Mechanically Jointed Rodless Cylinder

MY1 Series



Five types of guide allow a wide range of selections.

Series	Variations					Bore	e siz	e (mr	n)		Air	Stroke	Side	Floating	End	(3)	
Series	Guide type	Piping type	10	16	20	25	32	40 5	50 63	80 100	cushion	adjustment Unit	support	bracket	lock	Made to Order	
MY1B	Basic type	$H \to H$	-		4	.	-	4 -(ģ-ģ	-è-è	(2)						P. 12
MY1M	Slide bearing guide type	e Centralized	+		4	.	-	4 -(þ-þ			_				Intermediate stroke Long stroke	P. 12
MY1C	Cam follower guide type	e piping Standard	+		\	.	-	4 -(þ-þ			_				Dust seal band NBR lining	P. 12
MY1H	Linear guide type	piping	-0		\	.	-	-	\square		(2)	_	_ - - -			soft type RJ series mounted	P. 12
MY1HT	High rigidity/Linear guide type		+	+	+	+	+	+	þ-þ	+-+							P. 13
		Note 1) ø10	is av	ailabl	e wit	h cer	ntral	piping	g only.	Note 2) a	10 is availa	ble with rub	ber bumper	only.			

Note 1) of 0 is available with central piping only. Note 2) of 0 is available with rubber bumper only Note 3) Availability for Made-to-Order differs, depending on the size and the model. Note 4) Except of 0 to of 100 Note 5) Except of 0



With 5 standardized guide types



Seal belt

Minimal leakage seal construction

 The flexible material of the seal belt allows for improved adherence to the cylinder tube, resulting in a reduced leakage amount. (50% reduction compared with the current product)

Applicable models MY1□16 to 50

Dust seal band with improved holding force

• The seal magnet on the cylinder tube adsorbs the dust seal band with magnetic force, resulting in improved holding force.



 The dust seal band can be easily removed for replacement by simply loosening the two holding screws. Easier maintenance

Applicable models MY1B10, 25 to 40, 80, 100 MY1H10, 25 to 40



Allows for piping to be connected according to installation conditions. Centralized piping type for increased piping freedom



MY1M and MY1C compatibility guaranteed

• With the same outer dimensions and workpiece mounting dimensions, both series are compatible with stroke adjustment units, side supports, auto switches, etc.



Built-in adjustment bolt and shock absorber, 3 stroke adjustment unit types

• The shock absorber softens the impact of workpieces at the stroke end, and the adjustment bolt increases the repeatability of the stopping position.

The following 3 unit types each meet the specification requirements.

• An intermediate fixing spacer for stopping slide tables in the middle of the stroke is available as well.



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Auto switch wiring storage system To increase safety, auto switch lead wires can be stored to prevent accidental contact with slide tables.

 Improved safety and accuracy of the entire system can be achieved by storing auto switch lead wires in the product's designated lead wire containment grooves.



Applicable models MY1M16 to 63 MY1C16 to 63

Extremely easy to maintain

 It is possible to replace cylinders with a workpiece being mounted.



Contributes to reduction in mounting time. Auto switches can be mounted from the front at any position on the mounting groove.

Auto switches can be mounted from the front.



Applicable models MY1B25 to 40 MY1H25 to 40 MY1HT50, 63

Two mounting types, Space saving

• The cylinder body can be secured directly from either the top or bottom without the use of mounting brackets. This does not change the overall length dimension.



Carling						Bore siz	ze (mm)					Demo
Series		10	16	20	25	32	40	50	63	80	100	Faye
-	MY1B		•	-	-	•	•	-	•	•		P. 1233
2	MY1M	\vdash								_		P. 1257
	MY1C	\vdash								_		P. 1277
and the second s	MY1H	$\vdash \phi$							_	_		D 1207
A. A.	MY1H End lock										_	F. 1297
D.	MY1HT	\vdash								-		P. 1319

MY1 Series Variations

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MY1 Series Model Selection 1

Following are the steps for selecting the most suitable MY1 series to your application.

Standards for Tentative Model Selection





SMC

Types of Moment Applied to Rodless Cylinders

Multiple moments may be generated depending on the mounting orientation, load, and position of the center of gravity.



MY1 Series **Model Selection 2**

Following are the steps for selecting the most suitable MY1 series to your application.

Calculation of Guide Load Factor 1. Operating Conditions -- Mounting Orientation Operating cylinder MY1H40-500 Average operating speed Ua ... 300 mm/s 1. Horizontal 2. Wall mounting mounting Mounting orientation Wall mounting P. 1260 Wb: MGGLB25-200 (4.35 kg) Cushion Air cushion $(\delta = 1/100)$ MY1H40-500 3. Ceilina mount Vertical P. 1280 mounting P. 1322 Wc: MHL2-16D1 (795 g) Wa: Connection plate t = 10 (880 g) Wd: Workpiece (500 g) For actual examples of calculation for each orientation, refer to the pages above





3. Composite Center of Gravity Calculation



4. Calculation of Load Factor for Static Load



Model Selection MY1 Series



6. Sum and Examination of Guide Load Factors

 $\Sigma \alpha = \Omega_1 + \Omega_2 + \Omega_3 + \Omega_4 + \Omega_5 = 0.60 \leq 1$

The above calculation is within the allowable value, and therefore the selected model can be used.

Select a shock absorber separately.

In an actual calculation, when the sum of guide load factors α in the formula above is more than 1, consider decreasing the speed, increasing the bore size, or changing the product series.

This calculation can be easily made using the "SMC Pneumatics CAD System".



Allowable Moment





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MY1B Series **Prior to Use**

Maximum Allowable Moment/Maximum Load Mass

Mardal	Bore size	Maximum a	allowable moi	ment (N·m)	Maximum load mass (kg)			
Model	(mm)	M1	M2	Мз	m1	m2	m3	
	10	0.8	0.1	0.3	5.0	1.0	0.5	
	16	2.5	0.3	0.8	15	3.0	1.7	
	20	5.0	0.6	1.5	21	4.2	3.0	
	25	10	1.2	3.0	29	5.8	5.4	
MV1D	32	20	2.4	6.0	40	8.0	8.8	
IVITID	40	40	4.8	12	53	10.6	14	
	50	78	9.3	23	70	14	20	
	63	160	19	48	83	16.6	29	
	80	315	37	95	120	24	42	
	100	615	73	184	150	30	60	

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.

Caution on Design

We recommend installing an external shock absorber when the cylinder is combined with another guide (connection with floating bracket, etc.) and the maximum allowable load is exceeded, or when the operating speed is 1000 to 1500 mm/s for bore sizes ø16, ø50, ø63, ø80 and ø100.

Load mass (kg)



<Calculation of guide load factor>

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

* To evaluate, use $\mathfrak{V}a$ (average speed) for (1) and (2), and \mathfrak{V} (collision speed $\mathfrak{V} = 1.4$ $\mathfrak{V}a$) for (3). Calculate mmax for (1) from the maximum allowable load graph (m, m, m) and Mmax for (2) and (3) from the maximum allowable moment graph (M, Me, M).

Sum of guide	$\Sigma \alpha = Load mass [m]$	Static moment [M] (1)	Dynamic moment [ME] (2)
load factors	Maximum allowable load [mmax]	Allowable static moment [Mmax]	Allowable dynamic moment [Mamax]

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 workpiece, multiple moments may occur. When this happens, the sum of the load factors (Zx) is the total of all such moments.

2. Reference formula [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)
- Fe: Load equivalent to impact (at impact with stopper) (N) Ua: Average speed (mm/s)
- M: Static moment (N·m)
- WI: Static moment (N-m
- $\mathcal{V} = 1.4 \mathcal{V}a \text{ (mm/s) } F_{\text{E}} = 1.4 \mathcal{V}a \cdot \delta \cdot \mathbf{m} \cdot \mathbf{g}$
- $\therefore M_{E} = \frac{1}{2} F_{E} L_{1} = 4.57 \Im a \delta m L,$
 - 3
- (MY1B10, MY1H10) With air cushion = 1/100 With shock absorber = 1/100 g: Gravitational acceleration (9.8 m/s²)

U: Collision speed (mm/s)

ME: Dynamic moment (N·m)

With rubber bumper = 4/100

δ: Damper coefficient

L1: Distance to the load's center of gravity (m)

- Note 4) 1.4Uaδ is a dimensionless coefficient for calculating impact force. Note 5) Average load coefficient (= -1): This coefficient is for averaging the maximum load moment at the time of stopper impact according to service life calculations.
- 3. For detaild selection procedures, refer to pages 1236 and 1237.



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 Load Mass

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.

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MY1B Series Model Selection

Following are the steps for selecting the most suitable MY1B series to your application.

Calculation of Guide Load Factor

1. Operating Conditions



MY1B50-500

2. Load Blocking



Mass and Center of Gravity for Workpiece

		Center of gravity				
no.	no. Mass	X-axis	Y-axis	Z-axis		
w	5 kg	40 mm	40 mm	70 mm		

P 1322

For actual examples of calculation for each orientation, refer to the pages above.

3. Calculation of Load Factor for Static Load -

m1: Mass

 $m_1 max$ (from (1) of graph MY1B/ m_1) = 47 (kg) Load factor $C_1 = m_1/m_1 max = 5/47 = 0.11$

M1: Moment

$M_1 \max$ (from (2) of graph MY1B/M ₁) = 52 (N·m)···
$\mathbf{M}_1 = \mathbf{m}_1 \ge \mathbf{g} \ge \mathbf{X} = 5 \ge 9.8 \ge 40 \ge 10^{-3} = 1.96 \text{ (N·m)}$
Load factor $\Omega_2 = M_1/M_1 \max = 1.96/52 = 0.04$

M2: Moment

 $M_2 \max (\text{from (3) of graph MY1B/M}_2) = 6.2 \text{ (N-m)}$ $M_3 = m_1 \times g \times Y = 5 \times 9.8 \times 40 \times 10^{-3} = 1.96 \text{ (N-m)}$ Load factor $Q_3 = M_2/M_2 \max = 1.96/6.2 = 0.32$



5. Sum and Examination of Guide Load Factors

$\Sigma \alpha = \Omega_1 + \Omega_2 + \Omega_3 + \Omega_4 + \Omega_5 = 0.85 \le 1$

The above calculation is within the allowable value, and therefore the selected model can be used. Select a shock absorber separately.

In an actual calculation, when the total sum of guide load factors α in the formula above is more than 1, consider either decreasing the speed, increasing the bore size, or changing the product series. This calculation can be easily made using the "SMC Pneumatics CAD System".



Allowable Moment



Mechanically Jointed Rodless Cylinder **Basic Type** MY1B Series ø10, ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100



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

100 V or less

A90V

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

*2 For details on switch mounting brackets and part numbers, refer to "Switch Mounting Bracket: Part No." on page 1333-1.

*3 1 m type lead wire is only applicable to D-A93.

No

* Lead wire length symbols: 0.5 m Nil (Example) M9NW

1 m M (Example) M9NWM

3 m L

5 m Z

* Solid state auto switches marked with "O" are produced upon receipt of order. ** D-M9 U type cannot be mounted on ø50. Select auto switches in brackets.

Z80

.

.

IC circuit PI C

A90

(Example) M9NWL

(Example) M9NWZ

* There are other applicable auto switches than listed above. For details, refer to page 1333-1.

* Auto switches are shipped together (not assembled)



Mechanically Jointed Rodless Cylinder Basic Type MY1B Series

1/8

ø6

1/4

ø8

3/8

ø10



Specifications										
Bore size (mm)	10	16	20	25	32	40	50	63	80	i
Fluid		Air								
Action		Double acting								
Operating pressure range	0.2 to 0.8 MPa	.2 to 0.8 MPa 0.15 to 0.8 MPa 0.1 to 0.8 MPa					ЛРа			
Proof pressure	1.2 MPa									
Ambient and fluid temperature					5 to 60	°C				
Cushion	Rubber bumper				Ai	r cushi	on			
Lubrication	Non-lube									
Stroke length tolerance	1000 or less $^{+1.8}_{-2.8}$ 2700 or less $^{+1.8}_{-0.7}$, 2701 to				5000 ⁺²	2.8				

M5 x 0.8

α4

Piston Speed

Bore size (mm)		10	16 20 to 40		50 to 100
Without stroke adjustment unit 100 to		100 to 500 mm/s			
Stroke A unit		100 to 200 mm/s	100 to 100	-	
adjustment unit	L unit and H unit	100 to 1000 mm/s	—	100 to 1500 mm/s ⁽¹⁾	_

Front/Side port

Note 1) Be aware that when the stroke adjustment range is increased by manipulating the adjustment bolt, the air cushion capacity decreases.

Also, when exceeding the air cushion stroke ranges on page 1241, the piston speed should be 100 to 200 mm per second.

Piping Port size Bottom port

Note 2) The piston speed is 100 to 1000 mm/s for centralized piping.

Note 3) Use at a speed within the absorption capacity range. Refer to page 1241.

Note 4) Due to the construction of this product, it may have more fluctuation in operating speed compared to a rod type air cylinder. For applications that require constant speed, select the equipment corresponding to the required level.

Stroke Adjustment Unit Specifications

Bore size (mm)		1	0	16	20		25		32		40					
Unit symbo	bl	A	н	Α	Α	L	н	Α	L	н	Α	L	н	A	L	н
Configurati Shock abso	ion orber model	With adjustment bolt	RB 0805 + with adjustment bolt	With adjustment bolt	With adjustment bolt	RB 0806 + with adjustment bolt	RB 1007 + with adjustment bolt	With adjustment bolt	RB 1007 + with adjustment bolt	RB 1412 + with adjustment bolt	With adjustment bolt	RB 1412 + with adjustment bolt	RB 2015 + with adjustment bolt	With adjustment bolt	RB 1412 + with adjustment bolt	RB 2015 + with adjustment bolt
Stroke adjustment	Without spacer	0 to	o –5	0 to -5.6		0 to -6		0 to -11.5		0 to -12		0 to -16				
range by intermediate V fixing spacer (mm) V	With short spacer	-	-	-5.6 to -11.2	-	-6 to -12		-11.5 to -23		23	-12 to -24		4	-16 to -32		
	With long spacer	_	_	-11.2 to -16.8	-	-12 to -1	8	-23 to -34.5		1.5	-24 to -36		-32 to -48			

Note) Intermediate fixing spacer is not available for ø10.

* Stroke adjustment range is applicable for one side when mounted on a cylinder.

Stroke Adjustment Unit Symbol

$\left \right\rangle$			Right side stroke adjustment unit									
		Without	A: With adjustment bolt			L: With Iov + Adjustm	v load shocl ent bolt	k absorber	H: With high load shock absorber + Adjustment bolt			
		unit		With short spacer	With long spacer		With short spacer	With long spacer		With short spacer	With long spacer	
Ħ	Wit	hout unit	Nil	SA	SA6	SA7	SL	SL6	SL7	SH	SH6	SH7
A: With adjustment bolt		AS	Α	AA6	AA7	AL	AL6	AL7	AH	AH6	AH7	
ner	ner	With short spacer	A6S	A6A	A6	A6A7	A6L	A6L6	A6L7	A6H	A6H6	A6H7
usti		With long spacer	A7S	A7A	A7A6	A7	A7L	A7L6	A7L7	A7H	A7H6	A7H7
adj	L: With low lo	ad shock absorber +	LS	LA	LA6	LA7	L	LL6	LL7	LH	LH6	LH7
ş	Adjustment	With short spacer	L6S	L6A	L6A6	L6A7	L6L	L6	L6L7	L6H	L6H6	L6H7
stro		With long spacer	L7S	L7A	L7A6	L7A7	L7L	L7L6	L7	L7H	L7H6	L7H7
qe	H: With high	load shock absorber +	HS	HA	HA6	HA7	HL	HL6	HL7	н	HH6	HH7
ftsi	Adjustment	With short spacer	H6S	H6A	H6A6	H6A7	H6L	H6L6	H6L7	H6H	H6	H6H7
Ľ	bolt	With long spacer	H7S	H7A	H7A6	H7A7	H7L	H7L6	H7L7	H7H	H7H6	H7

Stroke adjustment unit mounting diagram

100

1/2

ø18



Example of H6H7 attachment



* Spacers are used to fix the stroke adjustment unit at an intermediate stroke position.

For details on spacers and stroke adjustment units, refer to "Accessory Bracket (Option)" on page 1251-1.

Refer to pages 1331 to 1333-1 for the specifications with auto switch.

Shock Absorbers for L and H Units

Madal	Stroke		Bore size (mm)								
woder	unit	10	20	25	32	40					
Standard (Shock absorber/ RB series)	L	—	RB0806	RB1007	RB1412						
	н	RB0805	RB1007	RB1412	RB2015						
Shock absorber/	L	—	RJ0806H	RJ1007H	RJ1412H						
mounted (-XB22)	н	RJ0805	RJ1007H	RJ1412H	_	_					

* The shock absorber service life is different from that of the MY1B cylinder depending on operating conditions. Refer to the RB Series Specific Product Precautions for the replacement period.

* Mounted shock absorber soft type RJ series (-XB22) is made to order specifications. For details, refer to page 1752.

Theoretical Output

								(N	
Bore size	Piston area	Operating pressure (MPa)							
(mm)	(mm²)	0.2	0.3	0.4	0.5	0.6	0.7	0.8	
10	78	15	23	31	39	46	54	62	
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	
80	5024	1004	1507	2009	2512	3014	3516	4019	
100	7850	1570	2355	3140	3925	4710	5495	6280	

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

_ _ _ _

_ _ _ _ _

Shock Absorber Specifications

Model		RB 0805	RB 0806	RB 1007	RB 1412	RB 2015	
Max. energy a	bsorption (J)	1.0	2.9	5.9	19.6	58.8	
Stroke absorption (mm)		5	6	7	12	15	
Max. collision speed (mm/s)		1000	1500	1500	1500	1500	
Max. operating frequencies	uency (cycle/min)	80	80	70	45	25	
Spring force	Extended	1.96	1.96	4.22	6.86	8.34	
(N)	Retracted	3.83	4.22	6.86	15.98	20.50	
Operating temper	ature range (°C)	5 to 60					

* The shock absorber service life is different from that of the MY1B cylinder depending on operating conditions. Refer to the RB series Specific Product Precautions for the replacement period.

Weight

							(kg)	
Bore size	pre ze m) Basic weight per each 50 mm of stroke	Additional weight per each	Weight of moving	Side support bracket weight (per set)	Stroke adjustment unit weight (per unit)			
(mm)		parts	Type A and B	A unit weight	L unit weight	H unit weight		
10	0.15	0.04	0.03	0.003	0.01	—	0.02	
16	0.61	0.06	0.07	0.01	0.04	_	Ι	
20	1.06	0.10	0.14	0.02	0.05	0.05	0.10	
25	1.14	0.11	0.21	0.02	0.06	0.10	0.18	
32	2.28	0.17	0.47	0.02	0.12	0.21	0.40	
40	3.11	0.25	0.91	0.04	0.23	0.32	0.49	
50	7.78	0.44	1.40	0.04	—	—		
63	13.10	0.70	2.20	0.08	_	_		
80	20.70	1.18	4.80	0.17	_	_	_	
100	35.70	1.97	8.20	0.17	_	—		

Calculation: (Example) MY1B20-300A

 Basic weight1.06 kg Cylinder stroke ------300 stroke

Additional weight0.10/50 stroke

1.06 + 0.10 x 300/50 + 0.05 x 2 ≅ 2.17 kg

Weight of A unit1.76 kg

APrecautions

For details on the MY1B Series Mechanically Jointed Rodless Cylinder, refer to "Specific Product Precautions" on I I. L pages 1335 to 1336-2.

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Cushion Capacity

Cushion Selection

<Rubber bumper>

Rubber bumpers are a standard feature on MY1B10. Since the stroke absorption of rubber bumpers is short, when adjusting the stroke with an A unit, install an external shock absorber.

The load and speed range which can be absorbed by a rubber bumper is inside the rubber bumper limit line of the graph.

<Air cushion>

Air cushions are a standard feature on mechanically jointed rodless cylinders. (Except ø10.)

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 ranges of load and speed that air cushions can absorb are within the air cushion limit lines shown in the graphs.

Stroke adjustment unit with shock ab-sorber> Use this unit when operating with a load or speed exceeding the air cushion limit line, or when cushioning is required outside of the effective air cushion stroke range due to stroke adjustment. L unit

Use this unit when cushioning is necessary outside of the effective air cushion range even if the load and speed are within the air cushion limit line, or when the cyl-inder 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.

 For details on stroke adjustment using the adjustment bolt, refer to page 1336.

