



THE PNEUMATICS CATALOG

North American Edition

customer-focused
SOLUTIONS





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VALVES
PRODUCT SELECTOR PAGE 2.1



FLOW CONTROL EQUIPMENT
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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.

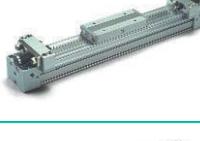


COMPRESSED AIR SAFETY – ACTUATORS

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 1.170 LINEAR ACTUATOR / RODLESS CYLINDER - MECHANICAL JOINT TYPE
	ML2B 1.175 LINEAR ACTUATOR / STROKE READING RODLESS CYLINDER WITH BRAKE
	MXF 1.180 LOW PROFILE SLIDE TABLE
	MXS 1.183 PRECISION SLIDE TABLE
	MXH 1.187 PRECISION SLIDE TABLE
	MXP 1.188 PRECISION SLIDE TABLE
	MXQ 1.190 PRECISION SLIDE TABLE
	MXU 1.191 COMPACT SLIDE TABLE
	MXW 1.192 LONG STROKE SLIDE TABLE
	RSQ 1.193 LINEAR ACTUATOR / STOPPER CYLINDER
	RSH 1.196 HEAVY DUTY STOPPER CYLINDER

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
	MHS PRECISION AIR CHUCK 1.237
	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
	1.77 THREAD CODES

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

lbf

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

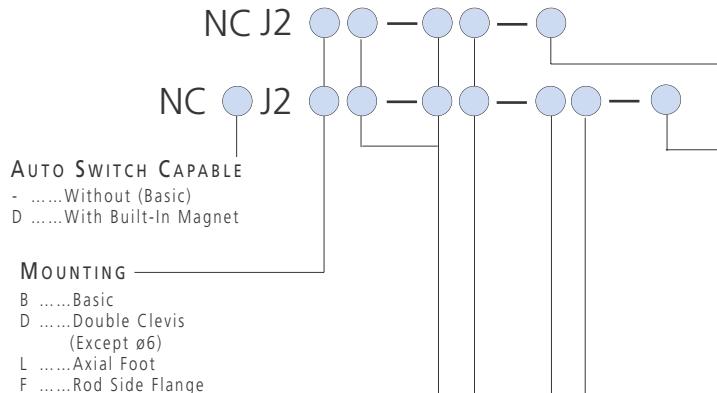
Force
Kgf


 SERIES NCJ2
 BORE SIZES Ø6•10•16

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


 How To
 ORDER

NCJ2 STANDARD DOUBLE ACTING SINGLE ROD CYLINDER



STD STROKE/HUNDREDS 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

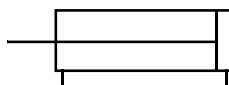
NUMBER OF SWITCHES

-2 Pieces
- S1 Piece
- nn Pieces

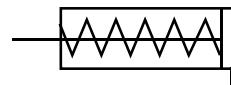


SYMBOLS

Double Acting/Single Rod

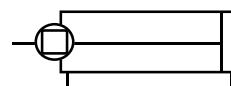


Single Acting/Spring Return


SPECIAL OPTIONS

- XB6 ...High Temperature
- XB7 ...Low Temperature
- XB9 ...Low Speed Operation

Double Acting/Single Rod Non-Rotating


**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 0mm	+0.04 0inch
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)

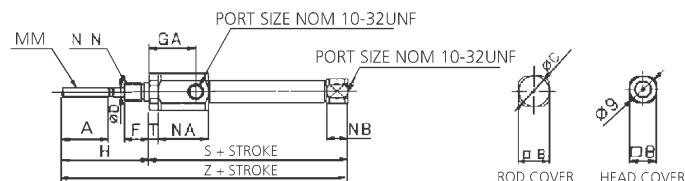
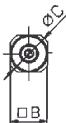
Mounting Bracket	PART NUMBER OF MOUNTING BRACKETS		
	Bore Size (mm)		
	6	10	16
Foot	NCJ-L006B	NCJ-L010B	NCJ-L016B
Flange	NCJ-F006B	NCJ-F010B	NCJ-F016B

 DIMENSIONS
 SEE NEXT PAGE

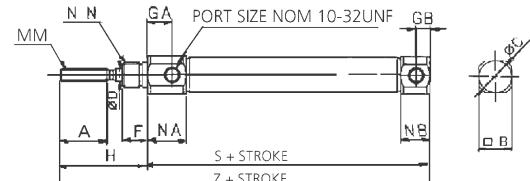
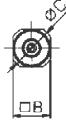
DIMENSIONS (INCH)

STANDARD DOUBLE ACTING SINGLE ROD BASIC TYPE NCJ2B_-_-

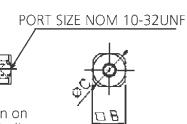
NCJ2B6



NCJ2B10, 16



Port Location on Head Cover: In-line

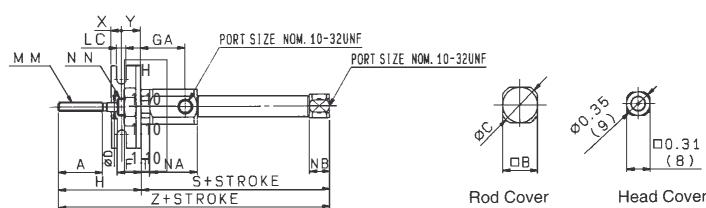
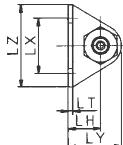


Bore Size	A	B	C	D	F	GA	GB	H	MM	NN	NA	NB	T	S	Z
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.57	-	1.10	No5-40UNC	1/4-28UNF	0.63	0.28	0.12	1.93	3.03
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.31	0.196	1.10	No6-40UNF	5/16-24UNF	0.49	0.37	-	1.81	2.91
ø16 (5/8")	0.60	0.71	0.79	0.196	0.31	0.31	0.196	1.10	No10-32UNF	3/8-24UNF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

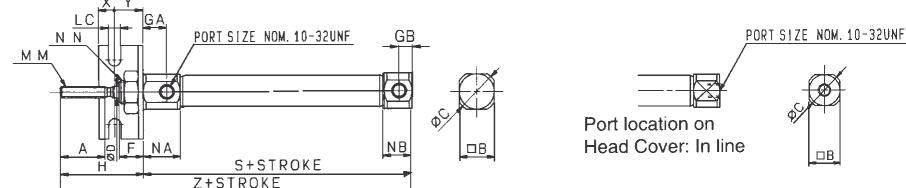
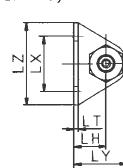
DIMENSIONS (INCH)

STANDARD DOUBLE ACTING SINGLE ROD FOOT TYPE NCJ2L_-_-

NCJ2L6



NCJ2L10, 16



Port location on Head Cover: In line

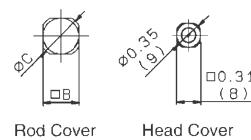
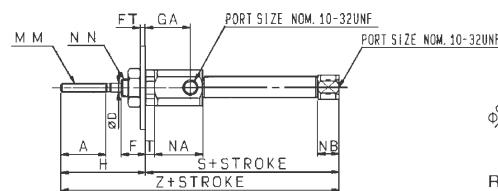
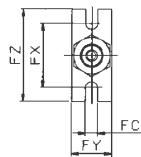
Bore Size	A	B	C	D	F	GA	GB	H	LC	LH	LT	LX	LY	LZ	MM	NN	NA	NB	T	X	Y	S	Z
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.57	-	1.10	0.13	0.43	0.06	0.74	0.71	1.10	No5-40UNC	1/4-28UNF	0.63	0.28	0.12	0.14	0.26	1.93	3.03
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.31	0.196	1.10	0.17	0.55	0.06	0.87	0.83	1.26	No6-40UNF	5/16-24UNF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

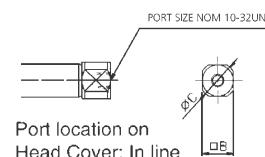
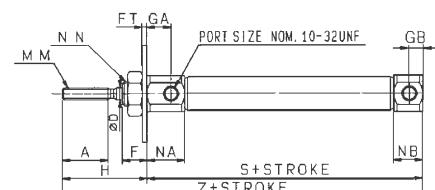
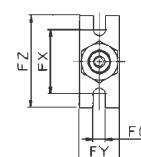
STANDARD DOUBLE ACTING SINGLE ROD ROD SIDE FLANGE TYPE NCJ2F_-

NCJ2F6



Head Cover

NCJ2F10, 16



Port location on Head Cover: In line

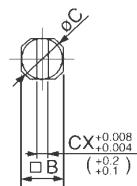
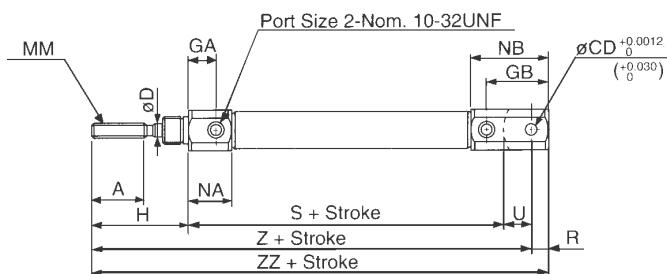
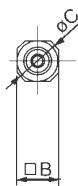
Bore Size	A	B	C	D	F	FC	FT	FX	FY	FZ	GA	GB	H	MM	NN	NA	NB	T	S	Z
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.13	0.06	0.74	0.55	1.10	0.57	-	1.10	No5-40UNC	1/4-28UNF	0.63	0.28	0.12	1.93	3.03
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.17	0.06	0.87	0.55	1.26	0.31	.196	1.10	No6-40UNC	5/16-24UNF	0.49	0.37	-	1.81	2.91
ø16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

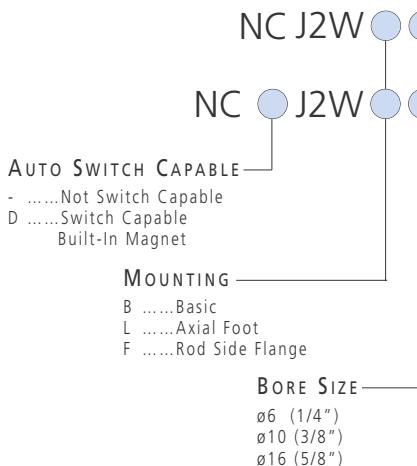
NCJ2D10, 16



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



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

NUMBER OF SWITCHES
 -2 Pieces
 S1 Piece
 nn Pieces

APPLICABLE AUTO SWITCH
 See NCJ2 Accessories Section

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

Mounting Bracket	Part Number of Mounting Brackets		
	6	10	16
Foot	NCJ-L006B	NCJ-L010B	NCJ-L016B
Flange	NCJ-F006B	NCJ-F010B	NCJ-F016B

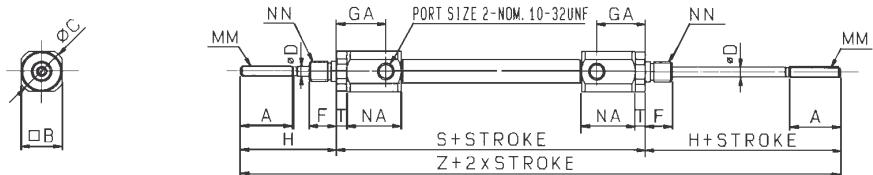
TECHNICAL
SPECIFICATIONS

Fluid	Air	
Proof Pressure	1MPa / 145 PSI	
Maximum Operating Pressure	0.7MPa / 100 PSI	
Minimum Operating Pressure	ø6	0.14MPa / 21 PSI
	ø10, ø16	0.1MPa / 14 PSI
Ambient and Fluid Temperature	-10°C~+70°C (14~158°F)	
Cushion	Rubber Cushion (Standard)	
Lube	None (Non-lube)	
Stroke Tolerance	+0.4 -0mm	
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)

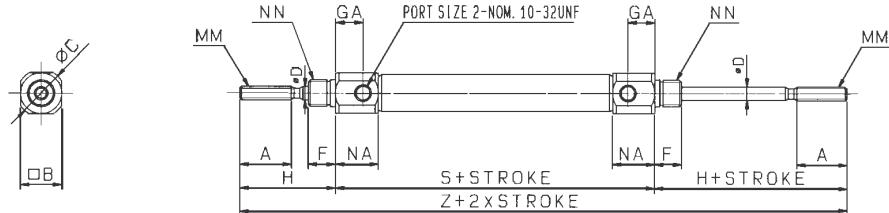
DIMENSIONS (INCH)

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	No6-40UNC	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	No10-32UNC	3/8-24UNF	0.49	-	1.97	4.17

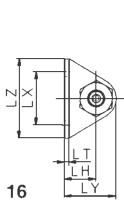
* In case of Auto Switches
 with ø6 Bore, add 5mm to
 S and Z.



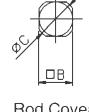
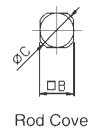
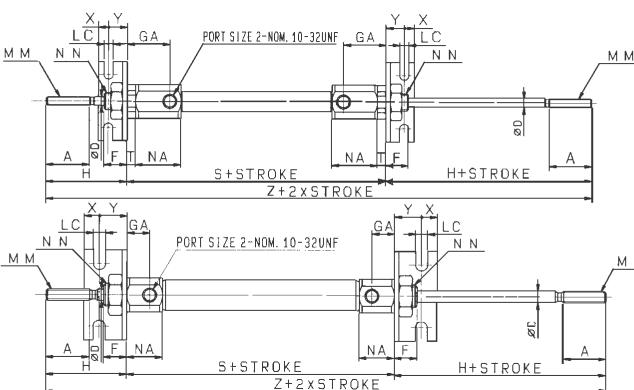
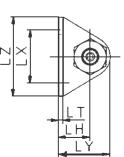
DIMENSIONS (INCH)

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	No6-40UNC	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

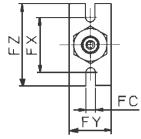
* In case of Auto Switches with ø6 Bore, add 5mm to S and Z.



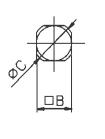
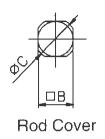
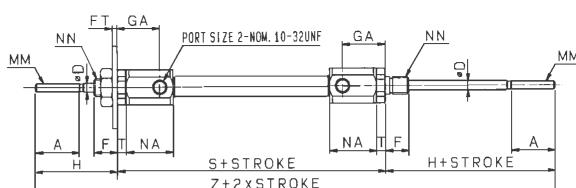
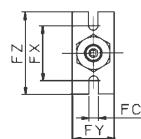
DIMENSIONS (INCH)

STANDARD DOUBLE ACTING DOUBLE ROD FLANGE TYPE NCJ2WF_-

NCJ2WF6



NCJ2WF10, 16

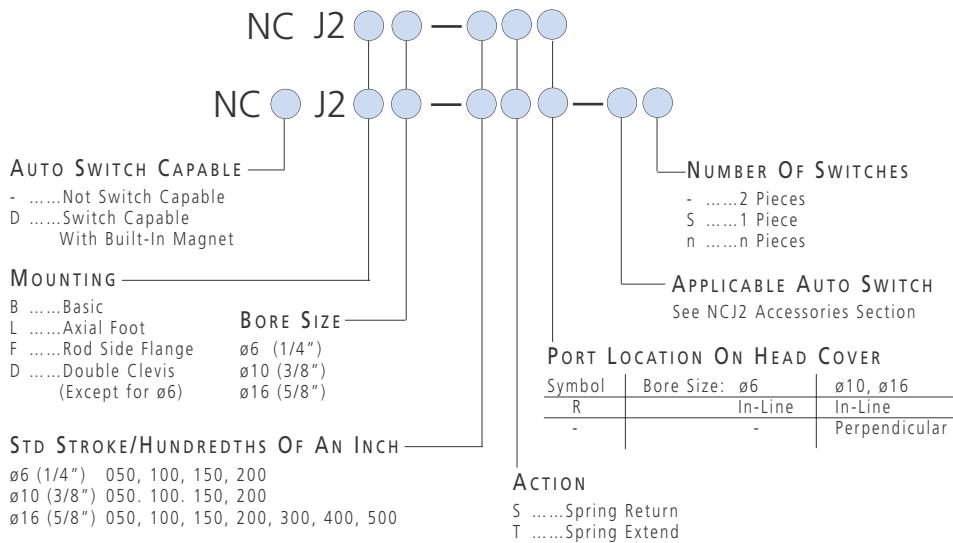


Bore Size*	A	B	C	D	F	FC	FT	FX	FY	FZ	GA	H	MM	NN	NA	T	S	Z
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.13	0.06	0.74	0.55	1.10	0.57	1.10	No5-40UNC	1/4-28UNF	0.63	0.12	2.40	4.61
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.17	0.06	0.87	0.55	1.26	0.31	1.10	No6-40UNC	5/16-24UNF	0.49	-	1.93	4.13
ø16 (5/8")	0.60	0.71	0.79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



Mounting Bracket	Part Number of Mounting Brackets		
	Bore Size (mm)	6	10
Foot	NCJ-L006B	NCJ-L010B	NCJ-L016B
Flange	NCJ-F006B	NCJ-F010B	NCJ-F016B

TECHNICAL SPECIFICATIONS

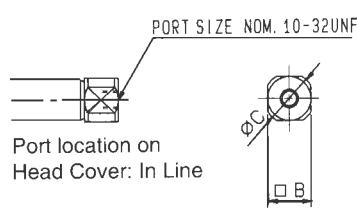
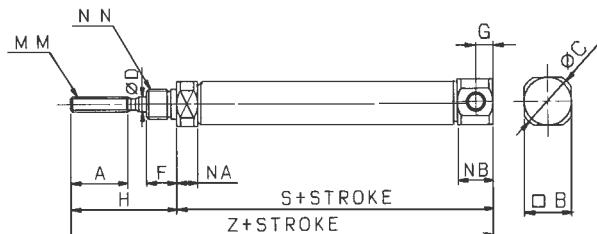
Fluid		Air
Proof Pressure		1MPa / 145 PSI
Maximum Operating Pressure		0.7MPa / 100 PSI
Minimum Operating Pressure	ø6	0.35MPa / 50 PSI
	ø10, ø16	0.14MPa / 21 PSI
Ambient and Fluid Temperature		-10°C~+70°C / 14~158°F
Cushion		Rubber Cushion (Standard)
Lube		None (Non-lube)
Stroke Tolerance		+0.4 0mm
Piston 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

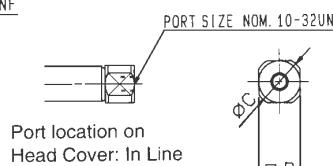
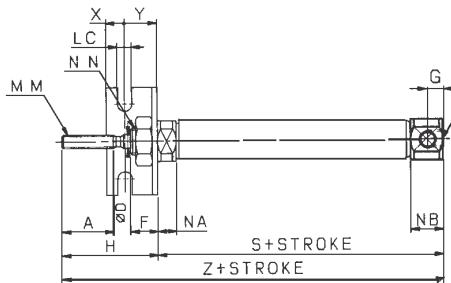
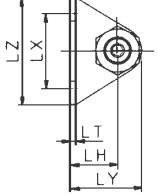


Bore Size	S										Z														
	A	B	C	D	F	G	H	MM	NN	NA	NB	50	100	150	200	300	400	500	50	100	150	200	300	400	500
ø6 (1/4")	0.60	0.31	0.35	0.125	0.31	-	1.10	No5-40UNC	1/4-28UNF	0.12	0.28	1.45	1.73	1.98	2.47	-	-	2.55	2.84	3.09	3.57	-	-	-	
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	.196	1.10	No6-40UNF	5/16-24UNF	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



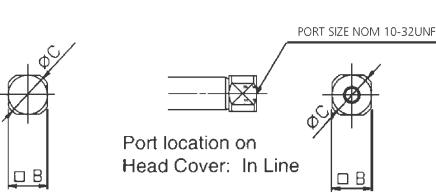
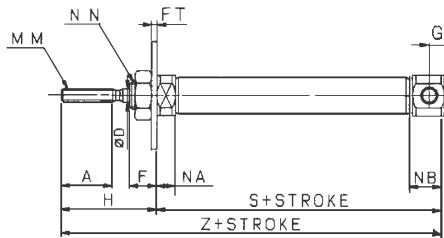
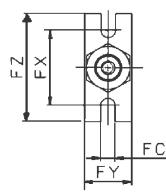
Bore Size	S										Z															
	A	B	C	D	F	G	H	LC	LH	LT	LX	LY	LZ	MM	NN	NA	NB	X	Y	50	100	150	200	300	400	500
ø6 (1/4")	0.60	0.31	0.35	0.125	0.31	-	1.10	0.13	0.43	0.06	0.74	0.71	1.10	No5-40UNC	1/4-28UNF	0.12	0.28	0.14	0.26	1.45	1.73	1.98	2.47	-	-	-
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	.196	1.10	0.17	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

S										Z										
50	100	150	200	300	400	500	50	100	150	200	300	400	500	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

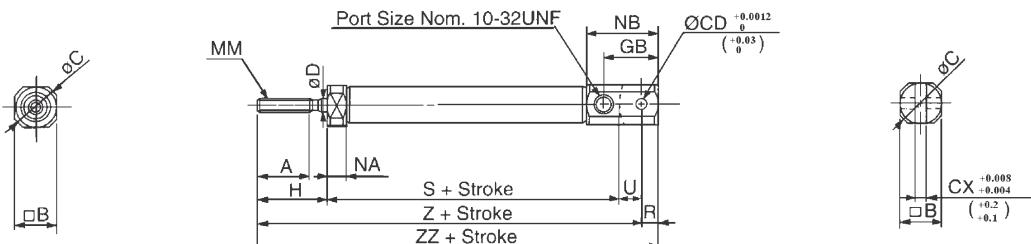


Bore Size	S										Z												
	A	B	C	D	F	FC	FT	FX	FY	FZ	G	H	MM	NN	NA	NB	50	100	150	200	300	400	500
ø6 (1/4")	0.60	0.31	0.35	0.125	0.31	0.13	0.06	0.74	0.55	1.10	-	1.10	No5-40UNC	1/4-28UNF	0.12	0.28	1.45	1.73	1.98	2.47	-	-	-
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.17	0.06	0.87	0.55	1.26	.196	1.10	No6-40UNF	5/16-24UNF	0.21	0.37	1.80	2.01	2.30	2.78	-	-	-
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

* 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
50	100	150	200	300	400
3.14	3.35	3.64	4.12	-	-

S						Z						R	U	50	100	150	200	300	400	500
Bore Size	A	B	C	CD	CX	D	GB	H	MM	NA	NB	R	U	50	100	150	200	300	400	500

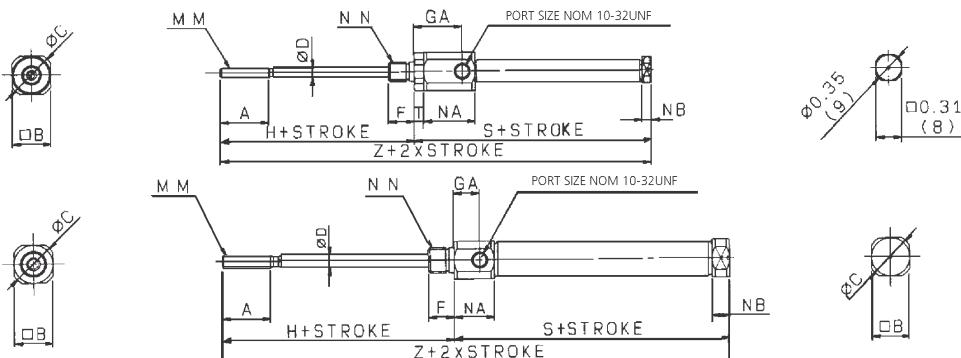
Bore Size	A	B	C	CD	CX	D	GB	H	MM	NA	NB	R	U	50	100	150	200	300	400	500
ø10 (3/8")	0.60	0.47	0.55	0.187	0.188	0.157	0.75	0.79	No6-40UNF	0.22	0.93	0.24	0.31	1.80	2.01	2.30	2.78	-	-	-
ø16 (5/8")	0.60	0.71	0.79	0.187	0.188	0.196	0.91	0.79	No10-32UNF	0.22	1.08	0.31	0.39	1.82	2.03	2.32	2.80	3.22	3.83	4.61

Note) Clevis Pin Included

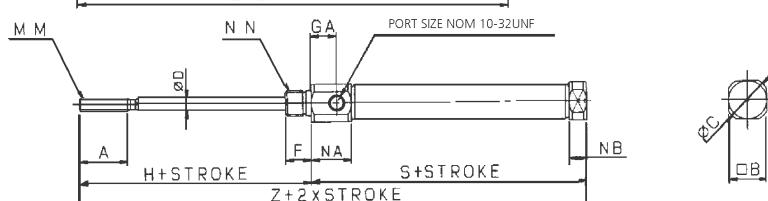
DIMENSIONS (INCH)

STANDARD SINGLE ACTING SPRING EXTEND BASIC TYPE NCJ2B_-T

NCJ2B6



NCJ2B10, 16

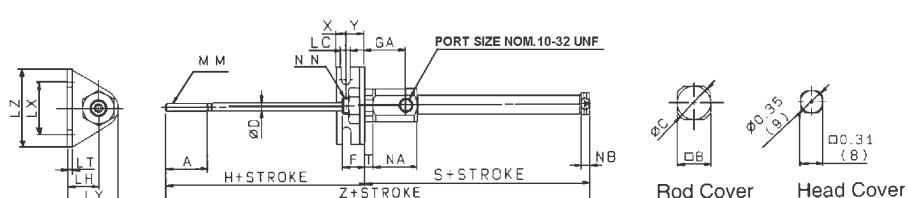


Bore Size	A	B	C	D	F	GA	H	MM	NN	NA	NB	T	50	100	150	200	300	400	500
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.57	1.10	No5-40UNC	1/4-28UNF	0.63	0.12	0.12	1.92	2.20	2.45	2.94	-	-	-
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.31	1.10	No6-40UNF	5/16-24UNF	0.49	0.22	-	1.92	2.13	2.42	2.90	-	-	-
ø16 (5/8")	0.60	0.71	0.79	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

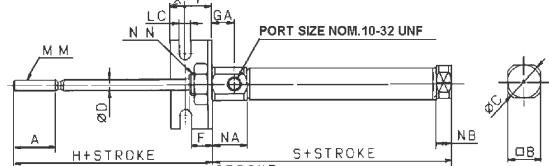
DIMENSIONS (INCH)

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	S													
														MM	NN	NA	NB	T	X	Y	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	No6-40UNC	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	No10-32UNC	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

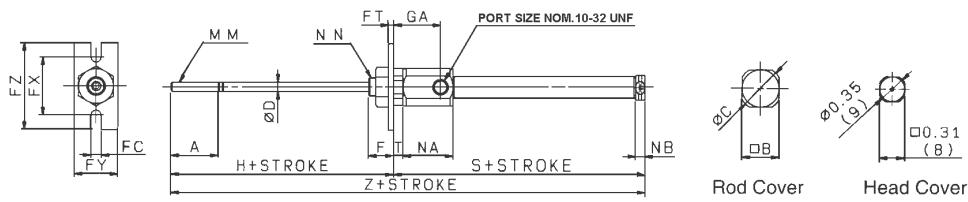
* In case of Auto Switches with ø6 Bore, add 5mm to S and Z.

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

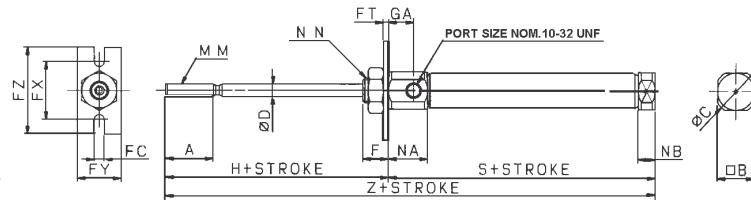
DIMENSIONS (INCH)

STANDARD SINGLE ACTING SPRING EXTEND ROD SIDE FLANGE TYPE NCJ2F_--T

NCJ2F6



NCJ2F10, 16

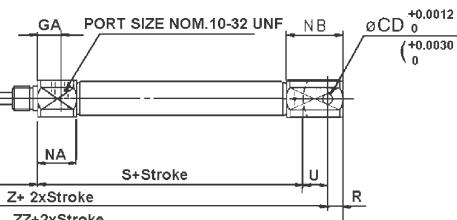


Bore Size*	A	B	C	D	F	FC	FT	FX	FY	FZ	GA	H	MM	NN	NA	NB	T	S					Z										
																		50	100	150	200	300	400	500	50	100	150	200	300	400	500		
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.13	0.06	0.67	0.55	1.10	0.57	1.10	No5-40UNC	1/4-28UNF	0.63	0.12	0.12	0.14	0.26	1.92	2.20	2.45	2.94	-	-	-	3.02	3.31	3.56	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	No6-40UNC	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	No10-32UNC	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



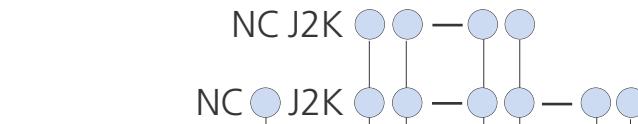
S										Z										
50	100	150	200	300	400	500	50	100	150	200	300	400	500	50	100	150	200	300	400	500
3.73	3.94	4.23	4.71	-	-	-	3.91	4.12	4.41	4.89	5.31	5.92	6.69	3.91	4.12	4.41	4.89	5.31	5.92	6.69

*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	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	No6-40UNC	0.49	0.93	0.24	0.31	2.08	2.29	2.57	3.06	-	-	-	3.50	3.70	3.99	4.48	-	-	-	4.57	4.99	5.61	6.38		
ø16 (5/8")	0.60	0.71	0.79	0.187	0.188	0.196	0.31	1.10	No10-32UNC	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



AUTO SWITCH CAPABLE

-Not Switch Capable
- DSwitch Capable With Built-In Magnet

MOUNTING

- BBasic
- DDouble Clevis
- LAxial Foot
- FRod Side Flange

BORE/STD STROKE(HUNDREDTHS OF AN INCH)

- $\varnothing 10$ (3/8") 050, 100, 150, 200, 300, 400, 500, 600
- $\varnothing 16$ (5/8") 050, 100, 150, 200, 300, 400, 500, 600, 700, 800

Mounting Bracket	PART NUMBER OF MOUNTING BRACKETS	
	10	16
Foot	NCJ-L010B	NCJ-L016B
Flange	NCJ-F010B	NCJ-F016B

NUMBER OF SWITCHES

-2 Pieces
- S1 Piece
- nn Pieces

APPLICABLE AUTO SWITCH

See NCJ2 Accessories Section

PORT LOCATION ON HEAD COVER

- RIn-Line
-Perpendicular

TECHNICAL
SPECIFICATIONS

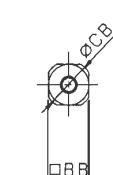
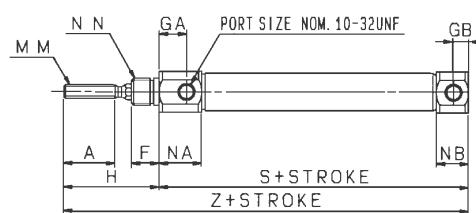
Fluid	Air				
Proof Pressure	1MPa / 145 PSI				
Maximum Operating Pressure	0.7MPa / 100 PSI				
Minimum Operating Pressure	0.05MPa / 8.5 PSI				
Ambient and Fluid Temperature	-10°C~+70°C / 14~160°F				
Cushion	Rubber Cushion (Standard)				
Lubrication	None (Non-lube)				
Stroke Tolerance	+0.4 0mm				
Non-Rotating Accuracy	$\varnothing 10: \pm 1.5^\circ$ / $\varnothing 16: \pm 1^\circ$				
Piston Speed	2~29.5 in/s (50~750mm/s)				
Allowable Kinetic Energy	<table border="1"> <tr> <td>$\varnothing 10$</td> <td>0.30lbf in (0.35kgf cm)</td> </tr> <tr> <td>$\varnothing 16$</td> <td>0.78lbf in (0.9kgf cm)</td> </tr> </table>	$\varnothing 10$	0.30lbf in (0.35kgf cm)	$\varnothing 16$	0.78lbf in (0.9kgf cm)
$\varnothing 10$	0.30lbf in (0.35kgf cm)				
$\varnothing 16$	0.78lbf in (0.9kgf cm)				

DIMENSIONS (INCH)

NON-ROTATING DOUBLE ACTING SINGLE ROD BASIC TYPE NCJ2KB_-



Port location on Head Cover: In Line



Head Cover

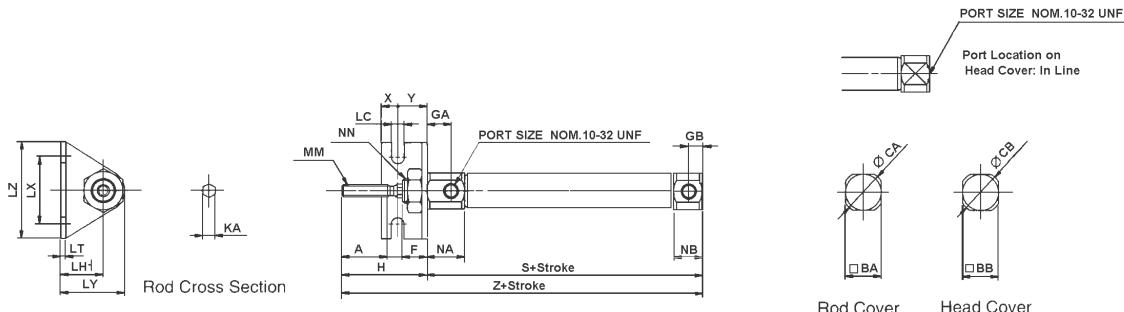
Bore Size	A	BA	BB	CA	CB	F	GA	GB	H	KA	MM	NN	NA	NB	S	Z
$\varnothing 10$ (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	0.31	0.196	1.10	0.17	No6-40UNF	0.49	0.37	1.81	2.91	
$\varnothing 16$ (5/8")	0.60	0.71	0.71	0.79	0.79	0.31	0.31	0.196	1.10	0.20	No10-32UNF	0.49	0.37	1.85	2.95	

DIMENSIONS
SEE NEXT PAGE



DIMENSIONS (INCH)

Non-Rotating Double Acting Single Rod Foot Type NCJ2KL_-

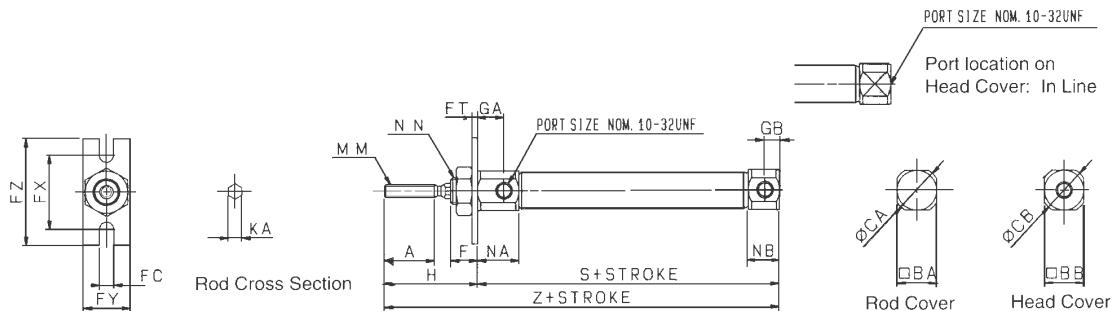


Bore Size	A	BA	BB	CA	CB	F	GA	GB	H	KA	LC	LH	LT	LX	LY	LZ	MM	NN	NA	NB	X	Y	S	Z
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	0.31	0.196	1.10	0.17	0.20	0.55	0.09	1.18	0.94	1.38	No6-40UNF	3/8-24UNF	0.49	0.37	0.21	0.38	1.81	2.91
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	0.31	0.31	0.196	1.10	0.20	0.20	0.55	0.09	1.18	0.94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

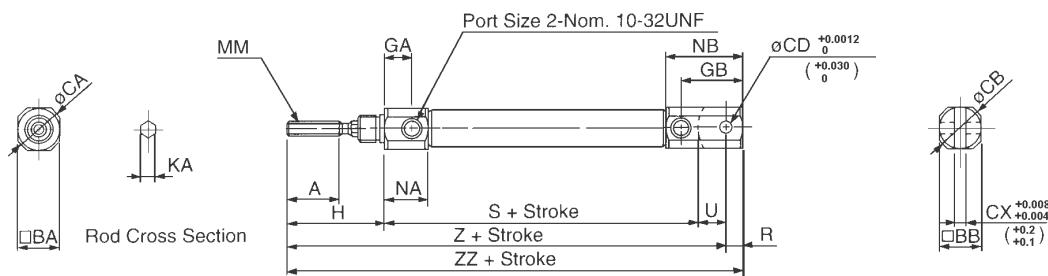


Bore Size	A	BA	BB	CA	CB	F	FC	FT	FX	FY	FZ	GA	GB	H	KA	MM	NN	NA	NB	S	Z
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	0.20	0.09	1.14	0.79	1.38	0.31	0.196	1.10	0.17	No6-40UNF	3/8-24UNF	0.49	0.37	1.81	2.91
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	0.31	0.20	0.09	1.18	0.79	1.38	0.31	0.196	1.10	0.20	No10-32UNF	7/16-20UNF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



DIMENSIONS (INCH)

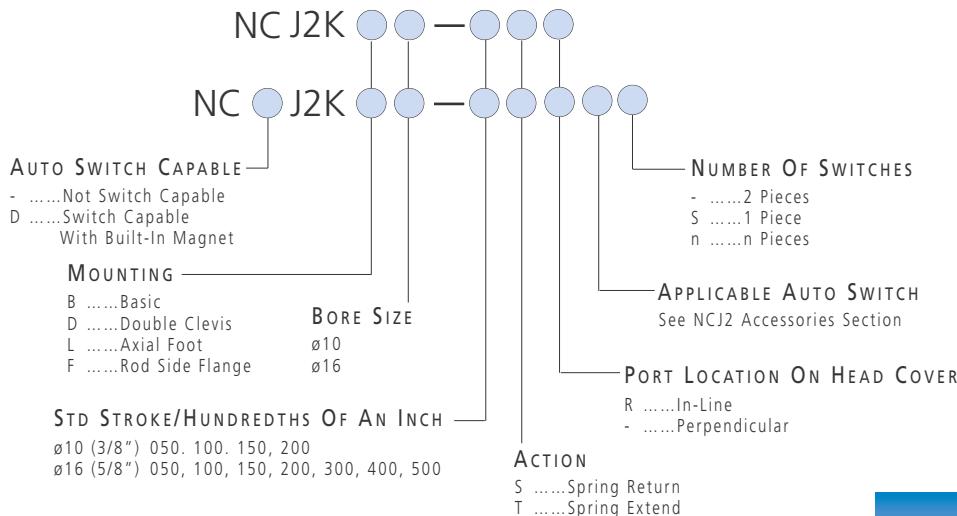
Non-Rotating Double Acting Single Rod Double Clevis Type NCJ2KD_-



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



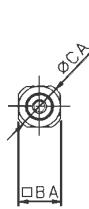
Mounting Bracket	PART NUMBER OF MOUNTING BRACKETS	
	Bore Size (mm)	
Foot	10	16
Flange	NCJ-F010B	NCJ-F016B

TECHNICAL
SPECIFICATIONS

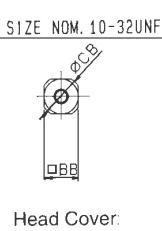
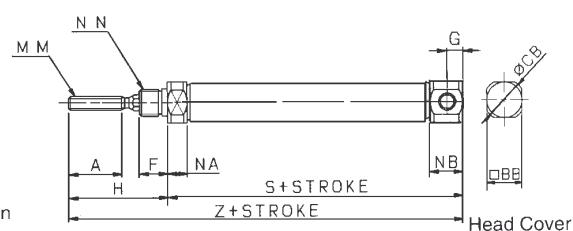
Fluid	Air
Proof Pressure	1MPa / 145 PSI
Maximum Operating Pressure	0.7MPa / 100 PSI
Minimum Operating Pressure	0.14MPa / 21 PSI
Ambient and Fluid Temperature	-10°C~+70°C / 14~160°F
Cushion	Rubber Cushion (Standard)
Lubrication	None (Non-lube)
Stroke Tolerance	+0.4 0mm
Non-Rotating Accuracy	ø10: ±1.5° / 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)



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



Rod Cross Section



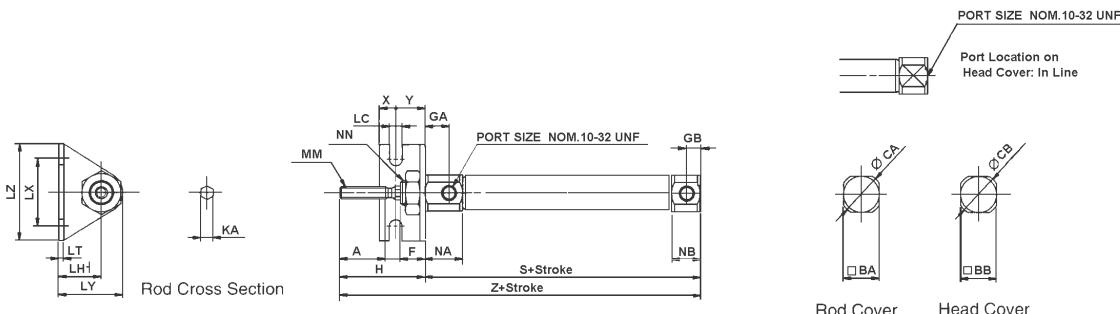
Bore Size	A	BA	BB	CA	CB	F	G	H	KA	MM	NN	NA	NB	S				Z									
														50	100	150	200	300	400	500							
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	0.196	1.10	0.17	No6-40UNF	3/8-24UNF	0.21	0.37	1.80	2.01	2.30	2.78	-	-	2.91	3.11	3.40	3.89	-	-	-	
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	0.31	0.196	1.10	0.20	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

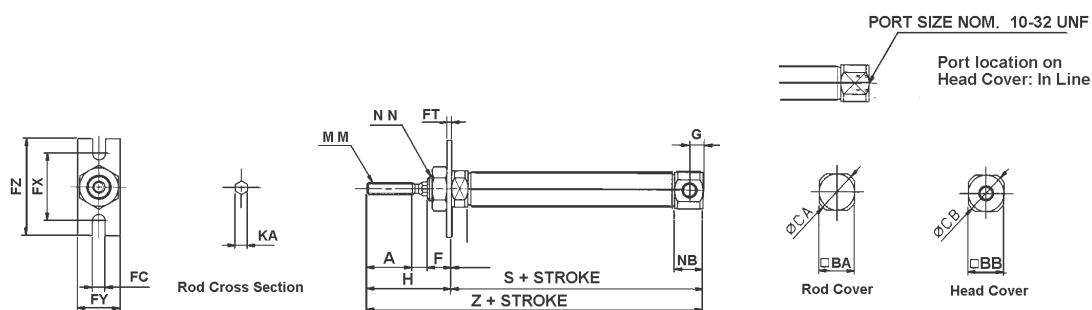


Bore Size	A	BA	BB	CA	CB	F	H	KA	LC	LH	LT	LX	LY	LZ	MM	NN	NA	NB	X	Y	S	50	100	150	200	300	400	500
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	1.10	0.17	0.20	0.55	0.09	1.18	0.94	1.38	No6-40UNF	3/8-24UNF	0.21	0.37	0.21	0.38	1.80	2.01	2.30	2.78	-	-	-	
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	0.31	1.10	0.20	0.20	0.55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



DIMENSIONS (INCH)

Non-Rotating Single Acting Spring Return Rod Side Flange Type NCJ2KF_-S

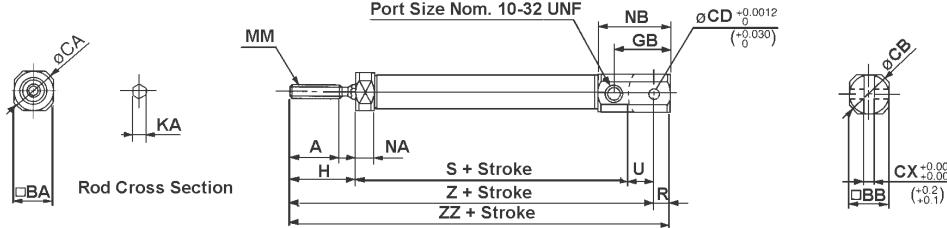


Bore Size	A	BA	BB	CA	CB	F	G	FC	FT	FX	FY	FZ	H	KA	MM	NN	NA	NB	S			Z			
																			50	100	150	200	300	400	500
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	.196	0.20	0.09	1.18	0.79	1.38	1.10	0.17	No6-40UNF	3/8-24UNF	0.21	0.37	1.80	2.01	2.30	2.78	-	-	-
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	0.31	.196	0.20	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



DIMENSIONS (INCH)

Non-Rotating Single Acting Spring Return Double Clevis Type NCJ2KD_-S



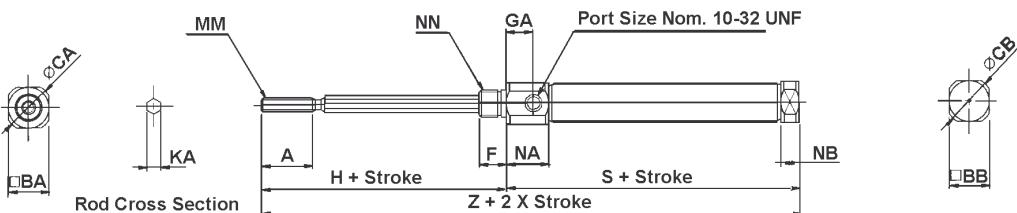
ZZ				
50	100	150	200	300
3.14	3.35	3.64	4.12	-

$\phi CA^{+0.008}_{-0.004}$ $\phi CB^{+0.008}_{-0.004}$ $\square BA$ $\square BB$ $CX^{+0.008}_{-0.004}$ $(^{+0.2}_{-0.1})$

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							
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)

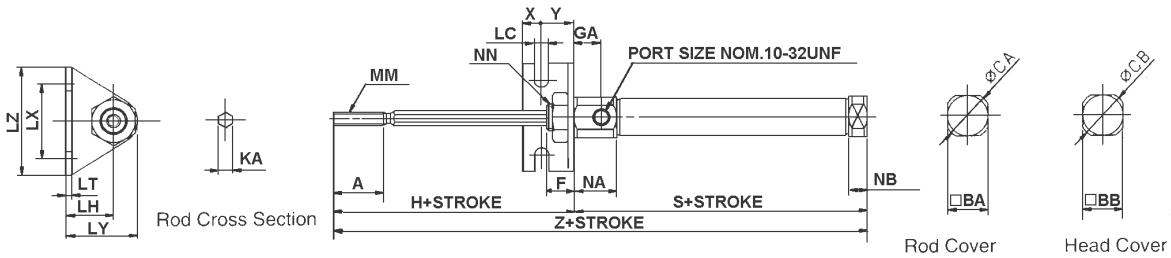
NON-ROTATING SINGLE ACTING SPRING EXTEND BASIC TYPE NCJ2KB_ _T



Bore Size	A	S										Z															
		50	100	150	200	300	400	500	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)

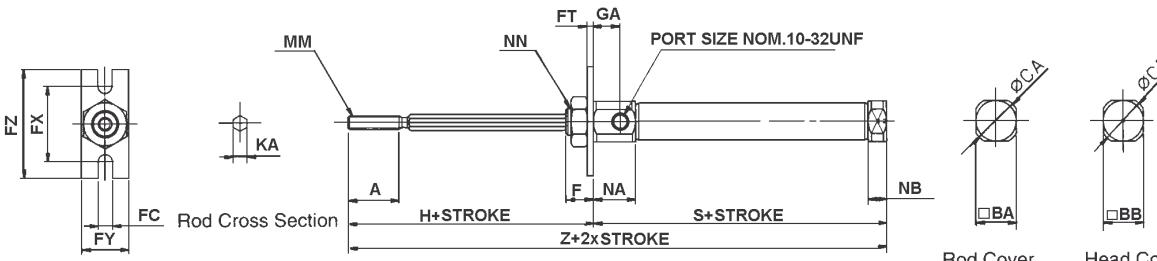
NON-ROTATING SINGLE ACTING SPRING EXTEND FOOT TYPE NCJ2KL_ _T



Bore Size	A	S										Z															
		50	100	150	200	300	400	500	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	-	-	-	-	-					
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 ROD SIDE FLANGE TYPE NCJ2KF_ _T

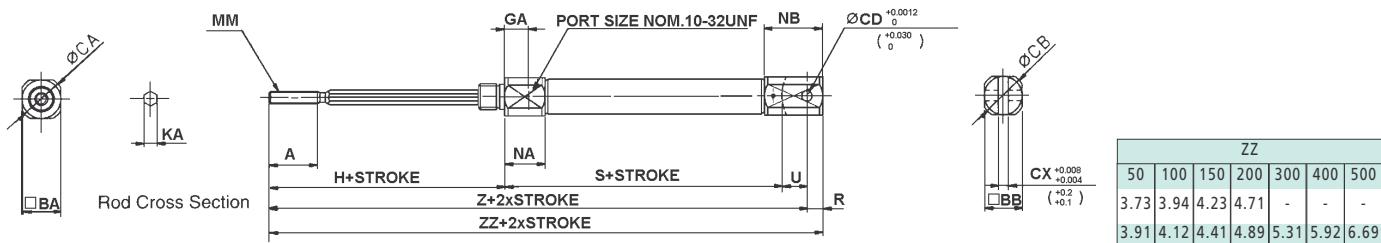
ACCESSORIES
SEE NEXT PAGE

Bore Size	A	S										Z																				
		50	100	150	200	300	400	500	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										
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



Bore Size	A	BA	BB	CA	CB	CD	CX	GA	H	KA	MM	NA	NB	R	U	S					Z								
																50	100	150	200	300	400	500							
$\phi 6$	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	-	-	-	
$\phi 10 (3/8")$	0.60	0.60	0.71	0.79	.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 — MOUNTING — BORE SIZE — STROKE

-Single Rod WDouble Rod



TECHNICAL SPECIFICATIONS

Applicable Cylinder Bore Size	$\phi 6, \phi 10, \phi 16$
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 — MOUNTING — BORE SIZE — STROKE

-Single Rod WDouble Rod



TECHNICAL SPECIFICATIONS

Applicable Cylinder Bore Size	$\phi 6, \phi 10, \phi 16$
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 — MOUNTING — BORE SIZE — STROKE

-Single Rod WDouble Rod



TECHNICAL SPECIFICATIONS

Applicable Cylinder Bore Size	$\phi 6, \phi 10, \phi 16$
Action	Double Acting (Single/Double Rod)
Ambient and Fluid Temperature	-55°C~+70°C / -67~160°F
Piston Velocity	10 ~ 50 mm/s (-4 ~ 2 in/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

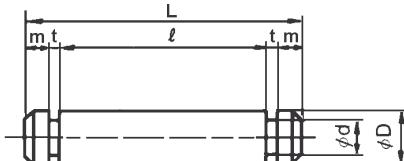
ACCESSORIES
Auto Switches

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
	Grommet		110VAC	5 ~ 20 mA
D-C76	Grommet	PLC	4 ~ 8 VDC	20 mA
	Connector		24V AC/DC or less	50mA
D-C80	Grommet	PLC	48V AC/DC	40mA
	Connector		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)	

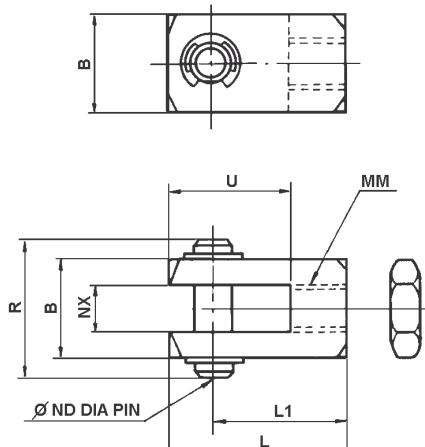
ACCESSORIES
Series NCJ2 Switch Bands

BORE SIZE	PART NO
ø6	BJ2-006
ø10	BJ2-010
ø16	BJ2-016


ACCESSORIES
Series NCJ2 Rear Clevis Pin


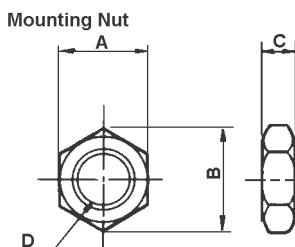
PART NO	BORE SIZE	øD	L	ød	e	M	t
NCD-J010	ø10 (3/8")	0.188	0.59	0.147	0.48	0.03	0.03
NCD-J016	ø16 (5/8")	0.187	0.90	0.147	0.72	0.06	0.03

Note) includes 2 Retaining Ring

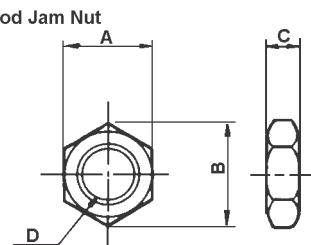
ACCESSORIES
Series NCJ2 Piston Rod Clevis


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

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

ACCESSORIES
Series NCJ2 Mounting Nut


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

ACCESSORIES
Series NCJ2 Rod Jam Nut


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


 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
BPanel Mount
SPlug Mount

 BORE SIZE
6
10
15

 STROKE (MM)
5
10
15

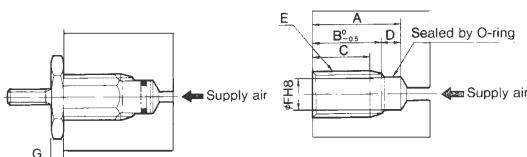
 HOSE NIPPLE FOR
H6 ... Ø6x4MM I/D TUBE
H4 ... Ø4x2.5MM I/D TUBE

 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

DIMENSIONS

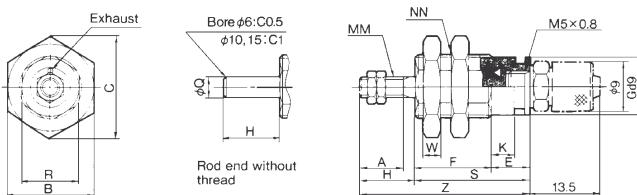
RECOMMENDED MOUNTING HOLE DIMENSIONS FOR PLUG MOUNT



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		M15x1.5				
	10	23.5	20	17						
	15	30.5	27	24						
15	5	19	14.5	11.5		M22x1.5				
	10	25	20.5	17.5						
	15	31.5	27	24						

DIMENSIONS

PANEL MOUNT TYPE: CJPB



Bore size (mm)	A	B	C	E	F			ØG	H	K	MM	NN	R	S			Z			Q	
					5 st	10 st	15 st							5 st	10 st	15 st	5 st	10 st	15 st		
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

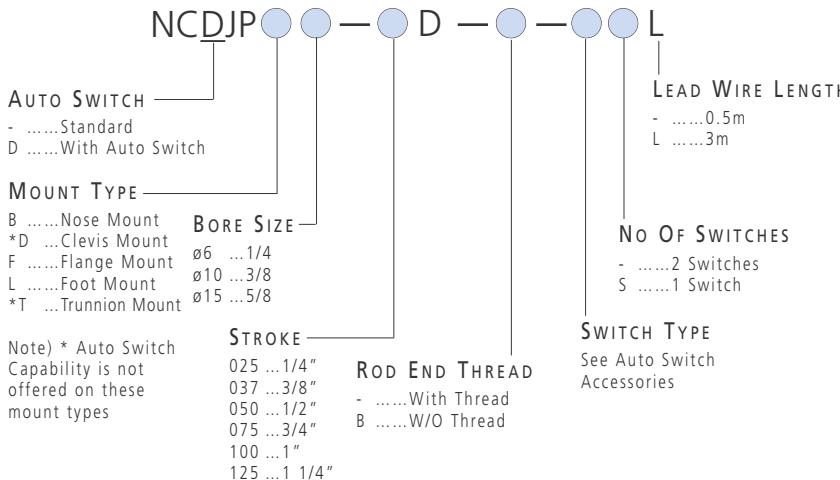


TECHNICAL SPECIFICATIONS

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



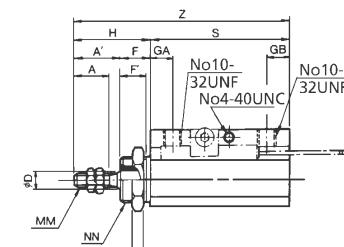
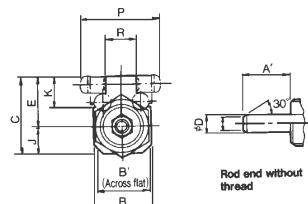
AUTO SWITCH SPECIFICATIONS

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 Breakdown 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



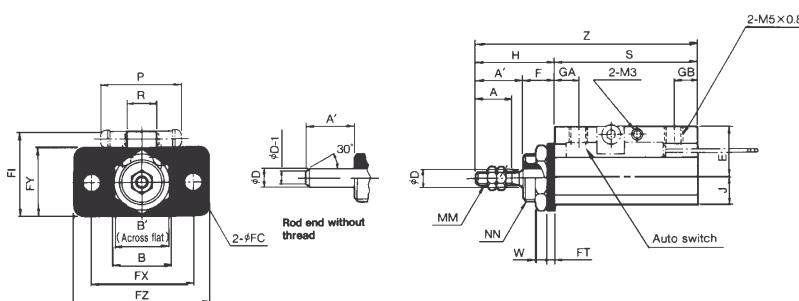
DIMENSIONS NOSE MOUNT: NC•JPB



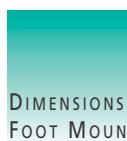
Bore Size	A	A'	B	B'	C	ØD	F	GA	GB	H	J	L	MM	NN	S					Z					With Auto Switch	
															025	037	050	075	125	W	025	037	050	075	125	P
Ø6 (1/4")	0.38	0.50	0.55	0.56	0.65	0.125	0.31	0.24	0.24	0.81	0.24	0.43	No5-40UNC	3/8-24UNF	1.26	1.38	1.50	1.76	-	0.13	2.07	2.19	2.31	2.57	-	0.79
Ø10 (3/8")	0.50	0.63	0.59	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

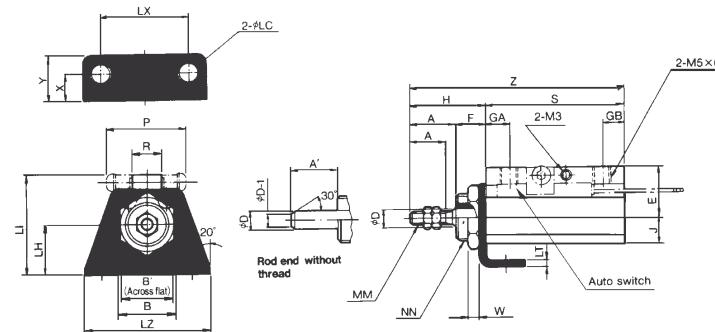
Bore Size	ϕFC	F_I	FT	FX	FY	FZ
$\phi 6$ (1/4")	0.13	0.73	0.06	0.94	0.63	1.26
$\phi 10$ (3/8")	0.18	0.87	0.06	1.10	0.71	1.46
$\phi 15$ (5/8")	0.22	1.05	0.09	1.42	0.87	1.93



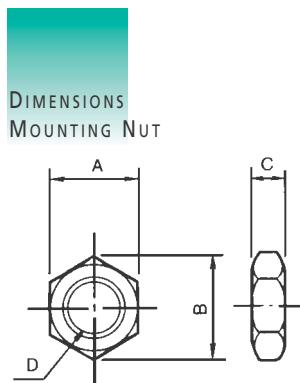
Bore Size	A	A'	B	B'	ϕD	E	F	GA	GB	H	J	L	MM	NN	S					Z					With Auto Switch	
															025	037	050	075	125	W	025	037	050	075	125	P
$\phi 6$ (1/4")	0.38	0.50	0.55	0.56	0.125	0.41	0.31	0.24	0.24	0.81	0.24	0.43	No5-40UNC	3/8-24UNF	1.26	1.38	1.50	1.76	-	0.13	2.07	2.19	2.31	2.57	-	0.79
$\phi 10$ (3/8")	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
$\phi 15$ (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



Bore Size	X	Y	ϕLC	LH	LT	LX	LZ
$\phi 6$ (1/4")	0.26	0.41	0.13	0.44	0.06	0.75	1.10
$\phi 10$ (3/8")	0.28	0.47	0.18	0.51	0.06	0.94	1.30
$\phi 15$ (5/8")	0.41	0.67	0.22	0.69	0.09	1.18	1.69

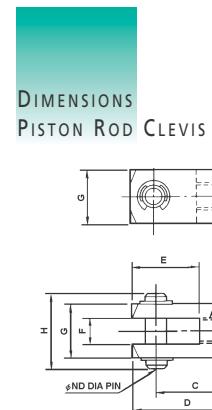


Bore Size	A	A'	B	B'	ϕD	E	F	GA	GB	H	J	L	MM	NN	S					Z					With Auto Switch
															025	037	050	075	125	W	025	037	050	075	125
$\phi 6$ (1/4")	0.38	0.50	0.55	0.56	0.125	0.31	0.24	0.24	0.81	0.24	0.43	No5-40UNC	3/8-24UNF	1.26	1.38	1.50	1.76	-	0.13	2.07	2.19	2.31	2.57	-	0.79
$\phi 10$ (3/8")	0.50	0.63	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
$\phi 15$ (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



Bore Size	Part No	A	B	C	D
$\phi 6$ (1/4")	NSNP-P006	0.56	0.65	0.13	3/8-24UNF
$\phi 10$ (3/8")	NSNP-P010	0.69	0.79	0.16	1/2-20UNF
$\phi 15$ (5/8")	NSNP-P015	0.75	0.86	0.19	9/16-18UNF

Bore Size	Part No	A	B	C	D
$\phi 6$ (1/4")	JM-005	0.31	0.11	0.36	5-40UNC
$\phi 10$ (3/8")	JM-02	0.38	0.43	0.13	10-32UNF
$\phi 15$ (5/8")	JM-02	0.38	0.43	0.13	10-32UNF



Bore Size	Part No	G	H	F	ϕND	E	B	D	C
$\phi 6$ (1/4")	NY-P006	0.32	0.44	.125	.125	0.38	No5-40UNC	0.56	0.44
$\phi 10$ (3/8")	NY-J015	0.39	0.54	.188	.188	0.56	No10-32UNF	0.94	0.75
$\phi 15$ (5/8")	NY-J015	0.39	0.54	.188	.188	0.56	No10-32UNF	0.94	0.75



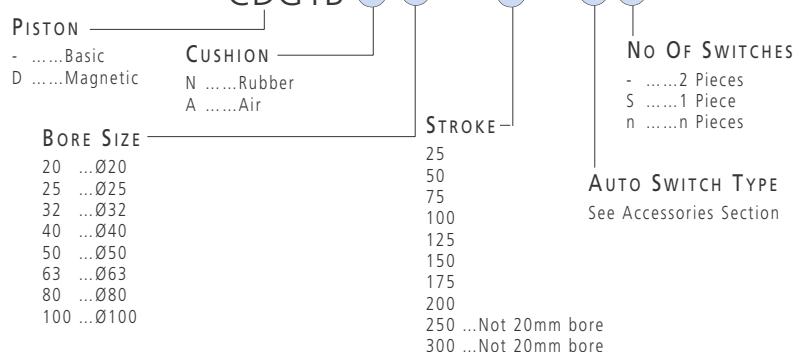
Bore Size	Part No	ϕD	L	ϕd	ℓ	m	t
$\phi 6$ (1/4")	NCT-P006	.125	0.81	.095	.70	0.03	0.018
$\phi 10$ (3/8")	NCT-P010	.188	0.94	.147	.81	0.04	0.029
$\phi 15$ (5/8")	NCT-P015	.188	1.25	.147	1.11	0.04	0.029

AIR CYLINDER SERIES CG1 BORE SIZES Ø20~100MM

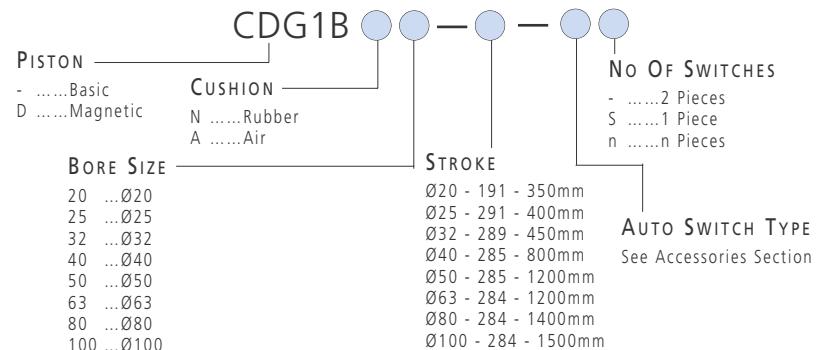
- ✓ Double acting
- ✓ Clean line
- ✓ A substantial reduction in overall length compared to tie-rod designed cylinders
- ✓ High velocity
- ✓ Magnetic piston for auto switch sensing as an option
- ✓ Non-rotate option available



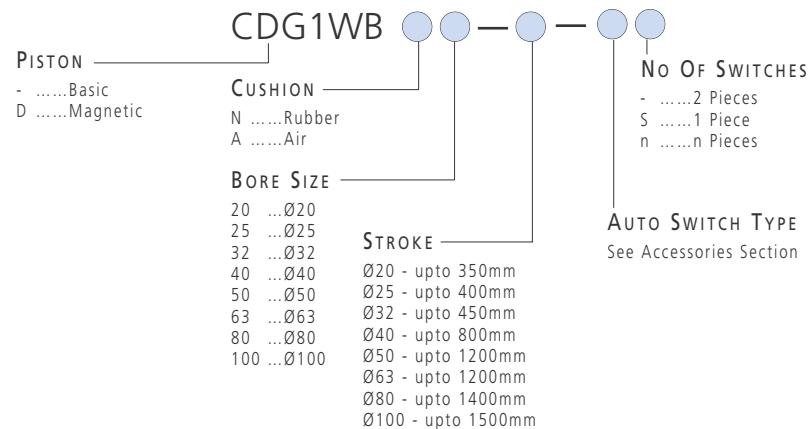
How To ORDER AIR CYLINDER SERIES CG1



LONG STROKE - DOUBLE END - CAP CONSTRUCTION



DOUBLE PISTON ROD



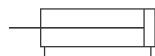
TECHNICAL SPECIFICATIONS

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~ø63 up to ~1000st: ± ^{1.4} mm
Lubrication	None required

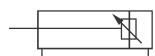
CONSTRUCTION SPECIFICATIONS

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

SYMBOLS RUBBER CUSHIONED



AIR CUSHIONED



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	OPERATING VOLTAGE	MAXIMUM CURRENT OR OPERATING CURRENT RANGE (mA)	INDICATOR LIGHT/WIRE
D-B54	24VDC	5~50mA	Yes/2 Wire
	110VAC	5~25mA	
	220VAC	5~12.5mA	
D-B53	24VDC	5~50mA	Yes/2 Wire
D-B64	24VDC	50mA	No/2 Wire
	110VAC	25mA	
	220VAC	12.5mA	
D-B73	24VDC	5~40mA	Yes/2 Wire
D-C73	110VAC	5~20mA	
D-C73C			
D-B76	4~8VDC	20mA	Yes/2 Wire
D-C76			
D-B80	24V	50mA	No/2 Wire
D-C80	48V	40mA	
D-C80C	110V	20mA	

SOLID STATE SWITCHES	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

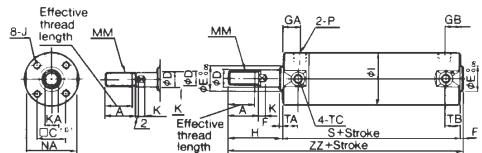
BM1-01020
BM1-02025
BM1-32032
BM1-04040
BM1-05050
BM1-06063

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

BA-01020
BA-02025
BA-32032
BA-04040
BA-05050
BA-06063
BA-08080
BA-10100

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

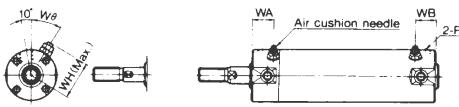
BMA2-020020
BMA2-025025
BMA2-032032
BMA2-040040
BMA2-050050
BMA2-063063


DIMENSIONS
RUBBER CUSHION TYPE CDG1BN


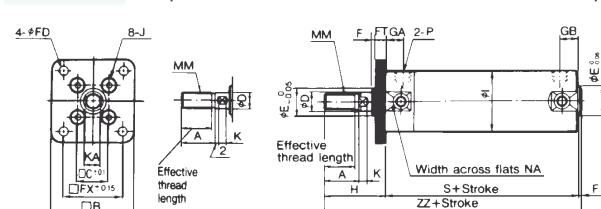
Bore (mm)	Stroke range (mm)	Effective thread length	A	□C	ØD	ØE	F	GA	GB	øl	J	K	KA	MM	NA	P	S	TA	TB	*TC
20	~200	15.5	18	14	8	12	2	12	12	26	M4x0.7 Depth 7	4	6	M8x1.25	24	1/8	69	11	11	M5x0.8
25	~300	19.5	22	16.5	10	14	2	12	12	31	M5x0.8 Depth 7.5	5	8	M10x1.25	29	1/8	69	11	11	M6x0.75
32	~300	19.5	22	20	12	18	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 garter 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


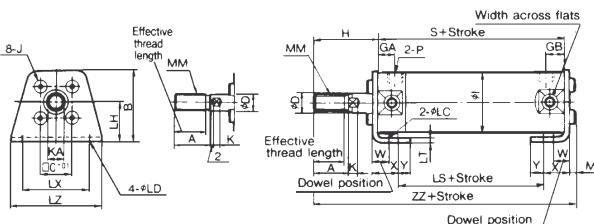
Bore (mm)	P	WA	WB	WH	WØ
20	M5x0.8	14	14	23	30°
25	M5x0.8	14	14	25	30°
32	1/8	14	13	28.5	25°
40	1/8	15	14	33	20°
50	1/4	16	15	40.5	20°
63	1/4	16	15	47.5	20°
80	3/8	22	22	60.5	20°
100	1/2	22	22	71	20°


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	øl	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

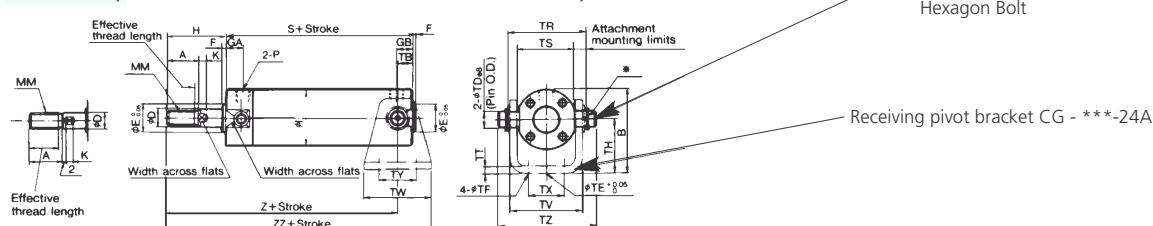
*Trunnion mounting threads in flats NA are not available for Ø80, Ø100 bores

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	$\square C$	$\emptyset D$	GA	GB	$\emptyset l$	J	K	KA	M	MM	*NA	P	S	W	X	Y	$\emptyset L$ C	$\emptyset L$ D	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	1/8	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	1/8	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

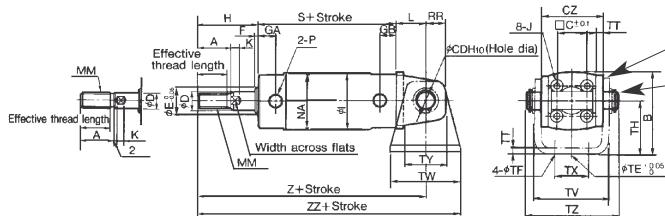
 DIMENSIONS
 TRUNNION (CAN ALSO BE FITTED TO NOSE END OF CYLINDER)


Bore (mm)	Stroke range (mm)	Effective thread length	A	B	$\emptyset D$	$\emptyset E$	F	GA	GB	$\emptyset l$	K	KA	MM	NA	P	S	TB	$\emptyset TDe8$	$\emptyset TE$	$\emptyset TF$
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 ^{0.026} _{-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

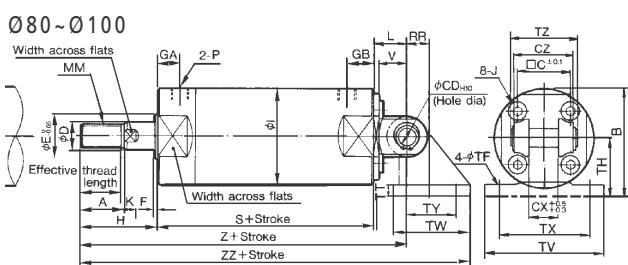
DIMENSIONS

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



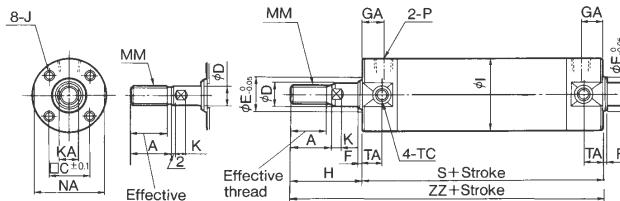
Rear Clevis CG - D **
Consists of Bracket
Pivot Pin

Receiving Pivot Bracket CG** - 24A



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

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

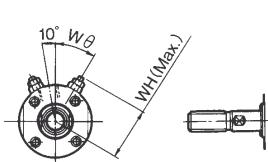
DIMENSIONS
RUBBER CUSHION TYPE
LONG STROKE CG1BN


φ20, φ25

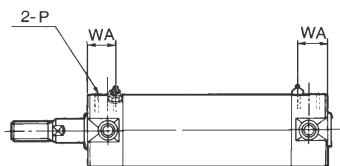
Bore (mm)	Stroke range (mm)	Effective thread length	A	□C	ØD	ØE	F	GA	ØI	J
20	191 - 350	15.5	18	14	8	12	2	12	26	M4x0.7 depth 7
25	291 - 400	19.5	22	16.5	10	14	2	12	31	M5x0.8 depth 7.5
32	289 - 450	19.5	22	20	12	18	2	12	38	M5x0.8 depth 8
40	285 - 800	27	30	26	16	25	2	13	47	M6x1 depth 12
50	285 - 1200	32	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

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	5/8	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.

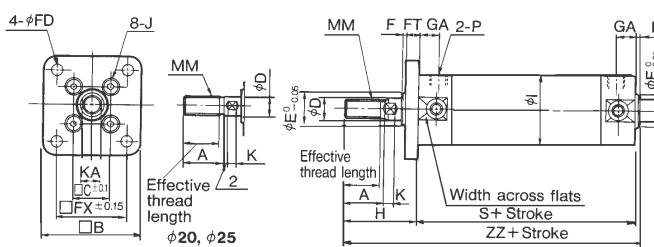
DIMENSIONS
AIR CUSHION TYPE
LONG STROKE CG1BA


φ20, φ25


AIR CUSHION TYPE

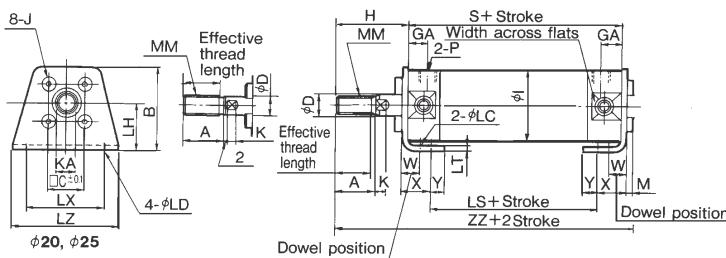
Bore (mm)	P	WA	WH	Wu
20	M5x0.8	14	23	30°
25	M5x0.8	14	25	30°
32	1/8	14	28.5	25°
40	1/8	15	33	20°
50	1/4	16	40.5	20°
63	1/4	16	47.5	20°
80	5/8	22	60.5	20°
100	1/2	22	71	20°

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

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


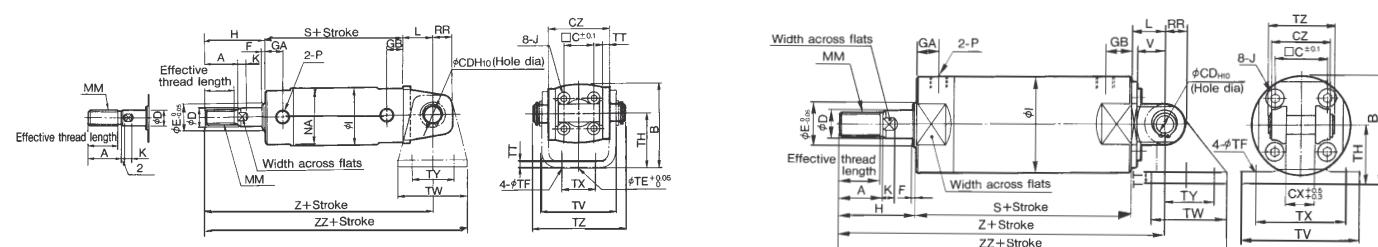
Bore	Stroke range (mm)	Effective thread length	A	□B	□C	ØD	ØE	F	□FX	ØFD	FT	GA
20	191 - 350	15.5	18	40	14	8	12	2	28	5.5	6	12
25	291 - 400	19.5	22	44	16.5	10	14	2	32	5.5	7	12
32	289 - 450	19.5	22	53	20	12	18	2	38	6.6	7	12
40	285 - 400	27	30	61	26	16	25	2	46	6.6	8	13
50	285 - 1200	32	35	76	32	20	30	2	58	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

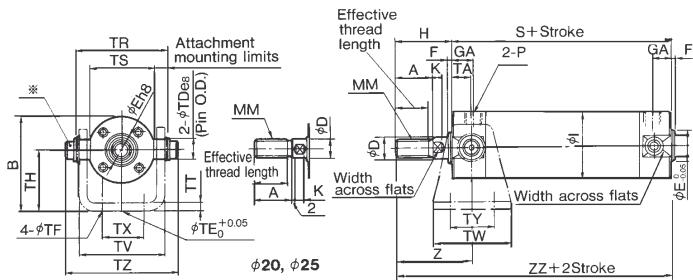
DIMENSIONS
CLEVIS (SEE ACCESSORIES FOR RECEIVING PIVOT BRACKET)

Bore (mm)	Stroke range (mm)	Effective thread length	A	B	C	ØE	ØF	GA	GB	ØI	J	K	KA	MM	NA	P	S ØCDH10
20	191 - 350	15.5	18	38	14	8	12	2	12	12	26	M4X0.7	4	6	M8X1.5	24	1/8 7 8 +0.038
25	291 - 400	19.5	22	45.5	16.5	10	14	2	12	12	31	M5X0.8	5	8	M10X1.25	29	1/8 7710 +0.058
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
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
50	285 - 1200	32	35	79	32	20	30	2	14	14	58	M8X1.5	55	1/4	M18X1.5	55	10216 +0.070
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
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
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	15.4	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)

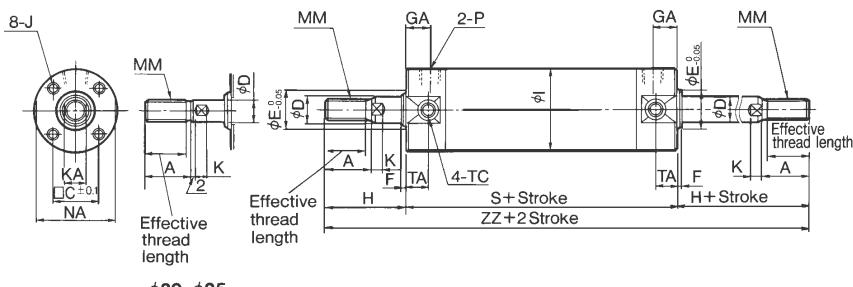


Bore (mm)	Stroke range (mm)	Effective thread length	A	B	ØD	ØE	F	GA	ØI	K	KA	MM	NA	P	S
20	191 - 350	15.5	18	38	8	12	2	12	26	4	6	M8x1.25	24	1/8	77
25	291 - 400	19.5	22	45.5	10	14	2	12	31	5	8	M10x1.25	29	1/8	77
32	289 - 450	19.5	22	54	12	18	2	12	38	5.5	10	M10x1.25	36	1/8	79
40	285 - 800	27	30	63.5	16	25	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 garter		
														H	Z	ZZ
20	11	8 ^{0.035} _{0.045}	10	5.5	25	39	28	3.2	35.8	42	16	28	47.6	35	46	114
25	11	10 ^{0.035} _{0.045}	10	5.5	30	43	33	3.2	39.8	42	20	28	53	40	51	119
32	11	12 ^{0.035} _{0.045}	10	6.6	35	54.5	40	4.5	49.4	48	22	28	67.7	40	51	121
40	12	14 ^{0.035} _{0.055}	10	6.6	40	65.5	49	4.5	58.4	56	30	30	78.7	50	62	139
50	13	16 ^{0.035} _{0.055}	20	9	50	80	60	6	72.4	64	36	36	98.6	58	71	162
63	13	18 ^{0.035} _{0.055}	20	11	60	98	74	8	90.4	74	46	46	119.2	58	71	162

DIMENSIONS

RUBBER CUSHION TYPE DOUBLE ROD CG1WBN

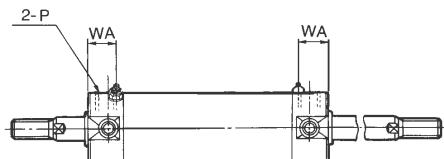
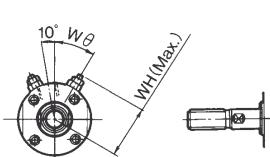


φ20, φ25

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

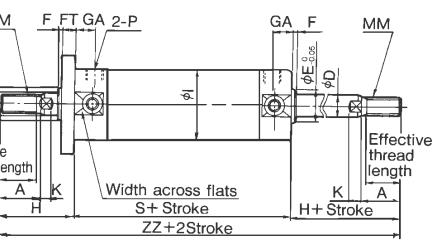
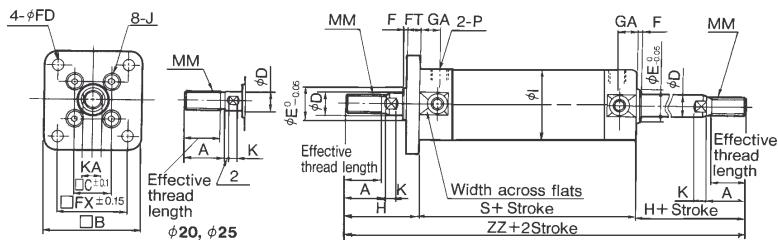
Bore (mm)	K	KA	MM	NA	P	S	TA	**TC	H	ZZ
20	4	6	M8x1.25	24	1/8	77	11	M5x0.8	35	147
25	5	8	M10x1.25	29	1/8	77	11	M6x0.75	40	157
32	5.5	10	M10x1.25	36	1/8	79	11	M8x1.0	40	159
40	6	14	M14x1.5	44	1/8	87	12	M10x1.25	50	187
50	7	18	M18x1.5	55	1/4	102	13	M12x1.25	58	218
63	7	18	M18x1.5	69	1/4	102	13	M14x1.5	58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

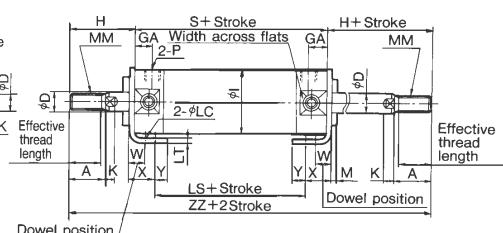
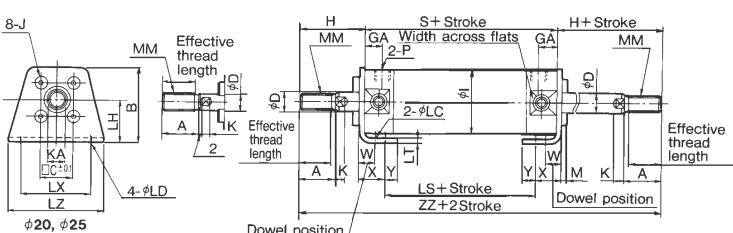
Bore (mm)	Stock range (mm)	Effective thread length	A	B	C	ØD	E	F	FX	FD	FT	GA
20	~200	15.5	18	40	14	8	12	2	28	5.5	6	12
25	~300	19.5	22	44	16.5	10	14	2	32	5.5	7	12
32	~300	19.5	22	53	20	12	18	2	38	6.6	7	12
40	~300	27	30	61	26	16	25	2	46	6.6	8	13
50	~300	32	35	76	32	20	30	2	58	9	9	14
63	~300	32	35	92	38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

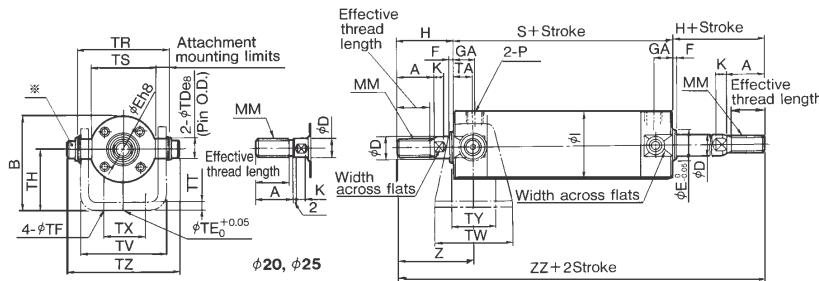


Bore (mm)	Stock range (mm)	Effective thread length	A	B	C	ØD	GA	ØI	J	K	KA	M
20	~200	15.5	18	34	14	8	12	26	M4x0.7	4	6	3
25	~300	19.5	22	38.5	16.5	10	12	31	M5x0.8	5	8	3.5
32	~300	19.5	22	45	20	12	12	38	M5x0.8	5.5	10	3.5
40	~300	27	30	54.5	26	16	13	47	M6x1	6	14	4
50	~300	32	35	70.5	32	20	14	58	M8x1.25	7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

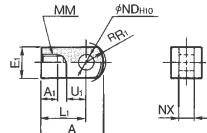
Bore (mm)	Stock Range (mm)	Effective Thread Length	A	B	ØD	E	F	GA	ØI	K	KA	MM	NA	P	S
20	~200	15.5	18	38	8	12	2	12	26	4	6	M8x1.25	24	1/8	77
25	~300	19.5	22	45.5	10	14	2	12	31	5	8	M10x1.25	29	1/8	77
32	~300	19.5	22	54	12	18	2	12	38	5.5	10	M10x1.25	36	1/8	79
40	~300	27	30	63.5	16	25	2	13	47	6	14	m14x1.5	44	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 Garter		
														H	Z	ZZ
20	11	8 ^{+0.015} _{-0.010}	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 ^{+0.035} _{-0.055}	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 ^{+0.035} _{-0.055}	20	9	50	80	60	6	72.4	64	36	36	98.6	58	71	218
63	13	18 ^{+0.035} _{-0.055}	20	11	60	98	74	8	90.4	74	46	46	119.2	58	71	218

DIMENSIONS

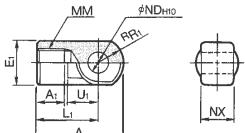
SINGLE ROD CLEVIS

I-G02, G03



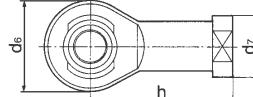
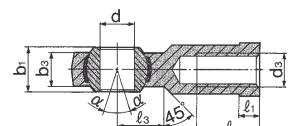
Material: Rolled steel

I-G04, G05, G08, G10



Material: Cast iron

DIMENSIONS

 ACCESSORIES
 PISTON ROD BALL JOINT DIN 648


Part no	Applicable bore (mm)	A	A1	E1	L1	MM	rR1	U1	NDH10	NX
I-G02	20	34	8.5	□16	25	M8x1.25	10.3	11.5	8 ^{+0.058} ₀	8 ^{-0.2} _{-0.4}
I-G03	25, 32	41	10.5	□20	30	M10x1.25	12.8	14	10 ^{+0.058} ₀	10 ^{-0.2} _{-0.4}
I-G04	40	42	14	ø20	30	M14x1.5	12	14	10 ^{+0.058} ₀	18 ^{-0.3} _{-0.5}
I-G05	50, 63	56	18	ø28	40	M18x1.5	16	20	14 ^{+0.070} ₀	22 ^{-0.3} _{-0.5}
I-G08	80	71	21	ø38	50	M22x1.5	21	27	18 ^{+0.070} ₀	28 ^{-0.3} _{-0.5}
I-G10	100	79	21	ø44	55	M26x1.5	24	31	22 ^{+0.084} ₀	32 ^{-0.3} _{-0.5}

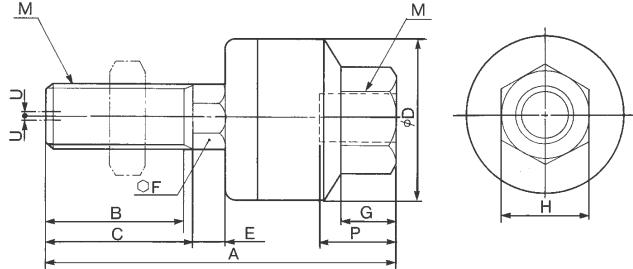
Bore size	Model	Thread d3	dH7	h	d6	b3	b1	l	d7	α°	l3
Ø20	KJ8D	M8	8	36	24	9	12	16	16	13	12
Ø25	KJ10D	M10X1.25	10	43	28	10.5	14	20	19	13	14
Ø32	KJ10D	M10X1.25	10	43	28	10.5	14	20	19	13	14

DIMENSIONS

FLOATING JOINT/SERIES JA

JA20-30

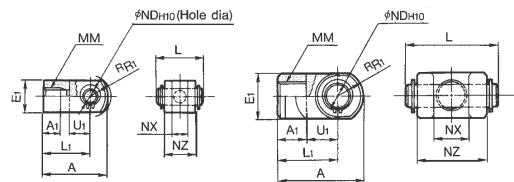
JA20-30



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

DIMENSIONS

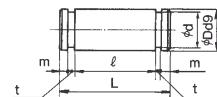
DOUBLE ROD CLEVIS



Part no	Applicable bore (mm)	A	A1	E1	L1	MM	RR1	U1	NDH10	NX	NZ	L	Applicable retaining pin
Y-G02	20	34	8.5	□16	25	M8x1.25	10.3	11.5	$8^{+0.058}_0$	$8^{+0.4}_{-0.2}$	16	21	IY-G02
Y-G03	25, 32	41	10.5	□20	30	M10x1.25	12.8	14	$10^{+0.058}_0$	$10^{+0.4}_{-0.2}$	20	25.6	IY-G03
Y-G04	40	42	16	ø20	30	M14x1.5	12	14	$10^{+0.058}_0$	$18^{+0.5}_{-0.3}$	36	41.6	IY-G04
Y-G05	50, 63	56	20	ø28	40	M18x1.5	16	20	$14^{+0.070}_0$	$22^{+0.5}_{-0.3}$	44	50.6	IY-G05
Y-G08	80	71	23	ø38	50	M22x1.5	21	27	$18^{+0.070}_0$	$28^{+0.5}_{-0.3}$	56	64	IY-G08
Y-G10	100	79	24	ø44	55	M26x1.5	24	31	$22^{+0.084}_0$	$32^{+0.5}_{-0.3}$	64	72	IY-G10

DIMENSIONS

ROD JOINT PIN

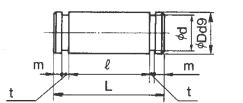


Material: Carbon steel

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


DIMENSIONS

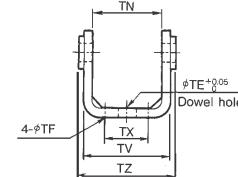
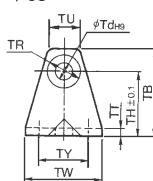
CLEVIS PIN (INCLUDED WITH CLEVIS, CIRCLIPS NOT SHOWN)



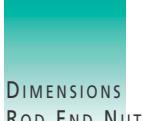
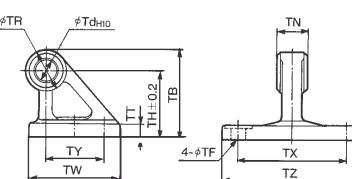
Material: Carbon steel

Part no	Applicable bore (mm)	$\phi Dd9$	L	ϕd	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

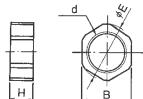
 TRUNNION BRACKET
 $\phi 20 \sim \phi 63$


Material: Rolled steel

 $\phi 80 \sim \phi 100$

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

Part no	Applicable bore (mm)	TB	ϕTd	ϕTE	ϕTF	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)	ϕTR	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	45	110
CG-100-24A	100	50	12	—	—	93	100	60	130

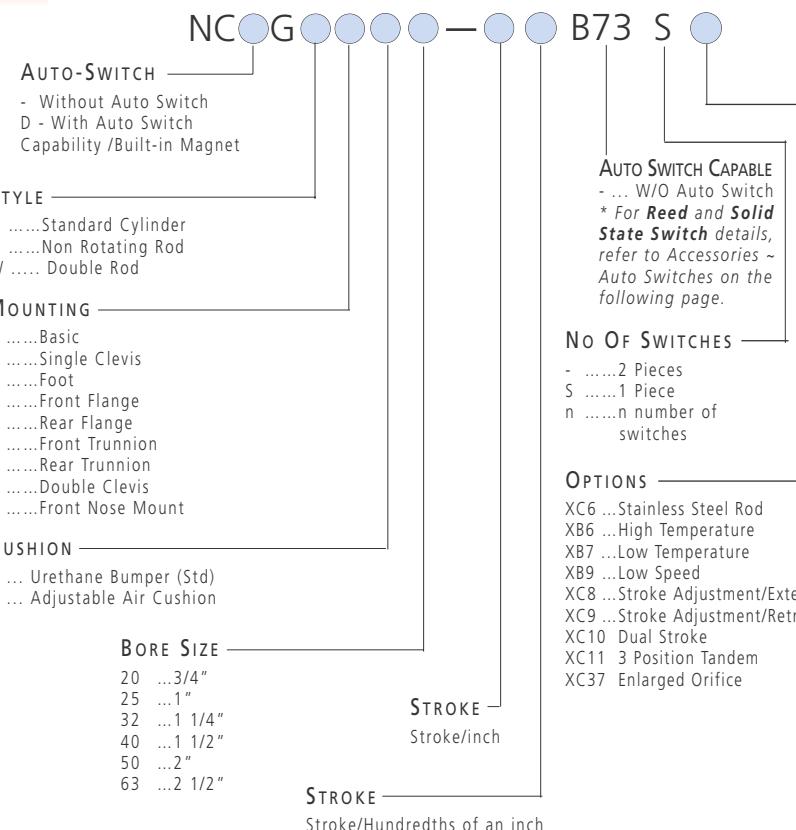
AIR CYLINDER SERIES NCG BORE SIZES 3/4"~2 1/2"

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



How To ORDER

AIR CYLINDER SERIES NCG

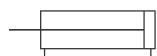


CONSTRUCTION SPECIFICATIONS

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



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		OPERATING VOLTAGE	MAXIMUM CURRENT OR OPERATING CURRENT RANGE (mA)	INDICATOR LIGHT/WIRE
MODEL NUMBER				
D-B54	24VDC	5~50mA	Yes/2 Wire	
	110VAC	5~25mA		
	220VAC	5~12.5mA		
D-B53	24VDC	5~50mA	Yes/2 Wire	
D-B64	24VDC	50mA	No/2 Wire	
	110VAC	25mA		
	220VAC	12.5mA		
D-B73	24VDC	5~40mA		
D-C73	110VAC	5~20mA	Yes/2 Wire	
D-C73C				
D-B76	4~8VDC	20mA	Yes/2 Wire	
D-C76				
D-B80	24V	50mA		
D-C80	48V	40mA		
D-C80C	110V	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	24VDC (10~28VDC)	-	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

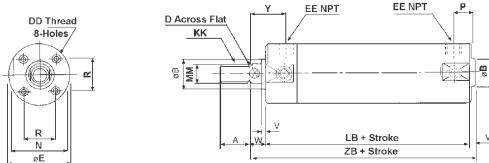
Fluid	Air
Proof Pressure	1.5MPa / 215 PSI
Max Operating Pressure	1MPa / 145 PSI
Min Operating Pressure	0.05MPa / 7 PSI
Ambient and Fluid Temperature	10~60°C / 40~140°F
Piston Velocity	50~1000mm/s / 2 ~ 40 in/sec
Cushion	Urethane Bumper or Adjustable Air Cushion
Lubrication	Non-Lube
Mounting	Basic, Foot,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

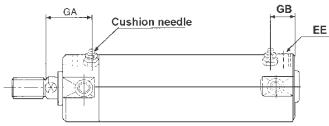
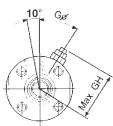
BASIC MODEL SERIES NCG
RUBBER CUSHION TYPE NC(D)GBN



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

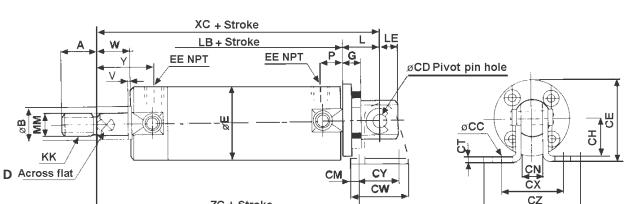
LONG STROKE (INCH)

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_-_-



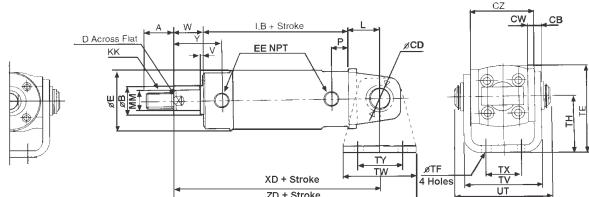
BORE SIZE	CC	SINGLE CLEVIS (INCH)								
		CE	CH	CM	CN	CT	CW	CX	CY	CZ
20	0.27	1.39	0.87	0.18	0.38	0.12	1.10	1.25	0.75	1.95
25	0.27	1.49	0.87	0.18	0.38	0.12	1.10	1.25	0.75	1.95
32	0.27	1.63	0.87	0.10	0.50	0.12	1.10	1.38	0.75	2.07
40	0.27	2.31	1.38	0.25	0.62	0.18	1.50	1.86	1.00	2.60
50	0.26	2.52	1.38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



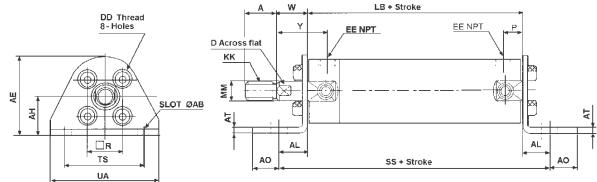
BORE SIZE	DOUBLE CLEVIS (INCH)							
	TY	TF	TV	TE	TH	TX	TW	UT
20	1.10	0.22	1.39	1.50	0.98	0.63	1.66	1.71
25	1.10	0.22	1.55	1.79	1.18	0.79	1.66	1.89
32	1.10	0.28	1.93	2.13	1.38	0.87	1.88	2.34
40	1.18	0.28	2.28	2.50	1.57	1.18	2.20	2.81
50	1.42	0.35	2.83	3.11	1.97	1.42	2.52	3.39
63	1.81	0.43	3.54	3.78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

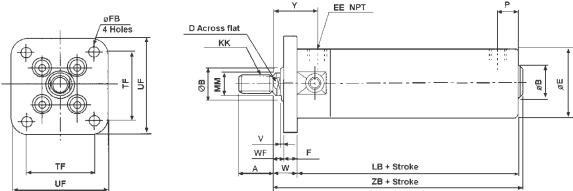
Note: Long Stroke design is a three piece construction: Rod Cover, Head Cover and Tube Body

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)

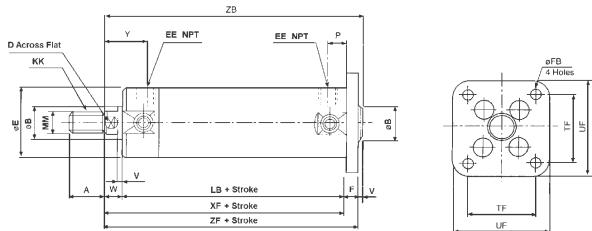
BORE SIZE	STROKE RANGE	LB	ZB
20	8.01~20	3.02	3.60
25	12.01~25	3.02	3.72
32	12.01~40	3.09	4.05
40	12.01~45	3.41	4.37
50	12.01~55	4.00	5.27
63	12.01~55	4.00	5.27

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

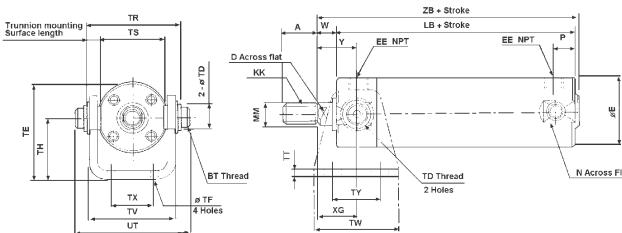
REAR FLANGE TYPE NC(D)GGN_-_- AND NC(D)GGA_-_-



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_--



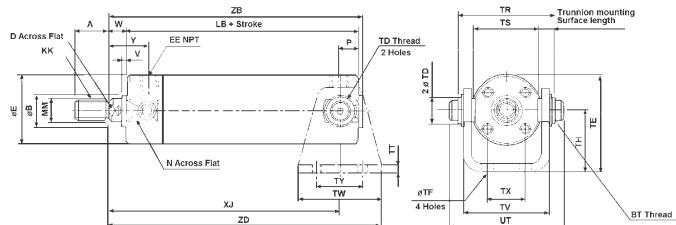
BORE SIZE	MAX STD STROKE	A	D	ϕE	EE	KK	LB	MM	N	P	W	XG	Y	ZB
20	8	0.50	0.24	1.02	1/8	1/4-28 UNF	2.70	0.315	0.94	0.47	0.50	0.93	0.97	3.28
25	12	0.50	0.31	1.22	1/8	5/16-24 UNF	2.70	0.394	1.14	0.47	0.62	1.05	1.09	3.40
32	12	0.75	0.39	1.50	1/8	7/16-20 UNF	2.78	0.472	1.42	0.43	0.88	1.31	1.35	3.74
40	12	0.75	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

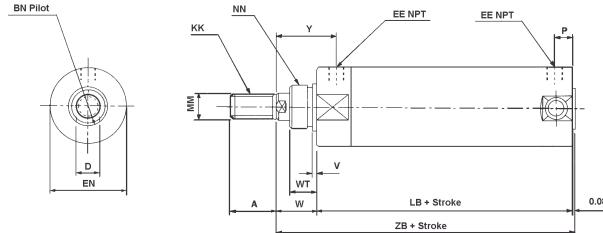
REAR TRUNNION TYPE NC(D)GTN_-- AND NC(D)GTA_--

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	ϕTF	TV	ϕTD	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

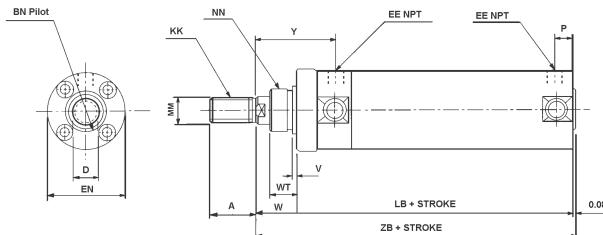
DIMENSIONS

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	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, Clevit, Front Nose (not available on ø20 and ø25) (ø32~ø63 as Special)

 REPAIR
 KITS

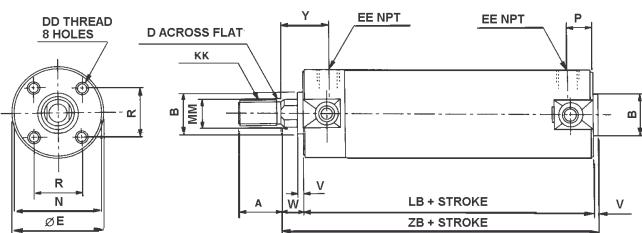
Non-Rotating Rod Series NCGK

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	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 (ϕ 20~ ϕ 63) 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

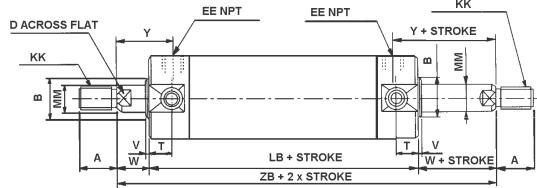
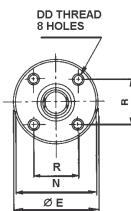
Bore Size	Bumper Design	Air Cushion Design
20	CG1WN20-PS	CG1WA20-PS
25	CG1WN25-PS	CG1WA25-PS
32	CG1WN32-PS	CG1WA32-PS
40	CG1WN40-PS	CG1WA40-PS
50	CG1WN50-PS	CG1WA50-PS
63	CG1WN63-PS	CG1WA63-PS

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

DIMENSIONS

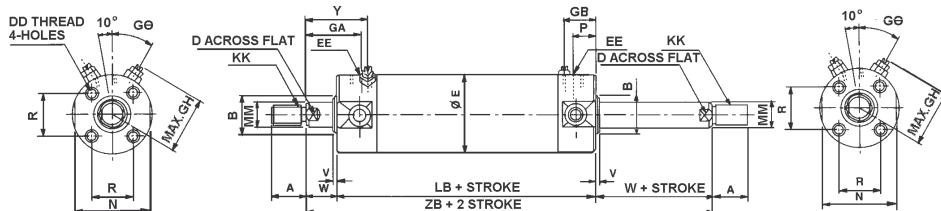
NON-ROTATING ROD SERIES NCGW

NC(D)GWN_-



BORE SIZE	MAX STD	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_-

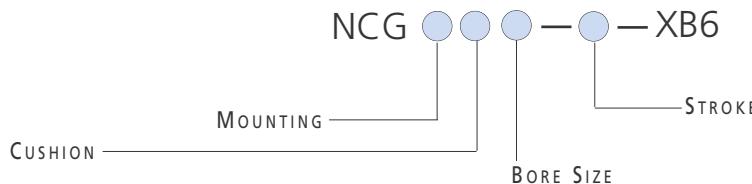


BORE SIZE	MAX STD	MM	KK	A	B	D	DD	E	EE	GA	GB	GH	GO	LB	N	P	R	V	W	Y	ZB
20	14	0.315	1/4-28	0.50	0.472 ⁰ _{-0.0011}	0.24	8-32x0.28	1.02	10-32 UNF	1.05	0.55	0.90	30°	3.02	0.94	0.47	0.55	0.08	0.50	0.97	4.02
25	16	0.394	5/16-24	0.50	0.551 ⁰ _{-0.0011}	0.31	10-32x0.30	1.22	10-32 UNF	1.17	0.55	0.98	30°	3.02	1.14	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

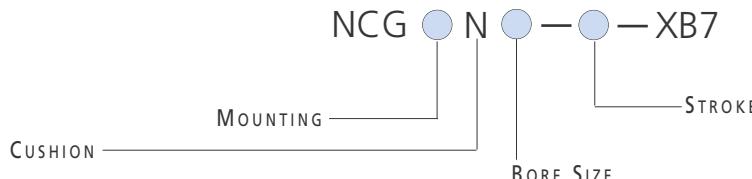
Bore (mm)	ø20, 25, 32, 40, 50, 63	
Action	Double Acting	
Fluid	Air	
Ambient Temperature Range	-20~150°C / -4~+300°F	
Action Velocity	50~500mm/s / 2~20 in/sec	
Cushion	ø20, 25, 32 ø40, 50, 63	Type: N = Without Cushion Type: A = With Air Cushion
Lubrication	Teflon® based Grease	
Mounting Style	Basic, Axial 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

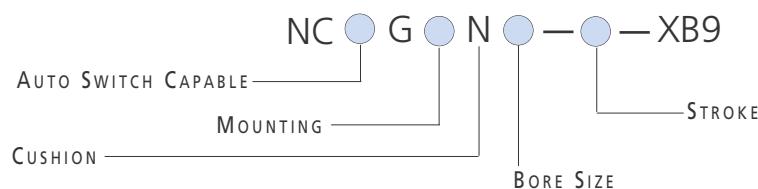
Bore (mm)	ø20, 25, 32, 40	
Action	Double Acting	
Fluid	Air	
Ambient Temperature Range	-30~70°C / -22~+158°F	
Piston Velocity	50~500mm/s / 2~20 in/sec	
Cushion	No	
Material	Seals: Low Nitrile Rubber Wearing Ring: Resin	
Lubrication	Teflon® based Grease	
Mounting Style	Basic, Axial Foot, Rod Side Flange,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

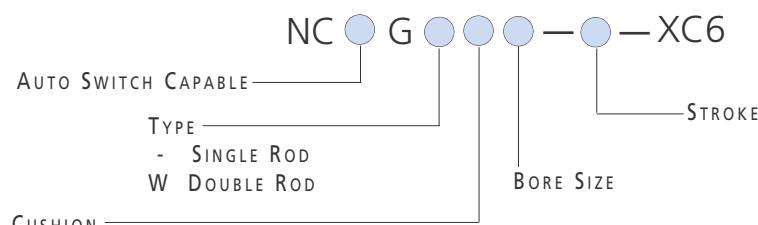
Bore (mm)	ø20, 25, 32, 40, 50, 63
Action	Double Acting
Fluid	Air
Maximum Operating Pressure	1MPa / 145 PSI
Minimum Operating Pressure	0.05MPa / 8 PSI
Piston Velocity	10~50mm/s / 0.4 ~ 2 in/sec
Mounting Style	Basic, Axial Foot, Rod Side Flange, Head Side Flange, Rod Side Trunnion, Head Side Trunnion,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

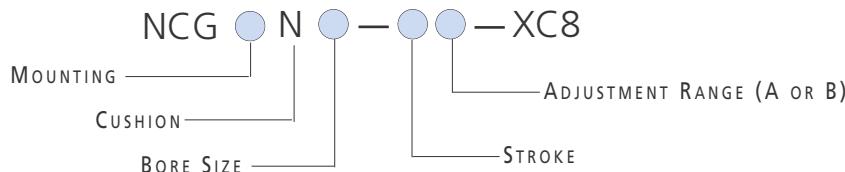
Bore (mm)	ø20, 25, 32, 40, 50, 63
Action	Double Acting/Single Rod, Double Rod
Piston Rod & Rod End Nut Material	Stainless Steel
Maximum Operating Pressure	1MPa / 145 PSI
Minimum Operating Pressure	Single Rod: 8 PSI / Double Rod: 11 PSI
Piston Velocity	50~1000mm/s / 2 ~ 40 in/sec
Mounting Style	Basic,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

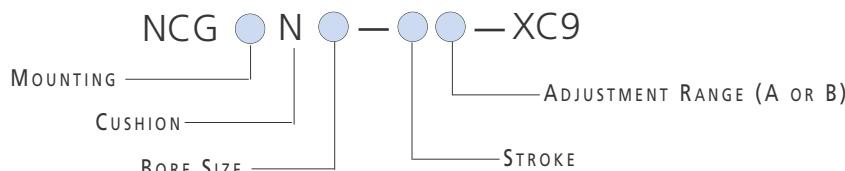
Bore (mm)	ø20, 25, 32, 40, 50, 63
Action	Double Acting
Fluid	Air
Maximum Operating Pressure	1MPa / 145 PSI
Minimum Operating Pressure	0.07MPa / 11 PSI
Piston Velocity	Out Stroke: 50~500mm/s / 2 ~ 20 in/sec Return Stroke: 50~1000mm/s / 2 ~ 40 in/sec
Cushion	Rubber Cushion
Ambient and Fluid Temperature	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

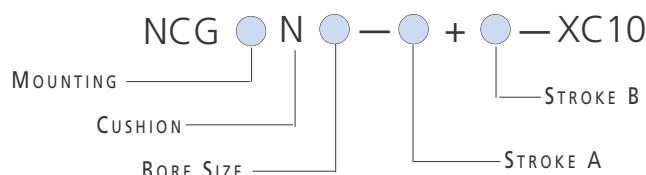
SERIES NCG - XC9 OPTION

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

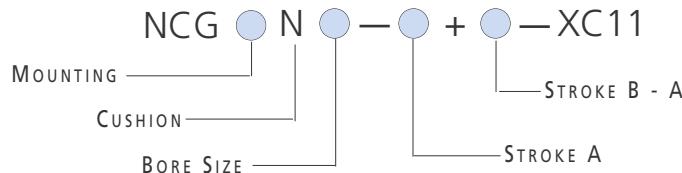
TECHNICAL
SPECIFICATIONS**SERIES NCG - XC10 OPTION**

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**

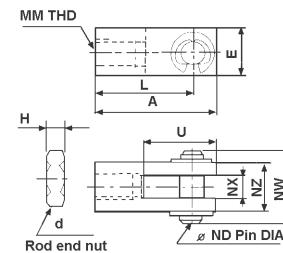
Bore (mm)	ø20, 25, 32, 40, 50, 63
Action	Double Acting
Fluid	Air
Maximum Operating Pressure	1MPa / 145 PSI
Minimum Operating Pressure	0.05MPa / 7 PSI
Piston Velocity	2 ~ 40 in/sec (5~1000mm/s)
Cushion	Rubber Cushion
Ambient and Fluid Temperature	5~60°C / 40 ~ 140°F
Stroke Range	ø20: ~8 inches (0~208mm)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

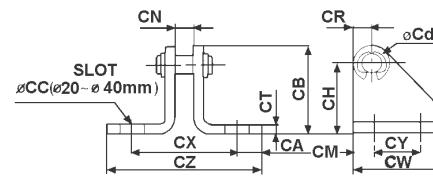
PISTON ROD CLEVIS

Part No	Bore (mm)	A	d	E	H	L	Inch					
							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**

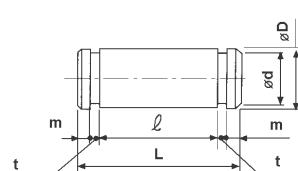
SINGLE CLEVIS BRACKET

Part No	Bore (mm)	Inch												
		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

Part No	Bore (mm)	Inch					
		oD	L	od	t	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

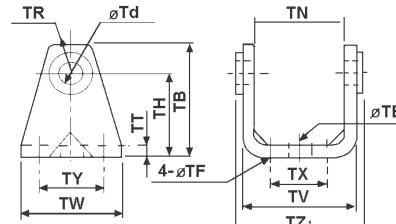


Part No	Bore (mm)	Inch					
		oD	L	od	t	m	t
NCD-G02	20	0.315	1.71	0.30	1.52	0.06	0.04
NCD-G025	25	0.394	1.89	0.38	1.68	0.06	0.05
NCD-G03	32	0.472	2.34	0.45	2.12	0.06	0.05
NCD-G04	40	0.551	2.81	0.53	2.56	0.08	0.05
NCD-G05	50	0.630	3.38	0.60	3.13	0.08	0.05
NCD-G06	63	0.709	4.15	0.67	3.85	0.10	0.05

**ACCESSORIES
SERIES NCG**

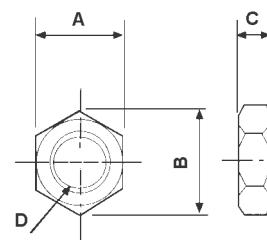
TRUNNION BRACKET AND DOUBLE CLEVIS BRACKET

Part No	Bore (mm)	Inch												
		TB	oTD	oTE	oTF	TH	TN	TR	TT	TV	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

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



AIR CYLINDER SERIES NCM STAINLESS STEEL CYLINDERS

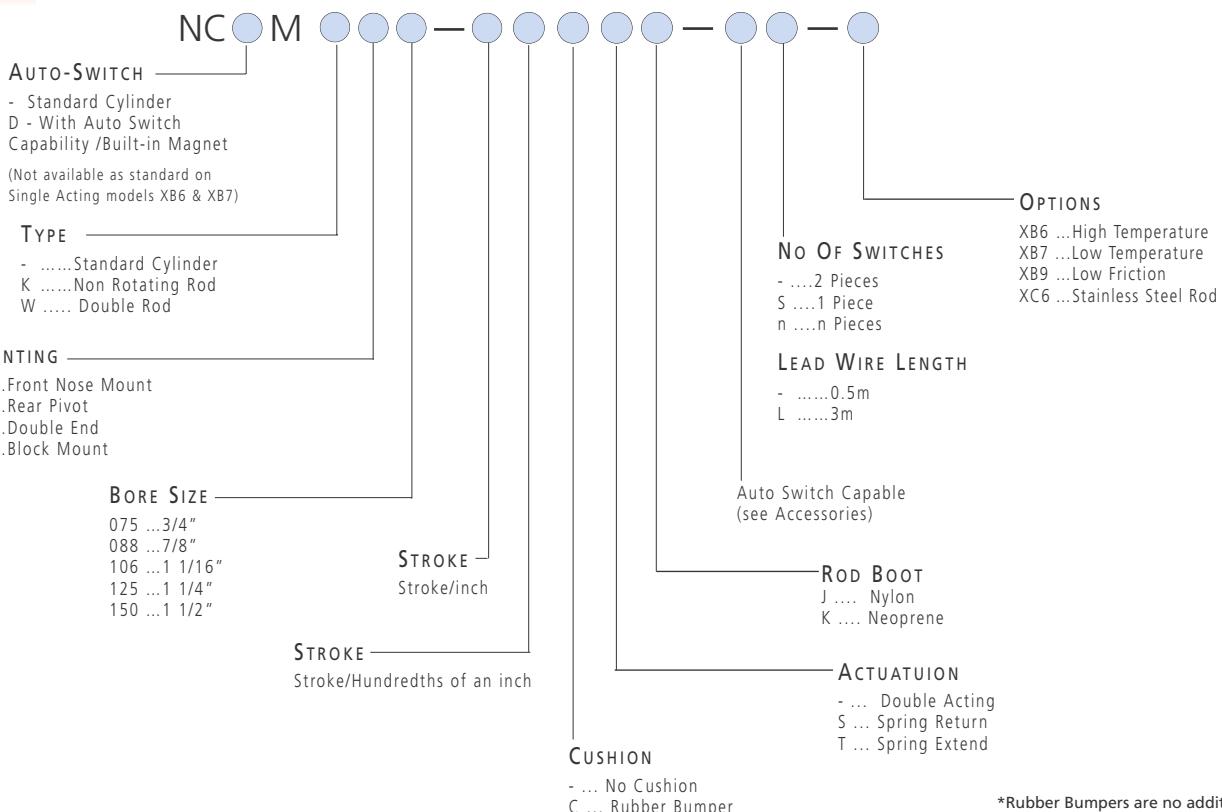
- ✓ Double Acting
- ✓ Single Acting / Spring Return / Extended
- ✓ Non-Rotate Option Available
- ✓ Double Rod
- ✓ Magnetic Piston for Auto Switch sensing as an option
- ✓ Polished Stainless Steel Tubes
- ✓ Clear Anodized Aluminum Head Covers
- ✓ All Stainless Steel Version Available



How To

ORDER

AIR CYLINDER SERIES NCM



MADE IN CANADA



MADE IN USA

DIMENSIONS SERIES NCM

*Rubber Bumper change in overall length

MODEL	BORE	075	088	106	125	150
NCMB						
NMC	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

*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

ACCESSORIES
AUTO SWITCHES SERIES NCM

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

ACCESSORIES
AUTO SWITCH MOUNTING BAND SERIES NCM

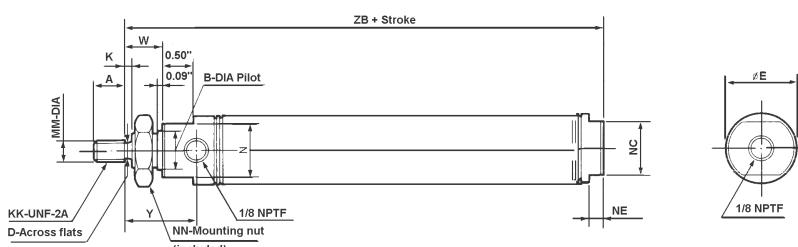
AUTO SWITCH TYPE	075	088	BORE SIZE 106	125	150
D-G59					
D-B54					
D-B64	NBA-075	NBA-088	NBA-106	NBA-125	NBA-150
D-K59					
D-B53					
D-C73	NBM2-075	NBM2-088	NBM2-106	NBM2-125	NBM2-150
D-H7A1					

TECHNICAL SPECIFICATIONS
STAINLESS STEEL CYLINDER SERIES NCM

Bore Size (inch)	075 (3/4")	088 (7/8")	106 (1 1/16")	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	1/2, 1, 2, 3, 4, 5, 6,	32
Rear End Mounting	7, 8, 10, 12	
Double Rod	1/2, 1, 2, 3, 4, 5, 6	12

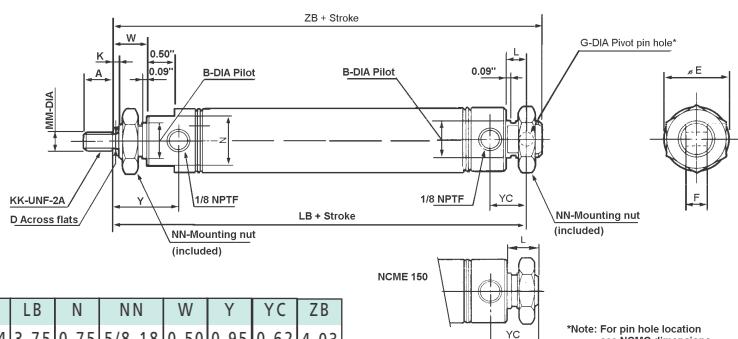
DIMENSIONS
DOUBLE ACTING / SINGLE ROD SERIES NCM
FRONT NOSE MOUNTING NC(D)MB


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

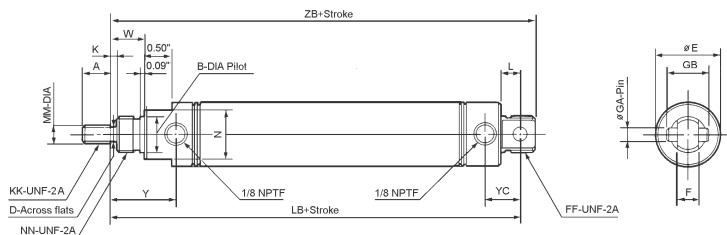


Bore (Inch)	MM	KK	A	B	D	E	F	G	K	L	LB	N	NN	W	Y	YC	ZB
075 (3/4")	0.250	1/4-28	0.50	0.624	-	0.86	0.38	0.251	-	0.34	3.75	0.75	5/8-18	0.50	0.95	0.62	4.03
088 (7/8")	0.250	1/4-28	0.50	0.624	-	0.93	0.38	0.251	-	0.34	3.56	0.75	5/8-18	0.50	0.95	0.62	3.84
106 (1 1/16")	0.312	5/16-24	0.50	0.624	0.25	1.12	0.38	0.251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

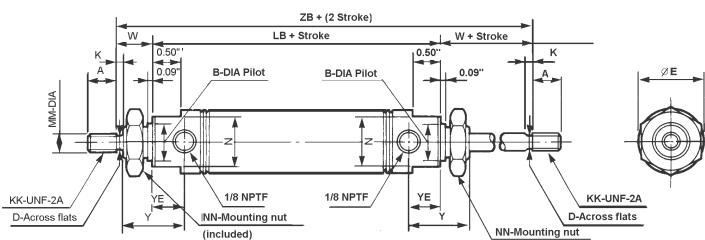
REAR PIVOT MOUNTING NC(D)MC



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

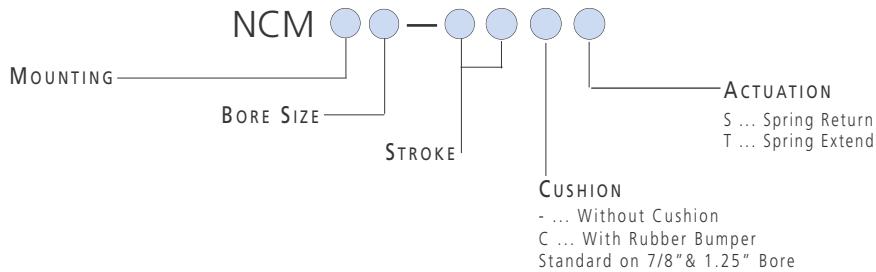
SINGLE ACTING - SPRING RETURN / SPRING EXTEND SERIES NCM

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

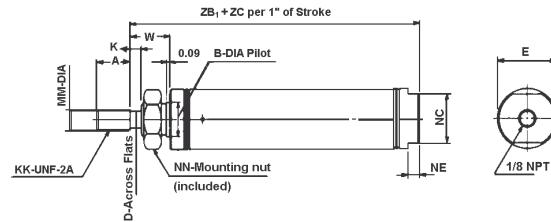
AIR CYLINDER SERIES NCM

SINGLE ACTING - SPRING RETURN / SPRING EXTEND



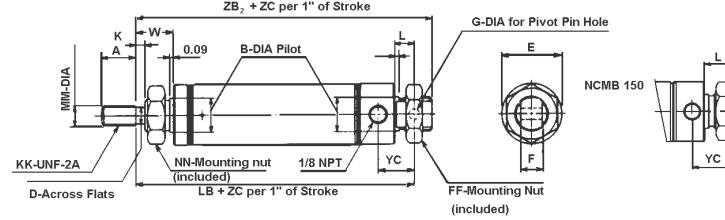
DIMENSIONS

FRONT NOSE MOUNTING / SPRING RETURN NCMB_-_S



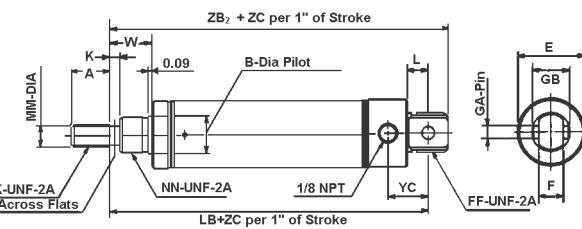
DIMENSIONS

DOUBLE END MOUNTING / SPRING RETURN NCME_-_S



DIMENSIONS

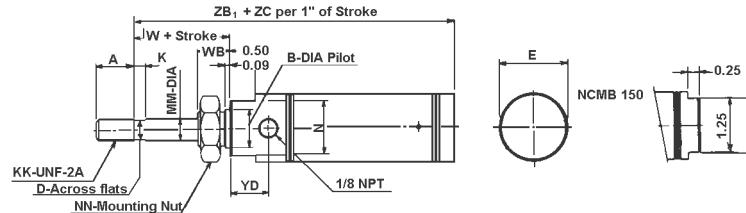
REAR PIVOT MOUNTING / SPRING RETURN NCMC_-S



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

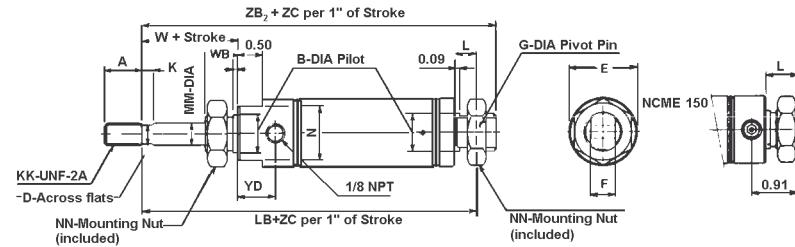
DIMENSIONS

FRONT NOSE MOUNTING / SPRING EXTEND NCMB_-T



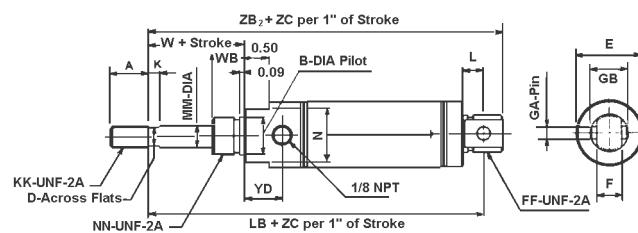
DIMENSIONS

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	0.25	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

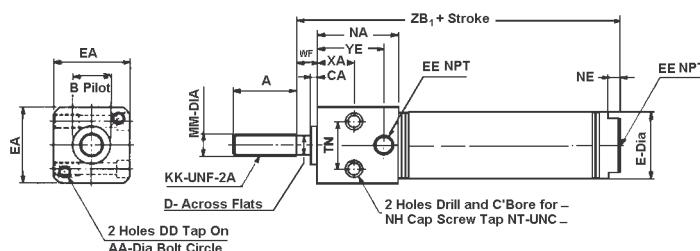
 TECHNICAL
SPECIFICATIONS

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

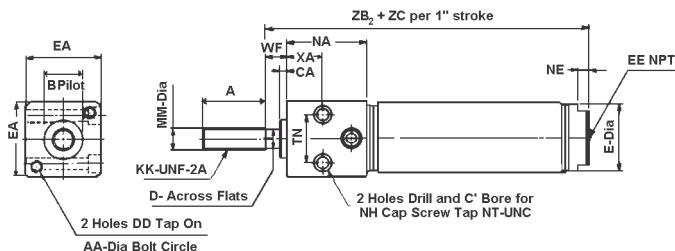
DIMENSIONS

DOUBLE ACTING NC(D)MR



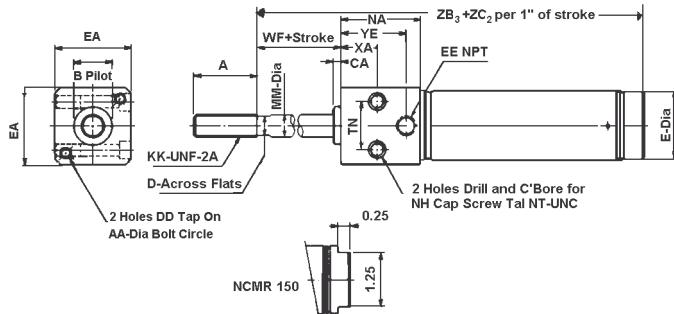
DIMENSIONS

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	ZB1	ZB2	ZB3	ZC1	ZC2
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

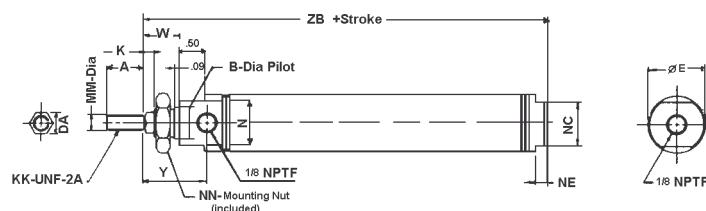
TECHNICAL
SPECIFICATIONS

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	

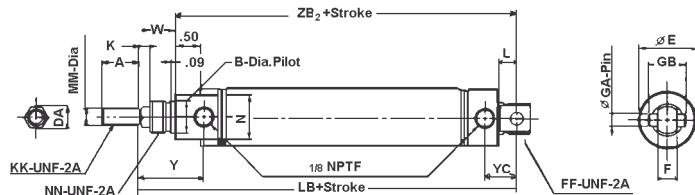
DIMENSIONS

FRONT NOSE MOUNTING NC(D)MKB



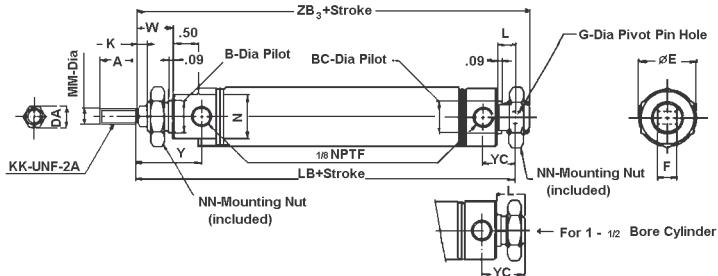
DIMENSIONS

REAR PIVOT MOUNTING NC(D)MKC



DIMENSIONS

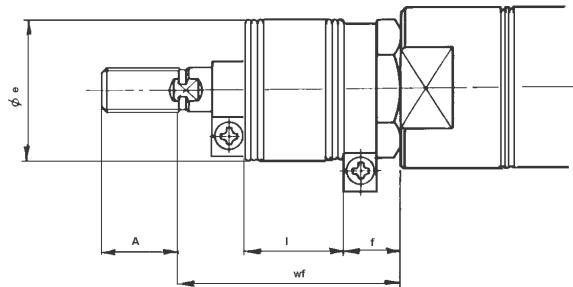
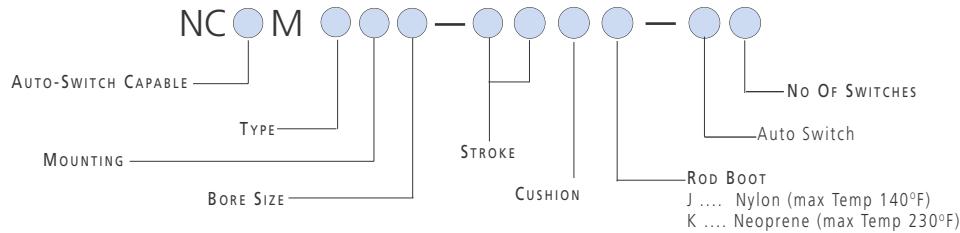
DOUBLE END MOUNTING NC(D)MKE



Bore (Inch)	MM	KK	A	B	BC	DA	E	F	FF	G	GA	GB	K	L	LB	N	NC	NE	NN	W	Y	YC	ZB1	ZB2	ZB3
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	
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	
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	
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		
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
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
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

**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

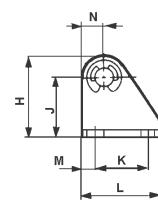
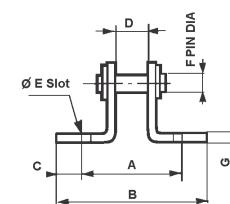
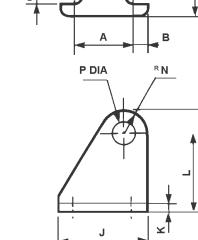
Part No	Applicable Bore	A	B	C	D	øE	F	G	H	J	K	L	M	N
NCM-PE075	3/4"; 7/8"; 1 1/16"	1.25	1.95	0.35	0.38	0.27	0.25	0.12	1.18	0.88	0.75	1.10	0.18	0.31
NCM-PE125	1 1/4"; 1 1/2"	1.38	2.08	0.35	0.50	0.27	0.25	0.12	1.18	0.88	0.75	1.10	0.18	0.31

**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

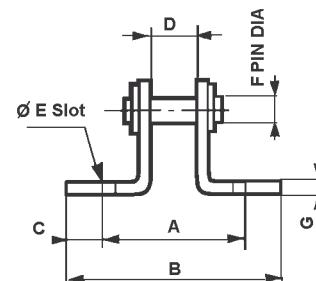
**TECHNICAL
SPECIFICATIONS
STANDARD STROKE LIST SERIES NCM**

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

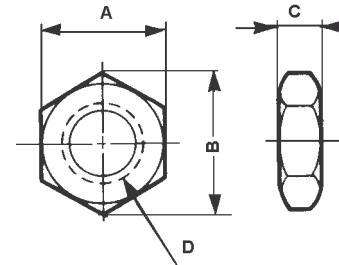
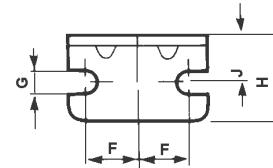


**ACCESSORIES
SERIES NCM**
PIVOT BRACKET (DOUBLE END) NCME

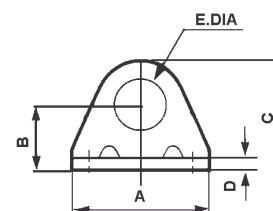
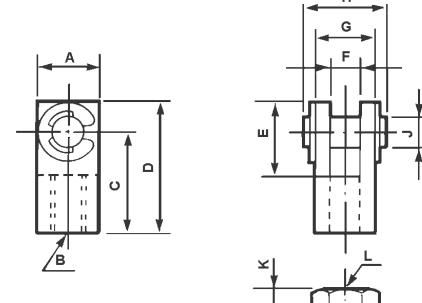
Part No	Applicable Bore	A	B	C	D	ϕE	F	G	H	J	K	L	M	N
NCM-PE075	3/4"; 7/8"; 1 1/16"	1.25	1.95	0.35	0.38	0.27	0.25	0.12	1.18	0.88	0.75	1.10	0.18	0.31
NCM-PE150	1 1/4"; 1 1/2"	1.38	2.08	0.35	0.50	0.27	0.25	0.12	1.18	0.88	0.75	1.10	0.18	0.31


**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


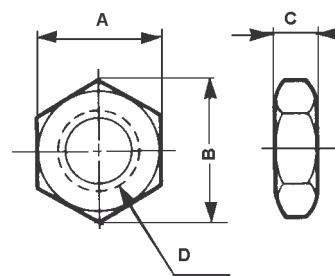
Part No	Applicable Bore	A	B	C	D	E	F	G	H	J
NCM-L075	3/4"; 7/8"; 1 1/16"	1.89	0.81	1.36	0.12	0.63	0.75	0.27	0.98	0.56
NCM-L150	1 1/4"; 1 1/2"	2.52	1.00	1.75	0.12	0.75	0.94	0.27	1.50	0.75
NCM-K150	1 1/4"; 1 1/2"	2.52	1.00	1.75	0.12	0.88	0.94	0.27	1.50	0.75


**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.

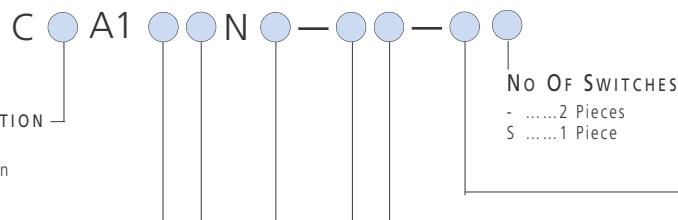


TECHNICAL SPECIFICATIONS

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} 251~1,000 ^{st +1.4} 1,001~1,500 ^{st +1.8}	~250 ^{st +1.0} 251~750 ^{st +1.4} Ø40:251~500 ^{st +1.4} Ø50, Ø63:251~600 ^{st +1.4}	~250 ^{st +1.0} Ø40:251~500 ^{st +1.4} Ø50, Ø63:251~600 ^{st +1.4}
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



Double acting

How To ORDER
SERIES CA1 AIR CYLINDER

No OF SWITCHES

-2 Pieces
S1 Piece

APPLICABLE AUTO SWITCHES
See Accessories Section

STANDARD STROKE

Bore size Standard stroke (mm).....(mm)

4025, 50, 75, 100, 125, 150,
175, 200, 250, 300, 350,
400, 450, 500

5025, 50, 75, 100, 125, 150,
175, 200, 250, 300, 350,
400, 450, 500, 600

6325, 50, 75, 100, 125, 150,
175, 200, 250, 300, 350,
400, 450, 500, 600

8025, 50, 75, 100, 125, 150,
175, 200, 250, 300, 350,
400, 450, 500, 600, 700

100.....25, 50, 75, 100, 125, 150,
175, 200, 250, 300, 350,
400, 450, 500, 600, 700

SUFFIX SYMBOL FOR CYLINDER

Gaiter
JNylon tarpaulin
KNeoprene cloth

Cushion
RHead end
HRod end
-Both end
NNone

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)

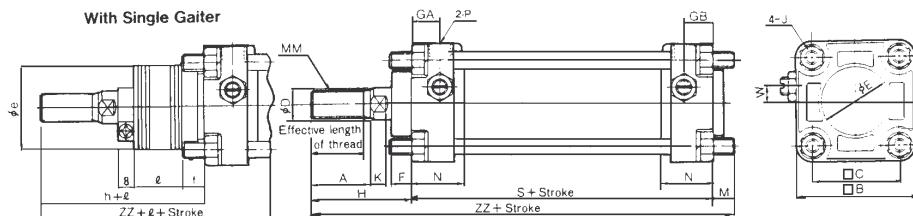
ACCESSORIES
AUTO SWITCHES

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



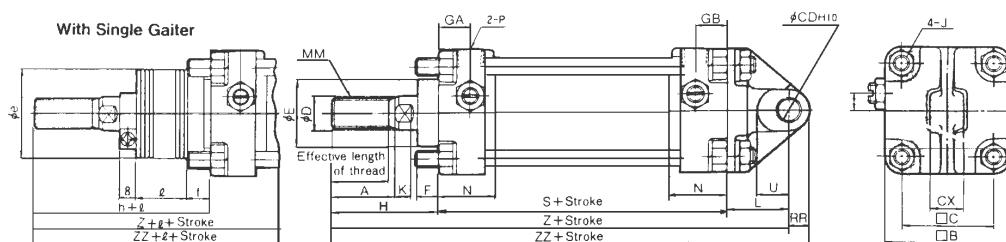
+ = Stroke addition

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	I	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

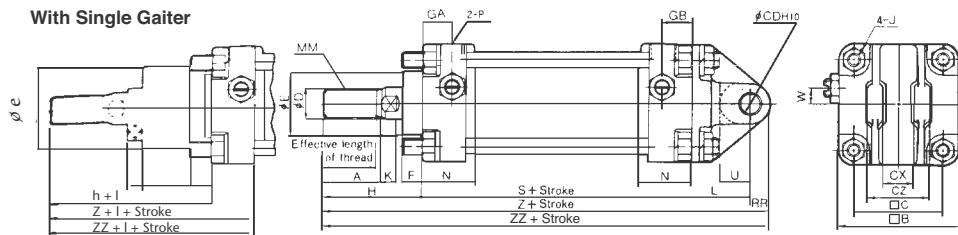
Bore size (mm)	Stroke range (mm)		Effective length of thread	A	□ B	□ C	øD	øE	F	GA	GB	J	K	MM		N	P	S	W
	Without gaiter	with gaiter																	
40	~ 500	20 ~ 500	27	30	60	44	16	32	10	15	15	M 8 x 1.25	6	M 14 x 1.5	27	1/4	84	8	
50	~ 600	20 ~ 600	32	35	70	52	20	40	10	17	17	M 8 x 1.25	7	M 18 x 1.5	30	3/8	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	I	Z	ZZ
40	10	16	10 ^{0.058}	15.0 ^{0.31}	51	165	175	43	11.2	59	1/4 stroke	173	183
50	12	19	12 ^{0.070}	18.0 ^{0.31}	58	183	195	52	11.2	66	1/4 stroke	191	203
63	16	23	16 ^{0.070}	25.0 ^{0.31}	58	196	212	52	11.2	66	1/4 stroke	204	220
80	20	28	20 ^{0.084}	31.5 ^{0.31}	71	235	255	65	12.5	80	1/4 stroke	244	264
100	25	36	25 ^{0.084}	35.5 ^{0.31}	72	256	281	65	14.0	81	1/4 stroke	265	290

DIMENSIONS

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

With Single Garter



+ = Stroke addition

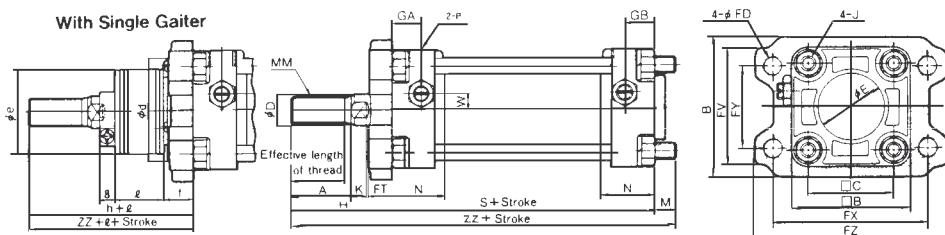
Bore size (mm)	Stroke range (mm)		Effective length of thread	A	□ B	□ C	øD	øE	F	GA	GB	J	K	MM	N	P	S	W
	Without garter	with garter																
40	~ 500	20 ~ 500	27	30	60	44	16	32	10	15	15	M 8 x 1.25	6	M 14 x 1.5	27	1/4	84	8
50	~ 600	20 ~ 600	32	35	70	52	20	40	10	17	17	M 8 x 1.25	7	M 18 x 1.5	30	3/8	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 garter				With garter				
						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 Garter



+ = Stroke addition

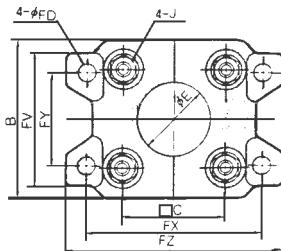
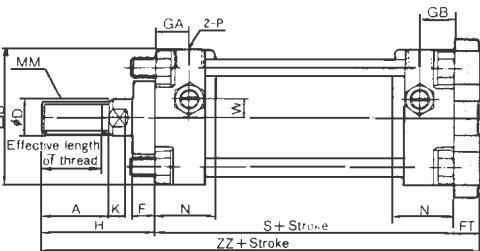
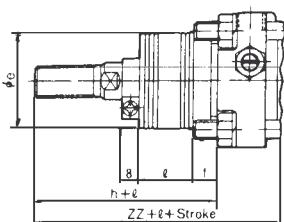
Bore size (mm)	Stroke range (mm)		Effective length of thread	A	□ B	□ C	øD	øE	GA	GB	J	K	M	MM	N	P	S	W
	Without garter	with garter																
40	~ 800	20 ~ 800	27	30	60	44	16	32	15	15	M 8 x 1.25	6	11	M 14 x 1.5	27	1/4	84	8
50	~ 1000	20 ~ 1000	32	35	70	52	20	40	17	17	M 8 x 1.25	7	11	M 18 x 1.5	30	3/8	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 garter		With garter								
							H	ZZ	*ød	øe	f	h	ℓ	ZZ			
40	60	9.0	12	80	42	100	51	146	52	43	15	59		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													M	14 x 1.5	27	1/4	84	8
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

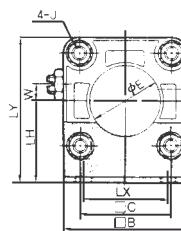
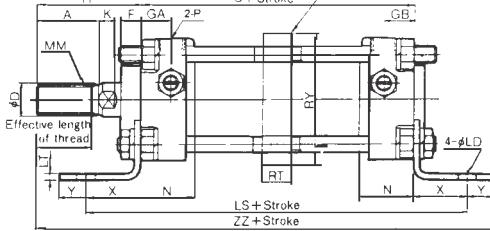
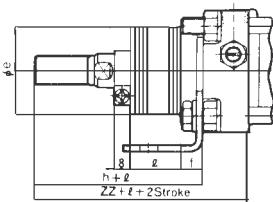
Bore Size (mm)	FV	øFD	FT	FX	FY	FZ	Without gaiter		With gaiter								
							H	ZZ	øe	f	h	ℓ	ZZ	RT	LX	C	B
40	60	9.0	12	80	42	100	51	147	43	11.2	59		155				
50	70	9.0	12	90	50	110	58	160	52	11.2	66		168				
63	86	11.5	15	105	59	130	58	171	52	11.2	66		179				
80	102	13.5	18	130	76	160	71	205	65	12.5	80		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												M	14 x 1.5	27	1/4	84	8
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

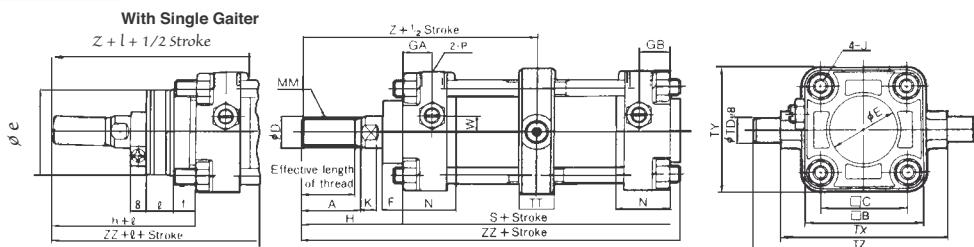
Long Strokes

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

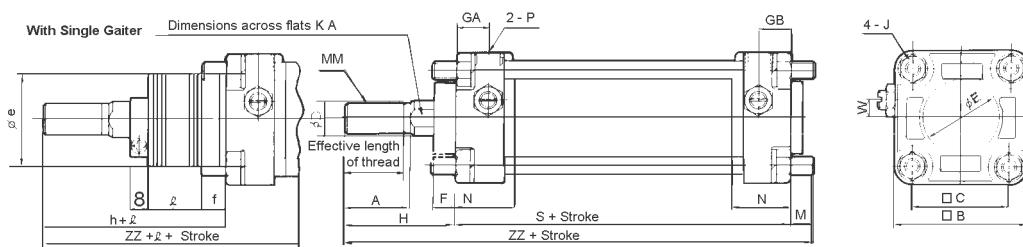


Bore size (mm)	Stroke range (mm)		Effective length of thread	A	□ B	□ C	ØD	ØE	F	GA	GB	J	K	MM	N	P	S	W
	Without garter	with garter																
40	~ 500	20 ~ 500	27	30	60	44	16	32	10	15	15	M 8 x 1.25	6	M 14 x 1.5	27	1/4	84	8
50	~ 600	20 ~ 600	32	35	70	52	20	40	10	17	17	M 8 x 1.25	7	M 18 x 1.5	30	3/8	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)	øTD e8	TT	TX	TY	TZ	Without garter			With garter					
						H	Z	ZZ	* øe	f	h	l	Z	ZZ
40	15 ^{-0.032} _{-0.059}	22	85	62	117	51	93	140	43	11.2	59	1/4 Stroke	101	148
50	15 ^{-0.032} _{-0.059}	22	95	74	127	58	103	154	52	11.2	66		111	162
63	18 ^{-0.032} _{-0.059}	28	110	90	148	58	107	162	52	11.2	66		115	170
80	25 ^{-0.040} _{-0.073}	34	140	110	192	71	129	194	65	12.5	80		138	203
100	25 ^{-0.040} _{-0.073}	40	162	130	214	72	135	206	65	14.5	81		144	215

DIMENSIONS

NON ROTATE BASIC MOUNTING - C□A1KB



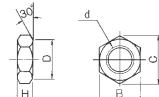
Bore size (mm)	Stroke range (mm)	No garter	Garter	Effective length of thread	A	B	C	ØD	ØE	F	GA	GB	J	KA	MM	N	P	S	W
40	~ 500	20 ~ 500		27	30	60	44	16	32	10	15	15	M 8 x 1.25	14	M 14 x 1.5	27	1/4	84	8
50	~ 600	20 ~ 600		32	35	70	52	20	40	10	17	17	M 8 x 1.25	18	M 18 x 1.5	30	3/8	90	0
63	~ 600	20 ~ 600		3	35	85	64	20	40	10	17	17	M 10 x 1.25	18	M 18 x 1.5	31	3/8	98	0

Bore size (mm)	No garter	With garter						
		H	ZZ	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	

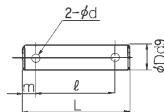
DIMENSIONS

PISTON ROD MOUNTING ACCESSORIES

ROD END NUT (STANDARD ACCESSORIES)



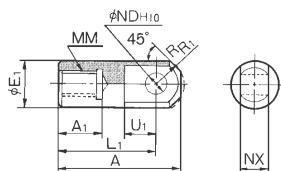
CLEVIS PIN



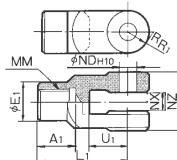
Part No.	Applicable bore size (mm)	d	H	B	C	D
NT-04	40	M 14 x 1.5	8	22	25.4	21
NT-05	50•63	M 18x 1.5	11	27	31.2	26
NT-08	80	M 22 x 1.5	13	32	37.0	31
NT-10	100	M 26 x 1.5	16	41	47.3	39

Part No.	Applicable bore size (mm)		Dd9	L	I	m	d Through hole dia.	Applicable split pin
	Clevis	Knudle						
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



Y TYPE DOUBLE ROD CLEVIS

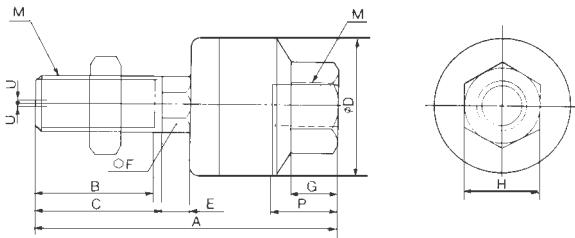


Part No.	Applicable bore size (mm)	A	A1	eE	L	MM	R1	U1	NDH10	NX
I-04	40	69	22	24	55	M 14 x 1.25	15.5	20	12+0.070 0	16-0.1 -0.3
I-05	50•63	74	27	28	60	M 18x 1.5	15.5	20	12+0.070 0	16-0.1 -0.3
I-08	80	91	37	36	71	M 22 x 1.5	22.5	26	18+0.070 0	28-0.1 -0.3
I-10	100	105	37	40	83	M 26 x 1.5	24.5	28	20+0.084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

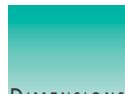
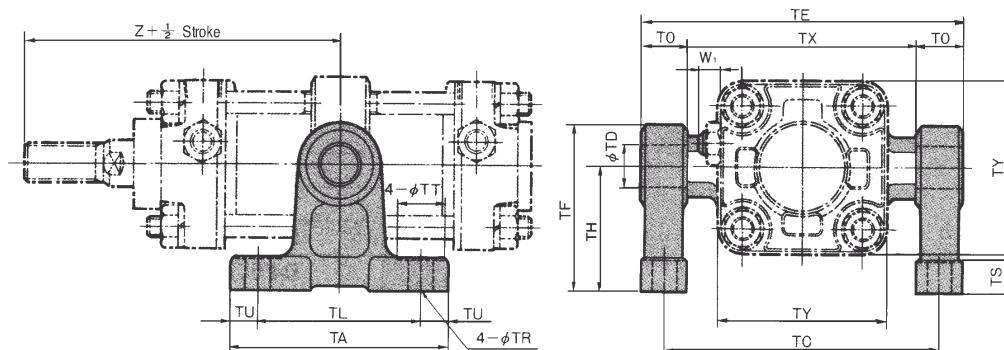
Part No.	Applicable bore size (mm)	A1	eE	L	MM	R1	NZ	U1	NDH10	NX
Y-04C	40	22	24	55	M 14 x 1.5	13	38	25	12+0.070 0	16-0.1 -0.3
Y-05C	50•63	27	28	60	M 18x 1.5	15	38	27	12+0.070 0	16-0.1 -0.3
Y-08C	80	37	36	71	M 22 x 1.5	19	55	28	18+0.070 0	28-0.1 -0.3
Y-10C	100	37	40	83	M 26 x 1.5	21	61	38	20+0.084 0	30-0.1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

FLOATING JOINT

JA40-100



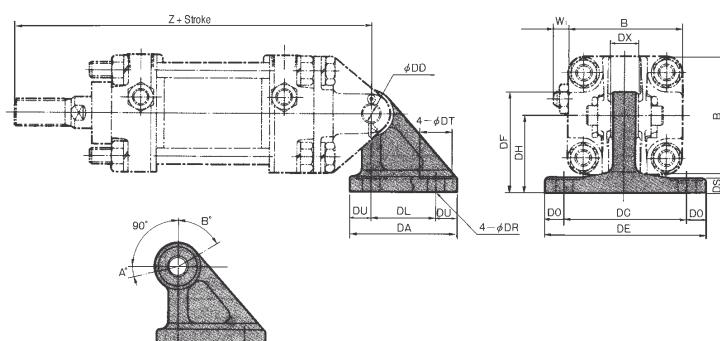
Ø Cylinder Bore (mm)	Nominal Thread Dia.	Pitch	A	B	C	D	E	F	G	H	Max. Screwed depth P	Allowable eccentricity U	Max. Operating tension & compressed power kgf(kN)	Weight kgf
40		1.5	60	20	-	31	6	11	11	22	13	0.75	600(6)	0.16
50•63		1.5	74.5	25	-	41	7.5	14	13.5	27	15	1	1100(11)	0.31
80		1.5	89.5	29	-	50	9.5	19	16	32	18	1.25	1800(18)	0.58
100		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-B06	63	67	40	13.5	80	25	105	12.5	11	22	10	50	66	85	10	196	16 ^{+0.070} ₀
CA1-B08	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

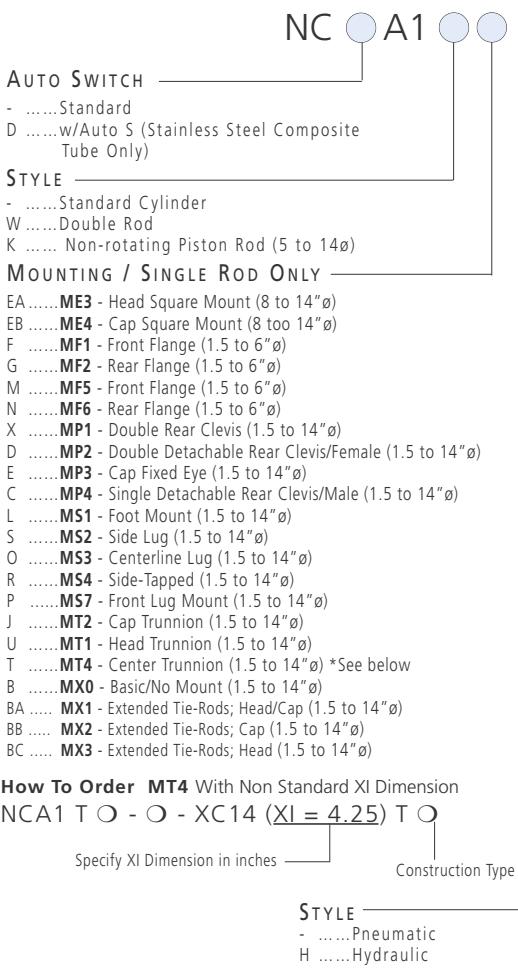
**AIR CYLINDER SERIES NCA1
HEAVY DUTY AIR CYLINDERS
BORE SIZES 1.5" TO 14"**

- ✓ 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



HOW TO ORDER SERIES NCA1 AIR CYLINDER



BORE SIZE	ROD Ø	ROD THREAD Ø
1501.5"	5/8"	7/16-20
2002"	5/8"	7/16-20
2502.5"	5/8"	7/16-20
3253.25"	1"	3/4-16
4004"	1"	3/4-16
5005"	1"	3/4-16
6006"	1-3/8"	1-14
8006"	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

$\sigma_{\text{max}} = \sigma_{\text{min}}$

Inches
Example: 04 = 4" Stroke

STROKE

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

ay to represent th

- CDN**
—
E 1"
G 1 3/8"
H 1 3/4"
J 2"
K 2 1/2"
L 3"
M 3 1/2"
Z Consu
For lan

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

OPTION SERIES NCA1 AIR CYLINDER (1 5/8" Ø BORE)

OVERSIZED BOD - XBS OPTION

OVERSIZED ROD ABS OPTION

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

AIR CYLINDER SERIES NCA1
 HEAVY DUTY LARGE BORE
 AIR CYLINDERS


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

 AIR CYLINDER SERIES NCA1
 MEDIUM DUTY LARGE BORE
 AIR CYLINDERS

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

- ✓ Full Range of NFPA Interchangeable Mounting Configurations
- Mounting Dimensions are in accordance with ANSI/NFPA T3.6.7 R2-1996, Fluid Power Systems and Products - Square Head Industrial Cylinders - Mounting Dimensions.

