AEDNX MSR25LE

PMI Linear Guides MSR25LE User Manual

Model: MSR25LE

1. Introduction

The PMI MSR series linear guideway is a full roller type system designed for applications requiring high rigidity, heavy load capacity, and high accuracy. Unlike traditional ball-type guideways, the MSR series utilizes rollers, which significantly enhance its load-bearing capabilities and overall stiffness.
This linear guideway is engineered for precise motion control, offering high positioning accuracy and repeatability. Its design minimizes the difference between dynamic and static friction, effectively preventing stick-slip phenomena during submicron feeding operations.
Key features include:

- **High Rigidity and Loading:** Utilizes rollers for superior rigidity and load capacity compared to ball-type systems of the same size.
- **High Positioning Accuracy:** Low friction coefficient ensures precise movement and minimal stick-slip.
- **Low Frictional Resistance:** Only 1/20th to 1/40th of that in a slide guide, leading to reduced power consumption and less temperature rise during high-speed operation.
- **Four-Way Load Design:** Optimized mechanical design allows the guideway to bear loads in all four directions (radial, reversed radial, and both lateral directions).
- **Easy Installation and Interchangeability:** Designed for straightforward mounting, even on surfaces machined by milling or grinding, and offers interchangeability for convenient maintenance.



Figure 1.1: Top view of the PMI MSR25LE Linear Guide Block.

2. What's in the Box

Upon unpacking, please verify that all components are present and undamaged.

- One (1) Linear Block MSR25LE



Figure 2.1: PMI MSR25LE Linear Guide Block as received in its packaging.

3. Setup and Installation

The PMI linear guideway is designed for easy installation. High precision can be achieved even if the mounting surface is machined by milling or grinding, unlike conventional slide guides that require extensive scraping processes.

3.1 Mounting Surface Preparation

Ensure the mounting surface is clean, flat, and free from debris. Although the guideway is tolerant of less precise machining, optimal performance is achieved with well-prepared surfaces.

3.2 Securing the Linear Block

The linear block features multiple mounting holes for secure attachment. Use appropriate fasteners (not included) to firmly secure the block to the desired surface. Refer to the specifications section for detailed dimensions and bolt sizes.



Figure 3.1: Internal view showing the roller mechanism of the linear guide block.



Figure 3.2: Detailed internal view of the linear guide block, highlighting the roller arrangement.

4. Operating Principles

The PMI MSR series linear guideway operates on the principle of rolling motion, utilizing precision rollers instead of traditional balls. This design provides several operational advantages:

- **Low Friction:** The rolling motion significantly reduces frictional resistance, requiring less driving force and minimizing power consumption.
- **High Speed Capability:** Due to low friction and minimal temperature rise, the guideway is suitable for high-speed operations without compromising performance.
- **Four-Way Load Bearing:** The optimized geometric mechanics allow the guideway to effectively bear loads from all four directions: radial, reversed radial, and both lateral directions. This ensures stable and reliable operation under various load conditions.
- **Enhanced Rigidity:** The rigidity of the linear guideway can be further increased by applying preloading to the carriage or by incorporating multiple carriages in the system.

5. Maintenance

Proper lubrication is crucial for maintaining the high precision and extending the lifespan of the PMI linear guideway. The design facilitates easy lubrication.

5.1 Lubrication

Lubrication can be easily achieved by supplying grease through the grease nipple located on the carriage. Alternatively, a centralized oil pumping system can be utilized for continuous lubrication. Regular lubrication reduces frictional resistance and helps maintain accuracy over long periods of operation.
Consult the specifications for the recommended grease type and lubrication frequency based on your application's operating conditions.

6. Troubleshooting

This section provides general guidance for common issues. For complex problems, please contact technical support.