(mm)

Air Cushion Stroke

Bore size (mm)	Cushion stroke
16	12
20	15
25	15
32	19
40	24
50	30
63	37
80	40
100	40

Rubber Bumper (Ø10 only) Positive Stroke from One End Due to Pressure















@SMC





Absorption Capacity of Rubber Bumper, Air Cushion and Stroke Adjustment Units

Construction: ø10

Centralized piping type: MY1B10G







Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Head cover WR	Aluminum alloy	Painted
3	Head cover WL	Aluminum alloy	Painted
4	Piston yoke	Aluminum alloy	Hard anodized
5	Piston	Aluminum alloy	Chromated
6	End Cover	Special resin	
7	Wear ring	Special resin	
8	Bumper	Polyurethane rubber	
9	Holder	Stainless steel	
10	Stopper	Carbon steel	Nickel plated
11	Belt separator	Special resin	
12	Seal magnet	Rubber magnet	

No.	Description	Material	Note
15	Belt clamp	Special resin	
20	Bearing	Special resin	
21	Spacer	Chromium molybdenum steel	Nickel plated
22	Spring pin	Stainless steel	
23	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
24	Round binding head screw	Carbon steel	Chromated
25	Slotted set screw	Carbon steel	Black zinc chromated
26	Hexagon socket head plug	Carbon steel	Chromated
27	Magnet	-	
28	Top plate	Stainless steel	
29	Head plate	Stainless steel	
30	Lube-retainer	Special resin	

Replacement Part: Seal Kit

· ·			
No.	Description	Qty.	MY1B10
13	Seal belt	1	MY10-16A-Stroke
14	Dust seal band	1	MY10-16B-Stroke
16	Scraper	2	
17	Piston seal	2	MV1B10.PS
18	Tube gasket	2	WITE10-F3
19	O-ring	4	

Seal kit includes (\$, (), () and (). Seal kit includes a grease pack (10 g). When () and () are shipped independently, a grease pack is included. (10 g per 1000 strokes) Order with the following part number when only the grease pack is pended grease pack is needed. Grease pack part number: GR-S-010 (10 g), GR-S-020 (20 g)

Construction: Ø16, Ø20, Ø50 to Ø100

MY1B16, 20, 50 to 100



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MY1B16, 20, 50 to 100

Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Head cover WR	Aluminum alloy	Painted
3	Head cover WL	Aluminum alloy	Painted
4	Piston yoke	Aluminum alloy	Anodized
5	Piston	Aluminum alloy	Chromated
		Special resin	
6	End cover	Carbon steel	Nickel plated (ø80, ø100)
7	Wear ring	Special resin	
8	Cushion ring	Aluminum alloy	Anodized
9	Cushion needle	Rolled steel	Nickel plated
10	Stopper	Carbon steel	Nickel plated
11	Belt separator	Special resin	
12	Guide roller	Special resin	(ø16, ø20, ø50, ø63)
13	Guide roller shaft	Stainless steel	(ø16, ø20, ø50, ø63)
16	Polt clown	Special resin	
10	Beit clamp	Aluminum alloy	Chromated (ø80, ø100)
17	Bearing	Special resin	
18	Spacer	Stainless steel	(ø16, ø20, ø50, ø63)
19	Spring pin	Carbon tool steel	
20	Type E retaining ring	Cold rolled special steel strip	(ø50, ø63)
21	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
22	Hexagon socket button head screw	Chromium molybdenum steel	Chromated
23	Hexagon socket head set screw	Chromium molybdenum steel	Black zinc chromated/ Chromated
24	Double round parallel key	Carbon steel	(ø16, ø20)
25	Hexagon socket head taper plug	Carbon steel	Chromated

_							
No.	Description	Material	Note				
26	Magnet	_					
28	Top cover	Stainless steel					
29	Hexagon socket head taper plug	Carbon steel	Chromated				
36	Head plate	Aluminum alloy	Painted (ø63 to ø100)				
37	Backup plate	Special resin	(ø80, ø100)				
38	Guide roller B	Special resin	(ø80, ø100)				
39	Guide roller A	Stainless steel	(ø80, ø100)				
40	Guide roller shaft B	Stainless steel	(ø80, ø100)				
41	Side cover	Aluminum alloy	Hard anodized (ø80, ø100)				
42	Type CR retaining ring	Spring steel					
43	Hexagon socket button head screw	Chromium molybdenum steel	Chromated (ø80, ø100)				
44	Hexagon socket button head screw	Chromium molybdenum steel	Chromated (ø80, ø100)				
45	Spacer B	Stainless steel	(ø80, ø100)				
46	Seal magnet	Rubber magnet	(ø80, ø100)				
47	Lube-retainer	Special resin	(ø16, ø20, ø50, ø63)				

Replacement Part: Seal Kit

•								
No.	Description	Qty.	MY1B16	MY1B20				
14	Seal belt	1	MY16-16C-Stroke	MY20-16C-Stroke				
15	Dust seal band	1	MY16-16B-Stroke	MY20-16B-Stroke				
27	Side scraper	2	—	MYB20-15CA7164B				
	0 ring		KA00309	KA00309				
34	0-ning	2	(ø4 x ø1.8 x ø1.1)	(ø4 x ø1.8 x ø1.1)				
30	Scraper	2						
31	Piston seal	2						
32	Cushion seal	2	MY1B16-PS	MY1B20-PS				
33	Tube gasket	2						
35	O-ring	4						

No.	Description	Qty.	MY1B50	MY1B63	MY1B80	MY1B100		
14	Seal belt	1	MY50-16C-Stroke	MY63-16A-Stroke	MY80-16A-Stroke	MY100-16A-Stroke		
15	Dust seal band	1	MY50-16B-Stroke	MY63-16B-Stroke	MY80-16B-Stroke	MY100-16B-Stroke		
27	Side scraper	2	MYB50-15CA7165B	MYB63-15CA7166B	MYB80-15CK2470B	MYB100-15CK2471B		
	O vine		KA00402	KA00777	KA00050	KA00050		
34	0-ning	2	(ø8.3 x ø4.5 x ø1.9)	—	—	—		
30	Scraper	2						
31	Piston seal	2						
32	Cushion seal	2	MY1B50-PS	MY1B63-PS	MY1B80-PS	MY1B100-PS		
33	Tube gasket	2						
35	O-ring	4						

* Seal kit includes 30, 31, 32, 33 and 35. Order the seal kit based on each bore size.

* Seal kit includes a grease pack (10 g).

Sear ki includes a grease pack (10 g). When (3 and (3 are shipped independently, a grease pack is included. (10 g per 1000 strokes) Order with the following part number when only the grease pack is needed. Grease pack part number: GR-S-010 (10 g), GR-S-020 (20 g)

Note) Two kinds of dust seal bands are available for the MY1B16, 20, 50, 63. Since the part number varies depending on the treatment of the hexagon socket head As Black zinc chromated → MY□-16B-stroke, B: Chromated → MY□-16BW-stroke

Construction Ø25, Ø32, Ø40

MY1B25 to 40





Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Head cover	Aluminum alloy	Painted
3	Cushion boss	Polyacetal	
4	Piston yoke	Aluminum alloy	Anodized
5	Piston	Aluminum alloy	Chromated
6	End cover	Polyacetal	
7	Wear ring	Polyacetal	
8	Head plate	Stainless steel	
9	Cushion needle	Rolled steel	Nickel plated
10	Stopper	Carbon steel	Nickel plated
11	Belt separator	Polyacetal	
12	Guide roller	Polyacetal	
13	Parallel pin	Carbon steel	
16	Belt clamp	Polybutylene terephthalate	
21	Bearing	Polyacetal	
22	Spacer	Stainless steel	



No.	Description	Material	Note
23	Spring pin	Carbon tool steel	
24	Seal magnet	Rubber magnet	
25	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
26	Hexagon socket button head screw	Chromium molybdenum steel	Chromated
27	Thin head screw	Chromium molybdenum steel	Chromated
29	Double round parallel key	Carbon steel	
30	Hexagon socket head taper plug	Carbon steel	Chromated (Centralized piping: 7pcs.)
31	Magnet	Rare earth magnet	
32	Top cover	Stainless steel	
35	Hexagon socket head taper plug	Carbon steel	Chromated (Centralized piping: 3 pcs.)
36	Type CR retaining ring	Spring steel	
38	Steel ball	Spring steel	
39	Lube retainer	Special resin	

Seal List

Jea	LISC					
No.	Description	Material	Qty.	MY1B25	MY1B32	MY1B40
14	Seal belt	Urethane	1	MY25-16C-Stroke	MY32-16C-Stroke	MY40-16C-Stroke
15	Dust seal band	Stainless steel	1	MY1B25-16B-Stroke	MY1B32-16B-Stroke	MY1B40-16B-Stroke
33	Side scraper	Polyamide	2	MYB25-15BA5900B	MYB32-15BA5901B	MYB40-15BA5902B
	0		0	KA00311	KA00320	KA00320
20	0-ring	INDR	2	(ø5.1 × ø3 × ø1.05)	(ø7.15 × ø3.75× ø1.7)	(ø7.15 × ø3.75 × ø1.7)
37	Cushion boss gasket	NBR	2	MYB25-16GA5900	MYB32-16GA5901	MYB40-16GA5902
17	Scraper	NBR	2			
18	Piston seal	NBR	2			
19	Cushion seal	NBR	2	MY1B25-PS	MY1B32-PS	MY1B40-PS
20	Tube gasket	NBR	2			
34	O-ring	NBR	2	1		

- * Seal kit includes ①, 19, 19, 20 and 3. Order the seal kit based on each bore size.



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Mechanically Jointed Rodless Cylinder **MY1B** Series

Centralized Piping Type Ø10

MY1B10G - Stroke









Standard Type/Centralized Piping Type Ø16, Ø20

MY1B16□/20□ - Stroke



Model	Α	в	С	Е	G	GA	GB	н	J	JJ	к	КК	L	LD	LL	LW	М	ММ	N	NC	NE
MY1B16	80	6	3.5	2	14	9	16	37	M5 x 0.8	M4 x 0.7	10	6.5	80	3.5	40	30	6	M4 x 0.7	20	14	27.8
MY1B20	100	7.5	4.5	2	12.5	12.5	20.5	46	M6 x 1	M4 x 0.7	12	10	100	4.5	50	37	8	M5 x 0.8	25	17.5	34

																						(11111)
Model	NH	NW	PA	PB	PC	PD	PG	PP	Q	QQ	QW	RR	SS	т	Π	UU	vv	ww	ХХ	YH	YW	z
MY1B16□	27	37	40	20	40	4.5	3.5	7.5	153	9	30	11	3	7	9	10.5	10	7.5	22	26	32	160
MY1B20	33.5	45	50	25	50	5	4.5	11.5	191	11	36	14.5	5	8	10.5	12	12.5	10.5	24	32.5	40	200

Centralized Piping on the Bottom













Standard/Centralized Piping Type ø25, ø32, ø40





							(mm)
Model	WXX	Y	S	d	D	R	Applicable O-ring
MY1B25	15.5	16.2	5.5	6	11.4	1.1	~~~
MY1B32	20	20.4	5.5	6	11.4	1.1	69
MY1B40□	23.5	25.9	6	8	13.4	1.1	C11.2
		(mm)					
Model	WX	SS					
MY1B25	26.5	10					
MY1B32	40	5.5					
MY1B40□	47	6					



Standard Type/Centralized Piping Type ø50, ø63

MY1B50□/63□ - Stroke



																				(mm)
Model	Α	в	С	Е	G	GB	н	J	JJ	к	КК	L	LD	LL	LW	М	MM	Ν	NC	NE
MY1B50	200	14	8.5	3	23.5	37	94	M12 x 1.75	M6 x 1	25	17	200	9	100	80	14	M8 x 1.25	47	38	76.5
MY1B63	230	17	10.5	3	25	39	116	M14 x 2	M8 x 1.25	28	24	230	11	115	96	16	M8 x 1.25	50	51	100

																						(mm)
Model	NH	NW	PA	PB	PC	PD	PG	PP	Q	QQ	QW	RR	SS	т	TT	υυ	VV	ww	ΧХ	YH	YW	z
MY1B50	75	92	120	50	100	8.5	8	24	384	27	76	34	10	15	22.5	23.5	23.5	22.5	47	74	92	400
MY1B63D	95	112	140	60	115	9.5	10	37.5	440	29.5	92	45.5	13.5	16	27	29	25	28	56	94	112	460

Centralized Piping on the Bottom







Bottom ported (Applicable O-ring)

Model	WX	Y	S	d	D	R	Applicable O-ring
MY1B50	47	15.5	14.5	10	17.5	1.1	015
MY1B63	56	15	18	10	17.5	1.1	015





Standard Type/Centralized Piping Type Ø80, Ø100



																	(mm)
Model	PF	PG	PP	Q	QQ	QW	RR	SS	т	UU	VV	ww	XX	YH	YW	YY	Z
MY1B 80□	22	15	53	660	35	90	61	15	30	40	60	25	90	122	140	28	690
MY1B100	42	20	69	760	38	120	75	20	40	48	70	28	120	155	176	35	800

Centralized Piping on the Bottom





Bottom ported (Applicable O-ring)

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	Port Va	riations	
s	ilide table ope ⊲L	rating directio	n
Ø			GD

Model	WX	Y	d	D	R	Applicable O-ring
MY1B 80□	90	45	18	26	1.8	Poo
MY1B100	120	50	18	26	1.8	

Stroke Adjustment Unit



Applicable bore size	E	EA	EB	EC	EY	FC	h	TT	w
MY1B10	10	5	28	3.3	26.3		1.8	5 (Max. 10)	35
MY1B16	14.6	7	34.4	4.2	36.5		2.4	5.4 (Max. 11)	43
MY1B20	19	9	43	5.8	45.6	13	3.2	6 (Max. 12)	53
MY1B25	20	10	49	6.5	53.5	13	3.5	5 (Max. 16.5)	60
MY1B32	25	12	61	8.5	67	17	4.5	8 (Max. 20)	74
MY1B40	31	15	76	9.5	81.5	17	4.5	9 (Max. 25)	94

With low load shock absorber + Adjustment bolt MY1B Bore size - Stroke L (Z)













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												(mm)
Applicable cylinder	Е	EA	EB	EC	EY	F		FI	В	FC	FH	FW
MY1B25	20	10	49	6.5	53.5	6		3	3	13	12	46
MY1B32	25	12	61	8.5	67	6	6		3	17	16	56
MY1B40	31	15	76	9.5	81.5	6	6		3	17	16	56
							_		_			
Applicable cylinder	h	S	Т		TT		N	N	Sł	nock ab	sorber	model
MY1B25	3.5	46.7	7	5 (Max. 16.5)			6	0		RE	31007	
MY1B32	4.5	67.3	12	8 (Max. 20)			7	'4		RE	31412	
MY1B40	4.5	67.3	12	9 (Max. 25)			9	4		RE	31412	

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Mechanically Jointed Rodless Cylinder MY1B Series

Stroke Adjustment Unit



• Since the dimension EY of H unit is greater than the table top height (dimension H), when a workpiece is loaded that is larger than the full length (dimension L) of the slide table allow a clearance of size "a" or larger at the workpiece side.
(mm)

Applicable bore size	E	EA	EB	EC	EY	F	FB	FC	FH	FW	h	S	т	TT	w	Shock absorber model	а
MY1B10	10	5	28	5.5	29.8			8		—	1.8	40.8	5	5 (Max. 10)	35	RB0805	3.5
MY1B20	20	10	49	6.5	47.5	6	33	13	12	46	3.5	46.7	7	5 (Max. 11)	60	RB1007	2.5
MY1B25	20	10	57	8.5	57.5	6	43	17	16	56	4.5	67.3	12	5 (Max. 16.5)	70	RB1412	4.5
MY1B32	25	12	74	11.5	73	8	57	22	22	74	5.5	73.2	15	8 (Max. 20)	90	RB2015	6
MY1B40	31	15	82	12	87	8	57	22	22	74	5.5	73.2	15	9 (Max. 25)	100	RB2015	4

MY1B Series Accessory Bracket (Option)

Stroke Adjustment Unit



Stroke adjustment range

Stroke adjustmer	nt rang	ge													(mm)
Bore size	1	0	16		20			25			32			40	
Unit symbol	A	н	A	Α	L	н	Α	L	н	Α	L	н	Α	L	н
Without spacer	0 to	o –5	0 to -5.6		0 to -6		0) to -11.	5		0 to -12	2		0 to -16	3
With short spacer	-	-	-5.6 to -11.2		-6 to -1	2	-1	11.5 to -	23	-	12 to -2	24	-	16 to -3	32
With long spacer	-	-	-11.2 to -16.8	-	-12 to -1	8	-2	23 to -34	4.5	-	24 to -3	6		32 to -4	18

Snacer length

-p					(11111)
Bore size	16	20	25	32	40
Short spacer	5.6	6	11.5	12	16
Long spacer	11.2	12	23	24	32

Component Parts



Mechanically Jointed Rodless Cylinder MY1B Series

Side Support



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										(mm)
Model	Applicable bore size	Α	В	С	D	Е	F	G	н	J
MY-S10 ⁸	MY1B 10	35	43.6	12	21	3	1.2	6.5	3.4	M4 x 0.7
MY-S16 B	MY1B 16	43	53.6	15	26	4.9	3	6.5	3.4	M4 x 0.7
MY-S20 🖁	MY1B 20	53	65.6	25	38	6.4	4	8	4.5	M5 x 0.8
MY-S25 B	MY1B 25	61	75	05	50	_	-	0.5		110
	MY1B 32	70	84	35	50	8	5	9.5	5.5	MIG X I
MV COOA	MY1B 40	87	105	45		44.7				Ma 4 05
W 1-532 B	MY1B 50	113	131	45	64	11.7	0		0.0	1V18 X 1.25
MY-S50 B	MY1B 63	136	158	55	80	14.8	8.5	14	9	M10 x 1.5
MY-S63 B	MY1B 80	170	200	70	100	10.0	10.5	175	11.5	M10 x 1 75
	MY1B100	206	236	70	100	18.3	10.5	17.5	11.5	MI2X1.75

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* A set of side supports consists of a left support and a right support.

Guide for Side Support Application

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

A 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.





Floating Bracket

Facilitates connection to other guide systems.

Applicable bore size

ø**10**

MY-J10

Application Example



Mounting Example



Note) A set of brackets with floating mechanism consists of a left bracket and a right bracket.

* For details on how to secure the holding bolt, refer to page 1336.

Applicable bore size

ø16, ø20 MY-J16/MY-J20 Application Example



Mounting Example



											(
Model	Applicable bore size	Α	в		C D		F		G		н	
MY-J16	MY1B16	45	4	5	22.5	30	52		38		18	_
MY-J20	MY1B20	55	52		26	35	59		50		21	
Model	Applicable bare size			V	1	D	0	E	.	E4		_
wouer	Applicable bute size	33		n.		- F	u u		.3	E 4		
MY-J16	MY1B16	M4 x 0	.7	10	4	7	3.5	1	L	1	6	
MY-J20	MY1B20	M4 x 0	.7	10	4	7	3.5	1		1	6	

Note) A set of brackets with floating mechanism consists of a left bracket and a right bracket.

MY-J10 to 20 (1 set) Component Parts

Description	Qty.	Material			
Bracket	2	Carbon steel			
Pin	2	Carbon steel			
Conical spring washer	2	Carbon steel			
Holding bolt	2	Chromium molybdenum steel			
Floating Bracket

Facilitates connection to other guide systems.

Applicable bore size ø25, ø32, ø40

MY J25/MY J32/MY J40

L Type **Application Example**



Mounting dimension

One set of brackets can be mounted in two directions for compact combinations.



Dortino	Applicable		C	ommo	on	Nounting direction (1)				
Part no.	cylinder	D	G	н	J	MM	Α	В	С	F
MY-J25	MY1B25	40	60	3.2	35	5.5	63	78	39	100
MY-J32	MY1B32	55	80	4.5	40	6.5	76	94	47	124
MY-J40 MY1B40		74	100	4.5	47	6.5	92	112	56	144
Dortino	Applicable		Mo	ountin	g dire	ction	(2)		Adjustat	ole range
Part no.	Applicable cylinder	A	Mo B1	buntin B2	g dire B3	ction C1	(2) C 2	F	Adjustat E1	le range E2
Part no. MY-J25	Applicable cylinder MY1B25	A 65	Mo B1 28	buntin B2 53	g dire B 3 78	ction C 1 14	(2) C 2 39	F 96	Adjustat E1 1	erange E 2 1
Part no. MY-J25 MY-J32	Applicable cylinder MY1B25 MY1B32	A 65 82	Mo B1 28 40	B 2 53 64	g dire B 3 78 88	ction C1 14 20	(2) C 2 39 44	F 96 111	Adjustat E1 1	le range E2 1

MY-J40 MY1B40□ 98 44 76 108 22 54 131 1 Note) Floating brackets consist of a set of right and left bracket.

* For details on how to secure the holding bolt, refer to page 1336.

MY-J25 (1 set) Component Parts

Description	Qty.	Material
Bracket	2	Carbon steel
Pin	2	Carbon steel
Conical spring washer	2	Carbon steel
Holding bolt	2	Chromium molybdenum steel

Block Type Application Example Workpiece 7. w $\odot \odot$ 5 6 Guide MY1B series Floating bracket Mounting dimension



Dortino	Applicable	6	ш				Р	ID	Adjustable range		
Part no.	cylinder	G	п	J	J	-	F		Ea	Eb	
MYAJ25	MY1B25	55	22	M6	M6 x 1		12	9.5	1	1	
MYAJ32	MY1B32	60	22	M6	M6 x 1		12	9.5	1	1	
MYAJ40	MY1B40	72	32	M8 x	M8 x 1.25		6.5 16		1	1	
Part no.	Applicable cylinder	A 2	B2	C2	D2	F2	K2	Q2			
MYAJ25	MY1B25	63	61	30.5	40	73	14	6			
MYAJ32	MY1B32	73	72	36	46	84	14	6			
MYAJ40	MY1B40	93.5	88	44	55	104	19	8			

* For details on how to secure the holding bolt, refer to page 1336.

