

# Plate Cylinder: Single Acting, Spring Return/Extend

## MU Series

ø25, ø32, ø40, ø50, ø63

RoHS

### How to Order

**MU B 25 - 10 S M Z**

**With auto switch MDU B 25 - 10 S M Z - M9BW S**

**With auto switch** (Built-in magnet)

**Mounting**

<b>B</b>	Basic
<b>L</b>	Foot
<b>F</b>	Rod flange
<b>G</b>	Head flange
<b>C</b>	Single clevis
<b>D</b>	Double clevis

\* Brackets are shipped together, (but not assembled).

**Size**

<b>25</b>	Equip. ø25 piston area
<b>32</b>	Equip. ø32 piston area
<b>40</b>	Equip. ø40 piston area
<b>50</b>	Equip. ø50 piston area
<b>63</b>	Equip. ø63 piston area

**Port thread type**

<b>Nil</b>	M thread	ø25
	Fc	ø32, ø40
<b>TN</b>	NPT	ø50, ø63
<b>TF</b>	G	

**Number of auto switches**

<b>Nil</b>	2 pcs.
<b>S</b>	1 pc.
<b>n</b>	"n" pcs.

**Auto switch**

<b>Nil</b>	Without auto switch
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\* Refer to the below table for applicable auto switch models.

**Rod end configuration**

<b>Nil</b>	Rod end female thread
<b>M</b>	Rod end male thread

**Action**

<b>S</b>	Single acting, Spring return
<b>T</b>	Single acting, Spring extend

**Built-in Magnet Cylinder Model**

If a built-in magnet cylinder without an auto switch is required, there is no need to enter the symbol for the auto switch. (Example) MDUL32-10TZ

**Cylinder standard stroke (mm)**

<b>ø25, ø32</b>	5, 10
<b>ø40, ø50, ø63</b>	5, 10, 15, 20

### Applicable Auto Switches

Refer to pages 1575 to 1701 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage		Auto switch model		Lead wire length (m)			Pre-wired connector	Applicable load	
					DC	AC	Perpendicular	In-line	0.5 (Nil)	1 (M)	3 (L)			5 (Z)
Solid state auto switch	—	Grommet	Yes	3-wire (NPN)	5 V, 12 V	—	<b>M9NV</b>	<b>M9N</b>	●	●	●	○	IC circuit	
				3-wire (PNP)			<b>M9PV</b>	<b>M9P</b>	●	●	●	○		
				2-wire	12 V		<b>M9BV</b>	<b>M9B</b>	●	●	●	○		—
				3-wire (NPN)			<b>M9NVW</b>	<b>M9NW</b>	●	●	●	○		
	Diagnostic indication (2-color indicator)			2-wire	5 V, 12 V		<b>M9PWW</b>	<b>M9PW</b>	●	●	●	○	IC circuit	
							<b>M9BWW</b>	<b>M9BW</b>	●	●	●	○		
	Water resistant (2-color indicator)			3-wire (NPN)	5 V, 12 V		<b>M9NAV</b> *1	<b>M9NA</b> *1	○	○	●	○	IC circuit	
							<b>M9PAV</b> *1	<b>M9PA</b> *1	○	○	●	○		
	Magnetic field resistant (2-color indicator)	2-wire (Non-polar)	—	<b>M9BAV</b> *1	<b>M9BA</b> *1	○	○	●	○	—				
				—	<b>P3DWA</b> (Note 2)	●	—	●	●					
Reed auto switch	—	Grommet	Yes	3-wire (NPN equivalent)	5 V	—	<b>A96V</b>	<b>A96</b>	●	—	—	—	IC circuit	
				2-wire			24 V	12 V	<b>A93V</b> *2	<b>A93</b>	●	●		●
				None	100 V or less				<b>A90V</b>	<b>A90</b>	●	—	—	—

\*1 Water resistant type auto switches can be mounted on the above models, but in such case SMC cannot guarantee water resistance.

Consult with SMC regarding water resistant types with the above model numbers.

\*2 1 m type lead wire is only applicable to D-A93.

\* Lead wire length symbols: 0.5 m ..... Nil (Example) M9NW  
1 m ..... M (Example) M9NWM  
3 m ..... L (Example) M9NWL  
5 m ..... Z (Example) M9NWX

\* Solid state auto switches marked with "○" are produced upon receipt of order.

\* For details about auto switches with pre-wired connector, refer to pages 1648 and 1649.

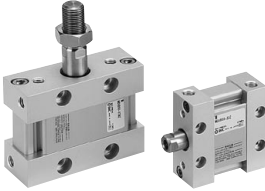
\* Auto switches are shipped together, (but not assembled).

Note 1) The D-M9□V/M9□WV/M9□AV/A9□V auto switches cannot be mounted on the ported surface with some cylinder strokes and sizes of fittings. This should be checked beforehand.

Note 2) The magnetic field resistant auto switch (D-P3DWA□) is available the current MU series. Refer to page 1058 for the how-to-order.

