



THE PNEUMATICS CATALOG

North American Edition

customer-focused
SOLUTIONS





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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

lbsf

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

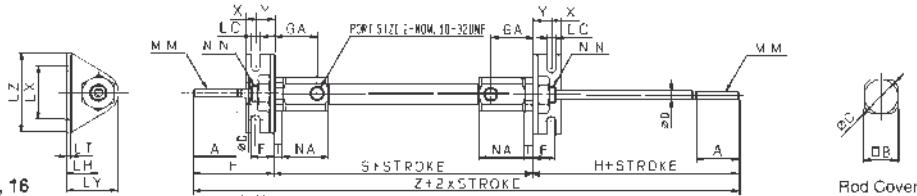
Bore Size mm	Rod Diameter mm	Effective Area	Pressure Differential Across Cylinder Ports (Bar)								
			2	3	4	5	6	7	8	9	10
8	None	0.50	1	1.5	2	2.5	3	3.5	-	-	-
	4	0.38	0.8	1.1	1.5	1.9	2.3	2.6	-	-	-
10	None	0.79	1.6	2.4	3.1	3.9	4.7	5.5	-	-	-
	4	0.66	1.3	2	2.6	3.3	4	4.6	-	-	-
12	None	1.13	2.3	3.4	4.5	5.7	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

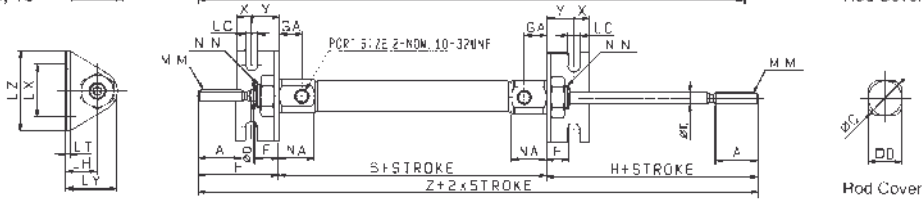
DIMENSIONS (INCH)

STANDARD DOUBLE ACTING DOUBLE ROD FOOT TYPE NCJ2WL_ _

NCJ2WL6



NCJ2WL10, 16



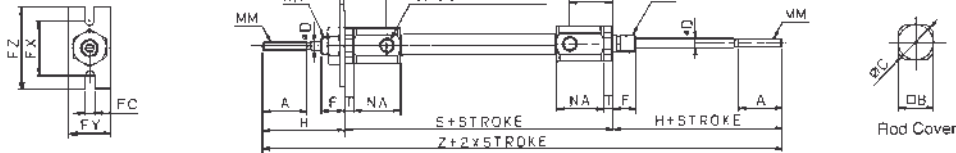
Bore Size*	A	B	C	D	F	GA	H	LC	LH	LT	LX	LY	LZ	MM	NN	NA	T	X	Y	S	Z
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.57	1.10	0.13	0.43	0.06	0.74	0.71	1.10	No5-40UNC	1/4-28UNF	0.63	0.12	0.14	0.26	2.40	4.61
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.31	1.10	0.17	0.55	0.06	0.87	0.83	1.26	No6-40UNF	5/16-24UNF	0.49	-	0.21	0.38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

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

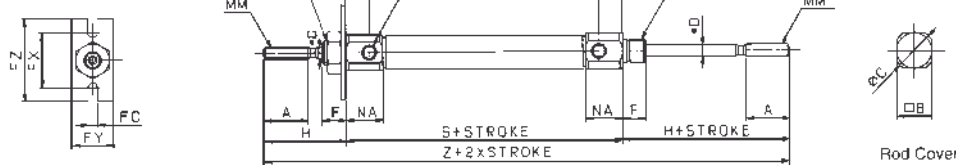
DIMENSIONS (INCH)

STANDARD DOUBLE ACTING DOUBLE ROD FLANGE TYPE NCJ2WF_ _

NCJ2WF6



NCJ2WF10, 16

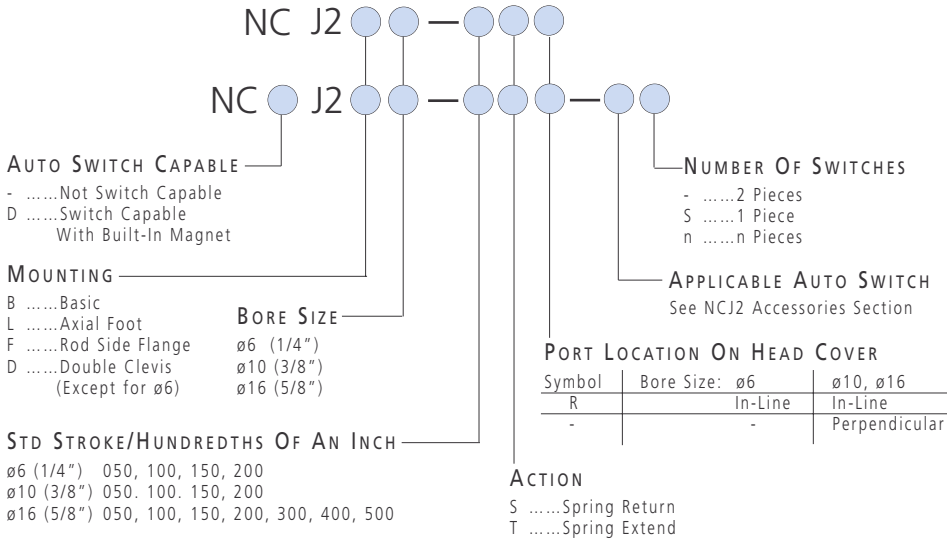


Bore Size*	A	B	C	D	F	FC	FT	FX	FY	FZ	GA	H	MM	NN	NA	T	S	Z
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.13	0.06	0.74	0.55	1.10	0.57	1.10	No5-40UNC	1/4-28UNF	0.63	0.12	2.40	4.61
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31	0.17	0.06	0.87	0.55	1.26	0.31	1.10	No6-40UNF	5/16-24UNF	0.49	-	1.93	4.13
ø16 (5/8")	0.60	0.71	0.79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

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

**HOW TO
ORDER**

NCJ2 STANDARD SINGLE ACTING SPRING RETURN / SPRING EXTEND



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

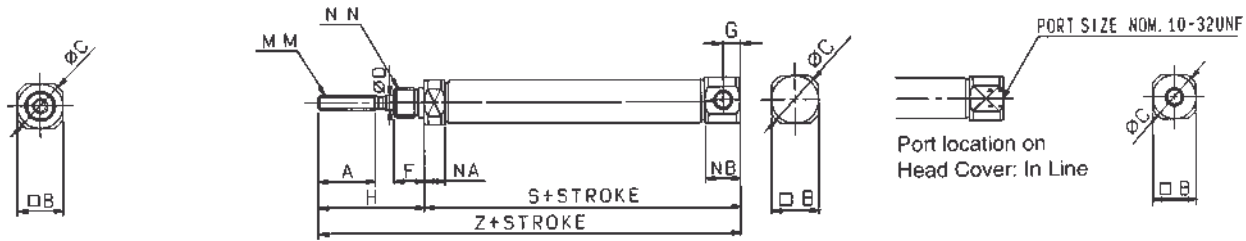
**TECHNICAL
SPECIFICATIONS**

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)

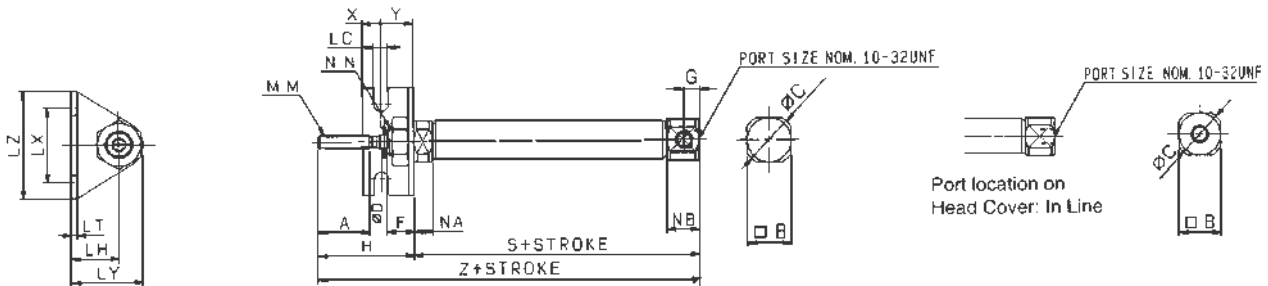
STANDARD SINGLE ACTING SPRING RETURN BASIC TYPE NCJ2B_-_S



Bore Size	A	B	C	D	F	G	H	MM	NN	NA	NB	S								Z							
												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

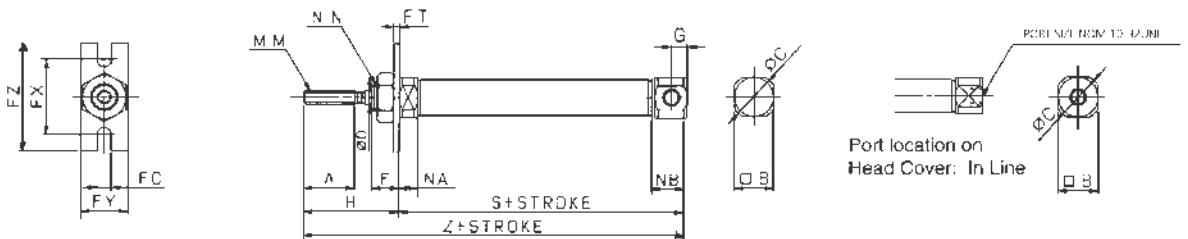


Bore Size	A	B	C	D	F	G	H	LC	LH	LT	LX	LY	LZ	MM	NN	NA	NB	X	Y	S							
																				50	100	150	200	300	400	500	50	100	150	200	300	400	500
ø6 (1/4")	0.60	0.31	0.35	0.125	0.31	-	1.10	0.13	0.43	0.06	0.74	0.71	1.10	No5-40UNC	1/4-28UNF	0.12	0.28	0.14	0.26	1.45	1.73	1.98	2.47	-	-	-	
ø10 (3/8")	0.60	0.47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

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

DIMENSIONS (INCH)

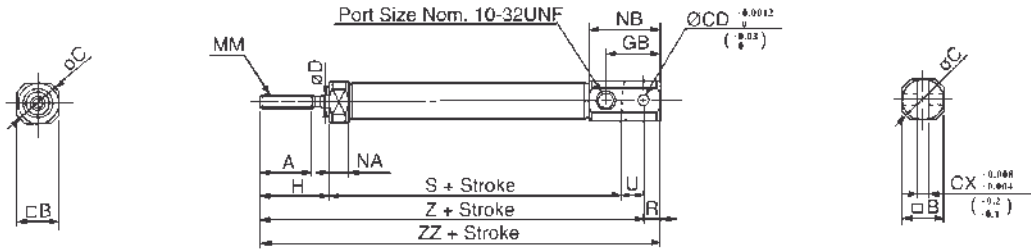
STANDARD SINGLE ACTING SPRING RETURN ROD SIDE FLANGE TYPE NCJ2F_-_S



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

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

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

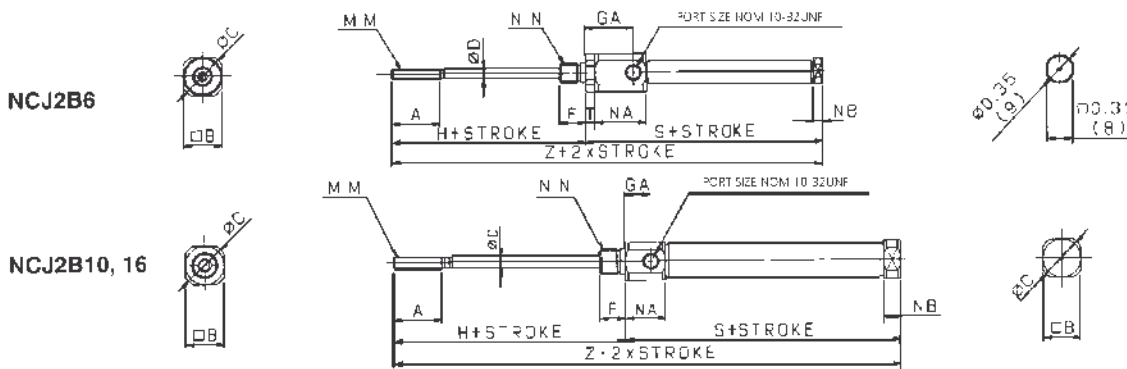


ZZ						
50	100	150	200	300	400	500
3.14	3.35	3.64	4.12	-	-	-
3.32	3.53	3.81	4.30	4.72	5.33	6.10

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

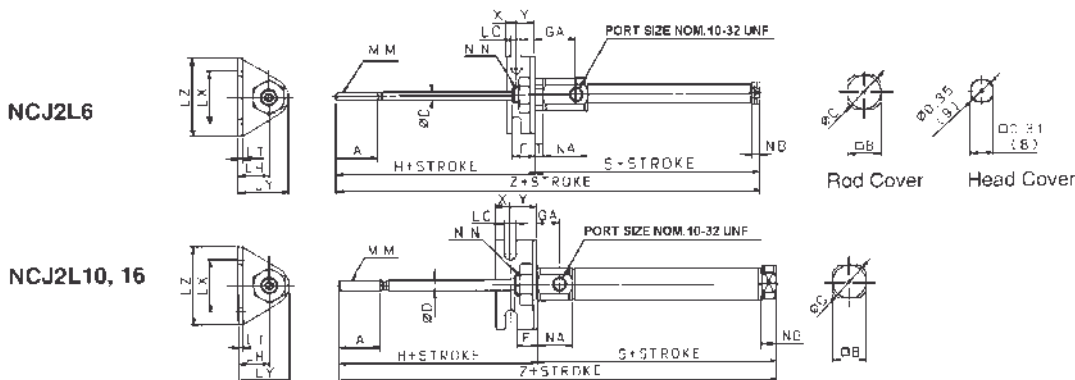
Note) Clevis Pin Included

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



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

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



Continued NCJ2 Single Acting Spring Extend Foot Type

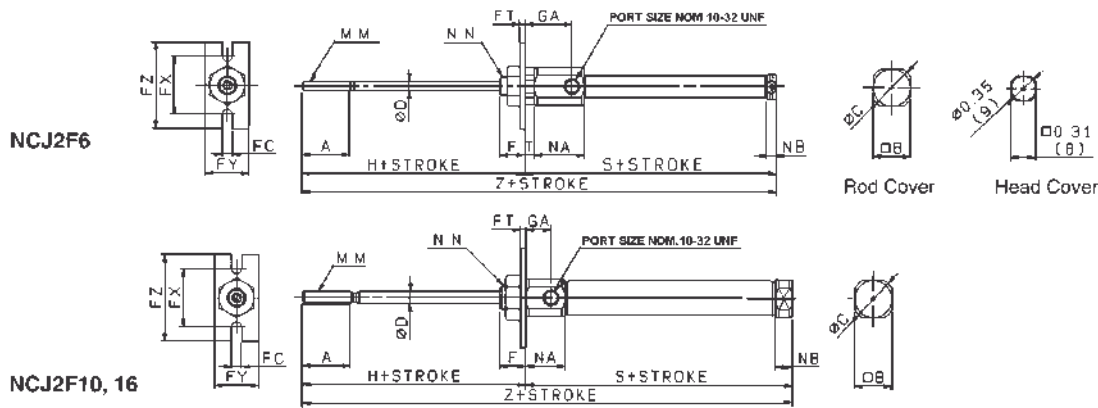
Bore Size*	A	B	C	D	F	GA	H	LC	LH	LT	LX	LY	LZ	MM	NN	NA	NB	T	X	Y	S						
																					50	100	150	200	300	400	500
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.57	1.10	0.13	0.43	0.06	0.74	0.71	1.10	No5-40UNC	1/4-28UNF	0.63	0.12	0.12	0.14	0.26	1.92	2.20	2.45	2.94	-	-	
ø10 (3/8")	0.60	0.47	0.55	0.157	0.31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

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

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

DIMENSIONS (INCH)

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

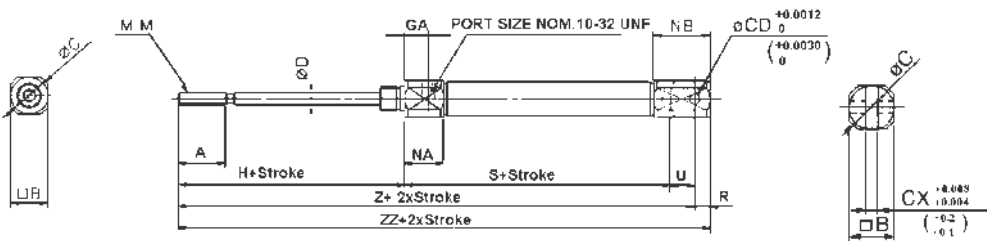


Bore Size*	A	B	C	D	F	FC	FT	FX	FY	FZ	GA	H	MM	NN	NA	NB	T	X	Y	S						Z							
																				50	100	150	200	300	400	500	50	100	150	200	300	400	500
ø6 (1/4")	0.60	0.47	0.55	0.125	0.31	0.13	0.06	0.74	0.55	1.10	0.57	1.10	No5-40UNC	1/4-28UNF	0.63	0.12	0.12	0.14	0.26	1.92	2.20	2.45	2.94	-	-	-	3.02	3.31	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	No6-40UNF	5/16-24UNF	0.49	0.22	-	0.21	0.38	1.92	2.13	2.42	2.90	-	-	-	3.02	3.23	3.52	4.00	-	-	-
ø16 (5/8")	0.60	0.71	0.79	0.196	0.31	0.20	0.09	1.18	0.79	1.38	0.31	1.10	No10-32UNF	3/8-24UNF	0.49	0.22	-	0.21	0.38	1.94	2.15	2.44	2.92	3.34	3.95	4.72	3.04	3.25	3.54	4.02	4.44	5.06	5.83

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

DIMENSIONS (INCH)

STANDARD SINGLE ACTING SPRING EXTEND DOUBLE CLEVIS TYPE NCJ2D_-_T



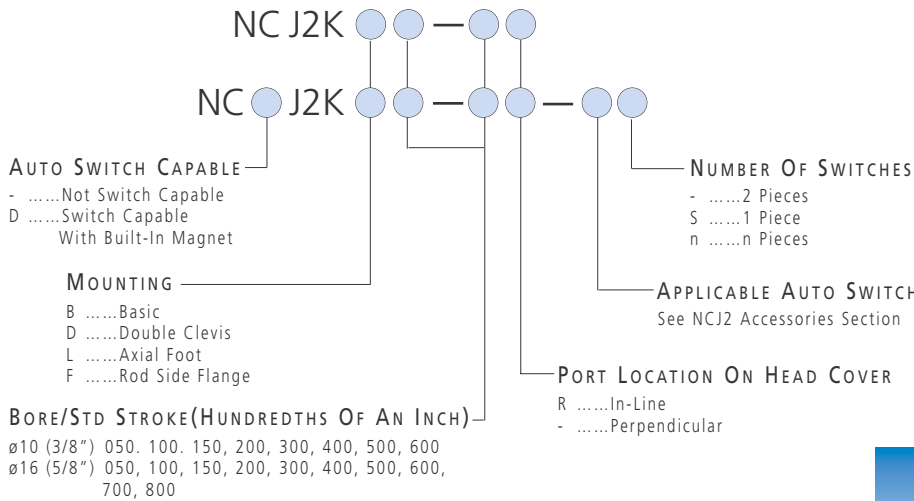
ZZ						
50	100	150	200	300	400	500
3.73	3.94	4.23	4.71	-	-	-
3.91	4.12	4.41	4.89	5.31	5.92	6.69

*Clevis Pin Included

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

HOW TO ORDER

NCJ2 NON-ROTATING DOUBLE ACTING SINGLE ROD CYLINDER



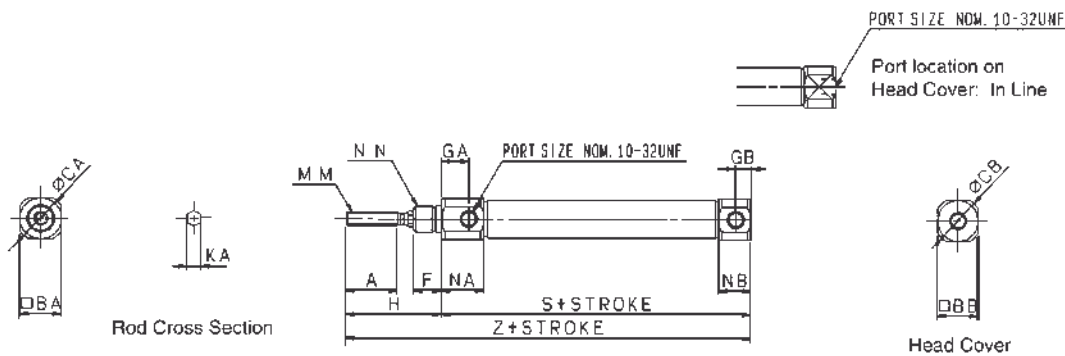
Mounting Bracket	PART NUMBER OF MOUNTING BRACKETS	
	Bore Size (mm)	
Foot	10	16
Flange	NCJ-L010B	NCJ-L016B
	NCJ-F010B	NCJ-F016B

TECHNICAL SPECIFICATIONS

Fluid	Air	
Proof Pressure	1MPa / 145 PSI	
Maximum Operating Pressure	0.7MPa / 100 PSI	
Minimum Operating Pressure	0.05MPa / 8.5 PSI	
Ambient and Fluid Temperature	-10°C~+70°C / 14~160°F	
Cushion	Rubber Cushion (Standard)	
Lubrication	None (Non-lube)	
Stroke Tolerance	+0.4 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)

DIMENSIONS (INCH)

NON-ROTATING DOUBLE ACTING SINGLE ROD BASIC TYPE NCJ2KB_ _

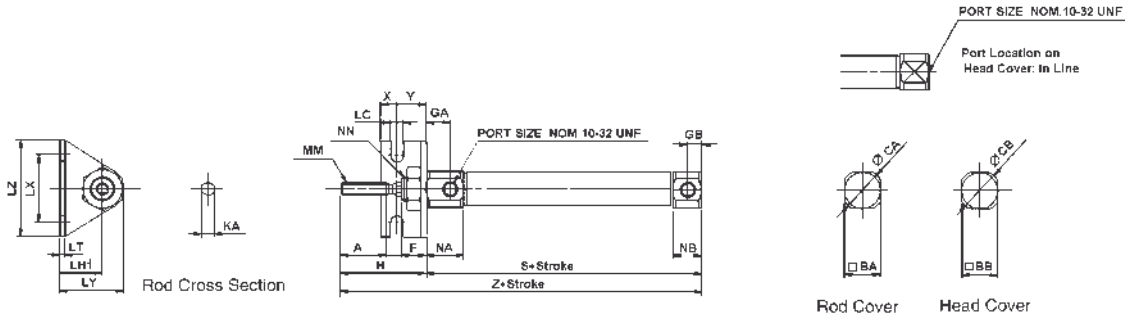


Bore Size	A	BA	BB	CA	CB	F	GA	GB	H	KA	MM	NN	NA	NB	S	Z
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	0.31	0.196	1.10	0.17	No6-40UNF	3/8-24UNF	0.49	0.37	1.81	2.91
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	0.31	0.31	0.196	1.10	0.20	No10-32UNF	7/16-20UNF	0.49	0.37	1.85	2.95

DIMENSIONS
SEE NEXT PAGE

DIMENSIONS (INCH)

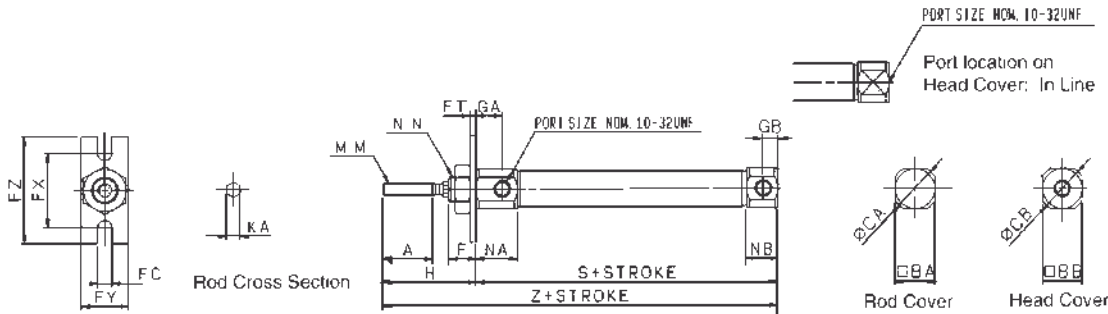
NON-ROTATING DOUBLE ACTING SINGLE ROD FOOT TYPE NCJ2KL_ _



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

DIMENSIONS (INCH)

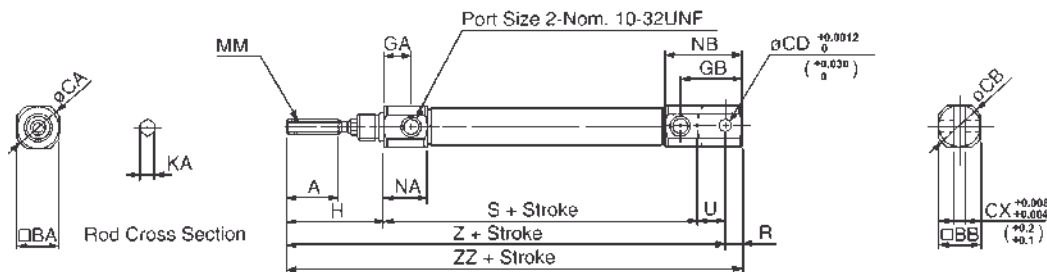
NON-ROTATING DOUBLE ACTING SINGLE ROD ROD SIDE FLANGE TYPE NCJ2KF_ _



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

DIMENSIONS (INCH)

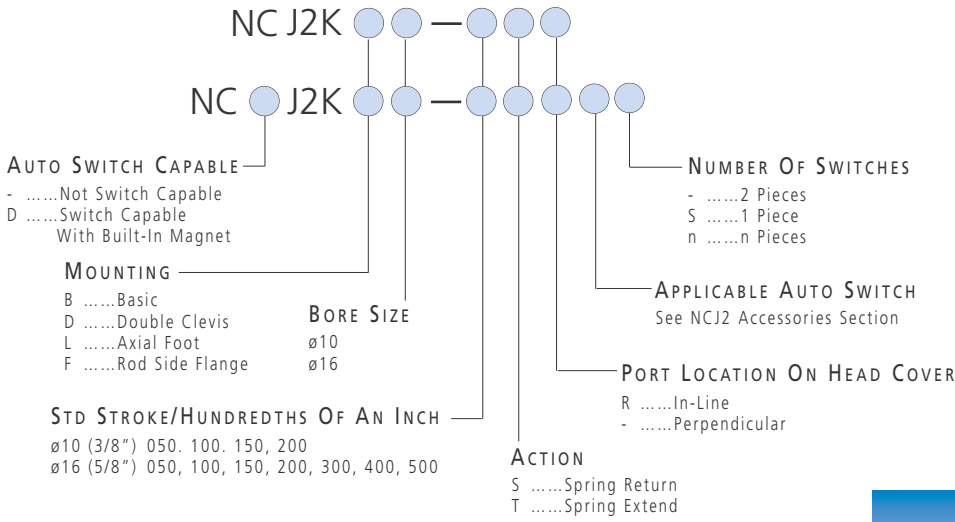
NON-ROTATING DOUBLE ACTING SINGLE ROD DOUBLE CLEVIS TYPE NCJ2KD_ _



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

HOW TO ORDER

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



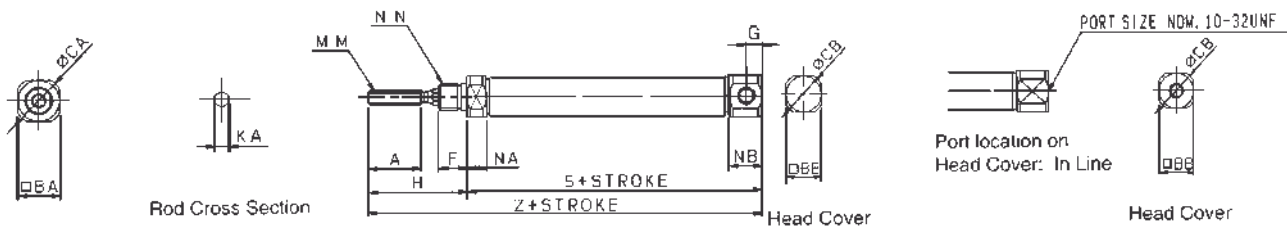
PART NUMBER OF MOUNTING BRACKETS		
Mounting Bracket	Bore Size (mm)	
Foot	10	16
Flange	NCJ-L010B	NCJ-L016B
	NCJ-F010B	NCJ-F016B

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)

DIMENSIONS (INCH)

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

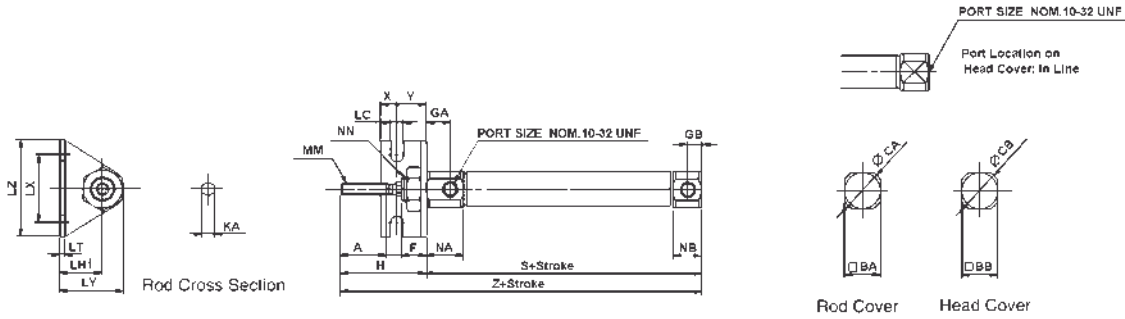


Bore Size	S													Z													
	A	BA	BB	CA	CB	F	G	H	KA	MM	NN	NA	NB	50	100	150	200	300	400	500	50	100	150	200	300	400	500
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	0.196	1.10	0.17	No6-40UNF	3/8-24UNF	0.21	0.37	1.80	2.01	2.30	2.78	-	-	-	2.91	3.11	3.40	3.89	-	-	-
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79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

MORE DIMENSIONS
SEE NEXT PAGE

DIMENSIONS (INCH)

NON-ROTATING SINGLE ACTING SPRING RETURN FOOT TYPE NCJ2KL_-_S

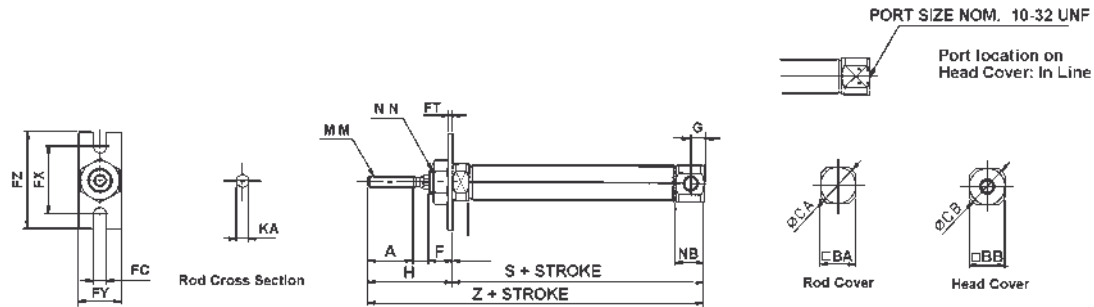


Bore Size	A	BA	BB	CA	CB	F	H	KA	LC	LH	LT	LX	LY	LZ	MM	NN	NA	NB	X	Y	S						
																					50	100	150	200	300	400	500
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	1.10	0.17	0.20	0.55	0.09	1.18	0.94	1.38	No6-40UNF	3/8-24UNF	0.21	0.37	0.21	0.38	1.80	2.01	2.30	2.78	-	-	-
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79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

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

DIMENSIONS (INCH)

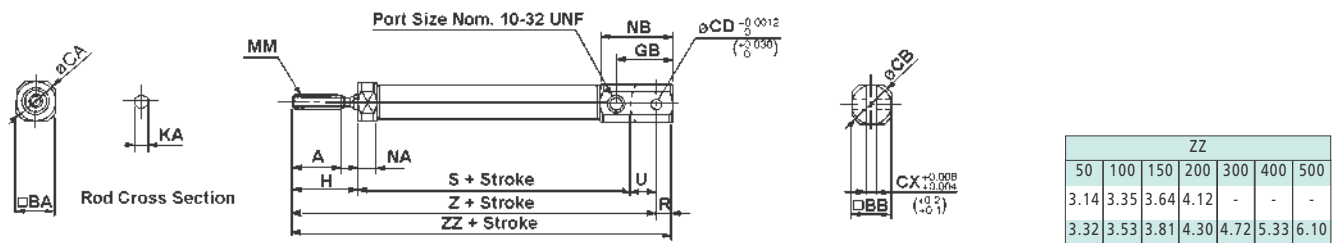
NON-ROTATING SINGLE ACTING SPRING RETURN ROD SIDE FLANGE TYPE NCJ2KF_-_S



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

DIMENSIONS (INCH)

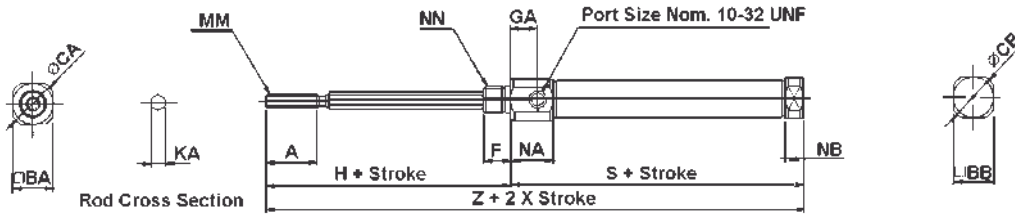
NON-ROTATING SINGLE ACTING SPRING RETURN DOUBLE CLEVIS TYPE NCJ2KD_-_S



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

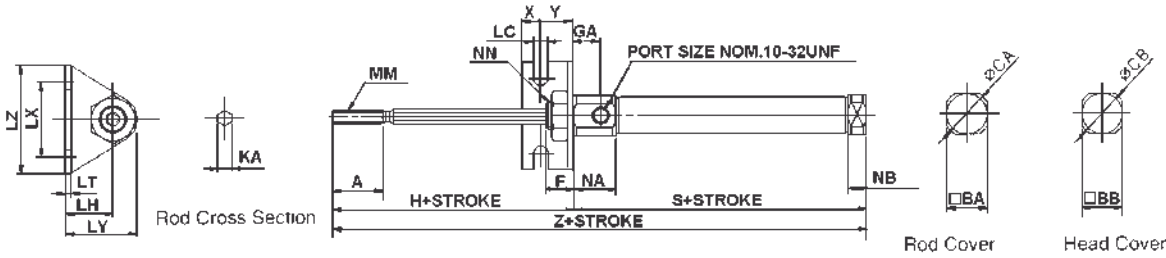
Bore Size	A	BA	BB	CA	CB	CD	CX	GB	H	KA	MM	NA	NB	R	U	S						Z							
																50	100	150	200	300	400	500	50	100	150	200	300	400	500
ø10 (3/8")	0.60	0.47	0.47	0.55	0.55	.187	.188	0.75	0.79	0.17	No6-40UNF	0.22	0.93	0.24	0.31	1.80	2.01	2.30	2.78	-	-	-	2.91	3.11	3.40	3.89	-	-	-
ø16 (5/8")	0.60	0.71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

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



Bore Size	A	BA	BB	CA	CB	F	GA	H	KA	MM	NN	NA	NB	S						Z							
														50	100	150	200	300	400	500	50	100	150	200	300	400	500
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	0.31	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

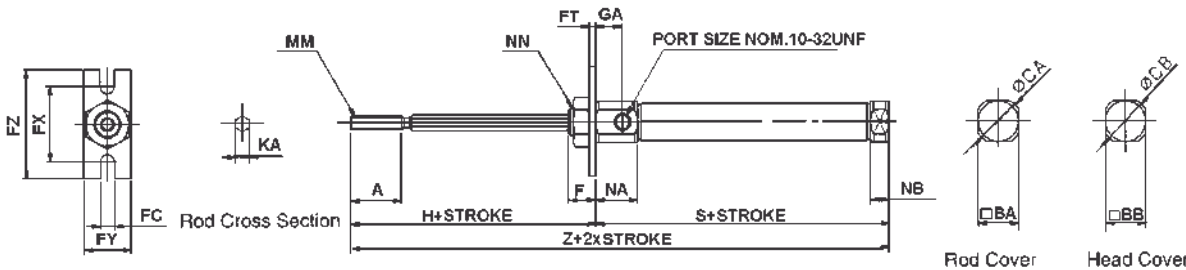
DIMENSIONS (INCH)
NON-ROTATING SINGLE ACTING SPRING EXTEND FOOT TYPE NCJ2KL_ _T



Bore Size	A	BA	BB	CA	CB	F	GA	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	0.31	1.10	0.17	0.20	0.55	0.09	1.18	0.94	1.38	No6-40UNF	3/8-24UNF	0.49	0.22	0.21	0.38	1.92	2.13	2.42	2.90	-	-	-
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	0.31	0.31	1.10	0.20	0.20	0.55	0.09	1.18	0.94	1.65	No10-32UNF	7/16-20UNF	0.49	0.22	0.21	0.38	1.94	2.15	2.44	2.92	3.34	3.95	4.72

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

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

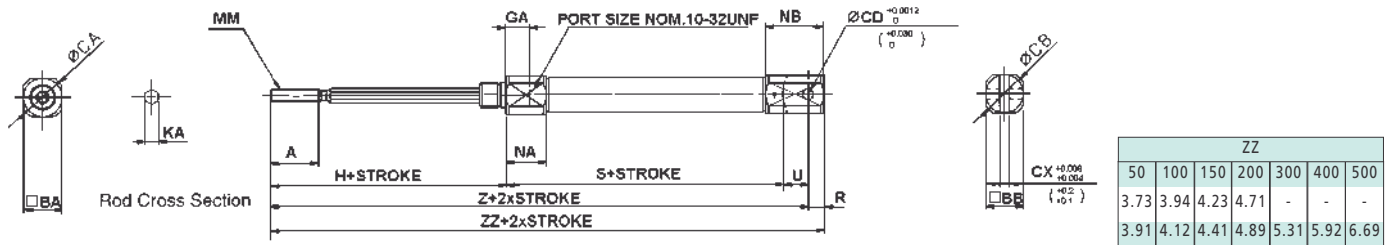


ACCESSORIES
SEE NEXT PAGE

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

DIMENSIONS (INCH)

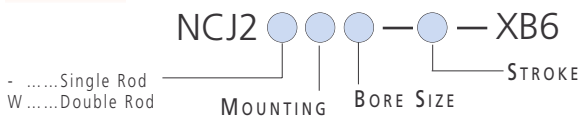
NON-ROTATING SINGLE ACTING SPRING EXTEND DOUBLE CLEVIS TYPE NCJ2KD_-_T



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	50	100	150	200	300	400	500
ø10 (3/8")	0.60	0.60	0.47	0.67	0.55	.187	.188	0.31	0.10	0.17	No6-40UNF	0.49	0.93	0.24	0.31	2.08	2.29	2.57	3.06	-	-	-	3.50	3.70	3.99	4.48	-	-	-
ø16 (5/8")	0.60	0.71	0.71	0.79	0.79	.187	.188	0.31	0.10	0.20	No10-32UNF	0.49	1.08	0.31	0.39	2.10	2.31	2.59	3.08	3.50	4.11	4.88	3.59	3.80	4.09	4.57	4.99	5.61	6.38

HOW TO ORDER

SERIES NCJ2 HIGH TEMPERATURE RESISTANT CYLINDER - XB6 OPTION

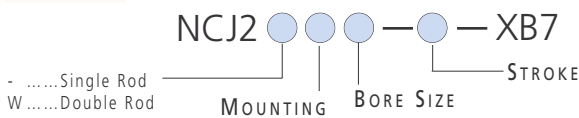


TECHNICAL SPECIFICATIONS

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

HOW TO ORDER

SERIES NCJ2 LOW TEMPERATURE RESISTANT CYLINDER - XB7 OPTION

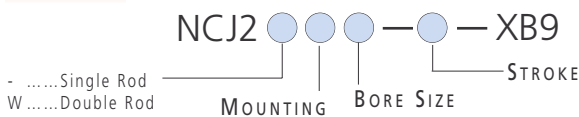


TECHNICAL SPECIFICATIONS

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

HOW TO ORDER

SERIES NCJ2 LOW FRICTION CYLINDER - XB9 OPTION



TECHNICAL SPECIFICATIONS

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

ALSO AVAILABLE:

- XB13 OPTION - LOW SPEED
- XC22 - VITON SEALS

PLEASE CONSULT SMC CUSTOMER SERVICE

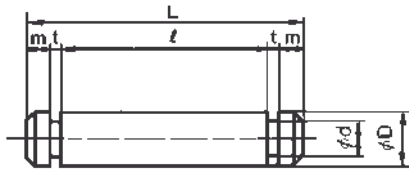
ACCESSORIES
SERIES NCJ2 AIR CYLINDER

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

ACCESSORIES
SERIES NCJ2 SWITCH BANDS

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

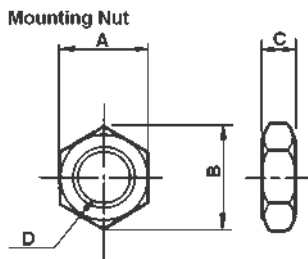
ACCESSORIES
SERIES NCJ2 REAR CLEVIS PIN



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

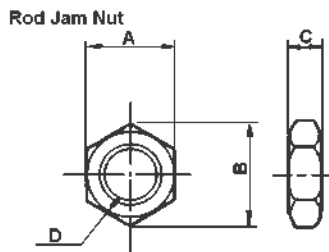
Note) includes 2 Retaining Ring

ACCESSORIES
SERIES NCJ2 MOUNTING NUT



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

ACCESSORIES
SERIES NCJ2 ROD JAM NUT



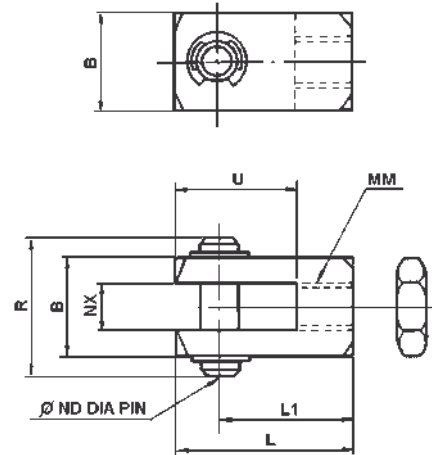
PART NO	BORE SIZE	A	B	C	D
JM-005	ø6 (1/4")	0.31	0.11	0.11	5-40UNC
JM-006	ø10 (3/8")	0.31	0.36	0.11	6-40UNF
JM-02	ø16 (5/8")	0.38	0.43	0.13	10-32UNF

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
			110VAC	5 ~ 20 mA
D-C76	Grommet	PLC	4 ~ 8 VDC	20 mA
			24V AC/DC or less	50mA
D-C80	Grommet	PLC	48V AC/DC	40mA
			100V AC/DC	20mA
			24 VDC	5 ~ 40 mA
D-C73C	Connector	PLC	24 VDC	5 ~ 40 mA
D-C80C	Connector	PLC	24V AC/DC	50 mA
			or less	
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 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

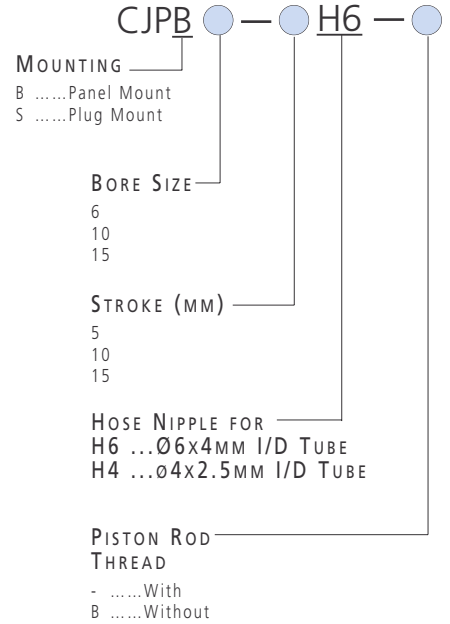
Note) includes Rod Jam Nut, Clevis Pin and 2 Retaining Rings

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

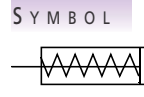


How To ORDER CJP PIN CYLINDER-SINGLE ACTING



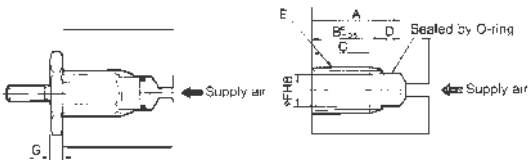
TECHNICAL SPECIFICATIONS

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

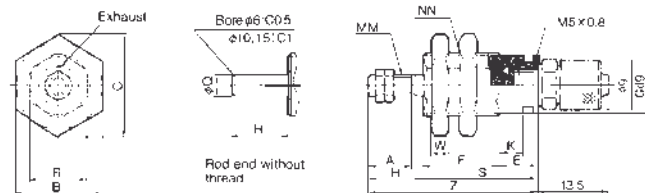
RECOMMENDED MOUNTING HOLE DIMENSIONS FOR PLUG MOUNT



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	3.5	M15x1.5	12	4
	10	23.5	20	17				
	15	30.5	27	24				
15	5	19	14.5	11.5	4.5	M22x1.5	19	5
	10	25	20.5	17.5				
	15	31.5	27	24				

DIMENSIONS

PANEL MOUNT TYPE: CJPB



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

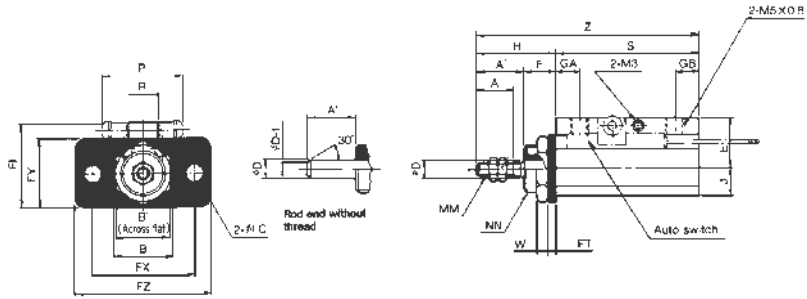
ACCESSORIES

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-M5Ø4mm Tube
- CJ-H6-M5Ø6mm Tube

DIMENSIONS FLANGE MOUNT: C•JPF

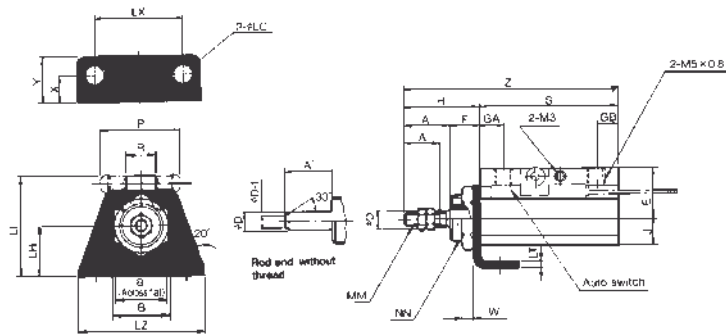
Bore Size	øFC	FI	FT	FX	FY	FZ
ø6 (1/4")	0.13	0.73	0.06	0.94	0.63	1.26
ø10 (3/8")	0.18	0.87	0.06	1.10	0.71	1.46
ø15 (5/8")	0.22	1.05	0.09	1.42	0.87	1.93



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

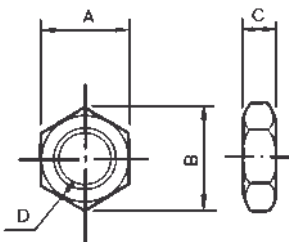
DIMENSIONS FOOT MOUNT

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



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

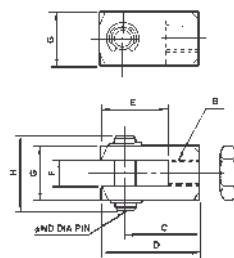
DIMENSIONS MOUNTING NUT



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

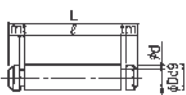
Bore Size	Part No	A	B	C	D
ø6 (1/4")	JM-005	0.31	0.11	0.36	5-40UNC
ø10 (3/8")	JM-02	0.38	0.43	0.13	10-32UNF
ø15 (5/8")	JM-02	0.38	0.43	0.13	10-32UNF

DIMENSIONS PISTON ROD CLEVIS



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

DIMENSIONS CLEVIS AND TRUNNION PIN



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

AIR CYLINDER SERIES CG1 BORE SIZES Ø20~100MM

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



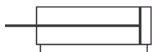
TECHNICAL SPECIFICATIONS

Fluid	Air
Proof pressure	0.15MPa / 218PSI
Max operating pressure	0.99MPa / 144PSI
Min operating pressure	0.05 MPa / 7PSI
Ambient and fluid temperature	-10~60°C / 14~140°F
Piston velocity	50~700mm/sec (ø80~ø100) 2~28in/s
Thread tolerance	JIS 2 class
Stroke length tolerance	ø20~63 up to ~1000st: ⁺¹ / ₀ mm
Lubrication	None required

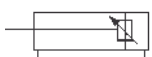
CONSTRUCTION SPECIFICATIONS

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

SYMBOLS RUBBER CUSHIONED

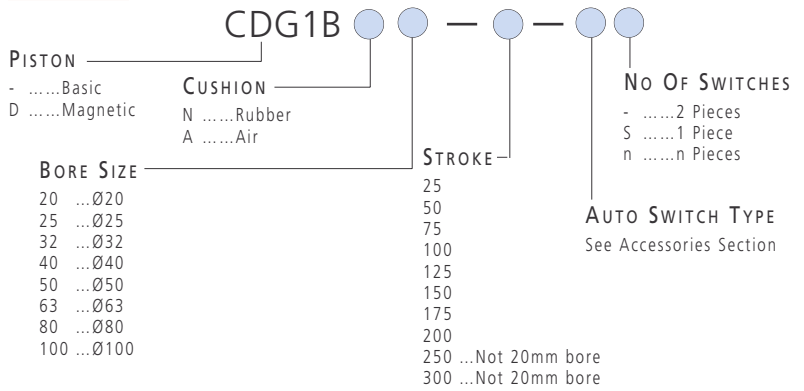


AIR CUSHIONED

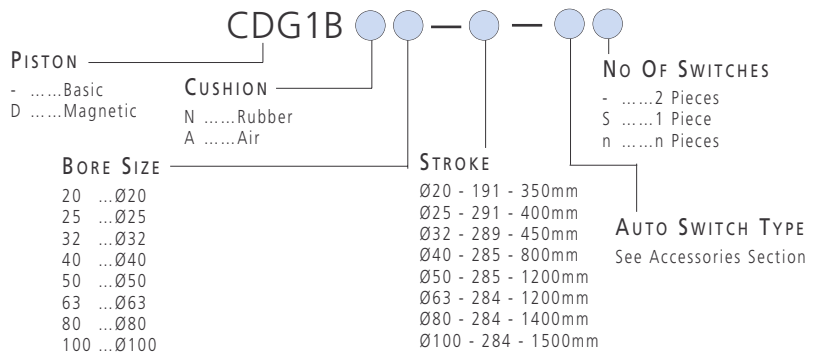


HOW TO ORDER

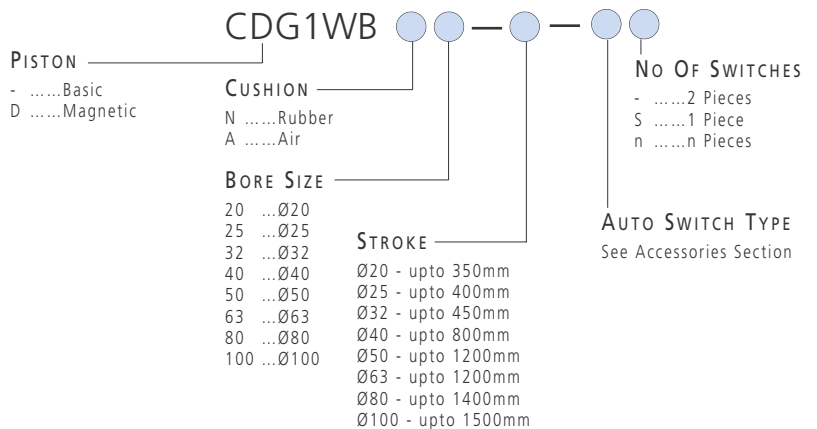
AIR CYLINDER SERIES CG1



LONG STROKE - DOUBLE END - CAP CONSTRUCTION



DOUBLE PISTON ROD



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

MODEL NUMBER	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
	24VDC	50mA	
D-B64	110VAC	25mA	No/2 Wire
	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	

MODEL NUMBER	OPERATING VOLTAGE	MAXIMUM CURRENT OR OPERATING CURRENT RANGE (mA)	INDICATOR LIGHT/ WIRE
D-G59	24VDC (10~28VDC)	40mA	Yes/3 Wire (NPN)
D-G5P	-	80mA or less	Yes/3 Wire (PNP)
D-K59	24VDC (10~28VDC)	5~40mA	Yes/2 Wire
D-5NTL	24VDC (10~28VDC)	80mA or less	Yes/3 Wire (NPN)
D-H7A1	24VDC (10~28VDC)	40mA	Yes/3 Wire (NPN)
D-H7A2	-	80mA or less	Yes/3 Wire (PNP)
D-H7B	24VDC (10~28VDC)	5~40mA	Yes/2 Wire
D-H7C	24VDC (10~28VDC)	5~40mA	Yes/2 Wire
D-G59W	24VDC (10~28VDC)	40mA or less	Yes/3 Wire (NPN)
D-G5PW	-	80mA or less	Yes/3 Wire (PNP)
D-K59W	24VDC (10~28VDC)	5~40mA	Yes/2 Wire
D-G59F	-	40mA or less	Yes/4 Wire (NPN)
D-G79	24VDC (10~28VDC)	150mA or less	Yes/3 Wire (NPN)
D-H7PW	-	80mA or less	Yes/3 Wire (PNP)
D-H7BAL	24VDC (10~28VDC)	5~40mA or less	Yes/2 Wire
D-H7LF	26VDC or less	40mA or less	Yes/4 Wire (NPN)
D-H7NF	28VDC or less	40mA or less	Yes/4 Wire (NPN)
D-G5BAL	24VDC (10~28VDC)	5~40mA or less	Yes/2 Wire
D-H7PW	-	80mA or less	No/3 Wire (NPN)
D-H7BW	24VDC (10~28VDC)	5~40mA	Yes/2 Wire

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

BM1-01	.....020
BM1-02	.....025
BM1-32	.....032
BM1-04	.....040
BM1-05	.....050
BM1-06	.....063

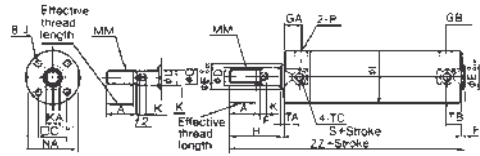
ACCESSORIES SWITCH BANDS FOR SWITCHES D-B5, D-B6, G5, K5

BA-01	.....020
BA-02	.....025
BA-32	.....032
BA-04	.....040
BA-05	.....050
BA-06	.....063
BA-08	.....080
BA-10	.....100

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

BMA2-020	.....020
BMA2-025	.....025
BMA2-032	.....032
BMA2-040	.....040
BMA2-050	.....050
BMA2-063	.....063

DIMENSIONS RUBBER CUSHION TYPE CDG1BN

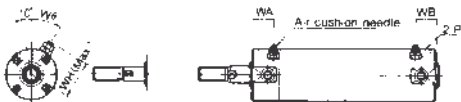


Bore (mm)	Stroke range (mm)	Effective thread length	A	□C	∅D	∅E	F	GA	GB	∅I	J	K	KA	MM	NA	P	S	TA	TB	*TC
20	~200	15.5	18	14	8	12	2	12	12	26	M4x0.7 Depth 7	4	6	M8x1.25	24	⅜	69	11	11	M5x0.8
25	~300	19.5	22	16.5	10	14	2	12	12	31	M5x0.8 Depth 7.5	5	8	M10x1.25	29	⅜	69	11	11	M6x0.75
32	~300	19.5	22	20	12	18	2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

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

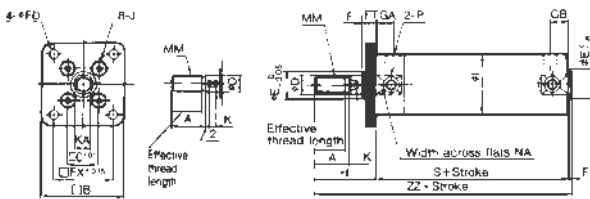
*Trunnion mounting threads in flats NA are not available for ∅80, ∅100 bores

DIMENSIONS AIR CUSHION TYPE CDG1BA



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

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

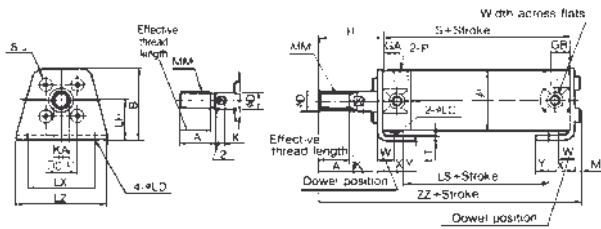


Bore (mm)	Stroke range (mm)	Effective thread length	A	□B	□C	∅D	∅E	GA	GB	∅I	J	K	KA	MM	* NA	P	S
20	~200	15.5	18	40	14	8	12	12	12	26	M4x0.7	4	6	M8x1.25	24	⅜	69
25	~300	19.5	22	44	16.5	10	14	12	12	31	M5x0.8	5	8	M10x1.25	29	⅜	69
32	~300	19.5	22	53	20	12	18	12	11	38	M5x0.8	5.5	10	M10x1.25	36	⅜	71
40	~300	27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

*Trunnion mounting threads in flats NA are not available for ∅80, ∅100 bores

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

DIMENSIONS FOOT MOUNT



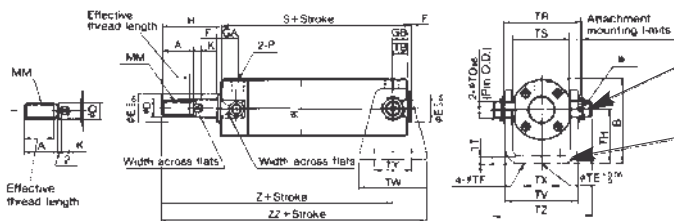
Bore (mm)	Stroke range (mm)	Effective thread length	A	□C	ØD	GA	GB	øI	J	K	KA	M	MM	*NA	P	S	W	X	Y	øLC	øLD	LH	LS	LT	LX	LZ	H	ZZ
20	~200	15.5	18	14	8	12	12	26	M4x0.7	4	6	3	M8x1.25	24	1/8	69	10	15	7	4	5.5	20	45	3	32	44	35	110
25	~300	19.5	22	16.5	10	12	12	31	M5x0.8	5	8	3.5	M10x1.25	29	1/8	69	10	15	7	4	5.5	22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

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

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

Trunnion bolt set CG-T**
consists of Pin
Flat Washer
Hexagon Bolt

Receiving pivot bracket CG - ***-24A

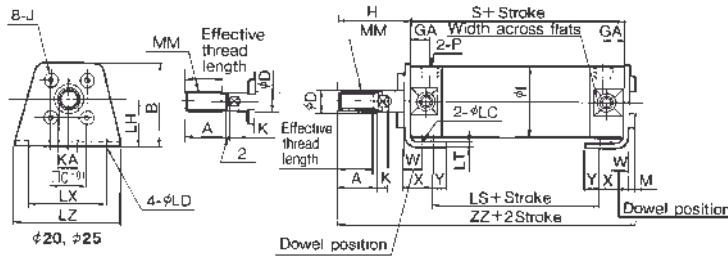


Bore (mm)	Stroke range (mm)	Effective thread length	A	B	øD	øE	F	GA	GB	øI	K	KA	MM	NA	P	S	TB	øTDe8	øTE	øTF
20	~200	15.5	18	38	8	12	2	12	12	26	4	6	M8x1.25	24	1/8	69	11	8 ^{-0.025} _{-0.047}	10	5.5
25	~300	19.5	22	45.5	10	14	2	12	12	31	5	8	M10x1.25	29	1/8	69	11	10 ^{-0.025} _{-0.047}	10	5.5
32	~300	19.5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

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

MORE DIMENSIONS
SEE NEXT PAGE

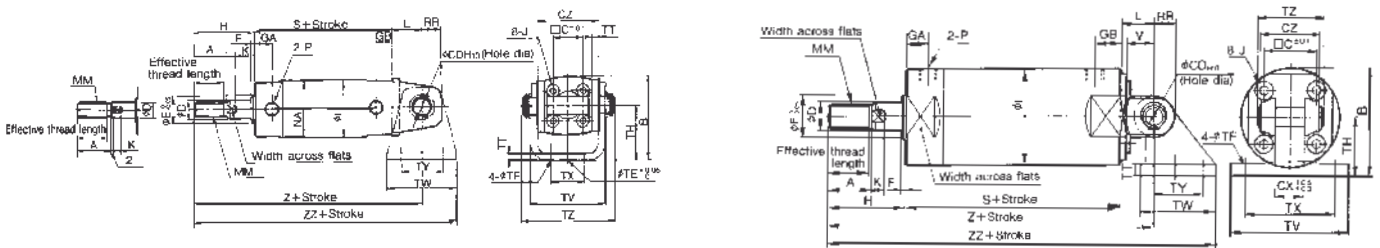
DIMENSIONS
FOOT MOUNT



Bore (mm)	Stroke range (mm)	Eff. thread length	A	B	□C	∅D	GA	∅I	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	∅C	∅LD	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	1/8	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)

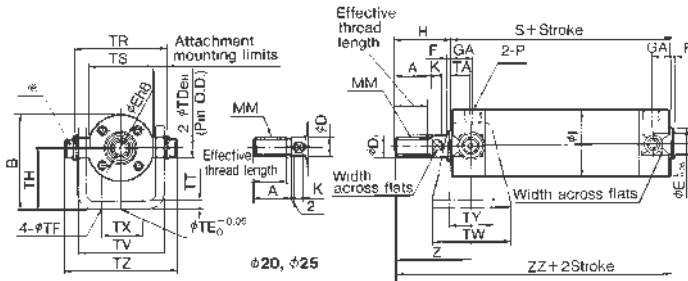


Bore (mm)	Stroke range (mm)	Effective thread length	A	B	□C	∅D	∅E	F	GA	GB	∅I	J	K	KA	MM	NA	P	S	∅CDH10
20	191 - 350	15.5	18	38	14	8	12	2	12	12	26	M4X0.7	4	6	M8X1.5	24	1/8	7	8 ^{+0.058}
25	291 - 400	19.5	22	45.5	16.5	10	14	2	12	12	31	M5X0.8	5	8	M10X1.25	29	1/8	7	10 ^{+0.058}
32	289 - 450	19.5	22	54	20	12	18	2	12	12	38	M5X0.8	5.5	10	M10X1.25	36	1/8	7	12 ^{+0.070}
40	285 - 800	27	30	63.5	26	16	25	2	13	13	47	M6X1	6	14	M14X1.5	44	1/8	7	14 ^{+0.070}
50	285 - 1200	32	35	79	32	20	30	2	14	14	58	M8X1.25	7	18	M18X1.5	55	1/4	10	16 ^{+0.070}
63	284 - 1200	32	35	96	38	20	32	2	14	14	72	M10X1.5	7	18	M18X1.5	69	1/4	10	18 ^{+0.070}
80	284 - 1400	37	40	99.5	50	25	40	3	20	20	89	M10X1.5	11	22	M22X1.5	80	1/8	10	20 ^{+0.070}
100	284 - 1500	37	40	120	60	30	50	3	20	20	110	M12X1.75	11	26	M26X1.5	100	1/2	12	22 ^{+0.08}

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

DIMENSIONS

TRUNNION (CAN ALSO BE FITTED TO NOSE END)

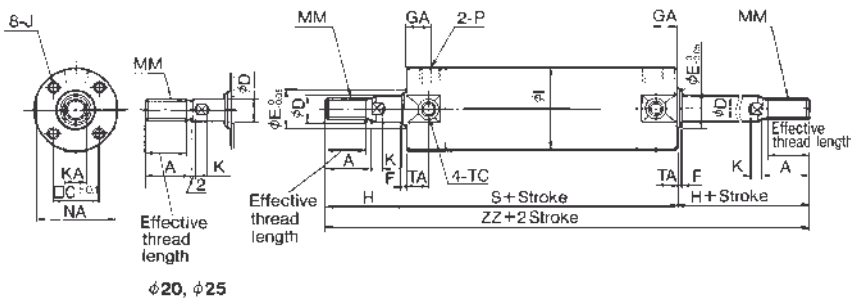


Bore (mm)	Stroke range (mm)	Effective thread length	A	B	ØD	ØE	F	GA	ØI	K	KA	MM	NA	P	S
20	191 - 350	15.5	18	38	8	12	2	12	26	4	6	M8x1.25	24	1/8	77
25	291 - 400	19.5	22	45.5	10	14	2	12	31	5	8	M10x1.25	29	1/8	77
32	289 - 450	19.5	22	54	12	18	2	12	38	5.5	10	M10x1.25	36	1/8	79
40	285 - 800	27	30	63.5	16	25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

Bore (mm)	TA	ØTDe8	ØTE	ØTF	TH	TR	TS	TT	TV	TW	TX	TY	TZ	Without gaiter		
														H	Z	ZZ
20	11	8 ^{+0.025} _{-0.027}	10	5.5	25	39	28	3.2	35.8	42	16	28	47.6	35	46	114
25	11	10 ^{+0.025} _{-0.027}	10	5.5	30	43	33	3.2	39.8	42	20	28	53	40	51	119
32	11	12 ^{+0.035} _{-0.035}	10	6.6	35	54.5	40	4.5	49.4	48	22	28	67.7	40	51	121
40	12	14 ^{+0.032} _{-0.039}	10	6.6	40	65.5	49	4.5	58.4	56	30	30	78.7	50	62	139
50	13	16 ^{+0.035} _{-0.035}	20	9	50	80	60	6	72.4	64	36	36	98.6	58	71	162
63	13	18 ^{+0.035} _{-0.035}	20	11	60	98	74	8	90.4	74	46	46	119.2	58	71	162

DIMENSIONS

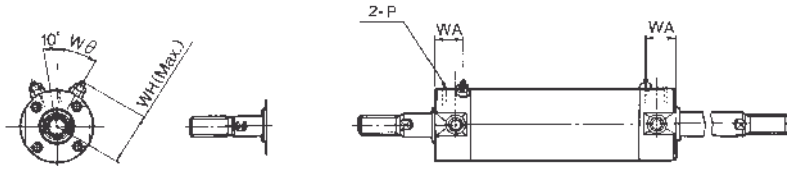
RUBBER CUSHION TYPE DOUBLE ROD CG1WBN



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

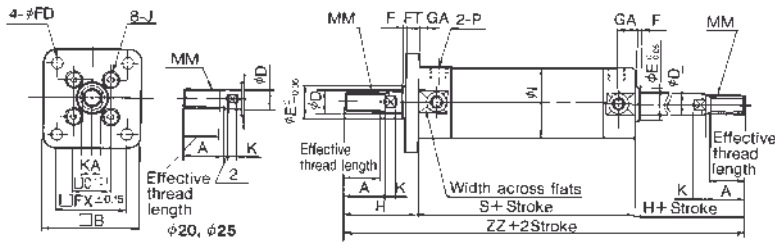
Bore (mm)	K	KA	MM	NA	P	S	TA	**TC	H ZZ	
									H	ZZ
20	4	6	M8x1.25	24	1/8	77	11	M5x0.8	35	147
25	5	8	M10x1.25	29	1/8	77	11	M6x0.75	40	157
32	5.5	10	M10x1.25	36	1/8	79	11	M8x1.0	40	159
40	6	14	M14x1.5	44	1/8	87	12	M10x1.25	50	187
50	7	18	M18x1.5	55	1/4	102	13	M12x1.25	58	218
63	7	18	M18x1.5	69	1/4	102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

DIMENSIONS
AIR CUSHION TYPE
DOUBLE ROD CG1WBA



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

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

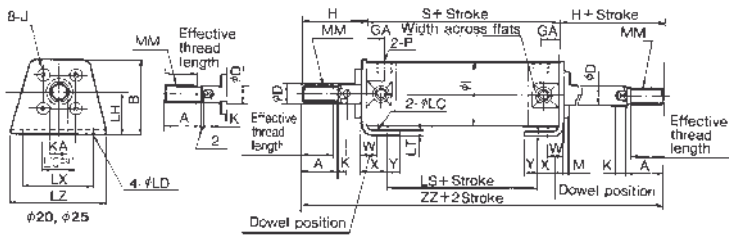


Bore (mm)	Stock range (mm)	Effective thread length	A	B	C	ØD	E	F	FX	FD	FT	GA
20	~200	15.5	18	40	14	8	12	2	28	5.5	6	12
25	~300	19.5	22	44	16.5	10	14	2	32	5.5	7	12
32	~300	19.5	22	53	20	12	18	2	38	6.6	7	12
40	~300	27	30	61	26	16	25	2	46	6.6	8	13
50	~300	32	35	76	32	20	30	2	58	9	9	14
63	~300	32	35	92	38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

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

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

DIMENSIONS
FOOT MOUNT
DOUBLE ROD CYLINDER



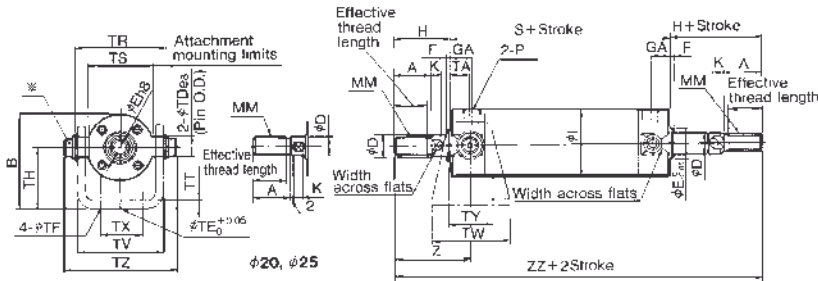
Bore (mm)	Stock range (mm)	Effective thread length	A	B	C	ØD	GA	ØI	J	K	KA	M
20	~200	15.5	18	34	14	8	12	26	M4x0.7	4	6	3
25	~300	19.5	22	38.5	16.5	10	12	31	M5x0.8	5	8	3.5
32	~300	19.5	22	45	20	12	12	38	M5x0.8	5.5	10	3.5
40	~300	27	30	54.5	26	16	13	47	M6x1	6	14	4
50	~300	32	35	70.5	32	20	14	58	M8x1.25	7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

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

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

DIMENSIONS

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



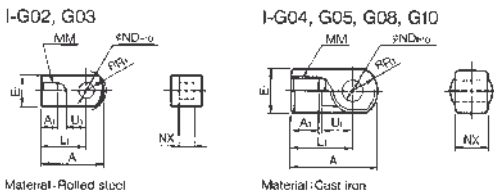
*Consists of pin, flat washer, and hexagon socket cap bolt

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

Bore (mm)	TA	ØTDe8	ØTE	ØTF	TH	TR	TS	TT	TV	TW	TX	TY	TZ	Without Gaiter		
														H	Z	ZZ
20	11	8 ^{+0.025} _{-0.027}	10	5.5	25	39	28	3.2	35.8	42	16	28	47.6	35	46	147
25	11	10 ^{+0.025} _{-0.027}	10	5.5	30	43	33	3.2	39.8	42	20	28	53	40	51	157
32	11	12 ^{+0.035} _{-0.035}	10	6.6	35	54.5	40	4.5	49.4	48	22	28	67.7	40	51	159
40	12	14 ^{+0.032} _{-0.039}	10	6.6	40	65.5	49	4.5	58.4	56	30	30	78.7	50	62	187
50	13	16 ^{+0.035} _{-0.035}	20	9	50	80	60	6	72.4	64	36	36	98.6	58	71	218
63	13	18 ^{+0.035} _{-0.035}	20	11	60	98	74	8	90.4	74	46	46	119.2	58	71	218

DIMENSIONS

SINGLE ROD CLEVIS

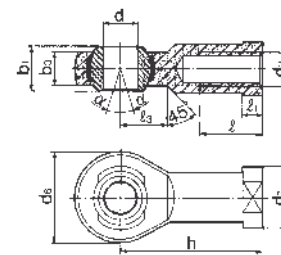


Part no	Applicable bore (mm)	A	A1	E1	L1	MM	rR1	U1	NDH10	NX
I-G02	20	34	8.5	□16	25	M8x1.25	10.3	11.5	8 ^{+0.058} ₀	8 ^{-0.2} _{-0.4}
I-G03	25, 32	41	10.5	□20	30	M10x1.25	12.8	14	10 ^{+0.058} ₀	10 ^{-0.2} _{-0.4}
I-G04	40	42	14	ø20	30	M14x1.5	12	14	10 ^{+0.058} ₀	18 ^{-0.3} _{-0.5}
I-G05	50, 63	56	18	ø28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

DIMENSIONS

ACCESSORIES

PISTON ROD BALL JOINT DIN 648

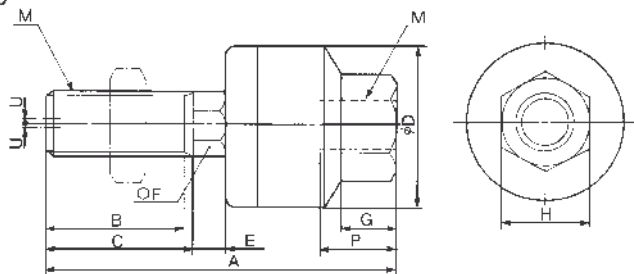


Bore size	Model	Thread d3	dH7	h	d6	b3	b1	l	d7	α°	l3
Ø20	KJ8D	M8	8	36	24	9	12	16	16	13	12
Ø25	KJ10D	M10X1.25	10	43	28	10.5	14	20	19	13	14
Ø32	KJ10D	M10X1.25	10	43	28	10.5	14	20	19	13	14

DIMENSIONS
FLOATING JOINT/SERIES JA

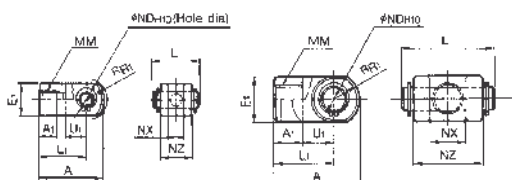
JA20-30

JA20-30



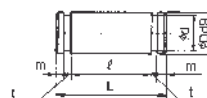
Cylinder Bore (mm)	Part No.	M	A	B	C	D	E	F	G	H	Thread depth	Allowable eccentricity Umm	Max. angular misalignment	Max. Compressive (kN)	Mass (kg)
Ø20	JA20-8-125	M8 x 1.25	44	17.5	-	21	4.5	7	7	13	8	0.5	±5°	2.5	0.07
Ø25	JA30-10-125	M10 x 1.25	49.5	19.5	-	24	5	8	8	17	9	0.5	±5°	2.5	0.07
Ø32	JA30-10-125	M10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

DIMENSIONS
DOUBLE ROD CLEVIS



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

DIMENSIONS
ROD JOINT PIN

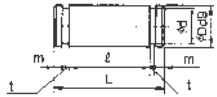


Material: Carbon steel

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

DIMENSIONS

CLEVIS PIN (INCLUDED WITH CLEVIS, CIRCLIPS NOT SHOWN)



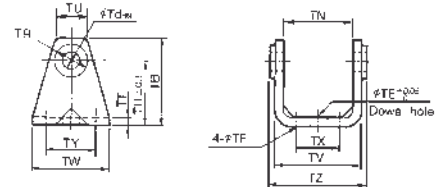
Material: Carbon steel

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

DIMENSIONS

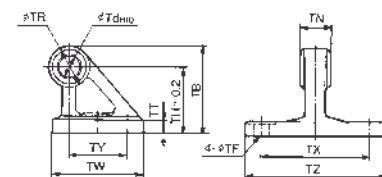
TRUNNION BRACKET

φ20~φ63



Material: Rolled steel

φ80~φ100



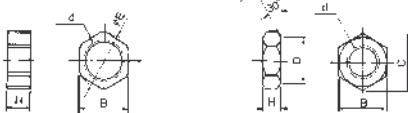
DIMENSIONS

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	øTd	øTE	øTF	TH	TN
CG-020-24A	20	36	8 ^{+0.036} ₀	10	5.5	25	29 ^{+0.4} _{+0.1}
CG-025-24A	25	43	10 ^{+0.036} ₀	10	5.5	30	33 ^{+0.4} _{+0.1}
CG-032-24A	32	50	12 ^{+0.043} ₀	10	6.6	35	40 ^{+0.5} _{+0.1}
CG-040-24A	40	58	14 ^{+0.043} ₀	10	6.6	40	49 ^{+0.5} _{+0.1}
CG-050-24A	50	70	16 ^{+0.043} ₀	20	9	50	60 ^{+0.5} _{+0.1}
CG-063-24A	63	82	18 ^{+0.043} ₀	20	11	60	74 ^{+0.7} _{+0.1}
CG-080-24A	80	73	18 ^{+0.070} ₀	—	11	55	28 ^{-0.1} _{-0.3}
CG-100-24A	100	90	22 ^{+0.084} ₀	—	13.5	65	32 ^{-0.1} _{-0.3}

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

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

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



HOW TO ORDER

AIR CYLINDER SERIES NCG



NC G — — — — — B73 S

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

STYLE
 -Standard Cylinder
 KNon Rotating Rod
 W Double Rod

MOUNTING
 BBasic
 CSingle Clevis
 LFoot
 FFront Flange
 GRear Flange
 UFront Trunnion
 TRear Trunnion
 DDouble Clevis
 NFront Nose Mount

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

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

STROKE
 Stroke/inch

STROKE
 Stroke/Hundredths of an inch

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

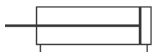
NO OF SWITCHES
 -2 Pieces
 S1 Piece
 nn number of switches

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

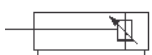
CONSTRUCTION SPECIFICATIONS

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

SYMBOLS RUBBER CUSHIONED



AIR CUSHIONED



STOCK STROKE LIST FOR ALL STYLES SERIES NCG

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

ACCESSORIES MOUNTING BRACKET SERIES NCG

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

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

ACCESSORIES AUTO SWITCHES

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

MODEL NUMBER	OPERATING VOLTAGE	MAXIMUM CURRENT OR OPERATING CURRENT RANGE (mA)	INDICATOR LIGHT/WIRE
D-B54	24VDC 110VAC 220VAC	5~50mA 5~25mA 5~12.5mA	Yes/2 Wire
D-B53	24VDC	5~50mA	Yes/2 Wire
D-B64	24VDC 110VAC 220VAC	50mA 25mA 12.5mA	No/2 Wire
D-B73	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	No/2 Wire
D-C80C	110V	20mA	

SOLID STATE SWITCHES MODEL NUMBER	OPERATING VOLTAGE	MAXIMUM CURRENT OR OPERATING CURRENT RANGE (mA)	INDICATOR LIGHT/WIRE
D-G59	24VDC (10~28VDC)	40mA	Yes/3 Wire (NPN)
D-G5P	-	80mA or less	Yes/3 Wire (PNP)
D-K59	24VDC (10~28VDC)	5~40mA	Yes/2 Wire
D-5NTL	24VDC (10~28VDC)	80mA or less	Yes/3 Wire (NPN)
D-H7A1	24VDC (10~28VDC)	40mA	Yes/3 Wire (NPN)
D-H7A2	-	80mA or less	Yes/3 Wire (PNP)
D-H7B	24VDC (10~28VDC)	5~40mA	Yes/2 Wire
D-H7C	24VDC (10~28VDC)	5~40mA	Yes/2 Wire
D-G59W	24VDC (10~28VDC)	40mA or less	Yes/3 Wire (NPN)
D-G5PW	-	80mA or less	Yes/3 Wire (PNP)
D-K59W	24VDC (10~28VDC)	5~40mA	Yes/2 Wire
D-G59F	-	40mA or less	Yes/4 Wire (NPN)
D-G79	24VDC (10~28VDC)	150mA or less	Yes/3 Wire (NPN)
D-H7PW	-	80mA or less	Yes/3 Wire (PNP)
D-H7BAL	24VDC (10~28VDC)	5~40mA or less	Yes/2 Wire
D-H7LF	26VDC or less	40mA or less	Yes/4 Wire (NPN)
D-H7NF	28VDC or less	40mA or less	Yes/4 Wire (NPN)
D-G5BAL	24VDC (10~28VDC)	5~40mA or less	Yes/2 Wire
D-H7PW	-	80mA or less	No/3 Wire (NPN)
D-H7BW	24VDC (10~28VDC)	5~40mA	Yes/2 Wire

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

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

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

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

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

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

TECHNICAL SPECIFICATIONS STANDARD SERIES NCG

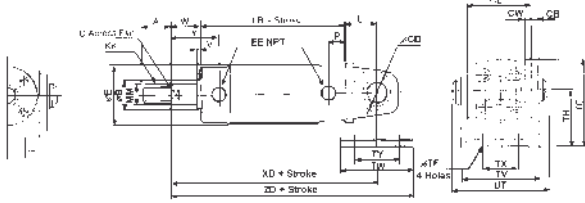
Fluid	Air
Proof Pressure	1.5MPa / 215 PSI
Max Operating Pressure	1MPa / 145 PSI
Min Operating Pressure	0.05MPa / 7 PSI
Ambient and Fluid Temperature	10~60°C / 40~140°F
Piston Velocity	50~1000mm/s / 2 ~ 40 in/sec
Cushion	Urethane Bumper or Adjustable Air Cushion
Lubrication	Non-Lube
Mounting	Basic, Foot,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

REPAIR KIT STANDARD SERIES NCG

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

DIMENSIONS

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



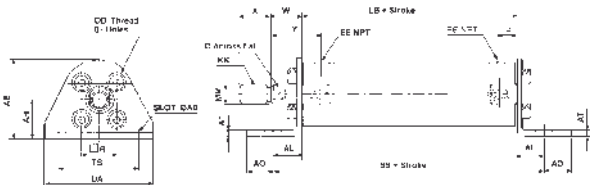
BORE SIZE	DOUBLE CLEVIS (INCH)							
	TY	TF	TV	TE	TH	TX	TW	UT
20	1.10	0.22	1.39	1.50	0.98	0.63	1.66	1.71
25	1.10	0.22	1.55	1.79	1.18	0.79	1.66	1.89
32	1.10	0.28	1.93	2.13	1.38	0.87	1.88	2.34
40	1.18	0.28	2.28	2.50	1.57	1.18	2.20	2.81
50	1.42	0.35	2.83	3.11	1.97	1.42	2.52	3.39
63	1.81	0.43	3.54	3.78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

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

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

DIMENSIONS

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



LONG STROKE (INCH)

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

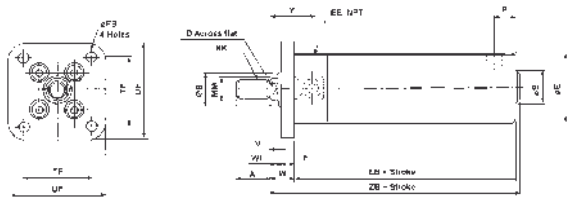
Note: Long Stroke design is a three piece construction: Rod Cover, Head Cover and Tube Body

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

MORE DIMENSIONS
SEE NEXT PAGE

DIMENSIONS

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



LONG STROKE (INCH)

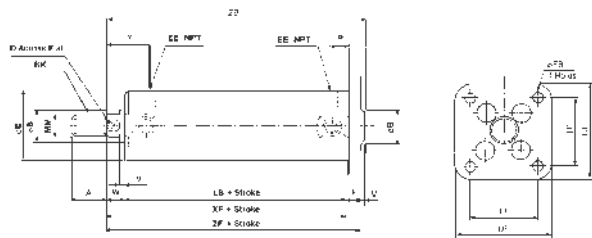
BORE SIZE	STROKE RANGE	LB	ZB
20	8.01~20	3.02	3.60
25	12.01~25	3.02	3.72
32	12.01~40	3.09	4.05
40	12.01~45	3.41	4.37
50	12.01~55	4.00	5.27
63	12.01~55	4.00	5.27

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

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

DIMENSIONS

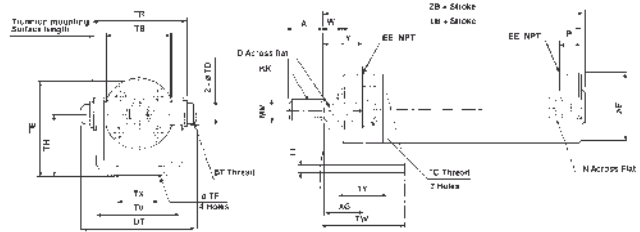
REAR FLANGE TYPE NC(D)GGN_-_ AND NC(D)GGA_-_



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

DIMENSIONS

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



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

LONG STROKE (INCH)

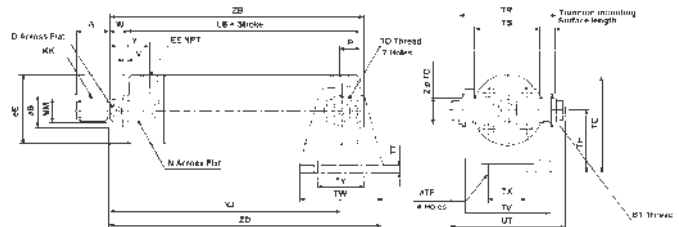
BORE SIZE	STROKE RANGE	LB	ZB
20	8.01~20	3.02	3.60
25	12.01~25	3.02	3.72
32	12.01~40	3.09	4.05
40	12.01~45	3.41	4.37
50	12.01~55	4.00	5.27
63	12.01~55	4.00	5.27

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

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

DIMENSIONS

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

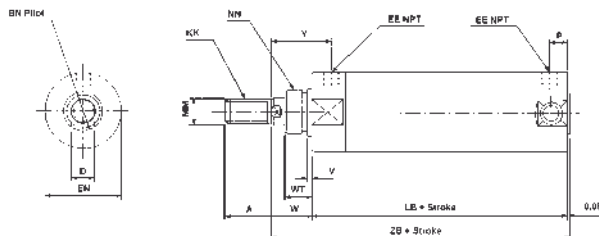


BORE SIZE	MAX STD STROKE	A	B	D	E	EE	KK	LB	MM	N	P	V	W	XJ	Y	ZB	ZD
20	8	0.50	0.472 ⁰ _{-0.0011}	0.24	1.02	1/8	1/4-28 UNF	2.70	0.315	0.94	0.47	0.08	0.50	2.77	0.97	3.28	3.60
25	12	0.50	0.551 ⁰ _{-0.0011}	0.31	1.22	1/8	5/16-24 UNF	2.70	0.394	1.14	0.47	0.08	0.62	2.89	1.09	3.40	3.72
32	12	0.75	0.709 ⁰ _{-0.0011}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

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

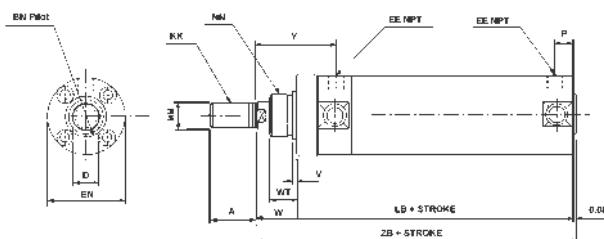
DIMENSIONS

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



DIMENSIONS

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



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

TECHNICAL SPECIFICATIONS

NON-ROTATING ROD SERIES NCGK

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

REPAIR KITS

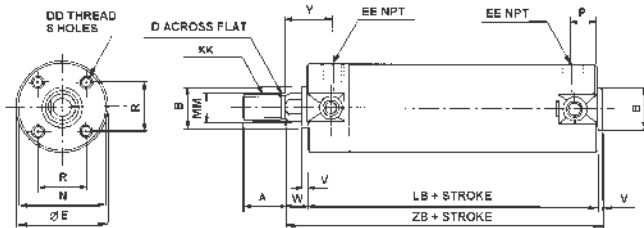
NON-ROTATING ROD SERIES NCGK

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
	STROKE																
20	8	0.362	1/4-28	0.50	0.472 ⁰ _{-0.0011}	0.31	8-32x0.28	1.02	1/8	2.70	0.94	0.47	0.55	0.08	0.50	0.97	3.28
25	12	0.433	5/16-24	0.50	0.551 ⁰ _{-0.0011}	0.39	10-32x0.30	1.22	1/8	2.70	1.14	0.47	0.65	0.08	0.62	1.09	3.40
32	12	0.551	7/16-20	0.75	0.709 ⁰ _{-0.0011}	0.47	10-32x0.30	1.50	1/8	2.78	1.42	0.43	0.79	0.08	0.88	1.35	3.74
40	12	0.630	7/16-20	0.75	0.984 ⁰ _{-0.0013}	0.55	1/4-28x0.47	1.85	1/8	3.06	1.73	0.47	1.02	0.08	0.88	1.39	4.02
50	12	0.787	1/2-20	0.88	1.181 ⁰ _{-0.0013}	0.71	5/16-24x0.63	2.28	1/4	3.53	2.17	0.51	1.26	0.08	1.19	1.74	4.80
63	12	0.787	1/2-20	0.88	1.260 ⁰ _{-0.0015}	0.71	3/8-24x0.63	2.83	1/4	3.53	2.72	0.51	1.50	0.08	1.19	1.74	4.80

TECHNICAL SPECIFICATIONS
DOUBLE ROD SERIES NCGW

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

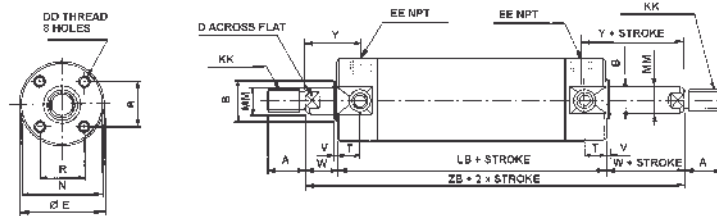
REPAIR KITS
DOUBLE ROD SERIES NCGW

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

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

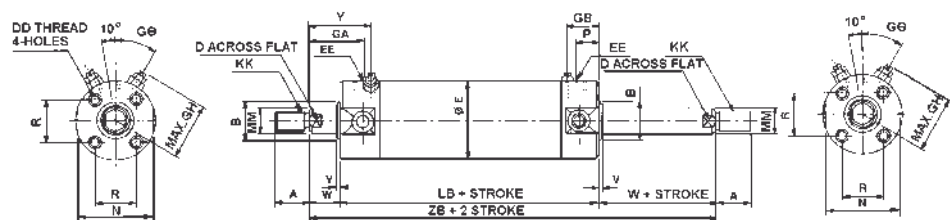
DIMENSIONS
NON-ROTATING ROD SERIES NCGW

NC(D)GWN - -



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

NC(D)GWA - -

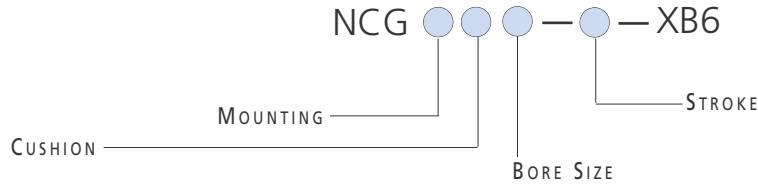


BORE SIZE	MAX STD STROKE	DIMENSIONS (MM)																			
		MM	KK	A	B	D	DD	E	EE	GA	GB	GH	GO	LB	N	P	R	V	W	Y	ZB
20	14	0.315	1/4-28	0.50	0.472 ⁰ _{-0.0011}	0.24	8-32x0.28	1.02	10-32 UNF	1.05	0.55	0.90	30°	3.02	0.94	0.47	0.55	0.08	0.50	0.97	4.02
25	16	0.394	5/16-24	0.50	0.551 ⁰ _{-0.0011}	0.31	10-32x0.30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

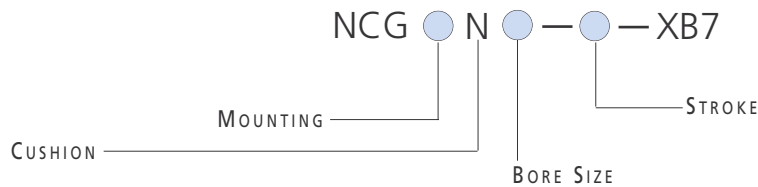
Bore (mm)	ø20, 25,32,40,50,63	
Action	Double Acting	
Fluid	Air	
Ambient Temperature Range	-20~150°C / -4~+300°F	
Action Velocity	50~500mm/s / 2~20 in/sec	
Cushion	ø20, 25, 32 ø40, 50, 63	Type: N = Without Cushion Type: A = With Air Cushion
Lubrication	Teflon® based Grease	
Mounting Style	Basic, Axial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

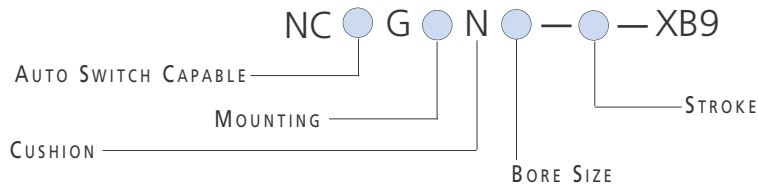
SERIES NCG - XB7 OPTION

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

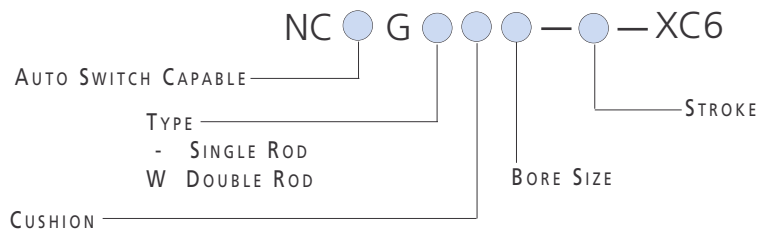
SERIES NCG - XB9 OPTION

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

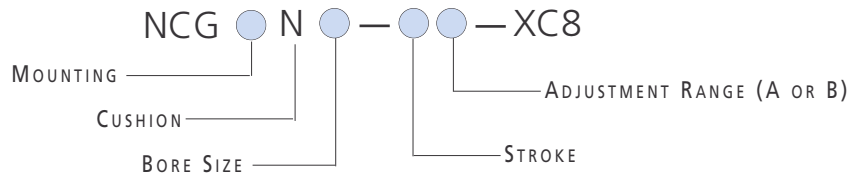
Bore (mm)	ø20, 25,32,40,50,63
Action	Double Acting/Single Rod, Double Rod
Piston Rod & Rod End Nut Material	Stainless Steel
Maximum Operating Pressure	1MPa / 145 PSI
Minimum Operating Pressure	Single Rod: 8 PSI / Double Rod: 11 PSI
Piston Velocity	50~1000mm/s / 2 ~ 40 in/sec
Mounting Style	Basic, Axial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

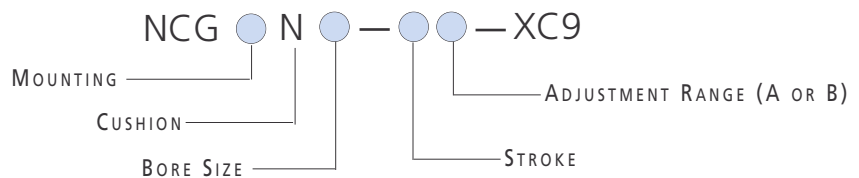
Bore (mm)	ø20, 25, 32, 40, 50, 63
Action	Double Acting
Fluid	Air
Maximum Operating Pressure	1MPa / 145 PSI
Minimum Operating Pressure	0.07MPa / 11 PSI
Piston Velocity	Out Stroke: 50~500mm/s / 2 ~ 20 in/sec Return Stroke: 50~1000mm/s / 2 ~ 40 in/sec
Cushion	Rubber Cushion
Ambient and Fluid Temperature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

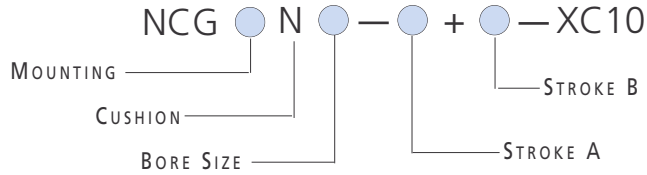
SERIES NCG - XC9 OPTION

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

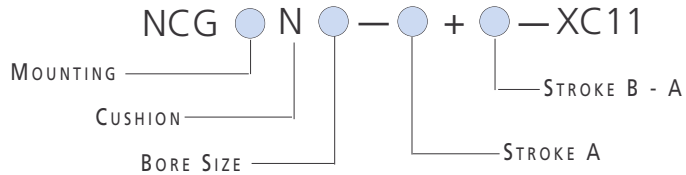
SERIES NCG - XC10 OPTION

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

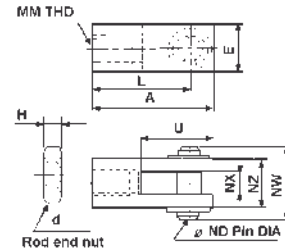
SERIES NCG - XC11 OPTION

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

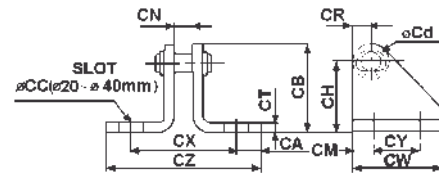
ACCESSORIES
SERIES NCG
PISTON ROD CLEVIS

Part No	Bore (mm)	A	d	E	H	L	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



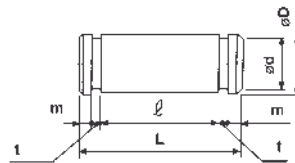
ACCESSORIES
SERIES NCG
SINGLE CLEVIS BRACKET

Part No	Bore (mm)	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



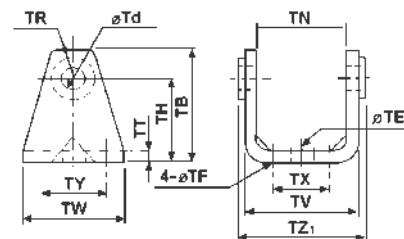
ACCESSORIES
SERIES NCG
SINGLE CLEVIS PIN

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



ACCESSORIES
SERIES NCG
DOUBLE CLEVIS PIN

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

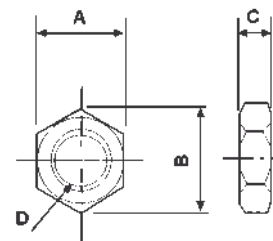


ACCESSORIES
SERIES NCG
TRUNNION BRACKET AND DOUBLE CLEVIS BRACKET

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

ACCESSORIES
SERIES NCG
ROD JAM NUT

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



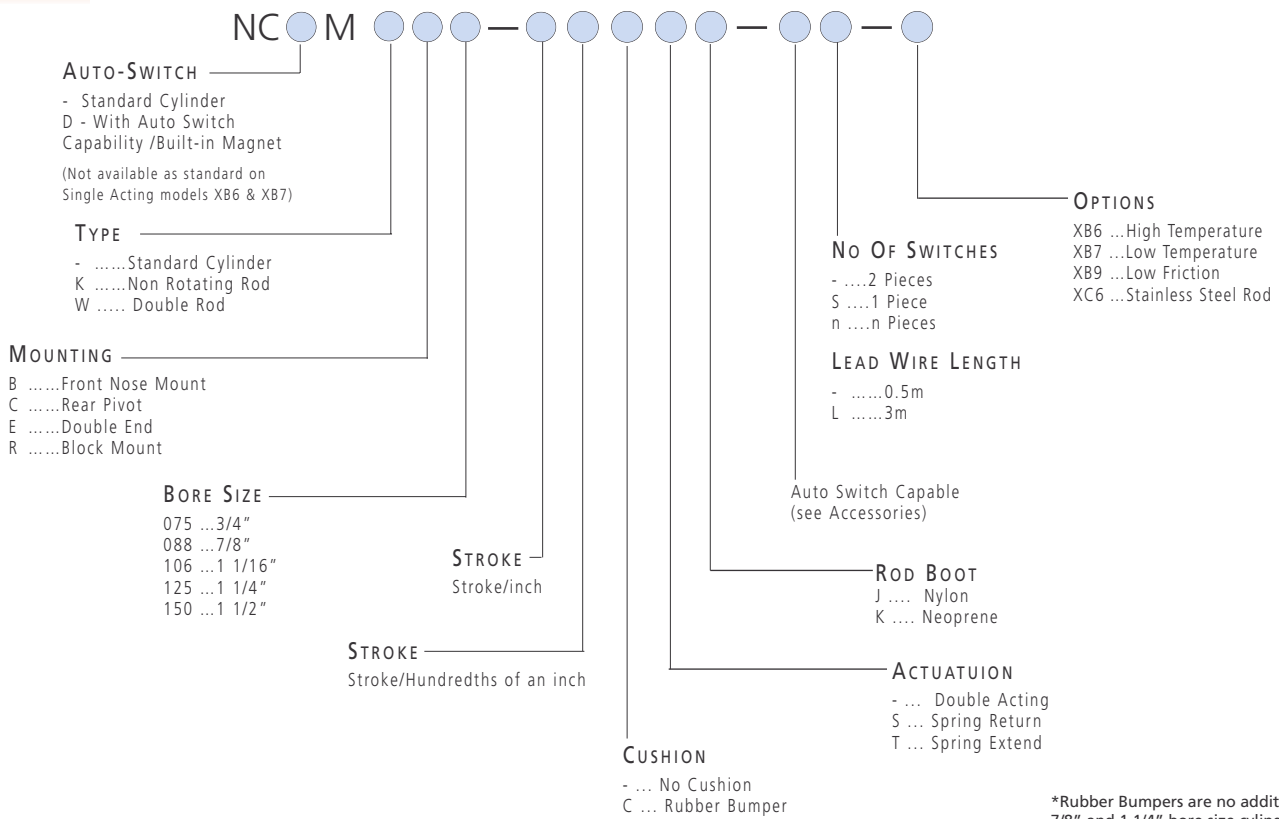
AIR CYLINDER SERIES NCM STAINLESS STEEL CYLINDERS



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

HOW TO ORDER

AIR CYLINDER SERIES NCM



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

DIMENSIONS SERIES NCM

*Rubber Bumper change in overall length

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

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

ACCESSORIES

AUTO SWITCHES SERIES NCM

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

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

ACCESSORIES

AUTO SWITCH MOUNTING BAND SERIES NCM

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

TECHNICAL SPECIFICATIONS

STAINLESS STEEL CYLINDER SERIES NCM

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

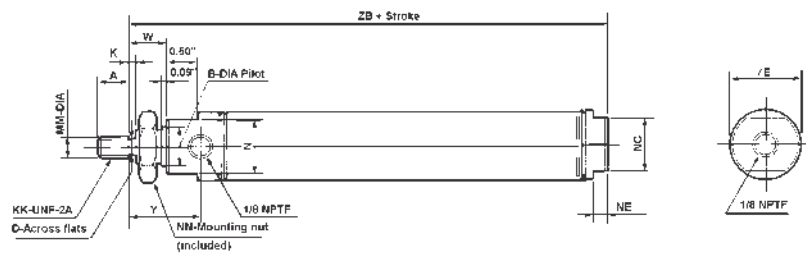
TECHNICAL SPECIFICATIONS

STANDARD STROKE LIST SERIES NCM

MOUNTING	STANDARD STROKE (INCH)	MAXIMUM STROKE
Front Nose Mounting	1/2, 1, 2, 3, 4, 5, 6	12
Double End Mounting	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

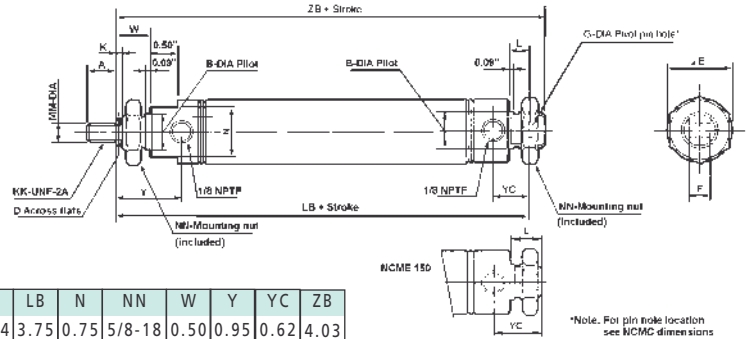
DOUBLE ACTING / SINGLE ROD SERIES NCM FRONT NOSE MOUNTING NC(D)MB



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

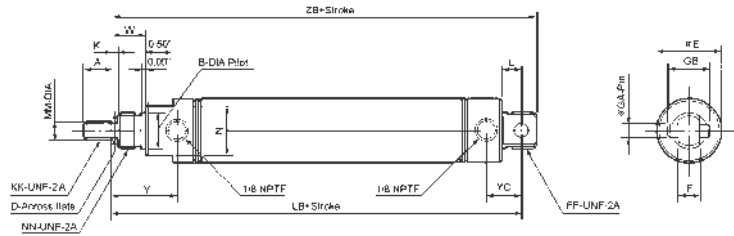
DOUBLE ACTING / SINGLE ROD **SERIES NCM**
DOUBLE END MOUNTING NC(D)ME



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

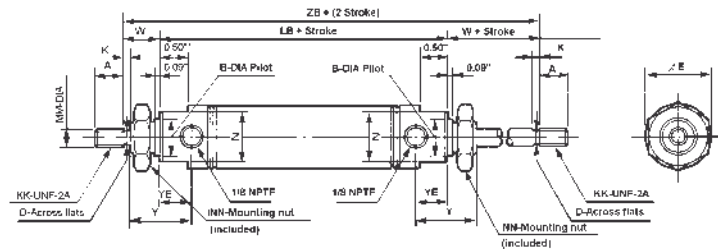
DOUBLE ACTING / SINGLE ROD **SERIES NCM**
REAR PIVOT MOUNTING NC(D)MC



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**

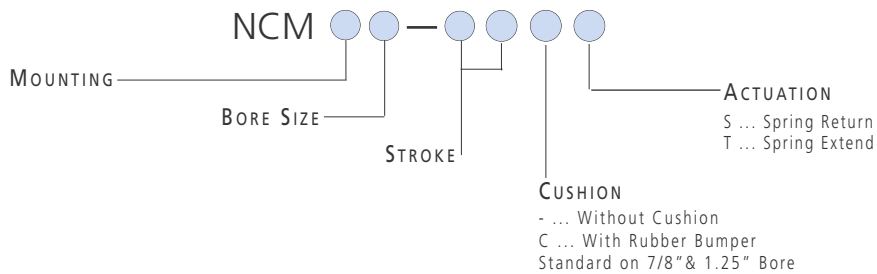
SINGLE ACTING - SPRING RETURN / SPRING EXTEND SERIES NCM

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**

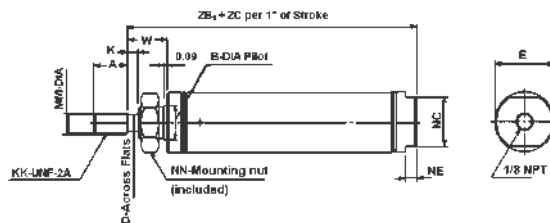
AIR CYLINDER SERIES NCM

SINGLE ACTING - SPRING RETURN / SPRING EXTEND



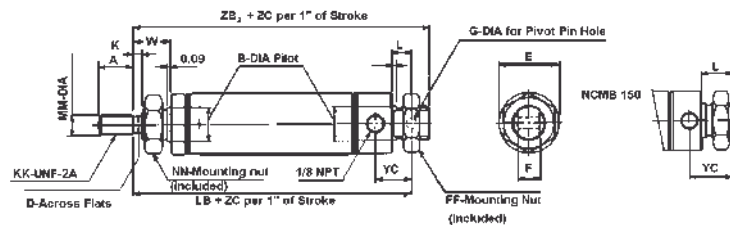
DIMENSIONS

FRONT NOSE MOUNTING / SPRING RETURN NCMB_ _S



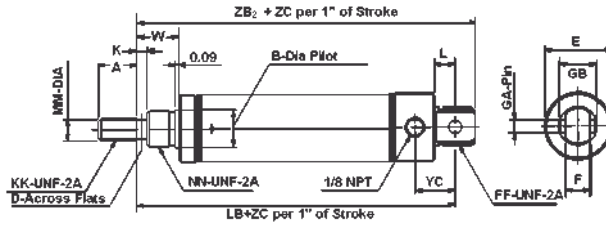
DIMENSIONS

DOUBLE END MOUNTING / SPRING RETURN NCME_ _S



DIMENSIONS

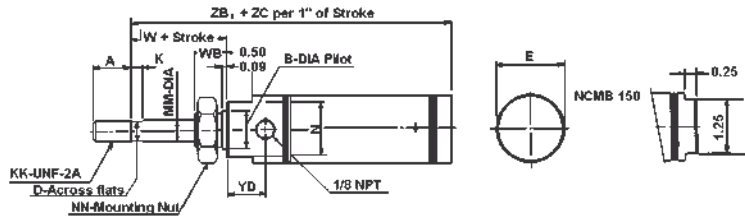
REAR PIVOT MOUNTING / SPRING RETURN NCMC_ _S



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

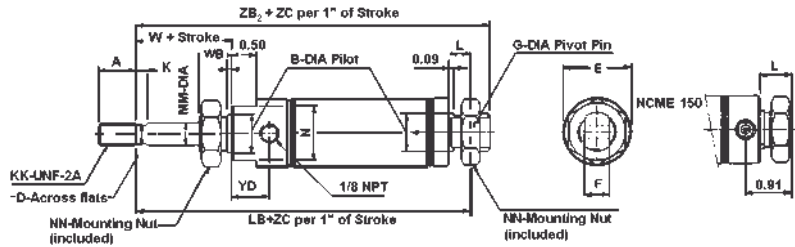
DIMENSIONS

FRONT NOSE MOUNTING / SPRING EXTEND NCMB_ _T



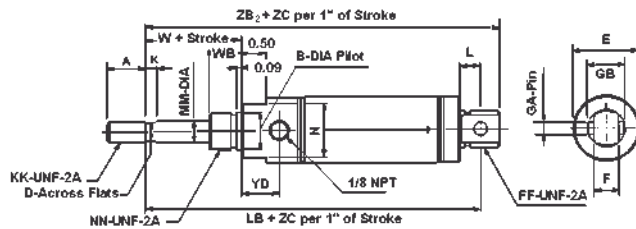
DIMENSIONS

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	3/4-16	0.88	0.62	0.63	3.16	4.26	3.00

TECHNICAL SPECIFICATIONS

BLOCK TYPE MOUNT CYLINDER SERIES NCM

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

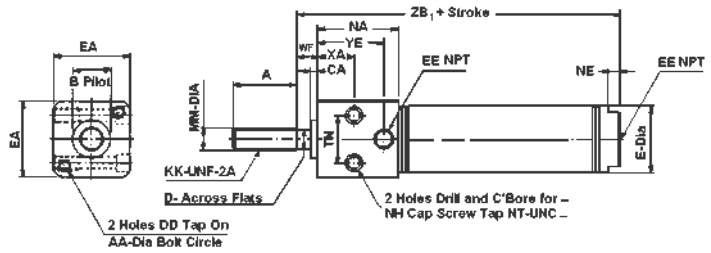
TECHNICAL SPECIFICATIONS

STANDARD STROKE LIST SERIES NCM

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

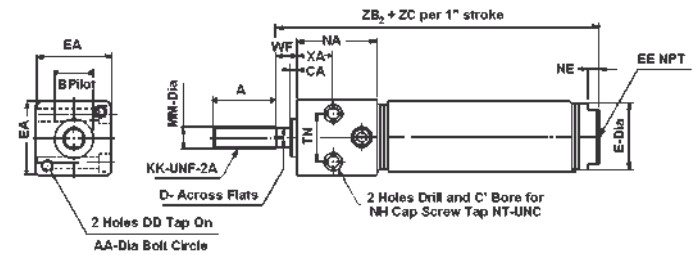
DIMENSIONS

DOUBLE ACTING NC(D)MR



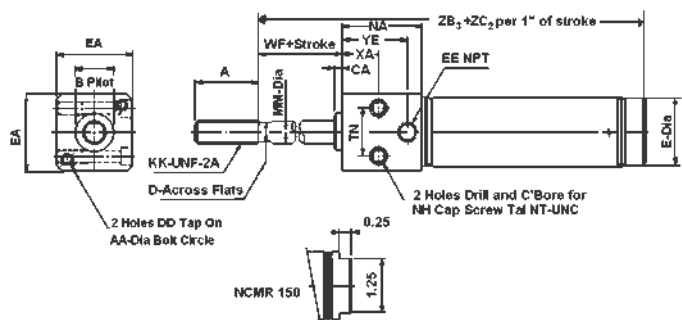
DIMENSIONS

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



DIMENSIONS

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



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

TECHNICAL SPECIFICATIONS

NON-ROTATING ROD CYLINDER SERIES NCM

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

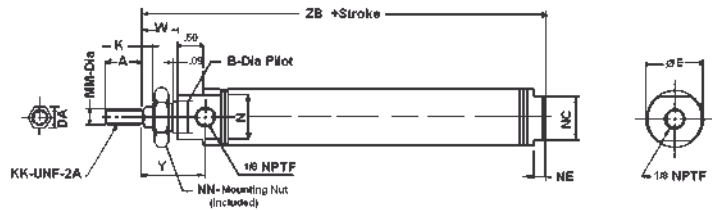
TECHNICAL SPECIFICATIONS

STANDARD STROKE LIST SERIES NCM

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

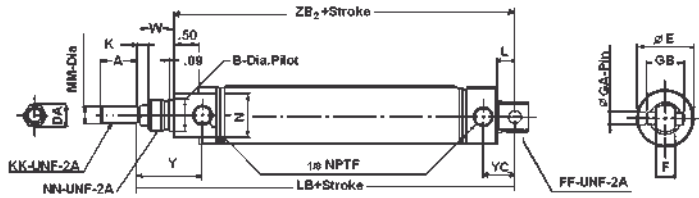
DIMENSIONS

FRONT NOSE MOUNTING NC(D)MKB



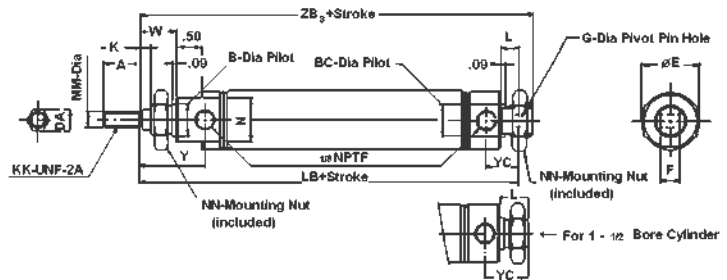
DIMENSIONS

REAR PIVOT MOUNTING NC(D)MKC



DIMENSIONS

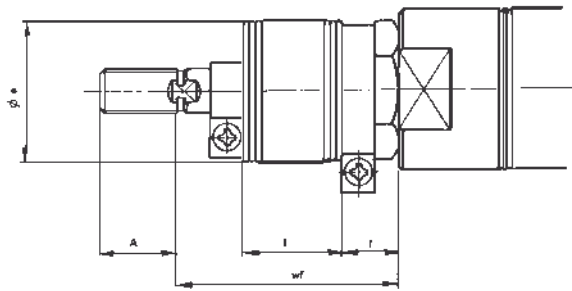
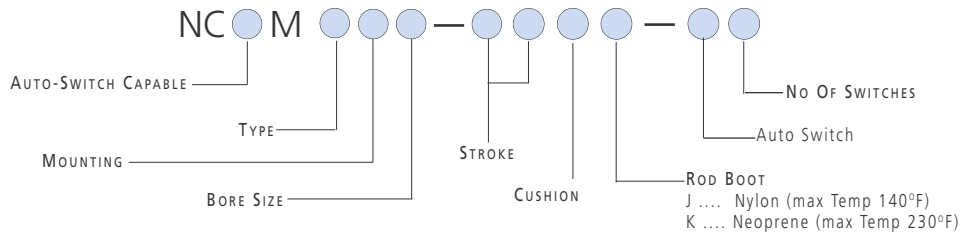
DOUBLE END MOUNTING NC(D)MKE



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

HOW TO ORDER SERIES NCM

DOUBLE ACTING CYLINDER / ROD BOOT



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

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

TECHNICAL SPECIFICATIONS SERIES NCM

HIGH TEMPERATURE - XB6 OPTION

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

TECHNICAL SPECIFICATIONS

STANDARD STROKE LIST SERIES NCM

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

TECHNICAL SPECIFICATIONS
SERIES NCM

LOW TEMPERATURE - XB7 OPTION

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

TECHNICAL SPECIFICATIONS
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

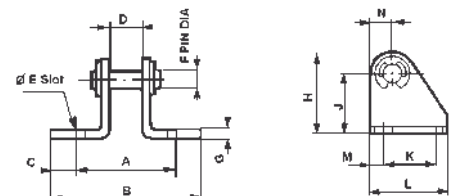
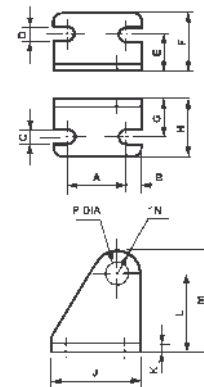
STANDARD STROKE LIST SERIES NCM

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

TECHNICAL SPECIFICATIONS

STANDARD STROKE LIST SERIES NCM

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

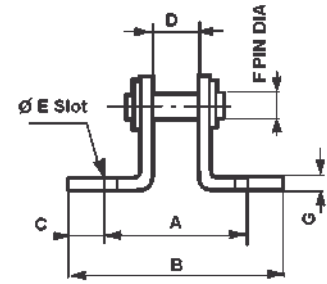


ACCESSORIES

SERIES NCM

PIVOT BRACKET (DOUBLE END) NCME

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

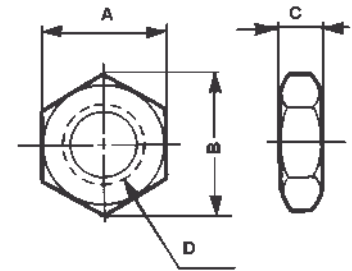


ACCESSORIES

SERIES NCM

MOUNTING NUTS (NOSE MOUNT THREAD)

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

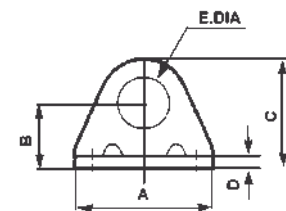
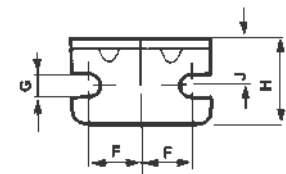


ACCESSORIES

SERIES NCM

FOOT BRACKET

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

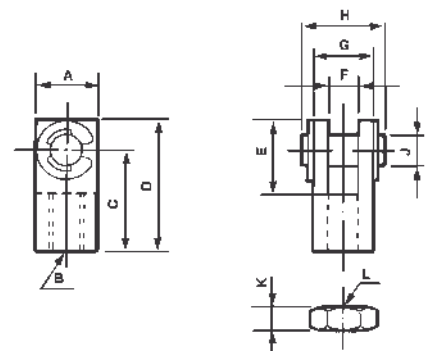


ACCESSORIES

SERIES NCM

ROD CLEVIS

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

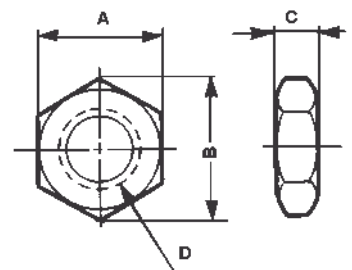


ACCESSORIES

SERIES NCM

JAM NUT (ROD THREAD)

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



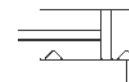
AIR CYLINDER SERIES CA1

- ✓ Auto switch sensing optional
- ✓ Bore sizes Ø40, 50, 63, 80, 100
- ✓ Non-rotating piston rod & double rod types available
- ✓ Ultra low friction, maximum 5%
- ✓ Long life, high efficiency
- ✓ Hard anodized barrel
- ✓ Locking/finelock head available (Series CLA)
- ✓ High impact resistant anodized barrel *For calculation of side loading consult your SMC Sales Office.



TECHNICAL SPECIFICATIONS

Type (Bore sizes Ø40, 50, 63)	Standard	Double Rod	Non Rotating Piston Rod
Fluid	Air	Air	Air
Lubrication	Non-lube	Non-lube	Non-lube
Proof pressure	1.5MPa	1.5MPa	1.5MPa (213PSI)
Max. operating pressure	0.99MPa	0.99MPa	0.99MPa (141PSI)
Min. operating pressure	0.05MPa	0.08MPa	0.05MPa (7PSI)
Ambient & fluid temperature	5~60°C	5~60°C	5~60°C (40~140°F)
Piston speed	50~500mm/s	50~500mm/s	50~500mm/s (2~20in/s)
Stroke tolerance	~250 ^{st+1.0} ₀	~250 ^{st+1.0} ₀	~250 ^{st+1.0} ₀
	251~1.000 ^{st+1.4} _{1.001~1.500^{st+1.8}}	251~750 ^{st+1.4}	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



MAGNETIC PISTON OPTION
 -Basic
 DWith Magnetic Piston

PISTON ROD OPTION
 KNon-Rotating Cylinder (Ø40, Ø50, Ø63)
 WDouble Rod
 -Single Rod

MOUNTING
 BBasic
 CSingle Detachable Rear Clevis
 DDetachable Rear Clevis
 FFront Flange Mounting
 GRear Flange Mounting
 LFoot Mounting
 TTrunnion

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

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

No Of SWITCHES
 -2 Pieces
 S1 Piece

APPLICABLE AUTO SWITCHES
 See Accessories Section

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 – 40∅
BA05 – 50∅
BA06 – 63∅
BA08 – 80∅
BA10 – 100∅

ACCESSORIES TIE ROD MOUNTS

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

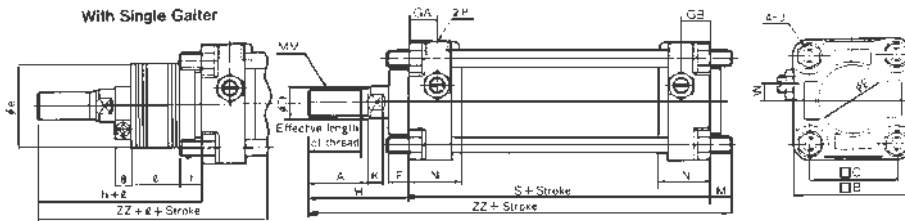
ACCESSORIES AUTO SWITCHES

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



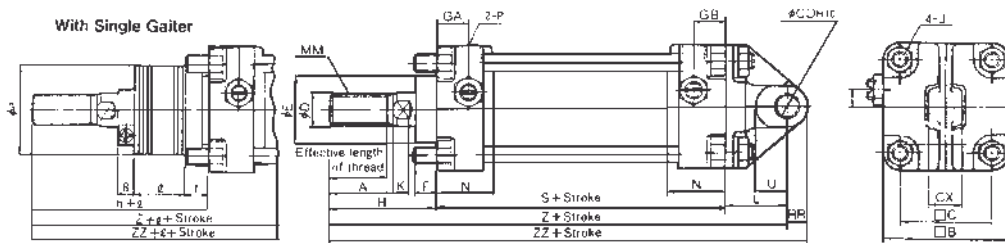
+ = Stroke addition

Bore size (mm)	Stroke range (mm)		Effective length of thread	A	□ B	□ C	∅D	∅E	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	∅e	f	h	l	ZZ
40	51	146	65	15	59	1/4 Stroke	154
50	58	159	75	15	66		167
63	58	170	75	15	66		178
80	71	204	80	15	80		213
100	72	215	90	15	81		224

DIMENSIONS

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



+ = Stroke addition

Bore size (mm)	Stroke range (mm)		Effective length of thread	A	□ B	□ C	∅D	∅E	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

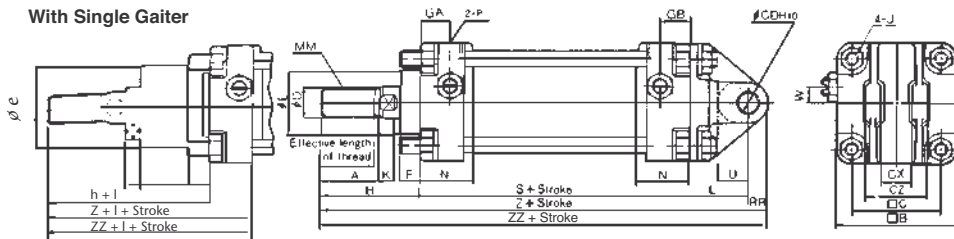
Bore size (mm)	PR	U	∅CD ^{H10}	CX	Without gaiter			With gaiter					
					H	Z	ZZ	∅e	f	h	l	Z	ZZ
40	10	16	10 ^{+0.058} _{-0.03}	15.0 ^{+0.03} _{-0.02}	51	165	175	43	11.2	59	1/4 stroke	173	183
50	12	19	12 ^{+0.070} _{-0.03}	18.0 ^{+0.03} _{-0.02}	58	183	195	52	11.2	66	1/4 stroke	191	203
63	16	23	16 ^{+0.070} _{-0.03}	25.0 ^{+0.03} _{-0.02}	58	196	212	52	11.2	66	1/4 stroke	204	220
80	20	28	20 ^{+0.084} _{-0.03}	31.5 ^{+0.03} _{-0.02}	71	235	255	65	12.5	80	1/4 stroke	244	264
100	25	36	25 ^{+0.084} _{-0.03}	35.5 ^{+0.03} _{-0.02}	72	256	281	65	14.0	81	1/4 stroke	265	290

MORE DIMENSIONS
SEE NEXT PAGE

DIMENSIONS

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

With Single Gaiter



+ = Stroke addition

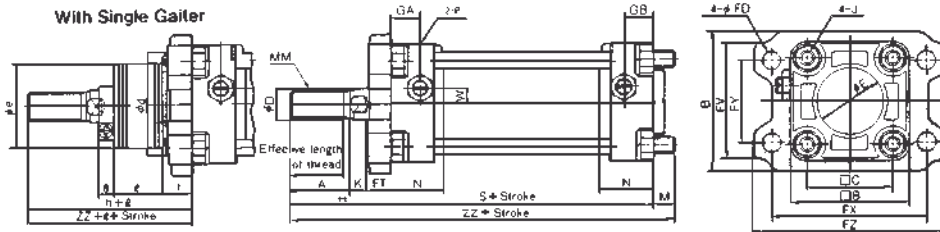
Bore size (mm)	Stroke range (mm)		Effective length of thread	A	□ B	□ C	øD	øE	F	GA	GB	J	K	MM	N	P	S	W
	Without gaiter	with gaiter																
40	~ 500	20 ~ 500	27	30	60	44	16	32	10	15	15	M 8 x 1.25	6	M 14 x 1.5	27	1/4	84	8
50	~ 600	20 ~ 600	32	35	70	52	20	40	10	17	17	M 8 x 1.25	7	M 18 x 1.5	30	3/8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

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

DIMENSIONS

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

With Single Gaiter



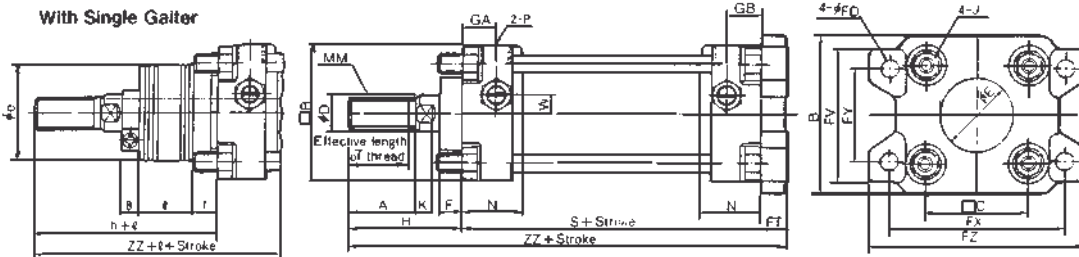
+ = Stroke addition

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

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

DIMENSIONS

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



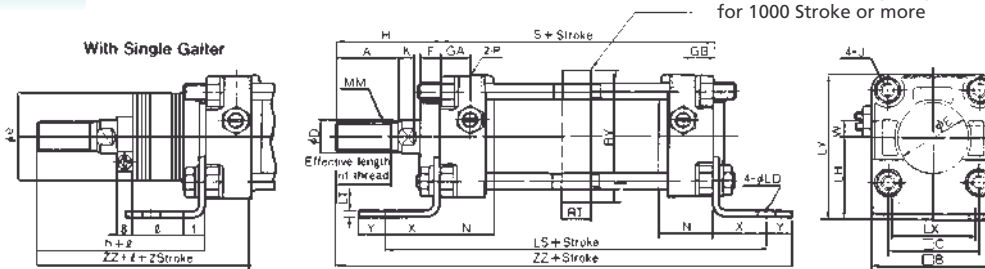
Bore size (mm)	Stroke range (mm)		Effective length of thread	A	B	□ B	□ C	∅D	∅E	F	GA	GB	J	K	MM	N	P	S	W
	Without gaiter	with gaiter																	
40	~ 500	20 ~ 500	27	30	71	60	44	16	32	10	15	15	M 8 x 1.25	6	M 14 x 1.5	27	1/4	84	8
50	~ 600	20 ~ 600	32	35	81	70	52	20	40	10	17	17	M 8 x 1.25	7	M 18 x 1.5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

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

DIMENSIONS

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

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



Bore size (mm)	Stroke range (mm)		Effective length of thread	A	□ B	□ C	∅D	∅E	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

Long Strokes

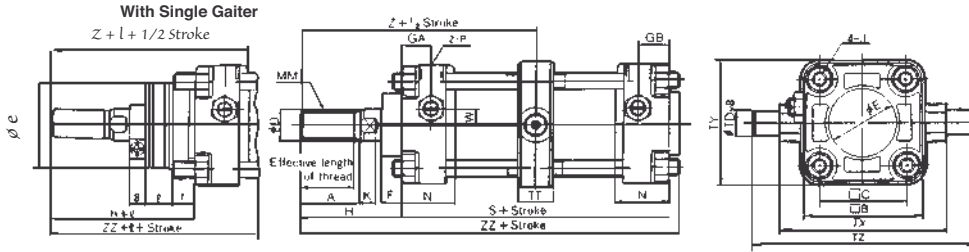
Bore size (mm)	X	Y	∅LD	LH	LS	LT	LX	LY	Without gaiter		With gaiter				
									H	ZZ	∅e	f	h	l	ZZ
40	27	13	9.0	40	138	3.2	42	70	51	175	43	11.2	59	1/4 stroke	183
50	27	13	9.0	45	144	3.2	50	80	58	188	52	11.2	66		196
63	34	16	11.5	50	166	3.2	59	93	58	206	52	11.2	66		214
80	44	16	13.5	65	204	4.5	76	116	71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

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

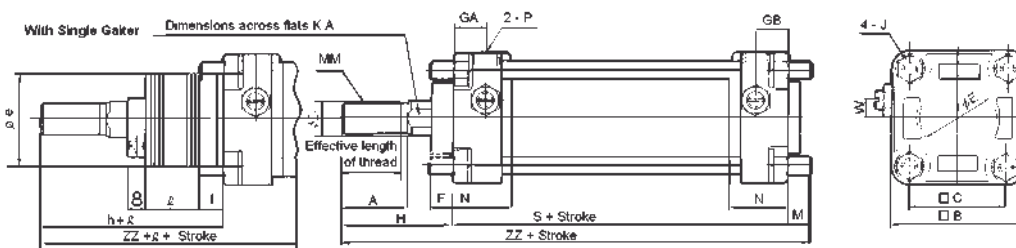


Bore size (mm)	Stroke range (mm)		Effective length of thread	A	□ B	□ C	∅D	∅E	F	GA	GB	J	K	MM	N	P	S	W
	Without gaiter	with gaiter																
40	~ 500	20 ~ 500	27	30	60	44	16	32	10	15	15	M 8 x 1.25	6	M 14 x 1.5	27	1/4	84	8
50	~ 600	20 ~ 600	32	35	70	52	20	40	10	17	17	M 8 x 1.25	7	M 18 x 1.5	30	3/8	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)	∅TDe8	TT	TX	TY	TZ	Without gaiter			With gaiter					
						H	Z	ZZ	* ∅e	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

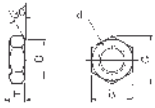


Bore size (mm)	Stroke range (mm)		Effective length of thread	A	B	C	∅D	∅E	F	GA	GB	J	KA	MM	N	P	S	W
	No gaiter	Gaiter																
40	~ 500	20-500	27	30	60	44	16	32	10	15	15	M8x1.25	14	M14x1.5	27	1/4	84	8
50	~ 600	20-600	32	35	70	52	20	40	10	17	17	M8x1.25	18	M18x.5	30	3/8	90	0
63	~ 600	20-600	3	35	85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

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

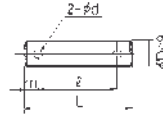
DIMENSIONS
PISTON ROD MOUNTING ACCESSORIES

ROD END NUT (STANDARD ACCESSORIES)



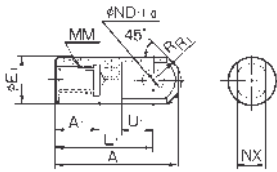
Part No.	Applicable bore size (mm)	d	H	B	C	D
NT-04	40	M 14 x 1.5	8	22	25.4	21
NT-05	50•63	M 18x 1.5	11	27	31.2	26
NT-08	80	M 22 x 1.5	13	32	37.0	31
NT-10	100	M 26 x 1.5	16	41	47.3	39

CLEVIS PIN



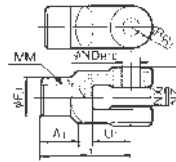
Part No.	Applicable bore size (mm)		Dd9	L	l	m	d Through hole dia.	Applicable split pin
	Clevis	Knuckle						
CDP-2	40	-	10-0.040 -0.076	41.2	33.2	4	2-3	3x18 I
CDP-3	50	40•50•63	12-0.050 -0.093	49.7	41.7	4	2-3	3x18 I
CDP-4	63	-	16-0.050 -0.093	64	54	5	2-4	4x25 I
CDP-5	-	80	18-0.050 -0.093	70	60	5	2-4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

I TYPE SINGLE ROD CLEVIS



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

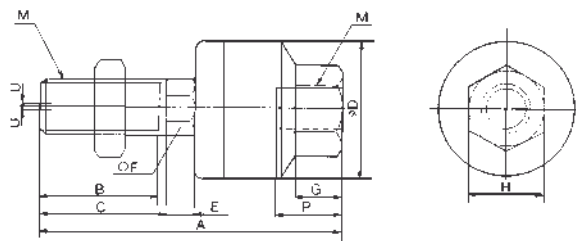
Y TYPE DOUBLE ROD CLEVIS



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

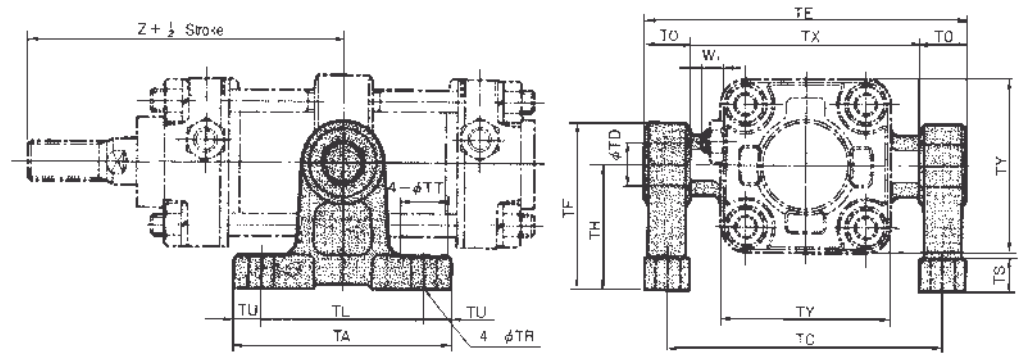
FLOATING JOINT

JA40-100



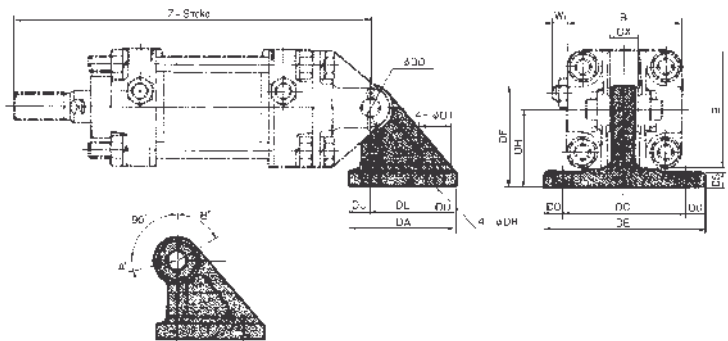
Ø Cylinder Bore (mm)	Nominal Thread Dia.	Pitch	A	B	C	D	E	F	G	H	Max. Screwed depth P	Allowable eccentricity U	Max. Operating tension & compressed power kgf(kN)	Weight kgf
40	14	1.5	60	20	-	31	6	11	11	22	13	0.75	600(6)	0.16
50•63	18	1.5	74.5	25	-	41	7.5	14	13.5	27	15	1	1100(11)	0.31
80	22	1.5	89.5	29	-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

DIMENSIONS TRUNNION MOUNTING BRACKET



Part No	Applicable bore size (mm)	TA	TL	TU	TC	TX	TE	TO	TR	TT	TS	TH	TF	TY	W1	Z	TD ^{H10}
CA1-S04	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-S06	63	100	70	15	130	110	150	20	11	22	14	55	73	90	10	107	18 ^{+0.070} ₀
CA1-S08	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



AUTO SWITCH

-Standard
- Dw/Auto S (Stainless Steel Composite Tube Only)

STYLE

-Standard Cylinder
- WDouble Rod
- K Non-rotating Piston Rod (5 to 14 ϕ)

MOUNTING / SINGLE ROD ONLY

- EAME3 - Head Square Mount (8 to 14" ϕ)
- EBME4 - Cap Square Mount (8 to 14" ϕ)
- FMF1 - Front Flange (1.5 to 6" ϕ)
- GMF2 - Rear Flange (1.5 to 6" ϕ)
- MMF5 - Front Flange (1.5 to 6" ϕ)
- NMF6 - Rear Flange (1.5 to 6" ϕ)
- XMP1 - Double Rear Clevis (1.5 to 14" ϕ)
- DMP2 - Double Detachable Rear Clevis/Female (1.5 to 14" ϕ)
- EMP3 - Cap Fixed Eye (1.5 to 14" ϕ)
- CMP4 - Single Detachable Rear Clevis/Male (1.5 to 14" ϕ)
- LMS1 - Foot Mount (1.5 to 14" ϕ)
- SMS2 - Side Lug (1.5 to 14" ϕ)
- OMS3 - Centerline Lug (1.5 to 14" ϕ)
- RMS4 - Side-Tapped (1.5 to 14" ϕ)
- PMS7 - Front Lug Mount (1.5 to 14" ϕ)
- JMT2 - Cap Trunnion (1.5 to 14" ϕ)
- UMT1 - Head Trunnion (1.5 to 14" ϕ)
- TMT4 - Center Trunnion (1.5 to 14" ϕ) *See below
- BMX0 - Basic/No Mount (1.5 to 14" ϕ)
- BAMX1 - Extended Tie-Rods; Head/Cap (1.5 to 14" ϕ)
- BBMX2 - Extended Tie-Rods; Cap (1.5 to 14" ϕ)
- BCMX3 - Extended Tie-Rods; Head (1.5 to 14" ϕ)

How To Order MT4 With Non Standard XI Dimension

NCA1 T ϕ - ϕ - XC14 (XI = 4.25) T ϕ

Specify XI Dimension in inches Construction Type

- STYLE
-Pneumatic
 - HHydraulic

CONSTRUCTION TYPE

(PLEASE SEE PAGE 1 FOR CONSTRUCTION DETAILS)

- ST ... Steel Construction (1.5~14" ϕ)
- SS ... All Stainless Steel (1.5~14" ϕ)
- SCT ... Steel w/ Composite Tube (1.5 - 14" ϕ)
- SSCT ... Stainless Steel w/ Composite Tube (1.5- 14" ϕ)

OPTIONS

- ASpecial Rod Thread
 - B5Oversized Rod (See Chart below)
 - B6High Temperature *
 - C3Port and Cushion Location
 - C6Stainless Steel Piston Rod
 - C8Adjustable Stroke Extended Piston Rod *
 - C9Adjustable Stroke Return Piston Rod *
 - C10 ...Dual Operation/Double Rod Piston Rod *
 - C11 ...Dual Operation/Single Rod Piston Rod *
 - C12 ...Tandem Cylinder
- * (Contact SMC Customer Service)

ROD BOOT

-Without Boot
- kNeoprene Boot

NO OF SWITCHES

-2 Pieces
- S1 Piece
- nNumber of Switches

AIR CUSHION

-Both Ends
- NNone
- HHead End
- RRod End

*Note: Non Adjustable Cushions are available on units above 4" Bore
Please Consult SMC Customer Service.

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

AUTO SWITCH

For further information, please consult SMC Customer Service.

OPTION

SERIES NCA1 AIR CYLINDER (1.5~6" ϕ BORE)

OVERSIZED ROD - XB5 OPTION

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

XB5 - CDN

- E 1"
- G 1 3/8"
- H 1 3/4"
- J 2"
- K 2 1/2"
- L 3"
- M 3 1/2"
- Z Consult SMC Customer Service For larger Sizes

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

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

STANDARD STROKE

Inches
Example: 04 = 4" Stroke

STROKE

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

Up to 32" Bore available
Please contact SMC Customer Service

AIR CYLINDER SERIES NCA1 HEAVY DUTY LARGE BORE AIR CYLINDERS



AIR CYLINDER SERIES NCA1 MEDIUM DUTY LARGE BORE AIR CYLINDERS

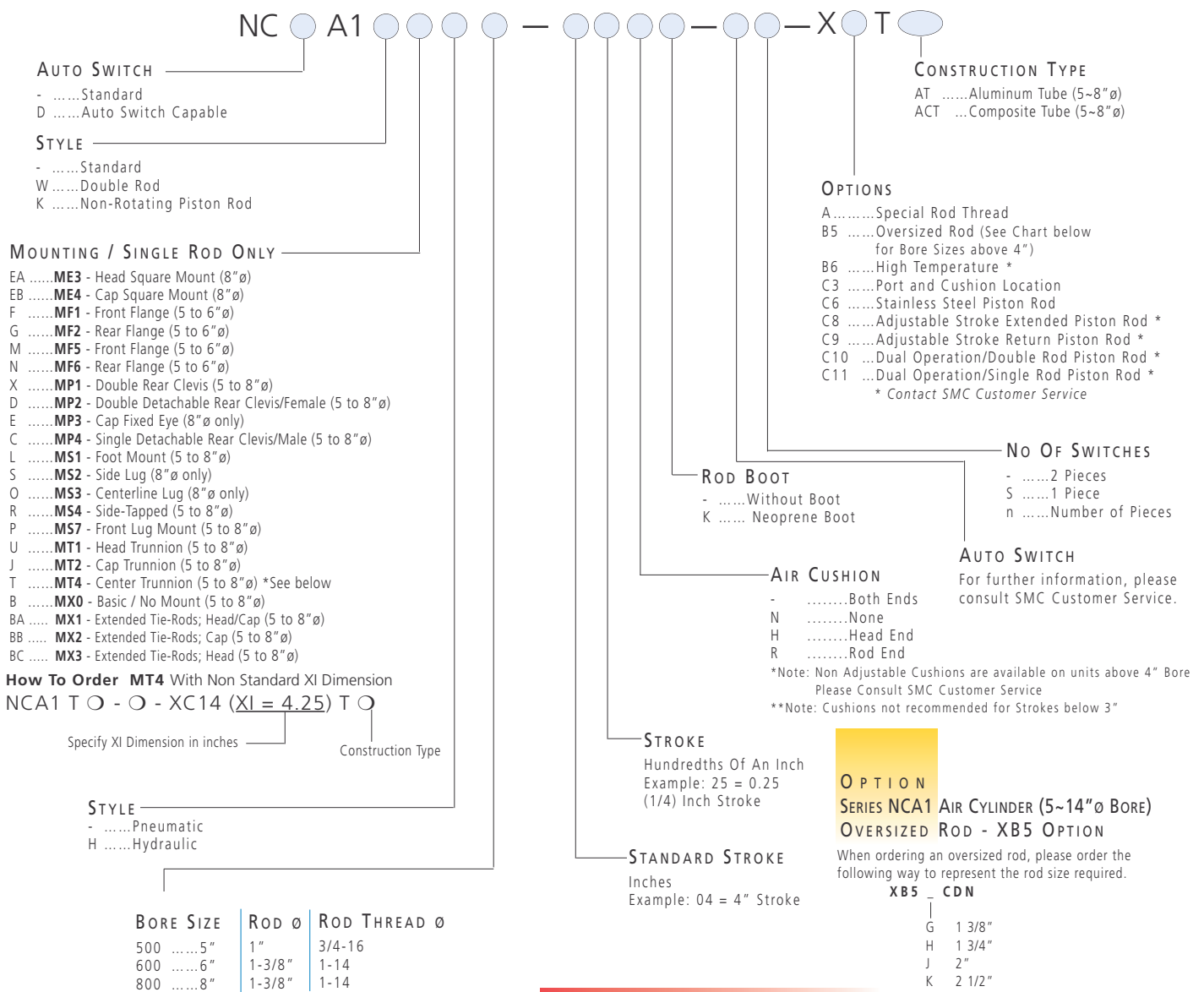
- ✓ Steel Construction
- ✓ Stainless Steel Version Available
- ✓ Available in Bore Sizes 8" to 14" and Up To 32" Available
- ✓ Replaceable Rod Gland Design

- ✓ 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



OPTION

SERIES NCA1 AIR CYLINDER (5~14"ø BORE)

OVERSIZED ROD - XB5 OPTION

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

XB5	CDN
I	
G	1 3/8"
H	1 3/4"
J	2"
K	2 1/2"
L	3"
M	3 1/2"
Z	Please contact SMC Customer Service for Larger Sizes

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

AIR CYLINDER SERIES NCA1

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

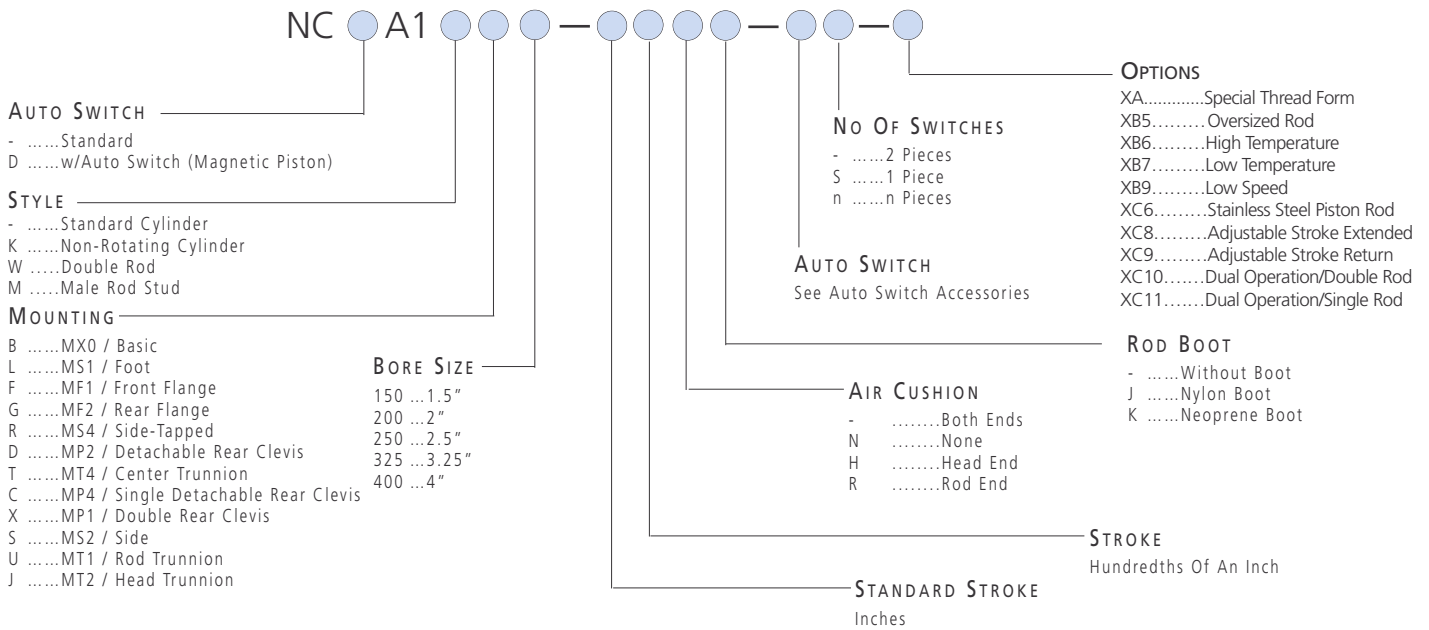


TECHNICAL SPECIFICATIONS

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

HOW TO ORDER

SERIES NCA1 AIR CYLINDER



STANDARD STROKES SERIES NCA1

BORE SIZE (INCHES)	STANDARD STROKE (INCHES)	MAXIMUM STROKE (INCHES)
1.5"	1, 2, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20	Consult SMC
2", 2.5"	1, 2, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20, 24	
3.25", 4"	1, 2, 3, 4, 5, 6, 8, 10, 12, 14, 16, 18, 20, 24, 28	

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

MOUNTING BRACKET SERIES NCA1 AIR CYLINDER

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

* These Kits are for Standard Single Rod Double Acting Cylinders without Options. For Option Kits, please contact your local SMC Sales office. One Kit required per cylinder.

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-250	250 (2.5")
NBT-325	325 (3.25")
NBT-400	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

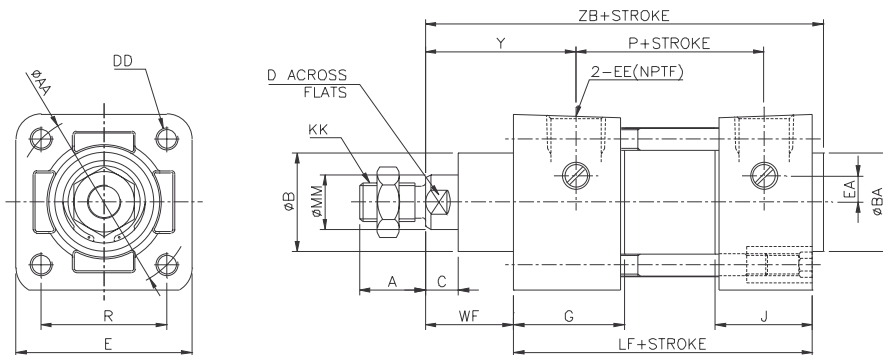
ACCESSORIES AUTO SWITCHES - SOLID STATE TYPE

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



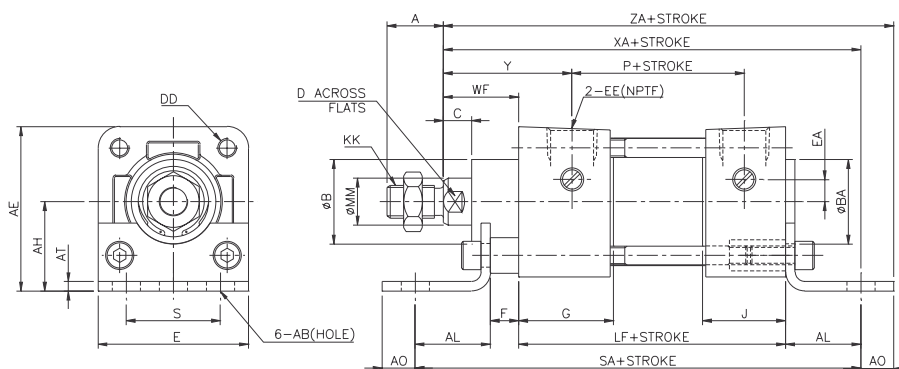
BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	G	J	R	WF	Y	LF	P	ZB
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	1.1	1.43	1	1.71	3 5/8	2.36	4 3/4
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	1.06	1.84	1	1.71	3 5/8	2.4	4 3/4
250 (2.5")	5/8	7/16-20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

+ = Stroke addition

DIMENSIONS

FOOT MOUNTING

TYPE NC□A1L

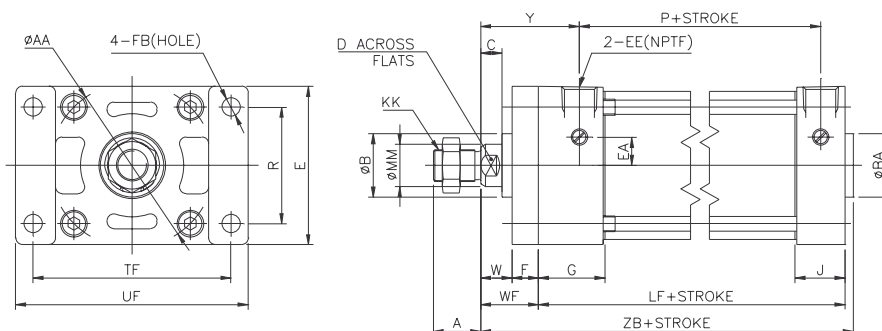


+ = Stroke addition

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

DIMENSIONS

FRONT FLANGE TYPE NC□A1F

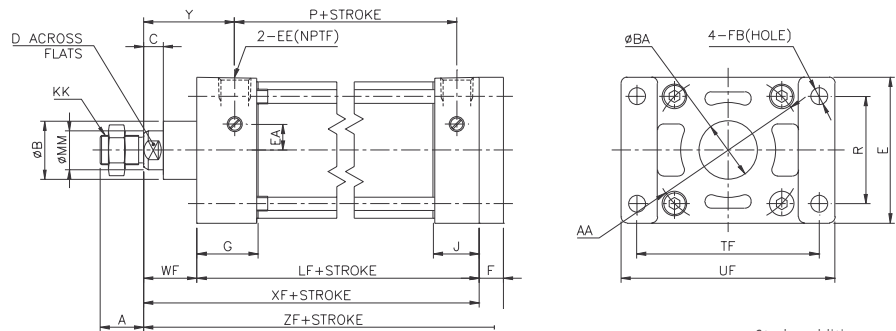


+ = Stroke addition

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

DIMENSIONS

REAR FLANGE TYPE NC□A1G

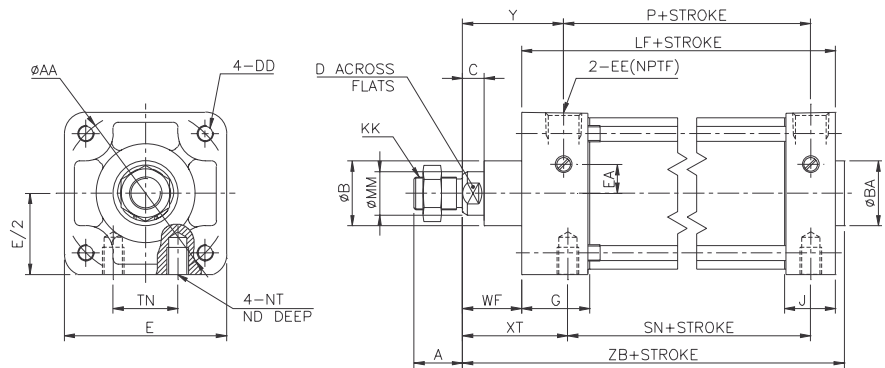


+ = Stroke addition

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

DIMENSIONS

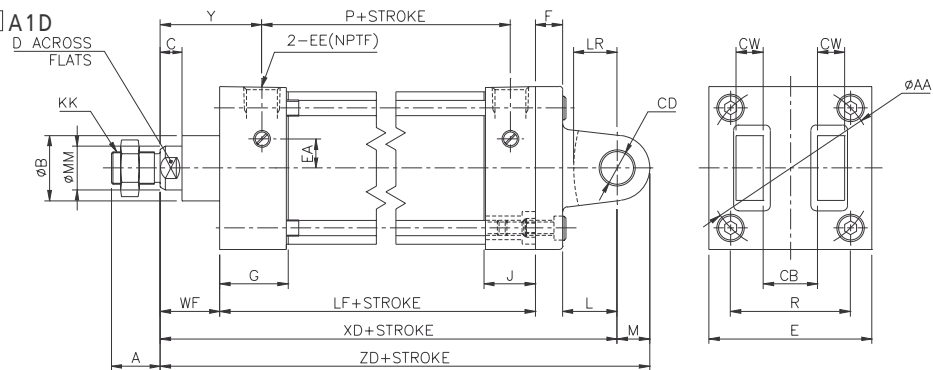
SIDE-TAPPED TYPE NC□A1R



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

DIMENSIONS

DETACHABLE REAR CLEVIS TYPE - NC□A1D

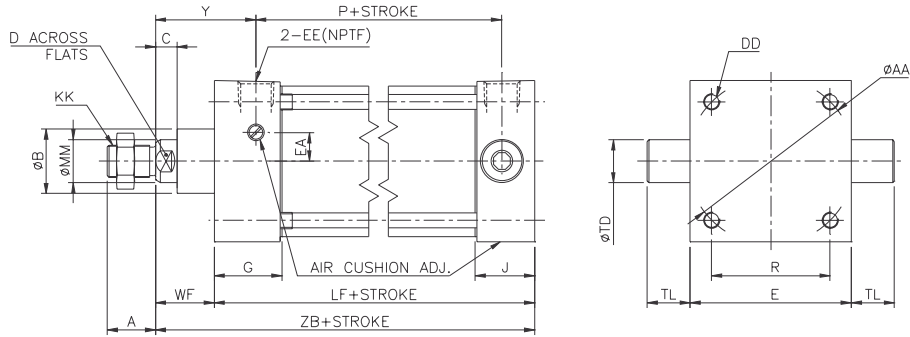


BORE (INCH)	MM	KK	A	AA	B	C	CB	CD	CW	D	DD	E	EA	EE	F	G	J	L	LR	M	WF	XD	Y	LF	P	ZD
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	3/4	1/2	1/2	9/16	1/4-28	2	0.3	3/8	3/8	1.26	1.1	3/4	5/8	1/2	1	5 3/4	1.71	3 5/8	2.36	6 1/4
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	3/4	1/2	1/2	9/16	5/16-24	2 1/2	0.3	3/8	3/8	1.26	1.06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

MORE DIMENSIONS
SEE NEXT PAGE

DIMENSIONS

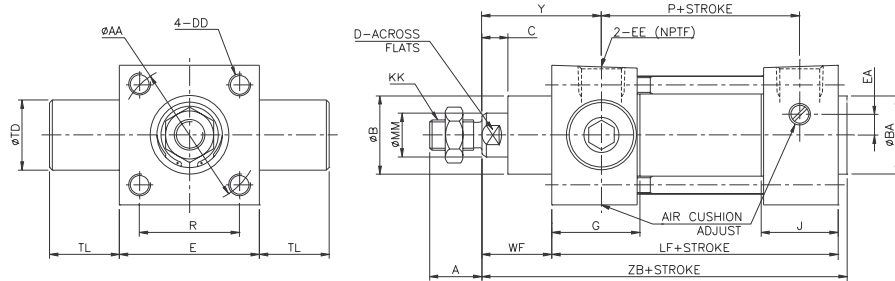
HEAD TRUNNION TYPE NC□A1J



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

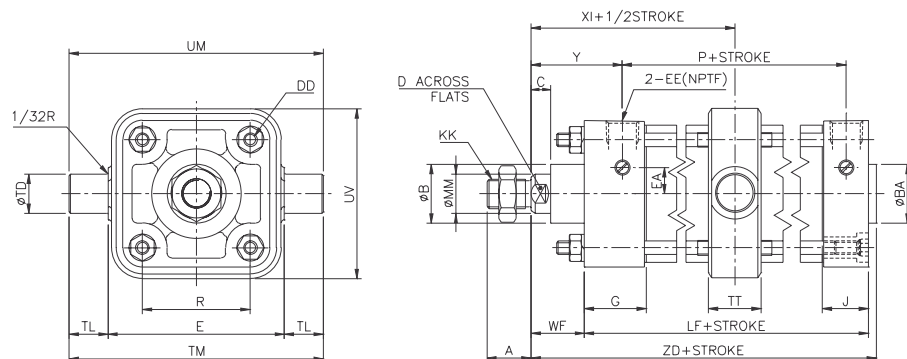
ROD TRUNNION TYPE NC□A1U



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

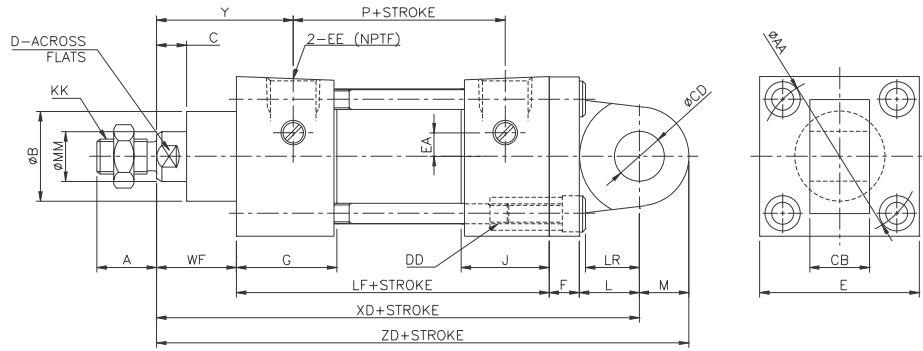
CENTER TRUNNION TYPE NC□A1T



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	P	XI	ZB
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	1.1	1.43	1	1	2 1/2	1.18	4 1/2	2	1	1.71	3 5/8	2.36	2.89	4 3/4
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	1.06	1.84	1	1	3	1.18	5	2.56	1	1.71	3 5/8	2.40	2.91	4 3/4
250 (2.5")	5/8	7/16-20	3/4	3.1	1 1/8	1 1/8	3/8	9/16	5/16-24	3	0	3/8	1.3	1.06	2.19	1	1	3 1/2	1.18	5 1/2	3.39	1	1.75	3 3/4	2.48	2.99	4 7/8
325 (3.25")	1	3/4-16	1 1/8	3.9	1 1/2	1 1/2	1/2	7/8	3/8-24	3 3/4	0	1/2	1.57	1.18	2.76	1	1	4 1/2	1.34	6 1/2	4.33	1 3/8	2.34	4 1/4	2.72	3.7	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	5 1/4	1.57	7 1/4	5.12	1 3/8	2.34	4 1/4	2.72	3.74	5 53/64

DIMENSIONS

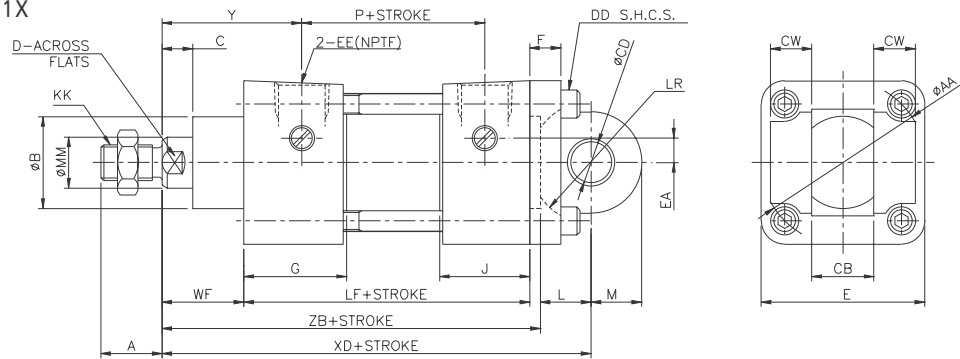
SINGLE REAR CLEVIS TYPE NC□A1C



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

DIMENSIONS

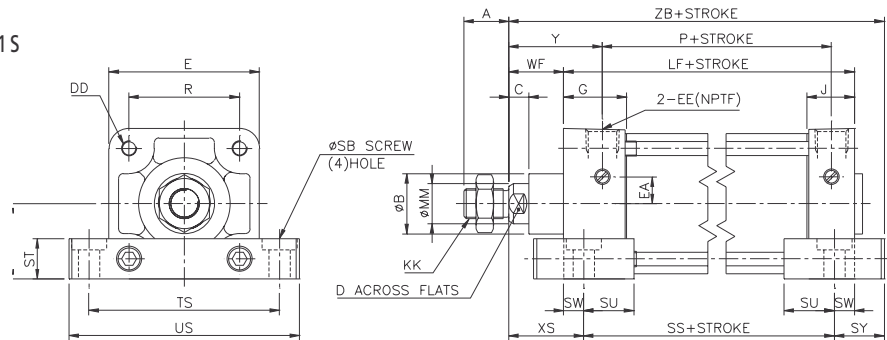
DOUBLE REAR CLEVIS TYPE NC□A1X



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

DIMENSIONS

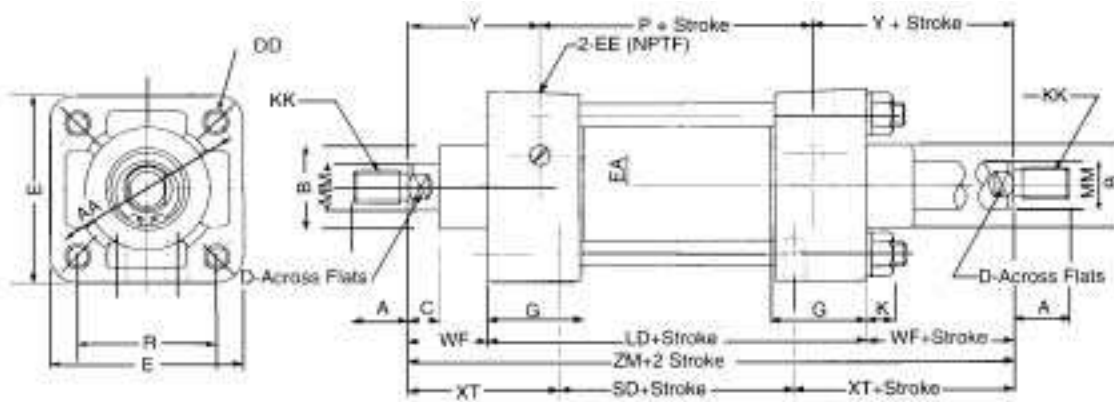
SIDE LUG MOUNTING TYPE NC□A1S



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

DIMENSIONS

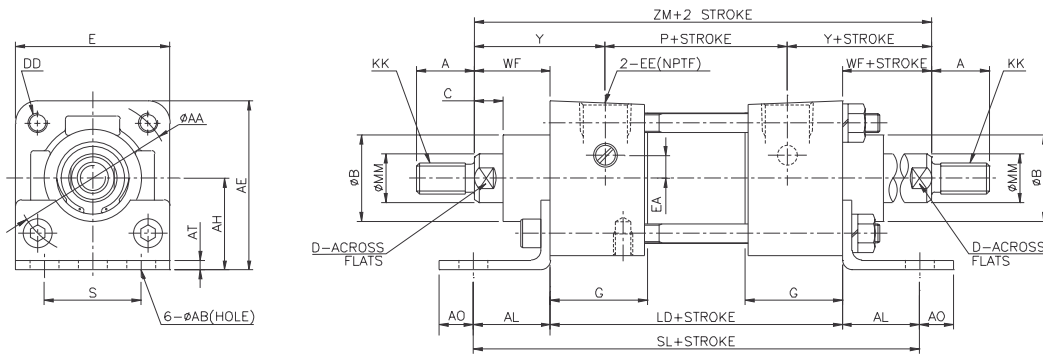
DOUBLE ROD BASIC TYPE NC□A1WB



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

DIMENSIONS

DOUBLE ROD FOOT MOUNTING TYPE NC□A1WL

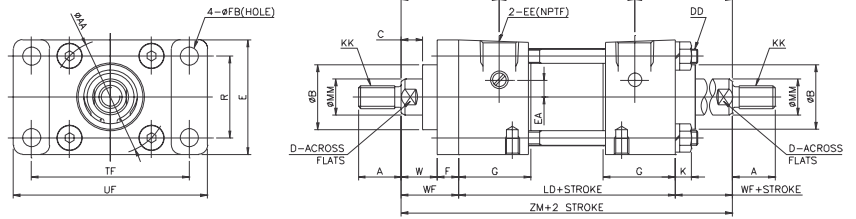


BORE (INCH)	MM	KK	A	AA	AB	AE	AH	AL	AO	AT	B	BA	C	D	DD	E	EA	EE	G	K	S	WF	Y	P	LD	SL	ZM
150 (1.5")	5/8	7/16-20	3/4	2.02	3/8	2 3/16	1 3/16	1	7/16	1/8	1 1/8	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	0.281	1 1/4	1	1.71	2.36	3.78	5.78	5.78
200 (2")	5/8	7/16-20	3/4	2.6	3/8	2 11/16	1 7/16	1	9/16	1/8	1 1/8	1 1/8	3/8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

MORE DIMENSIONS
SEE NEXT PAGE

DIMENSIONS

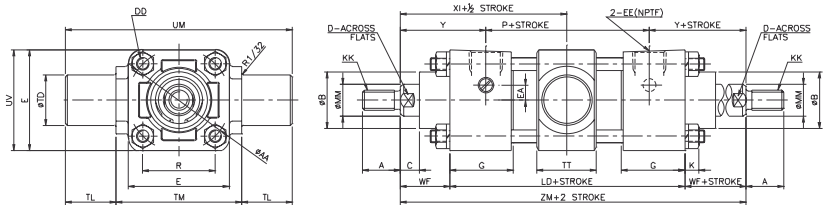
DOUBLE ROD FRONT FLANGE MOUNTING TYPE NC□A1WF



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

DIMENSIONS

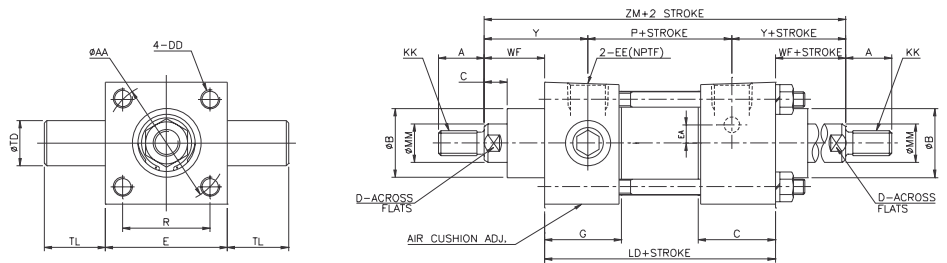
DOUBLE ROD CENTER TRUNNION MOUNTING TYPE NC□A1WT



BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	K	R	TD ^{0.0001}	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

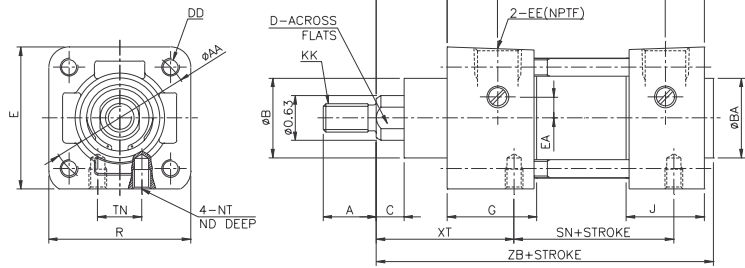
DOUBLE ROD TRUNNION TYPE NC□A1WU



BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	K	LD	P	R	TD ^{0.0001}	TL	WF	Y	ZM
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	0.281	3.78	2.36	1.43	1	1	1	1.71	5.78
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	0.343	3.82	2.4	1.84	1	1	1	1.71	5.82
250 (2.5")	5/8	7/16-20	3/4	3.1	1 1/8	3/8	9/16	5/16-24	3	0	3/8	1.3	0.343	3.98	2.48	2.19	1	1	1	1.75	5.98
325 (3.25")	1	3/4-16	1 1/8	3.9	1 1/2	1/2	7/8	3/8-24	3 3/4	0	1/2	1.57	0.421	4.64	2.72	2.76	1	1	1 3/8	2.34	7.4
400 (4")	1	3/4-16	1 1/8	4.7	1 1/2	1/2	7/8	3/8-24	4 1/2	0	1/2	1.57	0.421	4.64	2.72	3.32	1	1	1 3/8	2.34	7.4

DIMENSIONS

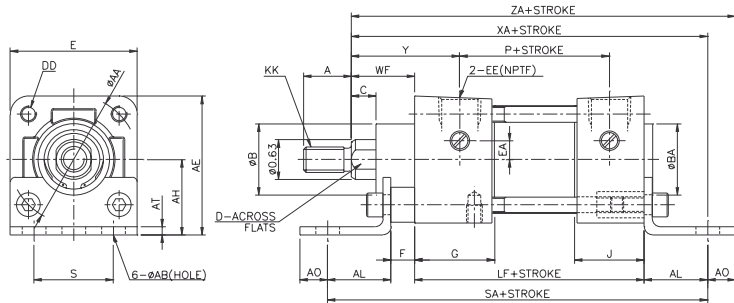
NON-ROTATING ROD BASIC TYPE - NC□A1KB



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

DIMENSIONS

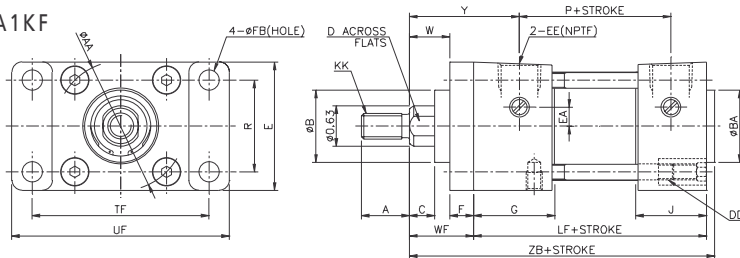
NON-ROTATING ROD FOOT MOUNTING TYPE NC□A1KL



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

DIMENSIONS

NON-ROTATING ROD FRONT FLANGE MOUNTING TYPE NC□A1KF

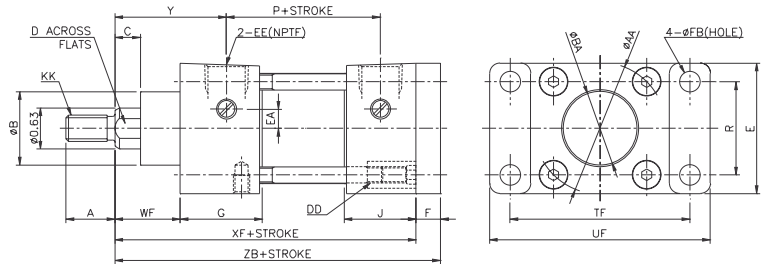


BORE (INCH)	KK	A	AA	B	BA	C	D	DD	E	EA	EE	F	FB	G	J	R	TF	UF	W	WF	Y	LF	P	ZB
150 (1.5")	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	0.551	1/4-28	2	0.3	3/8	0.375	0.312	1.26	1.1	1.43	2.75	3.375	5/8	1	1.71	3 5/8	2.36	4.75
200 (2")	7/16-20	3/4	2.6	1 1/8	1 1/8	3/8	0.551	5/16-24	2.5	0.3	3/8	0.375	0.375	1.26	1.06	1.84	3.375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

MORE DIMENSIONS
SEE NEXT PAGE

DIMENSIONS

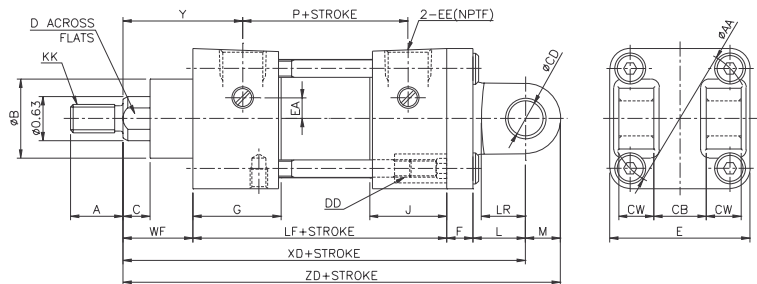
NON-ROTATING ROD REAR FLANGE MOUNTING TYPE NC□A1KG



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

DIMENSIONS

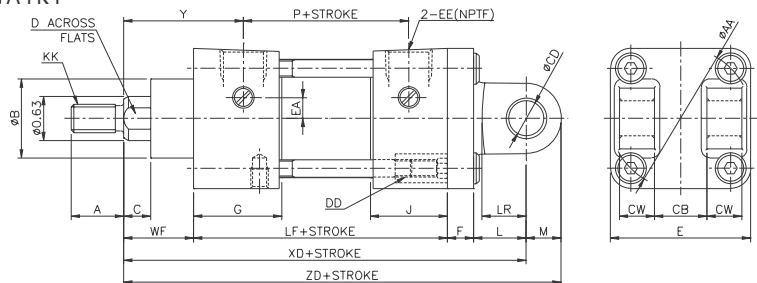
NON-ROTATING ROD DETACHABLE REAR CLEVIS MOUNTING TYPE NC□A1KD



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

DIMENSIONS

NON-ROTATING ROD CENTER TRUNNION MOUNTING TYPE NC□A1KT



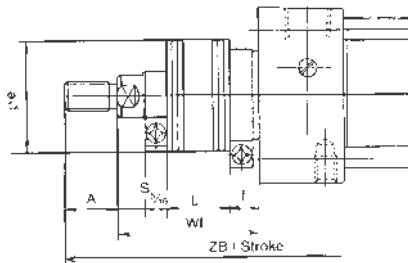
BORE (INCH)	KK	A	AA	B	BA	C	D	DD	E	EA	EE	G	J	R	TD ⁰ _{0.001}	TL	TM	TT	UM	UV	WF	Y	LF	P	XI	ZB
150 (1.5")	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	0.551	1/4-28	2	0.3	3/8	1.26	1.1	1.43	1	1	2.5	1.18	4.5	2	1	1.71	3 5/8	2.36	2.89	4.75
200 (2")	7/16-20	3/4	2.60	1 1/8	1 1/8	3/8	0.551	5/16-24	2.5	0.3	3/8	1.26	1.06	1.84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

DIMENSIONS

ROD BOOT TYPE NC□A1□□-□ J

BOOT MATERIAL

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

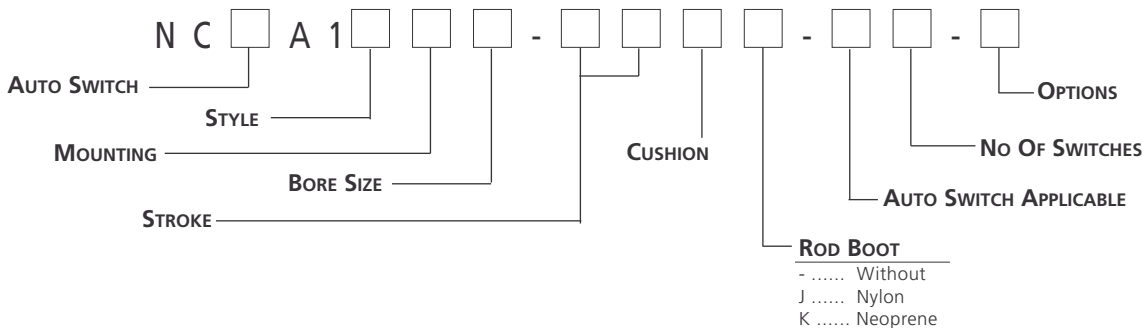


BORE (INCH)	A	øe	F	STROKE											
				0~2	2.1~4	4.1~6	6.1~8	8.1~10	10.1~12	12.1~14	14.1~16	16.1~20	20.1~24	24.1~28	
150 (1.5")	0.75	1.375	0.734											-	-
200 (2")	0.75	1.375	0.734											6	-
250 (2.5")	0.75	1.375	0.734	0.5	1	1.5	2	2.5	3	3.5	4	5	6	6	-
325 (3.25")	1.125	1.968	0.984										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

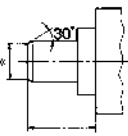
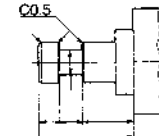
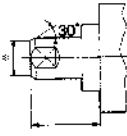
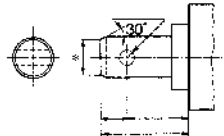
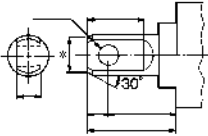
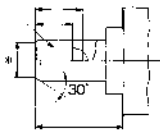
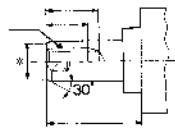
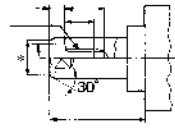
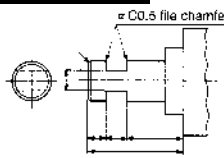
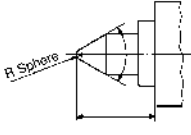
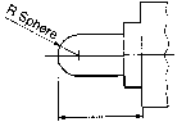
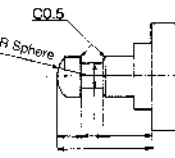
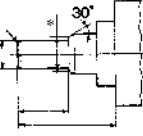
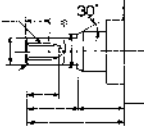
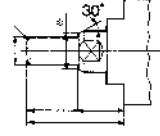
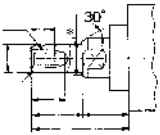
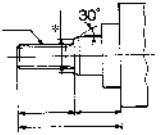
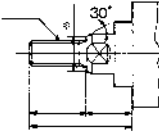
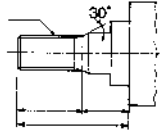
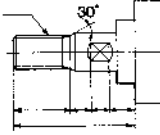
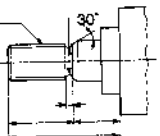
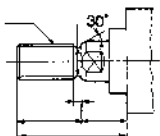
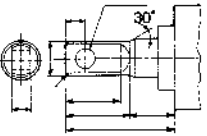

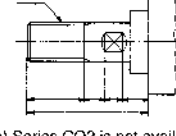
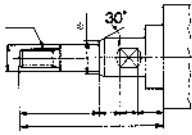
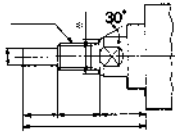
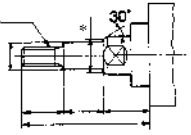
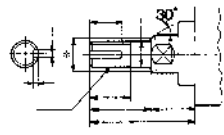
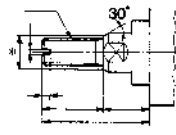
SERIES NCA1 AIR CYLINDER OPTIONS SPECIAL ROD THREAD - XA OPTION

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.