MYAJ25 to 40 (1 set) Component Parts

Description	Qty.	Material
Bracket	2	Rolled steel
Pin	2	Carbon steel
Conical spring washer	2	Carbon steel
Holding bolt	2	Chromium molybdenum steel

-

(mm)

MY1B Series

Floating Bracket

Facilitates connection to other guide systems.

Applicable bore size

ø**50,** ø**63**

MY-J50/MY-J63

Application Example



Mounting Example



											· ·	
Model	Applicable bore size	Α	A B		C D		F		G		н	
MY-J50	MY1B50	110	110 110		55	70	126	6	90		37	
MY-J63	MY1B63	131 13		30	65	80	149	9	100		37	
Model	Applicable bore size	JJ	JJ		L	Р	Q	E:	3	E4	LD	
MY-J50	MY1B50	M8 x 1.25		20	7.5	16	8	2.	5	2.5	11	
MY 163	MY1B63	M10 x	M10 x 1 5		9.5	10	9.5	2	5	25	14	

Note) A set of brackets with floating mechanism consists of a left bracket and a right

bracket * For details on how to secure the holding bolt, refer to page 1336

MY-J50, 63 (1 set) Component Parts

Description	Qty.	Material
Bracket	2	Carbon steel
Pin	2	Carbon steel
Conical spring washer	2	Carbon steel
Holding bolt	2	Chromium molybdenum steel

Applicable bore size

ø80, ø100

MY-J80/MY-J100

Application Example



Mounting Example







Model	Applicable bore size	Α	B (max.)	C (min.)
MY-J80	MY1B 80	181	15	9
MY-J100	MY1B100	221	15	9

- Note) . Flat bar or round bar mounting are possible for the support bracket (slanted lines) mounted by the customer.
 - . "B" and "C" indicate the allowable mounting dimensions for the support bracket (flat bar or round bar).
 - · Consider support brackets with dimensions that allow the floating mechanism to function properly.

MY-J80, 100 (1 set) Component Parts

Description	Qty.	Material
Bracket	1	Rolled steel
Pin	2	Carbon steel
Holding bolt	4	Chromium molybdenum steel







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MY1M Series Prior to Use

Maximum Allowable Moment/Maximum Load Mass

Marial	Bore size	Maximum a	allowable mo	ment (N·m)	Maximum load mass (kg)					
wodei	(mm)	M1	M1 M2 M3		m 1	m2	mз			
	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			
MY1M	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 mass (kg)



<Calculation of guide load factor>

- Maximum allowable load (1), static moment (2), and dynamic moment (3) (at the time of impact with stopper) must be examined for the selection calculations.
 - * To evaluate, use υa (average speed) for (1) and (2), and υ (collision speed $\upsilon = 1.4\upsilon a)$ for (3). Calculate mmax for (1) from the maximum allowable load graph (m₁, m₂, m₃) and Mmax for (2) and (3) from the maximum allowable moment graph (M₁, M₂, M₃).

Sum of guide $_{\Sigma \Omega}$ –	Load mass [m]	Static moment [M] (1)	Dynamic moment [ME] (2)	-1
load factors 200 -	Maximum allowable load [mmax]	Allowable static moment [Mmax]	Allowable dynamic moment [Memax]	21

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 workpiece, multiple moments may occur. When this happens, the sum of the load factors (a) is the total of all such moments.

2. Reference formula [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)
- FE: Load equivalent to impact (at impact with stopper) (N)
- Ua: Average speed (mm/s)
- M: Static moment (N·m)

$$\begin{split} \upsilon &= 1.4 \upsilon a \text{ (mm/s) } F_E = 1.4 \upsilon a \cdot \hat{\delta} \cdot \vec{m} \cdot \vec{g} \\ \therefore M_E &= \frac{1}{3} \cdot \vec{F}_E \cdot L_1 = 4.57 \upsilon a \delta m L_1 \text{ (N·m)} \end{split}$$

- U: Collision speed (mm/s)
- L1: Distance to the load's center of gravity (m)
- ME: Dynamic moment (N·m)
- $\label{eq:constraint} \begin{array}{l} \delta: \mbox{ Damper coefficient } At \mbox{ collision: } \upsilon = 1.4 \upsilon a \\ With rubber bumper = 4/100 \\ (MY1B10, MY1H10) \\ With \mbox{ air cushion = 1/100} \end{array}$
 - With shock absorber = 1/100
- g: Gravitational acceleration (9.8 m/s²)

Note 4) 1.4 $\upsilon a\delta$ is a dimensionless coefficient for calculating impact force.

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

3. For detailed selection procedures, refer to pages 1260 and 1261.

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.



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 Series Model Selection

Following are the steps for selecting the most suitable MY1M series to your application.



3. Composite center of Gravity Calculation

$$\begin{split} & \textbf{m}_1 = \Sigma m_n \\ &= 0.88 + 4.35 + 0.795 + 0.5 = \textbf{6.525 kg} \\ & \textbf{X} = \frac{1}{m_1} \times \Sigma (\textbf{m}_n \times \textbf{x}_n) \\ &= \frac{1}{6.525} (0.88 \times 65 + 4.35 \times 150 + 0.795 \times 150 + 0.5 \times 150) = \textbf{138.5 mm} \\ & \textbf{Y} = \frac{1}{m_1} \times \Sigma (\textbf{m}_n \times \textbf{y}_n) \\ &= \frac{1}{6.525} (0.88 \times 0 + 4.35 \times 0 + 0.795 \times 111 + 0.5 \times 210) = \textbf{29.6 mm} \\ & \textbf{Z} = \frac{1}{m_1} \times \Sigma (\textbf{m}_n \times \textbf{z}_n) \\ &= \frac{1}{6.525} (0.88 \times 5 + 4.35 \times 42.5 + 0.795 \times 42.5 + 0.5 \times 42.5) = \textbf{37.4 mm} \end{split}$$

4. Calculation of load factor for static load



Model Selection **MY1M Series**



6. Sum and Examination of Guide Load Factors

 $\Sigma_{\text{(l)}} = \text{(l)}_1 + \text{(l)}_2 + \text{(l)}_3 + \text{(l)}_4 + \text{(l)}_5 = \textbf{0.67} \leq \textbf{1}$

The above calculation is within the allowable value, and therefore the selected model can be used. Select a shock absorber separately.

In an actual calculation, when the total sum of guide load factors α in the formula above is more than 1, consider either decreasing the speed, increasing the bore size, or changing the product series. This calculation can be easily made using the "SMC Pneumatics CAD System".

Load Mass

Allowable Moment



Mechanically Jointed Rodless Cylinder Slide Bearing Guide Type MY1M Series

ø16, ø20, ø25, ø32, ø40, ø50, ø63



Nil Without auto switch (Built-in magnet) Applicable auto switches vary depending on the bore size. Select an applicable one referring to the

🕖 Nu	mber of auto swi	tch
Nil	2 pcs.	
S	1 pc.	
n	"n" pcs.	

8 Made to Order Refer to page 1263 for details.

Applicable Auto Switches/Refer to pages 1575 to 1701 for further information on auto switches

table below.

<u> </u>			ght		L	oad volta	qe		Auto swit	ch mode	1	Lead	wire l	enath	n (m)			
Туре	Special function	Electrical	ator	Wiring					Perpendicular		lar In-line		1	3	5	Pre-wired	Applicat	ole load
		entry	Indio	(Output)	L			ø16, ø20	ø25 to ø63	ø16, ø20 ø25 to ø63		(Nil)	(M)	(L)	(Z)	COLLIECTOL		
÷				3-wire (NPN)		EV 10V	2.12		M9NV		9N	•	•	٠	0	0		
ŧ				3-wire (PNP)		5 V, 12 V		M9PV M9BV M9NWV		M	9P	•	•	•	0	0	IC CITCUIL	
S				2-wire		12 V] [M	9B	•	•	•	0	0	_	
율	Diagnostic indication (2-color indicator)	n Grommet		3-wire (NPN)		5 V, 12 V				M9NW		•	•	•	0	0		Balay
ā			Yes	3-wire (PNP)	24 V		2 V 12 V	M9F	wv	M9	PW	•	•	•	0	0	io circuit	PI C
tate				2-wire		12 V		M9E	3WV	M9	BW		•	•	0	0	—	. 20
l S				3-wire (NPN)		5 V, 12 V		M9N	AV *1	M9N	IA *1	0	0	•	0	0		
l ₩	(2-color indicator)			3-wire (PNP)				M9P	AV *1	M9F	PA *1	0	0	•	0	0	io circuit	
S	(2 00101 110100001)			2-wire		12 V		M9B	AV*1	M9E	3A *1	0	0	۲	0	0	_	
드 등			Voc	3-wire (NPN equivalent)	—	5 V	—	A96V	—	A96	Z76	•	—	•	—	_	IC circuit	-
Beec	—	Grommet	t No	2 wiro	24 V	12.1/	100 V	A93V*3	—	A93	Z73	•	•	•	٠	—	—	Relay,
auto				2-wire	24 V	12 V	100 V or less	A90V	—	A90	Z80		—	۲	-	—	IC circuit	PLC

*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 For details on switch mounting brackets and part numbers, refer to "Switch Mounting Bracket: Part No." on page 1333-1.

*3 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) M9NWZ

* There are other applicable auto switches than listed above. For details, refer to page 1333-1.

* Auto switches are shipped together (not assembled). (Refer to page 1331 for the details of auto switch mounting.)



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

Mechanically Jointed Rodless Cylinder Slide Bearing Guide Type **MY1M Series**



Air cushior

Bore size (mm)	16	20	25	32	40	50	63		
Fluid		Air								
Action		Double acting								
Operating p	ressure range	0.2 to 0.8 MP	0.2 to 0.8 MPa 0.15 to 0.8 MPa							
Proof pres	sure	1.2 MPa								
Ambient and	luid temperature	5 to 60°C								
Cushion		Air cushion								
Lubricatio	n	Non-lube								
Stroke len	gth tolerance	1000 or less +1.8 1001 to 3000 +2.8 0	$\begin{array}{c} 1000 \text{ or less } {}^{+1.8}_{0} \\ 1001 \text{ to } 3000 {}^{+2.8} \end{array} \qquad $							
Piping	Front/Side port	M5 x 0.8	1,	8	1/4	3/	8			
port size	Bottom port	ø4		ø	6	ø8	ø	10		

Piston Speed

B	ore size (mm)	16 to 63
Without stroke a	djustment unit	100 to 1000 mm/s
Stroke	A unit	100 to 1000 mm/s ⁽¹⁾
adjustment unit	L unit and H unit	100 to 1500 mm/s ⁽²⁾

Note 1) Be aware that when the stroke adjustment range is increased by manipulating the adjustment bolt, the air cushion capacity decreases. Also, when exceeding the air cushion stroke ranges on page 1266, the piston speed should be 100 to 200 mm per second.

Note 2) The piston speed is 100 to 1000 mm/s for centralized piping.

Note 3) Use at a speed within the absorption capacity range. Refer to page 1266.

Note 4) Due to the construction of this product, it may have more fluctuation in operating speed compared to a rod type air cylinder. For applications that require constant speed, select the equipment corresponding to the required level

Stroke Adjustment Unit Specifications

Made to Order: Individual Specifications

Specifications Helical insert thread specifications

Specifications

(For details, refer to page 1334.)

Made to Order Specifications

-XB22 Shock absorber soft type RJ series type

-XC67 NBR rubber lining in dust seal band

Symbol

-X168

Symbol

Click here for details

-XB11 Long stroke

Bore siz	e (mm)	1	6		20			25			32			40			50			63	
Unit symbol		Α	L	Α	L	Н	Α	L	н	Α	L	Н	Α	L	н	Α	L	Н	Α	Г	Н
Configuration Shock abso	on rber model	With adjustment bolt	RB 0806 + with adjustment bolt	With adjustment bolt	RB 0806 + with adjustment bolt	RB 1007 + with adjustment bolt	With adjustment bolt	RB 1007 + with adjustment bolt	RB 1412 + with adjustment bolt	With adjustment bolt	RB 1412 with adjustment bolt	RB 2015 + with adjustment bot	With adjustment bolt	RB 1412 + with adjustment bolt	RB 2015 + with adjustment bolt	With adjustment bolt	RB 2015 + with adjustment bolt	RB 2725 + with adjustment bolt	With adjustment bolt	RB 2015 * with adjustment bot	RB 2725 with adjustment bolt
Stroke adjust-	Without spacer	0 to	-5.6	0) to –6		0	to -11	.5	0) to -12	2	C) to -1	6	C) to -20)	C	to -25	5
intermediate	With short spacer	-5.6 to	0 –11.2	-6	6 to -1:	2	-1	1.5 to -	-23	-1	2 to -2	24	-1	6 to –	32	-2	20 to –4	40	-2	25 to -8	50
(mm)	With long spacer	-11.2 t	0 –16.8	-1	2 to -1	8	-23	3 to –3	4.5	-2	24 to –<	36	-32 to -48		-40 to -60		-5	i0 to -7	75		

* Stroke adjustment range is applicable for one side when mounted on a cylinder.

Stroke Adjustment Unit Symbol

	<					Bight si	ida stroka	adjuetm	ont unit				Stroke adjustment uni
			Without	A: With	adjustm	ent bolt	L: With lov + Adjustm	v load shoc ent bolt	k absorber	H: With hig + Adjustm	gh load shoc ent bolt	k absorber	
			unit		With short spacer	With long spacer		With short spacer	With long spacer		With short spacer	With long spacer	
nit	Wit	hout unit	Nil	SA	SA6	SA7	SL	SL6	SL7	SH	SH6	SH7	× Spacer les
ut u	A: With a	djustment bolt	AS	Α	AA6	AA7	AL	AL6	AL7	AH	AH6	AH7	-ongth
ner		With short spacer	A6S	A6A	A6	A6A7	A6L	A6L6	A6L7	A6H	A6H6	A6H7	Example of L6L7
ustr		With long spacer	A7S	A7A	A7A6	A7	A7L	A7L6	A7L7	A7H	A7H6	A7H7	Left side
adj	L: With low lo	oad shock absorber +	LS	LA	LA6	LA7	L	LL6	LL7	LH	LH6	LH7	Lunit L
ş	Adjustment	With short spacer	L6S	L6A	L6A6	L6A7	L6L	L6	L6L7	L6H	L6H6	L6H7	Short spacer Lo
stro	DOIL	With long spacer	L7S	L7A	L7A6	L7A7	L7L	L7L6	L7	L7H	L7H6	L7H7	
de	H: With high	load shock absorber +	HS	HA	HA6	HA7	HL	HL6	HL7	н	HH6	HH7	
ftsi	Adjustment	With short spacer	H6S	H6A	H6A6	H6A7	H6L	H6L6	H6L7	H6H	H6	H6H7	∣⊌୍ଶ™ା•••⊫
۲	DOIL	With long spacer	H7S	H7A	H7A6	H7A7	H7L	H7L6	H7L7	H7H	H7H6	H7	Port

Stroke adjustment unit mounting diagram

Intermediate

fixing spacer

Por

Spacer length xample of L6L7 attachment Left side Right side L unit unit Short spacer Long space

* Spacers are used to fix the stroke adjustment unit at an intermediate stroke position.

For details on spacers and stroke adjustment units, refer to "Accessory Bracket (Option)" on page 1274-1.

Refer to pages 1331 to 1333-1 for the specifications with auto switch.

MY1M Series

Shock Absorbers for L and H Units

Tree	Stroke			Bo	re size (m	ım)		
Type	unit	16	20	25	32	40	50	63
Standard	L	RBC	0806	RB1007	RB1	412	RB2	2015
(Shock absorber/ RB series)	н	- RB1007		RB1412	RB2015		RB2	2725
Shock absorber/	L	RJ08	806H	RJ1007H	RJ14	412H	—	-
mounted (-XB22)	н	_	RJ1007H	RJ1412H	_	_	_	_

* The shock absorber service life is different from that of the MY1M cylinder depending on operating

conditions. Refer to the RB Series Specific Product Precautions for the replacement period.

* Mounted shock absorber soft type RJ series (-XB22) is made to order specifications. For details, refer to page 1752.

Shock Absorber Specifications

Мо	Model			RB 1412	RB 2015	RB 2725		
Max. energy a	2.9	5.9	19.6	58.8	147			
Stroke abso	6	7	12	15	25			
Max. collision	speed (mm/s)	1500						
Max. operating free	uency (cycle/min)	80	70	45	25	10		
Spring	Spring Extended			6.86	8.34	8.83		
force (N)	force (N) Retracted		6.86	15.98	20.50	20.01		
Operating temper	5 to 60							

* The shock absorber service life is different from that of the MY1M cylinder depending on operating conditions. Refer to the RB Series Specific Product Precautions for the replacement period.

Theoretical Output

								(N)		
Bore	Piston	Operating pressure (MPa)								
(mm)	(mm ²)	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		

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

Weight

							(kg)
Bore	Basic	Additional weight	Weight	Side support bracket weight (per set)	Stroke ad	ljustment u (per unit)	nit weight
(mm)	m) weight per eac 50 mm of strok		parts	Type A and B	A unit weight	L unit weight	H unit weight
16	0.67	0.12	0.19	0.01	0.03	0.04	Ι
20	1.11	0.16	0.28	0.02	0.04	0.05	0.08
25	1.64	0.24	0.39	0.02	0.07	0.11	0.18
32	3.27	0.38	0.81	0.04	0.14	0.23	0.39
40	5.88	0.56	1.41	0.08	0.25	0.34	0.48
50	10.06	0.77	2.51	0.08	0.36	0.51	0.81
63	16.57	1.11	3.99	0.17	0.68	0.83	1.08

Calculation: (Example) MY1M25-300A

·· 1.64 kg Basic weight------··· 300 stroke

Cylinder stroke ------

Additional weight 0.24/50 stroke 1.64 + 0.24 x 300/50 + 0.07 x 2 ≅ 3.22 kg

Weight of A unit 0.07 kg

Precautions

I For details on the MY1M Series Mechanically Jointed Rodless Cylinder, refer to "Specific Product Precautions" on L I pages 1335 to 1336-2. I -----

_



Cushion Capacity

Cushion Selection

<Air cushion>

Air cushions are a standard feature on mechanically jointed rodless cylinders. 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 ranges of load and speed that air cushions can absorb are within the air cushion limit lines shown in the graphs.

<Stroke adjustment unit with shock absorber>

Use this unit when operating with a load or speed exceeding the air cushion limit line, or when cushioning is required 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 or 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.

* For details on stroke adjustment using the adjustment bolt, refer to page 1336.

(mm)

Air Cushion Stroke

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 Adjustment Units









Horizontal collision: P = 0.5 MPa

unit

ł



2000 1500 117 mm/s 1000 speed 500 400 300 Collision 200 100 30 40 50 4 m1 max.

MY1M50



Load mass kg



MY1M Series

Construction: ø16 to ø63

MY1M16 to 63



38 39

MY1M16 to 63

Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Head cover WR	Aluminum alloy	Painted
3	Head cover WL	Aluminum alloy	Painted
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	Aluminum alloy	Anodized
10	Cushion needle	Rolled steel	Nickel plated
11	Stopper	Carbon steel	Nickel plated
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	Chromated
24	Bearing R	Special resin	
25	Bearing L	Special resin	
26	Bearing S	Special resin	

No.	Description	Material	Note
27	Spacer	Stainless steel	
28	Backup spring	Stainless steel	
29	Spring pin	Carbon tool steel	
30	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
31	Hexagon socket button head screw	Chromium molybdenum steel	Chromated
32	Hexagon socket head set screw	Chromium molybdenum steel	Black zinc chromated/Chromated
34	Hexagon socket head taper plug	Carbon steel	Chromated
35	Magnet	—	
36	Hexagon socket head set screw	Chromium molybdenum steel	Black zinc chromated
37	Hexagon socket head set screw	Chromium molybdenum steel	Black zinc chromated
39	Hexagon socket head taper plug	Carbon steel	Chromated
40	Magnet holder	Special resin	(ø16, ø20)
41	Hexagon socket head cap screw	Chromium molybdenum steel	Nickel plated
42	Type CR retaining ring	Spring steel	
44	Head plate	Aluminum alloy	Hard anodized (ø63)
45	Port cover	Special resin	(ø25 to ø40)
46	Lube-retainer	Special resin	

Beplacement Part: Seal Kit

No.	Description	Qty.	MY1M16	MY1M20	MY1M25	MY1M32	MY1M40	MY1M50	MY1M63	
16	Seal belt	1	MY16-16C-Stroke	MY20-16C-Stroke	MY25-16C-Stroke	MY32-16C-Stroke	MY40-16C-Stroke	MY50-16C-Stroke	MY63-16A-Stroke	
17	Dust seal band	1	MY16-16B-Stroke	MY20-16B-Stroke	MY25-16B-Stroke	MY32-16B-Stroke	MY40-16B-Stroke	MY50-16B-Stroke	MY63-16B-Stroke	
	Oring		KA00309	KA00311	KA00311	KA00320	KA00402	KA00777	KA00777	
33	0-ring	2	(ø4 x ø1.8 x ø1.1) ((ø5.1 x ø3 x ø1.05)	(ø5.1 x ø3 x ø1.05)	(ø7.15 x ø3.75 x ø1.7)	(ø8.3 x ø4.5 x ø1.9)	-	-	
43	Side scraper	2	-	—	—	—	-	MYM50-15CK0502B	MYM63-15CK0503B	
19	Scraper	2								
20	Piston seal	2]							
21	Cushion seal	2	MY1M16-PS	MY1M20-PS	MY1M25-PS	MY1M32-PS	MY1M40-PS	MY1M50-PS	MY1M63-PS	
22	Tube gasket	2]							
38	O-ring	4	1							

* Seal kit includes (9, 20, 2), 22 and 38. Order the seal kit based on each bore size.

