

Series MU

⚠ Precautions

Be sure to read before handling. For Safety Instructions and Actuator Precautions, refer to pages 7-13-3 to 7-13-6.

Mounting

⚠ Caution

- When a workpiece is secured to the end of the piston rod, ensure that the piston rod is retracted entirely, and place a wrench on the portion of the rod that protrudes beyond the section. Also, tighten by giving consideration to prevent the tightening torque from being applied to the non-rotating guide.

Allowable Rotating Torque (N·m)

Bore size (mm)	25	32	40	50	63
Allowable torque for mounting workpiece	1.7	1.9	2.0	4.9	7.3

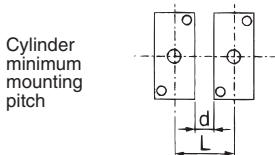
- Operate in such a way that the load to the piston rod is always applied in the axial direction. Furthermore, avoid operations that could apply rotational torque to the piston rod. If rotational torque must be applied due to unavoidable circumstances, use the table below as a guide to make sure the allowable rotational torque is not exceeded.
- Operating the cylinder by connecting the piping directly to the cylinder can cause the piston speed to exceed the maximum operating speed of 500 mm/s. Therefore, to operate the cylinder, make sure to use an SMC speed controller and adjust the piston speed to 500 mm/s or less.

Caution on Handling Auto Switch

Be sure to read before handling. For Auto Switch Precautions, refer to page 7-9-4.

⚠ Warning

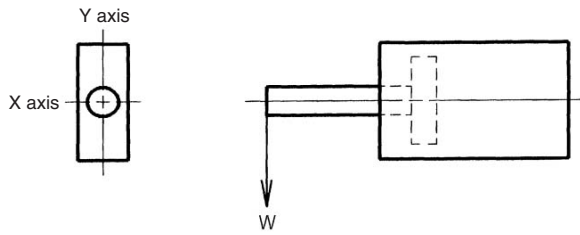
- If multiple cylinders are operated adjacent to each other, the magnets that are enclosed in the adjacent cylinders could affect the operation of the auto switches, causing the switches to malfunction. Therefore, make sure that the mounting pitch of the cylinders is at least that indicated in the table below.



Bore (mm)	25	32	40	50	63
L (d)	33 (10)	32 (5)	36 (5)	38 (0)	49 (0)

If the cylinders must be operated with the mounting pitch less than indicated above, they must be shielded with steel plates or magnetic shield plates (Part no.: MU-S025). Please contact SMC for details.

Rod End Allowable Load



* In the case of a plate cylinder, although there is the case that a load is applied in both X and Y axis as illustrated, but the allowable lateral load is the same.

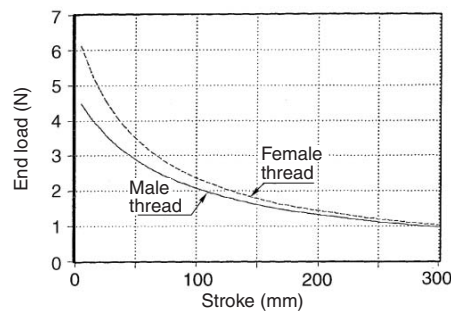


Fig. (2):
MU25 Allowable Load for Rod End

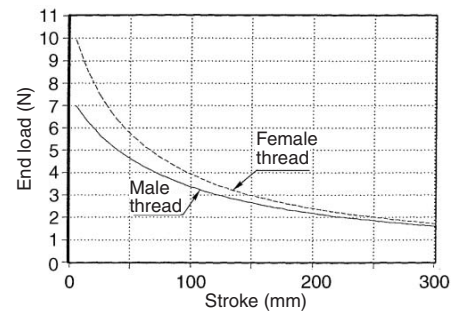


Fig. (3):
MU32 Allowable Load for Rod End

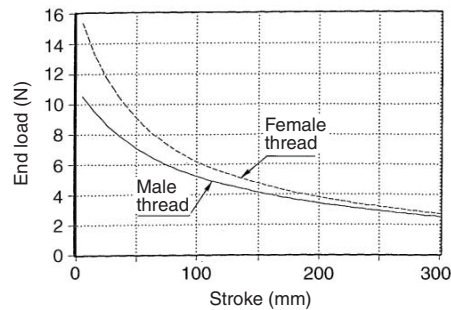


Fig. (4):
MU40 Allowable Load for Rod End

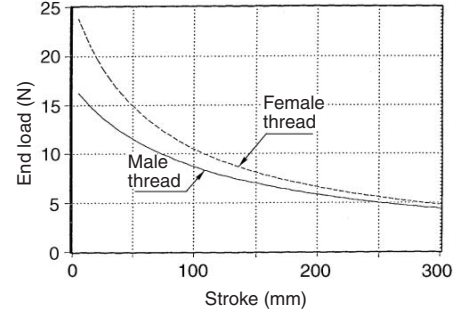


Fig. (5):
MU50 Allowable Load for Rod End

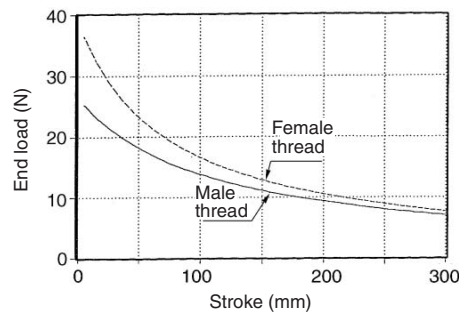


Fig. (6):
MU63 Allowable Load for Rod End

Plate Cylinder

Double Acting, Single Rod

Series MU

ø25, ø32, ø40, ø50, ø63

How to Order

Without auto switch

MU **B** **25** — **30** **D** **M**

With auto switch

MDU **B** **25** — **30** **D** **M** — **J79W** **S**

Built-in magnet

Mounting style

B	Basic style
L	Axial foot style
F	Rod side flange style
G	Head side flange style
C	Single clevis style
D	Double clevis style

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 page 7-8-4.

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Auto switch

Nil	Without auto switch (Built-in magnet)
-----	---------------------------------------

* For the applicable auto switch model, refer to the table below.
* Auto switches are shipped together, (but not assembled).

Rod end configuration

Nil	Rod end female thread type
M	Rod end male thread type

Action

D	Double acting
---	---------------

- CUJ
- CU
- CQS
- CQM
- CQ2
- RQ
- MU
- D-
- X
- 20-
- Data

Applicable Auto Switch/Refer to page 7-9-1 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Rail mounting		Lead wire length (m)*				Pre-wired connector	Applicable load								
					DC	AC	Perpendicular	In-line	0.5 (Nil)	3 (L)	5 (Z)	None (N)										
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	—	A76H	●	●	—	—	—	IC circuit							
				2-wire		24 V				12 V	100 V	A72	A72H			●	●	—	—			
		Connector		—	—	—	—	—	—	—	—	—	—	—	—	Relay, PLC						
		Diagnostic indication (2-color indication)															Grommet	3-wire (NPN)	5 V, 12 V	—	F79	F79
Solid state switch	—	Grommet	Yes	3-wire (PNP)	—	12 V	—	—	—	●	●	○	—	○	IC circuit							
				2-wire						5 V, 12 V	—	F7PV	F7P	●		●	○	—	○			
		Connector		—	—	—	—	—	—	—	—	—	—	—	—	—						
		Diagnostic indication (2-color indication)															Grommet	3-wire (NPN)	5 V, 12 V	—	F7B	J79
		Water resistant (2-color indication)		Grommet	—	Yes	3-wire (PNP)	—	12 V	—	—	—	●	●	○	—	○	IC circuit				
							2-wire						5 V, 12 V	—	F7NWV	F79W	●		●	○	—	○
							With diagnostic output (2-color indication)	—	—	Yes	3-wire (NPN)	—	12 V	—	—	—	●	●	○	—	○	—
											3-wire (PNP)						5 V, 12 V	—	F7PV	F7P	●	
		Magnetic field resistant (2-color indication)		Grommet	—	Yes	2-wire	—	12 V	—	—	—	●	●	○	—	○	—				
							4-wire						5 V, 12 V	—	F7BAV	—	—		●	○	—	—
—	Grommet	—	Yes	2-wire	—	—	—	—	—	●	●	○	—	○	IC circuit							
				—						—	—	—	—	—		—	—	—	—			

* Lead wire length symbols: 0.5 m Nil (Example) A73C
 3 m L (Example) A73CL
 5 m Z (Example) A73CZ
 None N (Example) A73CN

* Solid state switches marked with "○" are produced upon receipt of order.
 * D-P5DWL type can only be mounted for bore sizes ø40, ø50, ø63.
 Only D-P5DWL type is assembled at the time of shipment.

- Since there are other applicable auto switches than listed, refer to page 7-8-21 for details.
- For details about auto switches with pre-wire connector, refer to page 7-9-36.

Series MU



Specifications

Action	Double acting, Single rod
Fluid	Air
Proof pressure	1.05 MPa
Maximum operating pressure	0.7 MPa
Minimum operating pressure	0.05 MPa
Ambient and fluid temperature	-10 to 60°C
Lubrication	Not required (Non-lube)
Piston speed	50 to 500 mm/S
Stroke length tolerance	$\begin{matrix} +1.4 \\ 0 \end{matrix}$
Cushion	Rubber bumper
Thread tolerance	JIS Class 2
Equivalent bore size (mm)	25, 32, 40, 50, 63
Mounting	Axial foot style, Rod side flange style, Head side flange style, Single clevis style, Double clevis style
Rod end configuration	Rod end male thread, Rod end female thread

Allowable Rotational Torque for Rod End

(N·m)

Bore size (mm)	25	32	40	50	63
Allowable rotational torque	0.25	0.25	0.55	1.25	2.0

Rod Non-rotating Accuracy

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

Standard Stroke

Bore size (mm)	Standard stroke (mm)	Maximum manufacturable 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



* Other intermediate strokes can be manufactured upon receipt of order. Please contact SMC.
** Strokes longer than 300 mm are not available.

Mounting Bracket Part No.

Bore size (mm)	25	32	40	50	63
Mounting bracket					
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 bracket, order 2 pieces per cylinder.

Note 2) Accessories for each mounting bracket are as follows.

Foot style, Flange style, Single clevis style/Body mounting bolt

Double clevis/A clevis pin, Type C snap ring for axis, Body mounting bolt

Note 3) Clevis pin and snap ring are shipped together with double clevis style.

Auto Switch Mounting Bracket Part No.

Bore size (mm)	Mounting bracket part no.	Note	Applicable auto switch	
			Reed switch	Solid state switch
25, 32, 40, 50, 63	BMU1-025	Auto switch mounting screw (M3 x 0.5 x 6.5) Switch mounting nut	D-A7□, D-A80 D-A7□H, D-A80H D-A73C, D-A80C D-A79W	D-F7□, D-J79 D-F7□V, D-J79C D-F7□W, D-J79W D-F7□WV, D-F79F D-F7NTL D-F7BAL/F7BAVL
40, 50, 63	BMU2-040	Switch mounting bracket Round head Phillips screw (M3 x 0.5 x 14) Hexagon socket head cap screw (M3 x 0.5 x 5) Flat washer, Switch mounting nut	—	D-P5DWL

* Mounting screws set made of stainless steel

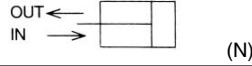
The set of stainless steel mounting screws (with nuts) described below is available and can be used depending on the operating environment.

BBA2: For D-A7/A8/F7/J7

"D-F7BAL/F7BAVL" switch is set on the cylinder with the stainless steel screws above when shipped. When only a switch is shipped independently, "BBA2" screws are attached.

