

Plate Cylinder/Double Acting Single Rod

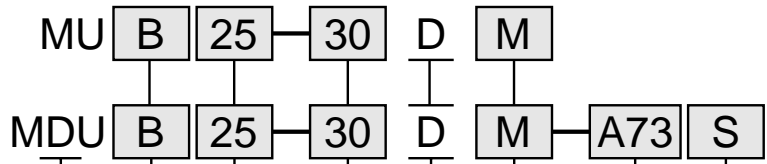
Series MU



ø25, ø32, ø40, ø50, ø63

How to Order

Standard
With auto switch



Built-in magnet

Mounting

B	Basic
L	Axial foot
F	Front flange
G	Rear flange
C	Single clevis
D	Double clevis

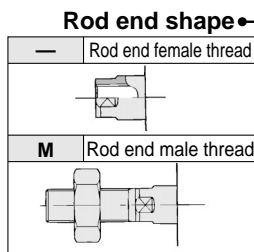
Size

25	Equiv. ø25 piston area
32	Equiv. ø32 piston area
40	Equiv. ø40 piston area
50	Equiv. ø50 piston area
63	Equiv. ø63 piston area

Stroke (mm)
Refer to standard stroke on p.2.4-3.
Refer to p.2.4-3 when using auto switch.

Action

D	Double acting
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Number of auto switches

—	2
S	1
n	n

Auto switch

—	Without auto switch(built-in magnet)
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Applicable Auto Switches/Refer to p.5.3-2 for further information on auto switch.

Style	Special function	Electrical entry	Indicator	Wiring (output)	Load voltage		Auto switch model		Lead wire (m)*				Applicable load					
					DC	AC	Perp.	In-line	0.5 (→)	3 (L)	5 (Z)	None (N)						
Reed switch	—	Grommet	Yes	3 wire (Equiv. NPN)	—	5V	—	A76H	●	●	—	—	IC	Relay, PLC				
								A72	A72H	●	●	—	—		—			
								A73	A73H	●	●	●	—		—	—		
								24V	5V 12V	100V or less	A80	A80H	●		●	—	—	IC
								12V	—	A73C	—	●	●		●	●	—	—
								5V 12V	24V or less	A80C	—	●	●		●	●	—	IC
Solid state switch	—	Grommet	Yes	3 wire (NPN)	—	5V 12V	—	F7NV	F79	●	●	○	—	IC	Relay, PLC			
								F7PV	F7P	●	●	○	—	—				
								F7BV	J79	●	●	○	—	—				
								J79C	—	●	●	●	●	—		—		
								24V	3 wire (NPN)	F7NWV	F79W	●	●	○		—	—	IC
								3 wire (PNP)	—	F7PW	—	●	●	○		—	—	IC
								24V	2 wire	F7BVV	J79W	●	●	○		—	—	—
								12V	—	—	F7BA	—	●	○		—	—	—
								5V 12V	3 wire (NPN)	—	F7NT	—	●	○		—	—	IC
								—	4 wire (NPN)	—	F79F	●	●	○		—	—	—
—	—	—	F7LF	●	●	○	—	—	—									

*Lead wire length 0.5m..... (Example) A80C 5m.....Z (Example) A80CZ
3m.....L A80CL —.....N A80CN

**Solid state switches marked with a "○" are manufactured upon receipt of order.

Mounting Bracket/Part No.

Size	25	32	40	50	63
Foot (1)	MU-L02	MU-L03	MU-L04	MU-L05	MU-L06
Flange	MU-F02	MU-F03	MU-F04	MU-F05	MU-F06
Single clevis	MU-C02	MU-C03	MU-C04	MU-C05	MU-C06
Double clevis (3)	MU-D02	MU-D03	MU-D04	MU-D05	MU-D06

Note 1) When ordering foot brackets, 2pcs. should be ordered for each cylinder.
Note 2) Parts attached with each mounting brackets are as follows.
Foot, Flange, Single clevis/Body mounting bolt
Double clevis/A clevis pin, C shape snap rings for axis, body mounting bolts
Note 3) A clevis pin and snap rings are packed with the double clevis style.

Auto Switch Mounting Bracket/Part No.

