

## LSM Series Datasheet



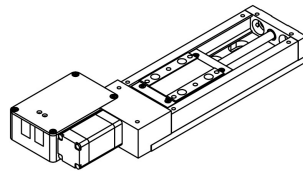
- Hardened steel construction and integrated recirculating ball bearing guide provide exceptional stiffness and thermal stability
- 25, 50, 100, 150, 200 mm travel
- Up to 8  $\mu\text{m}$  accuracy and 50 nm resolution
- 50 kg load capacity
- Designed for use with a X-MCB1 Series stepper motor controller or any 2-phase stepper motor controller

Zaber's LSM Series devices are motorized linear stages with high thrust and speed capabilities and a very compact size. They are designed to be used with our X-MCB1 controller, or with any 2-phase stepper motor controller.

At only 21 mm high, these miniature stages are excellent for applications where a small profile is required. The LSM's innovative design allows speeds up to 58 mm/s and loads up to 10 kg. Like all Zaber products, the LSM series is designed to be "plug and play" and very easy to set up and operate when used with our X-Series controller. The stages can be mounted in XY and XYZ configurations with no additional hardware.

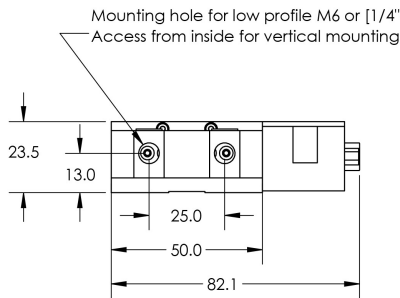
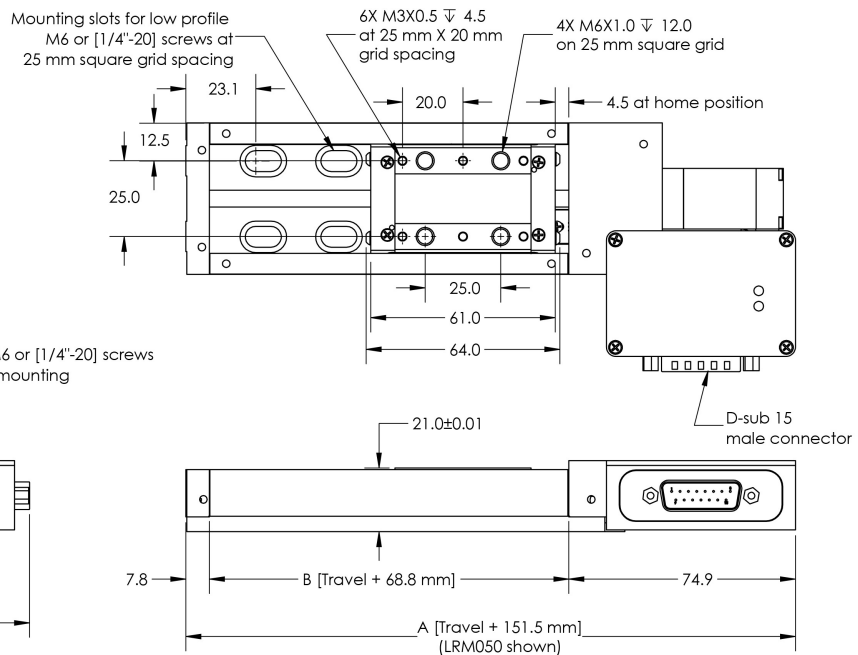
## Drawings

**ZABER**  
 LRM Motorized Linear Stage  
 dimensions in mm



Model Number*	Travel	A	B
LRM025	25.0	176.5	93.8
LRM050	50.0	201.5	118.8
LRM100	100.0	251.5	168.8
LRM150	150.0	301.5	218.8
LRM200	200.0	351.5	268.8

\*See product page for complete list of available models at [www.zaber.com](http://www.zaber.com)



