
3.2	1/4	KQL23-02S	14	9.6	10	17.5	25.5	24.5	15.5	3/2.5	18
4	M5x0.8	KQL04-M5	8	10.4	8	18	15.5	16	16	3.5/3.5	4
4	1/8	KQL04-01S	10	10.4	10	18	22	23	16	4.2/4.2	10
4	1/4	KQL04-02S	14	10.4	10	18	26	25	16	4.2/4.2	19
6	M5x0.8	KQL06-M5	8	12.8	8	20	16	18	17	3.5/3.5	6
6	1/8	KQL06-01S	10	12.8	10	20	23	25.5	17	11.4/11.4	12
6	1/4	KQL06-02S	14	12.8	10	20	27	27.5	17	11.4/11.4	10
6	3/8	KQL06-03S	17	12.8	10	20	29	29	17	11.4/11.4	33
8	1/8	KQL08-01S	12	15.2	12	23	24.5	28	18.5	21.6/14.9	13
8	1/4	KQL08-02S	14	15.2	12	23	28.5	30	18.5	21.6/14.9	21
8	3/8	KQL08-03S	17	15.2	12	23	30.5	31.5	18.5	21.6/14.9	35
10	1/8	KQL10-01S	17	18.5	17	26.5	27	32	21	21.6/14.9	25
10	1/4	KQL10-02S	17	18.5	17	26.5	30	33	21	35.2/25.0	26
10	3/8	KQL10-03S	17	18.5	17	26.5	32	34.5	21	35.2/25.0	36
10	1/2	KQL10-04S	22	18.5	17	26.5	36	37	21	35.2/25.0	63
12	1/4	KQL12-02S	17	20.9	17	28.5	31	35.5	22	50.2/39.7	28
12	3/8	KQL12-03S	17	20.9	17	28.5	33	37	22	50.2/39.7	38
12	1/2	KQL12-04S	22	20.9	17	28.5	37	39.5	22	50.2/39.7	65
16	3/8	KQL16-03S	22	26.5	21	33	38	44.5	24	71/(71)	101
16	1/2	KQL16-04S	22	26.5	21	33	41	46	24	100/(84)	105

• Reference dimensions after PT thread installation.
Note: The dimensions in brackets are for soft nylon.

SERIES KQ: BLACK BODY FITTINGS AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS AVAILABLE IN THE USA

SERIES KQ2 ONE TOUCH FITTINGS



SEE NEXT PAGE FOR MORE DIMENSIONS

PRODUCT SELECTOR
MALE ELBOW: KQL (KQ2L)

SERIES KQ: BLACK BODY FITTINGS AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS AVAILABLE IN THE USA

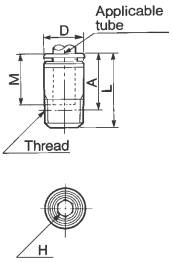
Applicable Tube OD (Inch)	Thread UNF NPT	Model	H (Hex)	$ØD_1$	$ØD_2$	L_1	L_2	•A	M	Minimum Hole Diameter	Weight (g)
1/8	1/16	KQL01-33S	11.11	9.6	10	17.5	21.5	22.5	15.5	2.5	8
1/8	1/8	KQL01-34S	11.11	9.6	10	17.5	21.5	22.5	15.5	2.5	8
1/8	1/4	KQL01-35S	14.29	9.6	10	17.5	25.5	24.5	15.5	2.5	18
5/32	1/16	KQL03-33S	11.11	10.4	10	18	22	23	16	3	8
5/32	1/8	KQL03-34S	11.11	10.4	10	18	22	23	16	3	9
5/32	1/4	KQL03-35S	14.29	10.4	10	18	26	25	16	3	18
3/16	1/8	KQL05-34S	11.11	11.4	10	19.5	22.5	24	16.5	3.5	10
3/16	1/4	KQL05-35S	14.29	11.4	10	19.5	26.5	26	16.5	3.5	19
1/4	1/8	KQL07-34S	11.11	13.2	10	20.5	23.5	26	17	4.6	10
1/4	1/4	KQL07-35S	14.29	13.2	10	20.5	27.5	28	17	4.6	20
1/4	3/8	KQL07-36S	17.46	13.2	10	20.5	29.5	29.5	17	4.6	32
5/16	1/8	KQL09-34S	12.7	15.2	12	23.5	24.5	28	18.5	6	12
5/16	1/4	KQL09-35S	14.29	15.2	12	23.5	28.5	30	18.5	6	20
5/16	3/8	KQL09-36S	17.46	15.2	12	23.5	30.5	31.5	18.5	6	28
3/8	1/4	KQL11-35S	17.46	17.9	17	25.5	29.5	32.5	21	7	23
3/8	3/8	KQL11-36S	17.46	17.9	17	25.5	31.5	34	21	7	33
3/8	1/2	KQL11-37S	17.46	17.9	17	25.5	35.5	36.5	21	7	59
1/2	1/4	KQL13-35S	17.46	21.7	17	28	31.5	36.5	22	9	28
1/2	3/8	KQL13-36S	17.46	21.7	17	28	33.5	38.5	22	9.6	36
1/2	1/2	KQL13-37S	22.23	21.7	17	28	37.5	40	22	9.6	62

PRODUCT SELECTOR
HEXAGON SOCKET HEAD MALE CONNECTOR: KQS (KQ2S)



Applicable Tube OD (mm)	Thread R(PT)	Model	H (Hex)	ØD	L	•A	M	Effective 0rifice (mm2) Nylon	Effective 0rifice (mm2) Urethane	Weight (g)
4	M5x0.8	KQS04-M5	2	9.8	23	19.5	16	2.7	2.7	6.3
4	1/8	KQS04-01S	3	9.8	23	19	16	4.1	3.6	7.8
6	M5x0.8	KQS06-M5	2	11.8	24	20.5	17	2.7	2.7	8.5
6	1/8	KQS06-01S	4	11.8	24	20	17	10.0	9.9	8.9
6	1/4	KQS06-02S	4	13.8	25	19	17	10.7	10.0	14.8
8	1/8	KQS08-01S	5	14	28	24	18.5	17.2	16.2	12.4
8	1/4	KQS08-02S	6	14	25.5	19.5	18.5	23.3	16.2	11.3
8	3/8	KQS08-03S	6	17	26.5	20	18.5	23.3	16.2	23.8
10	1/8	KQS10-01S	5	17	30	26	21	17.2	10.0	17.9
10	1/4	KQS10-02S	8	17	26.5	20.5	21	39	26.6	11.8
10	3/8	KQS10-03S	8	17	26.5	20	21	39	26.6	18.5
10	1/2	KQS10-04S	8	22	27	19	21	39	26.6	35.2
12	1/4	KQS12-02S	8	19	33.5	27.5	22	46.0	44.5	23.4
12	3/8	KQS12-03S	9	19	28	21.5	22	60	44.5	17.7
12	1/2	KQS12-04S	9	22	27	19	22	60	44.5	29.6

• Reference dimensions after PT thread installation.

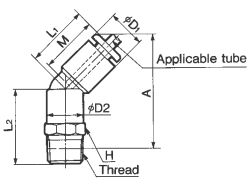


PRODUCT SELECTOR
45° MALE ELBOW: KQK (KQ2K)



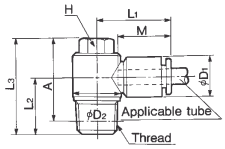
Applicable Tube OD (mm)	Thread R(PT)	Model	H (Hex)	$ØD_1$	$ØD_2$	L_1	L_2	•A	M	Effective 0rifice (mm2) Nylon	Effective 0rifice (mm2) Urethane	Weight (g)
4	M5x0.8	KQK04-M5	8	10.4	8	17	14.5	26	16	3.4	3.4	4
4	1/8	KQK04-01S	10	10.4	10	17	20.5	32	16	3.4	3.4	10
4	1/4	KQK04-02S	14	10.4	10	17	24.5	34	16	3.4	3.4	19
6	M5x0.8	KQK06-M5	8	12.8	8	18	14.5	26	17	3.4	3.4	6
6	1/8	KQK06-01S	10	12.8	10	18	20.5	33	17	8.7	8.7	12
6	1/4	KQK06-02S	14	12.8	10	18	24.5	35	17	8.7	8.7	10
6	3/8	KQK06-03S	17	12.8	10	18	26.5	36.5	17	8.7	8.7	33
8	1/8	KQK08-01S	12	15.2	12	20.5	22	37	18.5	19.7	19.7	13
8	1/4	KQK08-02S	14	15.2	12	20.5	26	39	18.5	19.7	19.7	21
8	3/8	KQK08-03S	17	15.2	12	20.5	28	40.5	18.5	19.7	19.7	35
10	1/8	KQK10-01S	17	18.5	17	24	24	42	21	30.9	23.2	25
10	1/4	KQK10-02S	17	18.5	17	24	27	43.5	21	30.9	23.2	26
10	3/8	KQK10-03S	17	18.5	17	24	29	45	21	30.9	23.2	36
10	1/2	KQK10-04S	22	18.5	17	24	33	47.5	21	30.9	23.2	63
12	1/4	KQK12-02S	17	20.9	17	25	27.5	45.5	22	44.5	35.1	28
12	3/8	KQK12-03S	17	20.9	17	25	29.5	47	22	44.5	35.1	38
12	1/2	KQK12-04S	22	20.9	17	25	33.5	49.5	22	44.5	35.1	65

• Reference dimensions after PT thread installation.



PRODUCT SELECTOR UNIVERSAL MALE ELBOW: KQV (KQ2V)



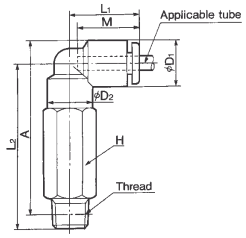


Applicable Tube OD (mm)	Thread R(PT)	Model	H (Hex)	ØD1	ØD2	L1	L2	L3	•A	M	Effective Orifice (mm2) Nylon	Effective Orifice (mm2) Urethane	Weight (g)
4	M5x0.8	KQV04-M5	8	10.4	9.8	20.5	11	18.5	15	16	2.9	2.9	6
4	1/8	KQV04-01S	8	10.4	13.4	22	14.5	26.5	22.5	16	2.9	2.9	14
6	M5x0.8	KQV06-M5	8	12.8	9.8	23.5	12	18.5	15	17	3.8	3.8	7
6	1/8	KQV06-01S	8	12.8	13.4	24	14.5	26. 5	22.5	17	7.5	7.5	15
6	1/4	KQV06-02S	10	12.8	15.4	23.5	18.5	31	25	17	7.5	7.5	26
8	1/8	KQV08-01S	12	15.2	17.6	28.5	15.5	28.5	24.5	18.5	11.2	24	24
8	1/4	KQV08-02S	12	15.2	17.6	28.5	18.5	31.5	25.5	18.5	11.2	30	30
8	3/8	KQV08-03S	14	15.2	20.6	27.5	20.5	36.5	30	18.5	14.3	47	47
10	1/4	KQV10-02S	14	18.5	20.6	31	19.5	35.5	29.5	21	27	20.3	40
10	3/8	KQV10-03S	14	18.5	20.6	31	20.9	36.5	30	21	27	20.3	49
12	3/8	KQV12-03S	17	20.9	25.2	34	22	38.5	32	22	39	30.8	63
12	1/2	KQV12-04S	17	20.9	25.2	34	25	41.5	33.5	22	39	30.8	80

• Reference dimensions after PT thread installation.

PRODUCT SELECTOR EXTENDED MALE ELBOW: KQW (KQ2W)





Applicable Tube OD (mm)	Thread R(PT)	Model	H (Hex)	ØD1	ØD2	L1	L2	•A	M	Effective Orifice (mm2) Nylon	Effective Orifice (mm2) Urethane	Weight (g)
3.2	M5x0.8	KQW23-M5	8	9.6	8	17.5	30	31	15.5	2.8	2.4	10
3.2	1/8	KQW23-01S	10	9.6	10	17.5	37	22.5	15.5	2.8	2.4	19
3.2	1/4	KQW23-02S	14	9.6	10	17.5	43	42	15.5	2.8	2.4	41
4	M5x0.8	KQW04-M5	8	10.4	8	18	30	32	16	3.0	3.0	11
4	1/8	KQW04-01S	10	10.4	10	18	37.5	38.5	16	4.0	4.0	23
4	1/4	KQW04-02S	14	10.4	10	18	43.5	42.5	16	4.0	4.0	38
6	M5x0.8	KQW06-M5	8	12.8	8	20	30.5	33.5	17	3.0	3.0	11
6	1/8	KQW06-01S	10	12.8	10	20	40	42.5	17	10.9	10.9	26
6	1/4	KQW06-02S	14	12.8	10	20	46	46.5	17	10.9	10.9	41
6	3/8	KQW06-03S	17	12.8	10	20	48	48	17	10.9	10.9	67
8	1/8	KQW08-01S	12	15.2	12	23	43.5	47	18	20.5	14.2	30
8	1/4	KQW08-02S	14	15.2	12	23	49.5	51	18	20.5	14.2	47
8	3/8	KQW08-03S	17	15.2	12	23	51.5	52.5	18	20.5	14.2	74
10	1/4	KQW10-02S	17	18.5	17	26.5	56.5	59.5	21	33.5	23.8	66
10	3/8	KQW10-03S	17	18.5	17	26.5	58.5	61	21	33.5	23.8	76
10	1/2	KQW10-04S	22	18.5	17	26.5	65	66	21	33.5	23.8	145
12	1/4	KQW12-02S	17	20.9	17	28.5	57.5	62	22	47.7	37.7	68
12	3/8	KQW12-03S	17	20.9	17	28.5	59.5	63.5	22	47.7	37.7	78
12	1/2	KQW12-04S	22	20.9	17	28.5	66	68.5	22	47.7	37.7	147

• Reference dimensions after PT thread installation.

SERIES KQ: BLACK BODY FITTINGS AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS AVAILABLE IN THE USA

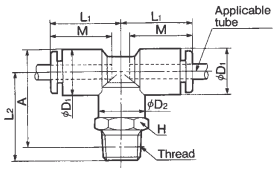
Applicable Tube OD (Inch)	Thread UNF NPT	Model	H (Hex)	ØD1	ØD2	L1	L2	•A	M	Minimum Hole Diameter	Weight (g)
1/8	1/8	KQW01-34S	11.11	9.6	10	17.5	37	38	15.5	2.5	19
1/8	1/4	KQW01-35S	14.29	9.6	10	17.5	43	42	15.5	2.5	41
5/32	1/8	KQW03-34S	11.11	10.4	10	18	37.5	38.5	16	3	19
5/32	1/4	KQW03-35S	14.29	10.4	10	18	48.5	42.5	16	3	41
3/16	1/8	KQW05-34S	11.11	11.4	10	19.5	38	40	16.5	3.5	41
3/16	1/4	KQW05-35S	14.29	11.4	10	19.5	47	43.5	16.5	3.5	19
1/4	1/8	KQW07-34S	11.11	13.2	10	20.5	40.5	43	17	4.6	20
1/4	1/4	KQW07-35S	14.29	13.2	10	20.5	46.5	47	17	4.6	42
1/4	3/8	KQW07-36S	17.46	13.2	10	20.5	48.5	48.5	17	4.6	69
5/16	1/8	KQW09-34S	12.7	15.2	12	23.5	43.5	47	18.5	6	30
5/16	1/4	KQW09-35S	14.29	15.2	12	23.5	49.5	51	18.5	6	47
5/16	3/8	KQW09-36S	17.46	15.2	12	23.5	51.5	52.5	18.5	6	74
3/8	1/4	KQW11-35S	17.46	17.9	17	25.5	56	59	21	7	69
3/8	3/8	KQW11-36S	17.46	17.9	17	25.5	58	60.5	21	7	76
3/8	1/2	KQW11-37S	22.23	17.9	17	25.5	64.5	65.5	21	7	147
1/2	1/4	KQW13-35S	17.46	21.7	17	28	58	63	22	9	72
1/2	3/8	KQW13-36S	17.46	21.7	17	28	60	64.5	22	9.6	78
1/2	1/2	KQW13-37S	22.23	21.7	17	28	66.5	69	22	9.6	149

KQ, KQ2 SEALANT TYPE

PRODUCT SELECTOR

BRANCH TEE: KQT (KQ2T)





Applicable Tube OD (mm)	Thread R(PT)	Model	H (Hex)	ØD1	ØD2	L1	L2	•A	M	Effective 0rifice (mm2) Nylon	Effective 0rifice (mm2) Urethane	Weight (g)
3.2	M5x0.8	KQT23-M5	8	9.6	8	17.5	15	16	15.5	3.4	2.9	8
3.2	1/8	KQT23-01S	10	9.6	10	17.5	21.5	22.5	15.5	3.4	2.9	10
3.2	1/4	KQT23-02S	14	9.6	10	17.5	25.5	24.5	15.5	3.4	2.9	20
4	M5x0.8	KQT04-M5	8	10.4	8	18	15.5	17	16	4.3	4.3	6
4	1/8	KQT04-01S	10	10.4	10	18	22	23	16	6.0	6.0	13
4	1/4	KQT04-02S	14	10.4	10	18	26	25	16	6.0	6.0	19
6	M5x0.8	KQT06-M5	8	12.8	8	20	16	18	17	4.3	4.3	8
6	1/8	KQT06-01S	10	12.8	10	20	23	25.5	17	13.9	13.9	13
6	1/4	KQT06-02S	14	12.8	10	20	27	27.5	17	13.9	13.9	21
6	3/8	KQT06-03S	17	12.8	10	20	29	29	17	13.9	13.9	35
8	1/8	KQT08-01S	12	15.2	12	23	24.5	28	18.5	26.3	18.2	15
8	1/4	KQT08-02S	14	15.2	12	23	28.5	30	18.5	26.3	18.2	23
8	3/8	KQT08-03S	17	15.2	12	23	30.5	31.5	18.5	26.3	18.2	37
10	1/8	KQT10-01S	17	18.5	17	26.5	27	32	21	40.8	29.0	31
10	1/4	KQT10-02S	17	18.5	17	26.5	30	33	21	40.8	29.0	29
10	3/8	KQT10-03S	17	18.5	17	26.5	32	34.5	21	40.8	29.0	39
10	1/2	KQT10-04S	22	18.5	17	26.5	36	37	21	40.8	29.0	66
12	1/8	KQT12-02S	17	20.9	17	28.5	31	35.5	22	57.2	45.2	31
12	3/8	KQT12-03S	17	20.9	17	28.5	33	37	22	57.2	45.2	41
12	1/2	KQT12-04S	22	20.9	17	28.5	37	39.5	22	57.2	45.2	68
16	3/8	KQT16-03S	22	26.5	21	33	38	44.5	24	71	(71)	112
16	1/2	KQT16-04S	22	26.5	21	33	41	46	24	100	(100)	116

• Reference dimensions after PT thread installation.
Note: The dimensions in brackets are for Soft Nylon.

Applicable Tube OD (Inch)	Thread UNF NPT	Model	H (Hex)	ØD1	ØD2	L1	L2	•A	M	Minimum Hole Diameter	Weight (g)
1/8	1/16	KQT01-33S	11.11	9.6	10	17.5	21.5	22.5	15.5	2.5	10
1/8	1/8	KQT01-34S	11.11	9.6	10	17.5	21.5	22.5	15.5	2.5	10
1/8	1/4	KQT01-35S	14.29	9.6	10	17.5	25.5	24.5	15.5	2.5	20
5/32	1/16	KQT03-33S	11.11	10.4	10	18	22	23	16	3	10
5/32	1/8	KQT03-34S	11.11	10.4	10	18	22	23	16	3	11
5/32	1/4	KQT03-35S	14.29	10.4	10	18	26	25	16	3	20
3/16	1/8	KQT05-34S	11.11	11.4	10	19.5	22.5	24	16.5	3.5	12
3/16	1/4	KQT05-35S	14.29	11.4	10	19.5	26.5	26	16.5	3.5	21
1/4	1/8	KQT07-34S	11.11	13.2	10	20.5	23.5	26	17	4.6	12
1/4	1/4	KQT07-35S	14.29	13.2	10	20.5	27.5	28	17	4.6	22
1/4	3/8	KQT07-36S	17.46	13.2	10	20.5	29.5	29.5	17	4.6	35
5/16	1/8	KQT09-34S	12.7	15.2	12	23.5	28	28	18.5	6	16
5/16	1/4	KQT09-35S	14.29	15.2	12	23.5	30	30	18.5	6	24
5/16	3/8	KQT09-36S	17.46	15.2	12	23.5	31.5	31.5	18.5	6	36
3/8	1/4	KQT11-35S	17.46	17.9	17	25.5	29.5	32.5	21	7	29
3/8	3/8	KQT11-36S	17.46	17.9	17	25.5	31.5	34	21	7	38
3/8	1/2	KQT11-37S	22.23	17.9	17	25.5	35.5	36.5	21	7	64
1/2	1/4	KQT13-35S	17.46	21.7	17	28	31.5	36.5	22	9	34
1/2	3/8	KQT13-36S	17.46	21.7	17	28	33.5	38.5	22	9.6	43
1/2	1/2	KQT13-37S	22.23	21.7	17	28	37.5	40	22	9.6	69

SERIES KQ2 ONE TOUCH FITTINGS

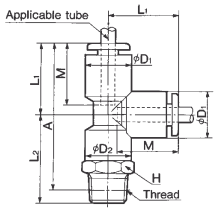


SERIES KQ: BLACK BODY FITTINGS AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS AVAILABLE IN THE USA

KQ, KQ2 SEALANT TYPE

PRODUCT SELECTOR
MALE RUN TEE: KQY (KQ2Y)





Applicable Tube OD (mm)	Thread R(PT)	Model	H (Hex)	ØD1	ØD2	L1	L2	•A	M	Effective 0rifice (mm2) Nylon	Effective 0rifice (mm2) Urethane	Weight (g)
3.2	M5x0.8	KQY23-M5	8	9.6	8	17.5	15	28.5	15.5	3.4	2.9	8
3.2	1/8	KQY23-01S	10	9.6	10	17.5	21.5	35	15.5	3.4	2.9	10
3.2	1/4	KQY23-02S	14	9.6	10	17.5	25.5	37	15.5	3.4	2.9	20
4	M5x0.8	KQY04-M5	8	10.4	8	18	15.5	29.5	16	4.6	4.6	6
4	1/8	KQY04-01S	10	10.4	10	18	22	36	16	6.4	6.4	13
4	1/4	KQY04-02S	14	10.4	10	18	26	38	16	6.4	6.4	19
6	M5x0.8	KQY06-M5	8	12.8	8	20	16	32	17	4.6	4.6	8
6	1/8	KQY06-01S	10	12.8	10	20	23	39	17	13.4	13.4	13
6	1/4	KQY06-02S	14	12.8	10	20	27	41	17	13.4	13.4	21
6	3/8	KQY06-03S	17	12.8	10	20	29	42.5	17	13.4	13.4	35
8	1/8	KQY08-01S	12	15.2	12	23	24.5	43.5	18.5	25.6	17.7	15
8	1/4	KQY08-02S	14	15.2	12	23	28.5	45.5	18.5	25.6	17.7	23
8	3/8	KQY08-03S	17	15.2	12	23	30.5	47	18.5	25.6	17.7	37
10	1/8	KQY10-01S	17	18.5	17	26.5	27	49.5	21	40.0	28.4	31
10	1/4	KQY10-02S	17	18.5	17	26.5	30	50.5	21	40.0	28.4	29
10	3/8	KQY10-03S	17	18.5	17	26.5	32	52	21	40.0	28.4	39
10	1/2	KQY10-04S	22	18.5	17	26.5	36	54.5	21	40.0	28.4	66
12	1/8	KQY12-02S	17	20.9	17	28.5	31	53.5	22	57.4	45.4	31
12	3/8	KQY12-03S	17	20.9	17	28.5	33	55	22	57.4	45.4	41
12	1/2	KQY12-04S	22	20.9	17	28.5	37	57.5	22	57.4	45.4	68
16	3/8	KQY16-03S	22	26.5	21	33	38	77.5	24	81	(81)	112
16	1/2	KQY16-04S	22	26.5	21	33	41	74	24	113	(113)	116

• Reference dimensions after PT thread installation.
Note: The dimensions in brackets are for soft nylon.

Applicable Tube OD (Inch)	Thread UNF NPT	Model	H (Hex)	ØD1	ØD2	L1	L2	•A	M	Minimum Hole Diameter	Weight (g)
1/8	1/16	KQY01-33S	11.11	9.6	10	17.5	21.5	22.5	15.5	2.5	10
1/8	1/8	KQY01-34S	11.11	9.6	10	17.5	21.5	22.5	15.5	2.5	10
1/8	1/4	KQY01-35S	14.29	9.6	10	17.5	25.5	24.5	15.5	2.5	20
5/32	1/16	KQY03-33S	11.11	10.4	10	18	22	23	16	3	10
5/32	1/8	KQY03-34S	11.11	10.4	10	18	22	23	16	3	11
5/32	1/4	KQY03-35S	14.29	10.4	10	18	26	25	16	3	20
3/16	1/8	KQY05-34S	11.11	11.4	10	19.5	22.5	24	16.5	3.5	12
3/16	1/4	KQY05-35S	14.29	11.4	10	19.5	26.5	26	16.5	3.5	21
1/4	1/8	KQY07-34S	11.11	13.2	10	20.5	23.5	26	17	4.6	12
1/4	1/4	KQY07-35S	14.29	13.2	10	20.5	27.5	28	17	4.6	22
1/4	3/8	KQY07-36S	17.46	13.2	10	20.5	29.5	29.5	17	4.6	35
5/16	1/8	KQY09-34S	12.7	15.2	12	23.5	24.5	28	18.5	6	16
5/16	1/4	KQY09-35S	14.29	15.2	12	23.5	28.5	30	18.5	6	24
5/16	3/8	KQY09-36S	17.46	15.2	12	23.5	30.5	31.5	18.5	6	36
3/8	1/4	KQY11-35S	17.46	17.9	17	25.5	29.5	32.5	21	7	29
3/8	3/8	KQY11-36S	17.46	17.9	17	25.5	31.5	34	21	7	38
3/8	1/2	KQY11-37S	22.23	17.9	17	25.5	35.5	36.5	21	7	64
1/2	1/4	KQY13-35S	17.46	21.7	17	28	31.5	36.5	22	9	34
1/2	3/8	KQY13-36S	17.46	21.7	17	28	33.5	38.5	22	9.6	43
1/2	1/2	KQY13-37S	22.23	21.7	17	28	37.5	40	22	9.6	69

SERIES KQ: BLACK BODY FITTINGS AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS AVAILABLE IN THE USA

One Touch Fittings: Extended Range

- Extensive range of esoteric designs for yet more applications
- SMC design gives high flow for given tube size
- Fittings from 10 Torr (vacuum) to 10 bar
- One-touch collet design allows easy dis-assembly with strong tube gripping
- Wide range of threads: M5 (gasket type) to taper (R½)
- Large range of tube sizes from Ø4mm to Ø16mm
- Threads come with applied sealant (no tape required)

Product Selector
Single Banjo: KQVS/KQ2VS
6mm - R¼ (Allen)



Product Selector
Twin Male Elbow: KQLU/KQ2LU
Twin Union Elbow: KQLU/KQ2LU
4mm - R⅛ & 4mm tube for union



Product Selector
Single Banjo: KQVF/KQ2VF
6mm - R¼ (Stack)



Product Selector
90° Female Elbow: KQLF/KQ2LF
6mm - R¼



Product Selector
Double Banjo: KQVD/KQ2VD
4mm - R¼



Product Selector
Triple Banjo: KQVT/KQ2VT
4mm - R¼



Product Selector
Twin Banjo: KQZ/KQ2Z
6mm - R¼



Product Selector
Twin Banjo: KQZF/KQ2ZF
6mm - R¼ (Stack)



Product Selector
Quadruple Banjo: KQZD/KQ2ZD
4mm - R¼



Product Selector
Sextuple Banjo: KQZT/KQ2ZT
4mm - R¼



Product Selector
Long Stem Elbow: KQW/KQ2W
6mm



Product Selector
Corner Male Elbow: KQD/KQ2D
Corner Union Elbow: KQD/KQ2D
4mm - R¼ & 6mm tube for union



Product Selector
Male Y: KQUD/KQ2UD
4 x 4mm - R¼



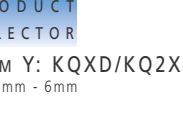
Product Selector
Union Y: KQUD/KQ2UD
4 x 4mm - 6mm



Product Selector
Stem Y: KQX/KQ2X
2 x 6mm - 8mm



Product Selector
Stem Y: KQXD/KQ2XD
4 x 4mm - 6mm



Product Selector
Bulkhead Union Elbow: KQLE/KQ2LE
6mm Tube



Product Selector
Stem Male Nipple: KQN/KQ2N
6mm - R¼



Product Selector
Union Blank: KQC/KQ2C
6mm Tube



How To Order
See Next Page ☞



Series KQ: Black Body Fittings Available in Canada
Series KQ2: White Body Fittings Available in the USA

HOW TO ORDER UNI ONE TOUCH FITTINGS

KQ(2) ○ ○ — ○

BODY COLOR
- ..... Black Body Fitting
2 ..... White Body Fitting

CONFIGURATION
H ..... Male Connector
K ..... 45° Male Elbow
L ..... Male Elbow
S ..... Hexagon Socket Head Male Connector
T ..... Tee
U ..... Branch Y
V ..... Universal Male Elbow
W ..... Extended Male Elbow
Y ..... Male Run Tee

TUBE OD

Metric Size:		Imperial Size:	
04	...4mm	01	...1/8"
06	...6mm	03	...5/32"
08	...8mm	05	...3/16"
10	...10mm	07	...1/4"
12	...12mm	09	...5/16"
16	...16mm	11	...3/8"
		13	...1/2"

CONNECTION THREAD
U01 ...1/8
U02 ...1/4
U03 ...3/8
U04 ...1/2

SERIES KQ: BLACK BODY FITTINGS AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS AVAILABLE IN THE USA

HOW TO ORDER ONE TOUCH FITTINGS

KQ(2) ○ ○ — ○ ○

BODY COLOR
- ..... Black Body Fitting
Release Button:
Imperial: Red
Metric: Blue

2 ..... White Body Fitting
Release Button:
Imperial: Orange
Metric: Grey

CONFIGURATION
H ...Male Connector
...Straight Union
...Different Dia Straight Union
K ...45° Male Elbow
L ...Male Elbow
...Union Elbow
...Reducer Elbow
LE ...Bulkhead Elbow
LF ...Female Elbow
LU ...Branch Union Elbow
...Branch Elbow
C ...Tube Cap
...Color Cap
D ...Delta
...Delta Union
E ...Bulkhead Union
...Bulkhead Female Union
F ...Female Union
N ...Nipple
...Different Dia Nipple
N ...Adaptor
P ...Plug
R ...Plug-in Reducer
S ...Hex Socket Head Male Connector
T ...Branch Tee
U ...Union 'Y'
...Plug-in 'Y'
...Branch 'Y'
UD ...Double Branch
...Different Dia Double Union 'Y'
V ...Universal Male Elbow
VD ...Double Universal Male Elbow
VF ...Single Banjo - Stackable
VT ...Triple Universal Male Elbow
W ...Extended Male Elbow
...Extended Plug-in Elbow
X ...Different Dia Branch 'Y'
XD ...Double Branch 'Y'
Y ...Male Rub Tee
Z ...Branch Universal Elbow
ZD ...Double Branch Universal Elbow
ZF ...Branch Universal Female Elbow
ZT ...Triple Branch Universal Elbow

Some are available in metric only - consult SMC for more information.

TUBE OD

Metric Size:		Imperial Size:	
23	...3.2mm	01	...1/8"
04	...4mm	03	...5/32"
06	...6mm	05	...3/16"
08	...8mm	07	...1/4"
10	...10mm	09	...5/16"
12	...12mm	11	...3/8"
16	...16mm	13	...1/2"

CONNECTION THREAD

Metric
M5 ...M5 x 0.8 Metric
01 ...1/8
02 ...1/4
03 ...3/8
04 ...1/2
06 ...6mm Diffent Dia Reducer
08 ...8mm Diffent Dia Reducer
10 ...10mm Diffent Dia. Reducer
12 ...12mm Diffent Dia Reducer
16 ...16mm

Imperial
32 ...UNF 10-32
33 ...1/16
34 ...1/8
35 ...1/4
36 ...3/8
37 ...1/2
03 ...5/32 Dia Reducer
05 ...3/16 Dia Reducer
07 ...1/4 Dia Reducer
09 ...5/16 Dia Reducer
11 ...3/8 Dia Reducer
13 ...1/2 Dia Reducer
00 ...Same Diameter Tubing
99 ...Plug-In Type

OPTION
S ..... Sealant

ACCESSORIES
GASKETS FOR UNI ONE TOUCH FITTINGS

Applicable Uni Thread	Model
⅛"	KQG-U01
¼"	KQG-U02
⅜"	KQG-U03
½"	KQG-U04

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E501, CAT:505 & N500

ROTARY ONE TOUCH FITTINGS SERIES KS/KX

- Ball Race Bearing for oscillating or rotating applications
- KX Series fitted with double ball race bearing for high speed applications
- Tube Sizes 4, 6, 8, 10, 12mm
- Low torque, low friction rotation
- Thread options: M5, R⅛ ~ R½ and Uni ⅛ ~ Uni ½
- One Touch Collet includes anti tube rotation mechanism
- Suitable for copper free
- Pressure or Vacuum Applications

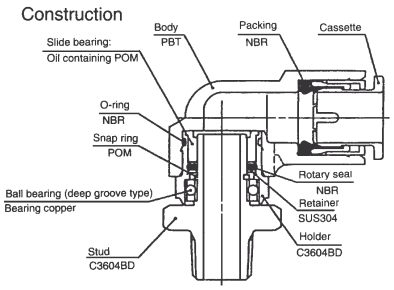


TECHNICAL SPECIFICATIONS

Fluid	Air				
Max Operating Pressure	1.02MPa / 150PSI				
Operating Vacuum Pressure	0.001MPa Absolute 0.2PSI				
Proof Pressure	3.06MPa / 445PSI				
Ambient and Fluid Temperature	0 ~ 60°C / 32 ~ 140°F				
Speed Allowable Rotations (rpm)	Ø4	Ø6	Ø8	Ø10	Ø12
KS	500	500	400	300	250
KX	1500	1200	1200	1000	1000
Starting Torque Nm x 10^{-3}	6	12	14	20	22
Thread	JIS B0203, JIS B0205				

For higher speed (up to 1500rpm) applications, contact SMC Customer Service

CONSTRUCTION SPECIFICATIONS



An ambient atmosphere that causes rust is non permissible.

HOW TO ORDER ROTARY ONE TOUCH FITTINGS SERIES KS/KX

K ○ ○ ○ — ○

SPEED RATING
S .....High speed
X .....Very high speed

CONFIGURATION
H .....Straight
L .....Elbow

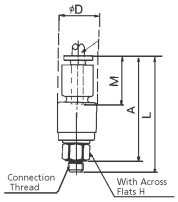
TUBE SIZE
04 ...Ø4mm
06 ...Ø6mm
08 ...Ø8mm
10 ...Ø10mm
12 ...Ø12mm

THREAD SIZE
M5 ...M5 (4, 6mm tube sizes only) METRIC
01S ...⅛ (4, 6, 8mm tube sizes only) TAPER with sealant
02S ...¼ (6, 8, 10mm tube sizes only) TAPER with sealant
03S ...⅜ (8, 10, 12mm tube sizes only) TAPER with sealant
04S ...½ (10, 12mm tube sizes only) TAPER with sealant
U01 ...1/8 (4, 6, 8mm tube sizes only) UNITHREAD
U02 ...1/4 (6, 8, 10mm tube sizes only) UNITHREAD
U03 ...3/8 (8, 10, 12mm tube sizes only) UNITHREAD
U04 ...1/2 (10, 12mm tube sizes only) UNITHREAD

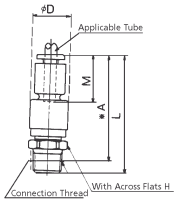


DIMENSIONS
SEE NEXT PAGE ☞

DIMENSIONS STRAIGHT CONNECTOR: KSH



Metric thread connection

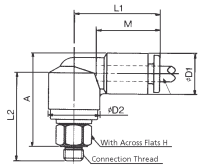


Male pipe thread connection

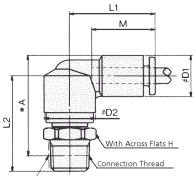
Dimensions in mm

Applicable Tube OD mm	Connection Thread	Model	H (Width Across Flats)	øD	L	*A	M	Min Hole Diameter	Effective Orifice (mm²) / Nylon	Mass (g)
4	M5 x0.8	KSH04-M5	8	12.5	36.5	33	16	2.5	4	9
	1/8	KSH04-01S	12	12.5	38	34	16	2.5	4	14
6	1/8	KSH06-01S	14	14.5	39.5	35.5	17	4	13.4	17
	1/4	KSH06-02S	14	14.5	42.5	36.5	17	4	13.4	23
8	1/8	KSH08-01S	17	17.5	44	40	18.5	6	26.1	23
	1/4	KSH08-02S	17	17.5	47	41	18.5	6	26.1	29
	3/8	KSH08-03S	17	17.5	48	41.5	18.5	6	26.1	37
10	1/4	KSH10-02S	22	22.5	54	48	21	7	36.3	55
	3/8	KSH10-03S	22	22.5	55	48.5	21	7	36.3	63
	1/2	KSH10-04S	22	22.5	57.5	49.5	21	7	36.3	81
12	3/8	KSH12-03S	24	24.5	57	50.5	22	8	46.1	75
	1/2	KSH12-04S	24	24.5	60	52	22	8	46.1	92

DIMENSIONS ELBOW CONNECTOR: KSL



Metric thread connection



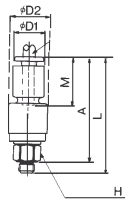
Male pipe thread connection

Dimensions in mm

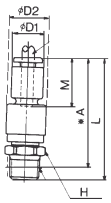
Applicable tube O.D. (mm)	Connection thread	Model	H (Width across flats)	$ØD_1$	$ØD_2$	L1	L2	*A	M	Min. hole dia.	Effective orifice (mm²) Nylon	Mass (g)
4	M5x0.8	KSL04-M5	8	10.4	12	21	20.5	22	16	2.5	3.5	9
	1/8	KSL04-01S	12				22	23.5				14
6	1/8	KSL06-01S	14	12.8	14	23	23	25.5	17	4	8.6	17
	1/4	KSL06-02S					26	26.5				23
8	1/8	KSL08-01S	17	15.2	17	26	26.5	30	18.5	6	21.6	23
	1/4	KSL08-02S					29.5	31				29
	3/8	KSL08-03S					31	32				38
10	1/4	KSL10-02S	22	18.5	22	31.5	34	37,5	21	7	30.5	56
	3/8	KSL10-03S					35	38				64
	1/2	KSL10-04S					38	39.5				82
12	3/8	KSL12-03S	24	20.9	24	34	36.5	40.5	22	8	35.1	76
	1/2	KSL12-04S					39.5	42				93

* reference dimensions after thread installation.

DIMENSIONS STRAIGHT CONNECTOR: KXH



Metric thread connection



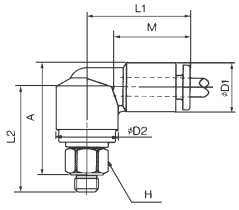
Male pipe thread connection

Dimensions in mm

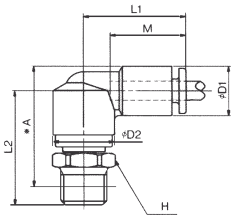
Applicable tube O.D. (mm)	Connection Thread	Model	H (Width across flats)	ØD	L	*A	M	Min. hole dia.	Effective orifice (mm²) Nylon	Mass (g)
4	M5x0.8	KXH04-M5	8	10.4	38.5	35	16	2.5	4.0	11
	1/8	KXH04-01S	12		40	36				16
6	1/8	KXH06-01S	14	12.8	41.5	38	17	4	13.4	20
	1/4	KXH06-02S			44	39				26
8	1/8	KXH08-01S	17	15.2	46	42	18.5	6	26.1	28
	1/4	KXH08-02S			49	43				34
	3/8	KXH08-03S			50	44				42
10	1/4	KXH10-02S	22	18.5	58	52	21	7	36.3	68
	3/8	KXH10-03S			59	52				76
	1/2	KXH10-04S			62	53				94
12	3/8	KXH12-03S	24	20.9	60	54	22	8	46.1	88
	1/2	KXH12-04S			63	55				105

* reference dimensions after thread installation.

DIMENSIONS ELBOW CONNECTOR: KXL



Metric thread connection



Male pipe thread connection

Dimensions in mm

Applicable tube O.D. (mm)	Connection thread	Model	H (Width across flats)	$ØD_1$	$ØD_2$	L1	L2	*A	M	Min. hole dia.	Effective orifice (mm²) Nylon	Mass (g)
4	M5x0.8	KXL04-M5	8	10.4	13	22	22.5	24	16	2.5	3.5	11
	1/8	KXL04-01S	12				23	25				16
6	1/8	KXL06-01S	14	12.8	15	24	25	28	17	4	8.6	20
	1/4	KXL06-02S					28	29				26
8	1/8	KXL08-01S	17	15.2	17	27	29	32	18.5	6	21.6	28
	1/4	KXL08-02S					32	33				34
	3/8	KXL08-03S					33	34				43
10	1/4	KXL10-02S	22	18.5	23.5	32	38	42	21	7	30.5	69
	3/8	KXL10-03S					39	42				77
	1/2	KXL10-04S					42	43				95
12	3/8	KXL12-03S	24	20.9	26	35	40	44	22	8	35.1	89
	1/2	KXL12-04S					43	45				106

* reference dimensions after thread installation.