 How To
 ORDER
 SERIES NCA1 AIR CYLINDER

NC ○ A1 ○ ○ ○ — ○ ○ ○ — ○ ○ — X ○ T

AUTO SWITCH

-Standard
- DAuto Switch Capable

STYLE

-Standard
- WDouble Rod
- KNon-Rotating Piston Rod

MOUNTING / SINGLE ROD ONLY

- EAME3 - Head Square Mount (8"Ø)
- EBME4 - Cap Square Mount (8"Ø)
- FMF1 - Front Flange (5 to 6"Ø)
- GMF2 - Rear Flange (5 to 6"Ø)
- MMF5 - Front Flange (5 to 6"Ø)
- NMF6 - Rear Flange (5 to 6"Ø)
- XMP1 - Double Rear Clevis (5 to 8"Ø)
- DMP2 - Double Detachable Rear Clevis/Female (5 to 8"Ø)
- EMP3 - Cap Fixed Eye (8"Ø only)
- CMP4 - Single Detachable Rear Clevis/Male (5 to 8"Ø)
- LMS1 - Foot Mount (5 to 8"Ø)
- SMS2 - Side Lug (8"Ø only)
- OMS3 - Centerline Lug (8"Ø only)
- RMS4 - Side-Tapped (5 to 8"Ø)
- PMS7 - Front Lug Mount (5 to 8"Ø)
- UMT1 - Head Trunnion (5 to 8"Ø)
- JMT2 - Cap Trunnion (5 to 8"Ø)
- TMT4 - Center Trunnion (5 to 8"Ø) *See below
- BMX0 - Basic / No Mount (5 to 8"Ø)
- BAMX1 - Extended Tie-Rods; Head/Cap (5 to 8"Ø)
- BBMX2 - Extended Tie-Rods; Cap (5 to 8"Ø)
- BCMX3 - 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

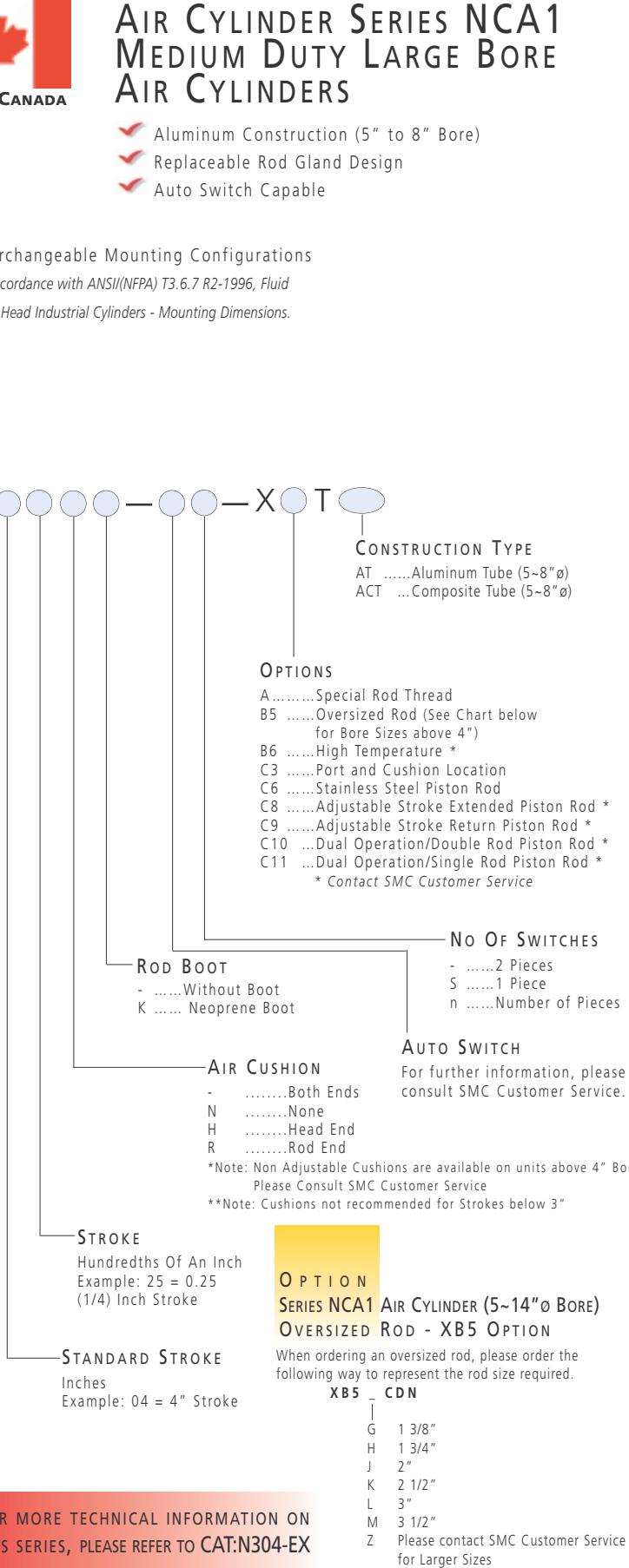
Construction Type

STYLE

-Pneumatic
- HHydraulic

BORE SIZE	ROD Ø	ROD THREAD Ø
5005"	1"	3/4-16
6006"	1-3/8"	1-14
8008"	1-3/8"	1-14

Up to 32" Bore available
 Please contact SMC Customer Service

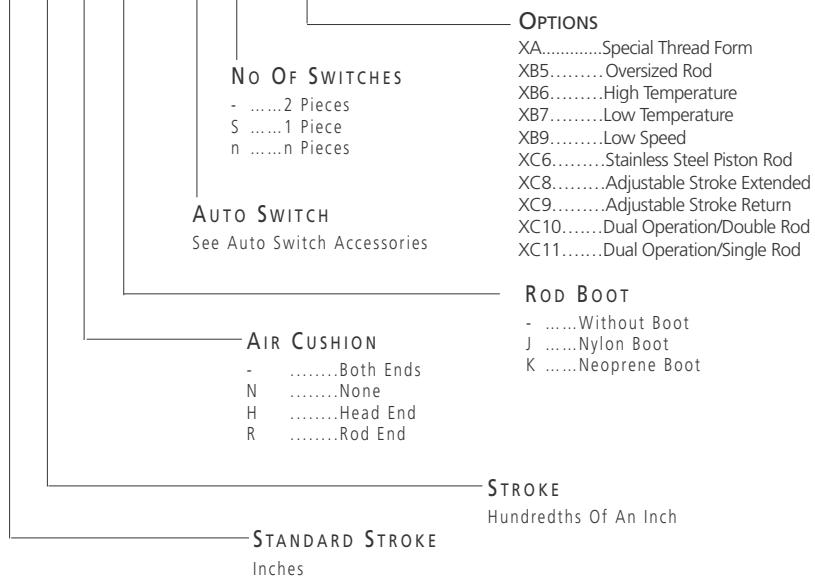
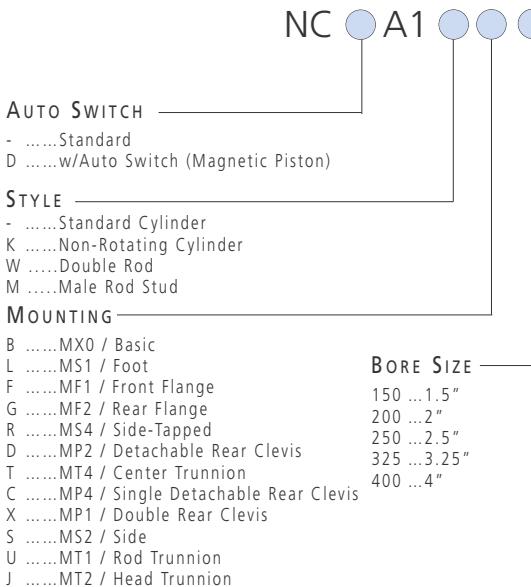


AIR CYLINDER SERIES NCA1

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

TECHNICAL
SPECIFICATIONS

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

How To
ORDER
SERIES NCA1 AIR CYLINDERSTANDARD STROKES
SERIES NCA1

BORE SIZE (INCHES)	STANDARD STROKE (INCHES)	MAXIMUM STROKE (INCHES)
1.5"	1, 2, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20	
2", 2.5"	1, 2, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20, 24	Consult SMC
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.

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

**ACCESSORIES
TRUNNION**

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

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

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

ACCESSORIES
AUTO SWITCHES - REED TYPE

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

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

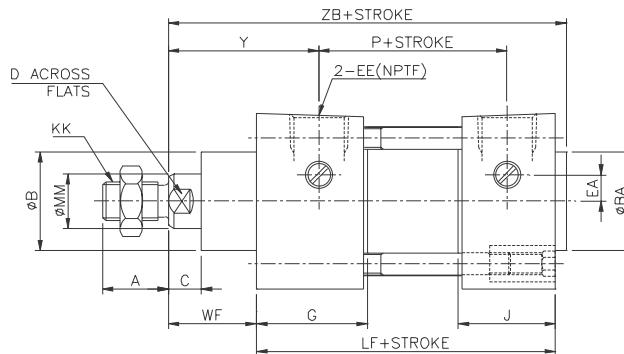
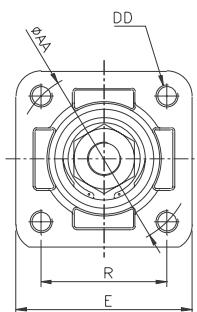
ACCESSORIES
AUTO SWITCHES - SOLID STATE TYPE

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



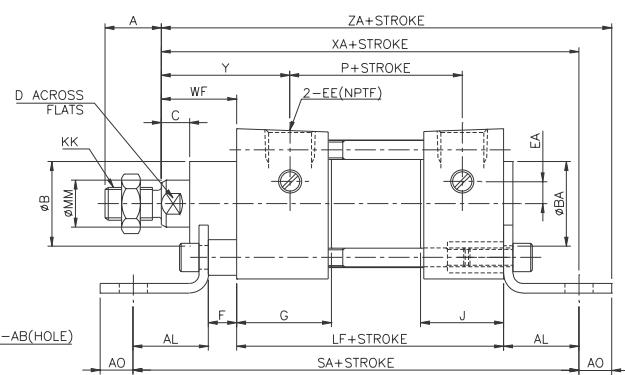
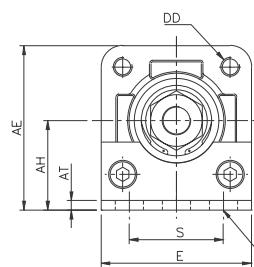
BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	G	J	R	WF	Y	LF	P	ZB
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	1.1	1.43	1	1.71	3 5/8	2.36	4 3/4	
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	1.06	1.84	1	1.71	3 5/8	2.4	4 3/4
250 (2.5")	5/8	7/16-20	3/4	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

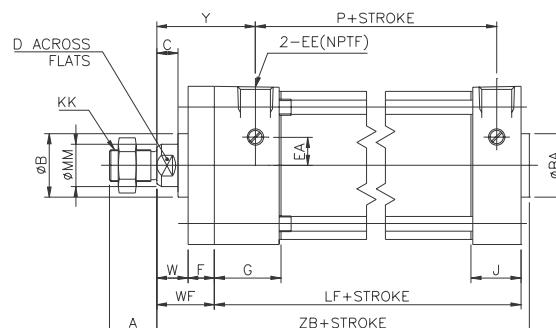
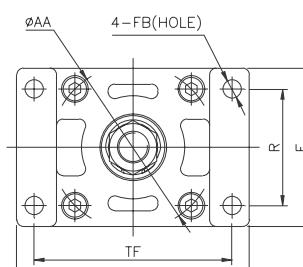


+ = Stroke addition

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	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

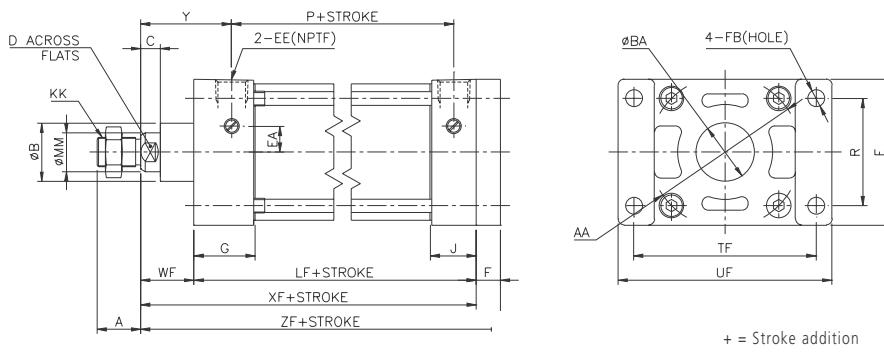


+ = Stroke addition

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

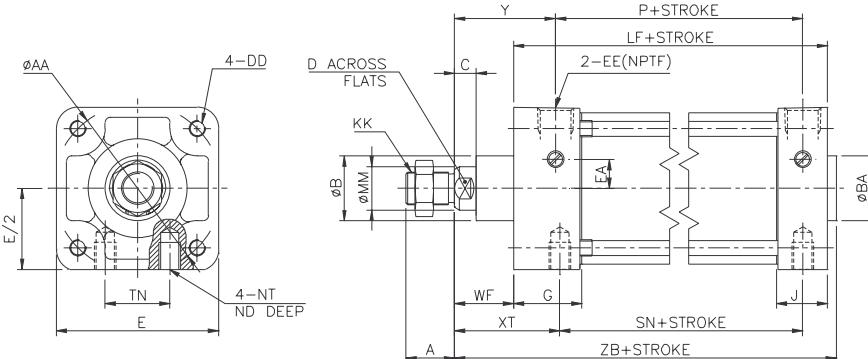


+ = Stroke addition

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

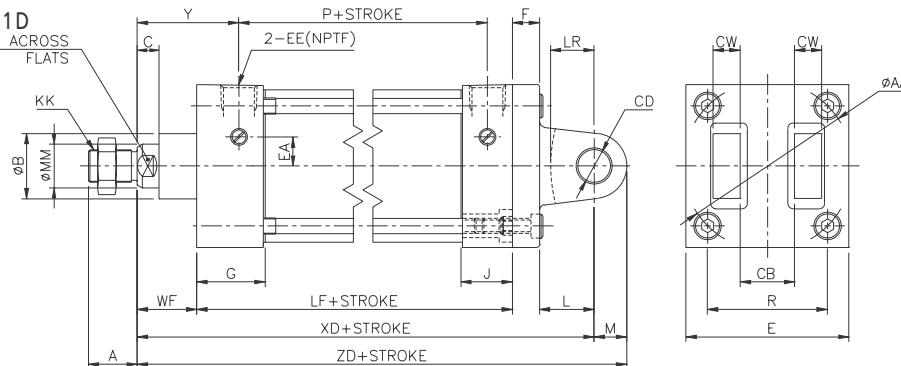
SIDE-TAPPED TYPE NC□A1R



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 53/64

DIMENSIONS

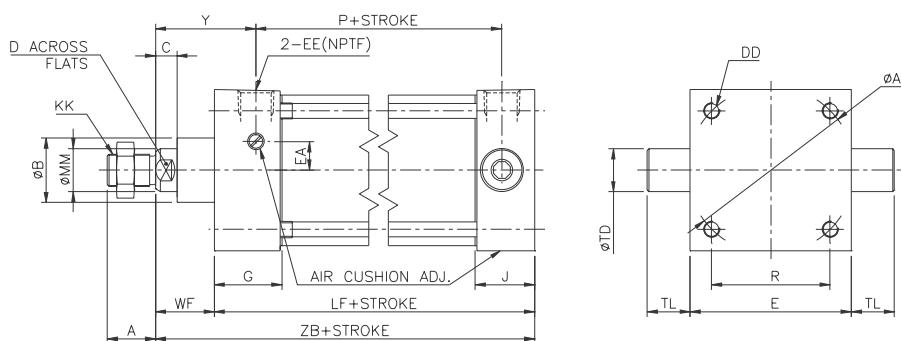
DETACHABLE REAR CLEVIS TYPE - NC□A1D


 MORE DIMENSIONS
 SEE NEXT PAGE

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

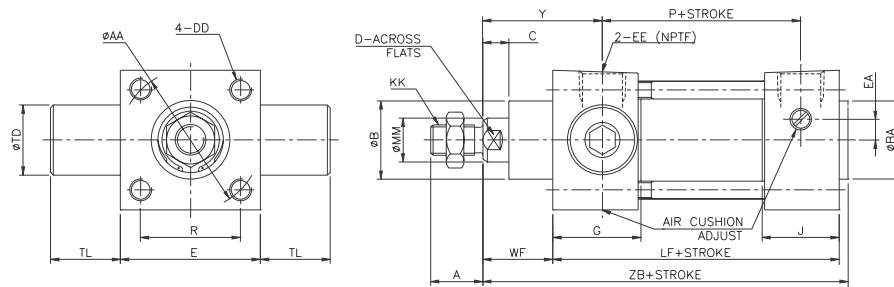
HEAD TRUNNION TYPE NC□A1J



BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	J	R	TD ^{0.001}	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

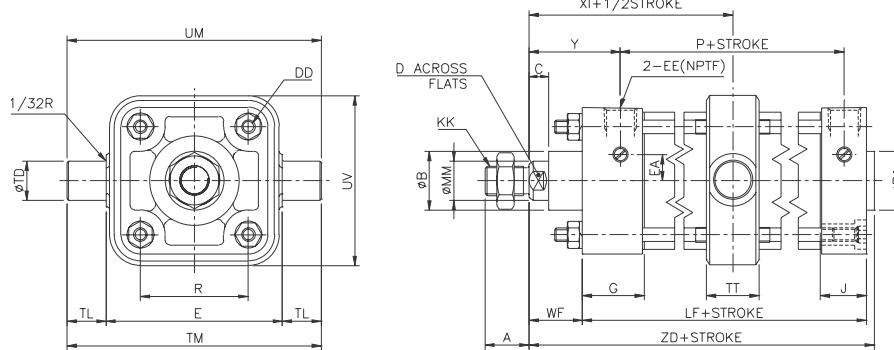
ROD TRUNNION TYPE NC□A1U



BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	G	J	R	TD ^{0.001}	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

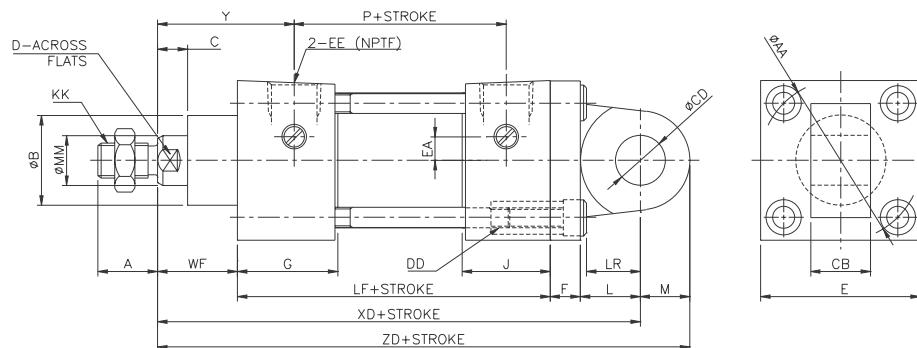
CENTER TRUNNION TYPE NC□A1T



BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	G	J	R	TD ^{0.001}	TL	TM	TT	UM	UV	WF	Y	LF	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

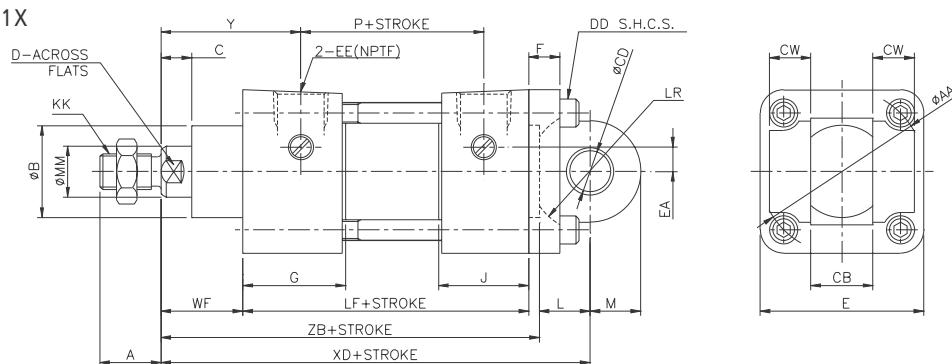
SINGLE REAR CLEVIS TYPE NC□A1C



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

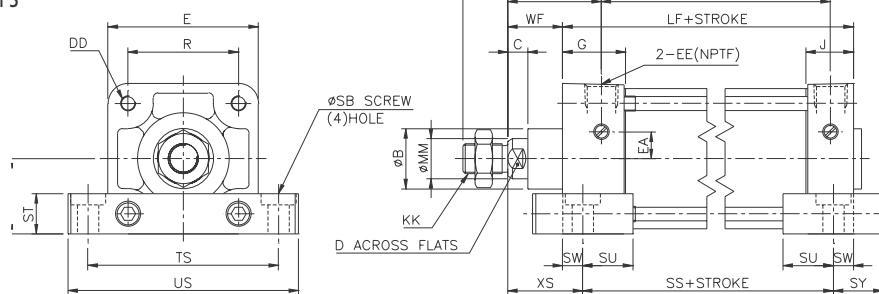
DOUBLE REAR CLEVIS TYPE NC□A1X



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

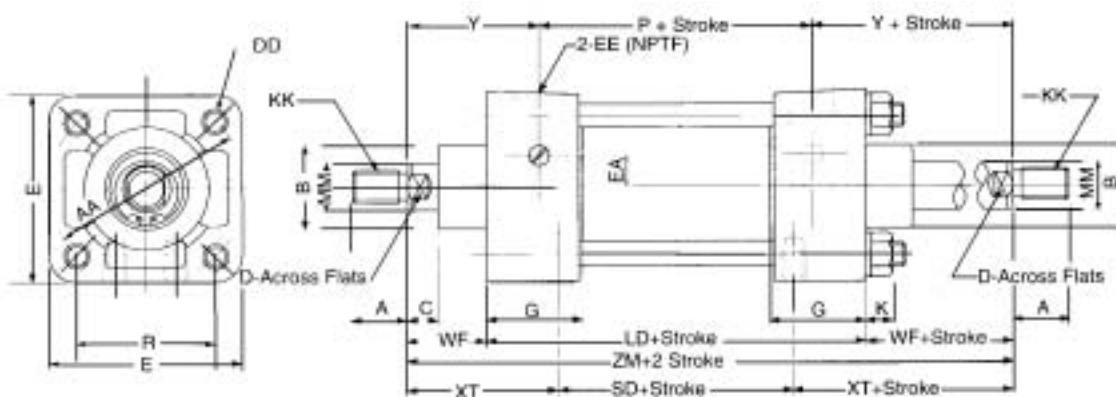
SIDE LUG MOUNTING TYPE NC□A1S



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

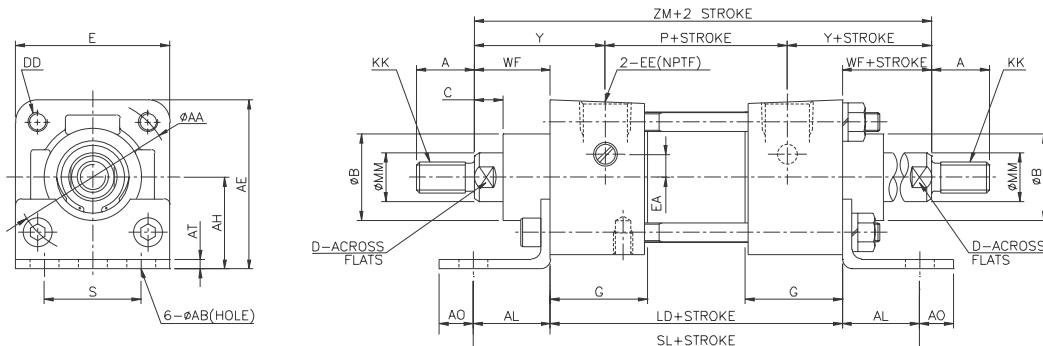
DOUBLE ROD BASIC TYPE NC□A1WB



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

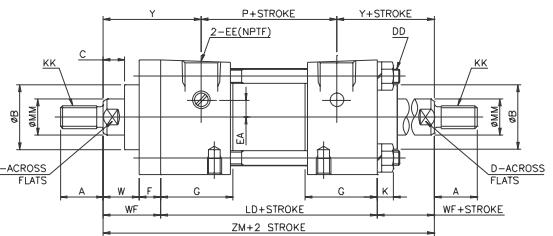
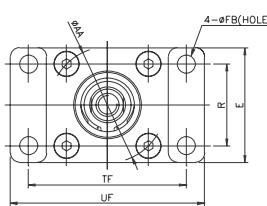
DOUBLE ROD FOOT MOUNTING TYPE NC□A1WL



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	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	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	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

DIMENSIONS

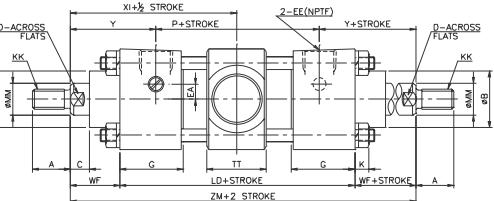
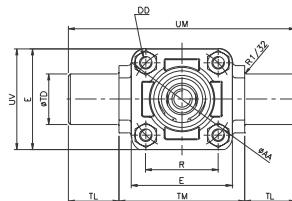
DOUBLE ROD FRONT FLANGE MOUNTING TYPE NC□A1WF



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

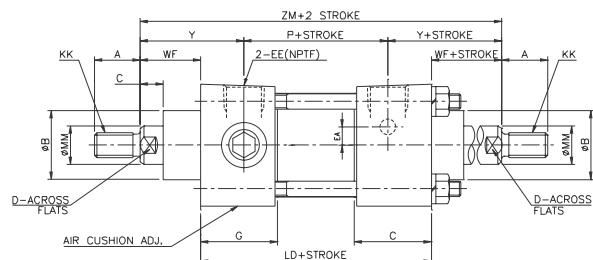
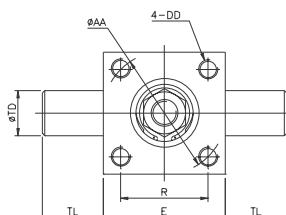
DOUBLE ROD CENTER TRUNNION MOUNTING TYPE NC□A1WT



BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	K	R	TD ^{0.001}	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

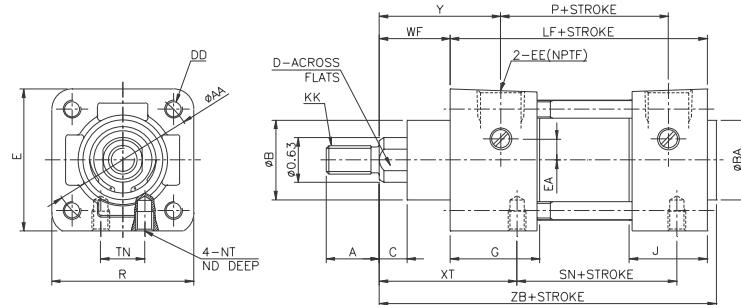
DOUBLE ROD ROD TRUNNION TYPE NC□A1WU



BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	K	LD	P	R	TD ^{0.001}	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

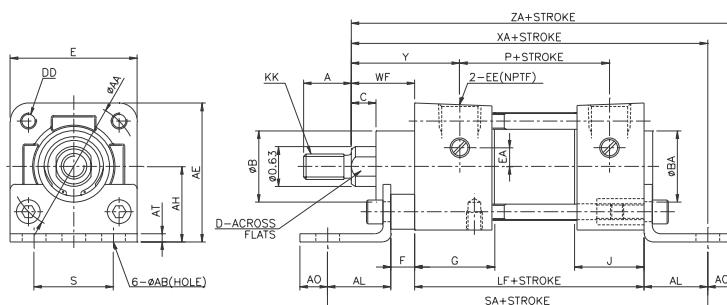
Non-Rotating Rod Basic Type - NC□A1KB



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

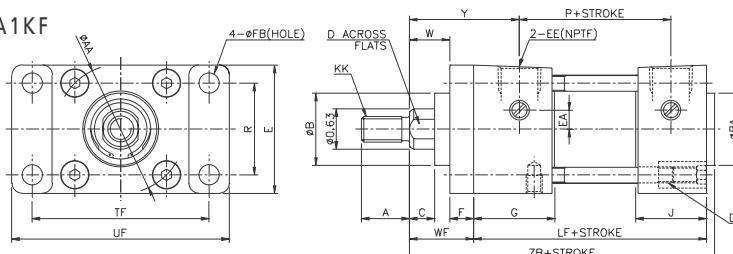
Non-Rotating Rod Foot Mounting Type - NC□A1KL



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	2.6	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

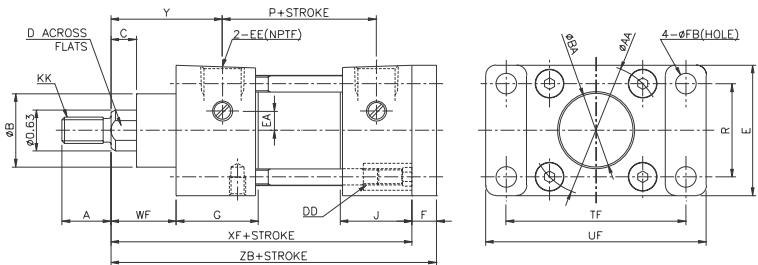
Non-Rotating Rod Front Flange Mounting Type - NC□A1KF



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

DIMENSIONS

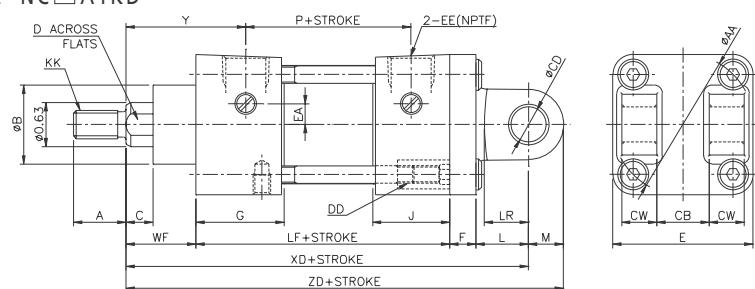
Non-Rotating Rod Rear Flange Mounting Type NC□A1KG



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

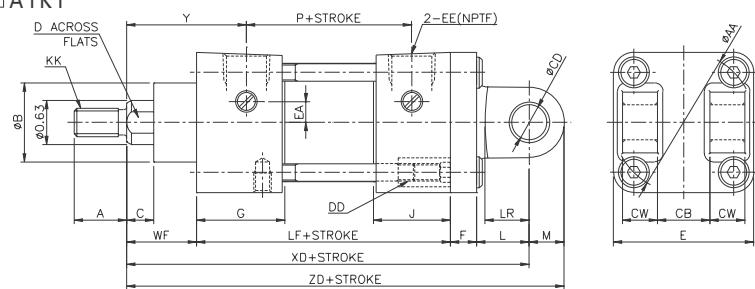
Non-Rotating Rod Detachable Rear Clevis Mounting Type NC□A1KD



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



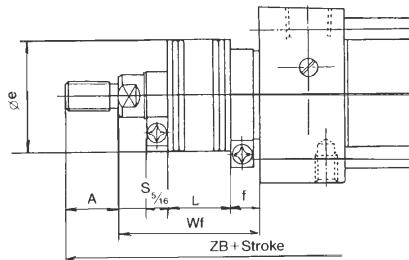
BORE (INCH)	KK	A	AA	B	BA	C	D	DD	E	EA	EE	G	J	R	TD ^{0.001}	TL	TM	TT	UM	UV	WF	Y	LF	P	XI	ZB
150 (1.5")	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	0.551	1/4-28	2	0.3	3/8	1.26	1.1	1.43	1	1	2.5	1.18	4.5	2	1	1.71	3 5/8	2.36	2.89	4.75
200 (2")	7/16-20	3/4	2.60	1 1/8	1 1/8	3/8	0.551	5/16-24	2.5	0.3	3/8	1.26	1.06	1.84	1	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

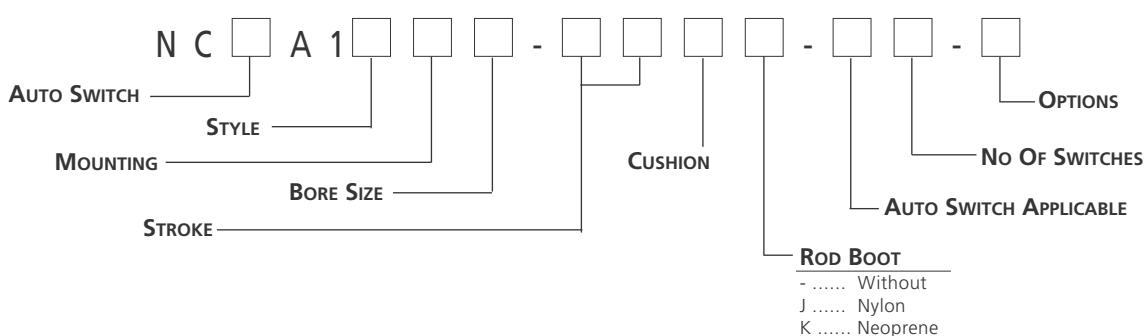
suffix code	Material	maximum temperature
J	Nylon	140OF (60°C)
K	Neoprene	230OF (110°C)



BORE (INCH)	A	Øe	F	Z 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

HOW TO
 ORDER

 SERIES NCA1 AIR CYLINDER OPTIONS
 SPECIAL ROD THREAD - XA OPTION

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

How To Order

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

Rod End Shape

Symbol: A1	Symbol: A2	Symbol: A3	Symbol: A4	Symbol: A5
Symbol: A6	Symbol: A7	Symbol: A8	Symbol: A9	Symbol: A10
Symbol: A11	Symbol: A12	Symbol: A13	Symbol: A14	Symbol: A15
Symbol: A16	Symbol: A17	Symbol: A18	Symbol: A19	Symbol: A20
Symbol: A21	Symbol: A22	Symbol: A23	Symbol: A24	Symbol: A25
Symbol: A26	Symbol: A27	Symbol: A28	Symbol: A29	Symbol: A30

Note) Series CQ2 is not available.

Note) Series CQ2 is not available.

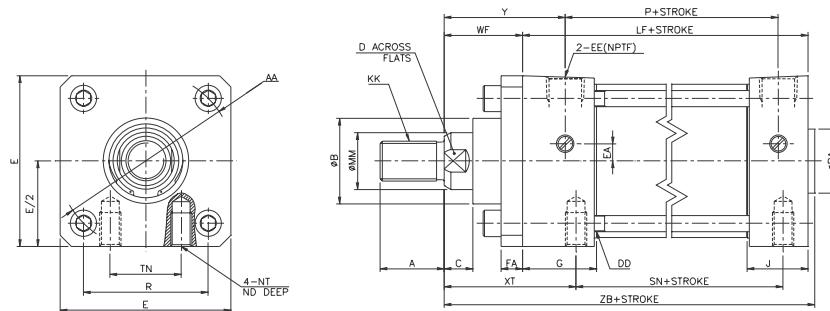
TECHNICAL
SPECIFICATIONS

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

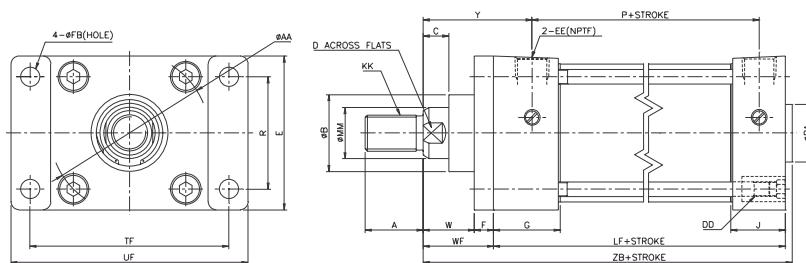
OVERSIZED ROD BASIC TYPE NC□A1B (XB5)



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

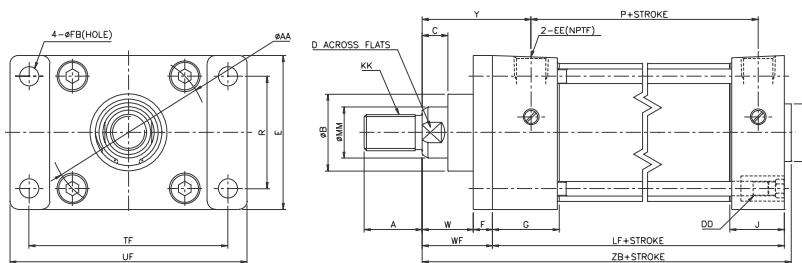
OVERSIZED ROD FOOT MOUNTING TYPE NC□A1L (XB5)



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

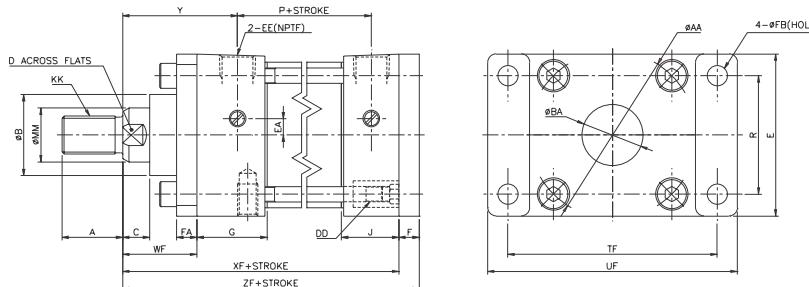
OVERSIZED ROD FRONT FLANGE MOUNTING TYPE NC□A1F (XB5)



BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	F	FB	G	J	R	TF	UF	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	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	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

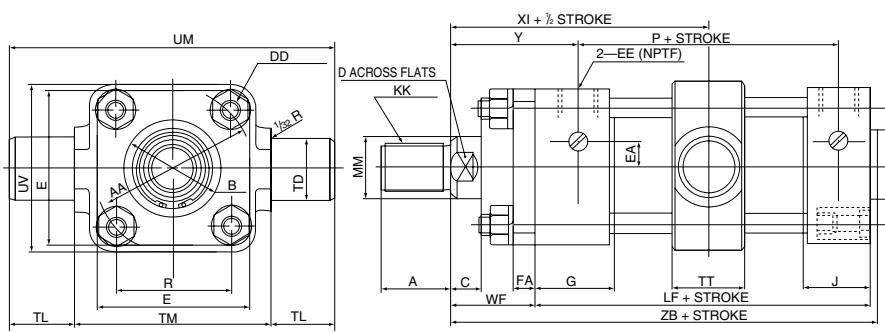
OVERSIZED ROD REAR FLANGE MOUNTING TYPE NC□A1G (XB5)

 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	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	1.26	1.06	1.84	3 3/8	4 1/8	1	1 3/8	2.09	3 5/8	2.40	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	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	5/8	1.57	1.18	2.76	4 11/16	5 1/2	1	1 5/8	2.59	4 1/4	2.72	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	1 5/8	2.59	2.72	5 7/8	6 1/2

DIMENSIONS

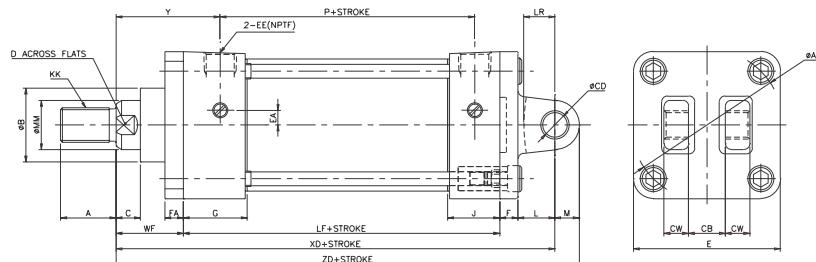
OVERSIZED ROD CENTER TRUNNION MOUNTING TYPE NC□A1T (XB5)



BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	F	FA	G	J	R	TD ^{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	1.30	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	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	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

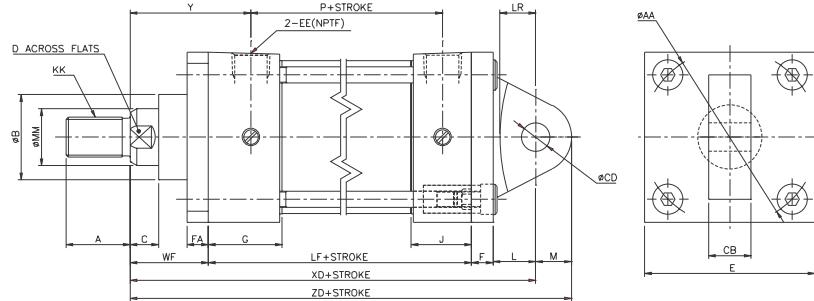
OVERSIZED ROD DETACHABLE REAR CLEVIS MOUNTING TYPE NC□A1D (XB5)



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)

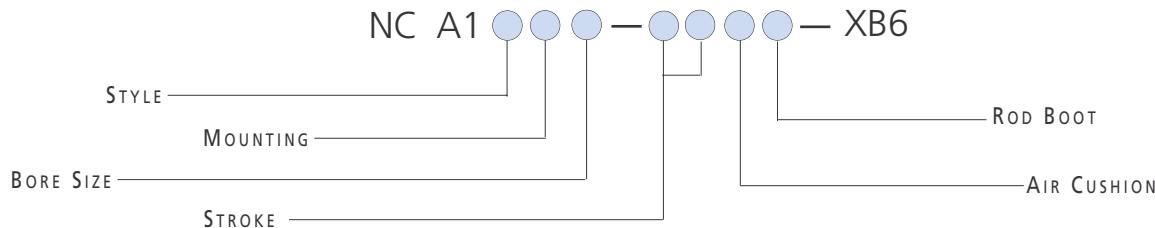


BORE (INCH)	MM	KK	A	AA	B	C	CB	CD	CW	D	DD	E	EA	EE	F	FA	G	J	L	LR	M	WF	XD	Y	LF	P	ZD
200 (2")	1	3/4-16	1 1/8	2.6	1.5	1/2	3/4	1/2	1/2	7/8	5/16-24	2 1/2	0.3	3/8	3/8	3/8	1.26	1.06	3/4	5/8	1/2	1 3/8	6 1/8	2.09	3 5/8	2.40	6 5/8
250 (2.5")	1	3/4-16	1 1/8	3.1	1.5	1/2	3/4	1/2	1/2	7/8	5/16-24	3	0	3/8	3/8	3/8	1.3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

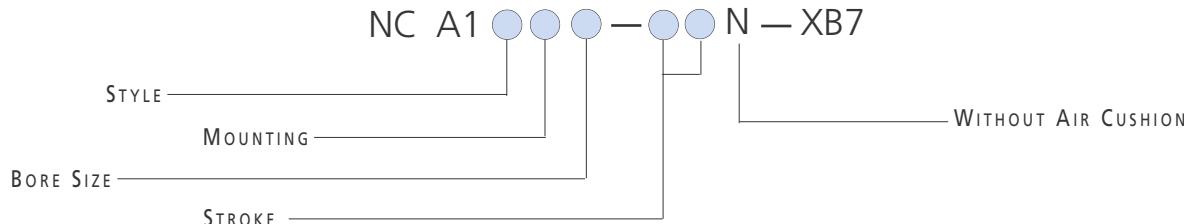
HIGH TEMPERATURE - XB6 OPTION

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

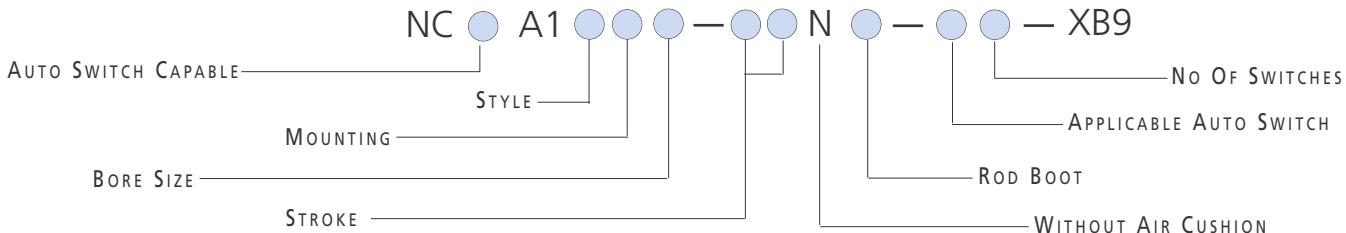

 TECHNICAL
 SPECIFICATIONS

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

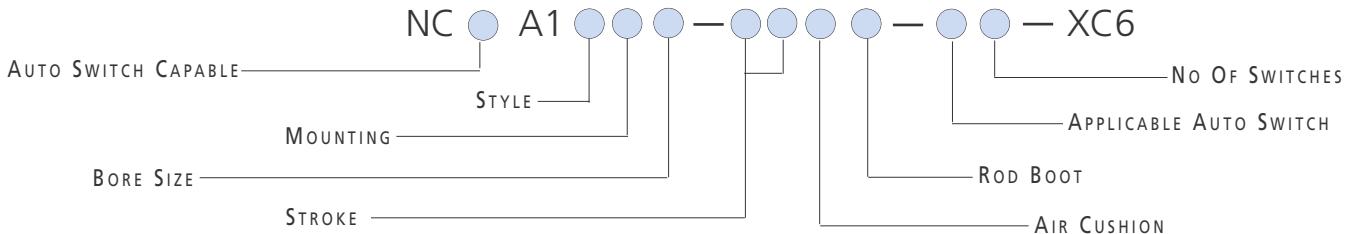
TECHNICAL
SPECIFICATIONS

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

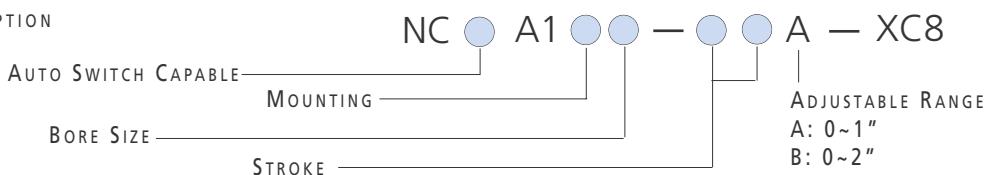
STAINLESS STEEL ROD - XC6 OPTION

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

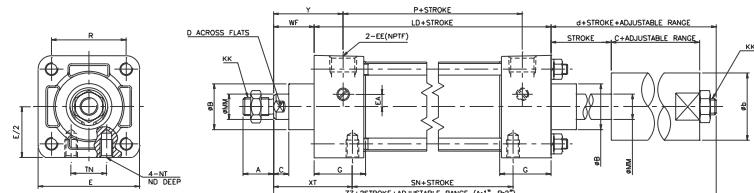
ADJUSTABLE STROKE - EXTEND - XC8 OPTION



TECHNICAL SPECIFICATIONS

ADJUSTABLE STROKE - EXTEND - XC8 OPTION

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

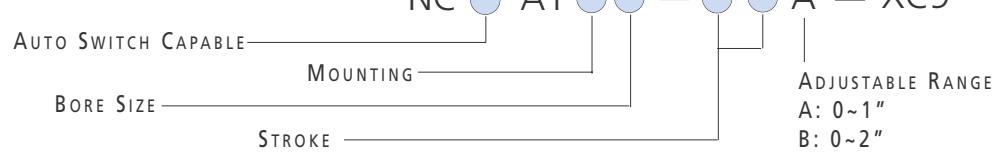


BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	K	R	WF	Y	LD	P	ZZ	b	c	d
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	9/32	1.43	1	1.71	3.78	2.36	6.58	1 1/2	1.25	1.80
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	11/32	1.84	1	1.71	3.82	2.40	7.01	1 21/32	1.64	2.19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

How To ORDER

SERIES NCA1 AIR CYLINDER OPTIONS

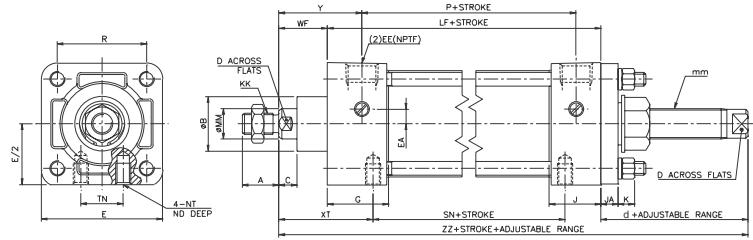
ADJUSTABLE STROKE - RETURN - XC9 OPTION



TECHNICAL SPECIFICATIONS

ADJUSTABLE STROKE - EXTEND - XC8 OPTION

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

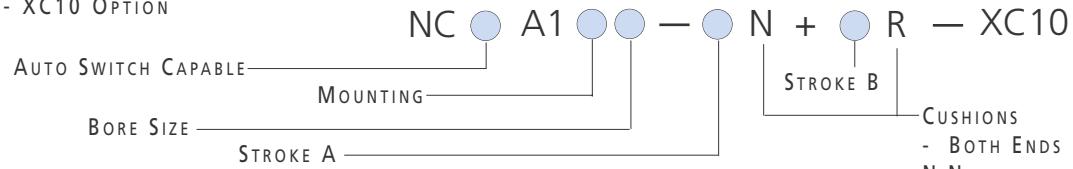


BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	J	JA	K	R	WF	Y	LF	P	ZZ	TN	XT	SN	d	mm
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	1.1	11/32	9/32	1.43	1	1.71	3 5/8	2.36	6.44	5/8	115/16	2 1/4	1.81	M16x1.5
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	1.06	11/32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

HOW TO ORDER

SERIES NCA1 AIR CYLINDER OPTIONS

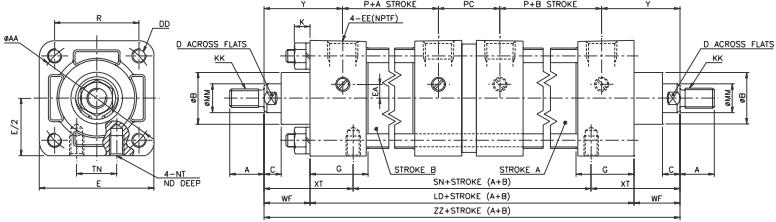
DUAL OPERATION - DOUBLE ROD - XC10 OPTION



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

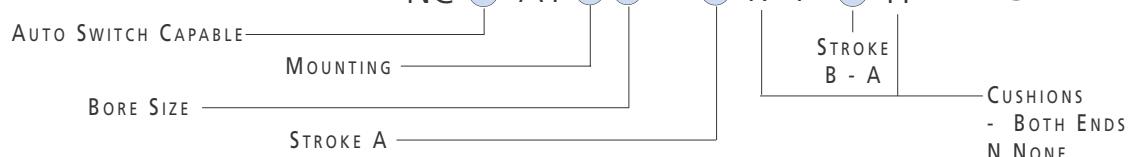


BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	K	R	WF	Y	LD	P	PC	ZZ	SN	TN	XT
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	9/32	1.43	1	1.71	7.44	2.36	1.30	9.44	5.56	5/8	115/16
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	11/32	1.84	1	1.71	7.52	2.40	1.30	9.52	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

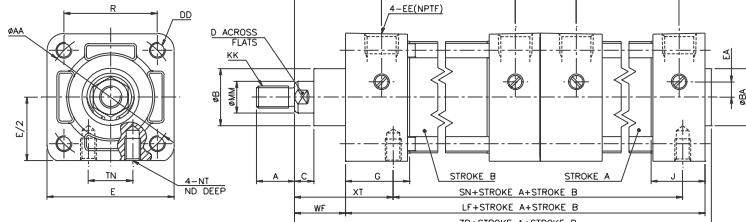
DUAL OPERATION - SINGLE ROD - XC11 OPTION



TECHNICAL SPECIFICATIONS

DUAL OPERATION - SINGLE ROD - XC11 OPTION

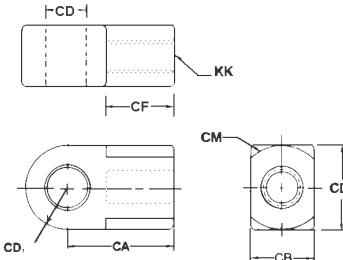
Bore Size	1.5 / 2 / 2.5 / 3.25 / 4
Fluid	Air
Max Operating Pressure	1.75MPa / 250PSI
Min Operating Pressure	0.06MPa / PSI
Ambient & Media Temperature	5~60°C / 40~140°F
Piston Speed	50~500mm/s / 2~20in/s
Cushion	Air Cushion Standard
Mounting Types	Basic, Foot, Flange Side Tapped, Clevis, Side Lug



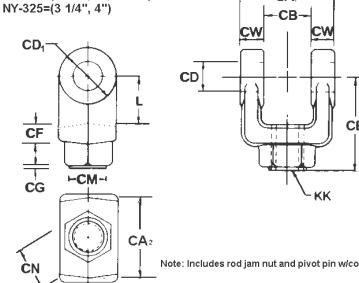
BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	G	J	NT	TN	WF	XT	Y	LF	PA	PB	PC	SN	ZB
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	1.1	1/4-20	5/8	1	1 15/16	1.71	7.26	2.36	2.40	1.24	5.89	8.39
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	1.06	5/16-18	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

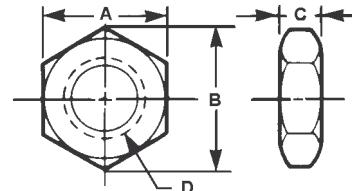
PART NO	CA	CB	CF	CB	CD ₁	CD ₂	CM	KK	DEPTH
NI-150	1.50	.75	0	0.937	0.50	.004	.50	1.0	1.0
			-0.1			+.002			7/16-20 2B
NI-325	2.06	1.25	0	1.937	0.75	.004	.75	1.5	1.5
			-0.1			+.002			3/4-16 2B
									1.12

 NY-150=(1 1/2", 2", 2 1/2")
 NI-325=(3 1/4", 4")

Note: Includes rod jam nut.
ACCESSORIES
SERIES NCA1 - PISTON ROD CLEVIS

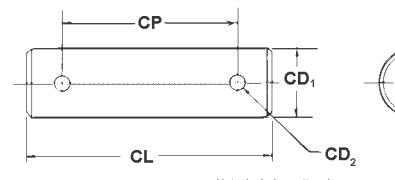
PART NO	CA ₁	CA ₂	CB	CD	CD ₁	CE	CF	CG	CM	CN	CW	KK-TAP	L
NY-150	1.765	1.65	.765	.001	0.50	.004	1.0	1.50	.38	.03	0.88	1.00	.50
				0		+.002						7/16-20 2B	0.75
NY-325	2.515	2.40	1.265	.001	0.75	.004	1.5	2.38	.56	.03	1.12	1.25	.62
				0		+.002						3/4-16 2B	1.25

 NY-150=(1 1/2", 2", 2 1/2")
 NY-325=(3 1/4", 4")

Note: Includes rod jam nut and pivot pin w/cotter pins.
ACCESSORIES
SERIES NCA1 - ROD JAM NUT

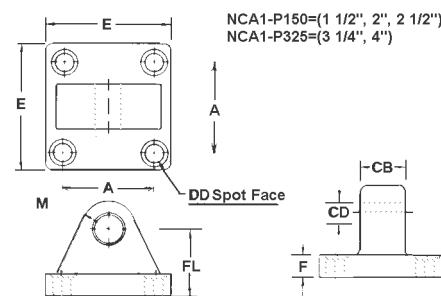
PART NO	APPLICABLE BORE	A	B	C	D
JM-045	1.5", 2", 2.25"	0.69	0.79	0.26	7/16-20 UNF
JM-10	3.25", 4"	1.12	1.30	0.42	3/4-16 UNF


ACCESSORIES
SERIES NCA1 - PIVOT PIN

PART NO	CD ₁	CD ₂	GL	CP
NCDP-150	0.50	0	.106	2.28
		-.002		1.94
NCDP-325	0.75	0	.140	3.10
		-.002		2.72


Note: Includes cotter pins
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	0.50	.004	.40	.59
					.01		+.002	
NCA1-P325	2.56	3.50	1.25	0	0.75	.004	.53	.78
					.01		+.002	
								.75



FINE LOCK AIR CYLINDER SERIES CLA Ø40~100MM



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



TECHNICAL SPECIFICATIONS SERIES CLA

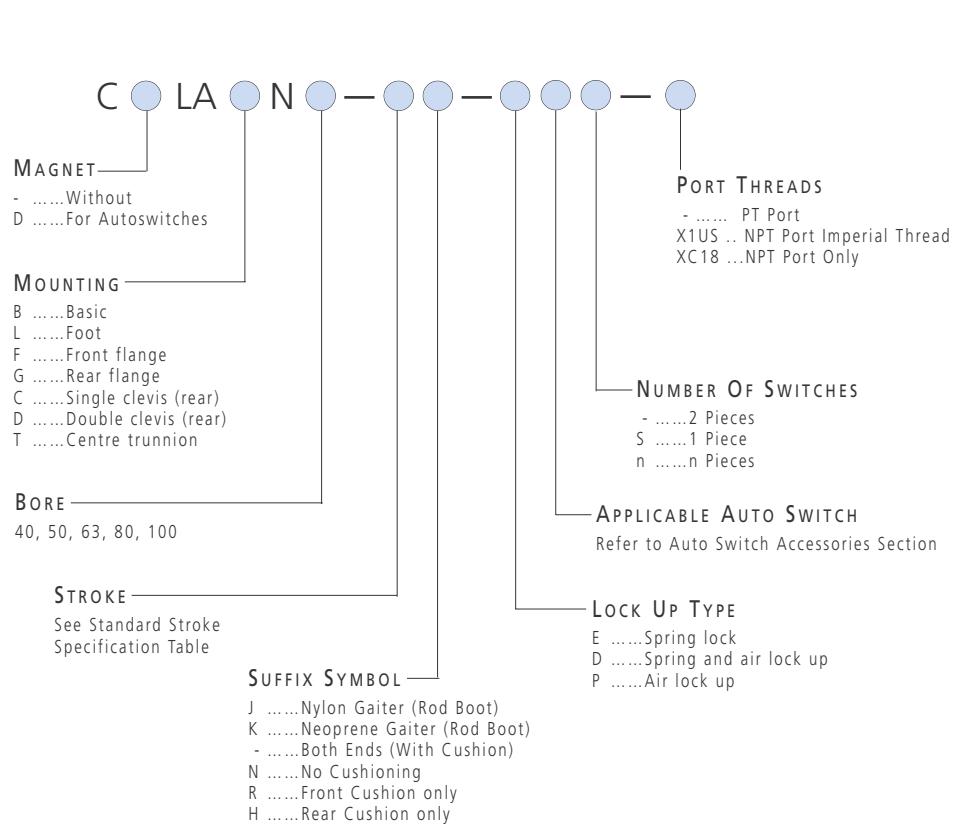
Fluid	Air
Proof Pressure	1.5MPa / 214PSI
Max Operating Pressure	1.52MPa / 217 PSI
Min Operating Pressure	1MPa / 145 PSI
Piston Speed	50~500mm/s / 2~20in/s
Ambient and Fluid Temperature	-10 ~ 60°C / 14~140°F
Cushion	Yes
Thread tolerance	JIS 2 class
Stroke tolerance	~200 : $^{+1.0}_{-0}$, 250~1000 : $^{+1.4}_{-0}$,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

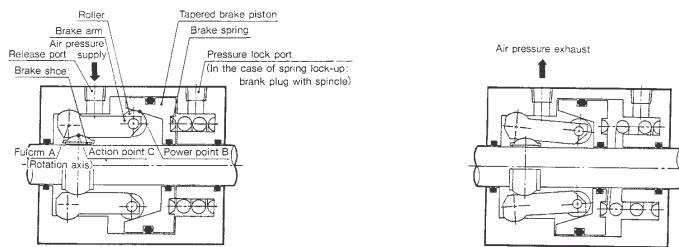
Bore Size (mm)	Standard Stroke (mm)
40	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500
50	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600
63	25, 50, 75, 100, 125, 150, 175, 200, 250, 300, 350, 400, 450, 500, 600
80	25, 50, 75, 100, 125, 150, 175, 200, 250, 300,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



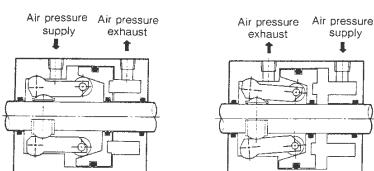
DIMENSIONS
SEE NEXT PAGE

TECHNICAL
 SPECIFICATIONS

FINELOCK TYPE (CONSTRUCTION) SERIES CLA

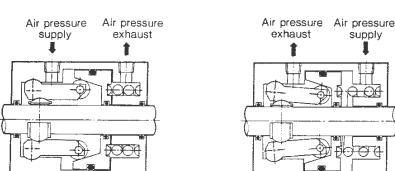
Construction
Spring lock-up

Lock releasing

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

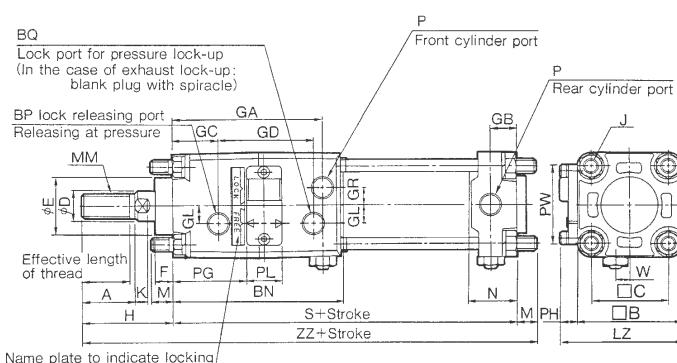
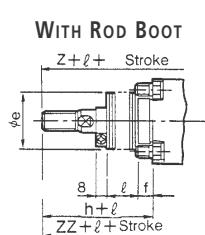
Air pressure drives the brake piston.

Spring and air pressure lock-up


Lock releasing

Locking

Air pressure and spring force combine to drive brake piston.

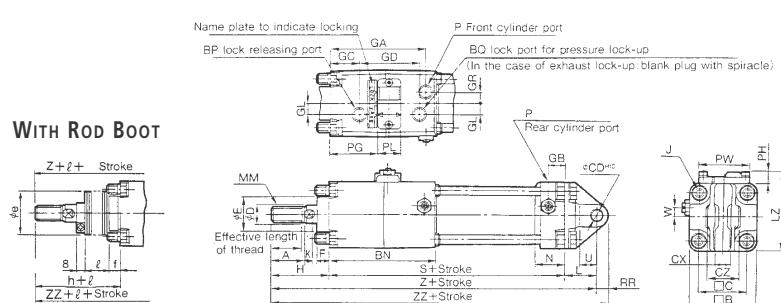
 DIMENSIONS
 BASIC TYPE CLAB


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

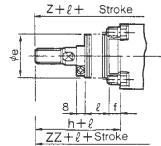
Bore Size	N	P	PG	PH	PL	PW	S	W	Without Boot		With Boot					
									H	ZZ	øe	f	h	ℓ	ZZ	
40	27	1/4	42	11	20	45	153	8	51	215	43	11.2	59		223	
50	30	3/8	46	10	21	50	168	0	58	237	52	11.2	66	1/4	245	
63	31	3/8	48.5	13	23	60	182	0	58	254	52	11.2	66	Stroke	262	
80	37	1/2	55	15	23	70	208	0	71	296	65	12.5	80		305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

DIMENSIONS

DOUBLE CLEVIS TYPE CLAD

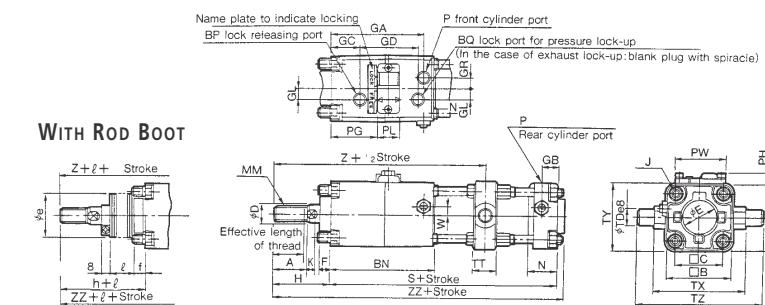


WITH ROD BOOT

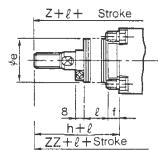


Bore Size	Stroke Range		Effective Length Of Thread	A	B	BN	BP	BQ	C	ØD	ØE	F	GA	GB	GC	GD	GL	GR	J	K	L	LZ	MM	MM X1US
	W/O Boot	W/Boot																						
40	~500	20~500	27	30	60	96	1/4	1/4	44	16	32	10	85	15	26	54	10	10	M8x1.25	6	30	71	M14x1.5	7/16-20
50	~600	20~600	32	35	70	108	1/4	1/4	52	20	40	10	95	17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

Bore Size	N	P	PG	PH	PL	PW	RR	S	U	W	ØCD ^{H10}	Without Boot			With Boot								
												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



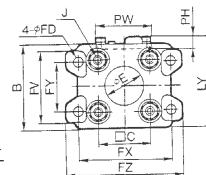
Bore Size	Stroke Range		Effective Length Of Thread	A	B	BN	BP	BQ	C	ØD	ØE	F	GA	GB	GC	GD	GL	GR	J	K	LZ	MM	MM X1US
	W/O Boot	W/Boot																					
40	~500	20~500	27	30	60	96	1/4	1/4	44	16	32	10	85	15	26	54	10	10	M8x1.25	6	71	M14x1.5	7/16-20
50	~600	20~600	32	35	70	108	1/4	1/4	52	20	40	10	95	17	27	59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

Bore Size	N	P	PG	PH	PL	PW	S	W	øTD _{e8}	TT	TX	TY	TZ	Without Boot			With Boot					
										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

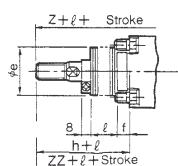
DIMENSIONS

REAR FLANGE TYPE CLAG

Name plate to indicate locking
 BP lock releasing port GA P Front cylinder port
 BP lock releasing port GC GD P in the case of exhaust lock-up: blank plug with spiracle



WITH ROD BOOT



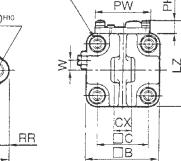
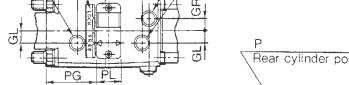
Bore Size	Stroke Range		Effective Length Of Thread	A	B	□B	BN	BP	BQ	□C	øD	øE	F	GA	GB	GC	GD	GL	GR	J	K	LY	MM	MM X1US	
	W/O Boot	W/Boot																							
40	~500	20~500		27	30	70	60	96	1/4	1/4	44	16	32	10	85	15	26	54	10	10	M8x1.25	6	76.5	M14x1.5	7/16-20
50	~600	20~600		32	35	81	70	108	1/4	1/4	52	20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

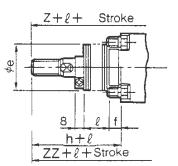
DIMENSIONS

SINGLE CLEVIS TYPE CLAC

Name plate to indicate locking
 BP lock releasing port GA P Front cylinder port
 BP lock port for pressure lock-up (in the case of exhaust lock-up: blank plug with spiracle)



WITH ROD BOOT



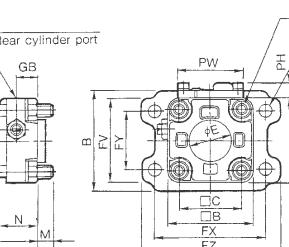
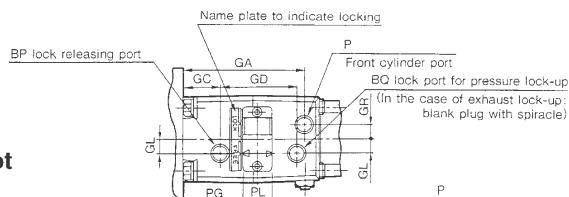
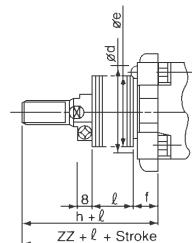
Bore Size	Stroke Range		Effective Length Of Thread	A	□B	BN	BP	BQ	□C	øD	øE	F	GA	GB	GC	GD	GL	GR	J	K	L	LZ	MM	MM X1US	
	W/O Boot	W/Boot																							
40	~500	20~500		27	30	60	96	1/4	1/4	44	16	32	10	85	15	26	54	10	10	M8x1.25	6	30	71	M14x1.5	7/16-20
50	~600	20~600		32	35	70	108	1/4	1/4	52	20	40	10	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	$\varnothing CD^{+0.010}$	CX	Without Boot		With Boot						
													H	Z	ZZ	øe	f	h	ℓ	Z	ZZ
40	27	1/4	42	11	20	45	10	153	16	8	10 $^{+0.058}$	15 $^{+0.3-0.1}$	51	234	244	43	11.2	59		242	252
50	30	3/8	46	10	21	50	12	168	19	0	10 $^{+0.07}$	18 $^{+0.3-0.1}$	58	261	273	52	11.2	66	1/4	269	281
63	31	3/8	48.5	13	23	60	16	182	23	0	16 $^{+0.07}$	25 $^{+0.3-0.1}$	58	280	296	52	11.2	66	Stroke	288	304
80	37	1/2	55	15	23	70	20	208	28	0	20 $^{+0.084}$	31.5 $^{+0.3-0.1}$	71	327	347	65	12.5	80		336	356
100	40	1/2	56.5	15	25	80	25	226	36	0	25 $^{+0.084}$	35.5 $^{+0.3-0.1}$	72	356	381	65	14	81		365	390

DIMENSIONS

FRONT FLANGE TYPE CLAF

with Rod Boot



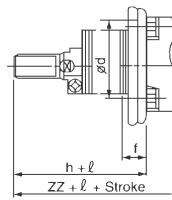
Bore Size	Stroke Range		Effective Length Of Thread		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
	W/O Boot	W/Boot																												
40	~800	20~800		27	30	71	60	96	1/4	1/4	44	16	32	85	15	26	54	10	10	M8x1.25	6	71	11	M14x1.5	7/16-20					
50	~1000	20~1000		32	35	81	70	108	1/4	1/4	52	20	40	95	17	27	59	13	12	M8x1.25	7	80	11	M18x1.5	3/4-16					
63	~1000	20~1000		32	35	101	86	115	1/4	1/4	64	20	40	102	17	26	67	18	15	M10x1.25	7	99	14	M18x1.5	3/4-16					
80	~1000	20~1000		37	40	119	102	129	1/4	1/4	78	25	52	113	21	30	72	23	17	M12x1.75	11	117	17	M22x1.5	3/4-16					
100	~1000	20~1000		37	40	133	116	140	1/4	1/4	92	30	52	124	21	31	76	25	19	M12x1.75	11	131	17	M26x1.5	1-14					

Bore Size	N	P	PG	PH	PL	PW	S	W	FV	øFD	FT	FX	FY	FZ	Without Boot		With Boot		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					

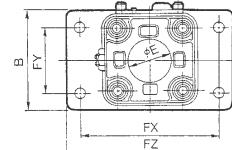
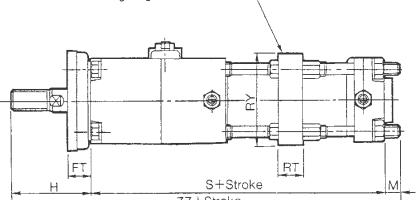
DIMENSIONS

LONG STROKE FRONT FLANGE TYPE CLAF

with Rod Boot



In the case of stroke exceeding 1000,
mount reinforcing ring for tie-rod.

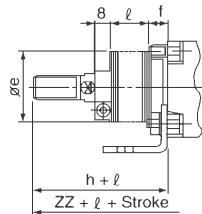
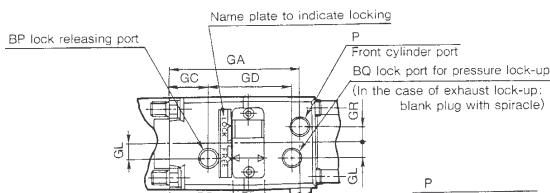


Bore Size	Stroke Range mm	B	M	RT	RY	FT	FX	FY	FZ	Without Boot		With Boot		H	ZZ	f	ZZ
50	1001~1200	88	6	30	76	20	120	58	144	67	241	19	240				
63	1001~1200	105	10	40	92	23	140	64	170	71	263	19	258				
80	1001~1400	124	12	45	112	28	164	84	198	87	307	21	300				
100	1001~1500	140	12	50	136	29	180	100	220	89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

DIMENSIONS

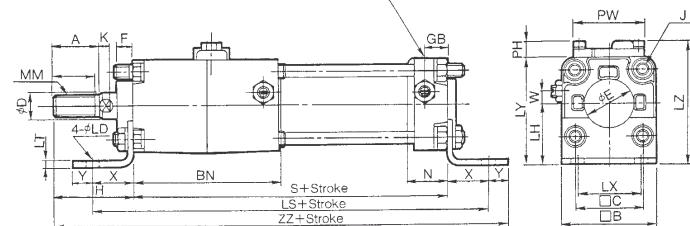
Foot Type CLAL

with Rod Boot

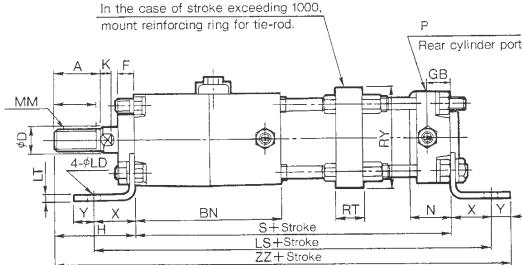


DIMENSIONS

LONG STROKE Foot Type CLAL

 Long stroke
 (ø50~ø100)


In the case of stroke exceeding 1000, mount reinforcing ring for tie-rod.



Bore Size	Stroke Range		Effective Length Of Thread	A	B	ØB	BN	BP	BQ	ØC	ØD	ØE	F	GA	GB	GC	GD	GL	GR	J	K	MM	MM X1US
	W/O Boot	W/Boot																					
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		With Boot				
																		H	ZZ	Øe	f	h	l	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	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

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

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

ACCESSORIES

MOUNTING TYPE SERIES CLA

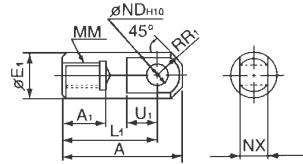
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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

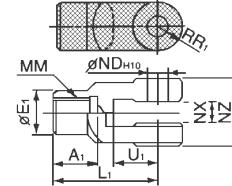
I Type Single Knuckle Joint



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 0~0.070	16 -0.3~-0.1
I-05	50 / 63	74	27	28	60	M18x1.5	15.5	20	12 0~0.070	16 -0.3~-0.1
I-08	80	91	37	36	71	M22x1.5	22.5	26	18 0~0.070	28 -0.3~-0.1
I-10	100	106	37	40	83	M26x1.5	24.5	26	20 0~0.084	30 -0.3~-0.1

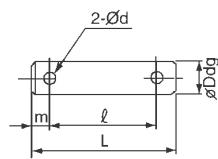
Y Type Double Knuckle Joint



Material: Cast Iron

Part No	Bore Size mm	A	ØE ₁	L ₁	MM	R ₁	U ₁	ØND ^{H10}	NX	NZ
Y-04d	40	22	24	55	M14x1.5	13	25	12 0~0.070	16 -0.3~-0.1	38
Y-05d	50 / 63	27	28	60	M18x1.5	15	27	12 0~0.070	16 -0.3~-0.1	38
Y-08d	80	37	36	71	M22x1.5	19	28	18 0~0.070	28 -0.3~-0.1	55
Y-10d	100	37	40	83	M26x1.5	21	38	20 0~0.084	30 -0.3~-0.1	61

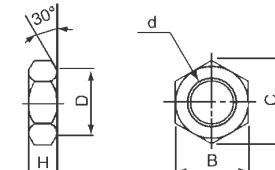
I Type Single Knuckle Joint



Material: Carbon Steel

Part No	Bore Size mm	ØND ^{H10}	L	Ød	Applicable Split Pin
Clevis	Knuckle				
CDP-2A	40	-	10 -0.076~-0.046	46	38 4 3 Ø3x18l
CDP-3A	50	40/50/63	12 -0.093~-0.05	55.5	47.5 4 3 Ø3x18l
CDP-4A	63	-	16 -0.093~-0.05	71	61 5 4 Ø4x25l
CDP-5A	-	80	18 -0.093~-0.05	76.5	66.5 5 4 Ø4x25l
CDP-6A	80	100	20 -0.117~-0.065	83	73 5 4 Ø4x25l
CDP-7A	100	-	25 -0.117~-0.065	88	78 6 4 Ø4x36l

Y Type Double Knuckle Joint



Material: Rolled Steel

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

COMPACT CYLINDER SERIES NCQ2



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

TECHNICAL SPECIFICATIONS

DOUBLE ACTING SINGLE ROD - SERIES NCQ2/CQ2

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

MINIMUM OPERATING PRESSURE

Bore Size	12	16	20	25	32	40	50	63	80	100	PSI
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	14.5	14.5	14.5	14.5	14.5	14.5	



MADE IN USA

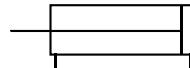


MADE IN CANADA

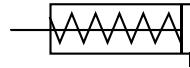


SYMBOLS

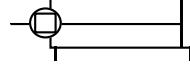
Double Acting / Single Rod Type



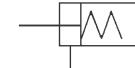
Single Acting Spring Return Type



Non-Rotating Piston Rod Type



Single Acting Spring Extended



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

HOW TO ORDER

NCQ2/CQ2 DOUBLE ACTING SINGLE ROD

NC Q2 D

MEASUREMENT

-PT - Metric

NNPT - Inch

AUTO SWITCH

-Not Auto Switch Capable

DAuto Switch Capable (With Built-In Magnet)

MOUNTING

BThrough Hole

ABoth Ends Tapped

LFoot

FRod Side Flange

GHead Side Flange

DDouble Clevis

STYLE

-Air Pressure

HAir Hydro (The available Air Hydro Bore Sizes: Ø20 ~ Ø100 CQ2 only)

ACTION

DDouble Acting

STROKE (MM)

PIPING

-Thread Ports

FBuilt-In One-Touch Fitting (Bore Sizes Ø32 ~ Ø63 Not applicable for Air Hydro Type CQ2 Only)

BORE SIZES (MM)

12 16 20 25 32

40 50 63 80 100

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

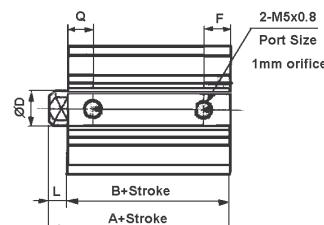
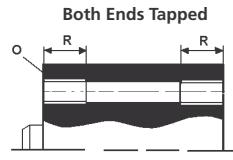
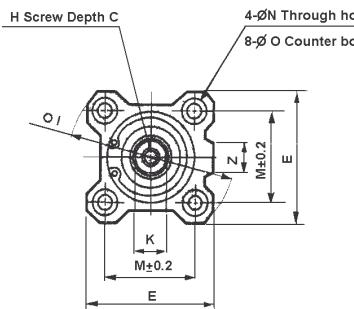
HOW TO ORDER

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

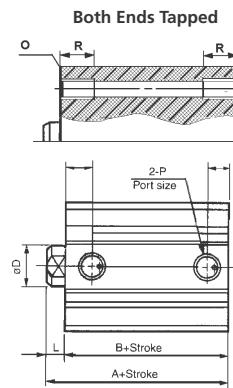
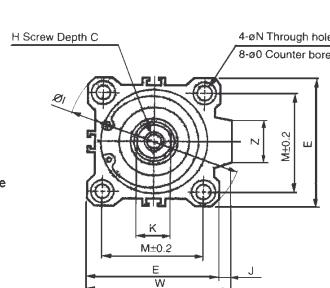
DIMENSIONS

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) Ø	NCQ2 (inch) Ø	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

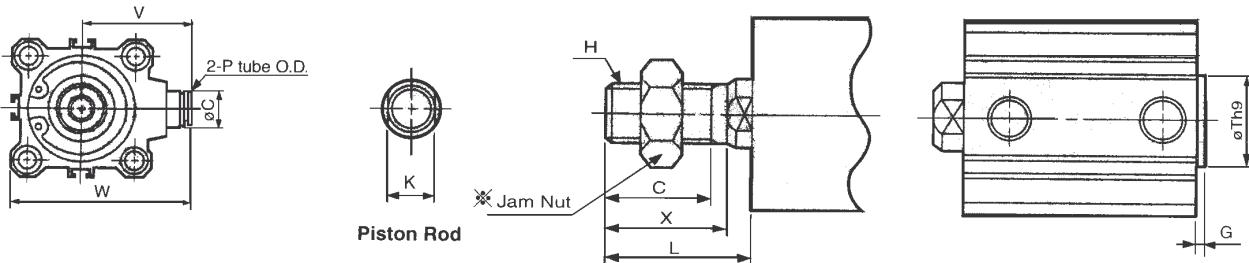
Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 H	i	j	K	L	M	N	O	P	Orifice	Q	W	Z
12	5~30	20.5	17	6	5.4	6	25	5	M3x0.5	8-32	32	-	5	3.5	15.5	3.5	6.5 Depth3.5	-	-	7.5	-	-
16	5~30	22	18.5	8	5.4	8	29	5.5	M4x0.7	8-32	38	-	6	3.5	20	3.5	6.5 Depth3.5	-	-	8	-	10
20	5~50	24	19.5	7	7	10	36	5.5	M5x0.8	10-32	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
	5	30	23					5.5	M8x	5/16-								M5x0.8	11.5			
32	10~50			13	13.3	16	45	7.5	1.25	24UNF	60	4.5	14	7	34	5.5	9 Depth7	1/8	1.7	10.5	49.5	18
	75, 100	40	33															1/8				
40	5~50	36.5	29.5	13	18.3	16	52	8	M8x	3/8-1.25	69	5	14	7	40	5.5	9 Depth7	1/8	2	11	57	18
	75, 100	46.5	39.5																			
50	10~50	38.5	30.5	15	17.6	20	64	10.5	M10x	1/2-1.5	86	7	17	8	50	6.6	11 Depth8	1/4	2.2	10.5	71	22
	75, 100	48.5	40.5																			
63	10~50	44	36	15	17.6	20	77	10.5	M10x	1/2-1.5	103	7	17	8	60	9	14 Depth	1/4	3	15	84	22
	75, 100	54	46																			
80	10~50	53.5	43.5	21	24.3	25	98	12.5	M16x	5/8-2	132	6	22	10	77	11	17.5 Depth	3/8	4	16	104	26
	75, 100	63.5	53.5																			
100	10~50	65	53	27	27	30	117	13	M20x	3/4-2.5	156	6.5	27	12	94	11	17.5 Depth	3/8	5	23	123.5	26
	75, 100	75	63																			

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

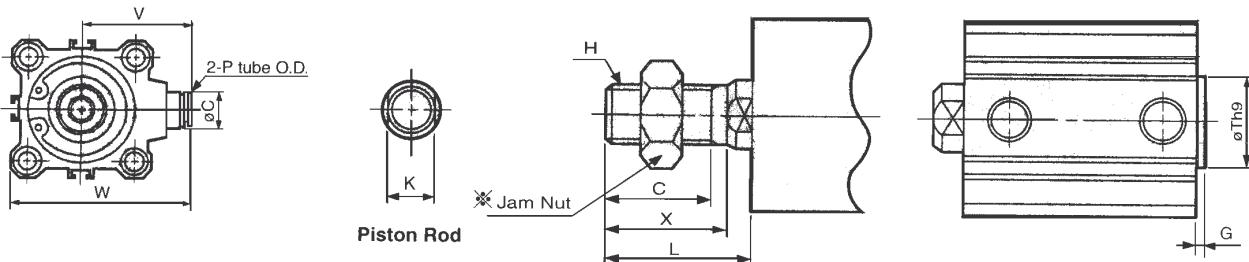
Bore Size	C mm	X mm	H mm	L mm	K mm
12	9	10.5	M5X0.8	14	5
16	10	12	M6X1	15.5	6
20	12	14	M8X1.25	18.5	8
25	15	17.5	M10X1.25	22.5	10
32	20.5	23.5	M14x1.5	28.5	14
40	20.5	23.5	M14x1.5	28.5	14
50	26	28.5	M18X1.5	33.5	17
63	26	28.5	M18X1.5	33.5	17
80	32.5	35.5	M22x1.5	43.5	22
100	32.5	35.5	M26X1.5	43.5	27

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 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)

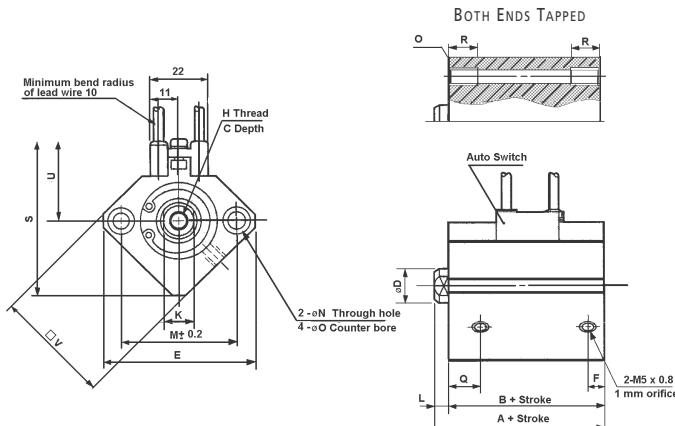
Bore Size	G mm	Th9 mm
12	1.5	15 ^{-0.043-0}
16	1.5	20 ^{-0.052-0}
20	2	13 ^{-0.043-0}
25	2	15 ^{-0.043-0}
32	2	21 ^{-0.052-0}
40	2	28 ^{-0.052-0}
50	2	35 ^{-0.062-0}
63	2	35 ^{-0.062-0}
80	2	43 ^{-0.062-0}
100	2	59 ^{-0.074-0}

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

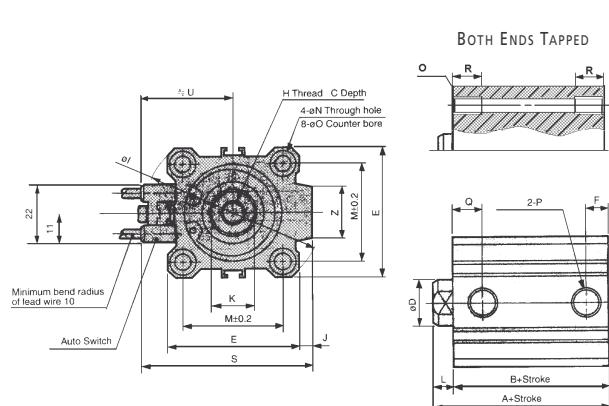
DIMENSIONS

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) Ø	NCQ2 (inch) Ø	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 (mm)	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 Depth 3.5	-	-	11	35.5	19.5	-	25
16	5~30	34	30.5	8	5.4	8	38	5.5	M4x0.7	8-32	-	-	6	3.5	28	3.5	6.5 Depth 3.5	-	-	10	41.5	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 Depth 7	-	-	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 Depth 7	-	-	11	53.5	27.5	-	40
32	5~50	40	33	13	13.3	16	45	7.5	M8x	5/16-24UNF	60	4.5	14	7	34	5.5	9 Depth 7	1/8	1.7	10.5	58.5	31.5	18	-
	75, 100																							
40	5~50	46.5	39.5	13	18.3	16	52	8	M8x	3/8-24UNF	69	5	14	7	40	5.5	9 Depth 7	1/8	2	11	66	35	18	-
	75, 100																							
50	10~50	48.5	40.5	15	17.6	20	64	10.5	M10x	1/2-20UNF	86	7	17	8	50	6.6	11 Depth 8	1/4	2.2	10.5	80	41	22	-
	75, 100																							
63	10~50	54	46	15	17.6	20	77	10.5	M10x	1/2-20UNF	103	7	17	8	60	9	14 Depth 10.5	1/4	3	15	93	47.5	22	-
	75, 100																							
80	10~50	63.5	53.5	21	24.3	25	98	12.5	M16x	5/8-18UNF	132	6	22	10	77	11	17.5 Depth 13.5	3/8	4	16	112.5	57.5	26	-
	75, 100																							
100	10~50	75	63	27	27	30	117	13	M20x	3/4-16UNF	156	6.5	27	12	94	11	17.5 Depth 13.5	3/8	5	23	132.5	67.5	26	-
	75, 100																							

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)

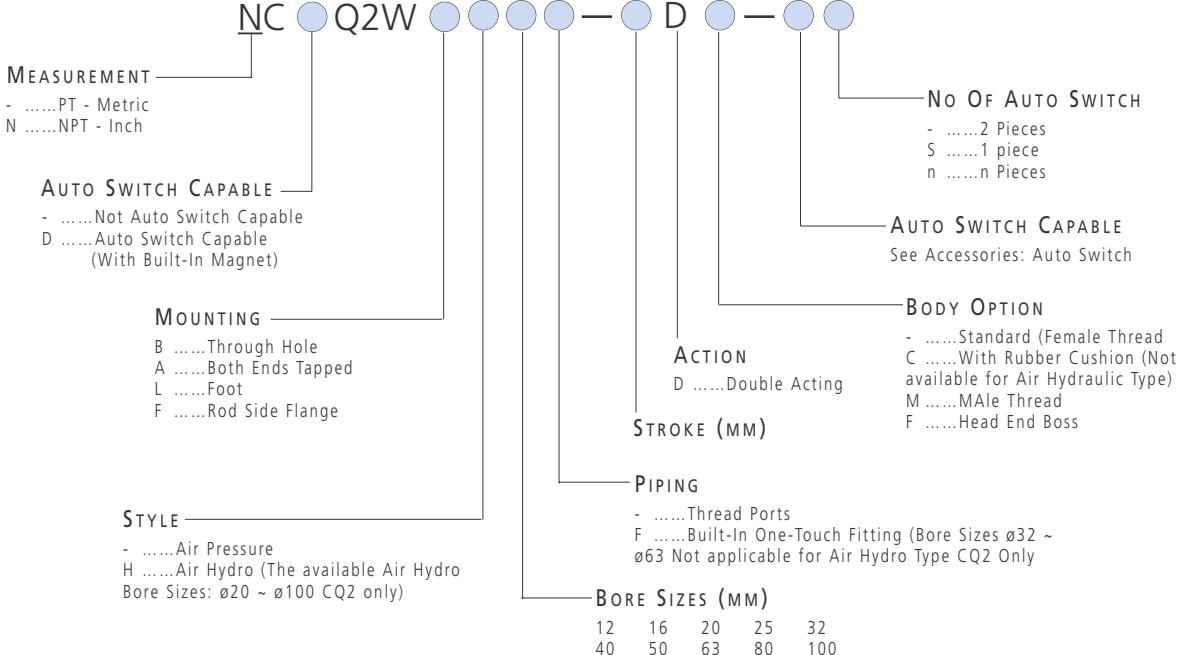
 MINIMUM
 OPERATING
 PRESSURE

Bore Size	12	16	20	25	32	40	50	63	80	100	PSI
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

 How To
 ORDER

NCQ2W/CQ2W DOUBLE ACTING DOUBLE ROD

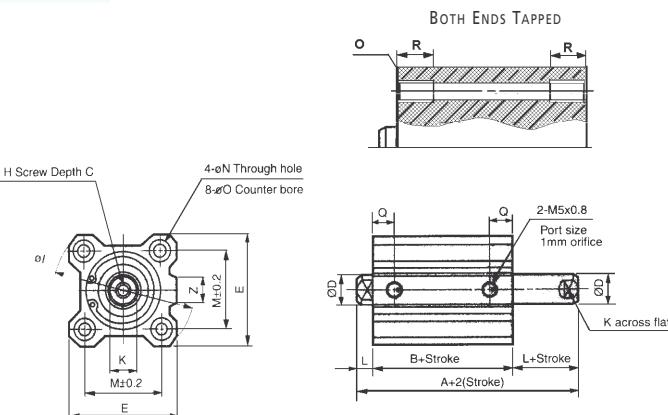

 How To
 ORDER

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

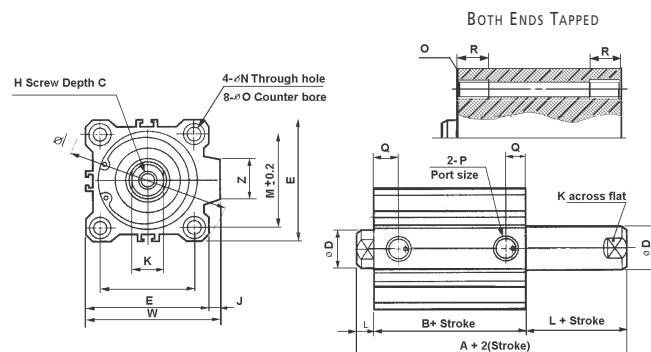
DIMENSIONS

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)

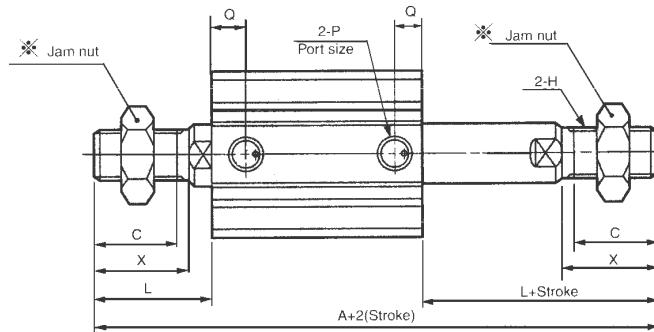
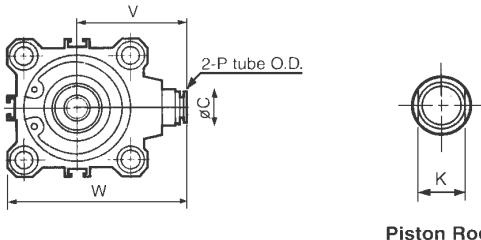
DOUBLE ACTING DOUBLE ROD SERIES (N)CQ2W

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 Depth 3.5	-	-	10	-	-
16	5~30	33	26	8	5.4	8	29	M4x0.7	8-32	38	-	6	3.5	20	3.5	6.5 Depth 3.5	-	-	10	-	10
20	5~50	35	26	7	7	10	36	M5x0.8	10-32	47	-	8	4.5	25.5	5.5	9 Depth 7	-	-	9.5	-	10
25	5~50	39	29	12	10	12	40	M6x1	1/4-28UNF	52	-	10	5	28	5.5	9 Depth 7	-	-	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 Depth 7	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 Depth 7	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 Depth 8	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


ONE TOUCH FITTINGS

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

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

NCQ2 MALE ROD END

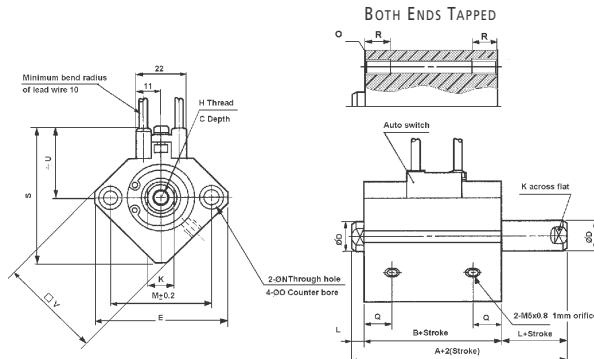
Bore	X	H	L	K	A
Size	mm	inch	mm	mm	mm
12	8	8-32UNC	11.5	5	48.2
16	8	8-32UNC	11.5	6	49
20	8	10-32UNF	12.5	8	51
25	9.5	1/4-28UNF	14.5	10	58
32	12.7	5/16-24UNF	19.7	14	69.9
40	16	3/8-24UNF	23	14	86
50	19.5	1/2-20UNF	27.5	17	95.5
63	19.5	1/2-20UNF	27.5	17	97
80	25.5	5/8-18UNF	35.5	22	122
100	28.5	3/4-16UNF	40.5	27	141.5

CQ2 MALE ROD END

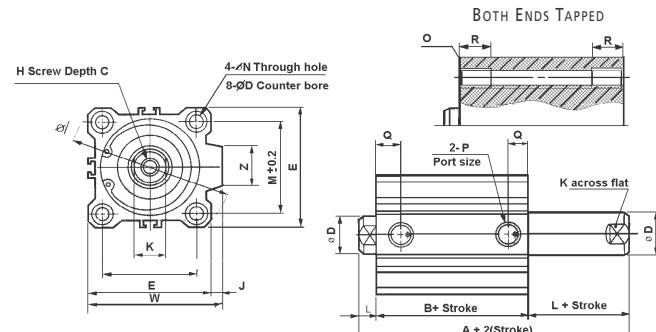
Bore	C	X	H	L	K	A
Size	mm	mm	mm	mm	mm	mm
12	9	10.5	M5X0.8	14	5	53.2
16	10	12	M6X1	15.5	6	57
20	12	14	M8X1.25	18.5	8	63
25	15	17.5	M10X1.25	22.5	10	74
32	20.5	23.5	M14x1.5	28.5	14	87.5
40	20.5	23.5	M14x1.5	28.5	14	97
50	26	28.5	M18X1.5	33.5	17	107.5
63	26	28.5	M18X1.5	33.5	17	109
80	32.5	35.5	M22x1.5	43.5	22	138
100	32.5	35.5	M26X1.5	43.5	27	147.5

DIMENSIONS

THROUGH HOLE Ø12 ~ Ø25 SERIES (N)CDQ2WB


DIMENSIONS

THROUGH HOLE Ø32 ~ Ø100 SERIES (N)CDQ2WB


BOTH ENDS TAPPED (N)CDQ2WA (MM)

Bore	CQ2 (mm)	NCQ2 (in)	R
Size	O	O	
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)

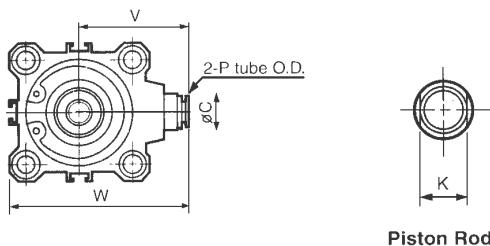
STANDARD Ø12 ~ Ø100 SERIES (N)CDQ2W

Bore Size (mm)	Stroke	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 Depth 3.5	-	-	10.5	35.5	19.5	25	-
16	5~30	43	36	8	5.4	8	38	M4x0.7	8-32	-	-	6	3.5	28	3.5	6.5 Depth 3.5	-	-	10	41.5	22.5	29	-
20	5~50	47	38	7	7	10	47	M5x0.8	10-32	-	-	8	4.5	36	5.5	9 Depth 7	-	-	10.5	48	24.5	36	-
25	5~50	49	39	12	10	12	52	M6x1	1/4-28UNF	-	-	10	5	40	5.5	9 Depth 7	-	-	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 Depth 7	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 Depth 7	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 Depth 8	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



ONE TOUCH FITTINGS

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

NCQ2 MALE ROD END

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

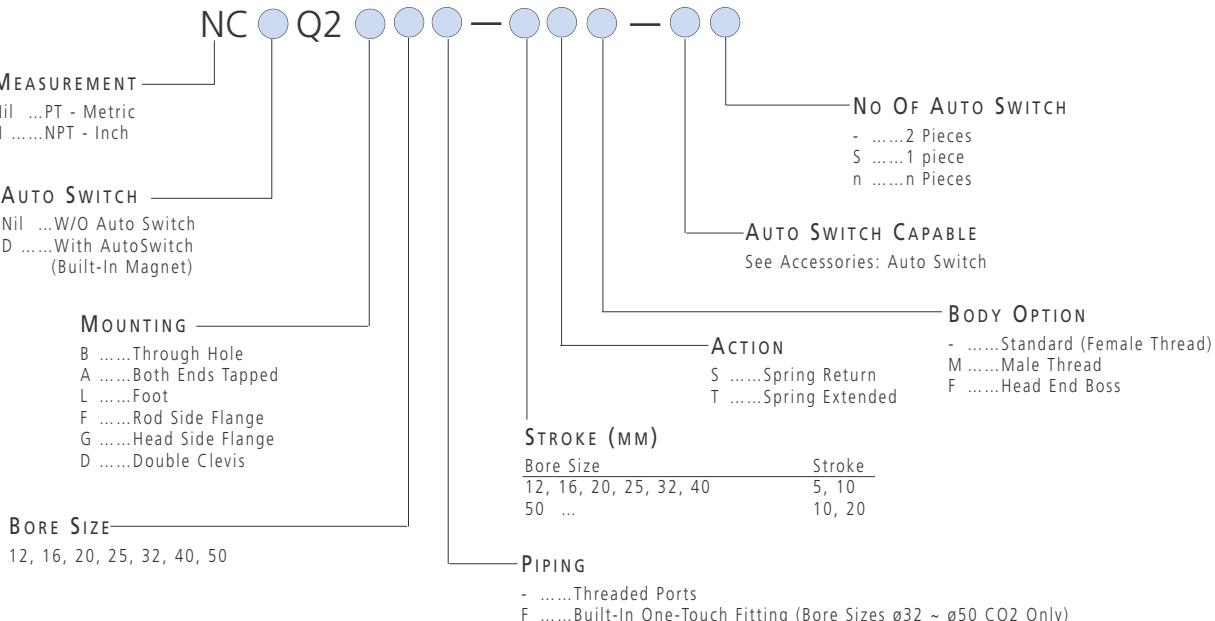
 MINIMUM
 OPERATING
 PRESSURE

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


 How To
 ORDER

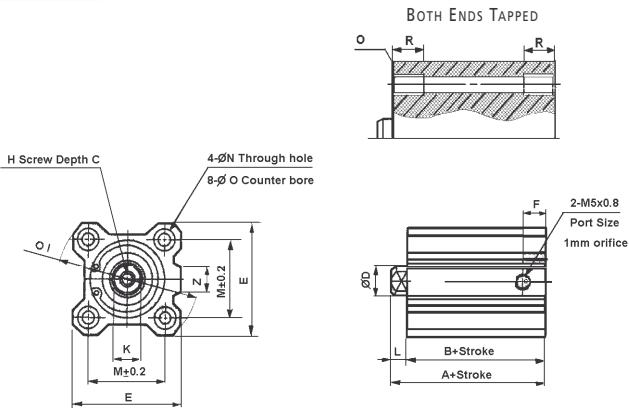
SINGLE ACTING SINGLE ROD - STANDARD STROKE

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

DIMENSIONS

SPRING RETURN

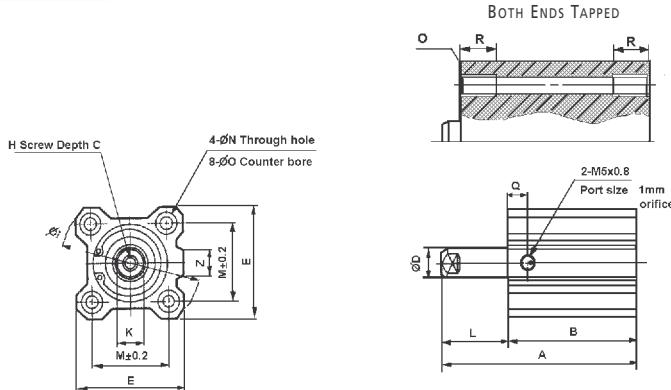
THROUGH HOLE Ø12 ~ Ø25 SERIES (N)CQ2B-S



DIMENSIONS

SPRING EXTENDED

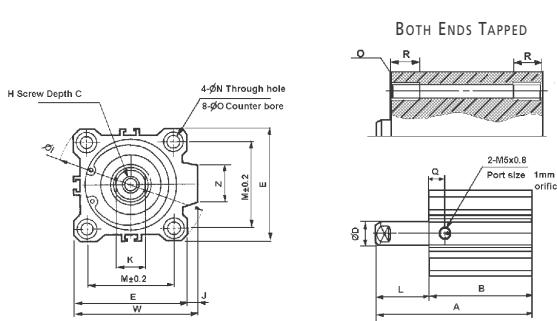
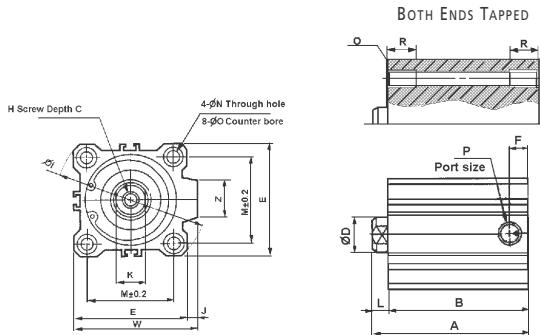
THROUGH HOLE ø12 ~ ø25 SERIES (N)CQ2B-T



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

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

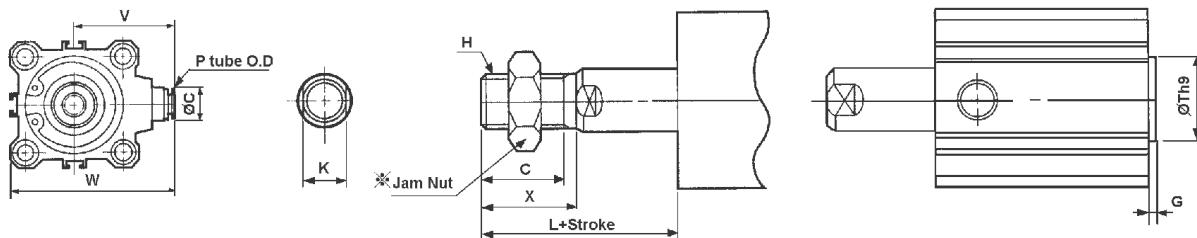
DIMENSIONS (MM)

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

BOTH ENDS TAPPED (N)CDQ2A

Bore Size	CQ2 (mm)	NCQ2 (in)	R
	O	O	
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)

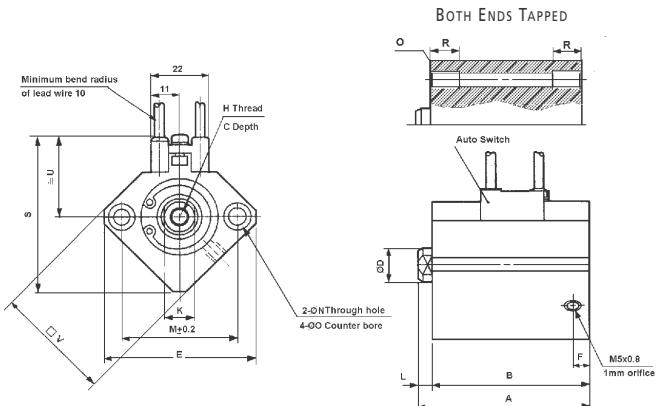
Bore Size	G mm	Th9 mm
12	1.5	15 .043-0
16	1.5	20 .052-0
20	2	13 .043-0
25	2	15 .043-0
32	2	21 .052-0
40	2	28 .052-0
50	2	35 .062-0

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

DIMENSIONS

SPRING RETURN

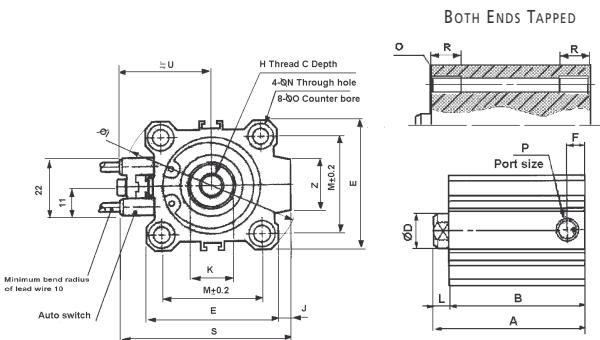
THROUGH HOLE Ø12 ~ Ø25 SERIES (N)CDQ2B-S



DIMENSIONS

SPRING RETURN

THROUGH HOLE Ø32 ~ Ø50 SERIES (N)CDQ2B-S



DIMENSIONS (MM)

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

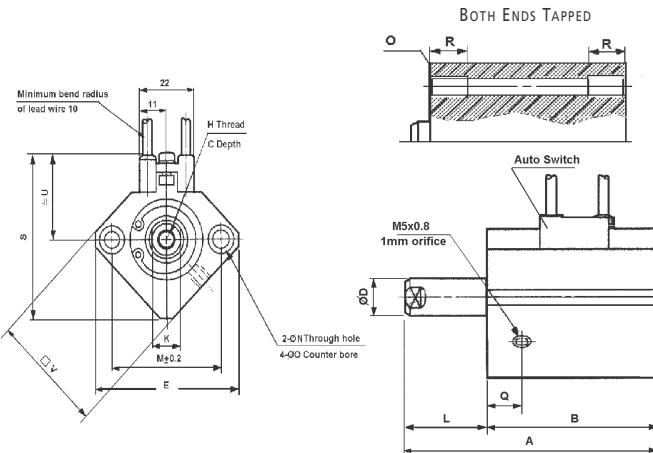
Bore Size (mm)	Stroke	A			B			CQ2 C	NCQ2 C	D	E
		5st	10st	20st	5st	10st	20st				
12	5, 10	36.5	41.5	-	33	38	-	6	5.4	6	32
16	5, 10	39	44	-	35.5	40.5	-	8	5.4	8	38
20	5, 10	41	46	-	36.5	41.5	-	7	7	10	47
25	5, 10	42.5	47.5	-	37.5	42.5	-	12	10	12	52
32	5, 10	45	50	-	38	43	-	13	13.3	16	45
40	5, 10	51.5	56.5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

Bore Size (mm)	Stroke	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

DIMENSIONS

SPRING EXTENDED

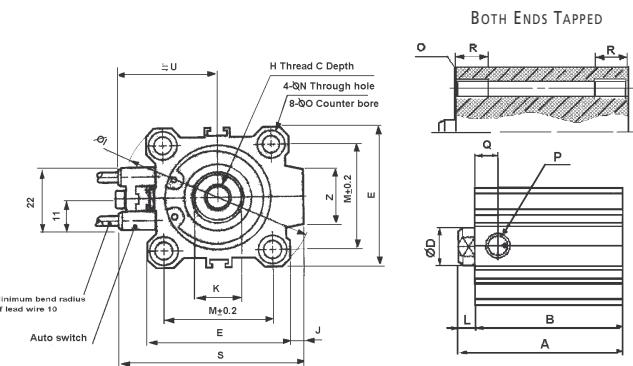
THROUGH HOLE Ø12 ~ Ø25 SERIES (N)CDQ2B-T



DIMENSIONS

SPRING EXTENDED

THROUGH HOLE Ø32 ~ Ø50 SERIES (N)CDQ2B-T



DIMENSIONS (MM)

SERIES (N)CDQ2B-T

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

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

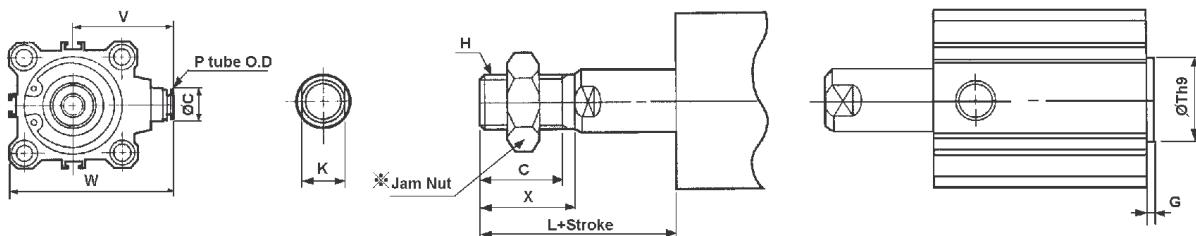
BOTH ENDS TAPPED (N)CDQ2A

Bore Size	CQ2 (mm)	NCQ2 (in)	R
O	O		
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 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
12	1.5	15 .043-0
16	1.5	20 .052-0
20	2	13 .043-0
25	2	15 .043-0
32	2	21 .052-0
40	2	28 .052-0
50	2	35 .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

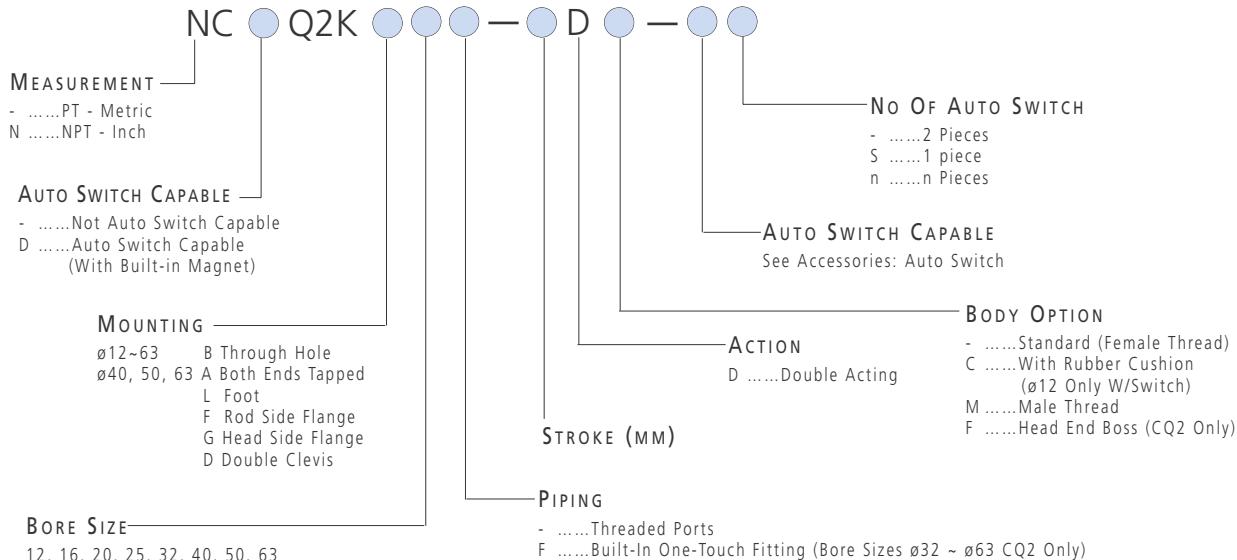
MINIMUM
OPERATING
PRESSURE

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

How To
ORDER

Non-Rotating Double Acting Single Rod - STANDARD STROKE

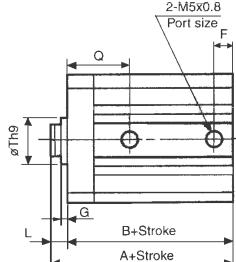
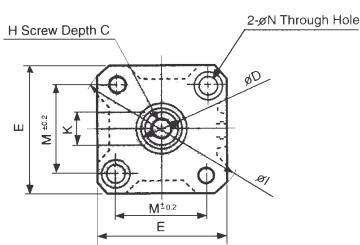
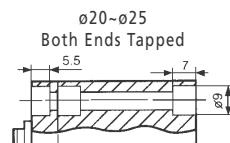
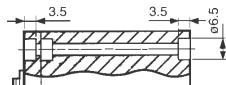
Bore Size	Stroke
12, 16	5, 10, 15, 20, 25, 30
20, 25	5, 10, 15, 20, 25, 30, 35, 40, 45, 50
32, 40	5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100
50, 63	10, 15, 20, 25, 30, 35, 40, 45, 50, 75, 100

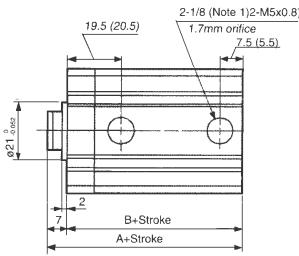
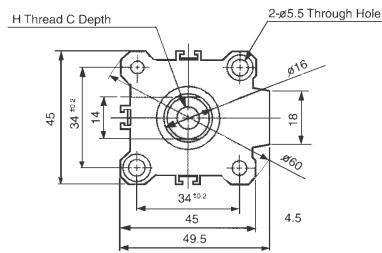

DIMENSIONS

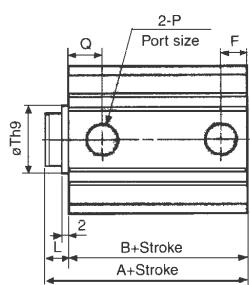
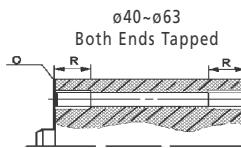
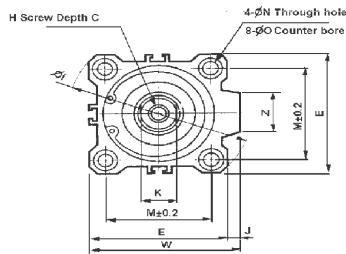
 THROUGH HOLE $\varnothing 12 \sim \varnothing 25$ SERIES (N)CQ2KB

 $\varnothing 12 \sim \varnothing 16$

Both Ends Tapped


DIMENSIONS

 THROUGH HOLE $\varnothing 32$ SERIES (N)CQ2KB

DIMENSIONS

 THROUGH HOLE $\varnothing 40 \sim \varnothing 63$ SERIES (N)CQ2KB


DIMENSIONS (MM)

NON-ROTATING

DOUBLE ACTING SINGLE ROD BOTH ENDS TAPPED SERIES (N)CQ2KA

BOTH ENDS TAPPED (N)CQ2KA

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

DIMENSIONS

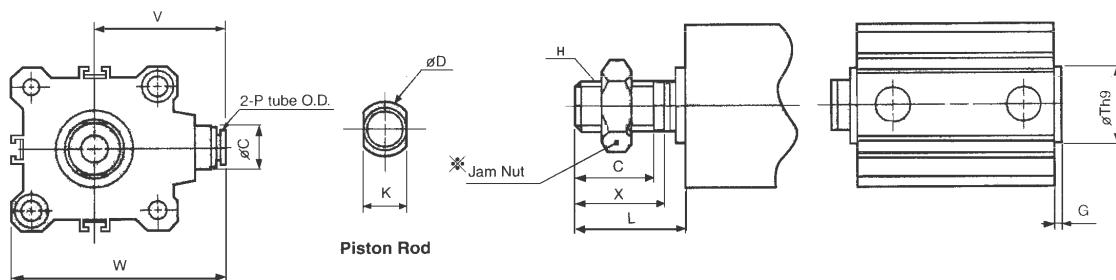
NON-ROTATING DOUBLE ACTING SINGLE ROD

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	3/8-1.25	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							24UNF															
50	5~50	38.5	30.5	15	17.6	20	64	10.5	2	M10x	1/2-1.5	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							20UNF															
63	10~50	44	36	15	17.6	20	77	10.5	2	M10x	1/2-1.5	103	7	18	8	60	9	14 Depth	1/4	3	15	35 ^{-0.062-0}	84	22	
	75, 100	54	46							20UNF															

DIMENSIONS

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



ONE TOUCH FITTINGS

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

NCQ2 MALE ROD END

Bore Size	X	H	inch	L	K
mm	mm	mm		mm	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	X	H	L	K
mm	mm	mm	mm	mm	mm
12	9	10.5	M5X0.8	14	5
16	10	12	M6X1	15.5	6
20	12	14	M8X1.25	18.5	8
25	15	17.5	M10X1.25	22.5	10
32	20.5	23.5	M14X1.5	28.5	14
40	20.5	23.5	M14X1.5	28.5	14
50	26	28.5	M18X1.5	33.5	18
63	26	28.5	M18X1.5	33.5	18

END BOSS (CQ2 ONLY)

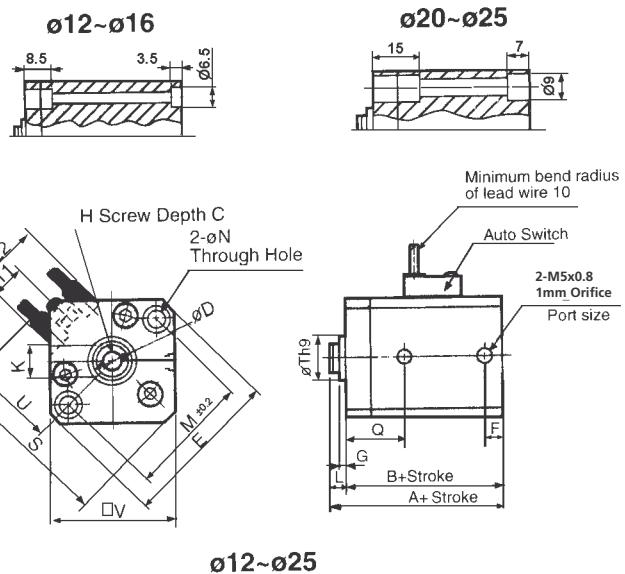
Bore Size	G	Th9
mm	mm	mm
12	1.5	15 ^{-0.043-0}
16	1.5	20 ^{-0.052-0}
20	2	13 ^{-0.043-0}
25	2	15 ^{-0.043-0}
32	2	21 ^{-0.052-0}
40	2	28 ^{-0.052-0}
50	2	35 ^{-0.062-0}
63	2	35 ^{-0.062-0}

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

DIMENSIONS

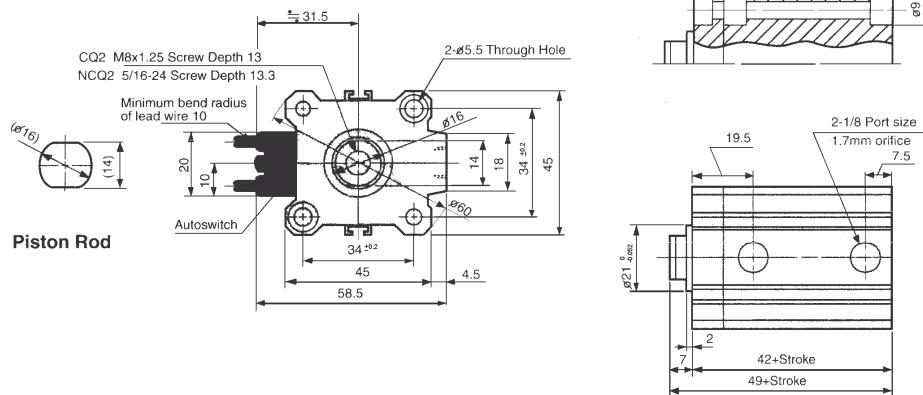
WITH AUTO SWITCH

THROUGH HOLE Ø12 ~ Ø25 SERIES (N)CDQ2KB


DIMENSIONS

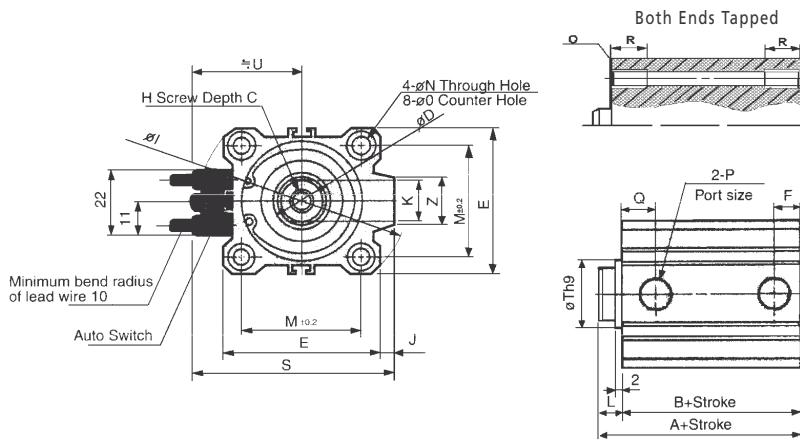
WITH AUTO SWITCH

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

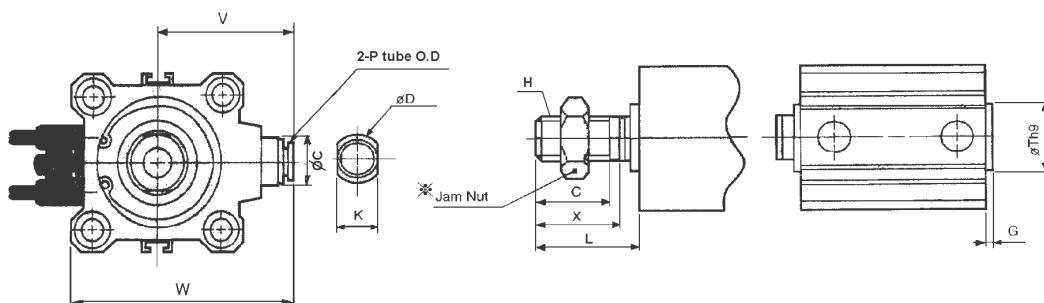
WITH AUTO SWITCH SERIES (N)CDQ2K STANDARD

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	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	1/2-20UNF	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	1/2-20UNF	103	7	18	8	60	9	14 Depth10.5	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	P	V	W
mm	mm	mm	mm	mm
32	13	6	38	60.5
40	13	6	42	68
50	16	8	50	82
63	16	8	56.5	95

NCDQ2 MALE ROD END

Bore Size	X	H	L	K
mm	inch	mm	mm	mm
12	8	8-32UNC	11.5	5
16	8	8-32UNC	11.5	6
20	8	10-32UNF	12.5	8
25	9.5	1/4-28UNF	14.5	10
32	12.7	5/16-24UNF	19.7	14
40	16	3/8-24UNF	23	14
50	19.5	1/2-20UNF	27.5	17
63	19.5	1/2-20UNF	27.5	17

CDQ2 MALE ROD END

Bore Size	C	X	H	L	K
mm	mm	mm	mm	mm	mm
12	9	10.5	M5X0.8	14	5
16	10	12	M6X1	15.5	6
20	12	14	M8X1.25	18.5	8
25	15	17.5	M10X1.25	22.5	10
32	20.5	23.5	M14X1.5	28.5	14
40	20.5	23.5	M14X1.5	28.5	14
50	26	28.5	M18X1.5	33.5	17
63	26	28.5	M18X1.5	33.5	17

END BOSS (CQ2 ONLY)

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

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

MEASUREMENT

 -PT - Metric
 NNPT - Inch

AUTO SWITCH CAPABLE

 -Not Auto Switch Capable
 DAutoSwitch 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

NO OF AUTO SWITCH

 -2 Pieces
 S1 piece
 nn Pieces

BODY OPTION

 -Standard (Female Thread)
 CWith Rubber Cushion
 (ø12W Switch)
 MMale Thread

ACTION

DDouble Acting

STROKE (MM)

PIPING

 -Threaded Ports
 FBuilt-In One-Touch Fitting (Bore Sizes ø32 ~ ø63 CQ2 Only)

 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

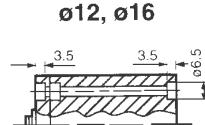
Bore Size	Accuracy
12,	±2°
16, 20, 25	±1°
32, 40, 50, 63	±0.8°

 MORE DIMENSIONS
 SEE NEXT PAGE

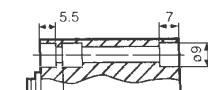

DIMENSIONS (MM)

THROUGH HOLE Ø12 ~ Ø32 SERIES (N)CQ2KWB

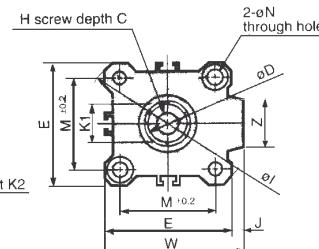
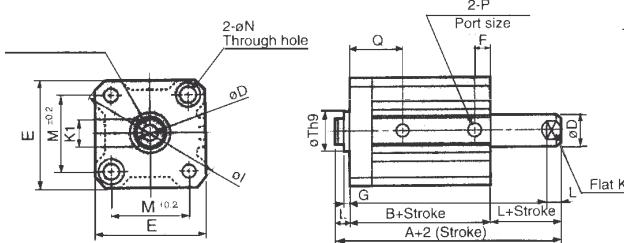
Ø12, Ø16



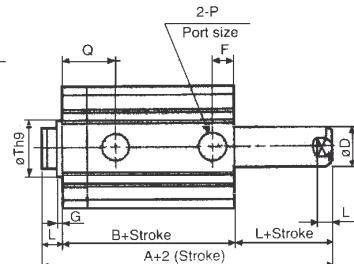
Ø20~Ø32



Ø12~Ø25



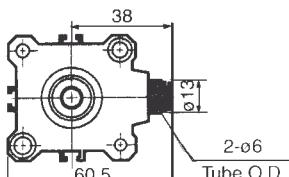
Ø32



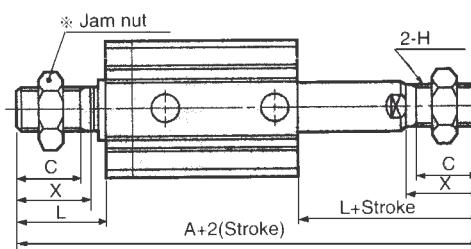
Bore Size (mm)	Stroke	A	B	CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 H	i	J	K1	K2	L	M	N	P	Orifice	Q	Th9	W	Z
12	5~30	37.2	30.2	6	5.4	6	25	10	M3x0.5	8-32	32	-	5.2	5	3.5	15.5	3.5	M5x0.8	1	15	15 ^{0.043-0}	-	-
16	5~30	38	31	8	5.4	8	29	10	M4x0.7	8-32	38	-	6	6	3.5	20	3.5	M5x0.8	1	15	20 ^{0.052-0}	-	-
20	5~50	43	34	7	7	10	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	5/16-1.25	60	4.5	14	14	7	34	5.5	M5x0.8	1.7	21.5	21 ^{0.052-0}	49.5	18
	10~50																						

DIMENSIONS

ONE TOUCH FITTING Ø32 SERIES (N)CQ2KWB



Piston Rod



NCQ2 MALE ROD END

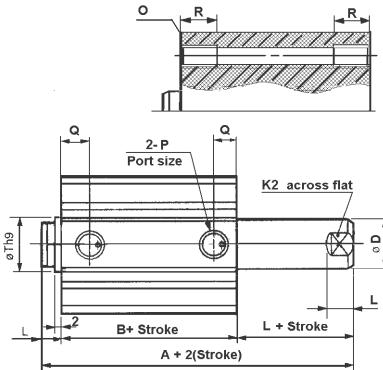
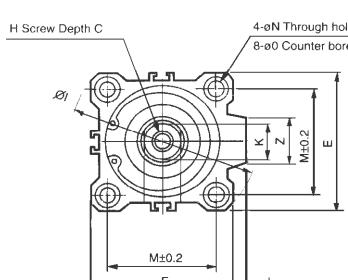
Bore Size mm	X mm	H inch	L mm	K1 mm	A mm
12	8	8-32UNC	11.5	5.2	53.2
16	8	8-32UNC	11.5	6	54
20	8	10-32UNF	12.5	8	59
25	9.5	1/4-28UNF	14.5	10	66
32	12.7	5/16-24UNF	19.7	14	78.9

CQ2 MALE ROD END

Bore Size mm	C mm	X mm	H mm	L mm	K1 mm	A mm
12	9	10.5	M5X0.8	14	5.2	58.2
16	10	12	M6X1	15.5	6	62
20	12	14	M8X1.25	18.5	8	71
25	15	17.5	M10X1.25	22.5	10	82
32	20.5	23.5	M14x1.5	28.5	14	96.5



DIMENSIONS (MM)
 THROUGH HOLE Ø40 ~ Ø63 SERIES (N)CQ2KWB



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

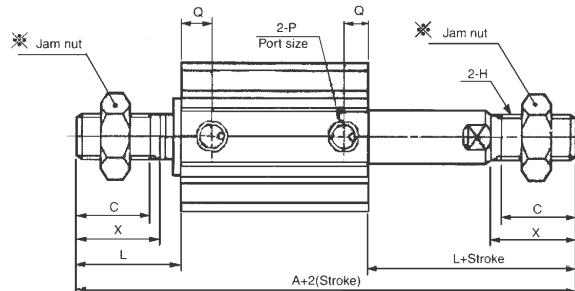
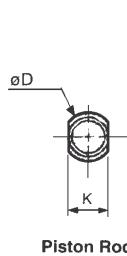
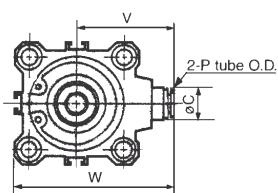
BOTH ENDS TAPPED (N)CQ2KWA

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

Bore Size (mm)	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	14 Depth10.5	1/4	3	15.5	35 ^{-0.062-0}	84	22



DIMENSIONS
 DOUBLE ACTING DOUBLE ROD SERIES (N)CQ2KWB



ONE TOUCH FITTINGS

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

NCQ2 MALE ROD END

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

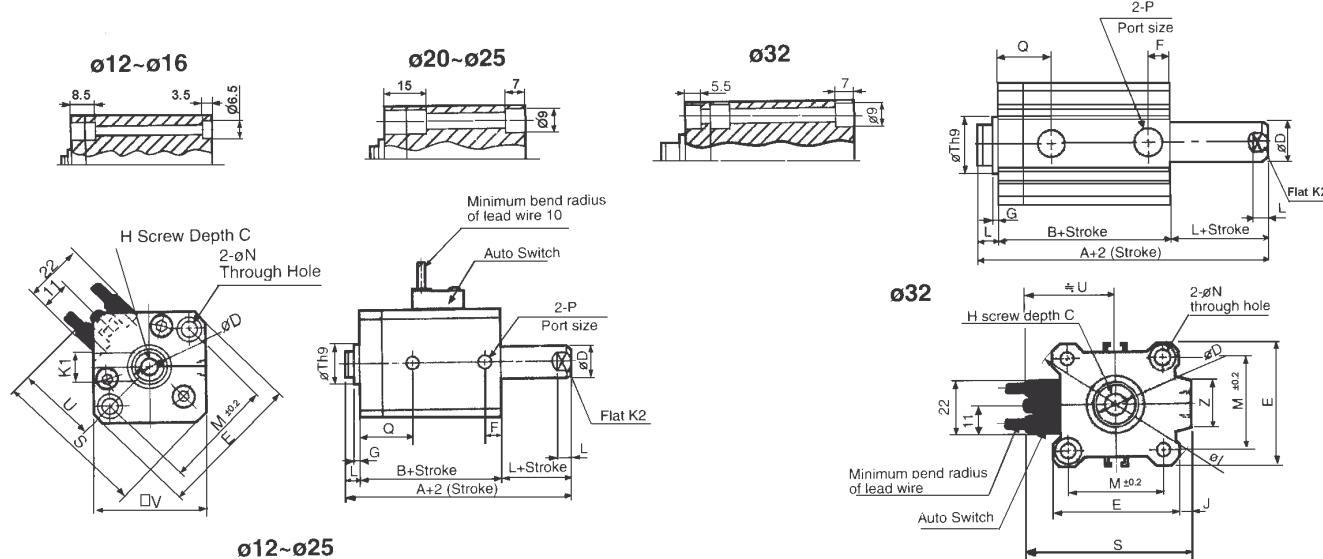
CQ2 MALE ROD END

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

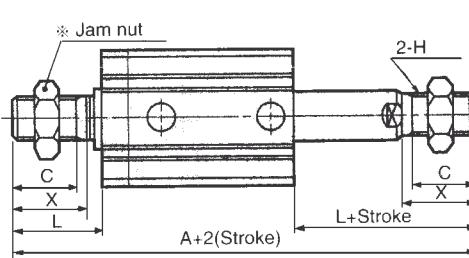
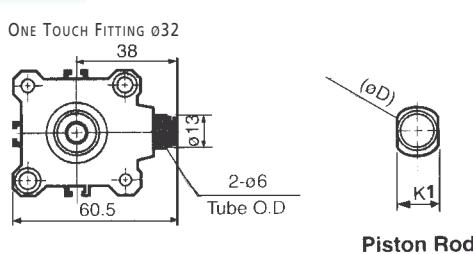
DIMENSIONS (MM)

WITH AUTO SWITCH

THROUGH HOLE Ø12 ~ Ø32 SERIES (N)CDQ2KWB



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

DIMENSIONS
DOUBLE ACTING DOUBLE ROD (N)CDQ2KWB

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

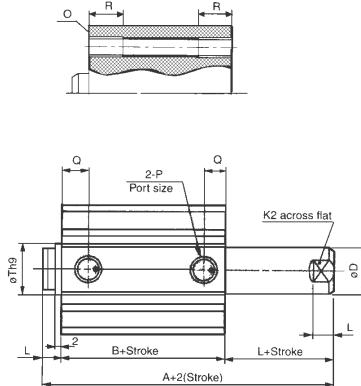
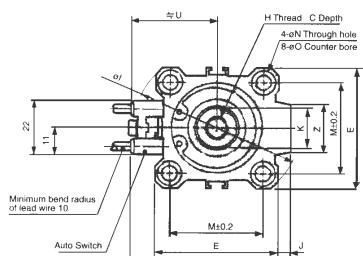
CQ2 MALE ROD END

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)

WITH AUTO SWITCH

THROUGH HOLE Ø40 ~ Ø63 SERIES (N)CDQ2KWB


DIMENSIONS (MM)

WITH AUTO SWITCH NON-ROTATING

DOUBLE ACTING SINGLE ROD BOTH ENDS TAPPED SERIES (N)CDQ2KWA

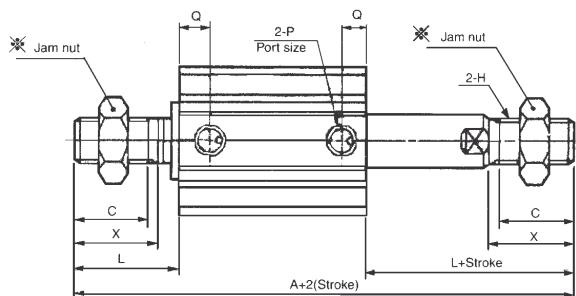
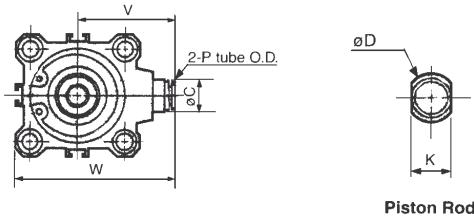
BOTH ENDS TAPPED

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

Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 H	i	J	K	K2	L	M	N	O	P*	Q	S	Th9	U	Z
40	5~50	64	50	13	18.3	16	52	M8x1.25	3/8-24UNF	69	5	14	14	7	40	5.5	9 Depth 7	1/8	14	66	28 ^{.052-0}	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 Depth 8	1/4	14	80	35 ^{.062-0}	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 Depth 10.5	1/4	15.5	93	35 ^{.062-0}	47.5	22

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

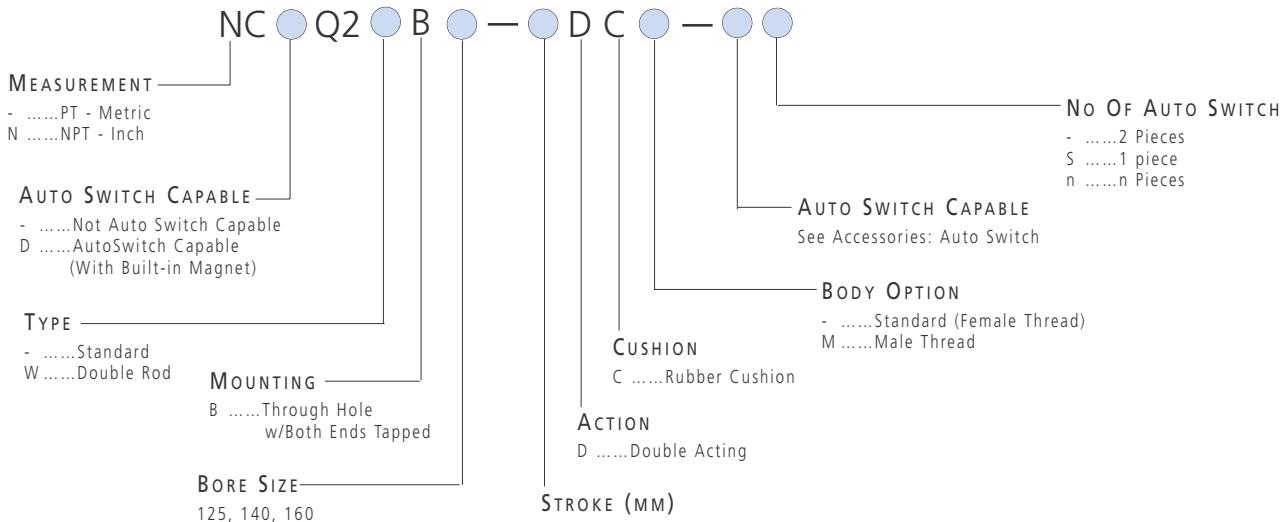
LARGE BORE COMPACT CYLINDER STANDARD

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 W/O Auto Switch	15~160°F (at freezing temp; air must be dry) -10~70°C
Media Temp 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

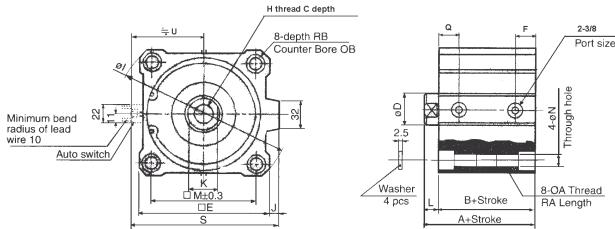
How To
ORDER

LARGE BORE DOUBLE ACTING SINGLE / DOUBLE ROD STANDARD STROKE

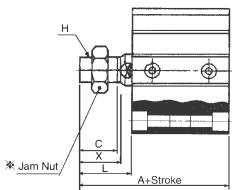
Bore Size	Stroke
125	10, 20, 30, 40, 45,
140	50, 75, 100, 125, 150,
160	175, 200, 250, 300

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, 50,75,100,	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	125,150,175, 200,250,300	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		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


CQ2 MALE ROD END

Bore Size	A mm	C mm	H mm	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

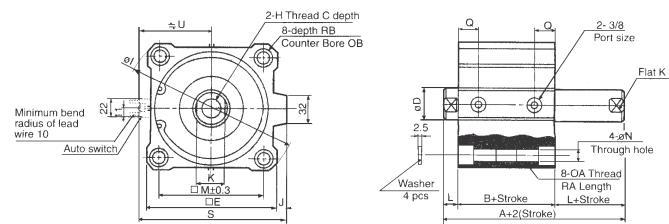
NCQ2 MALE ROD END

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

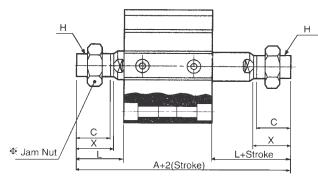
Note) Dimensions are the same for Standard and Switch Capable

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


CCQ2 MALE ROD END

Bore Size	A mm	C mm	H mm	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

CQ2

C *(22.5)

*(22.5)

*(26.5)

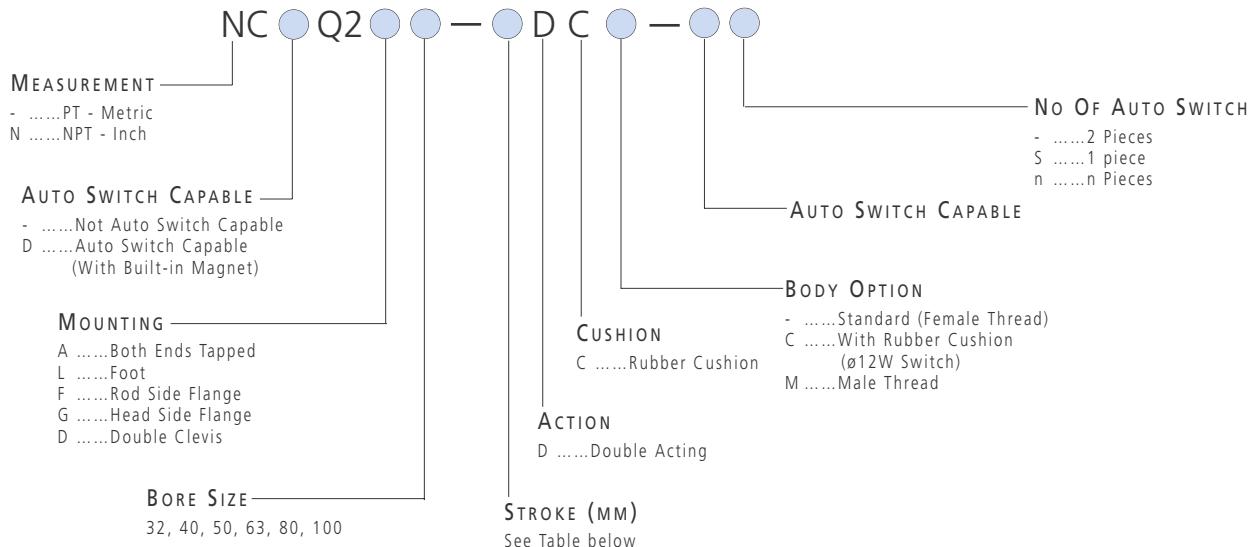
 Note) Thread Depth
for 10 Stroke

TECHNICAL
SPECIFICATIONSLONG 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 W/O Auto Switch	15~160°F (at freezing temp; air must be dry) -10~70°C
Media Temp 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

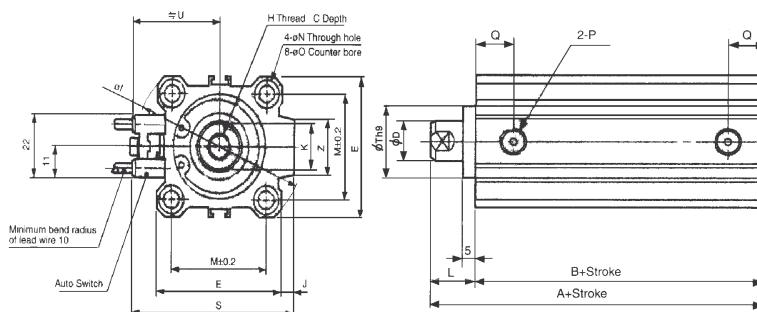
How To
ORDER

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

How To
ORDER

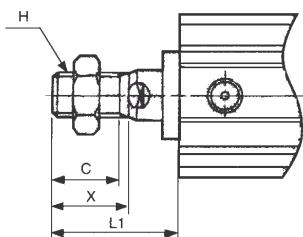
LONG STROKE DOUBLE ACTING SINGLE ROD STANDARD STROKE

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


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

CQ2 MALE ROD END

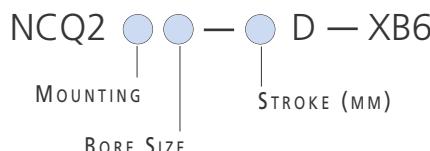
Bore Size	C	X	H	L1
32	20.5	23.5	M14x1.5	38.5
40	20.5	23.5	M14x1.5	38.5
50	26	28.5	M18x1.5	43.5
63	26	28.5	M18x1.5	43.5
80	32.5	35.5	M22x1.5	53.5
100	32.5	35.5	M26x1.5	53.5

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

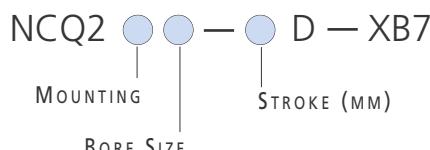
Bore Size	ø12, 16, 20, 25, 32, 40, 50, 63, 80, 100
Fluid	Air
Temperature	150°C / 300°F
Action	Double Acting
Lubrication	Non-Lube
Material	Seal - FluoroRubber
Auto Switch Capable	No

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

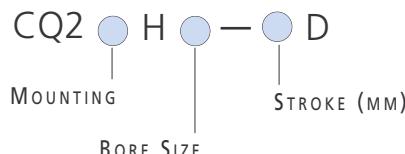
Bore Size	ø12, 16, 20, 25, 32, 40
Fluid	Air
Temperature	-50°C / -58°F
Action	Double Acting
Lubrication	Non-Lube
Material	Seal - Low Nitrile Rubber
Auto Switch Capable	No

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

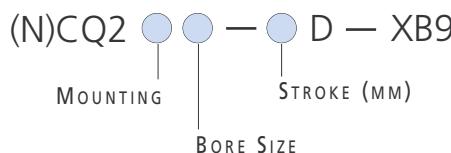
Bore Size	ø20, 25, 32, 40, 50, 63, 80, 100
Fluid	Air
Action	Double Acting
Proof Pressure	1.5MPa / 213 PSI
Maximum Operating Pressure	1MPa / 145 PSI
Minimum Operating Pressure	0.18MPa / 26 PSI
Auto Switch Capable	Yes

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

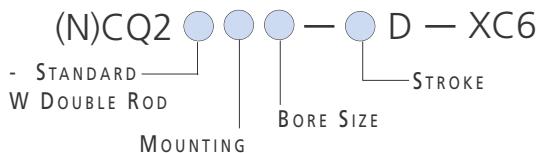
LOW SPEED CYLINDER - XB9 OPTION

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

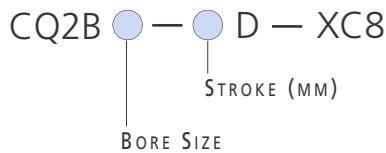
STAINLESS STEEL PISTON ROD - XC6 OPTION

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


TECHNICAL
SPECIFICATIONS
SERIES CQ2

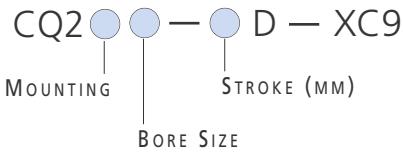
ADJUSTABLE STROKE CYLINDER / EXTEND TYPE - XC8 OPTION

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

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

ACCESSORIES
SERIES CQ2

ADJUSTABLE STROKE CYLINDER / RETRACT TYPE - XC9 OPTION


TECHNICAL
SPECIFICATIONS
SERIES CQ2

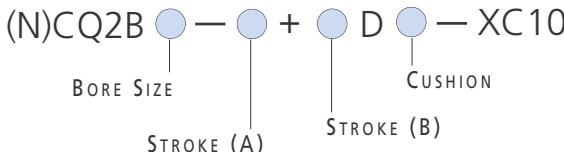
ADJUSTABLE STROKE CYLINDER / RETRACT TYPE - XC9 OPTION

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

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

ACCESSORIES
SERIES NCQ2/CQ2

DUAL STROKE CYLINDER / DOUBLE ROD TYPE - XC10 OPTION


TECHNICAL
SPECIFICATIONS
SERIES (N)CQ2

DUAL STROKE CYLINDER / DOUBLE ROD TYPE - XC10 OPTION

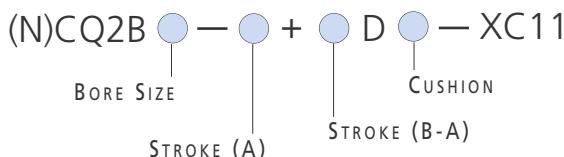
Bore Size	ø12, 16, 20, 25, 32, 40, 50, 63, 80, 100
Fluid	Air
Action	Double Acting
Lubrication	Non-Lube
Cushion	Rubber Cushion Available

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

ACCESSORIES

SERIES NCQ2/CQ2

DUAL STROKE CYLINDER / SINGLE ROD TYPE - XC11 OPTION



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

TECHNICAL

SPECIFICATIONS

SERIES (N)CQ2

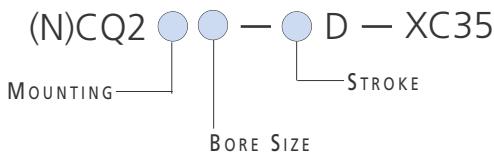
DUAL STROKE CYLINDER / SINGLE ROD TYPE - XC11 OPTION

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



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

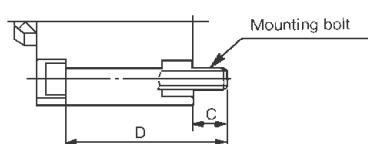
MOUNTING KITS SERIES NCQ2/CQ2

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

ACCESSORIES

MOUNTING BOLT FOR SERIES NCQ2/CQ2

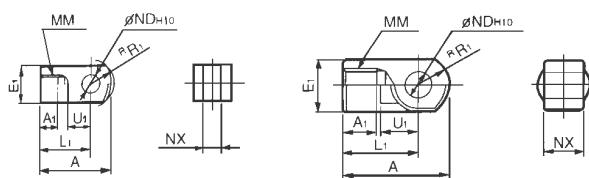
Thread	Pitch
M3	0.5
M5	0.8
M6	1
M8	1.25
M10	1.5



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

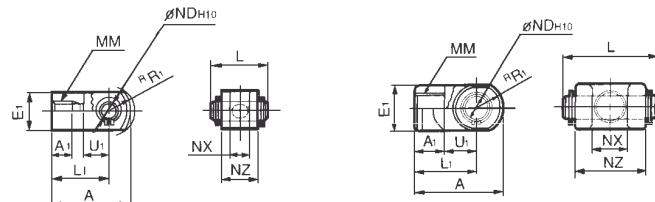
Note) * If Foot Bracket is required for a cylinder, order a pair

Note)** The Double Clevis is packaged with Clevis Pin and Snap Ring

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


CQ2 SINGLE ROD CLEVIS

Part No	Bore Size	A	A1	E1	L1	MM	R1	U1	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 ^{0.2 - 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}

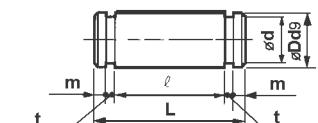
ACCESSORIES (MM)
 SERIES NCQ2/CQ2
 DOUBLE ROD CLEVIS (ROD EYE)


CQ2 DOUBLE ROD CLEVIS

Part No	Bore Size	A	A1	E1	L1	MM	R1	U1	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 ^{0.2 - 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

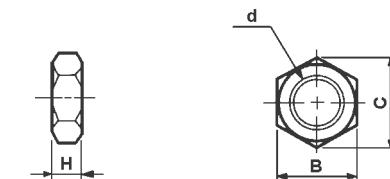
NCQ2 SINGLE ROD CLEVIS

Part No	Bore Size	A	A1	E1	L1	MM	R1	U1	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
 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			-	200V		
	D-A73	D-A73H			24V	-		
	D-A80	D-A80H		2 Wire	24V/48V/100V AC/DC			
	D-A73C	-			24V	-		
	D-A80C	-			24V	-		
	D-A79W	-			24V	-		
	D-A90	-		2 Wire	24V/48V/100V AC/DC			
	D-A93	-			24V	-		
	D-A96	-			48V	-		
Solid State Switch	D-F7NV	D-F79	Yes	3 Wire NPN	5V, 12V	-		
	D-F7PV	D-F7P						
	D-F7BV	D-J79		2 Wire				
	D-J79C	-		24V	5V, 12V			
	D-F7NWV	D-F79W						
	-	D-F7PW				3 Wire PNP		
	D-F7BWV	D-J79W						
	-	D-F7BAL		2 Wire	-			
	-	D-F7NTL						
	-	D-F79F				3 Wire NPN		
	-	D-F7LF						
	D-F9N	-		4 Wire NPN	-			
	D-F9P	-						
	D-F9B	-						

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



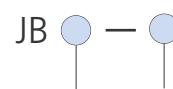
- ✓ Compact for (N)CQ2 Compact Cylinders up to 100mm
- ✓ Absorbs both Angular and Eccentric Misalignment
- ✓ Reduces Mounting Time of Actuator
- ✓ Long Life - Dust-tight Cover
- ✗ Do not use for Rotation because of Non-Rotating Shaft Coupling

How To ORDER

NCQ2/CQ2 DOUBLE ACTING SINGLE ROD

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



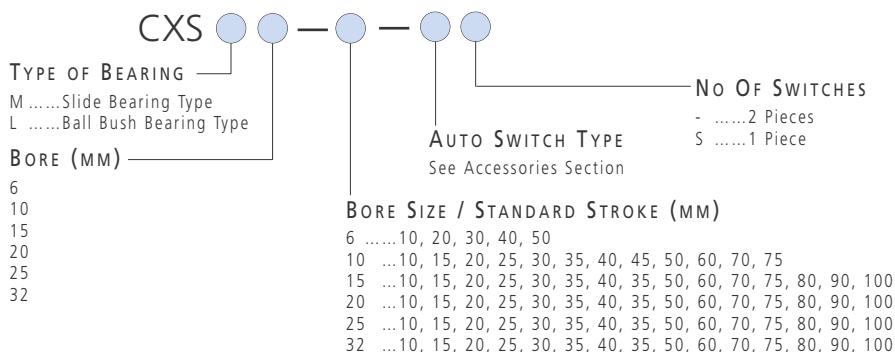
TECHNICAL SPECIFICATIONS

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



ACCESSORIES AUTO SWITCHES

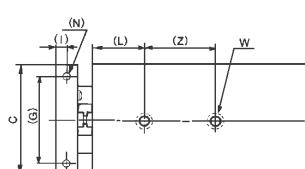
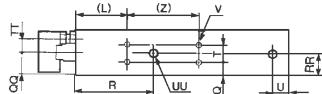
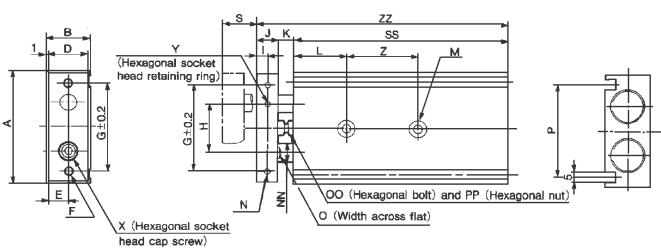
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

Model		Load Voltage	Load Current	Power Source	Internal Voltage Drop	Indicator Lamp	Lead Wire Length
Part No	Part No Grommet type	Part No Connector type					
D-Z73L		Reed	24VDC 100VAC	5~40mA 5~20mA		Max 2.4V	ON:RED LED
D-Z80L		Reed	24VDC/AC or less 100VDC/AC	Max 50mA Max 20mA			None
D-Y59AL		3 Wire Solid State NPN	28VDC or less	Max 150mA	5~28VDC	0.8V Max	ON:RED LED
D-Y7PL		3 Wire Solid State PNP	28VDC or less	Max 100mA	5~28VDC	0.8V Max	ON:RED LED
D-Y59BL		2 Wire Solid State	28VDC or less	5~150mA		3V Max	ON:RED LED

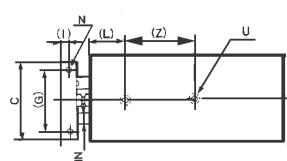
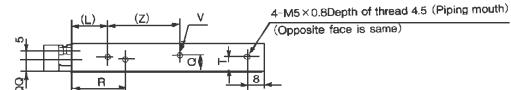
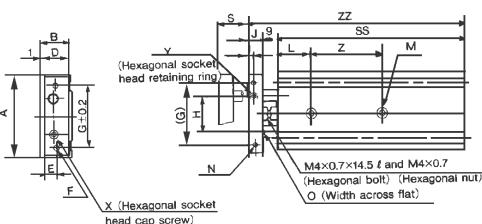
DIMENSIONS
SEE NEXT PAGE 

DIMENSIONS

CXS SERIES DUAL ROD CYLINDER 20, 25, 32


DIMENSIONS

CXS SERIES DUAL ROD CYLINDER 10, 15



Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	NN	O	OO
CXS•20-10 to 100	64	25	62	23	11.5	2-M5x0.8 (Penetration)	50	28	6	12	12	30	2-Ø5.5 Through hole 2-Ø9.5 Depth of counter bore 5.3	2-M4x 0.7 Depth of thread 6	Ø10	8	M6x1.0x18.5ℓ

Model	P	PP	Q	QQ	R	RR	S	SS	T	TT	U	UU	V	W	X	Y	Z	ZZ	
CXS•20-10	53	M6x1.0	7.75	12.5	45	7.75	10	80	9.5	6.5	8	4-M5x0.8 Depth of thread 4.5 (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	40	104	30
CXS•20-20							20	90								114			
CXS•20-30							30	100								124			
CXS•20-40							40	110								134			
CXS•20-50							50	120								144			
CXS•20-75							75	145								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	40	106	30
CXS•25-20							20	92								116			
CXS•25-30							30	102								126			
CXS•25-40							40	112								136	40		
CXS•25-50							50	122								146			
CXS•25-75							75	147								171	60		
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	4-1/8 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	M8 x 1.25x16ℓ	M8x1.25x8ℓ	50	122	40
CXS•32-20							20	102								132			
CXS•32-30							30	112								142			
CXS•32-40							40	122								152	50		
CXS•32-50							50	132								162			
CXS•32-75							75	157								187	70		
CXS•32-100							100	182								212			

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 x 0.5 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																												
CXS•10-30																												
CXS•10-40																												
CXS•10-50																												
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 x 0.7 Depth of thread 6	Ø8	6	48	10	10	38.5	10	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																												
CXS•15-30																												
CXS•15-40																												
CXS•15-50																												



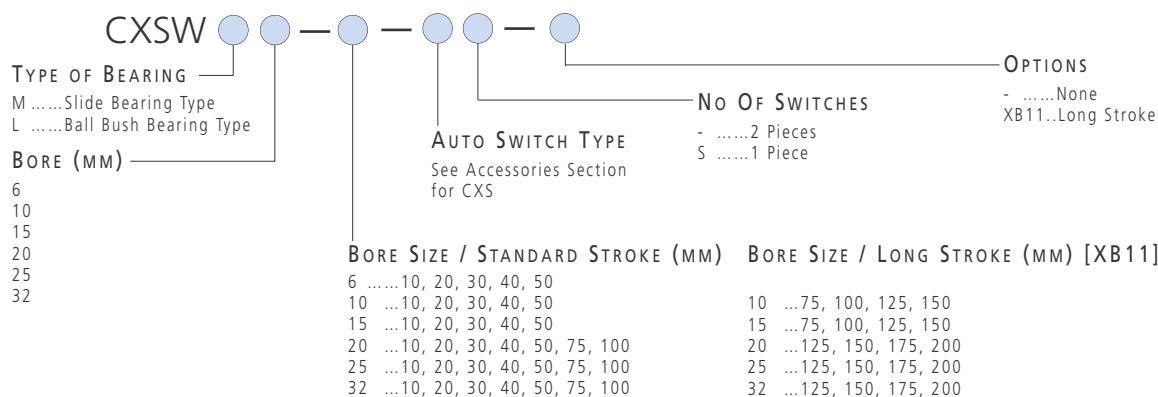
DUAL ROD CYLINDER SERIES CXSW DOUBLE ROD TYPE

- ✓ 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					
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					
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



SLIDE UNIT SERIES NCX2

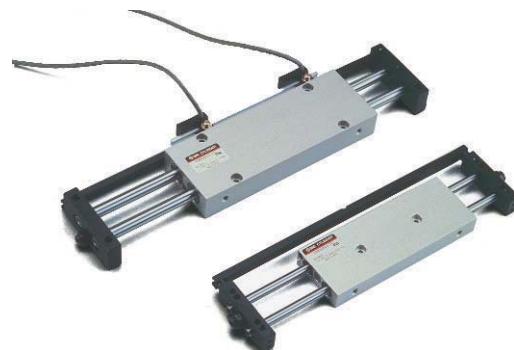
- ✓ Bore sizes 10,15,25mm
- ✓ Slide bearing construction
- ✓ High accuracy positioning

- ✓ 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 NCX2N15 0.15MPa / 22 PSI NCX2N25 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 NCX2N15 3Kg / 6.6 lb NCX2N25 6Kg / 13.2 lb	
Non Rotating Accuracy (Except for bending of Piston Rod)	NCX2N10 ±0.1° NCX2N15 ±0.04° NCX2N25 ±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 SMC Representative.