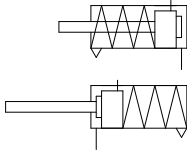
## Specifications

Bore size (mm)	25	32	40	50	63
<b>Action</b>	Single acting, Spring return/Spring extend				
<b>Fluid</b>	Air				
<b>Proof pressure</b>	1.05 MPa				
<b>Maximum operating pressure</b>	0.7 MPa				
<b>Minimum operating pressure</b>	0.18 MPa				
<b>Ambient and fluid temperature</b>	-10 to 60°C				
<b>Lubrication</b>	Not required (Non-lube)				
<b>Piston speed</b>	50 to 500 mm/s				
<b>Stroke length tolerance</b>	+1.4 0				
<b>Cushion</b>	Rubber bumper				
<b>Mounting</b>	Foot, Rod flange, Head flange, Single clevis, Double clevis				
<b>Allowable rotational torque</b>	0.25 N·m		0.55 N·m	1.25 N·m	2.0 N·m
<b>Rod non-rotating accuracy</b>	±1°	±0.8°	±0.5°		



## Symbol

Rubber bumper (Oval piston)



## Standard Stroke

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

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

## Mounting Bracket/Part No.

Mounting bracket	Size				
	25	32	40	50	63
Foot <small>Note 1)</small>	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 <small>Note 3)</small>	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/Flange/Single clevis: Body mounting bolt

Double clevis: Clevis pin, Type C retaining ring for axis, Body mounting bolt

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

Note 4) The tightening torque for body mounting bolts is shown in the below table.

Note 5) The application of a locking agent (Example: Loctite 242) to body mounting bolts is recommended.

## Recommended Tightening Torque for Mounting Bracket on Body

Bore size	Thread size	Tightening torque (N·m)
<b>MU25</b>	M5 x 0.8	4.9 to 5.9
<b>MU32</b>	M6 x 1	8.28 to 10.12
<b>MU40</b>	M8 x 1.25	19.8 to 24.2
<b>MU50</b>	M10 x 1.5	39.6 to 48.4
<b>MU63</b>	M12 x 1.75	68.4 to 83.6

## Accessory (Option)

For details about the single knuckle joint, double knuckle joint, clevis pin, and knuckle pin, refer to pages 1054 and 1055.

CJ

CU

CQS

JCQ

CQ2

RQ

CQM

CQU

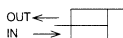
MU

D-□

-X□

Technical  
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## Theoretical Output



(N)

Action	Size	Rod size (mm)	Operating direction	Piston area (mm <sup>2</sup> )	Operating pressure (MPa)						Spring reaction force	
					0.2	0.3	0.4	0.5	0.6	0.7	Secondary	Primary
Spring return	<b>25</b>	<b>12</b>	OUT	491	68	117	166	216	265	314	30	15
	<b>32</b>	<b>14</b>	OUT	804	119	199	280	360	440	521	42	24
	<b>40</b>	<b>16</b>	OUT	1257	195	321	447	573	698	824	56	30
	<b>50</b>	<b>20</b>	OUT	1963	346	542	738	935	1131	1327	76	47
	<b>63</b>	<b>20</b>	OUT	3117	510	822	1134	1446	1757	2069	113	61
Spring extend	<b>25</b>	<b>12</b>	IN	378	46	83	121	159	197	235	30	15
	<b>32</b>	<b>14</b>	IN	650	88	153	218	283	348	413	42	24
	<b>40</b>	<b>16</b>	IN	1056	155	261	366	472	578	683	56	30
	<b>50</b>	<b>20</b>	IN	1649	283	448	613	777	942	1107	76	47
	<b>63</b>	<b>20</b>	IN	2803	448	728	1008	1289	1569	1849	113	61

Note) Theoretical output (N) = Pressure (MPa) x Piston area (mm<sup>2</sup>)

## Weight

(kg)

Size		25	32	40	50	63
Basic weight	5 stroke	0.21	0.26	0.55	1.02	1.51
	10 stroke	0.22	0.34	0.58	1.05	1.56
	15 stroke	—	—	0.60	1.08	1.60
	20 stroke	—	—	0.62	1.12	1.65
Mounting bracket weight	Foot	0.07	0.14	0.21	0.34	0.63
	Flange/Rod end, Head end	0.10	0.14	0.23	0.46	0.83
	Single clevis	0.06	0.12	0.22	0.40	0.68
	Double clevis (With pin)	0.07	0.16	0.26	0.47	0.76
Accessory bracket weight	Single clevis (Double clevis pivot bracket)	0.06	0.12	0.22	0.40	0.68
	Double clevis (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

## Additional Weight

(g)

Bore size (mm)		25	32	40	50	63
Rod end male thread	Male thread	12	23	27	53	53
	Nut	8	10	17	32	32

Note) Weight of single clevis and double clevis includes 2 bolts for mounting bracket.