Seal kit includes a grease pack (10 g). When (f) and (f) are shipped independently, a grease pack is included. (10 g per 1000 strokes) Order with the following part number when only the grease pack is needed. Grease pack part number: GR-S-010 (10 g), GR-S-020 (20 g)

 Note) Two kinds of dust seal bands are available. Verify the type to use, since the part number varies depending on the treatmentof the hexagon socket head set screw [®].

 A: Black zinc chromated → MY□□-16B-stroke, B: Chromated → MY□□-16BW-stroke

MY1M Series

Standard Type/Centralized Piping Type Ø16, Ø20



Model	PB	PG	PP	Q	QQ	QW	RR	SS	TT	UU	vv	w	ww	XX	z
MY1M16□	40	3.5	7.5	153	9	48	11	2.5	15	14	10	68	13	30	160
MY1M20	40	4.5	11.5	191	10	45	14.5	5	18	12	12.5	72	14	32	200

Centralized Piping on the Bottom







U2

U1

5.5 3 2

5.5 3 2 3.4 5.8 5.5

Model

MY1M16

MY1M20

U3 U4

3.4 5.8

U5 U6

5



Standard Type/Centralized Piping Type Ø25, Ø32, Ø40



Centralized Piping on the Bottom







Bottom ported (ZZ) (Applicable O-ring)

	s	ilide table ope ⊲L	rating directio	n
	Ø			ØD
))		B		

Port Variations

Model	WX	Y	S	d	D	R	Applicable O-ring
MY1M25	38	9	4	6	11.4	1.1	<u> </u>
MY1M32	48	11	6	6	11.4	1.1	0.9
MY1M40	54	14	9	8	13.4	1.1	C11.2

MY1M Series

Standard Type/Centralized Piping Type Ø50, Ø63

Refer to page 1337 regarding centralized piping port variations.

MY1M50□/60□ - Stroke



Model	Α	в	С	G	GA	GB	н	J	κ	L	LD	LH	LK	LL	LW	м	MM	Ν	NC	NE	NF	NH	NW	PA
MY1M50	200	17	10.5	27	25	37.5	107	M14 x 2	28	200	11	29	2	100	128	15	M8 x 1.25	47	43.5	84.5	81	83.5	118	120
MY1M63	230	19	12.5	29.5	27.5	39.5	130	M16 x 2	32	230	13.5	32.5	5.5	115	152	16	M10 x 1.5	50	56	104	103	105	142	140

																(mm)
Model	PB	PG	PP	Q	QQ	QW	RR	SS	тт	UU	vv	W	W1	ww	ΧХ	Z
MY1M50	90	10	26	380	28	90	35	10	35	24	28	144	128	22	74	400
MY1M63	110	12	42	436	30	110	49	13	43	28	30	168	152	25	92	460

Detailed Dimensions of

U Secul						(11111)	
Model	U1	U2	U3	U4	U5	U6	
MY1M50	6.5	3.8	2	4.5	7.3	8	
MY1M63	8.5	5	2.5	5.5	8.4	8	

Centralized Piping on the Bottom









Stroke Adjustment Unit







Applicable bore size	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

With low load shock absorber + Adjustment bolt

MY1M Bore size - Stroke L



																(mm)
Applicable size	E	EA	EB	EC	EY	F	FB	FC	FH	FW	h	S	Т	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

MY1M Series

Stroke Adjustment Unit



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

Applicable bore size	E	EA	EB	EC	EY	F	FB	FC	FH	FW	h	S	т	тт	W	Shock absorber model	а
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

MY1M Series Accessory Bracket (Option)

Stroke Adjustment Unit



Note 1) A and L unit only for ø16

Stroke	adjustment	rango	

ou one adjuoumon	it rung.																			(mm)
Bore size	1	6		20			25			32			40			50			63	
Unit symbol	Α	L	Α	L	н	Α	L	н	Α	L	н	Α	L	н	Α	L	н	Α	L	Н
Without spacer	0 to	-5.6		0 to –6	6	0	to –11	.5	0) to -1	2	0) to –1	6	0	to -2	0	0	to -25	5
With short spacer	-5.6 to	-11.2	-	6 to -1	-12 -		l.5 to -	-23	-1	2 to -	24	-1	6 to –	32	-2	10 to -	40	-2	5 to -{	50
With long spacer	-11.2 t	0 –16.8	-1	12 to -	18	-23	3 to -3	4.5	-2	24 to -	36	-3	32 to -	48	-4	0 to -	60	-5	0 to -1	75

Spacer length

Spacer length							(mm)
Bore size	16	20	25	32	40	50	63
Short spacer	5.6	6	11.5	12	16	20	25
Long spacer	11.2	12	23	24	32	40	50

Component Parts



MY1M Series

Side Support



D

ĺΠĪ.

Model	Applicable bore size	Α	В	С	D	Е	F	G	н	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
MV CAOA	MY1M40	120	142		80	14.8	8.5		0	
WY-540 ⁸	MY1M50	142	164	55				14	9	IVI I U X 1.5
MY-S63 ^A _B	MY1M63	172	202	70	100	18.3	10.5	17.5	11.5	M12 x 1.75

в

* A set of side supports consists of a left support and a right support.

Guide for Side Support Application

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







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MY1C Series Prior to Use

Maximum Allowable Moment/Maximum Load Mass

Madal	Bore size	Maximum a	llowable mo	ment (N·m)	Maximum load mass (kg)				
woder	(mm)	M1	M2	Мз	m 1	m2	m3		
	16	6.0	3.0	2.0	18	7	2.1		
	20	10	5.0	3.0	25	10	3		
	25	15	8.5	5.0	35	14	4.2		
MY1C	32	30	14	10	49	21	6		
	40	60	23	20	68	30	8.2		
	50	115	35	35	93	42	11.5		
	63	150	50	50	130	60	16		

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 mass (kg)



Moment (N·m)



<Calculation of guide load factor>

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

* To evaluate, use Da (average speed) for (1) and (2), and D (collision speed D = 1.4Da) for (3). Calculate mmax for (1) from the maximum allowable load graph (m₁, m₂, m₃) and Mmax for (2) and (3) from the maximum allowable moment graph (M₁, M₂, M₃).

Sum of guide $_{\Sigma \alpha}$ –	Load mass [m]	Static moment [M] (1)	Dynamic moment [ME] (2)
load factors 200	Maximum allowable load [m max]	Allowable static moment [Mmax]	Allowable dynamic moment [Memax]

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 workpiece, multiple moments may occur. When this happens, the sum of the load factors $(\sum \alpha)$ is the total of all such moments.

2. Reference formula [Dynamic moment at impact]

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

m: Load mass (kg)

Ua: Average speed (mm/s)

 $\upsilon = 1.4\upsilon a \text{ (mm/s)} F_{\text{E}} = 1.4\upsilon a \cdot \delta \cdot \dot{\text{m}} \cdot \dot{\text{g}}$

 $\therefore \mathbf{M}_{\mathbf{E}} = \frac{1}{3} \cdot \mathbf{F}_{\mathbf{E}} \cdot \mathbf{L}_{1} = 4.57 \Im a \delta m L_{1} (N \cdot m)$

M: Static moment (N·m)

- F: Load (N) Fe: Load equivalent to impact (at impact with stopper) (N)
- U: Collision speed (mm/s)
- L1: Distance to the load's center of gravity (m)
- ME: Dynamic moment (N·m)
- $\delta: \text{ Damper coefficient } At \text{ collision: } \mathfrak{V} = 1.4\mathfrak{Va} \\ \text{With rubber bumper} = 4/100 \\ (MY1B10, MY1H10) \\ \text{With air cushion = 1/100} \\ \text{With shock absorber = 1/100} \\ \end{cases}$
 - g: Gravitational acceleration (9.8 m/s²)

Note 4) 1.4 Ua δ is a dimensionless coefficient for calculating impact force.

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

3. For detailed selection procedures, refer to pages 1280 and 1281.



conditions.

Select the moment from within the range of operating limits shown in the graphs. Note that the maximum allowable load value may comstimes

Maximum Allowable Moment

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 Load Mass

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

1278

∕ SMC



MY1C/m1



MY1C/m₂









MY1C Series **Model Selection**

Following are the steps for selecting the most suitable MY1C series to your application.

Calculation of Guide Load Factor

1. Operating Conditions



2. Load Blocking



Ma	ss	anc	l Cer	nter	of	Gravity
for	Ea	ch	Worl	kpie	ce	

Wadmines	Masa	Center of gravity									
Workpiece no. Wn	mn mn	X-axis X n	Y-axis Yn	Z-axis Z n							
Wa	0.88 kg	65 mm	0 mm	5 mm							
Wb	4.35 kg	150 mm	0 mm	42.5 mm							
Wc	0.795 kg	150 mm	111 mm	42.5 mm							
Wd	0.5 kg	150 mm	210 mm	42.5 mm							
				n=a b c d							

3. Composite Center of Gravity Calculation

 $\mathbf{m}_2 = \Sigma \mathbf{m}_n$ = 0.88 + 4.35 + 0.795 + 0.5 = 6.525 kg 1 $- \mathbf{x} \Sigma (\mathbf{m}_n \mathbf{x} \mathbf{x}_n)$ X = m $\frac{1}{6.525} (0.88 \times 65 + 4.35 \times 150 + 0.795 \times 150 + 0.5 \times 150) = 138.5 \text{ mm}$ $- \mathbf{x} \Sigma (\mathbf{m}_n \mathbf{x} \mathbf{y}_n)$ Y = · m₂ $\frac{1}{6.525} (0.88 \times 0 + 4.35 \times 0 + 0.795 \times 111 + 0.5 \times 210) = 29.6 \text{ mm}$ $\mathbf{Z} = \frac{1}{m} \mathbf{x} \Sigma (\mathbf{m}_n \mathbf{x} \mathbf{z}_n)$ m₂ $= \frac{1}{6.525} (0.88 \times 5 + 4.35 \times 42.5 + 0.795 \times 42.5 + 0.5 \times 42.5) = 37.4 \text{ mm}$

4. Calculation of Load Factor for Static Load



@SMC

Model Selection MY1C Series



6. Sum and Examination of Guide Load Factors

$\Sigma_{\text{Cl}} = \text{Cl}_1 + \text{Cl}_2 + \text{Cl}_3 + \text{Cl}_4 + \text{Cl}_5 = 0.72 \leq 1$

The above calculation is within the allowable value, and therefore the selected model can be used.

Select a shock absorber separately.

In an actual calculation, when the total sum of guide load factors α in the formula above is more than 1, consider either decreasing the speed, increasing the bore size, or changing the product series. This calculation can be easily made using the "SMC Pneumatics CAD System".

Load Mass

Allowable Moment





Mechanically Jointed Rodless Cylinder Cam Follower Guide Type MY1C Series

ø16, ø20, ø25, ø32, ø40, ø50, ø63

How to Order



U Bore size								
16	16 mm							
20	20 mm							
25	25 mm							
32	32 mm							
40	40 mm							
50	50 mm							
63	63 mm							

Port thread type										
Symbol	Туре	Bore size								
NI:I	M thread	ø16, ø20								
INII	Rc	ø25, ø32,								
TN	NPT	ø40, ø50,								
TF	G	ø63								

3 Piping								
Nil	Standard type							
G	Centralized piping type							

Optimized Cylinder stroke (mm)

Bore size	Standard stroke*1	Long stroke (-XB11)	Maximum manufacturable stroke
16	100, 200, 300, 400, 500 600, 700, 800, 900 1000, 1200, 1400	Strokes of 2001 to 3000 mm (1 mm increments) exceeding the standard stroke	3000
20, 25, 32 40, 50, 63	1600, 1800, 2000 *1 The stroke can be manufactured in 1 mm increments from 1 mm stroke.	Strokes of 2001 to 5000 mm (1 mm increments) exceeding the standard stroke	5000

Ordering example

* Add "-XB11" to the end of the part number for long strokes. MY1C20-3000L-M9BW-XB11 Note) Please be advised that with stroke 49 or less, there are cases where auto switch mounting is

* Solid state auto switches marked with "O" are produced upon receipt of order

* Separate switch spacers (BMG2-012) are required to retrofit auto switches (M9 type) on cylinders

not possible and the performance of the air cushion may decline.

5 Stroke adjustment unit symbol Refer to "Stroke adjustment unit" on page 1283.

6	Auto	switch
-		

Nil Without auto switch (Built-in magnet)

Applicable auto switches vary depending on the bore size. Select an applicable one referring to the table below.

Number of auto switches

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

8 Made to Order Refer to page 1283 for details.

Applicable Auto Switches/Refer to pages 1575 to 1701 for further information on auto switches.

			ight		L	Load voltage			Auto switch model			Lead wire length (m)														
Туре	Special function	Electrical	ator	(Output)		DC AC -		Perpen	dicular	In-l	ine	0.5	1	3	5	Pre-Wired	Applical	ole load								
		Critity	Indic	(Output)				ø16, ø20	ø25 to ø63	ø16, ø20 ø25 to ø63		(Nil)	(M)	(L)	(Z)	Connector										
Ë				3-wire (NPN)		5 V 12 V	5 1/ 10 1/		M9NV M9N		•	•	•	0	0	IC circuit										
Ĕ				3-wire (PNP)		J V, 12 V		M9	PV	M	9P	•	•	٠	0	0	io circuit									
S				2-wire		12 V		M9BV M		M	9B	•	•	•	0	0										
육	Diagnostic indication (2-color indicator) Gro	Grommet	Yes	3-wire (NPN)		5 V, 12 V	^{/, 12 V} _	M9N	IWV	M9	NW	•	•	•	0	0	IC airauit									
a				3-wire (PNP)	24 V			M9F	vwv	M9	PW	•	•	٠	0	0	io circuit	Relay,								
tat														2-wire		12 V		M9E	SMA	M9	BW	•	۲	•	0	0
a la				3-wire (NPN)		EV 10 V	,	M9N	AV*1	M9N	IA *1	0	0	٠	0	0	IC circuit									
1	(2-color indicator)			3-wire (PNP)		J V, 12 V		M9PAV*1		M9F	P A *1	0	0	٠	0	0	io circuit									
ŵ				2-wire		12 V		M9B	AV*1	M9E	3A *1	0	0	•	0	0										
			Voc	3-wire (NPN equivalent)	—	5 V	—	A96V	_	A96	Z76	•		٠	—		IC circuit	—								
o sw		Grommet	Grommet	Grommet	et res	0	24 V	12 V	100 V	A93V*3	—	A93	Z73	•	•	٠	•	-	-	Relay,						
auto			No	2-wire	24 V	24 V 12 V	12 V 100 V or less	A90V	-	A90	Z80	•	_	•	—	_	IC circuit	PLC								

*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 For details on switch mounting brackets and part numbers, refer to "Switch Mounting Bracket: Part No." on page 1333-1.

*3 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) M9NWZ
- Example) M9NWL Ø25 to Ø63.

* There are other applicable auto switches than listed above. For details, refer to page 1333-1.

* Auto switches are shipped together (not assembled). (Refer to page 1331 for the details of auto switch mounting.)



Mechanically Jointed Rodless Cylinder Cam Follower Guide Type **MY1C** Series



Made to Order	Made to Order: Individual Specifications (For details, refer to page 1334.)
Symbol	Specifications
-X168	Helical insert thread specifications

Made to Order Specifications

Click here for details							
Symbol	Specifications						
-XB11	Long stroke						
-XB22	Shock absorber soft type RJ series type						
-XC56	With knock pin hole						
-XC67	NBR rubber lining in dust seal band						

Specifications

Bore size (mm)		16	20	25	32	40	50	63			
Fluid		Air									
Action		Double acting									
Operating pr	essure range	0.15 to 0.8 M	IPa		0.1	I to 0.8 M	Pa				
Proof pres	sure	1.2 MPa									
Ambient and fl	t and fluid temperature 5 to 60°C										
Cushion				Air cu	shion						
Lubricatio	n			Non-	lube						
Stroke leng	th tolerance	$\begin{array}{c} 1000 \text{ or less}^{+18}_{0} \\ 1001 \text{ to } 3000 \stackrel{+28}{-20} \end{array} 2700 \text{ or less}^{+18}_{0}, 2701 \text{ to } 5000 \stackrel{+28}{-0} \end{array}$									
Piping	Front/Side port	M5 x 0.8	1/	8	1/4	3	/8				
port size	Bottom port	ø4		ø	6	ø8	ø	10			

Piston Speed

В	ore size (mm)	16 to 63		
Without stroke a	djustment unit	100 to 1000 mm/s		
Stroke adjustment unit	A unit	100 to 1000 mm/s ⁽¹⁾		
	L unit and H unit	100 to 1500 mm/s ⁽²⁾		

Note 1) Be aware that when the stroke adjustment range is increased by manipulating the adjustment bolt, the air cushion capacity decreases. Also, when exceeding the air cushion stroke ranges on page 1286, the piston speed should be 100 to 200 mm per second.

Note 2) The piston speed is 100 to 1000 mm/s for centralized piping.

Note 3) Use at a speed within the absorption capacity range. Refer to page 1286.

Note 4) Due to the construction of this product, it may have more fluctuation in operating speed compared to a rod type air cylinder. For applications that require constant speed, select the equipment corresponding to the required level.

Stroke Adjustment Unit Specifications

Bore size	(mm)	1	6		20			25			32			40			50			63	
Unit symb	bol	Α	L	Α	L	н	Α	L	н	Α	L	н	Α	L	н	Α	L	н	Α	Г	Н
Configura Shock ab model	ation sorber	With adjustment bolt	RB 0806 + with adjustment bolt	With adjustment bolt	RB 0806 + with adjustment bolt	RB 1007 + with adjustment bolt	With adjustment bolt	RB 1007 + with adjustment bolt	RB 1412 + with adjustment bolt	With adjustment bolt	RB 1412 with adjustment bolt	RB 2015 + with adjustment bolt	With adjustment bolt	RB 1412 + with adjustment bolt	RB 2015 + with adjustment bolt	With adjustment bolt	RB 2015 with adjustment bolt	RB 2725 with adjustment bolt	With adjustment bolt	RB 2015 with adjustment bot	RB 2725 with adjustment bolt
Stroke adjust- Without space		0 to	-5.6	0) to –6		0	to –11.	5	() to -1	2	0) to -16	6	0) to –20	0	0	to -25	5
intermediate fixing spacer (mm)	With short spacer	-5.6 to	0-11.2	-6	5 to -1	2	-11	-11.5 to -23		-	12 to -	24	-1	6 to –∹	32	-2	20 to –4	40	-2	25 to –8	50
	With long spacer	-11.2 t	0 –16.8	-1	2 to -1	8	-23	-23 to -34.5 -24 to -36		36	-32 to -48		-4	10 to –6	60	-5	i0 to -7	75			

* Stroke adjustment range is applicable for one side when mounted on a cylinder.

Stroke Adjustment Unit Symbol

			Right side stroke adjustment unit										
		Without	A: With adjustment bolt			L: With Iov + Adjustm	v load shoc ent bolt	k absorber	H: With high load shock absorbe + Adjustment bolt				
			unit		With short spacer	With long spacer		With short spacer	With long spacer		With short spacer	With long spacer	
Ħ	Wit	hout unit	Nil	SA	SA6	SA7	SL	SL6	SL7	SH	SH6	SH7	
E	A: With a	A: With adjustment bolt		Α	AA6	AA7	AL	AL6	AL7	AH	AH6	AH7	
l a		With short spacer	A6S	A6A	A6	A6A7	A6L	A6L6	A6L7	A6H	A6H6	A6H7	
usti		With long spacer	A7S	A7A	A7A6	A7	A7L	A7L6	A7L7	A7H	A7H6	A7H7	
adj	L: With low lo	oad shock absorber +	LS	LA	LA6	LA7	L	LL6	LL7	LH	LH6	LH7	
ş	Adjustment	With short spacer	L6S	L6A	L6A6	L6A7	L6L	L6	L6L7	L6H	L6H6	L6H7	
strc	DOIT	With long spacer	L7S	L7A	L7A6	L7A7	L7L	L7L6	L7	L7H	L7H6	L7H7	
e	H: With high	load shock absorber +	HS	HA	HA6	HA7	HL	HL6	HL7	н	HH6	HH7	
ftsi	Adjustment	With short spacer	H6S	H6A	H6A6	H6A7	H6L	H6L6	H6L7	H6H	H6	H6H7	
Ľ	DOIL	With long spacer	H7S	H7A	H7A6	H7A7	H7L	H7L6	H7L7	H7H	H7H6	H7	

Stroke adjustment unit mounting diagram



Port

* Spacers are used to fix the stroke adjustment unit at an intermediate stroke position.

For details on spacers and stroke adjustment units, refer to "Accessory Bracket (Option)" on page 1274-1.

Refer to pages 1331 to 1333-1 for the specifications with auto switch.

