Stroke Reading Rodless Cylinder with Brake

ML2B Series

ø25, ø32, ø40

RoHS

The Controller CEU2/CEU2P series was discontinued in November 2019. Please contact your local sales representative for more details.

How to Order

ML2B **25** **□** – **500** **L** – **Y7BW** **□**

Basic type

Bore size

25	25 mm
32	32 mm
40	40 mm

Control method

Nil	With brake and stroke sensor
S	With stroke sensor (Without brake)
B	With brake (Without stroke sensor)

Cylinder stroke

Bore size (mm)	Standard stroke (mm)
25	1 to 2000
32	
40	

∗ Strokes are manufacturable in 1 mm increments, up to 2000 mm stroke. However, please be advised that with strokes 49 mm or less, there are cases where mounting of more than one auto switch is not possible and the performance of the air cushion may decline.

Stroke adjustment unit symbol
Refer to page 710 for stroke adjustment unit.

Auto switch

Nil	Without auto switch (Built-in magnet)

∗ For the applicable auto switch model, refer to the table below.

Number of auto switch

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

Applicable counter
CEU5 series

Applicable Auto Switches/Refer to pages 941 to 1067 for further information on auto switches.

Type	Special function	Electrical entry	Indicator light	Wiring (Output)	Load voltage DC	Load voltage AC	Auto switch model: Electrical entry direction: Perpendicular	Auto switch model: Electrical entry direction: In-line	Lead wire length (m)∗: 0.5 (Nil)	Lead wire length (m)∗: 3 (L)	Lead wire length (m)∗: 5 (Z)	Pre-wired connector	Applicable load	
Solid state auto switch	–	Grommet	Yes	3-wire (NPN)	5 V, 12 V	–	**Y69A**	**Y59A**	●	●	○	○	IC circuit	Relay, PLC
				3-wire (PNP)			**Y7PV**	**Y7P**	●	●	○	○		
				2-wire	12 V		**Y69B**	**Y59B**	●	●	○	○	–	
	Diagnostic indication (2-color indicator)			3-wire (NPN)	5 V, 12 V		**Y7NWV**	**Y7NW**	●	●	○	○	IC circuit	
				3-wire (PNP)			**Y7PWV**	**Y7PW**	●	●	○	○		
				2-wire	12 V		**Y7BWV**	**Y7BW**	●	●	○	○	–	
Reed auto switch	–	Grommet	Yes	3-wire (NPN equivalent)	–	5 V	–	–	**Z76**	●	●	–	–	IC circuit	–
			–	2-wire	24 V	12 V	100 V	–	**Z73**	●	●	●	–	–	Relay, PLC
							100 V or less	–	**Z80**	●	●	–	–	IC circuit	

∗ Lead wire length symbols: 0.5 m ····· Nil (Example) Y7BW
3 m ····· L (Example) Y7BWL
5 m ····· Z (Example) Y7BWZ

∗ Solid state auto switches marked with "○" are produced upon receipt of order.
∗ For details about auto switches with pre-wired connector, refer to pages 1014 and 1015.
∗ Normally closed (NC = b contact) solid state auto switches (D-Y7G/Y7H types) are also available. Refer to page 961 for details.
∗ Auto switches are shipped together (not assembled).

Cylinder Specifications

Bore size (mm)		25	32	40
Fluid		Air		
Action	Cylinder	Double acting		
	Brake	Spring and pneumatic		
Operating pressure range	Cylinder	0.1 to 0.8 MPa		
	Brake	0.3 to 0.5 MPa		
Proof pressure	Cylinder	1.2 MPa		
	Brake	0.75 MPa		
Ambient and fluid temperature		5 to 60°C (No freezing)		
Piston speed		100 to 1500 mm/s (During the positioning 100 to 500 mm/s)		
Cushion		Air cushion on both sides		
Lubrication		Non-lube		
Stroke tolerance (mm)		0 to 1.8		
Piping port size	Front/Side ported	Rc 1/8		Rc 1/4
	Bottom ported	ø5	ø6	ø8

As for multi counter, it will be common to CEP1 and CE1 series. For details, Multi counter/CEU5 on page 667 respectively.

Sensor Specifications

Maximum transmission distance	20 m (In the case of using our cable as well as our controller or counter.)
Position detection method	Incremental type
Magnetic field resistance	14.5 mT
Power supply	10.8 to 13.2 VDC (Ripple 1% or less)
Current consumption	40 mA
Resolution	0.1 mm/pulse
Accuracy	±0.2 mm Note) (at 20°C)
Output type	NPN open collector (35 VDC, 80 mA)
Output signal	A/B phase difference output
Insulation resistance	50 MΩ or more (500 VDC measured via megohmmeter) (between case and 12E)
Vibration resistance	33.3 Hz, 2 hours at X, Y and 4 hours at Z JIS D 1601 as standard
Impact resistance	30 G, 3 times at X, Y, Z
Enclosure	IP50 (IEC standard)
Extension cable (Option)	5 m, 10 m, 15 m, 20 m Cable: ø7; 6 core twisted pair shielded wire; oil, heat and frame resistant cable

Note) Digital error under Counter (CEU5) is included. Besides, the whole accuracy after mounting on an equipment may be varied depending on the mounting condition and surroundings. As an equipment, calibration should be done by customer.

