

LRM050B-T3A Datasheet



- 25, 50, 100, 150, 200 mm travel
- Up to 8 μm accuracy and 50 nm resolution
- 50 kg load capacity
- Hardened steel construction and integrated recirculating ball bearing guide provide exceptional stiffness and thermal stability
- Designed for use with an X-MCC Series stepper motor controller or any 2-phase stepper motor controller
- With AutoDetect, the X-MCC controller configures its settings automatically for the connected peripheral

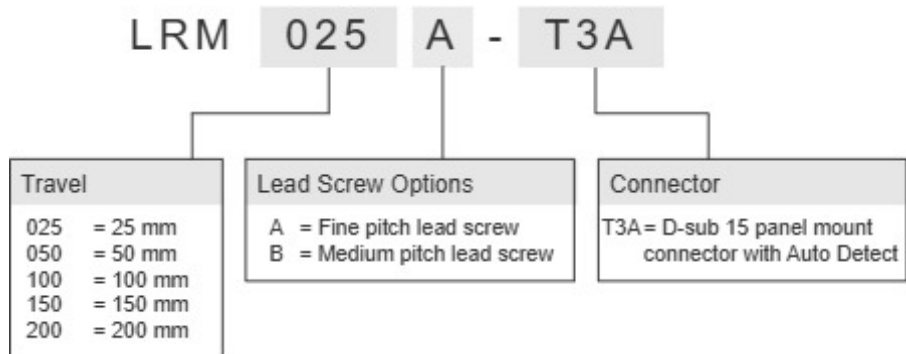
LRM Series Overview

Zaber's LRM series products are motorized linear stages. The LRM's hardened steel construction and recirculating ball bearing guide provide exceptional rigidity and thermal stability. High stiffness makes the LRM ideal for multi-axis configurations or applications where excellent stability under moment loads is required.

The stages are designed to interface with our X-MCC Series universal motor controllers, offering high resolution daisy-chainable operation. Set up is easy with AutoDetect. Once connected, the X-MCC controller will automatically detect and configure the LRM.

For more information visit: <https://www.zaber.com/products/linear-stages/LRM>

LRM Series Part Numbering & Options



LRM050B-T3A Drawings

- [LRM.png \(Drawing for the LRM\)](#)