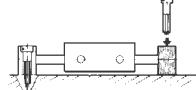
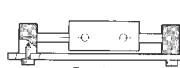


SELECTOR

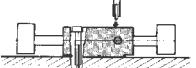
Either the housing or the plate can be fixed depending upon the application.

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

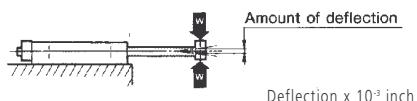
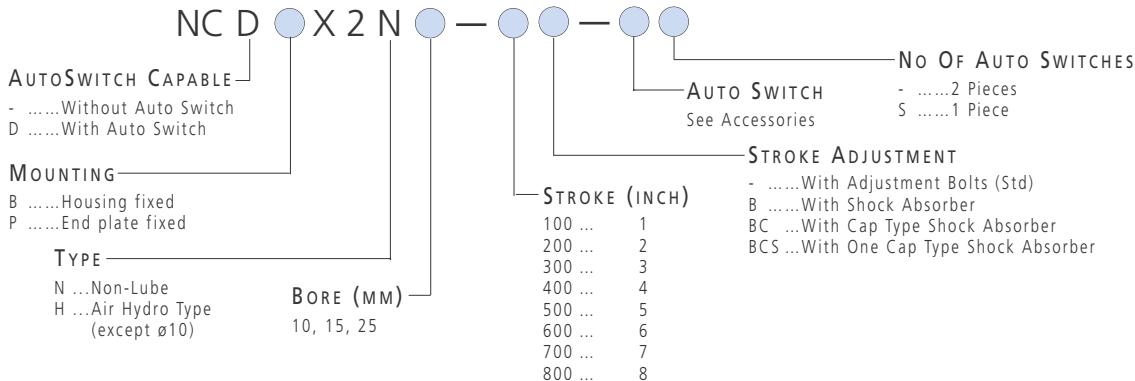
Model	End Plate Mounted	Housing Mounted
NCX2H15	*	0.2 ~ 2in/sec
NCX2H25	0.2 ~ 1.6in/sec	0.2 ~ 4in/sec

PISTON ROD
DEFLECTION
(REFERENCE FACTOR)

For a concentrated load at the center of the housing.

PISTON ROD
DEFLECTION
(REFERENCE FACTOR)

For a concentrated load at the center of the end plate.

How To
ORDER
NCX2 SERIES SLIDE UNIT

ACCESSORIES
 AUTO SWITCHES

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

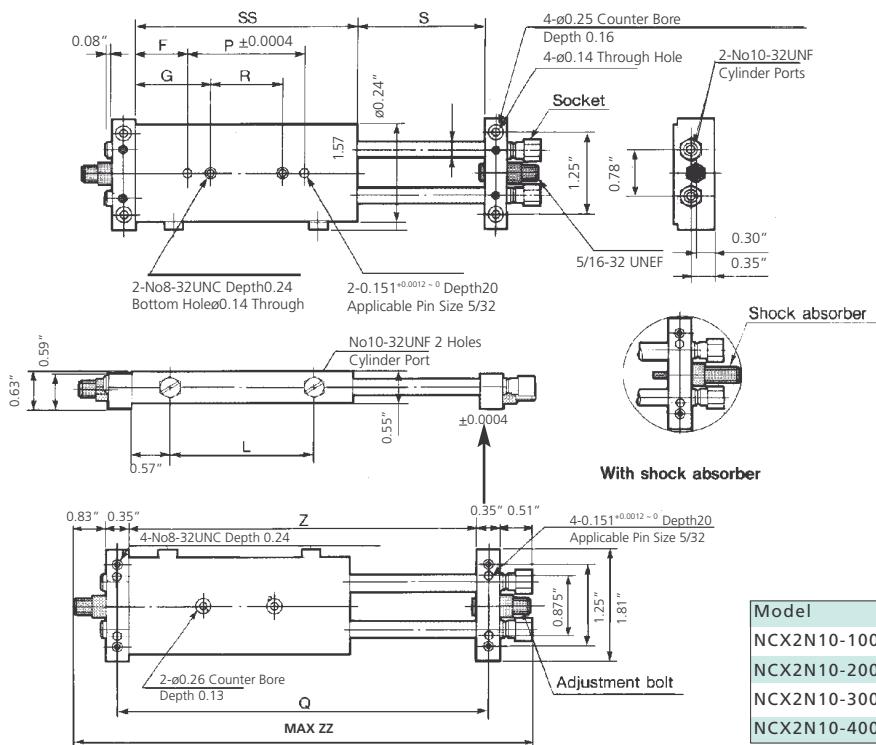
Model	Type	Operating Voltage	Maximum Current
D-A73		200VAC	5 ~ 10mA
D-A73H	Reed	24VDC	5 ~ 40mA
D-E73A		100VAC	5 ~ 20mA
D-A80		24VAC/DC or less	50mA
D-A80H	Reed	48VAC/DC or less	40mA
D-E80A		100VAC/DC or less	20mA
D-A76H	Reed	4 ~ 8 VDC	20mA
D-E76A			
D-A73C	Reed	24VDC	5 ~ 40mA
D-A80C	Reed	24VAC/DC or less	50mA
D-F79	3 Wire Solid State NPN	28VDC or less	150mA or less
D-F7P	3 Wire Solid State PNP	-	100mA or less
D-J79	2 Wire Solid State	24VDC (10~28V)	5 ~ 150mA
D-F7NV	3 Wire Solid State NPN	28CVDC or less	150mA or less
D-F7PV	3 Wire Solid State PNP	-	100mA or less
D-F7BV	2 Wire Solid State	24VDC (10 ~ 28V)	5 ~ 150mA
D-F7PW	3 Wire Solid State PNP	-	20mA or less
D-J79W	2 Wire	24VDC (10 ~ 28V)	5 ~ 40mA
D-F7BAL	2 Wire Solid State	24VDC (10 ~ 28V)	5 ~ 40mA
D-J79C	2 Wire Solid State	24VDC (10 ~ 28V)	5 ~ 150mA
D-F7LF	4 Wire Solid State NPN	26VDC or less	40mA or less
D-F7NF	4 Wire Solid State NPN	28VDC or less	40mA or less
D-F7NYTL	3 Wire Solid State NPN	28VDC or less	80mA or less

 ACCESSORIES
 APPLICABLE SHOCK ABSORBERS SERIES NCX2

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

DIMENSIONS

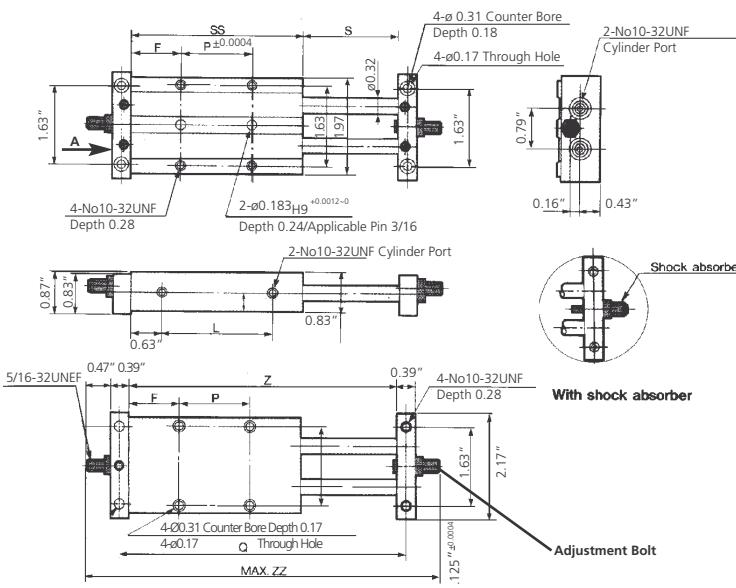
BASIC TYPE N10 SERIES NCX2



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

DIMENSIONS

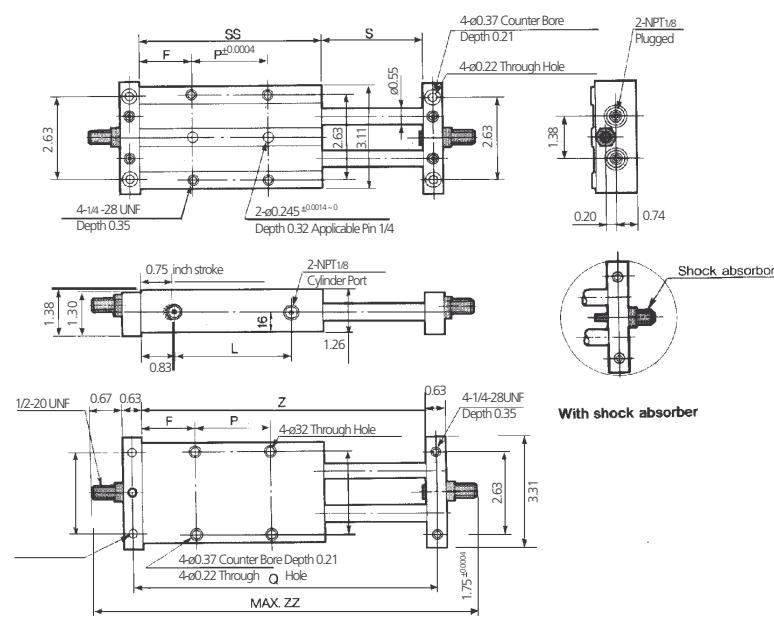
BASIC TYPE (N)15 SERIES NCX2



Model	F	L	P	Q	S	SS	Z	Adjust Bolt ZZ
NCX2_15-100	1.02	1.52	0.75	4.25	1.08	2.78	3.86	5.98
NCX2_15-200	1.14	2.52	1.50	6.25	2.08	3.78	5.86	7.98
NCX2_15-300	1.64	3.52	1.50	8.25	3.08	4.78	7.86	9.98
NCX2_15-400	1.39	4.52	3.00	10.25	4.08	5.78	9.86	11.98
NCX2_15-500	1.89	5.52	3.00	12.25	5.08	6.78	11.86	13.98
NCX2_15-600	2.39	6.52	3.00	14.25	6.08	7.78	13.86	15.98
NCX2_15-700	2.89	7.52	3.00	16.25	7.08	8.78	15.86	17.98
NCX2_15-800	3.39	8.52	3.00	18.25	8.08	9.78	17.86	19.98

DIMENSIONS

BASIC TYPE (N)25 SERIES NCX2



Model	F	L	P	Q	S	SS	Z	Adjust Bolt ZZ
NCX2_25-100	1.15	1.80	1.00	5	1.08	3.29	4.37	6.97
NCX2_25-200	1.15	2.64	2.00	7	2.08	4.29	6.37	8.97
NCX2_25-300	1.65	3.64	2.00	9	3.08	5.29	8.37	10.97
NCX2_25-400	1.65	4.64	3.00	11	4.08	6.29	10.37	12.97
NCX2_25-500	2.15	5.64	3.00	13	5.08	7.29	12.37	14.97
NCX2_25-600	2.65	6.64	3.00	15	6.08	8.29	14.37	16.97
NCX2_25-700	3.15	7.64	3.00	17	7.08	9.29	16.37	18.97
NCX2_25-800	3.65	8.64	3.00	19	8.08	10.29	18.37	20.97

CYLINDER SCALE AND PRESET OUTPUT CONTROLLER SERIES CE1

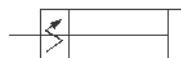
- ✓ Incremental position measurement to 0.1mm
- ✓ Compact cylinder design
- ✓ 21 standard sizes
- ✓ Non rotating piston rod
- ✓ End of stroke confirmation by standard autoswitches
- ✓ Use with counter or directly to PLC with high speed counting



CYLINDER SPECIFICATIONS

FluidAir
Proof Pressure1.5MPa / 218PSI
Max Operating Pressure0.98MPa / 140PSI
Min Operating PressureØ12: 0.07MPa / 10PSI Ø20~Ø63 0.05MPa / 17PSI
Ambient and Fluid Temperature5~60°C / 40~140°F
Humidity25~85%RH (without dew drop)
Piston Speed70 ~ 500mm/s max
LubricationNon-lube
Stroke ToleranceØ12, Ø20 : +1.0mm, 0 Ø32-Ø63 : +1.0mm, 0
Air CushionØ12~Ø32 : None Ø40~Ø63 : Yes
Non Rotating AccuracyØ12: ±2° Ø20: ±1° Ø32~Ø63: ±0.8°
MountingBoth ends tapped (Standard), Foot type, Flange type, Double clevis type
Auto SwitchReed switch, Solid state auto switch

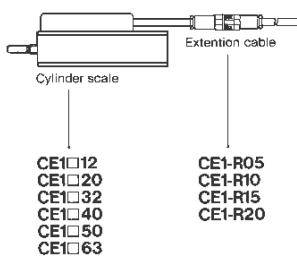
S Y M B O L S



P R E S E T C O U N T E R S P E C I F I C A T I O N S

Model3-point preset counter
MountingSurface mounting (DIN rail or screwing)
OperationAdding and subtracting type
Operation ModeRunning mode, data setting mode
ResettingExternal resetting
DisplayLCD (with back light)
Input90° phase difference
No of Digits5-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)
InputNo voltage input
Input SignalCounting input, resetting signal
Resetting InputRS and COM pin are short-circuited with 10 ms or above (Pulse input)
Counting Speed20 Kcps
External Power Supply12V±10%, 60mA
Control OutputCEU1-D: NPN (30VDC, 50mA) CEU1P-D: PNP (30VDC, 50mA)
Output ModeComparison/hold/one-shot (100 ms fixed)
Supply Voltage24VDC ± 10%
Output Delay Time5 ms max
Power Consumption10VA
Weight250g

System constitution

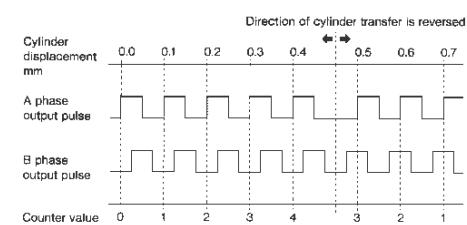


Features of 3-point Preset Counter

- DIN rail can be mounted.
- 3 output points.
- High-speed response (It can follow up to 2m/s at max. cylinder speed.)
- Three kinds of output modes (One-shot output, hold output and comparison output)
- The allowance value ($\pm \Delta X_{mm}$) can be input for each preset data.

Connection

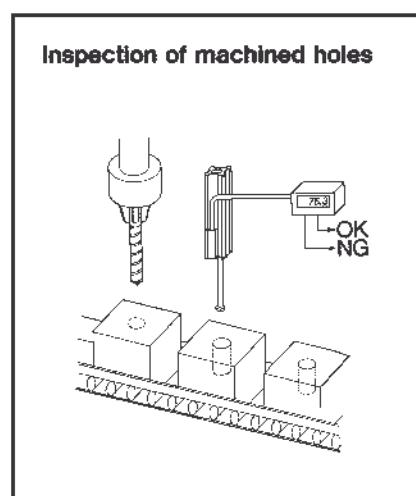
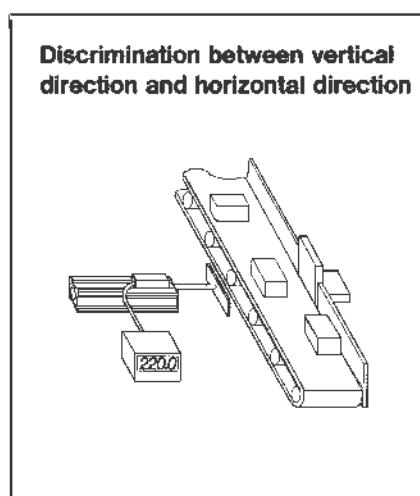
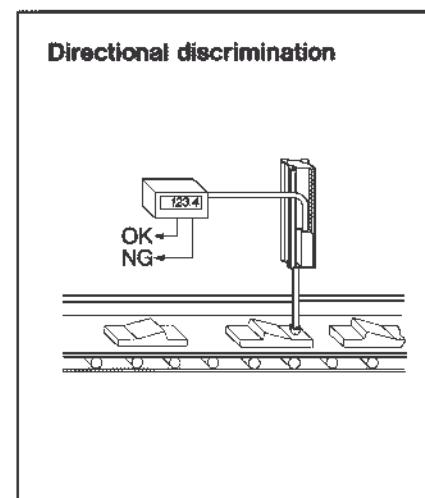
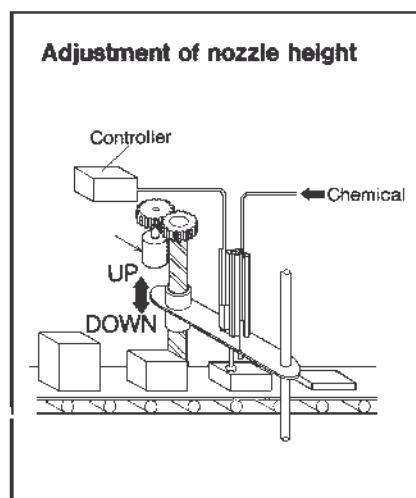
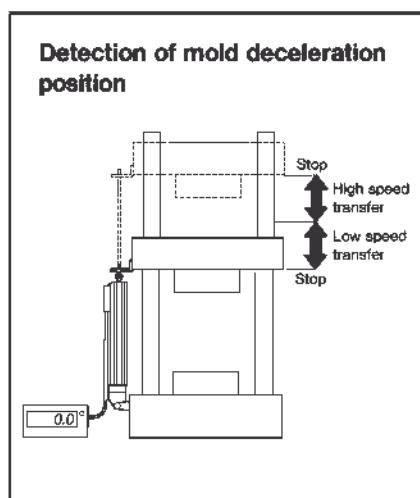
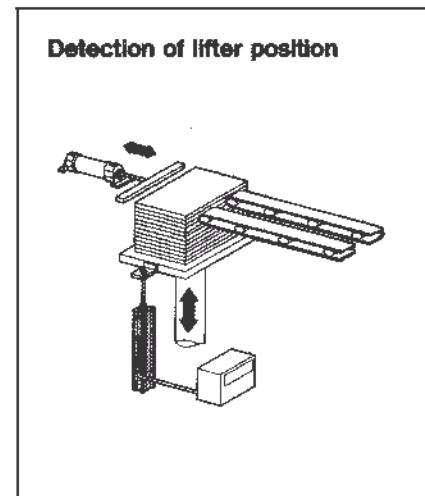
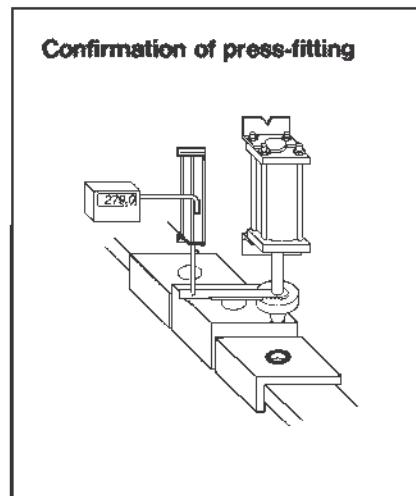
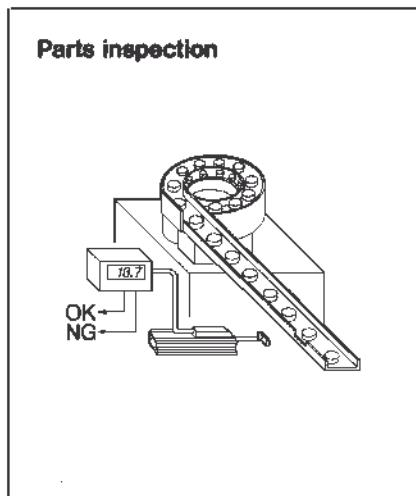
Lead wire color	Contact symbol
White	A
Blue	COM
Yellow	B
Brown	COM
Red	12V
Black, Sealed	GND



HOW TO
ORDER
SEE NEXT PAGE

APPLICATIONS
SEE NEXT PAGE

APPLICATIONS



How To
Order
CYLINDER SCALE SERIES CE1

CE1B —

BORE (MM)

12 ... 012	STROKE
20 ... 020	25 ... 25mm
32 ... 032	50 ... 50mm
40 ... 040	100 ... 100mm
50 ... 050	200 ... 200mm
63 ... 063	300 ... 300mm 500 ... 500mm

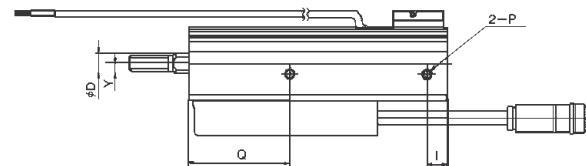
How To
Order
SEE NEXT PAGE

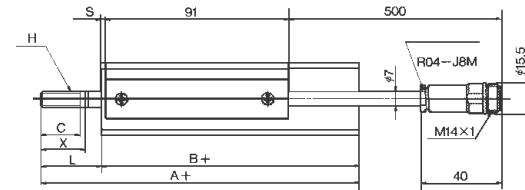
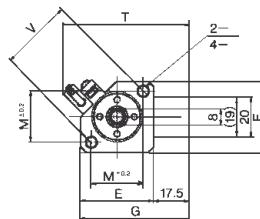
BORE/STROKE AVAILABILITY

012 ... 25, 50, 100
020 ... 25, 50, 100, 200
032 ... 50, 100, 200, 300
040 ... 100, 200, 300, 500
050 ... 200, 300, 500
063 ... 200, 300, 500

**HOW TO
ORDER
PRESET COUNTER SERIES CEU1**
CEU1 — D
CONTROL OUTPUT

 Nil ...NPN Open Collector
 PPNP Open Collector

**DIMENSIONS
CYLINDER SCALE SERIES CE1 Ø12, Ø20**

**ACCESSORIES
AUTOSWITCHES**

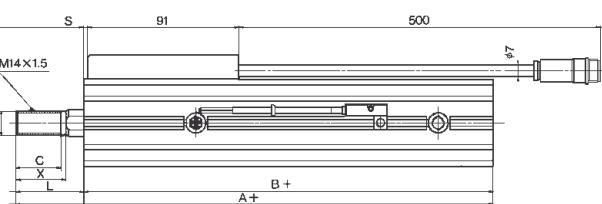
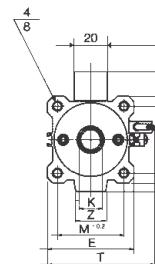
 See Series CDQ2 in Actuators
 Section of Catalog


Bore (mm)	Available Stroke	A	B	C	D	E	G	H	I	K	L
12	25, 50, 100	94	69	15	6	25	42.5	M5x0.8	16	5.2	25
20	25, 50, 100, 200	106	78	15.5	10	36	53.5	M8x1.25	10	8	28

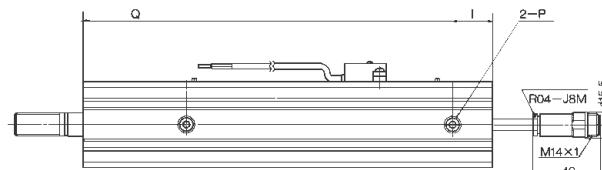
Bore (mm)	M	N	O	P	Q	R	S	T	V	X	Y
12	15.5	3.5	M4x0.7	M5x0.8	47	7	2	53.5	22	18	7
20	25.5	5.5	M6x1	M5x0.8	50	15	2	62.5	36	18	5

ACCESSORIES
CONNECTOR AND EXTENSION CABLE

- CE1-R05 5 meter
- CE1-R10 10 meter
- CE1-R15 15 meter
- CE1-R20 20 meter

**DIMENSIONS
CYLINDER SCALE SERIES CE1 Ø32, Ø40, Ø50, Ø63**

ACCESSORIES
CYLINDER MOUNTING

Mounting Option	Ø12	Ø20	Ø32	Ø40	Ø50	Ø63
Foot Bracket - pair	CQ-L012	CQ-L020	CQ-L032	CQ-L040	CQ-L050	CQ-L063
Flange	CQ-F012	CQ-F020	CQ-F032	CQ-F040	CQ-F050	CQ-F063
Rear Female Clevis	CQ-D012	CQ-D020	CQ-D032	CQ-D040	CQ-D050	CQ-D063



Bore (mm)	Available Stroke	A	B	C	D	E	F	G	H	I	J	K
Ø32	50, 100, 200, 300	131	90	27	16	45	49.5	64	M14x1.5	14	4.5	14
Ø40	100, 200, 300, 500	177	136	27	16	52	57	71.5	M14x1.5	24	5	15
Ø50	200, 300, 500	194	144	32	20	64	71	85.5	M18x1.5	22.5	7	18
Ø63	200, 300, 500	196	145	32	20	77	84	98.5	M18x1.5	21	7	18

Bore (mm)	L	M	N	O	P	Q	R	S	T	X	Z
Ø32	41	34	5.5	M6X1	Rc(PT)1/8	56	20	2.5	57.5	30	18
Ø40	41	40	5.5	M6X1	Rc(PT)1/8	62	20	2.5	64.5	30	18
Ø50	51	50	6.6	M8X1.25	Rc(PT)1/4	61.5	20	2.5	76.5	35	22
Ø63	51	60	9	M10X1.5	Rc(PT)1/4	64	20	2.5	89.5	35	22



AIR CYLINDER SERIES C95 Ø32-100MM

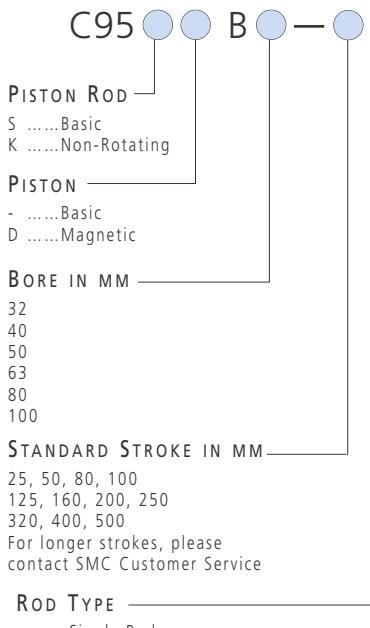
- ✓ Conforms to VDMA24562, ISO6431, DIN & CETOP
 - ✓ Magnetic Auto Switch Options
 - ✓ Ultra Low Friction
 - ✓ Improved Resistance to Side Loading *
 - ✓ Non-Rotating Piston Rod Option
 - ✓ Improved Cushioning Efficiency
 - ✓ Through-Rod Type Available
- *For calculation of side loading,
please consult 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 / 0 mm					
	<1000mm : 1.4 / 0 mm					

*For longer stroke lengths see "How to Order"

How To ORDER C95 AIR CYLINDERS

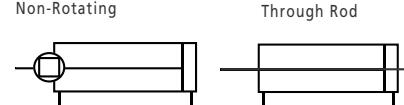
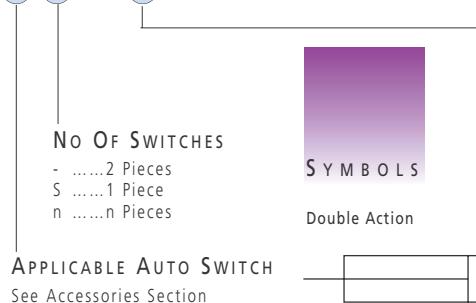


ACCESSORIES AUTO SWITCH TIE ROD MOUNTING BRACKETS

BT-03Ø32/Ø40
BT-05Ø50/Ø63
BT-06Ø80/Ø100

MORE ACCESSORIES
SEE NEXT PAGE 

DIMENSIONS
SEE NEXT PAGE 



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

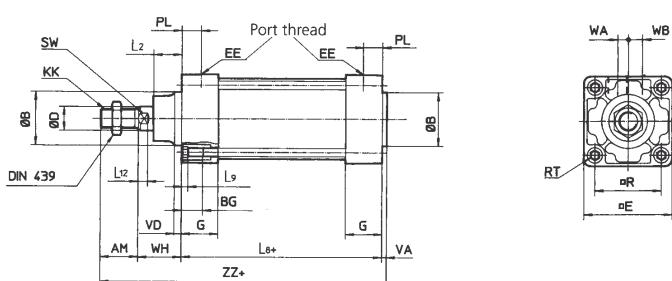
	F Flange incl. bolts & washers	D Female Rear Clevis incl. bolts & washers	C Male Rear Clevis incl. bolts & washers
Bore			
32	F5032	D5032	C5032
40	F5040	D5040	C5040
50	F5050	D5050	C5050
63	F5063	D5063	C5063
80	F5080	D5080	C5080
100	F5100	D5100	C5100
L Foot (two pieces)	T Trunnion	E Angled Rear Clevis Foot	
Bore			
32	L5032	A trunnion type must be ordered as part of the cylinder assembly by substituting 'T' for 'B' in the part number.	
40	L5040		
50	L5050		
63	L5063		
80	L5080		
100	L5100		

	GKM Rod Clevis	KJ Piston Rod Ball Joint	JA Floating Joint
Bore			
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

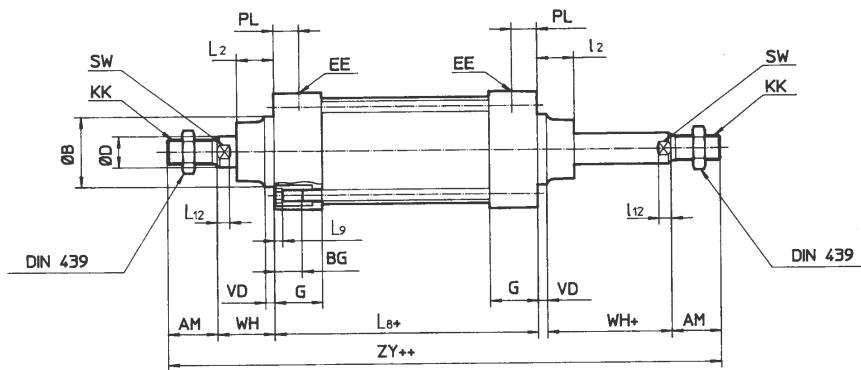
DIMENSIONS BASIC CYLINDER



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

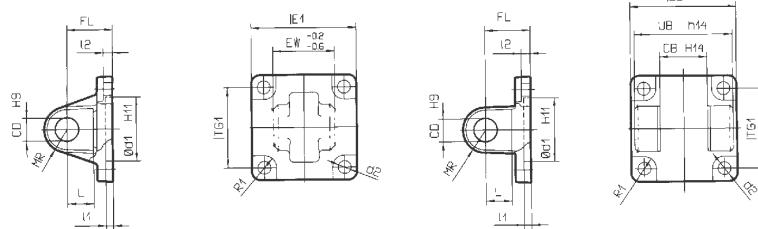
DIMENSIONS
C95SBØ-HUB - W



Diameter	AM	ØB	ØD	EE	PL	I12	KK	SW	G	BG	I8	VD	WH	ZY	I2	I9
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

REAR FEMALE CLEVIS - D

DIMENSIONS REAR MALE CLEVIS - C

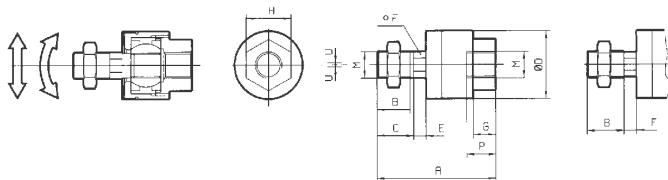


Diameter	Model No	C type	Model No	D type	E1	EW	TG1	FL	ℓ1	L	ℓ2	Ød1	CD	MR	d2	R1	E2	UB	CB
32	C5032		D5032		45	26	32.5	22	5	12	5.5	30	10	0.5	6.6	6.5	48	45	26
40	C5040		D5040		51	28	38	25	5	15	5.5	35	12	12	6.6	6.5	56	52	28
50	C5050		D5050		64	32	46.5	27	5	15	6.5	40	12	12	9	8.5	64	60	32
63	C5063		D5063		74	40	56.5	32	5	20	6.5	45	16	16	9	8.5	75	70	40
80	C5080		D5080		94	50	72	36	5	20	10	45	16	16	11	11	95	90	50
100	C5100		D5100		113	60	89	41	5	25	10	55	20	20	11	12	115	110	60

MORE DIMENSIONS
SEE NEXT PAGE


DIMENSIONS

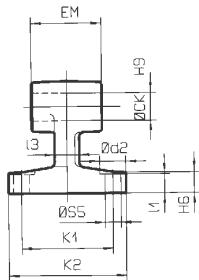
FLOATING JOINT - JA : STEEL, ZINC CHROMATE PLATED



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


DIMENSIONS

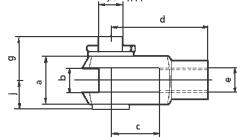
ANGLED REAR CLEVIS FOOT - E



Diameter	Model No	Ød2	ØCK	ØS5	K1	K2	13	G1	ℓ1	G2	EM	G3	CA	H6	R1
32	E5032	11	10	6.6	38	51	10	21	7	18	26	31	32	8	10
40	E5040	11	12	6.6	41	54	10	24	9	22	28	35	36	10	11
50	E5050	15	12	9	50	65	12	33	11	30	32	45	45	12	12
63	E5063	15	16	9	52	67	14	37	11	35	40	50	50	12	15
80	E5080	18	16	11	66	86	18	47	12.5	40	50	60	63	14	15
100	E5100	18	20	11	76	96	20	55	13.5	50	60	70	71	15	19


DIMENSIONS

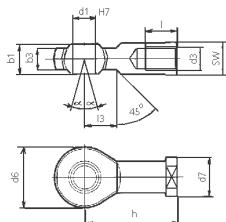
PISTON ROD CLEVIS - GKM: STEEL, ZINC CHROMATE PLATED



Cyl. Diameter	Model No	e	b	d	Øf	g	c	j	a
32	GKM10-20	M10X1.25	10	40	10	18	20	12	20
40	GKM12-24	M12X1.25	12	48	12	23	24	15	24
50/63	GKM16-32	M16X1.5	16	64	16	29	32	19	32
80/100	GKM20-40	M20X1.5	20	80	20	33.5	40	24	40

DIMENSIONS

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

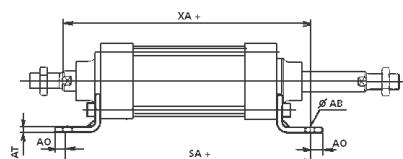
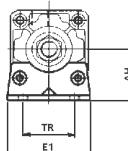


Cyl. Diameter	Model No	d3	d1	h	d6	b3	b1	1	d7	α	13	SW
32	KJ10D	M10X1.25	10	43	28	10.5	14	20	19	13°	14	17
40	KJ12D	M12X1.25	12	50	32	12	16	22	22	13°	16	19
50/63	KJ16D	M16X1.5	16	64	42	15	21	28	27	15°	26	32
80/100	KJ20D	M20X1.5	20	77	50	18	25	33	34	15°	26	32

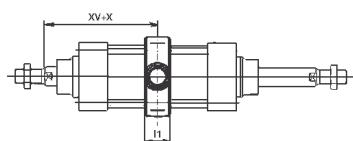
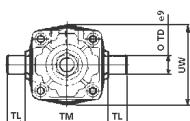
DIMENSIONS

MOUNTING ACCESSORIES

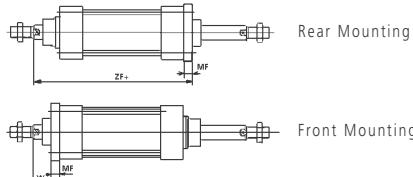
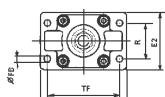
Foot, L



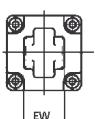
CENTRE TRUNNION, T



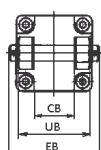
FLANGE, F



REAR CLEVIS



Rear Male Clevis, C



Front Female Clevis, D

Diameter	E1	R	W	MF	ZF	ØFB	CD	EB	L	XD	UB	CB	EW	MR	TR	AO	AT	XA	SA
32	48	32	16	10	130	7	10	65	12	142	45	26	26	9.5	32	10	4	144	142
40	55	36	20	10	145	9	12	75	15	160	52	28	28	12	36	11	4	163	161
50	68	45	25	12	155	9	12	80	15	170	60	32	32	12	45	12	5	175	170
63	80	50	25	12	170	9	16	90	20	190	70	40	40	16	50	12	5	190	185
80	100	63	30	16	190	12	16	110	20	210	90	50	50	16	63	14	6	215	210
100	120	75	35	16	205	14	20	140	25	230	110	60	60	20	75	16	6	230	220

Diameter	AH	ØAB	I1	XV	TL	ØTD	TM	UW	TF	UF	E2
32	32	7	18	73	12	12	50	49	64	79	50
40	36	9	22	82.5	16	16	63	58	72	90	55
50	45	9	24	90	16	16	75	71	90	110	70
63	50	9	28	97.5	20	20	90	87	100	120	80
80	63	12	34	110	20	20	110	110	126	153	100
100	71	14	40	120	25	25	132	136	150	178	120

ACCESSORIES
HOW TO ORDER
MOUNTING BRACKET

CYLINDER MODEL :	C95□32	C95□40	C95□50	C95□63	C95□80	C95□100
TRUNNION MOUNTING BRACKET *	MB-S03	MB-S04	MC-S04	MB-S06	MB-S06	MB-S10
MOUNTING PLATE (DOUBLE CLEVIS)	MB-B03	MB-B03	MB-B05	MB-B05	MB-B08	MB-B08

* WHEN ORDERING TRUNNION MOUNTING BRACKET, ORDER 2 PIECES FOR 1 CYLINDER

ACCESSORIES
TRUNNION MOUNTING BRACKET

MOUNTING BRACKET MODEL	BORE SIZE (MM)
MB-S03	32
MB-S04	40
MB-S04	50
MB-S06	63
MB-S06	80
MB-S10	100

ACCESSORIES
MOUNTING PLATE (DOUBLE CLEVIS)

MOUNTING PLATE MODEL	BORE SIZE (MM)
E5032	32
E5040	40
E5050	50
E5063	63
E5080	80
E5100	100

ACCESSORIES
ROTATING ANGLE

BORE SIZE	A°	B°	A°+B°+90°
32 • 40	25°	45°	160°
50 • 63	40°	60°	190°
80 • 100	30°	55°	175°

ACCESSORIES
HOW TO ORDER
ROD END NUT (STANDARD)

PART NUMBER	BORE SIZE (MM)
NT-03	32
M12 x 1.25 (C95)	40
M16 x 1.5 (C95)	50 • 63
M20 x 1.5 (C95)	80 • 100

ACCESSORIES
HOW TO ORDER
PISTON ROD CLEVIS (DIN 71752)

PART NUMBER	BORE SIZE (MM)
GKM10-20	32
GKM12-24	40
GKM16-32	50 • 63
GKM20-40	80 • 100

ACCESSORIES
HOW TO ORDER
SPHERICAL ROD EYE (DIN 648)

PART NUMBER	BORE SIZE (MM)
KJ10 D M10 x 1.25	32
KJ12 D M12 x 1.25	40
KJ16 D M16 x 1.5	50 • 63
KJ20 D M20 x 1.5	80 • 100

ACCESSORIES
HOW TO ORDER
FLOATING JOINT

PART NUMBER	BORE SIZE (MM)
JA30-10-125	32
JA40-12-125	40
JA50-16-150	50 • 63
JAH50-20-150	80 • 100

FOR DETAILED INFORMATION ON SERIES C95

ACCESSORIES, PLEASE REFER TO CAT:N306

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

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

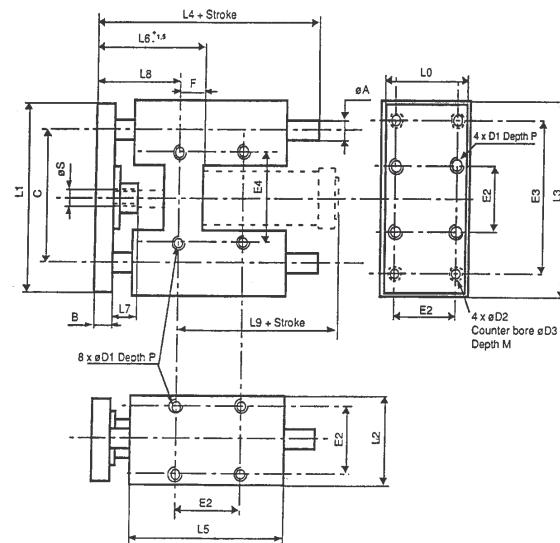
DIMENSIONS
SEE NEXT PAGE



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
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 - DIMENSIONS
AUTO SWITCH MOUNTING BRACKET
CYLINDER SERIES C95

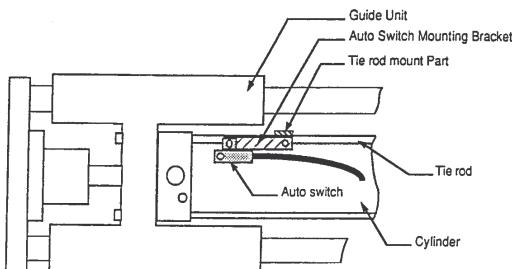
An auto switch mounting bracket will be added on the tie rod mount part to keep the accessibility of the screw to adjust the auto switch position.

PRECAUTIONS:

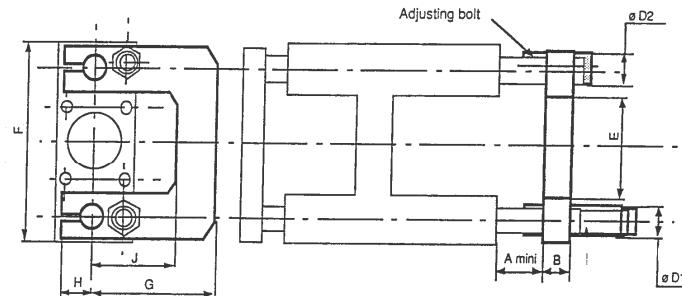
Minimum cylinder stroke

Cylinders ø32 up to ø63 Minimum stroke: 25mm

Cylinders ø80, ø100 Minimum stroke: 50mm



Stroke adjusting unit



A minimum length will have to be added on for stroke adjusting unit.

(mm)

Diameter	A	B	D1	D2	E	F	G	H	J	Mini Add On Stroke
ø12/16	27	10	M10x1	M6	25	67	52	14	34	37
ø20/25	35.5	12	M14x1.5	M8	41	82	64	17	44	48
ø32	35.5	15	M14x1.5	M8	51	95	78	17	53	51
ø40	45	20	M20x1.5	M10	59	114	87	25	62	65
ø50	45	25	M20x1.5	M10	72	135	98	28	68	70
ø63	45	25	M25x1.5	M10	86	150	118	28	88	70

GUIDE CYLINDER SERIES MGG

BORE SIZES Ø20, 25, 32, 40,
Ø50, 63, 80, 100MM

- ✓ Ball Bush or Slide Bearing Types
- ✓ High Resistance to Side Load
- ✓ High Non-Rotating Accuracy
- ✓ Magnetic Sensing Standard
- ✓ Includes Built-in Shock Absorber
- ✓ Extension Stroke is adjustable (By moving Rear Plate)
- ✓ Various Mountings possible



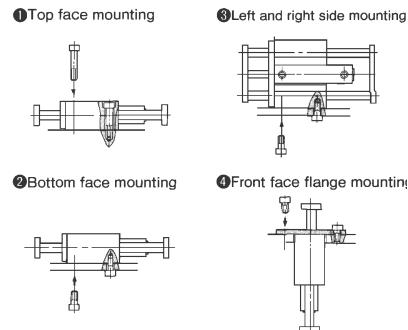
TECHNICAL SPECIFICATIONS



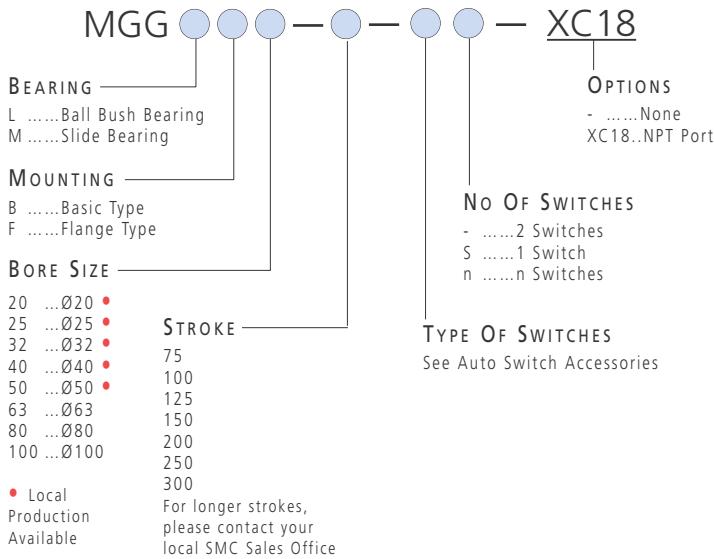
Model	MGG**20	MGG**25	MGG**32	MGG**40	MGG**50
Basic Cylinder	CDG1BN20	CDG1BN25	CDG1BN32	CDG1BN40	CDG1BN50
Bore Size (mm)	20	25	32	40	50
Action	Double Acting				
Fluid	Air				
Proof Pressure	1.5MPa / 218PSI				
Max Operating Pressure	1.0 MPa / 145PSI				
Min Operating Pressure	0.15MPa / 22PSI (At horizontal non-load)				
Ambient and Fluid Temperature	-10 ~ 70°C / 14 ~ 160°F				
Piston Speed	50 ~ 1000mm/s / 2 ~ 40in/s				
Cushion	Basic Cylinder	Rubber Cushion			
	Guide Part	Shock Absorber Built-in (2pcs)			
Adjustable Stroke Range	0 ~ - 10 mm	0 ~ -15mm < (Adjusting bolts built-in) (2pcs) >			
Lubrication		Non-lube			
Thread Tolerance		JIS 2 class			
Stroke Tolerance		+1.9/+0.2mm			
Performance of Non-Rotating	Slide Bearing	±0.06°			
(except 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



How To ORDER GUIDE CYLINDER SERIES MGG

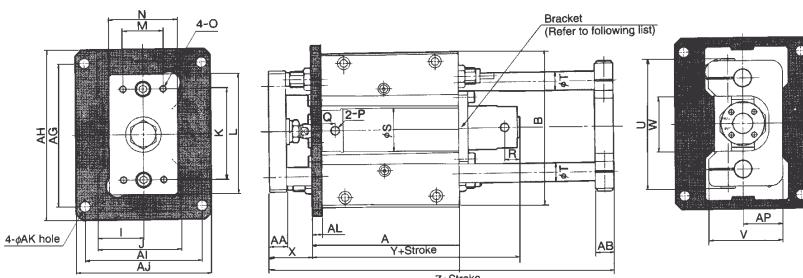


MAX. TIP LOAD FOR 300 MM STROKE

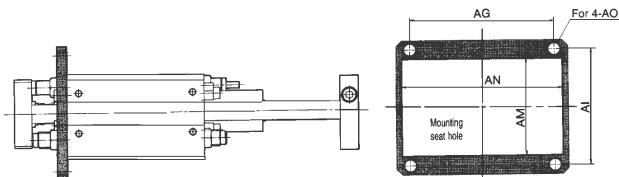
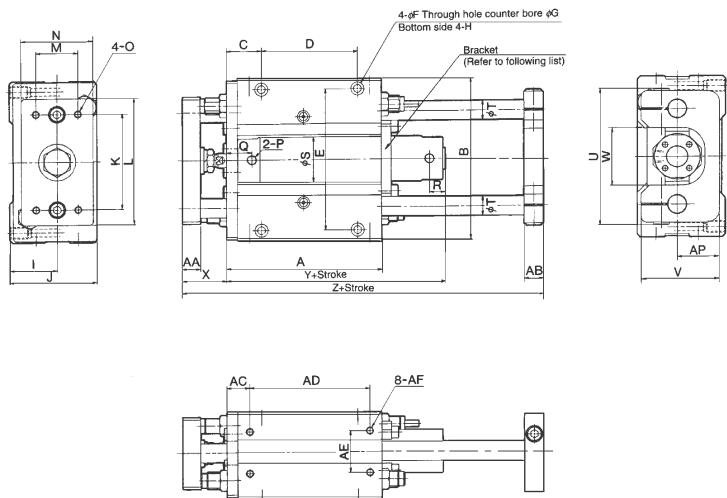
Bore	MGGM	MGGL
20	20N	23N
25	26N	28N
32	42N	45N
40	65N	45N
50	110N	45N



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

DIMENSIONS
FLANGE MOUNT

Bore Size (mm)	Stroke range (mm)	AG	AH	AI	AJ	AK	AL	AM	AN	AO
20	75, 100, 125, 150, 200	112	125	82	95	6.6	9	65	115	M6
25		134	150	92	108	9	9	75	135	M8
32		134	150	102	118	9	9	85	140	M8
40	75, 100, 125, 150,	170	186	134	150	9	12	105	175	M8
50	200, 250, 300	190	210	140	160	11	12	115	200	M10
63		228	250	158	180	14	12	135	234	M12
80		262	284	178	200	14	16	155	268	M12
100		300	326	200	226	16	16	175	310	M14

DIMENSIONS
BASIC TYPE

LONG STROKE

Bore size (mm)	Stroke range (mm)	R	Y
20	250 ~ 400	14	88
25	350 ~ 500	14	88
32	350 ~ 600	14	90
40	350 ~ 800	15	101
50	350 ~ 1000	16	116
63	350 ~ 1100	16	119
80	350 ~ 1200	23	145
100	350 ~ 1300	23	145

BRACKET MOUNTING STROKE

Bore Size (mm)	Bracket Mounting Stroke
20	100st or more
25	125st or more
32	150st or more
40	200st or more
50	250st or more
63	300st or more
80	400st or more
100	500st or more

Bore Size (mm)	Stroke range (mm)	A	AA	AB	AC	AD	AE	AF	AP	B	C	D	E	F	G	H	I	J	K	L
20	75, 100, 125, 150, 200	99	11	13	16.5	75	30	M5X0.8depth10	25	108	24	60	92	5.5	9.5depth6	M8X1.25depth14	30	55	60	80
25		109	15	13	16.5	85	30	M6X1depth12	30	130	26.5	65	113	6.6	11depth8	M10X1.5depth18	35	65	70	100
32	75, 100,	129	15	16	19	100	35	M6X1depth12	35	135	29	80	118	6.6	11depth8	M10X1.5depth18	40	73	80	106
40	125, 150, 200,	152	18	19	22	120	40	M8X1.25 depth 16	45	170	32	100	150	9	14depth10	M12x1.75depth21	50	93	95	134
50	250, 300	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		35	54	M6X1depth13	1/8	21	14	31	13	100	57	42	37	80	175
32	75, 100,	35	60	M6X2depth13	1/8	21	13	38	16	114	65	48	37	82	201
40	125, 150, 200,	50	75	M8X1.25depth16	1/8	25	14	47	20	140	84	58	44	92	238
50	250, 300	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				
Bore Size (mm)	Auto Switch Model	Electrical Entry	Indicator Lamp	
			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 to 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	
				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 (Lit at ON condition)		Indicator Lamp	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

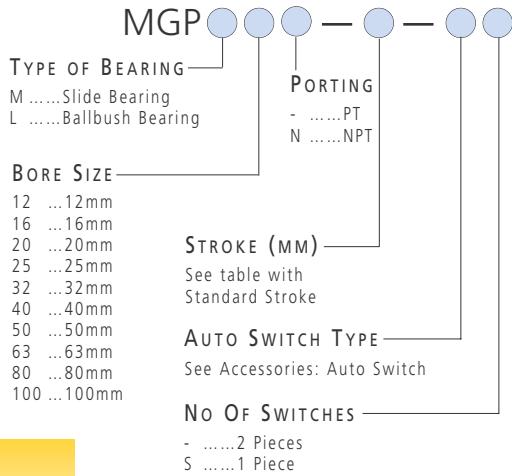
COMPACT GUIDE CYLINDER SERIES MGP Ø12, 16, 20, 25, 32, 40, 50, 63, 80, 100MM

- ✓ 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



JANUARY 2000

How To ORDER COMPACT GUIDE CYLINDER



LOAD DATA PERMISSIBLE LATERAL LOAD

W (N) 1N = 0.102kgf

Bore Size	Model	Stroke (mm)											
		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	49
20	MGPL	58		48	101	90	70	58	62	54	48	43	43
25	MGPM	69		60	54	49	116	100	88	79	71	65	65
25	MGPL	82		68	132	118	93	77	80	70	62	55	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

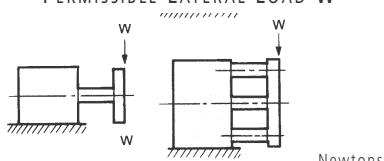
ACCESSORIES AUTO SWITCHES SERIES MGP

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	Reed Switch	-	Grommet	Available	3 Wire	-	5V	-	DC	AC	
Perpendicular					2 Wire	24V	5V	100V	12V	or less	
-	D-Z76	-	-	-	3 Wire NPN		5V				
-	D-Z73	-	-	-	2 Wire		12V				
-	D-Z80	-	-	-	3 Wire NPN	24V	12V				
D-Y69A	D-Y59A	-	-	-	3 Wire PNP		5V				
D-Y69B	D-Y59B	-	-	-	2 Wire		12V				
D-Y7NWV	D-Y7NW	-	-	-	3 Wire NPN	24V	12V				
D-Y7PWV	D-Y7PW	Diagnostic Indication (2 Color Indication)	Grommet	Available	3 Wire PNP		5V				
D-Y7BWV	D-Y7BW	-	-	-	2 Wire		12V				
-	D-Y7BAL	Water Resistant (2 Color Indication)	-	-	2 Wire		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



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

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 012 ~ 025

MGP 012 ~ 025

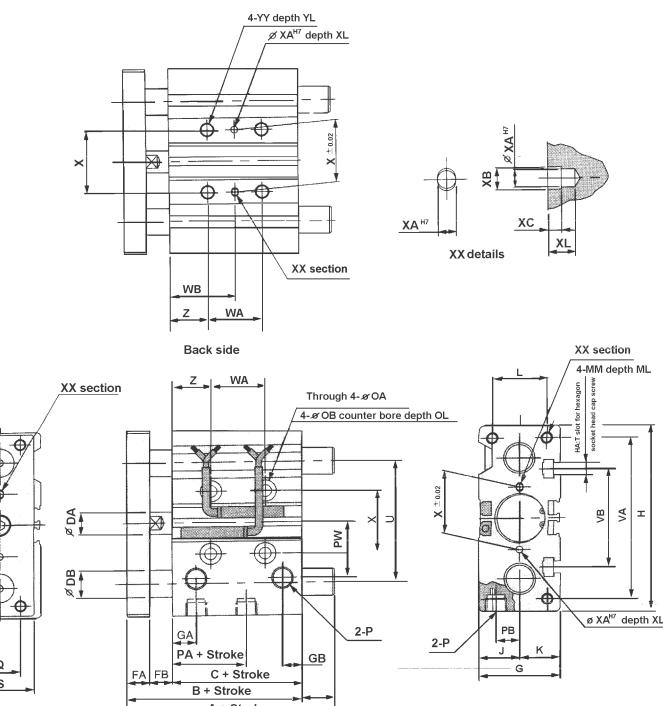
Bore Size (mm)	Standard Stroke (mm)	WA			WB		
		Under 30st	Over 300st	Over 100st	Under 30st	Over 300st	Over 100st
12	10, 20, 30, 40, 50,	20	40	-	15	25	-
16	75, 100	24	44	-	17	27	-
20	20, 30, 40, 50, 75,	24	44	120	29	39	77
25	100, 125, 150, 175, 200	24	44	120	29	39	77

MGPM (Slide Bearing) Dimensions A, DB, E

Bore Size (mm)	A		DB	E	
	Under 50st	Over 50st		Under 50st	Over 50st
12	42	60.5	8	0	18.5
16	46	64.5	10	0	18.5
20	53	84.5	12	0	31.5
25	53.5	85	16	0	31.5

MGPL (Ball Bush Bearing) Dimensions A, DB, E

Bore Size (mm)	A			DB	E		
	Under 30st	>30st	Over 100st		Under 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, Over	100st	25st	50, 75, Over	100st
32	25, 50, 75, 100, 125,	24	48	124	33	45	83
40	25, 50, 75, 100, 125,	24	48	124	34	46	84
50	150, 175, 200	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	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			E		
	25, 75, Over	50st	100st	25, 50st	75, Over	100st
32	81	98	118	16	21.5	38.5
40	81	98	118	16	15	32
50	93	114	134	20	21	42
63	93	114	134	20	16	37

DIMENSIONS

SERIES MGP ø80 ~ ø100

MGP ø80 ~ ø100

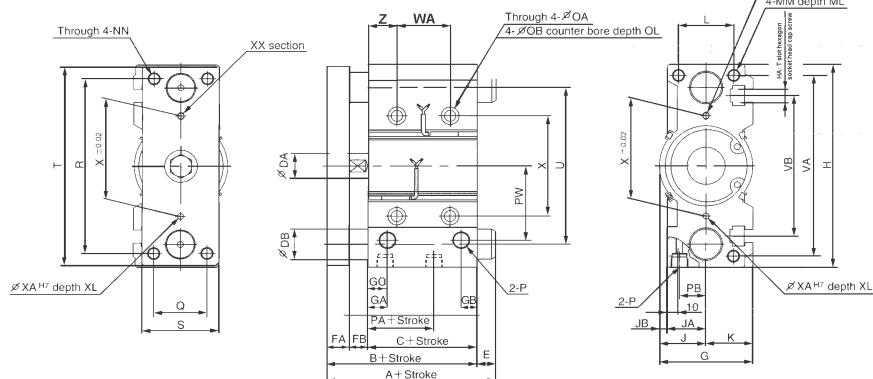
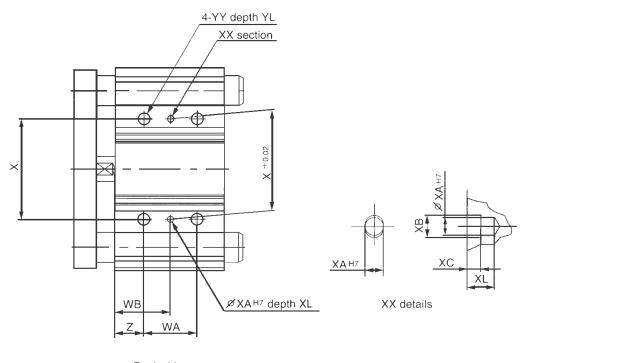
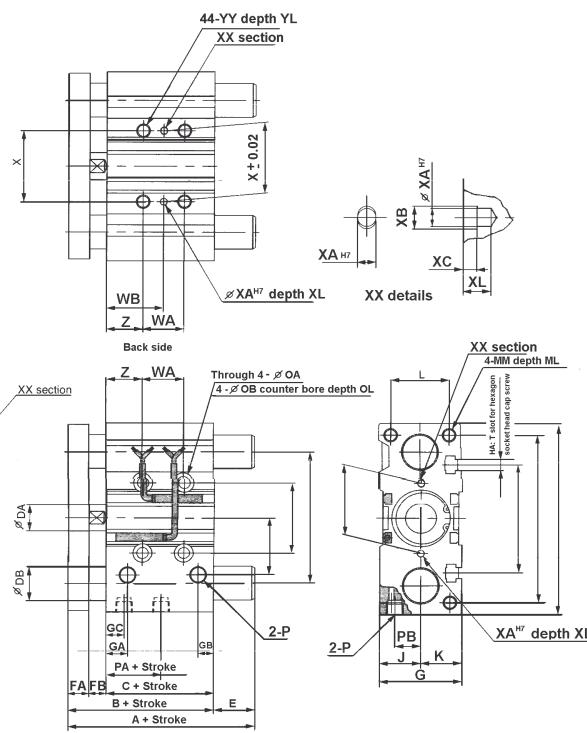
Bore Size (mm)	Standard Stroke (mm)	WA			WB		
		25st	50, 75, Over	100st	25st	50, 75, Over	100st
80	25, 50, 75, 100, 125,	28	52	128	42	54	92
100	150, 175, 200	48	72	148	35	47	85

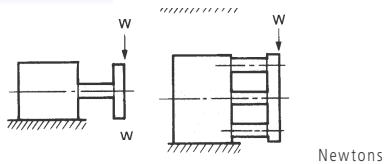
MGPM (Slide Bearing) Dimensions A, DB, E

Bore Size (mm)	A			DB			E	
	25, 50st	Over 50st	30	25, 50st	Over 50st	30	PV	XA H7 depth XL
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	PV	XA H7 depth XL
80	109.5	130	160	25	13	33.5	63.5	
100	121	147	180	30	5	31	64	





Bore Size	Model	Stroke (mm)							
		10	20	25	30	40	50	75	100
12	MGQM	21	18		15	13	12		
12	MGQL	27	22		17	21	19		
16	MGQM	34	28		25	22	19		
16	MGQL	38	30		26	37	33		
20	MGQM		51		44	38	34	57	49
20	MGQL		55		47	78	69	53	44
25	MGQM		70		60	53	47	77	65
25	MGQL		71		61	77	72	59	51
32	MGQM			196		167	137	108	
32	MGQL			88		59	275	216	
40	MGQM			196		167	137	108	
40	MGQL			88		59	275	216	
50	MGQM			294		255	215	176	
50	MGQL			137		88	392	313	
63	MGQM			294		255	215	176	
63	MGQL			137		88	392	313	
80	MGQM			353		304	255	206	
80	MGQL			235		157	863	686	
100	MGQM			539		470	412	343	
100	MGQL			470		313	1370	1070	

COMPACT GUIDE CYLINDER SERIES MGQ

Ø12, 16, 20, 25, 32, 40, 50, 63, 80, 100MM

- ✓ Ball Bush or Slide Bearing Type
- ✓ High Resistance to Side Load
- ✓ High Non-rotating Accuracy
- ✓ Magnetic Sensing Standard
- ✓ Direct Mount Facility
- ✓ Space Saving Cylinder



TECHNICAL SPECIFICATIONS

Operation	Double Acting
Fluid	Air
Proof Pressure	1.5MPa / 218PSI
Max Operating Pressure	1.0MPa / 145PSI
Min Operating Pressure	Ø12m, Ø160 : 12MPa / 18PSI Ø20 ~ Ø100 : 0.1MPa / 14.5PSI
Ambient and Fluid Temperature	-10 ~ 60°C / 14 ~ 140°F
Piston Speed	Ø12 ~ Ø63 : 50 ~ 600 mm/s / 2 ~ 24in/s Ø80 ~ Ø100 : 50 ~ 400 mm/s / 2 ~ 16in/s
Cushion	Rubber cushion at both sides
Lubrication	Non-lubrication
Stroke Tolerance	0 ~ 1.5mm

NON ROTATING ACCURACY

Ø12•16: Slide bearing±0.08°
 Ball bush bearing±0.10°
 Ø20•25: Slide bearing±0.07°
 Ball bush bearing±0.09°
 Ø32•40: Slide bearing±0.06°
 Ball bush bearing±0.08°
 Ø50•63: Slide bearing±0.05°
 Ball bush bearing±0.06°
 Ø80•100: Slide bearing±0.04°
 Ball bush bearing±0.05°
 (Except for bending of Guide Rod)

ACCESSORIES

AUTOSWITCHES

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

TECHNICAL SPECIFICATIONS

MODEL / STANDARD STROKE TABLE SERIES MGQ

Model	Type Of Bearing	Model, Bore Size (mm)	Standard Stroke (mm)
MGQM	Slide Bearing	MGQM_12, 16	10, 20, 30, 40, 50
MGQL	Ball Bush Bearing	MGQM_20, 25 MGQM_32, 40, 50, 63, 80, 100	20, 30, 40, 50, 75, 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.

TYPE OF BEARING

MSlide Bearing
LBall 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

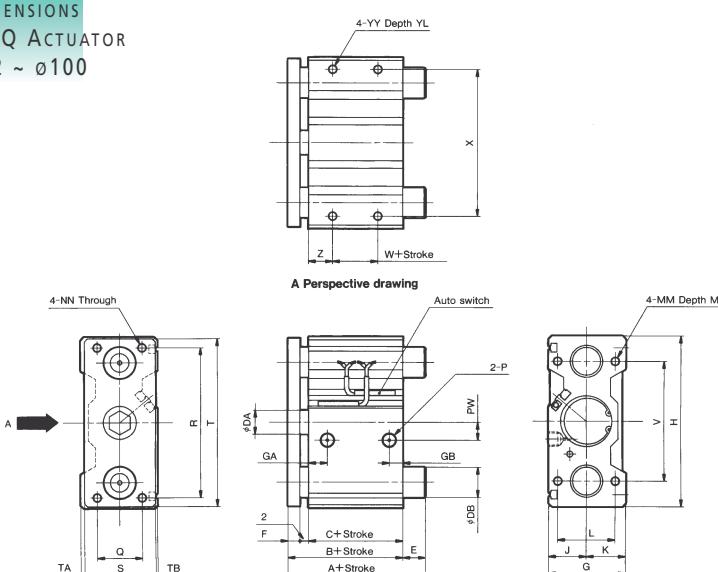
NO OF AUTO SWITCH

-2 Pieces
S1 Piece

OPTIONS
-None
XC18..NPT Ports

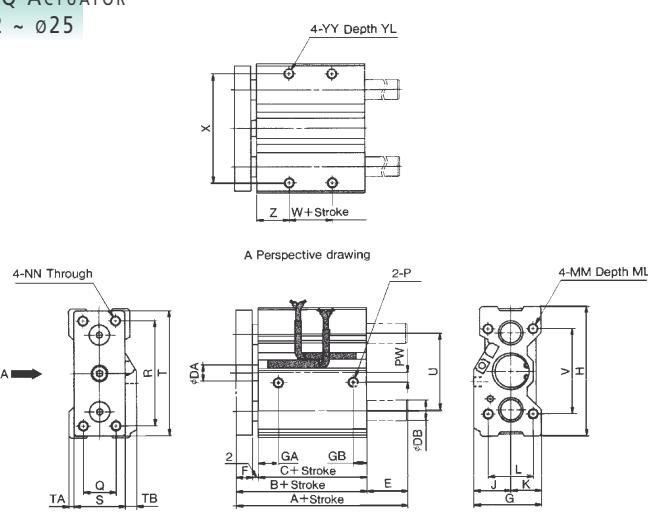
HOW TO ORDER COMPACT GUIDE CYLINDER

MGQ

DIMENSIONS
MGQ ACTUATOR
 $\varnothing 32 \sim \varnothing 100$


Note 1) standard stroke available at specific intervals.
 Note 2) A spacer is used for intermediate stroke. (Refer to table on previous page).

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	M8 x 1.25	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
 $\varnothing 12 \sim \varnothing 25$

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	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) $\varnothing 12 \sim \varnothing 25$

Bore Size (mm)	A		DB	E	
	50st or less	75st, 100st		50st or less	75st, 100st
12	39	-	8	0	-
16	43	-	10	0	-
20	47	61.5	12	0	14.5
25	47.5	62	16	0	14.5

MGQL (Ball Bush Bearing) $\varnothing 12 \sim \varnothing 25$

Bore Size (mm)	A		DB	E	
	30st or less	40st or more		30st or less	40st or more
12	43	55	6	4	16
16	49	65	8	6	22
20	57	74	10	10	27
25	63.5	79.5	13	16	32

SERIES NCY2 RODLESS CYLINDER

- ✓ Bore sizes: 6, 10, 15, 25, 32, 40mm
- ✓ Mounting Space reduced by half
- ✓ Basic or Guided Designs
- ✓ High Load Capability
- ✓ Long Stroke Availability
- ✓ No leakage, long life
- ✓ Shock Absorbers (Optional) in Guided Slider Type



TECHNICAL SPECIFICATIONS

BASIC TYPE NCY2B



Media	Air
Test Pressure	1MPa / 152 PSI
Max Operating Oressure	ø6 & 10: 0.6MPa / 85 PSI ; ø15~40: 0.7MPa / 101PSI
Min Operating Pressure	0.18MPa / 26 PSI
Ambient & Fluid Temperature	-10 ~ 60°C / 14 ~ 140°F
Piston Speed	50~400mm/s / 2 ~ 16 in/sec
Cushion	Rubber Cusion 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

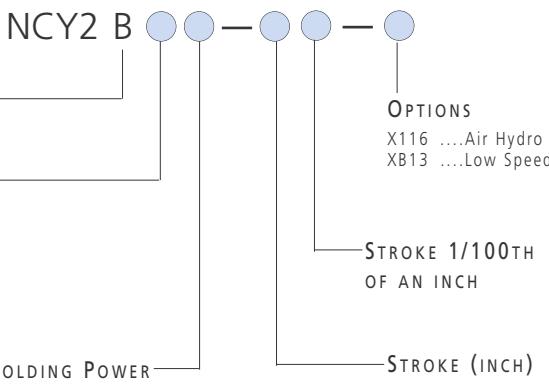
Model	Maximum Weight (N)
NCY2B6H	2
NCY2B10H	4
NCY2B15•	10
NCY2B25•	12
NCY2B32•	15
NCY2B40•	20

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



MAGNETIC HOLDING POWER

HHeavy Duty

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

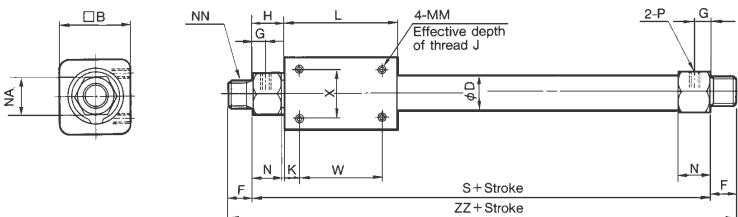
SEAL KITS

ø6CY2B6-PS
ø10CY2B10-PS
ø15CY2B15-PS
ø25CY2B25-PS
ø32CY2B32-PS
ø40CY2B40-PS

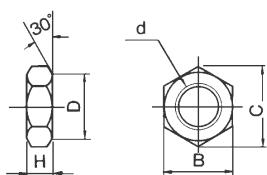
NON-GUIDED MOUNTING NUT

NSNJ-015 (ø6/10/15)
NSN-03 (ø25/32)
NSN-04 (ø40)

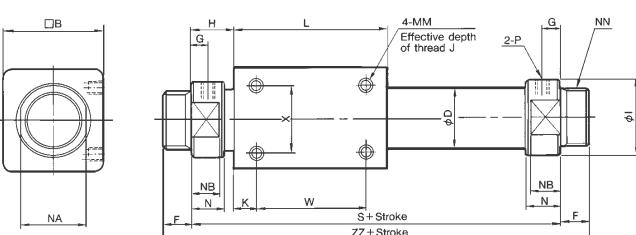
Note: Avoid using an intermediate stop to prevent the Magnetic Piston from de-coupling

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

TECHNICAL SPECIFICATIONS SLIDE BEAR

G TYPE NCY2S



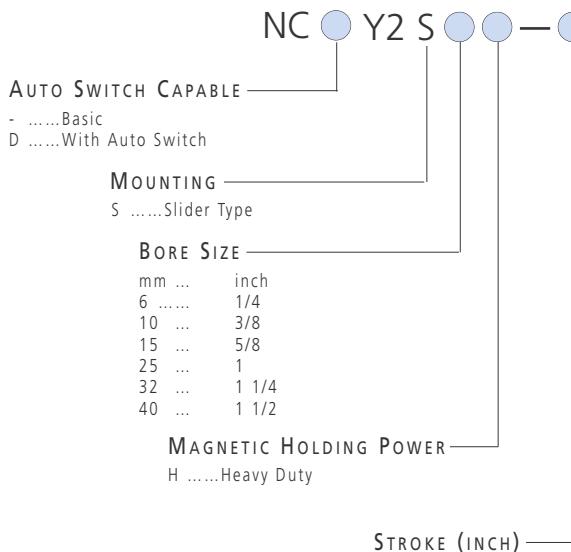
Fluid	Air
Proof Pressure	1.05MPa / 152 PSI
Max Operating Pressure	0.7MPa / 101 PSI
Min Operating Pressure	0.18MPa / 26 PSI
Ambient and Fluid Temp	-10 ~ 60°C / 14 ~ 140°F
Operating Piston Speed	50 ~ 400mm/s / 2 ~ 16 in/sec
Cushion	Urethane Cushion at both ends
Lubrication	Not required
Stroke Tolerance (Inch)	0 ~ 9.9st: $\pm 0.394_0$, 10 ~ 39.4st: $\pm 0.55_0$, 39.5st ~ : $\pm 0.07_0$



Top: NCY2 Slide Bearing Type
Bottom: NCY2 Basic Type

How To Order

NCY2S MAGNETICALLY COUPLED RODLESS CYLINDER



RETAINING FORCE(LBF)

$$1 \text{ Kg} = 2.2 \text{ lbs}$$
$$1\text{N} = 0.101972\text{kgf}$$

Magnetic Holding Power	ø6	ø10	ø15	ø25	ø32	ø40
H Type	4.85	13.33	33.95	89.70	145.50	227.94

APPLICABLE AUTO SWITCH e Accessories: Auto Switch

STROKE 1/100TH
OF AN INCH

-No OE SWITCHES

- 2 Pieces
 - S Single Piece
 - n n Pieces

—STROKE ADJUSTMENT

- STROKE ADJUSTMENT**

 - Adjustment Bolt
 - B W/Shock Absorber
 - BC W/Cap Type Shock Absorber
 - BCS W/One Cap Type Shock Absorber

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

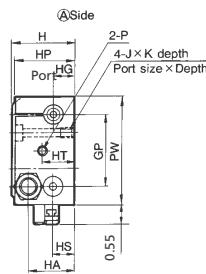
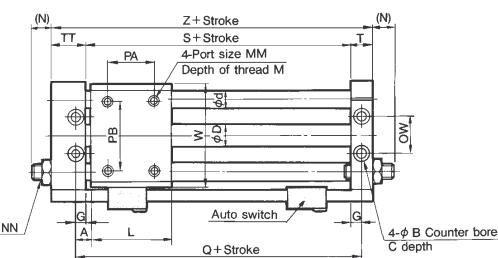
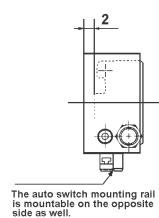
Auto Switches

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

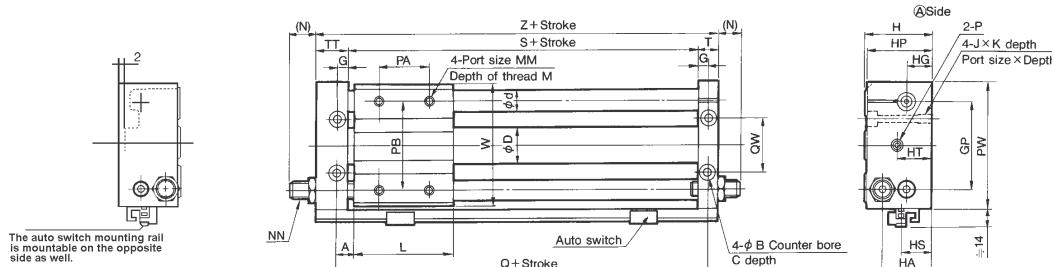
DIMENSIONS

NC(D)Y2S 6 • 10



DIMENSIONS

NC(D)Y2S 15 • 25 • 32 • 40

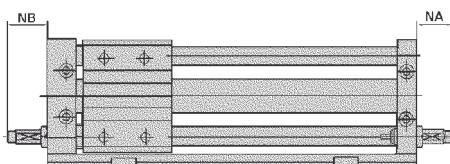


Model	Stroke Range	A	ϕB	C	ϕD	ϕd	G	GP	H	HA	HG	HP	HS	HT	J x K	L	LD	M	MM	(N)	NN
NC(D)Y2S15	~30 inch	0.32	0.38	0.20	0.65	0.47	0.26	2.05	1.63	1.14	0.56	1.54	0.59	0.88	1/4-28UNFx0.37	2.36	.22	0.31	No10-32UNF	0.28	1/2-20UNF
NC(D)Y2S25	~60 inch	0.37	0.44	0.26	1.04	0.63	0.33	2.76	2.13	1.57	0.79	2.09	0.91	0.79	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

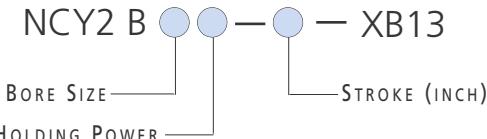


Type	Applicable Shock Absorber	NA	NB
NCY2S6	NRB37-025	30	24
NCY2S10	NRB50-030	27	19
NCY2S15	NRB56-045	33	23
NCY2S25	NRB75-045	49	40
NCY2S32		48	38
NCY2S40		47	32

See
 'Shock
 Absorber'
 in
 CAT:N371
 for details

How To
Order**SERIES NCY2**

BASIC TYPE - LOW SPEED RODLESS CYLINDER - OPTION



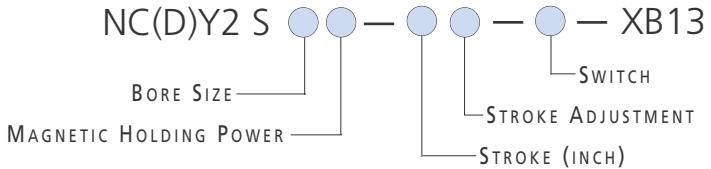
MAGNETIC HOLDING POWER

TECHNICAL
SPECIFICATIONS

BASIC TYPE - XB13 OPTION SERIES NCY2

How To
Order**SERIES NCY2**

SLIDER TYPE - LOW SPEED RODLESS CYLINDER - OPTION

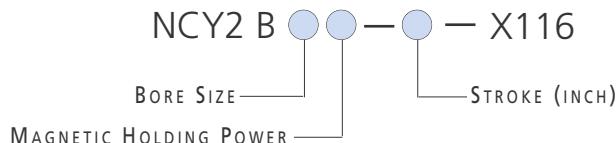


MAGNETIC HOLDING POWER

BORE SIZE

How To
Order**SERIES NCY2**

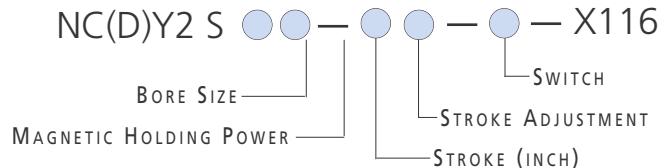
BASIC TYPE - AIR HYDRO RODLESS CYLINDER - OPTION



MAGNETIC HOLDING POWER

How To
Order**SERIES NCY2**

SLIDER TYPE - AIR HYDRO RODLESS CYLINDER - OPTION



MAGNETIC HOLDING POWER

TECHNICAL
SPECIFICATIONS

BASIC TYPE - X116 OPTION SERIES NCY2

Type	Basic Type / Slider Type		
Bore Size (mm)	ø6 ~ ø40		
Fluid	Air		
Piston Speed	7 ~ 50mm/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

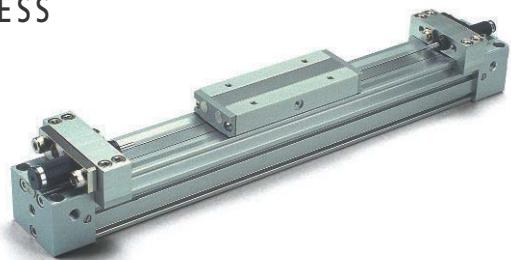


MADE IN USA


 TECHNICAL
SPECIFICATIONS

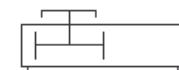
 MECHANICAL JOINT TYPE RODLESS
 CYLINDER: BASIC TYPE
 BORE SIZES
 Ø16, 25, 32, 40, 50, 63, 80, 100

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



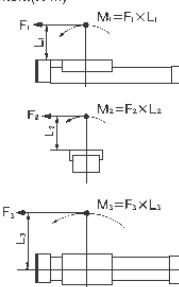
Bore Size (mm)	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100
Fluid	Filtered, Non-lubricated Air								
Operation type	Double Acting Type								
Operating pressure	0.1 ~ 0.8 MPa / 14.5 ~ 175PSI								
Proof pressure	1.2MPa / 175PSI								
Ambient & fluid temp	5 ~ 60°C / 40 ~ 140°F								
Operating piston 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	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
	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.

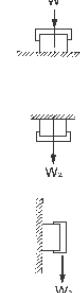

 DIMENSIONS
SEE NEXT PAGE


MOMENT (NM)

Moment(N·m)

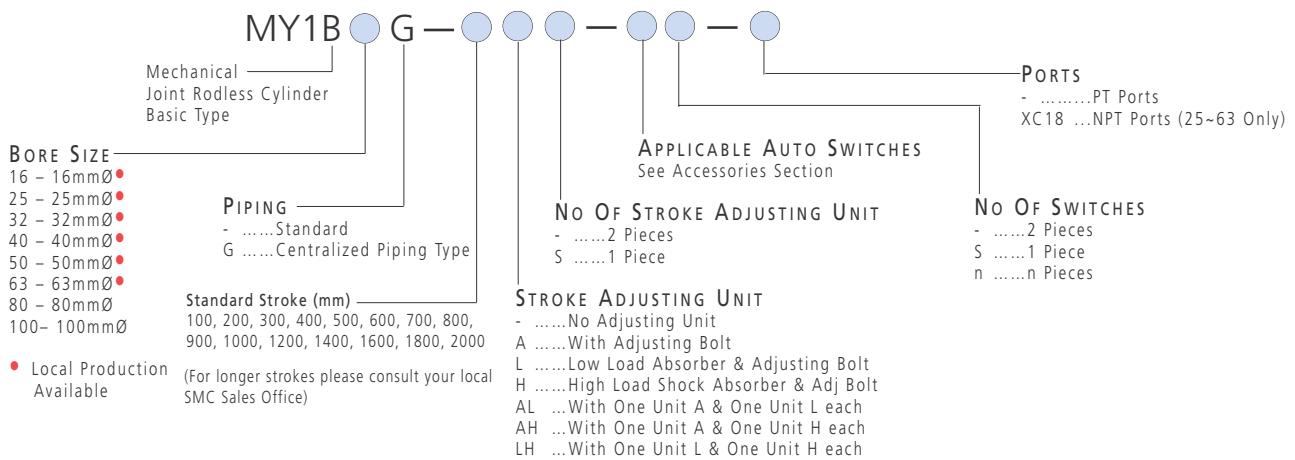


Allowable load(N)


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

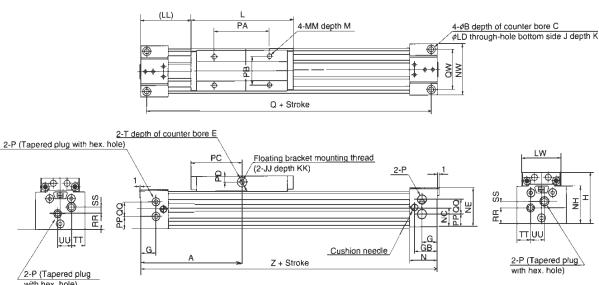
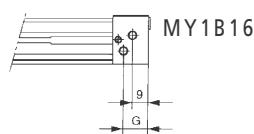
 APPLICATION
ALLOWABLE
LOAD (N)

Model	Bore Size	Allowable Moment (N·m)			Allowable Load (N)		
	(mm)	M1	M2	M3	W1	W2	W3
MY1B	Ø16	2.5	0.3	0.8	150.0	30.0	17
MY1B	Ø20	5.0	0.6	1.5	210.0	42.0	30
MY1B	Ø25	10.0	1.2	3.0	290.0	58.0	54
MY1B	Ø32	20.0	2.4	6.0	400.0	80.0	88
MY1B	Ø40	40.0	4.8	12.0	530.0	106.0	140
MY1B	Ø50	78.0	9.3	23.4	700.0	140.0	200
MY1B	Ø63	160.0	19.0	48.0	830.0	166.0	290
MY1B	Ø80	315.0	37.0	94.5	1200.0	240.0	420
MY1B	Ø100	615.0	73.0	184.5	1500.0	300.0	600

 How To
ORDER
MY1B RODLESS CYLINDER


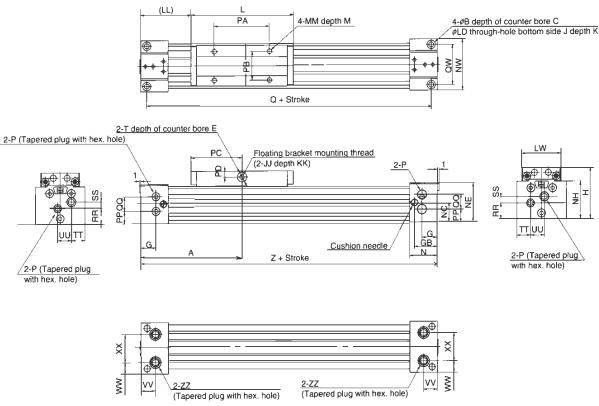
DIMENSIONS

CENTRALIZED PIPING TYPE Ø16~40



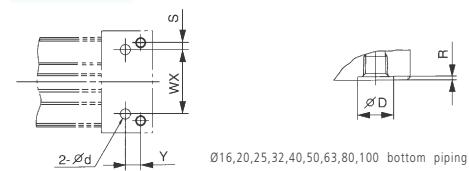
DIMENSIONS

CENTRALIZED PIPING TYPE Ø50~100

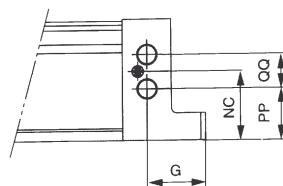
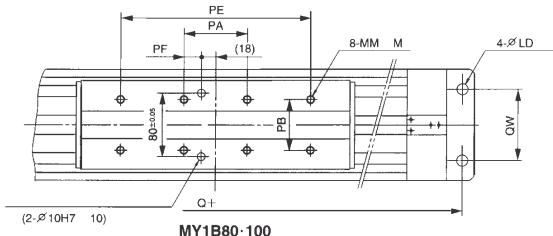


DIMENSIONS

MACHINING OF MOUNTING SURFACE



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

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

	Horizontal collision	Vertical collision (downward)	Vertical collision (upwards)
Collision Types			
Kinetic energy E_1	$\frac{1}{2} MV^2$		
Thrust energy E_2	$F \cdot s$	$F \cdot s + Mgs$	$F \cdot s - Mgs$
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	6.86
Retracted	-	-	4.22	6.86	-	-	6.86	15.98	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.

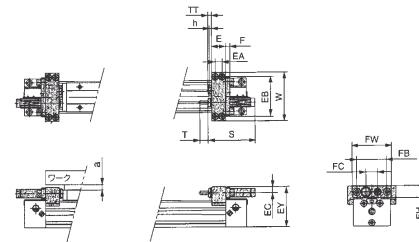
ACCESSORIES
STROKE ADJUSTING UNIT

Unit A Including adjusting bolt

Unit L low load shock absorber and adjusting bolt

Unit H High load shock absorber and adjusting bolt

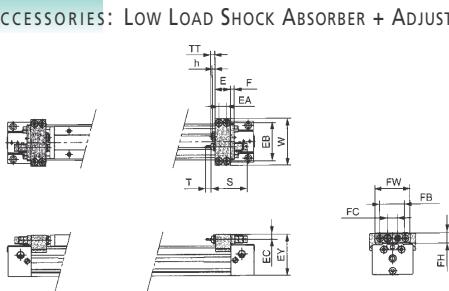
Bore Size	Ø16	Ø20	Ø25	Ø32	Ø40
Unit A	MY-A16A	MY-A20A	MY-A25A	MY-A32A	MY-A40A
Unit L	-	MY-A20L	MY-A25L	MY-A32L	MY-A40L
Unit H	-	MY-A20H	MY-A25H	MY-A32H	MY-A40H

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	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	46.7 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

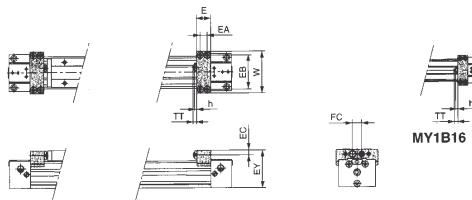
ACCESSORIES
AUTO SWITCHES

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

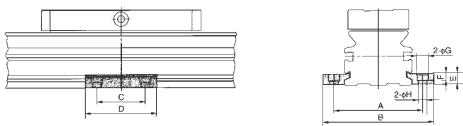
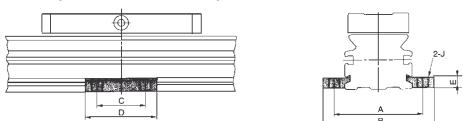
Bore Size	Model	Grommet	Connector	Switch Type	Load Voltage	Load Current	Power Source	Internal Voltage drop	Indicator Lamp
16 & 20	D-A90L	-	Reed	24V AC/DC 100V AC/DC	50 mA 20 mA	-	-	-	None
16 & 20	D-A93L	-	Reed	24V 100V	5-40mA 5-20 mA	-	2.6V max	ON: Red LED	
16 & 20	D-F9BL	-	2 wire Solid State	<28 V DC	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	

DIMENSIONS
ACCESSORIES: STROKE ADJUSTING UNIT

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

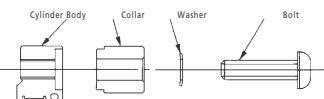


Model	E	EA	EB	EC	EY	FC	h	TT	W
MY-A16A	14.6	7	34.4	4.2	36.5	-	2.4	5.4 (Max11)	43
MY-A20A	19	9	43	5.8	45.6	13	3.2	6(Max12)	53
MY-A25A	20	10	49	6.5	53.5	13	3.5	5(Max16.5)	60
MY-A32A	25	12	61	8.5	67	17	4.5	8(Max20)	74
MY-A40A	31	15	76	9.5	81.5	17	4.5	9(Max25)	94

DIMENSIONS
SIDE SUPPORT BRACKET
COUNTERBORED (SIDE SUPPORT A)

TAPPED (SIDE SUPPORT B)


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-S16%	MY1B16	43	53.6	15	26	4.9	3	6.5	3.4	M4X0.7
MY-S20%	MY1B20	53	65.6	25	38	6.4	4	8	4.5	M5X0.8
MY-S25%	MY1B25	61	75	35	50	8	5	9.5	5.5	M6X1
	MY1B32	70	84							M6X1
MY-S32%	MY1B40	87	105	45	64	11.7	6	11	6.6	M8x1.25
	MY1B50	113	131							M8x1.25
MY-S40%	MY1B63	136	158	55	80	14.8	8.5	14	9	M10x1.5
MY-S63%	MY1B80	170	200	70	100	18.5	10.5	17.5	11	M12x1.75
	MY1B100	206	236							M12x1.75

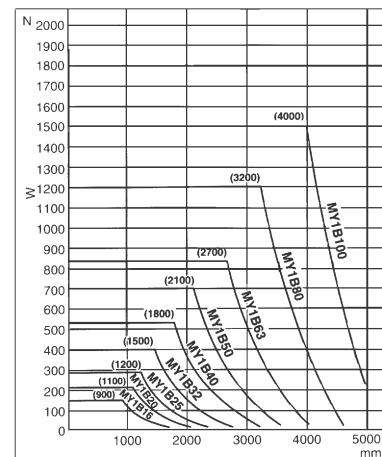
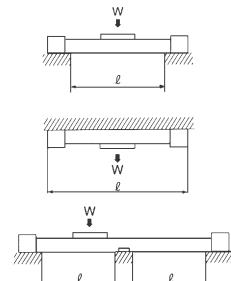
**TECHNICAL
SPECIFICATIONS**
FIXING BOLT ASSEMBLY


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

**TECHNICAL
SPECIFICATIONS**

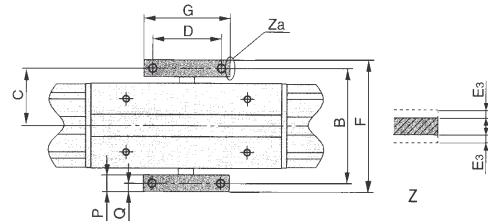
Unsupported span length not to exceed lengths shown by graph.


In case of Long Stroke

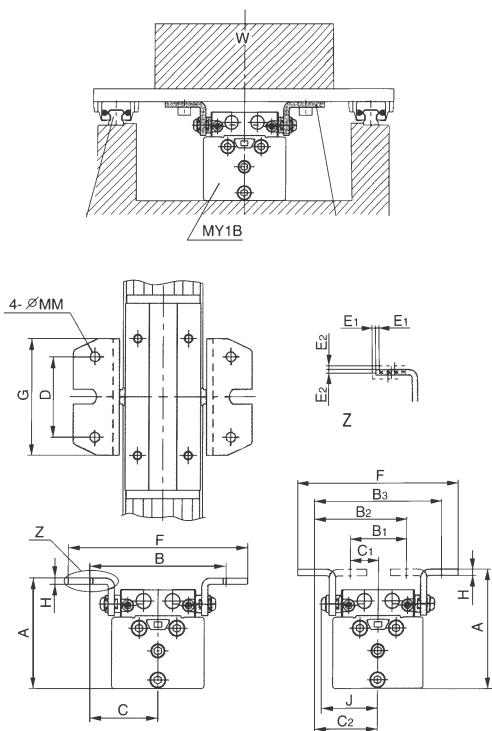
For long stroke operation, the cylinder tube may be deflected depending on weight and load; in that case, support the center on the cylinder with a side support so that the supporting interval will be lower than the value shown in the diagram.

DIMENSIONS

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


DIMENSIONS

FLOATING JOINT DRIVE ADAPTOR MY-J25•32•40

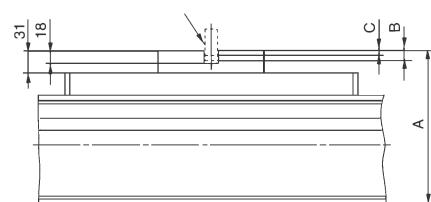
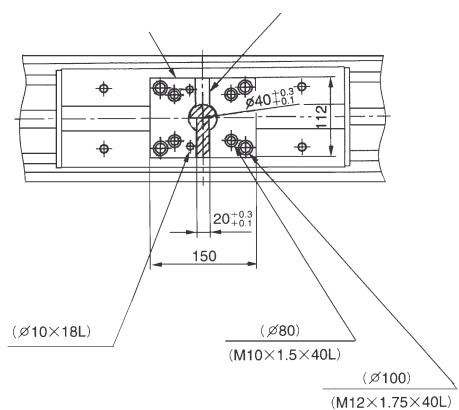


Part N°	Cylinder	TYPE 1								
		D	G	H	J	MM	A	B	C	F
MY-J25	MY1B25	40	60	3.2	35	5.5	63	78	39	100
MY-J32	MY1B32	55	80	4.5	40	6.5	76	94	47	124
MY-J40	MY1B40	74	100	4.5	47	6.5	92	112	56	144

Part N°	Cylinder	TYPE 2								
		A	B1	B2	B3	C1	C2	F	E1	E2
MY-J25	MY1B25	65	28	53	78	14	39	96	1	1
MY-J32	MY1B32	82	40	64	88	20	44	111	1	1
MY-J40	MY1B40	98	44	76	108	22	54	131	1	1

DIMENSIONS

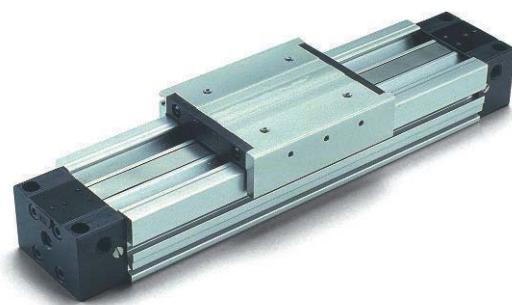
FLOATING JOINT DRIVE ADAPTOR MY-J80&100


Part N° Cylinder

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

MECHANICAL JOINT TYPE RODLESS CYLINDER: SLIDE BEARING GUIDE BORE SIZES Ø16,20,25,32,40,50,63

- ✓ Compact Body Dimensions
- ✓ Resin Slide Bearing Guide
- ✓ Various Mounting Options
- ✓ Built-in Magnet for Auto-Switch Sensing
- ✓ Extended Range of Bore Sizes



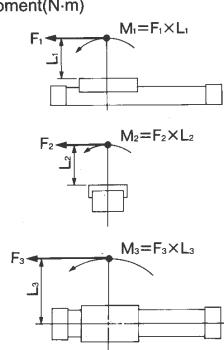
TECHNICAL SPECIFICATIONS

Bore Size (mm)	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63
Fluid	Filtered, Non-lubricated Air						
Operation Type	Double Acting Type						
Operating Pressure	0.15 ~ 0.8 MPa / 22~116PSI						
Proof Pressure	1.2MPa / 174PSI						
Ambient & Fluid Temperature	5 ~ 60°C / 40~140°F						
Operating Piston Speed	100 ~ 1500 mm/s / 4 ~ 60in/s						
Cushioning	Air Cushioning, both sides (Standard)						
Cushion Stroke (mm)	12	15	15	19	24	30	37
Stroke Tolerance (mm)	<1000 ^{+1.8} / ₀ 1001~3000 ^{+2.8} / ₀	<2700 ^{+1.8} / ₀ 2701~5000 ^{+2.8} / ₀					
Port Size	Front/side	M5 X 0.8	M5 X 0.8	Rc(PT)1/8	Rc(PT)1/8	Rc(PT)1/4	Rc(PT)3/8
	Bottom (centralised)	Ø4	Ø4	Ø5	Ø6	Ø8	Ø10
							Ø11

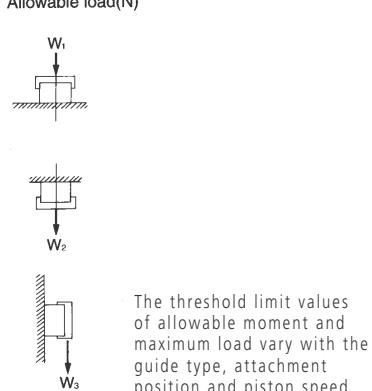
The Operating Speed must not exceed 1000mm/s when air cushion alone is used.

ALLOWABLE MOMENT AND MAXIMUM ALLOWABLE LOAD

MOMENT (Nm)



ALLOWABLE LOAD (N)



Model	Bore Size (mm)	Allowable Moment (N-m)			Allowable Load (N)		
		M1	M2	M3	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
- GCentralized 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
- AWith Adjusting Bolt
- LLow Load Absorber & Adjusting Bolt
- HHigh Load Shock Absorber & Adj Bolt
- AL ...With One Unit A & One Unit L each
- AH ...With One Unit A & One Unit H each
- LH ...With One Unit L & One Unit H each

No Of SWITCHES

-2 Pieces
- S ...1 Piece
- n ...n Pieces

APPLICABLE AUTO SWITCHES

See Accessories Section

No Of STROKE ADJUSTING UNITS

-2 Pieces
- S1 Piece

DIMENSIONS SEE NEXT PAGE 

STROKE
 ADJUSTING
 UNIT
 SPECIFICATIONS

Applicable Cylinder	Ø 16			Ø 20			Ø 25			Ø 32				
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	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			A: With adjusting bolt L: With low load shock absorber H: With high load shock absorber				
Part Number and description	A	L	H	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 Temperature	5 - 60°C / 40-140°F													

 CUSHION
 CAPACITY
 SPECIFICATIONS

Calculation of absorption energy of stroke adjusting unit with shock absorber

	Horizontal collision	Vertical collision (downward)	Vertical collision (upwards)
Collision Types			
Kinetic energy E ₁		$\frac{1}{2} MV^2$	
Thrust energy E ₂	F*s	F*s+Mgs	F*s-Mgs
Absorption energy E ₃		E ₁ +E ₂	

g: Gravitational acceleration = 9.81m/s²

v: Speed of colliding object (m/s)

M: Weight of colliding object (kg)

F: Cylinder thrust (N)

s: Shock absorber stroke (m)

The speed of the colliding object is measured in the moment of impact with the shock absorber.

(Note) The absorption capacity of each unit shown here is given for the mounted shock absorber when used at full stroke. When the effective stroke of the absorber decreases as a result of stroke adjustment, the absorption capacity decreases dramatically. Therefore, when the shock absorber is close to the allowable energy limit, the shock absorbers stroke should be adjusted for maximum travel.

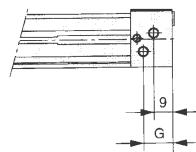
 ACCESSORIES
 AUTO SWITCHES

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

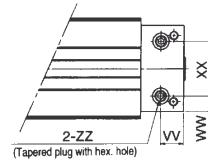
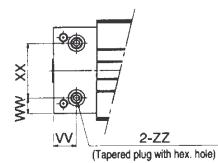
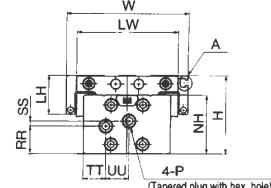
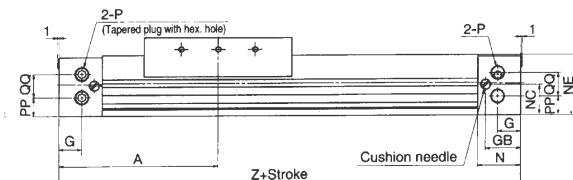
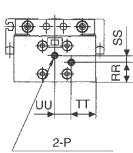
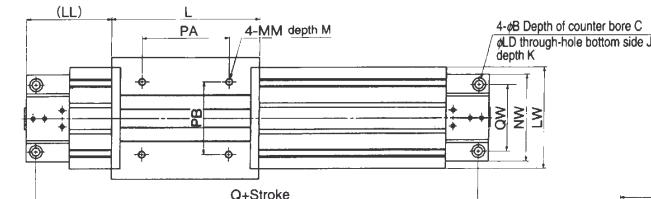
Bore Size	Model	Grommet	Connector	Switch Type	Load Voltage	Load Current	Power Source	Internal Voltage drop	Indicator Lamp
16 & 20	D-A90L	-		Reed	24V AC/DC 48V AC/DC 100V AC/DC	50 mA 40mA 20 mA	-	-	None
16 & 20	D-A93L	-		Reed	24V DC 100V AC	5-40mA 5-20mA	-	2.7V max	ON: Red LED
16 & 20	D-F9BL	-	2 wire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

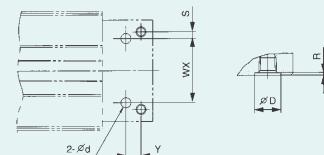


MY1B16

TABLE OF DIMENSIONS
SEE NEXT PAGE Hole size for centralized piping at bottom.
(Machine the attaching side in this size).

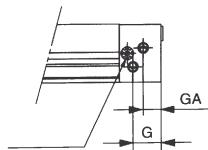
Part No	WX	Y	S	d	D	R	Gasket No
MY1M16G	30	6.5	9	4	8.4	1.1	C6
MY1M20G	32	8	6.5	4	8.4	1.1	C6
MY1M25G	38	9	4	6	11.4	1.1	C9
MY1M32G	48	11	6	6	11.4	1.1	C9
MY1M40G	54	14	9	8	13.4	1.1	C11.2
MY1M50G	74	18	8	10	17.5	1.1	C15
MY1M63G	92	18	9	10	17.5	1.1	C15

Ø16,20,25,32,40,50,63 bottom piping

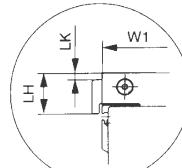
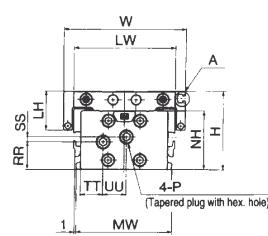
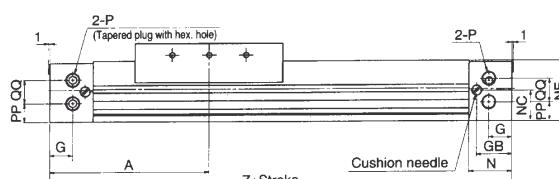
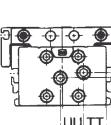
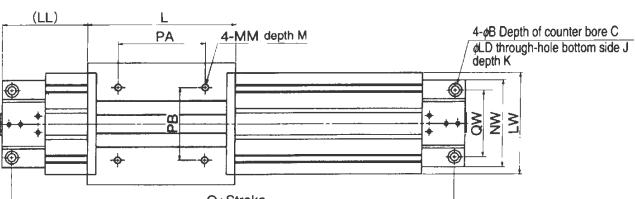


DIMENSIONS

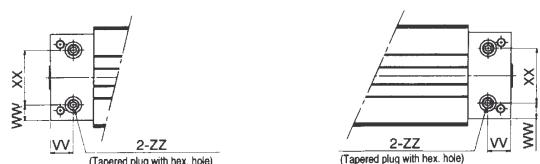
CENTRALIZED PIPING TYPE: Ø25 ~ Ø63



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

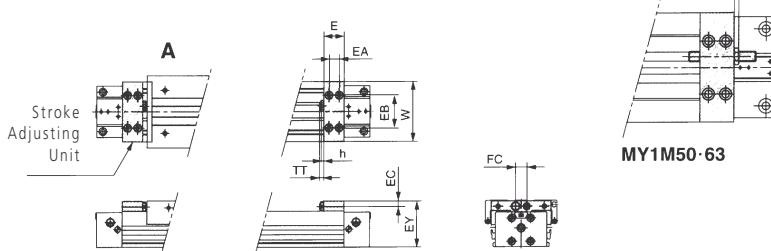
Unit H High load shock absorber and adjusting bolt

Stroke adjusting unit No.

Bore Size	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

DIMENSIONS

ACCESSORIES: STROKE ADJUSTING UNIT

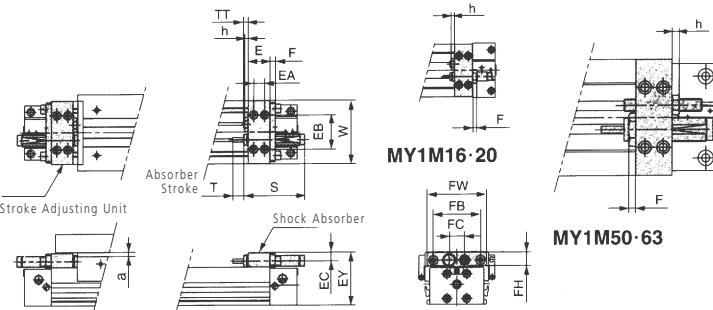


Part No	E	EA	EB	EC	EY	FC	h	TT	W
MYM-A16A	14.6	7.3	30	5.8	39.5	14	3.6	5.4(MAX11)	58
MYM-A20A	20	10	32	5.8	45.5	14	3.6	5(MAX11)	58
MYM-A25A	24	12	38	6.5	53.5	13	3.5	5(MAX16.5)	70
MYM-A32A	29	14	50	8.5	67	17	4.5	8(MAX20)	88
MYM-A40A	35	17	57	10	83	17	4.5	9(MAX25)	104
MYM-A50A	40	20	62	14	106	26	5.5	13(MAX33)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

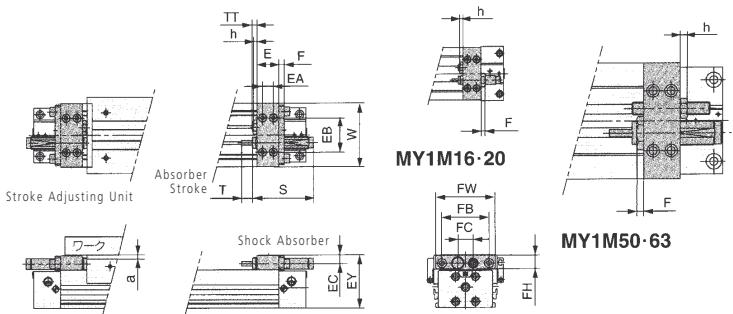
ACCESSORIES: LOW LOAD SHOCK ABSORBER + ADJUSTING BOLT "L"



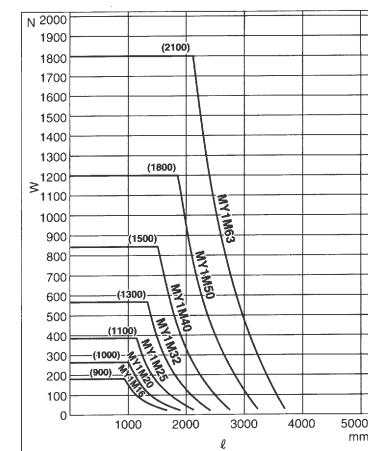
Part No	E	EA	EB	EC	EY	F	FB	FC	FH	h	TT	W	Shock Absorber
MYM-A16L	14.6	7.3	30	5.8	39.5	4	-	14		3.6	5.4(MAX11)	58	RB0806
MYM-A20L	20	10	32	5.8	45.5	4	-	14		3.6	5(MAX11)	58	RB0806
MYM-A25L	24	12	38	6.5	53.5	6	54	13	13	3.5	5(MAX16.5)	70	RB1007
MYM-A32L	29	14	50	8.5	67	6	67	17	16	4.5	8(MAX20)	88	RB1412
MYM-A40L	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.



In case of Long Stroke

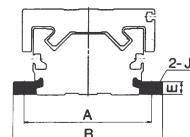
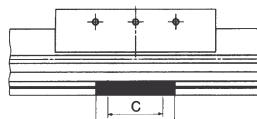
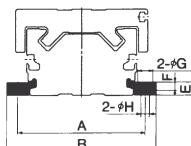
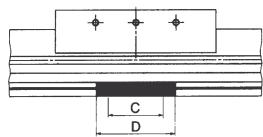
For long stroke operation, the cylinder tube may be deflected depending on weight and load; in that case, support the center on the cylinder with a side support so that the supporting interval will be lower than the value shown in the diagram.

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



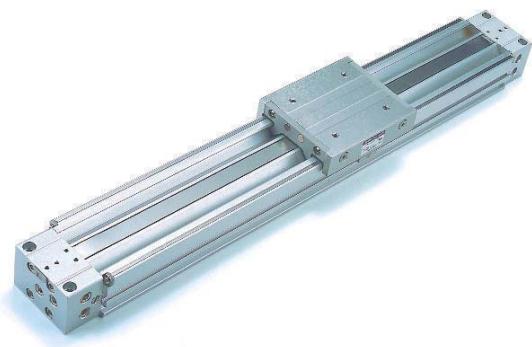
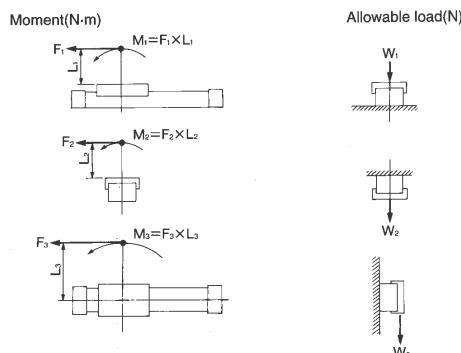
FOR INFORMATION ON SIZING, PLEASE CONTACT
SMC CUSTOMER SERVICE OR YOUR SMC
TECHNICAL SALES REPRESENTATIVE

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

**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)			Allowable Load (N)		
		M1	M2	M3	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

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}		2700 ^{+1.8}	2701 ~ 5000 ^{+2.8}			
1001 ~ 3000 ^{+2.8}							
Port Size	Front/side						
Bottom (centralized)	M5x0.8 Ø4	M5 x0.8 Ø4	Rc(PT)1/8 Ø5	Rc(PT)1/8 Ø6	Rc(PT)1/4 Ø8	Rc(PT)3/8 Ø10	Rc(PT)3/8 Ø11

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

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)

**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 VDC	5 - 40mA	-	4V max	ON: Red/Green LED

STROKE ADJUSTING UNIT

-No Adjusting Unit
- AWith Adjusting Bolt
- LLow Load Absorber & Adjusting Bolt
- HHigh 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

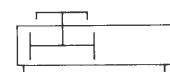
NO OF STROKE ADJ UNITS

- ... 2 Pieces
- S1 Piece
- n ...n Pieces

APPLICABLE AUTO SWITCHES
 See Accessories Section



SYMBOLS



**CUSHION
CAPACITY
SPECIFICATIONS**

Calculation of absorption energy of stroke adjusting unit with shock absorber

Collision Types	Horizontal collision	Vertical collision (downward)	Vertical collision (upwards)
Kinetic energy E ₁		$\frac{1}{2} MV^2$	
Thrust energy E ₂	F•s	F•s+Mgs	F•s-Mgs
Absorption energy E ₃		E ₁ +E ₂	

g: Gravitational acceleration = 9.81m/s²

v: Speed of colliding object (m/s)

M: Weight of colliding object (kg)

F: Cylinder thrust (N)

s: Shock absorber stroke (m)

The speed of the colliding object is measured in the moment of impact with the shock absorber.

(Note) The absorption capacity of each unit shown here is given for the mounted shock absorber when used at full stroke. When the effective stroke of the absorber decreases as a result of stroke adjustment, the absorption capacity decreases dramatically. Therefore, when the shock absorber is close to the allowable energy limit, the shock absorbers stroke should be adjusted for maximum travel.

ACCESSORIES
STROKE ADJUSTING UNIT

Unit A Including adjusting bolt

Unit L low load shock absorber and adjusting bolt

Unit H High load shock absorber and adjusting bolt

Stroke adjusting unit No.

Bore Size	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63
Unit N°							
Unit A	MYM-A16A	MYM-A20A	MYM-A25A	MYM-A32A	MYM-A40A	MYM-A50A	MYM-A63A
Unit L	MYM-A16L	MYM-A20L	MYM-A25L	MYM-A32L	MYM-A40L	MYM-A50L	MYM-A63L
Unit H	—	MYM-A20H	MYM-A25H	MYM-A32H	MYM-A40H	MYM-A50H	MYM-A63H

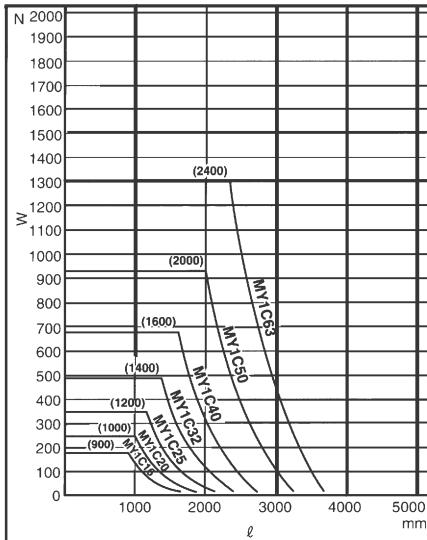
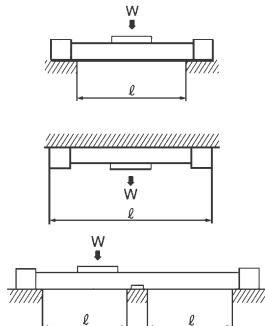
FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E253 & N332

**STROKE
ADJUSTING
UNIT
SPECIFICATIONS**

Applicable Cylinder	MY1C16			MY1C20			MY1C25			MY1C32		
	A	L		A	L	H	A	L	H	A	L	H
Stroke Adjustment Unit Type	A	L		A	L	H	A	L	H	A	L	H
Stroke Adjusting Range	Any position on the whole stroke			Any position on the whole stroke			Any position on the whole stroke			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											
Applicable Cylinder	MY1C40			MY1C50			MY1C63			MY1C63		
Stroke Adjustment Unit Type	A	L	H	A	L	H	A	L	H	A	L	H
Stroke Adjusting Range	Any position on the whole stroke			Any position on the whole stroke			Any position on the whole stroke			Any position on the whole stroke		
Fine Adjusting Range (mm)	0~16			0~20			0~25			0~25		
Shock Absorber Type	-	RB1412	RB2015	-	RB2015	RB2725	-	RB2015	RB2725	-	RB2015	RB2725
Max Absorbing Energy (J)	-	19.6	58.8	-	58.8	147	-	58.8	147	-	58.8	147
Absorption Stroke (mm)	-	12	15	-	15	25	-	15	25	-	15	25
Max Collision Speed (mm/s)	200	1500	1500	200	1500	1500	200	1500	1500	200	1500	1500
Max Use Frequency (cycles/min)	-	42	25	-	25	10	-	25	10	-	25	10
Spring Force (N) Extended	-	6.86	8.34	-	8.34	8.83	-	8.34	8.83	-	8.34	8.83
Retracted	-	15.98	20.50	-	20.50	20.01	-	20.50	20.01	-	20.50	20.01
Operating Temperature	5~60°C / 40~140°F											

TECHNICAL
 SPECIFICATIONS

Unsupported span length not to exceed lengths shown by graph.

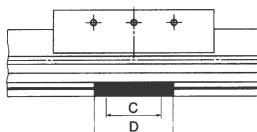

In case of Long Stroke

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

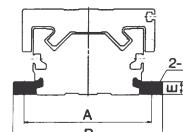
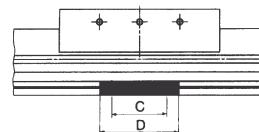
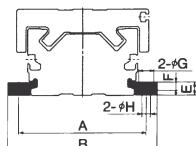
DIMENSIONS

SIDE SUPPORT UNIT

SIDE SUPPORT A: COUNTERBORE TYPE



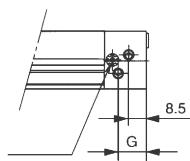
SIDE SUPPORT B: THREADED THROUGH HOLE



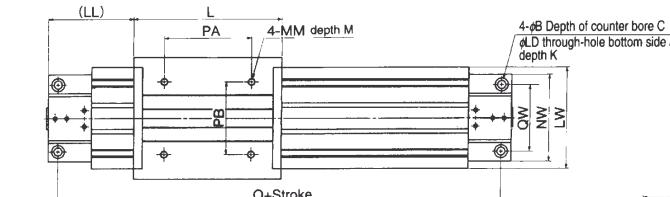
Part No	Cylinder	Side Support A	Side Support B	A	B	C	D	E	F	G	H	J
MY-S16A/B	MY1C16	MY-S16A	MY-S16B	61	71.6	15	26	4.9	3	6.5	3.4	M4X0.7
MY-S20A/B	MY1C20	MY-S20A	MY-S20B	67	79.6	25	38	6.4	4	8	4.5	M5X0.8
MY-S25A/B	MY1C25	MY-S25A	MY-S25B	81	95	35	50	8	5	9.5	5.5	M6X1
MY-S32A/B	MY1C32	MY-S32A	MY-S32B	100	118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

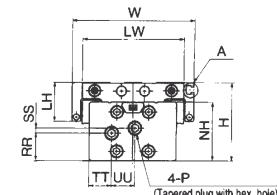
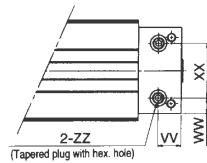
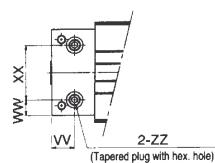
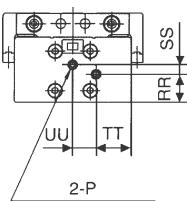
CENTRALIZED PIPING TYPE Ø16~20



MY1C16

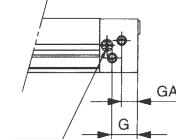


Section "A" Details

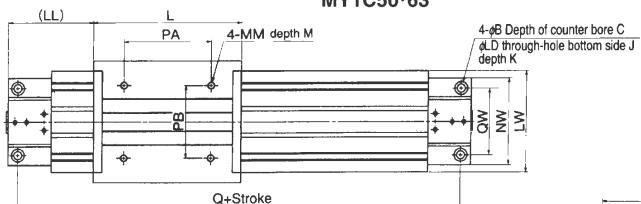
TABLE OF DIMENSIONS
SEE NEXT PAGE 

DIMENSIONS

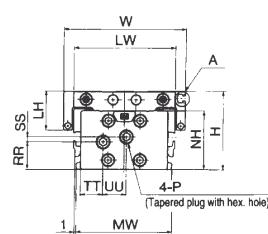
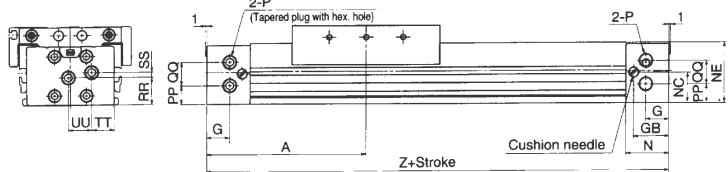
CENTRALIZED PIPING TYPE Ø25~63



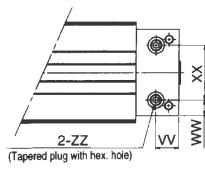
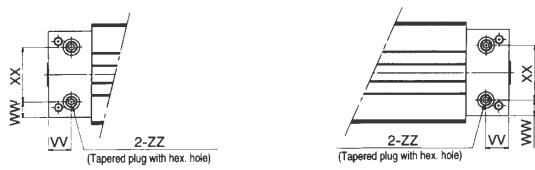
MY1C50·63



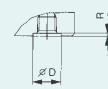
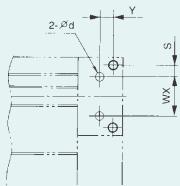
Section "A" Details



Ø16,20,25,32,40,50,63 bottom piping

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

TABLE OF DIMENSIONS
SEE NEXT PAGE 

DIMENSIONS

CENTRALIZED PIPING TYPE

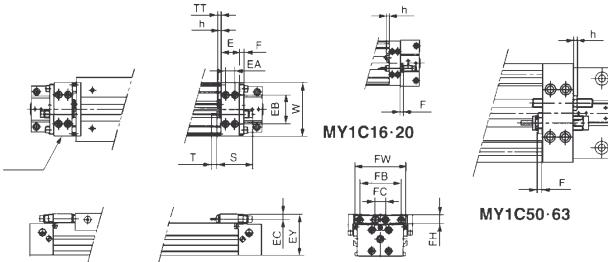
Part No	A	B	C	G	GB	H	J	K	L	LD	LH	LK	(LL)
MY1C16	80	6	3.5	8.5	16.2	40	M5X0.8	10	80	3.6	22.5	-	40
MY1C20	100	7.5	4.5	10.5	20	4	M6X1	12	100	4.8	23	-	50
MY1C25	110	9	5.5	16	24.5	54	M6X1	9.5	102	5.6	27	-	59
MY1C32	140	11	6.5	19	30	68	M8X1.25	16	132	6.8	35	-	74
MY1C40	170	14	8.5	23	36.5	84	M10X1.5	15	162	8.6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

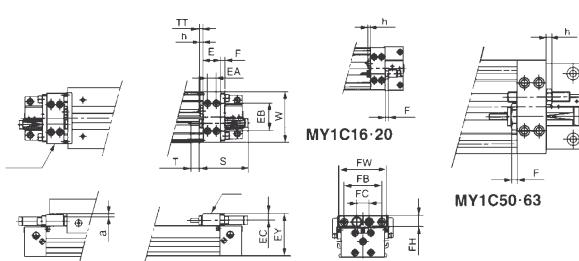


Since the EY size of type H unit is greater than the table top height (H dimension), when a workpiece is loaded that is larger than the full length (L dimension) of the slide table allow a clearance of size "a" or larger at the workpiece side.

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"

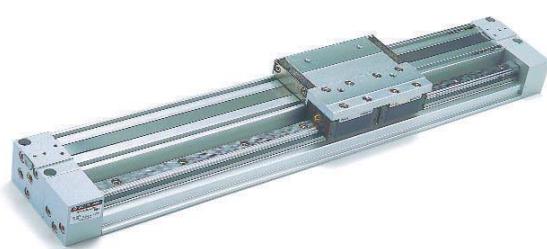


Part No.	Cylinder	E	EA	EB	EC	EY	F	FB	FC	FH	FW	h	S	T	TT	W	Shock Absorber
MYM-A16L	MY1C16	14.6	7.3	30	5.8	39.5	4	-	14	-	-	3.6	40.8	6	5.4(MAX11)	58	R80806
MYM-A20L	MY1C20	20	10	32	5.8	45.5	4	-	14	-	-	3.6	40.8	6	5(MAX11)	58	R80806
MYM-A25L	MY1C25	24	12	38	6.5	53.5	6	54	13	13	66	3.5	46.7	7	5(MAX16.5)	70	RB1007
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
	Bottom (centralised)	Ø 4	Ø 4	Ø 5	Ø 6
				Ø 6	Ø 8

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



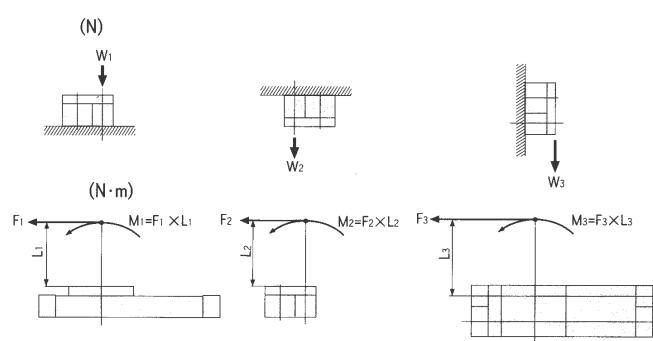
MECHANICAL JOINT TYPE RODLESS CYLINDER: HIGH PRECISION GUIDE TYPE BORE SIZES Ø16,20,25,32,40

- ✓ 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)			Allowable Load (N)		
		M1	M2	M3	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
- AWith Adjusting Bolt
- LLow Load Absorber & Adjusting Bolt
- HHigh 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
- S1 Piece

NO OF SWITCHES

-2 Pieces
- S1 Piece
- nn Pieces

APPLICABLE AUTO
SWITCHES

See Accessories Section

ACCESSORIES AUTO SWITCHES

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

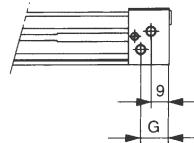
Bore Size	Model	Grommet	Connector	Switch Type	Load Voltage	Load Current	Power Source	Internal Voltage Drop	Indicator Lamp
16 & 20	D-A90L	-		Reed	24V/48V AC/DC 100V AC/DC	50mA/40mA 20mA	-		None
16 & 20	D-A93L	-		Reed	24V AC 100V DC	5-40mA 5-20mA	-	2.7V max	ON: red LED
16 & 20	D-F9BL	-		2 wire solid state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

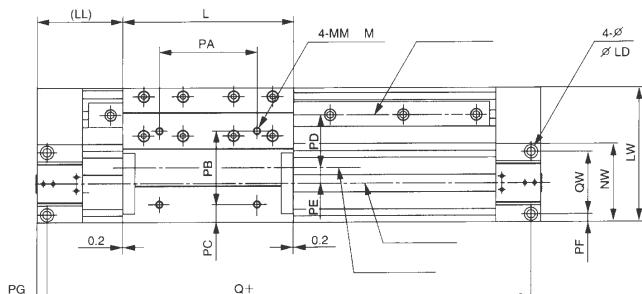


DIMENSIONS

CENTRALIZED PIPING TYPE Ø16~Ø40

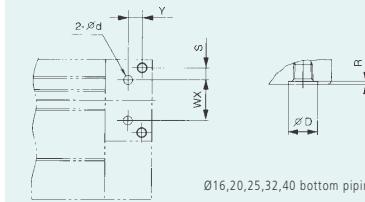


MY1H16

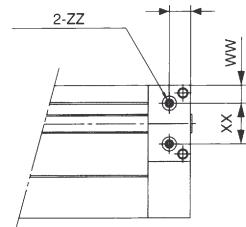
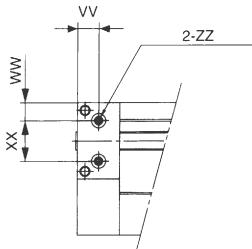
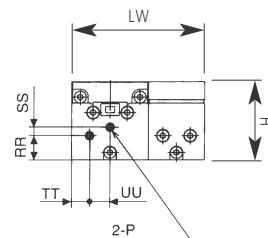
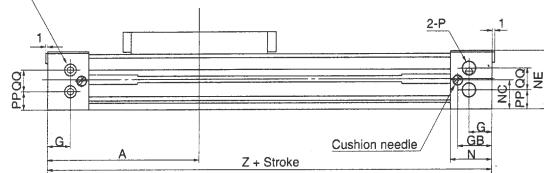
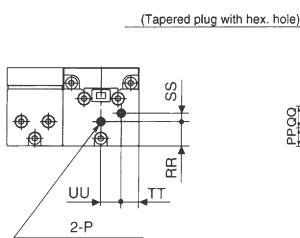


Hole Size for Centralized Piping at bottom.
 (Machine the attaching side in this size).

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



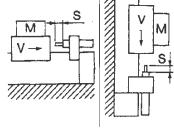
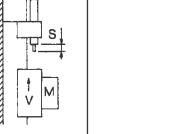
Part No	A	B	C	G	GB	H	J	K	L	LD	(LL)	LW	M
MY1H16	80	6	3.5	14	17	40	M5X0.8	10	80	3.5	40	60	7
MY1H20	100	7.5	4.5	12.5	20.5	46	M6X1	12	100	4.8	50	78	8
MY1H25	110	9	5.5	16	24.5	54	M6X1	9.5	114	5.6	53	90	9
MY1H32	140	11	6.5	19	30	68	M8X1.25	16	140	6.8	70	110	13
MY1H40	170	14	8.5	23	36.5	84	M10X1.5	15	170	8.6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

**CUSHION
CAPACITY
SPECIFICATIONS**

Calculation of Absorption Energy of Stroke Adjusting Unit with Shock Absorber

Collision Types	Horizontal Collision	Vertical Collision (downward)	Vertical Collision (upwards)
			
Kinetic Energy E ₁	$\frac{1}{2} MV^2$		
Thrust Energy E ₂	F•s	F•s+Mgs	F•s-Mgs
Absorption Energy E ₃	E_1+E_2		

g: Gravitational Acceleration =9.81m/s²

v: Speed of Colliding Object (m/s)

M: Weight of Colliding Object (kg)

F: Cylinder Thrust (N)

s: Shock Absorber Stroke (m)

The speed of the colliding object is measured in the moment of impact with the shock absorber.

(Note) The absorption capacity of each unit shown here is given for the mounted shock absorber when used at full stroke. When the effective stroke of the absorber decreases as a result of stroke adjustment, the absorption capacity decreases dramatically. Therefore, when the shock absorber is close to the allowable energy limit, the shock absorbers stroke should be adjusted for maximum travel.

ACCESSORIES
STROKE ADJUSTING UNIT

Unit A Including Adjusting Bolt

Unit L Low Load Shock Absorber and Adjusting Bolt

Unit H High Load Shock Absorber and Adjusting Bolt

Side Support Unit

Bore Size	Ø16	Ø20	Ø25	Ø32	Ø40
Unit N°					
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

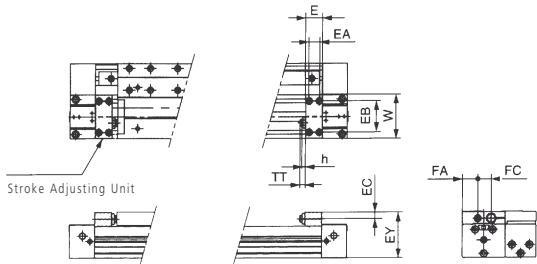
**STROKE
ADJUSTING
UNIT
SPECIFICATIONS**

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							

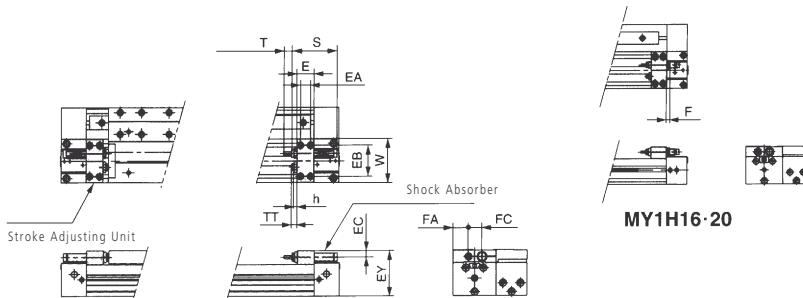
Applicable Cylinder	MY1H32			MY1H40		
Stroke Adjustment unit type	A	L	H	A	L	H
Stroke Adjusting Range	Any position on the whole stroke					
Fine Adjusting Range (mm)	0~12			0~16		
Shock Absorber Type	-	RB1412	RB2015	-	RB1412	RB2015
Max Absorbing Energy (J)	-	19.6	58.8	-	19.6	58.8
Absorption Stroke (mm)	-	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 Adjusting Bolt "A"

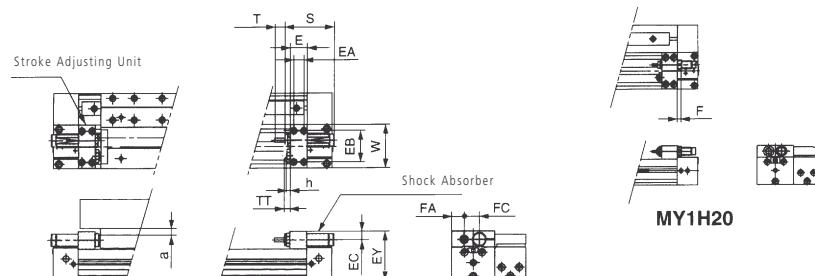


Part No.	Cylinder	E	EA	EB	EC	EY	FA	FC	h	TT	W
MY1A16A	MY1H16	14.6	7	28	6	39.5	11.5	13	3.2	5.4(MAX11)	37
MY1A20A	MY1H20	19	10	33	6	45.5	15	14	3.2	6(MAX12)	45
MY1A25A	MY1H25	18	9	40	7.5	53.5	20	17	3.5	5(MAX16.5)	53
MY1A32A	MY1H32	25	14	45.6	9.5	67.5	23	20	4.5	8(MAX20)	64
MY1A40A	MY1H40	31	19	55	11	82	24.5	26	4.5	9(MAX25)	75

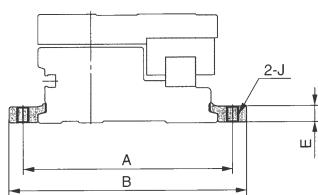
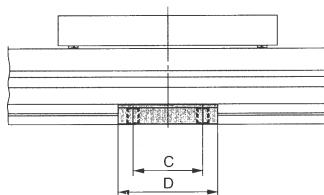
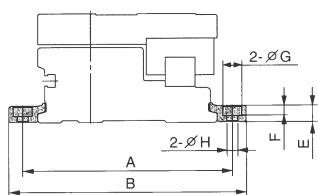
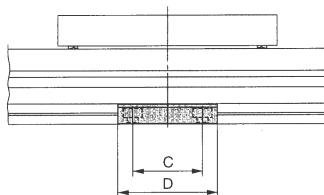
DIMENSIONS
ACCESSORIES: HIGH LOAD SHOCK ABSORBER + ADJUSTING BOLT "H"


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

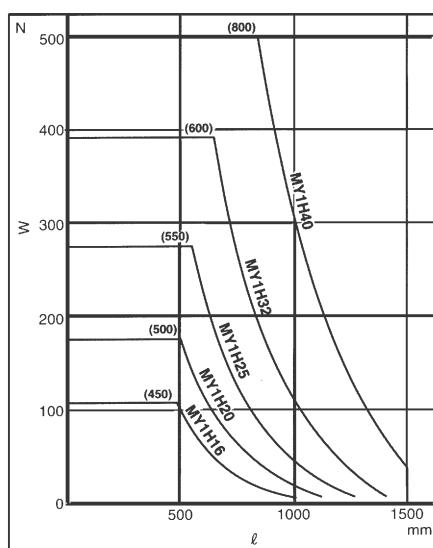
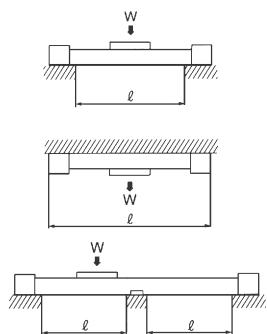
DIMENSIONS
 SIDE SUPPORT UNIT


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

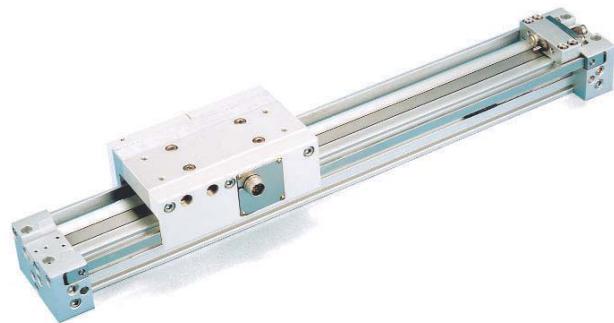

In case of Long Stroke

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 $\pm 0.5\text{mm}$
- ✓ 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

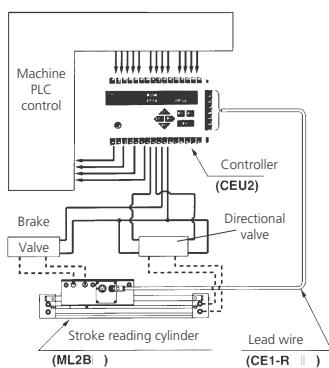
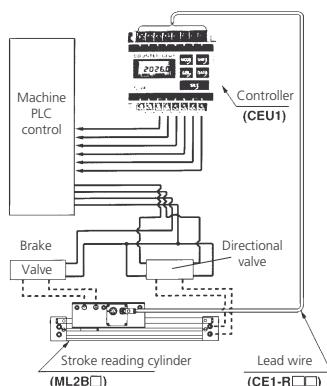


CYLINDER SPECIFICATIONS

Bore Size	ø25	ø32	ø40
Operating Fluid	Air		
Operating 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

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.



SENSOR SPECIFICATIONS

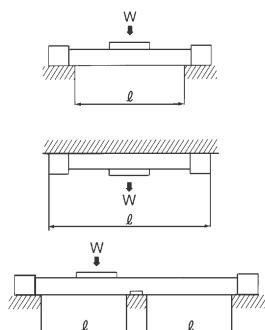
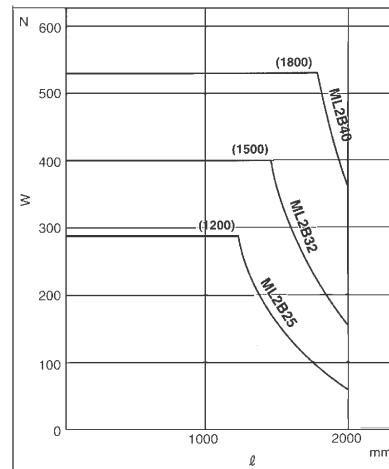
Cable	Connector: R04-J8M7. 3. Tajima Musen Denki Company
Max Transmission Distance	20m (6 core twisted pair shielded wire)
Position Detection Method	Magnetic Scaled Piston Rod & Detection Head (50cm cable, Incremental type)
Magnetic Field Resistance	145 Gauss
Power Supply	DC12V $\pm 10\%$ (ripple less than 1%)
Current Consumption	40mA
Resolution	0.1mm / pulse
Repeatability	0.1mm $\pm 0.05\text{mm}$
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)

TECHNICAL SPECIFICATIONS

IN CASE OF LONG STROKE

For long stroke operation, the cylinder tube may be deflected accordingly to the dead weight and load. In that case, support the medium position with a side support so that the supporting interval (l) will be lower than the value shown in the diagram.

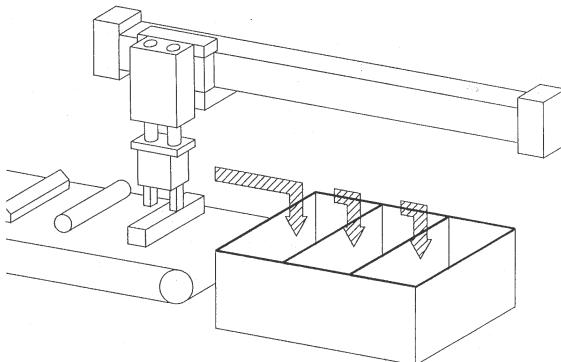
Note): If the cylinder tube mounting accuracy is not good enough, the side support may cause poor operation. Level the cylinder tube before mounting.



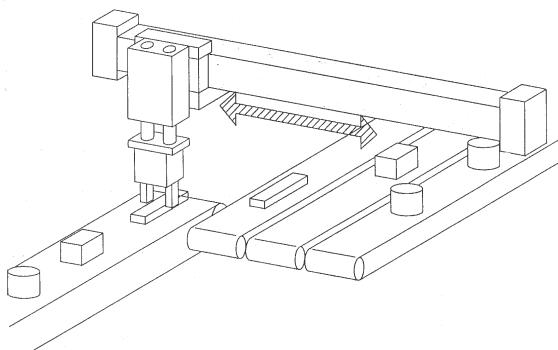
Unsupported span length not to exceed lengths shown by graph.