6.1 Reduced Smoothness or Increased Friction

- **Check Lubrication:** Ensure the guideway is adequately lubricated. Apply grease as per maintenance guidelines.
- **Inspect for Debris:** Foreign particles on the rail or within the block can impede smooth motion. Clean the system carefully.
- **Verify Alignment:** Improper alignment of the rail or block can cause binding. Re-check installation alignment.

6.2 Noise During Operation

- **Lubrication:** Insufficient lubrication can lead to increased noise.
- **Loose Fasteners:** Ensure all mounting bolts are securely tightened.
- **Overload:** Operating beyond the specified load capacity can cause excessive wear and noise.

7. Specifications

Detailed technical specifications for the PMI MSR25LE Linear Guide Block are provided below.

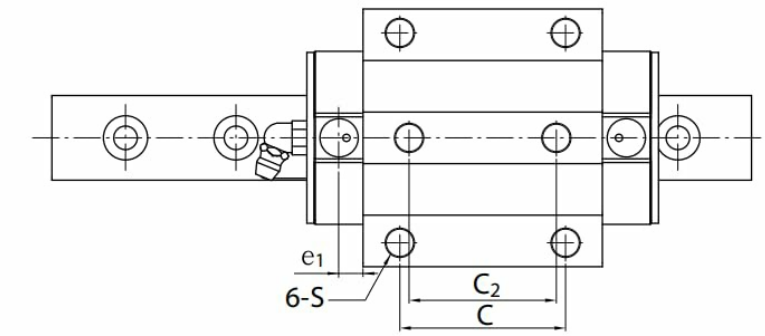
General Product Specifications

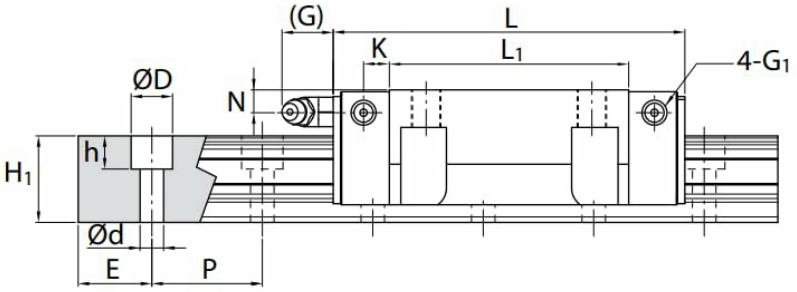
Attribute	Value
Product Dimensions	3.84 x 2.76 x 1.23 inches
Weight	2.09 Pounds
Item Model Number	MSR25LE
Manufacturer	AEDNX
Country of Origin	Taiwan

7.1 Dimensional Drawings and Tables

Refer to the following diagrams and tables for detailed external and carriage dimensions, as well as load ratings.

