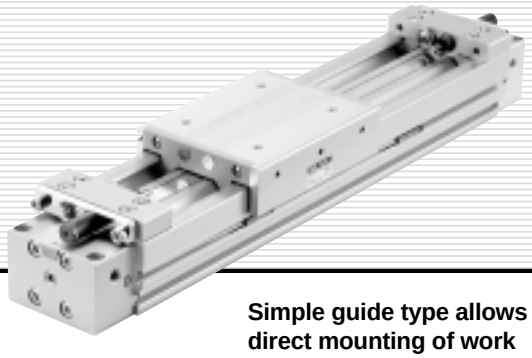
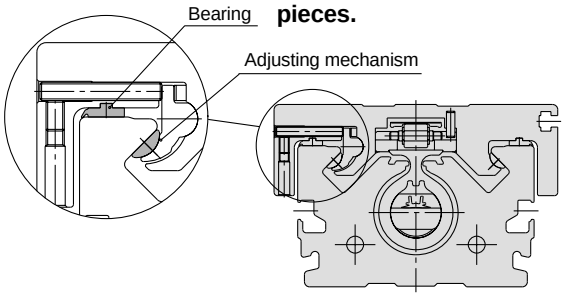
Series MY1M

Slide Bearing Type

ø16, ø20, ø25, ø32, ø40, ø50, ø63



Simple guide type allows direct mounting of work pieces.

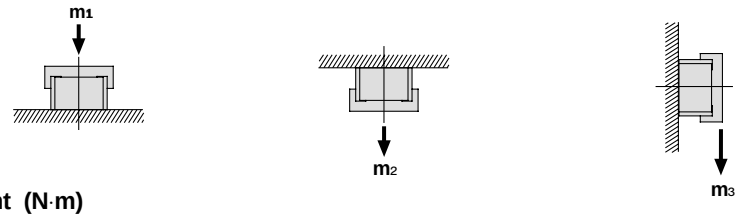


Maximum Allowable Moment/Maximum Allowable Load

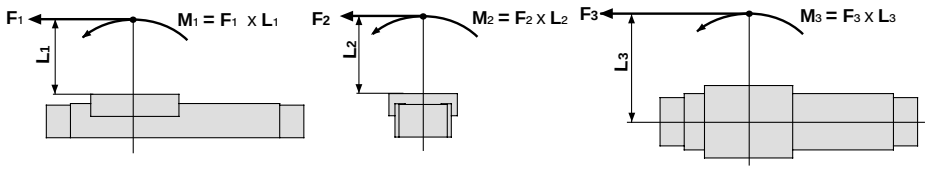
Model	Bore size (mm)	Max. allowable moment (N·m)			Max. allowable load (kg)		
		M_1	M_2	M_3	m_1	m_2	m_3
MY1M	**16**	6.0	3.0	1.0	18	7	2.1
	20	10	5.2	1.7	26	10.4	3
	25	15	9.0	2.4	38	15	4.5
	32	30	15	5.0	57	23	6.6
	40	59	24	8.0	84	33	10
	50	115	38	15	120	48	14
	63	140	60	19	180	72	21

The above values are the maximum allowable values for moment and load. Refer to each graph regarding the maximum allowable moment and maximum allowable load for a particular piston speed.

Load (kg)



Moment (N·m)



<Calculation of guide load factor>

1. Maximum allowable load (1), static moment (2), and dynamic moment (at the time of impact with stopper) (3) must be examined for the selection calculations.

* To evaluate, use υa (average speed) for (1) and (2), and υ (impact speed $\upsilon = 1.4\upsilon a$) for (3).

Calculate m max for (1) from the maximum allowable load graph (m_1, m_2, m_3) and Mmax for (2) and (3) from the maximum allowable moment graph (M_1, M_2, M_3).

$$\text{Sum of guide load factors } \Sigma\alpha = \frac{\text{Load mass [m]}}{\text{Maximum allowable load [m max]}} + \frac{\text{Static moment [M]}^{\text{Note 1)}}}{\text{Allowable static moment [Mmax]}} + \frac{\text{Dynamic moment [ME]}^{\text{Note 2)}}}{\text{Allowable dynamic moment [MEmax]}} \leq 1$$

Note 1) Moment caused by the load, etc., with cylinder in resting condition.
Note 2) Moment caused by the impact load equivalent at the stroke end (at the time of impact with stopper).
Note 3) Depending on the shape of the work piece, multiple moments may occur. When this happens, the sum of the load factors ($\Sigma\alpha$) is the total of all such moments.

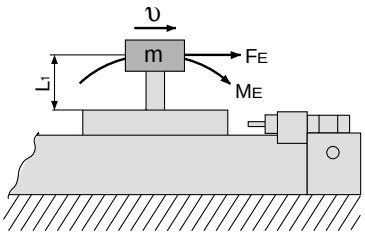
2. Reference formulae [Dynamic moment at impact]

Use the following formulae to calculate dynamic moment when taking stopper impact into consideration.

m : Load mass (kg)
F : Load (N)
F_E : Load equivalent to impact (impact with stopper)
υa : Average speed (mm/s)
M : Static moment (N·m)
υ : Impact speed (mm/s)
L_1 : Distance to the load's center of gravity (m)
M_E : Dynamic moment (N·m)
g : Gravitational acceleration (9.8m/s²)

$\upsilon = 1.4\upsilon a$ (mm/s) $F_E = \frac{1.4}{100}^{\text{Note 4)}} \upsilon a \cdot g \cdot m$

$\therefore M_E = \frac{1}{3}^{\text{Note 5)}} \cdot F_E \cdot L_1 = 0.05\upsilon a \cdot m \cdot L_1$ (N·m)



Note 4) $\frac{1.4}{100}\upsilon a$ is a dimensionless coefficient for calculating impact force.

Note 5) Average load coefficient ($=\frac{1}{3}$):
This coefficient is for averaging the maximum load moment at the time of stopper impact according to service life calculations.

3. Refer to pages 26 and 27 for detailed selection procedures.

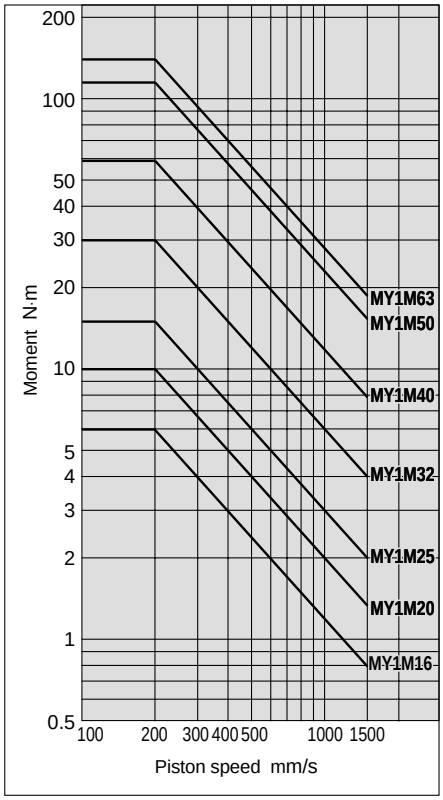
Maximum allowable moment

Select the moment from within the range of operating limits shown in the graphs. Note that the maximum allowable load value may sometimes be exceeded even within the operating limits shown in the graphs. Therefore, also check the allowable load for the selected conditions.

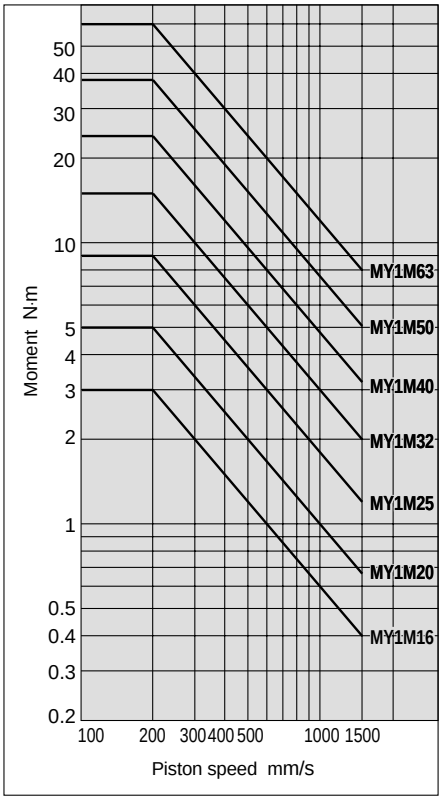
Maximum allowable load

Select the load from within the range of limits shown in the graphs. Note that the maximum allowable moment value may sometimes be exceeded even within the operating limits shown in the graphs. Therefore, also check the allowable moment for the selected conditions.