Size	Model	Note
25, 32, 40, 50, 63	BMU1-025	• Auto switch mounting screw (M3 X 0.5 X 6.5d) • Switch mounting nut

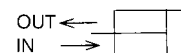
* Mounting screw set made of stainless steel
Following stainless steel mounting screw set (included nut) is provided. Use them with accordance to environment. (Auto switch interface is available. Order it separately.)
BBA2: For D-A7/A8/F7/J7

When D-F7BAL mounted on cylinder is required, the stainless steel screw mentioned above is used at shipping. When auto switch unit is shipped, BBA2 is attached.

⚠ Precautions

Be sure to read before handling. Refer to p.0-39 to 0-46 for Safety Instructions and common precautions.

Plate Cylinder/Double Acting Single Rod **Series MU**



Specifications

Action	Double acting single rod
Fluid	Air
Proof pressure	1.05MPa
Max. operating pressure	0.7MPa
Min. operating pressure	0.05MPa
Ambient and fluid temperature	-10 to 60°C
Lubrication	Not required (Non-lube)
Piston speed	50 to 500mm/S
Stroke length tolerance	+1.4 0
Cushion	Rubber bumper
Thread tolerance	JIS Class 2
Equivalent tube bore (mm)	ø25, ø32, ø40, ø50, ø63
Mounting	Axial foot, Front flange, Rear flange, Single clevis, Double clevis
Rod end shape	Rod end male thread, Rod end female thread

Rod Non-rotating Accuracy

Model	MU25	MU32	MU40	MU50	MU63
Non-rotating accuracy	±1°	±0.8°	±0.5°	±0.5°	±0.5°

Standard Stroke

Size	Standard stroke	Allowable max. stroke
25, 32, 40 50, 63	5, 10, 15, 20, 25, 30, 35, 40, 45, 50 75, 100, 125, 150, 175, 200, 250, 300	300

* Contact SMC for any intermediate strokes that are not indicated above, as they will be produced upon receipt of order.
** Strokes longer than 300mm are not available.

Minimum Stroke for Auto Switch Mounting

Number of auto switches	D-F7□V D-J79C	D-A7□ D-A80 D-A73C D-A80C	D-F7□WV	D-A7□H, A80H D-F7□W, J79W D-A79W D-F7□, J79 D-F7BA, F7NT D-F7□F
2	5	10	15	15
1	5	5	10	15

Theoretical Force

Size	Rod dia. (mm)	Operating direction	Piston area (mm ²)	Operating pressure (MPa)						
				0.2	0.3	0.4	0.5	0.6	0.7	
25	12	OUT	491	98	147	196	246	295	344	
		IN	378	76	113	151	189	227	265	
32	14	OUT	804	161	241	322	402	482	563	
		IN	650	130	195	260	325	390	455	
40	16	OUT	1257	251	377	503	629	754	880	
		IN	1056	211	317	422	528	634	739	
50	20	OUT	1963	393	589	785	982	1178	1374	
		IN	1649	330	495	660	824	989	1154	
63	20	OUT	3117	623	935	1247	1559	1870	2182	
		IN	2803	561	841	1121	1402	1682	1962	

Note) Theoretical force (N) = Pressure (MPa) X Piston area (mm²)

Weight

Size		25	32	40	50	63
Basic weight	Basic	0.18	0.28	0.42	0.80	1.20
	Axial foot	0.25	0.42	0.63	1.14	1.83
	Flange/ Front/Rear side	0.28	0.42	0.65	1.26	2.03
	Single clevis	0.24	0.40	0.64	1.20	1.88
	Double clevis (with pin)	0.25	0.44	0.68	1.27	1.96
Additional weight per 50mm stroke		0.12	0.16	0.22	0.34	0.47
Accessories	Single clevis (Pivot bracket for double clevis)	0.06	0.12	0.22	0.40	0.68
	Double clevis (with pin) (Pivot bracket for single clevis)	0.07	0.16	0.26	0.47	0.76
	Single knuckle joint	0.03	0.04	0.07	0.16	0.16
	Double knuckle joint (with pin)	0.05	0.09	0.14	0.29	0.29

Note) The weight of the single and double clevis bracket includes the weight of the 2 bolts for mounting the bracket.

