

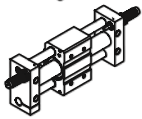


Rodless magnetic cylinder(With guide)——RMT Series

Compendium of RMT Series

With magnet and without magnet are available

Without magnet



With magnet

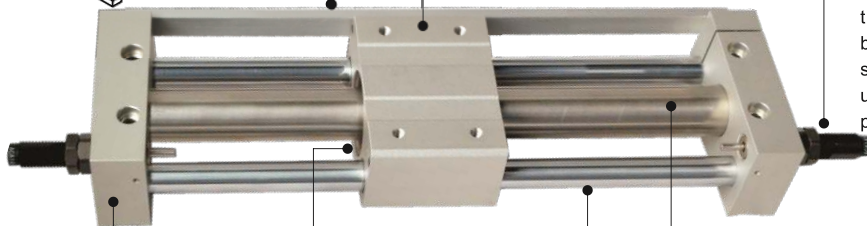


Magnetic design

This magnetic cylinder is basically a pneumatic rodless cylinder featuring a mobile piston fitted with annular magnets.

Two kinds of cushion type

The non adjustable rubber bumpers and the adjustable pneumatic cushioning on both ends of the cylinder ensure the smooth action. If shock absorber be used, the cushioning effect is more perfection.



Double guides

Double guides ensure high precision and can endure proper side load or prejudicial load.

Five bore size are available

Bore size: 16、20、25、32、40

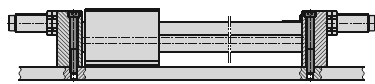
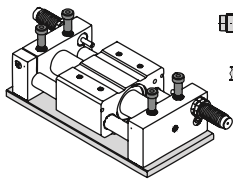
It is compact in space

Can be mounted from top and bottom.

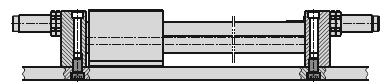
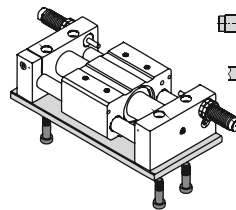
Superiority of airproof

It is dust-proof as the isolation between the carriage and piston.

Top bolt mounting



Bottom bolt mounting



Installation and application

1. Dirty substances in the pipe must be eliminated before cylinder is connected with pipeline to prevent the entrance of impurities into the cylinder.
2. The medium used by cylinder shall be filtered to 40 μm or below.
3. Anti-freezing measure shall be adopted under low temperature environment to prevent moisture freezing.
4. If the cylinder is dismantled and stored for a long time, pay attention to conduct anti-rust treatment to the surface.
Anti-dust caps shall be added in air inlet and outlet ports.



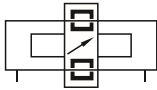
Rodless magnetic cylinder(With guide)



RMT Series



Symbol



Specification

Bore size(mm)	16	20	25	32	40
Acting type	Double acting				
Fluid	Air(to be filtered by 40 μ m filter element)				
Operating pressure	0.2~0.7MPa(30~100psi(2.0~7bar))		0.25~0.7MPa(36~100psi(2.5~7bar))		
Proof pressure	1.2MPa(175psi)(12.0bar)				
Temperature °C	-20~70				
Speed range mm/s	50~400				
Stroke tolerance mm	0~250 ^{+1.0} ₀		251~1000 ^{+1.5} ₀		1001~ ^{+2.0} ₀
Cushion type	Fixed cushion		Shock absorber(Available)		
Safe holding force N	140		220	350	550
Port size [Note1]	M5×0.8		1/8"		1/4"

[Note1] PT thread, G thread and NPT thread are available.
Add) Refer to P313 for detail of sensor switch.