SELF SEAL FITTINGS
SERIES KC

- One Touch Fitting (with Built-in Self-seal Mechanism) to prevent air exhaust when tube removed
- Most suitable for rationalizing and labor saving during piping work
- Many Options: 10 Types available



TECHNICAL SPECIFICATIONS

Fluid		Air
Max Operating Pressure		10 Bar / 145PSI
Ambient and Fluid Temperature		5~60°C / 40~140°F
Thread	Thread Portion	JIB B0203 (Taper pipe thread)
	Nut	JIB B0211 class 2 (Metric fine thread)
Sealant (Thread portion)		With sealant (Standard)
Applicable for Copper Free Applications		Brass Component (Electroless nickel plated)
Applicable Tube*		Nylon, Soft nylon, Polyurethane

*Dimensions to BS5409 part 1

SYMBOLS



PRODUCT SELECTOR

KCT



PRODUCT SELECTOR

KCJ



PRODUCT SELECTOR

KCE



PRODUCT SELECTOR

KCL



PRODUCT SELECTOR

KCL



PRODUCT SELECTOR

KCE



PRODUCT SELECTOR

KCU



PRODUCT SELECTOR

KCH



PRODUCT SELECTOR

KCH STRAIGHT PLUG FOR FREQUENT USE



HOW TO ORDER UNI ONE TOUCH FITTINGS

KC ○○ — ○ S

CONFIGURATION
H .....Straight
L .....Elbow
T .....Tee
J .....Straight plug
U .....Y Connector
E .....Bulkhead

TUBE O.D.
04 ...4mm
06 ...6mm
08 ...8mm
10 ...10mm
12 ...12mm

SEALANT
S .....With sealant
.....(all male threads except M5)

CONNECTION THREAD
M5 ...M5
01 ...1/8
02 ...1/4
03 ...3/8
04 ...1/2
00 ...Same dia. tube
99 ...Stem fitting

ONE TOUCH FITTINGS-MANIFOLDS SERIES KM

- Compact and Lightweight
- Threaded or One-touch Fitting Inlet or Plug-in Stem
- Ø4, 6, 8mm and ø5/32", 1/4", 5/16" Tube Outlet OD
- 3, 6 or 10 way
- Many variations available








HOW TO ORDER MANIFOLD SERIES KM

KM ○ — ○ — ○ — ○

INLET CONNECTION
11 ...One-Touch (Inch & Metric)
12 ...Threaded (Female) (Inch & Metric)
13 ...One-Touch (Metric Only)
14 ...One-Touch (Metric Only)
15 ...One Touch Fitting Rod (Metric Only)
16 ...One Touch Fitting Rod (Metric Only)

NUMBER OF OUTLETS
3 .....3 (KM13, 14, 15, 16)
6 .....6 (KM11, 12)
10 ...10 (KM11, 12)

OUTLET TUBE OD
04 ...4mm
06 ...6mm
08 ...8mm
03 ...5/32"
07 ...1/4"
09 ...5/16"

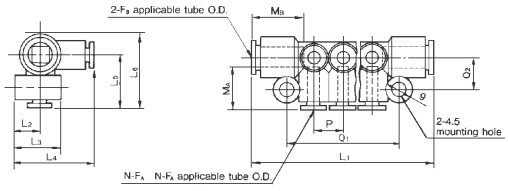
INLET PORT THREAD OR TUBE OD
02 ...1/4
03 ...3/8
08 ...8mm
10 ...10mm
12 ...12mm
35 ...1/4"
36 ...3/8"
09 ...5/16"
11 ...3/8"
13 ...1/2"

TECHNICAL SPECIFICATIONS

Fluid	Air
Operating pressure	Vacuum to 1MPa / 145PSI
Proof pressure	3MPa / 435PSI
Ambient and fluid temperature	0~60°C / 32~140°F
Thread (where applicable)	JIS B0203 (Taper pipe thread)
Applicable tube*	Nylon, Soft nylon, Polyurethane

*Dimensions to BS5409 Part 1

DIMENSIONS KM11



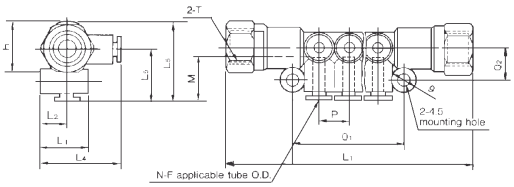
Dimensions in mm

Model (Metric Size)	F_A	F_B	N	L_1	L_2	L_3	L_4	L_5	L_6	P	Q_1	Q_2	M_A	M_B	Port B min Port Size	Mass (g)
KM11-04-08-6	4	8	6	65	10	18	29.5	19.5	27	10.6	40	12	16	18.5	6	22
KM11-04-08-10			10	86							61.5					30
KM11-06-10-6	6	10	6	76	10	19.5	31.5	21.5	31	13	47	13.5	17	21	7.5	32
KM11-06-10-10			10	102							73					44
KM11-08-12-6	8	12	6	85	11.5	22.5	35.5	24	34.5	15.5	55	14.7	18.5	22	9	44
KM11-08-12-10			10	116							86					62

Model (Inch Size)	F_A	F_B	N	L_1	L_2	L_3	L_4	L_5	L_6	P	Q_1	Q_2	M_A	M_B	B Port Min Inside Dia	Weight (g)
KM11-03-09-6	5/32	5/16	6	65	10	18	29.5	19.5	27	10.6	40	12	16	18.5	6	22
KM11-03-09-10	5/32	5/16	10	86	10	18	29.5	19.5	27	10.6	61.5	12	16	18.5	6	30
KM11-07-11-6	1/4	3/8	6	77.8	10	19.5	31.5	21.5	30.5	13.3	48	13	17	21	7	32
KM11-07-11-10	1/4	3/8	10	104	10	19.5	31.5	21.5	30.5	13.3	73.5	13	17	21	7	44
KM11-09-13-6	5/16	1/2	6	85	12.8	24	37.7	25	35.9	15.2	52.8	15	18.5	22	9.5	44
KM11-09-13-10	5/16	1/2	10	115	12.8	24	37.7	25	35.9	15.2	83	15	18.5	22	9.5	62

MORE DIMENSIONS SEE NEXT PAGE ☞

DIMENSIONS
KM12



Dimensions in mm

Model (Metric Size)	F	T Rc(PT)	N	H (Hex)	L_1	L_2	L_3	L_4	L_5	L_6	P	Q_1	Q_2	M	Port B min port size	Mass (g)
KM12-04-02-6	4	1/4	6	17	89	10	18	29.5	19.5	29	10.6	40	12	16	6	67
KM12-04-02-10			10		110							61.5				75
KM12-06-02-6	6	1/4	6	17	99	10	19.5	31.5	21.5	31	13	47	13.5	17	7.5	84
KM12-06-02-10			10		125							73				96
KM12-08-03-6	8	3/8	6	19	108	11.5	22.5	35.5	24	34.5	15.5	55	14.7	18.5	9	100
KM12-08-03-10			10		139							86				117

Model (Inch Size)	F	T NPT	N	H Hex	L_1	L_2	L_3	L_4	L_5	L_6	P	Q_1	Q_2	M	B Port Min Inside Dia	Weight (g)
KM12-03-35-6	5/32	1/4	6	-	87	10	18	29.5	19.5	29	16	40	12	16	6	67
KM12-03-35-10	5/32	1/4	10	11/16	110	10	18	29.5	19.5	29	16	61.5	12	16	6	75
KM12-07-35-6	1/4	1/4	6	-	95	10	19.5	31.5	21.5	31.25	17	48	13	17	7	84
KM12-07-35-10	1/4	1/4	10	11/16	121.2	10	19.5	31.5	21.5	31.25	17	73.5	13	17	7	96
KM12-09-36-6	5/16	3/8	6	-	102	12.8	24	37.7	25	37.5	18.5	52.8	15	18.5	9.5	100
KM12-09-36-10	5/16	3/8	10	7/8	132	12.8	24	37.7	25	37.5	18.5	83	15	18.5	9.5	117

FOR DIMENSIONS ON OTHER KM MODELS,
CONTACT SMC CUSTOMER SERVICE.

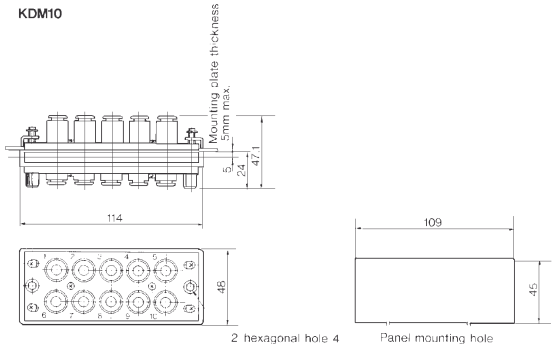
RECTANGULAR MULTI-CONNECTOR SERIES KDM



- Substantial reduction in mounting space In comparison with a model requiring many union joints for panels and partitions, this model needs only a small space
- One-touch connection/disconnection without connection errors
- Suitable for use with positive pressure and vacuum
- Possible to create multi-connector with mixed tube sizes

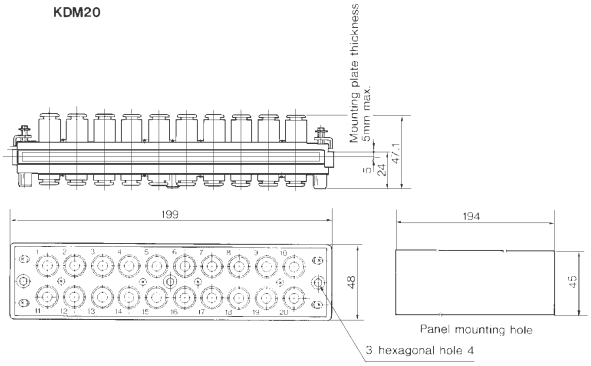
DIMENSIONS KDM10

KDM10



DIMENSIONS KDM20

KDM20



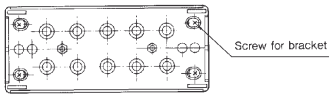
TECHNICAL SPECIFICATIONS

Fluid	Air
Max. operating pressure	10 Bar (1.0 mPa)
Operating vacuum pressure	10torr~
Proof pressure	15 Bar (1.5 MPa)
Ambient and fluid temperature	0 ~ 60°C
Applicable tube	Nylon, Soft Nylon, Polyurethane

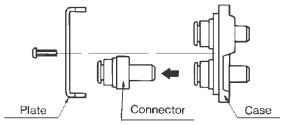
HOW TO USE
SEE NEXT PAGE ☞

HOW TO CREATE MIXED TUBE SIZE UNITS WITH KDM PARTS

1 Loosen the cross-recessed head machine screw using a Phillips type screwdriver to remove the plate from the case.



2 After exchanging connectors in desired places, fix the plate with a Phillips type screwdriver to the case.



HOW TO ORDER KDM MULTI-CONNECTOR

KDM ○ — ○

NO OF CONNECTING TUBES

10 ...10 Connections
20 ...20 Connections

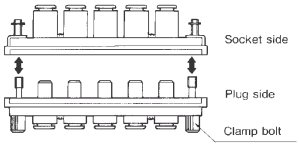
OUTLET TUBE O.D.

mm		Inch	
23	...ø3.2	01	...ø1/8
04	...ø4	03	...ø5/32
06	...ø6	ø07	...ø1/4
08	...ø8		

HOW TO USE

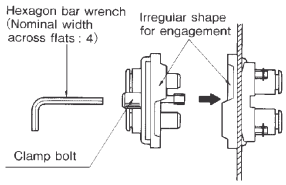
Separation

Loosen the clamp bolt to separate the plug side from the socket side.



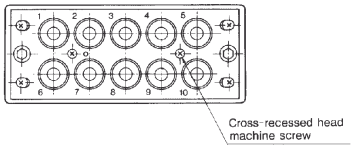
Connection

Put together the irregular faces for engagement and connect the plug case to the socket. After tightening the clamp bolt by hand, tighten it further with hexagon bar wrench (nominal width across flats:4).

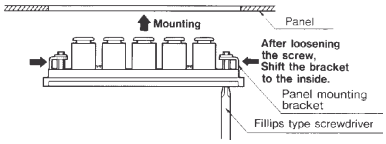


Panel Mounting

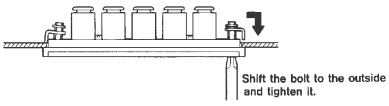
1 Loosen (4) screws for bracket on the socket side using a Phillips type screwdriver (JIS nominal No 2) until the bracket touches the stop ring.



2 Shift the panel mounting bracket to the inside (move the screw for bracket in the longitudinal direction of the slot) and put the connector in the panel mounting hole. (Panel mounting hole: See dimensions).



3 After shifting the bolt for bracket to the outside, tighten the bolt with a Phillips type screwdriver to fix the socket case.



4 Loosen the screw for bracket until the bracket touches the stop ring and shift the bracket to the inside to remove the connector from the panel.

SOFT NYLON TUBING SERIES TS, TISA

High flexibility from a larger diameter tube
(16m OD 12mm ID)



HOW TO ORDER SOFT NYLON TUBING SERIES TS & TISA

TS ○○ — 20

MODEL
TS .....mm
TISA .....inch

TUBE TYPE

Metric	Imperial
0425	01
0604	05
0806	07
1075	11
1209	13
1612	

See Table Below

COLOR
B .....Black
BU ...Blue
G .....Green
R .....Red
W.....White
Y .....Yellow

LENGTH PER ROLL
20 ...20m Bundle Winding
100 ...100m Reel Binding

TECHNICAL SPECIFICATIONS

Model	TS0425	TS0604	TS0806	TS1075	TS1209	TS1612	TISA01	TISA05	TISA07	TISA11	TISA13
Tube OD	4mm	6mm	8mm	10mm	12mm	16mm	1/8"	3/16"	1/4"	3/8"	1/2"
Tube ID	2.5mm	4mm	6mm	7.5mm	9mm	12mm	0.066"	0.137"	0.18"	0.275"	0.376"
Max Operating Pressure	0.8MPa	0.8MPa	0.8MPa	0.8MPa	0.8MPa	0.8MPa	0.6MPa	0.6MPa	0.6MPa	0.6MPa	0.6MPa
Coil Length	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m
Min Bending Radius (mm)	12mm	15mm	23mm	27mm	31mm	60mm	0.47"	0.59"	0.91"	1.18"	1.57"
Operating Temperature	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C
Material	Nylon 12	Nylon 12	Nylon 12	Nylon 12	Nylon 12	Nylon 12	Nylon 12	Nylon 12	Nylon 12	Nylon 12	Nylon 12

Notes:
1MPa = 145PSI

-20~60°C = 4~140°F

POLYURETHANE TUBING SERIES TU, TIUB

Soft and very flexible tubing



HOW TO ORDER POLYURETHANE TUBING SERIES TU & TIUB

TU ○○ — 20

MODEL
TU .....mm
TIUB ...inch

TUBE TYPE

Metric	Imperial
0425	01
0604	05
0805	07
1065	11
1208	13

COLOR
B .....Black
BU ...Blue
G .....Green
R .....Red
W.....White
Y .....Yellow
C .....Transparent
YR ...Orange

LENGTH PER ROLL

Metric	
20 ...	20m
33* ...	100ft
100 ...	100m
153*...	500ft
305m* ...	1000ft
500 ...	500m

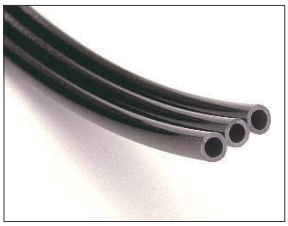
TECHNICAL SPECIFICATIONS

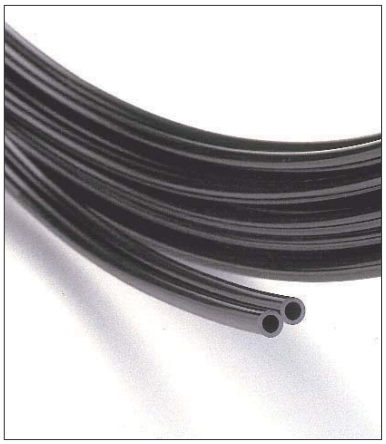
Note 1) The value for bending at a temperature of 20°C
Note 2) Safety allowance x3 at 20°C

1MPa = 145PSI

-20~60°C = 4~140°F

Model	TU0425	TU0604	TU0805	TU1065	TU1208	TIUB01	TIUB05	TIUB07	TIUB11	TIUB13
Tube OD	4mm (5/32")	6mm	8mm (5/16")	10mm	12mm	1/8"	3/16"	1/4"	3/8"	1/2"
Tube ID	2.5mm	4mm(5/32")	6mm	6.5mm	8mm(5/16")	0.079"	0.125"	0.167"	0.85"	0.333"
Max Operating Pressure	0.5MPa	0.5MPa	0.5MPa	0.5MPa	0.5MPa	0.5MPa	0.5MPa	0.5MPa	0.5MPa	0.5MPa
Coil Length	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m
Min Bending Radius (mm)	10mm	15	20mm	27mm	35mm	0.39"	0.59"	0.91"	1.06"	1.38"
Operating Temperature	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C
Material	Polyurethane	Polyurethane	Polyurethane	Polyurethane	Polyurethane	Polyurethane	Polyurethane	Polyurethane	Polyurethane	Polyurethane





POLYURETHANE FLAT TUBING SERIES TFU

2 or 3 core flat tubing for neat presentation

HOW TO ORDER POLYURETHANE FLAT TUBING SERIES TFU

TFU ○ B — ○

OD/ID

0425……4mm OD 2.5mm ID
0604……6mm OD 4mm ID
0805……8mm OD 5mm ID

NUMBER OF TUBES

2 ……2
3 ……3

TECHNICAL SPECIFICATIONS

Model	TFU 0425B-2	TFU 0425B-3	TFU 0604B-2	TFU 0604B-3	TFU 0805B-2	TFU 0805B-3
Number of Tubes	2	3	2	3	2	3
Tube OD (mm)	4		6		8	
Tube ID (mm)	2.5		4		5	
Flow Factor Cv/Meters note 3)	0.11		0.39		0.70	
Max Operating Pressure	0.8MPa Note 2) / 120PSI					
Operating Temperature	-20~+60°C / 4~140°F					
Material	Polyurethane					
Color	Black					
Note 1) Min Bending Radius (mm)	10		15		20	
Tube Length per roll (m)	10					

Note 1) The value for bending at a temperature of 20°C
Note 2) Safety allowance x3 at 20°C
Note 3) To calculate flow factor for longer lengths of tube divide factor for 1 metre by √actual length in meters.

POLYURETHANE COIL TUBING SERIES TCU

- Single or multi-core option
- For flexible piping applications



HOW TO ORDER POLYURETHANE COIL TUBING SERIES TCU

TCU ○ B — ○

OD/ID

4mm OD 2.5mm ID ……0425
6mm OD 4mm ID ……0604
8mm OD 5mm ID ……0805

NO OF TUBES

1 ……1
2 ……2
3 ……3

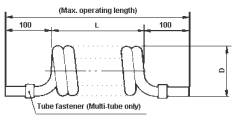
TECHNICAL SPECIFICATIONS

Model	TCU 0425B-1	TCU 0425B-2	TCU 0425B-3	TCU 0604B-1	TCU 0604B-2	TCU 0604B-3	TCU 0805B-1
Number of tubes core	1	2	3	1	2	3	1
Tube OD (mm)	4			6			8
Tube ID (mm)	2.5			4			5
Max operating pressure	0.8MPa note 2) / 120PSI						
Operating temperature	-20~+60°C / 4~140°F						
Material	Polyurethane						
Color	Black						

Note 1) The value for bending at a temperature of 20°C

Note 2) Safety allowance x3 at 20°C

DIMENSIONS POLYURETHANE COIL TUBING



Specifications	Tube size (mm)		Dimension of coil (mm)		Number of tube core	Number of coil winding per tube length	Max operating length (m)
Model	OD	ID	L	D			
TCU0425B-1	4	2.5	210	18	1	52	1.5
TCU0425B-2			280	28	2	35	
TCU0425B-3			265		3	22	1
TCU0604B-1	6	4	325	24	1	54	2
TCU0604B-2				37	2	27	1.5
TCU0604B-3			305		3	17	1
TCU0805B-1	8	5	330	31	1	41	2

MULTITUBE HOLDER SERIES TM

- Arranges Tubes neatly
- Accepts Ø4mm~12mm
- 6-12 Tube Design



TECHNICAL SPECIFICATIONS

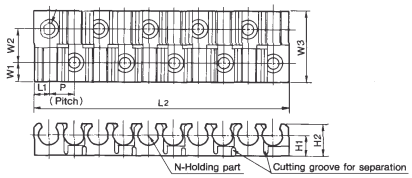
Tube Material	Nylon, Soft Nylon, Polyurethane
Tube OD	ø4, ø6, ø8, ø10, ø12
Ambient (*C)	-20 ~ 60°C / 4 ~ 140°F
Material	Flame Resistant Polypropylene
Color	Black

HOW TO ORDER TM MULTITUBE HOLDER

TM —

- 04 ...4mm (12 Connecting Tubes)
- 06 ...6mm (12 Connecting Tubes)
- 08 ...8mm (8 Connecting Tubes)
- 10 ...10mm (6 Connecting Tubes)
- 12 ...12mm (6 Connecting Tubes)

DIMENSIONS



Dimensions in mm

Applicable Tube OD (mm)	Model	N (Number of Holding Parts)	P	L1	L2	W1	W2	W3	H1	H2	ØD	Mounting Tapping Screw Size Nominal x Length
4	TM-04	12	6	3.25	72.5	4.5	8	17	5	7.5	2.2	M2x6
6	TM-06	12	7.5	4.5	91.5	5.5	10	21	6.5	10	2.8	M2.6x8
8	TM-08	8	9.5	5.5	77.5	6	11	23	7.5	12	2.8	M2.6x8
10	TM-10	6	12.5	7.5	77.5	6.5	12	25	8.8	14.3	3.2	M3x8
12	TM-12	6	15	9	93	6.5	12	25	9.8	16.3	3.2	M3x8

TUBE CUTTER SERIES TK

- Perpendicular Cutting
- Enclosure/Safety Lock Contained



TECHNICAL SPECIFICATIONS

Model	TK-1	TK-2
Applicable Tube Material	Nylon, Soft Nylon, Polyurethane and other soft plastic tube	
Applicable Tube OD	13mm or less	18mm or less

DIMENSIONS TK 1 TUBE CUTTER

Dimensions in mm



HOW TO ORDER TK TUBE CUTTER

TK-1
TKA-1



Air Preparation Products

	Series	Page Number
	(N)AC1000-6000 FRL Combination Units - Modular Type	5.1
	(N)AC1010-4010 FRL Combination Units - Modular Type	5.2
	(N)AF Air Filter	5.3
	(N)AR Air Regulator	5.4
	(N)AL Air Lubricator	5.6
	(N)AW Air Filter-Regulator Combination Unit - Modular Type	5.7
	(N)AFM Mist Separator	5.9
	(N)AFD Micro-Mist Separator	5.10
	(N)AV2000/3000/4000 Soft Start-Up Valve	5.11
	IS1000 Pressure Switch	5.13

	Series	Page Number
	**(N)VHS** Shut-Off Valve - 3 Port Relieving	5.14
	**Y - Spacer** APP Accessories - Modular Type	5.15
	**L Type Bracket / T Type Bracket** APP Accessories - Modular Type	5.15
	**E - End Block Adaptor** APP Accessories - Modular Type	5.16
	**(N)AKM** Check Valve	5.16
	**T Take-Off / X Take-Off** Branching Units	5.17
	**(N)AF** High Flow Air Filter	5.18
	**(N)AM** High Efficiency Mist Separator	5.19
	**(N)AMD** High Efficiency Micro-Mist Separator	5.20
	**(N)AMF** High Efficiency Odor Removal Filter	5.21
	**AMG** Water Separator	5.22

Air Preparation Products

	**(N)AP100** Pressure Control Valve	5.23
	**(N)AR** Pilot Operated Pressure Regulator	5.24
	**(N)ARJ1020F** Miniature Regulator	5.25
	**(N)AL** Lubricator - High Flow Series	5.26
	**(N)AD** Auto Drain	5.27
	**ADH4000** Heavy Auto Drain	5.28
	**(N)VBA** Booster Regulator	5.30
	**Pressure Gauges**	5.33
	**GZ46** VAcuum Gauges	5.33
	**(N)AN** Silencer	5.34
	**ANA1/ANB1** High Noise Reduction Type Silencer	5.35
	**(N)AMC** Exhaust Cleaner	5.36



1. Polycarbonate Bowls can be attacked by a wide variety of chemicals (see List below for examples). These cause embrittlement and subsequent brittle failure, or softening. Metal Bowls should be specified for use in the presence of aggressive chemicals.

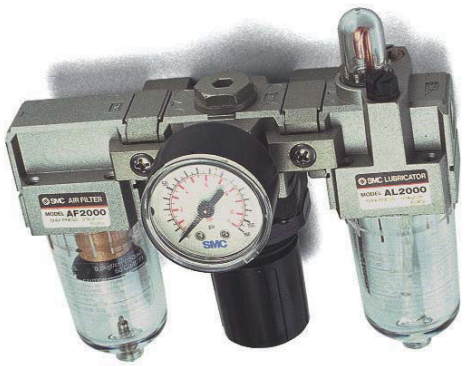
2. It is strongly recommended that metal bowl guards are specified to provide additional protection from mechanical damage to polycarbonate bowls.

3. Before air treatment units are commissioned, and after any adjustment or maintenance has been carries out, the following points should be checked before connection to air supplies.
   - All fittings and spacers are finally attached
   - All removable bowls are securely screwed/latched into position

4. Polycarbonate bowls should be regularly inspected.

Some of the Materials that will Attack Polycarbonate Plastic Bowls		
Acetaldehyde	Cresol	Milk of lime (CaOH)
Acetic acid	Cyclohexanol	Nitric acid
Acetone	Cyclohexanone	Nitrobenzene
Acrylonitrile	Cyclohexene	Nitrocellulose lacquer
Caustic soda solution	Methanol	Perchlorethylene and others
Ammonia	Dimethyl formamide	Phenol
Ammonium fluoride	Dioxane	Phosphorous Hydroxychloride
Ammonium hydroxide	Ethane tetrachloride	Phosphorous Trichloride
Ammonium sulphide	Ethyl acetate	Propionic acid
Antifreeze	Ethyl ether	Pyridine
Benzene	Ethylamine	Sodium hydroxide
Benzoic acid	Ethlene chlorohydrin	Sodium sulphide
Benzyl alcohol	Ethlene dichloride	Styrene
Bromobenzene	Formic acid	Sulphural chloride
Brake fluids	Ethlene glycol	Sulphuric acid
Butyric acid	Freon (refrigerant & propellant)	Tetrahydronaphthalene
Carbolic acid	Gasoline	Thiophene
Carbon disulphide	Hydrazine	Toluene
Carbon tetrachloride	Hydrochloric acid	Turpentine
Caustic potash solution	Lacquer thinner	Xylene
Chlorobenzene	Methylene chloride	
Chloroform	Methylene salicylate	

F.R.L. Combination Units



Modular Type
(N)AC1000–(N)AC6000 M5–1"

- Combination of filter, regulator and lubricator including mounting bracket and pressure gauge

Technical Specifications

Model		NAC1000	NAC2000	NAC3000	NAC4000	NAC5000	NAC6000
Combination	Air filter	NAF1000	NAF2000	NAF3000	NAF4000	NAF5000	NAF6000
	Regulator	NAR1000	NAR2000	NAR3000	NAR4000	NAR5000	NAR6000
	Lubricator	NAL1000	NAL2000	NAL3000	NAL4000	NAL5000	NAL6000
Port Size		M5X0.8	1/8, 1/4	3/8	1/2	3/4	1
Port Size for pressure gauge		1/16	1/8	1/8	1/4	1/4	1/4
Max Supply Pressure		15 Bar / 220PSI					
Max Operating Pressure		9.9 Bar / 145PSI					
Regulating Range		0.5~7 Bar	0.5 ~ 8.5 Bar / 8~125PSI				
Max flow rate ℓn/min*		90	500	2000	4000	5000	7000
Min. operating conditions for autodrain		1 Bar / 14.5 PSI					
Ambient and media temperature		5 ~ 60°C / 40~140°F					
Filtration		Standard: 5μm					
Recommended oil		Turbin oil ISO VG32					
Bowl material		Polycarbonate					
Construction/Regulator		Relieving type					
Accessories (standard)	Bowl guard	—	—	•	•	•	•

*Conditions: Supply pressure—7 Bar. Setting pressure—5 Bar Flow quoted at 1 bar pressure drop

How To Order
Filter/Regulator/Lubricator

(N)AC ○ 00 — ○ ○ ○ G

- ……Japanese
N ……North American

Body Size
10 …M5
20 …1/8 1/4
30 …3/8
40 …1/2
50 …3/4
60 …1

Port Thread
- ……Rc(PT)* Remove (N) when ordering
N ……NPT*
F……..G(PF)* Remove (N) when ordering

Drain
- ……Manual drain
D ……Auto drain

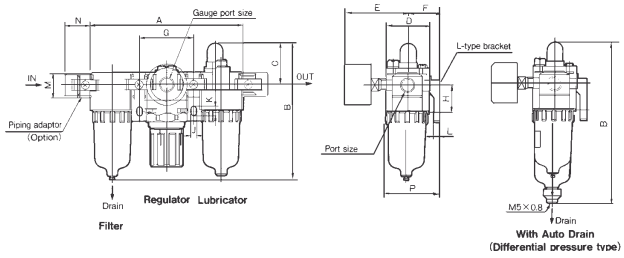
Port Size
M5 …M5X0.8
01 …1/8
02 …1/4
03 …3/8
04 …1/2
06 …3/4
10 …1

0.5 ~ 7 Bar / 8 ~100PSI

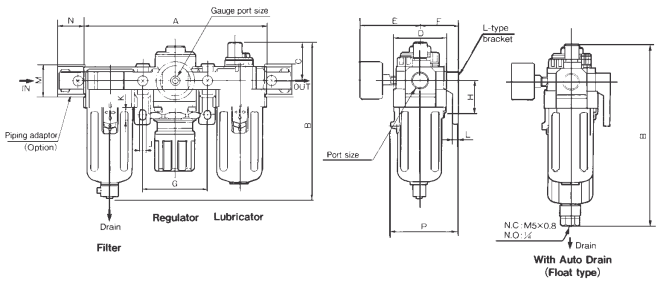
Note)
0.5 Bar = 0.05MPa
7 Bar = 0.7MPa
8.5 Bar = 0.85MPa

For more technical information on this series, please refer to CAT:E5G, N5-G1 & N5-G3

Dimensions
NAC1000, 2000

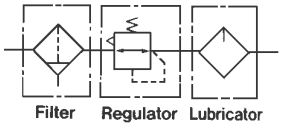


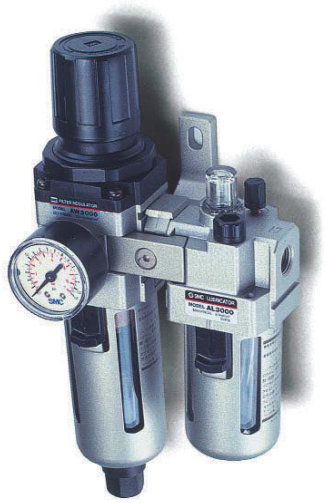
Dimensions
NAC3000,4000, 5000, 6000



Model	Port size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	With auto drain: Float type N.O.	With auto drain: Differential pressure type
																B	B
NAC1000	M5X0.8	91	84.5	25.5	25	26	25	33	20	4.5	7.5	5	17.5	16	38.5	—	86.5
NAC2000	1/8 1/4	140	125	38	40	56.8	30	50	24	5.5	8.5	5	22	23	50	—	120.5
NAC3000	3/8	181	156.5	38	53	60.8	41	64	35	7	11	7	34.2	26	70.5	182	—
NAC4000	1/2	238	191.5	41	70	65.5	50	84	40	9	13	7	42.2	33	88	217	—
NAC5000	3/4	300	271.5	48	90	75.5	70	105	50	12	16	10	55.2	40	115	297	—
NAC6000	1	315	285.5	48	95	78	70	110	50	12	16	10	55.2	40	117.5	311	—

Symbols

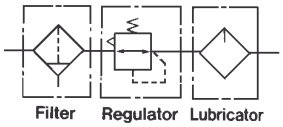




MODULAR TYPE
(N)AC1010–(N)AC4010 M5–1"

- Combination of filter, regulator and lubricator including mounting bracket and pressure gauge

SYMBOLS



TECHNICAL SPECIFICATIONS

Model		NAC1010	NAC2010	NAC3010	NAC4010
Combination	Filter regulator	NAW1000	NAW2000	NAW3000	NAW4000
	Lubricator	NAL1000	NAL2000	NAL3000	NAL4000
Port Size		M5X0.8	1/8, 1/4	3/8	1/2
Port Size for Pressure Gauge		1/16	1/8	1/8	1/4
Maximum Supply Ppressure		15 Bar / 220PSI			
Maximum Operating Pressure		9.9 Bar / 145PSI			
Regulating Range		0.5 ~ 7 Bar	0.5 ~ 8.5 Bar / 8~125PSI		
Max Flow Rate ℓn/min*		90	500	1700	3000
Min Operating Conditions for Autodrain		1 Bar / 14.5 PSI			
Ambient and Media Temperature		5 ~ 60°C / 40~140°F			
Filtration		Standard: 5μm			
Recommended Oil		Turbine oil ISO VG32			
Bowl Material		Polycarbonate			
Construction / Regulator		Relieving type			
Accessories (standard)	Bowl guard	—	—	•	•

*Conditions: Supply pressure—7 Bar. Setting pressure—5 Bar Flows quoted at 1 Bar pressure drop 0.5~7 Bar = 8~100PSI

HOW TO ORDER
FILTER/REGULATOR, LUBRICATOR

(N)AC ○ 10 — ○ ○ ○ G

BODY SIZE
10 ...M5
20 ...1/8 1/4
30 ...3/8
40 ...1/2

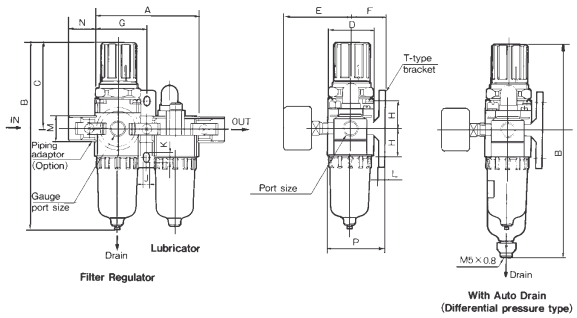
- .....Japanese
N .....North American

PORT SIZE
M5 ...M5X0.8
01 ...1/8
02 ...1/4
03 ...3/8
04 ...1/2

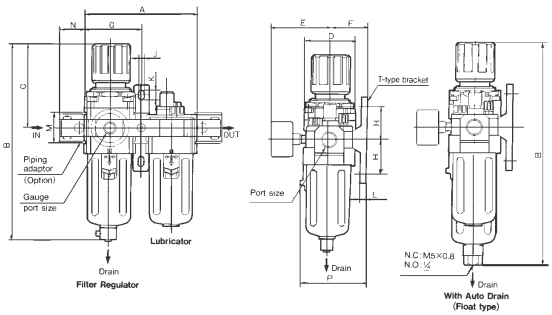
PORT THREAD
- .....Rc(PT)* Remove (N) when ordering
N .....NPT*
F.....G(PF)* Remove (N) when ordering

DRAIN
- .....Manual Drain
D .....Auto Drain

DIMENSIONS
NAC1010, 2010



DIMENSIONS
NAC3010,4010



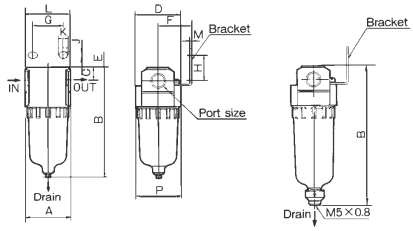
Model	Port size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	With auto drain	
																Float type N.O.	Differential pressure type
																B	B
NAC1010	M5X0.8	58	109.5	50.5	25	26	25	29	20	4.5	7.5	5	17.5	16	38.5	—	86.5
NAC2010	1/8 1/4	90	164.5	78	40	56.8	30	45	24	5.5	8.5	5	22	23	50	—	120.5
NAC3010	1/4 3/8	117	211	92.5	53	60.8	41	58.5	35	7	11	7	34.2	26	70.5	236.5	—
NAC4010	1/4 3/8 1/2	154	262.5	112	70	70.5	50	77	40	9	13	7	42.2	33	88	288	—

AIR FILTER SERIES (N)AF

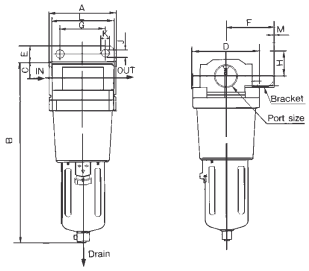
- Port Size M5 – 1"
- Autodrain available
- New super efficient 5µm Poly-element
- Quick release bowl guard on some sizes
- High flow



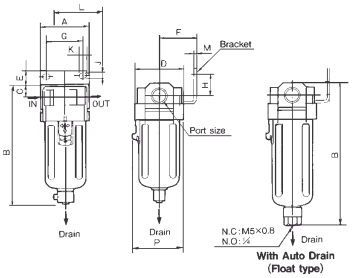
DIMENSIONS NAF1000•2000



DIMENSIONS NAF5000•6000



DIMENSIONS NAF3000•4000



TECHNICAL SPECIFICATIONS

Model	NAF1000	NAF2000	NAF3000	NAF4000	NAF5000	NAF6000
Port size	M5x0.8	⅛ ¼	¼ ⅜	⅜ ½	¾ 1	1
Flow rate ℓn/min*	140	1050	2800	5000	7000	8000
Max supply pressure	1.5MPa / 220PSI					
Max. operating pressure	1MPa / 145PSI					
Ambient and media temperature	5 ~ 60°C / 40~140°F					
Filtration	Standard: 5µm					
Bowl material	Polycarbonate					
Bowl capacity cm³	4	15	20	45	130	130
Min. operating condition for autodrain type	Minimum flow 100 nℓ/min					
	Minimum Pressure 0.1MPa / 14.5 PSI					

* 0.7MPa supply, Pressure drop ΔP = 0.05MPa
* Flow data is for new Poly-Element

HOW TO ORDER AIR FILTER

(N)AF ● — ● ● ●

- ……Japanese
N ……North American

BODY SIZE
1000 M5
2000 ⅛•¼
3000 ¼•⅜
4000 ⅜•½
5000 ¾•1
6000 1

PORT THREAD
- ……Rc (PT)* Remove (N) when ordering
N ……NPT
F ……G(PF)* Remove (N) when ordering

ACCESSORIES
- ……Without
D ……W/Auto Drain
B ……Bracket

PORT SIZE
M5 …M5
01 …⅛
02 …¼
03 …⅜
04 …½
06 …¾
10 …1

ACCESSORIES AIR FILTER

Poly Filter Element	Sintered Bronze Filter Element 5µm	Applicable Filter Series
111344	11134-5B	NAF1000
1129116A	11294-5B	NAF2000
111585A	111511-5B	NAF3000
1116103A	11104-5B	NAF4000
111724A	11173-5B	NAF5000
111825A	11074-5B	NAF6000

Note: Sintered bronze and Poly-elements are not interchangable

Bracket
B240 ……NAF2000
B340 ……NAF3000
B440 ……NAF4000
B640 ……NAF5000/6000

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E5G, N5-G1 & N5-G3

SYMBOLS



Model	A	B	C	D	E	F	G	H	J	K	L	M	P	With Auto Drain	
														B	Type
NAF1000	25	66	7	25	-	-	-	-	-	-	-	-	26.5	86.5	Differential pressure
NAF2000	40	97.5	11	40	17	30	27	22	5.4	8.4	40	2.3	40	120.5	Differential pressure
NAF3000	53	132.5	14	53	16	41	40	23	6.5	8	53	2.3	56	158	Float
NAF4000	70	168.5	18	70	17	50	54	26	8.5	10.5	70	2.3	73	194	Float
NAF5000	90	247.5	24	90	23	70	66	35	11	13	90	3.2	90	273	Float
NAF6000	95	261.5	24	95	23	70	66	35	11	13	90	3.2	95	287	Float

Regulator Series (N)AR

- Port Size M5 – 1"
- "Q" and "P" compensation
- Design includes panel mount ring
- High flow
- Non-modular, higher flow and precision type regulators are available (see index)
- Check valve option available
- Built in gauge available



Technical Specifications

Model	NAR1000	NAR2000	NAR2500	NAR3000	NAR4000	NAR5000	NAR6000
Port Size	M5x0.8	⅛ ¼	¼ ⅜	¼ ⅜	⅜ ½	¾ 1	1
Flow Rate ℓ/n/min*	100	550	2000	2500	6000	8000	10000
Max Supply Pressure	1.5MPa / 220PSI						
Max Operating Pressure	1MPa / 145PSI						
Pressure Regulating Range	0.05-0.7MPa	0.05~0.8MPa/ 8~125PSI (AR*000); *see Note 1 below*					
Optional low pressure regulator range	0.02~0.2MPa / 3~30PSI						
Port Size for Pressure Gauge	1/16	⅛	⅛	⅛	¼	¼	¼
Ambient and Media Temperature	5 ~ 60°C / 40~140°F						
Construction	Relieving Type						

* 0.7MPa supply, pressure = 0.5MPa, Pressure drop ΔP = 0.1MPa;

*Note 1) 14.4~125PSI (AR*060)*

How To Order Pressure Regulator

(N)AR □ □ □ — □ □ □ — □

- ..... Japanese
N ..... North American

Body Size
10 ...M5
20 ...⅛•¼
25 ...¼•⅜
30 ...¼•⅜
40 ...⅜•½•¼
50 ...¾•1"
60 ...1"

0 .....Relieving
6 .....With Check Valve
* Built-in Gauge not available with this option. Standard on AR1000

Gauge
0 .....With gauge port
1 .....With Built-in Gauge
(Available for body sizes 20~40 only)

Port Size
M5 ...M5
01 ...⅛
02 ...¼
03 ...⅜
04 ...½
06 ...¾
10 ...1"

Port Thread
- .....Rc(PT)* Remove (N) when ordering
F .....PF
N .....NPT* Remove (N) when ordering

Accessories
- .....Without
G .....Gauge for NAR**01 type
B .....Bracket

Regulator Range
- .....Standard
1 .....Low pressure 0.2~2 Bar
R .....For right to left flow (with Built-In Gauge Type only)
M .....Metal Seal Type
N .....Non-Relieving Type

For more technical information on this series, please refer to CAT:E5G, N5-G1 & N5-G3

Accessories Pressure Regulator

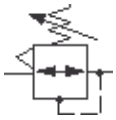
Bracket
B120 .....NAR1000
B220 .....NAR2000/2500
B320 .....NAR3000
B420 .....NAR4000
B540 .....NAR5000
B640 .....NAR6000

For more technical information on this series, please refer to CAT:E5G, N5-G1 & N5-G3

Pressure Gauges

See Pressure Gauges Page

Symbols

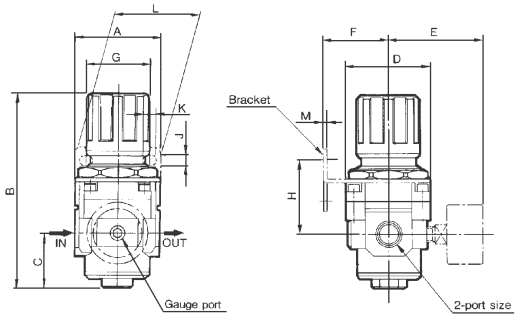


Relieving type

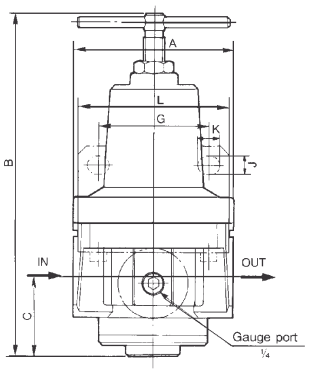


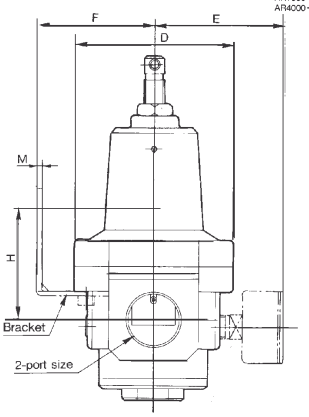
Check valve type

DIMENSIONS
NAR1000~NAR5000



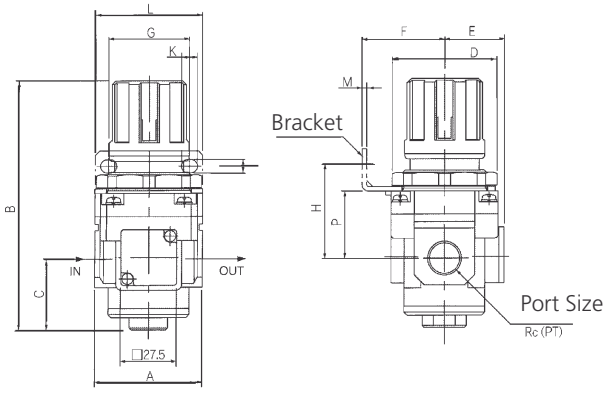
DIMENSIONS
NAR6000





Model	A	B	C	D	E	F	G	H	J	K	L	M	N
NAR1000	25	61.5	11	25	26	25	18	30	4.5	6.5	40	2	20.5
NAR2000	40	95	17	40	56.8	30	30	45	5.4	15.4	55	2.3	33.5
NAR2500	53	102.5	25	48	60.8	30	34	44	5.4	15.4	55	2.3	33.5
NAR3000	53	127.5	35	53	60.8	41	40	46	6.5	8	53	2.3	42.5
NAR4000	70	149.5	37.5	70	65.5	50	54	54	8.5	10 .5	70	2.3	52.5
NAR5000	90	168	48	90	75.5	70	66	65.8	11	13	90	3.2	52.5
NAR6000	95	204.5	48	95	78	70	66	65.8	11	13	90	3.2	-

DIMENSIONS
NAR2001 ~ NAR4001



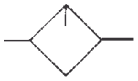
Model	Part Size	A	B	C	D	E	Bracket Dimensions							N
							F	G	H	J	K	L	M	
NAR2001	1/8 • 1/4	40	95	17	40	35	30	34	44	5.4	15.4	55	2.3	33.5
NAR25O1	1/4 • 3/8	53	102.5	25	48	32	30	34	34	44	5.4	15.4	55	2.3
NAR3001	1/4 • 3/8	53	127.5	35	53	29.5	41	40	46	6.5	8	53	2.3	42.5
NAR4001	1/4 • 3/8 • 1/2	70	149.5	37.5	70	38	50	54	54	8.5	10.5	70	2.3	52.5

Lubricator Series (N)AL

- Port Size M5 – 1"
- Precise adjustment
- Uniform lubrication even at extremely low flow rates
- Over 97% of atomized oil particles <10 microns
- Quick release bowl guard on some sizes