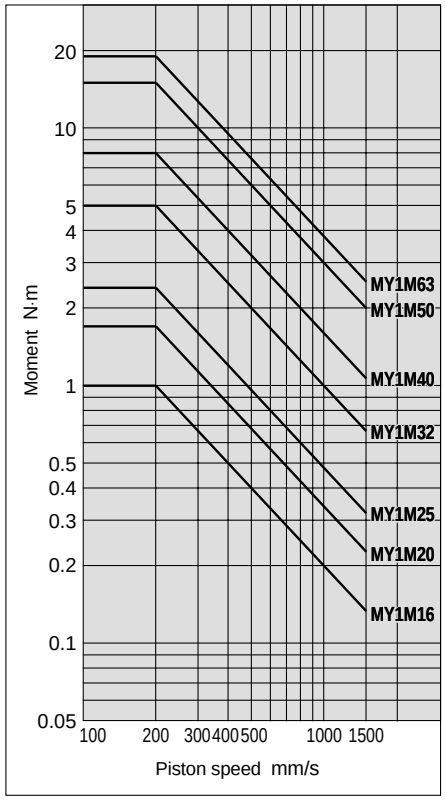
MY1M/M1



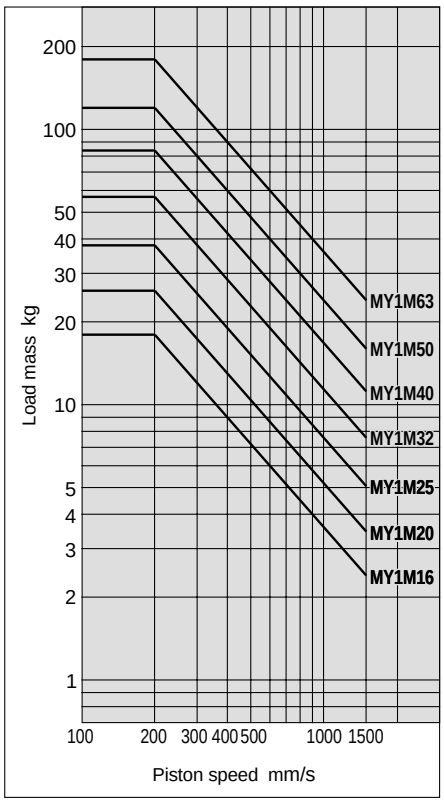
MY1M/M2



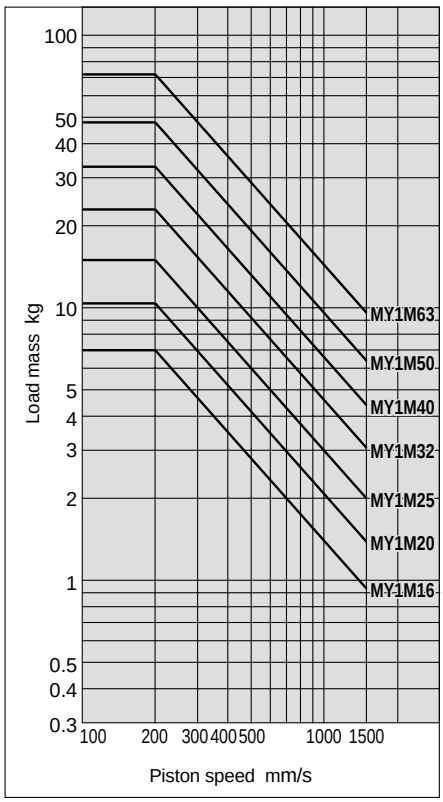
MY1M/M3



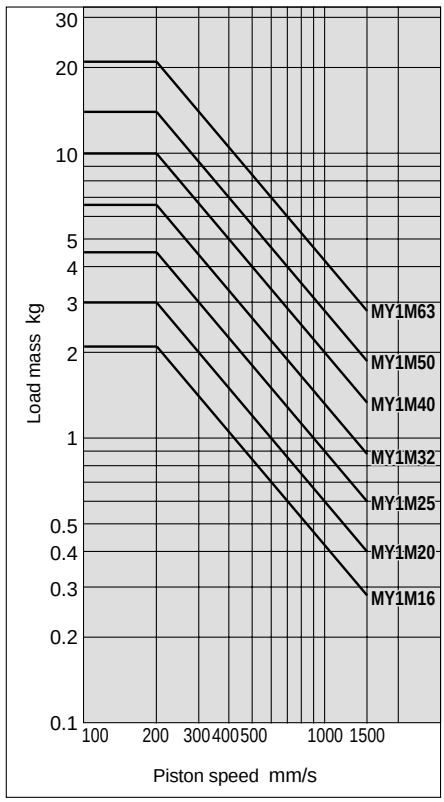
MY1M/m1



MY1M/m2



MY1M/m3



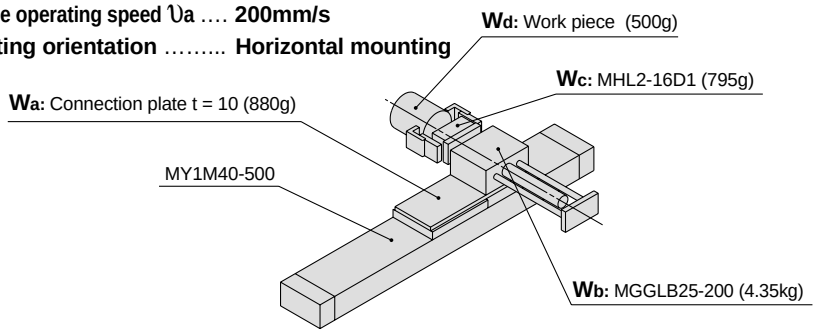
Series MY1M
Model Selection

The following are steps for selection of the series MY1 best suited to your application.

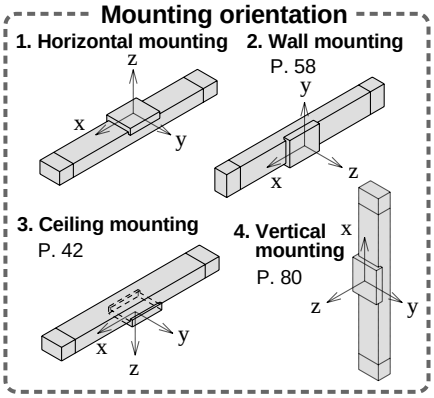
Calculation of Guide Load Factor

1 Operating conditions

Cylinder …… **MY1M40-500**
Average operating speed υ**a** …. **200mm/s**
Mounting orientation …….. **Horizontal mounting**

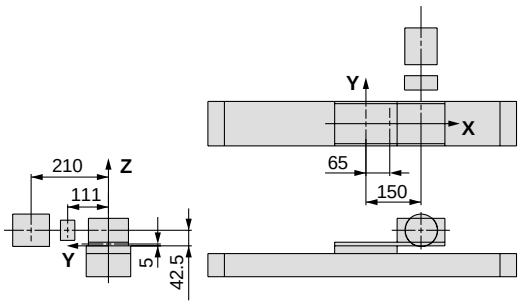


Mounting orientation



Refer to the pages above for actual examples of calculation for each orientation.

2 Load blocking



Mass and center of gravity for each work piece

Work piece no.	Mass m	Center of gravity		
		X-axis Xn	Y-axis Yn	Z-axis Zn
Wa	0.88kg	65mm	0mm	5mm
Wb	4.35kg	150mm	0mm	42.5mm
Wc	0.795kg	150mm	111mm	42.5mm
Wd	0.5kg	150mm	210mm	42.5mm

n = a, b, c, d

3 Composite center of gravity calculation

$m_1 = \Sigma m_n$
$= 0.88 + 4.35 + 0.795 + 0.5 =$ **6.525kg**

$X = \frac{1}{m_1} \times \Sigma (m_n \times X_n)$
$= \frac{1}{6.525} (0.88 \times 65 + 4.35 \times 150 + 0.795 \times 150 + 0.5 \times 150) =$ **138.5mm**

$Y = \frac{1}{m_1} \times \Sigma (m_n \times y_n)$
$= \frac{1}{6.525} (0.88 \times 0 + 4.35 \times 0 + 0.795 \times 111 + 0.5 \times 210) =$ **29.6mm**

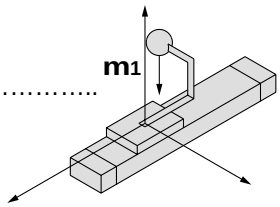
$Z = \frac{1}{m_1} \times \Sigma (m_n \times z_n)$
$= \frac{1}{6.525} (0.88 \times 5 + 4.35 \times 42.5 + 0.795 \times 42.5 + 0.5 \times 42.5) =$ **37.4mm**

4 Calculation of load factor for static load

m_1: Mass

m_1 max (from 1 of graph MY1M/m_1) = 84 (kg) ……

Load factor $\alpha_1 = m_1/m_1$ max = 6.525/84 = **0.08**

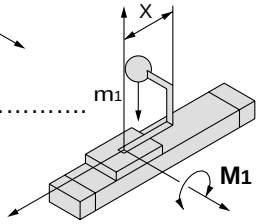


M_1: Moment

M_1 max (from 2 of graph MY1M/M_1) = 59 (N·m) ……

$M_1 = m_1 \times g \times X = 6.525 \times 9.8 \times 138.5 \times 10^{-3} = 8.86$ (N·m)

Load factor $\alpha 2 = M_1/M_1$ max = 8.86/59 = **0.15**

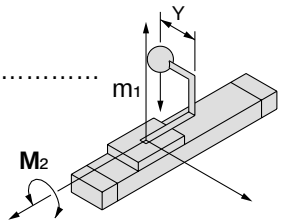


M_2: Moment

M_2 max (from 3 of graph MY1M/M_2) = 24 (N·m) ……

$M_3 = m_1 \times g \times Y = 6.525 \times 9.8 \times 29.6 \times 10^{-3} = 1.89$ (N·m)

Load factor $\alpha_3 = M_2/M_2$ max = 1.89/24 = **0.08**



5 Calculation of load factor for dynamic moment

Equivalent load F_E at impact

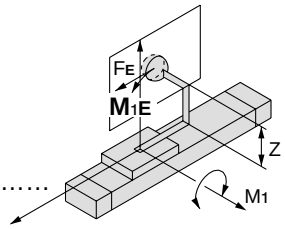
$$F_E = \frac{1.4}{100} \times \upsilon a \times g \times m = \frac{1.4}{100} \times 200 \times 9.8 \times 6.525 = 179.1 \text{ (N)}$$

M_{1E}: Moment

M_{1E} max (from 4 of graph MY1M/M_1 where 1.4υa = 280mm/s) = 42.1 (N·m) ……

$$M_{1E} = \frac{1}{3} \times F_E \times Z = \frac{1}{3} \times 179.1 \times 37.4 \times 10^{-3} = 2.23 \text{ (N·m)}$$

Load factor $\alpha_4 = M_{1E}/M_{1E}$ max = 2.23/42.1 = **0.05**

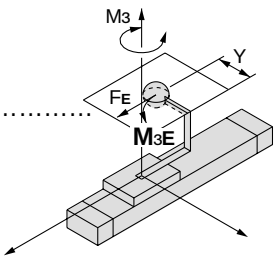


M_{3E}: Moment

M_{3E} max (from 5 of graph MY1M/M_3 where 1.4υa = 280mm/s) = 5.7 (N·m) ……

$$M_{3E} = \frac{1}{3} \times F_E \times Y = \frac{1}{3} \times 179.1 \times 29.6 \times 10^{-3} = 1.77 \text{ (N·m)}$$

Load factor $\alpha_5 = M_{3E}/M_{3E}$ max = 1.77/5.7 = **0.31**



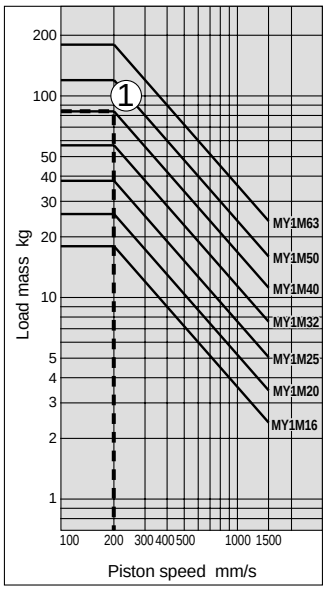
6 Sum and examination of guide load factors

$\Sigma\alpha = \alpha_1 + \alpha_2 + \alpha_3 + \alpha_4 + \alpha_5 =$ **0.67≤1**

The above calculation is within the allowable value and the selected model can be used.
Select a separate shock absorber.
In an actual calculation, when the sum of guide load factors $\Sigma\alpha$ in the formula above is more than 1, consider decreasing the speed, increasing the bore size, or changing the product series. Also, this calculation can be performed easily with the "P/A Pneumatics CAD System".

