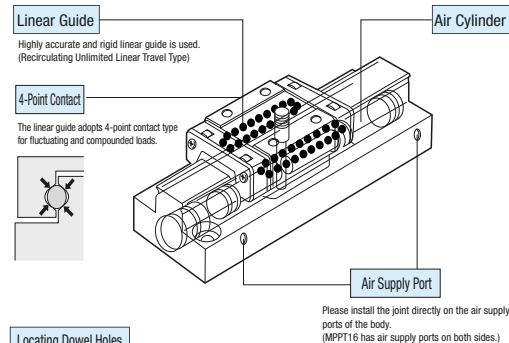


Pneumatically Driven Linear Guides - Overview

Table Type

Miniature linear guides with built-in air cylinders!

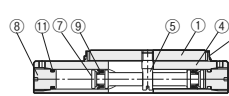


Locating Dowel Holes

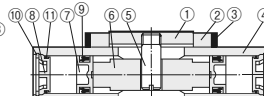
- There are dowel holes for workpiece position repeatability on upper surface of the table.
- There are dowel holes for workpiece position repeatability on bottom surface of the table.

Structure and Construction

Tube I.D. Ø6

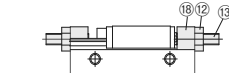


Tube I.D. Ø8, 10, 12, 16

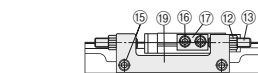


Stroke Adjustment Mechanism

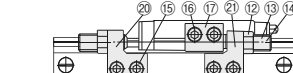
Tube I.D. Ø6 (Metal Stopper) (13)



Tube I.D. Ø8, 10, 12 (Metal Stopper) (13)



Tube I.D. Ø8, 10, 12 (Metal Stopper) (13), Rubber (14)



Stoppers with the tube I.D. Ø8-S15 and Ø10-S15 are single-sided

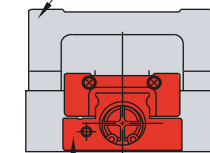
Features of Table Type

The smallest actuator with advantages of high rigidity and precision of Linear Guides, which is achieved by using the Linear Guide with built-in air cylinders.

The cross section area is 1/2 compared to that of general cylinders with guides (comparison by the same tube I.D.). Additionally, unlike the combination using a conventional cylinder, it does not require a rotation stopper and excels in running straightness and positioning repeatability. You can significantly reduce manufacturing steps for designing, assembly, and adjustment.

4 types between Ø6 and Ø12 are available for a cylinder I.D. You can select Metal Stopper or Rubber Stopper for the stroke adjustment mechanism. There is a wide variety to choose from.

General Cylinder with Guides (Combination Structures)



Compared to Cylinder with Guides
⇒ 1/2 Cross Section Area

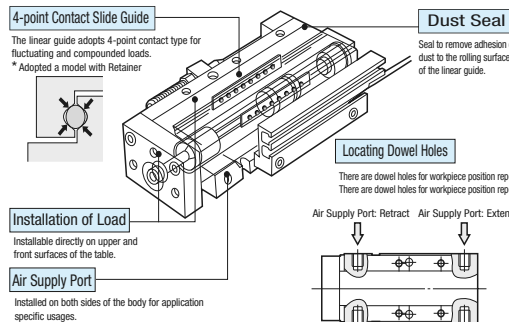
Air Driven Linear Guides (Integrated Construction)