Symbols



Technical Specifications

Model		NAL1000	NAL2000	NAL3000	NAL4000	NAL5000	NAL6000
Port size		M5x0.8	1/8 1/4	1/4 3/8	3/8 1/2	3/4 1	1
Flow Rate ℓn/min		95	800	1700	5000	7000	7500
Max Supply Pressure		1.5MPa / 220PSI					
Max Operating Pressure		1MPa / 145PSI					
Min Operating Flow ℓn/min*		4	15	1/4: 30 3/8: 40	3/8: 40 1/2: 50	190	220
Bowl Capacity cm³		7	25	50	130	130	130
Recommended Oil		ISO VG32					
Ambient and Media Temperature		5 ~ 60°C / 40~140°F					
Bowl Material		Polycarbonate					
Accessory (Standard)	Bowl Guard	-	-	•	•	•	•

*Conditions: Supply pressure - 0.5MPa Number of DROPS - 5 drops/min ISOVG32, 20°C
Max Flow Data @0.5Mpa Supply 0.03MPa Pressure Drop

How To Order Lubricator

(N)AL ○ — ○ ○ ○ ○

- ……Japanese
N ……North American

Body Size
1000 M5
2000 1/8•1/4
3000 1/4•3/8
4000 3/8•1/2
5000 3/4•1
6000 1

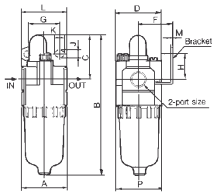
Port Thread
- ……Rc(PT)* Remove (N) when ordering
F ……PF
N ……NPT* Remove (N) when ordering

Port Size
M5 …M5
01 …1/8
02 …1/4
03 …3/8
04 …1/2
06 …3/4
10 …1

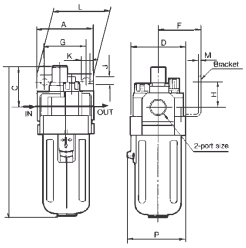
Accessories
- ……W/O Bracket
B ……With Bracket

Optional Specs
Refer to CAT:E5G

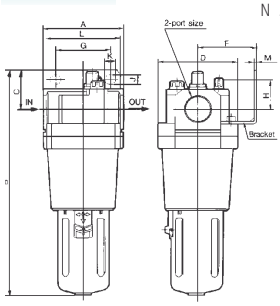
Dimensions NAL1000•NAL2000



Dimensions NAL3000•NAL4000



Dimensions NAL5000•NAL6000



Model	A	B	C	D	F	G	H	J	K	L	M	P
NAL1000	25	81.5	25.5	25	-	-	-	-	-	-	-	27
NAL2000	40	122	38	40	30	27	22	5.4	8.4	40	2.3	40
NAL3000	53	142	38	53	41	40	23	6.5	8	53	2.3	56
NAL4000	70	177	41	70	50	54	26	8.5	10.5	70	2.3	73
NAL5000	90	254	45	90	70	66	35	11	13	90	3.2	90
NAL6000	95	268	45	95	70	66	35	11	13	90	3.2	95

Accessories Lubricator

Bracket
B240 ……AL2000
B340 ……AL3000
B440 ……AL4000
B640 ……AL5000/6000

For more technical information on this series, please refer to CAT:E5G, N5-G1 & N5-G3

FILTER REGULATOR SERIES (N)AW

- Port Size M5 – ¾"
- Differential or float type autodrain
- Quick release bowl guard on some sizes
- High flow
- 5µm filter element
- Built in gauge available

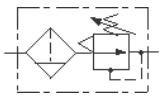


TECHNICAL SPECIFICATIONS

Model		NAW1000	NAW2000	NAW2001	NAW3000	NAW3001	NAW4000	NAW4001
Port Size		M5x0.8	⅛ ¼	⅛ ¼	¼ ⅜	¼ ⅜	¼ ⅜ ½	¼ ⅜ ½
Flow rate ℓn/min*		100	550	550	2000	2000	4000	4000
Max Supply Pressure		1.5MPa / 220PSI				1.5MPa / 220PSI		
Max Operating Pressure		1MPa				1MPa		
Pressure Regulating Range		0.05~0.7MPa	0.05 ~0.85MPa / 8~125PSI					
Port Size for Pressure Gauge		1/16	⅛	N/A	⅛	N/A	¼	N/A
Ambient and Media Temperature		5 ~ 60°C / 40~140°F				5 ~ 60°C / 40~140°F		
Filtration		Standard: 5µm				Standard: 5µm		
Bowl Capacity cm³		4	15	15	20	20	45	45
Bowl Material		Polycarbonate				Polycarbonate		
Construction / Regulator		Relieving type				Relieving type		
Accessory (Standard)	Bowl Guard	-	-	-	•	•	•	•

*0.7MPa supply, 0.5MPa static set pressure, 0.1MPa pressure drop / 0.05~0.7MPa

SYMBOLS



HOW TO ORDER FILTER REGULATOR

(N)AW ○ 0 ○ — ○ ○ ○ ○

- ..... Japanese
N ..... North American

BODY SIZE
10 ... M5
20 ... ⅛•¼
30 ... ¼•⅜
40 ... ⅜•½

0 ..... Standard
1 ..... With Built-in Gauge
2 ..... With Built-in Gauge for right to left flow
(1 & 2 available for body sizes 20~40 only)

PORT THREAD
- ..... Rc(PT)* Remove (N) when ordering
F ..... PF
N ..... NPT* Remove (N) when ordering

PORT SIZE
M5 ... M5
01 ... ⅛
02 ... ¼
03 ... ⅜
04 ... ½
06 ... ¾

ACCESSORIES
- ..... Without
D ..... W/ Auto Drain
B ..... Bracket

OPTIONAL SPECS
Refer to CAT:E5G

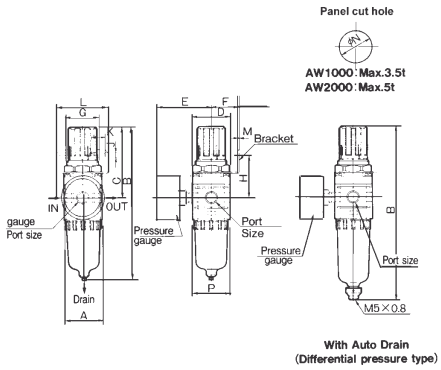
ACCESSORIES FILTER REGULATOR

Filter Element 5µm
11134-5 ..... NAW1000
11294-5B NAW2000
111511-5B NAW3000
11104-5B NAW4000
11173-5B NAW5000
11074-5B NAW6000
Bracket
B120 ..... NAW1000
B220 ..... NAW2000
B320 ..... NAW3000
B420 ..... NAW4000

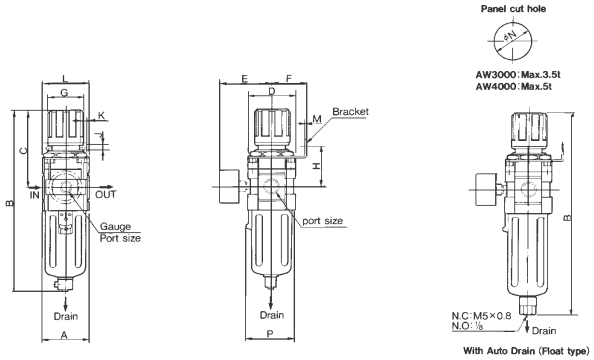
FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E5G, N5-G1 & N5-G3

DIMENSIONS SEE NEXT PAGE ☞

Dimensions
NAW1000•2000

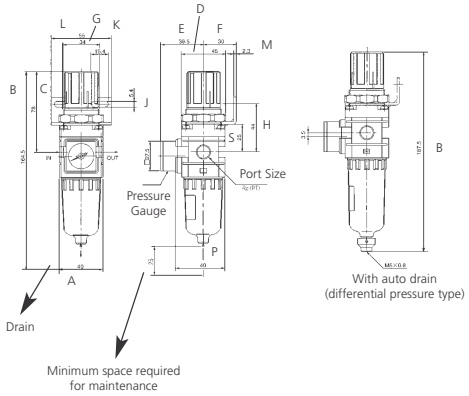


Dimensions
NAW 3000•4000

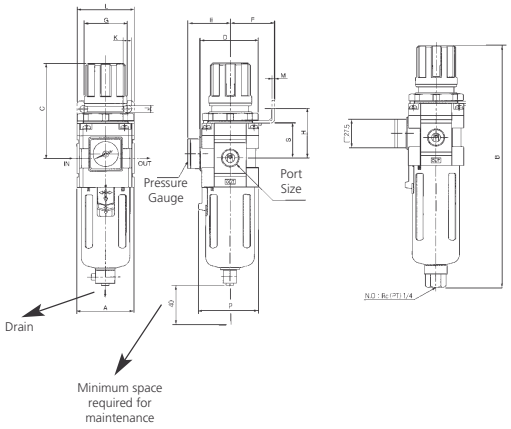


MODEL	A	B	C	D	E	F	G	H	J	K	L	M	ØN	P	With auto drain	
															B	Type
NAW1000	25	109.5	50.5	25	26	25	28	30	4.5	6.5	40	2.0	20.5	28	86.5	Differential pressure
NAW2000	40	164.5	78	40	56.8	30	34	45	5.4	15.4	55	2.3	33.5	40	120.5	Differential pressure
NAW3000	53	211	92.5	53	60.8	41	40	46	6.5	8.0	53	2.3	42.5	56	236.5	Float
NAW4000	70	262.5	112	70	70.5	50	54	54	8.5	10.5	70	2.3	52.5	73	288	Float

Dimensions
NAW2001



Dimensions
NAW3001 - 4001



MODEL	A	B	C	D	E	F	G	H	J	K	L	M	ØN	P	With auto drain	
															B	Type
NAW2001	40	164.5	78	40	56.8	30	34	45	5.4	15.4	55	2.3	33.5	40	120.5	Differential pressure
NAW3001	53	211	92.5	53	60.8	41	40	46	6.5	8.0	53	2.3	42.5	56	236.5	Float
NAW4001	70	262.5	112	70	70.5	50	54	54	8.5	10.5	70	2.3	52.5	73	288	Float

TECHNICAL SPECIFICATIONS

Model		NAFM2000	NAFM3000	NAFM4000
Port Size		1/8 1/4	1/4 3/8	3/8 1/2 3/4
Flow Rate ℓ/n/min*		200	450	1100
Max Supply Pressure		1.5MPa / 220PSI		
Max Operating Pressure		1MPa / 145PSI		
Min Operating Pressure		0.05MPa / 8PSI		
Bowl Material		Polycarbonate		
Accessory (Standard)	Bowl Guard	-	•	•

0.7MPa supply, 0.01MPa pressure drop (new)

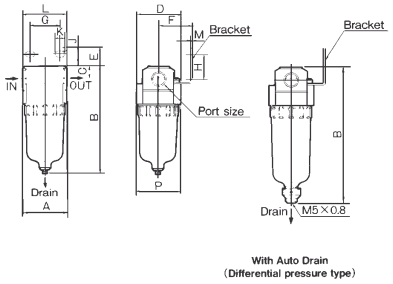
MIST SEPARATOR SERIES (N)AFM

- Port Size 1/8 – 3/4"Rc
- Removes more than 99.9% of oil mist
- 0.3μm filter element
- Quick release metal bowl guard on some sizes
- Automatic or manual drain

Mist Separators are also available in larger port sizes - see:
Filters: High Efficiency

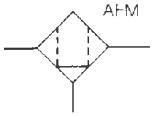


DIMENSIONS
MIST SEPARATOR NAFM2000



With Auto Drain
(Differential pressure type)

SYMBOLS



FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E5G, N5-G1 & N5-G3

HOW TO ORDER MIST SEPARATOR

(N)AFM ○ — ○ ○ ○ — ○

- ……Japanese
N ……North American

BODY SIZE
2000 1/8•1/4
3000 1/4•3/8
4000 3/8•1/2•3/4

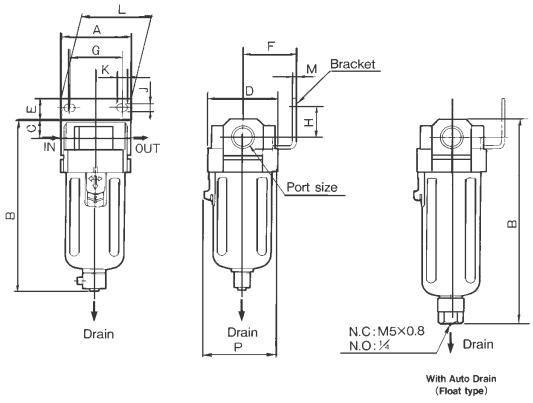
PORT THREAD
- ……Rc(PT)* Remove (N) when ordering
F ……PF
N ……NPT* Remove (N) when ordering

PORT SIZE
01 …1/8
02 …1/4
03 …3/8
04 …1/2
06 …3/4

ACCESSORIES
- ……Without
D ……W/Auto Drain
B ……Bracket

OPTIONAL SPECS
Refer to CAT:E5G

DIMENSIONS
MIST SEPARATOR NAFM3000•4000



With Auto Drain
(Float type)

ACCESSORIES
MIST SEPARATOR

Filter Element
630611 ……NAFM2000
630617 ……NAFM3000
630623 ……NAFM4000
Filter Elements should be changed after 1 year or when a pressure drop of 1 Bar is reached.
Bracket
B240 ……NAFM2000
B340 ……NAFM3000
B440 ……NAFM4000

Model	Port size	A	B	C	D	E	F	G	H	J	K	L	M	P	With auto drain	
															B	Type
NAFM2000	1/8 1/4	40	97.5	11	40	17	30	27	22	5.4	8.4	40	2.3	40	120.5	Differential pressure
NAFM3000	1/4 3/6	53	132.5	14	53	16	41	40	23	6.5	8	53	2.3	56	158	Differential pressure
NAFM4000	1/4 3/8 1/2	70	168.5	18	70	17	50	54	26	8.5	10.5	70	2.3	73	194	Float type
NAFM4000-06	3/4	75	172.5	20	70	14	50	54	25	8.5	10.5	70	2.3	73	198	Float type

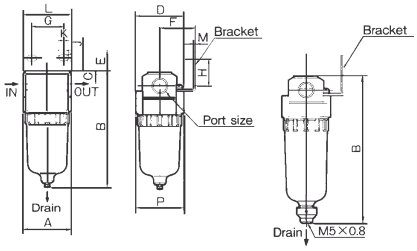
Micro-Mist Separator Series (N)AFD

- Port Size 1/8 – 3/4"
- Removes more than 99.9999% of oil mist
- 0.01µm filter element
- Quick release metal bowl guard on some sizes
- Automatic or manual drain

Micro-Mist Separators are also available in larger port sizes - see: Filters: High Efficiency



Dimensions
Mist Separator NAFD2000



Technical Specifications

Model		NAFD2000	NAFD3000	NAFD4000
Port Size		1/8 1/4	1/4 3/8	3/8 1/2 3/4
Flow Rate ℓ/n/min*		120	240	600
Max Supply Pressure		1.5MPa / 220PSI		
Max Operating Pressure		1MPa / 145PSI		
Min Operating Pressure		0.05MPa / 8PSI		
Bowl Material		Polycarbonate		
Accessory (Standard)	Bowl Guard	-	•	•

0.7MPa supply, 0.01MPa pressure drop (new)

How To Order
Mist Separator

(N)AFD — [Body Size] [Port Thread] [Port Size] [Autodrain]

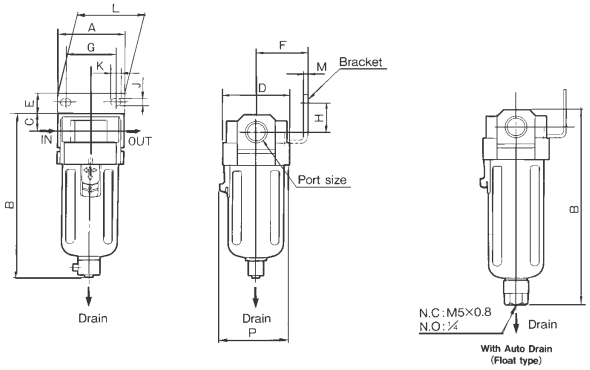
Body Size
2000 1/8•1/4
3000 1/4•3/8
4000 3/8•1/2•3/4

Port Thread
- ……Rc(PT)* Remove (N) when ordering
N ……NPT
F ……G(PF)* Remove (N) when ordering

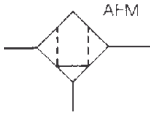
Port Size
M5 …M5
01 …1/8
02 …1/4
03 …3/8
04 …1/2
06 …3/4

Autodrain
- ……Without
D ……With

Dimensions
Mist Separator NAFD3000•4000



Symbols



Accessories
Mist Separator

Filter Element
63092 ……NAFD2000
63093 ……NAFD3000
63094 ……NAFD4000
Filter Elements should be changed after 1 year or when a pressure drop of 1 Bar is reached.
Bracket
B240 ……NAFD2000
B340 ……NAFD3000
B440 ……NAFD4000
B540 ……NAFD4000-06

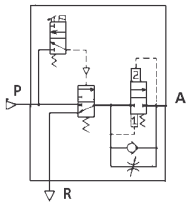
For more technical information on this series, please refer to CAT:E5G, N5-G1 & N5-G3

Model	Port size	A	B	C	D	E	F	G	H	J	K	L	M	P	With auto drain	
															B	Type
NAFD2000	1/8 1/4	40	97.5	11	40	17	30	27	22	5.4	8.4	40	2.3	40	120.5	Differential pressure
NAFD3000	1/4 3/8	53	132.5	14	53	16	41	40	23	6.5	8	53	2.3	56	158	Differential pressure
NAFD4000	1/4 3/8 1/2	70	168.5	18	70	17	50	54	26	8.5	10.5	70	2.3	73	194	Float type
NAFD4000-06	3/4	75	172.5	20	70	14	50	54	25	8.5	10.5	70	2.3	73	198	Float type

SOFT START-UP VALVE
SERIES (N)AV 2000, 3000, 4000 ¼, ⅜, ½"

- Combined Soft Start and Dump Valve
- Compatible with Modular Series FRL
- Large Cv Factor
- Low Power
- Air Supply and Exhaust can be operated manually

SYMBOLS







The NAV valve pictured together with an NAW series Filter/Regulator and an NAN series Silencer. (To order these items, see Air Preparation section {NAW} and Valves section {NAN}

TECHNICAL SPECIFICATIONS

Model			NAV2000	NAV3000	NAV4000
Port Size			¼	⅜	½
Proof Pressure			1.5MPa / 220PSI		
Operating Pressure Range			1MPa / 145PSI		
Pressure Gauge Port Size			⅛		
Ambient and Fluid Temperature			0 ~ 60°C* / 32~140°F		
CV Factor		P→A	1.19	2.20	3.60
		A→R	1.39	2.89	4.49
Weight (kg)			0.27	0.48	0.74
Electrical Spec	Coil Rated Voltage		110, 240V AC (50/60Hz); 12, 24V DC		
	Allowable Voltage Fluctuation		-15% to +10% of rated voltage		
	Coil Insulation Type		Type B equivalent (130°C)		
	Apparent Power AC (Power Consumption)	Inrush	5.6VA (50Hz)		
		Holding	3.4VA (2.1W)/50Hz		
	Power Consumption DC		1.8W		
	Electrical Connector		DIN 43650 (industrial form)		
	Semi-Standard Spec		With indicator light and surge voltage suppressor		
Pilot Valve Manual Override			Non-locking push type		

*Use dry air when temperature is low.

HOW TO ORDER
SOFT START-UP VALVE

(N)AV ○ 00 — ○ ○ — ○ — D ○

- ..... Japanese
N ..... North American

BODY SIZE
20 ... ¼
30 ... ⅜
40 ... ½

PORT THREAD
- ..... Rc(PT)* Remove (N) when ordering
F ..... G(PF)* Remove (N) when ordering
N ..... NPT

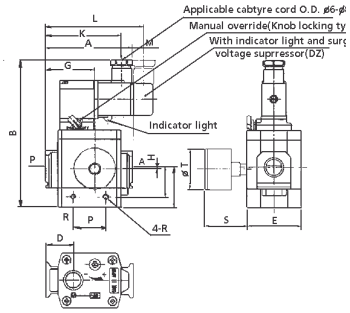
PORT SIZE
02 ... ¼ (NAV2000 only)
03 ... ⅜ (NAV3000 only)
04 ... ½ (NAV4000 only)

COIL RATED VOLTAGE
3 ..... 110V AC (50/60Hz)
4 ..... 240V AC (50/60Hz)
5 ..... 24V DC
6 ..... 12V DC

INDICATOR LIGHT AND SURGE VOLTAGE SUPRESSOR
- ..... None
S ..... With surge voltage suppressor only
Z ..... With Indicator light and surge voltage suppressor

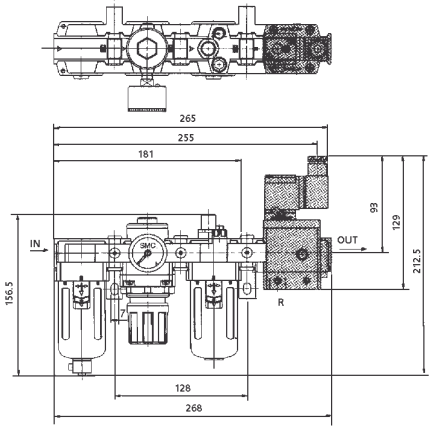
DIMENSIONS
SEE NEXT PAGE ☞

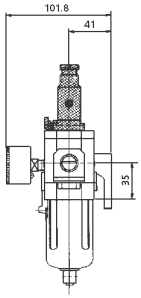
Dimensions
DIN Connector



Model	Port size	A	B	C	D	E	Pressure gauge Mounting port F	G	H	I	J	K	L	M	N	P	Q	R
NAV2000-☐02-☐D	1/4	66	125.5	31	22	40	1/8	38	0	—	—	67.5	—	10.5	—	29	23.5	M4X0.7 depth 4.5
NAV2000-☐02-☐DZ												—	84.5	27.5				
NAV3000-☐03-☐D	3/8	76	132.5	36	24	48	1/8	43	2	—	—	70.5	—	3.5	—	28	27.5	M5X0.8 depth 5
NAV3000-☐03-☐DZ												—	87.5	20.5				
NAV4000-☐04-☐D	1/2	98	147.5	47	32	52	1/8	57	3	—	—	82.5	—	—	—	42	37	M6X1 depth 6
NAV4000-☐04-☐DZ												—	99.5	10.5				

Dimensions
Example of NAC3000 + Soft Start-Up Valve





Safety Note

1. This valve cannot prevent cylinders shooting out when a closed-center solenoid valve is used, or equipment driving with a load factor of 50% or more.
2. When a regulator is to be mounted on the secondary side, use a check valve regulator (NAR**60). Standard regulators (NAR2000, 3000, 4000) do not allow large volume back-flow.
3. Mount a lubricator, as necessary, on the primary side (P port side) of the valve. When the lubricator is mounted on the secondary side (A port side), oil back-flows and is exhausted from port R.

PRESSURE SWITCH: SERIES IS1000

- Reed Switch Type Design
- Compact
- Pressure setting made easy by Scale Plate
- Type M Sandwiches between Air Preparation Units: Type E acts as an End Connector

NOTE

The pressure switches can be mounted on both IN and OUT sides on (N)AF, (N)AR, (N)AFM, and (N)AFD units but cannot be mounted in this way on (N)AW units when the handle of an (N)AR Series Regulator faces upwards.



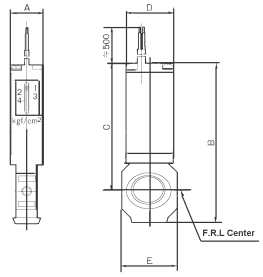


The switches shown DO NOT come with Yoke Clips attached.

TECHNICAL SPECIFICATIONS

Fluid	Air
Proof Pressure	1MPa / 145PSI
Max Operating Pressure	0.7MPa / 100PSI
Setting Range (off)	0.1~0.4MPa / 14.5~60PSI
Differential Pressure	Less than 0.08MPa / 12PSI
Ambient & Fluid Temperature	5 ~ 60°C / 40~140°F
Type of Actuation	1a (N.O.)
Switch Capacity	AC2VA • DC2W
Operating Voltage (AC, DC)	12V, 24V, 48V, 100V
Max Operating Current	AC, DC 12V ~ 48V: 50mA
	AC, DC 100V: 25mA
Response Time	1.2ms

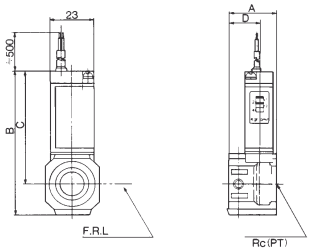
DIMENSIONS PRESSURE SWITCH IS1000M



Model*	A	B	C	D	E
IS1000M-2	15	73.5	62.6	23	28
IS1000M-3	15	82	64.9	23	29
IS1000M-4	15	88.7	67.6	23	35
IS1000M-5	15	91	71	23	44
IS1000M-6	15	100	72.5	23	54

*Without Yoke Clip.

DIMENSIONS PRESSURE SWITCH IS1000E



Model*	Port	A	B	C	D	Combination Series
IS1000E-201	1/8	28	73	62	18.5	AC2000
IS1000E-202	1/4					
IS1000E-203	3/8					
IS1000E-302	1/4	26	80	63	16.5	AC3000
IS1000E-303	3/8					
IS1000E-304	1/2	40	80	63	17.5	
IS1000E-402	1/4	33	87	66	17.5	AC4000
IS1000E-403	3/8					
IS1000E-404	1/2					
IS1000E-406	3/4	50	87	66	17.5	

*Without Yoke Clip.

HOW TO ORDER PRESSURE SWITCH

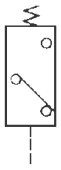
Modular end unit pressure switch including Y20 or Y30 type yoke clips and extended lead to switch (3 metres):

IS1000M-2Y-X201 2000 SERIES
IS1000M-3Y-X201 3000 SERIES
IS1000M-4Y-X201 4000 SERIES
IS1000M-6Y-X201 5/6000 SERIES
IS1000E-202Y-X201 ...2000 SERIES 1/4
IS1000E-303Y-X201 ...3000 SERIES 3/8



THE IS1000E SHOWN TOGETHER WITH A FILTER/REGULATOR SERIES AW

SYMBOLS



Shut Off Valve
Series (N)VHS (3 Port Relieving)

- Relieves the Downstream Pressure for System Servicing
- Visual Positionlindication

SMC Pneumatics' Series NVHS 3 Port Valves provide a means to prevent accidental start-ups while personnel are cleaning or servicing equipment. When in the exhaust position, the valve may be padlock-secured.
To eliminate any uncertainty of valve status, a window displays when the valve is in supply or exhaust position.

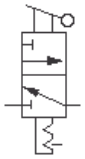
* Simple user modification allows lock in pressure supply position.



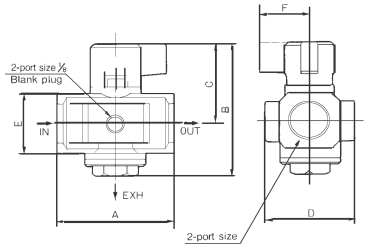


Lockable Unit. Color may not be available as shown.
Please consult SMC Customer Service.

Symbols

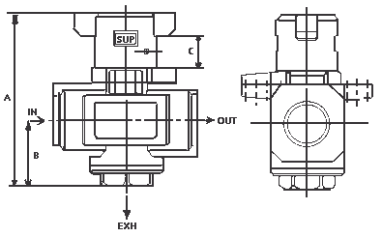


Dimensions
Series (N)VHS Shut-off Valve



Model	Port Size	Exh. Port	A	B	C	D	E	F
NVHS2000	1/8, 1/4	1/8	40	56	36	28	22	25
NVHS3000	1/4, 3/8	1/4	53	74	45	48	28	30
NVHS4000	1/4, 3/8, 1/2	3/8	70	80	48	54	36	30

Dimensions
Series (N)VHS 3 Port Valve
with Locking Facility



Model	Port Size	Exh Port	A	B	C	D	E	ØF	G	ØH
NVHS2500	1/8, 1/4	1/8	60	20	12.8	40	44	33	28	7.5
NVHS3500	1/4, 3/8	1/4	73	29	12.8	53	53	42	29	7.7
NVHS4500	1/4, 3/8, 1/2	3/8	85	32	12.6	70	64	49	36	10
NVHS5500	3/4, 1	1/2	136	56	32	90	80	65	54	10

How To Order
Series (N)VHS Shut-off Valves

(N)VHS ○○ 00 — ○ — ○

- ……Standard
N ……North American

Body Size and Applicable FRL Series
2 ……2000
3 ……2500, 3000
4 ……4000
5 ……5000, 6000

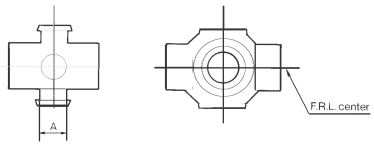
Locking Option
0 ……Standard
5 ……Lockable

Input Port Size
01 …1/8
02 …1/4
03 …3/8
04 …1/2
06 …3/4
10 …1

Handle Color Options
- ……Black Handle; Silver Body
X116 ……Red Handle (Lockable); Silver Body - Standard
X1……Red Handle; Red Body

SPACER

DIMENSIONS SPACER



Model	A	Applicable Model
Y10	8	NAC100~NAC1040
Y20	10	NAC2000~NAC2040
Y30	11	NAC2500~NAC2540 NAC3000~NAC3040
Y40	14	NAC4000~NAC4040
Y50	14	NAC4000-06~NAC4040-60
Y60	15	NAC5000/5500/6000 NAC5020/5520/6020

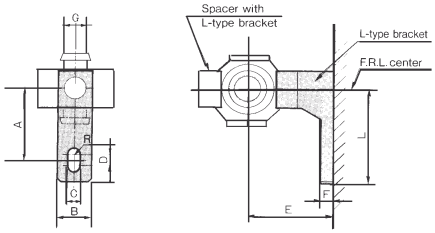


HOW TO ORDER SPACER

Y10 ...(1000 SERIES)
Y20 ...(2000 SERIES)
Y30 ...(3000 SERIES)
Y40 ...(4000 SERIES)
Y50 ...(4000-06 SERIES)
Y60 ...(5/6000 SERIES)

L TYPE BRACKET

DIMENSIONS L TYPE BRACKET





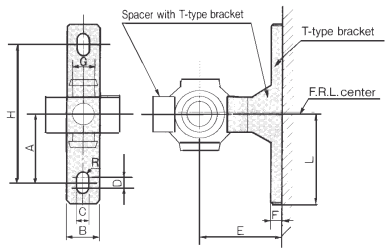
Spacer with L-type bracket	A	B	C	D	E	F	G	R	L
Y10L	20	12	4.5	3	25	5	8	2.25	27
Y20L	24	15	5.5	3	30	5	10	2.75	33
Y30L	35	16	7	4	41	7	11	3.5	45
Y40L	40	22	9	4	50	7	14	4.5	50
Y50L	40	22	9	4	50	7	14	4.5	50
Y60L	50	24	12	4	70	10	15	6	62.5

HOW TO ORDER L TYPE BRACKET

	Spacer with Bracket	Bracket Only
1000 SERIES	Y10L	B110L
2000 SERIES	Y20L	B210L
3000 SERIES	Y30L	B310L
4000 SERIES	Y40L	B410L
4000-06 SERIES	Y50L	B510L
5/6000 SERIES	Y50L	B610L

T TYPE BRACKET

DIMENSIONS T TYPE BRACKET





Spacer with T-type bracket	A	B	C	D	E	F	G	H	R	L
Y10T	20	12	4.5	3	25	5	8	40	2.25	27
Y20T	24	15	5.5	3	30	5	10	40	2.75	33
Y30T	35	16	7	4	41	7	11	70	3.5	45
Y40T	40	22	9	4	50	7	14	80	4.5	50
Y50T	40	22	9	4	50	7	14	80	4.5	50
Y60T	50	24	12	4	70	10	15	100	6	62.5

HOW TO ORDER T TYPE BRACKET

	Spacer with Bracket	Bracket Only
1000 SERIES	Y10T	B110T
2000 SERIES	Y20T	B210T
3000 SERIES	Y30T	B310T
4000 SERIES	Y40T	B410T
4000-06 SERIES	Y50T	B510T
5/6000 SERIES	Y60T	B610T



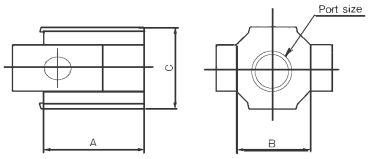
End Block Adaptor

- Port Sizes: M5 ~ 1"Rc
- Allows for easy installation and maintenance

How To Order Piping Adaptor

E10-M5 .....1000 Series
E20-N01 .....2000 Series
E20-N02 .....2000 Series
E20-N03 .....2000 Series
E30-N02 .....3000 Series
E30-N03 .....3000 Series
E30-N04 .....3000 Series
E40-N03 .....4000 Series
E40-N04 .....4000 Series
E40-N06 .....4000 Series
E60-N06 .....5/6000 Series
E60-N10 .....5/6000 Series

Dimensions Piping Adaptor



mm

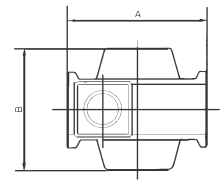
Model	Port size	A	B	C
E10-M5	M5x0.8	16	17.5	14
E20-N01	1/8	23	22	22
E20-N02	1/4			
E20-N03	3/8			
E30-N02	1/4	26	34.2	29
E30-N03	3/8			
E30-N04	1/2	40	34.2	29
E40-N03	3/8	33	42.2	35
E40-N04	1/2			
E40-N06	3/4	50	42.2	35
E50-N06	3/4	36	44	46.2
E60-N06	3/4	40	54	55.2
E60-N10	1			

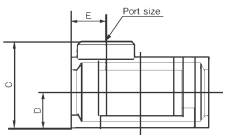


Check Valve Series (N)AKM

The Check Valve Spacer is designed to prevent back flow of lubricated air from a lubricator when both lubricated and non-lubricated supplies are required.

Dimensions Check Valve Series NAKM





How To Order Check Valve Series (N)AKM

(N)AKM ○ — ○ ○

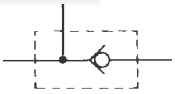
- .....Japanese
N .....North American

Body Size
2000.....2000 Series
3000.....3000 Series
4000.....4000 Series

Port Size
01 ...1/8
02 ...1/4
03 ...3/8

Port Thread
- .....Rc(PT)* Remove (N) when ordering
N .....NPT

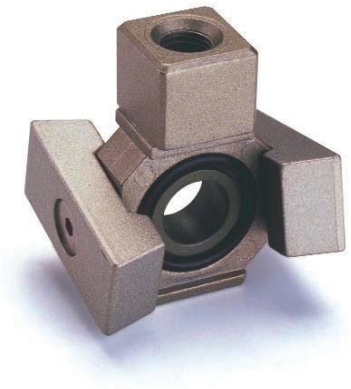
Symbols



mm

Model	Port Size	A	B	C	D	E
NAKM2000	1/8 1/4	40	40	28	11	11
NAKM3000	1/8 1/4	53	48	34	14	13
NAKM4000	1/4 3/8	70	54	42	18	15

MODULAR TYPE – ACCESSORIES

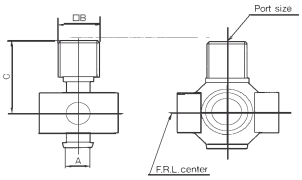




BRANCHING UNITS

DIMENSIONS T TAKE OFF

Cannot be installed adjacent to combined filter/regulator unit

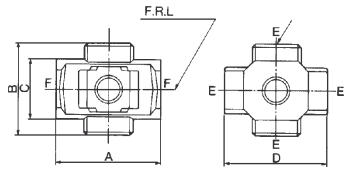


mm

Model	Port Size	A	B	C
Y11-M5	M5X0.8	8	12	8
Y21-01	1/8	10	29	19
Y21-02	1/4	10	29	19
Y31-01	1/8	11	33	19
Y31-02	1/4	11	33	19
Y41-02	1/4	14	39	24
Y41-03	3/8	14	39	24
Y51-02	1/4	14	24	41
Y52-03	3/8	14	24	41
Y61-03	3/8	15	30	50.5
Y61-04	1/2	15	30	50.5

DIMENSIONS X TAKE OFF

Fits between modular units using 'Y' Type Connectors



mm

Model	Port Size	A	B	C	D
Y14-M5	M5	23	16	14	25
Y24-01	1/8	40	40	22	40
Y24-02	1/4	40	40	22	40
Y34-02	1/8	49	43	28	48
Y44-02	1/4	60	48	36	54
Y44-03	3/8	60	48	36	54
Y54-03	3/8	72	62	40	62
Y54-04	1/2	72	62	40	62

HOW TO ORDER "T" TAKE-OFF

Y ○ ○ — ○ ○

APPLICABLE FRL SERIES
1 1000
2 2000
3 3000
4 4000
5 4000-06
6 .....5000, 6000

TAKE-OFF TYPE
1 ....."T" Type
4 ....."X" Type

THREAD TYPE
Nil ...Rc(PT)
N .....NPT

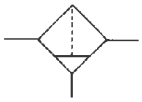
PORT SIZE
M5 ...M5 x 0.8
01 ...1/8
02 ...1/4
03 ...3/8
04 ...1/2

High Flow Air Filter Series (N)AF

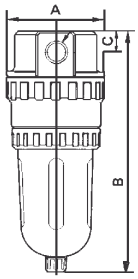
- Port Sizes 1½- 2"Rc, NPT, PF
- 5µm Filter Element
- High Efficiency Drainage
- Bowl Guard Standard



Symbols

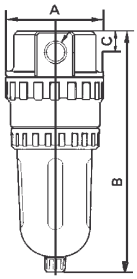


Dimensions
Air Filter Models (N)AF800/900



Model	A	B	C	Pipe Size
(N)AF800	150	410	33	1½, 1¼
(N)AF900	200	488	46	2

Dimensions
Air Filter Models (N)AF811/911



Model	A	B	C	Pipe Size
(N)AF811	150	439	33	1½, 1¼
(N)AF911	200	519	46	2

Technical Specifications

	(N)AF800	(N)AF900
Pipe Size	1½"	2"
Max Flow Rate ℓn/min	9000	15000
Drain Capacity (cm³)	180	180
Max Operating Pressure	1MPa / 145PSI	
Ambient & Fluid Temp	5~60°C / 40~140°F	
Bowl	Polycarbonate	

Flows are for 0.7MPa Supply, 0.01MPa Pressure Drop

How To Order Air Filter

(N)AF800-12 (1¼)
(N)AF800-14 (1½)
(N)AF900-20 (2)

FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT CONSULT SMC CUSTOMER SERVICE

How To Order Air Filter with Autodrain

(N)AF811-12 (1¼)
(N)AF811-14 (1½)
(N)AF911-20 (2)

Note) **(N)AF**
AF - Japanese
NAF - North American

Accessories Air Filter

Filter Elements
11345-5B NAF800
11352-5B NAF900

FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT CONSULT SMC CUSTOMER SERVICE

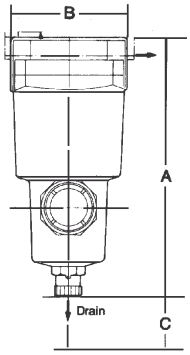
MIST SEPARATOR SERIES (N)AM

- Port Sizes 1/4, 3/8, 1/2, 3/4, 1 1/2, 2"
- Removes 99.9% of Oil Mist and Fine Particles down to 0.3µm
- Manual or Automatic Drain
- Cartridge Type Element for easy replacement
- Small additional clearance required for cartridge replacement

Mist Separators are also available for the Modular Range of Air Preparation Products



DIMENSIONS
MIST SEPARATOR SERIES NAM



(Clearance required for cartridge change)

Model	Port NPT	A mm	B mm	C mm
NAM150-N02D	1/4	159	63	10
NAM250-N03D	3/8	172	76	10
NAM350-N04D	1/2	204	90	10
NAM450-N06D	3/4	225	106	10
NAM550-N10D	1"	259	122	10
NAM650-N14D	1 1/2"	361	160	10
NAM850-N14D	2"	473	220	10

Manual and Autodrain types are same overall dimensions.

TECHNICAL SPECIFICATIONS

Max Operating Pressure	1MPa / 145PSI
Min Operating Pressure	0.05MPa / 8PSI
Ambient & Fluid Temp	5~60°C / 40~140°F
Filtration Degree	0.3µm
Oil Mist Removal	99.9%
Max Flow Rate ℓn/min*	NAM150 300 NAM250 750 NAM350 1500 NAM450 2,200 NAM550 3,500 NAM650 6,000 NAM850 12,000

*0.7MPa Supply, 0.03MPa or less pressure drop

SYMBOLS



ACCESSORIES

Bracket
NAM150 ..... BM51
NAM250 ..... BM52
NAM350 ..... BM53
NAM450 ..... BM54
NAM550 ..... BM55
NAM650 ..... BM56
NAM850 ..... BM57
Filter element
NAM150 ..... AM-EL150
NAM250 ..... AM-EL250
NAM350 ..... AM-EL350
NAM450 ..... AM-EL450
NAM550 ..... AM-EL550
NAM650 ..... AM-EL650
NAM850 ..... AM-EL850
GD40-2-01 ..... Differential pressure gauge

FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT CONSULT SMC CUSTOMER SERVICE

Note) **(N)AM**
AM - Japanese
NAM - North American

HOW TO ORDER
MIST SEPARATOR SERIES (N)AM

(N)AM — ○ ○ ○ ○ — ○

BODY SIZE
150 ...1/8 Basis
250 ...1/4 Basis
350 ...3/8 Basis
450 ...1/2 Basis
550 ...3/4 Basis
650 ...1 Basis
850 ...1 1/2 Basis

THREAD
- .....Rc(PT)* Remove (N) when ordering
F .....G(PF)* Remove (N) when ordering
N .....NPT

PORT SIZE
01 ...1/8
02 ...1/4
03 ...3/8
04 ...1/2
06 ...3/4
10 ...1
14 ...1 1/2
20 ...2

OPTIONS
- .....None
B .....Bracket
C .....NC Autodrain
D .....NO Autodrain

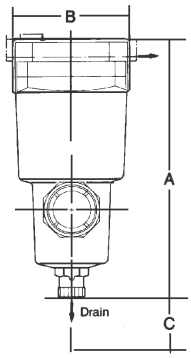
SUB-STANDARD SPECIFICATIONS
Y .....Drain Guide 1/4 Internal Thread
M .....With Drain Lock M5 Screw
R .....IN, OUT Reverse Direction

Micro Mist Separator Series (N)AMD



- Port Sizes 1/4, 3/8, 1/2, 3/4, 1", 1 1/2, 2"
- Removes Oil. Water and Dirt from Compressed Air
- 99.9999% Efficient
- Particle removal down to 0.01µm
- Oil Carry-over less than 0.08 p.p.m.
- Cartridge Type Element for easy replacement
- Small additional clearance required for cartridge replacement

Dimensions
Mist Separator Series NAMD



(Clearance required for cartridge change)

Model	Port NPT	A mm	B mm	C mm
NAMD150-N02	1/4	159	63	10
NAMD250-N03	3/8	172	76	10
NAMD350-N04	1/2	204	90	10
NAMD450-N06	3/4"	225	106	10
NAMD550-N10	1"	259	122	10
NAMD650-N14	1 1/2"	361	160	10
NAMD850-N20	2"	473	220	10

Manual and Autodrain Types are same overall dimensions.