Calculation:

(Example 1) **MUB40-15S(T)Z**

- Basic weight ..... 0.60 kg

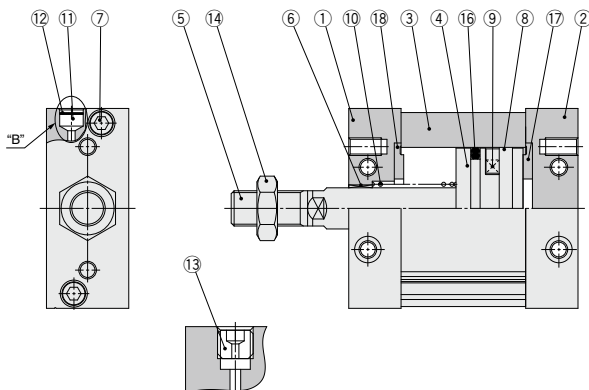
(Example 2) **MUC50-5S(T)Z**

- Basic weight ..... 1.02
- Mounting bracket weight ..... 0.40

$$1.02 + 0.40 = 1.42 \text{ kg}$$

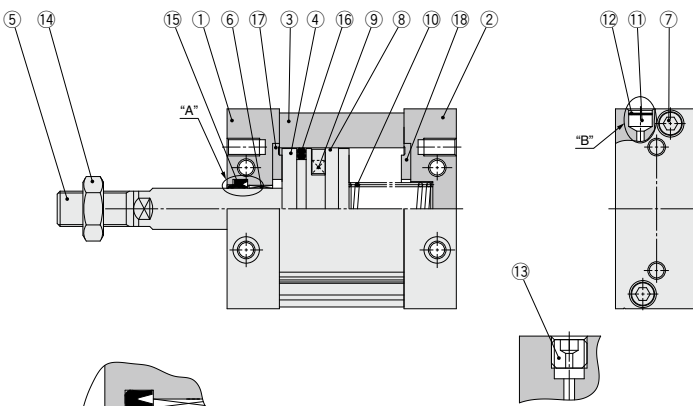
## Construction

### 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	Bearing alloy	
7	Hexagon socket head cap screw	Stainless steel	
8	Wear ring	Resin	
9	Magnet	—	Only built-in magnet type
10	Return spring	Steel wire	Zinc chromated
11	Element	Bronze	
12	Retaining ring	Spring steel	
13	Plug	Chromium molybdenum steel	
14	Rod end nut	Rolled steel	Only attached to rod end male thread
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	For spring return type: 15, 17, 18 as a set For spring extend type: 15, 16, 17, 18 as a set
32	MU32S-PS	MU32T-PS	
40	MU40S-PS	MU40T-PS	
50	MU50S-PS	MU50T-PS	
63	MU63S-PS	MU63T-PS	

\* Seal kit includes 15, 16, 17, 18 (excluding 15 for spring return type). Order them with a part number for each bore size.

\* Since the seal kit does not include a grease pack, order it separately.

**Grease pack part no.:** GR-S-010 (10 g)

CUJ

CU

CQS

JCQ

CQ2

RQ

CQM

CQU

MU

D-□

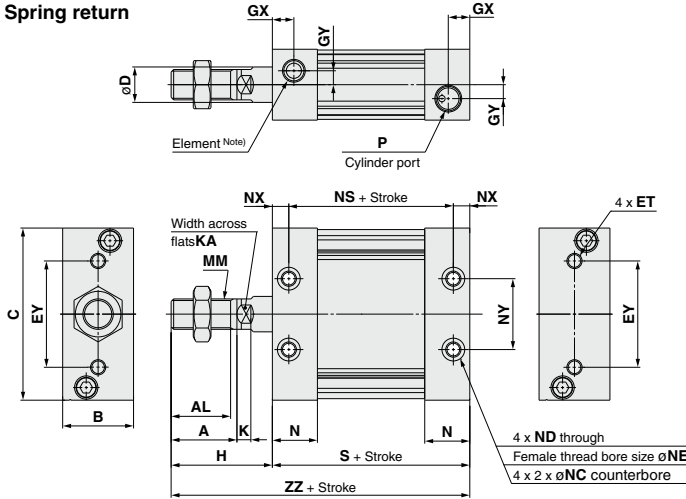
-X□

Technical Data

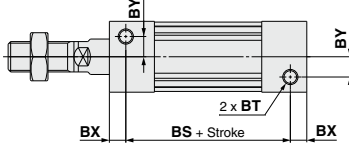
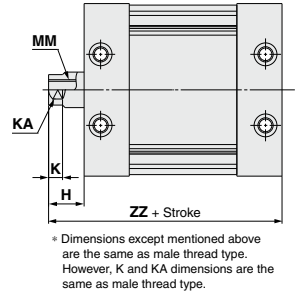
# MU Series