Product feature

1. This magnetic cylinder is basically a pneumatic rodless cylinder featuring a mobile piston fitted with annular magnets. The mobile carriage is also equipped with magnets to provide magnetic coupling (carriage/piston). The carriage slide freely along the main tube.
2. It is dust-proof as the isolation between the carriage and piston.
3. It is compact in space.
4. The non adjustable rubber bumpers and the adjustable pneumatic cushioning on both ends of the cylinder ensure the smooth action. If shock absorber be used, the cushioning effect is more perfection.
5. Double guides ensure high precision and can endure proper side load or prejudicial load.

Stroke

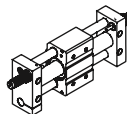
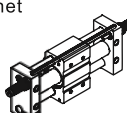
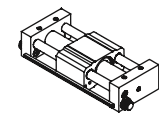
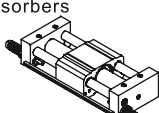
Bore size (mm)	Standard stroke (mm)													Max.std stroke				
16	50	100	150	200	250	300	350	400	450	500				750				
20	50	100	150	200	250	300	350	400	450	500	600	700	750	800			1000	
25	50	100	150	200	250	300	350	400	450	500	600	700	750	800			1500	
32	50	100	150	200	250	300	350	400	450	500	600	700	750	800			1500	
40	50	100	150	200	250	300	350	400	450	500	600	700	750	800	900	1000		1500

[Note] Consult us for non-standard stroke.

Ordering code

RMT 20 × 100 S □ □

① ② ③ ④ ⑤ ⑥

① Model	② Bore size	③ Stroke	④ Magnet	⑤ Cushion type	⑥ Thread type [Note 1]
RMT: Rodless magnetic cylinder(With guide)	16 20 25 32 40	Refer to stroke table for details	Blank: Without magnet  S: With magnet 	Blank: With two adjustable nuts  A: With two shock absorbers 	Blank: PT G: G T: NPT

[Note1] Blank on thread code means metric M thread. There is only metric thread for Φ16. If G or NPT thread is needed, please comment.

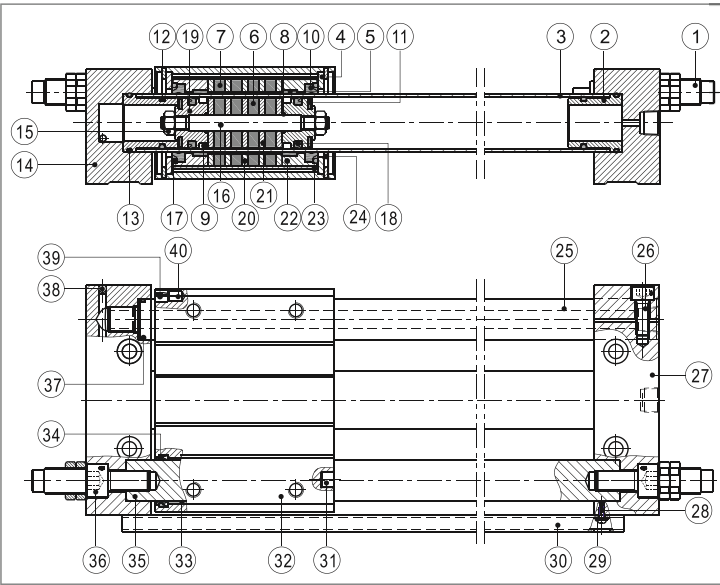


Rodless magnetic cylinder(With guide)