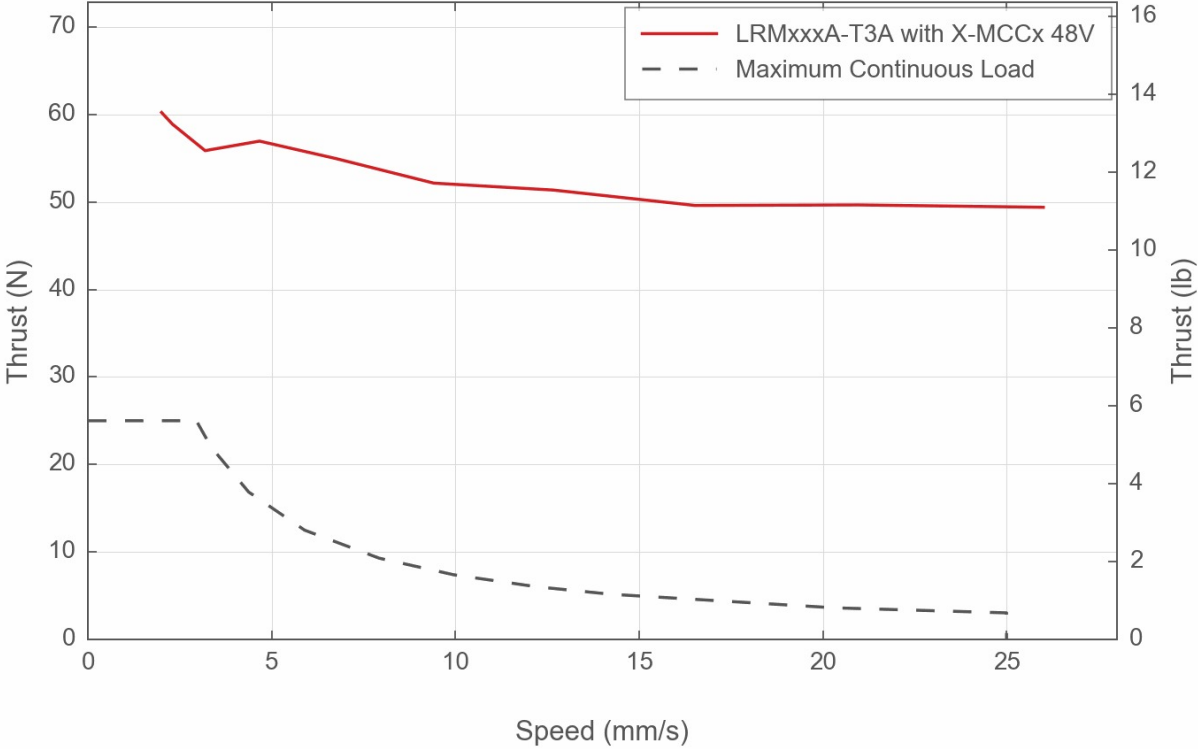
LRM050B-T3A Specifications

Microstep Size (Default Resolution)	0.1905 μm
Built-in Controller	No
Recommended Controller	X-MCC (48 V) Recommended
AutoDetect	Yes
Travel Range	50 mm (1.969")
Accuracy (unidirectional)	15 μm (0.000591")
Repeatability	< 4 μm (< 0.000157")
Backlash	< 12 μm (< 0.000472")
Maximum Speed	100 mm/s (3.937"/s)
Minimum Speed	0.000116 mm/s (0.000005"/s)
Speed Resolution	0.000116 mm/s (0.000005"/s)
Encoder Type	No
Peak Thrust	25 N (5.6 lb)
Maximum Continuous Thrust	25 N (5.6 lb)
Maximum Centered Load	500 N (112.1 lb)
Maximum Moment (Pitch)	6 N-m (4.4 ft-lb)
Maximum Moment (Roll)	15 N-m (11.1 ft-lb)
Maximum Moment (Yaw)	6 N-m (4.4 ft-lb)
Vertical Runout	< 8 μm (< 0.000315")
Horizontal Runout	< 12 μm (< 0.000472")
Pitch	0.02° (0.349 mrad)
Roll	0.02° (0.349 mrad)
Yaw	0.02° (0.349 mrad)
Stiffness in Pitch	550 N-m/° (32 $\mu\text{rad/N-m}$)
Stiffness in Roll	550 N-m/° (32 $\mu\text{rad/N-m}$)
Stiffness in Yaw	550 N-m/° (32 $\mu\text{rad/N-m}$)
Linear Motion Per Motor Rev	2.4384 mm (0.096")
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	600 mA/phase
Motor Winding Resistance	6.5 ohms/phase