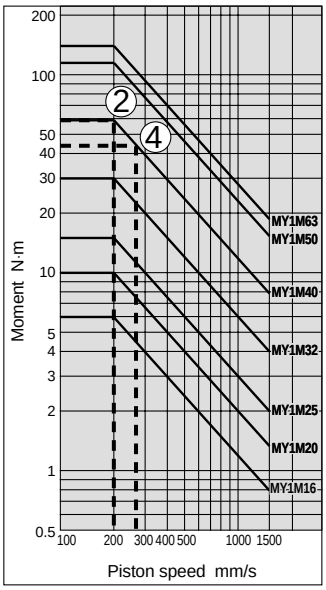
Load mass

MY1M/m_1

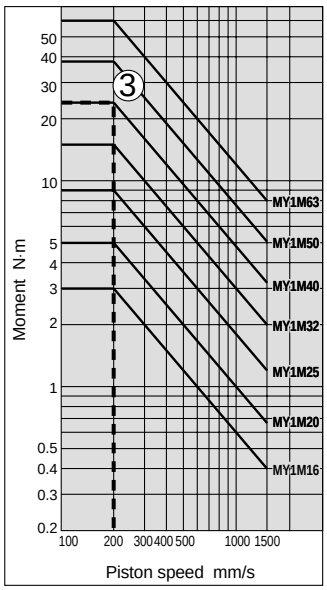


Allowable moment

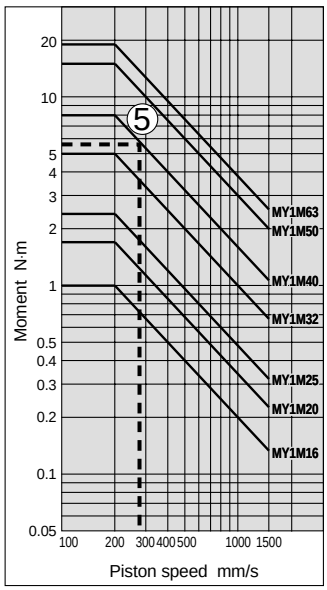
MY1M/M_1



MY1M/M_2



MY1M/M_3



Mechanically Jointed Rodless Cylinder

Series MY1M

Slide Bearing Type/ø16, ø20, ø25, ø32, ø40, ø50, ø63

How to Order

Slide Bearing Guide Type **MY1M** **25** □ — **300** □ □ — **Z73** □

Slider bearing guide type

Bore size

16	16mm
20	20mm
25	25mm
32	32mm
40	40mm
50	50mm
63	63mm

Piping

Nil	Standard type
G	Centralized piping type

Stroke

Refer to the standard stroke table on page 29.

Stroke adjusting unit Note)

Nil	Both ends
S	One end

Note) "S" is applicable for stroke adjusting units A, L and H.

Auto switch type

Nil	Without auto switch

∗ Refer to the table below for auto switch model numbers.

Number of auto switches

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

Stroke adjusting unit

Nil	Without adjusting unit
A	With adjusting bolt
L	With low load shock absorber + adjusting bolt
H	With high load shock absorber + adjusting bolt
AL	With one A unit and one L unit each
AH	With one A unit and one H unit each
LH	With one L unit and one H unit each

Shock absorbers for L and H units

Bore size (mm) / Unit no.	16	20	25	32	40	50	63
L unit	RB0806		RB1007	RB1412		RB2015	
H unit	—	RB1007	RB1412	RB2015		RB2725	

Note) MY1M16 is not available with H unit.

Options

Stroke adjusting unit numbers

Bore size (mm) / Unit no.	16	20	25	32
A unit	MYM-A16A	MYM-A20A	MYM-A25A	MYM-A32A
L unit	MYM-A16L	MYM-A20L	MYM-A25L	MYM-A32L
H unit	—	MYM-A20H	MYM-A25H	MYM-A32H

Bore size (mm) / Unit no.	40	50	63
A unit	MYM-A40A	MYM-A50A	MYM-A63A
L unit	MYM-A40L	MYM-A50L	MYM-A63L
H unit	MYM-A40H	MYM-A50H	MYM-A63H

Side support numbers

Bore size (mm) / Type	16	20	25	32
Side support A	MY-S16A	MY-S20A	MY-S25A	MY-S32A
Side support B	MY-S16B	MY-S20B	MY-S25B	MY-S32B

Bore size (mm) / Type	40	50	63
Side support A	MY-S40A		MY-S63A
Side support B	MY-S40B		MY-S63B

Refer to page 36 for detailed information on dimensions, etc.

Applicable auto switches/ Refer to pages 91 through 103 for detailed auto switch specifications.

For **ø16, ø20**

Type	Special function	Electrical entry	Indicator light	Wiring (output)	Load voltage DC	Load voltage AC	Auto switch models: Electrical entry direction: Perpendicular	Auto switch models: Electrical entry direction: In-line	Lead wire length (m)∗: 0.5 (Nil)	3 (L)	5 (Z)	Applicable load	
Reed switch	—	Grommet	No	2 wire	24V: 5V, 12V	100V or less	**A90V**	**A90**	●	●	—	IC circuit	Relay, PLC
			Yes	2 wire	12V	100V	**A93V**	**A93**	●	●	—	—	
				3 wire NPN (equiv.)	—	5V	—	**A96V**	**A96**	●	●	—	IC circuit	—
Solid state switch	—	Grommet	Yes	3 wire (NPN)	24V	12V	—	**F9NV**	**F9N**	●	●	—	—	Relay, PLC
				3 wire (PNP)				**F9PV**	**F9P**	●	●	—		
				2 wire				**F9BV**	**F9B**	●	●	—		
	Diagnostic indication (2 color indicator)			3 wire (NPN)				**F9NWV**	**F9NW**	●	●	○		
				3 wire (PNP)				**F9PWV**	**F9PW**	●	●	○		
				2 wire				**F9BWV**	**F9BW**	●	●	○		

∗ Lead wire length symbols: 0.5m …….. Nil (Example) F9NW
3m ……..L F9NWL
5m ……..Z F9NWZ

∗∗ Solid state switches marked with a "○" symbol are produced upon receipt of order.

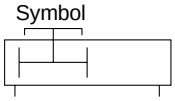
For **ø25, ø32, ø40, ø50, ø63**

Type	Special function	Electrical entry	Indicator light	Wiring (output)	Load voltage DC	Load voltage AC	Auto switch models: Electrical entry direction: Perpendicular	Auto switch models: Electrical entry direction: In-line	Lead wire length (m)∗: 0.5 (Nil)	3 (L)	5 (Z)	Applicable load	
Reed switch	—	Grommet	Yes	3 wire (NPN equiv.)	— 5V	—	—	**Z76**	●	●	—	IC circuit	—
				2 wire	24V: 12V	100V	—	**Z73**	●	●	●	—	Relay, PLC
			No		5V 12V	100V or less	—	**Z80**	●	●	—	IC circuit	
Solid state switch	—	Grommet	Yes	3 wire (NPN)	24V: 5V 12V	—		**Y69A**	**Y59A**	●	●	○	IC circuit	Relay, PLC
				3 wire (PNP)				**Y7PV**	**Y7P**	●	●	○		
				2 wire	12V			**Y69B**	**Y59B**	●	●	○	—	
	Diagnostic indication (2 color indicator)			3 wire (NPN)	5V 12V			**Y7NWV**	**Y7NW**	●	●	○	IC circuit	
				3 wire (PNP)				**Y7PWV**	**Y7PW**	●	●	○		
				2 wire	12V			**Y7BWV**	**Y7BW**	●	●	○	—	

∗ Lead wire length symbols: 0.5m …….. Nil (Example) Y59A
3m……..... L Y59AL
5m…….. Z Y59AZ

∗∗ Solid state switches marked with a "○" symbol are produced upon receipt of order.