Plate Cylinder Double Acting, Single Rod Series MU

Theoretical Output



Bore size (mm)	Rod size (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 output (N) = Pressure (MPa) x Piston area (mm²)

Weight

		Bore size (mm)				
		25	32	40	50	63
Basic weight	Basic style	0.18	0.28	0.42	0.80	1.20
	Axial foot style	0.25	0.42	0.63	1.14	1.83
	Flange style/Rod side, Head side	0.28	0.42	0.65	1.26	2.03
	Single clevis style	0.24	0.40	0.64	1.20	1.88
	Double clevis style (With pin)	0.25	0.44	0.68	1.27	1.96
Additional weight per each 50 mm of stroke		0.12	0.16	0.22	0.34	0.47
Mounting bracket weight	Single clevis style (Double clevis pivot bracket)	0.06	0.12	0.22	0.40	0.68
	Double clevis style (With pin) (Single clevis pivot bracket)	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

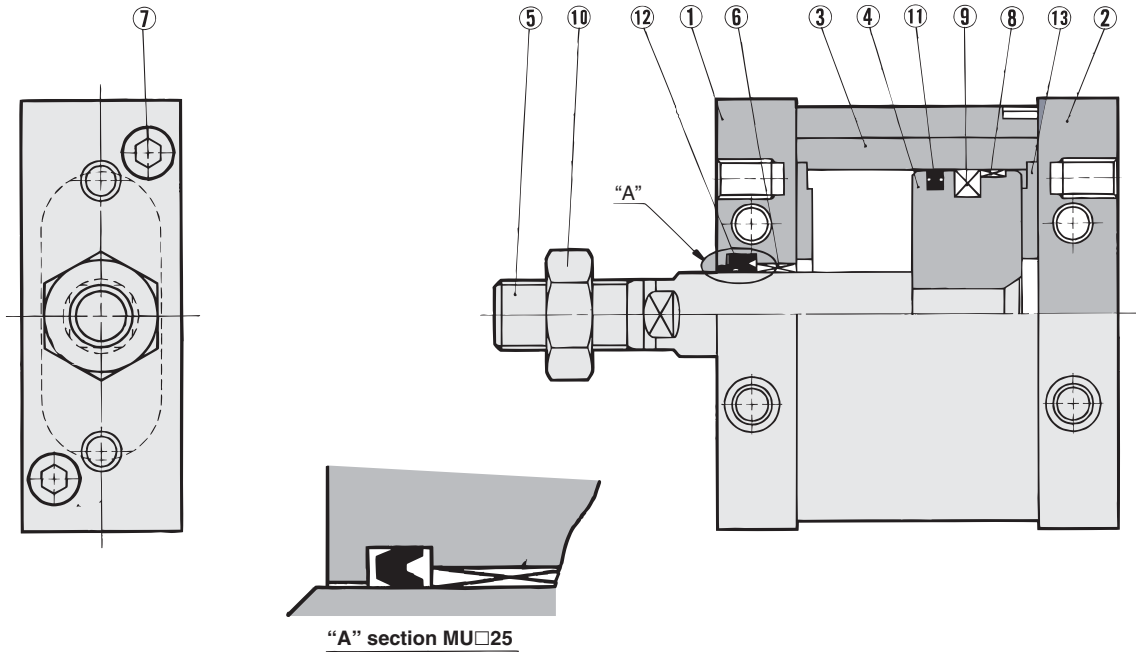
Note) Weight of single clevis and double clevis as optional bracket includes 2 pcs. brackets for bracket mounting.

Calculation: (Example) MUL32-100

- Basic weight.....0.42 (Foot style ø32 equiv.)
- Additional weight.....0.16/50 stroke
- Stroke..... 100 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 chrome plated
⑥	Bushing	Oil-impregnated sintered alloy	
⑦	Hexagon socket head cap screw	Stainless steel	
⑧	Wear ring	Resin	
⑨	Magnet	Magnetic material	Only built-in magnet type
⑩	Rod end nut	Rolled steel	Attached for only male thread rod end
⑪	Piston seal	NBR	
⑫	Rod seal	NBR	
⑬	Bumper	Urethane	

Replacement Parts: Seal Kit

Bore size (mm)	Kit no.	Contents
25	MUB25-PS	Set of nos. above ⑪, ⑫, and ⑬
32	MUB32-PS	
40	MUB40-PS	
50	MUB50-PS	
63	MUB63-PS	

* Seal kit includes ⑪ to ⑬. Order the seal kit, based on each bore size.

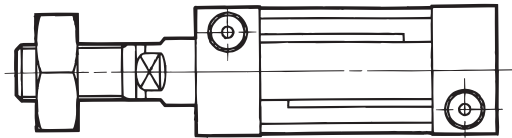
- CUJ
- CU
- CQS
- CQM
- CQ2
- RQ
- MU
- D-
- X
- 20-
- Data

Series MU

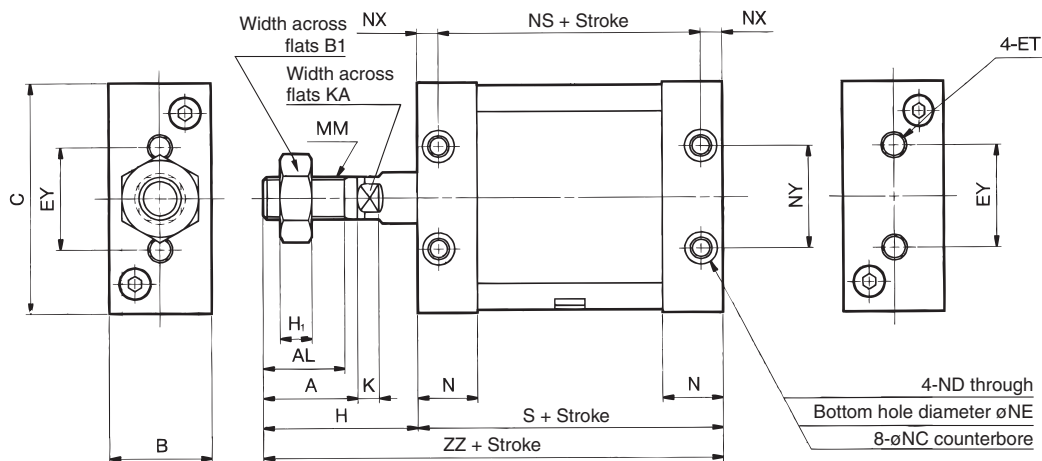
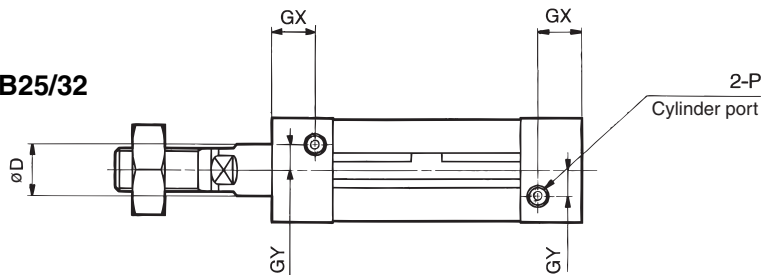
Basic Style: MUB

Rod end male thread

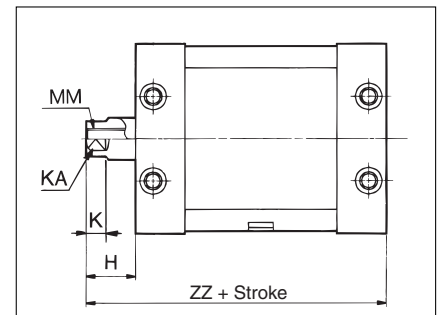
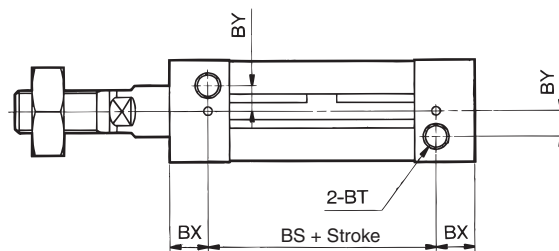
MUB40/50/63



MUB25/32



Rod End Female Thread



* Dimensions except mentioned above are the same as male thread type.

(mm)

Model	Stroke range (mm)	A	AL	B	B ₁	BS	BT	BX	BY	C	D	ET	EY	GX	GY	H	H ₁	K
MUB25	5 to 300	22	19.5	24	17	37	M5 x 0.8 depth 7.5	9	7	54	12	M5 x 0.8 depth 11	26	10	5	36	6	5.5
MUB32	5 to 300	26	23.5	28	19	45	M6 x 1 depth 12	6.5	8	68	14	M6 x 1 depth 11	42	8.5	5.5	40	7	5.5
MUB40	5 to 300	30	27	32	22	44	M8 x 1.25 depth 13	8	9	86	16	M8 x 1.25 depth 11	54	9	7	45	8	6
MUB50	5 to 300	35	32	39	27	54	M10 x 1.5 depth 14.5	10	9	104	20	M10 x 1.5 depth 15	64	11.5	8	53	11	7
MUB63	5 to 300	35	32	50	27	53	M12 x 1.75 depth 18	11	12	124	20	M12 x 1.75 depth 15	72	11.5	10	56	11	7

(mm)

Model	KA	MM	N	NC	ND	NE	NS	NX	NY	P	S	ZZ
MUB25	10	M10 x 1.25	14	7.5 depth 4.5	M5 x 0.8	4.3	43	6	26	M5 x 0.8	55	91
MUB32	12	M12 x 1.25	15.5	9 depth 5.5	M6 x 1	5.1	45	6.5	28	Rc 1/8	58	98
MUB40	14	M14 x 1.5	16	10.5 depth 6.5	M8 x 1.25	6.9	44	8	36	Rc 1/8	60	105
MUB50	18	M18 x 1.5	21.5	13.5 depth 8.5	M10 x 1.5	8.7	54	10	42	Rc 1/4	74	127
MUB63	18	M18 x 1.5	21.5	17 depth 10.5	M12 x 1.75	10.5	53	11	46	Rc 1/4	75	131

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

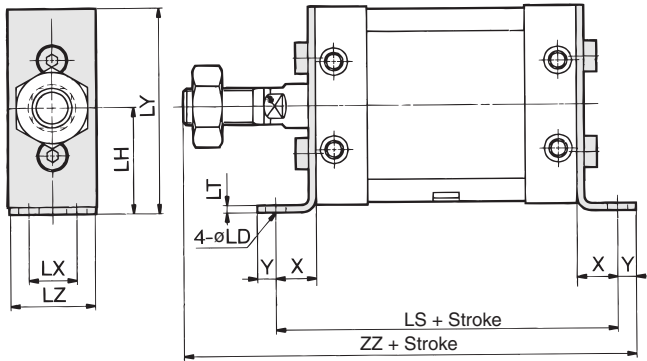
Rod End Female Thread (mm)

Model	H	MM	ZZ
MUB25	14	M6 x 1 depth 12	69
MUB32	14	M8 x 1.25 depth 13	72
MUB40	15	M8 x 1.25 depth 13	75
MUB50	18	M10 x 1.5 depth 15	92
MUB63	21	M10 x 1.5 depth 15	96