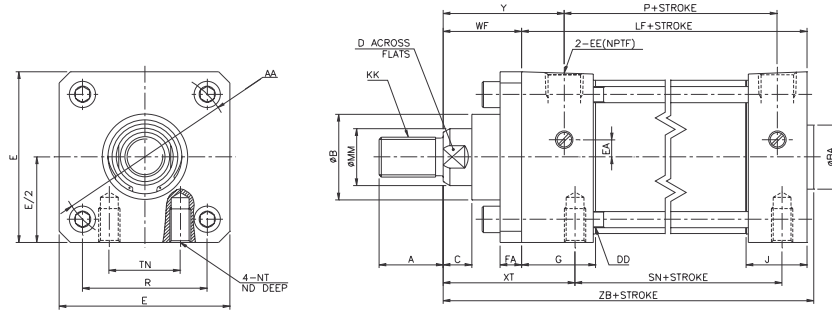
TECHNICAL SPECIFICATIONS

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

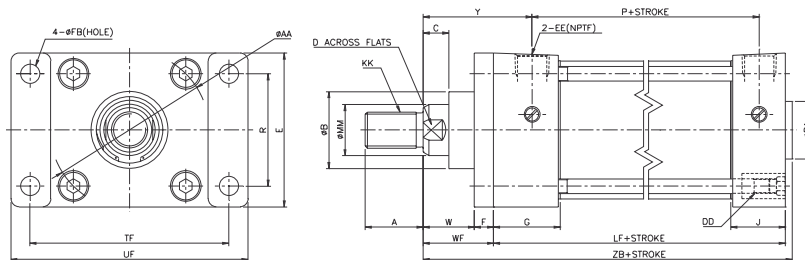
OVERSIZED ROD BASIC TYPE NC□A1B (XB5)



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

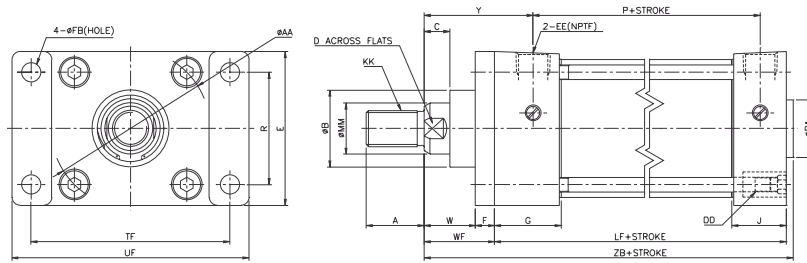
OVERSIZED ROD FOOT MOUNTING TYPE NC□A1L (XB5)



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	1 15/16	1 1/4	3/4	11/64	2	1 1/2	5/8	1 1/4	3/8-24	3 3/4	0	1/2	5/8	1.57	1.18	2 3/4	1 5/8	2.59	2.72	4 1/4	7 3/8	7 3/8	7 7/8
400 (4")	1 3/8	1-14	1 5/8	4.7	1/2	4 1/2	2 1/4	1 1/4	3/4	11/64	2	1 1/2	5/8	1 1/4	3/8-24	4 1/2	0	1/2	5/8	1.57	1.18	3 1/2	1 5/8	2.59	2.72	4 1/4	7 3/8	7 3/8	7 7/8

DIMENSIONS

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

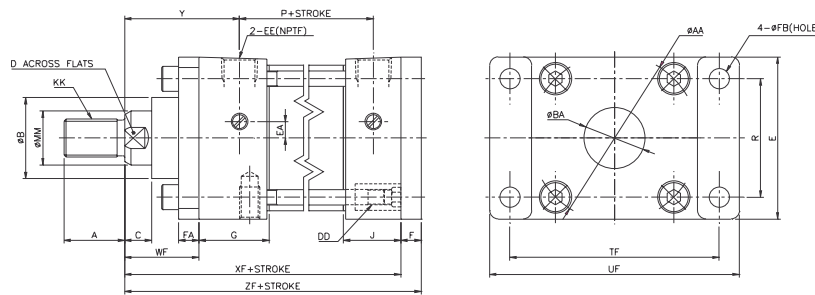


BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	F	FB	G	J	R	TF	UF	W	WF	Y	LF	P	ZB
200 (2")	1	3/4-16	1 1/8	2.6	1.5	1 1/8	1/2	7/8	5/16-24	2 1/2	0.3	3/8	3/8	3/8	1.26	1.06	1.84	3 3/8	4 1/8	1	1 3/8	2.09	3 5/8	2.40	5 1/8
250 (2.5")	1	3/4-16	1 1/8	3.1	1.5	1 1/8	1/2	7/8	5/16-24	3	0	3/8	3/8	3/8	1.30	1.06	2.19	3 7/8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

DIMENSIONS

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

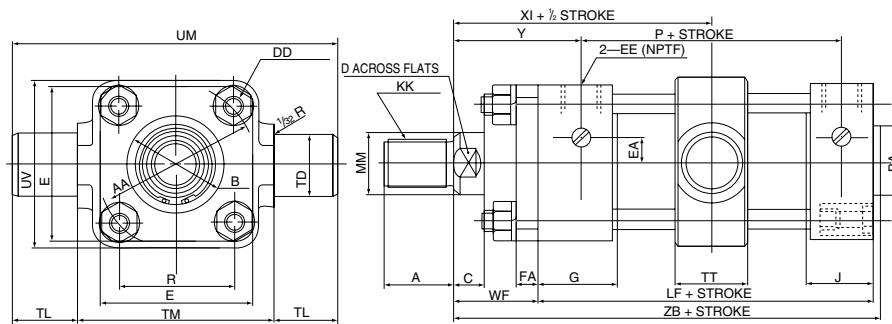
MORE DIMENSIONS
SEE NEXT PAGE



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

DIMENSIONS

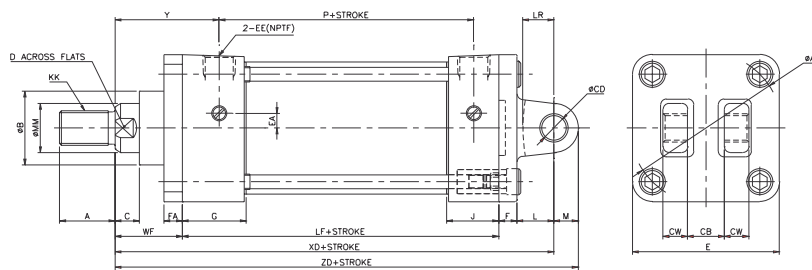
OVERSIZED ROD CENTER TRUNNION MOUNTING TYPE NC□A1T (XB5)



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

DIMENSIONS

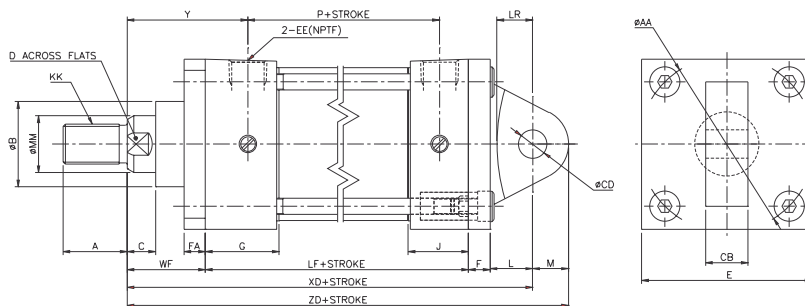
OVERSIZED ROD DETACHABLE REAR CLEVIS MOUNTING TYPE NC□A1D (XB5)



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

DIMENSIONS

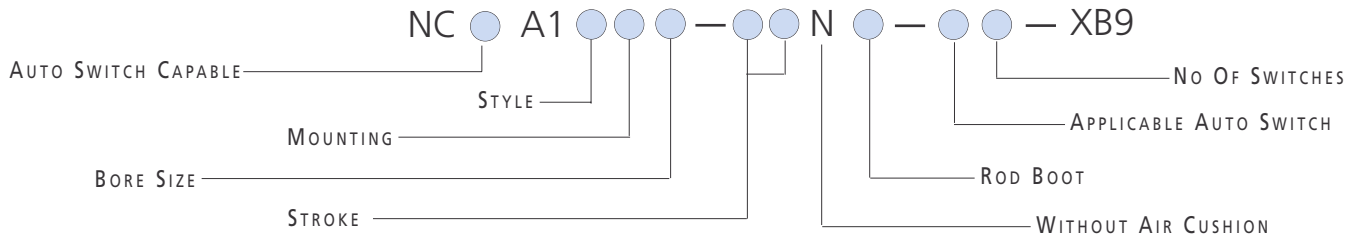
OVERSIZED ROD SINGLE DETACHABLE REAR CLEVIS MOUNTING TYPE NC□A1C (XB5)



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

**How To
 ORDER**

SERIES NCA1 AIR CYLINDER OPTIONS
 LOW SPEED - XB9 OPTION



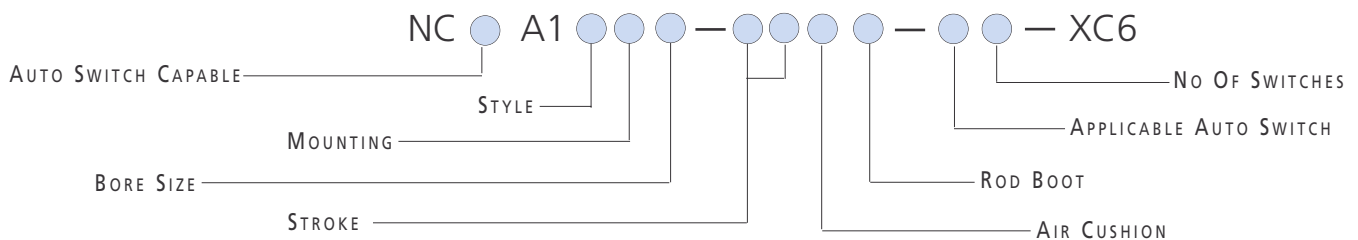
**TECHNICAL
 SPECIFICATIONS**

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**

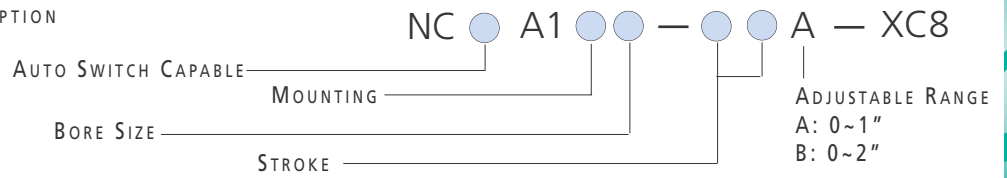
STAINLESS STEEL ROD - XC6 OPTION

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

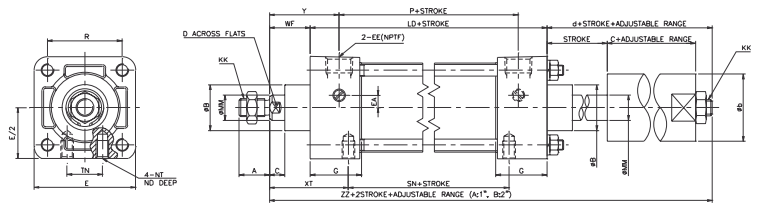
ADJUSTABLE STROKE - EXTEND - XC8 OPTION



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

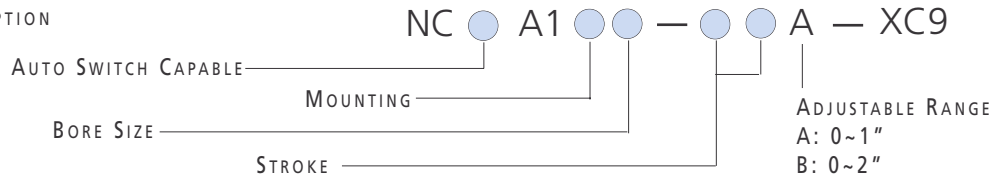


BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	K	R	WF	Y	LD	P	ZZ	b	c	d
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	9/32	1.43	1	1.71	3.78	2.36	6.58	1 1/2	1.25	1.80
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	11/32	1.84	1	1.71	3.82	2.40	7.01	1 21/32	1.64	2.19
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

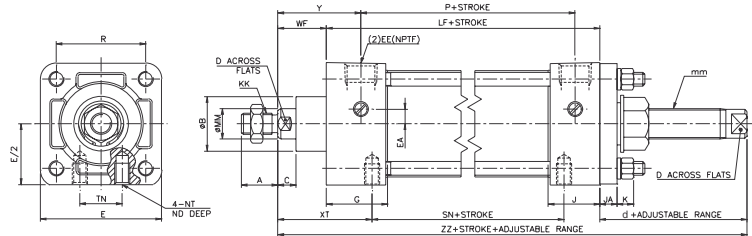
ADJUSTABLE STROKE - RETURN - XC9 OPTION



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

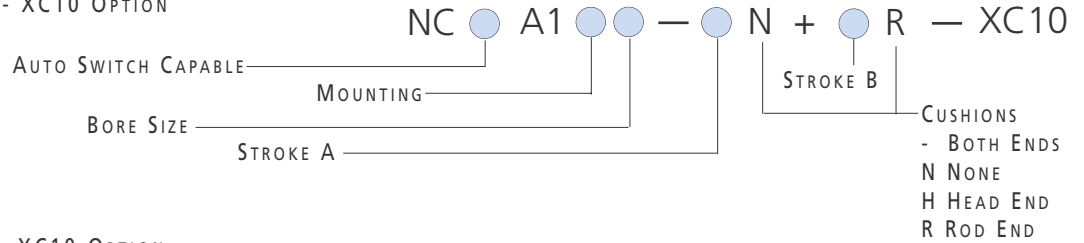


BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	J	JA	K	R	WF	Y	LF	P	ZZ	TN	XT	SN	d	mm
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	1.1	11/32	9/32	1.43	1	1.71	3 5/8	2.36	6.44	5/8	115/16	2 1/4	1.81	M16x1.5
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	1.06	11/32	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

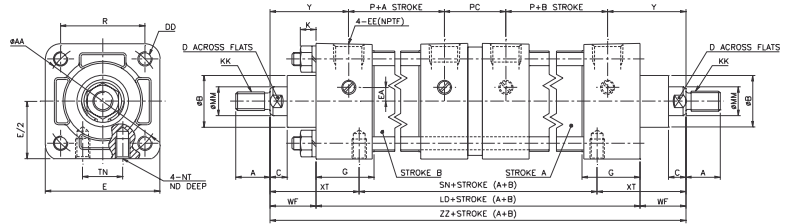
DUAL OPERATION - DOUBLE ROD - XC10 OPTION



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

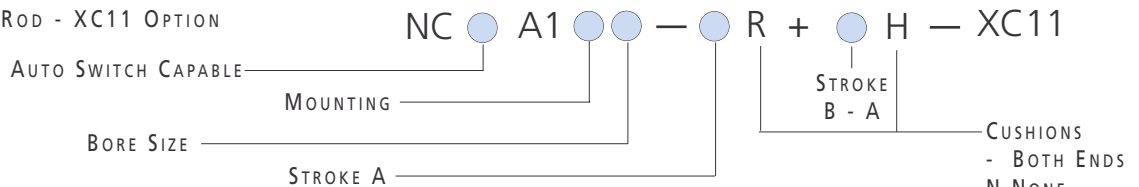


BORE (INCH)	MM	KK	A	AA	B	C	D	DD	E	EA	EE	G	K	R	WF	Y	LD	P	PC	ZZ	SN	TN	XT
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	9/32	1.43	1	1.71	7.44	2.36	1.30	9.44	5.56	5/8	115/16
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	11/32	1.84	1	1.71	7.52	2.40	1.30	9.52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

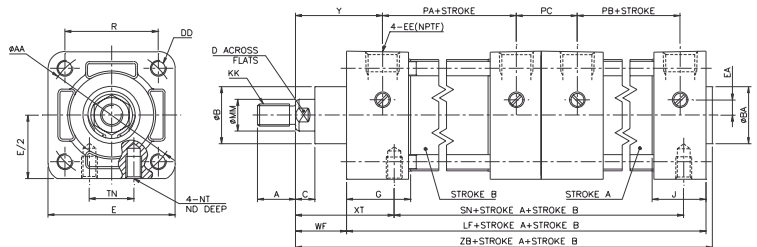
DUAL OPERATION - SINGLE ROD - XC11 OPTION



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



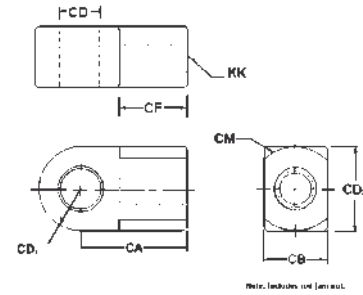
BORE (INCH)	MM	KK	A	AA	B	BA	C	D	DD	E	EA	EE	G	J	NT	TN	WF	XT	Y	LF	PA	PB	PC	SN	ZB
150 (1.5")	5/8	7/16-20	3/4	2.02	1 1/8	1 1/8	3/8	9/16	1/4-28	2	0.3	3/8	1.26	1.1	1/4-20	5/8	1	1 15/16	1.71	7.26	2.36	2.40	1.24	5.89	8.39
200 (2")	5/8	7/16-20	3/4	2.6	1 1/8	1 1/8	3/8	9/16	5/16-24	2 1/2	0.3	3/8	1.26	1.06	5/16-18	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 -0.1	0.937	0.50 +.004 +.002	.50	1.0	1.0	7/16-20 2B	0.75
NI-325	2.06	1.25 0 -0.1	1.937	0.75 +.004 +.002	.75	1.5	1.5	3/4-16 2B	1.12

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



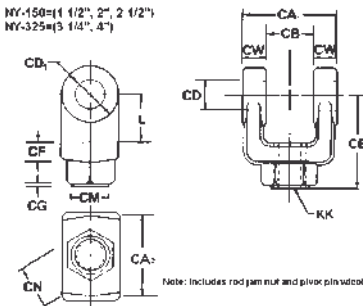
Note: Includes rod jam nut.

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 +0.01 0	0.50 +.004 +.002	1.0	1.50	.38	.03	0.88	1.00	.50	7/16-20 2B	0.75
NY-325	2.515	2.40	1.265 +0.01 0	0.75 +.004 +.002	1.5	2.38	.56	.03	1.12	1.25	.62	3/4-16 2B	1.25

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

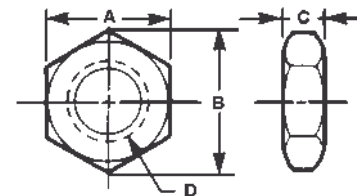


Note: Includes rod jam nut and pivot pins/collar pins.

ACCESSORIES

SERIES NCA1 - ROD JAM NUT

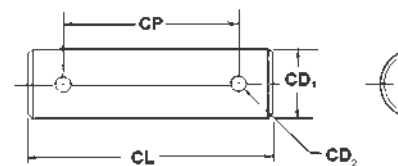
PART No	APPLICABLE BORE	A	B	C	D
JM-045	1.5", 2", 2.25"	0.69	0.79	0.26	7/16-20 UNF
JM-10	3.25", 4"	1.12	1.30	0.42	3/4-16 UNF



ACCESSORIES

SERIES NCA1 - PIVOT PIN

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

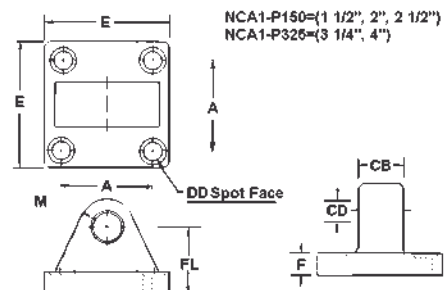


Note: Includes cotter pins

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 -.01	0.50 +.004 +.002	.40	.59	.38	1.12	.50
NCA1-P325	2.56	3.50	1.25 0 -.01	0.75 +.004 +.002	.53	.78	.62	1.88	.75



NCA1-P150=(1 1/2", 2", 2 1/2")
NCA1-P325=(3 1/4", 4")

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

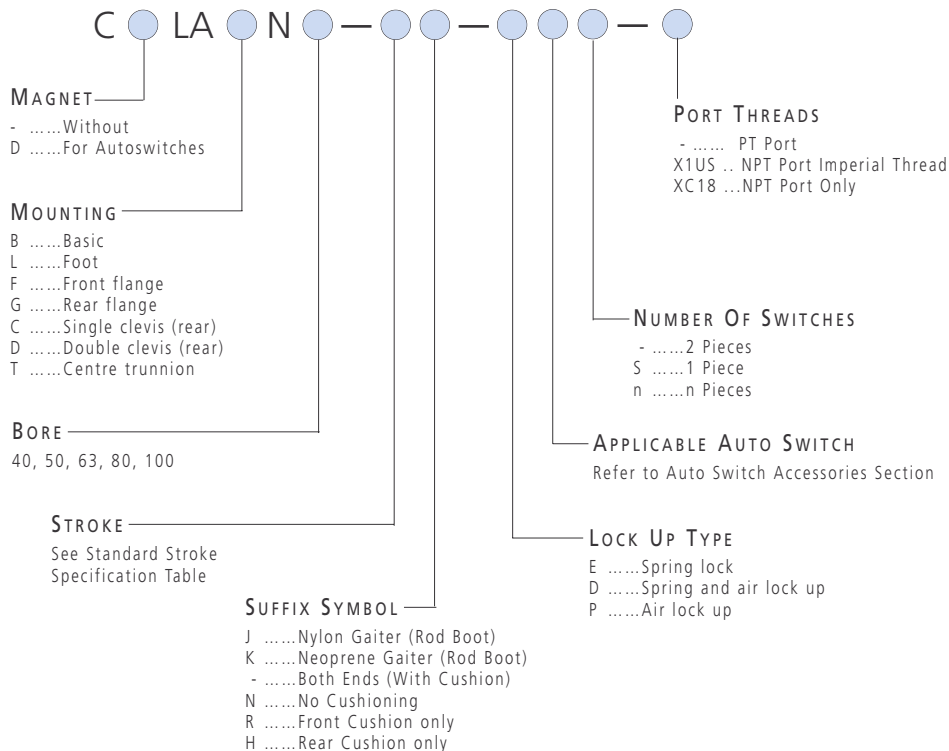
Fluid	Air
Proof Pressure	1.5MPa / 214PSI
Max Operating Pressure	1.52MPa / 217 PSI
Min Operating Pressure	1MPa / 145 PSI
Piston Speed	50~500mm/s / 2~20in/s
Ambient and Fluid Temperature	-10 ~ 60°C / 14~140°F
Cushion	Yes
Thread tolerance	JIS 2 class
Stroke tolerance	~200 : $^{+0.0}_{-0.1}$ 250~1000 : $^{+0.1}_{-0.2}$ 1001~1500 : $^{+0.1}_{-0.2}$
Mounting	Basic, Foot, Front flange, rear flange, Single clevis, rear trunnion.

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

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

How To ORDER SERIES CLA



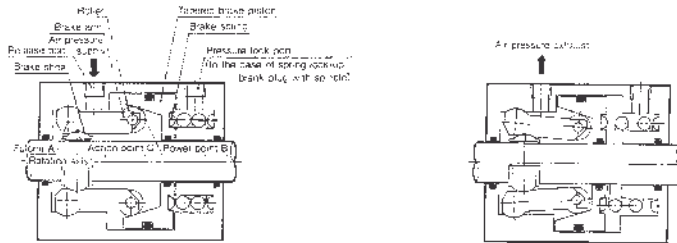
DIMENSIONS
SEE NEXT PAGE

TECHNICAL SPECIFICATIONS

FINELOCK TYPE (CONSTRUCTION) SERIES CLA

Construction

Spring lock-up

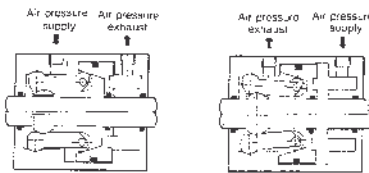


Lock releasing

Locking

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

Air pressure lock-up

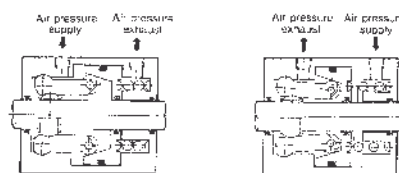


Lock releasing

Locking

Air pressure drives the brake piston

Spring and air pressure lock-up



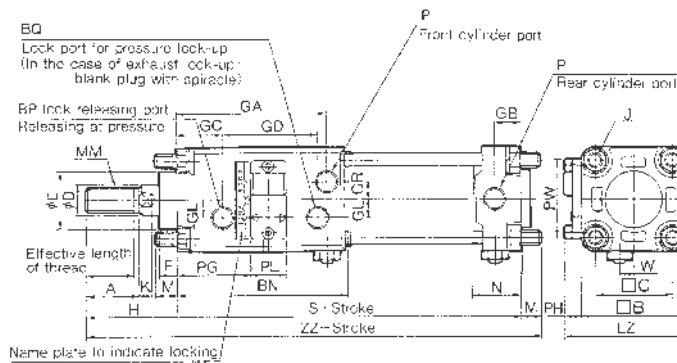
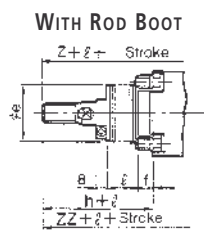
Lock releasing

Locking

Air pressure and spring force combine to drive brake piston.

DIMENSIONS

BASIC TYPE CLAB

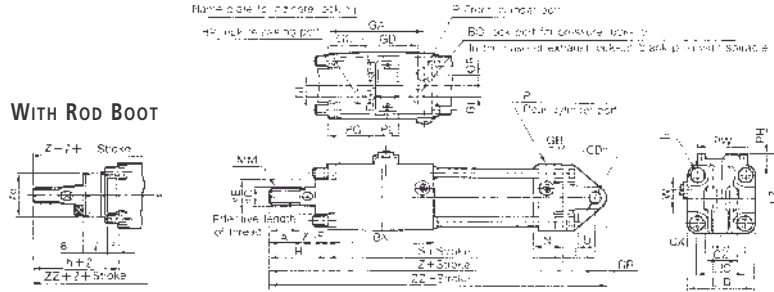


Bore Size	Stroke Range		Effective Length Of Thread	A	□B	BN	BP	BQ	□C	øD	øE	F	GA	GB	GC	GD	GL	GR	J	K	LZ	M	MM	MM X1US
	W/O Boot	W/Boot																						
40	~500	20~500	27	30	60	96	1/4	1/4	44	16	32	10	85	15	26	54	10	10	M8x1.25	6	71	11	M14x1.5	7/16-20
50	~600	20~600	32	35	70	108	1/4	1/4	52	20	40	10	95	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

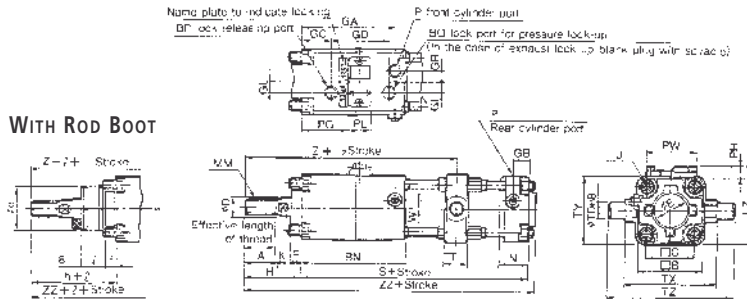


Bore Size	Stroke Range		Effective Length Of Thread	A	B	BN	BP	BQ	C	øD	øE	F	GA	GB	GC	GD	GL	GR	J	K	L	LZ	MM	MM X1US
	W/O Boot	W/Boot		30	60	96	1/4	1/4	44	16	32	10	85	15	26	54	10	10	M8x1.25	6	30	71	M14x1.5	7/16-20
40	~500	20~500	27	30	60	96	1/4	1/4	44	16	32	10	85	15	26	54	10	10	M8x1.25	6	30	71	M14x1.5	7/16-20
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

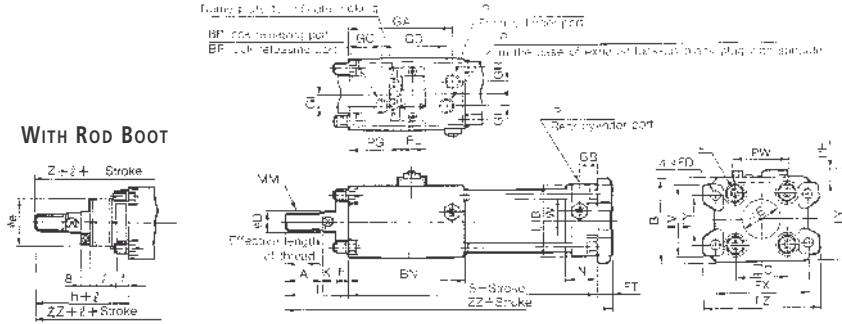
WITH ROD BOOT



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		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
40	~500	20~500	27	30	60	96	1/4	1/4	44	16	32	10	85	15	26	54	10	10	M8x1.25	6	71	M14x1.5	7/16-20
50	~600	20~600	32	35	70	108	1/4	1/4	52	20	40	10	95	17	27	59	13	12	M8x1.25	7	80	M18x1.5	3/4-16
63	~600	20~600	32	35	86	115	1/4	1/4	64	20	40	10	102	17	26	67	18	15	M10x1.25	7	99	M18x1.5	3/4-16
80	~750	20~750	37	40	102	129	1/4	1/4	78	25	52	14	113	21	30	72	23	17	M12x1.75	11	117	M22x1.5	3/4-16
100	~750	20~750	37	40	116	140	1/4	1/4	92	30	52	14	124	21	31	76	25	19	M12x1.75	11	131	M26x1.5	1-14

Bore Size	N	P	PG	PH	PL	PW	S	W	øTDe8	TT	TX	TY	TZ	Without Boot			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

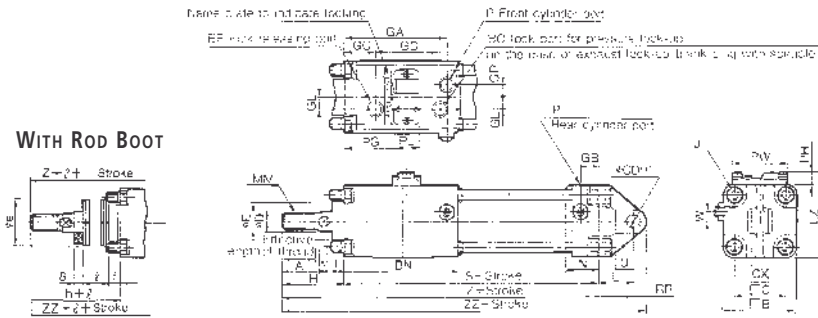
DIMENSIONS REAR FLANGE TYPE CLAG



Bore Size	Stroke Range		Effective Length Of Thread	A	B	□B	BN	BP	BQ	□C	∅D	∅E	F	GA	GB	GC	GD	GL	GR	J	K	LY	MM	MM X1US
	W/O Boot	W/Boot		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
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	∅FD	FT	FX	FY	FZ	Without Boot		With Boot				
	27	1/4	42	11	20	45	153	8	60	9	12	80	42	100	H	ZZ	∅e	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

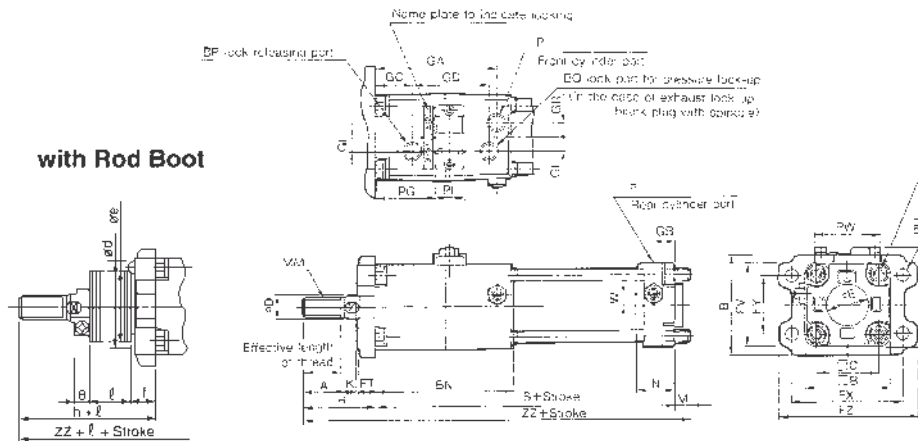
DIMENSIONS SINGLE CLEVIS TYPE CLAC



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

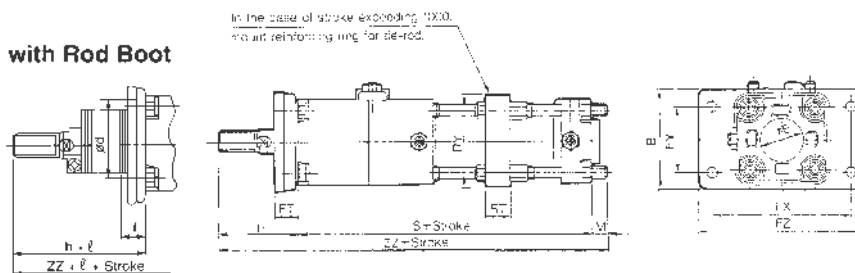
DIMENSIONS
FRONT FLANGE TYPE CLAF



Bore Size	Stroke Range		Effective Length Of Thread	A	B	□B	BN	BP	BQ	□C	øD	øE	GA	GB	GC	GD	GL	GR	J	K	LZ	M	MM	MM X1US
	W/O Boot	W/Boot		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
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	Stroke	262
80	37	1/2	55	15	23	70	208	0	102	13.5	18	130	76	160	71	296	65	80	21.5	80	e	305
100	40	1/2	56.5	15	25	80	226	0	116	13.5	18	150	92	180	72	315	65	80	21.5	81		324

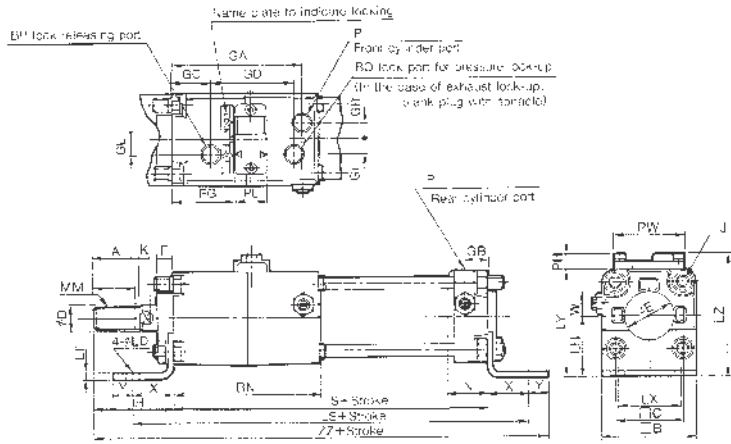
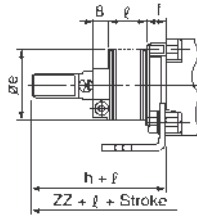
DIMENSIONS
LONG STROKE FRONT FLANGE TYPE CLAF



Bore Size	Stroke Range mm	B	M	RT	RY	FT	FX	FY	FZ	Without Boot		With Boot	
		88	6	30	76	20	120	58	144	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

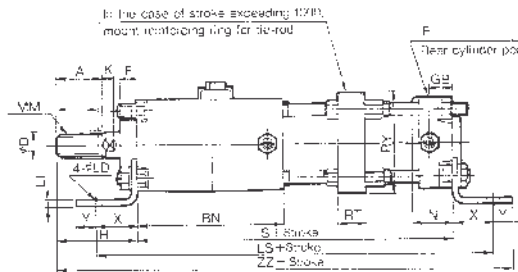
DIMENSIONS FOOT TYPE CLAL

with Rod Boot



DIMENSIONS LONG STROKE FOOT TYPE CLAL

Long stroke (ø50~ø100)



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	MM	MM X1US
	W/O Boot	W/Boot		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
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			
	27	1/4	42	11	20	45	153	8	27	13	9	40	207	3.2	42	70	81	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	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	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	348
100	40	1/2	56.5	15	25	80	226	0	43	17	13.5	75	312	6	92	133	148	72	358	65	14	81	367

DIMENSIONS LONG STROKE FOOT TYPE CLAL

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

ACCESSORIES AUTO SWITCH BANDS

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

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

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

MOUNTING TYPE SERIES CLA

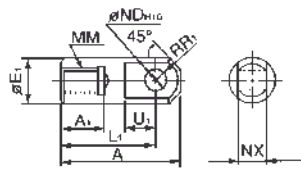
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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

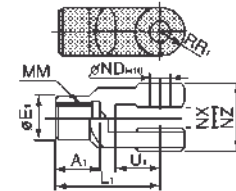
I Type Single Knuckle Joint



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}

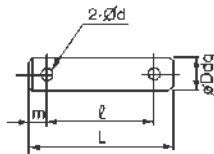
Y Type Double Knuckle Joint



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

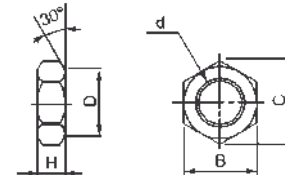
I Type Single Knuckle Joint



Material: Carbon Steel

Part No	Bore Size mm		øND ^{H10}	L	l	m	ød Through Hole Diameter	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

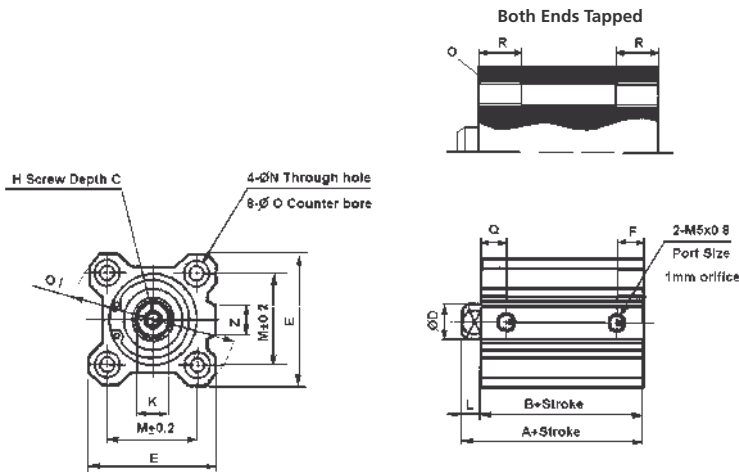
Y Type Double Knuckle Joint



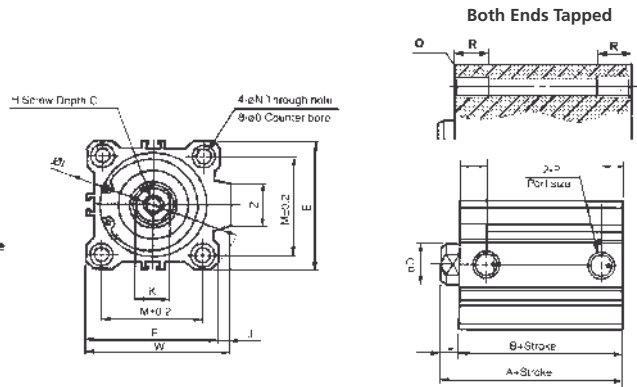
Material: Rolled Steel

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

DIMENSIONS
THROUGH HOLE $\phi 12 \sim \phi 25$ SERIES (N)CQ2B



DIMENSIONS
THROUGH HOLE $\phi 32 \sim 100$ SERIES (N)CQ2B



DIMENSIONS
SERIES (N)CQ2A BOTH ENDS TAPPED

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

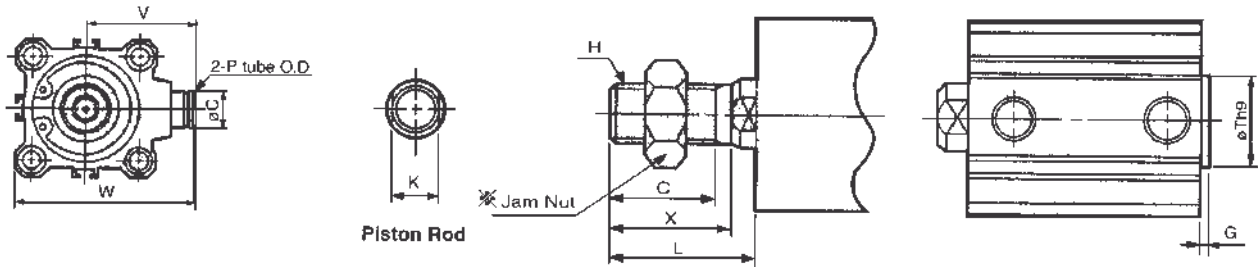
DIMENSIONS (MM)
SERIES (N)CQ2 STANDARD

Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 H	i	J	K	L	M	N	O	P	Orifice	Q	W	Z
12	5~30	20.5	17	6	5.4	6	25	5	M3x0.5	8-32	32	-	5	3.5	15.5	3.5	6.5 Depth3.5	-	-	7.5	-	-
16	5~30	22	18.5	8	5.4	8	29	5.5	M4x0.7	8-32	38	-	6	3.5	20	3.5	6.5 Depth3.5	-	-	8	-	10
20	5~50	24	19.5	7	7	10	36	5.5	M5x0.8	10-32	47	-	8	4.5	25.5	5.5	9 Depth7	-	-	9	-	10
25	5~50	27.5	22.5	12	10	12	40	5.5	M6x1	1/4-28UNF	52	-	10	5	28	5.5	9 Depth7	-	-	11	-	10
32	5	30	23	13	13.3	16	45	5.5	M8x	5/16-24UNF	60	4.5	14	7	34	5.5	9 Depth7	M5x0.8	1.7	10.5	49.5	18
	10~50	7.5	1.25					24UNF														
40	75, 100	40	33	13	18.3	16	52	8	M8x	3/8-24UNF	69	5	14	7	40	5.5	9 Depth7	1/8	2	11	57	18
	5~50	36.5	29.5					1.25	24UNF													
50	75, 100	46.5	39.5	15	17.6	20	64	10.5	M10x	1/2-20UNF	86	7	17	8	50	6.6	11 Depth8	1/4	2.2	10.5	71	22
	10~50	38.5	30.5					1.5	20UNF													
63	75, 100	48.5	40.5	15	17.6	20	77	10.5	M10x	1/2-20UNF	103	7	17	8	60	9	14 Depth10.5	1/4	3	15	84	22
	10~50	44	36					1.5	20UNF													
80	75, 100	54	46	21	24.3	25	98	12.5	M16x	5/8-18UNF	132	6	22	10	77	11	17.5 Depth13.5	3/8	4	16	104	26
	10~50	53.5	43.5					2	18UNF													
100	75 100	63.5	53.5	27	27	30	117	13	M20x	3/4-16UNF	156	6.5	27	12	94	11	17.5 Depth13.5	3/8	5	23	123.5	26
	10~50	65	53					2.5	16UNF													

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	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
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
80	25.5	5/8-18UNF	35.5	22
100	28.5	3/4-16UNF	40.5	27

CQ2 MALE ROD END

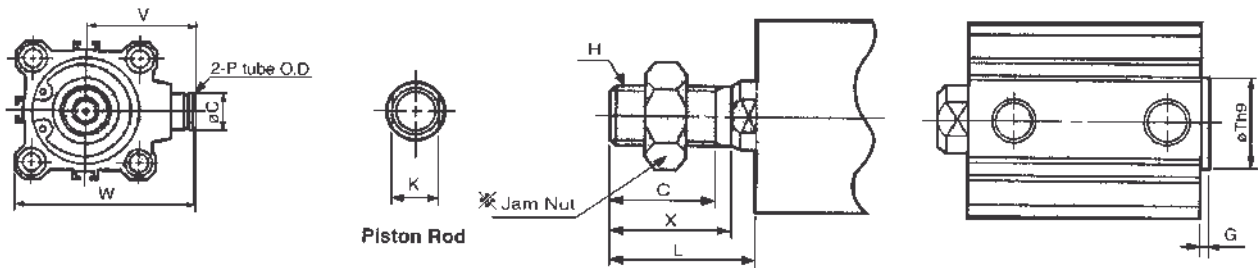
Bore Size	C	X	H	L	K
mm	mm	mm	mm	mm	mm
12	9	10.5	M5X0.8	14	5
16	10	12	M6X1	15.5	6
20	12	14	M8X1.25	18.5	8
25	15	17.5	M10X1.25	22.5	10
32	20.5	23.5	M14x1.5	28.5	14
40	20.5	23.5	M14x1.5	28.5	14
50	26	28.5	M18X1.5	33.5	17
63	26	28.5	M18X1.5	33.5	17
80	32.5	35.5	M22x1.5	43.5	22
100	32.5	35.5	M26X1.5	43.5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

END BOSS (CQ2 ONLY)

Bore Size	G	Th9
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}
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	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
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
80	25.5	5/8-18UNF	35.5	22
100	28.5	3/4-16UNF	40.5	27

CQ2 MALE ROD END

Bore Size	C	X	H	L	K
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
80	32.5	35.5	M22x1.5	43.5	22
100	32.5	35.5	M26X1.5	43.5	27

END BOSS (CQ2 ONLY)

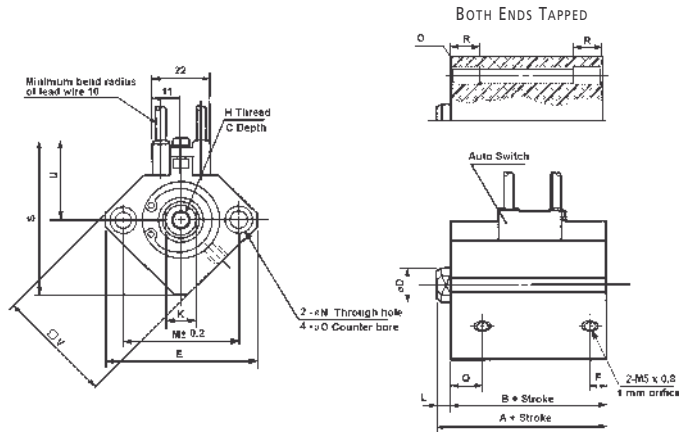
Bore Size	G	Th9
mm	mm	mm
12	1.5	15 ^{-0.043-0}
16	1.5	20 ^{-0.052-0}
20	2	13 ^{-0.043-0}
25	2	15 ^{-0.043-0}
32	2	21 ^{-0.052-0}
40	2	28 ^{-0.052-0}
50	2	35 ^{-0.062-0}
63	2	35 ^{-0.062-0}
80	2	43 ^{-0.062-0}
100	2	59 ^{-0.074-0}

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

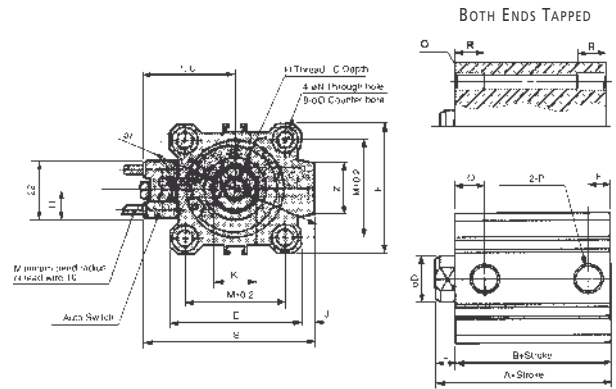
DIMENSIONS

THROUGH HOLE $\phi 12\sim\phi 25$ SERIES (N)CDQ2



DIMENSIONS

THROUGH HOLE $\phi 32\sim\phi 100$ SERIES (N)CDQ2



DIMENSIONS

SERIES (N)CDQ2A BOTH ENDS TAPPED

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

DIMENSIONS (MM)

STANDARD $\phi 12 \sim \phi 100$ SERIES (N)CDQ2

Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 H	i	J	K	L	M	N	O	P	Orifice	Q	S	U	Z	V
12	5~30	31.5	28	6	5.4	6	32	6.5	M3x0.5	8-32	-	-	5	3.5	22	3.5	6.5 Depth3.5	-	-	11	35.5	19.5	-	25
16	5~30	34	30.5	8	5.4	8	38	5.5	M4x0.7	8-32	-	-	6	3.5	28	3.5	6.5 Depth3.5	-	-	10	41.5	25.5	-	29
20	5~50	36	31.5	7	7	10	47	5.5	M5x0.8	10-32	-	-	8	4.5	36	5.5	9 Depth7	-	-	10.5	48	24.5	-	36
25	5~50	37.5	32.5	12	10	12	52	5.5	M6x1	1/4-28UNF	-	-	10	5	40	5.5	9 Depth7	-	-	11	53.5	27.5	-	40
32	5~50 75, 100	40	33	13	13.3	16	45	7.5	M8x 1.25	5/16- 24UNF	60	4.5	14	7	34	5.5	9 Depth7	1/8	1.7	10.5	58.5	31.5	18	-
40	5~50 75, 100	46.5	39.5	13	18.3	16	52	8	M8x 1.25	3/8- 24UNF	69	5	14	7	40	5.5	9 Depth7	1/8	2	11	66	35	18	-
50	10~50 75, 100	48.5	40.5	15	17.6	20	64	10.5	M10x 1.5	1/2- 20UNF	86	7	17	8	50	6.6	11 Depth8	1/4	2.2	10.5	80	41	22	-
63	10~50 75, 100	54	46	15	17.6	20	77	10.5	M10x 1.5	1/2- 20UNF	103	7	17	8	60	9	14 Depth 10.5	1/4	3	15	93	47.5	22	-
80	10~50 75, 100	63.5	53.5	21	24.3	25	98	12.5	M16x 2	5/8- 18UNF	132	6	22	10	77	11	17.5 Depth 13.5	3/8	4	16	112.5	57.5	26	-
100	10~50 75 100	75	63	27	27	30	117	13	M20x 2.5	3/4- 16UNF	156	6.5	27	12	94	11	17.5 Depth 13.5	3/8	5	23	132.5	67.5	26	-

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

TECHNICAL SPECIFICATIONS

DOUBLE ACTING DOUBLE ROD - SERIES NCQ2/CQ2

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

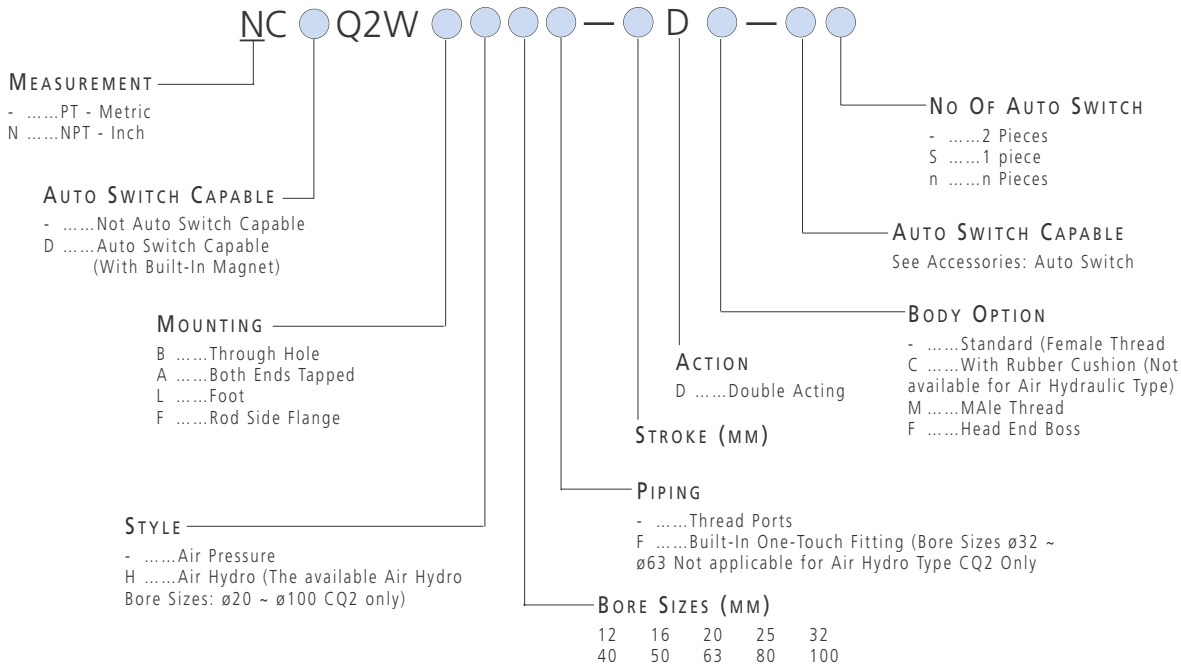
*Temperature Note : 15~160°F = -10 ~70°C

MINIMUM OPERATING PRESSURE

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

HOW TO ORDER

NCQ2W/CQ2W DOUBLE ACTING DOUBLE ROD



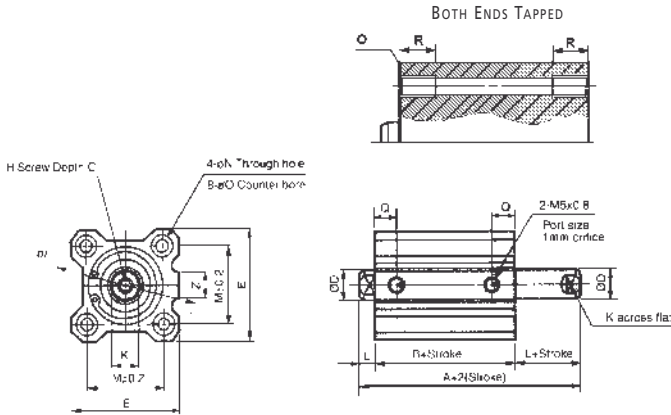
HOW TO ORDER

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

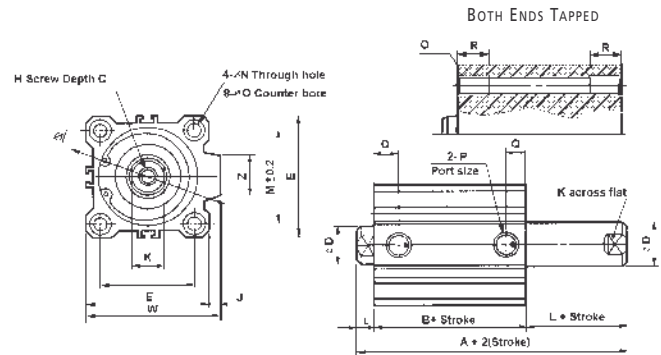
DIMENSIONS

THROUGH HOLE $\phi 12 \sim \phi 25$ SERIES (N)CQ2W



DIMENSIONS

THROUGH HOLE $\phi 32 \sim \phi 100$ SERIES (N)CQ2W



DIMENSIONS

SERIES (N)CQ2WA BOTH ENDS TAPPED

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

DIMENSIONS (MM)

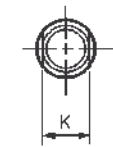
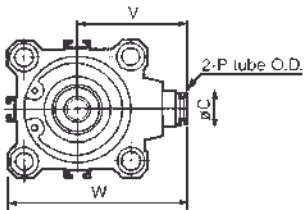
DOUBLE ACTING DOUBLE ROD SERIES (N)CQ2W

Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 H	i	J	K	L	M	N	O	P	Orifice	Q	W	Z
12	5-30	32.2	25.2	6	5.4	6	25	M3x0.5	8-32	32	-	5	3.5	15.5	3.5	6.5 Depth3.5	-	-	10	-	-
16	5-30	33	26	8	5.4	8	29	M4x0.7	8-32	38	-	6	3.5	20	3.5	6.5 Depth3.5	-	-	10	-	10
20	5-50	35	26	7	7	10	36	M5x0.8	10-32	47	-	8	4.5	25.5	5.5	9 Depth7	-	-	9.5	-	10
25	5-50	39	29	12	10	12	40	M6x1	1/4-28UNF	52	-	10	5	28	5.5	9 Depth7	-	-	11	-	10
32	5	44.5	30.5	13	13.3	16	45	M8x1.25	5/16x24UNF	60	4.5	14	7	34	5.5	9 Depth7	M5x0.8	1.7	12.5	49.5	18
	10-50																1/8				
40	5-50	54	40	13	18.3	16	52	M8x1.25	3/8x24UNF	69	5	14	7	40	5.5	9 Depth7	1/8	2	14	57	18
50	10-50	56.5	40.5	15	17.6	20	64	M10x1.5	1/2x20UNF	86	7	17	8	50	6.6	11 Depth8	1/4	2.2	14	71	22
63	10-50	58	42	15	17.6	20	77	M10x1.5	1/2x20UNF	103	7	17	8	60	9	14 Depth 10.5	1/4	3	15.5	84	22
80	10-50	71	51	21	24.3	25	98	M16x2	5/8x18UNF	132	6	22	10	77	11	17.5 Depth 13.5	3/8	4	18	104	26
100	10-50	84.5	60.5	27	27	30	117	M20x2.5	3/4x16UNF	156	6.5	27	12	94	11	17.5 Depth 13.5	3/8	5	22	123.5	26

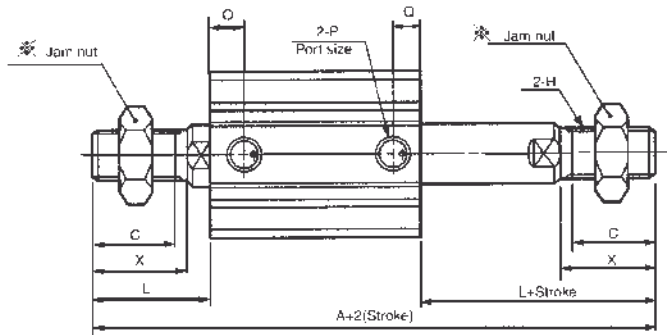
Note) The external dimensions of cylinder with rubber cushion are the same as those of the above standard

DIMENSIONS

DOUBLE ACTING DOUBLE ROD SERIES (N)CQ2W



Piston Rod



ONE TOUCH FITTINGS

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

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

NCQ2 MALE ROD END

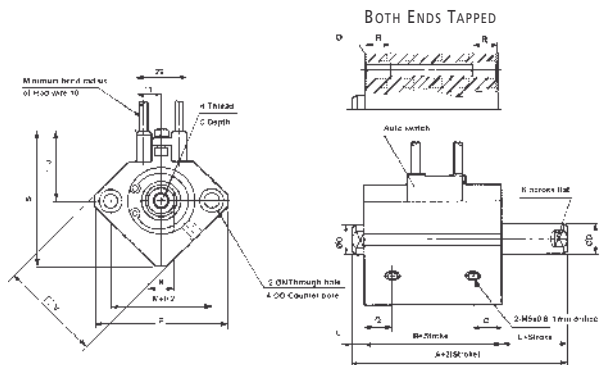
Bore Size	X mm	H inch	L mm	K mm	A mm
12	8	8-32UNC	11.5	5	48.2
16	8	8-32UNC	11.5	6	49
20	8	10-32UNF	12.5	8	51
25	9.5	1/4-28UNF	14.5	10	58
32	12.7	5/16-24UNF	19.7	14	69.9
40	16	3/8-24UNF	23	14	86
50	19.5	1/2-20UNF	27.5	17	95.5
63	19.5	1/2-20UNF	27.5	17	97
80	25.5	5/8-18UNF	35.5	22	122
100	28.5	3/4-16UNF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

CQ2 MALE ROD END

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

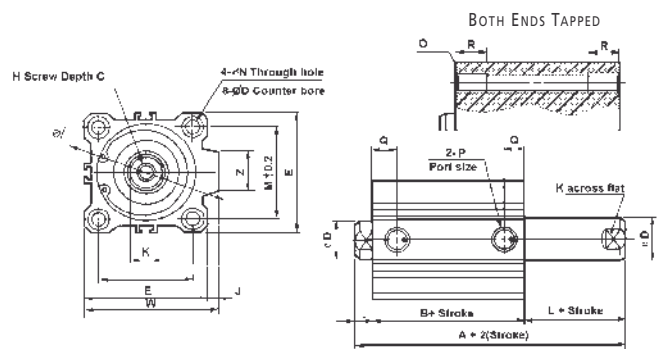
DIMENSIONS

THROUGH HOLE Ø12 ~ Ø25 SERIES (N)CDQ2WB



DIMENSIONS

THROUGH HOLE Ø32 ~ Ø100 SERIES (N)CDQ2WB



BOTH ENDS TAPPED (N)CDQ2WA (MM)

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

SEE DIMENSIONS ON NEXT PAGE

DIMENSIONS (MM)

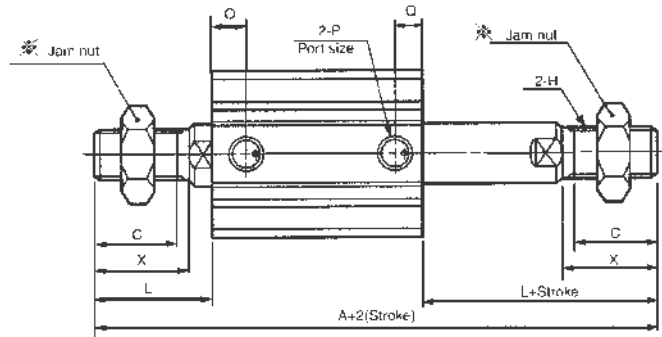
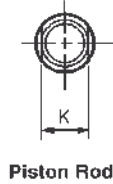
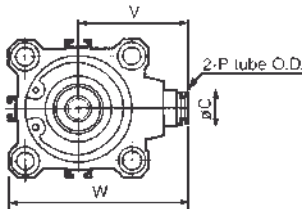
STANDARD Ø12 ~ Ø100 SERIES (N)CDQ2W

Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 H	i	J	K	L	M	N	O	P	Orifice	Q	S	U	V	Z
12	5~30	39.4	32.4	6	5.4	6	32	M3x0.5	8-32	-	-	5	3.5	22	3.5	6.5 Depth3.5	-	-	10.5	35.5	19.5	25	-
16	5~30	43	36	8	5.4	8	38	M4x0.7	8-32	-	-	6	3.5	28	3.5	6.5 Depth3.5	-	-	10	41.5	22.5	29	-
20	5~50	47	38	7	7	10	47	M5x0.8	10-32	-	-	8	4.5	36	5.5	9 Depth7	-	-	10.5	48	24.5	36	-
25	5~50	49	39	12	10	12	52	M6x1	1/4-28UNF	-	-	10	5	40	5.5	9 Depth7	-	-	11	53.5	27.5	40	-
32	5~50	54.5	40.5	13	13.3	16	45	M8x1.25	5/16-24UNF	60	4.5	14	7	34	5.5	9 Depth7	1/8	1.7	12.5	58.5	31.5	-	18
40	5~50	64	50	13	18.3	16	52	M8x1.25	3/8-24UNF	69	5	14	7	40	5.5	9 Depth7	1/8	2	14	66	35	-	18
50	10~50	66.5	50.5	15	17.6	20	64	M10x1.5	1/2-20UNF	86	7	17	8	50	6.6	11 Depth8	1/4	2.2	14	80	41	-	22
63	10~50	68	52	15	17.6	20	77	M10x1.5	1/2-20UNF	103	7	17	8	60	9	14 Depth 10.5	1/4	3	15.5	93	47.5	-	22
80	10~50	81	61	21	24.3	25	98	M16x2	5/8-18UNF	132	6	22	10	77	11	17.5 Depth 13.5	3/8	4	18	112.5	57.5	-	26
100	10~50	94.5	70.5	27	27	30	117	M20x2.5	3/4-16UNF	156	6.5	27	12	94	11	17.5 Depth 13.5	3/8	5	22	132.5	67.5	-	26

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

DIMENSIONS

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



ONE TOUCH FITTINGS

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

NCQ2 MALE ROD END

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

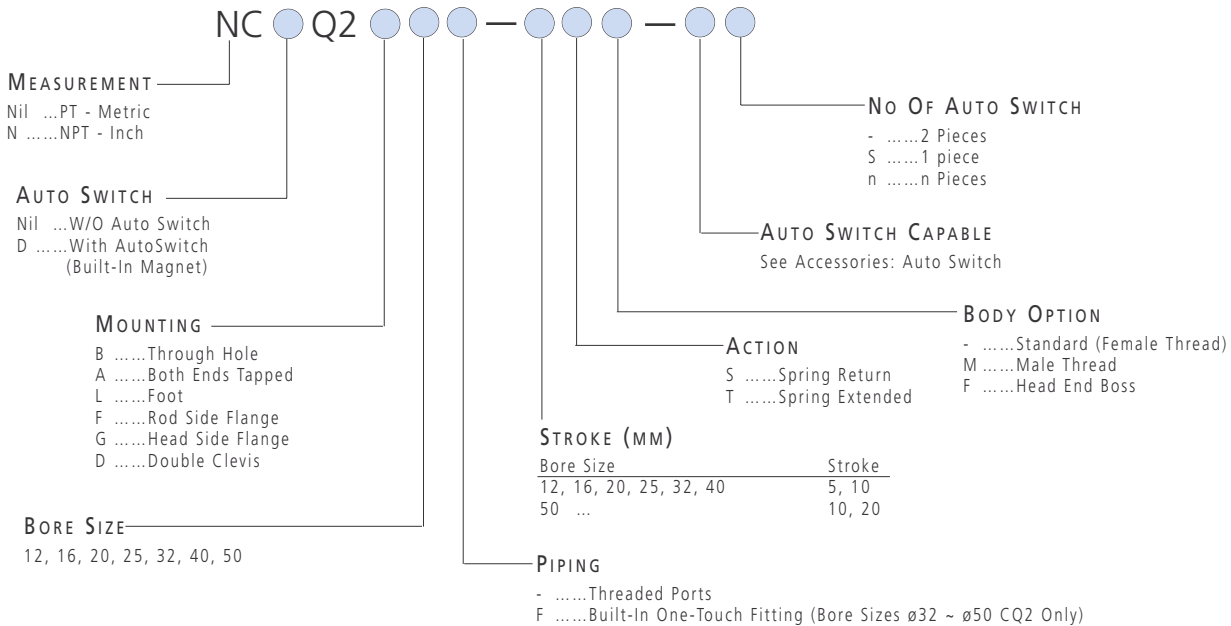
MINIMUM OPERATING PRESSURE

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

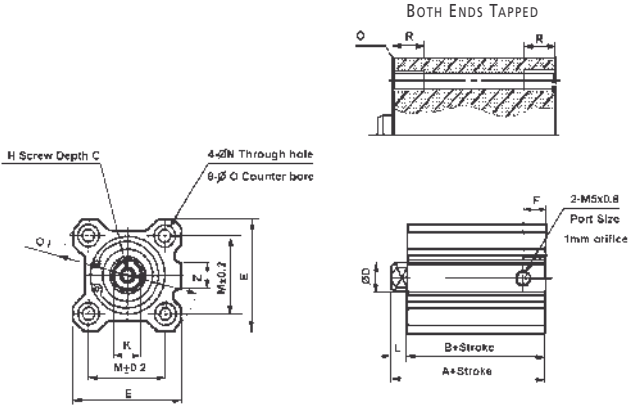
SINGLE ACTING SINGLE ROD - STANDARD STROKE

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

MORE DIMENSIONS
SEE NEXT PAGE

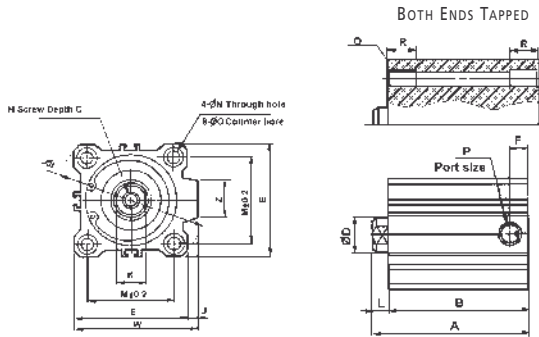
DIMENSIONS
SPRING RETURN

THROUGH HOLE $\phi 12 \sim \phi 25$ SERIES (N)CQ2B-S



DIMENSIONS
SPRING RETURN

THROUGH HOLE $\phi 32 \sim \phi 50$ SERIES (N)CQ2B-S



DIMENSIONS (MM)

SINGLE ACTING SINGLE ROD SERIES (N)CQ2B-S

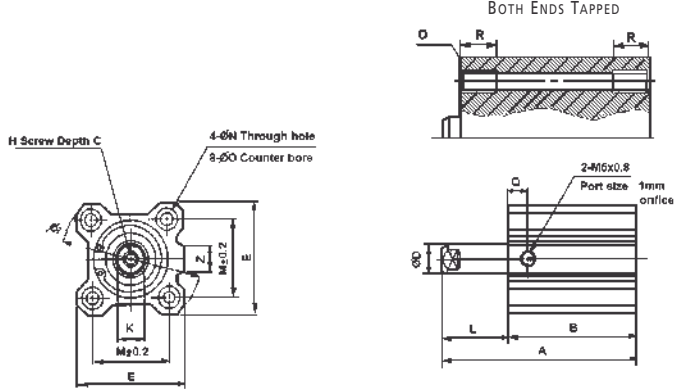
Bore Size	Stroke (mm)	A			B			CQ2 C	NCQ2 C	D	E
		5st	10st	20st	5st	10st	20st				
12	5, 10	25.5	30.5	-	22	27	-	6	5.4	6	25
16	5, 10	27	32	-	23.5	28.5	-	8	5.4	8	29
20	5, 10	29	34	-	24.5	29.5	-	7	7	10	36
25	5, 10	32.5	37.5	-	27.5	32.5	-	12	10	12	40
32	5, 10	35	40	-	28	33	-	13	13.3	16	45
40	5, 10	41	46.5	-	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 Size	Stroke (mm)	F			CQ2 (mm) H	NCQ2 H	i	J	K	L	M	N	O	P			Orifice	W	Z
		5st	10st	20st										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

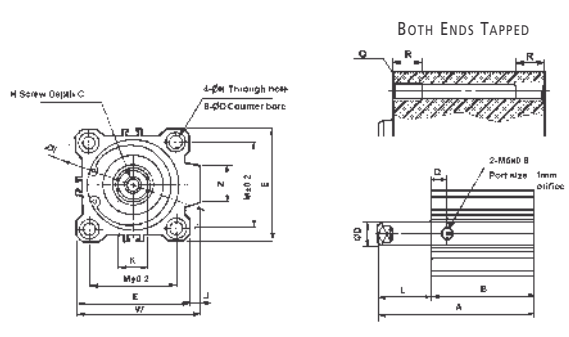
DIMENSIONS
SPRING EXTENDED

THROUGH HOLE $\phi 12 \sim \phi 25$ SERIES (N)CQ2B-T



DIMENSIONS
SPRING EXTENDED

THROUGH HOLE $\phi 32 \sim \phi 50$ SERIES (N)CQ2B-T



DIMENSIONS (MM)

SERIES (N)CQ2B-T

Bore Size	Stroke (mm)	A			L			Q		
		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

DIMENSIONS (MM)

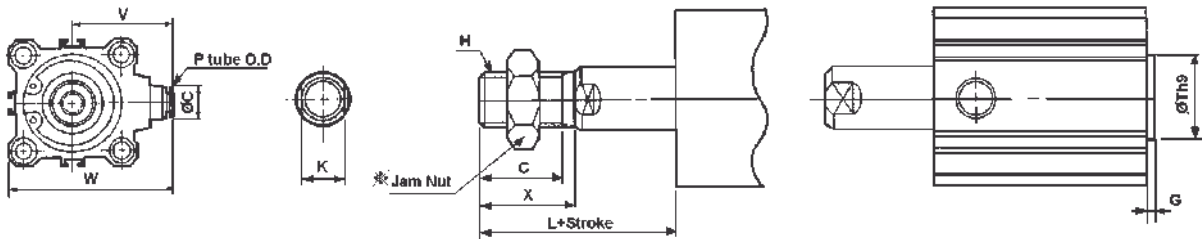
SINGLE ACTING SINGLE ROD BOTH ENDS TAPPED SERIES (N)CDQ2A
SPRING RETURN / EXTENDED

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

NCQ2 MALE ROD END

Bore 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

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	17

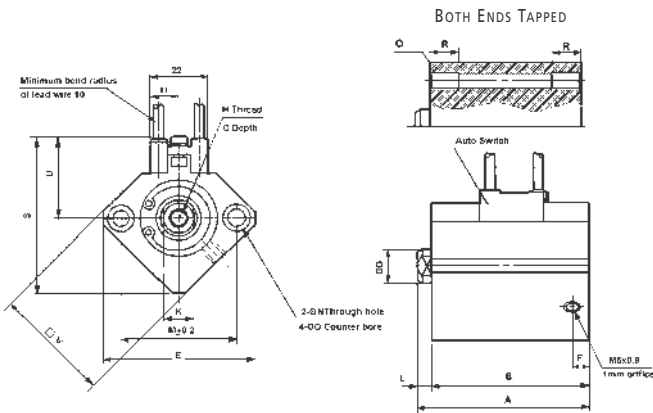
END BOSS (CQ2 ONLY)

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}

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

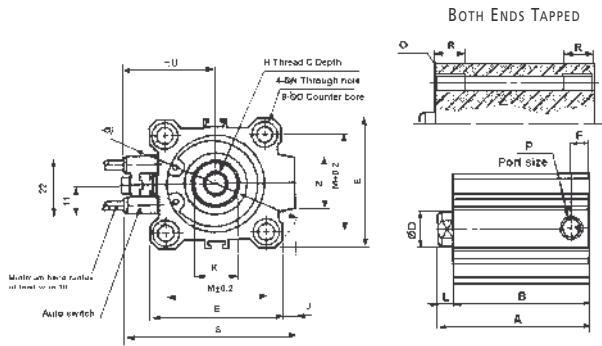
DIMENSIONS
 SPRING RETURN

THROUGH HOLE $\phi 12 \sim \phi 25$ SERIES (N)CDQ2B-S



DIMENSIONS
 SPRING RETURN

THROUGH HOLE $\phi 32 \sim \phi 50$ SERIES (N)CDQ2B-S



DIMENSIONS (MM)

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

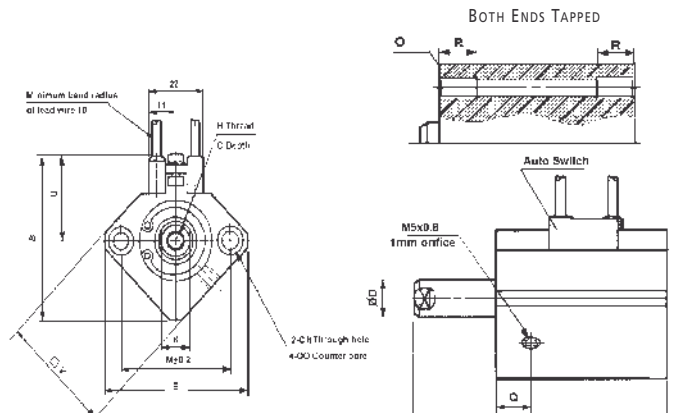
Bore Size	Stroke (mm)	A			B			CQ2		D	E
		5st	10st	20st	5st	10st	20st	C	C		
12	5, 10	36.5	41.5	-	33	38	-	6	5.4	6	32
16	5, 10	39	44	-	35.5	40.5	-	8	5.4	8	38
20	5, 10	41	46	-	36.5	41.5	-	7	7	10	47
25	5, 10	42.5	47.5	-	37.5	42.5	-	12	10	12	52
32	5, 10	45	50	-	38	43	-	13	13.3	16	45
40	5, 10	51.5	56.5	-	44.5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

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

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

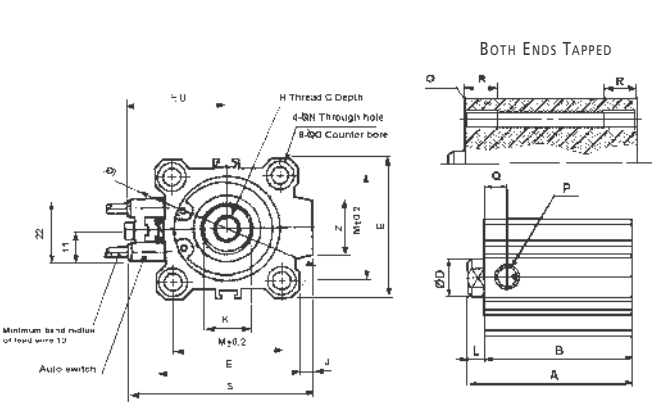
DIMENSIONS
 SPRING EXTENDED

THROUGH HOLE $\phi 12 \sim \phi 25$ SERIES (N)CDQ2B-T



DIMENSIONS
 SPRING EXTENDED

THROUGH HOLE $\phi 32 \sim \phi 50$ SERIES (N)CDQ2B-T



DIMENSIONS (MM)

SERIES (N)CDQ2B-T

Bore Size	Stroke (mm)	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

DIMENSIONS

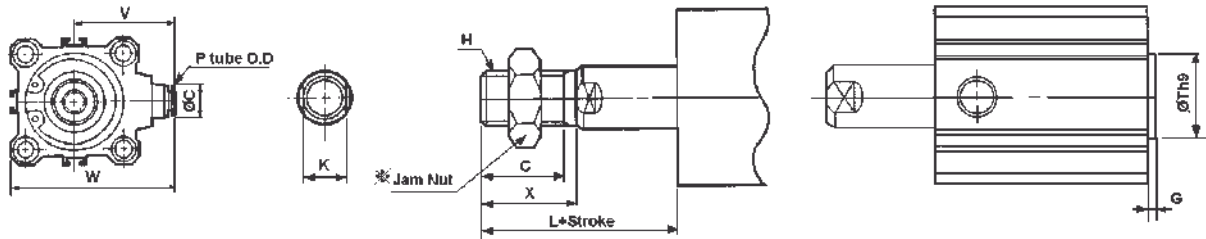
WITH AUTO SWITCH SPRING RETURN / EXTENDED
SINGLE ACTING SINGLE ROD BOTH ENDS TAPPED SERIES (N)CDQ2A

BOTH ENDS TAPPED (N)CDQ2A

Bore Size	CQ2 (mm)		NCQ2 (in)	
	O	R	O	R
12	M4x0.7	8	8-32UNC	7
16	M4x0.7	8	8-32UNC	7
20	M6x1	10	1/4-20UNC	10
25	M6x1	10	1/4-20UNC	10
32	M6x1	10	1/4-20UNC	10
40	M6x1	10	1/4-20UNC	10
50	M8x1.25	14	5/16-18UNC	14
63	M10x1.5	18	7/16-14UNC	18
80	M12x1.75	22	1/2-13UNC	22
100	M12x1.75	22	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	P	V	W
mm	mm	mm	mm	mm
32	13	6	38	60.5
40	13	6	42	68
50	16	8	50	82

NCQ2 MALE ROD END

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

CQ2 MALE ROD END

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

END BOSS (CQ2 ONLY)

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

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

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 / ø12W/Switches 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

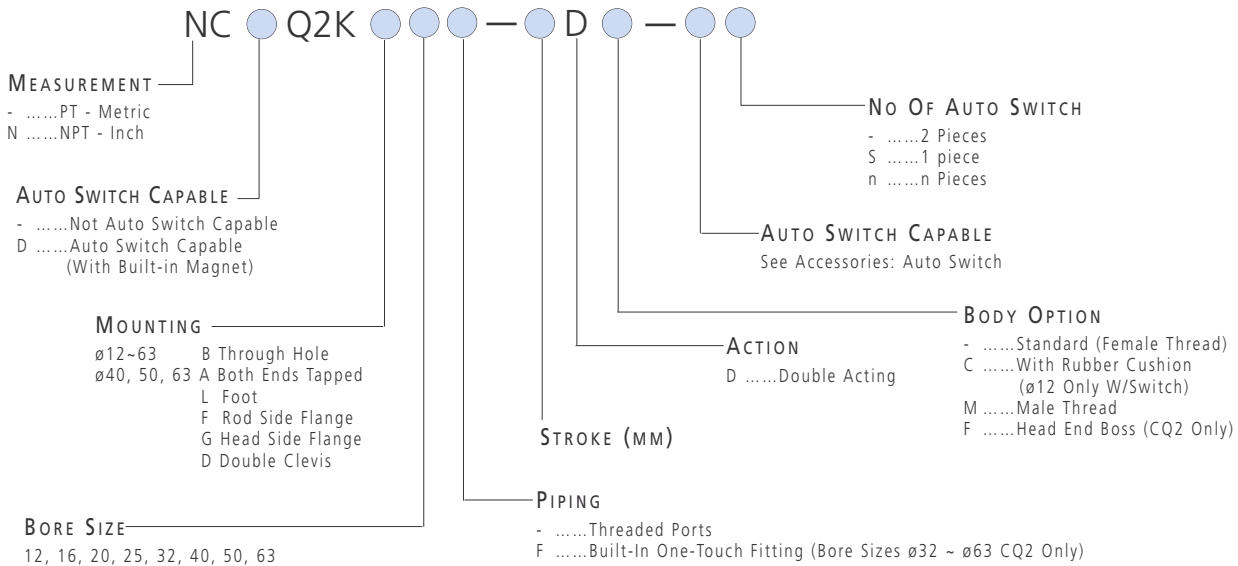
MINIMUM OPERATING PRESSURE

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

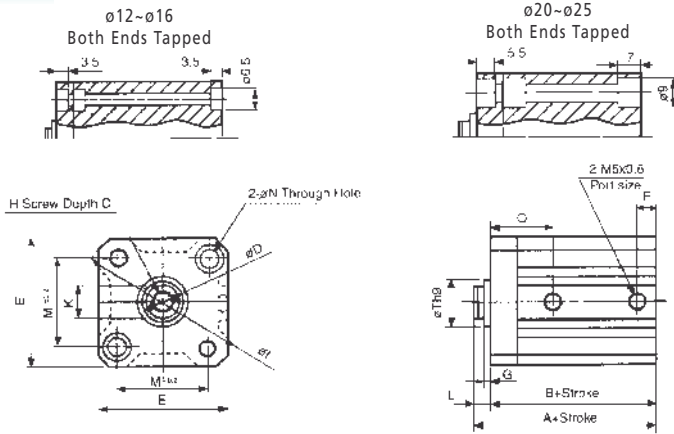
NON-ROTATING DOUBLE ACTING SINGLE ROD - STANDARD STROKE

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

MORE DIMENSIONS
SEE NEXT PAGE

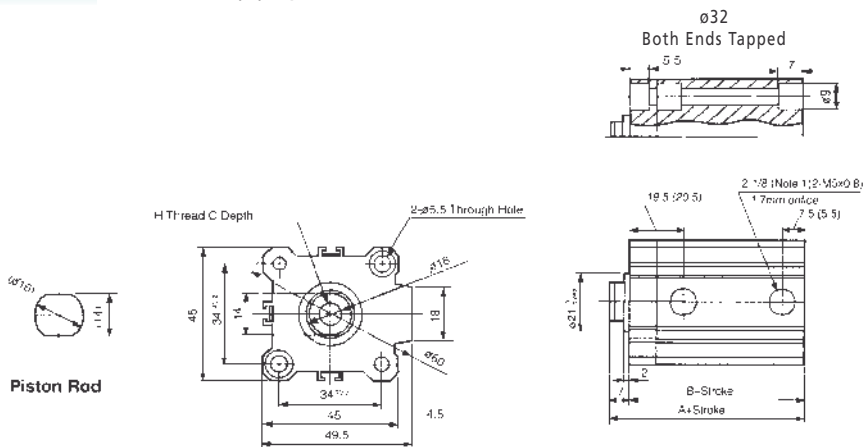
DIMENSIONS

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



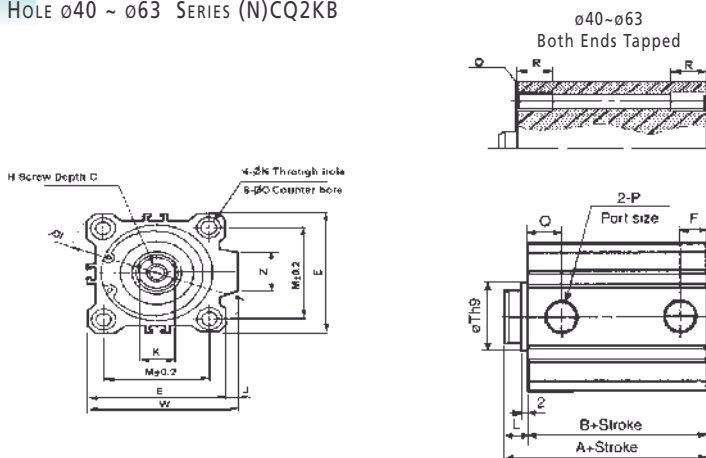
DIMENSIONS

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



DIMENSIONS

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



DIMENSIONS (MM)

NON-ROTATING

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

BOTH ENDS TAPPED (N)CQ2KA

Bore 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

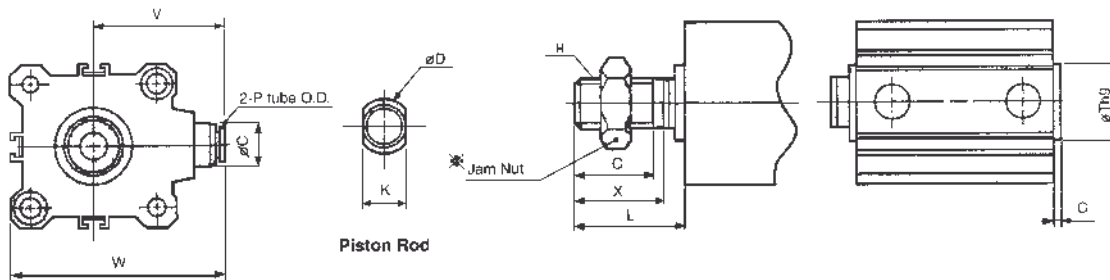
NON-ROTATING DOUBLE ACTING SINGLE ROD

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	M8x1.25	3/8-24UNF	69	5	14	7	40	5.5	9 Depth7	1/8	2	11	28 ^{+0.052-0}	57	18
	75, 100	46.5	39.5																					
50	5~50	38.5	30.5	15	17.6	20	64	10.5	2	M10x1.5	1/2-20UNF	86	7	18	8	50	6.6	11 Depth8	1/4	2.2	10.5	35 ^{+0.062-0}	71	22
	75, 100	48.5	40.5																					
63	10~50	44	36	15	17.6	20	77	10.5	2	M10x1.5	1/2-20UNF	103	7	18	8	60	9	14 Depth10.5	1/4	3	15	35 ^{+0.062-0}	84	22
	75, 100	54	46																					

DIMENSIONS

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



ONE TOUCH FITTINGS

Bore Size	C	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
mm	mm	inch	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 (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)		NCQ2 (in)	
	O	R	O	R
12	M4x0.7	7	8-32UNC	7
16	M4x0.7	7	8-32UNC	7
20	M6x1	10	1/4-20UNC	10
25	M6x1	10	1/4-20UNC	10
32	M6x1	10	1/4-20UNC	10
40	M6x1	10	1/4-20UNC	10
50	M8x1.25	14	5/16-18UNC	14
63	M10x1.5	18	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}
50	75, 100	35 ^{-0.062-0}
	75, 100	
63	10~50	35 ^{-0.062-0}
	75, 100	

DIMENSIONS (MM)

NON-ROTATING DOUBLE ACTING SINGLE ROD

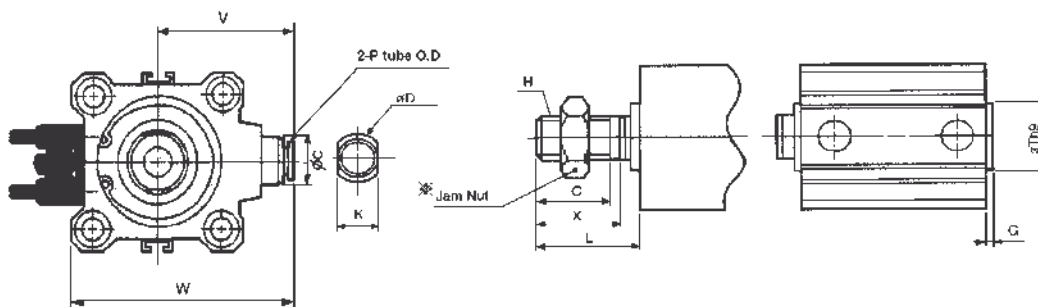
WITH AUTO SWITCH SERIES (N)CDQ2K STANDARD

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	M8x1.25	3/8-24UNF	69	5	14	7	40	5.5	9 Depth7	1/8	2	11	66	35	-	18
	75, 100																								
50	5~50	48.5	40.5	15	17.5	20	64	10.5	2	M10x1.5	1/2-20UNF	86	7	18	8	50	6.6	11 Depth8	1/4	2.2	10.5	80	41	-	22
	75, 100																								
63	10~50	54	46	15	17.5	20	77	10.5	2	M10x1.5	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 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

CDQ2 MALE ROD END

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

END BOSS (CQ2 ONLY)

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

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

TECHNICAL SPECIFICATIONS

NON-ROTATING

DOUBLE ACTING DOUBLE ROD - SERIES (N)CQ2KW

Model	Air Pressure (Non-Lube)
Fluid	Air
Proof Pressure	1.5MPa / 217 PSI
Max Operating Pressure	1MPa / 145PSI
Ambient and Fluid Temp	-10~70°C / 15~160°F
Rubber Cushion	None / ø12W Switches 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

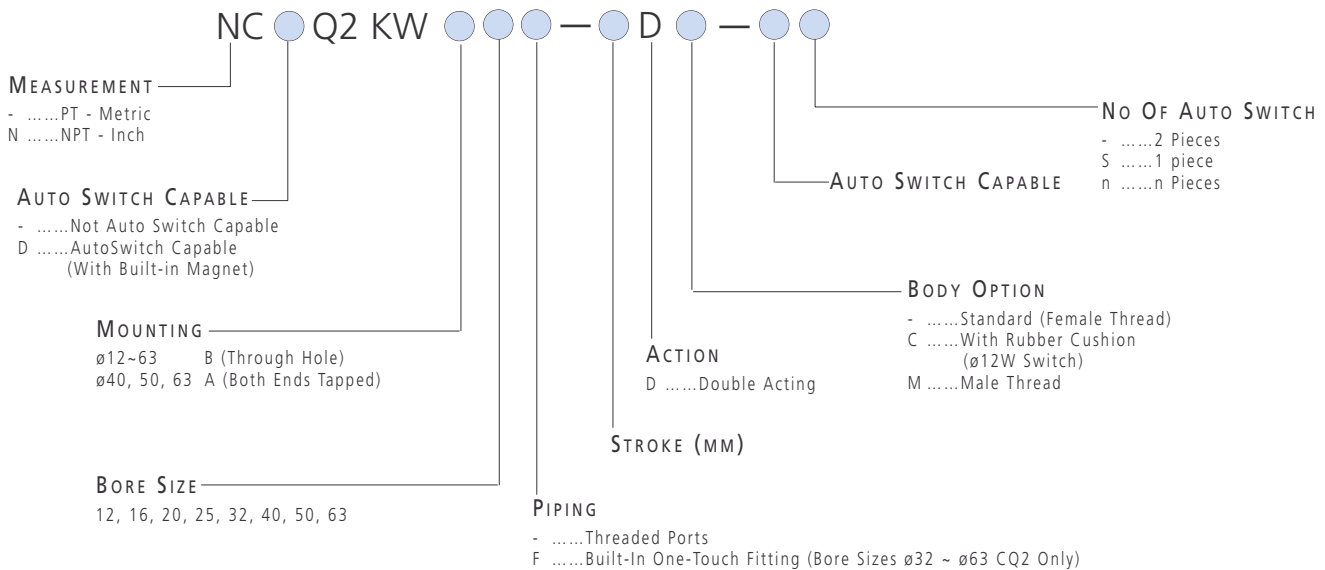
MINIMUM OPERATING PRESSURE

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



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

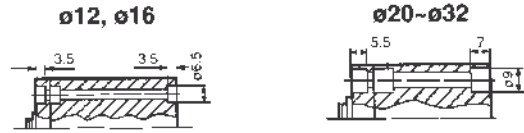
TECHNICAL SPECIFICATIONS

NON-ROTATING

DOUBLE ACTING DOUBLE ROD TOLERANCE

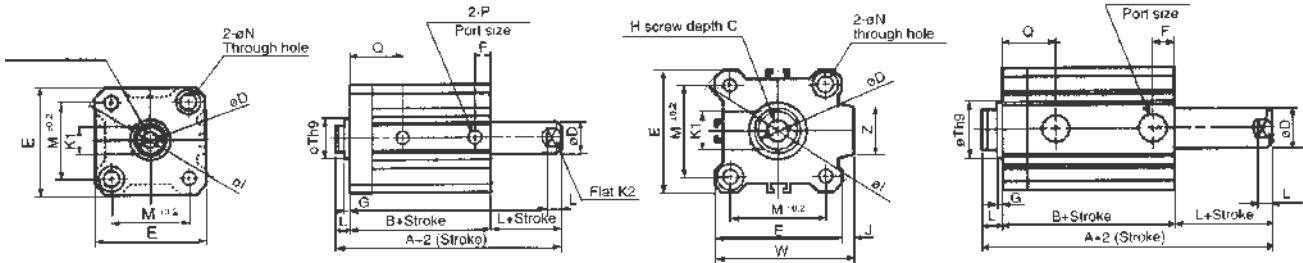
Bore Size	Accuracy
12,	±2°
16, 20, 25	±1°
32, 40, 50, 63	±0.8°

DIMENSIONS (MM)
THROUGH HOLE $\phi 12 \sim \phi 32$ SERIES (N)CQ2KWB



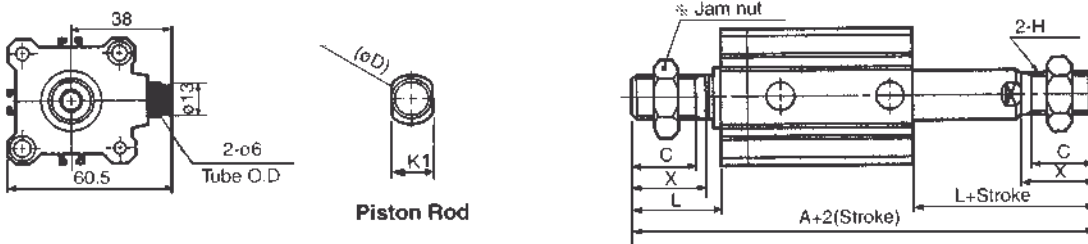
$\phi 12 \sim \phi 25$

$\phi 32$



Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 H	i	J	K1	K2	L	M	N	P	Orifice	Q	Th9	W	Z
12	5~30	37.2	30.2	6	5.4	6	25	10	M3x0.5	8-32	32	-	5.2	5	3.5	15.5	3.5	M5x0.8	1	15	15 ^{-0.043-0}	-	-
16	5~30	38	31	8	5.4	8	29	10	M4x0.7	8-32	38	-	6	6	3.5	20	3.5	M5x0.8	1	15	20 ^{-0.052-0}	-	-
20	5~50	43	34	7	7	10	36	9.5	M5x0.8	10-32	47	-	8	8	4.5	25.5	5.5	M5x0.8	1	17.5	13 ^{-0.043-0}	-	-
25	5~50	47	37	12	10	12	40	11	M6x1	1/4-28UNF	52	-	10	10	5	28	5.5	M5x0.8	1	19	15 ^{-0.043-0}	-	-
32	5	53.5	39.5	13	13.3	16	45	12.5	M8x1.25	5/16-24UNF	60	4.5	14	14	7	34	5.5	M5x0.8	1.7	21.5	21 ^{-0.052-0}	49.5	18
	10~50																	1/8					

DIMENSIONS
ONE TOUCH FITTING $\phi 32$ SERIES (N)CQ2KWB



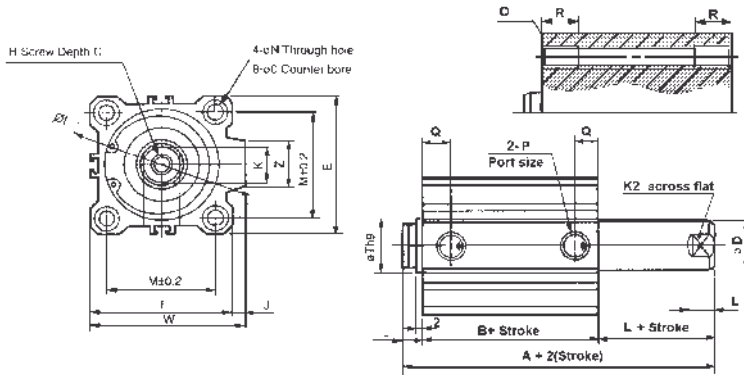
NCQ2 MALE ROD END

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

CQ2 MALE ROD END

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

DIMENSIONS (MM)
THROUGH HOLE $\phi 40 \sim \phi 63$ SERIES (N)CQ2KWB



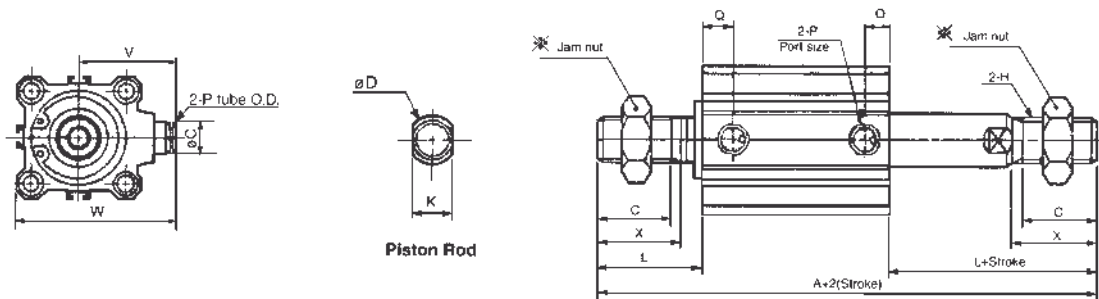
DIMENSIONS (MM)
BOTH ENDS TAPPED SERIES (N)CQ2KWA

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	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	CQ2 H	NCQ2 H	i	J	K	K2	L	M	N	O	P	Orifice	Q	Th9	W	Z
40	5~50	54	40	13	18.3	16	52	M8x1.25	3/8-24UNF	69	5	14	14	7	40	5.5	9 Depth7	1/8	2	14	28 ^{-0.052-0}	57	18
50	10~50	56.5	40.5	13	17.6	20	64	M10x1.5	1/2x20UNF	86	7	18	17	8	50	6.6	11 Depth8	1/4	2.2	14	35 ^{-0.062-0}	71	22
63	10~50	58	42	15	17.6	20	77	M10x1.5	1/2x20UNF	103	7	18	17	8	60	9	14Depth10.5	1/4	3	15.5	35 ^{-0.062-0}	84	22

DIMENSIONS
DOUBLE ACTING DOUBLE ROD SERIES (N)CQ2KWB



ONE TOUCH FITTINGS

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

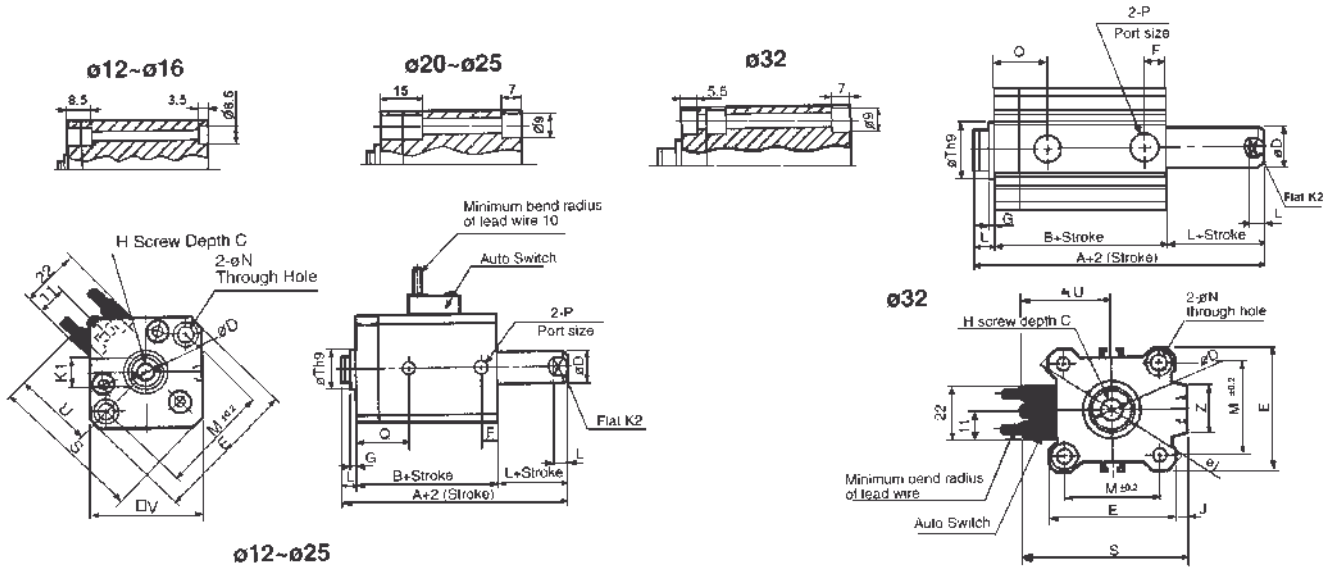
NCQ2 MALE ROD END

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

CQ2 MALE ROD END

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

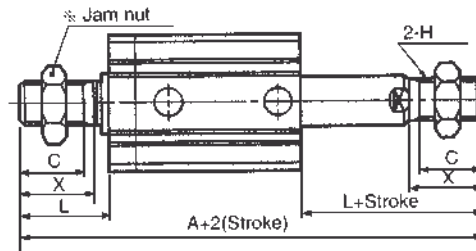
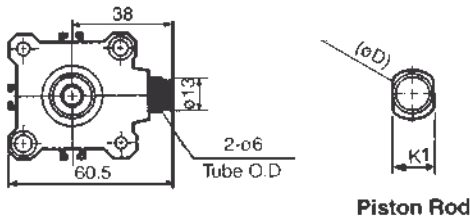
DIMENSIONS (MM)
WITH AUTO SWITCH
THROUGH HOLE $\phi 12 \sim \phi 32$ SERIES (N)CDQ2KWB



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

DIMENSIONS
DOUBLE ACTING DOUBLE ROD (N)CDQ2KWB

ONE TOUCH FITTING $\phi 32$



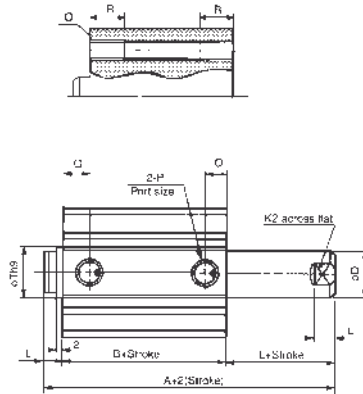
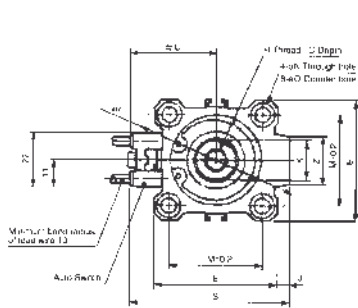
NCQ2 MALE ROD END

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 $\phi 40 \sim \phi 63$ SERIES (N)CDQ2KWB



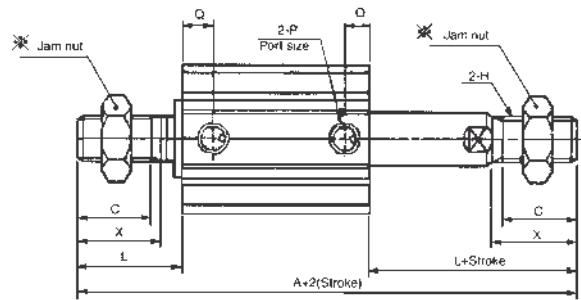
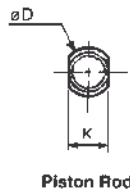
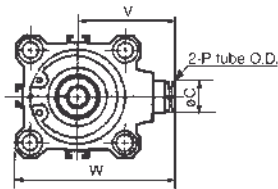
DIMENSIONS (MM)
WITH AUTO SWITCH NON-ROTATING
DOUBLE ACTING SINGLE ROD BOTH ENDS TAPPED SERIES (N)CDQ2KWA

BOTH ENDS TAPPED

Bore Size	NCQ2 (in)		R
	CQ2 (mm)	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 Depth7	1/8	14	66	28 ^{-0.052-0}	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 Depth8	1/4	14	80	35 ^{-0.062-0}	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 Depth10.5	1/4	15.5	93	35 ^{-0.062-0}	47.5	22

DIMENSIONS
DOUBLE ACTING DOUBLE ROD SERIES (N)CDQ2KWB



ONE TOUCH FITTINGS

Bore Size	C	P	V	W
mm	mm	mm	mm	mm
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
40	16	3/8-24UNF	23	14	96
50	19.5	1/2-20UNF	27.5	18	105.5
63	19.5	1/2-20UNF	27.5	18	107

CQ2 MALE ROD END

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

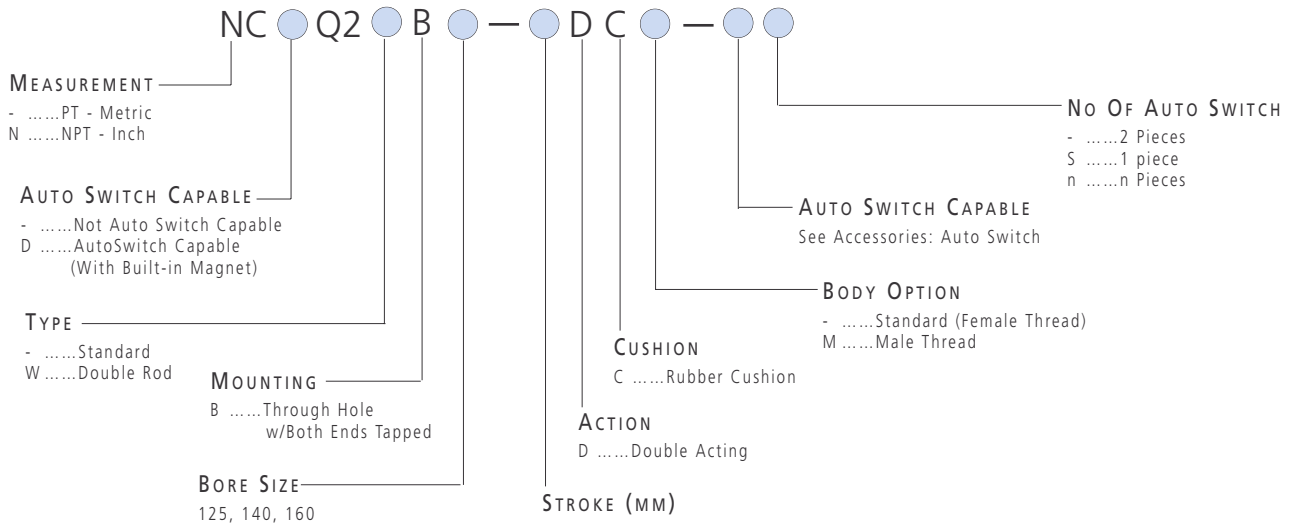
TECHNICAL SPECIFICATIONS

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

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

HOW TO ORDER

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



HOW TO ORDER

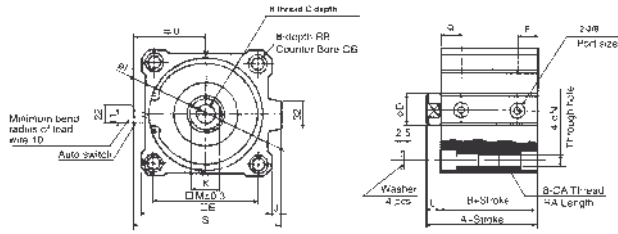
LARGE BORE DOUBLE ACTING SINGLE / DOUBLE ROD STANDARD STROKE

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

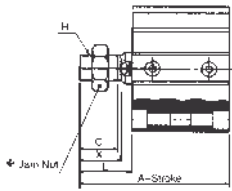
MORE DIMENSIONS
SEE NEXT PAGE

DIMENSIONS (MM)

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



Bore Size	Stroke (mm)	A	B	CQ2 C	NCQ2 C	D	E	F	CQ2 H	NCQ2 H	i	J	K	L	M	N	CQ2 OA	NCQ2 OA	OB	Q	RA	RB	S	U	Orifice
125	10,20,30,40	99	83	30	30	36	142	24.5	M22x2.5	3/4-16	190	11	32	16	114	12.5	M14x2	9/16-12	21.2	24.5	25	18.4	163	81	6
140	50,75,100	99	83	30	30	36	158	24.5	M22x2.5	3/4-16	210	10	32	16	128	12.5	M14x2	9/16-12	21.2	24.5	25	18.4	178	89	7
160	125,150,175,200,250,300	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	C	H	L	X
mm	mm	mm	mm	mm	mm
125	141	42	M30x1.5	58	45
140	141	42	M30x1.5	58	40
160	155	47	M36x1.5	64	50

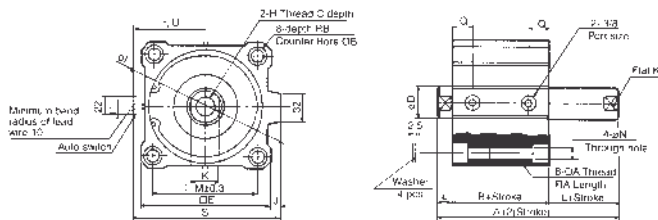
NCQ2 MALE ROD END

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

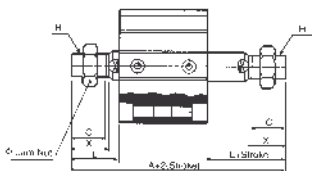
DIMENSIONS (MM)

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	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	50,75,100	115	83	30*	30	36	158	24.5	M22x2.5	3/4-16	210	10	32	16	128	12.5	M14x2	9/16-12	21.2	24.5	25	18.4	178	89	7
160	125,150,175,200,250,300	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

CQ2
C
*(22.5)
*(22.5)
*(26.5)
Note) Thread Depth for 10 Stroke



CCQ2 MALE ROD END

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

Note) Dimensions are the same for Standard and Switch Capable

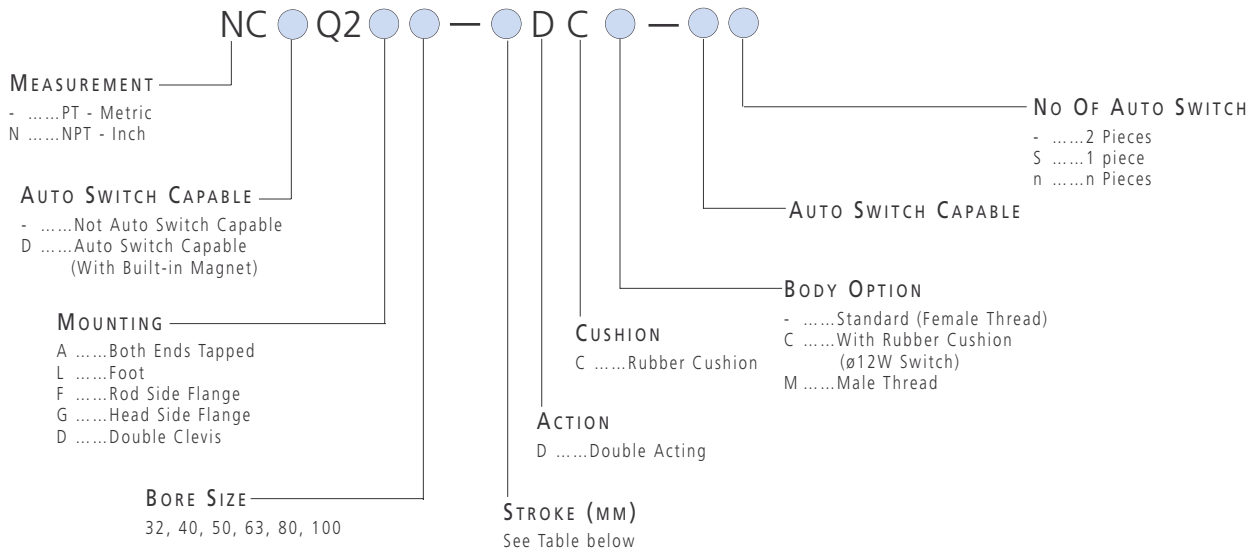
TECHNICAL SPECIFICATIONS

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

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

HOW TO ORDER

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

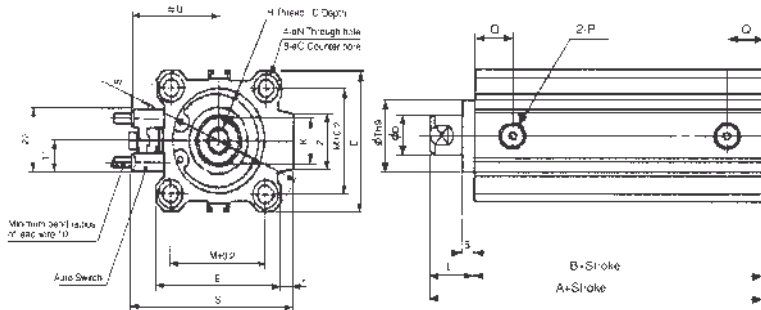


HOW TO ORDER

LONG STROKE DOUBLE ACTING SINGLE ROD STANDARD STROKE

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

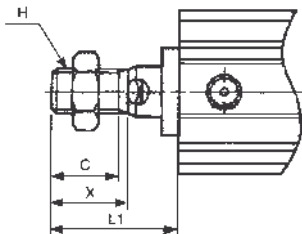
DIMENSIONS (MM)
LONG STROKE SERIES (N)CDQ2



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

CQ2 MALE ROD END

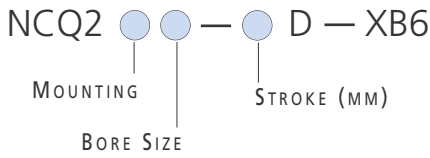
Bore Size	C mm	X mm	H mm	L1 mm
32	20.5	23.5	M14x1.5	38.5
40	20.5	23.5	M14x1.5	38.5
50	26	28.5	M18x1.5	43.5
63	26	28.5	M18x1.5	43.5
80	32.5	35.5	M22x1.5	53.5
100	32.5	35.5	M26x1.5	53.5

Note) Dimensions are the same for Standard and Switch Capable

ACCESSORIES

SERIES NCQ2/CQ2

HIGH TEMPERATURE RESISTANT CYLINDER - XB6 OPTION



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

TECHNICAL

SPECIFICATIONS

SERIES (N)CQ2

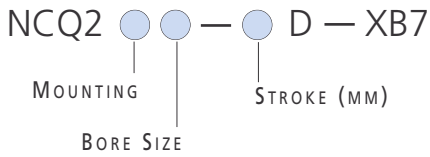
HIGH TEMPERATURE RESISTANT CYLINDER - XB6 OPTION

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

ACCESSORIES

SERIES NCQ2/CQ2

LOW TEMPERATURE RESISTANT CYLINDER - XB7 OPTION



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

TECHNICAL

SPECIFICATIONS

SERIES (N)CQ2

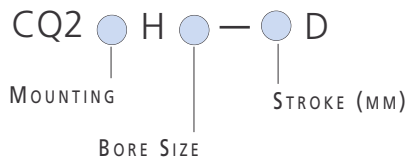
LOW TEMPERATURE RESISTANT CYLINDER - XB7 OPTION

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

ACCESSORIES

SERIES CQ2

AIR HYDRO CYLINDER - OPTION



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

TECHNICAL

SPECIFICATIONS

SERIES CQ2

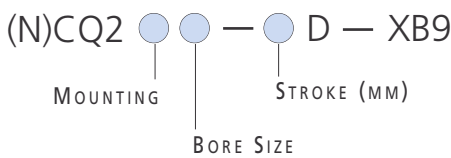
AIR HYDRO CYLINDER - OPTION

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

ACCESSORIES

SERIES NCQ2/CQ2

LOW SPEED CYLINDER - XB9 OPTION



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

TECHNICAL

SPECIFICATIONS

SERIES (N)CQ2

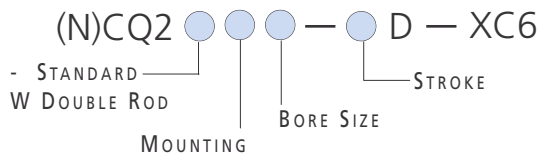
LOW SPEED CYLINDER - XB9 OPTION

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

ACCESSORIES

SERIES NCQ2/CQ2

STAINLESS STEEL PISTON ROD - XC6 OPTION



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

TECHNICAL SPECIFICATIONS

SERIES (N)CQ2

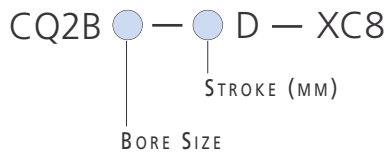
STAINLESS STEEL PISTON ROD - XC6 OPTION

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

ACCESSORIES

SERIES CQ2

ADJUSTABLE STROKE CYLINDER / EXTEND TYPE - XC8 OPTION



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

TECHNICAL SPECIFICATIONS

SERIES CQ2

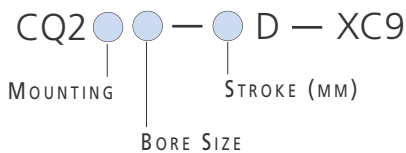
ADJUSTABLE STROKE CYLINDER / EXTEND TYPE - XC8 OPTION

Bore Size	ø12, 16, 20, 25, 32, 40, 50, 63, 80, 100
Fluid	Air
Action	Double Acting
Lubrication	Non-Lube
Stroke Adjustment System	Adjusting Bolt
Stroke Adjustment Range	10mm
Auto Switch Capable	Yes

ACCESSORIES

SERIES CQ2

ADJUSTABLE STROKE CYLINDER / RETRACT TYPE - XC9 OPTION



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

TECHNICAL SPECIFICATIONS

SERIES CQ2

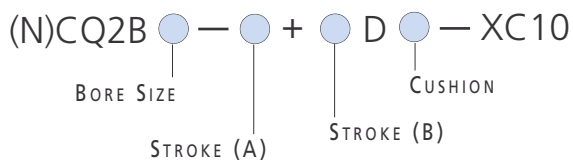
ADJUSTABLE STROKE CYLINDER / RETRACT TYPE - XC9 OPTION

Bore Size	ø12, 16, 20, 25, 32, 40, 50, 63, 80, 100
Fluid	Air
Action	Double Acting
Lubrication	Non-Lube
Stroke Adjustment System	Adjusting Bolt
Stroke Adjustment Range	10mm
Auto Switch Capable	Yes

ACCESSORIES

SERIES NCQ2/CQ2

DUAL STROKE CYLINDER / DOUBLE ROD TYPE - XC10 OPTION



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

TECHNICAL SPECIFICATIONS

SERIES (N)CQ2

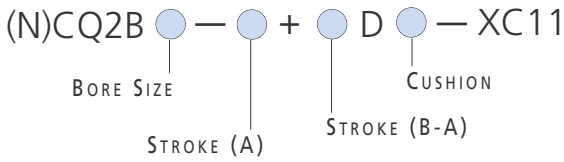
DUAL STROKE CYLINDER / DOUBLE ROD TYPE - XC10 OPTION

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

ACCESSORIES

SERIES NCQ2/CQ2

DUAL STROKE CYLINDER / SINGLE ROD TYPE - XC11 OPTION



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

TECHNICAL

SPECIFICATIONS

SERIES (N)CQ2

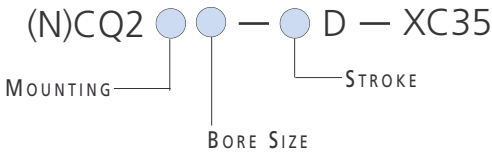
DUAL STROKE CYLINDER / SINGLE ROD TYPE - XC11 OPTION

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

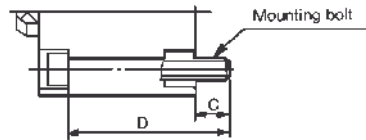
MOUNTING KITS SERIES NCQ2/CQ2

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

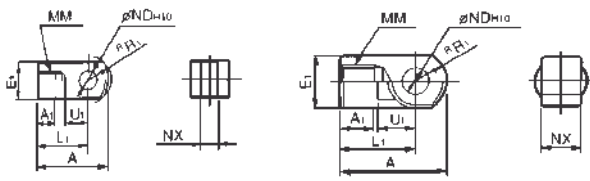


Note) For dimensions and types, refer to CAT:N320

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)



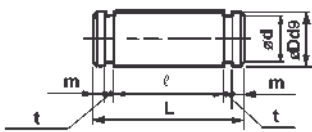
CQ2 SINGLE ROD CLEVIS

Part No	Bore Size	A	A ₁	E ₁	L ₁	MM	[°] R1	U ₁	ND _{H10}	NX
I-G012	12	21.5	6	□10	16	M5x0.8	6.3	7	5 ^{0-0.048}	5 ^{0-0.4 -0.2}
I-Z015	16	32	8	□12	25	M6x1	8.1	14	5 ^{0-0.048}	6.4 ^{0.3 -0.1}
I-G02	20	34	8.5	□16	25	M8x1.25	10.3	11.5	8 ^{0-0.058}	8 ^{0-0.4 -0.2}
I-G03	25	41	10.5	□20	30	M10x1.25	12.8	14	10 ^{0-0.058}	10 ^{0-0.4 -0.2}
I-G04	32, 40	42	14	□22	30	M14x1.5	12	14	10 ^{0-0.058}	18 ^{0.5 -0.3}
I-G05	50, 63	56	18	□28	40	M18x1.5	16	20	14 ^{0-0.070}	22 ^{0.5 -0.3}
I-G08	80	71	21	□38	50	M22x1.5	21	27	18 ^{0-0.070}	28 ^{0.5 -0.3}
I-G10	100	79	21	□44	55	M26x1.5	24	31	22 ^{0-0.084}	32 ^{0.5 -0.3}

NCQ2 SINGLE ROD CLEVIS

Part No	Bore Size	A	A ₁	E ₁	L ₁	MM	[°] R1	U ₁	ND _{H10}	NX
RCS-01	12	21.5	6	□10	16	8-32UNC	6.3	7	3/16 ^{0-0.002}	5 ^{0-0.4 -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 ^{0-0.4 -0.2}
RCS-025	25	41	8	□20	30	1/4-28UNF	18	14	3/8 ^{0-0.002}	10 ^{0-0.4 -0.2}
RCS-03	32	42	16	□22	30	5/16-24UNF	12	14	3/8 ^{0-0.002}	18 ^{0.5 -0.3}
RCS-04	40	42	11	□22	30	3/8-24UNF	12	14	3/8 ^{0-0.002}	18 ^{0.5 -0.3}
RCS-05	50, 63	56	18	□28	40	1/2-20UNF	16	20	1/2 ^{0-0.003}	22 ^{0.5 -0.3}
RCS-08	80	71	21	□38	50	5/8-18UNF	21	27	3/4 ^{0-0.003}	28 ^{0.5 -0.3}
RCS-10	100	79	21	□44	55	3/4-16UNF	24	31	7/8 ^{0-0.003}	32 ^{0.5 -0.3}

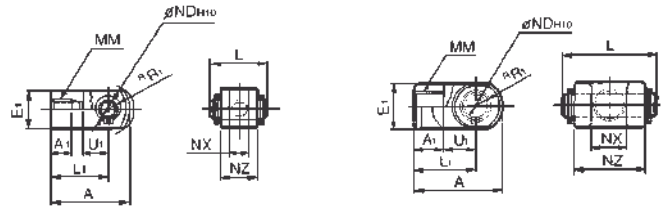
ACCESSORIES SERIES NCQ2/CQ2 DOUBLE ROD CLEVIS PIN



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



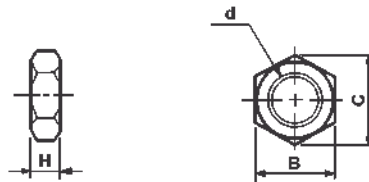
CQ2 DOUBLE ROD CLEVIS

Part No	Bore Size	A	A ₁	E ₁	L ₁	MM	[°] R1	U ₁	ND _{H10}	NX	NZ	L	PIN Part #
Y-G012	12	21.5	6	□10	16	M5x0.8	6.3	7	5 ^{0-0.048}	5 ^{0-0.4 -0.2}	10	14.6	IY-G012
Y-Z015A	16	28	11	□12	21	M6x1	8.1	10	5 ^{0-0.048}	6.5 ^{0.3 -0.1}	12	16.6	IY-J015
Y-G02	20	34	8.5	□16	25	M8x1.25	10.3	11.5	8 ^{0-0.058}	8 ^{0-0.4 -0.2}	16	21	IY-G02
Y-G03	25	41	10.5	□20	30	M10x1.25	12.8	14	10 ^{0-0.058}	10 ^{0-0.4 -0.2}	20	25.6	IY-G03
Y-G04	32, 40	42	16	□22	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	□28	40	M18x1.5	16	20	14 ^{0-0.070}	22 ^{0.5 -0.3}	44	50.6	IY-G05
Y-G08	80	71	23	□38	50	M22x1.5	21	27	18 ^{0-0.070}	28 ^{0.5 -0.3}	56	64	IY-G08
Y-G10	100	79	24	□44	55	M26x1.5	24	31	22 ^{0-0.084}	32 ^{0.5 -0.3}	64	72	IY-G10

NCQ2 DOUBLE ROD CLEVIS

Part No	Bore Size	A	A ₁	E ₁	L ₁	MM	[°] R1	U ₁	ND _{H10}	NX	NZ	L
RCD-01	12	21.5	6	□10	16	8-32UNC	6.3	7	3/16 ^{0-0.002}	5 ^{0-0.4 -0.2}	10	14.6
RCD-015	16	28	6	□12	21	8-32UNC	12	10	3/16 ^{0-0.002}	6.4 ^{0.3 -0.1}	12	16.6
RCD-02	20	34	6	□16	25	10-32UNF	10.3	11.5	5/16 ^{0-0.002}	8 ^{0-0.4 -0.2}	16	21
RCD-025	25	41	8	□20	30	1/4-28UNF	18	14	3/8 ^{0-0.002}	10 ^{0-0.4 -0.2}	20	25.6
RCD-03	32	42	16	□22	30	5/16-24UNF	12	14	3/8 ^{0-0.002}	18 ^{0.5 -0.3}	36	41.6
RCD-04	40	42	16	□22	30	3/8-24UNF	12	14	3/8 ^{0-0.002}	18 ^{0.5 -0.3}	36	41.6
RCD-05	50, 63	56	20	□28	40	1/2-20UNF	16	20	1/2 ^{0-0.003}	22 ^{0.5 -0.3}	44	50.6
RCD-08	80	71	23	□38	50	5/8-18UNF	21	27	3/4 ^{0-0.003}	28 ^{0.5 -0.3}	56	64
RCD-10	100	79	24	□44	55	3/4-16UNF	24	31	7/8 ^{0-0.003}	32 ^{0.5 -0.3}	64	72

ACCESSORIES SERIES NCQ2/CQ2 JAM NUT



CQ2 JAM NUT

Part No	Bore Size	d	H	B	C
NTJ-015A	12	M5x0.8	4	8	9.2
NT-015A	16	M6x1	5	10	11.5
NT-02	20	M8x1.25	5	13	15
NT-03	25	M10x1.25	6	17	19.6
NT-04	32, 40	M14x1.5	8	22	25.4
NT-05	50, 63	M18x1.5	11	27	31.2
NT-08	80	M22x1.5	13	32	37
NT-10	100	M26x1.5	16	41	47.3
NT-12	125, 140	M30x1.5	18	46	53.1
NT-16	160	M36x1.5	21	55	63.5

ACCESSORIES
AUTO SWITCH SPECIFICATIONS

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

Type	Auto Switch		Indicator Light	Wire (Output Type)	Load Voltage		
	Perpendicular Entry	Inline Entry			DC	AC	
Reed Switch	-	D-A76H	Yes	3 Wire	-	5V	-
	D-A72	D-A72H		2 Wire	-	-	200V
	D-A73	D-A73H			24V	-	100V
	D-A80	D-A80H	No	2 Wire	24V/48V/100V AC/DC		
	D-A73C	-	Yes		24V	-	-
	D-A80C	-	No		24V	-	24V
	D-A79W	-	Yes		24V	-	-
		D-A90	No	2 Wire	24V/48V/100V AC/DC		
		D-A93	Yes	2 Wire	24V	-	100V
		D-A96	Yes	3 Wire	48V	-	-
Solid State Switch	D-F7NV	D-F79	Yes	3 Wire NPN	24V	5V, 12V	
	D-F7PV	D-F7P		3 Wire PNP		-	
	D-F7BV	D-J79		2 Wire		-	
	D-J79C	-		-			
	D-F7NWX	D-F79W		3 Wire NPN	5V, 12V	-	
	-	D-F7PW		3 Wire PNP		-	
	D-F7BWX	D-J79W		2 Wire	-		
	-	D-F7BAL		-		-	
	-	D-F7NTL		3 Wire NPN	5V, 12V	-	
	-	D-F79F		4 Wire NPN		-	
	-	D-F7LF		-		-	
		D-F9N		3 Wire	28V or less	-	
		D-F9P		3 Wire	less	-	
		D-F9B		2 Wire	24V	-	

ACCESSORIES
SERIES NCQ2/CQ2
DOUBLE ROD CLEVIS PIN

NCQ2 DOUBLE ROD CLEVIS PIN

Part No	Bore Size	D	L	d	ℓ	m	t
PS-01	12	4.77 ^{+0.06 -0.03}	14	4.45	10.2	1.44	0.46
PS-015	16	4.77 ^{+0.06 -0.03}	16	4.45	12.2	1.44	0.46
PS-02	20	7.94 ^{+0.076 -0.04}	21	7.37	16.2	1.66	0.74
PS-03	25	9.53 ^{+0.076 -0.04}	25	8.94	20.2	1.66	0.74
PS-04	32, 40	9.53 ^{+0.076 -0.04}	41	8.94	36.2	1.66	0.74
PS-05	50, 63	12.7 ^{+0.076 -0.05}	50	11.89	44.2	1.9	1
PS-08	80	19.05 ^{+0.117 -0.065}	64	17.89	56.2	2.73	1.17
PS-10	100	22.23 ^{+0.117 -0.065}	72	20.85	64.2	2.73	1.17

ACCESSORIES
SERIES NCQ2/CQ2
JAM NUT

NCQ2 JAM NUT

Part No	Bore Size	d	H	B	C
JM-01	12	8-32UNC	3.3	8.7	10
JM-02	16	10-32UNF	3.3	9.5	11
JM-025	20	1/4-28UNF	4.1	11.2	13
JM-03	25	5/16-24UNF	4.8	12.7	14.7
JM-04	32, 40	3/8-24UNF	5.6	14.3	16.5
JM-05	50, 63	1/2-20UNF	7.9	19.1	22
JM-08	80	5/8-18UNF	9.7	23.8	27.4
JM-10	100	3/4-16UNF	10.7	28.7	33

Note) Jam Nut included when Option "M" is ordered

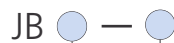


FLOATING JOINT
COMPACT CYLINDER EXCLUSIVE
SERIES JB

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

How To
ORDER

NCQ2/CQ2 DOUBLE ACTING SINGLE ROD



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

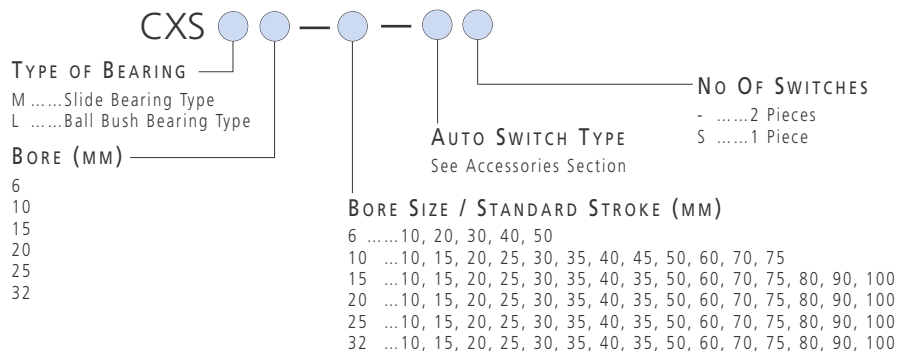
Cylinder Bore Size (mm)	6	10	15	20	25	32
Fluid	Air (Non-Lubricated)					
Min Operating Pressure	0.15MPa / 22PSI	0.1MPa / 14.5PSI		0.05 MPa / 7PSI		
Max Operating Pressure	0.7 MPa / 100PSI					
Proof Pressure	1.05 MPa / 150PSI					
Ambient & Fluid Temperature	5~60°C / 40~140°F					
Piston Speed	30~300mm/s / 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

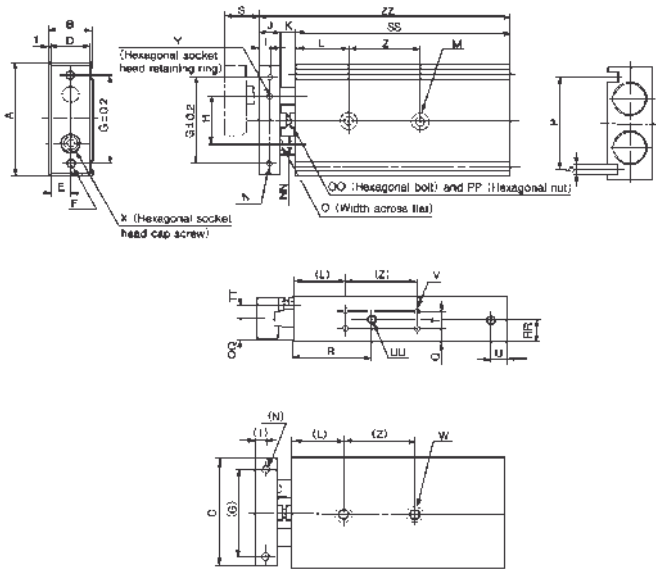
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

Model		Load Voltage	Load Current	Power Source	Internal Voltage Drop	Indicator Lamp	Lead Wire Length
Part No 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

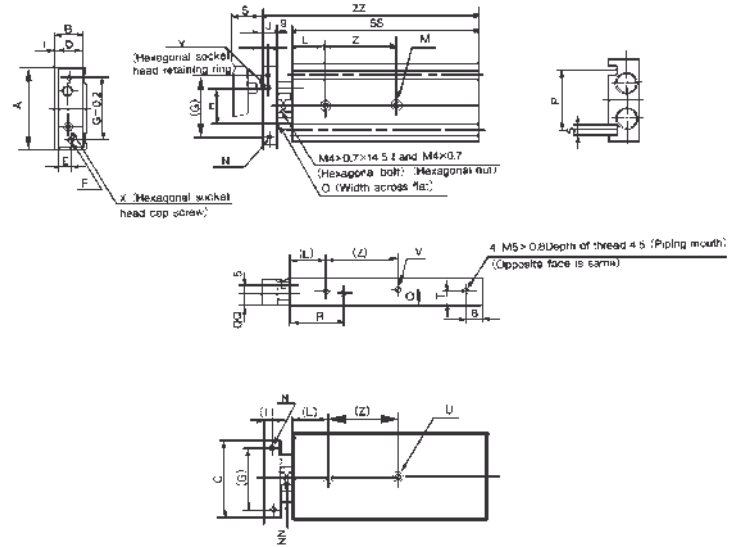
DIMENSIONS
CX S SERIES

DUAL ROD CYLINDER 20, 25, 32



DIMENSIONS
CX S 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							10	80				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	30	104
CXS•20-20						20	90				114							
CXS•20-30						30	100				124							
CXS•20-40	53	M6x1.0	7.75	12.5	45	7.75	40	110	9.5	6.5	8							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							10	82				4-1/8 Depth of thread 6.5 (Port) (Opposite face is same)	8-M5x0.8 Depth of thread 7.5 (Opposite face is same)	2-M8 x 1.25 Depth of thread 12	M6 x 1.0 x 14ℓ	M6x1.0x5ℓ	30	106
CXS•25-20						20	92				116							
CXS•25-30						30	102				126							
CXS•25-40	64	M6x1.0	8.5	15	46	15	40	112	13	9	9							136
CXS•25-50						50	122				146							
CXS•25-75						75	147				171							
CXS•25-100						100	172				196							

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

Model	P	PP	Q	QQ	R	RR	S	SS	T	TT	U	UU	V	W	X	Y	Z	ZZ
CXS•32-10							10	92				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	40	122
CXS•32-20						20	102				132							
CXS•32-30						30	112				142							
CXS•32-40	76	M8x1.25	9	19	56	19	40	122	20	11.5	10							152
CXS•32-50						50	132				162							
CXS•32-75						75	157				187							
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												2-Ø3.4 Through hole	2-M3 x0.5 Depth of thread 5							10	65		2-M4 x 0.7 Depth of thread 7	4-M3x0.5 Depth of thread 4.5 (Opposite face is same)	M3x0.5x10ℓ	M3x0.5x5ℓ	30	82					
CXS•10-20																				20	75											92	
CXS•10-30	46	17	44	15	7.5	2-M4 x 0.7 (Penetration)	35	20	4	8	20	2-Ø6.5 Depth of counter bore 3.3		Ø6	5	33.6	8.5	7	30	30	85	7											102
CXS•10-40																				40	95												112
CXS•10-50																				50	105												122
CXS•15-10												2-Ø4.3 Through hole	2-M4 x0.7 Depth of thread 6							10	70		2-M5 x 0.8 Depth of thread 8	4-M4x0.7 Depth of thread 5 (Opposite face is same)	M5x0.8x10ℓ	M4x0.7x4ℓ	25	89					
CXS•15-20																				20	80												99
CXS•15-30	58	20	56	18	9	2-M5 x 0.8 (Penetration)	45	25	5	10	30	2-Ø8 Depth of counter bore 4.4		Ø8	6	48	10	10	38.5	30	90	10											109
CXS•15-40																				40	100												119
CXS•15-50																				50	110												129



DUAL ROD CYLINDER SERIES CXSW DOUBLE ROD TYPE

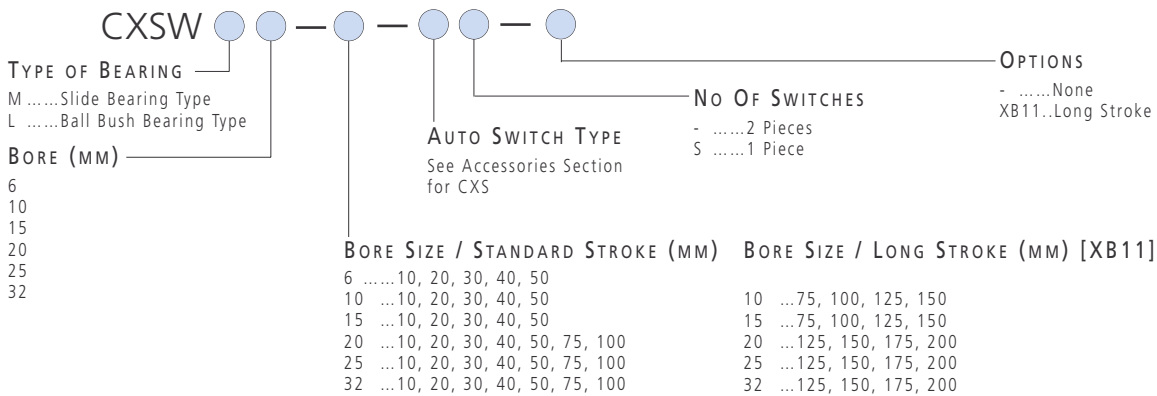
- ✓ Bore Sizes Ø6, Ø10, Ø15, Ø20, Ø25, Ø32
- ✓ Based on Series CXS
- ✓ Through Rod ensures 2 to 3 times the allowable load of CXS
- ✓ Side Play of Plate End <0.03mm
- ✓ High Non-Rotating Accuracy
- ✓ Adjustable Stroke Mechanism on Both Sides

TECHNICAL SPECIFICATIONS

Cylinder Bore Size (mm)	6	10	15	20	25	32
Fluid	Air (Non-Lubricated)					
Min Operating Pressure	0.15MPa / 22PSI			0.1MPa / 14.5PSI		
Max Operating Pressure	0.7 MPa / 100PSI					
Proof Pressure	1.05MPa / 150PSI					
Ambient & Fluid Temperature	5~60°C / 40~140°F					
Operating Piston Speed	50~500mm/s / 2~20in/s					
Port Size	M5 x 0.8				1/8	
Stroke Adjustment Range	0 ~ -10mm (Extend Side: 5mm; Retracted End: 5mm)					
Bearing	Side Bearing, Ball Bush Bearing (Same Dimensions)					
Cushion	With Damper (Both Sides)					

HOW TO ORDER

CXSW SERIES DUAL ROD CYLINDER



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°

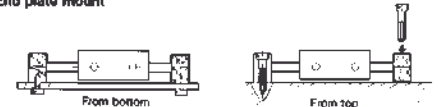
Note 1) please position the center of gravity of the load and the slide unit as close as possible. If this is not possible, please contact a SMC Representative.



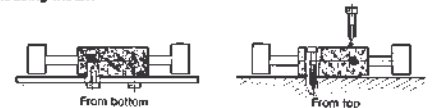
SELECTOR

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)

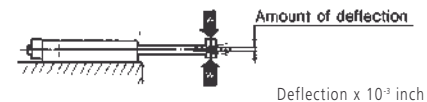
For a concentrated load at the center of the housing.