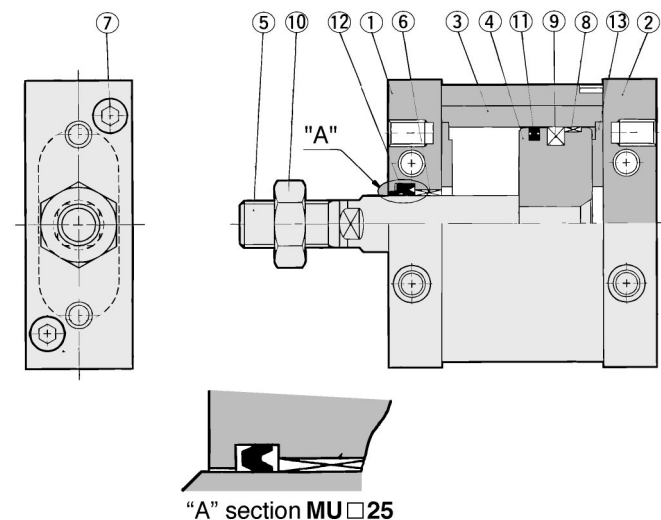
Calculation:

Example: MUL32-100

- Basic weight: 0.42 (Foot style ø32 equiv.)
- Added weight: 0.16/50 stroke
- Stroke: 100mm stroke

$$0.42 + 100 / 50 \times 0.16 = 0.74 \text{ kg}$$

Construction



Component Parts

No.	Description	Material	Note
①	Rod cover	Aluminum alloy	Anodized
②	Head cover	Aluminum alloy	Anodized
③	Cylinder tube	Aluminum alloy	Hard anodized
④	Piston	Aluminum alloy	Chromated
⑤	Piston rod	Carbon steel	Hard chromated
⑥	Bushing	Oil impregnated sintered alloy	
⑦	Hex. socket head cap screw	Stainless steel	
⑧	Wearing	Resin	
⑨	Magnet	Magnet material	Only built-in magnet style
⑩	Rod end nut	Rolled steel	Only male thread rod end
⑪	Piston seal	NBR	
⑫	Rod seal	NBR	
⑬	Bumper	Urethane	

Replacement Parts: Seal Kits

Bore size (mm)	Kit No.	Contents
25	MUB25-PS	A set of above numbers ⑪, ⑫ and ⑬.
32	MUB32-PS	
40	MUB40-PS	
50	MUB50-PS	
63	MUB63-PS	

* Seal kits consist of items ⑪, ⑫ and ⑬, contained in one kit, and can be ordered using the order number for each cylinder bore size.

Series MU

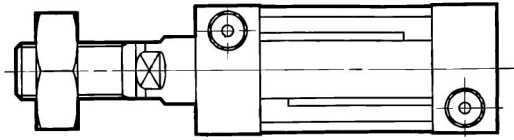


Basic: MUB

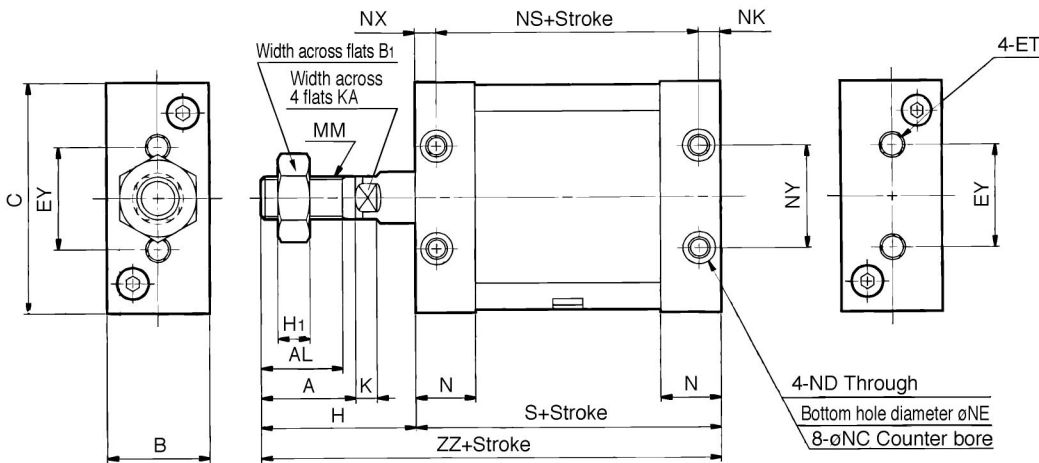
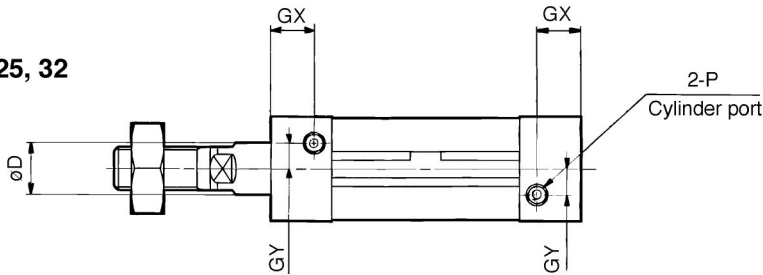