Parts

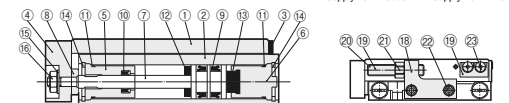
No.	Product Name	Material	Note	No.	Product Name	Material	Note
1	Table	Stainless Steel (Heat Treatment)	-	12	Nut	Steel	Nickel Plating
2	Side Plate	Plastic	MPPT8, 10, 12, 16 only	13	Adjusting Screw	Steel	Nickel Plating
3	Dust Seal	Nitrile Rubber	-	14	Adjusting Screw with Rubber Grommet	Stainless Steel + Urethane Rubber	-
4	Body	Stainless Steel (Heat Treatment)	-	15	Screw	Steel	Nickel Plating
5	Center Pin	Stainless Steel	-	16	Screw	Steel	Nickel Plating
6	Center Piston	Plastic	MPPT8, 10, 12, 16 only	17	Stopper Receiver	Steel (Heat Treatment)	Electroless Nickel Plating
7	Piston	Plastic	-	18	Stopper Block	Steel	2 pcs Electroless Nickel Plating
8	End Cover	Plastic	Stainless Steel for MPPT16	19	Adjusting Block	Steel	Electroless Nickel Plating
9	Piston Seal	Nitrile Rubber	-	20	Left Adjusting Block	Steel	Electroless Nickel Plating
10	Retaining Ring for Piston Caps	Steel	Nickel Plating	21	Right Adjusting Block	Steel	Electroless Nickel Plating
11	O-Ring	Nitrile Rubber	-				

L-Shaped Table Type

Long Stroke Type



Structure and Construction



Specifications

Type	MPPT6Y	MPPT8	Table Type	MPPT10	MPPT12	MPPT16	L-Shaped Table Type
I.D. of Cylinder	Ø6mm	Ø8mm	MPPT10	Ø12mm	Ø16mm	Ø10mm	Ø12mm
No Stopper	0.2kg	0.3kg	0.8kg	1.2kg	2.0kg	1.2kg	1.2kg
With Metal Stopper	0.1kg	0.25kg	0.4kg	0.6kg	1.0kg	0.3kg	0.5kg
With Rubber Stopper	-	0.5kg	0.8kg	1.2kg	2.0kg	0.8kg	1.2kg
Pneumatic Fitting Diameter	M3		M5				M5
Guide Mechanism			Slide Guide				
Operation Method			Bi-directional				
Actuation Medium			Air				
Max. Operating Pressure			0.70MPa				
Min. Operating Pressure			0.15MPa				
Withstanding Pressure			1.05MPa				
Operating Temp. Range			5~60°C				
Min. Operating Speed			50mm/sec				50mm/sec
Max. Operating Frequency / Max. Operating Speed			120c.p.m.(*)				400mm/sec
Lubrication			Not Required				

(*)1) Allowable mass is shown when the table is operated at the max. operating speed. (2) c.p.m = cycle per minute

Features of L-Shaped Table Type

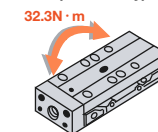
A long stroke version of a slide guide with built-in air cylinders.

A table that can be used for direct mounting on the front surface of the table in addition to the upper surface is attached. For its high rigidity and high positioning accuracy, floating joints normally used with cylinders are not needed. Space-saving design for the connecting parts.

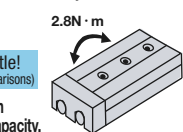
It can withstand 10 times or more larger moment load than that general cylinders with guides can.

Compared in thrust equivalents:

L-Shaped Table Type



General Cylinder with Guides



Strength Battle!
(Pitch Moment Comparisons)
⇒ More than 10x in
moment load capacity.