## Basic

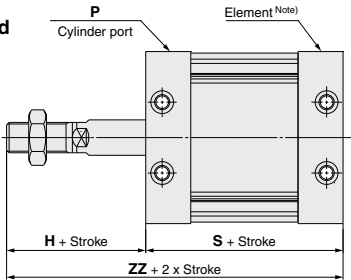
### Spring return



### Rod end female thread

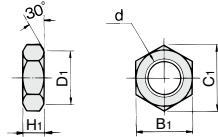


### Spring extend



(Note) Plugged for the MUB25

### Rod end nut



Part no.	Size	d	H <sub>1</sub>	B <sub>1</sub>	C <sub>1</sub>	D <sub>1</sub>
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 to the rod end nut material: Carbon steel  
Surface treatment: Chromated

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

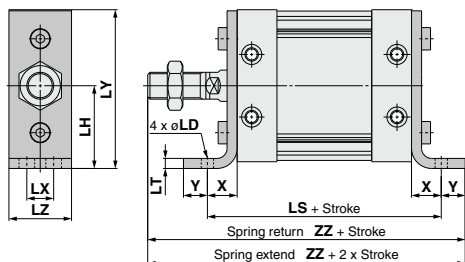
Model	MM	N	NC	ND	NE	NS	NX	NY	P			S	ZZ
									TN	TF	TF		
MUB25	M10 x 1.25	16.5	7.5 depth 4.5	M5 x 0.8	4.3	48	6	26	M5 x 0.8	—	—	60	96
MUB32	M12 x 1.25	18	9 depth 5.5	M6 x 1	5.1	50	6.5	28	Rc1/8	NPT1/8	G1/8	63	103
MUB40	M14 x 1.5	18.5	10.5 depth 6.5	M8 x 1.25	6.9	54	8	36	Rc1/8	NPT1/8	G1/8	70	115
MUB50	M18 x 1.5	24	13.5 depth 8.5	M10 x 1.5	8.7	64	10	42	Rc1/4	NPT1/4	G1/4	84	137
MUB63	M18 x 1.5	24	17 depth 10.5	M12 x 1.75	10.5	63	11	46	Rc1/4	NPT1/4	G1/4	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 4 flats of the piston rod is  $\pm 3^\circ$  in relation to the cylinder side surface.

**Dimensions with Mounting Bracket**

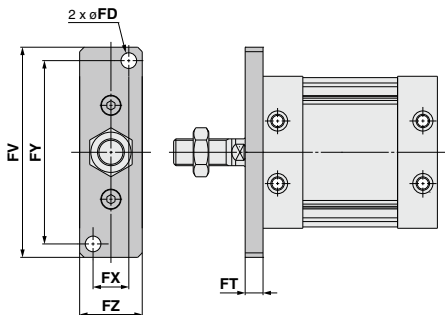
**Foot**



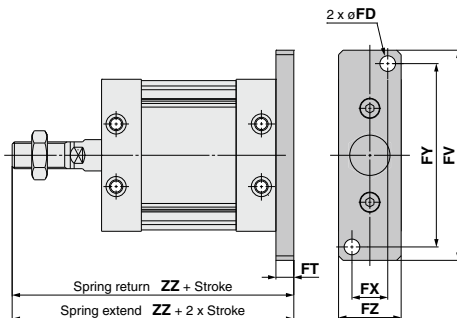
Model	LD	LH	LS	LT	LX	LY	LZ	X	Y	ZZ
MUL25	5.5	29	84	3.2	11	56	23	12	6	114
MUL32	6.6	37	95	4.5	12	71	27	16	8	127
MUL40	9	46	106	4.5	15	89	31	18	10	143
MUL50	11	57	126	5	18	109	37	21	11	169
MUL63	13.5	67	133	6	22	129	48	24	14	179

Foot bracket material: Rolled steel  
Surface treatment: Nickel plated

**Rod flange**



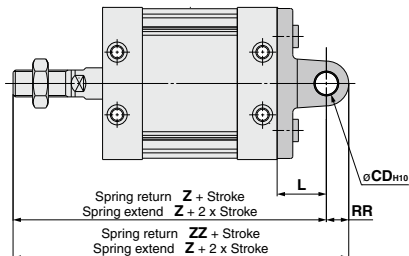
**Head flange**



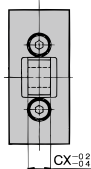
Model	FD	FT	FV	FX	FY	FZ	ZZ
MUF25, MUG25	5.5	8	76	14	66	24	104
MUF32, MUG32	7	8	94	16	82	28	111
MUF40, MUG40	9	9	118	18	102	32	124
MUF50, MUG50	11	12	144	22	126	39	149
MUF63, MUG63	13	14	168	30	148	50	155

Flange bracket material: Carbon steel  
Surface treatment: Nickel plated

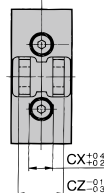
**Single clevis  
Double clevis**



**Single clevis**



**Double clevis**



Model	CDH10	CX	CZ	L	RR	Z	ZZ
MUC25, MUD25	8 <sup>+0.058</sup> / <sub>0</sub>	9	18	17	8	113	121
MUC32, MUD32	10 <sup>+0.058</sup> / <sub>0</sub>	11	22	22	10	125	135
MUC40, MUD40	10 <sup>+0.058</sup> / <sub>0</sub>	13	26	27	10	142	152
MUC50, MUD50	14 <sup>+0.070</sup> / <sub>0</sub>	16	32	32	14	169	183
MUC63, MUD63	14 <sup>+0.070</sup> / <sub>0</sub>	16	32	38	16	179	185

Clevis pin and retaining ring are shipped together with double clevis.