Rod end male thread

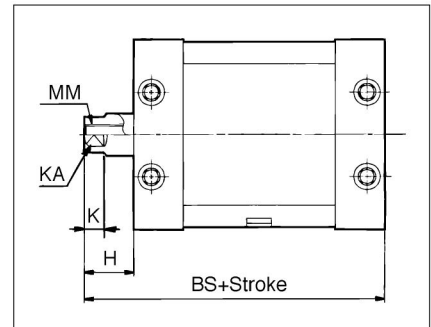
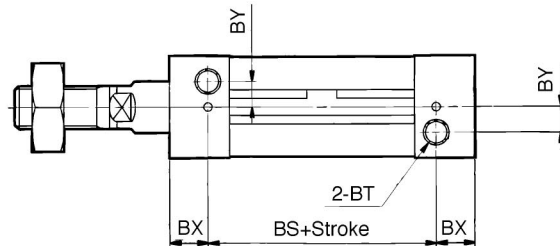
MUB40, 50, 63



MUB25, 32



Rod end female thread



- MUB25 SMU25, #1 (#1+#11)
- MUB32 SMU32, #1 (#1+#11)
- MUB40 SMU40, #1 (#1+#11)
- MUB50 SMU50, #1 (#1+#11)
- MUB63 SMU63, #1 (#1+#11)

* Dimensions except mentioned above are same as male thread style. However, K and KA dimensions are same as male thread style.

Model	Stroke range (mm)	A	AL	B	B1	BS	BT	BX	BY	C	D	ET	EY	GX	GY	H	H1	K
MUB25	5 to 300	22	19.5	24	17	37	M5 X 0.8Depth7.5	9	7	54	12	M5 X 0.8Depth11	26	10	5	36	6	5.5
MUB32	5 to 300	26	23.5	28	19	45	M6 X 1Depth12	6.5	8	68	14	M6 X 1Depth11	42	8.5	5.5	40	7	5.5
MUB40	5 to 300	30	27	32	22	44	M8 X 1.25Depth13	8	9	86	16	M8 X 1.25Depth11	54	9	7	45	8	6
MUB50	5 to 300	35	32	39	27	54	M10 X 1.5Depth14.5	10	9	104	20	M10 X 1.5Depth15	64	11.5	8	53	11	7
MUB63	5 to 300	35	32	50	27	53	M12 X 1.75Depth18	11	12	124	20	M12 X 1.75Depth15	72	11.5	10	56	11	7

Model	KA	MM	N	NC	ND	NE	NS	NX	NY	P	S	ZZ
MUB25	10	M10 X 1.25	14	7.5Depth4.5	M5 X 0.8	4.3	43	6	26	M5 X 0.8	55	91
MUB32	12	M12 X 1.25	15.5	9Depth5.5	M6 X 1	5.1	45	6.5	28	Rc(PT)1/8	58	98
MUB40	14	M14 X 1.5	16	10.5Depth6.5	M8 X 1.25	6.9	44	8	36	Rc(PT)1/8	60	105
MUB50	18	M18 X 1.5	21.5	13.5Depth8.5	M10 X 1.5	8.7	54	10	42	Rc(PT)1/4	74	127
MUB63	18	M18 X 1.5	21.5	17Depth10.5	M12 X 1.75	10.5	53	11	46	Rc(PT)1/4	75	131