Technical Specifications

Max Operating Pressure	1MPa / 145PSI
Minimum Operating Pressure	0.05MPa / 8 PSI
Ambient and Fluid Temperatures	5 - 60°C / 40~140°F
Filtration Degree	0.01µm
Oil Mist Removal	99.9%
Max Flow Rate ℓn/min*	NAMD150 - 200 NAMD250 - 250 NAMD350 - 1000 NAMD450 - 2000 NAMD550 - 3500 NAMD650 - 6000 NAMD850 - 12000

*0.7MPa supply, 0.02MPa pressure drop

Symbols



Accessories
Mist Separator Series (N)AMD

Brackets
NAMD150 ..... BM51
NAMD250 ..... BM52
NAMD350 ..... BM53
NAMD450 ..... BM54
NAMD550 ..... BM55
NAMD650 ..... BM56
NAMD850 ..... BM57
Filter Element
NAMD150 ..... AMD-EL150
NAMD250 ..... AMD-EL250
NAMD350 ..... AMD-EL350
NAMD450 ..... AMD-EL450
NAMD550 ..... AMD-EL550
NAMD650 ..... AMD-EL650
NAMD850 ..... AMD-EL850
GD40-2-01 ..... Differential pressure gauge

How To Order
Mist Separator Series (N)AMD

Note) **(N)AMD**
AMD - Japanese
NAMD - North American

(N)AMD ○ — ○ ○ ○ — ○

Body Size
150 ...1/8 Basis
250 ...1/4 Basis
350 ...3/8 Basis
450 ...1/2 Basis
550 ...3/4 Basis
650 ...1 Basis
850 ...1 1/2 Basis

Thread
- .....Rc(PT)* Remove (N) when ordering
F .....G(PF)* Remove (N) when ordering
N .....NPT

Port Size
01 ...1/8
02 ...1/4
03 ...3/8
04 ...1/2
06 ...3/4
10 ...1
14 ...1 1/2
20 ...2

Options
- .....None
B .....Bracket
C .....NC Autodrain
D .....NO Autodrain

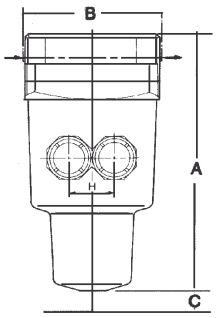
Sub-Standard Specifications
Y .....Drain Guide 1/4 Internal Thread
M .....With Drain Lock M5 Screw
R .....IN, OUT Reverse Direction

ODOR REMOVAL FILTER SERIES (N)AMF

- Port Sizes ¼,⅜,½,¾,1",1½,2"
- Activated Carbon Filter Element with large filtration area (1420 m²/g)for the removal of hydrocarbon and organic vapors
- 99.9999% Efficient
- Particle removal down to 0.01µm
- Cartridge Type Element for easy replacement
- Small additional clearance required for cartridge replacement



DIMENSIONS
ODOR REMOVAL FILTER SERIES NAMF



(Clearance required for cartridge change)

Model	Port NPT	A mm	B mm	C mm
NAMF150-N02	¼"	139	63	10
NAMF250-N03	⅜"	152	76	10
NAMF350-N04	½"	184	90	10
NAMF450-N06	¾"	205	106	10
NAMF550-N10	1"	239	122	10
NAMF650-N14	1½"	321	160	10
NAMF850-N20	2"	403	220	10

TECHNICAL SPECIFICATIONS

Media	Compressed air - filtered to 10 micron
Operating Pressure	0.05 - 1MPa / 8~145PSI
Operating Temperature	5 - 60°C / 40~140°F
Max Flow Rate ℓn/min*	NAMF150 - 200 NAMF250 - 500 NAMF350 - 1000 NAMF450 - 2000 NAMF550 - 3500 NAMF650 - 6000

*0.7MPa supply, 0.015MPa pressure drop

SYMBOLS



ACCESSORIES
ODOR REMOVAL FILTER SERIES NAMF

Bracket
NAMF150 .....BM51
NAMF250 .....BM52
NAMF350 .....BM53
NAMF450 .....BM54
NAMF550 .....BM55
NAMF650 .....BM56
NAMF850 .....BM57
Filter element
NAMF150 .....NAMF-EL150
NAMF250 .....NAMF-EL250
NAMF350 .....NAMF-EL350
NAMF450 .....NAMF-EL450
NAMF550 .....NAMF-EL550
NAMF650 .....NAMF-EL650
NAMF850 .....NAMF-EL850

Note) **(N)AMF**
AMF - Japanese
NAMF - North American

HOW TO ORDER
ODOR REMOVAL FILTER SERIES (N)AMF

(N)AMF ○ — ○ ○ ○ — R

BODY SIZE
150 ...1/8 Basis
250 ...1/4 Basis
350 ...3/8 Basis
450 ...1/2 Basis
550 ...3/4 Basis
650 ...1 Basis
850 ...1 1/2 Basis

THREAD
- .....Rc(PT)* Remove (N) when ordering
F .....G(PF)* Remove (N) when ordering
N .....NPT

PORT SIZE
01 ...1/8
02 ...1/4
03 ...3/8
04 ...1/2
06 ...3/4
10 ...1
14 ...1 1/2
20 ...2

ACCESSORIES
- .....None
B .....Bracket

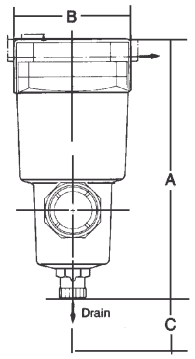
IN, OUT REVERSE DIRECTION

Water Separator Series AMG

- Port Sizes ¼, ⅜, ½, ¾, 1, 1½, 2"
- Removes 99.9% of Water Droplets
- Automatic Drain as Standard
- Element is resistant to clogging
- Small additional clearance required for cartridge replacement



Dimensions
Water Separator Series AMG



(Clearance required for cartridge change)

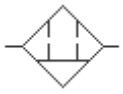
Model	Port NPT	A mm	B mm	C mm
AMG150	¼	170	63	10
AMG250	⅜	191	76	10
AMG350	½	220	90	10
AMG450	¾	241	106	10
AMG550	1	279	122	10
AMG650	1 ½	388	160	10
AMG850	2	479	220	10

Technical Specifications

Max Operating Pressure	1MPa / 145PSI
Min Operating Pressure	0.15MPa / 22PSI
Ambient & Fluid Temp	5~60°C / 40~140°F
Max Flow Rate ℓ/min*	AMG150 300 AMG250 750 AMG350 1500 AMG450 2200 AMG550 3500 AMG650 6000 AMG850 12000

*0.7MPa Supply, 0.03MPa or less pressure drop

Symbols



Accessories

Bracket
AMG150 ..... BM51
AMG250 ..... BM52
AMG350 ..... BM53
AMG450 ..... BM54
AMG550 ..... BM55
AMG650 ..... BM56
AMG850 ..... BM57

FOR FURTHER TECHNICAL INFORMATION ON THIS SERIES, REFER TO CAT:E508

How To Order
Water Separator Series AMG

AMG ○ — ○ ○ ○ — ○

Body Size
150 ...1/8 Basis
250 ...1/4 Basis
350 ...3/8 Basis
450 ...1/2 Basis
550 ...3/4 Basis
650 ...1 Basis
850 ...1 1/2 Basis

Thread
- .....Rc(PT)* Remove (N) when ordering
F .....G(PF)* Remove (N) when ordering
N .....NPT

Port Size
01 ...1/8
02 ...1/4
03 ...3/8
04 ...1/2
06 ...3/4
10 ...1
14 ...1 1/2
20 ...2

Options
Nil ...None
B .....Bracket
C .....NC Autodrain
D .....NO Autodrain

Sub-Standard Specifications

PRESSURE CONTROL VALVE

The (N)AP Series pressure relief regulator is an adjustable relief valve with a control range of 18 ~ 100PSI. If a pressure greater than the set pressure is reached, the unit will open, closing when pressure is less than set pressure.

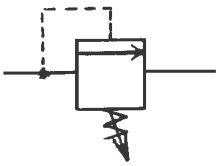


*BLACK HANDLE AVAILABLE IN NORTH AMERICA

TECHNICAL SPECIFICATIONS

Characteristics	(N)AP100
Port Size	⅛" (01), ¼" (02)
Max Operating Pressure	1MPa / 145PSI
Relieving Range	0.05 - 0.7MPa / 18~100PSI
Temperature Range	5 - 60°C / 40~140°F
Body Material	Aluminum Die Cast

SYMBOLS



HOW TO ORDER SERIES (N)AP100

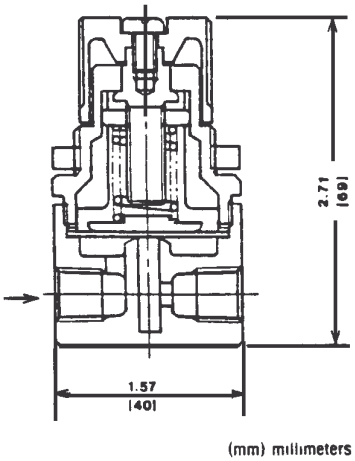
(N)AP100 — ○ ○

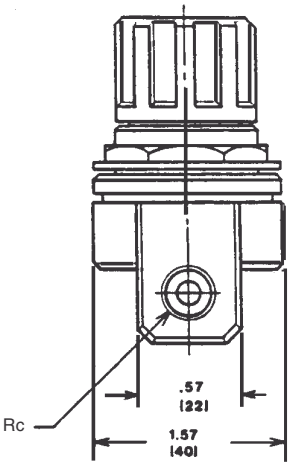
- .....Japanese
N .....North American

PORT SIZE
01 ...⅛"
02 ...¼"

THREAD
- .....Rc(PT)* Remove (N) when ordering
N .....NPT

DIMENSIONS (N)AP SERIES





ACCESSORIES SERIES (N)AP100

Bracket B21-1P

FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT CONSULT SMC CUSTOMER SERVICE

Pressure Regulator Pilot Assisted

- Compact, Lightweight Construction
- High Flow Capacity
- Stable Accurate Pressure Control

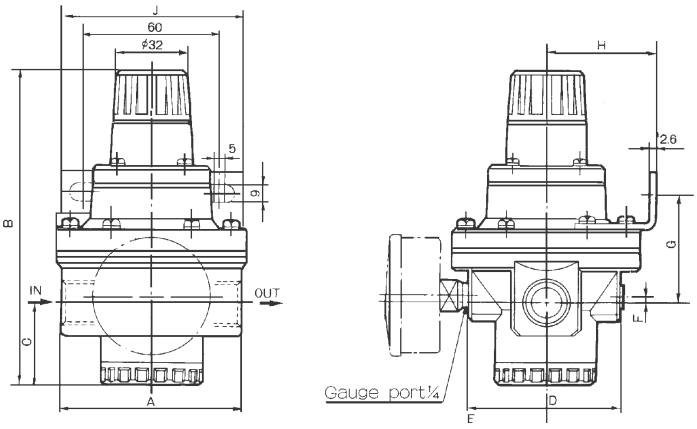


Technical Specifications

Pressure Regulating Range (Bar)	0.5 ~ 8.5	NAR425	NAR625	NAR825	NAR925
Pipe Size		¼ ⅜ ½	¾ 1	1½	2
Flow Rate ℓ/n/min 7bar suply, 1 bar pressure drop		8,000	14,000	18,000	22,000

1MPa = 145 PSI

Dimensions
Pilot Operated Pressure Regulator

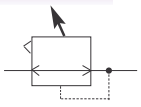


Model	A	B	C	D	E	F	Bracket Dimensions G	H	J	Bracket No.
NAR425	80	141	37	67	71 (72)	3	50	48	80	B24
NAR625	98	152	40	78	76.5 (77.5)	7	87	52	90	B25
NAR825	126	217	75	110	92.5 (93.5)	5	-	-	-	-
NAR925	160	242	89	140	107.5 (108.5)	10	-	-	-	-

Accessories
Pilot Operated Pressure Regulator

Mounting Bracket
B24 .....NAR425
B25 .....NAR625

Symbols



How To Order
Pilot Operated Pressure Regulator

(N)AR ○ 25 — ○ ○ ○

- ○ .....Japanese
N ..... North American

Body Size
4 .....1/2
6 1
8 .....1 1/2
9 2

Pressure
25 ...0.05~0.83MPa

Thread
- .....Rc(PT)* Remove (N) when ordering
F .....F(PF)
N .....NPT

Port Size
01 ...1/8
02 ...1/4
03 ...3/8
04 ...1/2
06 ...3/4
10 ...1
14 ...1 1/2
20 ...2

Options
B .....Bracket
G .....Gauge

MINIATURE REGULATOR (N)ARJ1020F

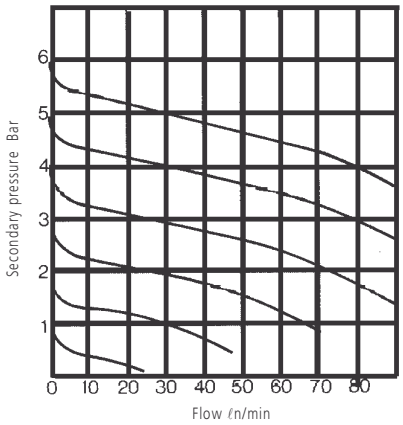
- Compact Design
- Piston Construction offers High Frequency and Long Life
- One-Touch Tube Connection
- Panel Mount



TECHNICAL SPECIFICATIONS

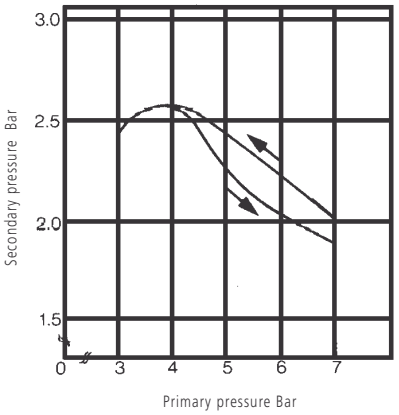
Model		NARJ1020F
Media		Air
Operating Pressure		0.1~0.7MPa / 14.5~100PSI
Max Pressure		0.8MPa / 120PSI
Temperature		5-60°C / 40~140°F
Piping	IN	M5X0.8 male
	OUT	Ø4, Ø6

FLOW SPECIFICATIONS

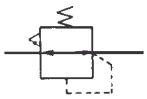


PRESSURE SPECIFICATIONS

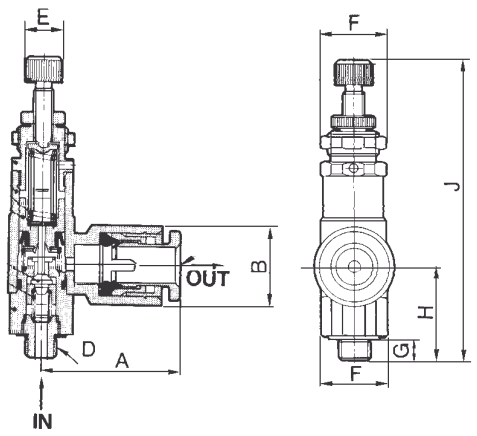
Test condition–(initial setting
Primary pressure–7 Bar
Secondary pressure–2 Bar
Flow rate–10ℓn/min



SYMBOLS



DIMENSIONS SERIES NARJ



Panel Mount Dimension



Model	A	B	C	D	E	F	G	H	J
NARJ1020F-M5-04	21	10.4	4	M5X0.8	6	10.6	3.5	15.5	50
NARJ1020F-M5-06	22	12.8	6						

HOW TO ORDER MINIATURE REGULATOR (N)ARJ1020F

(N)ARJ1020F — M5 — ○

- ……Japanese
N ……North American

04 …4mm
06 …6mm

M5 …M5X0.8

Lubricator Series (N)AL

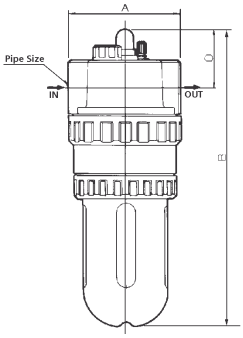
- Port Sizes 1½~2
- Atomizes Lubricant into fine particles at a uniform rate
- Drip Rate easily monitored with Sight Dome
- Can be filled under pressure
- Bowl Guard Standard
- Damper precludes oil flooding



Symbols



Dimensions Lubricator



Model	A	B	C	Pipe Size
NAL800	100	283	59	1½
NAL900	100	288	63	2

How To Order Lubricator Series NAL

NAL800-N12 (1¼ NPT)
NAL800-N14 (1½ NPT)
NAL900-N20 (2 NPT)

Technical Specifications

	NAL800	NAL900
Max Supply pressure	1.5MPa / 220PSI	
Max Operating Pressure	1MPa / 145PSI	
Operating Temp Range	5~60°C /40~140°F	
Recommended lubricant	Turbine oil #1 (ISO VG32)	
Bowl	Polycarbonate	
Pipe Size	11/4, 11/2	2
Min Flow for Oil Drip	650	1800
Oil Capacity (cm3)	500	500
Flow Rate ℓn/min	12500	16500

Flow rate quoted at: 0.5MPa supply
0.03MPa pressure drop

How To Order Lubricator Series AL

AL800-12 (1¼ PT)
AL800-14 (1½ PT)
AL900-20 (2 PT)

AUTO DRAIN SERIES (N)AD

- Port Sizes ¼~1
- Float Type Automatic Drain Valve

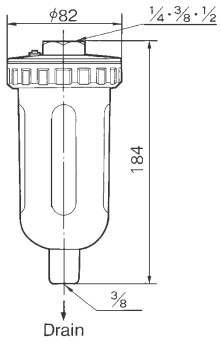


TECHNICAL SPECIFICATIONS

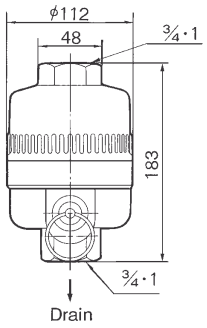
Type	(N)AD402	(N)AD600
Operating Pressure	1.5~9.9 Bar 22~145PSI	3~9.9 Bar 45~145PSI
Max Supply Pressure	15 Bar / 220PSI	
Max Operating Pressure	9.9 Bar / 145PSI	
Ambient & Fluid Temperature	5 ~ 60°C / 40~140°F	
Port Size	1/2	3/4, 1
Drain Port	3/4	3/4, 1

DIMENSIONS
AD SERIES AUITO DRAINS

AD402



AD600



SYMBOLS



HOW TO ORDER
AUTODRAIN SERIES AD

AD402-02 (1/4) PT
AD402-03 (3/8) PT
AD402-04 (1/2) PT
AD600-06 (3/4) PT
AD600-10 (1) PT

FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT CONSULT SMC CUSTOMER SERVICE

HOW TO ORDER
AUTODRAIN SERIES NAD

NAD402-N02 (1/4) NPT
NAD402-N03 (3/8) NPT
NAD402-N04 (1/2) NPT
NAD600-N06 (3/4) NPT
NAD600-N10 (1) NPT

Series ADH 4000 Heavy Auto Drain

- Long Life
- Reliable
- Large Capacity
- No Risk of Back Pressure
- Easy Operation and Maintenance



Technical Specifications

Auto Drain Type	Float Type
Auto Drain Valve Type	Normally Open
Max Supply Pressure	1.5MPa / 220PSI
Max Operating Pressure	1.0 MPa / 145PSI
Operating Pressure Range	0.05 ~ 1.0 MPa {8~145PSI}
Ambient and Fluid Temperature	Compressed Air 5 ~ 60°C (non-freezing)
Max Exhaust Drain	400cc/min (at pressure 0.7MPa, water)
Weight	1.2kg (with bracket: 1.3kg)
Color	Light Grey

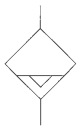
How To Order
Series ADH 4000 Heavy Auto Drain

ADH4 ○ 00 — ○ 04

Max. Operating Pressure
0 .....1.0MPa
1 .....1.6MPa

Thread
- .....Rc(PT)
N.....NPT

Symbols



FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT CONSULT SMC CUSTOMER SERVICE

Accessories

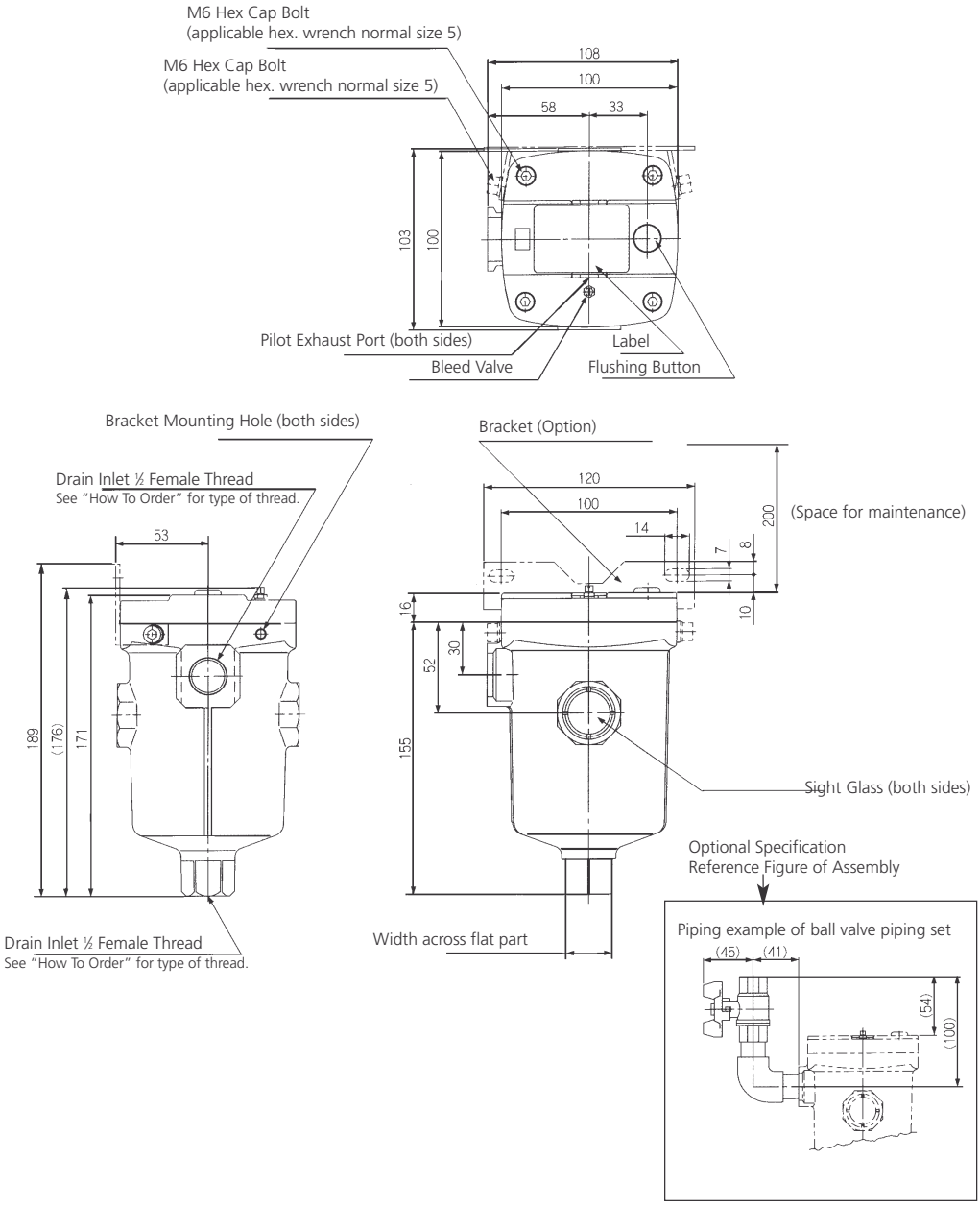
Bracket	BM58
Ball Valve Piping Kit	ADH-C400
(See note below)	
Silencer for Drain	2506-004-X228

Note: The Ball Valve Piping Kit includes a ball valve, two barrel nipples and an elbow. It can be fitted to the inlet of the unit and allows it to be isolated for examination and maintenance.

FOR FURTHER TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E408

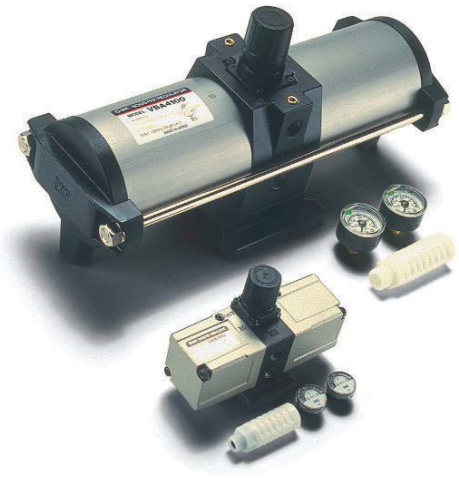
Dimensions
See Next Page ☞

DIMENSIONS


M6 Hex Cap Bolt
(applicable hex. wrench normal size 5)
M6 Hex Cap Bolt
(applicable hex. wrench normal size 5)
108
100
58
33
103
100
Pilot Exhaust Port (both sides)
Bleed Valve
Label
Flushing Button
Bracket Mounting Hole (both sides)
Drain Inlet ½ Female Thread
See "How To Order" for type of thread.
53
189
(176)
171
Drain Inlet ½ Female Thread
See "How To Order" for type of thread.
Bracket (Option)
120
100
14
7
8
200
(Space for maintenance)
16
10
52
30
155
Sight Glass (both sides)
Width across flat part
Optional Specification
Reference Figure of Assembly
Piping example of ball valve piping set
(45)
(41)
(54)
(100)

BOOSTER REGULATOR SERIES (N)VBA

- Increases Main Line Pressure
- Compact Design
- Protects Downstream Equipment from Pressure Fluctuations
- Increases the power of actuator without changing to a larger cylinder
- No need for electrical input
- Optional Air Tanks for high demand
- Pressure Gauges and Silencers included
- Remote Adjustment possible

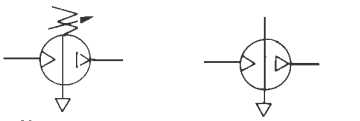


TECHNICAL SPECIFICATIONS

1MPa = 145PSI

Specification	(N)VBA1	(N)VBA2, (N)VBA4
Pressure Increase Ratio	Max. 2:1	Max. 2:1
Media	Air	Air
Proof Pressure	3MPa	1.5MPa
Max Working Pressure	2MPa	1MPa
Set Pressure Range	0.2 ~ 2MPa	0.2 ~ 1MPa
Ambient and Media Temp Range	0 ~ 50°C / 32~125°F	0 ~ 50°C / 32~125°F
Lubrication	Not Required	Not Required
Installation	Horizontal	Horizontal
Pressure Adjustable Mechanism	Relieving Type	Relieving Type

SYMBOL



Type	Handle Type			Air Pilot Operated Type	
	(N)VBA1110-02	(N)VBA2100-03	(N)VBA4100-04	(N)VBA2200-03	(N)VBA4200-04
Max Flow*	400 ℓn/min*	1000 ℓn/min**	1900 ℓn/min**	1000 ℓn/min**	1900 ℓn/min*
Port Size (IN, OUT)	¼	⅜	½	⅜	½
EXH Port Size	¼	⅜	½	⅜	½
Pilot EXH Port Size	–			⅛	
Pilot Pressure	–			1 ~ 5 Bar	
Weight	0.85 kg	3.8 kg	7.5 kg	3.8 kg	7.5 kg

*Pressure IN=OUT=10 Bar
**Pressure IN=OUT=5 Bar

INSTALLATION

The Booster Regulator should be installed with its piston in a horizontal position.

HOW TO ORDER (N)VBA BOOSTER REGULATOR

(N)VBA ○○○0 — ○○○

- ……Japanese
N ……North American

BODY SIZE
1 ……¼"
2 ……⅜"
4 ……½"

PRESSURE ADJUSTMENT
1 ……Handle
2 ……Air Pilot (VBA 2000, 4000 only)

PRESSURE RANGE
0 ……1MPa Max (2000, 4000 Series)
1 ……2MPa Max (1000 Series)

OPTION
G ……Pressure Gauge
N ……Silencer

PORT THREAD
T ……NPTF* Remove (N) when ordering
F ……G(PF)* Remove (N) when ordering
N ……NPT

PORTING
02 …1/4" (1110)
03 …3/8" (2100, 2200)
04 …1/2" (4100, 4200)

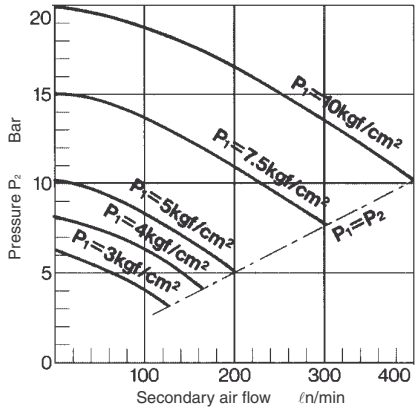
ACCESSORIES (N)VBA BOOSTER REGULATOR

SPARES KITS
KT-VBA2100-P ……(N)VBA2000 Series
KT-VBA4100-P ……(N)VBA4000 Series

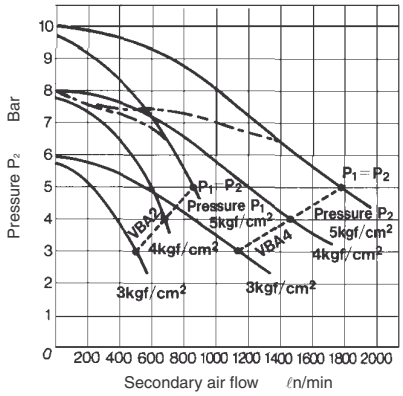
FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT CONSULT SMC CUSTOMER SERVICE

DIMENSIONS SEE NEXT PAGE ☞

(N)VBA1
FLOW CHARACTERISTICS

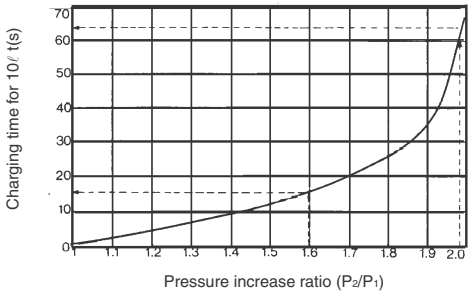


(N)VBA2, (N)VBA4
FLOW CHARACTERISTICS

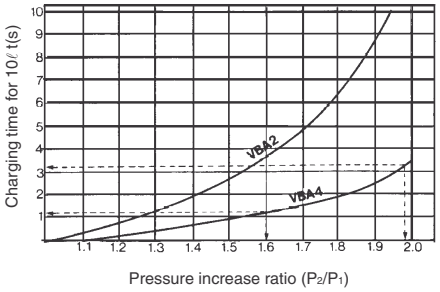


Example:
(N)VBA 4
P1 = 5 bar
P2 = 8 bar
Then maximum flow demand = 1000 ℓn/min

NVBA1
CHARGE CHARACTERISTICS



(N)VBA2, (N)VBA4
CHARGE CHARACTERISTICS



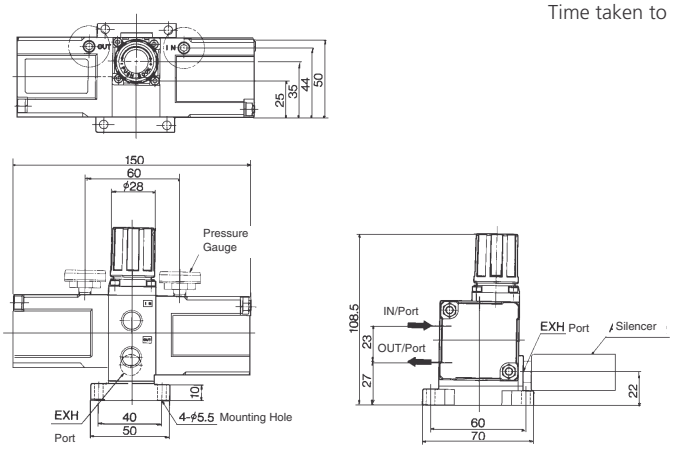
These graphs illustrate the time required to inrease pressure in a closed tank e.g. (V)BA 1
If we wish to increase tank pressure to 8 bar, where P1 = 4 bar and tank pressure = 6.4 bar:

initial $\frac{p2}{p1} = \frac{6.4}{4} = 1.6$ (charging line from graph = 15 seconds)

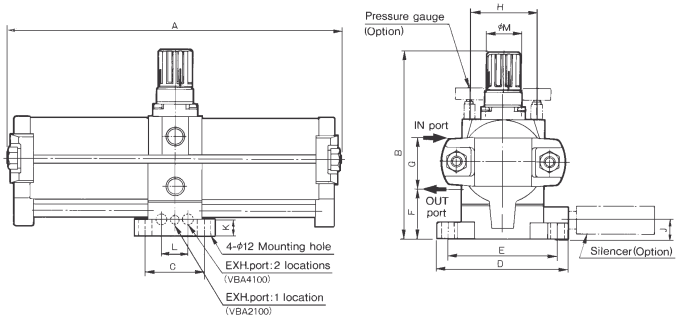
final $\frac{p2}{p1} = \frac{8}{4} = 2$ (charging line from graph = 65 seconds)

Time taken to increase pressure = 65 − 15 seconds
= 50 seconds per 10 litre volume of tank

DIMENSIONS
HANDLE TYPE
(N)VBA1110-02



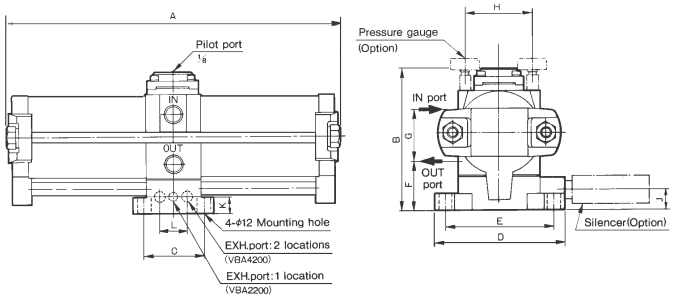
Dimensions
Handle Type
(N)VBA2100-03, (N)VBA4100-04



mm

Model	Port Size	A	B	C	D	E	F	G	H	J	K	L	ØM
(N)VBA2100-(N)03	3/8	300	170	53	118	98	44	45	60.5	18	15	–	31
(N)VBA4100-(N)04	1/2	404	207.5	96	150	130	62.8	62	90	17	15	40	40

Dimensions
Air Pilot Operated Type
(N)VBA2200-03, (N)VBA4200-04



mm

Model	Port Size	A	B	C	D	E	F	G	H	J	K	L
(N)VBA2200-(N)03	3/8	300	126.5	53	118	98	44	45	60.5	18	15	–
(N)VBA4200-(N)04	1/2	404	167	96	150	130	62.8	62	90	17	15	40

PRESSURE GAUGES



PRESSURE GAUGES

- 3 Pressure Ranges
- Center Back or Panel Mount
- ⅛ or ¼ Connection
- 40 or 50mm Diameter Face

HOW TO ORDER PRESSURE GAUGES

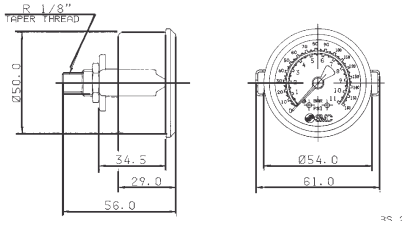
MODEL	PORT SIZE	PRESSURE RANGE	APPLICABLE MODEL
G27-P10-R1	Rc(PT)1/16	0 ~ 150PSI	NAR1000 • NAW1000
K10	1/8NPT	0 ~ 160PSI	NAR2000 • 2500 • NAW2000 • 3000
K12	1/4NPT	0 ~ 160PSI	NAR4000 • NAW4000
K13	1/4NPT	0 ~ 30PSI	NAR4000 • NAW4000
K20	1/8NPT	0 ~ 30PSI	NAR2000 • 2500 • NAW2000 • 3000

NOTE

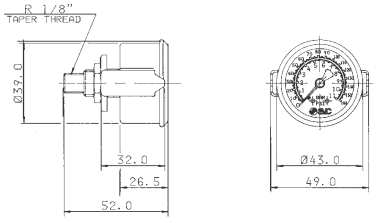
For Air Preparation series (N)AR/(N)AW1000, use SMC Gauge Part Number:

G27-10-R1 1/16 Connection

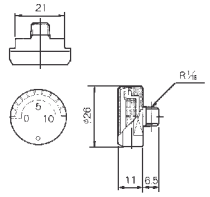
DIMENSIONS 5K8-10P/4P/2.5P



DIMENSIONS 4K8-10P/4P/2.5P



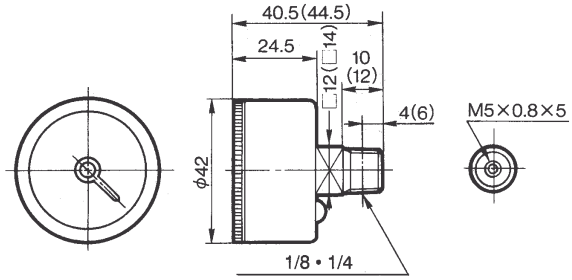
DIMENSIONS G27-10-R1





VACUUM GAUGES

- Scale in mmHg
- Center Back Mount
- ⅛ or ¼ Connection
- 42mm Diameter Face



HOW TO ORDER VACUUM GAUGES

GZ46 — A — ○ ○ ○ — ○

THREAD TYPE
- ……Rc(PT)
N ……NPT

CONNECTION THREAD
01 …1/8
02 …1/4

INTERNAL THREAD
M ……M5 (10-32Nom) Female

MOUNTING
- ……Standard
C ……Panel Mounting

Series (N)AN Silencer
M3, M5, 1/8 Sintered Bronze

- Suitable for miniature valves and pilot air exhaust ports
- 13 - 21 dB noise reduction



Technical Specifications

Model	NAN101-01	NAN110-01	NAN120-M3	NAN120-M5
Port Size	1/8"*	1/8"*	M3	M5
Noise Reduction (dB)	16	21	13	18
Max Operating Pressure	1MPa / 145PSI			
Ambient & Fluid Temperature	5~150°C / 40~300°F			
Effective Orifice mm² (Cv)	20 (1.1)	35 (1.9)	1 (0.05)	5 (0.27)
Weight (gf)	9.5	20	1	3.3

*Tapered thread ISO7/1

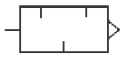
How To Order Series NAN Silencer

NAN120-M3 (M3)
NAN120-M5 (M5)
NAN110-N01 (1/8 NPT)
NAN101-N01 (1/8 NPT)

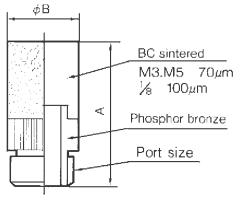
How To Order Series AN Silencer

AN120-M3 (M3)
AN120-M5 (M5)
AN110-01 (1/8 PT)
AN101-01 (1/8 PT)

Symbols



Dimensions Series NAN Silencer



Model	A	ØB
NAN101-N01	22.5	11
NAN110-N01	38	13
NAN120-M3	9	6
NAN120-M5	17	8

Series (N)AN Silencer
1/4~2

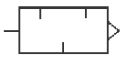
- Over 30 dB noise reduction
- Low back pressure
- Compact and easy mounting



Technical Specifications

Max Operating Pressure	1MPa / 145PSI
Noise Reduction	30dB or more
Ambient & Fluid Temperature	5~60°C / 40~140°F

Symbols

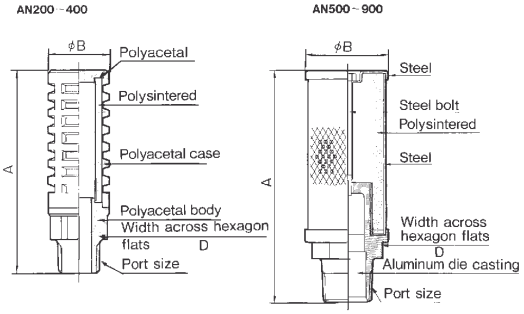


How To Order Series NAN Silencer

Model	Port Size* NPT	Effective Orifice mm² (Cv)
NAN200-N02	1/4"	35 (1.9)
NAN300-N03	3/8"	60 (3.3)
NAN400-N04	1/2"	90 (5.0)
NAN500-N06	3/4"	160 (8.8
NAN600-N10	1	270 (15)
NAN700-N12	1 1/4	440 (24)
NAN800-N14	1 1/2	590 (33)
NAN900-N20	2	960 (53)

Note: When ordering PT Ports, remove (N) from Model Number
Eg: AN200-02

Dimensions Series NAN Silencer



Model	Dimensions (mm)		
	A	B	D
NAN200-N02	63	22	19
NAN300-N03	84	25	22
NAN400-N04	92	30	27
NAN500-N06	107	46	36
NAN600-N10	132	50	41
NAN700-N12	200	74	55
NAN800-N14	233	74	60
NAN900-N20	263	86	70

HIGH NOISE REDUCTION TYPE SILENCER SERIES ANA1/ANB1

- Standardized Thread and One-touch Connection
- Choice of two Orifice Sizes
- Compact, Robust Construction
- Minimum Flow Restriction for Low Back Pressure
- Wide Range of Options
- High Noise Attenuation (40dB)(A) for ANA1



TECHNICAL SPECIFICATIONS

Series	A1	B1
Max Operating Pressure	1.0MPa / 145PSI	1.0MPa / 145PSI
Noise Reduction Effect	40dB(A)	38dB(A)
Ambient and Fluid Temperature	5~60°C / 40~140°F	5~60°C / 40~140°F
Thread	R(PT)	R(PT)
	One Touch Fittings	One Touch Fittings

HOW TO ORDER ANA1/ANB1 SERIES

AN ● — ●

PORT SIZE (SCREW-IN)

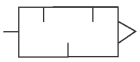
01	...1/8	**One Touch**
02	...1/4	C06 ...Ø6 (B1 only)
03	...3/8	C08 ...Ø8
04	...1/2	C10 ...Ø10
06	...3/4	C12 ...Ø12 (A1 only)
10	...1	
12	...1 1/4	
14	...1 1/2	
20	...2 (A1 only)	

SERIES

A1 ...Noise Reduction at 40dB(A)
B1 ...Noise Reduction at 38dB(A)

Note: When ordering NPT Ports, contact SMC Customer Service

SYMBOLS

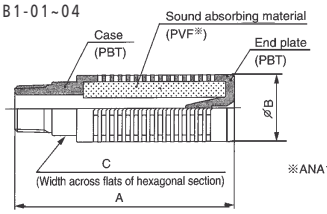


DIMENSIONS MODEL (THREAD CONNECTION)

Model	Port Size	Effective orifice (mm2)	Weight (g)	Dimensions (mm) A	B	C
ANA1-01	1/8	10	4	37	16	-
ANA1-02	1/4	15	14	64	22	18
ANA1-03	3/8	35	22	84	25	21
ANA1-04	1/2	60	36	98	30	24
ANA1-06	3/4	90	110	111	46	36
ANA1-10	1	160	180	132	50	41
ANA1-12	1 1/4	280	544	200	74	60
ANA1-14	1 1/2	450	612	230	74	60
ANA1-20	2	610	873	271	86	70
ANB1-01	1/8	15	10	51	22	-
ANB1-02	1/4	35	22	81	25	18
ANB1-03	3/8	60	35	93	30	21
ANB1-04	1/2	90	94	107	46	24
ANB1-06	3/4	160	175	133	50	41
ANB1-10	1	280	462	190	74	41
ANB1-12	1 1/4	450	612	230	74	60
ANB1-14	1 1/2	610	871	271	86	70

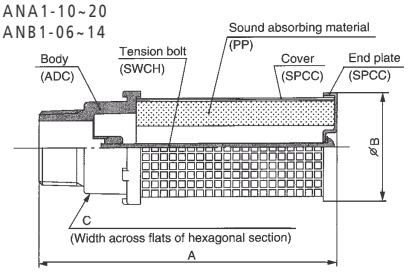
DIMENSIONS

ANA1-01~06
ANB1-01~04



※ANA1-06 : PP

ANA1-10~20
ANB1-06~14



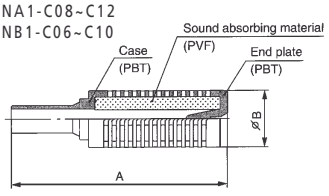
DIMENSIONS MODEL (ONE TOUCH FITTINGS CONNECTION)

Model	Applicable One Touch Fittings Size	Effective Orifice (mm²)	Weight (g)	Dimensions (mm) A	B
ANA1-C08	Ø8	11	5	58	16
ANA1-C10	Ø10	15	13	76	22
ANA1-C12	Ø12	33	19	95	25
ANB1-C06	Ø6	8	5	52	16
ANB1-C08	Ø8	13	12	73	22

Notes: •To install threaded versions screw in hand tight then wrench tighten 1/4 turn only.
•Avoid contact with solvants or corrosive gases.