Stroke Adjustment Unit Specifications

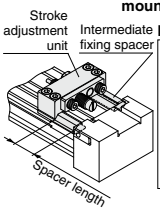
Applicable bore size (mm)		25	32	40
Unit symbol		L	L	L
Configuration Shock absorber model		RB1007 + with adjustment bolt	RB1412 + with adjustment bolt	RB1412 + with adjustment bolt
Stroke adjustment range by intermediate fixing spacer (mm)	Without spacer	0 to –11.5	0 to –12	0 to –16
	With short spacer	–11.5 to –23	–12 to –24	–16 to –32
	With long spacer	–23 to –34.5	–24 to –36	–32 to –48

∗ Stroke adjustment range is applicable for one side when mounted on a cylinder.
∗ The shock absorber service life is different from that of the ML2B cylinder depending on operating conditions. Refer to the RB Series Specific Product Precautions for the replacement period.

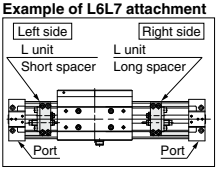
Stroke Adjustment Unit Symbol

Left side stroke adjustment unit	Right side stroke adjustment unit			
	Without unit	L: With low load shock absorber + Adjustment bolt		
			With short spacer	With long spacer
Without unit	Nil	SL	SL6	SL7
L: With low load shock absorber + Adjustment bolt	LS	L	LL6	LL7
With short spacer	L6S	L6L	L6	L6L7
With long spacer	L7S	L7L	L7L6	L7

Stroke adjustment unit mounting diagram



Example of L6L7 attachment



Shock Absorber Model

Model	ø25	ø32	ø40
	RB1007	RB1412	RB1412

Shock Absorber Specifications

Applicable bore size (mm)		25	32	40
Shock absorber model		RB1007	RB1412	RB1412
Maximum energy absorption (J)		5.9	19.6	19.6
Stroke absorption (mm)		7	12	12
Maximum collision speed (mm/s)		1500	1500	1500
Maximum operating frequency (cycle/min)		70	45	45
Spring force (N)	Extended	4.22	6.86	6.86
	Retracted	6.86	15.98	15.98
Operating temperature range (°C)		5 to 60		

Theoretical Output

(N)

Bore size (mm)	Piston area (mm²)	Operating pressure (MPa)						
		0.2	0.3	0.4	0.5	0.6	0.7	0.8
25	490	98	147	196	245	294	343	392
32	804	161	241	322	402	483	563	643
40	1256	251	377	502	628	754	879	1005

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

Weight

(kg)

Bore size (mm)	Basic weight	Additional weight per each 50 mm of stroke	Side support weight (per set)		Stroke adjustment unit weight (per unit)
			Type A	Type B	
25	2.89	0.142	0.015	0.016	0.10
32	4.75	0.199	0.015	0.016	0.21
40	6.87	0.290	0.040	0.041	0.32

Option

Stroke adjustment unit model

MY − A 25 L2 − 6N

Stroke adjustment unit

Bore size

25	25 mm
32	32 mm
40	40 mm

Unit part no.

Symbol	Stroke adjustment unit	Mounting position
L1	L unit	Left
L2		Right

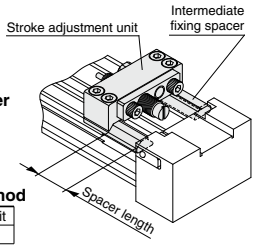
Note) Refer to page 710 for details of adjustment range.

Intermediate fixing spacer

Nil	Without spacer
6□	Short spacer
7□	Long spacer

Spacer shipping method

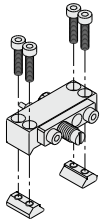
Nil	Assembled as a unit
N	Spacer only



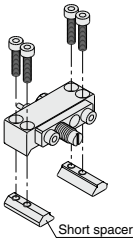
∗ Spacers are used to fix the stroke adjustment unit at an intermediate stroke position.
∗ Spacers are shipped in 2 piece sets.

Component Parts

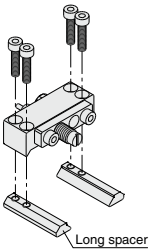
MY-A25L2 (Without spacer)



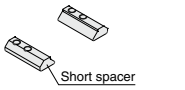
MY-A25L2-6 (With short spacer)



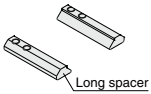
MY-A25L2-7 (With long spacer)



MY-A25L2-6N (Short spacer only)



MY-A25L2-7N (Long spacer only)



Side Support Part No.