Rod end female thread (mm)

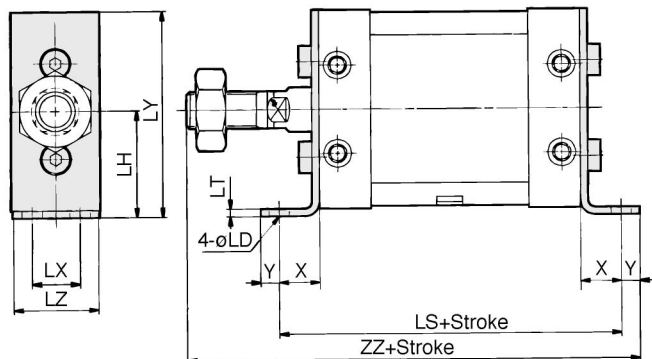
Model	H	MM	ZZ
MUB25	14	M6 X 1Depth12	69
MUB32	14	M8 X 1.25Depth13	72
MUB40	15	M8 X 1.25Depth13	75
MUB50	18	M10 X 1.5Depth15	92
MUB63	21	M10 X 1.5Depth15	96

* The position of the four flats of the piston rod is $\pm 3^\circ$ in relation to the cylinder side surface.

Dimensions



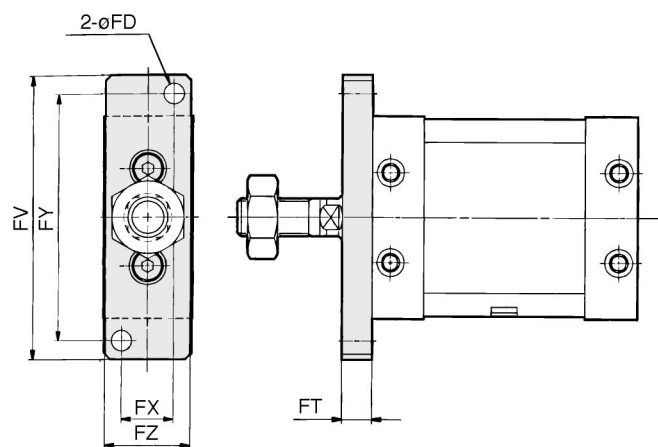
Axial foot



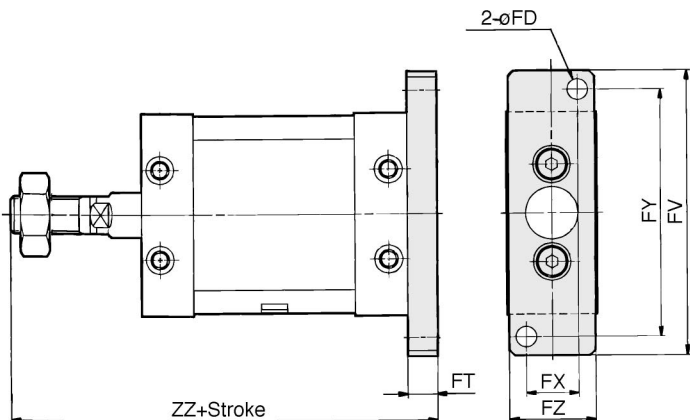
Model	LD	LH	LS	LT	LX	LY	LZ	X	Y	ZZ
MUL25	5.5	29	79	3.2	11	56	23	12	6	109
MUL32	6.6	37	90	4.5	12	71	27	16	8	122
MUL40	9	46	96	4.5	15	89	31	18	10	133
MUL50	11	57	116	5	18	109	37	21	11	159
MUL63	13.5	67	123	6	22	129	48	24	14	169

Axial foot
 MUL25.....SMU25, #2 (#1+#2+#11)
 MUL32.....SMU32, #2 (#1+#2+#11)
 MUL40.....SMU40, #2 (#1+#2+#11)
 MUL50.....SMU50, #2 (#1+#2+#11)
 MUL63.....SMU63, #2 (#1+#2+#11)