Model	Load (lb)	Stroke Inch	
		4	8
NCX2N10	2	2.8	-
NCX2N15	6	3.2	1.1
NCX2N25	13	0.8	3.2

PISTON ROD DEFLECTION (REFERENCE FACTOR)

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

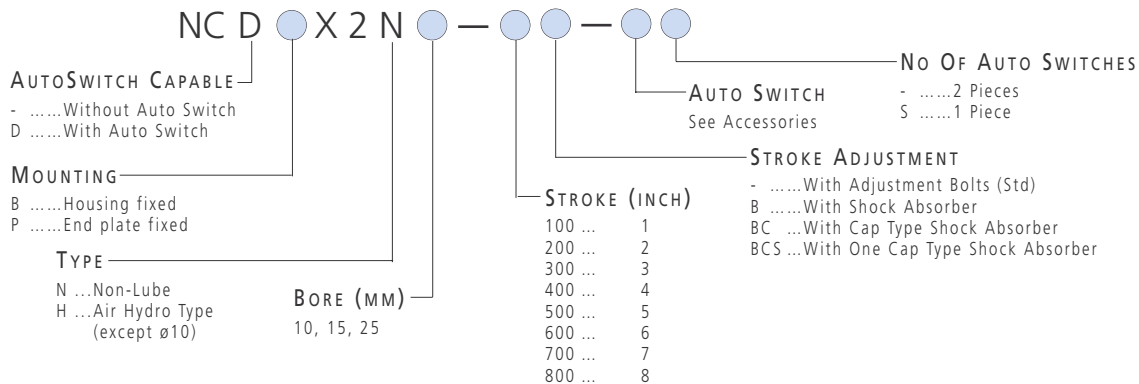


Model	Load (lb)	Stroke (Inch)			
		2	4	6	8
NCX2N10	0.5	2.4	11.8	-	-
NCX2N15	1	3.5	8.7	14.7	39.4
NCX2N25	2	12	3.5	6.3	9.8

(Note) Values are the total amount of vertical deflection

HOW TO ORDER

NCX2 SERIES SLIDE UNIT



DIMENSIONS
SEE NEXT PAGE

ACCESSORIES AUTO SWITCHES

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

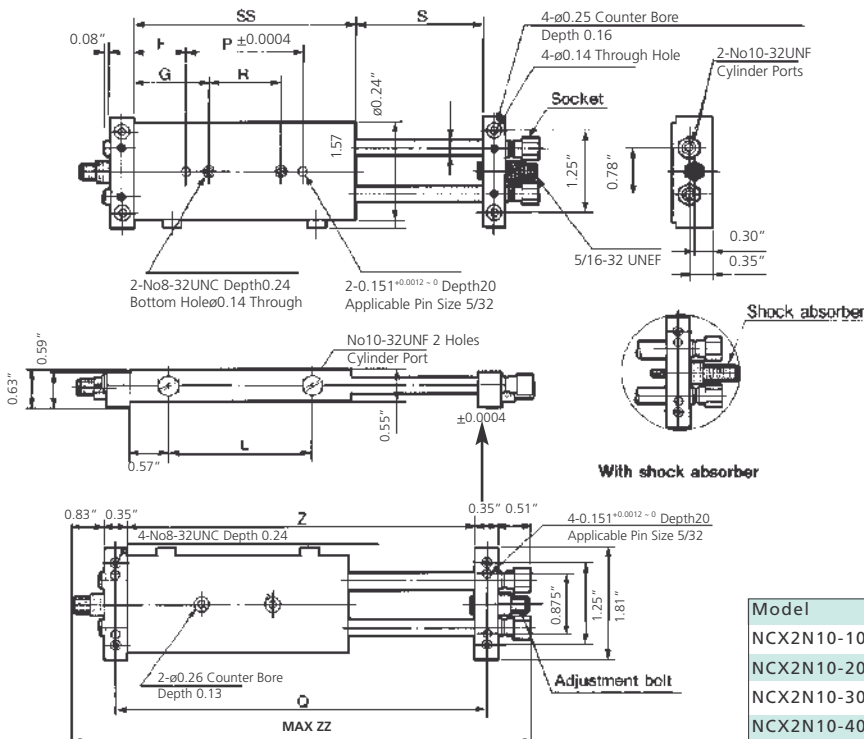
Model	Type	Operating Voltage	Maximum Current
D-A73	Reed	200VAC	5 ~ 10mA
D-A73H		24VDC	5 ~ 40mA
D-E73A		100VAC	5 ~ 20mA
D-A80	Reed	24VAC/DC or less	50mA
D-A80H		48VAC/DC or less	40mA
D-E80A		100VAC/DC or less	20mA
D-A76H	Reed	4 ~ 8 VDC	20mA
D-E76A			
D-A73C	Reed	24VDC	5 ~ 40mA
D-A80C	Reed	24VAC/DC or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

ACCESSORIES

APPLICABLE SHOCK ABSORBERS SERIES NCX2

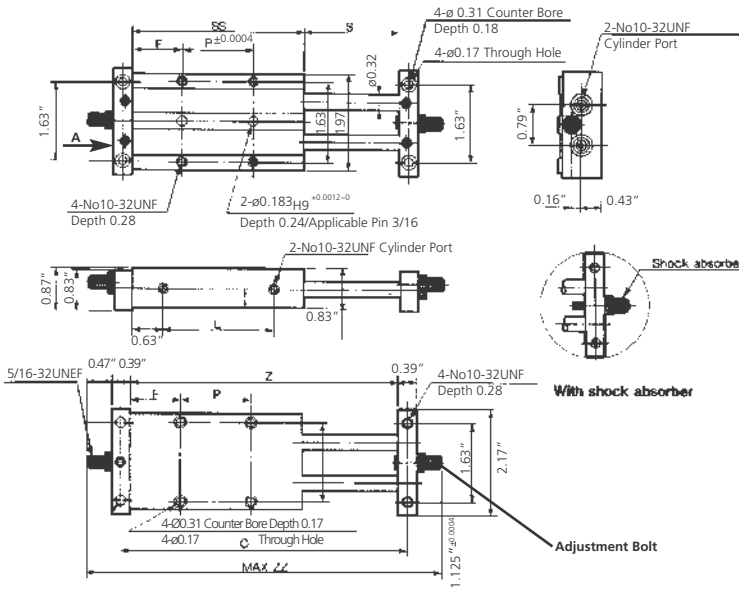
Slide Unit	Shock Absorber/Cap Type
NCX2N10	NRB031-025/NRBC031-025
NCDBX2N10	
NCDPX2N10	
NCX2N15	NRB031-025/NRBC031-025
NCDBX2N15	
NCDPX2N15	
NCX2N25	NRB050-030/NRBC050-030
NCDBX2N25	
NCDPX2N25	

DIMENSIONS BASIC TYPE N10 SERIES NCX2



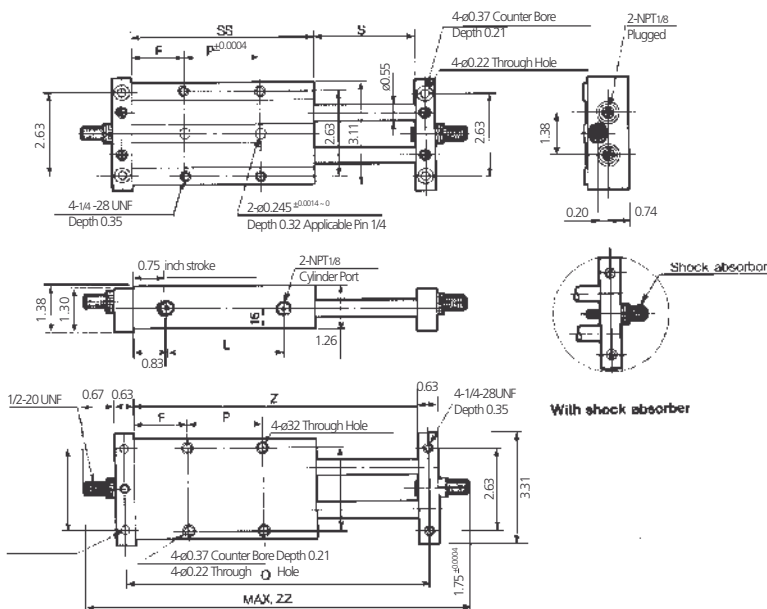
Model	F	G	L	P	Q	R	S	SS	Z	Adjust Bolt ZZ
NCX2N10-100	0.73	0.98	1.55	1.25	4.13	0.75	1.08	2.70	3.78	6.14
NCX2N10-200	1.23	1.48	2.55	1.25	6.13	0.75	2.08	3.70	5.78	8.14
NCX2N10-300	1.10	1.35	3.55	2.50	8.13	2.00	3.08	4.70	7.78	10.14
NCX2N10-400	1.60	1.85	4.55	2.50	10.13	2.00	4.08	5.70	9.78	12.14

DIMENSIONS
BASIC TYPE (N)15 SERIES NCX2



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

DIMENSIONS
BASIC TYPE (N)25 SERIES NCX2



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

CYLINDER SCALE AND PRESET OUTPUT CONTROLLER SERIES CE1

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

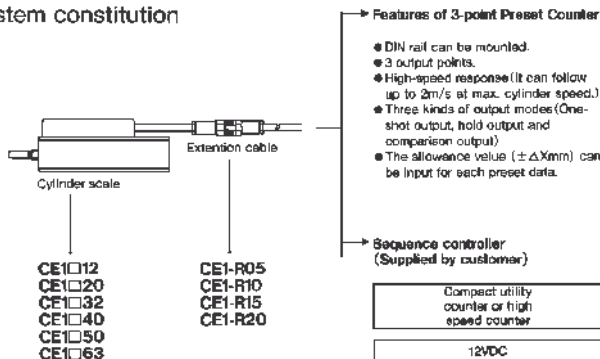
CYLINDER SPECIFICATIONS

Fluid	.....Air
Proof Pressure	.....1.5MPa / 218PSI
Max Operating Pressure	.....0.98MPa / 140PSI
Min Operating Pressure	.....$\varnothing 12$: 0.07MPa / 10PSI $\varnothing 20$ ~ $\varnothing 63$.....0.05MPa / 17PSI
Ambient and Fluid Temperature	.....5~60°C / 40~140°F
Humidity	.....25~85%RH (without dew drop)
Piston Speed	.....70 ~ 500mm/s max
Lubrication	.....Non-lube
Stroke Tolerance	.....$\varnothing 12$, $\varnothing 20$: +1.0mm, 0 $\varnothing 32$ ~ $\varnothing 63$: +1.0mm, 0
Air Cushion	.....$\varnothing 12$ ~ $\varnothing 32$: None $\varnothing 40$ ~ $\varnothing 63$: Yes
Non Rotating Accuracy	.....$\varnothing 12$: $\pm 2^\circ$ $\varnothing 20$: $\pm 1^\circ$ $\varnothing 32$ ~ $\varnothing 63$: $\pm 0.8^\circ$
Mounting	.....Both ends tapped (Standard), Foot type, .....Flange type, Double clevis type
Auto Switch	.....Reed switch, Solid state auto switch

PRESET COUNTER SPECIFICATIONS

Model	.....3-point preset counter
Mounting	.....Surface mounting (DIN rail or screwing)
Operation	.....Adding and subtracting type
Operation Mode	.....Running mode, data setting mode
Resetting	.....External resetting
Display	.....LCD (with back light)
Input	.....90° phase difference
No of Digits	.....5-digit display (-9999.9 to 9999.9)
Storage for Power Failure	.....E ² ROM (FL display after it was written at 65 thousand times of writing)
Input	.....No voltage input
Input Signal	.....Counting input, resetting signal
Resetting Input	.....RS and COM pin are short-circuited with 10 ms or above (Pulse input)
Counting Speed	.....20 Kcps
External Power Supply	.....12V \pm 10%, 60mA
Control Output	.....CEU1-D: NPN (30VDC, 50mA) .....CEU1P-D: PNP (30VDC, 50mA)
Output Mode	.....Comparison/hold/one-shot (100 ms fixed)
Supply Voltage	.....24VDC \pm 10%
Output Delay Time	.....5 ms max
Power Consumption	.....10VA
Weight	.....250g

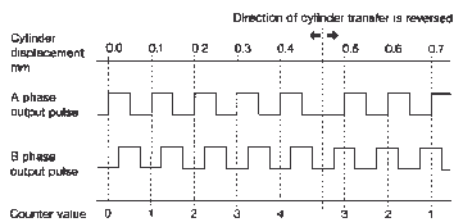
System constitution



SENSOR SPECIFICATIONS

Cable	.....7,6 cores twist
Max transmission distance	.....20m 6 cores cable
Detection method	.....Magnetic analysis by built-in magnet non-rotating piston rod
Withstand magnetic field	.....145 Gauss
Power supply	.....12VDC \pm 10% (Ripple: within 1%)
Power consumption	.....40mA
Discrimination	.....0.1mm/Pulse
Repeatability	.....0.1mm \pm 0.05mm
Output mode	.....Open collector (35VDC, 80mA)
Output signal	.....Phase A/B phase difference output
Withstand voltage	.....500VAC, 1 min. (between case and cable)
Insulation resistance	.....400VDC, 50M or more
Vibration resistance	.....33.3Hz 6.8G
Impact resistance	.....30G
Protection structure	.....IP-66 (IEC standard)

Relation between cylinder scale displacement and output pulse

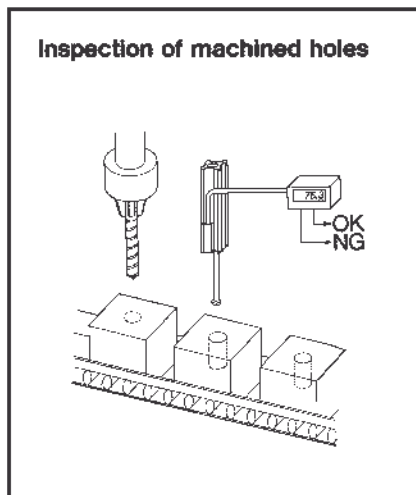
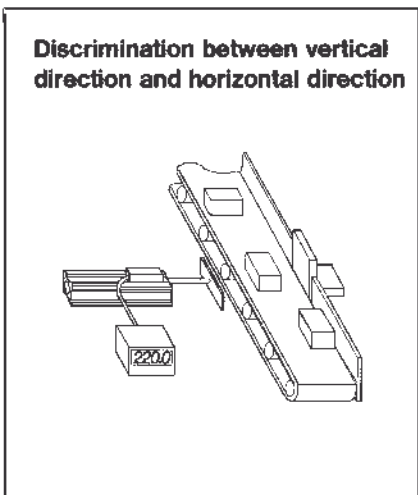
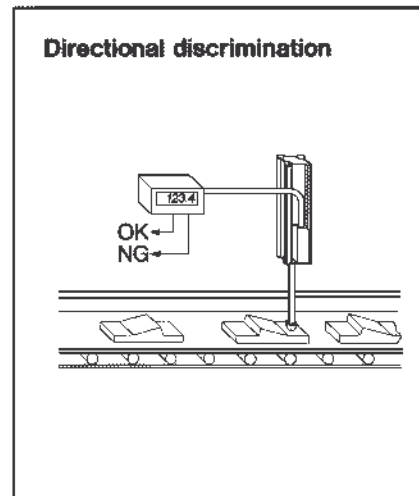
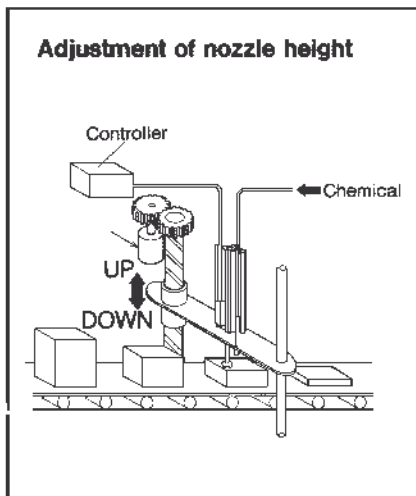
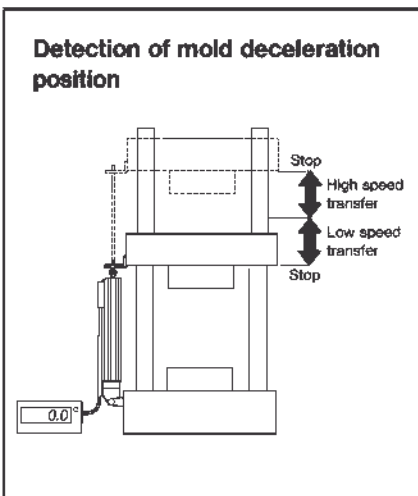
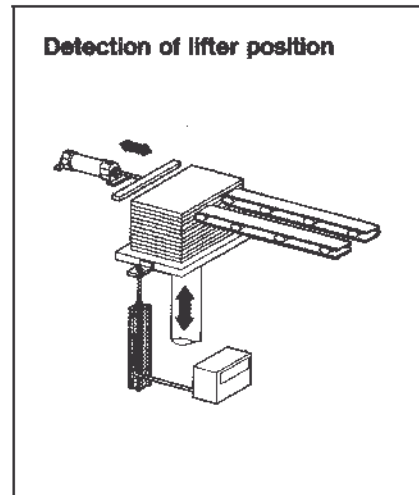
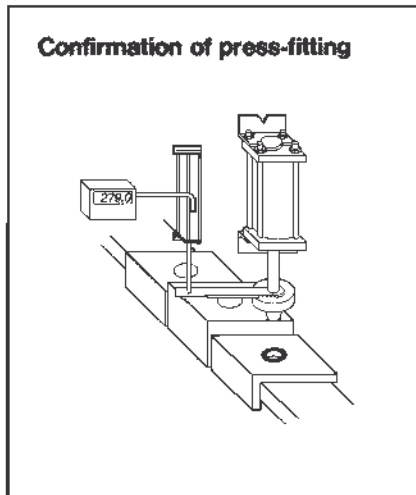
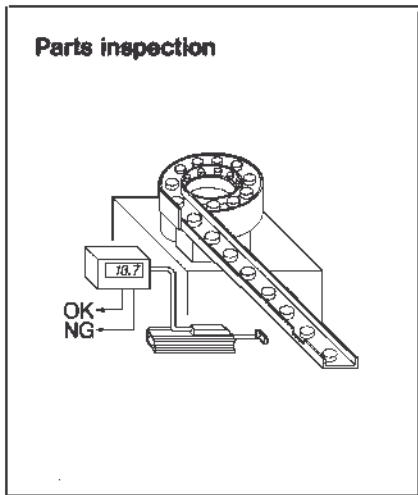


Lead wire color	Contact symbol
White	A
Blue	COM
Yellow	B
Brown	COM
Red	12V
Black, Sealed	GND

HOW TO
ORDER
SEE NEXT PAGE

APPLICATIONS
SEE NEXT PAGE

APPLICATIONS



HOW TO ORDER
CYLINDER SCALE SERIES CE1

CE1B

BORE (MM)	STROKE
12 ...Ø12	25 ...25mm
20 ...Ø20	50 ...50mm
32 ...Ø32	100 ...100mm
40 ...Ø40	200 ...200mm
50 ...Ø50	300 ...300mm
63 ...Ø63	500 ...500mm

BORE/STROKE AVAILABILITY

Ø12...25, 50, 100
 Ø20...25, 50, 100, 200
 Ø32...50, 100, 200, 300
 Ø40...100, 200, 300, 500
 Ø50...200, 300, 500
 Ø63...200, 300, 500

HOW TO ORDER
SEE NEXT PAGE

HOW TO ORDER PRESET COUNTER SERIES CEU1

CEU1 — D

CONTROL OUTPUT
Nil ...NPN Open Collector
PPNP Open Collector

ACCESSORIES AUTOSWITCHES

See Series CDQ2 in Actuators
Section of Catalog

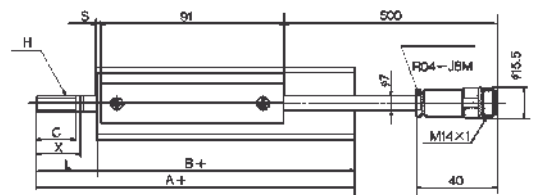
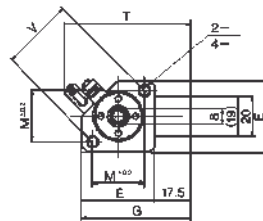
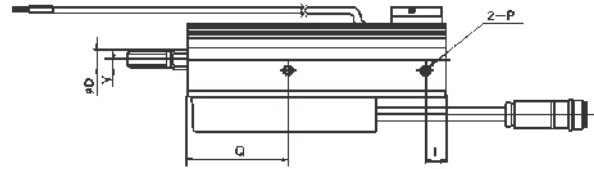
ACCESSORIES CONNECTOR AND EXTENSION CABLE

CE1-R055 meter
CE1-R1010 meter
CE1-R1515 meter
CE1-R2020 meter

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

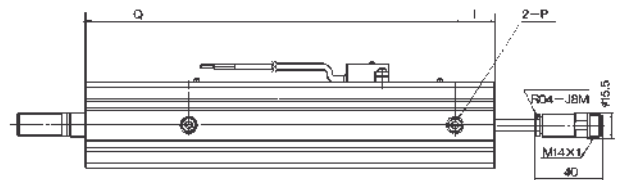
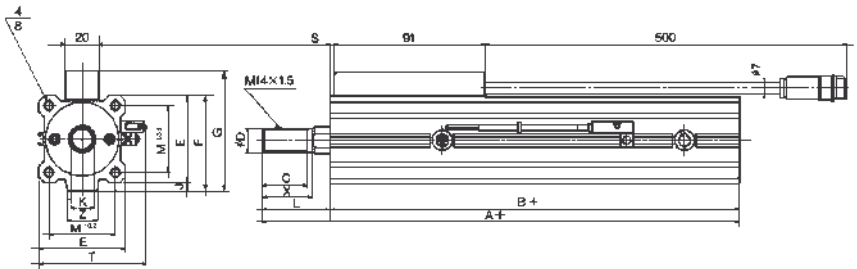
DIMENSIONS CYLINDER SCALE SERIES CE1 Ø12, Ø20



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

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

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



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 / 0mm					
	<1000mm : 1.4 / 0mm					

*For longer stroke lengths see "How to Order"

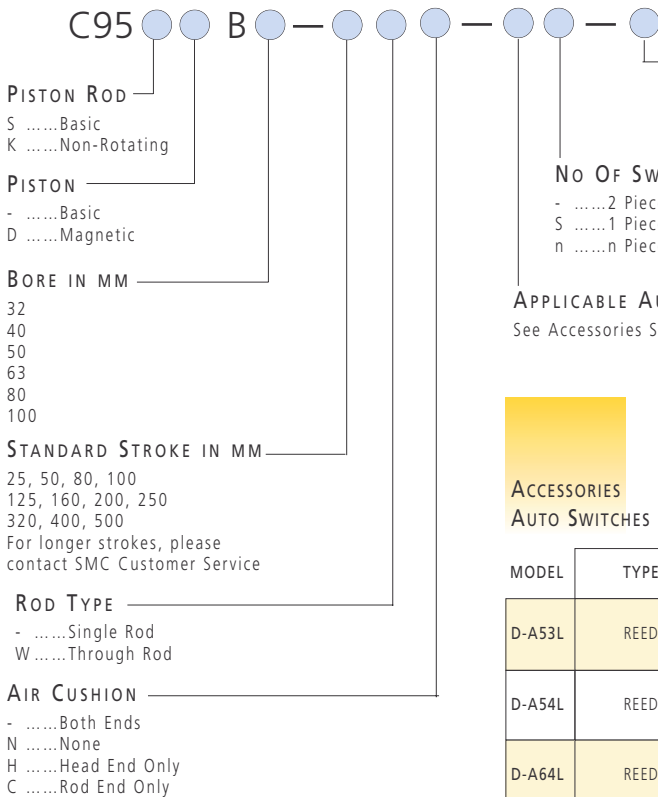
ACCESSORIES
AUTO SWITCH

TIE ROD MOUNTING BRACKETS

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

HOW TO ORDER

C95 AIR CYLINDERS

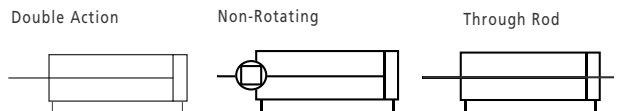


NO OF SWITCHES

-2 Pieces
- S1 Piece
- nn Pieces

APPLICABLE AUTO SWITCH
See Accessories Section

SYMBOLS



OPTION
-G Port
XC18 ...NPT Ports

MORE ACCESSORIES
SEE NEXT PAGE

DIMENSIONS
SEE NEXT PAGE

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.	E5032
40	L5040		E5040
50	L5050		E5050
63	L5063		E5063
80	L5080		E5080
100	L5100		E5100

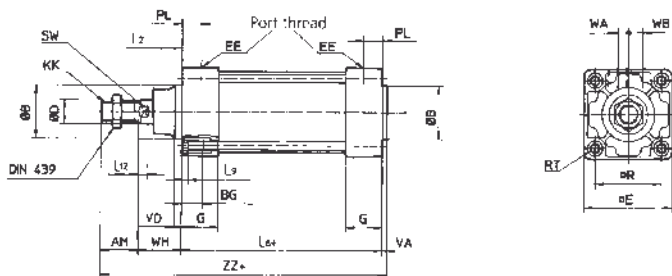
	GKM Rod Clevis	KJ Piston Rod Ball Joint	JA Floating Joint
Bore			
32	GKM10-20	KJ10DM10x1.25	JA30-10-125
40	GKM12-24	KJ12DM12x1.25	JA40-12-125
50/63	GKM16-32	KJ16DM16x1.5	JA50-16-150
80/100	GKM20-40	KJ20DM20x1.5	JAH50-20-150



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

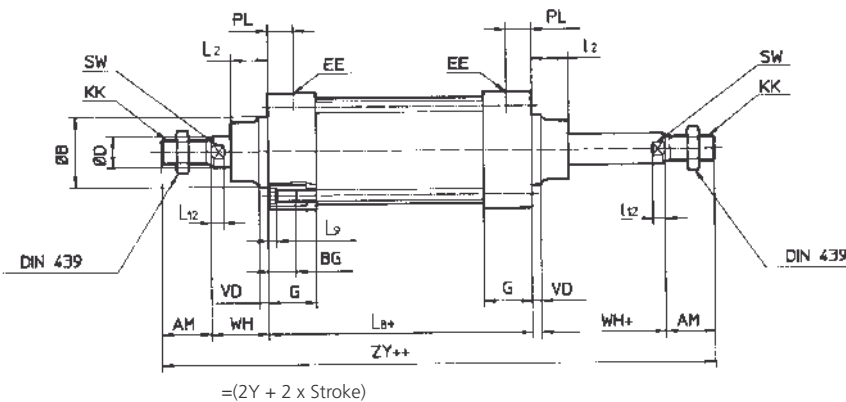
DIMENSIONS
BASIC CYLINDER



Diameter	AM	ØB	ØD	EE	PL	RT	L12	KK	SW	G	BG	∅8	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

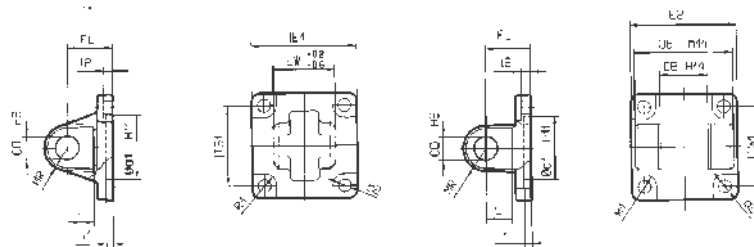
DIMENSIONS
C95SBØ-HUB - W



Diameter	AM	ØB	ØD	EE	PL	I12	KK	SW	G	BG	∅8	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

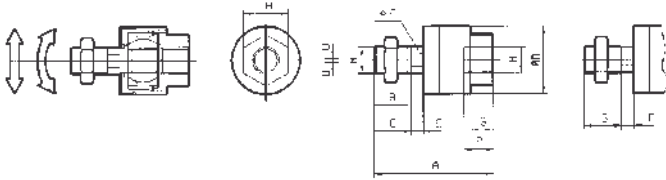


Diameter	Model No C type	Model No D type	E1	EW	TG1	FL	∅1	L	∅2	∅d1	CD	MR	d2	R1	E2	UB	CB
32	C5032	D5032	45	26	32.5	22	5	12	5.5	30	10	0.5	6.6	6.5	48	45	26
40	C5040	D5040	51	28	38	25	5	15	5.5	35	12	12	6.6	6.5	56	52	28
50	C5050	D5050	64	32	46.5	27	5	15	6.5	40	12	12	9	8.5	64	60	32
63	C5063	D5063	74	40	56.5	32	5	20	6.5	45	16	16	9	8.5	75	70	40
80	C5080	D5080	94	50	72	36	5	20	10	45	16	16	11	11	95	90	50
100	C5100	D5100	113	60	89	41	5	25	10	55	20	20	11	12	115	110	60

MORE DIMENSIONS
SEE NEXT PAGE

DIMENSIONS

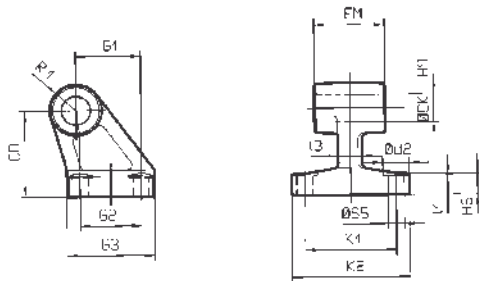
FLOATING JOINT - JA : STEEL, ZINC CHROMATE PLATED



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

DIMENSIONS

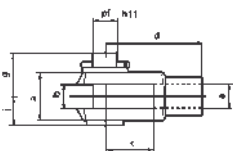
ANGLED REAR CLEVIS FOOT - E



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

DIMENSIONS

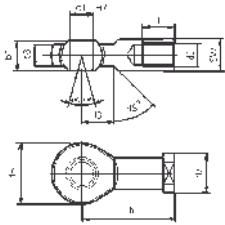
PISTON ROD CLEVIS - GKM: STEEL, ZINC CHROMATE PLATED



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

DIMENSIONS

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

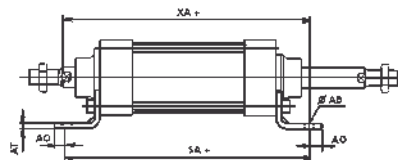
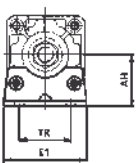


Cyl. Diameter	Model No	d3	d1	h	d6	b3	b1	l	d7	α	13	sw
32	KJ10D	M10X1.25	10	43	28	10.5	14	20	19	13°	14	17
40	KJ12D	M12X1.25	12	50	32	12	16	22	22	13°	16	19
50/63	KJ16D	M16X1.5	16	64	42	15	21	28	27	15°	26	32
80/100	KJ20D	M20X1.5	20	77	50	18	25	33	34	15°	26	32

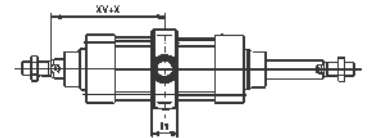
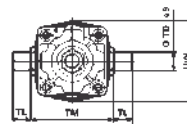
DIMENSIONS

MOUNTING ACCESSORIES

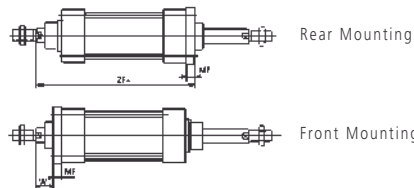
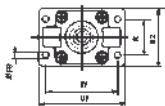
FOOT, L



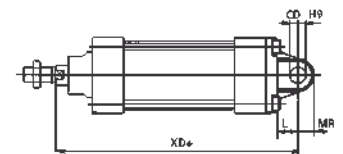
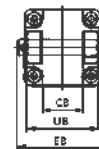
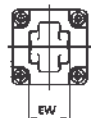
CENTRE TRUNNION, T



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

ACCESSORIES
HOW TO ORDER
MOUNTING BRACKET

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

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

ACCESSORIES
TRUNNION MOUNTING BRACKET

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

ACCESSORIES
MOUNTING PLATE (DOUBLE CLEVIS)

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

ACCESSORIES
ROTATING ANGLE

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

ACCESSORIES
HOW TO ORDER
ROD END NUT (STANDARD)

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

ACCESSORIES
HOW TO ORDER
PISTON ROD CLEVIS (DIN 71752)

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

ACCESSORIES
HOW TO ORDER
SPHERICAL ROD EYE (DIN 648)

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

ACCESSORIES
HOW TO ORDER
FLOATING JOINT

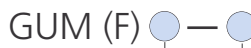
PART NUMBER	BORE SIZE (MM)
JA30-10-125	32
JA40-12-125	40
JA50-16-150	50 • 63
JAH50-20-150	80 • 100

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

GUIDE UNITS FOR SERIES C95 AIR CYLINDERS Ø32-100MM

- ✓ Ball Bush and Slide Bearing Options
- ✓ High Resistance to Side Load
- ✓ High Non-Rotating Accuracy
- ✓ Direct Mounting Facility
- ✓ Stroke Adjusting Unit Option

**HOW TO
ORDER**
GUIDE UNITS
SLIDE BEARING TYPE



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



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

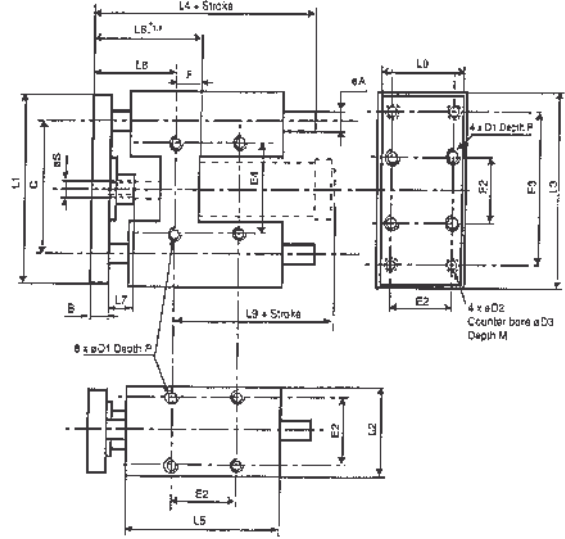
**NOTE: PART NUMBER IS FOR GUIDE UNIT ONLY, APPLICABLE
BASIC TYPE C95 CYLINDER SHOULD BE ORDERED SEPARATELY.
PLEASE CONSULT SMC CANADA CUSTOMER SERVICE.**

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 Tie Rod Mount Part	Auto Switch Mounting Bracket
32	25	BT-03	SFX415	SFX415
40	25	BT-03	SFX415	SFX415
50	25	BT-04	SFX415	SFX415
63	25	BT-04	SFX415	SFX415
80	50	BT-06	SFX416	SFX416
100	50	BT-06	SFX416	SFX416

C95 Series
VDMA 24562

Note) Add on a bracket for auto switch tie rod mounting type on Cylinder Series C95 in order to control Extended Cylinder Position.

ACCESSORIES

HOW TO ORDER

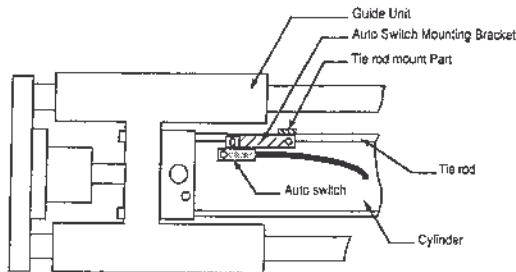
STROKE ADJUSTING UNIT (ø12 UP TO ø63)

Diameter (mm)	Cylinder	Guide Rod Length	Shock Absorber	Part Number Stroke Adjusting Unit
32	C95		RBC1412	SFY(F)133
40	Series		RBC2015	SFY(F)134
50	VDMA		RBC2015	SFY(F)135
63	24562		RBC2015	SFY(F)136

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

ACCESSORIES - DIMENSIONS

AUTO SWITCH MOUNTING BRACKET
CYLINDER SERIES C95

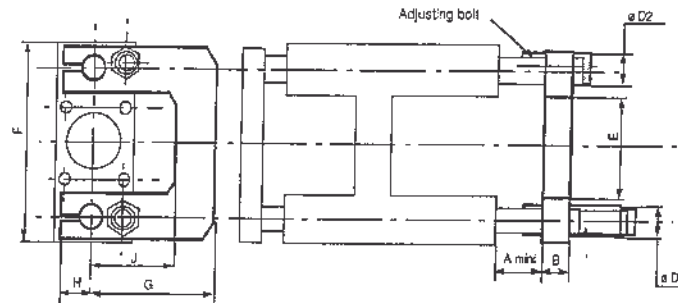


An auto switch mounting bracket will be added on the tie rod mount part to keep the accessibility of the screw to adjust the auto switch position.

PRECAUTIONS:

Minimum cylinder stroke
Cylinders ø32 up to ø63 Minimum stroke: 25mm
Cylinders ø80, ø100 Minimum stroke: 50mm

Stroke adjusting unit

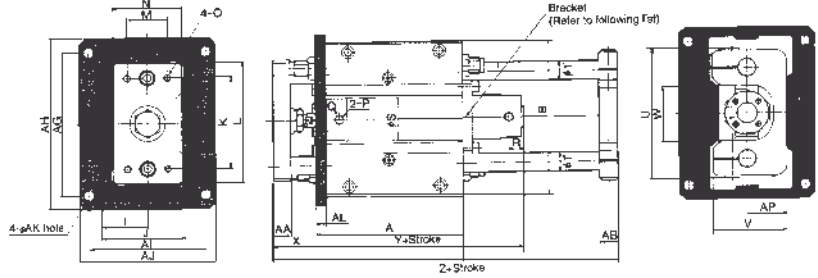


A minimum length will have to be added on for stroke adjusting unit.

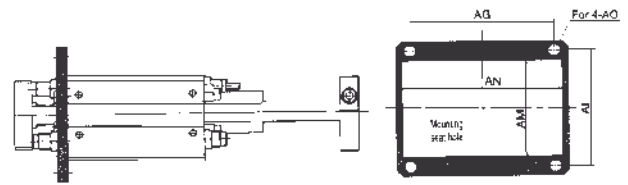
(mm)

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

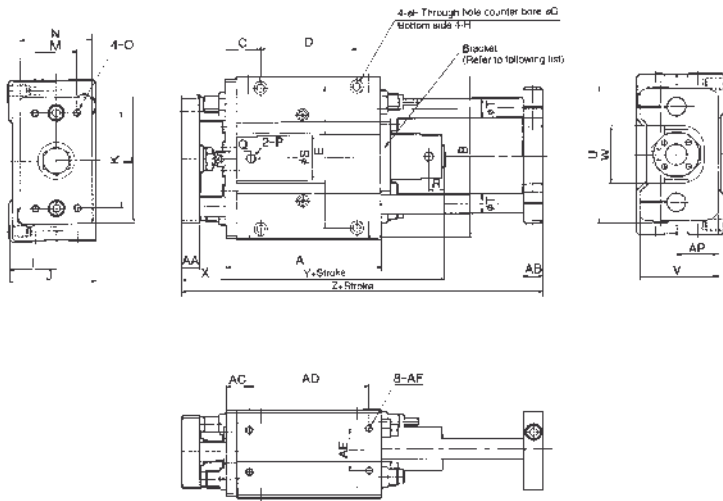
**DIMENSIONS
FLANGE MOUNT**



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		129	15	16	19	100	35	M6X1depth12	35	135	29	80	118	6.6	11depth8	M10X1.5depth18	40	73	80	106
40	75, 100,	152	18	19	22	120	40	M8X1.25 depth 16	45	170	32	100	150	9	14depth10	M12x1.75depth21	50	93	95	134
50	125, 150, 200,	182	23	21	22	150	45	M10X1.5 depth 20	50	194	37	120	170	11	17depth12	M14x2depth25	55	103	115	152
63	250, 300	200	25	25	15	170	50	M12x1.75depth24	60	228	30	140	200	13.5	20depth14.5	M16x2depth28	65	117	135	180
80		230	30	27	15	200	55	M12x1.75depth24	70	262	30	170	230	13.5	20depth20.5	M16x2depth28	75	138	160	214
100		280	32	30	17.5	245	70	M14x2depth28	80	304	35	210	274	15	23depth17	M18x2.5depth32	85	153	190	245

Bore Size (mm)	Stroke range (mm)	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
20	75, 100, 125, 150, 200	25	45	M6X1depth9	1/8	21	14	26	12	86	48	36	30	80	157
25		35	54	M6X1depth13	1/8	21	14	31	13	100	57	42	37	80	175
32		35	60	M6X2depth13	1/8	21	13	38	16	114	65	48	37	82	201
40	75, 100,	50	75	M8X1.25depth16	1/8	25	14	47	20	140	84	58	44	92	238
50	125, 150, 200,	56	90	M10X1.5depth21	1/4	26	15	58	25	164	94	70	55	104	285
63	250, 300	66	100	M12x1.75depth23	1/4	29	14	72	30	192	108	86	54	107	308
80		76	115	M12x1.75depth28	3/8	40	19	89	35	224	128	104	66	131	355
100		80	125	M14x2depth30	1/2	40	19	110	40	262	143	128	66	131	410

ACCESSORIES
AUTO SWITCHES

Applicable Cylinder and Switch Type				
			Indicator Lamp	
Bore Size (mm)	Auto Switch Model	Electrical Entry	Provided	Not Provided
Ø20, Ø25, Ø32, Ø40, Ø50	Reed Switch D-C7 type, D-C8 type, D-B5 type, D-B6 type Solid State switch D-H7 type, D-G5 type, D-K5 type	Grommet•Connector	D-C7 • B5 type D-H7 type 2 colour indication D-B59W type D-G59W type D-K59W type	D-C8 • B6 type

REED SWITCH

Type	Auto Switch No	Load Voltage	Max. Load current and load current range (mA)	Indicator lamp (Lit at ON condition)	Contact protection circuit	Applications	Lead wire entry
D-C7 type • D-C8 type	D-C73L	24VDC	5~40	•	None	Relay Sequence Controller	Grommet
D-C7 type • D-C8 type	D-C73L	100VAC	5~ 20	•	None	Relay Sequence Controller	Grommet
D-C7 type • D-C8 type	D-C76L	4 ~ 8VDC	20	•	None	IC Circuit	Grommet
D-C7 type • D-C8 type	D-C80L	24VAC/DC or less	50	None	None	IC Circuit, Relay, Sequence Controller	Grommet
D-C7 type • D-C8 type	D-C80L	48VAC/DC	40	None	None	IC Circuit, Relay, Sequence Controller	Grommet
D-C7 type • D-C8 type	D-C80L	100VAC/DC	20	None	None	IC Circuit, Relay, Sequence Controller	Grommet
D-C7 type • D-C8 type	D-C73CL	24VDC	5 ~ 40	•	None	Sequence Controller	Connector
D-C7 type • D-C8 type	D-C80CL	24VAC/DC or less	50	None	None	Relay, Sequence Controller	Connector
D-B5 type • D-B6 type	D-B54L	24VDC	5 ~ 50	•	•	Relay, Sequence Controller	Grommet
D-B5 type • D-B6 type	D-B54L	100VAC	5 ~ 25	•	•	Relay, Sequence Controller	Grommet
D-B5 type • D-B6 type	D-B54L	200VAC	5 ~ 12.5	•	•	Relay, Sequence Controller	Grommet
D-B5 type • D-B6 type	D-B53L	24VDC	5 ~ 50	•	None	Sequence Controller	Grommet
D-B5 type • D-B6 type	D-B64L	24VAC/DC or less	50	None	•	Relay, Sequence Controller	Grommet
D-B5 type • D-B6 type	D-B64L	100VAC	25	None	•	Relay, Sequence Controller	Grommet
D-B5 type • D-B6 type	D-B64L	200VAC	12.5	None	•	Relay, Sequence Controller	Grommet
D-B5 type • D-B6 type	D-B59WL	24VDC	5 ~ 40	•	•	Relay, Sequence Controller	Grommet

- Use a contact protective box (P14) for the following cases with D-C7•C8 type. (Connection 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
D-H7A type•D-G5 type	D-H7A1L	NPN	5/12/24VDC	28VDC or less	40mA or less
D-H7A type•D-G5 type	D-H7A2L	PNP	5/12/24VDC	28VDC or less	80mA or less
D-H7A type•D-G5 type	D-G59WL	NPN	5/12/24VDC	28VDC or less	40mA or less
D-H7B type•D-H7C type•D-K5 type	D-H7BL	-	-	24VDC (10-28VDC)	5 ~ 40mA
D-H7B type•D-H7C type•D-K5 type	D-H7CL	-	-	24VDC (10-28VDC)	5 ~ 40mA
D-H7B type•D-H7C type•D-K5 type	D-K59WL	-	-	24VDC (10 ~ 28VDC)	5 ~ 40 mA

	Internal Voltage Drop	Indicator Lamp (Lit at ON condition)	Applications	Lead Wire Entry
D-H7A type•D-G5 type	1.5V or less	•	IC circuit, Relay, Sequence controller	Grommet (3 wire system)
D-H7A type•D-G5 type	0.8V or less	•	IC circuit, Relay, Sequence controller	Grommet (3 wire system)
D-H7A type•D-G5 type	1.5V or less	•	IC circuit, Relay, Sequence controller	Grommet (3 wire system)
D-H7B type•D-H7C type•D-K5 type	4V or less	•	24VDC Relay, Sequence Controller	Grommet (2 wire system)
D-H7B type•D-H7C type•D-K5 type	4V or less	•	24VDC Relay, Sequence Controller	Connector (2 wire system)
D-H7B type•D-H7C type•D-K5 type	4V or less	•	24VDC Relay, Sequence controller	Grommet (2 wire system)

- Lead wire length: 0.5m (standard), 3m (option)
- * For D-G59W, D-K59W, the indicator lamp is a two colour indication system with a red light inside the sensitive region and a green light at the optimum

ACCESSORIES
SWITCH BANDS

Auto Switch Band Part Numbers					
Auto Switch Type	Bore size (mm)				
	20	25	32	40	50
D-C7/C8•D-H7 type	BMA2-020	BMA2-025	BMA2-032	BMA2-040	BMA2-050
D-B5/B6•D-G5/K5 type	BA-01	BA-02	BA-32	BA-04	BA-05

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

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

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

- ✓ Ball Bush or Slide Bearing Type
- ✓ High Resistance to Side Load
- ✓ High Non-rotating Accuracy
- ✓ Magnetic Sensing Standard
- ✓ Direct Mount Facility
- ✓ Space Saving Cylinder
- ✓ Smaller Bore Size also available
- ✓ Smaller Bore Size also available
- ✓ Through Hole Mounting
- ✓ 2 Porting Locations



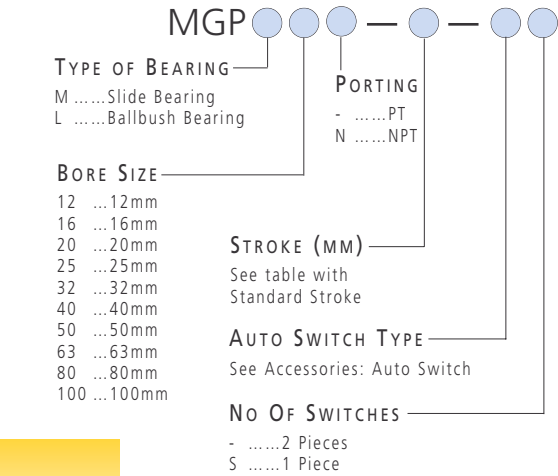
TECHNICAL SPECIFICATIONS
SERIES MGP

Action	Double Acting
Fluid	Air
Proof Pressure	1.5MPa / 218PSI
Max Operating Pressure	1.0MPa / 145PSI
Min Operating Pressure	ø12, ø16: 0.12MPa / 17.4PSI ø20-ø100: 0.1MPa / 14.5PSI
Ambient and Fluid Temp	-10 ~ +60°C / 14 ~ 140°F
Operating Piston Speed	ø12-ø63: 50-500mm/s / 2-20in/s ø80, ø100: 50-400mm/s / 2-16in/s
Cushion	Rubber Bumper - both ends
Lubrication	Not Required
Stroke Tolerance	0 ~ 1.5mm

HOW TO ORDER
COMPACT GUIDE CYLINDER

LOAD DATA
PERMISSIBLE
LATERAL
LOAD

W (N) 1N = 0.102kgf

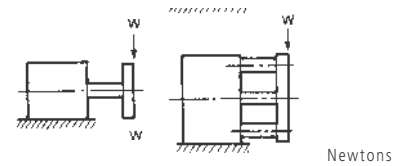


ACCESSORIES
AUTO SWITCHES SERIES MGP

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

Auto Switch Model No	Electrical Entry Direction	Type	Special Function	Electrical Entry	Indicator	Wiring (Output)	Lead voltage	
							DC	AC
-	Perpendicular	Reed Switch	-	Grommet	Available	3 Wire	-	5V
-	Inline						-	100V
-	-						24V	5V 12V or less
D-Y69A	D-Y59A	Solid State Switch	Diagnostic Indication (2 Color Indication)	Grommet	Available	3 Wire NPN	5V	-
D-Y69B	D-Y59B						12V	
D-Y7NWW	D-Y7NW						24V	
D-Y7PWW	D-Y7PW						5V	
D-Y7BWW	D-Y7BW						12V	
-	D-Y7BAL	Water Resistant (2 Color Indication)	2 Wire	12V				

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)

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	

DIMENSIONS
SEE NEXT PAGE

DIMENSIONS

SERIES MGP COMMON DIMENSIONS FOR MGPL & MGPM

Bore Size (mm)	B	C	DA	FA	FB	G	GA	GB	GC	H	HA	J	JA	JB	K	L	MM	ML	NN	OA	OB	OL
12	42	29	6	8	5	26	11	7.5	-	58	M4	13	-	-	13	18	M4x0.7	10	M4x0.7	4.3	8	4.5
16	46	33	8	8	5	30	11	8	-	64	M4	15	-	-	15	22	M5x0.8	12	M5x0.8	4.3	8	4.5
20	53	37	10	10	6	36	10.5	8.5	-	83	M5	18	-	-	18	24	M5x0.8	13	M5x0.8	5.6	9.5	5.5
25	53.5	37.5	12	10	6	42	11.5	9	-	93	M5	21	-	-	21	30	M6x1.0	15	M6x1.0	5.6	9.5	5.5
32	59.5	37.5	16	12	10	48	12.5	9	12.5	112	M6	24	-	-	24	34	M8x1.25	20	M8x1.25	6.6	11	7.5
40	66	44	16	12	10	54	14	10	14	120	M6	27	-	-	27	40	M8x1.25	20	M8x1.25	6.6	11	7.5
50	72	44	20	16	12	64	14	11	12	148	M8	32	-	-	32	46	M10x1.5	22	M10x1.5	8.6	14	9
63	77	49	20	16	12	78	16.5	13.5	16.5	162	M10	39	-	-	39	58	M10x1.5	22	M10x1.5	8.6	14	9
80	96.5	56.5	25	22	18	91.5	19	15.5	14.5	202	M12	45.5	38	7.5	46	54	M12x1.75	30	M12x1.75	10.6	17.5	8
100	116	66	30	25	25	111.5	23	19	18	240	M14	55.5	45	10.5	56	62	M14x2.0	32	M14x2.0	12.5	20	8

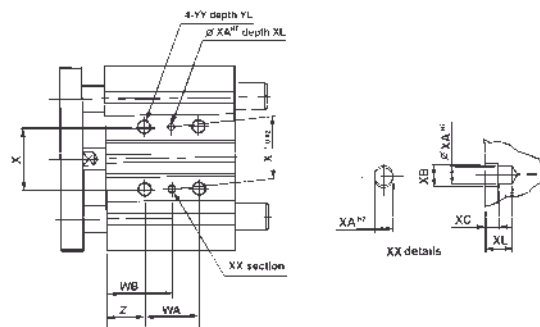
Bore Size (mm)	P	PA	PB	PW	Q	R	S	T	U	VA	VB	X	XA	XB	XC	XL	YL	YY	Z
12	M5x0.8	13	8	18	14	48	22	56	41	50	37	23	3	3.5	3	6	10	M5x0.8	5
16	M15x0.8	15	10	19	16	54	25	62	46	56	38	24	3	3.5	3	6	10	M5x0.8	5
20	Rc1/8	12.5	10.5	25	18	70	30	81	54	72	44	28	3	3.5	3	6	12	M6x1.0	17
25	Rc1/8	12.5	13.5	28.5	26	78	38	91	64	82	50	34	4	4.5	3	6	12	M6x1.0	17
32	Rc1/8	7	15	34	30	96	44	110	78	98	63	42	4	4.5	3	6	16	M8x1.25	21
40	Rc1/8	13	18	38	30	104	44	118	86	106	72	50	4	4.5	3	6	16	M8x1.25	22
50	Rc1/4	9	21.5	47	40	130	60	146	110	130	92	66	5	6	4	8	20	M10x1.5	24
63	Rc1/4	14	28	55	50	130	70	158	124	142	110	80	5	6	4	8	20	M10x1.5	24
80	Rc3/8	14.5	25.5	74	52	174	75	198	156	180	140	100	6	7	5	10	24	M12x1.75	28
100	Rc3/8	17.5	32.5	89	64	210	90	236	188	210	166	124	6	7	5	10	28	M14x2	11

DIMENSIONS

SERIES MGP $\phi 12 \sim \phi 25$

MGPM $\phi 12 \sim \phi 25$

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

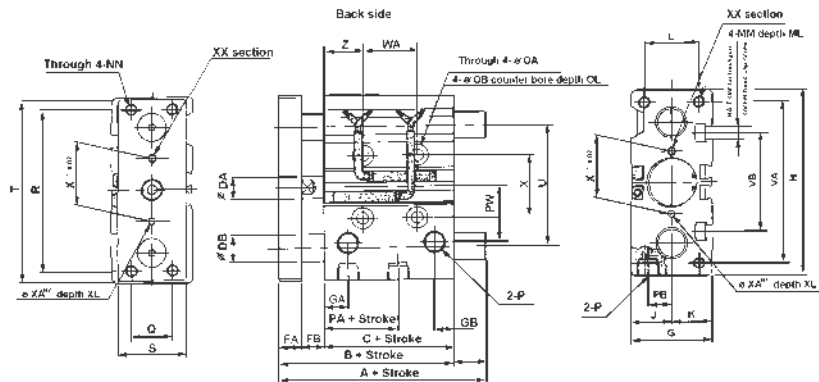


MGPM (Slide Bearing) Dimensions A, DB, E

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

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

Bore Size (mm)	A			DB	E		
	Under 30st	>30st <100st	Over 100st		Under 30st	Over 30st Under 100st	Over 100st
12	43	55	-	6	1	13	-
16	49	65	-	8	3	19	-
20	63	80	108	10	10	27	51
25	63.5	85.5	108.5	13	16	32	51



DIMENSIONS
 SERIES MGP $\phi 32 \sim \phi 63$

MGP $\phi 32 \sim \phi 63$

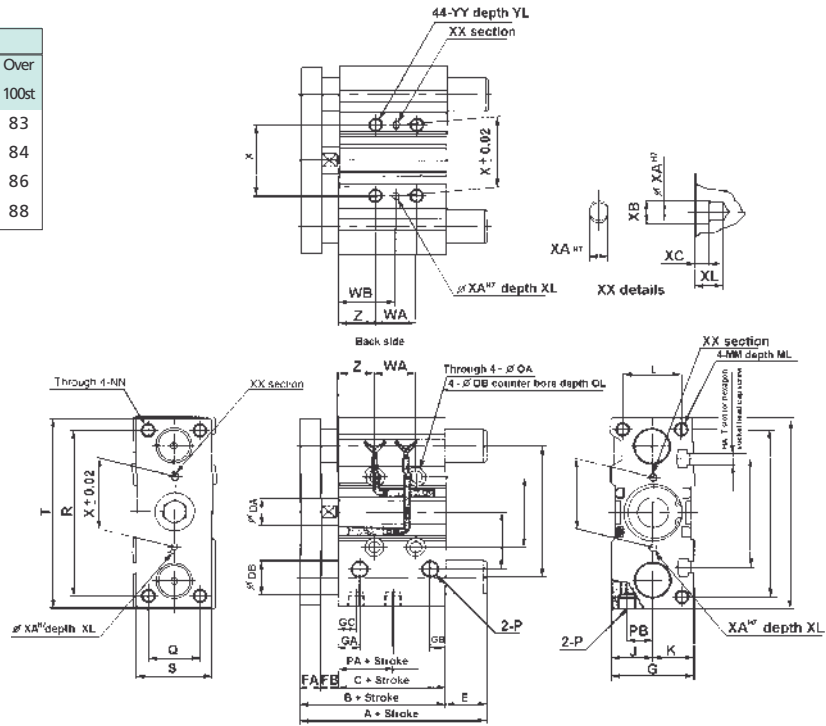
Bore Size (mm)	Standard Stroke (mm)	WA			WB		
		25st	50, 75, 100st	Over 100st	25st	50, 75, 100st	Over 100st
32	25, 50, 75, 100, 125, 150, 175, 200	24	48	124	33	45	83
40		24	48	124	34	46	84
50		24	48	124	36	48	86
63		28	52	128	38	50	88

MGPM (Slide Bearing) Dimensions A, DB, E

Bore Size (mm)	A		DB	E	
	25, 50st	Over 50st		25, 50st	Over 50st
32	97	102	20	37.5	42.5
40	97	102	20	31	36
50	106.5	118	25	34.5	46
63	106.5	118	25	29.5	41

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

Bore Size (mm)	A			DB	E		
	25, 50st	75, 100st	Over 100st		25, 50st	75, 100st	Over 100st
32	81	98	118	16	21.5	38.5	58.5
40	81	98	118	16	15	32	52
50	93	114	134	20	21	42	62
63	93	114	134	20	16	37	57



DIMENSIONS
 SERIES MGP $\phi 80 \sim \phi 100$

MGP $\phi 80 \sim \phi 100$

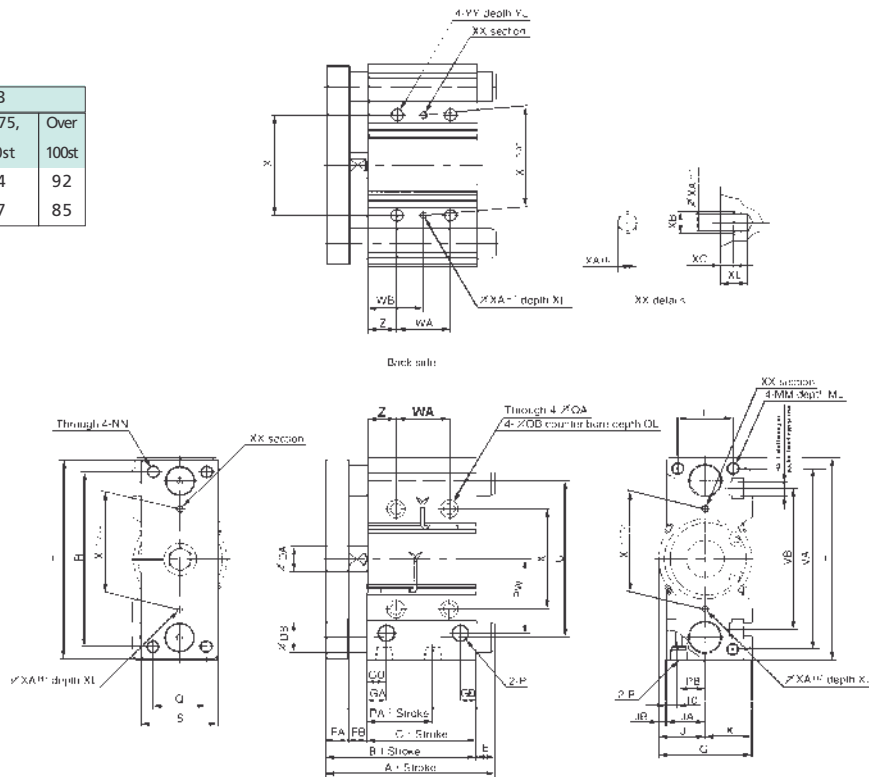
Bore Size (mm)	Standard Stroke (mm)	WA			WB		
		25st	50, 75, 100st	Over 100st	25st	50, 75, 100st	Over 100st
80	25, 50, 75, 100, 125, 150, 175, 200	28	52	128	42	54	92
100		48	72	148	35	47	85

MGPM (Slide Bearing) Dimensions A, DB, E

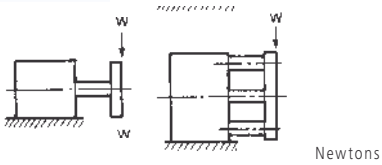
Bore Size (mm)	A		DB	E	
	25, 50st	Over 50st		25, 50st	Over 50st
80	115	142	30	18.5	45.5
100	137	162	36	21	46

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

Bore Size (mm)	A			DB	E		
	25st	50st	75st		25st	50st	75st
80	109.5	130	160	25	13	33.5	63.5
100	121	147	180	30	5	31	64



LOAD DATA



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)

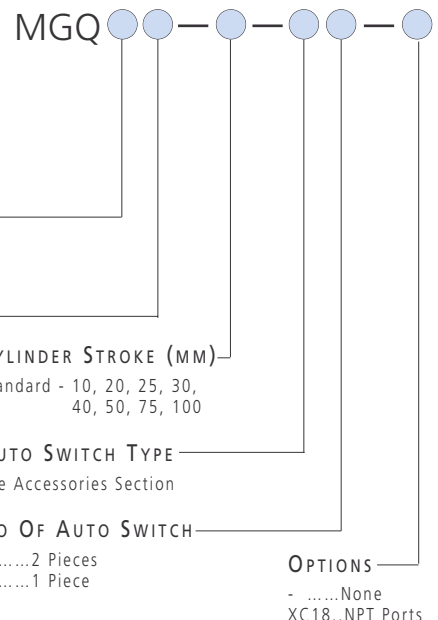
ACCESSORIES AUTOSWITCHES

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	Part No Connector type						
D-Z73L	Reed	24VDC 100VAC	5~40mA 5~20mA		Max 2.4V	ON:RED LED	3m
D-Z80L	Reed	24VDC/AC or less 100VDC/AC	Max 50mA Max 20mA			None	3m
D-Y59AL	3 Wire Solid State NPN	28VDC or less	Max 150mA	5~28VDC	0.8V Max	ON:RED LED	3m
D-Y7PL	3 Wire Solid State PNP	28VDC or less	Max 100mA	5~28VDC	0.8V Max	ON:RED LED	3m
D-Y59BL	2 Wire Solid State	28VDC or less	5~150mA		3V Max	ON:RED LED	3m

HOW TO ORDER COMPACT GUIDE CYLINDER



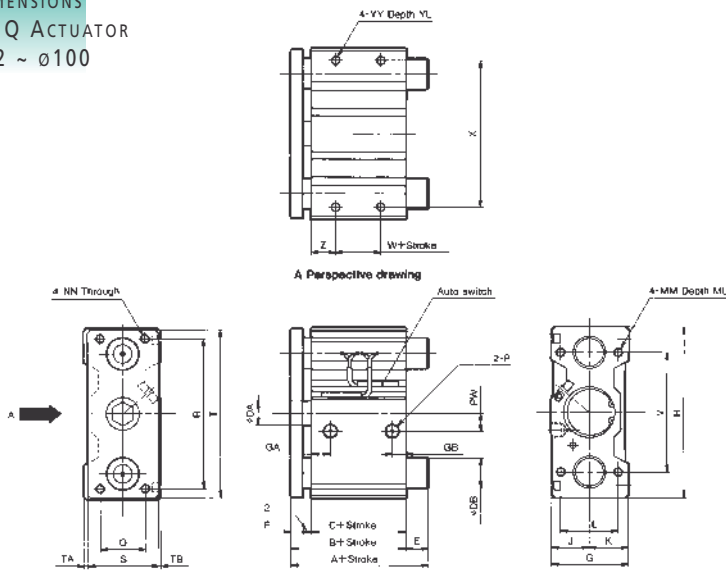
TECHNICAL SPECIFICATIONS

MODEL / STANDARD STROKE TABLE SERIES MGQ

Model	Type Of Bearing	Model, Bore Size (mm)	Standard Stroke (mm)
MGQM	Slide Bearing	MGQ _L 12, 16	10, 20, 30, 40, 50
MGQL	Ball Bush Bearing	MGQ _L 20, 25	20, 30, 40, 50, 75, 100
		MGQ _L 32, 40, 50, 63, 80, 100	25, 50, 75, 100

• Intermediate Stroke
As to intermediate stroke (5, 10, 15, 20, 30, 35,) spacer of 5, 10, 15, 20mm width will be used.

DIMENSIONS
MGQ ACTUATOR
ø32 ~ ø100



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

MGQL (BALL BUSH BEARING)

Bore size	A		DB	E	
	25,50st	75,100st		25,50st	75,100st
32	53	90	16	5.5	42.5
40	54	90	16	0	36
50	60	102	20	4	46
63	61	102	20	0	41
80	84	143	25	9.5	68.5
100	89	153	30	5	69

Other dimensions are the same as for slide bearing.

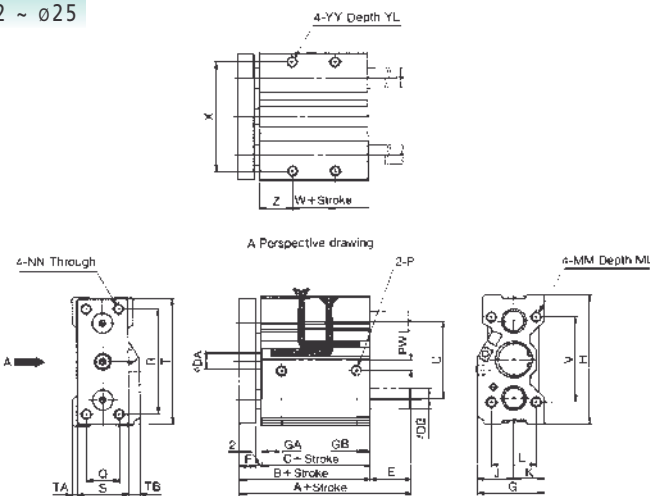
MGQM (SLIDE BEARING)

Bore Size (mm)	A	DB	E
32	71.5	20	24
40	71.5	20	17.5
50	81	25	25
63	81	25	20
80	93	28	18.5
100	105	36	21

Bore size	A	B	C	DA	DB	E	F	G	GA	GB	H	J	K	L	MM	ML	NN	P	PW
12	39	39	29	6	8	0	8	29	11	7.5	58	16	13	18	M4 x 0.7	10	M4 x 0.7	M5	7
16	43	43	33	8	10	0	8	33	11	8	64	18	15	22	M5 x 0.8	13	M5 x 0.8	M5	5
20	47	47	37	10	12	0	8	36	10.5	8.5	74	19	17	26	M5 x 0.8	13	M5 x 0.8	1/8	7
25	47.5	47.5	37.5	12	16	0	8	42	11.5	9	88	21	21	32	M6 x 1.0	15	M6 x 1.0	1/8	8
32	71.5	47.5	37.5	16	20	24	8	51	12.5	9	114	25	26	38	M8 x 1.25	16	M8 x 1.25	1/8	15
40	71.5	54	44	16	20	17.5	8	51	14	10	124	25	26	38	M8 x 1.25	16	M8x1.25	1/8	21
50	81	56	44	20	25	25	10	59	14	11	140	29	30	44	M10 x 1.5	20	M10 x 1.5	1/4	27
63	81	61	49	20	25	20	10	72	16.5	13.5	150	35.5	36.5	44	M10 x 1.5	20	M10 x 1.5	1/4	33
80	93	74.5	56.5	25	28	18.5	16	92	19	15.5	188	45.5	46.5	56	M12 x 1.75	24	M12 x 1.75	3/8	37
100	105	84	66	30	36	21	16	112	23	19	224	55.5	56.5	62	M14 x 2	28	M14 x 2	3/8	40

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

DIMENSIONS
MGQ ACTUATOR
ø12 ~ ø25



MGQM (Slide Bearing) ø12 ~ ø25

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

MGQL (Ball Bush Bearing) ø12 ~ ø25

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

SERIES NCY2 RODLESS CYLINDER

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



TECHNICAL SPECIFICATIONS
BASIC TYPE NCY2B

MADE IN CANADA

MADE IN USA

Media	Air
Test Pressure	1MPa / 152 PSI
Max Operating Pressure	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 Cushion at both ends
Lubrication	Not Required
Stroke Tolerance (mm)	0 ~ 9.9st: $^{+0.394}$, 10 ~ 39.4st: $^{+0.55}$, 39.5st ~ : $^{+0.7}$
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

HOW TO ORDER
NCY2B RODLESS CYLINDER

NCY2 B

TYPE

BBasic

BORE (MM)

61/4"
103/8"
155/8"
251"
321 1/4"
401 1/2"

MAGNETIC HOLDING POWER

HHeavy Duty

OPTIONS

X116Air Hydro
XB13Low Speed

STROKE 1/100TH OF AN INCH

STROKE (INCH)

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

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.

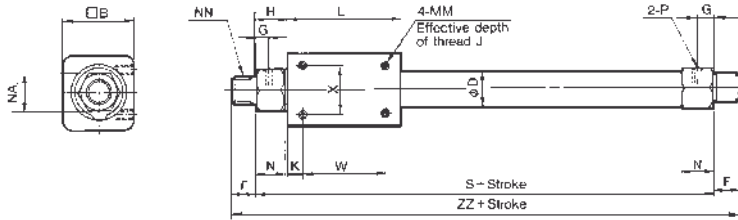
ACCESSORIES
NCY2 RODLESS CYLINDER

- 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)

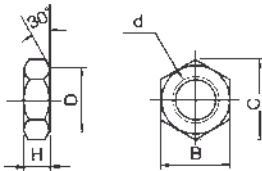
Note: Avoid using an intermediate stop to prevent the Magnetic Piston from de-coupling

DIMENSIONS
 NCY2B6•10•15



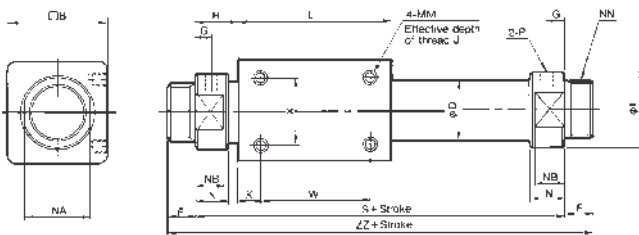
Model	Stroke Range	øD	QB	F	G	H	K	L	N	NA	MM	J	NN	P	S	W	X	ZZ
NCY2B6	~12 inch	0.30	0.67	0.37	0.20	0.56	0.19	1.38	0.41	0.55	No 5-40UNC	0.16	3/8-24 UNF	No 10-32 UNF	2.50	1.00	0.39	3.24
NCY2B10	~20 inch	0.47	0.98	0.37	0.20	0.50	0.19	1.50	0.44	0.55	No 5-40UNC	0.18	3/8-24 UNF	No 10-32 UNF	2.50	1.13	0.63	3.24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



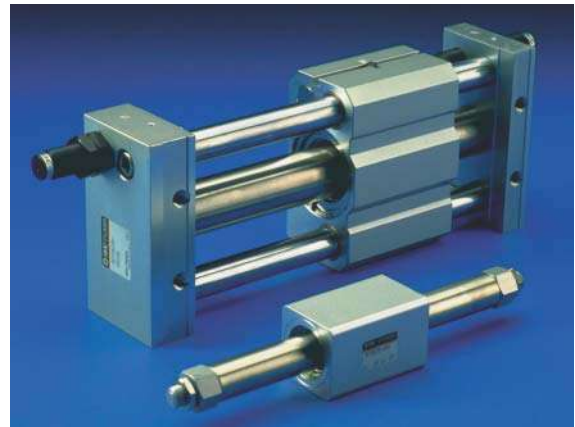
Model	Stroke Range	øD	QB	F	G	H	øI	K	L	N	NA	NB	MM	J	NN	P	S	W	X	ZZ
NCY2B25	~80 inch	1.09	1.81	0.50	0.31	0.81	1.34	0.38	2.76	0.59	1.18	0.51	No 10-32UNC	0.31	1-12 UNF	NPT 1/8	4.38	2.00	1.25	5.38
NCY2B32	~80 inch	1.38	2.36	0.63	0.35	0.87	1.58	0.51	3.15	0.67	1.42	0.59	1/4-28 UNC	0.31	1-12 UNF	NPT 1/8	4.88	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 BEARING TYPE NCY2S



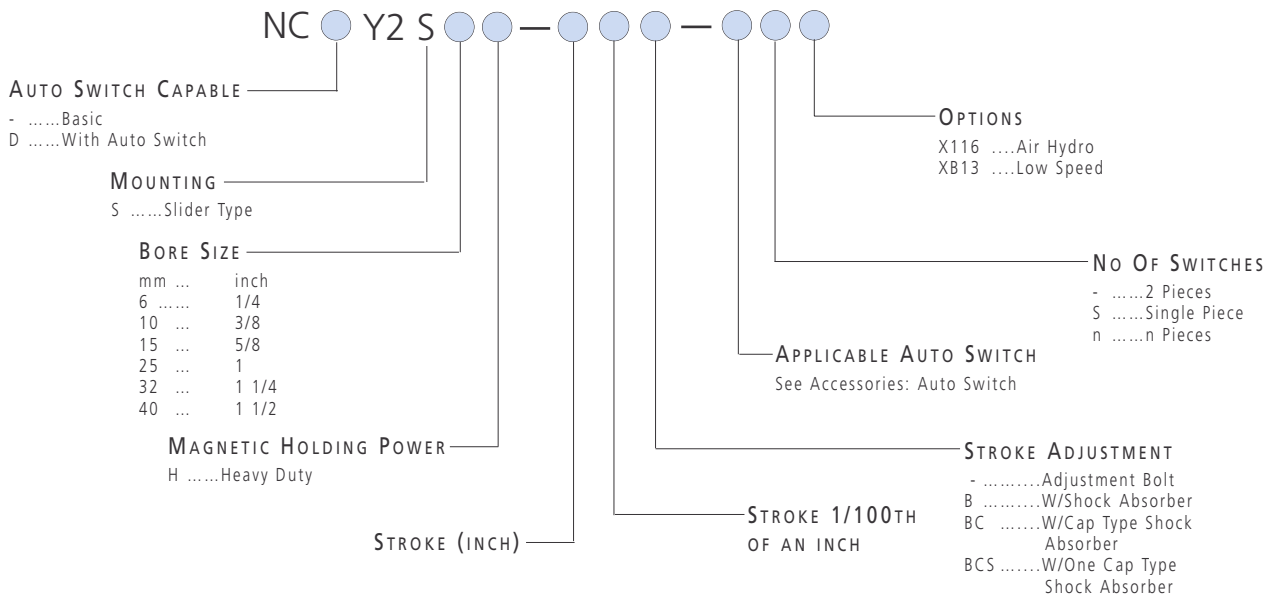
Fluid	Air
Proof Pressure	1.05MPa / 152 PSI
Max Operating Pressure	0.7MPa / 101 PSI
Min Operating Pressure	0.18MPa / 26 PSI
Ambient and Fluid Temp	-10 ~ 60°C / 14 ~ 140°F
Operating Piston Speed	50 ~ 400mm/s / 2 ~ 16 in/sec
Cushion	Urethane Cushion at both ends
Lubrication	Not required
Stroke Tolerance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



Top: NCY2 Slide Bearing Type
Bottom: NCY2 Basic Type

HOW TO ORDER

NCY2S MAGNETICALLY COUPLED RODLESS CYLINDER



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

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

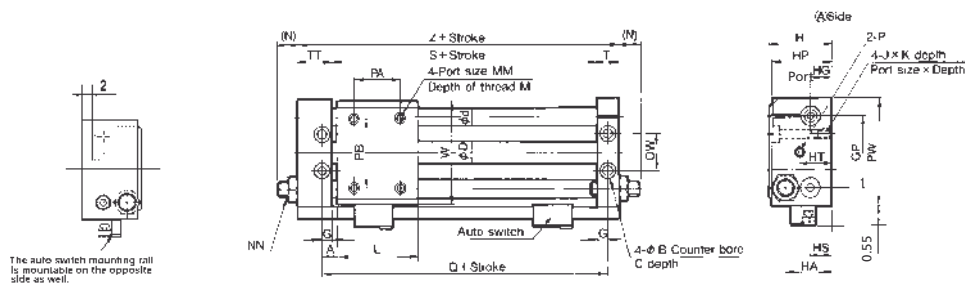
Seal Kits		Shock Absorber	
ø6	CY2S6-PS	ø6	NRB37-025
ø10	CY2S10-PS	ø10	NRB37-025
ø15	CY2S15-PS	ø15	NRB50-030
ø25	CY2S25-PS	ø25	NRB56-045
ø32	CY2S32-PS	ø32	NRB75-045
ø40	CY2S40-PS	ø40	NRB75-045

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 100VAC	5 ~ 40 mA 5 ~ 20mA
D-A76H	Reed	4 ~ 8 VDC	20mA
D-A80, D-A80H	Reed	24VAC/DC or less 48AC/DC 100VAC/DC	50mA 40mA 20mA
D-A73C	Reed	24VDC	5 ~ 40 mA
D-A-80C	Reed	24VAC/DC or less	50mA
D-F79	3 Wire Solid State NPN	28VDC or less	40mA or less
D-F7P	3 Wire Solid State PNP	-	80mA or less
D-J79	2 Wire Solid State	24VDC (10~28VDC)	5 ~ 40mA
D-F7NV	3 Wire Solid State NPN	28VDC or less	40mA or less
D-F7PV	3 Wire Solid State PNP	-	80mA or less
D-F7BV	2 Wire Solid State	24VDC (10~28VDC)	5 ~ 40mA
D-F7PW	3 Wire Solid State PNP	-	80mA or less
D-J79W	2 Wire Solid State	24VDC (10~28VDC)	5 ~ 40mA
D-F7BAL	2 Wire Solid State	24VDC (10~28VDC)	5 ~ 40mA
D-J79C	2 Wire Solid State	24VDC (10~28VDC)	5 ~ 40mA
D-F7LF	4 Wire Solid State NPN	26VDC or less	40mA or less
D-F79F	4 Wire Solid State NPN	28VDC or less	40mA or less
D-F7NTL	3 Wire Solid State NPN	28VDC or less	80mA or less

DIMENSIONS
NC(D)Y2S 6 • 10

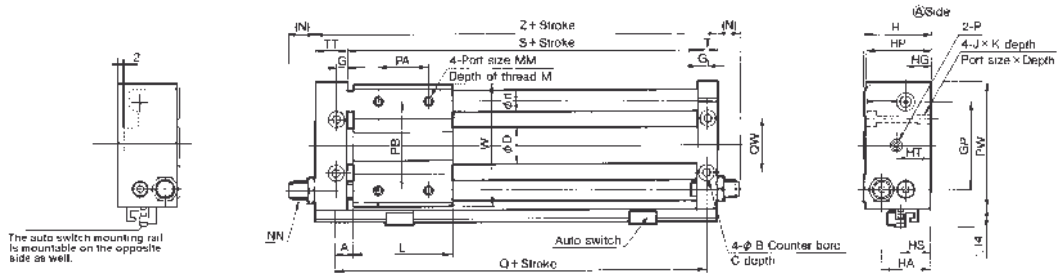


Model	Stroke Range	A	øB	C	øD	ød	G	GP	H	HA	HG	HP	HS	HT	J x K	L	LD	M	MM	(N)	NN
NCY2S6 NCDY2S6	~12 inch	0.26	0.26	0.13	0.30	0.31	0.20	1.26	1.06	0.75	0.31	1.02	0.31	0.67	No8-32UNCx0.26	1.57	.14	0.24	No8-32UNC	0.35	3/8-32UNEF
NCY2S10 NCDY2S10	~20 inch	0.31	0.31	0.17	0.47	0.39	0.26	1.57	1.37	1.00	0.51	1.30	0.55	0.74	No10-32UNF x 0.37	1.77	.17	0.24	No8-32UNC	0.37	3/8-32UNEF

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

DIMENSIONS

NC(D)Y2S 15 • 25 • 32 • 40



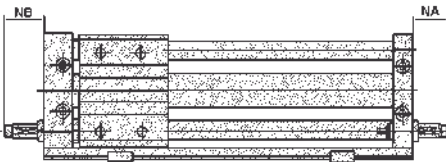
The auto switch mounting rail is mountable on the opposite side as well.

Model	Stroke Range	A	øB	C	øD	ød	G	GP	H	HA	HG	HP	HS	HT	J x K	L	LD	M	MM	(N)	NN
NC(D)Y2S15	~30 inch	0.32	0.38	0.20	0.65	0.47	0.26	2.05	1.63	1.14	0.56	1.54	0.59	0.88	1/4-28UNFx0.37	2.36	.22	0.31	No10-32UNF	0.28	1/2-20UNF
NC(D)Y2S25	~60 inch	0.37	0.44	0.26	1.04	0.63	0.33	2.76	2.13	1.57	0.79	2.09	0.91	0.79	5/16-24UNFx0.39	2.76	.28	0.39	1/4-28UNF	0.46	9/16-18UNF
NC(D)Y2S32	~60 inch	0.45	0.55	0.31	1.32	0.79	0.37	3.39	2.63	1.97	0.97	2.52	1.06	0.97	3/8-24UNFx0.59	3.35	.34	0.47	5/16-24UNF	0.50	3/4-16UNF
NC(D)Y2S40	~60 inch	0.51	0.55	0.31	1.64	0.98	0.41	4.09	3.00	2.05	0.99	2.91	1.18	0.99	3/8-24UNFx0.59	3.74	.34	0.47	5/16-24UNF	0.39	3/4-16UNF

Model	P	*PA	PB	PW	Q	QW	S	T	TT	W	Z
NC(D)Y2S15	No10-32UNF	1.25	2.00	2.95	3.00	1.13	2.48	0.49	0.89	2.83	3.86
NC(D)Y2S25	NPT 1/8	1.50	2.75	3.94	3.50	1.63	2.84	0.65	1.00	3.82	4.57
NC(D)Y2S32	NPT 1/8	1.63	3.00	4.80	4.25	2.00	3.51	0.73	1.12	4.69	5.36
NC(D)Y2S40	NPT 1/4	2.50	4.13	5.71	4.75	2.50	3.93	0.81	1.40	5.59	6.14

DIMENSIONS

NCY2S SLIDE BEARING TYPE WITH SHOCK ABSORBER NRB

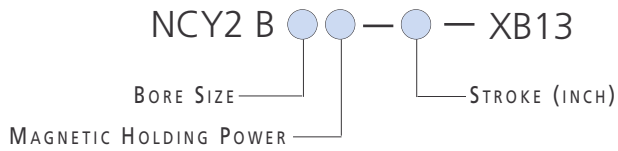


Type	Applicable Shock Absorber	NA	NB
NCQY2S6	NRB37-025	30	24
NCQY2S10		27	19
NCQY2S15	NRB50-030	33	23
NCQY2S25	NRB56-045	49	40
NCQY2S32	NRB75-045	48	38
NCQY2S40		47	32

See "Shock Absorber" in CAT:N371 for details

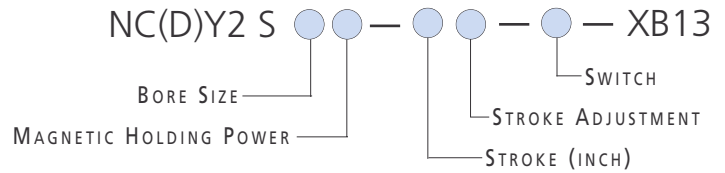
HOW TO ORDER
SERIES NCY2

BASIC TYPE - LOW SPEED RODLESS CYLINDER - OPTION



HOW TO ORDER
SERIES NCY2

SLIDER TYPE - LOW SPEED RODLESS CYLINDER - OPTION



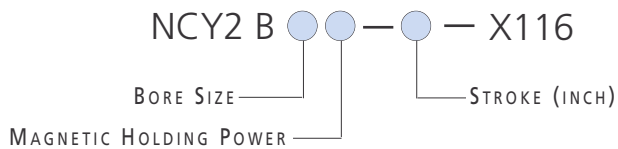
TECHNICAL SPECIFICATIONS

BASIC TYPE - XB13 OPTION SERIES NCY2

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

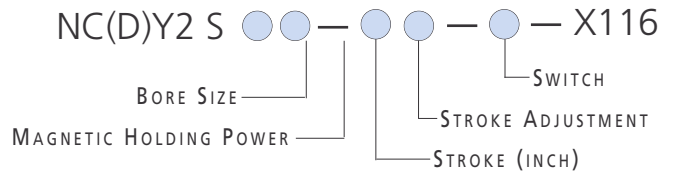
HOW TO ORDER
SERIES NCY2

BASIC TYPE - AIR HYDRO RODLESS CYLINDER - OPTION



HOW TO ORDER
SERIES NCY2

SLIDER TYPE - AIR HYDRO RODLESS CYLINDER - OPTION



TECHNICAL SPECIFICATIONS

BASIC TYPE - X116 OPTION SERIES NCY2

Type	Basic Type / Slider Type
Bore Size (mm)	ø25 ~ ø40
Fluid	Hydraulic Fluid
Piston Speed	15 ~ 300mm/s

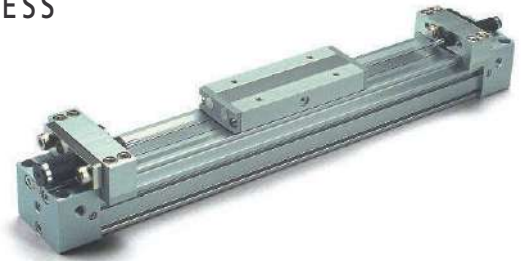
Model	HT	P	Restriction Diameter
NCY2S25	20	Rc(PT)1	7.5
NCY2S32	24		
NCY2S40	25	Rc(PT)1/4	10

See Technical Drawing in CAT:330



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

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



TECHNICAL SPECIFICATIONS

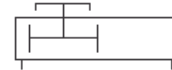
Bore Size (mm)	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100	
Fluid	Filtered, Non-lubricated Air									
Operation type	Double Acting Type									
Operating pressure	0.1 ~ 0.8 MPa / 14.5 ~ 16PSI									
Proof pressure	1.2MPa / 175PSI									
Ambient & fluid temp	5 ~ 60°C / 40 ~ 140°F									
Operating piston speed	100 ~ 1500 mm/s / 4 ~ 60in/s									
Cushioning	Air cushioning, both sides (standard)									
Cushion stroke (mm)	12	15	15	19	24	30	37	40	40	
Stroke tolerance (mm)	<1000 ^{+1.8} / ₀ 1001~3000 ^{+3.8} / ₀		<2700 ^{+1.8} / ₀ 2701~5000 ^{+3.8} / ₀							
Port Size	Port Size Front/side	M5 X 0.8	M5 X 0.8	Rc(PT)1/8	Rc(PT)1/8	Rc(PT)1/4	Rc(PT)3/8	Rc(PT)3/8	Rc(PT)1/2	Rc(PT)1/2
	Bottom (centralised)	Ø4	Ø4	Ø5	Ø6	Ø8	Ø10	Ø11	Ø16	Ø18

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

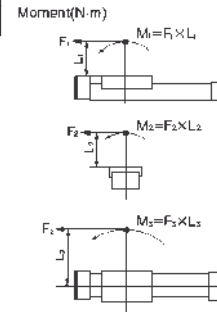
APPLICATION ALLOWABLE LOAD (N)

Model	Bore Size (mm)	Allowable Moment (N-m)			Allowable Load (N)		
		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

SYMBOLS

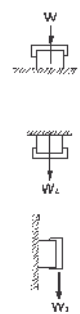


MOMENT (Nm)



DIMENSIONS SEE NEXT PAGE

Allowable load(N)



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

HOW TO ORDER

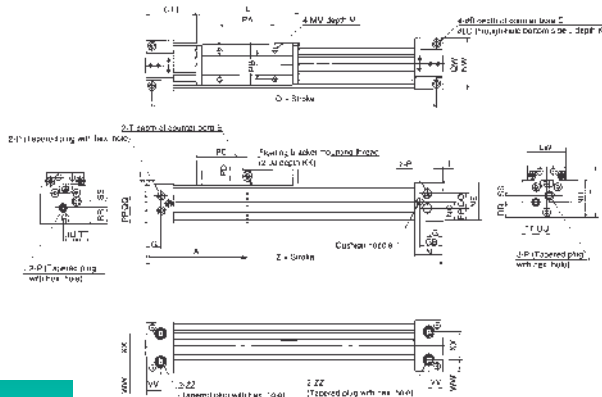
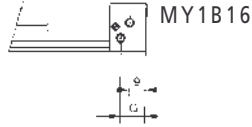
MY1B RODLESS CYLINDER

MY1B G — — — — —

- MECHANICAL JOINT RODLESS CYLINDER BASIC TYPE**
- BORE SIZE**
 - 16 - 16mmØ
 - 25 - 25mmØ
 - 32 - 32mmØ
 - 40 - 40mmØ
 - 50 - 50mmØ
 - 63 - 63mmØ
 - 80 - 80mmØ
 - 100 - 100mmØ
- PIPING**
 -Standard
 - GCentralized Piping Type
- STROKE ADJUSTING UNIT**
 -No Adjusting Unit
 - AWith Adjusting Bolt
 - LLow Load Absorber & Adjusting Bolt
 - HHigh Load Shock Absorber & Adj Bolt
 - ALWith One Unit A & One Unit L each
 - AHWith One Unit A & One Unit H each
 - LHWith One Unit L & One Unit H each
- APPLICABLE AUTO SWITCHES**
See Accessories Section
- NO OF STROKE ADJUSTING UNIT**
 -2 Pieces
 - S1 Piece
- PORTS**
 -PT Ports
 - XC18NPT Ports (25-63 Only)
- NO OF SWITCHES**
 -2 Pieces
 - S1 Piece
 - nn Pieces
- 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)
- Local Production Available

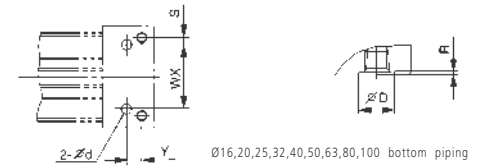
DIMENSIONS

CENTRALIZED PIPING TYPE Ø16~40



DIMENSIONS

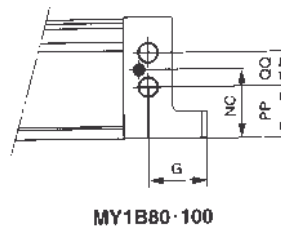
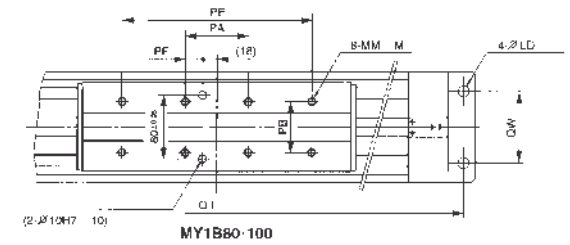
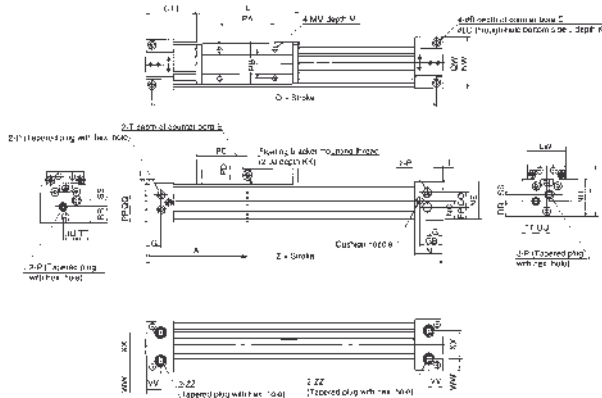
MACHINING OF MOUNTING SURFACE



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

DIMENSIONS

CENTRALIZED PIPING TYPE Ø50~100



Model	A	B	C	E	G	GB	H	J	JJ	K	KK	L	LD	LL	LW	M
MY1B16	80	6	3.5	2	14	17	37	M5x0.8	M4x0.7	10	7.5	80	3.5	40	30	6
MY1B20	100	7.5	4.5	2	12.5	20.5	46	M6X1	M4x0.7	12	11	100	4.8	50	37	8
MY1B25	110	9	5.5	2	16	24.5	54	M6x1	M5x0.8	9.5	9	110	5.6	55	42	9
MY1B32	140	11	6.5	2	19	30	68	M8x1.25	M5X0.8	16	10	140	6.8	70	52	12
MY1B40	170	14	8.5	2	23	36.5	84	M10x1.5	M6X1	15	13	170	8.6	85	64	12
MY1B50	200	14	8.5	3	23.5	37	94	M12x1.75	M6x1	25	20	200	9	100	80	14
MY1B63	230	17	10.5	3	25	39	116	M16x2	M8x1.25	28	27	230	11	115	96	16
MY1B80	345	-	-	-	60	71.5	150	-	-	-	-	340	14	175	112	20
MY1B100	400	-	-	-	70	79.5	190	-	-	-	-	400	18	200	140	25

Model	MM	N	NC	NE	NH	NN	NW	P	PA	PB	PC	PD	PE	PF	PP	Q
MY1B16	M4x0.7	20	14	27.8	27	-	37	M5x0.8	40	20	40	4.5	-	-	7.5	153
MY1B20	M5x0.8	25	17.5	34	33.5	-	45	M5X0.8	50	25	50	5	-	-	11.5	191
MY1B25	M5x0.8	30	20	40.5	39	-	53	Rc(PT)1/8	60	30	55	6	-	-	12	206
MY1B32	M6x1	37	25	50	49	-	64	Rc(PT)1/8	80	35	70	10	-	-	17	264
MY1B40	M6x1	45	30.5	63	61.5	-	75	Rc(PT)1/4	100	40	85	12	-	-	18.5	322
MY1B50	M8x1.25	47	38	76.5	75	-	92	Rc(PT)3/8	120	50	100	8.5	-	-	24	384
MY1B63	M8x1.25	50	51	100	95	-	112	Rc(PT)3/8	140	60	115	9.5	-	-	37.5	440
MY1B80	M10x1.5	85	71	124	124	35	140	Rc(PT)1/2	80	65	-	-	240	22	53	660
MY1B100	M12x1.75	95	88	157	157	45	176	Rc(PT)1/2	120	85	-	-	280	42	69	760

Model	QQ	QW	RR	SS	T	TT	UU	VV	YW	WW	XX	YY	Z	ZZ
MY1B16	9	30	11	3	7	9	10.5	10	32	7.5	22	-	160	M5x0.8
MY1B20	11	36	14.5	5	8	10.5	12	12.5	40	10.5	24	-	200	M5x0.8
MY1B25	16	42	16	6	10	14.5	15	16	46	12.5	28	-	220	Rc(PT)1/16
MY1B32	16	51	23	4	10	16	16	19	55	16	32	-	280	Rc(PT)1/16
MY1B40	24	59	27	10.5	14	20	22	23	67	19.5	36	-	340	Rc(PT)1/18
MY1B50	27	-	34	10	384	22.5	23.5	23.5	-	22.5	47	-	400	Rc(PT)1/14
MY1B63	29.5	-	13.5	45.5	440	27	29	25	-	28	56	-	460	Rc(PT)1/14
MY1B80	35	90	15	61	-	30	40	60	140	25	90	28	690	Rc(PT)1/12
MY1B100	38	120	20	75	-	40	48	70	176	28	120	35	800	Rc(PT)1/12

CUSHION CAPACITY SPECIFICATIONS

Calculation of absorption energy of stroke adjusting unit with shock absorber

Collision Types	Horizontal collision	Vertical collision (downward)	Vertical collision (upwards)
Kinetic energy E ₁	$\frac{1}{2} MV^2$		
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.

STROKE ADJUSTING UNIT SPECIFICATIONS

A: With adjusting bolt

L: Low load shock absorber

H: High load shock absorber

Applicable Cylinder	MY1B16			MY1B20			MY1B25			
	A	L	H	A	L	H	A	L	H	
Stroke Adjusting Range (mm)	Any position on the whole stroke									
Fine Adjusting Range	0 - 5.6			0 - 6			0 - 11.5			
Shock Absorber Type	-			RB0806	RB1007	-			RB1007	RB1412
Max. Absorber Energy (J)	-			2.9	5.9	-			5.9	19.6
Adsorption Stroke (mm)	-			6	7	-			7	12
Max. Collision Speed (mm/s)	200	200	1500	-			200	1500	-	
Max. Use Frequency (cycles/min)	-			80	70	-			70	45
Spring Force (N)										
Extended	-			1.96	4.22	-			4.22	6.86
Retracted	-			4.22	6.86	-			6.86	15.98
Operating Temperature	5-60°C / 40-140°F									

Applicable Cylinder	Ø32			Ø40				
	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	-		
Max. Absorber Energy (J)	-			19.6	58.8	-		
Adsorption Stroke (mm)	-			12	15	-		
Max. Collision Speed (mm/s)	200	1500	-		200	1500	-	
Max. Use Frequency	-			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

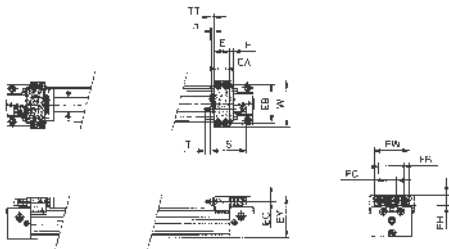
Unit L low load shock absorber and adjusting bolt

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

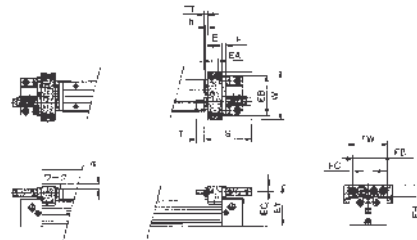
ACCESSORIES: LOW LOAD SHOCK ABSORBER + ADJUSTING BOLT "L"



Model	E	EA	EB	EC	EY	F	FB	FC	FH	FW	h	S	T	TT	W	Shock Absorber No.
MY-A20L	19	9	43	5.8	45.6	4	-	13	-	-	3.2	40.8	6	6(MAX12)	53	RB0806
MY-A25L	20	10	49	6.5	53.5	6	33	13	12	46	3.5	46.7	7	5(MAX16.5)	60	RB1007
MY-A32L	25	12	61	8.5	67	6	43	17	16	56	4.5	67.3	12	8(MAX20)	74	RB1412
MY-A40L	31	15	76	9.5	81.5	6	43	17	16	56	4.5	67.5	12	8(MAX25)	94	

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

MORE DIMENSIONS
SEE NEXT PAGE

ACCESSORIES AUTO SWITCHES

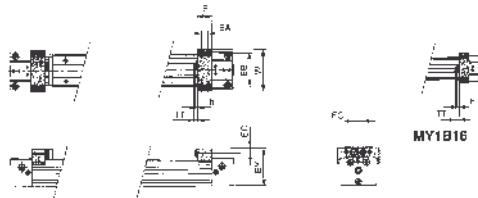
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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	-	-	4.5V max	ON: Red LED
16 & 20	D-F9NL	-	-	3 wire Solid State	<28 V DC	50 mA	10-28V DC	0.4V max	ON: Red LED
				NPN					
16 & 20	D-F9PL	-	-	3 wire Solid State	<28 V DC	50mA	10-28V DC	1.5V max	ON: Red LED
				PNP					
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	<28 V DC	40mA	5-28V DC	1.5V max	ON: Red/Green LED
				NPN - 2 color					
25 - 100	D-Y7PWL	-	-	3 wire Solid State	-	100mA	5-28V DC	0.8V max	ON: Red/Green LED
				PNP - 2 color					
25 - 100	D-Y7BWL	-	-	2 wire Solid State	10 - 28 V DC	5-40mA	-	4V max	ON: Red/Green LED
				2 color					

DIMENSIONS

ACCESSORIES: STROKE ADJUSTING UNIT

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

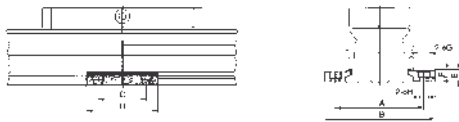


Model	E	EA	EB	EC	EY	FC	h	TT	W
MY-A16A	14.6	7	34.4	4.2	36.5	-	2.4	5.4 (Max11)	43
MY-A20A	19	9	43	5.8	45.6	13	3.2	6(Max12)	53
MY-A25A	20	10	49	6.5	53.5	13	3.5	5(Max16.5)	60
MY-A32A	25	12	61	8.5	67	17	4.5	8(Max20)	74
MY-A40A	31	15	76	9.5	81.5	17	4.5	9(Max25)	94

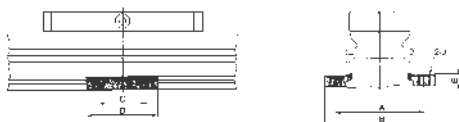
DIMENSIONS

SIDE SUPPORT BRACKET

COUNTERBORED (SIDE SUPPORT A)



TAPPED (SIDE SUPPORT B)

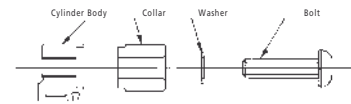


FOR INFORMATION ON SIZING, PLEASE CONTACT
SMC CUSTOMER SERVICE OR YOUR SMC
TECHNICAL SALES REPRESENTATIVE

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

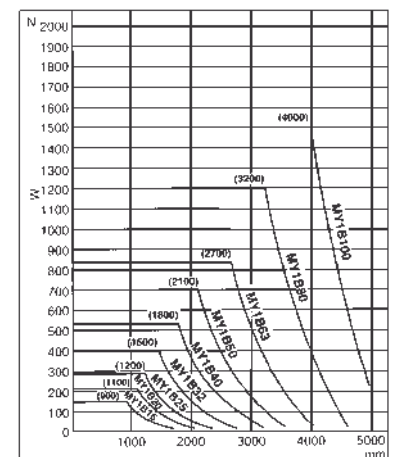
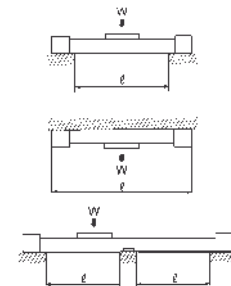


Fixing bolt maximum torque

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.

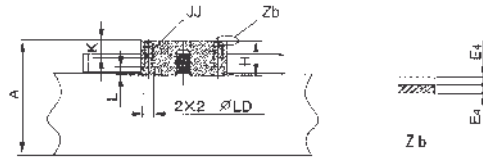
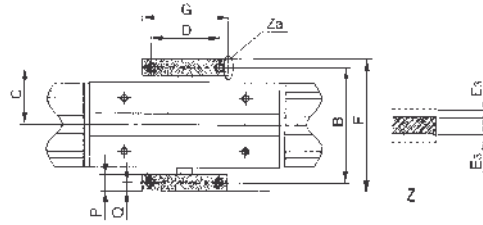


In case of Long Stroke

For long stroke operation, the cylinder tube may be deflected depending on the 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.

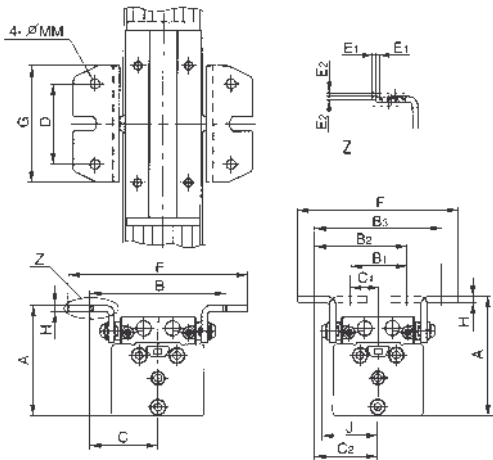
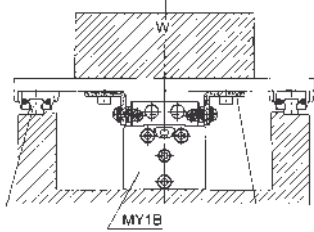
DIMENSIONS

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



DIMENSIONS

FLOATING JOINT DRIVE ADAPTOR MY-J25•32•40

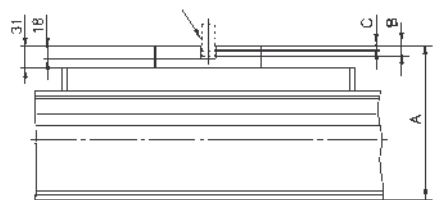
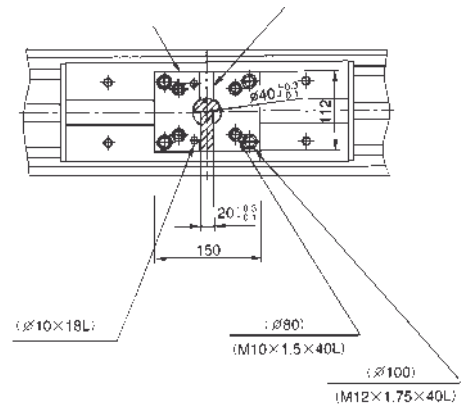


Part N°	Cylinder	TYPE 1									
		D	G	H	J	MM	A	B	C	F	
MY-J25	MY1B25	40	60	3.2	35	5.5	63	78	39	100	
MY-J32	MY1B32	55	80	4.5	40	6.5	76	94	47	124	
MY-J40	MY1B40	74	100	4.5	47	6.5	92	112	56	144	

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

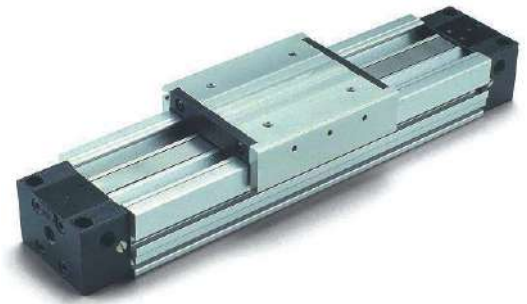
FLOATING JOINT DRIVE ADAPTOR MY-J80&100



Part N°	Cylinder	Torque (Nm)			
		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

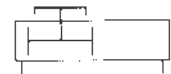


TECHNICAL SPECIFICATIONS

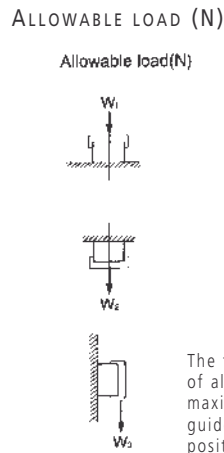
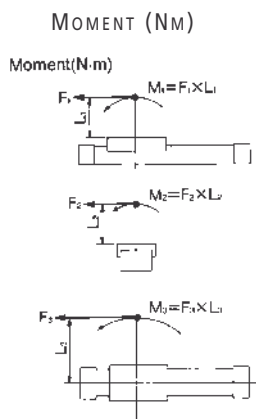
Bore Size (mm)	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63
Fluid	Filtered, Non-lubricated Air						
Operation Type	Double Acting Type						
Operating Pressure	0.15 ~ 0.8 MPa / 22~116PSI						
Proof Pressure	1.2MPa / 174PSI						
Ambient & Fluid Temperature	5 ~ 60°C / 40~140°F						
Operating Piston Speed	100 ~ 1500 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

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

SYMBOLS



ALLOWABLE MOMENT AND MAXIMUM ALLOWABLE LOAD

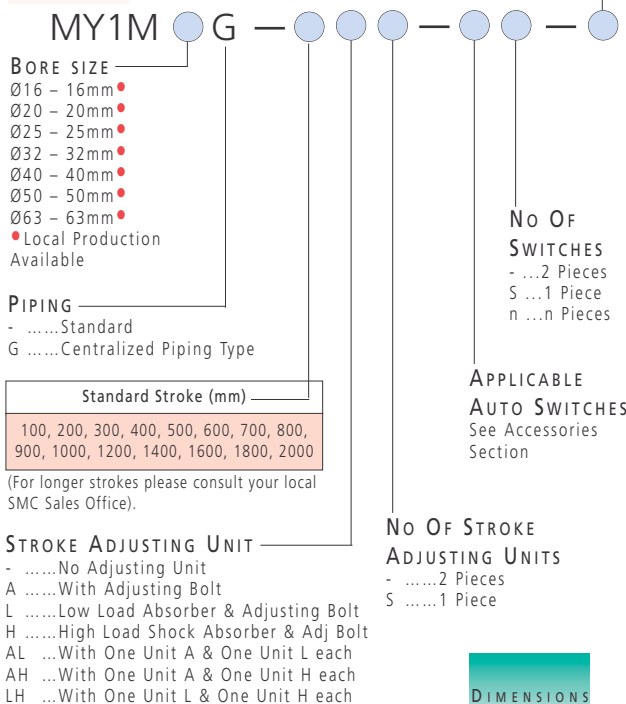


The threshold limit values of allowable moment and maximum load vary with the guide type, attachment position and piston speed.

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



DIMENSIONS
SEE NEXT PAGE

STROKE ADJUSTING UNIT SPECIFICATIONS

Applicable Cylinder	Ø16		Ø20			Ø25			Ø32			
	A	L	A	L	H	A	L	H	A	L	H	
Part Number and description	Any position on the whole stroke											
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	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	L	H	A	L	H	A	L	H	
Part Number and description	Any position on whole stroke									
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									

A: With adjusting bolt
L: With low load shock absorber
H: With high load shock absorber

CUSHION CAPACITY SPECIFICATIONS

Calculation of absorption energy of stroke adjusting unit with shock absorber

Collision Types	Horizontal collision	Vertical collision (downward)	Vertical collision (upwards)
Kinetic energy E ₁	$\frac{1}{2} MV^2$		
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.

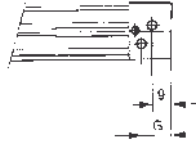
ACCESSORIES AUTO SWITCHES

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 5-20 mA	-	2.7V max	ON: Red LED
16 & 20	D-F9BL	-	2 wire	Solid State	-	5-40 mA	-	4.0V or less	ON: Red LED
16 & 20	D-F9NL	-	3 wire	Solid State NPN	-	40 mA	4.5-28V DC	1.5V or less	ON: Red LED
16 & 20	D-F9PL	-	3 wire	Solid State PNP	-	80mA	4.5-28V DC	0.8V or less	ON: Red LED
25 - 63	D-Z73L	-	-	Reed	24 V DC 100 V AC	5-40mA 5-20mA	-	2.4V or less	ON: Red LED
25 - 63	D-Z80L	-	-	Reed	24V AC/DC 48V AC/DC 100 V AC/DC	50mA 40mA 20mA	-	-	None
25 - 63	D-Y7NWL	-	3 wire	Solid State NPN - 2 color	-	40mA	4.5-28V DC	1.5V max	ON: Red/Green LED
25 - 63	D-Y7PWL	-	3 wire	Solid State PNP - 2 color	-	80mA	4.5-28V DC	0.8V max	ON: Red/Green LED
25 - 63	D-Y7BWL	-	2 wire	Solid State 2 color	10 - 28 V DC	5-40mA	-	4V max	ON: Red/Green LED

DIMENSIONS

CENTRALIZED PIPING TYPE: Ø16 AND Ø20



MY1B16

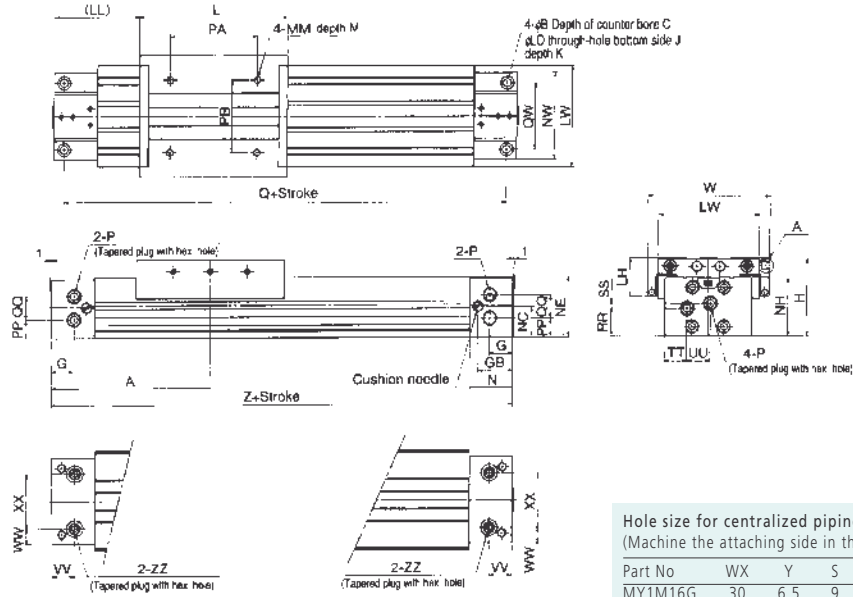
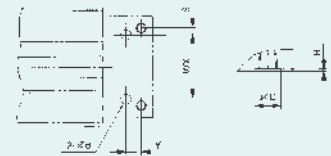


TABLE OF DIMENSIONS
SEE NEXT PAGE

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

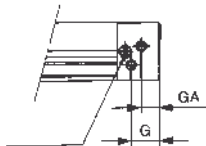
Part No	WX	Y	S	d	D	R	Gasket No
MY1M16G	30	6.5	9	4	8.4	1.1	C6
MY1M20G	32	8	6.5	4	8.4	1.1	C6
MY1M25G	38	9	4	6	11.4	1.1	C9
MY1M32G	48	11	6	6	11.4	1.1	C9
MY1M40G	54	14	9	8	13.4	1.1	C11.2
MY1M50G	74	18	8	10	17.5	1.1	C15
MY1M63G	92	18	9	10	17.5	1.1	C15

Ø16,20,25,32,40,50,63 bottom piping

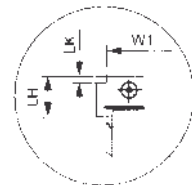
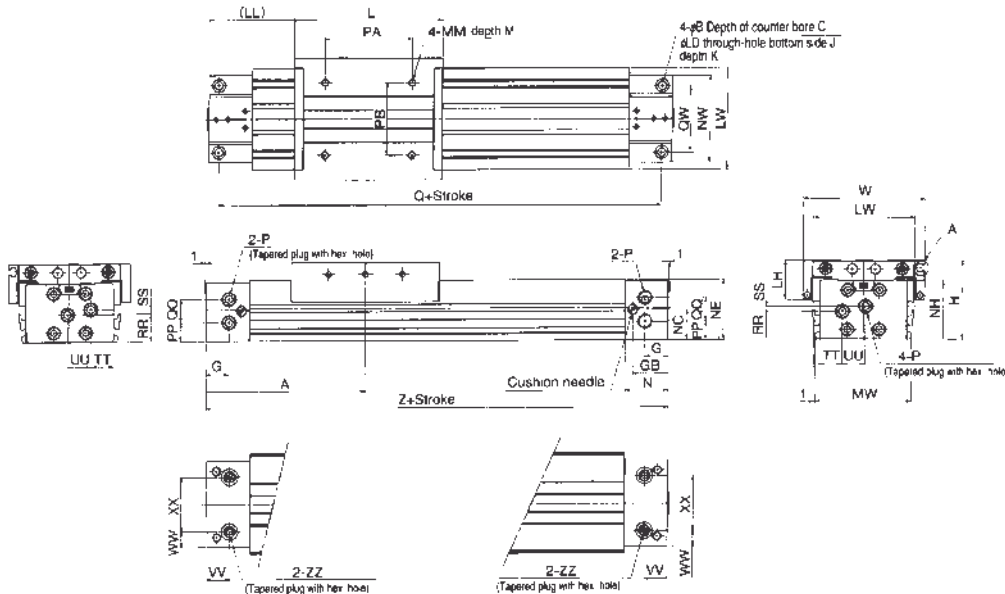


DIMENSIONS

CENTRALIZED PIPING TYPE: Ø25 ~ Ø63



MY1M50-63



MY1M50-63

TABLE OF DIMENSIONS
SEE NEXT PAGE

DIMENSIONS

CENTRALIZED PIPING TYPE

Part No	A	B	C	G	GA	GB	H	J	K	L	LD	LH	(LL)
MY1M16	80	6	3.5	13.5	-	16.2	40	M5X0.8	10	80	3.6	17.5	40
MY1M20	100	7.5	4.5	12.5	-	20	46	M6X1	12	100	4.8	18	50
MY1M25	110	9	5.5	16	-	24.5	54	M6X1	9.5	102	5.6	27	59
MY1M32	140	11	6.5	19	-	30	68	M8X1.25	16	132	6.8	35	74
MY1M40	170	14	8.5	23	-	36.5	84	M10X1.5	15	162	8.6	38	89
MY1M50	200	17	10.5	27	25	37.5	107	M14X2	28	200	11	29	100
MY1M63	230	19	12.5	29.5	27.5	39.5	130	M16X2	32	230	13.5	32.5	115

Part No	LW	M	MM	MW	N	NC	NE	NH	NW	P	PA	PB	PP	Q
MY1M16	54	6	M4X0.7	-	20	13.5	28	27.7	56	M5X0.8	40	40	7.5	153
MY1M20	58	7.5	M5X0.8	-	25	17	34	33.7	60	M5X0.8	50	40	11.5	191
MY1M25	70	10	M5X0.8	66	30	21	41.8	40.5	60	Rc(PT)1/8	60	50	13	206
MY1M32	88	13	M6X1	80	37	26	52.3	50	74	Rc(PT)1/8	80	60	18	264
MY1M40	104	13	M6X1	96	45	32	65.3	63.5	94	Rc(PT)1/4	100	80	16.5	322
MY1M50	128	15	M8X1.25	-	47	43.5	84.5	83.5	118	Rc(PT)3/8	120	90	26	380
MY1M63	152	16	M10X1.5	-	50	56	105	103	142	Rc(PT)3/8	140	110	42	436

Part No	QQ	QW	RR	SS	TT	UU	VV	W	W1	WW	XX	LK	Z	ZZ
MY1M16	9	48	11	2.5	15	14	10	68	-	13	30	-	160	M5X0.8
MY1M20	10	45	14.5	5	18	12	12.5	72	-	14	32	-	200	M5X0.8
MY1M25	16	46	19	3.5	15.5	16	16	84	-	11	38	-	220	Rc(PT)1/16
MY1M32	16	60	24	4	21	16	19	102	-	13	48	-	280	Rc(PT)1/16
MY1M40	26	72	25.5	10.5	22.5	24.5	23	118	-	20	54	-	340	Rc(PT)1/8
MY1M50	28	90	35	10	35	24	28	144	128	22	74	2	400	Rc(PT)1/4
MY1M63	30	110	49	13	43	28	30	168	152	25	92	5.5	460	Rc(PT)1/4

ACCESSORIES

STROKE ADJUSTING UNIT

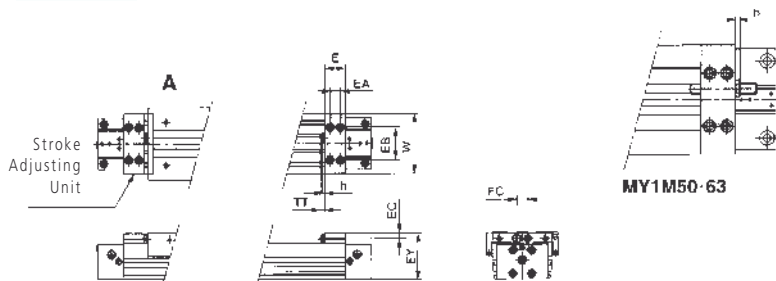
- Unit A Including adjusting bolt
- Unit L low load shock absorber and adjusting bolt
- Unit H High load shock absorber and adjusting bolt

Stroke adjusting unit No.

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

DIMENSIONS

ACCESSORIES: STROKE ADJUSTING UNIT

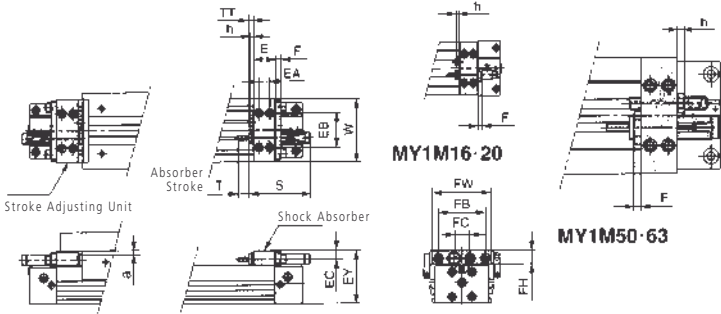


Part No	E	EA	EB	EC	EY	FC	h	TT	W
MYM-A16A	14.6	7.3	30	5.8	39.5	14	3.6	5.4(MAX11)	58
MYM-A20A	20	10	32	5.8	45.5	14	3.6	5(MAX11)	58
MYM-A25A	24	12	38	6.5	53.5	13	3.5	5(MAX16.5)	70
MYM-A32A	29	14	50	8.5	67	17	4.5	8(MAX20)	88
MYM-A40A	35	17	57	10	83	17	4.5	9(MAX25)	104
MYM-A50A	40	20	62	14	106	26	5.5	13(MAX33)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

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

DIMENSIONS

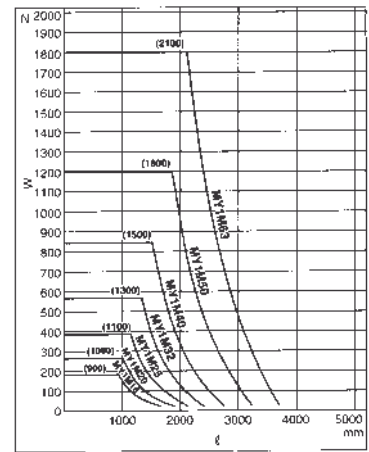
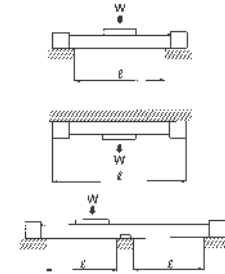
ACCESSORIES: LOW LOAD SHOCK ABSORBER + ADJUSTING BOLT "L"



Part No	E	EA	EB	EC	EY	F	FB	FC	FH	h	TT	W	Shock Absorber
MYM-A16L	14.6	7.3	30	5.8	39.5	4	-	14	-	3.6	5.4(MAX11)	58	RB0806
MYM-A20L	20	10	32	5.8	45.5	4	-	14	-	3.6	5(MAX11)	58	RB0806
MYM-A25L	24	12	38	6.5	53.5	6	54	13	-	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

TECHNICAL SPECIFICATIONS

Unsupported span length not to exceed lengths shown by graph.

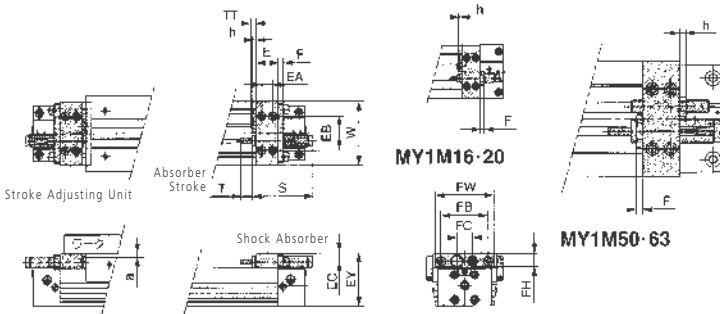


In case of Long Stroke

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

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



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

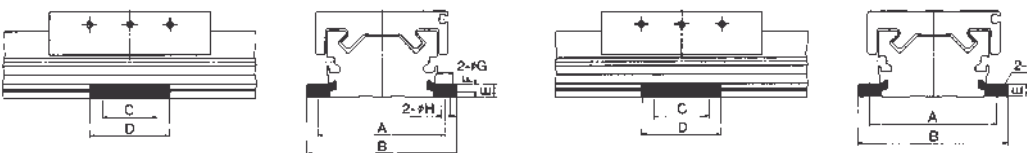
Part No	E	EA	EB	EC	EY	F	FB	FC	FH	h	S	T	TT	W	Shock Absorber	a
MYM-A20H	20	10	32	7.7	50	5	-	14	-	3.5	46.7	7	5(MAX11)	58	RB1007	5
MYM-A25H	24	12	38	9	57.5	6	52	17	16	4.5	67.3	12	5(MAX16.5)	70	RB1412	4.5
MYM-A32H	29	14	50	11.5	73	8	67	22	22	5.5	73.2	15	8(MAX20)	88	RB2015	6
MYM-A40H	35	17	57	12	87	8	78	22	22	5.5	73.2	15	9(MAX25)	104	RB2015	4
MYM-A50H	40	20	66	18.5	115	8	-	27	-	8	99	25	13(MAX33)	128	RB2725	9
MYM-A63H	52	26	77	19	138.5	8	-	31	-	8	99	25	13(MAX38)	152	RB2725	9.5

DIMENSIONS

SIDE SUPPORT UNIT

SIDE SUPPORT A: COUNTERBORE TYPE

SIDE SUPPORT B: THREADED THROUGH HOLE



Part No	Cylinder	Side Support A	Side Support B	A	B	C	D	E	F	G	H	J
MY-S16A/B	MY1C16	MY-S16A	MY-S16B	61	71.6	15	26	4.9	3	6.5	3.4	M4X0.7
MY-S20A/B	MY1C20	MY-S20A	MY-S20B	67	79.6	25	38	6.4	4	8	4.5	M5X0.8
MY-S25A/B	MY1C25	MY-S25A	MY-S25B	81	95	35	50	8	5	9.5	5.5	M6X1
MY-S32A/B	MY1C32	MY-S32A	MY-S32B	100	118	45	64	11.7	6	11	6.6	M8X1.25
MY-S40A/B	MY1C40	MY-S40A	MY-S40B	120	142	55	80	14.8	8.5	14	9	M10X1.5
	MY1C50	MY-S50A	MY-S50B	142	164	-	-	-	-	-	-	-
MY-S63A/B	MY1C63	MY-S63A	MY-S63B	172	202	70	100	18.3	10.5	17.5	11.5	M12X1.75

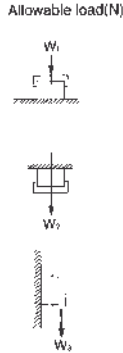
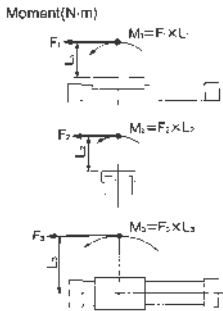
FOR INFORMATION ON SIZING, PLEASE CONTACT SMC CUSTOMER SERVICE OR YOUR SMC TECHNICAL SALES REPRESENTATIVE

ALLOWABLE MOMENT AND MAXIMUM ALLOWABLE LOAD

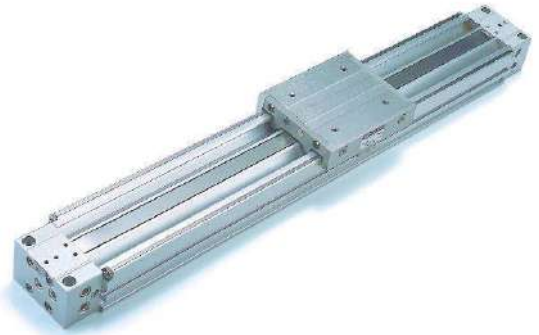
The threshold limit values of allowable moment and maximum load vary with the guide type, attachment position and piston speed.

MOMENT (N.m)

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



MECHANICAL JOINT TYPE RODLESS CYLINDER: CAM FOLLOWER GUIDE TYPE BORE SIZES Ø16,25,32,40,50,63

- ✓ Compact Body Dimensions
- ✓ Cam Follower Guide Type
- ✓ Direct Mounting is possible
- ✓ Built-in Magnet for Auto-Switch Sensing
- ✓ Centralized Piping Facility
- ✓ Same Foot Print as MY1M Series

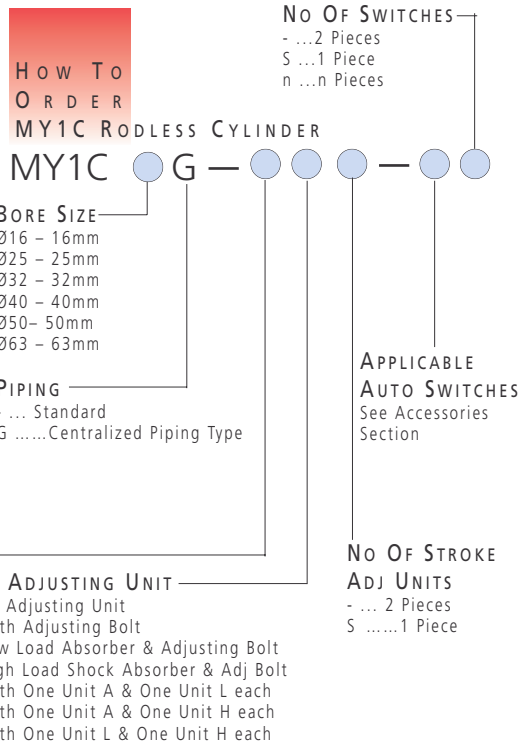
TECHNICAL SPECIFICATIONS

Bore Size (mm)	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63
Fluid	Filtered, Non-Lubricated Air						
Operation Type	Double Acting Type						
Operating Pressure	0.1 ~ 0.8 MPa / 14.5 ~ 116PSI						
Proof Pressure	1.2MPa / 174PSI						
Ambient & Fluid Temp	5 ~ 60°C / 40 ~ 140°F						
Operating Piston Speed	100 ~ 1500mm/s / 4 ~ 60in/s						
Cushioning	Air Cushioning, both sides (Standard)						
Cushion Stroke (mm)	12	15	15	19	24	30	37
Stroke Tolerance (mm)	1000 ^{+1.8} 1001~ 3000 ^{+2.8}	2700 ^{+1.8} 2701 ~ 5000 ^{+2.8}					
Port Size							
Front/side	M5x0.8	M5 x0.8	Rc(PT)1/8	Rc(PT)1/8	Rc(PT)1/4	Rc(PT)3/8	Rc(PT)3/8
Bottom (centralized)	Ø4	Ø4	Ø5	Ø6	Ø8	Ø10	Ø11

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

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

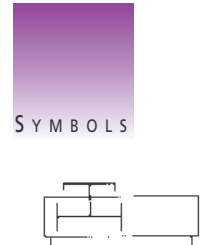
(For longer strokes please consult your local SMC Sales Office)



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



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 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

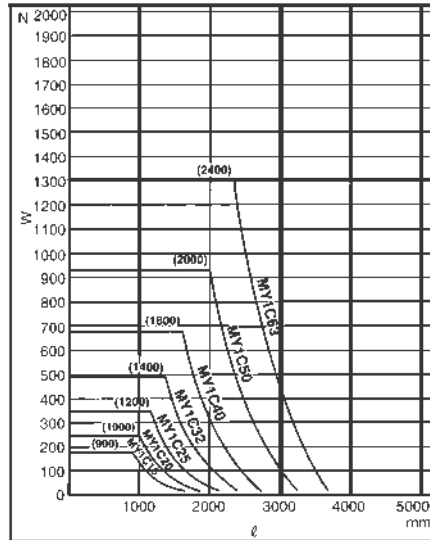
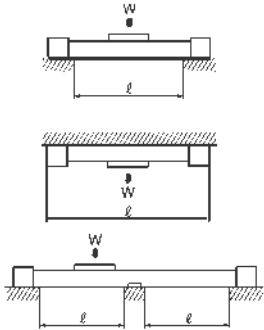
STROKE ADJUSTING UNIT SPECIFICATIONS

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			Extended			Extended			Extended		
Retracted	-	1.96		-	1.96	4.22	-	4.22	6.86	-	6.86	8.34
Retracted	-	4.22		-	4.22	6.86	-	6.86	15.98	-	15.98	20.50
Operating Temp (C)	5~60°C / 40~140°F			5~60°C / 40~140°F			5~60°C / 40~140°F			5~60°C / 40~140°F		
Applicable Cylinder	MY1C40			MY1C50			MY1C63					
	A	L	H	A	L	H	A	L	H			
Stroke Adjustment Unit Type	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					
Fine Adjusting Range (mm)	0~16			0~20			0~25					
Shock Absorber Type	-	RB1412	RB2015	-	RB2015	RB2725	-	RB2015	RB2725			
Max Absorbing Energy (J)	-	19.6	58.8	-	58.8	147	-	58.8	147			
Absorption Stroke (mm)	-	12	15	-	15	25	-	15	25			
Max Collision Speed (mm/s)	200	1500	1500	200	1500	1500	200	1500	1500			
Max Use Frequency (cycles/min)	-	42	25	-	25	10	-	25	10			
Spring Force (N)	Extended			Extended			Extended					
Retracted	-	6.86	8.34	-	8.34	8.83	-	8.34	8.83			
Retracted	-	15.98	20.50	-	20.50	20.01	-	20.50	20.01			
Operating Temperature	5~60°C / 40~140°F			5~60°C / 40~140°F			5~60°C / 40~140°F					

TECHNICAL SPECIFICATIONS

Unsupported span length not to exceed lengths shown by graph.

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



In case of Long Stroke

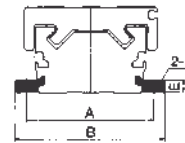
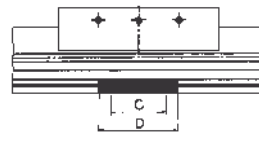
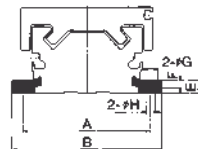
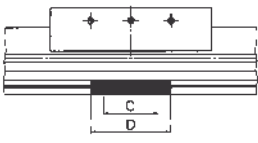
For long stroke operation, the cylinder tube may be deflected depending on weight and load; in that case, support the center on the cylinder with a side support so that the supporting interval will be lower than the value shown in the diagram.

DIMENSIONS

SIDE SUPPORT UNIT

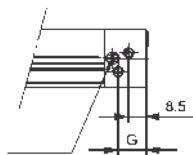
SIDE SUPPORT A: COUNTERBORE TYPE

SIDE SUPPORT B: THREADED THROUGH HOLE

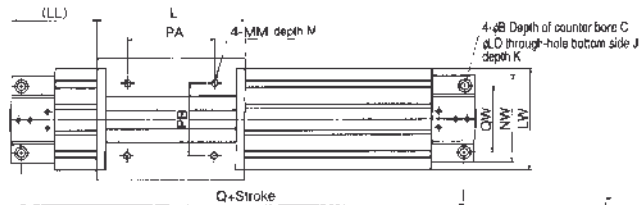


Part No	Cylinder	Side Support A	Side Support B	A	B	C	D	E	F	G	H	J
MY-S16A/B	MY1C16	MY-S16A	MY-S16B	61	71.6	15	26	4.9	3	6.5	3.4	M4X0.7
MY-S20A/B	MY1C20	MY-S20A	MY-S20B	67	79.6	25	38	6.4	4	8	4.5	M5X0.8
MY-S25A/B	MY1C25	MY-S25A	MY-S25B	81	95	35	50	8	5	9.5	5.5	M6X1
MY-S32A/B	MY1C32	MY-S32A	MY-S32B	100	118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

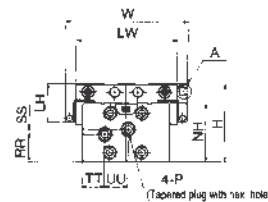
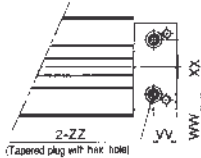
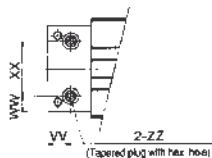
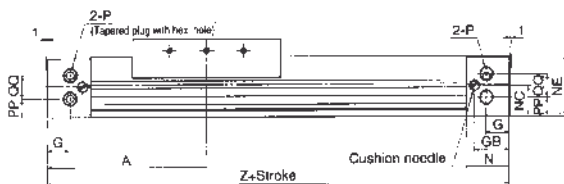
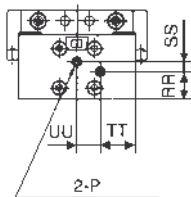
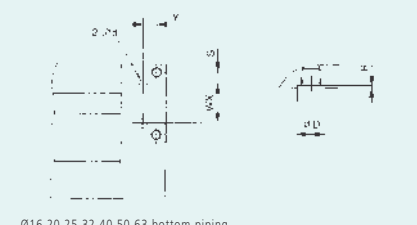


TABLE OF DIMENSIONS
SEE NEXT PAGE



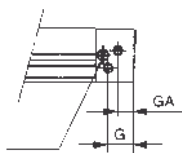
Hole size for centralized piping at bottom.
(Machine the attaching side in this size).

Part No	WX	Y	S	d	D	R	Gasket
MY1C16G	30	6.5	9	4	8.4	1.1	C6
MY1C20G	32	8	6.5	4	8.4	1.1	C6
MY1C25G	38	9	4	6	11.4	1.1	C9
MY1C32G	48	11	6	6	11.4	1.1	C9
MY1C40G	54	14	9	8	13.4	1.1	C11.2
MY1C50G	74	18	8	10	17.5	1.1	C15
MY1C63G	92	18	9	10	17.5	1.1	C15

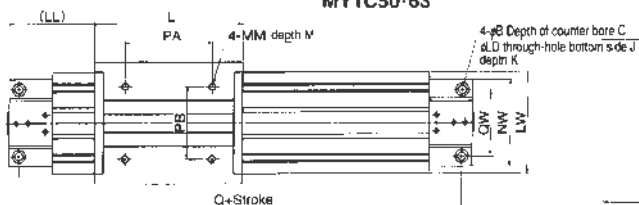


Ø16,20,25,32,40,50,63 bottom piping

DIMENSIONS
CENTRALIZED PIPING TYPE Ø25~63



MY1C50-63



Section "A" Details

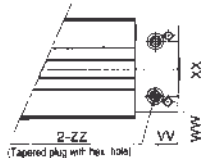
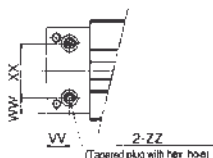
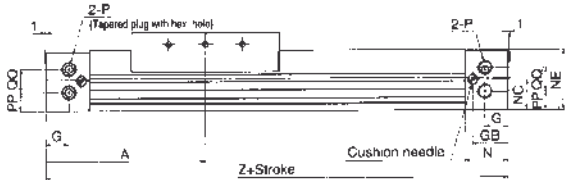
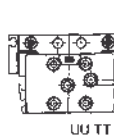
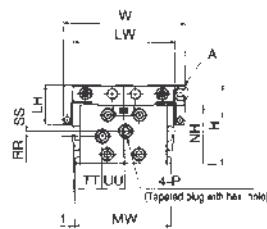


TABLE OF DIMENSIONS
SEE NEXT PAGE

DIMENSIONS

CENTRALIZED PIPING TYPE

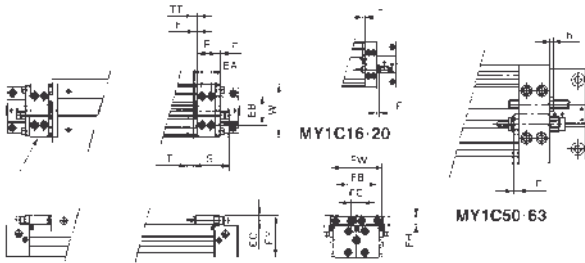
Part No	A	B	C	G	GB	H	J	K	L	LD	LH	LK	(LL)
MY1C16	80	6	3.5	8.5	16.2	40	M5X0.8	10	80	3.6	22.5	-	40
MY1C20	100	7.5	4.5	10.5	20	4	M6X1	12	100	4.8	23	-	50
MY1C25	110	9	5.5	16	24.5	54	M6X1	9.5	102	5.6	27	-	59
MY1C32	140	11	6.5	19	30	68	M8X1.25	16	132	6.8	35	-	74
MY1C40	170	14	8.5	23	36.5	84	M10X1.5	15	162	8.6	38	-	89
MY1C50	200	17	10.5	25	37.5	107	M14X2	28	200	11	29	2	100
MY1C63	230	19	12.5	27.5	39.5	130	M16X2	32	230	13.5	32.5	5.5	115

Part No	LW	M	MM	MW	N	NC	NE	NH	NW	P	PA	PB	PP	Q
MY1C16	54	6	M4X0.7	-	20	13.5	27.7	27.7	56	M5X0.8	40	40	7.5	153
MY1C20	58	7.5	M5X0.8	-	25	17	33.7	33.7	60	M5X0.8	50	40	11.5	191
MY1C25	70	10	M5X0.8	66	30	21	41.8	40.5	60	Rc(PT)1/8	60	50	13	206
MY1C32	88	13	M6X1	80	37	26	52.3	50	74	Rc(PT)1/8	80	60	18	264
MY1C40	104	13	M6X1	96	45	32	65.3	63.5	94	Rc(PT)1/4	100	80	16.5	322
MY1C50	128	15	M8X1.25	-	47	43.5	84.5	83.5	118	Rc(PT)3/8	120	90	26	380
MY1C63	152	16	M10X1.5	-	50	56	104	103	142	Rc(PT)3/8	140	110	42	436

Part No	QQ	QW	RR	SS	TT	UU	VV	W	W1	WW	XX	Z	ZZ
MY1C16	9	48	11	2.5	15	14	10	68	-	13	30	160	M5X0.8
MY1C20	10	45	14.5	5	18	12	12.5	72	-	14	32	200	M5X0.8
MY1C25	16	46	19	3.5	15.5	16	16	84	-	11	38	220	Rc(PT)1/16
MY1C32	16	60	24	4	21	16	19	102	-	13	48	280	Rc(PT)1/16
MY1C40	26	72	25.5	10.5	22.5	24.5	23	118	-	20	54	340	Rc(PT)1/8
MY1C50	28	90	35	10	35	24	28	144	128	22	74	400	Rc(PT)1/4
MY1C63	30	110	49	13	43	28	30	168	152	25	92	460	Rc(PT)1/4

DIMENSIONS

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

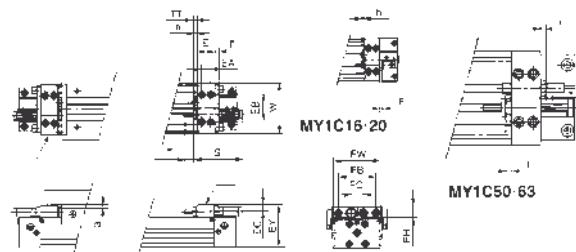


Since the EY size of type H unit is greater than the table top height (H dimension), when a workpiece is loaded that is larger than the full length (L dimension) of the slide table allow a clearance of size "a" or larger at the workpiece side.

Part No.	Cylinder	E	EA	EB	EC	EY	F	FB	FC	FH	FW	h	S	T	TT	W	Shock Absorber	a
MYM-A20H	MY1C20	20	10	32	7.7	50	5	-	14	-	-	3.5	46.7	7	5(MAX11)	58	RC1007	5
MYM-A25H	MY1C25	24	12	38	9	57.5	6	52	17	16	66	4.5	67.3	12	5(MAX16.5)	70	RB1412	4.5
MYM-A32H	MY1C32	29	14	50	11.5	73	8	67	22	22	82	5.5	73.2	15	8(MAX20)	88	RB2015	6
MYM-A40H	MY1C40	35	17	57	12	87	8	78	22	22	95	5.5	73.2	15	9(MAX25)	104	RB2015	4
MYM-A50H	MY1C50	40	20	66	18.5	115	8	-	27	-	-	8	99	25	13(MAX33)	128	RB2725	9
MYM-A63H	MY1C63	52	26	77	19	138.5	8	-	31	-	-	8	99	25	13(MAX38)	152	RB2725	9.5

DIMENSIONS

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

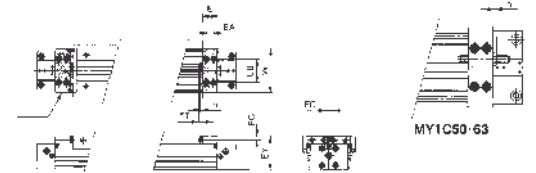


Part No.	Cylinder	E	EA	EB	EC	EY	F	FB	FC	FH	FW	h	S	T	TT	W	Shock Absorber
MYM-A16L	MY1C16	14.6	7.3	30	5.8	39.5	4	-	14	-	-	3.6	40.8	6	5.4(MAX11)	58	RB0806
MYM-A20L	MY1C20	20	10	32	5.8	45.5	4	-	14	-	-	3.6	40.8	6	5(MAX11)	58	RB0806
MYM-A25L	MY1C25	24	12	38	6.5	53.5	6	54	13	13	66	3.5	46.7	7	5(MAX16.5)	70	RB1007
MYM-A32L	MY1C32	29	14	50	8.5	67	6	67	17	16	80	4.5	67.3	12	8(MAX20)	88	RB1412
MYM-A40L	MY1C40	35	17	57	10	83	6	78	17	17.5	91	4.5	67.3	12	9(MAX25)	104	RB1412
MYM-A50L	MY1C50	40	20	62	14	106	6	-	26	-	-	5.5	73.2	15	13(MAX33)	128	RB2015
MYM-A63L	MY1C63	52	26	77	14	129	6	-	31	-	-	5.5	73.2	15	13(MAX38)	152	RB2015

DIMENSIONS

ACCESSORIES: STROKE ADJUSTING UNIT

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

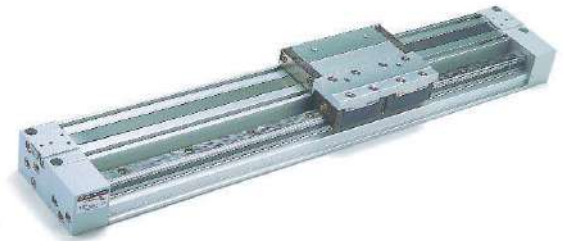


Part No	Cylinder	WX	Y	S	d	D	R	Gasket
MY1M-A16A	MY1C16G	30	6.5	9	4	8.4	1.1	C6
MY1M-A20A	MY1C20G	32	8	6.5	4	8.4	1.1	
MY1M-A25A	MY1C25G	38	9	4	6	11.4	1.1	C9
MY1M-A32A	MY1C32G	48	11	6			1.1	
MY1M-A40A	MY1C40G	54	14	9	8	13.4	1.1	C11.2
MY1M-A50A	MY1C50G	74	18	8	10	17.5	1.1	C15
MY1M-A63A	MY1C63G	92	18	9	10	17.5	1.1	

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	Ø4	Ø5	Ø6
				Rc(PT)1/8	Ø8

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



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

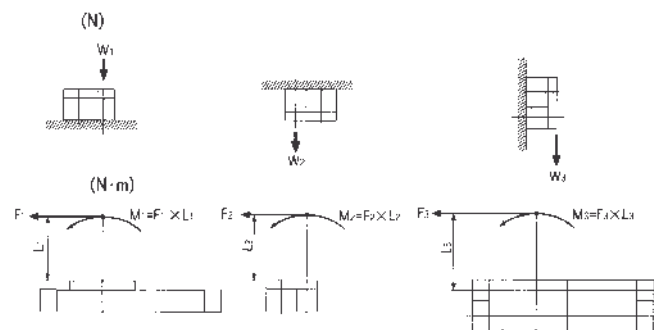
- ✓ Compact Body Dimensions
- ✓ High Precision Guide Type
- ✓ Direct Mounting is possible
- ✓ Built-in Magnet for Auto-Switch Sensing
- ✓ Centralized Piping Facility

ALLOWABLE MOMENT AND MAXIMUM ALLOWABLE LOAD

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

MOMENT (N·m)

ALLOWABLE LOAD (N)



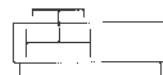
Model	Bore Size (mm)	Allowable Moment (N·m)			Allowable Load (N)		
		M1	M2	M3	W1	W2	W3
MY1H	Dia 16	3.7	4.9	3.7	108.0	108.0	108.0
	Dia 20	11	16	11	176.0	176.0	176.0
	Dia 25	23	26	23	275.0	275.0	275.0
	Dia 32	39	50	39	392.0	392.0	392.0
	Dia 40	50	50	39	500.0	500.0	500.0

ACCESSORIES AUTO SWITCHES

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

Bore Size	Model	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

SYMBOLS



HOW TO ORDER MY1H RODLESS CYLINDER

MY1H

BORE SIZE
Ø16 – 16mm
Ø20 – 20mm
Ø25 – 25mm
Ø32 – 32mm
Ø40 – 40mm

PIPING
-Standard
GCentralized 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
ALWith One Unit A & One Unit L each
AHWith One Unit A & One Unit H each
LHWith 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

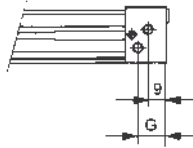
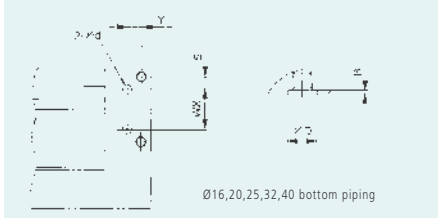
DIMENSIONS
SEE NEXT PAGE

DIMENSIONS

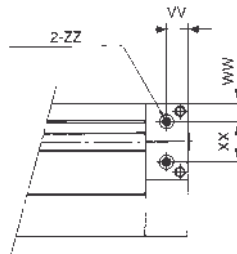
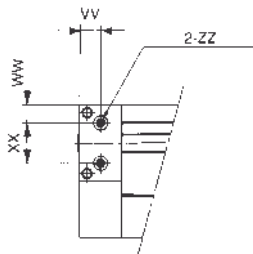
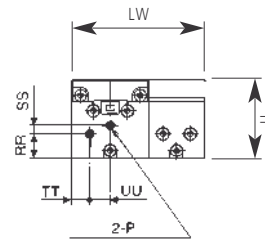
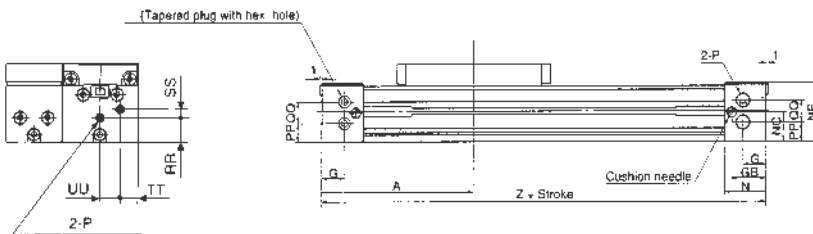
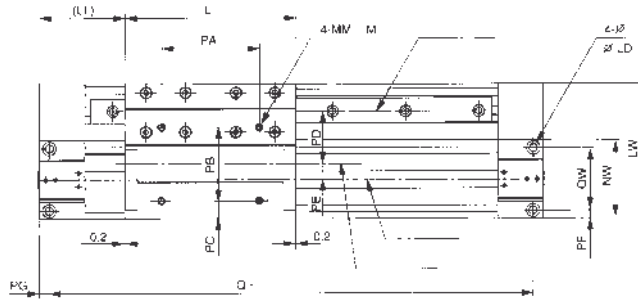
CENTRALIZED PIPING TYPE Ø16~Ø40

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

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



MY1H16



Part No	A	B	C	G	GB	H	J	K	L	LD	(LL)	LW	M
MY1H16	80	6	3.5	14	17	40	∅M5X0.8	10	80	3.5	40	60	7
MY1H20	100	7.5	4.5	12.5	20.5	46	M6X1	12	100	4.8	50	78	8
MY1H25	110	9	5.5	16	24.5	54	M6X1	9.5	114	5.6	53	90	9
MY1H32	140	11	6.5	19	30	68	M8X1.25	16	140	6.8	70	110	13
MY1H40	170	14	8.5	23	36.5	84	M10X1.5	15	170	8.6	85	121	13

Part No	MM	N	NC	NE	NW	P	PA	PB	PC	PD	(PE)	PF	PG
MY1H16	M4X0.7	20	14	27.8	37	M5X0.8	40	40	7.5	21	9	3.5	3.5
MY1H20	M5X0.8	25	17.5	34	45	M5X0.8	50	40	14.5	27	12	4.5	4.5
MY1H25	M5X0.8	30	20	40.5	53	Rc(PT)1/8	60	50	14.5	32	13	5.5	7
MY1H32	M6X1	37	25	50	64	Rc(PT)1/8	80	60	15	42	13	6.5	8
MY1H40	M6X1	45	30.5	63	75	Rc(PT)1/4	100	80	20.5	37.5	23	8	9

Part No	PP	Q	QQ	RR	SS	TT	UU	QW	VV	VW	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	Unit N°	Ø16	Ø20	Ø25	Ø32	Ø40
Unit A	MYH-A16A	MYH-A20A	MYH-A25A	MYH-A32A	MYH-A40A	
Unit L	MYH-A16L	MYH-A20L	MYH-A25L	MYH-A32L	MYH-A40L	
Unit H	—	MYH-A20H	MYH-A25H	MYH-A32H	MYH-A40H	

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

STROKE ADJUSTING UNIT SPECIFICATIONS

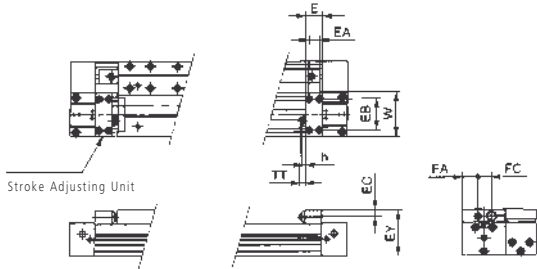
Applicable Cylinder	MY1H16		MY1H20			MY1H25		
	A	L	A	L	H	A	L	H
Stroke Adjusting unit type	A L		A L H			A L H		
Stroke Adjusting Range	Any position on the whole stroke							
Fine Adjusting Range (mm)	0 ~ -5.6		0 ~ -6			0 ~ 11.5		
Shock Absorber Type	-	RB0806	-	RB0806	RB1007	-	RB1007	RB1412
Max Absorbing 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		Extended			Extended		
	-	1.96	-	1.96	4.22	-	4.22	6.86
	Retracted		Retracted			Retracted		
	-	4.22	-	4.22	6.86	-	6.86	15.98
Operating Temperature	5~60°C / 40~140°F							

Applicable Cylinder	MY1H32			MY1H40		
	A	L	H	A	L	H
Stroke Adjusting 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		Extended		Extended	
	-	6.86	8.34	-	6.86	8.34
	Retracted		Retracted		Retracted	
	-	15.98	20.50	-	15.98	20.50
Operating Temperature	5~60°C / 40~140°F					

DIMENSIONS

ACCESSORIES: STROKE ADJUSTING UNIT

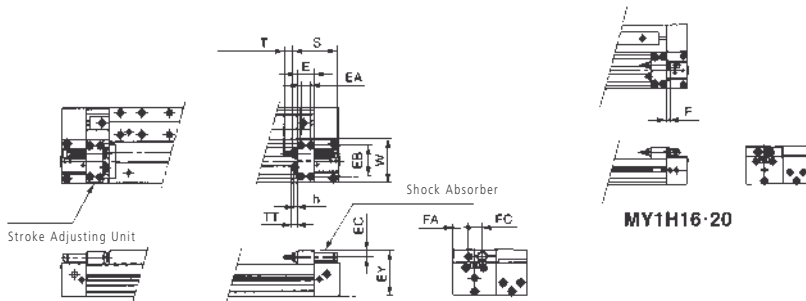
(Dimensions Applicable to Centralized Piping Type also)
With Adjusting Bolt "A"



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"

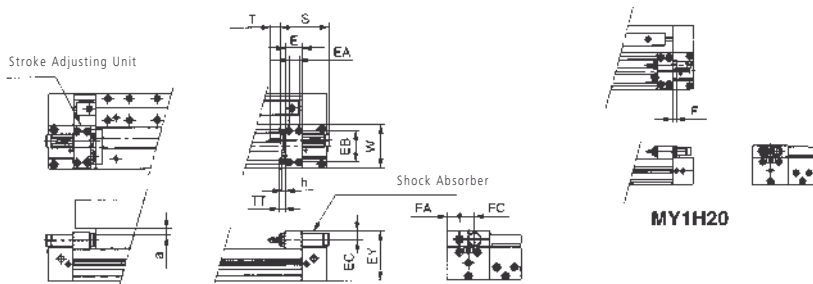


Since the EY size of type H unit is greater than the table top height (H dimension), when a workpiece is loaded that is larger than the full length (L dimension) of the slide table allow a clearance of size "a" or larger at the workpiece side.

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

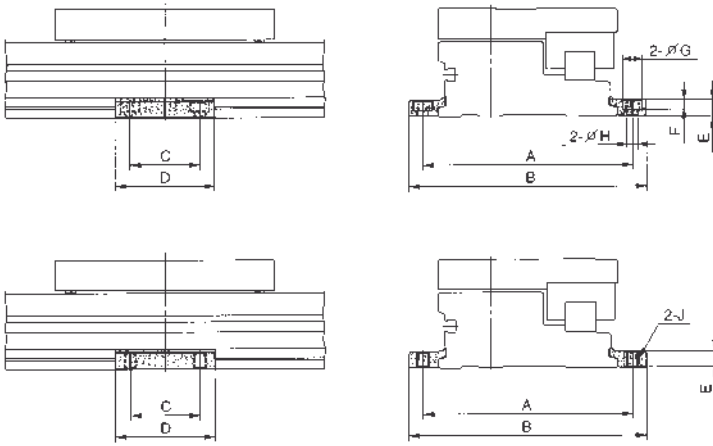
DIMENSIONS

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

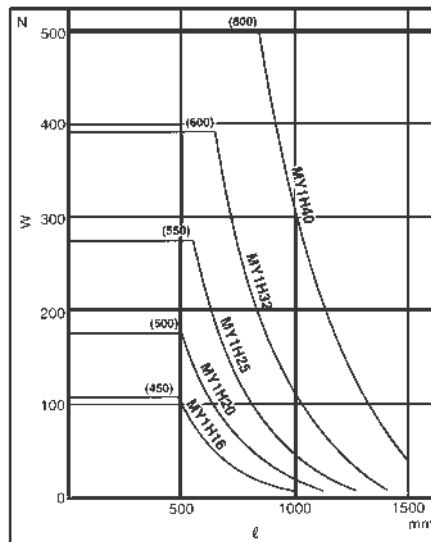
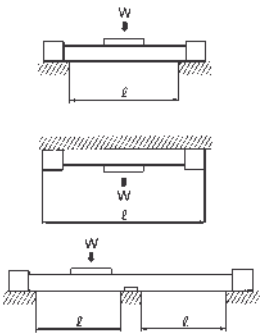


Part No	Model	Side Support A	Side Support B	A	B	C	D	E	F	G	H	J
MY-S16A/B	MY1H16	MY-S16A	MY-S16B	71	81.6	15	26	4.9	3	6.5	3.4	M4X0.7
MY-S20A/B	MY1H20	MY-S20A	MY-S20B	91	103.6	25	38	6.4	4	8	4.5	M5X0.8
MY-S25A/B	MY1H25	MY-S25A	MY-S25B	105	119	35	50	8	5	9.5	5.5	M6X1
MY-S32A/B	MY1H32	MY-S32A	MY-S32B	130	148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

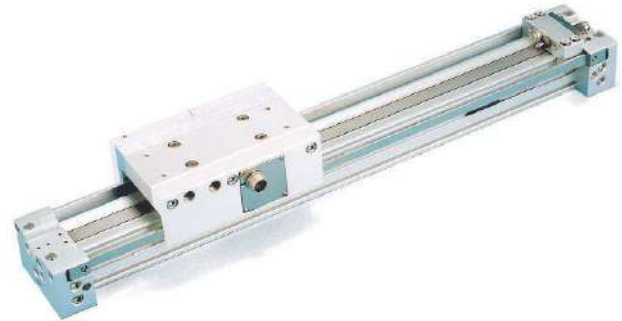


In case of Long Stroke

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

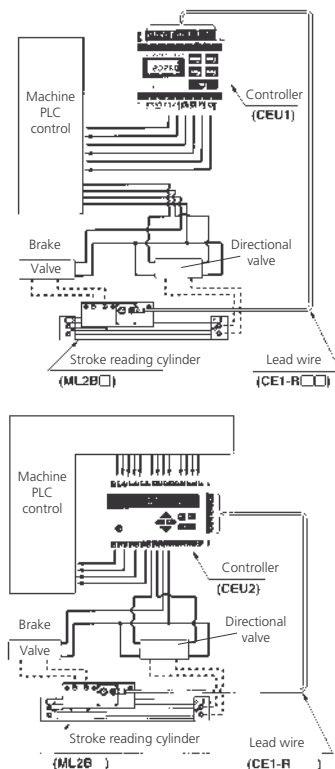


CYLINDER SPECIFICATIONS

Bore Size	$\phi 25$	$\phi 32$	$\phi 40$
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
Impact Resistance	JIS D1061 as standard
	30G. 3 times at each axis

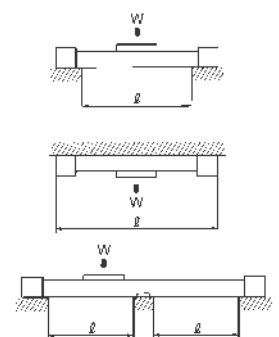
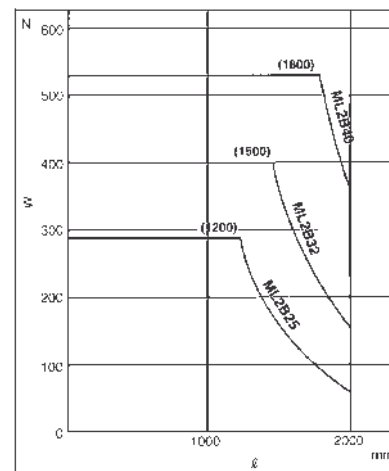
Extension Cable (option)	5m, 10m, 15m, 20m (Connector: R04-P8F7. 3. Tajima Musen Denki Company)
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TECHNICAL SPECIFICATIONS

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.

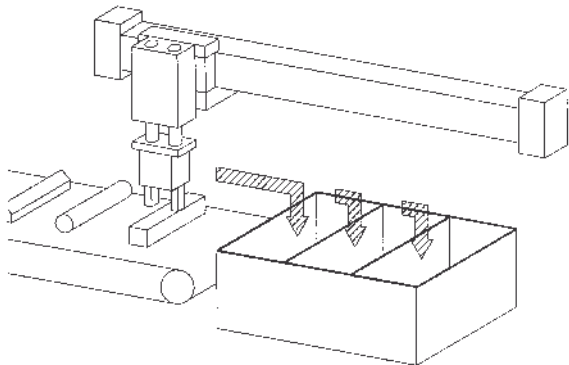
Note): If the cylinder tube mounting accuracy is not good enough, the side support may cause poor operation. Level the cylinder tube before mounting.



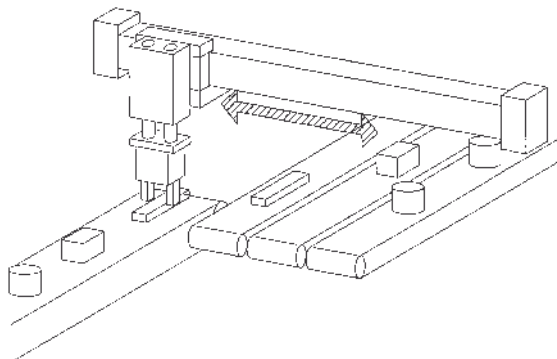
Unsupported span length not to exceed lengths shown by graph.

TECHNICAL SPECIFICATIONS APPLICATIONS

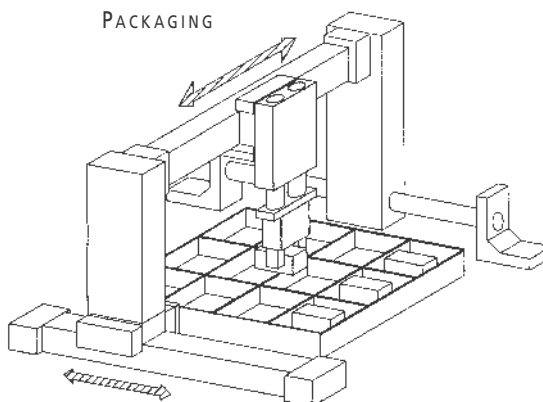
PICK & PLACE



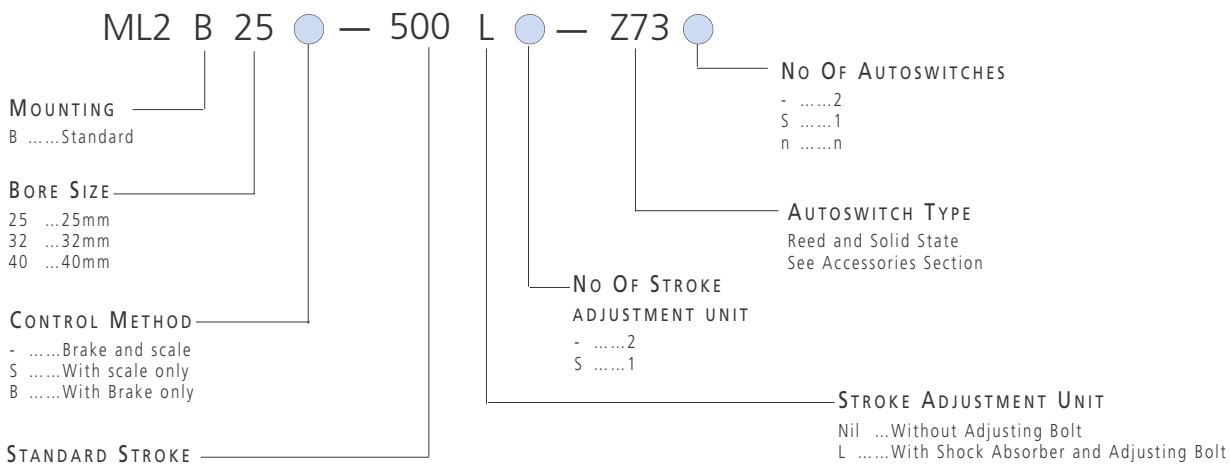
TRANSFER



PACKAGING



HOW TO ORDER SERIES ML2B



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

Shock Absorber Model

Model	ø25	ø32	ø40
.....	RB1007	RB1412	RB1412

OPTION

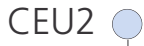
Stroke	Adjustment Unit
25	MY-A25L
32	MY-A32L
40	MY-A40L

STROKE ADJUSTMENT UNIT

25	MY-S25L	MY-S25B
32	MY-S32L	MY-S25B
40	MY-S40L	MY-S32B

MORE HOW TO ORDER SEE NEXT PAGE

HOW TO ORDER CONTROLLER



OUTPUT METHOD
-NPN Open Collector
PPNP Open Collector

HOW TO ORDER 3 POINTS PRESET COUNTER

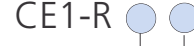


OUTPUT METHOD
-NPN Open Collector
PPNP Open Collector

COUNTER OPERATING POWER SUPPLY

-AC80~120V
DDC24V ±5%

HOW TO ORDER EXTENSION CABLE



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

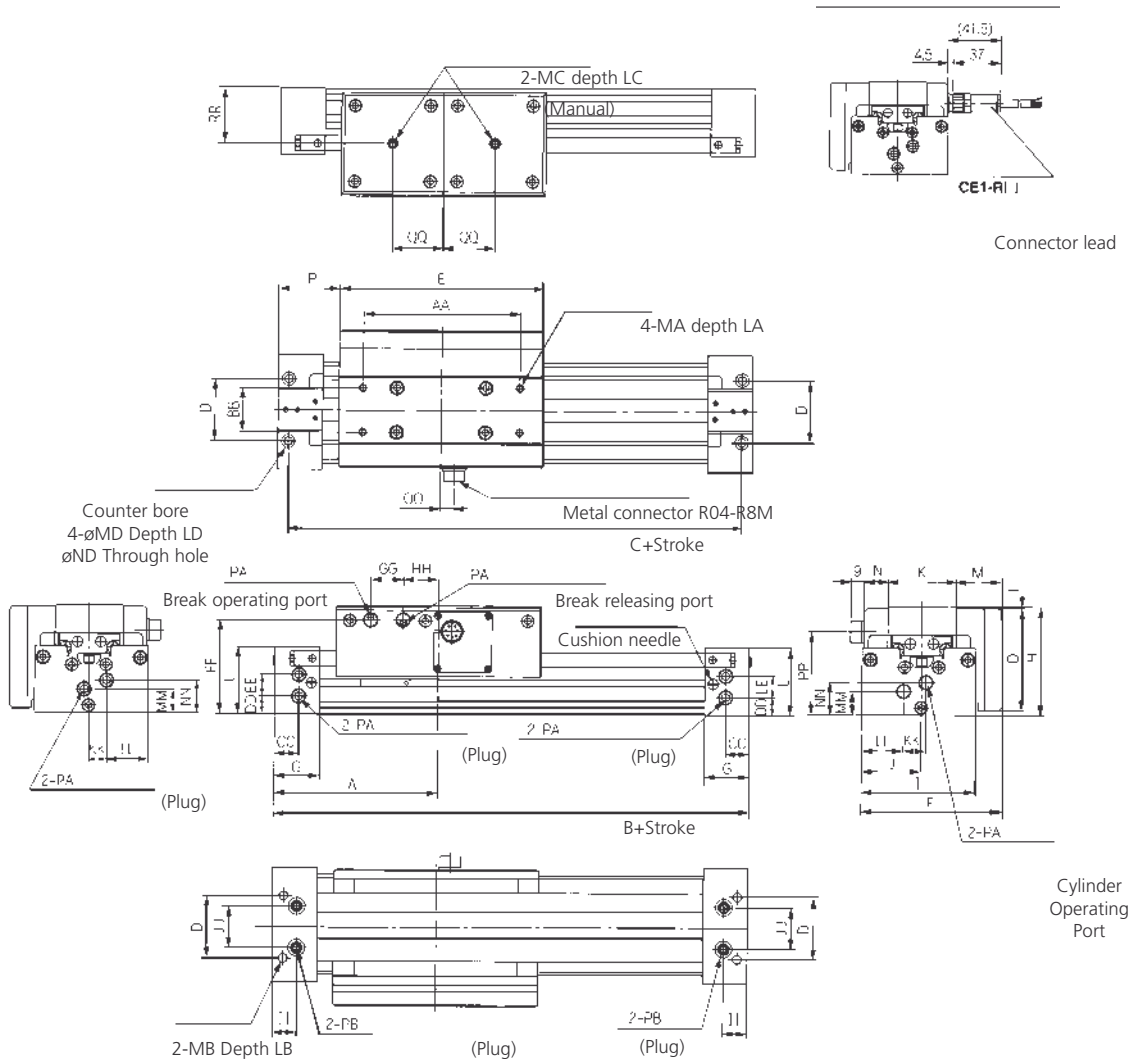
ACCESSORIES

SIDE SUPPORT

Bore Size	ø25	ø32	ø40
Side Support A	MY-S25A	MY-S25A	MY-S32A
Side Support B	MY-S25B	MY-S25B	MY-S32B

DIMENSIONS

Stroke Reading Rodless Cylinder Series ML2B



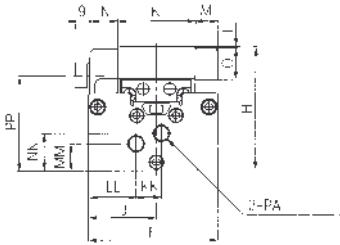
Connector lead

Cylinder Operating Port

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	AA	BB	CC	DD	EE	FF	GG	HH	II	JJ
ML2B25	110	220	206	42	138	93.5	30	73	76.5	40	46	45.5	30.5	16	69	41	106	30	16	12	13.5	63.5	22	24	16	28
ML2B32	140	280	264	51	168	107.5	37	88	91	46.5	58	54	32	15	84	56	133	36	19	15	16	77.5	27	32	19	32
ML2B40	170	340	322	59	204	130.5	45	106	110	55	68	64	41.5	19	102	68	164	40	23	16.5	22	95	35	37	23	36

Model	KK	LL	MM	NN	OO	PP	QQ	RR	MA	LA	MB	LB	MC	LC	MD	LD	ND	PA	PB
ML2B25	15	28	16	22	9	56	34.5	37.5	M5x0.8	9	M6x1	9.5	M5x0.8	9.5	9	5.5	5.6	Rc (PT) 1/8	Rc (PT) 1/16
ML2B32	16	30.5	21.5	26	10	62.5	42	45	M6x1	12	M8x1.25	15	M6x1	12	11	6.5	6.8	Rc (PT) 1/8	Rc (PT) 1/16
ML2B40	17.5	37.5	24.5	37.5	23	77	51	54	M8x1.25	14	M10x1.5	15	M8x1.25	12	14	8.5	8.6	Rc (PT) 1/4	Rc (PT) 1/8

DIMENSIONS SCALE ONLY

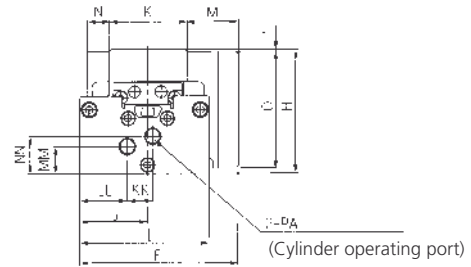


(Cylinder operating port)

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

Model	KK	LL	MM	NN	PA	PP
ML2B25	15	28	16	22	Rc (PT) 1/8	56
ML2B32	16	30.5	21.5	26	Rc (PT) 1/8	62.5
ML2B40	17.5	37.5	24.5	37.5	Rc (PT) 1/4	77

DIMENSIONS BRAKE ONLY

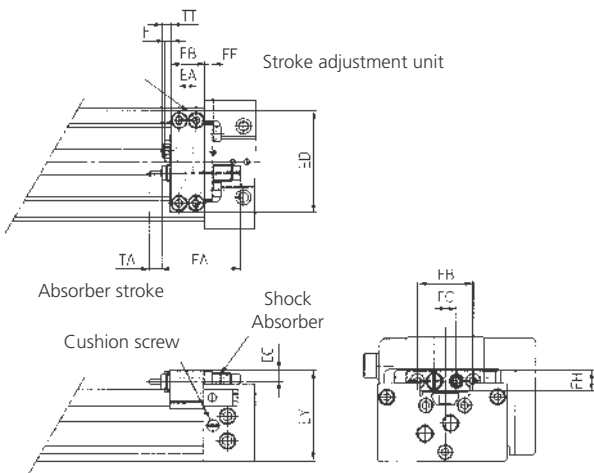


(Cylinder operating port)

Model	F	H	I	J	K	M	N
ML2B25	93.5	73	76.5	40	46	30.5	16
ML2B32	107.5	88	91	46.5	58	32	15
ML2B40	130.5	106	110	55	68	41.5	19

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

DIMENSIONS STROKE ADJUSTING UNIT



Stroke adjustment unit

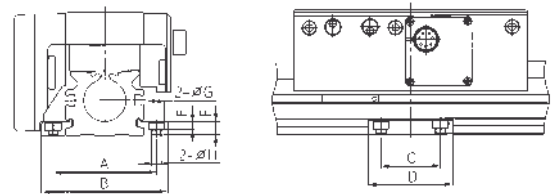
Absorber stroke

Shock Absorber

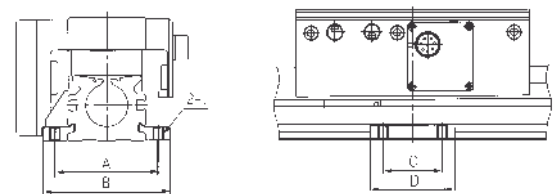
Cushion screw

Model	h	EA	EB	EC	ED	EY	FA	FB	FC	FF	FFH	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 ₂	ML2B25	61	75	35	50	8	5	9.5	5.5	M6x1
	ML2B32	70	84							
MY-S32 ₂	ML2B40	87	105	45	64	11.7	6	11	6.6	M8x1.25

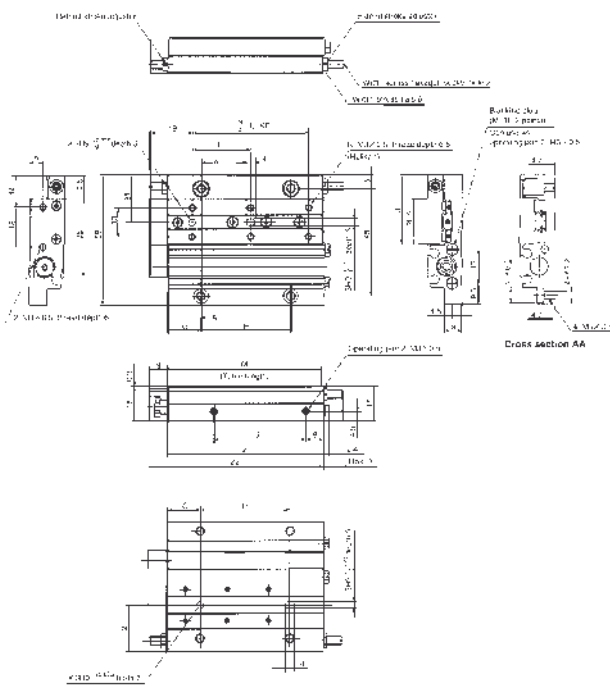
ACCESSORIES AUTO SWITCHES

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

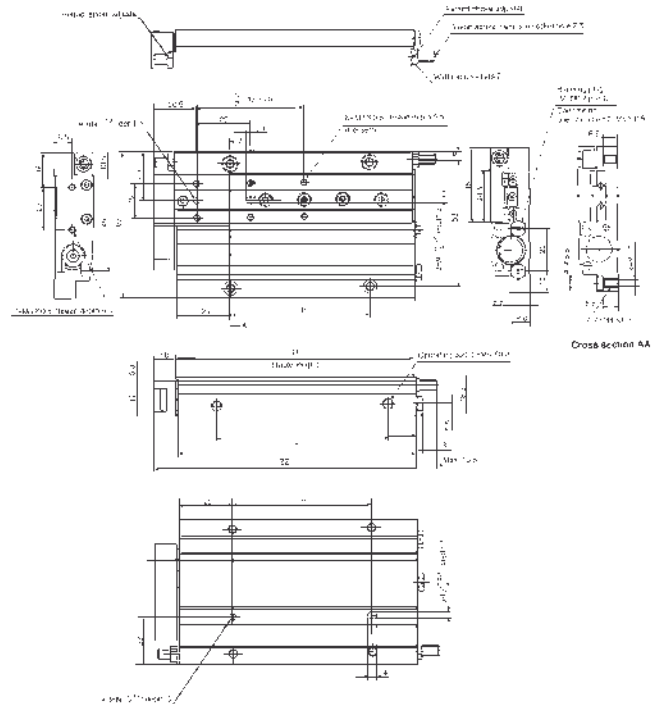
FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E242

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

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	M5x0.8	M5x0.8	M5x0.8	M5x0.8
Fluid	Air					
Operating Pressure	0.15 ~ 0.7 MPa / 22 ~ 102PSI					
Proof Pressure	1.05MPa / 153PSI					
Ambient & Fluid Temperature	-10 ~ +60°C / 40 ~ 140°F					
Lubrication	Not Required					
Auto Switches	Autoswitch Capable as Standard					
Speed	50 ~ 500mm/s / 2 ~ 20in/s					
Piston Rod Diameter (mm)	3	4	6	8	10	12
Optional Buffer Specification.						
Operating Stroke (mm)	5		10			
Buffer Load at 0mm stroke (N)	3	5	10	13	17	21
Buffer Load at max stroke (N)	6	8	13	17	25	29

TECHNICAL SPECIFICATIONS

COMBINATION OF OPTIONS POSSIBLE WITH STROKE ADJUSTERS:

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

TECHNICAL SPECIFICATIONS

FORMULA FOR CALCULATION OF ALLOWABLE STATIC LOAD, Fp, Fy, AND Fr

When pitch moment is applied

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

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)
Lr: Distance between body and load point (mm)
Ly: Distance between body and load point (mm)
Cp: Correction value for insertion device distance (mm)
Cy: Correction value for insertion device distance (mm)
Cr: Correction value for insertion device 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

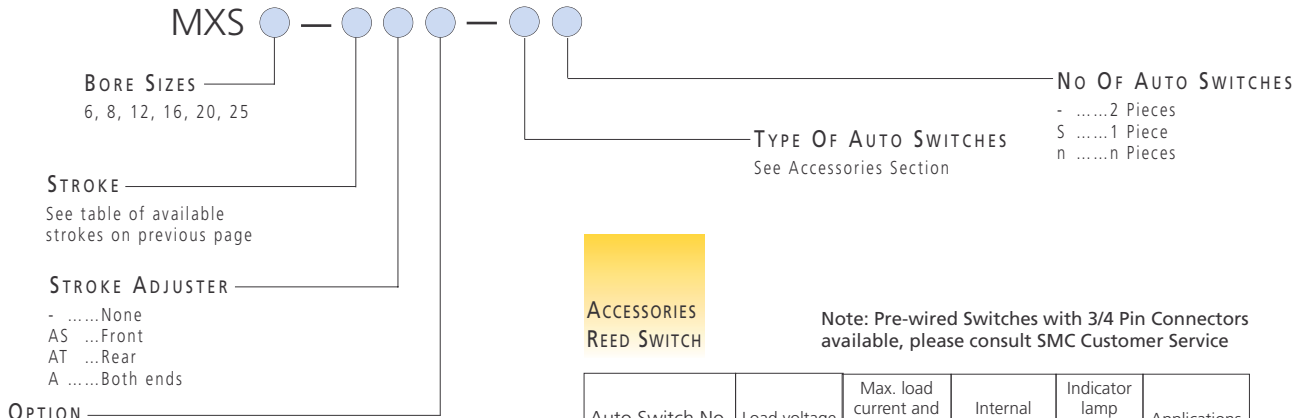
ALLOWABLE STATIC MOMENT

Cylinder Bore (mm)	Allowable Static Moment: Common to M1, M2, and M3 (N•m)										Moment Center Distance (mm)		
	Stroke(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	35.87	34	36	38
MXS25	21.73	21.73	21.73	21.73	30.42	39.11	47.80	47.80	47.80	47.80	42	44	46

HOW TO ORDER
SEE NEXT PAGE

HOW TO ORDER

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



- 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.

Adjuster option	Functional option					
	-	F	R	P	FR	FP
-	O	O	O	O	O	O
AS	O	O	O	O	O	O
AT	O	O	X	X	X	X
A	O	O	X	X	X	X

O : Available X : Not Available

**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 $\frac{AC}{50}$ or less	50mA	0	None	PLC
	48V $\frac{AC}{50}$ or less	40mA			
	100V $\frac{AC}{50}$ 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		
		Reed switch	Solid state switch	
$\phi 6, \phi 8, \phi 12, \phi 16, \phi 20, \phi 25$	Reed switch	D-A90	Grommet	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, NPN type inline
		D-A96V		3 wire system, PNP type inline
	Solid state switch	D-F9N	2 wire system, inline	
		D-F9P	3 wire system, NPN type perpendicular	
		D-F9B	3 wire system, PNP type perpendicular	
		D-F9NV	2 wire system, perpendicular	
	D-F9PV			
	D-F9BV			

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

**ACCESSORIES
SHOCK ABSORBERS**

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

For Shock Absorber Specifications, please contact SMC Customer Service.