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

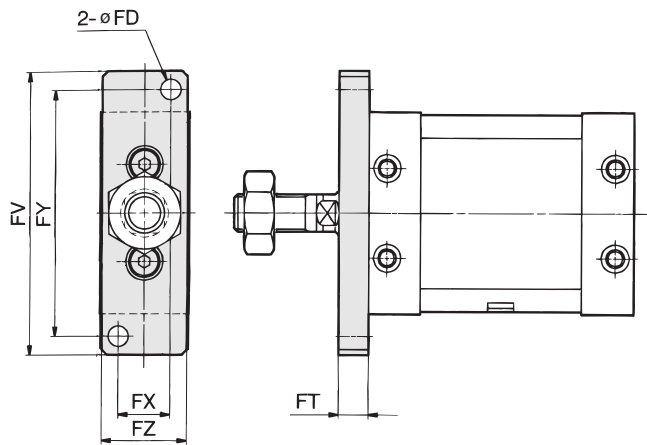
Dimensions of Each Mounting

Axial foot style

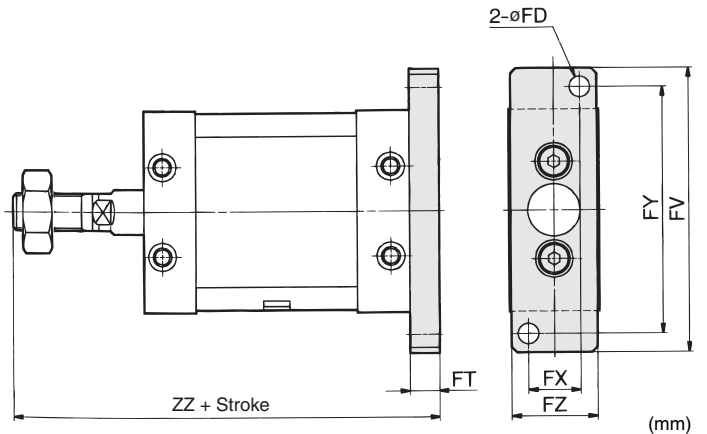


Model	LD	LH	LS	LT	LX	LY	LZ	X	Y	ZZ
MUL25	5.5	29	79	3.2	11	56	23	12	6	109
MUL32	6.6	37	90	4.5	12	71	27	16	8	122
MUL40	9	46	96	4.5	15	89	31	18	10	133
MUL50	11	57	116	5	18	109	37	21	11	159
MUL63	13.5	67	123	6	22	129	48	24	14	169

Rod side flange style



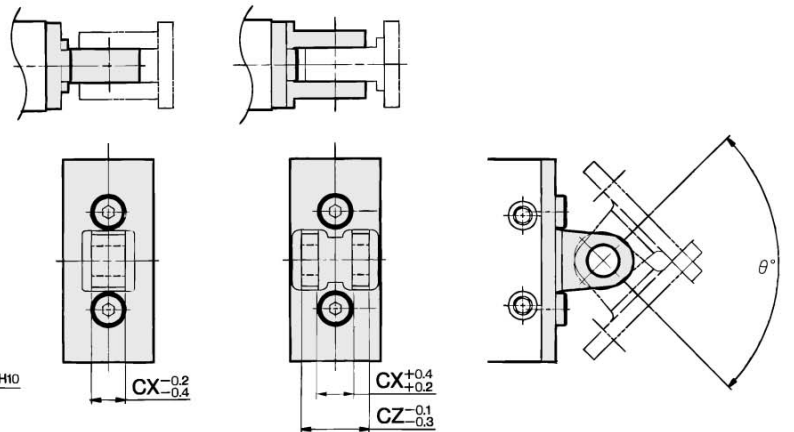
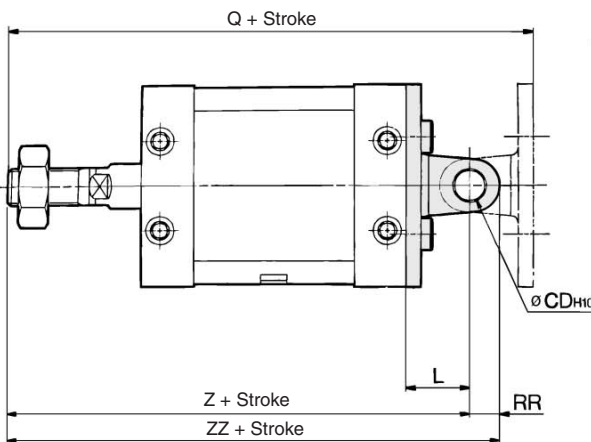
Head side flange style



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

Single clevis style Double clevis style

Single clevis style Double clevis style



Model	CD _{H10}	CX	CZ	L	Q	RR	Z	ZZ	Rotation range (°)
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

Clevis pin and snap ring are shipped together with double clevis style.

- CUJ
- CU
- CQS
- CQM
- CQ2
- RQ
- MU**
- D-
- X
- 20-
- Data

Plate Cylinder

Double Acting, Double Rod

Series MUW

ø25, ø32, ø40, ø50, ø63

How to Order

Without auto switch

With auto switch

MUW **B** **25** — **30** **D** **M**

MDUW **B** **25** — **30** **D** **M** — **J79W** **S**

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Auto switch

Nil	Without auto switch (Built-in magnet)
-----	---------------------------------------

* For the applicable auto switch model, refer to the table below.
* Auto switches are shipped together, (but not assembled).

Rod end configuration

Nil	Rod end female thread type
M	Rod end male thread type

Built-in magnet →

Double rod type →

Mounting style

B	Basic style
L	Foot style
F	Flange style

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 page 7-8-9.

Applicable Auto Switch/Refer to page 7-9-1 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Rail mounting		Lead wire length (m)*				Pre-wired connector	Applicable load		
					DC	AC	Perpendicular	In-line	0.5 (Nil)	3 (L)	5 (Z)	None (N)				
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	—	A76H	●	●	—	—	—	IC circuit	—
				2-wire		—				200 V	A72	A72H	●			
	Diagnostic indication (2-color indication)	Connector	Yes	2-wire	24 V	12 V	100 V	A73	A73H	●	●	●	—	—	Relay, PLC	
	—	Grommet				—	—	A73C	—	●	●	●	●			—
Solid state switch	—	Grommet	Yes	3-wire (NPN)	—	5 V, 12 V	—	F7NV	F79	●	●	○	—	○	IC circuit	—
				3-wire (PNP)						—	—	F7PV	F7P			
	Diagnostic indication (2-color indication)	Connector	Yes	2-wire	24 V	12 V	—	F7B	J79	●	●	○	—	○	—	—
										—	Grommet	—	—			
	Water resistant (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	F7NWV	F79W	●	●	○	—	○	IC circuit	—
										—	—	—	—			
	With diagnostic output (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	F7BWV	J79W	●	●	○	—	○	—	—
										—	—	—	—			
	Magnetic field resistant (2-color indication)	Grommet	Yes	2-wire	24 V	12 V	—	F7BAV	—	—	—	○	—	○	—	—
										—	—	—	—			
—	Grommet	Yes	2-wire	24 V	12 V	—	—	P5DW	—	●	●	—	○	—	—	
									—	—	—	—				—

* Lead wire length symbols: 0.5 m Nil (Example) A73C
 3 m L (Example) A73CL
 5 m Z (Example) A73CZ
 None N (Example) A73CN

* Solid state switches marked with "○" are produced upon receipt of order.
 * D-P5DWL type can only be mounted for bore sizes ø40, ø50, ø63.
 Only D-P5DWL type is assembled at the time of shipment.

- Since there are other applicable auto switches than listed, refer to page 7-8-21 for details.
- For details about auto switches with pre-wire connector, refer to page 7-9-36.

Plate Cylinder Double Acting, Double Rod Series **MUW**

Specifications



Action	Double acting, Double rod
Fluid	Air
Proof pressure	1.05 MPa
Maximum operating pressure	0.7 MPa
Minimum operating pressure	0.05 MPa
Ambient and fluid temperature	-10 to 60°C
Lubrication	Not required (Non-lube)
Piston speed	50 to 500 mm/S
Stroke length tolerance	+1.4 0
Cushion	Rubber bumper
Thread tolerance	JIS Class 2
Equivalent bore size (mm)	25, 32, 40, 50, 63
Mounting	Foot style, Flange style

Allowable Rotational Torque for Rod End

(N·m)


Bore size (mm)	25	32	40	50	63
Allowable rotational torque	0.25	0.25	0.55	1.25	2.0

Rod Non-rotating Accuracy

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


Standard Stroke

Bore size (mm)	Standard stroke (mm)	Maximum manufacturable 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

 * Other intermediate strokes can be manufactured upon receipt of order. Please contact SMC.
** Strokes longer than 300 mm are not available.

Mounting Bracket Part No.

Bore size (mm)	25	32	40	50	63
Mounting bracket					
Foot (1)	MU-L02	MU-L03	MU-L04	MU-L05	MU-L06
Flange	MU-F02	MU-F03	MU-F04	MU-F05	MU-F06

 Note 1) When ordering foot bracket, order 2 pieces per cylinder.
Note 2) Body mounting bolts are attached with the foot style and flange style.

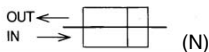
Auto Switch Mounting Bracket Part No.

Bore size (mm)	Mounting bracket part no.	Note	Applicable auto switch	
			Reed switch	Solid state switch
25, 32, 40, 50, 63	BMU1-025	Auto switch mounting screw (M3 x 0.5 x 6.5) Switch mounting nut	D-A7□, D-A80 D-A7□H, D-A80H D-A73C, D-A80C D-A79W	D-F7□, D-J79 D-F7□V, D-J79C D-F7□W, D-J79W D-F7□WV, D-F79F D-F7NTL D-F7BAL/F7BAVL
40, 50, 63	BMU2-040	Switch mounting bracket Round head Phillips screw (M3 x 0.5 x 14) Hexagon socket head cap screw (M3 x 0.5 x 5) Flat washer, Switch mounting nut	—	D-P5DWL

* Mounting screws set made of stainless steel
The set of stainless steel mounting screws (with nuts) described below is available and can be used depending on the operating environment.
BBA2: For D-A7/A8/F7/J7
“D-F7BAL/F7BAVL” switch is set on the cylinder with the stainless steel screws above when shipped.
When only a switch is shipped independently, “BBA2” screws are attached.

Series MUW

Theoretical Output



Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm ²)	Operating pressure (MPa)					
				0.2	0.3	0.4	0.5	0.6	0.7
25	12	IN/OUT	378	76	113	151	189	227	265
32	14	IN/OUT	650	130	195	260	325	390	455
40	16	IN/OUT	1056	211	317	422	528	634	739
50	20	IN/OUT	1649	330	495	660	824	989	1154
63	20	IN/OUT	2803	561	841	1121	1402	1682	1962

Note) Theoretical output (N) = Pressure (MPa) x Piston area (mm²)

Weight

		Bore size (mm)				
		25	32	40	50	63
Basic weight	Basic style	0.19	0.32	0.48	0.91	1.38
	Foot style	0.26	0.46	0.69	1.25	2.01
	Flange style	0.29	0.46	0.71	1.37	2.21
Additional weight per each 50 mm of stroke		0.16	0.23	0.31	0.48	0.59
Attached bracket weight	Single knuckle joint	0.03	0.04	0.07	0.16	0.16
	Double knuckle (With pin)	0.05	0.09	0.14	0.29	0.29