DIMENSIONS

ANA1-C08~C12
ANB1-C06~C10



Exhaust Cleaner Series NAMC

Series (N)AMC Exhaust Cleaner

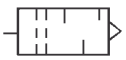
- Ensures Clean Plant Air and Noise Reduction of distributing noise contamination
- Over 35 dB Noise Reduction
- Over 99.9% Oil Mist Removal



Technical Specifications

Max Operating Temperature	60°C / 140°F
Noise Reduction	35dB or more
Oil Mist Removal	99.9% or more
Exhaust of Oil Mist	Drain cock
Option	Bracket*
*Bracket not available on NAMC810 and 910	

Symbols



How To Order NAMC Series

Model	Male					Female		
	NAMC310	NAMC510	NAMC610	NAMC810	NAMC910	NAMC220	NAMC320	NAMC520
Port Size NPT	⅜"	¾"	1	1½	2	¼"	¼•⅜"	½•¾"
Max Air Flow (Nℓ/min)	300	1,000	3,000	6,000	10,000	200	300	1,000
Effective Orifice mm² (Cv)	16 (0.88)	55 (3.1)	165 (9.2)	330 (18.3)	550 (31)	12 (0.66)	16 (0.88)	55 (3.1)
Element Model No	635321	635521	635619	635812P	635917P	63522	635321	635521
Bracket Model No	BE30	BE50	BE60	–	–	BE20	BE30	BE50

Accessories Series (N)AMC Exhaust Cleaner

Element .....See "How To Order"
Bracket .....See "How To Order"

For more technical information on this series, please consult SMC customer service

How To Order Exhaust Cleaner Series (N)AMC

(N)AMC ○○ 0 — ○○○

- ..... Japanese
N ..... North American

Body Size
2 ..... 1/4
3 ..... 3/8
5 ..... 3/4
6 1
8 ..... 1 1/2
9 2

Thread
1 ..... Male
2 ..... Female
(Only NAMC220, 320, 520 Special Order Only)

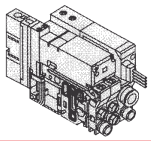
Option
B ..... Bracket
D ..... Threaded Drain Port (Female)

Port Size
02 ... 1/4
03 ... 3/8
04 ... 1/2
06 ... 3/4
10 ... 1
14 ... 1 1/2
20 ... 2

Thread
- ..... R(PT)* Remove (N) when ordering
N ..... NPT

Vacuum

	Series	Page Number
	**(N)ZH** Vacuum Ejector	6.1
	**(N)ZM** Vacuum Ejector	6.2
	**(N)ZZM** Vacuum Ejector Manifold	6.3
	**(N)ZL** Multi-Stage Vacuum Ejector	6.4
	**(N)ZFA** Air Suction Filter	6.5
	**(N)ZFB** Air Suction Filter	6.6
	**ZS** Vacuum Switch (see also Instrumentation Section Pages 7.10 to 7.14)	6.7
	**ZSM1** Vacuum Switch - Diaphragm type	6.8
	**T203** Handle-Operated Vacuum Regulator	6.9
	**ZPT** Vacuum Pads - Vertical Entry Without Buffer	6.10

	Series	Page Number
	**ZPR** Vacuum Pads - Horizontal Type Entry With Buffer / One-Touch Fittings	6.12
	**ZP** Vacuum Pads	6.16
	**ZPT/ZPX** Heavy Duty Vacuum Pads	6.17
	Vacuum Solenoid Valve Referral 3 Port & 5 Port	6.18
	**(N)AK2000** Check Valve	6.19
	**VVQ1000** Vacuum Ejector Unit For VQ1000 Series / Base-Mounted Plug-In Type	6.20
	**ZCDUK** Free Mount Cylinder For Vacuum	6.21
	**ZU** Compact Vacuum Ejector With Built-In Silencer	6.22

NZH VACUUM EJECTOR

- Box type and body ported
- 7 nozzle diameters
- Large flow type
- One touch or threaded connection
- Built–in silencer (box type only)



BOX TYPE



BODY TYPE

HOW TO ORDER NZHI VACUUM EJECTOR

(N)ZHI ○ ○ ○ — ○ — ○ — ○

MODEL
N .....Canada, USA
- .....Other (PT)

NOZZLE DIAMETER
05 ...0.5mm
07 ...0.7mm
10 ...1.0mm
13 ...1.3mm

TYPE
B .....Box type
D .....Body type

VACUUM PRESSURE
S .....660mm Hg
L .....360mm Hg

INLET PORT
06 ...6mm Tube
08 ...8mm Tube
01 ...Rc1/8
07 ...1/4 Tube
09 ...5/16 Tube
T01 ...1/8NPT

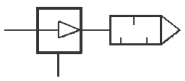
VACUUM PORT
06 ...6mm Tube
08 ...8mm Tube
01 ...Rc⅛
02 ...Rc¼
07 ...1/4 Tube
11 ...3/8 Tube
T01 ...1/8NPT
T02 ...1/4NPT

EXHAUST PORT (BODY TYPE ONLY)
06 ...6mm Tube
08 ...8mm Tube
10 ...10mm Tube
01 ...Rc⅛
02 ...Rc¼
07 ...1/4
09 ...5/16
11 ...3/8 Tube
T01 ...1/8NPT
T02 ...1/4NPT

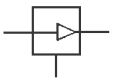
TECHNICAL SPECIFICATIONS

Fluid	Air
Operating Pressure Range	2.5~6 Bar / 37~90PSI
Max Operating Pressure	7 Bar / 100PSI
Operating Temperature Range	5 ~ 60°C / 40~140°F
Lubrication	Forbidden

SYMBOLS



Box type
(Built-in silencer)
ZHOOB



Body ported type
(Without silencer)
ZHOOD

DIMENSIONS
MAXIMUM SUCTION FLOW RATE/ AIR CONSUMPTION UNIT (ℓn/min)

Specifications	Max Vacuum Pressure* mmHg (Torr)	Nozzle Diameter mmø 0.5	0.7	1.0	1.3
Max Suction Flow Rate	S Type – 660 (100)	5	12	24	40
	L Type - 360 (400)	8	20	34	70
	L Type - 400 (400)	/	/	/	/
Air Consumption	S Type - 660 (100)	10	20	34	68
	L Type - 360 (400)	10	20	34	68

*Vacuum pressure is quoted as mmHg below atmospheric (Torr Absolute)
1 Torr = 0.0197PSI

HOW TO ORDER ZH VACUUM EJECTOR

ZH ○ D ○ — ○ — ○ — ○

NOZZLE DIAMETER
15 ...ø1.5mm
18 ...ø1.8mm
20 ...ø2 mm

TYPE
Body Ported

VACUUM PRESSURE
S .....660mm Hg
L .....400mm Hg

INLET PORT
10 ...10mm Tube
12 ...12mm Tube
02 ...Rc1/4
03 ...Rc3/8
T02 ...1/4NPTF
T03 ...3/8NPTF

VACUUM PORT
10 ...10mm Tube
12 ...12mm Tube
16 ...16mm Tube
03 ...Rc3/8
04 ...Rc1/2
T03 ...3/8NPTF
T04 ...1/2NPTF

EXHAUST PORT
12 ...12mm Tube
16 ...16mm Tube
03 ...Rc3/8
04 ...Rc1/2
T03 ...3/8NPTF
T04 ...1/2NPTF

DIMENSIONS
MAXIMUM SUCTION FLOW RATE/ AIR CONSUMPTION UNIT (ℓn/min)

Specifications	Max Vacuum Pressure mmHg (Torr)	Nozzle Diameter mmø 1.5	1.8	2.0
Max Suction Flow Rate SCFM (ℓn/min)	S Type - 26" (6600)	55	65	85
	L Type - 16" (400)	75	110	135
Air Consumption SCFM (ℓn/min)	S Type - 26" (660)	95	130	175
	L Type - 16" (400)	95	130	175

1 Torr = 0.0197PSI

For more Dimensions and Technical Information, please refer to CAT:E804 and N400

VACUUM EJECTOR SERIES NZM

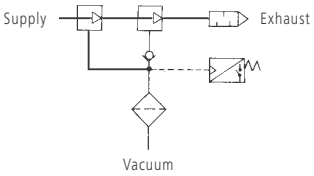
- All in one vacuum system
- Two stage nozzle design
- Suction flow rate 40% higher than traditional designs
- Silencer and suction filter
- Optional air supply and vacuum release valve
- Optional diaphragm or solid state vacuum switch
- Manifold mountable version



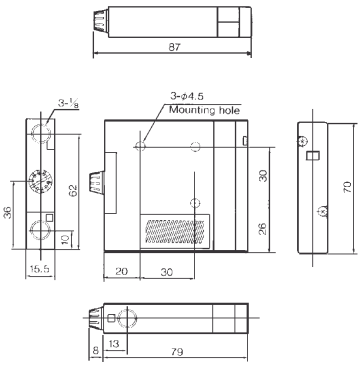
TECHNICAL SPECIFICATIONS

Fluid	Air
Max Operating Pressure	7 Bar / 100PSI
Operating Pressure	2 ~ 5.5 Bar / 30~80PSI
Operating Temperature	5 ~ 50°C (with valve) 40~120°F
	5 ~ 60°C (w/o valve) 40~140°F
Operating Valve (Air Supply & Release Valve)	Main: Poppet Valve
	Pilot: VJ114
Switch	Solid State Type ZSE1-0•••
	Diaphragm State Type ZSM1-0•••
Suction Filter	30µm PE (Polyethylene)
Lubrication	Forbidden
Solenoid Supply	24V DC

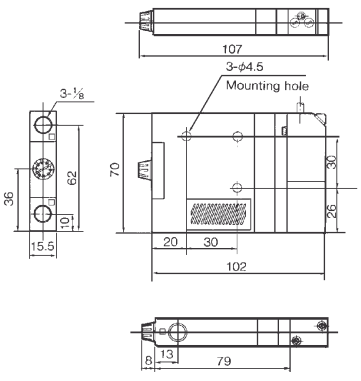
SYMBOLS



DIMENSIONS BASIC TYPE



DIMENSIONS WITH VACUUM SWITCH



HOW TO ORDER (N)ZM VACUUM EJECTOR

(N)ZM ○ ○ ○ ○ — ○

NOZZLE DIAMETER
05 ...0.5mm
07 ...0.7mm
10 ...1.0mm
13 ...1.3mm

TYPE
2 .....Body Ported
4 .....Manifold Type-Common SUP
6 .....Manifold Type-Individual SUP

SUPPLY PRESSURE
H .....5 Bar
M .....3.5 Bar

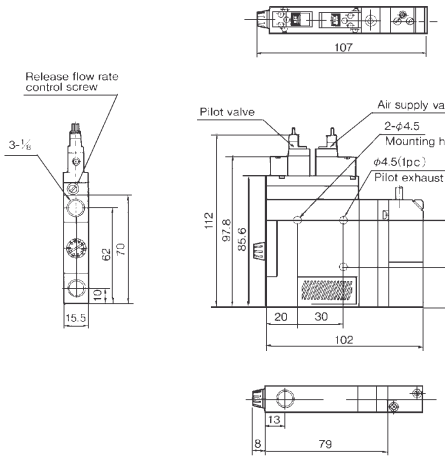
PORT THREAD
Nil ...PT* Remove (N) when ordering
T .....NPTF

SWITCHES
Nil ...Without
E15L Solid State (NPN)
E55L Solid State (PNP)
M21L Reed
M15L Non-contact

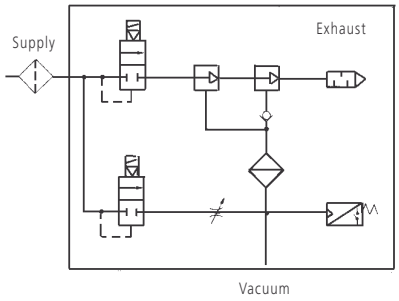
Model	Standard Supply Pressure	Max. Vacuum Pressure	Max. Suction Flow	Air Consumption
NZM05•H	5Kgf/cm²/ 75PSI	–630mmHg	18	12
NZM07•H	5Kgf/cm²/ 75PSI	–630mmHg	24	23
NZM10•H	5Kgf/cm²/ 75PSI	–630mmHg	36	46
NZM13•H	5Kgf/cm²/ 75PSI	–630mmHg	40	95
NZM07•M	3.5Kgf/cm²/ 50PSI	–630mmHg	20	16
NZM10•M	3.5Kgf/cm²/ 50PSI	–630mmHg	26	32
NZM13•M	3.5Kgf/cm²/ 50PSI	–630mmHg	36	70

VACUUM EJECTOR SERIES NZM

DIMENSIONS
WITH VALVE AND VACUUM SWITCH



SYSTEM CIRCUIT



HOW TO ORDER
NZM VACUUM EJECTOR WITH VALVES AND SWITCH

(N)ZM ○ ○ ○ H–K5LZ — ○

NOZZLE DIAMETER
05 ...0.5mm
07 ...0.7mm
10 ...1.0mm
13 ...1.3mm

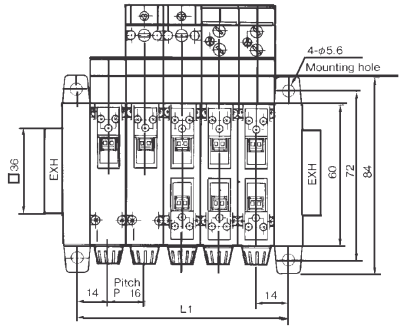
VOLTAGE
5 .....24VDC
6 .....12VDC

VACUUM SWITCH
Nil ...Without
E15L Solid State (NPN)
E55L Solid State (PNP)
M21L Reed
M15L Non-Contact

PORT THREAD
Nil ...PT* Remove (N) when ordering
T .....NPTF

TYPE
1 .....Body Ported
3 .....Manifold Type - Common SUP
5 .....Manifold Type - Individual SUP

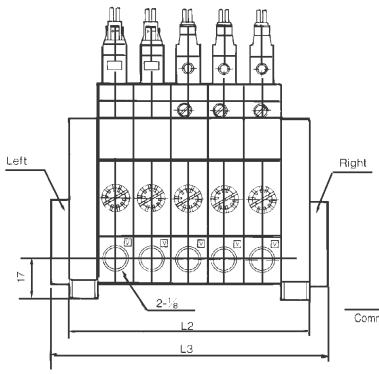
DIMENSIONS
NZM VACUUM EJECTOR MANIFOLD

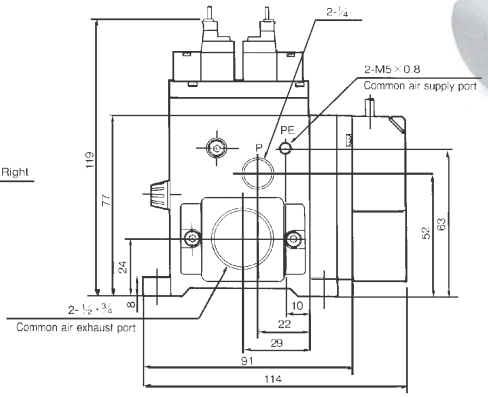


SERIES NZM VACUUM EJECTOR MANIFOLD

- 1 – 10 Stations
- Common supply and exhaust
- Maintenance and adjustment is possible without disassembly of the manifold







Fitted with an Optional Silencer Series NAN: see section Air Preparation Accessories

n	1	2	3	4	5	6	7	8	9	10
L1	28	44	60	76	92	108	124	140	156	172
L2	40	56	72	88	104	120	136	152	168	184
L3	50	72	88	104	120	136	168	168	184	200

HOW TO ORDER
NZM VACUUM EJECTOR MANIFOLD

(N)ZZM ○ — ○ ○ B

NUMBER OF STATIONS
01 ... 1 Station
02 ... 2 Stations
to
10 ... 10 Stations

EXHAUST PORT
04 ... 1/2
06 ... 3/4

PORT THREAD
Nil ...PT* Remove (N) when ordering
T .....NPTF

EXHAUST ADAPTOR LOCATION
B .....Both Ends

MULTISTAGE VACUUM EJECTOR SERIES (N)ZL

- Three stage defuser system - for high flow, low air consumption and energy saving
- Compact design - aesthetic appearance, easy to locate
- Free Mount type - mounting from three sides possible
- Built-in One-touch Fittings - for easy piping
- Built-in Silencer and Suction Filter
- Optional Vacuum Pressure Switch or Gauge



TECHNICAL SPECIFICATIONS

Model	(N)ZL112	(N)ZL112-G	(N)ZL112-E□	(N)ZL212
Nozzle Diameter	Ø1.2mm			ø1.2mm x 2
Max Suction Flow	100 l/m (ANR)			200 l/m (ANR)
Air Consumption	63 l/m (ANR)			126 l/m (ANR)
Max Vacuum Pressure	-84kPa (-12PSI)			-12PSI
Max Operating Pressure	0.7MPa / 100PSI			100PSI
Supply Pressure Range	0.2 ~ 0.5MPa / 30 ~ 75PSI			30 ~ 75 PSI
Standard Supply Pressure	0.4MPa / 160PSI			160PSI
Operating Temperature Range	5 ~ 50°C / 40~120PSI			40~120 PSI
Option	Vacuum pressure gauge, Vacuum pressure switch			

OPTION SPECIFICATIONS
VACUUM PRESSURE GAUGE SPECIFICATIONS

Model	GZ30S
Fluid	Air
Pressure range	-100 ~ 100kPa / -15~15PSI
Scale angle	230°
Accuracy	±3% F.S. (Full Span)
Class	Class 3
Operating temperature range	0 ~ 50°C / 32~120°F
Material	Case: Polycarbonate/ABS resin

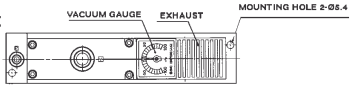
OPTION SPECIFICATIONS
VACUUM PRESSURE DIGITAL SWITCH SPECIFICATIONS

Model	ZSE4-00-25(L)-X105	ZSE4-00-26(L)-X105
Output Specification	1 output, NPN open collector 30V 80mA	1~5V ±5% FS load impedence 1kΩ
Fluid	Air	
Setting PressureRange	0~-101kPa, -760mmHg, -14.7PSI, 1.01bar	
Min Display Unit	1kPa, 5mmHg, 0.1PSI, 0.01 bar	
Hysteresis	Hysteresis modo, wind comparator modo	
Temperature Specification	±3%F.S. (Full span) or less	
Repeatability	±1% or less	
Power supply	DC12~24V (Ripple ±10%or less)	
Indicator light	Light at ON Switch output 1 : Green	Light at ON : Green
Current consumption	25mA or less	
Error indicator	Red indicator light flashes / LCD error message	
Max. operating pressure	200kPa / 130PSI	
Operating temperature range	0~50°C / 32~120°F	
Electrical entry	Grommet Oil proof vinyl cabtire cable gray Ø3.4 0.2mm²	

DIMENSIONS

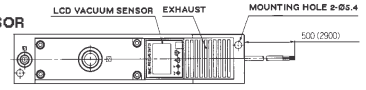
WITH VACUUM GAUGE

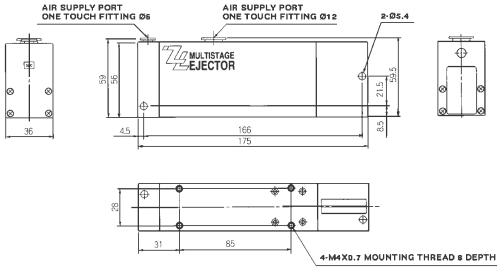
ZL112-G



WITH LCD VACUUM SENSOR

ZL112-E□





HOW TO ORDER
MULTISTAGE VACUUM EJECTOR SERIES NZL

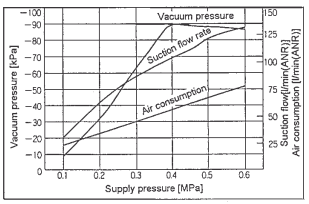
(N)ZL112 — ○ ○

MODEL
1 .....NZL112
2 .....NZL212

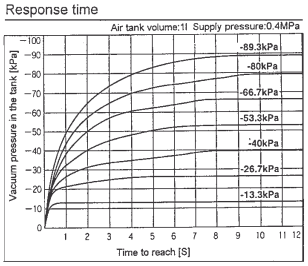
SWITCH & WIRING SPECS (E OPTION ONLY)
25L ...3 wire LCD/Non Analog Output NPN
26L ...3 wire Analog Output (1 ~ 5V)
65L ...3 Wire LCD/Non Analog Output PNP

GAUGE & SWITCH OPTION
- .....No gauge or switch option
G .....With vacuum pressure gauge
E .....With vacuum pressure digital switch

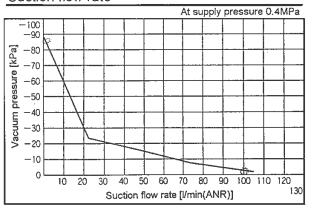
Ejector Characteristics



Response time



Suction flow rate



AIR SUCTION FILTER SERIE NZFA

NZFA AIR SUCTION FILTER

- Compact and lightweight
- Protects vacuum equipment
- Large filtration area
- Easy replacement of element

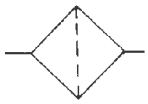


TECHNICAL SPECIFICATIONS

Fluid	Air, Dry Nitrogen
Operating Pressure Range	Negative Pressure
Proof Pressure	5 Bar / 75PSI
Operating Temperature Range	5 ~ 60°C / 40~140°F
Filtration	30μm
Element Proof Differential Pressure	1.5 Bar / 20PSI

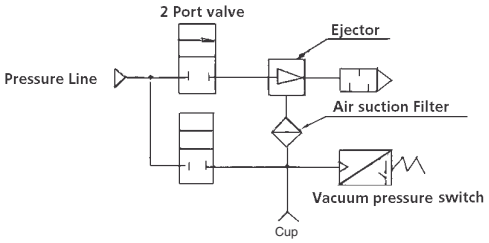
Model	Port Size	Recommendable Air Flow ℓ_n/min
NZFA100-T01	1/8	50
NZFA200-T02	1/4	200

SYMBOLS

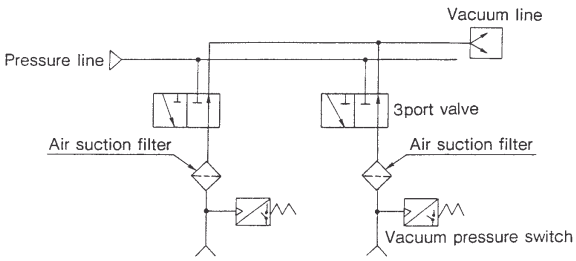


APPLICATION TO EJECTOR SYSTEM

Install to protect vacuum equipment, avoid reverse positive pressure blow.



DIMENSIONS APPLICATION TO VACUUM PUMP SYSTEM



HOW TO ORDER (N)ZFA AIR SUCTION FILTER

(N)ZFA ○ — ○ ○ ○

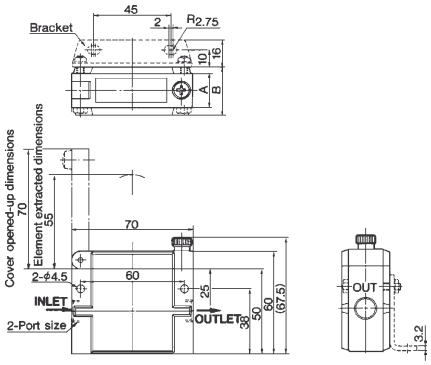
TYPE
100 ...500Nℓ/Min
200 ...200Nℓ/Min

PORT THREAD
Nil ...PT* Remove N when ordering
F .....PF* Remove N when ordering
T .....NPTF

PORT SIZE
01 ...1/8
02 ...1/4

ACCESSORIES
N .....None
L .....With Bracket -Left
R .....With Bracket -Right

DIMENSIONS (N)ZFA AIR SUCTION FILTER



Model	Port Size	A	B
(N)ZFA100-01	1/8	8	18
(N)ZFA200-02	1/4	20	28

ELEMENT
EJ001H-030N (100 Series)
EJ101H-030N (200 Series)

BRACKET
BP-1H

AIR SUCTION FILTER SERIES NZFB

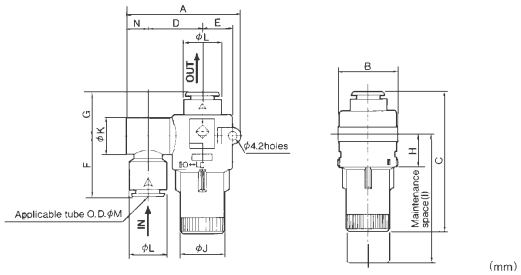


- Built-in one-touch fittings
- Tubing can be installed through 360°
- Compact and light weight
- Simple element change

TECHNICAL SPECIFICATIONS

Fluid	Air, dry nitrogen
Operating Pressure	Negative pressure
Proof Pressure	5 Bar / 75PSI
Temperature Range	0~60°C (No freezing) / 32~140°F
Filtration	30 μm
Element Proof DP	1.5 Bar / 24PSI
Applicable Tube Material	Nylon, Soft Nylon, Polyurethane

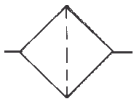
DIMENSIONS
AIR SUCTION FILTER SERIES NZFB



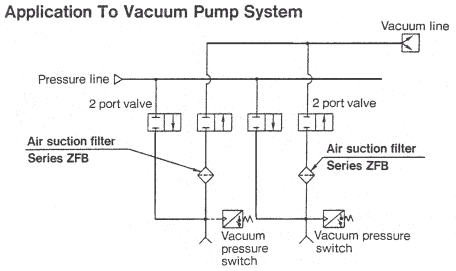
(mm)

	Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N
MM size	ZFB100-04	48	26	53	22.5	12.5	24	17.5	15	50	15.5	14.4	12.8	4	8.5
	ZFB100-06													6	
	ZFB200-06	52	28	65	24.5	13.5	27	19.5	16	61	17.5	16.6	15.2	6	9.5
	ZFB200-08													8	
	ZFB300-08	57	30	69.5	27	14.5	29.5	21	17	65	21.5	18	18.5	8	11
	ZFB300-10													10	
Inch size	(N)ZFB101-05	48	26	53	22.5	12.5	24	17.5	15	50	15.5	14.4	12.8	3/16"	8.5
	(N)ZFB101-07			54			24.2	17.7						1/4"	
	(N)ZFB201-07	52	28	65	24.5	13.5	27.2	19.7	16	61	17.5	16.6	15.2	1/4"	9.5
	(N)ZFB301-11	57	30	70	27	14.5	30.2	21.7	17	65	21.5	8	18.5	3/8"	11
	(N)ZFB401-13	64.5	34	87.5	30.5	16.5	34	24	21.5	81	25.6	23	21.7	1/2"	13.5

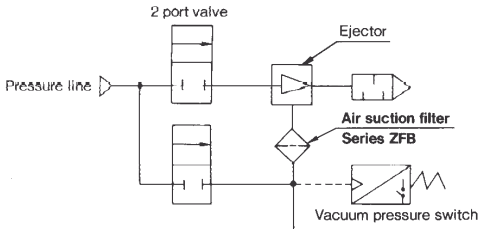
SYMBOLS



APPLICATION TO VACUUM PUMP SYSTEM



APPLICATION TO EJECTOR SYSTEM



HOW TO ORDER
AIR SUCTION FILTER SERIES (N)ZFB

(N)ZFB ○ — ○

BODY SIZE

100 ...Max 20 ℓn/min
200 ...Max 50 ℓn/min
300 ...Max 75 ℓn/min
101 ...Max 20 ℓn/min
201 ...Max 30 ℓn/min
301 ...Max 60 ℓn/min
401 ...Max100ℓn/min

TUBE SIZE ODMM

04 ...Ø4
06 ...Ø6
08 ...Ø8
10 ...Ø10
05 ...ø3/16"
07 ...ø1/4"
11 ...ø3/8"
13 ...ø1/2"

ACCESSORIES
AIR SUCTION FILTER SERIES (N)ZF1B

ELEMENT

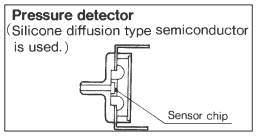
I-34S-A .....(N)ZFB100, 101
I-35S-A .....(N)ZFB200, 201
I-36S-A .....(N)ZFB300, 301
I-395-A .....(N)ZFB401

VACUUM SWITCH SERIES ZS

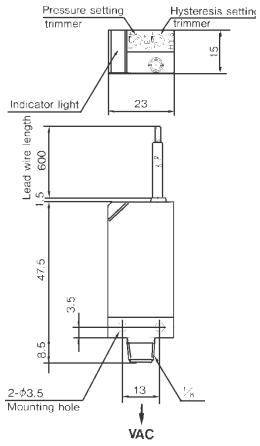
VACUUM SWITCH SERIES ZSE1

- Solid State
- Quick Response – 10 ms
- Compact Size
- Semiconductor Type Pressure Sensor
- NPN and PNP Versions





DIMENSIONS
VACUUM SWITCH SERIES ZSE1
GROMMET TYPE

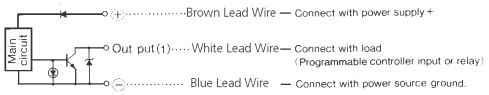


TECHNICAL SPECIFICATIONS

Fluid	Air
Setting pressure range	0~760mmHg / 0~30inHg
Hysteresis	Adjustable 1~10% of range
Accuracy	±3% F.S. (5~40°C) 40~100°F ±5% F.S. (0~60°C) 32~140°F
Supply voltage	12~24VDC (Ripple ±10% or less)
Output	Open collector (NPN/PNP) 30V Max. 80mA
Trimmer adjustment	200°
Indicator light	Lighting under ON condition
Power consumption	17mA 24VDC (under ON condition)
Max. pressure	2 Bar / 28PSI
Temperature range	0 ~ 60°C / 32~140°F

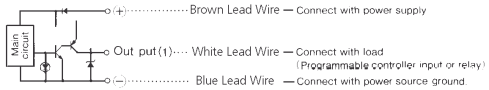
CIRCUIT
ZSE1

Switch Type 15L



ZSE1-••-55

Switch Type 55L



HOW TO ORDER
VACUUM SWITCH SERIES ZSE1

ZSE1 — ○ — ○ L

CONNECTION
00 ...NZM Ejector Mounting
01 ...1/8 PT
T1 ...1/8 NPTF

ELECTRICAL ENTRY
- .....Grommet (24")
L .....Grommet (120")
C .....w/Plug Connector (24")
CL ...w/Plug Connector (120")
CN ...Plug Type (w/o Lead)

SWITCH TYPE
14 ...Solid State (NPN)
15 ...Solid State (NPN)
16 ...Solid State (NPN)
17 ...Solid State (NPN)
18 ...Solid State (NPN)
19 ...Solid State (NPN)
55 ...Solid State (PNP)

ACCESSORIES
VACUUM SWITCH SERIES ZS

Interface plate for ZM Ejector
P31806-01 .....(blank)
P31806-02 .....(use with switch)

VACUUM SWITCH SERIES ZSM1 DIAPHRAGM TYPE



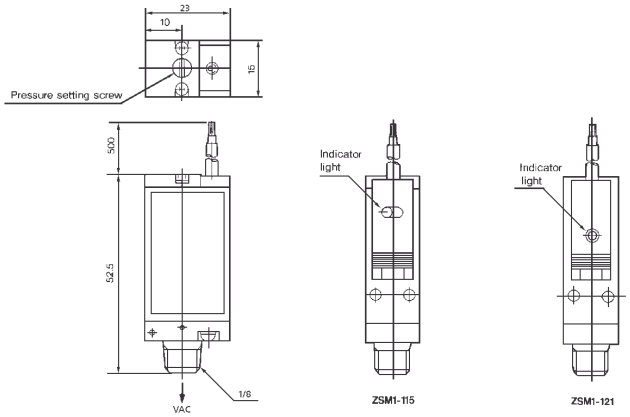
ZSM1 (VACUUM EJECTOR TYPE)

- 100 ms Response Time
- Compact Size

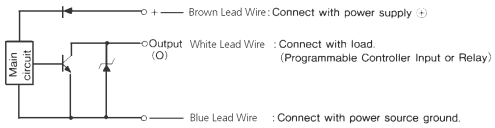
TECHNICAL SPECIFICATIONS

Model	ZSM1-115	ZSM1-121
Electrical switch type	Solid state NPN	Contact (reed switch)
Fluid	Air, Inert gases	
Max. pressure	5 Bar / 75PSI	
Setting pressure range	- 200 ~ - 600mmHg -8 ~ 26inHg	
Adustment screw	Range = 18 turns	
Max. hysteresis	110mmHg	150mmHg
Temperature range	5 ~ 60°C / 40~140°F	
Supply voltage	10 ~ 26VDC	100VAC
Indicator light	Lighting under ON condition (LED)	
Wire	3wire	2wire
Port size	⅛ (Male)	

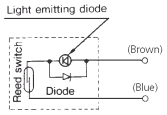
DIMENSIONS
VACUUM SWITCH SERIES ZSM1 (THREADED TYPE)



CIRCUIT
ZSM1-115



ZSM1-121



HOW TO ORDER
VACUUM SWITCH SERIES ZSM1

ZSM1 —

CONNECTION
0 .....NZM Ejector Mounting
1 .....⅛ PT
T1 ...1/8 NPTF

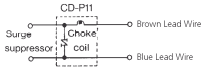
SWITCH TYPE
15L ...Solid state (NPN)
21L ...Contact reed

ACCESSORIES
CONTACT PROTECTION BOX

Diaphragm type switches have no built-in contact protection circuit. Use this box for induction load, 5m or more lead wire length and 100V AC.



CONTACT PROTECTION BOX/INTERNAL CIRCUIT



ACCESSORIES
VACUUM SWITCH SERIES ZSE1

Interface plate for ZSM Ejector
P31806-01 .....(blank)
P31806-02 .....(use with switch)
CD-P11 .....Contact protection box

FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT REQUEST CATALOG REFERENCE
E802 & N400

HANDLE OPERATED VACUUM REGULATOR SERIES T203

- A vacuum regulator, installed after a vacuum pump, which regulates vacuum at any level

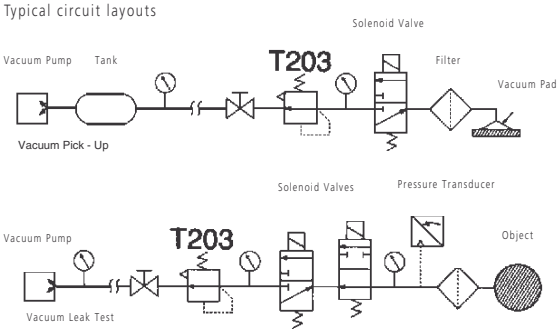


TECHNICAL SPECIFICATIONS

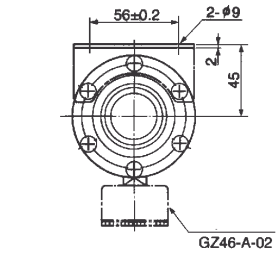
Setting vacuum	10~750 Torr (mmHg)
Sensitivity	1 Torr (mmHg)
Repeatability	±3 Torr (mmHg)
Max. flow rate	120 Nl/min
Weight	520gf
Operating temperature	-5~+60°C / 23~140°F
Connection port	Rc ¼, Rc ⅜

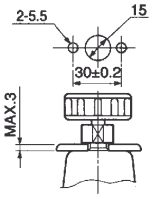
TECHNICAL SPECIFICATIONS

Typical circuit layouts

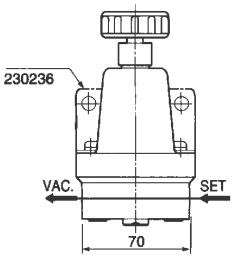


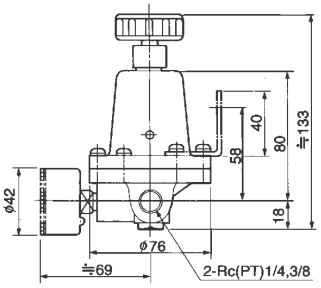
DIMENSIONS VACUUM REGULATOR





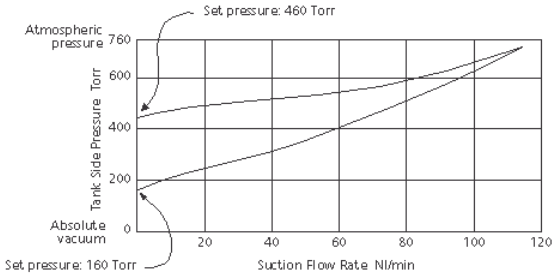
T203-1-0*-X2
Panel Mount Type





T203-1-0*

FLOW CHARACTERISTICS



ACCESSORIES T203

Bracket 230236
Gauge (Scale in mmHg) GZ46-A-02

HOW TO ORDER VACUUM REGULATOR SERIES T203

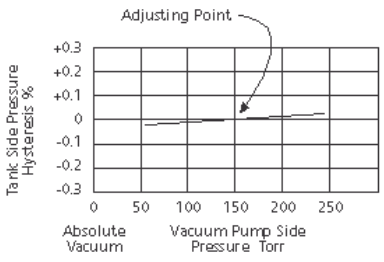
T203 — 1 — ○ ○ — ○

PORT SIZE
02 ...1/4
03 ...3/8

OPTION
Nil ...None
B ..... With Bracket
G .....With Gauge

PANEL MOUNT OPTION
Nil ...Standard
X2 ...Panel Mount Option

PRESSURE CHARACTERISTICS



Set Vacuum Pressure: 150Torr

ZPT VACUUM PADS
VERTICAL ENTRY WITHOUT BUFFER

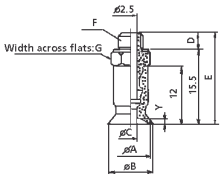


TECHNICAL SPECIFICATIONS

Vacuum Entry	Vertical type
Mounting	Use connection for vacuum entry

Pad Type	Flat type	Flat with rib	Deep type
Pad Dia (mm)	2, 4, 6, 8, 10, 13, 16, 20, 25, 32, 40, 50	10, 13, 16, 20, 25, 32, 40, 50	10, 16, 25, 40
Material (Color)	NBR (Black)		
Hardness	50° shore		

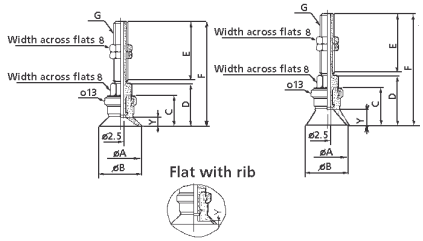
DIMENSIONS
PAD DIAMETERS Ø2, Ø4, Ø6, Ø8



FLAT TYPE

Model	ØA	ØB	ØC	F:M5x0.8			F:M6x1			Y
				D	E	G	D	E	G	
ZPT02U	2	2.6	1.2	3	19	7	4	20	8	0.8
ZPT04U	4	4.8	1.6							
ZPT06U	6	7	2.5							1
ZPT08U	8	9								

DIMENSIONS
PAD DIAMETERS Ø10, Ø13, Ø16



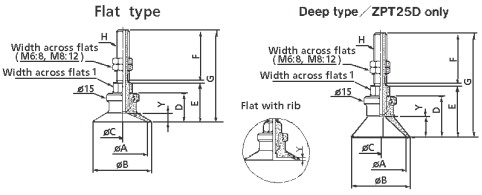
FLAT TYPE - FLAT WITH RIB

Model	ØA	ØB	C	D	G:M5x0.8		G:M6x1		Y	
					E	F	E	F	Flat	Flat with rib
ZPT10U	10	12	12	17	20	38	25	43	3	1.7
ZPT13U	13	15	12	17	20	38	25	43	3	1.8
ZPT16U	16	18	12.5	17.5	20	38.5	25	43.5	3.5	1.2

DEEP TYPE

Model	ØA	ØB	C	D	G:M5x0.8		G:M6x1		Y
					E	F	E	F	
ZPT10D	10	12	15	20	20	41	25	46	6
ZPT16D	16	18	16	21	20	42	25	47	7

DIMENSIONS
PAD DIAMETERS Ø20, Ø25, Ø32



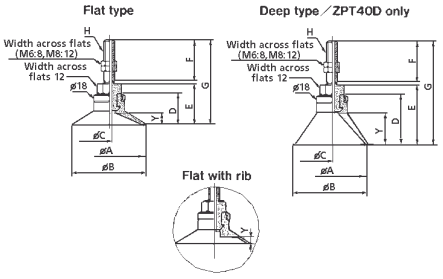
FLAT TYPE - FLAT WITH RIB

Model	ØA	ØB	D	H : M6x1					H : M8x1					Y	
				ØC	E	F	G	I	ØC	E	F	G	I	Flat	Flat with rib
ZPT20U	20	23	14	3	19	25	45	8	3.5	24	15	40	12	4	1.7
ZPT25U	25	28	14	3	19	25	45	8	3.5	24	15	40	12	4	1.8
ZPT32U	32	35	14.5	3	19.5	25	45	8	3.5	24.5	15	40.5	12	4.5	2.3

DEEP TYPE

Model	ØA	ØB	D	H:M6x1					H:M8x1					Y
				ØA	E	F	G	I	ØC	E	F	G	I	
ZPT25D	25	28	20	3	25.5	25	51	8	3.5	30.5	15	46	12	10

DIMENSIONS
PAD DIAMETERS Ø40, Ø50



FLAT TYPE - FLAT WITH RIB

Model	ØA	ØB	D	E	H:M6x1			H:M8x1			Y	
					ØC	F	G	ØC	F	G	Flat	Flat with rib
ZPT40U	40	43	18.5	24.5	3	15	50.5	4.5	15	40.5	6.5	3.3
ZPT50U	50	53	19.5	25.5	3	15	51.5	4.5	15	41.5	7.5	3.8

DEEP TYPE

Model	ØA	ØB	D	E	H:M6x1			H:M6x1			Y
					ØC	F	G	ØC	F	G	
ZPT40D	40	43	29	35.5	3	25	61	4.5	15	51	17

HOW TO ORDER
SEE NEXT PAGE ☞

VACUUM PADS SERIES ZP

HOW TO ORDER
ZPT PAD VERTICAL TYPE WITHOUT BUFFER

ZPT ○ ○ ○ — ○

PAD DIAMETER
02 ...Ø2
04 ...Ø4
06 ...Ø6
08 ...Ø8
10 ...Ø10
13 ...Ø13
16 ...Ø16
20 ...Ø20
25 ...Ø25
32 ...Ø32
40 ...Ø40
50 ...Ø50

PAD MATERIAL
N .....Nitrile rubber (standard)
S .....Silicon rubber
U .....Urethane
F .....Fluorine rubber
GN ...Anti-static Nitrile rubber
GS ...Anti-static Silicon rubber

PAD TYPE
U .....Flat
C .....Flat with Rib (Not ø2,4,6,8)
D .....Deep (ø10,16,25,40)
B .....Bellows (Not ø2,4)

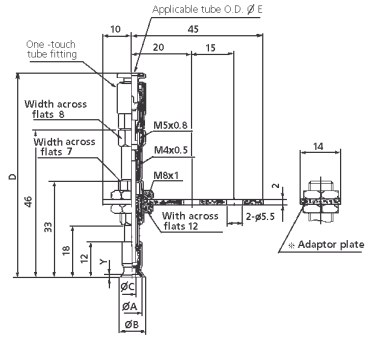
VACUUM ENTRY (ALSO MOUNTING THREAD DIA)

	Symbol	Thread Diameter	ø2~ø8	ø10~ø16	ø20~ø32	ø40•ø50
Male Thread	A5	M5x0.8	•	•	-	-
	A6	M6x1	•	•	•	•
	A8	M8x1	-	-	•	•
Female Thread	B4	M4x0.7	•	-	-	-
	B5	M5x0.8	•	•	•	-
	B6	M6x1	-	•	•	-
	B8	M8x1.25	-	-	•	•
	B01	1/8PT	-	•	•	•

ZPT VACUUM PADS
VERTICAL ENTRY WITH BUFFER



DIMENSIONS
PAD DIAMETERS Ø2, Ø4, Ø6, Ø8

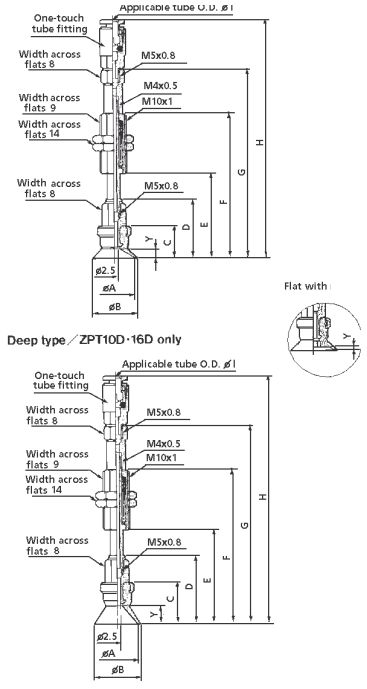


Adaptor plate: Provide as standard

FLAT TYPE

Model	ØA	ØB	ØC	E:M3x0.5		E:M5x0.8		Y
				D	F	D	F	
ZPT02U	2	2.6	1.2	3	6	5	8	0.8
ZPT04U	4	4.8	1.6	3	6	5	8	0.8
ZPT06U	6	7	2.5	3	6	5	8	0.8
ZPT08U	8	9	2.5	3	6	5	8	1

DIMENSIONS
PAD DIAMETERS Ø10, Ø13, Ø16



TECHNICAL SPECIFICATIONS

Vacuum entry	Vertical type
Buffer type	Non-rotation type (K)
Buffer stroke	For Ø2~Ø8....6mm
	For Ø10~Ø50....10mm

Pad type	Flat type	Flat with rib	Deep type
Pad dia. (mm)	2, 4, 6, 8, 10, 13, 16, 20, 25, 32, 40, 50	10, 13, 16, 20, 25, 32, 40, 50	10, 16, 25, 40
Material (colour)	NBR (Black)		
Hardness	50° shore		

SPRING FORCE (N)