DWG 1465 001A

## Specifications

Specification	Value	Alternate Unit
Built-in Controller	No	
Recommended Controller	X-MCB1 (48 V) Recommended	
Encoder Type	None	
Maximum Continuous Thrust	25 N	5.6 lb
Maximum Centered Load	500 N	112.1 lb
Maximum Cantilever Load	1500 N-cm	2124.2 oz-in
Guide Type	Recirculating ball bearing	
Vertical Runout	< 8 $\mu\text{m}$	< 0.000315 "
Horizontal Runout	< 12 $\mu\text{m}$	< 0.000472 "
Pitch	0.02 °	0.349 mrad
Stiffness in Pitch	750 N-m/°	23 $\mu\text{rad/N-m}$
Roll	0.02 °	0.349 mrad
Stiffness in Roll	550 N-m/°	32 $\mu\text{rad/N-m}$
Yaw	0.02 °	0.349 mrad
Stiffness in Yaw	400 N-m/°	44 $\mu\text{rad/N-m}$
Motor Steps Per Rev	200	
Motor Type	Stepper (2 phase)	
Motor Rated Current	600 mA/phase	
Motor Winding Resistance	6.5 ohms/phase	
Inductance	3.5 mH/phase	
Motor Rated Power	6.9 Watts	
Motor Rotor Inertia	2.9 g-cm <sup>2</sup>	
Motor Connection	D-sub 15	
Motor Frame Size	NEMA 08	
Mechanical Drive System	Precision lead screw	
Limit or Home Sensing	Magnetic hall sensor	
Axes of Motion	1	
Mounting Interface	M3 and M6 threaded holes	
Vacuum Compatible	No	
Operating Temperature Range	0 to 50 °C	

Specification	Value	Alternate Unit
Stage Parallelism	< 10 µm	< 0.000394 "
RoHS Compliant	Yes	
CE Compliant	Yes	