Type \ Bore size (mm)	25	32	40
Side support A	MY-S25A		MY-S32A
Side support B	MY-S25B		MY-S32B

For details about dimensions, etc., refer to page 718.

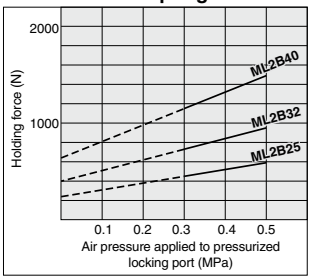
Brake Capacity

Holding Force of Spring Locking (Maximum static load)

Bore size (mm)	25	32	40
Holding force	245 N	400 N	628 N

Note) The holding force is the lock's ability to hold a static load that does not involve vibrations or impacts, when it is locked without a load.
Therefore, when normally using the cylinder near the upper limit of the holding force, be aware of the points described below.
- Select the cylinder bore size so that the load is less than 80% of the holding force.
- If the piston rod slips because the lock's holding force has been exceeded, the brake shoe could be damaged, resulting in a reduced holding force or shortened life.

Holding Force of Locking for Pneumatic and Spring



Stopping Accuracy

When the cylinder is stopped at intermediate strokes by PLC and erratic stopping positions appear. Check piston speed, load, piping conditions, control method, etc. Use values on the table below as reference.

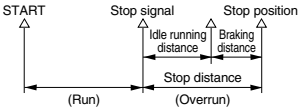
ML2B + PLC

Piston speed (mm/s)	100	300	500	800	1000
Stopping accuracy (mm)	±0.5	±1.0	±2.0	±3.0	±4.0

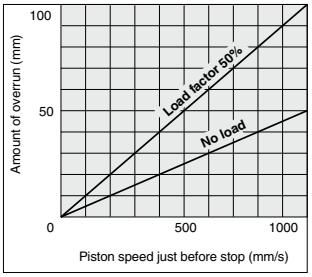
Condition/Driving pressure: 0.5 MPa
Brake releasing pressure: 0.3 MPa
Load factor: 25%
(Solenoid valve for brake releasing is connected to the cylinder directly and the dispersion of control system is not included.)

Overrun (ML2B + PLC)

When cylinder is stopped at intermediate strokes, "idle running distance" is from the detection of stop signal to beginning of brake operation and "braking distance" is from beginning of brake operation to stop of slider.

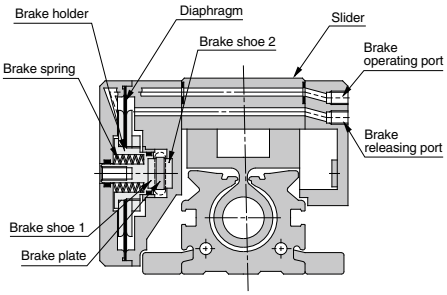


The graph below shows the piston speed and overrun reference values. (The length of overrun is changed dependent on piston speed, load, piping condition and control method. Be sure to adjust the stop signal position, etc. by trial operation with the actual machine.)



Condition/Driving pressure: 0.5 MPa
Brake releasing pressure: 0.3 MPa
Mounting orientayion: Horizontal

Working Principle of Brake Mechanism



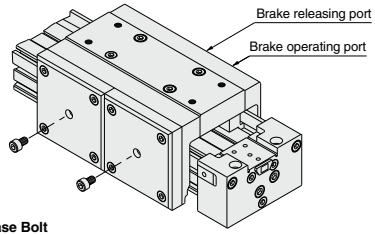
Anatomy of brake operation
Spring force generated by the brake spring and the air pressure supplied to brake operating port work on brake shoe 1 fixed to the brake holder, bend brake plate fixed on head cover on both sides, and stop slider by putting brake plate between brake shoe 1 and brake shoe 2 fixed on the slider side.

Brake release
The air pressure supplied to the brake releasing port acts on a diaphragm, extending the brake spring, and canceling the brake.

Manual Operation

[Brake releasing]
1. Supply brake releasing pressure of 0.3 to 0.5 MPa to brake releasing port on slider side.
2. Screw on appropriate hexagon socket head bolt into manual port on slide side.
3. Exhaust brake releasing air.

[Brake operation]
1. Supply brake releasing pressure of 0.3 to 0.5 MPa to brake releasing port on slider side.
2. Remove the bolt threaded into manual port.
3. Exhaust brake releasing air.



Manual Release Bolt

ML2B25	M5 x 0.8	L = 8
ML2B32	M6 x 1	L = 10
ML2B40	M8 x 1.25	L = 12

Note) Screw in after attaching a washer in the hexagon socket head cap bolt.

Cushion Capacity

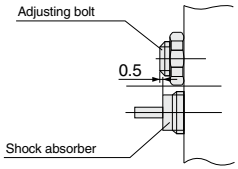
Cushion Selection

<Air cushion>
Stroke reading hy-rodless cylinder with brake is equipped with a standard air cushion.
The air cushion mechanism is incorporated to prevent excessive impact of the piston at the stroke end during high speed operation. The purpose of air cushion, thus, is not to decelerate the piston near the stroke end.
The weight and speed ranges that the air cushion can absorb are shown within the limit lines on the graph.