Pad dia. (mm)	0 stroke	Stroke end
Ø2~Ø8	0.8	1.2
Ø10~Ø32	1	3
Ø40, Ø50	2	5

HOW TO ORDER SEE NEXT PAGE ☞

FLAT TYPE - FLAT WITH RIB

Model	ØA	ØB	C	D	E	F	G	Y	
								Flat	Flat with rib
ZPT10U/C	10	12	12	21	32.5	55.5	68.5	3	1.7
ZPT13U/C	13	15	12	21	32.5	55.5	68.5	3	1.8
ZPT16U/C	16	18	12.5	21.5	33	56	69	3.5	1.2

DEEP TYPE

Model	ØA	ØB	C	D	E	F	G	Y
ZPT10D	10	12	15	24	35.5	58.5	71.5	6
ZPT16D	16	18	16	25	36.5	59.5	72.5	7

How To Order
ZPT Pad Vertical Type with Buffer

ZPT ○ ○ N ○ — ○ — ○

Pad Diameter
02 ...Ø2
04 ...Ø4
06 ...Ø6
08 ...Ø8
10 ...Ø10
13 ...Ø13
16 ...Ø16
20 ...Ø20
25 ...Ø25
32 ...Ø32
40 ...Ø40
50 ...Ø50

Pad Type
U .....Flat
C .....Flat with Rib (Not ø2,4,6,8)
D .....Deep (ø10,16,25,40)
B .....Bellows (Not ø2,4)

Pad Material
N .....Nitrile rubber (standard)
S .....Silicon rubber
U .....Urethane
F .....Fluorine rubber
GN ...Anti-static Nitrile rubber
GS ...Anti-static Silicon rubber

Mounting Thread

	Symbol	Thread dia.	Ø2~Ø8	Ø10~Ø32	Ø40~Ø50
Male thread	A8	M8X1	●		
	A10	M10X1		●	
	A14	M14X1			●

Vacuum Entry

	Symbol	Port size	Ø2~Ø8	Ø10~Ø32	Ø40~Ø50
One-touch tube fitting	04	Ø4 tube	●	●	
	06	Ø6 tube	●	●	●
	08	Ø8 tube			●

Buffer

Symbol	Stroke	Ø2~Ø8	Ø10~Ø32	Ø40~Ø50	
K6	6mm	●			Non-Rotating
K10	10mm		●	●	Non-Rotating
J6	6mm	●			With Buffer
J10	10mm		●	●	With Buffer

ZPR Vacuum Pads
Horizontal Type Vacuum Entry
With Buffer - One Touch Fitting

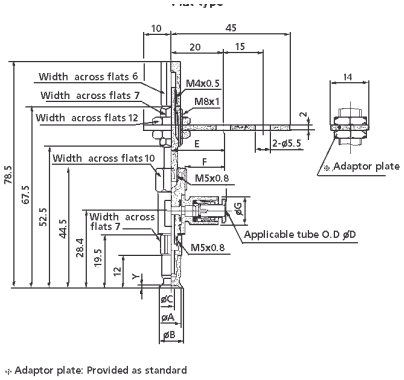


Technical Specifications

Vacuum Entry	Horizontal type
Buffer Type	Non-rotation type (K)
Buffer Stroke	For Ø2~Ø8....6mm
	For Ø10~Ø50....10mm

Pad Type	Flat type	Flat with rib	Deep type
Pad Diameter (mm)	2, 4, 6, 8, 10, 13, 16, 20, 25, 32, 40, 50	10, 13, 16, 20, 25, 32, 40, 50	10, 16, 25, 40
Material (Color)	NBR (Black)		
Hardness	50° shore		

Dimensions
Pad Diameters Ø2, Ø4, Ø6, Ø8



Adaptor plate: Provided as standard

Flat Type

Model	ØA	ØB	ØC	ØD:Ø4			ØD:Ø6			Y
				E	F	ØG	E	F	ØG	
ZPR02U	2	2.6	1.2	20.6	15.6	10.4	21.6	16.6	12.8	0.8
ZPR04U	4	4.8	1.6							0.8
ZPR06U	6	7	2.5							0.8
ZPR08U	8	9	2.5							1

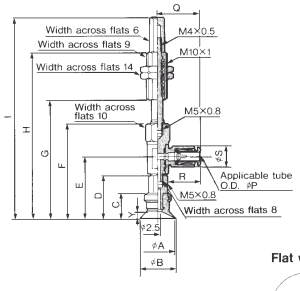
Applicable Tube

Applicable Tube O.D.	ØE
Ø4	10.4
Ø6	12.8

More Dimensions
See Next Page ☞

DIMENSIONS
PAD DIAMETERS Ø10, Ø13, Ø16

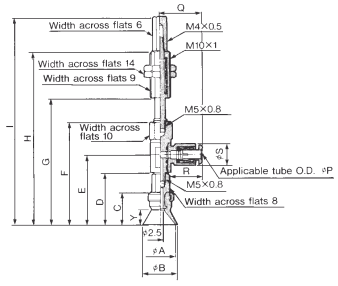
Flat type



Flat with rib



Deep type／ZPR10D·16D only



FLAT TYPE - FLAT WITH RIB

Model	ØA	ØB	C	D	E	F	G	H	I	Y	
										Flat	Flat with Rib
ZPR10U	10	12	12	21	29.9	46	57	80	91	3	1.7
ZPR13U	13	15	12	21	29.9	46	57	80	91	3	1.8
ZPR16U	16	18	12.5	21.5	30.4	46.5	57.5	80.5	91.5	3.5	1.2

DEEP TYPE

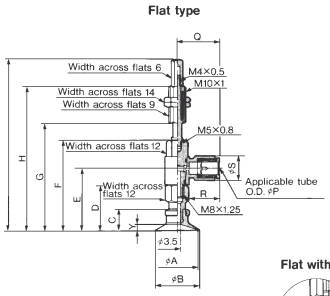
Model	A	ØB	C	D	E	F	G	H	I	Y
ZPR10D	10	12	15	24	32.9	49	60	83	94	6
ZPR16D	16	18	16	25	33.9	50	61	84	95	7

APPLICABLE TUBE

Applicable Tube O.D.	ØP	Q	R	ØS
Ø4	4	20.6	15.6	10.4
Ø6	6	21.6	16.6	12.8

DIMENSIONS
PAD DIAMETERS Ø20, Ø25, Ø32

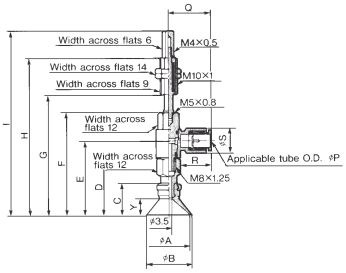
Flat type



Flat with rib



Deep type／ZPR25D only



FLAT TYPE - FLAT WITH RIB

Model	A	ØB	C	D	E	F	G	H	I	Y	
										Flat	Flat with Rib
ZPR20	20	23	14	29	39.8	57.6	68.6	91.5	102.6	4	1.7
ZPR25	25	28	14	29	39.8	57.6	68.6	91.5	102.6	4	1.8
ZPR32	32	35	14.5	29.5	40.3	58.1	69.1	92	103.1	4.5	23

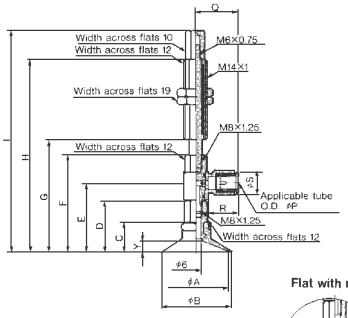
DEEP TYPE

Model	ØA	ØB	C	D	E	F	G	H	I	Y
ZPR25D	25	28	20	35	45.8	63.6	74.6	97.6	108.6	10

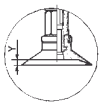
APPLICABLE TUBE

Applicable Tube OD	ØP	Q	R	ØS
Ø4	4	23.3	15.8	10.4
Ø6	6	24.3	16.8	12.8
Ø8	8	26.2	18.7	15.2

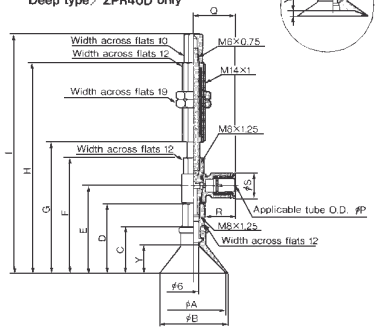
DIMENSIONS
PAD DIAMETERS Ø40, Ø50



Flat with rib



Deep type／ZPR40D only



HOW TO ORDER ZPR PAD HORIZONTAL TYPE WITH BUFFER

ZPR ○ ○ ○ ○ — ○ — ○

PAD DIAMETER

02.....Ø2　16.....Ø16
04.....Ø4　20.....Ø20
06.....Ø6　25.....Ø25
08.....Ø8　32.....Ø32
10.....Ø10　40.....Ø40
13.....Ø13　50.....Ø50

PAD TYPE

U .....Flat
C .....Flat with Rib (Not ø2,4,6,8)
D .....Deep (ø10,16,25,40)
B .....Bellows (Not ø2,4)

PAD MATERIAL

N .....Nitrile Rubber (standard)
S .....Silicon Rubber
U .....Urethane
F .....Fluorine Rubber
GN ...Anti-static Nitrile Rubber
GS ...Anti-static Silicon Rubber

BUFFER

Symbol	Stroke	Ø2~Ø8	Ø10~Ø16	Ø20~Ø32	Ø40~Ø50	
K6	6mm	●				Non-Rotating
K10	10mm		●	●	●	Non-Rotating
J6	6mm	●				With Buffer
J10	10mm		●	●	●	With Buffer

MOUNTING THREAD

	Symbol	Thread Dia	Ø2~Ø8	Ø10~Ø16	Ø20~Ø32	Ø40~Ø50
Male Thread	A8	M8X1	●			
	A10	M10X1		●	●	
	A14	M14X1				●

VACUUM ENTRY

	Symbol	Port Size	Ø2~Ø8	Ø10~Ø16	Ø20~Ø32	Ø40~Ø50
One-touch Tube Fitting	04	Ø4 Tube	●	●	●	
	06	Ø6 Tube	●	●	●	●
	08	Ø8 Tube			●	●

FLAT TYPE - FLAT WITH RIB

Model	ØA	ØB	C	D	E	F	G	H	I	Y	
										Flat	Flat with Rib
ZPR40U	40	43	18.5	32	42.8	60.6	72.6	122.6	140.6	6.5	3.3
ZPR50U	50	53	19.5	33	43.8	61.6	73.6	123.6	141.6	7.5	3.8

DEEP TYPE

Model	ØA	ØB	C	D	E	F	G	H	I	Y
ZPR40D	40	43	29	42.5	53.3	71.1	81.1	133.1	151.1	17

APPLICABLE TUBE

Applicable Tube OD	ØP	Q	R	ØS
Ø6	6	24.3	16.8	12.8
Ø8	8	26.2	18.7	15.2

ZPR VACUUM PADS
HORIZONTAL TYPE VACUUM ENTRY
WITHOUT BUFFER - ONE TOUCH FITTING

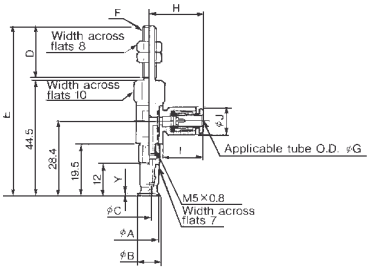


TECHNICAL SPECIFICATIONS

Vacuum Entry	Horizontal Type
Connection	With One-touch Tube Fitting

Pad Type	Flat Type	Flat with Rib	Deep Type
Pad Dia (mm)	2, 4, 6, 8, 10, 13, 16, 20, 25, 32, 40, 50	10, 13, 16, 20, 25, 32, 40, 50	10, 16, 25, 40
Material (Color)	NBR (Black)		
Hardness	50°		

DIMENSIONS
PAD DIAMETERS Ø2, Ø4, Ø6, Ø8



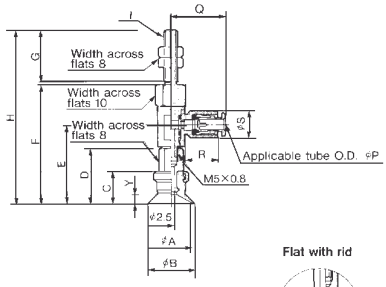
FLAT TYPE

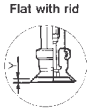
Model	ØA	ØB	ØC	F: M5X0.8		F: M6X1		Y
				D	E	D	E	
ZPR02U	2	2.6	1.2	20	65.5	25	70.5	0.8
ZPR04U	4	4.8	1.6					0.8
ZPR06U	6	7	2.5					0.8
ZPR08U	8	9	2.5					1

APPLICABLE TUBE

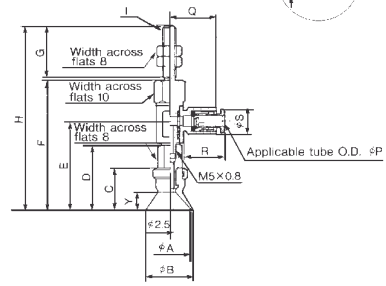
Applicable Tube OD	ØG	H	I	ØJ
Ø4	4	20.6	15.6	10.4
Ø6	6	21.6	16.68	12.88

DIMENSIONS
PAD DIAMETERS Ø10, Ø13, Ø16





Deep type／ZPR10D·16D only



FLAT TYPE - FLAT WITH RIB

Model	ØA	ØB	C	D	E	F	I: M5X0.8		I: M6X1		Y	
							G	H	G	H	Flat	Flat with rib
ZPR10U/C	10	12	12	21	29.9	46	20	67	25	72	3	1.7
ZPR13U/C	13	15	12	21	29.9	46	20	67	25	72	3	1.8
ZPR16U/C	16	18	12.5	21.5	30.4	46.5	20	67.5	25	72	3.5	1.2

DEEP TYPE

Model	ØA	ØB	C	D	E	F	I: M5X0.8		I: M6X1		Y
							G	H	G	H	
ZPR10D	10	12	15	24	32.9	49	20	70	25	75	6
ZPR16D	16	18	16	25	33.9	50	20	71	25	76	7

APPLICABLE TUBE

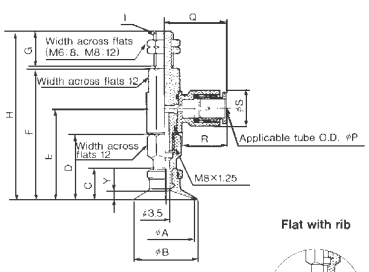
Applicable Tube OD	ØP	Q	R	ØS
Ø4	4	20.6	15.6	10.4
Ø6	6	21.6	16.6	12.8

MORE DIMENSIONS SEE NEXT PAGE ☞
HOW TO ORDER SEE NEXT PAGE ☞

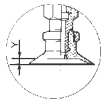
VACUUM PADS SERIES ZP

DIMENSIONS
PAD DIAMETERS Ø20, Ø25, Ø32

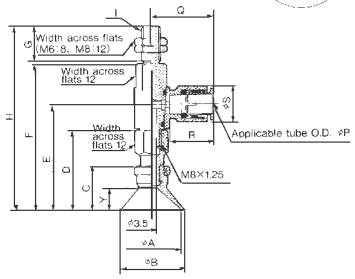
Flat type



Flat with rib



Deep type/ZPR25D only



FLAT TYPE - FLAT WITH RIB

Model	ØA	ØB	C	D	E	F	I: M6X1		I: M8X1		Y	
							G	H	G	H	Flat	Flat with rib
ZPR20U/C	20	23	14	29	39.8	57.6	25	83.5	15	73.5	4	1.7
ZPR25U/C	25	28	14	29	39.8	57.6	25	83.5	15	73.5	4	1.8
ZPR32U/C	32	35	14.5	29.5	40.3	58.1	25	84	15	74	4.5	2.3

DEEP TYPE

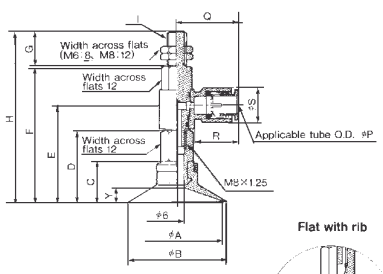
Model	ØA	ØB	C	D	E	F	I: M6X1		I: M8X1		Y
							G	H	G	H	
ZPR25D	25	28	20	35	48.5	63.6	25	89.5	15	79.5	10

APPLICABLE TUBE

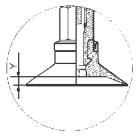
Applicable Tube OD	ØP	Q	R	ØS
Ø4	4	23.3	15.8	10.4
Ø6	6	24.3	16.8	12.8
Ø8	8	26.2	18.7	15.2

DIMENSIONS
PAD DIAMETERS Ø40, Ø50

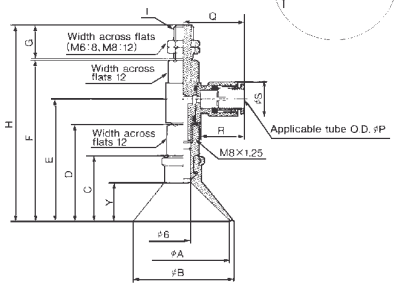
Flat type



Flat with rib



Deep type/ZPR40D only



FLAT TYPE - FLAT WITH RIB

Model	ØA	ØB	C	D	E	F	I: M6X1		I: M8X1		Y	
							G	H	G	H	Flat	Flat with rib
ZPR40U/C	40	43	18.5	32	42.8	60.6	25	86.5	15	76.5	6.5	3.3
ZPR50U/C	50	53	19.5	33	43.8	61.6	25	87.5	15	77.5	7.5	3.8

DEEP TYPE

Model	ØA	ØB	C	D	E	F	I: M6X1		I: M8X1		Y
							G	H	G	H	
ZPR40D	40	43	29	42.5	53.3	71.1	25	97	15	87	17

APPLICABLE TUBE

Applicable Tube OD	ØP	Q	R	ØS
Ø6	6	24.3	16.8	12.8
Ø8	8	26.2	18.7	15.2

HOW TO ORDER ZPR PAD HORIZONTAL TYPE WITHOUT BUFFER

ZPR ○ ○ ○ — ○ — ○

PAD DIAMETER
02 ...Ø2
04 ...Ø4
06 ...Ø6
08 ...Ø8
10 ...Ø10
13 ...Ø13
16 ...Ø16
20 ...Ø20
25 ...Ø25
32 ...Ø32
40 ...Ø40
50 ...Ø50

PAD TYPE
U .....Flat
C .....Flat with Rib (Not ø2,4,6,8)
D .....Deep (ø10,16,25,40)
B .....Bellows (Not ø2,4)

PAD MATERIAL
N .....Nitrile Rubber (Standard)
S .....Silicon Rubber
U .....Urethane
F .....Fluorine Rubber
GN ...Anti-static Nitrile Rubber
GS ...Anti-static Silicon Rubber

MOUNTING THREAD

	Symbol	Thread Dia	Ø2~Ø8	Ø10~Ø16	Ø20~Ø32	Ø40~Ø50
Male Thread	A5	M5X0.8	●	●		
	A6	M6X1	●	●	●	●
	A8	M8X1			●	●

VACUUM ENTRY

	Symbol	Port Size	Ø2~Ø8	Ø10~Ø16	Ø20~Ø32	Ø40~Ø50
One-Touch Tube Fitting	04	Ø4 tube	●	●	●	
	06	Ø6 tube	●	●	●	●
	08	Ø8 tube			●	●

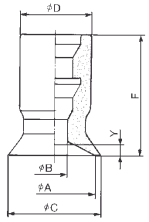
ZP SERIES VACUUM PADS

- 288 Standard Options
- 12 Diameters
- 4 Types
- 6 Materials

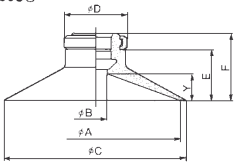


DIMENSIONS ZP VACUUM PADS

ZP02U○ ~ 08U○



ZP10U○ ~ 50U○

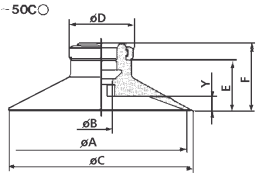


FLAT TYPE PAD

Part No	Type	ØA	ØC	ØB	D	E	F	Y
ZP02U•	U02	2	2.6	1.2	7	-	12	0.8
ZP04U•	U04	4	4.8	1.6	7	-	12	0.8
ZP06U•	U06	6	7	2.5	7	-	12	0.8
ZP08U•	U08	8	9	2.5	7	-	12	1
ZP10U•	U10	10	12	4	13	7.7	12	3
ZP13U•	U13	13	15	4	13	7.7	12	3
ZP16U•	U16	16	18	4	13	8.2	12.5	3.5
ZP20U•	U20	20	23	4	15	9.5	14	4
ZP25U•	U25	25	28	4	15	9.5	14	4
ZP32U•	U32	32	35	4	15	10	14.5	4.5
ZP40U•	U40	40	43	7	18	13.7	18.5	6.5
ZP50U•	U50	50	53	7	18	14.7	19.5	7.5

DIMENSIONS ZP VACUUM PADS

ZP10C○ ~ 50C○



FLAT TYPE PAD WITH RIB

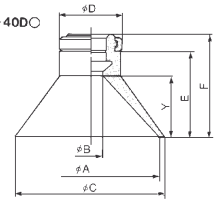
Part No	Type	ØA	ØC	ØB	ØD	E	F	Y
ZP10C•	C10	10	12	41	13	7.7	12	1.7
ZP13C•	C13	13	15	4	13	7.7	12	1.8
ZP16C•	C16	16	18	4	13	8.2	12.5	1.2
ZP20C•	C20	20	23	4	15	9.5	14	1.7
ZP25C•	C25	25	28	4	15	9.5	14	1.8
ZP32C•	C32	32	35	4	15	10	14.5	2.3
ZP40C•	C40	40	43	7	18	13.7	18.5	3.3
ZP50C•	C50	50	53	7	18	14.7	19.5	3.3

DIMENSIONS ZP VACUUM PADS

Part No	Type	ØA	ØB	ØC	ØD	E	F	ØG	ØH	Y
ZP06B	B06	6	7	2.5	7	-	13	3.3	9.1	4
ZP08B	B08	8	9	2.5	7	-	13	4.7	10.1	4
ZP10B	B10	10	12	4	13	11.7	16	5.5	13.8	5.5
ZP13B	B13	13	15	4	13	14.2	18.5	8.7	19	7.5
ZP16B	B16	16	18	4	13	15.7	20	9.9	21	8.5
ZP20B	B20	20	22	4	15	19	23.5	121.4	25	10.5
ZP25B	B25	25	27	4	15	19.5	24	15.6	28	10.5
ZP32B	B32	32	34	4	15	24.5	29	18.9	37	14
ZP40B	B40	40	43	7	18	29.2	34	24.4	48	16
ZP50B	B50	50	53	7	18	33.2	38	32.4	57	19

DIMENSIONS ZP VACUUM PADS

ZP10D○ ~ 40D○



DEEP TYPE PAD

Part No	Type	G	ØC	ØB	ØD	E	F	Y
ZP10D•	D10	10	12	4	13	10.7	15	6
ZP16D•	D16	16	18	4	13	11.7	16	7
ZP25D•	D25	25	28	4	15	15.5	20	10
ZP40D•	D40	40	43	7	18	24.2	29	17

HOW TO ORDER ZP VACUUM PADS

ZP ○ ○ ○

PAD DIAMETER

02 ...Ø2
04 ...Ø4
06 ...Ø6
08 ...Ø8
10 ...Ø10
13 ...Ø13
16 ...Ø16
20 ...Ø20
25 ...Ø25
32 ...Ø32
40 ...Ø40
50 ...Ø50

PAD MATERIAL

N .....Nitrile Rubber (Standard)
S .....Silicon Rubber
U .....Urethane
F .....Fluorine Rubber
GN ...Anti-static Nitrile Rubber
GS ...Anti-static Silicon Rubber

PAD TYPE

U .....Flat
C .....Flat with Rib (Not ø2,4,6,8)
D .....Deep (ø10,16,25,40)
B .....Bellows (Not ø2,4)

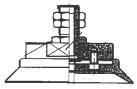
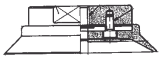
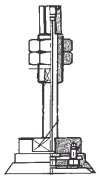
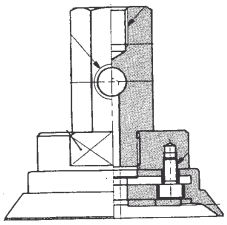
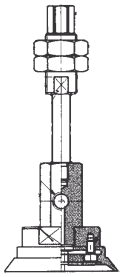
FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E807 AND N400

HEAVY DUTY VACUUM PADS SERIES ZPT/ZPX

- Wide Range of Materials: NBR, Silicon, Fluorine, Urethane, EPM
- Heavy Duty Range of Sizes from Ø40 ~ Ø125
- Choice of Mounting Styles - Orthogonal or Axial Vacuum Entry
- Optional Spring Loaded Buffer
- 4 Choices of Buffer Stroke





		Standard Type		Buffer Mount Type
ZPT	Axial Vacuum Entry			
ZPX	90° Vacuum Entry			

Buffer Stroke	Ø Pad	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125
25		•	•	•	•	•	•
50		•	•	•	•	•	•
75		•	•	•	•	•	•
100		-	-	-	-	•	•

VACUUM SOLENOID VALVE REFERRAL

This section is written to assist the selection of solenoid valves for use in vacuum applications.

BACKGROUND

Many current pneumatic "solenoid" valves are actually of solenoid-pilot construction. The solenoid does not operate directly upon the spool or poppet within the valve. What the solenoid does is open a very small pilot valve. This controls the passage of air bled from the "P" or pressure port of the valve. The main valve is pneumatically operated by this air, switched by the solenoid.

The advantages of this arrangement, using the air pressure within the valve to do the work, are dramatically reduced size and power consumption of the solenoid, and a faster response. The disadvantage is that this type of valve is incapable of operating without pressure applied – as in a vacuum system.

Also the design of spool or poppet used in a valve may rely on positive pressure for its operation. e.g. A poppet may be pushed on to a seat by positive pressure, but "lifted " back off by vacuum, resulting in a leak. For this reason internal design may preclude ostensibly suitable valves from vacuum applications.

VALVE TYPES AVAILABLE

To operate a solenoid pilot valve in a vacuum system, a separate pressure supply must be supplied to the valve to move the spool or poppet as described above. This is known as External Pilot type and can be used when a separate positive pressure supply can be provided.

The alternative option is to operate the spool directly with the solenoid – the "direct acting" type. This can be used in a pure vacuum system, when no positive pressure supply is available.

Series VT Not Available In The USA

THREE-PORT VALVES

DIRECT ACTING – VT SERIES
(SEE VALVE SECTION) VACUUM VERSION

HOW TO ORDER VT SERIES

VT3 ○ V — ○ ○ ○ — ○

SIZE
07
17
25

VOLTAGE
B ...AC24v (Not VT325v)
3 ...AC110v (Not VT325v)
5 ...DC24v
6 ...DC12v (Not VT325v)
7 ...AC230v (Not VT325v)

ELECTRICAL ENTRY
Refer to Series VT307/327

LAMP ON SURGE
Refer to series VT307/327

PORTWAY
Refer to series VT307/327

VZ100 SERIES (SEE VALVE SECTION)

External Pilot Types
VG342R (See Valve Section) VP34IR, VP54IR, VP74IR (See Valve Section)
VNB Series (See Valve Section)

HOW TO ORDER VQ BASE MOUNTED SERIES (PLUG-IN)

VQ ○ ○ 0 ○ R — ○ ○ ○

SIZE
1
2

TYPE AS STANDARD

SPOOL
0 ...Metal
1 ...Rubber

FOR EXTERNAL PILOT

AS STANDARD

FIVE-PORT VALVES

SY BODY PARTED (SEE VALVE SECTION)

HOW TO ORDER SY SERIES

SY ○ ○ 20 — ○ ○ ○ ○ — ○ — ○ — X20

SIZE
3
5
7

ENTER AS STANDARD PART
(Except DIN Electrical
Entry is not possible)

FOR EXTERNAL PILOT

HOW TO ORDER SY/SX BASE MOUNTED SERIES (TO SUIT TYPE 42 MANIFOLDS)

S ○ ○ ○ 40R — ○ ○ ○ ○ ○

SERIES
Y ...SY
X ...SX

SIZE
3
5
7

ORDER AS STANDARD TYPE

FOR EXTERNAL PILOT

ORDER AS STANDARD TYPE

CHECK VALVE SERIES NAK2000

CHECK VALVE FOR VACUUM

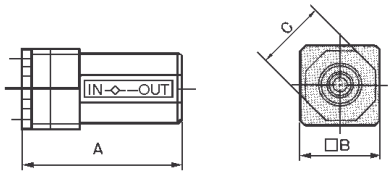
- Can be used with Vaccum Pressure -3 to -100kPa
- Low Cracking Pressure: 0.03Mpa



TECHNICAL SPECIFICATIONS (N)AK2000 SERIES

Proof Pressure		1.5MPa / 220PSI
Operating	Pressure	0.003 ~ 1MPa / 0.4 ~ 145PSI
Pressure Range	Vacuum	-3 to -100KPa / -0.4 ~ 14.5PSI
Fluid		Air
Temperature		5 ~ 60°C / 40 ~ 40°F
Port Size		Rc(PT) 1/8, 1/4
Effective Area		01: 25mm² 02: 27.5mm²

DIMENSIONS SERIES NAK



Model	Port Size NPT	A	□B	C
NAK2000-N01, 02	⅛, ¼	50	25	22
NAK4000-N02, 03, 04	¼, ⅜, ½	67	36	36
NAK6000-N06, 10	¾, 1	95	50	50

HOW TO ORDER (N)AK2000 SERIES

(N)AK ○ 000 — ○ ○

MODEL
2 .....1/4
4 .....1/2
6 1

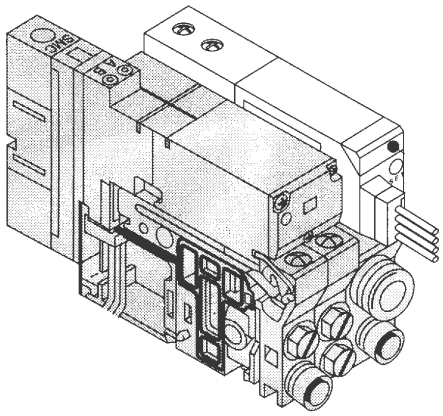
PORT THREAD
Nil ...Rc(PT)*
N .....NPT
F .....G(PF)*
* Remove N when ordering

PORT SIZE
01 ...1/8
02 ...1/4
03 ...3/8
04 ...1/2
06 ...3/4
10 ...1

FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT CONSULT SMC CUSTOMER SERVICE

VACUUM EJECTOR UNIT
VQ1000 SERIES
BASE MOUNTED, PLUG-IN TYPE

- Vacuum Ejector mounted on Manifold Base
- Avoids the requirement for Separate Valve and Vacuum Ejector
- Reduces Piping and Wiring
- Space Saving



TECHNICAL SPECIFICATIONS

Unit No.	VVQ1000-1-J A&C M	VVQ1000-1-J B&D M
Nozzle Diameter (mm)	0.7	1
Max Suction Flow Rate (Nl/min)	11	20
Max Vacuum Pressure	-630mmHg	
Max Operating Pressure	0.8MPa / 120PSI	
Standard Supply Pressure	0.5Mpa / 70PSI	
Operating Temperature	5~50°C / 40~120°F	

TECHNICAL SPECIFICATIONS EJECTOR UNITS

Max No of Units	No of Valve Stations
6	0-3
5	4-6
4	7-10
3	11-13

HOW TO ORDER VACUUM PRESSURE SWITCH

ZSE1 — 00 — ○ ○

ELECTRICAL ENTRY

Blank ...With 0.6m Grommet Lead
L .....With 3m Grommet Lead
C .....With 0.6m Connector Lead
CL.....With 3m Connector Lead
CN .....Without Connector Lead•

• When ordering switch with lead wire of 5m long, indicate both part numbers (see below).

SWITCH TYPE/VOLTAGE (SOLID STATE: 12~24VDC)

14 ...NPN/1 setting, three revolution adjustment
15 ...NPN/1 setting, 200° adjustment
16 ...NPN/2 setting, three revolution adjustment
17 ...NPN/2 setting, 200° adjustment
18 ...NPN/1 setting, three revolution adjustment, analog
19 ...NPN/1 setting, 200° adjustment, analog
55 ...PNP/1 setting, 200° adjustment

HOW TO ORDER CONNECTOR

Without lead wire (connector 1pc, socket 4pcs) ZS-20-A
With lead wire ZS-20-5A-50

LEAD WIRE

Blank 0.6m
30 ...3m
50 ...5m

HOW TO ORDER

Vacuum Ejector Unit

VVQ1000 — ○ — ○ ○ M

MANIFOLD TYPE

1 .....Plug-in Unit

NOZZLE DIAMETER & VACUUM SWITCH OPTION

A .....Ø0.7 Including Vacuum Release Valve with Vacuum Switch
B .....Ø1.0 Including Vacuum Release Valve with Vacuum Switch
C .....Ø0.7 Including Vacuum Release Valve without Vacuum Switch
D .....Ø1.0 Including Vacuum Release Valve without Vacuum Switch

HOW TO ORDER VACUUM EJECTOR VALVE

VVQ1000 — ○ — ○ ○

MANIFOLD TYPE

1 .....Plug-in Unit

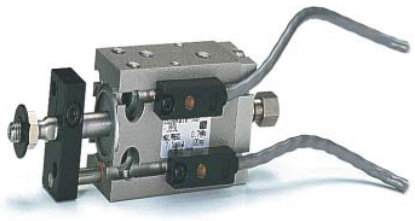
NOZZLE DIAMETER

A .....Ø0.7: With Vacuum Release Valve
B .....Ø1.0: With Vacuum Release Valve

DIMENSIONS SEE NEXT PAGE ☞

FREE MOUNT CYLINDER FOR VACUUM
SERIES ZCDUK

- Vacuum Connection through Piston Rod
- Precise and Direct Mounting
- Non-Rotating Piston Rod
- Bore Sizes Ø10~32mm
- Auto Switches Available





TECHNICAL SPECIFICATIONS

Cylinder Bore (mm)	10, 16, 20, 25, 32				
Type	Double Acting Type/Non-Rotating Piston Rod				
Fluid	Air				
Proof Pressure	1MPa / 145PSI				
Max Operating Pressure	0.7MPa / 100PSI				
Min Operating Pressure	Ø10, Ø16, - 0.7kgf/cm² / 10PSI Ø20, Ø25, Ø32 - 0.6kgf/cm² / 9PSI				
Vacuum Port Pressure	-760 mmHg ~ 6kgf/cm² / -15 ~ 90PSI				
Ambient and Fluid Temperature	5 ~ 60°C / 40 ~ 140°F				
Lubrication	Not Required				
Cushion	Both Side Rubber Cushion				
Stroke allowance	+1.0 0				
Thread tolerance	JIS 2 Class				
Rod tip screw : Yes or No	Yes, No (Pad Direct Mounting)				
Mounting	Basic Type				
Non-rotating piston rod accuracy	Ø10	Ø16	Ø20	Ø25	Ø32
	±0.8°		.±0.5°		

HOW TO ORDER SERIES ZCDUK

ZC ○ UK ○ ○ — ○ D — ○ ○

AUTOSWITCH
- ……Without
D ……With

TYPE
C ……cap mounting/Male thread
D ……Cap mounting/Pad direct mounting
Q ……Rod mounting/Male thread
R ……Rod mounting/Pad direct mounting

BORE SIZE
10 …Ø10mm
16 …Ø16mm
20 …Ø20mm
25 …Ø25mm
32 …Ø32mm

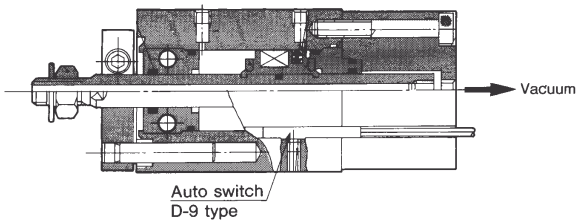
STROKE
5,10,15,20,25,30 ……Ø10,16mm only
5,10,15,20,25,30,40,50 ……Ø20,25,32mm only

AUTO SWITCHES
Reed
D-90 (DC Only)
D-97 (w/LED, DC Only)
A-90A (AC or DC)
D-93A (w/LED, AC or DC)
Solid State
D-F9N (W/LED, 3 Wire NPN)
D-F9P (W/LED, 3 Wire PNP)
D-F9B (W/LED, 2 Wire)

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



Pad direct mounting
In case of{ZC(D)UKD}



Safety Note

For cap type mounting, care should be taken not to exceed 6 bar when ejecting the workpiece

ZU VACUUM EJECTOR

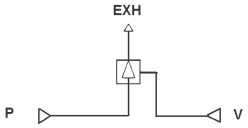
- Integrated One Touch Tube Fittings for 6mm Tube
- High Flow and High Vacuum Variants
- 2 Nozzle Sizes Available
- Standard Product is Copper Free
- Lightweight



TECHNICAL SPECIFICATIONS

Fluid	Air
Max Operating Pressure	0.7MPa / 100PSI
Ambient Temperature Range	5~60°C / 40~140°F
Tube Size	6mm
Normal Operating Pressure	0.45MPa / 65PSI

SYMBOLS



TECHNICAL SPECIFICATIONS

Model		ZU05S	ZU07S	ZU05L	ZU07L
Nozzle Diameter (mm)		0.5	0.7	0.5	0.7
Vacuum Generated	mmHg	-640	-640	-360	-360
	PSI	-12	-12	-7	-7
Suction Flow Rate	ℓ/min	7	9	10	18
Air Consumption	ℓ/min	9.5	19	9.5	19

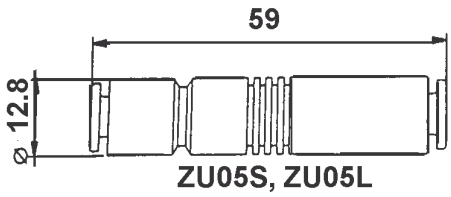
HOW TO ORDER ZU VACUUM EJECTOR

ZU ○ ○

NOZZLE DIAMETER
05 ...0.5mm
07 ...0.7mm

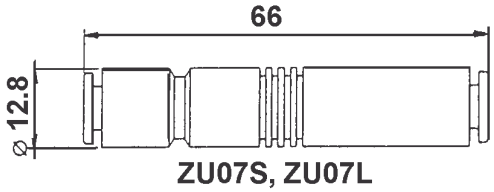
VACUUM TYPE
S .....High Vacuum Type (-640mmHg / -12PSI)
L .....Low Vacuum Type (-360mmHg / -7PSI)

DIMENSIONS SERIES ZU



ZU05S, ZU05L

APPLICABLE TUBE OD ø6



ZU07S, ZU07L

APPLICABLE TUBE OD ø6

Instrumentation

	Series	Page Number
	**IS3000** Pneumatic Pressure Switch	7.1
	**ISG** Pneumatic Pressure Switch	7.2
	**IS1000** Compact Pressure Switch : Single Contact	7.3
	**GS40** Pressure Switch With LCD Digital Display	7.4
	**PSE** Air And Liquid Pressure Switch With Separate Sensor And Indicator	7.5
	**PS1000/1100** Pressure Sensor	7.9
	**ZSE4/ISE4B** Vacuum/Pressure Switch Or Transmitter - With Backlit LCD Pressure Indication	7.10
	**ZSE4BD/ISE4BD** Water Drop Resistant Type / Digital Indication Pressure Switch	7.12
	**ZSE5/ISE5** Digital Pressure Switch For General Purpose Fluid	7.13

	Series	Page Number
	**ISA** Air Catch Sensor	7.15
	**IR2000** Precision Regulator	7.18
	**ITV2000, 3000** Electro-Pneumatic Regulator	7.20
	**VY** Electro-Pneumatic Hybrid Regulator	7.21

PNEUMATIC PRESSURE SWITCH: IS3000

- High Frequency Operation
- Long Life
- Simple Pressure Setting
- Compact and Lightweight
- Optional Neon Lamp Available



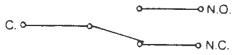
TECHNICAL SPECIFICATIONS

Item \ Model	IS3000-02	IS3100	IS3010-02	IS3110
Fluid	Air			
Proof Pressure	1000kPa			
Max Operating Pressure	800kPa			
Pressure Regulating Range	100 - 700 kPa			
Ambient & Fluid Temperatures	-5 -60°C			
Sensitivity	Within 50kPa (@ Set Pressure 100 - 500 kPa) Within 60kPa (@ Set Pressure 500 - 700 kPa)			
Repeatability	±20 kPa			
Weight	0.15kg			
Port/Connection	Rc(PT)1/4	Flange	Rc(PT)1/4	Flange
Micro Switch Type	Standard		Microload	
Minimum Applicable Load	DC 5V 160mA		DC 5V 1mA	

1KPa = 0.145PSI

WIRING

Please wire micro-switch in accordance with the molded symbols that appear beside the terminal screws.



MICRO SWITCH RATINGS

Model	IS3000								IS3010	
Load	Non Inductive Load (A)				Inductive Load (A)				Non Inductive Load	
	Resistance Load		Lighting Load*		Inductive Load		Motor Load*		Resistance Load	
Circuit / (V)	N.C.	N.O.	N.C.	N.O.	N.C.	N.O.	N.C.	N.O.	N.C.	N.O.
AC125	5		1.5	0.7	3		2.5	1.3	0.1	
AC250	3		1	0.5	2		1.5	0.8		
DC30	4		2		3		3		0.1	
DC125	0.4		0.05		0.4		0.05		–	

Insulation Resistance 100 MΩ @ 500V (DC) *High Inrush Circuits

HOW TO ORDER PNEUMATIC PRESSURE SWITCH: SERIES IS3000

IS3 ○ ○ 0 — ○ ○

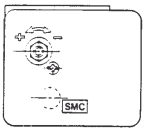
CONNECTION
0 .....Rc(PT)1/4
1 .....Flange

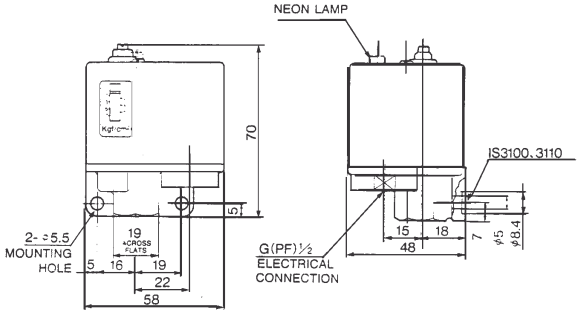
MICROSWITCH TYPE
0 .....Standard
1 .....Microload

PORT SIZE
- .....Flange Mounted
02 ...Rc(PT) 1/4
N02 ...NPT 1/4

LAMP
- .....No lamp
L1 ...Neon lamp 110vAC
L2 ...Neon lamp 220vAC
(not available for microload switches)
L5 ...LED indicator DC 24V

DIMENSIONS PNEUMATIC PRESSURE SWITCH: SERIES IS3000





PNEUMATIC PRESSURE SWITCH: SERIES ISG

- ISG Pressure Switches are widly used in industrial machines and power plant applications to give automatic pressure control
- Easy Adjustment by external wrench is provided. Pressure setting is clearly seen with the use of a scale
- High Reliability and Long Life
- Adjustable Differential



TECHNICAL SPECIFICATIONS

Fluid	Air, Non corrosive water, oil gases*
Pressure Setting Range	0.05~1MPa / 7~145PSI
Adjustable Differential	0.03~0.6MPa / 5~90PSI
Max Operating Pressure	1.5MPa / 220PSI
Electrical Contacts	1a, 1b Dual Contact
Electrical Entry	Grommet
Inlet Port Size	R ⅜ (male)
Ambient and Fluid Temp	Max 60°C / 140°F
Weight	1.3 kg

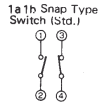
*Materials in contact with fluid, phosphor bronze/brass

SYMBOLS



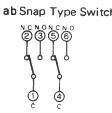
CONTACTS

1a 1b Snap Type Switch (Std.)



on rising pressure
①–②=ON
③–④=OFF

2 ab Snap Type Switch



on rising pressure
①–③ ④–⑥=ON
①–② ④–⑤=OFF

ELECTRICAL CAPACITY

Voltage	AC amps		DC amps	
	Instantaneous Peak Current	Switch Cut-off Current	Instantaneous Peak Current	Switch Cut-off Current
24	—	—	8	3
48	—	—	6	1.5
110	30	12	4	0.5
220	20	10	2	0.25
440	15	6	—	—
550	10	5	—	—

Insulation resistance 100 m.Ohm min at 500V DC
Test voltage AC 2000V for i minute

HOW TO ORDER PNEUMATIC PRESSURE SWITCH: SERIES ISG

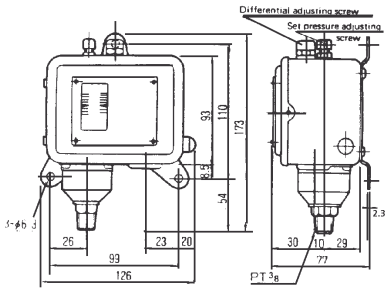
ISG130-031

FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT CONSULT SMC CUSTOMER SERVICE

DIMENSIONS

PNEUMATIC PRESSURE SWITCH: SERIES ISG

ISG110~131-031 (With differential pressure adjustment Scale)



SAFETY

- Do not set differential below the minimum specified.
- The scale is for reference use only. Use gauge for accurate setting.