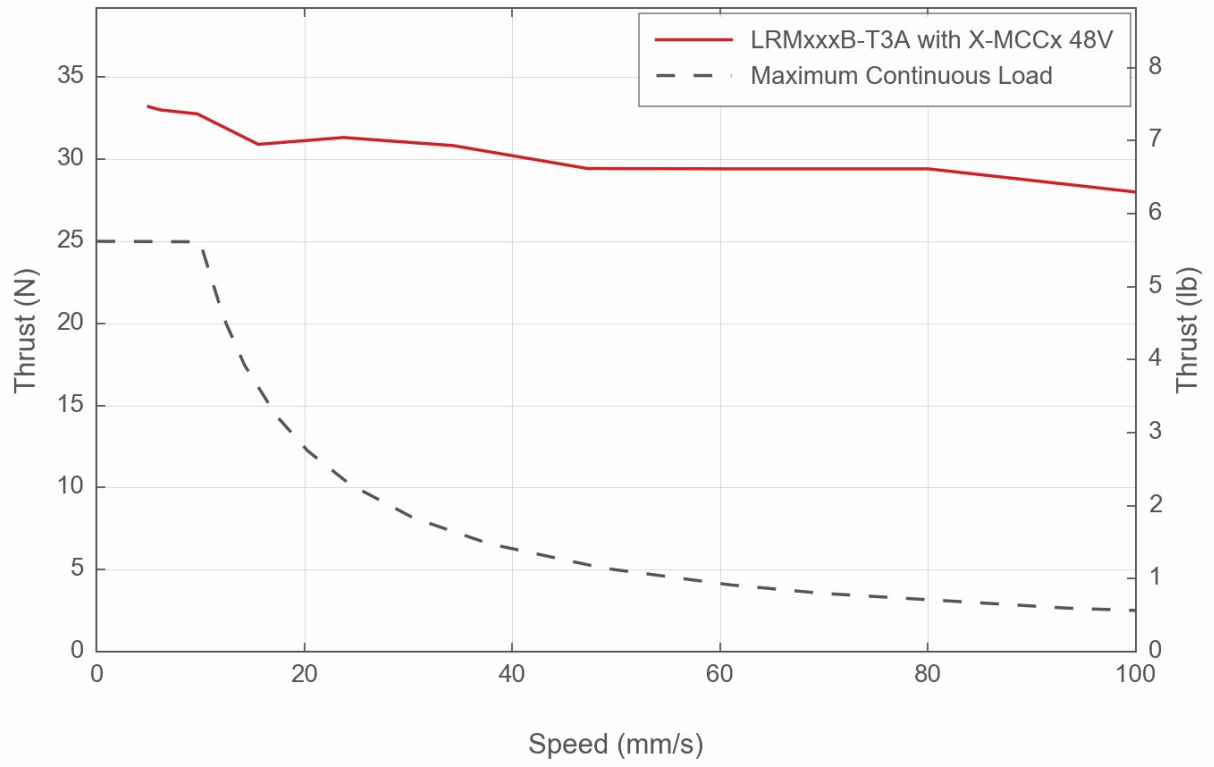
Microstep Size (Default Resolution)	0.1905 μm
Inductance	3.5 mH/phase
Motor Rated Power	6.9 Watts
Motor Connection	D-sub 15
Motor Rotor Inertia	2.9 g-cm ²
Default Resolution	1/64 of a step
Motor Frame Size	NEMA 08
Guide Type	Recirculating ball bearing
Mechanical Drive System	Precision lead screw
Limit or Home Sensing	Magnetic hall sensor
Axes of Motion	1
Mounting Interface	M3 and M6 threaded holes
Stage Parallelism	< 10 μm (< 0.000394")
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No
Weight	0.79 kg (1.742 lb)