Port

MY1C Series

Shock Absorbers for L and H Units

Time	Stroke	Bore size (mm)									
туре	unit	16	20	25	32	40	50	63			
Standard	L	RB	0806	RB1007	RB1	412	RB2015				
(Shock absorber/ RB series)	н	-	- RB1007		RB2015		RB2725				
Shock absorber/	L	RJ0806H		RJ1007H	RJ1412H		-	-			
mounted (-XB22)	н	_	RJ1007H	RJ1412H	-	_	_	_			

* The shock absorber service life is different from that of the MY1C cylinder depending on operating

conditions. Refer to the RB Series Specific Product Precautions for the replacement period. * Mounted shock absorber soft type RJ series (-XB22) is made to order specifications. For details,

refer to page 1752.

Shock Absorber Specifications

Mo	RB 0806	RB 1007	RB 1412	RB 2015	RB 2725				
Max. energy	2.9	5.9	19.6	58.8	147				
Stroke abso	Stroke absorption (mm)			12	15	25			
Max. collision	Max. collision speed (mm/s)			1500					
Max. operating fre	quency (cycle/min)	80	70	45	25	10			
Spring	Extended	1.96	4.22	6.86	8.34	8.83			
force (N)	Retracted	4.22	6.86	15.98	20.50	20.01			
Operating tempe	5 to 60								

The shock absorber service life is different from that of the MY1C cylinder depending on operating conditions. Refer to the RB Series Specific Product Precautions for the replacement period.

Theoretical Output

								(N)				
Bore	Piston	Operating pressure (MPa)										
(mm)	(mm ²)	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				

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

Weight

							(kg)	
Bore size (mm)	Basic weight	Additional weight	Weight of moving parts	Side support bracket weight (per set)	Stroke adjustment unit weight (per unit)			
		50 mm of stroke		Type A and B	A unit weight	L unit weight	H unit weight	
16	0.67	0.12	0.22	0.01	0.03	0.04		
20	1.06	0.15	0.31	0.02	0.04	0.05	0.08	
25	1.58	0.24	0.41	0.02	0.07	0.11	0.18	
32	3.14	0.37	0.86	0.04	0.14	0.23	0.39	
40	5.60	0.52	1.49	0.08	0.25	0.34	0.48	
50	10.14	0.76	2.59	0.08	0.36	0.51	0.81	
63	16.67	1.10	4.26	0.17	0.68	0.83	1.08	

Calculation: (Example) MY1C25-300A

-

·· 1.58 kg · Basic weight

 Cylinder stroke ------··· 300 stroke

Additional weight 0.24/50 stroke
 1.58 + 0.24 x 300/50 + 0.07 x 2 ≅ 3.16 kg

Weight of A unit 0.07 kg

Precautions

-

- - - -1 I I For details on the MY1C Series Mechanically Jointed Rodless Cylinder, refer to "Specific Product Precautions" on I pages 1335 to 1336-2.



Cushion Capacity

Cushion Selection

<Air cushion>

Air cushions are a standard feature on mechanically jointed rodless cylinders. 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 ranges of load and speed that air cushions can absorb are within the air cushion limit lines shown in the graphs.

<Stroke adjustment 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 or 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.

 For details on stroke adjustment using the adjustment bolt, refer to page 1336.

(mm)

Air Cushion Stroke

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











MY1C50 Horizontal collision: P = 0.5 MPa 2000 unit 1500 s/mu unit 1000 speed 500 400 Collision 300 200 100 3 4 5 20 30 10 40 50 ŧ m1 max Load mass kg



Absorption Capacity of Air Cushion and Stroke Adjustment Units



MY1C Series

Construction: Ø16 to Ø63

MY1C16 to 63



MY1C16 to 63

Component Parts

	-		
No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Head cover WR	Aluminum alloy	Painted
3	Head cover WL	Aluminum alloy	Painted
4	Slide table	Aluminum alloy	Electroless nickel plated
5	Piston yoke	Aluminum alloy	Chromated
6	Piston	Aluminum alloy	Chromated
7	Wear ring	Special resin	
8	Belt separator	Special resin	
9	Guide roller	Special resin	
10	Guide roller shaft	Stainless steel	
11	Coupler	Sintered iron material	
12	Cushion ring	Aluminum alloy	Anodized
13	Cushion needle	Rolled steel	Nickel plated
14	Belt clamp	Special resin	
17	Rail	Hard steel wire	
18	Cam follower cap	Special resin	(ø25 to ø40)
19	Cam follower	_	
20	Eccentric gear	Stainless steel	
21	Gear bracket	Stainless steel	
22	Adjustment gear	Stainless steel	
23	Retaining ring	Stainless steel	

No.	Description	Material	Note			
24	End Cover	Special resin				
26	Backup plate	Special resin				
27	Stopper	Carbon steel	Nickel plated			
28	Spacer	Stainless steel				
33	Spring pin	Carbon tool steel				
34	Hexagon socket head set screw	Chromium molybdenum steel	Black zinc chromated			
35	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated			
36	Hexagon socket button head screw	Chromium molybdenum steel	Chromated			
37	Hexagon socket head set screw	Chromium molybdenum steel	Black zinc chromated/Chromated			
38	Hexagon socket head taper plug	Carbon steel	Chromated			
39	Magnet					
40	Magnet holder	Special resin				
41	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated			
42	Hexagon socket head taper plug	Carbon steel	Chromated			
44	Type CR retaining ring	Spring steel				
45	Head plate	Aluminum alloy	Hard anodized (ø63)			
46	Side scraper	Special resin	(ø50 to ø63)			
47	Bushing	Aluminum alloy	(ø16 to ø20)			
48	Port cover	Special resin	(ø25 to ø40)			
49	Lube-retainer	Special resin				

Replacement Part: Seal Kit

<u> </u>									
No.	Description	Qty.	MY1C16	MY1C20	MY1C25	MY1C32	MY1C40	MY1C50	MY1C63
15	Seal belt	1	MY16-16C-Stroke	MY20-16C-Stroke	MY25-16C-Stroke	MY32-16C-Stroke	MY40-16C-Stroke	MY50-16C-Stroke	MY63-16A-Stroke
16	Dust seal band	1	MY16-16B-Stroke	MY20-16B-Stroke	MY25-16B-Stroke	MY32-16B-Stroke	MY40-16B-Stroke	MY50-16B-Stroke	MY63-16B-Stroke
	Oring		KA00309	KA00311	KA00311	KA00320	KA00402	KA00777	KA00777
32	U-ring	2	(ø4 x ø1.8 x ø1.1)	(ø5.1 x ø3 x ø1.05)	(ø5.1 x ø3 x ø1.05)	(Ø7.15 x Ø3.75 x Ø1.7)	(ø8.3 x ø4.5 x ø1.9)	—	-
46	Side scraper	2	-	_	_	-	—	MYM50-15CK0502B	MYM63-15CK0503B
25	Scraper	2							
29	Piston seal	2							
30	Cushion seal	2	MY1M16-PS	MY1M20-PS	MY1M25-PS	MY1M32-PS	MY1M40-PS	MY1M50-PS	MY1M63-PS
31	Tube gasket	2							
43	O-ring	4							

* Seal kit includes 25, 29, 30, 31 and 43. Order the seal kit based on each bore size.

* Seal kit includes a grease pack (10 g).

When (5) and (6) are shipped independently, a grease pack is included. (10 g per 1000 strokes) Order with the following part number when only the grease pack is needed. Grease pack part number: GR-S-010 (10 g), GR-S-020 (20 g)

Note) Two kinds of dust seal bands are available. Verify the type to use, since the part number varies depending on the treatmentof the hexagon socket head set screw 37.

A: Black zinc chromated → MY□□-16B-stroke, B: Nickel plated → MY□□-16BW-stroke

MY1C Series

Standard Type/Centralized Piping Type Ø16, Ø20

The stroke adjustment unit for the MY1C is the same as that of the MY1M. For models and external dimensions, refer to pages 1273 to 1274-1.

MY1C16□/20□ - Stroke



																			(mm)
Model	NE	NH	NW	PA	PB	PG	PP	Q	QQ	QW	RR	SS	TT	UU	٧V	W	WW	XX	Z
MY1C16	28	27.7	56	40	40	3.5	7.5	153	9	48	11	2.5	15	14	10	68	13	30	160
MY1C20	34	33.7	60	50	40	4.5	11.5	191	10	45	14.5	5	18	12	12.5	72	14	32	200

Centralized Piping on the Bottom









Model	WX	Y	S	d	D	R	Applicable O-ring	
MY1C16	30	6.5	9	4	8.4	1.1	06	
MY1C20	32	8	6.5	4	8.4	1.1	6	


Mechanically Jointed Rodless Cylinder MY1C Series Cam Follower Guide Type

Standard Type/Centralized Piping Type Ø25, Ø32, Ø40

The stroke adjustment unit for the MY1C is the same as that of the MY1M. For models and external dimensions, refer to pages 1273 to 1274-1.

MY1C25□/32□/40□ - Stroke



																							(mm)
Model	Α	В	С	G	GB	н	J	к	L	LD	LH	LL	LW	М	MM	MW	Ν	NC	NE	NH	NW	Р	PA
MY1C25	110	9	5.5	17	24.5	54	M6 x 1	9.5	102	5.6	27	59	70	10	M5 x 0.8	66	30	21	41.8	40.5	60	Rc 1/8	60
MY1C32	140	11	6.5	19	30	68	M8 x 1.25	16	132	6.8	35	74	88	13	M6 x 1	80	37	26	52.3	50	74	Rc 1/8	80
MY1C40□	170	14	8.5	23	36.5	84	M10 x 1.5	15	162	8.6	38	89	104	13	M6 x 1	96	45	32	65.3	63.5	94	Rc 1/4	100
																		"P	' indic	ates c	ylinde	r supply	ports.

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																		(mm
Model	PB	PG	PP1	PP2	Q	QQ	QW	RR1	RR2	SS	TT	UU	vv	W	ww	ΧХ	z	ZZ
MY1C25	50	7	12.7	12.7	206	15.5	46	18.9	17.9	4.1	15.5	16	16	84	11	38	220	Rc 1/16
MY1C32	60	8	15.5	18.5	264	16	60	22	24	4	21	16	19	102	13	48	280	Rc 1/16
MY1C40	80	9	17.5	20	322	26	72	25.5	29	9	26	21	23	118	20	54	340	Rc 1/8

Centralized Piping on the Bottom









Applicable O-ring

C9

C11.2

Standard Type/Centralized Piping Type Ø50, Ø63

The stroke adjustment unit for the MY1C is the same as that of the MY1M. For models and external dimensions, refer to pages 1273 to 1274-1.

MY1C50□/63□ - Stroke



																				(mm)
Model	Α	В	С	G	GA	GB	н	J	К	L	LD	LH	LK	LL	LW	М	MM	Ν	NC	NE
MY1C50	200	17	10.5	27	25	37.5	107	M14 x 2	28	200	11	29	2	100	128	15	M8 x 1.25	47	43.5	84.5
MY1C63	230	19	12.5	29.5	27.5	39.5	130	M16 x 2	32	230	13.5	32.5	5.5	115	152	16	M10 x 1.5	50	60	104

																				(mm)
Model	NF	NH	NW	PA	PB	PG	PP	Q	QQ	QW	RR	SS	TT	UU	vv	W	W1	ww	ХХ	Z
MY1C50	81	83.5	118	120	90	10	26	380	28	90	35	10	35	24	28	144	128	22	74	400
MY1C63	103	105	142	140	110	12	42	436	30	110	49	13	43	28	30	168	152	25	92	460

Centralized Piping on the Bottom





9 10 17.5 1.1

MY1C50

MY1C63

74 18 8 10 17.5 1.1

92 18





R

Applicable O-ring

C15



Mechanically Jointed Rodless Cylinder Cam Follower Guide Type **MY1C** Series

Side Support

Side support A MY-S□A





Side support B MY-S□B



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										(mm)
Model	Applicable bore size	Α	В	С	D	E	F	G	Н	J
MY-S16₿	MY1C16	61	71.6	15	26	4.9	3	6.5	3.4	M4 x 0.7
MY-S20 ^A	MY1C20	67	79.6	25	38	6.4	4	8	4.5	M5 x 0.8
MY-S25₿	MY1C25	81	95	35	50	8	5	9.5	5.5	M6 x 1
MY-S32₿	MY1C32	100	118	45	64	11.7	6	11	6.6	M8 x 1.25
MV CAOA	MY1C40	120	142		00	14.0	0.5		0	M101.5
WIT-5408	MY1C50	142	164	55	80	14.8	8.5	14	9	WITU X 1.5
MY-S63A	MY1C63	172	202	70	100	18.3	10.5	17.5	11.5	M12 x 1.75

* A set of side supports consists of a left support and a right support.

Guide for Side Support Application

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.

A 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. 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.







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MY1H Series Prior to Use

Maximum Allowable Moment/Maximum Load Mass

Madal	Bore size	Maximum a	allowable mo	ment (N·m)	Maxim	um load ma	iss (kg)
woder	(mm)	M1	M2	Мз	m1	m2	ma
	10	0.8	1.1	0.8	6.1	6.1	6.1
	16	3.7	4.9	3.7	10.8	10.8	10.8
	20	11	16	11	17.6	17.6	17.6
MYIH	25	23	26	23	27.5	27.5	27.5
	32	39	50	39	39.2	39.2	39.2
	40	50	50	39	50	50	50

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 mass (kg)



<Calculation of guide load factor>

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

* To evaluate, use Ua (average speed) for (1) and (2), and U (collision speed U = 1.4Ua) for (3). Calculate mmax for (1) from the maximum allowable load graph (m1, m2, m3) and Mmax for (2) and (3) from the maximum allowable moment graph (M1, M2, M3).

Sum of guide	Σ0 -	Load mass [m]	Static moment [M] (1)	Dynamic moment [ME] (2)	< 1
load factors	200 - M	aximum allowable load [m max]	Allowable static moment [Mmax]	Allowable dynamic moment [Memax]	- '

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 workpiece, multiple moments may occur. When this happens, the sum of the load factors ($\Sigma \alpha$) is the total of all such moments.

2. Reference formula [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)
- FE: Load equivalent to impact (at impact with stopper) (N)
- Ua: Average speed (mm/s)
- M: Static moment (N·m)

 $\upsilon = 1.4\upsilon a \text{ (mm/s)} F_{\text{E}} = 1.4\upsilon a \cdot \delta \cdot m \cdot g$

$$\therefore \mathbf{M}_{\mathbf{E}} = \frac{1}{3} \cdot \mathbf{F}_{\mathbf{E}} \cdot \mathbf{L}_{1} = 4.57 \Im a \delta m \mathbf{L}_{1} (\mathbf{N} \cdot \mathbf{m})$$

- Collision speed (mm/s)
- L1: Distance to the load's center of gravity (m)
- ME: Dynamic moment (N·m)
- δ: Damper coefficient With rubber bumper = 4/100(MY1B10, MY1H10) With air cushion = 1/100With shock absorber = 1/100
- g: Gravitational acceleration (9.8 m/s²)

Note 4) 1.40aô is a dimensionless coefficient for calculating impact force. Note 5) Average load coefficient (=3): This coefficient is for averaging the maximum load moment at the time of stopper impact according to service life calculations.

3. For detailed selection procedures, refer to pages 1300 and 1301.



conditions

Maximum Load Mass

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

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.

A 1298









MY1H/m₃



MY1H Series Model Selection

Following are the steps for selecting the most suitable MY1H series to your application.

Calculation of Guide Load Factor

1. Operating Conditions -







2. Load Blocking



Ma	ss	and	d C	ent	er (of	Gravi	ity
or	Ea	ich	Wo	orkp	bie	се		

Warknissense	Masa	Center of gravity								
Workpiece no. Wn	m _n	X-axis Xn	Y-axis Yn	Z-axis Zn						
Wa	0.44 kg	60 mm	0 mm	5 mm						
Wb	2.0 kg	100 mm	0 mm	40 mm						
Wc	0.280 kg	100 mm	90 mm	40 mm						
Wd	0.2 kg	100 mm	189 mm	40 mm						
				n=a, b, c, d						

3. Composite Center of Gravity Calculation

 $m_{3} = \Sigma m_{n}$ = 0.44 + 2.0 + 0.280 + 0.2 = 2.92 kg $X = \frac{1}{m_{3}} \times \Sigma (m_{n} \times x_{n})$ $= \frac{1}{2.95} (0.44 \times 60 + 2.0 \times 100 + 0.280 \times 100 + 0.2 \times 100) = 94.0 \text{ mm}$ $Y = \frac{1}{m_{3}} \times \Sigma (m_{n} \times y_{n})$ $= \frac{1}{2.95} (0.44 \times 0 + 2.0 \times 0 + 0.280 \times 90 + 0.2 \times 189) = 21.6 \text{ mm}$ $Z = \frac{1}{m_{3}} \times \Sigma (m_{n} \times z_{n})$ $= \frac{1}{2.95} (0.44 \times 5 + 2.0 \times 40 + 0.280 \times 40 + 0.2 \times 40) = 34.8 \text{ mm}$

4. Calculation of Load Factor for Static Load



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Model Selection **MY1H Series**



6. Sum and Examination of Guide Load Factors

 $\sum_{\boldsymbol{\alpha}} = \boldsymbol{\alpha}_1 + \boldsymbol{\alpha}_2 + \boldsymbol{\alpha}_3 + \boldsymbol{\alpha}_4 + \boldsymbol{\alpha}_5 = \boldsymbol{0.79} \leq \boldsymbol{1}$

The above calculation is within the allowable value, and therefore the selected model can be used.

Select a shock absorber separately.

In an actual calculation, when the total sum of guide load factors $\Sigma \alpha$ in the formula above is more than 1, consider either decreasing the speed, increasing the bore size, or changing the product series.

This calculation can be easily made using the "SMC Pneumatics CAD System".

Load Mass

Allowable Moment



Mechanically Jointed Rodless Cylinder Linear Guide Type MY1H Series 010, 016, 020, 025, 032, 040



*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 For details on switch mounting brackets and part numbers, refer to "Switch Mounting Bracket: Part No." on page 1333-1

*3 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) M9NWZ

* There are other applicable auto switches than listed above. For details, refer to page 1333-1.

* Auto switches are shipped together (not assembled). (Refer to page 1331 for the details of auto switch mounting.)

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

Mechanically Jointed Rodless Cylinder MY1H Series



Specin	calions											
Bore	size (mm)	10	16	20	25	32	40					
Fluid				A	ir							
Action				Double	acting							
Operating	pressure range	0.2 to 0.8 MPa	0.15 to	0.8 MPa	(0.1 to 0.8 MF	a					
Proof pre	ssure	1.2 MPa										
Ambient and	fluid temperatures	5 to 60°C										
Cushion		Rubber bumper Air cushion										
Lubricati	on	Non-lube										
Stroke ler	ngth tolerance			+1	.8							
Piping	Front/Side port		/8	1/4								
port size	Bottom port		Ø	4	e	ø8						

Piston Speed

c...

addiaationa

B	ore size (mm)	10	16 to 40
Without stroke a	djustment unit	100 to 500 mm/s	100 to 1000 mm/s
Stroke	A unit		100 to 1000 mm/s ⁽¹⁾
adjustment unit	L unit and H unit	100 to 1000 mm/s	100 to 1500 mm/s ⁽²⁾

Note 1) Be aware that when the stroke adjustment range is increased by manipulating the adjustment bolt, the air cushion capacity decreases. Also, when exceeding the air cushion stroke ranges on page 1306, the piston coped chard be at 200 mpc record and a cushion stroke ranges on page 1306, the piston coped chard be at 200 mpc record cushing the stroke s

speed should be 100 to 200 mm per second. Note 2) The piston speed is 100 to 1000 mm/s for centralized piping.

Note 3) Use at a speed within the absorption capacity range. Refer to page 1306.

-X168 Helical insert thread specifications -X1810 Magnet for ø10 solid state auto switch specifications

Orde

Symbol

Made to Order Specifications

Click here for details						
Symbol	Specifications					
-XB10	Intermediate stroke (Using exclusive body)					
-XB11 ⁽¹⁾	Long stroke					
-XB22	Shock absorber soft type RJ series type					
-XC56	With knock pin hole					
-XC67 ⁽²⁾	NBR rubber lining in dust seal band					
-XB10 -XB11 ⁽¹⁾ -XB22 -XC56 -XC67 ⁽²⁾	Intermediate stroke (Using exclusive bot Long stroke Shock absorber soft type RJ series typ With knock pin hole NBR rubber lining in dust seal band					

Note 1) Excludes ø10 for the -XB11

Note 2) Only bore sizes ø10 to ø20 are available for the -XC67.

Made to Order: Individual Specifications

Specifications

(For details, refer to page 1334.)

Stroke Adjustment Unit Specifications

Bore siz	e (mm)	10	1	6		20			25			32			40	
Unit symbo	1	н	A	L	A	L	н	A	L	н	A	L	н	Α	L	н
Configurati Shock abso	on orber model	RB 0805 + with adjustment bolt	With adjustment bolt	RB 0806 + with adjustment bolt	With adjustment bolt	RB 0806 + with adjustment bolt	RB 1007 + with adjustment bolt	With adjustment bolt	RB 1007 + with adjustment bolt	RB 1412 + with adjustment bolt	With adjustment bolt	RB 1412 + with adjustment bolt	RB 2015 + with adjustment bolt	With adjustment bolt	RB 1412 + with adjustment bolt	RB 2015 + with adjustment bolt
Stroke adjust-	Without spacer	0 to -10	0 to	-5.6		0 to -6		() to -11.	5		0 to -12			0 to -16	
intermediate	With short spacer	_*1	-5.6 to	-11.2		-6 to -12	2	-1	1.5 to -	23	-	-12 to -2	4	-	-16 to -3	2
(mm)	With long spacer	_*1	-11.2 t	o –16.8	-	12 to -1	8	-2	23 to -34	.5	-	-24 to -3	6	-	-32 to -4	8

*1) For ø10, stroke adjustment is available. Refer to page 1336-2 for details.