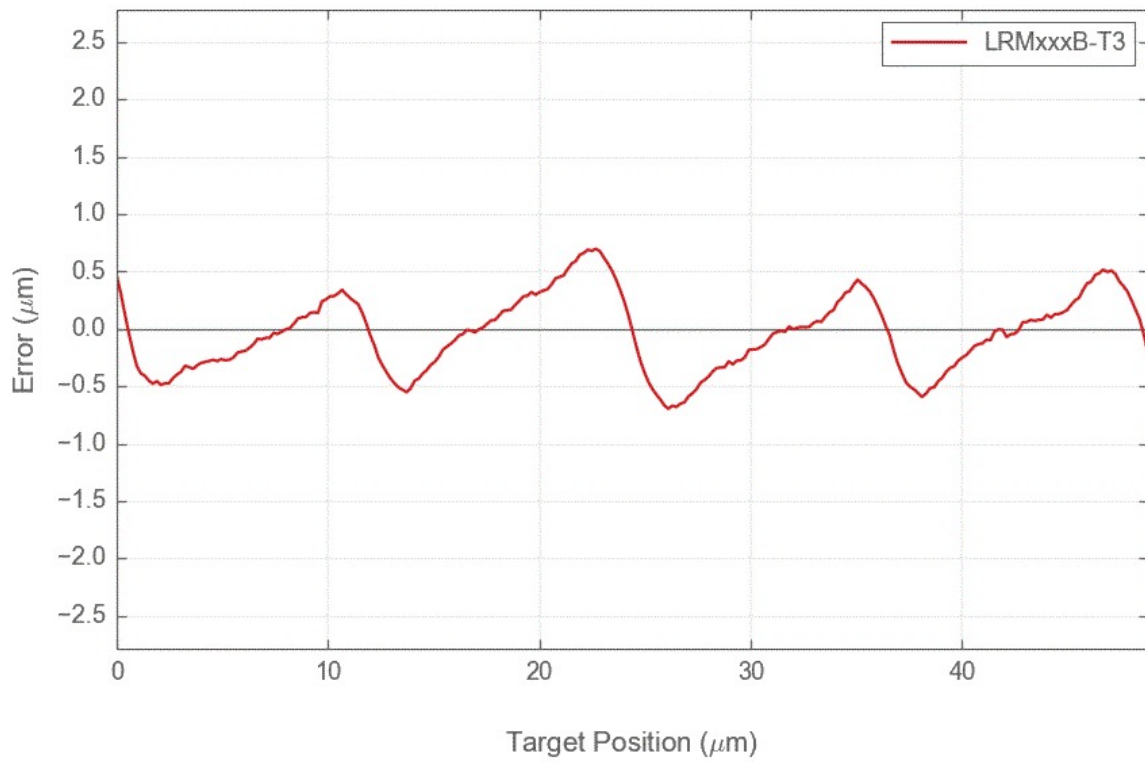
Part Number	Microstep Size (Default Resolution)	Travel Range	Accuracy (unidirectional)	Repeatability
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Part Number	Backlash	Maximum Speed	Minimum Speed	Speed Resolution
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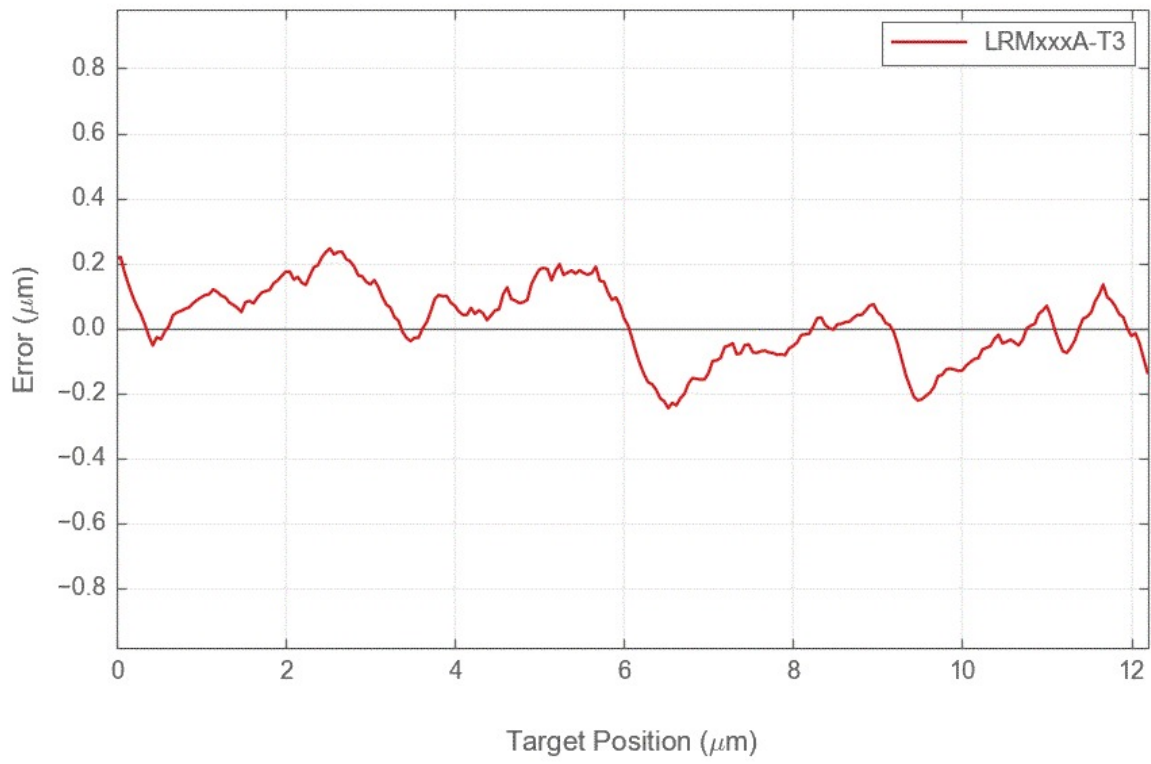
Part Number	Peak Thrust	Linear Motion Per Motor Rev	Weight
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# Charts