**ACCESSORIES
SOLID STATE SWITCH**

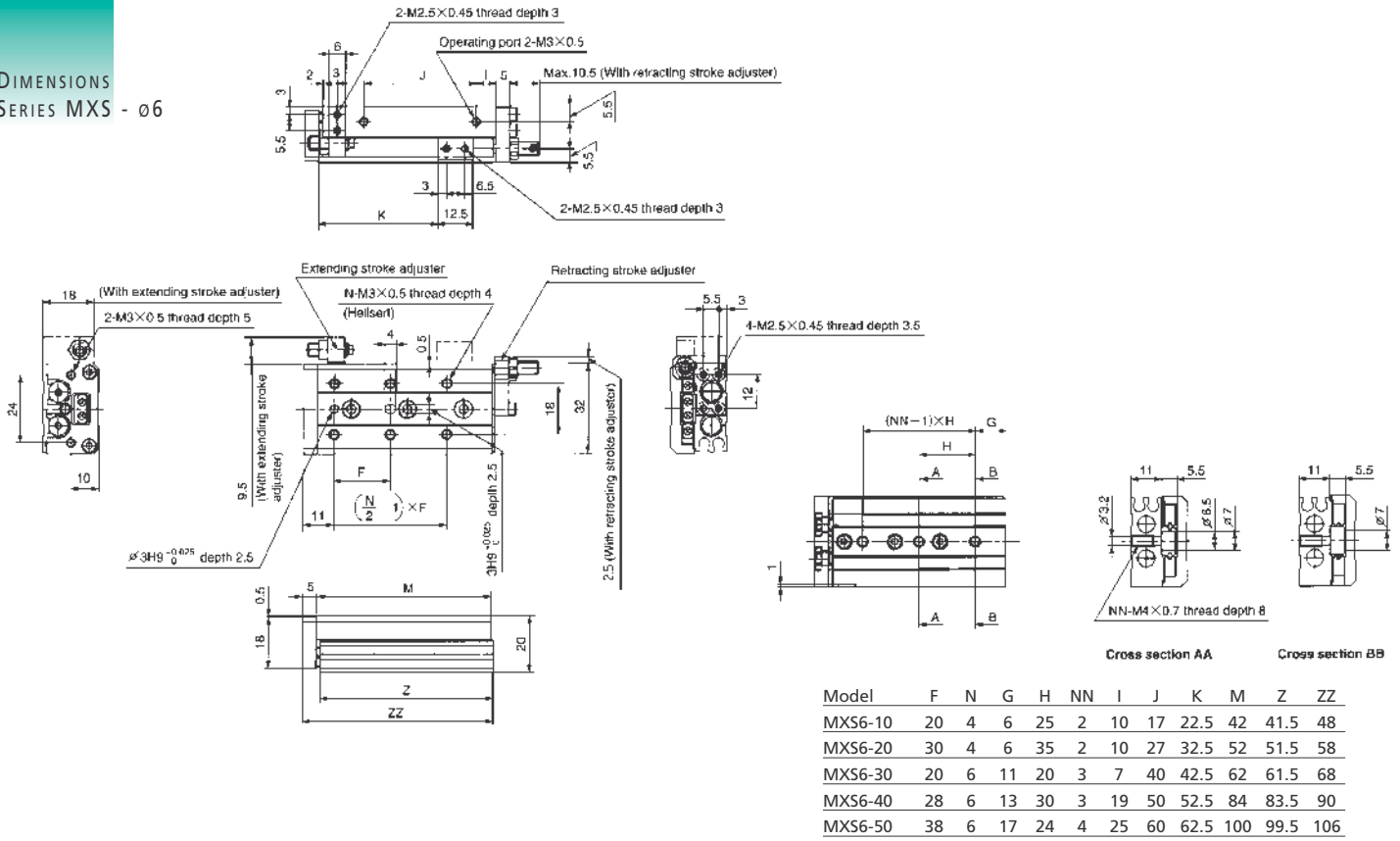
Auto Switch No.	Output Type	Load Voltage	Max Load Current and Load Current Range	Internal Voltage Drop	Leakage Current	Applications
D-F9NL *D-F9NVL	NPN type	28VDC or less	50mA or less	0.4V or less	24VDC at 10 μ A or less	PLC
D-F9PL *D-F9PVL	PNP type			1.5V or less		
D-F9BL *D-F9BVL	-	24VDC (10~28VDC)	5~30mA	4.5V or less	24VDC at 1mA or less	24VDC PLC

* These switches are applicable to the obstacle detection system on MXS ●-●●F type cylinders.

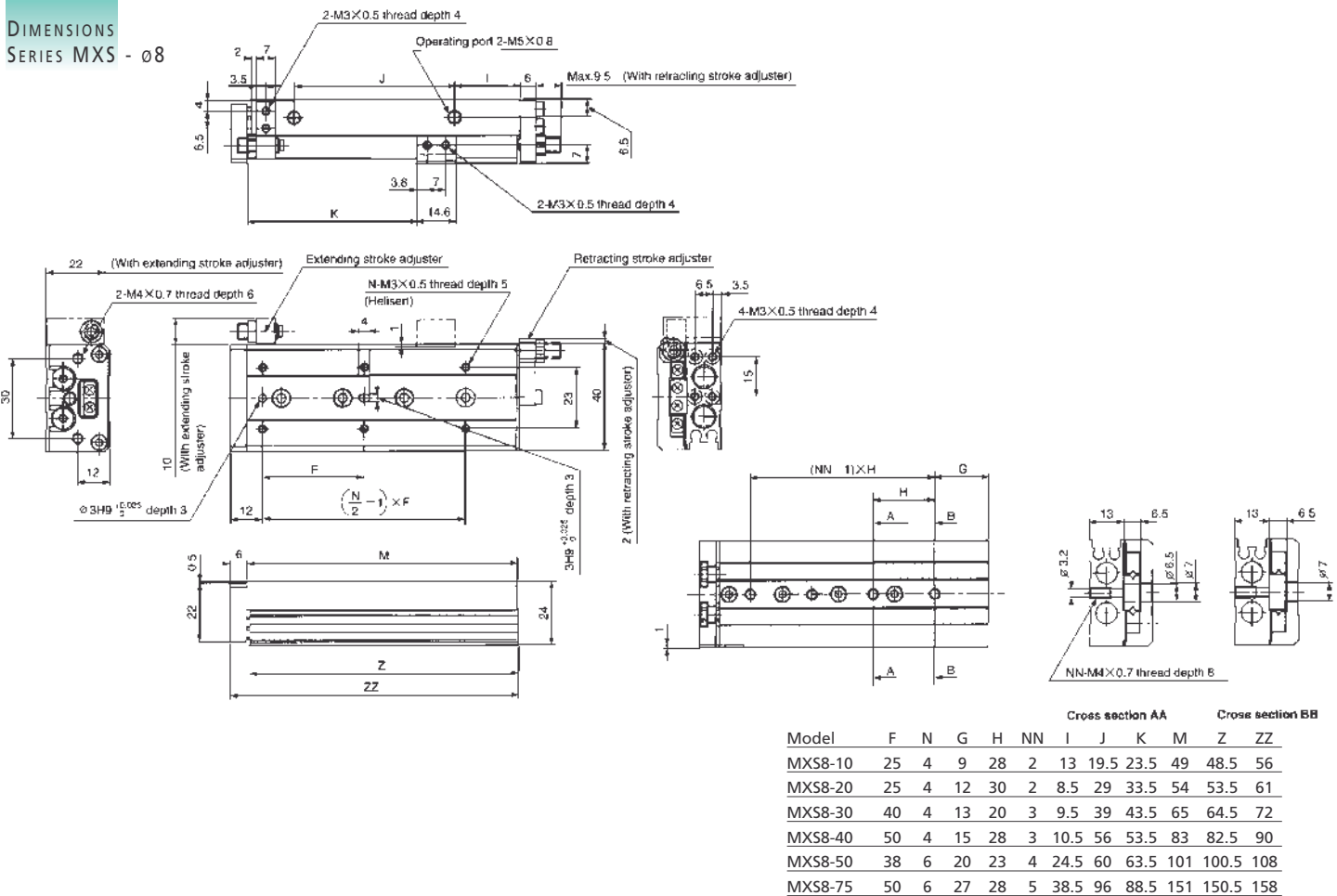
DIMENSIONS
SEE NEXT PAGE

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

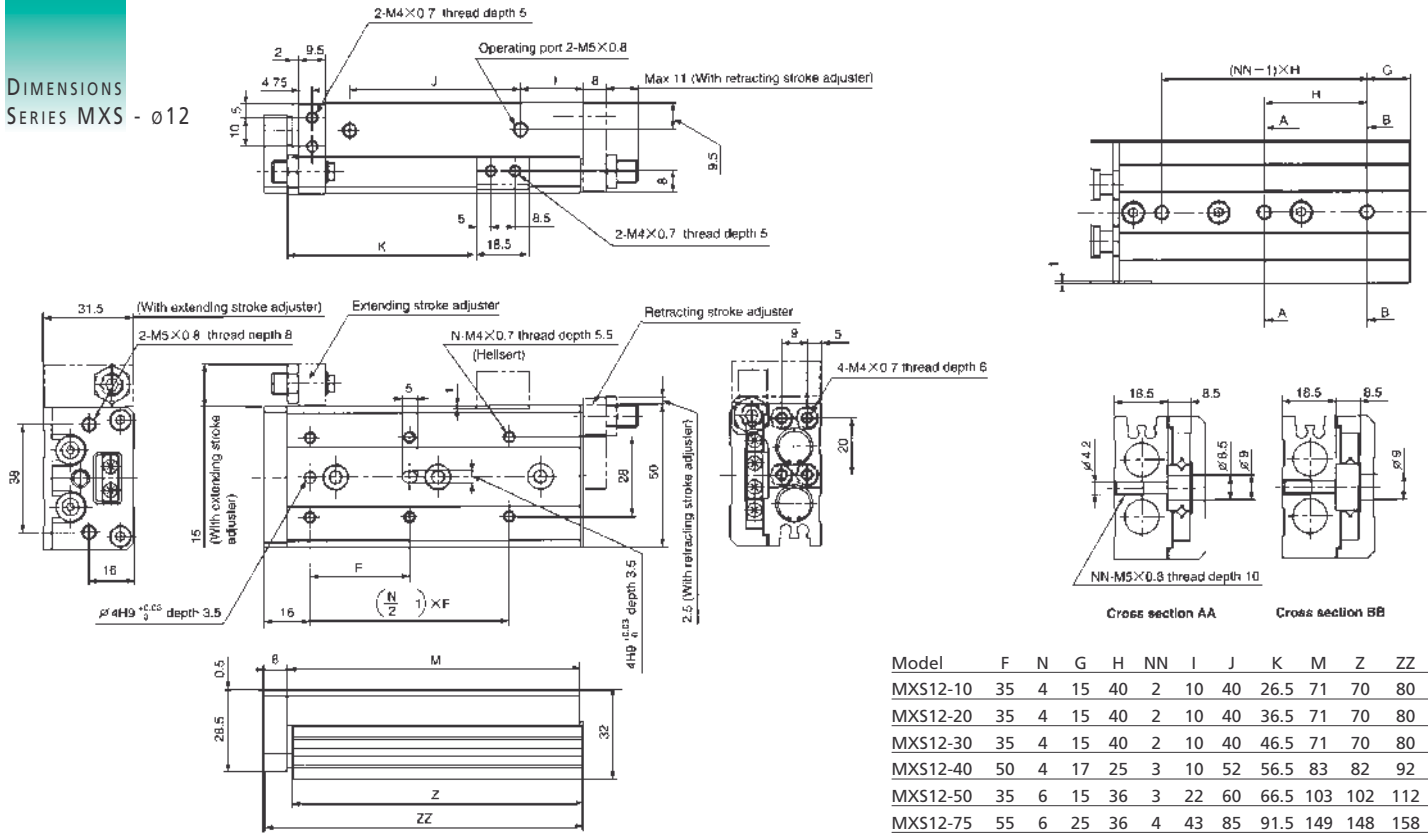
DIMENSIONS SERIES MXS - 06



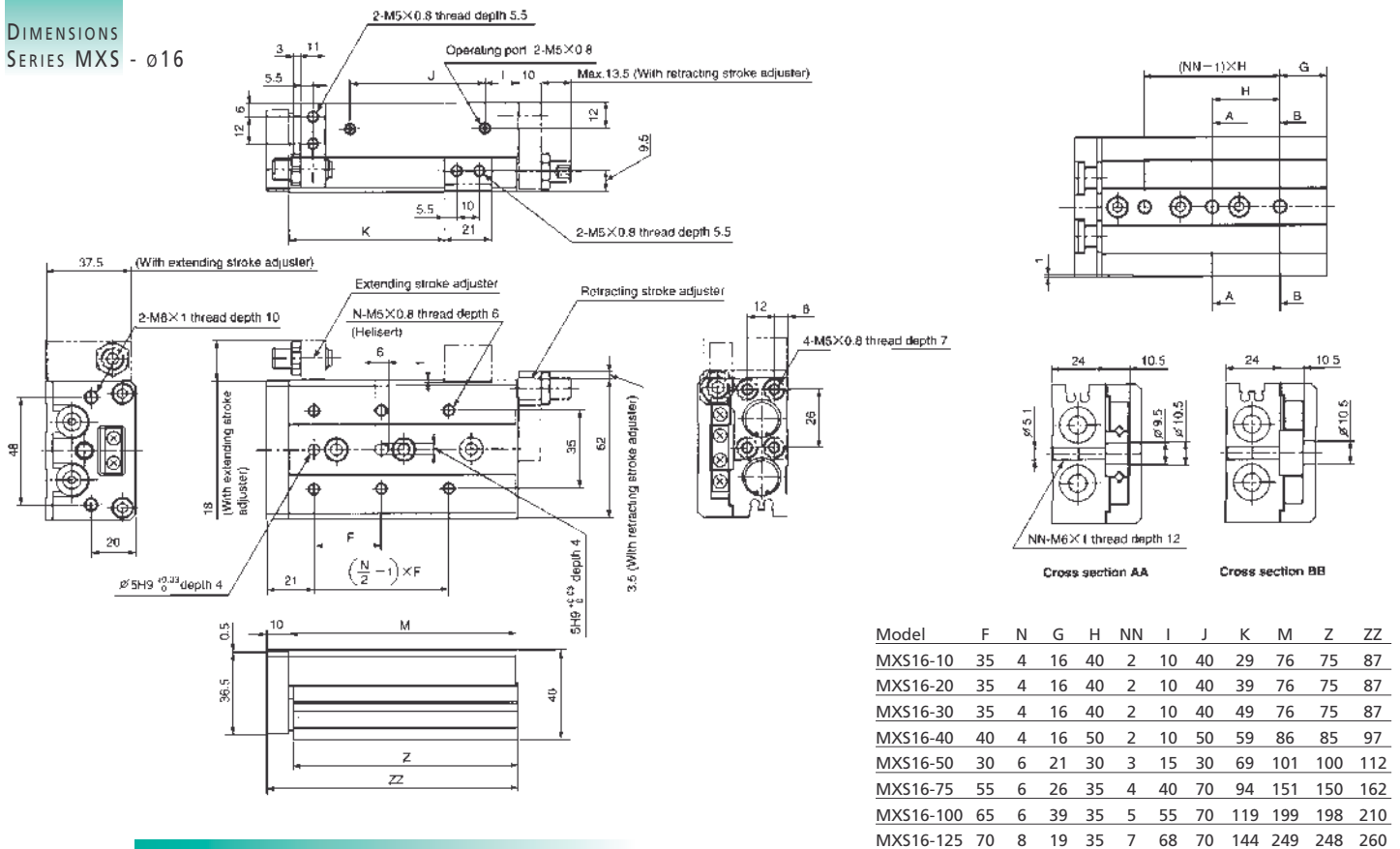
DIMENSIONS SERIES MXS - 08



DIMENSIONS
SERIES MXS - $\phi 12$



DIMENSIONS
SERIES MXS - $\phi 16$



FOR SERIES MXS $\phi 20$ AND $\phi 25$ 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



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

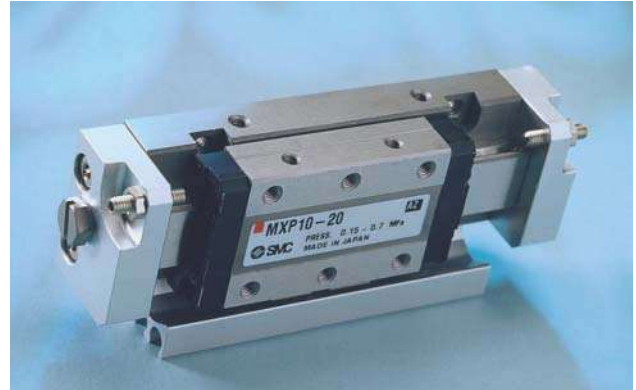
AUTO SWITCHES SERIES MXH

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

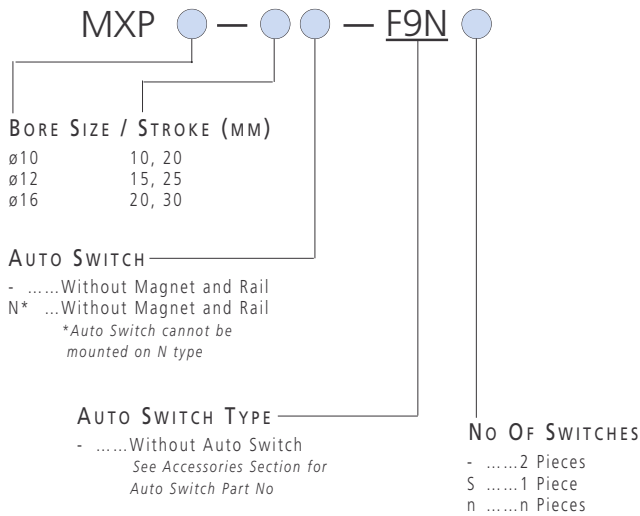
Type	Special Function	Electrical Entry	Indication Light	Wiring (Output)	Load Voltage			Auto Switch Part No		Lead Wire Length (m)			Applicable Load	
					DC	AC	AC	Electrical Entry Direction	Electrical Entry Direction	0.5 (Nil)	3 (L)	5(Z)		
Reed Switch	-	Grommet	No	2 Wire	24V	5V,12V	100V or less	A90V	A90	•	•	-	IC Circuit	Relay PLC
	-		Yes	2 Wire	24V	12V	100	A93V	A93	•	•	-	-	Relay PLC
	-		Yes	3 Wire (Equivalent to NPN)	-	5V	-	A96V	A96	•	•	-	IC Circuit	-
Solid State Switch	-	Grommet	Yes	3 Wire (NPN)	24V	12V	-	F9NV	F9N	•	•	-	-	Relay PLC
	-			3 Wire (PNP)				F9PV	F9P	•	•	-		
	-			2 Wire				F9BV	F9B	•	•	-		
Switch	Diagnostic Output (2 Color Indication)	Grommet	Yes	3 Wire (NPN)	24V	12V	-	F9NWW	F9NWW	•	•	•	-	Relay PLC
				3 Wire (PNP)				F9PWW	F9PWW	•	•	•		
				2 Wire				F9BWW	F9BWW	•	•	•		

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



TECHNICAL SPECIFICATIONS SERIES MXP

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

SPECIFICATIONS THEORETICAL OUTPUT DATA SERIES MXP

Bore Size (mm)	Piston Area (in ²)	Operating Pressure (PSI)				
		25	40	60	80	100
10	0.122	3.1	4.9	7.3	9.8	12.2
12	0.175	4.4	7.0	10.5	14.0	17.5
16	0.312	7.8	12.5	18.7	24.9	31.2

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

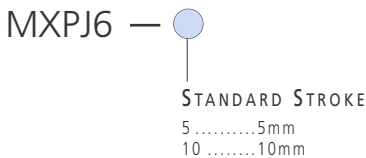
ACCESSORIES AUTO SWITCHES SERIES MXP

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	Electrical Entry Direction	Electrical Entry Direction			
Reed Switch	-	Grommet	Without	2 Wire	24V	5V, 12V	100V or less	A90V	A90	0.5 (Nil) 3 (L)	IC Circuit Relay PLC
	-		With	2 Wire	24V	12V	100V	A93V	A93		Relay PLC
	-		With	3 Wire (Equivalent to NPN)	-	5V	-	A96V	A96		IC Circuit
Solid State Switch	-	Grommet	Without	3 Wire (NPN)	24V	12V	-	F9NV	F9N	0.5 (Nil) 3 (L)	Relay PLC
	-		With	3 Wire (PNP)				F9PV	F9P		
	-		With	2 Wire				F9BV	F9B		
Switch	Diagnostic Output (2 Color Indication)	Grommet	Without	3 Wire (NPN)	24V	12V	-	F9N WV	F9N W	0.5 (Nil) 3 (L)	Relay PLC
	-		With	3 Wire (PNP)				F9P WV	F9P W		
	-		With	2 Wire				F9B WV	F9B W		

SERIES MXPJ6 BORE SIZES Ø6MM PRECISION AIR SLIDE TABLE

HOW TO ORDER SERIES MXPJ6



SPECIFICATIONS

THEORETICAL OUTPUT DATA SERIES MXPJ6

Bore Size (mm)	Piston Area (in ²)	Operating Pressure (PSI)				
		25	40	60	80	100
6	0.043	1.1	1.7	2.6	3.5	4.3

1 lbf = 4.4482N

TECHNICAL SPECIFICATIONS SERIES MXPJ6

Model	MXPJ6
Bore Size (mm)	ø6
Piping Port	M3 x 0.8
Fluid Used	Air
Action	Double Acting
Operating Pressure	0.15 ~ 0.7MPa / 22 ~ 102PSI
Ambient & Fluid Temperature	-10~60°C / 14 ~ 140°F
Operating Speed Range	50 ~ 500mm/s / 2 ~ 20in/s
Cushion	Rubber Bumper
Lubrication	Not Required
Tolerance of Stroke Length	0 ~ 1mm

ACCESSORIES

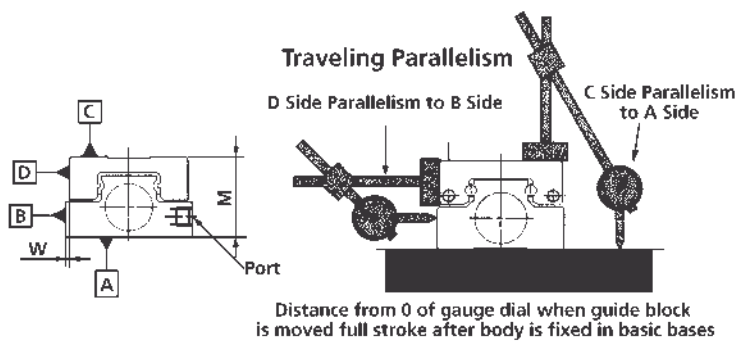
RAIL ASSEMBLY FOR AUTO SWITCH MOUNTING

Applicable Size	Part No of Switch Rail	Note
MXP10-10	MXP-AD10-10	With Magnet and Mounting Screw
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	

SPECIFICATIONS

TRAVELING PARALLELISM SERIES MXP

		MXPJ6	MXP10	MXP12	MXP16
Parallelism	C Side Parallelism to A Side		0.02 mm		
	D Side Parallelism to B Side		0.02 mm		
Traveling Parallelism	C Side Parallelism to A Side		0.004 mm		
	D Side Parallelism to B Side		0.004 mm		
Dimension Tolerance of M		±0.05 mm			
Dimension of Tolerance W		±0.05 mm			



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

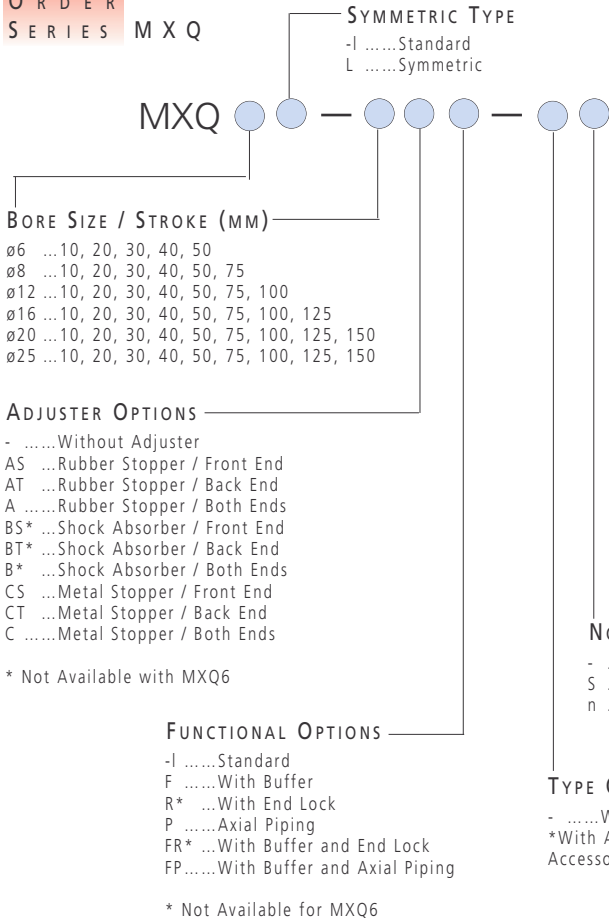


SERIES MXQ BORE SIZES Ø6, 8, 12, 16, 20, 25MM AIR SLIDE TABLE

- ✓ 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



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 ~ 8in/s	
Cushion	Rubber Cushion (Standard, Adjuster Option, Rubber Stopper) Shock Absorber (Adjuster Option, Shock Absorber)					
Lubrication	None (Adjuster Option, Metal Stopper)					

ACCESSORIES

SHOCK ABSORBER SERIES MXQ

Model	Type
MXQ8	RB0805
MXQ12	RB0806
MXQ16	RB1007
MXQ20	RB1411
MXQ25	RB1412

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

ACCESSORIES

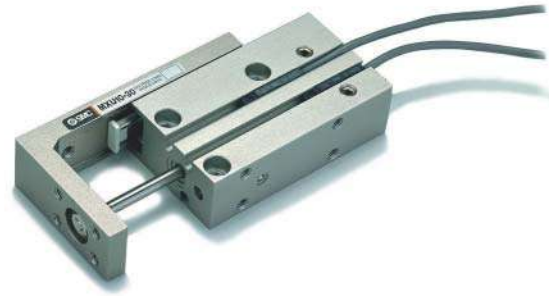
AUTO SWITCHES SERIES MXQ

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

Type	Special Function	Electrical Entry	Indication Light	Wiring (Output)	Load Voltage			Auto Switch Part No		Lead Wire Length (m)	Applicable Load
					DC	AC	100V or less	Electrical Entry Direction	In-Line		
Reed Switch	-	Grommet	Without	2 Wire	24V	5V, 12V	100V or less	A90V	A90	0.5 (Nil) 3 (L)	IC Circuit Relay PLC
	-		With	2 Wire	24V	12V	100V	A93V	A93		Relay PLC
	-		With	3 Wire (Equivalent to NPN)	-	5V	-	A96V	A96		IC Circuit -
Solid State Switch	-	Grommet	With	3 Wire (NPN)	24V	12V	-	F9NV	F9N		Relay PLC
	-		3 Wire (PNP)	F9PV				F9P			
Switch	-	Grommet	With	2 Wire	24V	12V	-	F9BV	F9B		Relay PLC
	Diagnostic		3 Wire (NPN)	F9NVV				F9NW			
	Output		3 Wire (PNP)	F9PVV				F9PW			
	(2 Color Indication)		2 Wire	F9BVV				F9BW			

COMPACT SLIDE SERIES MXU BORE SIZES Ø6, 10, 16MM

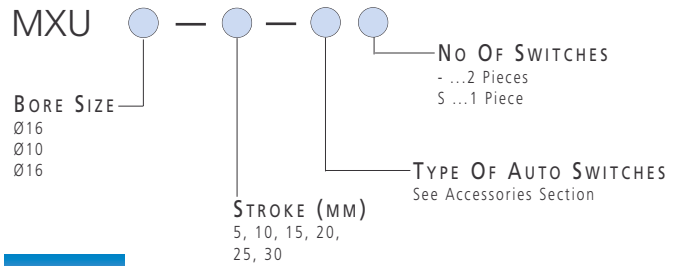
- ✓ Accurate Linear Guided Worktable
- ✓ Precise Linear Movement and High Non-Rotating Accuracy
- ✓ Multi-Mounting Options
- ✓ Rubber Cushion as standard
- ✓ No Lubrication necessary



TECHNICAL SPECIFICATIONS

Bore Size	Ø6	Ø10	Ø16
Port Size	M5x0.8		
Fluid	Air		
Action	Double Acting		
Max Operating Pressure	0.7MPa / 102PSI		
Proof Pressure	1.05MPa / 153PSI		
Ambient and Fluid Temp	W/O Auto Switch	-10 +70°C / 14-160°F	
	With Auto Switch	-10 +60°C / 14-140°F	
Operating Speed Range	50 - 500mm/s / 2-20in/s		
Cushion	Rubber Bumper both sides		
Lubrication	Non-Lube		
Stroke Tolerance	+1.0 -0		
Construction	Body/Table	Aluminum Alloy	
	Rail/Guide	Carbon Tool Steel	

HOW TO ORDER MXU COMPACT SLIDE



PRODUCT SPECIFICATION

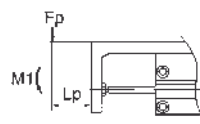
ALLOWABLE MOMENT

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	-
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	-
MXU16	5	0.115	0.099	0.296	37.5	12
	10	0.115	0.099	0.296	37.5	-
	15	0.153	0.132	0.380	46	-
	20	0.153	0.132	0.380	46	-
	25	0.190	0.165	0.464	50	-
30	0.190	0.165	0.464	52.5	-	

PRODUCT SPECIFICATIONS

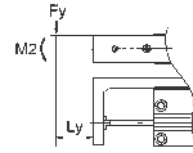
MAX. LOAD WEIGHT (G)

Model	Max Loading Weight
MXU6	100
MXU10	200
MXU16	400



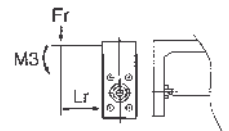
$$Fp = \frac{M1 \times 1000}{Lp + Cp + (St/2)} \text{ (N)}$$

Lp: Distance between table and loading point (mm)
Cp: Moment center position distance compensation amount (mm)
St: Stroke (mm)



$$Fy = \frac{M2 \times 1000}{Ly + Cy + (St/2)} \text{ (N)}$$

Ly: Distance between table and loading point (mm)
Cy: Moment center position distance compensation amount (mm)
St: Stroke (mm)



$$Fr = \frac{M3 \times 1000}{Lr + Cr} \text{ (N)}$$

Lr: Distance between table and loading point (mm)
Cr: Moment center position distance compensation amount (mm)

ACCESSORIES

AUTO SWITCHES

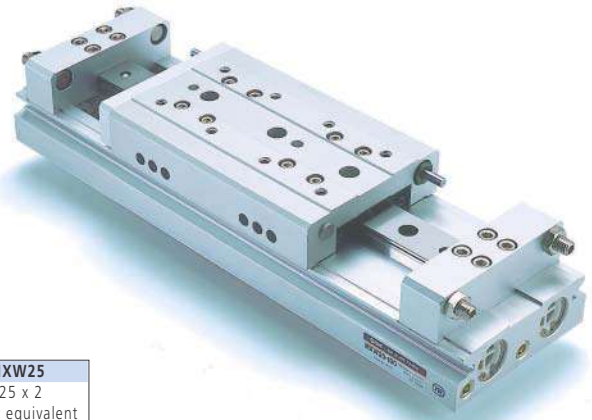
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

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	24VD PLC	28VDC or less	50mA or less	0.4V or less	Yes
Solid State	Grommet	D-F9PL	24VDC PLC	28VDC or less	50mA or less	1.5V or less	Yes
Solid State	Grommet	D-F9BL	24VD PLC	28VDC 10-28VDC	5 - 30mA	4.5V or less	Yes

DIMENSIONS
SEE NEXT PAGE

LONG STROKE SLIDE TABLE SERIES MXW BORE SIZES: Ø8/12/16/20/25MM

- ✓ Light Weight and Compact
- ✓ High Rigidity and Precision
- ✓ Multi Mounting Options
- ✓ Rubber Cushion as Standard
- ✓ Optional Stroke Adjustment
- ✓ Optional Integral Shock Absorber



TECHNICAL SPECIFICATIONS

Model	MXW8	MXW12	MXW16	MXW20	MXW25
Bore Size	ø8 x 2	ø12 x 2	ø16 x 2	ø20 x 2	ø25 x 2
Port Size	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) ½	Rc (PT) ½
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	Urethane Bumper both ends				
Option	Shock Absorber both ends				
Lubrication	Non-lube				
Stroke Adj. Range	One Side 5mm Both Sides 10mm				
Construction	Body/Table Rail/Guide	Aluminum Alloy			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

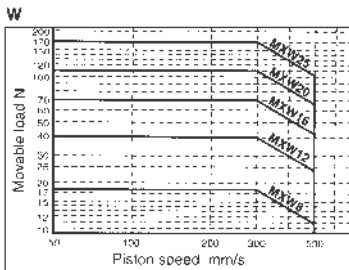
FOR SERIES MXW DIMENSIONS, PLEASE CONTACT SMC CUSTOMER SERVICE

ALLOWABLE MOMENT

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

STROKE OPTIONS (MM)

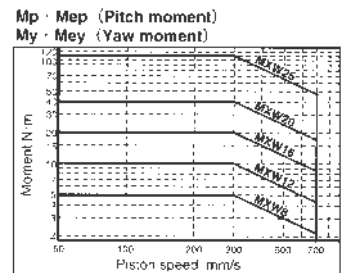
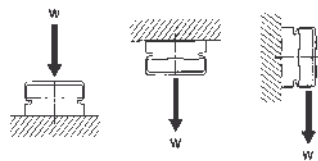
- For ø8 . . . 25, 50, 75, 100, 125, 150
- For ø12 . . . 50, 75, 100, 125, 150
- For ø16 . . . 75, 100, 125, 150, 175, 200
- For ø20 . . . 100, 125, 150, 175, 200, 225, 250
- For ø25 . . . 100, 125, 150, 175, 200, 225, 250, 300



PRODUCT SELECTOR

MOVABLE LOAD (N)

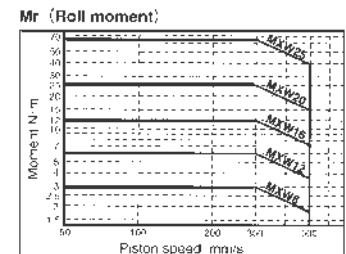
Model	W
MXW8	18
MXW12	40
MXW16	70
MXW20	110
MXW25	170



ACCESSORIES AUTO SWITCHES

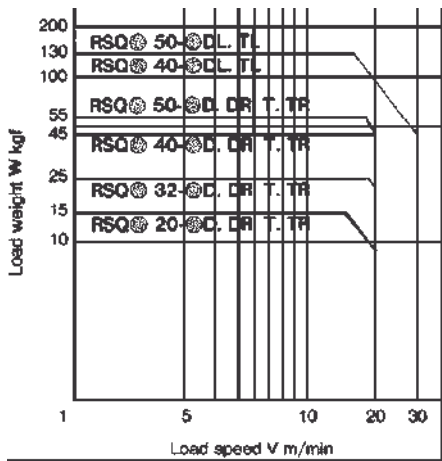
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

Type	Electrical Entry	Auto Switch	Application	Load Voltage	Load Current	Internal V Drop	Indicator Lamp (ON)
Reed	Grommet	D-A90L	PLC	24VAC/DC 48VAC/DC 100VAC/DC	50mA 40mA 20mA	0	No
Reed	Grommet	D-A93L	PLC	24VDC 28VDC or Less 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



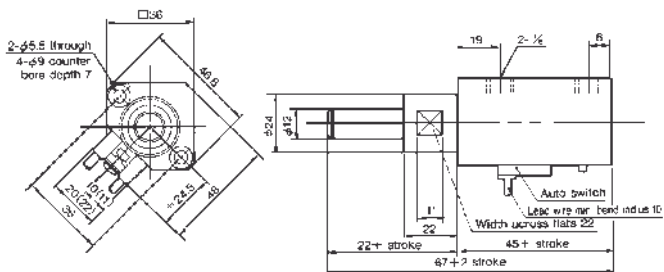
PRODUCT
SELECTOR

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.



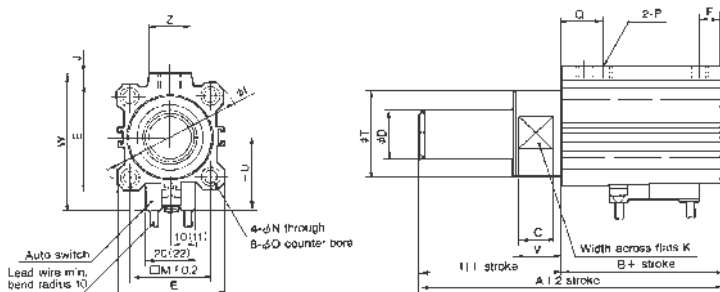
DIMENSIONS

ROUND BAR TYPE RS(D)QB20



DIMENSIONS

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



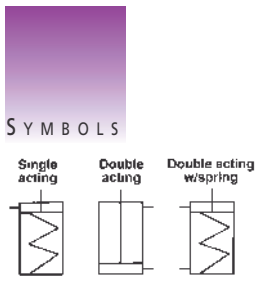
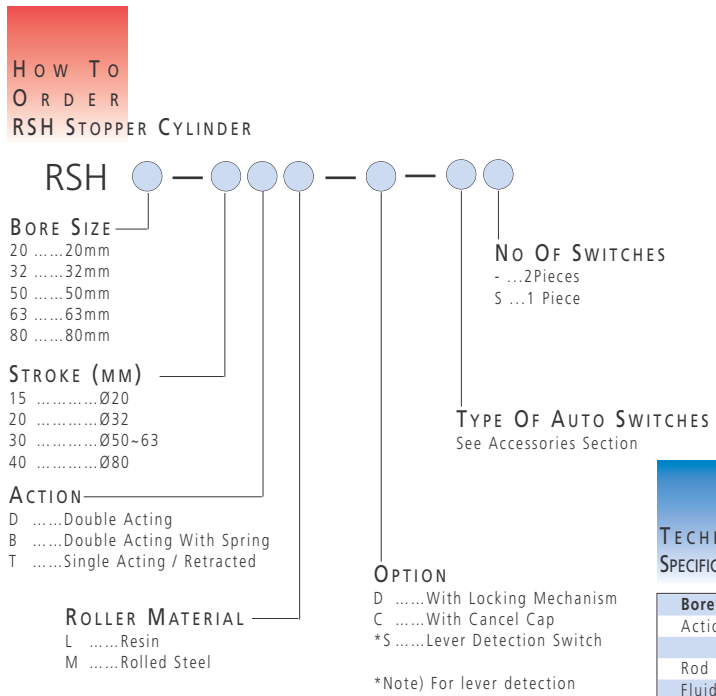
Bore	A	B	C	ØD	E	F	H	ØI	J	K	M	ØN	ØO counter bore
32	68	48	15	20	45	7.5	20	60	4.5	32	34	5.5	9 depth 7
40	80.5	52.5	18	25	52	8	28	69	5	41	40	5.5	9 depth 7
50	82	54	21	25	64	8	28	86	7	50	50	6.6	11 depth 8

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

MORE DIMENSIONS
SEE NEXT PAGE

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.



TECHNICAL SPECIFICATIONS

Bore	Ø20	Ø32	Ø50	Ø63	Ø80
Action	Double & Single Acting (Spring Extended) Double Acting with Spring				
Rod End Configuration	Lever Type with Built-in Shock Absorber				
Fluid	Air				
Proof pressure	1.5 MPa / 218PSI				
Max Operating Pressure	1.0 MPa / 145PSI				
Ambient & Fluid Temperature	Without Auto Switch -10° ~ 70°C (Air should not be frozen) 14~160°F With Auto Switch -10° ~ 60°C (Air should not be frozen) 14~140°F				
Lubrication	Non-lube				
Cushion	Rubber Cushion				
Stroke Length Tolerance	+1.4 -0				
Mounting	Flange				

ACCESSORIES
AUTO SWITCHES

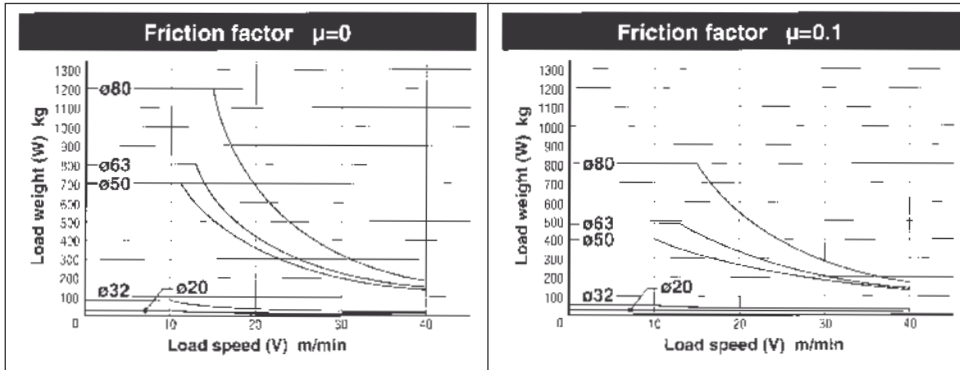
Type	Electrical Entry	Auto Switch Inline Type	Perpendicular Type	Load Voltage	Load Current	Internal Voltage Drop	Indicator Lamp
Reed	Grommet	D-Z76L		4-8V DC	Max 20mA	0.8V	ON: RED LED
Reed	Grommet	D-Z73L		24V DC 100V AC	5~40mA 5~20mA	Max 2.4V	ON: RED LED
Reed	Grommet	D-Z80L		48V AC/DC 24V AC/DC 100V AC/DC	Max 40 mA Max 50 mA Max 20mA	0V	None
Solid State NPN	Grommet	D-Y59AL	D-Y69AL	5V DC 12V DC 24V DC	Max 150mA	Max 0.8V	ON: RED LED
Solid State PNP	Grommet	D-Y7PL	D-Y7PVL	5V DC 12V DC 24V DC	Max 100mA	Max 0.8V	ON: RED LED
Solid State 2-Wire	Grommet	D-Y59BL	D-Y69BL	12V DC 24V DC	5~150mA	Max 3.0V	ON: RED LED
Solid State NPN	Grommet	D-Y7NWL	D-Y7NWVL	5V DC 12V DC 24V DC	Max 40mA	1.5V Max	ON: RED/GREEN
Solid State PNP	Grommet	D-Y7PWL	D-Y7PWVL	5V DC 12V DC 24V DC	Max 40mA	0.8V Max	ON: RED/GREEN
Solid State 2-Wire	Grommet	D-Y7BWL	D-Y7BWVL	12V DC 24V DC	5~40mA	4V Max	ON: RED/GREEN

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

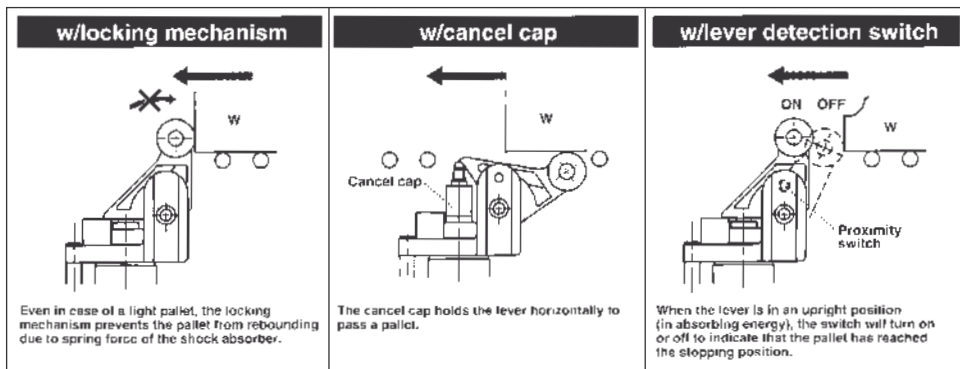
DIMENSIONS
SEE NEXT PAGE

PRODUCT SELECTOR

OPERATING RANGE



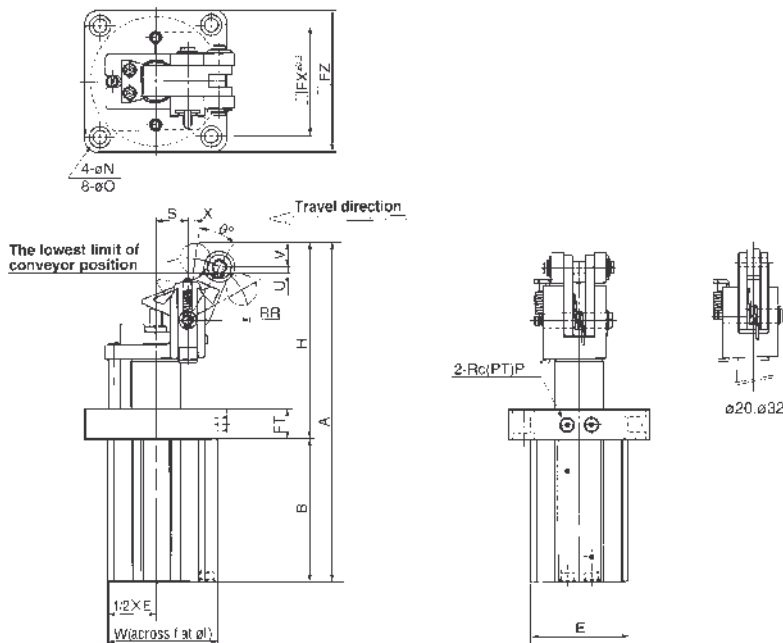
OPTIONS



DIMENSIONS

RSH STOPPER CYLINDER

Bore (mm)	Stroke	A	B	E	FT	FX 0.2	FZ	H	ØI	N	O	P	RR	S	U	V	W	X	q °
Ø20	15	144	70	36	8	40	48	74	47	4.4	-	M5X0.8	25	12	3	10.3	40	3	28
Ø32	20	160	73	46	16	53	67	87	60	6.6	11depth5	1/8	25	12	3	10.3	51.5	3	28
Ø50	30	221	93	64	20	73	93	128	85	9	14depth5	1/8	40	21	5.5	15.5	72	5	24
Ø63	30	251.5	107	77	25	90	114	144.5	103	11	18depth6	1/4	47	24.5	6.4	16	87.5	5	24
Ø80	40	299.5	128	98	25	110	138	171.5	132	13	20depth6	1/4	54	31	6.7	19.4	109	6	23

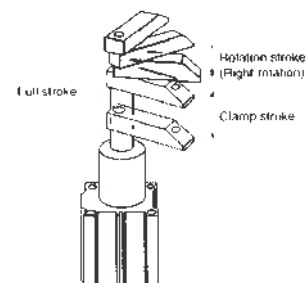
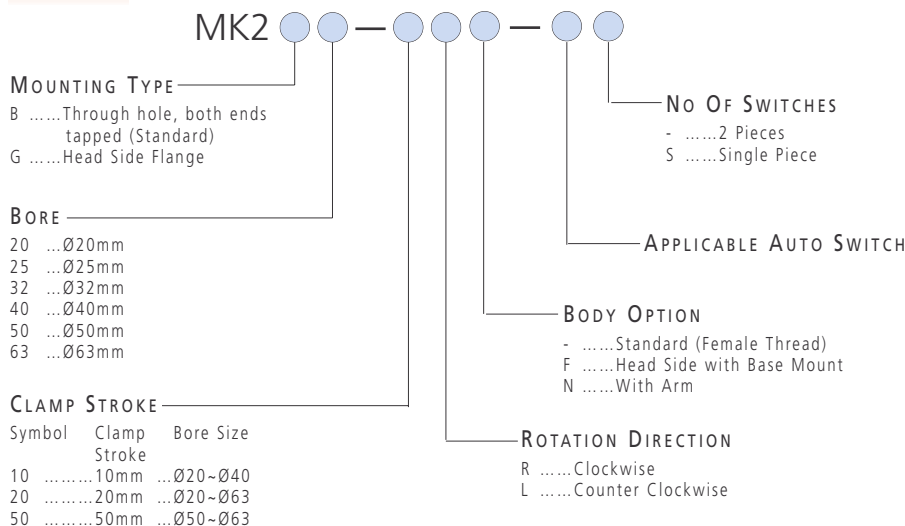


ROTARY CLAMP CYLINDER SERIES MK2 BORE SIZES Ø20 - 63MM

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

HOW TO ORDER

ROTARY CLAMP CYLINDER SERIES MK2



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

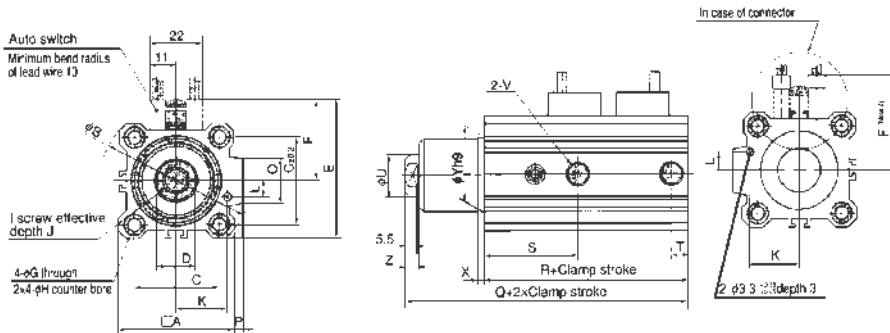
TECHNICAL SPECIFICATIONS SERIES MK2

Bore Size (mm)	20	25	32	40	50	63
Operation	Double Acting					
Rotary Angle	90°±10°					
Rotary Direction***)	R: Clockwise / L: CounterClockwise					
Rotary Stroke (mm)	9.5		15		19	
Clamp Stroke (mm)		10 • 20			20 • 50	
Allowable Moment N-m*)	7	13	27	47	107	182
Theoretical Clamp Force N**)	100	185	300	525	825	1400
Fluid	Air					
Proof Pressure	1.5MPa / 218PSI					
Operating Pressure Range	0.1 ~ 1MPa / 14.5~145PSI					
Ambient and Fluid Temperature	Without Auto Switch -10~+70°C (No Freezing) 14~160°F With Auto Switch -10~+60°C (No Freezing) 14~140°F					
Lubrication	Non-Lube					
Port Size	M5x0.8		Rc(PT)1/8		Rc(PT)1/4	
Mounting	Through Hole - Both Ends Tapped, Common - Head Side Flange					
Cushion	Rubber Cushion					
Stroke Tolerance (mm)	+0.6 / -0.4					
Piston Speed	50~200mm/s					
Performance of Non-Rotating	±1.2°		±0.9°		±0.7°	

*) Maximum Bending 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

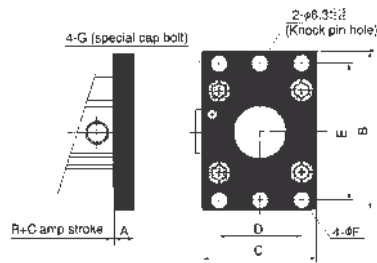
ROTARY CLAMP CYLINDER Ø32, 40, 50, 63 MM SERIES MK2
THROUGH HOLE AND BOTH ENDS TAPPED (STANDARD)



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 _{-0.062}	6.5
MK2B40	52	69	40	14 _{-0.2}	61	35	5.5	9 depth 7	M10X1.5	12	24 _{±0.15}	7 _{±0.15}	14	5	102.5	70	29.5	8	16	Rc (PT) 1/8	3	30 _{-0.062}	6.5
MK2B50	64	86	50	17 _{-0.2}	73	41	6.6	11 depth 8	M12X1.75	15	30 _{±0.15}	8 _{±0.15}	19	7	122	81.5	34	10.5	20	Rc (PT) 1/4	3.5	37 _{-0.062}	7.5
MKB63	77	103	60	17 _{-0.2}	86	47.5	9	14 depth 10.5	M12X1.75	15	35 _{±0.15}	9 _{±0.15}	19	7	125	85	35	10.5	20	Rc (PT) 1/4	3.5	48 _{-0.062}	7.5

DIMENSIONS

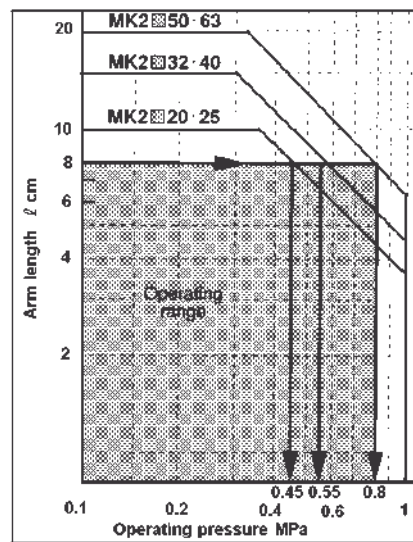
HEAD SIDE FLANGE Ø32, 40, 50, 63
SERIES MK2



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

PRECAUTIONS FOR MAKING AND MOUNTING ARMS

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

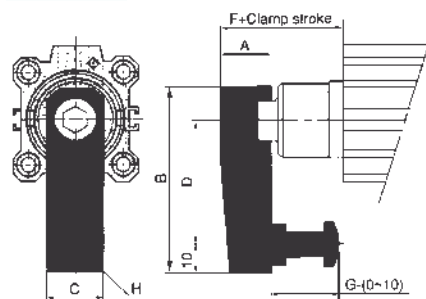


• TO ATTACH AND DETACH THE ARM TO AND FROM THE PISTON ROD, FIX THE ARM WITH A WRENCH OR VISE AND THEN TIGHTEN THE BOLT. (EXCESSIVE FORCE IN THE DIRECTION OF ROTATION APPLIED TO THE PISTON ROD MAY DAMAGE THE INTERNAL MECHANISM.)

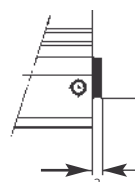
REFER TO THE FOLLOWING TABLE FOR TIGHTENING TORQUE FOR MOUNTING.

DIMENSIONS

WITH ARM 32/40/50/63-•• SERIES MK2

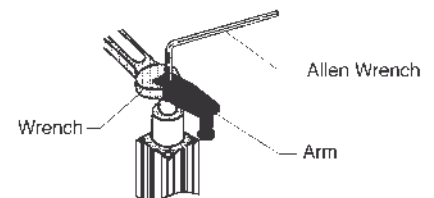


HEAD SIDE WITH BOSS MOUNT



Model	øAh9
MK2□32-□□F	21 ⁰ - ^{0.052}
MK2□40-□□F	28 ⁰ - ^{0.052}
MK2□50-□□F	35 ⁰ - ^{0.062}
MK2□63-□□F	35 ⁰ - ^{0.062}

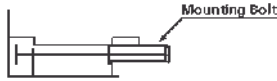
Model	A	B	C	D	F	G	H
MK2B32	18	67	20	45	39	25	M8X1.25
MK2B40	18	67	20	45	46	25	M8X1.25
MK2B50	22	88	22	65	58	40	M10X1.5
MK2B63	22	88	22	65	57.5	40	M10x1.5



Bore Size	Standard Tightening Torque (Nm)
20, 25mm	4 - 6
32, 40mm	8 - 10
50, 63mm	14 - 16

ACCESSORIES

MK2B MOUNTING BOLT



Mounting Method: A Through Hole Type
Mounting Bolt is available

Model	C	D	Mounting Bolt
MK2B20-10	8.5	75	M5x75ℓ
MK2B20-20	8.5	85	M5x85ℓ
MK2B25-10	10.5	80	M5x80ℓ
MK2B25-20	10.5	90	M5x90ℓ
MK2B32-10	10	90	M5x90ℓ
MK2B32-20	10	100	M5x100ℓ
MK2B40-10	6	80	M5x80ℓ
MK2B40-20	6	90	M5x90ℓ
MK2B50-20	10.5	105	M6x105ℓ
MK2B50-50	10.5	135	M6x135ℓ
MK2B63-20	9	105	M8x105ℓ
MK2B63-50	9	135	M8x135ℓ

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

ACCESSORIES

MOUNTING ATTACHMENT PART NO / FLANGE

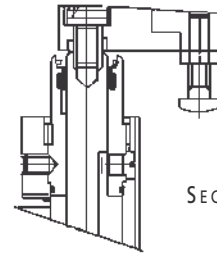
Bore Size (mm)	Part No.	Part No includes:
20	MK2-F020	Boss Mount Ring
25	MK2-F025	Set Pin
32	MK2-F032	Bolt for attachment to
40	MK2-F040	cylinder body.
50	MK2-F050	
63	MK2-F063	

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

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	



SECTION THROUGH ARM

ACCESSORIES

AUTO SWITCH SPECS $\phi 32 \sim \phi 63$ / DIRECT MOUNTING

Reed Auto Switch	Load Voltage	Max Load Current & Load Current Range	Internal Voltage Drop	Indicator Lamp (Lit at ON Cond)
D-A90	24V AC/DC or less	50mA	0	None
D-A90V	48V AC/DC or less	40mA		
	100V AC/DC or less	20mA		
D-A93	24VDC	5 ~ 40mA	2.6V or less	Yes
D-A93V	100VAC	5 ~ 20mA		
D-A96	4 ~ 8VDC	20mA	0.8V or less	Yes
D-A96V				

Solid State Auto Switch	Output Type	Power Source	Current Consumption	Load Voltage	Max Load Current and Load Current Range	Internal Voltage Drop	Leakage Current
D-F9N	NPN	24VDC	8mA or less	28VDC or less	50mA or less	0.4V or less	24VDC
D-F9NV		(10-28 VDC)	10mA or less			1.5V or less	at 10 μ or less
D-F9P	PNP						
D-F9PV				-			
D-F9B	-	-	-	24VDC	5-30mA	4.5V or less	24VDC at 1mA or less
D-F9BV				(10-28VDC)			

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

ACCESSORIES

AUTO SWITCH SPECS $\phi 20 \sim \phi 63$ / RAIL MOUNTING

Reed Auto Switch	Load Voltage	Max Load Current & Load Current Range	Indicator Lamp (Lit at ON Cond)	Protection Circuit for Contact Breaker Point
D-A72; A72H	200VAC	5~10mA	Yes	None
D-A73; A73H	24VDC	5~40mA	Yes	None
	100VAC	5~20mA		
D-A76H	4-8VDC	20mA	Yes	None
	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	.....	$\phi 20, \phi 25$
BQ-2	.....	$\phi 32 \sim \phi 63$

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

ACCESSORIES

AUTO SWITCH SPECS / RAIL MOUNTING

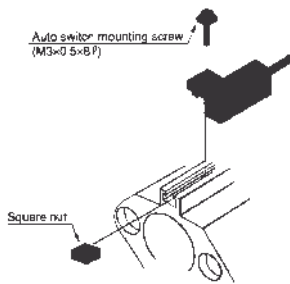
Solid State Auto Switch	Output Wiring	Load Current	Internal Voltage Drop Load Current (at10mA)	Indicator Lamp Lit at ON Cond (2 Color Signs)	Function
D-F79	3 Wire System NPN	150mA or less	0.8V	●	-
D-F7P	3 Wire System PNP	100mA or less	or less	●	-
D-J79	2 Wire System	5-150mA	3V or less	●	-
D-F7NV	3 Wire System NPN	150mA or less	0.8V	●	-
D-F7PV	3 Wire System PNP	100mA or less	or less	●	-
D-F7BV	2 Wire System	5-150mA	3V	●	-
D-J79C			or less	●	-
D-F79W	3 Wire System NPN / PNP	80mA or less	0.8V or less	⊗	-
D-J79W	2 Wire System	5-40mA	4V or less	⊗	-
D-F7NWW	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-PSDWL	2 Wire System	6-40mA	or less	⊗	Strong Magnetic Field Proof
D-PSDWBL				⊗	Strong Magnetic Field Proof (Special Cable)

ACCESSORIES

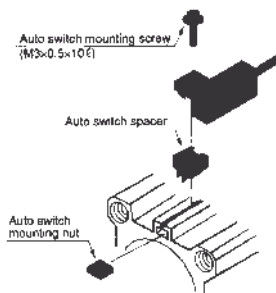
SERIES MK2 - AUTO SWITCH INSTALLATION

HOW TO INSTALL THE AUTO SWITCH

φ20, φ25



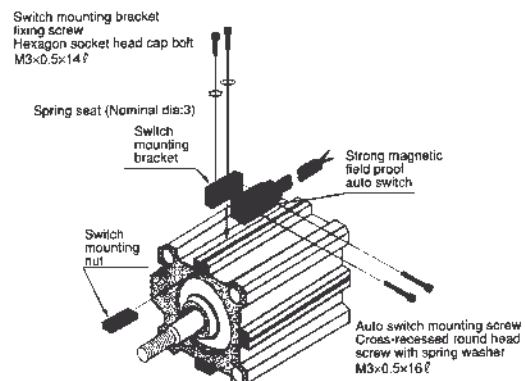
φ32 ~ φ63



ACCESSORIES

SERIES MK2

STRONG MAGNETIC FIELD PROOF
AUTO SWITCH (φ40~φ63)



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

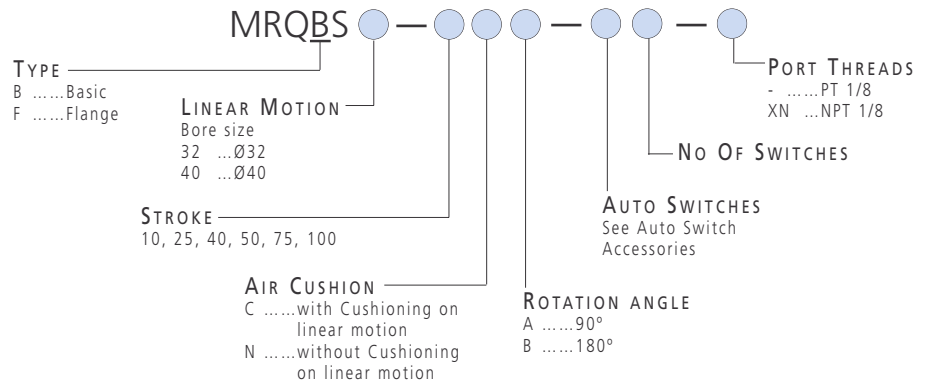
Fluid	Air (Not Lubricated)
Max Operating Pressure	0.71MPa / 103PSI
Min Operating Pressure	0.15MPa / 22PSI
Ambient & Fluid Temperature	0 ~ +60°C / 32 ~ 140°F
Mounting	Basic • Rod Side Flange

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

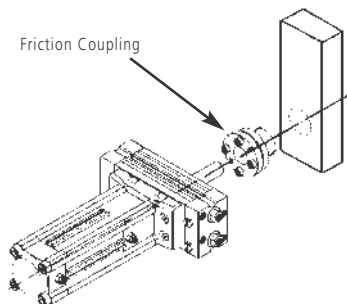
Ø32	.....P317010-7
Ø40	.....P317020-7

ACCESSORIES AUTO SWITCHES

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

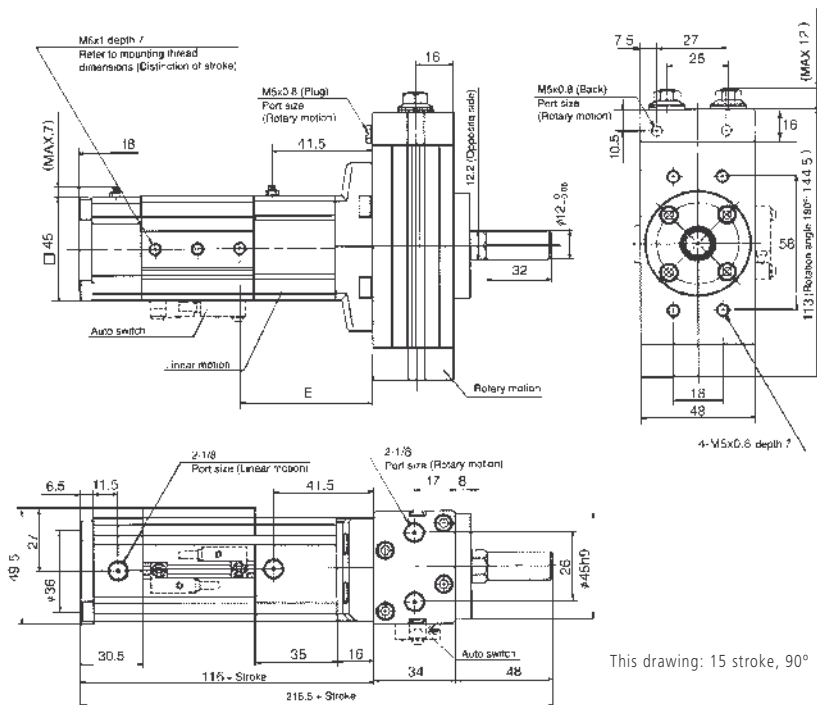
ACCESSORIES FRICTION COUPLING

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

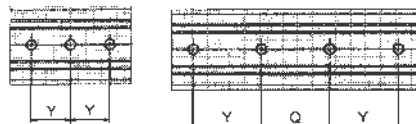


DIMENSIONS
SEE NEXT PAGE

DIMENSIONS
BASIC TYPE Ø32MM



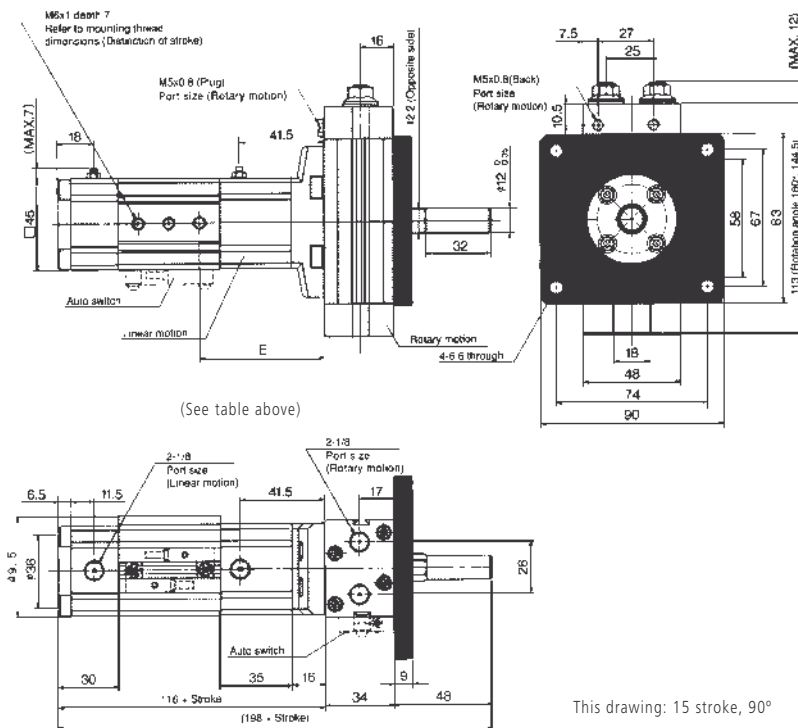
DIMENSIONS
MOUNTING THREAD (VARIATIONS WITH STROKE)



(mm)

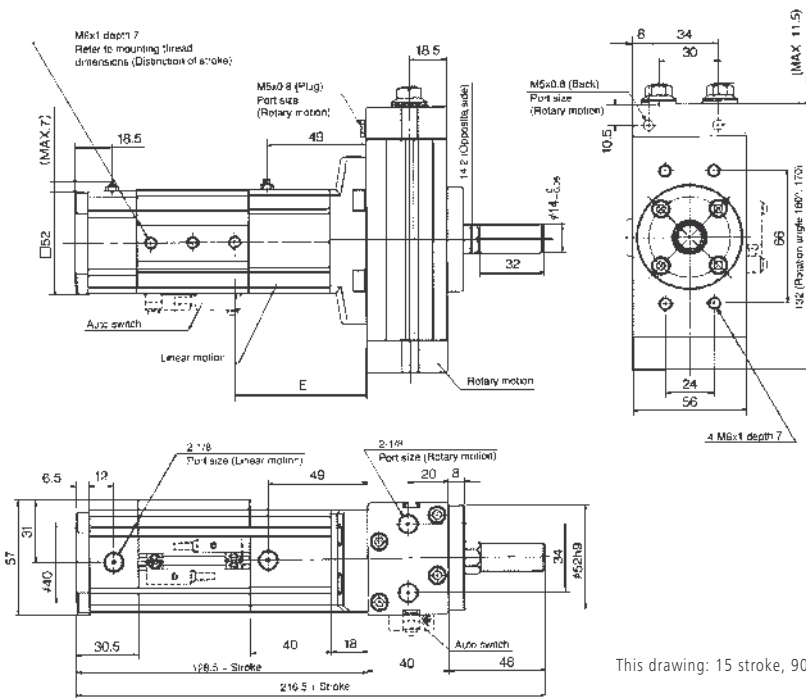
	Mounting thread 3 pcs.						Mounting thread 4 pcs.			
Stroke	5	10	15	20	25	30	40	50	75	100
Y	12.5	12.5	15	15	20	20	15	17.5	25	30
Q	—	—	—	—	—	—	20	20	20	30
E	58.5	61	51	63.5	61	63.5	63.5	66	71	73.5

DIMENSIONS
WITH FLANGE Ø32MM

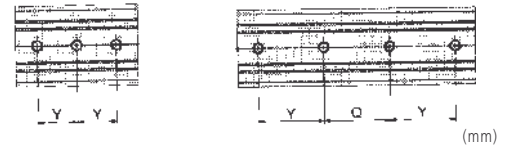


This drawing: 15 stroke, 90°

DIMENSIONS
BASIC TYPE Ø40MM

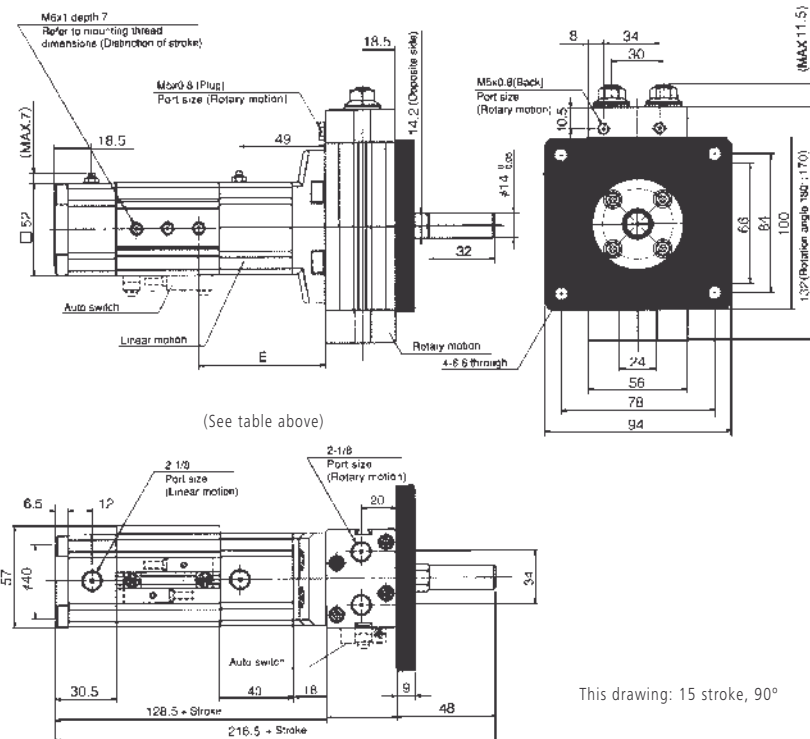


DIMENSIONS
MOUNTING THREAD (VARIATIONS WITH STROKE)



	Mounting thread 3 pcs.					Mounting thread 4 pcs.				
Stroke	5	10	15	20	25	30	40	50	75	100
Y	12.5	15	15	20	20	15	17.5	17.5	25	30
Q	—	—	—	—	—	20	20	20	20	30
E	68	68	70.5	68	70.5	68	70.5	75.5	80.5	83

DIMENSIONS
FLANGE Ø40MM



(See table above)

This drawing: 15 stroke, 90°

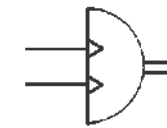
**RACK & PINION TYPE
ROTARY ACTUATOR
BORE SIZES Ø30, 50, 63, 80, 100MM
SERIES NCRA1**

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

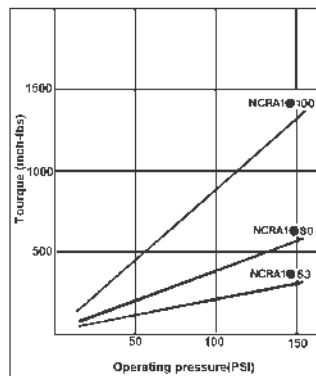
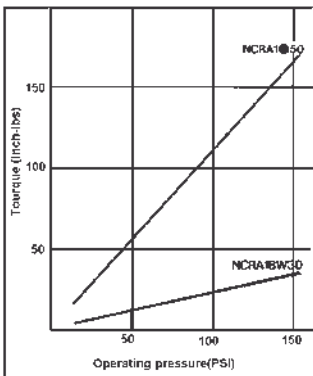


TECHNICAL

Fluid	Air (No Lubrication)				
Proof Pressure	1.5MPa / 225 PSI				
Max Operating Pressure	1MPa / 150 PSI				
Min Operating Pressure	0.1MPa / 15 PSI				
Ambient and Operating Fluid Temperature	5 ~ 60°C / 40 ~ 140°F				
Piston Diameter (mm)	30	50	63	80	100
Min Speed sec/90°	1	2	3	4	5
Max Speed sec/90°	0.2				
Stroke Tolerance	Adjustable ±6°	+4° -0°			
Allowable Kinetic Energy (Nm)	0.01	0.05	0.12	0.16	0.55



**TORQUE
SPECIFICATIONS
SERIES NCRA1**



DIMENSIONS
SEE NEXT PAGE

**HOW TO
ORDER**

NCRA1 ROTARY ACTUATOR

NC RA1BW

PISTON
-Basic
DMagnetic

BORE (MM)
30 ...1 3/16"
50 ...2"
63 ...2 1/2"
80 ...3 1/8"
100 ...4"

ROTATION
90 ...90°
180 ...180°

AUTO SWITCH TYPE
See Accessories Section

ADJUSTABLE CUSHION
CBoth End Cushion

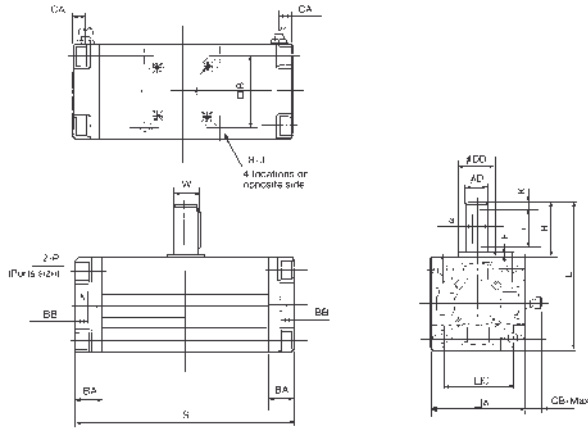
SHAFT
SSingle Rod End
WDouble Rod End
: 30mm Bore
Double Rod End Only

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

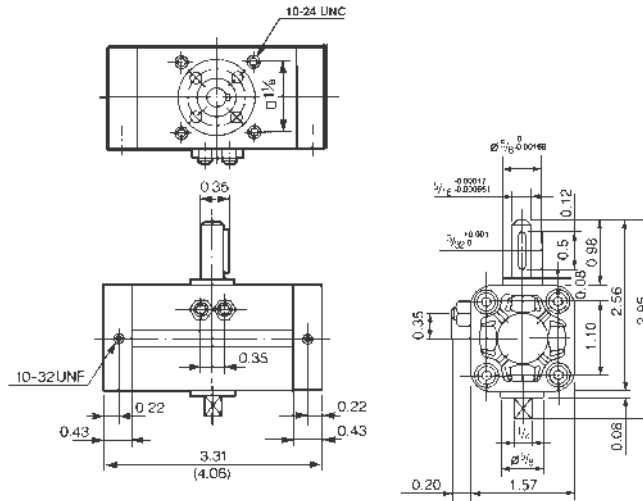
DIMENSIONS
WITHOUT AUTO SWITCH
SINGLE ROD END NCRA1BS50~100



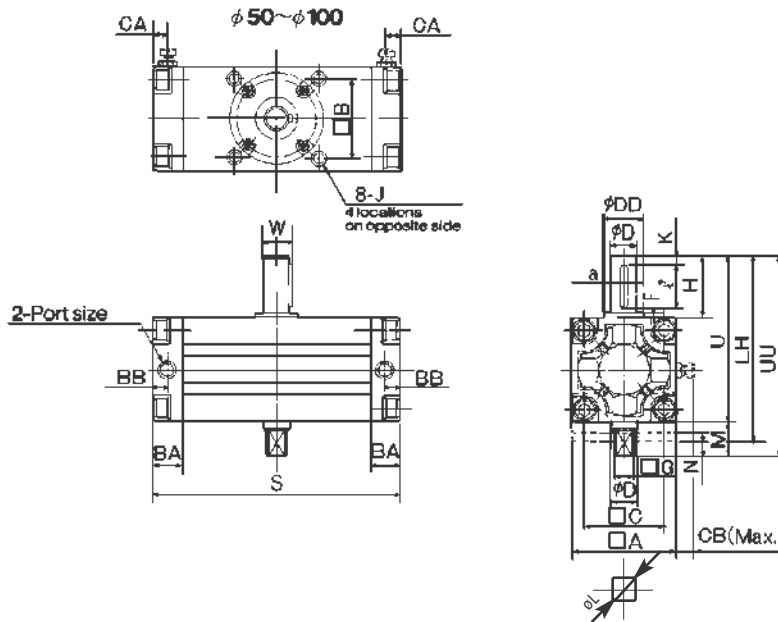
Model	P (NPTF)	□A	□B	□C	□D	□DD	F	H	J	K	S*	U	W	BA	BB	CA	CB	KEY		
																		a	Tolerance	ℓ
NCRA1BS50-__	1/8	2.44	1 7/8	1.81	9/16 -0.000236 -0.000236	1 0 -0.00205	0.1	1.42	5/16-18UNC Depth0.31	0.2	5.67 (6.97)	3.86	0.62	0.67	0.33	0.33	0.51	1/8		1
NCRA1BS63-__	1/8	2.99	2 3/8	2.24	5/8 -0.000669 -0.000669	1 1/8 0 -0.00244	0.1	1.61	3/8-16UNC Depth0.47	0.2	6.42 (7.93)	4.61	0.70	0.79	0.39	0.39	0.55	3/16	+0.001	1.25
NCRA1BS80-__	1/4	3.62	2 7/8	2.76	3/4 -0.000276 -0.000787 -0.000276	1 3/8 0 -0.00244 0	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



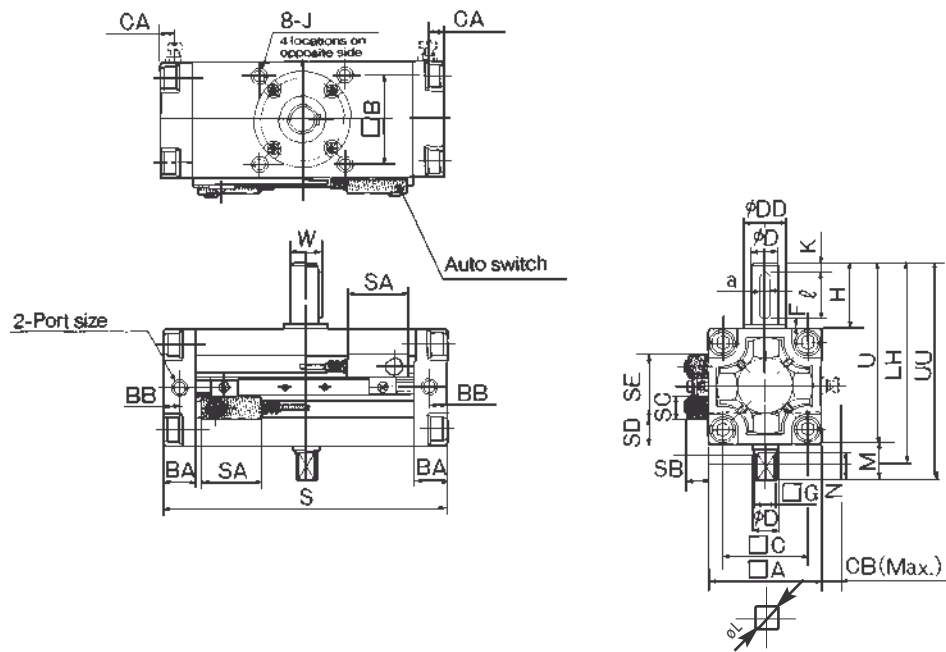
Model	P (NPTF)	□A	□B	□C	□D	□DD	F	□G	H	J	K	φL	M	N	S*	U	UU	W
NCRA1BW50-__	1/8	2.44	1 7/8	1.81	9/16	1 0 -0.000236 -0.000669	0.1	7/16	1.42	5/16-18UNC Depth0.31	0.2	9/16	0.79	0.59	5.67 (6.97)	3.86	4.65	0.62
NCRA1BW63-__	1/8	2.99	2 3/8	2.24	5/8	1 0 -0.000236 -0.000669	0.1	1/2	1.61	3/8-16UNC Depth0.47	0.2	5/8	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	1 0 -0.000276 -0.000787	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	1 0 -0.000276 -0.000787	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

DOUBLE ROD END WITH AUTO SWITCH NCDRA1BW50~100



Model	P (NPTF)	□A	□B	□C	□D	□DD	F	□G	H	J	K	øL	M	N	S*	U	UU	W		
NCDRA1BW50-_-A_-	1/8	2.44	1 7/8	1.81	9/16	$\begin{matrix} -0.000236 \\ -0.000669 \end{matrix}$	1	$\begin{matrix} 0 \\ -0.00205 \end{matrix}$	0.1	7/16	1.42	5/16-18UNC Depth0.31	0.2	9/16	0.79	0.59	6.14 (7.44)	3.86	4.65	0.62
NCDRA1BW63-_-A_-	1/8	2.99	2 3/8	2.24	5/8	$\begin{matrix} -0.000236 \\ -0.000669 \end{matrix}$	1 1/8	$\begin{matrix} 0 \\ -0.00244 \end{matrix}$	0.1	1/2	1.61	3/8-16UNC Depth0.47	0.2	5/8	0.87	0.67	6.89 (8.41)	4.61	5.47	0.70
NCDRA1BW80-_-A_-	1/4	3.62	2 7/8	2.76	3/4	$\begin{matrix} -0.000276 \\ -0.000787 \end{matrix}$	1 3/8	$\begin{matrix} 0 \\ -0.00244 \end{matrix}$	0.12	5/8	1.97	1/2-13UNC Depth0.51	0.2	3/4	0.98	0.79	7.83 (9.57)	5.59	6.57	0.83
NCDRA1BW100-_-A_-	3/8	4.41	3 3/8	3.35	1	$\begin{matrix} -0.000276 \\ -0.000787 \end{matrix}$	1 5/8	$\begin{matrix} 0 \\ -0.00244 \end{matrix}$	0.16	3/4	2.36	1/2-13UNC Depth0.55	0.2	1	1.18	0.98	10.2(12.80)	6.77	7.95	1.11

Model	BA	BB	CA	CB	SA	SB	SC	SD	SE	KEY		
										a	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

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



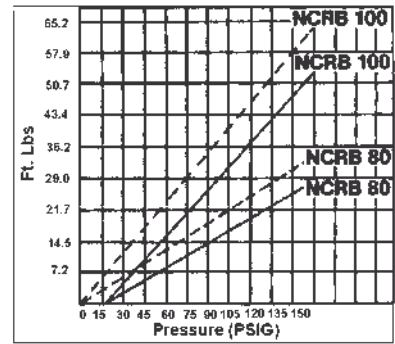
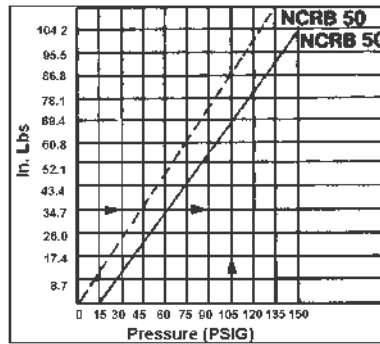
VANE TYPE ROTARY ACTUATOR: BORE SIZES Ø50•80•100MM SERIES NCRB

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

TECHNICAL SPECIFICATIONS

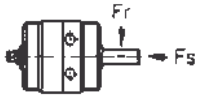
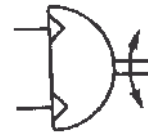
Media	Compressed Air
Working Pressure	0.1 ~ 1.5MPa / 15 ~ 220 PSI
Ambient Temperature	5 ~ 60°C / 40 ~ 140°F
Rotation Angle	90°, 180°, 270°
Seal Material	Buna N
Drive Shaft	Double Shaft, One side with key and groove, other side is a square shaft

TORQUE SPECIFICATIONS SERIES NCRB



Actual —————

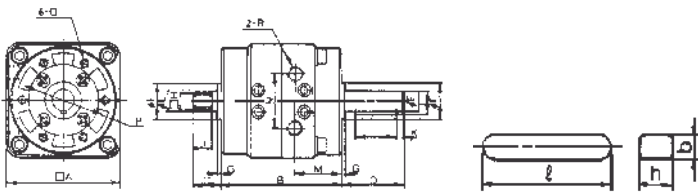
Theoretical - - - - -



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

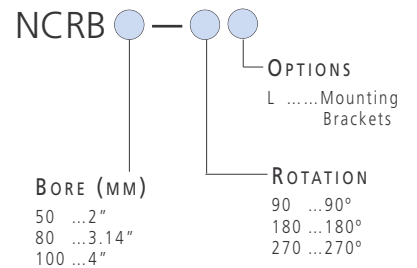
DIMENSIONS (INCH) NCRB50~100



Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	b	h	ℓ
NCRB50	2.64	3.38	0.77	1.55	0.47	0.98	0.12	0.39	0.51	0.20	0.53	1.34	1.18	1.97	M6x1x10	NPT 1/8"	0.16	0.16	0.79
NCRB80	3.74	4.06	0.93	2.11	0.67	1.18	0.12	0.51	0.63	0.20	0.75	1.57	1.77	2.75	M8x1.25x13	NPT 1/4"	0.20	0.20	1.42
NCRB100	4.92	4.92	1.18	2.56	0.98	1.77	0.16	0.75	0.87	0.20	1.10	1.97	1.97	3.15	M10x1.5x13	NPT 1/4"	0.28	0.28	1.57

HOW TO ORDER

NCRB ROTARY ACTUATOR



OPTIONS BRACKETS

NCRB50~100

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

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

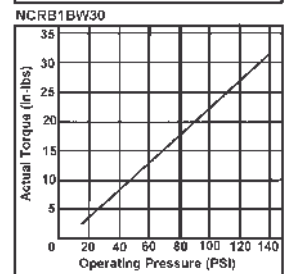
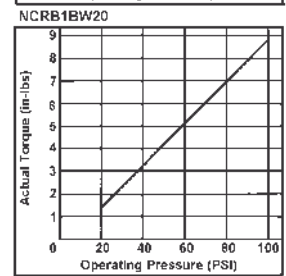
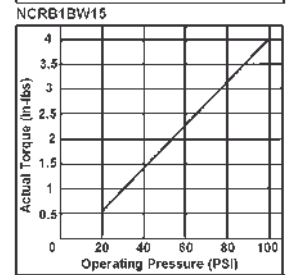
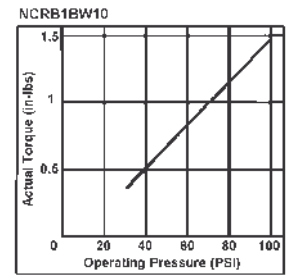
- ✓ 90°, 180°, 270° rotation
- ✓ High reliability and long life
- ✓ Light weight
- ✓ Optional auto switch and adjustable rotation



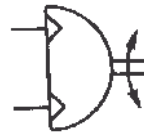
TECHNICAL SPECIFICATIONS

Model	CRB1BW10	CRB1BW15	CRB1BW20	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°	180°	270°	
Operating	5	3.5	2.5	
Cycle (Nz)	4	3	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	

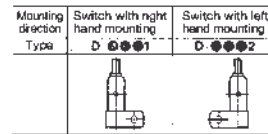
TORQUE SPECIFICATIONS



SYMBOLS

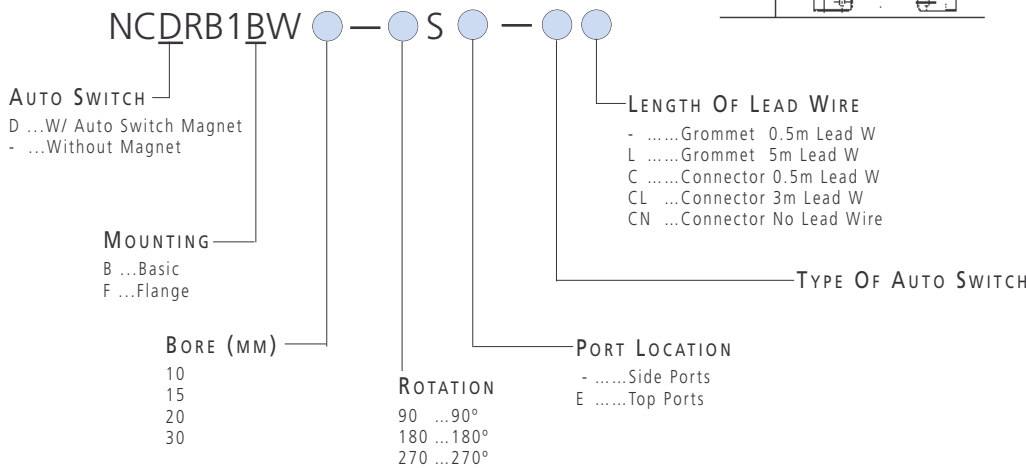


FITTING LOCATION AND ROTATION OF AUTO SWITCH



HOW TO ORDER

NCRB1BW ROTARY ACTUATOR



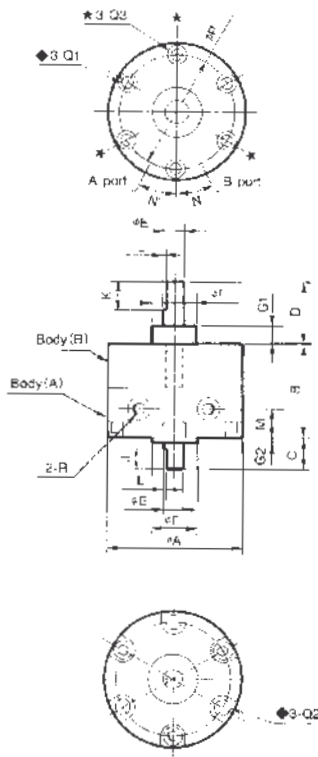
FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N350

DIMENSIONS
SEE NEXT PAGE

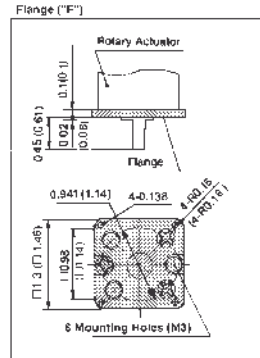
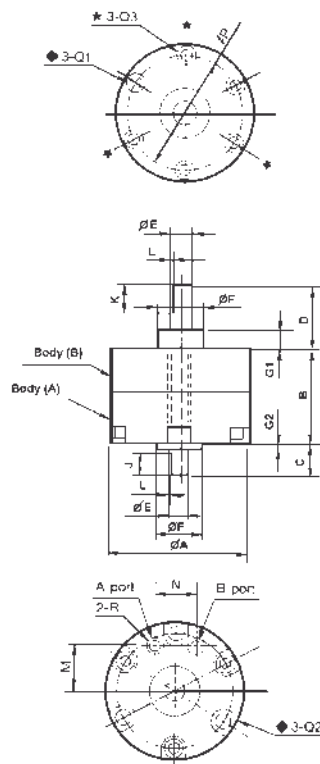
ACCESSORIES
SEE NEXT PAGE

DIMENSIONS WITH SIDE PORTS NCRB1_W_-_S ROTARY ACTUATOR

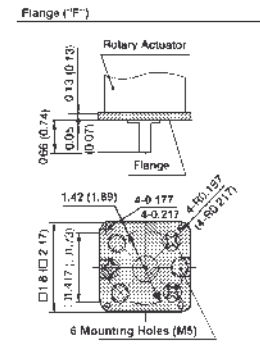
DIMENSIONS WITH TOP PORTS NCRB1_W_-_SE ROTARY ACTUATOR



Top ports: NCRB1W○-SE



Dim for NCR1○W10
() Dim for NCRB1○W15



Dim for NCR1○W20
() Dim for NCRB1○W30

Model (Dimensions in Inches)	A	B	C	D	E		F		G		J	K	L	M	N	P	Q (Depth)			R		
					Tolerances	Tolerance	G1	G2	Q1	Q2							Q3	90°	180°	270°		
NCRB1_W10_-_S	1.14	0.59	0.31	0.55	5/32	-0.00015	3/8	0	0.12	0.04	0.20	0.35	0.02	0.20	25	0.95	5-40UNC (0.2)	0.14 (0.26)	-	10-32UNF	M3	M3
NCRB1_W10_-_SE						-0.00045		-0.0012						0.33	0.37							
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	M3
NCRB1_W15_-_SE						-0.00045		-0.0016						0.43	0.39							
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						0.55	0.51							
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						0.61	0.55							

ACCESSORIES NCRB1BW ROTARY ACTUATOR

SWITCH MOUNTING CLAMP ASSEMBLY	
Model	Part No
NCDRB1BW10	P211170-1
NCDRB1BW15	P211190-1
NCDRB1BW20	P211160-1
NCDRB1BW30	P211180-1

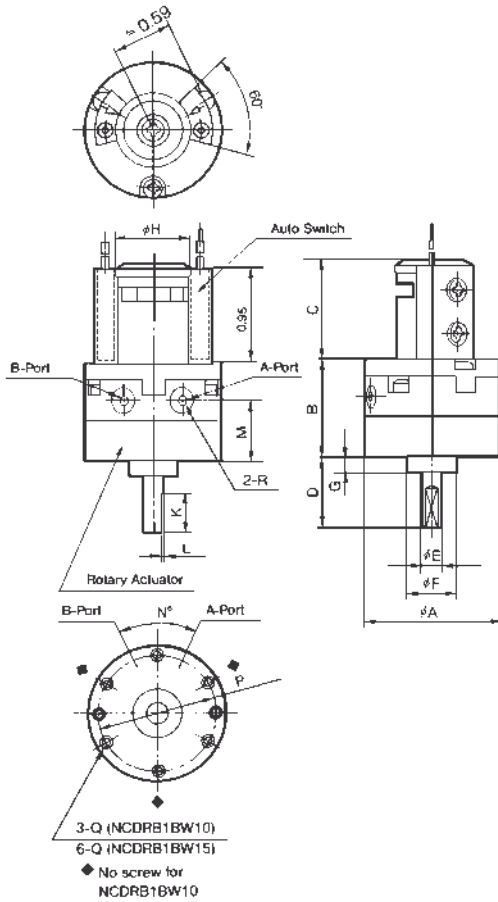
FLANGE MOUNTING ASSEMBLY	
Model	Part No
NC_R1FW10	P211170-2
NC_R1FW15	P211190-2
NC_R1FW20	P211160-2
NC_R1FW30	P211180-2

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

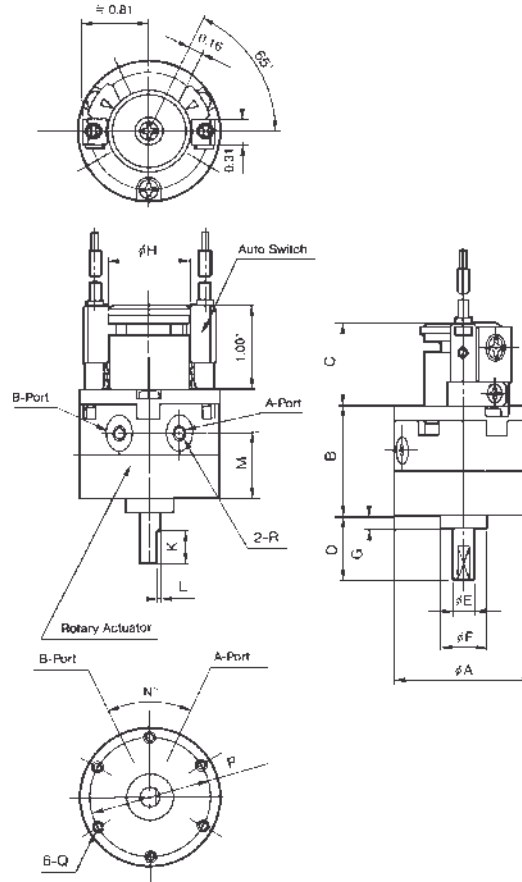
MORE DIMENSIONS
SEE NEXT PAGE

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	Tolerance	Tolerance	Tolerance									
NCDRB1BW10	1.14	0.75	0.98	0.55	5/32	-0.00015 -0.00045	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 -0.00017	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 -0.00045	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 -0.0006	5/8	0	0.20	0.98	0.47	0.04	1.18	50	1.69	10-24UNC (0.40)	10-32UNF

ACCESSORIES

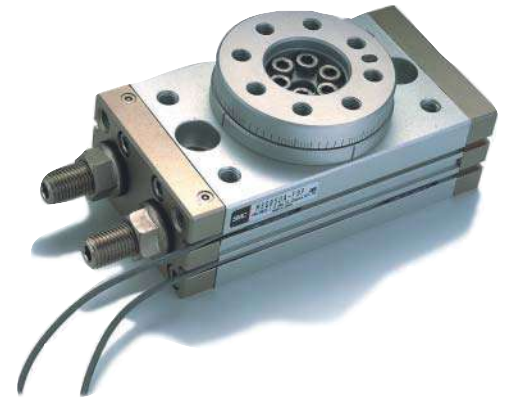
AUTO SWITCH SPECIFICATIONS

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		None	None
	D-S992L	D-S991L	3 Wire Solid State NPN	28VDC or less	Max 150mA	1.5V Max	ON: Red LED	
	D-T992L	D-T991L	2 Wire Solid State	10~28 VDC	5~150mA	4V Max	ON: Red LED	
NCRB1BW20	D-R732L	D-R731L	Reed	24VDC; 100VAC	5~40mA; 5~20mA	5~28VDC	Max 2.4V	ON: Red LED
	D-R802L	D-R801L	Reed	24VDC/AC or less; 100VDC/AC	Max 50mA; Max 20mA		None	None
NCRB1BW30	D-S792L	D-S791L	3 Wire Solid State NPN	28VDC or less	Max 150mA	5~28VDC	0.8V Max	ON: Red LED
	D-T792L	D-T791L	2 Wire Solid State	10~28 VDC	5~150mA		3V Max	ON: Red LED

COMPACT ROTARY TABLE RACK AND PINION TYPE SERIES MSQ BORE SIZES: 10, 20, 30, 50, 70, 100, 200

- ✓ Operating Range of table is 0~190° by Angle Adjusting Screw
- ✓ Double Rack and Single Pinion Construction eliminates backlash
- ✓ Hollow Shaft Standard for Wiring and Piping
- ✓ Smooth Rotary Motion



TECHNICAL SPECIFICATIONS

Bore Size		10	20	30	50	70	100	200
Fluid	Air (Non-lubricated)							
Maximum Operating Pressure	1Mpa / 145PSI							
Minimum Operating Pressure	0.1Mpa / 14.5PSI							
Ambient and Fluid Temperature	0~60°C / 32~140°F (no freezing)							
Cushion	Rubber Cushion							
Allowable Kinetic Energy	Adjusting Bolt	0.007J	0.025J	0.048J	0.081J	0.24J	0.32J	0.56J
	Shock Absorber	0.039J	0.116J	0.116J	0.294J	1.1J	1.6J	2.9J
Angle Adjusting Range	0 ~ 190°							
Maximum Rotation Angle	190°							
Stable Rotation Time Regulation Range	Adjusting Bolt	0.2 ~ 1.0s/90°			0.2-1.5	0.2-2.0	0.2-2.5	
	Shock Absorber	0.2 ~ 0.7s/90°			0.2 ~ 1.0s/90°			
Piston Diameter	Ø15	Ø18	Ø21	Ø25	Ø28	Ø32	Ø40	
Port Size	M5 x 0.8			Rc 1/8				

THEORETICAL OUTPUT TABLE

Size	Operating Pressure (MPa)									
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0
10	0.18	0.36	0.53	0.71	0.89	1.07	1.25	1.42	1.60	1.78
20	0.37	0.73	1.10	1.47	1.84	2.20	2.57	2.93	3.29	3.66
30	0.55	1.09	1.64	2.18	2.73	3.19	3.82	4.37	4.91	5.45
50	0.93	1.85	2.78	3.71	4.64	5.57	6.50	7.43	8.35	9.28
70	1.36	2.72	4.07	5.43	6.79	8.15	9.50	10.9	12.2	13.6
100	2.03	4.05	6.08	8.11	10.1	12.2	14.2	16.2	18.2	20.3
200	3.96	7.92	11.9	15.8	19.8	23.8	27.7	31.7	35.6	39.6

AUTO SWITCH SPECIFICATIONS REED TYPE

Auto Switch No	Load Voltage	Max Load Current and Load Current Range	Internal Voltage Drop	Indicator Lamp (Lit at ON Condition)	Applications
D-A90L D-A90VL	24V AC/DC or less	50mA	0	None	PLC
	48V AC/DC or less	40mA			
	100V AC/DC or less	20mA			
D-A93L D-A93VL	24V DC	5~40mA	2.6V or less	•	PLC
	100V AC	5~20mA			
D-A96L D-A96VL	4~8V DC	20mA	0.8V or less	•	PLC

HOW TO ORDER
SEE NEXT PAGE

DIMENSIONS
SEE NEXT PAGE

AUTO SWITCH SPECIFICATIONS SOLID STATE TYPE

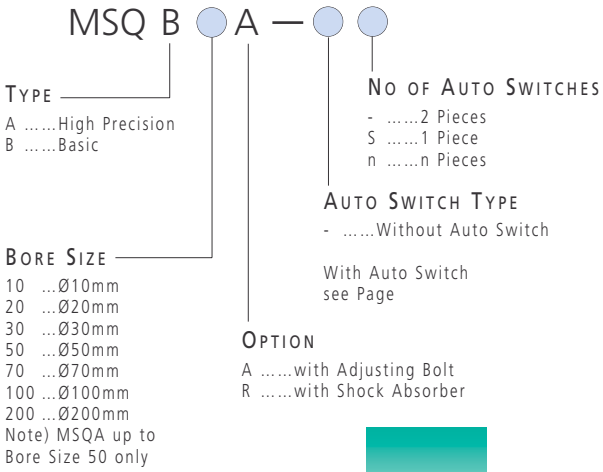
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

Auto Switch No	Output Type	Power Source	Current Consumption	Load Voltage	Max Load Current and Load Current Range	Internal Voltage Drop	Leakage Current	Applications	
D-F9N D-F9NV	NPN	24V DC (10~28 VDC)	8mA or less	28V DC or less	50mA or less	0.4V or less	24V DC at 10µA or less	PLC	
D-F9N D-F9NWW			12mA or less						
D-F9P D-F9PV	PNP		10mA or less	24V DC (10~28V DC)		5~30mA			1.5V or less
D-F9PW D-F9PWW									
D-F9B D-F9BV	-			24V DC (10~28V DC)	5~30mA	4.5V or less	24V DC at 1mA or less	24V DC PLC	
D-F9BW D-F9BWW									

SYMBOLS



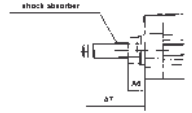
HOW TO ORDER ROTARY TABLE SERIES MSQ



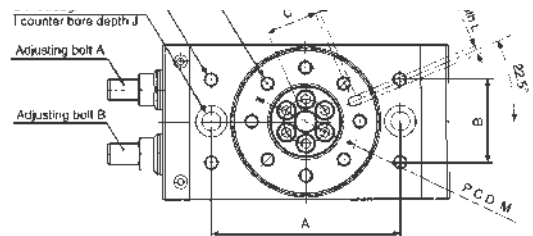
Size	Decrease in oscillation angle
MSQB10	Approx 10.2°
MSQB20	Approx 7.2°
MSQB30	Approx 6.5°
MSQB50	Approx 8.2°
MSQB70	Approx 7°
MSQB100	Approx 6.1°
MSQB200	Approx 4.9°

DIMENSIONS ROTARY TABLE SERIES MSQ

SHOCK ABSORBER MSQB10/20/30R



SHOCK ABSORBER MSQB50R

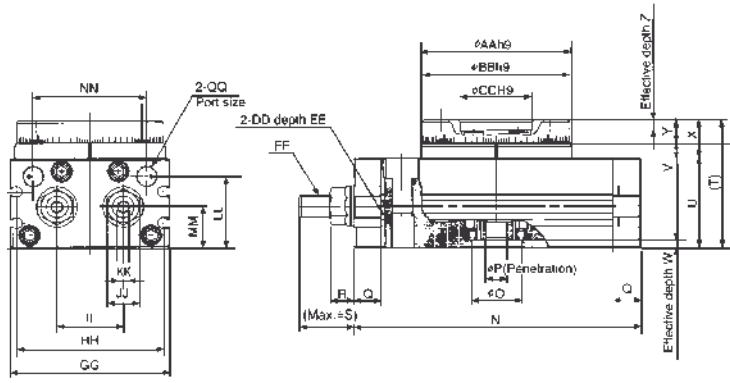


TYPES OF SHOCK ABSORBER

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

DIMENSIONS

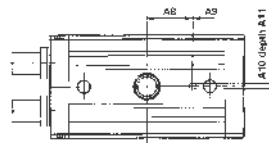
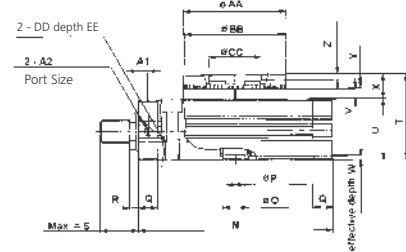
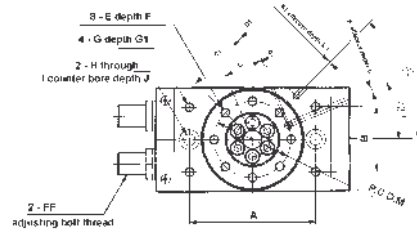
Model	A6 (mm)	A7 (mm)
MSQB10	8.6	31.5
MSQB20	10.6	34.7
MSQB30	10.6	34.7
MSQB50	14	51.7



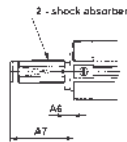
Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
MSQB10	60	27	15	2	M5X0.8	8	M5X0.8	6.8	11	6.5	3H9	3.5	32	92	15H9	5	9.5	8.6	17.7	47	34	4.5	3	13	8	4
MSQB20	76	34	20.5	2	M6X1	10	M6X1	8.6	14	8.5	4H9	4.5	43	117	17H9	9	12	10.6	25	54	37	6.5	2.5	17	10	6
MSQB30	84	37	23	2	M6X1	10	M6X1	8.6	14	8.5	4H9	4.5	48	127	22H9	9	12	10.6	25	57	40	6.5	3	17	10	4.5
MSQB50	100	50	26.5	2	M8X1.25	12	M8X1.25	10.5	18	10.5	5H9	5.5	55	152	26H9	10	15.5	14	31.4	66	46	7.5	3	20	12	5

Model	AA	BB	CC	DD	EE	FF	GG	HH	II	JJ	KK	LL	MM	NN	OO	PP	QQ
MSQB10	46	45	20	M8X1.25	12	M8X1	50	45	20	12	4	27.8	15.5	34.5	9	13	M5X0.8
MSQB20	61	60	28	M10X1.5	15	M10X1	65	60	27.5	14	5	28.5	16	51	10	12	M5X0.8
MSQB30	67	65	32	M10X1.5	15	M10X1	70	65	29	14	5	32	18.5	50	11.5	14	1/8
MSQB50	77	75	35	M12X1.75	18	M14X1.5	80	75	38	19	6	37.5	22	63	14.5	15	1/8

DIMENSIONS ROTARY TABLE SERIES MSQB 70, 100, 200



SHOCK ABSORBER MSQB70/100/200R

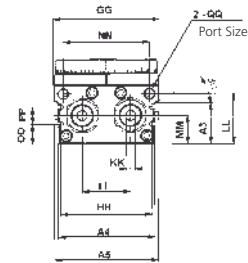


TYPES OF SHOCK ABSORBER

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

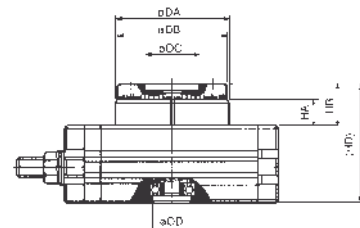


Model	A	B	C	D	C1	D1	E	F	G	G1	H	I	J	K	L	K1	L1	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
MSQB70	110	57	32.5	2	54	2	M8x1.25	12.5	M8x1.25	10	10.4	17.5	10.5	5	5.5	5	3.5	67	170	22	16	17	8	34.2	75	53	9	3.5	22	12.5	5
MSQB100	130	66	37.5	2	59	2	M10x1.5	14.5	M8x1.25	10	10.4	17.5	10.5	6	6.5	6	4.5	77	189	24	19	17	8	34.3	86	59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



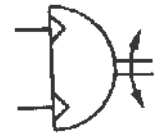
ALL DIMENSIONS EXCEPT FOR THIS TABLE ARE THE SAME AS FOR BASIC MODEL



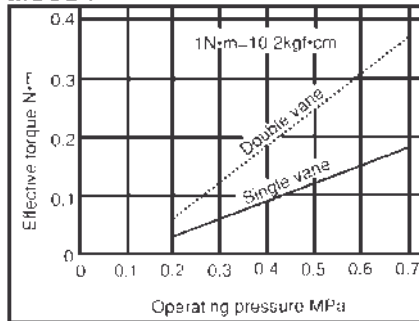
ROTARY TABLE
VANE TYPE SIZES 1, 3, 7, 20
SERIES MSUB

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

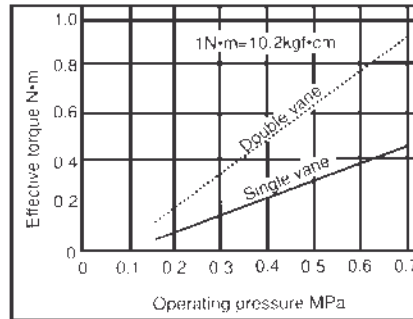
TORQUE
SPECIFICATIONS



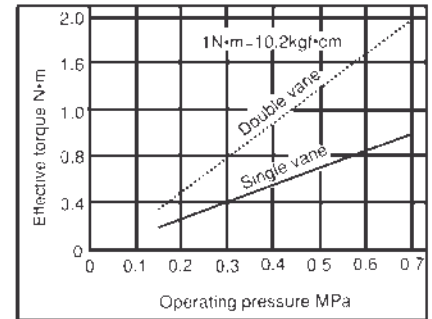
MSUB1



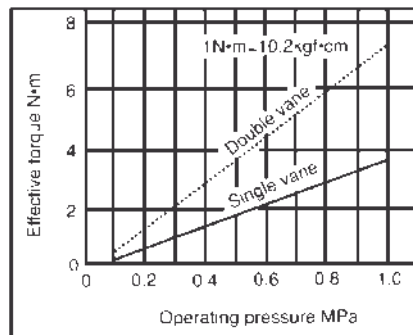
MSUB3



MSUB7



MSUB20



TECHNICAL
SPECIFICATIONS

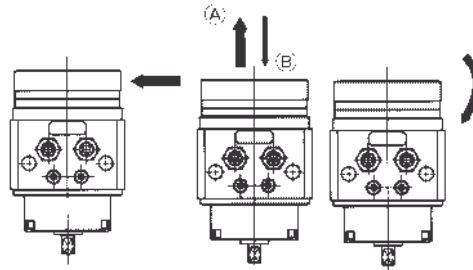
Model		MSUB1	MSUB3	MSUB7	MSUB20
Vane type		Single Vane	Single Vane	Single Vane	Single Vane
Rotation Angle (note 1)		90°±10° | 180°±10°	90°±10° | 180°±10°	90°±10° | 180°±10°	90°±10° | 180°±10°
Fluid		Air (non lube)	Air (non lube)	Air (non lube)	Air (non lube)
Proof Pressure MPa / PSI		1.05MPa / 153PSI	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	60N
	Allowable Thrust Load (note 2)	15N	30N	60N	80N
		10N	15N	30N	40N
	Allowable Moment	0.3N.m	0.7N.m	0.9N.m	2.9N.m
Bearing		Bearing	Bearing	Bearing	Bearing
Port Position		Body Side or Axial Direction	Body Side or Axial Direction	Body Side or Axial Direction	Body Side or Axial Direction
Port Size	Body Size	M3 x 0.5	M5 x 0.8	M5 x 0.8	M5 x 0.8
	Axial Direction		M3 x 0.5		

DIMENSIONS
SEE NEXT PAGE

How To
ORDER
SEE NEXT PAGE

ALLOWABLE LOAD

Set the load and moment applied to the table at the allowable values in the table below. (Set values exceeding the allowable values cause excessive play of the table, deterioration of accuracy, and breakage of parts.)

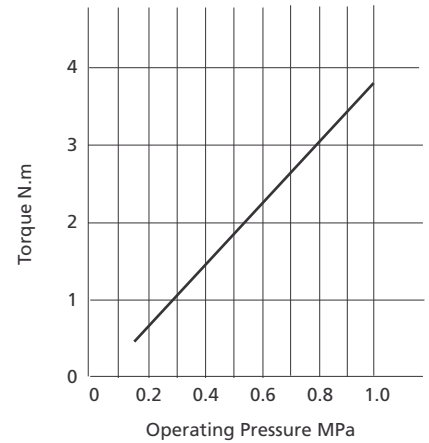


Size	Allowable Radial Load (N)	Allowable Thrust Load (N)		Allowable Moment (Nm)
3	40	A 30	B 15	0.7
7	50	60	30	0.9
20	60	80	40	2.9

TORQUE SPECIFICATIONS

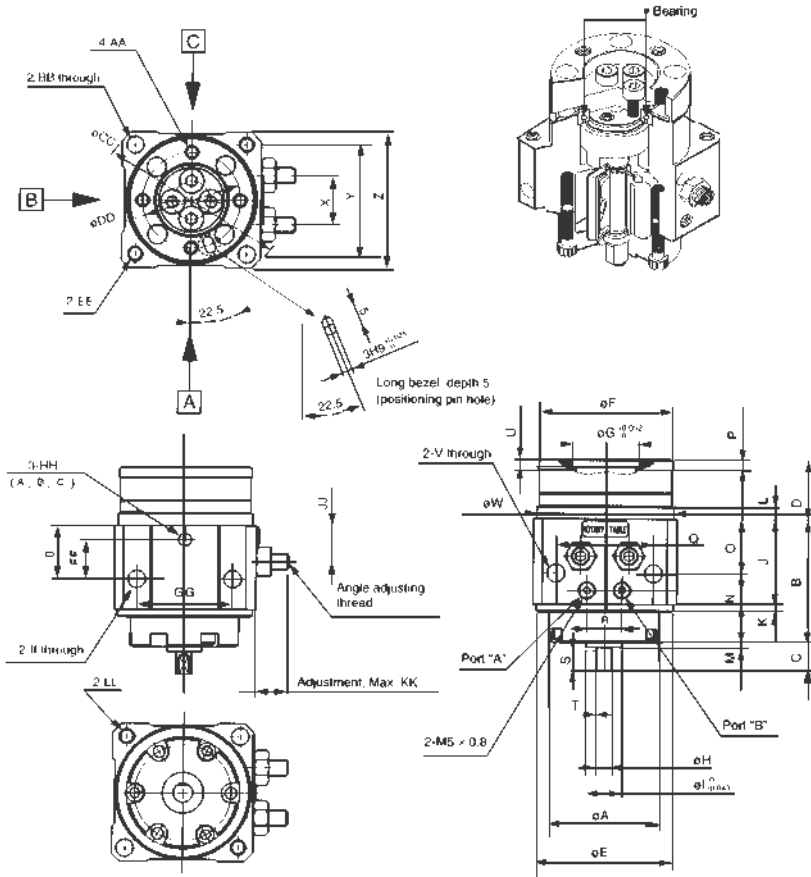
MSUB20

1N.m = 10.2kgf.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
20MSUB20

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

CONNECTING PORT POSITION
Nil ...Side

NO OF VANES
SSingle
DDouble

APPLICABLE AUTO SWITCHES
See Accessories Section

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

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

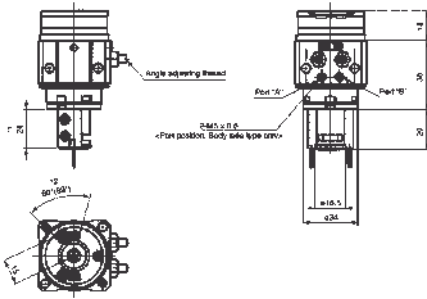
O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE
16	3.5	29	10.5	6	0.5	2.5	4.5	42h9 ⁻⁰ _{0.062}	14	36	44	M4x0.7 depth 7	4.5	58	30	M4x0.7 depth 8
19.5	4.5	36	11	7	0.5	2.5	5.5	48h9 ⁻⁰ _{0.062}	19	41	50	M4x0.7 depth 8	5.5	67	37	M5x0.8 depth 10
21.5	4.5	43	13	8	1	3	6.6	53.5h9 ⁻⁰ _{0.074}	22	45	56	M5x0.8 depth 8	6.6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

FF	GG	HH	II	JJ	KK	LL
12	29	3H9 ^{+0.025} ₀ depth 5	4.5	10.5	6.25	M4x0.7 depth 8
13	36	4H9 ^{+0.030} ₀ depth 6	5.5	12.5	8.25	M5x0.8 depth 10
14	43	4H9 ^{+0.030} ₀ depth 6	6.6	14	8.75	M6x1 depth 12

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

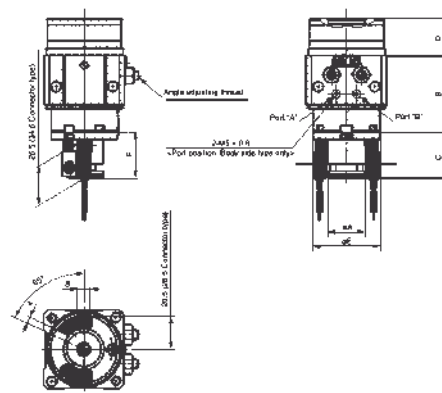
DIMENSIONS

AUTO SWITCH MOUNTING FOR MDSUB1, 3



DIMENSIONS

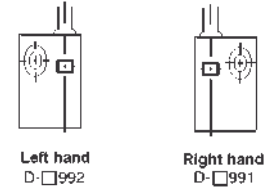
AUTO SWITCH MOUNTING FOR MDSUB7, 20



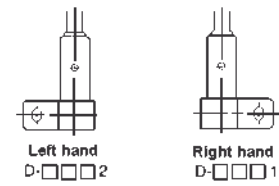
ACCESSORIES

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

	Type	Auto Switch Model		Application	Operating Voltage	Max Current or Operating Current Range	
		Switch with right hand mounting	Switch with left hand mounting				
MDSUB1, MDSUB3	D-9	D-90L		PLC	24VAC DC or less	50mA	
		D90AL			24VAC DC or less	50mA	
					100VAC, DC	20mA	
			D-97L		PLC	24VDC	5~40mA
			D-93A			24VDC	5~40mA
					100VAC	5~20Ma	
MDSUB7, MDSUB20	D-R7	D-R731L	D-R732L	PLC	100VAC	5~20Ma	
					24VDC	5~40Ma	
	D-R8	D-R801L	D-R802L	PLC	24VAC, DC or less	50mA	
					48VAC, DC	40mA	
						100VAC, DC	20mA
	D-S7	D-S791L	D-S792L	PLC	5, 12, 24VDC	150mA	
	D-S99	D-S991L	D-S992L				
D-T7	D-T791L	D-T792L	PLC	24VDC	5~150mA		
D-T99	D-T991L	D-T992L					

- Response time 1.2ms
- Shock resistance
- Reed switch type 300m/s2
- Solid state type 1000m/s
- Ambient temperature 5~60°C
- Length of lead wire 0.5m (standard)

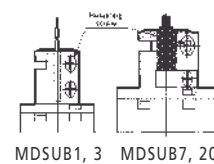
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

ROTATION SENSING RANGE OF AUTO SWITCH AND HYSTERESIS

Model	Rotation	Hysteresis
MDSUB1, 3	110°	10°
MDSUB7, 20	90°	10°

ACCESSORIES

AUTO SWITCH POSITION SETTING



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

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)

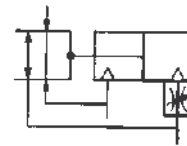
Fluid	Air	
Operating Pressure	Double Acting Type	Ø10 ~ Ø25: 0.1 ~ 0.6MPa / 14.5 ~ 90PSI
	Single Acting Type Normally Open Type	Ø10~25: 0.25 ~ 0.6MPa / 37 ~ 90PSI
Ambient and Fluid Temperature	0 ~ 60°C / 32 ~ 140°F	
Repeatability	±0.01mm	
Maximum Operating Frequency	180 c.p.m	
Lubrication	Not required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

PRODUCT SELECTOR (HOLDING FORCE)

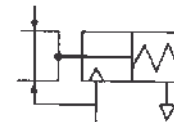
Action	Model	Bore Size (mm)	Holding Force @0.5MPa / 73PSI (Effective) (N)	Opening Stroke (Included) (mm)	
Double acting type	MHQ2-6D	6	Outside holding force: 3.4 Inside holding force: 6.2	4	
	MHQ2-10D	10	11	4	
	MHQ2-16D	16	35	6	
	MHQ2-20D	20	43	10	
	MHQ2-25D	25	64	14	
Single acting type	Normally open type	MHQ2-6S	6	Outside holding force: 1.9 Inside holding force: 1.1	4
		MHQ2-10S	10	8	4
		MHQ2-16S	16	27	6
		MHQ2-20S	20	34	10
		MHQ2-25S	25	50	14



PARALLEL TYPE
DOUBLE ACTING TYPE: Ø10~Ø25



PARALLEL TYPE
SINGLE ACTING TYPE: NORMALLY OPEN



TECHNICAL SPECIFICATION MHC (ANGULAR TYPE)

Fluid	Air	
Operating Pressure	Double Acting Type	0.1 ~ 0.6MPa / 14.5~90PSI
	Single Acting Type	0.25 ~ 0.6 MPa / 37~90PSI
Ambient and Fluid Temperature	0~60°C / 32~140°F	
Repeatability of Closing Position	±0.01mm	
Maximum Operating Frequency	180c.p.m	
Lubrication	Not required	
Action	Double Acting / Single Acting (NO)	
Auto Switch	See accessories	

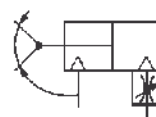
PRODUCT SELECTOR

Action	Model	Bore Size (mm)	Holding Moment* (Effective) (Nm)	Opening Angle (Included)
Double Acting Type	MHC2-10D	10	0.1	30°~10°
	MHC2-16D	16	0.4	
	MHC2-20D	20	0.7	
	MHC2-25D	25	1.4	
Single Acting Type	MHC2-10S	10	0.07	30°~10°
	MHC2-16S	16	0.3	
	MHC2-20S	20	0.55	
	MHC2-25S	25	1.1	

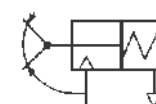
*@ 0.5MPa / 73PSI



ANGULAR TYPE
DOUBLE ACTING

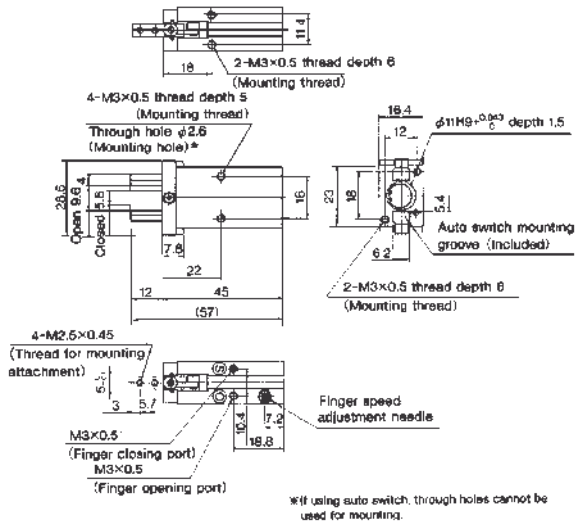


ANGULAR TYPE
SINGLE ACTING



DIMENSIONS
SEE NEXT PAGE

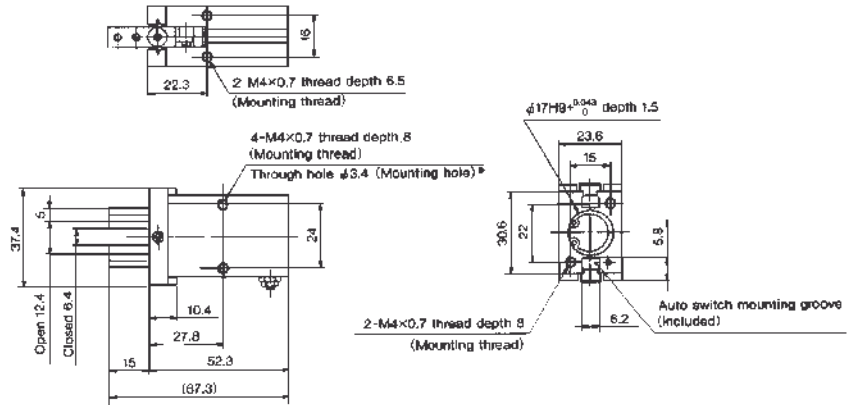
DIMENSIONS
PARALLEL TYPE
MHQ2-10D/S



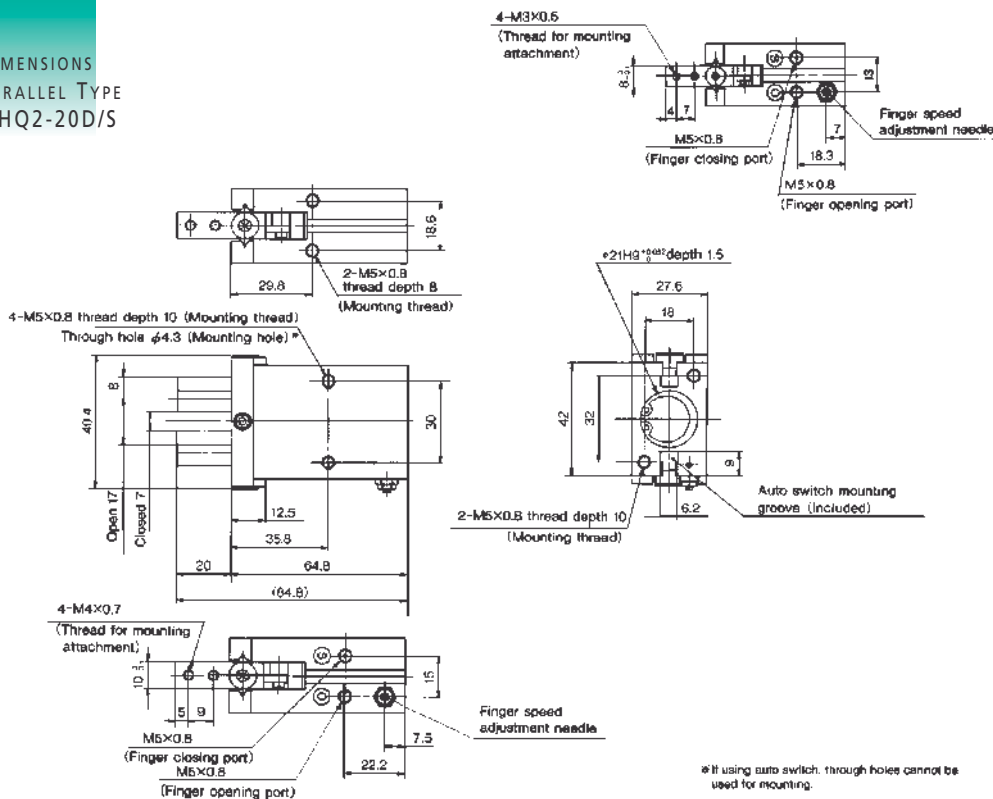
NOTE

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
PARALLEL TYPE
MHQ2-16D/S



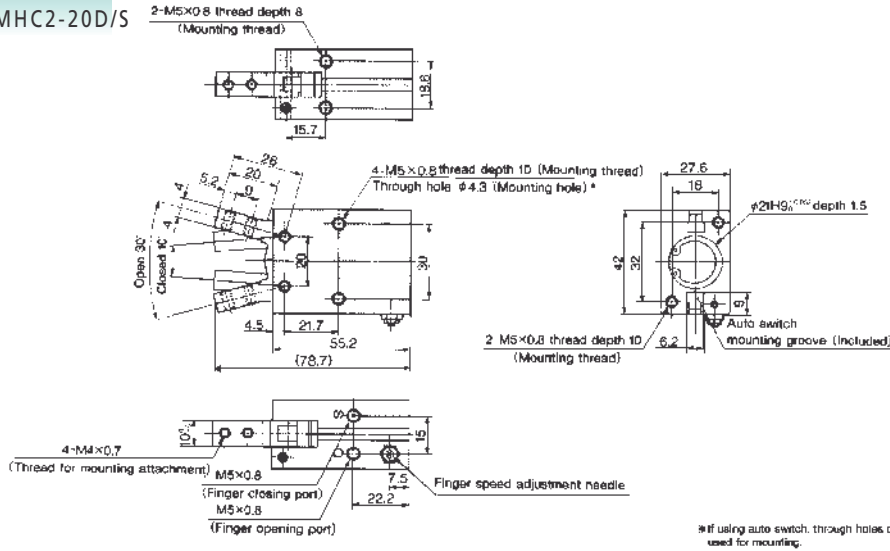
DIMENSIONS
PARALLEL TYPE
MHQ2-20D/S



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

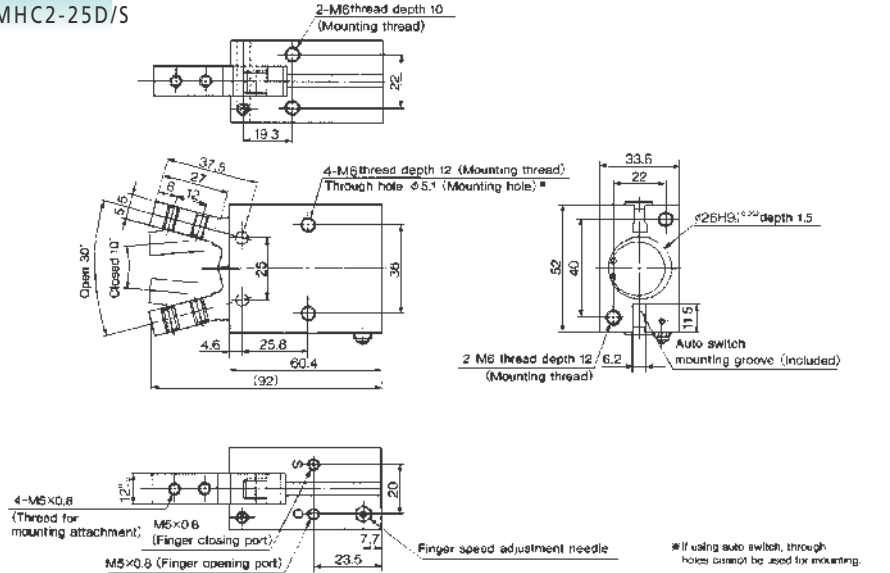
MORE DIMENSIONS
SEE NEXT PAGE

DIMENSIONS
ANGULAR TYPE
MHC2-20D/S



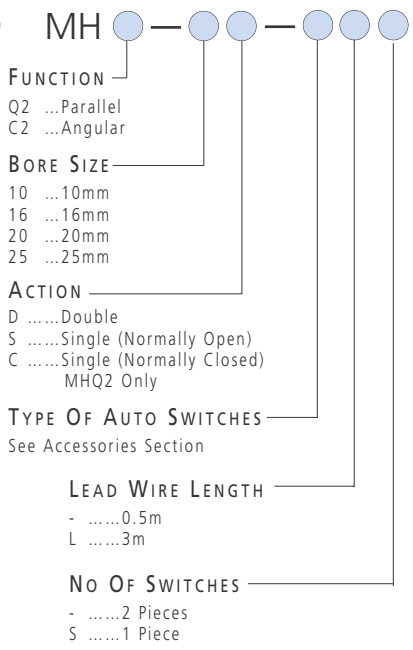
* If using auto switch, through holes cannot be used for mounting.

DIMENSIONS
ANGULAR TYPE
MHC2-25D/S



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

HOW TO ORDER
SERIES MHQ/MHQC AIR CHUCKS



ACCESSORIES
AUTO SWITCH SPECIFICATIONS

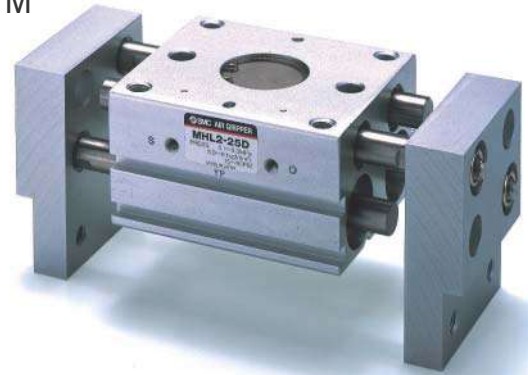
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

Model		Type	Load Voltage	Load Current	Power Source	Internal Voltage Drop	Indicator Lamp
Part No. Grommet type	Part No. Connector type						
D-Y59AL		3 Wire Solid State NPN	28VDC or less	Max 150mA	5~28VDC	0.8V Max	ON:RED LED
D-Y7PL		3 Wire Solid State PNP	28VDC or less	Max 100mA	5~28VDC	0.8V Max	ON:RED LED
D-Y59BL		2 Wire Solid State	28VDC or less	5~ 150mA		3V Max	ON:RED LED

AIR CHUCK 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	MHL2-25D MHL2-25D1 MHL2-25D2	MHL2-32D MHL2-32D1 MHL2-32D2	MHL2-40D MHL2-40D1 MHL2-40D2
Cylinder Bore (mm)	10	16	20	25	32	40
Fluid	Air					
Action	Double Acting					
Operating Pressure MPa / PSI	0.15~0.6 / 22~87		0.1~0.6 / 14.5~87			
Ambient and Fluid Temperature	-10 ~ 60°C / 14 ~ 140°F					
Repeatability	±0.1					
Max Operating Frequency	60 c.p.m.					
Lubrication	Non-lube					
Note: Effective holding force N when pressure is 0.5 MPa (73PSI)	14	45	74	131	228	396
Weight (Standard Type) (g)	280	585	1,025	1,690	2,905	5,270

Note: when holding point R = 40mm Refer to the "effective holding force" data for the holding force at each holding point

How To ORDER AIR CHUCK SERIES MHL2

MHL2 — ● — ● — ● — ● — ● — ●

BORE SIZE —

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

ACTION —

DDouble Acting

STROKE —

Model	Bore Size(mm)					
	10	16	20	25	32	40
7 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

No Of SWITCHES —

-2 Pieces
S1 Piece
nn Pieces

LEAD WIRE LENGTH —

-0.5m
L3m

TYPE OF AUTO SWITCHES —
See Accessories Section

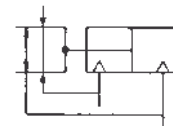
ACCESSORIES AUTO SWITCHES

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-Y7BWWL	D-Y7NWL	D-Y7NWWL	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				

• Opening/closing stroke values (mm)

SYMBOLS

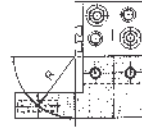
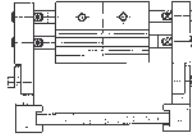


FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N360

TECHNICAL SPECIFICATIONS

Holding Position

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



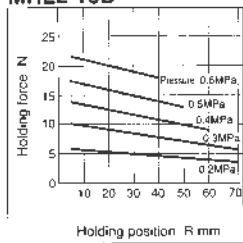
R : Holding position (mm)

1N = 0.2248lbf

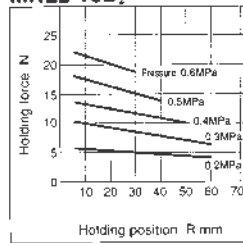
1MPa = 145PSI

Effective Holding Force

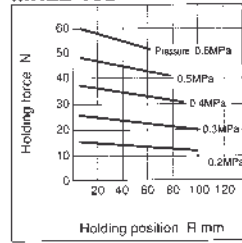
MHL2-10D



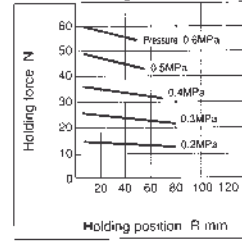
MHL2-10D₂



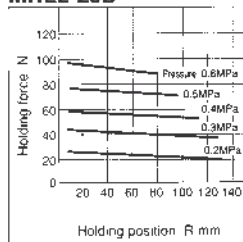
MHL2-16D



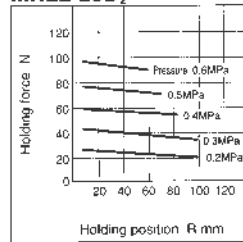
MHL2-16D₂



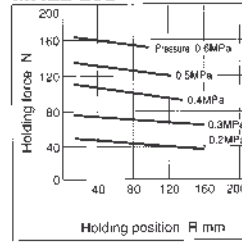
MHL2-20D



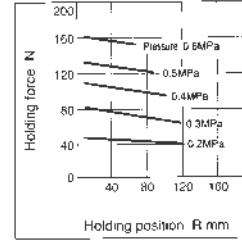
MHL2-20D₂



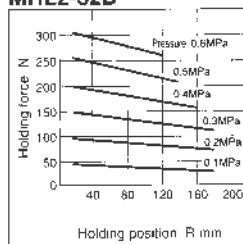
MHL2-25D



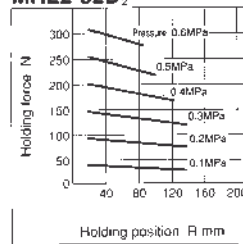
MHL2-25D₂



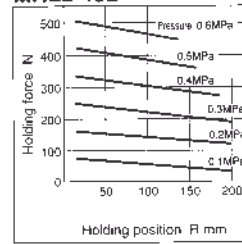
MHL2-32D



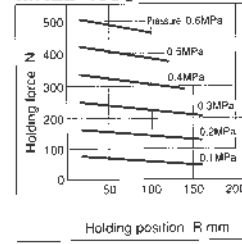
MHL2-32D₂



MHL2-40D



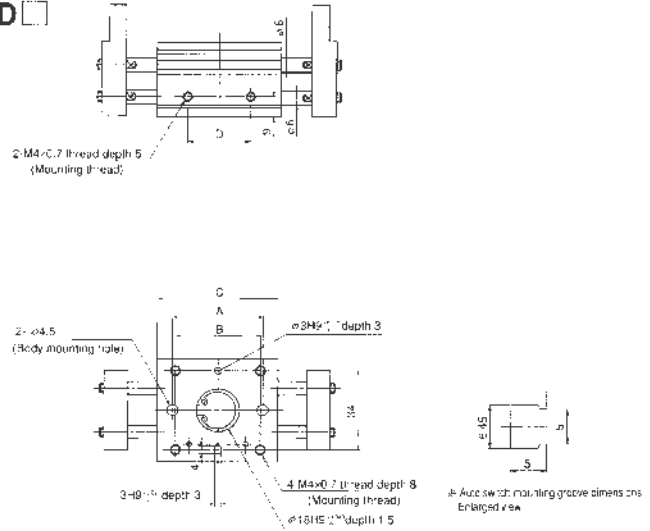
MHL2-40D₂



AIR CHUCK SERIES MHL2

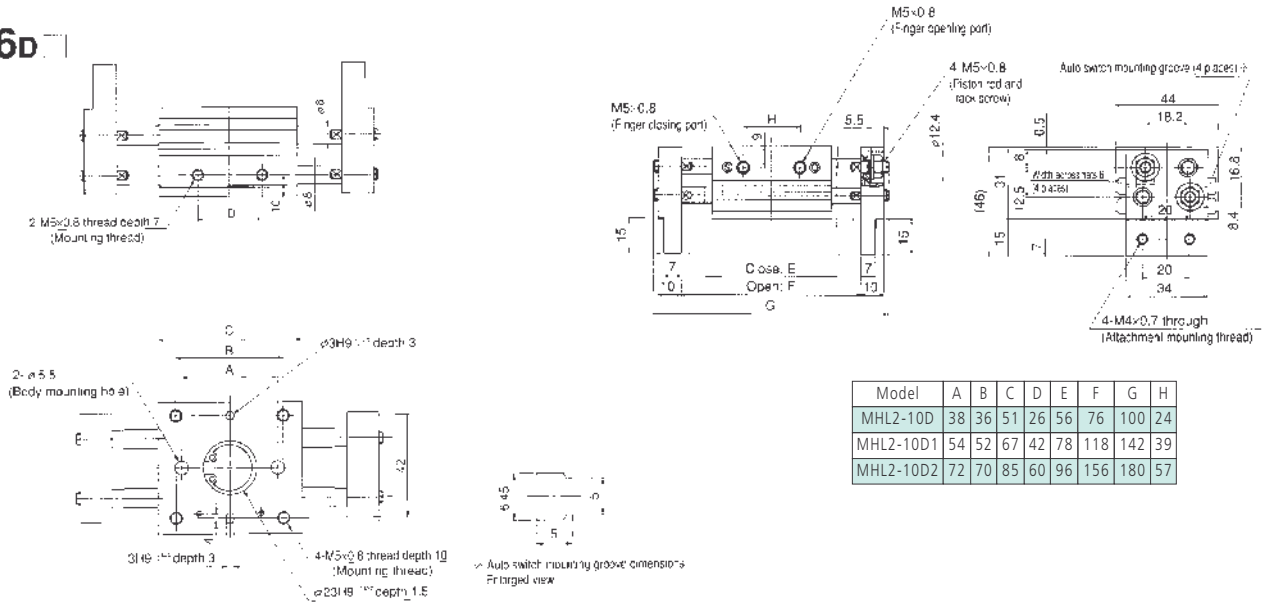
DIMENSIONS AIR CHUCK SERIES MHL

MHL2-10D



DIMENSIONS AIR CHUCK SERIES MHL

MHL2-16D

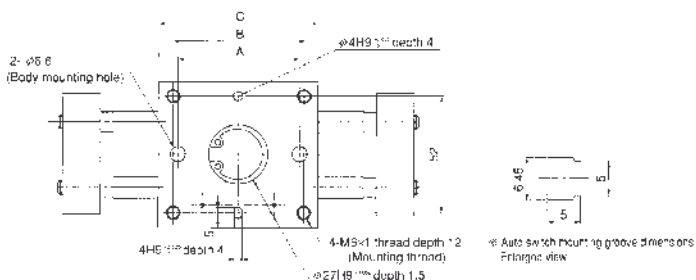
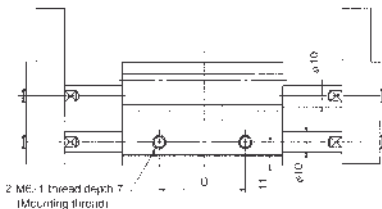


Model	A	B	C	D	E	F	G	H
MHL2-10D	38	36	51	26	56	76	100	24
MHL2-10D1	54	52	67	42	78	118	142	39
MHL2-10D2	72	70	85	60	96	156	180	57

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

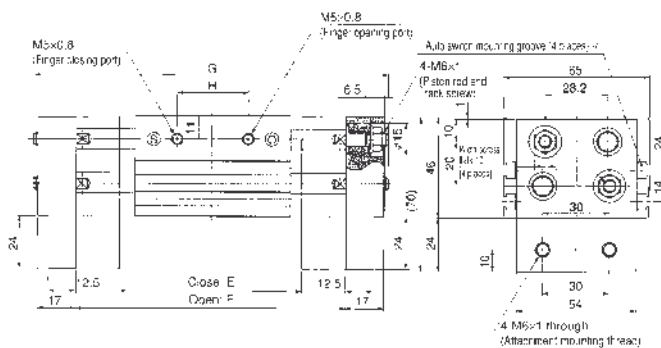
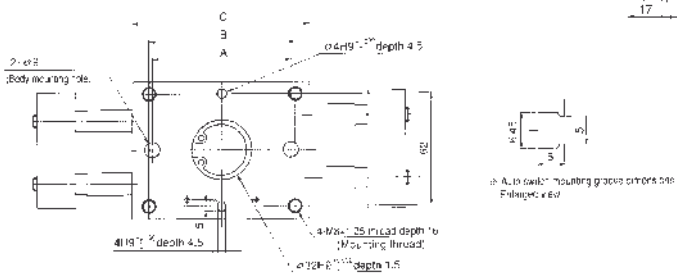
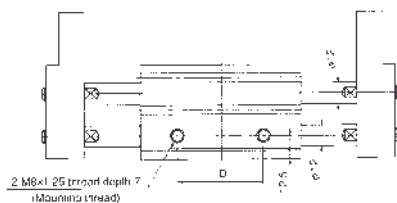
DIMENSIONS
AIR CHUCK SERIES MHL

MHL2-20D

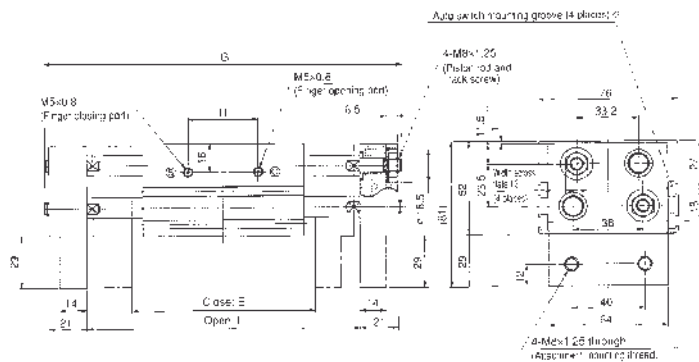


DIMENSIONS
AIR CHUCK SERIES MHL

MHL2-25D



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

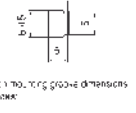
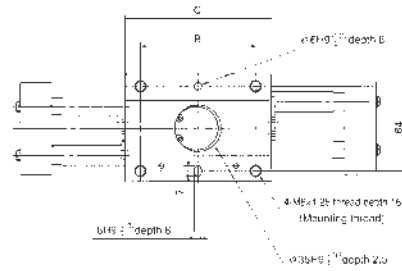
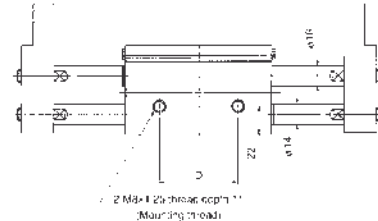


Model	A	B	C	D	E	F	G	H
MHL2-25D	66	70	88	48	100	150	196	38
MHL2-25D1	120	124	142	102	182	282	328	86
MHL2-25D2	138	142	160	120	200	320	366	104

AIR CHUCK SERIES MHL2

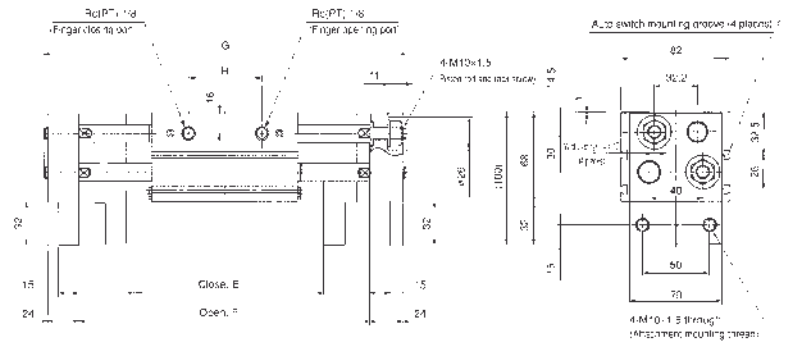
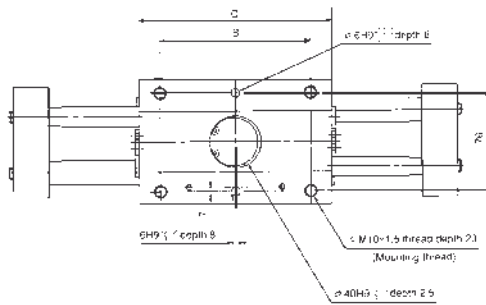
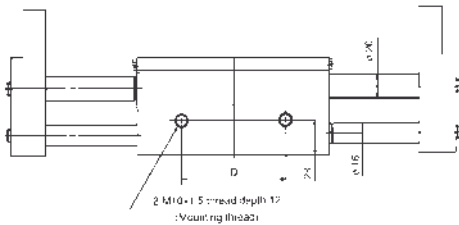
DIMENSIONS
AIR CHUCK SERIES MHL

MHL2-32D

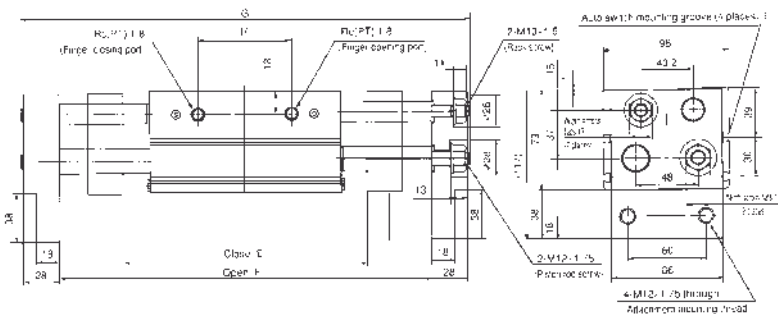


DIMENSIONS
AIR CHUCK SERIES MHL

MHL2-40D



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



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

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

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



TECHNICAL SPECIFICATIONS

Fluid		Air	
Operating Pressure	Double Acting	0.1~0.6MPa / 14.5~87PSI	
	Single Acting	N.O.	0.25~0.6MPa / 37~87PSI
N.C.			
Ambient and Fluid Temperature		-10~60°C / 14~140°F	
Repeatability		±0.01mm	
Max Operating Frequency		180cpm	
Lubrication		Non-lube	
Action		Double Acting; Single Acting	
Auto Switch (Option)		Solid-state auto switch (2-wire type, 3 wire type)	

MODEL SPECIFICATIONS

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

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

Note 2: The Auto Switch weight is excluded.

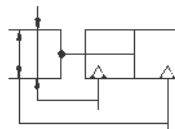
ACCESSORIES AUTO SWITCHES

Model								
Part No Grommet type	Electrical Entry	Type	Load Voltage	Load Current	Power Source	Internal Voltage Drop	Indicator Lamp	
D-F9NL	In-line	3 wire solid state NPN	28VDC or less	Max 50mA	10~28VDC	0.4V max	ON: RED LED	
D-F9PL	In-line	3 wire solid state PNP	28VDC or less	Max 50mA	10~28VDC	1.5V max	ON: RED LED	
D-F9BL	In-line	2 wire solid state	28VDC or less	5~30mA	~	4.5V max	ON: RED LED	

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

SYMBOL

Double acting



HOW TO ORDER

AIR CHUCK SERIES MHQJ2

MHQJ2 — D — — — —

BORE SIZE
 10 ...10mm
 16 ...16mm
 20 ...20mm
 25 ...25mm

ACTION

D Double Acting
 S Single Acting (NO)
 C Single Acting (NC)

DUST COVER MATERIAL

- Chloroprene rubber (CR)
 F Fluororubber (FKM)
 S Silicone rubber (Si)

TYPE OF SWITCHES

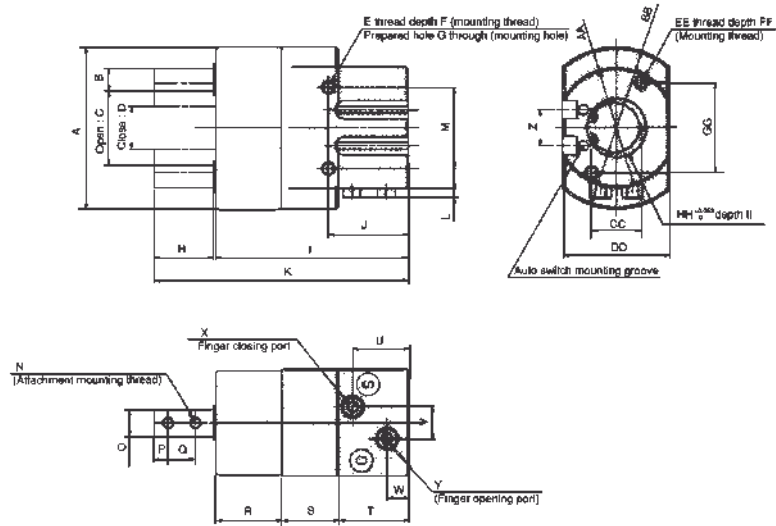
See Accessories Section

NO OF SWITCHES

-I 2 Pieces
 S 1 Piece

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	
	10	15	20	30	10	15
Nominal Size	10	15	20	30	10	15
Action	Double acting					
Holding Force N	Outside holding force		33		7	
at 0.5MPa / 73PSI	Inside holding force		59		12	
Opening/Closing Stroke	Finger closing width (mm)		16		19	
	Finger opening width (mm)		37		27	
Weight (g)	6		12		6	
	8		18		8	
Connection Port	M3x0.5	M3x0.5	M5x0.8	M5x0.8	M3x0.5	M3x0.5
Repeatability	0.01mm	0.01mm	0.01mm	0.01mm	0.01mm	0.01mm
Fluid	Air		Air		Air	
Operating Pressure	0.2~0.6MPa		0.15~0.6MPa		0.2~0.6MPa	
	(29~87PSI)		22~87PSI		29~87PSI	
Ambient and Fluid Temperature	0 ~ 60 °C (32 ~ 140 °F)					
Max Operating Frequency	180 c.p.m				180 c.p.m	
Lubrication	Non lube				Non lube	
Relief Port (Clean Room only)	M3x0.5		M5x0.8		M3x0.5	

ACCESSORIES

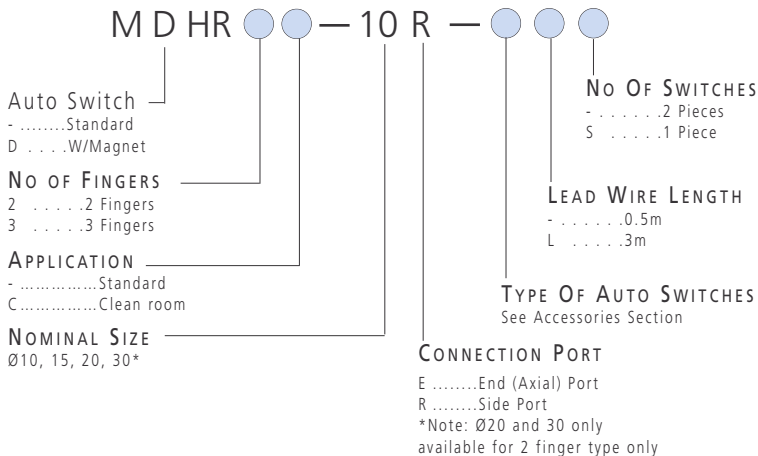
AUTO SWITCHES

Auto Switch Model No	D-F9NL	D-F9NVL	D-F9PL	D-F9PVL	D-F9BL	D-F9BVL
Electrical Entry	In-line	Perpendicular	In-line	Perpendicular	In-line	Perpendicular
Wiring	3 Wire	3 Wire	3 Wire	3 Wire	2 Wire	2 Wire
Output	NPN	NPN	PNP	PNP	-	-
Applications	24VDC relay, Sequence Controller					
Supply Voltage	24VDC (10 ~ 28VDC)					
Current Consumption	8mA or Less	8mA or Less	10mA or Less	10mA or Less	-	-
Load Voltage	28VDC or Less	28VDC or Less	-	-	24VDC(10~28VDC)	24VDC(10~28VDC)
Load Current	50mA or Less	50mA or Less	50mA or Less	50mA or Less	5~30mA	5~30mA
Internal Voltage Drop	0.4V or Less	0.4V or Less	1.5V or Less	1.5V or Less	4.5V or Less	4.5V or Less
Leakage Current	10µA or Less at 24VDC					
Indicator Lamp	ON: Red Light emitting diode					

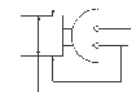
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

HOW TO ORDER

SERIES MHR



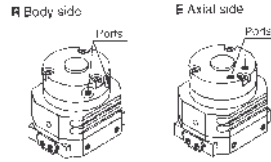
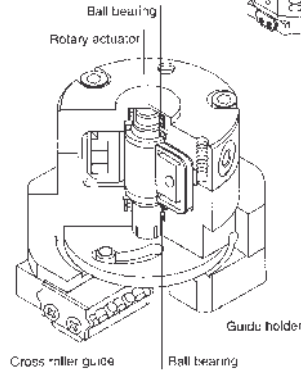
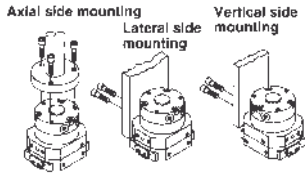
SYMBOLS



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

PRODUCT
SELECTOR
MOUNTING

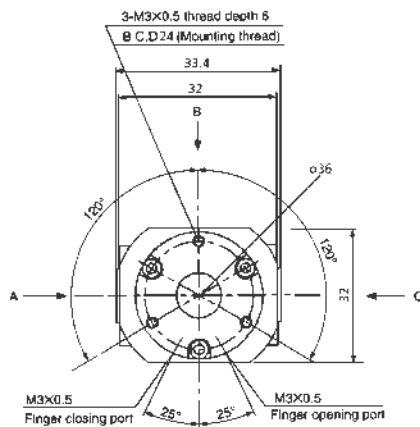
Mounting can be done from 3 directions.