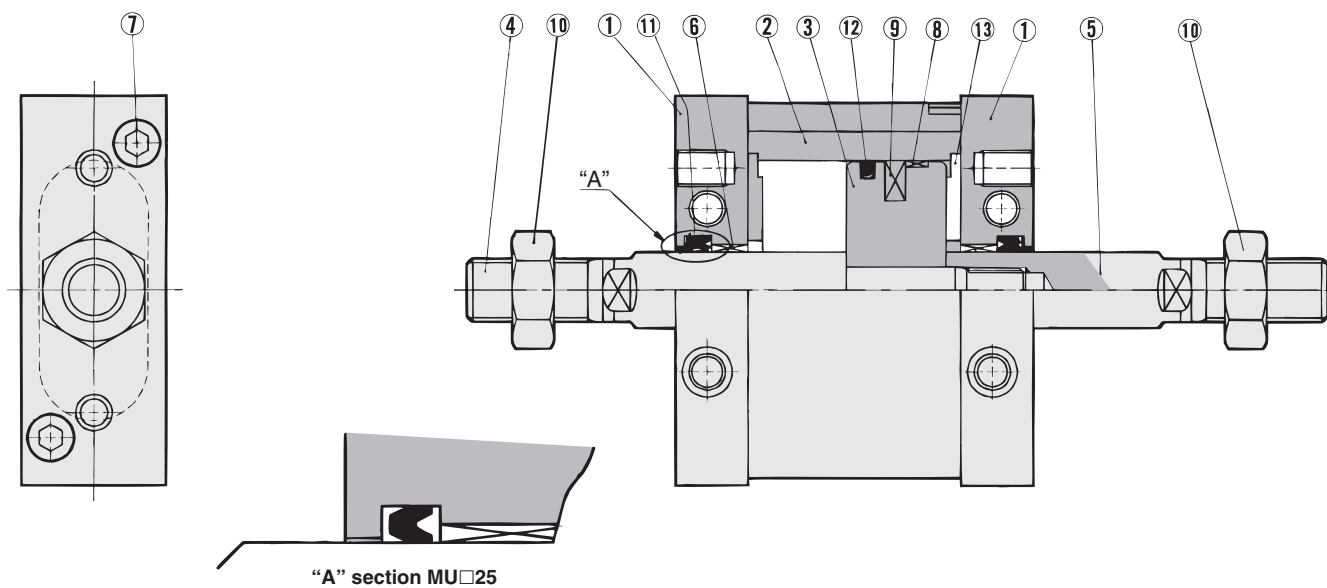
Depends on Double acting, Single rod

Calculation: (Example) MUWL32-100

- Basic weight.....0.46 (Foot style ø32 equiv.)
- Additional weight.....0.23/50 stroke
- Stroke..... 100 stroke

$$0.46 + 100 / 50 \times 0.23 = 0.92 \text{ kg}$$

Construction



Component Parts

No.	Description	Material	Note
①	Rod cover	Aluminum alloy	Anodized
②	Cylinder tube	Aluminum alloy	Hard anodized
③	Piston	Aluminum alloy	Chromated
④	Piston rod A	Carbon steel	Hard chrome plated
⑤	Piston rod B	Carbon steel	Hard chrome plated
⑥	Bushing	Oil-impregnated sintered alloy	
⑦	Hexagon socket head cap screw	Stainless steel	
⑧	Wear ring	Resin	
⑨	Magnet	Magnetic material	Only built-in magnet type
⑩	Rod end nut	Rolled steel	Attached for only male thread rod end
⑪	Rod seal	NBR	
⑫	Piston seal	NBR	
⑬	Bumper	NBR	

Replacement Parts: Seal Kit

Bore size (mm)	Kit no.	Contents
25	MUW25-PS	Set of nos. above ⑪, ⑫, and ⑬
32	MUW32-PS	
40	MUW40-PS	
50	MUW50-PS	
63	MUW63-PS	

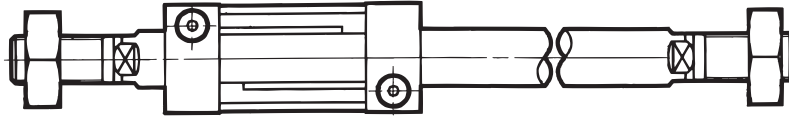
* Seal kit includes ⑪ to ⑬. Order the seal kit, based on each bore size.

Plate Cylinder Double Acting, Double Rod Series **MUW**

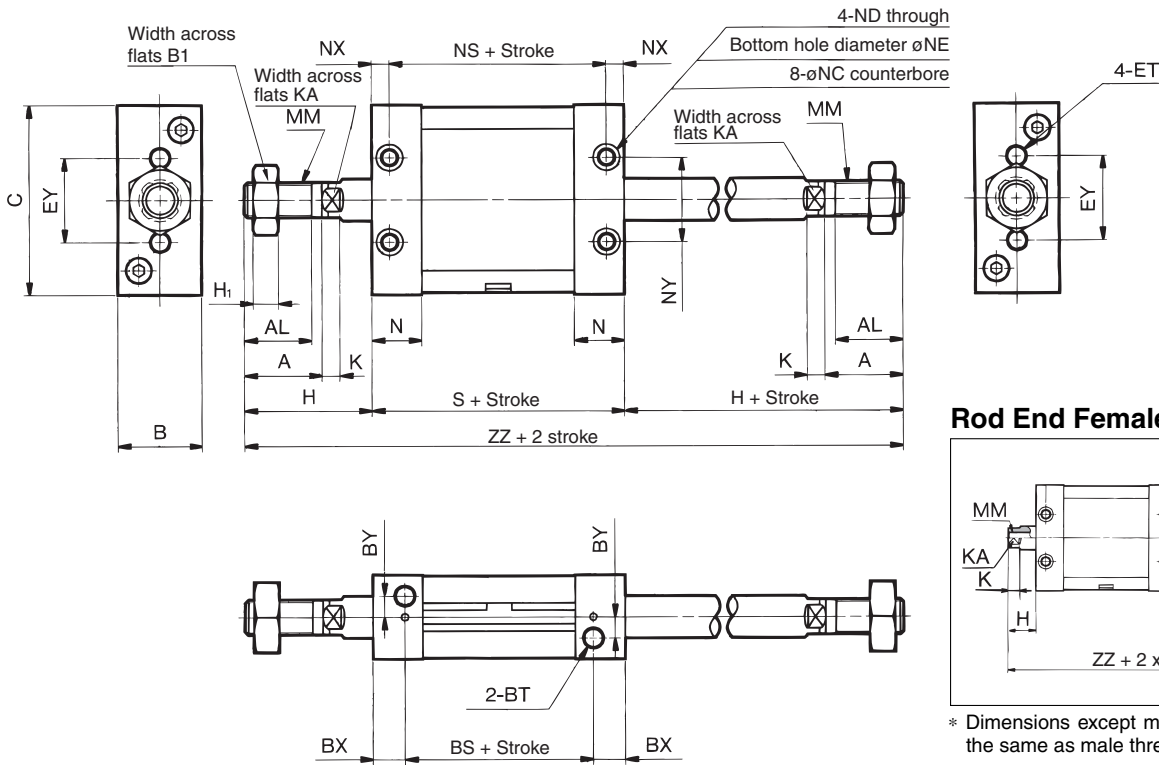
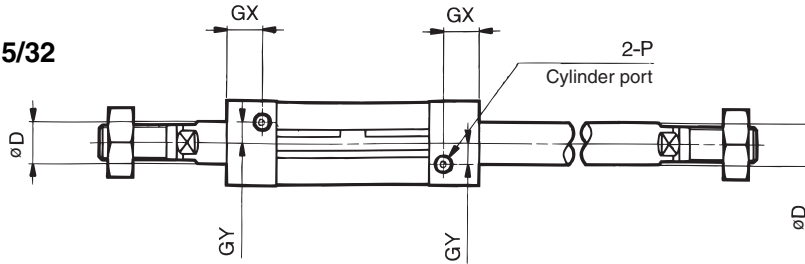
Basic Style: MUWB

Rod end male thread

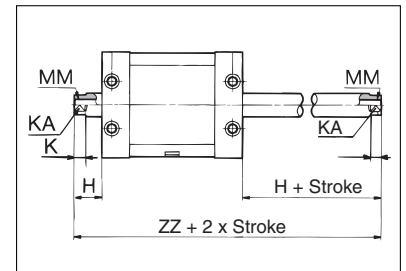
MUW40/50/63



MUW25/32



Rod End Female Thread



* Dimensions except mentioned above are the same as male thread type.

- CUJ
- CU
- CQS
- CQM
- CQ2
- RQ
- MU**
- D-
- X
- 20-
- Data

Model	Stroke range (mm)	A	AL	B	B ₁	BS	BT	BX	BY	C	D	ET	EY	GX	GY	H	H ₁	K
MUWB25	5 to 300	22	19.5	24	17	37	M5 x 0.8 depth 7.5	9	7	54	12	M5 x 0.8 depth 11	26	10	5	36	6	5.5
MUWB32	5 to 300	26	23.5	28	19	45	M6 x 1 depth 12	6.5	8	68	14	M6 x 1 depth 11	42	8.5	5.5	40	7	5.5
MUWB40	5 to 300	30	27	32	22	44	M8 x 1.25 depth 13	8	9	86	16	M8 x 1.25 depth 11	54	9	7	45	8	6
MUWB50	5 to 300	35	32	39	27	54	M10 x 1.5 depth 14.5	10	9	104	20	M10 x 1.5 depth 15	64	11.5	8	53	11	7
MUWB63	5 to 300	35	32	50	27	53	M12 x 1.75 depth 18	11	12	124	20	M12 x 1.75 depth 15	72	11.5	10	56	11	7

Model	KA	MM	N	NC	ND	NE	NS	NX	NY	P	S	ZZ
MUWB25	10	M10 x 1.25	14	7.5 depth 4.5	M5 x 0.8	4.3	43	6	26	M5 x 0.8	55	127
MUWB32	12	M12 x 1.25	15.5	9 depth 5.5	M6 x 1	5.1	45	6.5	28	Rc 1/8	58	138
MUWB40	14	M14 x 1.5	16	10.5 depth 6.5	M8 x 1.25	6.9	44	8	36	Rc 1/8	60	150
MUWB50	18	M18 x 1.5	21.5	13.5 depth 8.5	M10 x 1.5	8.7	54	10	42	Rc 1/4	74	180
MUWB63	18	M18 x 1.5	21.5	17 depth 10.5	M12 x 1.75	10.5	53	11	46	Rc 1/4	75	187

Rod End Female Thread (mm)

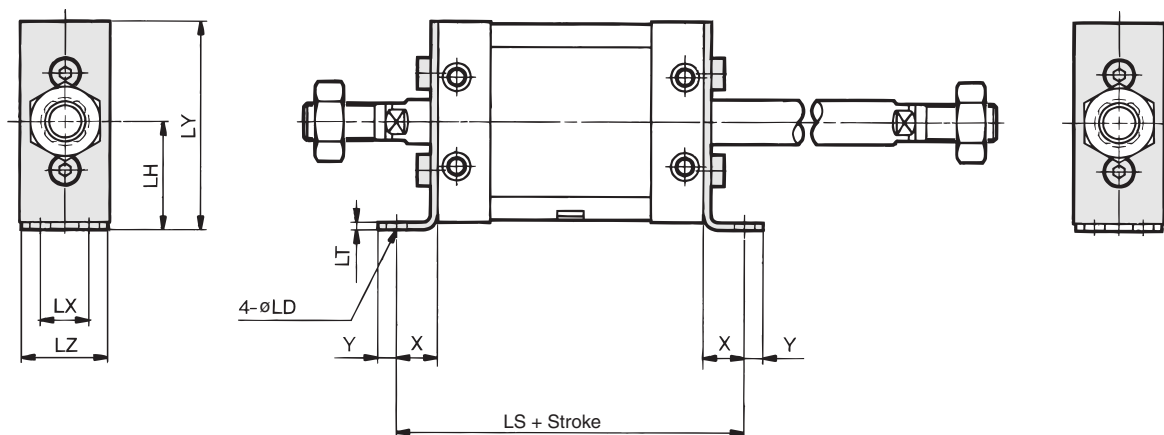
Model	H	MM	ZZ
MUWB25	14	M6 x 1 depth 12	83
MUWB32	14	M8 x 1.25 depth 13	86
MUWB40	15	M8 x 1.25 depth 13	90
MUWB50	18	M10 x 1.5 depth 15	110
MUWB63	21	M10 x 1.5 depth 15	117

* The position of piston across 4 flats are different from above drawing. Position of piston across 4 flats of double rod is not same.