Installation:

- The switch can be installed vertically or horizontally.
- Surge Absorber should be used in liquid lines to avoid pulsating pressure.
- Ensure wiring is clear of mechanism movement.
- When wiring industrial type non water proof units ensure earth wire is fitted.

COMPACT PRESSURE SWITCH: SINGLE CONTACT
SERIES IS1000

- Compact and Light Weight (50mm x 23mm x 15mm)
- Operational Pressure set made east by Scale Plate
- Shield Plate attached to prevent external magnetic interference
- Long Life



TECHNICAL SPECIFICATIONS

Model	IS1000-01
ProofPressure	1.0 MPa (145PSI)
Max Operating Pressure	0.7 MPa (100PSI)
Pressure Range: -X201	0.1~0.4 MPa (14.5~60PSI)
Pressure Range: -X215	0.15~0.6 MPa (22~90PSI)
Differential	0.08 MPA (12PSI) or less
Contact	1a single contact (low pressure, no contact)
Electrical Entry	Grommet•Lead wire length 3metre
Fluid	Air
Ambient and Fluid Temperature	5~60°C / 40~140°F
Port Size	R 1/8 (Male)

SYMBOLS



SWITCH CHARACTERISTICS

Max Contact Capacity	2V (AC), 2W (DC)		
Voltage	24V AC, DC or less	48V AC, DC	100V AC, DC
Max Operating Current	50mA	40mA	20mA
Shock Resistance	30G		
Response Time	1.2ms		

*Note. Not suitable for 240V AC

ELECTRICAL CIRCUIT

Up to 100V AC/DC



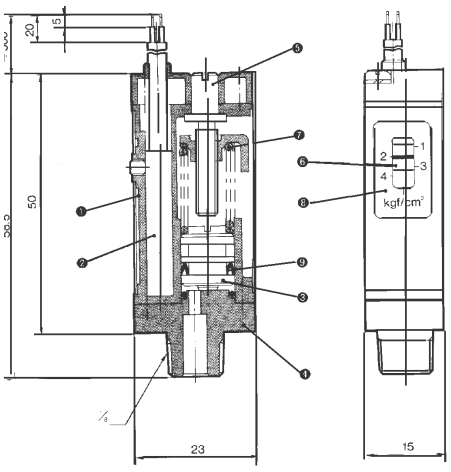
HOW TO ORDER COMPACT PRESSURE SWITCH: SERIES IS1000

IS1000 — 01 —

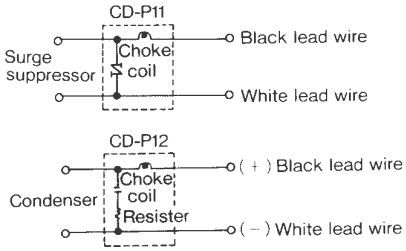
PORT THREAD
01 ...1/8 PT
N01 ...NPT1/8

	Set Pressure Range	Lead Wire Length
-X201	1~4 bar	3m
-X215	1.5~6 bar	3m

DIMENSIONS
COMPACT PRESSURE SWITCH: SERIES IS1000



CONTACTS



- When detecting ON-pressure signal, note that set pressure on scale plate plus ON-OFF differential will be ON-pressure signal.
- Don't use with corrosive fluids.
- When piping switch by hand, hold body not wires.
- Electrical wire must not be subjected to excessive force.

ACCESSORIES
COMPACT PRESSURE SWITCH: SERIES IS1000
FOR USE IF WIRING LENGTH > 5M

CD-P11 .....Contact protection box (100V AC)
CD-P12 .....Contact protection box (24V DC)

PRESSURE SWITCH WITH LCD DIGITAL DISPLAY SERIES GS40

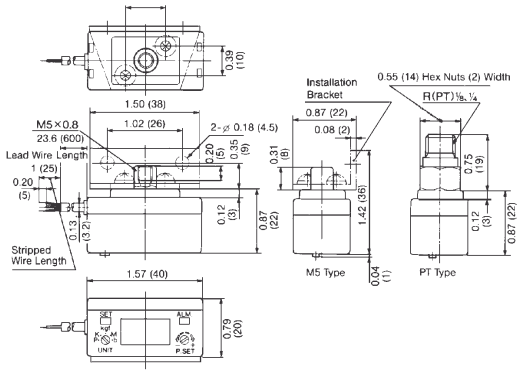
- Digital Pressure Gauge Function added to Pressure Switch
- Semi-Conductor Sensor
- High Reliability
- Easy Operation
- Low Power Consumption
- Digital Display of Low Limit during setting
- 5 Options of Displayed Pressure Unit
- Preliminary Alarm Display gives warning that pressure is within 10% of set point



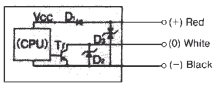
TECHNICAL SPECIFICATIONS

Fluid		Air and Insert Gas			
Differential		3% F.S (Full Span) or less			
Accuracy		±3% F.S (5~40°C) ±5% F.S (0~60°C)			
Operating Voltage		12 to 24 VDC (Ripple: +10% or less)			
Output		Open collector (NPN) 30V 80mA			
Action Indicator Light		Lighting under ON condition (ON at preset) (pressure or less)			
Current Consumption		15mA (24VDC under ON condition) or less			
Maximum Operating Pressure		145PSI (0.98 MPa)			
Operating Temperature Range		0~60°C / 32~140°F			
Sampling Frequency		4Hz			
Pressure Unit	psi	kPa	kgf/cm2	MPa	bar
Preset Pressure Range	0~142	0~975	0~9.9	0~0.98	0~9.8

DIMENSIONS PRESSURE SWITCH GS40



CIRCUIT AND ELECTRICAL CONNECTION



RED LEAD WIRE -
Connect with blue (+) side of the direct current to actuate the switch.

WHITE LEAD WIRE -
Connect with the inout terminal of the sequence controller or the DC relay or other load since this is the switch output.

BLACK LEAD WIRE -
Connects with minus (-) side of the direct current to actuate the switch.

D1 - Reverse-connection preventing diode
D2 - Surge killer (Surge absorbing diode)
D3 - Surge killer (Surge absorbing diode)
TR - Output transistor

HOW TO ORDER PRESSURE SWITCH GS40

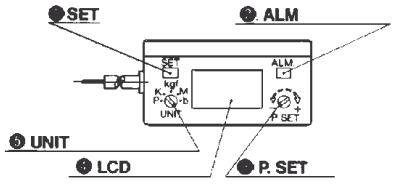
GS40-01

SETTING INSTRUCTIONS

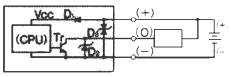
HOW TO PRESET PRESSURE SWITCH:
Keep pressing the push button (1) SET and turn the pressure set trimmer (3) P.SET and figures are shown on the pressure display board (4) LCD. (The preset pressure increases when the pressure switch is turned clockwise and it decreases when turned counterclockwise.) After presetting, return the push button (1) SET to the original place, and the pressure on the line side is shown on the pressure display board (4) LCD.

HOW TO CHANGE PRESSURE UNIT:
When the unit change switch (5) UNIT is adjusted to each position, the unit and figures of the pressure display change. P:psi, K:KPa, kgf:kgf/cm2, M:MPa, b:bar

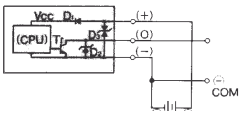
ALARM DISPLAY
When the pressure reaches within +10% of the value preset by a pressure switch value, the LCD lights to show that the pressure is approaching the preset value.
When the line pressure becomes lower than the preset pressure, the LED (red) of (2) ALM lights and the switch turns on.



WIRING EXAMPLES



WIRING EXAMPLES OF RELAY AND RESISTANCE LOAD



WIRING EXAMPLES USED WITH A SEQUENCE CONTROLLER (COM TERMINAL IS -VE)

AIR AND LIQUID PRESSURE SWITCHES WITH SEPARATE SENSOR AND INDICATOR SERIES PSE

- Compact Remote Sensors can be mounted in inaccessible areas
- Separate Indicator with Digital Readout
- Backlit Seven Segment LED Display
- Two Input Channels on Indicator – remotely selected
- Air/Gas and Liquid Sensors available
- Pre-set and Alarm Functions incorporated into Indicator
- Remote Reset Function
- Indicator Settings can be key-locked
- Vacuum Sensor Available
- Din Rail and Panel Mount Indicator Options
- Choice of Sensor Fitting Threads



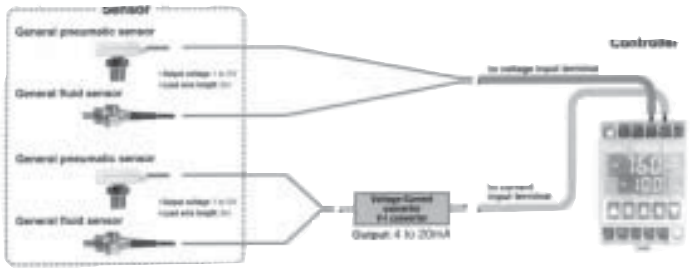
TECHNICAL SPECIFICATIONS SERIES PSE

Model No		PSE100	PSE101
Output		NPN Open Collector Max 30V 80mA	PNP Open Collector Max 80mA
Output Point		2CH x 2 output	
Source Voltage		12~24VDC (ripple 10% or less)	
Current Consumption		250mA or less	
Pressure Range Display		-99.9~10kPa (vacuum), -10~100kPa (low pressure), -0.1~1MPa (high pressure)	
Display Resolution		0.1kPa (vacuum and low pressure) 1kPa (high pressure)	
Display Unit:	Vacuum and Low Pressure	kPa, mmHg, kgf/cm², bar, 1nHg	
	High Pressure	kPa, MPa, kgf/cm², bar	
Display Specification		4 digit x 2 7 segments LED	
Sampling Frequency		4Hz	
Display Light		Green when switch output 1 Red when switch output 2	
Emergency Display		"Error" display on 7 segment LED	
Self Diagnosis Function		Excess pressure, excess current, sensor end connection, data error (All these display functions are provided)	
Additional Function		Auto preset: Single touch button setting possible with each adsorption. Auto shift: Input terminal possible with zero clearance.	
Response Frequency		100Hz (10ms)	
Operating Temperature Range		0~50°C (air should not be frozen) / 32~120°F	
Temperature	25+-10°C	+-0.3% F.S. or less	
Characteristic*	0-50°C /32~120°F	+-0.5% F.S. or less	
Repetition Accuracy		+-0.2% F.S. or less	
Noise Resistance		500Vp-p pulse width 1μs standing 1ns	
Withstand Voltage		Between whole wires and case 1000VAC 50/60Hz for one minute	
Insulation Resistance		Between whole wires and case 2MΩ (500VDC by megameter)	
Protection Class		Panel mount type: IP66, wall mount, DIN rail type: IP40	
Mounting		A: Panel mount. B: Wall mount, DIN rail	
Mass		A: Approx 90g. B: Approx 110g	
Sensor Connection	Supply Voltage	Same as Source Voltage	
	Voltage Input	1~5V (Input Impedance: 100kΩ)	
	Current Input	4~20mA (Input Impedance: 250Ω)	

* Based on 25°C (77°F)

1MPa = 145PSI

TECHNICAL SPECIFICATIONS DIGITAL PRESSURE SWITCH WITH REMOTE SENSOR DIAGRAM



When installing indicators next to each other, allow 20mm between units.
Minimum separation 65mm between centres.

HOW TO ORDER REMOTE SENSOR PRESSURE SWITCH SYSTEM

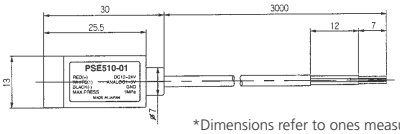
PSE10 ○ — ○ — ○

OPTION
-.....Blank (Standard)
X108 ...PSI Display

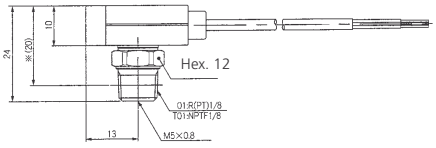
MOUNTING
A .....Panel mount
B .....Wall/DIN rail mount

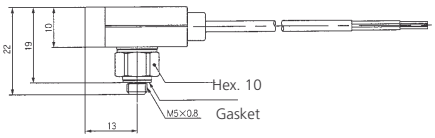
OUTPUT TYPE
0 .....NPN
1 .....PNP

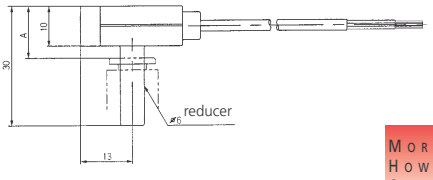
DIMENSIONS PSE 51*



*Dimensions refer to ones measured after R(PT) has been screwed in.







MORE HOW TO ORDER SEE NEXT PAGE ☞

TECHNICAL SPECIFICATIONS
PRESSURE SENSOR (FOR AIR)

Model No	PSE510	PSE511	PSE512
Operating Pressure Range	0~1MPa (0~145PSI)	-101~0kPa (-14.5~0PSI)	0~100kPa (0~14.5PSI)
Max Operating Pressure	1MPa	200kPa	
Fluid	Air • Non-corrosive gas		
Output	Analogue output (1~5V load impedance: 10kΩ or more)		
Source Voltage	12~24VDC (ripple 10% or less)		
Current Consumption	10mA or less		
Operating Temperature Range	0~50°C (air should not be frozen) / 32~120°F		
Temperature 25+-10°C	+-1% F.S. or less		
Characteristic* 0-50°C (32~120°F)	+-1.5% F.S. or less		
Repetition Accuracy	+-0.3% F.S. or less		
Withstand Voltage	Between whole wires and case 1000VAC 50/60Hz for one minute		
Insulation Resistance	Between whole wires and case 2MΩ (500VDC by megameter)		
Vibration Resistance	10~500Hz width = 1.5mm or acceleration 10G (Choose the smaller vibration) to X, Y, Z direction (two hours)		
Shock Resistance	100G X, Y, Z directions (three times for each direction)		
Protection Structure	IP40		

* Based on 25°C (80°F)

HOW TO ORDER
AIR/INERT GAS SENSOR

PSE51 — ○ — ○

CONNECTION TYPE
R06 ...6mm male stem
M5 ...M5x0.8
01 ...Rc(PT)1/8 and M5x0.8
T01 ...NPTF 1/8 and M5x0.8

PRESSURE RANGE
0 .....High pressure (0~1MPa)
1 .....Vacuum (-101~0kPa)
2 .....Low pressure (0~100kPa)

TECHNICAL SPECIFICATIONS
PRESSURE SENSOR (NON-CORROSIVE GAS AND LIQUID)

Model No	PSE520-01	PSE520-02
Operating Pressure Range	0~1MPa (0~145PSI)	
Max Operating Pressure	2MPa (30PSI)	
Fluid	Fluid which does not corrode SUS304 and 630	
Output	Analogue output (1~5V. Load impedance: 10kΩ or more)	
Source Voltage	12~24VDC (ripple 10% or less)	
Current Consumption	15mA or less	
Operating Temperature Range	-10~70°C (air should not be frozen) / 14~160°F	
Temperature 25+-10°C	+-1% F.S. or less	
Characteristic* -10~70°C (14~160°F)	+-3% F.S. or less	
Repetition Accuracy	+-0.3% F.S. or less	
Withstand Voltage	Between GND terminal and case 250VAC for one minute	
Insulation Resistance	Between exterminal terminal and case 100MΩ (50VDC by megameter)	
Vibration Resistance	10~55Hz duplex width = 1.5mm to X, Y, Z direction (two hours)	
Shock Resistance	30G (11ms or less) X, Y, Z directions (three times for each direction)	
Protection Structure	IP65	
Material: Case	Case: SUS304. Fitting SUS304	
Pressure detection portion	Diaphragm: SUS630	
Lead Wire	Special flexible polyvinyl chloride Ø6 three-core (red, black, white) 3000m	
Port Size	1/8 M5x0.8	1/4 M5x0.8
Mass	Approx 220g	

• Based on 25°C (80°F)

HOW TO ORDER
GAS AND LIQUID SENSOR

PSE520 — ○

PORT SIZE
01 ...Rc(PT)1/8 and M5x0.8
02 ...Rc(PT)1/4 and M5x0.8
T01 ...NPTF 1/8 and M5x0.8
T02 ...NPTF 1/4 and M5x0.8

FOR FURTHER TECHNICAL INFORMATION ON THIS SERIES, REFER TO CAT:E818

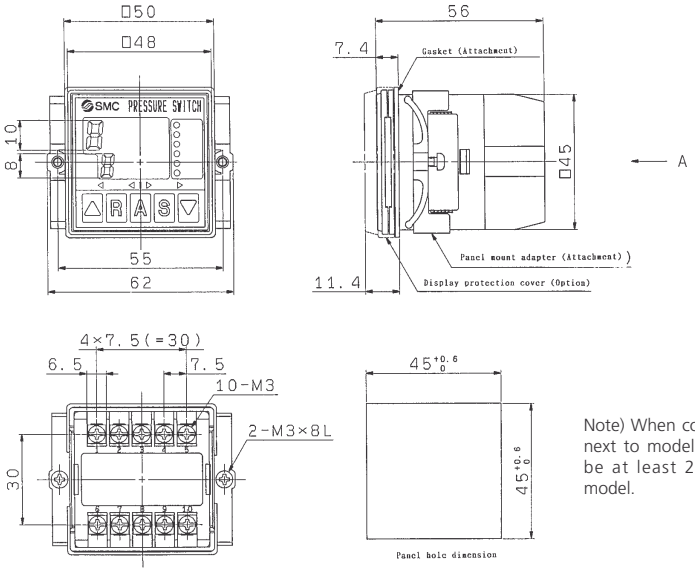
TECHNICAL SPECIFICATIONS
CONNECTION

Part No	R06	M5	01
Material Case	Resin case:PBT	Resin case:PBT Fitting:SUS303	Resin case:PBT Fitting C3604BD (Electroless nickel plating)
Pressure Detecting Portion	Pressure Sensor: SIlicon, 0-Ring: BBR		
Lead Wire	Oil-proof captire cord Ø2.55 three core (red, black, white) 3000mm		
Port Size	Ø6 reducer	M5x0.8	1/8 / M5x0.8
Mass	Approx 7g (excl. wire)	Approx 10g (excl. wire)	Approx. 12g (excl. wire)

ACCESSORIES

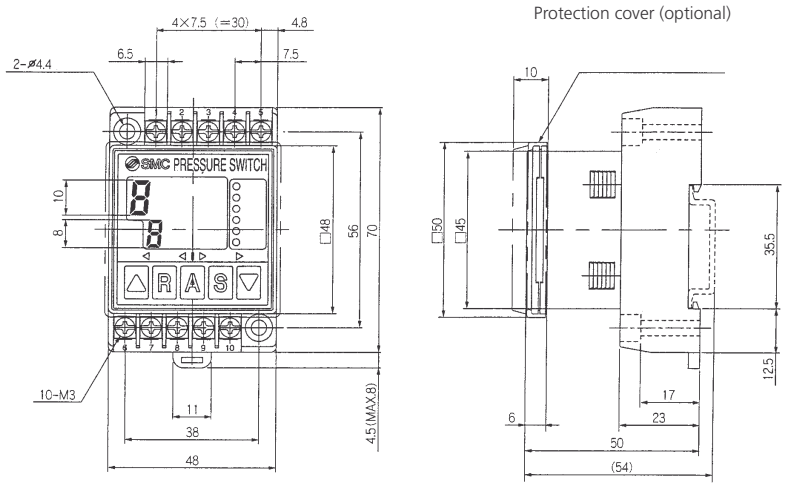
PSE-V	Voltage to current converter (to convert a 1~5V input signal to a 4~20mA current output
PSE-C	Protection cover for indicator
PSE-P	Panel mount adaptor plate
PSE-G	Panel mount gasket

DIMENSIONS
A: PANEL MOUNTED TYPE / PSE100

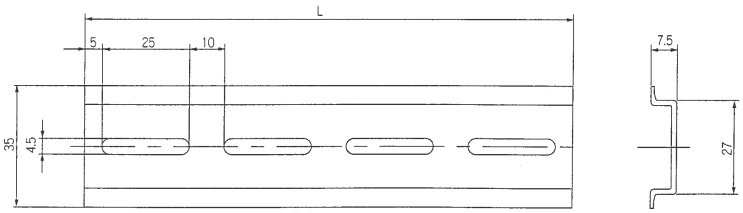


Note) When controller is installed next to model, controller should be at least 20mm away from model.

DIMENSIONS
B: TYPE DIN RAIL MOUNT / PSE100

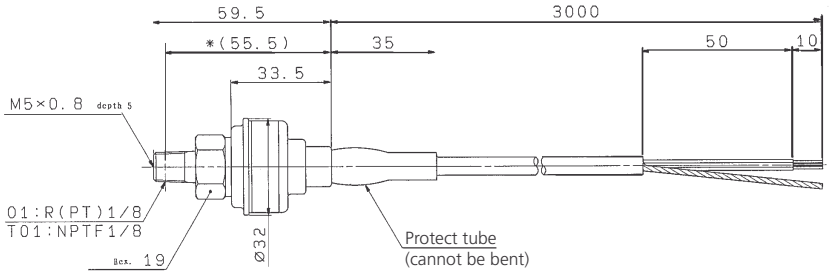


DIMENSIONS
B: SUITABLE DIN RAIL

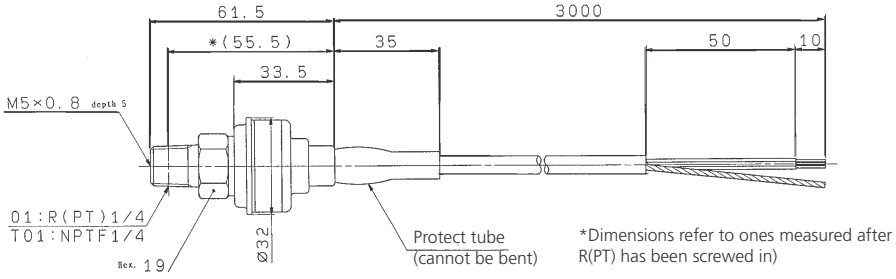


DIMENSIONS

PSE520 - 01, T01



PSE520 - 02, T02



*Dimensions refer to ones measured after R(PT) has been screwed in)

PRESSURE SENSOR SERIES PS1000/1100

- Very compact
- Lightweight and robust
- Vacuum or pressure
- Adjustable



TECHNICAL SPECIFICATIONS SERIES PS1000/1100

Model No	PS1000-R06L	PS1100-RO6L
Fluid	Air	
Operating Pressure Range	-0.1~1.0MPa (-14.5~145PSI)	
Setting Pressure Range	-0.1~0.45MPa (-14.5~65PSI)	-0.1~0.4MPa (-14.5~60PSI)
Hysteresis	≤4%F.S.	
Temperature Characteristics	≤3%F.S.	
Repetition Accuracy	≤±1%F.S.	
Load Voltage	DC12~24V (Ripple ≤±10%)	
Load Current	5~40mA	
Leak Current	≤1mA	
Inner Drop Voltage	≤5V	
Switch Output (see Diagram)	Present Pressure ≥ Set Pressure: ON	Present Pressure ≤ Set Pressure: ON
Indication Lamp	ON: Red LED turns on	
Operating Temperature	0~60°C / 32~140°F	
Piping Method	Ø6 reducer	
Lead Wire	Grommet Type Oil-proof Captyre-cord two Wires Ø2.55, 0.18mm², 3m	

HOW TO ORDER SERIES PS1000/1100

PS ○ 00 — ○ L

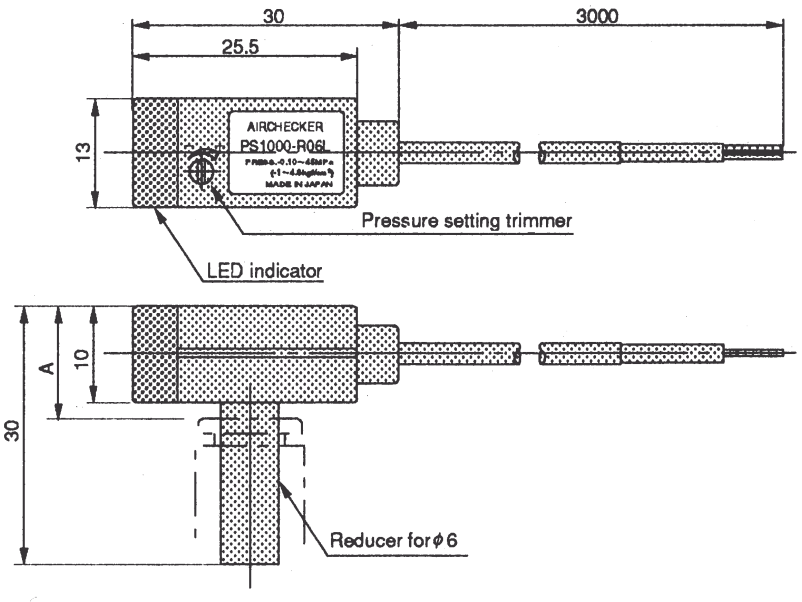
WIRING METHOD
L .....Grommet and Lead Wire 3m

PIPING METHOD
RO6 ...Ø6 Reducer
R07 ...1/4" Reducer

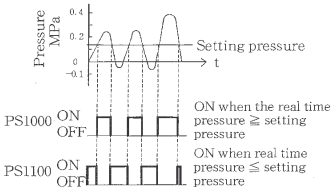
SWITCH SPECIFICATION
10 ...2-Wire System (for Positive Pressure)
11 ...2-Wire System (for Vacuum and Residual Pressure)

FOR FURTHER TECHNICAL INFORMATION ON THIS SERIES, REFER TO CAT:E817

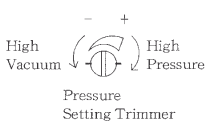
DIMENSIONS PS1000/1100



SWITCH OUTPUT FUNCTION



3. Setting of Pressure Switch
- By setting the pressure trimmer, pressure is set.
- Pressure becomes bigger at the clockwise direction, and for the high vacuum rate, turn the trimmer to the counter-clockwise direction.
- Please use the ⊖driver which has the adequate size for the trimmer, and turn it easy with fingertips.



VACUUM/PRESSURE SWITCH OR TRANSMITTER
WITH OPTIONAL BACKLIT LCD PRESSURE INDICATION
SERIES ZSE4/ISE4



- Large LCD Display shows actual pressure and permits easy setting of ON/OFF
- Series allows choice of applicable pressure range and output type
- A variety of switch output modes can be selected by push button settings
- Display can be set to show peak or minimum pressures during normal operation
- Complete Self Diagnosis with Error Indication
- Panel Mountable

TECHNICAL SPECIFICATIONS

10 Bar = 1 MPa

	Vacuum Models	Pressure Models 1 Bar (14.5PSI)	Pressure Models 10 Bar (145PSI)
NPN Output	ZSE4-01-25L	ISE4L-01-25L	ISE4-01-25L
PNP Output	ZSE4-01-65L	ISE4L-01-65L	ISE4-01-65L
Analog Output	ZSE4-01-26L	ISE4L-01-26L	ISE4-01-26L
Operating Pressure Range	+10 to -101KPa (1.5~15PSI)	-0.1~1 Bar (-1.5~15PSI)	-1~10 Bar (-1.5~145PSI)
Minimum Displayed Unit	mmHG: 5 PSI: 0.1 Bar: 0.01 kPa: 1	kgf/cm² = 0.01 PSI: 0.1 Bar: 0.01 kPa: 1	kgf/cm² = 0.1 PSI: 1 Bar: 0.1 MPa: 0.01
Switch Indicator	ON (green light)	ON (green light)	ON (green light)
Response Frequency	200Hz (5ms) (not analog output model)	200Hz (5ms) (not analog output model)	200Hz (5ms) (not analog output model)
Differential (NOTE 1)	min 3 units of display (not analog output model)	min 3 units of display (not analog output model)	min 3 units of display (not analog output model)
Fluid	Air, inert gas	Air, inert gas	Air, inert gas
Temperature Characteristics	+-3% F.S	+-3% F.S	+-3% F.S
Repeatable Accuracy	+-1%	+-1%	+-1%
Power Supply	DC12-24V (less than or equal to ripple 10%)		
Current	45mA		
Error display	Red LED + displayed error code on LCD		
Operation Temp Range	0~50°C / 32~120°F		
Noise Resistance	1000Vp-p pulse width 1 micro standing 1rs		
Insulation Strength	AC1000V 50/60Hz (1mj)		
Insulation Resistance	2MΩ (DC500V by megger)		
Vibration Resistance	10-500Hz width = 1.5mm or acceleration 10G to X, Y, Z direction (2 hours)		
Shock Resistance	100G, X, Y, Z		
Weight	45g		
Port Size	1/8, M5 x Male and M5 x 0.8 Female		

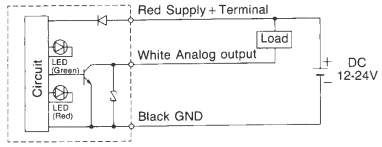
NOTE 1:
Minimum Differential
- Hysteresis mode: When P1=P2>P2 by less than three units, differential is automatically set at three units of P1 display
- Window mode: Differential is fixed at three units of the display

OUTPUT SPECIFICATIONS

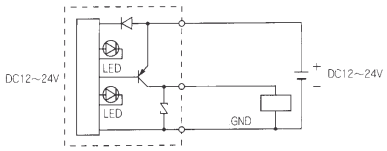
Model	Item	Output Method	Output Specifications
ZSE4-$^{01}_{11}$-25	Vacuum	NPN output	NPN open collector 30V, 80mA, residual voltage: 1V or less
ZSE4-$^{01}_{11}$-26		Analog output	1~5V (∓ 5%F.S.), load impedance : 1kΩ
ZSE4-$^{01}_{11}$-65		PNP output	PNP open collector 80mA
ISE4L-$^{01}_{11}$-25	Positive Pressure 100kPa (14.5PSI) Type	NPN output	NPN open collector 30V, 80mA, residual voltage: 1V or less
ISE4L-$^{01}_{11}$-26		Analog output	1~5V (∓ 5%F.S.), load impedance: 1kΩ
ISE4L-$^{01}_{11}$-65		PNP output	PNP open collector 80mA
ISE4-$^{01}_{11}$-25	Positive Pressure 1MPa (145PSI) Type	NPN output	NPN open collector 30V, 80mA, residual voltage : 1V or less
ISE4-$^{01}_{11}$-26		Analog output	1~5(∓ 5%F.S.), load impedance: 1kΩ
ISE4-$^{01}_{11}$-65		PNP output	PNP open collector 80mA

OUTPUT CIRCUIT AND WIRING

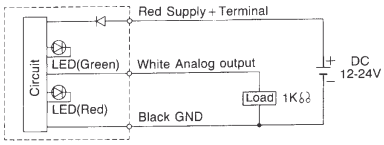
Switch Output Type (-25)



-65 PNP



Analog Output Type (-26)



PRECAUTIONS:
1 When handling the switch, hold the body, not the wire. Electrical cable must not be subjected to excessive force.
2 When connecting the switch, use a spanner on the hexagon fitting. NEVER use tools on the switch body.
3 Do not use switch near corrosive materials.
4 The switch is not liquid sealed. Protect from rain, dew, spray or use enclosed type ZSE4BD/ISE4BD as shown on page 7.11

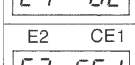
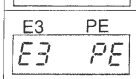
INSTRUCTIONS

LCD .....Displays present Pressure
Displays ON/OFF Setting
Displays Error Code
Displays Unit
LED (Green) ....Displays Switch Operation Conditions
LED (Red) .....Blinks on and off when an error occurs
SET key .....Switches to the Setting Mode
When the button is pressed for one second or more, the mode changes to the output mode.
UP key .....Increases ON/OFF Setting Value.
When the button is pressed during Pressure Display the mode changes to the peak display mode•
DOWN key .....Decreases ON/OFF setting value
When the button is pressed during Pressure Display, the mode changes to the bottom display mode. * Used for unit change and output mode change.
RESET .....Clears anomaly
Displays "O" (Press up and down key together)

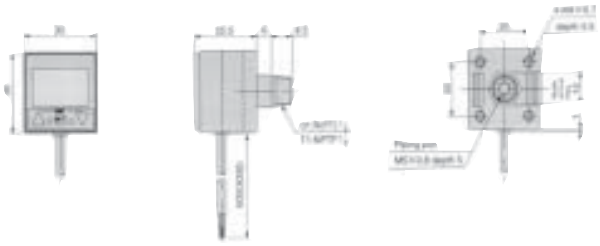
• Peak and bottom display allows the LCD to show the highest and lowest pressures encountered by the switch but normal switch or analog operation is unaffected.

ERROR INDICATION AND INSTRUCTIONS

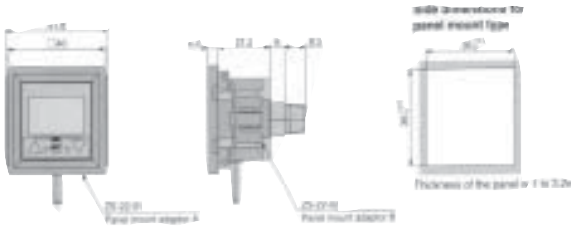
When an error occurs, take the following steps.

Display	Situation	Solution
E1 dE 	Set data is corrupted by some external influence	Push "Reset" and re-insert settings
E2 CE1 	Over current is evident in (Output 1) switch	Switch off power supply. Remove cause of the excess load.
E3 PE	>500 kPa pressure applied to vacuum switch. 150% of rated pressure applied to pressure switch	Setting pressure must be less than maximum rated pressures

DIMENSIONS
SERIES ZSE4/ISE4 STANDARD TYPE



DIMENSIONS
SERIES ZSE4/ISE4 PANEL MOUNTING TYPE



HOW TO ORDER VACUUM PRESSURE SWITCH SERIES ZSE4

ZSE4B — ○ — ○ ○

OPTIONS
- .....Non-Backlit (Standard)
B .....Backlit LCD

PIPING SPECIFICATIONS
01 ...Direct Piping 1/8
T1 ...NPTF 1/8

SWITCH SPECIFICATIONS
65 ...3 Wire Output PNP
25 ...3 Wire Output NPN
26 ...3 Wire Analog Output

WIRING SPECIFICATIONS
- 0.6m
L .....Grommet entry 3m lead

HOW TO ORDER POSITIVE PRESSURE SWITCH SERIES ISE4

ISE4 ○ B — ○ — ○ ○

OPERATING PRESSURE
- .....-0.1 ~ 1MPa
L .....-10 ~ 100KPa

OPTIONS
- .....Non-Backlit (Standard)
B .....Backlit LCD

PIPING SPECIFICATIONS
01 ...Direct Piping PT 1/8
T1 ...NPTF 1/8

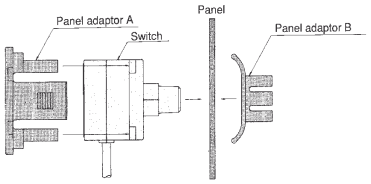
SWITCH SPECIFICATIONS
65 ...3 Wire Output PNP
25 ...3 Wire Output NPN
26 ...3 Wire Analog Output

WIRING SPECIFICATIONS
L .....Grommet Entry 3m Lead
- 0.6m

ACCESSORIES ZSE4/ISE4

Panel Mount Adaptor ZS-22-A

PANEL MOUNTING KIT
ZS-22-A



WATER DROP RESISTANT TYPE DIGITAL INDICATION PRESSURE SWITCH SERIES ZSE4D/ISE4D

- IP66 Environment Protection. This Pressure Switch is constructed to resist water spray and fine particles for use in adverse environmental conditions
- DIN Rail Mountable
- Direct Wall Mountable



TECHNICAL SPECIFICATIONS

As for ZSE4B/ISE4B except:
Weight.....110g
Port Size .....1/8 (Taper Female)
Enclosure .....IP66 According to IEC 529

BREATHER PIPING METHOD

If there is the possibility that the switch will be used in an atmosphere where there is excessive water, oil or dust around the body, and these substances may enter in through the atmospheric port, insert a Ø4mm tube into this port and pipe away to a cleaner area.

HOW TO ORDER VACUUM PRESSURE SWITCH SERIES ZSE4D

ZSE4 B D — ○ — ○ ○

OPTIONS
- .....Non-Backlit (Standard)
B .....Backlit LCD

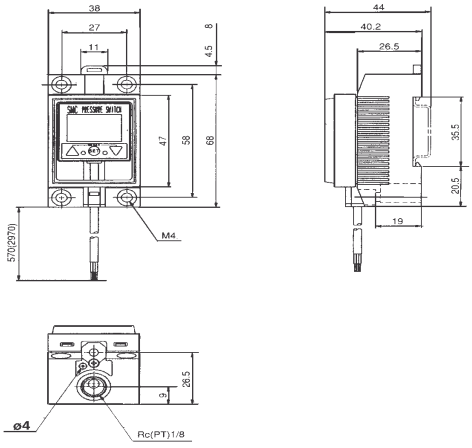
Dust/Splash Proof

PIPING SPECIFICATIONS
01 ...Direct Piping 1/8 PT
T1 ...NPTF 1/8

WIRING SPECIFICATIONS
- 0.6m
L .....Grommet Entry 3m Lead

SWITCH SPECIFICATIONS
65 ...3 Wire Output PNP
25 ...3 Wire Output NPN
26 ...3 Wire Analog Output

DIMENSIONS ZSE4D/ISE4D



HOW TO ORDER POSITIVE PRESSURE SWITCH SERIES ISE4

ISE4 ○ B D — ○ — ○ ○

OPERATING PRESSURE
- .....-0.1 ~ 1MPa
L .....-10 ~ 100KPa

OPTIONS
- .....Non-Backlit (Std)
B .....Backlit LCD

Dust/Splash Proof

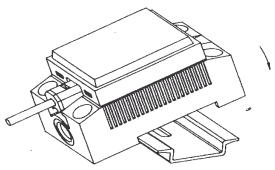
PIPING SPECIFICATIONS
01 ...Direct Piping 1/8 PT
T1 ...NPTF 1/8

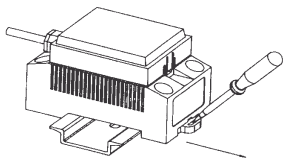
WIRING SPECIFICATIONS
L .....Grommet Entry 3m Lead
- 0.6m

SWITCH SPECIFICATIONS
65 ...3 Wire Output PNP
25 ...3 Wire Output NPN
26 ...3 Wire Analog Output

DIN RAIL MOUNTING

To mount, hook on to bottom rail and hand push in direction of arrow.
To remove, use a screwdriver in the direction shown by the arrow.





DIGITAL PRESSURE SWITCH FOR GENERAL PURPOSE FLUID SERIES ZSE5/ISE5

- Multi-Fluid Applications
- Variety of Switch Output Modes
- Peak/Bottom Hold Function
- Complete Self-Diagnosis
- Exact Detection of Atmospheric Pressure



TECHNICAL SPECIFICATIONS SERIES ZSE5/ISE5

Item	ZSE5-02-26L	ZSE5-02-27L	ZSE5-02-67L	ISE5-02-26L	ISE5-02-27L	ISE5-02-67L
Pressure Setting	-100kPa~100kPa {14.5PSI}			-0.1MPa~1MPa {145PSI}		
Unit Setting	mmHg, kPa, PSI, kgf/cm², bar			MPa, PSI, kgf/cm², bar		
Min Setting Range	mmHg:10, kPa:2, PSI: 0.2 kgf/cm²: 0.02, bar: 0.02			MPa: 0.01, PSI: 1 kgf/cm²: 0.1, bar: 0.1		
Hysteresis•: Hysteresis Mode	–	Adjustable (2 digit or more)		–	Adjustable (3 digit or more)	
Window Comparator Mode	–	Fixed (2 digit)		–	Fixed (3-digit)	
Display Light	–	ON: turn on light Output 1: Green, 2: Red		–	ON: turn on light Output 1: Green, 2: Red	
Response Frequency	–	200Hz		–	200Hz	
Max Operating Pressure	200kPa (30PSI)			1.5MPa (220PSI)		

DIMENSIONS SEE NEXT PAGE ☞

TECHNICAL SPECIFICATIONS SWITCH

Model	Switch Specification	Output Specification
ZSE5-02-26L	None (Analog Output)	1~5V(5%F.S.)
ZSE5-02-27L	Two Output	NPN Open Collector 30V, 80mA
ZSE5-02-67L	Two Output	PNP Open Collector 80mA
ISE5-02-26L	None (Analog Output)	1~5V(5%F.S.)
ISE5-02-27L	Two Output	NPN Open Collector 30V, 80mA
ISE5-02-67L	Two Output	PNP Open Collector 80mA

TECHNICAL SPECIFICATIONS COMMON SPECIFICATIONS

Fluid	Fluid that will not corrode SUS304 and SUS630
Temperature Characteristics	+-3%F.S. max.
Repetition Accuracy	+-1% max.
Power Supply	12~24vDC (Ripple 10% max.)
Consumption Current	45mA max.
Emergency Display	Red/display the error code on LCD
Pressure Display	3 1/2 digit LCD
Self-Diagnosis Function	Excess pressure/Data error•2
Operating Temp Range	0~50°C /32~120°F
Noise Resistance	500Vp~p pulse width 1μS, standing 1nS
Insulation Resistance	Between whole wires and case 2MΩ (50vDC by megameter)
Vibration Resistance	10~500Hz width=1.5mm or acceleration 10G (Choose the smaller vibration) to X, Y, Z direction (two hours)
Shock Resistance	100G to X, Y, Z direction (three times for each direction)
Weight	126g (Including 3m-long lead wire)

Notes:

• Hysteresis mode

ZSE: .....When the values of P1 and P2 are the same or when P1>P2 within two digits, the hysteresis will be automatically two digits for the set value of P1.

ISE .....When the values of P1 and P2 are the same or when P1>P2 within three digits, the hysteresis will be automatically three digits for the set value of P1.

• Window comparator mode:

ZSE .....The hysteresis is two digits, so separate P1 from P2 by five digits or more and set them.

ISE .....The hysteresis is three digits, so separate P1 from P2 by seven digits or more and set them.