*2) Stroke adjustment range is applicable for one side when mounted on a cylinder.

Stroke Adjustment Unit Symbol

			Right side stroke adjustment unit									
		Without	A: With adjustment bolt			L: With Iov + Adjustm	L: With low load shock absorber + Adjustment bolt			H: With high load shock absorber + Adjustment bolt		
			unit		With short spacer	With long spacer		With short spacer	With long spacer		With short spacer	With long spacer
Ë	Wit	hout unit	Nil	SA	SA6	SA7	SL	SL6	SL7	SH	SH6	SH7
t n	A: With a	djustment bolt	AS	Α	AA6	AA7	AL	AL6	AL7	AH	AH6	AH7
ner		With short spacer	A6S	A6A	A6	A6A7	A6L	A6L6	A6L7	A6H	A6H6	A6H7
usti		With long spacer	A7S	A7A	A7A6	A7	A7L	A7L6	A7L7	A7H	A7H6	A7H7
adi	L: With low lo	ad shock absorber +	LS	LA	LA6	LA7	L	LL6	LL7	LH	LH6	LH7
ş	Adjustment	With short spacer	L6S	L6A	L6A6	L6A7	L6L	L6	L6L7	L6H	L6H6	L6H7
str	DOIL	With long spacer	L7S	L7A	L7A6	L7A7	L7L	L7L6	L7	L7H	L7H6	L7H7
qe	H: With high	load shock absorber +	HS	HA	HA6	HA7	HL	HL6	HL7	н	HH6	HH7
fts	Adjustment	With short spacer	H6S	H6A	H6A6	H6A7	H6L	H6L6	H6L7	H6H	H6	H6H7
Ľ	DOIL	With long spacer	H7S	H7A	H7A6	H7A7	H7L	H7L6	H7L7	H7H	H7H6	H7

* Intermediate fixing spacer is not available for end lock mounting side.

* Spacers are used to fix the stroke adjustment unit at an intermediate stroke position.

For details on spacers and stroke adjustment units, refer to "Accessory Bracket (Option)" on page 1315.

Stroke adjustment unit Intermediate fixing spacer

Stroke adjustment unit

mounting diagram

Place the protruding section on the stroke adjusting unit side.



Refer to pages 1331 to 1333-1 for the specifications with auto switch.

Shock Absorbers for L and H Units

Turno	Stroke			Bore siz	e (mm)	ı)	
туре	unit	10	16	20	25	32	40
Standard	L	—	RBC	806	RB1007	RB1	412
(Shock absorber/ RB series)	н	RB0805	_	RB1007	RB1412	RB2	2015
Shock absorber/soft type	L	—	RJ08	306H	RJ1007H	RJ14	412H
mounted (-XB22)	н	RJ0805	-	RJ1007H	RJ1412H	—	—

* The shock absorber service life is different from that of the MY1H cylinder depending on operating conditions. Refer to the RB Series Specific Product Precautions for the replacement period.

 * Mounted shock absorber soft type RJ series (-XB22) is made to order specifications. For details, refer to page 1752.

Shock Absorber Specifications

Model		RB 0805	RB 0806	RB 1007	RB 1412	RB 2015
Max. energy a	bsorption (J)	1.0	2.9	5.9	19.6	58.8
Stroke absorption (mm)		5	6	7	12	15
Max. collision speed (mm/s)		1000	1500	1500	1500	1500
Max. operating freq	uency (cycle/min)	80	80	70	45	25
Spring	Extended	1.96	1.96	4.22	6.86	8.34
force (N) Retracted		3.83	4.22	6.86	15.98	20.50
Operating temperature range (°C)		5 to 60				

* The shock absorber service life is different from that of the MY1H cylinder depending on operating conditions. Refer to the RB Series Specific Product Precautions for the replacement period.

Theoretical Output

								(N
Bore	Piston	iston Operating pressure (MPa)						
(mm)	(mm ²)	0.2	0.3	0.4	0.5	0.6	0.7	0.8
10	78	15	23	31	39	46	54	62
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

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

Weight

							(kg)	
Bore	Bore Basic Weigh	Additional weight	Weight	Side support bracket weight (per set)	Stroke adjustment unit weight (per unit)			
(mm)	weight	50 mm of stroke	parts	parts Type A and B	A unit weight	L unit weight	H unit weight	
10	0.26	0.08	0.05	0.003	—	—	0.02	
16	0.74	0.14	0.19	0.01	0.02	0.04	_	
20	1.35	0.25	0.40	0.02	0.03	0.05	0.07	
25	2.17	0.30	0.73	0.02	0.04	0.07	0.11	
32	4.37	0.46	1.30	0.04	0.08	0.14	0.23	
40	5.84	0.55	1.89	0.08	0.12	0.19	0.28	

Calculation: (Example) MY1H20-300A

Basic weight 1.35 kg

Cylinder stroke ------ 300 stroke

Additional weight 0.25/50 stroke

1.35 + 0.25 x 300/50 + 0.03 x 2 ≅ 2.19 kg

Weight of A unit----- 0.03 kg

With End Locks



Specifications

	40				40	
Bore size (mm)	16	20	25	32	40	
Lock position	One end (Selectable), Both ends					
Holding force (Max.) (N)	110	170	270	450	700	
Fine stroke adjustment range (mm)	0 to -5.6	0 to -6	0 to -11.5	0 to -12	0 to -16	
Backlash	1 mm or less					
Manual release		Pos	sible (Non-lock t	ype)		

A Precautions

For details on the MY1H Series Mechanically Jointed Rodless Cylinder, refer to "Specific Product Precautions" on pages 1335 to 1336-3.

- -



Cushion Capacity

Cushion Selection

<Rubber bumper>

Rubber bumpers are a standard feature on MY1H10.

Since the stroke absorption of rubber bumpers is short, when adjusting the stroke with an A unit, install an external shock absorber.

The load and speed range which can be absorbed by a rubber bumper is inside the rubber bumper limit line of the graph. <a icus height is a speed of the second seco

Air cushions are a standard feature on mechanically jointed rodless cylinders.

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 ranges of load and speed that air cushions can absorb are within the air cushion limit lines shown in the graphs.

Stroke adjustment unit with shock absorber-Use this unit when operating with a load or speed exceeding the air cushion limit line, or when cushioning is required 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 or 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.

 For details on stroke adjustment using the adjustment bolt, refer to page 1336.

(mm)

Air Cushion Stroke

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

Rubber Bumper (Ø10 only) Positive Stroke from One End Due to Pressure



Absorption Capacity of Rubber Bumper, Air cushion and Stroke Adjustment Units













Construction: ø10

Centralized piping type







Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Head cover WR	Aluminum alloy	Painted
3	Head cover WL	Aluminum alloy	Painted
4	Piston yoke	Aluminum alloy	Hard anodized
5	Piston	Aluminum alloy	Chromated
6	End cover	Special resin	
7	Wear ring	Special resin	
8	Bumper	Polyurethane rubber	
9	Holder	Stainless steel	
10	Stopper	Carbon steel	Nickel plated
11	Belt separator	Special resin	
12	Seal magnet	Rubber magnet	
15	Belt clamp	Special resin	
20	Bearing	Special resin	
21	Spacer	Chromium molybdenum steel	Nickel plated

Replacement Part: Seal Kit

No.	Description	Qty.	MY1H10
13	Seal belt	1	MY10-16A-Stroke
14	Dust seal band	1	MY10-16B-Stroke
16	Scraper	2	
17	Piston seal	2	MY1810 80
18	Tube gasket	2	MITIBIO-PS
19	O-ring	4	

* Seal kit includes 16, 17, 18 and 19.

Seal kit includes a grease pack (10 g).

When (3) and (4) are shipped independently, a grease pack is included. Order with the following part number when only the

grease pack is needed. Grease pack part number: GR-S-010 (10 g), GR-S-020 (20 g)

NO.	Description	Material	Note
22	Spring pin	Stainless steel	
23	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
24	Round binding head screw	Carbon steel	Chromated
25	Hexagon socket head set screw	Carbon steel	Black zinc chromated
26	Hexagon socket head plug	Carbon steel	Chromated
27	Magnet	-	
28	Slide table	Aluminum alloy	Hard anodized
29	Head plate	Stainless steel	
30	Lube-retainer	Special resin	
31	Linear guide	-	
32	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
33	Square nut	Carbon steel	Chromated
34	Stopper plate	Carbon steel	Chromated
35	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
36	Guide stopper	Carbon steel	Nickel plated
37	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated



Construction: ø16, ø20

MY1H16, 20





MY1H16, 20

Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Head cover WR	Aluminum alloy	Painted
3	Head cover WL	Aluminum alloy	Painted
4	Slide table	Aluminum alloy	Hard anodized
5	Piston yoke	Aluminum alloy	Chromated
6	Piston	Aluminum alloy	Chromated
7	Wear ring	Special resin	
8	Belt separator	Special resin	
9	Guide roller	Special resin	
10	Guide roller shaft	Stainless steel	
11	Coupler	Sintered iron material	
12	Cushion ring	Aluminum alloy	Anodized
13	Cushion needle	Rolled steel	Nickel plated
14	Belt clamp	Special resin	
17	Guide	-	
18	End cover	Special resin	
20	Bearing	Special resin	

No.	Description	Material	Note
21	Magnet	-	
22	Square nut	Carbon steel	Chromated
23	Spring pin	Carbon tool steel	
24	Hexagon socket head set screw	Chromium molybdenum steel	Black zinc chromated/Chromated
25	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
26	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
27	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
32	Hexagon socket head taper plug	Carbon steel	Chromated
34	Hexagon socket head taper plug	Carbon steel	Chromated
36	Stopper	Carbon steel	Nickel plated
37	Spacer	Stainless steel	
38	Hexagon socket button head screw	Chromium molybdenum steel	Chromated
39	Type CR retaining ring	Spring steel	
40	Lube-retainer	Special resin	

Replacement Part: Seal Kit

No.	Description	Qty.	MY1H16	MY1H20				
15	Seal belt	1	MY16-16C-Stroke	MY20-16C-Stroke				
16	Dust seal band	1	MY16-16B-Stroke	MY20-16B-Stroke				
21	Orring	2	KA00309	KA00309				
31	Offing	2	(ø4 x ø1.8 x ø1.1)	(ø4 x ø1.8 x ø1.1)				
35	Side scraper	1	MYH16-15BK2900B	MYH20-15BK2901B				
19	Scraper	2						
28	Piston seal	2						
29	Cushion seal	2	MY1H16-PS	MY1H20-PS				
30	Tube gasket	2						
33	O-ring	4						

Seal kit includes (19, 39, 29, 30 and 33. Order the seal kit based on each bore size. Seal kit includes a grease pack (10 g). When (3) and (3) are shipped independently, a grease pack (20 g) is included. Order with the following part number when only the grease pack is needed. Grease pack part number: GR-S-010 (10 g), GR-S-020 (20 g)

 Note) Two kinds of dust seal bands are available. Verify the type to use, since the part number varies depending on the treatment of the hexagon socket head set screw ②.

 A: Black zinc chromated → MY□□-16B-stroke, B: Chromated → MY□□-16BW-stroke

Construction: ø25, ø32, ø40

MY1H25, 32, 40









MY1H25, 32, 40

Component Parts

No.	Description	Material	Note
1	Cylinder tube	Aluminum alloy	Hard anodized
2	Head cover	Aluminum alloy	Painted
3	Cushion boss	Special resin	
4	Slide table	Aluminum alloy	Hard anodized
_5	Piston yoke	Aluminum alloy	Chromated
6	Piston	Aluminum alloy	Chromated
7	Wear ring	Special resin	
8	Belt separator	Special resin	
9	Guide roller	Special resin	
10	Parallel pin	Stainless steel	
11	Coupler	Sintered iron material	
12	Head plate	Stainless steel	
13	Cushion needle	Rolled steel	Nickel plated
14	Belt clamp	Special resin	
17	Guide	—	
18	End cover	Special resin	
20	Steel ball	Carbon tool steel	
21	Bearing	Special resin	
22	Magnet	Rare earth magnet	
23	Square nut	Carbon steel	Chromated
24	Spring pin	Bearing steel	
26	Thin head screw	Chromium molybdenum steel	Chromated
27	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
28	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
29	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
33	Hexagon socket head taper plug	Carbon steel	Chromated (Centralized piping: 10 pcs.)
34	Hexagon socket head taper plug	Carbon steel	Chromated (Centralized piping: 4 pcs.)
38	Stopper	Carbon steel	
39	Spacer	Stainless steel	
40	Hexagon socket button head screw	Chromium molybdenum steel	Chromated
41	CR retaining ring	Spring steel	
42	Seal magnet	Rubber magnet	
43	Lube retainer	Special resin	

Replacement Parts: Seal Kit

No.	Description	Material	Qty.	MY1H25	MY1H32	MY1H40		
15	Seal belt	Urethane	1	MY25-16C-Stroke	MY32-16C-Stroke	MY40-16C-Stroke		
16	Dust seal band	Stainless steel	1	MY1B25-16B-Stroke	MY1B32-16B-Stroke	MY1B40-16B-Stroke		
25	Cushion boss gasket	NBR	2	MYB25-16GA5900	MYB32-16GA5901	MYB40-16GA5902		
26	Oring	NIDD	2	KA00311	KA00320	KA00320		
30	0-mig	NDR	2	(ø5.1 x ø3 x ø1.05)	(ø7.15 x ø3.75 x ø1.7)	(ø7.15 x ø3.75 x ø1.7)		
37	Side scraper	Special resin	2	MYH25-15BK2902B	MYH32-15BK2903B	MYH40-15BK2904B		
19	Scraper	NBR	2					
30	Piston seal	NBR	2					
31	Cushion seal	NBR	2	MY1H25-PS	MY1H32-PS	MY1H40-PS		
32	Tube gasket	NBR	2					
35	O-ring	NBR	4					

* Seal kit includes (9, 30, 3), 32 and 35. Order the seal kit based on each bore size.

Construction: ø16, ø20

With End Lock



Component Parts

No.	Description	Material	Note
1	Locking body	Aluminum alloy	Painted
2	Lock finger	Carbon steel	After quenching, nickel plated
3	Lock finger bracket	Rolled steel	Nickel plated
4	Lock piston	Carbon tool steel	After quenching, electroless nickel plated
5	Rod cover	Aluminum alloy	Hard anodized
6	Return spring	Spring steel	Zinc chromated
7	Bypass pipe	Aluminum alloy	Chromated
10	Steel ball	High carbon chrome bearing steel	
11	Steel ball	High carbon chrome bearing steel	
13	Round type R retaining ring	Carbon tool steel	Nickel plated
14	O-ring	NBR	
15	Hexagon socket head cap screw	Chromium molybdenum steel	Nickel plated
16	Hexagon socket head cap screw	Chromium molybdenum steel	Nickel plated
17	Steel ball	High carbon chrome bearing steel	
18	Steel ball	High carbon chrome bearing steel	

Replacement Part: Seal Kit

No.	Description	Material	Qty.	MY1H16	MY1H20
8	Rod seal	NBR	1	KB00257	KB00257
9	Piston seal	NBR	1	KB00202	KB00202
12	O-ring	NBR	1	KA00057	KA00057

** Since the seal kit does not include a grease pack, order it separately. Grease pack part no.: GR-S-010 (10 g)



Mechanically Jointed Rodless Cylinder Linear Guide Type **MY1H Series**

Construction: ø25, ø32, ø40

End lock



Component Parts

No.	Description	Material	Note
1	Locking body	Aluminum alloy	Painted
2	Lock finger	Carbon steel	After quenching, nickel plated
3	Lock finger bracket	Rolled steel	Nickel plated
4	Lock piston	Carbon tool steel	After quenching, electroless nickel plated
5	Rod cover	Aluminum alloy	Hard anodized
6	Return spring	Spring steel	Zinc chromated
7	Bypass pipe	Aluminum alloy	Hard anodized
10	Steel ball	High carbon chromium bearing steel	
11	Steel ball	High carbon chromium bearing steel	
13	Inverted internal retaining ring	Carbon tool steel	Nickel plated
15	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
16	Hexagon socket head cap screw	Chromium molybdenum steel	Chromated
17	Steel ball	High carbon chromium bearing steel	
18	Steel ball	High carbon chromium bearing steel	
19	Head cover WR	Aluminum alloy	Painted
20	Head cover WL	Aluminum alloy	Painted
21	Cushion ring	Aluminum alloy	
22	Hexagon socket head set screw	Chromium molybdenum steel	Chromated

Replacement Parts: Seal Kit

No.	Description	Material	Qty.	MY1H25	MY1H32	MY1H40
8	Rod seal	NBR	1	KB00267	KB00267	KB00267
9	Piston seal	NBR	1	KB00217	KB00217	KB00217
12	O-ring	NBR	1	KB00037	KB00037	KB00037
14	O-ring	NBR	2	KA00048	KA00048	KA00048

* Since the seal kit does not include a grease pack, order it separately. Grease pack part no.: GR-S-010 (10 g)



Centralized Piping Type ø10

MY1H10G - Stroke



With shock absorber + Adjustment bolt MY1H10G — Stroke H







Mechanically Jointed Rodless Cylinder **MY1H Series**

Standard Type/Centralized Piping Type Ø16, Ø20

MY1H16□/20□ - Stroke



Model	Α	в	С	G	GA	GB	н	J	к	L	LD	LL	LW	М	MM	Ν	NC	NE	NH	NW
MY1H16	80	6	3.5	14	9	16	40	M5 x 0.8	10	80	3.5	40	60	7	M4 x 0.7	20	14	27.8	27	37
MY1H20	100	7.5	4.5	12.5	12.5	20.5	46	M6 x 1	12	100	4.5	50	78	8	M5 x 0.8	25	17.5	34	33.5	45

																				(mm)
Model	PA	PB	PC	PD	PE	PF	PG	PP	Q	QQ	QW	RR	SS	TT	UU	VV	ww	XX	YH	Z
MY1H16	40	40	7.5	21	9	3.5	3.5	7.5	153	9	30	11	3	9	10.5	10	7.5	22	25	160
MY1H20	50	40	14.5	27	12	4.5	4.5	11.5	191	11	36	14.5	5	10.5	12	12.5	10.5	24	31.5	200

SMC

Centralized Piping on the Bottom







Standard Type/Centralized Piping Type: Ø25, Ø32, Ø40



Centralized Piping on the Bottom









						(11111)
Model	WXX	Y	d	D	R	Applicable O-ring
MY1H25	15.5	16.2	6	11.4	1.1	<u> </u>
MY1H32	20	20.4	6	11.4	1.1	Ca
MY1H40	23.5	25.9	8	13.4	1.1	C11.2
		(mm)				
Model	wx	v				
MY1H25	26.5	10				
MY1H32	40	5.5				
MY1H40	47	6				



SMC

Mechanically Jointed Rodless Cylinder MY1H Series

With End Lock Ø16, Ø20

Dimensions for types other than end lock are identical to the standard type dimensions. For details about dimensions, etc., refer to page 1312.

MY1H□-□E (Right end)





MY1H□—□F (Left end)



MY1HD—DW	
(Both ends)	



							(mm)
Model	H1	H2	L1	TL	W1	W2	W3
MY1H16□	39.2	33	0.5	5.6	18	16	10.4
MY1H20	45.7	39.5	3	6	18	16	10.4

With End Lock: Ø25, Ø32, Ø40

Dimensions for types other than end lock are identical to the standard type dimensions. For details about dimensions, etc., refer to page 1312-1.

MY1HD-DWZ (Both ends)



Stanuart	Standard piping/Centralized piping										
Model	NC	NE	PP	RR	SS	UU	vv	ww	XX		
MY1H25	20	40.5	12	16	6	15	16	12.5	28		
MY1H32	25	50	17	23	4	16	19	16	32		
MY1H40	30.5	63	8.5	27	10.5	22	23	19.5	36		

* The dimensions of the TT, G, GB, and NA are the same as those of the standard product.