Series MUW

Dimensions of Each Mounting

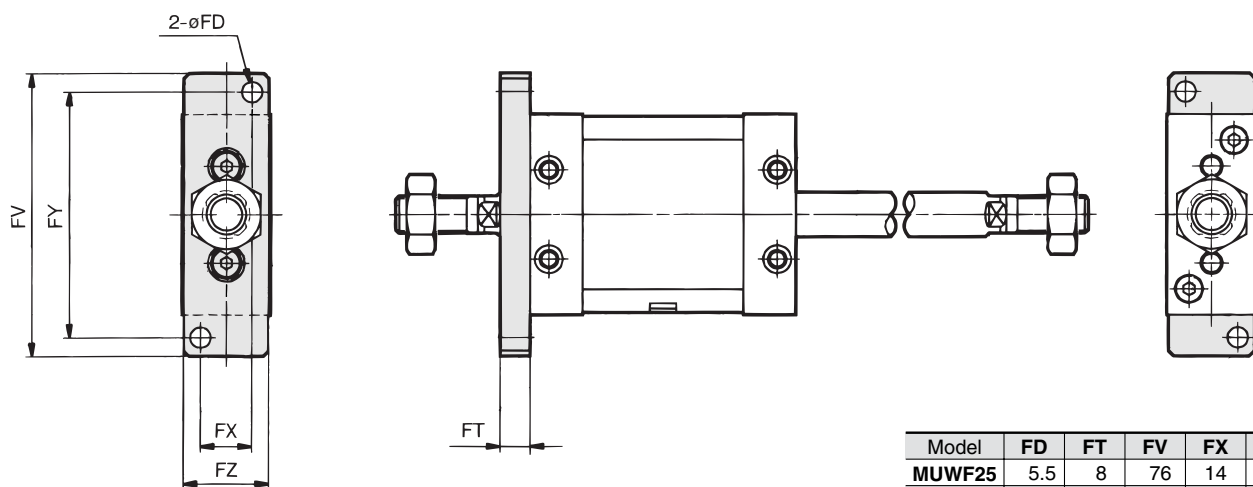
Foot style



(mm)

Model	LD	LH	LS	LT	LX	LY	LZ	X	Y
MUWL25	5.5	29	79	3.2	11	56	23	12	6
MUWL32	6.6	37	90	4.5	12	71	27	16	8
MUWL40	9	46	96	4.5	15	89	31	18	10
MUWL50	11	57	116	5	18	109	37	21	11
MUWL63	13.5	67	123	6	22	129	48	24	14

Flange style



(mm)

Model	FD	FT	FV	FX	FY	FZ
MUWF25	5.5	8	76	14	66	24
MUWF32	7	8	94	16	82	28
MUWF40	9	9	118	18	102	32
MUWF50	11	12	144	22	126	39
MUWF63	13	14	168	30	148	50



Plate Cylinder

Single Acting, Single Rod Spring Return/Extend

Series MU

ø25, ø32, ø40, ø50 ø63

How to Order

Without auto switch

MU **B** **25** — **10** **S** **M**

With auto switch

MDU **B** **25** — **10** **S** **M** — **J79W** **S**

Built-in magnet →

Mounting style

B	Basic style
L	Axial foot style
F	Rod side flange style
G	Head side flange style
C	Single clevis style
D	Double clevis style

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

Action

S	Single acting, Spring return
T	Single acting, Spring extend

Standard stroke (mm)

ø25, ø32	5, 10
ø40, ø50, ø63	5, 10, 15, 20

Number of auto switches

Nil	2 pcs.
S	1 pc.
n	"n" pcs.

Auto switch

Nil	Without auto switch (Built-in magnet)
------------	---------------------------------------

* For the applicable auto switch model, refer to the table below.
* Auto switches are shipped together, (but not assembled).

Rod end configuration

Nil	Rod end female thread type
M	Rod end male thread type

- CUJ
- CU
- CQS
- CQM
- CQ2
- RQ
- MU**
- D-
- X
- 20-
- Data

Applicable Auto Switch/Refer to page 7-9-1 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Rail mounting		Lead wire length (m)*				Pre-wired connector	Applicable load				
					DC	AC	Perpendicular	In-line	0.5 (Nil)	3 (L)	5 (Z)	None (N)						
Reed switch	—	Grommet	Yes	3-wire (NPN equivalent)	—	5 V	—	—	A76H	●	●	—	—	—	IC circuit			
				2-wire		24 V				12 V	100 V	A72	A72H	●		●	—	—
		Connector		Grommet	2-wire	—	—	—	—	—	●	●	●	●	—	—		
		Diagnostic indication (2-color indication)																
Solid state switch	—	Grommet	Yes	3-wire (NPN)	—	5 V, 12 V	—	—	F79	●	●	○	—	○	IC circuit			
				3-wire (PNP)		12 V				—	F7PV	F7P	●	●		○	—	○
		Connector		Grommet	2-wire	—	—	—	—	—	●	●	●	●	—	—		
		Diagnostic indication (2-color indication)																
		Grommet		3-wire (NPN)	24 V	5 V, 12 V	—	—	—	—	F79W	●	●	○	—	○	IC circuit	
																		3-wire (PNP)
				2-wire	—	—	—	—	—	—	—	●	●	●	●	—	—	
																		Diagnostic indication (2-color indication)
				Grommet	2-wire	—	—	—	—	—	—	J79	●	●	○	—	○	—
Grommet	2-wire	—	—	—	—	—	—	J79C	●	●	●	●	—	—				
															With diagnostic output (2-color indication)			
Grommet	4-wire (NPN)	—	—	—	—	—	—	F7NWV	●	●	○	—	○	IC circuit				
															Magnetic field resistant (2-color indication)			
Grommet	2-wire	—	—	—	—	—	—	F7PW	●	●	○	—	○	—				
															—			
Grommet	2-wire	—	—	—	—	—	—	F7BAV	—	●	○	—	—	—				
															—			
Grommet	2-wire	—	—	—	—	—	—	F7BA	—	●	○	—	○	—				
															—			
Grommet	2-wire	—	—	—	—	—	—	F79F	●	●	○	—	○	IC circuit				
															—			
Grommet	2-wire	—	—	—	—	—	—	P5DW	—	●	●	—	○	—				
															—			

* Lead wire length symbols: 0.5 m Nil (Example) A73C
 3 m L (Example) A73CL
 5 m Z (Example) A73CZ
 None N (Example) A73CN

* Solid state switches marked with "○" are produced upon receipt of order.
 * D-P5DWL type can only be mounted for bore sizes ø40, ø50, ø63.
 Only D-P5DWL type is assembled at the time of shipment.

- Since there are other applicable auto switches than listed, refer to page 7-8-21 for details.
- For details about auto switches with pre-wire connector, refer to page 7-9-36.

Series MU



Specifications

Action	Single acting, Spring return/Spring extend
Fluid	Air
Proof pressure	1.05 MPa
Maximum operating pressure	0.7 MPa
Minimum operating pressure	0.18 MPa
Ambient and fluid temperature	-10 to 60°C
Lubrication	Not required (Non-lube)
Piston speed	50 to 500 mm/S
Stroke length tolerance	$^{+1.4}_0$
Cushion	Rubber bumper
Thread tolerance	JIS Class 2
Equivalent bore size (mm)	25, 32, 40, 50, 63
Mounting	Axial foot style, Rod side flange style, Head side flange style, Single clevis style, Double clevis style

Allowable Rotational Torque for Rod End

(N·m)

Bore size (mm)	25	32	40	50	63
Allowable rotational torque	0.25	0.25	0.55	1.25	2.0

Rod Non-rotating Accuracy

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

Standard Stroke

Action	Equivalent bore size (mm)				
	25	32	40	50	63
Spring return/Spring extend	5, 10			5, 10, 15, 20	

* For intermediate strokes other than above, please contact SMC.

Mounting Bracket Part No.

Mounting bracket	Bore size (mm)				
	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 bracket, order 2 pieces per cylinder.

Note 2) Accessories for each mounting bracket are as follows.

Foot style, Flange style, Single clevis style/Body mounting bolt

Double clevis/A clevis pin, Type C snap ring for axis, Body mounting bolt

Note 3) Clevis pin and snap ring are shipped together with double clevis style.

Auto Switch Mounting Bracket Part No.

Bore size (mm)	Mounting bracket part no.	Note	Applicable auto switch	
			Reed switch	Solid state switch
25, 32, 40, 50, 63	BMU1-025	Auto switch mounting screw (M3 x 0.5 x 6.5) Switch mounting nut	D-A7□, D-A80 D-A7□H, D-A80H D-A73C, D-A80C D-A79W	D-F7□, D-J79 D-F7□V, D-J79C D-F7□W, D-J79W D-F7□WV, D-F79F D-F7NTL D-F7BAL/F7BAVL
40, 50, 63	BMU2-040	Switch mounting bracket Round head Phillips screw (M3 x 0.5 x 14) Hexagon socket head cap screw (M3 x 0.5 x 5) Flat washer, Switch mounting nut	—	D-P5DWL

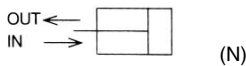
* Mounting screws set made of stainless steel

The set of stainless steel mounting screws (with nuts) described below is available and can be used depending on the operating environment.

BBA2: For D-A7/A8/F7/J7

"D-F7BAL/F7BAVL" switch is set on the cylinder with the stainless steel screws above when shipped. When only a switch is shipped independently, "BBA2" screws are attached.

Plate Cylinder Single Acting, Single Rod, Spring Return/Extend Series MU



Theoretical Output

Operating system	Bore size (mm)	Rod size (mm)	Operating direction	Piston area (mm ²)	Operating pressure (MPa)						Spring force	
					0.2	0.3	0.4	0.5	0.6	0.7	Beginning of return	Ending of return
Spring return	25	12	OUT	491	68	117	166	216	265	314	30	15
	32	14	OUT	804	119	199	280	360	440	521	42	24
	40	16	OUT	1257	195	321	447	573	698	824	56	30
	50	20	OUT	1963	346	542	738	935	1131	1327	47	26
Spring extend	25	12	IN	378	46	83	121	159	197	235	30	15
	32	14	IN	650	88	153	218	283	348	413	42	24
	40	16	IN	1056	155	261	366	472	578	683	56	30
Spring extend	50	20	IN	1649	283	448	613	777	942	1107	47	26
	63	20	IN	2803	448	728	1008	1289	1569	1849	113	61

Note) Theoretical output (N) = Pressure (MPa) x Piston area (mm²)

Weight

	Bore size (mm)	Weight (kg)				
		25	32	40	50	63
Basic weight	5 stroke	0.22	0.27	0.57	1.06	1.55
	10 stroke	0.23	0.35	0.60	1.09	1.60
	15 stroke	—	—	0.62	1.12	1.64
	20 stroke	—	—	0.64	1.16	1.69
Mounting bracket weight	Axial foot style	0.07	0.14	0.21	0.34	0.63
	Flange style/Rod side, Head side	0.10	0.14	0.23	0.46	0.83
	Single clevis style	0.06	0.12	0.22	0.40	0.68
Accessory bracket weight	Double clevis style (With pin)	0.07	0.16	0.26	0.47	0.76
	Single knuckle joint	0.03	0.04	0.07	0.16	0.16
Accessory bracket weight	Double knuckle joint (With pin)	0.05	0.09	0.14	0.29	0.29

Note) Weight of single clevis and double clevis as optional bracket includes 2 pcs. brackets for bracket mounting.