TECHNICAL
SPECIFICATIONS
APPLICATIONS

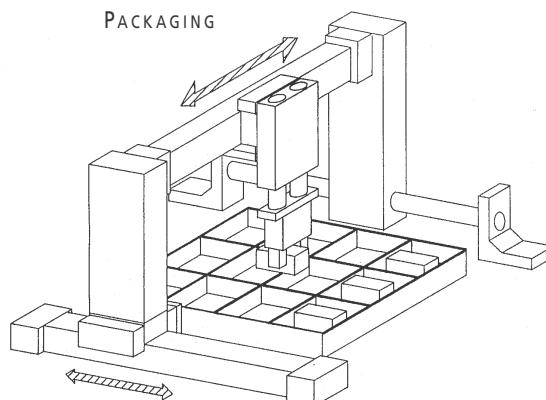
PICK & PLACE



TRANSFER



PACKAGING

How To
ORDER
SERIES ML2B

ML2 B 25 ⬤ — 500 L ⬤ — Z73 ⬤

MOUNTING
BStandard

BORE SIZE

- 25 ...25mm
- 32 ...32mm
- 40 ...40mm

CONTROL METHOD
-Brake and scale
SWith scale only
BWith 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
- S1
- nn

AUTOSWITCH TYPE

Reed and Solid State
See Accessories Section

No Of STROKE

ADJUSTMENT UNIT
-2
S1

STROKE ADJUSTMENT UNIT

Nil ...Without Adjusting Bolt
LWith Shock Absorber and Adjusting Bolt

Shock Absorber Model

Model ⌀25 ⌀32 ⌀40
..... 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-S32B
40	MY-S40L	MY-S32B

MORE
HOW TO
ORDER
SEE NEXT PAGE 

How To
 ORDER
 CONTROLLER

CEU2

OUTPUT METHOD

-NPN Open Collector
- PPNP Open Collector

 How To
 ORDER
 3 POINTS PRESET COUNTER

CEU1

OUTPUT METHOD

-NPN Open Collector
- PPNP Open Collector

COUNTER OPERATING

POWER SUPPLY

-AC80~120V
- DDC24V ±5%

 How To
 ORDER
 EXTENSION CABLE

CE1-R

LENGTH OF CABLE

- 05 ...5m
- 10 ...10m
- 15 ...15m
- 20 ...20m

POSTSCRIPT

-Extension Cable
- CExtension 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

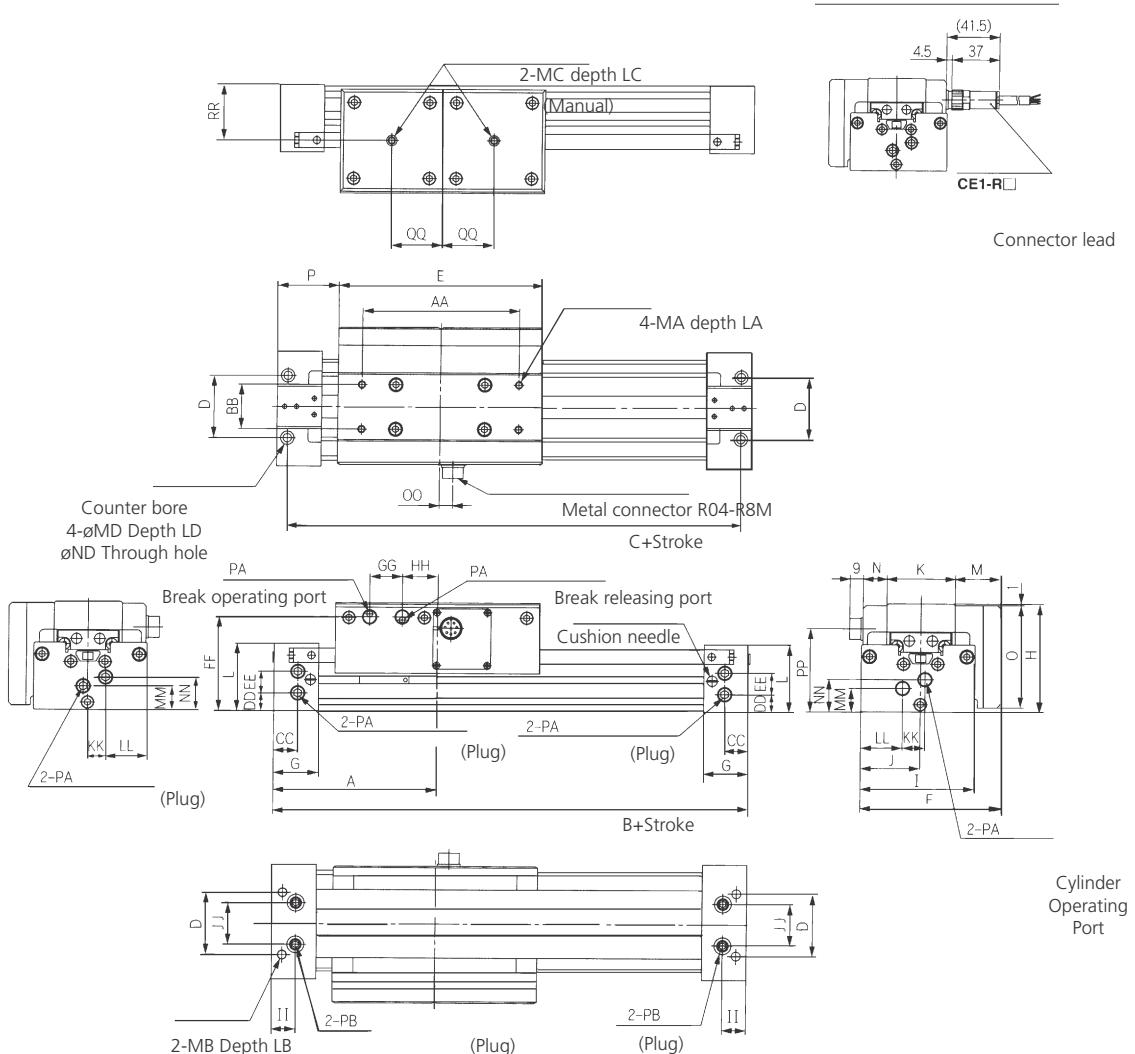
STROKE ADJUSTING UNIT

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

Bore Size	Ø25	Ø32	Ø40
Side Support A	MY-S25A	MY-S25A	MY-S32A
Side Support B	MY-S25B	MY-S25B	MY-S32B

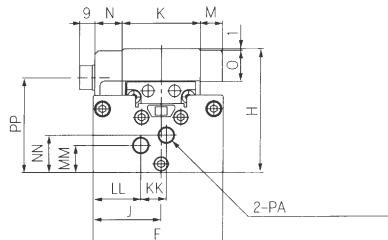
DIMENSIONS

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

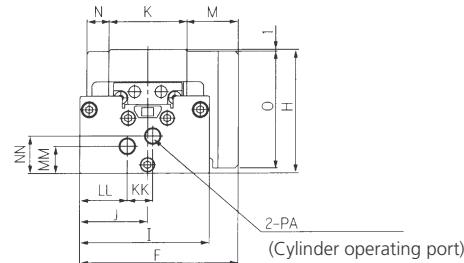
Model	KK	LL	MM	NN	OO	PP	QQ	RR	MA	LA	MB	LB	MC	LC	MD	LD	ND	PA	PB
ML2B25	15	28	16	22	9	56	34.5	37.5	M5x0.8	9	M6x1	9.5	M5x0.8	9.5	9	5.5	5.6	Rc (PT) 1/8	Rc (PT) 1/16
ML2B32	16	30.5	21.5	26	10	62.5	42	45	M6x1	12	M8x1.25	15	M6x1	12	11	6.5	6.8	Rc (PT) 1/8	Rc (PT) 1/16
ML2B40	17.5	37.5	24.5	37.5	23	77	51	54	M8x1.25	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)

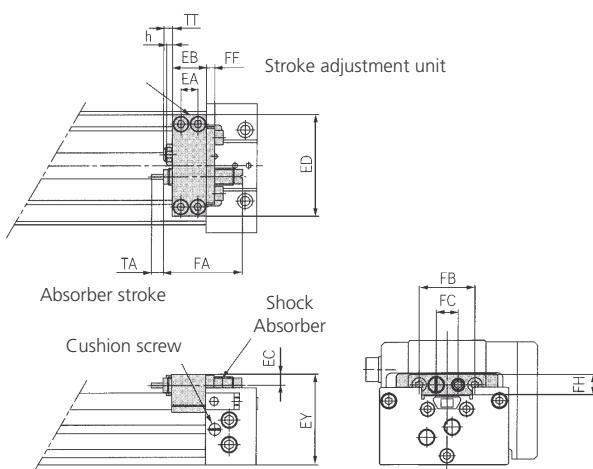
Model	F	H	J	K	M	N	O
ML2B25	76.5	73	40	46	13	16	18.5
ML2B32	91	88	46.5	58	15	15	19.5
ML2B40	110	106	55	68	19	19	21.5

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

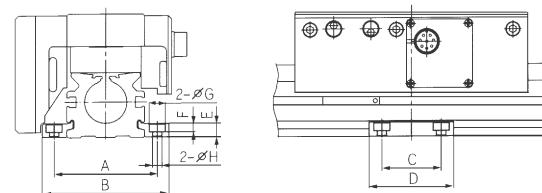
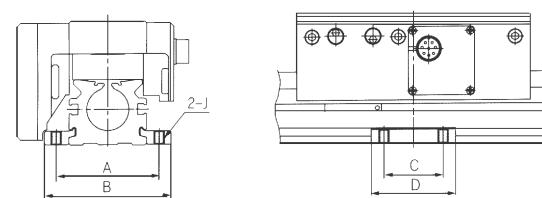
 DIMENSIONS
BRAKE ONLY


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 ^b	ML2B25	61	75	35	50	8	5	9.5	5.5	M6x1
MY-S32 ^b	ML2B32	70	84	45	64	11.7	6	11	6.6	M8x1.25
MY-S32 ^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

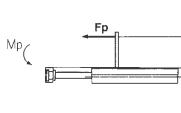
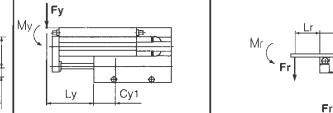
Bore Size (mm)	Ø8	Ø12	Ø16	Ø20
Port size	M3x0.5	M5.0.8	M5.0.8	M5.0.8
Fluid	Air			
Action	Double Acting			
Operating pressure	0.15 ~ 0.7MPa / 22 ~ 102PSI			
Proof pressure	1.05MPa / 153PSI			
Ambient and fluid temp.	-10 ~ +60°C / 14 ~ 140°F			
Operating speed range	50 ~ 500mm/s / 2 ~ 20in/s			
Cushion	Rubber Bumper both ends			
Lubrication	Non-lube			
Stroke tolerance	+1mm ~ 0mm			
Stroke adjustment range	5mm per end			
Construction	Body/Table Rail/Guide	Aluminum Alloy Carbon Tool Steel		

PRODUCT SELECTOR ALLOWABLE STATIC MOMENT

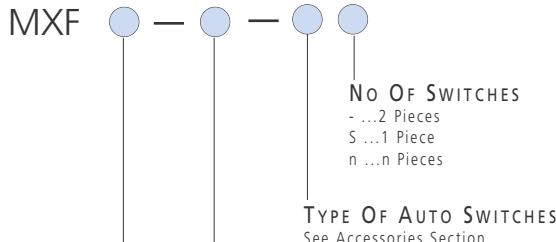
Model Stroke (mm)	Allowable Static Moment: Mp, My, Mr, (N.m)						Correction Value For Moment Centre Distance mm					
	10	20	30	50	75	100	Cp1	Cp2	Cy1	Cy2	Cr1	Cr2
MXF8	0.56	0.78	0.98	-	-	-	*6	10	*6	21	21	10
MXF12	-	1.65	2.22	3.34	-	-	10	11	10	23	23	11
MXF16	-	-	3.41	5.69	7.96	-	10	12	10	28	28	12
MXF20	-	-	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
		
$F_p = \frac{M_p \times 1000}{(L_p + C_p)} \text{ (N)}$ Lp: Distance between body and load point (mm) Cp: Correction value for moment center distance (mm)	$F_y = \frac{M_y \times 1000}{(Ly + Cy)} \text{ (N)}$ Ly: Distance between body and load point (mm) Cy: Correction value for moment center distance (mm)	$F_r = \frac{M_r \times 1000}{(Lr + Cr)} \text{ (N)}$ Lr: Distance between body and load point (mm) Cr: Correction value for moment center distance (mm)

HOW TO ORDER MXF SLIDE TABLE



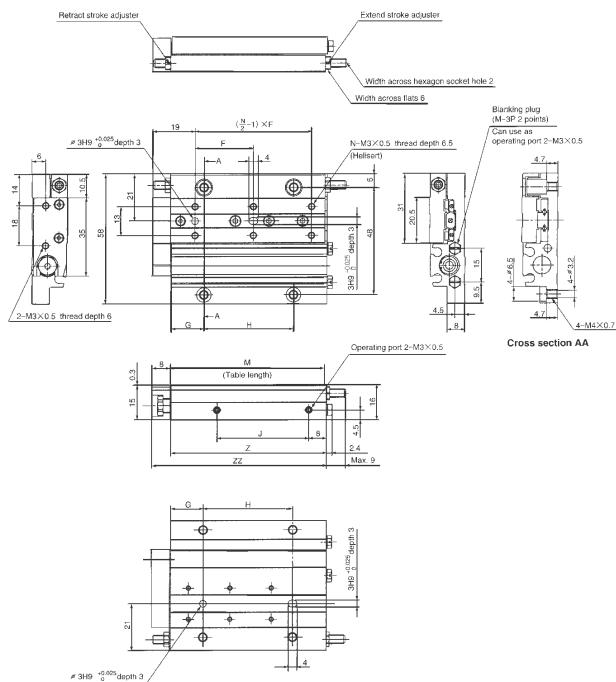
BORE SIZE	STROKE (MM)
Ø8	10, 20, 30
Ø12	20, 30, 50
Ø16	30, 50, 75
Ø20	30, 50, 75, 100

ACCESSORIES
AUTO SWITCHES

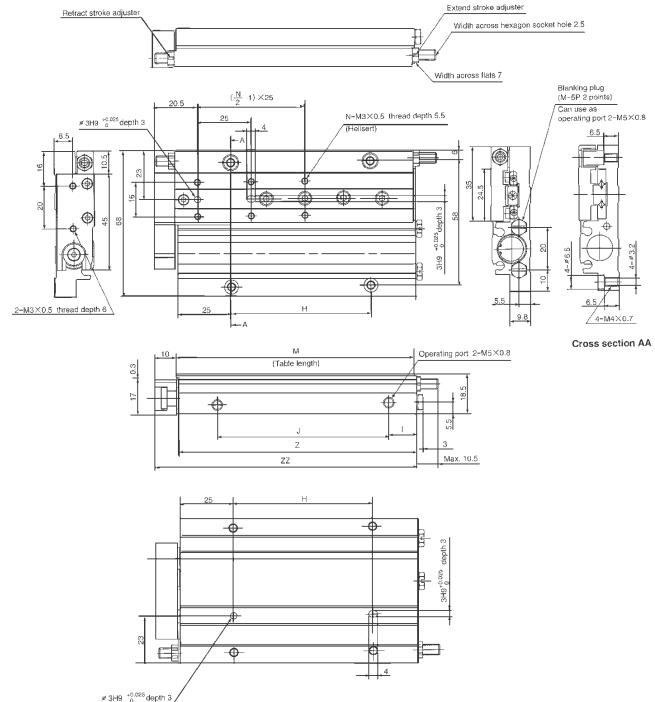
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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

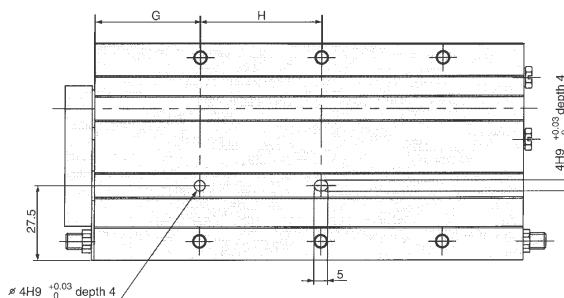
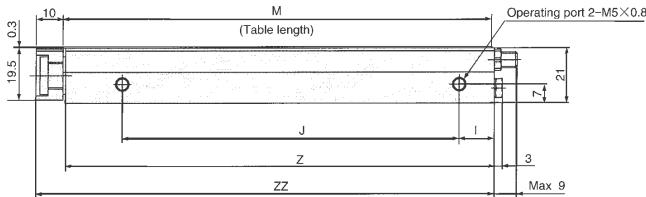
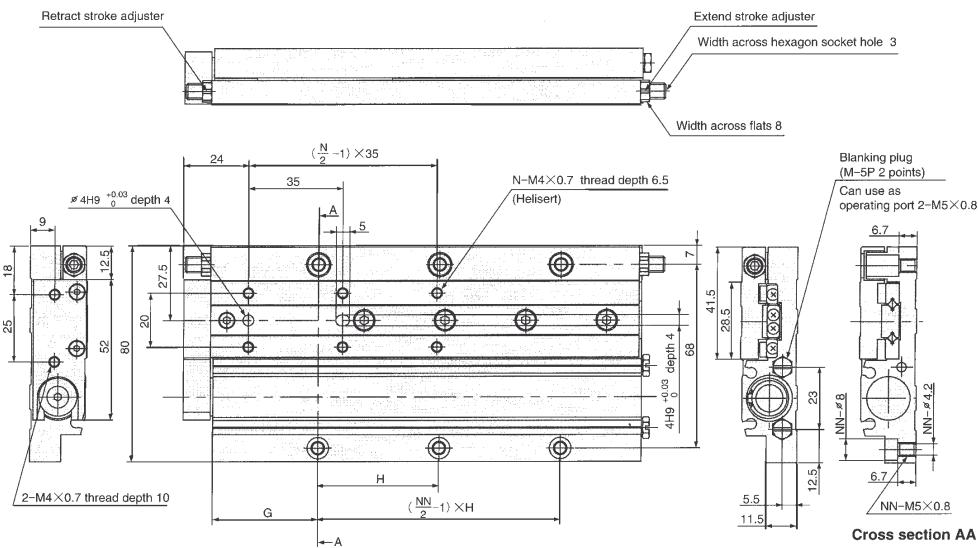
DIMENSIONS
MXF8


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

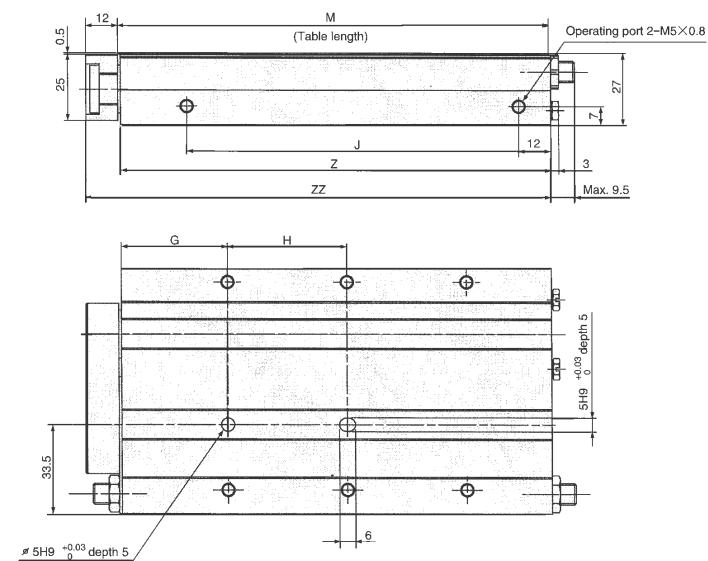
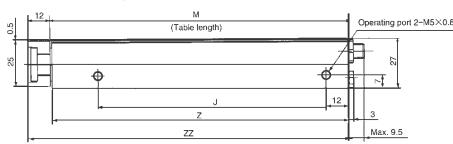
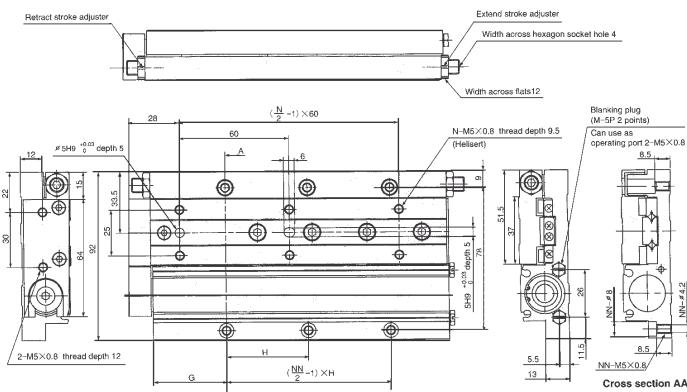
DIMENSIONS
MXF12


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
Buffer Load at max stroke (N)	6	8

TECHNICAL SPECIFICATIONS

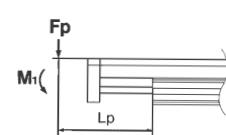
COMBINATION OF OPTIONS POSSIBLE WITH STROKE ADJUSTERS:

Stroke Adjuster	No Option	Buffer Spring F	End Lock R	Axial Piping P	Buffer + End Lock FR		Buffer + Axial Piping FP	
					YES	YES	YES	YES
None	YES	YES	YES	YES	YES	YES	YES	YES
AS (Front)	YES	YES	YES	YES	YES	YES	YES	YES
AT (Rear)	YES	YES	NO	NO	NO	NO	NO	NO
A (Both ends)	YES	YES	NO	NO	NO	NO	NO	NO

TECHNICAL SPECIFICATIONS

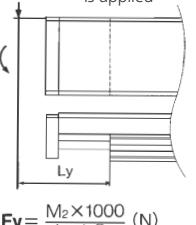
FORMULA FOR CALCULATION OF ALLOWABLE STATIC LOAD, FP, FY, AND FR

When pitch moment is applied



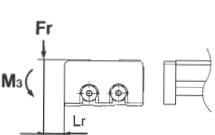
$$F_p = \frac{M_1 \times 1000}{L_p + C_p} \text{ (N)}$$

When yaw moment is applied



$$F_y = \frac{M_2 \times 1000}{L_y + C_y} \text{ (N)}$$

When roll moment is applied



$$F_r = \frac{M_3 \times 1000}{L_r + C_r} \text{ (N)}$$

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.

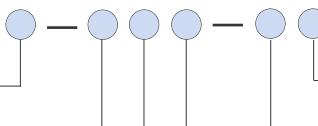
TECHNICAL SPECIFICATIONS

ALLOWABLE STATIC MOMENT

Cylinder Bore (mm)	Allowable Static Moment: Common to M1, M2, and M3 (N·m)							Moment Center Distance (mm)				
	10	20	30	40	50	75	100	125	150	Cp	Cy	Cr
MXS6	0.70	0.98	1.22	1.22	1.22	-	-	-	-	11	13	16
MXS8	2.06	2.06	2.78	3.59	4.17	4.17	-	-	-	11	13	20
MXS12	4.26	4.26	4.26	5.81	7.11	9.95	9.95	-	-	24	26	25
MXS16	8.33	8.33	8.33	8.33	11.42	17.13	22.84	22.84	-	27	30	31
MXS20	13.79	13.79	13.79	13.79	19.31	24.83	35.87	35.87	35.87	34	36	38
MXS25	21.73	21.73	21.73	21.73	30.42	39.11	47.80	47.80	47.80	42	44	46

HOW TO ORDER
SEE NEXT PAGE


**How To
Order**

MXS — 

BORE SIZES —
6, 8, 12, 16, 20, 25

STROKE

See table of available strokes on previous page

STROKE ADJUSTER

-None
- AS ...Front
- AT ...Rear
- ABoth ends

OPTION

-None
- FBuffer spring (See note 3, previous page)
- REnd lock (See note 1, previous page)*
- PAxial 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.

Functional option	-	F	R	P	FR	FP
Adjuster option	-	O	O	O	O	O
-	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


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.

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

TYPE OF AUTO SWITCHES
See Accessories Section

No Of Auto Switches
-2 Pieces
S1 Piece
nn Pieces


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 DC or less	50mA	0	None	PLC
	48V DC or less	40mA			
	100V AC 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

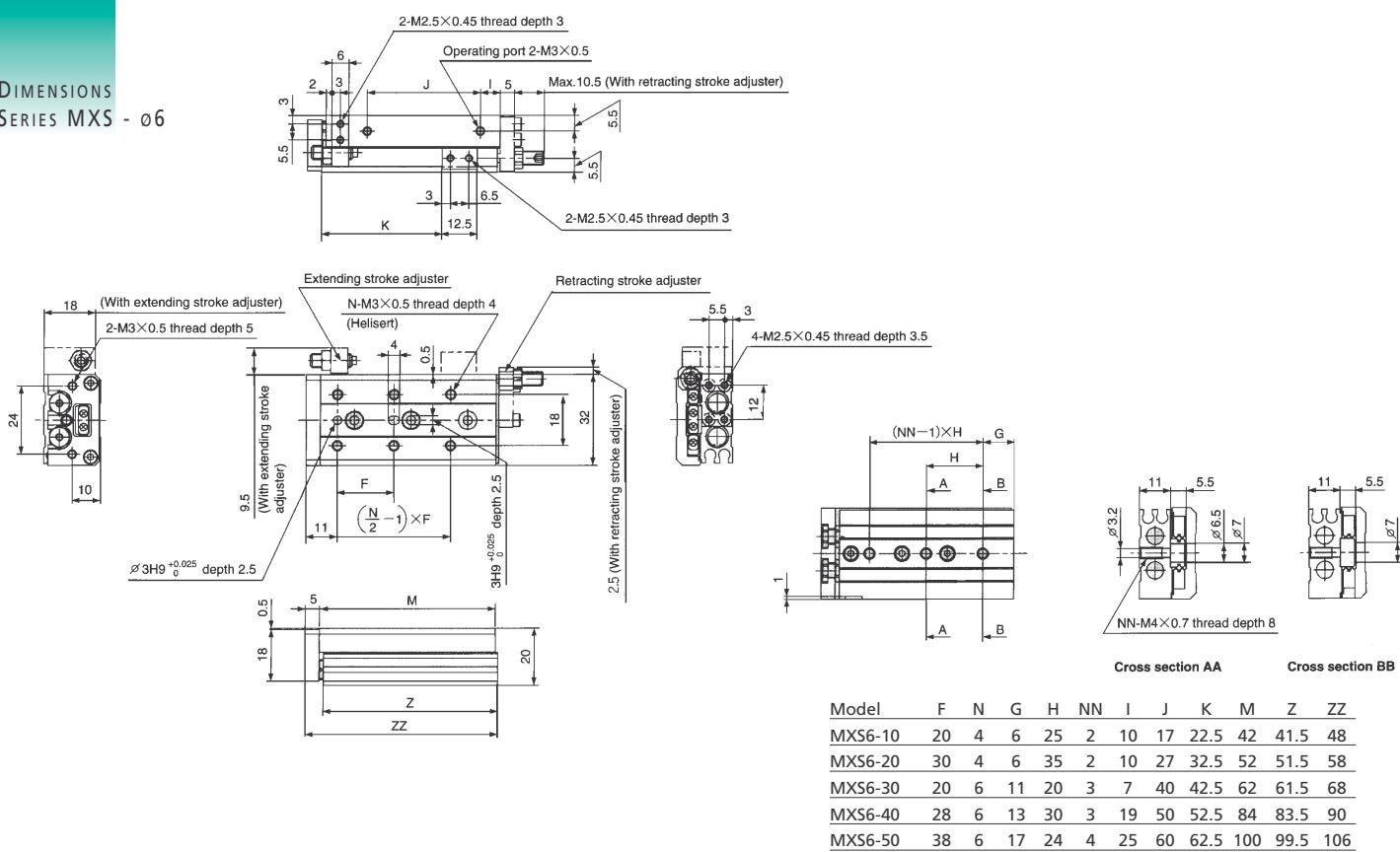
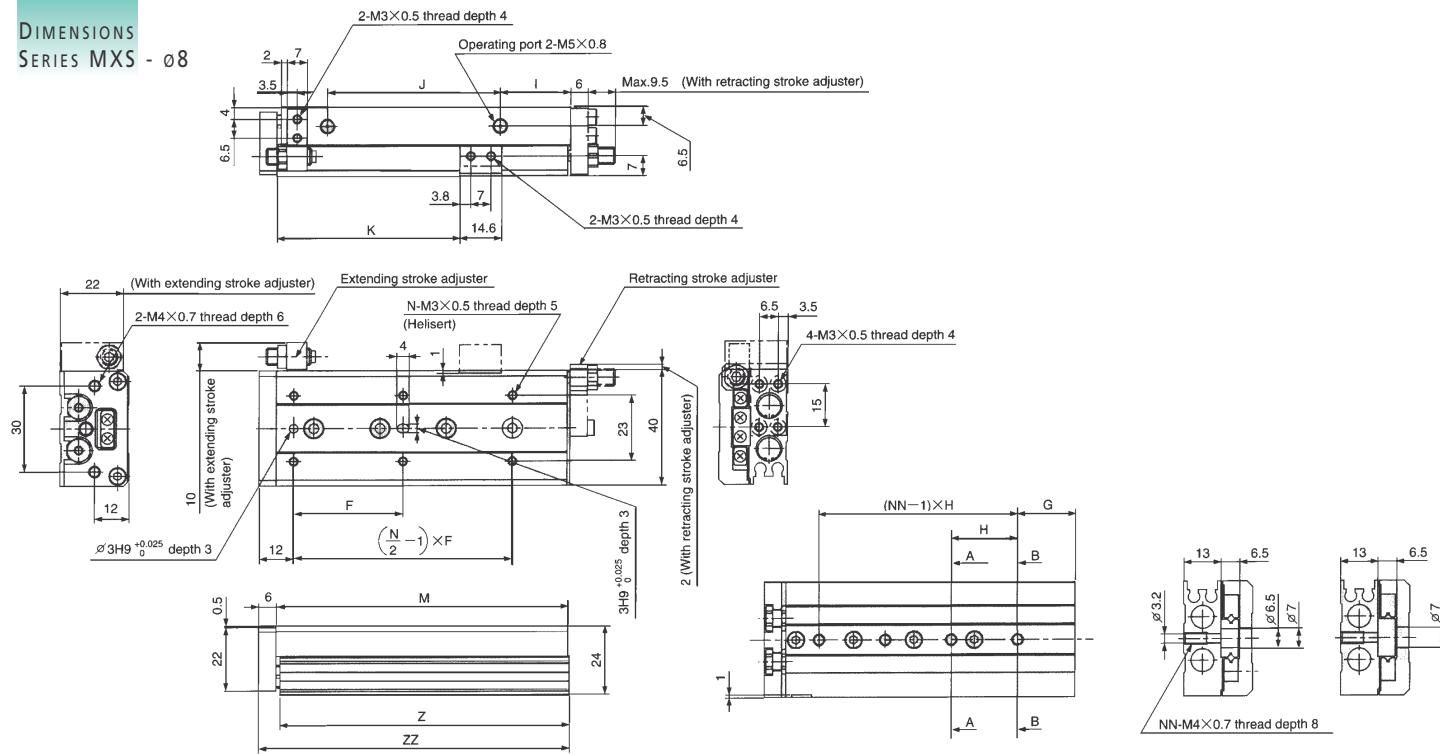

ACCESSORIES
APPLICABLE AUTO SWITCH MODEL

Applicable bore size	Auto switch model	Lead wire entry	
ø6, ø8, ø12, ø16, ø20, ø25	D-A90	Reed switch	2 wire system, inline
	D-A93		3 wire system, inline
	D-A96		2 wire system, perpendicular
	D-A90V		3 wire system, perpendicular
	D-A93V		3 wire system, PNP type inline
	D-A96V	Solid state switch	3 wire system, PNP type inline
	D-F9N		2 wire system, inline
	D-F9P		3 wire system, PNP type perpendicular
	D-F9B		3 wire system, PNP type perpendicular
	D-F9NV		2 wire system, perpendicular
	D-F9PV		3 wire system, PNP type perpendicular
	D-F9BV		2 wire system, perpendicular
Grommet			

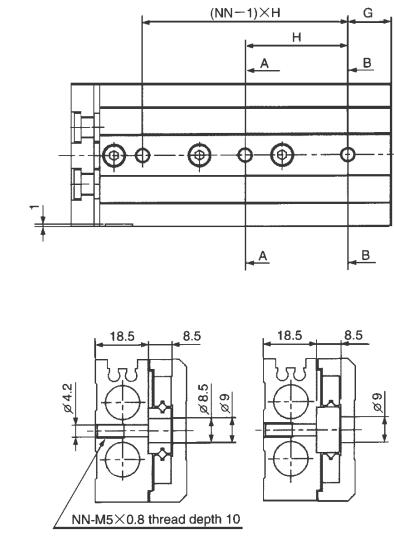
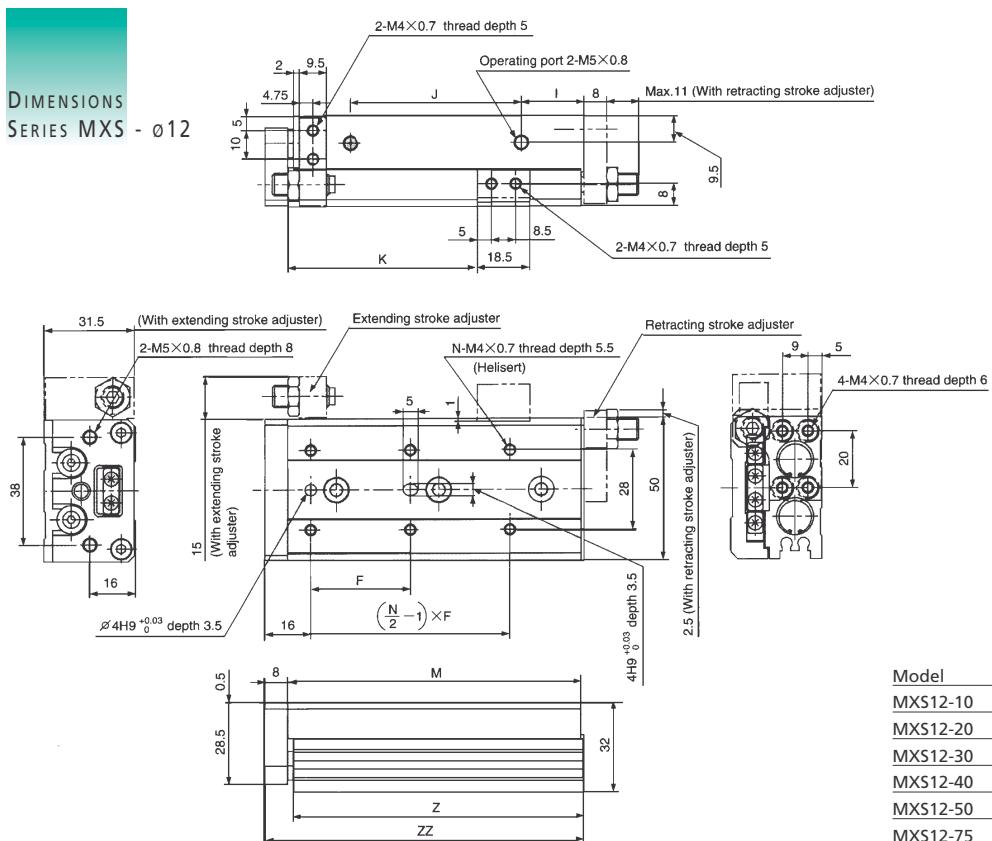
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service


**DIMENSIONS
SEE NEXT PAGE**

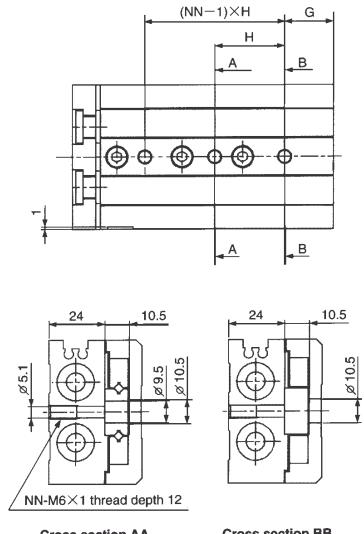
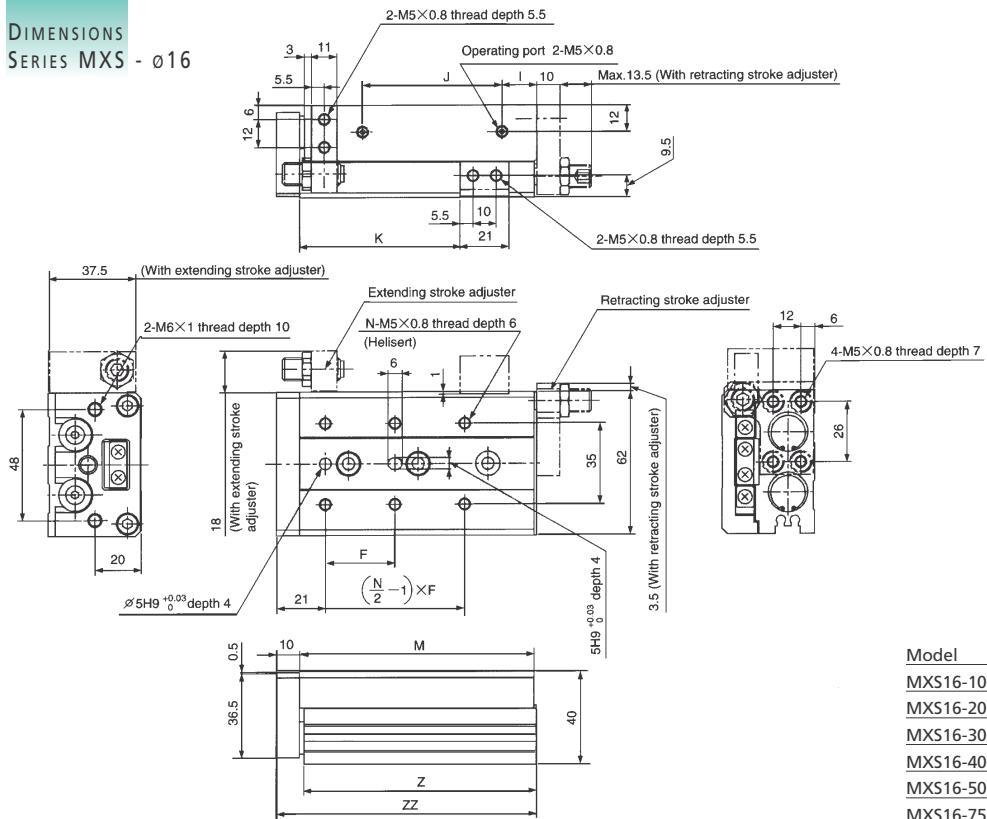
Note: For dimension details of MXS with the stroke adjuster, buffers, end lock or axial piping, please contact your local SMC Sales Office.

DIMENSIONS
 SERIES MXS - 06

 DIMENSIONS
 SERIES MXS - 08


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
- S1 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 Tolerance (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		Auto Switch Part No Electrical Entry Direction Perpendicular In-Line	Lead Wire Length (m)			Applicable Load		
					DC	AC		0.5 (Nil)	3 (L)	5(Z)			
Reed Switch	-	Grommet	No	2 Wire	24V	5V,12V	100V or less	A90V	A90	● ● -	IC Circuit Relay PLC - Relay PLC IC Circuit -		
	-		Yes	2 Wire	24V	12V	100	A93V	A93	● ● -			
	-		Yes	3 Wire (Equivalent to NPN)	-	5V	-	A96V	A96	● ● -			
Solid State Switch	-	Grommet	Yes	3 Wire (NPN)	24V	12V	-	F9NV	F9N	● ● -	- Relay PLC		
	-			3 Wire (PNP)				F9PV	F9P	● ● -			
	-			2 Wire				F9BV	F9B	● ● -			
	Diagnostic Output (2 Color Indication)			3 Wire (NPN)	-	-	-	F9NWV	F9NW	● ● ●			
				3 Wire (PNP)				F9PWV	F9PW	● ● ●			
				2 Wire				F9BWV	F9BW	● ● ●			

SERIES MXP

BORE SIZES Ø10, 12, 16MM

PRECISION AIR SLIDE TABLE

- ✓ High Rigidity and High Accuracy
- ✓ With Built-in Cylinder Guide
- ✓ Parallelism: 0.02mm
- ✓ Traveling Parallelism: 0.004mm



How To ORDER SERIES MXP

MXP — [] — [] — F9N — []

BORE SIZE / STROKE (MM)	
Ø10	10, 20
Ø12	15, 25
Ø16	20, 30

AUTO SWITCH

-Without Magnet and Rail
 - N* ...Without Magnet and Rail
- *Auto Switch cannot be mounted on N type

AUTO SWITCH TYPE

-Without Auto Switch
- See Accessories Section for Auto Switch Part No

NO OF SWITCHES

-2 Pieces
- S1 Piece
- nn Pieces

TECHNICAL SPECIFICATIONS SERIES MXP

Model	MXP10	MXP12	MXP16
Bore Size (mm)	10	12	16
Piping Port		M5 x 0.8	
Fluid Used		Air	
Action		Double Acting	
Operating Pressure	0.15 ~ 0.7MPa / 22 ~ 102PSI		
Ambient & Fluid Temperature	-10~60°C / 14 ~ 140°F		
Operating Speed Range	50 ~ 500mm/s / 2 ~ 20in/s		
Cushion		Bumper	
Lubrication		Not Required	
Stroke Adjuster		Standard Option	
Stroke Adjuster Range		Each 0 ~ 3mm at both ends	
Auto Switch		Reed Switch (See Accessories Section)	Solid State Switch (See Accessories Section)
Tolerance of Stroke Length		0 ~ 1mm	

SPECIFICATIONS

THEORETICAL OUTPUT DATA SERIES MXP

Bore Size (mm)	Piston Area (in²)	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

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

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		Auto Switch Part No	Lead Wire Length (m)	Applicable Load
					DC	AC			
Reed Switch	-	Grommet	Without	2 Wire	24V	5V, 12V	100V or less	A90V A90	• •
	-		With	2 Wire	24V	12V	100V	A93V A93	• •
	-		With	3 Wire (Equivalent to NPN)	-	5V	-	A96V A96	• •
Solid	-	Grommet		3 Wire (NPN)				F9NV F9N	• •
	-			3 Wire (PNP)				F9PV F9P	• •
State Switch	-	Grommet	With	2 Wire	24V	12V	-	F9BV F9B	• •
	Diagnostic Output			3 Wire (NPN)				F9NWV F9NW	• •
	(2 Color Indication)			3 Wire (PNP)				F9PWV F9PW	• •
				2 Wire				F9BWW 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 (in ²)	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

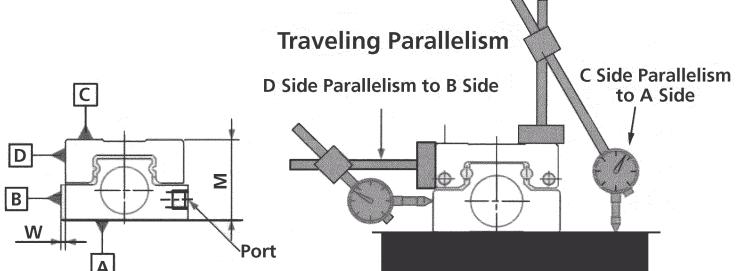
RAIL ASSEMBLY FOR AUTO SWITCH MOUNTING

Applicable Size	Part No of Switch Rail	Note
MXP10-10	MXP-AD10-10	
MXP10-20	MXP-AD10-20	
MXP12-15	MXP-AD12-15	
MXP12-25	MXP-AD12-25	
MXP16-20	MXP-AD10-20	
MXP16-30	MXP-AD12-25	With Magnet and Mounting Screw

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	C Side Parallelism to A Side	0.004 mm		
Parallelism	D Side Parallelism to B Side	0.004 mm		
Dimension Tolerance of M		+0.05 mm		
Dimension of Tolerance W		+0.05 mm		


 Distance from 0 of gauge dial when guide block
 is moved full stroke after body is fixed in basic bases

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

SERIES MXQ

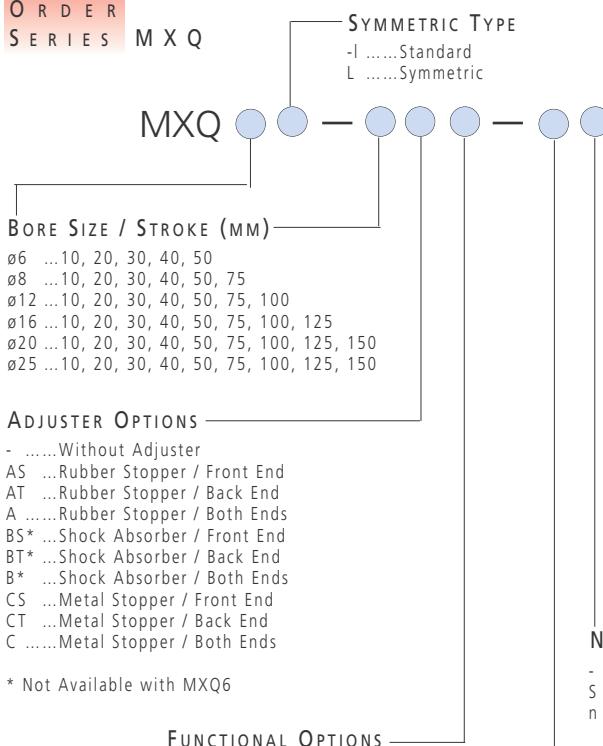
BORE SIZES Ø6, 8, 12, 16, 20, 25MM

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



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)		
Lubrication			None (Adjuster Option, Metal Stopper)			Not Required

NO OF SWITCHES

-2 Pieces
- S1 Piece
- nn Pieces

TYPE OF AUTO SWITCHES

-Without
- *With Auto Switch, see Accessories Section

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

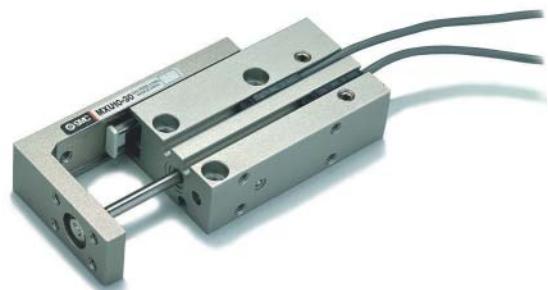
AUTO SWITCHES SERIES MXQ

Type	Special Function	Electrical Entry	Indication Light	Wiring (Output)	Load Voltage		Auto Switch Part No	Lead Wire Length (m)	Applicable Load
					DC	AC			
Reed Switch	-	Grommet	Without	2 Wire	24V	5V, 12V	100V or less	A90V A90	• •
	-		With	2 Wire	24V	12V	100V	A93V A93	• •
	-		With	3 Wire (Equivalent to NPN)	-	5V	-	A96V A96	• •
Solid State Switch	-	Grommet		3 Wire (NPN)				F9NV F9N	• •
	-			3 Wire (PNP)				F9PV F9P	• •
	Diagnostic Output (2 Color Indication)		With	2 Wire	24V	12V	-	F9BV F9B	• •
State Switch		Grommet		3 Wire (NPN)				F9NWV F9NW	• •
				3 Wire (PNP)				F9PWV F9PW	• •
				2 Wire				F9BWV F9BW	• •

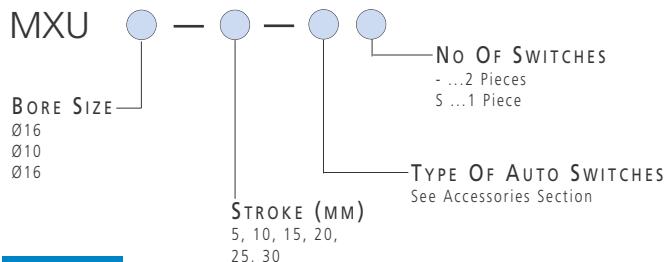
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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

 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

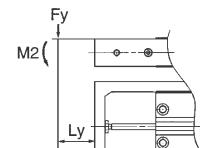


$$F_p = \frac{M_1 \times 1000}{L_p + C_p + (S_t/2)} \text{ (N)}$$

Lp: Distance between table and loading point (mm)

Cp: Moment center position distance compensation amount (mm)

St: Stroke (mm)

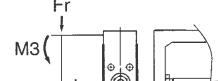


$$F_y = \frac{M_2 \times 1000}{L_y + C_y + (S_t/2)} \text{ (N)}$$

Ly: Distance between table and loading point (mm)

Cy: Moment center position distance compensation amount (mm)

St: Stroke (mm)



$$F_r = \frac{M_3 \times 1000}{L_r + C_r} \text{ (N)}$$

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	24VDC 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	24VDC PLC	28VDC	5 - 30mA	4.5V or less	Yes
				10-28VDC			

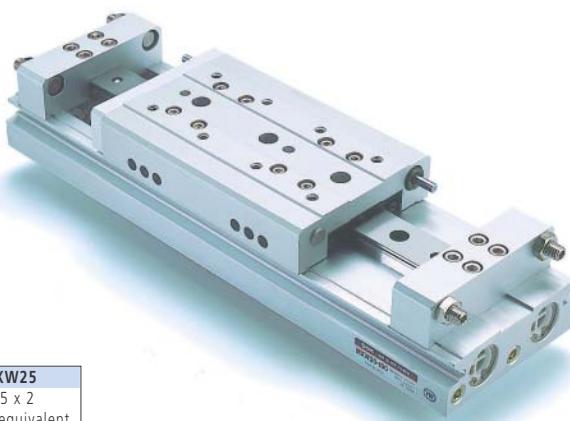
LONG STROKE SLIDE TABLE SERIES MXW

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	Ø12 x 2	Ø16 x 2	Ø20 x 2	Ø25 x 2
	Ø11 or equivalent	Ø17 or equivalent	Ø22.6 or equivalent	Ø28.3 or equivalent	Ø35 or equivalent
Port Size	M5 x 0.8	M5 x 0.8	M5 x 0.8	Rc (PT) 1/8	Rc (PT) 1/8
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			
Option		Shock Absorber both ends			
Lubrication	Non-lube				
Stroke Adj. Range	One Side 5mm				
	Both Sides 10mm				
Construction	Body/Table	Aluminum Alloy			
	Rail/Guide	High Carbon Chrome Bearing			



HOW TO ORDER

LONG STROKE SLIDE TABLE MXW

MXW — ○ ○ ○ ○

BORE SIZE

Ø8
Ø12
Ø16
Ø20
Ø25

No Of Switches

- 2 Pieces
- S 1 Piece
- n n Pieces

TYPE OF AUTO SWITCHES

See Accessories Section

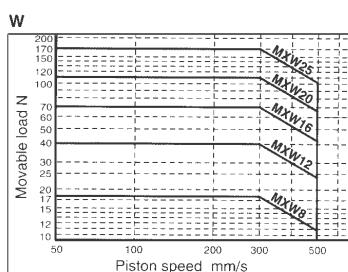
OPTIONS

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

PRODUCT SELECTOR

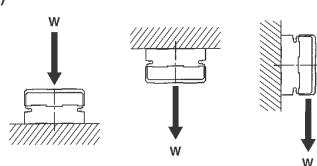
ALLOWABLE MOMENT

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



PRODUCT SELECTOR MOVABLE LOAD (N)

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

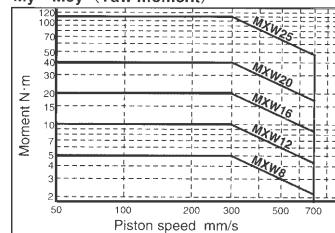


Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

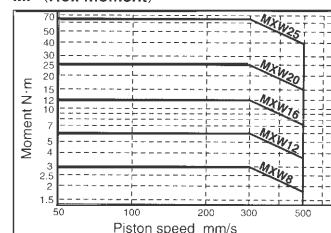
ACCESSORIES AUTO SWITCHES

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

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



Mr (Roll moment)



TECHNICAL
SPECIFICATIONS


Action	Double acting Single acting (Spring extend type)
Rod End Configuration	Round bar type, Roller type, Lever type incorporating shock absorber (Only Ø40, Ø50)
Fluid	Air
Proof Pressure	1.5 MPa / 218PSI
Max Operating Pressure	0.99 MPa / 144PSI
Ambient & Fluid Temperature	-10 ~ +60°C / 14 ~ 140°F
Lubrication	Non-lube
Cushion	Rubber Cushion
Stroke Length Tolerance	+1.4 0
Mounting Options	Through Hole, Both Ends Tapped

 STOPPER CYLINDER SERIES RSQ
BORE SIZES Ø20, 32, 40, 50MM

- ✓ High Side Impact Resistance for Conveyor Automation
- ✓ 3 Varieties of Rod Design(i) Lever Type incorporating Shock Absorber
(ii) Roller End Type
(iii) Round Bar Type
- ✓ Magnetic Piston Optional


 ACCESSORIES
AUTO SWITCHES

Type	Elect Entry	Auto Switch	Application	Load Voltage	Max Current or Ppearing 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	Max 15mA	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

AUTO SWITCH CAPABLE
-Without Magnet
DAuto Switch Capable
(With Built-in Magnet)

MOUNTING OPTIONS

BThrough Hole (Standard)
ABoth Ends Tapped

 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
LLever
RRoller

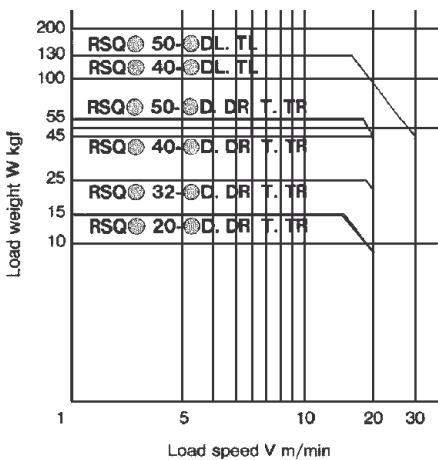
STROKE (MM)

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

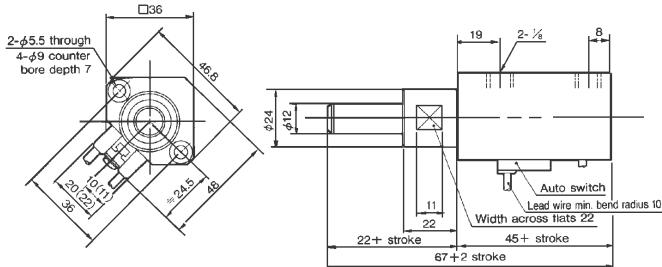
PRODUCT
SELECTOR

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.



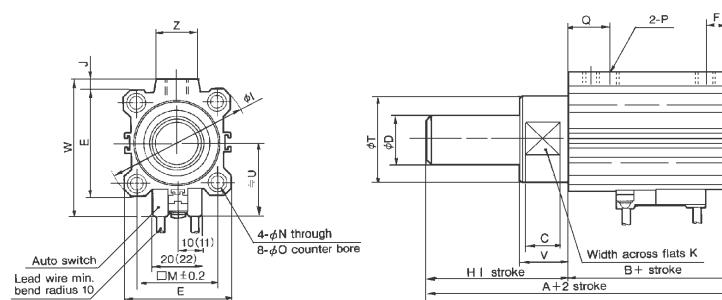
DIMENSIONS

ROUND BAR TYPE RS(D)QB20



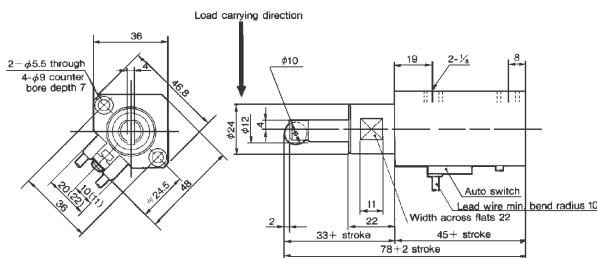
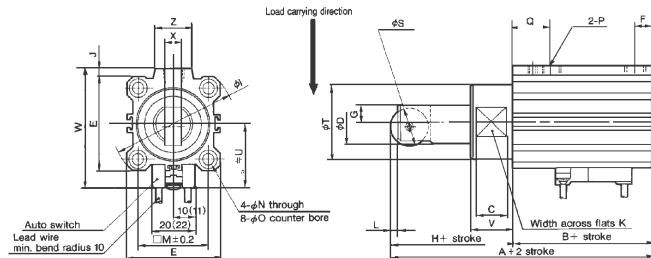
DIMENSIONS

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

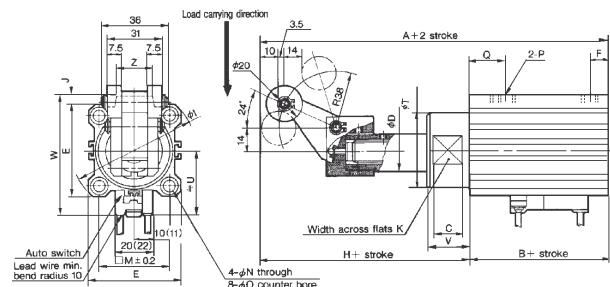


Bore	A	B	C	ØD	E	F	H	ØI	J	K	M	ØN	ØO counter bore
32	68	48	15	20	45	7.5	20	60	4.5	32	34	5.5	9 depth 7
40	80.5	52.5	18	25	52	8	28	69	5	41	40	5.5	9 depth 7
50	82	54	21	25	64	8	28	86	7	50	50	6.6	11 depth 8

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


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	ØØ counter bore	O Thread	P	Q	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


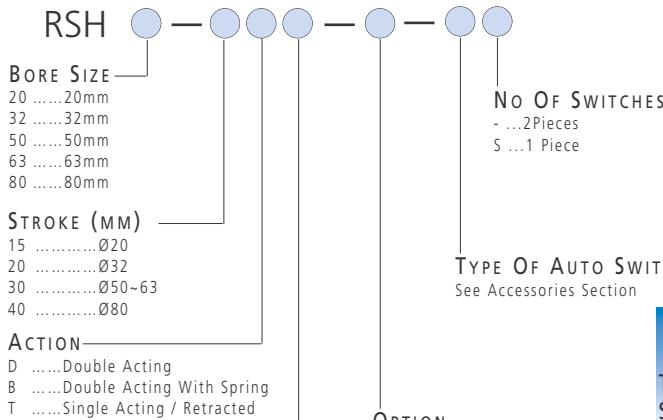
Bore (mm)	A	B	C	ØD	E	F	H	ØI	J	K	M	ØN	ØØ counter bore	O thread	P	Q	R	ØT	U	V	W	Z
40	152.5	52.5	18	25	52	8	100	69	5	41	40	5.5	9 depth 7	M6X1	1/8	24.5	10	44	35	28	66	18
50	154	54	21	25	64	8	100	86	7	50	50	6.6	11 depth 8	M8X1.25	1/8	24.5	14	56	41	28	80	22

STOPPER CYLINDER SERIES RSH BORE SIZES Ø20, 32, 50, 63, 80MM

- ✓ Designed for Heavy Duty Applications.
- ✓ Three Actuating Options: Single, Double Acting and Double Acting with Spring.
- ✓ Fitted with Adjustable Shock Absorber.
- ✓ Stopping Direction can be changed every 90°
- ✓ Ideal for Stopping Pallets Softly on Conveyors.



How To ORDER RSH STOPPER CYLINDER



ROLLER MATERIAL

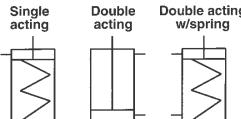
- L Resin
- M Rolled Steel

OPTION

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

*Note) For lever detection

SYMBOLS



TYPE OF AUTO SWITCHES

See Accessories Section

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	Without Auto Switch -10° ~ 70°C (Air should not be frozen) 14~160°F				
Temperature	With Auto Switch -10° ~ 60°C (Air should not be frozen) 14~140°F				
Lubrication	Non-lube				
Cushion	Rubber Cushion				
Stroke Length Tolerance	+0.4 -0.0				
Mounting	Flange				

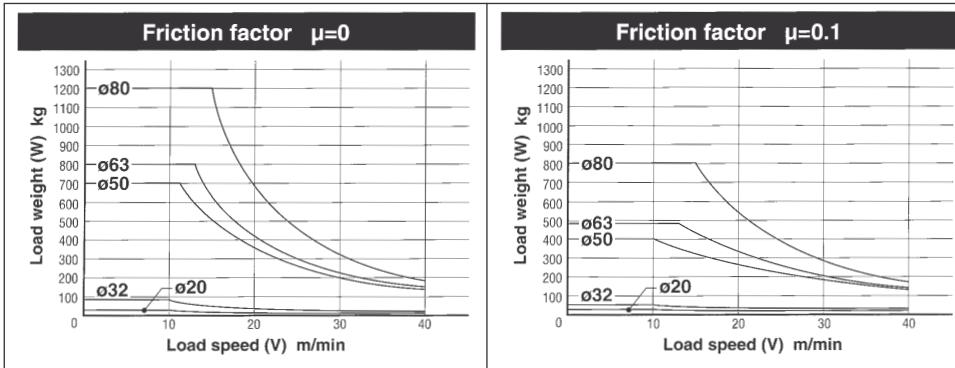
ACCESSORIES AUTO SWITCHES

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

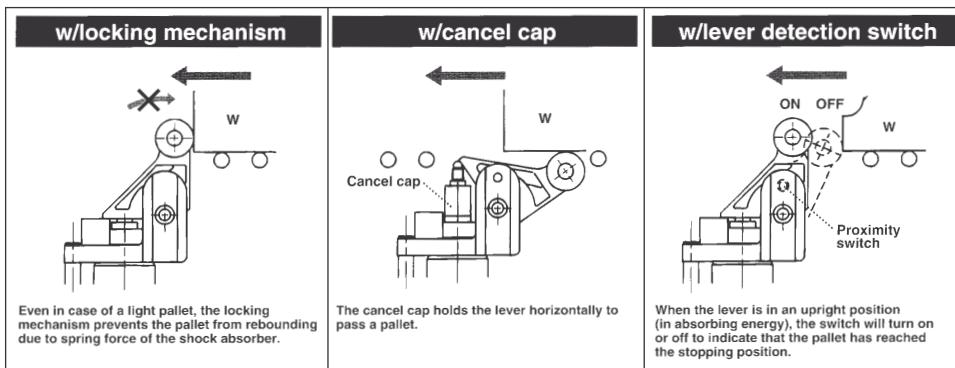
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

PRODUCT
 SELECTOR

OPERATING RANGE



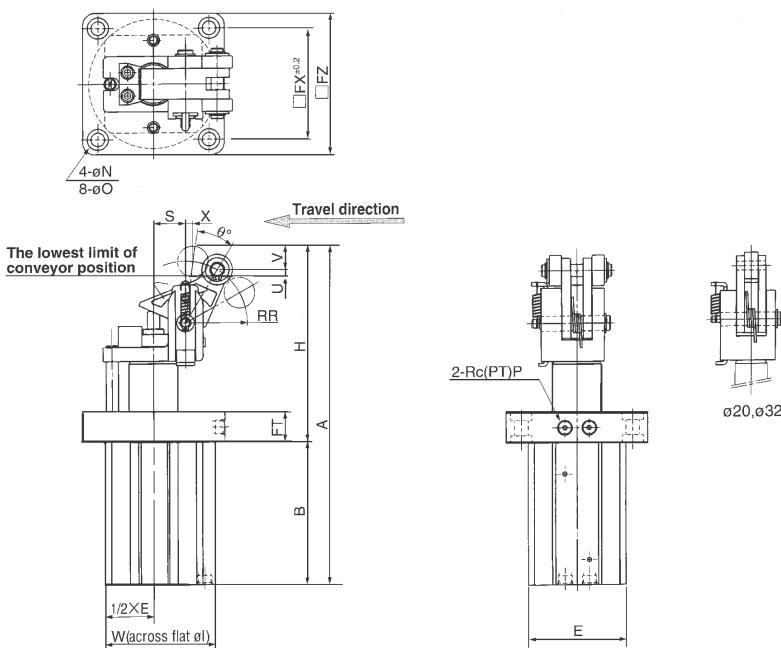
OPTIONS



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

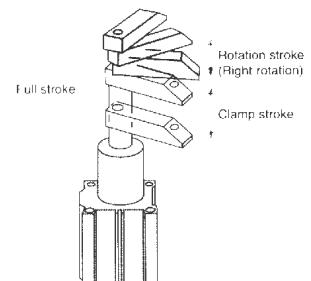
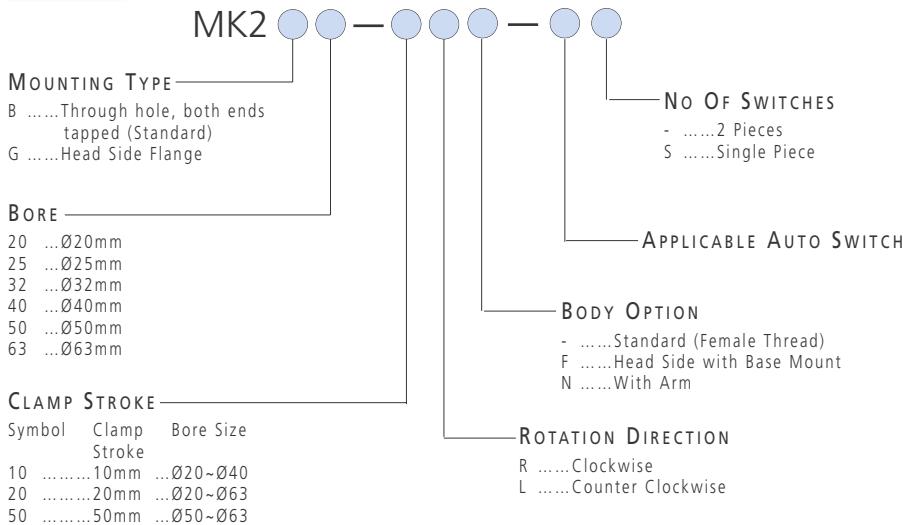


ROTARY CLAMP CYLINDER SERIES MK2 BORE SIZES Ø20 - 63MM

- ✓ Compact Equipment Design
- ✓ Strong Clamping Force
- ✓ Left or Right Rotation
- ✓ Auto Switch is attachable

How To ORDER

ROTARY CLAMP CYLINDER SERIES MK2



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	$90^\circ \pm 10^\circ$					
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	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	$\pm 1.2^\circ$		$\pm 0.9^\circ$		$\pm 0.7^\circ$	

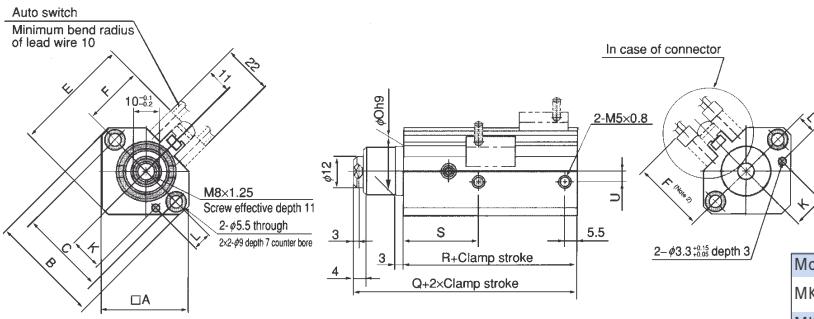
*) Maximum Bearding Moment applied to the Piston Rod Side

**) At 0.5MPa

***) Direction of Rotation viewed from the Rod Side when the Piston Rod is retracting

DIMENSIONS

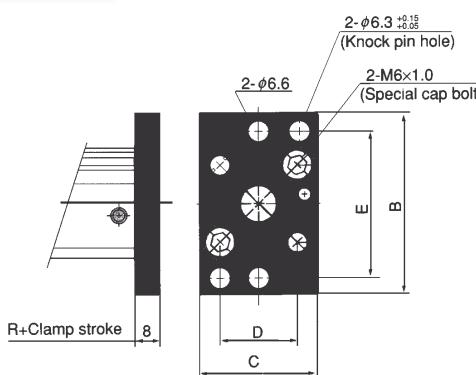
ROTARY CLAMP CYLINDER Ø20, 25MM SERIES MK2

ø20, ø25


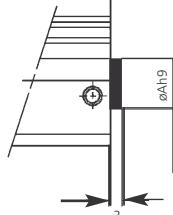
Model	A	B	C	E	F	K	L	Øh9	Q	R	S	U
MK2B20	36	46.8	36	48	24.5	13.5±0.15	7.5±0.15	20 ^{0-0.052}	75.5	62.5	31	4
MK2B25	40	52	40	53.8	27.5	16±0.15	8±0.15	23 ^{0-0.052}	78.5	65.5	32	5

DIMENSIONS

HEAD SIDE FLANGE Ø20, 25 SERIES MK2



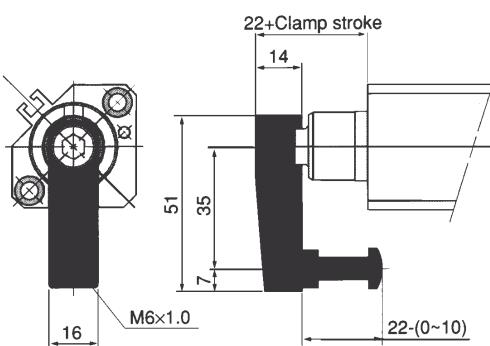
Model	B	C	D	E
MK2G20	60	39	25.5 ^{0.1}	48 ^{0.15}
MK2G25	64	42	28 ^{0.1}	52 ^{0.15}

HEAD SIDE WITH BOSS MOUNT


Model	øAh9
MK2Ø20-ØF	13 ^{0-0.043}
MK2Ø25-ØF	15 ^{0-0.043}

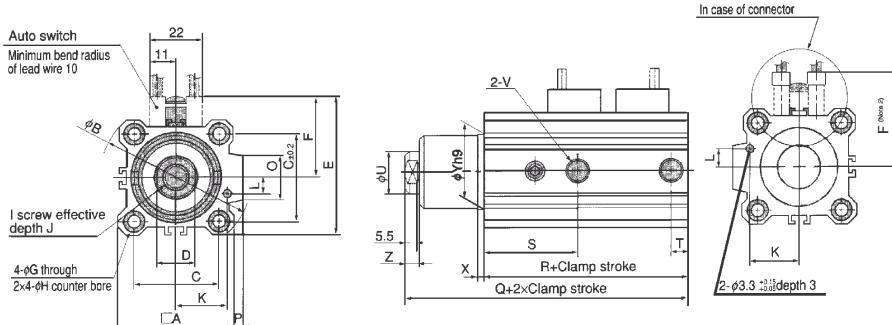
DIMENSIONS

WITH ARM MK2B 20/25-**



DIMENSIONS

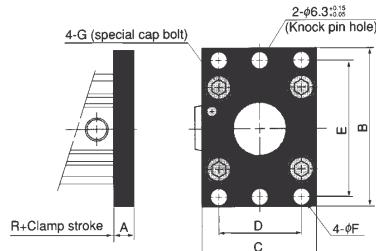
ROTARY CLAMP CYLINDER Ø32, 40, 50, 63 MM SERIES MK2
THROUGH HOLE AND BOTH ENDS TAPPED (STANDARD)



Model	A	B	C	D	E	F	G	H	I	J	K	L	O	P	Q	R	S	T	U	V	X	Yh9	Z
MK2B32	45	60	34	14 ± 0.1	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	30.8 ± 0.062	6.5
MK2B40	52	69	40	14 ± 0.1	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	30.8 ± 0.062	6.5
MK2B50	64	86	50	17 ± 0.1	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	37.8 ± 0.062	7.5
MKB63	77	103	60	17 ± 0.1	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	48.8 ± 0.062	7.5

DIMENSIONS

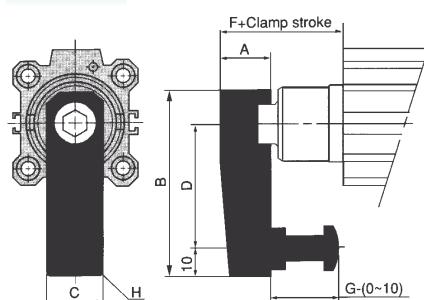
HEAD SIDE FLANGE Ø32, 40, 50, 63
SERIES MK2



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

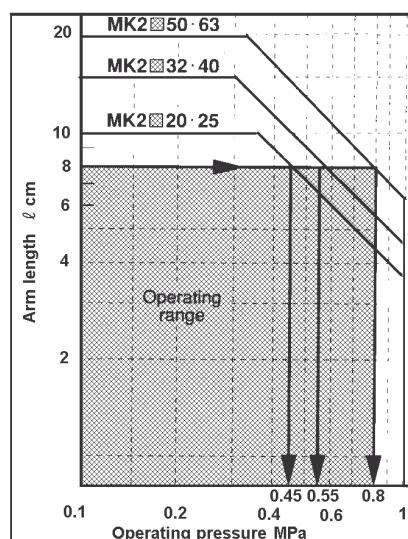
WITH ARM 32/40/50/63-•• SERIES MK2



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
MKB63	22	88	22	65	57.5	40	M10X1.5

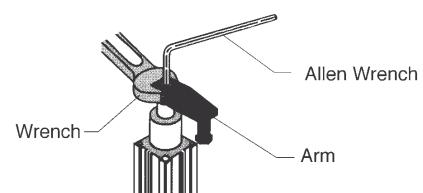
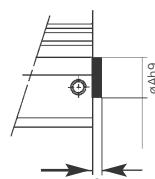
PRECAUTIONS FOR MAKING AND MOUNTING ARMS

- 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.

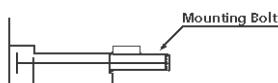
HEAD SIDE WITH BOSS MOUNT



Model	$\varnothing Ah9$
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	M5x75 ℓ
MK2B20-20	8.5	85	M5x85 ℓ
MK2B25-10	10.5	80	M5x80 ℓ
MK2B25-20	10.5	90	M5x90 ℓ
MK2B32-10	10	90	M5x90 ℓ
MK2B32-20	10	100	M5x100 ℓ
MK2B40-10	6	80	M5x80 ℓ
MK2B40-20	6	90	M5x90 ℓ
MK2B50-20	10.5	105	M6x105 ℓ
MK2B50-50	10.5	135	M6x135 ℓ
MK2B63-20	9	105	M8x105 ℓ
MK2B63-50	9	135	M8x135 ℓ

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

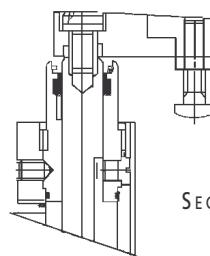
Auto Switch Specs Ø32 ~ Ø63 / Direct Mounting

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				

ACCESSORIES

MOUNTING ATTACHMENT PART NO / FLANGE

Bore Size (mm)	Part No.	Part No includes:
20	MK2-F020	Boss Mount Ring
25	MK2-F025	Set Pin
32	MK2-F032	Bolt for attachment to
40	MK2-F040	cylinder body.
50	MK2-F050	
63	MK2-F063	



SECTION THROUGH ARM

ACCESSORIES
OPTION PART No/ARM

Bore size (mm)	Part No.	Part No includes:
20	MK2-A020	Clamp Bolt
25	MK2-A020	Hexagonal Socket Head
32	MK2-A032	Cap Screw
40	MK2-A032	Hexagonal Nut
50	MK2-A050	Spring Seat Washer
63	MK2-A050	

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 (10-28VDC)	8mA or less	28VDC or less	50mA or less	0.4V or less	24VDC at 10μ or less
D-F9NV							
D-F9P D-F9PV	PNP	VDC)	10mA or less	-		1.5V or less	
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	Load	Max Load Current & Load Current Range	Indicator Lamp (Lit at ON Cond)	Protection Circuit for Contact Breaker Point
Auto Switch	Voltage			
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
	24VAC/DC or less	50mA		
D-A80; A80H	48VAC/DC	40mA	None	None
	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

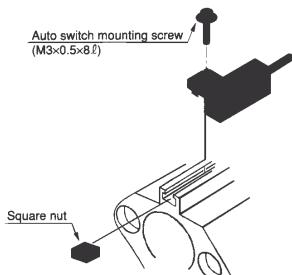
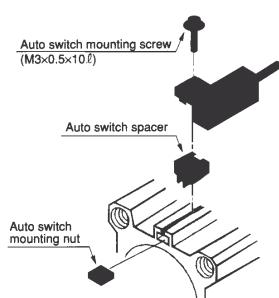
AUTO SWITCH SPECS / RAIL MOUNTING

Solid State Auto Switch	Output Wiring	Load Current	Internal Voltage Drop Load Current (at 10mA)	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 Diagnosis Output
D-F7NTL	3 Wire System	80mA or less	5V	●	With 200 ms off delay time
D-P5DWL	2 Wire System	6~40mA	or less	○	Strong Magnetic Field Proof
D-P5DWBL				○	Strong Magnetic Field Proof (Special Cable)

ACCESSORIES

SERIES MK2 - AUTO SWITCH INSTALLATION

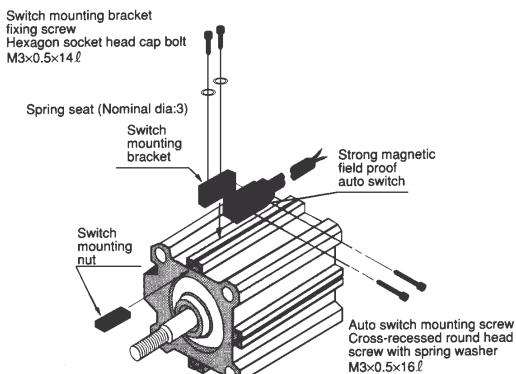
HOW TO INSTALL THE AUTO SWITCH

φ20, φ25**φ32 ~ φ63**

ACCESSORIES

SERIES MK2

STRONG MAGNETIC FIELD PROOF AUTO SWITCH (Ø40~Ø63)



SERIES MRQ
BORE SIZES 32, 40


- ✓ A Combination of Linear and Rotary Movement (independently-Controlled)
- ✓ High Effective Torque
- ✓ Smooth Rotary Motion
- ✓ 90° or 180° Rotation
- ✓ Magnets are incorporated for Auto Switch Sensing
- ✓ Rotation Angle has Adjustable Stops

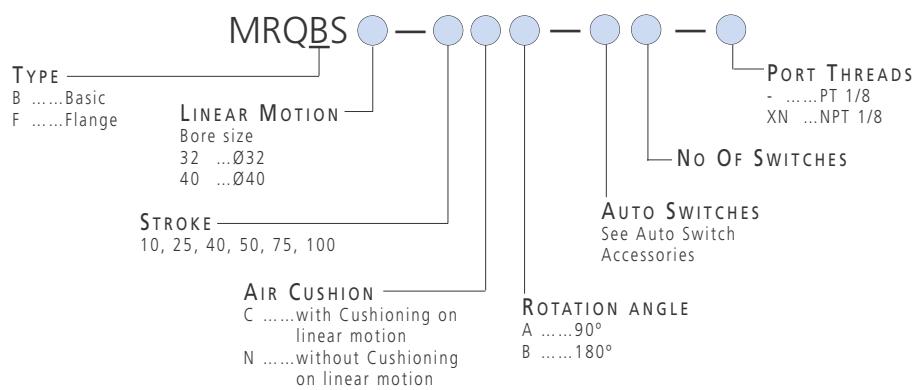

 TECHNICAL
SPECIFICATIONS

Fluid	Air (Not Lubricated)
Max Operating Pressure	0.71MPa / 103PSI
Min Operating Pressure	0.15MPa / 22PSI
Ambient & Fluid Temperature	0 ~ +60°C / 32 ~ 140°F
Mounting	Basic • Rod Side Flange

TORQUE

Linear Motion Size	Rotary Motion Output*	Allowable Kinetic Energy (J)	Backlash
Ø32	1.0Nm	0.023 max	2° or less
Ø40	1.9Nm	0.028 max	2° or less

*@0.5MPa Pressure

 HOW TO
ORDER
MRQ ROTARY CYLINDER


ACCESSORIES

FLANGE +4 FIXING SCREWS

Ø32	P317010-7
Ø40	P317020-7

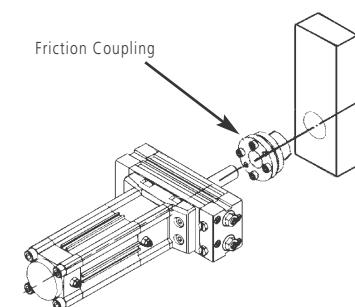
ACCESSORIES

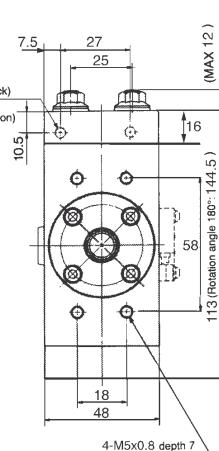
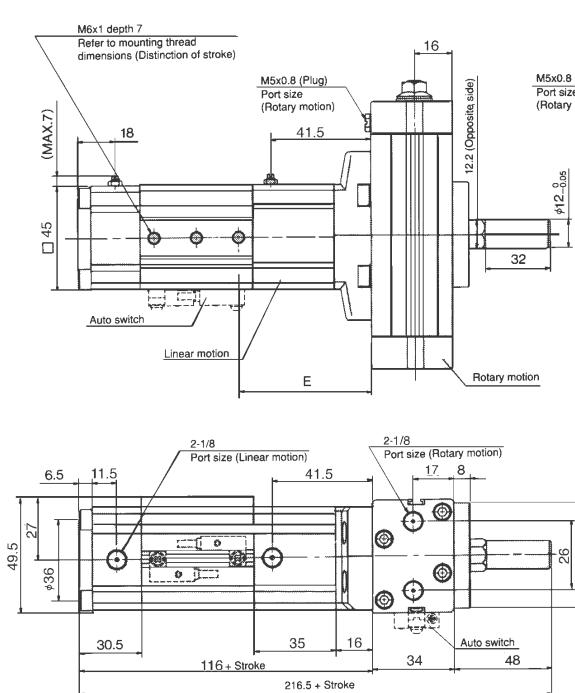
AUTO SWITCHES

MODEL		TYPE	LOAD VOLTAGE	LOAD CURRENT	POWER SOURCE	INTERNAL VOLTAGE DROP	INDICATOR LAMP
Part no	Part no						
Grommet Type	Connector Type	REED	24VDC 100VAC	5~40mA 5~20mA		MAX 2.4V	ON:RED LED
D-A73L	D-A73CL	REED	24VDC/AC OR LESS 100VDC/AC	MAX 50mA MAX 20mA		0	NONE
D-A80L	D-A80CL	3 WIRE SOLID STATE NPN	28VDC OR LESS	MAX 150mA	5~28VDC	0.8V MAX	ON:RED LED
D-F79L	~	3 WIRE SOLID STATE PNP	28VDC OR LESS	MAX 100mA	5~28VDC	0.8V MAX	ON:RED LED
D-F7PL	~	2 WIRE SOLID STATE	28VDC OR LESS	5~ 150mA	~	3V MAX	ON:RED LED
D-J79L	D-J79CL	2 WIRE SOLID STATE	28VDC OR LESS	5~ 150mA	~	3V MAX	ON:RED LED

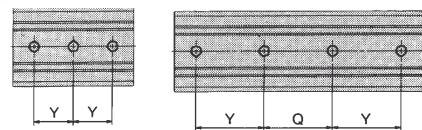
 ACCESSORIES
FRICTION COUPLING

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



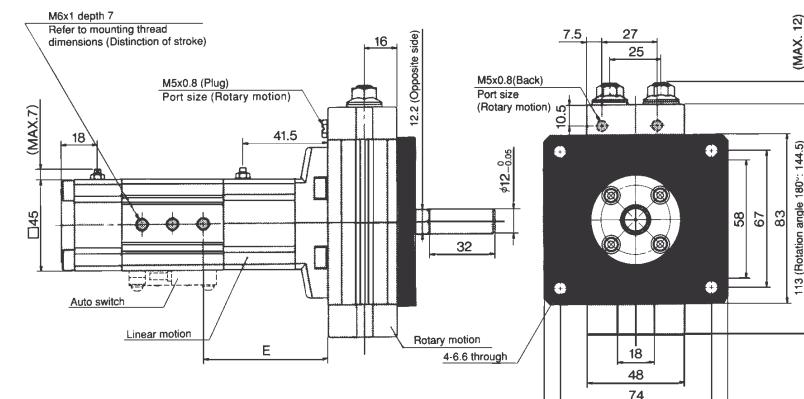
DIMENSIONS
 BASIC TYPE Ø32MM


This drawing: 15 stroke, 90°

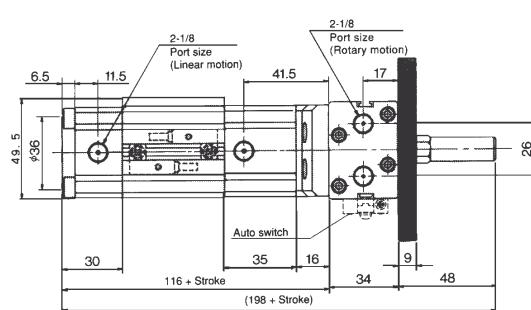
DIMENSIONS
 MOUNTING THREAD (VARIATIONS WITH STROKE)


(mm)

Stroke	Mounting thread 3 pcs.						Mounting thread 4 pcs.			
	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

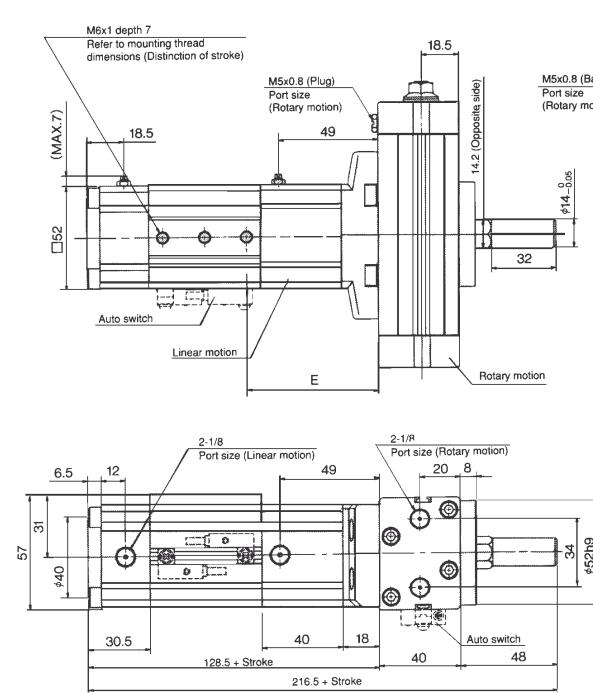
DIMENSIONS
 WITH FLANGE Ø32MM


(See table above)

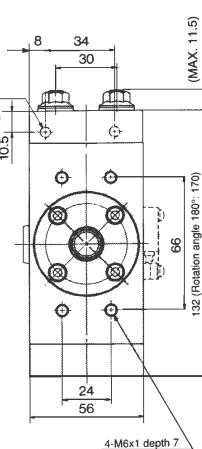


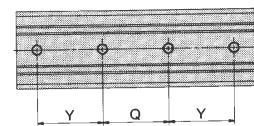
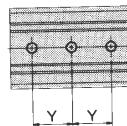
This drawing: 15 stroke, 90°



 DIMENSIONS
BASIC TYPE Ø40MM


This drawing: 15 stroke, 90°

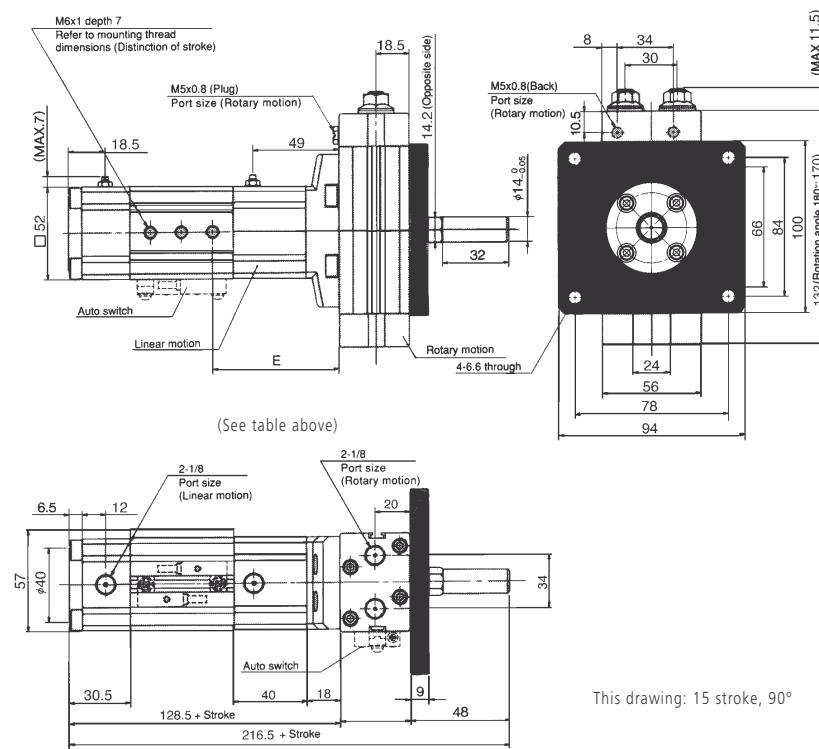



DIMENSIONS
MOUNTING THREAD (VARIATIONS WITH STROKE)


(mm)

Stroke	Mounting thread 3 pcs.					Mounting thread 4 pcs.				
	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


This drawing: 15 stroke, 90°

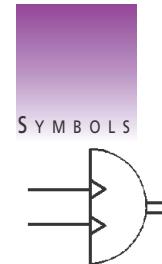
RACK & PINION TYPE ROTARY ACTUATOR BORE SIZES Ø30, 50, 63, 80, 100MM SERIES NCRA1

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

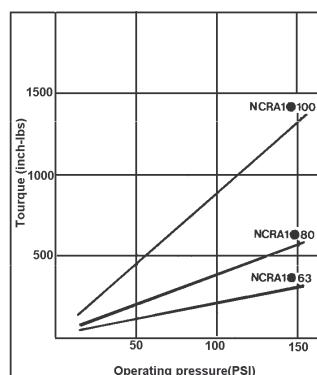
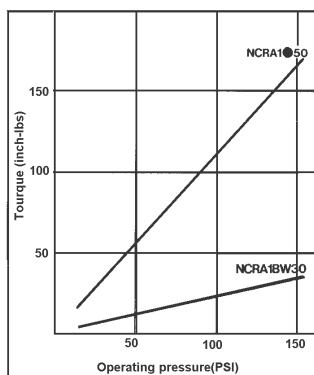


TECHNICAL

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



TORQUE SPECIFICATIONS SERIES NCRA1



DIMENSIONS
SEE NEXT PAGE

How To ORDER NCRA1 ROTARY ACTUATOR

NC R A 1 B W

PISTON
-Basic
DMagnetic

SHAFT

SSingle Rod End
WDouble 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"

90 ... 90°
180 ... 180°

ROTATION

AUTO SWITCH TYPE
See Accessories Section

ADJUSTABLE CUSHION
CBoth End Cushion

ACCESSORIES
 AUTO SWITCHES

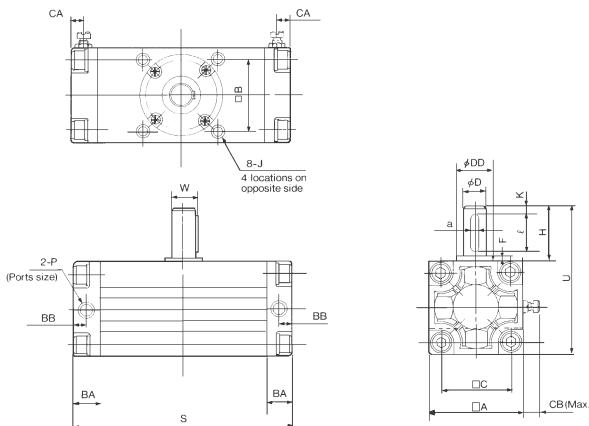
	Part No. Grommet Type	Part No Connector Type	Type	Load Voltage	Load Current	Power Source	Internal Voltage Drop	Indicator Lamp	Lead Wire Length
Diameter 30mm	D-A73L	D-A73CL	Reed	24VDC 100VAC	5~40mA 5~20mA		Max 2.4V	ON:RED L.E.D	
	D-A80L	D-A80CL	Reed	24VDC/AC or less 100VDC/AC	Max 50mA Max 20mA			None	
	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



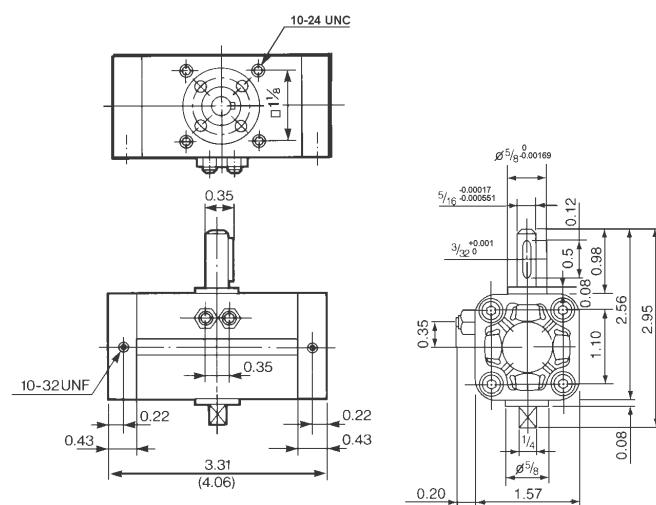
Model	P (NPTF)	A	B	C	D	DD	F	H	J	K	S*	U	W	BA	BB	CA	CB	KEY				
																		a	Tolerance	l		
NCRA1BS50-__	1/8	2.44	1 7/8	1.81	9/16	-0.000236	1	0	0.1	1.42	5/16-18UNC Depth0.31	0.2	5.67 (6.97)	3.86	0.62	0.67	0.33	0.33	0.51	1/8	1	
NCRA1BS63-__	1/8	2.99	2 3/8	2.24	5/8	-0.000669	1	1/8	-0.00244	0.1	1.61	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	-0.000787	1	3/8	-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	-0.000787	1	5/8	-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°

DIMENSIONS

WITHOUT AUTO SWITCH

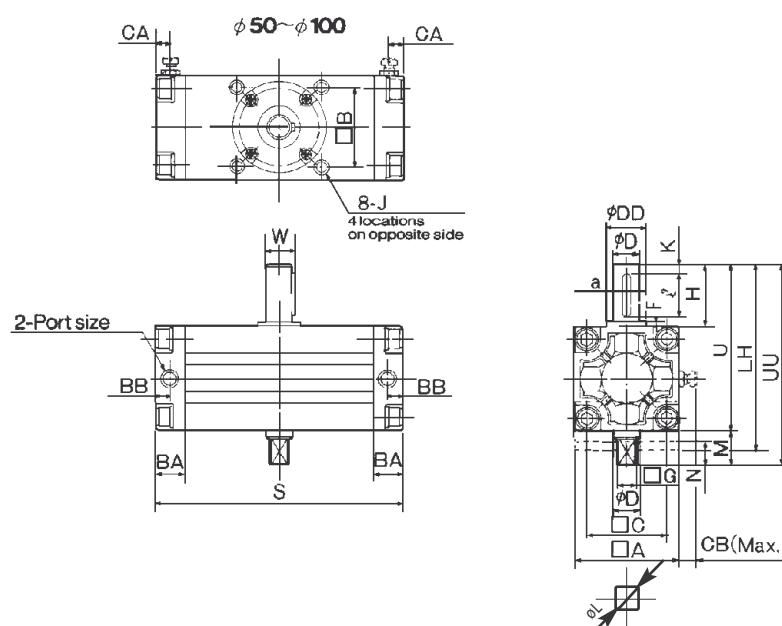
DOUBLE ROD END NCRA1BW30



DIMENSIONS

WITHOUT AUTO SWITCH

DOUBLE ROD END NCRA1BW50~100



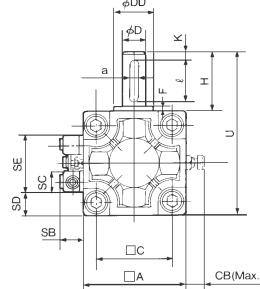
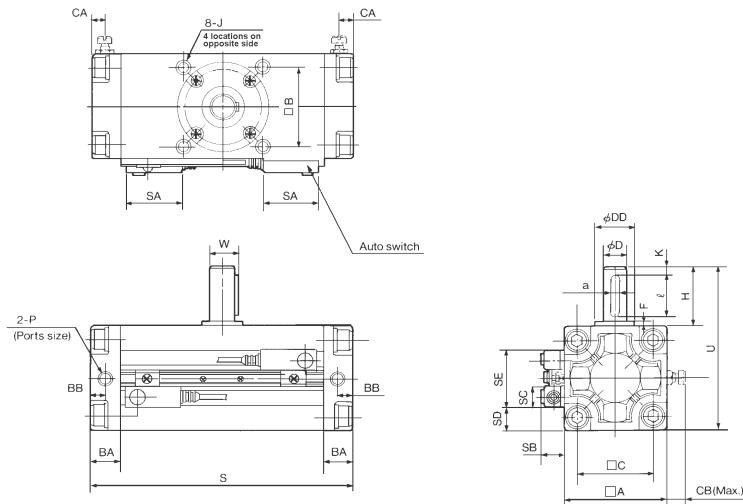
Model	P (NPTF)	□A	□B	□C	□D	□DD	F	□G	H	J	K	øL	M	N	S*	U	UU	W		
NCRA1BW50--	1/8	2.44	1 7/8	1.81	9/16	-0.000236 -0.000669	1	0 0	0.1	7/16	1.42	5/16-18UNC Depth0.31	0.2	9/16	0.79	0.59	5.67 (6.97)	3.86	4.65	0.62
NCRA1BW63--	1/8	2.99	2 3/8	2.24	5/8	-0.000236 -0.000669	1 1/8	-0.00244	0.1	1/2	1.61	3/8-16UNC Depth0.47	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	-0.00244	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	-0.00244	0.16	3/4	2.36	1/2-13UNC Depth0.55	0.2	1	1.18	0.98	9.65(12.24)	6.77	7.95	1.11

Model	BA	BB	CA	CB	KEY		
					a	Tolerance	ℓ
NCRA1BW50--	0.67	0.33	0.33	0.51	1/8		1
NCRA1BW63--	0.79	0.39	0.39	0.55	3/16	+0.001	1.25
NCRA1BW80--	0.93	0.47	0.47	0.71	3/16	0	1.5
NCRA1BW100--	0.98	0.49	0.49	0.71	1/4		1.75

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

DIMENSIONS

SINGLE ROD END WITH AUTO SWITCH NCRA1_S_



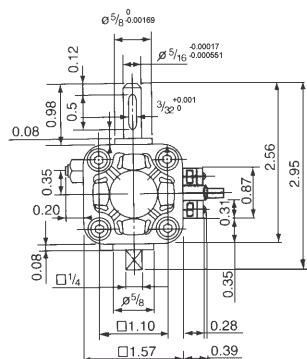
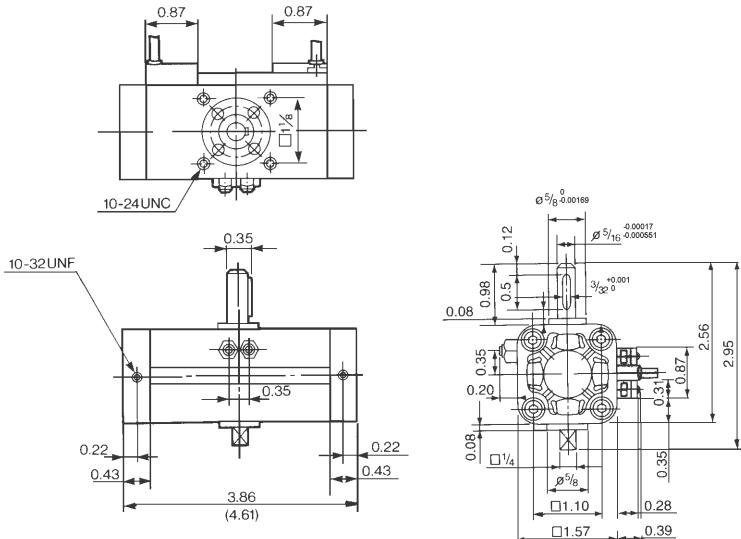
Model	KEY		
	a	Tolerance	ℓ
NCRA1BS_50-__-A__	1/8	+0.001	1
NCRA1BS_63-__-A__	3/16	+0.001	1.25
NCRA1BS80-__-A__	3/16	0	1.5
NCRA1BS100-__-A__	1/4		1.75

* (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
NCRA1BS_50-__-A__	1/8	2.44	1 7/8	1.81	9/16	-0.000236 -0.000659 -0.000236 -0.000659	1	0 -0.00205 0 -0.00244	0.1 1.42 0.1 1.61	5/16-18UNC Depth0.31	0.2 5.67 (6.97) 3.86 0.62	6.42 (7.93) 4.61 0.70 0.79	0.23 0.33 0.39 0.55	0.33 0.33 0.39 0.51	0.51 1.3 0.57 0.47	0.47 0.55 0.83 1.34						
NCRA1BS_63-__-A__	1/8	2.99	2 3/8	2.24	5/8	-0.000276 -0.000787	1 1/8	0 -0.00244 0 -0.00244	0.1 1.97 0.12 1.97	3/8-16UNC Depth0.47	0.2 7.32 (9.06) 5.59 0.83	6.42 (7.93) 4.61 0.70 0.79	0.39 0.93 0.47 0.47	0.39 0.47 0.71 0.71	0.55 1.3 0.57 0.47	0.47 0.83 1.34						
NCRA1BS80-__-A__	1/4	3.62	2 7/8	2.76	3/4	-0.000276 -0.000787	1 3/8	0 -0.00244 0 -0.00244	0.12 1.97 0.16 2.36	1/2-13UNC Depth0.51	0.2 7.32 (9.06) 5.59 0.83	6.42 (7.93) 4.61 0.70 0.79	0.47 0.93 0.47 0.47	0.47 0.47 0.71 0.71	0.47 0.55 0.61 0.61	0.47 1.14 0.47 1.34						
NCRA1BS100-__-A__	3/8	4.41	3 3/8	3.35	1	-0.000787	1 5/8	-0.00244	0.16	1/2-13UNC Depth0.55	0.2 9.65(12.24) 6.77 1.11	6.42 (7.93) 4.61 0.70 0.79	0.49 0.98 0.49 0.49	0.49 0.49 0.71 0.71	0.47 1.3 0.63 0.63	0.47 1.54 1.54 1.34						

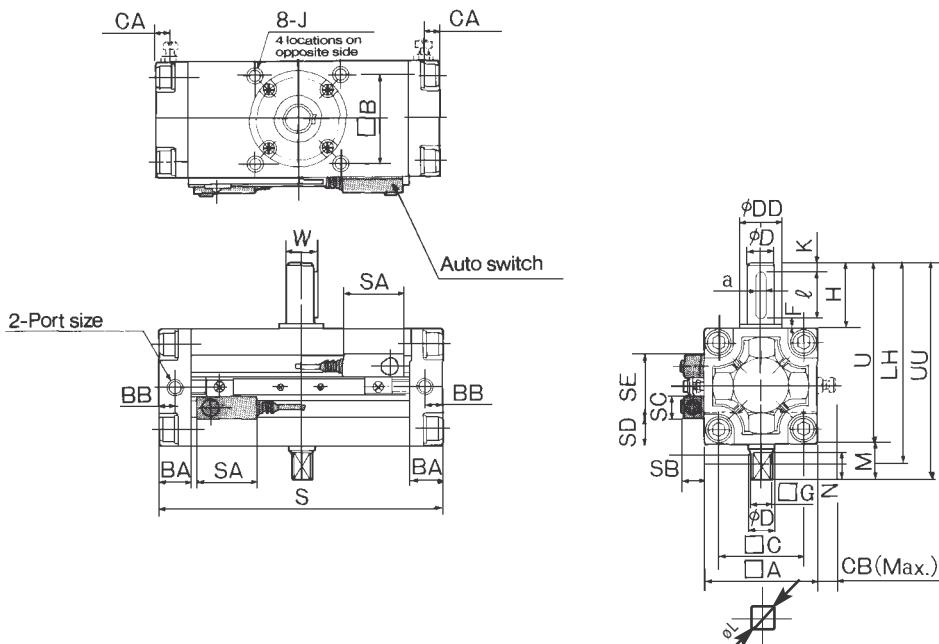
DIMENSIONS

DOUBLE ROD END WITH AUTO SWITCH NCRA1BW30



DIMENSIONS

DOUBLE ROD END WITH AUTO SWITCH NCDRA1BW50~100



Model	P (NPTF)	□A	□B	□C	□D	□DD	F	□G	H	J	K	oL	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	-0.00205	0.1	7/16	1.42	5/16-18UNC Depth 0.31	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	-0.000669 -0.000236	1 1/8	0 -0.00244	0	0.1	1/2	1.61	3/8-16UNC Depth 0.47	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	-0.000787 -0.000276	1 3/8	0 0	-0.00244	0.12	5/8	1.97	1/2-13UNC Depth 0.51	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	-0.000787	1 5/8	0 -0.00244	0	0.16	3/4	2.36	1/2-13UNC Depth 0.55	0.2	1	1.18	0.98	10.2(12.80)	6.77	7.95	1.11

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

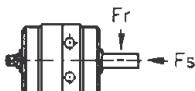
Model	BA	BB	CA	CB	SA	SB	SC	SD	SE	KEY		
										a	Tolerance	ℓ
NCDRA1BW50-__-A__	0.67	0.33	0.33	0.51	1.3	0.53	0.47	0.55	1.34	1/8		1
NCDRA1BW63-__-A__	0.79	0.39	0.39	0.55	1.3	0.57	0.47	0.83	1.34	3/16	+0.001	1.25
NCDRA1BW80-__-A__	0.93	0.47	0.47	0.71	1.3	0.71	0.47	1.14	1.34	3/16	0	1.5
NCDRA1BW100-__-A__	0.98	0.49	0.49	0.71	1.3	0.71	0.47	1.54	1.34	1/4		1.75


 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

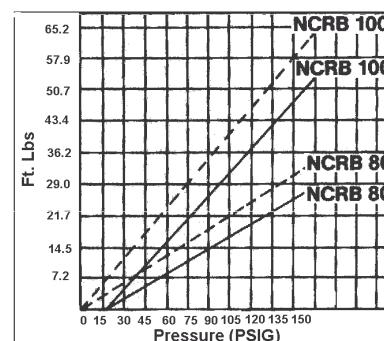
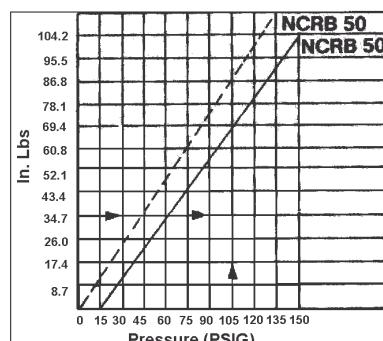
 TECHNICAL
SPECIFICATIONS

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



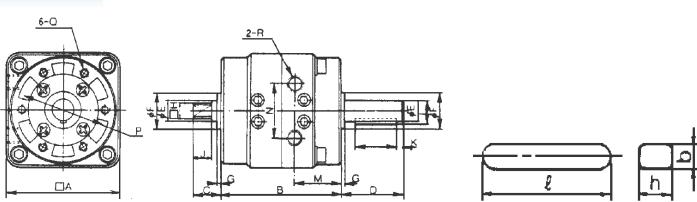
Maximum shaft loading and kinetic energy

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


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

 OPTIONS
BRACKETS NCRB50~100

Model	Bracket No	Includes
NCRB50	CRB50-Y-1	2" L Brackets
NCRB80	CRB80-Y-1	with 8 Mounting Screws
NCRB100	CRB100-Y-1	

 HOW TO
ORDER
NCRB ROTARY ACTUATOR

NCRB —

 Options
LMounting
Brackets

BORE (MM)

 50 ... 2"
80 ... 3.14"
100 ... 4"

 ROTATION
90 ... 90°
180 ... 180°
270 ... 270°

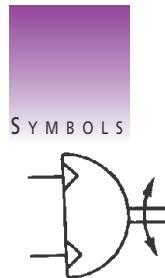
VANE TYPE ROTARY ACTUATOR: BORE SIZES Ø10•15•20•30MM SERIES NCRB1BW

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

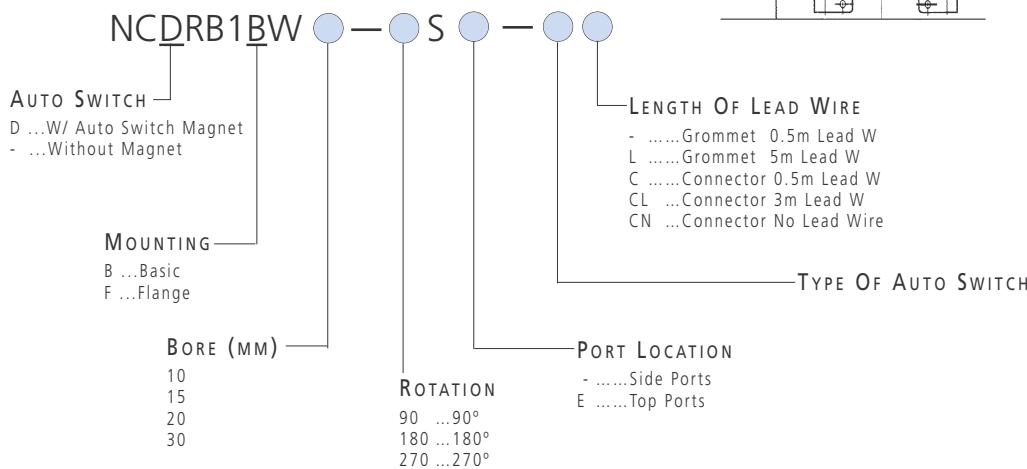


TECHNICAL SPECIFICATIONS

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		

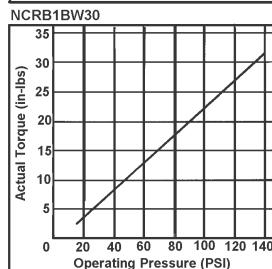
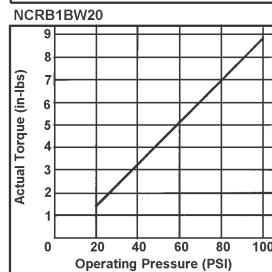
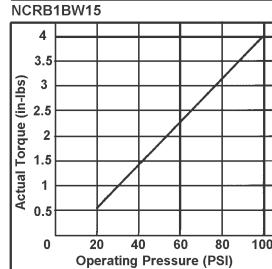
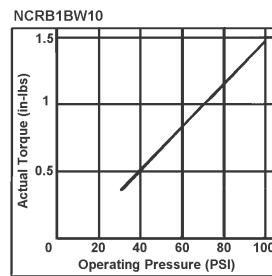


How To ORDER NCRB1BW ROTARY ACTUATOR



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

TORQUE SPECIFICATIONS



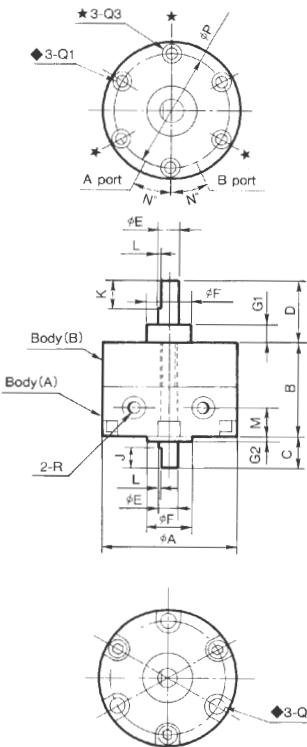
DIMENSIONS
SEE NEXT PAGE

ACCESSORIES
SEE NEXT PAGE

DIMENSIONS

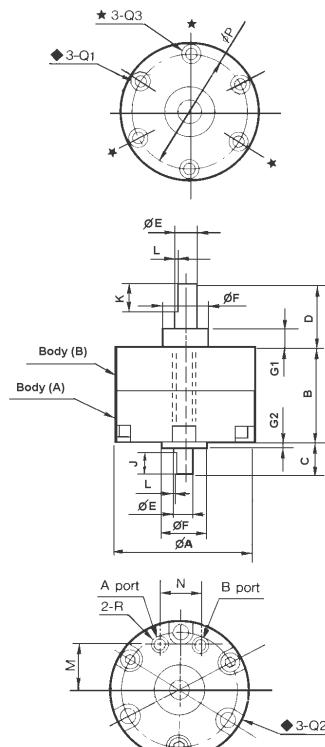
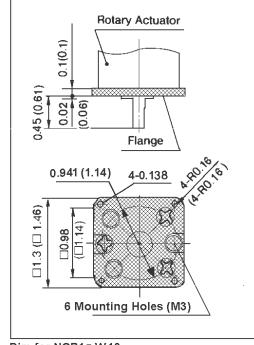
WITH SIDE PORTS

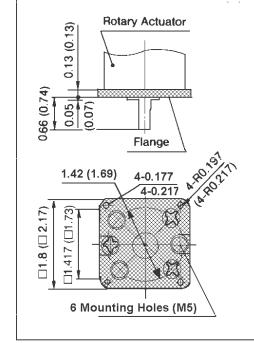
NCRB1_W_-_S ROTARY ACTUATOR


DIMENSIONS

WITH TOP PORTS

NCRB1_W_-_SE ROTARY ACTUATOR

Top ports: NCRB1_WO_OSE

Flange ("F")

 Dim for NCRB1_W10
 () : Dim for NCRB1_W15

Flange ("F")

 Dim for NCRB1_W20
 () : Dim for NCRB1_W30

Model (Dimensions in Inches)	A	B	C	D	E		F		G		J	K	L	M	N	P	Q (Depth)			R		
					Tolerances		Tolerance		G1	G2							Q1	Q2	Q3	90°	180°	270°
NCRB1_W10-S	1.14	0.59	0.31	0.55	5/32	-0.00015	3/8	0	0.12	0.04	0.20	0.35	0.02	0.20	25	0.95	5-40UNC (0.2)	0.14 (0.26)	-	10-32UNF	M3	
NCRB1_W10-SE						-0.00045			-0.0012											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 (0.39)	0.14 (0.24)	5-40UNC (0.2)	10-32UNF	M3	
NCRB1_W15-SE						-0.00045			-0.0016											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 (0.53)	0.18 (0.43)	8-32UNC (0.3)	10-32UNF		
NCRB1_W20-SE						-0.00045			-0.0016													
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 (0.71)	0.21 (0.65)	10-24UNC (0.4)	10-32UNF		
NCRB1_W30-SE						-0.00006			-0.0016													

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

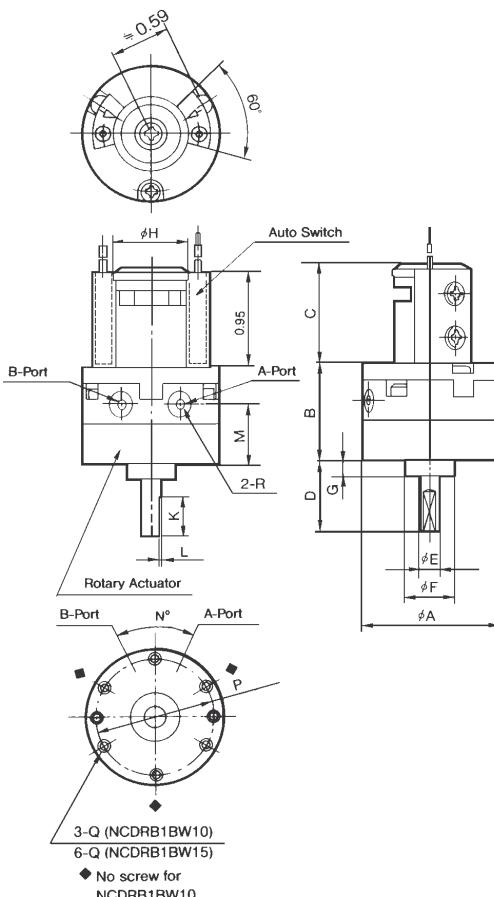
 FOR MORE TECHNICAL INFORMATION ON
 THIS SERIES, PLEASE REFER TO CAT:N350

 MORE
 DIMENSIONS
 SEE NEXT PAGE

 MORE
 ACCESSORIES
 SEE NEXT PAGE

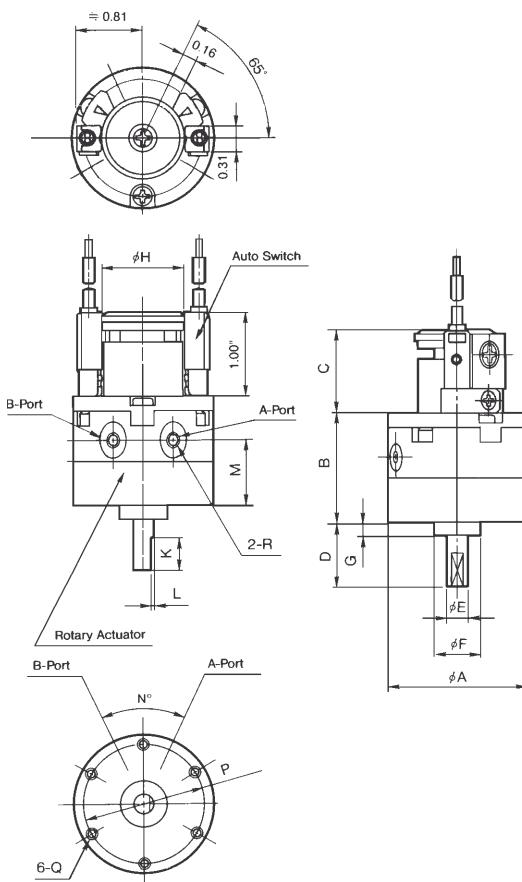
DIMENSIONS

SERIES NCDRB1BW10~15



DIMENSIONS

SERIES NCDRB1BW20~30



Model (Dimensions in Inches)	A	B	C	D	E		F		G	H	K	L	M	N	P	Q (Depth)	R
					Tolerances		Tolerances										
NCDRB1BW10	1.14	0.75	0.98	0.55	5/32	-0.00015	0.35	0	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	0.47	0	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	9/16	0	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	5/8	0	0.20	0.98	0.47	0.04	1.18	50	1.69	10-24UNC (0.40)	10-32UNF

ACCESSORIES

AUTO SWITCH SPECIFICATIONS

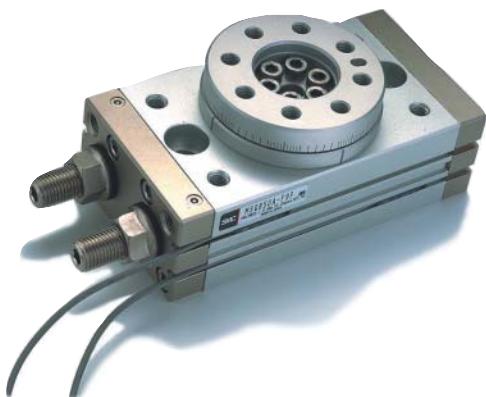
Note: Pre-wired Switches with 3/4 Pin Connectors
available, please consult SMC Customer Service

Series	Model		Type	Load Voltage		Load Current		Power Source	Internal Voltage Drop	Indicator Lamp	
	LH Mount	RH Mount									
NCRB1BW10	D-97L	-	Reed	24VDC		5~40mA		5~28VDC	Max 2.4V	ON: Red LED	
	D-90L	-	Reed	24VDC or less		Max 50mA			1.5V Max	None	
	D-S992L	D-S991L	3 Wire Solid State NPN	28VDC or less		Max 150mA			4V Max	ON: Red LED	
	D-T992L	D-T991L	2 Wire Solid State	10~28 VDC		5~150mA			1.5V Max	ON: Red LED	
NCRB1BW20	D-R732L	D-R731L	Reed	24VDC; 100VAC		5~40mA; 5~20mA		5~28VDC	Max 2.4V	ON: Red LED	
NCRB1BW30	D-R802L	D-R801L	Reed	24VDC/AC or less; 100VDC/AC		Max 50mA; Max 20mA			0.8V Max	None	
	D-S792L	D-S791L	3 Wire Solid State NPN	28VDC or less		Max 150mA			3V Max	ON: Red LED	
	D-T792L	D-T791L	2 Wire Solid State	10~28 VDC		5~150mA			1.5V 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
	Shock Absorber	0.039J	0.116J	0.116J	0.294J	1.1J	1.6J
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				

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

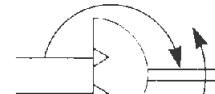
HOW TO ORDER
SEE NEXT PAGE 

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	24V DC (10~28 VDC)	5~30mA	1.5V or less	24V DC at 1mA or less	PLC
D-F9PW D-F9PWV			24V DC (10~28 VDC)					
D-F9B D-F9BV	-	-	4.5V or less	5V or less	24V DC at 1mA or less	24V DC PLC	-	-
D-F9BW D-F9BWV			5V or less					

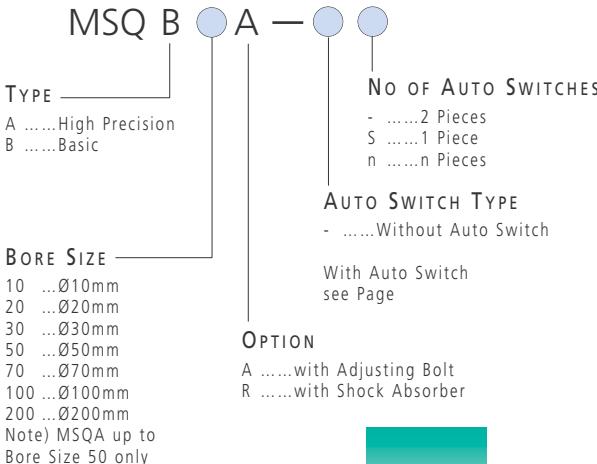
SYMBOLS



DIMENSIONS
SEE NEXT PAGE 

How To
Order

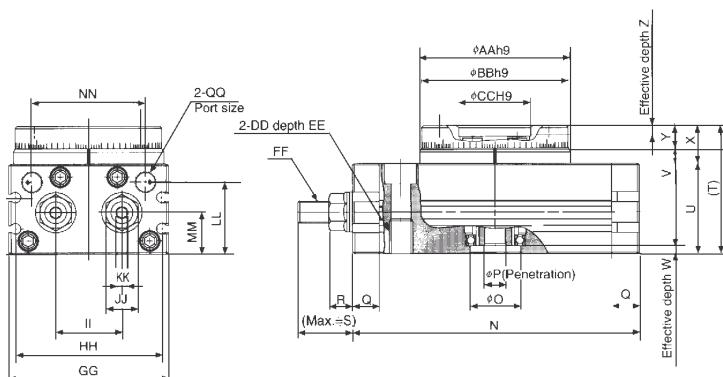
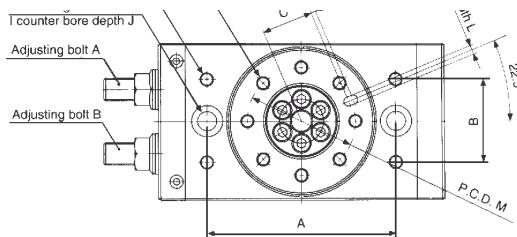
ROTARY TABLE SERIES MSQ



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

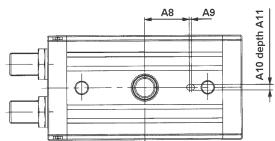
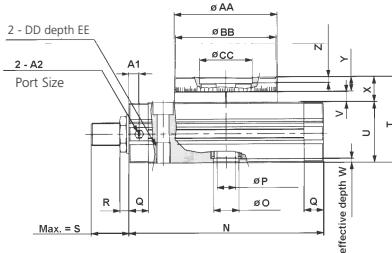
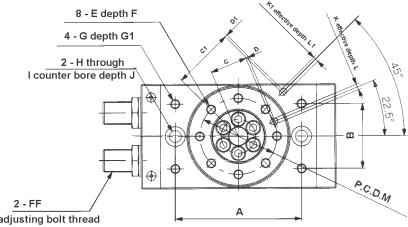
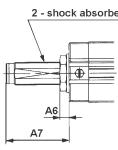
DIMENSIONS

ROTARY TABLE SERIES MSQB



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	½
MSQB50	77	75	35	M12X1.75	18	M14X1.5	80	75	38	19	6	37.5	22	63	14.5	15	½

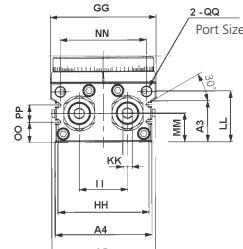
DIMENSIONS
ROTARY TABLE SERIES MSQB 70, 100, 200

 SHOCK ABSORBER
MSQB70/100/200R


TYPES OF SHOCK ABSORBER

Model	Type of Shock Absorber
MSQB70	RBA2015-X821
MSQB100	RBA2015-X821
MSQB200	RBA2725-X821

DIMENSIONS

Model	A6 (mm)	A7 (mm)
MSQB70	8	55.4
MSQB100	8	55.5
MSQB200	8	74.2

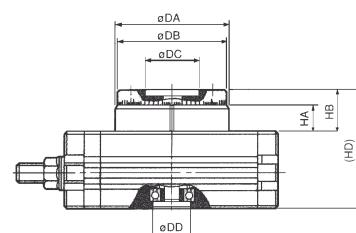


Model	A	B	C	D	C1	D1	E	F	G	G1	H	I	J	K	L	K1	L1	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
MSQB70	110	57	32.5	2	54	2	M8x1.25	12.5	M8x1.25	10	10.4	17.5	10.5	5	5.5	5	3.5	67	170	22	16	17	8	34.2	75	53	9	3.5	22	12.5	5
MSQB100	130	66	37.5	2	59	2	M10x1.5	14.5	M8x1.25	10	10.4	17.5	10.5	6	6.5	6	4.5	77	189	24	19	17	8	34.3	86	59	12	3.5	27	14.5	6
MSQB200	150	80	44	2	69	2	M12x1.75	16.5	M12x1.75	13	14.2	20	12.5	8	8.5	8	4.5	90	240	32	24	24	8	40.2	106	74	15	5.5	32	16.5	9

Model	AA	BB	CC	DD	EE	FF	GG	HH	II	KK	LL	MM	NN	OO	PP	QQ	A1	A2	A3	A4	A5	A8	A9	A10	A11
MSQB70	90	88	46	M12x1.75	18	M20x1.5	92	79	42	8	44.5	25.5	75	18	15	Rc 1/8	9	M5x0.8	36	84	90	39	2	5	3.5
MSQB100	100	98	56	M12x1.75	18	M20x1.5	102	90	50	8	50.5	29.5	85	22	15	Rc 1/8	9	M5x0.8	42	95	101	49	2	6	4.5
MSQB200	118	116	64	M16x2	25	M27x1.5	120	108	60	10	65.5	36.5	103	29	15	Rc 1/8	9	M5x0.8	57	113	119	54	2	8	6.5

 DIMENSIONS (MM)
HIGH PRECISION ROTARY TABLE SERIES MSQA 10, 20, 30, 50

Model	DA(h8)	DB(h8)	DC(h8)	DD(h8)	HA	HB	HD
MSQA10	46	45	20	15	10	18.5	52.5
MSQA20	61	60	28	17	15.5	26	63
MSQA30	67	65	32	22	16.5	27	67
MSQA50	77	75	35	26	17.5	30	76

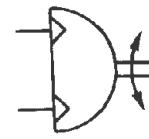


ALL DIMENSIONS EXCEPT FOR THIS TABLE ARE THE SAME AS FOR BASIC MODEL



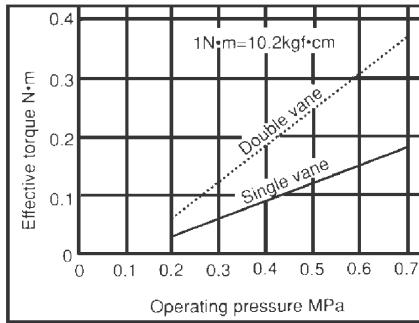
ROTARY TABLE VANE TYPE SIZES 1, 3, 7, 20 SERIES MSUB

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

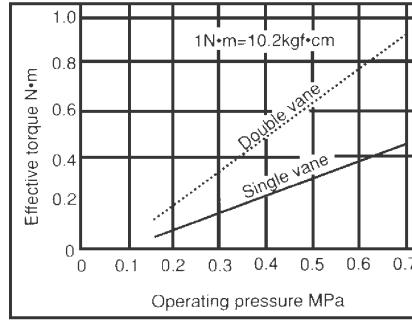


TORQUE SPECIFICATIONS

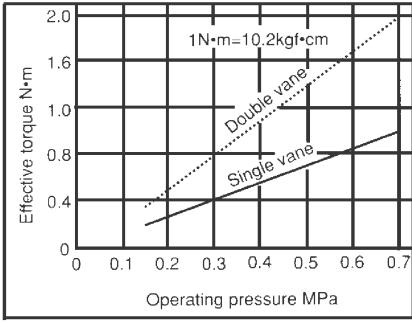
MSUB1



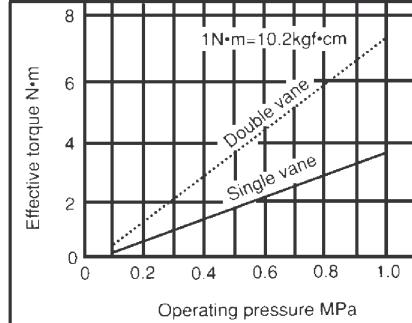
MSUB3



MSUB7



MSUB20



TECHNICAL SPECIFICATIONS

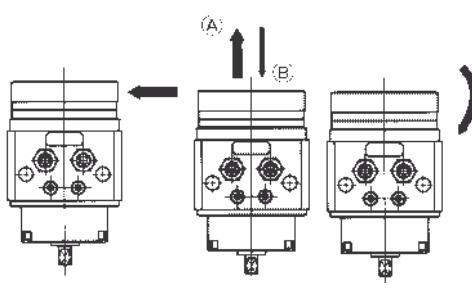
Model	MSUB1	MSUB3	MSUB7	MSUB20
Vane type	Single Vane	Single Vane	Single Vane	Single Vane
Rotation Angle (note 1)	90°±10° 180°±10°	90°±10° 180°±10°	90°±10° 180°±10°	90°±10° 180°±10°
Fluid	Air (non lube)	Air (non lube)	Air (non lube)	Air (non lube)
Proof Pressure MPa / PSI	1.05MPa / 153PSI	1.05MPa / 153PSI	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
	Allowable Thrust Load (note 2)	15N	30N	60N
		10N	15N	30N
	Allowable Moment	0.3N.m	0.7N.m	0.9N.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
	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.)

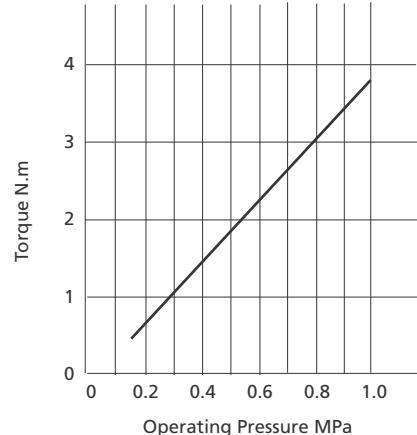


Size	Allowable Radial Load (N)	Allowable Thrust Load (N)	Allowable Moment (Nm)
3	40	A 30 B 15	0.7
7	50	60	0.9
20	60	80	2.9

 TORQUE
SPECIFICATIONS

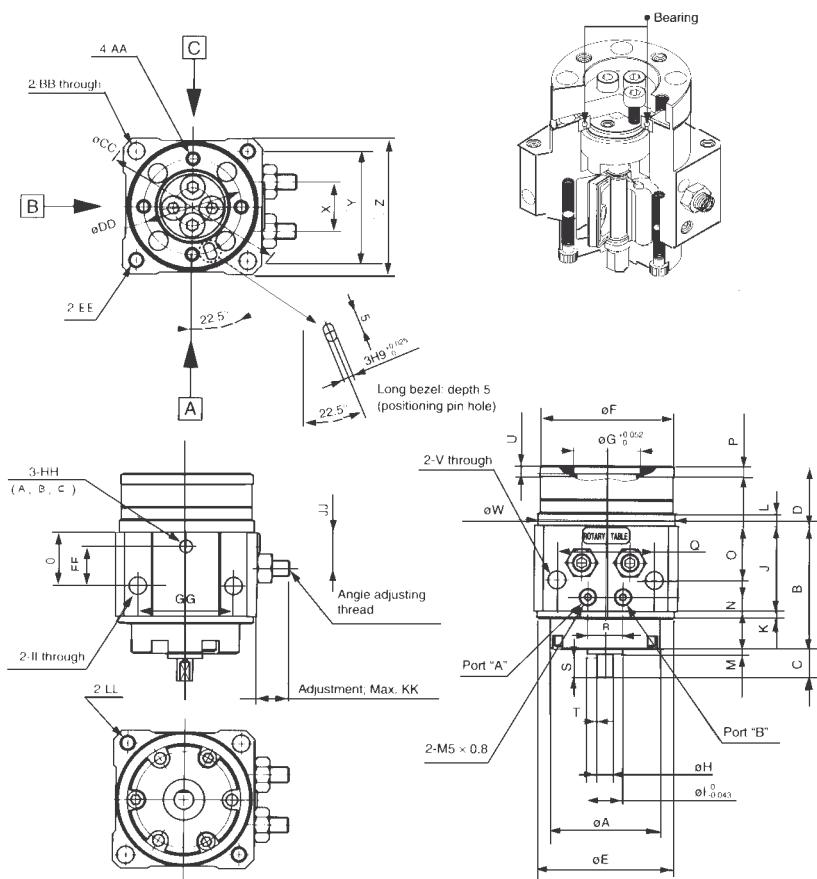
MSUB20

$$1\text{N.m} = 10.2\text{kgf.cm}$$



DIMENSIONS

ROTARY TABLE - VANE TYPE SERIES MSUB


 HOW TO
ORDER

ROTARY TABLE - VANE TYPE SERIES MSUB

MDSUB — **S** — **—**

AUTOSWITCHES

- DWith Magnet
-W/O Magnet

NOMINAL TORQUE

- 1MSUB1
- 3MSUB3
- 7MSUB7
- 20 ...MSUB20

OPERATING ANGLE

- 90 ...90°
- 180 ...180°
- Angle adjusting range is ±5° for both ends

CONNECTING PORT POSITION

- 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	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	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	50	60	13	22	53.5h9 ⁰ 0.074	52h9 ⁰ 0.074	30H9	8g6- 0.005	0.014	16h9	34	4	5	2	6

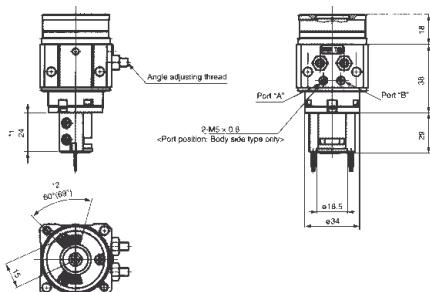
O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	
16	3.5	29	10.5	6	0.5	2.5	4.5	42h9 ⁰	-0.062	14	36	44	M4x0.7 depth 7	4.5	58	30	M4x0.7 depth 8
19.5	4.5	36	11	7	0.5	2.5	5.5	48h9 ⁰	-0.062	19	41	50	M4x0.7 depth 8	5.5	67	37	M5x0.8 depth 10
21.5	4.5	43	13	8	1	3	6.6	53.5h9 ⁰	-0.074	22	45	56	M5x0.8 depth 8	6.6	76	42	M6x1 depth 12

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

FF	GG	HH	II	JJ	KK	LL
12	29	3H9 +0.025	0 depth 5	4.5	10.5	6.25
13	36	4H9 +0.030	0 depth 6	5.5	12.5	8.25
14	43	4H9 +0.030	0 depth 6	6.6	14	8.75

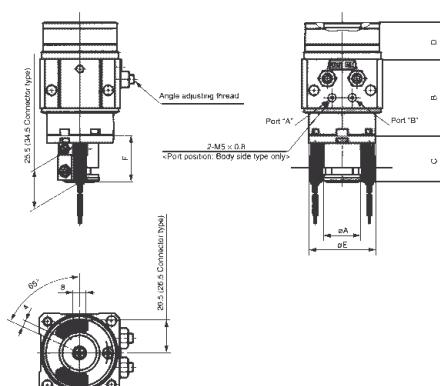
DIMENSIONS

AUTO SWITCH MOUNTING FOR MDSUB1, 3



DIMENSIONS

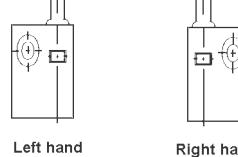
AUTO SWITCH MOUNTING FOR MDSUB7, 20



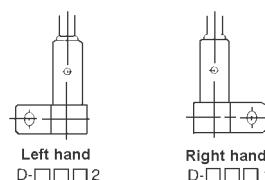
ACCESSORIES

AUTO SWITCHES TYPE FOR RIGHT/LEFT HAND

MDSUB1-3



MDSUB7-20

ACCESSORIES
AUTO SWITCHES

Model	A	B	C	D	E	F
MDSUB7	25	48.5	30	21.5	42	30
MDSUB20	25	60	31	22	50	31

MDSUB1, MDSUB3

MDSUB7, MDSUB20

- 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

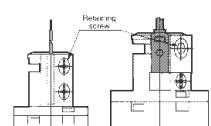
SWITCH UNIT MODEL NO.

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

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 MH



AIR CHUCKS: SERIES MHQ PARALLEL INTERNAL & EXTERNAL HOLDING TYPE: SERIES MHC ANGULAR TYPE

- ✓ Double or Single Acting
- ✓ Double Piston Mechanism creates high gripping force
- ✓ Magnetic Sensing is Standard
- ✓ Internal Speed Control
- ✓ Internal Damper

TECHNICAL SPECIFICATION MHQ (PARALLEL TYPE)

Fluid	Air		
Operating Pressure	Double Acting Type		Ø10 ~ Ø25: 0.1 ~ 0.6MPa / 14.5 ~ 90PSI
	Single Acting Type	Normally Open Type	Ø10~25: 0.25 ~ 0.6MPa / 37 ~ 90PSI
Ambient and Fluid Temperature			0 ~ 60°C / 32 ~ 140°F
Repeatability			±0.01mm
Maximum Operating Frequency			180 c.p.m
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	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

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	

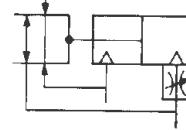
*@ 0.5MPa / 73PSI



SYMBOLS

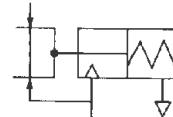
PARALLEL TYPE

DOUBLE ACTING TYPE: Ø10~Ø25



PARALLEL TYPE

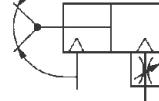
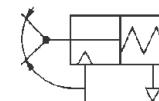
SINGLE ACTING TYPE: NORMALLY OPEN

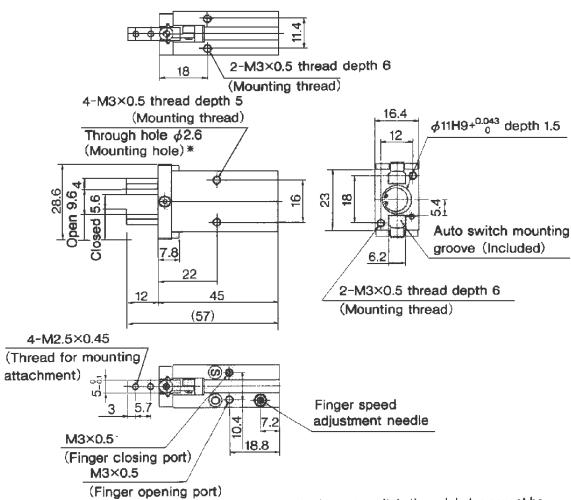


SYMBOLS

ANGULAR TYPE

DOUBLE ACTING

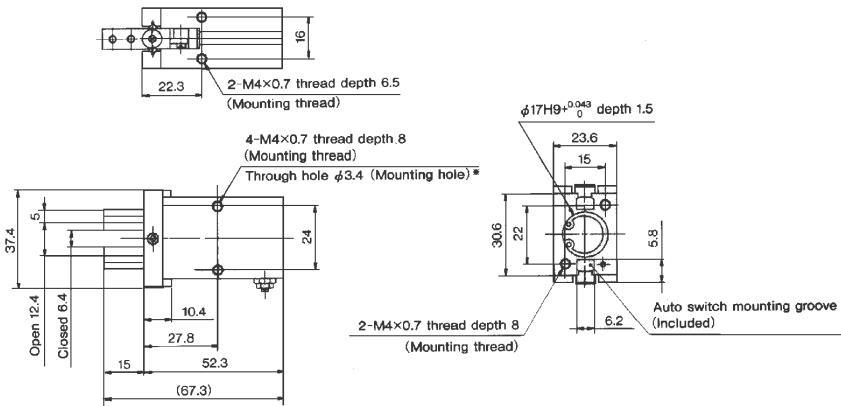
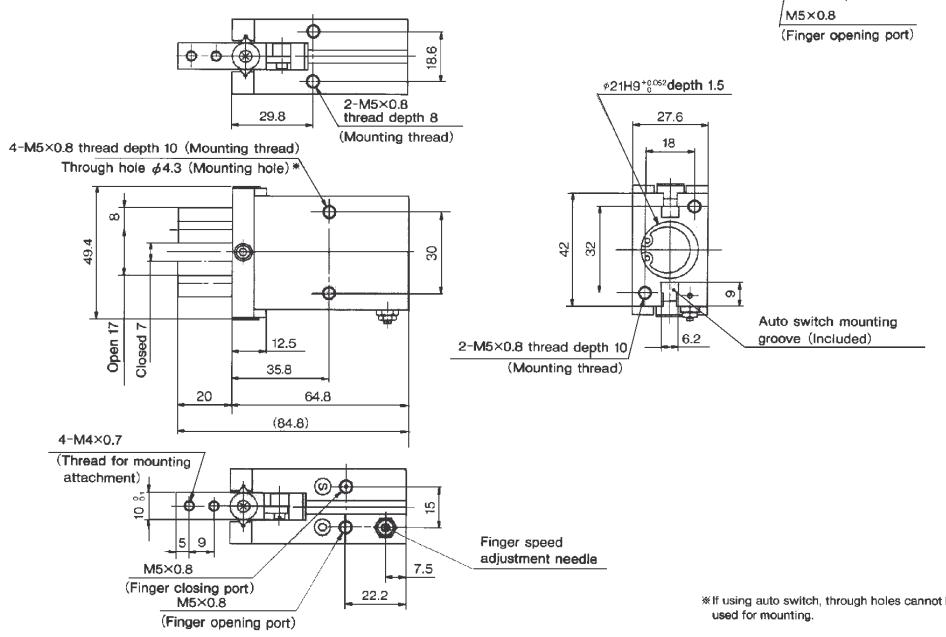

 ANGULAR TYPE
SINGLE ACTING


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.

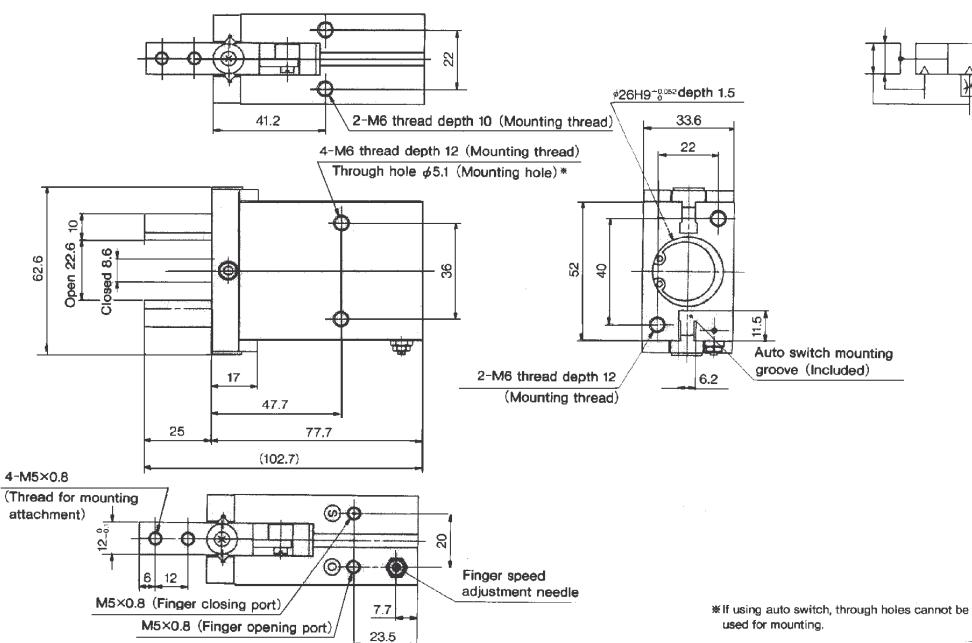
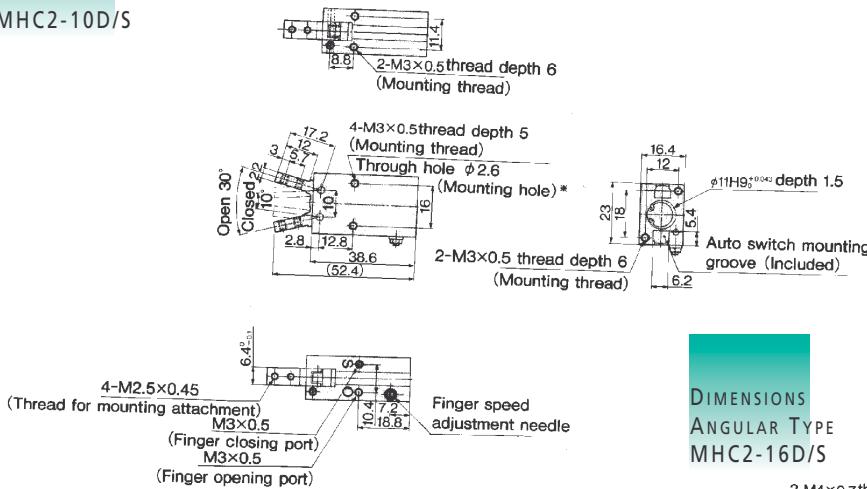
DIMENSIONS
PARALLEL TYPE
MHQ2-16D/S

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.

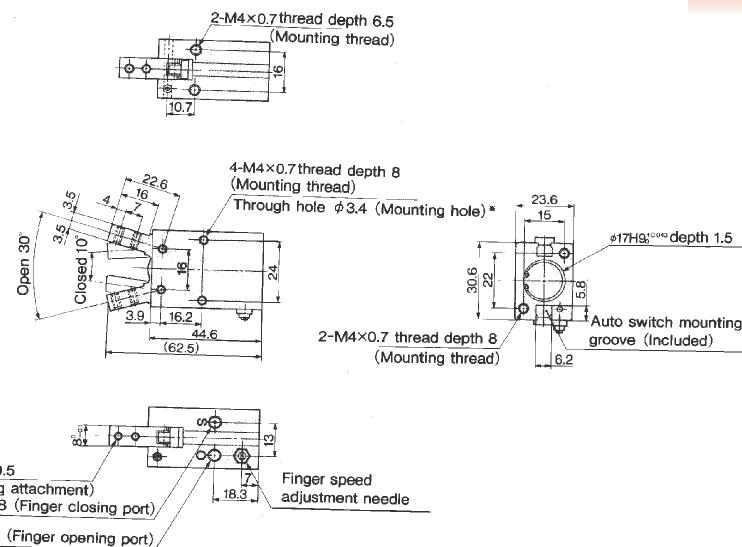
MORE DIMENSIONS
SEE NEXT PAGE



DIMENSIONS
 PARALLEL TYPE
 MHQ2-25D/S

 DIMENSIONS
 ANGULAR TYPE
 MHC2-10D/S


NOTE

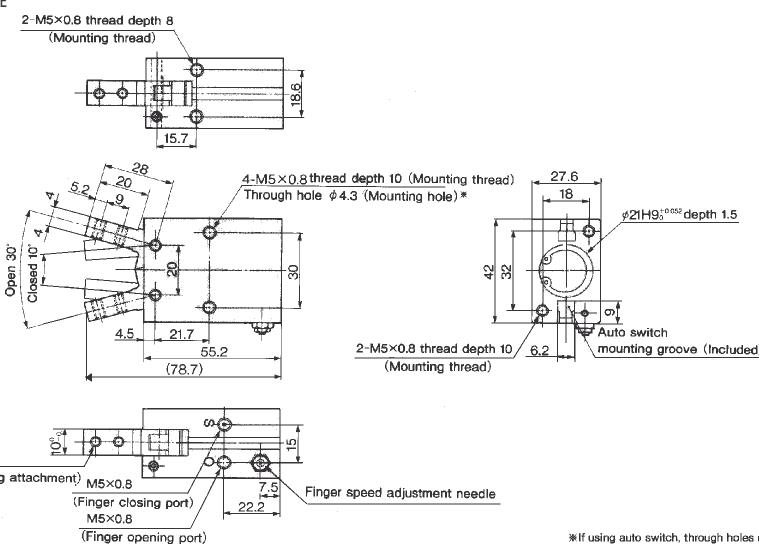
The "Finger speed adjustment needle" shown is an air vent on the single acting type.
 The "Finger opening port" shown is plugged on the single acting type.

 DIMENSIONS
 ANGULAR TYPE
 MHC2-16D/S

 ACCESSORIES
 SEE NEXT PAGE

 HOW TO
 ORDER
 SEE NEXT PAGE

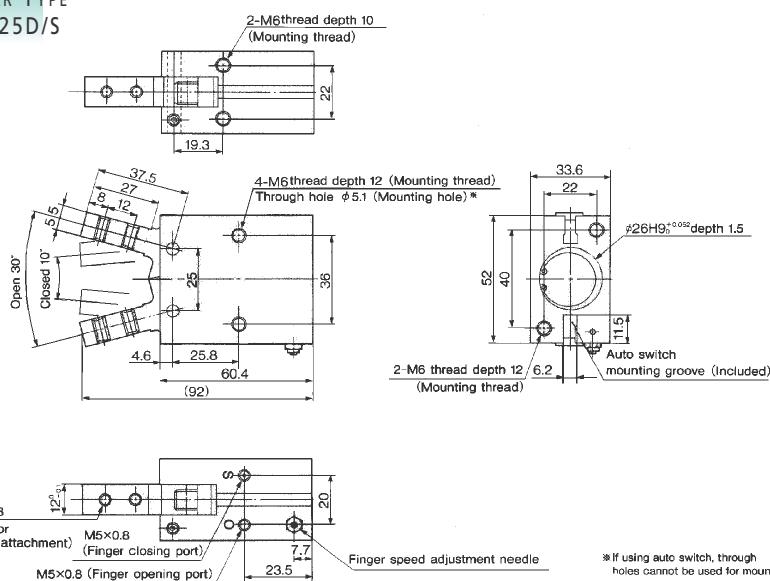
*If using auto switch, through holes cannot be used for mounting.

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.

ACCESSORIES

AUTO SWITCH SPECIFICATIONS

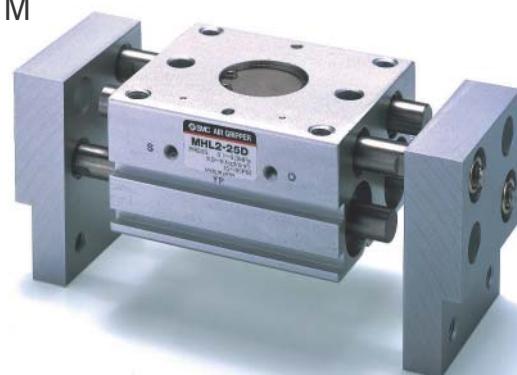
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

Model		Type	Load Voltage	Load Current	Power Source	Internal Voltage Drop	Indicator Lamp
Part No.	Grommet type						
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 SERIES MHL2

 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

 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			

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

NO OF SWITCHES

-2 Pieces
- S1 Piece
- nn Pieces

 HOW TO
ORDER

AIR CHUCH SERIES MHL2

MHL2 —

BORE SIZE

- 10 ...10mm
- 16 ...16mm
- 20 ...20mm
- 25 ...25mm
- 32 ...32mm
- 40 ...40mm

- LEAD WIRE LENGTH
-0.5m
- L3m

ACTION

- DDouble Acting

TYPE OF AUTO SWITCHES

See Accessories Section

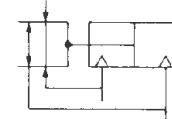
STROKE

Model	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)

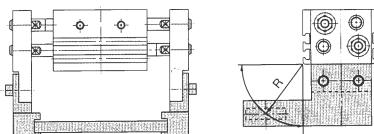


SYMBOLS



TECHNICAL
SPECIFICATIONS**Holding Position**

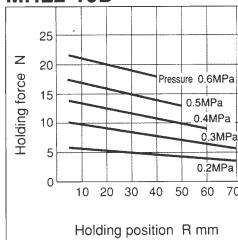
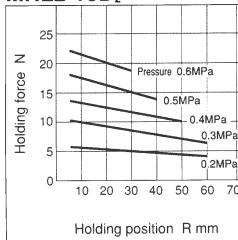
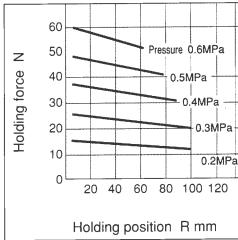
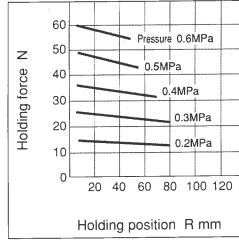
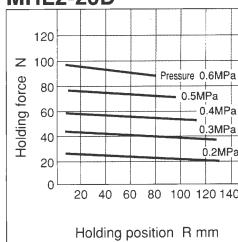
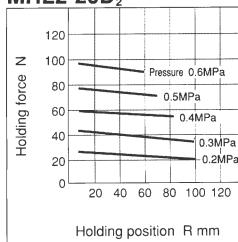
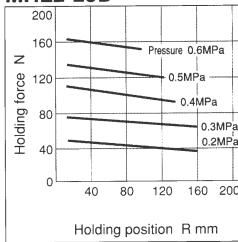
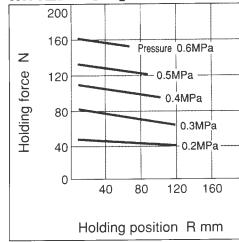
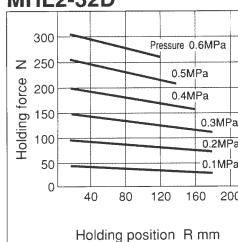
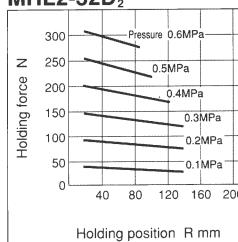
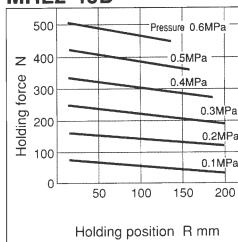
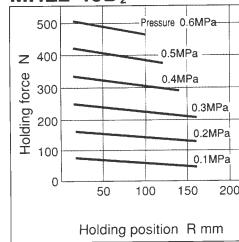
- The work holding point should be within the range shown in accordance with the operating pressure in the "Effective Holding Force" graphs.
- When the work holding point is out of the limit range, an excessive unbalanced load is applied to fingers and guides, causing excessive play of fingers and exercising an adverse effect on the life.



R : Holding position (mm)

1N = 0.2248lbf

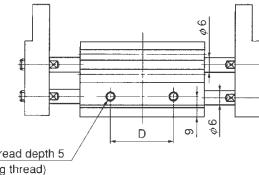
1MPa = 145PSI

Effective Holding Force**MHL2-10D****MHL2-10D¹****MHL2-16D****MHL2-16D¹****MHL2-20D****MHL2-20D¹****MHL2-25D****MHL2-25D¹****MHL2-32D****MHL2-32D¹****MHL2-40D****MHL2-40D¹**

AIR CHUCK SERIES MHL2

DIMENSIONS AIR CHUCK SERIES MHL

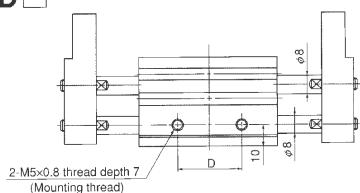
MHL2-10D



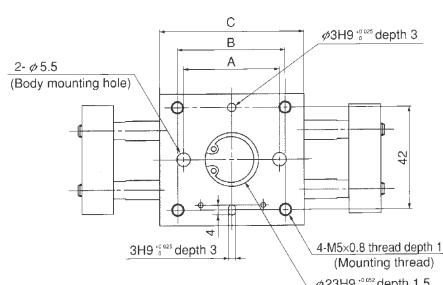
2-M4x0.7 thread dept
(Mounting thread)

DIMENSIONS

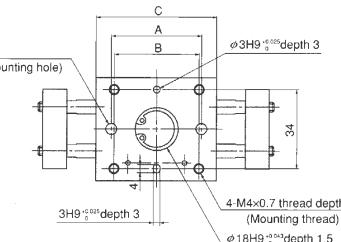
MHI 2-16D □



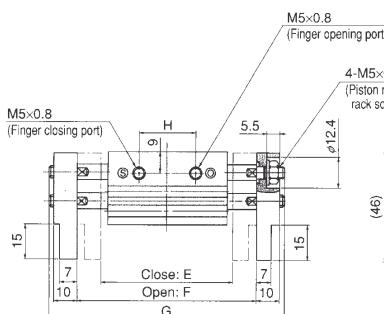
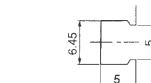
2-M5x0.8 thread dep
(Mounting thread)



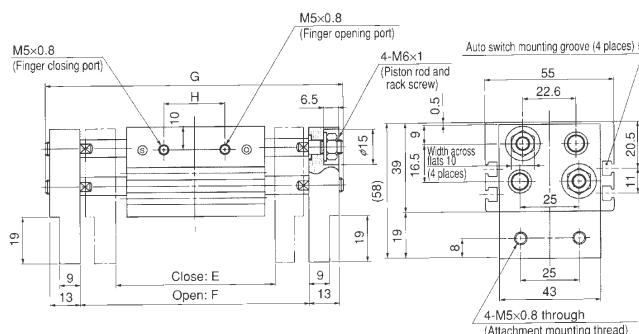
- ※ Auto switch mounting groove dimension
Enlarged view



* Auto switch mounting groove dimensions
Enlarged view



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

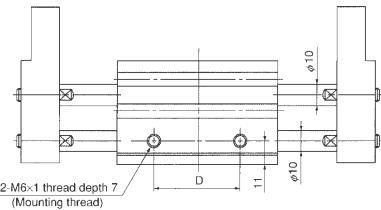


4-M5×0.8 through
(Attachment mounting thread)

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

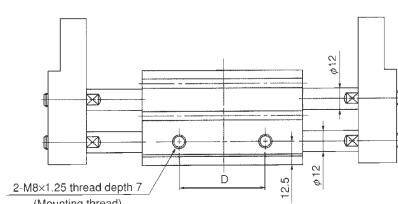
MHL2-20D



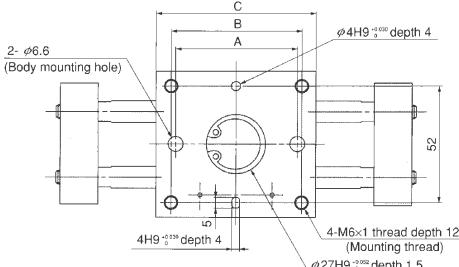
2-M6×1 thread depth
(Mounting thread)

DIMENSIONS

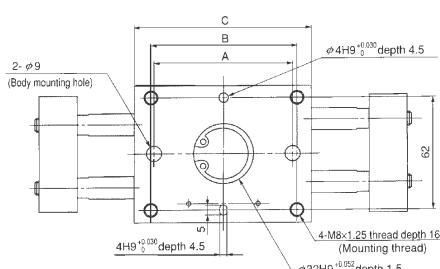
MHI 2-25D



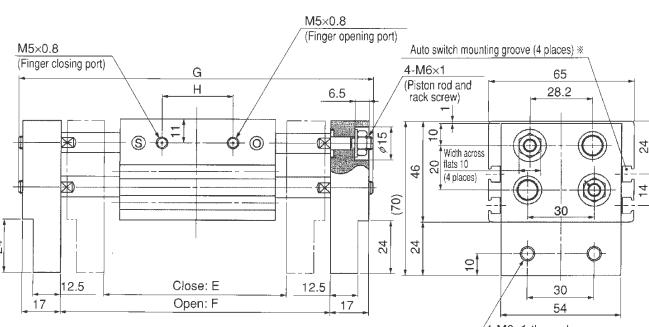
2-M8×1.25 thread c



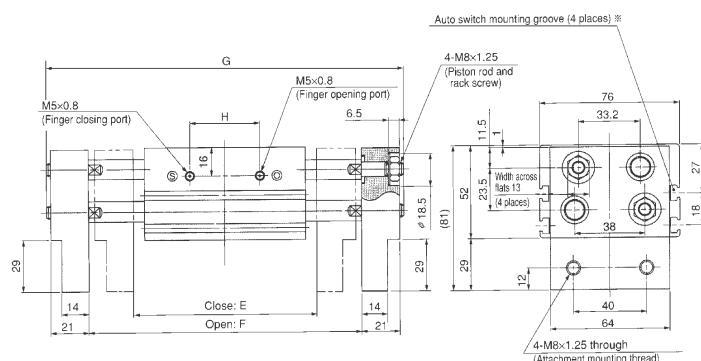
* Auto switch mounting groove dimensions
Enlarged view



* Auto switch mounting groove dimension
Enlarged view



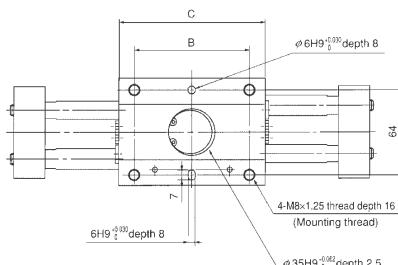
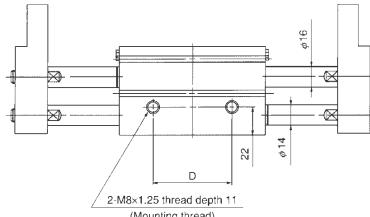
del	A	B	C	D	E	F	G	H
-20D	54	58	71	38	82	122	160	32
20D1	96	100	113	80	142	222	260	68
20D2	116	120	133	100	162	262	300	88



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

DIMENSIONS
AIR CHUCK SERIES MHL

MHL2-32D □

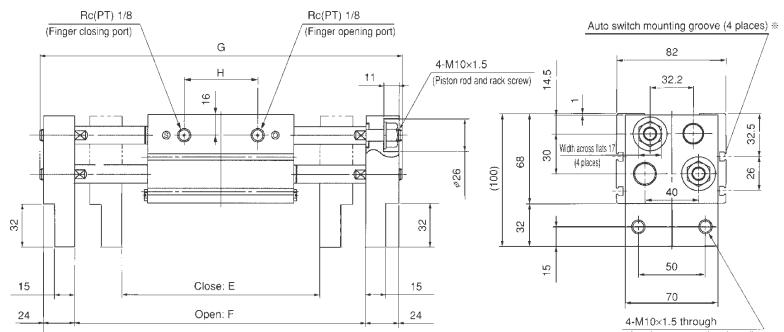
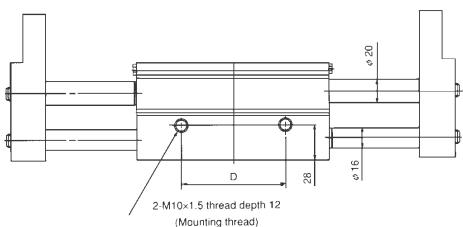


Auto switch mounting groove dimensions
Enlarged view

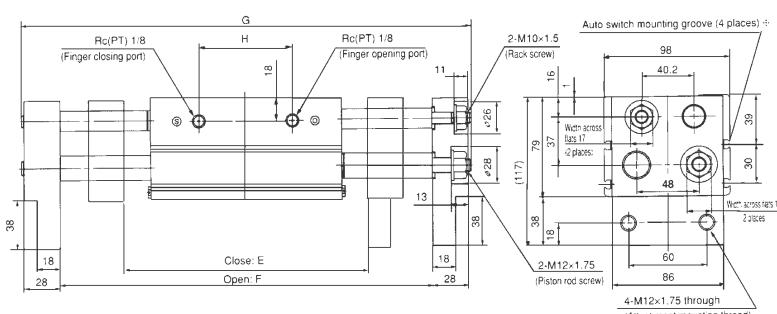
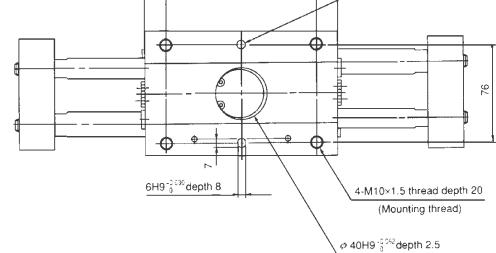
DIMENSIONS

AIR CHUCK SERIES MHL

MHL2-40D □



Auto switch mounting groove dimensions
Enlarged view



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

Model	B	C	D	E	F	G	H
MHL2-40D	116	148	80	188	288	348	72
MHL2-40D1	174	206	138	246	406	466	130
MHL2-40D2	214	246	178	286	486	546	170

PARALLEL INTERNAL/EXTERNAL HOLDING TYPE AIR CHUCK WITH DUST COVER SERIES MHQJ2

- ✓ Parallel Gripping Action
- ✓ Suitable for Dusty Environments
- ✓ Optional Dust Cover Materials
- ✓ Magnetic Sensing as standard
- ✓ Double Acting

TECHNICAL SPECIFICATIONS

Fluid		Air
Operating Pressure	Double Acting	0.1~0.6MPa / 14.5~87PSI
	Single Acting	0.25~0.6MPa / 37~87PSI
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)	(Note ¹) 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

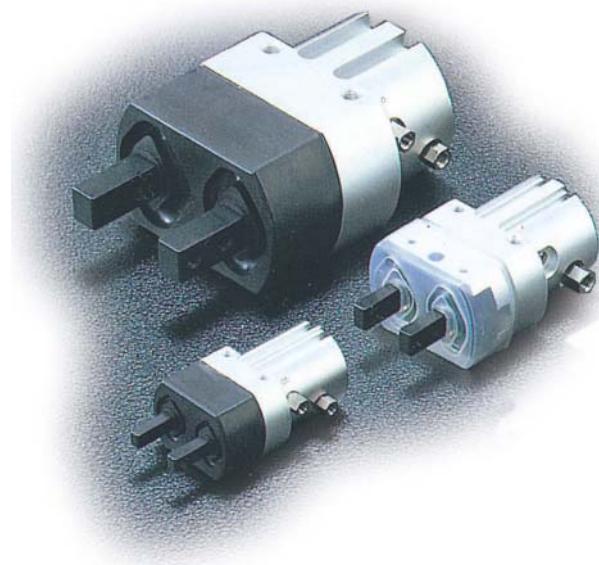
Note 1: At 0.5MPa The outside and inside holding forces for the double acting type are indicated.
The effective holding force shows the value in the middle of the opening stroke.