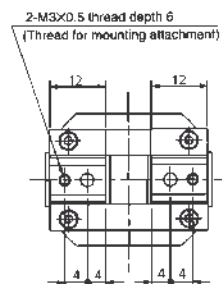
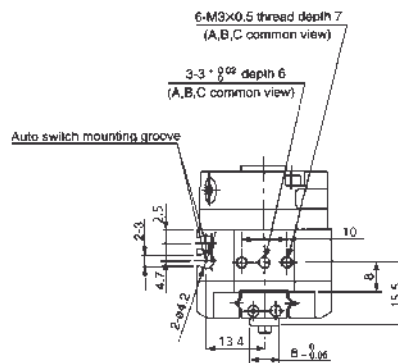
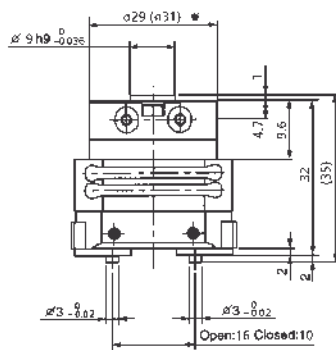
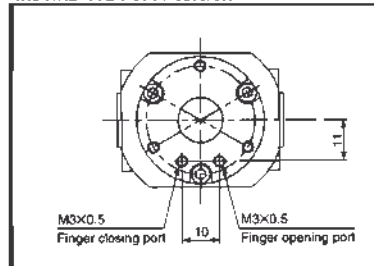
FOR MORE TECHNICAL INFORMATION ON
THIS SERIES, PLEASE REFER TO CAT:N360

DIMENSIONS

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



MDHR2-10E Port Position

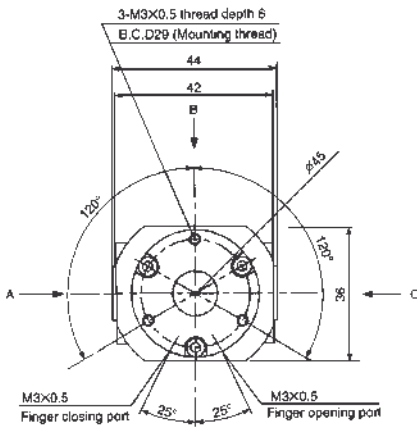


DIMENSIONS
SEE NEXT PAGE

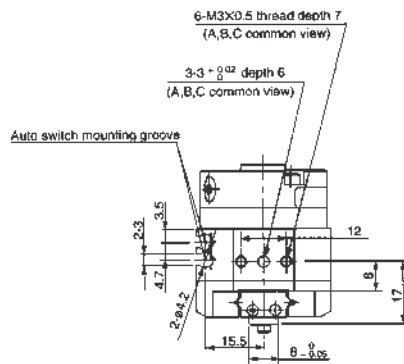
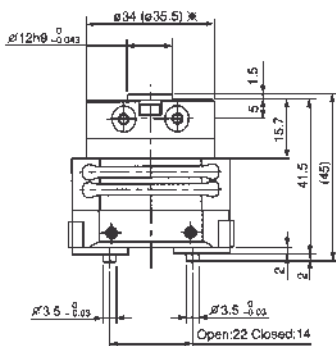
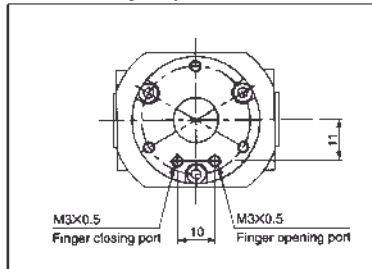
DIMENSIONS

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

DIMENSIONS
SEE NEXT PAGE

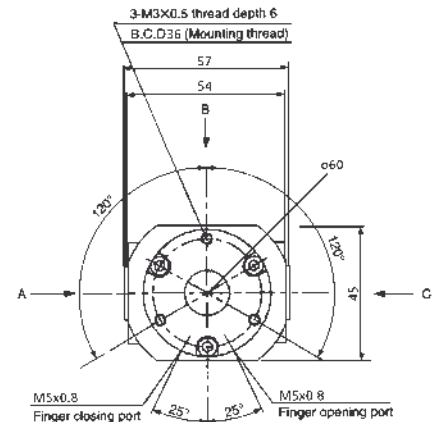
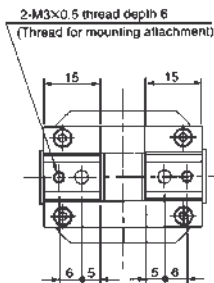


MDHR2-15E port position

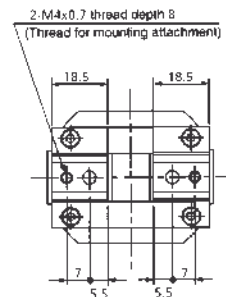
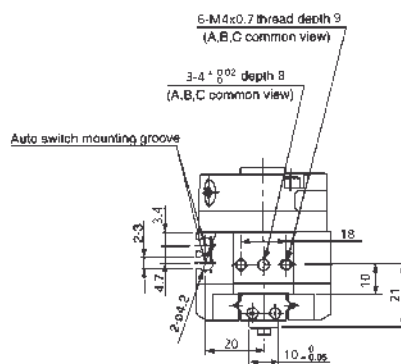
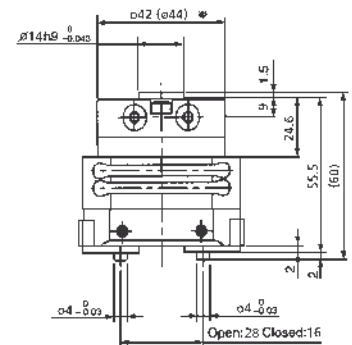
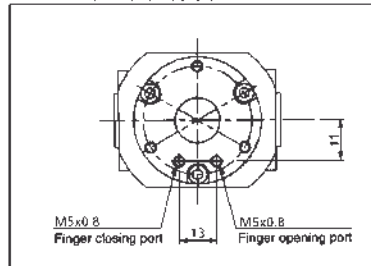


DIMENSIONS

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



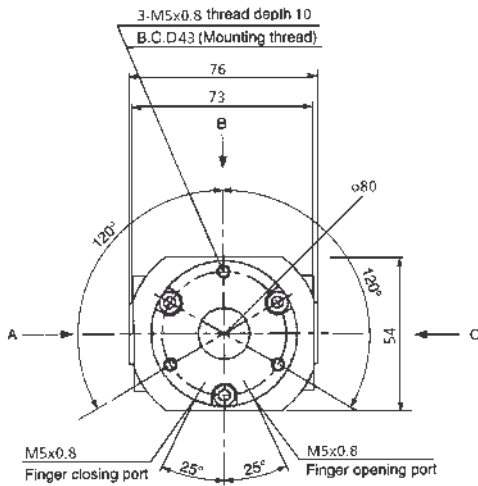
MDHR2-20E Port Position



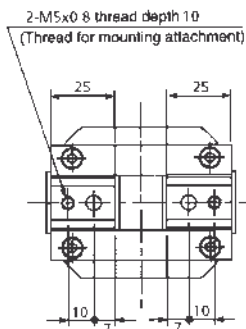
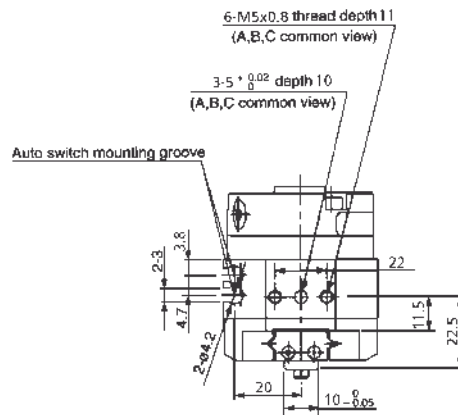
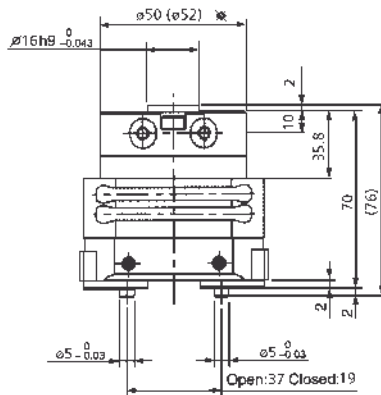
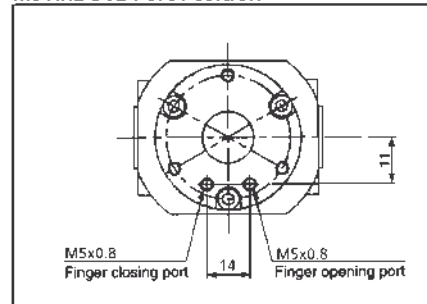
FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N360

DIMENSIONS

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

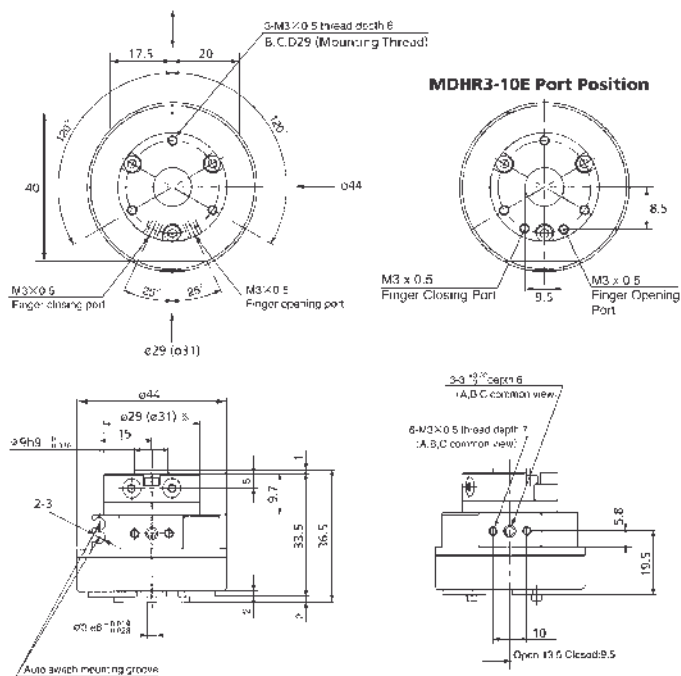


MDHR2-30E Port Position

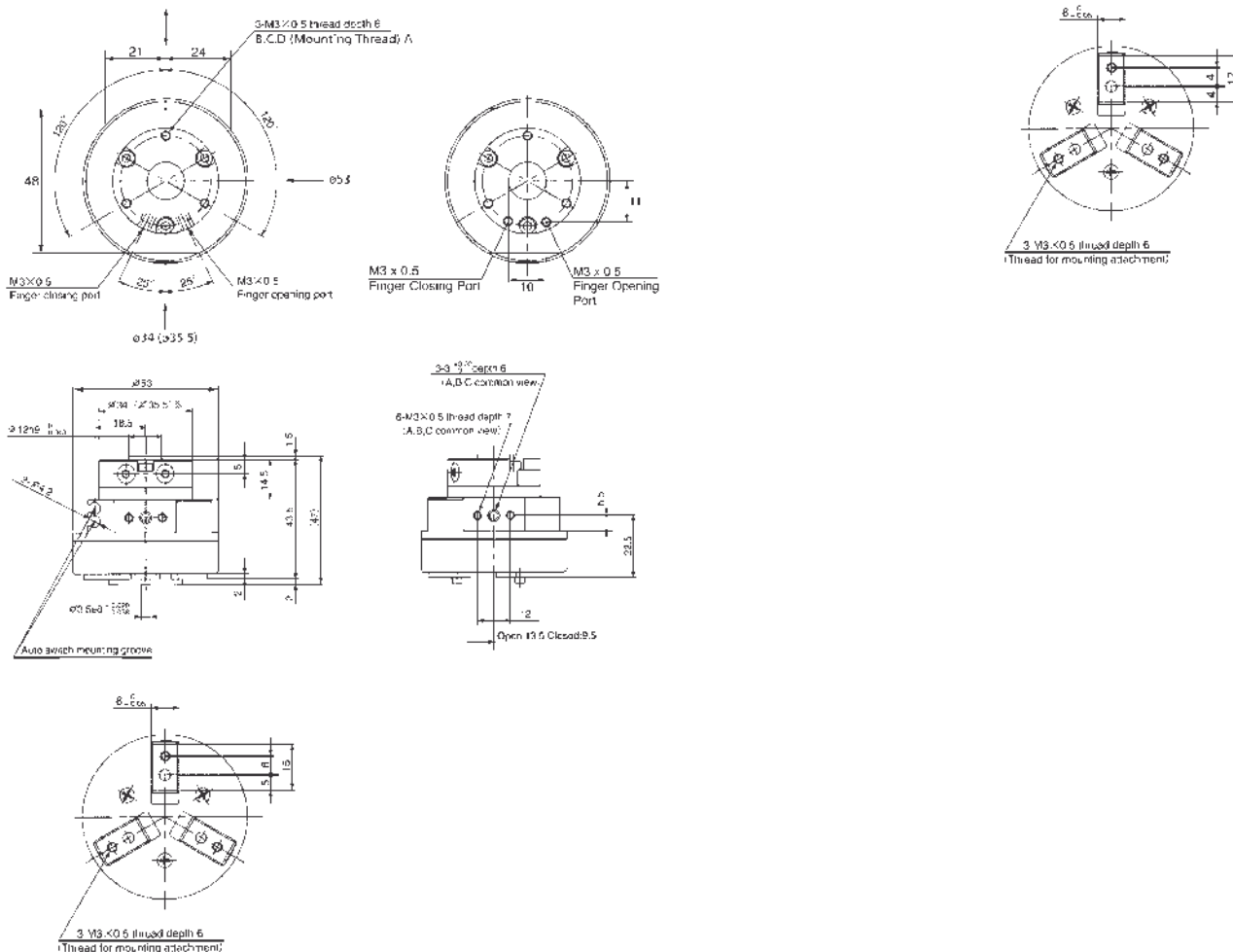


FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N360

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



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



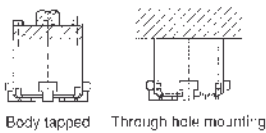
PRECISION AIR CHUCK
SERIES MHS
BORE SIZE Ø16, 20, 25, 32,
40, 50, 63, 80, 100, 125MM

- ✓ 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
2 2 Fingers
3 3 Fingers
4 4 Fingers

Cylinder Bore
16 Ø16mm
20 Ø20mm
25 Ø25mm
32 Ø32mm
40 Ø40mm
50 Ø50mm
63 Ø63mm
80 Ø80mm
100 Ø100mm (MHS3 Only)
125 Ø125mm (MHS3 Only)
200 Ø200mm (MHS4 Only)

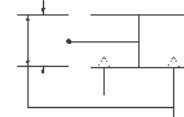
No Of Switches
- 2 Pieces
S 1 Piece

Lead Wire Length
- 0.5m
L 3m

Auto Switch Type
See Accessories Section

Action
D Double Acting

SYMBOLS

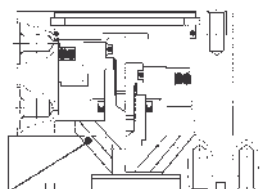


FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N367

TECHNICAL
SPECIFICATIONS SERIES MHS

Model	MHS3-16D	MHS3-20D	MHS3-25D	MHS3-32D	MHS3-40D	MHS3-50D	MHS3-63D	MHS3-80D	MHS3-100D	MHS3-125D
Bore	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125
Fluid	Air									
Operating Pressure	0.2 - 0.6 MPa (29~87PSI)				0.1 - 0.6MPa (14.5~87PSI)					
Ambient & Fluid Temperature	-10 - 60°C / 14 ~ 140°F									
Repeatability	+0.01 -0.01									
Maximum Operating Cycle	120c.p.m	120c.p.m	120c.p.m	60c.p.m	60c.p.m	60c.p.m	60c.p.m	30c.p.m	30c.p.m	30c.p.m
Lubrication	Non Lube									
Action	Double Acting									

TECHNICAL
SPECIFICATIONS



Wedge cam structure

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

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

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

ACCESSORIES

SOLID STATE AUTO SWITCHES

APPLICABLE CYLINDER BORE: Ø32 TO 125MM

Auto Switch No	D-Y59A	D-Y69A	D-Y59B	D-Y69B
Lead Wire Entry	In-line	Perpendicular	In-line	Perpendicular
Wiring Method	3 Wire	3 Wire	2 Wire	2 Wire
Application	PLC		25VDC PLC	
Power Source	5.12.24VDC	5.12.24VDC	-	-
Current Consumption	OFF: 1mA max 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-Y7NWX	D-Y7BW	D-Y7BWX
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

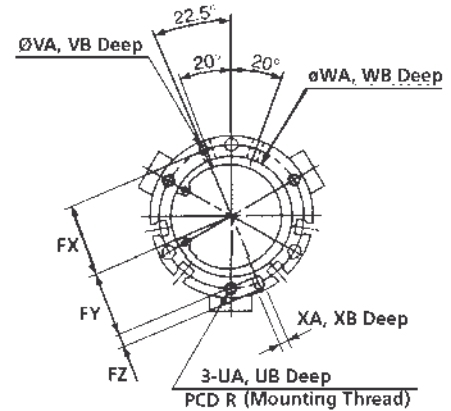
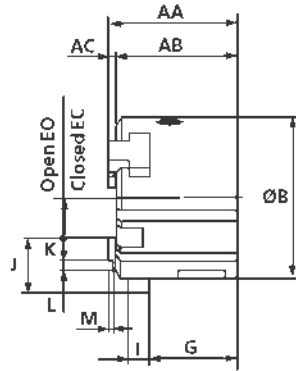
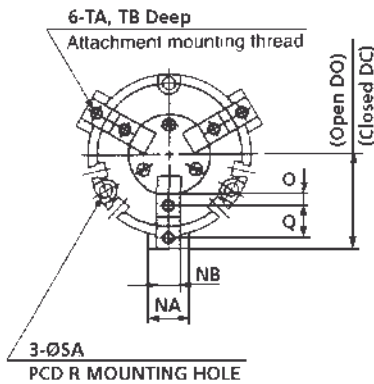
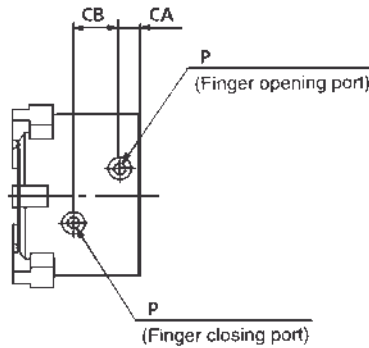
Auto Switch No	D-Y7BAL
Lead Wire Entry	In-line
Wiring Method	2 Wire
Application	24VDC PLC
Load Voltage	24VDC (10 - 28VDC)
Load Current	5 - 40mA
Internal Voltage Drop	4V max
Leak Current	1mA max at 24VDC
Indicator Lamp	Operating position - Red Light emitting diode Most Sensitive position - Green Light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

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

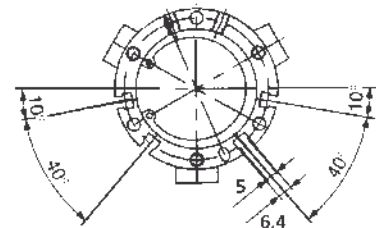


DIMENSIONS

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



Auto switch mounting groove position



Part No	AA	AB	AC	B	CA	CB	DC	DO	EC	EO	FX	FY	FZ	G	I	J	K	L	M
MHS3-32D	44	41	3	52	8	16	28	32	8	12	22	19.5	5	30.5	6	20	9	2H9 0~0.025	2
MHS3-40D	47	44	3	62	9	17	31	35	10	14	26.5	23.5	6	32	7	21	9	3H9 0~0.025	2
MHS3-50D	55	52	3	70	9	20	35	41	11	17	31	28	6	37.5	9	24	10	4H9 0~0.03	2
MHS3-63D	66	62	4	86	12	22	43	51	15	23	38	34.5	7	44	11	28	11	6H9 0~0.03	3
MHS3-80D	82	77	5	106	13.5	27	53.5	63.5	21.5	31.5	47.5	43.5	8	56	12	32	12	8H9 0~0.036	4

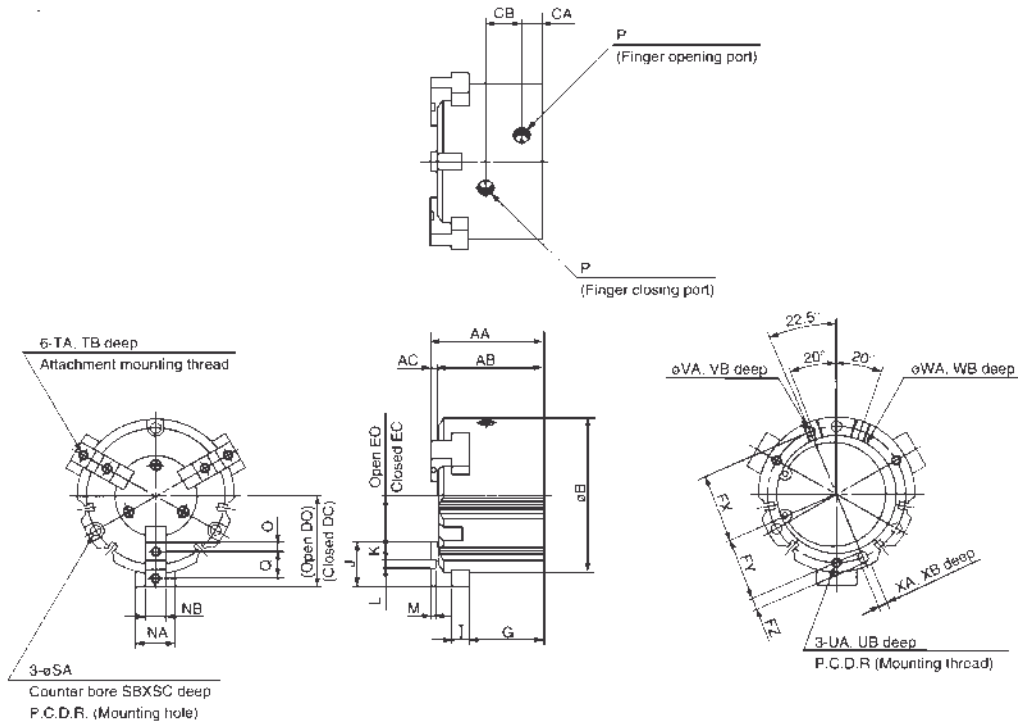
Part No	NA	NB	O	P	Q	R	SA	SB	SC	TA	TB	UA	UB	VA
MHS3-32D	14	8H9 -0.036~0	4.5	M5x0.8	11	44	4.5	8	9	M4x0.7	8	M4x0.7	6	3H9 0~0.025
MHS3-40D	16	8h9 -0.036~0	4.5	M5x0.8	12	53	5.5	9.5	9	M4x0.7	8	M5x0.8	7.5	4H9 0~0.03
MHS3-50D	18	10h9 -0.036~0	5	M5x0.8	14	62	5.5	9.5	12	M5x0.8	10	M5x0.8	10	4H9 0~0.03
MHS3-63D	24	12H9 -0.043~0	5.5	M5x0.8	17	76	6.6	11	14	m5x0.8	10	M6x1	9	5H9 0~0.03
MHS3-80D	28	14h9 -0.043~0	6	Rc(PT)1/8	20	95	6.6	11	19	M6x1	12	M6x1	12	6H9 0~0.03

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

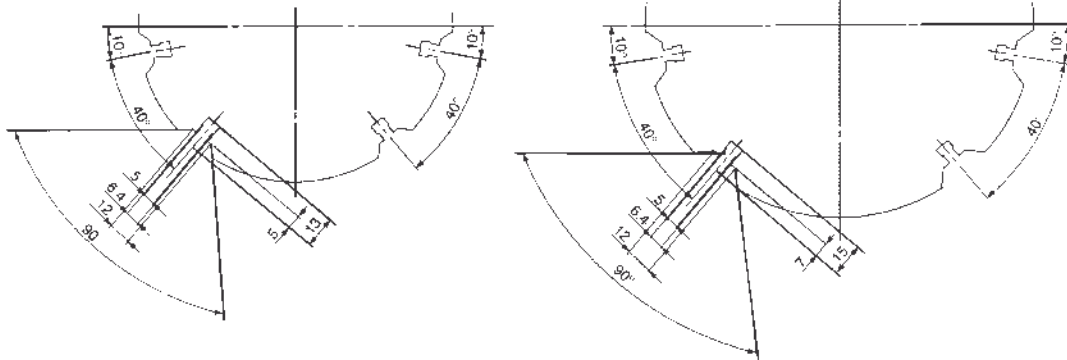
(mm)

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

DIMENSIONS
MHS3-100D, 125D



Auto swith mounting groove position (4 places)



MHS3-100D

MHS3-125D

Part No	AA	AB	AC	B	CA	CB	DC	DO	EC	EO	FX	FY	FZ	G	I	J	K	L
MHS3-100D	96	90	6	134	18	30.6	66	78	28	40	59	54	10	63	15	38	15	8H9 0-0.036
MHS3-125D	122	114	8	166	23.5	38	82	98	30	46	74	68	12	84	18	52	21	10H9 0-0.036

Part No	M	NA	NB	O	P	Q	R	SA	SB	SC	TA	TB	UA
MHS3-100D	4	34	18h9 -0.043-0	7.5	Rc(PT)1/4	23	118	9	14	21	M4x1.25	16	M8x1.25
MHS3-125D	6	40	22h9 -0.052-0	10.5	Rc(PT)3/8	31	148	11	17.5	34	M10x1.5	20	M10x1.5

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

(mm)

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

TOGGLE TYPE AIR CHUCK SERIES MHT

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

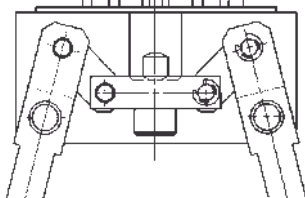


TECHNICAL SPECIFICATIONS

Model	MHT2-32D	MHT2-40D	MHT2-50D	MHT2-63D
Bore size mm	32	40	50	63
Fluid	Air			
Action	Double Acting			
Operating Pressure	0.1 ~ 0.6MPa / 14.5~87PSI			
Ambient & fluid temperature	-5 - 60°C / 23~140°F			
Lubrication	Not required			
Finger opening angle	-3° ~ 28°	-3° ~ 27°	-3° ~ 23°	
Weight	0.80kg	1.09kg	1.96kg	2.8kg
Effective holding moment N.m at 0.5MPa / 73PSI	12.4	36.0	63.0	106

MOUNTING CONFIGURATIONS

THE TOGGLE MECHANISM HOLDS THE COMPONENT EVEN WHEN THE PRESSURE DROPS



When fingers are closing, the toggle mechanism is actuated to produce strong and stable holding force. The component can be held even when the pressure drops.

HOW TO ORDER

TOGGLE TYPE AIR CHUCK SERIES MHT

MHT2 — D

BORE SIZE — D

32 ...32mm
40 ...40mm
50 ...50mm
63 ...63mm

DIMENSIONS SEE NEXT PAGE

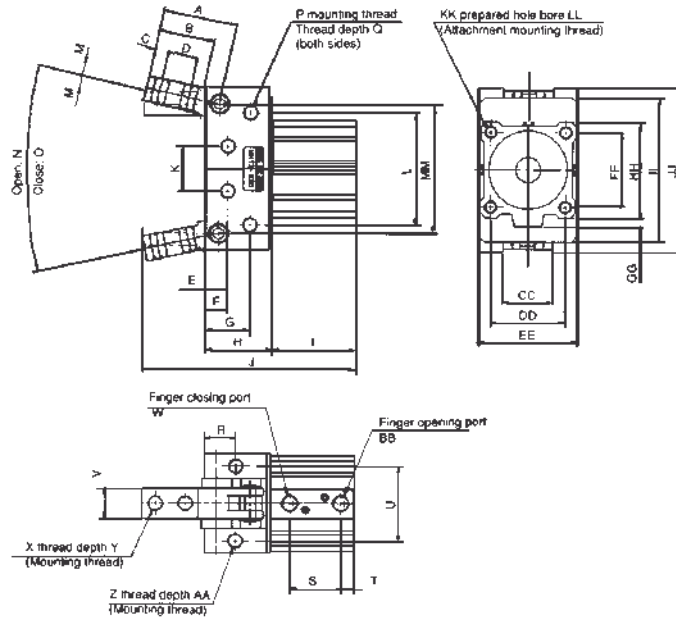
FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N360

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
D-A73L	D-A73CL	Reed	24VDC 100VAC	5~40mA 5~20mA		Max 2.4V	ON:RED LED
D-A80L	D-A80CL	Reed	24VDC/AC or less 100VDC/AC	Max 50 mA Max 20mA	0	None	
D-F79L	~	3 Wire Solid state NPN	28VDC or less	Max 150mA	5~28VDC	0.8V max	ON:RED LED
D-F7PL	~	3 Wire Solid state PNP	28VDC or less	Max 100mA	5~28VDC	0.8V max	ON:RED LED
D-J79L	D-J79CL	2 wire Solid state	28VDC or less	5~150mA	~	3V max	ON:RED LED

DIMENSIONS

TOGGLE TYPE AIR CHUCK SERIES MHT



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

Model	0	P	Q	R	S	T	U	V	W	X	Z	AA	BB	CC
MHT2-32D	-3°	4-M6	10	20	30	7.5	34	15(0,-0.1)	1/8	4-M6	4-M6	15	1/8	22
MHT2-40D	-3°	4-M8	10	20	35.5	8	40	18(0,-0.1)	1/8	4-M8	4-M8	12	1/8	29
MHT2-50D	-2°	4-M10	12	25	39.5	10.5	52	20(0,-0.1)	1/4	4-M10	4-M10	12	1/4	36
MHT2-63D	-2°	4-M12	17	25	40.5	10.5	60	24(0,-0.1)	1/4	4-M12	4-M12	10	1/4	40

Model	DD	EE	FF	GG	HH	II	JJ	KK	LL	MM
MHT2-32D	34±0.2	46	34±0.2	4.5	□45	74	86	4-M6	10	68
MHT2-40D	40±0.2	53	40±0.2	5	□52	82	96	4-M6	10	74
MHT2-50D	50±0.2	66	50±0.2	7	□64	110	124	4-M8	14	100
MHT2-63D	60±0.2	80	60±0.2	7	□77	116	132	4-M10	18	104

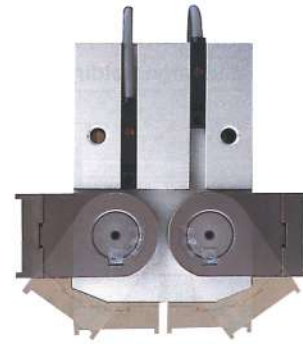
AIR CHUCK SERIES MHW 180° ANGULAR GRIPPER

- ✓ Shorter Length
- ✓ Rack & Pinion Mechanism
- ✓ Dust Proof Construction
- ✓ Four Mounting Options

TECHNICAL SPECIFICATIONS SERIES MHW

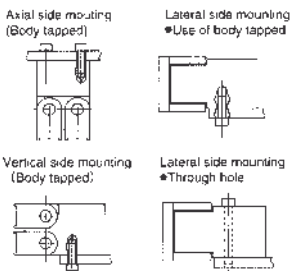
Fluid	Air
Operating Pressure	0.15-0.7 MPa (22-102PSI)
Ambient & Fluid Temperature	-10~60°C / 14~140°F
Repeatability	±0.2mm
Max Operating Frequency	Ø20/25 60 cpm
	Ø32-50 30 cpm
Lubrication	Not Required
Action	Double Acting

Model	Cylinder ID mm	Effective Holding Force Nm	Opening Angle (both sides)		Weight g
			Opening Side	Closing Side (when fingers are in contact with each other)	
MHW2-20D	20	0.30	180°	-5°	300
MHW2-25D	25	0.73		-6°	510
MHW2-32D	32	1.61		-5°	905
MHW2-40D	40	3.70		-5°	2135
MHW2-50D	50	8.27		-4°	5100

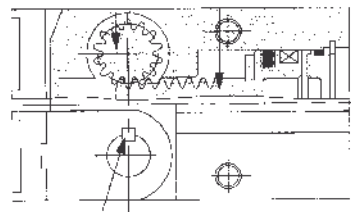


MOUNTING OPTIONS

A variety of mounting
Mounting from 4 directions possible



MECHANISM



Key connection is ideal for impact resistance.

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

HOW TO ORDER MHW2 SERIES

MHW2 — D 1

BORE SIZE

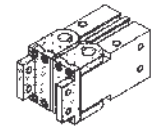
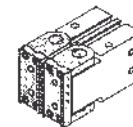
- 20 ...Ø20mm
- 25 ...Ø25mm
- 32 ...Ø32mm
- 40 ...Ø40mm
- 50 ...Ø50mm

FINGER OPTION

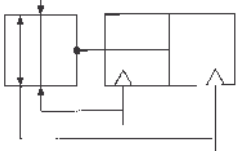
- 0 Standard Type
- 1 Right Angle Type

Flat finger type method (standard)

Right angle finger type



SYMBOLS



ACCESSORIES AUTOSWITCHES

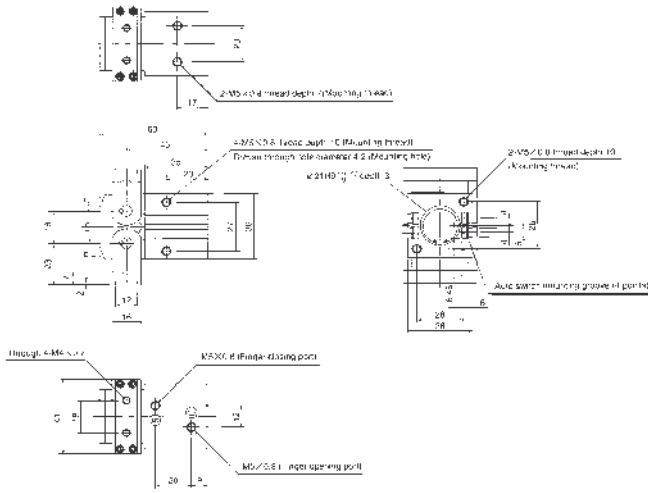
Note: Pre-wired Switches with 3/4 Pin Connectors available, please consult SMC Customer Service

Auto 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			

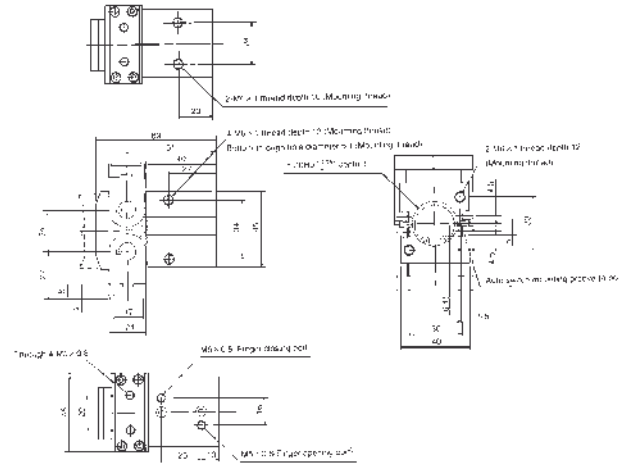
FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:N360

DIMENSIONS
SEE NEXT PAGE

DIMENSIONS FLAT FINGER TYPE MHW2-20D



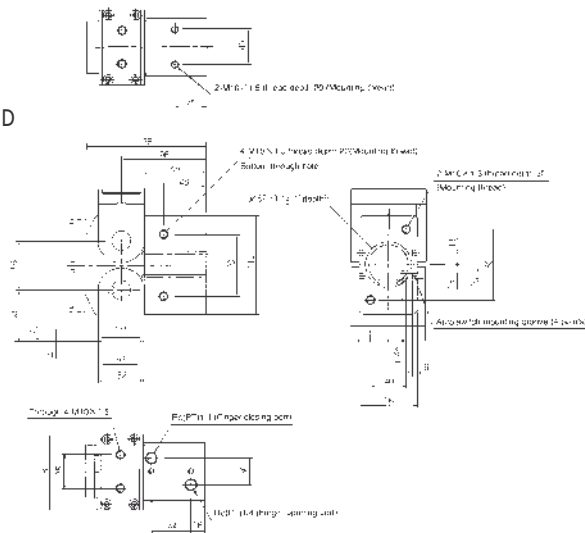
DIMENSIONS FLAT FINGER TYPE MHW2-25D



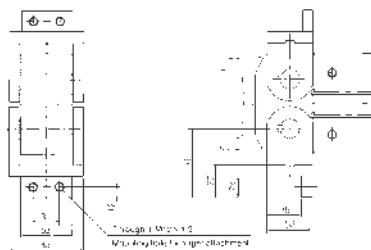
MHW2-25D1 Right angle finger type



DIMENSIONS FLAT FINGER TYPE MHW2-50D



MHW2-50D1 Right angle finger type



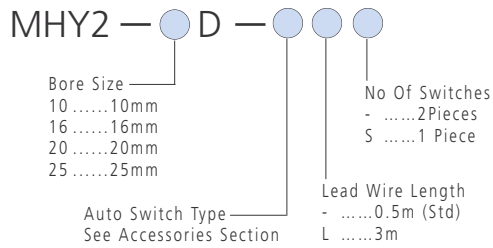
CAM TYPE AIR CHUCK SERIES MHY2 180° ANGULAR GRIPPER

- ✓ Light and Compact
- ✓ Available in Small Bore Sizes
- ✓ Cam Type Mechanism
- ✓ Resistant to Dusty Environments
- ✓ Auto Switch Capable (Standard)

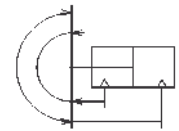


HOW TO
ORDER

MHY2 SERIES



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



TECHNICAL
SPECIFICATIONS SERIES MHY2

ACCESSORIES
SERIES MHY2 AUTO SWITCHES

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

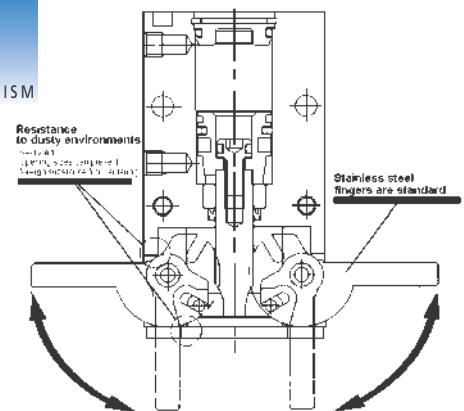
Fluid	Air	Electrical Entry		Type	Special Function	Electrical Entry	Indicator	Wiring Output	Load Voltage		Applicable Load
		Perpendicular	In-Line						DC	AC	
Operating Pressure	0.1~0.6MPa / 14.5~87PSI	F9NV	F9N	Solid	-	-	-	3 Wire NPN	24V	12V	Relay PLC
Ambient & Fluid Temperature	-10°C ~ 60°C / 14~140°F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

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

TECHNICAL
SPECIFICATIONS

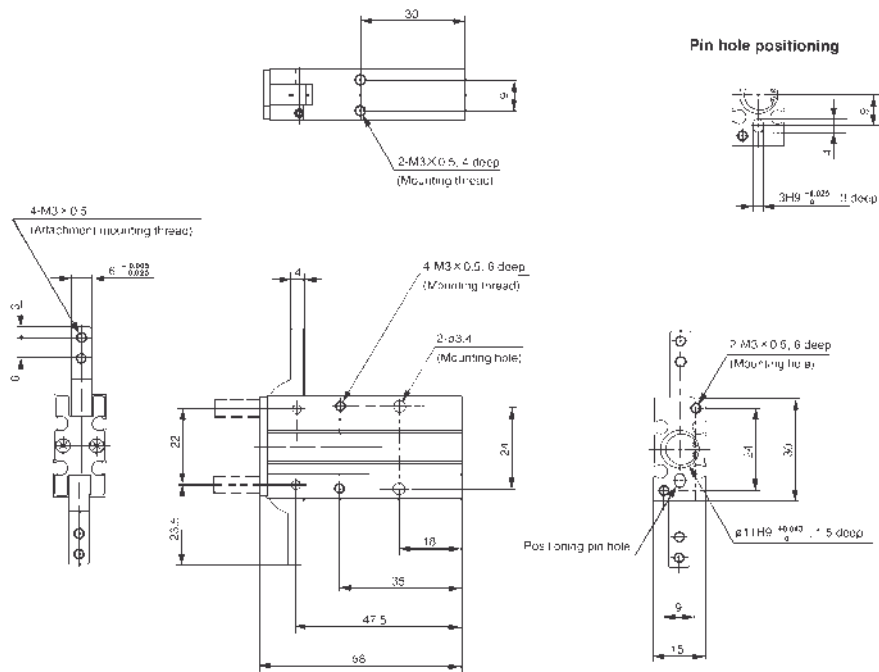
Model	Cylinder ID mm	Effective Holding Force Nm (At 0.5MPa / 73PSI)	Opening Angle (Both Sides)		Weight (g) (W/O Auto S)
			Opening Side	Closing Side	
MHY2-10D	10	0.16	180°	-3°	70
MHY2-16D	16	0.54	180°	-3°	150
MHY2-20D	20	1.10	180°	-3°	320
MHY2-25D	25	2.28	180°	-3°	560

MECHANISM

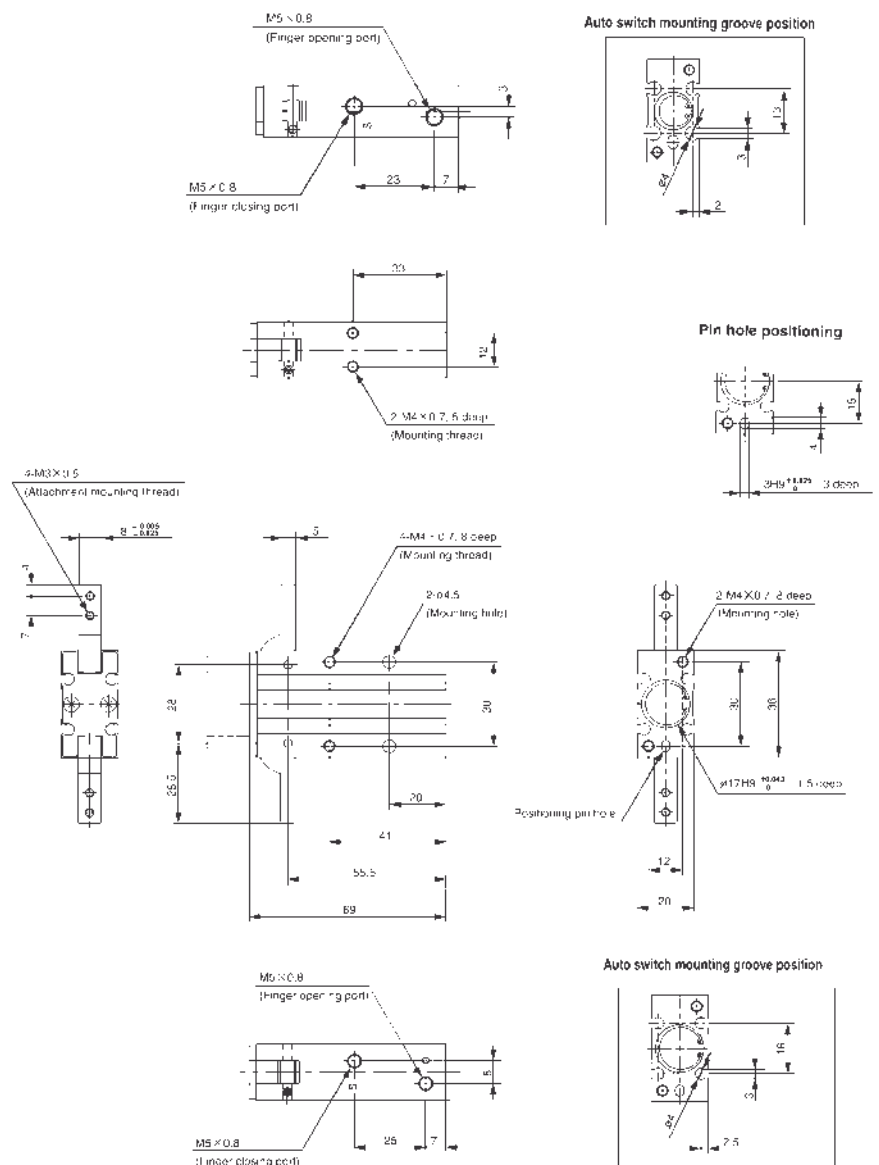


DIMENSIONS
SEE NEXT PAGE

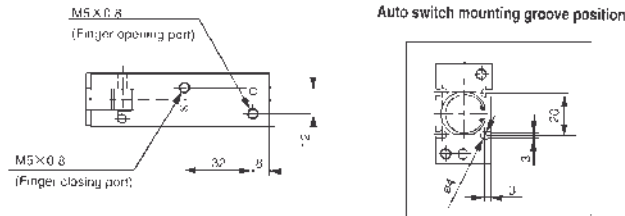
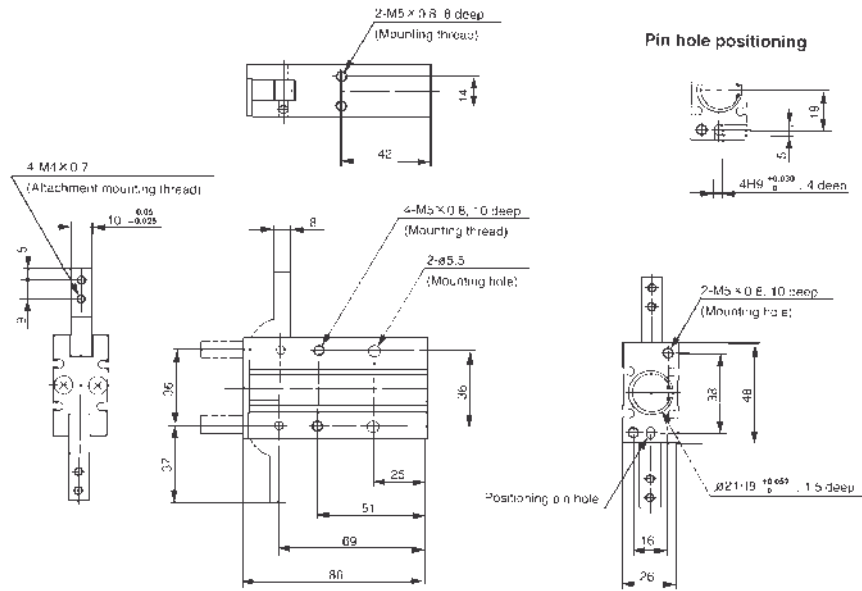
DIMENSIONS
SERIES MHY2-10D



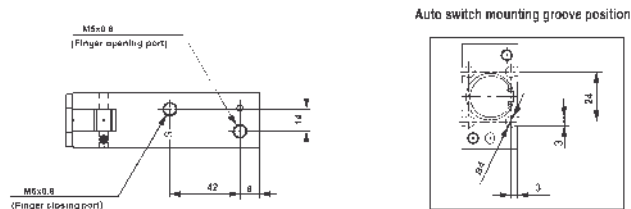
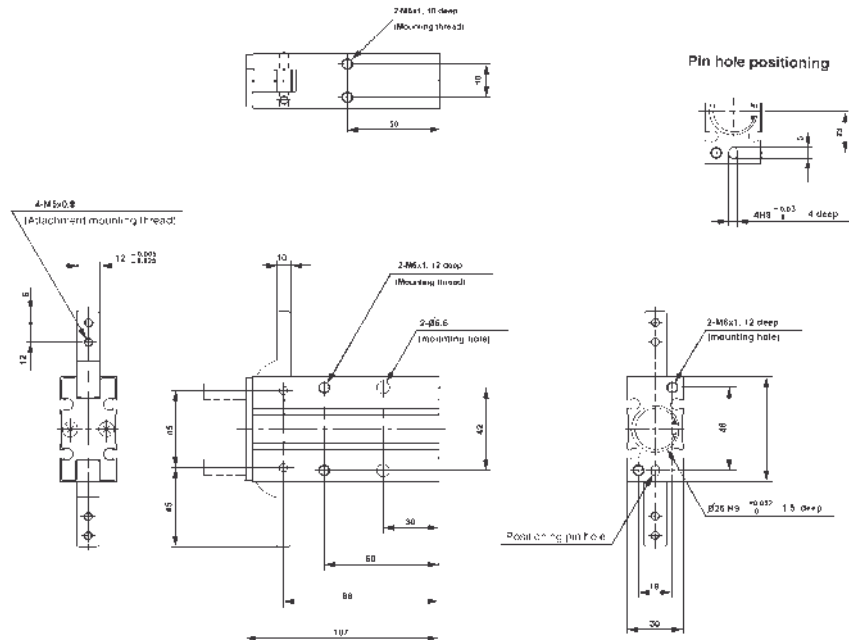
DIMENSIONS
SERIES MHY2-16D



DIMENSIONS
SERIES MHY2-20D



DIMENSIONS
SERIES MHY2-25D



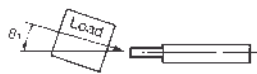
FOR MORE INFORMATION ON THE MHY2
SERIES, PLEASE REFER TO CAT:E248

SHOCK ABSORBER SERIES NRB

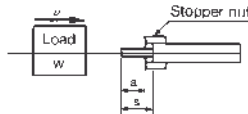
- ✓ Automatic adjustment to the most appropriate absorption performance
- ✓ High resistance to load deviation
- ✓ Double seal enclosure
- ✓ Compact design

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

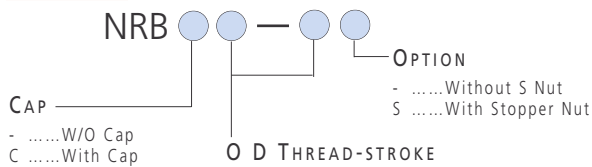


TECHNICAL SPECIFICATIONS

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)	0.53(240)
Optional	Stop Nut	NRB031S	NRB037S	NRB050S	NRB056S	NRB075S
	Mounting Nuts -2	Standard				

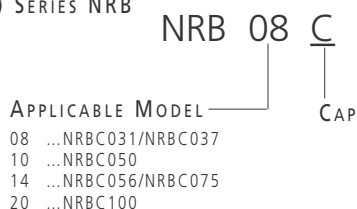
HOW TO ORDER

SHOCK ABSORBER SERIES NRB



HOW TO ORDER

CAP TYPE SPARE PART NUMBERS (OUTER CAP ONLY) SERIES NRB



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)

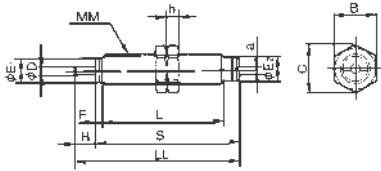
NRB08C	NRBC031/NRBC037
NRB10C	NRBC050
NRB14C	NRBC056/NRBC075
NRB20C	NRBC100

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

DIMENSIONS
SEE NEXT PAGE

DIMENSIONS

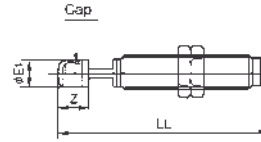
BASIC TYPE NRB031•NRB037



Model	Shock Absorber										Nut			
	a	øD	øE ₁	øE 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	-

DIMENSIONS

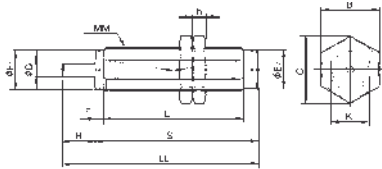
WITH CAP NRBC031•NRBC037



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

DIMENSIONS

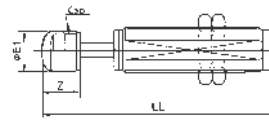
BASIC TYPE NRB050•NRB056



Model	Shock Absorber										Nut			
	A	øD	øE ₁	øE 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

DIMENSIONS

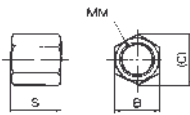
WITH CAP NRBC056•NRBC075•NRBC100



Parts Number	Dimensions		
	øE 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

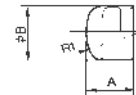
STOPPER NUT



Part No	Dimensions			
	B	C	S	MM
NRB031S	7/16	(0.51)	5/16	5/16-32UNEF
NRB037S	1/2	(0.56)	19/64	3/8-32UNEF
NRB050S	3/4	(0.86)	27/64	1/2-20UNF
NRB056S	3/4	(0.86)	1/2	9/16-18UNF
NRB075S	15/16	(1.08)	5/8	3/4-16UNF
NRB100S	5/16	(1.51)	3/4	1-12UNF

DIMENSIONS

CAP



Part No	Dimensions		
	A	øB	R1
NRB08C	0.26	0.27	0.24
NRB10C	0.35	0.34	0.29
NRB14C	0.49	0.47	0.39
NRB20C	0.63	0.71	0.79

SHOCK ABSORBER SERIES RB

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



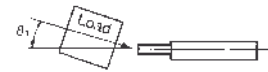
TECHNICAL SPECIFICATIONS

Model	Basic type	RB0806	RB1007	RB1412	RB2015	RB2725
	With cap	RBC0806	RBC1007	RBC1412	RBC2015	RBC2725
Max Energy Absorption/Stroke (Nm)		3	6	20	60	150
Stroke (mm)		6	7	12	15	25
Max Impact Speed		5m/sec (196in/s)				
Max Angle of Impact		3°				
Max Operation Cycle/Min		80	70	45	25	10
Ambient Temperature		-10~+80°C / 14~176°F				
Spring Force	Extended (N)	3.5	6.5	7.0	8.5	9
	Compressed (N)	7.5	9.6	6.3	20.9	20.4
Weight (g)		15	25	65	150	360
Option	Stopper Nut	RB08S	RB10S	RB14S	RB20S	RB27S

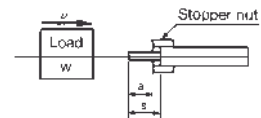
*At maximum energy absorption per cycle. Maximum operation cycle/min can increase in proportion to energy absorption

PRECAUTION

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

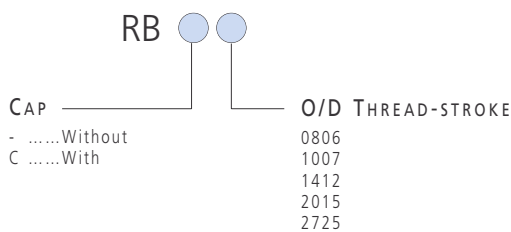


2. Adjustment of the stopper nut (to adjust the length a) will control the suspension time of the impacting object.



S: Stroke of shock absorber

HOW TO ORDER SHOCK ABSORBER SERIES RB



ACCESSORIES STOPPER NUT

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

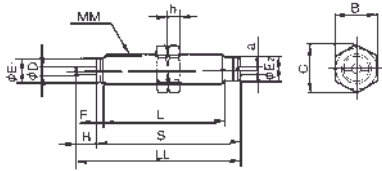
ACCESSORIES SPARE CAP

- *RB08C
 - *RB10C
 - *RB14C
 - *RB20C
 - *RB27C
- *For replacement only on RBC

DIMENSIONS
SEE NEXT PAGE

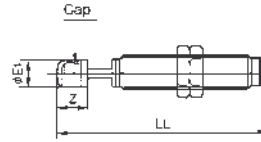
DIMENSIONS

BASIC TYPE RB0806•RB1007



DIMENSIONS

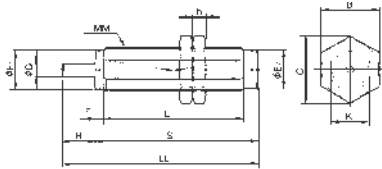
WITH CAP RBC0806•RBC1007



Model		Basic type										With cap			Hexagonal nut		
Basic type	With cap	ØD	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

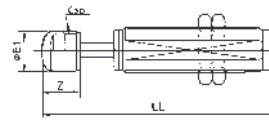
DIMENSIONS

BASIC TYPE RB1412•RB2015•RB2725



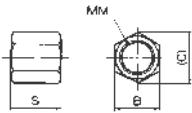
DIMENSIONS

WITH CAP RBC0806•RBC1007

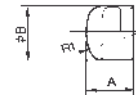


Model		Basic type										With cap			Hexagonal nut		
Basic type	With cap	ØD	ØE ₁	ØE ₂	F	H	K	L	LL	MM	S	ØE ₁	LL	Z	B	C	h
RB1412	RBC1412	5	12.2	12	3.5	12	12	58.2	79.3	M14 x 1.5	67.3	12	92.8	13.5	19	21.9	6
RB2015	RBC2015	6	18.2	18	4	18	18	62.2	88.2	M20 x 1.5	73.2	18	105.2	17	27	31.2	6
RB2725	RBC2725	8	25.2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

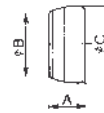
TECHNICAL SPECIFICATIONS

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



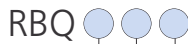
SPARE PARTS DAMPER



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

HOW TO ORDER

SHOCK ABSORBER SERIES RBQ



MODEL
-Basic Type
CWith Damper

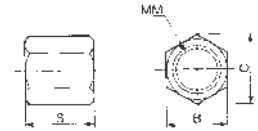
OD THREAD
16
20
25
30
32

STROKE
04
07
08
09
13

* Stopper nut must be ordered as a separate item.
RBQ16S RBQ20S RBQ25S
RBQ30S RBQ32S

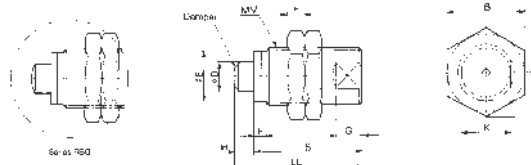
FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E224

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 RBQ



REPLACEMENT DAMPERS



APPLICABLE MODEL

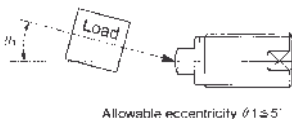
- 16 ...RBQC1604
- 20 ...RBQC2007
- 25 ...RBQC2508
- 35 ...RBQC3009
- 32 ...RBQC3213

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

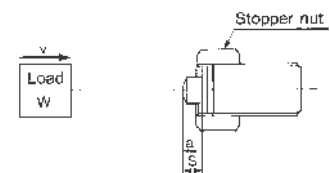
Load should always be aligned with the axis of piston rod.



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 $\alpha \leq 5^\circ$.

Installation conditions for rotation impact (mm)

Model	S (Stroke)	α_2 (Allowable Rotation Angle)	R (Min Installation Angle)
RBQ•1604	4	5°	51
RBQ•2007	7	5°	89
RBQ•2508	8	5°	102
RBQ•3009	8.5	5°	108
RBQ•3213	13	5°	166



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

	<p>VX21/22/23 2 PORT SOLENOID VALVE DIRECT OPERATED TYPE</p> <p style="text-align: right;">2.48</p>
	<p>VXD21 2 PORT SOLENOID VALVE PILOT OPERATED TYPE</p> <p style="text-align: right;">2.50</p>
	<p>VX31/32/33 3 PORT SOLENOID VALVE DIRECT OPERATED TYPE</p> <p style="text-align: right;">2.52</p>
	<p>VXZ22 2 PORT SOLENOID VALVE PILOT OPERATED TYPE / DIFFERENTIAL PRESSURE OPERATION TYPE</p> <p style="text-align: right;">2.54</p>
	<p>VZ100 3/2 DIRECT ACTING SOLENOID VALVE M5 PORTED</p> <p style="text-align: right;">2.56</p>
	<p>VZ300 3/2 PILOT OPERATED SOLENOID SPRING VALVE M5 PORTED</p> <p style="text-align: right;">2.58</p>
	<p>VZ500 3/2 PILOT OPERATED SOLENOID SPRING VALVE</p> <p style="text-align: right;">2.62</p>
	<p>NVFS 5 PORT PILOT OPERATED BASE MOUNTED PLUG IN TYPE</p> <p style="text-align: right;">2.66</p>
	<p>VQD1000 4 PORT DIRECT OPERATED POPPET SOLENOID VALVE</p> <p style="text-align: right;">2.79</p>
	<p>VQZ100/200/300 3 PORT SOLENOID VALVE BASE MOUNTED / PLUG LEAD TYPE</p> <p style="text-align: right;">2.80</p>
	<p>VQZ100/200/300 3 PORT SOLENOID VALVE BODY PORTED / PLUG LEAD TYPE</p> <p style="text-align: right;">2.82</p>

	<p>VQZ1000/2000/3000 2.84 5 PORT SOLENOID VALVE BASE MOUNTED / PLUG LEAD TYPE</p>
	<p>VQZ1000/2000/3000 2.87 5 PORT SOLENOID VALVE BODY PORTED / PLUG LEAD TYPE</p>
	<p>(N)VH 2.90 4/2, 4/3 HAND VALVE</p>
	<p>(N)VM400 2.91 3/2 MECHANICAL VALVE</p>
	<p>(N)VM800 2.92 3/2 MECHANICAL VALVE</p>
	<p>(N)VM1000 2.93 3/2 NORMALLY CLOSED MICRO MECHANICAL VALVE</p>
	<p>(N)VZM550 2.94 5/2 MECHANICAL VALVE</p>
	<p>(N)VR2110 2.95 TIME DELAY VALVE</p>
	<p>(N)VR1210/1220 2.95 SHUTTLE VALVE</p>

	<p>(N)AK CHECK VALVE</p> <p style="text-align: right;">2.96</p>
	<p>(N)AQ QUICK EXHAUST VALVE</p> <p style="text-align: right;">2.96</p>
	<p>AQ200/300 MINIATURE IN-LINE QUICK EXHAUST VALVE</p> <p style="text-align: right;">2.97</p>
	<p>ASP SPEED CONTROLLER WITH PILOT CHECK VALVE</p> <p style="text-align: right;">2.98</p>
	<p>(N)ASV ADJUSTABLE QUICK EXHAUST VALVE WITH INTEGRAL EXHAUST RESTRICTOR AND SILENCER</p> <p style="text-align: right;">2.100</p>

Z VALVE SERIES OVERVIEW

Z Valve Family

Innovative

Cost effective

Versatile

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

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

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

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

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



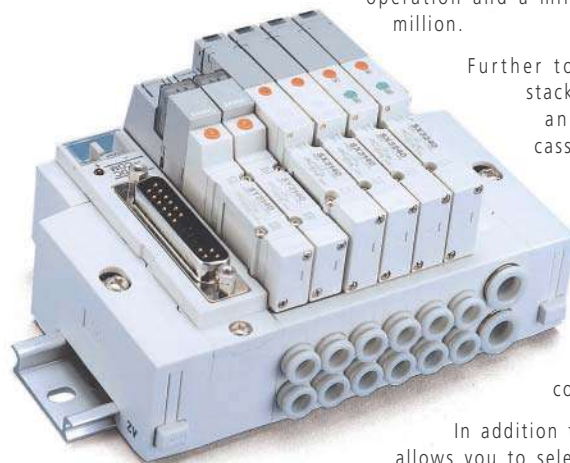
Both the SX and SY series offer a wide range of conventional body ported and subbase mounted valves.

These valves feature the latest guided spool with slimline water resistant seals which protect it against airline condensate carryover. This, together with the low power consumption, high speed solenoid pilot operator, allows a minimum life cycle in excess of fifty million.

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

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

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



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

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

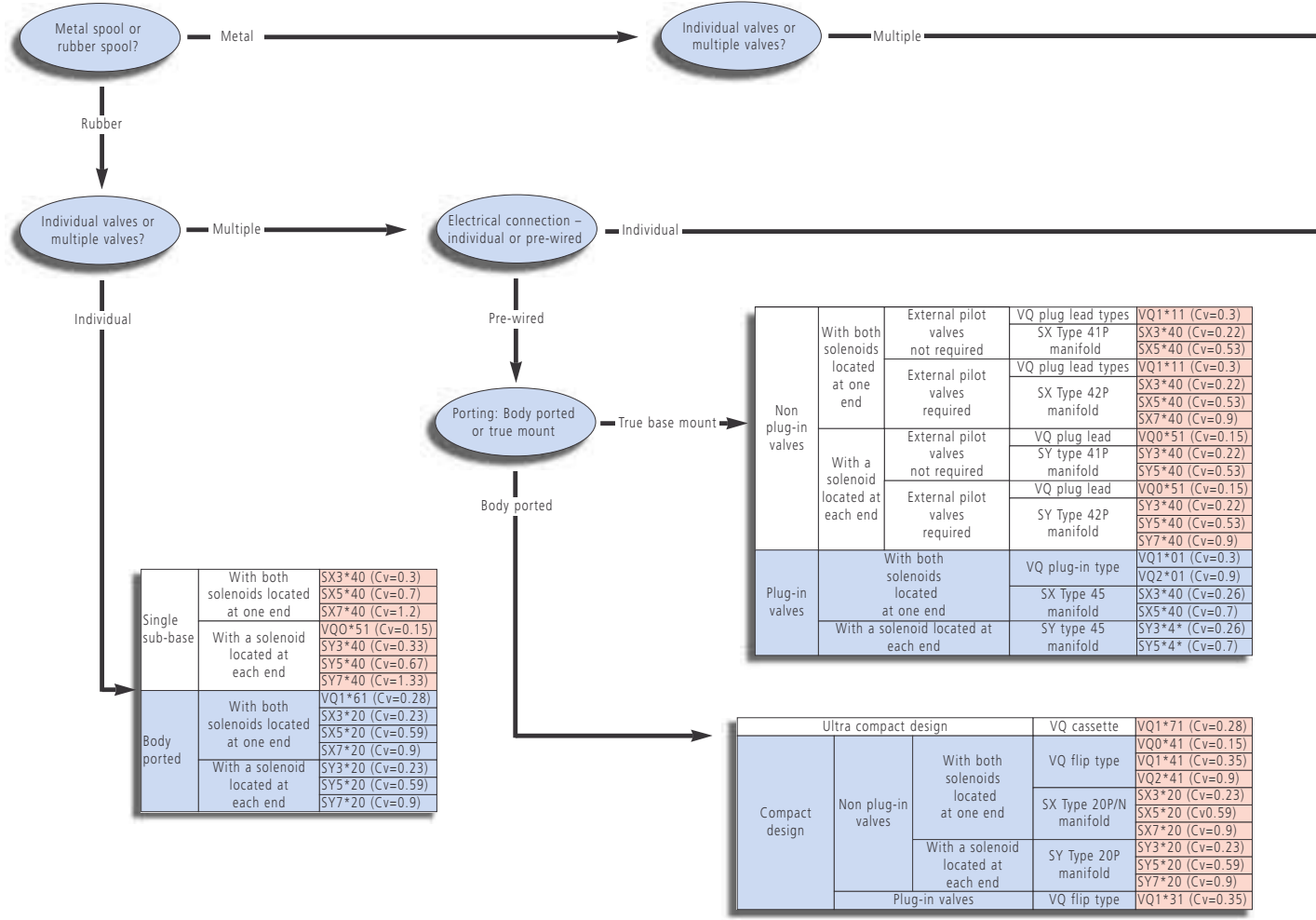
The provision of the solenoid electrics in either negative common or positive common will allow compatibility with any chosen control device.

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

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

Z Valve Selector Guide

START HERE



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

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

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

How To Use This Guide

START in the top left hand corner of the page and make your first decision – metal spool or rubber spool?
 Follow your decision line until you come to another choice. ie. individual or multiple valves.
 Keep following your decision line until you arrive at a table. Starting at the left of the table, make your first of two possible choices. Follow your choice one column to the right, and make your next decision.
 Remember, at each stage across the table you may only select one of the options immediately to the right of the current box. Do not deviate up or down. Eventually you will arrive at a selection in the right hand column (shaded pink). Now choose the valve with your required Cv.



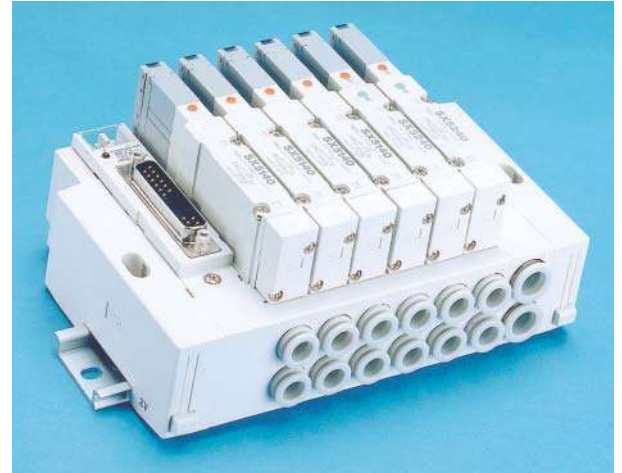
- ✓ When a valve type has been selected, please consult the relevant catalog page in the following section, or your local SMC Sales Office for how to order information and details of stocked products.
- ✓ If you require further assistance or explanation with this guide, please contact your local SMC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

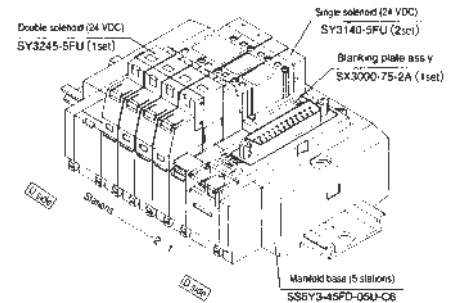
Series	SX3000	SX5000
Fluid	Air / Lubrication Not Required	
Internal Pilot	2 Position Single	0.15 ~ 0.7 (22 ~ 100)
Operating Pressure	2 Position Double	0.1 ~ 0.7 (14.5 ~ 100)
Range MPa (PSI)	3 Position	0.2 ~ 0.7 (30 ~ 100)
External Pilot	2 Position Single	0.25 ~ 0.7 (37 ~ 100)
Operating Pressure	2 Position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



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))



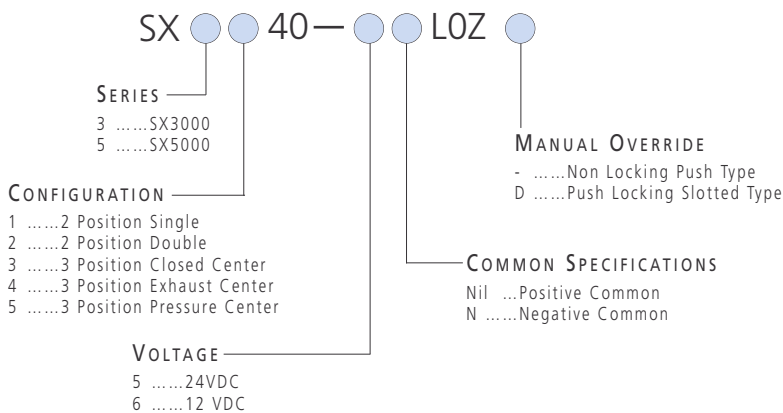
- SS5Y3-45FD-05U-C6 1set (45F type D-sub connector (5-station manifold base no.))
- + SY3000-75-2A 1set (Blanking plate ass'y no.)
- + SY3140-5FU 2set (Single solenoid no.)
- + SY3245-5FU 1set (Double solenoid no.)

▶ 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

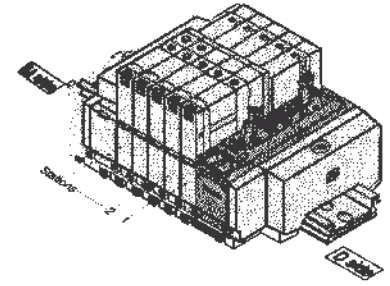
HOW TO ORDER

SERIES SX3000/5000 VALVE TYPES 45F, 45P

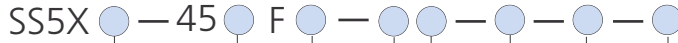


**HOW TO
ORDER**

SERIES SX MANIFOLD 45F TYPE / D-SUB CONNECTOR



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



MANIFOLD SERIES

- 3SX3000
- 5SX5000

COMMON SPECIFICATIONS

- Nil ...Positive 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

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

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



MANIFOLD SERIES

- 3SX3000
- 5SX5000

COMMON SPECIFICATIONS

- Nil ...Positive 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)

A, B PORT SIZE

- | | |
|------------------|----------------------|
| SX3000 | |
| Metric | Imperial |
| C4 ...OTF for ø4 | N3 ...OTF for ø5/32" |
| C6 ...OTF for ø6 | N7 ...OTF for ø1/4" |

- | | |
|------------------|----------------------|
| SX5000 | |
| Metric | Imperial |
| C4 ...OTF for ø4 | N3 ...OTF for ø5/32" |
| C6 ...OTF for ø6 | N7 ...OTF for ø1/4" |
| C8 ...OTF for ø8 | N9 ...OTF for ø5/16" |

* Mixed Porting Available by Special Order
Consult SMC Customer Service

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

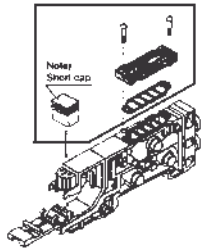
- UU Side - 2 ~ 10 Stations
- DD Side - 2 ~ 10 Stations
- BBoth Sides - 2 ~ 20 Stations
- *M ...Special Specifications (by Special Order)

26 Pole (P) Connector			20 Pole (PG) Connector			10 Pole (PH) Connector		
Symbol	Station	Note	Symbol	Station	Note	Symbol	Station	Note
02	2	Double Wiring	02	2	Double Wiring	02	2	Double 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
20	20	Use Manifold Specs Form to specify wiring	16	16	Use Manifold Specs Form to specify wiring	08	08	Use Manifold Specs Form to specify wiring

OPTIONS

SERIES SX MANIFOLD OPTIONS

Blanking plate ass'y



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

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

SUP block disc

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



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

EXH block disc

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



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

Block disc indication seal

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

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

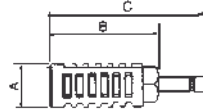
Label for SUP block disc Label for EXH block disc Label for SUP, EXH block disc



Note: When ordering block disc installed at the factory, labels are attached to the manifold showing the locations.

Silencer for one-touch fitting

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

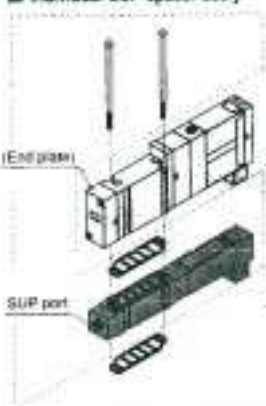


Series	Model	Effective area	A	B	C
SX3000 (ø6)	AN203-KM8	14mm ²	ø18	26	51
	AN200-KM10	26mm ²	ø22	53.8	80.8
SX5000 (ø10)	AN300-KM10	30mm ²	ø25	70	97

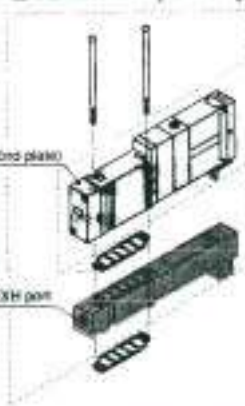
OPTIONS

SERIES SX MANIFOLD OPTIONS

Individual SUP spacer ass'y



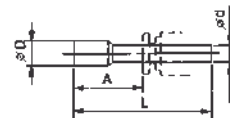
Individual EXH spacer ass'y



Series	Ass'y no.	Port size
SX3000	SX3000-38-3A	M5x0.8
SX5000	SX5000-38-3A	1/8"

Series	Ass'y no.	Port size
SX3000	SX3000-39-3A	M5x0.8
SX5000	SX5000-39-3A	1/8"

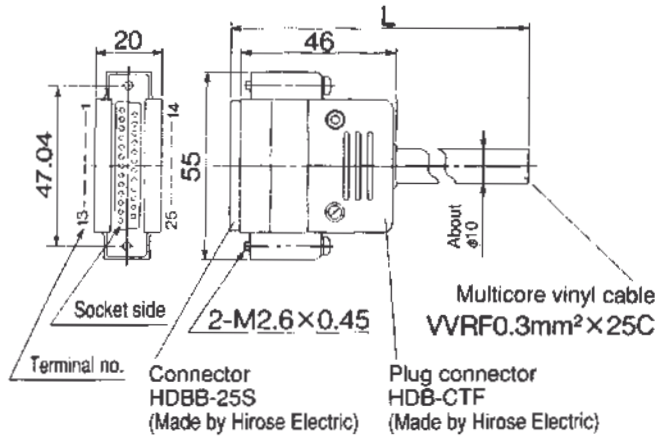
PORT PLUGS



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

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

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



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

Electric Characteristics

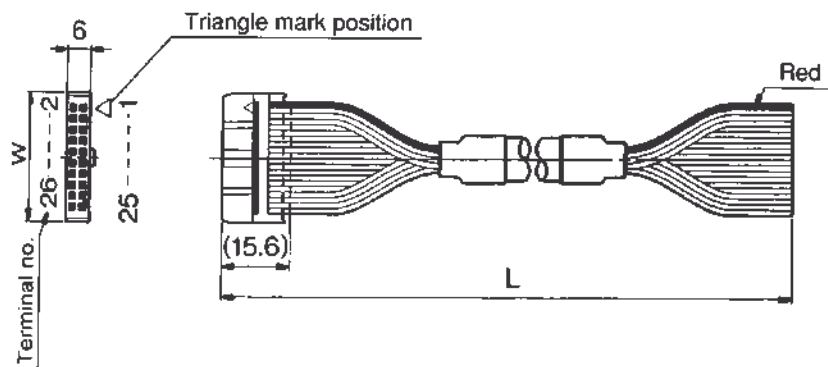
Item	Characteristics
Conductor Resistance /km, 20°C	65 or less
Voltage Limit V, 1 min, AC	1000
Insulation Resistance M km, 20°C	5 or more

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

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

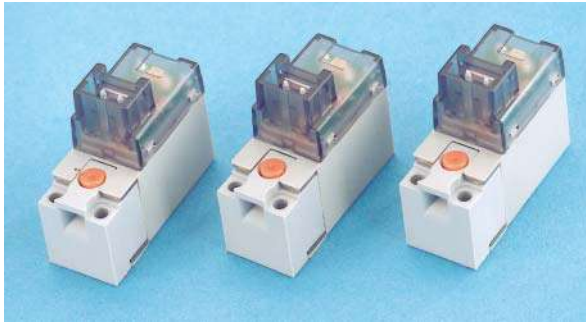
Flat Cable Connector / Cable Ass'y

AXT100-FC□ - $\frac{1}{3}$



ACCESSORIES
FLAT CABLE CONNECTOR ASSEMBLY

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



3/2 DIRECT ACTING SOLENOID/SPRING VALVES M3 PORTED

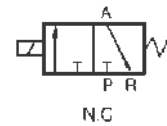
- ✓ Direct Two-Port Solenoid Valve
- ✓ Compact Size
- ✓ Power Saving Version

TECHNICAL SPECIFICATIONS

Type	2 Port Direct Solenoid Valve
Function	Normally Closed, Normally Open
Fluid	Air
Operating Pressure Range	0~0.7MPa (0~100PSI) Vacuum P Port - 100KPa ~ 0.6MPa / -14.5~85PSI R Port - 100KPa ~ 0.06MPa / -14.5~85PSI
Ambient Temperature	Max 50°C / 122°F
Effective Orifice (Cv)	0.14mm 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

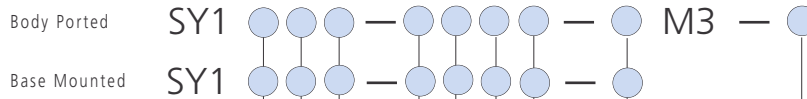
Type Of Actuation	Model	Type	Operating Pressure Range MPa/PSI	Vacuum Application MPa		Effective Area mm ² (Cv Factor)
				P Port	R Port	
NC	SY113	Standard	0 ~ 0.7 / 0 ~ 101	-100KPa~0.6	-100KPa~0	0.14 (0.008)
NC	SY114					
NC	SY113A	Large Flow Capacity	0 ~ 0.7 / 0 ~ 101	-100KPa~0.6	-100KPa~0	0.22 (0.012)
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
SEE NEXT PAGE

HOW TO
ORDER
SY100



TYPE OF ACTUATION

- 1Normally Closed
- 2Normally Open

MODEL TYPE

- 3Body Ported
- 4Base Mounted

TYPE

-Standard
- ALarge Flow Capacity

VOLTAGE

- 524 VDC
- 612 VDC
- V6 VDC
- S5 VDC
- R3 VDC
- 1100 VAC 50/60 Hz
- 3110 VAC 50/60 Hz
-115 VAC 50/60 Hz
- 2200 VAC 50/60 Hz
- 4220 VAC 50/60 Hz
-230 VAC 50/60 Hz

ELECTRICAL ENTRY

- GGrommet (Lead Wire Length: 300mm)
- HGrommet (Lead Wire Length: 600mm)
- LL Type Plug with Lead Wire
- LNL Type Plug without Lead Wire
- LOL Type Plug without Connector
- MM Type Plug with Lead Wire
- MNM Type Plug without Lead Wire
- MOM Type Plug without Connector

INDICATOR LIGHT & SURGE SUPPRESSOR

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

BRACKET

-Without Bracket
- FWith Bracket

PIPING

- Body Ported
-For Manifold
- PFor Body Ported Type to P, R, A Port
- Base Mounted
-Without Subplate
- M3With Subplate

MANUAL OVERRIDE

-Non-Locking Push Type
- DPush-Locking Slotted Type
- BLocking Slotted Type
- EPush-Locking Lever Type

HOW TO
ORDER

CONNECTOR ASSEMBLY NUMBER

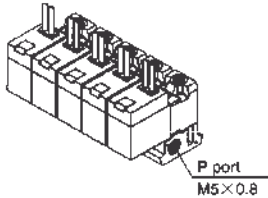
DC	:	SY100 - 30 - 4A -	
100VAC	:	SY100 - 30 - 1A -	
200VAC	:	SY100 - 30 - 2A -	
Other Voltages Of AC	:	SY100 - 30 - 3A -	

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

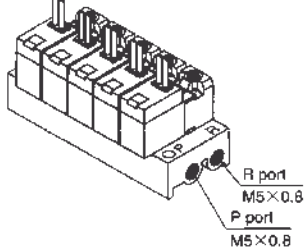
SS3Y1 - 30 - 05 - F

● 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

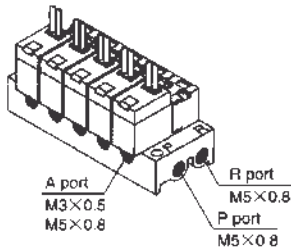
SS3Y1 - 31 - 05

● 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

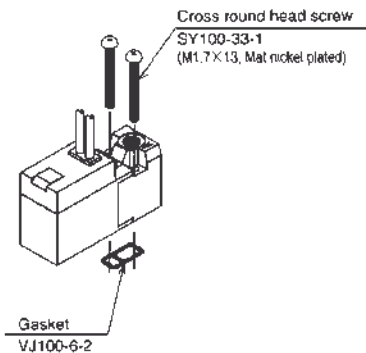
● Stations		● A port size	
02	2 stations	M3	M3×0.5
⋮	⋮	M5	M5×0.8
20	20 stations		

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.

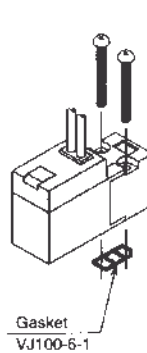
Combination with Solenoid Valve and Gasket Manifold Base

Body ported



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

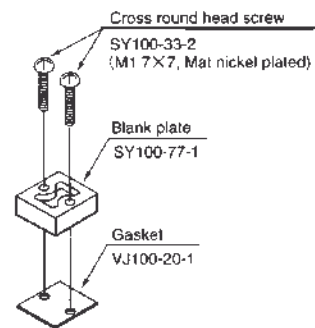
Base mounted



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

Blank Plate Ass'y

Parts no. : SY100-77-1A



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



BODY PORTED VALVE SY3000/5000/7000

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

TECHNICAL SPECIFICATIONS

Series		SY3000	SY5000	SY7000
Fluid		Air, Lubrication Not Required		
Internal Pilot	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

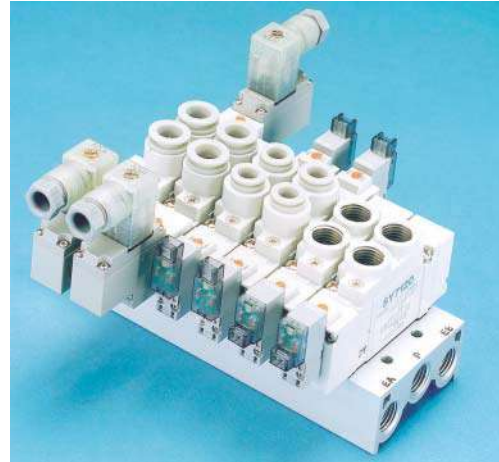
RESPONSE TIME SERIES SY3/5/7000

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

How To
ORDER
SEE NEXT PAGE 

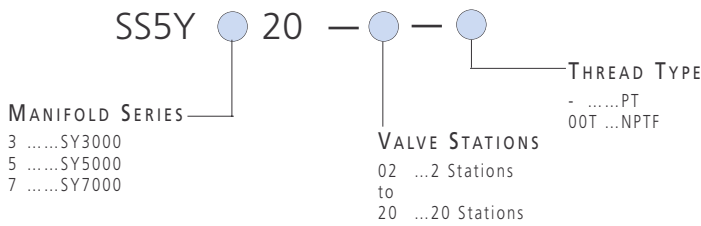
**BODY PORTED/BAR MANIFOLD
 INDIVIDUAL WIRING TYPE
 SY3000/5000/7000**

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



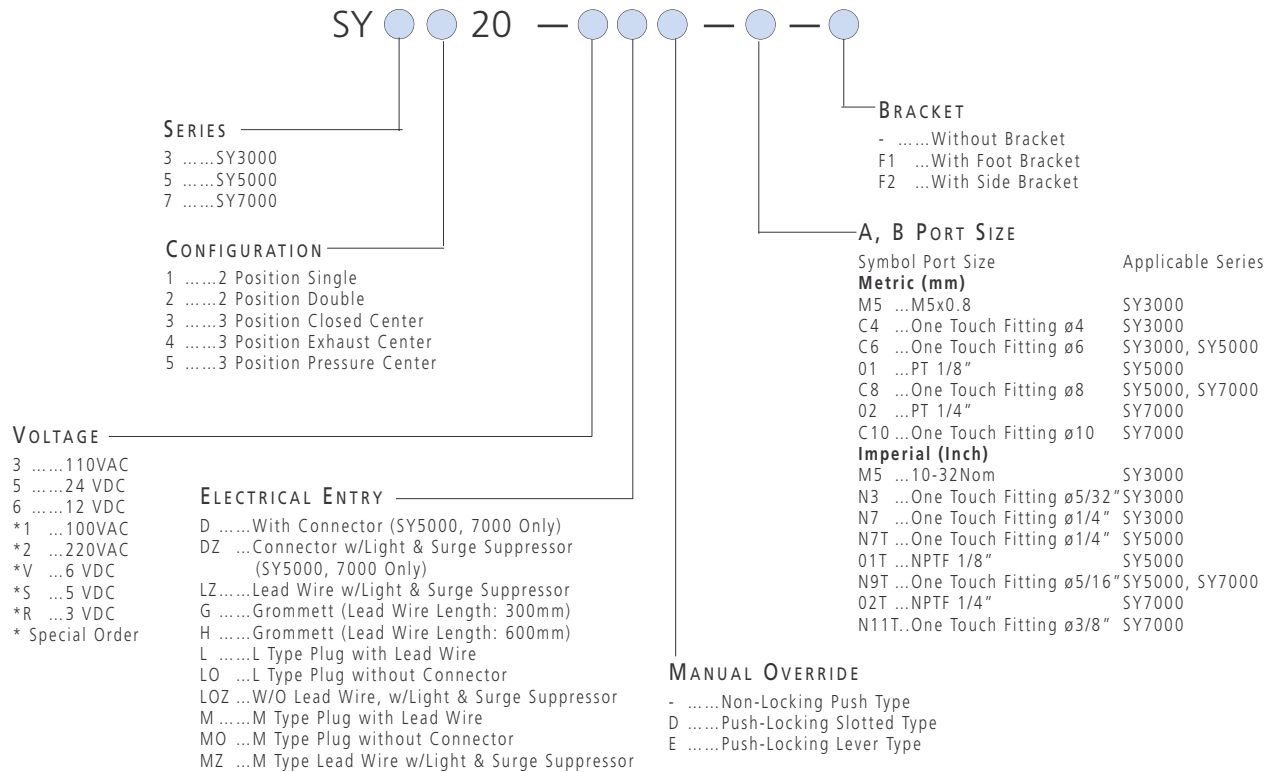
**How To
 ORDER**

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



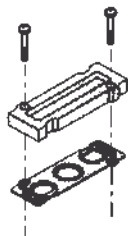
**How To
 ORDER**

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



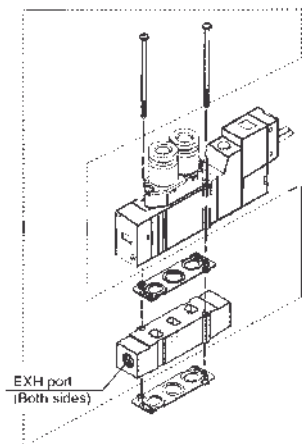
MANIFOLD
OPTIONS

BLANKING PLATE ASSEMBLY



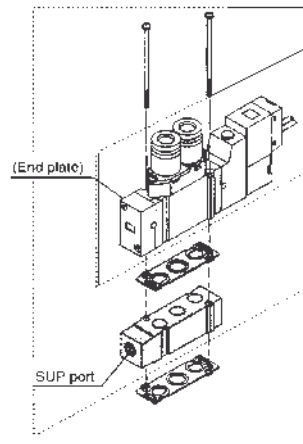
	Ass'y part no.
SY3000	SY3000-26-1A
SY5000	SY5000-26-1A
SY7000	SY7000-26-1A

INDIVIDUAL/EXH SPACER ASSEMBLY



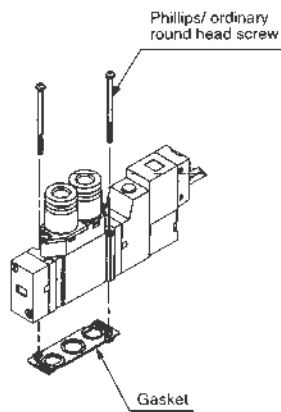
Series	Assembly No	Port Size
SY3000	SY3000-39-1A	M5 (10-32Nom)
SY5000	SY5000-39-1A	PT 1/8
SY5000	SY5000-39-1TA	NPTF 1/8
SY7000	SY7000-39-1A	PT 1/4
SY7000	SY7000-39-1TA	NPTF 1/4

INDIVIDUAL/SUP SPACER ASSEMBLY



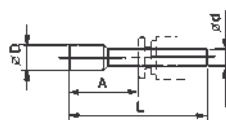
Series	Assembly No	Port Size
SY3000	SY3000-38-1A	M5 (10-32Nom)
SY5000	SY5000-38-1A	PT 1/8
SY5000	SY5000-38-1TA	NPTF 1/8
SY7000	SY7000-38-1A	PT 1/4
SY7000	SY7000-38-1TA	NPTF 1/4

BOLT / GASKET



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

PORT PLUGS



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

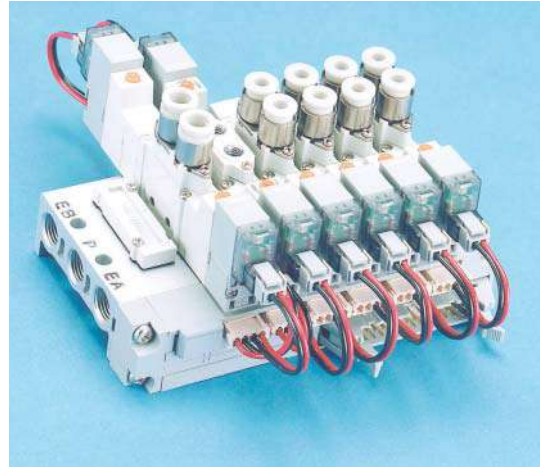
Applicable Fitting Size ød	Model	A	L	D
ø4mm	KQP-04	16	32	6
ø5/32"	KQP-03	16	32	6
ø6mm	KQP-06	18	35	8
ø1/4"	KQP-07	18	35	8
ø8mm	KQP-08	20.5	39	10
ø5/16"	KQP-09	20.5	39	10
ø10mm	KQP-10	22	43	12
ø3/8"	KQP-11	22	43	12

BRACKET ASSEMBLY NUMBER (IF ORDERED SEPARATELY)

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

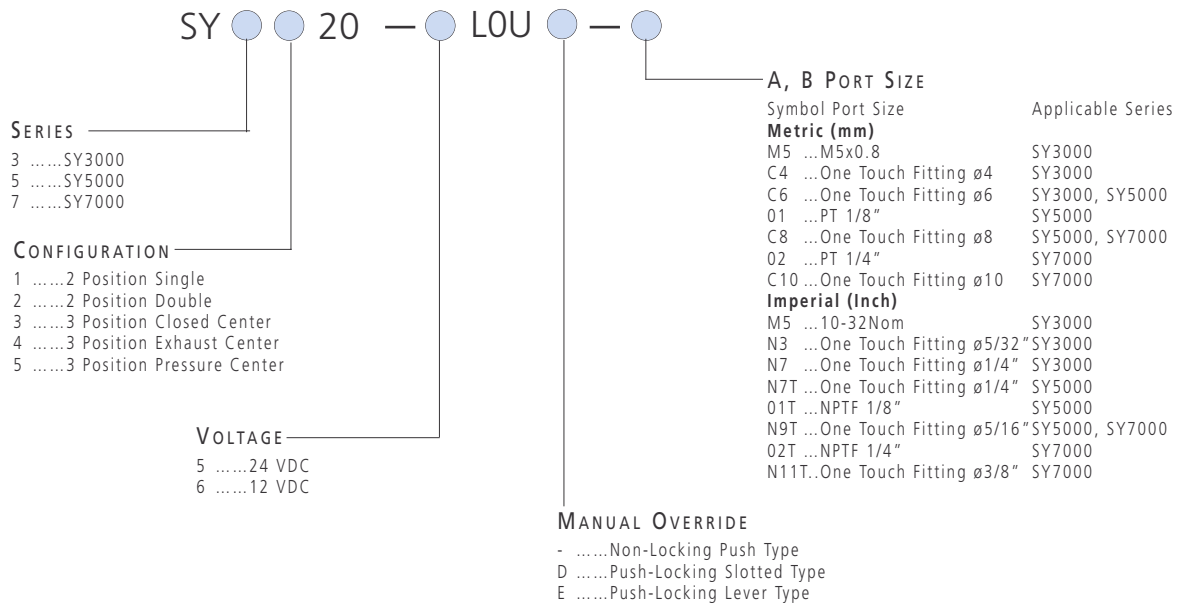
**BODY PORTED/BAR MANIFOLD
 FLAT CABLE TYPE
 SY3000/5000/7000**

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



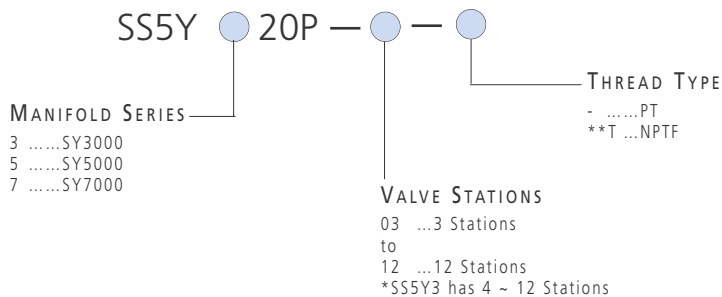
**How To
 ORDER**

**BODY PORTED W/FLAT CABLE MANIFOLD
 SY3/5/7000**



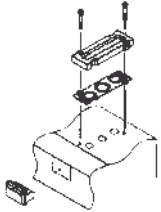
**How To
 ORDER**

FLAT RIBBON CABLE MANIFOLD SY3/5/7000



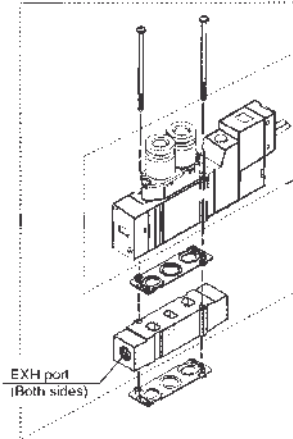
MANIFOLD
OPTIONS

BLANK PLATE ASSEMBLY



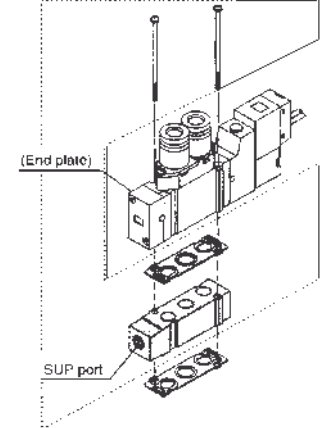
	Ass'y part no.
SY3000	SY3000-26-3A
SY5000	SY5000-26-3A
SY7000	SY7000-26-3A

INDIVIDUAL/EXH SPACER ASSEMBLY



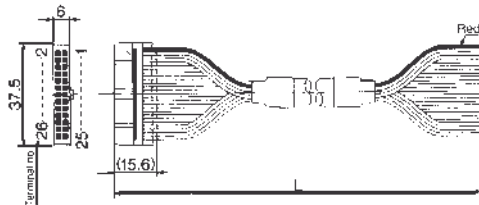
Series	Assembly No	Port Size
SY3000	SY3000-39-1A	M5 (10-32Nom)
SY5000	SY5000-39-1A	PT 1/8
SY5000	SY5000-39-1TA	NPTF 1/8
SY7000	SY7000-39-1A	PT 1/4
SY7000	SY7000-39-1TA	NPTF 1/4

INDIVIDUAL/SUP SPACER ASSEMBLY



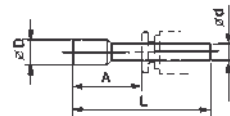
Series	Assembly No	Port Size
SY3000	SY3000-38-1A	M5 (10-32Nom)
SY5000	SY5000-38-1A	PT 1/8
SY5000	SY5000-38-1TA	NPTF 1/8
SY7000	SY7000-38-1A	PT 1/4
SY7000	SY7000-38-1TA	NPTF 1/4

FLAT RIBBON CABLE ASSEMBLY AXT100-FC26(1/2/3)



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

PORT PLUGS



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

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



BASE MOUNTED VALVE SY3000/5000/7000

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

TECHNICAL SPECIFICATIONS

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

MODEL RESPONSE TIME SERIES SY3/5/7000

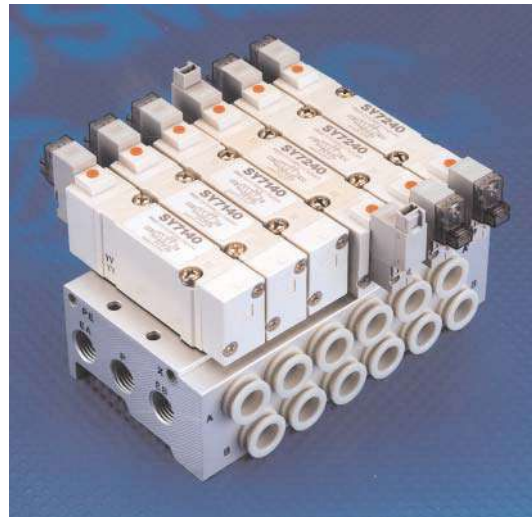
Model	Configuration	Response Time ms 71 PSI / 0.5MPa	
		W/O Indicator Light & Surge Suppressor	With Indicator Light & Surge Suppressor
SY3000	2 Position Single	12 or less	15 or less
	2 Position Double	10 or less	13 or less
	3 Position	15 or less	20 or less
SY5000	2 Position Single	19 or less	26 or less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

HOW TO
ORDER
SEE NEXT PAGE 



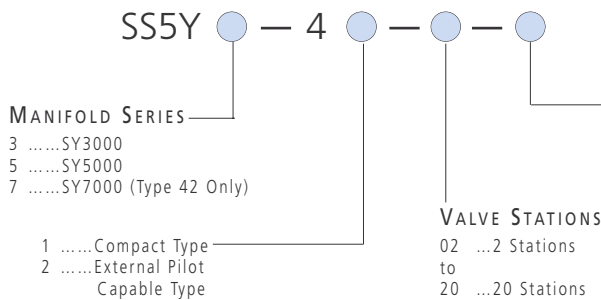
**BASE MOUNTED/BAR MANIFOLD
INDIVIDUAL WIRING TYPE
SY3000/5000/7000**

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



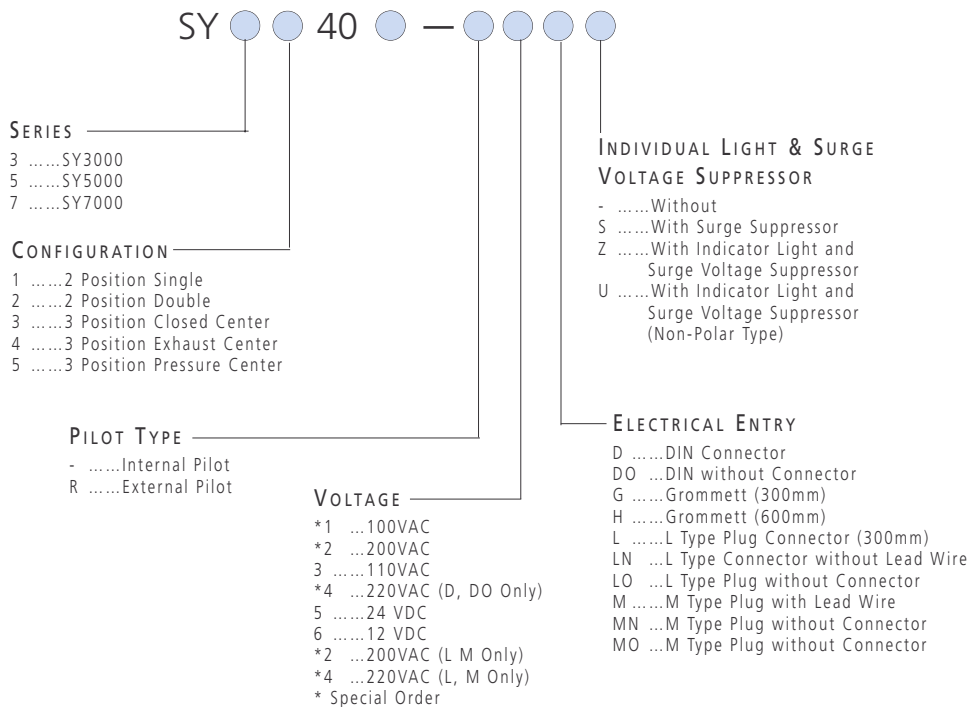
**How To
ORDER**

BASE MOUNTED/BAR MANIFOLD W/INDIVIDUAL LEAD WIRE
SY3/5/7000



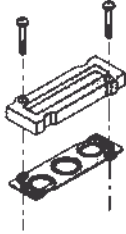
**How To
ORDER**

BASE MOUNTED VALVE W/INDIVIDUAL LEAD WIRE SY3/5/7000



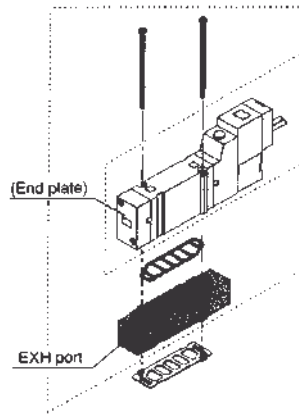
MANIFOLD OPTIONS

BLANKING PLATE ASSEMBLY



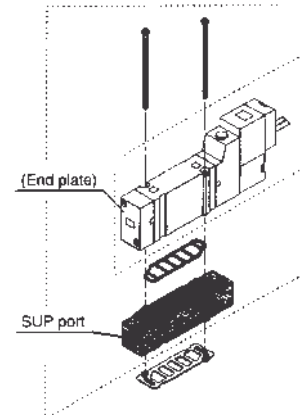
Series	Assembly Part No
SY3000	SY3000-26-2A
SY5000	SY5000-26-2A
SY7000	SY7000-26-2A

INDIVIDUAL/EXH SPACER ASSEMBLY



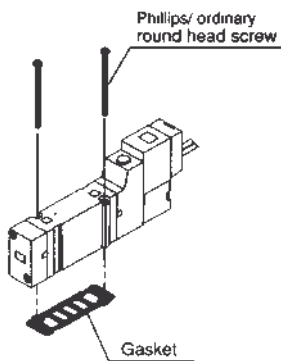
Series	Assembly No	Port Size
SY3000	SY3000-39-2A	M5x0.8 (10-32Nom)
SY5000	SY5000-39-2A	PT 1/8
SY5000	SY5000-39-2TA	NPTF 1/8
SY7000	SY7000-39-2A	PT 1/4
SY7000	SY7000-39-2TA	NPTF 1/4

INDIVIDUAL/SUP SPACER ASSEMBLY



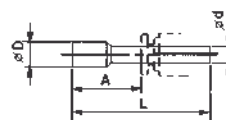
Series	Assembly No	Port Size
SY3000	SY3000-38-2A	M5x0.8 (10-32Nom)
SY5000	SY5000-38-2A	PT 1/8
SY5000	SY5000-38-2TA	NPTF 1/8
SY7000	SY7000-38-2A	PT 1/4
SY7000	SY7000-38-2TA	NPTF 1/4

BOLT / GASKET



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

PORT PLUGS



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

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

HOW TO ORDER

SERIES SY MANIFOLD 45P TYPE / FLAT CABLE TYPE



MANIFOLD SERIES
 3SY3000
 5SY5000

COMMON SPECIFICATIONS
 Nil ...Positive 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	Single	02	2	Single	02	2	Single
..	..	Wiring Specs	..	..	Wiring Specs	..	..	Wiring Specs
20	20	Applicable up to 20 Solenoids	16	16	Applicable up to 16 Solenoids	08	08	Applicable up to 8 Solenoids

A, B PORT SIZE

SY3000
 Metric (mm) Imperial (Inch)
 C4 ...OTF for ø4 N3 ...OTF for ø5/32"
 C6 ...OTF for ø6 N7 ...OTF for ø1/4"

SY5000
 Metric (mm) Imperial (Inch)
 C4 ...OTF for ø4 N3 ...OTF for ø5/32"
 C6 ...OTF for ø6 N7 ...OTF for ø1/4"
 C8 ...OTF for ø8 N9 ...OTF for ø5/16"

* Mixed Porting Available by Special Order
 Consult SMC Customer Service

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

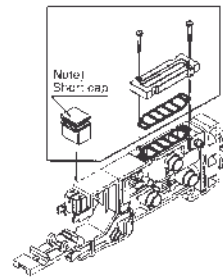
SUP/EXH BLOCK ASSEMBLY MOUNTING POSITIONS

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

MANIFOLD OPTIONS

Manifold Options

Blank plate ass'y



	Ass'y part no.
SY3000	SY3000-75-2A
SY5000	SY5000-76-2A

Note: When mounting a blanking plate, be sure to mount a short cap.
 *Tools are necessary to the "Pusher" type (3-position type) (study type)

SUP block disc

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



	Part no.
SY3000	SX3000-77-1A
SY5000	SX5000-77-1A

EXH block disc

When valve exhaust affects the other stations on the circuit or when externally piped, disc pressure valve is used on a standard manifold, insert EXH block disc 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)

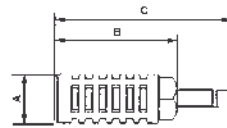
Label for SUP block disc Label for EXH block disc Label for SUP / EXH block disc



Note: (When ordering block disc installed at the factory, labels will be attached to the manifold showing the locations)

Silencer for One-touch fitting

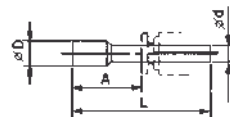
The silencer plugs directly into the One-touch fittings (R) part of the manifold.



	Part no.	Effective orifice	A	B	C
SY3000 (ø8)	AN203-KM8	14mm ²	±16	26	51
SY5000 (ø10)	AN200-KM10	26mm ²	±22	53.8	80.8
	AN300-KM10	30mm ²	±25	70	97

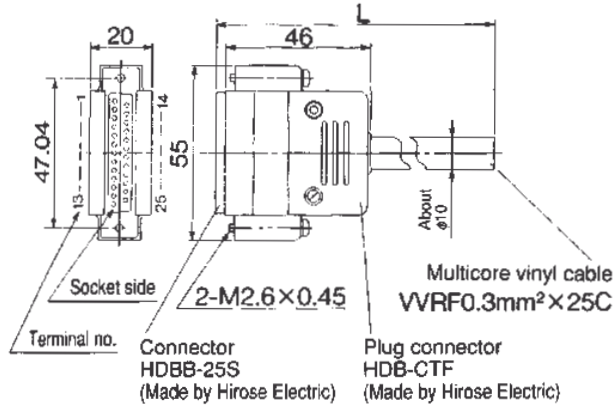
Applicable Fitting Size ød	Model	A	L	D
ø4mm	KQP-04	16	32	6
ø5/32"	KQP-03	16	32	6
ø6mm	KQP-06	18	35	8
ø1/4"	KQP-07	18	35	8
ø8mm	KQP-08	20.5	39	10
ø5/16"	KQP-09	20.5	39	10
ø10mm	KQP-10	22	43	12
ø3/8"	KQP-11	22	43	12

PORT PLUGS



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

CABLE ASSEMBLIES FOR TYPE 45 PRE-WIRED MANIFOLDS



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

Electric Characteristics

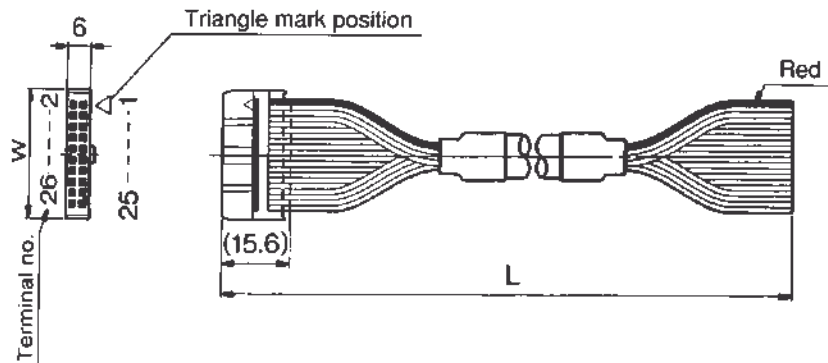
Item	Characteristics
Conductor Resistance /km, 20°C	65 or less
Voltage Limit V, 1 min, AC	1000
Insulation Resistance M km, 20°C	5 or more

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

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

Flat Cable Connector / Cable Ass'y

AXT100-FC□ - $\frac{1}{3}$



ACCESSORIES

FLAT CABLE CONNECTOR ASSEMBLY

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

3/2 DIRECT ACTING SOLENOID VALVE M3-M5 PORT SERIES VQ100

- ✓ High Speed Repeatable Response - on 3.5ms, off 1.5ms
- ✓ Long Life Expectancy - 200 million cycles
- ✓ Compact Lightweight Construction -10mm Body Width
- ✓ Low Power Consumption 1 Watt (0.5 Watt Option)
- ✓ Latching, Clean Room and Vacuum Valve Options Available
- ✓ Normally Open Version Available
- ✓ LED Indication and Surge Suppression is Standard
- ✓ Cv = 0.02 Standard (Cv = 0.04 Option Available)
- ✓ Locking Manual Override Available (Standard on Latching Version)



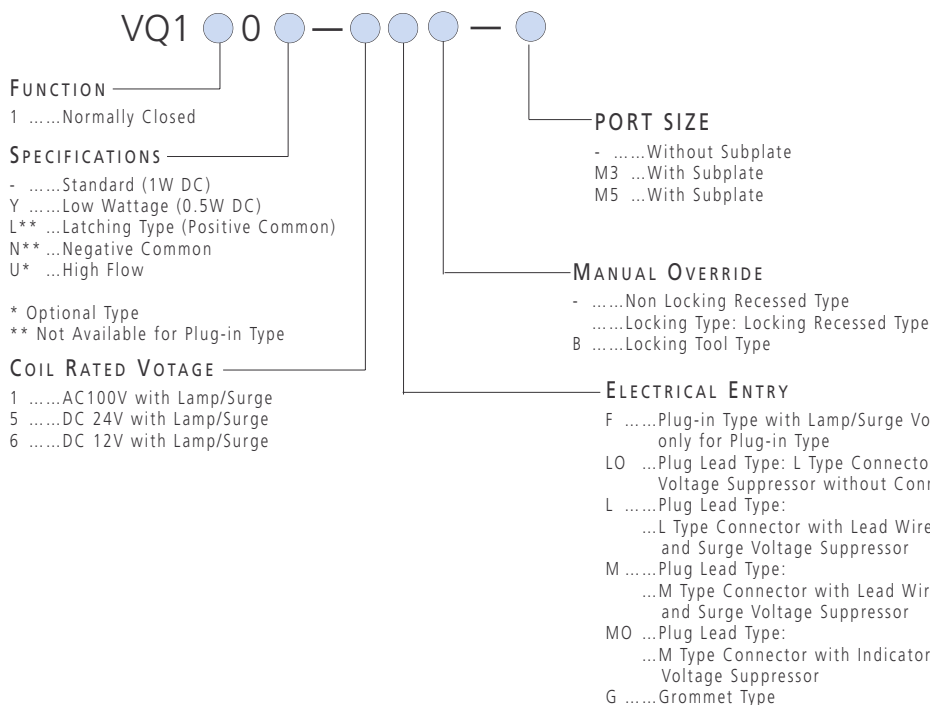
TECHNICAL SPECIFICATIONS

Application	.....1 Watt, 0.8MPa (117PSI) / 6.5 Watt, 0.7MPa (101PSI)
Type of Actuation	.....Direct Operated 3 Port Poppet Type (Normally Closed)
Fluid	.....Air - inert gas
Max Operating Pressure	.....0.8MPa (117PSI) / 0.7MPa (101PSI)
Min Operating Pressure	.....0MPa (OPSI)
Effective Area	.....P-A.....0.28mm ² (Cv 0.016) / 0.14mm ² (Cv 0.008)
	.....A-R.....0.36 mm ² (Cv 0.02) / 0.20mm ² (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



HOW TO ORDER

SOLENOID VALVE SERIES VQ100



ACCESSORIES

CABLE ASSEMBLIES

NEGATIVE COMMON STANDARD

SingleAXT661-14-AN-*

LatchingAXT661-13-AN-*

POSITIVE COMMON (OPTION AVAILABLE)

SingleAXT661-14-A-*

LatchingAXT661-13-A-*

* Cable length code

Nil.....300mm

6600mm

101000mm

202000mm

303000mm

SERIES VQ100 MANIFOLDS

- ✓ Plug-In Version available up to 18 Stations for use with VQ110-*F Valves (VV3Q11)
- ✓ Standard Option for Individual Wiring up to 20 Stations for use with VQ110 - *LO Valves (VV3Q12)



HOW TO ORDER

MANIFOLDS SERIES VQ100

VV3Q1

MANIFOLD BASE TYPE

- 1Plug In Unit
- 2Plug Lead Unit

NUMBER OF STATIONS

- 02 ...2 Stations to 18 ...18 Stations Available upto 20 Stations for Plug Lead Type

ELECTRICAL ENTRY

- CMulti Connector Type

OPTION

-None
- DDIN Rail Mount

CABLE LENGTH

- 1With 1.5m Cable
- 2With 3m Cable
- 3With 5m Cable

ELECTRICAL ENTRY POSITION

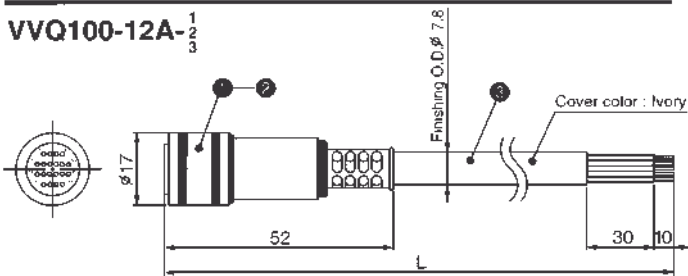
- UUpper
- SSide

ACCESSORIES

PLUG ASSEMBLY SERIES VQ100

Plug Ass'y

VVQ100-12A-¹/₂/₃



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

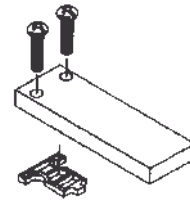
Model	L dimensions
VVQ100-12A-1	1.5m
VVQ100-12A-2	3m
VVQ100-12A-3	5m

ACCESSORIES

VQ100 MANIFOLDS

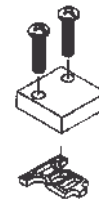
Blanking Plate Kit

for VV3Q11VVQ100-10A-1
(includes fixing screws x2 and gasket)



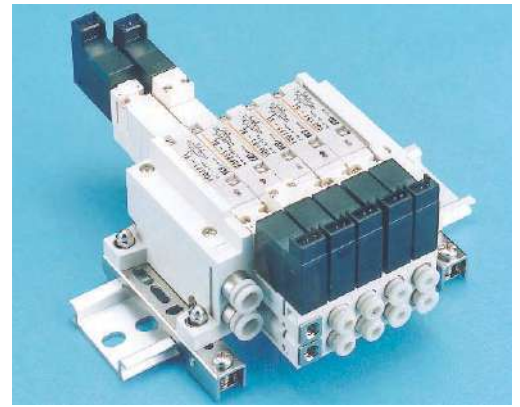
Blanking Plate Kit

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
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.
 (Note 4) Perfect dry air (dew point equals to -30°C) No grease on main valve.

Special types (Contact SMC for details and availability):
 i Pressure centre function
 ii External pilot
 iii Low power consumption (0.5W)
 iv Positive common wiring

	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 A B R1 P R2
2	2 position double A B R1 P R2
3	3 position closed center A B R1 P R2
4	3 position exhaust center A B R1 P R2
5	3 position pressure center A B R1 P R2

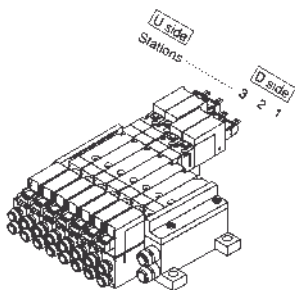
SOLENOID SPECIFICATIONS

Coil rated voltage	12 VDC, 24 VDC	100/110 VAC
Allowable voltage	±10% of rated voltage	±10% of rated voltage
Type of coil insulation	Class B	Class B
Power consumption ^(Note 1)	1W	Inrush/Holding: 1.1 VA (11mA)
Electrical entry	Plug in or connector type	Plug in or connector type

(Note 1) Contact SMC for the low power consumption (0.5W) type

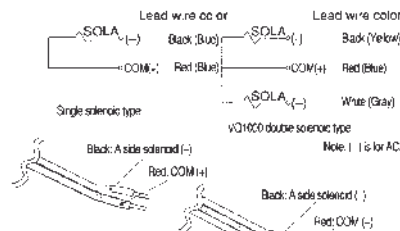
C-KIT (CONNECTOR) SERIES VQ0000

- ✔ Type which has lead wires in plug connected to each valve individually.



WIRING SPECIFICATIONS

- Negative common.
 - The lead wires are connected to the valve as shown below.
- Connect each to the power supply side.



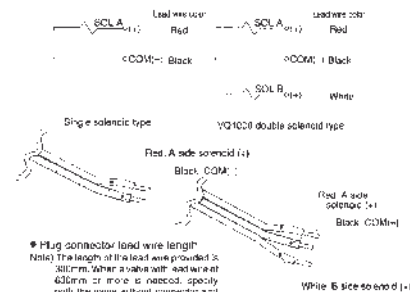
● Plug connector lead wire length
 Note 1) The length of the lead wire provided is 300mm. When a valve with lead wire of 600mm or more is needed, specify both the valve without connector and the longer connector ass'y no.
 Example) Lead wire length 1000mm
 VQ1110-SLO 3 pcs
 AXT661-14A-10 3 pcs

Lead wire length	No. for single & VQ0000 double types	No. for VQ1000 double type
Socket (3 pcs)	AX*661-12A	
50mm	AXT661-14A	AXT661-13A
80mm	AXT661-14A-6	AXT661-13A-6
100mm	AXT661-14A-16	AXT661-13A-16
200mm	AXT661-14A-20	AXT661-13A-20
300mm	AXT661-14A-30	AXT661-13A-30

Note) Regenerative AC type: AXT661-14A-6 applies to the 6V type and AXT661-12A-16 to the 16V type.

WIRING SPECIFICATIONS

- Positive common, Eg Serial Transmission.
 - The lead wires are connected to the valve as shown below.
- Connect each to the power supply side.



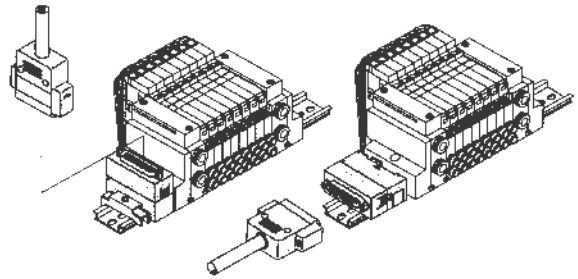
● Plug connector lead wire length
 Note) The length of the lead wire provided is 300mm. When a valve with lead wire of 600mm or more is needed, specify both the valve without connector and the longer connector ass'y no.
 Example) Lead wire length 1000mm
 VQ1110K-SLO 3 pcs
 AXT661-14AN-10 3 pcs

Lead wire length	No. for single & VQ0000 double types	No. for VQ1000 double type
Socket (3 pcs)	AX*661-12A	
300mm	AXT661-14AN	AXT661-13AN
600mm	AXT661-14AN-6	AXT661-13AN-6
1000mm	AXT661-14AN-20	AXT661-13AN-20
3000mm	AXT661-14AN-30	AXT661-13AN-30

Note) Use negative COM type valves for negative COM applications. max 10VDC.

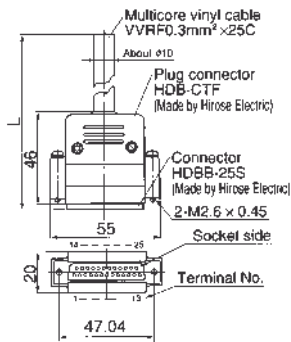
F KIT (D-SUB CONNECTION) SERIES VQ0000

- ✓ 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-¹/₃

(The D-sub connector cable ass'y can be ordered individually or included with a specific manifold model no. Refer to "How to Order/Manifold".



Note) Types with 15-pin are also available.

D-Sub connector cable assembly (Option)

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

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

Where color table by terminal number of D-Sub connector cable assembly:

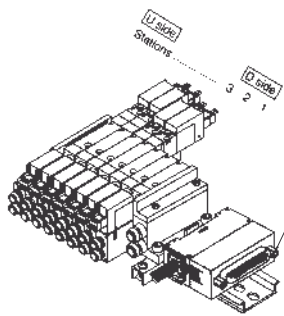
Terminal No.	lead wire colour	Dot marking
1	Black	-
2	Brown	-
3	Red	-
4	Orange	-
5	Yellow	-
6	Pink	-
7	Blue	-
8	Violet	White
9	Grey	Black
10	White	Black
11	White	Red
12	Yellow	Red
13	Orange	Red
14	Yellow	Black
15	Pink	Black
16	Blue	White
17	Violet	-
18	Grey	-
19	Orange	Black
20	Red	White
21	Brown	White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

Electric Characteristics

Item	Characteristics
Conductor resistance Ω/km, 20°C	65 or less
Voltage limit V, 1 min, AC	1000
Insulation resistance MΩkm, 20°C	5 or more

Note) The min. bending radius of D-Sub cable assembly is 20mm.

Electrical Wiring Specifications



D-sub connector

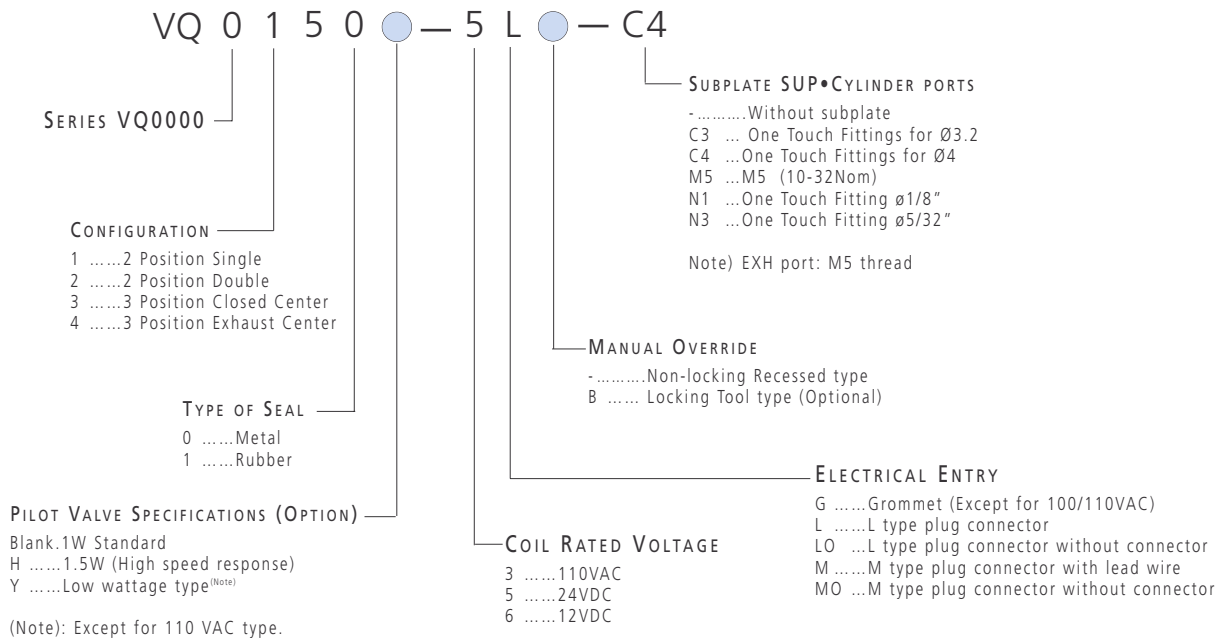
Terminal No.	Polarity	D-sub cable ass'y (VVZS3000-21A- ¹ / ₃) wire color table	
		Lead wire color	Dot marking
1 station SOLB ₁ 1	(-)	(+) Black	-
SOLB ₁₄ 14	(-)	(+) Yellow	Black
2 stations SOLB ₂ 2	(-)	(+) Brown	-
SOLB ₁₅ 15	(-)	(+) Pink	Black
3 stations SOLB ₃ 3	(-)	(+) Red	-
SOLB ₁₆ 16	(-)	(+) Blue	White
4 stations SOLB ₄ 4	(-)	(+) Orange	-
SOLB ₁₇ 17	(-)	(+) Purple	-
5 stations SOLB ₅ 5	(-)	(+) Yellow	-
SOLB ₁₈ 18	(-)	(-) Grey	-
6 stations SOLB ₆ 6	(-)	(-) Pink	-
SOLB ₁₉ 19	(-)	(+) Orange	Black
7 stations SOLB ₇ 7	(-)	(+) Blue	-
SOLB ₂₀ 20	(-)	(+) Red	White
8 stations SOLB ₈ 8	(-)	(+) Purple	White
SOLB ₂₁ 21	(-)	(-) Brown	White
COM 13	(+)	***(-) Orange	Red

Positive COM Negative COM

These figures show the standard internal wiring for double solenoid capability provided for each station.

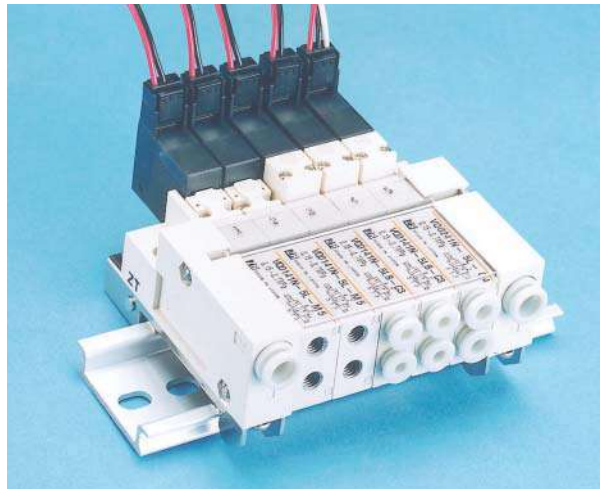
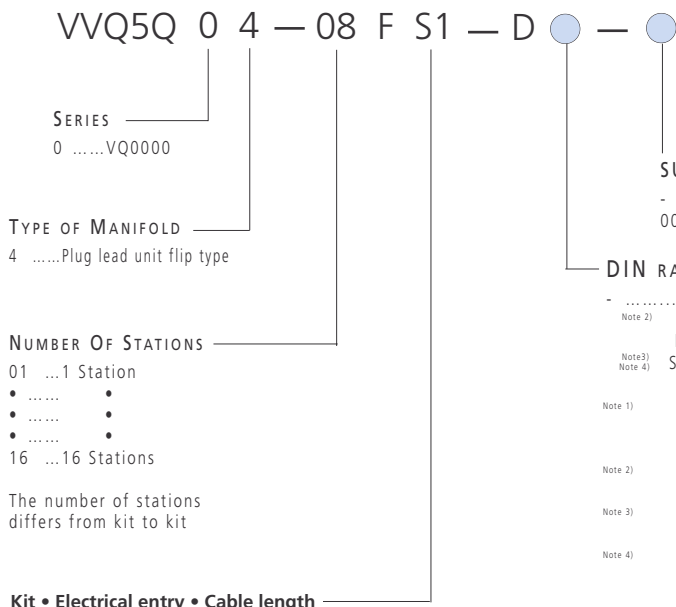
Note) Use negative COM type valves for negative COM specification manifolds

HOW TO
ORDER
BASE MOUNTED TYPE VALVE
SINGLE UNIT VQ0000



BODY PORTED TYPE
PLUG LEAD UNIT/FLIP TYPE

HOW TO
ORDER
MANIFOLD



SUP/EXH PORT
-Metric (mm)
00T ...Imperial (Inch)

DIN RAIL/OPTION

-None (C Kit only)
- Note 2) D...DIN Rail Mounted
- N...With Nameplate
- Note 3) Note 4) S...Built-in Silencer (Direct Exhaust)

Note 1) When more than one option is desired, combine symbols in alphabetical order. Example) -DNS

Note 2) All F, P, and S kits are of DIN rail mounted type, so include suffix "D".

Note 3) All VQ0000 series are provided with a built-in silencer (direct exhaust) so include suffix "S".

Note 4) F, P, and S kits are provided with an exhaust on one side while C kits are with an exhaust on both sides.

FOR FURTHER TECHNICAL INFORMATION ON THIS SERIES, REQUEST CAT:E137, E138, N238, N239

F kit (D-sub connection)

Note 2) 25-pin

Note 2) 25-pin

Side entry

Top entry

Connector Location		Without cable	Note 1) Max. 8 stations
Top (vertical)	Side (horizontal)		
U0	S0	Without cable	
Kit U1	Kit S1	With cable (1.5m)	
F U2	F S2	With cable (3m)	
U3	S3	With cable (5m)	

C kit (Connector)

C	Connector	Max. 16 stations
---	-----------	------------------

S kit (Serial transmission unit)

Compatible only with 24VDC valves

Kit	Description	Max. stations
0	Without SI unit	16 (Single)
A	With general type SI unit	8 (Double)
B	With SI unit for Mitsubishi, MELSEC-A	8 (Double)
C	With SI unit for Omron, SYSMAC	8 (Double)
D	With SI unit for Sharp, New satellite	8 (Double)

Note 1) The max. standard stations are 8. With single wiring, arrangement of up to 16 stations is possible. Specify the arrangement of stations using the manifold specification form for more than 8 stations.

Note 2) Other than those above, F and P kits with different number of pins are available.

HOW TO ORDER VALVE

VQ 0 1 4 0 N - 5 L - C6

SERIES
0VQ0000

CONFIGURATION

1	2 position single A B R1 P R2
2	2 position double (balancing) A B R1 P R2

CYLINDER PORTS

C3 One Touch Fittings for ø3.2
C4 One Touch Fittings for ø4
M5 M5 (10-32Nom)
N1 One Touch Fittings ø1/8"
N3 One Touch Fittings ø5/32"

MANUAL OVERRIDE

(Blank) Non-locking recessed type Metal Locking tool type

CONFIGURATION

L:L type Plug connector with lead wire	
LO:L type Plug connector without connection	
M:M type Plug connector with lead wire	
MO:M type Plug connector without connection	

TYPE OF SEAL

0 Metal
1 Rubber

PILOT VALVE SPECIFICATIONS

-1W (Standard)
H.....1.5W (High speed reponse)
Note 1 Y.....Low Wattage (0.5W)
NNegative Common

COIL VOLTAGE

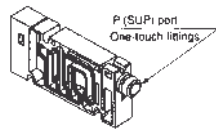
3110VAC
524VDC
612VDC

} With indicator light and surge voltage suppressor.

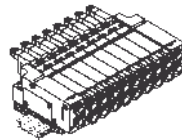
Note 1) LO and MO valves are used for F, P, and S kits.
Note 2) The plug connector and lead wire are attached to the manifold.
Note 3) The connector direction in the case of L and M types is based on the pilot valve.
Note 4) Grommet type (G) is also available for C-kit, single type of VQ0000/1000/2000. (Except for 110VAC)

ACCESSORIES MANIFOLD OPTIONS

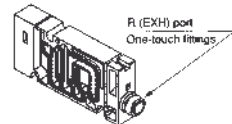
INDIVIDUAL SUP SPACER
VVQ0000-P-4-C4



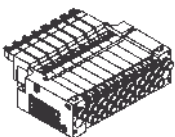
DIN RAIL MOUNTED BRACKET [-D]
VVQ0000-57A-4



INDIVIDUAL EXH SPACER
VVQ0000-R-4-C4



BUILT IN SILENCER,
DIRECT EXHAUST [-S]



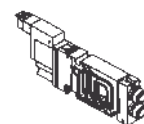
NAMEPLATE [-N4]
VVQ0000-N4-STATION



BLANKING PLUG KQP

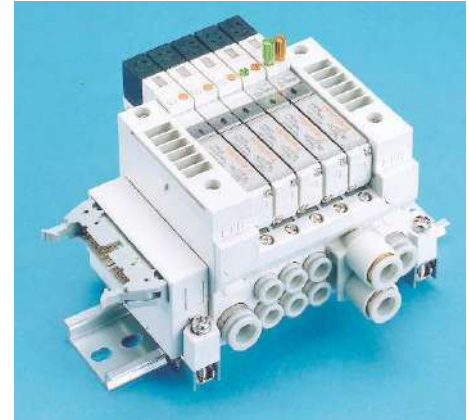


P
R block valve VQ □₂ □₄ □₁ □ □ □ □ - P
R PR



5 PORT METAL SEAL/RUBBER SEAL ULTRA HIGH SPEED SOLENOID VALVE SERIES VQ1000

- ✓ High Speed Response from new Solenoid Design.
- ✓ Long Life: Over 200 Million Cycles can be with Patent Pilot Valve design.
- ✓ Indicator light and Voltage Surge Suppressor
- ✓ Space Saving Design
- ✓ Five Options for Manifold Electrical Connection.
- ✓ Plug lead and Plug In valve manifold options.
- ✓ New cassette type manifold available.



TECHNICAL SPECIFICATIONS

Type of Seal		Metal	Rubber
Fluid		Air, inert gas	Air, inert gas
Min Operating Pressure	Single	0.1MPa/14.5PSI	0.15MPa/22PSI
	Double	0.1MPa/14.5PSI	0.1MPa/14.5PSI
	3-position	0.1MPa/14.5PSI	0.2MPa/29PSI
Max Operating Pressure ^(Note 1)		0.75MPa/109PSI	0.75MPa/109PSI
Effective Area (Cv Factor) mm ²	Single	3.6 (0.2)	5.4 (0.3)
	Double	3.6 (0.2)	5.4 (0.30)
	3-position	3.6 (0.2)	5.4 (0.3)
Response Time ^(Note 2)	Single	Max 12ms	Max 15ms
	Double	Max 10ms	Max 15ms
	3-position	Max 20ms	Max 25ms
Life		200 million cycles or more	
Ambient and Fluid Temperature ^(Note 3)		-10 to +50°C (14~122°F)	-5 to +50°C (23~122°F)
Lubricant ^(Note 4)		Not required	Not required
Manual Override		Non-locking, Push	Non-locking, Push
Protection		Dustproof	Dustproof

- (Note 1) Contact SMC Customer Service for 145PSI (10 Bar).
 (Note 2) Calculated on the basis of JIS B 8375-1981 (Supply pressure 0.5 MPa (5.1 bar); the above valve shows reponse time checked when the valve is equipped with an indicator light and surge voltage suppressor).
 (Note 3) Use dry air to prevent dew condensation in the case when temperature is low.
 (Note 4) Perfect dry air (dew point equals to -30°C) No grease on main valve.

Special types (Contact SMC Customer Service for details and availability):
 i Pressure centre function
 ii External pilot
 iii Low power consumption (0.5W)
 iv Positive common wiring

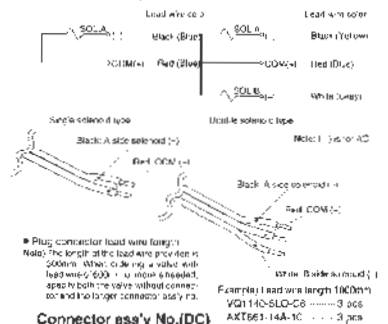
SOLENOID SPECIFICATIONS

Coil Rated Voltage	12 VDC, 24 VDC	100/110 VAC
Allowable Voltage	±10% of Rated Voltage	±10% of Rated Voltage
Type of Coil Insulation	Class B	Class B
Power Consumption ^(Note 1)	1W	Inrush/Holding: 1.1 VA (11mA)
Electrical Entry	Plug In or Connector Type	Plug In or Connector Type

(Note 1) Contact SMC for the low power consumption (0.5W) type.

WIRING SPECIFICATIONS POSITIVE COM

Wiring Specifications/Positive COM *
 * The lead wires are connected to the valves as shown below. Connect each to the power supply side.



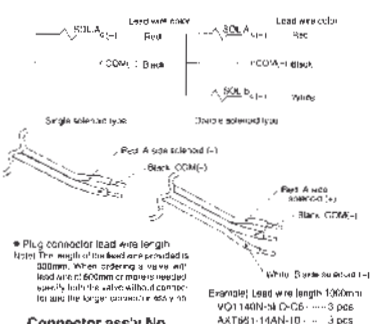
Connector ass'y No.(DC)

Lead wire length	Single type No.	Double type No.
Socket only (3 pcs)	AXT651-12A	
300mm	AX*651-14A	AXT651-13A
500mm	AX*651-14A-5	AXT651-12A-6
1000mm	AX*651-14A-10	AXT651-13A-10
2000mm	AX*651-14A-20	AXT651-13A-20
3000mm	AX*651-14A-30	AXT651-13A-30

Note: Regarding the AC type, AX*651-14A-5 applies to the single type and AXT651-13A-10 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.



Connector ass'y No.

Lead wire length	Single type No.	Double type No.
Socket only (3 pcs)	AXT651-13AN	
300mm	AX*651-14AN	AXT651-13AN
500mm	AX*651-14AN-5	AXT651-13AN-5
1000mm	AXT651-14AN-10	AXT651-13AN-10
2000mm	AXT651-14AN-20	AXT651-13AN-20
3000mm	AXT651-14AN-30	AXT651-13AN-30

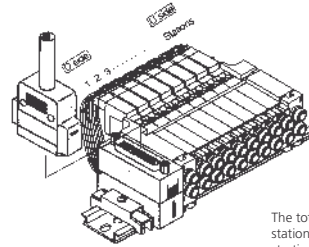
Note: The longer connector type applies to the negative COM type. Please refer to 100.

SYMBOLS

1	2 position single A B R1 P R2
2	2 position double A B R1 P R2
3	3 position closed center A B R1 P R2
4	3 position exhaust center A B R1 P R2
5	3 position pressure center A B R1 P R2

F KIT D-SUB CONNECTOR (25 PIN) SERIES VQ1000

- ✓ The D-Sub Connector permits simple rationalization and installation labor saving for Electrical Connection.
- ✓ The D-Sub Connector (25-pin std., 15-pin option) conforms with MIL permitting use of commercial connectors with wide interchangeability.
- ✓ Top or Side Connector Receptacle Position can be selected in accordance with the available mounting space.
- ✓ Standard max 8 stations (Optional 16 stations possible).



The total number of stations is tabulated starting from station one at the D side.

(The D-sub connector cable ass'y can be ordered individually or included with a specific manifold model no. Refer to "How to Order/Manifold".)

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

Terminal No.	Lead color	Col. 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	-

Electric characteristics

Item	Characteristic
Cable length (ft) <td>Ass'y No.</td>	Ass'y No.
1.5m	VVZS3000-21A-1
3m	VVZS3000-21A-2
5m	VVZS3000-21A-3

Examples of connector makers

- Fujitsu Ltd.
- Japan Aviation Electronics Industry, Ltd.
- Japan Solderless Terminal Sales Co., Ltd.

D-sub connector	Terminal No.	Polarity	Lead color	Dr. marking
1 station	SOLA 1	(-)	Black	-
1 station	SOLA 14	(-)	Yellow	Black
2 stations	SOLA 2	(-)	Brown	-
2 stations	SOLA 15	(-)	Pink	Black
3 stations	SOLA 3	(-)	Red	-
3 stations	SOLA 16	(-)	Blue	White
4 stations	SOLA 4	(-)	Orange	-
4 stations	SOLA 17	(-)	Violet	-
5 stations	SOLA 5	(-)	Yellow	-
5 stations	SOLA 18	(-)	Gray	-
6 stations	SOLA 6	(-)	Pink	-
6 stations	SOLA 19	(-)	Orange	Black
7 stations	SOLA 7	(-)	Blue	-
7 stations	SOLA 20	(-)	Red	White
8 stations	SOLA 8	(-)	Violet	White
8 stations	SOLA 21	(-)	Brown	White
	COM 13	(+)	Orange	Red

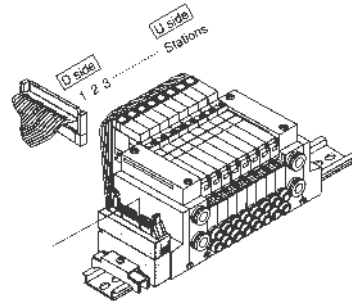
Positive COM Negative COM

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 values for negative COM specification manifolds.

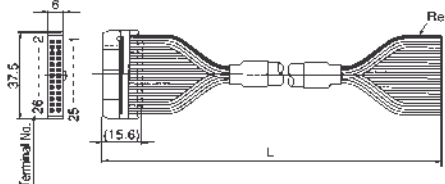
P KIT (FLAT CABLE CONNECTION) SERIES VQ1000

- ✓ 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- $\frac{1}{3}$

(Flat cable connector ass'y can be ordered individually or included with a specific manifold model no. Refer to "How to Order/Manifold".)



Flat cable connector ass'y (Option)

Cable length (ft)	Ass'y parts No.	Note
1.5m	AXT100-FC26-1	Cable 26-core x 28AWG
3m	AXT100-FC26-2	
5m	AXT100-FC26-3	

* For other commercial connectors, use a 26-pin type with strain relief made in conformity with MIL-C-89503

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

Terminal No.	Polarity
1 station SOLA 1	(-)
1 station SOLA 2	(+)
2 stations SOLA 3	(-)
2 stations SOLA 4	(+)
3 stations SOLA 5	(-)
3 stations SOLA 6	(+)
4 stations SOLA 7	(-)
4 stations SOLA 8	(+)
5 stations SOLA 9	(-)
5 stations SOLA 10	(+)
6 stations SOLA 11	(-)
6 stations SOLA 12	(+)
7 stations SOLA 13	(-)
7 stations SOLA 14	(+)
8 stations SOLA 15	(-)
8 stations SOLA 16	(+)
COM 25	(+)
COM 26	(-)

Electrical wiring specifications

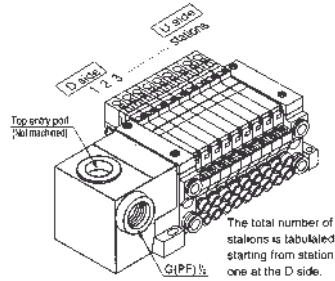
Positive COM Negative COM

These figures show the standard internal wiring for double solenoid capability provided for each station

Note: Use negative COM values for negative COM specification manifolds

T KIT (TERMINAL BLOCK BOARD) SERIES VQ1000

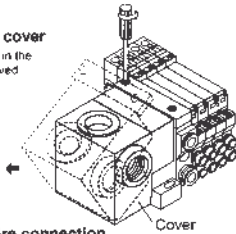
- ✓ This Kit has a small Terminal Block inside a junction box. The Electrical Entry Port G (PF) 1/2 permits connection of Conduit Fittings.
- ✓ Max 12 Stations.



Open the terminal block cover for wire connection.

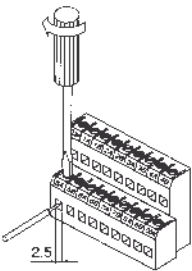
Sequence 1. How to remove terminal block cover

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.



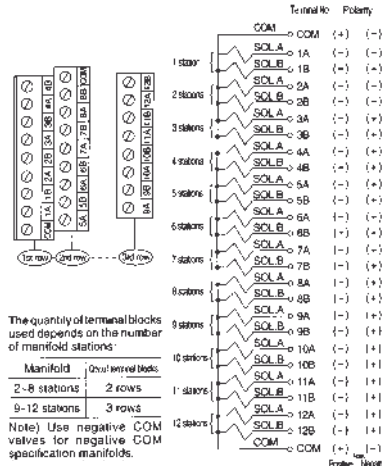
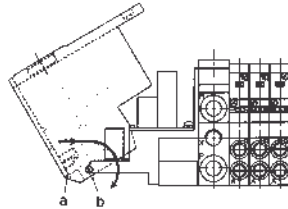
Sequence 2. Wire connection

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.



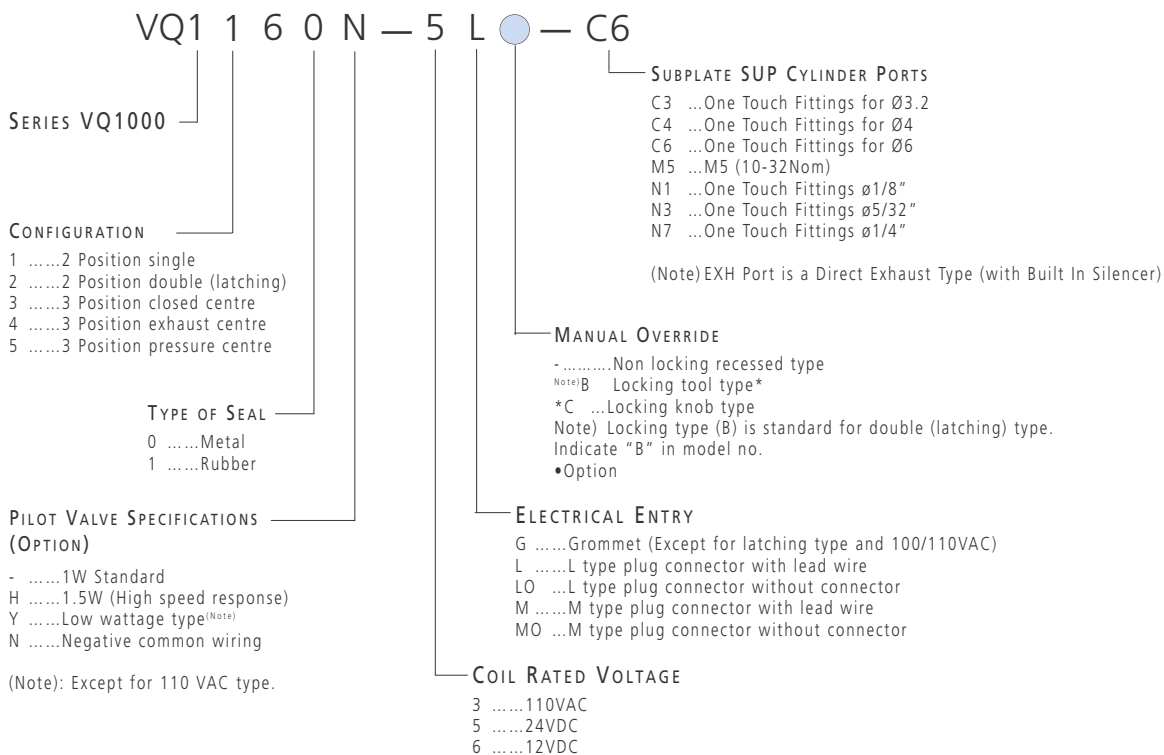
Sequence 3. How to replace terminal block cover

Hook groove "b" on shaft "a" and close the cover. Then tighten the screws.



HOW TO ORDER

BODY PORTED VALVE - SINGLE UNIT



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

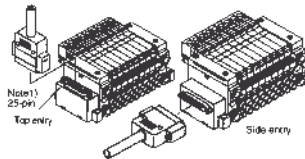
Note 2) Models with a suffix "-B" have checked valves for prevention of back pressure at all manifold stations.

Note 3) In the case of the external pilot "-R", order solenoid valves with the external pilot specification "R".

Note4) Contact SMC for details of vacuum ejector unit. Combination of ejector option "J" and nameplate "N" is not possible.

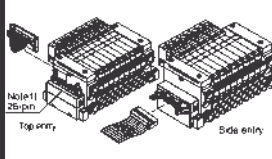
KIT•ELECTRICAL ENTRY•CABLE LENGTH

F kit
(D-sub connection)



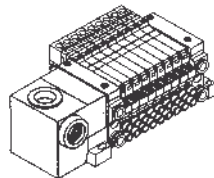
Connector location		Max. 12 stations
Top (vertical)	Side (horizontal)	
U0	S0	Without cable
kit U1	kit S1	With cable (1.5m)
F U2	F S2	With cable (3m)
U3	S3	With cable (5m)

P kit
(Flat cable connection)



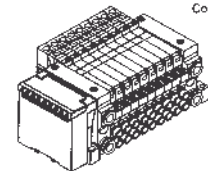
Connector location		Max. 12 stations
Top (vertical)	Side (horizontal)	
U0	S0	Without cable
kit U1	kit S1	With cable (1.5m)
P U2	P S2	With cable (3m)
U3	S3	With cable (5m)

T kit Note2)
(Terminal block board)



kit T 0 Terminal block board Max. 12 stations

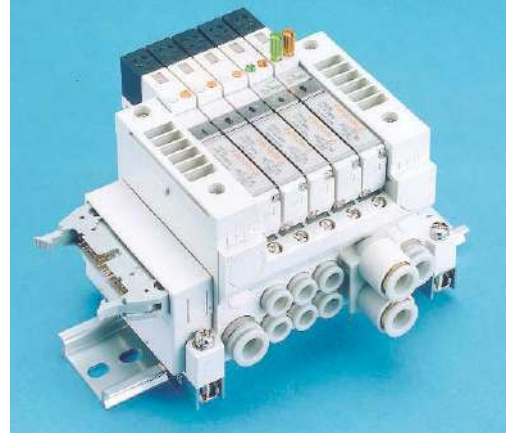
S kit
(Serial transmission unit)



Compatible only with 24VDC valves.

kit S	Option	Max. 16 stations (Single)
D	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) Besides the above, the number of pins for F and P kits is different, as well.
Note 2) G and T kits are applicable only to VQ1000.



**HOW TO
ORDER
VALVE**

VQ 1 1 0 0 N - 5

SERIES
0VQ1000

SYMBOLS

1	2 position single A B R1 P R2
2	2 position double A B R1 P R2
3	3 position closed center A B R1 P R2
4	3 position exhaust center A B R1 P R2
5	3 position pressure center A B R1 P R2

TYPE OF SEAL
0Metal
1Rubber

MANUAL OVERRIDE

(Blank)	Non-locking recessed type	*B Locking tool type	*C Locking knob type
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* Option

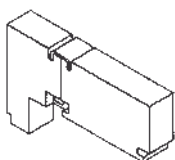
Indicator light and surge voltage suppressor
- Yes
ENo

COIL VOLTAGE
3110VAC
524VDC
612VDC

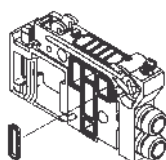
PILOT VALVE SPECIFICATIONS
-1W (Standard)
H1.5W (High Speed response)
YLow wattage (0.5W)
NNegative common (blank is positive common)

**ACCESSORIES
MANIFOLD OPTIONS**

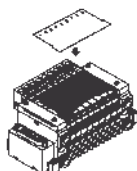
BLANKING PLATE ASSEMBLY
VVQ1000-10A-5



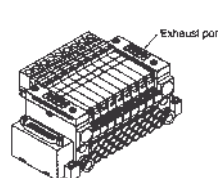
SUP BLOCK PLATE
VVQ1000-16A-
P
R
R



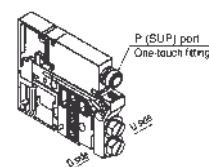
NAMEPLATE [-N]
VVQ1000-N5-Station
(1-Max. stations)



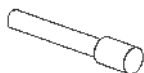
BUILT IN SILENCER
Direct exhaust [-S]



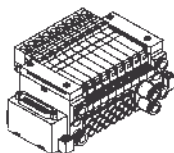
INDIVIDUAL SUP SPACER
VVQ1000-P-1-C6



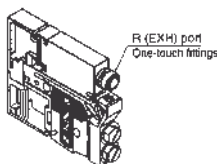
BLANKING PLUG
KQP-
23
04
06
08
10
01
03
07



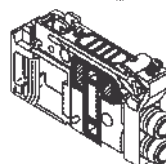
2 STATIONS MATCHING FITTINGS ASSEMBLY
VVQ1000-52A-C8 (VQ1000)



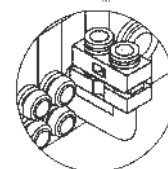
INDIVIDUAL EXH SPACER
VVQ1000-R-1-C6



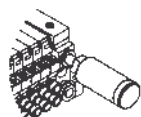
EXH BLOCK BASE ASSEMBLY
VVQ1000-19A-
F: C3
P: C4
L: C6
N1
N3
N7
(VQ1000)



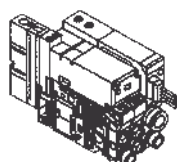
ELBOW FITTINGS ASSEMBLY
VVQ1000-F-L-
C3
C4
C6
N1
N3
N7
(VQ1000)



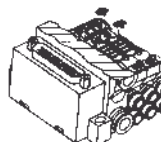
SILENCER (EXH PORT)



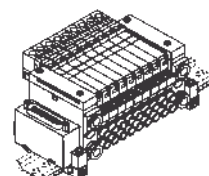
VACUUM EJECTOR UNIT
VVQ1000-JBM (VQ1000)



CHECK VALVE FOR PREVENTION OF BACK PRESSURE ASSEMBLY [-B]
VVQ1000-18A

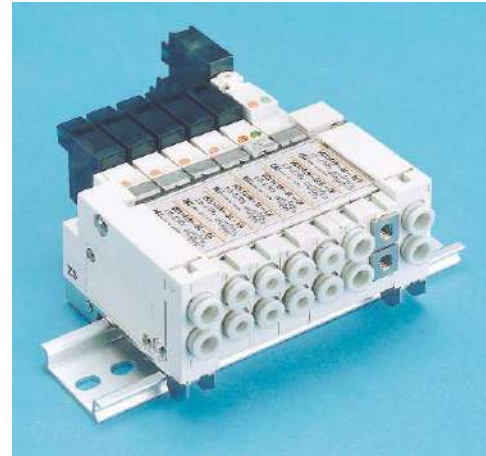
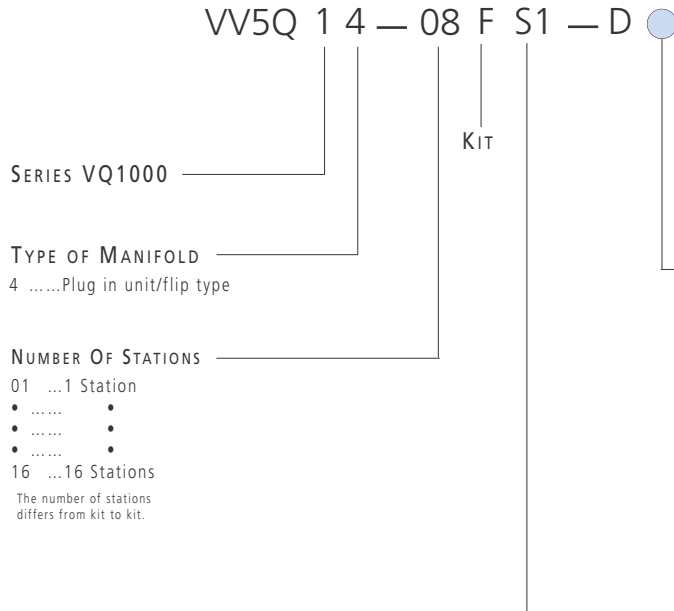


DIN RAIL MOUNTED BRACKET [-D]
VVQ1000-57A



BODY PORTED TYPE
PLUG LEAD UNIT/FLIP TYPE
SERIES VQ1000

HOW TO
ORDER
MANIFOLD



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)

Note 2) 25-pin

Side entry

Note 2) 25-pin

Top entry

Connector Location			
Top (vertical)	Side (horizontal)		
U0	S0	Without cable	
Kit U1	Kit S1	With cable (1.5m)	Note 1) Max. 8 stations
F U2	F S2	With cable (3m)	
U3	S3	With cable (5m)	

C kit (Connector)

c	Connector	Max. 16 stations
---	-----------	------------------

S kit (Serial transmission unit)

Compatible only with 24VDC valves

0	Without SI unit	Max. 16 stations (Single)
A	With general type SI unit	
Kit B	With SI unit for Mitsubishi, MELSEC-A	Max. 8 stations (Double)
C	With SI unit for Omron, SYSMAC	
D	With SI unit for Sharp, New satellite	

Note 1) The max. standard stations are 8. With single wiring arrangement of up to 16 stations is possible. Specify the arrangement of stations using the manifold specification form for more than 8 stations.

Note 2) Other than those above, F and P kits with different number of pins are available.

HOW TO
ORDER
VALVE

VQ1 1 4 0 Y - 5 L - C6

SERIES
1VQ1000

CONFIGURATION

1	2 position single
2	2 position double (latching) Metal seal Rubber seat
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

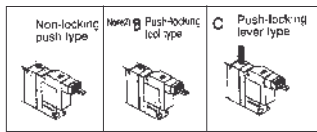
-1W (Standard)
H1.5W (High pressure)
YLow wattage (0.5W)
NNegative common

Note) Except for AC and double (latching) type.

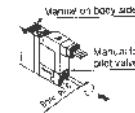
CYLINDER PORTS

C3 ...One Touch Fittings for Ø3.2
C4 ...One Touch Fittings for Ø4
C6 ...One Touch Fittings for Ø6
M5 ...M5 (10-32Nom)
N1 ...One Touch Fittings ø1/8"
N3 ...One Touch Fittings ø5/32"
N7 ...One Touch Fittings ø1/4"

MANUAL OVERRIDE



Standard model of a double (latching) type should be selected a push-latching type. Clearly write a symbol "B" or "C". A manual override for pilot valve is provided to the standard model for double type.



ELECTRICAL ENTRY

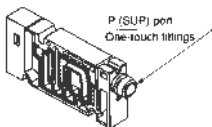
G: grommet C kit single type only. (Except for AC).	
L: L type plug connector with lead wire	 With indicator light and surge voltage suppressor
L: O type plug connector without connector	 With indicator light and surge voltage suppressor
M: M type plug connector without connector	 With indicator light and surge voltage suppressor
MO: M type plug connector without connector	 With indicator light and surge voltage suppressor

Note) LO and MO valves are used for F,P,T, and S kits. The plug connector and lead wire are attached to the manifold.

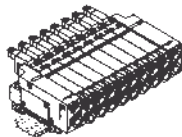
ACCESSORIES

MANIFOLD OPTIONS

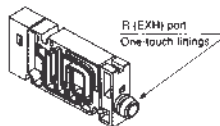
INDIVIDUAL SUP SPACER
VVQ1000-P-4-C6



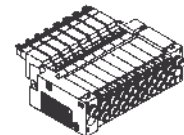
DIN RAIL MOUNTED BRACKET [-D]
VVQ1000-57A-4



INDIVIDUAL EXH SPACER
VVQ1000-R-4-C6



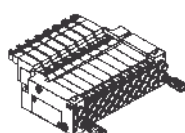
BUILT IN SILENCER, DIRECT EXHAUST [-S]



NAMEPLATE [-N4]
VVQ1000-N4 Station (1-Max. stations)



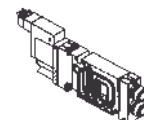
SILENCER (EXH PORT)
AN103-X233 (VQ1000)



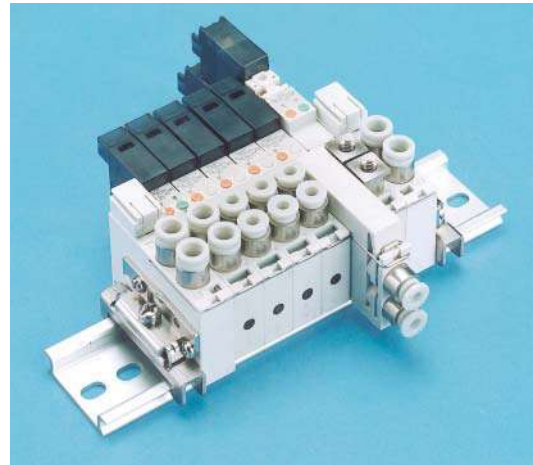
BLANKING PLUG
KQP-
23
04
06
08
01
03
07



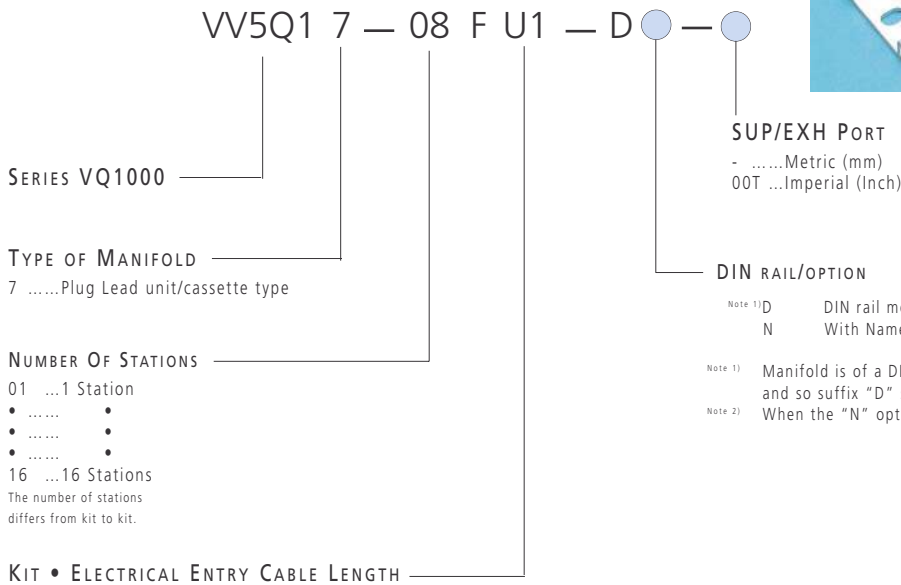
BLOCK VALVE
VQ□; 4 □ □ □ □ □ □ □ □



BODY PORTED TYPE
PLUG LEAD UNIT/CASSETTE TYPE
SERIES VQ1000



HOW TO
ORDER
MANIFOLD



F kit
(D-sub connection)

Note 1) 25-pin

Note 2) 25-pin

Connector Location		Top (Metric)	Side (Inch)
Kit	U0	U1	S0
F	U2	F	S1
		U3	S2
			S3

Without cable
With cable (1.5m)
With cable (3m)
With cable (5m)

Max. 8 stations

C kit
(Connector)

Kit	Connector	Max. 16 stations
C	Connector	Max. 16 stations

S kit
(Serial transmission unit)

Compatible only with 24VDC valves.

Kit	SI Unit	Max. 16 stations (Single)
U	Without SI unit	Max. 16 stations (Single)
A	With general type SI unit	Max. 9 stations (Double)
B	With SI unit for Mitsubishi, MELSEC-A	Max. 9 stations (Double)
C	With SI unit for Omron, SYSMAC	Max. 9 stations (Double)
D	With SI unit for Sharp, New satellite	Max. 9 stations (Double)

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

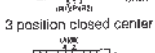
CONFIGURATION
2 position single



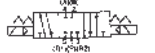
2 position double (latching)
Metal seal



Rubber seal



3 position closed center



3 position exhaust center



3 position pressure center



TYPE OF SEAL
0Metal
1Rubber

PILOT VALVE SPECIFICATIONS

-1W (Standard)
- H1.5W (High Speed response)
- NNegative Common
- Note 1) Y Low wattage (0.5W)

Note) Except for 100/110VAC type.

COIL VOLTAGE

- 3110VAC
- 524VDC
- 612VDC

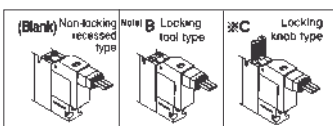
With indicator light and surge voltage suppressor

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.

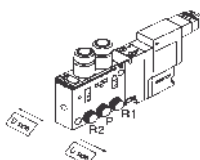
ELECTRICAL ENTRY

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

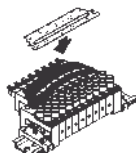
Note 1) LO and MO valves are used for F,P, and S kits.
Plug connector and lead wire layers are attached to the manifold.
Note 2) Grommet type (G) is also available for C kit type.
(Except for latching type and 100/110VAC)

ACCESSORIES
MANIFOLD OPTIONS

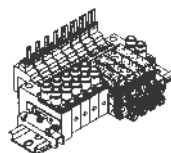
SUP-EXH BLOCK PUSH ASSEMBLY
VVQ1000-87A-B-50



NAMEPLATE [-N7]
VVQ1000-N7 Station (1- Max. Stations)



ELBOW FITTINGS ASSEMBLY
VVQ1000-F7-L
C3
C4
C6



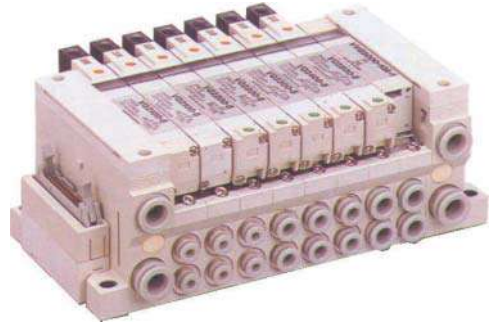
BLANKING PLUG
KQP - 23
04
06
01
03
07



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	0.15MPa / 22PSI
	Double	0.1MPa / 14.5PSI	0.1MPa / 14.5PSI
	3-position	0.1MPa / 14.5PSI	0.2MPa / 29PSI
Max Operating Pressure	(Note 1)	0.75MPa / 109PSI	0.75MPa / 109PSI
Effective Area (Cv Factor) mm ²	Single	14.4 (0.8)	16.2 (0.9)
	Double	14.4 (0.8)	16.2 (0.9)
	3-position	12.6 (0.7)	14.4 (0.8)
Response Time (Note 2)	Single	Max 23ms	Max 24ms
	Double	Max 18ms	Max 23ms
	3-position	Max 28ms	Max 33ms
Life Expectancy		200 million cycles or more	
Ambient and Fluid Temperature	(Note 3)	-10 to +50°C / 14~122°F	-5 to +50°C / 23~122°F
Lubricant	(Note 4)	Not required	Not required
Manual Override		Non-locking, momentary	
Protection		Dustproof	Dustproof

- (Note 1) Contact us for 10 bar.
 (Note 2) Calculated on the basis of JIS B 8375-1981 (Supply pressure 0.5 MPa {5.1 bar}; the above valve shows reponse time checked when the valve is equipped with an indicator light and surge voltage suppressor). 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.
 (Note 4)

Special types (Contact SMC for details and availability):

- i Pressure center function
- ii External pilot
- iii Low power consumption (0.5W)
- iv Positive common wiring

C KIT (CONNECTOR) SERIES VQ2000

- ✔ Type which has lead wires in plug connected to each valve individually.
- ✔ Max. 16 stations

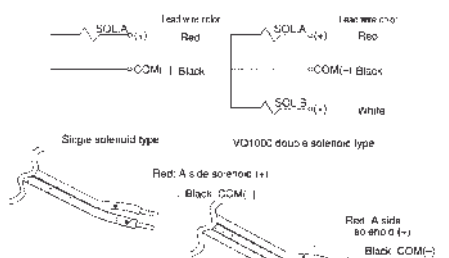
SOLENOID SPECIFICATIONS

Coil rated voltage	12 VDC, 24 VDC	100/110 VAC
Allowable voltage	±10% of rated voltage	±10% of rated voltage
Type of coil insulation	Class B	Class B
Power consumption (Note 1)	1W	Inrush/Holding: 1.1 VA (11mA)
Electrical entry	Plug-in or Connector type	Plug-in or Connector type

(Note 1) Contact SMC for the low power consumption (0.5W) type.

WIRING SPECIFICATIONS NEGATIVE COM

- The lead wires are connected to the valve as shown below. Connect each to the power supply side.



- Plug connector lead wire length

Note) The length of the lead wire provided is 300mm. When a valve with lead wire of 600mm or more is needed, specify both the valve without connector and the longer connector ass'y no.

Example) Lead wire length 1000mm
 VQ110-SLO 3 pcs.
 AXT661-14A-10 3 pcs

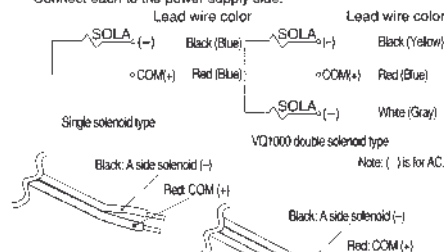
Connector ass'y No.

Lead wire length:	No. for single & VQ0000 double types	No. for VQ1000 double type
Socket (3 pcs.)	AXT661-12A	
300mm	AXT661-14AN	AXT661-13AN
600mm	AXT661-14AN-6	AXT661-13AN-6
1000mm	AXT661-14AN-10	AXT661-13AN-10
2000mm	AXT661-14AN-20	AXT661-13AN-20
3000mm	AXT661-14AN-30	AXT661-13AN-30

Note) Use negative COM type valve for negative COM application type.

WIRING SPECIFICATIONS POSITIVE COM (OPTION)

- The lead wires are connected to the valve as shown below. Connect each to the power supply side.



- Plug connector lead wire length

Note) The length of the lead wire provided is 300mm. When a valve with lead wire of 600mm or more is needed, specify both the valve without connector and the longer connector ass'y no.

Example) Lead wire length 1000mm
 VQ110-SLO 3 pcs.
 AXT661-14A-10 3 pcs

Connector ass'y No. (DC)

Lead wire length	No. for single & VQ0000 double types	No. for VQ1000 double type
Socket (3 pcs.)	AXT661-12A	
300mm	AXT661-14A	AXT661-13A
600mm	AXT661-14A-6	AXT661-13A-6
1000mm	AXT661-14A-10	AXT661-13A-10
2000mm	AXT661-14A-20	AXT661-13A-20
3000mm	AXT661-14A-30	AXT661-13A-30

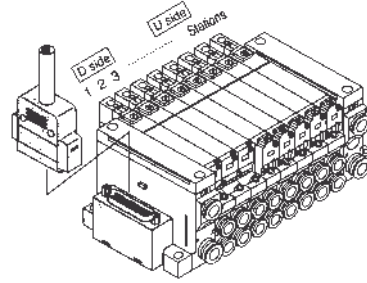
Note) Regarding the AC type, AXT661-13A-1 applies to the single type and AXT661-12A-1 to the double type.

SYMBOLS

1	2 position single A B R1 P R2
2	2 position double A B R1 P R2
3	3 position closed center A B R1 P R2
4	3 position exhaust center A B R1 P R2
5	3 position pressure center A B R1 P R2

F KIT (D-SUB CONNECTION) SERIES VQ2000

- ✓ The D-sub connector permits simple rationalization and installation labor savings for electrical connection.
- ✓ The D-sub connector (25-pin std., 15-pin option) conforms with MIL permitting use of commercial connectors with wide interchangeability.
- ✓ Top or side connector receptacle position can be selected in accordance with the available mounting space.
- ✓ Standard max 8 stations (Optional 16 stations possible).



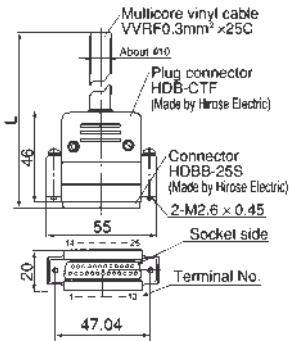
VV5Q21

The total number of stations is tabulated starting from station one at the D side.

D-sub connector (25-pin)

VVZS3000-21A-1

(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 Ω 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

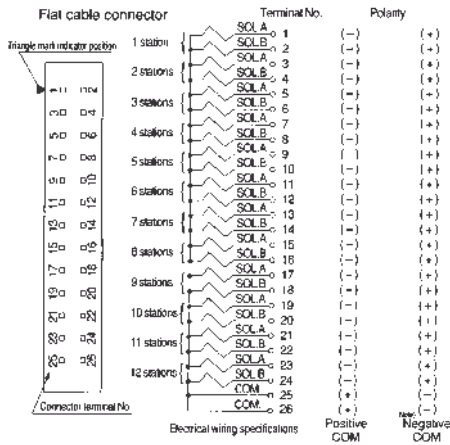
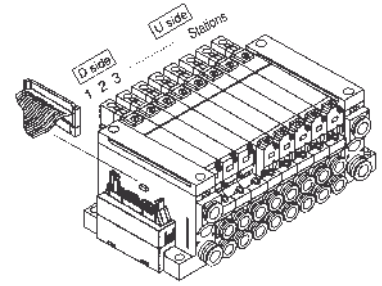
These figures show the standard internal wiring for double solenoid capability provided for each station.

Note) Use negative COM type valves for negative COM specification manifolds

Terminal No.	Polarity	Lead wire color	Dot marking
1 station SOLA 1	(-)	(+)	Black -
1 station SOLB 14	(-)	(+)	Yellow Black
2 stations SOLA 2	(-)	(+)	Brown -
2 stations SOLB 15	(-)	(+)	Pink Black
3 stations SOLA 3	(-)	(+)	Red -
3 stations SOLB 16	(-)	(+)	Blue White
4 stations SOLA 4	(-)	(+)	Orange -
4 stations SOLB 17	(-)	(+)	Violet -
5 stations SOLA 5	(-)	(+)	Yellow -
5 stations SOLB 18	(-)	(+)	Gray -
6 stations SOLA 6	(-)	(+)	Pink -
6 stations SOLB 19	(-)	(+)	Orange Black
7 stations SOLA 7	(-)	(+)	Blue -
7 stations SOLB 20	(-)	(+)	Red White
8 stations SOLA 8	(-)	(+)	Violet White
8 stations SOLB 21	(-)	(+)	Brown White
9 stations SOLA 9	(-)	(+)	Gray Black
9 stations SOLB 22	(-)	(+)	Pink Red
10 stations SOLA 10	(-)	(+)	White Black
10 stations SOLB 23	(-)	(+)	Gray Red
11 stations SOLA 11	(-)	(+)	White Red
11 stations SOLB 24	(-)	(+)	Black White
12 stations SOLA 12	(-)	(+)	Yellow Red
12 stations SOLB 25	(-)	(+)	White -
COM. 13	(+)	***(-)	Orange Red

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).

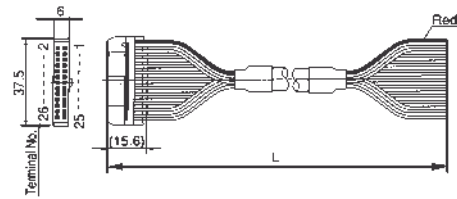


These figures show the standard internal wiring for double solenoid capability provided for each station.

Note) Use negative COM values for negative COM specification manifolds.

AXT100-FC26-¹/₂/₃

(Flat cable connector ass'y can be ordered individually or included with a specific manifold model no. Refer to "How to Order/Manifold.")



Flat cable connector ass'y (Option)

Cable length (L)	Ass'y No	Note
1.5m	AXT100-FC26-1	Cable 26-core × 28AWG
3m	AXT100-FC26-2	
5m	AXT100-FC26-3	

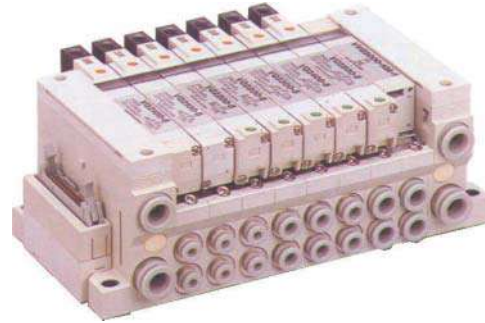
※ For other commercial connectors, use 26-pin type with strain relief made in conformity with MIL-C-83503.

Examples of connector makers

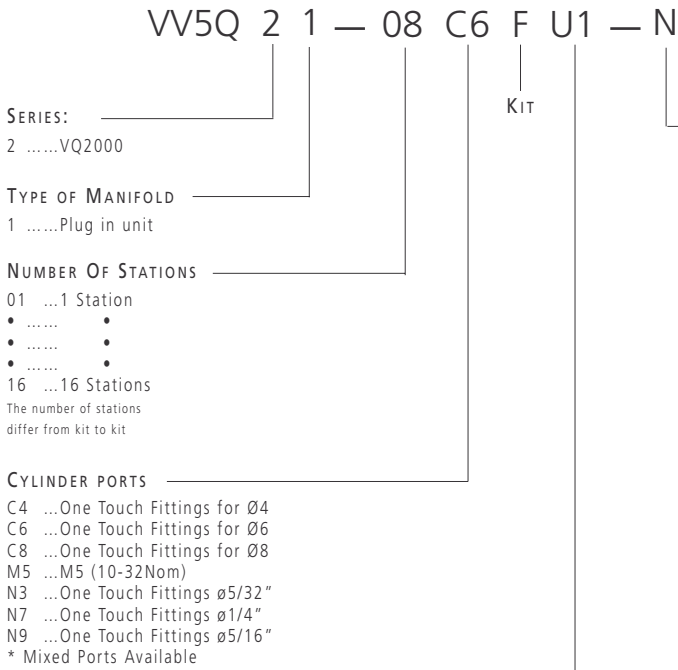
- Hirose Electric Co., Ltd.
- Sumitomo 3-M Ltd.
- Fujitsu Ltd.
- Japan Aviation Electronics Industry, Ltd.
- Japan Solderless Terminal Sales Co., Ltd.

Note) Types with 10-, 16-, or 20-pin are also available.

BASE MOUNTED TYPE
PLUG IN UNIT
VQ2000



How To
ORDER
MANIFOLD



OPTION

Symbol	Option	VQ2000
(Blank)	None	•
B	Check valve for prevention of back pressure	•
D	DIN Rail Mounted Type	•
K	Special Wiring	•
N	With Nameplate	•
R	External Pilot Capable	•
S	Built-in Silencer (Direct Exhaust)	•

- Note 1) When more than one option is desired Combined symbols in alphabetical order. Example) • BRS
- Note 2) In the case of the external pilot "-R", order solenoid valves with the external pilot specification "R"

KIT • ELECTRICAL ENTRY • CABLE LENGTH

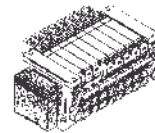
F kit (D-sub connector)

Connector location	Top	Side
Kit U1	Kit S1	Kit S1
F U2	F S2	F S2
U3	S3	S3

P kit (Flat cable connector)

Connector location	Top
Kit U1	Kit S1
P U2	P S2
U3	S3

S kit (Serial transmission unit)



The valve is equipped with a 10mA/24VDC voltage regulator. When the voltage is 24VDC. The accuracy type S1 and S2 are applicable.

0	Without SI unit
A	With general type SI unit
B	With S unit to measure VELOCITY
C	With S unit to measure POSITION
D	With S unit by Snap-Lock cable
F1	16-bit serial kit applicable to 4WE solenoid system
F2	8-bit serial kit applicable to 4WE solenoid system

Note 1) Besides the above, the number of ports for 1, 2 and 3 kits is limited.
Note 2) As optional specifications, the maximum number of stations can be increased based on special wiring specifications.