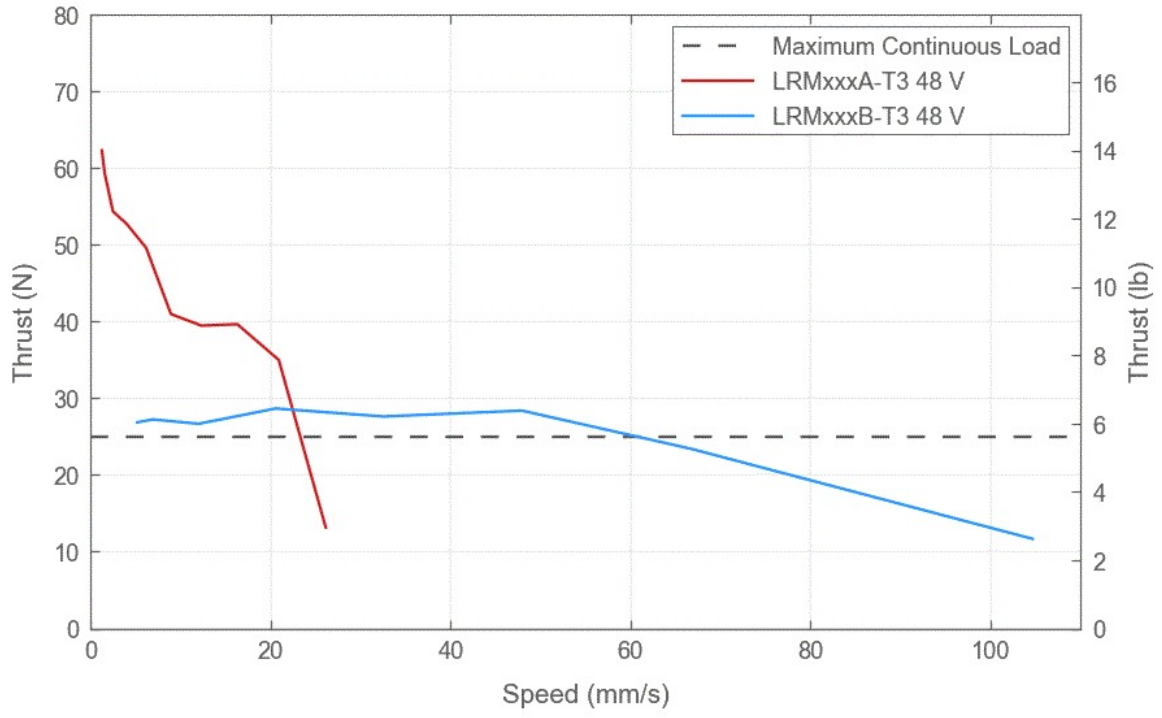
## Typical Microstepping Accuracy



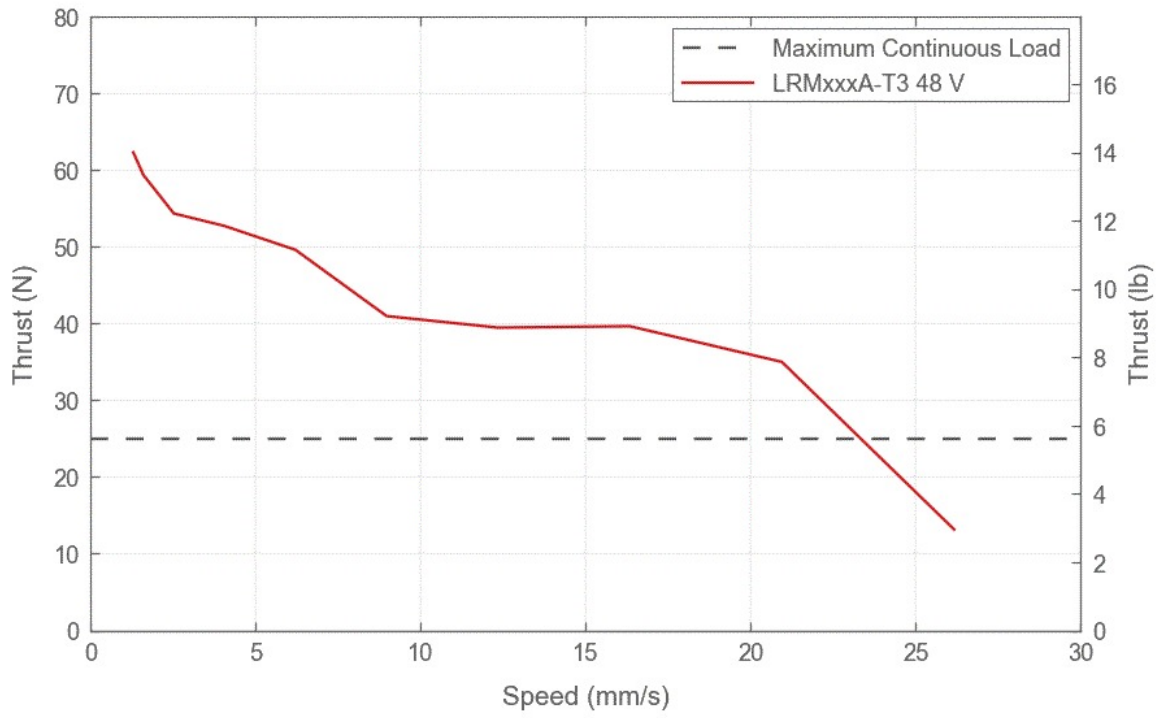
## Typical Microstepping Accuracy



### Thrust