No.	Product Name	Material	Note	No.	Product Name	Material	Note
1	Guide Table	Stainless Steel (Heat Treatment)	-	13	Cushion Rubber	Urethane Rubber	-
2	Body	Stainless Steel (Heat Treatment)	-	14	Retaining Ring for Piston Caps	Steel	Nickel Plating
3	Dust Seal	Nitrile Rubber, Steel	-	15	Washer	Steel	Nickel Plating
4	Tip Plate	Steel	Electroless Nickel Plating	16	Nut	Steel	Nickel Plating
5	Root Cover	Aluminum Alloy	-	17	Stopper Receiver	Steel (Heat Treatment)	Electroless Nickel Plating
6	End Cover	Aluminum Alloy	-	18	Push Side Adjusting Block	Steel	Electroless Nickel Plating
7	Piston Rod	Stainless Steel	-	19	Adjusting Screw	Steel	Nickel Plating
8	Plate Washer	Stainless Steel	-	20	Adjusting Screw with Rubber Grommet	Stainless Steel + Urethane Rubber	-
9	Piston Seal	Nitrile Rubber	-	21	Nut	Steel	Electroless Nickel Plating
10	Root Seal	Nitrile Rubber	-	22	Screw	Steel	Nickel Plating
11	O-Ring	Nitrile Rubber	-	23	Screw	Steel	Nickel Plating
12	Cushion Rubber	Urethane Rubber	-				

Table Type

Tube I.D. (mm)	0.2	0.3	0.4	0.5	0.6	0.7
Ø 6	5.7	8.8	11	14	17	20
Ø 8	9.9	15	20	25	30	35
Ø 10	16	24	31	39	47	55
Ø 12	23	34	45	57	68	79
Ø 16	40	60	80	100	120	140

L-Shaped Table Type

Tube I.D. (mm)	Operating Direction	Rod Dia.	0.2	0.3	0.4	0.5	0.6	0.7
Ø 10	Push	Ø4mm	16	24	31	39	47	55
	Pull		13	20	26	33	40	46
Ø 12	Push	Ø5mm	23	34	45	57	68	79
	Pull		19	28	37	47	56	65

1MPa=10.2kgf/cm²

Unit: N

Switches

How to Mount (Diagram in Lower Right)

Attach switch mounting bracket to the switch (1) and insert it to the switch groove (2). Set the installing position and tighten the screw with a small screwdriver. Tightening torque should be 0.1N·m(1kgf·cm).

Switch Specifications

Type	Contact Point	2 Wire Type	No Contact	2 Wire Type	No Contact	3 Wire Type
Indicator Light		Red LED (ON when activated)				
Operating Voltage		DC12~24V			DC5~24V	
Load Current		3~24mA		5~40mA	50mA or Less	
Current Consumption		-		-	10mA or Less	
Output Method		-		-	NPN Open Collector	
Average Response Time					1ms or Less	
Operating Temp. Range					5~60°C	
Impact Resistance		30G			50G	
Lead Wire		Ø2.8, 0.13mm ² ; 2 Conductors (+Brown, -Blue)		Ø2.8, 0.15mm ² ; 2 Conductors (+Brown, -Blue)	Ø2.8, 0.15mm ² ; 3 Conductors (+Brown, Black, -Blue)	
Lead Wire Length		1m			Oil-proof, Bend-resistant Vinyl Flexible Cable	
Minimum Bending Radius		R10				
Control Category		(*)1) Relay, Programmable Logic Controller				
Internal Voltage Drop		2.6V or Less		3.5V or Less	0.5V or Less	
Leakage Current		0		1mA or Less	50µA or Less	
Insulation Resistance		50MΩ or More at DC250V (between terminal and case)				
Withstanding Voltage		1 minute with AC500V (between terminal and case)				
Protection Structure		IP67 (IEC Standard)				

(*)1) Please install a load surge protection circuit when an inductive load, such as relay, etc. is used.

Please be careful of overcurrent when using. (Please consult the load current.) It may cause switch damages.

Switch Mounting Brackets are included with the switches. (Note) Two mounting brackets are included for application specific requirements.

Not applicable to Sensor / Switch on PZ-1486 and 1498. Switches are available for sale as special order items.

Load and Moment Ratings

Refer to: Allowable Load Moments table for dynamic conditions, Basic Static Load Ratings / Allowable Static Moments table for static conditions to check and confirm that the applications are within the allowable ranges.