<Stroke adjusting unit with shock absorber>
Use this unit to decelerate the cylinder when weight and speed are beyond the air cushion limit lines or when the stroke adjustment causes limited or no cushion engagement.

⚠ Caution

1. The absorption capacity of each unit shown here is given for the mounted shock absorber when used at full stroke. When the effective stroke of the absorber decreases as a result of stroke adjustment, the absorption capacity becomes extremely small. Fix the adjusting bolt to around 0.5 mm projection from the shock absorber as shown below.



2. When the shock absorber is used within the air cushion stroke range, almost open the air cushion needle (about 1 turn from the fully closed position).

Air Cushion Stroke

(mm)

Bore size (mm)	Cushion stroke
25	15
32	19
40	24

Service Life and Replacement Period of Shock Absorber

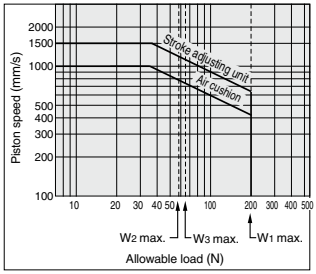
⚠ Caution

1. Allowable operating cycle under the specifications set in this catalog is shown below.
2 million cycles: RB1007, RB1412
Note) Specified service life (suitable replacement period) is the value at room temperature (20 to 25°C). The period may vary depending on the temperature and other conditions. In some cases the absorber may need to be replaced before the allowable operating cycle above.

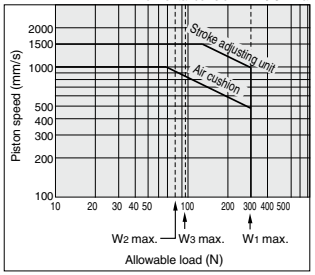
Bore size (mm)	Shock absorber model
25	RB1007
32	RB1412
40	RB1412

Absorption Capacity of the Air Cushion and Stroke Adjusting Unit

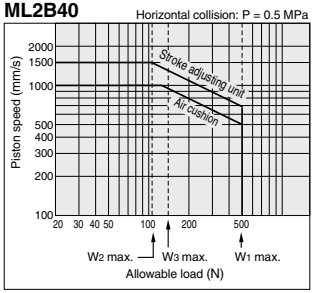
ML2B25



ML2B32



ML2B40



Tightening Torque for Stroke Adjusting Unit Holding Bolts

(N·m)

Bore size (mm)	Tightening torque
25	3
32	5
40	10

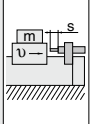
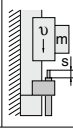
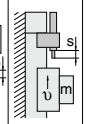
Tightening Torque for Stroke Adjusting Unit Lock Plate Holding Bolts

(N·m)

Bore size (mm)	Tightening torque
25	1.2
32	3.3
40	3.3

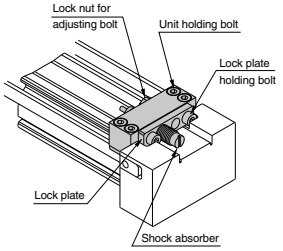
Calculation of Absorbed Energy for Stroke Adjusting Unit with Shock Absorber

(N·m)

	Horizontal collision	Vertical collision (Downward)	Vertical collision (Upward)
Type of impact			
Kinetic energy E_1	$\frac{1}{2}m\cdot\upsilon^2$		
Thrust energy E_2	$F\cdot s$	$F\cdot s + m\cdot g\cdot s$	$F\cdot s - m\cdot g\cdot s$
Absorbed energy E	$E_1 + E_2$		

Symbol
υ: Speed of impact object (m/s) m: Weight of impact object (kg)
F : Cylinder thrust (N) g : Gravitational acceleration (9.8 m/s²)
s : Shock absorber stroke (m)
Note) The speed of the impact object is measured at the time of impact with the shock absorber.