LRM Series Charts

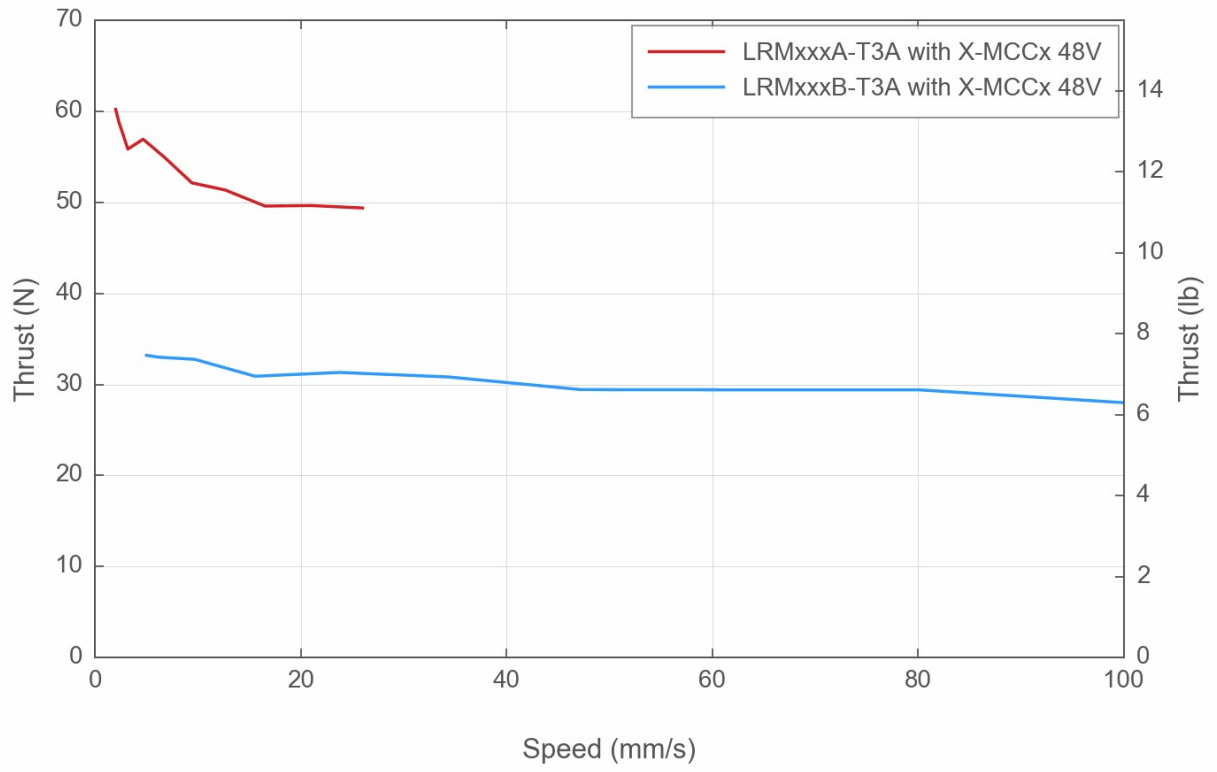
Thrust Speed Performance



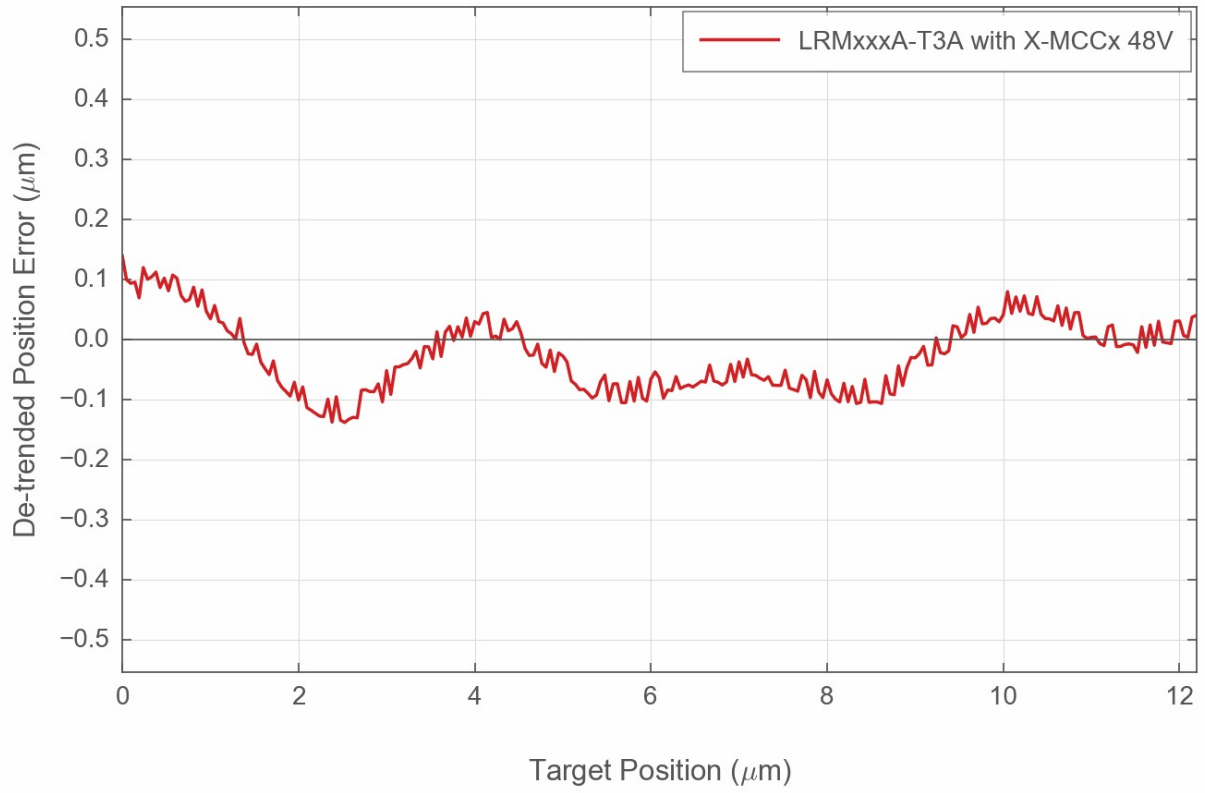