Dimensions of MSR-E / MSR-LE



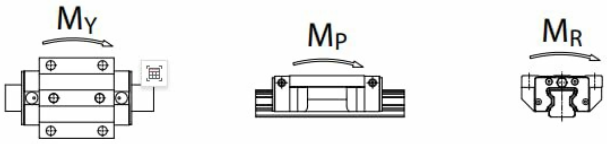


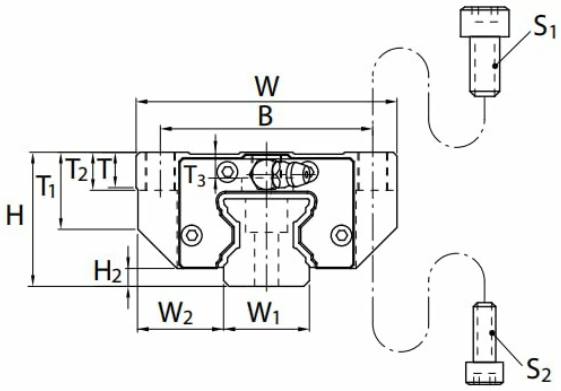
Unit: mm

Model No.	External dimension					Carriage dimension														
	Height H	Width W	Length L	W_2	H_2	B	C	C_2	S	L_1	T	T_1	T_2	T_3	N	G	K	e_1	G_1	Grease Nipple
MSR 25 E MSR 25 LE	36	70	97.5 115.5	23.5	4.8	57	45	40	M8	65.5 83.5	9.5	20.2	10	5.8	6	12	6.6	6.5	M6	G-M6
MSR 30 E MSR 30 LE	42	90	112.4 135.2	31	6	72	52	44	M10	75.9 98.7	10	21.6	13	6.7	7	12	8	7	M6	G-M6
MSR 35 E MSR 35 LE	48	100	125.3 153.5	33	6.5	82	62	52	M10	82.3 110.5	12	27.5	15	9.5	8	12	8	7	M6	G-M6
MSR 45 E MSR 45 LE	60	120	154.2 189.4	37.5	8	100	80	60	M12	106.5 141.7	14.5	35.5	15	12.5	10	13.5	10	10	M6	G-PT 1/8
MSR 55 E MSR 55 LE	70	140	185.4 235.4	43.5	10	116	95	70	M14	129.5 179.5	17.5	41	18	15.5	11	13.5	12	7.95	M6	G-PT 1/8
MSR 65 LE	90	170	302	53.5	12	142	110	82	M16	230	19.5	56	20	26	16.5	13.5	15	15	M6	G-PT 1/8

Note*: Single: Single carriage/ Double: Double carriages closely contacting with each other.

Figure 7.1: Dimensions of MSR/MSR-E Linear Guide Blocks, including external and carriage dimensions.





Model No.	Bolt Size	
	S_1	S_2
MSR 25	M8	M6
MSR 30	M10	M8
MSR 35	M10	M8
MSR 45	M12	M10
MSR 55	M14	M12
MSR 65	M16	M14

Unit: mm

Model No.	Rail dimension					Basic load rating		Static moment rating					Weight	
	Width W_1	Height H_1	Pitch P	E std.	D × h × d	Dynamic C kN	Static C_o kN	M_P kN-m Single*	M_P kN-m Double*	M_Y kN-m Single*	M_Y kN-m Double*	M_R kN-m	Carriage kg	Rail kg/m
MSR 25 E	23	23.5	30	20	11×9×7	29.6	63.8	0.65	3.82	0.65	3.82	0.73	0.75	3.5
MSR 25 LE						36.3	82.9	1.08	5.94	1.08	5.94	0.95	0.95	
MSR 30 E	28	27.5	40	20	14×12×9	42.8	91.9	1.09	6.38	1.09	6.38	1.27	1.4	5
MSR 30 LE						54.0	124.0	1.96	10.60	1.96	10.60	1.75	1.72	
MSR 35 E	34	30.5	40	20	14×12×9	57.9	123.5	1.59	9.56	1.59	9.56	2.09	1.95	7
MSR 35 LE						73.9	169.0	2.94	16.18	2.94	16.18	2.85	2.45	
MSR 45 E	45	37	52.5	22.5	20×17×14	92.8	193.8	3.28	18.76	3.28	18.76	4.40	3.9	11.2
MSR 45 LE						117.2	261.6	5.90	31.32	5.90	31.32	5.94	4.5	
MSR 55 E	53	43	60	30	23×20×16	132.8	270.0	5.49	31.18	5.49	31.18	7.33	6	15.6
MSR 55 LE						172.5	378.0	10.60	55.58	10.60	55.58	10.28	7.9	
MSR 65 LE	63	52	75	35	26×22×18	277.0	624.0	22.50	117.87	22.50	117.87	20.02	17.6	22.4

Figure 7.2: Basic load ratings, static moment ratings, and bolt sizes for MSR series linear guide blocks.



Figure 7.3: Location of the model number and production code on the linear guide block.

8. Warranty and Support

For information regarding product warranty, returns, or technical support, please contact the seller or manufacturer directly. Refer to your purchase documentation for specific contact details.
Manufacturer: AEDNX

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