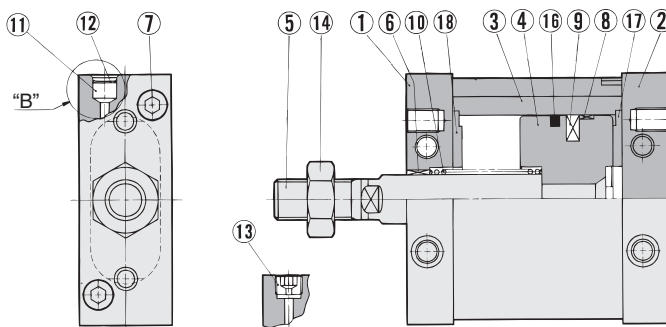
Calculation:

(Example 1) MUB40-15S(T)
● Basic weight 0.62 kg

(Example 2) MUC50-5S(T)
● Basic weight 1.06
● Additional weight (Mounting bracket) ..0.40
1.06 + 0.40 = 1.46 kg

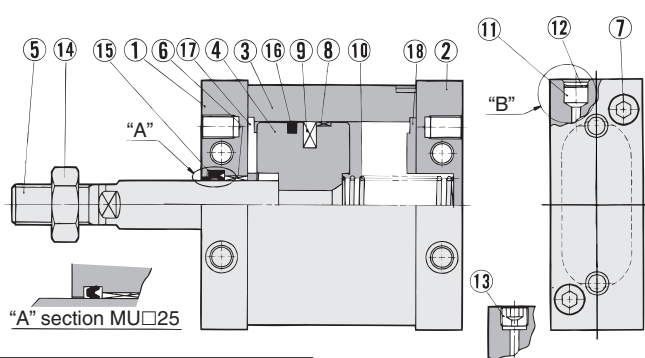
Construction

Spring return



“B” section MU□25

Spring extend



“A” section MU□25

“B” section MU□25

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 chrome plated
⑥	Bushing	Oil-impregnated sintered alloy	
⑦	Hexagon socket head cap screw	Stainless steel	
⑧	Wear ring	Resin	
⑨	Magnet	Magnetic material	Only built-in magnet type
⑩	Return spring	Steel wire	Zinc chromated
⑪	Element	Bronze	
⑫	Snap ring	Spring steel	
⑬	Plug	Chromium molybdenum steel	
⑭	Rod end nut	Rolled steel	Attached for only male thread rod end
⑮	Rod seal	NBR	
⑯	Piston seal	NBR	
⑰	Bumper	Urethane	
⑱	Bumper B	Urethane	

Replacement Parts: Seal Kit

Bore size (mm)	Kit no.		Contents
	Spring return	Spring extend	
25	MU25S-PS	MU25T-PS	Set of nos. above ⑮, ⑯, ⑰, and ⑱
32	MU32S-PS	MU32T-PS	
40	MU40S-PS	MU40T-PS	
50	MU50S-PS	MU50T-PS	
63	MU63S-PS	MU63T-PS	

* Seal kit includes ⑮ to ⑱. Order the seal kit, based on each bore size.

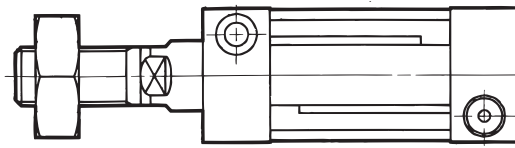
- CUJ
- CU
- CQS
- CQM
- CQ2
- RQ
- MU
- D-
- X
- 20-
- Data

Series MU

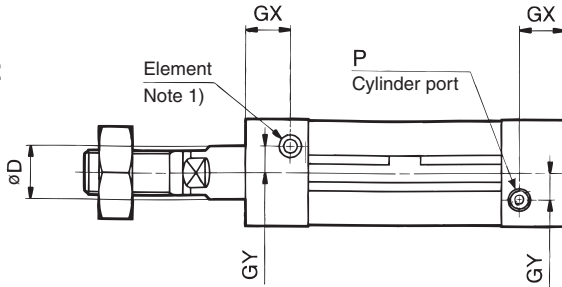
Basic Style

Spring return

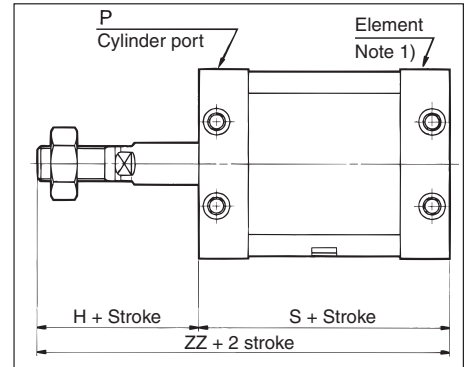
MUB40/50/63



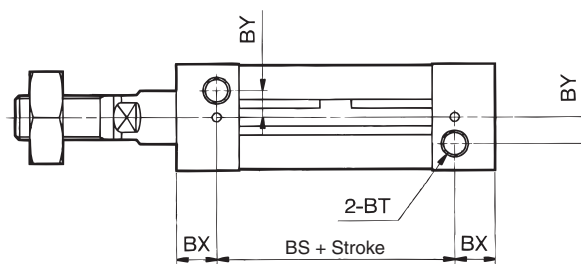
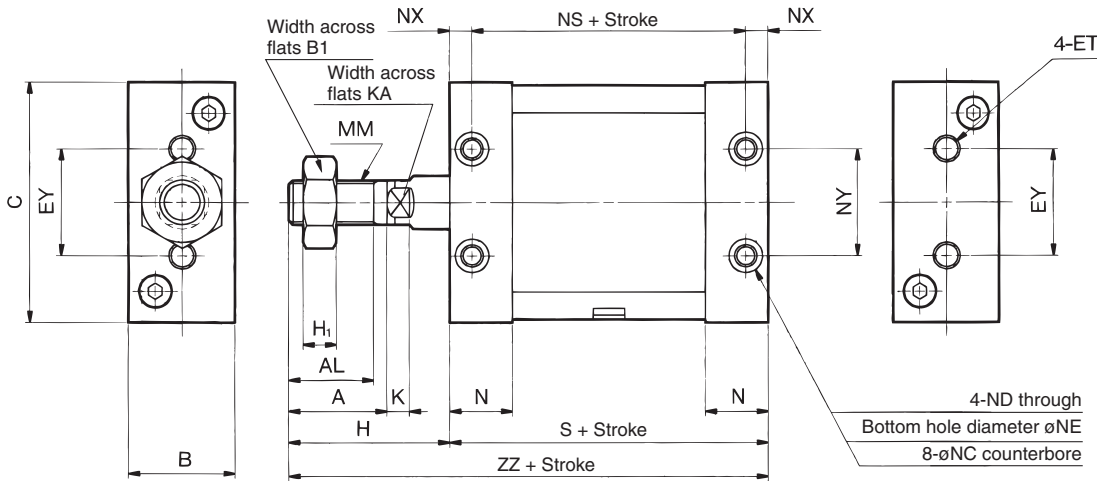
MUB25/32



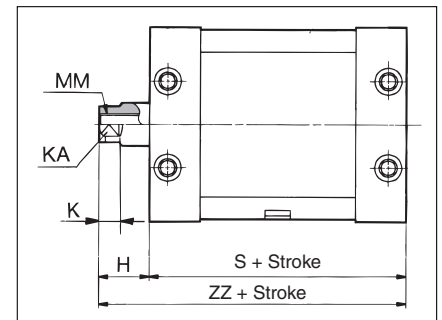
Spring Extend



Note) Plug with bleeding hole is used instead of element for MUB25.



Rod End Female Thread



* Dimensions except mentioned above are the same as male thread type.

(mm)

Model	Standard stroke (mm)	A	AL	B	B ₁	BS	BT	BX	BY	C	D	ET	EY	GX	GY	H	H ₁	K
MUB25	5, 10	22	19.5	24	17	42	M5 x 0.8 depth 7.5	9	7	54	12	M5 x 0.8 depth 11	26	10	5	36	6	5.5
MUB32	5, 10	26	23.5	28	19	50	M6 x 1 depth 12	6.5	8	68	14	M6 x 1 depth 11	42	8.5	5.5	40	7	5.5
MUB40	5, 10, 15, 20	30	27	32	22	54	M8 x 1.25 depth 13	8	9	86	16	M8 x 1.25 depth 11	54	9	7	45	8	6
MUB50	5, 10, 15, 20	35	32	39	27	64	M10 x 1.5 depth 14.5	10	9	104	20	M10 x 1.5 depth 15	64	11.5	8	53	11	7
MUB63	5, 10, 15, 20	35	32	50	27	63	M12 x 1.75 depth 18	11	12	124	20	M12 x 1.75 depth 15	72	11.5	10	56	11	7

(mm)

Model	KA	MM	N	NC	ND	NE	NS	NX	NY	P	S	ZZ
MUB25	10	M10 x 1.25	14	7.5 depth 4.5	M5 x 0.8	4.3	48	6	26	M5 x 0.8	60	96
MUB32	12	M12 x 1.25	15.5	9 depth 5.5	M6 x 1	5.1	50	6.5	28	Rc 1/8	63	103
MUB40	14	M14 x 1.5	16	10.5 depth 6.5	M8 x 1.25	6.9	54	8	36	Rc 1/8	70	115
MUB50	18	M18 x 1.5	21.5	13.5 depth 8.5	M10 x 1.5	8.7	64	10	42	Rc 1/4	84	137
MUB63	18	M18 x 1.5	21.5	17 depth 10.5	M12 x 1.75	10.5	63	11	46	Rc 1/4	85	141

Rod End Female Thread (mm)

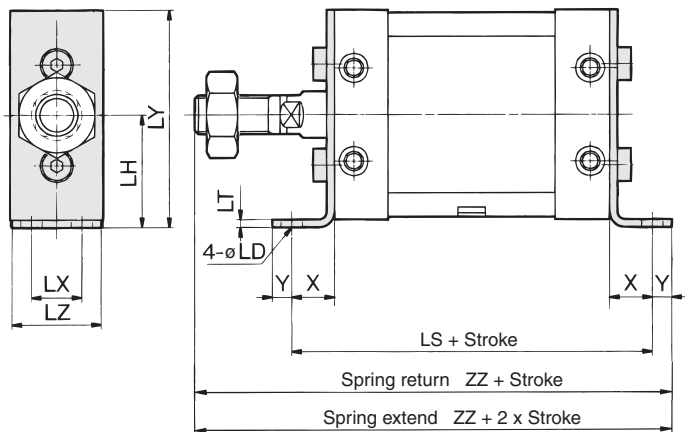
Model	H	MM	ZZ
MUB25	14	M6 x 1 depth 12	74
MUB32	14	M8 x 1.25 depth 13	77
MUB40	15	M8 x 1.25 depth 13	85
MUB50	18	M10 x 1.5 depth 15	102
MUB63	21	M10 x 1.5 depth 15	106

* The position of the four flats of the piston rod is ±3° in relation to the cylinder side surface.