Symbol



Specifications

Bore size (mm)		16	20	25	32	40	50	63
Fluid		Air						
Action		Double acting						
Operating pressure range		0.15 to 0.8MPa						
Proof pressure		1.2MPa						
Ambient and fluid temperature		5 to 60°C						
Cushion		Air cushion						
Lubrication		Non-lube						
Stroke length tolerance		1000 or less $^{+1.8}_{0}$ 1001 to 3000 $^{+2.8}_{0}$	2700 or less $^{+1.8}_{0}$, 2701 to 5000 $^{+2.8}_{0}$					
Port size	**Front/Side ports**	M5 x 0.8		Rc 1/8		Rc 1/4	Rc 3/8	
	Bottom ports (centralized piping type only)	ø4		ø5	ø6	ø8	ø10	ø11

Stroke adjusting unit specifications

Bore size (mm)	16		20			25			32			40			50			63		
Unit symbol	A	L	A	L	H	A	L	H	A	L	H	A	L	H	A	L	H	A	L	H
Configuration and shock absorber	With adjusting bolt	With RB 0806 + adjusting bolt	With adjusting bolt	With RB 0806 + adjusting bolt	With RB 1007 + adjusting bolt	With adjusting bolt	With RB 1007 + adjusting bolt	With RB 1412 + adjusting bolt	With adjusting bolt	With RB 1412 + adjusting bolt	With RB 2015 + adjusting bolt	With adjusting bolt	With RB 1412 + adjusting bolt	With RB 2015 + adjusting bolt	With adjusting bolt	With RB 2015 + adjusting bolt	With RB 2725 + adjusting bolt	With adjusting bolt	With RB 2015 + adjusting bolt	With RB 2725 + adjusting bolt
Stroke fine adjusting range (mm)	0 to –5.6		0 to –6			0 to –11.5			0 to –12			0 to –16			0 to –20			0 to –25		
Stroke adjusting range	When exceeding the stroke fine adjusting range: Use order made specifications "-X416" and "-X417". (Refer to page105 for details.)																			

Shock absorber specifications

Model		RB 0806	RB 1007	RB 1412	RB 2015	RB 2725
Max. energy absorption (J)		2.9	5.9	19.6	58.8	147
Stroke absorption (mm)		6	7	12	15	25
Max. impact speed (mm/s)		1500				
Max. operating frequency (cycles/min)		80	70	45	25	10
Spring force (N)	**Extended**	1.96	4.22	6.86	8.34	8.83
	Compressed	4.22	6.86	15.98	20.50	20.01
Operating temperature range (°C)		5 to 60				

Piston speed

Bore size (mm)		16 to 63
Without stroke adjusting unit		100 to 1000mm/s
Stroke adjusting unit	A unit	100 to 1000mm/s Note 1)
	L unit and H unit	100 to 1500mm/s Note 2)

Note 1) Be aware that when the stroke adjusting range is increased by manipulating the adjusting bolt, the air cushion capacity decreases. Also, when exceeding the air cushion stroke ranges on page 30, the **piston speed** should be **100 to 200mm per second.**

Note 2) For centralized piping, the piston speed is 100 to 1000mm per second.

Note 3) Use at a speed within the absorption capacity range. Refer to page 30.

Theoretical output

Unit: N

Bore size (mm)	Piston area (mm²)	Operating pressure (MPa)						
		0.2	0.3	0.4	0.5	0.6	0.7	0.8
16	200	40	60	80	100	120	140	160
20	314	62	94	125	157	188	219	251
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
50	1962	392	588	784	981	1177	1373	1569
63	3115	623	934	1246	1557	1869	2180	2492

1N = Approx. 0.102kgf, 1MPa = Approx.10.2kgf/cm²

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

Order made specifications

Refer to page 105 regarding order made specifications for series MY1M.

Standard strokes

Bore size (mm)	Standard stroke (mm)*	Max. manufacturable stroke (mm)
16	100, 200, 300, 400, 500, 600, 700 800, 900, 1000, 1200, 1400, 1600 1800, 2000	3000
20, 25, 32, 40 50, 63		5000

* Strokes are manufacturable in 1mm increments, up to the maximum stroke. However, when exceeding a 2000mm stroke, specify "-XB11" at the end of the model number. Refer to the order made specifications on page 105.

Weights

Unit: kg

Bore size (mm)	Basic weight	Additional weight per 50mm of stroke	Side support weight (per set)	Stroke adjusting unit weight (per unit)		
			Type A and B	A unit	L unit	H unit
16	0.67	0.12	0.01	0.03	0.04	—
20	1.11	0.16	0.02	0.04	0.05	0.08
25	1.64	0.24	0.02	0.07	0.11	0.18
32	3.27	0.38	0.04	0.14	0.23	0.39
40	5.88	0.56	0.08	0.25	0.34	0.48
50	10.06	0.77	0.08	0.36	0.51	0.81
63	16.57	1.11	0.17	0.68	0.83	1.08

Calculation method Example: **MY1M25-300A**

Basic weight 1.64kg
Additional weight ..... 0.24/50mm stroke
Weight of A unit 0.07kg

Cylinder stroke 300mm
1.64 + 0.24 x 300 ÷ 50 + 0.07 x 2 = Approx. 3.22kg

Cushion Capacity

Cushion selection

<Air cushion>
Air cushions are a standard feature on mechanically jointed rodless cylinders.
The air cushion mechanism is installed to avoid excessive impact of the piston at the stroke end during high speed operation. The air cushion does not act to decelerate the piston near the stroke end.
The ranges of load and speed that air cushions can absorb are within the air cushion limit lines shown in the graphs.

<Stroke adjusting unit with shock absorber>
Use this unit when operating with a load or speed exceeding the air cushion limit line, or when cushioning is necessary because the cylinder stroke is outside of the effective air cushion stroke range due to stroke adjustment.

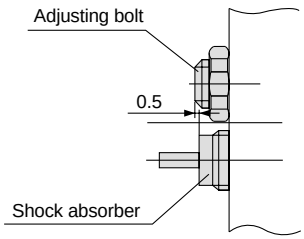
L unit
Use this unit when the cylinder stroke is outside of the effective air cushion range even if the load and speed are within the air cushion limit line, or when the cylinder is operated in a load and speed range above the air cushion limit line and below the L unit limit line.

H unit
Use this unit when the cylinder is operated in a load and speed range above the L unit limit line and below the H unit limit line.

⚠ Caution

1. **Refer to the diagram below when using the adjusting bolt to perform stroke adjustment.**

   When the effective stroke of the shock absorber decreases as a result of stroke adjustment, the absorption capacity decreases dramatically. Secure the adjusting bolt at the position where it protrudes approximately 0.5mm from the shock absorber.



2. Do not use a shock absorber and air cushion together.

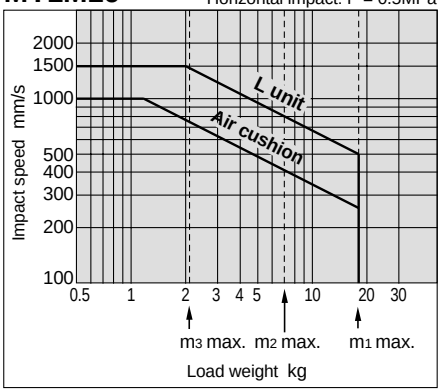
Air cushion stroke

Unit: mm

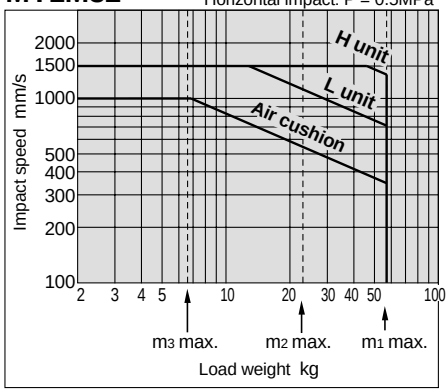
Bore size (mm)	Cushion stroke
16	12
20	15
25	15
32	19
40	24
50	30
63	37

Absorption capacity of air cushion and stroke adjusting units

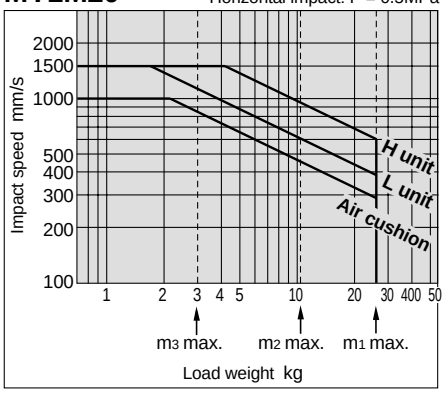
MY1M16 Horizontal impact: P = 0.5MPa



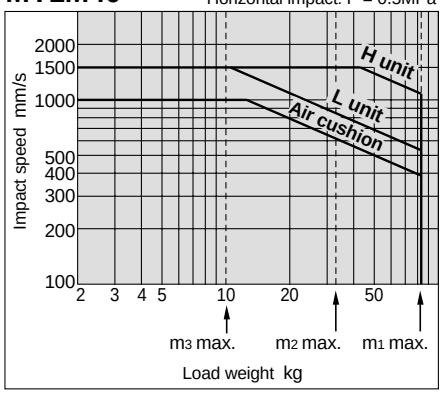
MY1M32 Horizontal impact: P = 0.5MPa



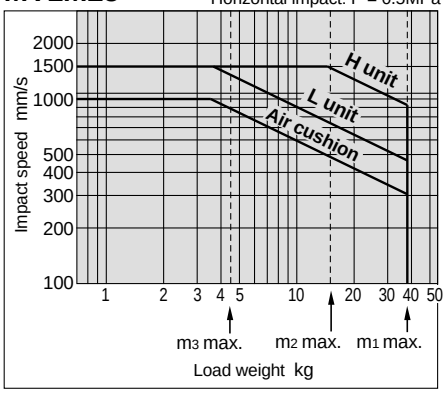
MY1M20 Horizontal impact: P = 0.5MPa



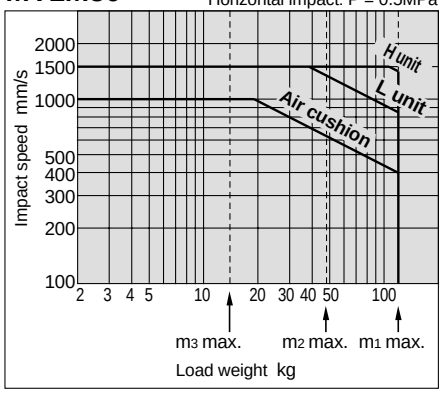
MY1M40 Horizontal impact: P = 0.5MPa



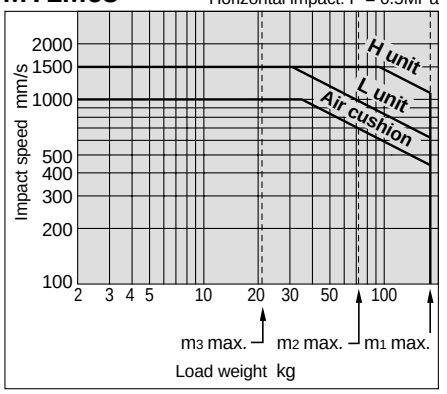
MY1M25 Horizontal impact: P = 0.5MPa



MY1M50 Horizontal impact: P = 0.5MPa



MY1M63 Horizontal impact: P = 0.5MPa



Stroke adjusting unit holding bolt tightening torque

Unit: N·m

Bore size (mm)	Unit	Tightening torque
16	A	0.6
	L	
20	A	1.5
	L	
	H	
25	A	3.0
	L	
	H	5.0
32	A	5.0
	L	
	H	12
40	A	12
	L	
	H	
50	A	12
	L	
	H	
63	A	24
	L	
	H	