Adjusting Procedure



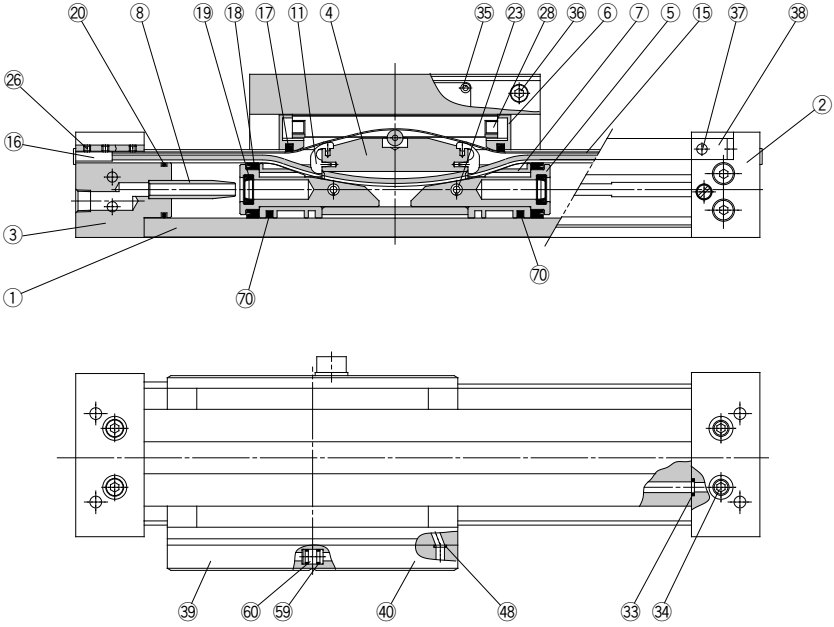
<Movement and location of stroke adjustment>
The unit body can be moved after the four unit holding bolts are loosened and can be fixed at any position by uniformly tightening the four unit holding bolts. However, there is a possibility that the adjustment mechanism will be tilted due to high impact energy.
Since the holder mounting bracket for adjustment is available as an option for -X416, -X417, we recommend that you use it. If any other length is desired, please consult with SMC. (Refer to "Tightening Torque for Stroke Adjusting Unit Holding Bolts".)

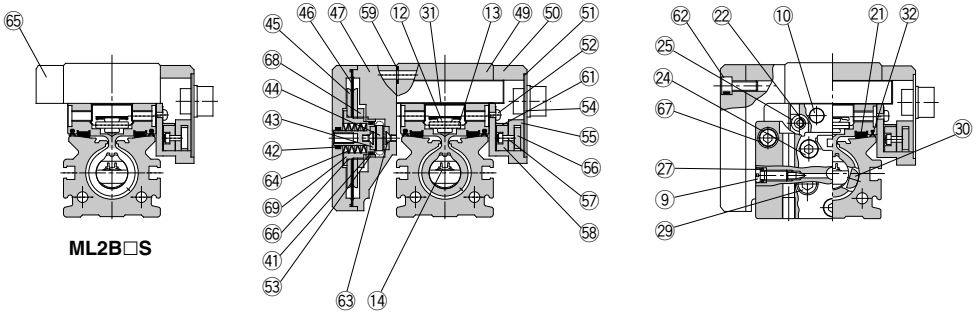
<Stroke adjustment of the adjusting bolt>
Loosen the lock nut of the adjusting bolt, adjust the stroke from the lock plate side using a wrench, then re-tighten it.

<Adjustment of shock absorber>
Loosen the two lock plate holding bolts, turn the shock absorber and adjust the stroke. Then, uniformly tighten the lock plate holding bolts and secure the shock absorber. Take care not to over-tighten the holding bolts.
(Refer to "Tightening Torque for Stroke Adjusting Unit Lock Plate Holding Bolts".)

Note)
Although the lock plate may slightly bend due to tightening of the lock plate holding bolt, this does not affect the shock absorber and locking function.