Note 2: The Auto Switch weight is excluded.

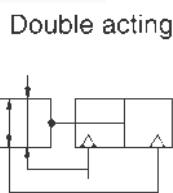
ACCESSORIES AUTO SWITCHES

Model		Type	Load Voltage	Load Current	Power Source	Internal Voltage Drop	Indicator Lamp
Part No	Grommet type	Electrical Entry					
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



SYMBOL



Double acting

HOW TO ORDER AIR CHUCK SERIES MHQJ2

MHQJ2 — D — D — D

BORE SIZE

- 10 ... 10mm
- 16 ... 16mm
- 20 ... 20mm
- 25 ... 25mm

ACTION

- DDouble Acting
- SSingle Acting (NO)
- CSingle Acting (NC)

DUST COVER MATERIAL

-Chloroprene rubber (CR)
- FFluororubber (FKM)
- SSilicone rubber (Si)

TYPE OF SWITCHES

See Accessories Section

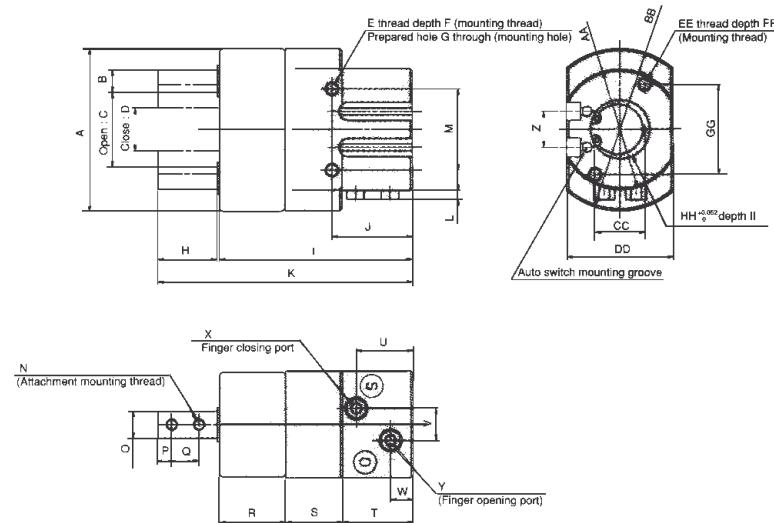
NO OF SWITCHES

- I2 Pieces
- S1 Piece

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 at 0.5MPa / 73PSI	Outside holding force	12	24	33	58	7	13
Opening/Closing Stroke (Both sides)	Inside holding force	12	25	34	59	6.5	12
Finger closing width (mm)	Finger opening width (mm)	10	14	16	19	16	19
Finger opening width (mm)	Stroke (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		0.01 mm	0.01 mm	0.01 mm	0.01 mm	0.01 mm	0.01 mm
Fluid		Air	Air	Air	Air	Air	Air
Operating Pressure (29~87PSI)		0.2~0.6MPa		0.15~0.6MPa		0.2~0.6MPa	0.15~0.6MPa
Ambient and Fluid Temperature				0 ~ 60 °C (32 ~ 140 °F)		29~87PSI	22~87PSI
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	

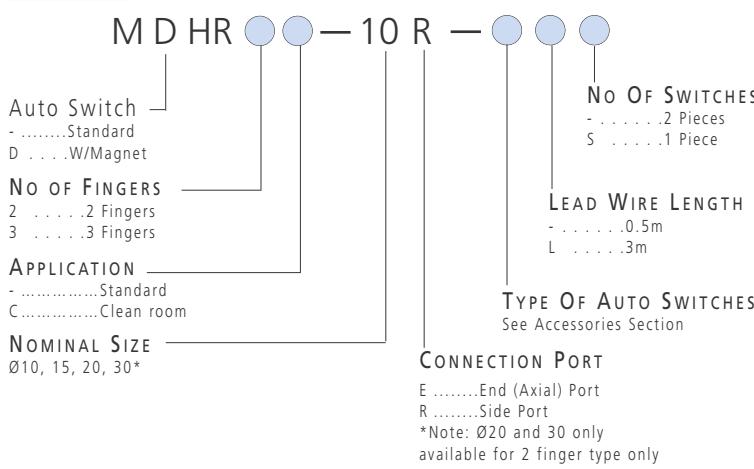
ACCESSORIES

AUTO SWITCHES

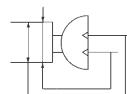
Auto Switch Model No	D-F9NL	D-F9NVL	D-F9PL	D-F9PVL	D-F9BL	D-F9BVL
Electrical Entry	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring	3 Wire	3 Wire	3 Wire	3 Wire	2 Wire	2 Wire
Output	NPN	NPN	PNP	PNP	-	-
Applications		24VDC relay, Sequence Controller				
Supply Voltage		24VDC (10 ~ 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		10 μA or Less at 24VDC			1 mA 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

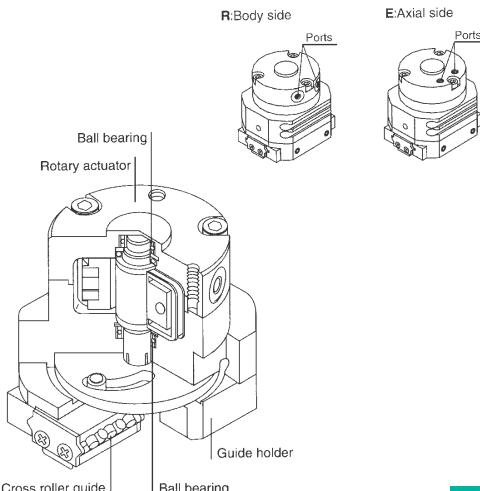
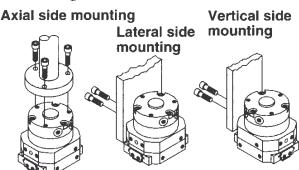


SYMBOLS



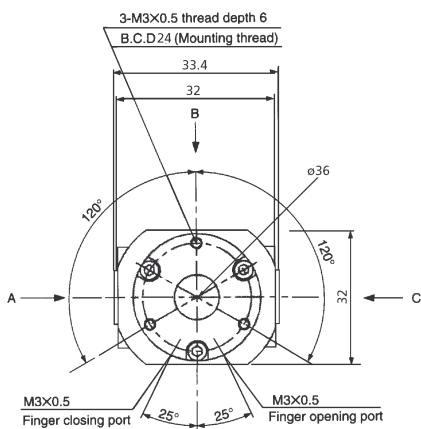
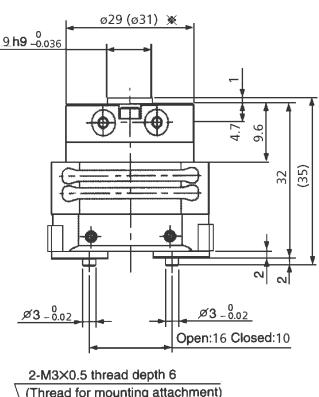
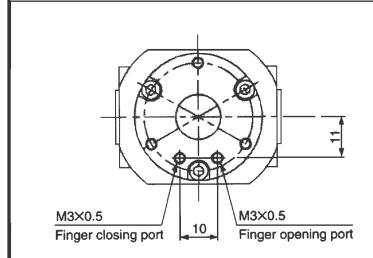
FOR MORE TECHNICAL INFORMATION ON
THIS SERIES, PLEASE REFER TO CAT:N360

PRODUCT
 SELECTOR
 MOUNTING

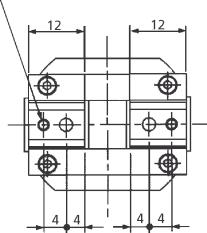
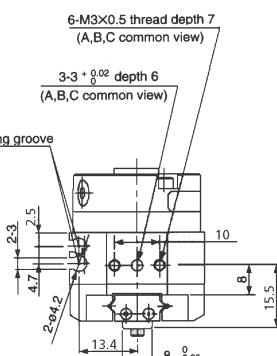
Mounting can be done from 3 directions.

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

DIMENSIONS

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

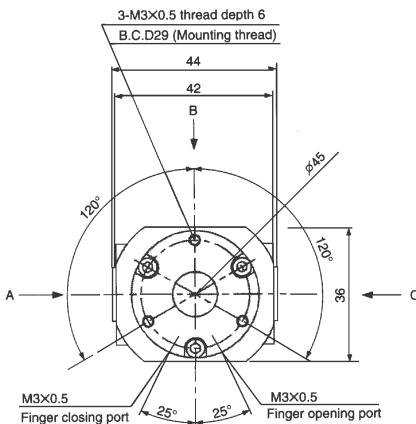

MDHR2-10E Port Position


Auto switch mounting groove

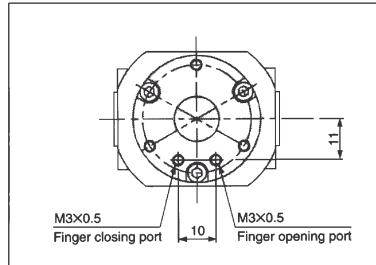
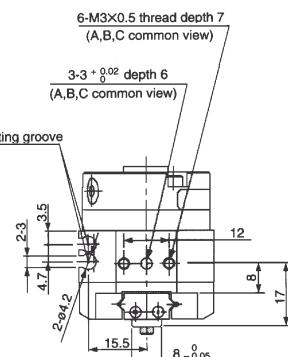
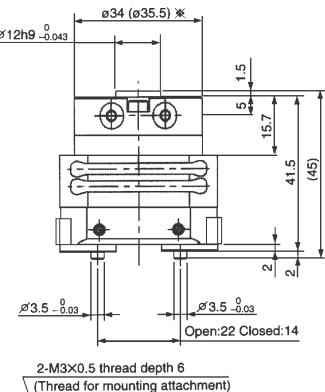

 DIMENSIONS
 SEE NEXT PAGE

DIMENSIONS

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

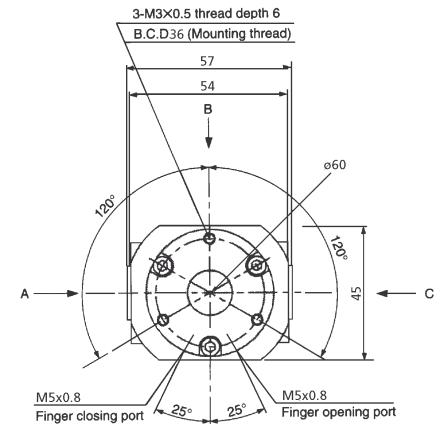
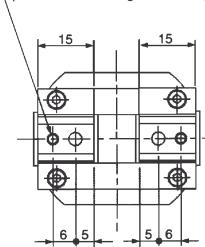


MDHR2-15E port position

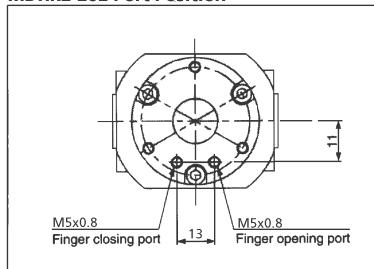
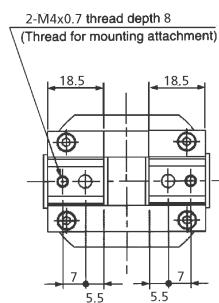
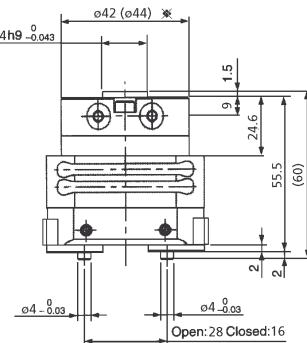
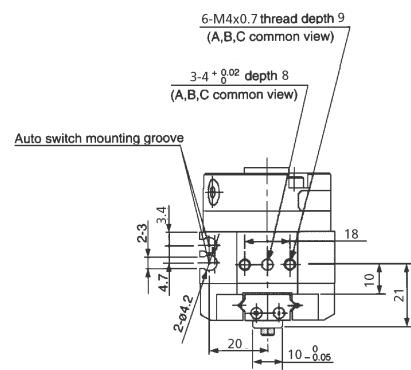
DIMENSIONS
SEE NEXT PAGE

DIMENSIONS

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

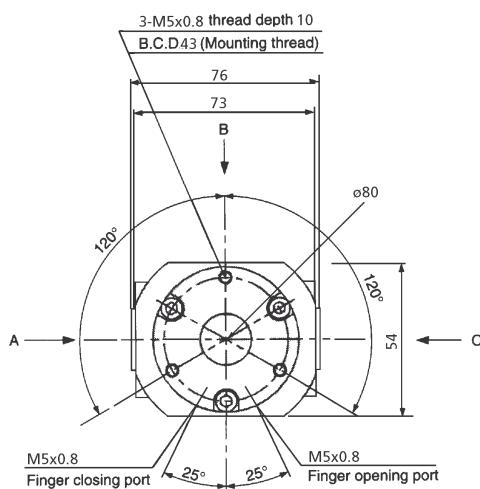
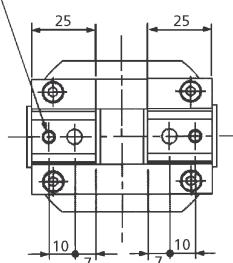
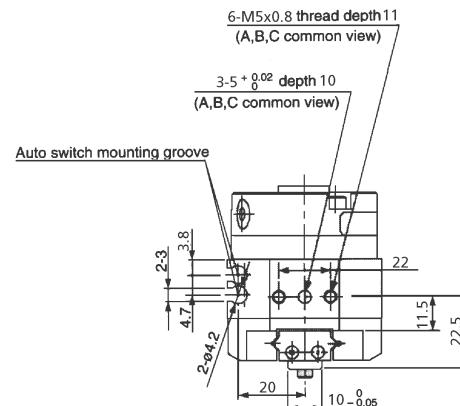
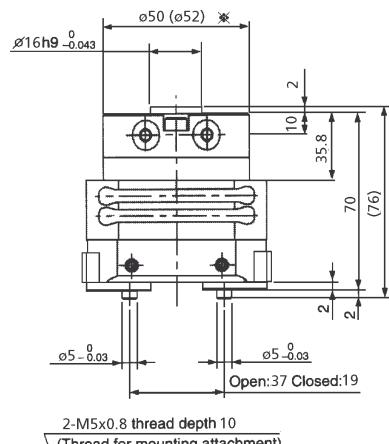
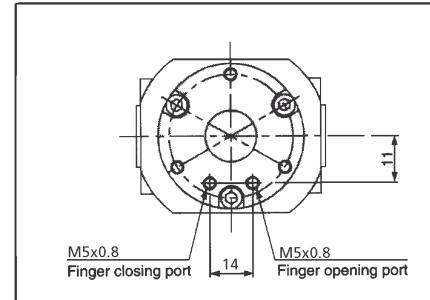


MDHR2-20E Port Position

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

DIMENSIONS

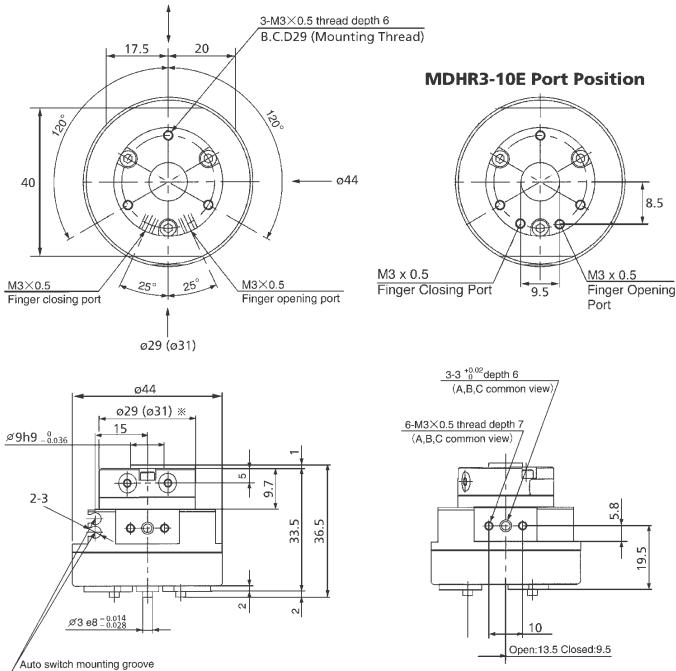
WITH AUTO SWITCH (BUILT-IN MAGNET): MDHR2-30R/30E


MDHR2-30E Port Position


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

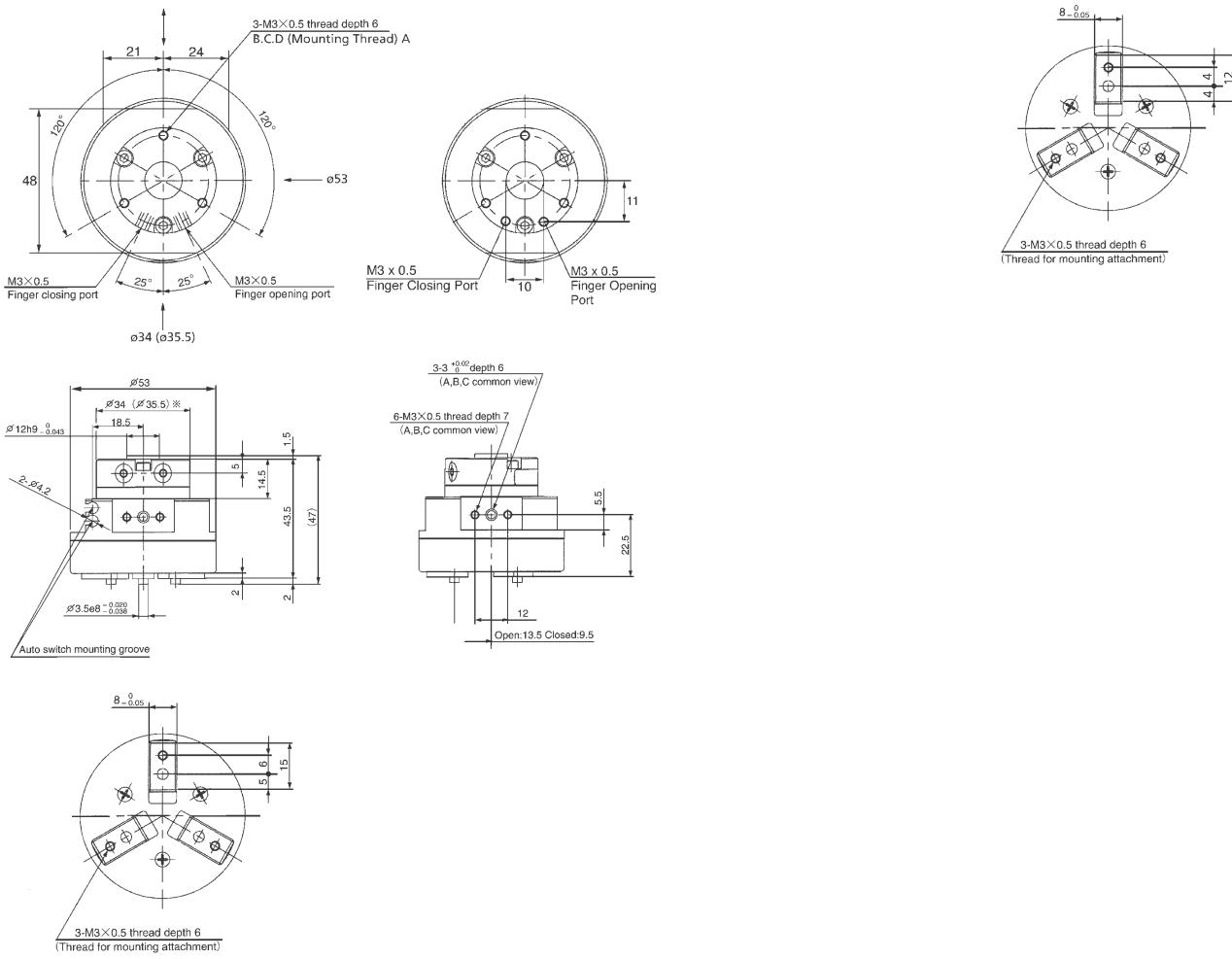
DIMENSIONS

WITH AUTO SWITCH (BUILT-IN MAGNET): MDHR3-10R/10E



DIMENSIONS

WITH AUTO SWITCH (BUILT-IN MAGNET): MDHR3-15R/15E

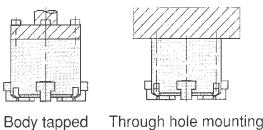


PRECISION AIR CHUCK
SERIES MHS
BORE SIZE Ø16, 20, 25, 32,
40, 50, 63, 80, 100, 125MM

- ✓ Auto Switch Available
- ✓ Wedge Cam Structure
- ✓ High Accuracy 0.01 Repeatability
- ✓ Light Weight Compact Construction


 PRODUCT
SELECTOR
INSTALLATION

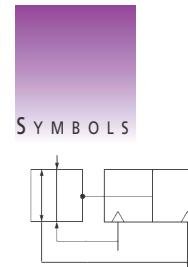
Installation is possible from two directions.


 Helisert is used to mounting
female thread.

A durable helisert is used to reinforce the female thread.

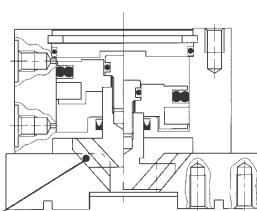
 How To
ORDER
MHS SERIES

MHS 3 —	D —			
No Of Fingers				No Of Switches
2	2 Fingers			- 2Pieces
3	3 Fingers			S 1 Piece
4	4 Fingers			
Cylinder Bore				Lead Wire Length
16	Ø16mm			- 0.5m
20	Ø20mm			L 3m
25	Ø25mm			
32	Ø32mm			
40	Ø40mm			
50	Ø50mm			
63	Ø63mm			
80	Ø80mm			
100	Ø100mm (MHS3 Only)			
125	Ø125mm (MHS3 Only)			
200	Ø200mm (MHS4 Only)			
				Auto Switch Type See Accessories Section
				Action D.....Double Acting


 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	30c.p.m	30c.p.m	30c.p.m	
Lubrication					Non Lube					
Action					Double Acting					

 TECHNICAL
SPECIFICATIONS

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

Wedge cam structure

ACCESSORIES

SOLID STATE AUTO SWITCHES

APPLICABLE CYLINDER BORE: Ø16, 20, 25MM

Auto Switch No	D-F9N	D-F9NV	D-F9B	D-F9BV
Lead Wire Entry	In-line	Perpendicular	In-line	Perpendicular
Wiring Method	3 Wire	3 Wire	2 Wire	2 Wire
Output Method	NPN	NPN	-	-
Application		24VDC PLC		
Power Source	24VDC (10-28VDC)	24VDC (10-28VDC)	-	-
Current Consumption	8mA max	8mA max	-	-
Load Voltage	28VDC max	28VDC max	24VDC (10-28VDC)	24VDC (10-28VDC)
Load Current	50mA max	50mA max	5-30mA	5-30mA
Internal Voltage Drop	0.4V max	0.4V max	4.5V max	4.5V max
Leak Current	10µA max at 24VDC	-	1mA max. at 24VDC	-
Indicator Lamp	ON: Red Light emitting diode			

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

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 ON: 12mA max	OFF: 1mA 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 0.8V max at 150mA	0.4V max at 50mA 0.8V max at 150mA	3V max	3V max
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 (8µA max. at Load current 10mA)	1.5V max	4V max	4V max
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

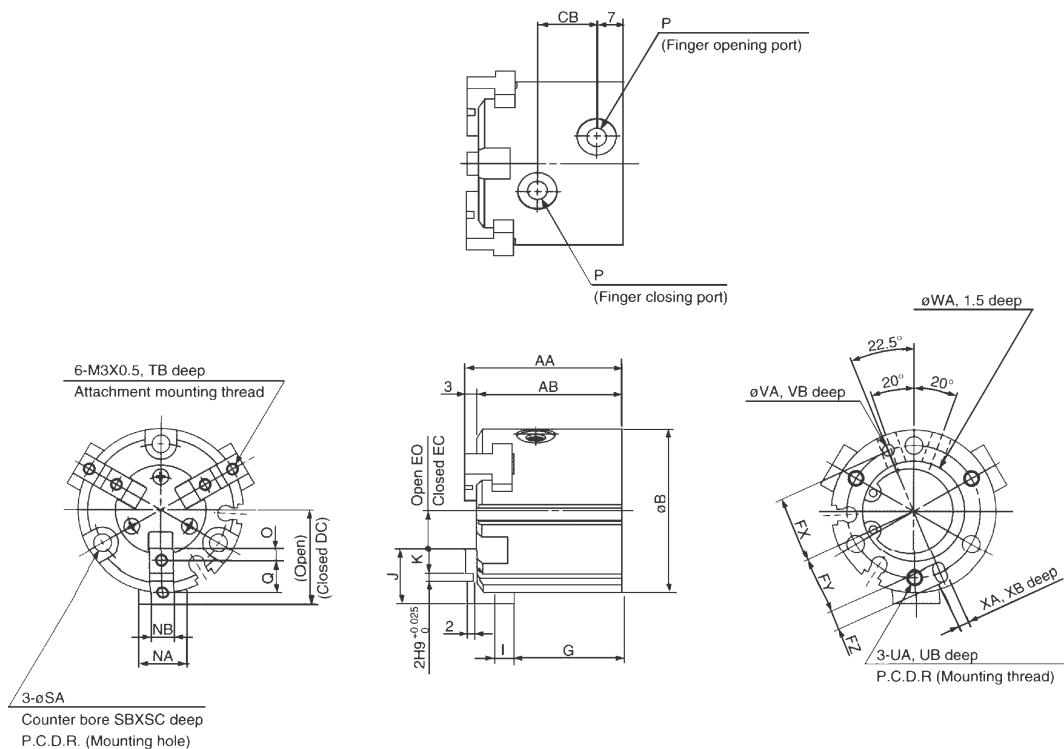
Auto Switch No	D-Y7BAL
Lead Wire Entry	In-line
Wiring Method	2 Wire
Application	24VDC PLC
Load Voltage	24VDC (10 - 28VDC)
Load Current	5 - 40mA
Internal Voltage Drop	4V max
Leak Current	1mA max at 24VDC
Indicator Lamp	Operating position - Red Light emitting diode Most Sensitive position - Green Light emitting diode

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

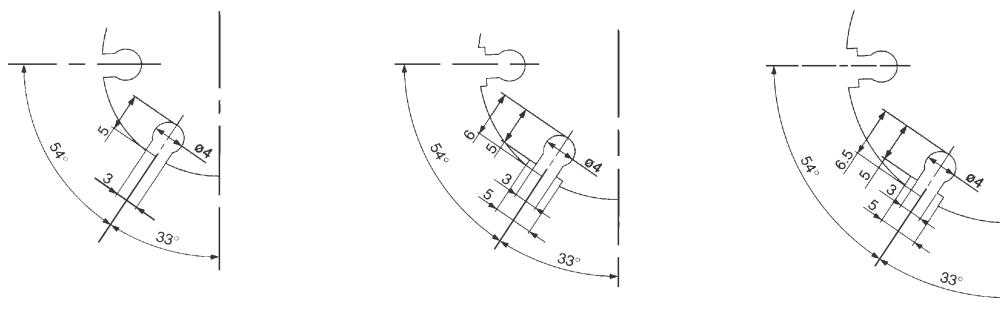


DIMENSIONS

MHS3-16D, 20D, 25D



Auto switch mounting groove position (2 places)



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

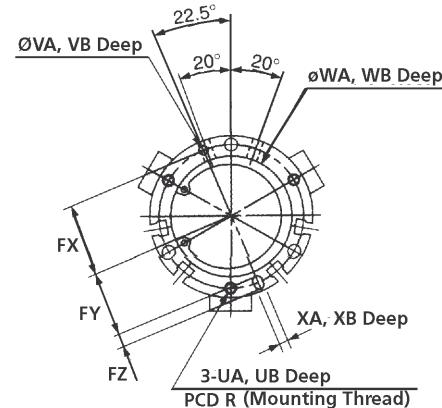
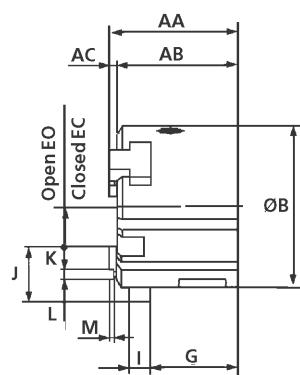
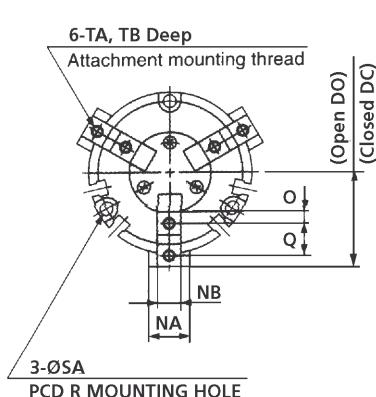
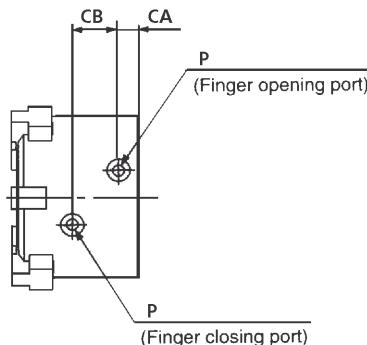
Part No	XA	XB
MHS3-16D	2H9 0~0.025	2
MHS3-20D	2H9 0~0.025	2
MHS3-25D	3H9 0~0.025	3

(mm)

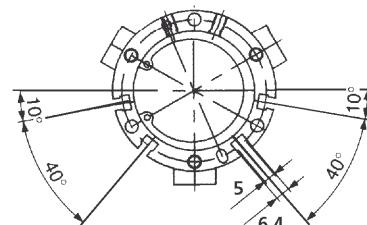
NOTE) For MHS2 and MHS4
 DIMENSIONS AND MORE TECHNICAL
 INFORMATION, REFER TO CAT:E246

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 0~0.036~0	4.5	M5x0.8	11	44	4.5	8	9	M4x0.7	8	M4x0.7	6	3H9 0~0.025
MHS3-40D	16	8h9 0~0.036~0	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 0~0.036~0	5	M5x0.8	14	62	5.5	9.5	12	M5x0.8	10	M5x0.8	10	4H9 0~0.03
MHS3-63D	24	12H9 0~0.043~0	5.5	M5x0.8	17	76	6.6	11	14	m5x0.8	10	M6x1	9	5H9 0~0.03
MHS3-80D	28	14h9 0~0.043~0	6	Rc(PT)1/8	20	95	6.6	11	19	M6x1	12	M6x1	12	6H9 0~0.03

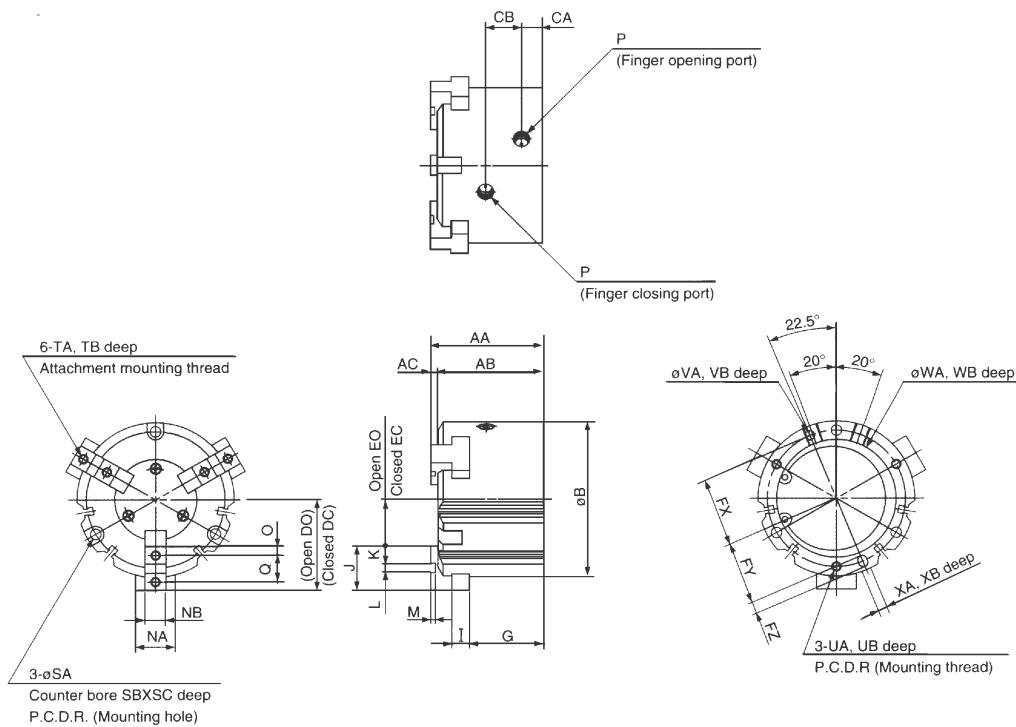
Part No	VB	WA	WB	XA
MHS3-32D	3	34H9 0~0.062	2	3H9 0~0.025
MHS3-40D	4	42H9 0~0.062	2	4H9 0~0.03
MHS3-50D	4	52H9 0~0.074	2	4H9 0~0.03
MHS3-63D	5	65H9 0~0.074	2.5	5H9 0~0.03
MHS3-80D	6	82H9 0~0.087	3	6H9 0~0.03

(mm)

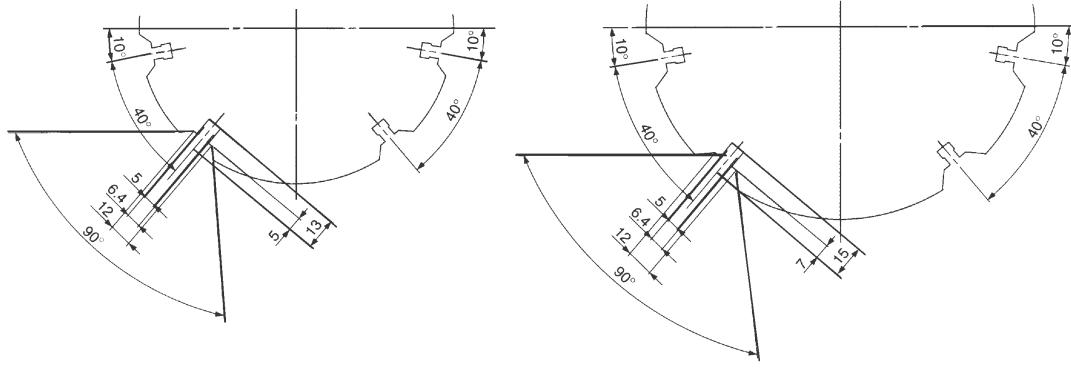
NOTE) For MHS2 and MHS4
DIMENSIONS AND MORE TECHNICAL
INFORMATION, REFER TO CAT:E246

DIMENSIONS

MHS3-100D, 125D



Auto switch mounting groove position (4 places)



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

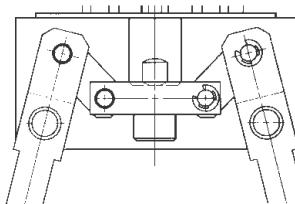
- ✓ High gripping force
- ✓ Toggle mechanism
- ✓ Maintains grip even when the pressure drops
- ✓ Magnetic sensing is standard

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

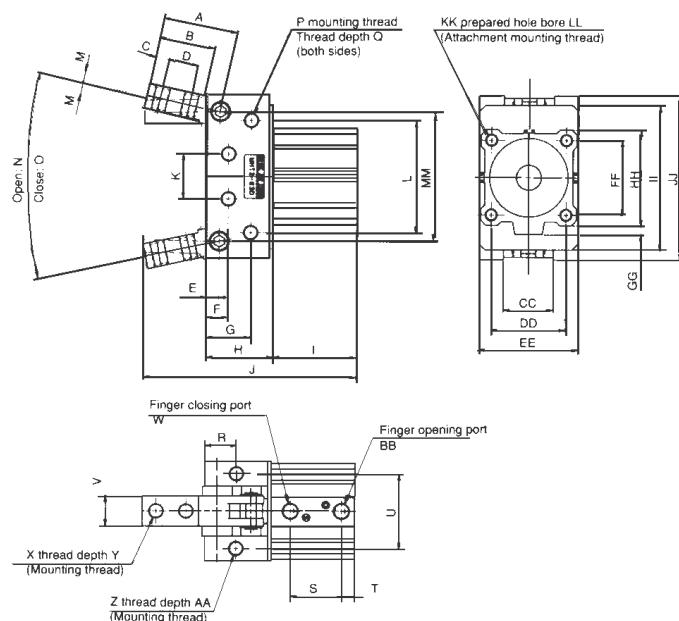
DIMENSIONS
SEE NEXT PAGE

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

ACCESSORIES

AUTO SWITCHES

Model		Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service						
Part no	Part no	Type	Load Voltage	Load Current	Power Source	Internal Voltage Drop	Indicator Lamp	
Grommet Type	Connector Type							
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	O	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

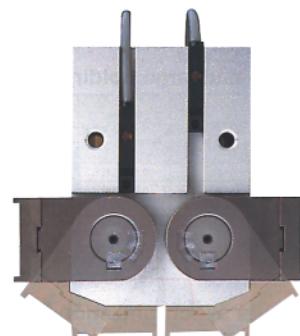
AIR CHUCK SERIES MHW 180° ANGULAR GRIPPER

- ✓ 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
Lubrication	Ø32~50 30 cpm
Action	Not Required
	Double Acting

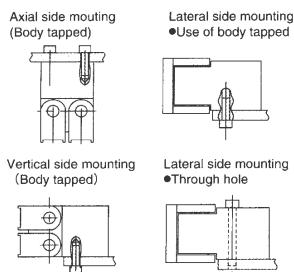
Model	Cylinder ID mm	Effective Holding Force Nm	Opening Angle (both sides)		Weight g
			Opening Side	Closing Side (when fingers are in contact with each other)	
MHW2-20D	20	0.30	180°	-5°	300
MHW2-25D				-6°	510
MHW2-32D				-5°	905
MHW2-40D				-5°	2135
MHW2-50D				-4°	5100



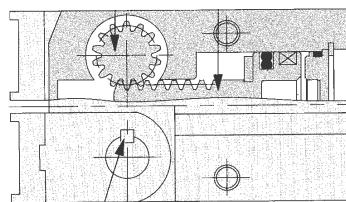
MOUNTING OPTIONS

A variety of mounting

Mounting from 4 directions possible



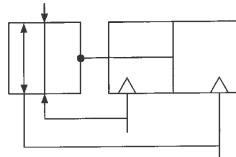
MECHANISM



Key connection is ideal for impact resistance.

Key connection between finger and rotation axis prevents finger angles lippage due to impact.

SYMBOLS



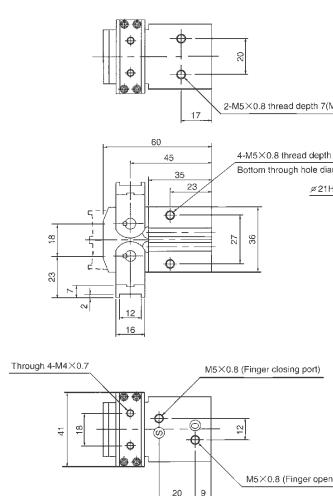
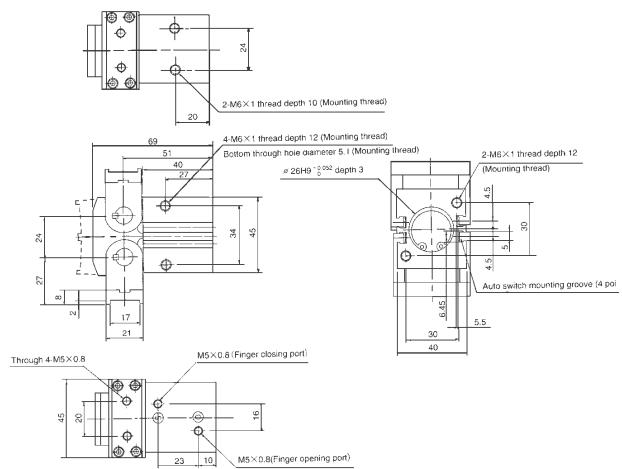
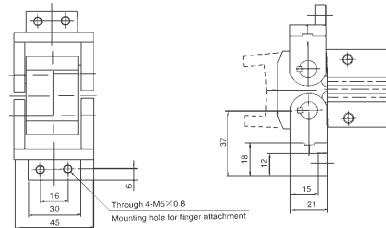
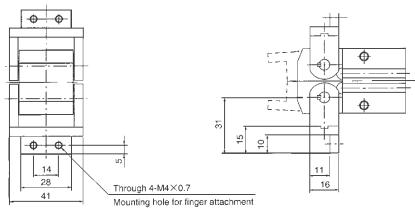
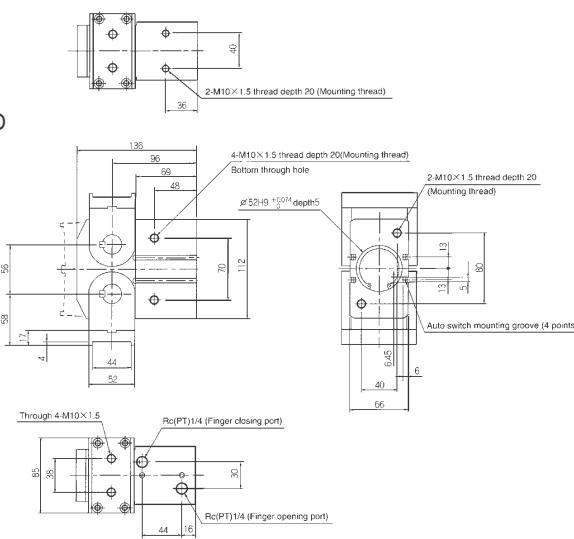
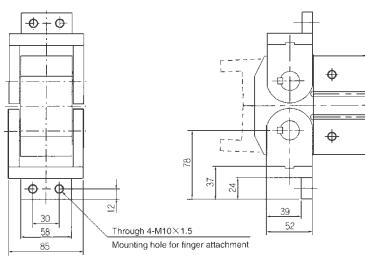
FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N360

ACCESSORIES AUTOSWITCHES

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

Auto Switch No	D-Y59AL	D-Y69AL	D-Y59BL	D-Y69BL
Lead Wire Entry	In-line	Perpendicular	In-line	Perpendicular
Wiring Method	3 wire NPN		2 wire	
Application	PLC		24VDC PLC	
Power Source	5, 12, 24VDC		—	
Current Consumption	1mA or less at OFF		—	
	12mA or less at ON		—	
Load Voltage	28VDC or less		240VDC (10~28 VDC)	
Load Current	150mA or less		5~150mA	
Internal Voltage Drop	0.4V or less at 50mA		3V or less	
	0.8V or less at 150mA		3V or less	
Current Leakage	10µA or less at 24VDC		1mA or less at 24VDC	
Indicator Lamp	ON: Red light emitting diode			

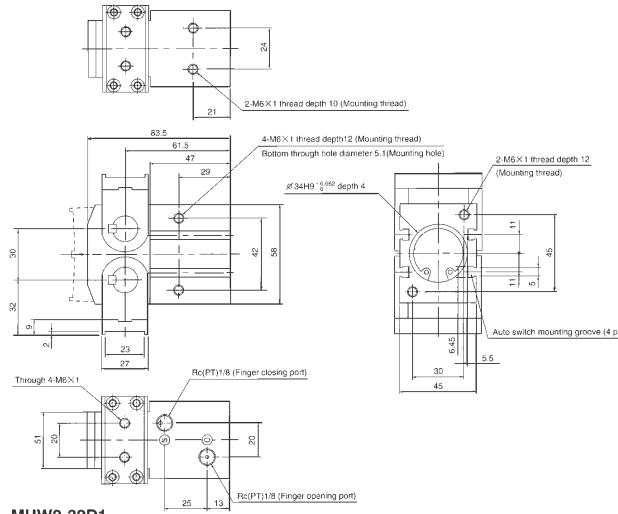
DIMENSIONS
SEE NEXT PAGE

DIMENSIONS
 FLAT FINGER TYPE MHW2-20D

DIMENSIONS
 FLAT FINGER TYPE MHW2-25D

MHW2-25D1
 Right angle finger type

DIMENSIONS
 FLAT FINGER TYPE MHW2-50D

MHW2-50D1
 Right angle finger type


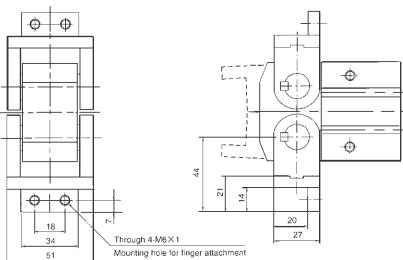
FOR MORE TECHNICAL INFORMATION ON
THIS SERIES, PLEASE REFER TO CAT:N360



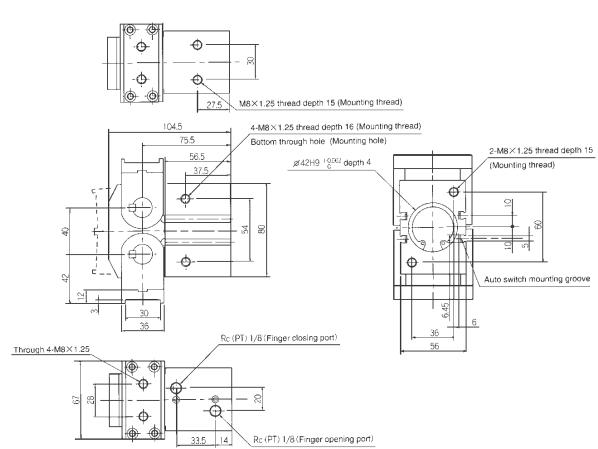
DIMENSIONS
FLAT FINGER TYPE MHW2-32D



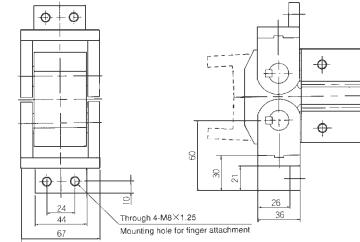
MHW2-32D1
Right angle finger type



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	—
1010mm
1616mm
2020mm
2525mm

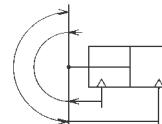
No Of Switches	—
S2 Pieces
S1 Piece

Lead Wire Length	—
L0.5m (Std)
3m

Auto Switch Type	—
See Accessories Section	


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

SYMBOLS


 TECHNICAL
 SPECIFICATIONS SERIES MHY2

 ACCESSORIES
 SERIES MHY2 AUTO SWITCHES

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

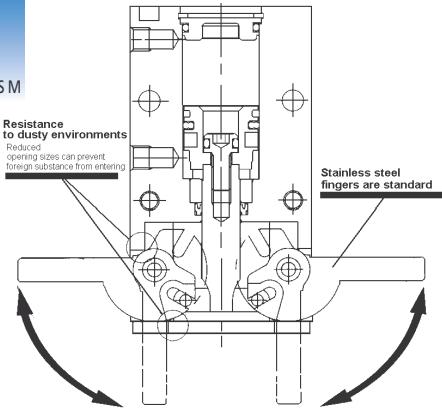
Fluid	Air	Electrical Entry		Type	Special Function	Electrical Entry	Indicator	Wiring Output	Load Voltage		Applicable Load
Operating Pressure	0.1~0.6MPa / 14.5~87PSI	Perpendicular	In-Line					3 Wire NPN	DC	AC	
Ambient & Fluid Temperature	-10°C ~ 60°C / 14~140°F	F9NV	F9N		-			3 Wire PNP			
Repeatability	+0.2mm	F9PV	F9P		-			2 Wire			
Maximum Operating Frequency	60 cpm	F9BV	F9B	Solid	-			3 Wire NPN	24V	12V	
Lubrication	Not Required	F9NWV	F9NW	State	Diagnosis	Grommet	With	3 Wire PNP			Relay PLC
Action	Double Action	F9PWV	F9PW		(2 Color Indication)			2 Wire			
		F9BWV	F9BW		Improved Water Resistance (2 Color Indication)			2 Wire			
		-	F9BA								

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

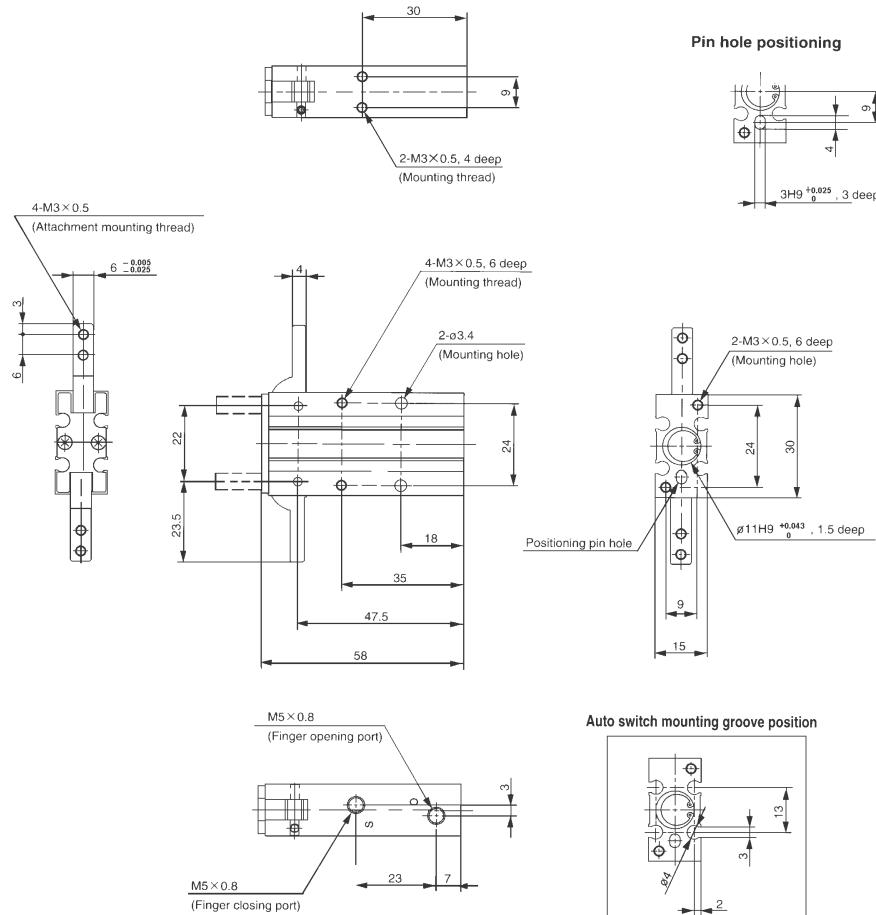
 TECHNICAL
 SPECIFICATIONS

Model	Cylinder ID mm	Effective Holding Force Nm (At 0.5MPa / 73PSI)	Opening Angle (Both Sides)		Weight (g) (W/O Auto S)
			Opening Side	Closing Side	
MHY2-10D	10	0.16	180°	-3°	70
MHY2-16D	16	0.54	180°	-3°	150
MHY2-20D	20	1.10	180°	-3°	320
MHY2-25D	25	2.28	180°	-3°	560

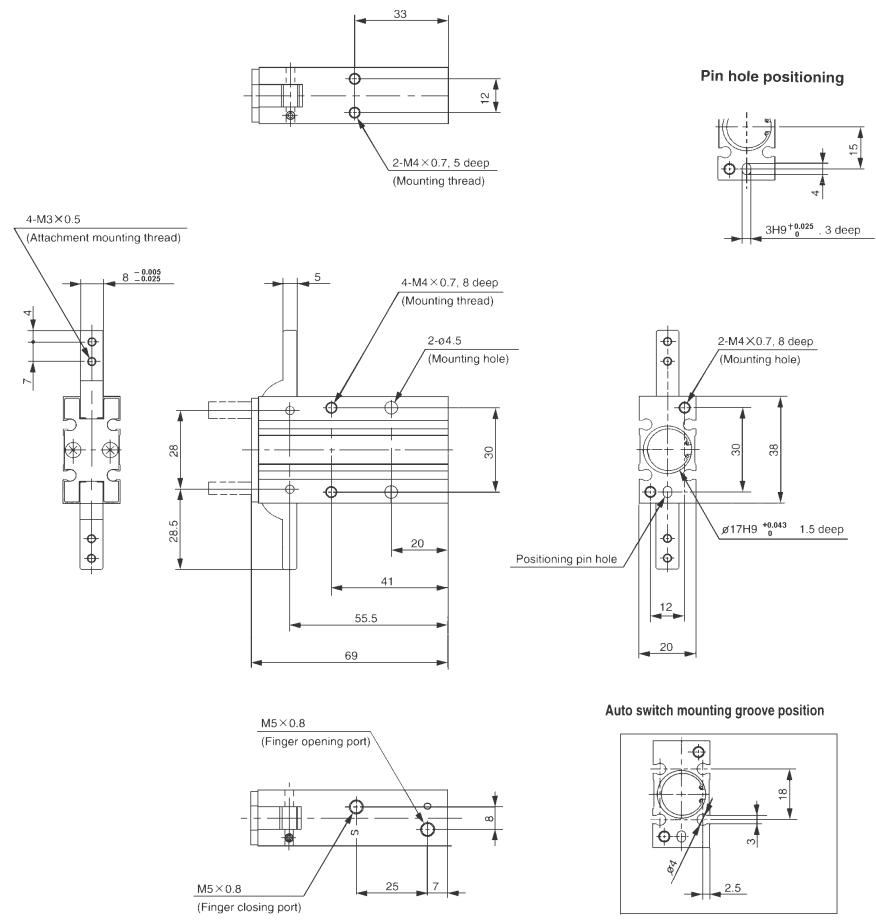
MECHANISM

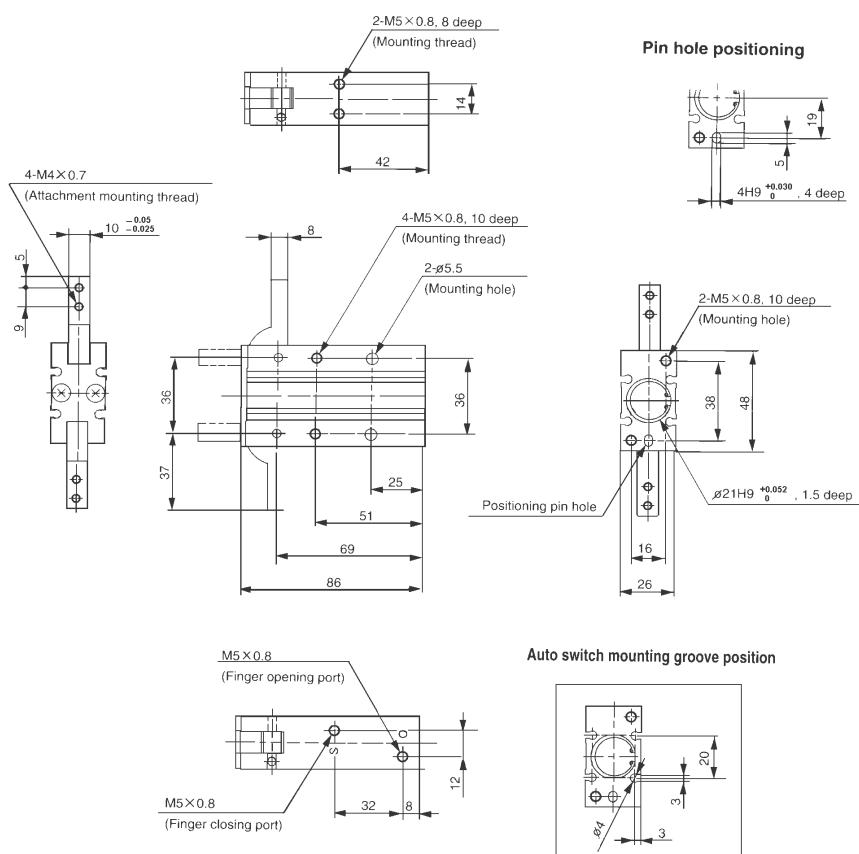
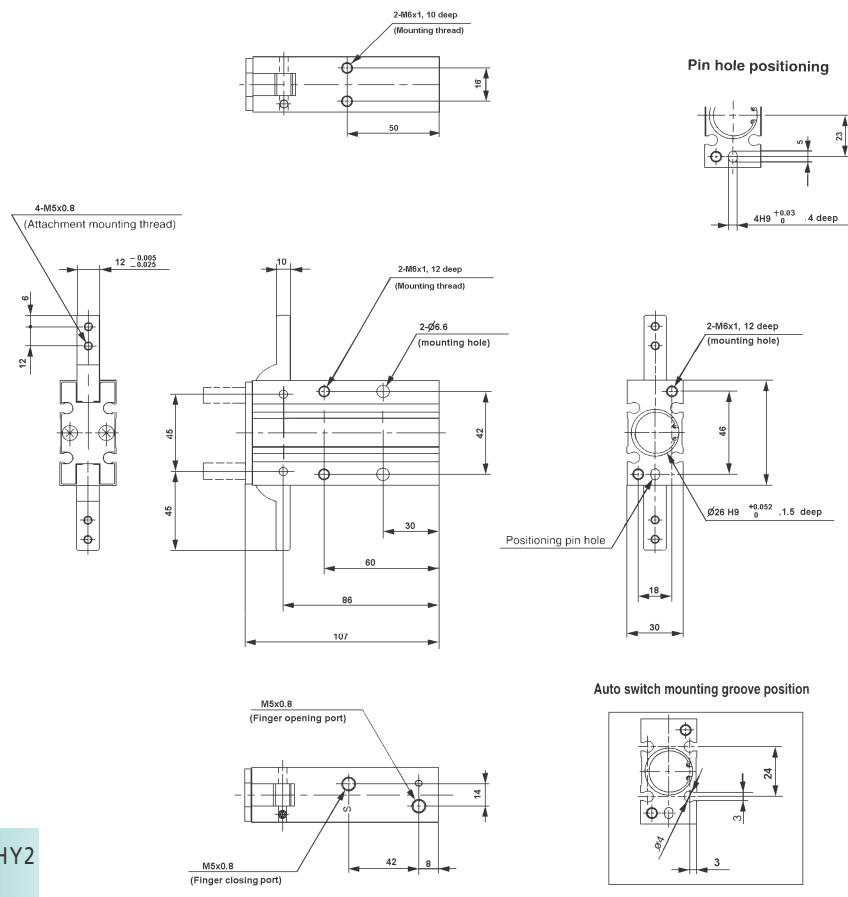

 DIMENSIONS
 SEE NEXT PAGE

DIMENSIONS
SERIES MHY2-10D



DIMENSIONS
SERIES MHY2-16D



DIMENSIONS
 SERIES MHY2-20D

 DIMENSIONS
 SERIES MHY2-25D


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

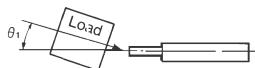
SHOCK ABSORBER SERIES NRB

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

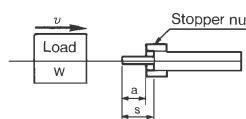


PRECAUTION

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

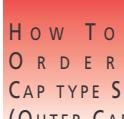
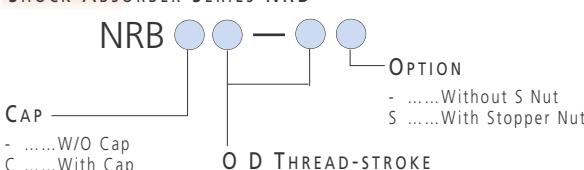


TECHNICAL SPECIFICATIONS

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)	1.87(0.85)
	Compressed	1.65(0.75)	1.65(0.75)	2.12(0.96)	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)
Optional	Stop Nut	NRB031S	NRB037S	NRB050S	NRB056S	NRB075S
	Mounting Nuts -2				Standard	NRB100S



SHOCK ABSORBER SERIES NRB



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



ACCESSORIES STOPPER NUT

STOPPER NUT	APPLICABLE MODEL
NRB031S	NRB031-025
NRB037S	NRB037-025
NRB050S	NRB050-030
NRB056S	NRB056-045
NRB075S	NRB075-045
NRB100S	NRB100-060



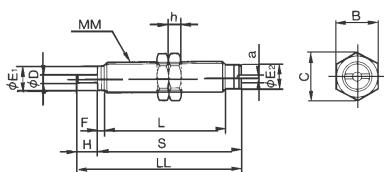
ACCESSORIES SPARE CAP (OUTER CAP)

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

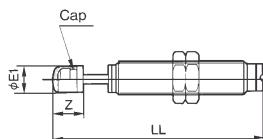
FOR MORE TECHNICAL INFORMATION ON
THIS SERIES, PLEASE REFER TO CAT:N371



DIMENSIONS
BASIC TYPE NRB031•NRB037



DIMENSIONS
WITH CAP NRBC031•NRBC037

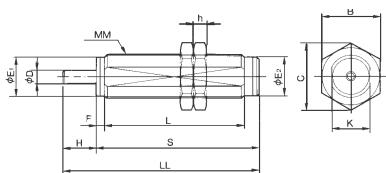


Model	Shock Absorber										Nut			
	a	oD	oE ₁	oE ₂	F	H	L	LL	MM	S	B	C	h	K
NRB031-025	0.06	0.11	0.27	0.27	0.09	0.25	1.31	1.85	5/16-32UNEF	1.60	7/16	0.55	0.09	-
NRB037-025	0.06	0.11	0.33	0.33	0.15	0.25	1.24	1.84	3/8-32UNEF	1.59	1/2	0.58	0.09	-

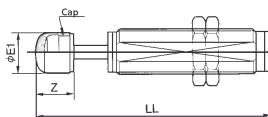
Parts Number	Dimensions		
	oE ₁	LL	Z
NRB031-025	0.27	2.25	0.41
NRB037-025	0.27	2.25	0.41



DIMENSIONS
BASIC TYPE NRB050•NRB056



DIMENSIONS
WITH CAP NRBC056•NRBC075•NRBC100

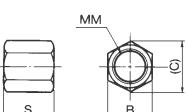


Model	Shock Absorber										Nut			
	A	oD	oE ₁	oE ₂	F	H	L	LL	MM	S	B	C	h	K
NRB050-030	-	0.12	0.42	0.42	0.15	0.30	1.48	2.12	1/2-20UNF	1.82	3/4	0.86	0.20	0.43
NRB056-045	-	0.20	0.48	0.47	0.14	0.45	2.31	3.10	9/16-18UNF	2.65	3/4	0.86	0.24	0.49
NRB075-045	-	0.20	0.65	0.67	0.20	0.45	2.26	3.19	3/4-16UNF	2.74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

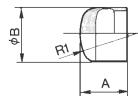
Parts Number	Dimensions		
	oE ₁	LL	Z
NRB050-030	0.31	2.50	0.39
NRB056-045	0.47	3.65	0.53
NRB075-045	0.47	3.65	0.53
NRB100-60	0.71	4.14	0.67



DIMENSIONS
STOPPER NUT



DIMENSIONS
CAP



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	

Part No	Dimensions		
	A	oB	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

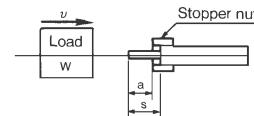
*At maximum energy absorption per cycle. Maximum operation cycle/min can increase in proportion to energy absorption

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 _____

O/D THREAD-STROKE

-Without
CWith

0806
1007
1412
2015
2725

ACCESSORIES STOPPER NUT

STOPPER NUT	APPLICABLE MODEL
RB08S	RB0806
RB10S	RB1007
RB14S	RB1412
RB20S	RB2015
RB27S	RB2725

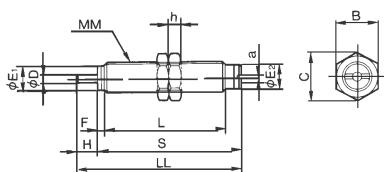
ACCESSORIES SPARE CAP

*RB08C
*RB10C
*RB14C
*RB20C
*RB27C

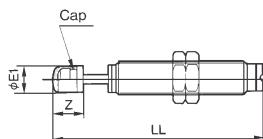
*For replacement only on RBC


DIMENSIONS

BASIC TYPE RB0806•RB1007


DIMENSIONS

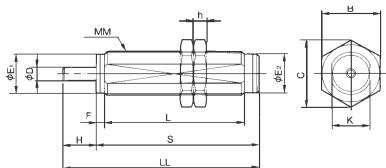
WITH CAP RBC0806•RBC1007



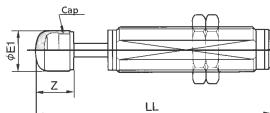
Model		Basic type									With cap			Hexagonal nut			
Basic type	With cap	ØD	ØE ₁	ØE ₂	F	H	a	L	LL	MM	S	ØE ₁	LL	Z	B	C	h
RB0806	RBC0806	2.8	6.8	6.8	2.4	6	1.4	33.2	46.6	M8 x 1.0	40.6	6.8	57.1	10.5	12	13.9	4
RB1007	RBC1007	3	8.6	8.6	2.7	7	1.4	39	53.7	M10 x 1.0	46.7	8.0	63.7	10	14	16.2	4


DIMENSIONS

BASIC TYPE RB1412•RB2015•RB2725


DIMENSIONS

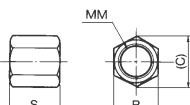
WITH CAP RBC0806•RBC1007



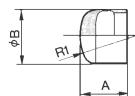
Model		Basic type									With cap			Hexagonal nut			
Basic type	With cap	ØD	ØE ₁	ØE ₂	F	H	K	L	LL	MM	S	ØE ₁	LL	Z	B	C	h
RB1412	RBC1412	5	12.2	12	3.5	12	12	58.2	79.3	M14 x 1.5	67.3	12	92.8	13.5	19	21.9	6
RB2015	RBC2015	6	18.2	18	4	18	18	62.2	88.2	M20 x 1.5	73.2	18	105.2	17	27	31.2	6
RB2725	RBC2725	8	25.2	25	5	25	25	86	124	M27 x 1.5	99	25	147	23	36	41.6	6


DIMENSIONS

STOPPER NUT


DIMENSIONS

CAP



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

Parts No.	Dimensions		
	A	ØB	R1
RB08C	6.5	6.8	6
RB10C	9	8.7	7.5
RB14C	12.5	12	10
RB20C	16	18	20
RB27C	21	25	25

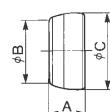
SHOCK ABSORBER SERIES RBQ

- ✓ Compact Design
- ✓ Interchangeable Damper Optional
- ✓ Double Seal Enclosure

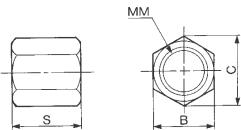
TECHNICAL
SPECIFICATIONS

RBQ SERIES SHOCK ABSORBER

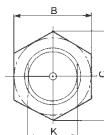
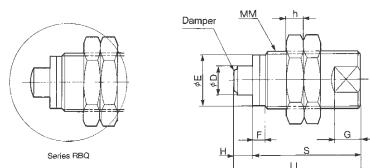
Model:	Basic Type With Damper	RBQ1604 RBQC1604	RBQ2007 RBQC2007	RBQ2508 RBQC2508	RBQ3009 RBQC3009	RBQ3213 RBQC3213
Max Energy Absorption/Stroke (Nm)		0.2	1.2	2	3.4	5
Stroke (mm)		4	7	8	8.5	13
Max Impact Speed (m/s)		3	3	3	3	3
Max Operational Cycle/Min		60	60	45	45	30
Max Allowable Thrust (kgf)		30	50	70	100	120
Ambient Temperature		-10 ~ 80°C / 14 ~ 176°F				
Spring Performance: Extended	0.62	1.3	1.6	2.2	2.5	
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	RBQ32S	

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

DIMENSIONS
SERIES RBQHow To
ORDER
SHOCK ABSORBER SERIES RBQFOR MORE TECHNICAL INFORMATION ON
THIS SERIES, PLEASE REFER TO CAT:E224

RBQ

MODEL
-Basic Type
CWith Damper

OD THREAD
16
20
25
30
32

STROKE
04 * Stopper nut must be ordered as a separate item.
07
08 RBQ16S RBQ20S RBQ25S
09 RBQ30S RBQ32S
13

REPLACEMENT DAMPERS

RBQC

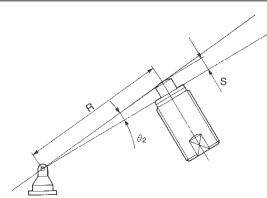
C

APPLICABLE MODEL

16 ...RBQC1604
20 ...RBQC2007
25 ...RBQC2508
35 ...RBQC3009
32 ...RBQC3213

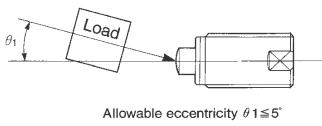
Model	Body Dimensions								Hexagonal Nut				
Basic Type	With Damper	ØD	ØE	F	H	K	G	LL	MM	S	B	C	h
RBQ1604	RBQC1604	6	14.2	3.5	4	14	7	31	M16x1.5	27	22	25.4	6
RBQ2007	RBQC2007	10	18.2	4	7	18	9	44.5	M20x1.5	37.5	27	31.2	6
RBQ2508	RBQC2508	12	23.2	4	8	23	10	52	M25x1.5	44	32	37	6
RBQ3009	RBQC3009	16	28.2	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

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



PRECAUTIONS

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

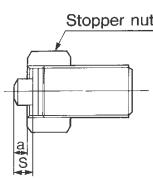


For rotation impact, load should always be aligned perpendicular to the axis of shock absorber and allowable rotation angle at stroke end should always be θ2 < 5°.

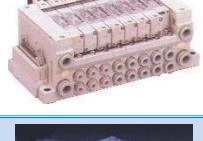
Installation conditions for rotation impact (mm)

Model	S (Stroke)	U2 (Allowable Rotation Angle)	R (Min Installation Angle)
RBQ•1604	4	50	51
RBQ•2007	7	50	89
RBQ•2508	8	50	102
RBQ•3009	8.5	50	108
RBQ•3213	13	50	166

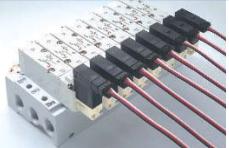
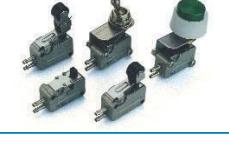
The shock absorber shall not be used under conditions where it will be exposed to cutting oil, water and other types of fluid, otherwise malfunction may result.



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.



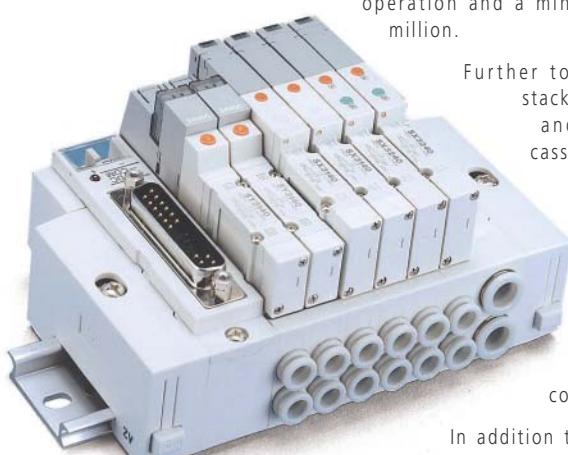
Both the SX and SY series offer a wide range of conventional body ported and subbase mounted valves.

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.



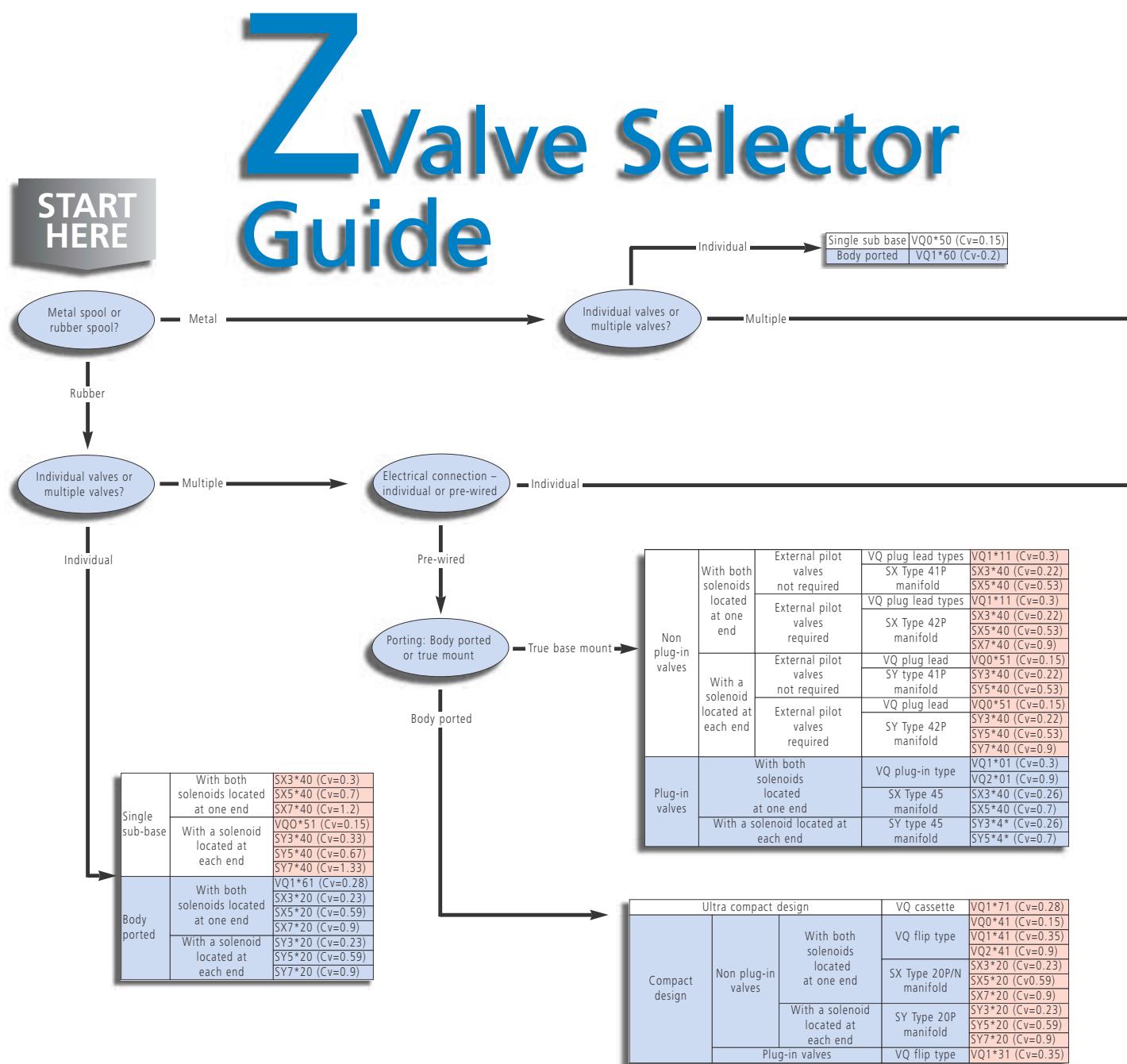
Further to the body ported, subbase mounted and modular stacking manifold types, the VQ series also offers two new and innovative multiple valve variants, the flip and cassette types.

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.



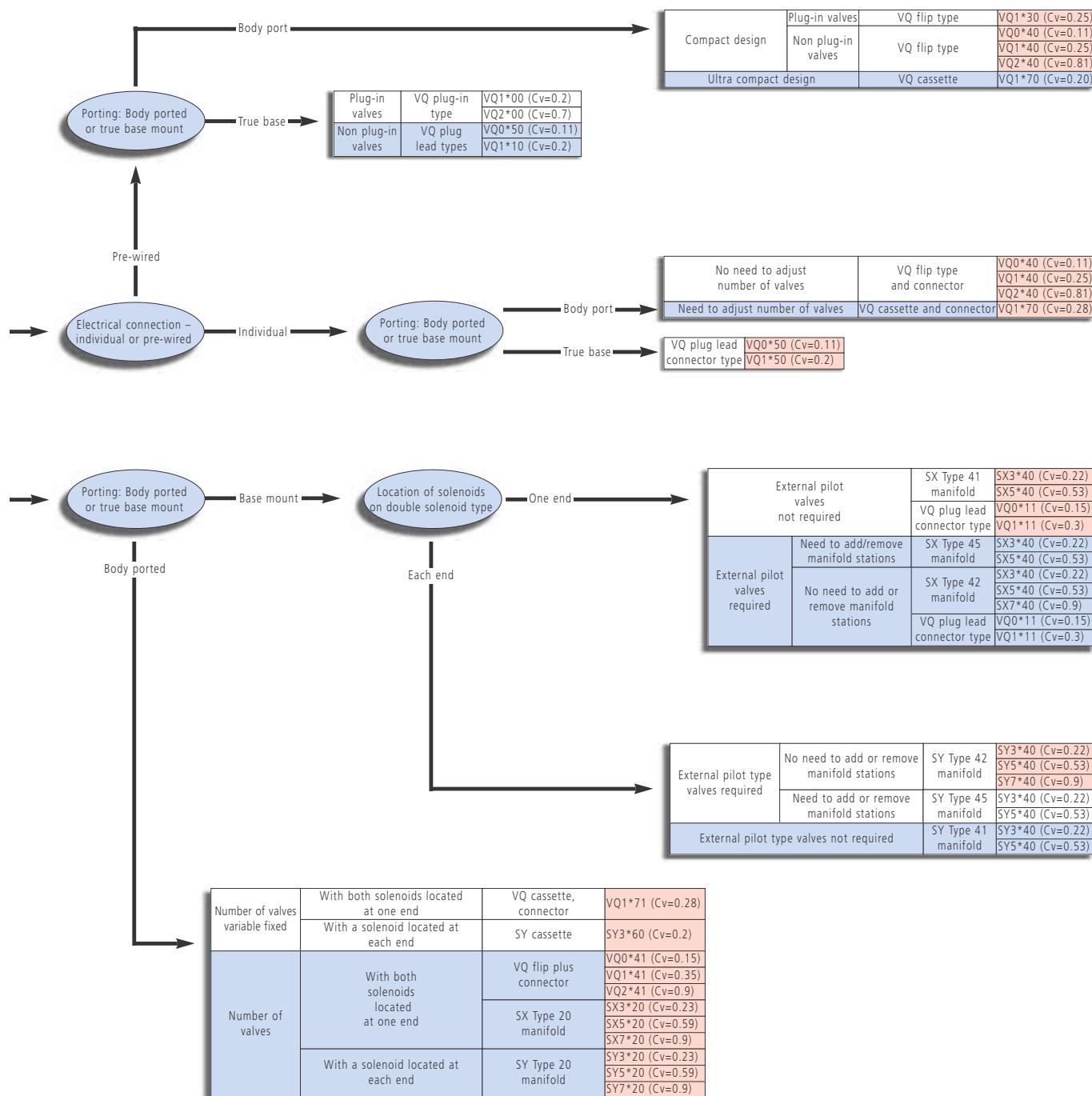
How To Use This Guide

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.



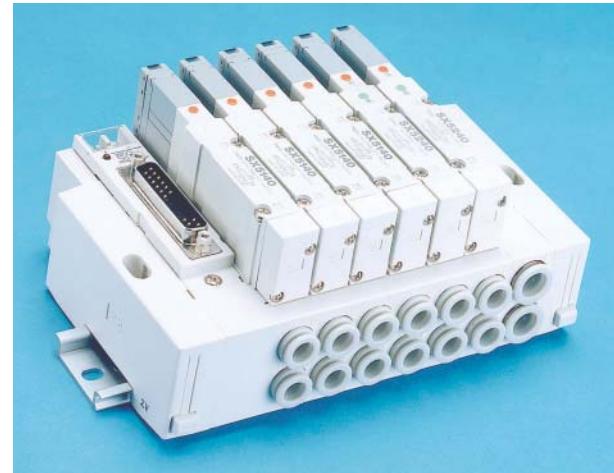
- ✓ When a valve type has been selected, please consult the relevant catalog page in the following section, or your local SMC Sales Office for how to order information and details of stocked products.
- ✓ If you require further assistance or explanation with this guide, please contact your local SMC 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

TECHNICAL SPECIFICATIONS

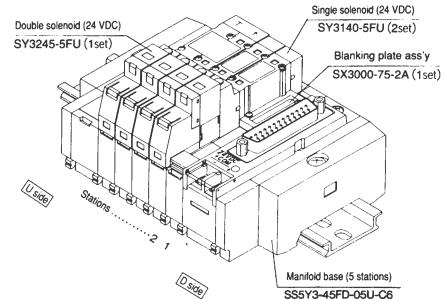
Series	SX3000	SX5000
Fluid	Air / Lubrication Not Required	
Internal Pilot	2 Position Single	0.15 ~ 0.7 (22 ~ 100)
Operating Pressure	2 Position Double	0.1 ~ 0.7 (14.5 ~ 100)
Range MPa (PSI)	3 Position	0.2 ~ 0.7 (30 ~ 100)
External Pilot	2 Position Single	0.25 ~ 0.7 (37 ~ 100)
Operating Pressure	2 Position 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 Frequency Hz	2 Position Single 3 Position	10 5 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	



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

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

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



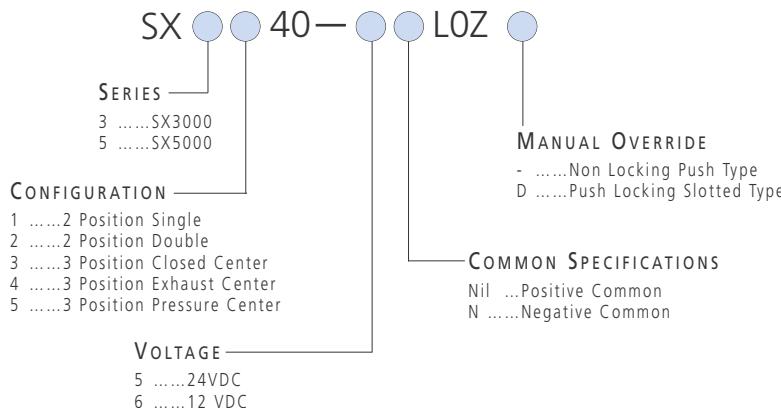
SS5Y3-45FD-05U-C6 1set (45F type D-sub connector 5-station manifold base no.)
* SY3000-75-2A 1set (Blanking plate ass'y no.)
* SY3140-5FU 2set (Single solenoid no.)
* SY3245-5FU 1set (Double solenoid no.)

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



How To
Order

SERIES SX MANIFOLD 45F TYPE / D-SUB CONNECTOR

SS5X — 45 F — — — —

MANIFOLD SERIES

3SX3000
5SX5000

COMMON SPECIFICATIONS

NilPositive Common
NNegative Common

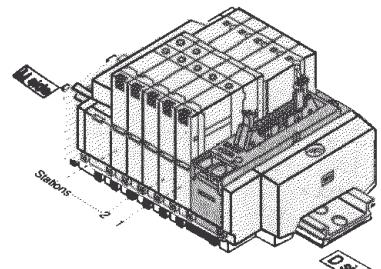
CONNECTOR Box MOUNTING

UU Side
DD Side

VALVE STATIONS

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

SUP/EXH BLOCK ASSEMBLY MOUNTING POSITIONS

UU Side - 2 ~ 10 Stations
DD Side - 2 ~ 10 Stations
BBoth Sides - 2 ~ 20 Stations
*M ...Special Specifications

BASE MOUNTED TYPE

STACKING TYPE MANIFOLD

DIN RAIL MOUNTED, PLUG-IN TYPE
45P TYPE (FLAT CABLE TYPE)

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)

VOLTAGE

-24VDC
12V ...12 VDC

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

3SX3000
5SX5000

COMMON SPECIFICATIONS

NilPositive Common
NNegative Common

CONNECTOR POLES

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

CONNECTOR MOUNTING POSITION

UU Side
DD 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

OPTION

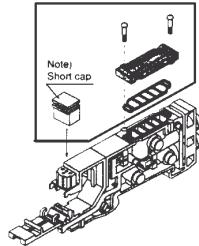
When a longer than Standard DIN Rail is required, enter the number of Manifold Station that corresponds with the length of DIN Rail needed (20 Stations Max)

VOLTAGE

-24VDC
12V ...12 VDC

SUP/EXH BLOCK ASSEMBLY MOUNTING POSITIONS

UU Side - 2 ~ 10 Stations
DD Side - 2 ~ 10 Stations
BBoth Sides - 2 ~ 20 Stations
*M ...Special Specifications (by Special Order)

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

■ 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 factory, labels will be attached to the manifold showing the locations.

■ EXH block disc

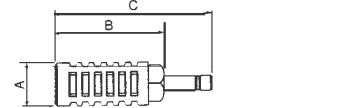
When valve exhaust affects the other stations on the circuit or when externally piloted, dual pressure valve is used on a standard manifold. Insert EXH block disc(s) in between stations to isolate exhaust.



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

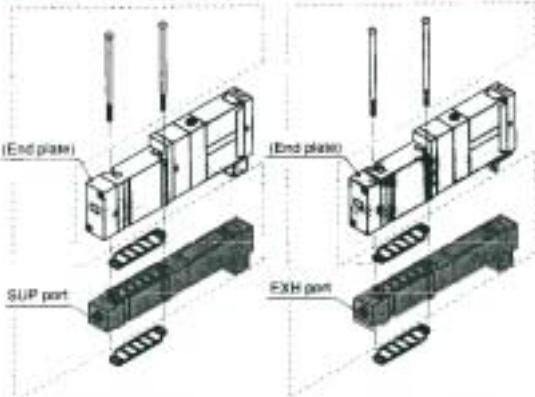
■ Silencer for one-touch fitting

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

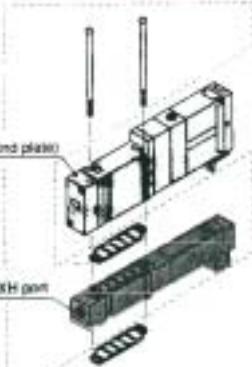


(mm)

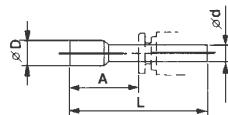
Series	Model	Effective area	A	B	C
SX3000 (ø8)	AN203-KM8	14mm ²	ø16	26	51
SX5000 (ø10)	AN200-KM10	26mm ²	ø22	53.8	80.8
			ø25	70	97
	AN300-KM10	30mm ²			

OPTIONS
SERIES SX MANIFOLD OPTIONS
■ Individual SUP spacer ass'y


Series	Ass'y no.	Port size
SX3000	SX3000-3B-3A	M5x0.8
SX5000	SX5000-3B-3A	1/8"

■ Individual EXH spacer ass'y


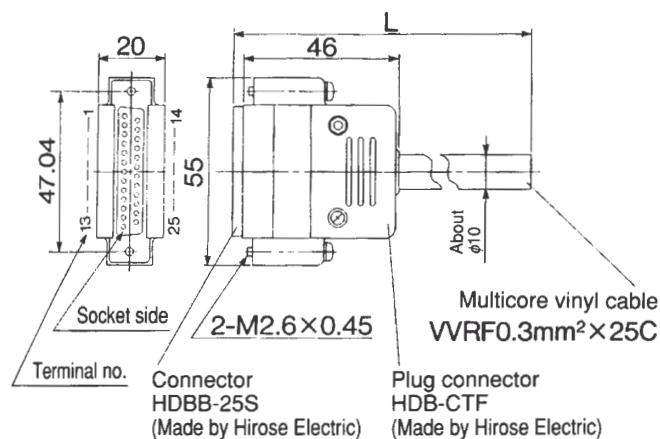
Series	Ass'y no.	Port size
SX3000	SX3000-3B-3A	M5x0.8
SX5000	SX5000-3B-3A	1/8"

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



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	-

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.

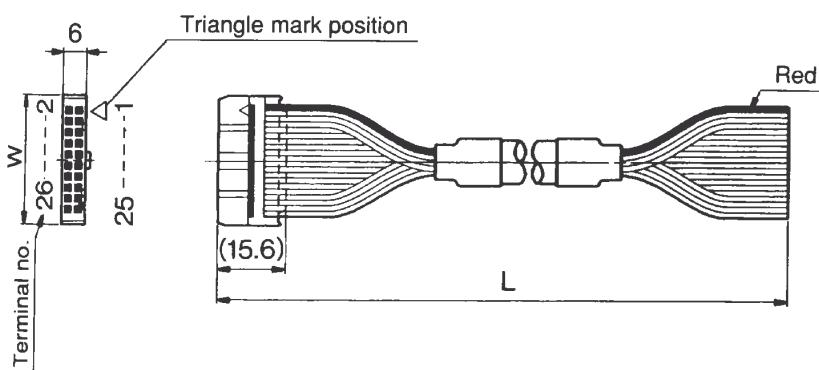
Electric Characteristics

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

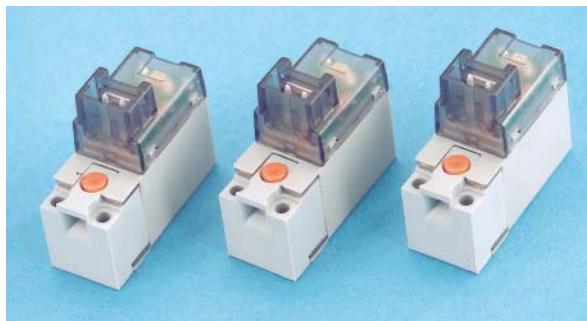
(Note) The minimum bending radius of D-Sub Connector Cable Assembly is 20mm.

■ Flat Cable Connector / Cable Ass'y

AXT100-FC□-1


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

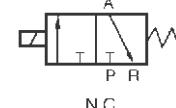
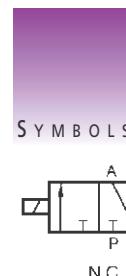
- ✓ Direct Two-Port Solenoid Valve
- ✓ Compact Size
- ✓ Power Saving Version

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)	0.14mm ² (0.008) Standard 0.22mm ² (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 0.3mm ² ø1.55mm
Response Time	<10ms



Observe Operating Pressure Ranges -
see Technical Specifications for details



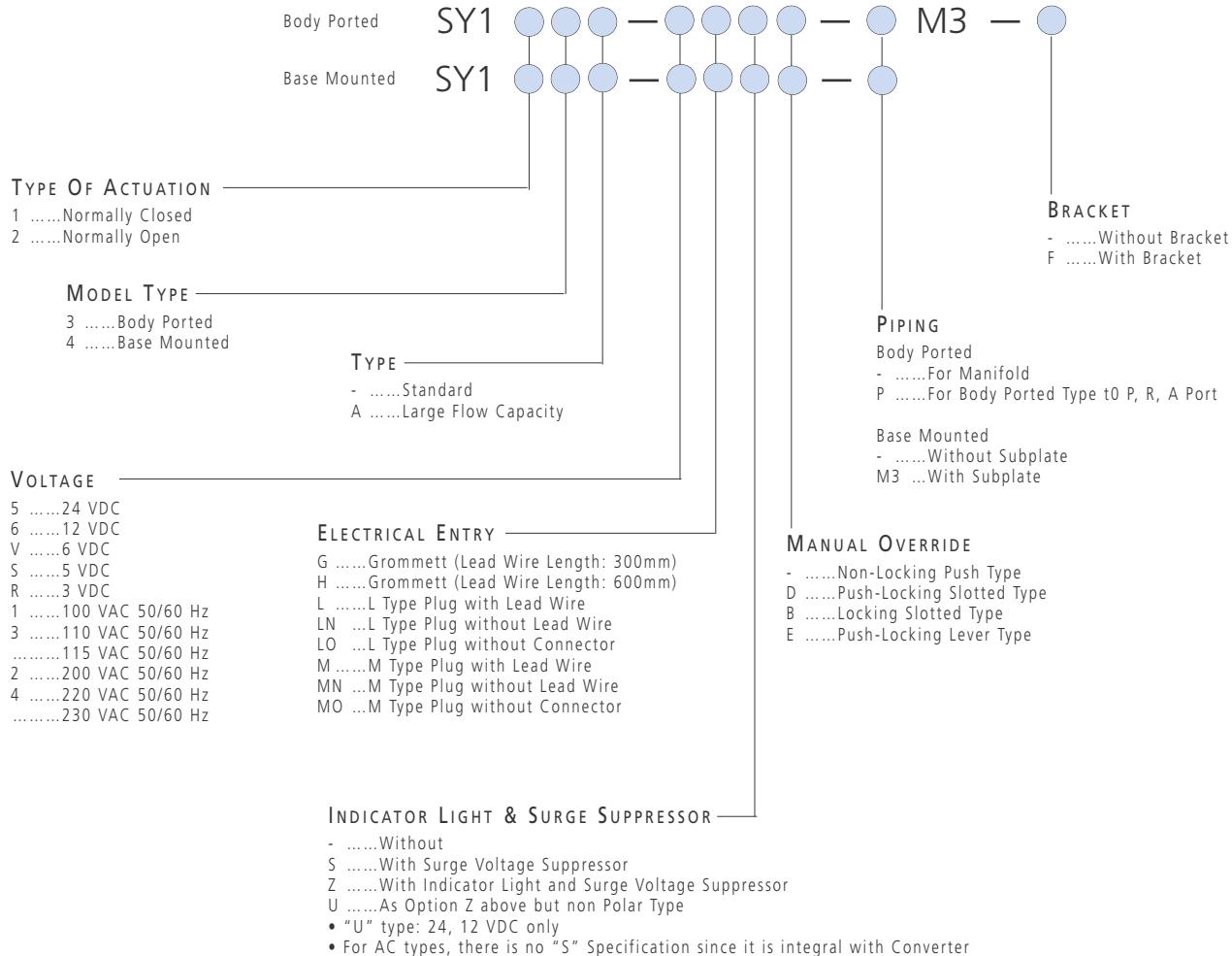
MODEL SERIES SY100

1KPa = 0.145PSI

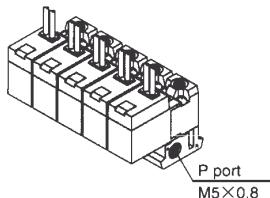
Type Of Actuation	Model	Type	Operating Pressure Range MPa/PSI	Vacuum Application MPa		Effective Area mm ² (Cv Factor)
				P Port	R Port	
NC	SY113	Standard	0 ~ 0.7 / 0 ~ 101	-100KPa~0.6	-100KPa~0	0.14 (0.008)
NC	SY114					
NC	SY113A	Large Flow Capacity	0 ~ 0.7 / 0 ~ 101	-100KPa~0.6	-100KPa~0	0.22 (0.012)
NC	SY114A					
NO	SY123	Standard	0 ~ 0.7 / 0 ~ 101	-100KPa~0	-100KPa~0.6	0.14 (0.008)
NO	SY124					
NO	SY123A	Large Flow Capacity	0 ~ 0.7 / 0 ~ 101	-100KPa~0	-100KPa~0.6	0.22 (0.012)
NO	SY124A					

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
SY100**

**How To
Order**
CONNECTOR ASSEMBLY NUMBER

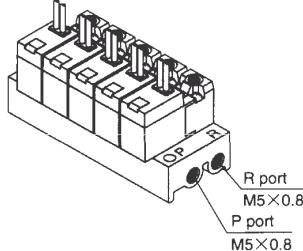
DC	:	SY100 - 30 - 4A -	
100VAC	:	SY100 - 30 - 1A -	
200VAC	:	SY100 - 30 - 2A -	
Other Voltages Of AC	:	SY100 - 30 - 3A -	
Lead Wire Length			
Nil			300mm
6			600mm
10			1000mm
15			1500mm
20			2000mm
25			2500mm
30			3000mm
50			5000mm

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

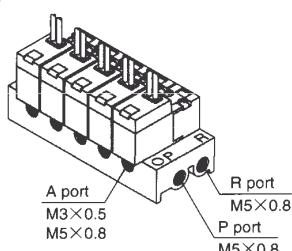
Note) Piping to exhaust port is not possible.

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

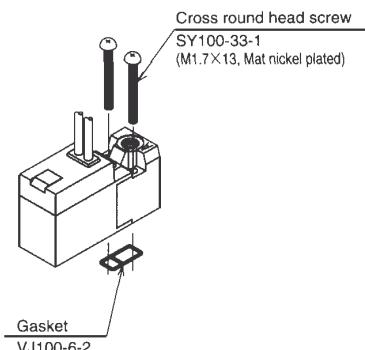
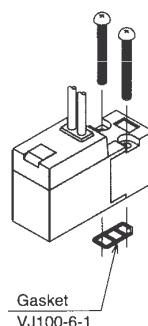
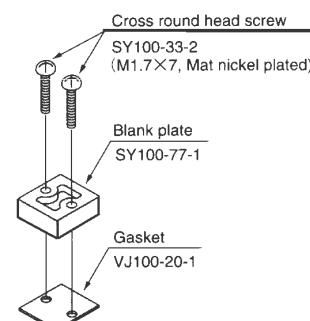
Note) SY113(A) and SY123(A) cannot be mounted on the same manifold.

Type S41

How to Order
SS3Y1-S41-05-M3

● Stations	● A port size
02 2 stations	M3 M3×0.5
⋮ :	M5 M5×0.8
20 20 stations	

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

Base mounted

Blank Plate Ass'y
Parts no. : SY100-77-1A

Applicable base

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

Applicable base

- Sub-plate
- SS3Y1-type S41
- Manifold base

Applicable base

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



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	2 Position Single	0.15 ~ 0.7MPa / 22 ~ 100PSI		
Operating Pressure	2 Position Double	0.1 ~ 0.7MPa / 15 ~ 100PSI		
Range	3 Position	0.2 ~ 0.7MPa / 30 ~ 100PSI		
Ambient & Fluid Temperature		-10 ~ 50°C / 14 ~122°F		
Max Operating	2 Position Single/Double	10	5	3
Frequency / Hz	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

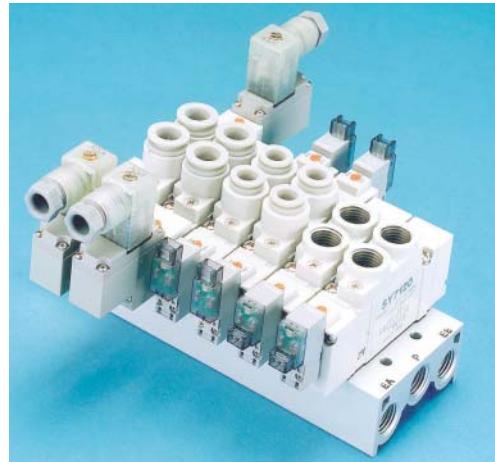
RESPONSE TIME SERIES SY3/5/7000

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

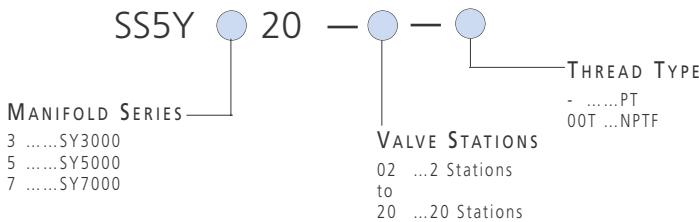
**BODY PORTED/BAR MANIFOLD
INDIVIDUAL WIRING TYPE
SY3000/5000/7000**

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



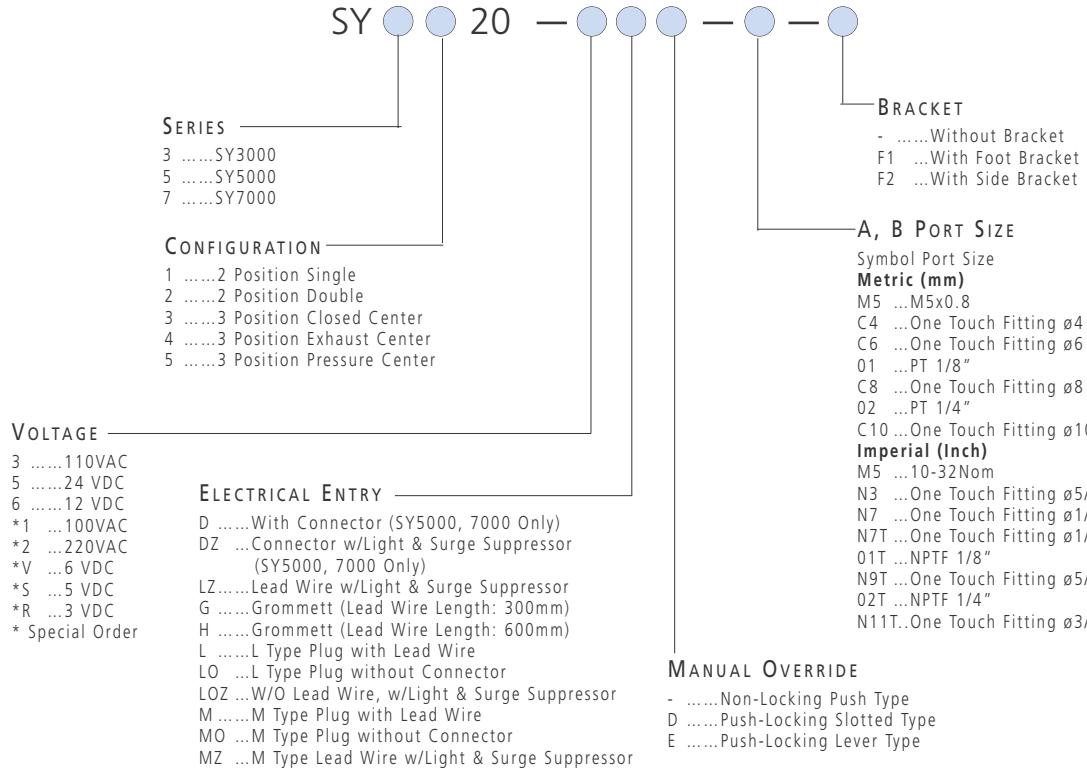
How To Order

**BODY PORTED/BAR MANIFOLD W/INDIVIDUAL LEAD WIRES
SY3/5/7000**



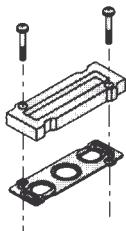
How To Order

BODY PORTED W/INDIVIDUAL LEAD WIRE SY3/5/7000



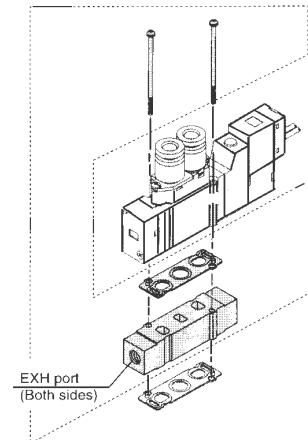
MANIFOLD
OPTIONS

BLANKING PLATE ASSEMBLY



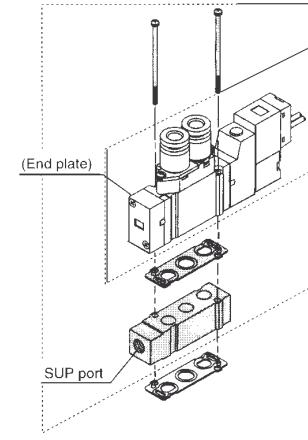
	Ass'y part no.
SY3000	SY3000-26-1A
SY5000	SY5000-26-1A
SY7000	SY7000-26-1A

INDIVIDUAL/EXH SPACER ASSEMBLY



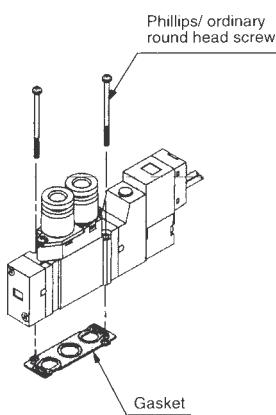
Series	Assembly No	Port Size
SY3000	SY3000-39-1A	M5 (10-32Nom)
SY5000	SY5000-39-1A	PT 1/8
SY5000	SY5000-39-1TA	NPTF 1/8
SY7000	SY7000-39-1A	PT 1/4
SY7000	SY7000-39-1TA	NPTF 1/4

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

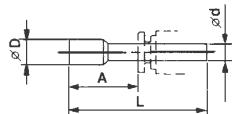
BOLT / GASKET



Gasket

Phillips/ ordinary
round head screw

PORT PLUGS



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

Applicable Fitting Size \varnothing od	Model	A	L	D
$\varnothing 4\text{mm}$	KQP-04	16	32	6
$\varnothing 5/32''$	KQP-03	16	32	6
$\varnothing 6\text{mm}$	KQP-06	18	35	8
$\varnothing 1/4''$	KQP-07	18	35	8
$\varnothing 8\text{mm}$	KQP-08	20.5	39	10
$\varnothing 5/16''$	KQP-09	20.5	39	10
$\varnothing 10\text{mm}$	KQP-10	22	43	12
$\varnothing 3/8''$	KQP-11	22	43	12

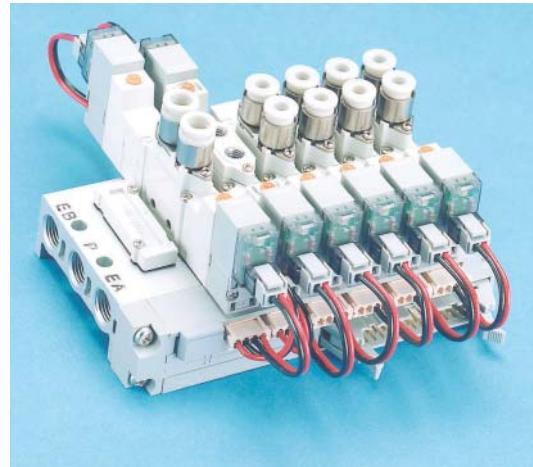
	Phillips/ordinary round head screw	Gasket
SY3000	SY3000-23-4 (M2 × 21)	SY3000-11-3
SY5000	M3 × 26 (Non-gloss nickel plating)	SY5000-11-1
SY7000	M4 × 31 (Non-gloss nickel plating)	SY7000-11-1

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)

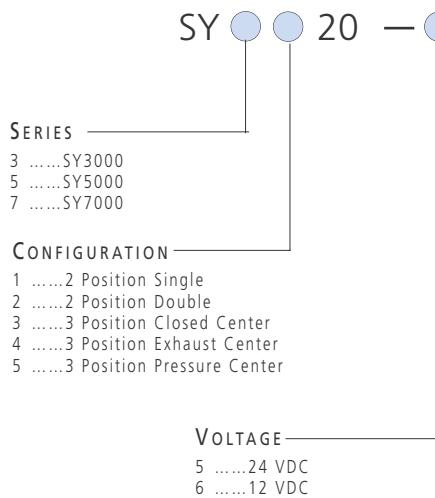
**BODY PORTED/BAR MANIFOLD
FLAT CABLE TYPE
SY3000/5000/7000**

- ✓ 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**



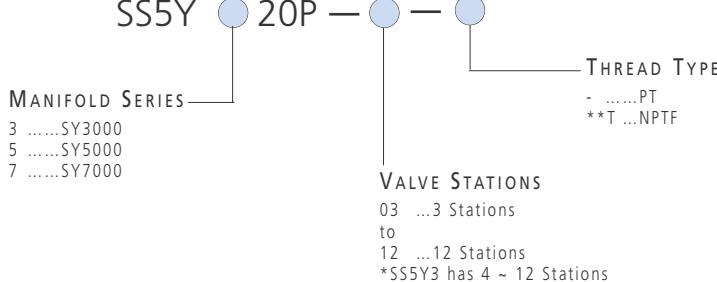
Symbol	Port Size	Applicable Series	Series
Metric (mm)			
M5	...M5x0.8	SY3000	
C4	...One Touch Fitting ø4	SY3000	
C6	...One Touch Fitting ø6	SY3000, SY5000	
01	...PT 1/8"	SY5000	
C8	...One Touch Fitting ø8	SY5000, SY7000	
02	...PT 1/4"	SY7000	
C10	...One Touch Fitting ø10	SY7000	
Imperial (Inch)			
M5	...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	

MANUAL OVERRIDE

- Non-Locking Push Type
 - D Push-Locking Slotted Type
 - E Push-Locking Lever Type

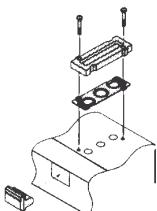
ORDER
FLAT RIBBON

FLAT RIBBON CABLE MANIFOLD 313/37/000



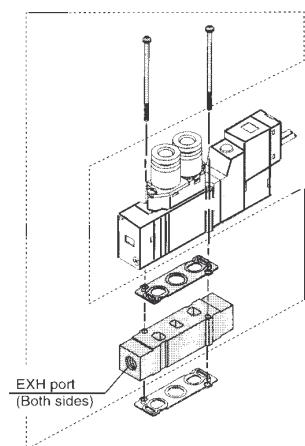
MANIFOLD
OPTIONS

BLANK PLATE ASSEMBLY



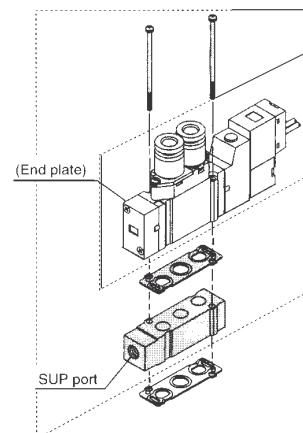
	Ass'y part no.
SY3000	SY3000-26-3A
SY5000	SY5000-26-3A
SY7000	SY7000-26-3A

INDIVIDUAL/EXH SPACER ASSEMBLY



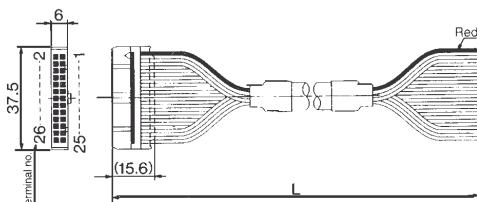
Series	Assembly No	Port Size
SY3000	SY3000-39-1A	M5 (10-32Nom)
SY5000	SY5000-39-1A	PT 1/8
SY5000	SY5000-39-1TA	NPTF 1/8
SY7000	SY7000-39-1A	PT 1/4
SY7000	SY7000-39-1TA	NPTF 1/4

INDIVIDUAL/SUP SPACER ASSEMBLY



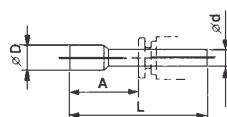
Series	Assembly No	Port Size
SY3000	SY3000-38-1A	M5 (10-32Nom)
SY5000	SY5000-38-1A	PT 1/8
SY5000	SY5000-38-1TA	NPTF 1/8
SY7000	SY7000-38-1A	PT 1/4
SY7000	SY7000-38-1TA	NPTF 1/4

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 $\varnothing d$	Model	A	L	D
$\varnothing 4\text{mm}$	KQP-04	16	32	6
$\varnothing 5/32\text{"}$	KQP-03	16	32	6
$\varnothing 6\text{mm}$	KQP-06	18	35	8
$\varnothing 1/4\text{"}$	KQP-07	18	35	8
$\varnothing 8\text{mm}$	KQP-08	20.5	39	10
$\varnothing 5/16\text{"}$	KQP-09	20.5	39	10
$\varnothing 10\text{mm}$	KQP-10	22	43	12
$\varnothing 3/8\text{"}$	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	2 Position Single	22 ~ 100PSI / 0.15 ~ 0.7MPa	
Operating Pressure	2 Position Double	25 ~ 100PSI / 0.1 ~ 0.7MPa	
Range	3 Position	30 ~ 100PSI / 0.2 ~ 0.7MPa	
External Pilot	Pilot 2 Position Single	37 ~ 100PSI / 0.25 ~ 0.7MPa	
Operating Pressure	Pressure 2 Position	37 ~ 100PSI / 0.25 ~ 0.7MPa	
Range	Range 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 3 Position	10 5 5 10 3 3	
Pilot Exhaust	Internal Pilot External Pilot	Common Exhaust for Main & Pilot Individual Exhaust for Pilot Valve	
Mounting Position	Free		
Cv Factor	0.3	0.7	1.2

MODEL

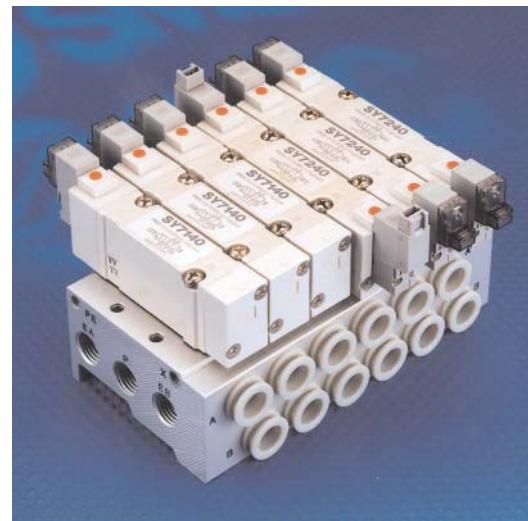
RESPONSE TIME SERIES SY3/5/7000

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

HOW TO
ORDER
SEE NEXT PAGE

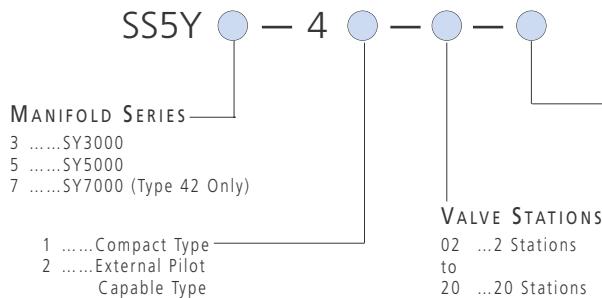
BASE MOUNTED/BAR MANIFOLD INDIVIDUAL WIRING TYPE SY3000/5000/7000

- ✓ 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



A, B PORT SIZE

Metric (mm)

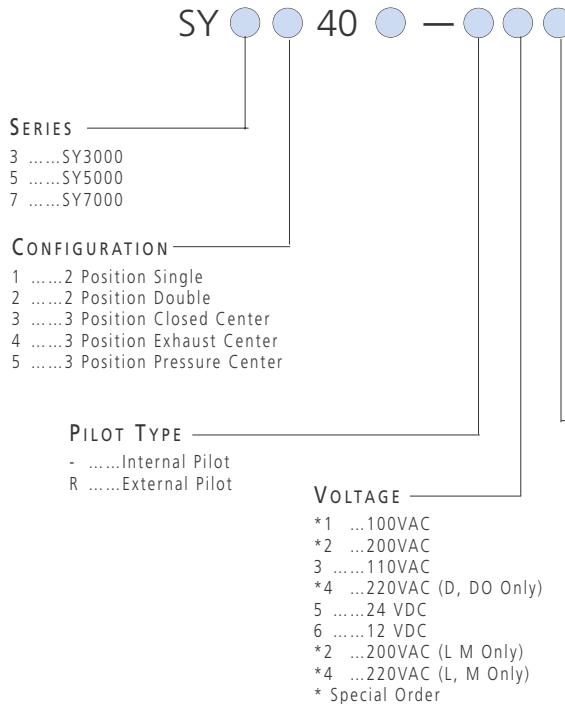
- M5 ...M5x0.8 (SY3000 Type 41 Only)
- 01 ...Rc(PT)1/8 (SY5000 Type 41 & SY3000 Type 42 Only)
- 02 ...RC(PT)1/4 (SY5000 Type 42 Only)
- C4 ...One Touch Fittings for ø4 (SY3000 Only)
- C6 ...One Touch Fittings for ø6 (SY3000 & SY5000 Only)
- C8 ...One Touch Fittings for ø8 (SY5000 Only)
- C10 ...One Touch Fittings for ø10 (SY7000 Only)

Imperial (Inch)

- M5T...10~32Nom (SY3000 Type 41 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



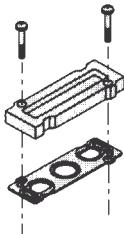
INDIVIDUAL LIGHT & SURGE VOLTAGE SUPPRESSOR

-Without
- SWith Surge Suppressor
- ZWith Indicator Light and
Surge Voltage Suppressor
- UWith Indicator Light and
Surge Voltage Suppressor
(Non-Polar Type)

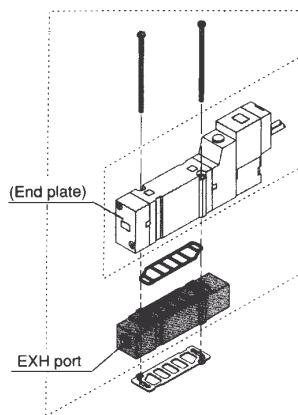
ELECTRICAL ENTRY

- DDIN Connector
- DO ...DIN without Connector
- GGrommett (300mm)
- HGrommett (600mm)
- LL Type Plug Connector (300mm)
- LN ...L Type Connector without Lead Wire
- LO ...L Type Plug without Connector
- MM Type Plug with Lead Wire
- MN ...M Type Plug without Connector
- MO ...M Type Plug without Connector

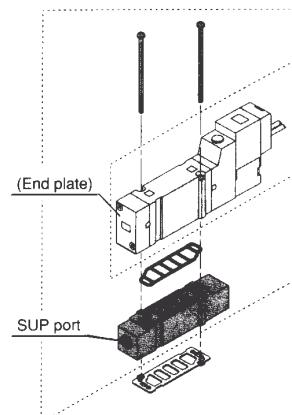
MANIFOLD
OPTIONS

BLANKING PLATE ASSEMBLY


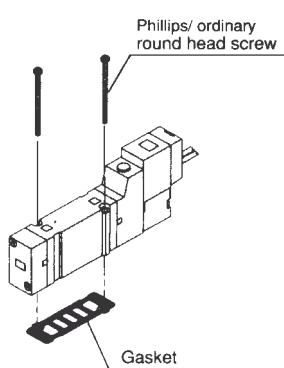
Series	Assembly Part No
SY3000	SY3000-26-2A
SY5000	SY5000-26-2A
SY7000	SY7000-26-2A

INDIVIDUAL/EXH SPACER ASSEMBLY


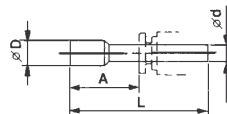
Series	Assembly No	Port Size
SY3000	SY3000-39-2A	M5x0.8 (10-32Nom)
SY5000	SY5000-39-2A	PT 1/8
SY5000	SY5000-39-2TA	NPTF 1/8
SY7000	SY7000-39-2A	PT 1/4
SY7000	SY7000-39-2TA	NPTF 1/4

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

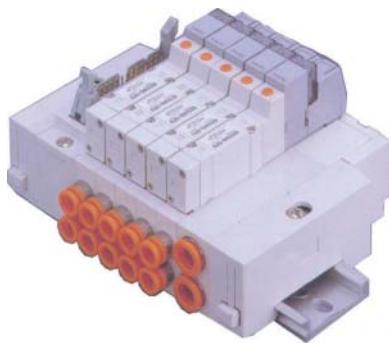
BOLT / GASKET


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 $\varnothing d$	Model	A	L	D
$\varnothing 4\text{mm}$	KQP-04	16	32	6
$\varnothing 5/32''$	KQP-03	16	32	6
$\varnothing 6\text{mm}$	KQP-06	18	35	8
$\varnothing 1/4''$	KQP-07	18	35	8
$\varnothing 8\text{mm}$	KQP-08	20.5	39	10
$\varnothing 5/16''$	KQP-09	20.5	39	10
$\varnothing 10\text{mm}$	KQP-10	22	43	12
$\varnothing 3/8''$	KQP-11	22	43	12

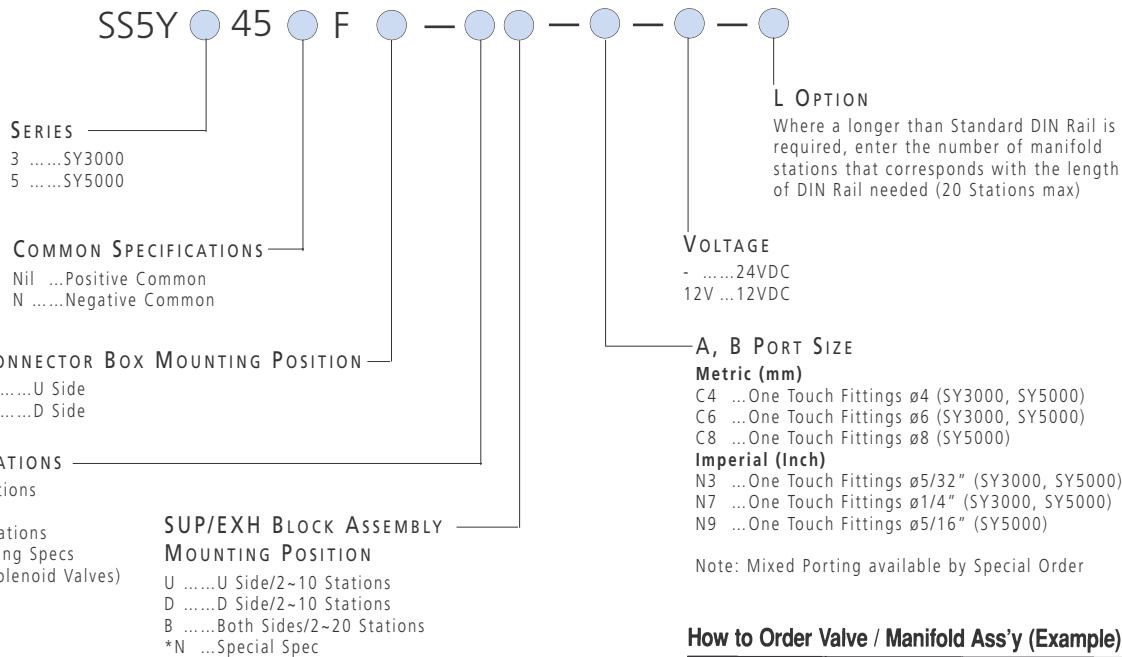


BASE MOUNTED PLUG-IN DIN RAIL MOUNTED STACKING TYPE MANIFOLD SY3000/5000

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

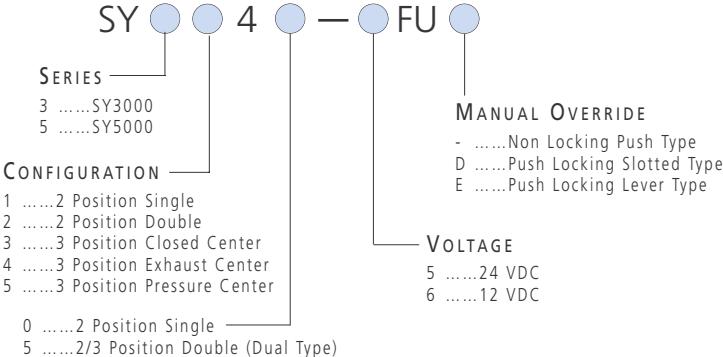
How To ORDER

BASE MOUNTED MANIFOLD 45F TYPE (D-SUB CONNECTOR 25 POLE)



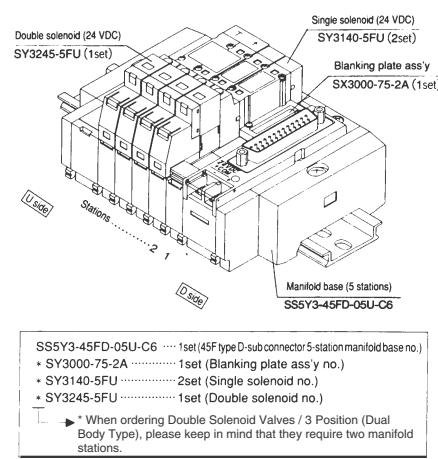
How To ORDER

BASE MOUNTED VALVE 45F, 45P TYPE



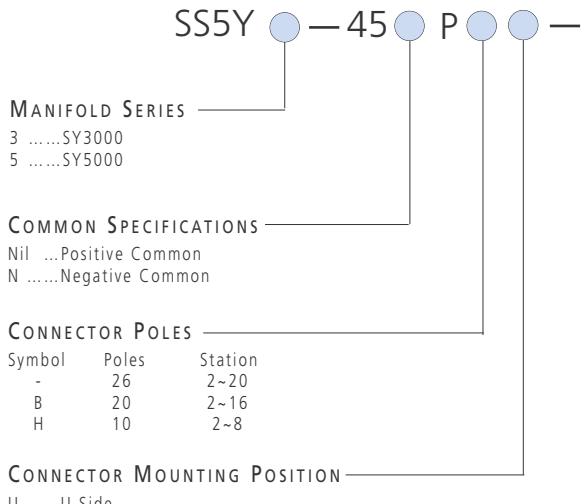
How to Order Valve / Manifold Ass'y (Example)

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



**HOW TO
ORDER**

SERIES SY MANIFOLD 45P TYPE / FLAT CABLE TYPE



OPTION	
A, B PORT SIZE	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)
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	
VOLTAGE	
-	24VDC
	12V ... 12 VDC

SUP/EXH BLOCK ASSEMBLY MOUNTING POSITIONS

UU Side - 2 ~ 10 Stations

DD Side - 2 ~ 10 Stations

BBoth Sides - 2 ~ 20 Stations

*M ...Special Specifications (by Special Order)

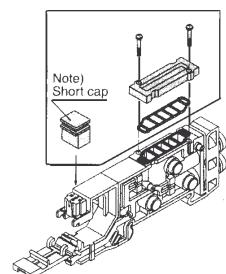
VALVE STATIONS (BLANKING PLATE ASSEMBLY ARE INCLUDED)

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

**MANIFOLD
OPTIONS**

Manifold Options

■ Blank plate ass'y



	Ass'y part no.
SY3000	SX3000-75-2A
SY5000	SX5000-76-2A

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.



■ 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)

Label for SUP block disc

Label for EXH block disc

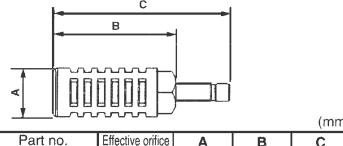
Label for SUP / EXH block disc



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

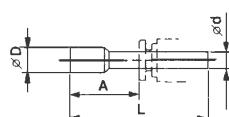
■ Silencer for One-touch fitting

The silencer plugs directly into the One-touch fittings(R port) of the manifold.



	Part no.	Effective orifice	A	B	C
SY3000 (ø8)	AN203-KM8	14mm ²	ø16	26	51
	AN200-KM10	26mm ²	ø22	53.8	80.8
SY5000 (ø10)	AN300-KM10	30mm ²	ø25	70	97

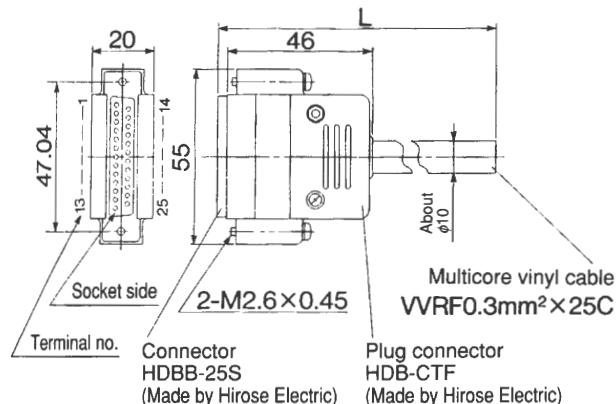
PORT PLUGS



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

CABLE ASSEMBLIES FOR TYPE 45 PRE-WIRED MANIFOLDS



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	-

D-Sub Connector Cable Assembly

Cable Length (L)	Assembly No.	Note	Item	Characteristics
1.5m	VVZS3000-21A-1	Cable 25 - Core	Conductor Resistance /km, 20°C	65 or less
3m	VVZS3000-21A-2		Voltage Limit V, 1 min, AC	1000
5m	VVZS3000-21A-3	x 24AWG	Insulation Resistance M km, 20°C	5 or more

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

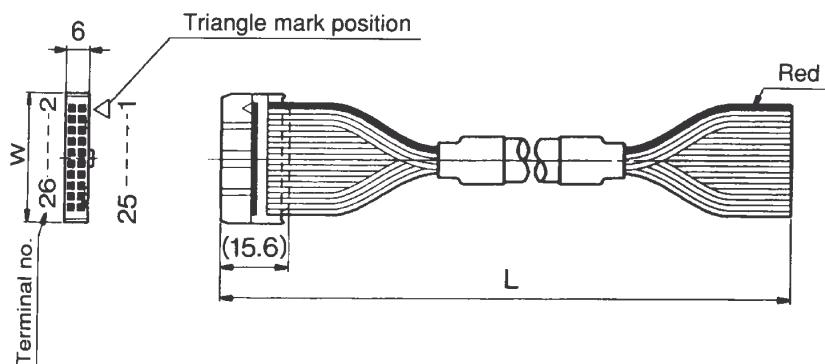
Electric Characteristics

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.

■ Flat Cable Connector / Cable Ass'y

AXT100-FC□ - 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)



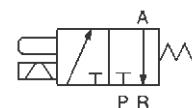
TECHNICAL SPECIFICATIONS

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

FUNCTION
 VQ1 0 — — — —

SPECIFICATIONS
 1 Normally Closed
 - 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 VOLTAGE
 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

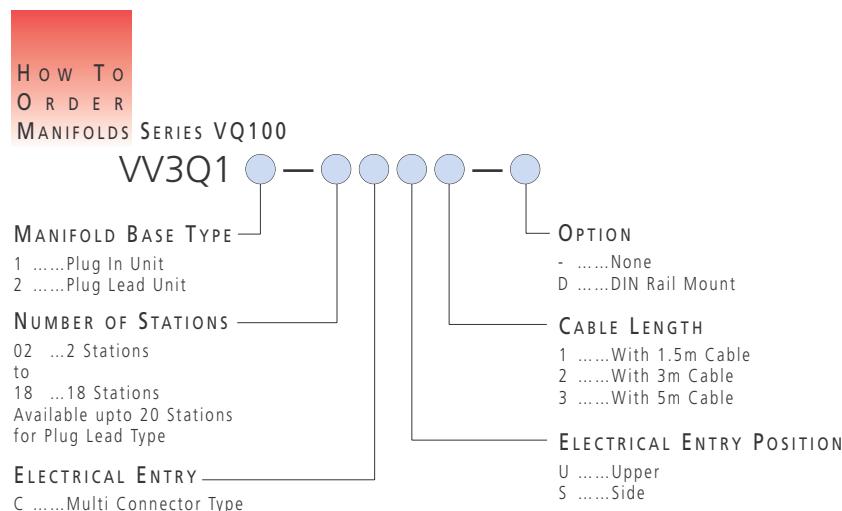
NEGATIVE COMMON STANDARD
 Single AXT661-14-AN-*
 Latching AXT661-13-AN-*

POSITIVE COMMON (OPTION AVAILABLE)
 Single AXT661-14-A-*
 Latching AXT661-13-A-*

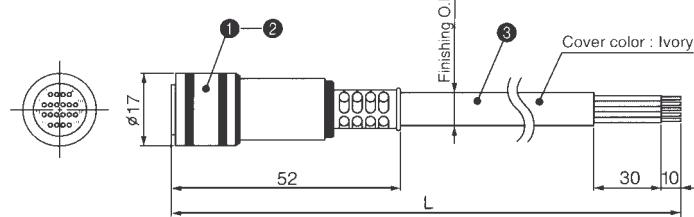
* Cable length code
Nil 300mm
6 600mm
10 1000mm
20 2000mm
30 3000mm

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)



ACCESSORIES
PLUG ASSEMBLY SERIES VQ100

Plug Ass'y**VVQ100-12A-₁²₃**

①	Plug	RP13A-12PS-20SC <Made by Hirose Electric>
②	Female contact	RP19-SC-222 <Made by Hirose Electric>
③	Vinyl multi-core cable	VVRF 0.2mm ² 20-core

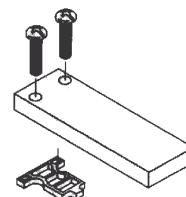
Cable Length

Model	L dimensions
VVQ100-12A-1	1.5m
VVQ100-12A-2	3m
VVQ100-12A-3	5m

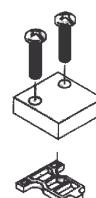


ACCESSORIES
VQ100 MANIFOLDS

Blanking Plate Kit
for VV3Q11VVQ100-10A-1
(includes fixing screws x2
and gasket)

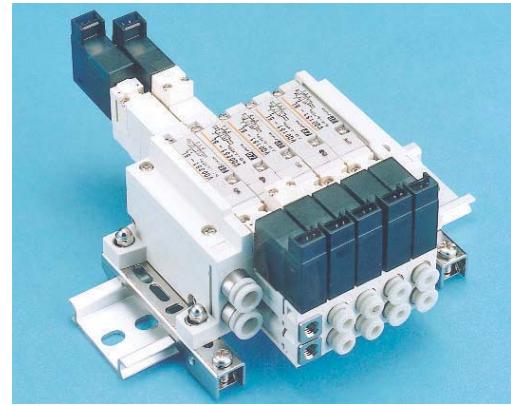


Blanking Plate Kit
for VV3Q12VVQ100-10A-2
(includes fixing screws x2
and gasket)



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 (Note 1)	0.75MPa / 109 PSI	0.75MPa / 109 PSI
Effective Area (Cv Factor) mm ²		
Response Time (Note 2)	Single Max 12m sec Double Max 10m sec 3-position Max 20m sec	Max 15m sec Max 13m 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

(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 response 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. Perfect dry air (dew point equals to -30°C) No grease on main valve.

(Note 4) 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

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)

SYMBOLS

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

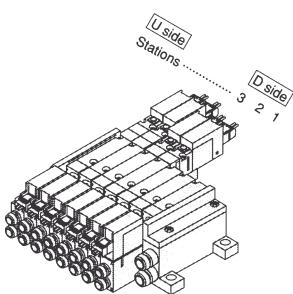
SOLENOID SPECIFICATIONS

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

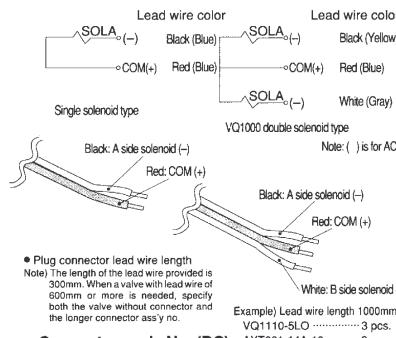
- ✓ Type which has lead wires in plug connected to each valve individually.



WIRING SPECIFICATIONS

- Negative common.
- The lead wires are connected to the valve as shown below.

Connect each to the power supply side.



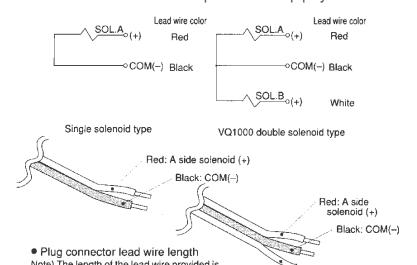
Connector ass'y No. (DC)	No. for single & VQ0000 double types	No. for VQ1000 double type
Lead wire length	No. for single & VQ0000 double types	No. for VQ1000 double type
Socket (3 pcs.)	AXT661-12A	AXT661-12A
300mm	AXT661-14AN-1	AXT661-13AN
600mm	AXT661-14A-6	AXT661-13A-6
1000mm	AXT661-14A-10	AXT661-13A-10
2000mm	AXT661-14A-20	AXT661-13A-20
3000mm	AXT661-14A-30	AXT661-13A-30

Note: Regarding the AC type: AXT661-14A-10 applies to the single type and AXT661-13A-10 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.

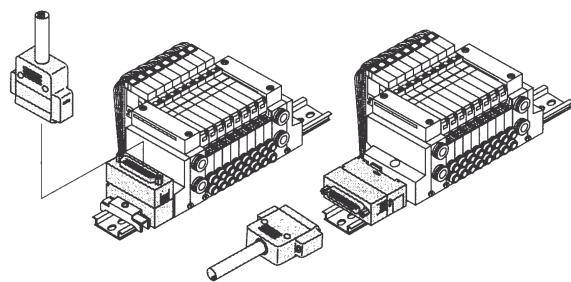


Lead wire length	No. for single & VQ0000 double types	No. for VQ1000 double type
Socket (3 pcs.)	AXT661-12A	AXT661-12A
300mm	AXT661-14AN-1	AXT661-13AN
600mm	AXT661-14A-6	AXT661-13A-6
1000mm	AXT661-14A-10	AXT661-13A-10
2000mm	AXT661-14A-20	AXT661-13A-20
3000mm	AXT661-14A-30	AXT661-13A-30

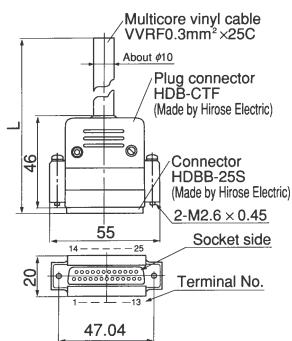
Note: Use negative COM type valves for negative COM specification manifolds.

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-¹₃

(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

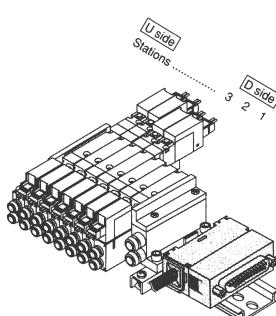
Item	Characteristics
Conductor resistance Ω/km , 20°C	65 or less
Voltage limit V, 1 min, AC	1000
Insulation resistance M Ω km, 20°C	5 or more

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	-

Note) The min. bending radius of D-Sub cable assembly is 20mm.

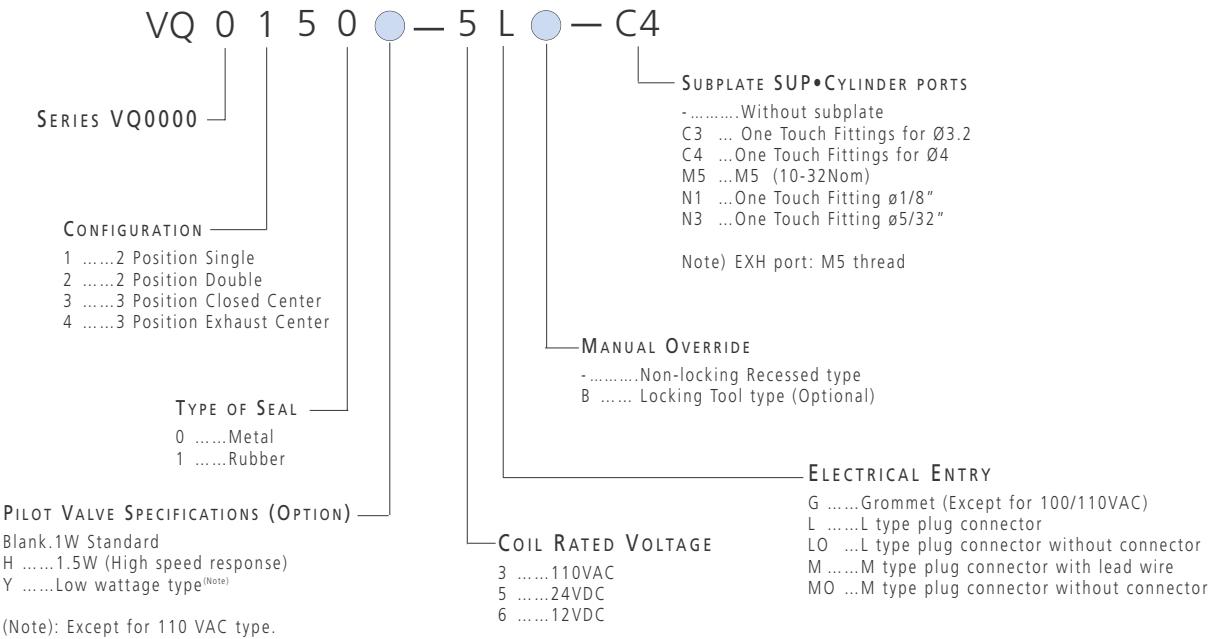
Electrical Wiring Specifications



D-sub cable ass'y (VVZS3000-21A-*) wire color table				
	Terminal No.	Polarity	Lead wire color	Dot marking
1 station	{ SOLA 1 SOLB 14	(-)	(+)	Black
2 stations	{ SOLA 2 SOLB 15	(-)	(+)	Brown
3 stations	{ SOLA 3 SOLB 16	(-)	(+)	Red
4 stations	{ SOLA 4 SOLB 17	(-)	(+)	Orange
5 stations	{ SOLA 5 SOLB 18	(-)	(+)	Purple
6 stations	{ SOLA 6 SOLB 19	(-)	(+)	Yellow
7 stations	{ SOLA 7 SOLB 20	(-)	(+)	Gray
8 stations	{ SOLA 8 SOLB 21	(-)	(+)	Pink
COM	13	(+)	(-)	Blue
				Note)
				Positive COM Negative COM

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.

HOW TO
 ORDER
 BASE MOUNTED TYPE VALVE
 SINGLE UNIT VQ0000


BODY PORTED TYPE
PLUG LEAD UNIT/FLIP TYPEHow To
ORDER
MANIFOLD

VVQ5Q 0 4 – 08 F S1 — D — —

SERIES
0VQ0000TYPE OF MANIFOLD
4Plug lead unit flip type

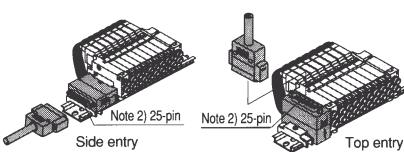
NUMBER OF STATIONS

01 ...1 Station

- •
- •
- •
- 16 ...16 Stations

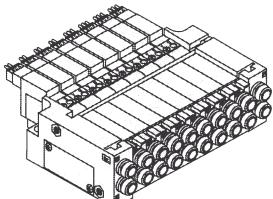
The number of stations
differs from kit to kit

Kit • Electrical entry • Cable length

F kit
(D-sub connection)

Connector Location	
Top (vertical)	Side (horizontal)
U0	S0
Kit U1	S1
F U2	S2
U3	S3

Note 2) 25-pin
Side entry Top entry

C kit
(Connector)

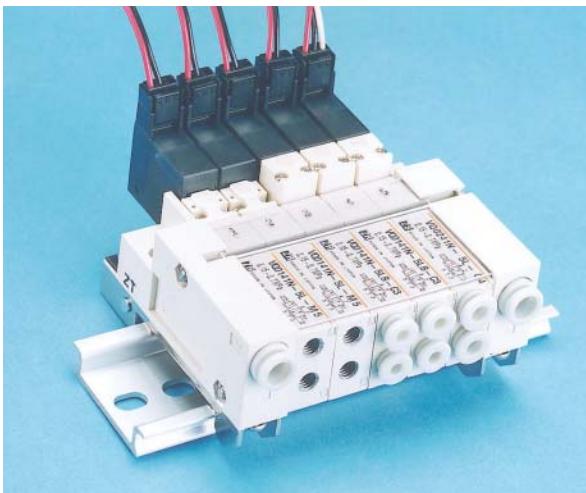
C	Connector	Max 16 stations
---	-----------	-----------------

S kit
(Serial transmission unit)

Compatible only with 24VDC valves.		
Kit s	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

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.



SUP/EXH PORT

-Metric (mm)
- 00T ...Imperial (inch)

DIN RAIL/OPTION

-None (C Kit only)
- Note 2) D...DIN Rail Mounted
- Note 3) N...With Nameplate
- 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

How To
 ORDER
 VALVE

VQ 0 1 4 0 N — 5 L — C6

 SERIES
 0VQ0000

CONFIGURATION

1	2 position single
2	2 position double (latching)

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

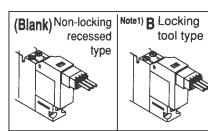
- 3 110VAC
5 24VDC
6 12VDC

 } 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



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	

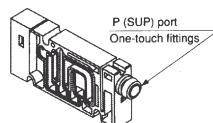
Note1) LO and MO valves are used for F, P, and S kits.
Note 2) The plug connector and lead wire are attached to the manifold.
Note 3) The connector direction in the case of L and M types is based on the pilot valve.
Note 4) Grommet type (G) is also available for C-kit, single type of VQ0000/1000/2000.
(Except for 110VAC)

ACCESSORIES

MANIFOLD OPTIONS

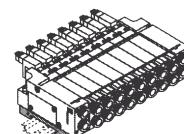
INDIVIDUAL SUP SPACER

VVQ0000-P-4-C4



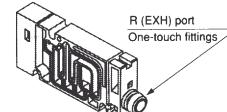
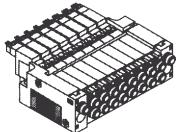
DIN RAIL MOUNTED BRACKET [-D]

VVQ0000-57A-4



INDIVIDUAL EXH SPACER

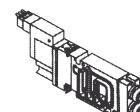
VVQ0000-R-4-C4


 BUILT IN SILENCER,
 DIRECT EXHAUST [-S]


NAMEPLATE [-N4]

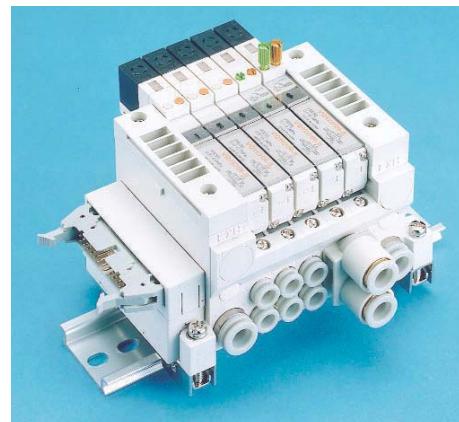
VVQ0000-N4-STATION


 23
 04
 BLANKING PLUG KQP
 06
 08
 01
 03

 P
 R
 PR block valve VQ □ 24° -□ - □□□ - R
 P


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 Double 0.1MPa/14.5PSI 3-position 0.1MPa/14.5PSI	0.15MPa/22PSI 0.1MPa/14.5PSI 0.2MPa/29PSI
Max Operating Pressure (Note 1)	0.75MPa/109PSI	0.75MPa/109PSI
Effective Area (Cv Factor) mm ²	Single 3.6 (0.2) Double 3.6 (0.2) 3-position 3.6 (0.2)	5.4 (0.3) 5.4 (0.30) 5.4 (0.3)
Response Time (Note 2)	Single Max 12ms Double Max 10ms 3-position Max 20ms	Max 15ms Max 15ms 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 response time checked when the valve is equipped with an indicator light and surge voltage suppressor). Use dry air to prevent dew condensation in the case when temperature is low. 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

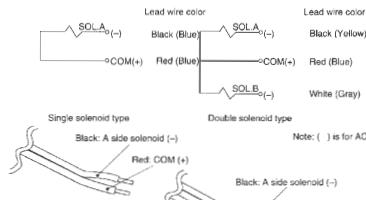
Coil Rated Voltage	12 VDC, 24 VDC	100/110 VAC
Allowable Voltage	±10% of Rated Voltage	±10% of Rated Voltage
Type of Coil Insulation	Class B	Class B
Power Consumption (Note 1)	1W	Inrush/Holding: 1.1 VA (11mA)
Electrical Entry	Plug In or Connector Type	Plug In or Connector Type

(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.

Connector ass'y No.(DC)

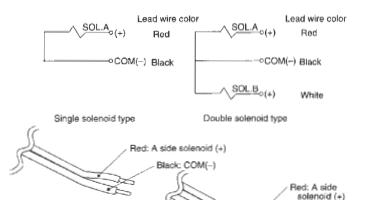
Lead wire length	Single type No.	Double type No.
Socket only (3 pcs.)	AXT661-12A	
300mm	AXT661-14A	AXT661-13A
600mm	AXT661-14A-6	AXT661-13A-6
1000mm	AXT661-14A-10	AXT661-13A-10
2000mm	AXT661-14A-20	AXT661-13A-20
3000mm	AXT661-14A-30	AXT661-13A-30

Note: Regarding the AC type, AXT661-31A-*a* applies to the single type and AXT661-32A-*a* 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.

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

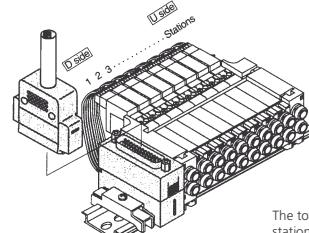
Note: Use negative COM type valves for negative COM specification manifolds.

SYMBOLS

1	2 position single	
2	2 position double	
3	3 position closed center	
4	3 position exhaust center	
5	3 position pressure center	

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".)		
Wire color table by terminal number of D-sub connector cable ass'y:		
Terminal No.	Last 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	—

D-sub connector cable ass'y (Option) Electric characteristics

Cable length (L)	Ass'y No.	Note	Item	Characteristic
1.5m	VVZS3000-21A-1		Cable 25-core	Conductor resistance 65 or less Ω/km, 20°C
3m	VVZS3000-21A-2	Cable 25-core × 24AWG	Voltage limit 5V, 1min, AC	1000
5m	VVZS3000-21A-3		Insulation resistance 5 or more MΩkm, 20°C	

Examples of connector makers

- Fujitsu Ltd.
- Japan Aviation Electronics Industry, Ltd.
- Japan Solderless Terminal Sales Co., Ltd.

Note) Types with 15-pin are also available.

Note) The min. bending radius of D-sub cable ass'y is 20 mm.

D-sub cable ass'y (VVZS3000-21A-*) wire color table			
Connector terminal No.	Terminal No.	Polarity	Last wire color
D-sub connector	SOLA _A 1	(-)	Black
	SOLB _A 1	(+)	Black
	SOLA _A 2	(-)	Brown
	SOLB _A 2	(+)	Brown
	SOLA _A 3	(-)	Pink
	SOLB _A 3	(+)	Pink
	SOLA _A 4	(-)	Red
	SOLB _A 4	(+)	Red
	SOLA _A 5	(-)	Orange
	SOLB _A 5	(+)	Orange
	SOLA _A 6	(-)	Yellow
	SOLB _A 6	(+)	Yellow
	SOLA _A 7	(-)	Gray
	SOLB _A 7	(+)	Gray
	SOLA _A 8	(-)	Pink
	SOLB _A 8	(+)	Pink
	SOLA _A 9	(-)	Blue
	SOLB _A 9	(+)	Blue
	SOLA _A 10	(-)	White
	SOLB _A 10	(+)	White
	SOLA _A 11	(-)	Red
	SOLB _A 11	(+)	Red
	SOLA _A 12	(-)	White
	SOLB _A 12	(+)	White
	SOLA _A 13	(-)	Blue
	SOLB _A 13	(+)	Blue
	SOLA _A 14	(-)	White
	SOLB _A 14	(+)	White
	SOLA _A 15	(-)	Red
	SOLB _A 15	(+)	Red
	SOLA _A 16	(-)	White
	SOLB _A 16	(+)	White
	SOLA _A 17	(-)	Blue
	SOLB _A 17	(+)	Blue
	SOLA _A 18	(-)	White
	SOLB _A 18	(+)	White
	SOLA _A 19	(-)	Red
	SOLB _A 19	(+)	Red
	SOLA _A 20	(-)	White
	SOLB _A 20	(+)	White
	SOLA _A 21	(-)	Blue
	SOLB _A 21	(+)	Blue
8 stations	COM	(+)	Orange
	13	(-)	Red

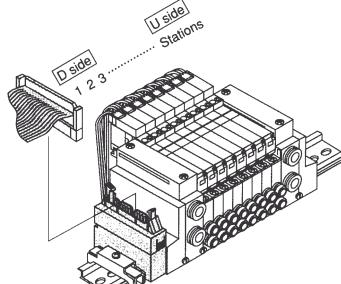
Positive COM Negative COM

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.

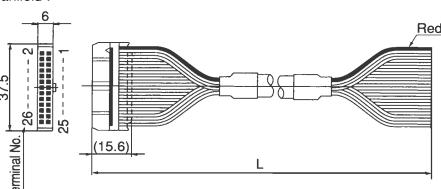
P KIT (FLAT CABLE CONNECTION) SERIES VQ1000

- ✓ 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 Receptacle Position can be selected in accordance with the available mounting space.
- ✓ Standard max 8 Stations (Optional 16 Stations optional).



AXT100-FC26-1

(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	
3m	AXT100-FC26-2	Cable 26-core × 28AWG
5m	AXT100-FC26-3	

* For other commercial connectors, use a 26-pin type with strain relief made in conformity with MIL-C-83503.