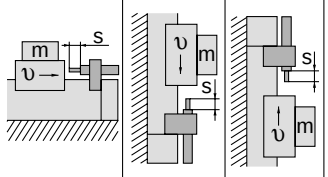
Stroke adjusting unit lock plate holding bolt tightening torque

Unit: N·m

Bore size (mm)	Unit	Tightening torque
25	L	1.2
	H	3.3
32	L	3.3
	H	10
40	L	3.3
	H	10

Calculation of absobed energy for stroke adjusting unit with shock absorber

Unit N·m

	Horizontal	Vertical (downward)	Vertical (upward)
Type of impact			
Kinetic energy E_1	$\frac{1}{2}m\cdot\upsilon^2$		
Thrust energy E_2	F·s	F·s + m·g·s	F·s – m·g·s
Absorbed energy E	$E_1 + E_2$		

Symbols

υ: Speed of impacting object (m/s)
m: Weight of impacting object (kg)
F: Cylinder thrust (N)
g: Gravitational acceleration (9.8m/s²)
s: Shock absorber stroke (m)

Note) The speed of the impacting object is measured at the time of impact with the shock absorber.

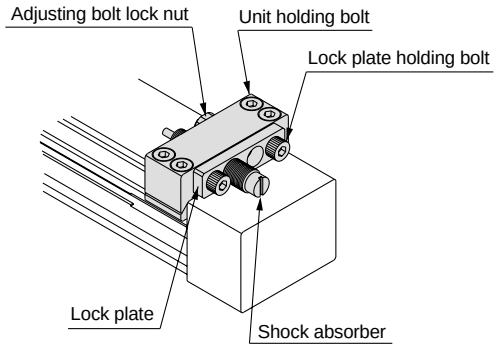
⚠ Specific product precautions

Be sure to read before handling. Refer to pages 107 through 114 for safety instructions and common precautions.

⚠ Caution

Be careful not to get hands caught in the unit.

• When using a product with stroke adjusting unit, the space between the slide table (slider) and the stroke adjusting unit becomes narrow, causing a danger of hands getting caught. Install a protective cover to prevent direct contact with the human body.



<Fastening of unit>

The unit can be fastened by uniformly tightening the four unit holding bolts.

⚠ Caution

Do not operate with the stroke adjusting unit fixed in an intermediate position.

When the stroke adjusting unit is fixed in an intermediate position, slippage can occur depending on the amount of energy released at the time of an impact. In this case, we recommend using the adjusting bolt mounting brackets available with order made specifications – X 416 and – X 417. For other lengths, consult P/A. (Refer to "Stroke adjustment unit holding bolt tightening torque".)

<Stroke adjustment with adjusting bolt>

Loosen the adjusting bolt lock nut, and adjust the stroke from the lock plate side using a hexagon wrench. Re-tighten the lock nut.

<Stroke adjustment with 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 to secure the shock absorber.

Take care not to over-tighten the holding bolts. (Except ø10 and ø20 L unit.) (Refer to "Stroke adjusting unit lock plate holding bolt tightening torque".)

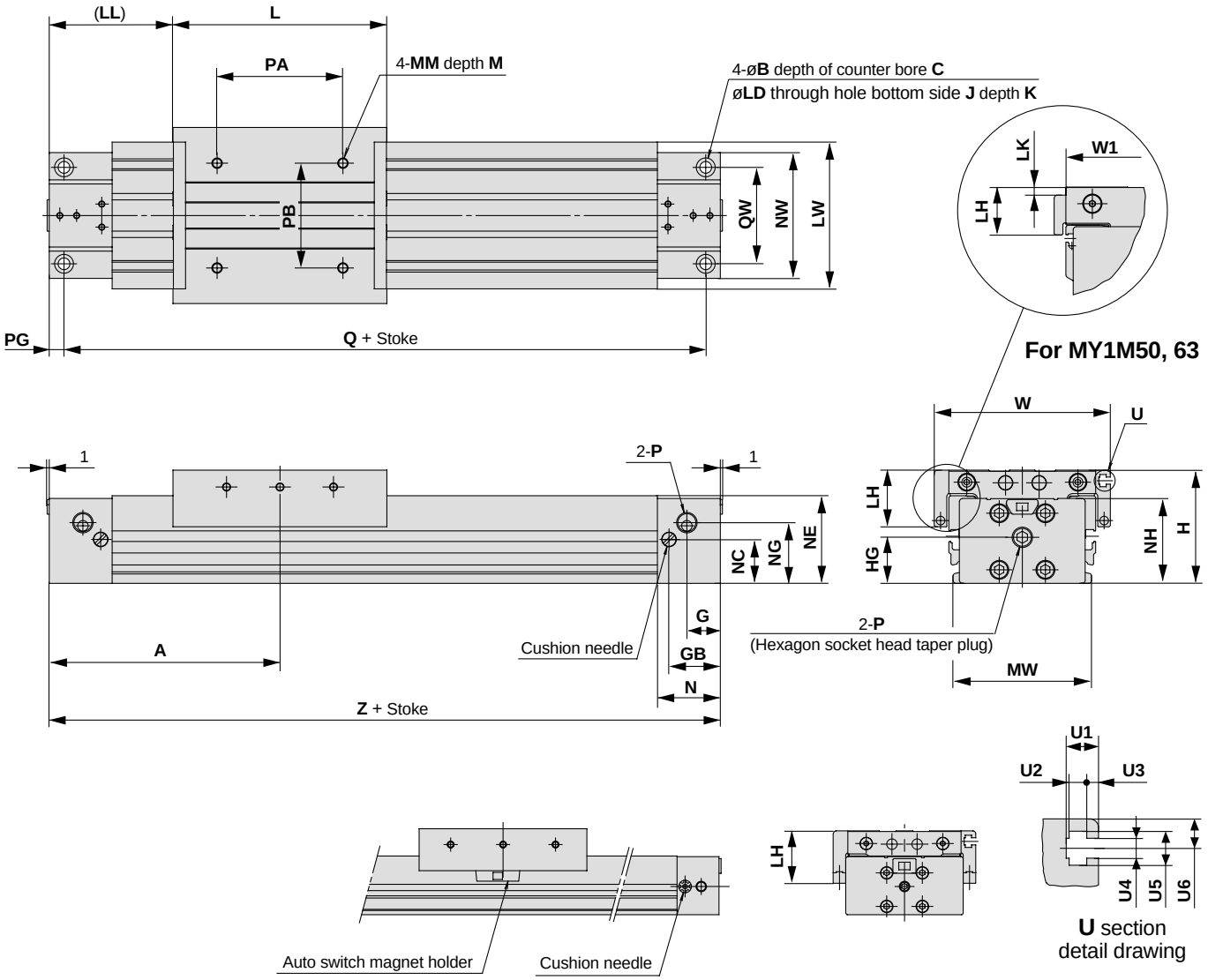
Note)

Slight bending may occur in the lock plate due to tightening of the lock plate holding bolts. This is not a problem for the shock absorber and locking function.

Standard Type ø16 to ø63

CAD

MY1M Bore size — Stroke



For MY1M16, 20

Model	A	B	C	G	GB	H	HG	J	K	L	LD	LH	(LL)	LW	M	MM	MW	N
MY1M16	80	6	3.5	8.5	16.2	40	13.5	M5 x 0.8	10	80	3.6	22.5	40	54	6	M4 x 0.7	—	20
MY1M20	100	7.5	4.5	10.5	20	46	17	M6 x 1	12	100	4.8	23	50	58	7.5	M5 x 0.8	—	25
MY1M25	110	9	5.5	16	24.5	54	22	M6 x 1	9.5	102	5.6	27	59	70	10	M5 x 0.8	66	30
MY1M32	140	11	6.5	19	30	68	27	M8 x 1.25	16	132	6.8	35	74	88	13	M6 x 1	80	37
MY1M40	170	14	8.5	23	36.5	84	34.5	M10 x 1.5	15	162	8.6	38	89	104	13	M6 x 1	96	45
MY1M50	200	17	10.5	25	37.5	107	45	M14 x 2	28	200	11	29	100	128	15	M8 x 1.25	—	47
MY1M63	230	19	12.5	27.5	39.5	130	59	M16 x 2	32	230	13.5	32.5	115	152	16	M10 x 1.5	—	50

Model	NC	NE	NG	NH	NW	P	PA	PB	PG	Q	QW	W	W1	LK	Z
MY1M16	13.5	28	13.5	27.7	56	M5 x 0.8	40	40	3.5	153	48	68	—	—	160
MY1M20	17	34	17	33.7	60	M5 x 0.8	50	40	4.5	191	45	72	—	—	200
MY1M25	21	41.8	29	40.5	60	Rc 1/8	60	50	7	206	46	84	—	—	220
MY1M32	26	52.3	34	50	74	Rc 1/8	80	60	8	264	60	102	—	—	280
MY1M40	32	65.3	42.5	63.5	94	Rc 1/4	100	80	9	322	72	118	—	—	340
MY1M50	43.5	84.5	54	83.5	118	Rc 3/8	120	90	10	380	90	144	128	2	400
MY1M63	56	104	68	105	142	Rc 3/8	140	110	12	436	110	168	152	5.5	460

"P" indicates cylinder supply ports. ∗ The plug for MY1M16/20-P is a hexagon socket head plug.