Allowable Load Moment

Type	Stroke (mm)	Load Allowable Moment (N·m)	M1	M2	M3
Table Type	MPPT6Y	5	0.41	0.41	0.42
		10	0.71	0.71	0.53
		20	1.7	1.7	1.8
	MPPT8	5	0.42	0.42	0.87
		10	1.7	1.7	1.8
		20	1.7	1.7	1.8
	MPPT10	5	1.2	1.4	2.3
		10	2.8	3.1	3.3
		20	2.4	2.9	4.7
	MPPT12	15	2.4	2.9	4.7
		25	6.5	7.7	7.3
		20	4.3	3.8	7.5
L-Shaped Table Type	MPPU10	15/30/45	1.8	2.0	1.9
	MPPU12	20/30/45/60	3.0	3.4	3.8

1N·m=0.102kgf·m

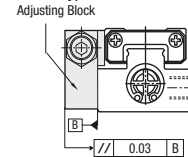
Bearing Accuracies

Table Type

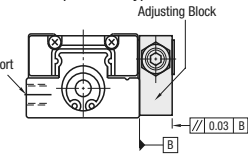
Type	MPPT6Y	MPPT8	MPPT10	MPPT12	MPPT16
Parallelism					
Plane C to Plane A	0.04	0.03	0.02		
Plane D to Plane B	0.04	0.03	0.02		
Running Parallelism					
Plane C to Plane A	0.007	0.005	0.004	0.003	
Plane D to Plane B	0.007	0.005	0.004	0.003	
E Dimension Tolerance	±0.1	±0.1	±0.025		
F Dimension Tolerance	0~0.1	0~0.2	±0.2		
G Dimension Tolerance	0~0.1	0~0.05	±0.2		
H Dimension Tolerance	±0.05	±0.05	±0.02		

Parallelism of Adjusting Block

Table Type



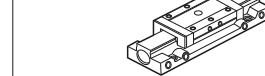
L-Shaped Table Type



Variation

Main Body Only

-N



With Metal Stopper and Switches

- RS / SS (Contacting Switch)
- RMS / SMS (Non-contact Switch)
- RMT / SMT (3 Wire Non-contact Switch)

Metal stopper with stroke adjustment mechanism
Miniature Switches 2 pcs.,
Magnet and Switch Rail included

Main Body with Switch Rail

-J

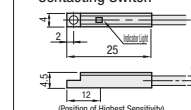


With Rubber Stopper and Switches

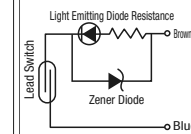
- TS / SN (Contacting Switch)
- TMS / SMN (Non-contact Switch)
- TMT / SMR (3 Wire Non-contact Switch)

Rubber stopper with stroke adjustment mechanism
Miniature Switches 2 pcs.,
Magnet and Switch Rail included

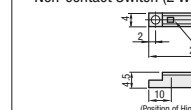
Contacting Switch



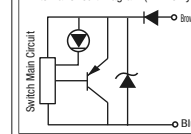
Non-contact Switch (2 Wire Type / 3 Wire Type)



Internal Circuit Diagram (2-Line Type)



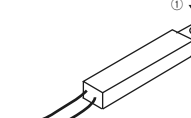
Internal Circuit Diagram (3-Line Type)



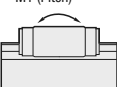
Switch Installation Bracket



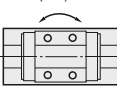
Switch Installation



M1 (Pitch)



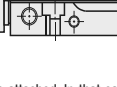
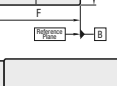
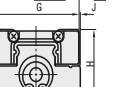
M2 (Yaw)



M3 (Roll)



Reference Plane



With Switches

- S (Contacting Switch)
- MS (Non-contact Switch)
- MT (3 Wire Non-contact Switch)

Miniature Switches 2 pcs., included



Important! Precautions

Before using this product, be sure to read "Cylinders and Sensors [Important] Precautions" on P.2-1484 and use the product correctly.