RMT Series

Inner structure and material of major parts

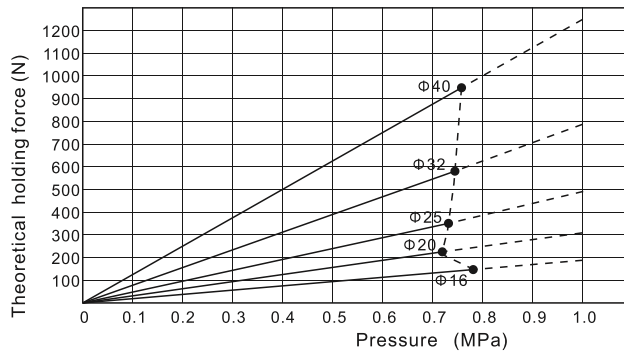


NO.	Item	Material	NO.	Item	Material
1	Shock absorber	Combination	21	Magnet washer	Carbon steel
2	Washer cover	Aluminum alloy	22	End cover	Aluminum alloy
3	Stainless steel barrel	Stainless steel	23	Mobility iron	Aluminum alloy
4	Washer	Carbon steel	24	C clip	Spring steel
5	Wearing ring	Wear resistant material	25	Guide I	Carbon steel
6	Magnet	Rare-earth material	26	Countersink screw	Carbon steel
7	Magnet	Rare-earth material	27	Fixing plate	Aluminum alloy
8	O-ring	NBR	28	Screw	Carbon steel
9	Wear ring	Wear resistant material	29	Spring washer	Spring steel
10	Scraping dust ring	Plastics	30	Rail	Aluminum alloy
11	Bumper	NBR	31	Bumper block	Stainless steel
12	O-ring	NBR	32	Barrel	Aluminum alloy
13	O-ring	NBR	33	Bushing	Bronze+Fill lubricant
14	Fixing plate	Aluminum alloy	34	Gasket	TPU
15	Nut	SS41	35	Guide II	Carbon steel
16	Joint pole	Stainless steel	36	Countersink screw	Carbon steel
17	O-ring	NBR	37	O-ring	NBR
18	Piston seal	TPU	38	Steel ball	Stainless steel
19	Magnet	Aluminum alloy	39	Location washer	NBR
20	Magnet washer	Carbon steel	40	Magnet	

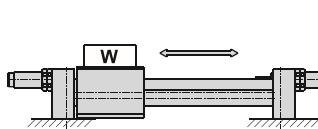
Installation and application

1. How to determine load:

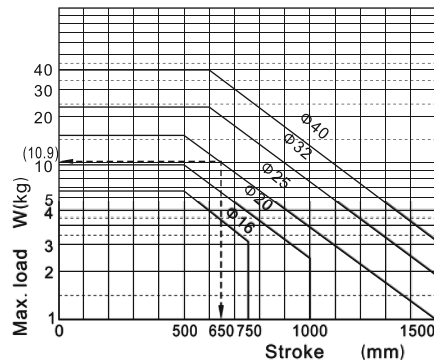
1.1) The maxi load to move must be less than the theoretical holding force.



1.2) The relation between loading and stroke as below(Loading center and slide table center must be superposition)



Bore size	Max.Load W(kg)	Stroke scope
16	5.5	~500mm
20	9.6	~500mm
25	16	~500mm
32	24	~600mm
40	40	~600mm



1.3) You should keep the loading center and the slide table center be superposition, if not you can calculate the load as below method.

First you should calculate the applied load coefficient(σ):

Example) Bore size: 25mm, Stroke: 650mm

(1)Max. Load=16kg

(2)When stroke=650mm, the allowable load=10.9kg

(3) $\sigma = 10.9/16 = 0.68$

Note) When bore size is $\Phi 16$ and stroke is 500mm, or bore size is $\Phi 20$ and stroke is 500mm,

or bore size is $\Phi 25$ and stroke is 500mm, or bore size is $\Phi 32$ and stroke is 600mm, or bore size is $\Phi 40$ and stroke is 600mm, the $\sigma = 1$.

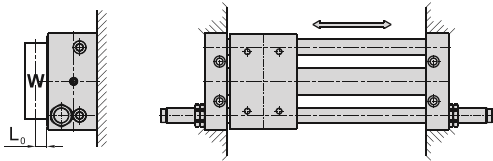


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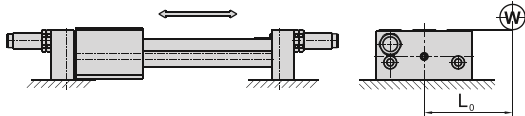
1.3.1) Horizontal acting(Vertical mounting):



Note: The unit of L₀ is "cm".