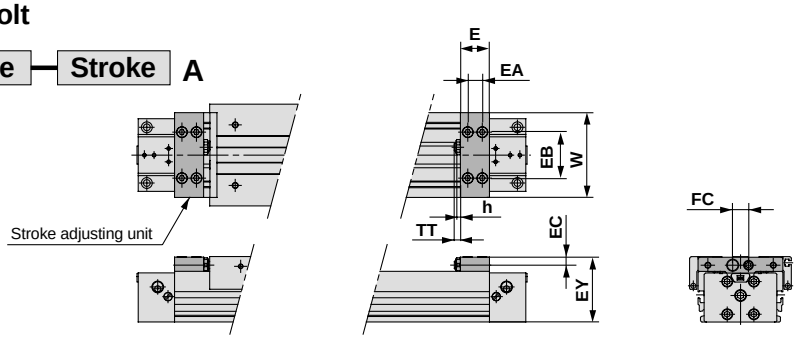
U section detail dimensions

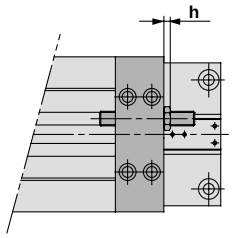
Model	U1	U2	U3	U4	U5	U6
MY1M16	5.5	3	2	3.4	5.8	5
MY1M20	5.5	3	2	3.4	5.8	5.5
MY1M25	5.5	3	2	3.4	5.8	5
MY1M32	5.5	3	2	3.4	5.8	7
MY1M40	6.5	3.8	2	4.5	7.3	8
MY1M50	6.5	3.8	2	4.5	7.3	8
MY1M63	8.5	5	2.5	5.5	8.4	8

CAD MY1M16 ——— SMY1M16, #1 (#1 + #7)
For ø20 to ø63
MY1M Bore size —— SMY1M Bore size, #1 (#1 + #8)

Stroke Adjusting Unit
With adjusting bolt

MY1M Bore size — Stroke **A**



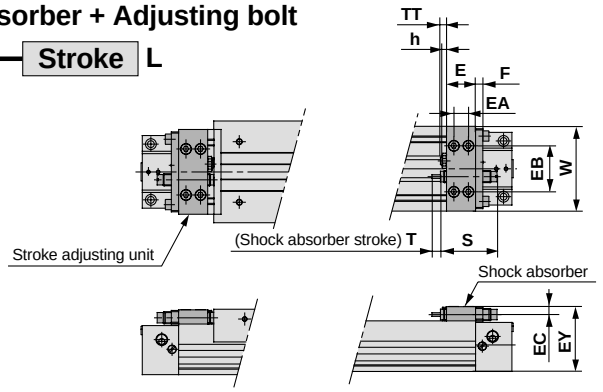


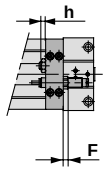
For MY1M50, 63

Model	E	EA	EB	EC	EY	FC	h	TT	W
MY1M16	14.6	7	30	5.8	39.5	14	3.6	5.4 (max. 11)	58
MY1M20	20	10	32	5.8	45.5	14	3.6	5 (max. 11)	58
MY1M25	24	12	38	6.5	53.5	13	3.5	5 (max. 16.5)	70
MY1M32	29	14	50	8.5	67	17	4.5	8 (max. 20)	88
MY1M40	35	17	57	10	83	17	4.5	9 (max. 25)	104
MY1M50	40	20	66	14	106	26	5.5	13 (max. 33)	128
MY1M63	52	26	77	14	129	31	5.5	13 (max. 38)	152

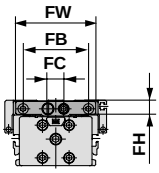
Low load shock absorber + Adjusting bolt

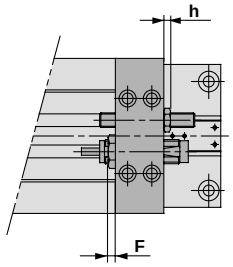
MY1M Bore size — Stroke **L**





For MY1M16, 20



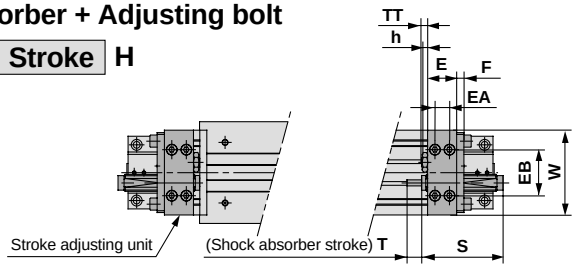


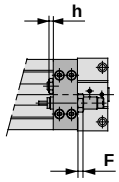
For MY1M50, 63

Model	E	EA	EB	EC	EY	F	FB	FC	FH	FW	h	S	T	TT	W	Shock absorber model
MY1M16	14.6	7	30	5.8	39.5	4	—	14	—	—	3.6	40.8	6	5.4 (max. 11)	58	RB0806
MY1M20	20	10	32	5.8	45.5	4	—	14	—	—	3.6	40.8	6	5 (max. 11)	58	RB0806
MY1M25	24	12	38	6.5	53.5	6	54	13	13	66	3.5	46.7	7	5 (max. 16.5)	70	RB1007
MY1M32	29	14	50	8.5	67	6	67	17	16	80	4.5	67.3	12	8 (max. 20)	88	RB1412
MY1M40	35	17	57	10	83	6	78	17	17.5	91	4.5	67.3	12	9 (max. 25)	104	RB1412
MY1M50	40	20	66	14	106	6	—	26	—	—	5.5	73.2	15	13 (max. 33)	128	RB2015
MY1M63	52	26	77	14	129	6	—	31	—	—	5.5	73.2	15	13 (max. 38)	152	RB2015

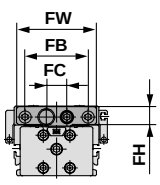
High load shock absorber + Adjusting bolt

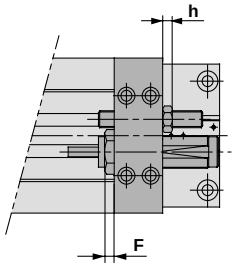
MY1M Bore size — Stroke **H**



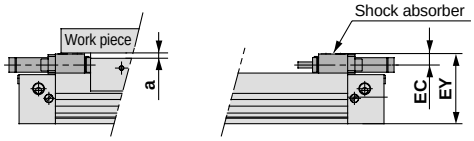


For MY1M16, 20





For MY1M50, 63



∗ Since dimension EY of the H type unit is greater than the table top height (dimension H), when mounting a work piece that exceeds the overall length (dimension L) of the slide table, allow a clearance of dimension "a" or larger on the work piece side.

Model	E	EA	EB	EC	EY	F	FB	FC	FH	FW	h	S	T	TT	W	Shock absorber model	a
MY1M20	20	10	32	7.7	50	5	—	14	—	—	3.5	46.7	7	5 (max. 11)	58	RB1007	5
MY1M25	24	12	38	9	57.5	6	52	17	16	66	4.5	67.3	12	5 (max. 16.5)	70	RB1412	4.5
MY1M32	29	14	50	11.5	73	8	67	22	22	82	5.5	73.2	15	8 (max. 20)	88	RB2015	6
MY1M40	35	17	57	12	87	8	78	22	22	95	5.5	73.2	15	9 (max. 25)	104	RB2015	4
MY1M50	40	20	66	18.5	115	8	—	30	—	—	11	99	25	13 (max. 33)	128	RB2725	9
MY1M63	52	26	77	19	138.5	8	—	35	—	—	11	99	25	13 (max. 38)	152	RB2725	9.5

CAD

・Stroke adjusting unit
With adjusting bolt
MY1M16 — SMY1M16, #3 (#1 + #3 + #7)
For ø20 to ø63
MY1M Bore size — SMY1M Bore size
#3 (#1 + #3 + #8)

・Low load shock absorber + Adjusting bolt
MY1M16 — SMY1M16, #4 (#1 + #4 + #7)
For ø20 to ø63
MY1M Bore size — SMY1M Bore size, #4 (#1 + #4 + #8)

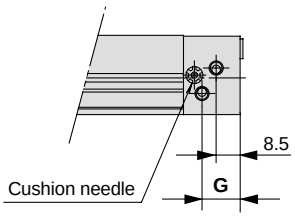
・High load shock absorber + Adjusting bolt
MY1M Bore size — SMY1M Bore size, #5 (#1 + #5 + #8)

Centralized Piping Type ø16, ø20

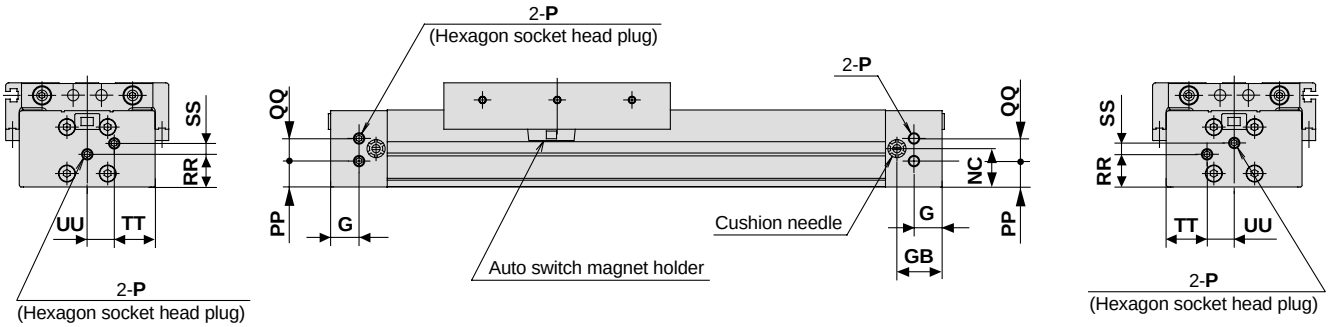
CAD

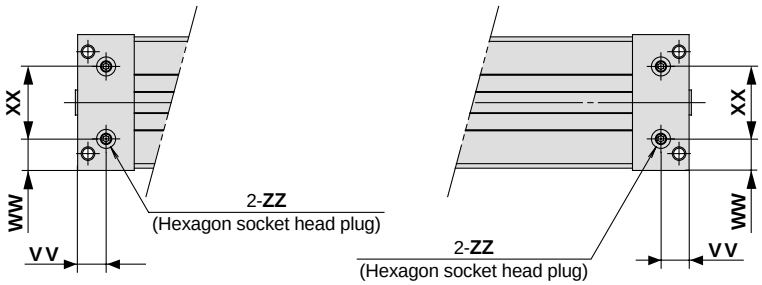
Refer to page 115 regarding centralized piping port variations.
Dimensions for types other than centralized piping and for the stroke adjusting unit are identical to the standard type dimensions.
Refer to pages 32 and 33 for details regarding dimensions etc.