Plate Cylinder Single Acting, Single Rod, Spring Return/Extend **Series MU**

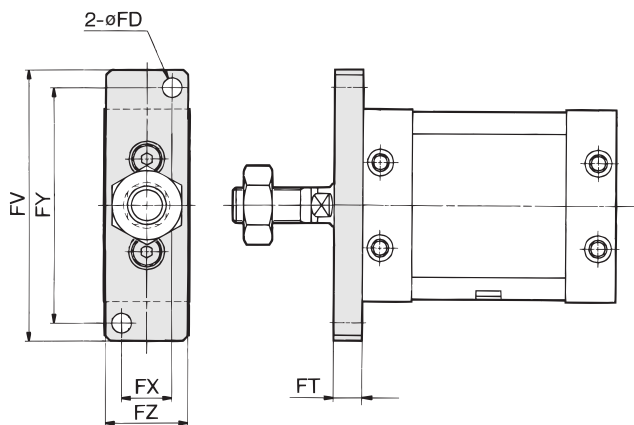
Dimensions of Each Mounting

Axial foot style

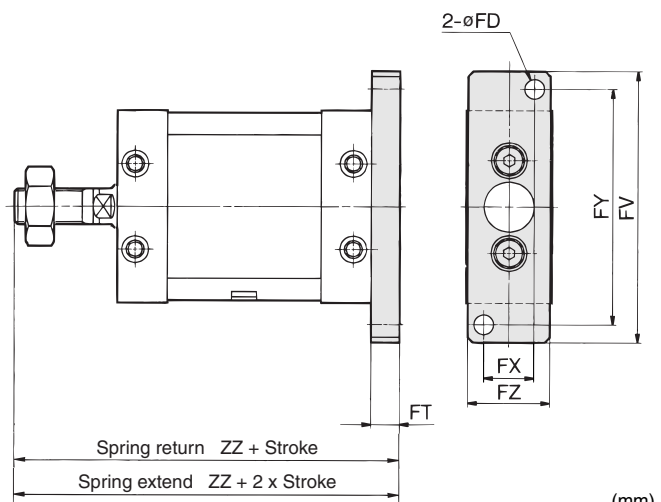


Model	LD	LH	LS	LT	LX	LY	LZ	X	Y	ZZ
MUL25	5.5	29	84	3.2	11	56	23	12	6	114
MUL32	6.6	37	95	4.5	12	71	27	16	8	127
MUL40	9	46	106	4.5	15	89	31	18	10	143
MUL50	11	57	126	5	18	109	37	21	11	169
MUL63	13.5	67	133	6	22	129	48	24	14	179

Rod side flange style



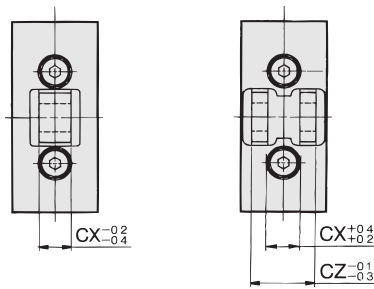
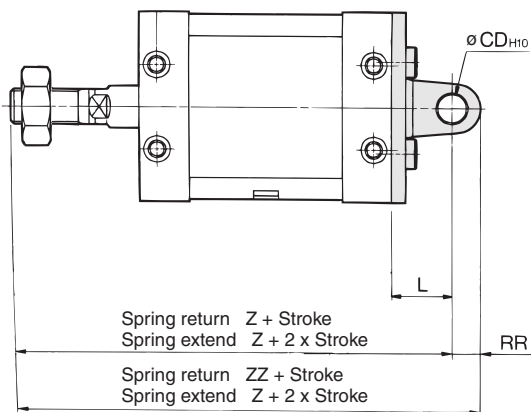
Head side flange style



Model	FD	FT	FV	FX	FY	FZ	ZZ
MUF25, MUG25	5.5	8	76	14	66	24	104
MUF32, MUG32	7	8	94	16	82	28	111
MUF40, MUG40	9	9	118	18	102	32	124
MUF50, MUG50	11	12	144	22	126	39	149
MUF63, MUG63	13	14	168	30	148	50	155

Single clevis style Double clevis style

Single clevis style Double clevis style



Model	CD _{H10}	CX	CZ	L	RR	Z	ZZ
MUC25, MUD25	$8^{+0.058}_0$	9	18	17	8	113	121
MUC32, MUD32	$10^{+0.058}_0$	11	22	22	10	125	135
MUC40, MUD40	$10^{+0.058}_0$	13	26	27	10	142	152
MUC50, MUD50	$14^{+0.070}_0$	16	32	32	14	169	183
MUC63, MUD63	$14^{+0.070}_0$	16	32	38	16	179	185

Clevis pin and snap ring are shipped together with double clevis style.

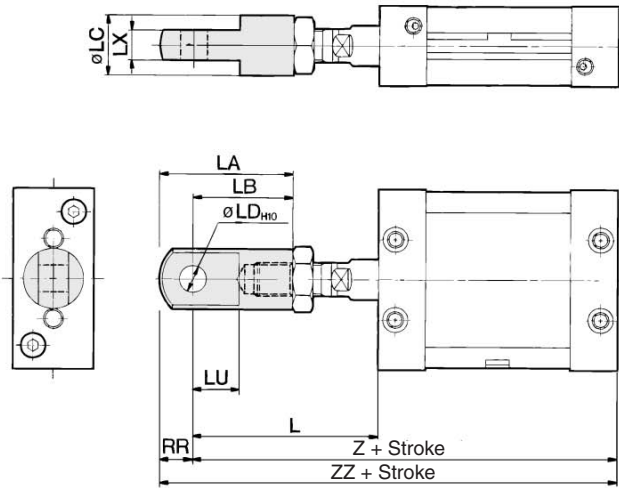
- CUJ
- CU
- CQS
- CQM
- CQ2
- RQ
- MU
- D-
- X
- 20-
- Data

Plate Cylinder

Series MU

Accessory Bracket Dimensions

Single Knuckle Joint

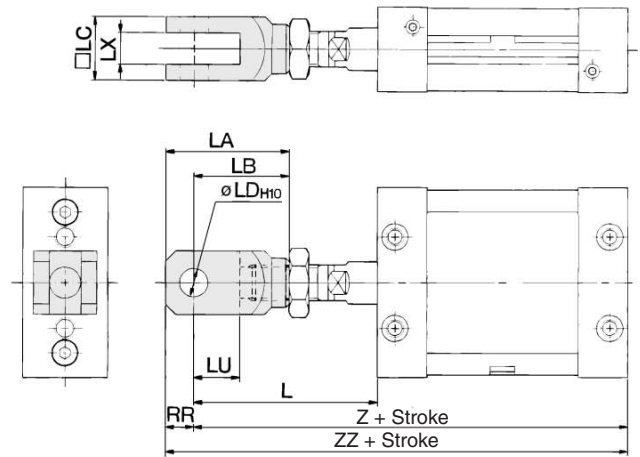


(mm)

Model	L	LA	LB	LC	LD	LU	LX	RR	Z	ZZ
MU□25	52.5	35.5	27	16	8 ^{+0.058} ₀	11	9 ^{-0.2} _{-0.4}	8.5	107.5	116
MU□32	59	41	31	18	10 ^{+0.058} ₀	14	11 ^{-0.2} _{-0.4}	10	117	127
MU□40	67	47	36	20	10 ^{+0.058} ₀	15	13 ^{-0.2} _{-0.4}	11	127	138
MU□50	81	62	46	28	14 ^{+0.070} ₀	20	16 ^{-0.2} _{-0.4}	16	155	171
MU□63	84	62	46	28	14 ^{+0.070} ₀	20	16 ^{-0.2} _{-0.4}	16	159	175

* Dimensions L, Z, and ZZ are reference dimensions for installing a single knuckle joint, which may be used as a guide.

Double Knuckle Joint

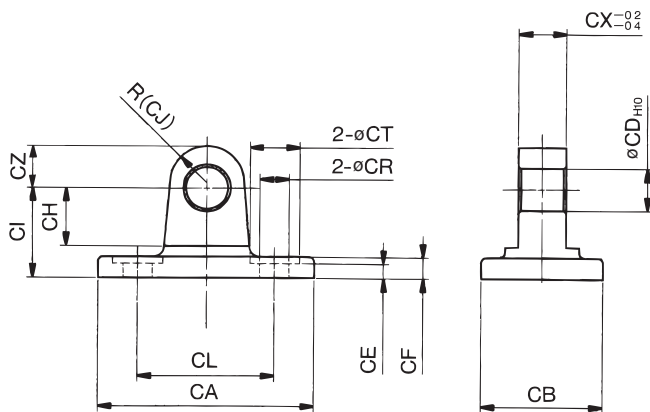


(mm)

Model	L	LA	LB	LC	LD	LU	LX	RR	Z	ZZ	Applicable pin
MU□25	52.5	35	27	18	8 ^{+0.058} ₀	13	9 ^{+0.2} _{+0.4}	8	107.5	115.5	CD-MU02
MU□32	59	41	31	22	10 ^{+0.058} ₀	14	11 ^{+0.2} _{+0.4}	10	117	127	CD-MU03
MU□40	67	46	36	26	10 ^{+0.058} ₀	17	13 ^{+0.2} _{+0.4}	10	127	137	CD-MU04
MU□50	81	62	46	32	14 ^{+0.070} ₀	23	16 ^{+0.2} _{+0.4}	16	155	171	CD-MU05
MU□63	84	62	46	32	14 ^{+0.070} ₀	23	16 ^{+0.2} _{+0.4}	16	159	175	CD-MU05

* Dimensions L, Z, and ZZ are reference dimensions for installing a double knuckle joint, which may be used as a guide.

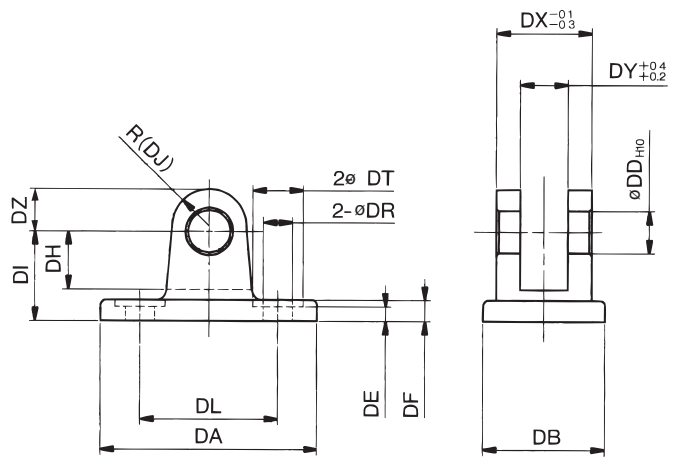
Single Clevis (Double clevis pivot bracket)



Part no.	Bore (mm)	CA	CB	CD _{H10}	CE	CF	CH	CI	CJ
MU-C02	25	53	23	8 ^{+0.058} ₀	3.5	4	11	17	7
MU-C03	32	67	27	10 ^{+0.058} ₀	3.5	7	13	22	10
MU-C04	40	85	31	10 ^{+0.058} ₀	3.5	10	13	27	10
MU-C05	50	103	37	14 ^{+0.070} ₀	5.5	12	17	32	14
MU-C06	63	122	48	14 ^{+0.070} ₀	6	14	19	38	16

Part no.	CL	CR	CT	CX	CZ
MU-C02	26	5.3	9.5	9	8
MU-C03	42	6.4	11	11	10
MU-C04	54	8.4	14	13	10
MU-C05	64	10.5	17	16	14
MU-C06	72	13	20	16	16

Double Clevis (Single clevis pivot bracket)



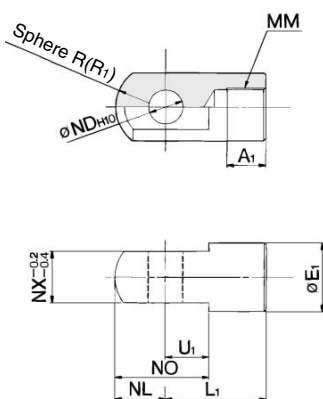
Part no.	Bore (mm)	DA	DB	DD _{H10}	DE	DF	DH	DI	DJ
MU-D02	25	53	23	8 ^{+0.058} ₀	3.5	4	11	17	7
MU-D03	32	67	27	10 ^{+0.058} ₀	3.5	7	13	22	10
MU-D04	40	85	31	10 ^{+0.058} ₀	3.5	10	13	27	10
MU-D05	50	103	37	14 ^{+0.070} ₀	5.5	12	17	32	14
MU-D06	63	122	48	14 ^{+0.070} ₀	6	14	19	38	16

Part no.	DL	DR	DT	DX	DY	DZ	Applicable pin
MU-D02	26	5.3	9.5	18	9	8	CD-MU02
MU-D03	42	6.4	11	22	11	10	CD-MU03
MU-D04	54	8.4	14	26	13	10	CD-MU04
MU-D05	64	10.5	17	32	16	14	CD-MU05
MU-D06	72	13	20	32	16	16	CD-MU05

Clevis pin and snap ring are attached with double clevis style.