Front flange



Rear flange



CU
CQS
CQ2
MU

Model	FD	FT	FV	FX	FY	FZ	ZZ
MUF25, MUG25	5.5	8	76	14	66	24	99
MUF32, MUG32	7	8	94	16	82	28	106
MUF40, MUG40	9	9	118	18	102	32	114
MUF50, MUG50	11	12	144	22	126	39	139
MUF63, MUG63	13	14	168	30	148	50	145



Front flange
 MUF25.....SMU25, #3 (#1+#3+#11)
 MUF32.....SMU32, #3 (#1+#3+#11)
 MUF40.....SMU40, #3 (#1+#3+#11)
 MUF50.....SMU50, #3 (#1+#3+#11)
 MUF63.....SMU63, #3 (#1+#3+#11)

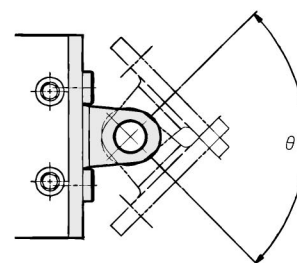
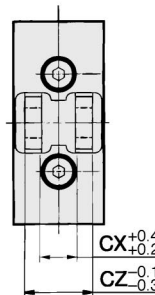
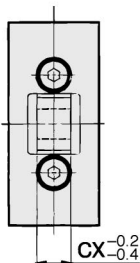
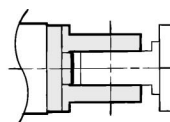
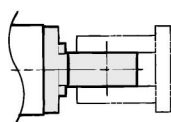
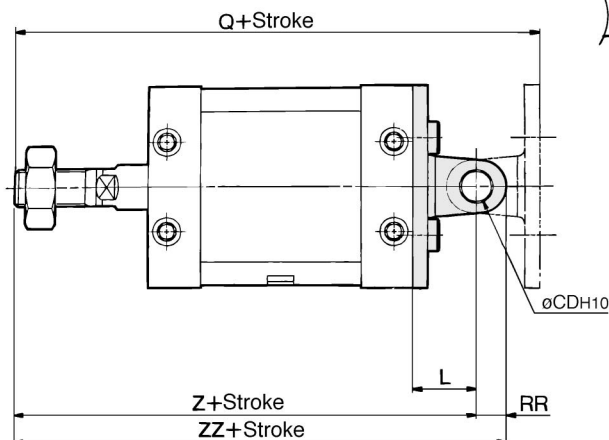
Rear flange
 MUG25.....SMU25, #4 (#1+#4+#11)
 MUG32.....SMU32, #4 (#1+#4+#11)
 MUG40.....SMU40, #4 (#1+#4+#11)
 MUG50.....SMU50, #4 (#1+#4+#11)
 MUG63.....SMU63, #4 (#1+#4+#11)

Single clevis

Double clevis

Single clevis

Double clevis



Double clevis
 MUD25.....SMU25, #6 (#1+#6+#11)
 MUD32.....SMU32, #6 (#1+#6+#11)
 MUD40.....SMU40, #6 (#1+#6+#11)
 MUD50.....SMU50, #6 (#1+#6+#11)
 MUD63.....SMU63, #6 (#1+#6+#11)

Single clevis
 MUC25.....SMU25, #5 (#1+#5+#11)
 MUC32.....SMU32, #5 (#1+#5+#11)
 MUC40.....SMU40, #5 (#1+#5+#11)
 MUC50.....SMU50, #5 (#1+#5+#11)
 MUC63.....SMU63, #5 (#1+#5+#11)

Model	CDH10	CX	CZ	L	Q	RR	Z	ZZ	Rotation(θ°)
MUC25, MUD25	8 ^{+0.058} ₀	9	18	17	125	8	108	116	100
MUC32, MUD32	10 ^{+0.058} ₀	11	22	22	142	10	120	130	90
MUC40, MUD40	10 ^{+0.058} ₀	13	26	27	159	10	132	142	80
MUC50, MUD50	14 ^{+0.070} ₀	16	32	32	191	14	159	173	80
MUC63, MUD63	14 ^{+0.070} ₀	16	32	38	207	16	169	185	80

A clevis pin and snap ring are packed with the double clevis style.