MY1M Bore size G— Stroke



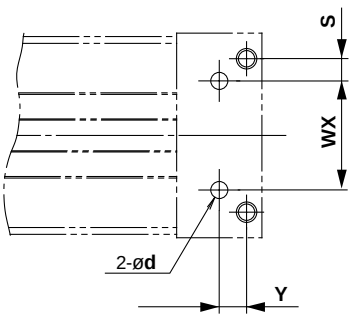
For MY1M16

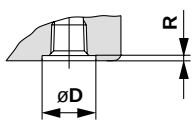




Model	G	GB	NC	P	PP	QQ	RR	SS	TT	UU	VV	WW	XX	ZZ
MY1M16G	13.5	16.2	14	M5 x 0.8	7.5	9	11	2.5	15	14	10	13	30	M5 x 0.8
MY1M20G	12.5	20	17	M5 x 0.8	11.5	10	14.5	5	18	12	12.5	14	32	M5 x 0.8

"P" indicates cylinder supply ports.





Bottom side (ZZ) piping (applicable O-ring)

Hole sizes for centralized piping on the bottom

(Machine the mounting side to the dimensions below.)

Model	WX	Y	S	d	D	R	Applicable O-ring
MY1M16G	30	6.5	9	4	8.4	1.1	C6
MY1M20G	32	8	6.5	4	8.4	1.1	

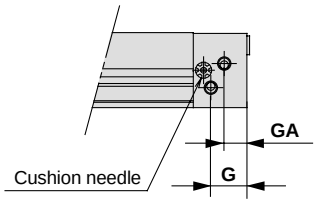
CAD MY1M16G —— SMY1M16, #2 (#2 + #7)
MY1M20G —— SMY1M20, #2 (#2 + #8)

Centralized Piping Type ø25 to ø63

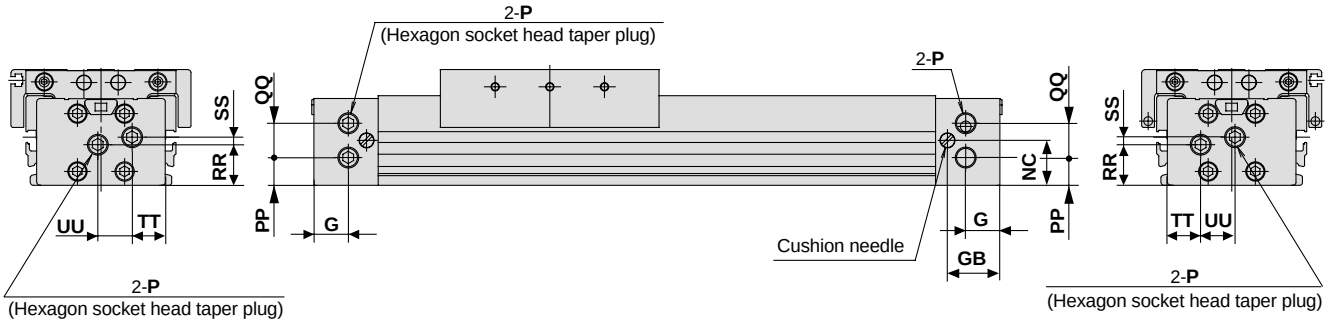
CAD

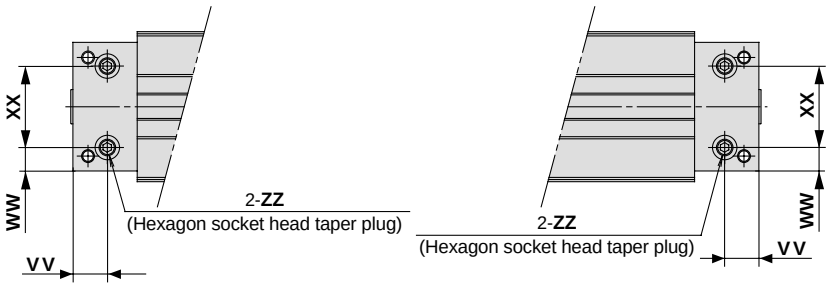
Refer to page 115 regarding centralized piping port variations.
Dimensions for types other than centralized piping and for the stroke adjusting unit are identical to the standard type dimensions.
Refer to pages 32 and 33 for details regarding dimensions, etc.

MY1M Bore size **G** — Stroke



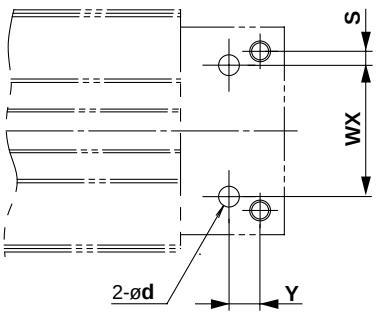
For MY1M50, 63

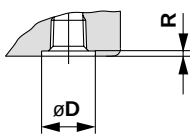




Model	G	GA	GB	NC	P	PP	QQ	RR	SS	TT	UU	VV	WW	XX	ZZ
MY1M25G	16	—	24.5	21	Rc 1/8	13	16	19	3.5	15.5	16	16	11	38	Rc 1/16
MY1M32G	19	—	30	26	Rc 1/8	18	16	24	4	21	16	19	13	48	Rc 1/16
MY1M40G	23	—	36.5	32	Rc 1/4	16.5	26	25.5	10.5	22.5	24.5	23	20	54	Rc 1/8
MY1M50G	27	25	37.5	43.5	Rc 3/8	26	28	35	10	35	24	28	22	74	Rc 1/4
MY1M63G	29.5	27.5	39.5	60	Rc 3/8	42	30	49	13	43	28	30	25	92	Rc 1/4

"P" indicates cylinder supply ports.





Bottom side (ZZ) piping (applicable O-ring)

Hole sizes for centralized piping on the bottom

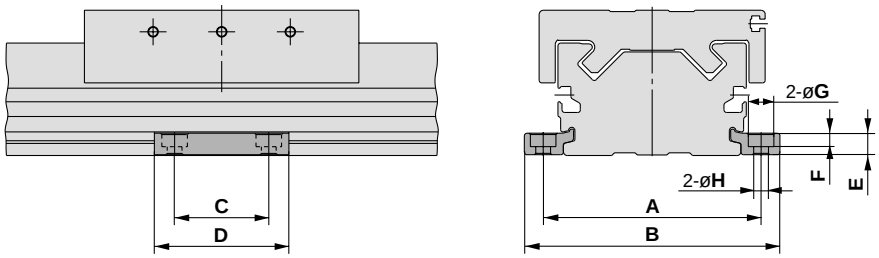
(Machine the mounting side to the dimensions below.)

Model	WX	Y	S	d	D	R	Applicable O-ring
MY1M25G	38	9	4	6	11.4	1.1	C9
MY1M32G	48	11	6			1.1	
MY1M40G	54	14	9	8	13.4	1.1	C11.2
MY1M50G	74	18	8	10	17.5	1.1	C15
MY1M63G	92	18	9	10	17.5	1.1	

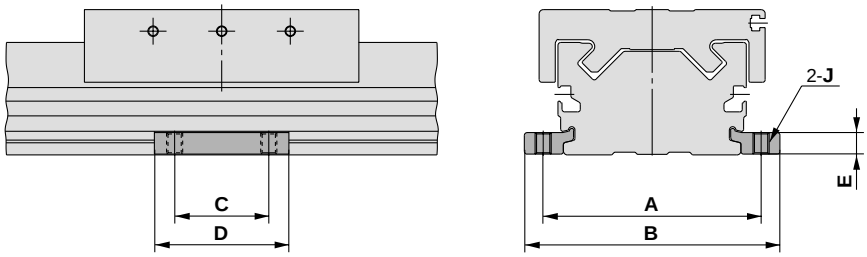
CAD MY1M (Bore size) G — SMY1M (Bore size), #2 (#2 + #8)

Side Support

Side support A
MY-S□A



Side support B
MY-S□B



Model	Applicable cylinder	A	B	C	D	E	F	G	H	J
MY-S16$^{A}_{B}$	**MY1M16**	61	71.6	15	26	4.9	3	6.5	3.4	M4 x 0.7
MY-S20$^{A}_{B}$	**MY1M20**	67	79.6	25	38	6.4	4	8	4.5	M5 x 0.8
MY-S25$^{A}_{B}$	**MY1M25**	81	95	35	50	8	5	9.5	5.5	M6 x 1
MY-S32$^{A}_{B}$	**MY1M32**	100	118	45	64	11.7	6	11	6.6	M8 x 1.25
MY-S40$^{A}_{B}$	**MY1M40**	120	142	55	80	14.8	8.5	14	9	M10 x 1.5
	MY1M50	142	164							
MY-S63$^{A}_{B}$	**MY1M63**	172	202	70	100	18.3	10.5	17.5	11.5	M12 x 1.75