* (One digit is the minimum pressure display unit)

•2 Analogue output has no overcurrent detection unit

HOW TO ORDER VACUUM PRESSURE SWITCH

ZSE5B–02– ○ L

OPTIONS
- ..... Non-Backlit (Std)
B ..... Backlit LCD

PIPING SPECIFICATIONS
02 ...PT 1/4
T2 ...NPTF 1/4

WIRING SPECIFICATIONS
L 3m

SWITCH SPECIFICATIONS
26 ...Analog 3-Wire
27 ...2 Output (NPN) 4-Wire
67 ...2 Output (PNP) 4-Wire

HOW TO ORDER POSITIVE PRESSURE SWITCH

ISE5B–02– ○ L

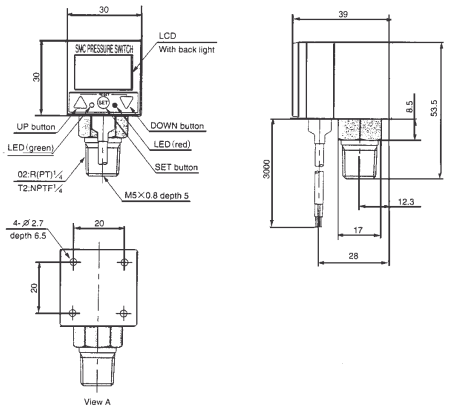
OPTIONS
- ..... Non-Backlit (Std)
B ..... Backlit LCD

PIPING SPECIFICATIONS
02 ...PT 1/4
T2 ...NPTF 1/4

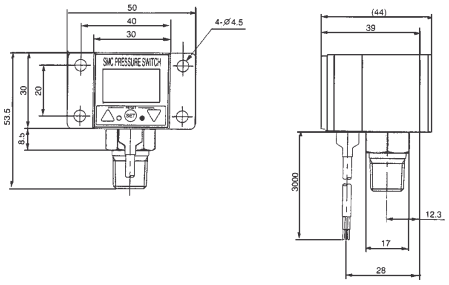
WIRING SPECIFICATIONS
L 3m

SWITCH SPECIFICATIONS
26 ...Analog 3-Wire
27 ...2 Output (NPN) 4-Wire
67 ...2 Output (PNP) 4-Wire

DIMENSIONS
SERIES ZSE5/ISE5



WITH BRACKET



FLUID OPTIONS

Dry Air
Drain-Containing Air
Hydraulic Fluid (JIS-K2213)
Silicon Oil (JIS-K2213)
Lubricating Oil (JIS-K6301)
Freon
Carbon Dioxide
Ammonia
Argon
Nitrogen Gas
Chlorine Gas

ACCESSORIES
BRACKET

Bracket	ZS-22-D	With Four M3 Tappings

FOR FURTHER TECHNICAL INFORMATION
ON THIS SERIES, REQUEST CAT:E811

Air Catch Sensor Series ISA

- Detects the presence of an object by the use of Back Pressure
- Colored Indicator Lights ensure quick and accurate setting
- Water Splash and Dust Particle resistant to IP66
- Free Mount or Manifold Types Available
- Switch is movable without disturbing manifold

Applications
See Next Page ☞



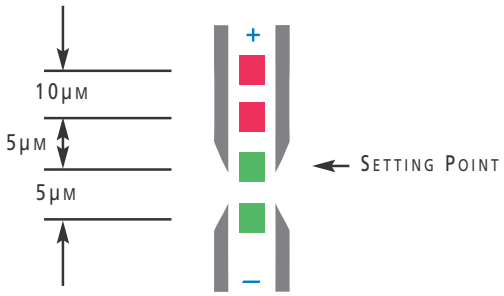
Technical Specifications

Fluid	Dry air filtered to 5µm
Operating Pressure	0.05MPa~0.2MPa (7~30PSI)
Presure Range	0.1MPa~0.2MPa (14.5~30PSI)
Detection Distance Range	0.01~0.3mm
Repeatability	±0.01mm (@25˚C / 180°F)
Hysteresis	≤ 0.01mm (Detection distance (0.01~0.15mm)
Detection Nozzel Bore Size	Ø1 standard
Indication	Operation lamp: Green when on + deviation indicator
Power Supply Voltage	DC12~24V
Current Comsumption	≤ 30mA
Output Type: ISA11	NPN open collector 30V ≤ 80mA
ISA15	PNP open collector 30V ≤ 80mA
Operating Temp Range	0~60˚C / 32~140°F (no dew formation)
Vibration Resistance	10G
Proof Pressure	0.5MPa / 73PSI
Proof Noise	Direct input 1000Vp-p Pulse duration 1µs pulse rise 1ns
Weight	250g (incl. guage & 5m lead wire)
Port Size	Rc ⅛
Air consumption	16 l/min (@0.10MPa Supply Pressure) 21 l/min (@0.15MPa Supply Pressure) 25 l/min (@0.20MPa Supply Pressure)

1MPa = 145PSI

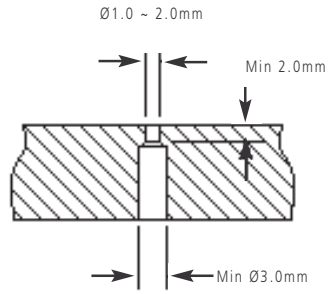
Setting Indicator

Red LED = Output is OFF
Green LED = Output is ON

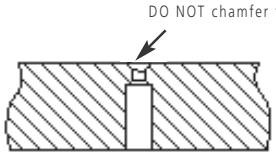


Nozzle Type

The detection nozzle should have an I.D. of between 1.0~2.0mm and 2mm in depth. Avoid chamfering the edge of the nozzle. Chamfering causes a narrower detection distance range.



Correct ✔



Incorrect ✘

Dimensions
See Page 7.16 ☞

How To Order Air Catch Sensor Series ISA

ISA ○ — ○○ — 01

Output
11 ...NPN
15 ...PNP

No. of Stations
1 .....1 station
to
6 .....6 stations

Wiring
- .....No terminal box
L .....Terminal Box wiring on Left Hand Side
R .....Terminal Box wiring on Right Hand Side

Option
B .....Bracket
G .....Gauge

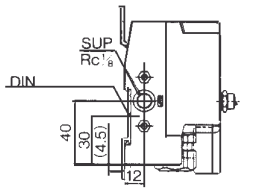
Accessories Air Catch Sensor Series ISA

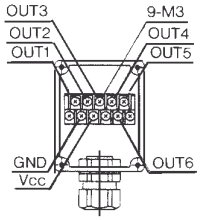
Bracket	ISA-1-A
Gauge	G33-3-01

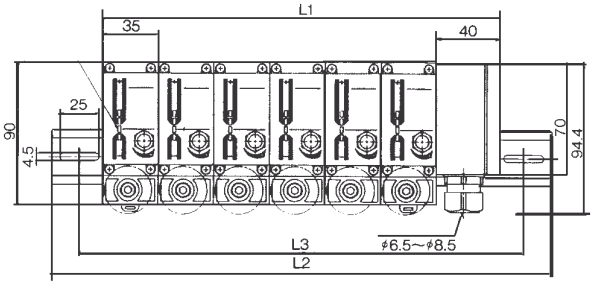
FOR FURTHER TECHNICAL INFORMATION ON THIS SERIES, REQUEST CAT:E816

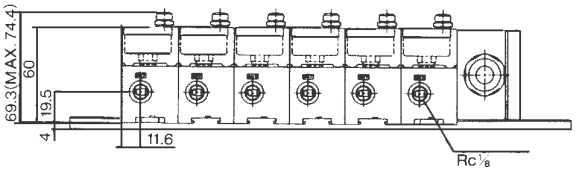
DIMENSIONS
TERMINAL BOX TYPE

DIN



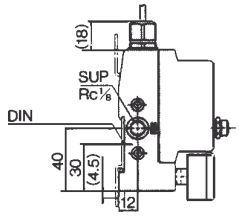


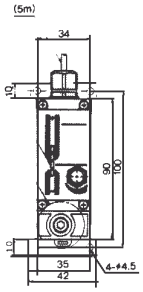


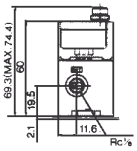


No. of Sensors	2	3	4	5	6
L1	110	145	180	215	250
L2	140	175	210	245	280
L3	175	210	245	280	315

DIMENSIONS
SINGLE UNIT TYPE

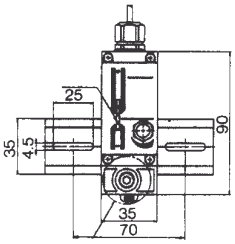






No. of Sensors	2	3	4	5	6
L1	70	105	140	175	210
L2	-	36	71	106	141

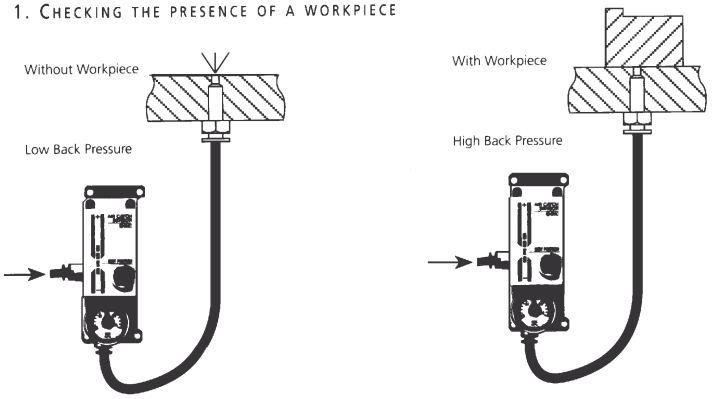
DIMENSIONS
SINGLE UNIT: DIN RAIL MOUNT



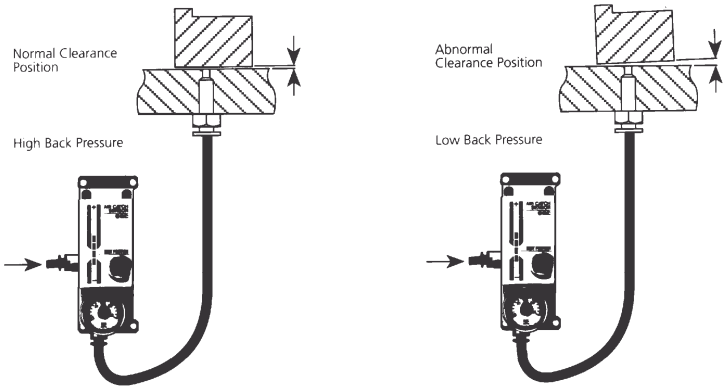
No. of Sensors	2	3	4	5	6
L1	70	105	140	175	210
L2	105	140	175	210	245
L3	140	175	210	245	280

APPLICATIONS

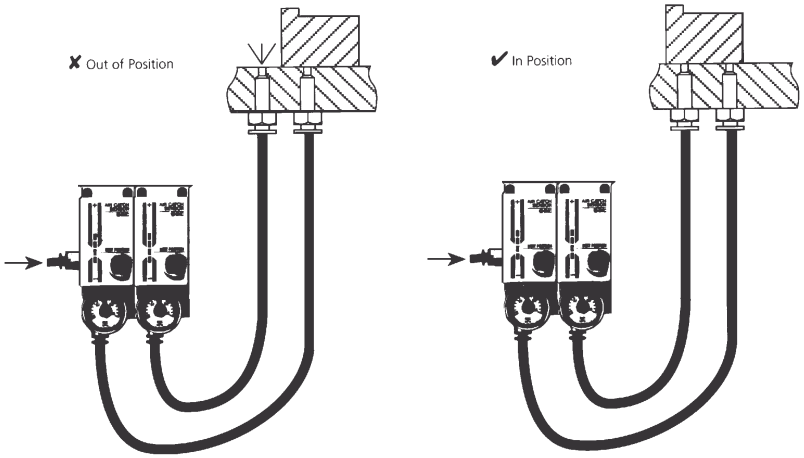
1. CHECKING THE PRESENCE OF A WORKPIECE



2. CHECKING THE NORMAL CLEARANCE POSITION OF A WORKPIECE



3. CHECKING THE POSITION OF A WORKPIECE



PRECISION REGULATOR SERIES IR1/2/3000

- Compact and Lightweight
- Easy Setting
- Excellent Flow Characteristics
- Can be combined with (N)AF Air Filter and/or (N)AM (Mist Separator) due to the adaptation of the Modular Style Body



TECHNICAL SPECIFICATIONS BASIC TYPE

Model	IR1000/2000	IR1010/2010	IR1020/2020
Port Size	Series 10□0: 1/8" / Series IR20□0: 1/4"		
Max Supply Pressure	1MPa (145PSI)		
Min Supply Pressure	Set Pressure +0.05MPa / 8PSI *Note 1)*		
Regulating Pressure Range	0.005~0.2MPa (0.7~30PSI)	0.005~0.4MPa (0.7~50PSI)	0.005~0.8MPa (0.7~120PSI)
Sensitivity	0.2% FS Max		
Repeatability	±0.5% FS Max		
Air Consumption	Series 10□0: 5ℓ/min Max at Supply Pressure of 1MPa IR20□0: 4ℓ/min Max at Supply Pressure of 1MPa *Note 2)* IR20□0: 3ℓ/min (ANR) Max at Supply Pressure of 0.7MPa		
Gauge Port Size	1/8" (2 Ports - Front/Back)		
Ambient & Fluid Temperature	-5 ~ 60°C / 23~140°F (with no freezing)		

Note 1) Always keep a Minimum Differential of 0.05MPa from Set Pressure

Note 2) Air is always bleeding to atmosphere

TECHNICAL SPECIFICATIONS BASIC AND AIR-OPERATED TYPES

Type	Basic	Air-Operated	Air-Operated
Model	IR30□0	IR2120	IR3120
Port Size	1/4", 3/8", 1/2"	1/4"	1/4", 3/8", 1/2"
Max Supply Pressure	1MPa (145PSI)		
Min Supply Pressure (Set P)	+0.1MPa	+0.05MPa	+0.1MPa
Regulating Pressure Range	3000: 0.01~0.2MPa 3010: 0.01~0.4MPa 3020: 0.01~0.8MPa	0.005~0.8MPa	0.01~0.8MPa
Sensitivity	0.2% FS Max		
Repeatability	±0.5% FS Max		
Air Consumption *Supply Pressure at 1MPa* / *at 0.7MPa*	≤9.5ℓ/min (Bleed P) ≤2ℓ/min (EXH)	≤4ℓ/min ≤3ℓ/min	≤9.5ℓ/min ≤2ℓ/min *at Max*
Gauge Port Size	1/8" (2 Ports - Front/Back)		
Ambient & Fluid Temperature	-5 ~ 60°C / 23~140°F (with no freezing)		

HOW TO ORDER PRECISION REGULATOR SERIES IR1/2/3000

IR ○ ○ ○ 0 — ○ ○ ○ — ○

BODY SIZE
1 .....IR1000
2 .....IR2000
3 .....IR3000

TYPE OF SETTING
0 .....Basic Type (Handle)
1 .....Air-Operated Type
(Series IR2000/3000 Only)

REGULATING PRESSURE RANGE
For Series IR1000/2000
0 .....0.005~0.2 MPa / 0.7~30PSI
1 .....0.005~0.4 MPa / 0.7~60PSI
2 .....0.005~0.8 MPa / 0.7~120PSI
For Series IR3000
0 .....0.01~0.2 MPa
1 .....0.01~0.4 MPa
2 .....0.01~0.8 MPa

THREAD TYPE
- .....Rc(PT)
N .....NPT
F .....(G)PF

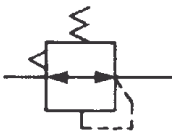
PORT SIZE
01 ...1/8" (IR1000)
02 ...1/4" (IR2000, IR3000)
03 ...3/8" (IR3000)
04 ...1/2" (IR3000)

ACCESSORIES
- .....Without Accessories
B .....With Bracket
G .....With Pressure Gauge

SUFFIX
R .....Pressure Gauge on the Opposite Side
* The Standard Mounting Piston of the Pressure Gauge is with SUP Port on the left, OUT Port on the right, viewing the gauge from the Port

DIMENSIONS SEE NEXT PAGE ☞

SYMBOLS

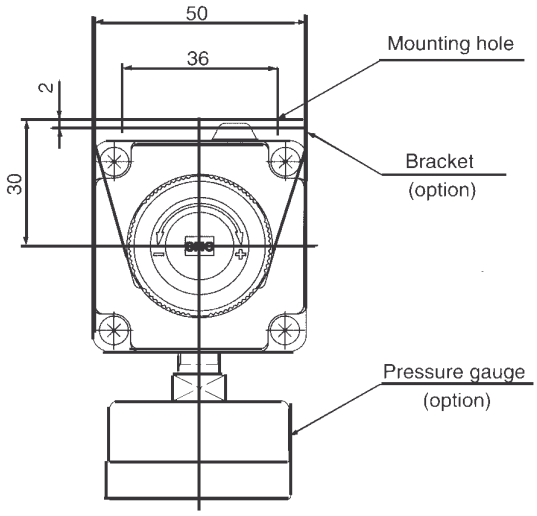


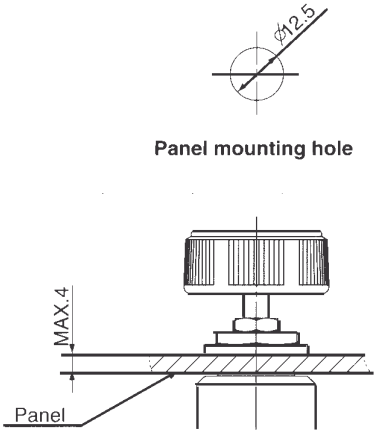
ACCESSORIES SERIES IR1000/2000/3000

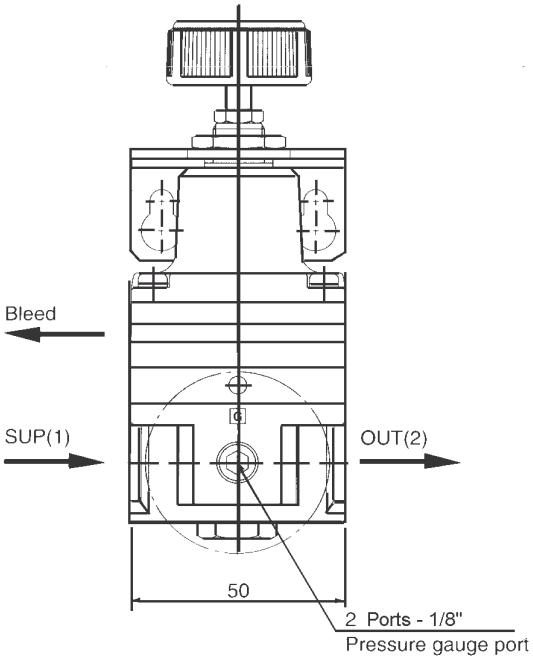
Model	IR1000	IR1010	IR1020	IR2000	IR2010	IR2020/2120	IR3000	IR3010	IR3020/3120
Bracket	P36201023			P36202028			P36203018		
Pressure Gauge	G33-2-01	G33-4-01	G33-10-01	G43-2-01	G43-4-01	G43-10-01	G43-10-01	G43-4-01	G43-10-01

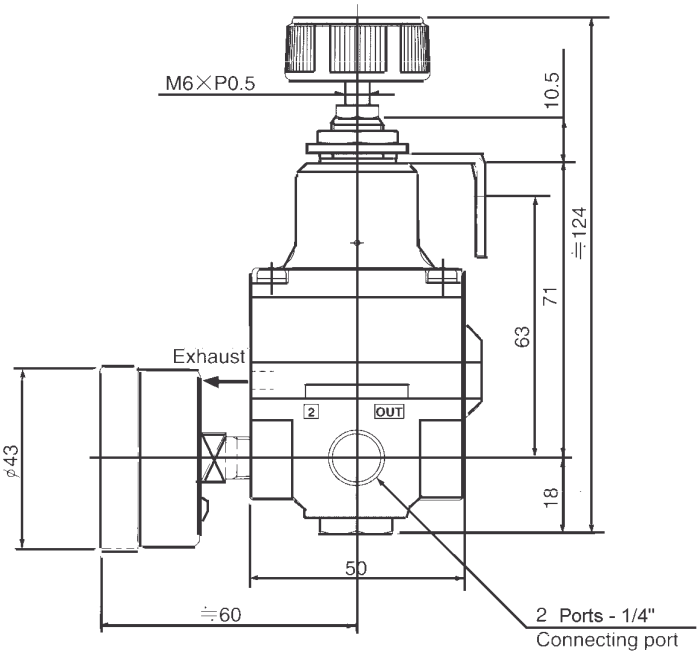
Accuracy ± 3% (full span)

DIMENSIONS
PRECISION REGULATOR SERIES IR2000









For Dimensions on Series IR1000 and IR3000, consult SMC Customer Service

ELECTRO-PNEUMATIC REGULATOR SERIES ITV2000, 3000

- Air Consumption is near zero l/min (ANR) at desired set pressure (Balanced Condition)
- Zero and Span Adjustment is possible with No Air Pressure
- Easy to read with LED with choice of 5 units of measurement
- 4 Input Current/Voltage Range Options
- 2 Monitor Options - Analog or Switch (NPN or PNP)
- Plug-in Wiring with Removable Cable (Straight or Right-Angle Plug)
- IP65 Protection Standard
- Same Mounting Dimensions as IT Series (Same Bracket) for Stand-alone use with Threaded Ports



TECHNICAL SPECIFICATIONS

1MPa = 145PSI

Model		ITV201❑ ITV203❑ ITV205❑ ITV301❑ ITV303❑ ITV305❑
Max Supply Pressure		0.2MPa 1.0MPa 1.0MPa
Min Supply Pressure		Setting Pressure 0.1MPa / 14.5PSI
Setting Pressure Range		0.005~0.1MPa 0.005~0.5MPa 0.005~0.9MPa
Power Voltage		DC24V±10%, DC12~15V
Input Signal	Current Type Note1) Voltage Type	4~20mA, 0~20mA DC 0~5VDC, 0~10VDC
Input Impedance	Current Type Voltage Type	250Ω or less Approx 6.5Ω
Output Signal Note2)	Analog Output Switch Output	1 ~ 5 VDC / 4 ~ 20mA DC NPN Open Collector Output: 30V, 30mA PNP Open Collector Output: 30V, 30mA
Linearity		±1% or less (Full Span)
Hystersis		±0.5% or less (Full Span)
Repeatability		±0.5% or less (Full Span)
Output Pressure	Accuracy	±3% or less (Full Span)
Indication (3 Digit)	Minimum Unit	MPa: 0.01, Kgf/cm2: 0.01, Bar: 0.01, PSI: 0.1Note3), KPa: 1
Ambient Fluid Temperature		5 ~ 50°C / 40 ~ 122°F (No Dew Condensation)

Note 1) 2 Wire 4~20mA DC and 2 Wire mA DC are not possible. Power Voltage (24VDC or 12 VDC) is necessary.

Note 2) Either Analog Output or Switch Output can be selected. For Switch Output Selection, either NPN Output or PNP Output can be selected.

Note 3) For ITV205❑, ITV305❑, 1PSI is the minimum Unit.

HOW TO ORDER SERIES ITV2000, 3000

ITV ○ 0 ○ ○ — ○ ○ ○ ○ B ○ ○

MODEL TYPE
2 2000
3 3000

PRESSURE RANGE
1 .....0.005~0.1MPa / 0.7~14.5PSI
3 .....0.005~0.5MPa / 0.7~73PSI
5 .....0.005~0.9MPa / 0.7~130PSI

POWER VOLTAGE
0 .....DC24V
1 .....DC12V

INPUT SIGNAL
0 .....Current Type 4 ~ 20mA DC
1 .....Current Type 0 ~ 20mA DC
2 .....Voltage Type 0 ~ 5V DC
3 .....Voltage Type 0 ~ 10V DC

MONITOR OUTPUT
1 .....Analog Output 1 ~ 5V DC
2 .....Switch Output / NPN Output
3 .....Switch Output / PNP Output
4 .....Analog Output 4 ~ 20mA DC

THREAD TYPE
- .....Rc
N .....NPT
T .....NPTF
F .....G

PORT SIZE
2 .....1/4 (2000, 3000 Type)
3 .....3/8 (2000, 3000 Type)
4 .....1/2 (3000 Type)

OPTIONS
- .....Without Bracket
B .....With Bracket

CABLE CONNECTOR TYPE
S .....Straight Type 3m
L .....Right Angle Type 3m
N .....No Cable Connector

PRESSURE DELAY
- .....MPa
2 .....kgf/cm²
3 .....Bar
4 .....PSI
5 .....KPa

ELECTRO-PNEUMATIC HYBRID REGULATOR SERIES VY

- Simple Construction
- Easy to Connect
- Choice of Signal Voltage Ranges
- Wide Range of Body Sizes with Common Control Unit
- Internal and External Pilot Versions Available
- Integral Pressure Sensor and Amplifier
- High Relief Capacity to Exhaust

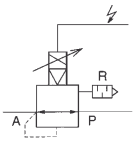


An applicable solution for applications where the precision and response of the IT range is not required. The VY-HyReg Range is constructed by utilizing a standard control unit either alone (VY1D00-M5) or as a Pilot Valve controlling one of the Range of VEX1 Power Valves.

TECHNICAL SPECIFICATIONS CONTROL UNIT

Applicable Fluid	Dry Air, Inert Gas
Required Filtration Level for Supply and Pilot Air	5(m
Lubrication	Unnecessary (see note 7)
Ambient and Fluid Temperature	0 - 50 °C / 32~120°F
Maximum Operating Pressure	7PSI ≤ (128PSI / 0.88 MPa)
Set Pressure	0.5 Kgf/cm≤ ~ Supply Pressure
External Pilot Supply Pressure (For VY1*01 Type)	Set Pressure ~ 130PSI / 9 Kgf/cm≤
Control Signal Voltage	1 ~ 5 V DC Standard
	0 ~ 10 V DC Available as an Option
Control Signal Power Requirement	Less than 1mW
Power Supply Voltage	24 V DC ± 10%
Power Consumption	1.8 W maximum
Electrical Connection	DIN Plug
Cable Gland Size	Suits ¯4 ~ ¯6.5 mm Cable
Bleed Air Consumption (at 9 Kgf/cm≤ Supply Pressure)	Maximum 10 nl/min
Mounting	Any Orientation

SYMBOLS



HOW TO ORDER SERIES VY

VY1 ○ O ○ — ○ — ○ ○

PILOT
0 .....Internal
1 .....External
(not on VYID00)

BODY SIZE

PORT SIZE

THREAD
Nil ...Rc(PT)
T .....NPTF
F .....G(PF)
N .....NPT)

OPTION
B .....Bracket
F .....Foot (A and 1 body sizes only)
G .....Gauge (not available on D body)
N ..... Silencer

DIMENSIONS SEE NEXT PAGE ☞

Mounting Type	Symbol	Symbol	P,A port	R port	Cv	Hysteris	Sensitivity	Repeatability
Base Mounted Type	D	00	Without subplate			1%	0.5%	±0.5%
		M5	M5		0.007			
	B	00	Without subplate			2.5%	1%	±1%
		M5	M5		0.28			
		01	⅛		0.41			
	2	00	Without subplate					
		01	⅛		0.9			
		02	¼		1.4			
	4	00	Without subplate			3%	1.5%	±1%
		02	¼		2.0			
		03	⅜		3.3			
		04	½		3.9			
body Ported Type	A	M5	M5		0.28	2.5%	1%	±1%
	1	01	⅛		0.9			
		02	¼		1.4			
	3	02	¼		2.0			
		03	⅜		3.3			
		04	½		3.9			
	5	04	½		7.2	5%	2%	±2%
		06	¾		8.9			
		10	1		10			
	7	10	1	1¼	17			
		12	1¼		18			
	9	14	1½	2	33			
		20	2		37			

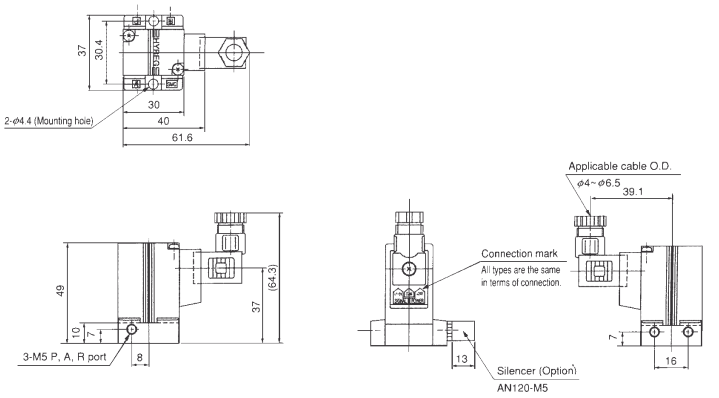
Notes:
1. Avoid mounting the valve in a position where it will be subject to vibration.
2. Ensure that pipework is thoroughly clean and free of water and debris during installation.
3. Use a three-core screened cable for signal and power. Conductor diameter minimum 0.5mm≤ each core
4. Wiring - terminal designations are molded onto the valve body.
5. The valve bleeds air to exhaust when energized so operation without a silencer is not recommended.
6. If the valve is used with lubricated air, the factory pre-lubrication will be washed out so lubrication must be continued.
7. If lubricated air must be used, the external pilot type (VY1?01) and oil-free air supplied to the pilot port.
8. Manifold mounted versions of the VY-Hyreg are available. Please contact your local SMC Sales Office for details of this type.

Wiring: The use of three-core screened cable is strongly recommended with the screen earthed at the end away from the VY Valve.

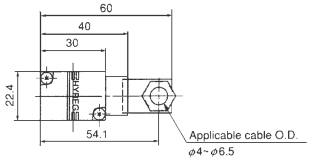
Terminal Designations are as follows:

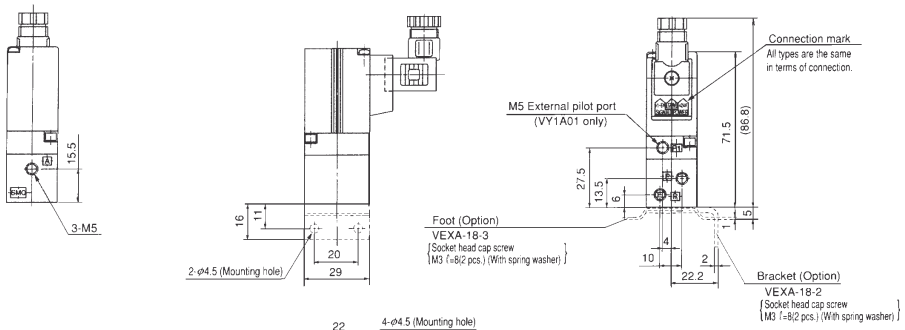
1 = 24v Power Supply
2 = Control Signal
3 = Common Negative for both power and signal.

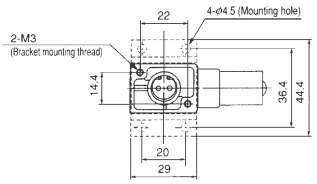
DIMENSIONS
SERIES VY1D00-M5



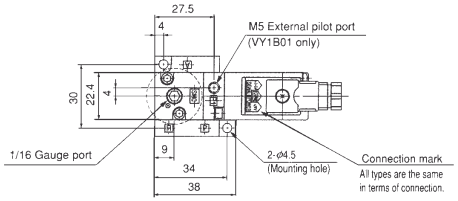
DIMENSIONS
SERIES VY1A0$^{0}_{1}$-M5

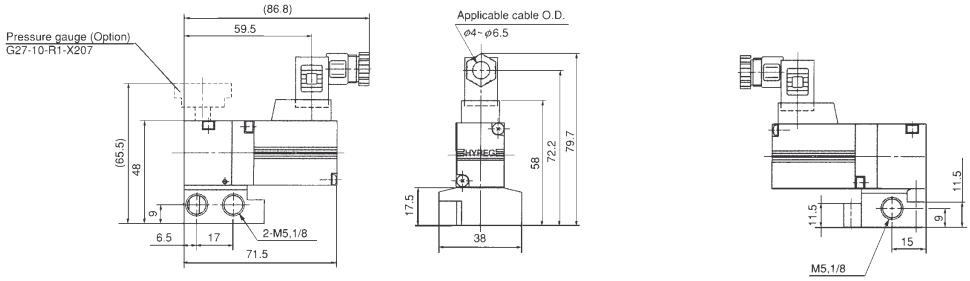




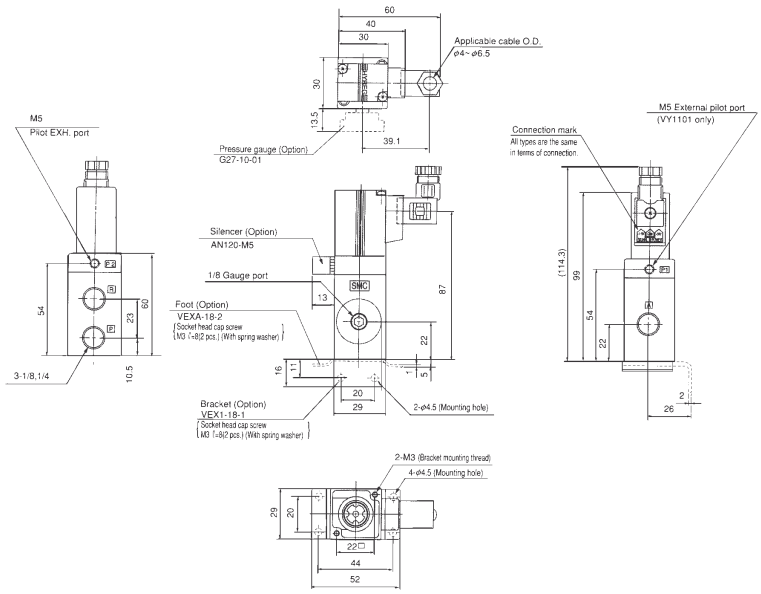


DIMENSIONS
SERIES VY1B0$^{0}_{1}$-M5$^{}_{01}$

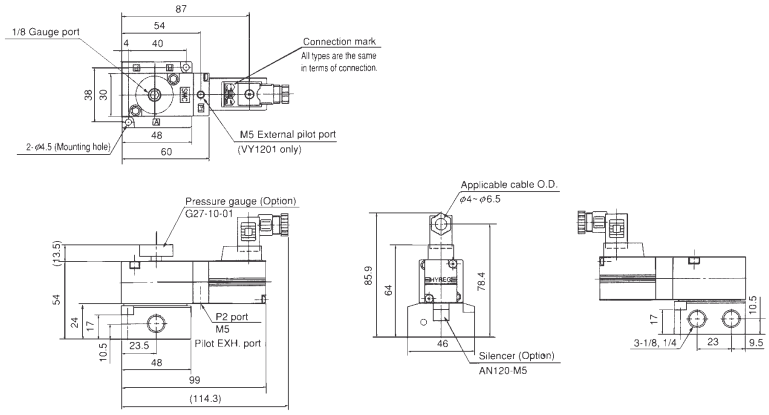




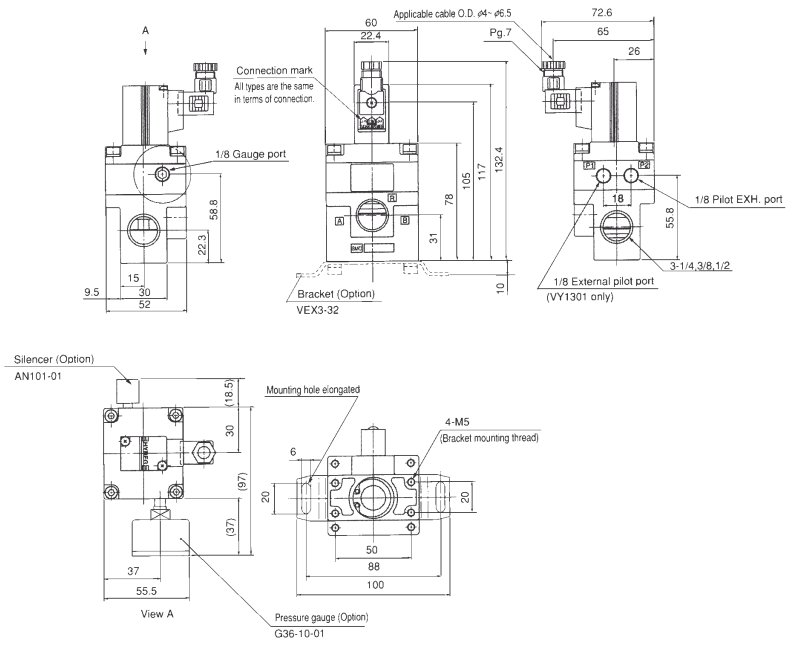
DIMENSIONS SERIES VY110$^{0}_{1}$-$^{01}_{02}$



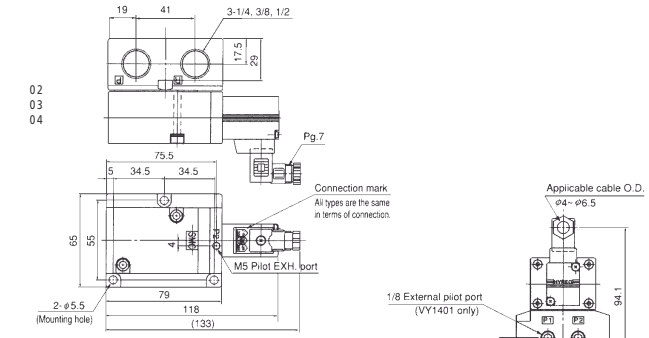
DIMENSIONS SERIES VY120$^{0}_{1}$-$^{01}_{02}$



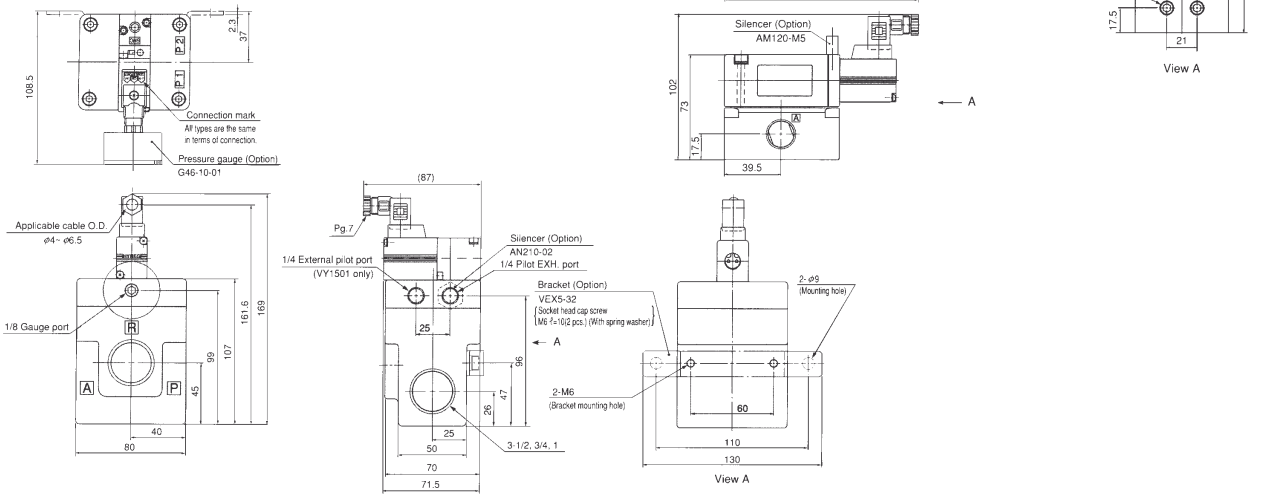
DIMENSIONS SERIES VY130$^{0}_{1}$-$^{02}_{03}$ ^{04}



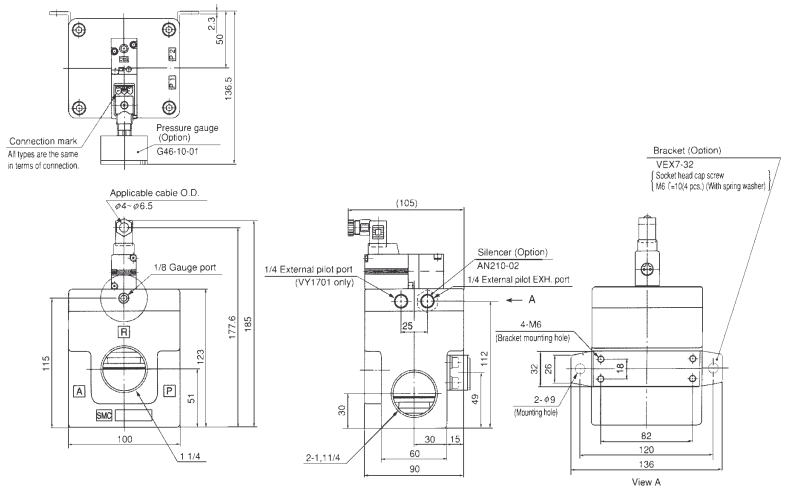
DIMENSIONS SERIES VY140$^{0}_{1}$-02/03/04



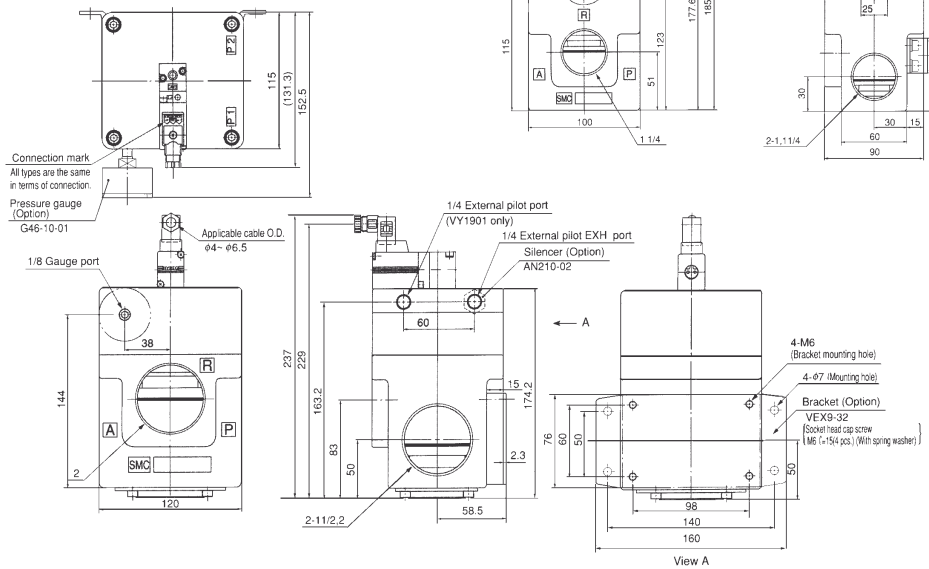
DIMENSIONS SERIES VY150$^{0}_{1}$-02/03/04



DIMENSIONS SERIES VY170$^{0}_{1}$-10/12



DIMENSIONS SERIES VY190$^{0}_{1}$-14/20



Other SMC Products

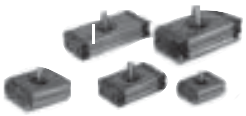
Consult SMC Customer Service For Complete Technical Information.

Series	Description
	**CE2 Stroke Reading Cylinder** **Bore Sizes: ø40, 50, 63, 80, 100mm** Micro-Processor Predictive Control and Learning Functions; Positional Accuracy to ±0.5mm; Application Dedicated Controller; 16 Programs each of 32 Positions can be stored; Error Signal Output.
	**CXT Platform Cylinder** **Bore Sizes: ø12, 16, 20, 25, 32, 40mm** Integrated Work Table with Guide Bearings and Actuator; Highly Rigid and Accurate Slide Table.
	**LG1 Compact Electric Actuator** High Rigidity, High Linear Precision Guide; Space-Saving Design; Top Mounting and Bottom Mounting Options.
	**LJ1 Electric Actuator** High Rigidity, High Linear Precision Guide; High Positioning Accuracy; Abundant Product Variations; Mounting Options; 5 Options of Cable Entry Direction.
	**LX Electric Actuator** Low Profile, Compact and Short Stroke Type; Stepping Motor is a Standard Feature; Optional AC Servo Motor; Auto Switch Capability.
	**LXF Electric Slide Table** Low Profile Electric Slide Table; 5 Phase Stepping Motor; Stroke Length Options: 25, 50, 75, 100mm.
	**LXP Electric Actuator With Guides** Low Profile Electric Actuator With Guides; 2 Phase / 5 Phase Stepping Motor; Stroke Length Options: 50, 75, 100, 125, 150, 175, 200mm.
	**LXS Electric Slide Table With High Rigidity Guides** Electric Slide Table with High Rigidity Guides; 2 Phase / 5 Phase Stepping Motor; Stroke Length Options: 50, 75, 100, 125, 150mm.
	**MHZ2 Standard Parallel Guide Cylinder** **Bore Sizes: ø10, 16, 20, 25mm** With Integrated Guide; Linear Guide provides High Rigidity and High Accuracy; Double and Single Acting Options.
	**MTS** **Bore Sizes: ø12, 16, 20, 25, 32, 40mm** Non-Rotating Accuracy 0.1° or less; Air Cushion Standardized; 3 Mounting Configurations; High Precision Mounting; Rear End Locking Type included in Series.

SMC North America

Other SMC Products

Consult SMC Customer Service For Complete Technical Information.

	Series	Description
	**MRHQ Rotary Gripper**	**Bore Sizes: ø10, 16mm** Ideal for holding and reversing work on transporting lines; Angle Rotation 90° and 180°.
	**NCRQ Rotary Actuator**	**Bore Sizes: ø10, 15mm** Rack and Pinion Model; Compact Double Rack Design eliminates Backlash; Stainless Steel Shaft; Rotation Adjustment is Standard; Auto Switch Capable.
	**ARBQ4000 Interface Regulator**	Interface Regulator for VQ4000 Valve; Sandwich Style Regulator for Individual Valve Control; Models Available for Pressure Regulation of P, A or B Port.
	**SYJ300/500/700 3 Port Solenoid Valve**	Low Power Consumption; Interchangeble with the NVJ and NVZ; Vacuum Applicable; Base-Mounted and Body-Ported Options.
	**AKB/AKH Check Valves**	Available with One-Touch Fitting; Bushing Type and Straight Type; Applicable OD in metric: ø4, 6, 8, 10, 12 and in imperial: ø5/32, 1/4, 5/16, 3/8, 1/2.
	**ASD Dual Speed Controller**	
	**ZFC Vacuum Filter**	Inline Type with One-Touch Fittings; Applicable Tube Sizes - Metric: ø4, 6, 8mm; Imperial: ø5/32", 1/4" 5/16"; Cartridge Type allows Element Replacement.