Construction





Component Parts

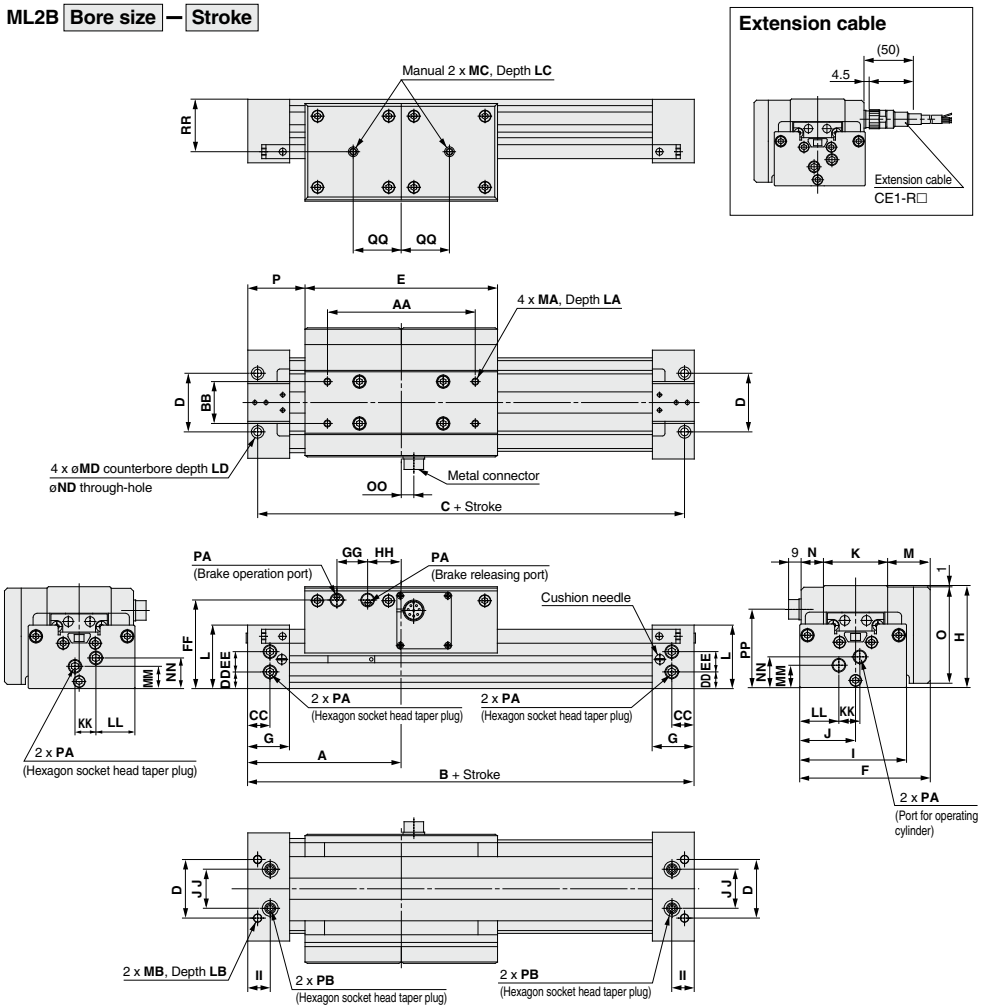
No.	Description	Material	Qty.	Note
1	Cylinder tube	Aluminum alloy	1	Hard anodized
2	Head cover WR	Aluminum alloy	1	Hard anodized
3	Head cover WL	Aluminum alloy	1	Hard anodized
4	Piston yoke	Aluminum alloy	1	Anodized
5	Piston	Aluminum alloy	2	Hard anodized
6	End cover	Special resin	2	
7	Wear ring	Special resin	2	
8	Cushion ring	Aluminum alloy	2	Anodized
9	Cushion needle	Carbon steel	2	Nickel plated
10	Stopper	Carbon steel	4	Nickel plated
11	Belt separator	Special resin	2	
12	Guide roller	Special resin	1	
13	Parallel pin	Carbon steel	1	
14	Seal belt	Special resin	1	
15	Dust seal band	Stainless steel	1	
16	Belt clamp	Special resin	2	
17	Scraper	NBR	2	
18	Piston seal	NBR	2	
19	Cushion seal	NBR	2	
20	Tube gasket	NBR	2	
21	Bearing	Special resin	2	
22	Spacer	Stainless steel	4	
23	Spring pin	Carbon tool steel	2	
24	Hexagon socket head cap screw	Carbon tool steel	6	Chromated
25	Hexagon socket button head screw	Carbon tool steel	4	Chromated
26	Hexagon socket head set screw	Carbon tool steel	8	Chromated
27	O-ring	NBR	2	
28	Double round parallel key	Carbon steel	2	
29	Hexagon socket head taper plug	Carbon steel	6	Chromated
30	Magnet	—	2	
31	Top cover	Stainless steel	1	
32	Side scraper	Special resin	2	
33	O-ring	NBR	4	
34	Hexagon socket head taper plug	Carbon steel	4	Chromated
35	Phillips truss head screw	Carbon steel	4	Chromated
36	Hexagon socket head cap screw	Carbon steel	3	Chromated
37	Parallel pin	Stainless steel	4	
38	Tension plate	Carbon steel	4	Nickel plated
39	Side cover L	Aluminum alloy	1	Hard anodized
40	Side cover R	Aluminum alloy	1	Hard anodized
41	O-ring	NBR	2	
42	O-ring	NBR	2	
43	Brake shoe	Sintered metallic	4	
44	Brake plate	Stainless steel	1	Hard chrome plated
45	Diaphragm shell	Stainless steel	4	
46	Diaphragm	NBR	2	
47	Brake body	Aluminum alloy	1	Hard anodized
48	O-ring	NBR	1	
49	Slide table	Aluminum alloy	1	Hard anodized
50	Sensor body	Aluminum alloy	1	Chromated
51	Connector gasket	NBR	1	
52	Round head Phillips screw	Carbon steel	2	Chromated
53	Brake guide	Carbon steel	2	Gas soft treated
54	Connector cover A B	Carbon steel	1	Chromated
55	Sensor guide	Sintered metallic	1	

No.	Description	Material	Qty.	Note
56	Scale plate	Carbon steel	1	Nickel plated
57	Hexagon socket head cap screw	Carbon steel	2	Chromated
58	Sensor unit	—	1	
59	O-ring	NBR	6	
60	Joint valve	Stainless steel	1	
61	Sensor holder	Stainless steel	1	
62	Hexagon socket head cap screw	Carbon steel	8	Chromated
63	Cross recessed countersunk head screw	Carbon steel	4	Chromated
64	Brake spring	Carbon steel	2	
65	Side plate	Aluminum alloy	1	Chromated
66	O-ring	NBR	2	
67	Hexagon socket head cap screw	Carbon steel	8	Chromated
68	Diaphragm nut	Carbon steel	2	Chromated
69	Brake holder	Carbon steel	2	Gas soft treated
70	Lube-retainer	Special resin	2	