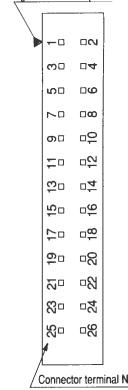
Examples of connector makers

- 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

Triangle mark indicator position



Terminal No.	Polarity
1	(+)
2	(+)
3	(+)
4	(+)
5	(+)
6	(+)
7	(+)
8	(+)
9	(+)
10	(+)
11	(+)
12	(+)
13	(+)
14	(+)
15	(+)
16	(+)
17	(+)
18	(+)
19	(+)
20	(+)
21	(+)
22	(+)
23	(+)
24	(+)
25	(+)
26	(+)

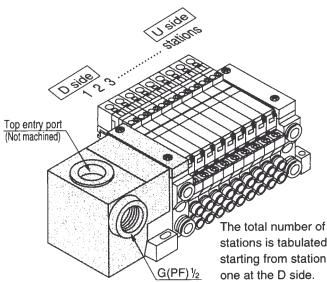
Electrical wiring specifications Positive COM Negative COM

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.

T KIT (TERMINAL BLOCK BOARD) SERIES VQ1000

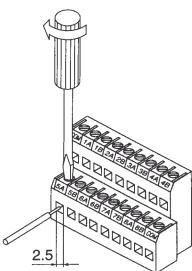
- ✓ This Kit has a small Terminal Block inside a junction box.
- The Electrical Entry Port G (PF) 1/2 permits connection of Conduit Fittings.
- ✓ Max 12 Stations.



Open the terminal block cover for wire connection.

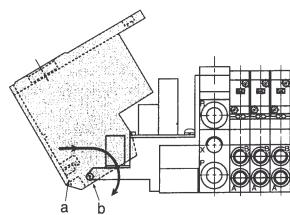
Sequence 1. How to remove terminal block cover

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.



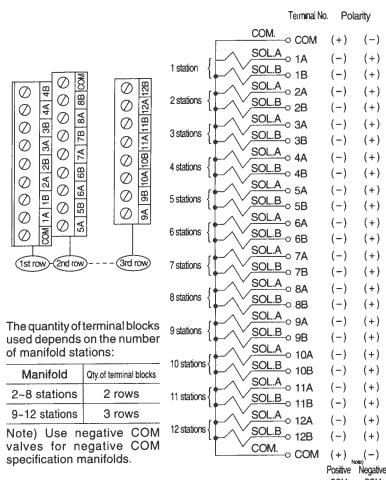
Sequence 2. Wire connection

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.



How To ORDER BODY PORTED VALVE - SINGLE UNIT

VQ1 1 6 0 N — 5 L — C6
SERIES VQ1000

CONFIGURATION

- 12 Position single
- 22 Position double (latching)
- 33 Position closed centre
- 43 Position exhaust centre
- 53 Position pressure centre

TYPE OF SEAL

- 0Metal
- 1Rubber

PILOT VALVE SPECIFICATIONS (OPTION)

-1W Standard
- H1.5W (High speed response)
- YLow wattage type^(Note)
- NNegative common wiring

(Note): Except for 110 VAC type.

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)

MANUAL OVERRIDE

- *Non locking recessed type
- ^{Note}BLocking tool type*
- *CLocking knob type
- Note) Locking type (B) is standard for double (latching) type. Indicate "B" in model no.
- *Option

ELECTRICAL ENTRY

- GGrommet (Except for latching type and 100/110VAC)
- LL type plug connector with lead wire
- LOL type plug connector without connector
- MM type plug connector with lead wire
- MOM type plug connector without connector

COIL RATED VOLTAGE

- 3110VAC
- 524VDC
- 612VDC

BASE MOUNTED TYPE
PLUG IN UNIT
VQ1000

 How To
ORDER
MANIFOLD

VV5Q 1 1 – 08 C6 F U1 – N

 SERIES: _____
1VQ1000

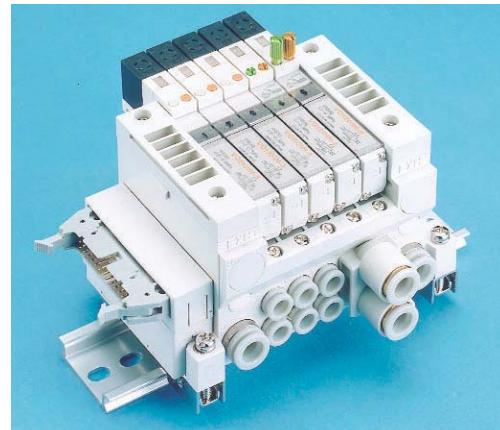
 TYPE OF MANIFOLD _____
1Plug In Unit - Base Mounted

 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)	•

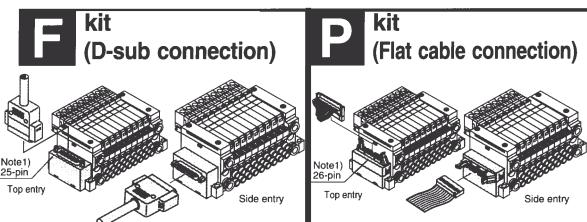
Note 1) When more than one option is desired Combined symbols in alphabetical order.
Example) • BRS

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".

Contact SMC for details of vacuum ejector unit. Combination of ejector option "J" and nameplate "N" is not possible.

KIT • ELECTRICAL ENTRY • CABLE LENGTH



Connector location		Connector location	
Top (vertical)	Side (horizontal)	Top (vertical)	Side (horizontal)
kit U0	S0	Without cable	Max. 12 stations
kit U1	S1	With cable (1.5m)	12 stations
F U2	S2	With cable (3m)	12 stations
U3	S3	With cable (5m)	

Connector location	Top (vertical)	Side (horizontal)	Without cable	Max. 12 stations
kit U0	S0	Without cable	Max. 12 stations	
kit U1	S1	With cable (1.5m)	12 stations	
P U2	P S2	With cable (3m)	12 stations	
U3	S3	With cable (5m)		

Connector location	Top (vertical)	Side (horizontal)	Without cable	Max. 12 stations
kit U0	S0	Without cable	Max. 12 stations	
kit U1	S1	With cable (1.5m)	12 stations	
P U2	P S2	With cable (3m)	12 stations	
U3	S3	With cable (5m)		

Connector location	Top (vertical)	Side (horizontal)	Without cable	Max. 12 stations
kit U0	S0	Without cable	Max. 12 stations	
kit U1	S1	With cable (1.5m)	12 stations	
P U2	P S2	With cable (3m)	12 stations	
U3	S3	With cable (5m)		

Connector location	Top (vertical)	Side (horizontal)	Without cable	Max. 12 stations
kit U0	S0	Without cable	Max. 12 stations	
kit U1	S1	With cable (1.5m)	12 stations	
P U2	P S2	With cable (3m)	12 stations	
U3	S3	With cable (5m)		

Connector location	Top (vertical)	Side (horizontal)	Without cable	Max. 12 stations
kit U0	S0	Without cable	Max. 12 stations	
kit U1	S1	With cable (1.5m)	12 stations	
P U2	P S2	With cable (3m)	12 stations	
U3	S3	With cable (5m)		

Connector location	Top (vertical)	Side (horizontal)	Without cable	Max. 12 stations
kit U0	S0	Without cable	Max. 12 stations	
kit U1	S1	With cable (1.5m)	12 stations	
P U2	P S2	With cable (3m)	12 stations	
U3	S3	With cable (5m)		

Connector location	Top (vertical)	Side (horizontal)	Without cable	Max. 12 stations
kit U0	S0	Without cable	Max. 12 stations	
kit U1	S1	With cable (1.5m)	12 stations	
P U2	P S2	With cable (3m)	12 stations	
U3	S3	With cable (5m)		

Connector location	Top (vertical)	Side (horizontal)	Without cable	Max. 12 stations
kit U0	S0	Without cable	Max. 12 stations	
kit U1	S1	With cable (1.5m)	12 stations	
P U2	P S2	With cable (3m)	12 stations	
U3	S3	With cable (5m)		

Connector location	Top (vertical)	Side (horizontal)	Without cable	Max. 12 stations
kit U0	S0	Without cable	Max. 12 stations	
kit U1	S1	With cable (1.5m)	12 stations	
P U2	P S2	With cable (3m)	12 stations	
U3	S3	With cable (5m)		

Connector location	Top (vertical)	Side (horizontal)	Without cable	Max. 12 stations
kit U0	S0	Without cable	Max. 12 stations	
kit U1	S1	With cable (1.5m)	12 stations	
P U2	P S2	With cable (3m)	12 stations	
U3	S3	With cable (5m)		

Connector location	Top (vertical)	Side (horizontal)	Without cable	Max. 12 stations
kit U0	S0	Without cable	Max. 12 stations	
kit U1	S1	With cable (1.5m)	12 stations	
P U2	P S2	With cable (3m)	12 stations	
U3	S3	With cable (5m)		

Connector location	Top (vertical)	Side (horizontal)	Without cable	Max. 12 stations
kit U0	S0	Without cable	Max. 12 stations	
kit U1	S1	With cable (1.5m)	12 stations	
P U2	P S2	With cable (3m)	12 stations	
U3	S3	With cable (5m)		

Connector location	Top (vertical)	Side (horizontal)	Without cable	Max. 12 stations
kit U0	S0	Without cable	Max. 12 stations	
kit U1	S1	With cable (1.5m)	12 stations	
P U2	P S2	With cable (3m)	12 stations	
U3	S3	With cable (5m)		

Connector location	Top (vertical)	Side (horizontal)	Without cable	Max. 12 stations
kit U0	S0	Without cable	Max. 12 stations	
kit U1	S1	With cable (1.5m)	12 stations	
P U2	P S2	With cable (3m)	12 stations	
U3	S3	With cable (5m)		

Connector location	Top (vertical)	Side (horizontal)	Without cable	Max. 12 stations
kit U0	S0	Without cable	Max. 12 stations	
kit U1	S1	With cable (1.5m)	12 stations	
P U2	P S2	With cable (3m)	12 stations	
U3	S3	With cable (5m)		

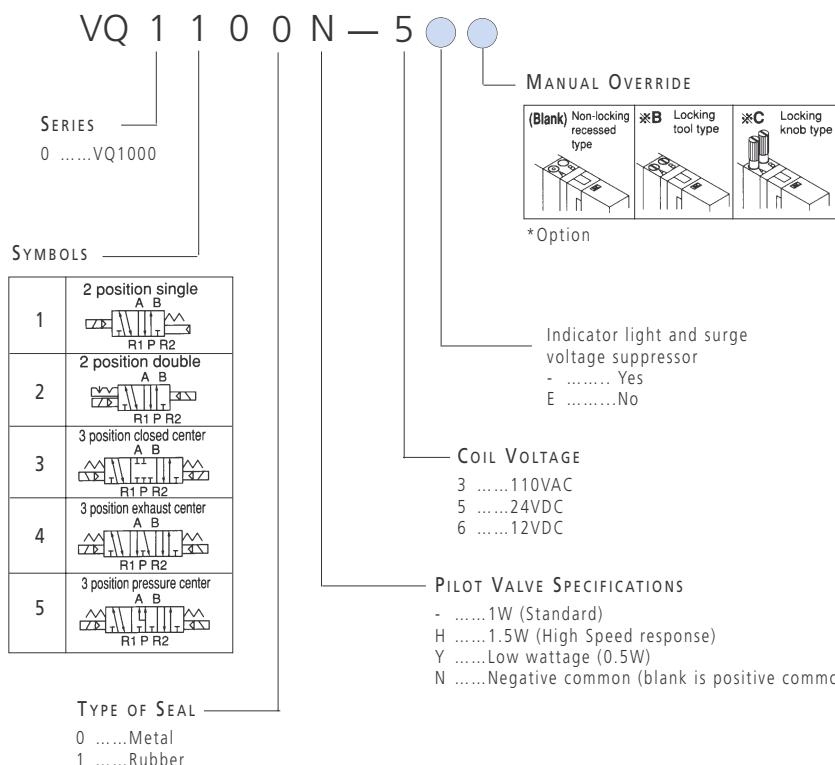
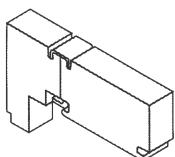
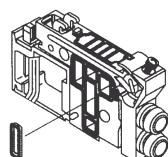
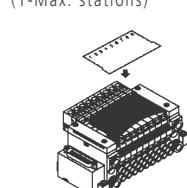
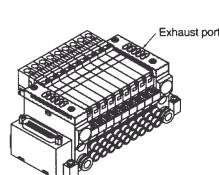
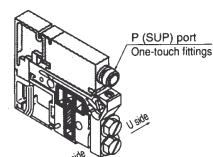
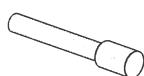
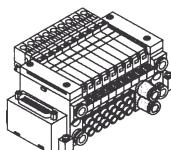
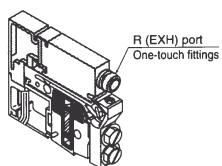
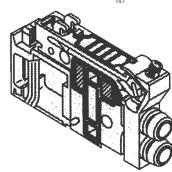
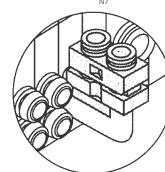
Connector location	Top (vertical)	Side (horizontal)	Without cable	Max. 12 stations
kit U0	S0	Without cable	Max. 12 stations	
kit U1	S1	With cable (1.5m)	12 stations	
P U2	P S2	With cable (3m)	12 stations	
U3	S3	With cable (5m)		

Connector location	Top (vertical)	Side (horizontal)	Without cable	Max. 12 stations
kit U0	S0	Without cable	Max. 12 stations	
kit U1	S1	With cable (1.5m)	12 stations	
P U2	P S2	With cable (3m)	12 stations	
U3	S3	With cable (5m)		

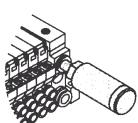
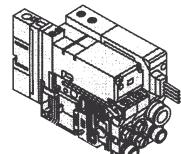
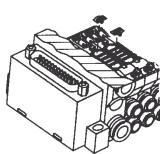
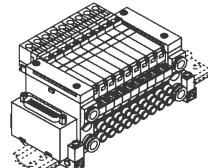
Connector location	Top (vertical)	Side (horizontal)	Without cable	Max. 12 stations
kit U0	S0	Without cable	Max. 12 stations	
kit U1	S1	With cable (1.5m)	12 stations	
P U2	P S2	With cable (3m)	12 stations	
U3	S3	With cable (5m)		

Connector location	Top (vertical)	Side (horizontal)	Without cable	Max. 12 stations
kit U0	S0	Without cable	Max. 12 stations	
kit U1	S1	With cable (1.5m)	12 stations	
P U2	P S2	With cable (3m)	12 stations	
U3	S3	With cable (5m)		

Connector location	Top (vertical

HOW TO
ORDER
VALVEACCESSORIES
MANIFOLD OPTIONSBLANKING PLATE ASSEMBLY
VVQ1000-10A-5SUP BLOCK PLATE
VVQ1000-16A-NAMEPLATE [-N]
VVQ1000-N5-Station
(1-Max. stations)BUILT IN SILENCER
Direct exhaust [-S]INDIVIDUAL SUP SPACER
VVQ1000-P-1-C6PLANKING PLUG
KQP-
23
04
06
08
10
01
03
072 STATIONS MATCHING FITTINGS
ASSEMBLY
VVQ1000-52A-C8 (VQ1000)INDIVIDUAL EXH SPACER
VVQ1000-R-1-C6EXH BLOCK BASE ASSEMBLY
VVQ1000-19A-
F: C3
P: C4
L: C6
M: M5
N1: N1
N2: N2
N7: N7
(VQ1000)ELBOW FITTINGS ASSEMBLY
VVQ1000-F-L-C6 (VQ1000)

SILENCER (EXH PORT)

VACUUM EJECTOR UNIT
VVQ1000-J-BM (VQ1000)CHECK VALVE FOR PREVENTION OF
BACK PRESSURE ASSEMBLY [-B]
VVQ1000-18ADIN RAIL MOUNTED BRACKET [-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
 4Plug in unit/flip type

NUMBER OF STATIONS

01 ...1 Station

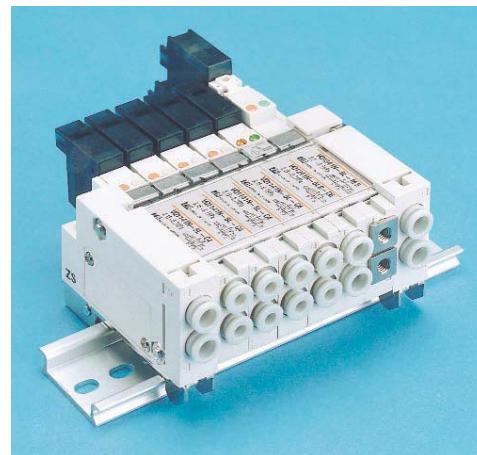
•

•

•

16 ...16 Stations

The number of stations
differs from kit to kit.



DIN RAIL/OPTION

Symbol	Option
-	None (C kit only)
Note ² D	DIN Rail Mounted Type
N	With Nameplate
Note ³ S	Built-in Silencer (Direct Exhaust)

Note 1) When more than one option is desired Combined symbols in alphabetical order. Example) • DNS

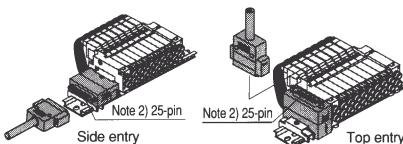
Note 2) All F, P, and S kits are of DIN rail mounted type. So include suffix "D".

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.

KIT • ELECTRICAL ENTRY CABLE LENGTH

F kit

(D-sub connection)

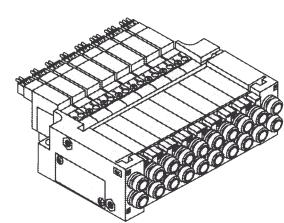


Connector Location

	Top (vertical)	Side (horizontal)	
Kit	U0	S0	Without cable
F	U1	S1	With cable (1.5m)
	U2	S2	With cable (3m)
	U3	S3	With cable (5m)

C kit

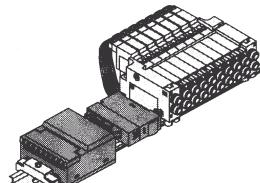
(Connector)



C Connector

S kit

(Serial transmission unit)


 Compatible only with
 24VDC valves.

Kit s

O	Without SI unit	Max. 16 stations
A	With general type SI unit	(Single)
B	With SI unit for Mitsubishi, MELSEC-A	Max. 8 stations
C	With SI unit for Omron, SYSMAC	(Double)
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**

VQ1 1 4 0 Y — 5 L — C6

SERIES
1VQ1000**CONFIGURATION**

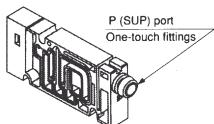
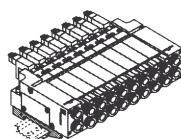
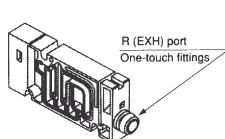
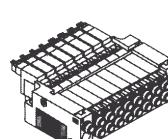
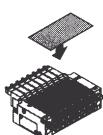
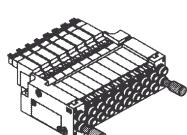
1	2 position single
2	2 position double (latching)
Note 3	3 position closed center
Note 4	3 position exhaust center
Note 5	3 position pressure center

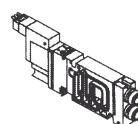
Note) 3 position types need two stations
 Note) F,P,T, and S kits need connector assembly when increasing the valve station.

TYPE OF SEAL
 0Metal
 1Rubber
PILOT VALVE SPECIFICATIONS

-1W (Standard)
- H1.5W (High pressure)
- YLow wattage (0.5W)
- NNegative common

Note) Except for AC and double (latching) 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
 64
 08
 01
 03
 07

P R PR BLOCK VALVE
 VQ □; 4 □ -□□□ P R


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
 7Plug Lead unit/cassette type

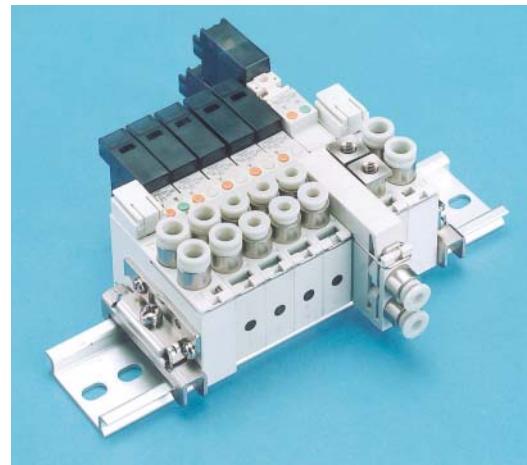
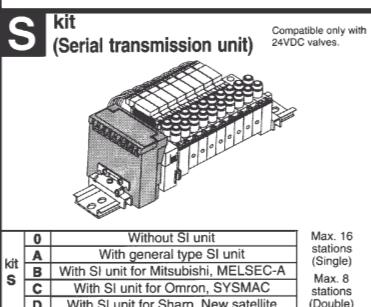
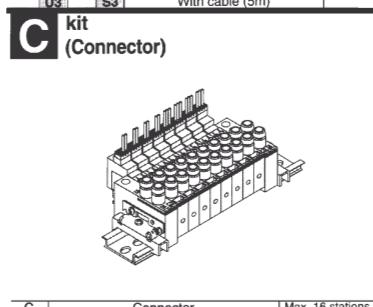
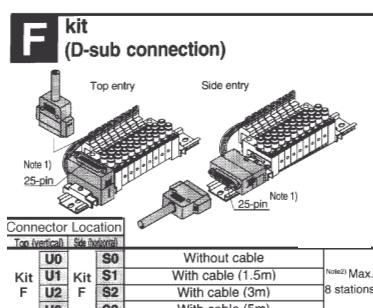
NUMBER OF STATIONS

01 ...1 Station

 •
 •
 •
 16 ...16 Stations

The number of stations
differs from kit to kit.

KIT • ELECTRICAL ENTRY CABLE LENGTH



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".

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.

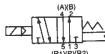
**HOW TO
ORDER
VALVE**

VQ1 1 7 0 N — 5 M — C6

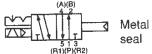
SERIES
1VQ1000

CONFIGURATION

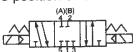
2 position single



2 position double (latching)



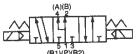
3 position closed center



3 position exhaust center



3 position pressure center



PILOT VALVE SPECIFICATIONS

-1W (Standard)
- H1.5W (High Speed response)
- NNegative Common
- Note Y Low wattage (0.5W)

Note) Except for 100/110VAC type.

COIL VOLTAGE

- 3110VAC
- 524VDC
- 612VDC

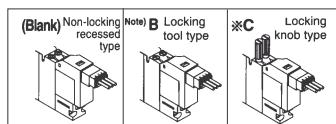
With indicator light and surge voltage suppressor

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

L Type plug connector with lead wire



LO Type plug connector without connector



M Type plug connector with lead wire



MO Type plug connector without connector



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.

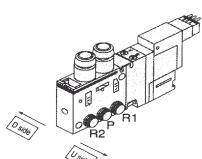
Note 2) Grommet type (G) is also available for C kit type.
(Except for latching type and 100/110VAC)

ACCESSORIES

MANIFOLD OPTIONS

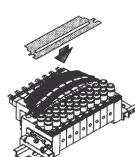
SUP-EXH BLOCK PUSH ASSEMBLY

VVQ1000-87A-B-50

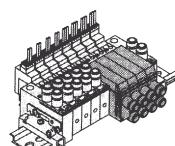


NAMEPLATE [-N7]

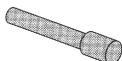
VVQ1000-N7 Station (1- Max. Stations)



ELBOW FITTINGS ASSEMBLY

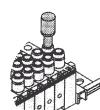
VVQ1000-F7-L C₃
C₄
C₆

BLANKING PLUG

KQP - ²³
04
06
01
03
07

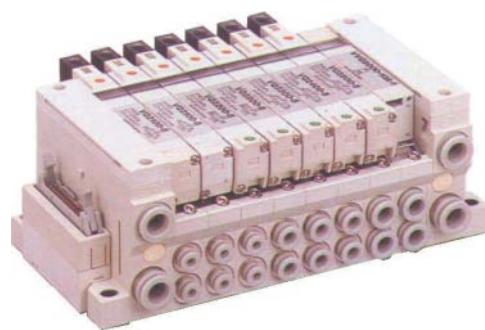
SILENCER

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 Double 0.1MPa / 14.5PSI 3-position 0.1MPa / 14.5PSI	0.15MPa / 22PSI 0.1MPa / 14.5PSI 0.2MPa / 29PSI
Max Operating Pressure (Note 1)	0.75MPa / 109PSI	0.75MPa / 109PSI
Effective Area (Cv Factor) mm ²	Single 14.4 (0.8) Double 14.4 (0.8) 3-position 12.6 (0.7)	16.2 (0.9) 16.2 (0.9) 14.4 (0.8)
Response Time (Note 2)	Single Max 23ms Double Max 18ms 3-position Max 28ms	Max 24ms Max 23ms 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 response time checked when the valve is equipped with an indicator light and surge voltage suppressor). 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) No grease on main valve.

Special types (Contact SMC for details and availability):

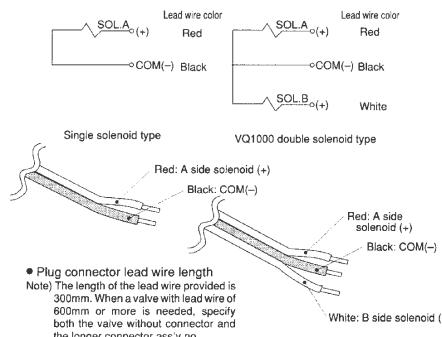
- Pressure center function
- External pilot
- Low power consumption (0.5W)
- Positive common wiring

C KIT (CONNECTOR) SERIES VQ2000

- ✓ Type which has lead wires in plug connected to each valve individually.
- ✓ Max. 16 stations

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.

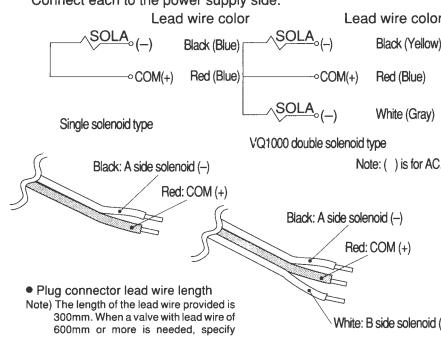
Connector ass'y No. AXT661-14AN-10 3 pcs.

Lead wire length	No. for single & VQ0000 double types	No. for VQ1000 double type
Socket (3 pcs.)	AXT661-12A	
300mm	AXT661-14AN 1	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.

Connector ass'y No. AXT661-14A-10 3 pcs.

Lead wire length	No. for single & VQ0000 double types	No. for VQ1000 double type
Socket (3 pcs.)	AXT661-12A	
300mm	AXT661-14A 1	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-iii applies to the single type and AXT661-32A-iii to the double type.

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: 1.1VA (11mA)
Electrical entry	Plug-in or Connector type	Plug-in or Connector type

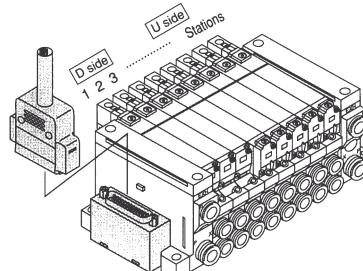
(Note 1) Contact SMC for the low power consumption (0.5W) type.

SYMBOLS

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

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).



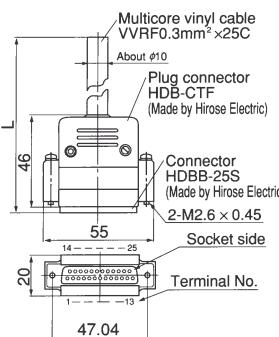
VV5Q21

The total number of stations is tabulated starting from station one at the D side.

D-sub connector (25-pin)

VVZS3000-21A-¹₃

(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 $M\Omega km$, 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

D-sub cable ass'y (VVZS3000-21A- ¹ ₃) wire color table				
D-sub connector	Terminal No.	Polarity	Lead wire color	Dot marking
1 station	SOLA 1 SOLB 14	(-) (+)	Black Yellow	Black Black
2 stations	SOLA 2 SOLB 15	(-) (+)	Brown Pink	- Black
3 stations	SOLA 3 SOLB 16	(-) (+)	Red Blue	- White
4 stations	SOLA 4 SOLB 17	(-) (+)	Orange Violet	- -
5 stations	SOLA 5 SOLB 18	(-) (+)	Yellow Gray	- -
6 stations	SOLA 6 SOLB 19	(-) (+)	Pink Orange	- Black
7 stations	SOLA 7 SOLB 20	(-) (+)	Blue Red	- White
8 stations	SOLA 8 SOLB 21	(-) (+)	Violet Brown	White White
9 stations	SOLA 9 SOLB 22	(-) (+)	Gray Pink	Black Red
10 stations	SOLA 10 SOLB 23	(-) (+)	Pink Gray	Red Red
11 stations	SOLA 11 SOLB 24	(-) (+)	White Black	Red White
12 stations	SOLA 12 SOLB 25 COM 13	(-) (+)	Yellow White Orange	Red - Red

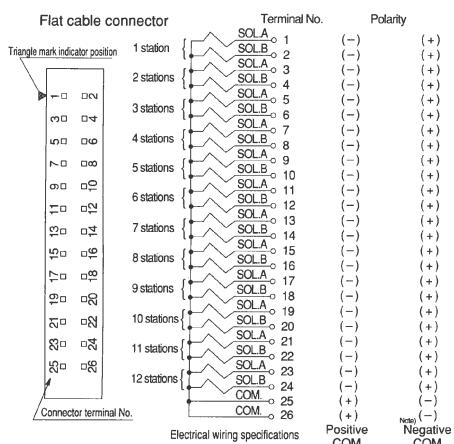
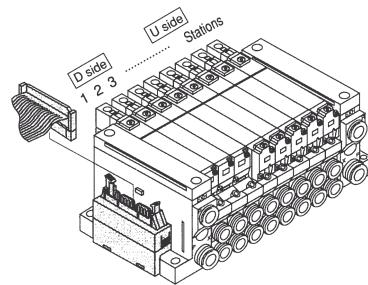
These figures show the standard internal wiring for double solenoid capability provided for each station.

Note) Use negative COM type valves for negative COM specification manifolds.

Positive COM Negative COM

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).

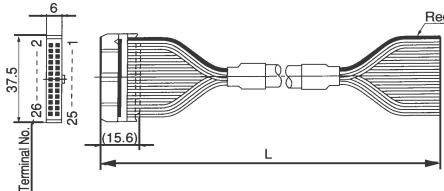


These figures show the standard internal wiring for double solenoid capability provided for each station.

Note) Use negative COM valves for negative COM specification manifolds.

AXT100-FC26-¹/₃

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	
3m	AXT100-FC26-2	Cable 26-core x 28AWG
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. • Japan Aviation Electronics Industry, Ltd.
- Sumitomo 3-M Ltd. • Japan Solderless Terminal Sales Co., Ltd.
- Fujitsu 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: 2VQ2000

TYPE OF MANIFOLD 1Plug 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

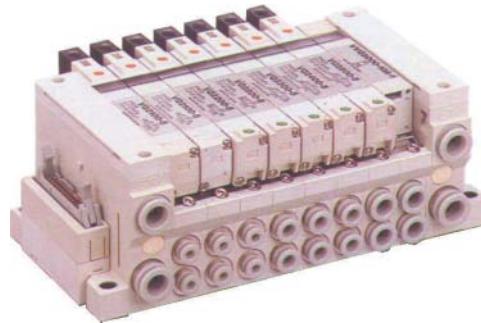
M5 ...M5 (10-32Nom)

N3 ...One Touch Fittings ø5/32"

N7 ...One Touch Fittings ø1/4"

N9 ...One Touch Fittings ø5/16"

* Mixed Ports Available



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

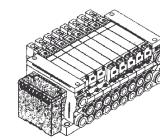
Note ②) In the case of the external pilot "-R", order
solenoid valves with the external pilot
specification "R"

KIT•ELECTRICAL ENTRY•CABLE LENGTH

F kit (D-sub connector)		P kit (Flat cable connector)	
Side entry		Top entry	
Top entry	Side entry	Top entry	Side entry
Connector location (Top entry / Side entry)			
Kit U0 Kit S0 Without cable			
Kit U1 Kit S1 With cable (1.5m)			
F U2 F S2 With cable (3m)	P U2 P S2 With cable (3m)	P U2 P S2 With cable (3m)	P U2 P S2 With cable (3m)
U3 S3 With cable (5m)			

S kit (Serial transmission unit)

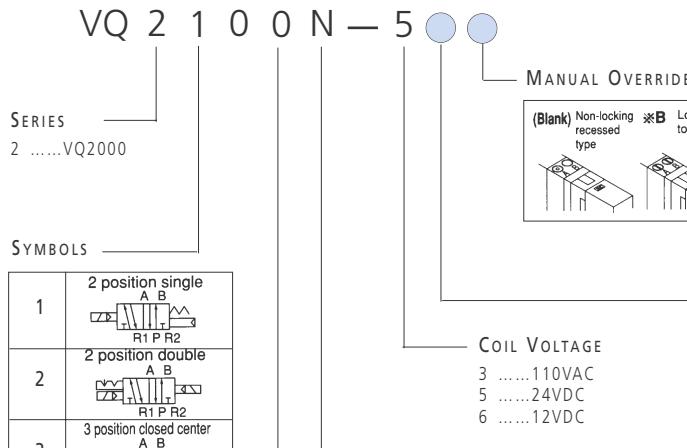
The valve is equipped with a lamp/surge voltage suppressor, and the voltage is 24VDC. The dustproof type SI unit is also applicable.



Kit S	0 Without SI unit	
	A With general type SI unit	
	B With SI unit for Mitsubishi, MESEC-A	
	C With SI unit for Omron, SYSMAC	
	D With SI unit for Sharp, New satellite	Note 2) 2-8 stations
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

COIL VOLTAGE

- 3110VAC
524VDC
612VDC

TYPE OF SEAL

- 0Metal
1Rubber

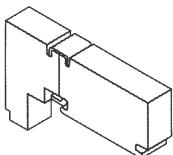
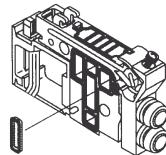
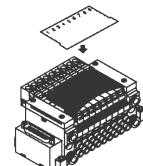
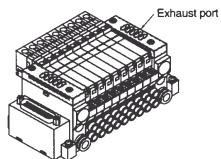
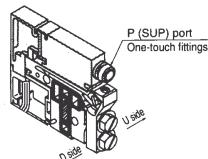
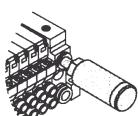
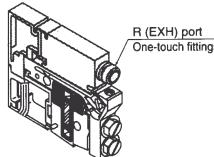
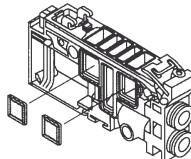
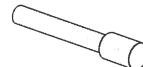
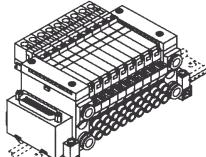
Note: Contact SMC for 200,
220 VAC specifications

Indicator light and surge
voltage suppressor
(Blank).. Yes
ENo

PILOT VALVE SPECIFICATIONS

-1W (Standard)
H1.5W (High Speed response)
YLow wattage (0.5W)
NNegative common
RExternal 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

SILENCER (EXH PORT)
AN200-KM10

INDIVIDUAL EXH SPACER
VVQ2000-R-1-C8

EXH BLOCK PLATE
VVQ2000-19A (Q2000)

BLANKING PLUG
KQP-
04
06
03
07

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
2VQ2000

TYPE OF MANIFOLD
4Plug lead unit/flip type

NUMBER OF STATIONS

011 Station

• •

• :

• :

1616 Stations

The number of stations
differ from kit to kit



SUP/EXH PORT
-Metric (mm)
00T ...Imperial (inch)

DIN RAIL/OPTION

Symbol	Option
(Blank)	None (C Kit only)
Note 2) D	DIN Rail Mounted Type
N	With Nameplate
Note 2) 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)

Side entry Note 2) 25-pin Note 2) 25-pin Top entry

Connector Location	
Top (vertical)	Side (horizontal)
Kit F	U0 S0 U1 S1 U2 S2 U3 S3
	Without cable With cable (1.5m) With cable (3m) With cable (5m)
	Note 1) Max. 8 stations

C kit
(Connector)

C Connector Max 16 stations

S kit
(Serial transmission unit)

Compatible only with 24VDC valves.

Kit S	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	Max. 16 stations Max. 8 stations (Single) Max. 8 stations (Double)
-------	--	--

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, F and P kits with different number of pins are available.

HOW TO
ORDER
VALVE

VQ2 1 4 0 N - 5 L C6

 SERIES
2VQ2000

CONFIGURATION

1	2 position single
2	2 position double (latching)

TYPE OF SEAL

- 0Metal
1Rubber

PILOT VALVE SPECIFICATIONS

-1W (Standard)
H1.5W (High Speed response)
Note) Y Low wattage (0.5W)
NNegative common

Note) Except for double (latching) type.

COIL VOLTAGE

- | | |
|---------------|---|
| 3110VAC | With indicator light and surge voltage suppressor |
| 524VDC | |
| 612VDC | |

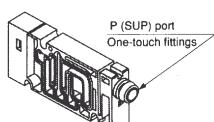
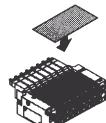
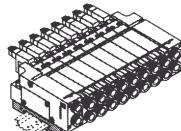
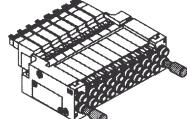
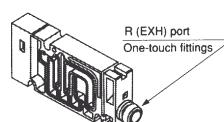
Note1) See "Option Specifications" for negative COM specifications.

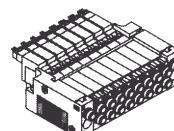
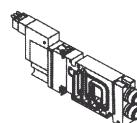
Contact SMC for 200, 220VAC

Note2) F, P, and S kits need connector assembly when increasing the valve station. See "Option Specifications" for types.

ACCESSORIES

MANIFOLD OPTIONS

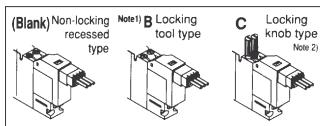
 INDIVIDUAL SUP SPACER
VVQ2000-P-4-C8

 NAMEPLATE [-N4]
VVQ2000-N4 station
(1-Max. station.)

 DIN RAIL MOUNTED BRACKET [-D]
VVQ2000-57A-4

 SILENCER (EXH PORT)
AN203-KM8 (VVQ2000)

 INDIVIDUAL EXH SPACER
VVQ2000-R-4-C8

 BLANKING PLUG
KQP-
04
06
03
07

 BUILT IN SILENCER
Direct exhaust [-S]

 P
R
BLOCK VALVE VQ□14□-□-□-PR


CYLINDER PORTS

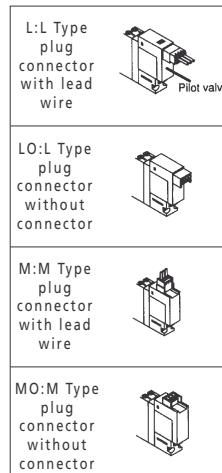
- C4 ...One Touch Fittings for Ø4
C6 ...One Touch Fittings for Ø6
C8 ...One Touch Fittings for Ø8
N3 ...One Touch Fittings ø5/32"
N7 ...One Touch Fittings ø1/4"
N9 ...One Touch Fittings ø5/16"

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

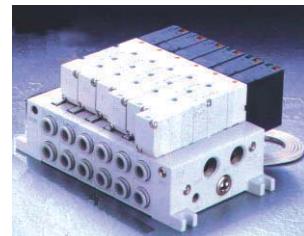
ELECTRICAL ENTRY



G ...Grommet C Kit
Single Type Only

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)
Operating Pressure	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/s ²	
Enclosure		Dust Proof (Available to IP65 Type)	
Coil Rated Voltage		12, 24VDC and 100, 110, 200, 220VAC (50/60Hz)	
Allowable Voltage		±10% of Rated Voltage	
Coil Insulation		Class B	
	24VDC	1WDC (42mA), 0.5WDC (21mA)	
	12VDC	1WDC (83mA), 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)	



S Y M B O L S

1	2 position single	
2	2 position double	
3	3 position closed center	
4	3 position exhaust center	
5	3 position pressure center	

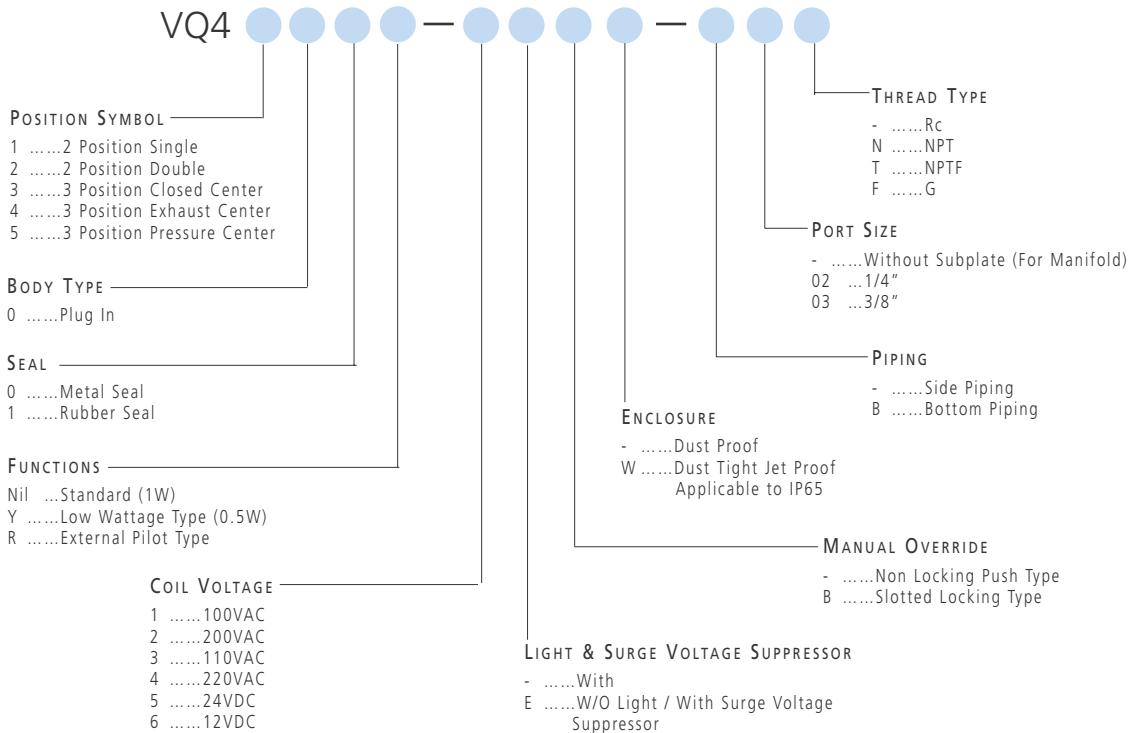
M O D E L S E R I E S V Q 4 0 0 0

Number Of Solenoids	Type	Note 1) Effective Area mm ² (Cv)	Response Time ms		Note 2)
			Standard 1W	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	Metal Seal VQ43(0, 5)0	32.4 (1.8)	45 or less	47 or less
	Center	Rubber Seal VQ43(0, 5)0	36.0 (2.0)	50 or less	52 or less
	Exhaust	Metal Seal VQ44(0, 5)0	36.0 (2.0)	45 or less	47 or less
	Center	Rubber Seal VQ44(0, 5)0	39.6 (2.2)	50 or less	52 or less
3 Positions	Pressure	Metal Seal VQ45(0, 5)0	36.0 (2.0)	45 or less	47 or less
	Center	Rubber Seal VQ45(0, 5)0	39.6 (2.2)	50 or less	52 or less

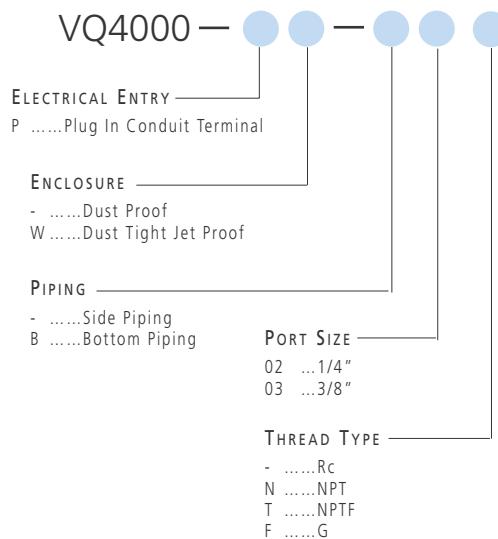
Note 1) Value for Valve on Subplate and Cylinder Port Rc 3/8

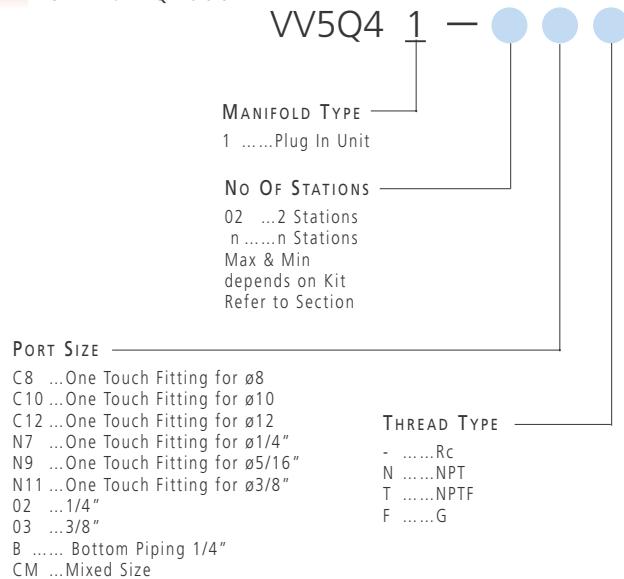
Note 2) As per JISB8375-1981 (Supply Pressure; 0.5 MPa (5.1 kgf/cm²);
with Indicator Light and Surge Voltage Suppressor; Clean Air)

HOW TO
ORDER
SERIES VQ4000



HOW TO
ORDER
SUBPLATE SERIES VQ4000



**HOW TO
ORDER
MANIFOLD**
SERIES VQ4000**OPTION**

-None
- CD ...Exhaust Cleaner; For D Side Mounting (NOTE 2)
- CU ...Exhaust Cleaner; For U Side Mounting (NOTE 2, 3)
- KSpecail Wiring Spec (Other than Double Wiring) (NOTE 4)

NName Plate (T Kit Only)

SD ...Direct Jet with Silencer Box; D Side Exhaust
SU ...Direct Jet Silencer Box; U Side Exhaust (NOTE 4)

WEnclosure IP65 (Except F Kit)

NOTE 1) WHEN SPECIFYING MORE THAN ONE OPTION, COMBINE SYMBOLS IN ALPHABETICAL ORDER

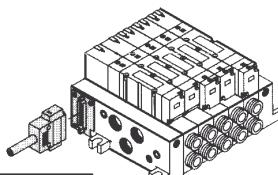
NOTE 2) COMBINATION OF CU/CD AND SU/SD IS NOT POSSIBLE

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)

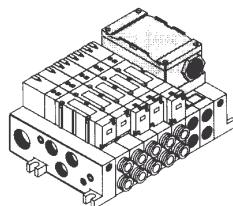
CONTROL UNIT

Refer to CAT:E150 for details

KIT / ELECTRICAL ENTRY / CABLE LENGTH**Kit/Electrical entry/Cable length**
F Kit
(D sub-connector)


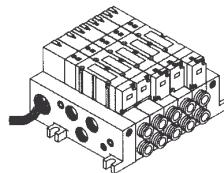
Electrical entry	
D side	U side
D0	U0
Kit	Without cable
D1	U1
Kit	Cable length 1.5m
F	U2
D2	Cable length 3m
D3	U3
	Cable length 5m

Note 2)
2 to 12 stations

T Kit
(Terminal box kit)


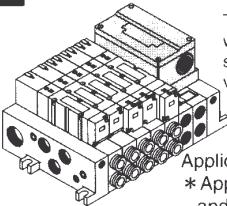
Applicable to IP65

Kit T 0 Terminal box 3 to 12 stations Note 2)

L Kit
(Lead wire kit)


Electrical entry	
D side	U side
D0	U0
Kit	Without cable
D1	U1
Kit	Cable length 1.5m
L	U2
D2	Cable length 3m

Applicable to IP65
2 to 16 stations

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.

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 Sanki: S-LINK system 16 points output
J2	With SI unit for Sanki: 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-S3 data link system
	Input unit {□: Stations (0 to 2)}

OPTIONS
 MANIFOLD

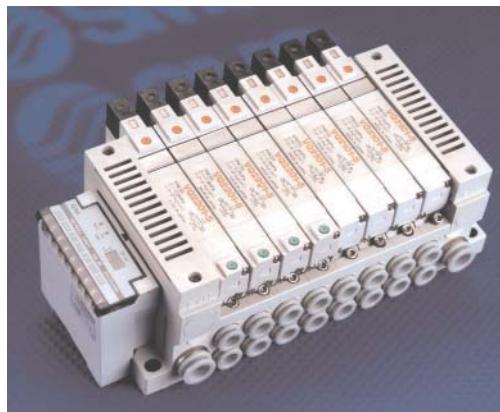
SERIES VQ4000

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>
		 <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
		 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) mm ²	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

VV5Q11 — S —

MANIFOLD BASE TYPE

1Plug-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

BMitsubishi Melsec - A

COmron Sysmac

DSharp New Satelite

EMatsushita Mewnet

GAllen Bradley

Note) More options are available, consult SMC for complete information.

HOW TO ORDER VALVES

VQ1 00 — 5

SYMBOL

12-position

.....single

22-position

.....double

33-position

.....closed centre

43-position

.....exhaust centre

BODY TYPE

0Plug-in Base Type

TYPE OF SEAL

0Metal Seal

1Rubber Seal

VOLTAGE

524VDC with indicator light and surge voltage suppressor

OPTION

BBack Pressure Prevention Valve

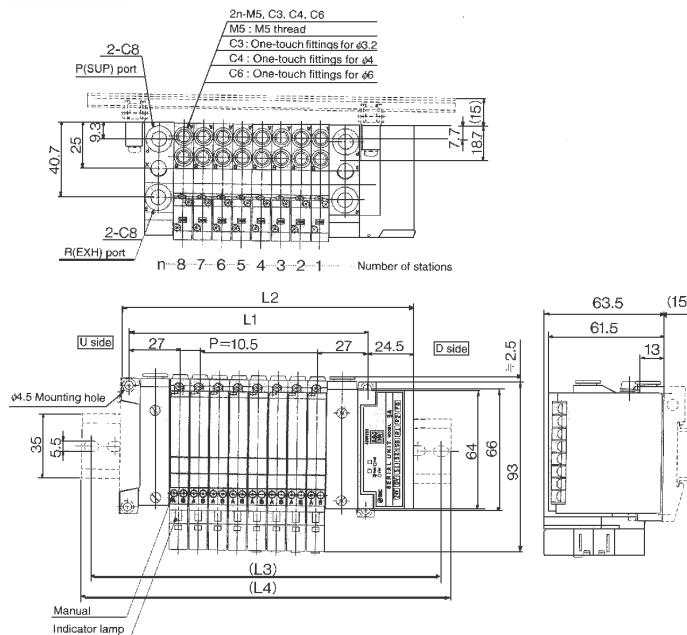
DDIN Rail Mounting

SBuilt-in (TOP) silencer: not piped exhaust

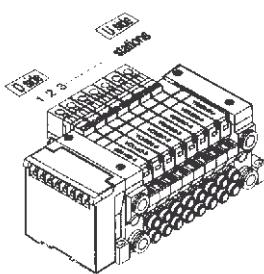
*NOTE
2~8 station manifolds are wired for single or double solenoid operation.
Please consult your local SMC Sales Office when ordering manifolds of 9 stations and above.

DIMENSIONS
SEE NEXT PAGE

DIMENSIONS



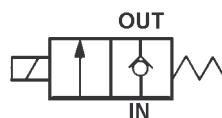
L/n	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
L1	64.5	75	85.5	96	106.5	117	127.5	138	148.5	159	169.5	180	190.5	201	211.5
L2	93.5	104	114.5	125	135.5	146	156.5	167	177.5	188	198.5	209	219.5	230	240.5
(L3)	125	125	137.5	150	16+2.5	175	187.5	187.5	200	212.5	225	237.5	250	250	262.5
(L4)	135.5	135.5	148	160.5	173	185.5	198	198	210.5	223	235.5	248	260.5	260.5	273


 Stations are counted
 from the D side

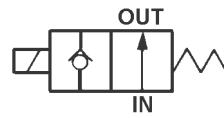


2 PORT SOLENOID VALVE DIRECT OPERATED TYPE SERIES VX21/22/23

- ✓ 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



ENERGIZED OPEN TYPE



ENERGIZED CLOSED TYPE

TECHNICAL SPECIFICATIONS

ENERGIZED OPEN TYPE SERIES VX

1 MPa = 145 PSI

Port Size	Orifice mmØ	Flow Rate Cv Effective Area (mm²)	Model	Maximum Operating Pressure Differential MPa						Maximum System Pressure MPa	Proof Pressure MPa	
				Water		Air		Oil		Steam		
				AC	DC	AC	DC	AC	DC	AC		
1/8 (6A)	2	0.17 3	VX2110-01	2	1.5	2	1.5	1.5	1.5	1	Water • Oil Air	5
	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		
1/4 (8A)	2	0.17 3	VX2110-02	2	1.5	2	1.5	1.5	1.5	1	Water • Oil Air Steam	1
	3	0.33 6	VX2120-02	0.9	0.5	1.1	0.6	0.5	0.5	1		
	3	0.33 6	VX2220-02	1.7	1.5	2	1.5	1.2	1.2	1		
	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		
	4.5	0.61 11	VX2230-02	0.6	0.35	0.75	0.35	0.35	0.3	0.75		
	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		
	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 Oil • Air	3
3/8 (10A)	8	1.7 31	VX2350-02	0.17	0.2	0.2	0.2	0.14	0.2	0.2		
	10	1.9 34	VX2260-02	0.08	0.03	0.08	0.03	0.05	0.03	0.08		
	10	1.9 34	VX2360-02	0.1	0.07	0.1	0.07	0.08	0.07	0.1		
	3	0.33 6	VX2220-03	1.7	1.5	2	1.5	1.2	1.2	1	Water Oil • Air	5
	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		
	4.5	0.61 11	VX2330-03	0.85	0.9	1	0.9	0.55	0.85	1		
	6	1.05 19	VX2240-03	0.35	0.15	0.4	0.15	0.2	0.1	0.4		
	6	1.05 19	VX2340-03	0.55	0.3	0.5	0.35	0.35	0.3	0.5		
	8	1.7 31	VX2250-03	0.13	0.08	0.15	0.08	0.1	0.08	0.15		
	8	1.7 31	VX2350-03	0.17	0.2	0.2	0.2	0.14	0.2	0.2		
1/2 (15A)	10	2.4 43	VX2260-03	0.08	0.03	0.08	0.03	0.05	0.03	0.08	Oil • Air	3
	10	2.4 43	VX2360-03	0.1	0.07	0.1	0.07	0.08	0.07	0.1		
	10	2.4 43	VX2260-04	0.08	0.03	0.08	0.03	0.05	0.03	0.08	Steam	0.5
	10	2.4 43	VX2360-04	0.1	0.07	0.1	0.07	0.08	0.07	0.1	Steam	

HOW TO
ORDER
SEE NEXT PAGE 

TECHNICAL
SPECIFICATIONS

ENERGIZED CLOSED TYPE SERIES VX

1 MPa = 145PSI

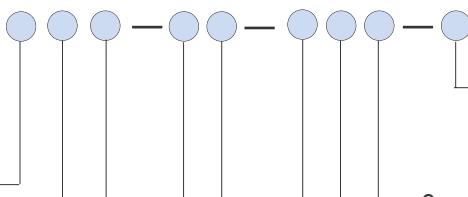
Port Size	Orifice mmØ	Flow Rate Cv Effective Area (mm²)	Model	Maximum Operating Pressure				Maximum System Pressure MPa	Proof Pressure MPa
				Differential MPa					
1/8 (6A)	2	0.17 3	VX2112-01	0.9	1.5	0.8	1	Water	•
	3	0.33 6	VX2122-01	0.45	0.7	0.45	0.7		
	4.5	0.61 11	VX2132-01	0.2	0.3	0.2	0.3		
	2	0.17 3	VX2112-02	0.9	1.5	0.8	1		
	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		
1/4 (8A)	4.5	0.61 11	VX2322-02	1.2	1.6	1	-	Oil	•
	4.5	0.61 11	VX2132-02	0.2	0.3	0.2	0.3		
	4.5	0.61 11	VX2232-02	0.3	0.45	0.3	0.45		
	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		
3/8 (10A)	3	0.33 6	VX2222-03	0.8	1	0.7	1	Steam	5
	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		
	4.5	0.61 11	VX2332-03	0.6	0.8	0.6	0.87		
	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

 BRACKET
Nil ...Without
BWith Bracket

OPTIONS

- Nil ...None
- SWith Surge Voltage Suppressor
- LWith Indicator Light
- ZWith Indicator Light and Surge Voltage Suppressor

 ELECTRICAL ENTRY
DDIN Connector

VOLTAGE

- | | |
|---|-------------|
| 1 |100VAC |
| 2 |200VAC |
| 3 |110VAC |
| 4 |220VAC |
| 5 |24VDC |
| 6 |12VDC |
| 7 |240VAC |
| 8 |48VAC |

THREAD

- | | |
|---|-------------|
| - |Rc(PT) |
| T |NPTF |
| F |G(PF) |
| N |NPT |

ORIFICE NO

- 12mmØ
- 23mmØ
- 34.5mmØ
- 46mmØ
- 58mmØ Energized Open Type Only
- 610mmØ Energized Open Type Only

VALVE BODY TYPE

- 0Energized Open Type/Single
- 2Energized 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

DIMENSIONS

TYPE PORT SIZE ORIFICE XERIES VX21/22/23

Solenoid Valve Type (Port Size)			Orifice Size (Number)					
VX21	VX22	VX23	1 2mmØ	2 3mmØ	3 4.5mmØ	4 6mmØ	5 8mmØ	6 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)	-	-	-	-	-	●

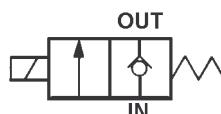
 FOR DIMENSIONS AND MORE TECHNICAL DETAILS
ON THIS SERIES, PLEASE REFER TO CAT:E701

2 PORT SOLENOID VALVE PILOT OPERATED TYPE SERIES VXD21

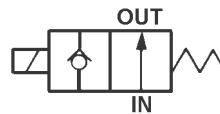
- ✓ Compact and Lightweight
- ✓ Large Flow Capacity
- ✓ Can be quickly disassembled and reassembled
- ✓ High Reliability Molded Coil
- ✓ Proper Selection of Body and Sealing Materials permits Application of a Wide Variety of Fluid



S Y M B O L S



ENERGIZED OPEN TYPE



ENERGIZED CLOSED TYPE

TECHNICAL SPECIFICATIONS

ENERGIZED OPEN TYPE SERIES VXD

1 MPa = 145 PSI

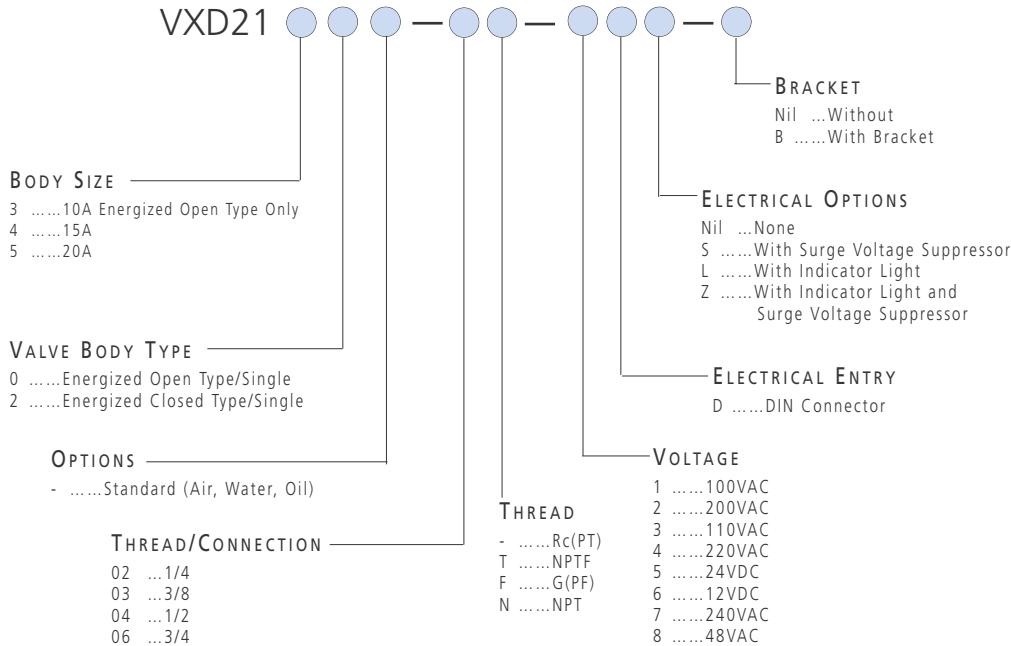
Connection	Orifice mmø	Flow Rate Cv Effective Area (mm²)	Model	Minimum Operating Pressure Differential MPa	Maximum Operating Pressure Differential MPa						Maximum System Pressure MPa	
					Water		Air		Oil			
AC	DC	AC	DC	AC	DC							
1/4	10	1.9	34	VXD2130-02	0.02	0.7	0.5	0.9	0.7	0.5	0.4	
3/8	10	2.4	43	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

1 MPa = 145 PSI

Connection	Orifice mmø	Flow Rate Cv Effective Area (mm²)	Model	Minimum Operating Pressure Differential MPa	Maximum Operating Pressure		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	
3/4	20	9.5	170	VXD2152-06	0.02	0.7	0.6	1.5

HOW TO
ORDER
SERIES VXD


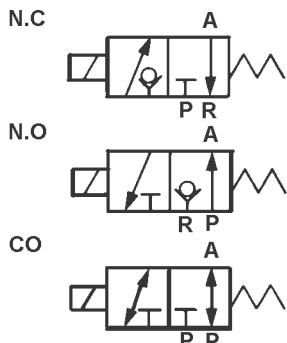
FOR DIMENSIONS AND MORE TECHNICAL DETAILS
ON THIS SERIES, PLEASE REFER TO CAT:E701



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

S Y M B O L S



TECHNICAL SPECIFICATIONS

SERIES VX31/32/33

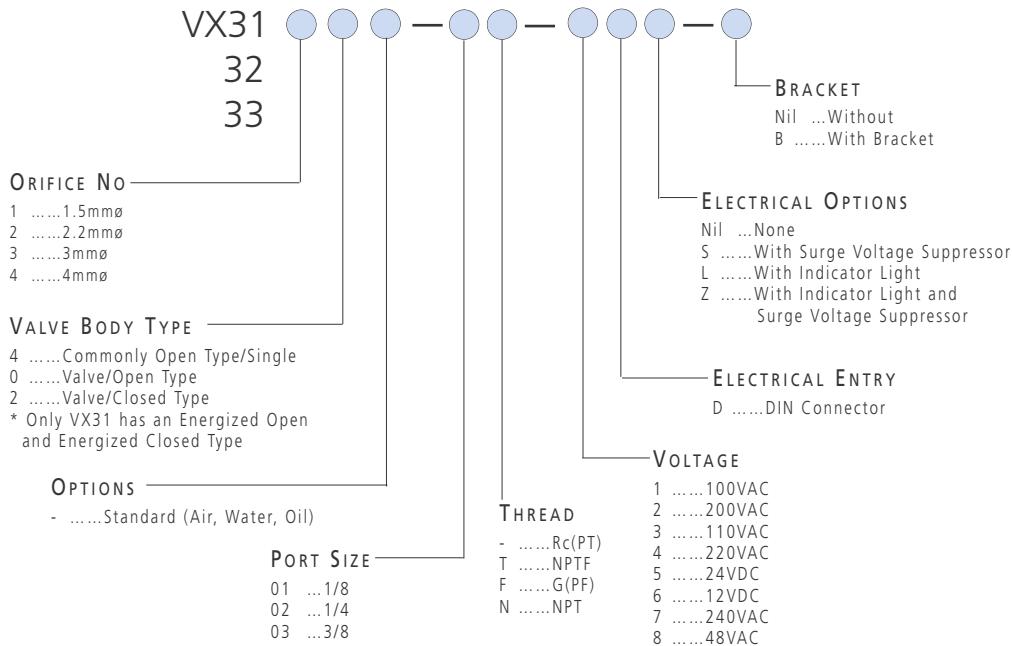
1 MPa = 145 PSI

Port Size	Orifice mm \varnothing	Flow Rate		Model	Maximum Operating Pressure		Maximum System Pressure MPa
		Cv	Effective Area (mm 2)		No AC AC	CO AC / DC	
1/8 (6A)	1.5	0.08	1.4	VX311(0/2/4)-01	1	0.6	Water
	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	
1/4 (8A)	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
	3	0.24	4.3	VX313(0/2/4)-02	0.3	0.2	2
	3	0.33	6	VX3234-02	-	0.3	Steam
	3	0.33	6	VX3334-02	-	0.6	
	4	0.5	9	VX3244-02	-	0.15	
3/8 (10A)	4	0.5	9	VX3344-02	-	0.3	1
	2.2	0.19	3.4	VX3224-03	-	0.6	
	2.2	0.19	3.4	VX3324-03	-	1	
	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

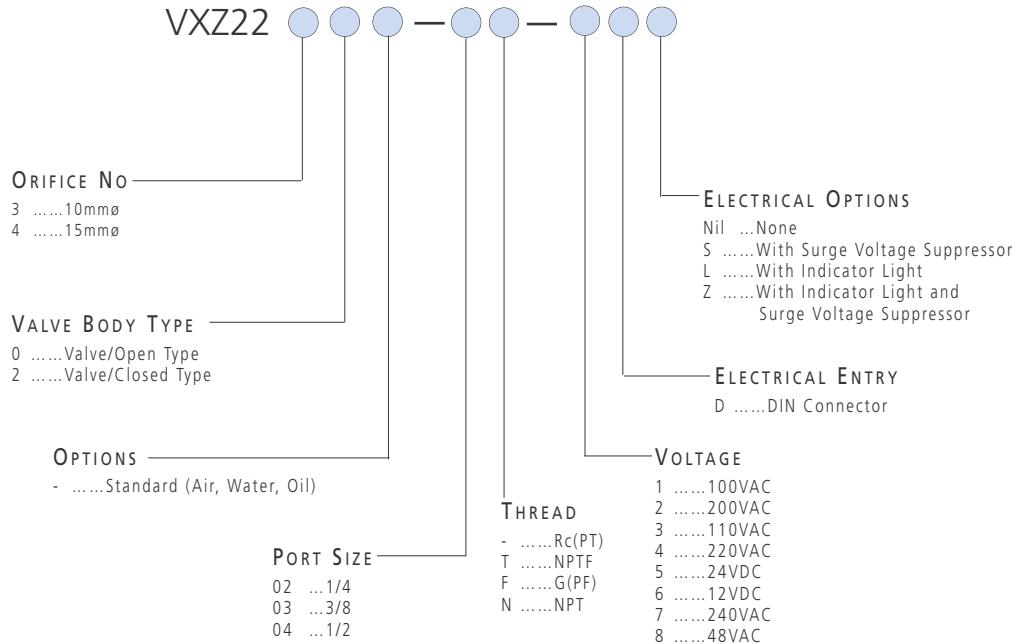
Port Size	Orifice Size mmØ	Flow Rate Cv Effective Orifice (mm²)	Model	Maximum Operating Pressure Differential MPa				Maximum System Pressure MPa
				Water		Air		
				AC	DC	AC	DC	
1/4	10	1.9 34	VXZ2230-02	1	0.7	1	0.7	0.7 0.7
3/8	10	2.4 43	VXZ2230-03	1	0.7	1	0.7	0.7 0.7
1/2	15	5.3 95	VXZ2240-04	1	0.7	1	0.7	0.7 0.7

**TECHNICAL
SPECIFICATIONS**

NORMALLY OPEN TYPE SERIES VXZ

1MPa = 145PSI

Port Size	Orifice Size mmØ	Flow Rate Cv Effective Orifice (mm²)	Model	Maximum Operating Pressure Differential MPa				Maximum System Pressure MPa
				Water		Air		
				AC	DC	AC	DC	
1/4	10	1.9 34	VXZ2232-02	0.7	0.6	0.7	0.6	0.7 0.6
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

TECHNICAL SPECIFICATIONS

- ✓ 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

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

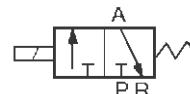
FLOW SPECIFICATIONS

Body Type	Model	Type Of Actuation	Operating Pressure Range kgf/cm²	Vacuum Application	Effective Orifice mm² (Cv Factor)	Port Size	Weight
Body Ported	(N)VZ110-**-M5	NC	0 ~ 7MPa 0 ~ 100PSI	22in-Hg 0~85PSI	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	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.

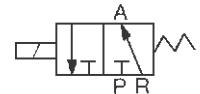
SYMBOLS

N.C



(N)VZ110

N.O



(N)VZ120

ACCESSORIES

(N)VZ100 SOLENOID VALVE

DXT170-123-A-30Plug with 3m lead
DXT170-34-1AFoot bracket with screws



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

1100V AC
2200V AC
3110V AC
4220V AC
524V DC
612V DC

LAMP & SURGE VOLTAGE SUPPRESSOR

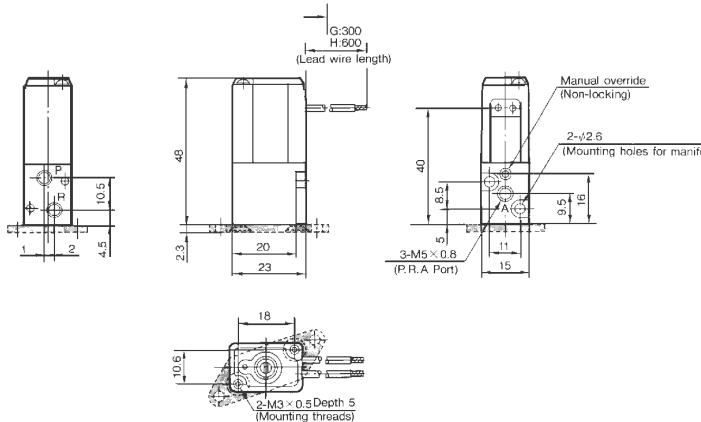
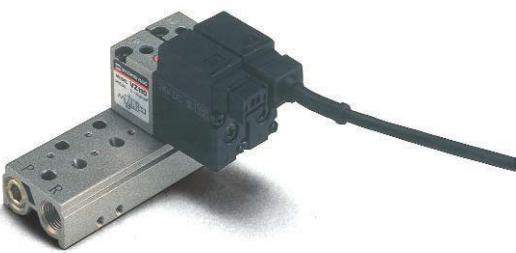
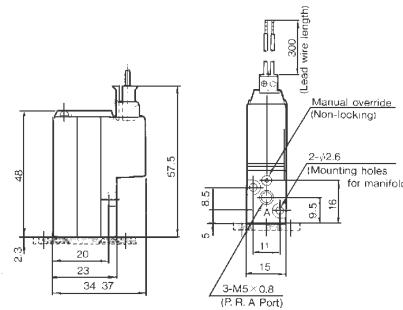
Nil ...Without
ZWith Indicator Light & Surge Suppressor
SWith Surge Suppressor

OPTION F Bracket

ELECTRICAL ENTRY

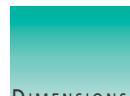
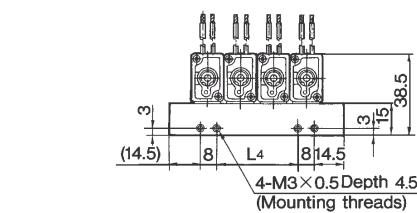
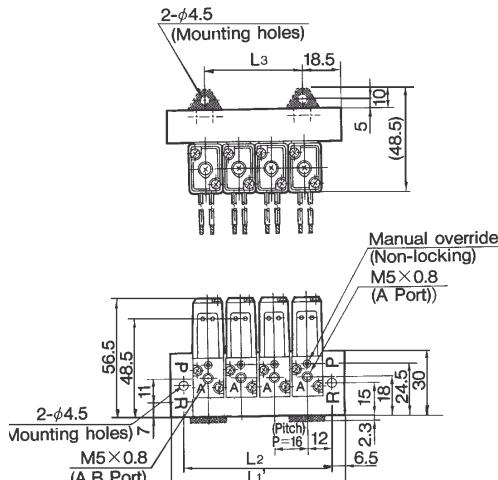
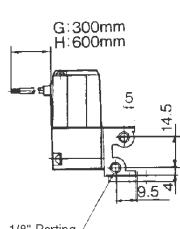
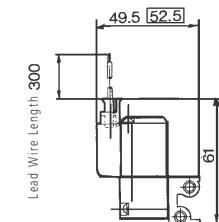
DDIN Connector
GGrommet (300mm lead)
HGrommet (600mm Lead)
LL Type Plug Connector w/Lead Wire (300mm Lead)
MM Type Plug Connector w/Lead Wire (300mm Lead)
LO ...L Type Plug Connector w/o Connector
MO ...M Type Plug Connector w/o Connector

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.


 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/cm ²)
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

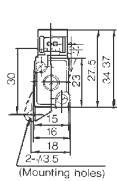
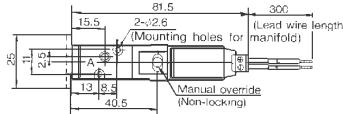
Model		Type of Actuation	Effective Orifice mm ² /Cv factor)
Body Ported Type	(N)VZ312	NC	3.6 (0.2)
	(N)VZ322	NO	
Base Mounted Type (with Subplate)	(N)VZ314	NC	4.5 (0.25)
	(N)VZ324	NO	

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	

DIMENSIONS

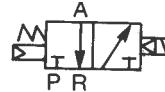
SERIES (N)VZ300 BODY PORTED M PLUG TYPE



Observe Operating Pressure Ranges -
see Technical Specifications for details



S Y M B O L S



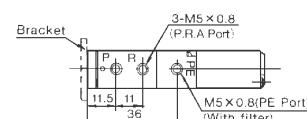
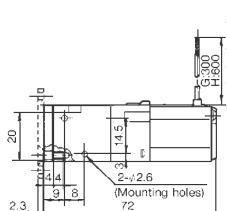
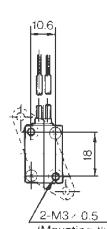
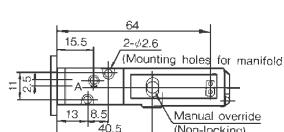
(N)VZ312

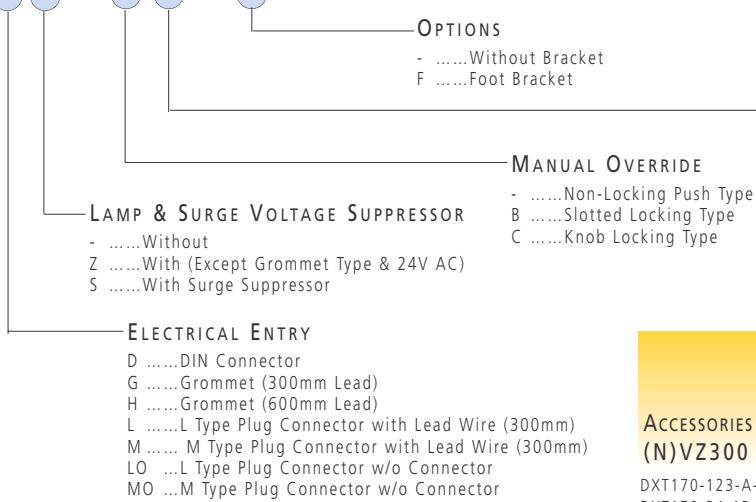
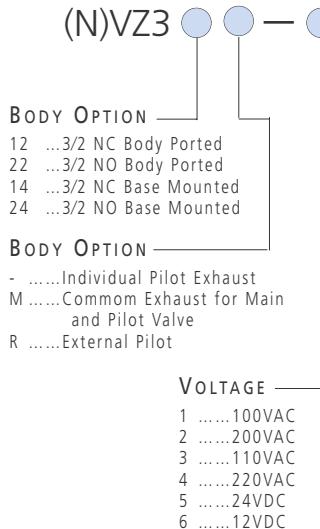


(N)VZ322

Page 1

DIMENSIONS



**How To
ORDER
(N)VZ300 SOLENOID VALVE**


PORTING

-Without SubPlate
- 011/8PT SubPlate
- 01T1/8NPTF Subplate
- M5M5x0.8 (Body Ported)

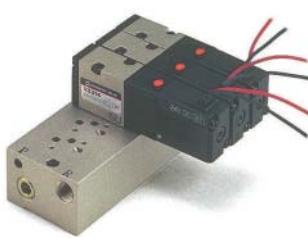
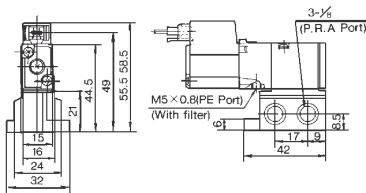
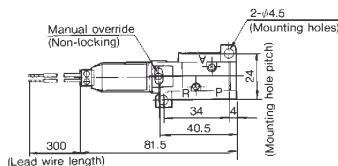
ACCESSORIES
(N)VZ300 SOLENOID VALVE

DXT170-123-A-30Plug with 3m lead
 DXT170-34-1BBracket

SERIES (N)VZ300 MANIFOLDS

A Single Sub-base and 3 different Manifold Designs.

- Side Entry Single Sub-base for use with the Base Mounted Valve (Type 40).
- 2-10 Station Type 20 Mmanifold for use with the Body Ported Valve (Type 20).
- 2-10 Station Type 40 Side Entry Manifold for use with the Base Mounted Valve (Type 40).
- 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 — 1

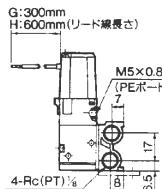
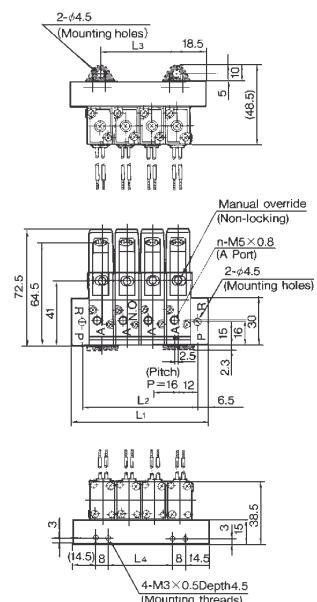
NUMBER OF STATIONS
02 ... 2 stations
to
20 ... 20 stations

THREAD TYPE
-PT
00T ...NPTF

FOR FURTHER TECHNICAL INFORMATION
ON THIS SERIES, REQUEST CAT:E120

DIMENSIONS

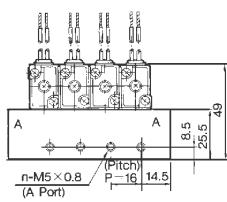
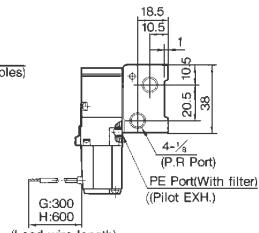
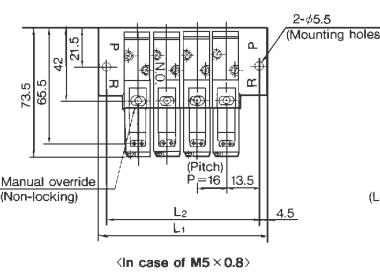
MANIFOLD TYPE 20 TOP PORTED



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

DIMENSIONS

MANIFOLD TYPE 40 SIDE 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 SIDE PORTED

(N)VV3Z3 – 40 — 1 — 1

NUMBER OF STATIONS

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

SIZE OF A, B PORT

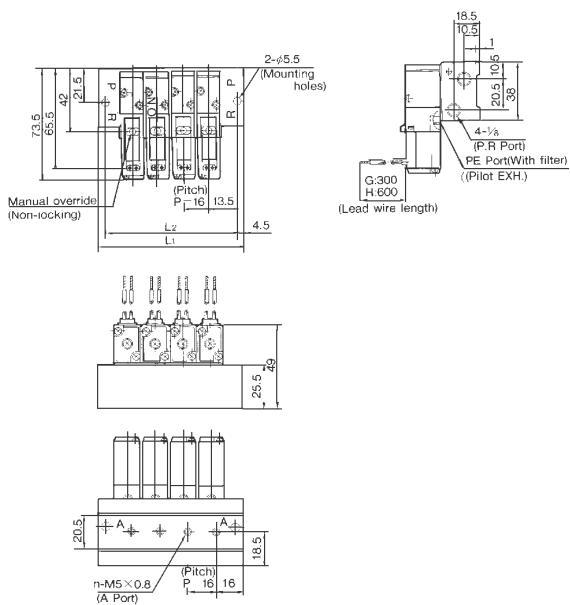
M5 ... 10-32Nom (P, R Port PT)
M5T ... 10-32Nom (P, R Port NPTF)
B3T ... One Touch Fitting 5/32"
B7T ... One Touch Fitting 1/4"

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


MANIFOLD TYPE 40 BOTTOM PORTED

(N)VV3Z3 — 40 — 2 —

NUMBER OF STATIONS

02 ... 2 stations

to

20 ... 20 stations

SIZE OF A, B PORT

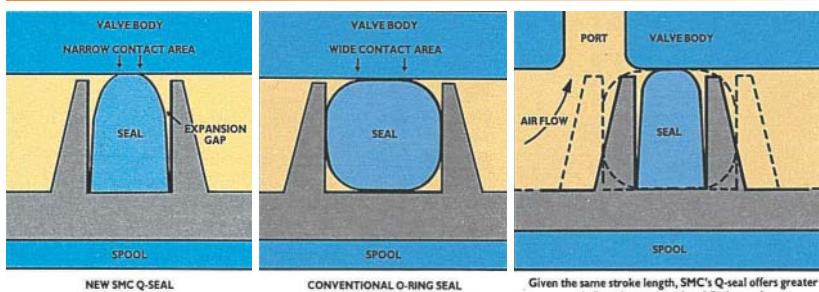
M5 ... 10-32Nom (P, R Port PT)

M5T ... 10-32Nom (P, R Port NPTF)

01T ... 1/8" NPTF


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.



TECHNICAL SPECIFICATIONS

Fluid	Air
Operating Pressure Range	20 ~ 100PSI (1.5-7kgf/cm ²)
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

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)

Model		Type of Actuation	Effective Orifice mm ² (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

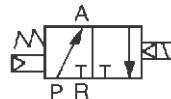
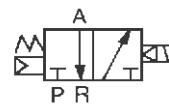


Observe operating pressure ranges - see technical specifications for details



NC

NO



ACCESORIES (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

OPTIONS

- Without Bracket
F Foot Bracket

PORTING

- Without Sub Plate
01T ... 1/8" Sub Plate
02T ... 1/4" Sub Plate
01T ... 1/8" (Body Ported)

VOLTAGE

1 100V AC
3 110V AC
4 220V AC
5 24V DC
6 12V DC

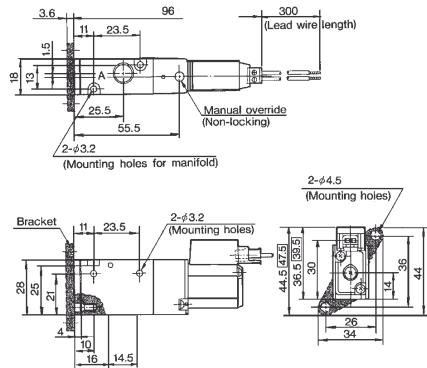
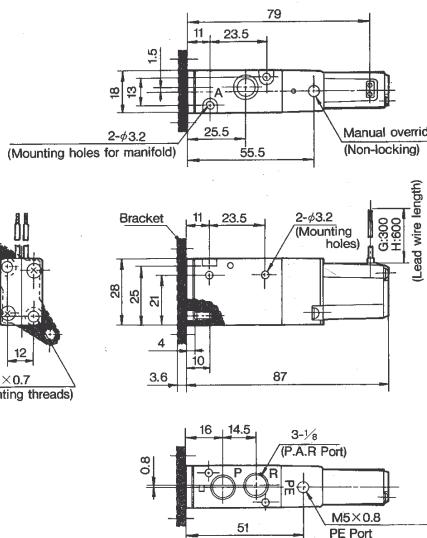
ELECTRICAL ENTRY

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

LAMP & SURGE VOLTAGE SUPPRESSOR

- Without
Z With (Except Grommet Type & 24V AC)
S With Surge Suppressor

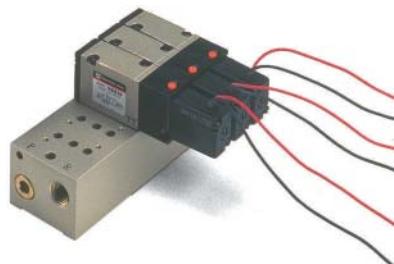
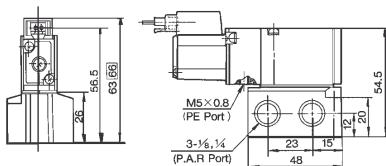
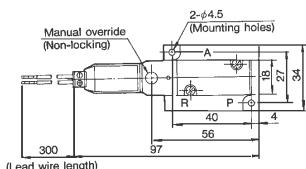
DIMENSIONS
SEE NEXT PAGE


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.

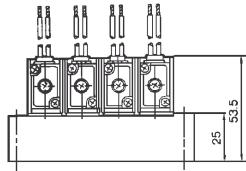
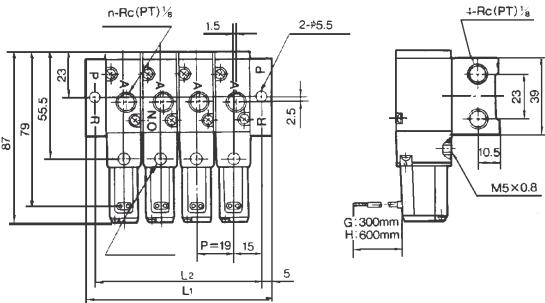
- (i) Side Entry Single Sub-base for use with the Base Mounted Valve (Type 40).
- (ii) 2-10 Station Type 21 Manifold for use with the Body Ported Valve (Type 20).
- (iii) 2-10 Station Type 41 Side Entry Manifold for use with the Base Mounted Valve (Type 40).
- (iv) 2 - 10 Station Type 41 Bottom Entry 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 ...NPTFFOR FURTHER TECHNICAL INFORMATION
ON THIS SERIES, REQUEST CAT:E120

ACCESSORIES

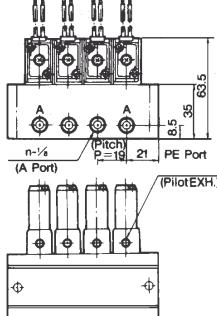
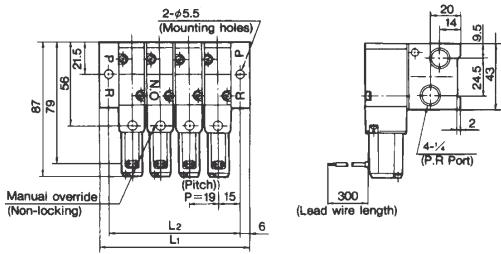
MANIFOLD TYPE 20 TOP PORTED

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

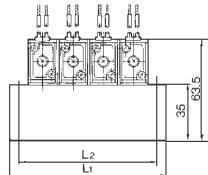
01T ... 1/8" NPTF
B7T ... One Touch Fitting 1/4"
B9T ... One Touch Fitting 5/16"

ACCESSORIES

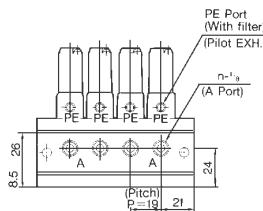
MANIFOLD TYPE 41 SIDE PORTED

DXT201-15-1A Blanking Plate Pit

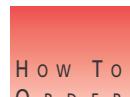
FOR FURTHER TECHNICAL INFORMATION
ON THIS SERIES, REQUEST CAT:E120


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
TNPTF


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
	Exhaust Center		1/4	0.67	
	Pressure Center	NVFS2400	1/8	0.65	20 or less
	Pressure Center		1/4	0.67	
	Perfect (Double Check)	NVFS2500	1/8	0.4	20 or less
			1/4	0.4	25 or less

SYMBOLS

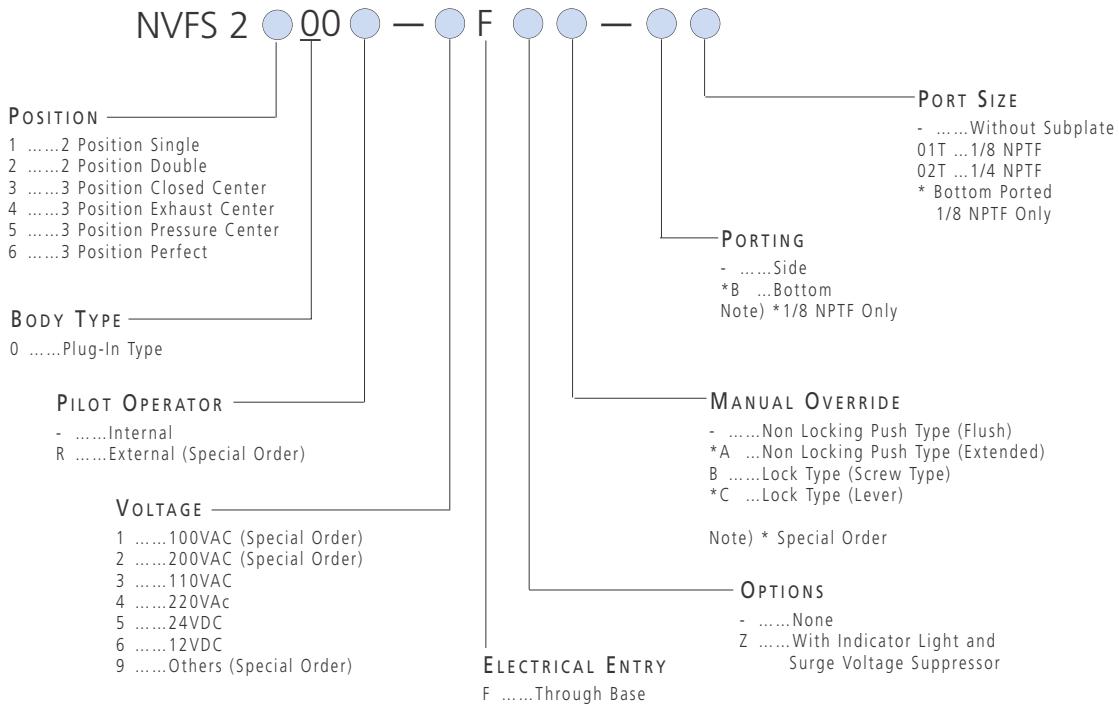
2 position	3 position
Single	Closed center
 A B EAP EB	 AB EAP EB
Double	Exhaust center
 A B EAPEB	 A B EAPEB
Closed Center	Pressure center
 A B EAPEB	 A B EAPEB
Exhaust Center	Perfect (double check)
 A B EAPEB	 A B EAPEB

TECHNICAL SPECIFICATIONS STANDARD

Fluid		Air and Inert Gas
Max Operating Pressure		150 PSI (1MPa)
Min Operating Pressure	2 Position	15 PSI (0.1MPa)
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	110VAC50/60Hz, 220V50/60Hz, 24V50/60Hz
	Allowable Voltage Range	12V, 24V
	Coil Insulation	-15 ~ 10% Rated Voltage
	Apparent Power AC (Power Consumption)	Class B or Equivalent
	InRush Holding	5.0VA/60Hz, 5.6VA/50Hz
	Power Consumption DC	2.3VA(1.5W)/60Hz, 3.4VA(2.1W)/50Hz
	Electrical Entry	1.8W
	Plug In	Conduit Terminal (Base Access)

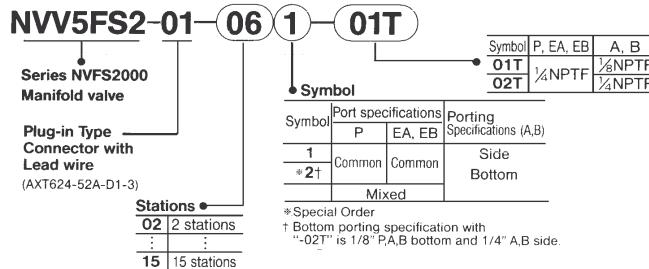
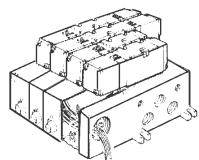
TECHNICAL SPECIFICATIONS OPTIONAL

Pilot Type	External Pilot Type
Manual Override	Non Locking Push Type (Extended), Lock Type (Tool), Lock Type (Lever)
Voltage	100V50/60Hz, 200V50/60Hz
	DC 6V, 48V, 100V
Porting	Bottom Ported Subplate
Option	W/Indicator Light & Surge Voltage Suppressor

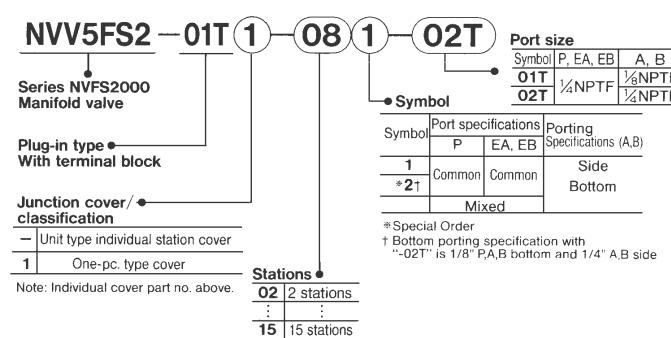
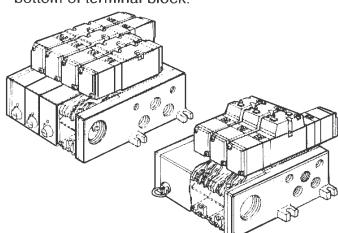
How To
ORDER
NVFS2000

 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.


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.



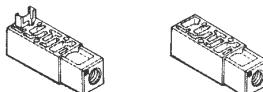
How To
Order
MANIFOLD / OPTION PARTS ASSEMBLY

Manifold /Option Parts Ass'y

SUP Relocation spacer

An individual SUP spacer on manifold block can form individual P port for the valve.

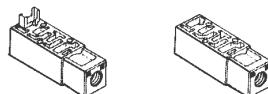
Body type	Plug-in type
Part No.	1/8NPTF NNVFS2000-P-01T-1
1/4NPTF	NNVFS2000-P-02T-1



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 NNVFS2000-R-01T-1
1/4NPTF	NNVFS2000-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.

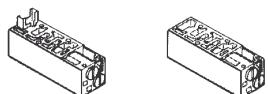
Body type	Plug-in type
Part No.	AXT625-12A



Interface speed control

Needle valve on the manifold block can control cylinder speed by throttling exhaust.

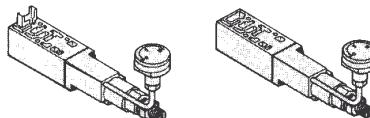
Body type	Plug-in type
Part No.	NVVFS2000-20A-1 NVVFS2000-20A-2



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	NARB2000-00-P-1



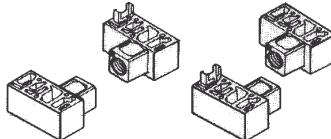
Air Shutoff valve spacer

The concurrent use of air shutoff valve spacer with NVFS2100 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.	NVFS2000-24A-1 ^L _R

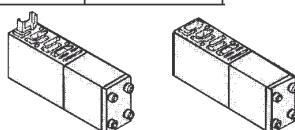
Note) L:U side mount R:D side mount



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.	NVFS2000-22A-1



Blank plate

When disassembling valve for maintenance purposes or when spare manifold stations are required, install Blank plate on the manifold block.

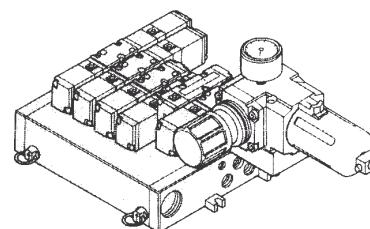
Body type	Plug-in type
Part No.	VVFS2000-10A

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	15 or less
	Double	NVFS3200	1/4	1.8	
			3/8	2	40 or less
3 Position	Closed Center	NVFS3300	1/4	1.8	
			3/8	2	40 or less
	Exhaust Center	NVFS3400	1/4	1.8	
			3/8	2	40 or less
	Pressure Center	NVFS3500	1/4	1.8	
			3/8	2	50 or less
	Perfect (Double Check)	NVFS3600	1/4	1.1	
			3/8	1.2	


S Y M B O L S

2 position	3 position
Single	Closed center
Double	Exhaust center
	Pressure center
	Perfect (double check)

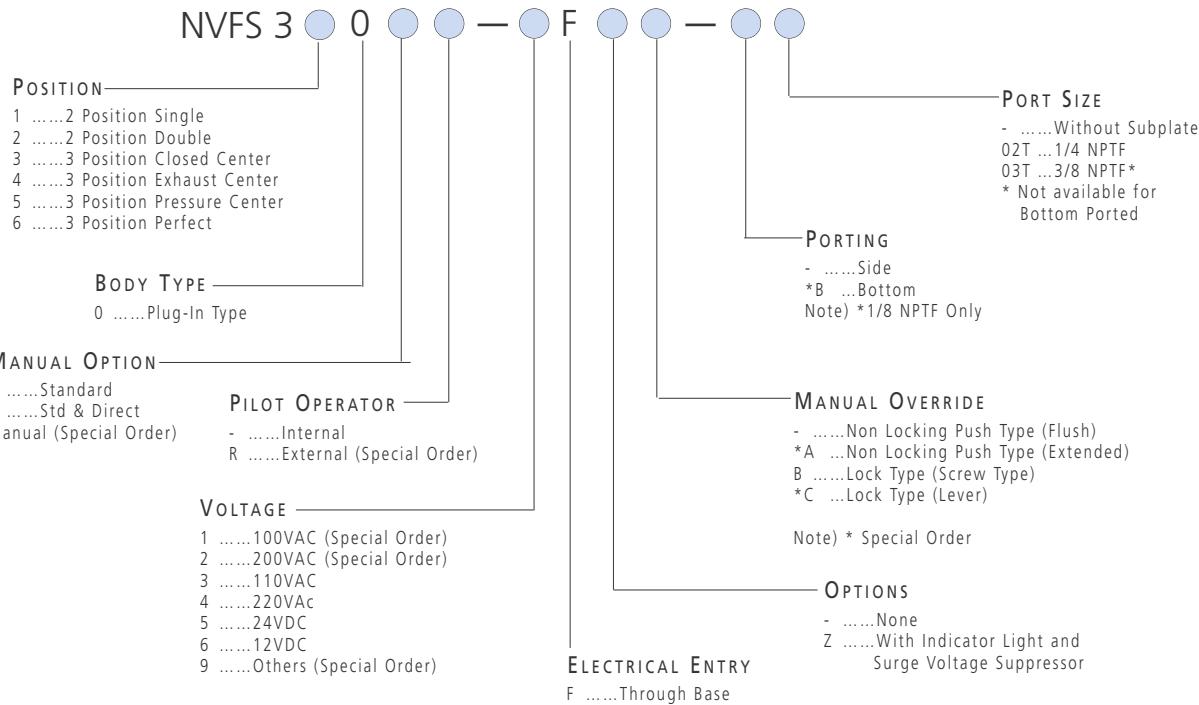
**TECHNICAL
SPECIFICATIONS
STANDARD**

Fluid		Air and Inert Gas
Valve	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	AC 110VAC50/60Hz, 220V50/60Hz, 24V50/60Hz
	Voltage	DC 12V, 24V
	Allowable Voltage Range	-15 ~ 10% Rated Voltage
	Coil Insulation	Class B or Equivalent
	Apparent Power AC	InRush 5.0VA/60Hz, 5.6VA/50Hz
	(Power Consumption)	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	

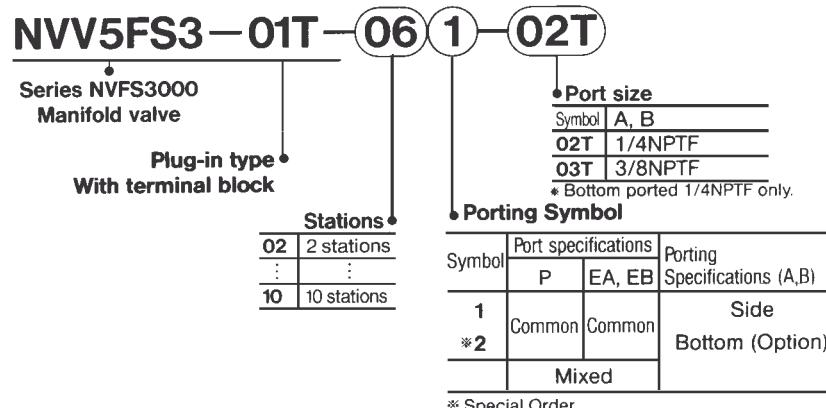
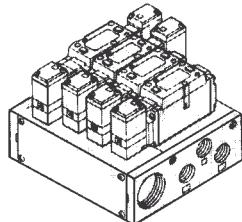
How To
Order
NVFS3000



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.



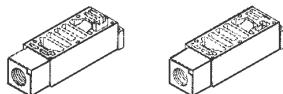
HOW TO
ORDER
MANIFOLD / OPTION PARTS ASSEMBLY

Manifold/Option Parts

SUP Relocation spacer

An individual SUP spacer on manifold block can form individual P port for the valve.

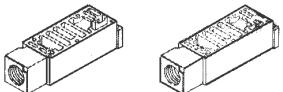
Body type	Plug-in type
Part No.	NWFS3000-P-03T-1



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.	NWFS3000-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.

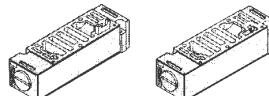
Body type	Plug-in type
Part No.	AXT636-1A



Interface Speed Control

Needle valve on the manifold block can control cylinder speed by throttling exhaust.

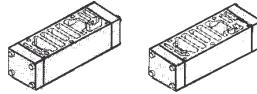
Body type	Plug-in type
Part No.	NVFS3000-20A-1



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.

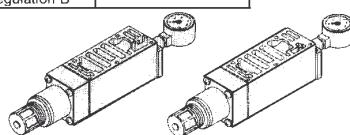
Body type	Plug-in type
Part No.	NVFS3000-22A-1



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.

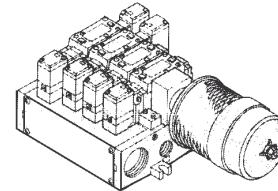
Body type	Plug-in type
Part No.	VVFS3000-10 A

Manifold Options

Exhaust Cleaner Unit

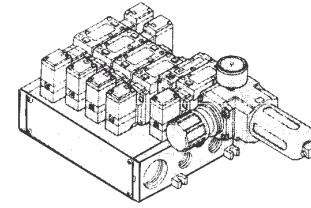
Plug-in type

- Valve exhaust noise damping: 35dB or more.
- Oil mist collection: Rate of collection 99.9% or more.
- Piping process reduced.

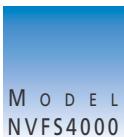


Control Unit

- Filter/Regulator, Pressure switch, and Air shutoff valve all combine to form one unit.
- Piping work eliminated.



For more information, refer to catalog N233



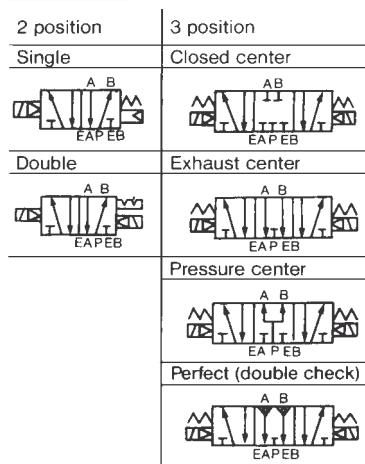
MODEL

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	15 or less
	Double	NVFS4200	3/8	3.3	
			1/2	3.6	
3 Position	Closed Center	NVFS4300	3/8	2.8	50 or less
			1/2	3	50 or less
	Exhaust Center	NVFS4400	3/8	2.8	
			1/2	3	50 or less
	Pressure Center	NVFS4500	3/8	3.2	
			1/2	3.4	55 or less
	Perfect (Double Check)	NVFS4600	3/8	1.7	
			1/2	1.8	



SYMBOLS



TECHNICAL SPECIFICATIONS STANDARD

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)
Valve 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	AC	110VAC50/60Hz, 220V50/60Hz, 24V50/60Hz
	Voltage	DC	12V, 24V
	Allowable Voltage Range		-15 ~ 10% Rated Voltage
	Coil Insulation		
	(Power Consumption)	InRush	Class B or Equivalent
		Holding	5.0VA/60Hz, 5.6VA/50Hz
	Power Consumption DC		2.3VA(1.5W)/60Hz, 3.4VA(2.1W)/50Hz
	Electrical Entry	Plug In	1.8W
	Conduit Terminal (Base Access)		

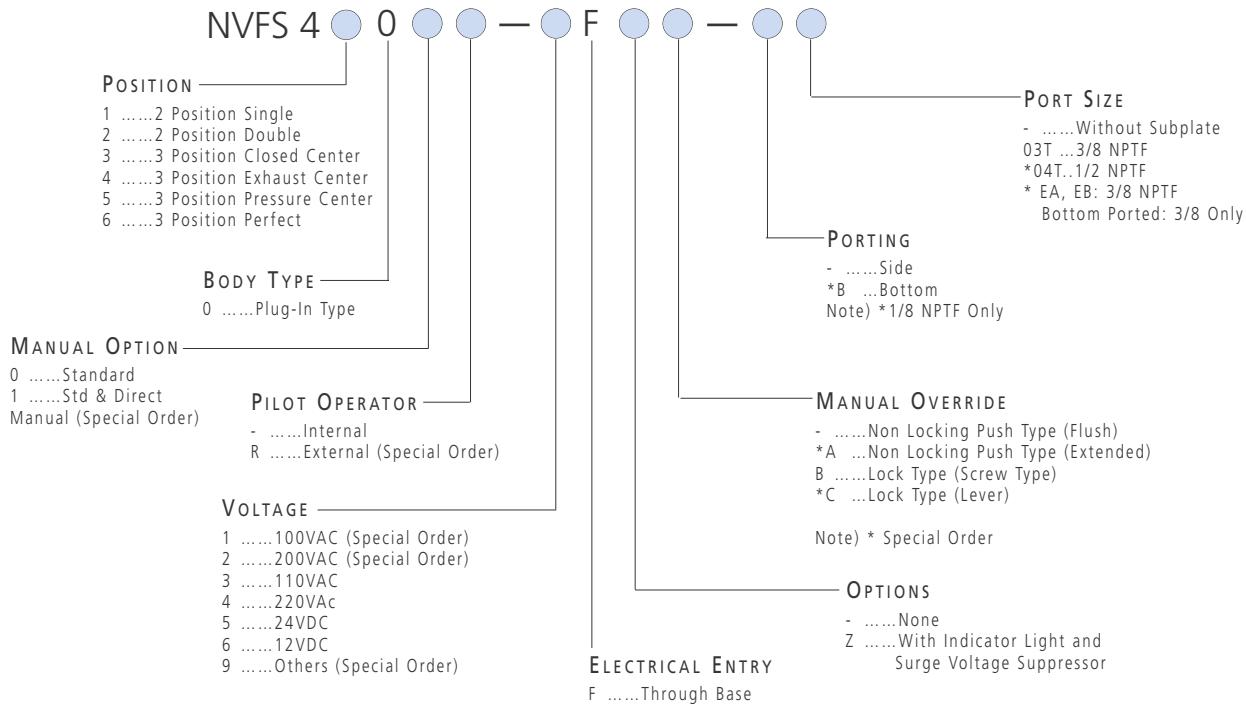
Note 1) Use Dry Air at Low Temperature

Note 2) Use Turbine Oil No 1 (ISOVG32), if lubricated



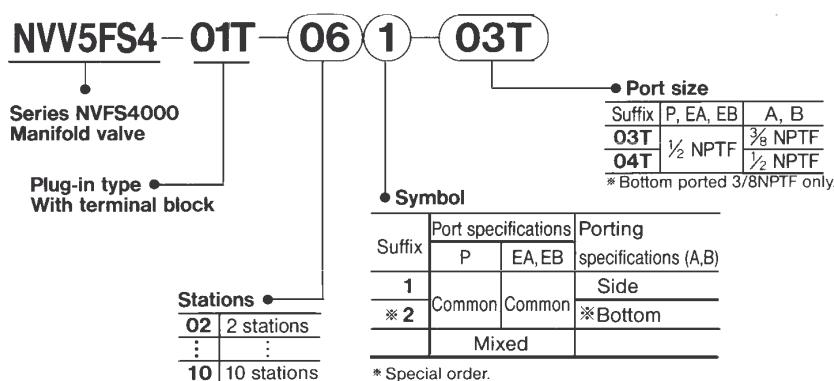
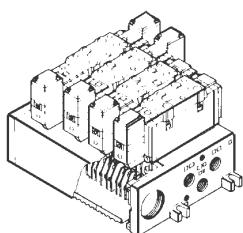
TECHNICAL SPECIFICATIONS OPTIONAL

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

 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.



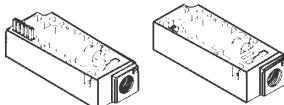
HOW TO
ORDER
MANIFOLD / OPTION PARTS ASSEMBLY

Manifold / Option Parts

SUP Relocation spacer

An individual SUP spacer on manifold block can form individual P port for the valve.

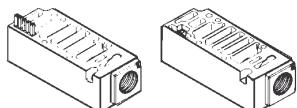
Body type	Plug-in type
Part No.	NVVFS4000-P-03T-1



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

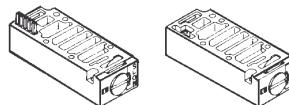


EXH block disc

Interface speed control

Needle valve on the manifold block can control cylinder speed by throttling exhaust.

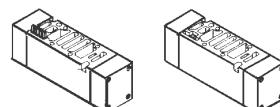
Body type	Plug-in type
Part No.	NVVFS4000-20A-1



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.

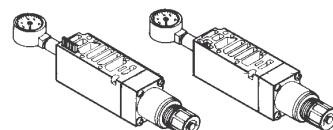
Body type	Plug-in type
Part No.	NVVFS4000-22A-1



Interface regulator

Spacer type 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

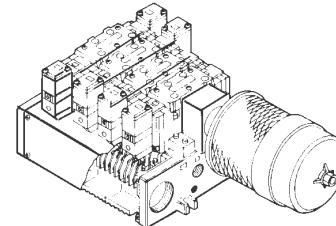
When disassembling valve for maintenance purposes or when spare manifold stations are required, install Blank plate on the manifold block.

Body type	Plug-in type
Part No.	VVFS4000-10A

Manifold Options

With exhaust cleaner unit

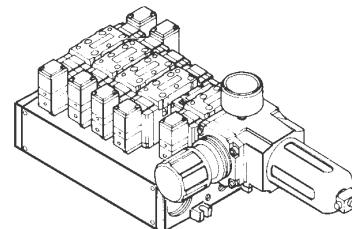
- Plug-in type
- Valve exhaust noise damping: 35db or more.
 - Oil mist collection: Rate of collection 99.9% or more.
 - Piping process reduced.



For more information,
refer to catalog N233

With Control Unit

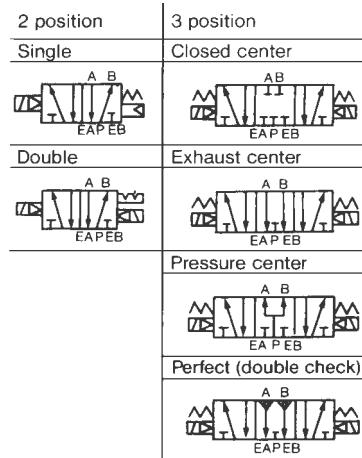
- Plug-in type
- Filter/Regulator, Pressure Switch, and Air shutoff valve all combine to form one unit.
 - Piping work eliminated.



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	4.4	45 or less
			1/2	5.4	
			3/4	5.7	
	Double	NVFS5200	3/8	4.4	
			1/2	5.4	25 or less
			3/4	5.7	
3 Position	Closed Center	NVFS5300	3/8	3.7	
			1/2	4.6	55 or less
			3/4	4.8	
	Exhaust Center	NVFS5400	3/8	3.9	
			1/2	4.8	55 or less
			3/4	5	
	Pressure Center	NVFS5500	3/8	3.9	
			1/2	4.8	55 or less
			3/4	4.9	
	Perfect (Double Check)	NVFS5600	3/8	2.2	
			1/2	2.7	60 or less
			3/4	2.8	

S Y M B O L S

**TECHNICAL
SPECIFICATIONS
STANDARD**

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	AC	110VAC50/60Hz, 220V50/60Hz, 24V50/60Hz
	Voltage	DC	12V, 24V
	Allowable Voltage Range		-15 ~ 10% Rated Voltage
	Coil Insulation		Class B or Equivalent
	Apparent Power AC	InRush	5.0VA/60Hz, 5.6VA/50Hz
	(Power Consumption)	Holding	2.3VA(1.5W)/60Hz, 3.4VA(2.1W)/50Hz
Power Consumption DC			1.8W
Electrical Entry			Conduit Terminal (Base Access)

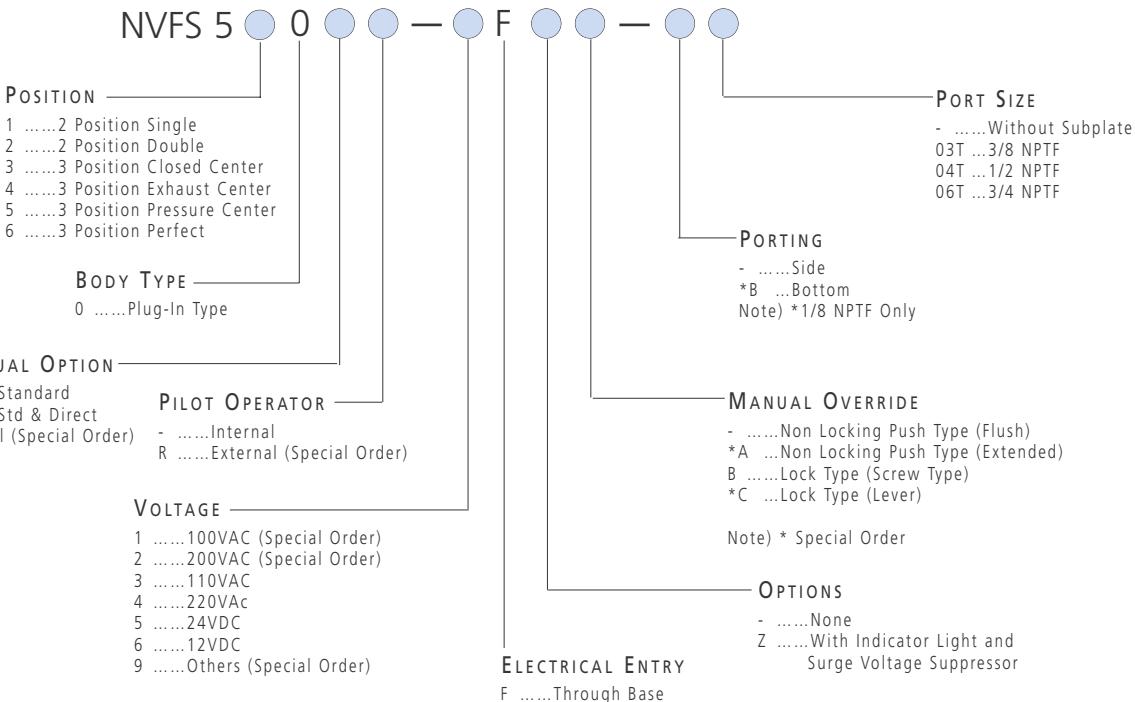
**TECHNICAL
SPECIFICATIONS
OPTIONAL**

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

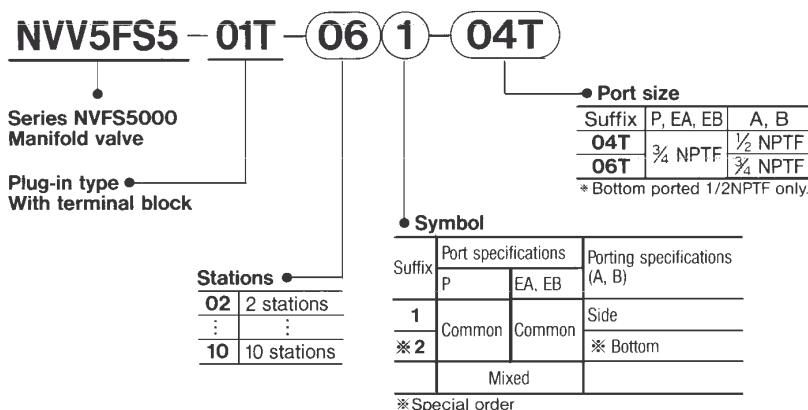
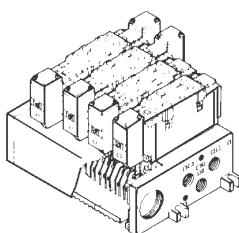
How To
ORDER
NVFS5000



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.



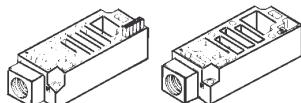
**HOW TO
ORDER**
MANIFOLD / OPTION PARTS ASSEMBLY

Manifold / Option Part's Ass'y

SUP Relocation spacer

An individual SUP spacer on manifold block can form individual P port for the valve.

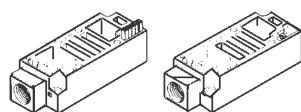
Body type	Plug-in type
Part No.	NVVFS5000-P-04T-1



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

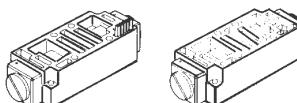


EXH block disc

Interface speed control

Needle valve on the manifold block can control cylinder speed by throttling exhaust.

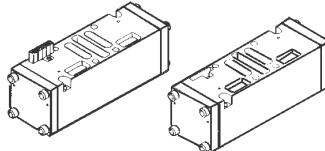
Body type	Plug-in type
Part No.	NVVFS5000-20A-1



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

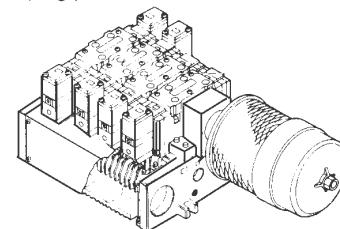


Manifold Options

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.

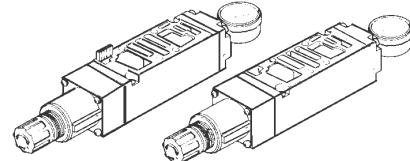


For more information, Please refer to catalog **N233**

Interface regulator

Spacer type regulating valve on manifold block can regulate the pressure to the valve.

Body type	Plug-in type
Pressure Regulation P	NARB5000-N0-P-1
Pressure Regulation A	NARB5000-N0-A-1
Pressure Regulation B	NARB5000-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.	VVFS5000-10A

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
	Double	NVFS6200	3/4" 1"	9 10	60 or less

TECHNICAL
SPECIFICATIONS
STANDARD

	Fluid	Air and Inert Gas
Valve	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 Option	With Indicator Light and Surge Voltage Suppressor (FZ Style)

S Y M B O L S

2 position

Single



Double



FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE CONSULT SMC CUSTOMER SERVICE

How To
ORDER
NVFS6000

NVFS 6 0 F

POSITION
12 Position Single
22 Position Double

BODY TYPE
0Plug-In Type

OPTION
0Standard
1Std & Direct
Manual (Special Order)

PILOT OPERATOR
-Internal
RExternal (Special Order)

PORT SIZE

-Without Subplate
06T ...3/4 NPTF
10T ...1" NPTF

PORTING

*Side
*BBottom
Note) *1/8 NPTF Only

ELECTRICAL ENTRY

FThrough Base

VOLTAGE

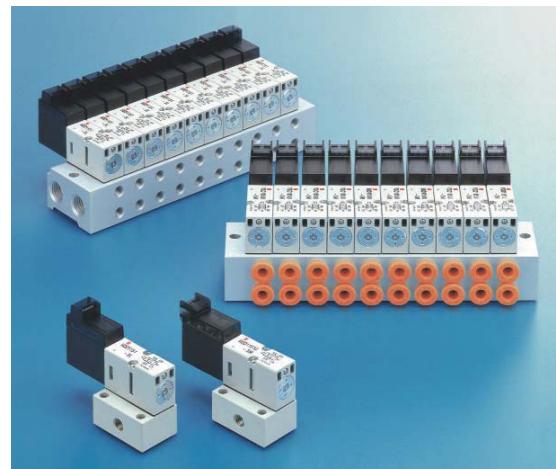
1100VAC (Special Order)
2200VAC (Special Order)
3110VAC
4220VAC
524VDC
612VDC
9Others (Special Order)

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

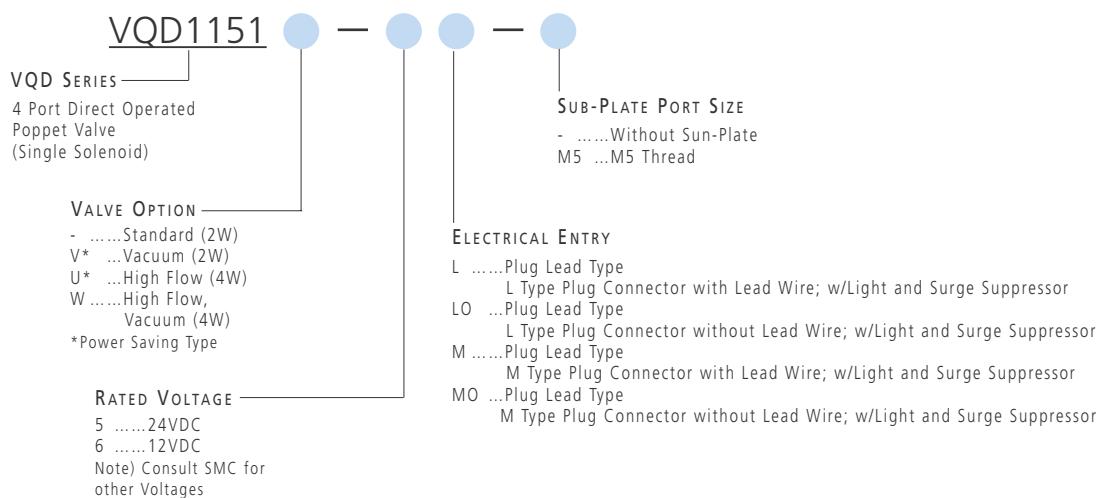
Valve Specifications	Standard Type (2W)	High Flow Capacity (4W Power Saving Type)
Valve Structure	4 Port Direct Operated Poppet Valve	
Fluid	Air, Inert Gas	
Max Operating Pressure	0.7MPa (7.1kgf/cm ²)	
Min Operating Pressure/Vacuum	0MPa / 10 Torr	
Effective Area (Cv Factor)	0.9mm ² (Cv 0.05)	1.5mm ² (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/s ²	
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

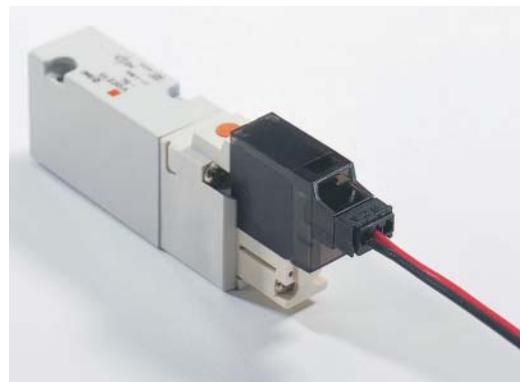


3 PORT SOLENOID VALVE BASE MOUNTED / PLUG LEAD TYPE SERIES VQZ100/200/300

TECHNICAL SPECIFICATIONS

SERIES VQZ100/200/300

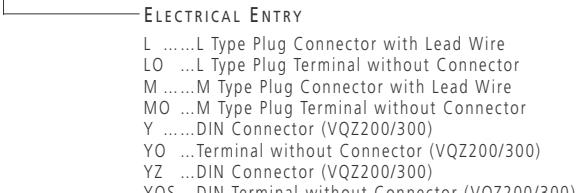
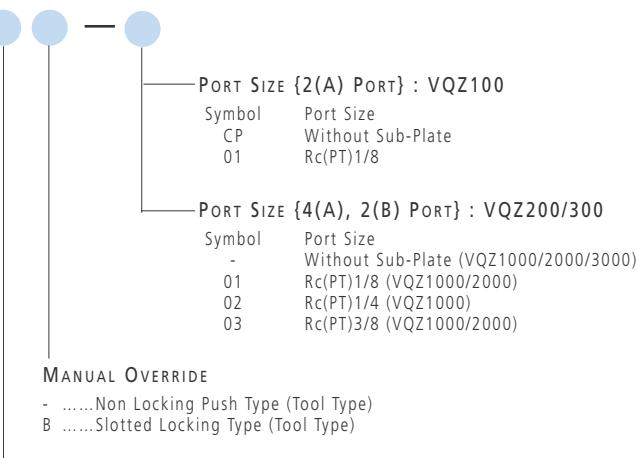
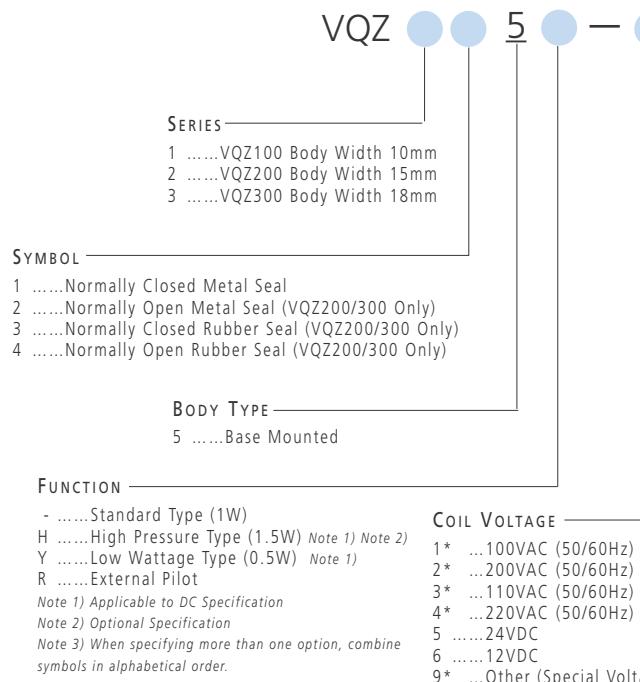
	Type Of Seal	Metal Seal	Rubber Seal
Fluid	Air, Inert Gas	Air, Inert Gas	
Maximum Operating Pressure	0.7MPa / 102PSI (High Pressure Type 0.8MPa / 116PSI)		
Minimum Operating Pressure	0.1MPa / 14.5PSI	0.15MPa / 22PSI	
Ambient & Fluid Temperature	-10° to 50°C	-10° to 50°C	
Max Operating Frequency	20Hz	5Hz	
Proof Pressure	1.5MPa / 218PSI		
Lubrication	Not Required		
Manual Override	Non-Locking Push Type/Slotted Locking Type		
Shock/Vibration Resistance	150/30 m/s ²		
Enclosure	Dust Proof		
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 TECHNICAL 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

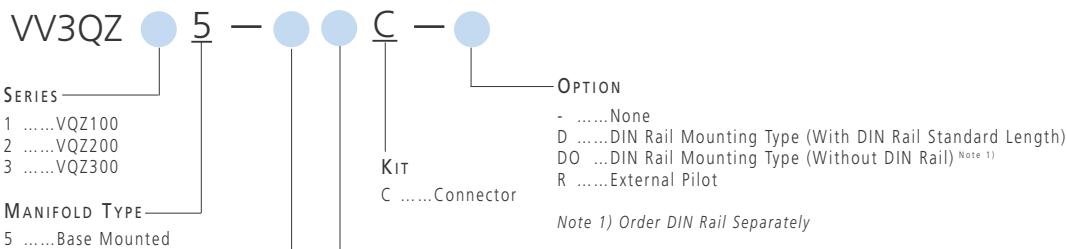


**MODEL
SERIES VQZ100/200/300**

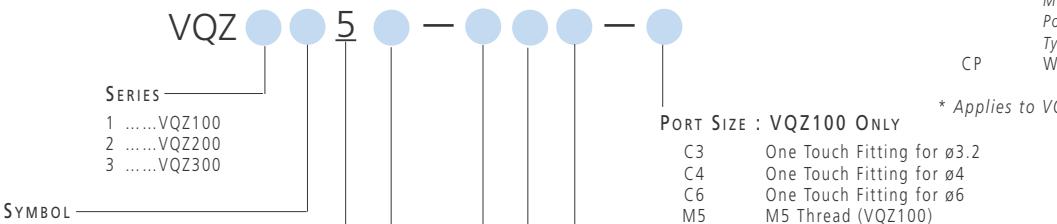
Series	Valve Construction	Type	Effective Area mm ² (Cv) <small>Note 1)</small>	Response Time ms		Weight <small>Note 2)</small>
				Standard : 1W High Pressure: 1.5W	Low Wattage and AC	
VQZ100	Normally Closed	Poppet	VQZ115	5.4 (0.3)	10 or less	13 or less
VQZ200	Normally Closed	Metal	VQZ215	10.8 (0.6)	14 or less	18 or less
	Normally Closed	Rubber	VQZ235	12.6 (0.7)	15 or less	20 or less
	Normally Open	Metal	VQZ225	10 (0.55)	14 or less	18 or less
	Normally Open	Rubber	VQZ245	12.6 (0.7)	15 or less	20 or less
VQZ300	Normally Closed	Metal	VQZ315	16.2 (0.9)	17 or less	22 or less
	Normally Closed	Rubber	VQZ235	21.6 (1.2)	25 or less	33 or less
	Normally Open	Metal	VQZ325	15.3 (0.85)	17 or less	22 or less
	Normally Open	Rubber	VQZ345	21.6 (1.2)	25 or less	33 or less

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

No Of Stations

- 02 ...2 Stations
" ...
20 ...20 Stations

**How To
Order**
SERIES VQZ100/200/300 BASE MOUNTED PLUG LEAD TYPE VALVE


- SERIES**
- 1VQZ100
2VQZ200
3VQZ300

- SYMBOL**
- 1NC -Metal Seal
2NO -Metal Seal (VQZ2/300)
3NC -Rubber Seal (VQZ2/300)
4NO -Rubber Seal (VQZ2/300)

- BODY TYPE**
- 5Base Mounted

FUNCTION

-Standard Type (1W)
- HHigh Pressure Type (1.5W)
- Y(Low Wattage Type (0.5W))
- RExternal Pilot

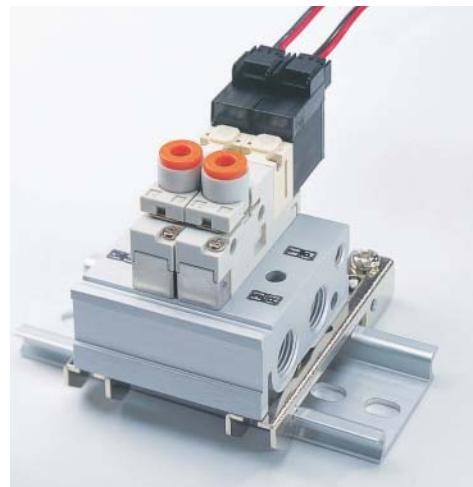
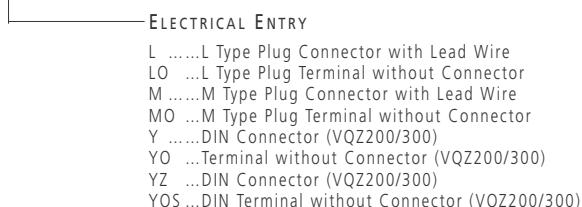
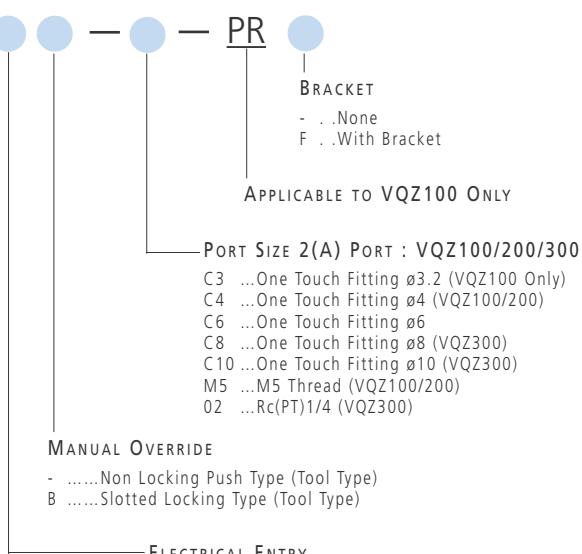
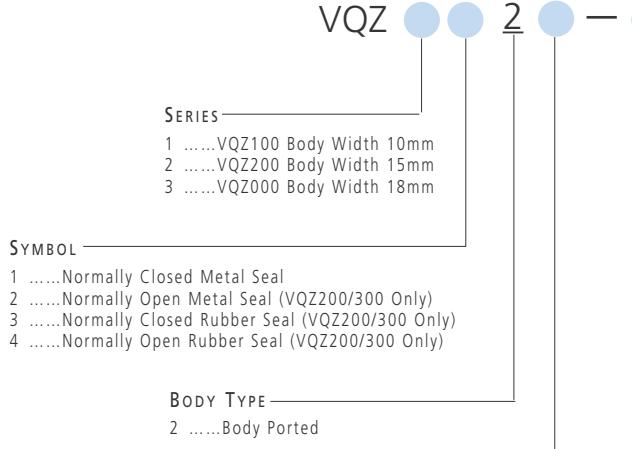
- COIL VOLTAGE**
- 1* ...100VAC (50/60Hz)
 - 2* ...200VAC (50/60Hz)
 - 3* ...110VAC (50/60Hz)
 - 4* ...220VAC (50/60Hz)
 - 524VDC
 - 612VDC
 - 9* ...Others

ELECTRICAL ENTRY

- LL Type Plug Connector with Lead Wire
- LO ...L Type Plug Terminal without Connector
- MM Type Plug Connector with Lead Wire
- MO ...M Type Plug Terminal without Connector
- YDIN Connector (VQZ200/300)
- YO ...Terminal without Connector (VQZ200/300)
- YZ ...DIN Connector (VQZ200/300)
- YOS ...DIN Terminal without Connector (VQZ200/300)

**3 PORT SOLENOID VALVE
BODY PORTED / PLUG LEAD TYPE
SERIES VQZ100/200/300**
**TECHNICAL
SPECIFICATIONS**
SERIES VQZ100/200/300

	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/s ²		
Enclosure	Dust Proof		
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 TECHNICAL 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


MODEL
 SERIES VQZ100/200/300

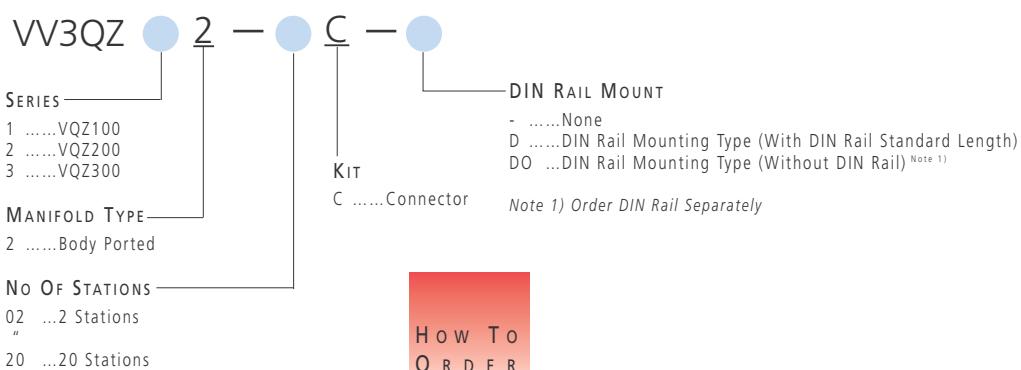
Series	Valve Construction	Type	Effective Area mm ² (Cv) <small>Note 1)</small>	Response Time ms		Weight <small>Note 2)</small>
				Standard : 1W High Pressure: 1.5W	Low Wattage and AC	
VQZ100	Normally Closed	Poppet	VQZ115	5.4 (0.3)	10 or less	25
VQZ200	Normally Closed	Metal	VQZ215	10.8 (0.6)	14 or less	53
	Normally Closed	Rubber	VQZ235	12.6 (0.7)	15 or less	53
	Normally Open	Metal	VQZ225	10 (0.55)	14 or less	53
	Normally Open	Rubber	VQZ245	12.6 (0.7)	15 or less	53
VQZ300	Normally Closed	Metal	VQZ315	16.2 (0.9)	17 or less	77
	Normally Closed	Rubber	VQZ235	21.6 (1.2)	25 or less	77
	Normally Open	Metal	VQZ325	15.3 (0.85)	17 or less	77
	Normally Open	Rubber	VQZ345	21.6 (1.2)	25 or less	77

Note 1)
 Value for
 Sub-Plate
 and
 Maximum
 Diameter

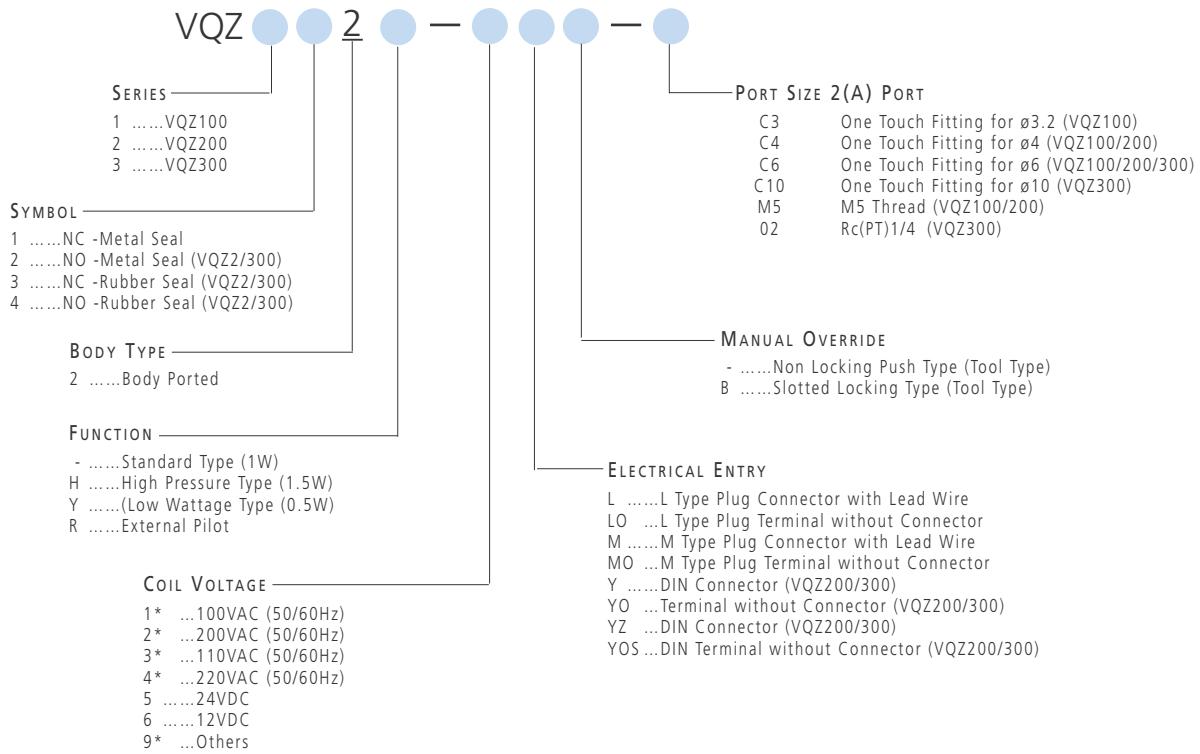
Note 2)
 Weight
 without
 Sub-Plate

 HOW TO
 ORDER

SERIES VQZ100/200/300 BODY PORTED PLUG LEAD TYPE MANIFOLD

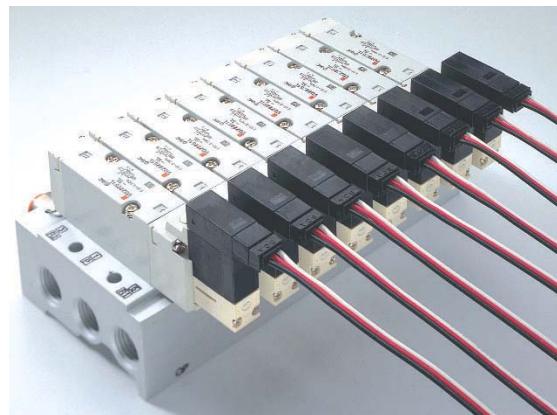

 HOW TO
 ORDER

SERIES VQZ100/200/300 BODY PORTED PLUG LEAD TYPE VALVE



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

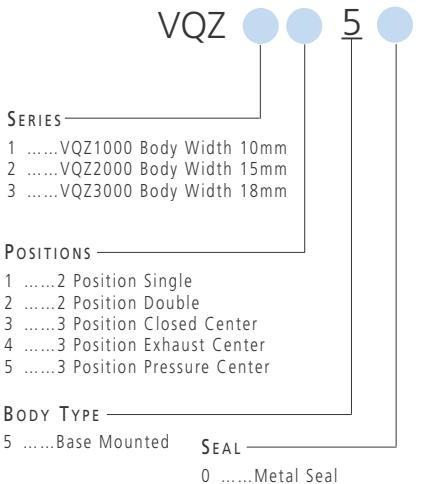
SERIES VQZ1000/2000/3000

FOR FURTHER TECHNICAL 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

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	0.10MPa / 14.5PSI	0.15MPa / 22PSI
Operating Pressure	Only for VQZ3000 / 3 Pos	0.10MPa / 14.5PSI
3 Position	0.15MPa / 22PSI	0.20MPa / 29PSI
Valve Specifications	Ambient & Fluid Temperature	-10° to 50°C / 14 to 122°F -10° to 50°C / 14 to 122°F
Max Operating Pressure	20Hz	5Hz
2 Position S & D	10Hz	3Hz
3 Position		
Proof Pressure	1.5MPa / 218PSI	
Lubrication	Not Required	
Manual Override	Non-Locking Push Type/Slotted Locking Type	
Shock/Vibration Resistance	150/30 m/s ²	
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	Inrush 1.2VA (12mA), Holding 1.2VA (12mA)
	Consumption	Inrush 1.3VA (11.7mA), Holding 1.3VA (11.7mA)
	(Current Value)	Inrush 2.4VA (12mA), Holding 2.4VA (12mA)
	200VAC	Inrush 2.6VA (11.7mA), Holding 2.6VA (11.7mA)
	220VAC	

HOW TO ORDER SERIES VQZ BASE MOUNTED PLUG LEAD TYPE



- FUNCTION**
-Standard Type (1W)
 - HHigh Pressure Type (1.5W) Note 1 Note 2
 - YLow Wattage Type (0.5W) Note 1
 - RExternal Pilot
- Note 1) Applicable to DC Specification
Note 2) Optional Specification
Note 3) When specifying more than one option, combine symbols in alphabetical order.

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)

MANUAL OVERRIDE

-Non Locking Push Type (Tool Type)
- BSlotted Locking Type (Tool Type)

ELECTRICAL ENTRY

LL Type Plug Connector with Lead Wire
LOL Type Plug Terminal without Connector
MM Type Plug Connector with Lead Wire
MOM Type Plug Terminal without Connector
YDIN Connector (VQZ2000/3000)
YOTerminal without Connector (VQZ2000/3000)
YZDIN Connector (VQZ2000/3000)
YOSDIN Terminal without Connector (VQZ2000/3000)

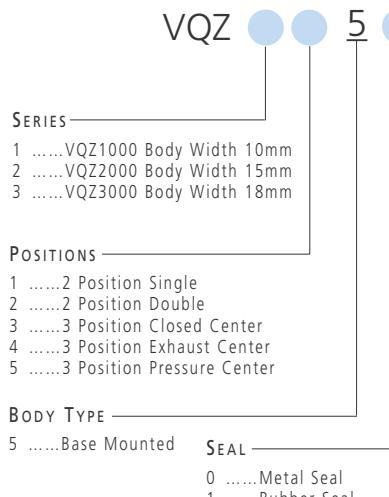
COIL VOLTAGE

1*	...100VAC (50/60Hz)
2*	...200VAC (50/60Hz)
3*	...110VAC (50/60Hz)
4*	...220VAC (50/60Hz)
5	...24VDC
6	...12VDC
9*	...Other (Special Voltage)

5 PORT SOLENOID VALVE BASE MOUNTED / 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 ^{Note 1)} Weight g			
		Port Size							
		1(P), 3/5(R)	4(A), 2(B)						
VQZ1000	VV5QZ15-□□□	In-Line	Rc(PT)	C3(ø3.2)	VQZ1□50	2			
				1/8	VQZ1□51	to 20 Stations			
				C4(ø4) C6(ø6) M5(M5Thread)		2 Stations: 105 Addition per Station: 27			
VQZ2000	VV5QZ25-□□□	In-Line	Rc(PT)	C4(ø4)	VQZ2□50	2			
				1/4	VQZ2□51	to 20 Stations			
				C6(ø6) C8(ø8) Rc(PT)1/8		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)	VQZ3□50	2			
				C8(ø8)	VQZ3□51	to 20 Stations			
				C10(ø10)		2 Stations: 398 Addition per Station: 102			

**How To
ORDER**
SERIES VQZ BASE MOUNTED PLUG LEAD TYPE VALVE


OPTION —

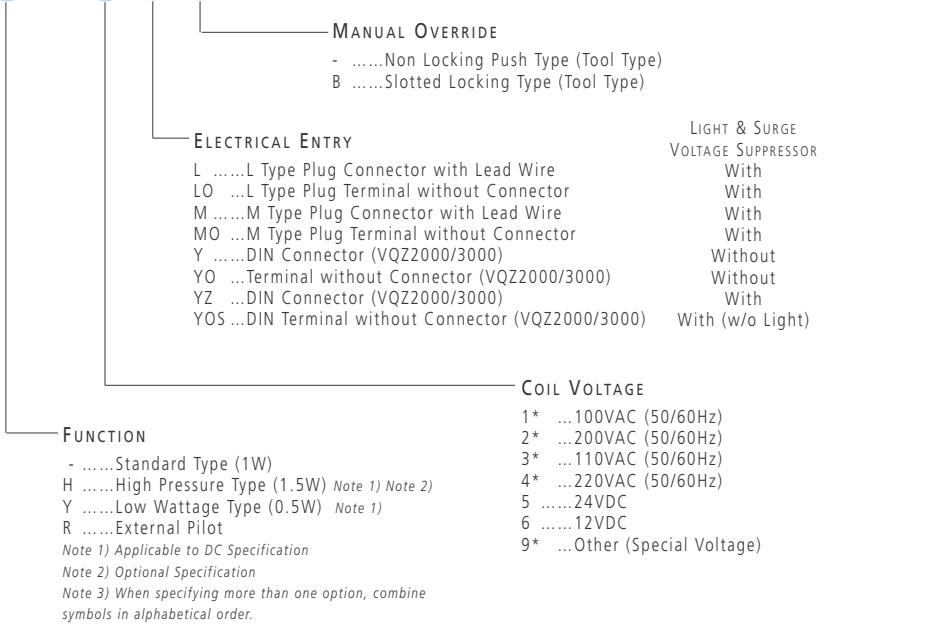
-None
- DDIN Rail Mounting Type (With DIN Rail Standard Length)
- DO ...DIN Rail Mounting Type (Without DIN Rail) ^{Note 1)}
- NWith Name Plate ^{Note 2)}
- RExternal Pilot

Note 1) Order DIN Rail Separately
Note 2) Suitable for VQZ2000 and VQZ3000

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)

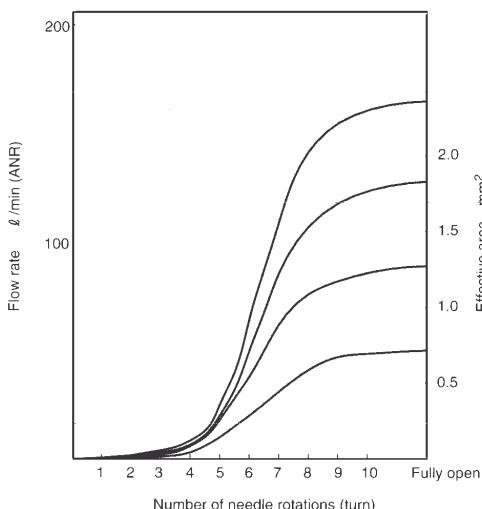
When ordering Port Mixture and/or with Port Plug, suffix it in Manifold Specs. Port Mixture and Port Plug are available only for One Touch Type.



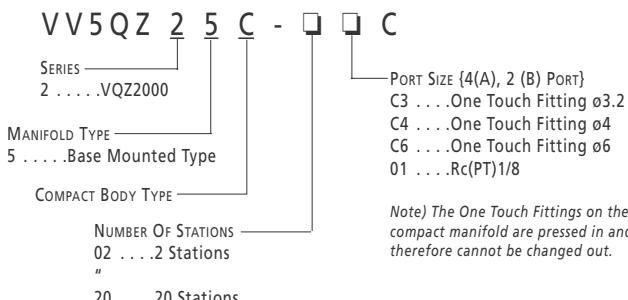
COMPACT BODY TYPE WITH BUILT-IN SPEED CONTROLLER - FOR VQZ2000 ONLY

- 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.

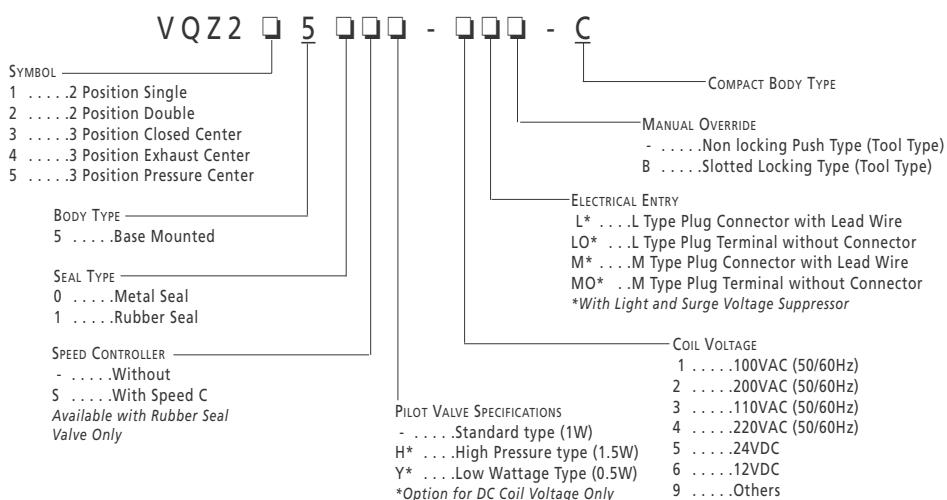
Note) Compact body type valves and standard valves are not interchangeable. Compact valves cannot be mounted on a standard manifolds and vice versa.



How To ORDER SERIES VQZ COMPACT BODY TYPE MANIFOLD



How To ORDER SERIES VQZ VALVE



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

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 TECHNICAL 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

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	0.10MPa	0.15MPa (22PSI)
Operating Pressure	Only for VQZ3000 / 3 Pos	0.10MPa
3 Position	0.15MPa (22PSI)	0.20MPa (29PSI)
Valve Specifications	Ambient & Fluid Temperature	-10° to 50°C
Max Operating Pressure	20Hz	5Hz
2 Position S & D	10Hz	3Hz
3 Position		
Proof Pressure	1.5MPa	
Lubrication	Not Required	
Manual Override	Non-Locking Push Type/Slotted Locking Type	
Shock/Vibration Resistance	150/30 m/s ²	
Enclosure	Dust Proof	
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)
Solenoid Specifications		

HOW TO
ORDER
SERIES VQZ BODY PORTED PLUG LEAD TYPE

VQZ 2 - - - - - BRACKET

SERIES
1VQZ1000 Body Width 10mm
2VQZ2000 Body Width 15mm
3VQZ3000 Body Width 18mm

POSITIONS
12 Position Single
22 Position Double
33 Position Closed Center
43 Position Exhaust Center
53 Position Pressure Center
83 Port Normally Closed
93 Port Normally Open

BODY TYPE
2Body Ported **SEAL**
0Metal Seal
1Rubber Seal

FUNCTION
-Standard Type (1W)
HHigh Pressure Type (1.5W) Note 1 Note 2
YLow Wattage Type (0.5W) Note 1
RExternal Pilot
Note 1) Applicable to DC Specification
Note 2) Optional Specification
Note 3) When specifying more than one option, combine symbols in alphabetical order.