HOW TO ORDER VALVE

VQ 2 1 0 0 N - 5

SERIES
2VQ2000

SYMBOLS

1	2 position single
2	2 position double
3	3 position closed center
4	3 position exhaust center
5	3 position pressure center

MANUAL OVERRIDE

(Blank) Non-latching recessed type *B Latching tool type *C Latching knob type

*Option

COIL VOLTAGE
3110VAC
524VDC
612VDC

Indicator light and surge voltage suppressor (Blank).. Yes
ENo

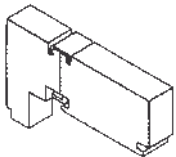
TYPE OF SEAL
0Metal
1Rubber

Note: Contact SMC for 200, 220 VAC specifications

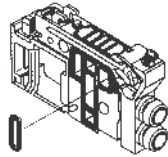
PILOT VALVE SPECIFICATIONS
-1W (Standard)
H1.5W (High Speed response)
YLow wattage (0.5W)
NNegative common
RExternal Pilot

ACCESSORIES MANIFOLD OPTIONS

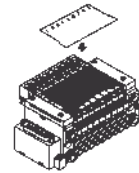
BLANKING PLATE ASSEMBLY
VVQ2000-10A-1



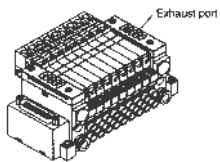
SUP BLOCK PLATE
VVQ2000-16A



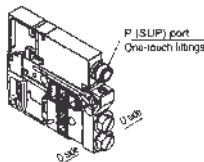
NAMEPLATE [-N]
VVQ2000-N-Station (1-Max. stations)



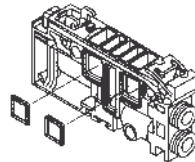
BUILT IN SILENCER
Direct Exhaust [-S]



INDIVIDUAL SUP SPACER
VVQ2000-P-1-C8



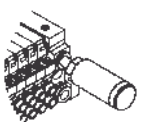
EXH BLOCK PLATE
VVQ2000-19A (Q2000)



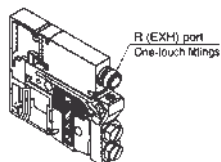
BLANKING PLUG
KQP-04
06
03
07



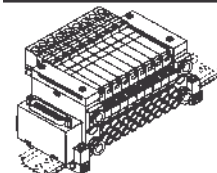
SILENCER (EXH PORT)
AN200-KM10



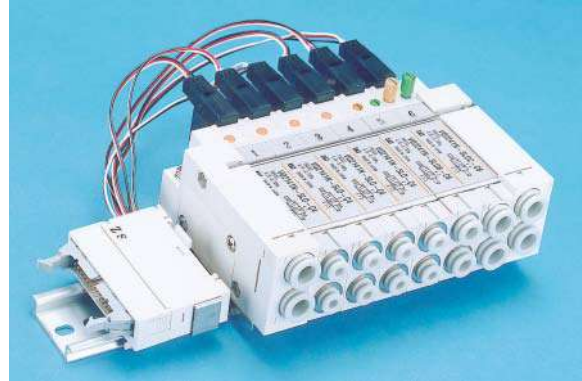
INDIVIDUAL EXH SPACER
VVQ2000-R-1-C8



DIN RAIL MOUNTED BRACKET [-D]
VVQ2000-57A



BODY PORTED TYPE
PLUG LEAD UNIT/FLIP TYPE
VQ2000



HOW TO
ORDER
MANIFOLD

VV5Q 2 4 — 08 F S1 — D — ● — ●

SERIES
2VQ2000

TYPE OF MANIFOLD
4Plug lead unit/flip type

NUMBER OF STATIONS
01 ...1 Station
•
•
•
16 ...16 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 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)

Note 2) 25-pin

Side entry

Note 2) 25-pin

Top entry

Connector Location		Without cable	Note 1) Max. 8 stations
Top (vertical)	Side (horizontal)		
U0	S0	Without cable	
U1	S1	With cable (1.5m)	
U2	S2	With cable (3m)	
U3	S3	With cable (5m)	

C kit (Connector)

Kit	Connector	Max. 16 stations
C	Connector	Max. 16 stations

S kit (Serial transmission unit)

Compatible only with 24VDC valves.

Kit	Without SI unit	Max. 16 stations (Single)
A	With general type SI unit	Max. 8 stations (Double)
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.

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 A B R1 P R2
2	2 position double (latching) A B R1 P R2

TYPE OF SEAL

0Metal
1Rubber

PILOT VALVE SPECIFICATIONS

-1W (Standard)
H1.5W (High Speed response)
Note 1) Y Low wattage (0.5W)
NNegative common

Note) Except for double (latching) type.

COIL VOLTAGE

3110VAC
524VDC
612VDC

With indicator light and surge
voltage suppressor

Note1) See "Option Specifications" for negative COM specifications.

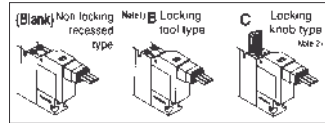
Contact SMC for 200, 220VAC

Note2) F, P, and S kits need connector assembly when increasing the valve station. See "Option Specifications" for types.

CYLINDER PORTS

C4 ...One Touch Fittings for Ø4
C6 ...One Touch Fittings for Ø6
C8 ...One Touch Fittings for Ø8
N3 ...One Touch Fittings ø5/32"
N7 ...One Touch Fittings ø1/4"
N9 ...One Touch Fittings ø5/16"

MANUAL OVERRIDE



Note 1) Locking type (B) is used for the double (latching) type as VQ1000/2000 standard. Must include "B" suffix.
Note 2) Not available for VQ0000

ELECTRICAL ENTRY

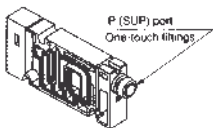
L:L Type plug connector with lead wire	
LO:L Type plug connector without connector	
M:M Type plug connector with lead wire	
MO:M Type plug connector without connector	

G ...Grommet C Kit
Single Type Only

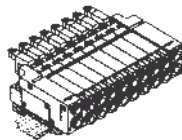
ACCESSORIES

MANIFOLD OPTIONS

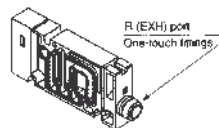
INDIVIDUAL SUP SPACER
VVQ2000-P-4-C8



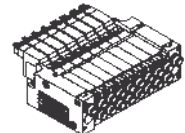
DIN RAIL MOUNTED BRACKET [-D]
VVQ2000-57A- 4



INDIVIDUAL EXH SPACER
VVQ2000-R-4-C8



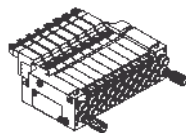
BUILT IN SILENCER
Direct exhaust [-S]



NAMEPLATE [-N4]
VVQ2000-N4 station
(1-Max. station.)



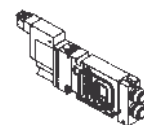
SILENCER (EXH PORT)
AN203-KM8 (VVQ2000)



BLANKING PLUG
KQP-
06
03
07

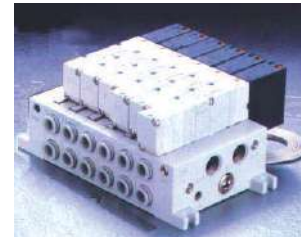


P
R BLOCK VALVE VVQ□4□-□□-□□-□□
P R PR



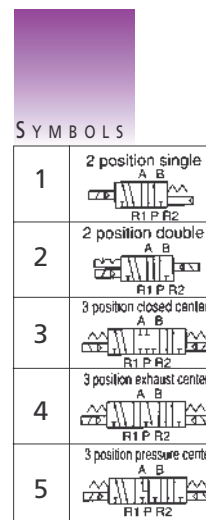
5 PORT METAL SEAL/RUBBER SEAL BASE MOUNTED / PLUG IN TYPE SERIES VQ4000

- ✓ High Speed and Long Life
- ✓ Compact Design with Large Flow Capacity
- ✓ Various Centralized Wiring Options
- ✓ Optional IP65 Available
- ✓ Dust Proof, Jet Proof



**TECHNICAL
SPECIFICATIONS
SERIES VQ4000**

	Type Of Seal		Metal Seal	Rubber Seal	
	Fluid		Air Inert Gas	Air Inert Gas	
Valve Specifications	Maximum Operating Pressure		1MPa (145PSI)		
	Minimum	Single	0.15MPa (22PSI)	0.20MPa (29PSI)	
	Operating	Double	0.15MPa (22PSI)	0.15MPa (22PSI)	
	Pressure	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)			
Solenoid Specifications	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 (Current Value)	110VAC	Inrush 1.3VA (11.7mA), Holding 1.3VA (11.7mA)		
	200VAC	Inrush 2.4VA (12mA), Holding 2.4VA (12mA)			
	220VAC	Inrush 2.6VA (11.7mA), Holding 2.6VA (11.7mA)			



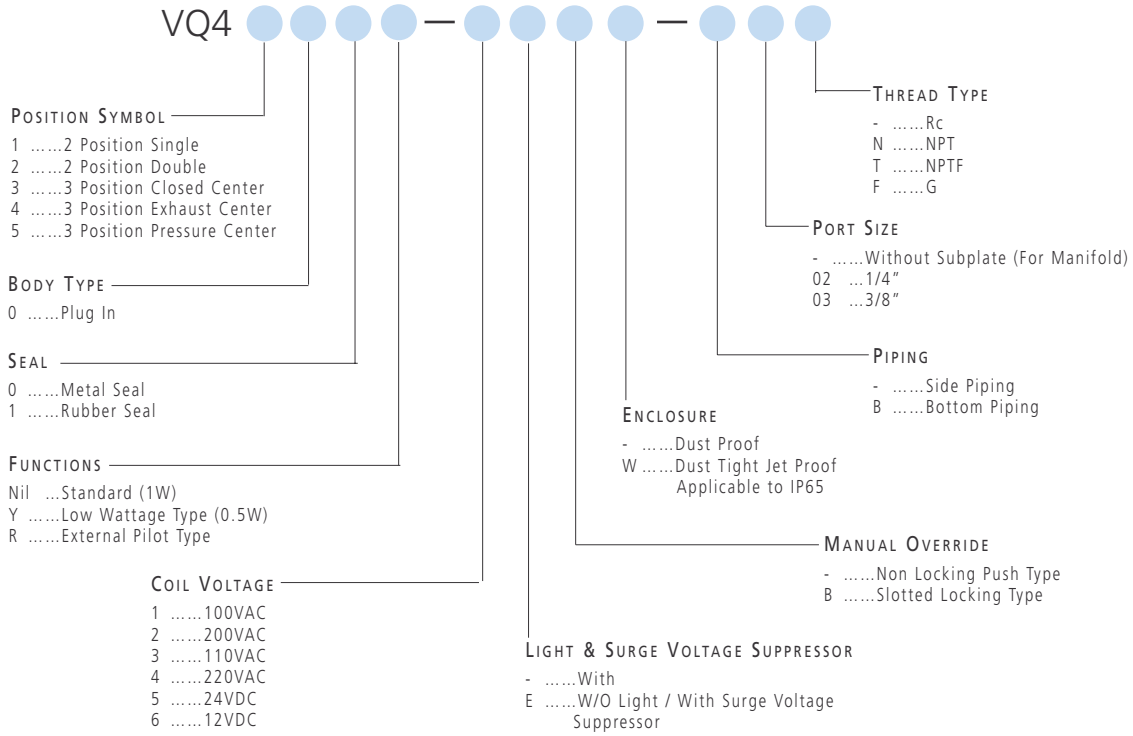
**M O D E L
SERIES VQ4000**

	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
		Rubber Seal VQ43(0, 5)0	36.0 (2.0)	50 or less	52 or less
	Center	Metal Seal VQ44(0, 5)0	36.0 (2.0)	45 or less	47 or less
		Rubber Seal VQ44(0, 5)0	39.6 (2.2)	50 or less	52 or less
	Exhaust	Metal Seal VQ45(0, 5)0	36.0 (2.0)	45 or less	47 or less
		Rubber Seal VQ45(0, 5)0	39.6 (2.2)	50 or less	52 or less

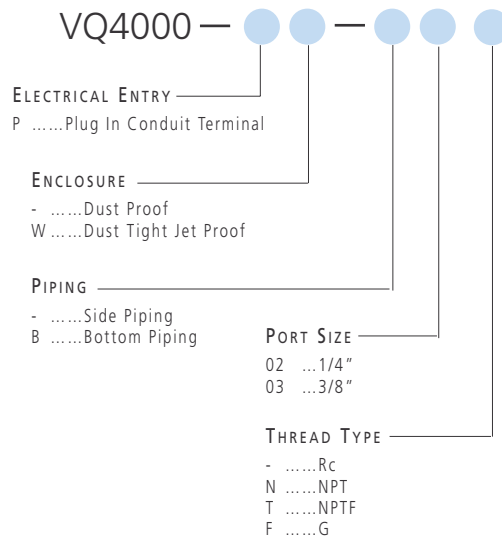
Note 1) Value for Valve on Subplate and Cylinder Port Rc 3/8

Note 2) As per JISB8375-1981 (Supply Pressure; 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

VV5Q4 1 — ● — ● — ● — ● — ● — ● — ● —

MANIFOLD TYPE
1 Plug In Unit

No OF STATIONS
02 ... 2 Stations
n n Stations
Max & Min depends on Kit Refer to Section

PORT SIZE

- C8 ... One Touch Fitting for ø8
- C10 ... One Touch Fitting for ø10
- C12 ... One Touch Fitting for ø12
- N7 ... One Touch Fitting for ø1/4"
- N9 ... One Touch Fitting for ø5/16"
- N11 ... One Touch Fitting for ø3/8"
- 02 ... 1/4"
- 03 ... 3/8"
- B Bottom Piping 1/4"
- CM ... Mixed Size

THREAD TYPE

- Rc
- N NPT
- T NPTF
- F G

OPTION

- None
 - CD ... Exhaust Cleaner; For D Side Mounting (NOTE 2)
 - CU ... Exhaust Cleaner; For U Side Mounting (NOTE 2, 3)
 - K Specail Wiring Spec (Other than Double Wiring) (NOTE 4)
 - N Name Plate (T Kit Only)
 - SD ... Direct Jet with Silencer Box; D Side Exhaust
 - SU ... Direct Jet Silencer Box; U Side Exhaust (NOTE 4)
 - W Enclosure IP65 (Except F Kit)
- NOTE 1) WHEN SPECIFYING MORE THAN ONE OPTION, COMBINE SYMBOLS IN 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		Cable length	Note 2)
D side	U side		
Kit D0	Kit U0	Without cable	2 to 12 stations
F D1	F U1	Cable length 1.5m	
F D2	F U2	Cable length 3m	
F D3	F U3	Cable length 5m	

T Kit (Terminal box kit)

Applicable to IP65

Kit T	0	Terminal box	3 to 12 stations Note 2)
-------	---	--------------	--------------------------

L Kit (Lead wire kit)

Electrical entry		Cable length	Note 2)
D side	U side		
Kit L D0	Kit L U0	Cable length 0.6m	2 to 16 stations
L D1	L U1	Cable length 1.5m	
L D2	L U2	Cable length 3m	

Applicable to IP65

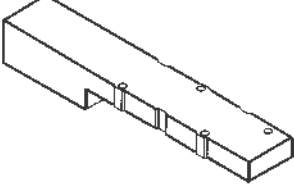
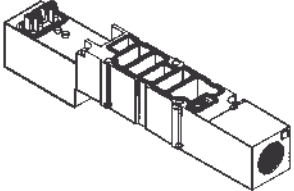
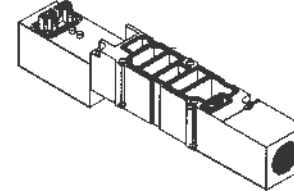
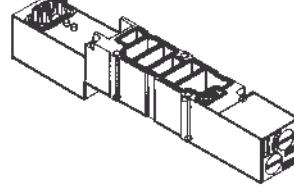
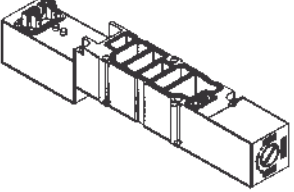
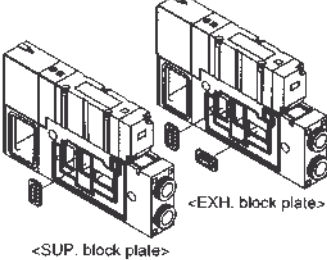
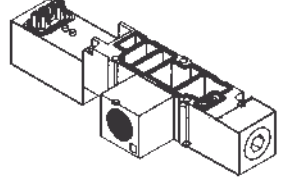
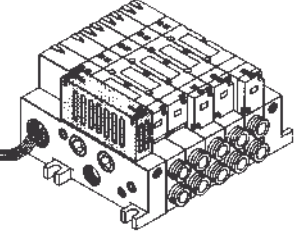
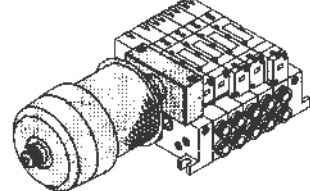
S Kit (Serial transmission kit)

The valve is equipped with a lamp/surge voltage suppressor, and the voltage is 24VDC

Applicable to IP65
* Applicable to INPUT and OUTPUT type.

Kit S	Description
Q	Without SI unit
A	With general type SI unit
B	With SI unit for Mitsubishi MELSECNET/RS3 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)
3M	With SI unit for Mitsubishi MELSECNET/RS3 data link system
Input unit	{□} Stations (0 to 2)

OPTIONS
MANIFOLD SERIES VQ4000

<p>Blank plate ass'y VVQ4000-10A-1</p> 	<p>Individual SUP. spacer VVQ4000-P-1-03</p> 	<p>Individual EXH. spacer VVQ4000-R-1-03</p> 
<p>Speed controller spacer VVQ4000-20A-1</p> 	<p>SUP. stop valve spacer VVQ4000-37A-1</p> 	<p>SUP. EXH. block plate VVQ4000-16A</p>  <p><EXH. block plate> <SUP. block plate></p>
<p>Release valve spacer VVQ4000-24A-1D (Note)</p> 	<p>Built-in silencer (Direct exhaust) [-S $\frac{D}{0}$] (Note)</p> 	<p>For exhaust cleaner mounting [-C $\frac{D}{0}$] (Note)</p>  <p>Applicable exhaust cleaner AMC 610-10</p>

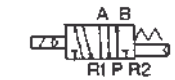
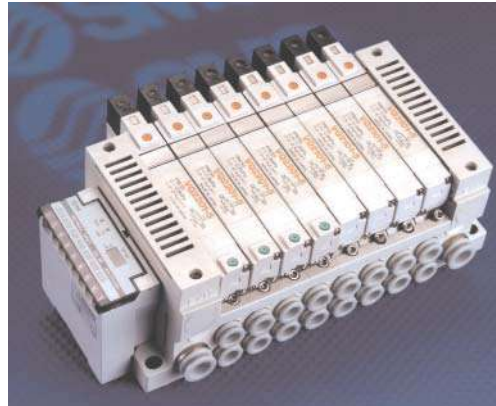
(Note) Combination of external pilot specification and release valve spacer, built-in silencer box direct exhaust, exhaust cleaner mounting type is not available.

2.46 SOLENOID VALVES SERIAL TRANSMISSION SERIES VQ1000



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



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 :

VV5Q11-07C45C-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



MANIFOLD BASE TYPE

1 Plug-in type

NO OF STATIONS*

02 2 stations
to
16 16 stations

PORTING

C3 3.2mm fittings for Ø3.2mm tube
C4 4mm fittings for Ø4mm tube
C6 6mm fittings for Ø6mm tube
M5 M5x0.8
N1 Ø1/8" Fittings for Ø1/8" Tube
N3 Ø5/32" Fittings for Ø5/32" Tube
N7 Ø1/4" Fittings for Ø1/4" Tube

INTERFACE

B Mitsubishi Melsec - A
C Omron Sysmac
D Sharp New Satellite
E Matsushita Mewnet
G Allen Bradley
Note) More options are available, consult SMC for complete information.

*NOTE

2-8 station manifolds are wired for single or double solenoid operation. Please consult your local SMC Sales Office when ordering manifolds of 9 stations and above.

HOW TO ORDER VALVES



SYMBOL

1 2-position
..... single
2 2-position
..... double
3 3-position
..... closed centre
4 3-position
..... exhaust centre

BODY TYPE

0 Plug-in Base Type

TYPE OF SEAL

0 Metal Seal
1 Rubber Seal

VOLTAGE

5 24VDC with indicator light and surge voltage suppressor

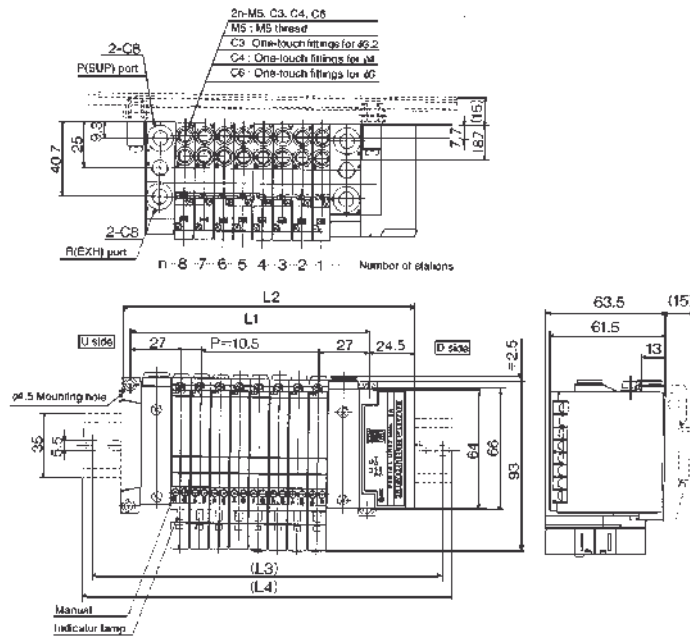
OPTION

B Back Pressure Prevention Valve
D DIN Rail Mounting
S Built-in (TOP) silencer: not piped exhaust

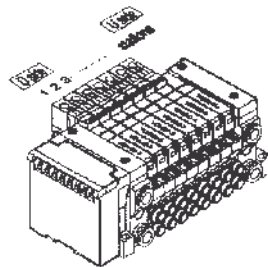
DIMENSIONS
SEE NEXT PAGE

SERIAL TRANSMISSION SERIES VQ1000

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

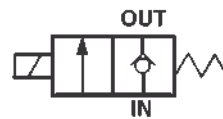


Stations are counted from the D side

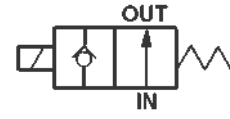


2 PORT SOLENOID VALVE
DIRECT OPERATED TYPE
SERIES VX21/22/23

- ✓ 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

1MPa = 145PSI

Port Size	Orifice mmø	Flow Rate Cv Effective Area (mm²)		Model	Maximum Operating Pressure								Maximum System Pressure MPa	Proof Pressure MPa
					Differential MPa									
					Water		Air		Oil		Steam			
AC	DC	AC	DC	AC	DC	AC	DC							
1/8 (6A)	2	0.17	3	VX2110-01	2	1.5	2	1.5	1.5	1.5	1	Water	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	Oil		
1/4 (8A)	2	0.17	3	VX2110-02	2	1.5	2	1.5	1.5	1.5	1	•	5	
	3	0.33	6	VX2120-02	0.9	0.5	1.1	0.6	0.5	0.5	1	Air		
	3	0.33	6	VX2220-02	1.7	1.5	2	1.5	1.2	1.2	1	3		
	3	0.33	6	VX2320-02	2.5	3	3	3	1.7	2	-			
	4.5	0.61	11	VX2130-02	0.4	0.2	0.45	0.2	0.2	0.15	0.45	••	3	
	4.5	0.61	11	VX2230-02	0.6	0.35	0.75	0.35	0.35	0.3	0.75	Steam		
	4.5	0.61	11	VX2330-02	0.85	0.9	1	0.9	0.55	0.85	1			
	6	1.05	19	VX2240-02	0.35	0.15	0.4	0.15	0.2	0.1	0.4	1		
	6	1.05	19	VX2340-02	0.55	0.3	0.5	0.35	0.35	0.3	0.5			
	8	1.7	31	VX2250-02	0.13	0.08	0.15	0.08	0.1	0.08	0.15	Water	3	
8	1.7	31	VX2350-02	0.17	0.2	0.2	0.2	0.14	0.2	0.2	Oil • Air			
10	1.9	34	VX2260-02	0.08	0.03	0.08	0.03	0.05	0.03	0.08	3			
10	1.9	34	VX2360-02	0.1	0.07	0.1	0.07	0.08	0.07	0.1	Steam 0.05			
3/8 (10A)	3	0.33	6	VX2220-03	1.7	1.5	2	1.5	1.2	1.2	1	Water	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	Oil • Air		
	4.5	0.61	11	VX2330-03	0.85	0.9	1	0.9	0.55	0.85	1	3		
	6	1.05	19	VX2240-03	0.35	0.15	0.4	0.15	0.2	0.1	0.4	Steam	3	
	6	1.05	19	VX2340-03	0.55	0.3	0.5	0.35	0.35	0.3	0.5	1		
	8	1.7	31	VX2250-03	0.13	0.08	0.15	0.08	0.1	0.08	0.15	Water		
	8	1.7	31	VX2350-03	0.17	0.2	0.2	0.2	0.14	0.2	0.2	•		
	10	2.4	43	VX2260-03	0.08	0.03	0.08	0.03	0.05	0.03	0.08	Oil • Air	3	
	10	2.4	43	VX2360-03	0.1	0.07	0.1	0.07	0.08	0.07	0.1	1		
1/2 (15A)	10	2.4	43	VX2260-04	0.08	0.03	0.08	0.03	0.05	0.03	0.08	Steam	3	
	10	2.4	43	VX2360-04	0.1	0.07	0.1	0.07	0.08	0.07	0.1	0.5		

How To
ORDER
SEE NEXT PAGE

TECHNICAL SPECIFICATIONS

ENERGIZED CLOSED TYPE SERIES VX

1 MPa = 145PSI

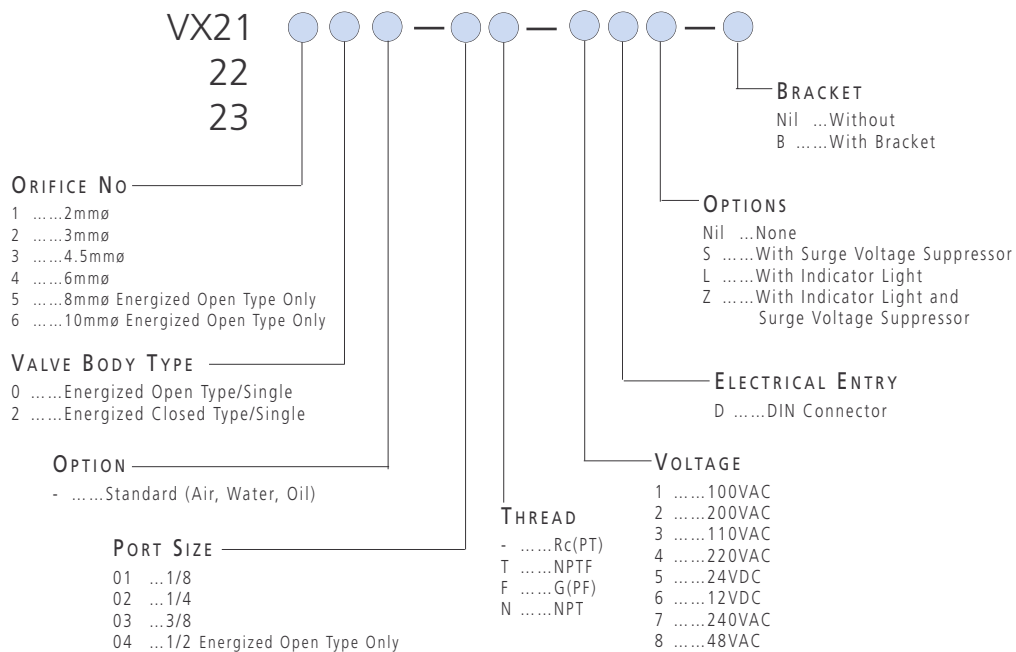
Port Size	Orifice mmø	Flow Rate Cv Effective Area (mm²)		Model	Maximum Operating Pressure				Maximum System Pressure MPa	Proof Pressure MPa
					Differential MPa					
					Water	Air	Oil	Steam AC		
1/8 (6A)	2	0.17	3	VX2112-01	0.9	1.5	0.8	1	5	
	3	0.33	6	VX2122-01	0.45	0.7	0.45	0.7		
	4.5	0.61	11	VX2132-01	0.2	0.3	0.2	0.3		
1/4 (8A)	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		
	3	0.33	6	VX2322-02	1.2	1.6	1	-		
	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		
	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	VX070-020
VX2120	
VX2130	
VX2220	VX070-022
VX2230	
VX2240	
VX2320	
VX2330	VX070-029
VX2340	
VX2250	
VX2260	
VX2350	
VX2360	

HOW TO ORDER SERIES VX



DIMENSIONS

TYPE PORT SIZE ORIFICE X SERIES VX21/22/23

Solenoid Valve Type (Port Size)			Orifice Size (Number)					
VX21	VX22	VX23	1	2	3	4	5	6
			2mmø	3mmø	4.5mmø	6mmø	8mmø	10mmø
01 (1/8)	-	-	●	●	●	-	-	-
02 (1/4)	-	-	●	●	●	-	-	-
-	02 (1/4)	02 (1/4)	-	●	●	●	●	●
-	03 (3/8)	03 (3/8)	-	●	●	●	●	●
-	04 (1/2)	04 (1/2)	-	-	-	-	-	●

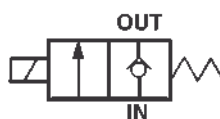
FOR DIMENSIONS AND MORE TECHNICAL DETAILS ON THIS SERIES, PLEASE REFER TO CAT:E701

2 PORT SOLENOID VALVE
PILOT OPERATED TYPE
SERIES VXD21

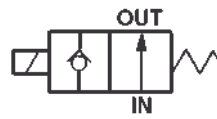
- ✓ Compact and Lightweight
- ✓ Large Flow Capacity
- ✓ Can be quickly disassembled and reassembled
- ✓ High Reliability Molded Coil
- ✓ Proper Selection of Body and Sealing Materials permits Application of a Wide Variety of Fluid



SYMBOLS



ENERGIZED OPEN TYPE



ENERGIZED CLOSED TYPE

TECHNICAL SPECIFICATIONS

ENERGIZED OPEN TYPE SERIES VXD

1 MPa = 145PSI

Connection	Orifice mm	Flow Rate Cv Effective Area (mm ²)		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	1.5
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	
1/2	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	

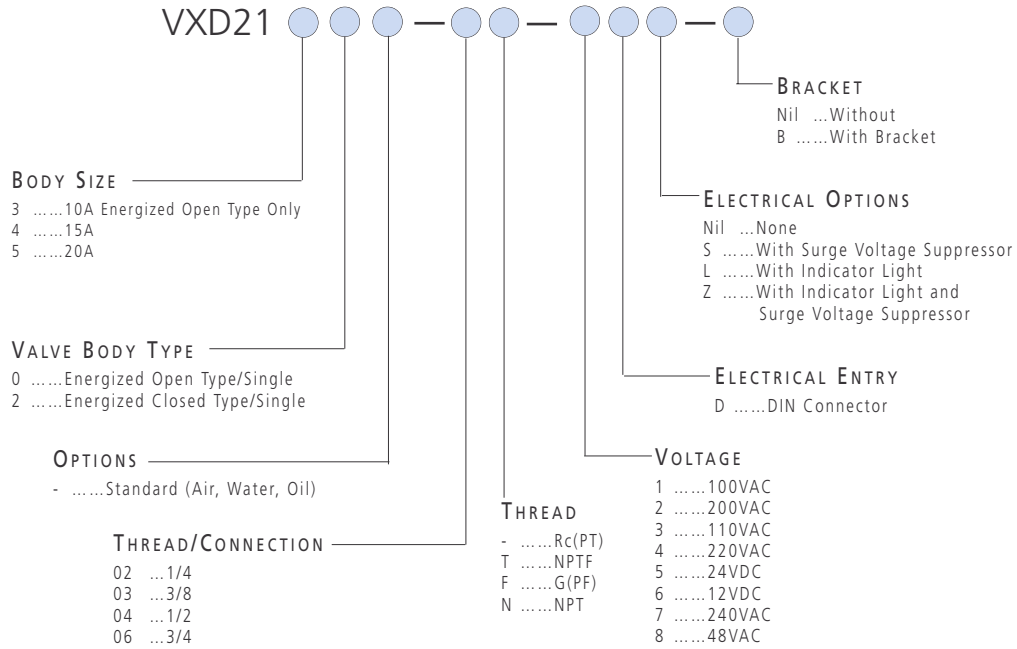
TECHNICAL SPECIFICATIONS

ENERGIZED CLOSED TYPE SERIES VXD

1 MPa = 145PSI

Connection	Orifice mm	Flow Rate Cv Effective Area (mm ²)		Model	Minimum Operating Pressure Differential MPa	Maximum Operating Pressure Differential MPa		Maximum System Pressure MPa
						Water / Air	Oil	
3/8	15	4.5	80	VXD2142-03	0.02	0.7	0.6	1.5
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	

HOW TO
ORDER
SERIES VXD



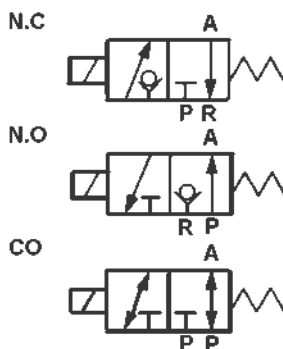
FOR DIMENSIONS AND MORE TECHNICAL DETAILS ON THIS SERIES, PLEASE REFER TO CAT:E701



3 PORT SOLENOID VALVE DIRECT OPERATED TYPE SERIES VX31/32/33

- ✓ Compact and Lightweight
- ✓ Large Flow Capacity
- ✓ Can be quickly disassembled and reassembled
- ✓ High Reliability Molded Coil
- ✓ Proper Selection of Body and Sealing Materials permits Application of a Wide Variety of Fluid

SYMBOLS



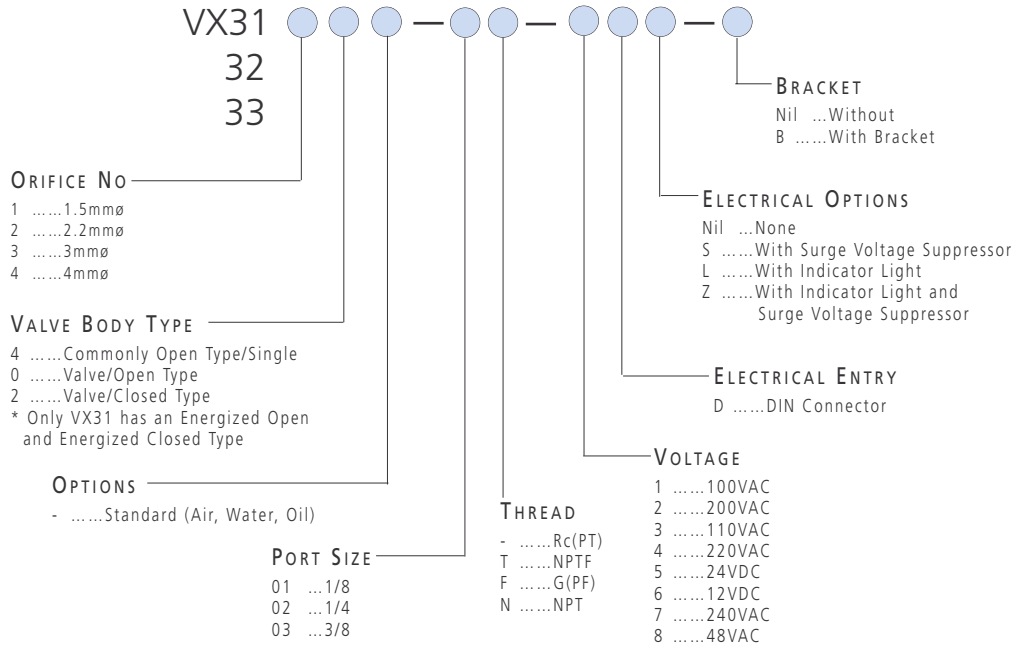
1 MPa = 145PSI

TECHNICAL
SPECIFICATIONS

SERIES VX31/32/33

Port Size	Orifice mm	Flow Rate		Model	Maximum Operating Pressure Differential MPa		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	• Oil
	2.2	0.16	2.8	VX312(0/2/4)-02	0.5	0.3	
	2.2	0.19	3.4	VX3224-02	-	0.6	• Air
	2.2	0.19	3.4	VX3324-02	-	1	
	3	0.24	4.3	VX313(0/2/4)-02	0.3	0.2	2
	3	0.33	6	VX3234-02	-	0.3	
	3	0.33	6	VX3334-02	-	0.6	•• Steam
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 (mm ²)		Model	Maximum Operating Pressure Differential MPa						Maximum System Pressure MPa
					Water		Air		Oil		
					AC	DC	AC	DC	AC	DC	
1/4	10	1.9	34	VXZ2230-02	1	0.7	1	0.7	0.7	0.7	1.5
3/8	10	2.4	43	VXZ2230-03	1	0.7	1	0.7	0.7	0.7	
1/2	15	5.3	95	VXZ2240-04	1	0.7	1	0.7	0.7	0.7	

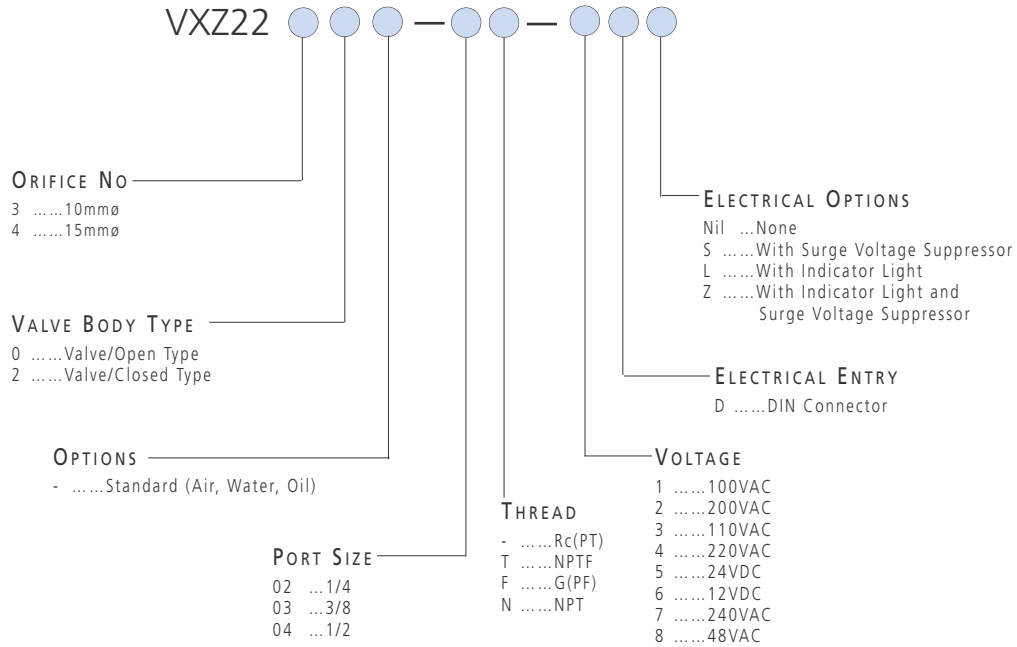
TECHNICAL SPECIFICATIONS

NORMALLY OPEN TYPE SERIES VXZ

1MPa = 145PSI

Port Size	Orifice Size mmø	Flow Rate Cv Effective Orifice (mm ²)		Model	Maximum Operating Pressure Differential MPa						Maximum System Pressure MPa
					Water		Air		Oil		
					AC	DC	AC	DC	AC	DC	
1/4	10	1.9	34	VXZ2232-02	0.7	0.6	0.7	0.6	0.7	0.6	1.5
3/8	10	2.4	43	VXZ2232-03	0.7	0.6	0.7	0.6	0.7	0.6	
1/2	15	5.3	95	VXZ2242-04	0.7	0.6	0.7	0.6	0.7	0.6	

HOW TO
ORDER
SERIES VXZ



FOR DIMENSIONS AND MORE TECHNICAL DETAILS
ON THIS SERIES, PLEASE REFER TO CAT:E705

3/2 DIRECT ACTING SOLENOID VALVE 10-32Nom PORTED

- ✓ N/O or N/C Option
- ✓ 10-32Nom Body Ported, possible to Manifold Mount
- ✓ Cv 0.05
- ✓ Optional Lamp and Surge Voltage Suppressor
- ✓ Suitable for Pressure or Vacuum

TECHNICAL SPECIFICATIONS

Fluid	Air
Ambient and Fluid Temperature	Max 50°C / 122°F
Response Time	15ms or less
Max Operating Frequency	15c/s
Manual Override	Non-locking type
Lubrication	Not required (Use turbine oil ±1 (ISO VG32) if lubrication is provided)
Enclosure	Dust Proof

SOLENOID SPECIFICATIONS

Electrical Entry	Grommet (G), Plug connector (M)		
Voltages	AC	240V, 110V, 24V	
	DC	12V, 24V	
Allowable Voltage	-15~+10% of rated voltage		
Coil Insulation	Class E or equivalent (120°C)		
Temperature Rise	45°C or less / 113°F or less		
Power Consumption	DC	1.8W/2.1W (W/LED)	
Apparent Power	AC	Inrush	4.5VA/50Hz, 4.2VA/60Hz
		Holding	3.5VA/50Hz, 3VA/60Hz
Surge Voltage Suppressor	DC: Diode, AC: ZNR		
Indicator Light	DC: LED (Red), AC: Neon lamp		

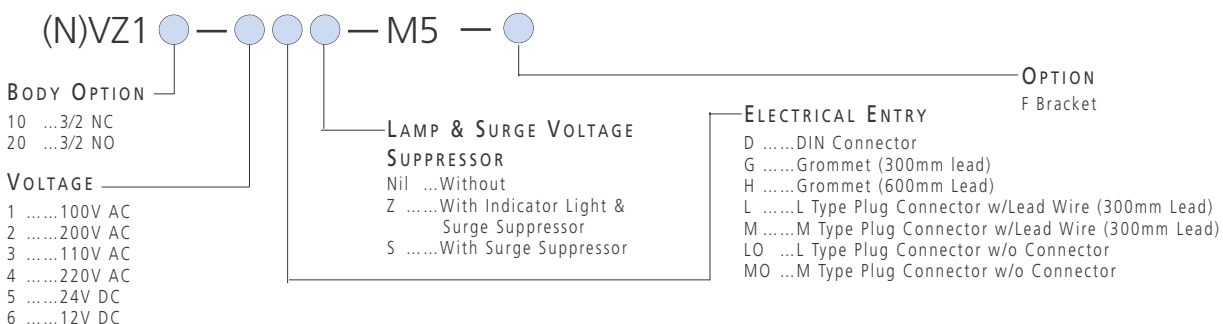
FLOW SPECIFICATIONS

Body Type	Model	Type Of Actuation	Operating Pressure Range kgf/cm ²	Vacuum Application		Effective Orifice mm ² (Cv Factor)	Port Size	Weight
				P Port	R Port			
Body Ported	(N)VZ110-**-M5	NC	0 ~ 7MPa 0 ~ 100PSI	22in-Hg 0~85PSI	VAC ~0PSI	P->A 0.6 (0.034) A->R 0.9 (0.05)	10-32Nom (M5x0.8)	0.15g
	(N)VZ110-**-M5	NO	0 ~ 5MPa 0 ~ 70PSI	22in-Hg 0~85PSI	VAC ~55PSI	R->A 0.6 (0.034) A->P 0.6 (0.034)		

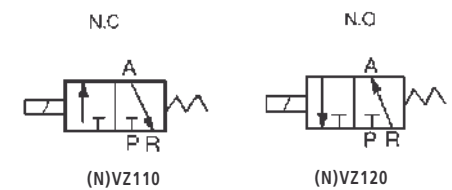
Note: In case of (N)VZ120 Supply Air to 'R' Port. "P" Port will be the Exhaust Port.

HOW TO ORDER

(N)VZ100 SOLENOID VALVE



SYMBOLS



ACCESSORIES

(N)VZ100 SOLENOID VALVE

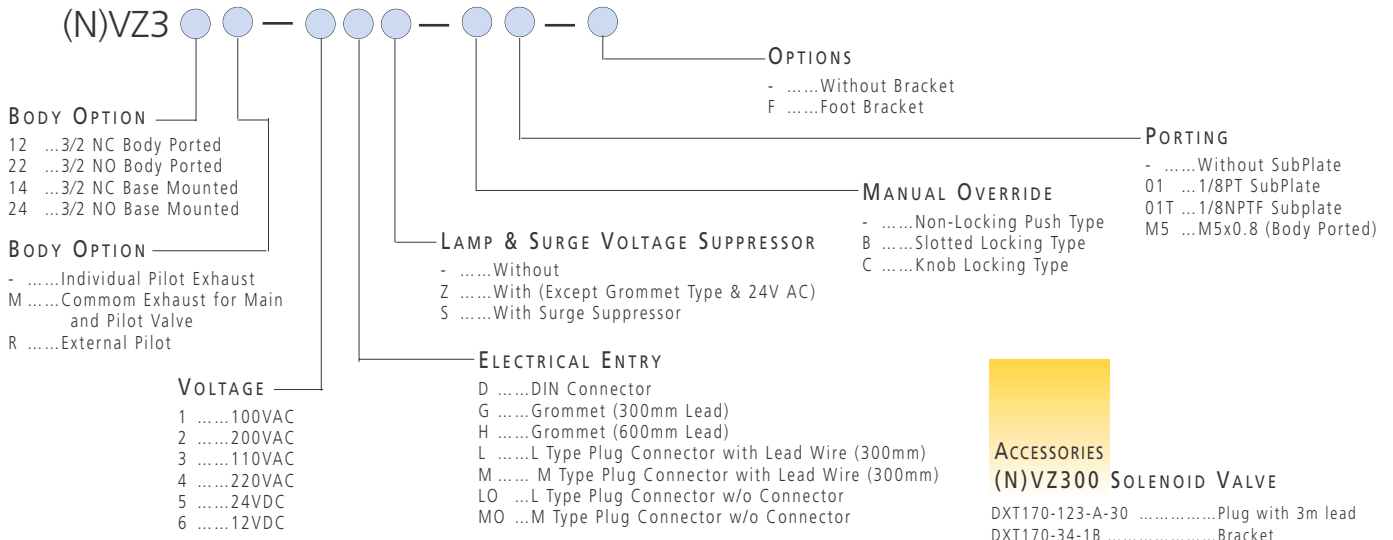
- DXT170-123-A-30Plug with 3m lead
- DXT170-34-1AFoot bracket with screws



Observe Operating Pressure Ranges - see Technical Specifications for details

DIMENSIONS
SEE NEXT PAGE

**HOW TO
ORDER
(N)VZ300 SOLENOID VALVE**



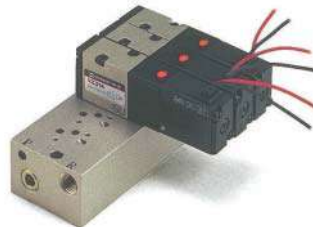
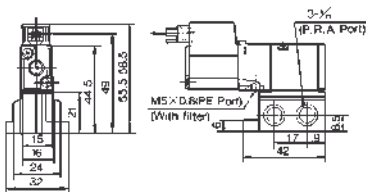
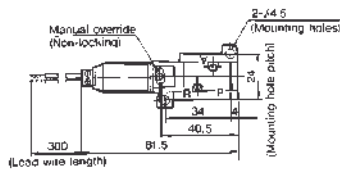
SERIES (N)VZ300 MANIFOLDS

A Single Sub-base and 3 different Manifold Designs.

- (i) Side Entry Single Sub-base for use with the Base Mounted Valve (Type 40).
- (ii) 2-10 Station Type 20 Mmanifold for use with the Body Ported Valve (Type 20).
- (iii) 2-10 Station Type 40 Side Entry Manifold for use with the Base Mounted Valve (Type 40).
- (iv) 2 - 10 Station Type 40 Bottom Entry Manifold for use with the Base Mounted Valve (Type 40).



**DIMENSIONS
SINGLE SUB-BASE SIDE PORTED
M TYPE PLUG CONNECTOR**



HOW TO ORDER

MANIFOLD TYPE 20 TOP PORTED

(N)VZ3Z — 20 1 —

NUMBER OF STATIONS

02 ...2 stations
to
20 ...20 stations

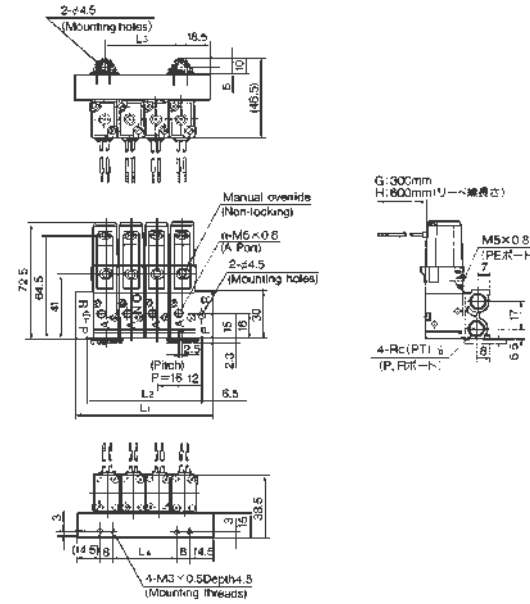
THREAD TYPE

-PT
00T ...NPTF

FOR FURTHER TECHNICAL INFORMATION ON THIS SERIES, REQUEST CAT:E120

DIMENSIONS

MANIFOLD TYPE 20 TOP PORTED



Stations (n)	2	3	4	5	6	7	8	9	10
L1	53	69	85	101	117	133	149	165	181
L2	40	56	72	88	104	120	136	152	168
L3	16	32	48	64	80	96	112	128	144
L4	8	24	40	56	72	88	104	120	136

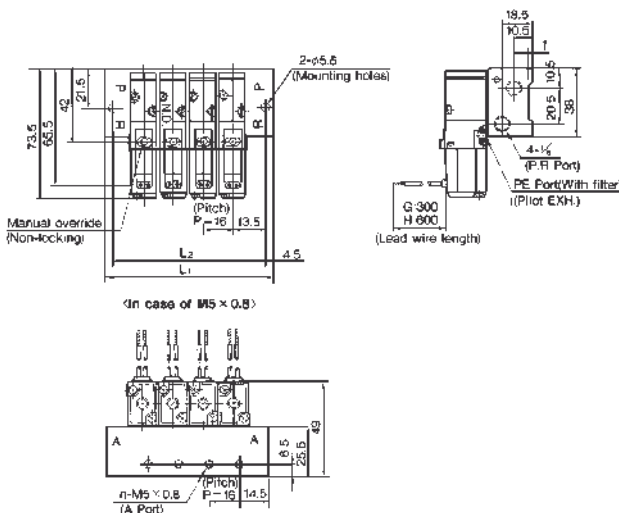
ACCESSORIES

- DXT170-25-1ABlanking Plate Kit
- DXT170-34-1AFoot Mount Kit

FOR FURTHER TECHNICAL INFORMATION ON THIS SERIES, REQUEST CAT:E120

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)VZ3Z — 40 — 1 —

NUMBER OF STATIONS

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

SIZE OF A, B PORT

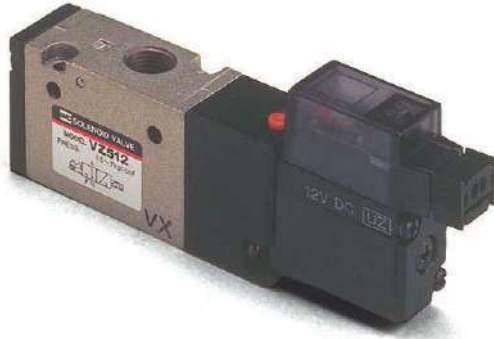
- M5 ...10-32Nom (P, R Port PT)
- M5T...10-32Nom (P, R Port NPTF)
- B3T ...One Touch Fitting 5/32"
- B7T ...One Touch Fitting 1/4"

ACCESSORIES

MANIFOLD TYPE 40 SIDE PORTED TYPE G

- DXT200-8-1ABlanking Plate Kit

FOR FURTHER TECHNICAL INFORMATION ON THIS SERIES, REQUEST CAT:E120



3/2 PILOT OPERATED SOLENOID / SPRING VALVE

- ✓ N/O or N/C Option
- ✓ 1/8 Body Ported, Sub Base or Manifold Mounted (1 to 10 Stations)
- ✓ Cv 0.5
- ✓ Optional Lamp and Surge Voltage Suppressor
- ⚠ Solenoid Coils are integral and must not be removed
- ⚠ These valves are supplied without leads which must be ordered separately (see Accessories Section)

TECHNICAL SPECIFICATIONS

Fluid	Air
Operating Pressure Range	20 ~ 100PSI (1.5-7kgf/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)VZ512	NC	9.0 (0.5)
	(N)VZ522	NO	
Base Mounted Type (with Subplate)	(N)VZ514	NC	9.0 (0.5)
	(N)VZ524	NO	

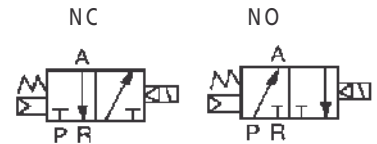
SOLENOID SPECIFICATIONS

Electrical Entry	Grommet (G), Plug Connector (M)	
Voltages	AC	240Hz, 110V50/60Hz, 24V50/60Hz
	DC	12V, 24V
Allowable Voltage	-15~+10% of rated voltage	
Coil Insulation	Class E or equivalent (120°C)	
Temperature Rise	45°C or less / 115°F or less	
Power Consumption DC	1.8W/2.1W (W/LED)	
Apparent Power AC	Inrush	4.5VA/50Hz, 4.2VA/60Hz
	Holding	3.5VA/50Hz, 3VA/60Hz
Surge Voltage Suppressor	DC: Diode, AC: ZNR	
Indicator Light	DC: LED (Red), AC: Neon lamp	



SAFETY
Observe operating pressure ranges - see technical specifications for details

SYMBOLS



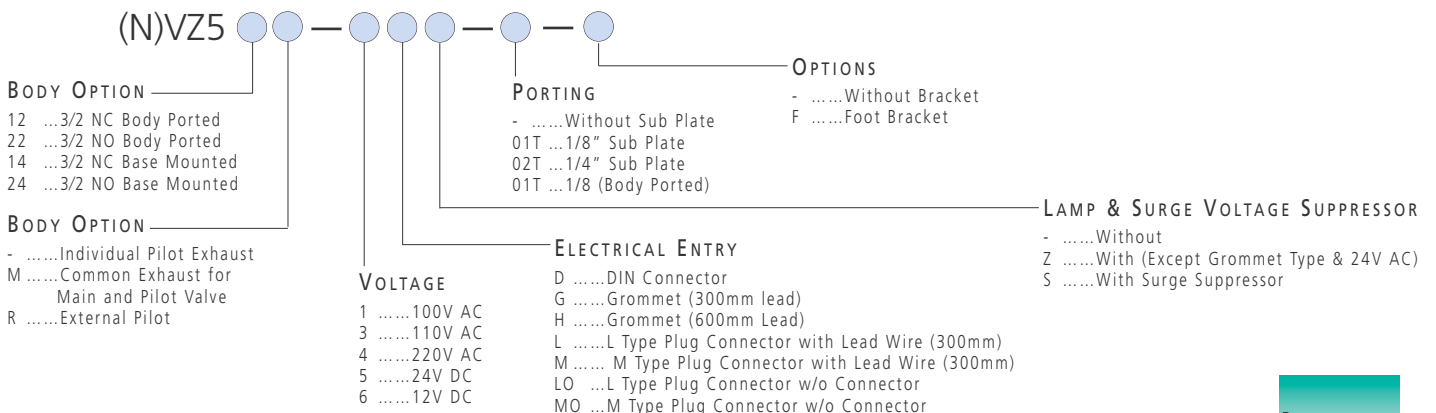
ACCESSORIES

(N)VZ500 SOLENOID VALVE

- DXT170-123-A-30 Plug with 3m lead
- DXT201-19-1A Bracket

HOW TO ORDER

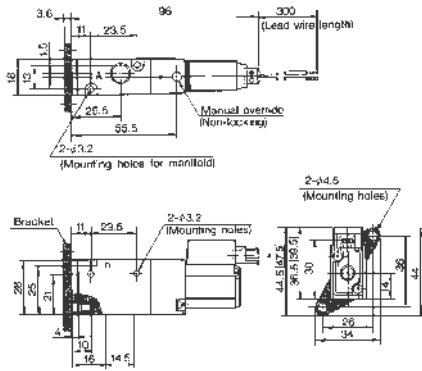
(N)VZ500 SOLENOID VALVE



DIMENSIONS
SEE NEXT PAGE

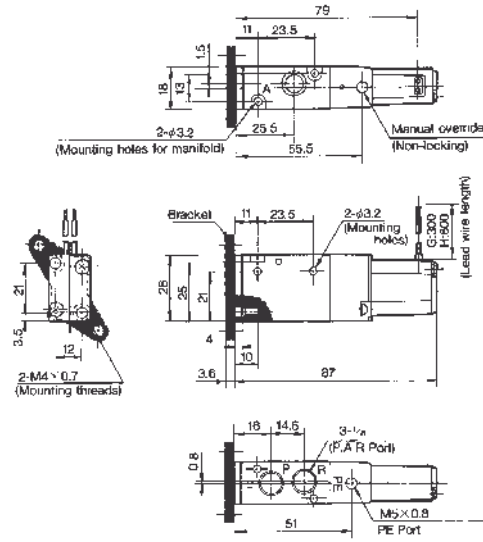
DIMENSIONS

SERIES (N)VZ500 BODY PORTED MN PLUG TYPE



DIMENSIONS

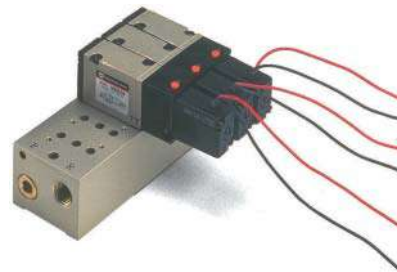
SERIES (N)VZ500 BODY PORTED GROMMET TYPE



SERIES (N)VZ500 MANIFOLDS

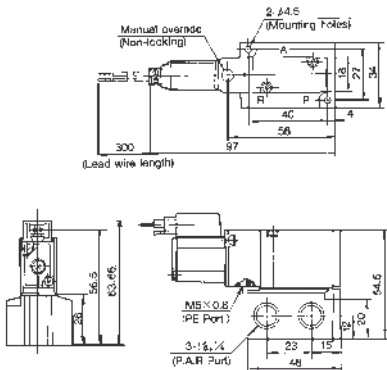
A Single Sub Base and 3 Different Manifold Design.

- (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



SERIES NVFS 2000, 3000, 4000, 5000, 6000 5 PORT PILOT OPERATED BASE-MOUNTED / PLUG-IN TYPE

- ✓ Large Flow Capacity
- ✓ Low Power Consumption
- ✓ Long Life
- ✓ Ease Maintenance
- ✓ Many Variations Available

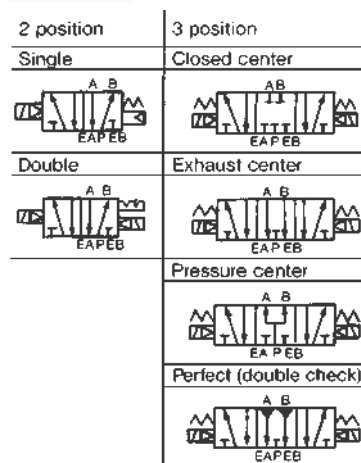
For further information, consult SMC Customer Service



MODEL NVFS2000

Position	Number Of Solenoid	Type Plug-In	Port Size (NPTF)	Cv Factor	Response Time (ms)
2 Position	Single	NVFS2100	1/8	0.7	15 or less
			1/4	0.83	
	Double	NVFS2200	1/8	0.7	13 or less
			1/4	0.83	
3 Position	Closed Center	NVFS2300	1/8	0.65	20 or less
			1/4	0.67	
	Exhaust Center	NVFS2400	1/8	0.65	20 or less
			1/4	0.67	
	Pressure Center	NVFS2500	1/8	0.65	20 or less
			1/4	0.67	
	Perfect (Double Check)	NVFS2600	1/8	0.4	25 or less
			1/4	0.4	

SYMBOLS



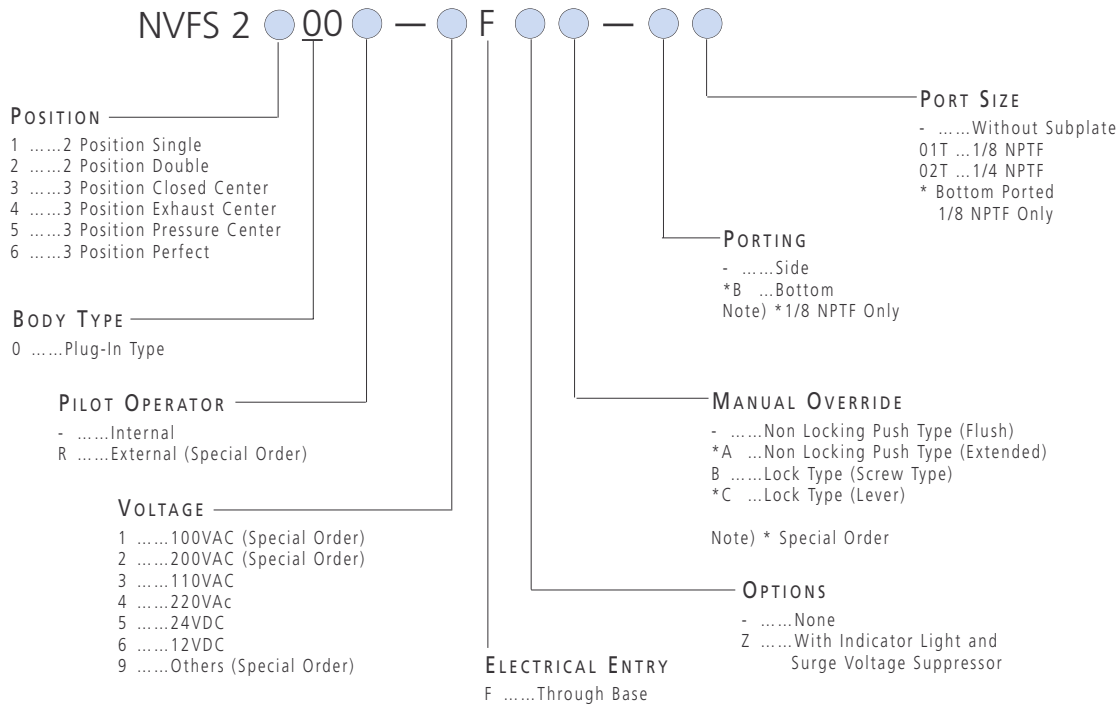
TECHNICAL SPECIFICATIONS STANDARD

	Fluid	Air and Inert Gas	
Valve	Max Operating Pressure	150 PSI (1MPa)	
	Min Operating Pressure	2 Position	15 PSI (0.1MPa)
		3 Position	22 PSI (0.15MPa)
	Ambient & Fluid Temperature	14~140°F (-10~60°C)	
	Lubrication	Not Required	
	Pilot Operator Manual Override	Non Locking Push Type (Flush)	
	Protection Construction	Dust Proof	
Electrical	Rated Voltage	AC	110VAC50/60Hz, 220V50/60Hz, 24V50/60Hz
		DC	12V, 24V
	Allowable Voltage Range	-15 ~ 10% Rated Voltage	
	Coil Insulation	Class B or Equivalent	
	Apparent Power AC (Power Consumption)	InRush	5.0VA/60Hz, 5.6VA/50Hz
		Holding	2.3VA(1.5W)/60Hz, 3.4VA(2.1W)/50Hz
	Power Consumption DC	1.8W	
Electrical Entry	Plug In	Conduit Terminal (Base Access)	

TECHNICAL SPECIFICATIONS OPTIONAL

Pilot Type		External Pilot Type
Manual Override	Pilot Operator	Non Locking Push Type (Extended), Lock Type (Tool), Lock Type (Lever)
Voltage	AC	100V50/60Hz, 200V50/60Hz
	DC	6V, 48V, 100V
Porting	Bottom Ported Subplate	
Option	W/Indicator Light & Surge Voltage Suppressor	

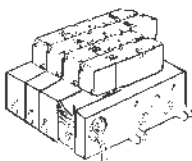
HOW TO ORDER NVFS2000



HOW TO ORDER MANIFOLD

Plug-in Type: Connector with Lead Wire ("wire harness")

● The insert plug is attached to the manifold block and is connected with valve side. Connect leads with corresponding power supply.



NVV5FS2-01-06 1 01T

Series NVFS2000
Manifold valve

Plug-in Type
Connector with
Lead wire
(AXT624-32A-D1-3)

Stations

- 02 | 2 stations
- 15 | 15 stations

Symbol	P, EA, EB	A, B
01T	1/8 NPTF	1/8 NPTF
02T	1/4 NPTF	1/4 NPTF

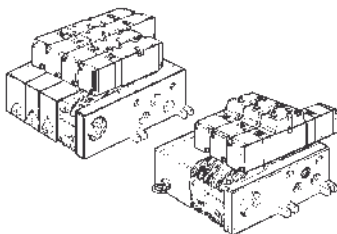
Symbol	Port specifications	Porting Specifications (A,B)
1	Common	Side
*2T	Common	Bottom
	Mixed	

* Special Order
† Bottom porting specification with "02T" is 1/8" P.A.B. bottom and 1/4" A.B. side

Unit type conduit cover: AXT625-2B-3A
Unit type conduit retainer: AXT625-87

Plug-in Type: With Terminal Blocks

● Lead wires of solenoid valve are connected with the terminals on upper surface of terminal block, corresponding lead wires from power source can be wired at the bottom of terminal block.



NVV5FS2-01T 1 08 1 02T

Series NVFS2000
Manifold valve

Plug-in type
With terminal block

Junction cover / classification

- Unit type individual station cover
- 1 One-pc. type cover

Note: Individual cover part no. above

Stations

- 02 | 2 stations
- 15 | 15 stations

Symbol	P, EA, EB	A, B
01T	1/8 NPTF	1/8 NPTF
02T	1/4 NPTF	1/4 NPTF

Symbol	Port specifications	Porting Specifications (A,B)
1	Common	Side
*2T	Common	Bottom
	Mixed	

* Special Order
† Bottom porting specification with "02T" is 1/8" P.A.B. bottom and 1/4" A.B. side

HOW TO
ORDER

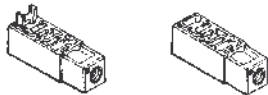
MANIFOLD / OPTION PARTS ASSEMBLY

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	NVFS2000-P-01T-1
1/4NPTF	NVFS2000-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	NVFS2000-R-01T-1
1/4NPTF	NVFS2000-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.

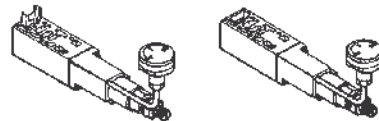
Body type	Plug-in type
Part No.	NVFS2000-20A-1 NVFS2000-20A-2



Interface regulator

Spacer type regulator on manifold block controls supply pressure to the valve. With standard gauge.

Body type	Plug-in type
Pressure Regulation P	NARBF2000-00-P-1

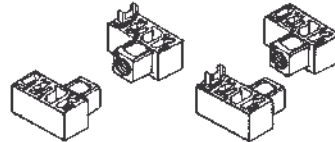


Air Shutoff valve spacer

The concurrent use of air shutoff valve spacer with 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

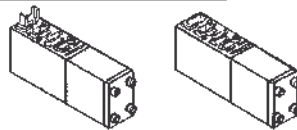
Note) L: U side mount R: D side mount



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.

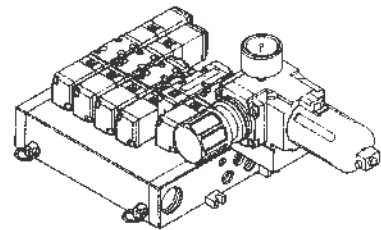
Body type	Plug-in type
Part No.	VVFS2000-10A

Manifold /Option

Control Unit

Plug-in type

- Filter/Regulator, Pressure switch, and Air shutoff valve all combine to form one unit.
- Piping work eliminated.

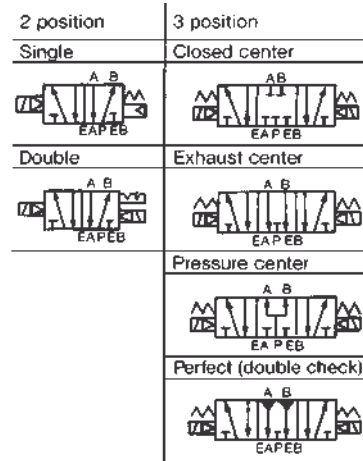


For more information,
Please refer to catalog N233

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	
	Double	NVFS3200	1/4	1.8	15 or less
			3/8	2	
3 Position	Closed Center	NVFS3300	1/4	1.8	40 or less
			3/8	2	
	Exhaust Center	NVFS3400	1/4	1.8	40 or less
			3/8	2	
	Pressure Center	NVFS3500	1/4	1.8	40 or less
			3/8	2	
Perfect (Double Check)	NVFS3600	1/4	1.1	50 or less	
		3/8	1.2		

SYMBOLS



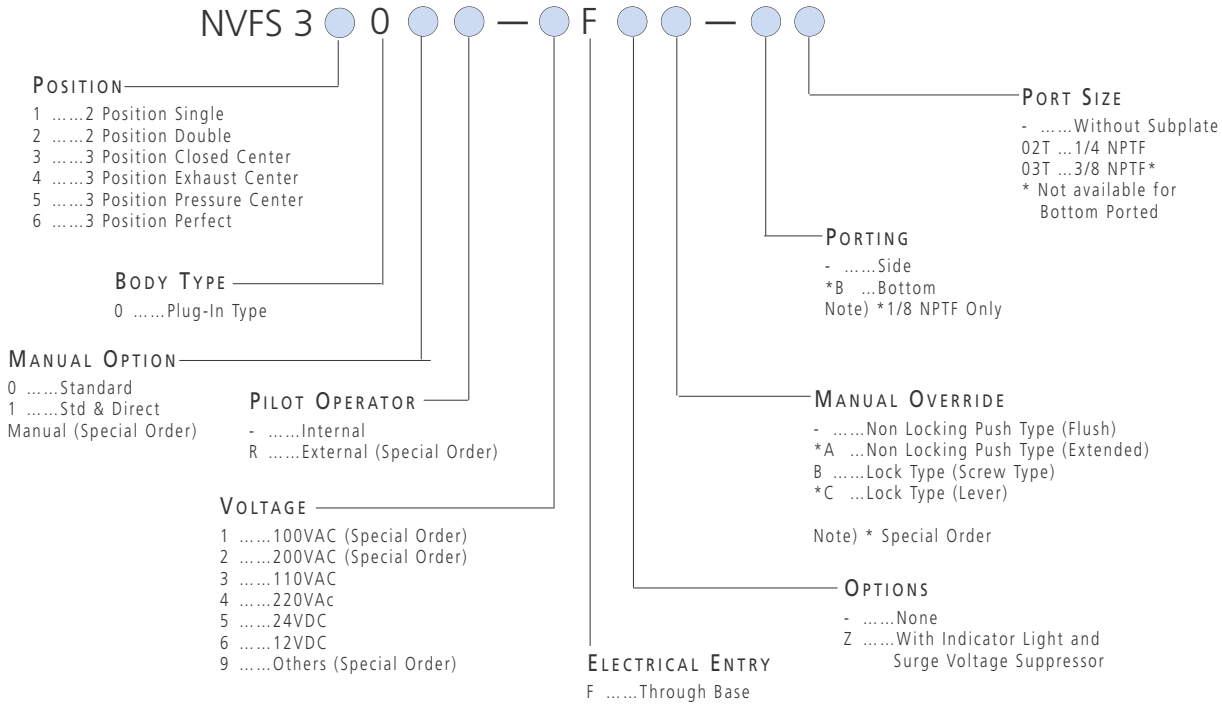
TECHNICAL SPECIFICATIONS STANDARD

	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 Voltage	AC 110VAC50/60Hz, 220V50/60Hz, 24V50/60Hz	
		DC 12V, 24V	
	Allowable Voltage Range	-15 ~ 10% Rated Voltage	
	Coil Insulation	Class B or Equivalent	
	Apparent Power AC (Power Consumption)	InRush	5.0VA/60Hz, 5.6VA/50Hz
		Holding	2.3VA(1.5W)/60Hz, 3.4VA(2.1W)/50Hz
	Power Consumption DC	1.8W	
Electrical Entry	Plug In	Conduit Terminal (Base Access)	

TECHNICAL SPECIFICATIONS OPTIONAL

Pilot Type	External Pilot Type	
Manual Override	Main Valve	Direct Manual Override Type
	Pilot Operator	Non Locking Push Type (Extended), Lock Type (Tool), Lock Type (Lever)
Voltage	AC	100V50/60Hz, 200V50/60Hz
	DC	6V, 48V, 100V
Porting	Bottom Ported Subplate	
Option	W/Indicator Light & Surge Voltage Suppressor	

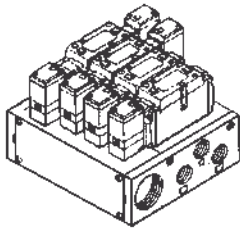
HOW TO
ORDER
NVFS3000



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.



NV5FS3-01T-061-02T

Series NVFS3000
Manifold valve

Plug-in type
With terminal block

Stations

02	2 stations
⋮	⋮
10	10 stations

Port size

Symbol	A, B
02T	1/4NPTF
03T	3/8NPTF

● Bottom ported 1/4NPTF only.

Porting Symbol

Symbol	Port specifications		Porting Specifications (A,B)
	P	EA, EB	
1	Common	Common	Side
*2			Bottom (Option)
	Mixed		

*: Special Order.

HOW TO
ORDER

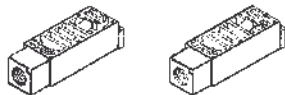
MANIFOLD / OPTION PARTS ASSEMBLY

Manifold/Option Parts

SUP Relocation spacer

An individual SUP spacer on manifold block can form individual P port for the valve.

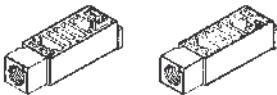
Body type	Plug-in type
Part No.	NVFS3000-P-03T-1



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.	NVFS3000-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.

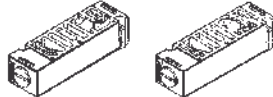
Body type	Plug-in type
Part No.	AXT636-1A



Interface Speed Control

Needle valve on the manifold block can control cylinder speed by throttling exhaust.

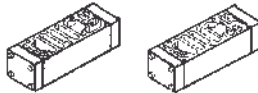
Body type	Plug-in type
Part No.	NVFS3000-20A-1



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 seats.

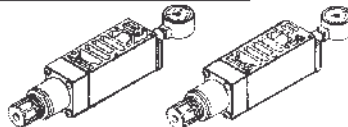
Body type	Plug-in type
Part No.	NVFS3000-22A-1



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-NO-P-1
Pressure regulation A	NARBF3000-NO-A-1
Pressure regulation B	NARBF3000-NO-B-1



Blank plate

When disassembling valve for maintenance purposes or when spare manifold stations are required, install Blank plate on the manifold block.

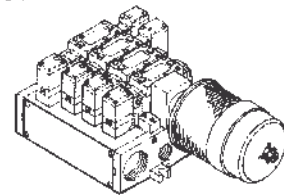
Body type	Plug-in type
Part No.	VVFS3000-10 A

Manifold Options

Exhaust Cleaner Unit

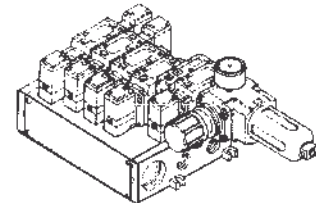
Plug-in type

- 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.

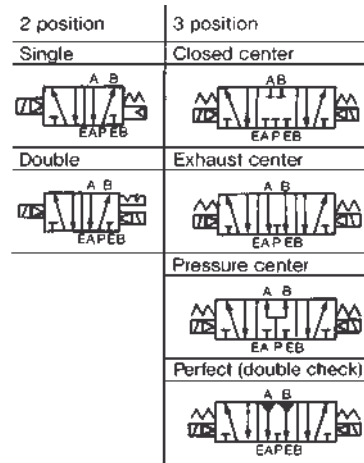


For more information, refer to catalog N233

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	
2 Position	Double	NVFS4200	3/8	3.3	15 or less
			1/2	3.6	
3 Position	Closed Center	NVFS4300	3/8	2.8	50 or less
			1/2	3	
	Exhaust Center	NVFS4400	3/8	2.8	50 or less
			1/2	3	
	Pressure Center	NVFS4500	3/8	3.2	50 or less
			1/2	3.4	
	Perfect (Double Check)	NVFS4600	3/8	1.7	55 or less
1/2			1.8		

SYMBOLS



TECHNICAL SPECIFICATIONS STANDARD

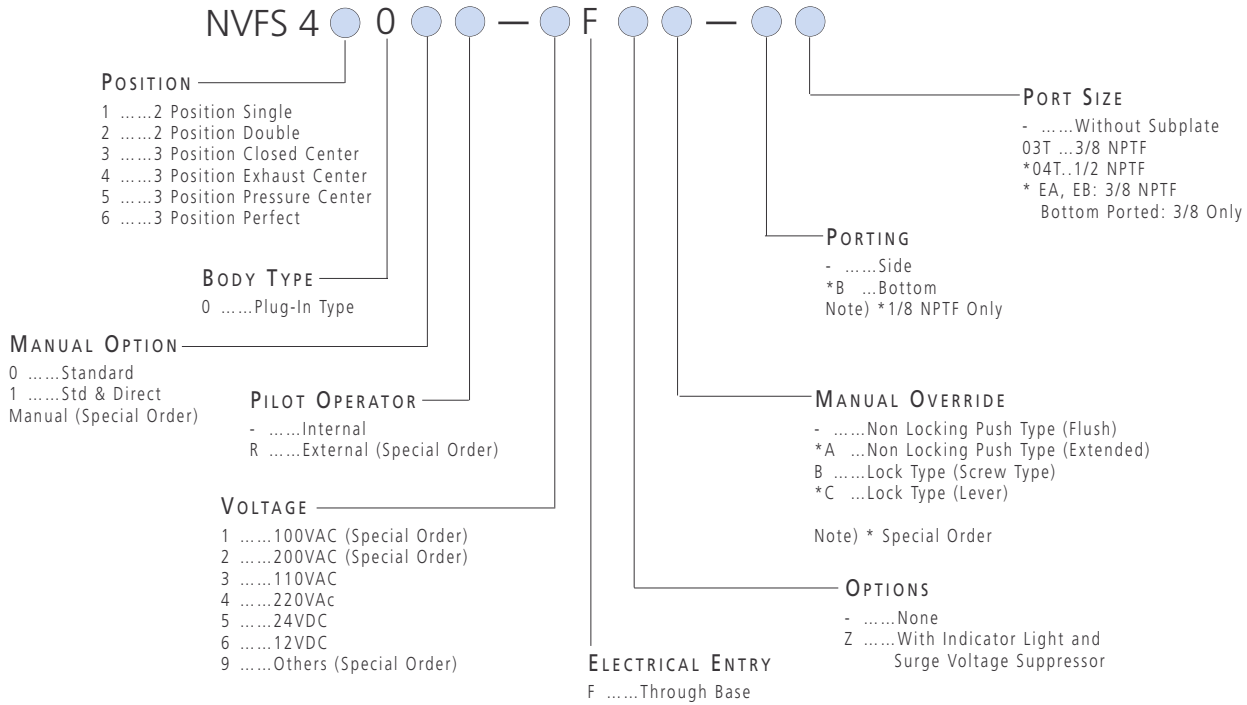
	Fluid	Air and Inert Gas	
Valve	Max Operating Pressure	150 PSI (1MPa)	
	Min Operating Pressure	2 Position	15 PSI (0.1MPa)
		3 Position	22 PSI (0.15MPa)
	Ambient & Fluid Temperature	Note 1) 14~140°F (-10~60°C)	
	Lubrication	Note 2) Not Required	
	Pilot Operator Manual Override	Non Locking Push Type (Flush)	
Electrical	Protection Construction	Dust Proof	
	Rated Voltage	AC	110VAC50/60Hz, 220V50/60Hz, 24V50/60Hz
		DC	12V, 24V
	Allowable Voltage Range	-15 ~ 10% Rated Voltage	
	Coil Insulation	Class B or Equivalent	
		Apparent Power AC (Power Consumption)	InRush	5.0VA/60Hz, 5.6VA/50Hz
		Holding	2.3VA(1.5W)/60Hz, 3.4VA(2.1W)/50Hz
	Power Consumption DC	1.8W	
Electrical Entry	Plug In	Conduit Terminal (Base Access)	

Note 1) Use Dry Air at Low Temperature
 Note 2) Use Turbine Oil No 1 (ISOVG32), if lubricated

TECHNICAL SPECIFICATIONS OPTIONAL

Pilot Type		External Pilot Type
Manual Override	Main Valve	Direct Manual Override Type
	Pilot Operator	Non Locking Push Type (Extended), Lock Type (Tool), Lock Type (Lever)
Voltage	AC	100V50/60Hz, 200V50/60Hz
	DC	6V, 48V, 100V
Porting	Bottom Ported Subplate	
Option	W/Indicator Light & Surge Voltage Suppressor	

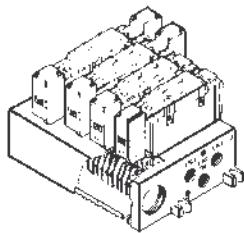
**HOW TO
ORDER
NVFS4000**



**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.



NV5FS4-01T-061-03T

Series NVFS4000
Manifold valve

Plug-in type
With terminal block

Stations

02	2 stations
⋮	⋮
10	10 stations

Port size

Suffix	P, EA, EB	A, B
03T		3/8 NPTF
04T	1/2 NPTF	1/2 NPTF

* Bottom ported 3/8NPTF only.

Symbol

Suffix	Port specifications		Porting specifications (A,B)
	P	EA, EB	
1	Common	Common	Side
* 2	Common	Common	*Bottom
	Mixed		

* Special order.

**HOW TO
ORDER**

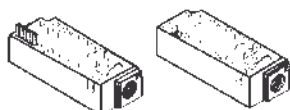
MANIFOLD / OPTION PARTS ASSEMBLY

Manifold / Option Parts

SUP Relocation spacer

An individual SUP spacer on manifold block can form individual P port for the valve.

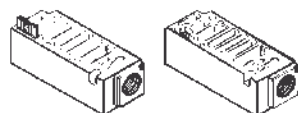
Body type	Plug-in type
Part No.	NVVFS4000-P-03T-1



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

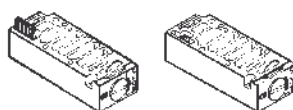


EXH block disc

Interface speed control

Needle valve on the manifold block can control cylinder speed by throttling exhaust.

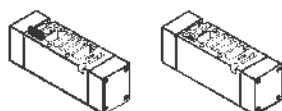
Body type	Plug-in type
Part No.	NVVFS4000-20A-1



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.

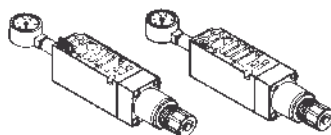
Body type	Plug-in type
Part No.	NVVFS4000-22A-1



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.

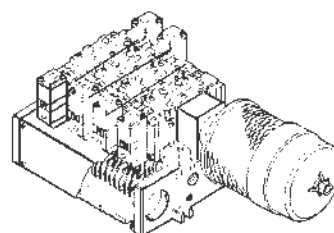
Body type	Plug-in type
Part No.	VVFS4000-10A

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.

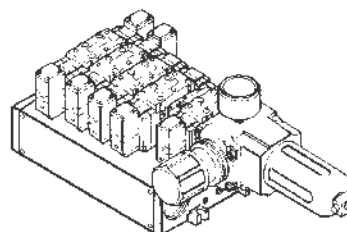


For more information,
refer to catalog N233

With Control Unit

Plug-in type

- Filter/Regulator, Pressure Switch, and Air shutoff valve all combine to form one unit.
- Piping work eliminated.

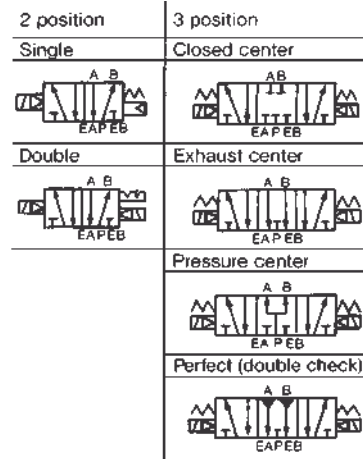


For more information,
refer to catalog N233

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	
2 Position	Double	NVFS5200	3/8	4.4	25 or less
			1/2	5.4	
			3/4	5.7	
3 Position	Closed Center	NVFS5300	3/8	3.7	55 or less
			1/2	4.6	
			3/4	4.8	
	Exhaust Center	NVFS5400	3/8	3.9	55 or less
			1/2	4.8	
			3/4	5	
Pressure Center	NVFS5500	3/8	3.9	55 or less	
		1/2	4.8		
		3/4	4.9		
Perfect (Double Check)	NVFS5600	3/8	2.2	60 or less	
		1/2	2.7		
		3/4	2.8		

SYMBOLS



TECHNICAL SPECIFICATIONS STANDARD

	Fluid	Air and Inert Gas	
Valve	Max Operating Pressure	150 PSI (1MPa)	
	Min Operating Pressure	15 PSI (0.15MPa)	
	Ambient & Fluid Temperature	Note 1) 14~140°F (-10~60°C)	
	Lubrication	Note 2) Not Required	
	Pilot Operator Manual Override	Non Locking Push Type (Flush)	
	Protection Construction	Dust Proof	
Electrical	Rated Voltage	AC 110VAC50/60Hz, 220V50/60Hz, 24V50/60Hz	
		DC 12V, 24V	
	Allowable Voltage Range	-15 ~ 10% Rated Voltage	
	Coil Insulation	Class B or Equivalent	
	Apparent Power AC (Power Consumption)	InRush	5.0VA/60Hz, 5.6VA/50Hz
		Holding	2.3VA(1.5W)/60Hz, 3.4VA(2.1W)/50Hz
	Power Consumption DC	1.8W	
Electrical Entry	Plug In	Conduit Terminal (Base Access)	

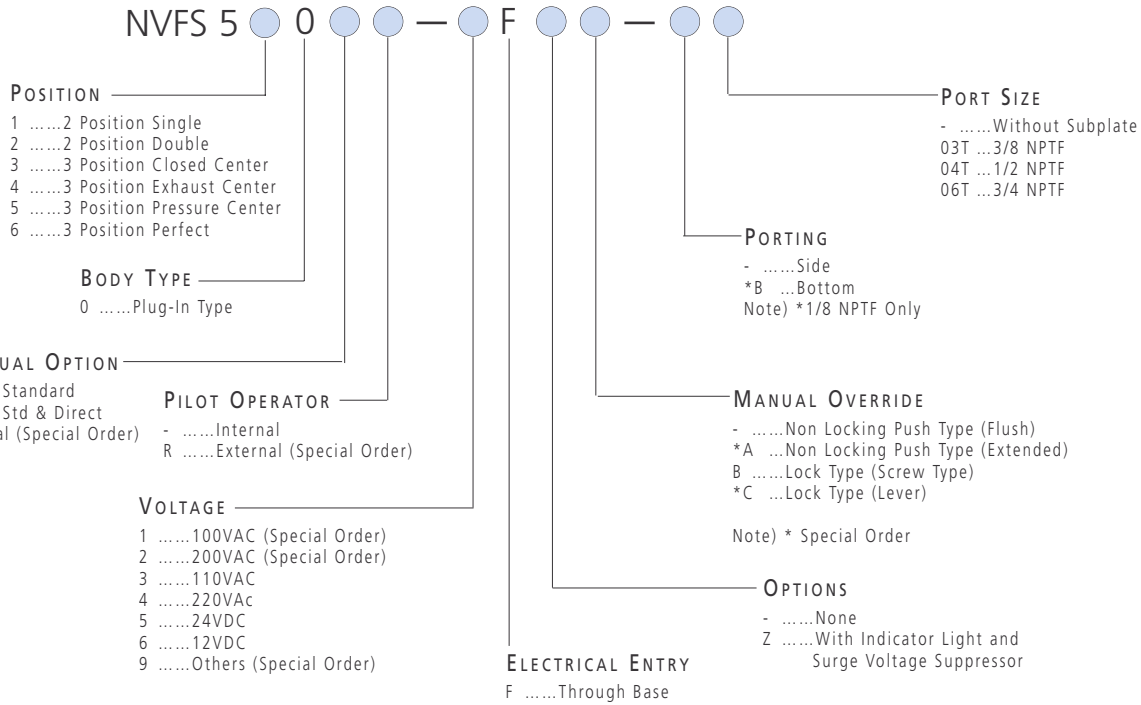
TECHNICAL SPECIFICATIONS OPTIONAL

	Pilot Type	External Pilot Type
Manual Override	Main Valve	Direct Manual Override Type
	Pilot Operator	Non Locking Push Type (Extended), Lock Type (Tool), Lock Type (Lever)
Voltage	AC	100V50/60Hz, 200V50/60Hz
	DC	6V, 48V, 100V
Porting		Bottom Ported Subplate
Option		W/Indicator Light & Surge Voltage Suppressor

Note 1) Use Dry Air at Low Temperature

Note 2) Use Turbine Oil No 1 (ISOVG32), if lubricated

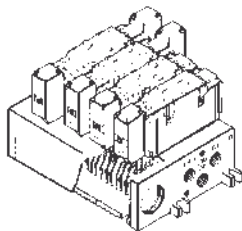
How To
ORDER
NVFS5000



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.



NV5FS5 - 01T - 06 1 04T

- Series NVFS5000 Manifold valve
- Plug-in type With terminal block
- Stations
- Port size
- Symbol

Suffix	Port specifications	Porting specifications (A, B)
P	EA, EB	
1	Common	Side
*2	Common	* Bottom
	Mixed	

Suffix	P, EA, EB	A, B
04T	3/4 NPTF	1/2 NPTF
06T	3/4 NPTF	3/4 NPTF

† Bottom ported 1/2NPTF only.

*Special order

HOW TO
ORDER

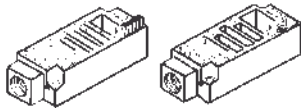
MANIFOLD / OPTION PARTS ASSEMBLY

Manifold / Option Part's Ass'y

SUP Relocation spacer

An individual SUP spacer on manifold block can form individual P port for the valve.

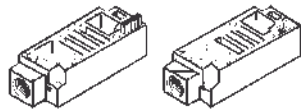
Body type	Plug-in type
Part No.	NVVFS5000-P-04T-1



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

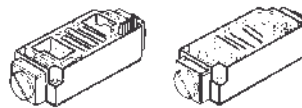


EXH block disc

Interface speed control

Needle valve on the manifold block can control cylinder speed by throttling exhaust.

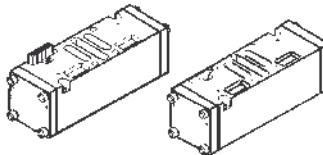
Body type	Plug-in type
Part No.	NVVFS5000-20A-1



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.

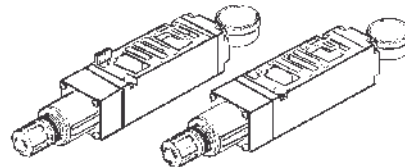
Body type	Plug-in type
Part No.	NVVFS5000-22A-1



Interface regulator

Spacer type regulating valve on manifold block can regulate the pressure to the valve.

Body type	Plug-in type
Pressure Regulation P	NARBF5000-NO-P-1
Pressure Regulation A	NARBF5000-NO-A-1
Pressure Regulation B	NARBF5000-NO-B-1



Blank plate

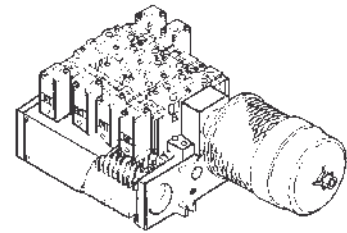
When disassembling valve for maintenance purposes or when spare manifold stations are required, install Blank plate on the manifold block.

Body type	Plug-in type
Part No.	VVFS5000-10A

Manifold Options

With Exhaust Cleaner Plug-in type

- Valve exhaust noise damping: 35dB or more.
- Oil mist collection: Rate of collection 99.9% or more.
- Piping process reduced.



For more information, Please refer to catalog N233

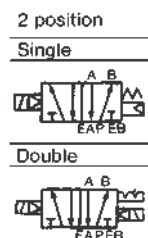
MODEL
NVFS6000

Position	Number Of Solenoid	Type Plug-In	Port Size (NPTF)	Cv Factor	Response Time (ms)
2 Position	Single	NVFS6100	3/4"	9	60 or less
			1"	10	
	Double	NVFS6200	3/4"	9	60 or less
			1"	10	

TECHNICAL SPECIFICATIONS STANDARD

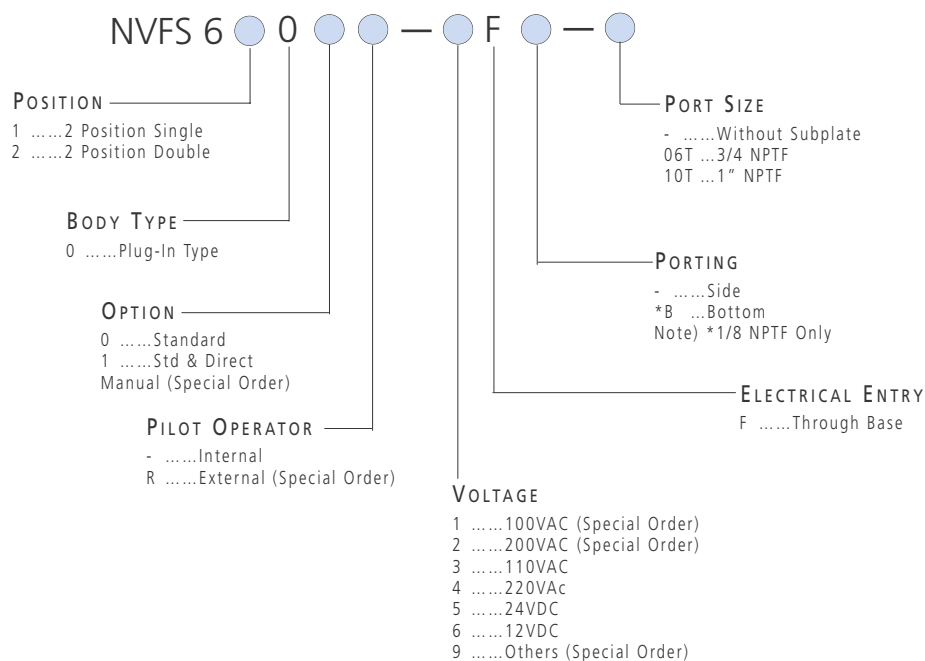
Valve	Fluid	Air and Inert Gas
	Max Operating Pressure	145 PSI (1.2MPa)
	Min Operating Pressure	15 PSI (0.1MPa)
	Proof Pressure	220PSI (1.5MPa)
	Ambient & Fluid Temperature	14~140°F (-10~60°C)
	Lubrication	Not Required
	Pilot Operator Manual	Non Locking Push Type (Flush)
Electrical	Override	Dust Proof
	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 (Power Consumption) Holding	2.3VA(1.5W)/60Hz, 3.4VA(2.1W)/50Hz 1.8W
	Power Consumption DC	Conduit Terminal
	Electrical Entry	With Indicator Light and Surge
	Option	Voltage Suppressor (FZ Style)

SYMBOLS



FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE CONSULT SMC CUSTOMER SERVICE

HOW TO ORDER
NVFS6000

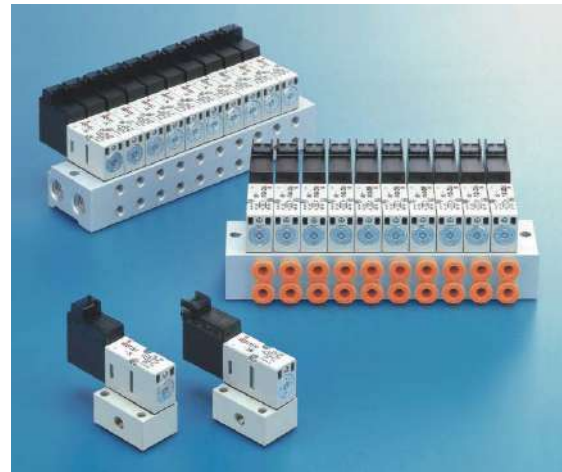


4 PORT DIRECT OPERATED POPPET SOLENOID VALVE SERIES VQD1000

- ✓ 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 VQD1000

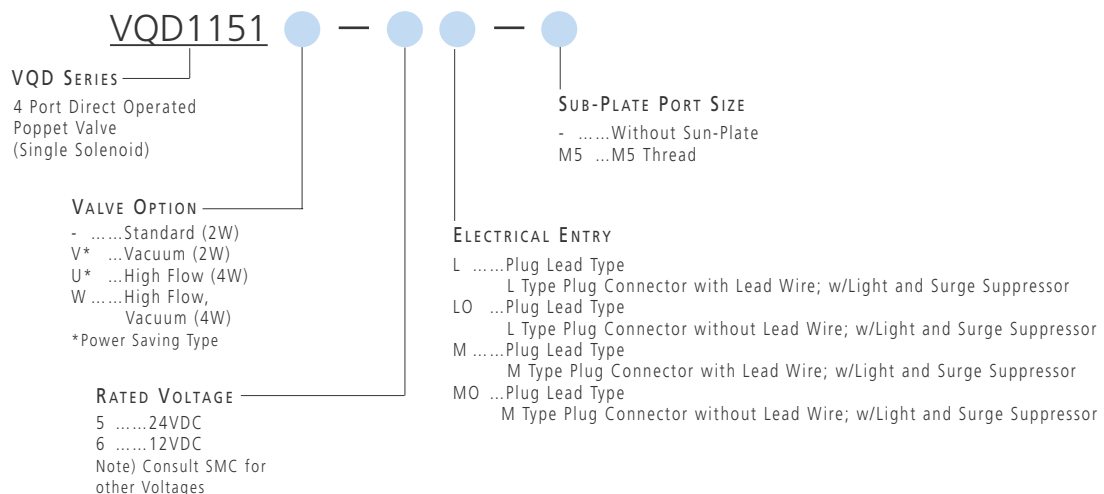
Valve Specifications	Standard Type (2W)	High Flow Capacity (4W Power Saving Type)
Valve Structure	4 Port Direct Operated Poppet Valve	
Fluid	Air, Inert Gas	
Max Operating Pressure	0.7MPa (7.1kgf/cm ²)	
Min Operating Pressure/Vacuum	0MPa / 10 Torr	
Effective Area (Cv Factor)	0.9mm ² (Cv 0.05)	1.5mm ² (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)	



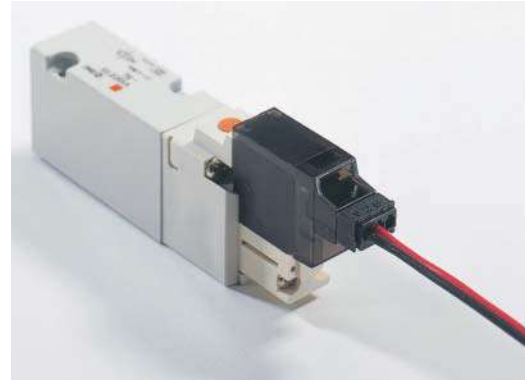
NOTES :

- 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

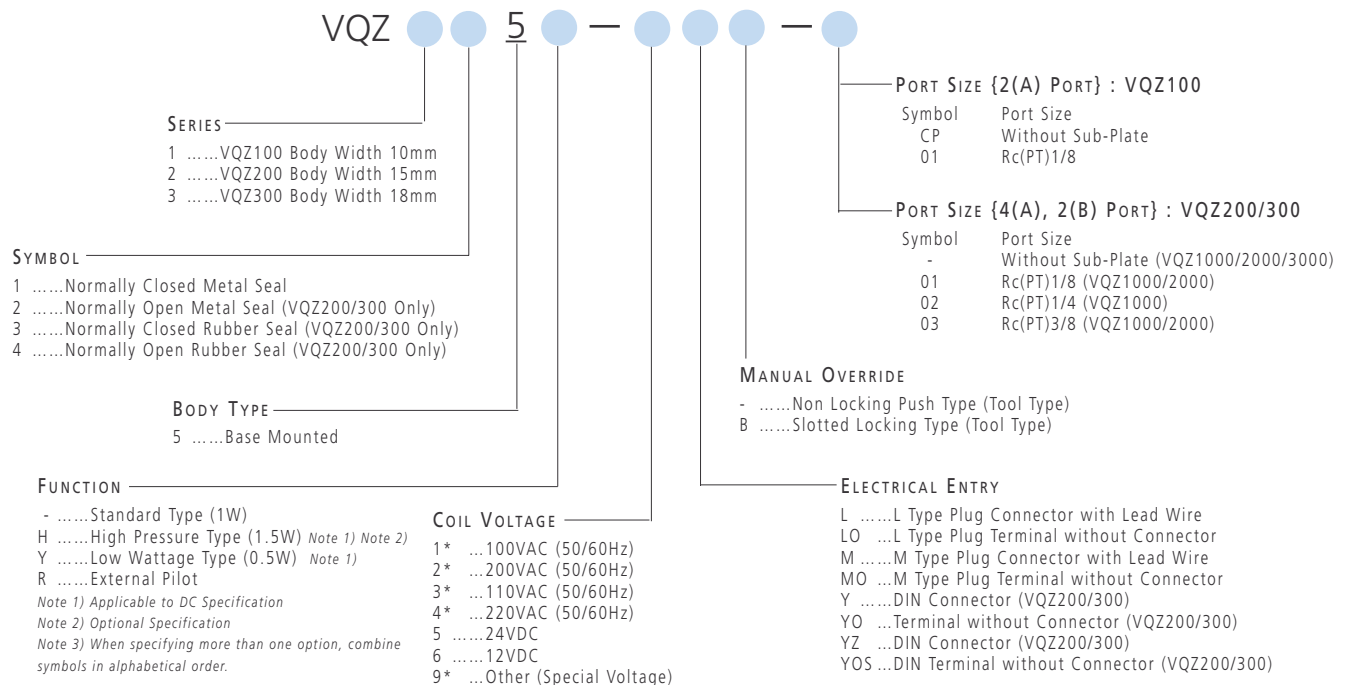
SERIES VQZ100/200/300

Valve Specifications		Metal Seal	Rubber Seal
Type Of Seal		Air, Inert Gas	Air, Inert Gas
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	
Solenoid Specifications			
Coil Rated Voltage		12, 24VDC and 100, 110, 200, 220VAC	
Allowable Voltage		±10% of Rated Voltage	
Coil Insulation		Class B	
Power	24VDC	1WDC (42mA), 1.5WDC (63mA), 0.5WDC (21mA)	
	12VDC	1WDC (83mA), 1.5WDC (125mA), 0.5WDC (42mA)	
	100VAC	Inrush 1.2VA (12mA), Holding 1.2VA (12mA)	
	110VAC	Inrush 1.3VA (11.7mA), Holding 1.3VA (11.7mA)	
	(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

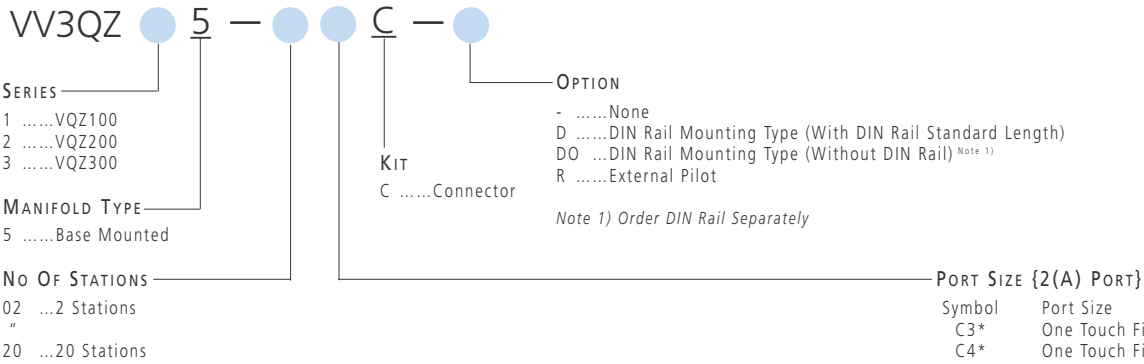
Series	Valve Construction	Type	Effective Area mm ² (Cv) ^{Note 1)}	Response Time ms		Weight ^{Note 2)}
				Standard: 1W High Pressure: 1.5W	Low Wattage and AC	
VQZ100	Normally Closed	Poppet VQZ115	5.4 (0.3)	10 or less	13 or less	25
VQZ200	Normally Closed	Metal VQZ215	10.8 (0.6)	14 or less	18 or less	53
	Normally Closed	Rubber VQZ235	12.6 (0.7)	15 or less	20 or less	53
	Normally Open	Metal VQZ225	10 (0.55)	14 or less	18 or less	53
	Normally Open	Rubber VQZ245	12.6 (0.7)	15 or less	20 or less	53
VQZ300	Normally Closed	Metal VQZ315	16.2 (0.9)	17 or less	22 or less	77
	Normally Closed	Rubber VQZ335	21.6 (1.2)	25 or less	33 or less	77
	Normally Open	Metal VQZ325	15.3 (0.85)	17 or less	22 or less	77
	Normally Open	Rubber VQZ345	21.6 (1.2)	25 or less	33 or less	77

Note 1)
Value for
Sub-Plate
and
Maximum
Diameter

Note 2)
Weight
without
Sub-Plate

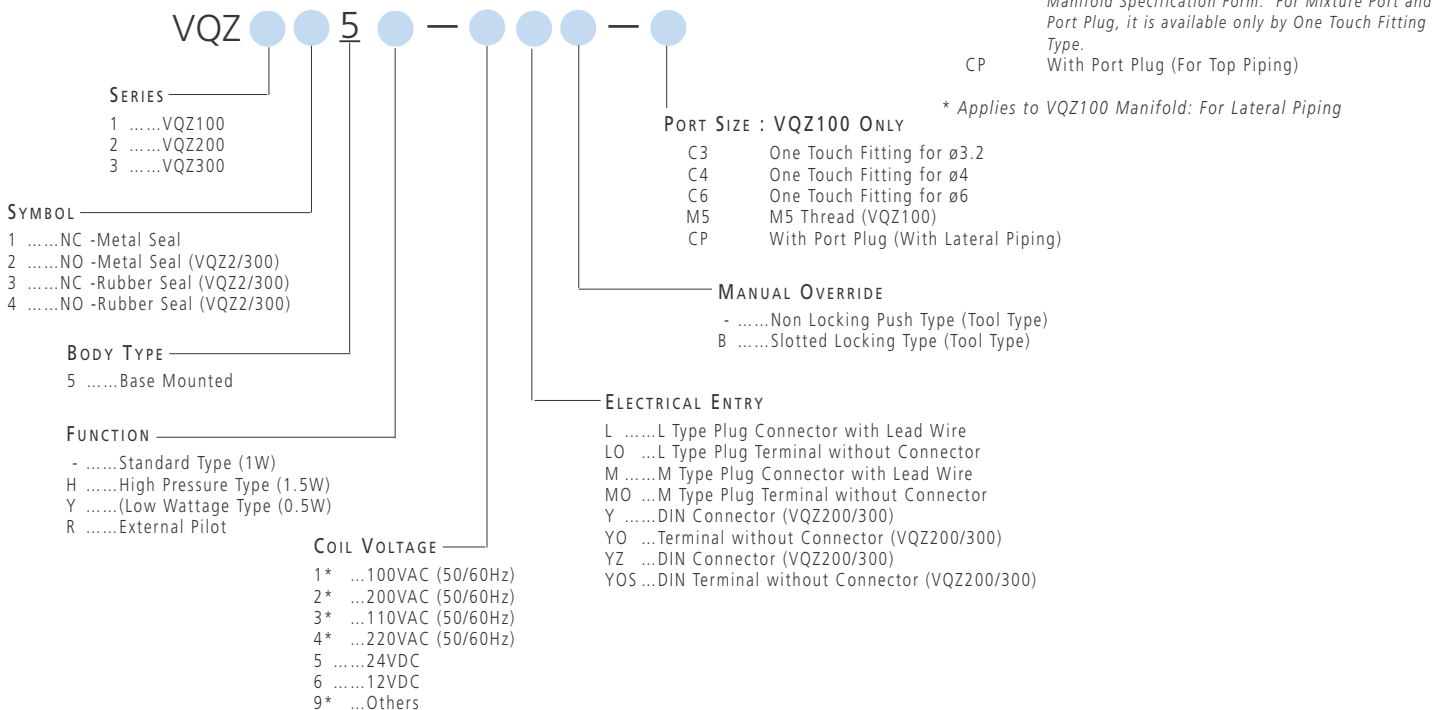
HOW TO ORDER

SERIES VQZ100/200/300 BASE MOUNTED PLUG LEAD TYPE MANIFOLD



HOW TO ORDER

SERIES VQZ100/200/300 BASE MOUNTED PLUG LEAD TYPE VALVE

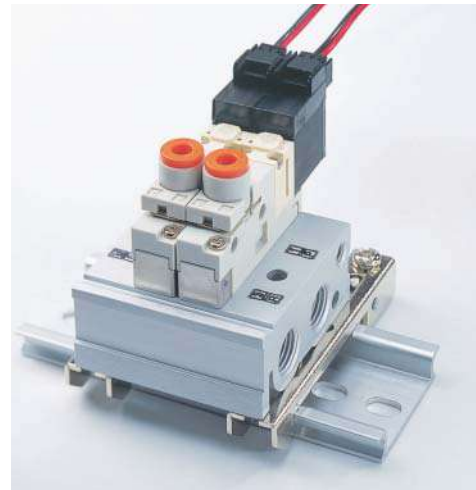


**3 PORT SOLENOID VALVE
 BODY PORTED / PLUG LEAD TYPE
 SERIES VQZ100/200/300**

**TECHNICAL
 SPECIFICATIONS**

SERIES VQZ100/200/300

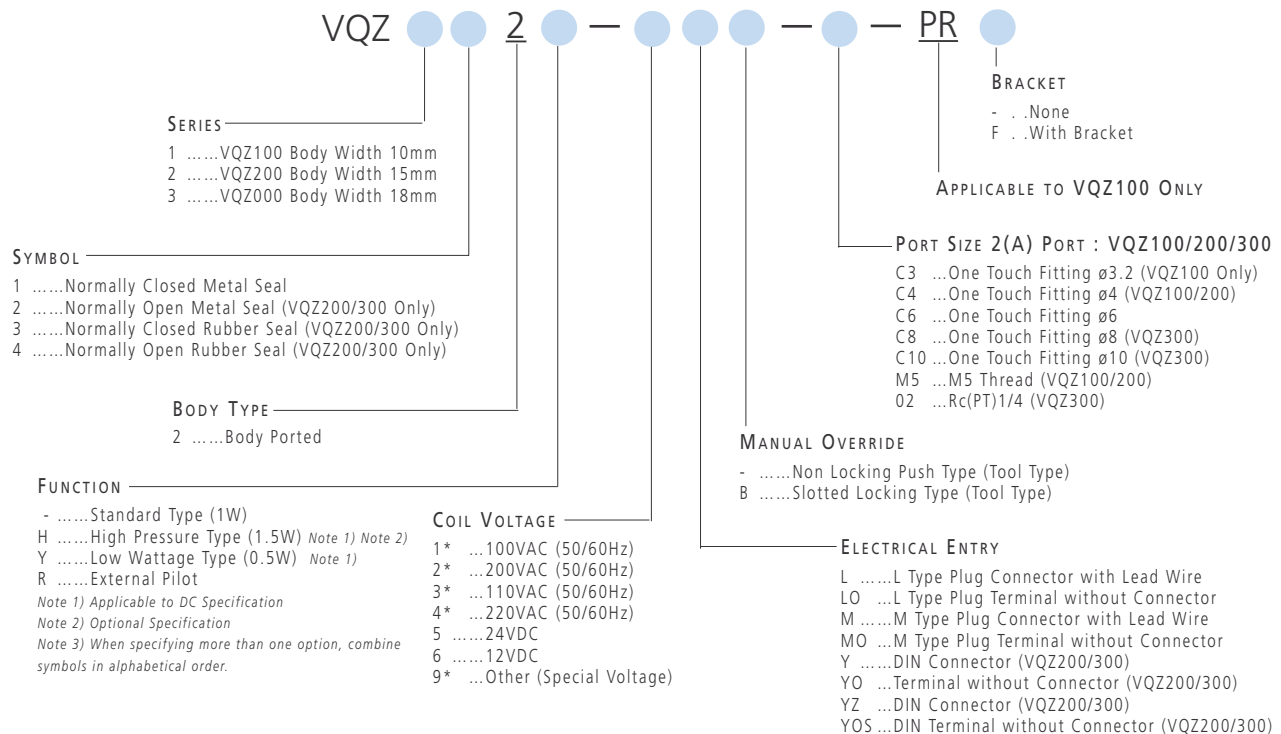
Valve Specifications		Metal Seal	Rubber Seal
Type Of Seal		Air, Inert Gas	Air, Inert Gas
Fluid		Air, Inert Gas	Air, Inert Gas
Maximum Operating Pressure		0.7MPa / 102PSI (High Pressure Type 0.8MPa / 116PSI)	
Minimum Operating Pressure		0.1MPa / 14.5PSI	0.15MPa / 22PSI
Ambient & Fluid Temperature		-10° 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	
Solenoid Specifications			
Coil Rated Voltage		12, 24VDC and 100, 110, 200, 220VAC	
Allowable Voltage		±10% of Rated Voltage	
Coil Insulation		Class B	
Power	24VDC	1WDC (42mA), 1.5WDC (63mA), 0.5WDC (21mA)	
	12VDC	1WDC (83mA), 1.5WDC (125mA), 0.5WDC (42mA)	
	100VAC	Inrush 1.2VA (12mA), Holding 1.2VA (12mA)	
	110VAC	Inrush 1.3VA (11.7mA), Holding 1.3VA (11.7mA)	
	200VAC	Inrush 2.4VA (12mA), Holding 2.4VA (12mA)	
	220VAC	Inrush 2.6VA (11.7mA), Holding 2.6VA (11.7mA)	



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



SERIES VQZ100/200/300 BODY PORTED

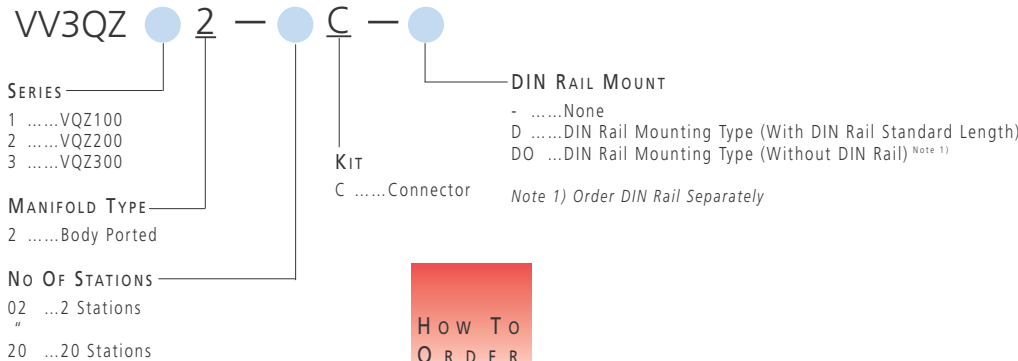
MODEL
SERIES VQZ100/200/300

Series	Valve Construction	Type	Effective Area mm ² (Cv) ^{Note 1)}	Response Time ms		Weight ^{Note 2)}
				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	25
VQZ200	Normally Closed	Metal VQZ215	10.8 (0.6)	14 or less	18 or less	53
	Normally Closed	Rubber VQZ235	12.6 (0.7)	15 or less	20 or less	53
	Normally Open	Metal VQZ225	10 (0.55)	14 or less	18 or less	53
	Normally Open	Rubber VQZ245	12.6 (0.7)	15 or less	20 or less	53
VQZ300	Normally Closed	Metal VQZ315	16.2 (0.9)	17 or less	22 or less	77
	Normally Closed	Rubber VQZ335	21.6 (1.2)	25 or less	33 or less	77
	Normally Open	Metal VQZ325	15.3 (0.85)	17 or less	22 or less	77
	Normally Open	Rubber VQZ345	21.6 (1.2)	25 or less	33 or less	77

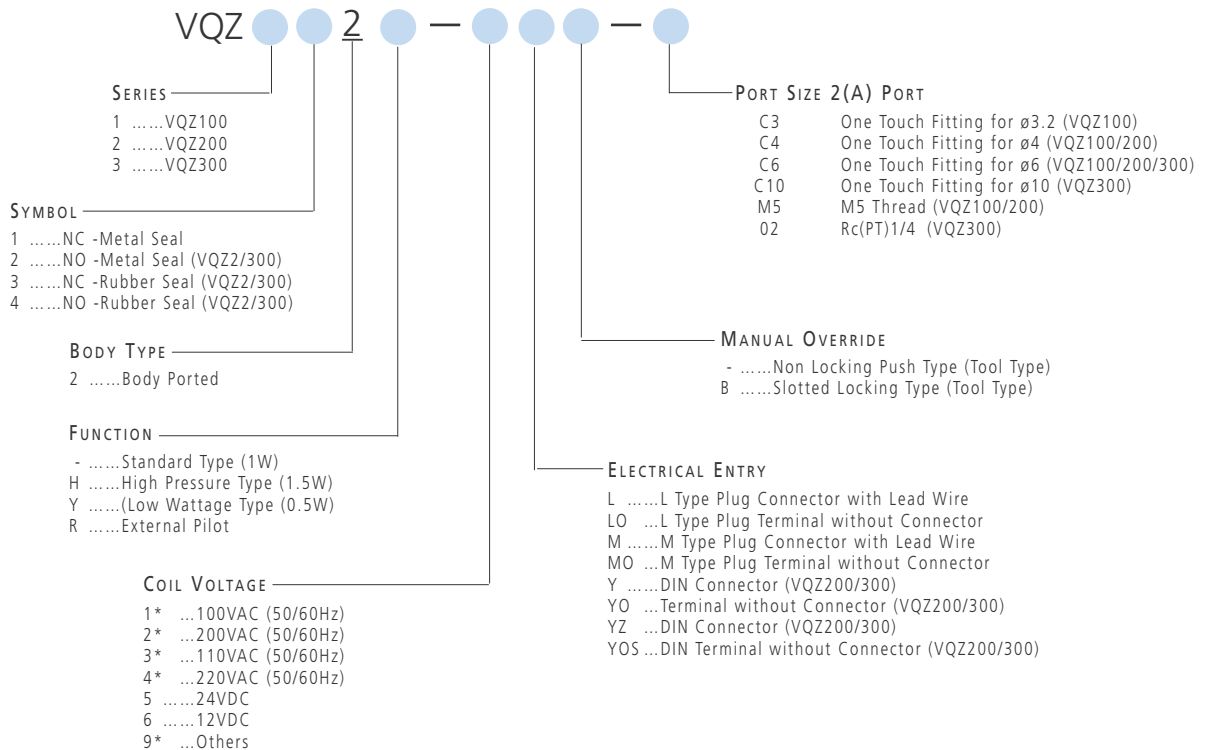
Note 1)
Value for
Sub-Plate
and
Maximum
Diameter

Note 2)
Weight
without
Sub-Plate

HOW TO ORDER
SERIES VQZ100/200/300 BODY PORTED PLUG LEAD TYPE MANIFOLD

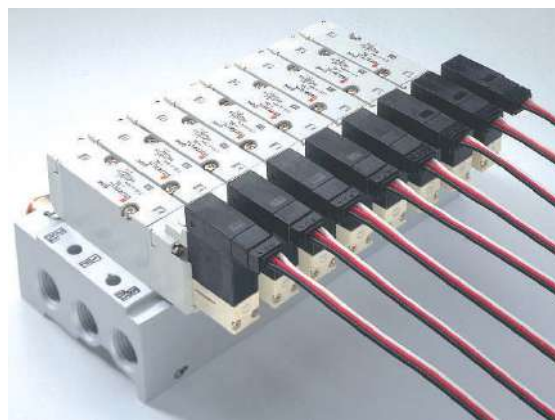


HOW TO ORDER
SERIES VQZ100/200/300 BODY PORTED PLUG LEAD TYPE VALVE



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

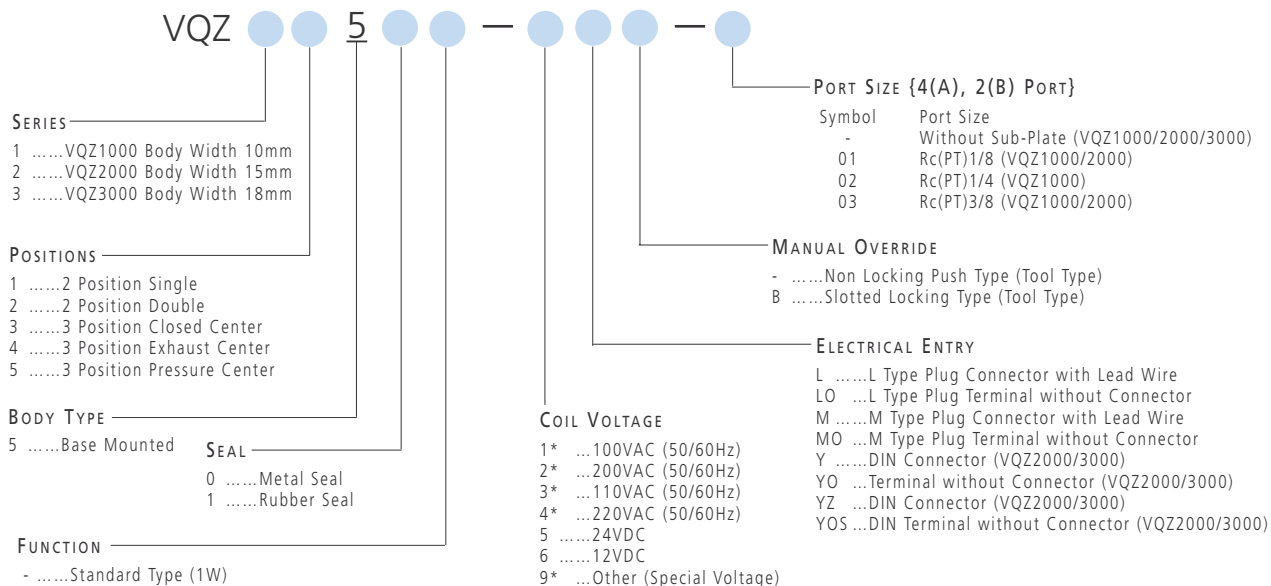
FOR FURTHER TECHNICAL INFORMATION ON SERIES VQZ1000 / 2000 / 3000, PLEASE REFER TO CAT:E146 OR CONTACT YOUR LOCAL SMC REPRESENTATIVE.

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	Single (2 Pos)	0.10MPa / 14.5PSI	0.15MPa / 22PSI
Operating Pressure	Double (2 Pos)	Only for VQZ3000 / 3 Pos	0.10MPa / 14.5PSI
	3 Position	0.15MPa / 22PSI	0.20MPa / 29PSI
Ambient & Fluid Temperature		-10° to 50°C / 14 to 122°F	-10° to 50°C / 14 to 122°F
Max Operating Pressure	2 Position S & D	20Hz	5Hz
	3 Position	10Hz	3Hz
Proof Pressure		1.5MPa / 218PSI	
Lubrication		Not Required	
Manual Override		Non-Locking Push Type/Slotted Locking Type	
Shock/Vibration Resistance		150/30 m/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	
Power	24VDC	1WDC (42mA), 1.5WDC (63mA), 0.5WDC (21mA)	
	12VDC	1WDC (83mA), 1.5WDC (125mA), 0.5WDC (42mA)	
	100VAC	Inrush 1.2VA (12mA), Holding 1.2VA (12mA)	
	110VAC	Inrush 1.3VA (11.7mA), Holding 1.3VA (11.7mA)	
	(Current Value) 200VAC	Inrush 2.4VA (12mA), Holding 2.4VA (12mA)	
Consumption	220VAC	Inrush 2.6VA (11.7mA), Holding 2.6VA (11.7mA)	

HOW TO ORDER

SERIES VQZ BASE MOUNTED PLUG LEAD TYPE



5 PORT SOLENOID VALVE
BASE MOUNTED /
PLUG LEAD TYPE
SERIES VQZ1000/2000/3000
MANIFOLD / CONNECTOR KIT

TECHNICAL
SPECIFICATIONS

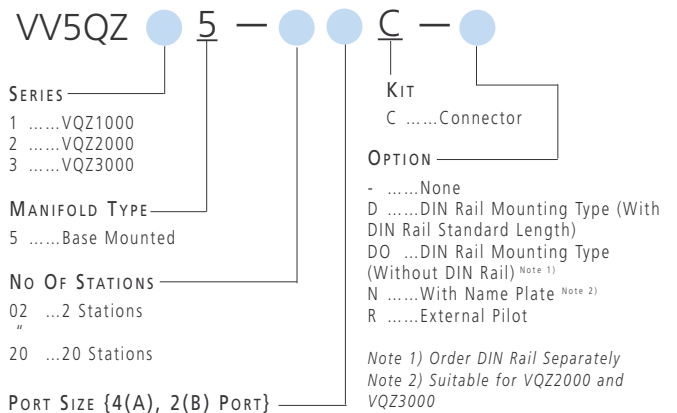
SERIES VQZ1000/2000/3000 MANIFOLD

Series	Base Model	Piping Applications		Applicable Valve	Applicable Stations	Manifold Base ^{Note 1)} Weight g	
		Piping	Port Size				
			1(P), 3/5(R)				4(A), 2(B)
VQZ1000	VV5QZ15-□□□□	In-Line	Rc(PT) 1/8	C3(ø3.2) C4(ø4) C6(ø6) M5(M5Thread)	VQZ1□50 VQZ1□51	2 to 20 Stations 2 Stations: 105 Addition per Station: 27	
VQZ2000	VV5QZ25-□□□□	In-Line	Rc(PT) 1/4	C4(ø4) C6(ø6) C8(ø8) Rc(PT)1/8	VQZ2□50 VQZ2□51	2 to 20 Stations 2 Stations: 105 Addition per Station: 54	
VQZ3000	VV5QZ35-□□□□	In-Line	1(P)Port Rc(PT)3/8 3*5(R)Port Rc(PT)1/4	C6(ø6) C8(ø8) C10(ø10) Rc(PT)1/4	VQZ3□50 VQZ3□51	2 to 20 Stations 2 Stations: 398 Addition per Station: 102	

Note 1)
Threaded
Port
Type

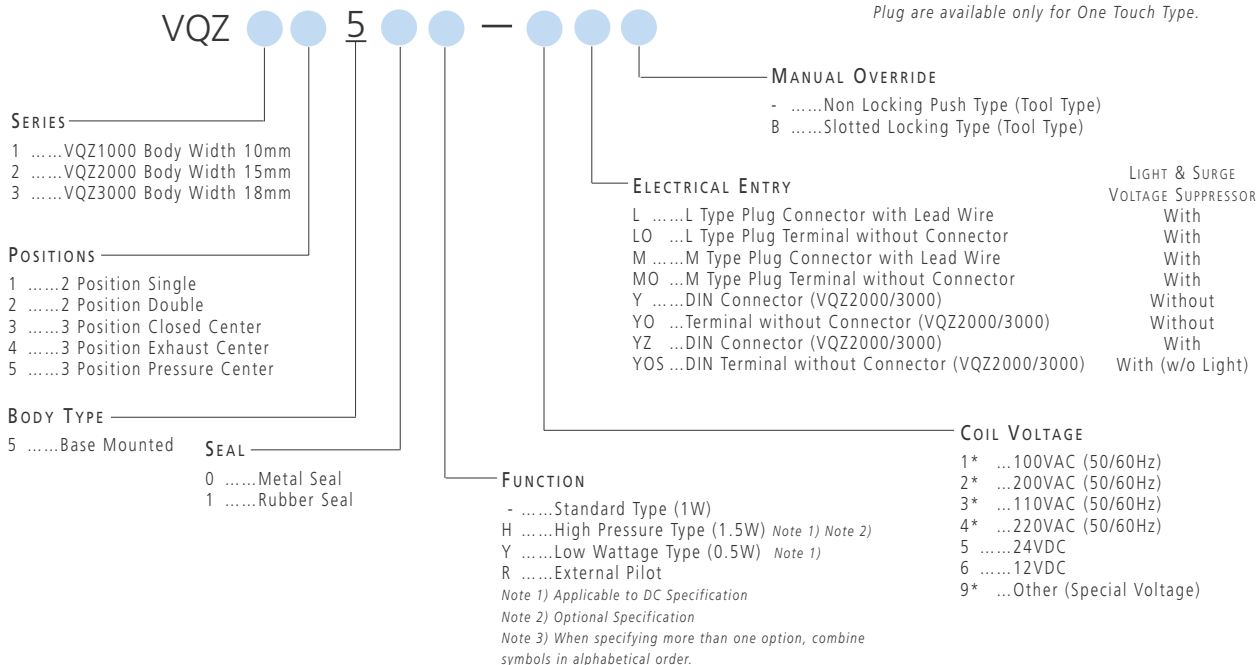
HOW TO
ORDER

SERIES VQZ BASE MOUNTED PLUG LEAD TYPE MANIFOLD



HOW TO
ORDER

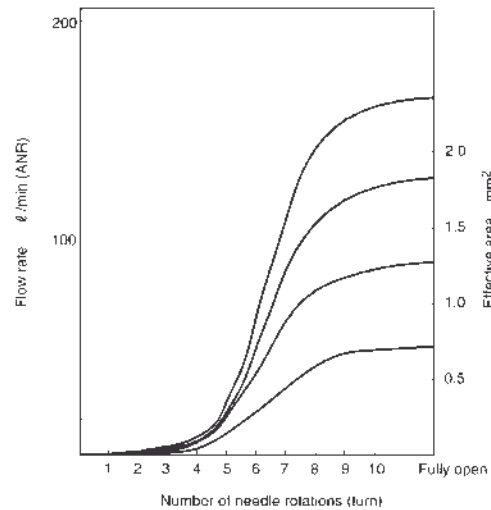
SERIES VQZ BASE MOUNTED PLUG LEAD TYPE VALVE



COMPACT BODY TYPE WITH BUILT-IN SPEED CONTROLLER - FOR VQZ2000 ONLY

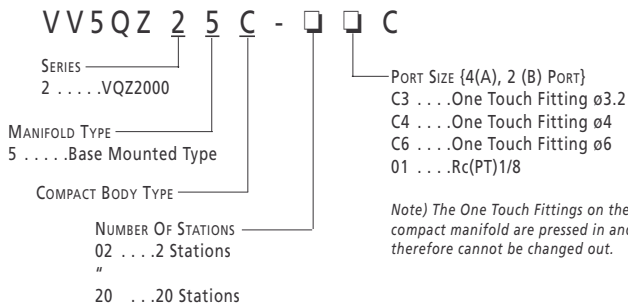
- Speed Controllers are built into the valve body (Rubber Seal Models only), making it easier to adjust cylinder speed.
- Needle valve is equipped with a mechanism to prevent it from being pulled out.

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



FOR ADDITIONAL TECHNICAL INFORMATION ON THIS SERIES, PLEASE CONTACT SMC CUSTOMER SERVICE

MANIFOLD OPTIONS FOR VQZ1000/2000/3000:

- BLANK PLATE ASSEMBLY
- INDIVIDUAL SUP SPACER
- INDIVIDUAL EXH SPACER
- PORT PLUG

MANIFOLD OPTION FOR VQZ2000:

- INTERFACE SPEED CONTROLLER

MANIFOLD OPTION FOR VQZ2000/3000:

- NAMEPLATE (N)

OTHER MANIFOLD OPTIONS FOR SERIES VQZ:

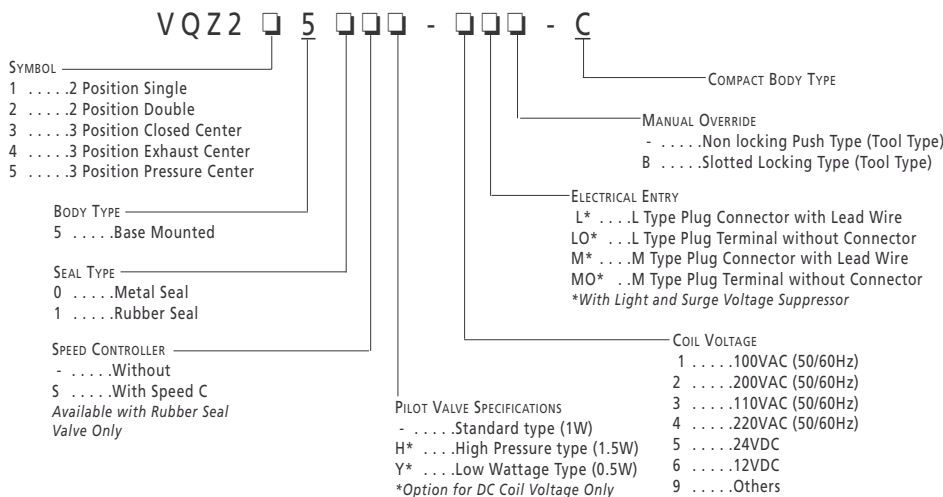
- DIN RAIL
- FITTING BLANK PLUG
- EXH PORT SILENCER
- LATCHING SOLENOID TYPE
- LATCHING TYPE VALVE
- LATCHING TYPE VALVE / MANUAL OVERRIDE

MANIFOLD OPTION PARTS:

- PERFECT CHECK BLOCK
- PERFECT CHECK BLOCK WITH VALVE OR MANIFOLD

HOW TO ORDER

SERIES VQZ VALVE



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

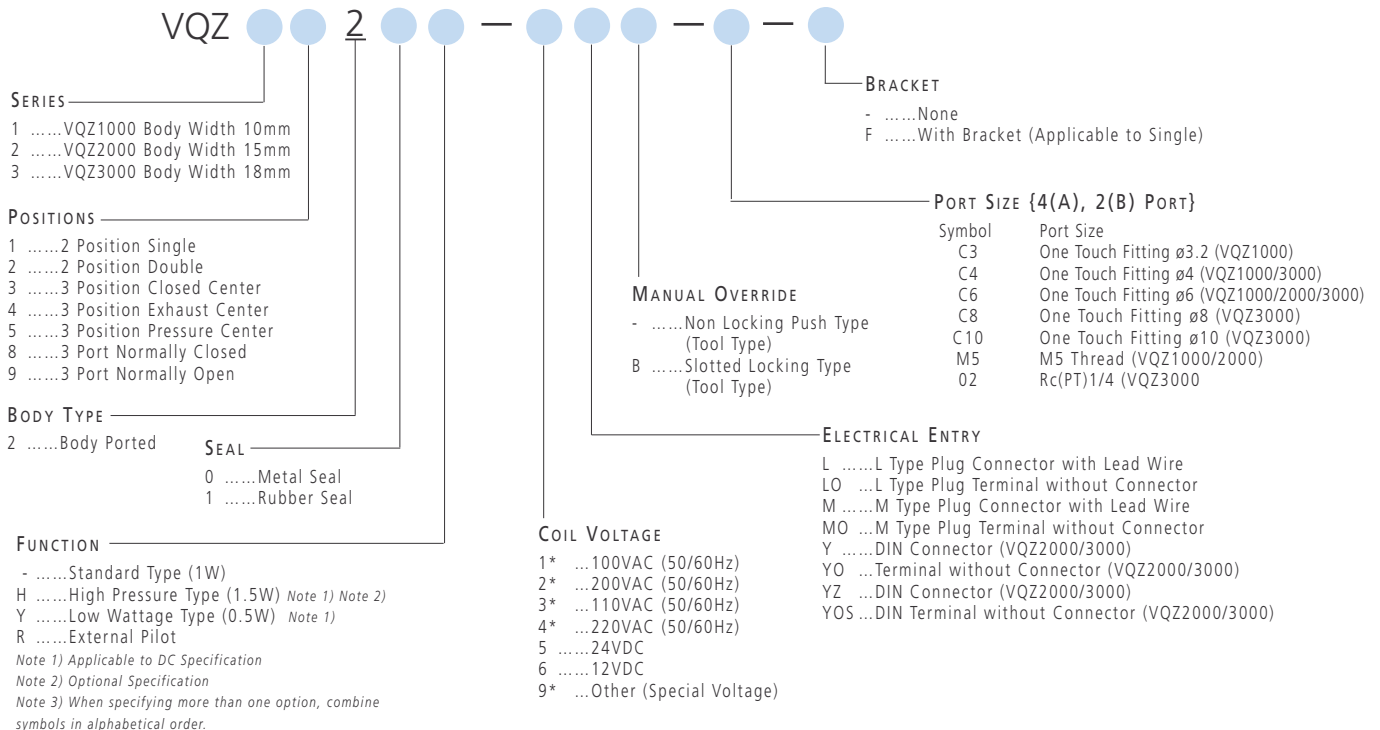
FOR FURTHER TECHNICAL INFORMATION ON SERIES VQZ1000 / 2000 / 3000, PLEASE REFER TO CAT:E147 OR CONTACT YOUR LOCAL SMC REPRESENTATIVE.

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 Single (2 Pos)	0.10MPa	0.15MPa (22PSI)
Operating Double (2 Pos)	Only for VQZ3000 / 3 Pos	
Pressure 3 Position	0.15MPa (22PSI)	0.20MPa (29PSI)
Ambient & Fluid Temperature	-10° to 50°C	
Max Operating 2 Position S & D	20Hz	5Hz
Pressure 3 Position	10Hz	3Hz
Proof Pressure	1.5MPa	
Lubrication	Not Required	
Manual Override	Non-Locking Push Type/Slotted Locking Type	
Shock/Vibration Resistance	150/30 m/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	
Solenoid Specifications	24VDC	1WDC (42mA), 1.5WDC (63mA), 0.5WDC (21mA)
	12VDC	1WDC (83mA), 1.5WDC (125mA), 0.5WDC (42mA)
	100VAC	Inrush 1.2VA (12mA), Holding 1.2VA (12mA)
	110VAC	Inrush 1.3VA (11.7mA), Holding 1.3VA (11.7mA)
	(Current Value) 200VAC	Inrush 2.4VA (12mA), Holding 2.4VA (12mA)
220VAC	Inrush 2.6VA (11.7mA), Holding 2.6VA (11.7mA)	

HOW TO ORDER

SERIES VQZ BODY PORTED PLUG LEAD TYPE



**5 PORT SOLENOID VALVE
 BODY PORTED /
 PLUG LEAD TYPE
 SERIES VQZ1000/2000/3000
 MANIFOLD / CONNECTOR KIT**

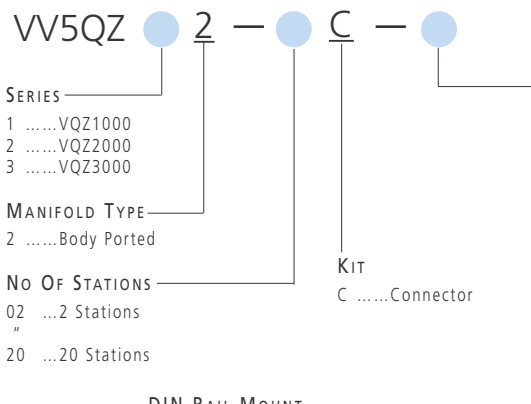
**TECHNICAL
 SPECIFICATIONS**

SERIES VQZ1000/2000/3000 MANIFOLD

Series	Base Model	Piping Applications		Applicable Valve	Applicable Stations	Manifold Base Weight g	
		Piping	Port Size				
			1(P), 3/5(R)				4(A), 2(B)
VQZ1000	VV5QZ12-□□□□	Top	Rc(PT) 1/8	C3(ø3.2) C4(ø4) C6(ø6) M5(M5Thread)	VQZ1□20 to VQZ1□21	2 to 20 Stations per Station: 64 Addition per Station: 18	
VQZ2000	VV5QZ22-□□□□	Top	Rc(PT) 1/8	C4(ø4) C6(ø6) M5(M5Thread)	VQZ2□20 to VQZ2□21	2 to 20 Stations per Station: 86 Addition per Station: 26	
VQZ3000	VV5QZ32-□□□□	Top	Rc(PT)1/4	C6(ø6) C8(ø8) C10(ø10) Rc(PT)1/4	VQZ3□20 to VQZ3□21	2 to 20 Stations per Station: 181 Addition per Station: 53	

**HOW TO
 ORDER**

SERIES VQZ BODY PORTED PLUG LEAD TYPE MANIFOLD



- SERIES**
- 1VQZ1000
 - 2VQZ2000
 - 3VQZ3000

- MANIFOLD TYPE**
- 2Body Ported

- NO OF STATIONS**
- 02 ...2 Stations
 - " ...2 Stations
 - 20 ...20 Stations

- KIT**
- CConnector

DIN RAIL MOUNT

-None
- DDIN Rail Mounting Type (With DIN Rail Standard Length)
- DO ...DIN Rail Mounting Type (Without DIN Rail) ^{Note 1)}

Note) Order DIN Rail Separately

**HOW TO
 ORDER**

SERIES VQZ BODY PORTED PLUG LEAD TYPE VALVE



- 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
 - 5* ...3 Position Pressure Center
 - 83 Port for Mixture Mounting NC
 - 93 Port for Mixture Mounting NO
 - * Except for VQZ1000 and Metal Seal Type

- 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.}

PORT SIZE {4(A), 2(B) PORT}

- C3 ...One Touch Fitting for ø3.2 (VQZ1000)
- C4 ...One Touch Fitting for ø4 (VQZ1000/2000)
- C6 ...One Touch Fitting for ø6 (VQZ1000/2000/3000)
- C8 ...One Touch Fitting for ø8 (VQZ3000)
- C10 ...One Touch Fitting for ø10 (VQZ3000)
- M5 ...M5 Thread (VQZ1000/2000)
- Q2 ...Rc(PT)1/4 (VQZ3000)

MANUAL OVERRIDE

-Non Locking Push Type (Tool Type)
- BSlotted Locking Type (Tool Type)

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)

**LIGHT & SURGE
 VOLTAGE SUPPRESSOR**

- With
- With
- With
- With
- Without
- Without
- With
- With (w/o Light)

COIL VOLTAGE

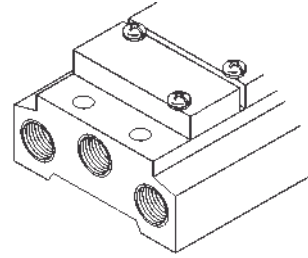
- 1* ...100VAC (50/60Hz)
- 2* ...200VAC (50/60Hz)
- 3* ...110VAC (50/60Hz)
- 4* ...220VAC (50/60Hz)
- 524VDC
- 612VDC
- 9* ...Other (Special Voltage)

**MANIFOLD
OPTION**

SERIES VQZ1000/2000/3000 BLANK PLATE ASSEMBLY

BLANK PLATE ASSEMBLY
 VVQZ1000-10A-2
 VVQZ2000-10A-2
 VVQZ3000-10A-2

- USED TO RESERVE A VALVE MOUNTING SPACE ON THE MANIFOLD FOR FUTURE USE



**MANIFOLD
OPTION**

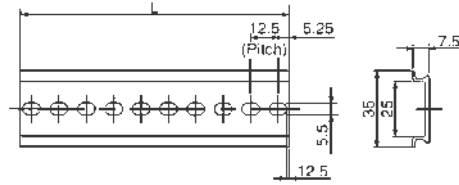
SERIES VQZ1000/2000/3000 DIN RAIL

DIN RAIL

AXT100 - DR - □

- Suffix number into □ from the Dimension Table below.

- TO ORDER A MANIFOLD WITH DIN RAIL ALREADY ATTACHED, INSERT 'D' AT THE END OF THE MANIFOLD PART NUMBER. THE DIN RAIL IS APPROXIMATELY 30MM LONGER THAN THE LENGTH OF THE MANIFOLD.



L DIMENSION

NUMBER	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
L DIMENSION	23	35.5	48	60.5	73	85.5	98	110.5	123	135.5	148	160.5	173	185.5	198	210.5	223	235.5	248	260.5
NUMBER	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
L DIMENSION	273	285.5	298	310.5	323	335.5	348	360.5	373	385.5	398	410.5	423	435.5	448	460.5	473	485.5	498	510.5

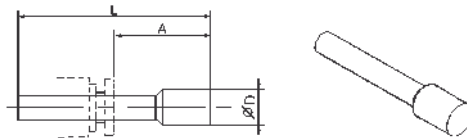
**MANIFOLD
OPTION**

SERIES VQZ1000/2000/3000 FITTING BLANK PLUG

FITTING BLANK PLUG

KQP-23-X19
 KQP-04-X19
 KQP-06-X19
 KQP-08-X19
 KQP-10-X19

- COLOR: WHITE



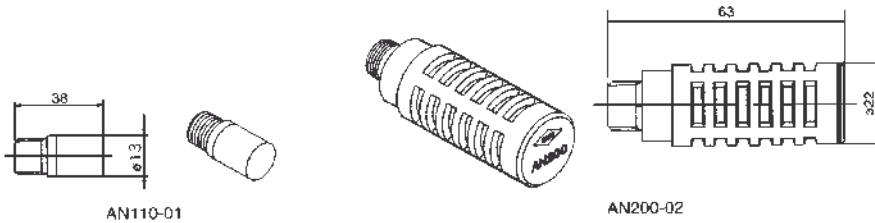
DIMENSIONS

APPLICABLE FITTING SIZE ØD	PART NUMBER	A	L	D
3.2	KQP-23-X19	16	31.5	3.2
4	KQP-04-X19	16	32	6
6	KQP-06-X19	18	35	8
8	KQP-08-X19	20.5	39	10
10	KQP-10-X19	22	43	12

**MANIFOLD
OPTION**

SERIES VQZ1000/2000/3000 EXH PORT SILENCER

SILENCER IS INSTALLED IN THE EXH PORT



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

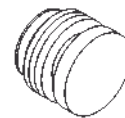
**MANIFOLD
OPTION**

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

3/2 MECHANICAL VALVE 1/8 (N)VM400 SERIES

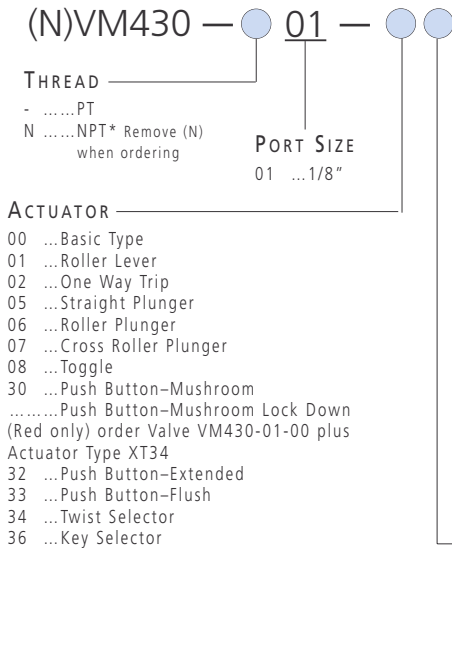
- 3/2 Normally Open or Normally Closed Valve
- Many Different Actuators
- Cv 0.38 Flow

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



HOW TO ORDER

(N)VM400 ACTUATOR ONLY

.....PART NO. ....APPLICATION

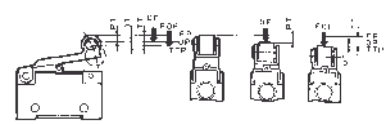
MECHANICAL OPERATION

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



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.

3/2 MECHANICAL VALVE 1/8 (N)VM800 SERIES

- ✓ 3/2 Normally Open or Normally Closed Valve
- ✓ A Variety Of Actuator Types Available
- ✓ Robust Design

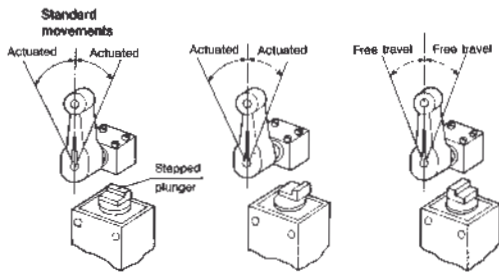
TECHNICAL SPECIFICATIONS

Fluid	Air
Operating Pressure	0 ~ 9.9 Bar / 0 ~ 144PSI
Ambient and Fluid Temperature	5 ~ 60°C / 41 ~ 140°F
Effective Orifice (Cv Ffactor)	6mm ² (0.33)
Recommended Lubricant	Turbine Oil #1 (ISO VG32)
Port Size	1/8"

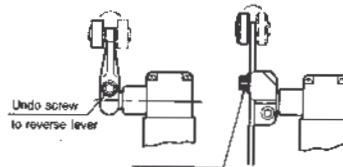


APPLICATIONS

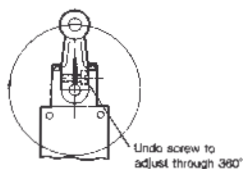
Movement is changeable



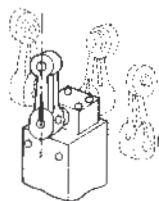
Roller can be mounted to inside of lever



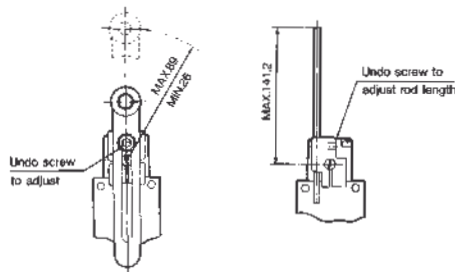
Lever location can be changed



Head direction can be changed



Lever length adjustment



HOW TO ORDER (N)VM800 VALVE

(N)VM830 — 01 —

No Of Ports
33 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 (N)VM800 ACTUATOR ONLY

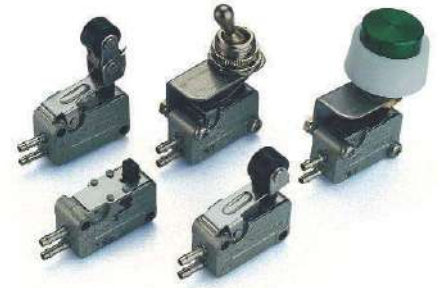
Roller lever VM-01F
Adjustable roller lever VM-13F
Adjustable rod lever VM14F

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

- 03 Ports
- 12 Ports

ACTUATOR

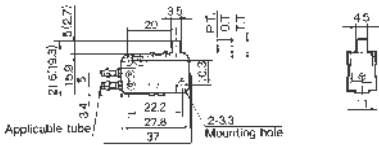
- 00 ...Basic Type
- 01 ...Roller Lever
- 02 ...One way Trip
- 08 ...Toggle
- 32 ...Push Button

PUSH BUTTON COLOR

- RRed
- GGreen
- BBlack

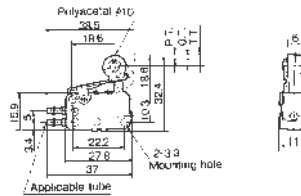
DIMENSIONS

(N)VM1000 BASIC VALVE



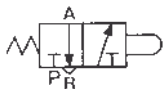
DIMENSIONS

(N)VM1000 ROLLER LEVER



SYMBOLS

(N)VM1000 BASIC VALVE



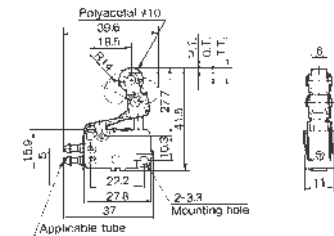
SYMBOLS

(N)VM1000 ROLLER LEVER



DIMENSIONS

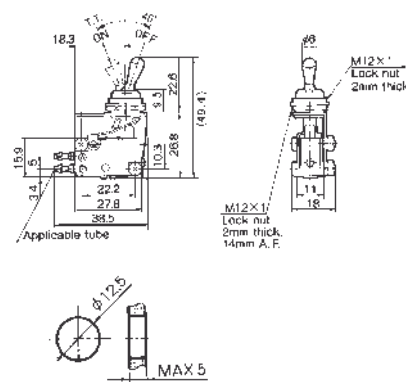
(N)VM1000 ONE WAY TRIP



PT= Pre-travel
OT= Over travel
TT= Total travel

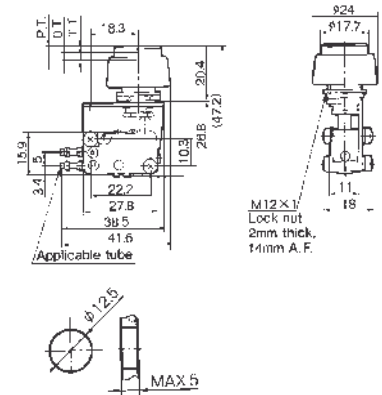
DIMENSIONS

(N)VM1000 TOGGLE



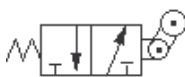
DIMENSIONS

(N)VM1000 PUSH BUTTON



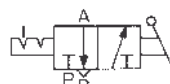
SYMBOLS

(N)VM1000 ONE WAY



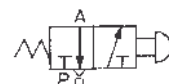
SYMBOLS

(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 —

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 LeverVM-01CPolyacetal roller
- Roller LeverVM-01CSHard steel roller
- One Way TripVM-02CPolyacetal roller
- One Way TripVM-02CSHard steel roller
- Straight PlungerVM-05C
- Roller PlungerVM-06CPolyacetal roller
- Roller PlungerVM-06CSHard steel roller

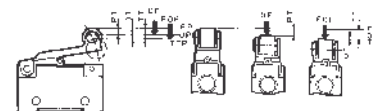
MANUAL OPERATION

- Toggle.....VM-08C
- Push Button-Mushroom ...VM-30CR ...Red
- Push Button-Mushroom ...VM-30CB ...Black
- Push Button-Mushroom ...VM-30CG ...Green
- Push Button-ExtendedVM-32CR ...Red
- Push Button-ExtendedVM-32CB ...Black
- Push Button-ExtendedVM-30CG ...Green
- Push Button-FlushVM-33C
- Twist SelectorVM-34CR ...Red
- Twist SelectorVM-34CB ...Black
- Twist SelectorVM-34CG ...Green
- Key SelectorVM-36C
- Push-Pull.....Black

TECHNICAL SPECIFICATIONS

Fluid	Air, Inert gas
Operating Pressure	1.5~7 Bar / 22~101PSI
Ambient & Fluid Temperature	5 ~ 60°C / 41 ~ 140°F
Effective Orifice (Cv Factor)	10.8mm 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

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E104 AND N261



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.

SYMBOLS



CHECK VALVE
SERIES (N)AK

- ✓ High Flow Capacity
- ✓ Low Cracking Pressure: 0.2 Bar
- ✓ Port Sizes from 1/8 ~ 1 PT, NPT

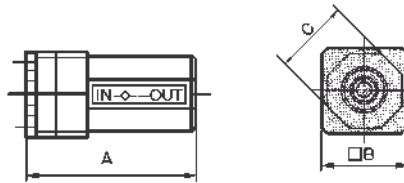
HOW TO
ORDER
SERIES (N)AK

BODY SIZE	PORT SIZE NPT	EFFECTIVE ORIFICE*
NAK2000-N01	1/8	25
NAK2000-N02	1/4	27.5
NAK4000-N02	1/4	47
NAK4000-N03	3/8	85
NAK4000-N04	1/2	95
NAK6000-N06	3/4	200
NAK6000-N10	1	230

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

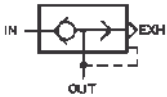


Model	Port Size	A	B	C
(N)AK2001-N01, 02	3/8, 1/4	50	25	22
(N)AK4000-N02, 03, 04	1/4, 3/4, 1/2	67	36	36
(N)AK6000-N06, 10	3/4, 1	95	50	50

Note: When ordering PT Ports, remove 'N' from the model number.
Eg: AK2000-01

*S (mm²) is Effective Orifice
Figure given for A-R Direction (Exhaust Flow)

SYMBOLS



QUICK EXHAUST VALVE
SERIES (N)AQ

- ✓ High Exhaust Characteristics
- ✓ Port Sizes from M5 ~ 3/4 PT, NPT
- ✓ High Flow Capacity

HOW TO
ORDER
SERIES (N)AQ

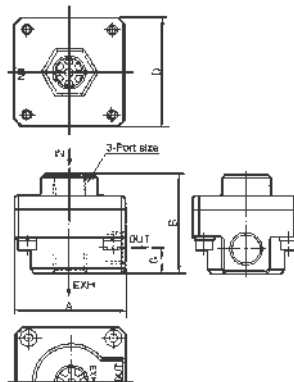
BODY SIZE	PORT SIZE NPT	EFFECTIVE ORIFICE*
NAQ1500-M5	M5	2.8
NAQ1510-N01	1/8	5.8
NAQ2000-N01	1/8	25
NAQ2000-N02	1/4	40
NAQ3000-N02	1/4	42
NAQ3000-N03	3/8	70
NAQ5000-N04	1/2	115
NAQ5000-N06	3/4	180

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

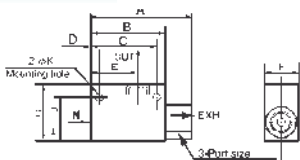
SERIES (N)AQ2000, 3000, 5000



Note: When ordering PT Ports, remove 'N' from the model number.
Eg: AQ1510-01

*S (mm²) is Effective Orifice
Figure given for A-R Direction (Exhaust Flow)

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

Model	Port Size	A	B	C	D
(N)AQ2000-N01, 02	1/8, 1/4	45	40	10	45
(N)AQ3000-N02, 03	1/4, 3/8	56	50	12.5	56
(N)AQ5000-N4, 06	1/2, 3/4	85	75	18	85

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

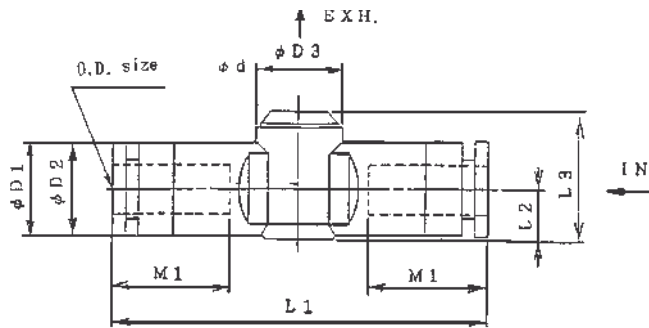
FLOW COMPARISON

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

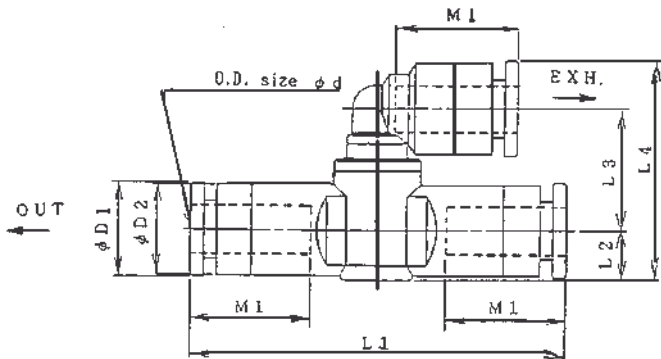
SERIES AQ240F/340F WITH SILENCER



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

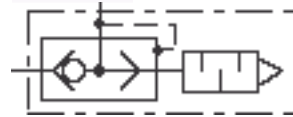
DIMENSIONS

SERIES AQ240F/340F WITH EXHAUST TAKE OFF

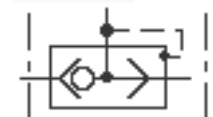


Models	O.D size d	D1	D2	L1	L2	L3	L4	M1	Weight
AQ240F-04-04	4	9.5	8.9	39.3	5	13.7	23.4	13	5.7
AQ240F-06-06	6	11.5	11	43.9	6	14.7	26.5	14	7.3
AQ340F-06-06	6	11.5	11	45.2	6.3	19.6	31.7	14	12.5

SYMBOLS WITH BUILT-IN SILENCER



SYMBOLS WITHOUT SILENCER



HOW TO ORDER

SERIES AQ240F/340F



BODY SIZE

- 2M5
- 31/8"

TUBE CONNECTION

- FBuilt-in One Touch Tube Connection

OD SIZE

- Metric
- 04 ...Ø4mm
- 06 ...Ø6mm
- Imperial
- 07 ...1/4"

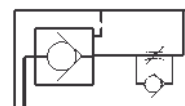
EXHAUST PORT

- Metric
- 00 ...Built-in Silencer
- 04 ...Ø4mm
- 06 ...Ø6mm
- Imperial
- 00 ...Built-in Silencer
- 07 ...1/4"



SPEED CONTROLLER WITH PILOT CHECK VALVE SERIES ASP

- ✓ Integrated Pilot Check Valve and Speed Controller
- ✓ Temporary Intermediate Stop and Speed Control of Cylinders is possible
- ✓ 360° Freedom for Tube Mounting Direction



TECHNICAL SPECIFICATIONS

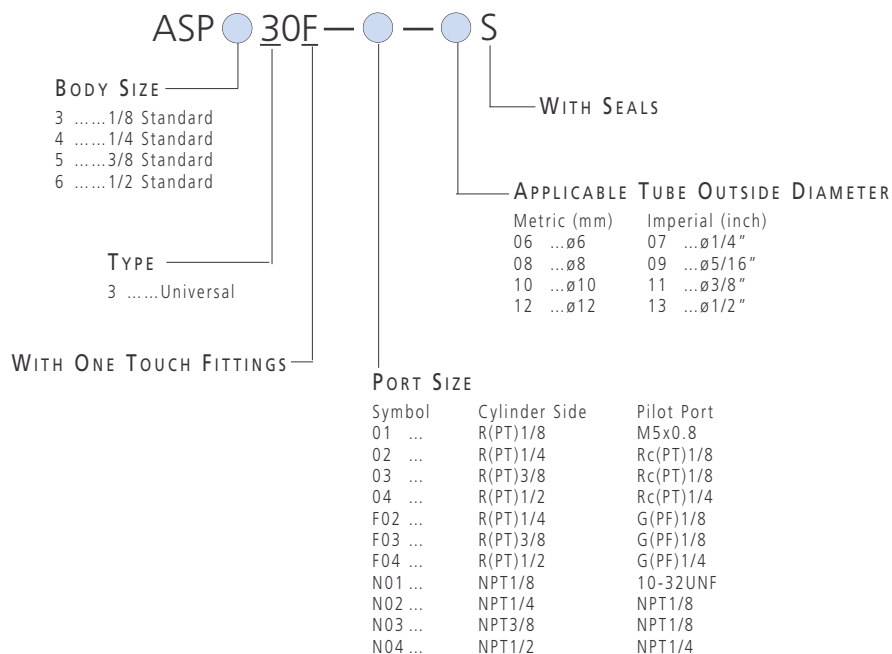
Proof Pressure	1.5MPa (218 PSI)
Max Operating Pressure	1MPa (145 PSI)
Min Operating Pressure	0.1MPa (14.5 PSI)
Pilot Check Valve Actuation Pressure	50% of Operating Pressure
Ambient and Fluid Temperatures	-5~60°C (W/O Freezing) 23~140°F
Number Of needle Rotations	10
Applicable Tube Material	Nylon, Soft Nylon, Polyurethane

TECHNICAL SPECIFICATIONS

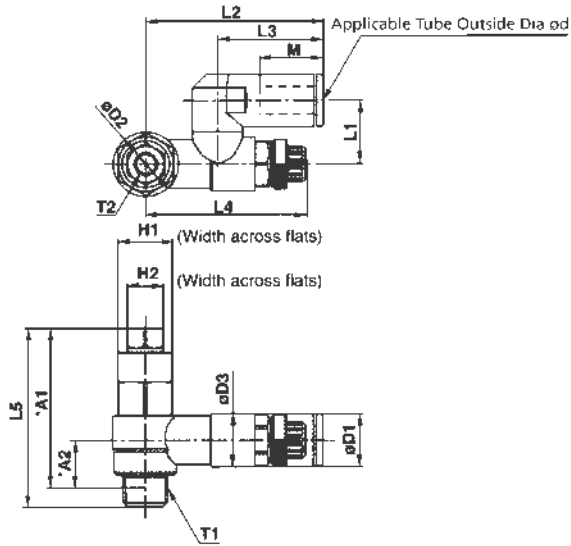
FLOW RATE AND EFFECTIVE SECTIONAL AREA

Model		ASP330F	ASP430F	ASP530F	ASP630F	
Tube	mm	ø6, ø8	ø6 ø8	ø8 ø10	ø10 ø12	
Outside Diameter	inch	ø1/4"	- ø1/4"	ø5/16" ø3/8"	- ø3/8"	
Controlled Flow (Free Flow)	Flow Rate <i>l</i> /min (ANR)(N <i>l</i> /m) Effective Sectional Area mm ²	180 2.9	330 5.2	350 5.4	600 9.3	750 11.6
					1100 16	1190 18.4

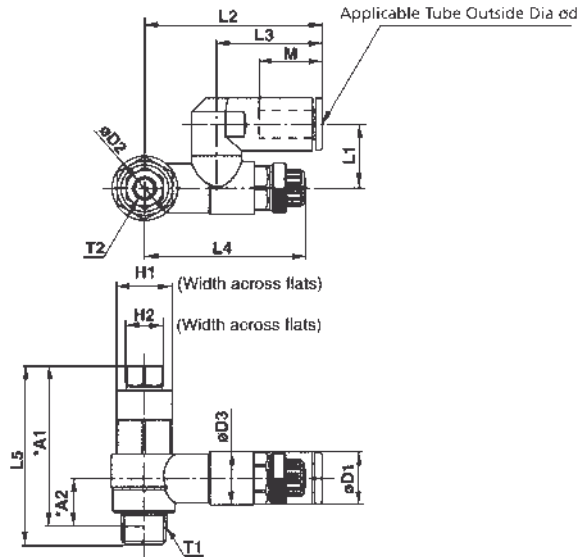
HOW TO ORDER SERIES ASP



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 Pressure1.5 MPa (222 PSI)
 Max Operating Pressure1 MPa (148 PSI)
 Min Operating Pressure0.1 MPa (14.5 PSI)
 Ambient & Fluid Temperature 0~60°C / 32~140°F
 Suitable Tube MaterialNylon, soft nylon, polyurethane

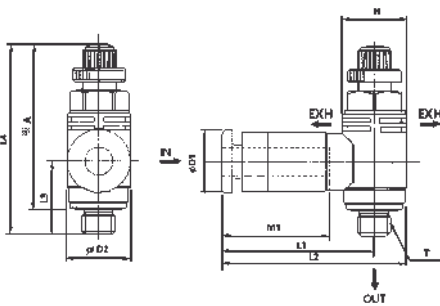
Note: observe maximum recommended operating pressures for tube when using soft nylon or polyurethane

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



DIMENSIONS SERIES (N)ASV ELBOW TYPE



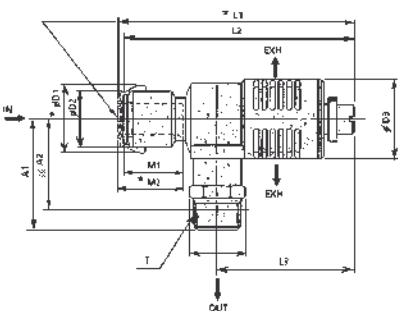
FLOW COMPARISON

Model	Port thread	Tube O.D (mm)					Effective area	
		4	6	8	10	12	In-Out	Out-Exh
ASV120F-M3	M3x0.5	•					0.3	0.3
ASV220F-M5	M5x0.8	•	•				1.3	1.3
ASV310F-01	PT1/8			•	•		7	8
ASV310F-02	PT1/4			•	•		7	8
ASV410F-01	PT1/8			•	•	•	13.5	14
ASV410F-02	PT1/4			•	•	•	13.5	14
ASV410F-03	PT3/8			•	•	•	13.5	14
ASV510F-02	PT1/4			•	•	•	27	27
ASV510F-03	PT3/8			•	•	•	27	29
ASV510F-04	PT1/2			•	•	•	27	29

Model	Applicable Tube OD	T	H	D1	D2	L1	L2	L3	L4	*A		M1	Weight g	
										Max	Min			Max	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	13	5
ASV220F-M5-04	4	M5x0.8	8	9.5	9.6	22.8	27.6	11.1	31.4	28.6	27.7	24.9	13	8
ASV220F-M5-06	6	M5x0.8	8	11.5	9.6	23.9	28.7	11.1	31.4	28.6	27.7	24.9	14	9

* Assembled height

DIMENSIONS SERIES (N)ASV TEE TYPE



SYMBOLS WITH BUILT-IN SILENCER



HOW TO ORDER SERIES (N)ASV

(N)ASV 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 ...Ø4mm	07 ...Ø1/4"
06 ...Ø6mm	09 ...Ø5/16"
08 ...Ø8mm	11 ...Ø3/8"
10 ...Ø10mm	13 ...Ø1/2"
12 ...Ø12mm	

THREAD

-PT* Remove (N) when ordering
- NNPT

THREAD SEAL

-M3, M5
- S1/8 - 1/2

Model	Applicable tube O.D	T	H	D1	D2	D3	L1			L2			L3			A1	A2	M1	M2	Weight g
							Max	Min	Max	Min	Max	Min	Max	Min						
ASV310F-01-06S	6	R(PT)1/8	10	16.8	12.8	17.6	71.9	65.9	69.9	63.9	45.8	39.8	27.4	23.4	17	19	22			
ASV310F-01-08S	8	R(PT)1/8	10	19.3	15.2	17.6	73.8	67.8	71.8	65.8	45.8	39.8	27.4	23.4	19	21	23			
ASV310F-02-06S	6	R(PT)1/4	14	16.8	12.8	17.6	71.9	65.9	69.9	63.9	45.8	39.8	31.4	25.4	17	19	30			
ASV310F-02-08S	8	R(PT)1/4	14	19.3	15.2	17.6	73.8	67.8	71.8	65.8	45.8	39.8	31.4	25.4	19	21	31			
ASV410F-01-08S	8	R(PT)1/8	12	19.3	15.2	24	83.1	75.6	81.1	73.6	52.8	45.3	30.7	26.7	19	21	39			
ASV410F-01-10S	10	R(PT)1/8	12	23.3	18.5	24	85.2	77.7	83.2	75.7	52.8	45.3	30.7	26.7	21	23	41			
ASV410F-02-08S	8	R(PT)1/4	14	19.3	15.2	24	83.1	75.6	81.1	73.6	52.8	45.3	34.7	28.7	19	21	47			
ASV410F-02-10S	10	R(PT)1/4	14	23.3	18.5	24	85.2	77.7	83.2	75.7	52.8	45.3	34.7	28.7	21	23	49			
ASV410F-03-08S	8	R(PT)3/8	17	19.3	15.2	24	83.1	75.6	81.1	73.6	52.8	45.3	36.7	30.4	19	21	61			
ASV410F-03-10S	10	R(PT)3/8	17	23.3	18.5	24	85.2	77.7	83.2	75.7	52.8	45.3	36.7	30.4	21	23	63			
ASV510F-02-10S	10	R(PT)1/4	17	23.3	18.5	30	90.2	84.2	88.2	82.2	55.6	49.6	39.8	33.8	21	23	69			
ASV510F-02-12S	12	R(PT)1/4	17	25.7	20.9	30	91.8	85.8	89.8	83.8	55.6	49.6	39.8	33.8	22	24	74			
ASV510F-03-10S	10	R(PT)3/8	17	23.3	18.5	30	90.2	84.2	88.2	82.2	55.6	49.6	41.8	35.5	21	23	73			
ASV510F-03-12S	12	R(PT)3/8	17	25.7	20.9	30	91.8	85.8	89.8	83.8	55.6	49.6	41.8	35.5	22	24	78			
ASV510F-04-10S	10	R(PT)1/2	22	23.3	18.5	30	90.2	84.2	88.2	82.2	55.6	49.6	45.8	37.6	21	23	95			
ASV510F-04-12S	12	R(PT)1/2	22	25.7	20.9	30	91.8	85.8	89.8	83.8	55.6	49.6	45.8	37.6	22	24	100			

Height to centre based on nominal thread engagement

TUBE RELEASING TOOL TG-1, TG-2

- ✓ Switchable for all manifolds with integral $\varnothing 4\text{mm}$ and 6mm One-touch fittings (TG-1) or $\varnothing 1/8"$ 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 collet 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

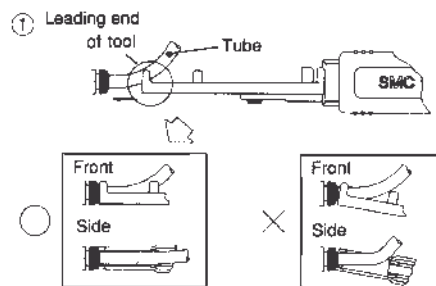
Available in Red

For $1/8"$ and $1/4"$ Tube Size Fittings

USAGE

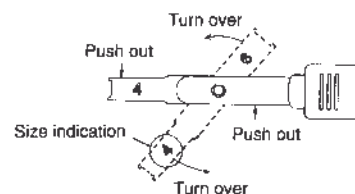
Operation

- 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.