Bore size	16	20	25	32	40
Max. load W(kg)	$\frac{\sigma \times 36.4}{10.6+2 \times L_0}$	$\frac{\sigma \times 74.4}{12+2 \times L_0}$	$\frac{\sigma \times 140}{13.8+2 \times L_0}$	$\frac{\sigma \times 258}{17+2 \times L_0}$	$\frac{\sigma \times 520}{20.6+2 \times L_0}$

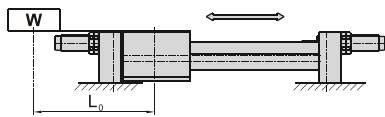
1.3.2) Horizontal acting(Loading center and slide table center offset):



Note: The unit of L₀ is "cm".

Bore size	16	20	25	32	40
Max. load W(kg)	$\frac{\sigma \times 25.48}{5.2+L_0}$	$\frac{\sigma \times 52.1}{6.2+L_0}$	$\frac{\sigma \times 98}{7.0+L_0}$	$\frac{\sigma \times 180}{8.6+L_0}$	$\frac{\sigma \times 364}{10.4+L_0}$

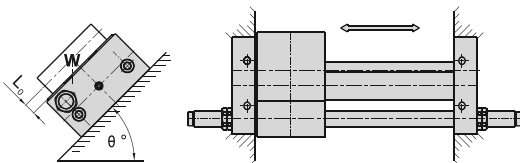
1.3.3) Horizontal acting(Loading barycenter and acting direction is coplanar. Loading center and slide table center offset):



Note: The unit of L₀ is "cm".

Bore size	16	20	25	32	40
Max. load W(kg)	$\frac{\sigma \times 17.5}{5.0+L_0}$	$\frac{\sigma \times 36}{6.0+L_0}$	$\frac{\sigma \times 60}{6.0+L_0}$	$\frac{\sigma \times 105}{7.0+L_0}$	$\frac{\sigma \times 200}{8.0+L_0}$

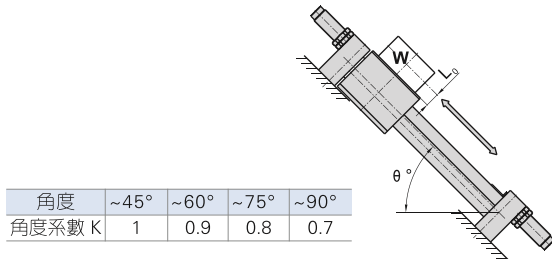
1.3.4) Incline acting(Acting direction and barycenter is vertical):



Note: The unit of L₀ is "cm".

Bore size	16	20	
Max. load W(kg)	$\frac{\sigma \times 36.4}{5.2+2(2.7+L_0)\sin \theta}$	$\frac{\sigma \times 74.4}{6.2+2(2.9+L_0)\sin \theta}$	
Bore size	25	32	40
Max. load W(kg)	$\frac{\sigma \times 140}{7+2(3.4+L_0)\sin \theta}$	$\frac{\sigma \times 258}{8.6+2(4.2+L_0)\sin \theta}$	$\frac{\sigma \times 520}{10.4+2(5.1+L_0)\sin \theta}$

1.3.5) Incline acting(Acting direction):

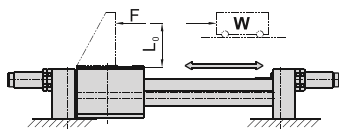


角度	~45°	~60°	~75°	~90°
角度系数 K	1	0.9	0.8	0.7

Note: The unit of L₀ is "cm".

Bore size	16	20	
Max. load W(kg)	$\frac{\sigma \times 35 \times k}{5\cos \theta + 2(2.7+L_0)\sin \theta}$	$\frac{\sigma \times 72 \times k}{6\cos \theta + 2(2.9+L_0)\sin \theta}$	
Bore size	25	32	40
Max. load W(kg)	$\frac{\sigma \times 120 \times k}{6\cos \theta + 2(3.4+L_0)\sin \theta}$	$\frac{\sigma \times 210 \times k}{7\cos \theta + 2(4.2+L_0)\sin \theta}$	$\frac{\sigma \times 400 \times k}{8\cos \theta + 2(5.1+L_0)\sin \theta}$

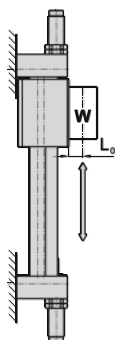
1.3.6) Horizontal acting(Loading offset):



Note: The unit of L₀ is "cm".