POR T 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)

ELECTRICAL ENTRY

LL Type Plug Connector with Lead Wire
LO	...L Type Plug Terminal without Connector
MM Type Plug Connector with Lead Wire
MO	...M Type Plug Terminal without Connector
YDIN Connector (VQZ2000/3000)
YO	...Terminal without Connector (VQZ2000/3000)
YZ	...DIN Connector (VQZ2000/3000)
YOS	...DIN Terminal without Connector (VQZ2000/3000)

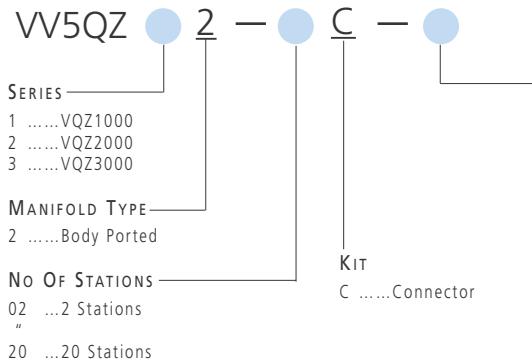
COIL VOLTAGE

1*	...100VAC (50/60Hz)
2*	...200VAC (50/60Hz)
3*	...110VAC (50/60Hz)
4*	...220VAC (50/60Hz)
5	24VDC
6	12VDC
9*	...Other (Special Voltage)

**5 PORT SOLENOID VALVE
BODY PORTED /
PLUG LEAD TYPE
SERIES VQZ1000/2000/3000
MANIFOLD / CONNECTOR KIT**

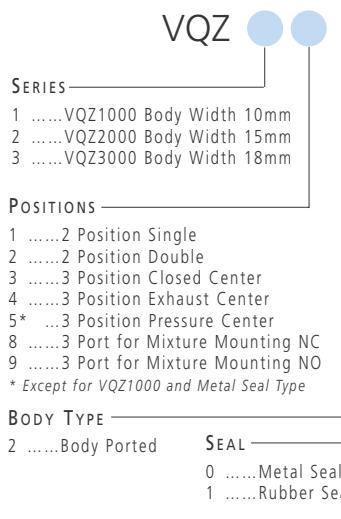
**TECHNICAL
SPECIFICATIONS**
SERIES VQZ1000/2000/3000 MANIFOLD

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)	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)	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

DIN RAIL MOUNT

-None
- DDIN 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 VQZ BODY PORTED PLUG LEAD TYPE VALVE


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)
- 524VDC
- 612VDC
- 9* ...Other (Special Voltage)

ELECTRICAL ENTRY

- | | |
|--|--------------------|
| LL Type Plug Connector with Lead Wire | LIGHT & SURGE |
| LOL Type Plug Terminal without Connector | VOLTAGE SUPPRESSOR |
| MM Type Plug Connector with Lead Wire | With |
| MOM Type Plug Terminal without Connector | With |
| YDIN 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) |

LIGHT & SURGE

With

With

With

Without

Without

With

**MANIFOLD
OPTION**

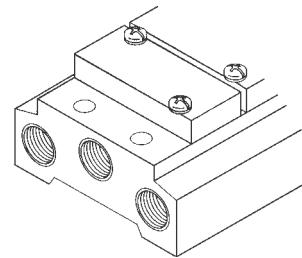
SERIES VQZ1000/2000/3000 BLANK PLATE ASSEMBLY

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**

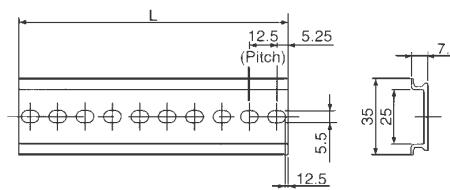
SERIES VQZ1000/2000/3000 DIN RAIL

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
NUMBER	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
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

**MANIFOLD
OPTION**

SERIES VQZ1000/2000/3000 FITTING BLANK PLUG

FITTING BLANK PLUG

KQP-23-X19

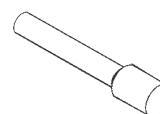
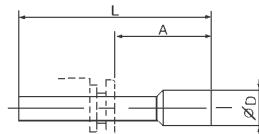
KQP-04-X19

KQP-06-X19

KQP-08-X19

KQP-10-X19

• COLOR: WHITE



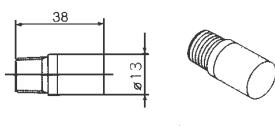
DIMENSIONS

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

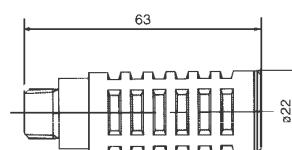
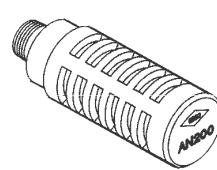
**MANIFOLD
OPTION**

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 PARTS AVAILABLE:

- PERFECT CHECK BLOCK
- PERFECT CHECK BLOCK WITH VALVE OR MANIFOLD

**MANIFOLD
OPTION**

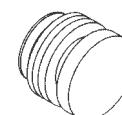
SERIES VQZ1000/2000/3000 PORT PLUG

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



OTHER MANIFOLD OPTIONS:

- LATCHING SOLENOID TYPE
- LATCHING TYPE VALVE
- LATCHING TYPE VALVE WITH MANUAL OVERRIDE

4/2, 4/3 HAND VALVE SERIES (N)VH

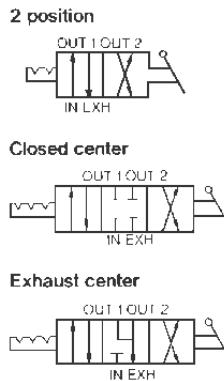
- ✓ Durable High Flow Rotary Panel Mounting Hand Valves
- ✓ Three Body Sizes with Ports from $\frac{1}{4}$ ~ $\frac{3}{4}$
- ✓ Having 4 Ports, this valve is available in 2 position or 3 Position Closed or Exhaust Center
- ✓ White Color to match Bright Operating Environments



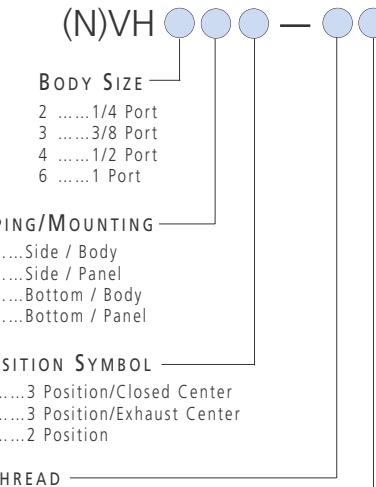
TECHNICAL SPECIFICATIONS

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

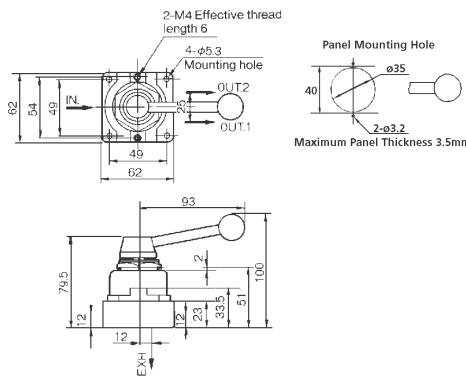
S Y M B O L S



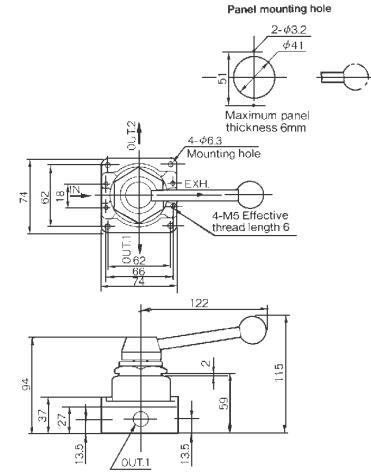
How To ORDER (N)VH SERIES



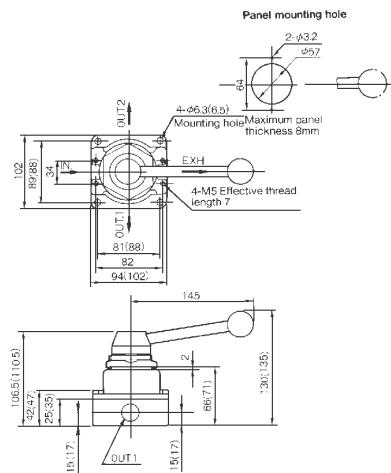
DIMENSIONS (N)VH SERIES BODY SIZE 200



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)	7mm ² (0.38)
Recommended Lubricant	SMC Lubricant (ISO VG32)
Port Size	1/8

How To ORDER (N)VM400 VALVE

(N)VM430 — **01** — **01**

THREAD ——————
-PT
NNPT* Remove (N)
when ordering
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

RRed
GGreen
BBlack
SSteel



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.



How To ORDER (N)VM400 ACTUATOR ONLY

.....PART No....APPLICATION

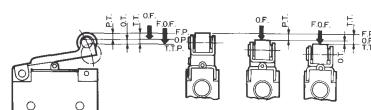
MECHANICAL OPERATION

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

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 $\frac{1}{8}$ (N)VM800 SERIES

- ✓ 3/2 Normally Open or Normally Closed Valve
- ✓ A Variety Of Actuator Types Available
- ✓ Robust Design

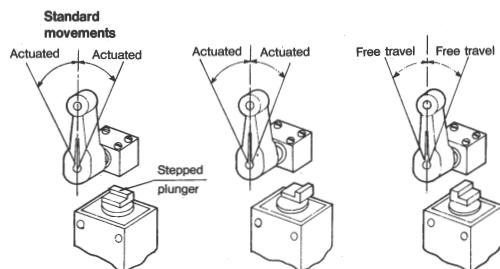
TECHNICAL SPECIFICATIONS

Fluid	Air
Operating Pressure	0 ~ 9.9 Bar / 0 ~ 144PSI
Ambient and Fluid Temperature	5 ~ 60°C / 41 ~ 140°F
Effective Orifice (Cv Ffactor)	6mm ² (0.33)
Recommended Lubricant	Turbine Oil #1 (ISO VG32)
Port Size	$\frac{1}{8}$

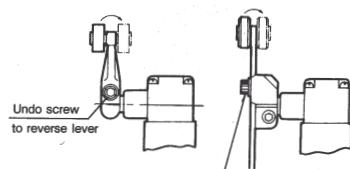


APPLICATIONS

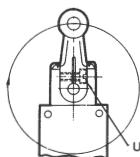
Movement is changeable



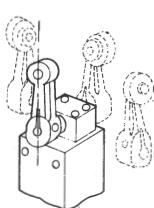
Roller can be mounted to inside of lever



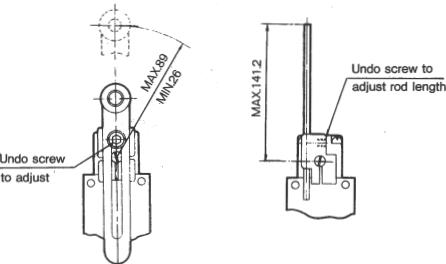
Lever location can be changed



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
NNPT
* Remove (N) when ordering

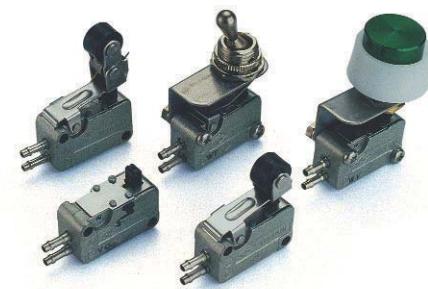
ACTUATOR
00 ...Basic Type
01 ...Roller Lever
13 ...Adjustable Roller Lever
14 ...Adjustable Rod Lever

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)	1mm ² (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)
- ✓ Interchangeable with V3 Electrical Switches

 HOW TO
 ORDER
 (N)VM1000

(N)VM1000 — 4N —

NO OF PORTS

- 0 3 Ports
 1 2 Ports

ACTUATOR

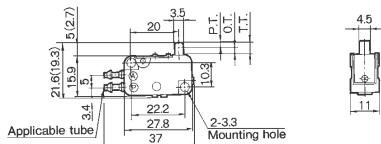
- 00 ... Basic Type
 01 ... Roller Lever
 02 ... One way Trip
 08 ... Toggle
 32 ... Push Button

PUSH BUTTON COLOR

- R Red
 G Green
 B Black

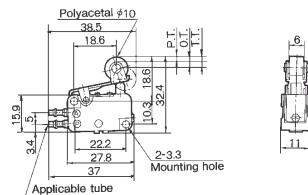
DIMENSIONS

(N)VM1000 BASIC VALVE



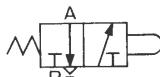
DIMENSIONS

(N)VM1000 ROLLER LEVER



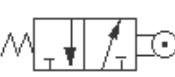
SYMBOLS

(N)VM1000 BASIC VALVE



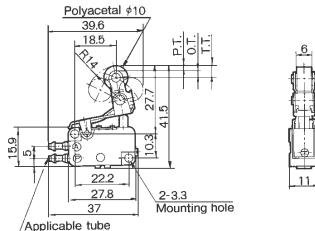
SYMBOLS

(N)VM1000 ROLLER LEVER



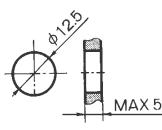
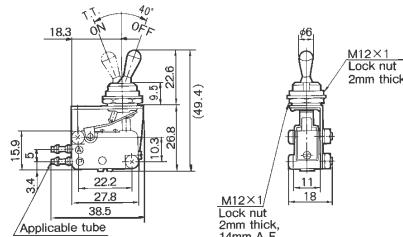
DIMENSIONS

(N)VM1000 ONE WAY TRIP


 PT= Pre-travel
 OT= Over travel
 TT= Total travel

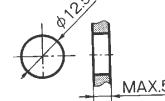
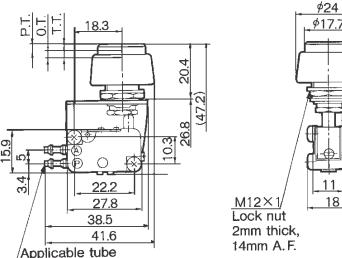
DIMENSIONS

(N)VM1000 TOGGLE



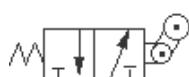
DIMENSIONS

(N)VM1000 PUSH BUTTON



SYMBOLS

(N)VM1000 ONE WAY



SYMBOLS

(N)VM1000 TOGGLE



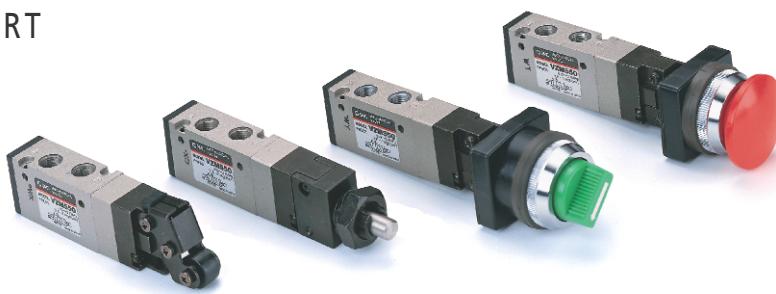
SYMBOLS

(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** — **01**

BODY OPTION —
0Standard
1External Pilot

THREAD —
-PT
NNPT
* 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 —
RRed
GGreen
BBlack
SSteel

How To ORDER (N)VZM550 ACTUATOR ONLY

PART NO APPLICATION

MECHANICAL OPERATION

Basic
Roller Lever	VM-01CPolyacetal roller
Roller Lever	VM-01CS ...Hard steel roller
One Way Trip	VM-02CPolyacetal roller
One Way Trip	VM-02CS ...Hard steel roller
Straight Plunger	VM-05C
Roller Plunger	VM-06CPolyacetal roller
Roller Plunger	VM-06CS ...Hard steel roller

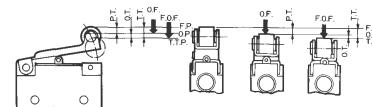
MANUAL OPERATION

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-PullBlack

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)	10.8mm ² (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

DXT199-22-1ABlanking plate kit



Valves with certain operators
cannot be mounted side by
side. Check valve dimensions



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.

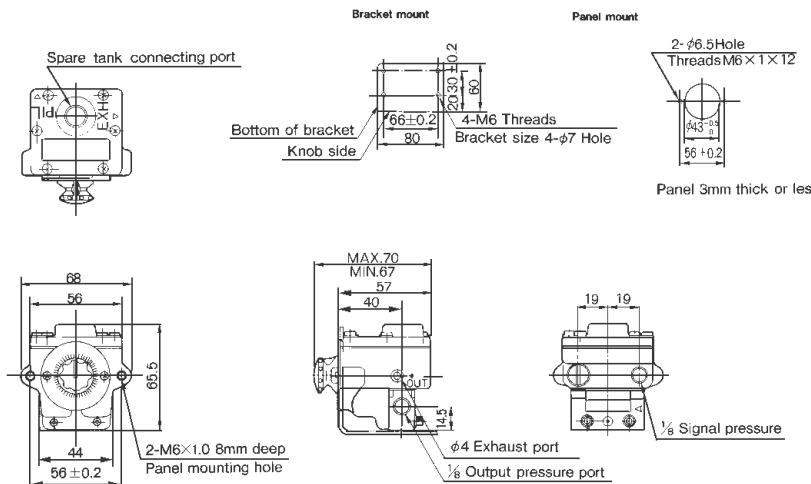
FOR MORE TECHNICAL INFORMATION ON THIS
SERIES, PLEASE REFER TO CAT:E104 AND N261

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.



DIMENSIONS TIME DELAY VALVE



SHUTTLE VALVE SERIES (N)VR1210, (N)VR1220

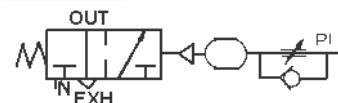
3 Ported Check Valve with one output
and 2 pneumatic signal input ports



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)	2.5mm ² (0.14)
Port Size	1/8 PT / NPT

S Y M B O L S



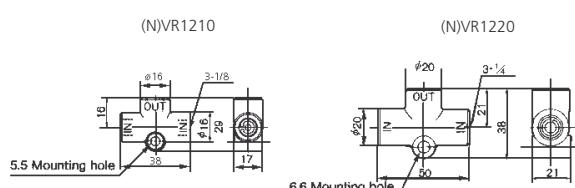
How To Order TIME DELAY VALVE

NVR2110-N01 (1/8 NPT)
VR2110-01 (1/8 PT)

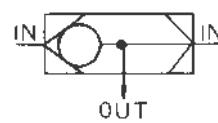
TECHNICAL

SPECIFICATIONS	
Series	(N)VR1210-01 (N)VR1220-02
Max Operating Pressure	1 MPa / 145 PSI
Min Operating Pressure	0.05 MPa / 8 PSI
Effective Orifice (Cv Factor)	7mm ² (0.38) 15mm ² (0.81)
Port Size	1/8 PT / NPT 1/4 PT / NPT

The logo consists of a teal square containing the words "DIMENSIONS" and "SHUTTLE VALVE" stacked vertically.



S Y M B O L



How To
Order
Shuttle Valves

NVR1210-N01 (1/8 NPT)
NVR1220-N02 (1/4 NPT)
VR1210-01 (1/8 PT)
VR1220-02 (1/4 PT)



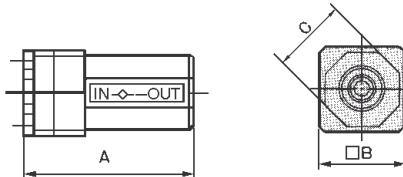
IN OUT

CHECK VALVE
SERIES (N)AK

- ✓ High Flow Capacity
- ✓ Low Cracking Pressure: 0.2 Bar
- ✓ Port Sizes from $\frac{1}{8}$ ~ 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 . . . EFFECTIVE

SIZE NPT . . . ORIFICE*

NAK2000-N01.. $\frac{1}{8}$. . . 25NAK2000-N02.. $\frac{1}{4}$. . . 27.5NAK4000-N02.. $\frac{1}{4}$. . . 47NAK4000-N03.. $\frac{3}{8}$. . . 85NAK4000-N04.. $\frac{1}{2}$. . . 95NAK6000-N06.. $\frac{3}{4}$. . . 200

NAK6000-N10.. 1 . . . 230

Note: When ordering PT Ports, remove 'N' from the model number.

Eg: AK2000-01

*S (mm^2) is Effective Orifice

Figure given for A-R Direction (Exhaust Flow)



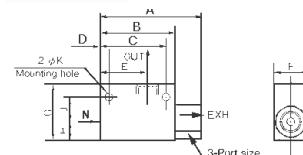
IN OUT EXH

QUICK EXHAUST VALVE
SERIES (N)AQ

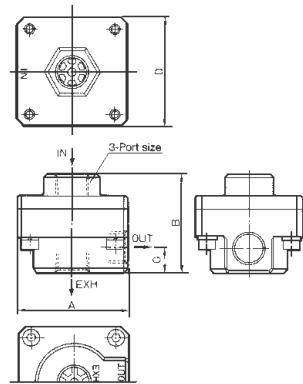
- ✓ High Exhaust Characteristics
- ✓ Port Sizes from M5 ~ $\frac{3}{4}$ PT, NPT
- ✓ High Flow Capacity

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-N04, 06	1/2, 3/4	85	75	18	85

How To
Order
SERIES (N)AQ

BODY SIZE PORT . . . EFFECTIVE

SIZE NPT . . . ORIFICE*

NAQ1500-M5 M5 . . . 2.8

NAQ1510-N01 ... $\frac{1}{8}$. . . 5.8NAQ2000-N01 ... $\frac{1}{8}$. . . 25NAQ2000-N02 ... $\frac{1}{4}$. . . 40NAQ3000-N02 ... $\frac{1}{4}$. . . 42NAQ3000-N03 ... $\frac{3}{8}$. . . 70NAQ5000-N04 ... $\frac{1}{2}$. . . 115NAQ5000-N06 ... $\frac{3}{4}$. . . 180

Note: When ordering PT Ports, remove 'N' from the model number.

Eg: AQ1510-01

*S (mm^2) 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

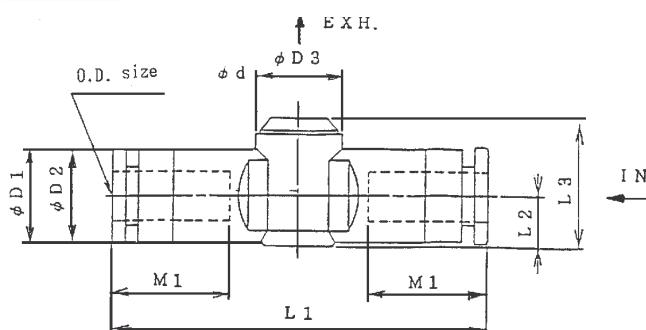
FLOW COMPARISON

Models	Tube size		Effective area mm ²	
	Ø4	Ø6	In-Out	Out-Exh
AQ240F-04-*	•		1.7	2.5
AQ240F-06-*		•	2.4	2.7
AQ340F-06-*		•	4	4

NOTE: observe maximum recommended operating pressures for tube when using Soft Nylon or Polyurethane

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

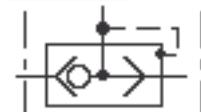
SYMBOLS

WITH BUILT-IN SILENCER



SYMBOLS

WITHOUT SILENCER



How To ORDER SERIES AQ240F/340F

AQ 40 — —

BODY SIZE

2 M5
3 1/8"

TUBE CONNECTION

F Built-in One Touch
Tube Connection

O D SIZE

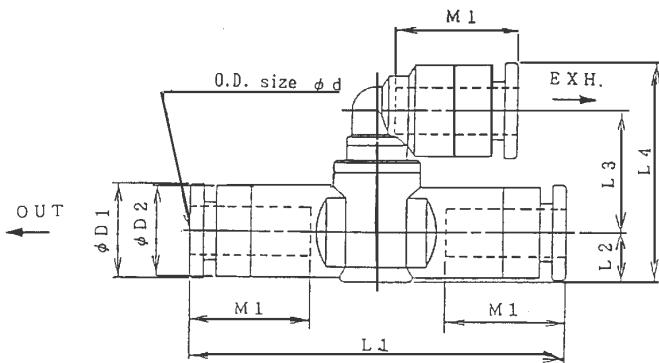
Metric
04 ... Ø4mm
06 ... Ø6mm
Imperial
07 ... 1/4"

EXHAUST PORT

Metric
00 ... Built-in Silencer
04 ... Ø4mm
06 ... Ø6mm
Imperial
00 ... Built-in Silencer
07 ... 1/4"

DIMENSIONS

SERIES AQ240F/340F WITH EXHAUST TAKE OFF



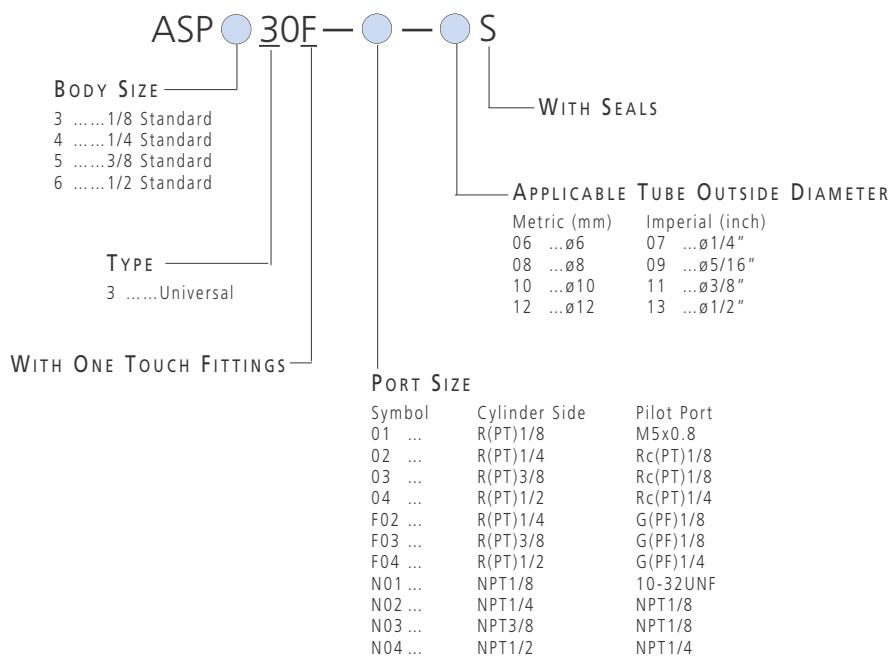
Models	O.D size d	D1	D2	L1	L2	L3	L4	M1	Weight
AQ240F-04-04	4	9.5	8.9	39.3	5	13.7	23.4	13	5.7
AQ240F-06-06	6	11.5	11	43.9	6	14.7	26.5	14	7.3
AQ340F-06-06	6	11.5	11	45.2	6.3	19.6	31.7	14	12.5



TECHNICAL SPECIFICATIONS

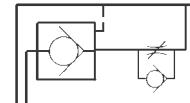
Proof Pressure	1.5MPa (218 PSI)
Max Operating Pressure	1MPa (145 PSI)
Min Operating Pressure	0.1MPa (14.5 PSI)
Pilot Check Valve Actuation Pressure	50% of Operating Pressure
Ambient and Fluid Temperatures	-5~60°C (W/O Freezing) 23~140°F
Number Of needle Rotations	10
Applicable Tube Material	Nylon, Soft Nylon, Polyurethane

How To ORDER SERIES ASP



SPEED CONTROLLER WITH PILOT CHECK VALVE SERIES ASP

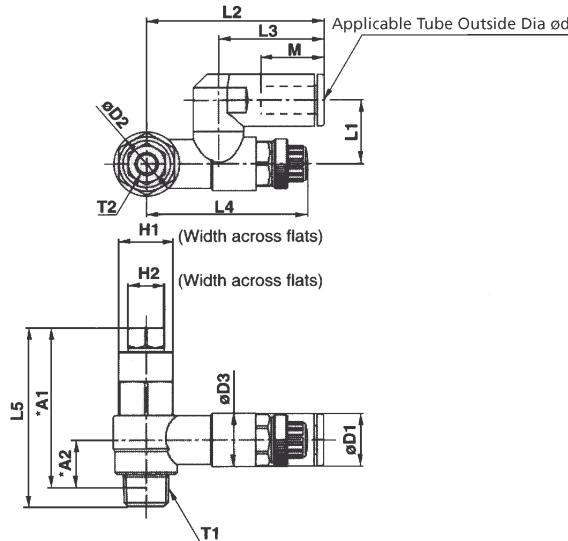
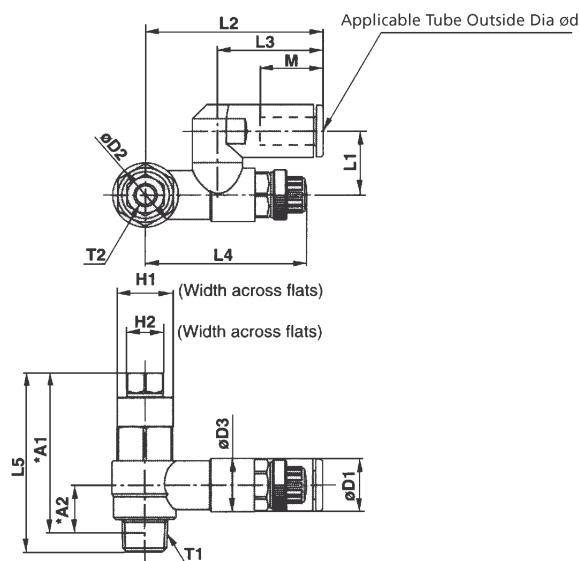
- ✓ Integrated Pilot Check Valve and Speed Controller
- ✓ Temporary Intermediate Stop and Speed Control of Cylinders is possible
- ✓ 360° Freedom for Tube Mounting Direction



TECHNICAL SPECIFICATIONS

FLOW RATE AND EFFECTIVE SECTIONAL AREA

Model		ASP330F	ASP430F	ASP530F	ASP630F	
Tube	mm	ø6, ø8	ø6	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	Flow Rate l/min (ANR)(N l/m)	180	330	600	750	1100 1190
(Free Flow)	Effective Sectional Area mm ²		2.9	5.2	9.3	11.6 16 18.4

DIMENSIONS (MM)
 SERIES ASP

 DIMENSIONS (INCH)
 SERIES ASP


Model	d	T1	T2	H1	H2	D1	D2	D3	L1	L2	L3	L4		L5	*A1	*A2	M	Weight g
												Max	Min					
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		L5	*A1	*A2	M	Weight g
												Max	Min					
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

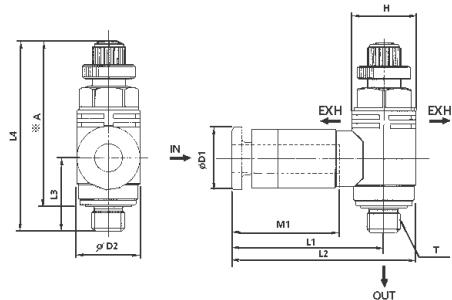
TECHNICAL
SPECIFICATIONS

Proof Pressure 1.5 MPa (222 PSI)

Max Operating Pressure 1 MPa (148 PSI)

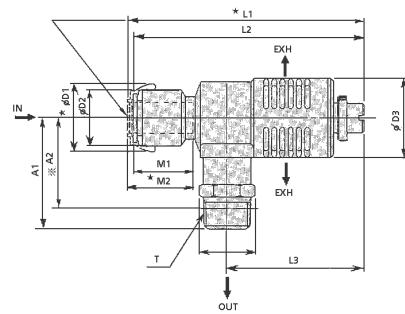
Min Operating Pressure 0.1 MPa (14.5 PSI)

Ambient & Fluid Temperature 0–60°C / 32–140°F

Suitable Tube Material Nylon, soft nylon,
polyurethaneNote: observe maximum recommended operating
pressures for tube when using soft nylon or polyurethaneDIMENSIONS
SERIES (N)ASV ELBOW TYPE

Model	Applicable Tube OD	T	H	D1	D2	L1	L2	L3	L4 Max	*A Max	M1	Weight g
									Min	Min		
ASV120F-M3-04	4	M3x0.5	5.5	9.5	7	21.5	25	9.8	28.6	26.1	25.8	23.3
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
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

* Assembled height

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-01-065	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-01-085	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-02-065	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-02-085	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-01-085	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-01-105	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-02-085	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-02-105	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-03-085	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-03-105	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-02-105	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-02-125	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-03-105	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-03-125	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-04-105	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-04-125	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

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 1/2
- ✓ Integral One Touch Fitting - 4mm to 12mm
- ✓ Excellent Control Characteristics
- ✓ Compact Design

F L O W
C O M P A R I S O N

Model	Port thread	Tube O.D (mm)				Effective area In-Out	Out-Exh
		4	6	8	10		
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

H O W T O
O R D E R
SERIES (N)ASV

(N)ASV 0 F — 0 F — 0 F

BODY SIZE

- 1M3
2M5
31/8
41/4
53/8

BODY TYPE

- 1Tee
2Elbow

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 ...0.4mm | 07 ...1/4" |
| 06 ...0.6mm | 09 ...5/16" |
| 08 ...0.8mm | 11 ...3/8" |
| 10 ...1.0mm | 13 ...1/2" |
| 12 ...1.2mm | |

THREAD

-PT* Remove (N) when ordering
NNPT

THREAD SEAL

-M3, M5
S1/8 - 1/2

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

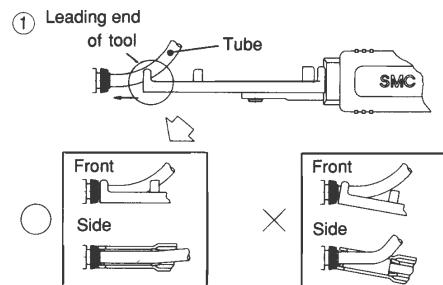
Available in Red

For 1/8" and 1/4" Tube Size Fittings

USAGE

Operation

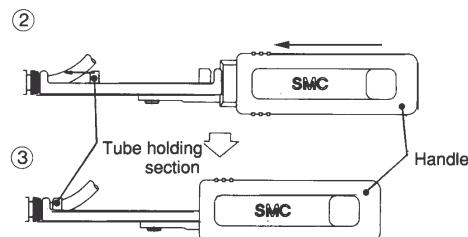
- ① Insert the tool straight along the tube in the fittings mounting direction until the leading end of the tool reaches the leading end of the release bush.



- ② 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.

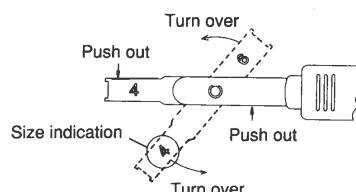
[Note: Insufficient insertion may not release tubing.]

- ③ 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.

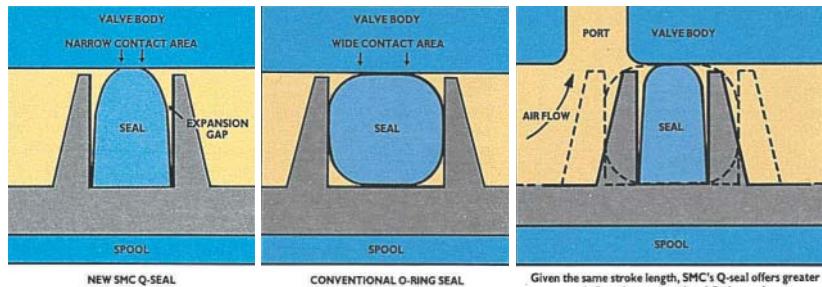


Size change

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



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

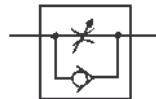
- ✓ Minimizes Installation Time and Cost
- ✓ Accepts Nylon and Polyurethane Tubing
- ✓ Wide Variety Of Sizes
- ✓ Speed may accurately be controlled even at low velocity
- ✓ Constant Speed easily set
- ✓ Retaining prevents accidental loss of needle



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

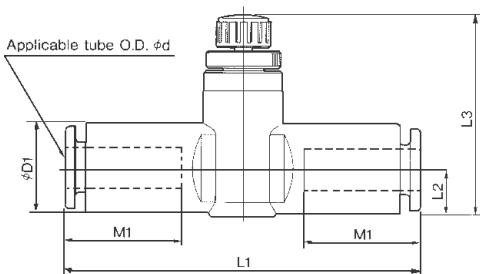
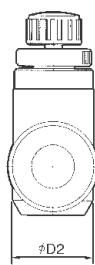
- 100 ...M5 (04, 06)
- 200 ...1/8 (04, 06)
- 205 ...1/4 (06, 08)
- 300 ...3/8 (06, 08, 10, 12)
- 400 ...1/2 (10, 12)

WITH ONE-TOUCH FITTINGS

APPLICABLE TUBE OD

mm	Inch
23	...  32
04	...  4
06	...  6
08	...  8
10	...  10
12	...  12
13	...  1

DIMENSIONS (N)AS1000-4000



Model (Metric)	Applicable Tube OD : d	D1	D2	L1	L2	L3		M1	Weight gf
						Max	Min		
AS1001F	3.2	7.8		41.1	4.4	23.4	20.6	14.5	5.8
	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
AS3001F	6	13.2		59	7.4	38.3	33.3	17	40.8
	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
AS4001F	12	20.9		76	11	41.8	36.8	22	60.2
	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		M1	Weight gf
						Max	Min		
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
NAS2001F	5/32"	8.9		43.8	5.2	32.6	27.6	14.5	11.4
	3/16"	11.4	11.8	50	6.2	33.6	28.6	16.5	17.1
NAS2051F	3/16"	11.4		52.2	7.1	34.5	29.5	17	20.1
	1/4"	13.2		54.4	7.1	35.5	30.5	17	25.1
NAS3001F	1/4"	13.2	14.8	59.8	8.1	36.5	31.5	18	30.3
	5/16"	15.2		59.8	8.1	33.3	28.3	17	41.2
	3/8"	17.9		64.4	8.2	39.1	34.1	18	45.5
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



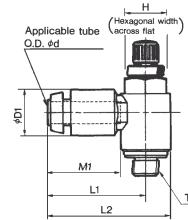
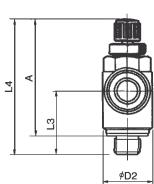
* Note) Except M5 Threaded Type

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

DIMENSIONS (MM) AS SERIES WITH ONE TOUCH FITTINGS ELBOW TYPE



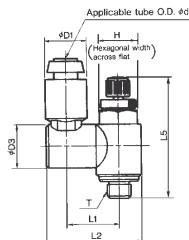
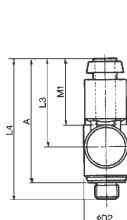
**DIMENSIONS (INCH)
AS SERIES WITH ONE TOUCH FITTINGS
ELBOW TYPE**

Model Elbow Type (Metric)	Applicable Tube OD ø mm	T	H	øD1	øD2	L1	L2	L3	L4		*A		M	Weight g	
									Max	Min	Max	Min			
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					21	93.7	
AS42 1F-U04-12	12				20.9		34.6	48.9		54.6	47.1	44.5	37	22	95

Model Elbow Type (Inch)	Applicable Tube OD d Inch	T Uni Thread	H	øD1	øD2	L1	L2	L3	L4		*A		M	Weight g		
									Max	Min	Max	Min				
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**



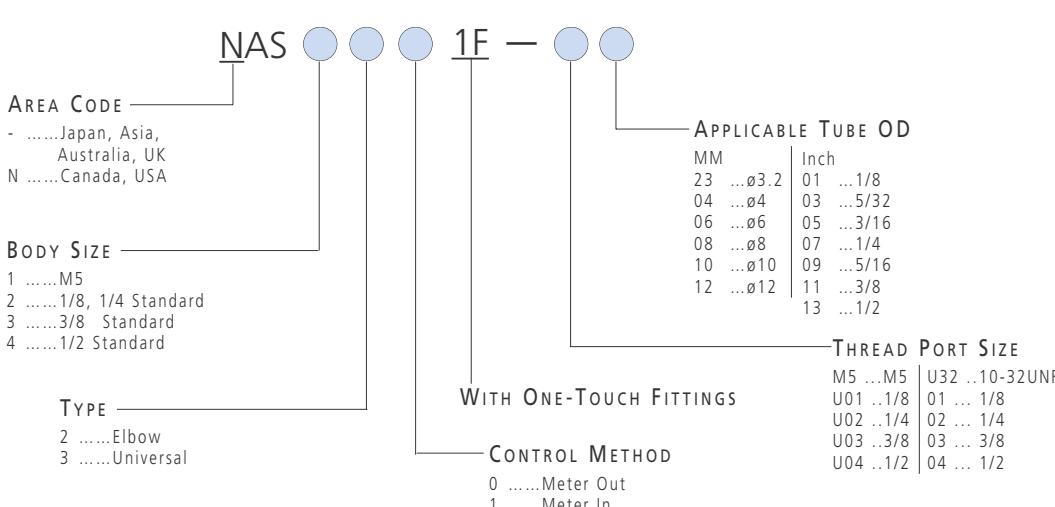
Model Elbow Type (Metric)	Applicable Tube OD \varnothing mm	T Uni Thread	H	$\varnothing D_1$	$\varnothing D_2$	$\varnothing D_3$	L ₁	L ₂	L ₃	L ₄	L ₅ Max	L ₅ Min	*A Max	*A Min	M	Weight g
AS22□1F-U01-23	3.2	1/8	12	7.8	14.2	9.3	13.4	24.8	18.9	33.2	36.1	31.1	30.5	25.5	14.5	16.9
AS22□1F-U01-04	4				8.9		9.3	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**

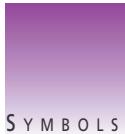
Model Elbow Type (Inch)	Applicable Tube OD d Inch	T Uni Thread	H	$\varnothing D_1$	$\varnothing D_2$	$\varnothing D_3$	L ₁	L ₂	L ₃	L ₄	L ₅ Max	L ₅ Min	*A Max	*A Min	M	Weight g	
NAS23□1F-U01-01	1/8"	1/8	12	7.8	14.2	9.3	13.4	24.8	18.9	33.2	36.1	31.1	30.5	25.5	14.5	16.9	
NAS23□1F-U01-03	5/32"				8.9		9.3	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**



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



HOW TO ORDER SERIES (N)AS1000-4000

NAS **000** — **3**

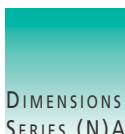
AREA CODE
-Japan, Asia,
Australia, UK
NCanada, USA

BODY SIZE
1M3, M5
21/8, 1/4 Standard
33/8 Standard
41/2 Standard

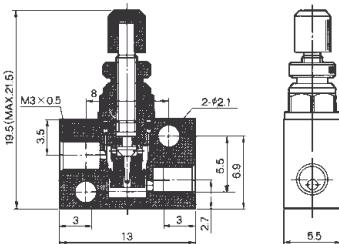
PORT THREAD
-R(PT)
NNPT

PANEL MOUNT VERSION
3

PORT SIZE
M3 ...M3x0.5
M5 ...M5x0.8
01 ...1/8 (10-32Nom)
02 ...1/4
03 ...3/8
04 ...1/2



DIMENSIONS SERIES (N)AS1000-M3

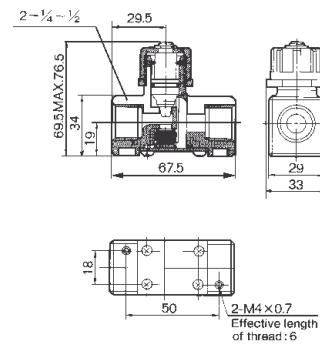


TECHNICAL SPECIFICATIONS

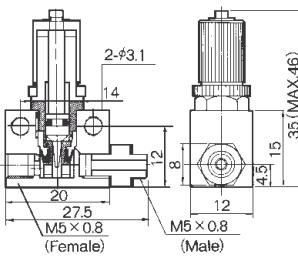
Proof Pressure	1.5MPa / 220PSI								
Max Operating Pressure	1MPa / 145PSI								
Min Operating Pressure	0.05MPa / 8PSI								
Ambient and Fluid Temperature	5 ~ 60°C / 40 ~ 140°F								
No Of Needle Rotations	8 ~ 10Turns								
Panel Cut Out Dimensions	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>AS1000</td> <td>Not Applicable</td> </tr> <tr> <td>AS2000</td> <td>ø16.5</td> </tr> <tr> <td>AS3000</td> <td>ø16.5</td> </tr> <tr> <td>AS4000</td> <td>ø25</td> </tr> </table>	AS1000	Not Applicable	AS2000	ø16.5	AS3000	ø16.5	AS4000	ø25
AS1000	Not Applicable								
AS2000	ø16.5								
AS3000	ø16.5								
AS4000	ø25								



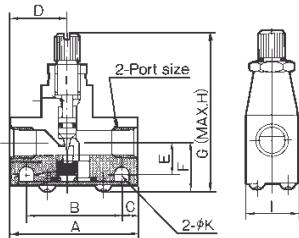
DIMENSIONS SERIES (N)AS4000



DIMENSIONS SERIES (N)AS1000-M5



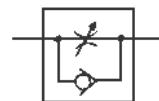
DIMENSIONS SERIES (N)AS2000, 3000



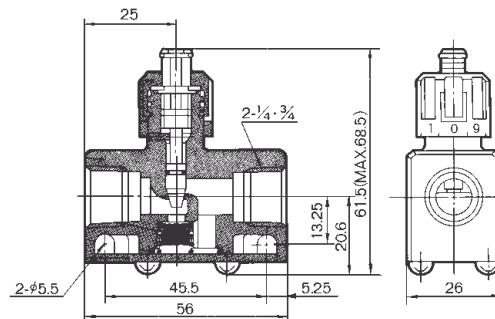
Model	Port Size	A	B	C	D	E	F	G	H	I	øK
(N)AS2000-01	1/8	40	30	5	17	10	15.5	50	54.5	16	4.5
(N)AS2000-02	3/4	40	30	5	23	11.5	17	51.5	56	20	4.5
(N)AS3000-02, 03	1/4, 3/8	56	45.5	5.25	25	13.2	20.6	61	68	26	5.5


**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


 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

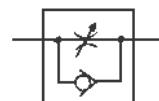
 DIMENSIONS
(N)AS3500

 How To
ORDER

(N)AS3500 LOCKING TYPE

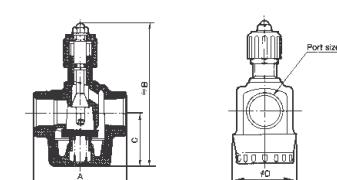
AS3500-02	1/4PT
AS3500-03	3/8PT
NAS3500-N02	1/4NPT
NAS3500-N03	3/8NPT


**SPEED CONTROLLER: HIGH FLOW IN-LINE TYPE
SERIES (N)AS500-600**

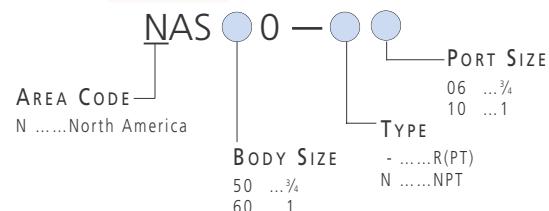
- ✓ Even at low speeds may be accurately controlled
- ✓ Constant Speed easily set
- ✓ Retaining prevents accidental loss


 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	oD
(N)AS500	3/4	74	115	42	50
(N)AS600	1	90	158	55	62

 How To
ORDER
(N)AS500-600


SPEED CONTROLLER BODY PORTED: ELBOW TYPE SERIES (N)AS1000-4000

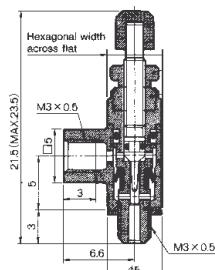
- ✓ Minimizes Installation Time and Cost
- ✓ Body swivels 360°
- ✓ Speed may be accurately controlled even at low velocity
- ✓ Constant Speed easily set
- ✓ Retaining prevents accidental loss of needle
- ✓ Tamper-Resistant Type Available



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

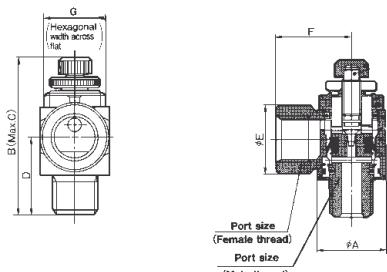
DIMENSIONS (N)AS1200-M3 ELBOW TYPE



SYMBOLS



DIMENSIONS (N)AS1200, 2200, 3200, 4200



Model	Port Size	oA	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
NNorth America

BODY SIZE
1M3, M5
21/8, 1/4
33/8
41/2

DIRECT CONNECTION TYPE

PORT THREAD
-R(PT)
NNPT

OPTION
-Nil

TTamper-Resistant
DTamper-Resistant Flat Head Screw Driver Adjustment Type

OPTION
-Nil
SSealant

PORT SIZE
M3M3x0.5
M5M5x0.8
011/8
021/4
033/8
041/2

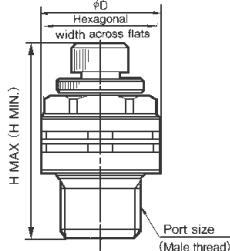

 EXHAUST RESTRICTOR WITH SILENCER
 SERIES (N)ASN2

- ✓ 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


 DIMENSIONS
 SERIES (N)ASN


Model	Port Size	øD	H		Hexagonal Width Across Flats
			Min	Max	
(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

 HOW TO
 ORDER

SERIES (N)ASN2

AREA CODE

-Japanese
 NNorth America

PORT THREAD

-R(PT)
 NNPT

PORT SIZE

M5 ...M5x0.8
 01 ...1/8
 02 ...1/4
 03 ...3/8
 04 ...1/2

OPTION
 SW/Sealant

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 (C_v) 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 C_v of a tube and valve system is calculated by combining the C_v of each element as follows:

$$\frac{1}{Cv_{syst}^2} = \frac{1}{Cv_1^2} + \frac{1}{Cv_2^2} + \frac{1}{Cv_3^2} \text{ etc}$$

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 C_v for the system including valve and fittings is Cv_{syst} , then:

$$\text{required } Cv \text{ for valve} = Cv_{syst} \times \sqrt{2}$$

$$\text{for fittings and tube} = Cv_{syst} \times \sqrt{2}$$

If tube system has 3 meters of nylon pipe and 6 KQ fittings we can consider this as 9 (3 + 6) elements so C_v 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 mm^2 . ($18\text{mm}^2 \approx Cv_1$)

Thus if system C_v required was 0.6

valve to be used has a C_v of 0.85

each fitting system element used will have a C_v of $0.6 \times \sqrt{2} \times \sqrt{9} = 2.55$

$$Cv2.55 \approx 46\text{mm}^2$$

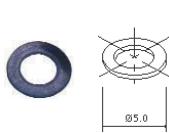
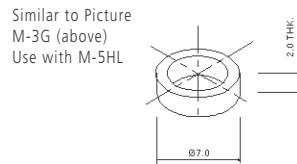
From this catalog, SMC fitting KQH10-U01 has $S > 46\text{mm}^2$ ∴ use tube system Ø10mm

MINIATURE FITTINGS: M3, M5, $\frac{1}{8}$ 

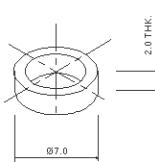
- ✓ Compact and Space-Saving
- ✓ Tube has a large retaining force
- ✓ Hose Nipple ensures easy removal
- ✓ Accepts Nylon Tubes, Soft Nylon Tube and Polyurethane

MANIFOLD:
M-5MBARB FITTING FOR SOFT TUBE:
M-3AU-4
M-5AU-4
M-5AU-6BARB ELBOW FOR SOFT TUBE:
M-3ALU-4
M-5ALU-6UNIVERSAL ELBOW:
M-3UL
M-5UL $\frac{1}{8}$ female diverted
to 9 x M5UNIVERSAL TEE:
M-3UT
M-5UTNIPPLE:
M-3N
M-5NPLUG:
M-3P
M-5P

GASKET:

MORE SELECTIONS
SEE NEXT PAGE HOW TO
ORDER
SEE NEXT PAGE HOSE NIPPLE:
M-5H-4
M-5H-6ELBOW:
M-5LHOSE ELBOW:
M-5HL-4
M-5HL-6GASKET:
M-5GHTEE:
M-5TSimilar to Picture
M-3G (above)
Use with M-5HL

Uses Gasket M-5GH




EXTENSION FITTING:
M-5J

UNIVERSAL NIPPLE:
M-5UN

BULKHEAD:
M-5E

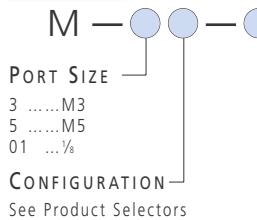
BULKHEAD REDUCER:
M-5ER

REDUCING BUSHING:
M-5B
M5 female to $\frac{1}{8}$ female taperM5 female to $\frac{1}{8}$ male taper
STRAIGHT ADAPTOR:
M-01H-4
M-01H-6

STRAIGHT BARB CONNECTOR:
M-01AU-4
M-01AU-6


Applicable Tube Material	Nylon	Soft Nylon	Polyurethane
Applicable Tube Dia* OD/ID (mm)	M3 —	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, $\frac{1}{8}$	—
Thread	JIS B0209 class 2 (Metric coarse thread), JIS B0203 (Taper pipe thread)	—	—

*Dimensions to BS5409 Part 1


TUBE SIZE
(WHERE APPLICABLE)

33.8mm OD - 2mm ID
44mm OD - 2.5mm ID
66mm OD - 4mm ID


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

FLUSH TAPER PLUGS:
 $\frac{1}{8}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$


$\frac{1}{8}$	BFAPP122-A
$\frac{1}{4}$	BFAPP122-B
$\frac{3}{8}$	BFAPP122-C
$\frac{1}{2}$	BFAPP122-D
$\frac{3}{4}$	BFAPP122-E



$\frac{1}{8}$...PLUG $\frac{1}{8}$
$\frac{1}{4}$...PLUG $\frac{1}{4}$
$\frac{3}{8}$...PLUG $\frac{3}{8}$
$\frac{1}{2}$...PLUG $\frac{1}{2}$
$\frac{3}{4}$...PLUG $\frac{3}{4}$

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

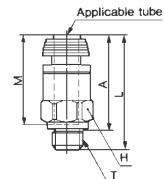
TECHNICAL SPECIFICATIONS

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



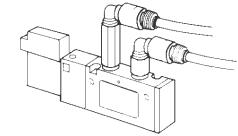
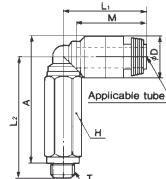
PRODUCT SELECTOR

MALE CONNECTOR: KJH



PRODUCT SELECTOR

EXTENDED MALE ELBOW: KJW



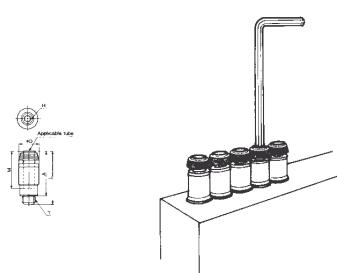
Applicable Tube O.D (mm)	Thread T	Model	H (Hex)	L	A	M	Effective Orifice (mm²)	Weight (g)
3.2	M3x0.5	KJH23-M3	7	18	15.5	14.5	0.9	1.6
3.2	M5x0.8	KJH23-M5	7	18.5	15.5	14.5	3/2.5	2.1
3.2	R(PT)1/8	KJH23-01S	10	16.5	12.5	14.5	3/2.5	5
4	M3x0.5	KJH04-M3	8	18	15.5	14.5	0.9	1.9
4	M5x0.8	KJH04-M5	8	18.5	15.5	14.5	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

Applicable Tube O.D (mm)	Thread T	Model	H (Hex)	ØD	L1	L2	A	M	Effective Orifice (mm²)	Weight (g)
3.2	M3x0.5	KJW23-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

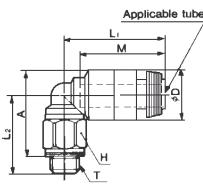
Applicable Tube O.D (inch)	Thread T	Model	H (Hex)	ØD	L1	L2	A	M	Minimum Hole Diameter	Weight (g)
1/8	10-32UNF	KJW01-32	7	7.8	17	25	26	14.5	2.3	6.3
1/8	1/16	KJW01-33S	9.5	7.8	17	25	25	14.5	2.5	8.6
1/8	1/8	KJW01-34S	11.11	7.8	17	25	25	14.5	2.5	10.5
5/32	10-32UNF	KJW03-32	7	8.9	17.5	25.5	27	14.5	2.3	6.4
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

TUBE FITTINGS: ONE TOUCH MINI


**HEXAGON SOCKET HEAD
MALE CONNECTOR: KJS**


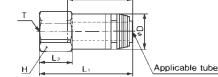
Applicable Tube O.D (mm)	Thread T	Model	H (Hex)	ØD	L	A	M	Effective Orifice (mm²) Nylon/Urethane	Weight (g)
3.2	M3x0.5	KJS23-M3	1.5	7	18	15.5	14.5	1.4	1.4
3.2	M5x0.8	KJS23-M5	2	7	21.5	18	14.5	2.5	2.9
4	M3x0.5	KJS04-M3	1.5	8	18	15.5	14.5	1.4	1.5
4	M5x0.8	KJS04-M5	2.5	8	20.5	17	14.5	4	2.6
4	R(PT)1/8	KJS04-01S	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


**MALE ELBOW:
KJL**


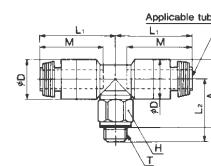
Applicable Tube O.D (mm)	Thread T	Model	H (Hex)	ØD	L1	L2	A	M	Effective Orifice (mm²) Nylon/Urethane	Weight (g)
3.2	M3x0.5	KJL23-M3	7	7.8	17	12.5	14	14.5	0.8	2
3.2	M5x0.8	KJL23-M5	7	7.8	17	13	14	14.5	2.6/2.2	2.6
3.2	R(PT)1/8	KJL23-01S	10	7.8	17	15	15	14.5	2.6/2.2	6.7
4	M3x0.5	KJL04-M3	7	8.9	17.5	13	15	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


**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

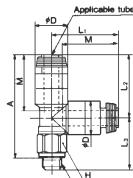

**BRANCH TEE:
KJT**


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	16	15.5	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

**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)	Weight Nylon/Urethane (g)
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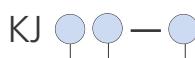
3.2	M3x0.5	KJY23-M3	7	7.8	17	16.5	12.5	26.5	14.5	0.9	2.7
3.2	M5x0.8	KJY23-M5	7	7.8	17	16.5	13	26.5	14.5	3.2/2.7	3.2
3.2	R(PT)1/8	KJY23-01S	10	7.8	17	16.5	15	27.5	14.5	3.2/2.7	7.3
4	M3x0.5	KJY04-M3	7	8.9	17.5	16.5	13	27	14.5	0.9	3.1
4	M5x0.8	KJY04-M5	7	8.9	17.5	16.5	13.5	27	14.5	4.5	3.5
4	R(PT)1/8	KJY04-01S	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**

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



CONNECTION THREAD

- M3 ... M3x0.5mm
- M5 ... M5x0.8mm
- 1/8(PT) ... 10-32UNF
- 23 ... Ø3.2mm
- 33S ... 1/16 NPT
- 04 ... Ø4mm
- 34S ... 1/8 NPT
- 06 ... Ø6mm
- 01 ... Ø1/8"
- 03 ... Ø5/32"
- 07 ... Ø1/4"

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E501 & CAT:N500



SERIES KQ ONE TOUCH FITTINGS



SERIES KQ: BLACK BODY FITTINGS
 AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS
 AVAILABLE IN THE USA

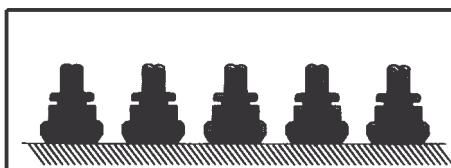
FITTINGS WITH UNI-THREAD

SERIES KQ: BLACK BODY FITTINGS
SERIES KQ2: WHITE BODY 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 compatibility 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%

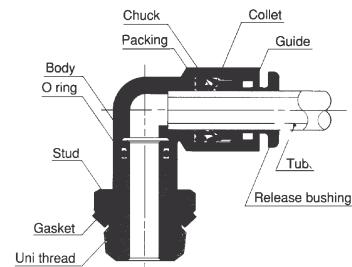
- ✓ Constant mounting height saves space

Lower height of screwed-in fittings save space and improves appearance

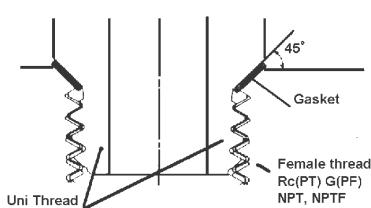


Uni-Threads

PARTS DESCRIPTION



UNITHREAD CONSTRUCTION



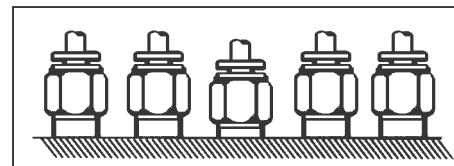
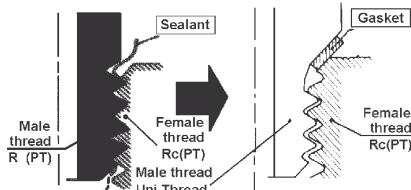
UNI THREAD RIDGE SHAPE

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..

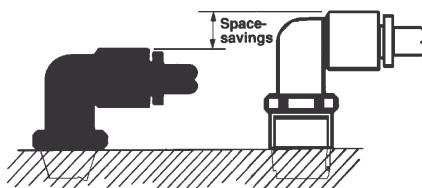
GASKET CONSTRUCTION

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.)



Conventional Threads

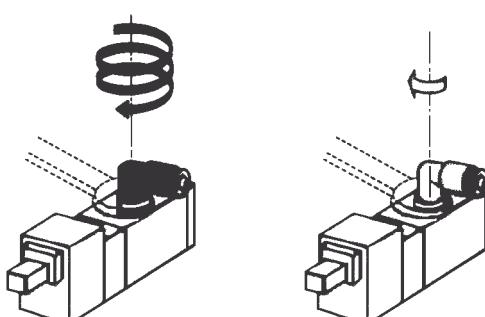


- ✓ Screw-In Time is reduced to $\frac{1}{3}$

Existing Tapered Thread Series: Uni-Thread Series:
 2 to 3 turns with a wrench $\frac{1}{4}$ to $\frac{1}{2}$ turn with a wrench
 after manual tightening after manual tightening

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



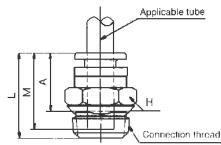
Thread Type	Manual Tightening Time + Tool Tightening Time	Total	Ratio
Uni-Thread	6 sec + 4 sec	10 sec	1/3
Conventional Thread	4 sec + 26 sec	30 sec	1


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	1/8	KQH04-U02	14	18	12	16	5.6
6	1/8	KQH06-U01	12	19.5	15.5	17	13.1
6	1/8	KQH06-U02	14	19.5	13	17	13.1
6	1/8	KQH06-U03	17	18.5	12.5	17	13.1
8	1/8	KQH08-U01	14	25	21	18.5	26.1
8	1/8	KQH08-U02	14	21.5	15.5	18.5	26.1
8	1/8	KQH08-U03	17	21	15	18.5	26.1
10	1/8	KQH10-U01	17	28	23	21	41.5
10	1/8	KQH10-U02	17	28	22	21	41.5
10	1/8	KQH10-U03	17	24	18	21	41.5
10	1/8	KQH10-U04	22	22	14	21	41.5
12	1/8	KQH12-U02	19	30.5	24.5	22	58.3
12	1/8	KQH12-U03	19	25.5	19.5	22	58.3
12	1/8	KQH12-U04	22	24.5	16.5	22	58.3
16	1/8	KQH16-U03	24	33.5	27.5	24	81
16	1/8	KQH16-U04	24	28.5	20.5	24	113


SERIES KQ: BLACK BODY FITTINGS
AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS
AVAILABLE IN THE USA

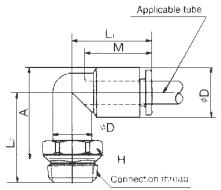
MALE ELBOW : KQL (KQ2L)

Use to pipe in right angle to female threaded portion. Most general type.



Applicable Tube OD mm	Connection Thread	Model	H	oD1	oD2	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	1/8	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	1/8	KQL06-U02	14	12.8	10	20	23	23.5	17	11.4
6	1/8	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	1/8	KQL08-U02	14	15.2	12	23	24.5	26	18.5	21.6
8	1/8	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	1/8	KQL10-U02	17	18.5	17	26.5	26.5	30	21	35.2
10	1/8	KQL10-U03	17	18.5	17	26.5	27	30.5	21	35.2
10	1/8	KQL10-U04	22	18.5	17	26.5	30	31.5	21	35.2
12	1/8	KQL12-U02	17	20.9	17	28.5	27	31.5	22	50.2
12	1/8	KQL12-U03	17	20.9	17	28.5	28	32.5	22	50.2
12	1/8	KQL12-U04	22	20.9	17	28.5	31	33.5	22	50.2
16	1/8	KQL16-U03	22	26.5	21	33	40.5	33	24	71
16	1/8	KQL16-U04	22	26.5	21	33	40.5	35	24	100

H: Width Across Flats

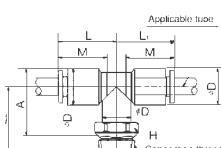

BRANCH TEE : KQT (KQ2T)

Use to branch line from female thread of both side 90° direction.



Applicable Tube OD mm	Connection Thread	Model	H	oD1	oD2	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	1/8	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	1/8	KQT06-U02	14	12.8	10	20	23	23.5	17	13.9
6	1/8	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	1/8	KQT08-U02	14	15.2	12	23	24.5	26	18.5	26.3
8	1/8	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	1/8	KQT10-U02	17	18.5	17	26.5	26.5	30	21	40.8
10	1/8	KQT10-U03	17	18.5	17	26.5	27	30.5	21	40.8
10	1/8	KQT10-U04	22	18.5	17	26.5	30	31.5	21	40.8
12	1/8	KQT12-U02	17	20.9	17	28.5	27	31.5	22	57.2
12	1/8	KQT12-U03	17	20.9	17	28.5	28	32.5	22	57.2
12	1/8	KQT12-U04	22	20.9	17	28.5	31	33.5	22	57.2
16	1/8	KQT16-U03	22	26.5	21	33	40.5	33	24	71
16	1/8	KQT16-U04	22	26.5	21	33	40.5	35	24	100

H: Width Across Flats



Applicable Tube OD mm	Connection Thread	Model	H	oD1	oD2	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	12.7	11.4	10	19.5	20.5	22.5	16	3.5
3/16	1/4	KQT05-U02	14.29	11.4	10	19.5	20.5	22.5	16	3.5
1/4	1/8	KQT07-U01	11.11	13.2	10	20.5	23.5	24.5	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	KQT11-U02	17.46	17.9	17	25.5	26.5	29.5	21	7
3/8	1/2	KQT11-U04	17.46	17.9	17	25.5	27	30	21	7
1/2	1/4	KQT13-U02	17.46	21.7	17	28	28.5	33	22	9
1/2	3/8	KQT13-U04	22.23	21.7	17	28	32	35	22	9.6

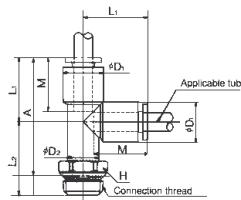
H: Width Across Flats

**MORE SELECTIONS
SEE NEXT PAGE**



MALE RUN TEE : KQY (KQ2Y)

Use to branch line in the same direction from female thread and in 90° direction.

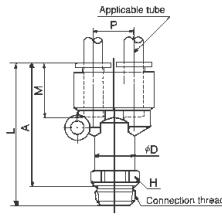


SERIES KQ: BLACK BODY FITTINGS
 AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS
 AVAILABLE IN THE USA

Applicable Tube OD mm	Connection Thread	Model	H (Width Across Flats)	øD1	øD2	L1	L2	A	M	Effective Orifice (mm² Nylon)
4	1/8	KQY04-U01	10	10.4	10	18	20	34	16	6.4
4	1/8	KQY04-U02	14	10.4	10	18	22	34.5	16	6.4
6	1/8	KQY06-U01	10	12.8	10	20	21.5	37.5	17	13.4
6	1/8	KQY06-U02	14	12.8	10	20	23	37	17	13.4
6	1/8	KQY06-U03	17	12.8	10	20	24	38	17	13.4
8	1/8	KQY08-U01	12	15.2	12	23	22.5	41.5	18.5	25.6
8	1/8	KQY08-U02	14	15.2	12	23	24.5	41.5	18.5	25.6
8	1/8	KQY08-U03	17	15.2	12	23	25.5	42.5	18.5	25.6
10	1/8	KQY10-U01	17	18.5	17	26.5	25	46.5	21	40
10	1/8	KQY10-U02	17	18.5	17	26.5	26.5	47.5	21	40
10	1/8	KQY10-U03	17	18.5	17	26.5	27	48	21	40
10	1/2	KQY10-U04	22	18.5	17	26.5	30	49	21	40
12	1/4	KQY12-U02	17	20.9	17	28.5	27	49.5	22	57.4
12	1/4	KQY12-U03	17	20.9	17	28.5	28	50.5	22	57.4
12	1/4	KQY12-U04	22	20.9	17	28.5	31	51.5	22	57.4
16	1/4	KQY16-U03	22	26.5	21	33	40.5	66	24	81
16	1/4	KQY16-U04	22	26.5	21	33	40.5	63	24	113


BRANCH "Y" : KQU (KQ2U)

Use to branch line in the same direction from female thread.

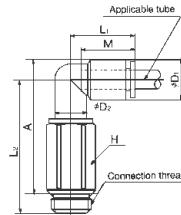
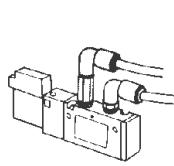


Applicable Tube OD mm	Connection Thread	Model	H (Width Across Flats)	øD	L	P	A	M	Effective Orifice (mm² Nylon)
4	1/8	KQU04-U01	11	10.4	40	10.4	36	16	4.2
4	1/8	KQU04-U02	14	10.4	42	10.4	36	16	4.2
6	1/8	KQU06-U01	13	12.8	43.5	12.8	39.5	17	13.4
6	1/8	KQU06-U02	14	12.8	45	12.8	39	17	13.4
6	1/8	KQU06-U03	17	12.8	46	12.8	40	17	13.4
8	1/8	KQU08-U01	17	15.2	50.5	15.2	46.5	18.5	25.6
8	1/8	KQU08-U02	17	15.2	52	15.2	46	18.5	25.6
8	1/8	KQU08-U03	17	15.2	51.5	15.2	45.5	18.5	25.6
10	1/8	KQU10-U02	19	18.5	57.5	18.5	51.5	21	40
10	1/8	KQU10-U03	19	18.5	57.5	18.5	51.5	21	40
10	1/2	KQU10-U04	22	18.5	59	18.5	51	21	40
12	1/4	KQU12-U02	22	20.9	61	20.9	55	22	57.4
12	1/4	KQU12-U03	22	20.9	61	20.9	55	22	57.4
12	1/4	KQU12-U04	22	20.9	62.5	20.9	54.5	22	57.4


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.



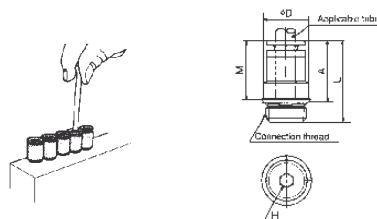
Applicable Tube OD mm	Connection Thread	Model	H (Width Across Flats)	øD1	øD2	L1	L2	A	M	Effective Orifice (mm² Nylon)
4	1/8	KQW04-U01	10	10.4	10	18	34.5	35.5	16	4
4	1/8	KQW04-U02	14	10.4	10	18	37	38.5	16	4
6	1/8	KQW06-U01	10	12.8	10	20	38.5	41	17	10.9
6	1/8	KQW06-U02	14	12.8	10	20	40.5	41	17	10.9
6	1/8	KQW06-U03	17	12.8	10	20	41.5	42	17	10.9
8	1/8	KQW08-U01	12	15.2	12	23	43.5	47.5	18	20.5
8	1/8	KQW08-U02	14	15.2	12	23	45.5	47	18	20.5
8	1/8	KQW08-U03	17	15.2	12	23	46.5	48	18	20.5
10	1/8	KQW10-U02	17	18.5	17	26.5	52.5	56	21	33.5
10	1/8	KQW10-U03	17	18.5	17	26.5	52.5	56	21	33.5
10	1/8	KQW10-U04	22	18.5	17	26.5	54.5	56	21	33.5
12	1/4	KQW12-U02	17	20.9	17	28.5	54	58.5	22	47.7
12	1/4	KQW12-U03	17	20.9	17	28.5	54	58.5	22	47.7
12	1/4	KQW12-U04	22	20.9	17	28.5	56	58.5	22	47.7

Applicable Tube OD Inch	Connection 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	22.5	34.5	16	3
3/16	1/8	KQW05-U01	11.11	11.4	10	19.5	20.5	36	16.5	3.5
3/16	1/4	KQW05-U02	14.29	11.4	10	20.5	21.5	38	17	4.6
1/4	1/4	KQW07-U01	11.11	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	12.7	11.11	13.2	20.5	21.5	38	17
5/16	1/4	KQY09-U02	14.29	12.7	11.11	13.2	20.5	21.5	38	17
3/8	1/4	KQY11-U01	17.46	13.2	11.11	13.2	20.5	21.5	46.5	21
3/8	3/8	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	22.23	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



HEXAGON SOCKET HEAD MALE CONNECTOR : KQS (KQ2S)

Male connector for narrow space to tighten hexagon socket head in body by hexagon wrench.



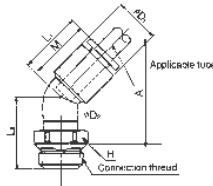
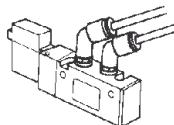
Applicable Tube OD mm	Connection Thread Uni Thread	Model	H (Width Across Flats)	ϕD	L	A	M	Effective Orifice (mm²) Nylon
4	1/8	KQS04-U01	3	10	23	18	16	4.1/3.6
6	1/8	KQS06-U01	4	11.8	24	19	17	10/9.9
6	1/8	KQS06-U02	4	13.5	25	18.5	17	10.7/10
8	1/8	KQS08-U01	5	14	29	22	18.5	17.2/16.2
8	1/8	KQS08-U02	6	14	28	21.5	18.5	23.3/16.2
8	1/8	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	1/8	KQS10-U02	8	17	28.5	22	21	39/26.6
10	1/8	KQS10-U03	8	17	26.5	20	21	39/26.6
10	1/8	KQS10-U04	8	21	27	19	21	39/26.6
12	1/8	KQS12-U02	8	19	35	25.5	22	46/44.5
12	1/8	KQS12-U03	9	19	28	19	22	60/44.5
12	1/8	KQS12-U04	9	21	27	19	22	60/44.5



45° MALE ELBOW : KQK (KQ2K)

Use to tubing toward 45° from the thread part.

Intermediate type between the male connector and the male elbow.

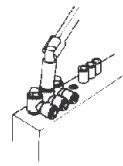
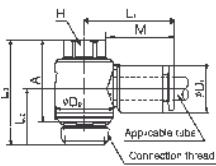


Applicable Tube OD mm	Connection Thread Uni Thread	Model	H (Width Across Flats)	ϕD_1	ϕD_2	L1	L2	A	M	Effective Orifice (mm²) Nylon
4	1/8	KQK04-U01	10	10.4	10	17	18.5	30	16	3.4
4	1/8	KQK04-U02	14	10.4	10	17	20.5	30.5	16	3.4
6	1/8	KQK06-U01	10	12.8	10	18	18.5	31	17	8.7
6	1/8	KQK06-U02	14	12.8	10	18	20.5	31	17	8.7
6	1/8	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	1/8	KQK08-U02	14	15.2	12	20.5	22	35	18.5	19.7
8	1/8	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	1/8	KQK10-U02	17	18.5	17	24	23.5	40.5	21	30.9
10	1/8	KQK10-U03	17	18.5	17	24	24	41	21	30.9
10	1/8	KQK10-U04	22	18.5	17	24	27	42	21	30.9
12	1/8	KQK12-U02	17	20.9	17	25	24	42	22	44.5
12	1/8	KQK12-U03	17	20.9	17	25	24.5	42.5	22	44.5
12	1/8	KQK12-U04	22	20.9	17	25	27.5	43.5	22	44.5



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)	ϕD_1	ϕD_2	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	1/8	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	1/8	KQV08-U02	12	15.2	17.6	28.5	16.5	29.5	23.5	18.5	11.2
8	1/8	KQV08-U03	14	15.2	20.6	27.5	18.5	34	28	18.5	14.3
10	1/8	KQV10-U02	14	18.5	20.6	31	18.5	34	28	21	27
10	1/8	KQV10-U03	14	18.5	20.6	31	18.5	34	28	21	27
12	1/8	KQV12-U03	17	20.9	25.2	34	20	36.5	30.5	22	39
12	1/8	KQV12-U04	17	20.9	25.2	34	22.5	39.5	31.5	22	39

SERIES KQ: BLACK BODY FITTINGS

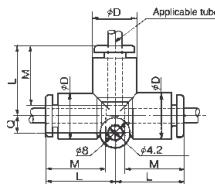
AVAILABLE IN CANADA

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	ϕD	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	ϕD	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)

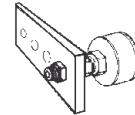
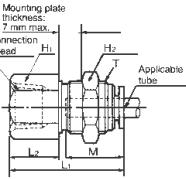
Note) Parenthesized Dimensions are for Soft Nylon

DIFFERENT DIAMETER UNION TEE : KQT (KQ2T)

Applicable Tube OD mm	Model	ϕD_1	ϕD_2	L1	L2	Q	M1	M2	Effective Orifice (mm²) Nylon Urethane
A 3.2	KQT23-04	10.4	9.6	18.3	17.5	4.3	16	15.5	3.8 3.5
B 4	KQT04-06	12.8	10.4	19.3	18	4.5	17	16	7.1 6.5
B 6	KQT06-08	15.2	12.8	22.7	20	5.3	18.5	17	16.4 16.4
B 8	KQT08-10	18.5	15.2	26.4	23	6	21	18.5	36 27.2
B 10	KQT10-12	20.9	18.5	28.4	26.5	6.8	22	21	56 44.5


BULKHEAD CONNECTOR : KQE (KQ2E)

Use for connection of a tube and a male thread for installation on panel.

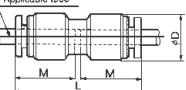


Applicable Tube OD mm	Connection Thread Rc(PT)	Model	T (M)	H1 (Width Across Flats)	H2 (Width Across Flats)	L1	L2	Mounting Hole M	Effective Orifice (mm²) Nylon/Ureth
3.2	1/4	KQE23-02	M12x1	17	14	31.5	15.5	13	15.5 3.4/2.9
4	1/4	KQE04-01	M12x1	14	14	27.5	11	13	16 5.6
4	1/4	KQE04-02	M12x1	17	14	31	15	13	16 5.6
6	1/4	KEQ06-01	M14x1	17	17	28	11	15	17 13.1
6	1/4	KEQ06-02	M14x1	17	17	31.5	15	15	17 13.1
6	1/4	KEQ06-03	M14x1	19	17	33.5	17	15	17 13.1
8	1/4	KEQ08-02	M16x1	17	19	33	12	17	18.5 26.1/18
8	1/4	KEQ08-03	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	1/4	KEQ10-03	M20x1	24	24	34.5	15	21	21 41.5/29.5
12	1/4	KEQ12-03	M22x1	24	27	37	15	23	22 58.3/46.1
12	1/4	KEQ12-04	M22x1	24	27	41	18	23	22 58.3/46.1
16	1/4	KEQ16-03	M26x1.5	30	30	39	14	27	24 96(96)
16	1/4	KEQ16-04	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	15	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


STRAIGHT UNION : KQH (KQ2H)

Use to connect tubes in the same direction.



Applicable Tube OD mm	Model	ϕD	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	ϕD	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	ϕD	L	M1	M2	Effective Orifice (mm²) Nylon Urethane
A 3.2	KQH23-04	10.4	32.5	15.5	16	3.2 2.7
B 4	KQH04-06	12.8	34.5	16	17	4.2 4.2
A 6	KQH06-08	15.2	38.5	17	18.5	10.7 10.7
B 8	KQH08-10	18.5	42	18.5	21	24.1 16.7
A 10	KQH10-12	20.9	44.5	21	22	37.6 28.2

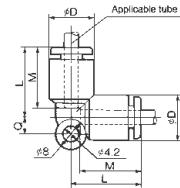
SERIES KQ2 ONE TOUCH FITTINGS



PRODUCT
SELECTOR

UNION ELBOW : KQL (KQ2L)

Use to connect tubes in right angle.



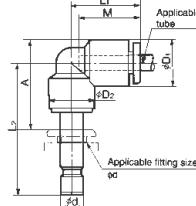
Applicable Tube OD mm	Model	øD	L	Q	M	Effective Orifice (mm ²) Nylon/Urethane
3.2	KQL23-00	9.6	17.5	4.3	15.5	3/2.5
4	KQL04-00	10.4	18	4.5	16	4.2/4.2
6	KQL06-00	12.8	20	5.3	17	11.4/11.4
8	KQL08-00	15.2	23	6	18.5	21.6/14.9
10	KQL10-00	18.5	26.5	6.8	21	35.2/25
12	KQL12-00	20.9	28.5	7.5	22	50.2/39.7
16	KQL16-00	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.



SERIES KQ: BLACK BODY FITTINGS

AVAILABLE IN CANADA

SERIES KQ2: WHITE BODY FITTINGS
AVAILABLE IN THE USA

REDUCER ELBOW : KQL (KQ2L)

Use to change by 90° in tube fetching direction from one-touch fittings and to size down.

Plug-in Elbow: KQL/KQ2L

Applicable Tube OD mm	Applicable Fitting Size ø	Model	øD1	øD2	L1	L2	A	M	Effective Orifice (mm ²) 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 (mm ²) 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

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)

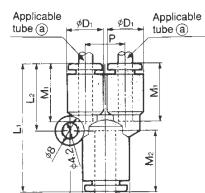
Applicable Tube OD mm	Model	øD1	L1	L2	P	Q	M	Effective Orifice (mm ²) Nylon/Urethane
3.2	KQU23-00	9.6	33	17.5	9.6	9	15.5	3.4/2.9
4	KQU04-00	10.4	34	18	10.4	9.7	16	4.2/4.2
6	KQU06-00	12.8	37	20	12.8	11.7	17	13.4/13.4
8	KQU08-00	15.2	42.5	24.5	15.2	13.7	18.5	25.6/17.7
10	KQU10-00	18.5	48	27.5	18.5	16.1	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 (mm ²) Nylon/Urethane
3.2	KQU23-04	9.6	10.4	33.5	17.5	9.6	9	15.5	16	3.2/2.7
4	KQU04-06	10.4	12.8	35	18	10.4	9.7	16	17	4.2/4.2
6	KQU06-08	12.8	15.2	39.5	20	12.8	11.7	17	18.5	13.4/13.4
8	KQU08-10	15.2	18.5	45	24.5	15.2	13.7	18.5	21	25.6/17.7
10	KQU10-12	18.5	20.9	49	27.5	18.5	16.1	21	22	40/28.4

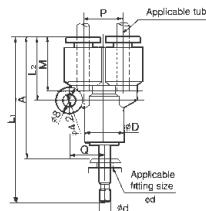
UNION "Y" : KQU (KQ2U)

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




PLUG-IN "Y" : KQU (KQ2U)

Use to branch tubing in the same direction from one-touch fittings.



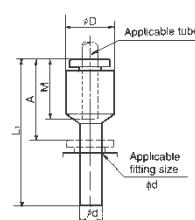
Applicable Tube OD mm	Applicable Fitting Size od	Model	$\phi D1$	L1	L2	P	Q	A	M	Effective Orifice (mm ²) Nylon/Urethane
3.2	3.2	KQU23-99	9.6	52	17.5	9.6	9	36.5	15.5	3.4/2.9
4	4	KQU04-99	10.4	53	18	10.4	9.7	37	16	4.2/4.2
6	6	KQU06-99	12.8	57	20	12.8	11.7	40	17	13.4163.4
8	8	KQU08-99	15.2	64.5	24.5	15.2	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


PLUG-IN REDUCER: KQR(KQ2R)

Use to change size of one-touch fittings.



Applicable Tube OD Inch	Applicable Fitting Size od	Model	$\phi D1$	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

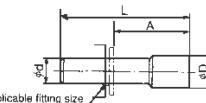


Applicable Tube OD mm	Applicable Fitting Size od	Model	ϕD	L	A	M	Effective Orifice (mm ²) Nylon/Urethane
3.2	4	KQR23-04	9.2	34	17.5	15.5	3.4/2.9
4	6	KQR04-06	10.4	34.5	17.5	16	5.6/5.6
4	8	KQR04-08	10.4	36.5	18.5	16	5.6/5.6
4	10	KQR04-10	12.8	39.5	18.5	16	5.6/5.6
6	4	KQR06-04	12	37.5	21.5	17	4/4
6	8	KQR06-08	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


PLUG : KQP (KQ2P)

Use to shut no use one-touch fittings.

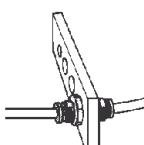


Applicable Fitting Size od mm	Model	ϕD	L	A
3.2	KQP-23	3.2	31.5	16
4	KQP-04	6	32	16
6	KQP-06	8	35	18
8	KQP-08	10	39	20.5
10	KQP-10	12	43	22
12	KQP-12	14	46	24
16	KQP-14	21	47	23

Applicable Fitting Size od Inch	Model	ϕD	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


BULKHEAD UNION : KQE (KQ2E)

Use to junction connection of tubes for installation of panel.


SERIES KQ: BLACK BODY FITTINGS

AVAILABLE IN CANADA

SERIES KQ2: WHITE BODY FITTINGS

AVAILABLE IN THE USA

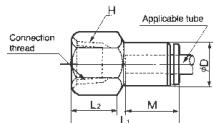
Applicable Tube OD mm	Model	T (M)	H (Width Across Flats)	L	Mounting Hole	M	Effective Orifice (mm ²) Nylon/Urethane
3.2	KQE23-00	M12x1	14	31.5	13	15.5	3.4/2.9
4	KQE04-00	M12x1	14	32.5	13	16	5.6/5.6
6	KQE06-00	M14x1	17	34.5	15	17	13.1/13.1
8	KQE08-00	M16x1	19	38	17	18.5	26.1/18
10	KQE10-00	M20x1	24	42.5	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

**FEMALE UNION : KQF (KQ2F)**

Use to pipe from male thread portion such as pressure gauge.



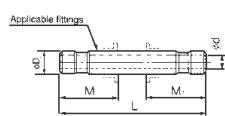
Applicable Tube OD mm	Connection Thread	Model	H (Width Across Flats)	ϕD	L1	L2	M	Effective Orifice (mm ²) Nylon
4	1/8	KQF04-01	14	10	27	11	16	5.6
4	1/4	KQF04-02	17	10	31	14	16	5.6
6	1/8	KQF06-01	14	12	27.5	11	17	13.1
6	1/4	KQF06-02	17	12	31	13	17	13.1
6	3/8	KQF06-03	19	12	33.5	15	17	13.1
8	1/8	KQF08-01	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

**NIPPLE : KQN (KQ2N)**

Use to connect the one-touch fittings

DIFFERENT DIAMETER NIPPLE : KQN (KQ2N)

Use to connect different size one-touch fittings.



Differential Diameter Nipple KQN

Applicable Fittings ϕD	Model	L	M	ϕD	Weight g
4	KQN04-99	37	16	2.5	2.2
6	KQN06-99	39	17	4.4	3.9
8	KQN08-99	43	18.5	6	7.3
10	KQN10-99	49	21	8	10.4
12	KQN12-99	52	22	9	20.6

Differential Diameter Nipple KQN

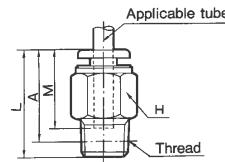
Applicable Fittings	Model	L	M1	M2	ϕD	Weight g
a b						
4 6	KQN04-06	38	17	16	2.5	4.7
6 8	KQN06-08	42	18.5	17	4	8.7
8 10	KQN08-10	47	21	18.5	6	13.2
10 12	KQN10-12	51	22	21	8	18.2

SERIES KQ: BLACK BODY FITTINGS

AVAILABLE IN CANADA

SERIES KQ2: WHITE BODY FITTINGS

AVAILABLE IN THE USA

**PRODUCT
SELECTOR**
MALE CONNECTOR: KQH (KQ2H)


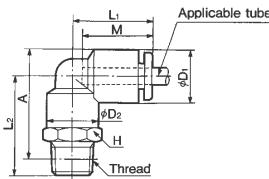
Applicable Tube OD (mm)	Thread R(PT)	Model	H	L	•A	M	Effective Orifice (mm ²)		Weight (g)
			(Hex)		Nylon	Urethane			
3.2	M5x0.8	KQH23-M5	8.7	22.5	20	15.5	3.4	2.9	5
3.2	1/8	KQH23-01S	10	22	18	15.5	3.4	2.9	9
3.2	1/4	KQH23-02S	14	21	15	15.5	3.4	2.9	16
4	M5x0.8	KQH04-M5	9.8	23.5	20	16	4	4	8
4	1/8	KQH04-01S	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	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	ØD ₁	ØD ₂	L ₁	L ₂	•A	M	Effective Orifice (mm ²) Nylon/Urethane	Weight (g)
			(Hex)								
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**


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

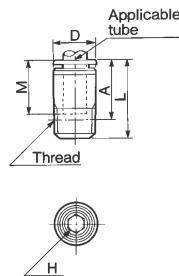
PRODUCT
SELECTOR

HEXAGON SOCKET HEAD

MALE CONNECTOR: KQS (KQ2S)

Applicable Tube OD (mm)	Thread R(PT)	Model	H (Hex)	ØD	L	•A	M	Effective Orifice (mm ²)	Nylon	Urethane	Weight (g)
4	M5x0.8	KQS04-M5	2	9.8	23	19.5	16	2.7	2.7	2.7	6.3
4	1/8	KQS04-01S	3	9.8	23	19	16	4.1	3.6	3.6	7.8
6	M5x0.8	KQS06-M5	2	11.8	24	20.5	17	2.7	2.7	2.7	8.5
6	1/8	KQS06-01S	4	11.8	24	20	17	10.0	9.9	9.9	8.9
6	1/4	KQS06-02S	4	13.8	25	19	17	10.7	10.0	10.0	14.8
8	1/8	KQS08-01S	5	14	28	24	18.5	17.2	16.2	16.2	12.4
8	1/4	KQS08-02S	6	14	25.5	19.5	18.5	23.3	16.2	16.2	11.3
8	3/8	KQS08-03S	6	17	26.5	20	18.5	23.3	16.2	16.2	23.8
10	1/8	KQS10-01S	5	17	30	26	21	17.2	10.0	10.0	17.9
10	1/4	KQS10-02S	8	17	26.5	20.5	21	39	26.6	26.6	11.8
10	3/8	KQS10-03S	8	17	26.5	20	21	39	26.6	26.6	18.5
10	1/2	KQS10-04S	8	22	27	19	21	39	26.6	26.6	35.2
12	1/8	KQS12-02S	8	19	33.5	27.5	22	46.0	44.5	44.5	23.4
12	3/8	KQS12-03S	9	19	28	21.5	22	60	44.5	44.5	17.7
12	1/2	KQS12-04S	9	22	27	19	22	60	44.5	44.5	29.6

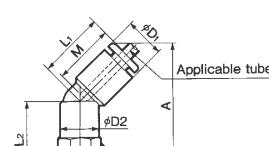
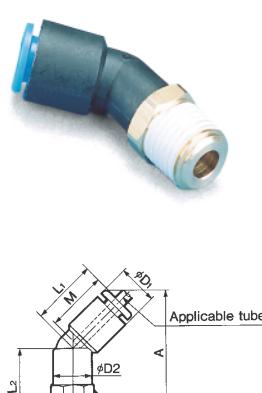
• Reference dimensions after PT thread installation.

PRODUCT
SELECTOR

45° MALE ELBOW: KQK (KQ2K)

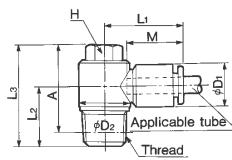
Applicable Tube OD (mm)	Thread R(PT)	Model	H (Hex)	ØD ₁	ØD ₂	L ₁	L ₂	•A	M	Effective Orifice (mm ²)	Nylon	Urethane	Weight (g)
4	M5x0.8	KQK04-M5	8	10.4	8	17	14.5	26	16	3.4	3.4	3.4	4
4	1/8	KQK04-01S	10	10.4	10	17	20.5	32	16	3.4	3.4	3.4	10
4	1/4	KQK04-02S	14	10.4	10	17	24.5	34	16	3.4	3.4	3.4	19
6	M5x0.8	KQK06-M5	8	12.8	8	18	14.5	26	17	3.4	3.4	3.4	6
6	1/8	KQK06-01S	10	12.8	10	18	20.5	33	17	8.7	8.7	8.7	12
6	1/4	KQK06-02S	14	12.8	10	18	24.5	35	17	8.7	8.7	8.7	10
6	3/8	KQK06-03S	17	12.8	10	18	26.5	36.5	17	8.7	8.7	8.7	33
8	1/8	KQK08-01S	12	15.2	12	20.5	22	37	18.5	19.7	19.7	19.7	13
8	1/4	KQK08-02S	14	15.2	12	20.5	26	39	18.5	19.7	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	19.7	35
10	1/8	KQK10-01S	17	18.5	17	24	24	42	21	30.9	23.2	23.2	25
10	1/4	KQK10-02S	17	18.5	17	24	27	43.5	21	30.9	23.2	23.2	26
10	3/8	KQK10-03S	17	18.5	17	24	29	45	21	30.9	23.2	23.2	36
10	1/2	KQK10-04S	22	18.5	17	24	33	47.5	21	30.9	23.2	23.2	63
12	1/8	KQK12-02S	17	20.9	17	25	27.5	45.5	22	44.5	35.1	35.1	28
12	3/8	KQK12-03S	17	20.9	17	25	29.5	47	22	44.5	35.1	35.1	38
12	1/2	KQK12-04S	22	20.9	17	25	33.5	49.5	22	44.5	35.1	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)	$\varnothing D_1$	$\varnothing D_2$	L ₁	L ₂	L ₃	•A	M	Effective Orifice (mm ²) Nylon 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	5/16	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	5/16	KQV10-03S	14	18.5	20.6	31	20.9	36.5	30	21	27	20.3	49
12	5/16	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

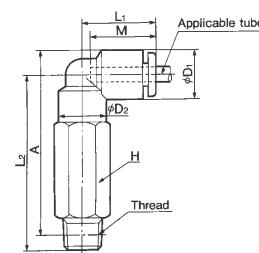
• Reference dimensions after PT thread installation.

**PRODUCT
SELECTOR**

EXTENDED MALE ELBOW: KQW (KQ2W)

Applicable Tube OD (mm)	Thread R(PT)	Model	H (Hex)	$\varnothing D_1$	$\varnothing D_2$	L ₁	L ₂	•A	M	Effective Orifice (mm ²) Nylon 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	5/16	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	5/16	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	5/16	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	5/16	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.

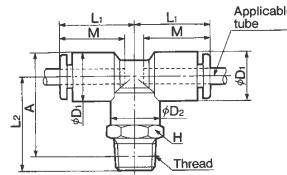


Applicable Tube OD (Inch)	Thread UNF NPT	Model	H (Hex)	$\varnothing D_1$	$\varnothing D_2$	L ₁	L ₂	•A	M	Minimum Hole Diameter	Weight (g)
1/8	1/8	KQW01-34S	11.11	9.6	10	17.5	37	38	15.5	2.5	19
1/8	1/4	KQW01-35S	14.29	9.6	10	17.5	43	42	15.5	2.5	41
5/32	1/8	KQW03-34S	11.11	10.4	10	18	37.5	38.5	16	3	19
5/32	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

**SERIES KQ: BLACK BODY FITTINGS
AVAILABLE IN CANADA**
**SERIES KQ2: WHITE BODY FITTINGS
AVAILABLE IN THE USA**

PRODUCT
SELECTOR

BRANCH TEE: KQT (KQ2T)



Applicable Tube OD (mm)	Thread R(PT)	Model	H (Hex)	ØD ₁	ØD ₂	L ₁	L ₂	•A	M	Effective Orifice (mm ²)		Weight (g)
										Nylon	Urethane	
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	1/8	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)	ØD ₁	ØD ₂	L ₁	L ₂	•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

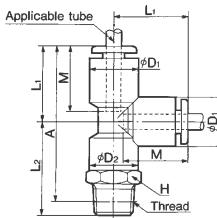
AVAILABLE IN CANADA

SERIES KQ2: WHITE BODY FITTINGS

AVAILABLE IN THE USA

PRODUCT
SELECTOR

MALE RUN TEE: KQY (KQ2Y)



Applicable Tube OD (mm)	Thread R(PT)	Model	H (Hex)	ØD ₁	ØD ₂	L ₁	L ₂	•A	M	Effective Orifice (mm ²)		Weight (g)
										Nylon	Urethane	
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	1/4	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	1/8	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)	ØD ₁	ØD ₂	L ₁	L ₂	•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 (R $\frac{1}{2}$)
- ✓ Large range of tube sizes from Ø4mm to Ø16mm
- ✓ Threads come with applied sealant (no tape required)

PRODUCT SELECTOR

SINGLE BANJO: KQVS/KQ2VS
6mm - R $\frac{1}{4}$ (Allen)



PRODUCT SELECTOR

TWIN MALE ELBOW: KQLU/KQ2LU
TWIN UNION ELBOW: KQLU/KQ2LU
4mm - R $\frac{1}{4}$ & 4mm tube for union



PRODUCT SELECTOR

SINGLE BANJO: KQVF/KQ2VF
6mm - R $\frac{1}{4}$ (Stack)



PRODUCT SELECTOR

90° FEMALE ELBOW: KQLF/KQ2LF
6mm - R $\frac{1}{4}$



PRODUCT SELECTOR

DOUBLE BANJO: KQVD/KQ2VD
4mm - R $\frac{1}{4}$



PRODUCT SELECTOR

TRIPLE BANJO: KQVT/KQ2VT
4mm - R $\frac{1}{4}$



PRODUCT SELECTOR

TWIN BANJO: KQZ/KQ2Z
6mm - R $\frac{1}{4}$



PRODUCT SELECTOR

TWIN BANJO: KQZF/KQ2ZF
6mm - R $\frac{1}{4}$ (Stack)



PRODUCT SELECTOR

QUADRUPLE BANJO: KQZD/KQ2ZD
4mm - R $\frac{1}{4}$



PRODUCT SELECTOR

SEXTUPLE BANJO: KQZT/KQ2ZT
4mm - R $\frac{1}{4}$



PRODUCT SELECTOR

LONG STEM ELBOW: KQW/KQ2W
6mm



PRODUCT SELECTOR

CORNER MALE ELBOW: KQD/KQ2D
CORNER UNION ELBOW: KQD/KQ2D
4mm - R $\frac{1}{4}$ & 6mm tube for union



PRODUCT SELECTOR

MALE Y: KQUD/KQ2UD
4 x 4mm - R $\frac{1}{4}$



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 - R $\frac{1}{4}$



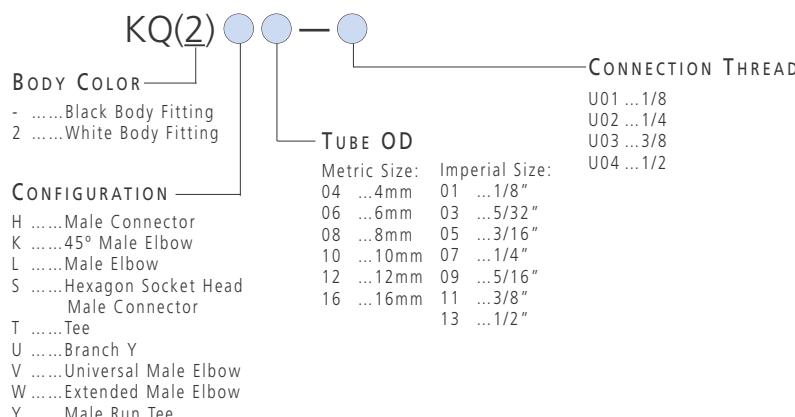
PRODUCT SELECTOR

UNION BLANK: KQC/KQ2C
6mm Tube

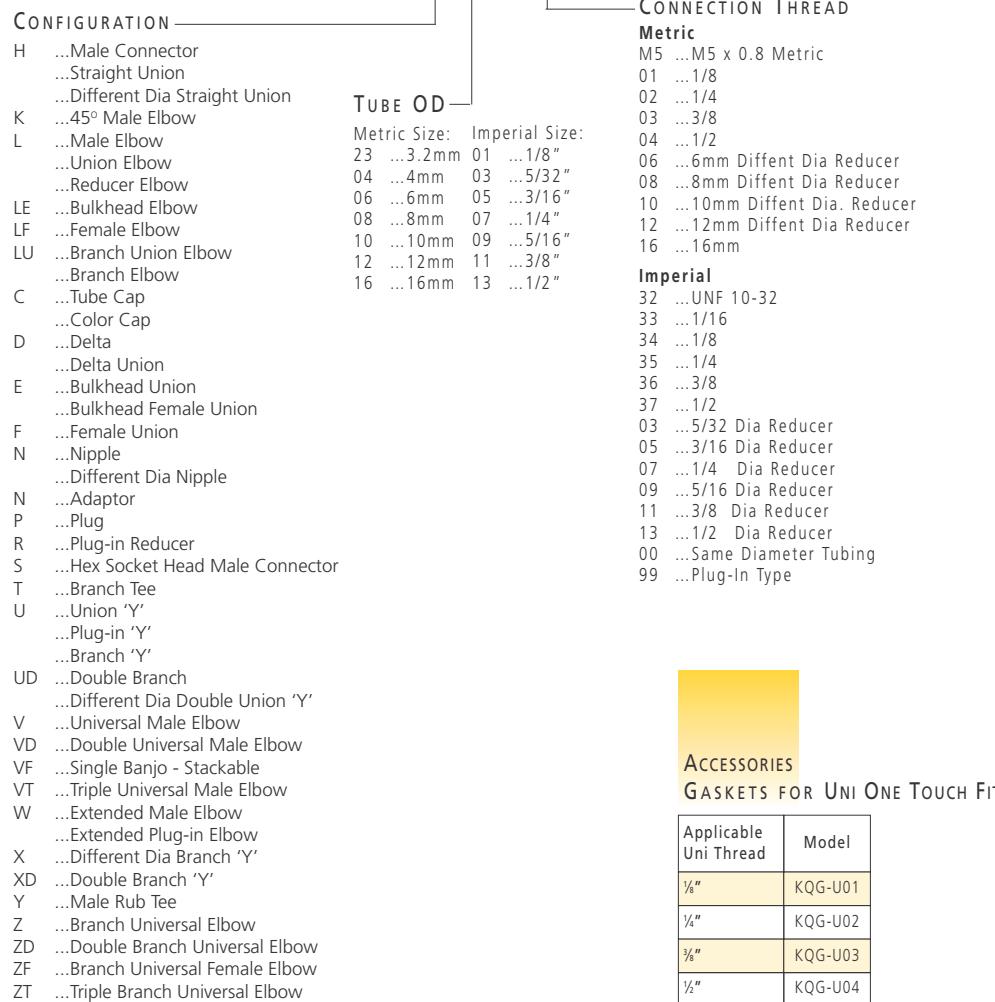


HOW TO
ORDER
SEE NEXT PAGE

SERIES KQ: BLACK BODY FITTINGS
AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS
AVAILABLE IN THE USA

**How To
Order
Uni One Touch Fittings**
**SERIES KQ: BLACK BODY FITTINGS
AVAILABLE IN CANADA**
**SERIES KQ2: WHITE BODY FITTINGS
AVAILABLE IN THE USA**

**How To
Order
One Touch Fittings**
BODY COLOR

-Black Body Fitting
- Release Button:
Imperial: Red
Metric: Blue

2White Body Fitting
Release Button:
Imperial: Orange
Metric: Grey

ACCESSORIES
GASKETS FOR UNI ONE TOUCH FITTINGS

Applicable Uni Thread	Model
1/8"	KQG-U01
1/4"	KQG-U02
3/8"	KQG-U03
1/2"	KQG-U04

Some are available in metric only -
consult SMC for more information.

**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, R $\frac{1}{8}$ ~ R $\frac{1}{2}$ and Uni $\frac{1}{8}$ ~ Uni $\frac{1}{2}$
- ✓ One Touch Collet includes anti tube rotation mechanism
- ✓ Suitable for copper free
- ✓ Pressure or Vacuum Applications



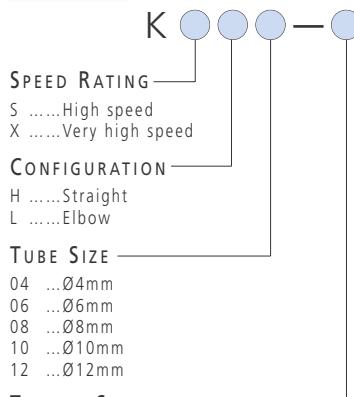
TECHNICAL SPECIFICATIONS

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

How To ORDER

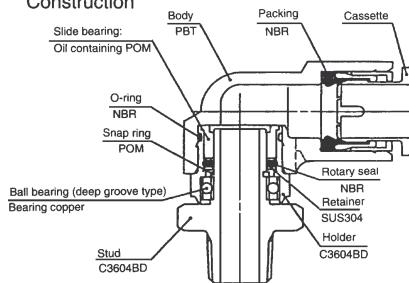
ROTARY ONE TOUCH FITTINGS SERIES KS/KX



THREAD SIZE —
M5 ... M5 (4, 6mm tube sizes only) METRIC
01S ... $\frac{1}{8}$ (4, 6, 8mm tube sizes only) TAPER with sealant
02S ... $\frac{1}{4}$ (6, 8, 10mm tube sizes only) TAPER with sealant
03S ... $\frac{3}{8}$ (8, 10, 12mm tube sizes only) TAPER with sealant
04S ... $\frac{1}{2}$ (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

CONSTRUCTION SPECIFICATIONS

Construction

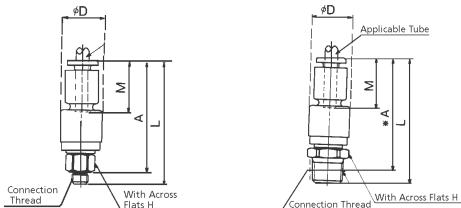


An ambient atmosphere that causes rust is non permissible.



DIMENSIONS
SEE NEXT PAGE

ROTARY ONE TOUCH FITTINGS

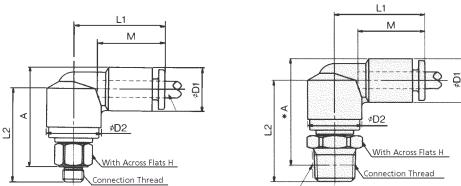
DIMENSIONS
STRAIGHT CONNECTOR:
KSH


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

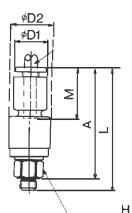
Dimensions in mm

Applicable tube O.D. (mm)	Connection thread	Model	H (Width across flats)	ØD ₁	ØD ₂	L ₁	L ₂	*A	M	Min. hole dia.	Effective orifice (mm²)	Mass (g)
											Nylon	
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

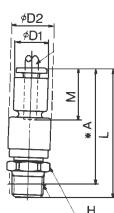
* reference dimensions after thread installation.

DIMENSIONS

STRAIGHT CONNECTOR:
KXH



Metric thread connection



Male pipe thread connection

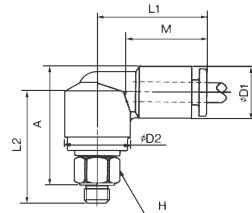
Dimensions in mm

Applicable tube O.D. (mm)	Connection Thread	Model	H (Width across flats)	ØD	L	*A	M	Min. hole dia.	Effective orifice (mm²)		Mass (g)
									Nylon		
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
	1/8	KXH06-02S			44	39					26
8	1/8	KXH08-01S	17	15.2	46	42	18.5	6	26.1		28
	1/8	KXH08-02S			49	43					34
	1/8	KXH08-03S			50	44					42
10	1/8	KXH10-02S	22	18.5	58	52	21	7	36.3		68
	1/8	KXH10-03S			59	52					76
	1/8	KXH10-04S			62	53					94
12	1/8	KXH12-03S	24	20.9	60	54	22	8	46.1		88
	1/8	KXH12-04S			63	55					105

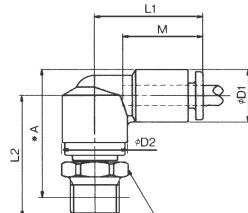
* reference dimensions after thread installation.

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)	ØD1	ØD2	L1	L2	*A	M	Min. hole dia.	Effective orifice (mm²)		Mass (g)
											Nylon		
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
	1/8	KXL06-02S					28	29					26
8	1/8	KXL08-01S	17	15.2	17	27	29	32	18.5	6	21.6		28
	1/8	KXL08-02S					32	33					34
	1/8	KXL08-03S					33	34					43
10	1/8	KXL10-02S	22	18.5	23.5	32	38	42	21	7	30.5		69
	1/8	KXL10-03S					39	42					77
	1/8	KXL10-04S					42	43					95
12	1/8	KXL12-03S	24	20.9	26	35	40	44	22	8	35.1		89
	1/8	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	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Thread Portion</td> <td>JIS B0203 (Taper pipe thread)</td> </tr> <tr> <td>Nut</td> <td>JIS B0211 class 2 (Metric fine thread)</td> </tr> </table>	Thread Portion	JIS B0203 (Taper pipe thread)	Nut	JIS B0211 class 2 (Metric fine thread)
Thread Portion	JIS B0203 (Taper pipe thread)				
Nut	JIS 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				

SYMBOLS



*Dimensions to BS5409 part 1

 PRODUCT
 SELECTOR

 PRODUCT
 SELECTOR

 PRODUCT
 SELECTOR

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 HOW TO
 ORDER
 UNI ONE TOUCH FITTINGS

CONFIGURATION

- HStraight
- LElbow
- TTee
- JStraight plug
- UY Connector
- EBulkhead

TUBE O.D.

- 04 ...4mm
- 06 ...6mm
- 08 ...8mm
- 10 ...10mm
- 12 ...12mm

KC — S

SEALANT

- SWith 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)

OUTLET TUBE OD

- | | |
|-----------|-------------|
| 04 ...4mm | 03 ...5/32" |
| 06 ...6mm | 07 ...1/4" |
| 08 ...8mm | 09 ...5/16" |

INLET PORT THREAD OR TUBE OD

- | | |
|------------|-------------|
| 02 ...1/4" | 35 ...1/4" |
| 03 ...3/8" | 36 ...3/8" |
| 08 ...8mm | 09 ...5/16" |
| 10 ...10mm | 11 ...3/8" |
| 12 ...12mm | 13 ...1/2" |

NUMBER OF OUTLETS

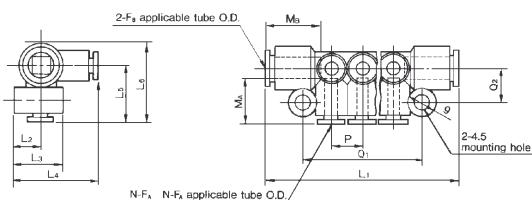
- 33 (KM13, 14, 15, 16)
- 66 (KM11, 12)
- 10 ...10 (KM11, 12)

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

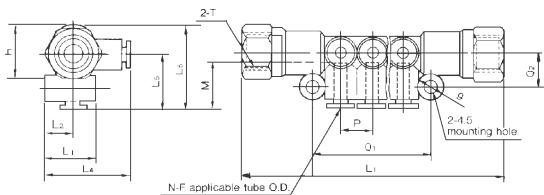


Model (Metric Size)	F _A	F _B	N	L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	P	Q ₁	Q ₂	M _A	M _B	Dimensions in mm		
															Port B min Port Size	Mass (g)	
KM11-04-08-6	4	8	6	65	10	18	29.5	19.5	27	10.6	40	12	16	18.5	6	22	
KM11-04-08-10					10	86					61.5						30
KM11-06-10-6	6	10	6	76							47						32
KM11-06-10-10					10	102	19.5	31.5	21.5	31	13	73	13.5	17	21	7.5	44
KM11-08-12-6	8	12	6	85	11.5	22.5	35.5	24	34.5	15.5	55						44
KM11-08-12-10					10	116					86	14.7	18.5	22	9		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	$\frac{1}{4}$	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	$\frac{1}{4}$	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	$\frac{3}{8}$	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

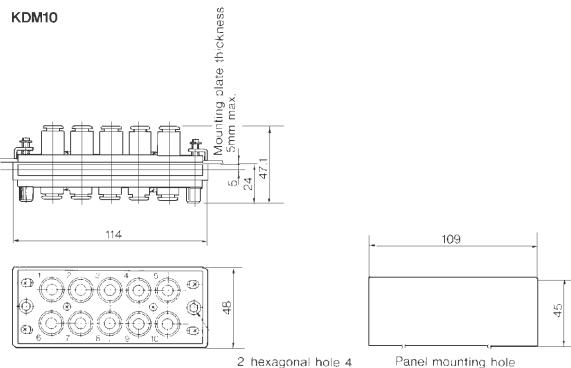
FOR DIMENSIONS ON OTHER KM MODELS,
CONTACT SMC CUSTOMER SERVICE.



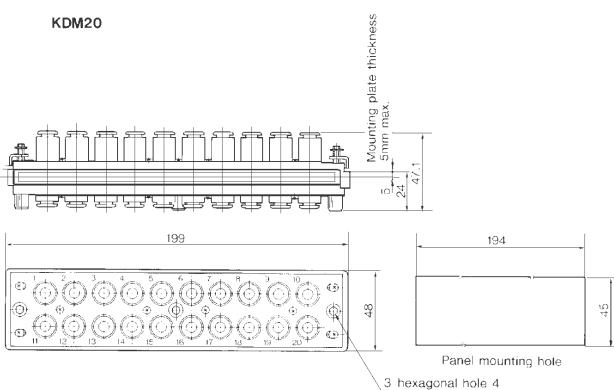
RECTANGULAR MULTI-CONNECTOR SERIES KDM

- ✓ 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



DIMENSIONS KDM20



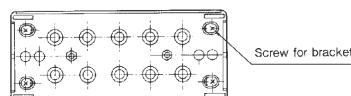
TECHNICAL SPECIFICATIONS

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

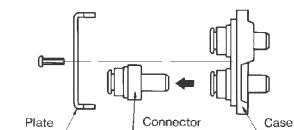
How To Use
SEE NEXT PAGE 

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

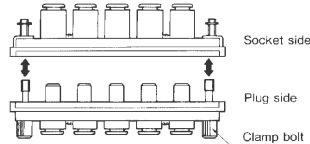
10 ...10 Connections
20 ...20 Connections

OUTLET TUBE O.D.

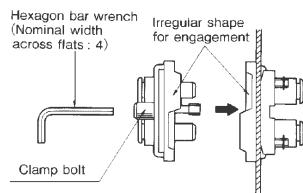
mm	Inch
23	...Ø3.2
01	...Ø1/8
04	...Ø4
03	...Ø5/32
06	...Ø6
07	...Ø1/4
08	...Ø8

HOW TO USE
Separation

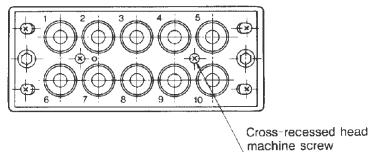
Loosen the clamp bolt to separate the plug side from the socket side.


Connection

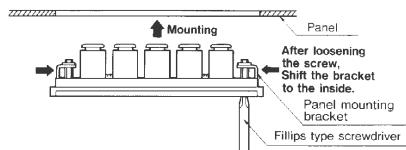
Put together the irregular faces for engagement and connect the plug case to the socket. After tightening the clamp bolt by hand, tighten it further with hexagon bar wrench (nominal width across flats:4).


Panel Mounting

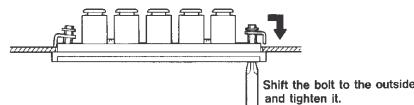
- 1 Loosen (4) screws for bracket on the socket side using a Phillips type screwdriver (JIS nominal No 2) until the bracket touches the stop ring.



- 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.

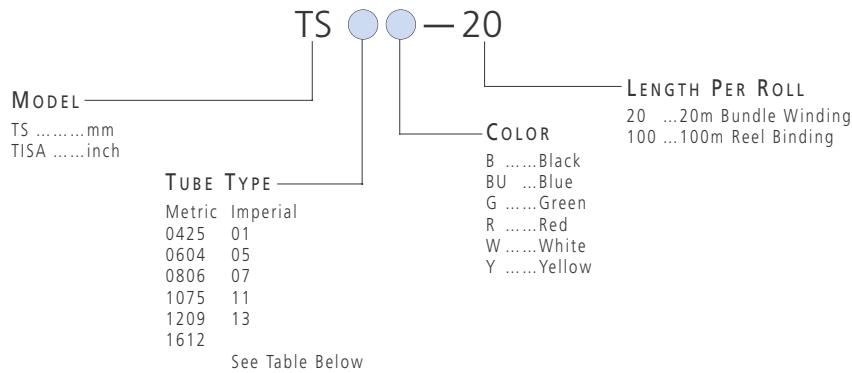
SOFT NYLON TUBING SERIES TS, TISA

High flexibility from a larger diameter tube
(16m OD 12mm ID)



How To Order

SOFT NYLON TUBING SERIES TS & TISA



See Table Below

TECHNICAL SPECIFICATIONS

Notes:

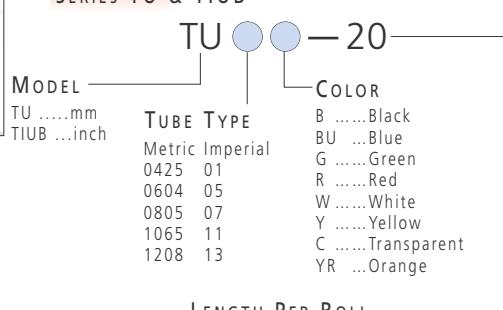
-20~60°C = 4~140°F

POLYURETHANE TUBING SERIES TU, TIUB

Soft and very flexible tubing



HOW TO ORDER POLYURETHANE TUBING SERIES TU & TIUB



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



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

22
33

POLYURETHANE FLAT TUBING SERIES TFU

2 or 3 core flat tubing for neat presentation

**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 ID0425
6mm OD 4mm ID0604
8mm OD 5mm ID0805
No of TUBES
11
22
33

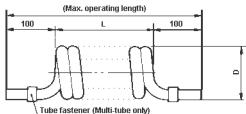
**TECHNICAL
SPECIFICATIONS**

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	
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

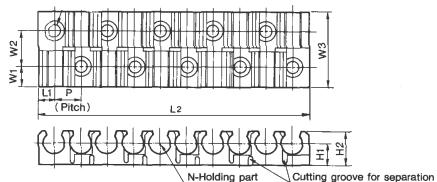
Tube Material	Nylon, Soft Nylon, Polyurethane
Tube OD	Ø4, Ø6, Ø8, Ø10, Ø12
Ambient (*C)	-20 ~ 60°C / 4 ~ 140°F
Material	Flame Resistant Polypropylene
Color	Black

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

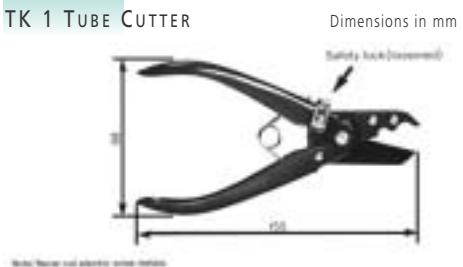
Applicable Tube OD (mm)	Model	N (Number of Holding Parts)	P	L1	L2	W1	W2	W3	H1	H2	ØD	Mounting Tapping Screw Size
												Nominal x Length
4	TM-04	12	6	3.25	72.5	4.5	8	17	5	7.5	2.2	M2x6
6	TM-06	12	7.5	4.5	91.5	5.5	10	21	6.5	10	2.8	M2.6x8
8	TM-08	8	9.5	5.5	77.5	6	11	23	7.5	12	2.8	M2.6x8
10	TM-10	6	12.5	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 CUTTERHow To ORDER
TK TUBE CUTTERTK-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

	(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 carried 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	Ethylene chlorohydrin	Sodium sulphide
Benzyl alcohol	Ethylene dichloride	Styrene
Bromobenzene	Formic acid	Sulphuric chloride
Brake fluids	Ethylene 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

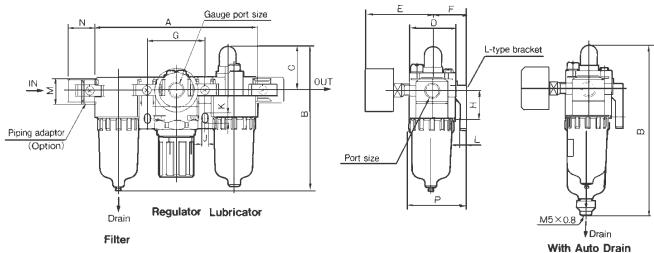


TECHNICAL SPECIFICATIONS

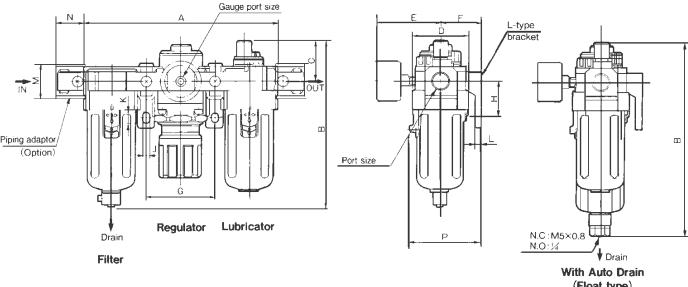
Model		NAC1000	NAC2000	NAC3000	NAC4000	NAC5000	NAC6000	
Combination	Air filter	NAF1000	NAF2000	NAF3000	NAF4000	NAF5000	NAF6000	
	Regulator	NAR1000	NAR2000	NAR3000	NAR4000	NAR5000	NAR6000	
	Lubricator	NAL1000	NAL2000	NAL3000	NAL4000	NAL5000	NAL6000	
Port Size		M5X0.8	1/8, 1/4	1/8	1/2	3/4	1	
Port Size 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 (l/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

DIMENSIONS NAC1000, 2000



DIMENSIONS NAC3000, 4000, 5000, 6000

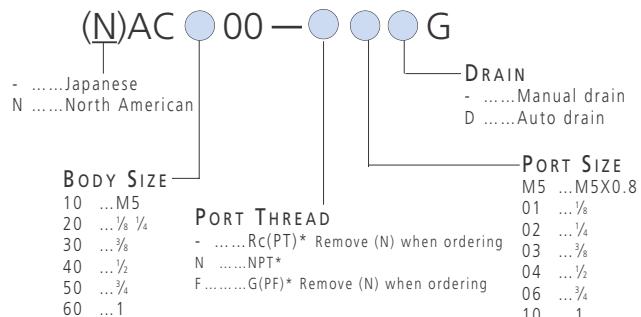


Model	Port size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	With auto drain	
																Float type	Differential pressure type
NAC1000	M5X0.8	91	84.5	25.5	25	26	25	33	20	4.5	7.5	5	17.5	16	38.5	—	86.5
NAC2000	1/8, 1/4	140	125	38	40	56.8	30	50	24	5.5	8.5	5	22	23	50	—	120.5
NAC3000	1/8	181	156.5	38	53	60.8	41	64	35	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	—

MODULAR TYPE (N)AC1000-(N)AC6000 M5-1"

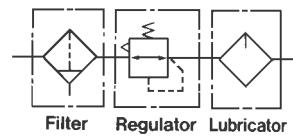
Combination of filter, regulator and lubricator including mounting bracket and pressure gauge

How To ORDER FILTER/REGULATOR/LUBRICATOR



FOR MORE TECHNICAL INFORMATION
ON THIS SERIES, PLEASE REFER TO
CAT:E5G, N5-G1 & N5-G3

S Y M B O L S



MODULAR TYPE (N)AC1010-(N)AC4010 M5-1"

✓ Combination of filter, regulator and lubricator including mounting bracket and pressure gauge



How To ORDER

FILTER/REGULATOR, LUBRICATOR

(N)AC **○** 10 — **○** **○** **G**

BODY SIZE
10 ... M5
20 ... $\frac{1}{8}$ $\frac{1}{4}$
30 ... $\frac{3}{8}$
40 ... $\frac{1}{2}$

-Japanese
NNorth American

DRAIN
-Manual Drain
DAuto Drain

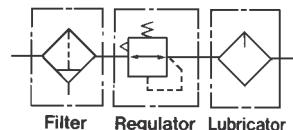
PORT SIZE
M5 ... M5X0.8
01 ... $\frac{1}{8}$
02 ... $\frac{1}{4}$
03 ... $\frac{3}{8}$
04 ... $\frac{1}{2}$

PORT THREAD
-Rc(PT)* Remove (N) when ordering
NNPT*
FG(PF)* Remove (N) when ordering

TECHNICAL SPECIFICATIONS

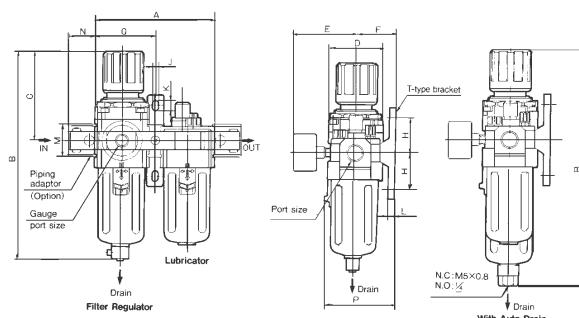
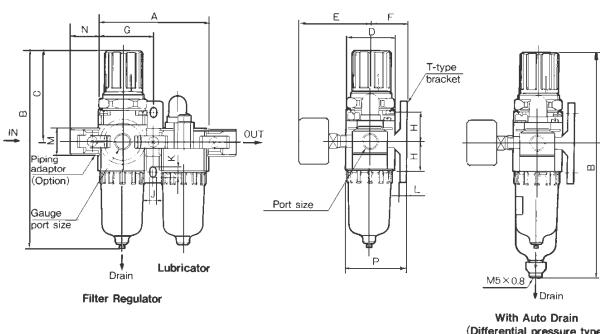
Model	NAC1010	NAC2010	NAC3010	NAC4010
Combination	Filter regulator	NAW1000	NAW2000	NAW3000
	Lubricator	NAL1000	NAL2000	NAL3000
Port Size	M5X0.8	$\frac{1}{8}$, $\frac{1}{4}$	$\frac{3}{8}$	$\frac{1}{2}$
Port Size for Pressure Gauge	$\frac{1}{16}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{4}$
Maximum Supply Pressure		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 (l/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



DIMENSIONS NAC3010, 4010

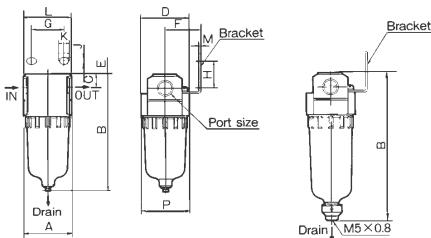
DIMENSIONS NAC1010, 2010



Model	Port size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	With auto drain	
																Float type	Differential pressure type
																N.O.	
																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	$\frac{1}{8}$ $\frac{1}{4}$	90	164.5	78	40	56.8	30	45	24	5.5	8.5	5	22	23	50	—	120.5
NAC3010	$\frac{3}{8}$ $\frac{1}{2}$	117	211	92.5	53	60.8	41	58.5	35	7	11	7	34.2	26	70.5	236.5	—
NAC4010	$\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$	154	262.5	112	70	70.5	50	77	40	9	13	7	42.2	33	88	288	—

DIMENSIONS

NAF1000•2000



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


 TECHNICAL
SPECIFICATIONS

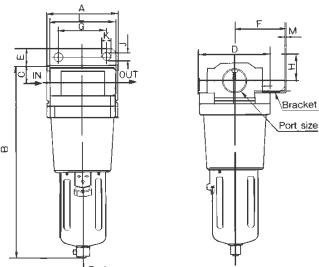
Model	NAF1000	NAF2000	NAF3000	NAF4000	NAF5000	NAF6000
Port size	M5x0.8	1/8 1/4	1/4 3/8	3/8 1/2	3/4 1	1
Flow rate l/n/min*	140	1050	2800	5000	7000	8000
Max supply pressure	1.5MPa / 220PSI					
Max. operating pressure	1MPa / 145PSI					
Ambient and media temperature	5 ~ 60°C / 40~140°F					
Filtration	Standard: 5µm					
Bowl material	Polycarbonate					
Bowl capacity cm³	4	15	20	45	130	130
Min. operating condition for autodrain type	Minimum flow 100 l/n/min					
	Minimum Pressure 0.1MPa / 14.5 PSI					

* 0.7MPa supply, Pressure drop ΔP = 0.05MPa

* Flow data is for new Poly-Element

DIMENSIONS

NAF5000•6000


 How To
ORDER
AIR FILTER

(N)AF — ○ — ○ — ○

 -Japanese
NNorth 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
NNPT
FG(PF)* Remove (N) when ordering

ACCESSORIES

 -Without
DW/Auto Drain
BBracket

PORT SIZE

 M5 ...M5
01 ...1/8
02 ...1/4
03 ...3/8
04 ...1/2
06 ...5/8
10 ...1

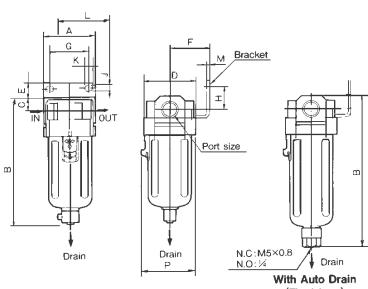
 ACCESSORIES
AIR FILTER

Poly Filter Element	Sintered Bronze Filter Element 5µm	Applicable Filter Series
111344	111344-5B	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 interchangeable		
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

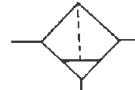
DIMENSIONS

NAF3000•4000



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

SYMBOLS



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



-Japanese
NNorth American

TECHNICAL SPECIFICATIONS

Model	NAR1000	NAR2000	NAR2500	NAR3000	NAR4000	NAR5000	NAR6000
Port Size	M5x0.8	1/8 1/4	1/4 3/8	1/4 3/8	3/8 1/2	3/4 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	1/8	1/4	1/8	1/4	1/4	1/4
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

BODY SIZE

- 10 ...M5
- 20 ...1/8•1/4
- 25 ...1/4•3/8
- 30 ...1/4•1/2•1/4
- 40 ...3/8•1/2•1/4
- 50 ...3/4•1"
- 60 ...1"

0Relieving

- 6With Check Valve
- * Built-in Gauge not available with this option.
Standard on AR1000

GAUGE

- 0With gauge port
- 1With Built-in Gauge
(Available for body sizes 20-40 only)

PORT SIZE

- M5 ...M5
- 01 ...1/8
- 02 ...1/4
- 03 ...3/8
- 04 ...1/2
- 06 ...3/4
- 10 ...1"

PORT THREAD

-Rc(PT)* Remove (N) when ordering
- FPF
- NNPT* Remove (N) when ordering

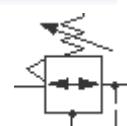
ACCESSORIES

-Without
- GGauge for NAR**01 type
- BBracket

REGULATOR RANGE

-Standard
- 1Low pressure 0.2~2 Bar
- RFor right to left flow (with Built-In Gauge Type only)
- MMetal Seal Type
- NNon-Relieving Type

SYMBOLS



Relieving type



Check valve type

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

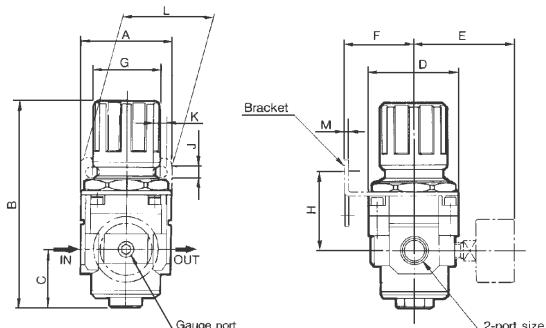
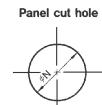
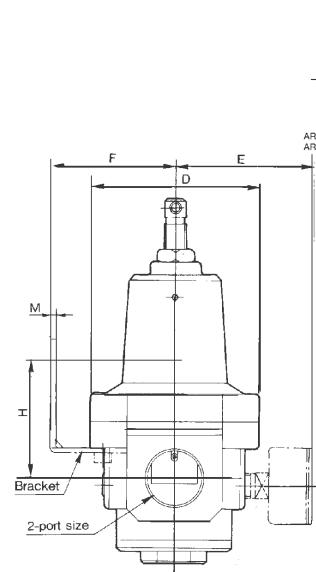
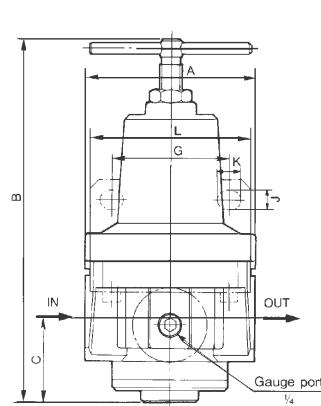
PRESSURE GAUGES

See Pressure Gauges Page

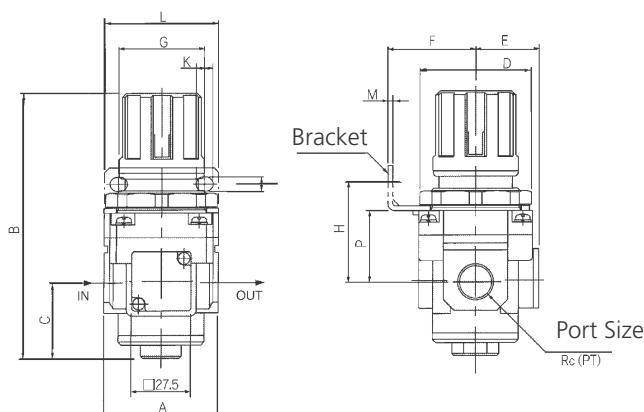
FOR MORE TECHNICAL INFORMATION

ON THIS SERIES, PLEASE REFER TO

CAT:E5G, N5-G1 & N5-G3


 DIMENSIONS
NAR1000~NAR5000

 DIMENSIONS
NAR6000

 AR1000 ~ AR5000: Max.3.5t
AR4000 ~ 5000: Max.5t

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
NAR2501	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

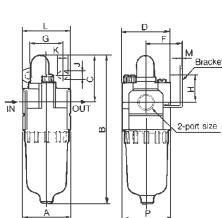
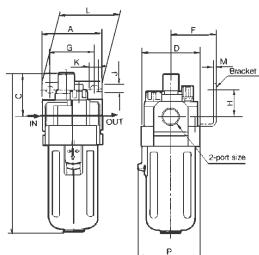
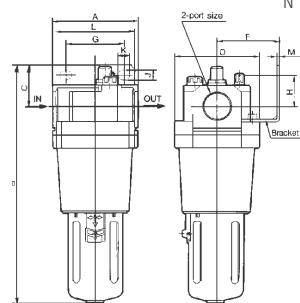
LUBRICATOR SERIES (N)AL



TECHNICAL SPECIFICATIONS

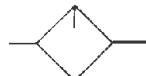
Model	NAL1000	NAL2000	NAL3000	NAL4000	NAL5000	NAL6000
Port size	M5x0.8	1/8 1/4	1/4 3/8	3/8 1/2	1/4 1	1
Flow Rate l/min	95	800	1700	5000	7000	7500
Max Supply Pressure			1.5MPa / 220PSI			
Max Operating Pressure			1MPa / 145PSI			
Min Operating Flow l/min*	4	15	1/4: 30 3/8: 40	1/4: 40 1/2: 50	190	220
Bowl 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

DIMENSIONS
NAL1000•NAL2000DIMENSIONS
NAL3000•NAL4000DIMENSIONS
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

- ✓ 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

How To
O R D E R
L U B R I C A T O R

(N)AL — ○ — ○ — ○ — ○

-Japanese
NNorth American

OPTIONAL SPECS
Refer to CAT:E5G

BODY SIZE —

1000 M5
2000 1/8•1/4
3000 1/4•3/8
4000 3/8•1/2
5000 3/8•1
6000 1

ACCESORIES

-W/O Bracket
BWith Bracket

PORT SIZE

M5 ... M5
01 ... 1/8
02 ... 1/4
03 ... 3/8
04 ... 1/2
06 ... 3/4
10 ... 1

ACCESSORIES
L U B R I C A T O R

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

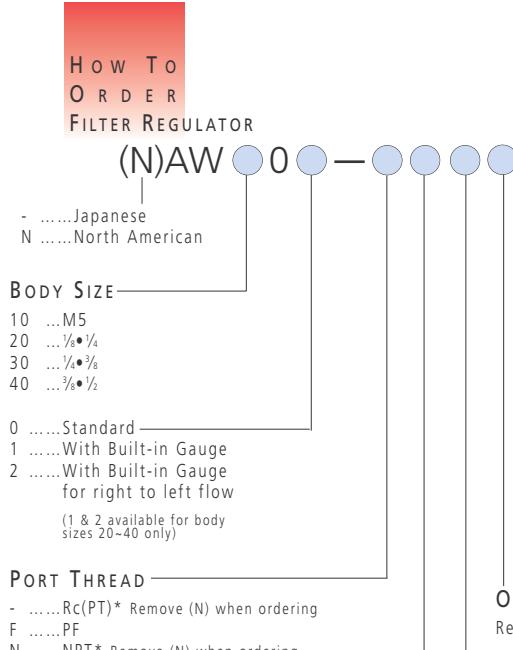
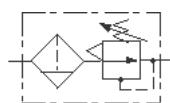
- ✓ Port Size M5 – $\frac{3}{4}$ "
- ✓ Differential or float type autodrain
- ✓ Quick release bowl guard on some sizes
- ✓ High flow
- ✓ 5µm filter element
- ✓ Built in gauge available


 TECHNICAL
SPECIFICATIONS

Model	NAW1000	NAW2000	NAW2001	NAW3000	NAW3001	NAW4000	NAW4001
Port Size	M5x0.8	$\frac{1}{8} \frac{1}{4}$	$\frac{1}{8} \frac{1}{4}$	$\frac{1}{8} \frac{3}{8}$	$\frac{1}{8} \frac{3}{8}$	$\frac{1}{4} \frac{3}{8} \frac{1}{2}$	$\frac{1}{4} \frac{3}{8} \frac{1}{2}$
Flow rate /n/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	$\frac{1}{16}$	$\frac{1}{8}$	N/A	$\frac{1}{8}$	N/A	$\frac{1}{4}$	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


 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

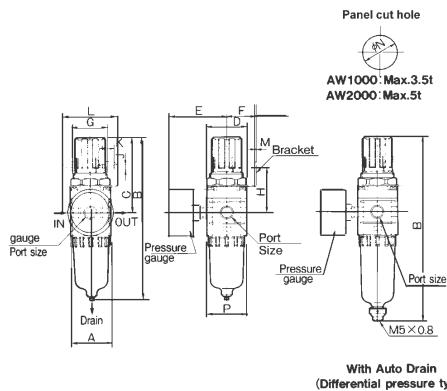
FOR MORE TECHNICAL INFORMATION
ON THIS SERIES, PLEASE REFER TO
CAT:E5G, N5-G1 & N5-G3

 OPTIONAL SPECS
Refer to CAT:E5G

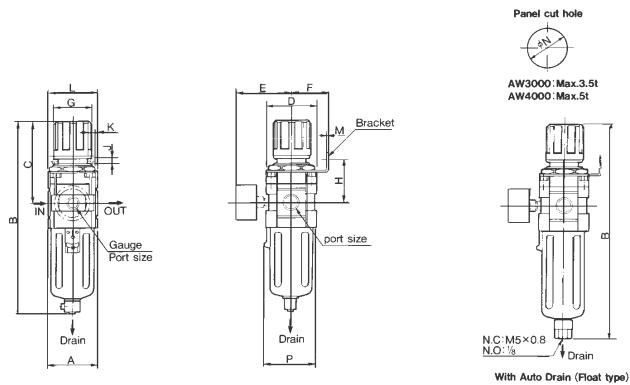
ACCESSORIES

-Without
- DW/ Auto Drain
- BBracket

DIMENSIONS
NAW1000•2000

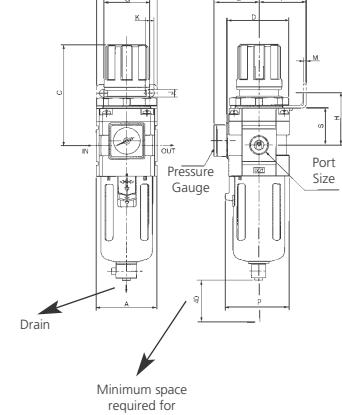
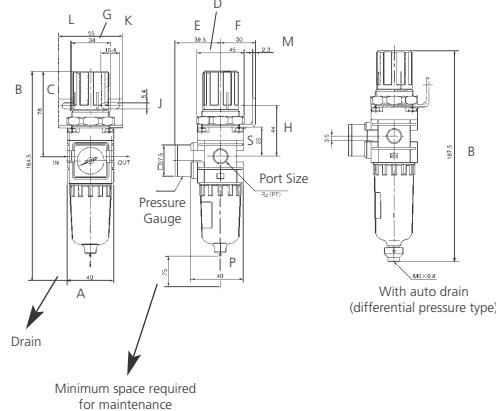


DIMENSIONS
NAW 3000•4000



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



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

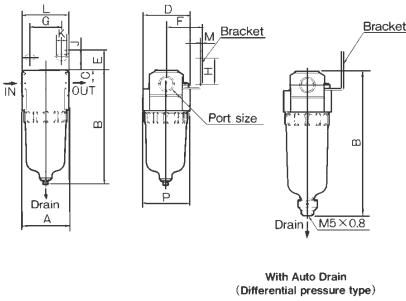
Model	NAFM2000	NAFM3000	NAFM4000
Port Size	1/8 1/4	1/4 3/8	3/8 1/2 3/4
Flow Rate (l/min)*	200	450	1100
Max Supply Pressure	1.5MPa / 220PSI		
Max Operating Pressure	1MPa / 145PSI		
Min Operating Pressure	0.05MPa / 8PSI		
Bowl Material	Polycarbonate		
Accessory (Standard)	Bowl Guard	- • •	

0.7MPa supply,

0.01MPa pressure drop (new)

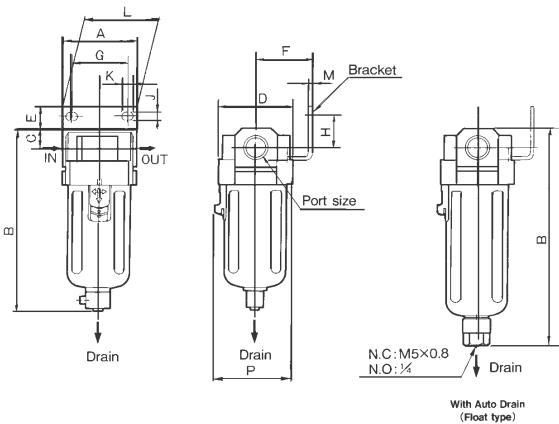
DIMENSIONS

MIST SEPARATOR NAFM2000


 FOR MORE TECHNICAL INFORMATION
ON THIS SERIES, PLEASE REFER TO
CAT:E5G, N5-G1 & N5-G3

DIMENSIONS

MIST SEPARATOR NAFM3000•4000


 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


 HOW TO
ORDER
MIST SEPARATOR

(N)AFM

 -Japanese
NNorth 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
FPF
NNPT* Remove (N) when ordering

PORT SIZE

 01 ... 1/8
02 ... 1/4
03 ... 3/8
04 ... 1/2
06 ... 3/4

 ACCESSORIES
-Without
DW/Auto Drain
BBracket

 OPTIONAL SPECS
Refer to CAT:E5G

 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 3/8	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

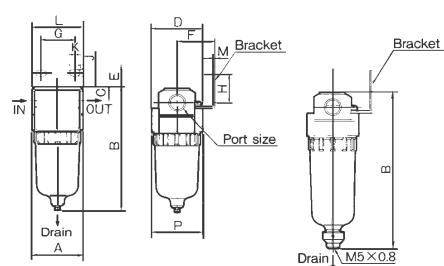
- ✓ Port Size $\frac{1}{8}$ - $\frac{3}{4}$ "
- ✓ Removes more than 99.9999% of oil mist
- ✓ 0.01µm filter element
- ✓ Quick release metal bowl guard on some sizes
- ✓ Automatic or manual drain

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	$\frac{1}{8}$ $\frac{1}{4}$	$\frac{1}{4}$ $\frac{3}{8}$	$\frac{3}{8}$ $\frac{1}{2}$ $\frac{3}{4}$
Flow Rate /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	-	•
		0.01MPa pressure drop (new)	

How To ORDER MIST SEPARATOR

(N)AFD

-Japanese
NNorth American

BODY SIZE

2000 $\frac{1}{8}$ $\frac{1}{4}$
3000 $\frac{1}{4}$ $\frac{3}{8}$
4000 $\frac{3}{8}$ $\frac{1}{2}$ $\frac{3}{4}$

AUTODRAIN

-Without
DWith

PORT SIZE

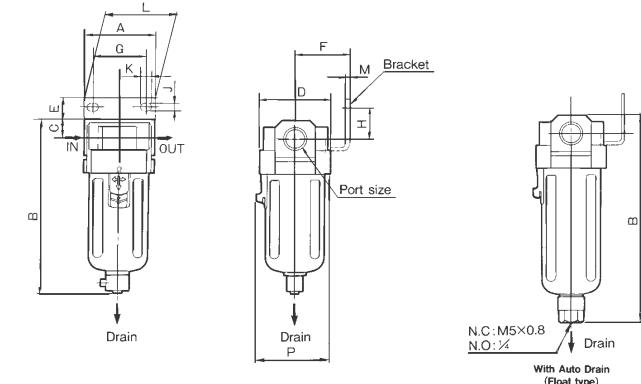
M5 ...M5
01 ... $\frac{1}{8}$
02 ... $\frac{1}{4}$
03 ... $\frac{3}{8}$
04 ... $\frac{1}{2}$
06 ... $\frac{3}{4}$

PORT THREAD

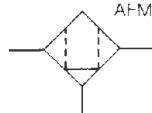
-Rc(PT)* Remove (N) when ordering
NNPT
FG(PF)* Remove (N) when ordering

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

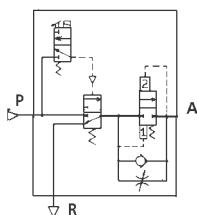
FOR MORE TECHNICAL INFORMATION
ON THIS SERIES, PLEASE REFER TO
CAT:E5G, N5-G1 & N5-G3

Model	Port size	A	B	C	D	E	F	G	H	J	K	L	M	P	With auto drain	
															B	Type
NAFD2000	$\frac{1}{8}$ $\frac{1}{4}$	40	97.5	11	40	17	30	27	22	5.4	8.4	40	2.3	40	120.5	Differential pressure
NAFD3000	$\frac{1}{4}$ $\frac{3}{8}$	53	132.5	14	53	16	41	40	23	6.5	8	53	2.3	56	158	Differential pressure
NAFD4000	$\frac{1}{4}$ $\frac{3}{8}$ $\frac{1}{2}$	70	168.5	18	70	17	50	54	26	8.5	10.5	70	2.3	73	194	Float type
NAFD4000-06	$\frac{3}{4}$	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 1/4, 3/8, 1/2"

- ✓ 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		1/4	3/8	1/2
Proof Pressure		1.5MPa / 220PSI		
Operating Pressure Range		1MPa / 145PSI		
Pressure Gauge Port Size		1/8		
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
NNorth American
20 ... 1/4
30 ... 3/8
40 ... 1/2

PORT THREAD

Rc(PT)* Remove (N) when ordering
G(PF)* Remove (N) when ordering
NNPT

PORT SIZE

02 ... 1/4 (NAV2000 only)
03 ... 3/8 (NAV3000 only)
04 ... 1/2 (NAV4000 only)

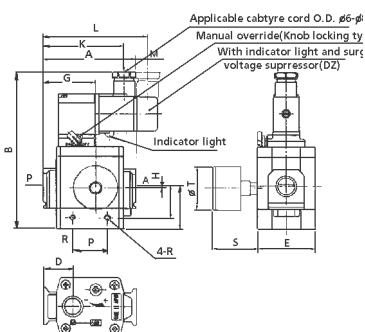
COIL RATED VOLTAGE

3110V AC (50/60Hz)
4240V AC (50/60Hz)
524V DC
612V DC

INDICATOR LIGHT AND

SURGE VOLTAGE SUPPRESSOR

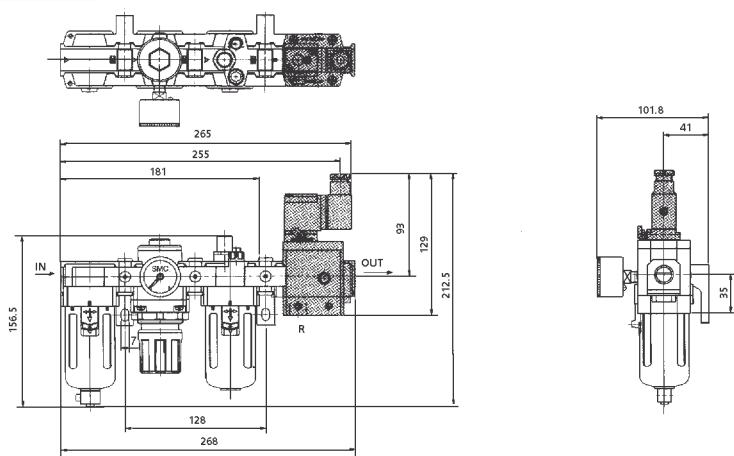
None
With surge voltage suppressor only
With Indicator light and surge voltage suppressor

DIMENSIONS
DIN CONNECTOR

Model	Port size	A	B	C	D	E	Pressure gauge Mounting port		G	H	I	J	K	L	M	N	P	Q	R
							F												
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.

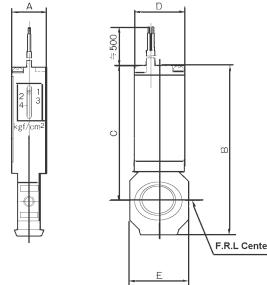
TECHNICAL SPECIFICATIONS

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

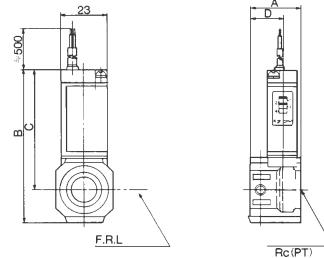


The switches shown DO NOT come with Yoke Clips attached.

DIMENSIONS PRESSURE SWITCH IS1000M



DIMENSIONS PRESSURE SWITCH IS1000E



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.

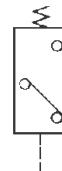
Model*	Port	A	B	C	D	Combination Series
IS1000E-201	1/8					AC2000
IS1000E-202	1/4	28	73	62	18.5	
IS1000E-203	3/8					
IS1000E-302	1/4	26	80	63	16.5	
IS1000E-303	3/8					AC3000
IS1000E-304	1/2	40	80	63	17.5	
IS1000E-402	1/4					
IS1000E-403	3/8	33	87	66	17.5	
IS1000E-404	1/2					AC4000
IS1000E-406	3/4	50	87	66	17.5	

*Without Yoke Clip.



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 Position Indication

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.

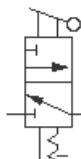
To eliminate any uncertainty of valve status, a window displays when the valve is in supply or exhaust position.

* Simple user modification allows lock in pressure supply position.

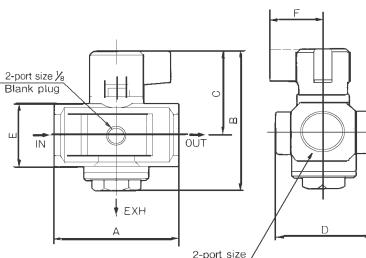


Lockable Unit. Color may not be available as shown.
Please consult SMC Customer Service.