Port Variations Slide table operating direction ⊲L R► GP GP GP GP GP

38 35 24.4

W3

17.7

 \mathbb{O}

H2 L1 TL W1 W2

11.5 29.3 27.3

 \mathbb{O}

3

68.5 10.5 16



Model H1

MY1H25

MY1H32 67 56 6.5 12 29.3 27.3 17.7

MY1H40 83

53.5 46

Stroke Adjustment Unit



Applicable bore size	Е	EA	EB	EC	EY	FA	FC	h	TT	W
MY1H16	14.6	7	28	5.8	39.5	11.5	13	3.6	5.4 (Max. 11)	37
MY1H20	19	10	33	5.8	45.5	15	14	3.6	6 (Max. 12)	45
MY1H25	18	9	40	7.5	53.5	16	21	3.5	5 (Max. 16.5)	53
MY1H32	25	14	45.6	9.5	67.5	23	20	4.5	8 (Max. 20)	64
MY1H40	31	19	55	11	82	24.5	26	4.5	9 (Max. 25)	75

With low load shock absorber + Adjustment bolt

MY1H Bore size
- Stroke L(Z)

ø16, ø20

ø**25, ø32, ø40**



Applicable bore size	E	EA	EB	EC	EY	FA	FC	h	S	т	TT	w	Shock absorber model
MY1H16	14.6	7	28	5.8	39.5	11.5	13	3.6	40.8	6	5.4 (Max. 11)	37	RB0806
MY1H20	19	10	33	5.8	45.5	15	14	3.6	40.8	6	6 (Max. 12)	45	RB0806
MY1H25	18	9	40	7.5	53.5	16	21	3.5	46.7	7	5 (Max. 16.5)	53	RB1007
MY1H32	25	14	45.6	9.5	67.5	23	20	4.5	67.3	12	8 (Max. 20)	64	RB1412
MY1H40	31	19	55	11	82	24.5	26	4.5	67.3	12	9 (Max. 25)	75	RB1412

Stroke Adjustment Unit





* Since the EY dimension of H unit is greater than the table top height (H dimension), when a work piece exceeding the full length (L dimension) of the slide table is mounted, allow a clearance of size "a" or larger at the work piece side.

Applicable bore size	Е	EA	EB	EC	EY	F	FA	FC	h	S	т	π	w	Shock absorber model	а
MY1H25	18	9	40	9	57	-	18	17.5	4.5	67.3	12	5 (Max. 16.5)	53	RB1412	3.5
MY1H32	25	14	45.6	12.4	73	—	18.5	22.5	5.5	73.2	15	8 (Max. 20)	64	RB2015	5.5
MY1H40	31	19	55	12.4	86	-	26.5	22	5.5	73.2	15	9 (Max. 25)	75	RB2015	2.5

MY1H Series Accessory Bracket (Option)

Stroke Adjustment Unit



Port

Stroke adjustment range

Stroke adjustment range (mm)															
Bore size	10	1	6		20			25			32			40	
Unit symbol	Н	Α	L	Α	L	н	Α	L	н	Α	L	Н	Α	L	Н
Without spacer	0 to -10	0 to	-5.6	0 to -6		0 to -11.5		5	0 to -12		2	0 to -16		i	
With short spacer	_*	-5.6 to) –11.2	-6 to -12		-11.5 to -23			-12 to -24			-16 to -32		12	
With long spacer	_*	-11.2 t	o –16.8	-	-12 to -1	8	-2	23 to -34	1.5	-	24 to -3	36		32 to -4	8

(mm)

* For ø10, stroke adjustment is available. Refer to page 1336-2 for details.

Spacer length

Bore size	16	20	25	32	40
Short spacer	5.6	6	11.5	12	16
Long spacer	11.2	12	23	24	32

Component Parts



* Nuts are equipped on the cylinder body.

Side Support



/	
 III	Irn.

										(mm)
Model	Applicable bore size	Α	В	С	D	Е	F	G	н	J
MY-S10 ^A	MY1H10	53	61.6	12	21	3	1.2	6.5	3.4	M4 x 0.7
MY-S16 ^A B	MY1H16	71	81.6	15	26	4.9	3	6.5	3.4	M4 x 0.7
MY-S20 ⁸	MY1H20	91	103.6	25	38	6.4	4	8	4.5	M5 x 0.8
MY-S25 ^A B	MY1H25	105	119	35	50	8	5	9.5	5.5	M6 x 1
MY-S32 ^A B	MY1H32	130	148	45	64	11.7	6	11	6.6	M8 x 1.25
MY-S40₿	MY1H40	145	167	55	80	14.8	8.5	14	9	M10 x 1.5

* A set of side supports consists of a left support and a right support.

Guide for Side Support Application

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

A 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. 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.







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Maximum Allowable Moment/Maximum Load Mass

Model	Bore size	Maximum a	allowable mo	ment (N·m)	Maximum load mass (kg)			
woder	(mm)	M1	M2	Мз	m 1	m2	m3	
MV1UT	50	140	180	140	200	140	200	
WITITI	63	240	300	240	320	220	320	

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 mass (kg)



<Calculation of guide load factor>

- 1. Maximum allowable load (1), static moment (2), and dynamic moment (3) (at the time of impact with stopper) must be examined for the selection calculations.
 - * To evaluate, use υa (average speed) for (1) and (2), and υ (collision speed $\upsilon = 1.4\upsilon a$) for (3). Calculate mmax for (1) from the maximum allowable load graph (m₁, m₂, m₃) and Mmax for (2) and (3) from the maximum allowable moment graph (M₁, M₂, M₃).

Sum of guide $_{\Sigma 0}$	Load mass [m]	Static moment [M] (1)	Dynamic moment [ME] (2) < 1
load factors 200-	Maximum allowable load [m max]	Allowable static moment [Mmax]	Allowable dynamic moment [Memax]

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 workpiece, multiple moments may occur. When this happens, the sum of the load factors (2α) is the total of all such moments.

2. Reference formula [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)
- FE: Load equivalent to impact (at impact with stopper) (N)
- Ua: Average speed (mm/s)
- M: Static moment (N·m)

 $\upsilon = 1.4\upsilon a \text{ (mm/s)} F_{E} = 1.4\upsilon a \cdot \delta \cdot m \cdot g$

$$\therefore \mathbf{M}_{\mathbf{E}} = \frac{1}{3} \cdot \mathbf{F}_{\mathbf{E}} \cdot \mathbf{L}_{1} = 4.57 \cdot \mathbf{U} \mathbf{a} \delta \mathbf{m} \mathbf{L}_{1}$$

- U: Collision speed (mm/s)
- L1: Distance to the load's center of gravity (m)
- ME: Dynamic moment (N·m)
- δ: Damper coefficient
 With rubber bumper = 4/100
 (MY1B10, MY1H10)
 - With air cushion = 1/100
- With shock absorber = 1/100 **g**: Gravitational acceleration (9.8 m/s²)
 - : Gravitational acceleration (9.8 m/s²)

Note 4) 1.40aδ 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. For detailed selection procedures, refer to pages 1322 and 1323.



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.



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.






MY1HT/m1





MY1HT/m₃



MY1HT Series **Model Selection**

Following are the steps for selecting the most suitable MY1HT series to your application.

Calculation of Guide Load Factor 1. Operating Conditions ----- Mounting Orientation Cylinder ······ MY1HT50-600 1. Horizontal 2. Wall Average operating speed Ua --- 700 mm/s mounting mounting Mounting orientation Vertical mounting 1230 P 1260 MY1HT50-600 Cusion------Shock absorber $(\delta = 1/100)$ Wd: Workpiece (500 g) 3. Ceiling Wc: MHL2-16D1 (795 g) mounting Vertica mounti P. 1280 ng Wa: Connection plate t = 10 (880 g) Wb: MGGLB25-200 (4.35 kg) For actual examples of calculation for each orientation. refer to the pages above. 2. Load Blocking Mass and Center of Gravity for Each Workpiece Center of gravity Workpiece no. Mass X-axis Y-axis Z-axis Ŵn mn Xn Yn Zn Wa 0.88 kg 65 mm 0 mm 5 mm Wb 4.35 kg 150 mm 0 mm 42.5 mm Wc

0.795 kg

0.5 kg

Wd

150 mm

150 mm

111 mm

210 mm

42.5 mm

42.5 mm n=a, b, c, d

3. Composite Center of Gravity Calculation

$$\begin{aligned} \mathbf{m}_{*} &= \sum \mathbf{m}_{n} \\ &= 0.88 + 4.35 + 0.795 + 0.5 = \mathbf{6.525 \ kg} \\ \mathbf{X} &= \frac{1}{\mathbf{m}_{*}} \mathbf{x} \sum (\mathbf{m}_{n} \mathbf{x}_{n}) \\ &= \frac{1}{6.525} (0.88 \times 65 + 4.35 \times 150 + 0.795 \times 150 + 0.5 \times 150) = \mathbf{138.5 \ mm} \\ \mathbf{Y} &= \frac{1}{\mathbf{m}_{*}} \mathbf{x} \sum (\mathbf{m}_{n} \mathbf{x}_{n}) \\ &= \frac{1}{6.525} (0.88 \times 0 + 4.35 \times 0 + 0.795 \times 111 + 0.5 \times 210) = \mathbf{29.6 \ mm} \\ \mathbf{Z} &= \frac{1}{\mathbf{m}_{*}} \mathbf{x} \sum (\mathbf{m}_{n} \times \mathbf{z}_{n}) \\ &= \frac{1}{6.525} (0.88 \times 5 + 4.35 \times 42.5 + 0.795 \times 42.5 + 0.5 \times 42.5) = \mathbf{37.4 \ mm} \end{aligned}$$

4. Calculation of Load Factor for Static Load



Model Selection **MY1HT** Series



6. Sum and Examination of Guide Load Factors

 $\boldsymbol{\Sigma}\boldsymbol{\alpha} = \boldsymbol{\alpha}\mathbf{1} + \boldsymbol{\alpha}\mathbf{2} + \boldsymbol{\alpha}\mathbf{3} + \boldsymbol{\alpha}\mathbf{4} = \boldsymbol{0.39} \leq \boldsymbol{1}$

The above calculation is within the allowable value, and therefore the selected model can be used. Select a shock absorber separately.

In an actual calculation, when the total sum of guide load factors $\Sigma \alpha$ in the formula above is more than 1, consider either decreasing the speed, increasing the bore size, or changing the product series.

This calculation can be easily made using the "SMC Pneumatics CAD System".

Allowable Moment



Mechanically Jointed Rodless Cylinder High Rigidity/Linear Guide Type **MY1HT** Series ø50, ø63



	Flastrian		۲.		L	oad volta	ge	Auto swite	ch model	Lead wire I	ength	ı (m)	Des universit			
Туре	Special function	entry	ight	(Output)	(Output) DC				Democraticular In line	0.5	3	5	connector	Applical	ole load	
			<u> </u>	(Output)				reipendiculai	III-IIIIe	(Nil)	(L)	(Z)				
tch				3-wire (NPN)		5 V, 12 V	Y69A	Y59A	•	٠	0	0				
swit				3-wire (PNP)	24 V			Y7PV	Y7P	•	٠	0	0	IC circuit		
ê	to			2-wire		12 V	v _	Y69B	Y59B	•	•	0	0			
e al		iagnostic indication (2-color indicator)	Yes	3-wire (NPN)		4 V 5 V, 12 V		Y7NWV	Y7NW	•	٠	0	0		Relay,	
stat	Diagnostic indication			3-wire (PNP)			5 V, 12 V	5 V, 12 V	*	Y7PWV	Y7PW	•	٠	0	0	IC circuit
lid	(2-000 indicator)			a				Y7BWV	Y7BW	•	•	0	0			
So	Water resistant (2-color indicator)			∠-wire		12 V	12 V	_	Y7BA*1	-	٠	0	0	-		
ed witch	witch	Ye	Yes	3-wire (NPN equivalent)	-	5 V	-	-	Z76	•	•	-	-	IC circuit	-	
to S		Gronmet		2 wiro		10.1/	100 V	-	Z73	•	٠	•	-	_	Relay.	
au	aut	1	No	2-wile	24 V	12 V	100 V or less	-	Z80	•	٠	-	—	IC circuit	PLC	

*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 For details on switch mounting brackets and part numbers, refer to "Switch Mounting Bracket: Part No." on page 1333-1. * Solid state auto switches marked with "O" are produced upon receipt of

* Lead wire length symbols: 0.5 m ····· Nil (Example) Y7BW

3 m ····· L (Example) Y7BWL 5 m ····· Z Example) Y7BWZ

* Separate switch spacers (BMP1-032) are required for retrofitting of

auto switches.

order.

* There are other applicable auto switches than listed above. For details, refer to page 1333-1. * Auto switches are shipped together (not assembled). (For details about auto switch mounting, etc., refer to page 1332.)



Mechanically Jointed Rodless Cylinder High Rigidity/Linear Guide Type MY1HT Series

Specifications



Bore size (mm)		50	63			
Fluid		Air				
Action		Double	Double acting			
Operating pres	sure range	0.1 to 0.8 MPa				
Proof pressure)	1.2 MPa				
Ambient and flui	Ambient and fluid temperature 5 to 60°C					
Piston speed		100 to 1000 mm/s				
Cushion		Shock absorbers on both ends (Standard)				
Lubrication		Non-lube				
Stroke length tolerance		2700 or less ^{+1.8} , 2701 to 5000 ^{+2.8}				
Port size	Side port	3/8				
Note) Lise at a speed	within the absor	ntion canacity range. Befer to p	age 1326			

ithin the ab orption capacity range. Refer to page 1326.

Stroke Adjustment Unit Specifications

Symbol

Applicable bore size (mm)	5	0	63			
	L	н	L	н		
Unit symbol, contents	RB2015 and RB2015 and adjustment bolt: 1 set each adjustment bolt: 2 sets each		RB2725 and adjustment bolt: 1 set each	RB2725 and adjustment bolt: 2 sets each		
Fine stroke adjustment range (mm)	0 to	-20	0 to -25			
Stroke adjustment range		For adjustment metho	od, refer to page 1337.			

* Stroke adjustment range is applicable for one side when mounted on a cylinder.

Shock absorber model		RB2015 x 1 pc.	RB2015 x 2 pcs.	RB2725 x 1 pc.	RB2725 x 2 pcs.
Maximum energy absorption (J)		58.8	88.2 Note)	147	220.5 Note)
Stroke absorption (mm)		15	15	25	25
Maximum collision speed (mm/s)		10	00	10	00
Maximum operating	frequency (cycle/min)	25	25	10	10
0	Extended	8.34	16.68	8.83	17.66
Spring force (N)	Retracted	20.50	41.00	20.01	40.02
Operating temperature range (°C)			5 tr	0.60	

Note) Maximum energy absorption for 2 pcs. is calculated by multiplying the value for 1 pc. by 1.5.

* The shock absorber service life is different from that of the MY1HT cylinder depending on operating conditions. Refer to the RB Series Specific Product Precautions for the replacement period.

Theoretical Output

								(N)
Bore	Piston	(Opera	ating	pres	sure	(MPa	ι)
(mm)	(mm ²)	0.2	0.3	0.4	0.5	0.6	0.7	0.8
50	1962	392	588	784	981	1177	1373	1569
63	3115	623	934	1246	1557	1869	2180	2492

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

Vlade to	Made to Order Specifications
Order	Click here for details

Symbol	Specifications
-XB10	Intermediate stroke (Using exclusive body)
-XC67	NBR rubber lining in dust seal band

Standard Stroke

			· · · /	SUOKE
50, 63	200, 400, 600 800, 1000 1500, 2000	Intermediate strokes of 201 to 1999 mm (1 mm increments) other than standard strokes	Ι	5000

* Add "-XB10" to the end of the part number for intermediate strokes. MY1HT50-500L-Y7BW-XB10

Weight

							(kg)
Bore size (mm)	Basic	Additional weight per	Weight	Side support weight (per set)	Stroke a	djustment un	it weight
	weight	each 25 mm of stroke	parts	Type A and B	L unit weight	LH unit weight	H unit weight
50	30.62	0.87	5.80	0.17	0.62	0.93	1.24
63	41.69	1.13	8.10	0.17	1.08	1.62	2.16

Calculation: (Example) MY1HT50-400L

Basic weight ------30.62 kg

Additional weight ----0.87/25 st

L unit weight0.62 kg



MY1HT Series

Cushion Capacity

Cushion Selection

<Stroke adjustment unit with built-in shock absorber>

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 or 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.

Stroke Adjustment Unit Absorption Capacity





A Precautions

For details on the MY1HT Series Mechanically Jointed Rodless Cylinder, refer to "Specific Product Precautions" on pages 1335 to 1337.



MY1HT Series

Construction

Standard type



Component Parts

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No.	Description	Material	Note
1	Guide frame	Aluminum alloy	Hard anodized
2	Slide table	Aluminum alloy	Hard anodized
3	Side cover	Aluminum alloy	Hard anodized
4	Top cover	Aluminum alloy	Hard anodized
5	Upper plate	Aluminum alloy	Hard anodized
6	End plate	Aluminum alloy	Hard anodized
7	Bottom plate	Aluminum alloy	Hard anodized
8	End cover	Aluminum alloy	Chromated
9	Coupler	Aluminum alloy	Chromated
10	Adjuster holder	Aluminum alloy	Hard anodized
11	Guide	—	
12	Shock absorber	—	
13	Stopper bolt	Carbon steel	Nickel plated
14	Absorber ring	Rolled steel	Nickel plated
15	End support	Aluminum alloy	Hard anodized
16	Top block	Aluminum alloy	Chromated
17	Side block	Aluminum alloy	Chromated
18	Slide plate	Special resin	
19	Rodless cylinder	_	MY1BH
20	Stopper	Carbon steel	Nickel plated

Mechanically Jointed Rodless Cylinder High Rigidity/Linear Guide Type **MY1HT Series**

Standard Type/Centralized Piping Type Ø50, Ø63





MY1HT Series

Side Support



 Model
 Applicable bore size
 A
 B

 MY-S63^A
 MY1HT50
 284
 314

 MY1HT63
 304
 334

* A set of side supports consists of a left support and a right support.

Guide for Side Support Application

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

A 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. 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.



MY1 Series Auto Switch Mounting

Proper Auto Switch Mounting Position (Detection at stroke end)

MY1B (Basic type) ø10 to 20



ø25 to ø100



Proper Auto Switch Mounting Position (mm) Auto switch D-M9□ D-Y590/Y7P model D-M9□V D-Y69D/Y7PV D-M9□W D-A9 D-Y7□W D-M9□WV D-A9DV D-Y7 WV D-M9□A D-Y7BA D-M9 AV D-Z70/Z80 Bore size Α в Α в Α в 10 24 86 20 90 16 31.5 128.5 27.5 132.5 20 30 161 25 165

25	138	82	107	82	—	—
32	186.5	93.5	159	93.5	-	-
40	222.5	170	186	170	_	-
50	—	-	-	-	272.5	127.5
63	322.5	137.5	_	_	317.5	142.5
80	489.5	200.5	_	_	484.5	205.5

Note 1) D-M9 Ultype cannot be mounted on ø50.

225.5

574.5

100

Note 2) Adjust the auto switch after confirming the operating condition in the actual setting.

569.5

230.5

MY1M (Slide bearing guide type) ø16, ø20



ø25 to ø63



MY1C (Cam follower guide type) ø16. ø20



ø25 to ø63



Proper Auto Switch Mounting Position

1100017			ounnig	j	011	(11111)	
Auto switch model	D-M9 D-M9 D-M9 W D-M9 WV D-M9 A D-M9 AV A B		D-A D-A	9□ 9□V	D-Y59□/Y7P D-Y69□Y7PV D-Y7□W D-Y7□WV D-Z7□/Z80		
Bore size			Α	В	Α	В	
16	74	86	70	90	_	—	
20	94	106	90	110	_	-	
25	143.5	75.5	_	_	139.5	80.5	
32	189.5	90.5	—	—	184.5	95.5	
40	234.5	105.5	—	—	229.5	110.5	
50	283.5	116.5	_	_	278.5	121.5	
63	328.5	131.5	-	—	323.5	136.5	

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

Proper Auto Switch Mounting Position

Auto switch model	D-M9 D-M9 V D-M9 W D-M9 WV D-M9 A V		D-A D-A	90 90V	D-Y599 D-Y69 D-Y7 W D-Y7 WV D-Y7 WV D-Z7 Z80		
Bore size	Α	в	Α	в	Α	В	
16	74	86	70	90	_	-	
20	94	106	90	110	_	—	
25	102	118	—	—	97	123	
32	132	148	_	—	127	153	
40	162.5	175.5	_	_	157.5	182.5	
50	283.5	116.5	—	—	278.5	121.5	
63	328.5	131.5	-	_	323.5	136.5	

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

(mm)

MY1 Series

Proper Auto Switch Mounting Position (Detection at stroke end)

MY1H (Linear guide type) ø10 to ø20



Proper Auto Switch Mounting Position (mm)									
Auto switch model	D-M9 D-M9 V D-M9 WV D-M9 WV D-M9 A D-M9 A V		D-A: D-A:	9□ 9□V	D-Y59□/Y7P D-Y69□/Y7PV D-Y7□W D-Y7□WV D-Z7□/Z80				
Bore size	Α	В	Α	В	Α	В			
10	24	86	20	90	_	_			
16	31.5	128.5	27.5	132.5	-	_			
20	39	161	35	165	-	_			
25	46.5	99.5	42.5	95.5	_	_			
32	54	124	50	120	—	-			
40	61.5	146.5	57.5	142.5	—	-			

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

MY1HT (High rigidity/Linear guide type) ø50, ø63



Proper Auto Switch Mounting Position (mm)

Auto switch model	D-Y59□/Y7P D-Y69□/Y7PV D-Y7□W D-Y7□WV D-Y7□A D-Y7BA D-Z7□/Z80			
Bore size	A	В		
50	290.5	123.5		
63	335.5	138.5		

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

Auto Switch Mounting MY1 Series

Operating Range

Note) 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.