Dimensions

Basic type

ML2B **Bore size** — **Stroke**

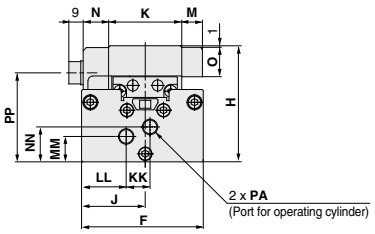


Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	AA	BB	CC	DD	EE	FF	GG	HH	II	JJ
ML2B25	110	220	206	42	138	93.5	30	73	76.5	40	46	45.5	30.9	16	69	41	106	30	16	12	14.5	63.5	22	24	16	28
ML2B32	140	280	264	51	168	107.5	37	88	91	46.5	58	54	32.4	15	84	56	133	35	19	15	16	77.5	27	32	19	32
ML2B40	170	340	322	59	204	130.5	45	106	110	55	68	64	41.5	19	102	68	164	40	23	16.5	22	95	35	37	23	36

Model	KK	LL	MM	NN	OO	PP	QQ	RR	MA	LA	MB	LB	MC	LC	MD	LD	ND	PA	PB
ML2B25	15	28	16	22	9	56	34.5	37.5	M5 x 0.8	11	M6 x 1	9.5	M5 x 0.8	9.5	9	5.5	5.6	Rc 1/8	Rc 1/16
ML2B32	16	30.5	21.5	26	9.8	62.5	42	45	M6 x 1	12	M8 x 1.25	16	M6 x 1	12	11	6.5	6.8	Rc 1/8	Rc 1/16
ML2B40	17.5	37.5	24.5	37.5	23	77	51	54	M8 x 1.25	14	M10 x 1.5	15	M8 x 1.25	12	14	8.5	8.6	Rc 1/4	Rc 1/8

With stroke sensor:

ML2B Bore size **S** — Stroke

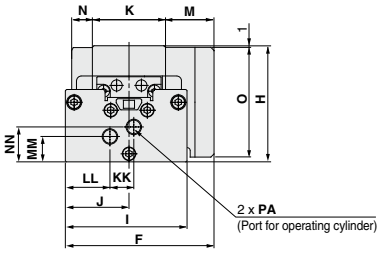


Applicable cylinder	F	H	J	K	M	N	O
ML2B25	76.5	73	40	46	13	16	18.5
ML2B32	91	88	46.5	58	15	15	19.5
ML2B40	110	106	55	68	19	19	21.5

Applicable cylinder	KK	LL	MM	NN	PA	PP
ML2B25	15	28	16	22	Rc 1/8	56
ML2B32	16	30.5	21.5	26	Rc 1/8	62.5
ML2B40	17.5	37.5	24.5	37.5	Rc 1/4	78.3

With brake:

ML2B Bore size **B** — Stroke



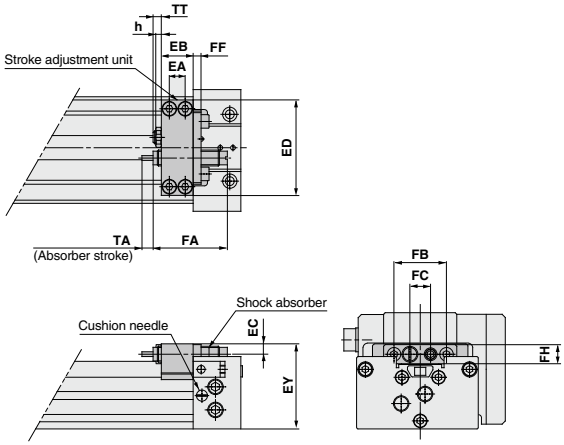
Applicable cylinder	F	H	I	J	K	M	N
ML2B25	93.5	73	76.5	40	46	30.9	16
ML2B32	107.5	88	91	46.5	58	32.4	15
ML2B40	130.5	106	110	55	68	41.5	19

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

Stroke Adjustment Unit

With shock absorber:

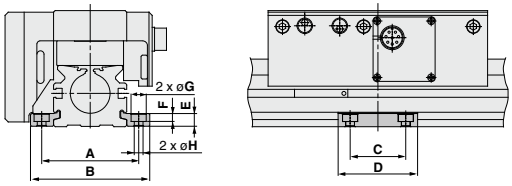
ML2B Bore size — Stroke **L**



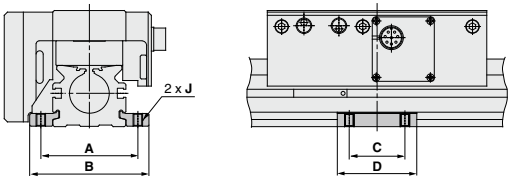
Applicable cylinder	h	EA	EB	EC	ED	EY	FA	FB	FC	FF	FH	TA	TT
ML2B25	3.5	10	20	6.5	60	53.5	46.7	33	13	6	12	7	Max. 16.5
ML2B32	4.5	12	25	8.5	74	67	67.3	43	17	6	16	12	Max. 20
ML2B40	4.5	15	31	9.5	94	81.5	67.3	43	17	6	16	12	Max. 25