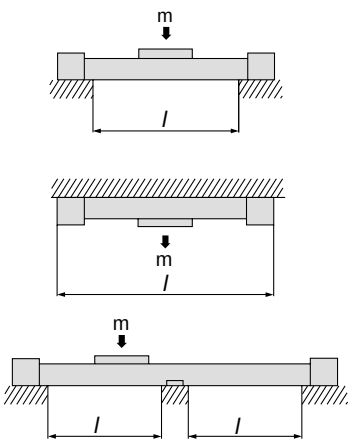
CAD

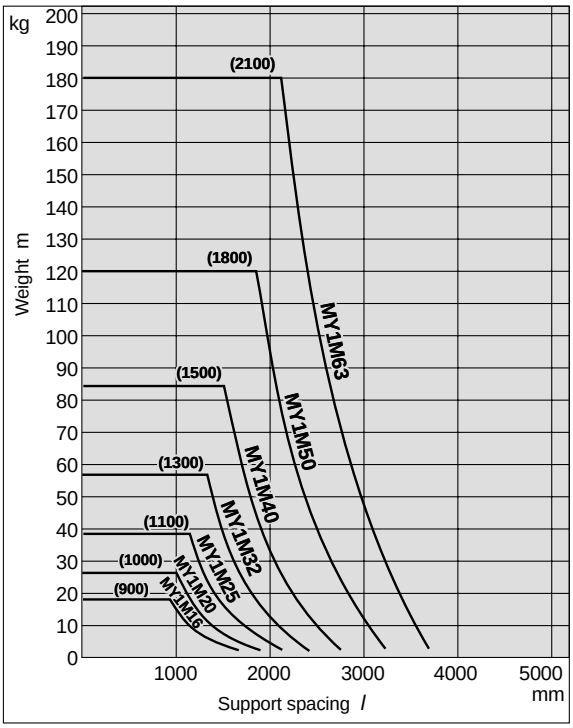
- Side support A
MY-S16A —— SMY1B16, #5 (#1 + #5 + #7)
For ø20 to ø63
MY-S (Bore size) A —— SMY1M (Bore size), #6 (#1 + #6 + #8)

- Side support B
MY-S16B —— SMY1M16, #6 (#1 + #6 + #7)
For ø20 to ø63
MY-S (Bore size) B —— SMY1M (Bore size) #7 (#1 + #7 + #8)

Guide for Using Side Supports

For long stroke operation, the cylinder tube may be deflected depending on its own weight and the load weight. 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.



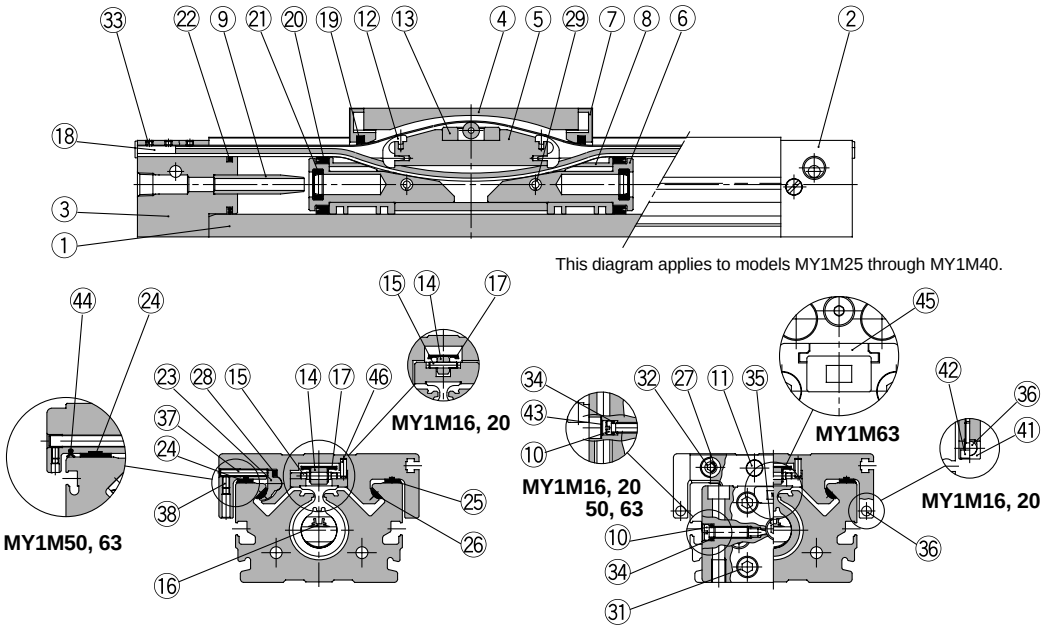


⚠ Caution

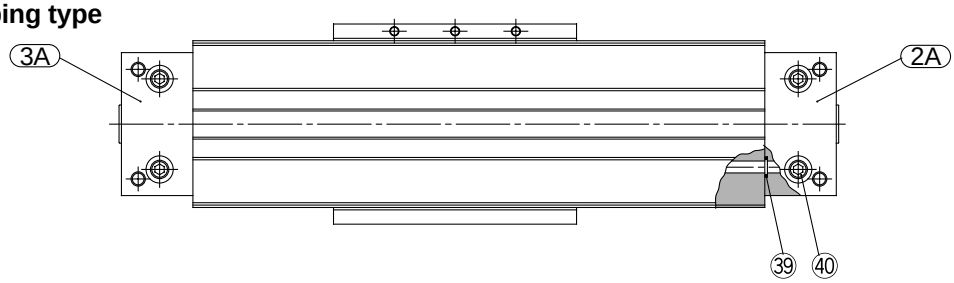
1. If the cylinder mounting surfaces are not measured accurately, using a side support may cause poor operation. Therefore, be sure to level the cylinder tube when mounting. Also, for long stroke operation involving vibration and impact, use of a side support is recommended even if the spacing value is within the allowable limits shown in the graph.
2. Support brackets are not for mounting; use them solely for providing support.

Construction

Standard type



Centralized piping type



Parts list

No.	Description	Material	Note
1	**Cylinder tube**	Aluminum alloy	Hard anodized
2	**Head cover R**	Aluminum alloy	Hard anodized
2A	**Head cover WR**	Aluminum alloy	Hard anodized
3	**Head cover L**	Aluminum alloy	Hard anodized
3A	**Head cover WL**	Aluminum alloy	Hard anodized
4	**Slide table**	Aluminum alloy	Hard anodized
5	**Piston yoke**	Aluminum alloy	Chromated
6	**Piston**	Aluminum alloy	Chromated
7	**End cover**	Special resin	
8	**Wear ring**	Special resin	
9	**Cushion ring**	Brass	
10	**Cushion needle**	Rolled steel	Nickel plated
11	**Stopper**	Carbon steel	
12	**Belt separator**	Special resin	
13	**Coupler**	Sintered iron material	
14	**Guide roller**	Special resin	
15	**Guide roller shaft**	Stainless steel	
18	**Belt clamp**	Special resin	
23	**Adjusting arm**	Aluminum alloy	Hard anodized
24	**Bearing R**	Special resin	

Parts list

No.	Description	Material	Note
25	**Bearing L**	Special resin	
26	**Bearing S**	Special resin	
27	**Spacer**	Stainless steel	
28	**Backup spring**	Stainless steel	
29	**Spring pin**	Carbon tool steel	Black zinc chromated
31	**Hexagon socket head cap screw**	Chrome molybdenum steel	Nickel plated
32	**Hexagon socket head button bolt**	Chrome molybdenum steel	Nickel plated
33	**Hexagon socket head set screw**	Chrome molybdenum steel	Black zinc chromated/Nickel plated
35	**Hexagon socket head taper plug**	Carbon steel	Nickel plated
36	**Magnet**	Rare earth magnet	
37	**Hexagon socket head set screw**	Chrome molybdenum steel	Black zinc chromated
38	**Hexagon socket head set screw**	Chrome molybdenum steel	Black zinc chromated
40	**Hexagon socket head taper plug**	Carbon steel	Nickel plated
41	**Magnet holder**	Special resin	(ø16, ø20)
42	**Hexagon socket head cap screw**	Chrome molybdenum steel	Nickel plated
43	**Type CR retaining ring**	Spring steel	(except ø25 to ø40)
44	**Side scraper**	Special resin	(ø50, ø63)
45	**Head plate**	Aluminum alloy	Hard anodized (ø63)
46	**Parallel pin**	Stainless steel	(except ø16, ø20)

Seal list

No.	Description	Material	Qty.	MY1M16	MY1M20	MY1M25	MY1M32	MY1M40	MY1M50	MY1M63
16	**Seal belt**	Special resin	1	MY16-16A-Stroke	MY20-16A-Stroke	MY25-16A-Stroke	MY32-16A-Stroke	MY40-16A-Stroke	MY50-16A-Stroke	MY63-16A-Stroke
Note) 17	**Dust seal band**	Stainless steel	1	MY16-16B-Stroke	MY20-16B-Stroke	MY25-16B-Stroke	MY32-16B-Stroke	MY40-16B-Stroke	MY50-16B-Stroke	MY63-16B-Stroke
19	**Scraper**	NBR	2	MYM16-15AK0500	MYM20-15AK0501	MYM25-15AA5903	MYM32-15AA5904	MYM40-15AA5905	MYM50-15AK0502	MYM63-15AK0503
20	**Piston seal**	NBR	2	GMY16	GMY20	GMY25	GMY32	GMY40	GMY50	GMY63
21	**Cushion seal**	NBR	2	MYB16-15-A7163	MYB20-15-A7164	RCS-8	RCS-10	RCS-12	MC-16	MC-20
22	**Tube gasket**	NBR	2	P12	P16	TMY-25	TMY-32	TMY-40	P44	P53
34	**O-ring**	NBR	2	ø4 x ø1.8 x ø1.1	ø5.1 x ø3 x ø1.05	ø7.15 x ø3.75 x ø1.7	ø8.3 x ø4.5 x ø1.9	C-4	C-4	C-4
39	**O-ring**	NBR	4	ø7 x ø4 x ø1.5	ø7 x ø4 x ø1.5	C-6	C-7	C-9	C-11.2	C-14

Note) Two types of dust seal band are available. Verify the type to use, since the part number varies depending on the treatment of the hexagon socket head set screw ㉝.
(A) Black zinc chromated ⟶ MY□□-16B-Stroke (B) Nickel plated ⟶ MY□□-16BW-Stroke