(mm)

MY1B (Basic type)

Auto avvitato avadal	Bore size									
Auto switch model	10	16	20	25	32	40	50	63	80	100
D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV	3.5	4	5.5	5.0	5.5	5.5	_	12	12	11.5
D-A9□/A9□V	6	6.5	8.5	7.0	10.0	9.0	—	—	-	—
D-Z7□/Z80	_	_	_	—	—	—	11.5	11.5	11.5	11.5
D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W/Y7□WV	-		_	_	_	I	3.5	3.5	3.5	3.5

(mm)

(mm)

MY1H (Linear guide type) (mm) Bore size Auto switch model 20 25 40 10 16 32 D-M9□/M9□V D-M9 W/M9 WV 3 4.5 5 5.0 5.5 5.5 D-M9 A/M9 AV D-A9□/A9□V 11 6.5 8.5 7.0 10.0 9.0 D-Z7 2/Z80 _ D-Y590/Y690 D-Y7P/Y7PV _ D-Y7 W/Y7 WV

MY1M (Slide bearing guide type)

Auto autitale anadal	Bore size							
Auto switch model	16	20	25	32	40	50	63	
D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV	7.5	7.5	8.5	8.5	9.5	7	6	
D-A9□/A9□V	11	7.5	-	_	_	-	—	
D-Z7□/Z80	—	—	12	12	12	11.5	11.5	
D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W/Y7□WV	_	_	5	5	5	5.5	5.5	

MY1C (Cam follower guide type)

	Bore size							
Auto switch model	16	20	25	32	40	50	63	
D-M9□/M9□V D-M9□W/M9□WV D-M9□A/M9□AV	7.5	7.5	7	8	8.5	7	6	
D-A9□/A9□V	11	7.5	_	_	—	_	_	
D-Z7□/Z80	_	_	12	12	12	11.5	11.5	
D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W/Y7□WV	_	_	5	5	5	5.5	5.5	

MY1HT

(High rigidity/Linear guide type) (mm)

A 1	Bore size		
Auto switch model	50	63	
D-Z7□/Z80	11	11	
D-Y59□/Y69□ D-Y7P/Y7PV D-Y7□W/Y7□WV D-Y7BA	5	5	

Auto Switch Mounting Bracket/Part No.

Bore size	MY1B, MY1M, MY1C, MY1H				
Auto switch model (mm)	ø10 to ø20	ø25 to ø100			
D-A9=/A9=V D-M9=/M9=V D-M9=W/M9=WV D-M9=A/M9=AV	_	BMG2-012			

Note) D-A9 type cannot be mounted on ø50 to ø100 of the MY1B, and ø25 to ø50 of the MY1C and MY1M. D-M9 type cannot be mounted on ø50 of the MY1B series.

Bore size	MY1B-Z, MY1H-Z
Auto switch model (mm)	ø25 to ø40
D-A9=/A9=V D-M9=/M9=V D-M9=W/M9=WV D-M9=A/M9=AV	BMY3-016



Switch Spacer No.

Culinder cories	Applicable bore size (mm)				
Cylinder series	50	63			
MY1HT	BMP1-032				

When attaching an auto switch, first take a switch spacer between your fingers and press it into a switch mounting groove. When doing this, confirm that it is set in the correct mounting orientation, or reattach if necessary.

Next, insert an auto switch into the groove and slide it until it is positioned under the switch spacer.

After establishing the mounting position, use a watchmakers flat head screwdriver to tighten the auto switch mounting screw which is included.







screw, use a watchmaker's screwdriver with a grip diameter of 5 to 6 mm. Also, tighten with a torque of about 0.05 to 0.1 N·m As a guide, it should be turned about 90° past the point at which tightening can be felt.

For detailed specifications, refer to pages 1575 to 1701.							
Туре	Model	Electrical entry (Fetching direction)	Features	Applicable bore size			
	D-Y69A, Y69B, Y7PV	Grommot (Porpondicular)	_				
Solid state auto switch	D-Y7NWV, Y7PWV, Y7BWV	Crommer (r erpendicular)	Diagnostic indication (2-color indicator)	a25 to a100			
Solid State auto Switch	D-Y59A, Y59B, Y7P	Crommet (In line)	_	02310 0100			
	D-Y7NW, Y7PW, Y7BW	Giommer (m-ime)	Diagnostic indication (2-color indicator)				

SMC

MY1 Series Made to Order: Individual Specifications

Please contact SMC for detailed dimensions, specifications and lead times.



1 Helical Insert Thread Specifications



Helical insert thread is used for the slide table mounting thread, the thread size is the same as the standard model.



Example) MY1B20G-300L-M9BW-X168

* Please specify "Z" for the MY1B25 to 40 and the MY1H25 to 40.

2 Magnet for Ø10 Solid State Auto Switch Specifications



By incorporating the use of the magnet for solid state auto switches, switch operation stability can be achieved.

* If you are using, or planning to use, the cylinder in combination with a solid state auto switch, but are currently only ordering the cylinder, please add the "-X1810" suffix to the end of the product number.



* If an auto switch is included in the product number, the "-X1810" suffix does not need to be added to the end of the product number. Example) MY1B10G-300H-M9BL



Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

Selection

ACaution

1. When using a cylinder with long strokes, implement an intermediate support.

When using a cylinder with long strokes, implement an intermediate support to prevent the tube from sagging and being deflected by vibration or an external load.

Refer to the Guide for Side Support Application on pages 1252, 1275, 1295, 1316 and 1330.

2. For intermediate stops, use a dual-side pressure control circuit.

Since the mechanically jointed rodless cylinders have a unique seal structure, slight external leakage may occur. Controlling intermediate stops with a 3 position valve cannot hold the stopping position of the slide table (slider). The speed at the restarting state also may not be controllable. Use the dual-side pressure control circuit with a PAB-connected 3 position valve for intermediate stops.

3. Constant speed.

Since the mechanically jointed rodless cylinders have a unique seal structure, a slight speed change may occur. For applications that require constant speed, select an applicable equipment for the level of demand.

4. Load factor of 0.5 or less

When the load factor is high against the cylinder output, it may adversely affect the cylinder (condensation, etc.) and cause malfunctions. Select a cylinder to make the load factor less than 0.5. (Mainly when using an external guide)

5. Cautions on less frequent operation

When the cylinder is used extremely infrequently, operation may be interrupted in order for anchoring and a change lubrication to be performed or service life may be reduced.

6. Consider uncalculated loads such as piping, cableveyor, etc., when selecting a load moment Calculation does not include the external acting force of piping, cableveyor, etc. Select load factors taking into account the external acting force of piping, cableveyor, etc.

7. Accuracy

The mechanical jointed rodless cylinder does not guarantee traveling parallelism. When accuracy in traveling parallelism and a middle position of stroke is required, please consult SMC.

Mounting

▲Caution

- 1. Do not apply strong impacts or excessive moment to the slide table (slider).
 - The slide table (slider) is supported by precision bearings (MY1C, MY1H) or resin bearings. Therefore, do not apply strong impacts or excessive moment, etc., when mounting workpieces.

Mounting

▲ Caution

2. When connecting to a load which has an external guide mechanism, use a discrepancy absorption mechanism.

 Mechanically jointed rodless cylinders can be used with a direct load within the allowable range for each type of guide. Please note that careful alignment is necessary when connecting to a load having an external guide mechanism. Mount the external guide mounting brackets and floating brackets in a place where the required degree of freedom for the floating Y and Z axes can be secured.

The thrust transmission area of the floating bracket must be fixed so that it does not partially contact the body.

* Refer to the Coordinates and Moment in Model Selection on page 1229 for the details of floating Y and Z axes.

3. Do not mount cylinders as they are twisted.

When mounting, be sure for a cylinder tube not to be twisted. The flatness of the mounting surface is not appropriate, the cylinder tube is twisted, which may cause air leakage due to the detachment of a seal belt, damage a dust seal band, and cause malfunctions.

4. Do not mount a slide table on the fixed equipment surface.

It may cause damage or malfunctions since an excessive load is applied to the bearing.





5. Consult SMC when mounting in a cantilevered way.

Since the cylinder body deflects, it may cause malfunctions. Please consult SMC when using it this way.





∕∂SMC

6. Fixed parts of the cylinder on both ends must have at least 5 mm of contact between where the bottom of the cylinder tube and the equipment surface.





Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

Mounting

ACaution

7. Do not generate negative pressure in the cylinder tube.

When the cylinder is in a non-pressurized state, such as during a test run, maintenance, etc., external or inertial force may cause negative pressure to be generated inside the cylinder. In such cases, the seal belt may come off, resulting in a temporary air leak.

- Examples:
- 1) When external force is used to move a slide table all at once during installation, a test run, etc.
- 2) When a vertically-mounted slide table carrying a load drops due to self-weight

(In either case, the smaller the speed controller's opening is set, the more likely negative pressure is to be generated.)

• For negative pressure prevention

When using external force to move a slide table, move it slowly and steadily at about 20 mm/s. (If the speed controller's opening is set extremely small, increase the opening only during manual operation.)

• If the seal belt comes off

If the seal belt comes off due to negative pressure and air is leaking, manually move the slide table from the beginning to the end of the cylinder's full stroke slowly and steadily at about 20 mm/s.

(If the speed controller's opening is set extremely small, increase the opening only during manual operation.)

If air continues to leak even after the above mentioned restoration methods have been tried, please contact your nearest sales office.

8. Do not unnecessarily alter the guide adjustment setting.

 The adjustment of the guide is preset and does not require readjustment under normal operating conditions. Therefore, do not unnecessarily alter the guide adjustment setting. However, series other than the MY1H Series can be readjusted and their bearings can be replaced.

To perform these operations, refer to the bearing replacement procedure given in the operation manual.

9. Do not get your hands caught during cylinder operation.

For the cylinder with a stroke adjustment unit, the space between the slide table and stroke adjustment unit is very small, and your hands may get caught. When operating without a protective cover, be careful not to get your hands caught.

10. Do not use a shock absorber together with air cushion.

11. Secure the holding bolt as shown in the diagram below.

<ø10 to ø63>



Part no.	Tightening torque	Part no.	Tightening torque	Part no.	Tightening torque
MY-J10	0.6	MY-J25	3	MY-J50	5
MY-J16	1.5	MY-J32	5	MY-J63	13
MY-J20	1.5	MY-J40	5		
	-				

<ø80 to ø100>

Installation of Hexagon Socket Head Cap Screw



12. Refer to the figure below when using the adjustment 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 adjustment bolt at the position where it protrudes

approximately 0.5 mm from the shock absorber.





Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

Mounting

▲ Caution

13. Tightening Torgue for Stroke Adjustment Unit (Lock Plate) Holding Bolts

Use caution not to get your hands caught in the unit.

When using a product with stroke adjustment unit, the space between the slide table (slider) and the stroke adjustment unit becomes narrow at the stroke end, 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 secured by evenly tightening the four unit holding bolts.



Caution

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

When the stroke adjustment unit is fix in an intermediate position, slippage can occur depending on the amount of energy released at the time of an impact. In such cases, as a stroke adjustment unit with the spacer for intermediate securing is available, it is recommended to use it. (MY1B: Excludes ø10)

For other lengths, please consult with SMC (Refer to "Tightening Torque for Stroke Adjustment Unit Holding Bolts".)

<Stroke adjustment with adjustment bolt>

Loosen the adjustment bolt lock nut, and adjust the stroke from the lock plate side using a hexagon wrench. Retighten 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. (MY1B: Excludes ø10, ø20 L unit, MY1M/C: Excludes ø16, ø20, ø50, and ø63)

(Refer to "Tightening Torgue for Stroke Adjustment 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 a affect the shock absorber and locking function.

<MY1B> Tightening Torque for Stroke Adjustment Tightening Torque for Stroke Adjustment

Unit Holding Bolts		(N·m)
Bore size (mm)	Unit	Tightening torque
10	A H	0.4
25	A L H	3.5
32	A L H	5.8
40	A L H	13.8

N∙m)	Unit Lock Plat	e Holding Bolt	S (N⋅m
ing e	Bore size (mm)	Unit	Tightening torque
	20	н	1.2
	25	L	1.2
	25		

32

40

N•m)

3.3

3.3

10

10

<MY1M. MY1C>

Tightening Torgue for Stroke Adjustment

Unit Holding	Bolts	(N⋅m)
Bore size (mm)	Unit	Tightening torque
10	A	0.7
10	L	0.7
	A	
20	L	1.8
	н	
	A	
25	L	3.5
	н	
	A	
32	L	5.8
	н	
	A	
40	L	13.8
	н	
	A	
50	L	13.8
	н	
	A	
63	Ĺ	27.5
	-	

Tightening Torque for Stroke Adjustment Unit Lock Plate Holding Bolts

н

н

one Eook Flate Holding Bono (14-11)		
Bore size (mm)	Unit	Tightening torque
05	L	1.2
25	Н	3.3
32	L	3.3
	Н	10
40	L	3.3
	н	10

A 1336-1





Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

Mounting

∆Caution

<MY1H>

To adjust the stroke adjustment unit of the MY1H10, follow the step shown below.



Adjusting Procedure

- Loosen the two lock nuts, and then loosen the holding screws by turning them approximately two turns.
- Move the body to the notch just before the desired stroke. (The notches are found in alternating increments of 5 mm and 10 mm.)
- Tighten the holding screw to 0.3 N·m. Make sure that the tightening does not cause excessive torque. The fixture fits into the factories held is the print.
 Tightening Torque for Stroke

The fixture fits into the fastening hole in the guide rail to prevent slippage, which enables fastening with low torque. 4. Tighten the lock nut to 0.6

5. Make fine adjustments

with the adjustment bolt and shock absorber.

N·m.

Adjustment Unit Holding Bolts (N·m)		
Bore size (mm)	Tightening torque	
10	Refer to "Adjusting Procedure" above.	
16	0.7	
20	1.8	
25	1.8	
32	3.5	

14. Use the formula below to calculate the absorbed energy of the stroke adjustment unit with shock absorber.

			(N·m)
	Horizontal collision	Vertical (Downward)	Vertical (Upward)
Type of impact			
Kinetic energy E1		$\frac{1}{2}$ m·U ²	
Thrust energy E2	F·s	F·s + m·g·s	F·s – m·g·s
Absorbed energy E		E1 + E2	
a			

Symbol

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

Operating Environment

▲ Warning

 Do not use in an environment where the cylinder is exposed to coolant, cutting oil, water drops, adhesive foreign particles, dust, etc. and avoid use with compressed air containing drainage and foreign particles.

 Foreign matter or liquids on the cylinder's interior or exterior can wash out the lubricating grease, which can lead to deterioration and damage of dust seal band and seal materials, causing a danger of malfunction.

When operating in locations with exposure to water and oil, or in dusty locations, provide protection such as a cover to prevent direct contact with the cylinder, or mount so that the dust seal band surface faces downward, and operate with clean compressed air.

2. Carry out cleaning and grease application suitable for the operating environment.

Carry out cleaning regularly when using in an operating environment in which the product is likely to get dirty.

After cleaning, be sure to apply grease to the top side of the cylinder tube and the rotating part of the dust seal band. Apply grease to these parts regularly even if not after cleaning. Please consult SMC for the cleaning of the slide table (slider) interior and grease application.

3. The product is not designed for clean room usage. If clean room usage is considered, please consult with SMC.

Service Life and Replacement Period of Shock Absorber

▲Caution

- 1. Allowable operating cycle under the specifications set in this catalog is shown below.
 - 1.2 million times RB08
 - 2 million times RB10□□ to RB2725
- 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.



Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

MY1H: With End Lock



Operating Precautions

A Caution

1. Do not use 3-position solenoid valves.

Avoid use in combination with 3-position solenoid valves (especially closed center metal seal types). If pressure is trapped in the port on the lock mechanism side, the cylinder cannot be locked.

Furthermore, even after being locked, the lock may be released after some time due to air leaking from the solenoid valve and entering the cylinder.

2. Back pressure is required when releasing the lock.

Before starting operation, be sure to control the system so that air is supplied to the side without the lock mechanism (in case of locks on both ends, the side where the slide table is not locked) as shown in the figure above. There is a possibility that the lock may not be released. (Refer to "Lock Release")

- Release the lock when mounting or adjusting the cylinder. If mounting or other work is performed when the cylinder is locked, the lock unit may be damaged.
- 4. Operate at 50% or less of the theoretical output. If the load exceeds 50% of the theoretical output, this may cause problems such as failure of the lock to release, or damage to the lock unit.
- 5. Do not operate multiple cylinders in synchronization. Avoid applications in which two or more end lock cylinders are synchronized to move one workpiece, as one of the cylinder locks may not be able to release when required.
- 6. Use a speed controller with meter-out control. Lock cannot be released occasionally by meter-in control.
- 7. Be sure to operate completely to the cylinder stroke end on the side with the lock.

If the cylinder piston does not reach the end of the stroke, locking and unlocking may not be possible. (Refer to "End Lock Mechanism Adjustment.")

Operating Pressure

A Caution

 Supply air pressure of 0.15 MPa or higher to the port on the side that has the lock mechanism, as it is necessary for disengaging the lock.

Exhaust Speed

A Caution

 Locking will occur automatically if the pressure applied to the port on the lock mechanism side falls to 0.05 MPa or less. In the cases where the piping on the lock mechanism side is long and thin, or the speed controller is separated at some distance from the cylinder port, the exhaust speed will be reduced. Take note that some time may be required for the lock to engage. In addition, clogging of a silencer mounted on the solenoid valve exhaust port can produce the same effect.

Relation to Cushion

\land Caution

 When the air cushion on the lock mechanism side is in a fully closed or nearly closed state, there is a possibility that the slide table will not reach the stroke end, in which case locking will not occur.

End Lock Mechanism Adjustment

\land Caution

- The end lock mechanism is adjusted at the time of shipping. Therefore, adjustment for operation at the stroke end is unnecessary.
- Adjust the end lock mechanism after the stroke adjustment unit has been adjusted. The adjustment bolt and shock absorber of the stroke adjustment unit must be adjusted and secured first. Locking and unlocking may not occur otherwise.
- Perform fine adjustment of the end lock mechanism as follows. Loosen the lock finger holding bolts, and then adjust by aligning the center of the lock piston with the center of the lock finger hole. Secure the lock finger.



Lock Release

\land Warning

 Before releasing the lock, be sure to supply air to the side without the lock mechanism, so that there is no load applied to the lock mechanism when it is released. (Refer to "Recommended Pneumatic Circuit.") If the lock is released when the port on the side without the lock is in an exhaust state, and with a load applied to the lock unit may be subjected to an excessive force and be damaged.

Furthermore, sudden movement of the slide table is very dangerous.

Manual Release

\land Caution

1. When manually releasing the end lock, be sure to release the pressure.

If it is unlocked while the air pressure still remains, it will lead to damage a workpiece, etc. due to unexpected lurching.

2. Perform manual release of the end lock mechanism as follows.

Push the lock piston down with a screwdriver, etc., and move the slide table.



Other handling precautions regarding mounting, piping and environment are the same as the standard series.





Be sure to read this before handling the products. Refer to back page 50 for Safety Instructions and pages 3 to 12 for Actuator and Auto Switch Precautions.

MY1HT

Mounting

A Caution

1. Do not put hands or fingers inside when the body is suspended. Since the body is heavy, use eye bolts when suspending it. (The eye bolts are not included with the body.)

Stroke Adjustment Method

A Caution

1. As shown in Figure (1), to adjust the stopper bolt within the adjustment range A, insert a hexagon wrench from the top to loosen the hexagon socket head set screw by approximately one turn, and then adjust the stopper bolt with a flat head screwdriver.



Figure (1) Stroke adjusting section detail

Stopper Bolt Holding Screw Tightening Torque

Stopper Bolt

Tightening Torque for Stroke Adjustment Unit Lock Plate Holding Bolts (N·m)

Bore size (mm)	Tightening torque	
50	0.6	
63	1.5	

2. When the adjustment described in 1 above is insufficient, the shock absorber can be adjusted. Remove the covers as shown in Figure (2) and make further adjustment by loosening the hexagon nut.



- Figure (2) Cover installation and removal
- 3. Various dimensions are indicated in Table (1). Never make an adjustment that exceeds the dimensions in the table, as it may cause an accident and/or damage.

	(mm)
50	63
6 to 26	6 to 31
14 to 54	14 to 74
87	102
60	85
	50 6 to 26 14 to 54 87 60



Disassembly and Assembly Procedure

A Caution

Disassembly step

- 1. Remove the hexagon socket head cap screws 1, and remove the upper plates.
- 2. Remove the top cover.
- 3. Remove the hexagon socket head cap screws 2, and remove the end covers and couplers.
- 4. Remove the hexagon socket head cap screws 3.
- 5. Remove the hexagon socket head cap screws 4, and remove the end supports.
- 6. Remove the cylinder.

Assembly step

- 1. Insert the MY1BH cylinder.
- 2. Temporarily fasten the end supports with the hexagon socket head cap screws 4.
- 3. With two hexagon socket head cap screws 3 on the L or R side, pull the end support and the cylinder.
- 4. Tighten the hexagon socket head cap screws 3 on the other side to eliminate the looseness in the axial direction. (At this point, a space is created between the end support and the end plate on one side, but this is not a problem.)
- 5. Re-tighten the hexagon socket head cap screws 4.
- 6. Fasten the end cover with the hexagon head cap screws 2, while making sure that the coupler is in the right direction.
- 7. Place the top cover on the body.
- 8. Insert the holding blocks into the top cover and fasten the upper plates with the hexagon socket head cap screws 1.



Cylinder For Driving (MY1BH Series)

Since the MY1BH series is a cylinder for driving for the MY1HT series, its construction is different from the MY1B series. Do not use the MY1B series as a cylinder for driving, since it will lead to