Speed Performance

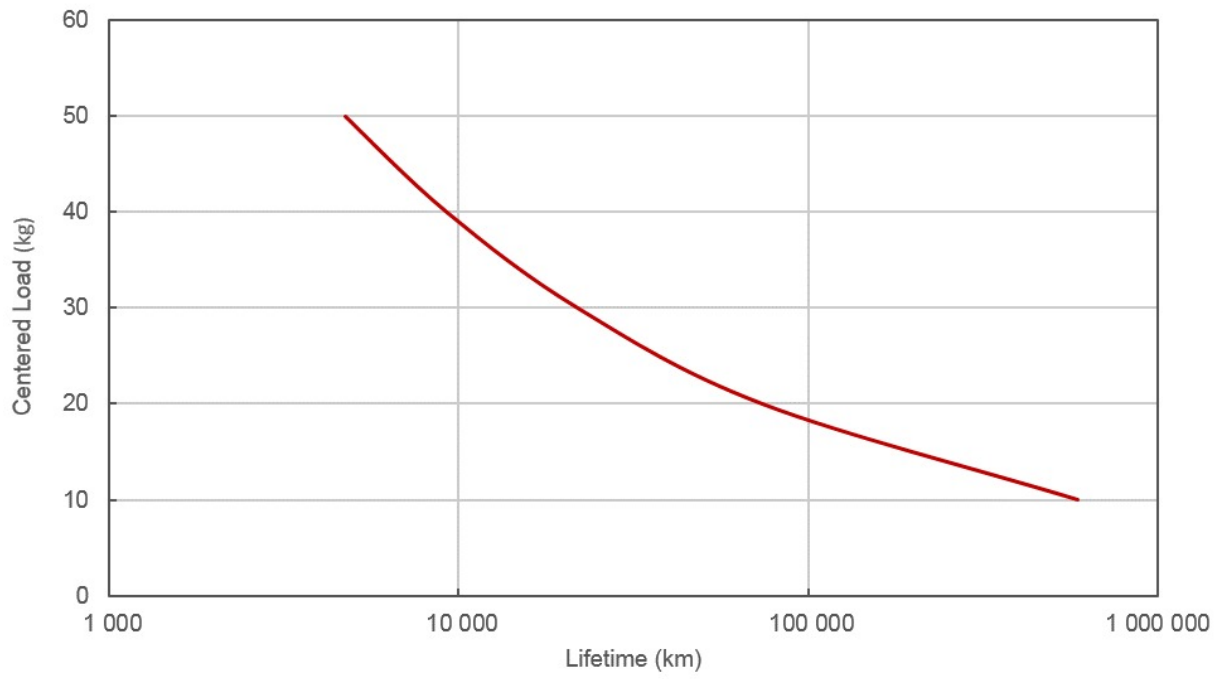


### Thrust Speed Performance





### LRM Linear Bearing Lifetime



### Thrust Speed Performance