Size change

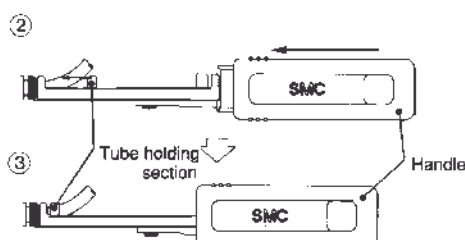
Push and turn the nose of the tool in the directions of arrows simultaneously to release it from the fixed state. Turn the nose by 180° and fix it. The applicable tube size is shown on the back side.

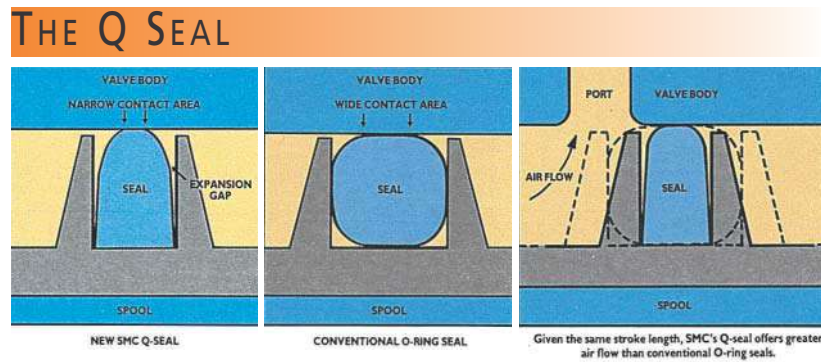


- 2 After inserting the tool into the leading end of the release bush, firmly grip the handle of the tool and push it in until the tube holding section strikes against the stroke end.

[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.





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

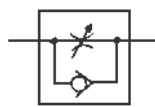
- ✓ Minimizes Installation Time and Cost
- ✓ Accepts Nylon and Polyurethane Tubing
- ✓ Wide Variety Of Sizes
- ✓ Speed may accurately be controlled even at low velocity
- ✓ Constant Speed easily set
- ✓ Retaining prevents accidental loss of needle



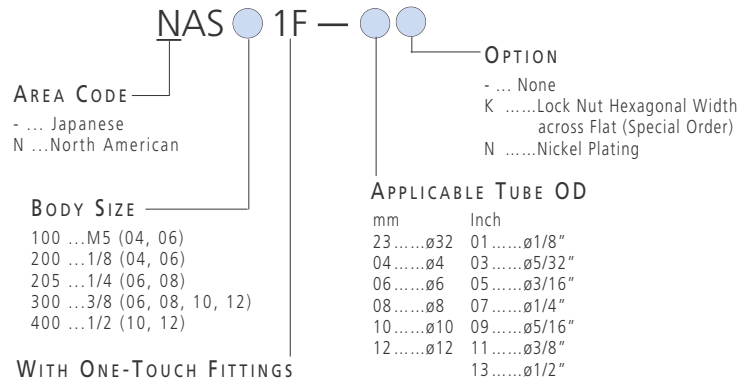
TECHNICAL SPECIFICATIONS

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

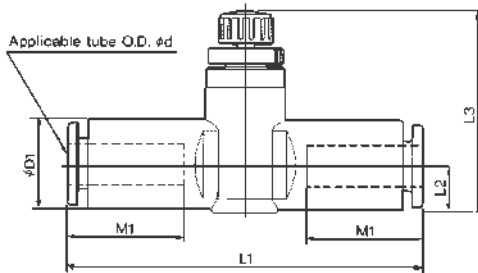
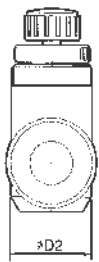
SYMBOLS



HOW TO ORDER (N)AS1000-4000



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
	12	20.9		76	11	41.8	36.8	22	60.2
AS4001F	10	18.5	26.5	82.1	11.3	51.1	43.6	21	97.3
	12	20.9				52.1	44.6	22	103.4

Model (Inch)	Applicable Tube OD : d	D1	D2	L1	L2	L3		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	1/4"	13.2		52.2	7.1	34.5	29.5	17	20.1
	3/16"	11.4		52.2	6.2	34.6	29.6	16.5	24
	1/4"	13.2	14.8	54.4	7.1	35.5	30.5	17	25.1
	5/16"	15.2		59.8	8.1	36.5	31.5	18	30.3
NAS3001F	1/4"	13.2		59	7.4	38.3	33.3	17	41.2
	5/16"	15.2	19.8	64.4	8.2	39.1	34.1	18	45.5
	3/8"	17.9		70.8	9.5	40.3	35.3	21	52.9
NAS4001F	3/8"	17.9	26.5	76.9	10.3	51	43.5	21	96.3
	1/2"	21.7		83.1	11.6	52.4	44.9	22	105.9

SPEED CONTROLLERS WITH UNI* ONE-TOUCH FITTINGS

- ✓ Minimizes Installation Time and Cost
- ✓ Accepts Nylon and Polyurethane Tubing
- ✓ Wide Variety Of Sizes
- ✓ Body swivels 360°
- ✓ Speed may accurately be controlled even at low velocity
- ✓ Constant Speed easily set
- ✓ Retaining prevents accidental loss of needle



*Note) Except M5 Threaded Type

TECHNICAL SPECIFICATIONS

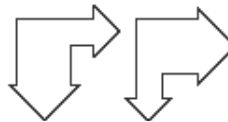
Fluid	Air
Max Operating Pressure	1MPa / (145PSI)
Min Operating Pressure	0.1MPa / (14.5PSI)
Proof Pressure	1.5MPa / 220PSI
Ambient and Fluid Temperature	0 ~ 60°C / 32 ~ 140°F
No Of Needle Revolutions	10 Turns / 8 Turns *
Applicable Tube Material	Nylon, Soft Nylon, Polyurethane
Mounting Thread	Uni Thread
Thread Sealant	Gasket

* Note) AS12*1F, 13*1F

SYMBOLS

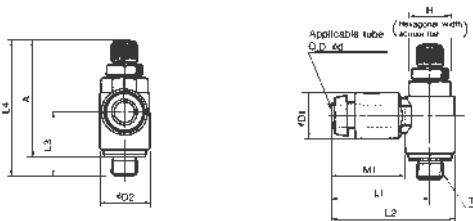


Meter-out Meter-in



Indication On Product

DIMENSIONS (MM) AS SERIES WITH ONE TOUCH FITTINGS ELBOW TYPE



Model Elbow Type (Metric)	Applicable Tube OD ød mm	T Uni Thread	H	øD ₁	øD ₂	L ₁	L ₂	L ₃	L ₄		*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	54.6	47.1	44.5	37	21	93.7
AS42□1F-U04-12	12			20.9		34.6	48.9						22	95

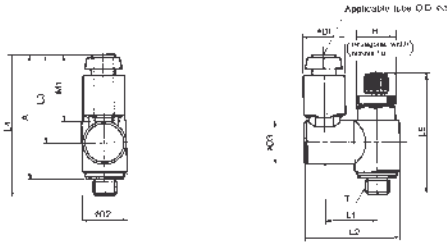
DIMENSIONS (INCH) AS SERIES WITH ONE TOUCH FITTINGS ELBOW TYPE

Model Elbow Type (Inch)	Applicable Tube OD d Inch	T Uni Thread	H	øD ₁	øD ₂	L ₁	L ₂	L ₃	L ₄		*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	45	40	37.6	32.6	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



**SPEED CONTROLLER IN-LINE TYPE
SERIES (N)AS1000-4000**

- ✓ Compact Size saves space
- ✓ Speed may accurately be controlled even at low velocity
- ✓ Constant Speed easily set
- ✓ Retaining prevents accidental loss of needle
- ✓ Panel Mount Option available

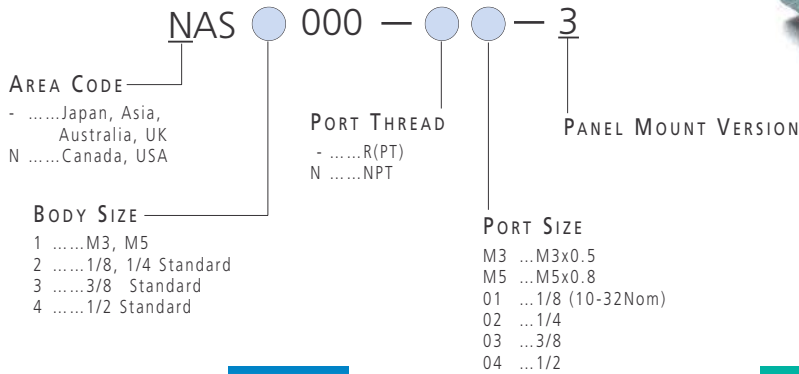


SYMBOLS

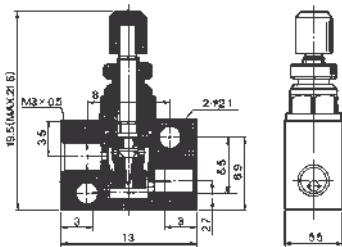


Meter-out

HOW TO ORDER
SERIES (N)AS1000-4000



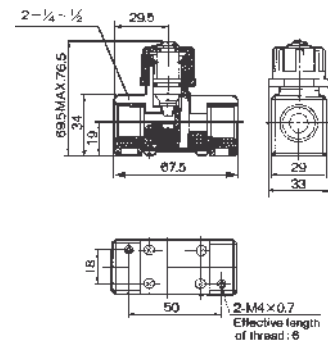
DIMENSIONS
SERIES (N)AS1000-M3



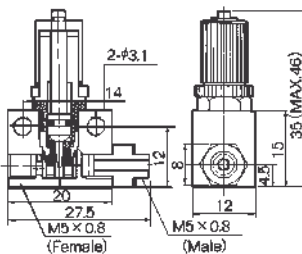
TECHNICAL SPECIFICATIONS

Proof Pressure	1.5MPa / 220PSI
Max Operating Pressure	1MPa / 145PSI
Min Operating Pressure	0.05MPa / 8PSI
Ambient and Fluid Temperature	5 ~ 60°C / 40 ~ 140°F
No Of Needle Rotations	8 ~ 10Turns
Panel Cut Out Dimensions	AS1000 Not Applicable AS2000 ø16.5 AS3000 ø16.5 AS4000 ø25

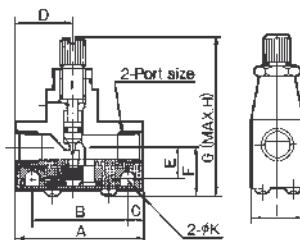
DIMENSIONS
SERIES (N)AS4000



DIMENSIONS
SERIES (N)AS1000-M5



DIMENSIONS
SERIES (N)AS2000, 3000

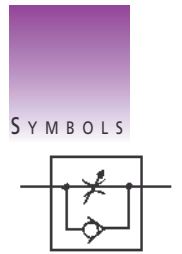


Model	Port Size	A	B	C	D	E	F	G	H	I	øK
(N)AS2000-01	1/8	40	30	5	17	10	15.5	50	54.5	16	4.5
(N)AS2000-02	3/4	40	30	5	23	11.5	17	51.5	56	20	4.5
(N)AS3000-02, 03	1/4, 3/8	56	45.5	5.25	25	13.2	20.6	61	68	26	5.5

SPEED CONTROLLER: IN-LINE LOCKING TYPE: SERIES (N)AS3500



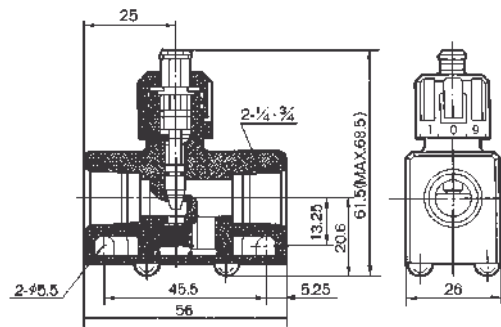
- ✓ Lock Speed Setting at the touch of a button
- ✓ Speed Control Setting clearly marked for Repeatability
- ✓ Speed may accurately be controlled even at low velocity
- ✓ Constant Speed easily set
- ✓ Control Knob constructed of metal to withstand heavy usage
- ✓ Retaining prevents accidental loss of needle



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

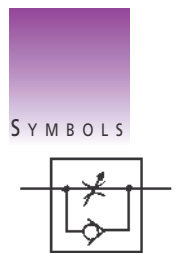
(N)AS3500 LOCKING TYPE

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



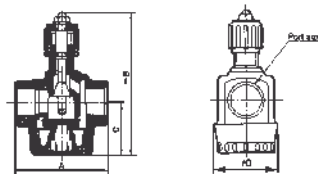
- ✓ Even at low speeds may be accurately controlled
- ✓ Constant Speed easily set
- ✓ Retaining prevents accidental loss



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

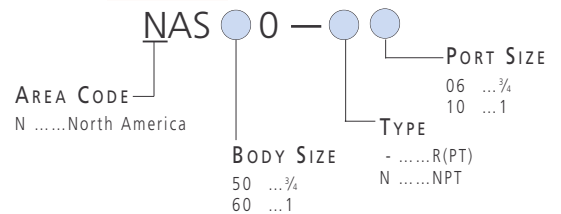
DIMENSIONS (N)AS500-600



Model	Port Size	A	B	C	øD
(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

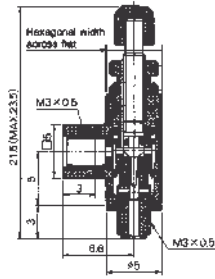


- ✓ Minimizes Installation Time and Cost
- ✓ Body swivels 360°
- ✓ Speed may be accurately controlled even at low velocity
- ✓ Constant Speed easily set
- ✓ Retaining prevents accidental loss of needle
- ✓ Tamper-Resistant Type Available

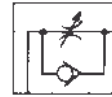
TECHNICAL SPECIFICATIONS

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

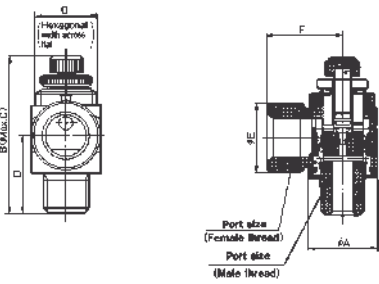
DIMENSIONS (N)AS1200-M3 ELBOW TYPE



SYMBOLS

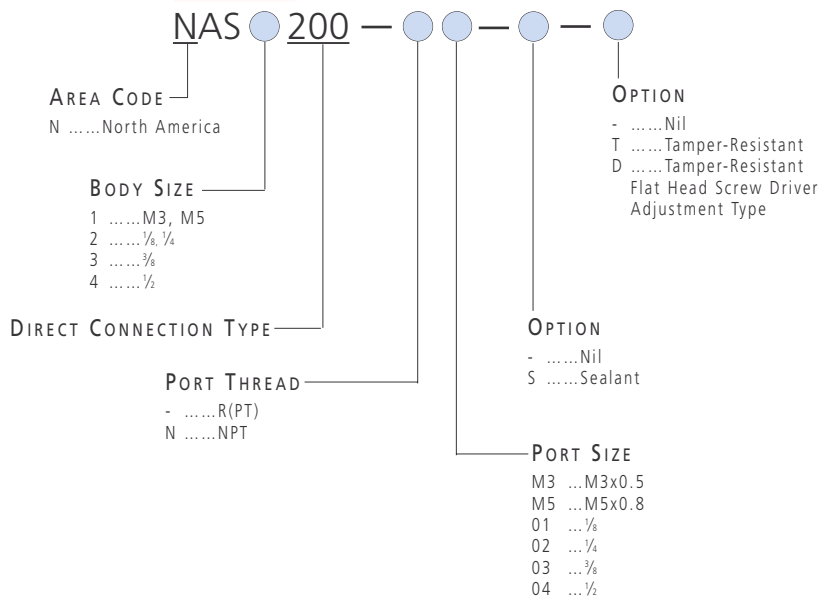


DIMENSIONS (N)AS1200, 2200, 3200, 4200



Model	Port Size	øA	B	C	D	E	F	G
(N)AS1200-M5	M5x0.8	9	28.3	25.5	10.3	□9	10	8
(N)AS2200-01	1/8	14.6	36.4	31.4	14.1	14.3	18	12
(N)AS2200-02	1/4	19.5	40.8	35.8	18	18	27.2	17
(N)AS3200-03	3/8	24.3	46.9	41.9	20.8	22.6	30	19
(N)AS4200-04	1/2	28.5	55.6	49.4	26.7	27.5	33.5	24

HOW TO ORDER (N)AS1000-4000





EXHAUST RESTRICTOR WITH SILENCER SERIES (N)ASN2

- ✓ Over 20dB Sound Reduction
- ✓ Cylinder Speed easily set
- ✓ Retaining prevents accidental loss of needle
- ✓ Increased Flow
- ✓ Increased Silencing Effect
- ✓ Overall Length reduced

TECHNICAL SPECIFICATIONS

Proof Pressure	1.5MPa / 220 PSI
Operating Pressure Range	0 ~ 1MPa / 145PSI
Ambient & Fluid Temperature	5 ~ 60°C / 40 ~ 140°F
Number of Needle Rotations	8 Turns

SYMBOLS



HOW TO ORDER

SERIES (N)ASN2

NASN2 — ● — ● — ●

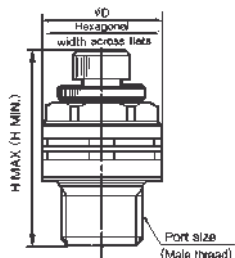
AREA CODE
-Japanese
NNorth America

PORT THREAD
-R(PT)
NNPT

OPTION
SW/Sealant

PORT SIZE
M5 ...M5x0.8
01 ...1/8
02 ...1/4
03 ...3/8
04 ...1/2

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

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E201 & N372

FITTINGS

	SERIES	PAGE NUMBER
	SIZING OF TUBING SYSTEMS TUBE & FITTINGS	4.1
	M3, M5, 1/8 MINIATURE FITTINGS	4.2
	KJ ONE-TOUCH MINI FITTINGS	4.4
	KQ (BLACK) / KQ2 (WHITE) UNI ONE-TOUCH FITTINGS	4.7
	KQ (BLACK) / KQ2 (WHITE) SEALANT TYPE	4.11
	KQ (BLACK) / KQ2 (WHITE) EXTENDED RANGE ONE-TOUCH FITTINGS	4.20
	KS/KX ROTARY ONE-TOUCH FITTINGS	4.22
	KC SELF-SEAL FITTINGS	4.25
	KM ONE-TOUCH FITTING MANIFOLDS	4.26
	KDM RECTANGULAR MULTI CONNECTOR	4.28

TUBING

	SERIES	PAGE NUMBER
	TS, TISA SOFT NYLON TUBING	4.30
	TU, TIUB POLYURETHANE TUBING	4.30
	TFU POLYURETHANE FLAT TUBING	4.31
	TCU POLYURETHANE COIL TUBING	4.31
	TM MULTITUBE HOLDER	4.32
	TK TUBE CUTTER	4.32

SIZING OF TUBING SYSTEMS

The calculation of the valve system flow factor (Cv) is required for each application. The tube and fittings between air source and the application are part of this system as each length of pipe and each fitting has a pressure drop.

Each SMC element can be individually defined in terms of effective orifice.

The overall Cv of a tube and valve system is calculated by combining the Cv of each element as follows:

$$\frac{1}{Cv_{syst}^2} = \frac{1}{Cv_1^2} + \frac{1}{Cv_2^2} + \frac{1}{Cv_3^2} \text{ etc}$$


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 Cv for the system including valve and fittings is Cv_{syst} , then:

$$\begin{aligned} \text{required Cv for valve} &= Cv_{syst} \times \sqrt{2} \\ \text{for fittings and tube} &= Cv_{syst} \times \sqrt{2} \end{aligned}$$

If tube system has 3 meters of nylon pipe and 6 KQ fittings we can consider this as 9 (3 + 6) elements so Cv for each fitting element needs to be:

$$Cv_{syst} \times \sqrt{2} \times \sqrt{9}$$


 9 elements assumed all equal ΔP
 (assumption 50% ΔP valves 50% ΔP tube etc)

The SMC fittings are quoted with effective orifice of S in mm^2 . ($18mm^2 \approx Cv1$)

Thus if system Cv required was 0.6

valve to be used has a Cv of 0.85

each fitting system element used will have a Cv of $0.6 \times \sqrt{2} \times \sqrt{9} = 2.55$

$Cv2.55 \approx 46mm^2$

From this catalog, SMC fitting KQH10-U01 has $S > 46mm^2$ \therefore use tube system $\varnothing 10mm$

MINIATURE FITTINGS: M3, M5, 1/8

- ✓ Compact and Space-Saving
- ✓ Tube has a large retaining force
- ✓ Hose Nipple ensures easy removal
- ✓ Accepts Nylon Tubes, Soft Nylon Tube and Polyurethane



PRODUCT
SELECTOR

MANIFOLD:
M-5M

PRODUCT
SELECTOR

BARB FITTING FOR SOFT TUBE:
M-3AU-4
M-5AU-4
M-5AU-6



PRODUCT
SELECTOR

BARB ELBOW FOR SOFT TUBE:
M-3ALU-4
M-5ALU-6



PRODUCT
SELECTOR

UNIVERSAL ELBOW:
M-3UL
M-5UL



1/2 female diverted to 9 x M5

PRODUCT
SELECTOR

UNIVERSAL TEE:
M-3UT
M-5UT



PRODUCT
SELECTOR

NIPPLE:
M-3N
M-5N



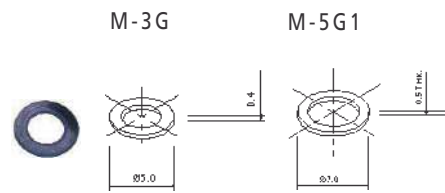
PRODUCT
SELECTOR

PLUG:
M-3P
M-5P



PRODUCT
SELECTOR

GASKET:



MORE SELECTIONS
SEE NEXT PAGE

HOW TO
ORDER
SEE NEXT PAGE

PRODUCT
SELECTOR

HOSE NIPPLE:
M-5H-4
M-5H-6



PRODUCT
SELECTOR

ELBOW:
M-5L



PRODUCT
SELECTOR

HOSE ELBOW:
M-5HL-4
M-5HL-6

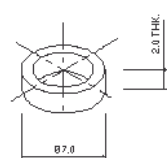


Uses Gasket M-5GH

PRODUCT
SELECTOR

GASKET:
M-5GH

Similar to Picture
M-3G (above)
Use with M-5HL



PRODUCT
SELECTOR

TEE:
M-5T



TUBE FITTINGS: MINIATURE

PRODUCT SELECTOR

EXTENSION FITTING:
M-5J



PRODUCT SELECTOR

UNIVERSAL NIPPLE:
M-5UN



PRODUCT SELECTOR

BULKHEAD:
M-5E



PRODUCT SELECTOR

BULKHEAD REDUCER:
M-5ER



M5 female to 1/8 female taper

PRODUCT SELECTOR

REDUCING BUSHING:
M-5B



M5 female to 1/8 male taper

PRODUCT SELECTOR

STRAIGHT ADAPTOR:
M-01H-4
M-01H-6



PRODUCT SELECTOR

STRAIGHT BARB CONNECTOR:
M-01AU-4
M-01AU-6

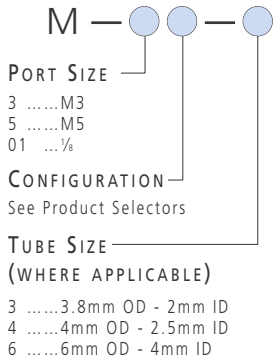


TECHNICAL SPECIFICATIONS

Applicable Tube Material		Nylon	Soft Nylon	Polyurethane
Applicable Tube Dia* OD/ID (mm)	M3	—	ø4/ø2.5	ø4/ø2.5
	M5 1/8	ø4/ø2.5 ø6/ø4	ø4/ø2.5 ø6/ø4	ø4/ø2.5, ø6/ø4
Max Operating Pressure		1MPa / 145PSI	0.8MPa / 116PSI	0.5MPa / 73PSI
Port Size		M3, M5, 1/8		
Thread		JIS B0209 class 2 (Metric coarse thread), JIS B0203 (Taper pipe thread)		

*Dimensions to BS5409 Part 1

HOW TO ORDER
MINIATURE FITTINGS



PRODUCT SELECTOR

MALE/MALE NIPPLE:
1/8-1/8 HEX
1/4-1/4 HEX
3/8-3/8 HEX
1/2-1/2 HEX
3/4-3/4 HEX



PRODUCT SELECTOR

FLUSH TAPER PLUGS:
1/8, 1/4, 3/8, 1/2, 3/4



HOW TO ORDER
MALE/MALE NIPPLE

- 1/8 BFAPP122-A
- 1/4 BFAPP122-B
- 3/8 BFAPP122-C
- 1/2 BFAPP122-D
- 3/4 BFAPP122-E

HOW TO ORDER
FLUSH TAPER PLUGS:

- 1/8 PLUG1/8
- 1/4 PLUG1/4
- 3/8 PLUG3/8
- 1/2 PLUG1/2

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

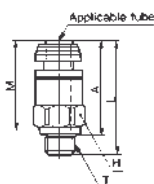


TECHNICAL SPECIFICATIONS

FluidAir
 Max Operating Pressure1MPa / 145PSI
 Operating Vacuum Pressure10 Torr~ (0.2PSI)
 Ambient and Fluid Temperature ...0~60°C / 32~140°F
 ThreadThread PortionJISB0211, class 2 (Metric Coarse Thread)
NutJISB0211, class 2 (Metric Fine Thread)
 SealFlat Gasket
 Possible to use joint avoiding copper materialC3604BD component, with electroless nickel plating

PRODUCT SELECTOR

MALE CONNECTOR: KJH

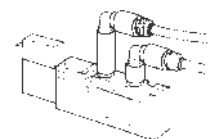
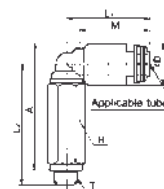


Applicable Tube O.D (mm)	Thread T	Model	H (Hex)	L	A	M	Effective Orifice (mm ²)	Weight (g)
3.2	M3x0.5	KJH23-M3	7	18	15.5	14.5	0.9	1.6
3.2	M5x0.8	KJH23-M5	7	18.5	15.5	14.5	3/2.5	2.1
3.2	R(PT)1/8	KJH23-01S	10	16.5	12.5	14.5	3/2.5	5
4	M3x0.5	KJH04-M3	8	18	15.5	14.5	0.9	1.9
4	M5x0.8	KJH04-M5	8	18.5	15.5	14.5	4	2.4
4	R(PT)1/8	KJH04-01S	10	17.5	13.5	14.5	4	3.4
6	M5x0.8	KJH06-M5	10	20	16.5	15.5	4	3.4
6	R(PT)1/8	KJH06-01S	10	21.5	17.5	15.5	10	5.1

Applicable Tube O.D (inch)	Thread T	Model	H (Hex)	L	A	M	Minimum Hole Diameter	Weight (g)
1/8	10-32UNF	KJH01-32	7	18.5	15.5	-	2.3	2.1
1/8	1/16	KJH01-33S	9.5	21.5	17.5	-	2.5	5.3
1/8	1/8	KJH01-34S	11.11	16.5	12.5	-	2.5	5
5/32	10-32UNF	KJH03-32	8	18.5	15.5	-	2.3	2.4
5/32	1/16	KJH03-33S	9.5	22	18	-	3	5.2
5/32	1/8	KJH03-34S	11.11	17.5	13.5	-	3	5.1
1/4	10-32UNF	KJH07-32	-	20.5	17.5	-	2.3	5.1
1/4	1/16	KJH07-33S	-	24	20	-	3.5	6.1
1/4	1/8	KJH07-34S	-	21	17	-	4.6	5.1

PRODUCT SELECTOR

EXTENDED MALE ELBOW: KJW



Applicable Tube O.D (mm)	Thread T	Model	H (Hex)	ØD	L1	L2	A	M	Effective Orifice (mm ²)	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

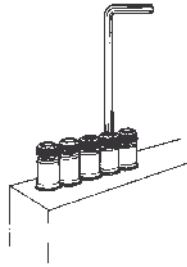
Applicable Tube O.D (inch)	Thread T	Model	H (Hex)	ØD	L1	L2	A	M	Minimum Hole Diameter	Weight (g)
1/8	10-32UNF	KJW01-32	7	7.8	17	25	26	14.5	2.3	6.3
1/8	1/16	KJW01-33S	9.5	7.8	17	25	25	14.5	2.5	8.6
1/8	1/8	KJW01-34S	11.11	7.8	17	25	25	14.5	2.5	10.5
5/32	10-32UNF	KJW03-32	7	8.9	17.5	25.5	27	14.5	2.3	6.4
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

MORE SELECTIONS SEE NEXT PAGE

TUBE FITTINGS: ONE TOUCH MINI

PRODUCT SELECTOR

HEXAGON SOCKET HEAD
MALE CONNECTOR: KJS

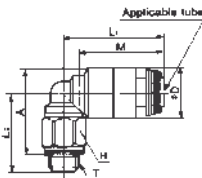


Applicable Tube O.D (mm)	Thread T	Model	H (Hex)	ØD	L	A	M	Effective Orifice (mm ²) Nylon/Urethane	Weight (g)
3.2	M3x0.5	KJS23-M3	1.5	7	18	15.5	14.5	1.4	1.4
3.2	M5x0.8	KJS23-M5	2	7	21.5	18	14.5	2.5	2.9
4	M3x0.5	KJS04-M3	1.5	8	18	15.5	14.5	1.4	1.5
4	M5x0.8	KJS04-M5	2.5	8	20.5	17	14.5	4	2.6
4	R(PT)1/8	KJS04-01S	3	9.8	21.5	17.5	14.5	4	5.3
6	M5x0.8	KJS06-M5	2.5	10	21.5	18	15.5	4	3.2
6	R(PT)1/8	KJS06-01S	4	10	22	18	15.5	10	5

Applicable Tube O.D (inch)	Thread T	Model	H (Hex)	ØD	L	A	M	Minimum Hole Diameter	Weight (g)
1/8	10-32UNF	KJS01-32	1.98	7	21.5	18.5	14.5	2	2.9
5/32	10-32UNF	KJS03-32	2.5	8	20.5	17.5	14.5	2.5	2.6
5/32	1/16	KJS03-33S	2.78	8	21.5	17.5	14.5	2.8	2.8
5/32	1/8	KJS03-34S	2.78	10.3	21.5	17.5	14.5	2.8	4.2
1/4	10-32UNF	KJS07-32	2.38	10.3	21.5	18	15.5	2.4	4.2
1/4	1/16	KJS07-33S	3.57	10.3	23	19	15.5	3.6	5
1/4	1/8	KJS07-34S	4.76	10.3	22	18	15.5	4.8	4.4

PRODUCT SELECTOR

MALE ELBOW:
KJL

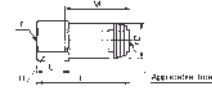


Applicable Tube O.D (mm)	Thread T	Model	H (Hex)	ØD	L1	L2	A	M	Effective Orifice (mm ²) Nylon/Urethane	Weight (g)
3.2	M3x0.5	KJL23-M3	7	7.8	17	12.5	14	14.5	0.8	2
3.2	M5x0.8	KJL23-M5	7	7.8	17	13	14	14.5	2.6/2.2	2.6
3.2	R(PT)1/8	KJL23-01S	10	7.8	17	15	15	14.5	2.6/2.2	6.7
4	M3x0.5	KJL04-M3	7	8.9	17.5	13	15	14.5	0.8	2.2
4	M5x0.8	KJL04-M5	7	8.9	17.5	13.5	15	14.5	3.5	2.7
4	R(PT)1/8	KJL04-01S	10	8.9	17.5	15.5	16	14.5	3.5	6.8
6	M5x0.8	KJL06-M5	7	11	17.5	14.5	17	15.5	3.5	3.1
6	R(PT)1/8	KJL06-01S	10	11	19.5	16.5	18	15.5	9	6.1

Applicable Tube O.D (inch)	Thread T	Model	H (Hex)	ØD	L1	L2	A	M	Minimum Hole Diameter	Weight (g)
1/8	10-32UNF	KJL01-32	7	7.8	17	13	14	14.5	2.3	2.6
1/8	1/16	KJL01-33S	9.5	7.8	17	18.5	16.3	14.5	2.5	4.4
1/8	1/8	KJL01-34S	11.11	7.8	17	15.5	15.5	14.5	2.5	5.2
5/32	10-32UNF	KJL03-32	7	8.9	17.5	13.5	15	14.5	2.3	2.7
5/32	1/16	KJL03-33S	9.5	8.9	17.5	17	17.5	14.5	2.5	4.5
5/32	1/8	KJL03-34S	11.11	8.9	17.5	16	16.5	14.5	2.5	6.8
1/4	10-32UNF	KJL07-32	7	11.9	17.5	15	18	15.5	2.3	3.3
1/4	1/16	KJL07-33S	9.5	11.9	17.5	18.5	20.5	15.5	2.5	5.3
1/4	1/8	KJL07-34S	11.11	11.9	19.5	17.5	19.5	15.5	4.6	6.4

PRODUCT SELECTOR

FEMALE UNION:
KJF

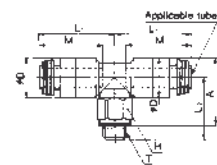


Applicable Tube O.D (mm)	Thread T	Model	H (Hex)	ØD	L	A	M	Effective Orifice (mm ²) Nylon/Urethane	Weight (g)
3.2	M3x0.5	KJF23-M3	7	7	18.5	6	14.5	3/2.5	2.6
3.2	M5x0.8	KJF23-M5	7	7	21	7.5	14.5	3/2.5	2.9
4	M3x0.5	KJF04-M3	8	8	18	5.5	14.5	4	3.2
4	M5x0.8	KJF04-M5	8	8	20.5	7.5	14.5	4	3.8
6	M5x0.8	KJF06-M5	10	10	20	7	15.5	10	5.1

Applicable Tube O.D (inch)	Thread T	Model	H (Hex)	ØD	L	A	M	Minimum Hole Diameter	Weight (g)
1/8	10-32UNF	KJF01-32	7	6.9	20.5	7.5	14.5	2.5	2.9
5/32	10-32UNF	KJF03-32	8	7.9	20.5	7.5	14.5	3	3.8
1/4	10-32UNF	KJF07-32	11.11	10.3	20	7	15.5	3	4.8

PRODUCT SELECTOR

BRANCH TEE:
KJT



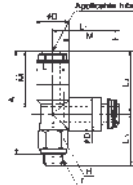
Applicable Tube O.D (mm)	Thread T	Model	H (Hex)	ØD	L1	L2	A	M	Effective Orifice (mm ²) Nylon/Urethane	Weight (g)
3.2	M3x0.5	KJT23-M3	7	7.8	17	13	14.5	14.5	0.9	2.6
3.2	M5x0.8	KJT23-M5	7	7.8	17	13.5	14.5	14.5	3.2/2.7	3.1
3.2	R(PT)1/8	KJT23-01S	10	7.8	17	15.5	15.5	14.5	3.2/2.7	7.3
4	M3x0.5	KJT04-M3	7	8.9	17	13.5	15.5	14.5	0.9	3
4	M5x0.8	KJT04-M5	7	8.9	17	14	15.5	14.5	4.5	3.5
4	R(PT)1/8	KJT04-01S	10	8.9	17	16	16.5	14.5	4.5	7.6
6	M5x0.8	KJT06-M5	7	11	17.5	15	17.5	15.5	4.5	4.2
6	R(PT)1/8	KJT06-01S	10	11	19	17.5	19	15.5	11	7.1

Applicable Tube O.D (inch)	Thread T	Model	H (Hex)	ØD	L1	L2	A	M	Minimum Hole Diameter	Weight (g)
1/8	10-32UNF	KJT01-32	7	7.8	17	13.5	14.5	14.5	2.3	3.1
1/8	1/16	KJT01-33S	9.5	7.8	17	17	16.5	14.5	2.5	6.5
1/8	1/8	KJT01-34S	11.11	7.8	17	16	15.5	14.5	2.5	7.3
5/32	10-32UNF	KJT03-32	7	8.9	17	14	15.5	14.5	2.3	3.5
5/32	1/16	KJT03-33S	9.5	8.9	17	17.5	18	14.5	2.5	6.8
5/32	1/8	KJT03-34S	11.11	8.9	17	16.5	17	14.5	2.5	7.6
1/4	10-32UNF	KJT07-32	7	11.9	17.5	15.5	18.5	15.5	2.3	4.4
1/4	1/16	KJT07-33S	9.5	11.9	17.5	18.5	20.5	15.5	2.5	7.2
1/4	1/8	KJT07-34S	11.11	11.9	19	18	20	15.5	4.6	8

How To ORDER
SEE NEXT PAGE

PRODUCT
SELECTOR

MALE RUN TEE:
KJY



Applicable Tube O.D (mm)	Thread T	Model	H (Hex)	ØD	L1	L2	L3	A	M	Effective Orifice (mm ²)	Weight (g)
3.2	M3x0.5	KJY23-M3	7	7.8	17	16.5	12.5	26.5	14.5	0.9	2.7
3.2	M5x0.8	KJY23-M5	7	7.8	17	16.5	13	26.5	14.5	3.2/2.7	3.2
3.2	R(PT)1/8	KJY23-01S	10	7.8	17	16.5	15	27.5	14.5	3.2/2.7	7.3
4	M3x0.5	KJY04-M3	7	8.9	17.5	16.5	13	27	14.5	0.9	3.1
4	M5x0.8	KJY04-M5	7	8.9	17.5	16.5	13.5	27	14.5	4.5	3.5
4	R(PT)1/8	KJY04-01S	10	8.9	17.5	16.5	15.5	28	14.5	4.5	7.6
6	M5x0.8	KJY06-M5	7	11	19	19	14.5	30.5	15.5	4.5	4.3
6	R(PT)1/8	KJY06-01S	10	11	19.5	18.5	16.5	31	15.5	11	7.1

Applicable Tube O.D (inch)	Thread T	Model	H (Hex)	ØD	L1	L2	L3	A	M	Minimum Hole Diameter	Weight (g)
1/8	10-32UNF	KJY01-32	7	7.8	17	16.5	13	26.5	14.5	2.3	3.2
1/8	1/16	KJY01-33S	9.5	7.8	17	16.5	16.5	29	14.5	2.5	5
1/8	1/8	KJY01-34S	11.11	7.8	17	16.5	15.5	28	14.5	2.5	7.3
5/32	10-32UNF	KJY03-32	7	8.9	17.5	16.5	13.5	27	14.5	2.3	3.5
5/32	1/16	KJY03-33S	9.5	8.9	17.5	16.5	17	29.5	14.5	2.5	5.3
5/32	1/8	KJY03-34S	11.11	8.9	17.5	16.5	16	28.5	14.5	2.5	7.6
1/4	10-32UNF	KJY07-32	7	11.9	19.5	19.5	15	31.5	15.5	2.3	4.6
1/4	1/16	KJY07-33S	9.5	11.9	19.5	19.5	18	33.5	15.5	2.5	6.7
1/4	1/8	KJY07-34S	11.11	11.9	19	19	17	32	15.5	4.6	7.5

HOW TO
ORDER
SERIES KJ

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)
- 32 ...10-32UNF
- 33S ...1/16 NPT
- 34S ...1/8 NPT

TUBE OD

- 23 ...ø3.2mm
- 04 ...ø4mm
- 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 KQ2 ONE TOUCH FITTINGS



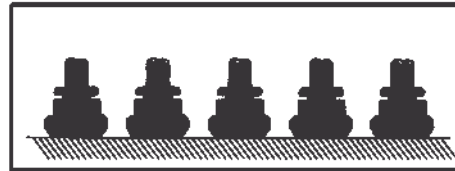
FITTINGS WITH UNI-THREAD

SERIES KQ: BLACK BODY FITTINGS
SERIES KQ2: WHITE BODY FITTINGS

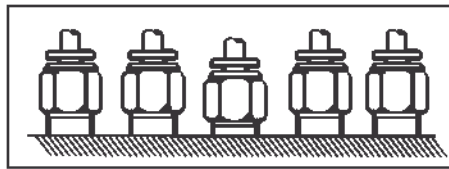
- ✓ Wide Range of Pressures low vacuum to 0.1MPa
- ✓ Wide Range of Applicable Tube Systems (4mm to 16mm)
- ✓ Minimized Resistance to Air Flow
- ✓ Easy and quick installation of tube
- ✓ A unique thread concept allows for compatibility with parallel and taper female threads. Uni-thread fits all female 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%

SERIES KQ: BLACK BODY FITTINGS
AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS
AVAILABLE IN THE USA

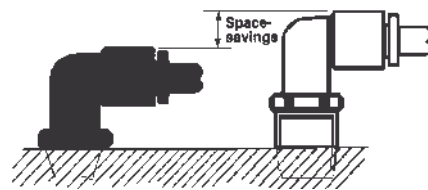
- ✓ Constant mounting height saves space
- Lower height of screwed-in fittings save space and improves appearance



Uni-Threads

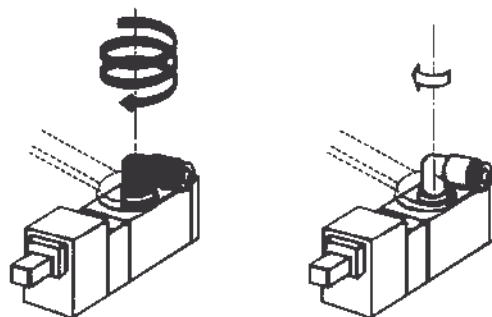


Conventional Threads



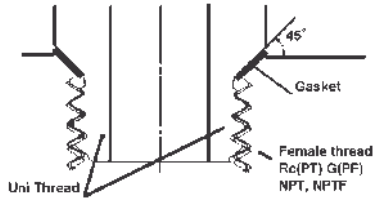
- ✓ Screw-In Time is reduced to 1/3

Existing Tapered Thread Series: 2 to 3 turns with a wrench after manual tightening
Uni-Thread Series: 1/4 to 1/2 turn with a wrench after manual tightening



Thread Type	Manual Tightening Time + Tool Tightening Time	Total	Ratio
Uni-Thread	6 sec + 4 sec	10 sec	1/3
Conventional Thread	4 sec + 26 sec	30 sec	1

UNITHREAD CONSTRUCTION



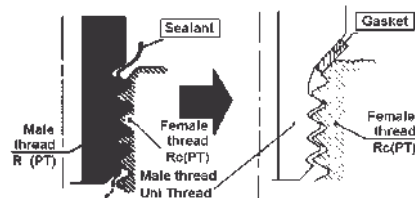
UNI THREAD RIDGE SHAPE

A new ridge shape has been created as a Uni-Thread for common application to Rc(PT), G(PF) NPT, and NPTF female threads with different thread diameters, pitches, tapered angles, ridge shapes, etc..

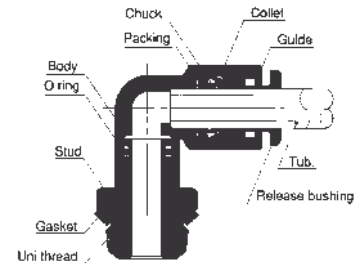
GASKET CONSTRUCTION

A gasket made of stainless sheet covered with laminated NBR on both sides is seated on the chamfer of a female thread to materialize a perfect sealing construction irrespective of the difference in thread diameters due to the difference in the types of female threads, variation in tolerance, difference in the size of chamfer.

(It is applicable to any female thread with ordinary chamfer.)



PARTS DESCRIPTION



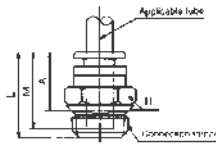
TECHNICAL SPECIFICATIONS

Fluid	Air
Max Operating Pressure	0.1MPa / 145PSI
Operating Vacuum Pressure	0.001MPa (Absolute) 0.2PSI
Applicable Tube Material	Nylon, Soft Nylon, Polyurethane
Proof Pressure	3MPa / 435PSI
Ambient Fluid Temperature	0 - 60°C / 32 ~ 140°F

PRODUCT SELECTOR

MALE CONNECTOR : KQH (KQ2H)

Use to pipe in the same direction from female threaded portion. Most general type.



SERIES KQ: BLACK BODY FITTINGS
AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS
AVAILABLE IN THE USA

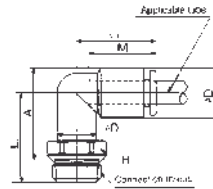
Applicable Tube OD (mm)	Connection Thread	Model	H (width Across Flats)	L	A	M	Effective Orifice (mm ²) Nylon
4	1/8	KQH04-U01	10	18.5	14.5	16	5.6
4	1/8	KQH04-U02	14	18	12	16	5.6
6	1/8	KQH06-U01	12	19.5	15.5	17	13.1
6	1/8	KQH06-U02	14	19.5	13	17	13.1
6	1/8	KQH06-U03	17	18.5	12.5	17	13.1
8	1/8	KQH08-U01	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

Applicable Tube OD (Inch)	Connection Uni Thread	Model	H (width Across Flats)	L	A	M	Minimum Hole Diameter
1/8	1/8	KQH01-U01	11.11	19	15	15.5	2.5
1/8	1/4	KQH01-U02	14.29	17.5	11.5	15.5	2.5
5/32	1/8	KQH03-U01	11.11	19.5	15.5	16	3
5/32	1/4	KQH03-U02	14.29	19	13	16	3
3/16	1/8	KQH05-U01	12.7	19	15	16	3.5
3/16	1/4	KQH05-U02	14.29	17.5	11.5	16	3.5
1/4	1/8	KQH07-U01	14.29	22.5	18.5	17	4.6
1/4	1/4	KQH07-U02	14.29	20.5	14.5	17	4.6
1/4	3/8	KQH07-U03	17.46	18.5	12.5	17	4.6
5/16	1/8	KQH09-U01	14.29	25.5	21.5	18.5	6
5/16	1/4	KQH09-U02	14.29	21.5	15.5	18.5	6
5/16	3/8	KQH09-U03	17.46	21	15	18.5	6
3/8	1/4	KQH11-U02	17.46	28	22	21	7
3/8	3/8	KQH11-U03	17.46	28	22	21	7
3/8	1/2	KQH11-U04	22.23	22	14	21	7
1/2	1/4	KQH13-U02	22.23	30	24	22	33
1/2	3/8	KQH13-U03	22.23	28.5	22.5	22	30
1/2	1/2	KQH13-U04	22.23	25	17	22	28

PRODUCT SELECTOR

MALE ELBOW : KQL (KQ2L)

Use to pipe in right angle to female threaded portion. Most general type.



Applicable Tube OD mm	Connection Thread	Model	H	øD1	øD2	L1	L2	A	M	Effective Orifice (mm ²) 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

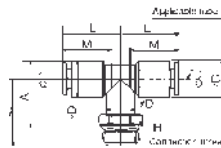
Applicable Tube OD Inch	Connection Thread	Model	H	øD1	øD2	L1	L2	A	M	Minimum Hole Diameter
1/8	1/8	KQL01-U01	11.11	9.6	10	17.5	20	21	15.5	2.5
1/8	1/4	KQL01-U02	14.29	9.6	10	17.5	22	21	15.5	2.5
5/32	1/8	KQL03-U01	11.11	10.4	10	18	20	21.5	16	3
5/32	1/4	KQL03-U02	14.29	10.4	10	18	22.5	21.5	16	3
3/16	1/8	KQL05-U01	11.11	11.4	10	19.5	20.5	22.5	16	3.5
3/16	1/4	KQL05-U02	14.29	11.4	10	19.5	20.5	22.5	16	3.5
1/4	1/8	KQL07-U01	11.11	13.2	10	20.5	21.5	24	17	4.6
1/4	1/4	KQL07-U02	14.29	13.2	10	20.5	23.5	24.5	17	4.6
1/4	3/8	KQL07-U03	17.46	13.2	10	20.5	24.5	25	17	4.6
5/16	1/8	KQL09-U01	14.29	15.2	12	23.5	22.5	26	18.5	6
5/16	1/4	KQL09-U02	14.29	15.2	12	23.5	24.5	26.5	18.5	6
5/16	3/8	KQL09-U03	17.46	15.2	12	23.5	25.5	27	18.5	6
3/8	1/4	KQL11-U02	17.46	17.9	17	25.5	26.5	29.5	21	7
3/8	3/8	KQL11-U03	17.46	17.9	17	25.5	27	30	21	7
3/8	1/2	KQL11-U04	17.46	17.9	17	25.5	30	31	21	7
1/2	1/4	KQL13-U02	17.46	21.7	17	28	28.5	33	22	9
1/2	3/8	KQL13-U04	17.46	21.7	17	28	32.5	33.5	22	9.6
1/2	1/2	KQL13-U04	22.23	21.7	17	28	32	35	22	9.6

H: Width Across Flats

PRODUCT SELECTOR

BRANCH TEE : KQT (KQ2T)

Use to branch line from female thread of both side 90° direction.



MORE SELECTIONS
SEE NEXT PAGE

Applicable Tube OD mm	Connection Thread	Model	H	øD1	øD2	L1	L2	A	M	Effective Orifice (mm ²) 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

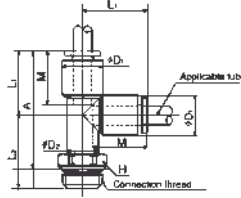
Applicable Tube OD Inch	Connection Thread	Model	H	øD1	øD2	L1	L2	A	M	Minimum Hole Diameter
1/8	1/8	KQT01-U01	11.11	9.6	10	17.5	20	21	15.5	2.5
1/8	1/4	KQT01-U02	14.29	9.6	10	17.5	22	21	15.5	2.5
5/32	1/8	KQT03-U01	11.11	10.4	10	18	20	21.5	16	3
5/32	1/4	KQT03-U02	14.29	10.4	10	18	22.5	21.5	16	3
3/16	1/8	KQT05-U01	11.11	11.4	10	19.5	20.5	22.5	16.5	3.5
3/16	1/4	KQT05-U02	14.29	11.4	10	19.5	20.5	22.5	16.5	3.5
1/4	1/8	KQT07-U01	11.11	13.2	10	20.5	21.5	24	17	4.6
1/4	1/4	KQT07-U02	14.29	13.2	10	20.5	23.5	24.5	17	4.6
1/4	3/8	KQT07-U03	17.46	13.2	10	20.5	24.5	25	17	4.6
5/16	1/8	KQT09-U01	12.7	15.2	12	23.5	22.5	26	18.5	6
5/16	1/4	KQT09-U02	14.29	15.2	12	23.5	24.5	26.5	18.5	6
5/16	3/8	KQT09-U03	17.46	15.2	12	23.5	25.5	27	18.5	6
3/8	1/4	KQT11-U01	17.46	17.9	17	25.5	26.5	29.5	21	7
3/8	3/8	KQT11-U02	17.46	17.9	17	25.5	27	30	21	7
3/8	1/2	KQT11-U03	17.46	17.9	17	25.5	30	31	21	7
1/2	1/4	KQT13-U02	17.46	21.7	17	28	28.5	33	22	9
1/2	3/8	KQT13-U03	17.46	21.7	17	28	32.5	33.5	22	9.6
1/2	1/2	KQT13-U04	22.23	21.7	17	28	32	35	22	9.6

H: Width Across Flats

PRODUCT SELECTOR

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

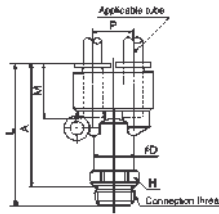
Applicable Tube OD mm	Connection Thread Uni thread	Model	H (Width Across Flats)	øD1	øD2	L1	L2	A	M	Effective Orifice (mm ²) Nylon
4	1/8	KQY04-U01	10	10.4	10	18	20	34	16	6.4
4	1/8	KQY04-U02	14	10.4	10	18	22	34.5	16	6.4
6	1/4	KQY06-U01	10	12.8	10	20	21.5	37.5	17	13.4
6	1/4	KQY06-U02	14	12.8	10	20	23	37	17	13.4
6	1/4	KQY06-U03	17	12.8	10	20	24	38	17	13.4
8	3/8	KQY08-U01	12	15.2	12	23	22.5	41.5	18.5	25.6
8	3/8	KQY08-U02	14	15.2	12	23	24.5	41.5	18.5	25.6
8	3/8	KQY08-U03	17	15.2	12	23	25.5	42.5	18.5	25.6
10	1/2	KQY10-U01	17	18.5	17	26.5	25	46.5	21	40
10	1/2	KQY10-U02	17	18.5	17	26.5	26.5	47.5	21	40
10	1/2	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	3/4	KQY12-U02	17	20.9	17	28.5	27	49.5	22	57.4
12	3/4	KQY12-U03	17	20.9	17	28.5	28	50.5	22	57.4
12	3/4	KQY12-U04	22	20.9	17	28.5	31	51.5	22	57.4
16	1 1/4	KQY16-U03	22	26.5	21	33	40.5	66	24	81
16	1 1/4	KQY16-U04	22	26.5	21	33	40.5	63	24	113

Applicable Tube OD Inch	Connection Thread Uni thread	Model	H (Width Across Flats)	øD1	øD2	L1	L2	A	M	Minimum Hole Diameter
1/8	1/8	KQY01-U01	11.11	9.6	10	17.5	20	33.5	15.5	2.5
1/8	1/4	KQY01-U02	14.29	9.6	10	17.5	22	33.5	15.5	2.5
5/32	1/8	KQY03-U01	11.11	10.4	10	18	20	34	16	3
5/32	1/4	KQY03-U02	14.29	10.4	10	18	22.5	34.5	16	3
3/16	1/8	KQY05-U01	11.11	11.4	10	19.5	20.5	36	16.5	3.5
3/16	1/4	KQY05-U02	14.29	11.4	10	19.5	23	36.5	16.5	3.5
1/4	1/8	KQY07-U01	11.11	13.2	10	20.5	21.5	38	17	4.6
1/4	1/4	KQY07-U02	14.29	13.2	10	20.5	23.5	37.5	17	4.6
1/4	3/8	KQY07-U03	17.46	13.2	10	20.5	24.5	39	17	4.6
5/16	1/8	KQY09-U01	12.7	15.2	12	23.5	22.5	42	18.5	6
5/16	1/4	KQY09-U02	14.29	15.2	12	23.5	24.5	42	18.5	6
5/16	3/8	KQY09-U03	17.46	15.2	12	23.5	25.5	43	18.5	6
3/8	1/4	KQY11-U02	17.46	17.9	17	25.5	26.5	46	21	7
3/8	3/8	KQY11-U03	17.46	17.9	17	25.5	27	46.5	21	7
3/8	1/2	KQY11-U04	22.23	17.9	17	25.5	30	47.5	21	7
1/2	1/4	KQY13-U02	17.46	21.7	17	28	28.5	50.5	22	9
1/2	3/8	KQY13-U03	17.46	21.7	17	28	28.5	50.5	22	9
1/2	1/2	KQY13-U04	22.23	21.7	17	28	32	52	22	9.6

PRODUCT SELECTOR

BRANCH "Y" : KQU (KQ2U)

Use to branch line in the same direction from female thread.



Applicable Tube OD mm	Connection Thread Uni Thread	Model	H (Width Across Flats)	øD	L	P	A	M	Effective Orifice (mm ²) 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	1/4	KQU06-U01	13	12.8	43.5	12.8	39.5	17	13.4
6	1/4	KQU06-U02	14	12.8	45	12.8	39	17	13.4
6	1/4	KQU06-U03	17	12.8	46	12.8	40	17	13.4
8	3/8	KQU08-U01	17	15.2	50.5	15.2	46.5	18.5	25.6
8	3/8	KQU08-U02	17	15.2	52	15.2	46	18.5	25.6
8	3/8	KQU08-U03	17	15.2	51.5	15.2	45.5	18.5	25.6
10	1/2	KQU10-U02	19	18.5	57.5	18.5	51.5	21	40
10	1/2	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	3/4	KQU12-U02	22	20.9	61	20.9	55	22	57.4
12	3/4	KQU12-U03	22	20.9	61	20.9	55	22	57.4
12	3/4	KQU12-U04	22	20.9	62.5	20.9	54.5	22	57.4

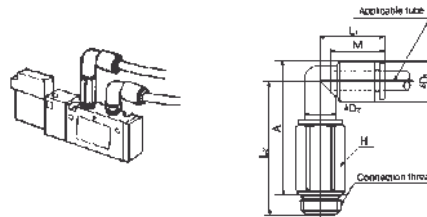
Applicable Tube OD Inch	Connection Thread Uni Thread	Model	H (Width Across Flats)	øD	L	P	A	M	Minimum Hole Diameter
1/8	1/8	KQU01-U01	12.7	9.6	38.5	9.6	34.5	15.5	2.5
1/8	1/4	KQU01-U02	14.29	9.6	40.5	9.6	34.5	15.5	2.5
5/32	1/8	KQU03-U01	12.7	10.4	40	10.4	36	16	3
5/32	1/4	KQU03-U02	14.29	10.4	42	10.4	36	16	3
3/16	1/8	KQU05-U01	12.7	11.4	42	11.4	38	16.5	3.5
3/16	1/4	KQU05-U02	14.29	11.4	44.5	11.4	39	16.5	3.5
1/4	1/8	KQU07-U01	14.29	13.2	44.5	13.2	40.5	17	4.6
1/4	1/4	KQU07-U02	14.29	13.2	46	13.2	40	17	4.6
1/4	3/8	KQU07-U03	17.46	13.2	46.5	13.2	40.5	17	4.6
5/16	1/8	KQU09-U03	17.46	15.2	50.5	15.2	46.5	18.5	6
5/16	1/4	KQU09-U04	17.46	15.2	52	15.2	46	18.5	6
5/16	3/8	KQU09-U02	17.46	15.2	51.5	15.2	45.5	18.5	6
3/8	1/4	KQU11-U02	19.05	17.9	56.5	17.9	50.5	21	7
3/8	3/8	KQU11-U03	19.05	17.9	56.5	17.9	50.5	21	7
3/8	1/2	KQU11-U04	22.23	17.9	59	17.9	51	21	7
1/2	1/4	KQU13-U02	22.23	21.7	61	21.7	55	22	9.6
1/2	3/8	KQU13-U03	22.23	21.7	61	21.7	55	22	9.6
1/2	1/2	KQU13-U04	22.23	21.7	62.7	21.7	54.7	22	9.6

PRODUCT SELECTOR

EXTENDED MALE ELBOW : KQW (KQ2W)

Basically use in the same way as elbow union.

Point of difference is that it is used to prevent interference of joints for stereoping.

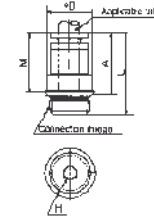
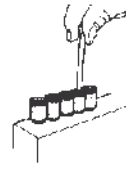


Applicable Tube OD mm	Connection Thread Uni Thread	Model	H (Width Across Flats)	øD1	øD2	L1	L2	A	M	Effective Orifice (mm ²) Nylon
4	1/8	KQW04-U01	10	10.4	10	18	34.5	35.5	16	4
4	1/8	KQW04-U02	14	10.4	10	18	37	38.5	16	4
6	1/4	KQW06-U01	10	12.8	10	20	38.5	41	17	10.9
6	1/4	KQW06-U02	14	12.8	10	20	40.5	41	17	10.9
6	1/4	KQW06-U03	17	12.8	10	20	41.5	42	17	10.9
8	3/8	KQW08-U01	12	15.2	12	23	43.5	47.5	18	20.5
8	3/8	KQW08-U02	14	15.2	12	23	45.5	47	18	20.5
8	3/8	KQW08-U03	17	15.2	12	23	46.5	48	18	20.5
10	1/2	KQW10-U02	17	18.5	17	26.5	52.5	56	21	33.5
10	1/2	KQW10-U03	17	18.5	17	26.5	52.5	56	21	33.5
10	1/2	KQW10-U04	22	18.5	17	26.5	54.5	56	21	33.5
12	3/4	KQW12-U02	17	20.9	17	28.5	54	58.5	22	47.7
12	3/4	KQW12-U03	17	20.9	17	28.5	54	58.5	22	47.7
12	3/4	KQW12-U04	22	20.9	17	28.5	56	58.5	22	47.7

Applicable Tube OD Inch	Connection Thread Uni Thread	Model	H (Width Across Flats)	øD1	øD2	L1	L2	A	M	Minimum Hole Diameter
1/8	1/8	KQW01-U01	11.11	9.6	10	17.5	35	35.5	15.5	2.5
1/8	1/4	KQW01-U02	14.29	9.6	10	17.5	36	35	15.5	2.5
5/32	1/8	KQW03-U01	11.11	10.4	10	18	35.5	36.5	16	3
5/32	1/4	KQW03-U02	14.29	10.4	10	18	41.5	41	16	3
3/16	1/8	KQW05-U01	11.11	11.4	10	19.5	36	37.5	16.5	3.5
3/16	1/4	KQW05-U02	14.29	11.4	10	19.5	40	40	16.5	3.5
1/4	1/8	KQW07-U01	11.11	13.2	10	20.5	39	41.5	17	4.6
1/4	1/4	KQW07-U02	14.29	13.2	10	20.5	41	41.5	17	4.6
1/4	3/8	KQW07-U03	17.46	13.2	10	20.5	42	42.5	17	4.6
5/16	1/8	KQW09-U01	12.7	15.2	12	23.5	40	43.5	18.5	6
5/16	1/4	KQW09-U02	14.29	15.2	12	23.5	45	47	18.5	6
5/16	3/8	KQW09-U03	17.46	15.2	12	23.5	45.5	47	18.5	6
3/8	1/4	KQW11-U02	17.46	17.9	17	25.5	51	54	21	7
3/8	3/8	KQW11-U03	17.46	17.9	17	25.5	51.5	54.5	21	7
3/8	1/2	KQW11-U04	22.23	17.9	17	25.5	55.5	56.5	21	7
1/2	1/4	KQW13-U02	17.46	21.7	17	28	53	58	22	9
1/2	3/8	KQW13-U03	17.46	21.7	17	28	53.5	58.5	22	9.6
1/2	1/2	KQW13-U04	22.23	21.7	17	28	57.5	60.5	22	9.6

PRODUCT
SELECTOR

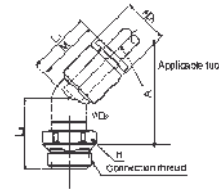
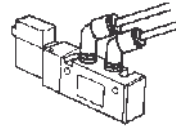
HEXAGON SOCKET HEAD MALE CONNECTOR : KQS (KQ2S)
Male connector for narrow space to tighten hexagon socket head in body by hexagon wrench.



Applicable Tube OD mm	Connection Thread Uni Thread	Model	H (Width Across Flats)	øD	L	A	M	Effective Orifice (mm ²)	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	1/2	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	1/2	KQS12-U04	9	21	27	19	22	60/44.5	

PRODUCT
SELECTOR

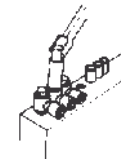
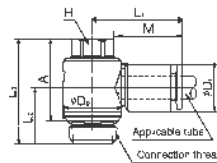
45° MALE ELBOW : KQK (KQ2K)
Use to tubing toward 45° from the thread part.
Intermediate type between the male connector and the male elbow.



Applicable Tube OD mm	Connection Thread Uni Thread	Model	H (Width Across Flats)	øD1	øD2	L1	L2	A	M	Effective Orifice (mm ²)	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	1/2	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	1/2	KQK12-U04	22	20.9	17	25	27.5	43.5	22	44.5	

PRODUCT
SELECTOR

UNIVERSAL MALE ELBOW : KQV (KQ2V)
Elbow union for a narrow space to clamp the hexagon head of body with box wrench.



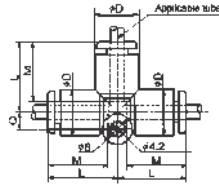
Applicable Tube OD mm	Connection Thread Uni Thread	Model	H (Width Across Flats)	øD1	øD2	L1	L2	L3	A	M	Effective Orifice (mm ²)	Nylon
4	1/8	KQV04-U01	8	10.4	13.4	22	13.5	25.5	21.5	16	2.9	
6	1/8	KQV06-U01	8	12.8	13.4	24	13.5	25.5	21.5	17	7.5	
6	1/8	KQV06-U02	10	12.8	15.4	23.5	15.5	28	22	17	7.5	
8	1/8	KQV08-U01	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	1/2	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	1/2	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	1/2	KQV12-U04	17	20.9	25.2	34	22.5	39.5	31.5	22	39	

SERIES KQ: BLACK BODY FITTINGS
AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS
AVAILABLE IN THE USA

PRODUCT SELECTOR

UNION TEE : KQT (KQ2T)

Use to branch connection of tubes of both side 90° direction.



UNION TEE : KQT (KQ2T)

Applicable Tube OD Inch	Model	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 (mm ²)	
						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

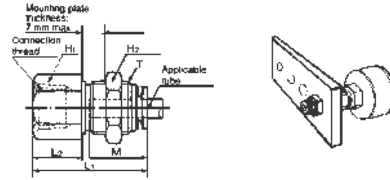
DIFFERENT DIAMETER UNION TEE : KQT (KQ2T)

Applicable Tube OD mm	Model	ϕD_1	ϕD_2	L ₁	L ₂	Q	M ₁	M ₂	Effective Orifice (mm ²)		
									Nylon	Urethane	
3.2	4	KQT23-04	10.4	9.6	18.3	17.5	4.3	16	15.5	3.8	3.5
4	6	KQT04-06	12.8	10.4	19.3	18	4.5	17	16	7.1	6.5
6	8	KQT06-08	15.2	12.8	22.7	20	5.3	18.5	17	16.4	16.4
8	10	KQT08-10	18.5	15.2	26.4	23	6	21	18.5	36	27.2
10	12	KQT10-12	20.9	18.5	28.4	26.5	6.8	22	21	56	44.5

PRODUCT SELECTOR

BULKHEAD CONNECTOR : KQE (KQ2E)

Use for connection of a tube and a male thread for installation on panel.



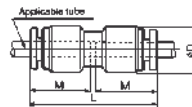
Applicable Tube OD mm	Connection Thread Rc(PT)	Model	T (M)	H1	H2	L1	L2	Mounting Hole	M	Effective Orifice (mm ²) Nylon/Ureth
				(Width Across Flats)	(Width Across Flats)					
3.2	1/8	KQE23-02	M12x1	17	14	31.5	15.5	13	15.5	3.4/2.9
4	1/4	KQE04-01	M12x1	14	14	27.5	11	13	16	5.6
4	1/4	KQE04-02	M12x1	17	14	31	15	13	16	5.6
6	1/4	KEQ06-01	M14x1	17	17	28	11	15	17	13.1
6	1/4	KQE06-02	M14x1	17	17	31.5	15	15	17	13.1
6	1/4	KQE06-03	M14x1	19	17	33.5	17	15	17	13.1
8	1/4	KQE08-02	M16x1	17	19	33	12	17	18.5	26.1/18
8	1/4	KQE08-03	M16x1	19	19	35	15	17	18.5	26.1/18
10	1/4	KEQ10-02	M20x1	22	24	35	12	21	21	41.5/29.5
10	1/4	KQE10-03	M20x1	24	24	34.5	15	21	21	41.5/29.5
12	1/4	KQE12-03	M22x1	24	27	37	15	23	22	58.3/46.1
12	1/4	KQE12-04	M22x1	24	27	41	18	23	22	58.3/46.1
16	1/4	KQE16-03	M26x1.5	30	30	39	14	27	24	96(96)
16	1/4	KQE16-04	M26x1.5	30	30	41	18	27	24	113(96)

Applicable Tube OD Inch	Connection Thread Rc(PT)	Model	T UNF	H1	H2	L1	L2	Mounting Hole	M	Minimum Hole Diameter
				(Width Across Flats)	(Width Across Flats)					
1/8	1/4	KQE01-35	1/2-20	17.46	17.46	31.5	15	14	15.5	2.5
5/32	1/4	KQE03-35	1/2-20	17.46	17.46	31.5	15	14	16	3
3/16	1/8	KQE05-34	9/16-18	17.46	17.46	28.5	13	15	16.5	3.5
1/4	1/4	KEQ07-35	9/16-18	17.46	17.46	30.5	14.5	15	17	4.6
5/16	3/8	KQE09-36	3/4-16	22.23	22.23	35.5	15	20	18.5	6
3/8	3/8	KQE11-36	1/8-14	25.4	25.4	35.5	14.5	23	21	7
1/2	3/8	KQE13-36	1-12	28.57	28.57	36.5	14.5	26	22	9.6
1/2	1/2	KQE13-37	1-12	28.57	28.57	40.5	18.5	26	22	9.6

PRODUCT SELECTOR

STRAIGHT UNION : KQH (KQ2H)

Use to connect tubes in the same direction.



Applicable Tube OD mm	Model	ϕD	L	M	Effective Orifice (mm ²) 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)

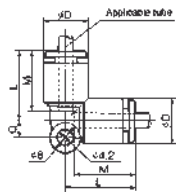
Applicable Tube OD mm	Model	ϕD	L	M ₁	M ₂	Effective Orifice (mm ²)		
						Nylon	Urethane	
3.2	4	KQH23-04	10.4	32.5	15.5	16	3.2	2.7
4	6	KQH04-06	12.8	34.5	16	17	4.2	4.2
6	8	KQH06-08	15.2	38.5	17	18.5	10.7	10.7
8	10	KQH08-10	18.5	42	18.5	21	24.1	16.7
10	12	KQH10-12	20.9	44.5	21	22	37.6	28.2

SERIES KQ2 ONE TOUCH FITTINGS



**PRODUCT
SELECTOR**

UNION ELBOW : KQL (KQ2L)
Use to connect tubes in right angle.

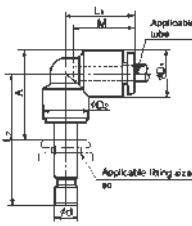


Applicable Tube OD mm	Model	øD	L	Q	M	Effective Orifice (mm ²) Nylon/Urethane
3.2	KQL23-00	9.6	17.5	4.3	15.5	3/2.5
4	KQL04-00	10.4	18	4.5	16	4.2/4.2
6	KQL06-00	12.8	20	5.3	17	11.4/11.4
8	KQL08-00	15.2	23	6	18.5	21.6/14.9
10	KQL10-00	18.5	26.5	6.8	21	35.2/25
12	KQL12-00	20.9	28.5	7.5	22	50.2/39.7
16	KQL16-00	26.5	33	10	24.5	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 mm	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

Plug-in Elbow: KQL/KQ2L

Applicable Tube OD Inch	Applicable Fitting Size ø	Model	øD1	øD2	L1	L2	A	M	Minimum Hole Diameter
1/8	3.2(1/8)	KQL01-99	9.6	10	17.5	33	22	15.5	2
5/32	4(5/32)	KQL03-99	10.4	10	18	33	22	16	2.5
3/16	4.8(3/16)	KQL05-99	11.4	10	19.5	34	23.5	16.5	3.5
1/4	6.3(1/4)	KQL07-99	13.2	10	20.5	35.5	25	17	4.6
5/16	8(5/16)	KQL09-99	15.2	12	23.5	38.5	27	18.5	6
3/8	9.5(3/8)	KQL11-99	17.9	17	25.5	42	30	21	7
1/2	12.7(1/2)	KQL13-99	21.7	17	28	44.5	34	22	9.6

Reducer Elbow: KQL/KQ2L

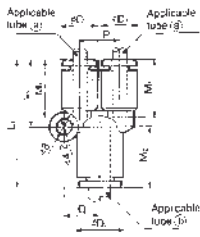
Applicable Tube OD mm	Applicable Fitting Size ø mm	Model	øD1	øD2	L1	L2	A	M	Effective Orifice (mm ²) Nylon/Urethane
3.2	4	KQL23-04	9.6	10	17.5	33	21.5	15.5	3/2.5
4	6	KQL04-06	10.4	10	18	33	21.5	16	4.2/4.2
4	8	KQL04-08	10.4	10	18	35	22	16	4.2/4.2
6	8	KQL06-08	12.8	10	20	36.5	24.5	17	11.4/11.4
6	10	KQL06-10	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

Reducer Elbow: KQL/KQ2L

Applicable Tube OD Inch	Applicable Fitting Size ø	Model	øD1	øD2	L1	L2	A	M	Effective Orifice
1/8	4(5/32)	KQL01-03	9.6	10	17.5	33	21.5	15.5	2.5
1/8	4.8(3/16)	KQL01-05	9.6	10	17.5	33	21.5	15.5	2.5
5/32	4.8(3/16)	KQL03-05	10.4	10	18	33.5	22.5	16	3
5/32	6.3(1/4)	KQL03-07	10.4	10	18	34	22.5	16	3
3/16	6.3(1/4)	KQL05-07	11.4	10	19.5	34.5	23.5	16.5	3.5
3/16	8(5/16)	KQL05-09	11.4	10	19.5	36.5	24	16.5	3.5
1/4	8(5/16)	KQL07-09	13.2	10	20.5	37.5	25.5	17	4.6
1/4	9.5(3/8)	KQL07-11	13.2	10	20.5	39.5	25	17	4.6
5/16	9.5(3/8)	KQL09-11	15.2	12	23.5	40.5	27.5	18.5	6
5/16	12.7(1/2)	KQL09-73	15.2	12	23.5	41.5	27.5	18.5	6
3/8	12.7(1/2)	KQL11-13	17.9	17	25.5	30	30	21	7

**PRODUCT
SELECTOR**

**UNION "Y" : KQU (KQ2U) &
DIFFERENT DIAMETER UNION 'Y' KQU (KQ2U)**
Use to branch connection of tubes in the same direction.



UNION "Y" : KQU (KQ2U)

Applicable Tube OD mm	Model	øD1	L1	L2	P	Q	M	Effective Orifice (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

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

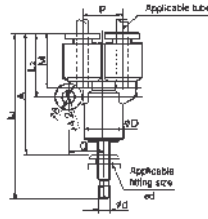
DIFFERENT DIA. UNION 'Y' KQU (KQ2U)

Applicable Tube OD mm	Model	øD1	øD2	L1	L2	P	Q	M1	M2	Effective Orifice (mm ²) Nylon/Urethane	
3.2	4	KQU23-04	9.6	10.4	33.5	17.5	9.6	9	15.5	16	3.2/2.7
4	6	KQU04-06	10.4	12.8	35	18	10.4	9.7	16	17	4.2/4.2
6	8	KQU06-08	12.8	15.2	39.5	20	12.8	11.7	17	18.5	13.4/13.4
8	10	KQU08-10	15.2	18.5	45	24.5	15.2	13.7	18.5	21	25.6/17.7
10	12	KQU10-12	18.5	20.9	49	27.5	18.5	16.1	21	22	40/28.4

PRODUCT SELECTOR

PLUG-IN "Y" : KQU (KQ2U)

Use to branch tubing in the same direction from one-touch fittings.



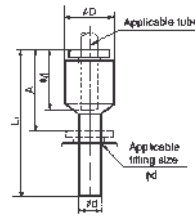
Applicable Tube OD mm	Applicable Fitting Size ød	Model	øD1	L1	L2	P	Q	A	M	Effective Orifice (mm ²) Nylon/Urethane
3.2	3.2	KQU23-99	9.6	52	17.5	9.6	9	36.5	15.5	3.4/2.9
4	4	KQU04-99	10.4	53	18	10.4	9.7	37	16	4.2/4.2
6	6	KQU06-99	12.8	57	20	12.8	11.7	40	17	13.4/16.3, 4
8	8	KQU08-99	15.2	64.5	24.5	15.2	13.7	46	18.5	25.6/17.7
10	10	KQU10-99	18.5	71.5	27.5	18.5	16.1	50.5	21	40/28.4
12	12	KQU12-99	20.9	75.5	30	20.9	18.1	53.5	22	57.4/45.4

Applicable Tube OD Inch	Applicable Fitting Size ød	Model	øD1	L1	L2	P	Q	A	M	Minimum Hole Diameter
1/8	3.2(1/8)	KQU01-99	9.6	52	17.5	9.6	9	36.5	15.5	2
5/32	4(5/32)	KQU03-99	10.4	53	18	10.4	9.7	37	16	2.5
3/16	4.8(3/16)	KQU05-99	11.4	56	20.5	11.4	10.6	39.5	16.5	3.5
1/4	6.3(1/4)	KQU07-99	13.2	58	21.5	13.2	12	41	17	4.6
5/16	8(5/16)	KQU09-99	15.2	64.5	24.5	15.2	13.7	46	18.5	6

PRODUCT SELECTOR

PLUG-IN REDUCER: KQR(KQ2R)

Use to change size of one-touch fittings.



Applicable Tube OD mm	Applicable Fitting Size ød	Model	øD	L	A	M	Effective Orifice (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)

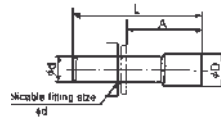
Note: () Dimensions are for Soft Nylon

Applicable Tube OD Inch	Applicable Fitting Size ød	Model	øD	L	A	M	Minimum Hole Diameter
1/8	9(5/32)	KQR01-03	10	37	21	15.5	2.5
1/8	4.8(3/16)	KQR01-05	10	37.5	21	15.5	2.5
5/32	4.8(3/16)	KQR03-05	11	38	21.5	16	3
5/32	6.3(1/4)	KQR03-07	11	36	19	16	3
3/16	6.3(1/4)	KQR05-07	12	39	22	16.5	3.5
3/16	8(5/16)	KQR05-09	12	38	19.5	16.5	3.5
1/4	8(5/16)	KQR07-09	14	41.5	23	17	4.6
1/4	9.5(3/8)	KQR07-11	14	40	20	17	4.6
5/16	9.5(3/8)	KQR09-11	16	45.5	25	18.5	6
5/16	12.7(1/2)	KQR09-13	16	42.5	21	18.5	6
3/8	12.7(1/2)	KQR11-13	48	44.5	22.5	21	7

PRODUCT SELECTOR

PLUG : KQP (KQ2P)

Use to shut no use one-touch fittings.



Applicable Fitting Size ød mm	Model	øD	L	A
3.2	KQP-23	3.2	31.5	16
4	KQP-04	6	32	16
6	KQP-06	8	35	18
8	KQP-08	10	39	20.5
10	KQP-10	12	43	22
12	KQP-12	14	46	24
16	KQP-14	21	47	23

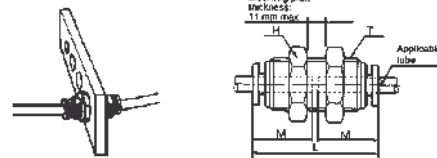
Applicable Fitting Size ød Inch	Model	øD	L	A
3.2(1/8)	KQP-01	5	31.5	16
4(5/32)	KQP-03	6	32	16
4.8(3/16)	KQP-05	6.8	34	17.5
6.3(1/4)	KQP-07	8.5	35	18
8(5/16)	KQP-09	10	39	20.5
9.5(3/8)	KQP-11	11.5	43	22
12.7(1/2)	KQP-13	15	46	24

SERIES KQ: BLACK BODY FITTINGS
AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS
AVAILABLE IN THE USA

PRODUCT SELECTOR

BULKHEAD UNION : KQE (KQ2E)

Use to junction connection of tubes for installation of panel.



Applicable Tube OD mm	Model	T (M)	H (Width Across Flats)	L	Mounting Hole	M	Effective Orifice (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

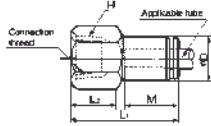
Note: () Dimensions are for Soft Nylon

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

PRODUCT
SELECTOR

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)	øD	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

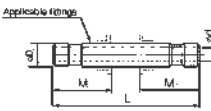
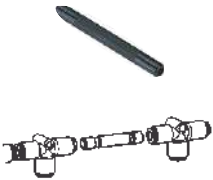
PRODUCT
SELECTOR

NIPPLE : KQN (KQ2N)

Use to connect the one-touch fittings

DIFFERENT DIAMETER NIPPLE : KQN (KQ2N)

Use to connect different size one-touch fittings.



Differential Diameter Nipple KQN

Applicable Fittings øD	Model	L	M	øD	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

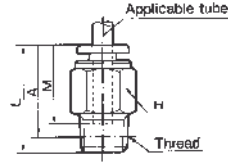
Applicable Fittings	Model	L	M1	M2	øD	Weight g	
a	b						
4	6	KQN04-06	38	17	16	2.5	4.7
6	8	KQN06-08	42	18.5	17	4	8.7
8	10	KQN08-10	47	21	18.5	6	13.2
10	12	KQN10-12	51	22	21	8	18.2

SERIES KQ: BLACK BODY FITTINGS
AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS
AVAILABLE IN THE USA

NOTE: There are no grooves in the KQN (KQ2N) Fitting.

**PRODUCT
SELECTOR**

MALE CONNECTOR: KQH (KQ2H)



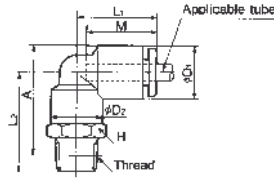
Applicable Tube OD (mm)	Thread R(PT)	Model	H (Hex)	L	•A	M	Effective Orifice (mm ²) Nylon Urethane		Weight (g)
3.2	M5x0.8	KQH23-M5	8.7	22.5	20	15.5	3.4	2.9	5
3.2	1/8	KQH23-01S	10	22	18	15.5	3.4	2.9	9
3.2	1/4	KQH23-02S	14	21	15	15.5	3.4	2.9	16
4	M5x0.8	KQH04-M5	9.8	23.5	20	16	4	4	8
4	1/8	KQH04-01S	10	22	18	16	5.6	5.6	9
4	1/4	KQH04-02S	14	21	15	16	5.6	5.6	16
6	M5x0.8	KQH06-M5	11.8	24	20.5	17	4	4	9
6	1/8	KQH06-01S	12	22.5	18.5	17	13.1	13.1	10
6	1/4	KQH06-02S	14	23	17	17	13.1	13.1	15
6	3/8	KQH06-03S	17	23	16.5	17	13.1	13.1	27
8	1/8	KQH08-01S	14	28	24	18.5	26.1	18	21
8	1/4	KQH08-02S	14	26.5	20.5	18.5	26.1	18.0	19
8	3/8	KQH08-03S	17	23.5	17	18.5	26.1	18.0	26
10	1/8	KQH10-01S	17	30	26	21	41.5	29.5	19
10	1/4	KQH10-02S	17	33.5	27.5	21	41.5	29.5	30
10	3/8	KQH10-03S	17	29	22.5	21	41.5	29.5	30
10	1/2	KQH10-04S	22	27	19	21	41.5	29.5	53
12	1/4	KQH12-02S	19	34.5	28.5	22	58.3	46.1	42
12	3/8	KQH12-03S	19	30	23.5	22	58.3	46.1	34
12	1/2	KQH12-04S	22	30	22	22	58.3	46.1	51
16	3/8	KQH16-03S	24	38.5	32	24	81	(81)	61
16	1/2	KQH16-04S	24	34.5	26.5	24	113	(96)	47

Applicable Tube OD (Inch)	Thread UNF NPT	Model	H (Hex)	L	•A	M	Minimum Hole Diameter	Weight (g)
1/8	UNF10-32	KQH01-32	8.7	22.5	20	15.5	2.3	5
1/8	1/16	KQH01-33S	11.11	22	18	15.5	2.5	7
1/8	1/8	KQH01-34S	11.11	22	18	15.5	2.5	9
1/8	1/4	KQH01-35S	14.29	21	15	16	2.5	16
5/32	UNF10-32	KQH03-32	9.8	22.5	20	16	2.5	5
5/32	1/16	KQH03-33S	11.11	22	18	16	3	7
5/32	1/8	KQH03-34S	11.11	22	18	16	3	9
5/32	1/4	KQH03-35S	14.29	21	15	16	3	16
3/16	1/8	KQH05-34S	12.7	22	18	16	3.5	11
3/16	1/4	KQH05-35S	14.29	21	15	16	3.5	12
1/4	1/8	KQH07-34S	14.29	22.5	18.5	17	4.6	10
1/4	1/4	KQH07-35S	14.29	23	17	17	4.6	15
1/4	3/8	KQH07-36S	17.46	23	16.5	17	4.6	27
5/16	1/8	KQH09-34S	14.29	28.5	24.5	18.5	6	15
5/16	1/4	KQH09-35S	14.29	26.5	20.5	18.5	6	16
5/16	3/8	KQH09-36S	17.46	23.5	17	18.5	6	24
3/8	1/4	KQH11-35S	17.46	33.5	27.5	21	7	31
3/8	3/8	KQH11-36S	17.46	29	22.5	21	7	29
3/8	1/2	KQH11-37S	22.23	27	19	21	7	46
1/2	1/4	KQH13-35S	22.23	34.5	28.5	22	9	44
1/2	3/8	KQH13-36S	22.23	33.5	27	22	9.6	44
1/2	1/2	KQH13-37S	22.23	30	22	22	9.6	44

• Reference dimensions after PT thread installation.
Note: The dimensions in brackets are for Soft Nylon.

**PRODUCT
SELECTOR**

MALE ELBOW: KQL (KQ2L)



Applicable Tube OD (mm)	Thread R(PT)	Model	H (Hex)	OD ₁	OD ₂	L ₁	L ₂	•A	M	Effective Orifice (mm ²) Nylon/Urethane		Weight (g)
3.2	M5x0.8	KQL23-M5	8	9.6	8	17.5	15	16	15.5	3/2.5	6	
3.2	1/8	KQL23-01S	10	9.6	10	17.5	21.5	22.5	15.5	3/2.5	8	
3.2	1/4	KQL23-02S	14	9.6	10	17.5	25.5	24.5	15.5	3/2.5	18	
4	M5x0.8	KQL04-M5	8	10.4	8	18	15.5	16	16	3.5/3.5	4	
4	1/8	KQL04-01S	10	10.4	10	18	22	23	16	4.2/4.2	10	
4	1/4	KQL04-02S	14	10.4	10	18	26	25	16	4.2/4.2	19	
6	M5x0.8	KQL06-M5	8	12.8	8	20	16	18	17	3.5/3.5	6	
6	1/8	KQL06-01S	10	12.8	10	20	23	25.5	17	11.4/11.4	12	
6	1/4	KQL06-02S	14	12.8	10	20	27	27.5	17	11.4/11.4	10	
6	3/8	KQL06-03S	17	12.8	10	20	29	29	17	11.4/11.4	33	
8	1/8	KQL08-01S	12	15.2	12	23	24.5	28	18.5	21.6/14.9	13	
8	1/4	KQL08-02S	14	15.2	12	23	28.5	30	18.5	21.6/14.9	21	
8	3/8	KQL08-03S	17	15.2	12	23	30.5	31.5	18.5	21.6/14.9	35	
10	1/8	KQL10-01S	17	18.5	17	26.5	27	32	21	21.6/14.9	25	
10	1/4	KQL10-02S	17	18.5	17	26.5	30	33	21	35.2/25.0	26	
10	3/8	KQL10-03S	17	18.5	17	26.5	32	34.5	21	35.2/25.0	36	
10	1/2	KQL10-04S	22	18.5	17	26.5	36	37	21	35.2/25.0	63	
12	1/8	KQL12-02S	17	20.9	17	28.5	31	35.5	22	50.2/39.7	28	
12	3/8	KQL12-03S	17	20.9	17	28.5	33	37	22	50.2/39.7	38	
12	1/2	KQL12-04S	22	20.9	17	28.5	37	39.5	22	50.2/39.7	65	
16	3/8	KQL16-03S	22	26.5	21	33	38	44.5	24	71/(71)	101	
16	1/2	KQL16-04S	22	26.5	21	33	41	46	24	100/(84)	105	

• Reference dimensions after PT thread installation.
Note: The dimensions in brackets are for soft nylon.

**SERIES KQ: BLACK BODY FITTINGS
AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS
AVAILABLE IN THE USA**

SERIES KQ2 ONE TOUCH FITTINGS



SEE NEXT PAGE FOR MORE DIMENSIONS

PRODUCT SELECTOR

MALE ELBOW: KQL (KQ2L)

SERIES KQ: BLACK BODY FITTINGS
AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS
AVAILABLE IN THE USA

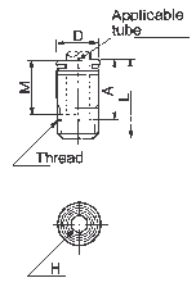
Applicable Tube OD (Inch)	Thread UNF NPT	Model	H (Hex)	ØD ₁	ØD ₂	L ₁	L ₂	•A	M	Minimum Hole Diameter	Weight (g)
1/8	1/16	KQL01-33S	11.11	9.6	10	17.5	21.5	22.5	15.5	2.5	8
1/8	1/8	KQL01-34S	11.11	9.6	10	17.5	21.5	22.5	15.5	2.5	8
1/8	1/4	KQL01-35S	14.29	9.6	10	17.5	25.5	24.5	15.5	2.5	18
5/32	1/16	KQL03-33S	11.11	10.4	10	18	22	23	16	3	8
5/32	1/8	KQL03-34S	11.11	10.4	10	18	22	23	16	3	9
5/32	1/4	KQL03-35S	14.29	10.4	10	18	26	25	16	3	18
3/16	1/8	KQL05-34S	11.11	11.4	10	19.5	22.5	24	16.5	3.5	10
3/16	1/4	KQL05-35S	14.29	11.4	10	19.5	26.5	26	16.5	3.5	19
1/4	1/8	KQL07-34S	11.11	13.2	10	20.5	23.5	26	17	4.6	10
1/4	1/4	KQL07-35S	14.29	13.2	10	20.5	27.5	28	17	4.6	20
1/4	3/8	KQL07-36S	17.46	13.2	10	20.5	29.5	29.5	17	4.6	32
5/16	1/8	KQL09-34S	12.7	15.2	12	23.5	24.5	28	18.5	6	12
5/16	1/4	KQL09-35S	14.29	15.2	12	23.5	28.5	30	18.5	6	20
5/16	3/8	KQL09-36S	17.46	15.2	12	23.5	30.5	31.5	18.5	6	28
3/8	1/4	KQL11-35S	17.46	17.9	17	25.5	29.5	32.5	21	7	23
3/8	3/8	KQL11-36S	17.46	17.9	17	25.5	31.5	34	21	7	33
3/8	1/2	KQL11-37S	17.46	17.9	17	25.5	35.5	36.5	21	7	59
1/2	1/4	KQL13-35S	17.46	21.7	17	28	31.5	36.5	22	9	28
1/2	3/8	KQL13-36S	17.46	21.7	17	28	33.5	38.5	22	9.6	36
1/2	1/2	KQL13-37S	22.23	21.7	17	28	37.5	40	22	9.6	62

PRODUCT SELECTOR

HEXAGON SOCKET HEAD
MALE CONNECTOR: KQS (KQ2S)

Applicable Tube OD (mm)	Thread R(PT)	Model	H (Hex)	ØD	L	•A	M	Effective Orifice (mm ²)		Weight (g)
								Nylon	Urethane	
4	M5x0.8	KQS04-M5	2	9.8	23	19.5	16	2.7	2.7	6.3
4	1/8	KQS04-01S	3	9.8	23	19	16	4.1	3.6	7.8
6	M5x0.8	KQS06-M5	2	11.8	24	20.5	17	2.7	2.7	8.5
6	1/8	KQS06-01S	4	11.8	24	20	17	10.0	9.9	8.9
6	1/4	KQS06-02S	4	13.8	25	19	17	10.7	10.0	14.8
8	1/8	KQS08-01S	5	14	28	24	18.5	17.2	16.2	12.4
8	1/4	KQS08-02S	6	14	25.5	19.5	18.5	23.3	16.2	11.3
8	3/8	KQS08-03S	6	17	26.5	20	18.5	23.3	16.2	23.8
10	1/8	KQS10-01S	5	17	30	26	21	17.2	10.0	17.9
10	1/4	KQS10-02S	8	17	26.5	20.5	21	39	26.6	11.8
10	3/8	KQS10-03S	8	17	26.5	20	21	39	26.6	18.5
10	1/2	KQS10-04S	8	22	27	19	21	39	26.6	35.2
12	1/4	KQS12-02S	8	19	33.5	27.5	22	46.0	44.5	23.4
12	3/8	KQS12-03S	9	19	28	21.5	22	60	44.5	17.7
12	1/2	KQS12-04S	9	22	27	19	22	60	44.5	29.6

• Reference dimensions after PT thread installation.

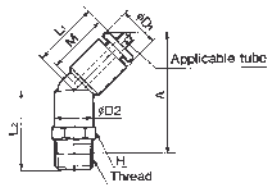


PRODUCT SELECTOR

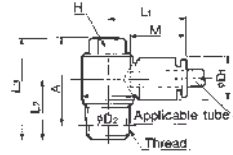
45° MALE ELBOW: KQK (KQ2K)

Applicable Tube OD (mm)	Thread R(PT)	Model	H (Hex)	ØD ₁	ØD ₂	L ₁	L ₂	•A	M	Effective Orifice (mm ²)		Weight (g)
										Nylon	Urethane	
4	M5x0.8	KQK04-M5	8	10.4	8	17	14.5	26	16	3.4	3.4	4
4	1/8	KQK04-01S	10	10.4	10	17	20.5	32	16	3.4	3.4	10
4	1/4	KQK04-02S	14	10.4	10	17	24.5	34	16	3.4	3.4	19
6	M5x0.8	KQK06-M5	8	12.8	8	18	14.5	26	17	3.4	3.4	6
6	1/8	KQK06-01S	10	12.8	10	18	20.5	33	17	8.7	8.7	12
6	1/4	KQK06-02S	14	12.8	10	18	24.5	35	17	8.7	8.7	10
6	3/8	KQK06-03S	17	12.8	10	18	26.5	36.5	17	8.7	8.7	33
8	1/8	KQK08-01S	12	15.2	12	20.5	22	37	18.5	19.7	19.7	13
8	1/4	KQK08-02S	14	15.2	12	20.5	26	39	18.5	19.7	19.7	21
8	3/8	KQK08-03S	17	15.2	12	20.5	28	40.5	18.5	19.7	19.7	35
10	1/8	KQK10-01S	17	18.5	17	24	24	42	21	30.9	23.2	25
10	1/4	KQK10-02S	17	18.5	17	24	27	43.5	21	30.9	23.2	26
10	3/8	KQK10-03S	17	18.5	17	24	29	45	21	30.9	23.2	36
10	1/2	KQK10-04S	22	18.5	17	24	33	47.5	21	30.9	23.2	63
12	1/4	KQK12-02S	17	20.9	17	25	27.5	45.5	22	44.5	35.1	28
12	3/8	KQK12-03S	17	20.9	17	25	29.5	47	22	44.5	35.1	38
12	1/2	KQK12-04S	22	20.9	17	25	33.5	49.5	22	44.5	35.1	65

• Reference dimensions after PT thread installation.



PRODUCT SELECTOR
UNIVERSAL MALE ELBOW: KQV (KQ2V)



Applicable Tube OD (mm)	Thread R(PT)	Model	H (Hex)	ØD ₁	ØD ₂	L ₁	L ₂	L ₃	•A	M	Effective Orifice (mm ²)		Weight (g)
											Nylon	Urethane	
4	M5x0.8	KQV04-M5	8	10.4	9.8	20.5	11	18.5	15	16	2.9	2.9	6
4	1/8	KQV04-01S	8	10.4	13.4	22	14.5	26.5	22.5	16	2.9	2.9	14
6	M5x0.8	KQV06-M5	8	12.8	9.8	23.5	12	18.5	15	17	3.8	3.8	7
6	1/8	KQV06-01S	8	12.8	13.4	24	14.5	26.5	22.5	17	7.5	7.5	15
6	1/4	KQV06-02S	10	12.8	15.4	23.5	18.5	31	25	17	7.5	7.5	26
8	1/8	KQV08-01S	12	15.2	17.6	28.5	15.5	28.5	24.5	18.5	11.2	24	24
8	1/4	KQV08-02S	12	15.2	17.6	28.5	18.5	31.5	25.5	18.5	11.2	30	30
8	3/8	KQV08-03S	14	15.2	20.6	27.5	20.5	36.5	30	18.5	14.3	47	47
10	1/4	KQV10-02S	14	18.5	20.6	31	19.5	35.5	29.5	21	27	20.3	40
10	3/8	KQV10-03S	14	18.5	20.6	31	20.9	36.5	30	21	27	20.3	49
12	1/2	KQV12-03S	17	20.9	25.2	34	22	38.5	32	22	39	30.8	63
12	3/4	KQV12-04S	17	20.9	25.2	34	25	41.5	33.5	22	39	30.8	80

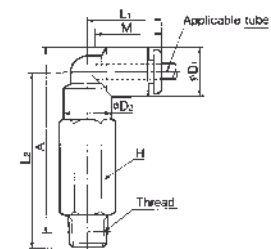
• Reference dimensions after PT thread installation.

PRODUCT SELECTOR
EXTENDED MALE ELBOW: KQW (KQ2W)



Applicable Tube OD (mm)	Thread R(PT)	Model	H (Hex)	ØD ₁	ØD ₂	L ₁	L ₂	•A	M	Effective Orifice (mm ²)		Weight (g)
										Nylon	Urethane	
3.2	M5x0.8	KQW23-M5	8	9.6	8	17.5	30	31	15.5	2.8	2.4	10
3.2	1/8	KQW23-01S	10	9.6	10	17.5	37	22.5	15.5	2.8	2.4	19
3.2	1/4	KQW23-02S	14	9.6	10	17.5	43	42	15.5	2.8	2.4	41
4	M5x0.8	KQW04-M5	8	10.4	8	18	30	32	16	3.0	3.0	11
4	1/8	KQW04-01S	10	10.4	10	18	37.5	38.5	16	4.0	4.0	23
4	1/4	KQW04-02S	14	10.4	10	18	43.5	42.5	16	4.0	4.0	38
6	M5x0.8	KQW06-M5	8	12.8	8	20	30.5	33.5	17	3.0	3.0	11
6	1/8	KQW06-01S	10	12.8	10	20	40	42.5	17	10.9	10.9	26
6	1/4	KQW06-02S	14	12.8	10	20	46	46.5	17	10.9	10.9	41
6	3/8	KQW06-03S	17	12.8	10	20	48	48	17	10.9	10.9	67
8	1/8	KQW08-01S	12	15.2	12	23	43.5	47	18	20.5	14.2	30
8	1/4	KQW08-02S	14	15.2	12	23	49.5	51	18	20.5	14.2	47
8	3/8	KQW08-03S	17	15.2	12	23	51.5	52.5	18	20.5	14.2	74
10	1/4	KQW10-02S	17	18.5	17	26.5	56.5	59.5	21	33.5	23.8	66
10	3/8	KQW10-03S	17	18.5	17	26.5	58.5	61	21	33.5	23.8	76
10	1/2	KQW10-04S	22	18.5	17	26.5	65	66	21	33.5	23.8	145
12	1/4	KQW12-02S	17	20.9	17	28.5	57.5	62	22	47.7	37.7	68
12	3/8	KQW12-03S	17	20.9	17	28.5	59.5	63.5	22	47.7	37.7	78
12	1/2	KQW12-04S	22	20.9	17	28.5	66	68.5	22	47.7	37.7	147

• Reference dimensions after PT thread installation.



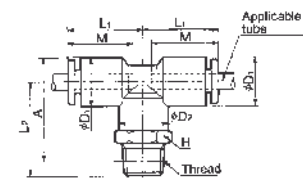
SERIES KQ: BLACK BODY FITTINGS
AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS
AVAILABLE IN THE USA

Applicable Tube OD (Inch)	Thread UNF NPT	Model	H (Hex)	ØD ₁	ØD 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

TUBE FITTINGS: ONE TOUCH FITTINGS KQ, KQ2 SEALANT TYPE



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	3/8	KQT16-03S	22	26.5	21	33	38	44.5	24	71	(71)	112
16	1/2	KQT16-04S	22	26.5	21	33	41	46	24	100	(100)	116

• Reference dimensions after PT thread installation.
Note: The dimensions in brackets are for Soft Nylon.

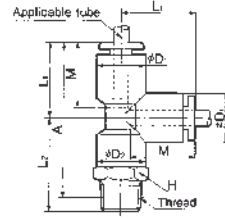
Applicable Tube OD (Inch)	Thread UNF NPT	Model	H (Hex)	ØD ₁	ØD ₂	L ₁	L ₂	•A	M	Minimum Hole Diameter	Weight (g)
1/8	1/16	KQT01-33S	11.11	9.6	10	17.5	21.5	22.5	15.5	2.5	10
1/8	1/8	KQT01-34S	11.11	9.6	10	17.5	21.5	22.5	15.5	2.5	10
1/8	1/4	KQT01-35S	14.29	9.6	10	17.5	25.5	24.5	15.5	2.5	20
5/32	1/16	KQT03-33S	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	3/8	KQY12-03S	17	20.9	17	28.5	33	55	22	57.4	45.4	41
12	1/2	KQY12-04S	22	20.9	17	28.5	37	57.5	22	57.4	45.4	68
16	3/8	KQY16-03S	22	26.5	21	33	38	77.5	24	81	(81)	112
16	1/2	KQY16-04S	22	26.5	21	33	41	74	24	113	(113)	116

• Reference dimensions after PT thread installation.
Note: The dimensions in brackets are for soft nylon.

Applicable Tube OD (Inch)	Thread UNF NPT	Model	H (Hex)	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 $\frac{1}{2}$ (Allen)



PRODUCT
SELECTOR

TWIN MALE ELBOW: KQLU/KQ2LU
TWIN UNION ELBOW: KQLU/KQ2LU
4mm - R $\frac{1}{2}$ & 4mm tube for union



PRODUCT
SELECTOR

SINGLE BANJO: KQVF/KQ2VF
6mm - R $\frac{1}{2}$ (Stack)



PRODUCT
SELECTOR

90° FEMALE ELBOW: KQLF/KQ2LF
6mm - R $\frac{1}{2}$



PRODUCT
SELECTOR

DOUBLE BANJO: KQVD/KQ2VD
4mm - R $\frac{1}{2}$



PRODUCT
SELECTOR

TRIPLE BANJO: KQVT/KQ2VT
4mm - R $\frac{1}{2}$



PRODUCT
SELECTOR

TWIN BANJO: KQZ/KQ2Z
6mm - R $\frac{1}{2}$



PRODUCT
SELECTOR

TWIN BANJO: KQZF/KQ2ZF
6mm - R $\frac{1}{2}$ (Stack)



PRODUCT
SELECTOR

QUADRUPLE BANJO: KQZD/KQ2ZD
4mm - R $\frac{1}{2}$



PRODUCT
SELECTOR

SEXTUPLE BANJO: KQZT/KQ2ZT
4mm - R $\frac{1}{2}$



PRODUCT
SELECTOR

LONG STEM ELBOW: KQW/KQ2W
6mm



PRODUCT
SELECTOR

CORNER MALE ELBOW: KQD/KQ2D
CORNER UNION ELBOW: KQD/KQ2D
4mm - R $\frac{1}{2}$ & 6mm tube for union



PRODUCT
SELECTOR

MALE Y: KQUD/KQ2UD
4 x 4mm - R $\frac{1}{2}$



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 $\frac{1}{2}$



PRODUCT
SELECTOR

UNION BLANK: KQC/KQ2C
6mm Tube



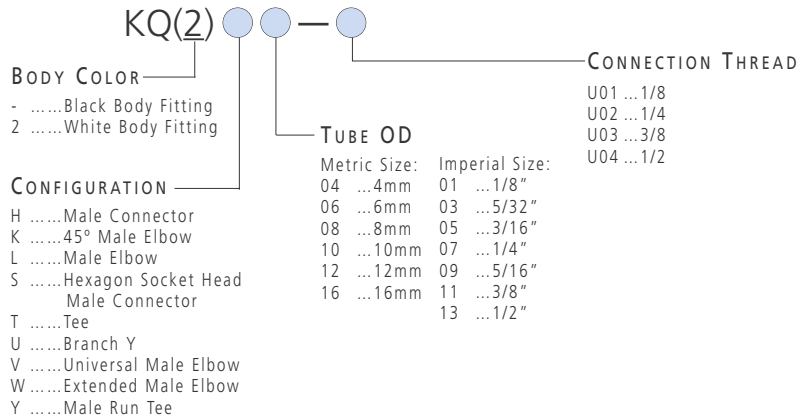
How To
ORDER
SEE NEXT PAGE

SERIES KQ: BLACK BODY FITTINGS
AVAILABLE IN CANADA
SERIES KQ2: WHITE BODY FITTINGS
AVAILABLE IN THE USA

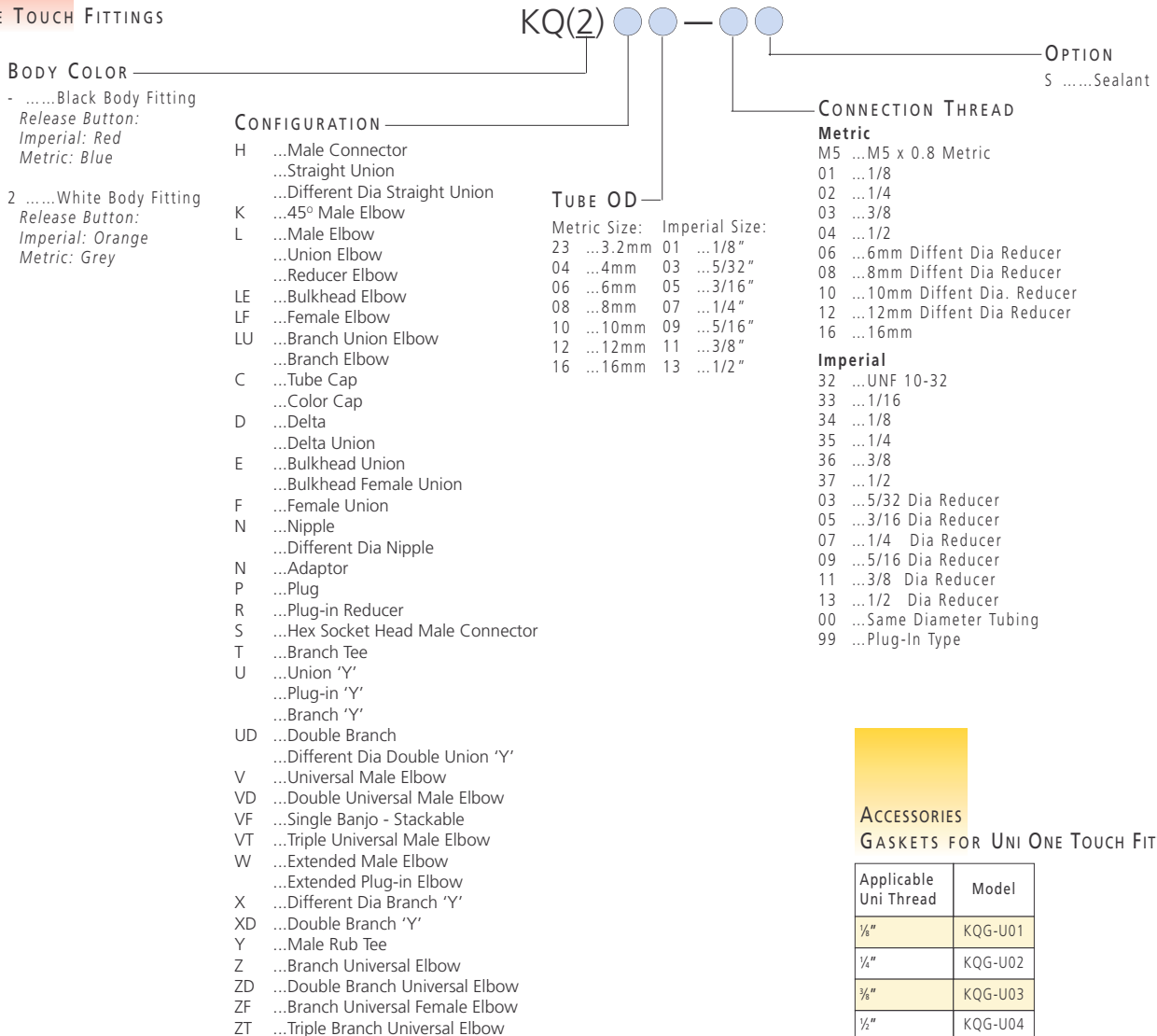
SMC ONE TOUCH FITTINGS

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



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

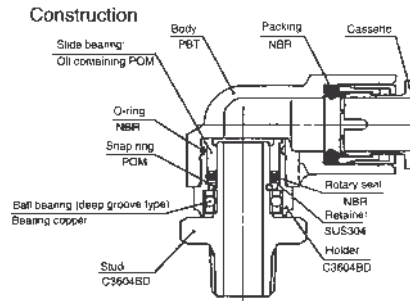


TECHNICAL SPECIFICATIONS

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)	KS	Ø4	Ø6	Ø8	Ø10	Ø12
	KX	500	500	400	300	250
Starting Torque Nm x 10 ⁻³	KS	6	12	14	20	22
	KX	1500	1200	1200	1000	1000
Thread	JIS B0203, JIS B0205					

For higher speed (up to 1500rpm) applications, contact SMC Customer Service

CONSTRUCTION SPECIFICATIONS



An ambient atmosphere that causes rust is non permissible.

HOW TO ORDER

ROTARY ONE TOUCH FITTINGS SERIES KS/KX



SPEED RATING

- SHigh speed
- XVery high speed

CONFIGURATION

- HStraight
- LElbow

TUBE SIZE

- 04 ...Ø4mm
- 06 ...Ø6mm
- 08 ...Ø8mm
- 10 ...Ø10mm
- 12 ...Ø12mm

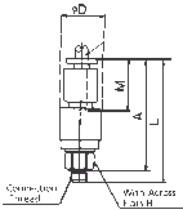
THREAD SIZE

- 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

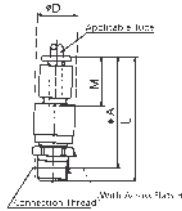


DIMENSIONS
SEE NEXT PAGE

DIMENSIONS STRAIGHT CONNECTOR: KSH



Metric thread connection

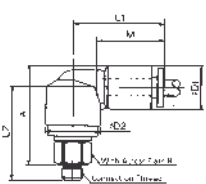


Male pipe thread connection

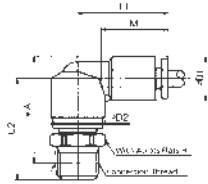
Dimensions in mm

Applicable Tube OD mm	Connection Thread	Model	H (Width Across Flats)	øD	L	*A	M	Min Hole Diameter	Effective Orifice (mm ²) / Nylon	Mass (g)
4	M5 x0.8	KSH04-M5	8	12.5	36.5	33	16	2.5	4	9
	1/8	KSH04-01S	12	12.5	38	34	16	2.5	4	14
6	1/8	KSH06-01S	14	14.5	39.5	35.5	17	4	13.4	17
	1/4	KSH06-02S	14	14.5	42.5	36.5	17	4	13.4	23
8	1/8	KSH08-01S	17	17.5	44	40	18.5	6	26.1	23
	1/4	KSH08-02S	17	17.5	47	41	18.5	6	26.1	29
	3/8	KSH08-03S	17	17.5	48	41.5	18.5	6	26.1	37
10	1/4	KSH10-02S	22	22.5	54	48	21	7	36.3	55
	3/8	KSH10-03S	22	22.5	55	48.5	21	7	36.3	63
	1/2	KSH10-04S	22	22.5	57.5	49.5	21	7	36.3	81
12	3/8	KSH12-03S	24	24.5	57	50.5	22	8	46.1	75
	1/2	KSH12-04S	24	24.5	60	52	22	8	46.1	92

DIMENSIONS ELBOW CONNECTOR: KSL



Metric thread connection



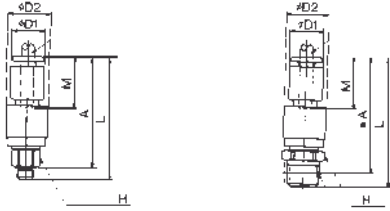
Male pipe thread connection

Dimensions in mm

Applicable tube O.D. (mm)	Connection thread	Model	H (Width across flats)	øD ₁	øD ₂	L1	L2	*A	M	Min. hole dia.	Effective orifice (mm ²)	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

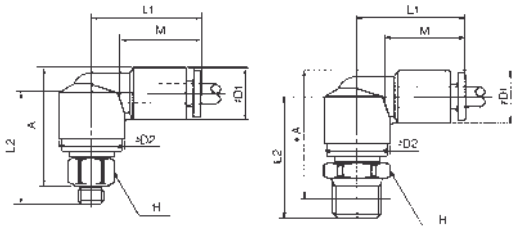
Male pipe thread connection

Dimensions in mm

Applicable tube O.D. (mm)	Connection Thread	Model	H (Width across flats)	ØD	L	*A	M	Min. hole dia.	Effective orifice (mm ²)	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
	1/4"	KXH06-02S			44	39				26
8	1/8"	KXH08-01S	17	15.2	46	42	18.5	6	26.1	28
	1/4"	KXH08-02S			49	43				34
	3/8"	KXH08-03S			50	44				42
10	1/4"	KXH10-02S	22	18.5	58	52	21	7	36.3	68
	3/8"	KXH10-03S			59	52				76
	1/2"	KXH10-04S			62	53				94
12	3/8"	KXH12-03S	24	20.9	60	54	22	8	46.1	88
	1/2"	KXH12-04S			63	55				105

* reference dimensions after thread installation.

DIMENSIONS
ELBOW CONNECTOR:
KXL



Metric thread connection

Male pipe thread connection

Dimensions in mm

Applicable tube O.D. (mm)	Connection thread	Model	H (Width across flats)	ØD ₁	ØD ₂	L ₁	L ₂	*A	M	Min. hole dia.	Effective orifice (mm ²)	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
	1/4"	KXL06-02S					28	29				26
8	1/8"	KXL08-01S	17	15.2	17	27	29	32	18.5	6	21.6	28
	1/4"	KXL08-02S					32	33				34
	3/8"	KXL08-03S					33	34				43
10	1/4"	KXL10-02S	22	18.5	23.5	32	38	42	21	7	30.5	69
	3/8"	KXL10-03S					39	42				77
	1/2"	KXL10-04S					42	43				95
12	3/8"	KXL12-03S	24	20.9	26	35	40	44	22	8	35.1	89
	1/2"	KXL12-04S					43	45				106

* reference dimensions after thread installation.

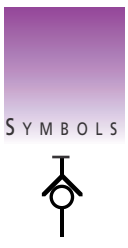
SELF SEAL FITTINGS SERIES KC

- ✔ One Touch Fitting (with Built-in Self-seal Mechanism) to prevent air exhaust when tube removed
- ✔ Most suitable for rationalizing and labor saving during piping work
- ✔ Many Options: 10 Types available



TECHNICAL SPECIFICATIONS

Fluid	Air	
Max Operating Pressure	10 Bar / 145PSI	
Ambient and Fluid Temperature	5-60°C / 40-140°F	
Thread	Thread Portion	JIB B0203 (Taper pipe thread)
	Nut	JIB B0211 class 2 (Metric fine thread)
Sealant (Thread portion)	With sealant (Standard)	
Applicable for Copper Free Applications	Brass Component (Electroless nickel plated)	
Applicable Tube*	Nylon, Soft nylon, Polyurethane	



*Dimensions to BS5409 part 1

PRODUCT SELECTOR KCT



PRODUCT SELECTOR KCJ



PRODUCT SELECTOR KCE



PRODUCT SELECTOR KCL



PRODUCT SELECTOR KCL



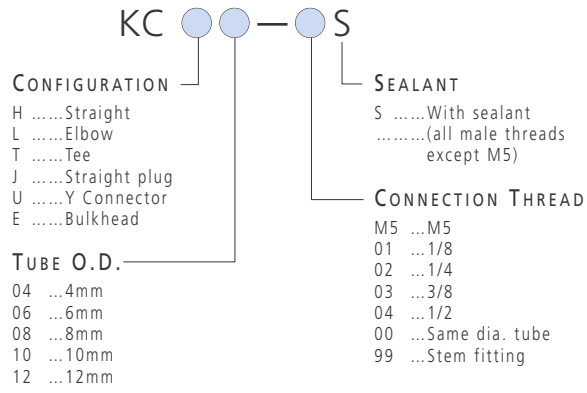
PRODUCT SELECTOR KCE



PRODUCT SELECTOR KCU



How To ORDER UNI ONE TOUCH FITTINGS



PRODUCT SELECTOR KCH



PRODUCT SELECTOR KCH STRAIGHT PLUG FOR FREQUENT USE



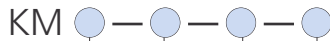
ONE TOUCH FITTINGS-MANIFOLDS SERIES KM

- ✔ 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



INLET CONNECTION

- 11 ...One-Touch (Inch & Metric)
- 12 ...Threaded (Female) (Inch & Metric)
- 13 ...One-Touch (Metric Only)
- 14 ...One-Touch (Metric Only)
- 15 ...One Touch Fitting Rod (Metric Only)
- 16 ...One Touch Fitting Rod (Metric Only)

NUMBER OF OUTLETS

- 33 (KM13, 14, 15, 16)
- 66 (KM11, 12)
- 1010 (KM11, 12)

OUTLET TUBE OD

- 04 ...4mm 03 ...5/32"
- 06 ...6mm 07 ...1/4"
- 08 ...8mm 09 ...5/16"

INLET PORT THREAD OR TUBE OD

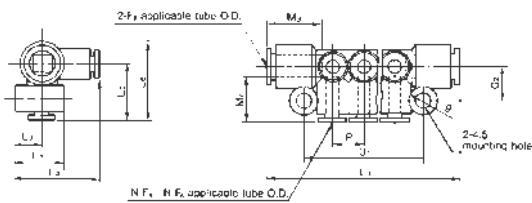
- 02 ...1/4 35 ...1/4"
- 03 ...3/8 36 ...3/8"
- 08 ...8mm 09 ...5/16"
- 10 ...10mm 11 ...3/8"
- 12 ...12mm 13 ...1/2"

TECHNICAL SPECIFICATIONS

Fluid	Air
Operating pressure	Vacuum to 1MPa / 145PSI
Proof pressure	3MPa / 435PSI
Ambient and fluid temperature	0~60°C / 32~140°F
Thread (where applicable)	JIS B0203 (Taper pipe thread)
Applicable tube*	Nylon, Soft nylon, Polyurethane

*Dimensions to BS5409 Part 1

DIMENSIONS KM11



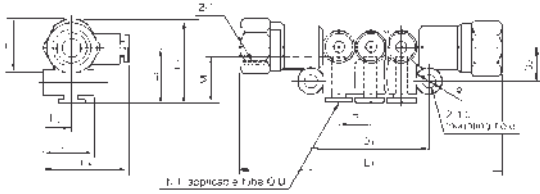
Dimensions in mm

Model (Metric Size)	FA	FB	N	L1	L2	L3	L4	L5	L6	P	Q1	Q2	MA	MB	Port B min Port Size	Mass (g)
KM11-04-08-6	4	8	6	65	10	18	29.5	19.5	27	10.6	40	12	16	18.5	6	22
KM11-04-08-10			10	86							61.5						30
KM11-06-10-6	6	10	6	76	10	19.5	31.5	21.5	31	13	47	13.5	17	21	7.5	32
KM11-06-10-10			10	102							73						44
KM11-08-12-6	8	12	6	85	11.5	22.5	35.5	24	34.5	15.5	55	14.7	18.5	22	9	44
KM11-08-12-10			10	116							86						62

Model (Inch Size)	FA	FB	N	L1	L2	L3	L4	L5	L6	P	Q1	Q2	MA	MB	B Port Min Inside Dia	Weight (g)
KM11-03-09-6	5/32	5/16	6	65	10	18	29.5	19.5	27	10.6	40	12	16	18.5	6	22
KM11-03-09-10	5/32	5/16	10	86	10	18	29.5	19.5	27	10.6	61.5	12	16	18.5	6	30
KM11-07-11-6	1/4	3/8	6	77.8	10	19.5	31.5	21.5	30.5	13.3	48	13	17	21	7	32
KM11-07-11-10	1/4	3/8	10	104	10	19.5	31.5	21.5	30.5	13.3	73.5	13	17	21	7	44
KM11-09-13-6	5/16	1/2	6	85	12.8	24	37.7	25	35.9	15.2	52.8	15	18.5	22	9.5	44
KM11-09-13-10	5/16	1/2	10	115	12.8	24	37.7	25	35.9	15.2	83	15	18.5	22	9.5	62

MORE DIMENSIONS SEE NEXT PAGE

DIMENSIONS KM12



Dimensions in mm

Model (Metric Size)	F	T Rc(PT)	N	H (Hex)	L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	P	Q ₁	Q ₂	M	Port B min port size	Mass (g)
KM12-04-02-6	4	1/4	6	17	89	10	18	29.5	19.5	29	10.6	40	12	16	6	67
KM12-04-02-10			10		110							61.5				75
KM12-06-02-6	6	1/4	6	17	99	10	19.5	31.5	21.5	31	13	47	13.5	17	7.5	84
KM12-06-02-10			10		125							73				96
KM12-08-03-6	8	3/8	6	19	108	11.5	22.5	35.5	24	34.5	15.5	55	14.7	18.5	9	100
KM12-08-03-10			10		139							86				117

Model (Inch Size)	F	T NPT	N	H Hex	L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	P	Q ₁	Q ₂	M	B Port Min Inside Dia	Weight (g)
KM12-03-35-6	5/32	1/4	6	-	87	10	18	29.5	19.5	29	16	40	12	16	6	67
KM12-03-35-10	5/32	1/4	10	11/16	110	10	18	29.5	19.5	29	16	61.5	12	16	6	75
KM12-07-35-6	1/4	1/4	6	-	95	10	19.5	31.5	21.5	31.25	17	48	13	17	7	84
KM12-07-35-10	1/4	1/4	10	11/16	121.2	10	19.5	31.5	21.5	31.25	17	73.5	13	17	7	96
KM12-09-36-6	5/16	3/8	6	-	102	12.8	24	37.7	25	37.5	18.5	52.8	15	18.5	9.5	100
KM12-09-36-10	5/16	3/8	10	7/8	132	12.8	24	37.7	25	37.5	18.5	83	15	18.5	9.5	117

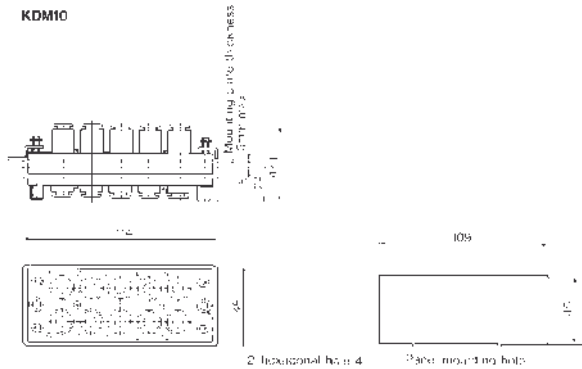
**FOR DIMENSIONS ON OTHER KM MODELS,
CONTACT SMC CUSTOMER SERVICE.**

RECTANGULAR MULTI-CONNECTOR
SERIES KDM

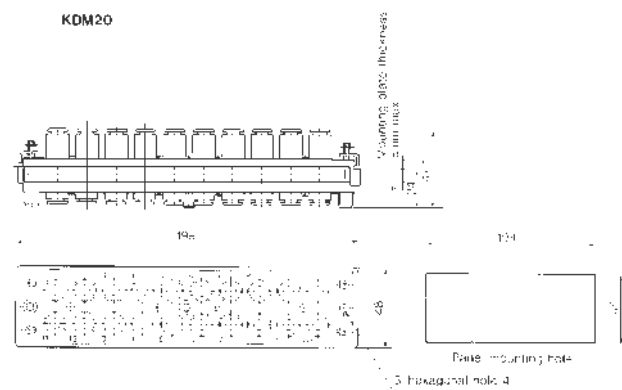


- ✓ Substantial reduction in mounting space In comparison with a model requiring many union joints for panels and partitions, this model needs only a small space
- ✓ One-touch connection/disconnection without connection errors
- ✓ Suitable for use with positive pressure and vacuum
- ✓ Possible to create multi-connector with mixed tube sizes

DIMENSIONS
KDM10



DIMENSIONS
KDM20



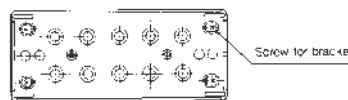
TECHNICAL
SPECIFICATIONS

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

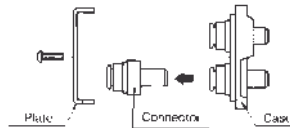
How To Use
SEE NEXT PAGE

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.



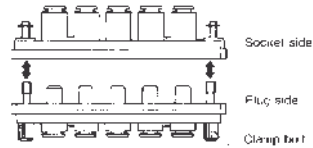
HOW TO
ORDER
KDM MULTI-CONNECTOR

KDM		—	●	—	●
No Of CONNECTING TUBES	10 ...10 Connections				OUTLET TUBE O.D.
	20 ...20 Connections				mm Inch
					23 ...ø3.2 01 ...ø1/8
					04 ...ø4 03 ...ø5/32
					06 ...ø6 07 ...ø1/4
					08 ...ø8

HOW TO USE

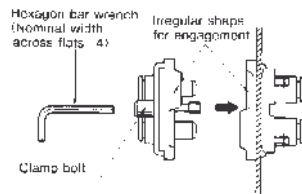
Separation

Loosen the clamp bolt to separate the plug side from the socket side.



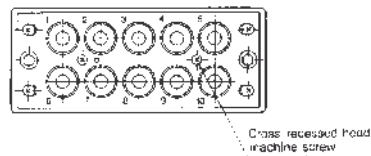
Connection

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).

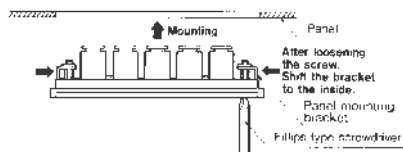


Panel Mounting

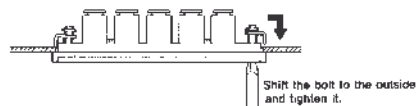
1 Loosen (4) screws for bracket on the socket side using a Phillips type screwdriver (JIS nominal No 2) until the bracket touches the stop ring.



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.



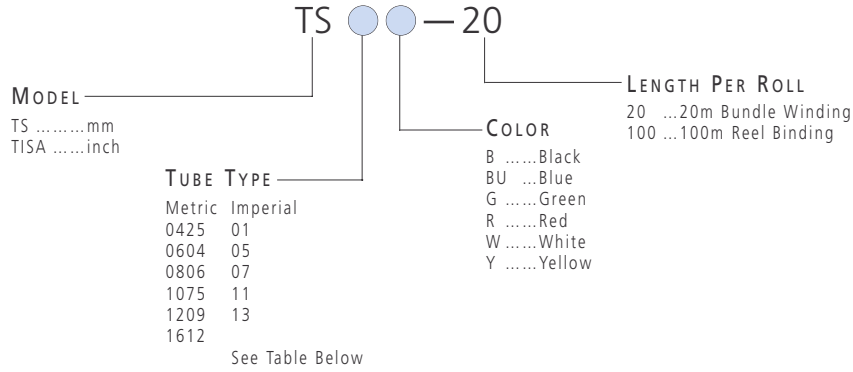
4 Loosen the screw for bracket until the bracket touches the stop ring and shift the bracket to the inside to remove the connector from the panel.

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



**TECHNICAL
SPECIFICATIONS**

Model	TS0425	TS0604	TS0806	TS1075	TS1209	TS1612	TISA01	TISA05	TISA07	TISA11	TISA13
Tube OD	4mm	6mm	8mm	10mm	12mm	16mm	1/8"	3/16"	1/4"	3/8"	1/2"
Tube ID	2.5mm	4mm	6mm	7.5mm	9mm	12mm	0.066"	0.137"	0.18"	0.275"	0.376"
Max Operating Pressure	0.8MPa	0.8MPa	0.8MPa	0.8MPa	0.8MPa	0.8MPa	0.6MPa	0.6MPa	0.6MPa	0.6MPa	0.6MPa
Coil Length	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m
Min Bending Radius (mm)	12mm	15mm	23mm	27mm	31mm	60mm	0.47"	0.59"	0.91"	1.18"	1.57"
Operating Temperature	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C
Material	Nylon 12	Nylon 12	Nylon 12	Nylon 12	Nylon 12	Nylon 12	Nylon 12	Nylon 12	Nylon 12	Nylon 12	Nylon 12

Notes:
1MPa = 145PSI

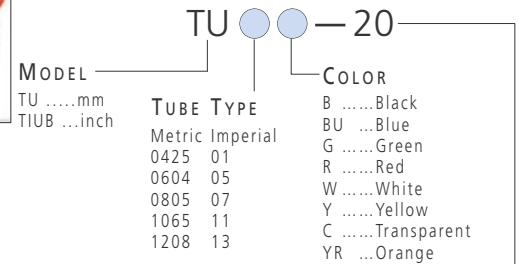
-20~60°C = 4~140°F

POLYURETHANE TUBING SERIES TU, TIUB

Soft and very flexible tubing



**How To
ORDER**
POLYURETHANE TUBING
SERIES TU & TIUB



**TECHNICAL
SPECIFICATIONS**

Note 1) The value for bending at a temperature of 20°C
Note 2) Safety allowance x3 at 20°C

1MPa = 145PSI
-20~60°C = 4~140°F

Model	TU0425	TU0604	TU0805	TU1065	TU1208	TIUB01	TIUB05	TIUB07	TIUB11	TIUB13
Tube OD	4mm (5/32")	6mm	8mm (5/16")	10mm	12mm	1/8"	3/16"	1/4"	3/8"	1/2"
Tube ID	2.5mm	4mm(5/32")	6mm	6.5mm	8mm(5/16")	0.079"	0.125"	0.167"	0.85"	0.333"
Max Operating Pressure	0.5MPa	0.5MPa	0.5MPa	0.5MPa	0.5MPa	0.5MPa	0.5MPa	0.5MPa	0.5MPa	0.5MPa
Coil Length	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m	20m/100m
Min Bending Radius (mm)	10mm	15	20mm	27mm	35mm	0.39"	0.59"	0.91"	1.06"	1.38"
Operating Temperature	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C	-20~60°C
Material	Polyurethane	Polyurethane	Polyurethane	Polyurethane	Polyurethane	Polyurethane	Polyurethane	Polyurethane	Polyurethane	Polyurethane

LENGTH PER ROLL

Metric
20 ... 20m
33* ... 100ft
100 ... 100m
153* ... 500ft
305m* ... 1000ft
500 ... 500m



POLYURETHANE FLAT TUBING SERIES TFU

2 or 3 core flat tubing for neat presentation

HOW TO ORDER

POLYURETHANE FLAT TUBING SERIES TFU

TFU ● B — ●

OD/ID

0425.....4mm OD 2.5mm ID
0604.....6mm OD 4mm ID
0805.....8mm OD 5mm ID

NUMBER OF TUBES

22
33

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 $\sqrt{\text{actual length in meters}}$.

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

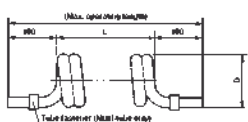
Model	TCU 0425B-1	TCU 0425B-2	TCU 0425B-3	TCU 0604B-1	TCU 0604B-2	TCU 0604B-3	TCU 0805B-1
Number of tubes core	1	2	3	1	2	3	1
Tube OD (mm)	4			6			8
Tube ID (mm)	2.5			4			5
Max operating pressure	0.8MPa ^{note 2)} / 120PSI						
Operating temperature	-20~+60°C / 4~140°F						
Material	Polyurethane						
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 Model	Tube size (mm)		Dimension of coil (mm)		Number of tube core	Number of coil winding per tube length	Max operating length (m)
	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



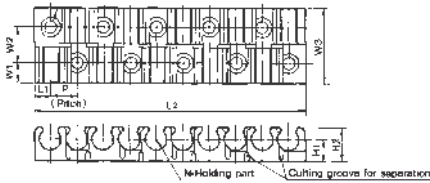
TECHNICAL SPECIFICATIONS

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

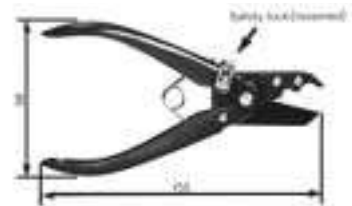
TUBE CUTTER SERIES TK

- ✓ Perpendicular Cutting
- ✓ Enclosure/Safety Lock Contained



DIMENSIONS
TK 1 TUBE CUTTER

Dimensions in mm



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

HOW TO ORDER
TK TUBE CUTTER

- TK-1
- TKA-1



AIR PREPARATION PRODUCTS

	SERIES	PAGE NUMBER
	(N)AC1000-6000 FRL COMBINATION UNITS - MODULAR TYPE	5.1
	(N)AC1010-4010 FRL COMBINATION UNITS - MODULAR TYPE	5.2
	(N)AF AIR FILTER	5.3
	(N)AR AIR REGULATOR	5.4
	(N)AL AIR LUBRICATOR	5.6
	(N)AW AIR FILTER-REGULATOR COMBINATION UNIT - MODULAR TYPE	5.7
	(N)AFM MIST SEPARATOR	5.9
	(N)AFD MICRO-MIST SEPARATOR	5.10
	(N)AV2000/3000/4000 SOFT START-UP VALVE	5.11
	IS1000 PRESSURE SWITCH	5.13

	SERIES	PAGE NUMBER
	(N)VHS SHUT-OFF VALVE - 3 PORT RELIEVING	5.14
	Y - SPACER APP ACCESSORIES - MODULAR TYPE	5.15
	L TYPE BRACKET / T TYPE BRACKET APP ACCESSORIES - MODULAR TYPE	5.15
	E - END BLOCK ADAPTOR APP ACCESSORIES - MODULAR TYPE	5.16
	(N)AKM CHECK VALVE	5.16
	T TAKE-OFF / X TAKE-OFF BRANCHING UNITS	5.17
	(N)AF HIGH FLOW AIR FILTER	5.18
	(N)AM HIGH EFFICIENCY MIST SEPARATOR	5.19
	(N)AMD HIGH EFFICIENCY MICRO-MIST SEPARATOR	5.20
	(N)AMF HIGH EFFICIENCY ODOR REMOVAL FILTER	5.21
	AMG WATER SEPARATOR	5.22

	(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	Perchloroethylene 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	Sulphural 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

MODULAR TYPE (N)AC1000-(N)AC6000 M5-1"

✓ Combination of filter, regulator and lubricator including mounting bracket and pressure gauge



TECHNICAL SPECIFICATIONS

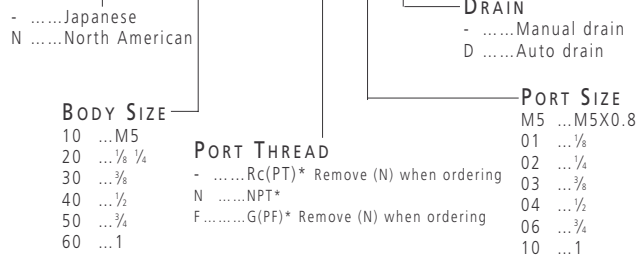
Model		NAC1000	NAC2000	NAC3000	NAC4000	NAC5000	NAC6000
Combination	Air filter	NAF1000	NAF2000	NAF3000	NAF4000	NAF5000	NAF6000
	Regulator	NAR1000	NAR2000	NAR3000	NAR4000	NAR5000	NAR6000
	Lubricator	NAL1000	NAL2000	NAL3000	NAL4000	NAL5000	NAL6000
Port Size	M5X0.8	1/8, 1/4	1/4	1/4	1/4	1/4	1
Port Size for 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 /n/min*		90	500	2000	4000	5000	7000
Min. operating conditions for autodrain		1 Bar / 14.5 PSI					
Ambient and media temperature		5 ~ 60°C / 40~140°F					
Filtration		Standard: 5µm					
Recommended oil		Turbin oil ISO VG32					
Bowl material		Polycarbonate					
Construction/Regulator		Relieving type					
Accessories (standard)	Bowl guard	—	—	•	•	•	•

*Conditions: Supply pressure—7 Bar. Setting pressure—5 Bar Flow quoted at 1 bar pressure drop

HOW TO ORDER

FILTER/REGULATOR/LUBRICATOR

(N)AC 00 — 0 0 0 G

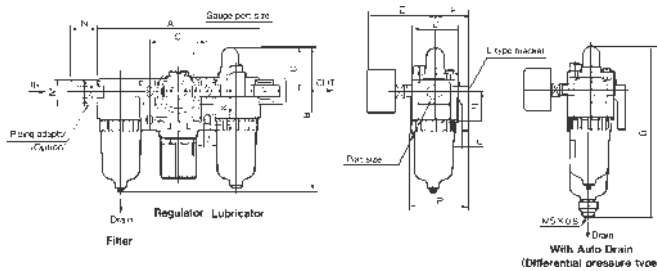


0.5 ~ 7 Bar / 8 ~100PSI

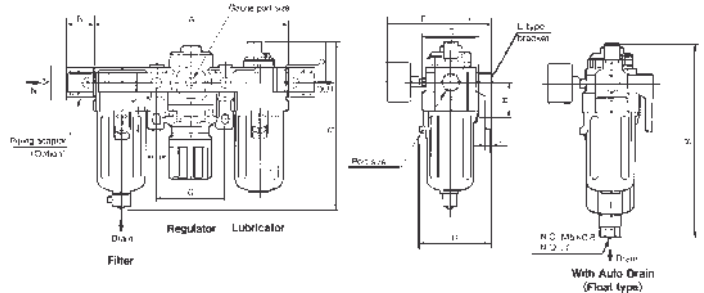
Note)
 0.5 Bar = 0.05MPa
 7 Bar = 0.7MPa
 8.5 Bar = 0.85MPa

FOR MORE TECHNICAL INFORMATION
 ON THIS SERIES, PLEASE REFER TO
 CAT:E5G, N5-G1 & N5-G3

DIMENSIONS NAC1000, 2000

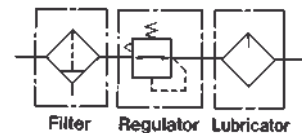


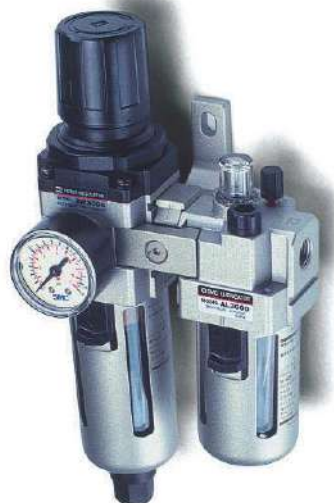
DIMENSIONS NAC3000,4000, 5000, 6000



Model	Port size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	With auto drain	
																Float type	Differential pressure type
																N.O.	B
NAC1000	M5X0.8	91	84.5	25.5	25	26	25	33	20	4.5	7.5	5	17.5	16	38.5	—	86.5
NAC2000	1/8 1/4	140	125	38	40	56.8	30	50	24	5.5	8.5	5	22	23	50	—	120.5
NAC3000	1/4	181	156.5	38	53	60.8	41	64	35	7	11	7	34.2	26	70.5	182	—
NAC4000	1/4	238	191.5	41	70	65.5	50	84	40	9	13	7	42.2	33	88	217	—
NAC5000	1/4	300	271.5	48	90	75.5	70	105	50	12	16	10	55.2	40	115	297	—
NAC6000	1	315	285.5	48	95	78	70	110	50	12	16	10	55.2	40	117.5	311	—

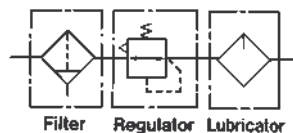
SYMBOLS





MODULAR TYPE (N)AC1010-(N)AC4010 M5-1"

✓ Combination of filter, regulator and lubricator including mounting bracket and pressure gauge



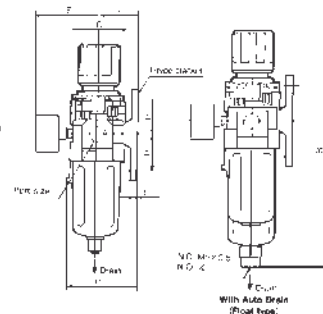
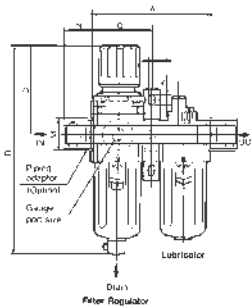
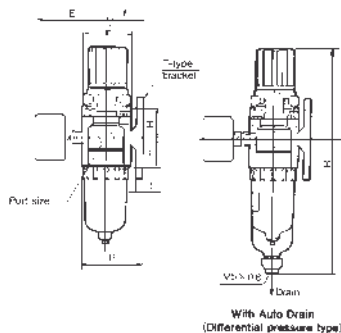
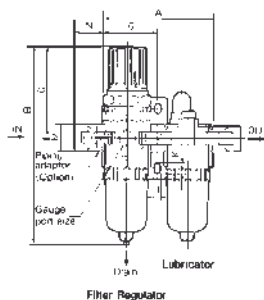
TECHNICAL SPECIFICATIONS

Model		NAC1010	NAC2010	NAC3010	NAC4010
Combination	Filter regulator	NAW1000	NAW2000	NAW3000	NAW4000
	Lubricator	NAL1000	NAL2000	NAL3000	NAL4000
Port Size		M5X0.8	1/8, 1/4	3/8	1/2
Port Size for Pressure Gauge		1/16	1/8	1/8	1/4
Maximum Supply 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
NAC1010	M5X0.8	58	109.5	50.5	25	26	25	29	20	4.5	7.5	5	17.5	16	38.5	—	86.5
NAC2010	1/8	90	164.5	78	40	56.8	30	45	24	5.5	8.5	5	22	23	50	—	120.5
NAC3010	1/4	117	211	92.5	53	60.8	41	58.5	35	7	11	7	34.2	26	70.5	236.5	—
NAC4010	1/2	154	262.5	112	70	70.5	50	77	40	9	13	7	42.2	33	88	288	—

HOW TO ORDER

FILTER/REGULATOR, LUBRICATOR

(N)AC 10 — G

BODY SIZE
10 ...M5
20 ...1/8 1/4
30 ...3/8
40 ...1/2

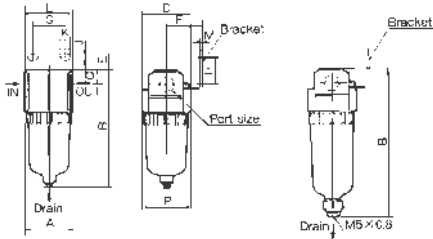
DRAIN
-Manual Drain
DAuto Drain

PORT SIZE
M5 ...M5X0.8
01 ...1/8
02 ...1/4
03 ...3/8
04 ...1/2

-Japanese
NNorth American

PORT THREAD
-Rc(PT)* Remove (N) when ordering
NNPT*
FG(PF)* Remove (N) when ordering

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

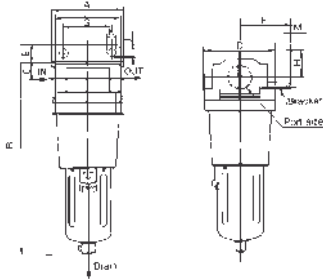


TECHNICAL SPECIFICATIONS

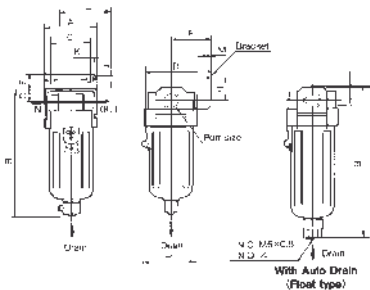
Model	NAF1000	NAF2000	NAF3000	NAF4000	NAF5000	NAF6000
Port size	M5x0.8	½ ¼	¼ ¾	¾ ½	¾ 1	1
Flow rate /n/min*	140	1050	2800	5000	7000	8000
Max supply pressure	1.5MPa / 220PSI					
Max. operating pressure	1MPa / 145PSI					
Ambient and media temperature	5 ~ 60°C / 40~140°F					
Filtration	Standard: 5µm					
Bowl material	Polycarbonate					
Bowl capacity cm ³	4	15	20	45	130	130
Min. operating condition for autodrain type	Minimum flow 100 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



DIMENSIONS NAF3000•4000



HOW TO ORDER AIR FILTER

(N)AF ● ● ● ●

-Japanese
NNorth American

BODY SIZE

1000 M5
2000 ½•¼
3000 ¼•¾
4000 ¾•½
5000 ¾•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 ...½
02 ...¼
03 ...¾
04 ...½
06 ...¾
10 ...1

ACCESSORIES AIR FILTER

Poly Filter Element	Sintered Bronze Filter Element 5µm	Applicable Filter Series
111344	11134-5B	NAF1000
1129116A	11294-5B	NAF2000
11585A	11511-5B	NAF3000
1116103A	11104-5B	NAF4000
111724A	11173-5B	NAF5000
111825A	11074-5B	NAF6000

Note: Sintered bronze and Poly-elements are not interchangeable

Bracket	Applicable Filter Series
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**

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



TECHNICAL SPECIFICATIONS

Model	NAR1000	NAR2000	NAR2500	NAR3000	NAR4000	NAR5000	NAR6000
Port Size	M5x0.8	1/8"	1/4"	3/8"	1/2"	3/4"	1"
Flow Rate (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	1/8"	1/8"	1/8"	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)

-Japanese
NNorth American

HOW TO ORDER
PRESSURE REGULATOR

(N)AR

BODY SIZE

- 10 ...M5
- 20 ...1/8"
- 25 ...1/4"
- 30 ...3/8"
- 40 ...1/2"
- 50 ...3/4"
- 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

ACCESSORIES
PRESSURE REGULATOR

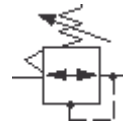
Bracket	
B120	.....NAR1000
B220	.....NAR2000/2500
B320	.....NAR3000
B420	.....NAR4000
B540	.....NAR5000
B640	.....NAR6000

FOR MORE TECHNICAL INFORMATION
ON THIS SERIES, PLEASE REFER TO
CAT:E5G, N5-G1 & N5-G3

PRESSURE GAUGES

See Pressure Gauges Page

SYMBOLS



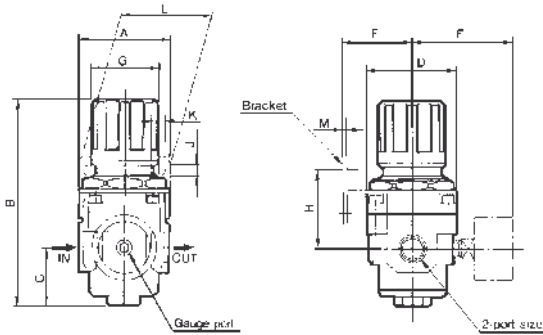
Relieving type



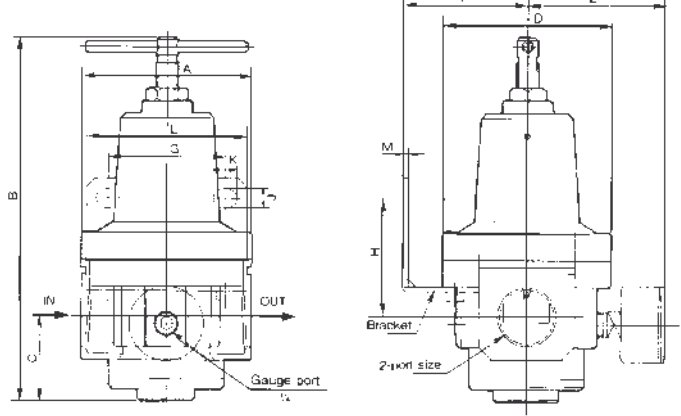
Check valve type

FOR MORE TECHNICAL INFORMATION
ON THIS SERIES, PLEASE REFER TO
CAT:E5G, N5-G1 & N5-G3

DIMENSIONS NAR1000~NAR5000

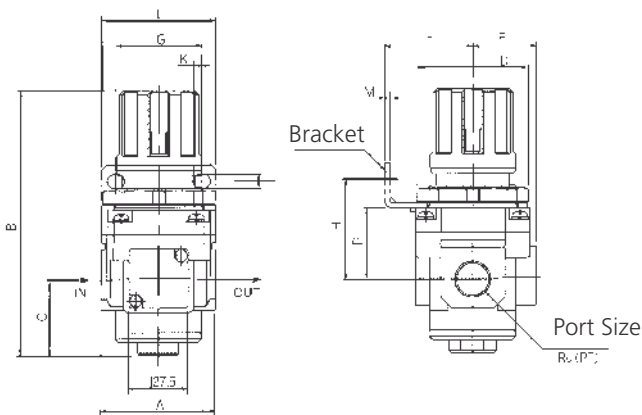


DIMENSIONS NAR6000



Model	A	B	C	D	E	F	G	H	J	K	L	M	N
NAR1000	25	61.5	11	25	26	25	18	30	4.5	6.5	40	2	20.5
NAR2000	40	95	17	40	56.8	30	30	45	5.4	15.4	55	2.3	33.5
NAR2500	53	102.5	25	48	60.8	30	34	44	5.4	15.4	55	2.3	33.5
NAR3000	53	127.5	35	53	60.8	41	40	46	6.5	8	53	2.3	42.5
NAR4000	70	149.5	37.5	70	65.5	50	54	54	8.5	10.5	70	2.3	52.5
NAR5000	90	168	48	90	75.5	70	66	65.8	11	13	90	3.2	52.5
NAR6000	95	204.5	48	95	78	70	66	65.8	11	13	90	3.2	-

DIMENSIONS NAR2001 ~ NAR4001



Model	Part Size	A	B	C	D	E	F	G	Bracket Dimensions					N
									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

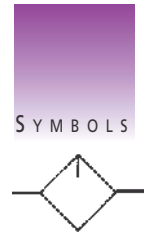


- ✓ Port Size M5 – 1"
- ✓ Precise adjustment
- ✓ Uniform lubrication even at extremely low flow rates
- ✓ Over 97% of atomized oil particles <10 microns
- ✓ Quick release bowl guard on some sizes

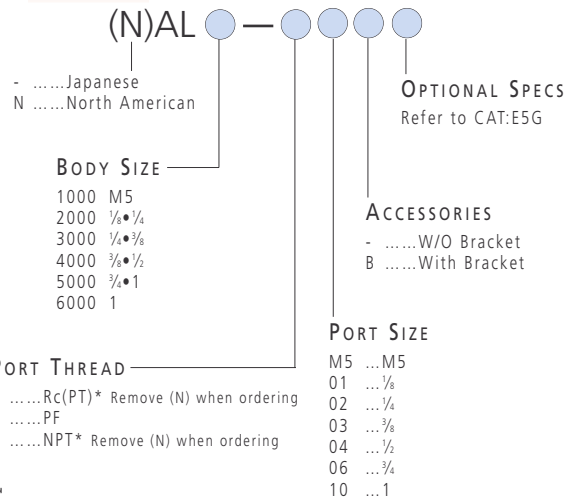
TECHNICAL SPECIFICATIONS

Model	NAL1000	NAL2000	NAL3000	NAL4000	NAL5000	NAL6000
Port size	M5x0.8	1/8" 1/4"	1/4" 3/8"	3/8" 1/2"	1/2" 1"	1"
Flow Rate ℓn/min	95	800	1700	5000	7000	7500
Max Supply Pressure	1.5MPa / 220PSI					
Max Operating Pressure	1MPa / 145PSI					
Min Operating Flow ℓn/min*	4	15	1/4: 30 3/8: 40	1/2: 40 3/4: 50	190	220
Bowl Capacity cm ³	7	25	50	130	130	130
Recommended Oil	ISO VG32					
Ambient and Media Temperature	5 ~ 60°C / 40~140°F					
Bowl Material	Polycarbonate					
Accessory (Standard)	Bowl Guard	-	-	•	•	•

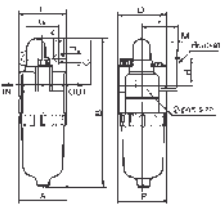
*Conditions: Supply pressure - 0.5MPa Number of DROPS - 5 drops/min ISOVG32, 20°C
Max Flow Data @0.5MPa Supply 0.03MPa Pressure Drop



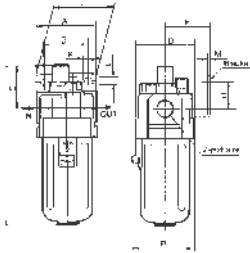
HOW TO ORDER LUBRICATOR



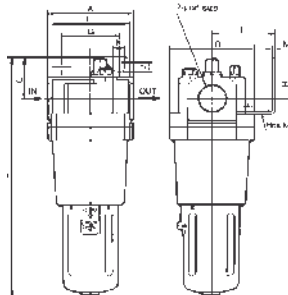
DIMENSIONS NAL1000•NAL2000



DIMENSIONS NAL3000•NAL4000



DIMENSIONS NAL5000•NAL6000



Model	A	B	C	D	F	G	H	J	K	L	M	P
NAL1000	25	81.5	25.5	25	-	-	-	-	-	-	-	27
NAL2000	40	122	38	40	30	27	22	5.4	8.4	40	2.3	40
NAL3000	53	142	38	53	41	40	23	6.5	8	53	2.3	56
NAL4000	70	177	41	70	50	54	26	8.5	10.5	70	2.3	73
NAL5000	90	254	45	90	70	66	35	11	13	90	3.2	90
NAL6000	95	268	45	95	70	66	35	11	13	90	3.2	95

ACCESSORIES LUBRICATOR

Bracket	
B240	.....AL2000
B340	.....AL3000
B440	.....AL4000
B640	.....AL5000/6000

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E5G, N5-G1 & N5-G3

FILTER REGULATOR SERIES (N)AW

- ✓ Port Size M5 – 3/4"
- ✓ Differential or float type autodrain
- ✓ Quick release bowl guard on some sizes
- ✓ High flow
- ✓ 5µm filter element
- ✓ Built in gauge available

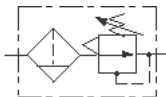


TECHNICAL SPECIFICATIONS

Model	NAW1000	NAW2000	NAW2001	NAW3000	NAW3001	NAW4000	NAW4001
Port Size	M5x0.8	1/8 1/4	1/8 1/4	1/4 3/8	1/4 3/8	1/4 3/8 1/2	1/4 3/8 1/2
Flow rate (l/min)*	100	550	550	2000	2000	4000	4000
Max Supply Pressure	1.5MPa / 220PSI				1.5MPa / 220PSI		
Max Operating Pressure	1MPa				1MPa		
Pressure Regulating Range	0.05~0.7MPa	0.05 ~0.85MPa / 8~125PSI					
Port Size for Pressure Gauge	1/8	1/8	N/A	1/8	N/A	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 cm ³	4	15	15	20	20	45	45
Bowl Material	Polycarbonate				Polycarbonate		
Construction / Regulator	Relieving type				Relieving type		
Accessory (Standard)	Bowl Guard	-	-	-	•	•	•

*0.7MPa supply, 0.5MPa static set pressure, 0.1MPa pressure drop / 0.05~0.7MPa

SYMBOLS



HOW TO ORDER FILTER REGULATOR

(N)AW 0 0 0 0 0 0 0

-Japanese
- NNorth American

BODY SIZE

- 10 ...M5
- 20 ...1/8•1/4
- 30 ...1/4•3/8
- 40 ...3/8•1/2

- 0Standard
 - 1With Built-in Gauge
 - 2With Built-in Gauge for right to left flow
- (1 & 2 available for body sizes 20-40 only)

PORT THREAD

-Rc(PT)* Remove (N) when ordering
- FPF
- NNPT* Remove (N) when ordering

PORT SIZE

- M5 ...M5
- 01 ...1/8
- 02 ...1/4
- 03 ...3/8
- 04 ...1/2
- 06 ...3/4

OPTIONAL SPECS

Refer to CAT:E5G

ACCESSORIES

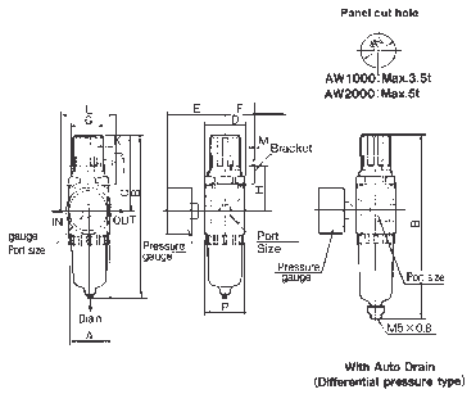
-Without
- DW/ Auto Drain
- BBracket

ACCESSORIES FILTER REGULATOR

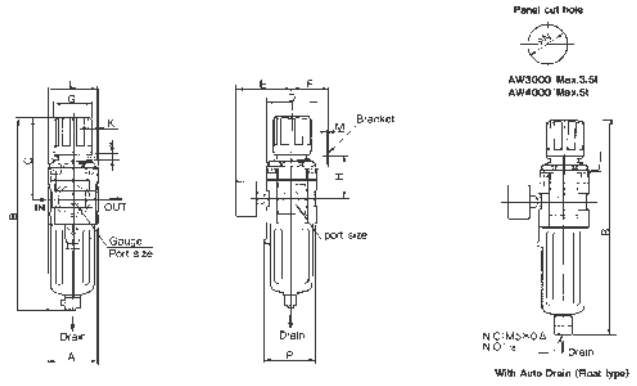
Filter Element 5µm	
11134-5	NAW1000
11294-5B	NAW2000
111511-5B	NAW3000
11104-5B	NAW4000
11173-5B	NAW5000
11074-5B	NAW6000
Bracket	
B120	NAW1000
B220	NAW2000
B320	NAW3000
B420	NAW4000

**FOR MORE TECHNICAL INFORMATION
ON THIS SERIES, PLEASE REFER TO
CAT:E5G, N5-G1 & N5-G3**

DIMENSIONS
NAW1000•2000

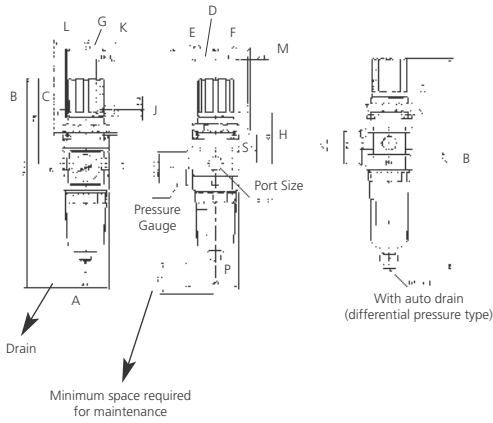


DIMENSIONS
NAW 3000•4000

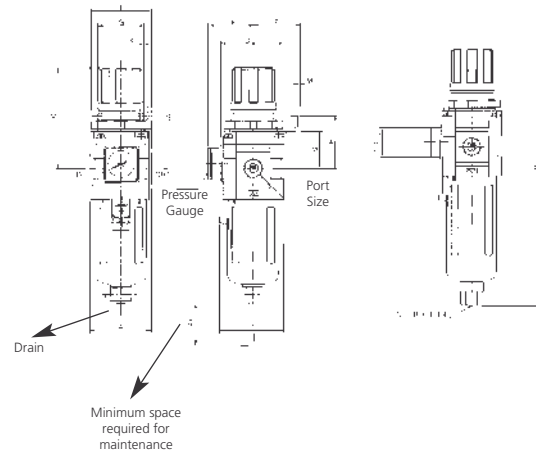


MODEL	A	B	C	D	E	F	G	H	J	K	L	M	ØN	P	With auto drain	
															B	Type
NAW1000	25	109.5	50.5	25	26	25	28	30	4.5	6.5	40	2.0	20.5	28	86.5	Differential pressure
NAW2000	40	164.5	78	40	56.8	30	34	45	5.4	15.4	55	2.3	33.5	40	120.5	Differential pressure
NAW3000	53	211	92.5	53	60.8	41	40	46	6.5	8.0	53	2.3	42.5	56	236.5	Float
NAW4000	70	262.5	112	70	70.5	50	54	54	8.5	10.5	70	2.3	52.5	73	288	Float

DIMENSIONS
NAW2001



DIMENSIONS
NAW3001 - 4001



MODEL	A	B	C	D	E	F	G	H	J	K	L	M	ØN	P	With auto drain	
															B	Type
NAW2001	40	164.5	78	40	56.8	30	34	45	5.4	15.4	55	2.3	33.5	40	120.5	Differential pressure
NAW3001	53	211	92.5	53	60.8	41	40	46	6.5	8.0	53	2.3	42.5	56	236.5	Float
NAW4001	70	262.5	112	70	70.5	50	54	54	8.5	10.5	70	2.3	52.5	73	288	Float

TECHNICAL SPECIFICATIONS

Model	NAFM2000	NAFM3000	NAFM4000
Port Size	1/8" 1/4"	1/4" 3/8"	3/8" 1/2" 3/4"
Flow Rate ℓ /min*	200	450	1100
Max Supply Pressure	1.5MPa / 220PSI		
Max Operating Pressure	1MPa / 145PSI		
Min Operating Pressure	0.05MPa / 8PSI		
Bowl Material	Polycarbonate		
Accessory (Standard)	Bowl Guard	-	•

0.7MPa supply, 0.01MPa pressure drop (new)

MIST SEPARATOR SERIES (N)AFM

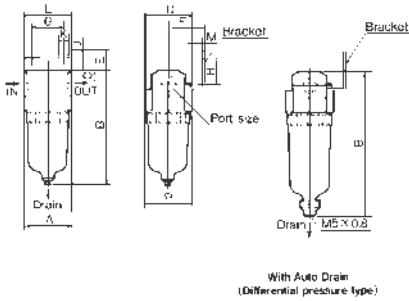
- ✓ Port Size 1/8" - 3/4" Rc
- ✓ Removes more than 99.9% of oil mist
- ✓ 0.3 μ m filter element
- ✓ Quick release metal bowl guard on some sizes
- ✓ Automatic or manual drain

Mist Separators are also available in larger port sizes - see:
Filters: High Efficiency

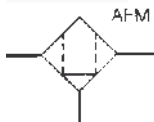


DIMENSIONS

MIST SEPARATOR NAFM2000



SYMBOLS



FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E5G, N5-G1 & N5-G3

HOW TO ORDER

MIST SEPARATOR

(N)AFM

-Japanese
- 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

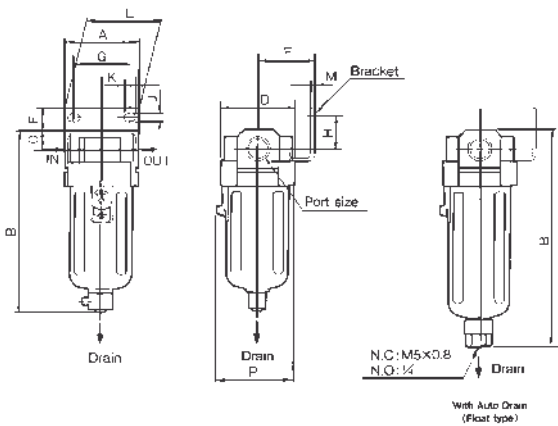
PORT SIZE
01 ...1/8"
02 ...1/4"
03 ...3/8"
04 ...1/2"
06 ...3/4"

- ACCESSORIES**
-Without
 - DW/Auto Drain
 - BBracket

OPTIONAL SPECS
Refer to CAT:E5G

DIMENSIONS

MIST SEPARATOR NAFM3000•4000



ACCESSORIES MIST SEPARATOR

- Filter Element**
- 630611NAFM2000
 - 630617NAFM3000
 - 630623NAFM4000
- Filter Elements should be changed after 1 year or when a pressure drop of 1 Bar is reached.
- Bracket**
- B240NAFM2000
 - B340NAFM3000
 - B440NAFM4000

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

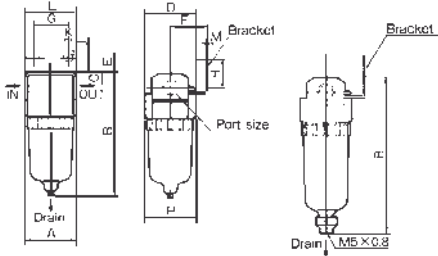
MICRO-MIST SEPARATOR SERIES (N)AFD

- ✓ Port Size 1/8 - 3/4"
- ✓ Removes more than 99.9999% of oil mist
- ✓ 0.01µm filter element
- ✓ Quick release metal bowl guard on some sizes
- ✓ Automatic or manual drain

Micro-Mist Separators are also available in larger port sizes - see: Filters: High Efficiency



DIMENSIONS MIST SEPARATOR NAFD2000



TECHNICAL SPECIFICATIONS

Model	NAFD2000	NAFD3000	NAFD4000
Port Size	1/8 1/4	1/4 3/8	3/8 1/2 3/4
Flow Rate (l/min)*	120	240	600
Max Supply Pressure	1.5MPa / 220PSI		
Max Operating Pressure	1MPa / 145PSI		
Min Operating Pressure	0.05MPa / 8PSI		
Bowl Material	Polycarbonate		
Accessory (Standard)	Bowl Guard		

0.7MPa supply, 0.01MPa pressure drop (new)

How To ORDER MIST SEPARATOR

(N)AFD

- Japanese
- N North American

AUTODRAIN

- Without
- D With

BODY SIZE

- 2000 1/8•1/4
- 3000 1/4•3/8
- 4000 3/8•1/2•3/4

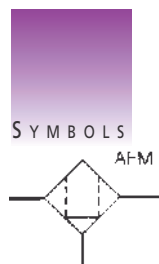
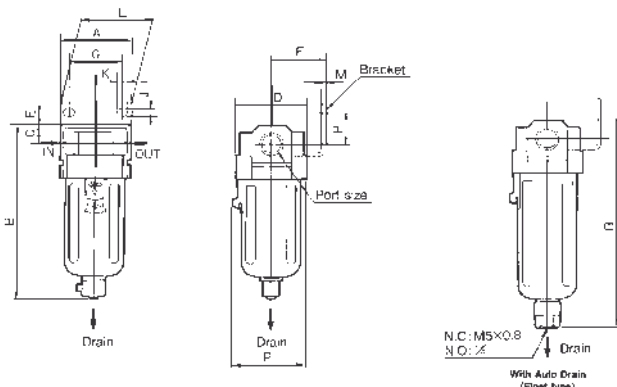
PORT SIZE

- M5 ... M5
- 01 ... 1/8
- 02 ... 1/4
- 03 ... 3/8
- 04 ... 1/2
- 06 ... 3/4

PORT THREAD

- Rc(PT)* Remove (N) when ordering
- N NPT
- F G(PF)* Remove (N) when ordering

DIMENSIONS MIST SEPARATOR NAFD3000•4000



- ### ACCESSORIES MIST SEPARATOR
- Filter Element
 - 63092 NAFD2000
 - 63093 NAFD3000
 - 63094 NAFD4000
 - Filter Elements should be changed after 1 year or when a pressure drop of 1 Bar is reached.
 - Bracket
 - B240 NAFD2000
 - B340 NAFD3000
 - B440 NAFD4000
 - B540 NAFD4000-06

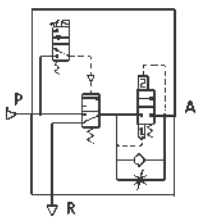
FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E5G, N5-G1 & N5-G3

Model	Port size	A	B	C	D	E	F	G	H	J	K	L	M	P	With auto drain	
															B	Type
NAFD2000	1/8 1/4	40	97.5	11	40	17	30	27	22	5.4	8.4	40	2.3	40	120.5	Differential pressure
NAFD3000	1/4 3/8	53	132.5	14	53	16	41	40	23	6.5	8	53	2.3	56	158	Differential pressure
NAFD4000	1/4 3/8 1/2	70	168.5	18	70	17	50	54	26	8.5	10.5	70	2.3	73	194	Float type
NAFD4000-06	3/4	75	172.5	20	70	14	50	54	25	8.5	10.5	70	2.3	73	198	Float type

SOFT START-UP VALVE SERIES (N)AV 2000, 3000, 4000 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

BODY SIZE

201/4
 303/8
 401/2

PORT THREAD

-Rc(PT)* Remove (N) when ordering
 FG(PF)* Remove (N) when ordering
 NNPT

PORT SIZE

021/4 (NAV2000 only)
 033/8 (NAV3000 only)
 041/2 (NAV4000 only)

COIL RATED VOLTAGE

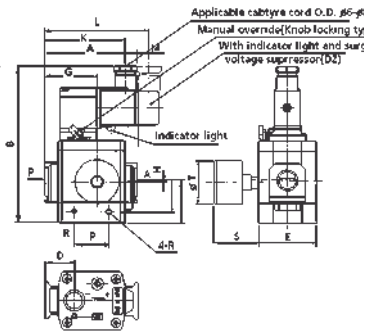
3110V AC (50/60Hz)
 4240V AC (50/60Hz)
 524V DC
 612V DC

INDICATOR LIGHT AND SURGE VOLTAGE SUPPRESSOR

-None
 SWith surge voltage suppressor only
 ZWith Indicator light and surge voltage suppressor

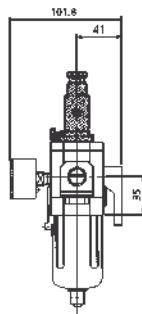
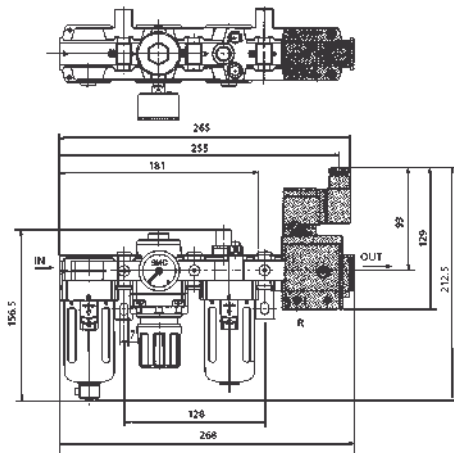
DIMENSIONS
SEE NEXT PAGE

DIMENSIONS
DIN CONNECTOR



Model	Port size	A	B	C	D	E	Pressure gauge Mounting port	G	H	I	J	K	L	M	N	P	Q	R
							F											
NAV2000-□02-□D	1/4	66	125.5	31	22	40	1/4	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	3/8	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	1/2	57	3	—	—	82.5	—	—	—	42	37	M6X1 depth 6
NAV4000-□04-□DZ												—	99.5	10.5				

DIMENSIONS
EXAMPLE OF NAC3000 + SOFT START-UP VALVE



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.