Single/Double clevis material: Cast iron  
Surface treatment: Painted

- CJ
- CU
- CQS
- JCQ
- CQ2
- RQ
- CQM
- CQU
- MU

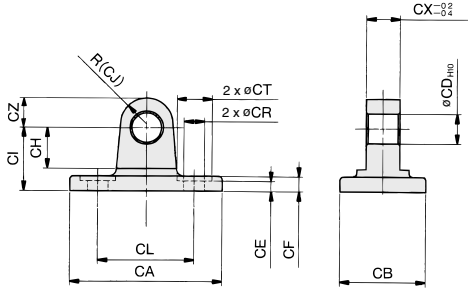
- D-□
- X□

Technical Data

# MU Series

# Accessory Bracket Dimensions

## Single Clevis (Double clevis pivot bracket)



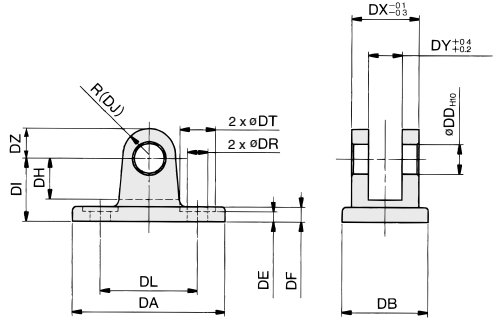
(mm)

Part no.	Size	CA	CB	CDH10	CE	CF	CH	CI	CJ
MU-C02	25	53	23	8 <sup>+0.058</sup> <sub>0</sub>	3.5	4	11	17	7
MU-C03	32	67	27	10 <sup>+0.058</sup> <sub>0</sub>	3.5	7	13	22	10
MU-C04	40	85	31	10 <sup>+0.058</sup> <sub>0</sub>	3.5	10	13	27	10
MU-C05	50	103	37	14 <sup>+0.070</sup> <sub>0</sub>	5.5	12	17	32	14
MU-C06	63	122	48	14 <sup>+0.070</sup> <sub>0</sub>	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

Material: Cast iron  
Surface treatment: Painted

## Double Clevis (Single clevis pivot bracket)



(mm)

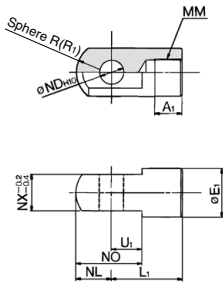
Part no.	Size	DA	DB	DDH10	DE	DF	DH	DI	DJ
MU-D02	25	53	23	8 <sup>+0.058</sup> <sub>0</sub>	3.5	4	11	17	7
MU-D03	32	67	27	10 <sup>+0.058</sup> <sub>0</sub>	3.5	7	13	22	10
MU-D04	40	85	31	10 <sup>+0.058</sup> <sub>0</sub>	3.5	10	13	27	10
MU-D05	50	103	37	14 <sup>+0.070</sup> <sub>0</sub>	5.5	12	17	32	14
MU-D06	63	122	48	14 <sup>+0.070</sup> <sub>0</sub>	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

Material: Cast iron  
Surface treatment: Painted

Clevis pin and retaining ring are attached to double clevis.

## Single Knuckle Joint



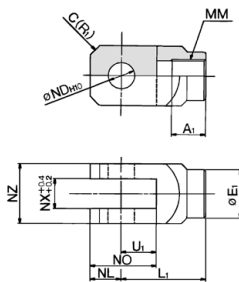
(mm)

Part no.	Size	A1	E1	L1	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.	NDH10	NL	NO	NX	R1	U1
I-MU02	8 <sup>+0.058</sup> <sub>0</sub>	8.5	19.5	9	8.5	11
I-MU03	10 <sup>+0.058</sup> <sub>0</sub>	10	24	11	10	14
I-MU04	10 <sup>+0.058</sup> <sub>0</sub>	11	26	13	11	15
I-MU05	14 <sup>+0.070</sup> <sub>0</sub>	16	36	16	16	20

Material: Rolled steel  
Surface treatment: Nickel plated

## Double Knuckle Joint



(mm)

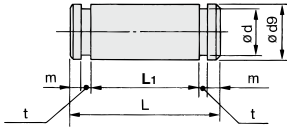
Part no.	Size	A1	E1	L1	MM	NDH10
Y-MU02	25	10.5	14	27	M10 x 1.25	8 <sup>+0.058</sup> <sub>0</sub>
Y-MU03	32	12	18	31	M12 x 1.25	10 <sup>+0.058</sup> <sub>0</sub>
Y-MU04	40	14	20	36	M14 x 1.5	10 <sup>+0.058</sup> <sub>0</sub>
Y-MU05	50, 63	18	28	46	M18 x 1.5	14 <sup>+0.070</sup> <sub>0</sub>

Part no.	NL	NO	NX	NZ	R1	U1	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 retaining ring are included.