S Y M B O L S

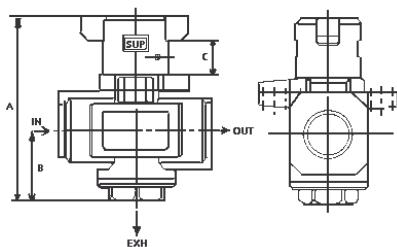


DIMENSIONS SERIES (N)VHS SHUT-OFF VALVE



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
NVHS3000	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
NNorth American

BODY SIZE AND APPLICABLE FRL SERIES

22000
32500, 3000
44000
55000, 6000

LOCKING OPTION

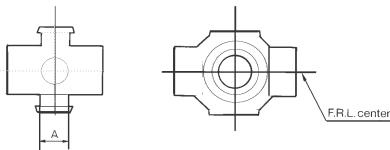
0Standard
5Lockable

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
X116Red Handle (Lockable); Silver Body - Standard
X1Red Handle; Red Body

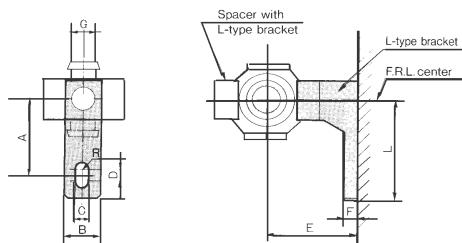
**DIMENSIONS
SPACER**


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

SPACER

**HOW TO
ORDER
SPACER**

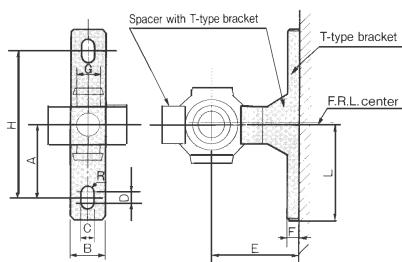
- Y10 ... (1000 SERIES)
- Y20 ... (2000 SERIES)
- Y30 ... (3000 SERIES)
- Y40 ... (4000 SERIES)
- Y50 ... (4000-06 SERIES)
- Y60 ... (5/6000 SERIES)

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 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**


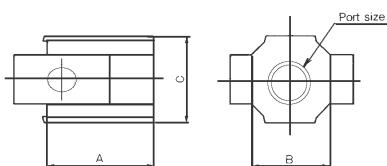
Spacer with T-type bracket	A	B	C	D	E	F	G	H	R	L
Y10T	20	12	4.5	3	25	5	8	40	2.25	27
Y20T	24	15	5.5	3	30	5	10	40	2.75	33
Y30T	35	16	7	4	41	7	11	70	3.5	45
Y40T	40	22	9	4	50	7	14	80	4.5	50
Y50T	40	22	9	4	50	7	14	80	4.5	50
Y60T	50	24	12	4	70	10	15	100	6	62.5


**HOW TO
ORDER
T TYPE BRACKET**

- Spacer with Bracket 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



DIMENSIONS
PIPING ADAPTOR



mm

Model	Port size	A	B	C
E10-M5	M5x0.8	16	17.5	14
E20-N01	$\frac{1}{8}$			
E20-N02	$\frac{1}{4}$	23	22	22
E20-N03	$\frac{3}{8}$			
E30-N02	$\frac{1}{4}$	26	34.2	29
E30-N03	$\frac{3}{8}$			
E30-N04	$\frac{1}{2}$	40	34.2	29
E40-N03	$\frac{3}{8}$	33	42.2	35
E40-N04	$\frac{1}{2}$			
E40-N06	$\frac{1}{4}$	50	42.2	35
E50-N06	$\frac{1}{4}$	36	44	46.2
E60-N06	$\frac{1}{4}$	40	54	55.2
E60-N10	1			

- ✓ Port Sizes: M5 ~ 1" Rc
- ✓ Allows for easy installation and maintenance

**How To
Order
PIPING ADAPTOR**

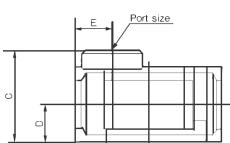
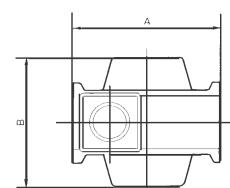
E10-M5	1000 SERIES
E20-N01	2000 SERIES
E20-N02	2000 SERIES
E20-N03	2000 SERIES
E30-N02	3000 SERIES
E30-N03	3000 SERIES
E30-N04	3000 SERIES
E40-N03	4000 SERIES
E40-N04	4000 SERIES
E40-N06	4000 SERIES
E60-N06	5/6000 SERIES
E60-N10	5/6000 SERIES



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



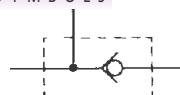
**How To
Order
CHECK VALVE SERIES (N)AKM**

(N)AKM	—	—	—
Japanese			
N North American			
BODY SIZE			
2000.....2000 Series			
3000.....3000 Series			
4000.....4000 Series			

mm

Model	Port Size	A	B	C	D	E
NAKM2000	$\frac{1}{8}$ $\frac{1}{4}$	40	40	28	11	11
NAKM3000	$\frac{1}{8}$ $\frac{1}{4}$	53	48	34	14	13
NAKM4000	$\frac{1}{4}$ $\frac{3}{8}$	70	54	42	18	15

SYMBOLS



PORT SIZE

- 01 ... $\frac{1}{8}$
- 02 ... $\frac{1}{4}$
- 03 ... $\frac{3}{8}$

PORT THREAD

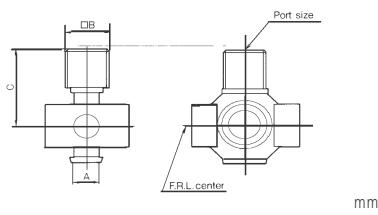
- Rc(PT)* Remove (N) when ordering
- N NPT



BRANCHING UNITS



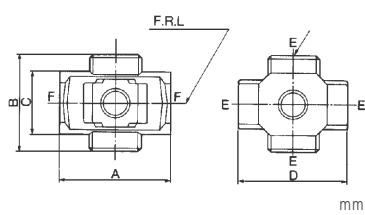
Cannot be installed adjacent to combined filter/regulator unit

 DIMENSIONS
 T TAKE OFF


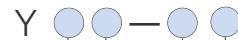
Model	Port Size	A	B	C
Y11-M5	M5X0.8	8	12	8
Y21-01	1/8	10	29	19
Y21-02	1/4	10	29	19
Y31-01	1/8	11	33	19
Y31-02	1/4	11	33	19
Y41-02	1/4	14	39	24
Y41-03	3/8	14	39	24
Y51-02	1/4	14	24	41
Y52-03	3/8	14	24	41
Y61-03	3/8	15	30	50.5
Y61-04	1/2	15	30	50.5



Fits between modular units using 'Y' Type Connectors

 DIMENSIONS
 X TAKE OFF


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


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

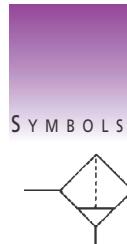
- NiL ...Rc(PT)
- NNPT

PORT SIZE

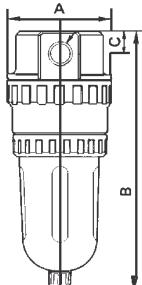
- M5 ...M5 x 0.8
- 011/8
- 021/4
- 033/8
- 041/2

HIGH FLOW AIR FILTER SERIES (N)AF

- ✓ Port Sizes 1½- 2" Rc, NPT, PF
- ✓ 5µm Filter Element
- ✓ High Efficiency Drainage
- ✓ Bowl Guard Standard

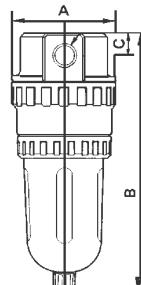


DIMENSIONS
AIR FILTER MODELS (N)AF800/900



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

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

**TECHNICAL
SPECIFICATIONS**

	(N)AF800	(N)AF900
Pipe Size	1½"	2"
Max Flow Rate /n/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

ACCESSORIES
AIR FILTER

Filter Elements
11345-5B NAF800
11352-5B NAF900

FOR FURTHER TECHNICAL DETAILS ON THIS
PRODUCT CONSULT SMC CUSTOMER SERVICE

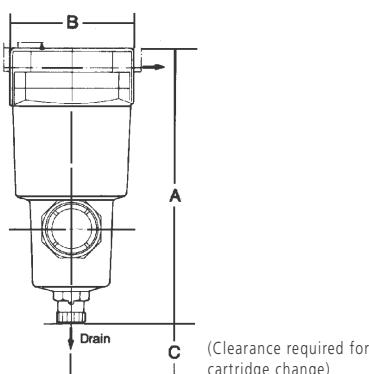
MIST SEPARATOR SERIES (N)AM

- ✓ Port Sizes $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, $1\frac{1}{2}$, 2"
- ✓ Removes 99.9% of Oil Mist and Fine Particles down to 0.3 μ m
- ✓ 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



TECHNICAL SPECIFICATIONS

Max Operating Pressure	1MPa / 145PSI
Min Operating Pressure	0.05MPa / 8PSI
Ambient & Fluid Temp	5~60°C / 40~140°F
Filtration Degree	0.3 μ m
Oil Mist Removal	99.9%
	NAM150 300
	NAM250 750
	NAM350 1500
	NAM450 2,200
	NAM550 3,500
	NAM650 6,000
	NAM850 12,000

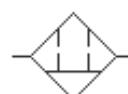
*0.7MPa Supply, 0.03MPa or less pressure drop



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



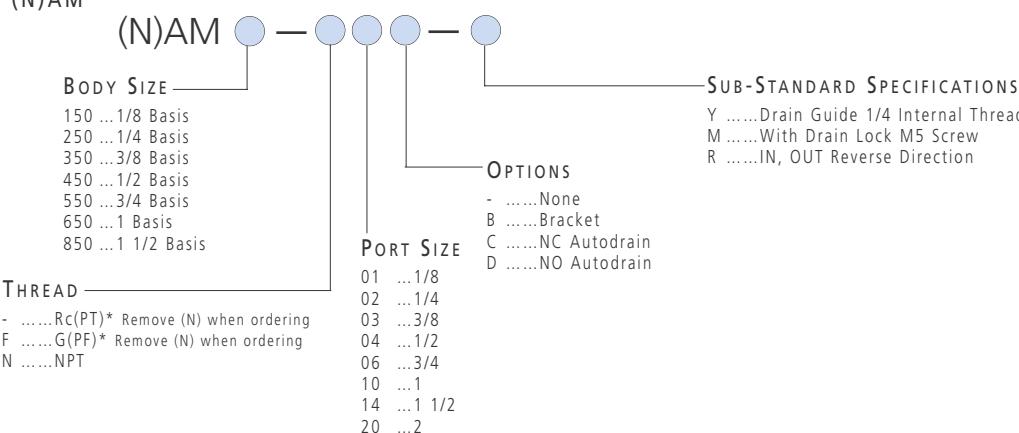
Note) (N)AM

AM - Japanese

NAM - North American

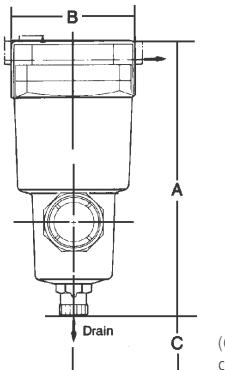
How To ORDER

MIST SEPARATOR SERIES (N)AM



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)

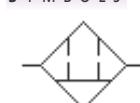
Model	Port NPT	A mm	B mm	C mm
NAMD150-N02	1/4	159	63	10
NAMD250-N03	3/8	172	76	10
NAMD350-N04	1/2	204	90	10
NAMD450-N06	3/4"	225	106	10
NAMD550-N10	1"	259	122	10
NAMD650-N14	1 1/2"	361	160	10
NAMD850-N20	2"	473	220	10

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 l/n/min*	NAMD150 - 200 NAMD250 - 250 NAMD350 - 1000 NAMD450 - 2000 NAMD550 - 3500 NAMD650 - 6000 NAMD850 - 12000

*0.7MPa supply, 0.02MPa pressure drop



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
FG(PF)* Remove (N) when ordering
NNPT

OPTIONS

-None
BBracket
CNC Autodrain
DNO Autodrain

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

SUB-STANDARD SPECIFICATIONS

- YDrain Guide 1/4 Internal Thread
MWith Drain Lock M5 Screw
RIN, OUT Reverse Direction

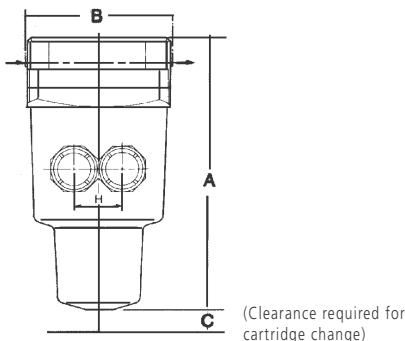
ODOR REMOVAL FILTER SERIES (N)AMF

- ✓ Port Sizes $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, $1"$, $1\frac{1}{2}$, $2"$
- ✓ 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

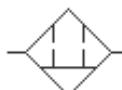


TECHNICAL SPECIFICATIONS

Media	Compressed air - filtered to 10 micron
Operating Pressure	0.05 - 1MPa / 8~145PSI
Operating Temperature	5 - 60°C / 40~140°F
	NAMF150 - 200
	NAMF250 - 500
	NAMF350 - 1000
	NAMF450 - 2000
	NAMF550 - 3500
Max Flow Rate l/min*	NAMF650 - 6000

*0.7MPa supply, 0.015MPa pressure drop

SYMBOLS



ACCESSORIES

ODOR REMOVAL FILTER SERIES NAMF

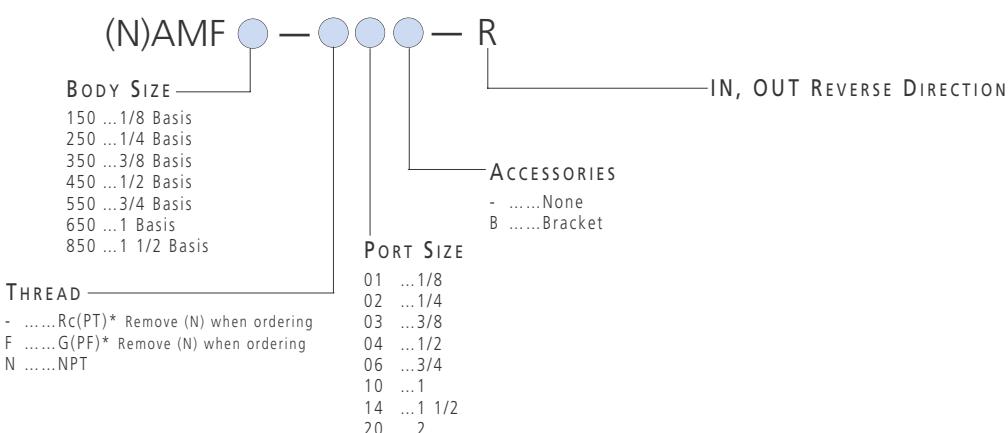
Bracket	
NAMF150BM51
NAMF250BM52
NAMF350BM53
NAMF450BM54
NAMF550BM55
NAMF650BM56
NAMF850BM57
Filter element	
NAMF150NAMF-EL150
NAMF250NAMF-EL250
NAMF350NAMF-EL350
NAMF450NAMF-EL450
NAMF550NAMF-EL550
NAMF650NAMF-EL650
NAMF850NAMF-EL850

How To ORDER

ODOR REMOVAL FILTER SERIES (N)AMF

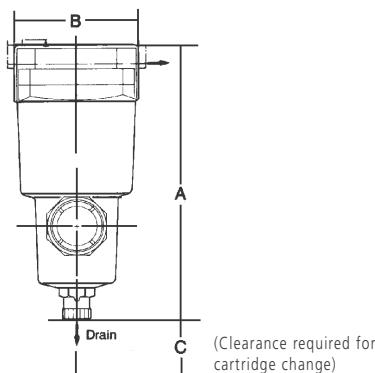
Note) (N)AMF

AMF - Japanese
 NAMF - North American



WATER SEPARATOR SERIES AMG

- ✓ Port Sizes $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{4}$, 1, $1\frac{1}{2}$, 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

Model	Port NPT	A mm	B mm	C mm
AMG150	$\frac{1}{4}$	170	63	10
AMG250	$\frac{3}{8}$	191	76	10
AMG350	$\frac{1}{2}$	220	90	10
AMG450	$\frac{3}{4}$	241	106	10
AMG550	1	279	122	10
AMG650	$1\frac{1}{2}$	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/n/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



ACCESORIES

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

BODY SIZE

- 150 ... $\frac{1}{8}$ Basis
- 250 ... $\frac{1}{4}$ Basis
- 350 ... $\frac{3}{8}$ Basis
- 450 ... $\frac{1}{2}$ Basis
- 550 ... $\frac{3}{4}$ Basis
- 650 ... 1 Basis
- 850 ... $1\frac{1}{2}$ Basis

THREAD

-Rc(PT)* Remove (N) when ordering
- FG(PF)* Remove (N) when ordering
- NNPT

PORT SIZE

- 01 ... $\frac{1}{8}$
- 02 ... $\frac{1}{4}$
- 03 ... $\frac{3}{8}$
- 04 ... $\frac{1}{2}$
- 06 ... $\frac{3}{4}$
- 10 ... 1
- 14 ... $1\frac{1}{2}$
- 20 ... 2

OPTIONS

- Nil ... None
- B Bracket
- C NC Autodrain
- D NO Autodrain

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.

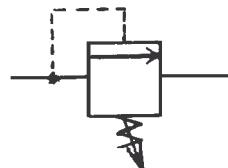


*BLACK HANDLE AVAILABLE IN NORTH AMERICA

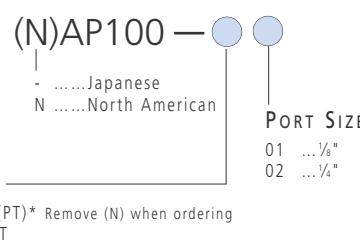
TECHNICAL SPECIFICATIONS

Characteristics	(N)AP100
Port Size	1/8" (01), 1/4" (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

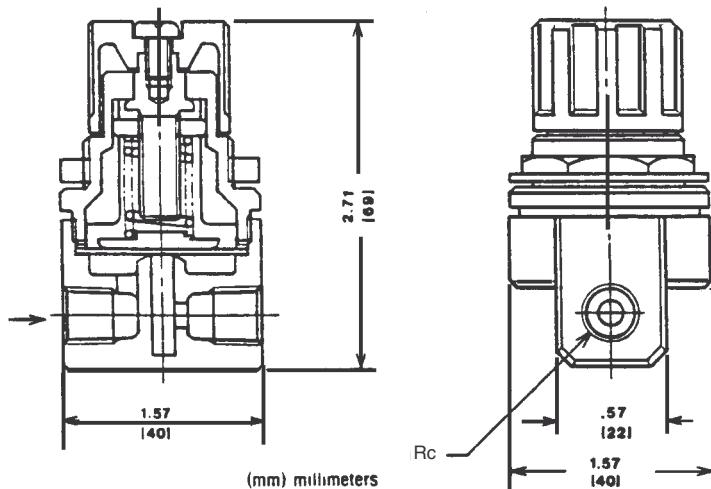
SYMBOLS



HOW TO ORDER SERIES (N)AP100



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

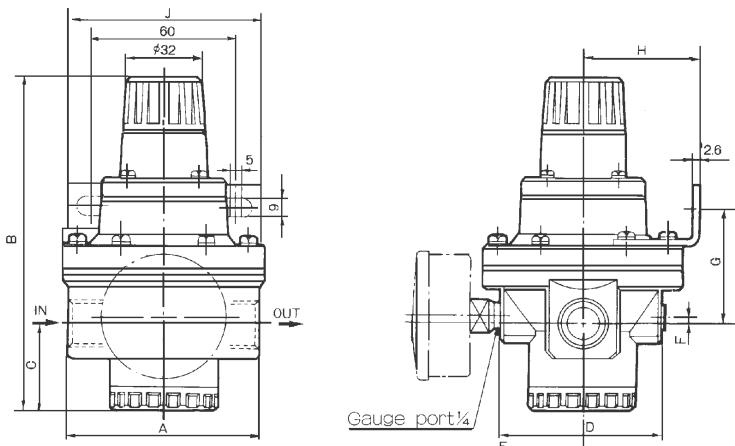
TECHNICAL SPECIFICATIONS

Pressure Regulating Range (Bar)	0.5 ~ 8.5	NAR425	NAR625	NAR825	NAR925
Pipe Size		1/4 1/2	3/4 1	1 1/2	2
Flow Rate /min 7bar suply, 1 bar pressure drop	8,000	14,000	18,000	22,000	

1MPa = 145 PSI

DIMENSIONS

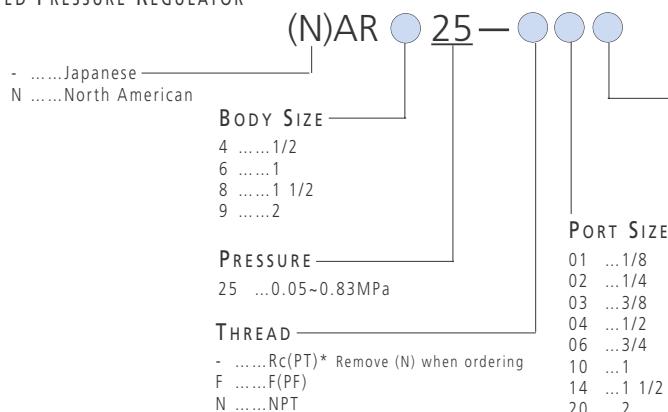
PILOT OPERATED PRESSURE REGULATOR



Model	A	B	C	D	E	Bracket Dimensions			Bracket No.	
						F	G	H		
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	-	-	-	-

How To ORDER

PILOT OPERATED PRESSURE REGULATOR

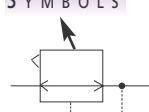


ACCESSORIES

PILOT OPERATED PRESSURE REGULATOR

Mounting Bracket	
B24NAR425
B25NAR625

SYMBOLS



OPTIONS

BBracket
GGauge

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

MINIATURE REGULATOR (N)ARJ1020F

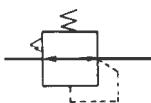
- ✓ Compact Design
- ✓ Piston Construction offers High Frequency and Long Life
- ✓ One-Touch Tube Connection
- ✓ Panel Mount



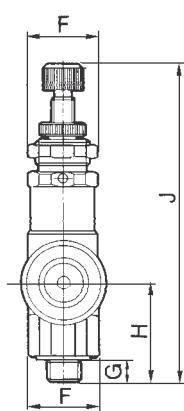
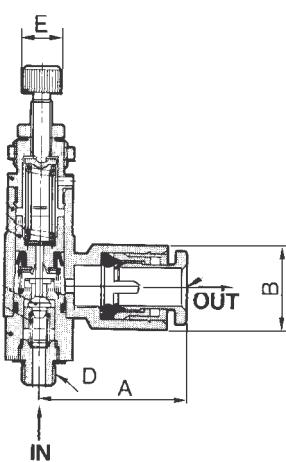
TECHNICAL SPECIFICATIONS

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

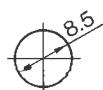
SYMBOLS



DIMENSIONS SERIES NARJ

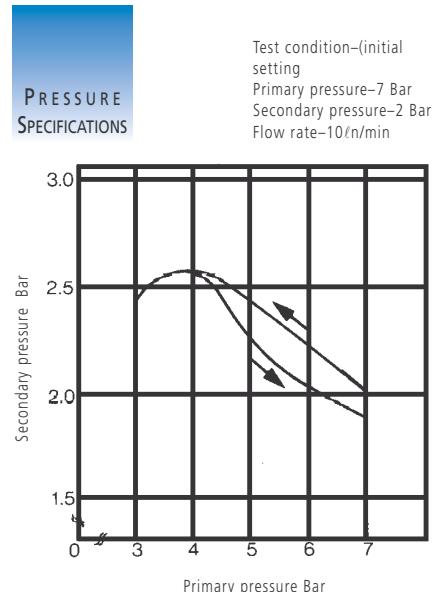


Panel Mount Dimension



PRESSURE SPECIFICATIONS

Primary Pressure – 7 Bar


Test condition-(initial setting)
Primary pressure-7 Bar
Secondary pressure-2 Bar
Flow rate-10l/min

How To ORDER
MINIATURE REGULATOR (N)ARJ1020F

(N)ARJ1020F — M5 —

-Japanese
- NNorth American

- 04 ...4mm
- 06 ...6mm
- M5 ...M5X0.8

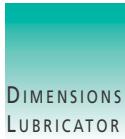
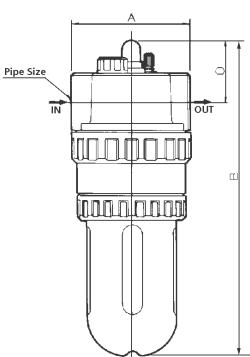
Model	A	B	C	D	E	F	G	H	J
NARJ1020F-M5-04	21	10.4	4	M5X0.8	6	10.6	3.5	15.5	50
NARJ1020F-M5-06	22	12.8	6						

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
O R D E R
LUBRICATOR
SERIES NAL

NAL800-N12 (1½ 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	1½, 2	2
Min Flow for Oil Drip	650	1800
Oil Capacity (cm³)	500	500
Flow Rate /min	12500	16500

Flow rate quoted at: 0.5MPa supply
0.03MPa pressure dropHow To
O R D E R
LUBRICATOR
SERIES AL

AL800-12 (1¼ PT)

AL800-14 (1½ PT)

AL900-20 (2 PT)

AUTO DRAIN SERIES (N)AD

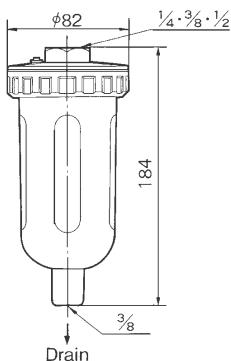
- ✓ Port Sizes 1/4~1
- ✓ Float Type Automatic Drain Valve

 TECHNICAL
SPECIFICATIONS

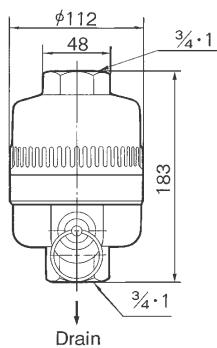
Type	(N)AD402	(N)AD600
Operating Pressure	1.5~9.9 Bar 22~145PSI	3~9.9 Bar 45~145PSI
Max Supply Pressure	15 Bar / 220PSI	
Max Operating Pressure	9.9 Bar / 145PSI	
Ambient & Fluid Temperature	5 ~ 60°C / 40~140°F	
Port Size	1/2	3/4, 1
Drain Port	3/4	3/4, 1


 DIMENSIONS
AD SERIES AUTO 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

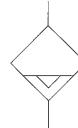
MAX. OPERATING PRESSURE

0 1.0MPa
1 1.6MPa

THREAD

- Rc(PT)
N NPT

SYMBOLS



FOR FURTHER TECHNICAL DETAILS ON THIS
PRODUCT CONSULT SMC CUSTOMER SERVICE

ACCESSORIES

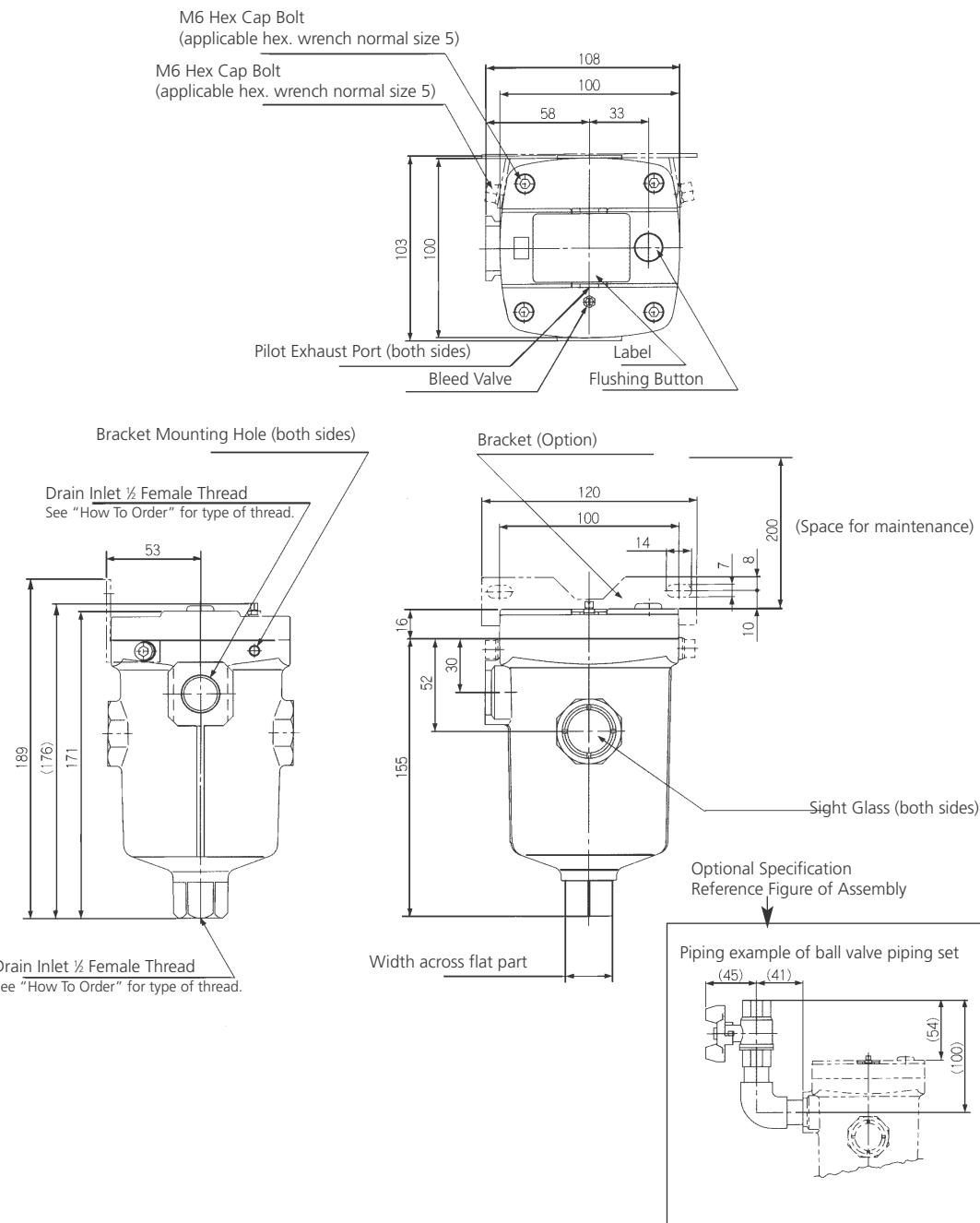
Bracket	BM58
Ball Valve Piping Kit	ADH-C400
(See note below)	
Silencer for Drain	2506-004-X228

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



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

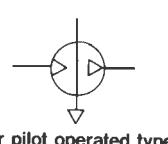
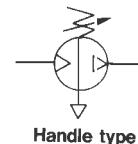
TECHNICAL
SPECIFICATIONS

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



Handle type Air pilot operated type

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 l/n/min*	1000 l/n/min**	1900 l/n/min**	1000 l/n/min**	1900 l/n/min*
Port Size (IN, OUT)	1/4	3/8	1/2	3/8	1/2
EXH Port Size	1/4	3/8	1/2	3/8	1/2
Pilot EXH Port Size		—			1/8
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

-Japanese
NNorth American

BODY SIZE

11/4"
23/8"
41/2"

PRESSURE ADJUSTMENT

1Handle
2Air Pilot (VBA 2000, 4000 only)

PRESSURE RANGE

01MPa Max (2000, 4000 Series)
12MPa Max (1000 Series)

OPTION

GPressure Gauge
NSilencer

PORT THREAD

TNPTF* Remove (N) when ordering
FG(PF)* Remove (N) when ordering
NNPT

PORTING

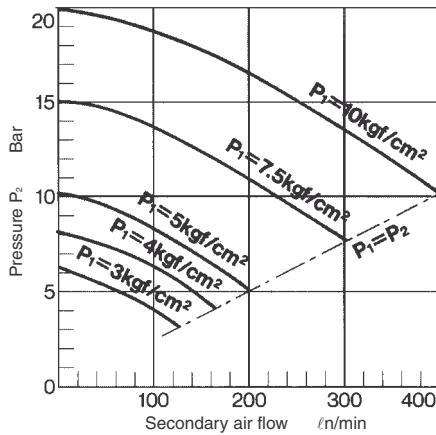
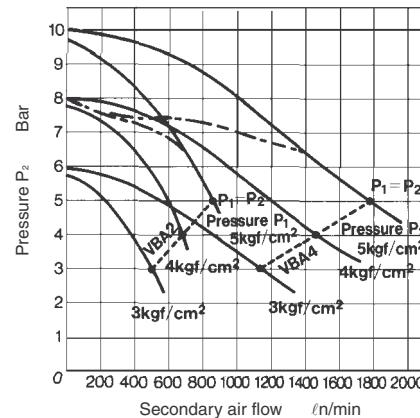
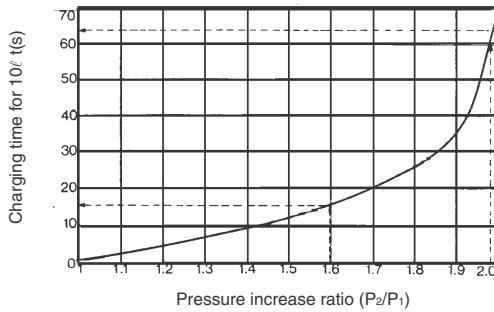
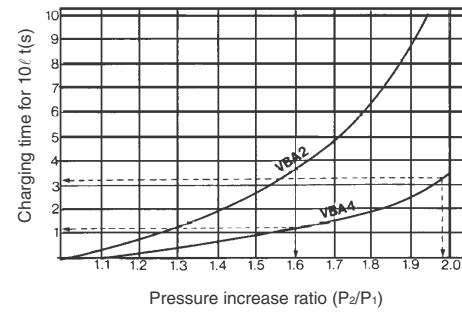
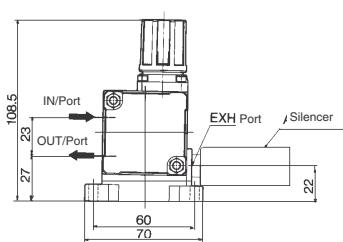
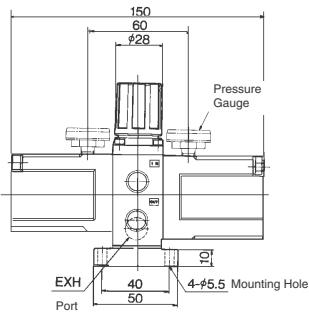
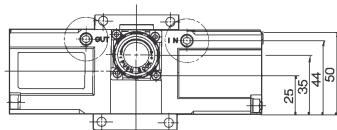
02 ...1/4" (1110)
03 ...3/8" (2100, 2200)
04 ...1/2" (4100, 4200)ACCESSORIES
(N)VBA BOOSTER REGULATOR

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

(N)VBA1
 FLOW CHARACTERISTICS

 (N)VBA2, (N)VBA4
 FLOW CHARACTERISTICS

 NVBA1
 CHARGE CHARACTERISTICS

 (N)VBA2, (N)VBA4
 CHARGE CHARACTERISTICS

 DIMENSIONS
 HANDLE TYPE
 (N)VBA1110-02


These graphs illustrate the time required to increase pressure in a closed tank e.g. (V)BA 1
 If we wish to increase tank pressure to 8 bar, where $P_1 = 4$ bar and tank pressure = 6.4 bar:

$$\text{initial } \frac{P_2}{P_1} = \frac{6.4}{4} = 1.6 \text{ (charging line from graph = 15 seconds)}$$

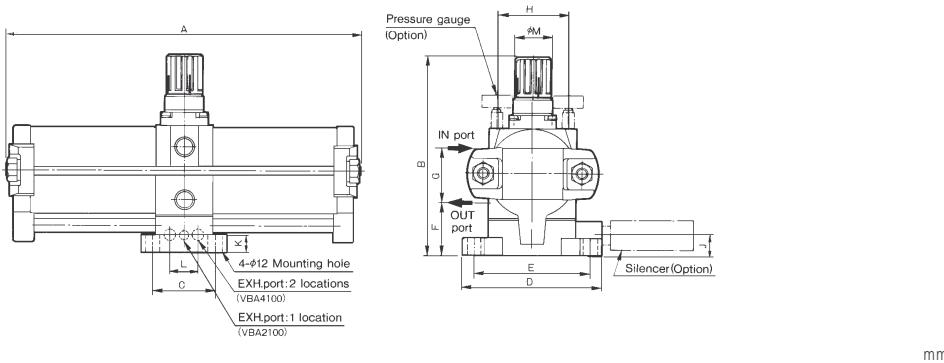
$$\text{final } \frac{P_2}{P_1} = \frac{8}{4} = 2 \text{ (charging line from graph = 65 seconds)}$$

Time taken to increase pressure = 65 – 15 seconds
 = 50 seconds per 10 litre volume of tank

DIMENSIONS

HANDLE TYPE

(N)VBA2100-03, (N)VBA4100-04



Model	Port Size	A	B	C	D	E	F	G	H	J	K	L	ØM
(N)VBA2100-(N)03	1/8	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

Model	Port Size	A	B	C	D	E	F	G	H	J	K	L	ØM
(N)VBA2200-(N)03	1/8	300	126.5	53	118	98	44	45	60.5	18	15	-	31
(N)VBA4200-(N)04	1/2	404	167	96	150	130	62.8	62	90	17	15	40	40



PRESSURE GAUGES

- ✓ 3 Pressure Ranges
- ✓ Center Back or Panel Mount
- ✓ $\frac{1}{8}$ or $\frac{1}{4}$ Connection
- ✓ 40 or 50mm Diameter Face

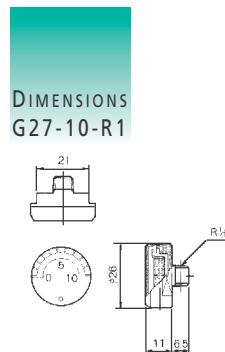
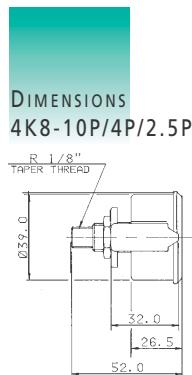
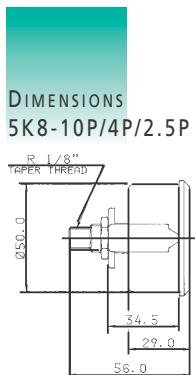
How To ORDER PRESSURE GAUGES

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

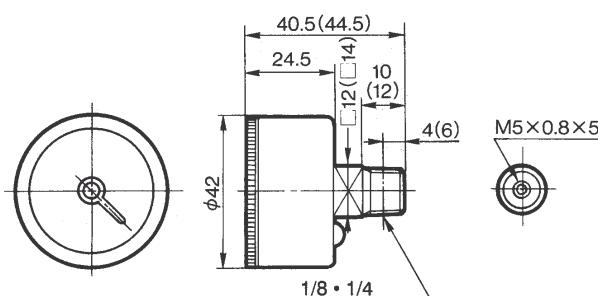
For Air Preparation series (N)AR/(N)AW1000,
use SMC Gauge Part Number:

G27-10-R1 $\frac{1}{16}$ Connection



VACUUM GAUGES

- ✓ Scale in mmHg
- ✓ Center Back Mount
- ✓ $\frac{1}{8}$ or $\frac{1}{4}$ Connection
- ✓ 42mm Diameter Face



How To ORDER VACUUM GAUGES

GZ46 — A — [] — [] — [] — []

THREAD TYPE —

-Rc(PT)
- NNPT

CONNECTION THREAD —

- 01 ...1/8
- 02 ...1/4

INTERNAL THREAD —

- MM5 (10-32Nom) Female

MOUNTING —

-Standard
- CPanel 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

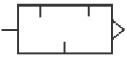


TECHNICAL SPECIFICATIONS

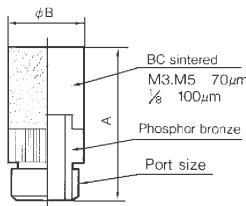
Model	NAN101-01	NAN110-01	NAN120-M3	NAN120-M5
Port Size	1/8"	1/8"	M3	M5
Noise Reduction (dB)	16	21	13	18
Max Operating Pressure			1MPa / 145PSI	
Ambient & Fluid Temperature			5~150°C / 40~300°F	
Effective Orifice mm ² (Cv)	20 (1.1)	35 (1.9)	1 (0.05)	5 (0.27)
Weight (gf)	9.5	20	1	3.3

*Tapered thread ISO7/1

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

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)

SERIES (N)AN SILENCER 1/4~2

- ✓ Over 30 dB noise reduction
- ✓ Low back pressure
- ✓ Compact and easy mounting

HOW TO ORDER SERIES NAN SILENCER

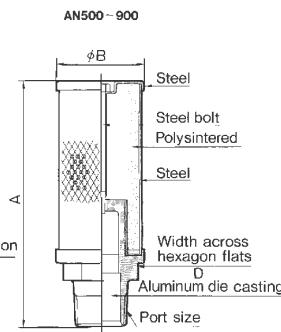
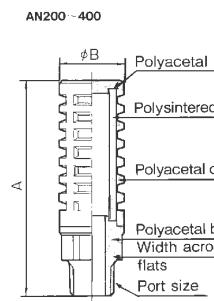
Model	Port Size* NPT	Effective Orifice mm ² (Cv)
NAN200-N02	1/4"	35 (1.9)
NAN300-N03	3/8"	60 (3.3)
NAN400-N04	1/2"	90 (5.0)
NAN500-N06	5/8"	160 (8.8)
NAN600-N10	1	270 (15)
NAN700-N12	1 1/4	440 (24)
NAN800-N14	1 1/2	590 (33)
NAN900-N20	2	960 (53)

Note: When ordering PT Ports, remove (N) from Model Number
Eg: AN200-02

TECHNICAL SPECIFICATIONS

Max Operating Pressure	1MPa / 145PSI
Noise Reduction	30dB or more
Ambient & Fluid Temperature	5~60°C / 40~140°F

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

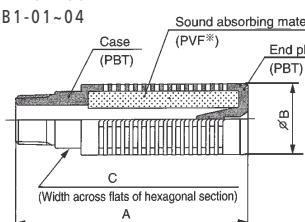
DIMENSIONS

Model (THREAD CONNECTION)

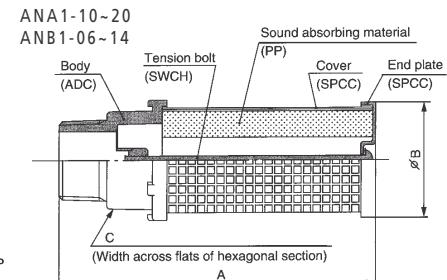
Model	Port Size	Effective orifice (mm²)	Weight (g)	Dimensions (mm)		
				A	B	C
ANA1-01	1/8	10	4	37	16	-
ANA1-02	1/4	15	14	64	22	18
ANA1-03	3/8	35	22	84	25	21
ANA1-04	1/2	60	36	98	30	24
ANA1-06	3/4	90	110	111	46	36
ANA1-10	1	160	180	132	50	41
ANA1-12	1 1/4	280	544	200	74	60
ANA1-14	1 1/2	450	612	230	74	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	873	271	86	70

DIMENSIONS

ANA1-01~06 ANB1-01~04



※ANA1-06 : PP



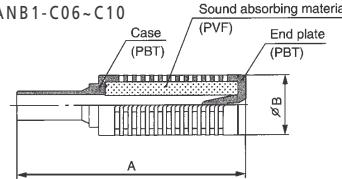
DIMENSIONS

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

DIMENSIONS

ANA1-C08~C12 ANB1-C06~C10



Notes:

- To install threaded versions screw in hand tight then wrench tighten 1/4 turn only.
- Avoid contact with solvents or corrosive gases.

SERIES (N)AMC
EXHAUST CLEANERTECHNICAL
SPECIFICATIONS

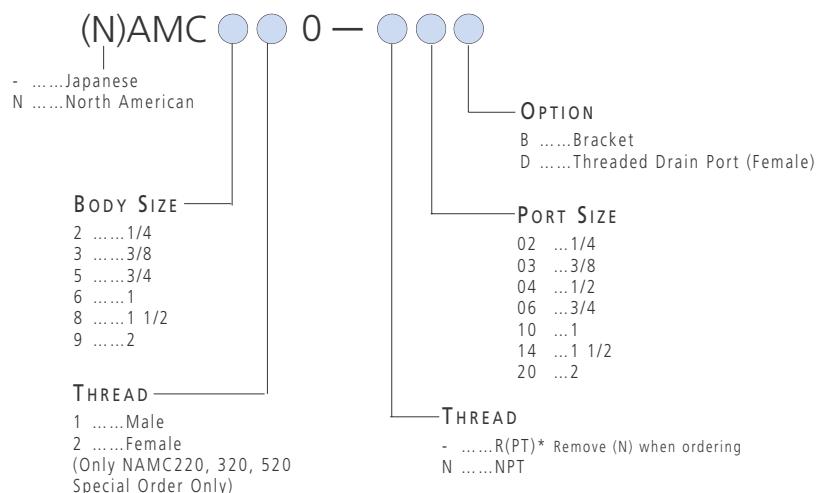
Max Operating Temperature	60°C / 140°F
Noise Reduction	35dB or more
Oil Mist Removal	99.9% or more
Exhaust of Oil Mist	Drain cock
Option	Bracket*

*Bracket not available on NAMC810 and 910

- ✓ Ensures Clean Plant Air and Noise Reduction of distributing noise contamination
- ✓ Over 35 dB Noise Reduction
- ✓ Over 99.9% Oil Mist Removal

How To
ORDER
NAMC SERIES

Model	Male					Female		
	NAMC310	NAMC510	NAMC610	NAMC810	NAMC910	NAMC220	NAMC320	NAMC520
Port Size NPT	3/8"	3/4"	1	1 1/2	2	1/4"	1/4 3/8"	1/2 3/4"
Max Air Flow (Nl/min)	300	1,000	3,000	6,000	10,000	200	300	1,000
Effective Orifice mm ² (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

How To
ORDER
EXHAUST CLEANER SERIES (N)AMC

ACCESSORIES

SERIES (N)AMC EXHAUST CLEANER

Element See "How To Order"
 Bracket See "How To Order"

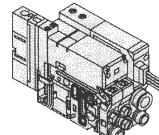
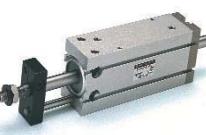
FOR MORE TECHNICAL INFORMATION ON THIS
SERIES, PLEASE CONSULT SMC CUSTOMER SERVICE

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

VACUUM EJECTOR SERIES NZH

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)

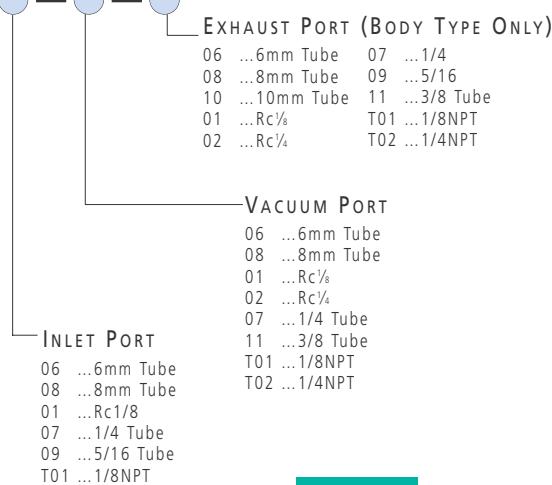
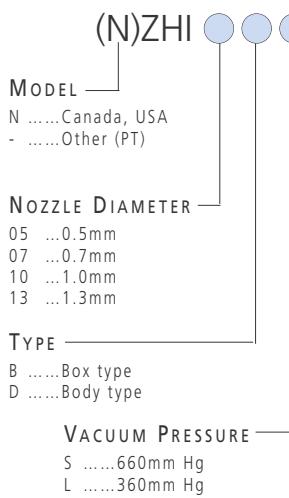


BOX TYPE



BODY TYPE

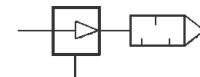
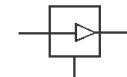
How To ORDER
NZHI VACUUM EJECTOR



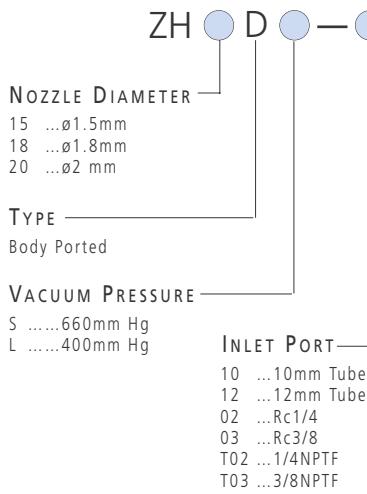
TECHNICAL SPECIFICATIONS

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

How To ORDER
ZH VACUUM EJECTOR



DIMENSIONS
MAXIMUM SUCTION FLOW RATE/
AIR CONSUMPTION UNIT (ℓ n/min)

Specifications	Max Vacuum Pressure*	Nozzle Diameter mmØ			
		0.5	0.7	1.0	1.3
Max Suction Flow	S Type - 660 (100)	5	12	24	40
Rate SCFM (ℓ n/min)	L Type - 360 (400)	8	20	34	70
Air Consumption	L Type - 400 (400)	/	/	/	/
	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

DIMENSIONS
MAXIMUM SUCTION FLOW RATE/
AIR CONSUMPTION UNIT (ℓ n/min)

Specifications	Max Vacuum Pressure	Nozzle Diameter mmØ		
		1.5	1.8	2.0
Max Suction Flow	S Type - 26" (6600)	55	65	85
Rate SCFM (ℓ n/min)	L Type - 16" (400)	75	110	135
Air Consumption	S Type - 26" (660)	95	130	175
SCFM (ℓ n/min)	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

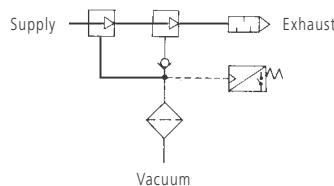
- ✓ All in one vacuum system
- ✓ Two stage nozzle design
- ✓ Suction flow rate 40% higher than traditional designs
- ✓ Silencer and suction filter
- ✓ Optional air supply and vacuum release valve
- ✓ Optional diaphragm or solid state vacuum switch
- ✓ Manifold mountable version



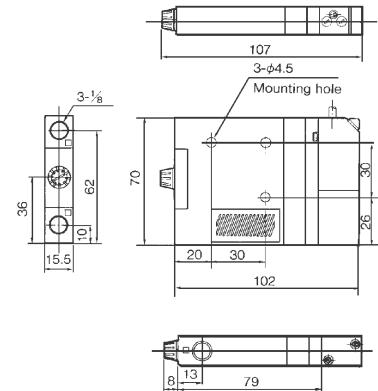
TECHNICAL SPECIFICATIONS

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 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

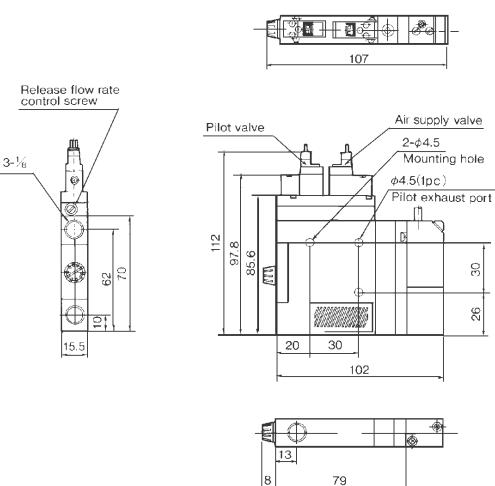
- Nil ... PT* Remove (N) when ordering
- T NPTF

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/cm ² / 75PSI	-630mmHg	18	12
NZM07•H	5Kgf/cm ² / 75PSI	-630mmHg	24	23
NZM10•H	5Kgf/cm ² / 75PSI	-630mmHg	36	46
NZM13•H	5Kgf/cm ² / 75PSI	-630mmHg	40	95
NZM07•M	3.5Kgf/cm ² / 50PSI	-630mmHg	20	16
NZM10•M	3.5Kgf/cm ² / 50PSI	-630mmHg	26	32
NZM13•M	3.5Kgf/cm ² / 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 —

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

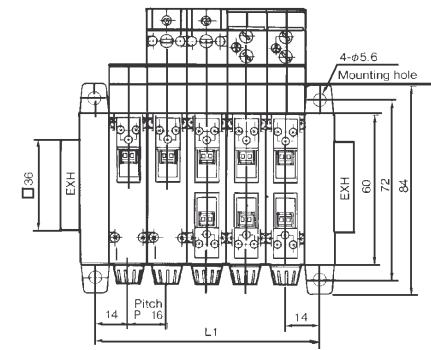
T NPTF

TYPE

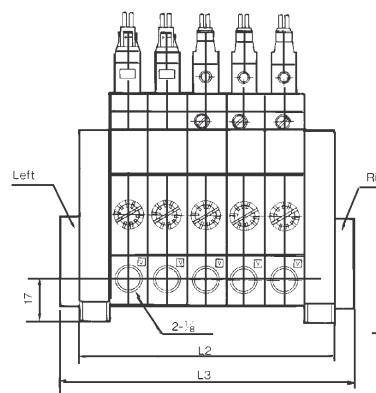
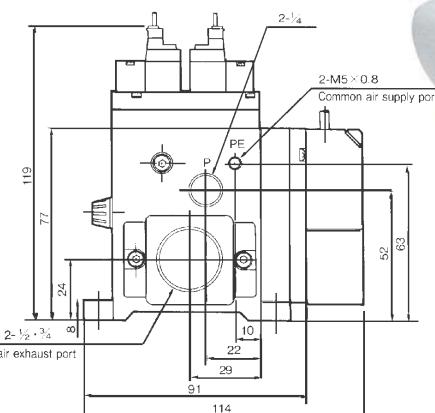
1 Body Ported

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 88 104 120 136 168 188 200

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

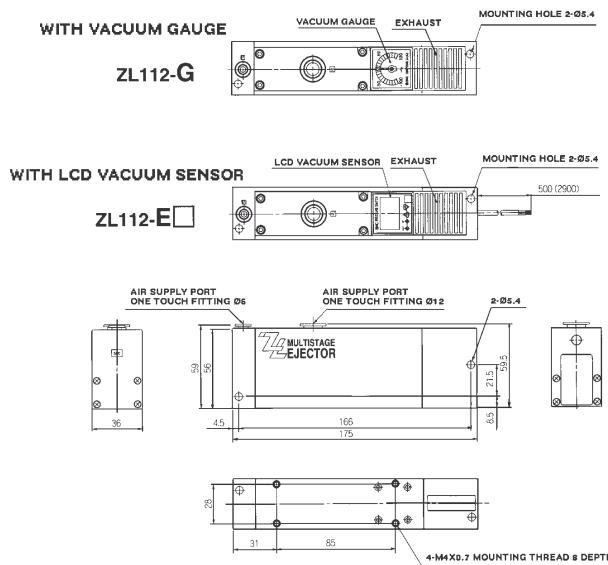
Model	(N)ZL112	(N)ZL112-G	(N)ZL112-E□	(N)ZL212
Nozzle Diameter		Ø1.2mm		Ø1.2mm x 2
Max Suction Flow	100 l/m (ANR)			200 l/m (ANR)
Air Consumption	63 l/m (ANR)			126 l/m (ANR)
Max Vacuum Pressure	-84kPa (-12PSI)			-12PSI
Max Operating Pressure	0.7MPa / 100PSI			100PSI
Supply Pressure Range	0.2 ~ 0.5MPa / 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

DIMENSIONS



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 impedance 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 cable gray Ø3.4 0.2mm²	

HOW TO ORDER

MULTISTAGE VACUUM EJECTOR SERIES NZL

(N)ZL112 — □ — □

MODEL

- 1NZL112
2NZL212

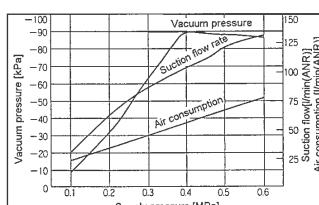
SWITCH & WIRING SPECS (E OPTION ONLY)

- 25L ...3 wire LCD/Non Analog Output NPN
26L ...3 wire Analog Output (1 ~ 5V)
65L ...3 Wire LCD/Non Analog Output PNP

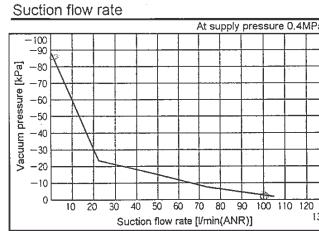
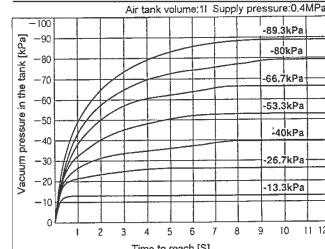
GAUGE & SWITCH OPTION

-No gauge or switch option
GWith vacuum pressure gauge
EWith vacuum pressure digital switch

Ejector Characteristics



Response time



AIR SUCTION FILTER SERIE NZFA

NZFA AIR SUCTION FILTER

- ✓ Compact and lightweight
- ✓ Protects vacuum equipment
- ✓ Large filtration area
- ✓ Easy replacement of element



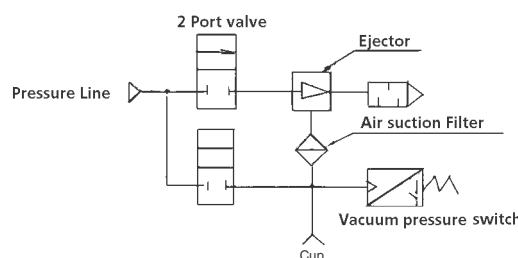
TECHNICAL SPECIFICATIONS

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



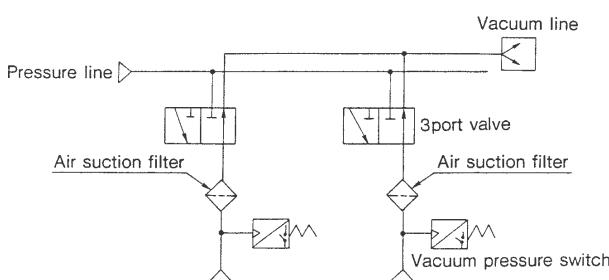
APPLICATION TO EJECTOR SYSTEM

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

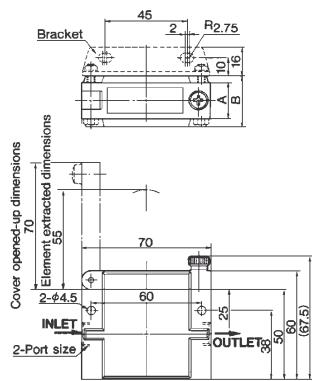
PORT THREAD
Nil ...PT* Remove N when ordering
FPF* Remove N when ordering
TNPTF

PORT SIZE

01 ...1/8
02 ...1/4

DIMENSIONS

(N)ZFA AIR SUCTION FILTER

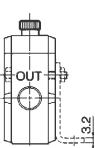


Model	Port Size	A	B
(N)ZFA100-01	1/8	8	18
(N)ZFA200-02	1/4	20	28

ELEMENT

EJ001H-030N (100 Series)

EJ101H-030N (200 Series)

BRACKET
BP-1H


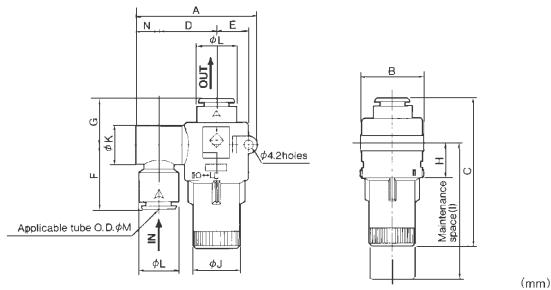


AIR SUCTION FILTER SERIES NZFB

- ✓ Built-in one-touch fittings
- ✓ Tubing can be installed through 360°
- ✓ Compact and light weight
- ✓ Simple element change

DIMENSIONS

AIR SUCTION FILTER SERIES NZFB



	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	1/16"	8.5
	(N)ZFB101-07												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	1/8"	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

How To ORDER

AIR SUCTION FILTER SERIES (N)ZFB

(N)ZFB

BODY SIZE

100 ...Max 20 l/min	04 ...04
200 ...Max 50 l/min	06 ...06
300 ...Max 75 l/min	08 ...08
101 ...Max 20 l/min	10 ...Ø10
201 ...Max 30 l/min	05 ...Ø3/16"
301 ...Max 60 l/min	07 ...Ø1/4"
401 ...Max 100 l/min	11 ...Ø3/8"
	13 ...Ø1/2"

TUBE SIZE OD MM

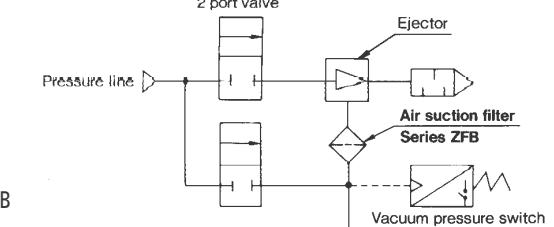
04 ...04
06 ...06
08 ...08
10 ...Ø10
05 ...Ø3/16"
07 ...Ø1/4"
11 ...Ø3/8"
13 ...Ø1/2"

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-39S-A	(N)ZFB401

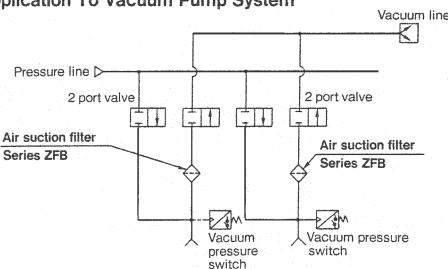


TECHNICAL SPECIFICATIONS

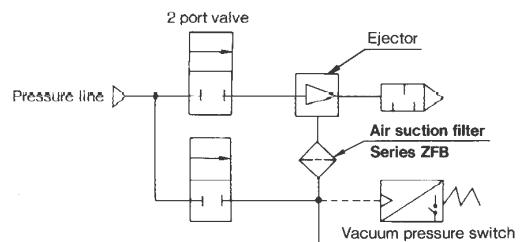
Fluid	Air, dry nitrogen
Operating Pressure	Negative pressure
Proof Pressure	5 Bar / 75PSI
Temperature Range	0~60°C (No freezing) / 32~140°F
Filtration	30 µm
Element Proof DP	1.5 Bar / 24PSI
Applicable Tube Material	Nylon, Soft Nylon, Polyurethane

APPLICATION TO VACUUM PUMP SYSTEM

Application To Vacuum Pump System

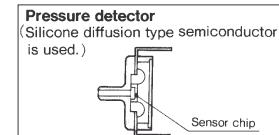
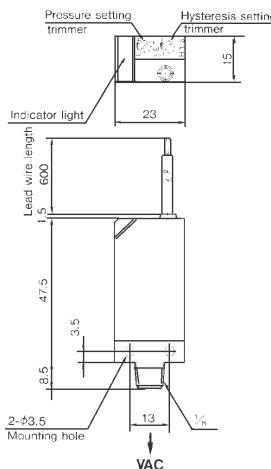


APPLICATION TO EJECTOR SYSTEM



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

ELECTRICAL ENTRY

-Grommet (24")
- LGrommet (120")
- Cw/Plug Connector (24")
- CLw/Plug Connector (120")
- CN ...Plug Type (w/o Lead)

CONNECTION

- 00 ...NZM Ejector Mounting
- 01 ...1/8 PT
- T1 ...1/8 NPTF

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)

6.8 VACUUM VACUUM SWITCH SERIES ZS

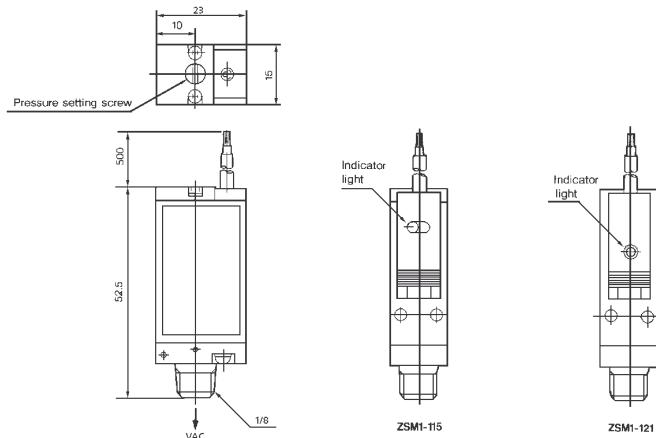


ZSM1 (VACUUM EJECTOR TYPE)



DIMENSIONS

VACUUM SWITCH SERIES ZSM1 (THREADED TYPE)



How To ORDER VACUUM SWITCH SERIES ZSM1

ZSM1 —

CONNECTION

- 0NZM Ejector Mounting
- 11/8 PT
- T1 ...1/8 NPTF

SWITCH TYPE

- 15L ...Solid state (NPN)
- 21L ...Contact reed

VACUUM SWITCH SERIES ZSM1 DIAPHRAGM TYPE

- ✓ 100 ms Response Time
- ✓ Compact Size



TECHNICAL SPECIFICATIONS

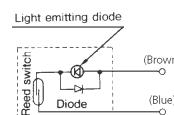
Model	ZSM1-115	ZSM1-121
Electrical switch type	Solid state NPN	Contact (reed switch)
Fluid	Air, Inert gases	
Max. pressure	5 Bar / 75PSI	
Setting pressure range	- 200 ~ - 600mmHg - 8 ~ 26inHg	
Adjustment screw	Range = 18 turns	
Max. hysteresis	110mmHg	150mmHg
Temperature range	5 ~ 60°C / 40~140°F	
Supply voltage	10 ~ 26VDC	100VAC
Indicator light	Lighting under ON condition (LED)	
Wire	3wire	2wire
Port size	1/8 (Male)	



CIRCUIT ZSM1-115



ZSM1-121



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.

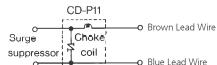


ACCESSORIES VACUUM SWITCH SERIES ZSE1

Interface plate for ZSM Ejector
P31806-01(blank)
P31806-02(use with switch)
CD-P11Contact protection box

FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT REQUEST CATALOG REFERENCE E802 & N400

CONTACT PROTECTION BOX/INTERNAL CIRCUIT



HANDLE OPERATED VACUUM
REGULATOR SERIES T203

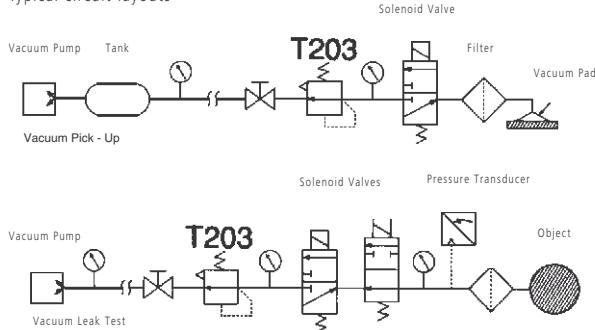
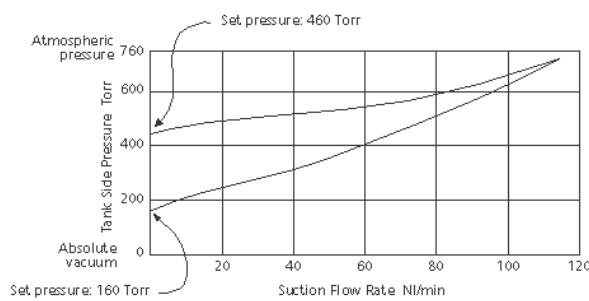
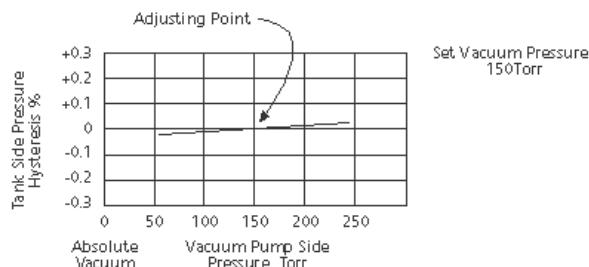
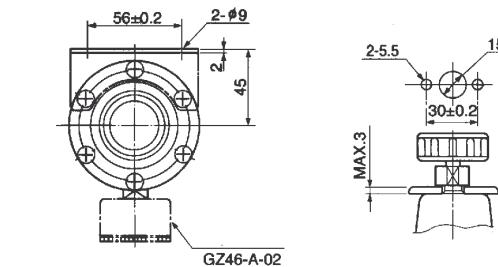
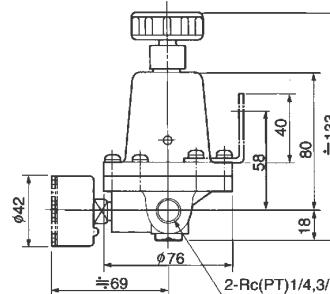
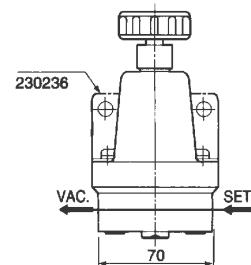
✓ A vacuum regulator, installed after a vacuum pump, which regulates vacuum at any level

 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 1/4, Rc 1/2


 TECHNICAL
SPECIFICATIONS

Typical circuit layouts


 FLOW
CHARACTERISTICS

 PRESSURE
CHARACTERISTICS

 DIMENSIONS
VACUUM REGULATOR

 T203-1-0-X2
Panel Mount Type


T203-1-0*

 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

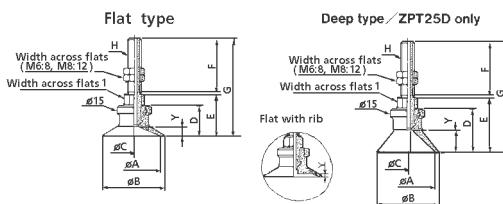
ZPT VACUUM PADS VERTICAL ENTRY WITHOUT BUFFER

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 Ø20, Ø25, Ø32



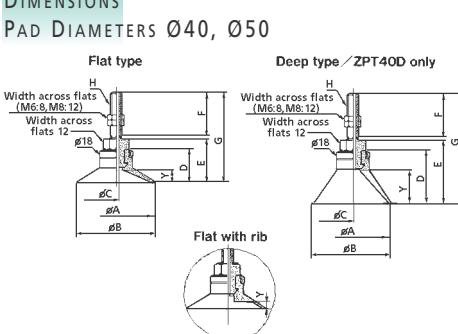
FLAT TYPE - FLAT WITH RIB

Model	ØA	ØB	ØC	F:M5x0.8			F:M6x1			Y	H : M6x1					H : M8x1					Y				
				D	E	G	D	E	G		ØC	E	F	G	I	ØC	E	F	G	I	Flat	Flat with rib			
ZPT02U	2	2.6	1.2								20	23	14	3	19	25	45	8	3.5	24	15	40	12	4	1.7
ZPT04U	4	4.8	1.6								25	28	14	3	19	25	45	8	3.5	24	15	40	12	4	1.8
ZPT06U	6	7			3	19	7	4	20	8	32	35	14.5	3	19.5	25	45	8	3.5	24.5	15	40.5	12	4.5	2.3
ZPT08U	8	9	2.5																						

DEEP TYPE

Model	ØA	ØB	ØC	H:M6x1					H:M8x1					Y
				ØA	E	F	G	I	ØC	E	F	G	I	Flat
ZPT25D	25	28	20	3	25.5	25	51	8	3.5	30.5	15	46	12	10

DIMENSIONS PAD DIAMETERS Ø10, Ø13, Ø16



FLAT TYPE - FLAT WITH RIB

Model	ØA	ØB	C	D	G:M5x0.8		G:M6x1		Y	H:M6x1					H:M8x1					Y		
					E	F	E	F		Flat	Flat with rib	ØC	F	G	I	ØC	F	G	I	Flat	Flat with rib	
ZPT10U	10	12	12	17	20	38	25	43	3			10	12	12	17	20	38	25	43	3	1.7	
ZPT13U	13	15	12	17	20	38	25	43	3			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			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	H:M6x1					H:M8x1					Y		
					E	F	E	F		Flat	Flat with rib	ØC	F	G	I	ØC	F	G	I	Flat	Flat with rib	
ZPT10D	10	12	15	20	20	41	25	46	6			10	12	15	20	20	41	25	46	6		
ZPT16D	16	18	16	21	20	42	25	47	7			16	18	16	21	20	42	25	47	7		

HOW TO
ORDER
SEE NEXT PAGE 

**HOW TO
ORDER**
ZPT PAD VERTICAL TYPE WITHOUT BUFFER

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

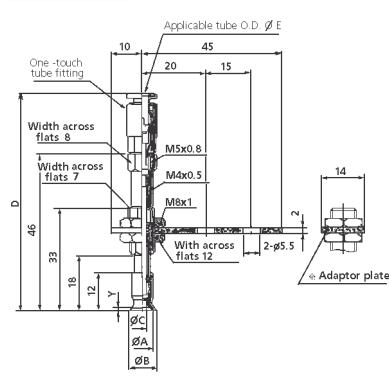
PAD TYPE

- 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	-	-	•	•
	B4	M4x0.7	•	-	-	-
Female Thread	B5	M5x0.8	•	•	•	-
	B6	M6x1	-	•	•	-
	B8	M8x1.25	-	-	•	•
	B01	1/8PT	-	•	•	•

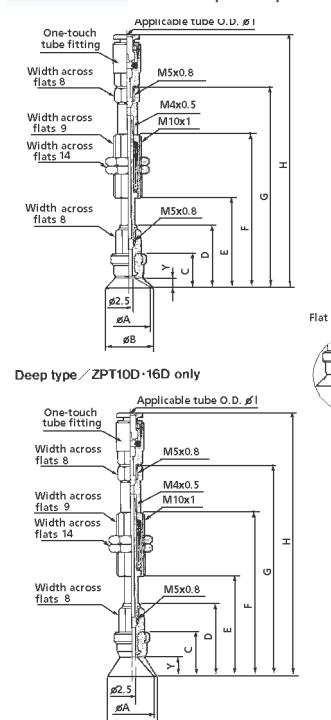
**ZPT VACUUM PADS
VERTICAL ENTRY WITH BUFFER**

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
ZPT10 ^U C	10	12	12	21	32.5	55.5	68.5	3	1.7
ZPT13 ^U C	13	15	12	21	32.5	55.5	68.5	3	1.8
ZPT16 ^U 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

Male thread	Symbol	Thread dia.	Ø2~Ø8	Ø10~Ø32	Ø40~Ø50
	A8	M8X1	●		
	A10	M10X1		●	
	A14	M14X1			●

VACUUM ENTRY

One-touch tube fitting	Symbol	Port size	Ø2~Ø8	Ø10~Ø32	Ø40~Ø50
	04	Ø4 tube	●	●	
	06	Ø6 tube	●	●	●
	08	Ø8 tube			●

BUFFER

Symbol	Stroke	Ø2~Ø8	Ø10~Ø32	Ø40~Ø50
K6	6mm	●		
K10	10mm		●	●
J6	6mm	●		
J10	10mm		●	●

Non-Rotating
Non-Rotating
With Buffer
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

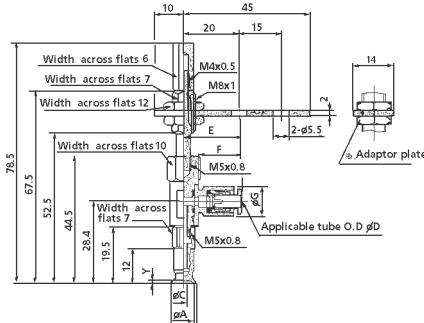
Pad Type	Flat type	Flat with rib	Deep type
Pad Diameter (mm)	2, 4, 6, 8, 10, 13, 16, 20, 25, 32, 40, 50	10, 13, 16, 20, 25, 32, 40, 50	10, 16, 25, 40
Material (Color)	NBR (Black)		
Hardness	50° shore		

FLAT TYPE

Model	ØA	ØB	ØC	ØD:Ø4			ØD:Ø6			Y
				E	F	ØG	E	F	ØG	
ZPR02U	2	2.6	1.2							0.8
ZPR04U	4	4.8	1.6							0.8
ZPR06U	6	7	2.5	20.6	15.6	10.4	21.6	16.6	12.8	0.8
ZPR08U	8	9	2.5							1

APPLICABLE TUBE

Applicable Tube O.D.	ØE
Ø4	10.4
Ø6	12.8

DIMENSIONS**PAD DIAMETERS Ø2, Ø4, Ø6, Ø8**

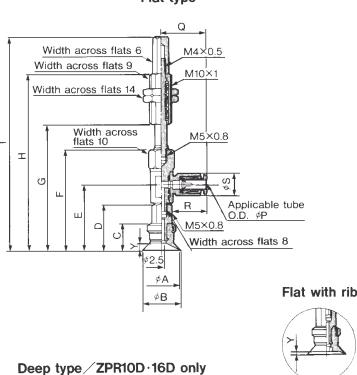
⇒ Adaptor plate: Provided as standard

MORE DIMENSIONS
SEE NEXT PAGE

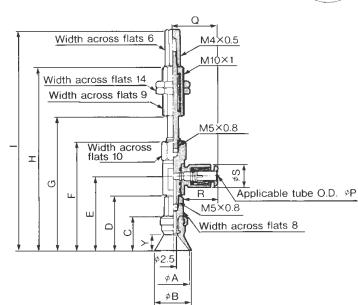

DIMENSIONS

PAD DIAMETERS Ø10, Ø13, Ø16

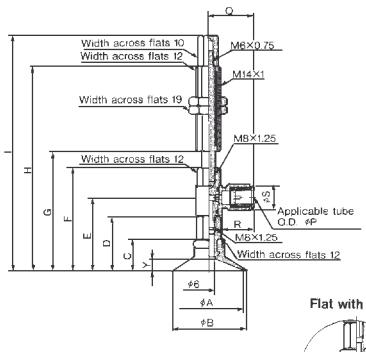
Hat type



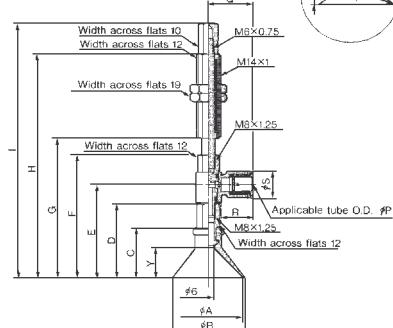
Deep type / ZPRIOD · 16D only


DIMENSIONS

PAD DIAMETERS Ø40, Ø50



Deep type / ZPR40D only


FLAT TYPE - FLAT WITH RIB

Model	ØA	ØB	C	D	E	F	G	H	I	Y	
										Flat	Flat with Rib
ZPR10 ^U _C	10	12	12	21	29.9	46	57	80	91	3	1.7
ZPR13 ^U _C	13	15	12	21	29.9	46	57	80	91	3	1.8
ZPR16 ^U _C	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

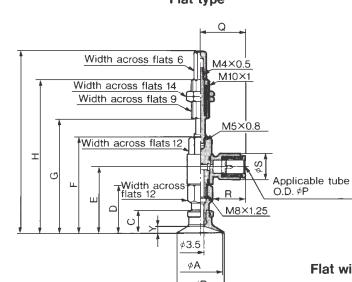
APPLICABLE TUBE

Applicable Tube O.D.	ØP	Q	R	ØS
Ø4	4	20.6	15.6	10.4
Ø6	6	21.6	16.6	12.8

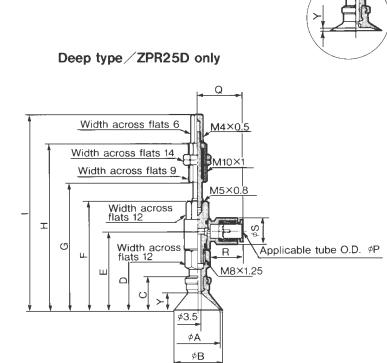

DIMENSIONS

PAD DIAMETERS Ø20, Ø25, Ø32

Flat type



Deep type / ZPR25D only


How To ORDER ZPR PAD HORIZONTAL TYPE WITH BUFFER

ZPR

PAD DIAMETER

02.....02	16.....016
04.....04	20.....020
06.....06	25.....025
08.....08	32.....032
10.....010	40.....040
13.....013	50.....050

PAD TYPE

UFlat
CFlat with Rib (Not Ø2, 4, 6, 8)
DDeep (Ø10, 16, 25, 40)
BBellows (Not Ø2, 4)

PAD MATERIAL

NNitrile Rubber (standard)
SSilicon Rubber
UUrethane
FFluorine Rubber
GN ...Anti-static Nitrile Rubber
GS ...Anti-static Silicon Rubber

FLAT TYPE - FLAT WITH RIB

Model	ØA	ØB	C	D	E	F	G	H	I	Y	
										Flat	Flat with Rib
ZPR40 ^U _C	40	43	18.5	32	42.8	60.6	72.6	122.6	140.6	6.5	3.3
ZPR50 ^U _C	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

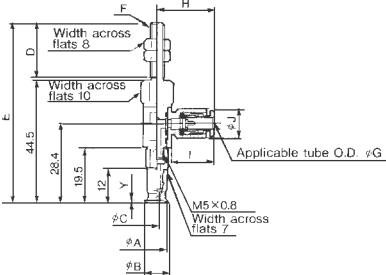
TECHNICAL SPECIFICATIONS

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

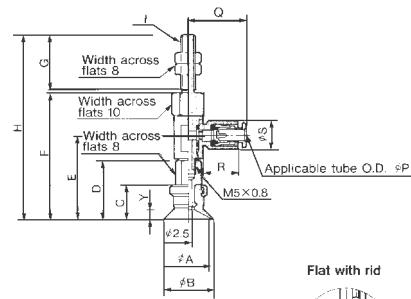
Model	ØA	ØB	ØC	F: M5X0.8		F: M6X1		Y
				D	E	D	E	
ZPR02U	2	2.6	1.2					0.8
ZPR04U	4	4.8	1.6	20	65.5	25	70.5	0.8
ZPR06U	6	7	2.5					0.8
ZPR08U	8	9	2.5					1

APPLICABLE TUBE

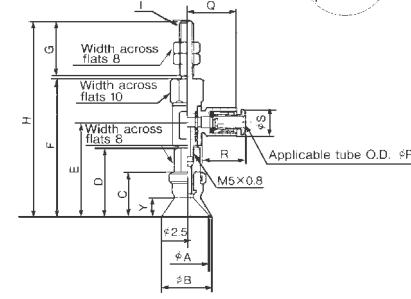
Applicable Tube OD	ØG	H	I	ØJ
Ø4	4	20.6	15.6	10.4
Ø6		6	21.6	16.68
				12.88

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
ZPR10 _C	10	12	12	21	29.9	46	20	67	25	72	3	1.7
ZPR13 _C	13	15	12	21	29.9	46	20	67	25	72	3	1.8
ZPR16 _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

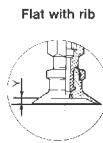
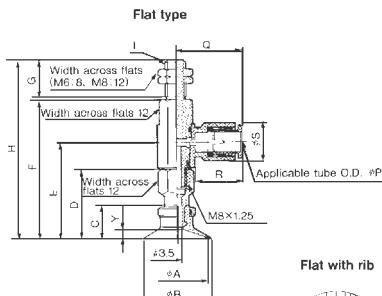
Applicable Tube OD	ØP	Q	R	ØS
Ø4	4	20.6	15.6	10.4
Ø6	6	21.6	16.6	12.8

MORE DIMENSIONS
SEE NEXT PAGE

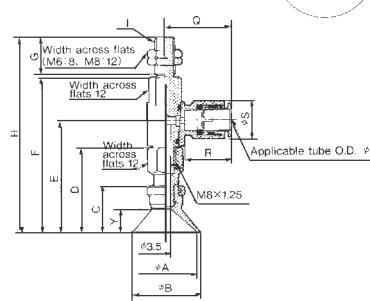
HOW TO
ORDER
SEE NEXT PAGE


DIMENSIONS

PAD DIAMETERS Ø20, Ø25, Ø32



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		
ZPR20 _U	20	23	14	29	39.8	57.6	25	83.5	15	73.5	4	1.7
ZPR25 _U	25	28	14	29	39.8	57.6	25	83.5	15	73.5	4	1.8
ZPR32 _U	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

HOW TO
ORDER
ZPR PAD HORIZONTAL TYPE WITHOUT BUFFER

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

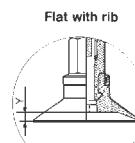
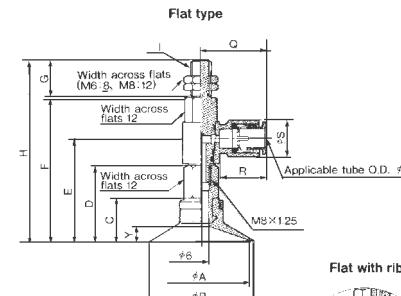
- U Flat
- C Flat with Rib (Not Ø2, 4, 6, 8)
- D Deep (Ø10, 16, 25, 40)
- B Bellows (Not Ø2, 4)

PAD MATERIAL

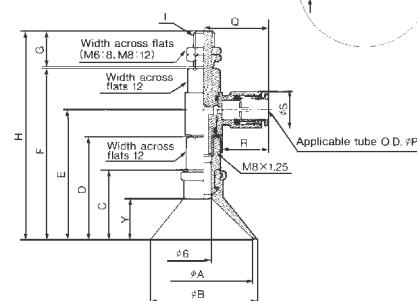
- N Nitrile Rubber (Standard)
- S Silicon Rubber
- U Urethane
- F Fluorine Rubber
- GN ... Anti-static Nitrile Rubber
- GS ... Anti-static Silicon Rubber


DIMENSIONS

PAD DIAMETERS Ø40, Ø50



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		
ZPR40 _U	40	43	18.5	32	42.8	60.6	25	86.5	15	76.5	6.5	3.3
ZPR50 _U	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

MOUNTING THREAD

Symbol	Thread Dia	Ø2~Ø8	Ø10~Ø16	Ø20~Ø32	Ø40~Ø50
A5	M5X0.8	●	●		
A6	M6X1	●	●	●	●
A8	M8X1			●	●

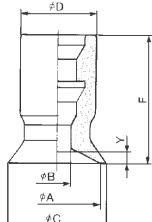
VACUUM ENTRY

Symbol	Port Size	Ø2~Ø8	Ø10~Ø16	Ø20~Ø32	Ø40~Ø50
One-Touch Tube	Ø4	Ø4 tube	●	●	
	Ø6	Ø6 tube	●	●	●
Fitting	Ø8	Ø8 tube			●

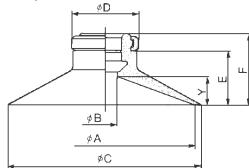
ZP SERIES VACUUM PADS

DIMENSIONS
ZP VACUUM PADS

ZP02U○~08U○



ZP10U○~50U○

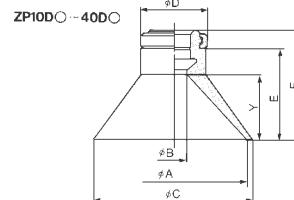


FLAT TYPE PAD

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

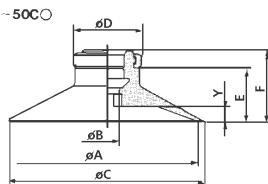
- ✓ 288 Standard Options
- ✓ 12 Diameters
- ✓ 4 Types
- ✓ 6 Materials

DIMENSIONS
ZP VACUUM PADS

DEEP TYPE PAD

Part No	Type	G	ØC	ØB	ØD	E	F	ØG	ØH	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		

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

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

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	A side-view diagram showing a cylindrical pad mounted onto a base plate with a central threaded hole.	A side-view diagram showing a cylindrical pad mounted onto a base plate with a central threaded hole, featuring a vertical rod extending upwards with a nut and lock washer.
ZPX	90° Vacuum Entry	A top-down diagram showing a rectangular base plate with a central threaded hole and a vertical cylindrical pad extending upwards at a 90-degree angle.	A top-down diagram showing a rectangular base plate with a central threaded hole and a vertical cylindrical pad extending upwards at a 90-degree angle, featuring a vertical rod extending upwards with a nut and lock washer.

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.

Series VT Not Available In The USA

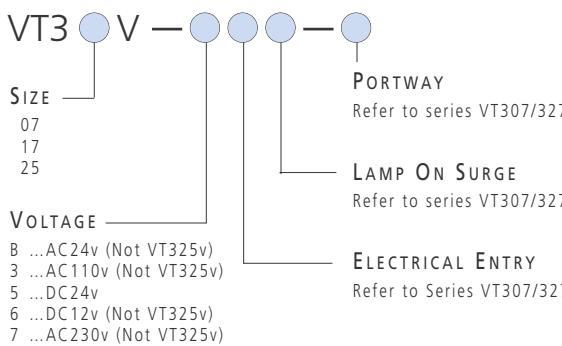
VALVE TYPES AVAILABLE

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.

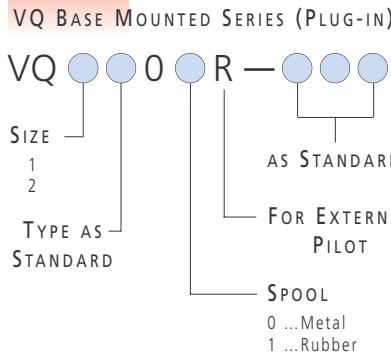
THREE-PORT VALVES

DIRECT ACTING – VT SERIES
(SEE VALVE SECTION) VACUUM VERSION



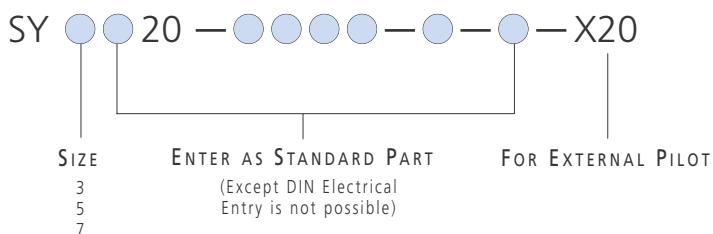
VZ100 SERIES (SEE VALVE SECTION)

External Pilot Types
VG342R (See Valve Section) VP34IR, VP54IR, VP74IR (See Valve Section)
VNB Series (See Valve Section)

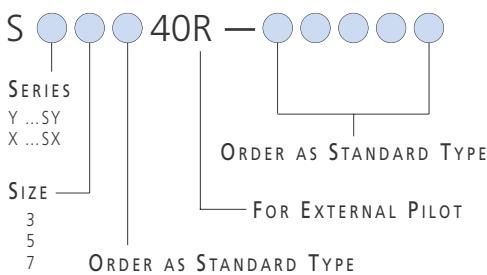


FIVE-PORT VALVES

SY BODY PARTED (SEE VALVE SECTION)



How To
ORDER
SY/SX BASE MOUNTED SERIES
(TO SUIT TYPE 42 MANIFOLDS)



CHECK VALVE SERIES NAK2000

CHECK VALVE FOR VACUUM

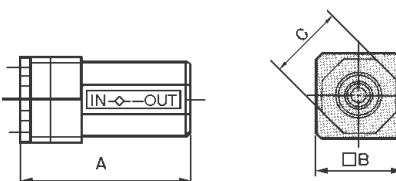
- ✓ Can be used with Vacuum Pressure -3 to -100kPa
- ✓ Low Cracking Pressure: 0.03Mpa



TECHNICAL SPECIFICATIONS (N)AK2000 SERIES

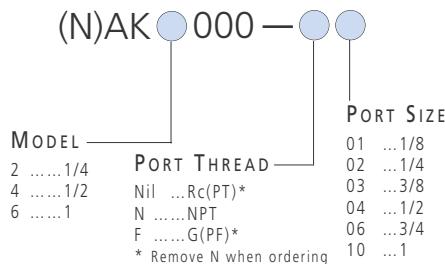
Proof Pressure	1.5MPa / 220PSI
Operating Pressure	0.003 ~ 1MPa / 0.4 ~ 145PSI
Pressure Range Vacuum	-3 to -100KPa / -0.4 ~ 14.5PSI
Fluid	Air
Temperature	5 ~ 60°C / 40 ~ 40°F
Port Size	Rc(PT) 1/8, 1/4
Effective Area	01: 25mm ² 02: 27.5mm ²

DIMENSIONS SERIES NAK



Model	Port Size NPT	A	B	C
NAK2000-N01, 02	1/8, 1/4	50	25	22
NAK4000-N02, 03, 04	1/4, 3/8, 1/2	67	36	36
NAK6000-N06, 10	3/4, 1	95	50	50

How To ORDER (N)AK2000 SERIES

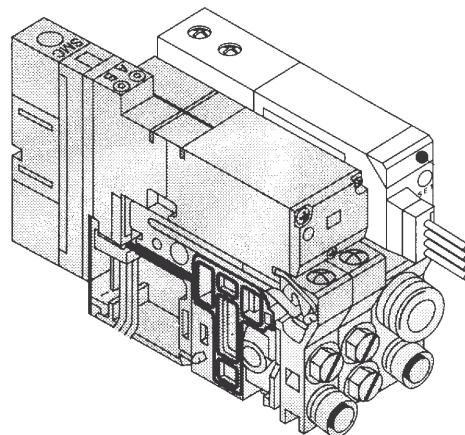


FOR FURTHER TECHNICAL DETAILS ON THIS
PRODUCT CONSULT SMC CUSTOMER SERVICE

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
- LWith 3m Grommet Lead
- CWith 0.6m Connector Lead
- CLWith 3m Connector Lead
- CNWithout 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 wireZS-20-5A-50

LEAD WIRE

- Blank 0.6m
- 30 ...3m
- 50 ...5m

How To ORDER Vacuum Ejector Unit

VVQ1000 — | — J

MANIFOLD TYPE

- 1Plug-in Unit

NOZZLE DIAMETER & VACUUM SWITCH OPTION

- AØ0.7 Including Vacuum Release Valve with Vacuum Switch
- BØ1.0 Including Vacuum Release Valve with Vacuum Switch
- CØ0.7 Including Vacuum Release Valve without Vacuum Switch
- DØ1.0 Including Vacuum Release Valve without Vacuum Switch

How To ORDER VACUUM EJECTOR VALVE

VVQ1000 — | — J

MANIFOLD TYPE

- 1Plug-in Unit

NOZZLE DIAMETER

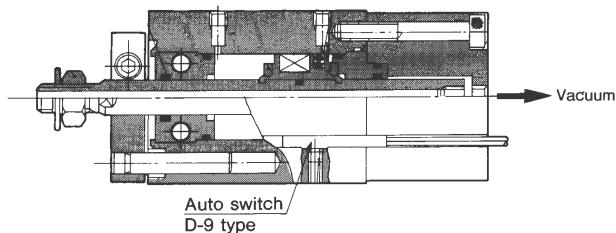
- AØ0.7: With Vacuum Release Valve
- BØ1.0: With Vacuum Release Valve

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°				


 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

 How To
 ORDER
 SERIES ZCDUK


-Without
 DWith

TYPE ——————|

Ccap mounting/Male thread
 DCap mounting/Pad direct mounting
 QRod mounting/Male thread
 RRod mounting/Pad direct mounting

BORE SIZE ——————|

10 ...Ø10mm
 16 ...Ø16mm
 20 ...Ø20mm
 25 ...Ø25mm
 32 ...Ø32mm

STROKE ——————|

5,10,15,20,25,30Ø10,16mm only
 5,10,15,20,25,30,40,50Ø20,25,32mm 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
 S1Switch

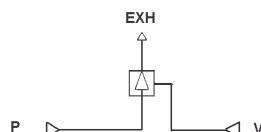
ZU VACUUM EJECTOR

- ✓ 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

S Y M B O L S



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 nL/min	7	9	10	18
Air Consumption nL/min	9.5	19	9.5	19

How To ORDER ZU VACUUM EJECTOR

ZU

NOZZLE DIAMETER

05 ... 0.5mm

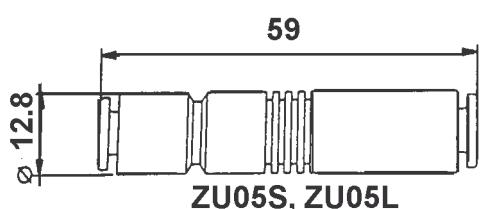
07 ... 0.7mm

VACUUM TYPE

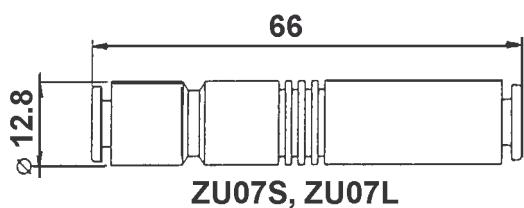
SHigh Vacuum Type
(-640mmHg / -12PSI)

LLow Vacuum Type
(-360mmHg / -7PSI)

DIMENSIONS SERIES ZU



APPLICABLE TUBE OD ø6



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	

**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.
	AC125	5	1.5	0.7	3	2.5	1.3
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 M Ω @ 500V (DC)

*High Inrush Circuits

How To Order

PNEUMATIC PRESSURE SWITCH: SERIES IS3000

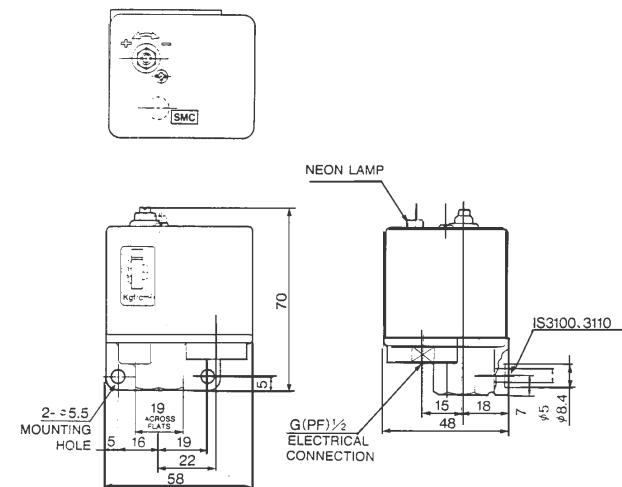
The diagram illustrates the connection between the IS30 port and the microswitch type. The IS30 port is connected to a vertical line, which then branches into two horizontal lines. The top horizontal line leads to a box labeled "CONNECTION". The bottom horizontal line leads to a box labeled "MICROSWITCH TYPE".

- CONNECTION:**
 - 0Rc(PT)^{1/4}
 - 1Flange
- MICROSWITCH TYPE:**
 - 0Standard
 - 1Microload

Below the "MICROSWITCH TYPE" section, there is another section labeled "PORT SIZE" with the following options:

-Flange Mounted
- 02 ...Rc(PT) 1/4
- N02 ...NPT 1/4

DIMENSIONS PNEUMATIC PRESSURE SWITCH: SERIES IS3000



PNEUMATIC PRESSURE SWITCH: SERIES ISG

- ✓ ISG Pressure Switches are widely 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

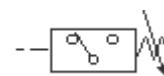


TECHNICAL SPECIFICATIONS

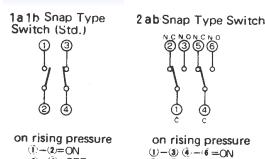
Fluid	Air, Non corrosive water, oil gases*
Pressure Setting Range	0.05~1MPa / 7~145PSI
Adjustable Differential	0.03~0.6MPa / 5~90PSI
Max Operating Pressure	1.5MPa / 220PSI
Electrical Contacts	1a, 1b Dual Contact
Electrical Entry	Grommet
Inlet Port Size	R 1/4 (male)
Ambient and Fluid Temp	Max 60°C / 140°F
Weight	1.3 kg

*Materials in contact with fluid, phosphor bronze/brass

SYMBOLS



CONTACTS



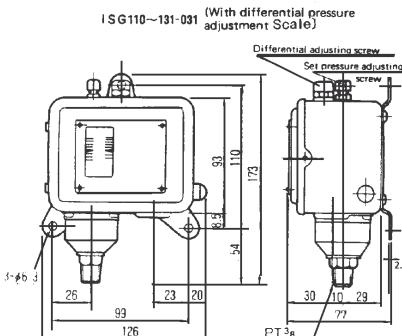
ELECTRICAL CAPACITY

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 MΩ min at 500V DC
Test voltage AC 2000V for 1 minute

DIMENSIONS

PNEUMATIC PRESSURE SWITCH: SERIES ISG



How To Order

PNEUMATIC PRESSURE SWITCH: SERIES ISG
ISG130-031

FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT CONSULT SMC CUSTOMER SERVICE



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
Proof Pressure	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)

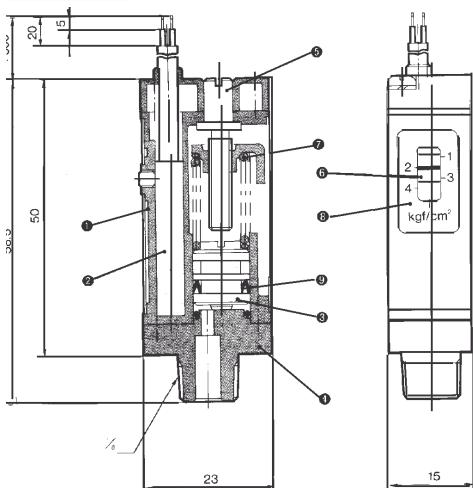
SWITCH CHARACTERISTICS

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

DIMENSIONS

COMPACT PRESSURE SWITCH: SERIES IS1000



SYMBOLS



ELECTRICAL CIRCUIT

Up to 100V AC/DC



HOW TO ORDER COMPACT PRESSURE SWITCH: SERIES IS1000

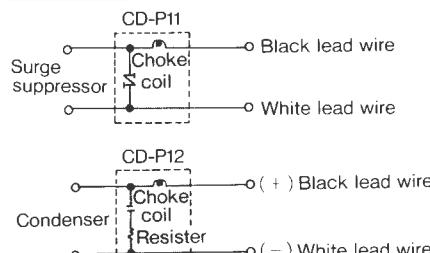
IS1000 — 01 —

PORT THREAD

01 ...1/8 PT
N01 ...NPT1/8

Set Pressure Range	Lead Wire Length
-X201	1~4 bar
-X215	1.5~6 bar

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

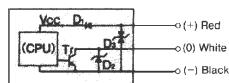
- ✓ Digital Pressure Gauge Function added to Pressure Switch
- ✓ Semi-Conductor Sensor
- ✓ High Reliability
- ✓ Easy Operation
- ✓ Low Power Consumption
- ✓ Digital Display of Low Limit during setting
- ✓ 5 Options of Displayed Pressure Unit
- ✓ Preliminary Alarm Display gives warning that pressure is within 10% of set point

TECHNICAL SPECIFICATIONS

Fluid		Air and Insert Gas			
Differential		3% F.S (Full Span) or less			
Accuracy		$\pm 3\%$ F.S (5~40°C) $\pm 5\%$ F.S (0~60°C)			
Operating Voltage		12 to 24 VDC (Ripple: $\pm 10\%$ 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/cm ²	MPa	bar
Preset Pressure Range	0~142	0~975	0~9.9	0~0.98	0~9.8



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

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:

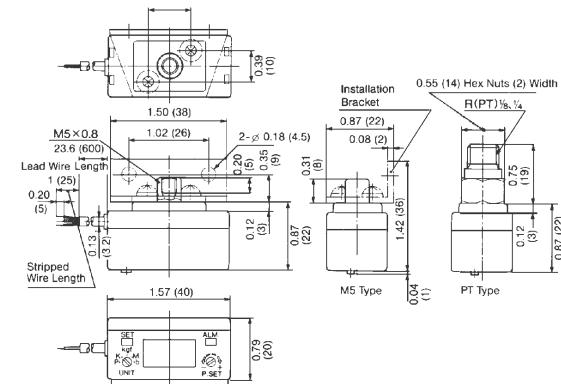
When the unit change switch (5) UNIT is adjusted to each position, the unit and figures of the pressure display change. P:psi, K:KPa, kgf:kgf/cm², M:MPa, b:bar

ALARM DISPLAY

When the pressure reaches within $\pm 10\%$ of the value preset by a pressure switch value, the LCD lights to show that the pressure is approaching the preset value.

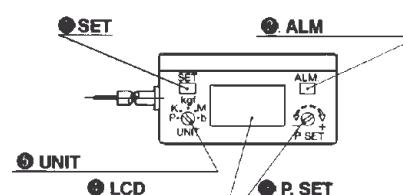
When the line pressure becomes lower than the preset pressure, the LED (red) of (2) ALM lights and the switch turns on.

DIMENSIONS PRESSURE SWITCH GS40

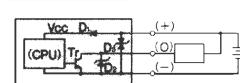


How To ORDER PRESSURE SWITCH GS40

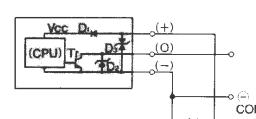
GS40-01



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

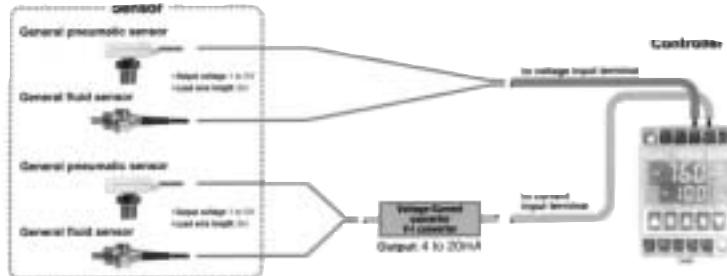
Model No	PSE100	PSE101
Output	NPN Open Collector	PNP Open Collector
	Max 30V 80mA	Max 80mA
Output Point	2CH x 2 output	
Source Voltage	12~24VDC (ripple 10% or less)	
Current Consumption	250mA or less	
Pressure Range Display	-99.9~10kPa (vacuum), -10~100kPa (low pressure), -0.1~1MPa (high pressure)	
Display Resolution	0.1kPa (vacuum and low pressure) 1kPa (high pressure)	
Display Unit:	Vacuum and Low Pressure High Pressure	kPa, mmHg, kgf/cm ² , bar, 1inHg kPa, MPa, kgf/cm ² , 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	500Vp-p pulse width 1μs standing 1ns	+0.2% F.S. or less
Noise Resistance	Between whole wires and case 1000VAC 50/60Hz for one minute	
Withstand Voltage	Between whole wires and case 2MΩ (500VDC by megameter)	
Insulation Resistance		
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 Voltage Input Current Input	Same as Source Voltage 1~5V (Input Impedance: 100kΩ) 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

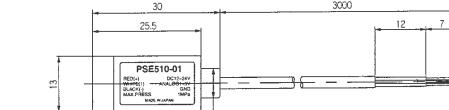
 -Blank (Standard)
 X108 ...PSI Display

MOUNTING

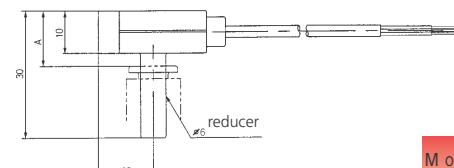
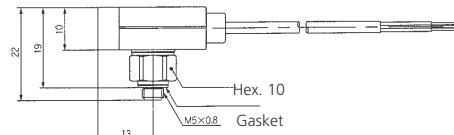
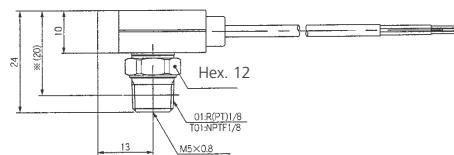
 APanel mount
 BWall/DIN rail mount

OUTPUT TYPE

 0NPN
 1PNP

 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	+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)

TECHNICAL
SPECIFICATIONS

PRESSURE SENSOR (NON-CORROUSIVE GAS AND LIQUID)

Model No	PSE520-01	PSE520-02
Operating Pressure Range	0~1MPa (0~145PSI)	0~2MPa (30PSI)
Max Operating Pressure		
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	+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	

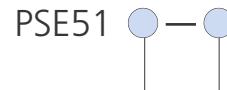
• Based on 25°C (80°F)

TECHNICAL
SPECIFICATIONS
CONNECTION

Part No	R06	M5	01
Material	Case	Resin case:PBT	Resin case:PBT
		Fitting:SUS303	Fitting C3604BD (Electroless nickel plating)
Pressure Detecting Portion		Pressure Sensor: Silicon, O-Ring: BBR	
Lead Wire	Oil-proof capture 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)

How To
Order

AIR/INERT GAS SENSOR



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

0High pressure (0~1MPa)
1Vacuum (-101~0kPa)
2Low pressure (0~100kPa)

How To
Order

GAS AND LIQUID SENSOR



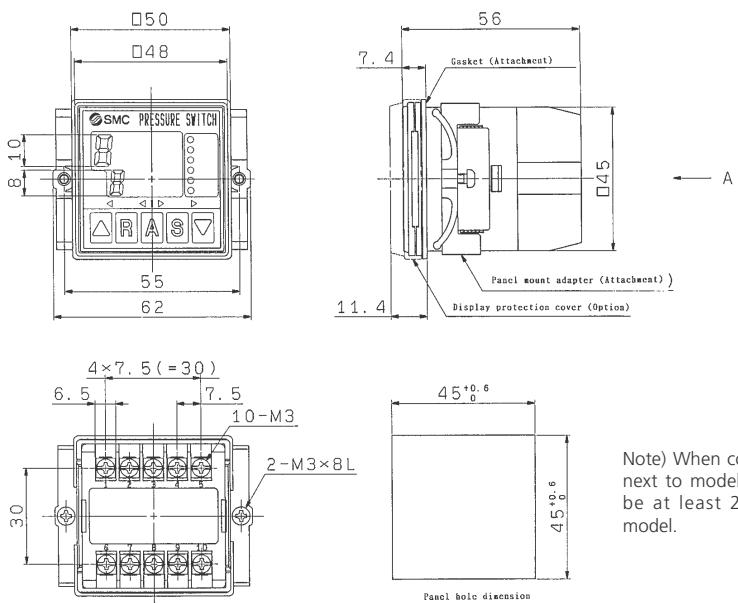
PORT SIZE

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

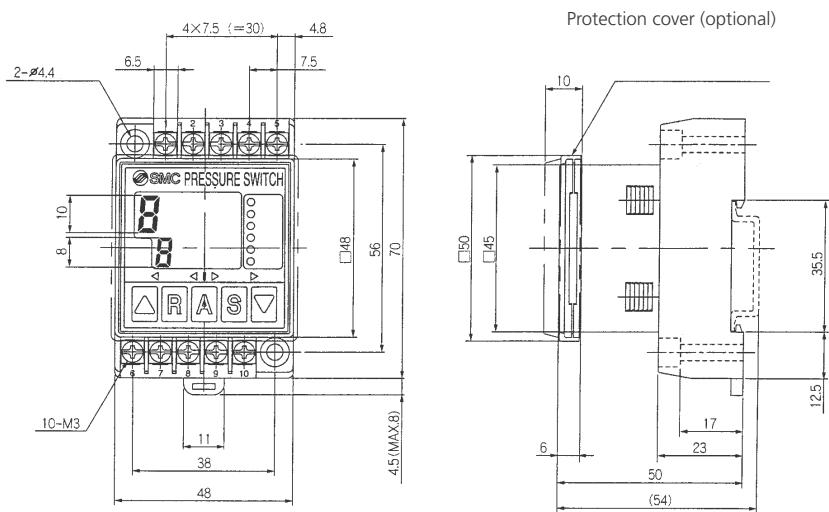
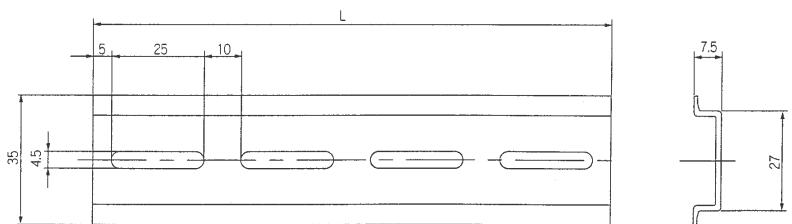
FOR FURTHER TECHNICAL INFORMATION
ON THIS SERIES, REFER TO CAT:E818

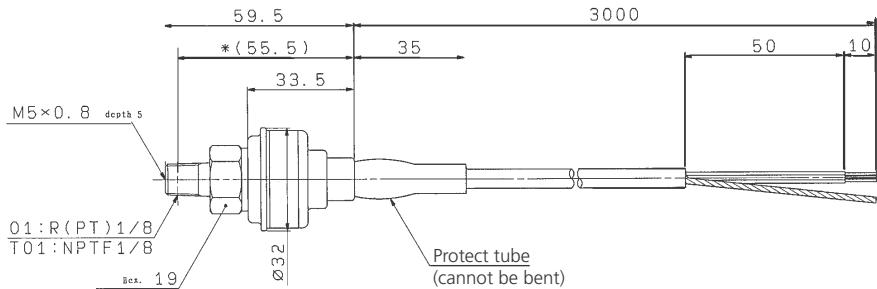
ACCESSORIES

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

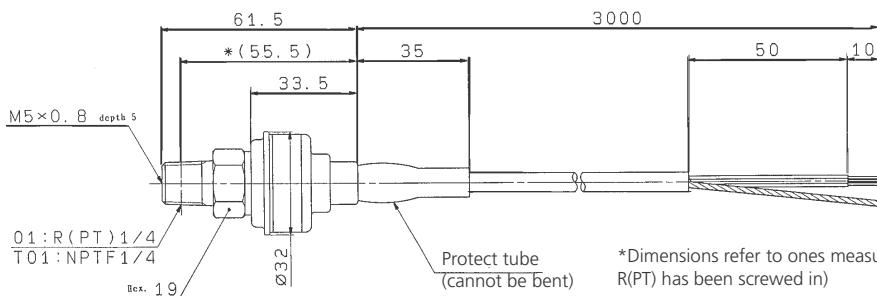

DIMENSIONS
A: PANEL MOUNTED TYPE / PSE100


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-R06L
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	$\leq 4\%$ F.S.	
Temperature Characteristics	$\leq 3\%$ F.S.	
Repetition Accuracy	$\leq \pm 1\%$ F.S.	
Load Voltage	DC12~24V (Ripple $\leq \pm 10\%$)	
Load Current	5~40mA	
Leak Current	$\leq 1\text{mA}$	
Inner Drop Voltage	$\leq 5\text{V}$	
Switch Output (see Diagram)	Present Pressure \geq Set Pressure: ON	Present Pressure \leq 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, 0.18mm ² , 3m	


 HOW TO
 ORDER
 SERIES
 PS1000 / 1100

PS 00 — L

 WIRING METHOD
 L Grommet and Lead Wire 3m

 PIPING METHOD
 R06 ... Ø6 Reducer
 R07 ... 1/4" Reducer

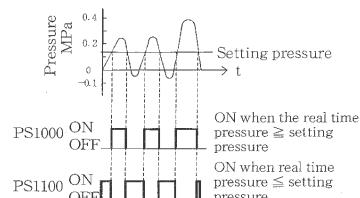
SWITCH SPECIFICATION

- 10 ... 2-Wire System (for Positive Pressure)
 11 ... 2-Wire System (for Vacuum and Residual Pressure)

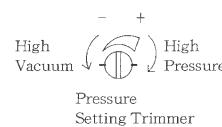
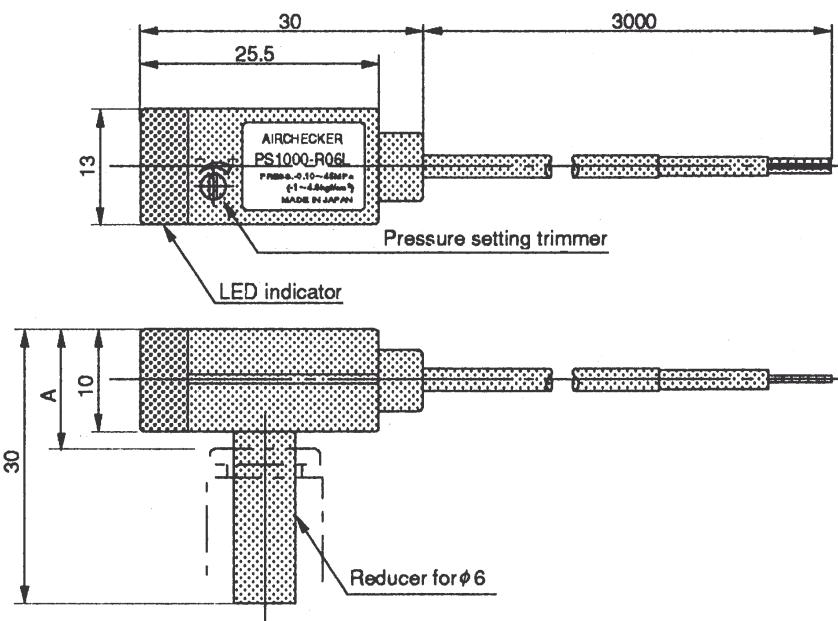
 DIMENSIONS
 PS1000/1100

 FOR FURTHER TECHNICAL INFORMATION
 ON THIS SERIES, REFER TO CAT:E817

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 \ominus 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/cm ² = 0.01 PSI: 0.1 Bar: 0.01 MPa: 0.01	kgf/cm ² = 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:

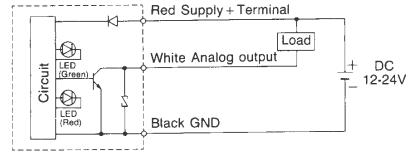
Minimum Differential

- 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

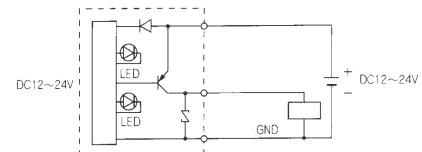
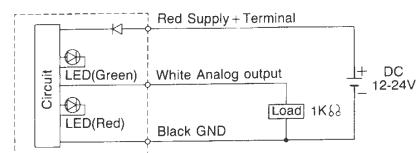
OUTPUT SPECIFICATIONS

Model	Item	Output Method	Output Specifications
ZSE4- ⁰¹ -25	Vacuum	NPN output	NPN open collector 30V, 80mA, residual voltage: 1V or less
ZSE4- ⁰¹ -26		Analog output	1~5V (\pm 5%F.S.), load impedance : 1kΩ
ZSE4- ⁰¹ -65		PNP output	PNP open collector 80mA
ISE4L- ⁰¹ -25	Positive Pressure (100KPa (14.5PSI) Type	NPN output	NPN open collector 30V, 80mA, residual voltage: 1V or less
ISE4L- ⁰¹ -26		Analog output	1~5V (\pm 5%F.S.), load impedance: 1kΩ
ISE4L- ⁰¹ -65		PNP output	PNP open collector 80mA
ISE4- ⁰¹ -25	Positive Pressure 1MPa (145PSI) Type	NPN output	NPN open collector 30V, 80mA, residual voltage : 1V or less
ISE4- ⁰¹ -26		Analog output	1~5(\pm 5%F.S.), load impedance: 1kΩ
ISE4- ⁰¹ -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

LCDDisplays 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

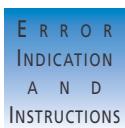
SET keySwitches to the Setting Mode
 When the button is pressed for one second or more, the mode changes to the output mode.

UP keyIncreases ON/OFF Setting Value.
 When the button is pressed during Pressure Display the mode changes to the peak display mode*

DOWN keyDecreases 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.

RESETClears 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.



When an error occurs, take the following steps.

Display	Situation	Solution
E1 dE E1 dE	Set data is corrupted by some external influence	Push "Reset" and re-insert settings
E2 CE1 E2 CE1	Over current is evident in (Output 1) switch	Switch off power supply. Remove cause of the excess load.
E3 PE 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

How To ORDER
 VACUUM PRESSURE SWITCH
 SERIES ZSE4

ZSE4B —

OPTIONS —
 -Non-Backlit (Standard)
 BBacklit 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
 LGrommet entry 3m lead

How To ORDER
 POSITIVE PRESSURE SWITCH
 SERIES ISE4

ISE4 —

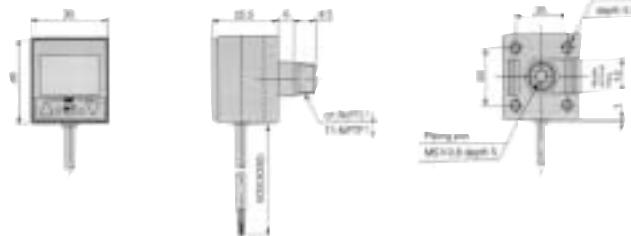
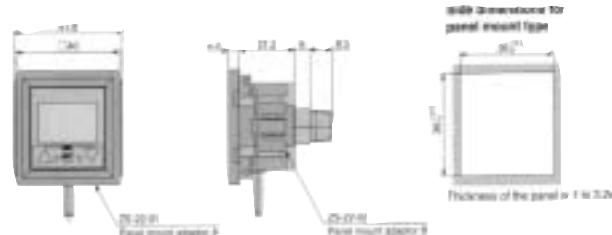
OPERATING PRESSURE —
 --0.1 ~ 1MPa
 L-10 ~ 100KPa

OPTIONS —
 -Non-Backlit (Standard)
 BBacklit LCD

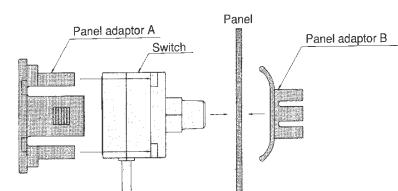
PIPING SPECIFICATIONS —
 01 ...Direct Piping PT 1/8
 T1 ...NPTF 1/8

SWITCH SPECIFICATIONS —
 65 ...3 Wire Output PNP
 25 ...3 Wire Output NPN
 26 ...3 Wire Analog Output

WIRING SPECIFICATIONS —
 LGrommet Entry 3m Lead
 -0.6m


DIMENSIONS
 SERIES ZSE4/ISE4 STANDARD TYPE

DIMENSIONS
 SERIES ZSE4/ISE4 PANEL MOUNTING TYPE

ACCESSORIES
 ZSE4/ISE4

Panel Mount AdaptorZS-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

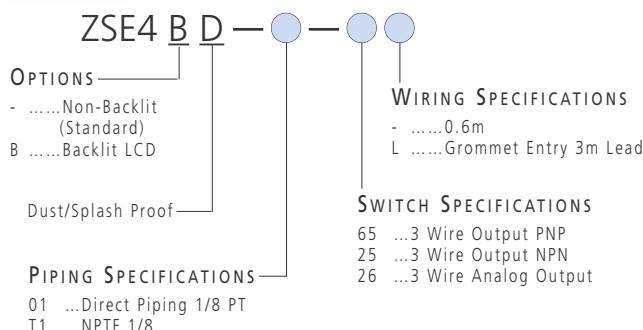
As for ZSE4B/ISE4B except:
 Weight 110g
 Port Size 1/8 (Taper Female)
 Enclosure IP66 According to IEC 529



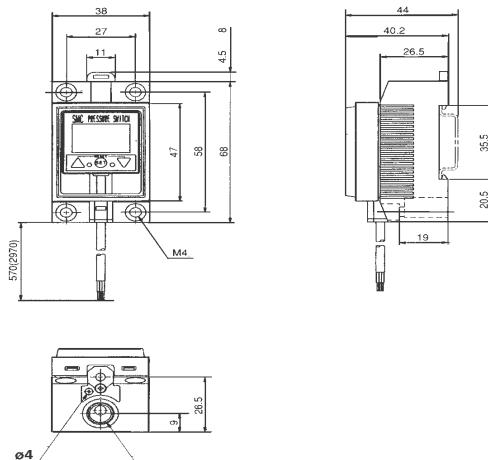
BREATHER PIPING METHOD

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.

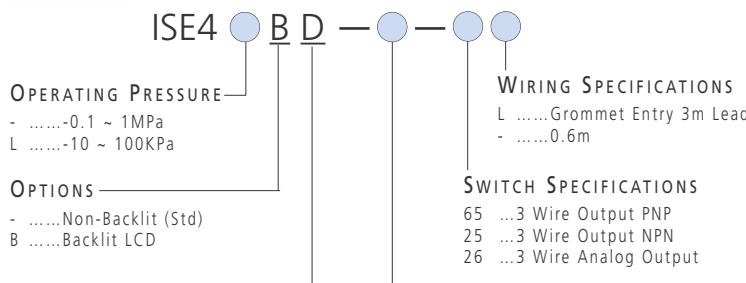
How To ORDER VACUUM PRESSURE SWITCH SERIES ZSE4D



DIMENSIONS ZSE4D/ISE4D

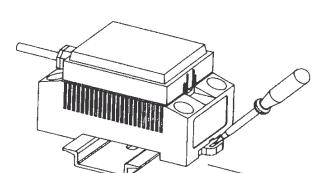
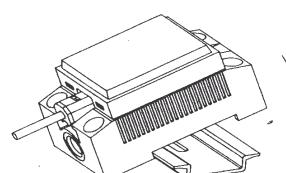


How To ORDER POSITIVE PRESSURE SWITCH SERIES ISE4



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/cm ² , bar			MPa, PSI, kgf/cm ² , bar		
Min Setting Range	mmHg:10, kPa:2, PSI: 0.2 kgf/cm ² : 0.02, bar: 0.02			MPa: 0.01, PSI: 1 kgf/cm ² : 0.1, bar: 0.1		
Hysteresis ^{•1} : Hysteresis Mode Window Comparator Mode	- -	Adjustable (2 digit or more) Fixed (2 digit)	-	- -	Adjustable (3 digit or more) Fixed (3-digit)	-
Display Light	-	ON: turn on light	-	-	ON: turn on light	-
Response Frequency	-	200Hz	Output 1: Green, 2: Red	-	Output 1: Green, 2: Red	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. 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	3½ 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

ZSEWhen 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.

ISEWhen 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:

ZSEThe hysteresis is two digits, so separate P1 from P2 by five digits or more and set them.

ISEThe 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)
- BBacklit LCD

PIPING SPECIFICATIONS

- 02 ...PT 1/4
- T2 ...NPTF 1/4

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)
- BBacklit LCD

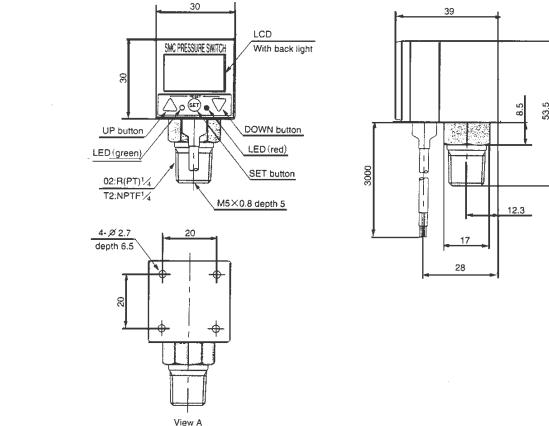
PIPING SPECIFICATIONS

- 02 ...PT 1/4
- T2 ...NPTF 1/4

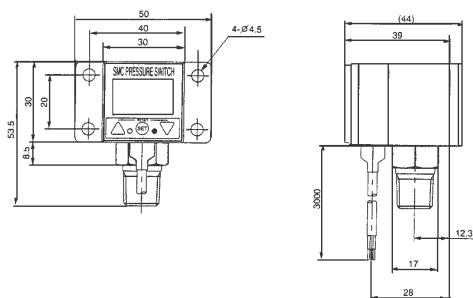
SWITCH SPECIFICATIONS

- 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

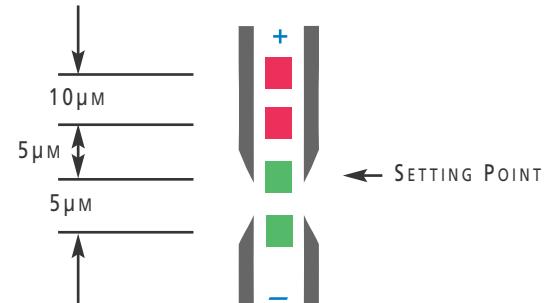
Fluid Dry air filtered to 5µm
 Operating Pressure 0.05MPa~0.2MPa (7~30PSI)
 Pressure Range 0.1MPa~0.2MPa (14.5~30PSI)
 Detection Distance Range 0.01~0.3mm
 Repeatability ±0.01mm (@25°C / 180°F)
 Hysteresis ≤ 0.01mm (Detection distance (0.01~0.15mm))
 Detection Nozzle Bore Size Ø1 standard
 Indication Operation lamp: Green when on + deviation indicator
 Power Supply Voltage DC12~24V
 Current Consumption ≤ 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. gauge & 5m lead wire)
 Port Size Rc 1/8
 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

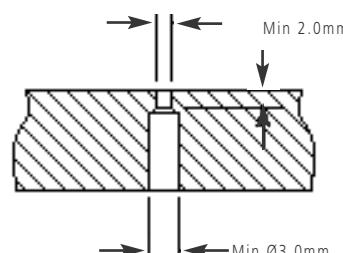
Red LED = Output is OFF
 Green LED = Output is ON



NOZZLE TYPE

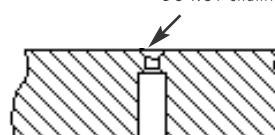
The detection nozzle should have an I.D. of between 1.0~2.0mm and 2mm in depth. Avoid chamfering the edge of the nozzle. Chamfering causes a narrower detection distance range.

Ø1.0 ~ 2.0mm



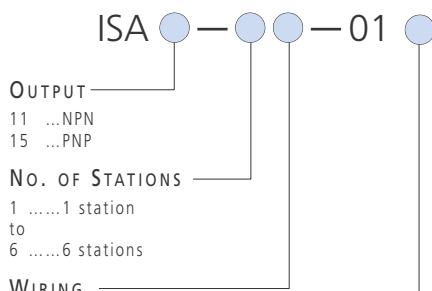
Correct ✓

DO NOT chamfer the nozzle



Incorrect X

DIMENSIONS
SEE PAGE 7.16

 How To
ORDER
AIR CATCH SENSOR SERIES ISA

 ACCESSORIES
AIR CATCH SENSOR SERIES ISA

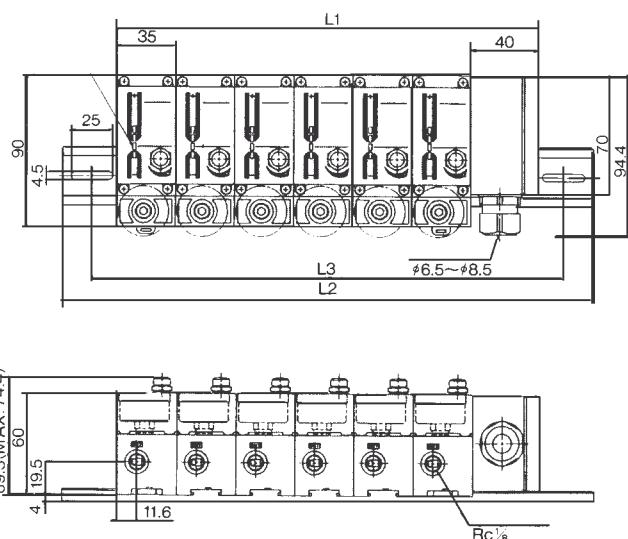
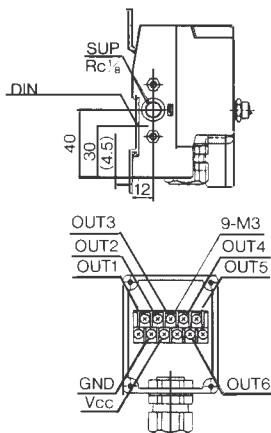
Bracket ISA-1-A
 Gauge G33-3-01

FOR FURTHER TECHNICAL INFORMATION
ON THIS SERIES, REQUEST CAT:E816



DIMENSIONS
TERMINAL BOX TYPE

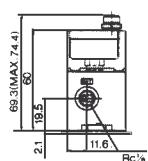
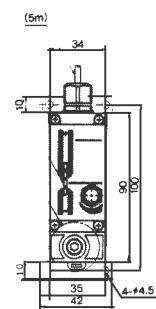
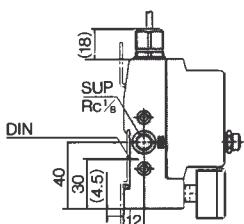
DIN



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



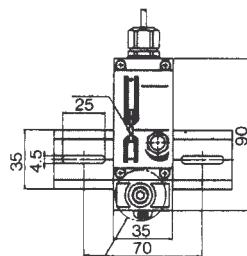
DIMENSIONS
SINGLE UNIT TYPE



No. of Sensors	2	3	4	5	6
L1	70	105	140	175	210
L2	-	36	71	106	141



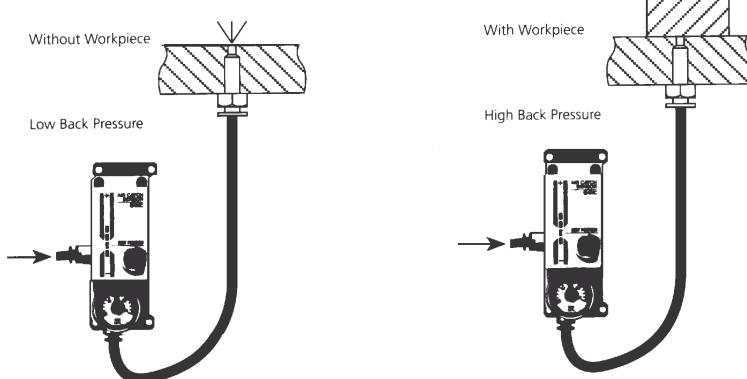
DIMENSIONS
SINGLE UNIT: DIN RAIL MOUNT



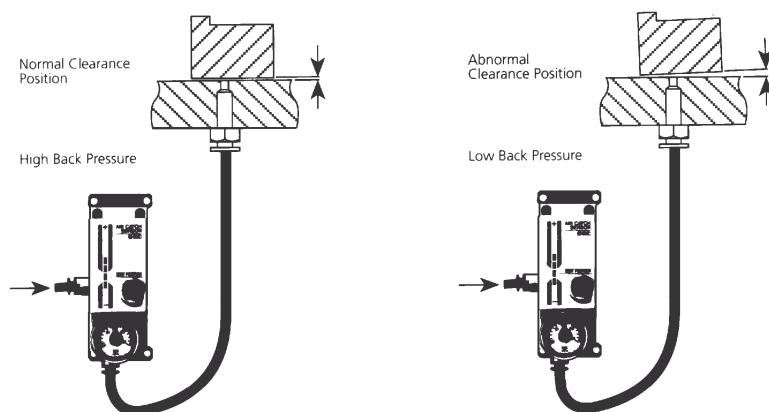
No. of Sensors	2	3	4	5	6
L1	70	105	140	175	210
L2	105	140	175	210	245
L3	140	175	210	245	280

APPLICATIONS

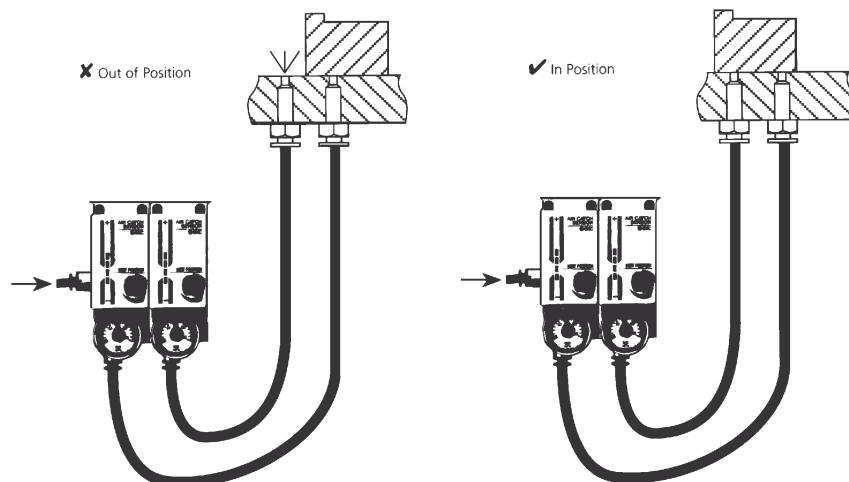
1. CHECKING THE PRESENCE OF A WORKPIECE



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	0.005~0.2MPa (0.7~30PSI)	0.005~0.4MPa (0.7~50PSI)	0.005~0.8MPa (0.7~120PSI)
Range			
Sensitivity		0.2% FS Max	
Repeatability		±0.5% FS Max	
Air Consumption	Series 10□0: 5//min Max at Supply Pressure of 1MPa IR20□0: 4//min Max at Supply Pressure of 1MPa Note 2) IR20□0: 3//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

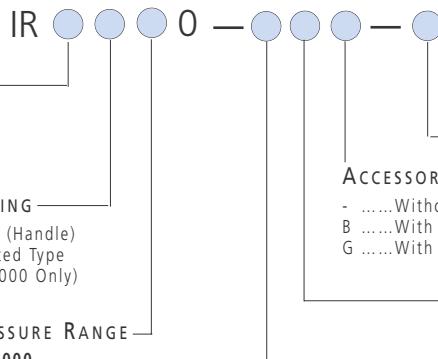
Note 2) Air is always bleeding to atmosphere

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	3000: 0.01~0.2MPa 3010: 0.01~0.4MPa 3020: 0.01~0.8MPa	0.005~0.8MPa	0.01~0.8MPa
Range			
Sensitivity	0.2% FS Max		
Repeatability	±0.5% FS Max		
Air Supply Pressure at 1MPa at 0.7MPa	≤9.5//min (Bleed P) ≤2//min (EXH)	≤4//min ≤3//min	≤9.5//min ≤2//min at Max
Air Consumption			
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



RPressure 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

REGULATING PRESSURE RANGE

For Series IR1000/2000

00.005~0.2 MPa / 0.7~30PSI
 10.005~0.4 MPa / 0.7~60PSI
 20.005~0.8 MPa / 0.7~120PSI

For Series IR3000

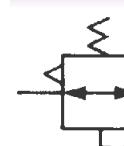
00.01~0.2 MPa
 10.01~0.4 MPa
 20.01~0.8 MPa

ACCESSORIES

SERIES IR1000/2000/3000

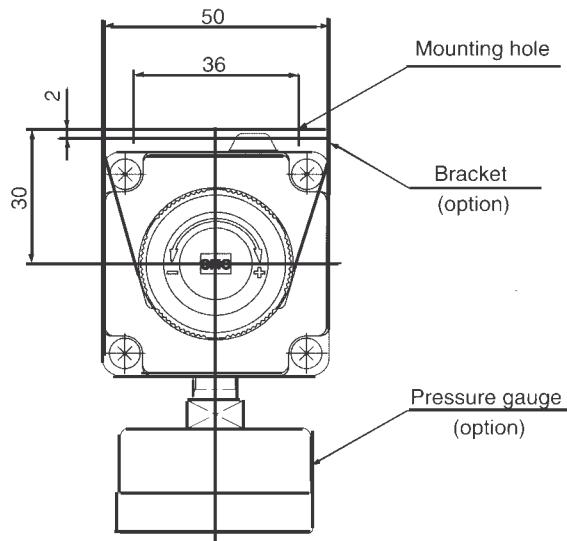
Model	IR1000	IR1010	IR1020	IR2000	IR2010	IR2020/2120	IR3000	IR3010	IR3020/3120
Bracket	P36201023			P36202028			P36203018		
Pressure Gauge	G33-2-01	G33-4-01	G33-10-01	G43-2-01	G43-4-01	G43-10-01	G43-10-01	G43-4-01	G43-10-01

Accuracy ± 3% (full span)

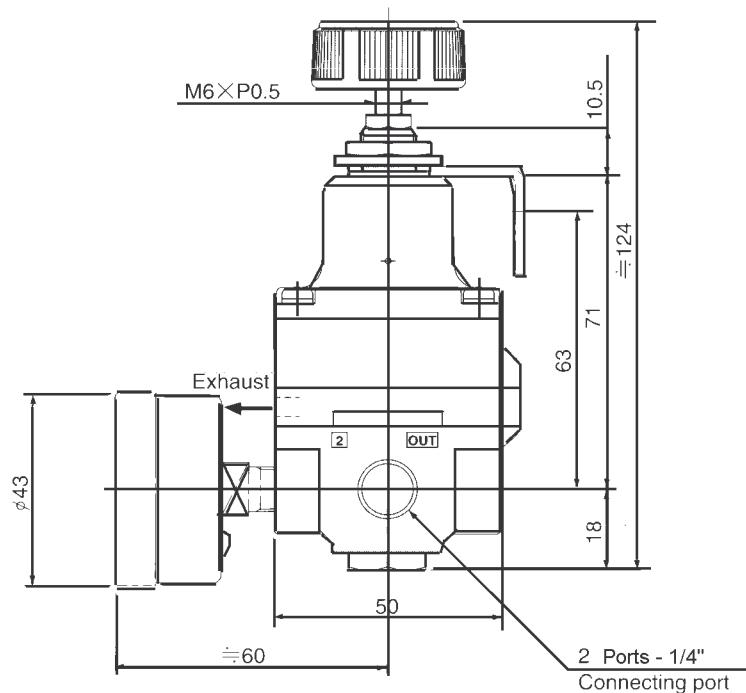
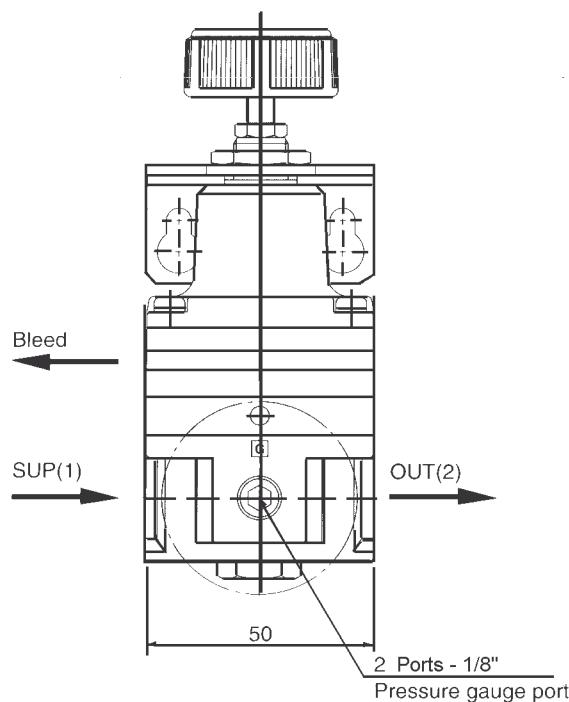
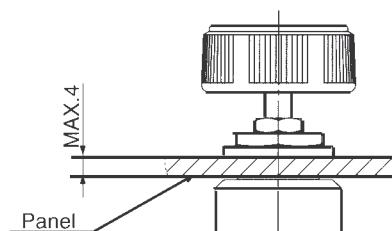


DIMENSIONS

PRECISION REGULATOR SERIES IR2000



Panel mounting hole



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□
Max Supply Pressure	ITV301□	ITV303□	ITV305□
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)}	4~20mA, 0~20mA DC	
	Voltage Type	0~5VDC, 0~10VDC	
Input Impedance	Current Type	250Ω or less	
	Voltage Type	Approx 6.5Ω	
Output Signal ^{Note2)}	Analog Output	1 ~ 5 VDC / 4 ~ 20mA DC	
	Switch Output	NPN Open Collector Output: 30V, 30mA PNP Open Collector Output: 30V, 30mA	
Linearity		±1% or less (Full Span)	
Hysteresis		±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/cm ² : 0.01, Bar: 0.01, PSI: 0.1 ^{Note3)} , KPa: 1	
Ambient Fluid Temperature		5 ~ 50°C / 40 ~ 122°F (No Dew Condensation)	

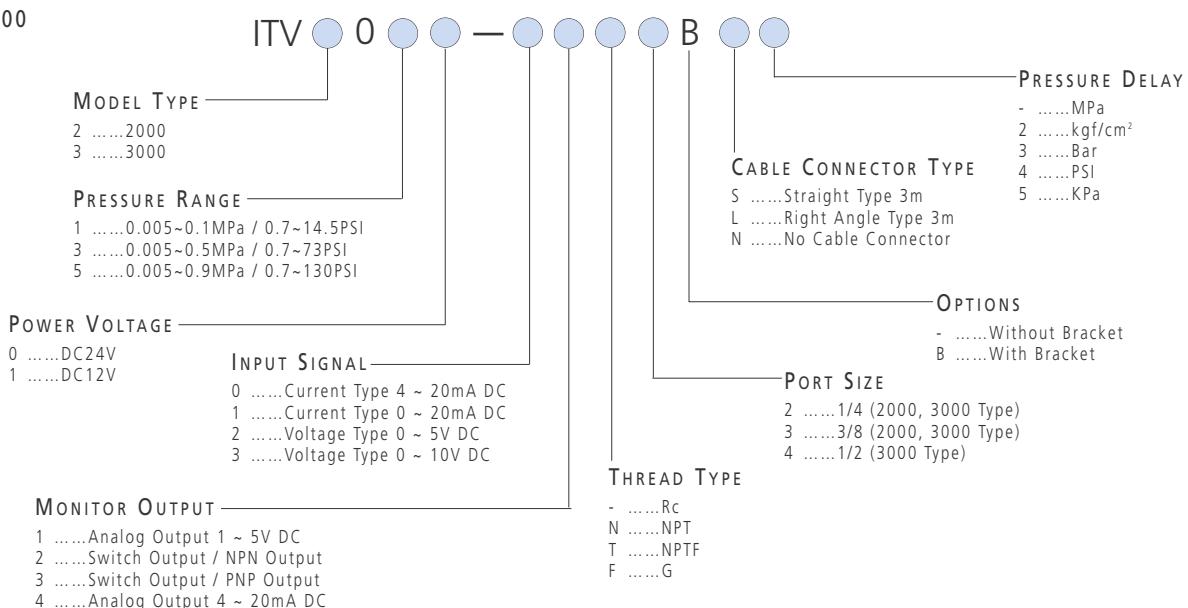


Note 1) 2 Wire 4~20mA DC and 2 Wire mA DC are not possible. Power Voltage (24VDC or 12 VDC) is necessary.

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



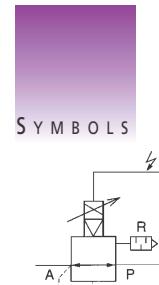
ELECTRO-PNEUMATIC HYBRID REGULATOR SERIES VY

- ✓ 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

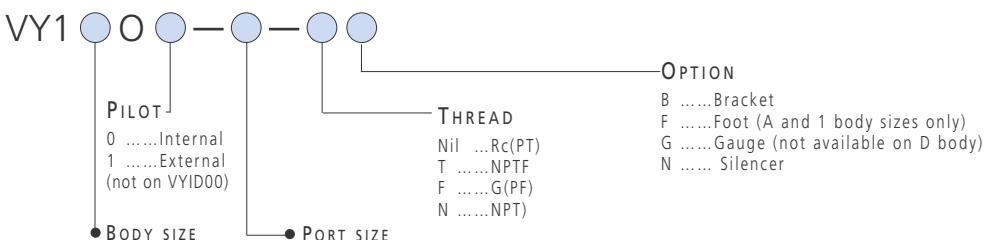
An applicable solution for applications where the precision and response of the IT range is not required. The VY-HyReg Range is constructed by utilizing a standard control unit either alone (VY1D00-M5) or as a Pilot Valve controlling one of the Range of VEX1 Power Valves.

**TECHNICAL
SPECIFICATIONS
CONTROL UNIT**

Applicable Fluid	Dry Air, Inert Gas
Required Filtration Level for Supply and Pilot Air	5μm
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/cm² ~ Supply Pressure
External Pilot Supply Pressure (For VY1*01 Type)	Set Pressure ~ 130PSI / 9 Kgf/cm²
Control Signal Voltage	1 ~ 5 V DC Standard
Control Signal Power Requirement	0 ~ 10 V DC Available as an Option
Power Supply Voltage	Less than 1mW
Power Consumption	24 V DC ± 10%
Electrical Connection	1.8 W maximum
Cable Gland Size	DIN Plug
Bleed Air Consumption (at 9 Kgf/cm² Supply Pressure)	Suits 'A' ~ 6.5 mm Cable
Mounting	Maximum 10 nl/min
	Any Orientation



**How To
O R D E R
S E R I E S V Y**



DIMENSIONS
SEE NEXT PAGE

Mounting Type	Symbol	Symbol	P,A port	R port	Cv	Hysteresis	Sensitivity	Repeatability
Base Mounted Type	D	00	Without subplate		0.007	1%	0.5%	±0.5%
		M5	M5					
	B	00	Without subplate		0.28	2.5%	1%	±1%
		M5	M5		0.41			
	2	01	½		0.9			
		02	¼		1.4			
	4	00	Without subplate		3%	1.5%	±1%	
		02	½		2.0			
		03	¾		3.3			
		04	½		3.9			
body Ported Type	1	A	M5	M5	0.28	2.5%	1%	±1%
		01	½		0.9			
		02	¼		1.4			
		02	¼		2.0			
	3	03	¾		3.3			
		04	½		3.9			
		04	½		7.2			
		06	¾		8.9			
	5	10	1		10	5%	2%	±2%
		10	1		17			
		12	1½		18			
		14	1½		33			
	7	20	2		37			
		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 0.5mm² 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.

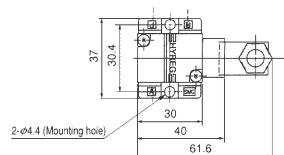
Wiring: The use of three-core screened cable is strongly recommended with the screen earthed at the end away from the VY Valve.

Terminal Designations are as follows:

- 1 = 24v Power Supply
2 = Control Signal
3 = Common Negative for both power and signal.

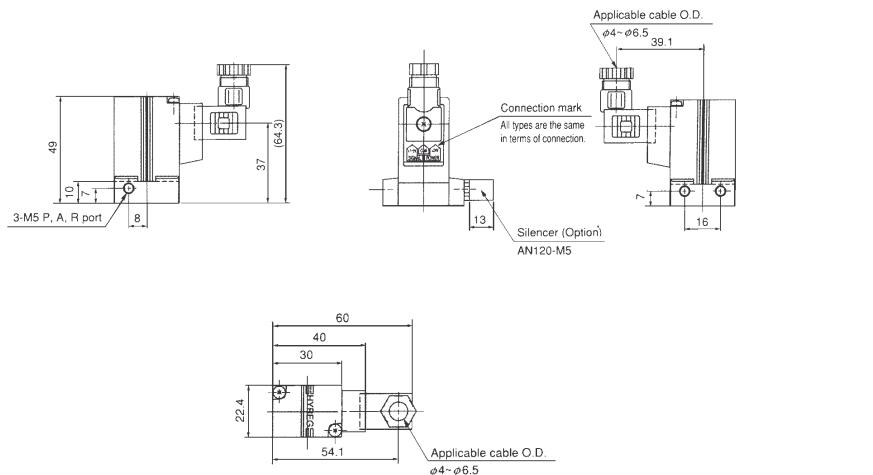
DIMENSIONS

SERIES VY1D00-M5



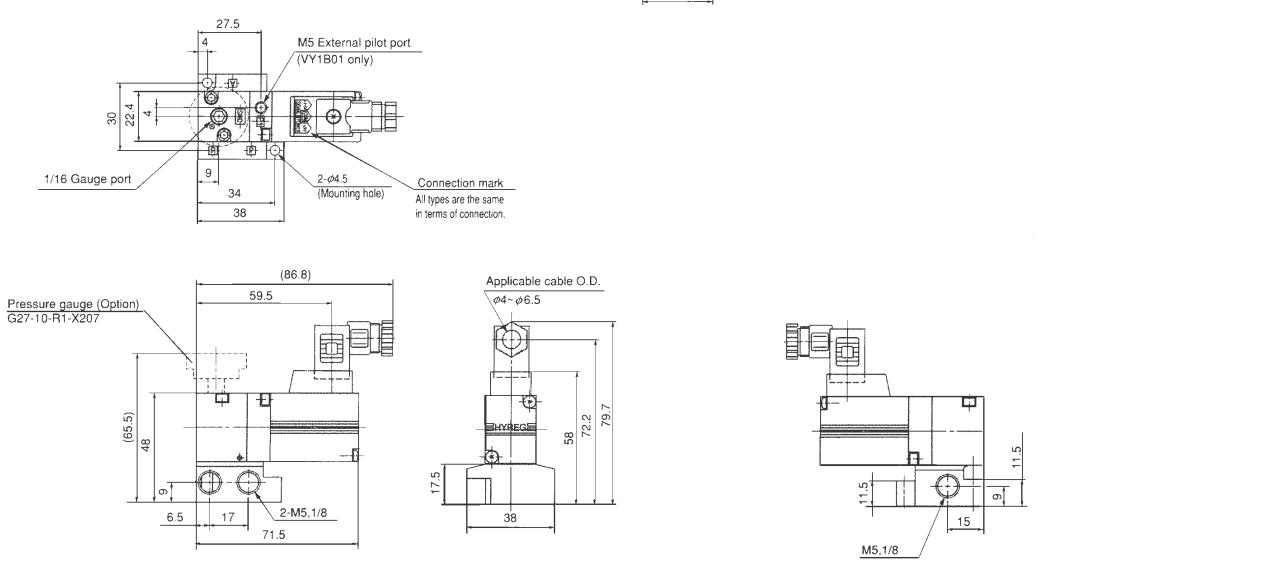
DIMENSIONS

SERIES VY1A0⁰₁-M5



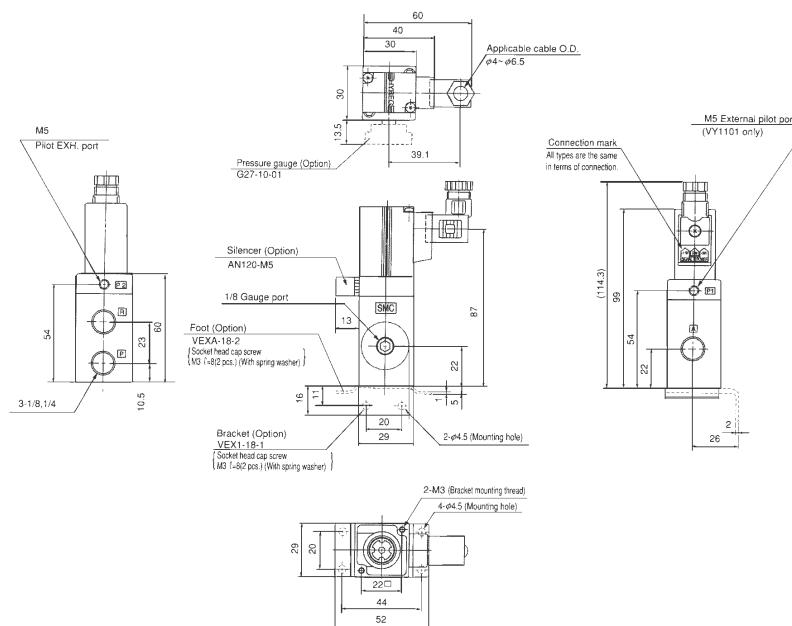
DIMENSIONS

SERIES VY1B0₁⁰-M5
01



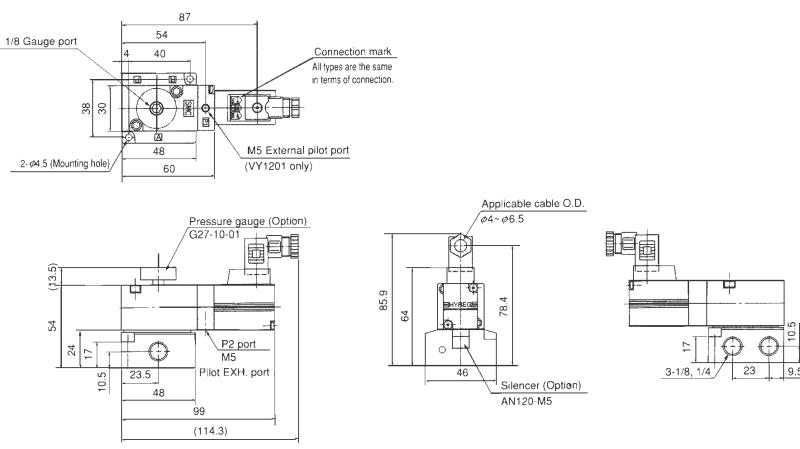
DIMENSIONS

SERIES VY110⁰₁-⁰₂



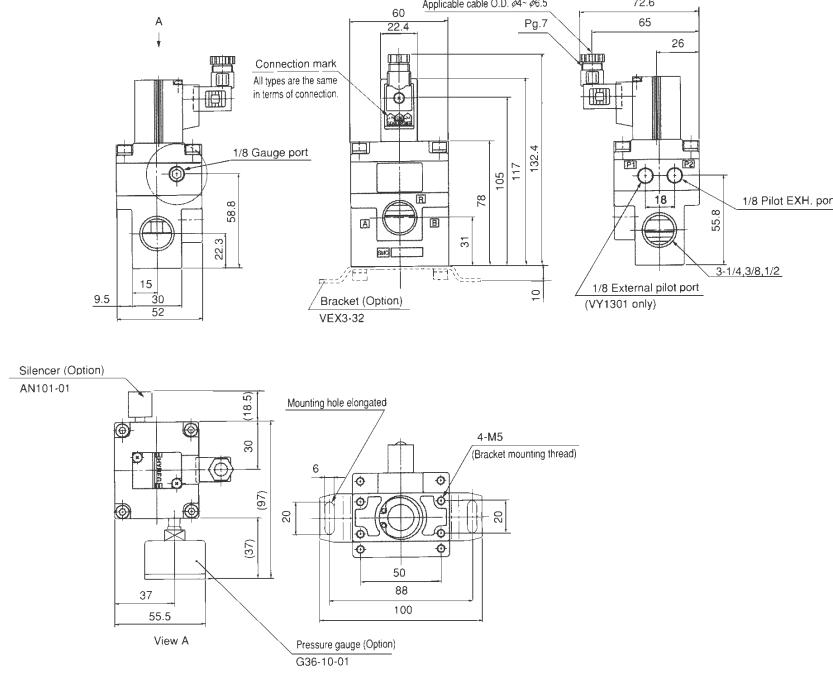
DIMENSIONS

SERIES VY120⁰₁-⁰₂



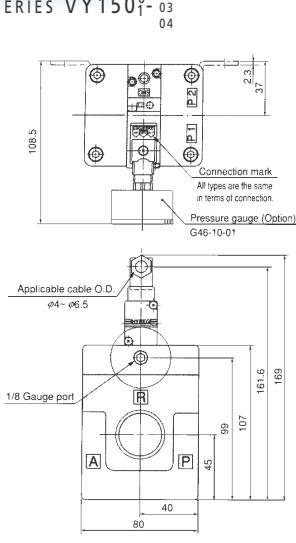
DIMENSIONS

SERIES VY130⁰₁-⁰₂-⁰₃-⁰₄

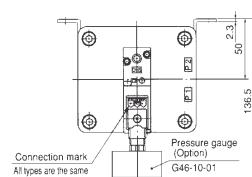


DIMENSIONS
SERIES
VY1401⁰-

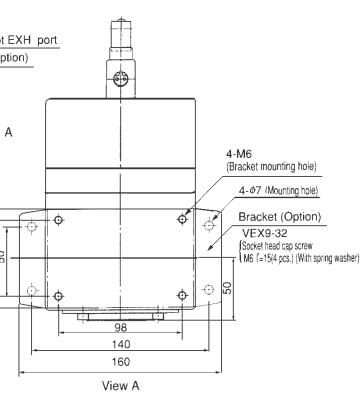
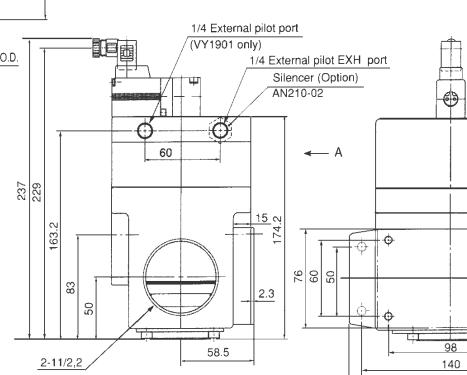
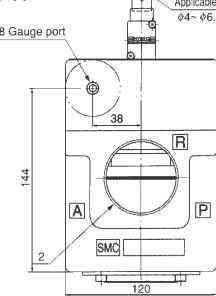
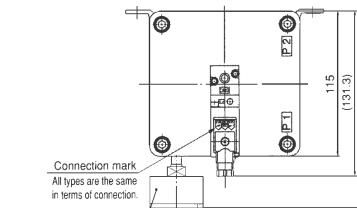
DIMENSIONS
SERIES VY1501⁰-



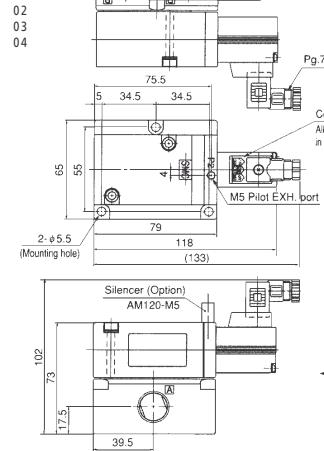
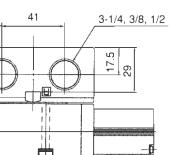
DIMENSIONS
SERIES VY1701⁰-10



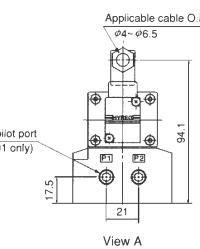
DIMENSIONS
SERIES VY1901⁰-14



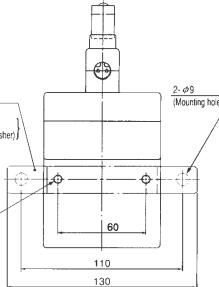
View A



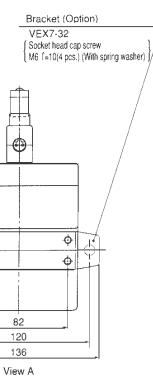
View A



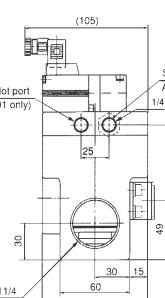
View A



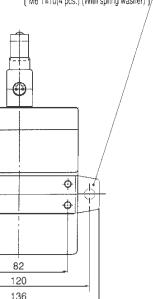
View A



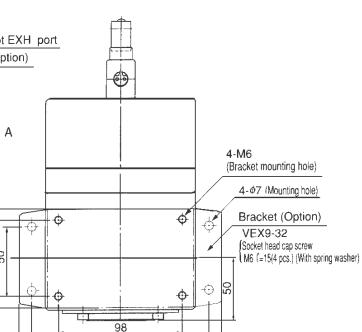
View A



View A



View A



View A

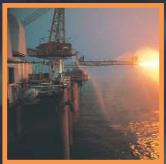
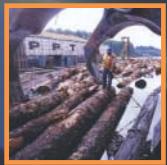
CONSULT SMC CUSTOMER SERVICE FOR COMPLETE TECHNICAL INFORMATION.

SERIES	DESCRIPTION
	CE2 STROKE READING CYLINDER BORE SIZES: Ø40, 50, 63, 80, 100MM Micro-Processor Predictive Control and Learning Functions; Positional Accuracy to $\pm 0.5\text{mm}$; 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.

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; Interchangeable 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.

TECHNOLOGY



Front side

WA

PA + Stroke

G + Stroke

S + Stroke

A + Stroke

WB

Z

WA

XA