MODULAR TYPE – ACCESSORIES

PRESSURE SWITCH: SERIES IS1000

- ✓ Reed Switch Type Design
- ✓ Compact
- ✓ Pressure setting made easy by Scale Plate
- ✓ Type M Sandwiches between Air Preparation Units: Type E acts as an End Connector

NOTE

The pressure switches can be mounted on both IN and OUT sides on (N)AF, (N)AR, (N)AFM, and (N)AFD units but cannot be mounted in this way on (N)AW units when the handle of an (N)AR Series Regulator faces upwards.

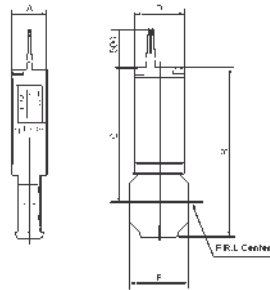


The switches shown DO NOT come with Yoke Clips attached.

TECHNICAL SPECIFICATIONS

Fluid	Air
Proof Pressure	1MPa / 145PSI
Max Operating Pressure	0.7MPa / 100PSI
Setting Range (off)	0.1~0.4MPa / 14.5~60PSI
Differential Pressure	Less than 0.08MPa / 12PSI
Ambient & Fluid Temperature	5 ~ 60°C / 40~140°F
Type of Actuation	1a (N.O.)
Switch Capacity	AC2VA • DC2W
Operating Voltage (AC, DC)	12V, 24V, 48V, 100V
Max Operating Current	AC, DC 12V ~ 48V: 50mA AC, DC 100V: 25mA
Response Time	1.2ms

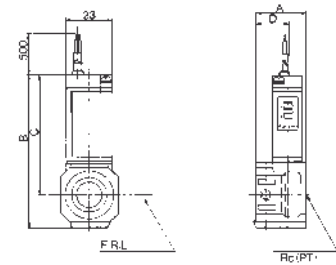
DIMENSIONS PRESSURE SWITCH IS1000M



Model*	A	B	C	D	E
IS1000M-2	15	73.5	62.6	23	28
IS1000M-3	15	82	64.9	23	29
IS1000M-4	15	88.7	67.6	23	35
IS1000M-5	15	91	71	23	44
IS1000M-6	15	100	72.5	23	54

*Without Yoke Clip.

DIMENSIONS PRESSURE SWITCH IS1000E



Model*	Port	A	B	C	D	Combination Series
IS1000E-201	1/8	28	73	62	18.5	AC2000
IS1000E-202	1/4					
IS1000E-203	3/8					
IS1000E-302	1/4	26	80	63	16.5	AC3000
IS1000E-303	3/8					
IS1000E-304	1/2	40	80	63	17.5	AC4000
IS1000E-402	1/4	33	87	66	17.5	
IS1000E-403	3/8					
IS1000E-404	1/2					
IS1000E-406	3/4					50	87	66	17.5

*Without Yoke Clip.

HOW TO ORDER PRESSURE SWITCH

Modular end unit pressure switch including Y20 or Y30 type yoke clips and extended lead to switch (3 metres):

IS1000M-2Y-X201	2000 SERIES
IS1000M-3Y-X201	3000 SERIES
IS1000M-4Y-X201	4000 SERIES
IS1000M-6Y-X201	5/6000 SERIES
IS1000E-202Y-X201	...2000 SERIES 1/4
IS1000E-303Y-X201	...3000 SERIES 3/8



SYMBOLS



THE IS1000E SHOWN TOGETHER WITH A FILTER/REGULATOR SERIES AW

SHUT OFF VALVE SERIES (N)VHS (3 PORT RELIEVING)

- ✔ Relieves the Downstream Pressure for System Servicing
- ✔ Visual Position Indication

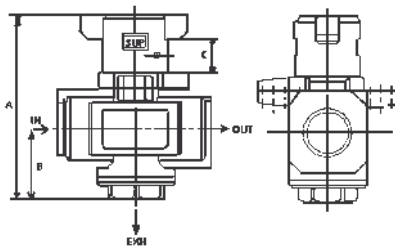
SMC Pneumatics' Series NVHS 3 Port Valves provide a means to prevent accidental start-ups while personnel are cleaning or servicing equipment. When in the exhaust position, the valve may be padlock-secured. To eliminate any uncertainty of valve status, a window displays when the valve is in supply or exhaust position.

* Simple user modification allows lock in pressure supply position.



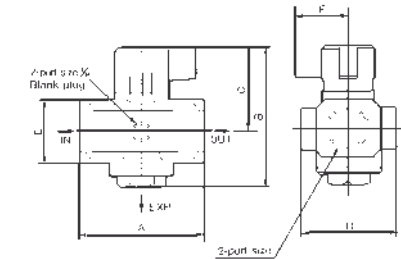
Lockable Unit. Color may not be available as shown. Please consult SMC Customer Service.

DIMENSIONS SERIES (N)VHS 3 PORT VALVE WITH LOCKING FACILITY



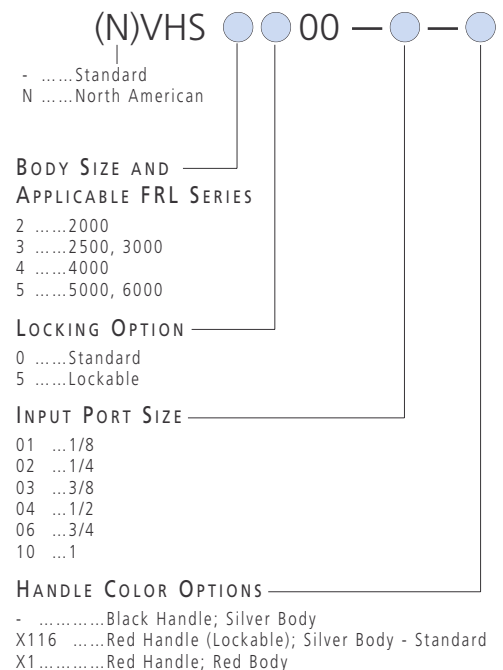
Model	Port Size	Exh Port	A	B	C	D	E	ØF	G	ØH
NVHS2500	1/8, 1/4	1/8	60	20	12.8	40	44	33	28	7.5
NVHS3500	1/4, 3/8	1/4	73	29	12.8	53	53	42	29	7.7
NVHS4500	1/4, 3/8, 1/2	3/8	85	32	12.6	70	64	49	36	10
NVHS5500	3/4, 1	1/2	136	56	32	90	80	65	54	10

DIMENSIONS SERIES (N)VHS SHUT-OFF VALVE



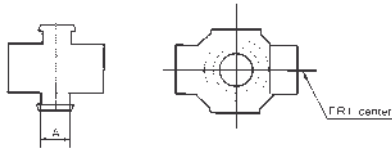
Model	Port Size	Exh. Port	A	B	C	D	E	F
NVHS2000	1/8, 1/4	1/8	40	56	36	28	22	25
NVHS3000	1/4, 3/8	1/4	53	74	45	48	28	30
NVHS4000	1/4, 3/8, 1/2	3/8	70	80	48	54	36	30

HOW TO ORDER SERIES (N)VHS SHUT-OFF VALVES



MODULAR TYPE – ACCESSORIES

SPACER

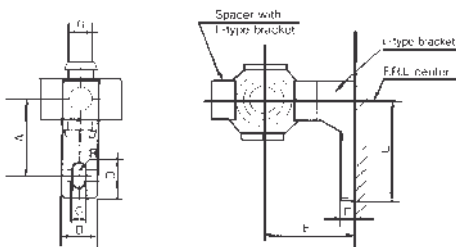
 DIMENSIONS
SPACER


Model	A	Applicable Model
Y10	8	NAC100~NAC1040
Y20	10	NAC2000~NAC2040
Y30	11	NAC2500~NAC2540 NAC3000~NAC3040
Y40	14	NAC4000~NAC4040
Y50	14	NAC4000-06~NAC4040-60
Y60	15	NAC5000/5500/6000 NAC5020/5520/6020


 HOW TO
ORDER
SPACER

Y10 ... (1000 SERIES)
 Y20 ... (2000 SERIES)
 Y30 ... (3000 SERIES)
 Y40 ... (4000 SERIES)
 Y50 ... (4000-06 SERIES)
 Y60 ... (5/6000 SERIES)

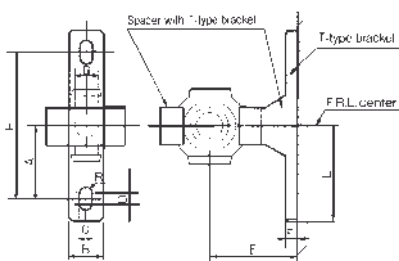
L TYPE BRACKET

 DIMENSIONS
L TYPE BRACKET

 HOW TO
ORDER
L TYPE BRACKET

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

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

T TYPE BRACKET

 DIMENSIONS
T TYPE BRACKET

 HOW TO
ORDER
T TYPE BRACKET

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

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



END BLOCK ADAPTOR

- ✓ Port Sizes: M5 ~ 1"Rc
- ✓ Allows for easy installation and maintenance

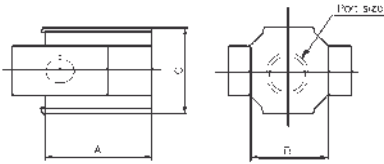
HOW TO ORDER PIPING ADAPTOR

- E10-M5 1000 SERIES
- E20-N01 2000 SERIES
- E20-N02 2000 SERIES
- E20-N03 2000 SERIES
- E30-N02 3000 SERIES
- E30-N03 3000 SERIES
- E30-N04 3000 SERIES
- E40-N03 4000 SERIES
- E40-N04 4000 SERIES
- E40-N06 4000 SERIES
- E60-N06 5/6000 SERIES
- E60-N10 5/6000 SERIES

mm

Model	Port size	A	B	C
E10-M5	M5x0.8	16	17.5	14
E20-N01	1/8	23	22	22
E20-N02	1/4			
E20-N03	3/8			
E30-N02	1/4	26	34.2	29
E30-N03	3/8			
E30-N04	1/2	40	34.2	29
E40-N03	3/8	33	42.2	35
E40-N04	1/2			
E40-N06	3/4	50	42.2	35
E50-N06	3/4	36	44	46.2
E60-N06	3/4	40	54	55.2
E60-N10	1			

DIMENSIONS PIPING ADAPTOR

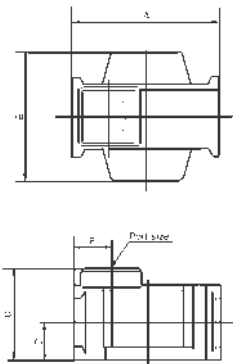


CHECK VALVE SERIES (N)AKM

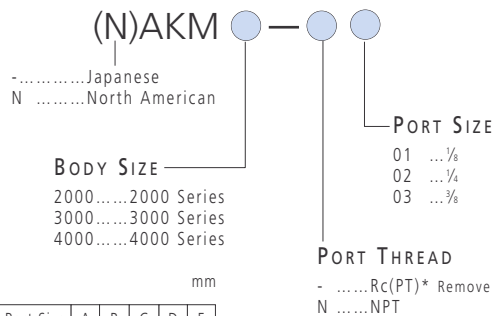


The Check Valve Spacer is designed to prevent back flow of lubricated air from a lubricator when both lubricated and non-lubricated supplies are required.

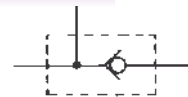
DIMENSIONS CHECK VALVE SERIES NAKM



HOW TO ORDER CHECK VALVE SERIES (N)AKM



SYMBOLS



mm

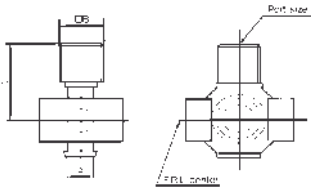
Model	Port Size	A	B	C	D	E
NAKM2000	1/8 1/4	40	40	28	11	11
NAKM3000	1/8 1/4	53	48	34	14	13
NAKM4000	1/8 3/8	70	54	42	18	15

MODULAR TYPE – ACCESSORIES

BRANCHING UNITS


 DIMENSIONS
T TAKE OFF

Cannot be installed adjacent to combined filter/regulator unit

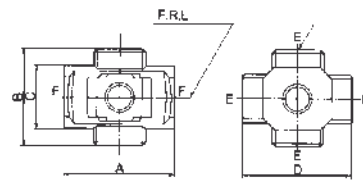


mm

Model	Port Size	A	B	C
Y11-M5	M5X0.8	8	12	8
Y21-01	1/8	10	29	19
Y21-02	1/4	10	29	19
Y31-01	1/8	11	33	19
Y31-02	1/4	11	33	19
Y41-02	1/4	14	39	24
Y41-03	3/8	14	39	24
Y51-02	1/4	14	24	41
Y52-03	3/8	14	24	41
Y61-03	3/8	15	30	50.5
Y61-04	1/2	15	30	50.5

 DIMENSIONS
X TAKE OFF

Fits between modular units using 'Y' Type Connectors



mm

Model	Port Size	A	B	C	D
Y14-M5	M5	23	16	14	25
Y24-01	1/8	40	40	22	40
Y24-02	1/4	40	40	22	40
Y34-02	1/8	49	43	28	48
Y44-02	1/4	60	48	36	54
Y44-03	3/8	60	48	36	54
Y54-03	3/8	72	62	40	62
Y54-04	1/2	72	62	40	62

 HOW TO
ORDER
"T" TAKE-OFF

APPLICABLE FRL SERIES

- 11000
- 22000
- 33000
- 44000
- 54000-06
- 65000, 6000

TAKE-OFF TYPE

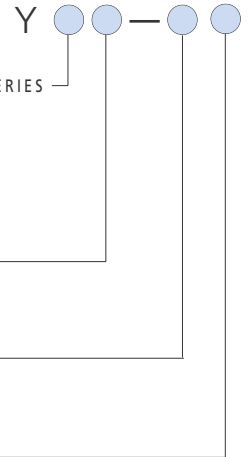
- 1 "T" Type
- 4 "X" Type

THREAD TYPE

- Nil ...Rc(PT)
- NNPT

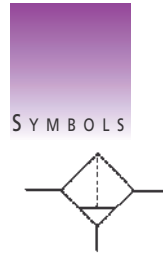
PORT SIZE

- M5 ...M5 x 0.8
- 01 ...1/8
- 02 ...1/4
- 03 ...3/8
- 04 ...1/2

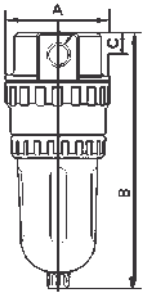


HIGH FLOW AIR FILTER SERIES (N)AF

- ✓ Port Sizes 1½- 2" Rc, NPT, PF
- ✓ 5µm Filter Element
- ✓ High Efficiency Drainage
- ✓ Bowl Guard Standard

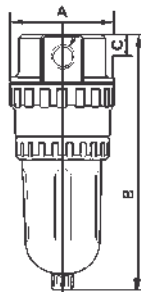


DIMENSIONS AIR FILTER MODELS (N)AF800/900



Model	A	B	C	Pipe Size
(N)AF800	150	410	33	1½, 1¾
(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, 1¾
(N)AF911	200	519	46	2

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

HOW TO ORDER AIR FILTER

- (N)AF800-12 (1¼)
- (N)AF800-14 (1½)
- (N)AF900-20 (2)

HOW TO ORDER AIR FILTER WITH AUTODRAIN

- (N)AF811-12 (1¼)
- (N)AF811-14 (1½)
- (N)AF911-20 (2)

Note) **(N)AF**
 AF - Japanese
 NAF - North American

ACCESSORIES AIR FILTER

- Filter Elements
- 11345-5B NAF800
- 11352-5B NAF900

FOR FURTHER TECHNICAL DETAILS ON THIS
 PRODUCT CONSULT SMC CUSTOMER SERVICE

FOR FURTHER TECHNICAL DETAILS ON THIS
 PRODUCT CONSULT SMC CUSTOMER SERVICE

MIST SEPARATOR SERIES (N)AM

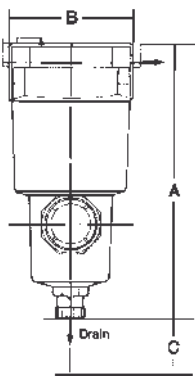
- ✓ Port Sizes 1/4, 3/8, 1/2, 3/4, 1 1/2, 2"
- ✓ Removes 99.9% of Oil Mist and Fine Particles down to 0.3µm
- ✓ Manual or Automatic Drain
- ✓ Cartridge Type Element for easy replacement
- ✚ Small additional clearance required for cartridge replacement

Mist Separators are also available for the Modular Range of Air Preparation Products



DIMENSIONS

MIST SEPARATOR SERIES NAM



(Clearance required for cartridge change)

Model	Port NPT	A mm	B mm	C mm
NAM150-N02D	1/4	159	63	10
NAM250-N03D	3/8	172	76	10
NAM350-N04D	1/2	204	90	10
NAM450-N06D	3/4	225	106	10
NAM550-N10D	1"	259	122	10
NAM650-N14D	1 1/2"	361	160	10
NAM850-N14D	2"	473	220	10

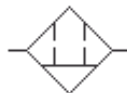
Manual and Autodrain types are same overall dimensions.

TECHNICAL SPECIFICATIONS

Max Operating Pressure	1MPa / 145PSI
Min Operating Pressure	0.05MPa / 8PSI
Ambient & Fluid Temp	5~60°C / 40~140°F
Filtration Degree	0.3µm
Oil Mist Removal	99.9%
Max Flow Rate (l/min)*	NAM150 300
	NAM250 750
	NAM350 1500
	NAM450 2,200
	NAM550 3,500
	NAM650 6,000
NAM850 12,000	

*0.7MPa Supply, 0.03MPa or less pressure drop

SYMBOLS



ACCESSORIES

Bracket

NAM150	BM51
NAM250	BM52
NAM350	BM53
NAM450	BM54
NAM550	BM55
NAM650	BM56
NAM850	BM57

Filter element

NAM150	AM-EL150
NAM250	AM-EL250
NAM350	AM-EL350
NAM450	AM-EL450
NAM550	AM-EL550
NAM650	AM-EL650
NAM850	AM-EL850
GD40-2-01	Differential pressure gauge

FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT CONSULT SMC CUSTOMER SERVICE

HOW TO ORDER

MIST SEPARATOR SERIES (N)AM

Note) (N)AM

- AM - Japanese
- NAM - North American

(N)AM

BODY SIZE

- 150 ... 1/8 Basis
- 250 ... 1/4 Basis
- 350 ... 3/8 Basis
- 450 ... 1/2 Basis
- 550 ... 3/4 Basis
- 650 ... 1 Basis
- 850 ... 1 1/2 Basis

THREAD

-Rc(PT)* Remove (N) when ordering
- FG(PF)* Remove (N) when ordering
- NNPT

PORT SIZE

- 01 ... 1/8
- 02 ... 1/4
- 03 ... 3/8
- 04 ... 1/2
- 06 ... 3/4
- 10 ... 1
- 14 ... 1 1/2
- 20 ... 2

OPTIONS

-None
- BBracket
- CNC Autodrain
- DNO Autodrain

SUB-STANDARD SPECIFICATIONS

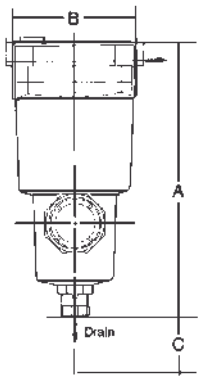
- YDrain Guide 1/4 Internal Thread
- MWith Drain Lock M5 Screw
- RIN, OUT Reverse Direction

MICRO MIST SEPARATOR SERIES (N)AMD

- ✓ Port Sizes 1/4, 3/8, 1/2, 3/4, 1", 1 1/2, 2"
- ✓ Removes Oil, Water and Dirt from Compressed Air
- ✓ 99.9999% Efficient
- ✓ Particle removal down to 0.01µm
- ✓ Oil Carry-over less than 0.08 p.p.m.
- ✓ Cartridge Type Element for easy replacement
- 🔧 Small additional clearance required for cartridge replacement



DIMENSIONS MIST SEPARATOR SERIES NAMD



(Clearance required for cartridge change)

Model	Port NPT	A mm	B mm	C mm
NAMD150-N02	1/4"	159	63	10
NAMD250-N03	3/8"	172	76	10
NAMD350-N04	1/2"	204	90	10
NAMD450-N06	3/4"	225	106	10
NAMD550-N10	1"	259	122	10
NAMD650-N14	1 1/2"	361	160	10
NAMD850-N20	2"	473	220	10

Manual and Autodrain Types are same overall dimensions.

TECHNICAL SPECIFICATIONS

Max Operating Pressure	1MPa / 145PSI
Minimum Operating Pressure	0.05MPa / 8 PSI
Ambient and Fluid Temperatures	5 - 60°C / 40~140°F
Filtration Degree	0.01µm
Oil Mist Removal	99.9%
Max Flow Rate (l/min)*	NAMD150 - 200 NAMD250 - 250 NAMD350 - 1000 NAMD450 - 2000 NAMD550 - 3500 NAMD650 - 6000 NAMD850 - 12000

*0.7MPa supply, 0.02MPa pressure drop

SYMBOLS



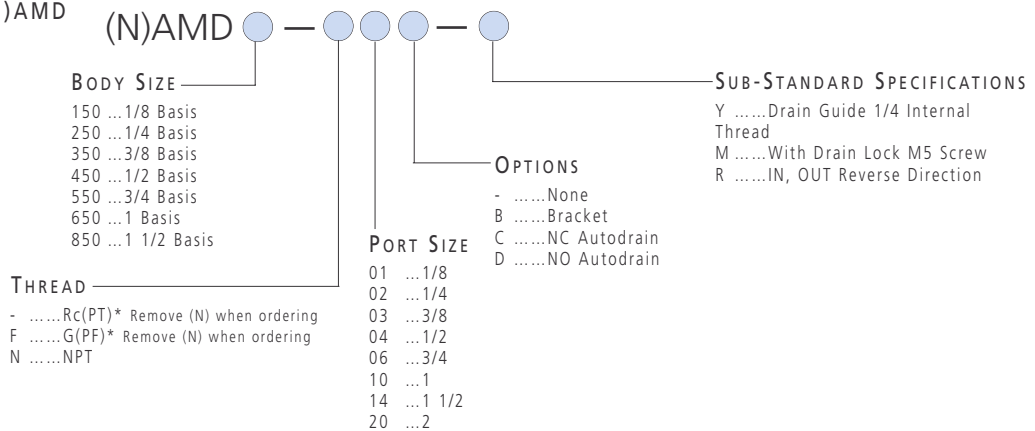
ACCESSORIES MIST SEPARATOR SERIES (N)AMD

- Brackets
- NAMD150 BM51
 - NAMD250 BM52
 - NAMD350 BM53
 - NAMD450 BM54
 - NAMD550 BM55
 - NAMD650 BM56
 - NAMD850 BM57
- Filter Element
- NAMD150 AMD-EL150
 - NAMD250 AMD-EL250
 - NAMD350 AMD-EL350
 - NAMD450 AMD-EL450
 - NAMD550 AMD-EL550
 - NAMD650 AMD-EL650
 - NAMD850 AMD-EL850
 - GD40-2-01 Differential pressure gauge

HOW TO ORDER MIST SEPARATOR SERIES (N)AMD

Note) (N)AMD

- AMD - Japanese
- NAMD - North American

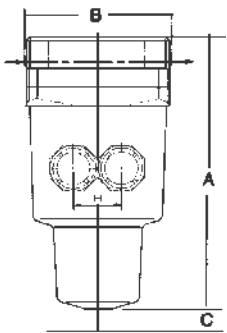


ODOR REMOVAL FILTER SERIES (N)AMF

- ✓ Port Sizes 1/4, 3/8, 1/2, 3/4, 1", 1 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



(Clearance required for cartridge change)

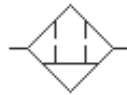
Model	Port NPT	A mm	B mm	C mm
NAMF150-N02	1/4"	139	63	10
NAMF250-N03	3/8"	152	76	10
NAMF350-N04	1/2"	184	90	10
NAMF450-N06	3/4"	205	106	10
NAMF550-N10	1"	239	122	10
NAMF650-N14	1 1/2"	321	160	10
NAMF850-N20	2"	403	220	10

TECHNICAL SPECIFICATIONS

Media	Compressed air - filtered to 10 micron
Operating Pressure	0.05 - 1MPa / 8~145PSI
Operating Temperature	5 - 60°C / 40~140°F
Max Flow Rate /n/min*	NAMF150 - 200 NAMF250 - 500 NAMF350 - 1000 NAMF450 - 2000 NAMF550 - 3500 NAMF650 - 6000

*0.7MPa supply, 0.015MPa pressure drop

SYMBOLS

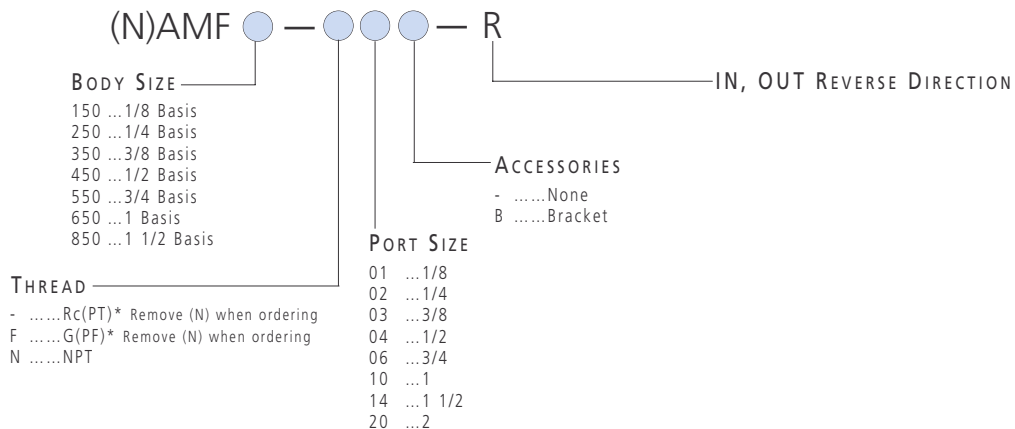


ACCESSORIES ODOR REMOVAL FILTER SERIES NAMF

Bracket	
NAMF150	.....BM51
NAMF250	.....BM52
NAMF350	.....BM53
NAMF450	.....BM54
NAMF550	.....BM55
NAMF650	.....BM56
NAMF850	.....BM57
Filter element	
NAMF150	.....NAMF-EL150
NAMF250	.....NAMF-EL250
NAMF350	.....NAMF-EL350
NAMF450	.....NAMF-EL450
NAMF550	.....NAMF-EL550
NAMF650	.....NAMF-EL650
NAMF850	.....NAMF-EL850

HOW TO ORDER ODOR REMOVAL FILTER SERIES (N)AMF

Note) (N)AMF
AMF - Japanese
NAMF - North American

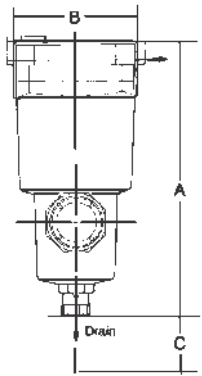


WATER SEPARATOR SERIES AMG

- ✓ Port Sizes 1/4, 3/8, 1/2, 3/4, 1, 1 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



(Clearance required for cartridge change)

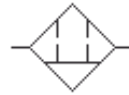
Model	Port NPT	A mm	B mm	C mm
AMG150	1/4	170	63	10
AMG250	3/8	191	76	10
AMG350	1/2	220	90	10
AMG450	3/4	241	106	10
AMG550	1	279	122	10
AMG650	1 1/2	388	160	10
AMG850	2	479	220	10

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 /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



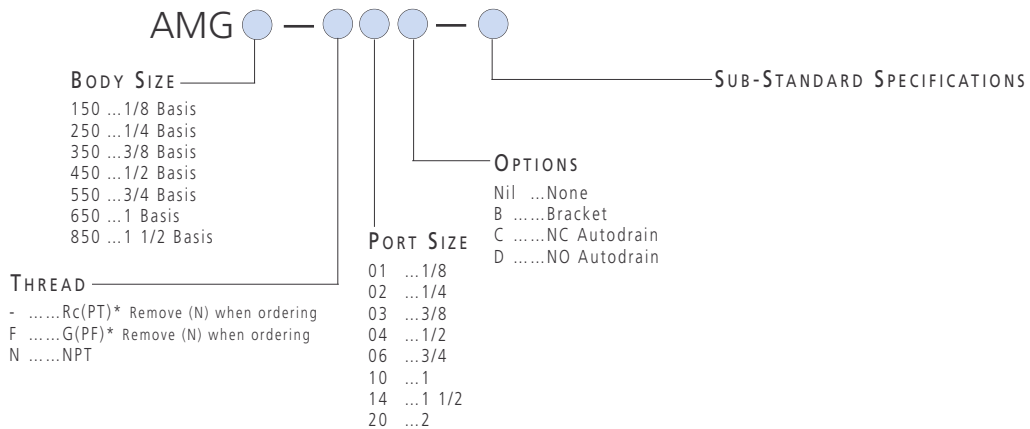
ACCESSORIES

Bracket

AMG150	.....	BM51
AMG250	.....	BM52
AMG350	.....	BM53
AMG450	.....	BM54
AMG550	.....	BM55
AMG650	.....	BM56
AMG850	.....	BM57

FOR FURTHER TECHNICAL INFORMATION
 ON THIS SERIES, REFER TO CAT:E508

HOW TO ORDER WATER SEPARATOR SERIES AMG



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.

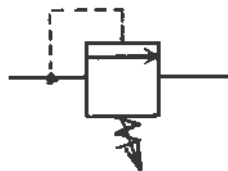


*BLACK HANDLE AVAILABLE IN NORTH AMERICA

TECHNICAL SPECIFICATIONS

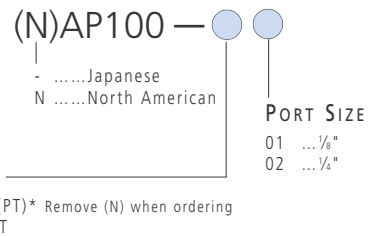
Characteristics	(N)AP100
Port Size	1/8" (01), 1/4" (02)
Max Operating Pressure	1MPa / 145PSI
Relieving Range	0.05 - 0.7MPa / 18~100PSI
Temperature Range	5 - 60°C / 40~140°F
Body Material	Aluminum Die Cast

SYMBOLS

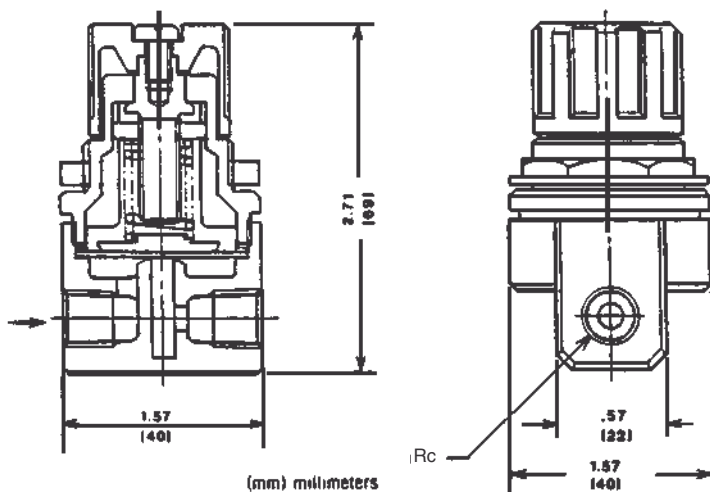


HOW TO ORDER

SERIES (N)AP100



DIMENSIONS (N)AP SERIES



ACCESSORIES

SERIES (N)AP100

BracketB21-1P

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

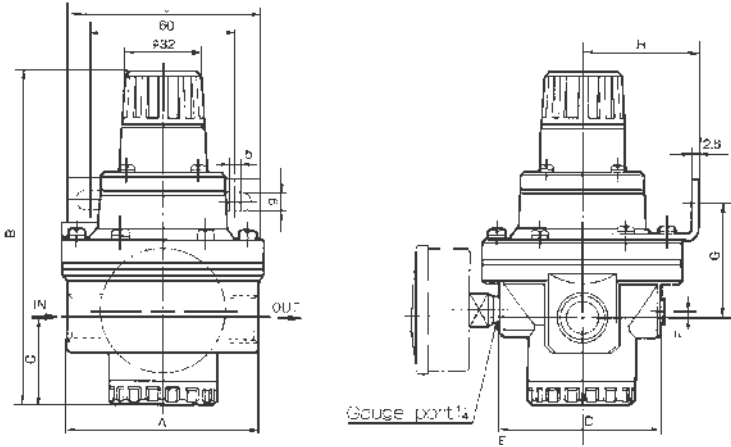
TECHNICAL
SPECIFICATIONS

Pressure Regulating Range (Bar)	0.5 ~ 8.5	NAR425	NAR625	NAR825	NAR925
Pipe Size		1/4 3/8 1/2	3/4 1	1 1/2	2
Flow Rate (l/min 7bar suply, 1 bar pressure drop)		8,000	14,000	18,000	22,000

1MPa = 145 PSI

DIMENSIONS

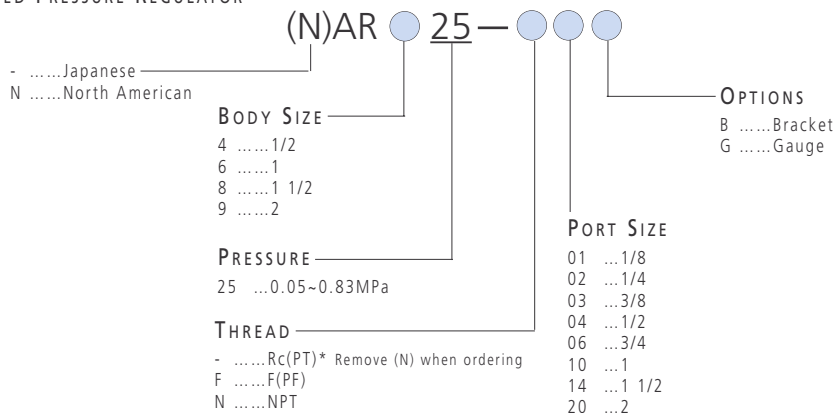
PILOT OPERATED PRESSURE REGULATOR



Model	A	B	C	D	E	F	Bracket Dimensions			Bracket No.
							G	H	J	
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

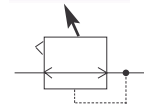


ACCESSORIES

PILOT OPERATED PRESSURE REGULATOR

- Mounting Bracket
- B24NAR425
- B25NAR625

SYMBOLS



MINIATURE REGULATOR (N)ARJ1020F

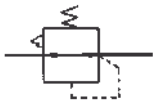
- ✓ Compact Design
- ✓ Piston Construction offers High Frequency and Long Life
- ✓ One-Touch Tube Connection
- ✓ Panel Mount



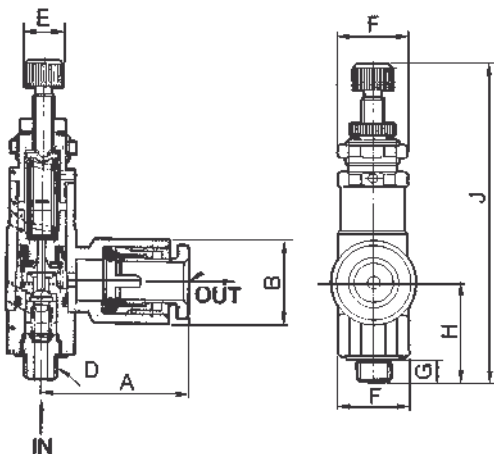
TECHNICAL SPECIFICATIONS

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

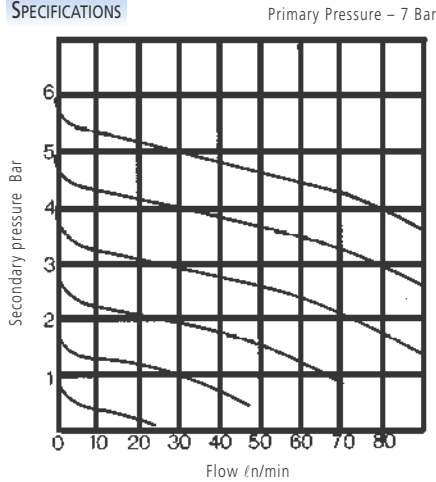
SYMBOLS



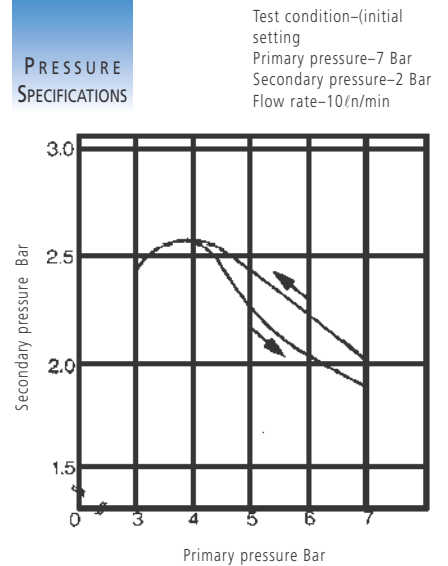
DIMENSIONS SERIES NARJ



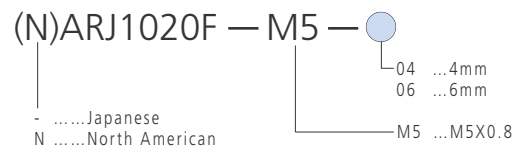
FLOW SPECIFICATIONS



PRESSURE SPECIFICATIONS



HOW TO ORDER MINIATURE REGULATOR (N)ARJ1020F



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	M5X0.8	6	10.6	3.5	15.5	50

LUBRICATOR SERIES (N)AL

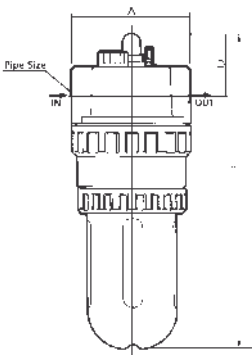
- ✔ Port Sizes 1½~2
- ✔ Atomizes Lubricant into fine particles at a uniform rate
- ✔ Drip Rate easily monitored with Sight Dome
- ✔ Can be filled under pressure
- ✔ Bowl Guard Standard
- ✔ Damper precludes oil flooding



SYMBOLS



DIMENSIONS
LUBRICATOR



Model	A	B	C	Pipe Size
NAL800	100	283	59	1½
NAL900	100	288	63	2

HOW TO
ORDER
LUBRICATOR
SERIES NAL

- NAL800-N12 (1¼ NPT)
- NAL800-N14 (1½ NPT)
- NAL900-N20 (2 NPT)

TECHNICAL
SPECIFICATIONS

	NAL800	NAL900
Max Supply pressure	1.5MPa / 220PSI	
Max Operating Pressure	1MPa / 145PSI	
Operating Temp Range	5~60°C / 40~140°F	
Recommended lubricant	Turbine oil #1 (ISO VG32)	
Bowl	Polycarbonate	
Pipe Size	1¼, 1½	2
Min Flow for Oil Drip	650	1800
Oil Capacity (cm3)	500	500
Flow Rate /n/min	12500	16500

Flow rate quoted at: 0.5MPa supply
0.03MPa pressure drop

HOW TO
ORDER
LUBRICATOR
SERIES AL

- AL800-12 (1¼ PT)
- AL800-14 (1½ PT)
- AL900-20 (2 PT)

AUTO DRAIN SERIES (N)AD

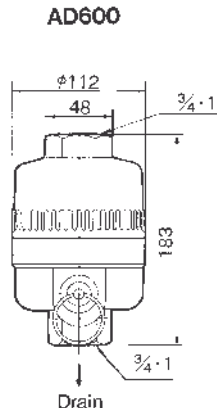
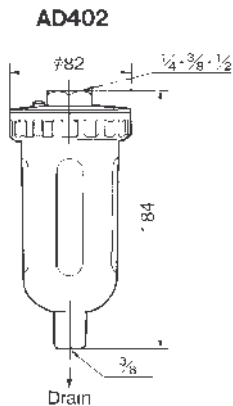
- ✓ Port Sizes 1/4~1
- ✓ Float Type Automatic Drain Valve



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



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

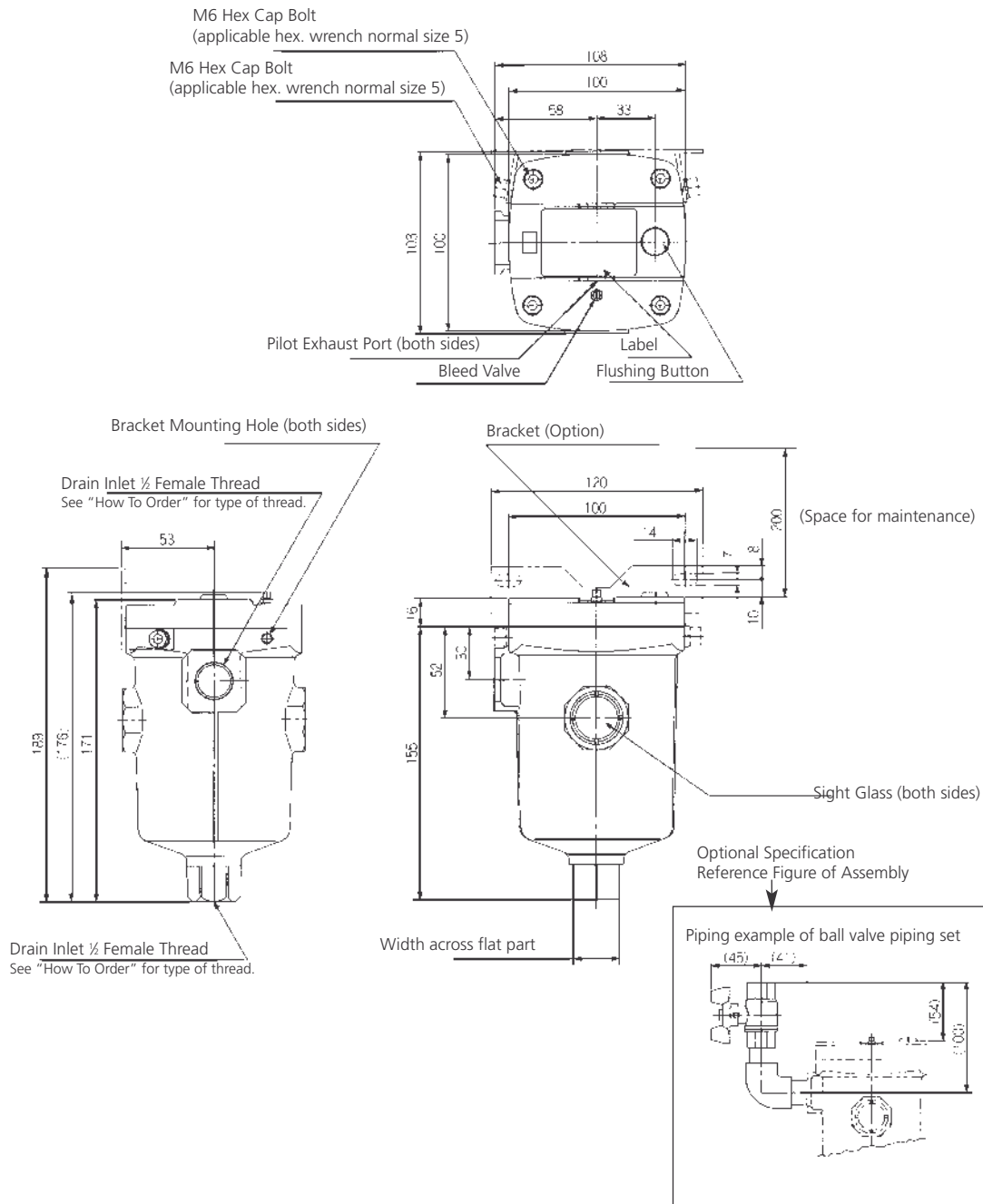
Bracket	BM58
Ball Valve Piping Kit (See note below)	ADH-C400
Silencer for Drain	2506-004-X228

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



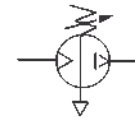
TECHNICAL SPECIFICATIONS

1MPa = 145PSI

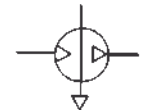
Specification	(N)VBA1	(N)VBA2, (N)VBA4
Pressure Increase Ratio	Max. 2:1	Max. 2:1
Media	Air	Air
Proof Pressure	3MPa	1.5MPa
Max Working Pressure	2MPa	1MPa
Set Pressure Range	0.2 ~ 2MPa	0.2 ~ 1MPa
Ambient and Media Temp Range	0 ~ 50°C / 32~125°F	0 ~ 50°C / 32~125°F
Lubrication	Not Required	Not Required
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 ℓn/min*	1000 ℓn/min**	1900 ℓn/min**	1000 ℓn/min**	1900 ℓn/min*
Port Size (IN, OUT)	¼	¾	½	¾	½
EXH Port Size	¼	¾	½	¾	½
Pilot EXH Port Size		-		¾	
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

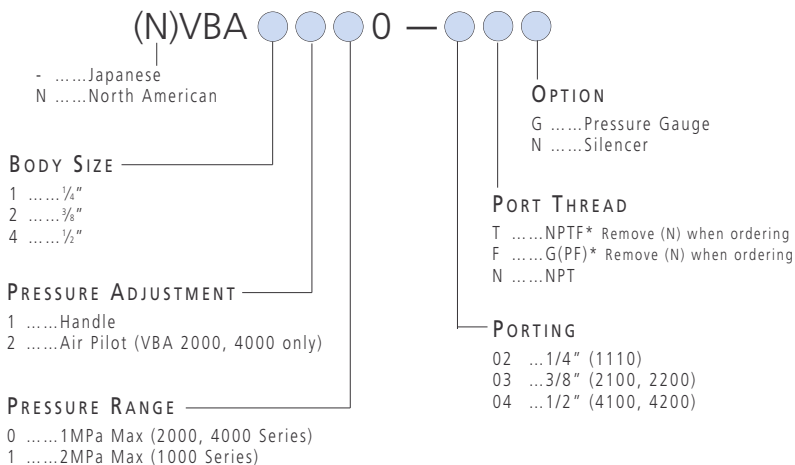


INSTALLATION

The Booster Regulator should be installed with its piston in a horizontal position.

HOW TO ORDER

(N)VBA BOOSTER REGULATOR



ACCESSORIES

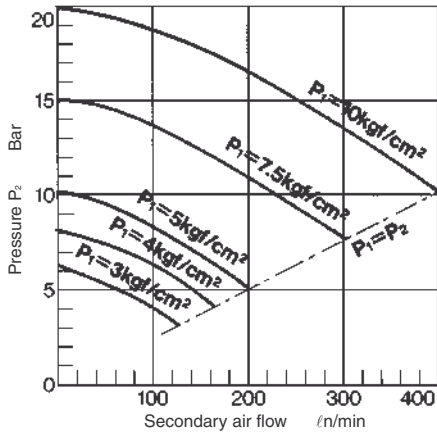
(N)VBA BOOSTER REGULATOR

SPARES KITS

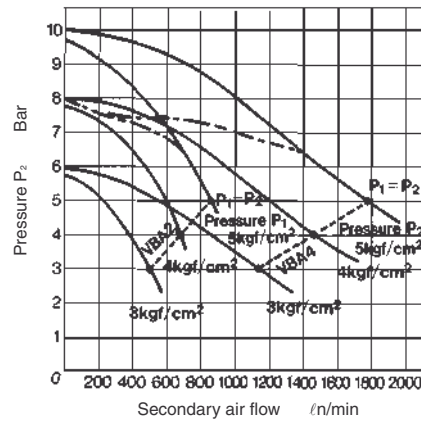
- KT-VBA2100-P(N)VBA2000 Series
- KT-VBA4100-P(N)VBA4000 Series

FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT CONSULT SMC CUSTOMER SERVICE

(N)VBA1 FLOW CHARACTERISTICS

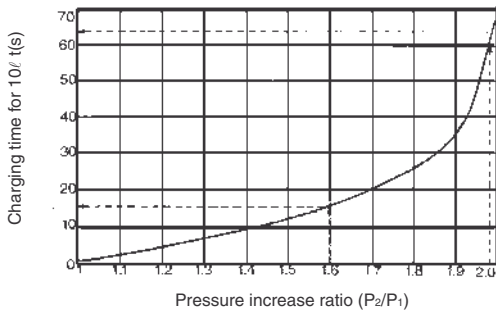


(N)VBA2, (N)VBA4 FLOW CHARACTERISTICS

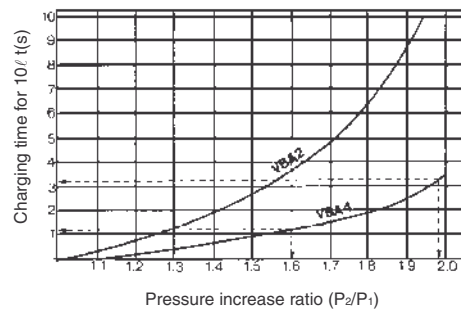


Example:
(N)VBA 4
P₁ = 5 bar
P₂ = 8 bar
Then maximum flow demand = 1000 l/min

NVBA1 CHARGE CHARACTERISTICS



(N)VBA2, (N)VBA4 CHARGE CHARACTERISTICS



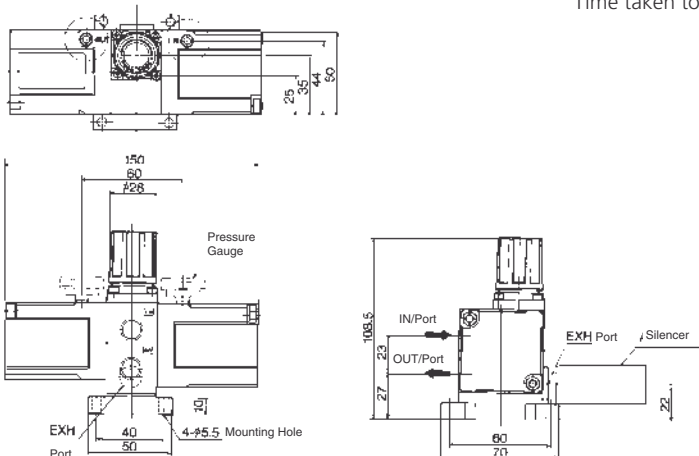
These graphs illustrate the time required to increase pressure in a closed tank e.g. (V)BA 1. If we wish to increase tank pressure to 8 bar, where P₁ = 4 bar and tank pressure = 6.4 bar:

$$\text{initial } \frac{p_2}{p_1} = \frac{6.4}{4} = 1.6 \text{ (charging line from graph = 15 seconds)}$$

$$\text{final } \frac{p_2}{p_1} = \frac{8}{4} = 2 \text{ (charging line from graph = 65 seconds)}$$

Time taken to increase pressure = 65 – 15 seconds
= 50 seconds per 10 litre volume of tank

DIMENSIONS HANDLE TYPE (N)VBA1110-02



PRESSURE GAUGES

- ✓ 3 Pressure Ranges
- ✓ Center Back or Panel Mount
- ✓ 1/8 or 1/4 Connection
- ✓ 40 or 50mm Diameter Face



HOW TO ORDER PRESSURE GAUGES

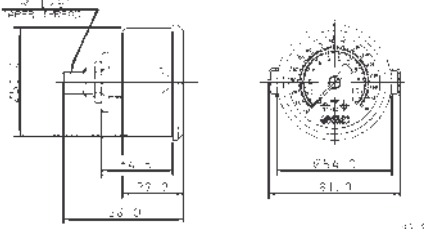
MODEL	PORT SIZE	PRESSURE RANGE	APPLICABLE MODEL
G27-P10-R1	Rc(PT)1/16	0 ~ 150PSI	NAR1000 • NAW1000
K10	1/8NPT	0 ~ 160PSI	NAR2000 • 2500 • NAW2000 • 3000
K12	1/4NPT	0 ~ 160PSI	NAR4000 • NAW4000
K13	1/4NPT	0 ~ 30PSI	NAR4000 • NAW4000
K20	1/8NPT	0 ~ 30PSI	NAR2000 • 2500 • NAW2000 • 3000

NOTE

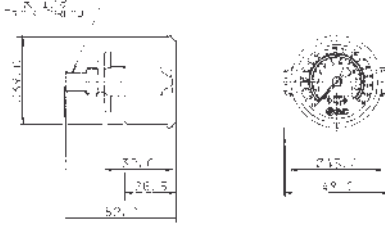
For Air Preparation series (N)AR/(N)AW1000, use SMC Gauge Part Number:

G27-10-R1 1/16 Connection

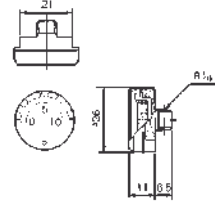
DIMENSIONS 5K8-10P/4P/2.5P



DIMENSIONS 4K8-10P/4P/2.5P

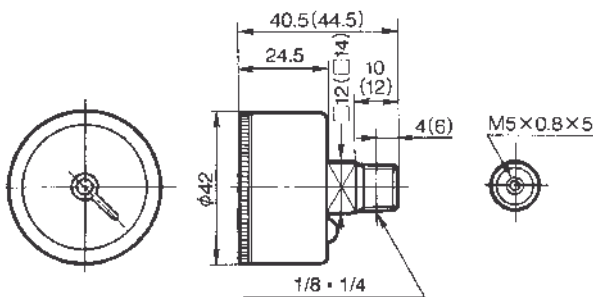


DIMENSIONS G27-10-R1

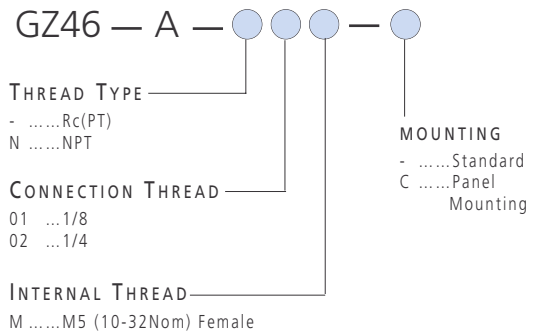


VACUUM GAUGES

- ✓ Scale in mmHg
- ✓ Center Back Mount
- ✓ 1/8 or 1/4 Connection
- ✓ 42mm Diameter Face



HOW TO ORDER VACUUM GAUGES



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

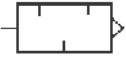


HOW TO ORDER

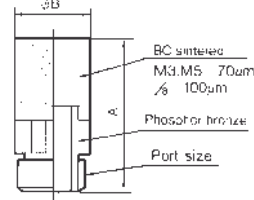
- SERIES NAN SILENCER**
 NAN120-M3 (M3)
 NAN120-M5 (M5)
 NAN110-N01 (1/8 NPT)
 NAN101-N01 (1/8 NPT)

*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 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

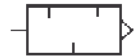
- ✓ Over 30 dB noise reduction
- ✓ Low back pressure
- ✓ Compact and easy mounting

TECHNICAL SPECIFICATIONS

Max Operating Pressure	1MPa / 145PSI
Noise Reduction	30dB or more
Ambient & Fluid Temperature	5~60°C / 40~140°F



SYMBOLS



HOW TO ORDER

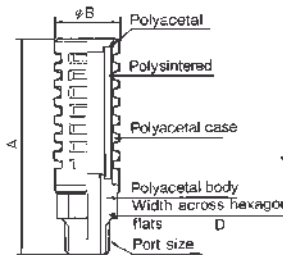
SERIES NAN SILENCER

Model	Port Size* NPT	Effective Orifice 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	3/4"	160 (8.8)
NAN600-N10	1"	270 (15)
NAN700-N12	1 1/4"	440 (24)
NAN800-N14	1 1/2"	590 (33)
NAN900-N20	2"	960 (53)

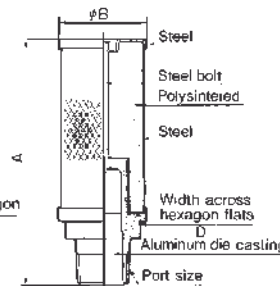
Note: When ordering PT Ports, remove (N) from Model Number
 Eg: AN200-02

DIMENSIONS SERIES NAN SILENCER

AN200-400



AN500-900



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

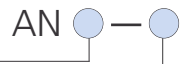
- ✓ Standardized Thread and One-touch Connection
- ✓ Choice of two Orifice Sizes
- ✓ Compact, Robust Construction
- ✓ Minimum Flow Restriction for Low Back Pressure
- ✓ Wide Range of Options
- ✓ High Noise Attenuation (40dB(A) for ANA1)



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



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

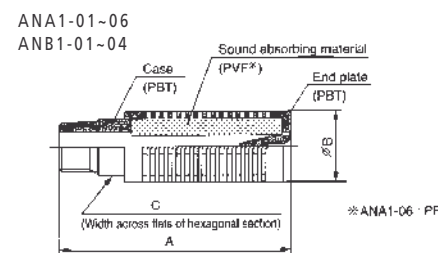
DIMENSIONS

MODEL (THREAD CONNECTION)

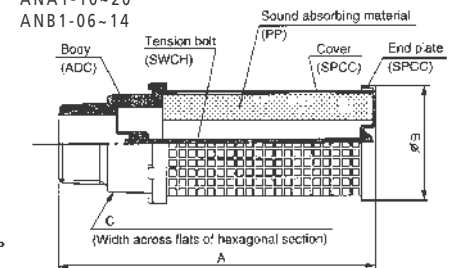
Model	Port Size	Effective orifice (mm ²)	Weight (g)	Dimensions (mm)		
				A	B	C
ANA1-01	1/8	10	4	37	16	-
ANA1-02	1/4	15	14	64	22	18
ANA1-03	3/8	35	22	84	25	21
ANA1-04	1/2	60	36	98	30	24
ANA1-06	3/4	90	110	111	46	36
ANA1-10	1	160	180	132	50	41
ANA1-12	1 1/4	280	544	200	74	60
ANA1-14	1 1/2	450	612	230	74	60
ANA1-20	2	610	873	271	86	70
ANB1-01	1/8	15	10	51	22	-
ANB1-02	1/4	35	22	81	25	18
ANB1-03	3/8	60	35	93	30	21
ANB1-04	1/2	90	94	107	46	24
ANB1-06	3/4	160	175	133	50	41
ANB1-10	1	280	462	190	74	41
ANB1-12	1 1/4	450	612	230	74	60
ANB1-14	1 1/2	610	871	271	86	70



DIMENSIONS



ANA1-10~20 ANB1-06~14



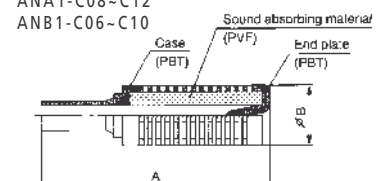
DIMENSIONS

MODEL (ONE TOUCH FITTINGS CONNECTION)

Model	Applicable One Touch Fittings Size	Effective Orifice (mm ²)	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 CLEANER



TECHNICAL SPECIFICATIONS

Max Operating Temperature	60°C / 140°F
Noise Reduction	35dB or more
Oil Mist Removal	99.9% or more
Exhaust of Oil Mist	Drain cock
Option	Bracket*
*Bracket not available on NAMC810 and 910	

- ✓ 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	1/2"	1/2*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

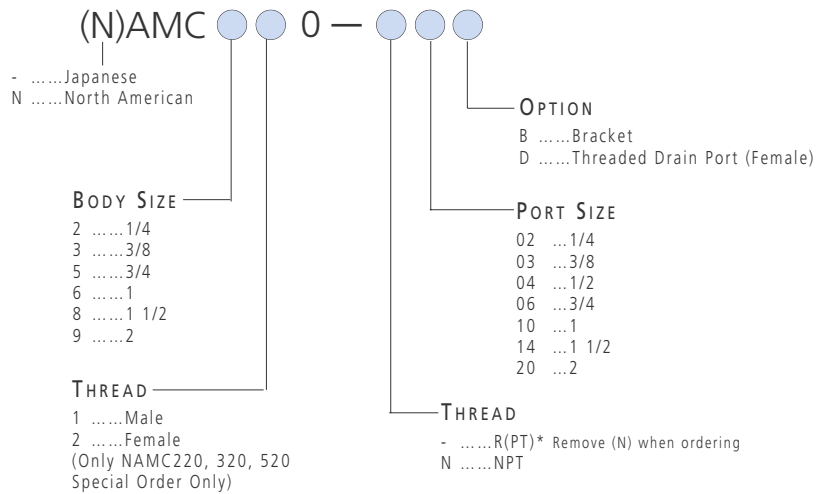
ACCESSORIES

SERIES (N)AMC EXHAUST CLEANER

- ElementSee "How To Order"
- BracketSee "How To Order"

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE CONSULT SMC CUSTOMER SERVICE

HOW TO ORDER
EXHAUST CLEANER SERIES (N)AMC



VACUUM

		SERIES	PAGE NUMBER
		(N)ZH VACUUM EJECTOR	6.1
		(N)ZM VACUUM EJECTOR	6.2
		(N)ZZM VACUUM EJECTOR MANIFOLD	6.3
		(N)ZL MULTI-STAGE VACUUM EJECTOR	6.4
		(N)ZFA AIR SUCTION FILTER	6.5
		(N)ZFB AIR SUCTION FILTER	6.6
		ZS VACUUM SWITCH (SEE ALSO INSTRUMENTATION SECTION PAGES 7.10 TO 7.14)	6.7
		ZSM1 VACUUM SWITCH - DIAPHRAGM TYPE	6.8
		T203 HANDLE-OPERATED VACUUM REGULATOR	6.9
		ZPT VACUUM PADS - VERTICAL ENTRY WITHOUT BUFFER	6.10

	SERIES	PAGE NUMBER
	ZPR VACUUM PADS - HORIZONTAL TYPE ENTRY WITH BUFFER / ONE-TOUCH FITTINGS	6.12
	ZP VACUUM PADS	6.16
	ZPT/ZPX HEAVY DUTY VACUUM PADS	6.17
	VACUUM SOLENOID VALVE REFERRAL 3 PORT & 5 PORT	6.18
	(N)AK2000 CHECK VALVE	6.19
	VVQ1000 VACUUM EJECTOR UNIT FOR VQ1000 SERIES / BASE-MOUNTED PLUG-IN TYPE	6.20
	ZCDUK FREE MOUNT CYLINDER FOR VACUUM	6.21
	ZU COMPACT VACUUM EJECTOR WITH BUILT-IN SILENCER	6.22

NZH VACUUM EJECTOR

- ✓ Box type and body ported
- ✓ 7 nozzle diameters
- ✓ Large flow type
- ✓ One touch or threaded connection
- ✓ Built-in silencer (box type only)



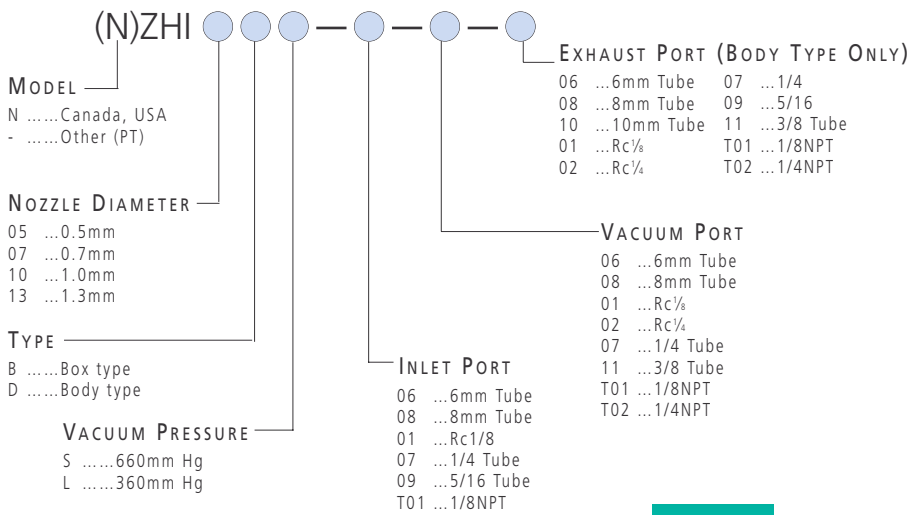
BOX TYPE



BODY TYPE

HOW TO ORDER

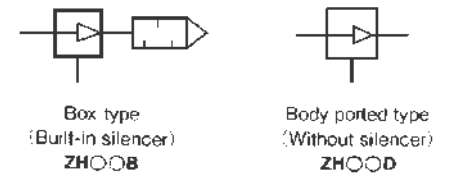
NZHI VACUUM EJECTOR



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



DIMENSIONS

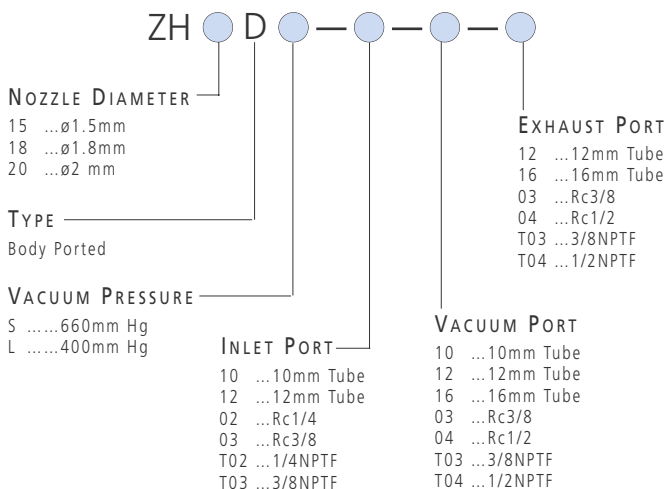
MAXIMUM SUCTION FLOW RATE/ AIR CONSUMPTION UNIT (ℓn/min)

Specifications	Max Vacuum Pressure* mmHg (Torr)	Nozzle Diameter mmφ			
		0.5	0.7	1.0	1.3
Max Suction Flow Rate	S Type - 660 (100) L Type - 360 (400)	5	12	24	40
Air Consumption	S Type - 660 (100) L Type - 360 (400)	10	20	34	68

*Vacuum pressure is quoted as mmHg below atmospheric (Torr Absolute)
 1 Torr = 0.0197PSI

HOW TO ORDER

ZH VACUUM EJECTOR



DIMENSIONS

MAXIMUM SUCTION FLOW RATE/ AIR CONSUMPTION UNIT (ℓn/min)

Specifications	Max Vacuum Pressure mmHg (Torr)	Nozzle Diameter mmφ		
		1.5	1.8	2.0
Max Suction Flow Rate SCFM (ℓn/min)	S Type - 26" (6600) L Type - 16" (400)	55	65	85
Air Consumption SCFM (ℓn/min)	S Type - 26" (660) L Type - 16" (400)	95	130	175

1 Torr = 0.0197PSI

For more Dimensions and Technical Information, please refer to CAT:E804 and N400

VACUUM EJECTOR SERIES NZM

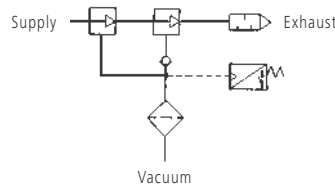
- ✓ All in one vacuum system
- ✓ Two stage nozzle design
- ✓ Suction flow rate 40% higher than traditional designs
- ✓ Silencer and suction filter
- ✓ Optional air supply and vacuum release valve
- ✓ Optional diaphragm or solid state vacuum switch
- ✓ Manifold mountable version



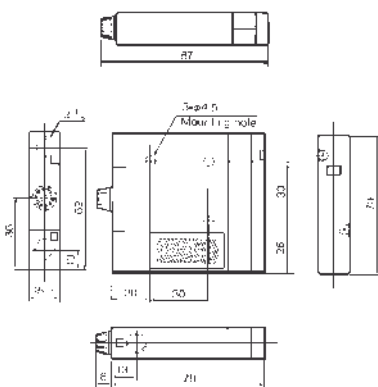
TECHNICAL SPECIFICATIONS

Fluid	Air
Max Operating Pressure	7 Bar / 100PSI
Operating Pressure	2 ~ 5.5 Bar / 30~80PSI
Operating Temperature	5 ~ 50°C (with valve) 40~120°F
	5 ~ 60°C (w/o valve) 40~140°F
Operating Valve (Air Supply & Release Valve)	Main: Poppet Valve
	Pilot: VJ114
Switch	Solid State Type ZSE1-0***
	Diaphragm State Type ZSM1-0***
Suction Filter	30µm PE (Polyethylene)
Lubrication	Forbidden
Solenoid Supply	24V DC

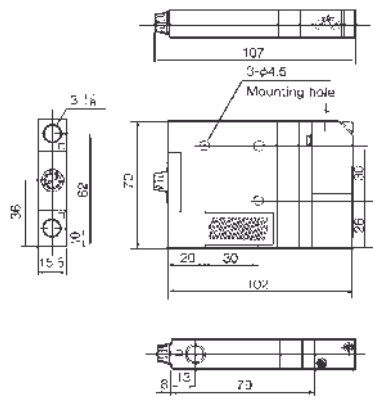
SYMBOLS



DIMENSIONS BASIC TYPE



DIMENSIONS WITH VACUUM SWITCH



HOW TO ORDER

(N)ZM VACUUM EJECTOR



- NOZZLE DIAMETER**
- 05 ...0.5mm
 - 07 ...0.7mm
 - 10 ...1.0mm
 - 13 ...1.3mm

- TYPE**
- 2Body Ported
 - 4Manifold Type-Common SUP
 - 6Manifold Type-Individual SUP

- SUPPLY PRESSURE**
- H5 Bar
 - M3.5 Bar

- PORT THREAD**
- Nil ...PT* Remove (N) when ordering
 - TNPTF

- 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

MULTISTAGE VACUUM EJECTOR SERIES (N)ZL

- ✓ Three stage defuser system - for high flow, low air consumption and energy saving
- ✓ Compact design - aesthetic appearance, easy to locate
- ✓ Free Mount type - mounting from three sides possible
- ✓ Built-in One-touch Fittings - for easy piping
- ✓ Built-in Silencer and Suction Filter
- ✓ Optional Vacuum Pressure Switch or Gauge



TECHNICAL SPECIFICATIONS

Model	(N)ZL112	(N)ZL112-G	(N)ZL112-E□	(N)ZL212
Nozzle Diameter	Ø1.2mm			ø1.2mm x 2
Max Suction Flow	100 l/m (ANR)			200 l/m (ANR)
Air Consumption	63 l/m (ANR)			126 l/m (ANR)
Max Vacuum Pressure	-84kPa (-12PSI)			-12PSI
Max Operating Pressure	0.7MPa / 100PSI			100PSI
Supply Pressure Range	0.2 ~ 0.5MPa / 30 ~ 75PSI			30 ~ 75 PSI
Standard Supply Pressure	0.4MPa / 160PSI			160PSI
Operating Temperature Range	5 ~ 50°C / 40~120PSI			40~120 PSI
Option	Vacuum pressure gauge, Vacuum pressure switch			

OPTION SPECIFICATIONS

VACUUM PRESSURE GAUGE SPECIFICATIONS

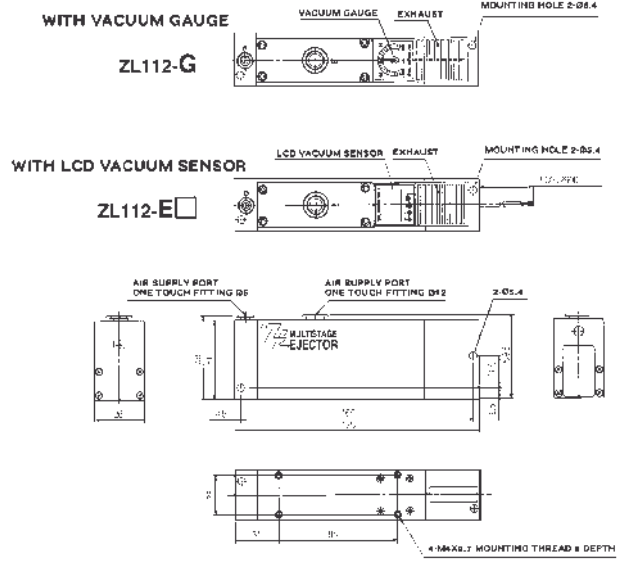
Model	GZ30S
Fluid	Air
Pressure range	-100 ~ 100kPa / -15~15PSI
Scale angle	230°
Accuracy	±3% F.S. (Full Span)
Class	Class 3
Operating temperature range	0 ~ 50°C / 32~120°F
Material	Case: Polycarbonate/ABS resin

OPTION SPECIFICATIONS

VACUUM PRESSURE DIGITAL SWITCH SPECIFICATIONS

Model	ZSE4-00-25(L)-X105	ZSE4-00-26(L)-X105
Output Specification	1 output, NPN open collector 30V 80mA	1~5V ±5% FS load impedance 1kΩ
Fluid	Air	
Setting Pressure Range	0~-101kPa, -760mmHg, -14.7PSI, 1.01bar	
Min Display Unit	1kPa, 5mmHg, 0.1PSI, 0.01 bar	
Hysteresis	Hysteresis mode, wind comparator mode	
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 0.2mm ²	

DIMENSIONS



HOW TO ORDER

MULTISTAGE VACUUM EJECTOR SERIES NZL

(N)ZL112 — ● ●

- MODEL
- 1NZL112
 - 2NZL212

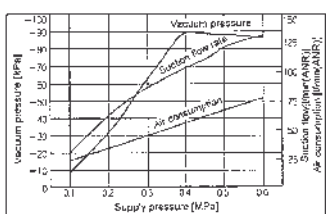
SWITCH & WIRING SPECS (E OPTION ONLY)

- 25L ...3 wire LCD/Non Analog Output NPN
- 26L ...3 wire Analog Output (1 ~ 5V)
- 65L ...3 Wire LCD/Non Analog Output PNP

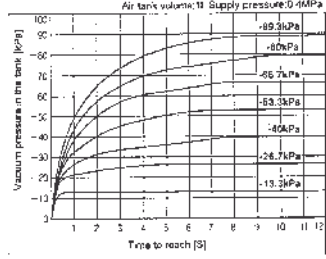
GAUGE & SWITCH OPTION

-No gauge or switch option
- GWith vacuum pressure gauge
- EWith vacuum pressure digital switch

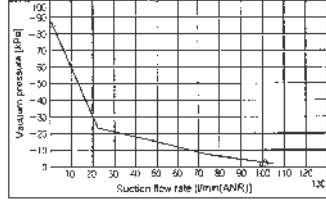
Ejector Characteristics



Response time



Section flow rate



NZFA AIR SUCTION FILTER

- ✓ Compact and lightweight
- ✓ Protects vacuum equipment
- ✓ Large filtration area
- ✓ Easy replacement of element

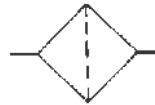


TECHNICAL SPECIFICATIONS

Fluid	Air, Dry Nitrogen
Operating Pressure Range	Negative Pressure
Proof Pressure	5 Bar / 75PSI
Operating Temperature Range	5 ~ 60°C / 40~140°F
Filtration	30µm
Element Proof Differential Pressure	1.5 Bar / 20PSI

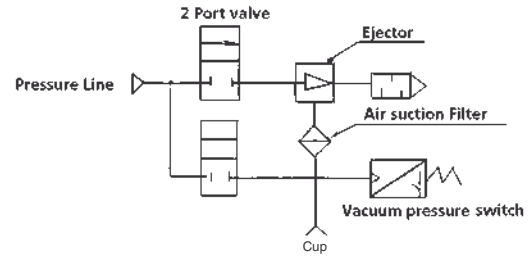
Model	Port Size	Recommendable Air Flow l _n /min
NZFA100-T01	1/8	50
NZFA200-T02	1/4	200

SYMBOLS



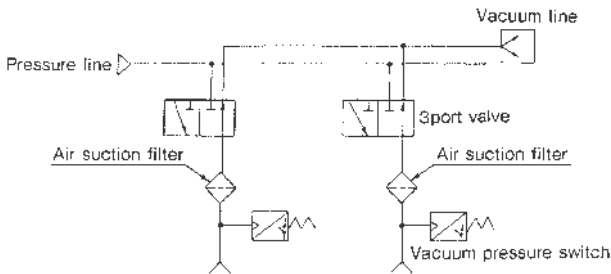
APPLICATION TO EJECTOR SYSTEM

Install to protect vacuum equipment, avoid reverse positive pressure blow.



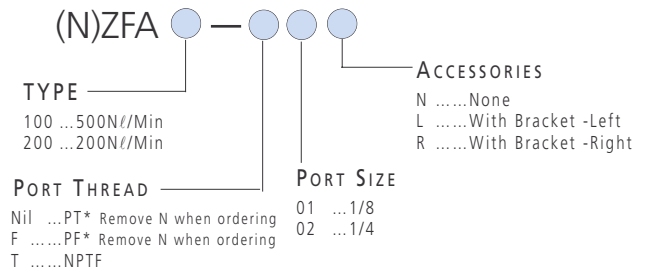
DIMENSIONS

APPLICATION TO VACUUM PUMP SYSTEM



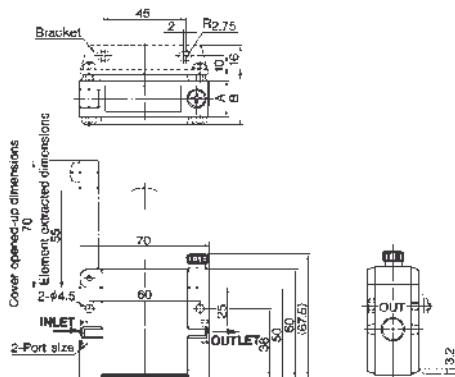
HOW TO ORDER

(N)ZFA AIR SUCTION FILTER



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

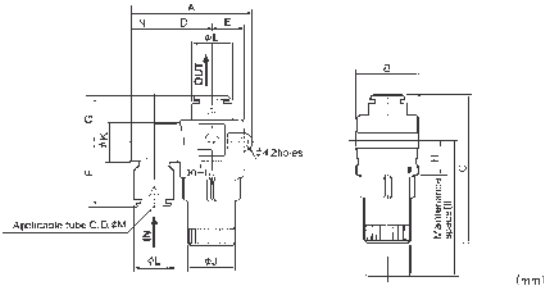
BP-1H



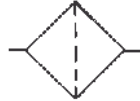
AIR SUCTION FILTER SERIES NZFB

- ✓ Built-in one-touch fittings
- ✓ Tubing can be installed through 360°
- ✓ Compact and light weight
- ✓ Simple element change

DIMENSIONS AIR SUCTION FILTER SERIES NZFB



SYMBOLS



	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	5/16"	8.5
	(N)ZFB101-07			54			24.2	17.7						3/8"	
	(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	18	18.5	3/8"	11
	(N)ZFB401-13	64.5	34	87.5	30.5	16.5	34	24	21.5	81	25.6	23	21.7	1/2"	13.5

HOW TO ORDER AIR SUCTION FILTER SERIES (N)ZFB



BODY SIZE	TUBE SIZE ODMM
100 ...Max 20 l/n/min	04 ...ø4
200 ...Max 50 l/n/min	06 ...ø6
300 ...Max 75 l/n/min	08 ...ø8
101 ...Max 20 l/n/min	10 ...ø10
201 ...Max 30 l/n/min	05 ...ø3/16"
301 ...Max 60 l/n/min	07 ...ø1/4"
401 ...Max 100 l/n/min	11 ...ø3/8"
	13 ...ø1/2"

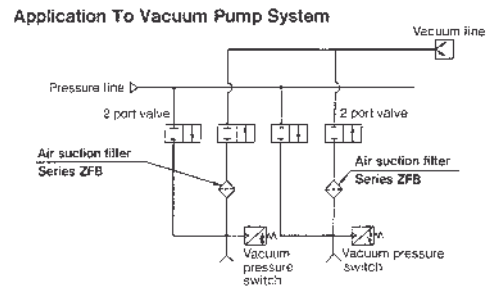
ACCESSORIES AIR SUCTION FILTER SERIES (N)ZF1B

ELEMENT	
I-34S-A	.....(N)ZFB100, 101
I-35S-A	.....(N)ZFB200, 201
I-36S-A	.....(N)ZFB300, 301
I-39S-A	.....(N)ZFB401

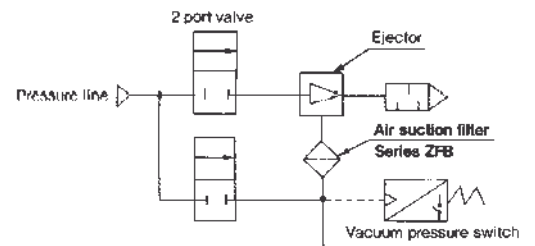
TECHNICAL SPECIFICATIONS

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

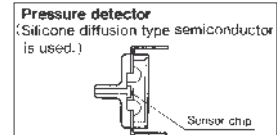


APPLICATION TO EJECTOR SYSTEM

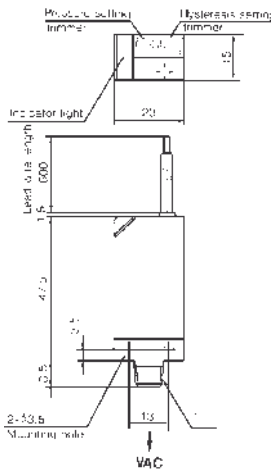


VACUUM SWITCH SERIES ZSE1

- ✓ Solid State
- ✓ Quick Response – 10 ms
- ✓ Compact Size
- ✓ Semiconductor Type Pressure Sensor
- ✓ NPN and PNP Versions



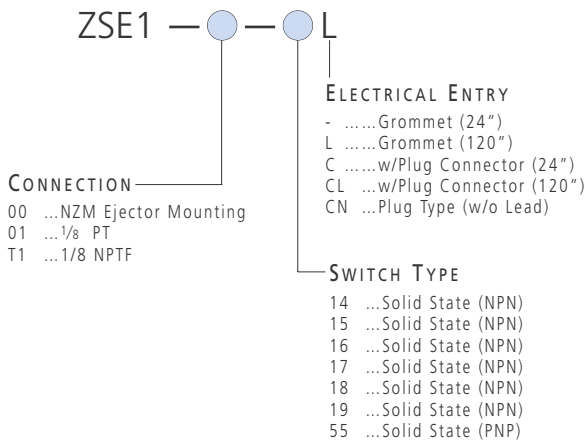
DIMENSIONS VACUUM SWITCH SERIES ZSE1 GROMMET TYPE



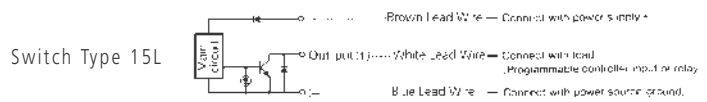
TECHNICAL SPECIFICATIONS

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

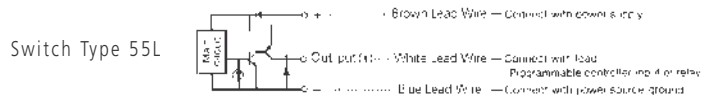
HOW TO ORDER VACUUM SWITCH SERIES ZSE1



CIRCUIT ZSE1



ZSE1-••-55



ACCESSORIES

VACUUM SWITCH SERIES ZS

- Interface plate for ZM Ejector
- P31806-01(blank)
- P31806-02(use with switch)

VACUUM SWITCH
SERIES ZSM1 DIAPHRAGM TYPE

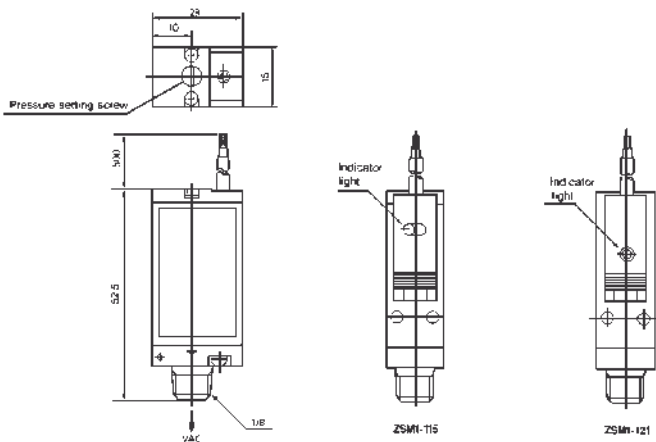


- ✓ 100 ms Response Time
- ✓ Compact Size

ZSM1 (VACUUM EJECTOR TYPE)

DIMENSIONS

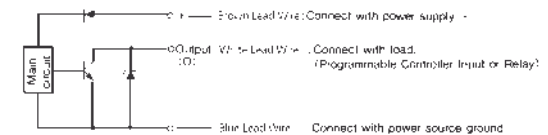
VACUUM SWITCH SERIES ZSM1 (THREADED TYPE)



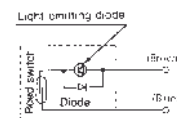
TECHNICAL SPECIFICATIONS

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



HOW TO ORDER

VACUUM SWITCH SERIES ZSM1

ZSM1 — ● — ●

CONNECTION

- 0NEM Ejector Mounting
- 1 1/8 PT
- T1 1/8 NPTF

SWITCH TYPE

- 15L ...Solid state (NPN)
- 21L ...Contact reed

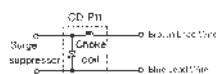
ACCESSORIES

CONTACT PROTECTION BOX

Diaphragm type switches have no built-in contact protection circuit. Use this box for induction load, 5m or more lead wire length and 100V AC.



CONTACT PROTECTION BOX/INTERNAL CIRCUIT



ACCESSORIES

VACUUM SWITCH SERIES ZSE1

- Interface plate for ZSM Ejector
- P31806-01(blank)
- P31806-02(use with switch)
- CD-P11 Contact protection box

FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT REQUEST CATALOG REFERENCE E802 & N400

HANDLE OPERATED VACUUM REGULATOR SERIES T203

✓ A vacuum regulator, installed after a vacuum pump, which regulates vacuum at any level

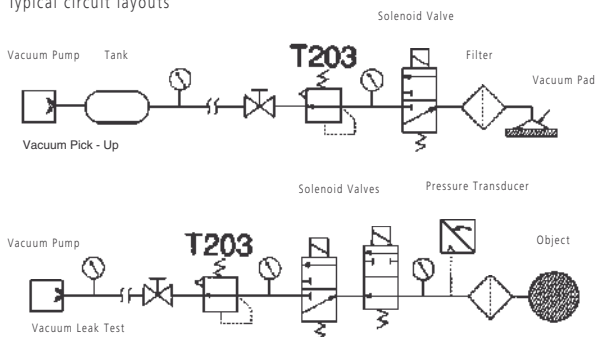


TECHNICAL SPECIFICATIONS

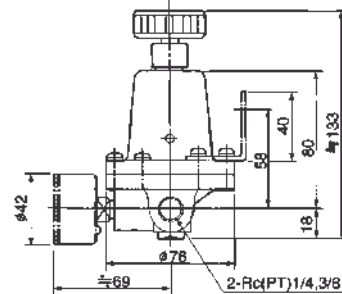
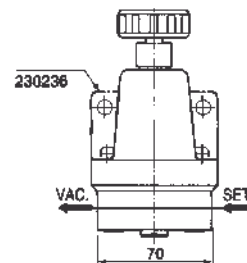
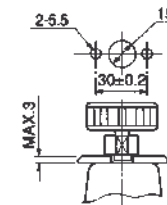
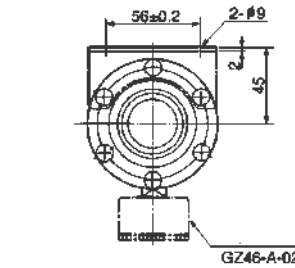
Setting vacuum10~750 Torr (mmHg)
Sensitivity1 Torr (mmHg)
Repeatability±3 Torr (mmHg)
Max. flow rate120 Nl/min
Weight520gf
Operating temperature-5~+60°C / 23~140°F
Connection portRc 1/4, Rc 3/8

TECHNICAL SPECIFICATIONS

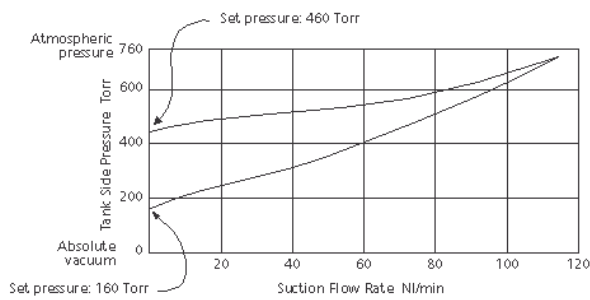
Typical circuit layouts



DIMENSIONS VACUUM REGULATOR



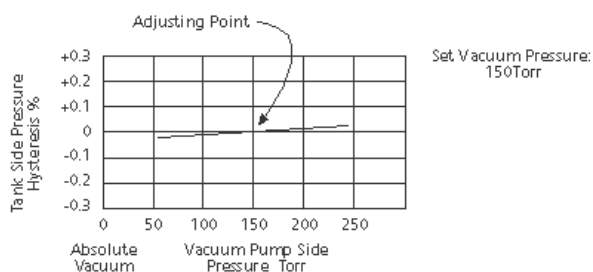
FLOW CHARACTERISTICS



ACCESSORIES T203

Bracket230236
Gauge (Scale in mmHg)GZ46-A-02

PRESSURE CHARACTERISTICS



How To ORDER VACUUM REGULATOR SERIES T203

T203 — 1 — ● — ● — ● — ●

PORT SIZE

02 ...1/4
03 ...3/8

OPTION

Nil ...None
B With Bracket
GWith Gauge

PANEL MOUNT OPTION

Nil ...Standard
X2 ...Panel Mount Option

ZPT VACUUM PADS
VERTICAL ENTRY WITHOUT BUFFER

TECHNICAL
SPECIFICATIONS

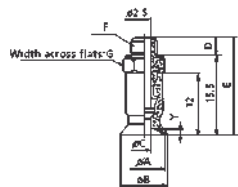
Vacuum Entry	Vertical type
Mounting	Use connection for vacuum entry

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 Ø2, Ø4, Ø6, Ø8

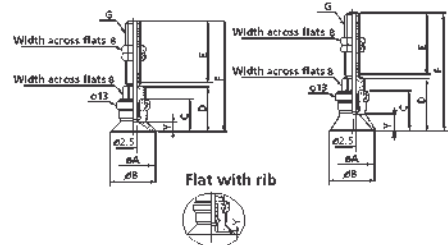


FLAT TYPE

Model	ØA	ØB	ØC	F:M5x0.8			F:M6x1			Y
				D	E	G	D	E	G	
ZPT02U	2	2.6	1.2							0.8
ZPT04U	4	4.8	1.6	3	19	7	4	20	8	
ZPT06U	6	7								
ZPT08U	8	9	2.5							1

DIMENSIONS

PAD DIAMETERS Ø10, Ø13, Ø16



FLAT TYPE - FLAT WITH RIB

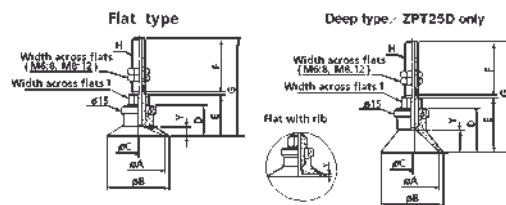
Model	ØA	ØB	C	D	G:M5x0.8		G:M6x1		Y	
					E	F	E	F	Flat	Flat with rib
ZPT10U	10	12	12	17	20	38	25	43	3	1.7
ZPT13U	13	15	12	17	20	38	25	43	3	1.8
ZPT16U	16	18	12.5	17.5	20	38.5	25	43.5	3.5	1.2

DEEP TYPE

Model	ØA	ØB	C	D	G:M5x0.8		G:M6x1		Y
					E	F	E	F	
ZPT10D	10	12	15	20	20	41	25	46	6
ZPT16D	16	18	16	21	20	42	25	47	7

DIMENSIONS

PAD DIAMETERS Ø20, Ø25, Ø32



FLAT TYPE - FLAT WITH RIB

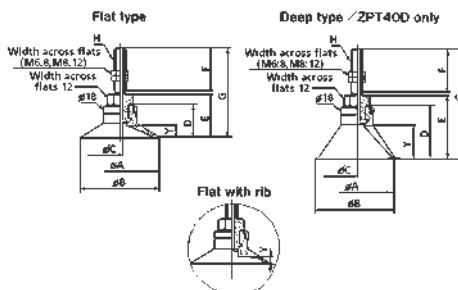
Model	ØA	ØB	D	H : M6x1					H : M8x1					Y	
				ØC	E	F	G	I	ØC	E	F	G	I	Flat	Flat with rib
ZPT20U	20	23	14	3	19	25	45	8	3.5	24	15	40	12	4	1.7
ZPT25U	25	28	14	3	19	25	45	8	3.5	24	15	40	12	4	1.8
ZPT32U	32	35	14.5	3	19.5	25	45	8	3.5	24.5	15	40.5	12	4.5	2.3

DEEP TYPE

Model	ØA	ØB	D	H:M6x1					H:M8x1					Y
				ØA	E	F	G	I	ØC	E	F	G	I	
ZPT25D	25	28	20	3	25.5	25	51	8	3.5	30.5	15	46	12	10

DIMENSIONS

PAD DIAMETERS Ø40, Ø50



FLAT TYPE - FLAT WITH RIB

Model	ØA	ØB	D	E	H:M6x1			H:M8x1			Y	
					ØC	F	G	ØC	F	G	Flat	Flat with rib
ZPT40U	40	43	18.5	24.5	3	15	50.5	4.5	15	40.5	6.5	3.3
ZPT50U	50	53	19.5	25.5	3	15	51.5	4.5	15	41.5	7.5	3.8

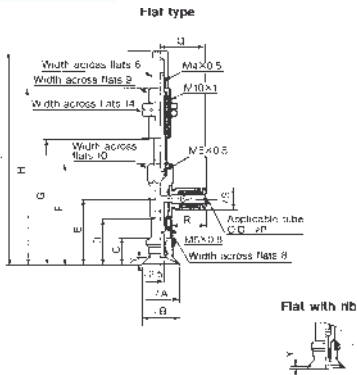
DEEP TYPE

Model	ØA	ØB	D	E	H:M6x1			H:M6x1			Y
					ØC	F	G	ØC	F	G	
ZPT40D	40	43	29	35.5	3	25	61	4.5	15	51	17

How To
ORDER
SEE NEXT PAGE

VACUUM PADS SERIES ZP

DIMENSIONS PAD DIAMETERS Ø10, Ø13, Ø16



FLAT TYPE - FLAT WITH RIB

Model	ØA	ØB	C	D	E	F	G	H	I	Y	
										Flat	Flat with Rib
ZPR10 $\frac{1}{2}$	10	12	12	21	29.9	46	57	80	91	3	1.7
ZPR13 $\frac{1}{2}$	13	15	12	21	29.9	46	57	80	91	3	1.8
ZPR16 $\frac{1}{2}$	16	18	12.5	21.5	30.4	46.5	57.5	80.5	91.5	3.5	1.2

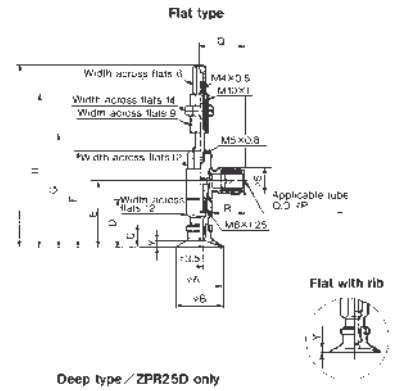
DEEP TYPE

Model	A	ØB	C	D	E	F	G	H	I	Y
ZPR10D	10	12	15	24	32.9	49	60	83	94	6
ZPR16D	16	18	16	25	33.9	50	61	84	95	7

APPLICABLE TUBE

Applicable Tube O.D.	ØP	Q	R	ØS
Ø4	4	20.6	15.6	10.4
Ø6	6	21.6	16.6	12.8

DIMENSIONS PAD DIAMETERS Ø20, Ø25, Ø32



FLAT TYPE - FLAT WITH RIB

Model	A	ØB	C	D	E	F	G	H	I	Y	
										Flat	Flat with Rib
ZPR20	20	23	14	29	39.8	57.6	68.6	91.5	102.6	4	1.7
ZPR25	25	28	14	29	39.8	57.6	68.6	91.5	102.6	4	1.8
ZPR32	32	35	14.5	29.5	40.3	58.1	69.1	92	103.1	4.5	2.3

DEEP TYPE

Model	ØA	ØB	C	D	E	F	G	H	I	Y
ZPR25D	25	28	20	35	45.8	63.6	74.6	97.6	108.6	10

APPLICABLE TUBE

Applicable Tube OD	ØP	Q	R	ØS
Ø4	4	23.3	15.8	10.4
Ø6	6	24.3	16.8	12.8
Ø8	8	26.2	18.7	15.2

HOW TO ORDER ZPR PAD HORIZONTAL TYPE WITH BUFFER



PAD DIAMETER

- 02.....Ø2 16.....Ø16
- 04.....Ø4 20.....Ø20
- 06.....Ø6 25.....Ø25
- 08.....Ø8 32.....Ø32
- 10.....Ø10 40.....Ø40
- 13.....Ø13 50.....Ø50

MOUNTING THREAD

Male Thread	Symbol	Thread Dia	Ø2-Ø8	Ø10-Ø16	Ø20-Ø32	Ø40-Ø50
	A8	M8X1	●			
	A10	M10X1		●	●	
	A14	M14X1				●

PAD TYPE

- UFlat
- CFlat with Rib (Not ø2,4,6,8)
- DDeep (ø10,16,25,40)
- BBellows (Not ø2,4)

VACUUM ENTRY

One-touch Tube Fitting	Symbol	Port Size	Ø2-Ø8	Ø10-Ø16	Ø20-Ø32	Ø40-Ø50
	04	Ø4 Tube	●	●	●	●
	06	Ø6 Tube	●	●	●	●
	08	Ø8 Tube			●	●

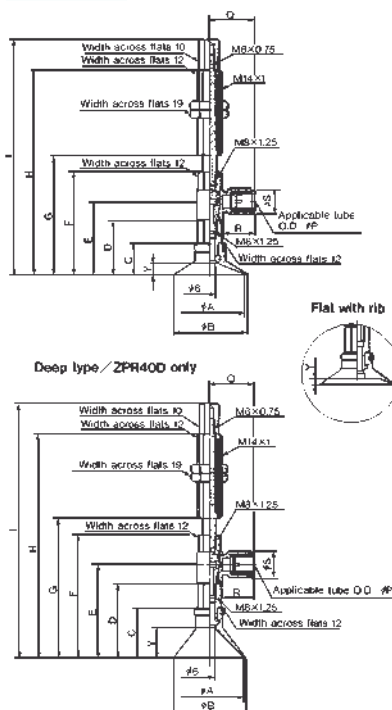
PAD MATERIAL

- NNitrile Rubber (standard)
- SSilicon Rubber
- UUrethane
- FFluorine Rubber
- GNAnti-static Nitrile Rubber
- GSAnti-static Silicon Rubber

BUFFER

Symbol	Stroke	Ø2-Ø8	Ø10-Ø16	Ø20-Ø32	Ø40-Ø50	
K6	6mm	●				Non-Rotating
K10	10mm		●	●	●	Non-Rotating
J6	6mm	●				With Buffer
J10	10mm		●	●	●	With Buffer

DIMENSIONS PAD DIAMETERS Ø40, Ø50



FLAT TYPE - FLAT WITH RIB

Model	ØA	ØB	C	D	E	F	G	H	I	Y	
										Flat	Flat with Rib
ZPR40 $\frac{1}{2}$	40	43	18.5	32	42.8	60.6	72.6	122.6	140.6	6.5	3.3
ZPR50 $\frac{1}{2}$	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

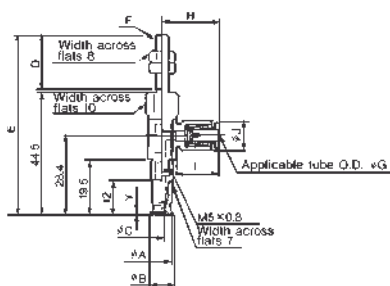
Vacuum Entry	Horizontal Type
Connection	With One-touch Tube Fitting

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°		



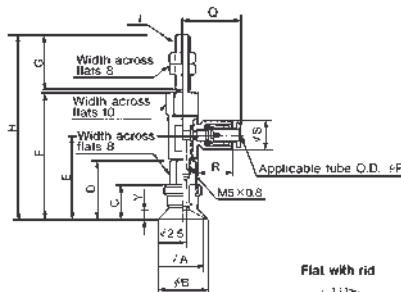
DIMENSIONS

PAD DIAMETERS Ø2, Ø4, Ø6, Ø8



DIMENSIONS

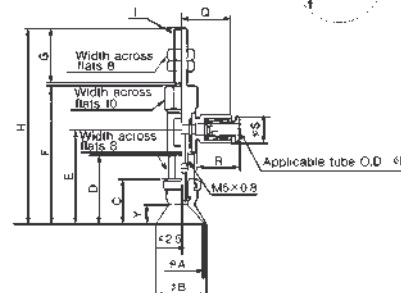
PAD DIAMETERS Ø10, Ø13, Ø16



Flat with rib



Deep type ZPR10D-16D only



FLAT TYPE

Model	ØA	ØB	ØC	F: M5X0.8		F: M6X1		Y
				D	E	D	E	
ZPR02U	2	2.6	1.2	20	65.5	25	70.5	0.8
ZPR04U	4	4.8	1.6	20	65.5	25	70.5	0.8
ZPR06U	6	7	2.5	20	65.5	25	70.5	0.8
ZPR08U	8	9	2.5	20	65.5	25	70.5	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

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 $\frac{1}{2}$	10	12	12	21	29.9	46	20	67	25	72	3	1.7
ZPR13 $\frac{1}{2}$	13	15	12	21	29.9	46	20	67	25	72	3	1.8
ZPR16 $\frac{1}{2}$	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

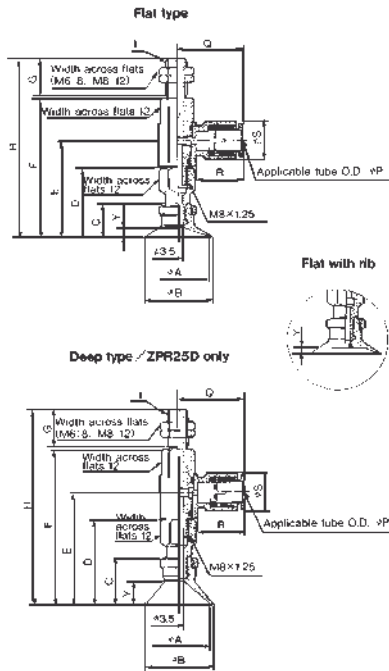
APPLICABLE TUBE

Applicable Tube OD	ØP	Q	R	ØS
Ø4	4	20.6	15.6	10.4
Ø6	6	21.6	16.6	12.8

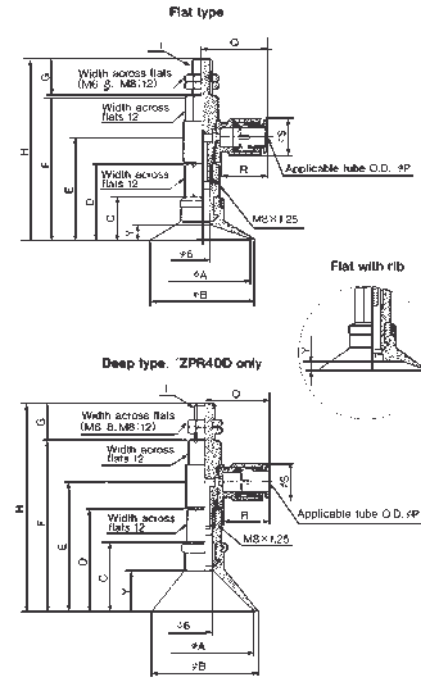
MORE DIMENSIONS
SEE NEXT PAGE

HOW TO
ORDER
SEE NEXT PAGE

DIMENSIONS PAD DIAMETERS Ø20, Ø25, Ø32



DIMENSIONS PAD DIAMETERS Ø40, Ø50



FLAT TYPE - FLAT WITH RIB

Model	ØA	ØB	C	D	E	F	I: M6X1		I: M8X1		Y	
							G	H	G	H	Flat	Flat with rib
ZPR20 $\frac{1}{2}$	20	23	14	29	39.8	57.6	25	83.5	15	73.5	4	1.7
ZPR25 $\frac{1}{2}$	25	28	14	29	39.8	57.6	25	83.5	15	73.5	4	1.8
ZPR32 $\frac{1}{2}$	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

FLAT TYPE - FLAT WITH RIB

Model	ØA	ØB	C	D	E	F	I: M6X1		I: M8X1		Y	
							G	H	G	H	Flat	Flat with rib
ZPR40 $\frac{1}{2}$	40	43	18.5	32	42.8	60.6	25	86.5	15	76.5	6.5	3.3
ZPR50 $\frac{1}{2}$	50	53	19.5	33	43.8	61.6	25	87.5	15	77.5	7.5	3.8

DEEP TYPE

Model	ØA	ØB	C	D	E	F	I: M6X1		I: M8X1		Y
							G	H	G	H	
ZPR40D	40	43	29	42.5	53.3	71.1	25	97	15	87	17

APPLICABLE TUBE

Applicable Tube OD	ØP	Q	R	ØS
Ø6	6	24.3	16.8	12.8
Ø8	8	26.2	18.7	15.2

HOW TO ORDER

ZPR PAD HORIZONTAL TYPE WITHOUT BUFFER

ZPR ○ ○ ○ — ○ — ○

PAD DIAMETER

- 02 ...Ø2
- 04 ...Ø4
- 06 ...Ø6
- 08 ...Ø8
- 10 ...Ø10
- 13 ...Ø13
- 16 ...Ø16
- 20 ...Ø20
- 25 ...Ø25
- 32 ...Ø32
- 40 ...Ø40
- 50 ...Ø50

PAD TYPE

- 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

MOUNTING THREAD

Symbol	Thread Dia	Ø2-Ø8	Ø10-Ø16	Ø20-Ø32	Ø40-Ø50
A5	M5X0.8	●	●		
A6	M6X1	●	●	●	●
A8	M8X1			●	●

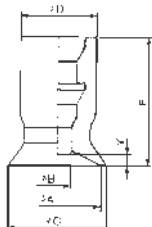
VACUUM ENTRY

Symbol	Port Size	Ø2-Ø8	Ø10-Ø16	Ø20-Ø32	Ø40-Ø50
04	Ø4 tube	●	●	●	
06	Ø6 tube	●	●	●	●
08	Ø8 tube			●	●

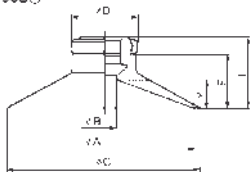
ZP SERIES VACUUM PADS

DIMENSIONS
ZP VACUUM PADS

ZP02U○ - 08U○



ZP10U○ - 50U○

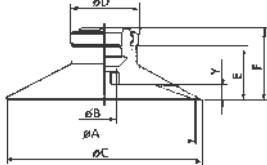


FLAT TYPE PAD

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

ZP10C○ - 50C○



FLAT TYPE PAD WITH RIB

Part No	Type	ØA	ØC	ØB	ØD	E	F	Y
ZP10C•	C10	10	12	4	13	7.7	12	1.7
ZP13C•	C13	13	15	4	13	7.7	12	1.8
ZP16C•	C16	16	18	4	13	8.2	12.5	1.2
ZP20C•	C20	20	23	4	15	9.5	14	1.7
ZP25C•	C25	25	28	4	15	9.5	14	1.8
ZP32C•	C32	32	35	4	15	10	14.5	2.3
ZP40C•	C40	40	43	7	18	13.7	18.5	3.3
ZP50C•	C50	50	53	7	18	14.7	19.5	3.3

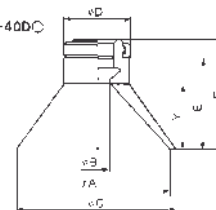
DIMENSIONS
ZP VACUUM PADS

- ✓ 288 Standard Options
- ✓ 12 Diameters
- ✓ 4 Types
- ✓ 6 Materials



DIMENSIONS
ZP VACUUM PADS

ZP10D○ - 40D○



DEEP TYPE PAD

Part No	Type	G	ØC	ØB	ØD	E	F	Y
ZP10D•	D10	10	12	4	13	10.7	15	6
ZP16D•	D16	16	18	4	13	11.7	16	7
ZP25D•	D25	25	28	4	15	15.5	20	10
ZP40D•	D40	40	43	7	18	24.2	29	17

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	12.4	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

HOW TO
ORDER
ZP VACUUM PADS

FOR MORE TECHNICAL INFORMATION ON THIS SERIES, PLEASE REFER TO CAT:E807 AND N400



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

- NNitrile Rubber (Standard)
- SSilicon Rubber
- UUrethane
- FFluorine Rubber
- GN ...Anti-static Nitrile Rubber
- GS ...Anti-static Silicon Rubber

PAD TYPE

- UFlat
- CFlat with Rib (Not ø2,4,6,8)
- DDeep (ø10,16,25,40)
- BBellows (Not ø2,4)

HEAVY DUTY VACUUM PADS SERIES ZPT/ZPX

- ✓ Wide Range of Materials: NBR, Silicon, Fluorine, Urethane, EPM
- ✓ Heavy Duty Range of Sizes from Ø40 ~ Ø125
- ✓ Choice of Mounting Styles - Orthogonal or Axial Vacuum Entry
- ✓ Optional Spring Loaded Buffer
- ✓ 4 Choices of Buffer Stroke



		Standard Type		Buffer Mount Type
ZPT	Axial Vacuum Entry			
ZPX	90° Vacuum Entry			

Buffer Stroke	Ø Pad	Ø40	Ø50	Ø63	Ø80	Ø100	Ø125
25		•	•	•	•	•	•
50		•	•	•	•	•	•
75		•	•	•	•	•	•
100		-	-	-	-	•	•

VACUUM SOLENOID VALVE REFERRAL

This section is written to assist the selection of solenoid valves for use in vacuum applications.

BACKGROUND

Many current pneumatic "solenoid" valves are actually of solenoid-pilot construction. The solenoid does not operate directly upon the spool or poppet within the valve. What the solenoid does is open a very small pilot valve. This controls the passage of air bled from the "P" or pressure port of the valve. The main valve is pneumatically operated by this air, switched by the solenoid.

The advantages of this arrangement, using the air pressure within the valve to do the work, are dramatically reduced size and power consumption of the solenoid, and a faster response. The disadvantage is that this type of valve is incapable of operating without pressure applied – as in a vacuum system.

Also the design of spool or poppet used in a valve may rely on positive pressure for its operation. e.g. A poppet may be pushed on to a seat by positive pressure, but "lifted" back off by vacuum, resulting in a leak. For this reason internal design may preclude ostensibly suitable valves from vacuum applications.

Series VT Not Available In The USA

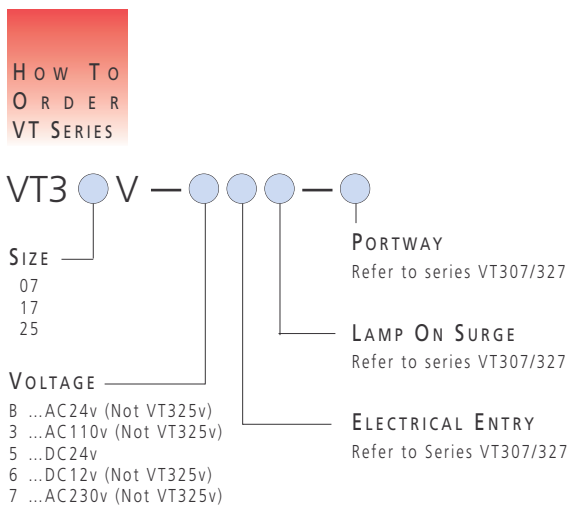
VALVE TYPES AVAILABLE

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.

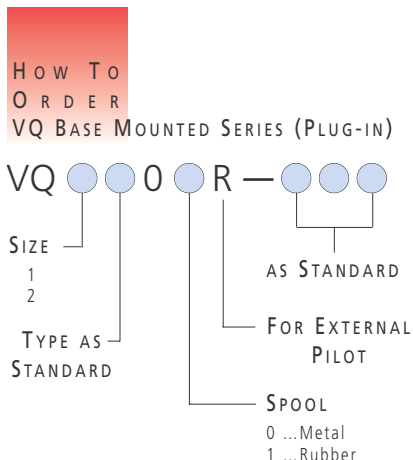
THREE-PORT VALVES

DIRECT ACTING – VT SERIES
(SEE VALVE SECTION) VACUUM VERSION



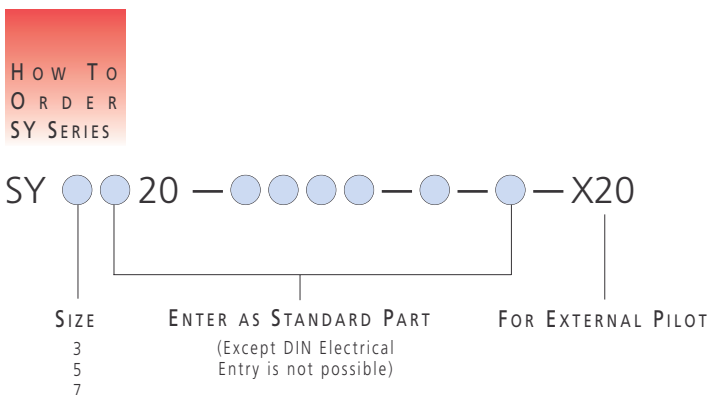
VZ100 SERIES (SEE VALVE SECTION)

External Pilot Types
VG342R (See Valve Section) VP34IR, VP54IR, VP74IR (See Valve Section)
VNB Series (See Valve Section)

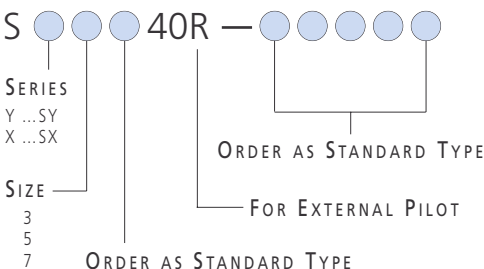


FIVE-PORT VALVES

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

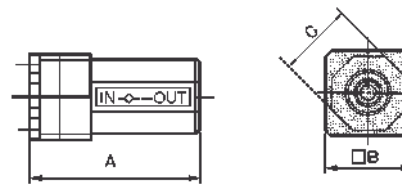
- ✓ Can be used with Vacuum Pressure -3 to -100kPa
- ✓ Low Cracking Pressure: 0.03Mpa



TECHNICAL SPECIFICATIONS (N)AK2000 SERIES

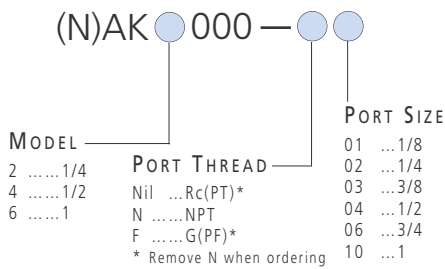
Proof Pressure	1.5MPa / 220PSI
Operating Pressure	0.003 ~ 1MPa / 0.4 ~ 145PSI
Pressure Range Vacuum	-3 to -100KPa / -0.4 ~ 14.5PSI
Fluid	Air
Temperature	5 ~ 60°C / 40 ~ 40°F
Port Size	Rc(PT) 1/8, 1/4
Effective Area	01: 25mm ² 02: 27.5mm ²

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

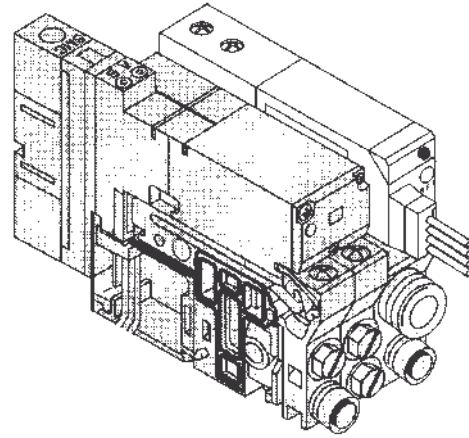
HOW TO ORDER (N)AK2000 SERIES



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 (NI/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 — I — J ● M

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 — I — J ●

MANIFOLD TYPE

- 1Plug-in Unit

NOZZLE DIAMETER

- AØ0.7: With Vacuum Release Valve
- BØ1.0: With Vacuum Release Valve

DIMENSIONS
SEE NEXT PAGE

FREE MOUNT CYLINDER FOR VACUUM

SERIES ZCDUK

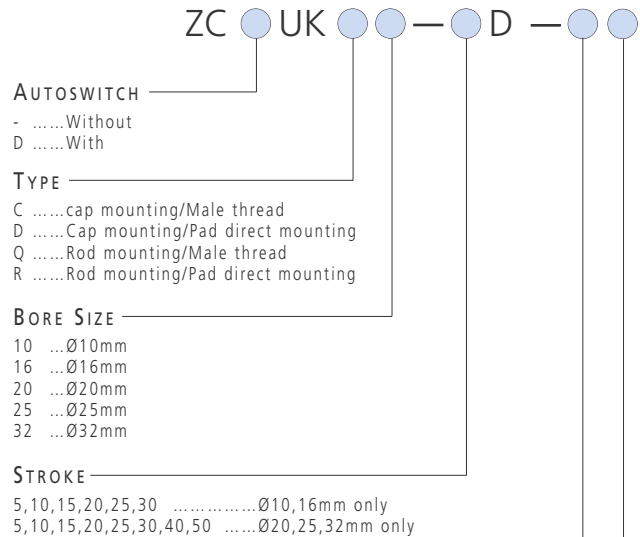
- ✓ Vacuum Connection through Piston Rod
- ✓ Precise and Direct Mounting
- ✓ Non-Rotating Piston Rod
- ✓ Bore Sizes Ø10~32mm
- ✓ Auto Switches Available



TECHNICAL SPECIFICATIONS

Cylinder Bore (mm)	10, 16, 20, 25, 32				
Type	Double Acting Type/Non-Rotating Piston Rod				
Fluid	Air				
Proof Pressure	1MPa / 145PSI				
Max Operating Pressure	0.7MPa / 100PSI				
Min Operating Pressure	Ø10, Ø16, - 0.7kgf/cm ² / 10PSI Ø20, Ø25, Ø32 - 0.6kgf/cm ² / 9PSI				
Vacuum Port Pressure	-760 mmHg ~ 6kgf/cm ² / -15 ~ 90PSI				
Ambient and Fluid Temperature	5 ~ 60°C / 40 ~ 140°F				
Lubrication	Not Required				
Cushion	Both Side Rubber Cushion				
Stroke allowance	+1.0 0				
Thread tolerance	JIS 2 Class				
Rod tip screw : Yes or No	Yes, No (Pad Direct Mounting)				
Mounting	Basic Type				
Non-rotating piston rod accuracy	Ø10	Ø16	Ø20	Ø25	Ø32
	±0.8°			±0.5°	

How To ORDER SERIES ZCDUK

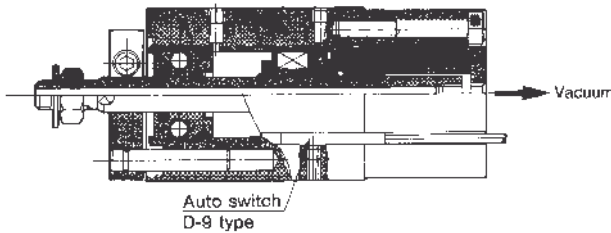


AUTO SWITCHES

- 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

Pad direct mounting
 In case of {ZC(D)UKD}



For cap type mounting, care should be taken not to exceed 6 bar when ejecting the workpiece

ZU VACUUM EJECTOR

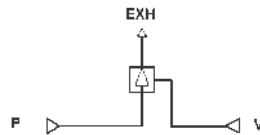
- ✓ Integrated One Touch Tube Fittings for 6mm Tube
- ✓ High Flow and High Vacuum Variants
- ✓ 2 Nozzle Sizes Available
- ✓ Standard Product is Copper Free
- ✓ Lightweight



TECHNICAL SPECIFICATIONS

Fluid	Air
Max Operating Pressure	0.7MPa / 100PSI
Ambient Temperature Range	5~60°C / 40~140°F
Tube Size	6mm
Normal Operating Pressure	0.45MPa / 65PSI

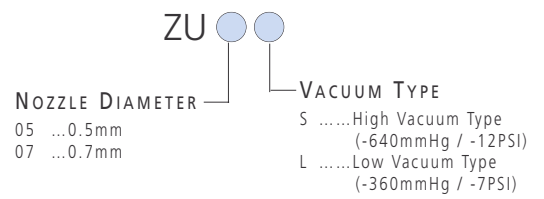
SYMBOLS



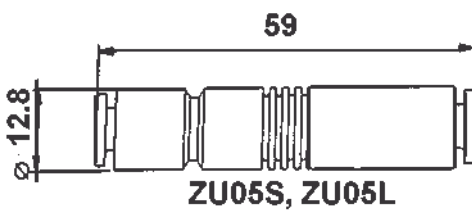
TECHNICAL SPECIFICATIONS

Model	ZU05S	ZU07S	ZU05L	ZU07L	
Nozzle Diameter (mm)	0.5	0.7	0.5	0.7	
Vacuum Generated	mmHg	-640	-640	-360	-360
	PSI	-12	-12	-7	-7
Suction Flow Rate	n//min	7	9	10	18
Air Consumption	n//min	9.5	19	9.5	19

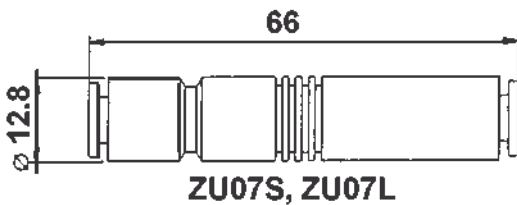
HOW TO ORDER
ZU VACUUM EJECTOR



DIMENSIONS
SERIES ZU



APPLICABLE TUBE OD φ6



APPLICABLE TUBE OD φ6

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

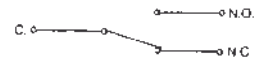
Model	IS3000								IS3010	
	Non Inductive Load (A)				Inductive Load (A)				Non Inductive Load	
	Resistance Load		Lighting Load*		Inductive Load		Motor Load*		Resistance Load	
Circuit (V)	N.C.	N.O.	N.C.	N.O.	N.C.	N.O.	N.C.	N.O.	N.C.	N.O.
AC125	5		1.5	0.7	3		2.5	1.3	0.1	
AC250	3		1	0.5	2		1.5	0.8		
DC30	4		2		3		3		0.1	
DC125	0.4		0.05		0.4		0.05		-	

Insulation Resistance 100 MΩ @ 500V (DC)

*High Inrush Circuits

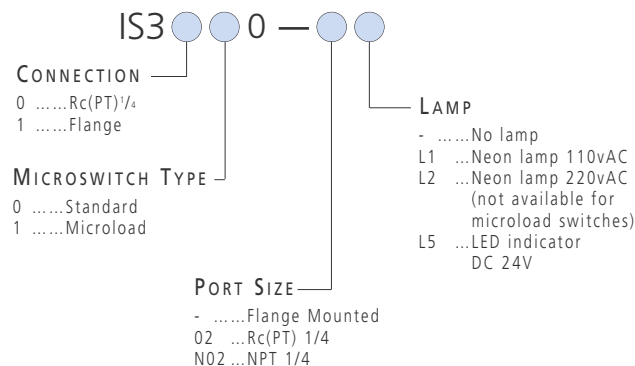
WIRING

Please wire micro-switch in accordance with the molded symbols that appear beside the terminal screws.



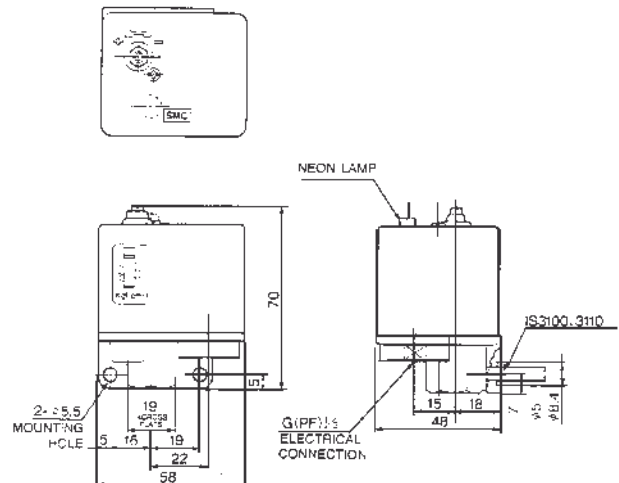
HOW TO ORDER

PNEUMATIC PRESSURE SWITCH: SERIES IS3000



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

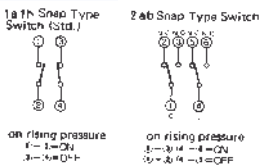
Fluid	Air, Non corrosive water, oil gases*
Pressure Setting Range	0.05~1MPa / 7~145PSI
Adjustable Differential	0.03~0.6MPa / 5~90PSI
Max Operating Pressure	1.5MPa / 220PSI
Electrical Contacts	1a, 1b Dual Contact
Electrical Entry	Grommet
Inlet Port Size	R 3/8 (male)
Ambient and Fluid Temp	Max 60°C / 140°F
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 m.Ωhm min at 500V DC
Test voltage AC 2000V for 1 minute

HOW TO ORDER

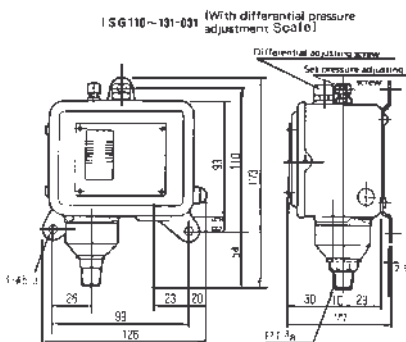
PNEUMATIC PRESSURE SWITCH: SERIES ISG

ISG130-031

FOR FURTHER TECHNICAL DETAILS ON THIS PRODUCT CONSULT SMC CUSTOMER SERVICE

DIMENSIONS

PNEUMATIC PRESSURE SWITCH: SERIES ISG



- 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 easy by Scale Plate
- ✓ Shield Plate attached to prevent external magnetic interference
- ✓ Long Life



TECHNICAL SPECIFICATIONS

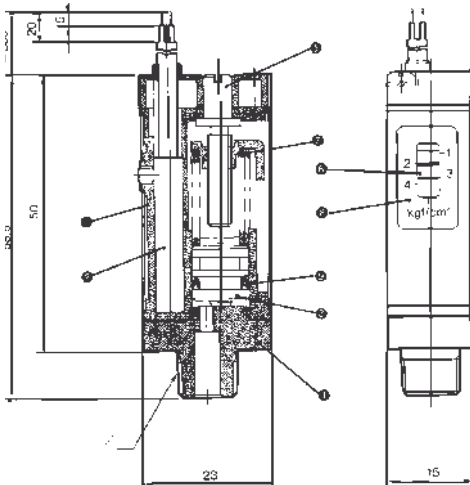
Model	IS1000-01
Proof Pressure	1.0 MPa (145PSI)
Max Operating Pressure	0.7 MPa (100PSI)
Pressure Range: -X201	0.1~0.4 MPa (14.5~60PSI)
Pressure Range: -X215	0.15~0.6 MPa (22~90PSI)
Differential	0.08 MPA (12PSI) or less
Contact	1a single contact (low pressure, no contact)
Electrical Entry	Grommet•Lead 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		

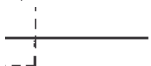
*Note. Not suitable for 240V AC

DIMENSIONS COMPACT PRESSURE SWITCH: SERIES IS1000



ELECTRICAL CIRCUIT

Up to 100V AC/DC



SYMBOLS



HOW TO ORDER

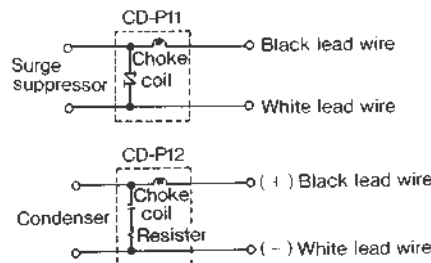
COMPACT PRESSURE SWITCH: SERIES IS1000

IS1000 — 01 —

PORT THREAD
01 ...1/8 PT
N01 ...NPT1/8

	Set Pressure Range	Lead Wire Length
-X201	1~4 bar	3m
-X215	1.5~6 bar	3m

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

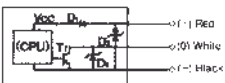
- ✓ Digital Pressure Gauge Function added to Pressure Switch
- ✓ Semi-Conductor Sensor
- ✓ High Reliability
- ✓ Easy Operation
- ✓ Low Power Consumption
- ✓ Digital Display of Low Limit during setting
- ✓ 5 Options of Displayed Pressure Unit
- ✓ Preliminary Alarm Display gives warning that pressure is within 10% of set point



TECHNICAL SPECIFICATIONS

Fluid	Air and Inert Gas				
Differential	3% F.S (Full Span) or less				
Accuracy	±3% F.S (5~40°C) ±5% F.S (0~60°C)				
Operating Voltage	12 to 24 VDC (Ripple: +10% or less)				
Output	Open collector (NPN) 30V 80mA				
Action Indicator Light	Lighting under ON condition (ON at preset) (pressure or less)				
Current Consumption	15mA (24VDC under ON condition) or less				
Maximum Operating Pressure	145PSI (0.98 MPa)				
Operating Temperature Range	0~60°C / 32~140°F				
Sampling Frequency	4Hz				
Pressure Unit	psi	kPa	kgf/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

HOW TO ORDER

PRESSURE SWITCH GS40

GS40-01

SETTING INSTRUCTIONS

HOW TO PRESET PRESSURE SWITCH:

Keep pressing the push button (1) SET and turn the pressure set trimmer (3) P.SET and figures are shown on the pressure display board (4) LCD. (The preset pressure increases when the pressure switch is turned clockwise and it decreases when turned counterclockwise.) After presetting, return the push button (1) SET to the original place, and the pressure on the line side is shown on the pressure display board (4) LCD.

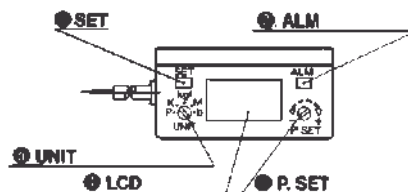
HOW TO CHANGE PRESSURE UNIT:

When the unit change switch (5) UNIT is adjusted to each position, the unit and figures of the pressure display change. P:psi, K:kPa, kgf:kgf/cm², M:MPa, b:bar

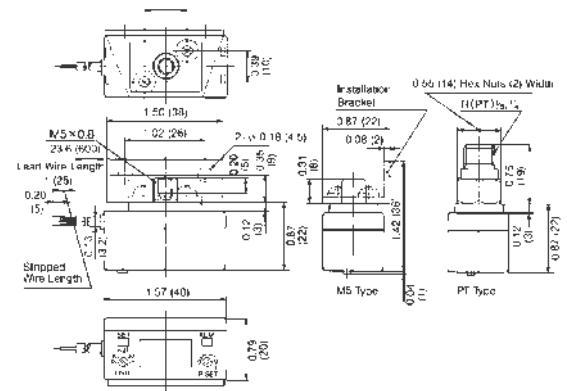
ALARM DISPLAY

When the pressure reaches within +10% of the value preset by a pressure switch value, the LCD lights to show that the pressure is approaching the preset value.

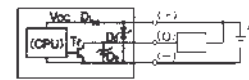
When the line pressure becomes lower than the preset pressure, the LED (red) of (2) ALM lights and the switch turns on.



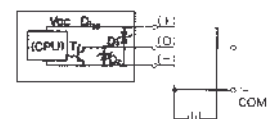
DIMENSIONS PRESSURE SWITCH GS40



WIRING EXAMPLES



WIRING EXAMPLES OF RELAY AND RESISTANCE LOAD



WIRING EXAMPLES USED WITH A SEQUENCE CONTROLLER (COM TERMINAL IS -VE)

AIR AND LIQUID PRESSURE SWITCHES WITH SEPARATE SENSOR AND INDICATOR SERIES PSE

- ✓ Compact Remote Sensors can be mounted in inaccessible areas
- ✓ Separate Indicator with Digital Readout
- ✓ Backlit Seven Segment LED Display
- ✓ Two Input Channels on Indicator – remotely selected
- ✓ Air/Gas and Liquid Sensors available
- ✓ Pre-set and Alarm Functions incorporated into Indicator
- ✓ Remote Reset Function
- ✓ Indicator Settings can be key-locked
- ✓ Vacuum Sensor Available
- ✓ Din Rail and Panel Mount Indicator Options
- ✓ Choice of Sensor Fitting Threads



TECHNICAL SPECIFICATIONS SERIES PSE

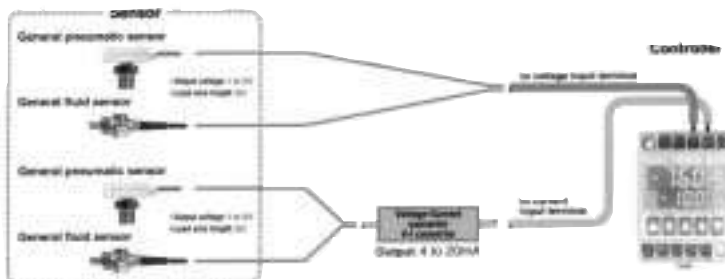
Model No	PSE100	PSE101
Output	NPN Open Collector Max 30V 80mA	PNP Open Collector Max 80mA
Output Point	2CH x 2 output	
Source Voltage	12~24VDC (ripple 10% or less)	
Current Consumption	250mA or less	
Pressure Range Display	-99.9~10kPa (vacuum), -10~100kPa (low pressure), -0.1~1MPa (high pressure)	
Display Resolution	0.1kPa (vacuum and low pressure) 1kPa (high pressure)	
Display Unit:	Vacuum and Low Pressure: kPa, mmHg, kgf/cm ² , bar, 1nHg High Pressure: 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	
Characteristic*	0~50°C /32~120°F ±0.3% F.S. or less ±0.5% F.S. or less	
Repetition Accuracy	±0.2% F.S. or less	
Noise Resistance	500Vp-p pulse width 1μs standing 1ns	
Withstand Voltage	Between whole wires and case 1000VAC 50/60Hz for one minute	
Insulation Resistance	Between whole wires and case 2MΩ (500VDC by megameter)	
Protection Class	Panel mount type: IP66, wall mount, DIN rail type: IP40	
Mounting	A: Panel mount. B: Wall mount, DIN rail	
Mass	A: Approx 90g. B: Approx 110g	
Sensor	Supply Voltage Same as Source Voltage	
Connection	Voltage Input: 1~5V (Input Impedance: 100kΩ) Current Input: 4~20mA (Input Impedance: 250Ω)	

* Based on 25°C (77°F)

1MPa = 145PSI

TECHNICAL SPECIFICATIONS

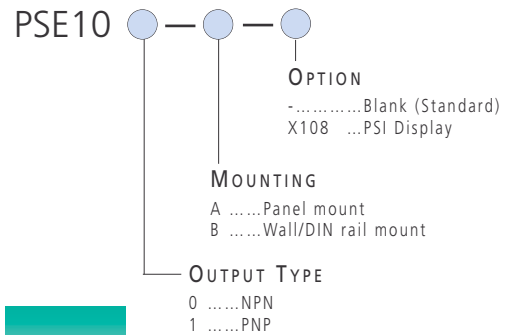
DIGITAL PRESSURE SWITCH WITH REMOTE SENSOR DIAGRAM



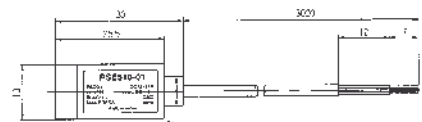
When installing indicators next to each other, allow 20mm between units.
Minimum separation 65mm between centres.

HOW TO ORDER

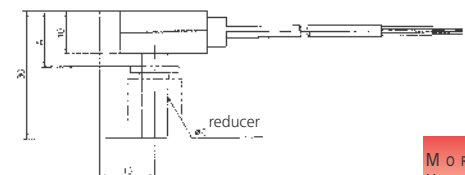
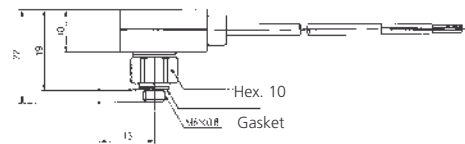
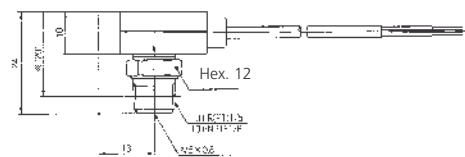
REMOTE SENSOR PRESSURE SWITCH SYSTEM



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 (0~14.5PSI)	-101~0kPa (-14.5~0PSI)	0~100kPa (0~14.5PSI)
Max Operating Pressure	1MPa		200kPa
Fluid	Air • Non-corrosive gas		
Output	Analogue output (1~5V load impedance: 10kΩ or more)		
Source Voltage	12~24VDC (ripple 10% or less)		
Current Consumption	10mA or less		
Operating Temperature Range	0~50°C (air should not be frozen) / 32~120°F		
Temperature	25±10°C	+1% F.S. or less	
Characteristic*	0~50°C (32~120°F)	+1.5% F.S. or less	
Repetition Accuracy		+0.3% F.S. or less	
Withstand Voltage	Between whole wires and case 1000VAC 50/60Hz for one minute		
Insulation Resistance	Between whole wires and case 2MΩ (500VDC by megameter)		
Vibration Resistance	10~500Hz width = 1.5mm or acceleration 10G (Choose the smaller vibration) to X, Y, Z direction (two hours)		
Shock Resistance	100G X, Y, Z directions (three times for each direction)		
Protection Structure	IP40		

* Based on 25°C (80°F)

TECHNICAL SPECIFICATIONS

PRESSURE SENSOR (NON-CORROSIVE GAS AND LIQUID)

Model No	PSE520-01	PSE520-02
Operating Pressure Range	0~1MPa (0~14.5PSI)	
Max Operating Pressure	2MPa (30PSI)	
Fluid	Fluid which does not corrode SUS304 and 630	
Output	Analogue output (1~5V. Load impedance: 10kΩ or more)	
Source Voltage	12~24VDC (ripple 10% or less)	
Current Consumption	15mA or less	
Operating Temperature Range	-10~70°C (air should not be frozen) / 14~160°F	
Temperature	25±10°C	+1% F.S. or less
Characteristic*	-10~70°C (14~160°F)	+3% F.S. or less
Repetition Accuracy		+0.3% F.S. or less
Withstand Voltage	Between GND terminal and case 250VAC for one minute	
Insulation Resistance	Between external 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	1/4
	M5x0.8	M5x0.8
Mass	Approx 220g	

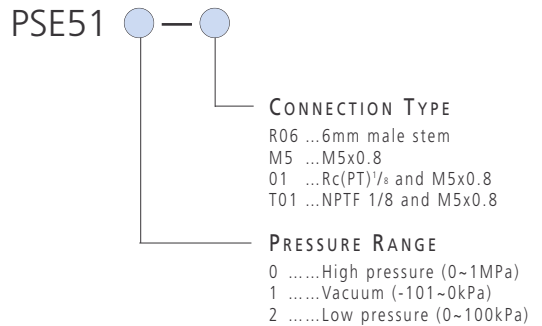
* Based on 25°C (80°F)

TECHNICAL SPECIFICATIONS CONNECTION

Part No	R06	M5	01
Material	Case Resin case:PBT	Resin case:PBT Fitting:SUS303	Resin case:PBT Fitting C3604BD (Electroless nickel plating)
Pressure Detecting Portion	Pressure Sensor: Silicon, O-Ring: BBR		
Lead Wire	Oil-proof captive 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)

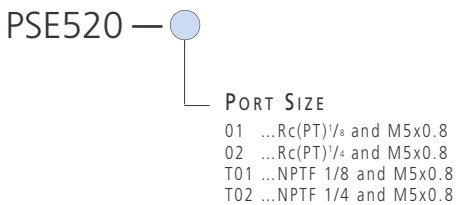
HOW TO ORDER

AIR/INERT GAS SENSOR



HOW TO ORDER

GAS AND LIQUID SENSOR



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

PRESSURE SENSOR SERIES PS1000/1100

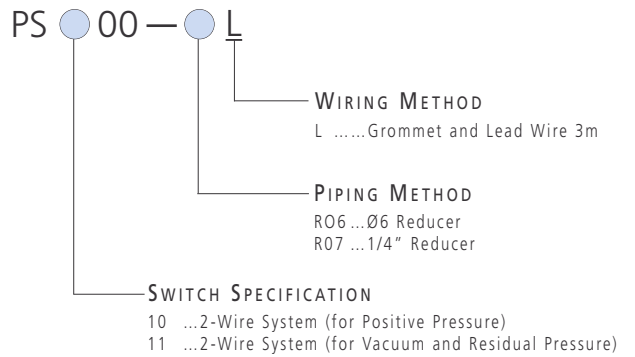
- ✓ Very compact
- ✓ Lightweight and robust
- ✓ Vacuum or pressure
- ✓ Adjustable

TECHNICAL SPECIFICATIONS SERIES PS1000/1100

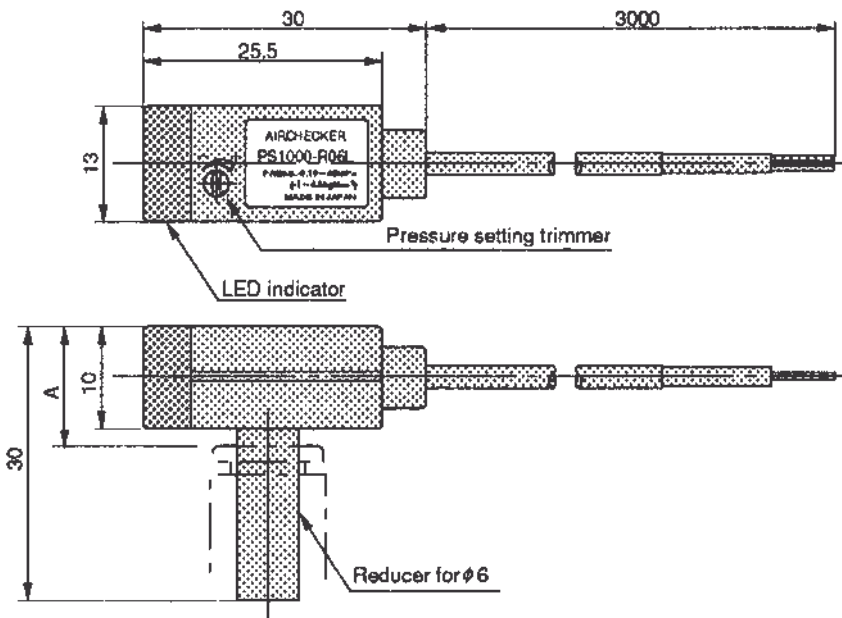
Model No	PS1000-R06L	PS1100-R06L
Fluid	Air	
Operating Pressure Range	-0.1~1.0MPa (-14.5~145PSI)	
Setting Pressure Range	-0.1~0.45MPa (-14.5~65PSI)	-0.1~0.4MPa (-14.5~60PSI)
Hysteresis	≤4%F.S.	
Temperature Characteristics	≤3%F.S.	
Repetition Accuracy	≤±1%F.S.	
Load Voltage	DC12~24V (Ripple ≤±10%)	
Load Current	5~40mA	
Leak Current	≤1mA	
Inner Drop Voltage	≤5V	
Switch Output (see Diagram)	Present Pressure ≥ Set Pressure: ON	Present Pressure ≤ Set Pressure: ON
Indication Lamp	ON: Red LED turns on	
Operating Temperature	0~60°C / 32~140°F	
Piping Method	Ø6 reducer	
Lead Wire	Grommet Type Oil-proof Captyre-cord two Wires Ø2.55, 0.18mm ² , 3m	



How To ORDER SERIES PS1000/1100

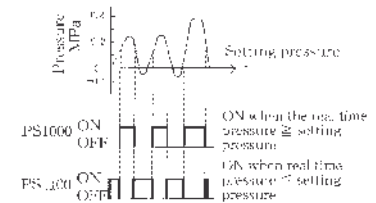


DIMENSIONS PS1000/1100

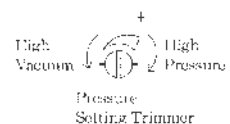


FOR FURTHER TECHNICAL INFORMATION
ON THIS SERIES, REFER TO CAT:E817

SWITCH OUTPUT FUNCTION



- Setting of Pressure Switch
- By setting the pressure trimmer, pressure is set.
- Pressure becomes bigger at the clockwise direction and for the high pressure, turn the trimmer to the counter-clockwise direction.
- Please use the ferris wheel 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



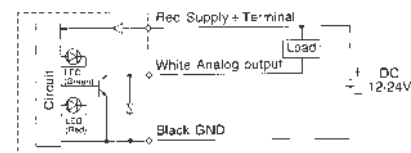
TECHNICAL SPECIFICATIONS

10 Bar = 1 MPa

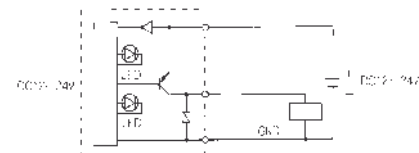
	Vacuum Models	Pressure Models 1 Bar (14.5PSI)	Pressure Models 10 Bar (145PSI)
NPN Output	ZSE4-01-25L	ISE4L-01-25L	ISE4-01-25L
PNP Output	ZSE4-01-65L	ISE4L-01-65L	ISE4-01-65L
Analog Output	ZSE4-01-26L	ISE4L-01-26L	ISE4-01-26L
Operating Pressure Range	+10 to -101kPa (1.5~15PSI)	-0.1~1 Bar (-1.5~15PSI)	-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 kPa: 1	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		

OUTPUT CIRCUIT AND WIRING

Switch Output Type (-25)



-65 PNP



NOTE 1:

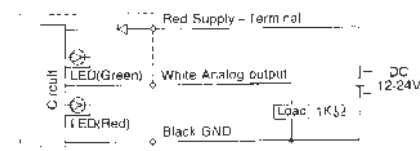
Minimum Differential

- 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 (± 5%F.S.), load impedance : 1kΩ
ZSE4-01-65		PNP output	PNP open collector 80mA
ISE4L-01-25	Positive Pressure 100kPa	NPN output	NPN open collector 30V, 80mA, residual voltage: 1V or less
ISE4L-01-26		Analog output	1~5V (± 5%F.S.), load impedance: 1kΩ
ISE4L-01-65	(14.5PSI) Type	PNP output	PNP open collector 80mA
ISE4-01-25		NPN output	NPN open collector 30V, 80mA, residual voltage : 1V or less
ISE4-01-26	(1MPa) Type	Analog output	1~5V (± 5%F.S.), load impedance: 1kΩ
ISE4-01-65		PNP output	PNP open collector 80mA

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

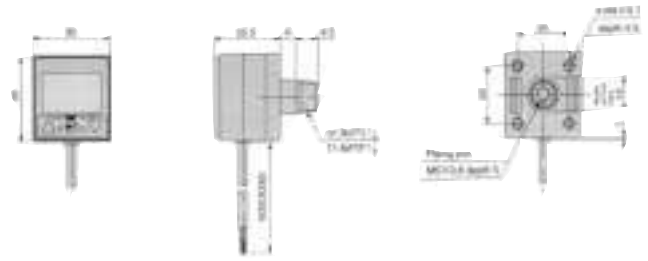
INSTRUCTIONS

- 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 "0" (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.

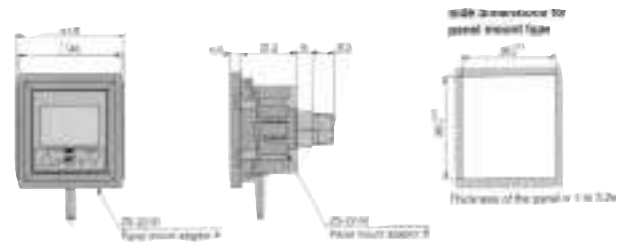
DIMENSIONS

SERIES ZSE4/ISE4 STANDARD TYPE



DIMENSIONS

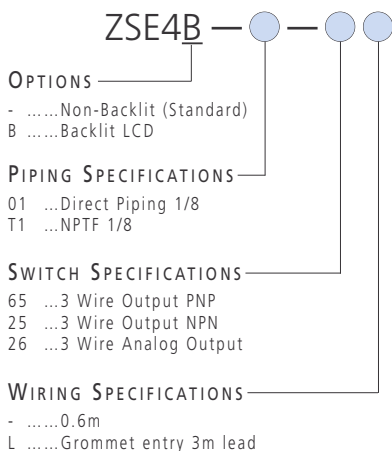
SERIES ZSE4/ISE4 PANEL MOUNTING TYPE



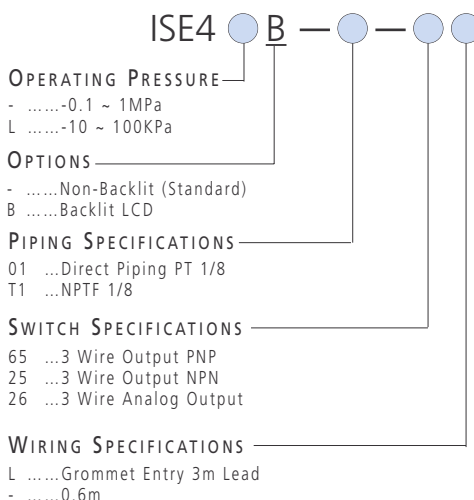
ERROR INDICATION AND INSTRUCTIONS

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-input 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



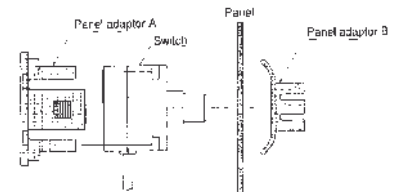
HOW TO ORDER POSITIVE PRESSURE SWITCH SERIES ISE4



ACCESSORIES ZSE4/ISE4

Panel Mount AdaptorZS-22-A

PANEL MOUNTING KIT ZS-22-A



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* : Hysteresis Mode	Adjustable (2 digit or more)			Adjustable (3 digit or more)		
Window Comparator Mode	Fixed (2 digit)			Fixed (3-digit)		
Display Light	ON: turn on light Output 1: Green, 2: Red			ON: turn on light Output 1: Green, 2: Red		
Response Frequency	200Hz			200Hz		
Max Operating Pressure	200kPa (30PSI)			1.5MPa (220PSI)		

DIMENSIONS
SEE NEXT PAGE

TECHNICAL SPECIFICATIONS SWITCH

Model	Switch Specification	Output Specification
ZSE5-02-26L	None (Analog Output)	1~5V(5%F.S.)
ZSE5-02-27L	Two Output	NPN Open Collector 30V, 80mA
ZSE5-02-67L	Two Output	PNP Open Collector 80mA
ISE5-02-26L	None (Analog Output)	1~5V(5%F.S.)
ISE5-02-27L	Two Output	NPN Open Collector 30V, 80mA
ISE5-02-67L	Two Output	PNP Open Collector 80mA

TECHNICAL SPECIFICATIONS COMMON SPECIFICATIONS

Fluid	Fluid that will not corrode SUS304 and SUS630
Temperature Characteristics	+~3%F.S. max.
Repetition Accuracy	+~1% max.
Power Supply	12~24vDC (Ripple 10% max.)
Consumption Current	45mA max.
Emergency Display	Red/display the error code on LCD
Pressure Display	3 1/2 digit LCD
Self-Diagnosis Function	Excess pressure/Data error*
Operating Temp Range	0~50°C /32~120°F
Noise Resistance	500Vp-p pulse width 1μs, standing 1nS
Insulation Resistance	Between whole wires and case 2MΩ (50vDC by megameter)
Vibration Resistance	10~500Hz width=1.5mm or acceleration 10G (Choose the smaller vibration) to X, Y, Z direction (two hours)
Shock Resistance	100G to X, Y, Z direction (three times for each direction)
Weight	126g (Including 3m-long lead wire)

Notes:

• Hysteresis mode

ZSE:When the values of P1 and P2 are the same or when P1>P2 within two digits, the hysteresis will be automatically two digits for the set value of P1.

ISE:When the values of P1 and P2 are the same or when P1>P2 within three digits, the hysteresis will be automatically three digits for the set value of P1.

• Window comparator mode:

ZSE:The hysteresis is two digits, so separate P1 from P2 by five digits or more and set them.

ISE:The hysteresis is three digits, so separate P1 from P2 by seven digits or more and set them.

* (One digit is the minimum pressure display unit)

* 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

WIRING SPECIFICATIONS

- L3m

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

WIRING SPECIFICATIONS

- L3m

SWITCH SPECIFICATIONS

- 26 ...Analog 3-Wire
- 27 ...2 Output (NPN) 4-Wire
- 67 ...2 Output (PNP) 4-Wire

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

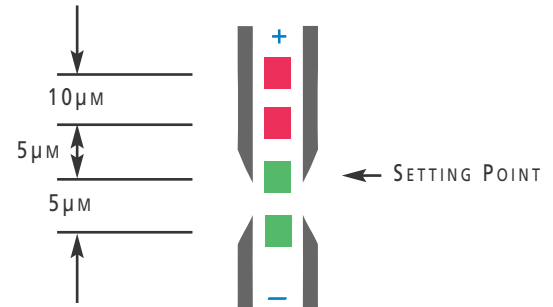
TECHNICAL SPECIFICATIONS

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 Nozzel 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. guage & 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

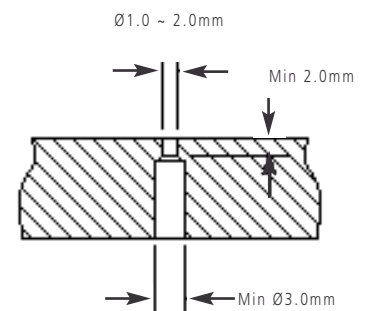


SETTING INDICATOR
 Red LED = Output is OFF
 Green LED = Output is ON

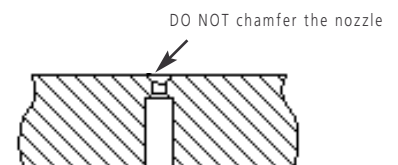


NOZZLE TYPE

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.



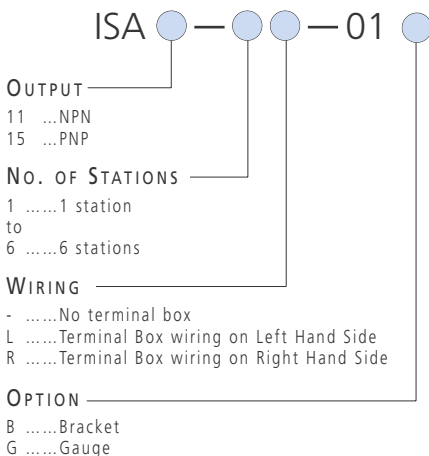
Correct ✓



Incorrect ✗

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

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	0.005~0.4MPa	0.005~0.8MPa
Range	(0.7~30PSI)	(0.7~50PSI)	(0.7~120PSI)
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)		

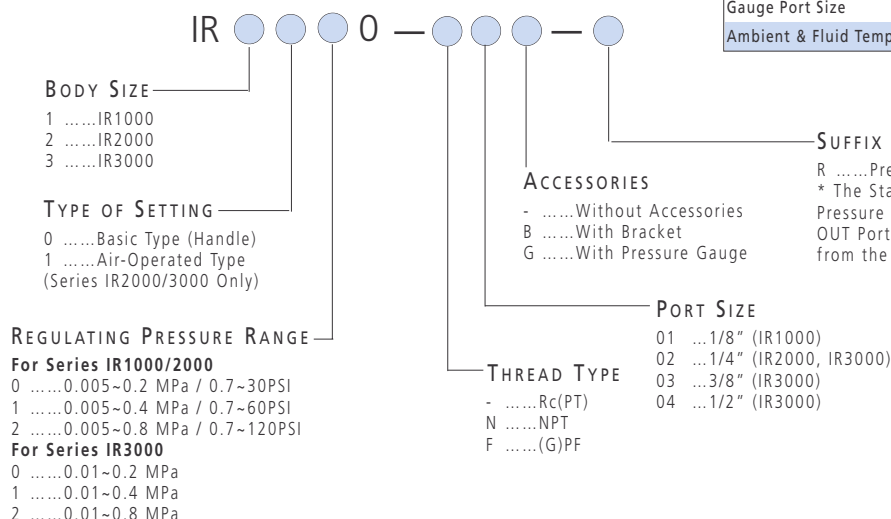
Note 1) Always keep a Minimum Differential of 0.05MPa from Set Pressure
Note 2) Air is always bleeding to atmosphere

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	0.005~0.8MPa	0.01~0.8MPa
Range	3010: 0.01~0.4MPa	3020: 0.01~0.8MPa	
Sensitivity	0.2% FS Max		
Repeatability	±0.5% FS Max		
Air Consumption	Supply Pressure at 1MPa	≤9.5//min (Bleed P)	≤4//min
at 0.7MPa	≤2//min (EXH)	≤3//min	≤2//min at Max
Gauge Port Size	1/8" (2 Ports - Front/Back)		
Ambient & Fluid Temperature	-5 ~ 60°C / 23~140°F (with no freezing)		

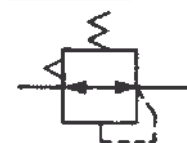
HOW TO ORDER

PRECISION REGULATOR SERIES IR1/2/3000



DIMENSIONS SEE NEXT PAGE

SYMBOLS



ACCESSORIES
SERIES IR1000/2000/3000

Model	IR1000	IR1010	IR1020	IR2000	IR2010	IR2020/2120	IR3000	IR3010	IR3020/3120
Bracket	P36201023			P36202028			P36203018		
Pressure Gauge	G33-2-01	G33-4-01	G33-10-01	G43-2-01	G43-4-01	G43-10-01	G43-10-01	G43-4-01	G43-10-01

Accuracy ± 3% (full span)

ELECTRO-PNEUMATIC REGULATOR SERIES ITV2000, 3000

- ✓ Air Consumption is near zero l/min (ANR) at desired set pressure (Balanced Condition)
- ✓ Zero and Span Adjustment is possible with No Air Pressure
- ✓ Easy to read with LED with choice of 5 units of measurement
- ✓ 4 Input Current/Voltage Range Options
- ✓ 2 Monitor Options - Analog or Switch (NPN or PNP)
- ✓ Plug-in Wiring with Removable Cable (Straight or Right-Angle Plug)
- ✓ IP65 Protection Standard
- ✓ Same Mounting Dimensions as IT Series (Same Bracket) for Stand-alone use with Threaded Ports



TECHNICAL SPECIFICATIONS

1MPa = 145PSI

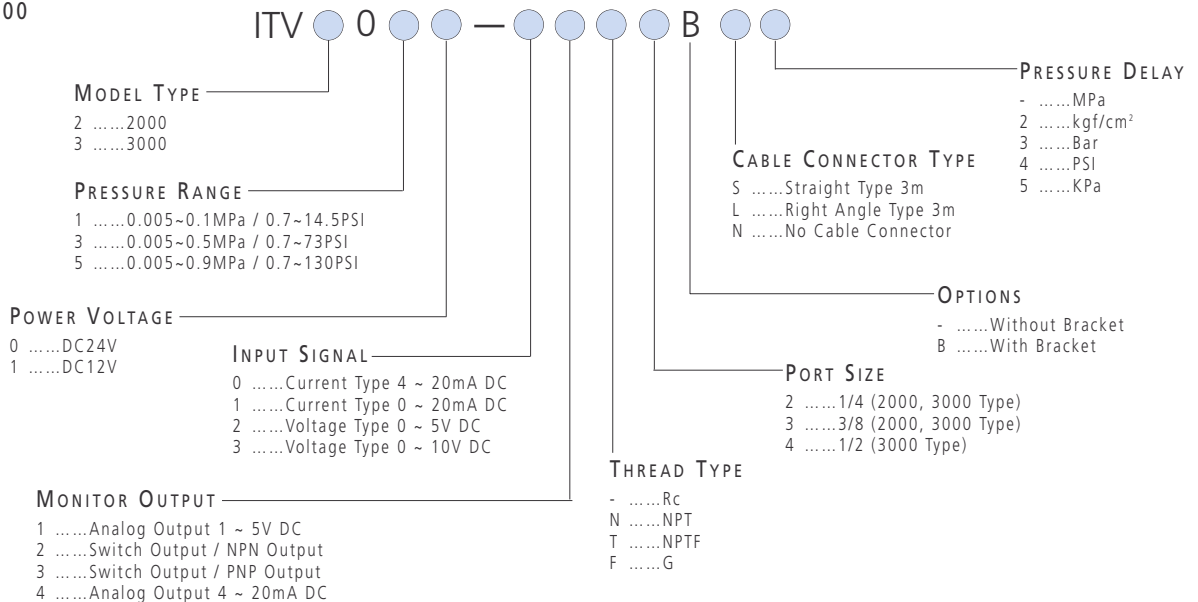
Model	ITV201□	ITV203□	ITV205□
	ITV301□	ITV303□	ITV305□
Max Supply Pressure	0.2MPa	1.0MPa	1.0MPa
Min Supply Pressure	Setting Pressure 0.1MPa / 14.5PSI		
Setting Pressure Range	0.005~0.1MPa	0.005~0.5MPa	0.005~0.9MPa
Power Voltage	DC24V±10%, DC12~15V		
Input Signal	Current Type ^{Note1)}	4~20mA, 0~20mA 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, Kg/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

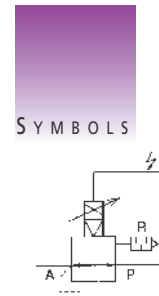
- ✓ Simple Construction
- ✓ Easy to Connect
- ✓ Choice of Signal Voltage Ranges
- ✓ Wide Range of Body Sizes with Common Control Unit
- ✓ Internal and External Pilot Versions Available
- ✓ Integral Pressure Sensor and Amplifier
- ✓ High Relief Capacity to Exhaust



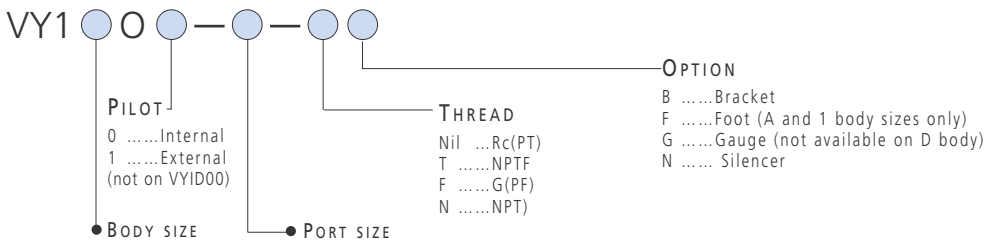
An applicable solution for applications where the precision and response of the IT range is not required. The VY-HyReg Range is constructed by utilizing a standard control unit either alone (VY1D00-M5) or as a Pilot Valve controlling one of the Range of VEX1 Power Valves.

TECHNICAL SPECIFICATIONS CONTROL UNIT

Applicable Fluid	Dry Air, Inert Gas
Required Filtration Level for Supply and Pilot Air	5(m)
Lubrication	Unnecessary (see note 7)
Ambient and Fluid Temperature	0 - 50 °C / 32~120°F
Maximum Operating Pressure	7PSI ≤ (128PSI / 0.88 MPa)
Set Pressure	0.5 Kg/cm ² ~ Supply Pressure
External Pilot Supply Pressure (For VY1*01 Type)	Set Pressure ~ 130PSI / 9 Kg/cm ²
Control Signal Voltage	1 ~ 5 V DC Standard 0 ~ 10 V DC Available as an Option
Control Signal Power Requirement	Less than 1mW
Power Supply Voltage	24 V DC ± 10%
Power Consumption	1.8 W maximum
Electrical Connection	DIN Plug
Cable Gland Size	Suits 4 ~ 6.5 mm Cable
Bleed Air Consumption (at 9 Kg/cm ² Supply Pressure)	Maximum 10 nl/min
Mounting	Any Orientation



HOW TO ORDER SERIES VY



DIMENSIONS
SEE NEXT PAGE

Mounting Type	Symbol	Symbol	P,A port	R port	Cv	Hysteris	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						
	2	01	1/4	1/4	0.41	3%	1.5%	±1%	
		02	1/4	1/4	1.4				
	4	00	Without subplate		2.0	3%	1.5%	±1%	
		02	1/4	1/4					3.3
		03	1/4	1/4					3.9
		04	1/2	1/2					3.9
	body Ported Type	A	M5	M5	0.28	2.5%	1%	±1%	
			01	1/4	0.9				
1		02	1/4	1.4	2.0	5%	2%	±2%	
		02	1/4	2.0					
3		03	1/4	3.3	8.9	5%	2%	±2%	
		04	1/2	3.9					
5		04	1/2	7.2	10	5%	2%	±2%	
		06	1/2	8.9					
7		10	1	17	18	5%	2%	±2%	
		12	1 1/4	18					
9		14	1 1/2	33	37	5%	2%	±2%	
		20	2	37					

Notes:









- Avoid mounting the valve in a position where it will be subject to vibration.
- Ensure that pipework is thoroughly clean and free of water and debris during installation.
- Use a three-core screened cable for signal and power. Conductor diameter minimum 0.5mm² each core
- Wiring - terminal designations are molded onto the valve body.
- The valve bleeds air to exhaust when energized so operation without a silencer is not recommended.
- If the valve is used with lubricated air, the factory pre-lubrication will be washed out so lubrication must be continued.
- If lubricated air must be used, the external pilot type (VY1?01) and oil-free air supplied to the pilot port.
- 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.

CONSULT SMC CUSTOMER SERVICE FOR COMPLETE TECHNICAL INFORMATION.

SERIES	DESCRIPTION
	<p>CE2 STROKE READING CYLINDER BORE SIZES: ø40, 50, 63, 80, 100MM Micro-Processor Predictive Control and Learning Functions; Positional Accuracy to ±0.5mm; Application Dedicated Controller; 16 Programs each of 32 Positions can be stored; Error Signal Output.</p>
	<p>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.</p>
	<p>LG1 COMPACT ELECTRIC ACTUATOR High Rigidity, High Linear Precision Guide; Space-Saving Design; Top Mounting and Bottom Mounting Options.</p>
	<p>LJ1 ELECTRIC ACTUATOR High Rigidity, High Linear Precision Guide; High Positioning Accuracy; Abundant Product Variations; Mounting Options; 5 Options of Cable Entry Direction.</p>
	<p>LX ELECTRIC ACTUATOR Low Profile, Compact and Short Stroke Type; Stepping Motor is a Standard Feature; Optional AC Servo Motor; Auto Switch Capability.</p>
	<p>LXF ELECTRIC SLIDE TABLE Low Profile Electric Slide Table; 5 Phase Stepping Motor; Stroke Length Options: 25, 50, 75, 100mm.</p>
	<p>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.</p>
	<p>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.</p>
	<p>MH22 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.</p>
	<p>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.</p>

CONSULT SMC CUSTOMER SERVICE FOR COMPLETE TECHNICAL INFORMATION.

SERIES	DESCRIPTION
	<p>MRHQ ROTARY GRIPPER BORE SIZES: ø10, 16MM Ideal for holding and reversing work on transporting lines; Angle Rotation 90° and 180°.</p>
	<p>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.</p>
	<p>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.</p>
	<p>SYJ300/500/700 3 PORT SOLENOID VALVE Low Power Consumption; Interchangeable with the NVJ and NVZ; Vacuum Applicable; Base-Mounted and Body-Ported Options.</p>
	<p>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.</p>
	<p>ASD DUAL SPEED CONTROLLER</p>
	<p>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.</p>