Material: Rolled steel  
Surface treatment: Chromated

### Clevis Pin/Knuckle Pin



(mm)

Part no.	Size	Dd9	L	d	L1	m	t	Retaining ring
<b>CD-MU02</b>	25	8 <sup>-0.040</sup> <sub>-0.078</sub>	23	7.6	18.2	1.5	0.9	Type C8 for axis
<b>CD-MU03</b>	32	10 <sup>-0.040</sup> <sub>-0.078</sub>	27	9.6	22.2	1.25	1.15	Type C10 for axis
<b>CD-MU04</b>	40	10 <sup>-0.040</sup> <sub>-0.078</sub>	31	9.6	26.2	1.25	1.15	Type C10 for axis
<b>CD-MU05</b>	50, 63	14 <sup>-0.060</sup> <sub>-0.098</sub>	38	13.4	32.2	1.75	1.15	Type C14 for axis

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

Material: Carbon steel

\*\* Type C retaining rings for axis are attached.

**CUJ**

**CU**

**CQS**

**JCQ**

**CQ2**

**RQ**

**CQM**

**CQU**

**MU**

**D-□**

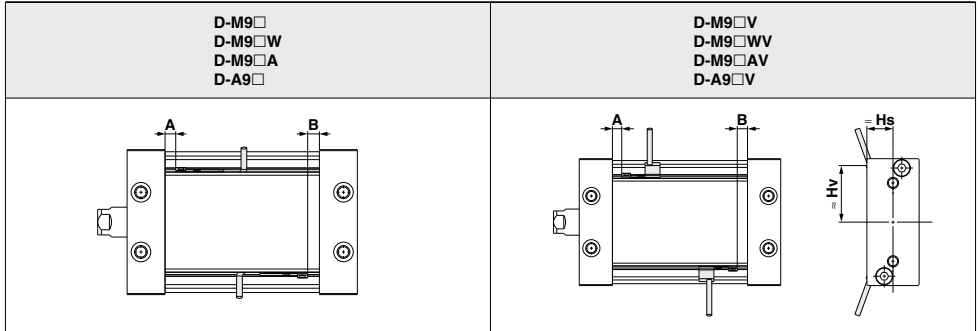
**-X□**

Technical  
Data



# Auto Switch Mounting 1

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



Size	D-M9□ D-M9□W D-M9□A		D-M9□V D-M9□WV D-M9□AV				D-A9□		D-A9□V			
	A	B	A	B	Hs	Hv	A	B	A	B	Hs	Hv
25	5	5	5	5	7.5	27.5	1	1	1	1	—	—
32	5	5	5	5	14.5	30	1	1	1	1	—	—
40	5.5	5.5	5.5	5.5	16.5	37	1.5	1.5	1.5	1.5	—	—
50	7	7	7	7	—	—	3	3	3	3	—	—
63	7.5	7.5	7.5	7.5	—	—	3.5	3.5	3.5	3.5	—	—

Note) Adjust the auto switch after confirming the operating conditions in the actual setting.

## Minimum Stroke for Auto Switch Mounting

Number of auto switches mounted	D-M9□ D-M9□W D-M9□A D-A9□	D-M9□V	D-M9□WV D-M9□AV	D-A9□V
1	10	5	10	5
2	10	5	10	10

Note) Consult SMC for shorter stroke length than indicated in the table.

## Operating Range

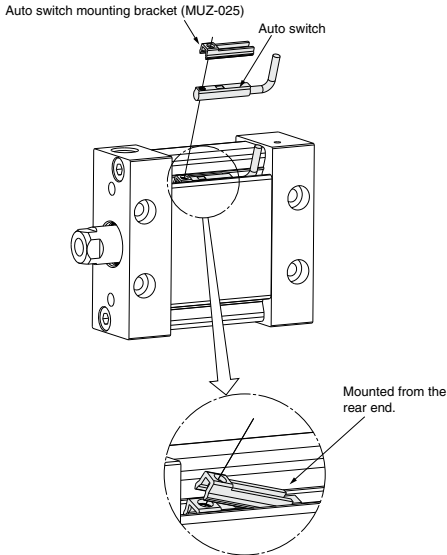
Auto switch model	Size				
	25	32	40	50	63
D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV	5.5	5.5	5.5	5	5
D-A9□/A9□V	7.5	8	8	7	6.5

\* Since the operating range is provided as a guideline including hysteresis, it cannot be guaranteed. (assuming approx. ±30% dispersion)  
It may vary substantially depending on the ambient environment.

## Mounting and Moving Method of Auto Switch

### **A** Stroke of 20 or less

1. First insert the auto switch into the switch groove.
2. Then, press the auto switch mounting bracket into the switch groove.