Dimensions

Side support A
MY-S□A



Side support B
MY-S□B



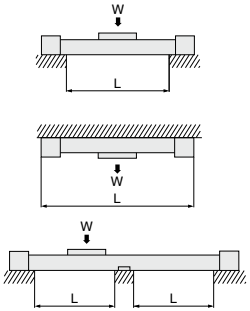
Part no.	Applicable cylinder	A	B	C	D	E	F	G	H	J
MY-S25$^{A}_{B}$	ML2B25	61	75	35	50	8	5	9.5	5.5	M6 x 1
	ML2B32	70	84							
MY-S32$^{A}_{B}$	ML2B40	87	105	45	64	11.7	6	11	6.6	M8 x 1.25

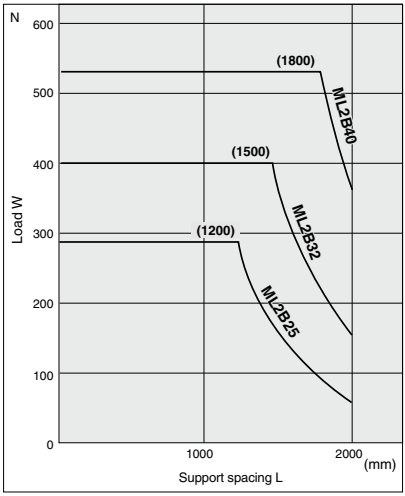
Guide for Side Support Application

For long stroke operation, the cylinder tube may be deflected depending on its own weight and the load. In such a case, use a side support in the middle section. The spacing (L) of the support must be no more than the values shown in the graph on the right.

⚠ Caution

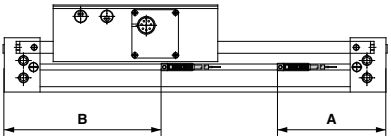
If the cylinder mounting surfaces are not measured accurately, using a side support may cause poor operation. Therefore, be sure to level the cylinder tube when mounting.
If there is vibration, impact, etc. at long stroke, we recommend adoption of side support even if it is within the allowable value shown in the graph.





Auto Switch Mounting

Auto Switch Proper Mounting Position (Detection at Stroke End)



(mm)

Auto switch model / Bore size (mm)	D-Z7□/Z80 D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W D-Y7□WV	
	A	B
25	91	131.5
32	102.5	180
40	126.5	206

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

Operating Range

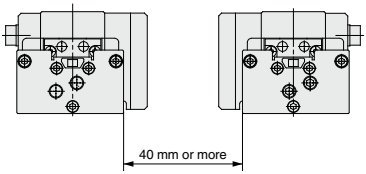
(mm)

Auto switch model	Bore size (mm)		
	25	32	40
D-Z7□/Z80	8.5	11.5	11.5
D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W/Y7□WV	6	9	10

∗ 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.

Caution on Handling Auto Switch

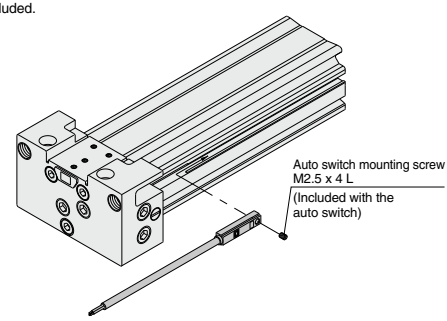
1. Always connect the auto switch to the power supply after the load has been connected.
2. Use caution not to apply excessive impact forces by dropping and bumping when handling.
3. When more than 2 cylinders with auto switches are juxtaposed, leave the distance of 40 mm or more between the cylinder tubes as shown in the below.



4. Avoid wiring patterns in which bending stress and pulling force are repeatedly applied to the lead wires.
5. Please consult with SMC when using in locations where water or coolant liquid, etc is splashing constantly.
6. Avoid the use in locations where the large amount of magnetism is occurring.

Auto Switch Mounting

When mounting and securing auto switches, they should be inserted into the cylinder's auto switch mounting rail from the direction shown in the drawing below. After setting in the mounting position, use a flat head watchmaker's screwdriver to tighten the auto switch mounting screw that is included.



Note) When tightening an auto switch mounting screw, use a watchmaker's screwdriver with a handle of approximately 5 to 6 mm in diameter.
Also, tighten with a torque of about 0.05 to 0.1 N·m.
As a guide, turn about 90° past the point at which tightening can first be felt.