Bore size	16	20	25	32	40
Max. load W(kg)	$\frac{\sigma \times 17.5}{2.7+L_0}$	$\frac{\sigma \times 36}{2.9+L_0}$	$\frac{\sigma \times 60}{3.4+L_0}$	$\frac{\sigma \times 105}{4.2+L_0}$	$\frac{\sigma \times 200}{5.1+L_0}$

1.3.7) Vertical acting:



Note: The unit of L₀ is "cm".

Bore size	16	20	25	32	40
Max. load W(kg)	$\frac{\sigma \times 13.23}{2.7+L_0}$	$\frac{\sigma \times 26.8}{2.9+L_0}$	$\frac{\sigma \times 44}{3.4+L_0}$	$\frac{\sigma \times 88.2}{4.2+L_0}$	$\frac{\sigma \times 167.8}{5.1+L_0}$



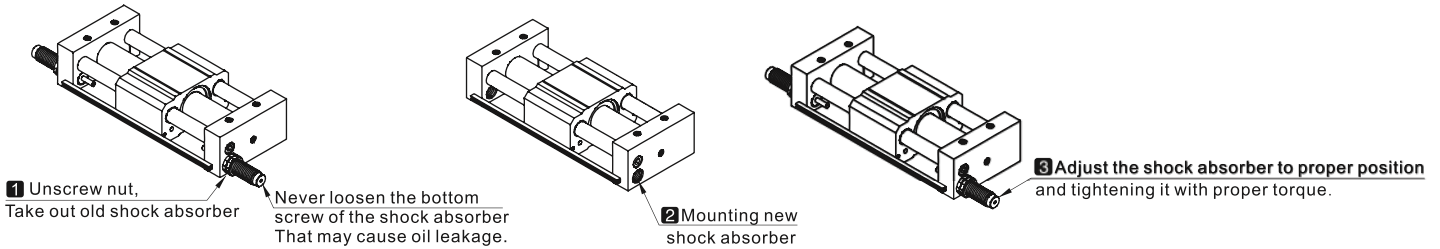
Rodless magnetic cylinder(With guide)



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2. About shock absorber

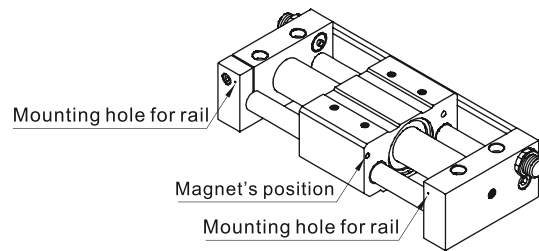
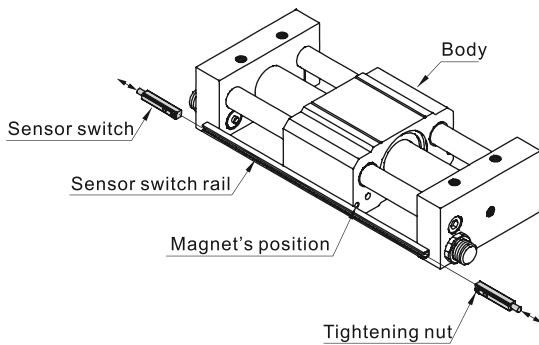
- 2.1) Shock absorbers are consumable parts. When a decrease in energy absorption capacity is noticed, it must be replaced. Refer to the table below for shock absorber type.
- 2.2) Never loosen the bottom screw of the shock absorber. (It is not an adjustment screw.) That may cause oil leakage.
- 2.3) Refer to the table below for tightening torques of the shock absorber setting nut.