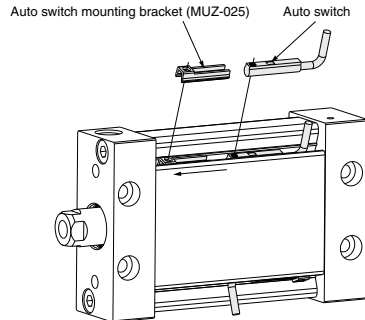
\* The auto switch mounting bracket should be mounted from the rear end.

3. Confirm where the mounting position is, and tighten the auto switch mounting screw using a flat head screwdriver to fix the auto switch.

### **B** Stroke of 25 or more

1. First press the auto switch mounting bracket into the switch groove.
2. Then, insert the auto switch into the switch groove, and slide it onto the auto switch mounting bracket.

\* Slide the end of the auto switch under the auto switch mounting bracket.



3. Confirm where the mounting position is, and tighten the auto switch mounting screw using a flat head screwdriver to fix the auto switch.

### Auto Switch Mounting Bracket Part No.

Cylinder series	Applicable bore size (mm)				
	25	32	40	50	63
<b>MU□-□□Z</b>	MUZ-025				

Note 1) For strokes of 25 or more, mounting method A is also possible.

Note 2) When tightening the auto switch mounting screw, use a watchmaker's screwdriver with the handle diameter of about 5 to 6 mm.

The tightening torque of the mounting screw should be approx. 0.05 to 0.1 N·m.  
As a guide, turn an additional 90 degree from the position where it feels tight.

**CUJ**  
**CU**  
**CQS**  
**JCQ**  
**CQ2**  
**RQ**  
**CQM**  
**CQU**  
**MU**

**D-□**  
**-X□**  
Technical Data

# Auto Switch Mounting 2

## Mounting of Magnetic Field Resistant Auto Switch (D-P3DWA, D-P4DW□ series)

When the magnetic field resistant auto switch (D-P3DWA, D-P4DW□ series) is mounted, the current MU series are available. Please pay attention to part no.

### How to Order

**MDU B 40 - 30 D M - P3DWASC**

**With auto switch**  
(Built-in magnet)

**Mounting**

<b>B</b>	Basic
<b>L</b>	Axial foot
<b>F</b>	Rod flange
<b>G</b>	Head flange
<b>C</b>	Single clevis
<b>D</b>	Double clevis

\* Brackets are shipped together, (but not assembled).

**Auto switch**

<b>Nil</b>	None
------------	------

\* For auto switch model, refer to "How to order the auto switch independently."

**Number of auto switches**

<b>Nil</b>	2 pcs.
<b>S</b>	1 pc.
<b>n</b>	"n" pcs.

\* When cylinders/actuators are ordered with an auto switch, the cylinder/actuator, auto switch and auto switch mounting bracket (including screws) are enclosed.  
\* When the auto switch is ordered on its own, the auto switch mounting bracket is not included. In that case, please order it separately.

**Rod end configuration**

<b>Nil</b>	Rod end female thread
<b>M</b>	Rod end male thread

**Action**

<b>D</b>	Double acting
----------	---------------

**Size**

<b>25</b>	Equiv. ø25 piston area
<b>32</b>	Equiv. ø32 piston area
<b>40</b>	Equiv. ø40 piston area
<b>50</b>	Equiv. ø50 piston area
<b>63</b>	Equiv. ø63 piston area

**Port thread type**

<b>Nil</b>	M thread	ø25
	Rc	
<b>TN</b>	NPT	ø32, ø40
	G	ø50, ø63
<b>TF</b>	G	

**Cylinder stroke (mm)**  
Refer to "Standard Stroke" on page 1037.

**How to order the auto switch independently**

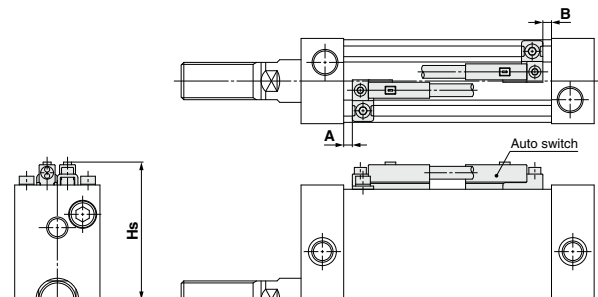
**D-P3DWA SC**

**Lead wire length**

<b>SC</b>	0.3 m (M12 connector type: 3 to 4 pins)
<b>SE</b>	0.3 m (M12 connector type: 1 to 4 pins)
<b>Nil*</b>	0.5 m
<b>L</b>	3 m
<b>Z</b>	5 m

\* 0.5 m (Nil) is not available for D-P4DW□.