Accessory Bracket Dimensions Series MU

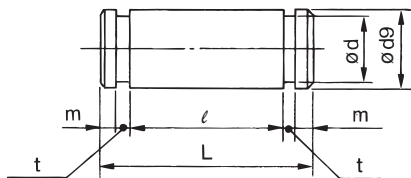
Single Knuckle Joint



Part no.	Bore size (mm)	A ₁	E ₁	L ₁	MM
I-MU02	25	10.5	16	27	M10 x 1.25
I-MU03	32	12	18	31	M12 x 1.25
I-MU04	40	14	20	36	M14 x 1.5
I-MU05	50, 63	18	28	46	M18 x 1.5

Part no.	ND _{H10}	NL	NO	NX	R ₁	U ₁
I-MU02	8 ^{+0.058} ₀	8.5	19.5	9	8.5	11
I-MU03	10 ^{+0.058} ₀	10	24	11	10	14
I-MU04	10 ^{+0.058} ₀	11	26	13	11	15
I-MU05	14 ^{+0.070} ₀	16	36	16	16	20

Clevis Pin, Knuckle Pin

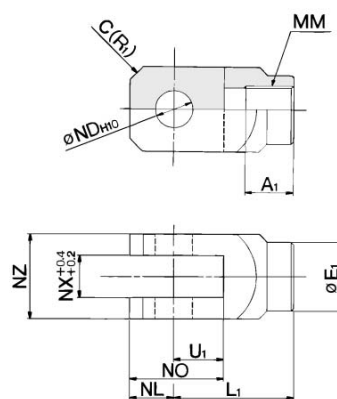


Part no.	Bore size (mm)	Dd9	L	d	ℓ
CD-MU02	25	8 ^{-0.040} _{-0.076}	23	7.6	18.2
CD-MU03	32	10 ^{-0.040} _{-0.076}	27	9.6	22.2
CD-MU04	40	10 ^{-0.040} _{-0.076}	31	9.6	26.2
CD-MU05	50, 63	14 ^{-0.050} _{-0.093}	38	13.4	32.2

Part no.	m	t	Snap ring
CD-MU02	1.5	0.9	Type C 8 for axis
CD-MU03	1.25	1.15	Type C 10 for axis
CD-MU04	1.25	1.15	Type C 10 for axis
CD-MU05	1.75	1.15	Type C 14 for axis

* These are provided as standard for double clevis and double knuckle joint.

Double Knuckle Joint

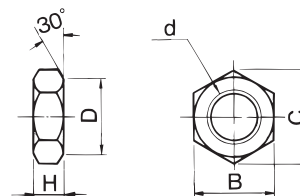


Part no.	Bore size (mm)	A ₁	E ₁	L ₁	MM	ND _{H10}
Y-MU02	25	10.5	14	27	M10 x 1.25	8 ^{+0.058} ₀
Y-MU03	32	12	18	31	M12 x 1.25	10 ^{+0.058} ₀
Y-MU04	40	14	20	36	M14 x 1.5	10 ^{+0.058} ₀
Y-MU05	50, 63	18	28	46	M18 x 1.5	14 ^{+0.070} ₀

Part no.	NL	NO	NX	NZ	R ₁	U ₁	Applicable pin
Y-MU02	8	21	9	18	3	13	CD-MU02
Y-MU03	10	24	11	22	4	14	CD-MU03
Y-MU04	10	27	13	26	5	17	CD-MU04
Y-MU05	16	39	16	32	6	23	CD-MU05

* Knuckle pin and snap ring are included.

Rod End Nut



Part no.	Bore size (mm)	d	H	B	C	D
NT-03	25	M10 x 1.25	6	17	19.6	16.5
NT-MU03	32	M12 x 1.25	7	19	21.9	18
NT-04	40	M14 x 1.5	8	22	25.4	21
NT-05	50, 63	M18 x 1.5	11	27	31.2	26

* A nut is attached with rod end male thread as standard. (Double rod type: 2 pcs.)

CUJ

CU

CQS

CQM

CQ2

RQ

MU

D-

-X

20-

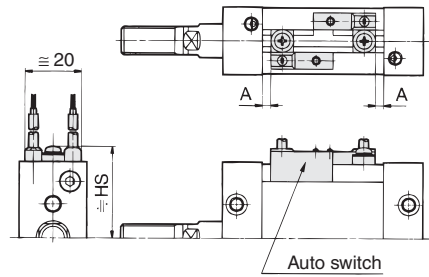
Data

Series MDU

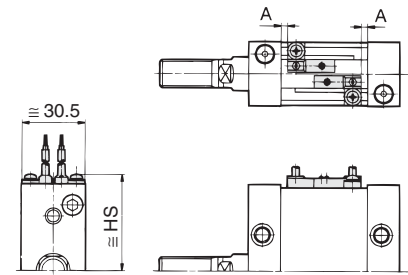
Proper Auto Switch Mounting Position (Detection at stroke end) and Its Mounting Height

D-A7, D-A8

ø25, ø32

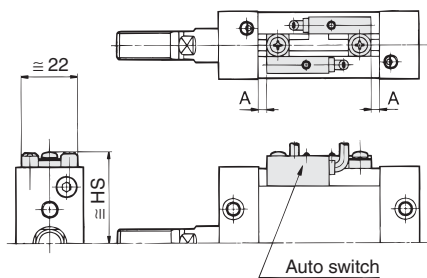


ø40, ø50, ø63

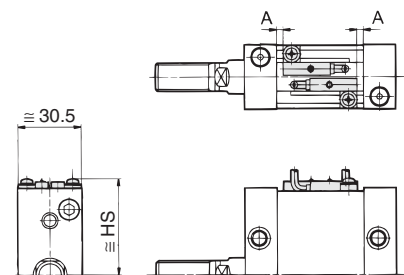


D-A7□H, D-A80H
D-F7□, D-J79
D-F7□W, D-J79W
D-F79F, D-FBAL
D-F7NTL

ø25, ø32

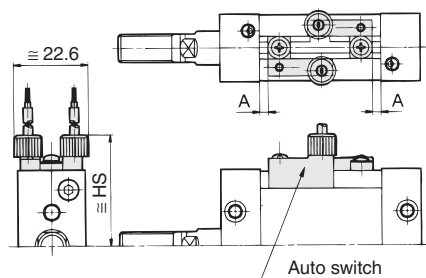


ø40, ø50, ø63

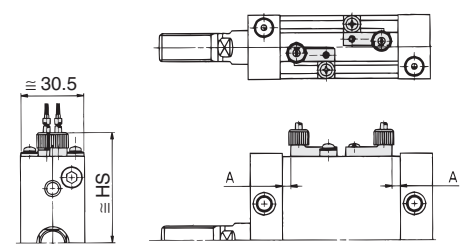


Connector style
D-A73C, D-A80C, D-J79C

ø25, ø32

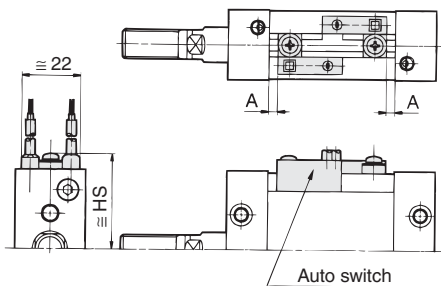


ø40, ø50, ø63

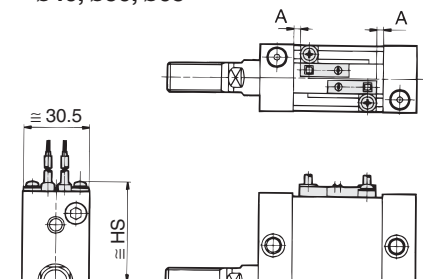


D-A79W, D-F7□WV, D-F7□V
D-F7BAVL

ø25, ø32

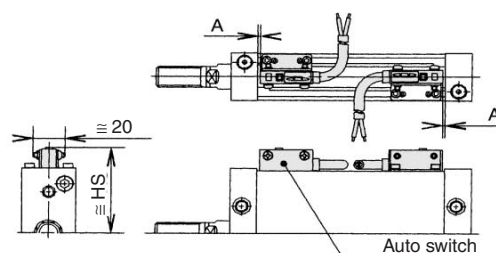


ø40, ø50, ø63



D-P5DWL

ø40, ø50, ø63



Proper Auto Switch Mounting Position (Detection at stroke end) and Its Mounting Height**Proper Auto Switch Mounting Position**

Auto switch model	Equivalent bore size (mm)					
	D-A7□ D-A80	D-A7□H D-A80H D-F7□ D-F7□V D-J79 D-F7□W D-F7□WV D-J79W D-F7BAL D-F7BAVL D-F79F	D-A73C D-A80C D-J79C	D-A79W	D-F7NTL	D-P5DWL
	A	A	A	A	A	A
25	4.5 (7)	5 (7.5)	5 (7.5)	2 (4.5)	10 (12.5)	—
32	4.5 (7)	5 (7.5)	5 (7.5)	2 (4.5)	10 (12.5)	—
40	5 (10)	5.5 (10.5)	0 (4)	2.5 (7.5)	10.5 (15.5)	0.5 (5.5)
50	6.5 (11.5)	7 (12)	1 (6)	4 (9)	12 (17)	2 (7)
63	7 (12)	7.5 (12.5)	1.5 (6.5)	4.5 (9.5)	12.5 (17.5)	2.5 (7.5)

Note) (): Denotes the value of single acting. (Spring return/Spring extend)

Operating Range

Auto switch model	Bore size (mm)				
	25	32	40	50	63
D-A7□/A80 D-A7H/A80H D-A73C/A80C	13	13	13	13	13
D-A79W	13	13	14	14	14
D-F7□/J79 D-F7□V/J79C D-F7□W/F71WV D-J79W/F7NTL D-F7BAL/F7BAVL D-F79F	6.5	7	6.5	6.5	6.5
D-P5DWL	—	—	5	5	5

* Since this is a guideline including hysteresis, not meant to be guaranteed.

(Assuming approximately ±30% dispersion.)

There may be the case it will vary substantially depending on an ambient environment.

Auto Switch Mounting Height

D-A7□ D-A80	D-A7□H D-80H D-F7□ D-J79 F-F7□W D-79W D-F7NTL D-F79F D-F7BAL	D-A73C D-A80C	D-F7□V D-F7□WV D-F7BAVL	D-J79C	D-A79W	D-P5DWL
Hs	Hs	Hs	Hs	Hs	Hs	Hs
32	33	39	35.5	37.5	34.5	—
39	40	46	42.5	44.5	41.5	—
47	48	54	50.5	52.5	49.5	56.5
56	57	63	59.5	61.5	58.5	66
66	67	73	69.5	71.5	68.5	76

Minimum Stroke for Auto Switch Mounting

(mm)

No. of auto switches mounted	D-F7□V D-J79C	D-A7□ D-A80 D-A73C D-A80C	D-F7□WV D-F7BAVL	D-A7□H, D-A80H D-A79W D-F7□, D-J79 D-F7□W, D-J79W D-F7BAL, D-F7NTL D-F79F	D-P5DWL *	
					Different sides	Same side
2	5	10	15	15	20	75
1	5	5	10	15	20	

* Mountable only for equivalent bore sizes 40, 50, 63.

Other than the applicable auto switches listed in "How to Order", the following auto switches can be mounted. For detailed specifications, refer to page 7-9-1.

Type	Model	Electrical entry (Fetching direction)	Features	Applicable bore size (mm)
Reed switch	D-A80	Grommet (Perpendicular)	Without indicator light	25 to 63
	D-A80H	Grommet (In-line)		
	D-A80C	Connector (Perpendicular)		
Solid state switch	D-F7NTL	Grommet (In-line)	With timer	

* With pre-wire connector is available for D-F7NTL type, too. For details, refer to page 7-9-36.

CUJ

CU

CQS

CQM

CQ2

RQ

MU

D-

-X

20-

Data