Cylinder model	RMT16	RMT20	RMT25	RMT32	RMT40
Shock absorber type	ACA1006-A	ACA1007-1N	ACA1412-1N	ACA2020-1N	ACA2020-1N
Tightening torque(Nm)	1.67	1.67	3.14	10.80	10.80

3. About sensor switch

- 3.1) Sensor switch only can be used for the cylinder with magnet. The magnet is located at the four corners of the body (refer below). The cylinder with magnet has both groups of mounting holes for mounting rails. Please refer to below for ordering sensor switches, mounting them into the rail's groove, adjusting them to the proper position, and tightening them with the proper torque.



Cylinder model	RMT16	RMT20	RMT25	RMT32	RMT40
Sensor switch	CS1-G, CS1-GX, DS1-G, DS1-GN, DS1-GP				



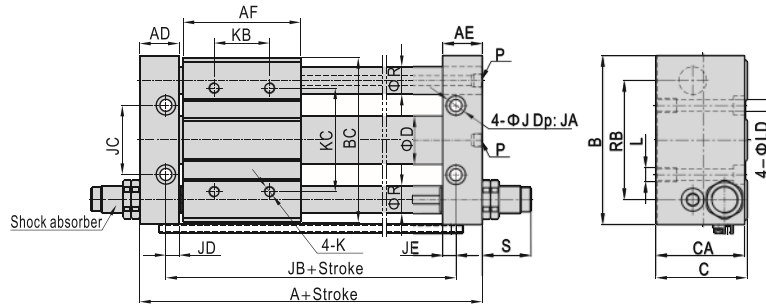
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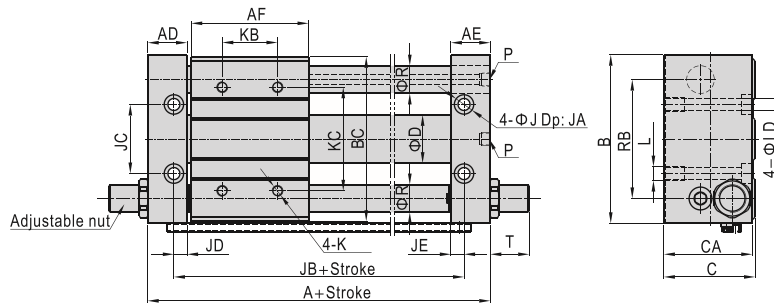
RMT Series

Dimensions

RMT-A



RMT



Bore size\Item	A	AD	AE	AF	B	BC	C	CA	D	J	JA	JB	JC	JD	JE	K	KB	KC	L	LD	P	R	RB	S	T
16	107	22.5	22.5	60	75	72	40	39	18	9.5	5	75	30	6.5	6.5	M5 × 0.8Dp:10	30	50	M6 × 1.0Dp:9.5	5.5	M5 × 0.8	12	52	15.5	8.5
20	124	25.5	25.5	70	90	87	46	45	22.8	9.5	5	90	38	8.5	8.5	M6 × 1.0Dp:10	40	70	M6 × 1.0Dp:9.5	5.5	1/8"	16	63	22.5	10.5
25	124	25.5	25.5	70	100	97	54	53	27.8	11	6.5	90	42	8.5	8.5	M6 × 1.0Dp:10	40	70	M8 × 1.25Dp:10	7	1/8"	16	70	40.5	11.5
32	148	28.5	28.5	85	122	119	66	64	35	14	8	110	50	9.5	9.5	M8 × 1.25Dp:12	40	75	M10 × 1.5Dp:15	8.5	1/8"	20	86	57.5	17.5
40	170	35.5	35.5	95	145	142	76	74	43	14	8	120	64	10.5	10.5	M8 × 1.25Dp:12	65	105	M10 × 1.5Dp:15	8.5	1/4"	25	105	50.5	10.5