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



Bore size (mm)	D-P3DWA			D-P4DW		
	A	B	Hs	A	B	Hs
25	2.5	3	37.5	—	—	—
32	2.5	3	44.5	—	—	—
40	3	3.5	52.5	0.5 (5.5)	1 (5.5)	56.5
50	4.5	5	62	2 (7)	2.5 (7.5)	66
63	5	5.5	72	2.5 (7.5)	3 (8)	76

### Minimum Stroke for Auto Switch Mounting

Number of auto switches mounted	D-P3DWA		D-P4DW	
	Same surface	Different surfaces	Same surface	Different surfaces
1	15		20	
2	15		75	20

### Auto Switch Operating Range

Auto switch model	Bore size (mm)				
	25	32	40	50	63
<b>D-P3DWA</b>	6	6.5	6	6	6
<b>D-P4DW</b>	—	—	5	5	5

\* Since the operating range is provided as a guideline including hysteresis, it cannot be guaranteed. (assuming approx. ±30% dispersion)  
It may vary substantially depending on the ambient environment.

## Mounting and Moving Method of Auto Switch

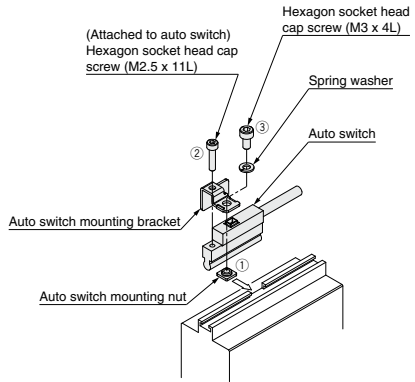
### <Applicable auto switch>

Solid state.....D-P3DWA□

1. Insert the auto switch mounting nut into the groove on the auto switch mounting rail.
2. Remove the hexagon socket head cap screw (M2.5) that is attached to the auto switch. Mount the auto switch mounting bracket (pressed stainless steel bracket) on the auto switch and tighten the hexagon socket head cap screw (M2.5) you have removed 3 to 4 turns to temporarily mount the bracket.
3. Put the spring washer through the hexagon socket head cap screw (M3), and then put the screw through the hole in the flange of the auto switch mounting bracket (pressed stainless steel bracket). Screw it into the M3 tapped part of the auto switch mounting nut and tighten it 3 to 4 turns to temporarily mount the auto switch.
4. After checking the detection position, tighten each hexagon socket head cap screw firmly.
5. Modification of the detection position should be made in the condition of 3.

Note 1) The tightening torque for a hexagon socket head cap screw (M2.5) is 0.2 to 0.3 N·m. Hold the shorter side of a hexagon wrench, and turn it to tighten. (Too much tightening may break the switch)

Note 2) The tightening torque for a hexagon socket head cap screw (M3) is 0.5 to 0.7 N·m.

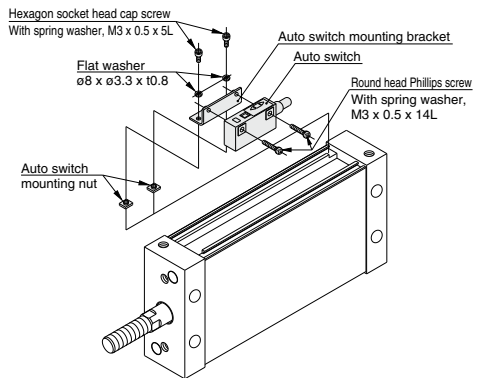


### Auto Switch Mounting Bracket Part No. (Including Bracket, Bolt, Nut)

Bore size (mm)				
25	32	40	50	63
BMU4-040S				

Solid state.....D-P4DW□

1. From the cutoff part of the rail on the cylinder body, insert the auto switch mounting nuts (2 pcs.) into the rail groove.
2. Slide the auto switch mounting nuts (2 pcs.) and set into the auto switch mounting position roughly. (25 mm or more should be left for the distance between 2 nuts.)
3. Insert the convex portion of the auto switch mounting bracket into the concave portion of a rail groove. Through-hole for the auto switch mounting bracket should be placed on the auto switch mounting nut.
4. Put a flat washer (ø8 x ø3.3) through a hexagon socket head screw (with spring washer, M3 x 0.5 x 5L) and passing through the hole of an auto switch mounting bracket, then turning it lightly down to a mounting nut of auto switch. (2 locations)
5. Put a round head Phillips screw (with spring washer, M3 x 0.5 x 14L) through the auto switch's through-hole (2 locations), and then push it down into the M3 tapped part on the auto switch mounting bracket while turning it lightly.
6. After reconfirming the detecting position, tighten the auto switch mounting screw to secure the auto switch mounting bracket and the auto switch. (Tightening torque of M3 screw should be 0.5 to 0.7 N·m.)



### Auto Switch Mounting Bracket Part No. (Including bracket, screw)

Cylinder series	Applicable bore size (mm)		
	40	50	63
MDU	BMU2-040	BMU2-040	BMU2-040
MDLU			—

CUJ

CU

CQS

JCQ

CQ2

RQ

CQM

CQU

MU

D-□

-X□

Technical Data