Thrust Speed Performance



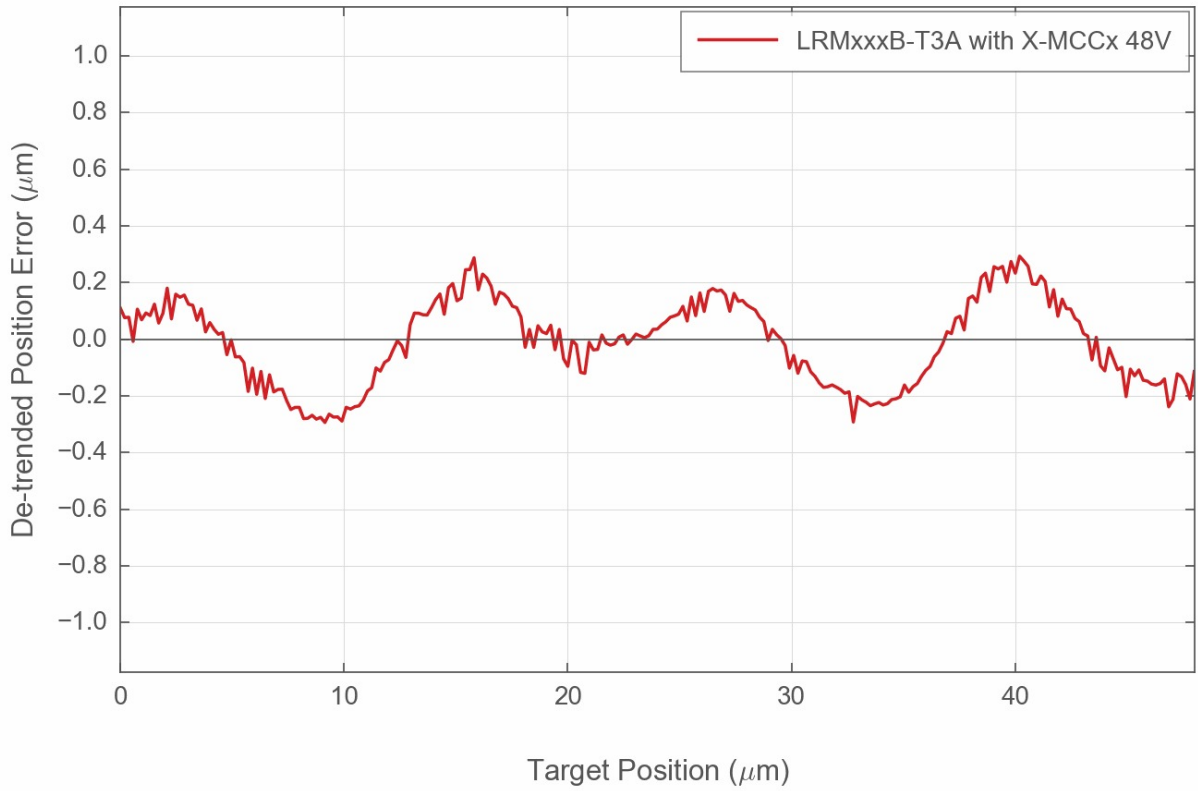
Thrust Speed Performance



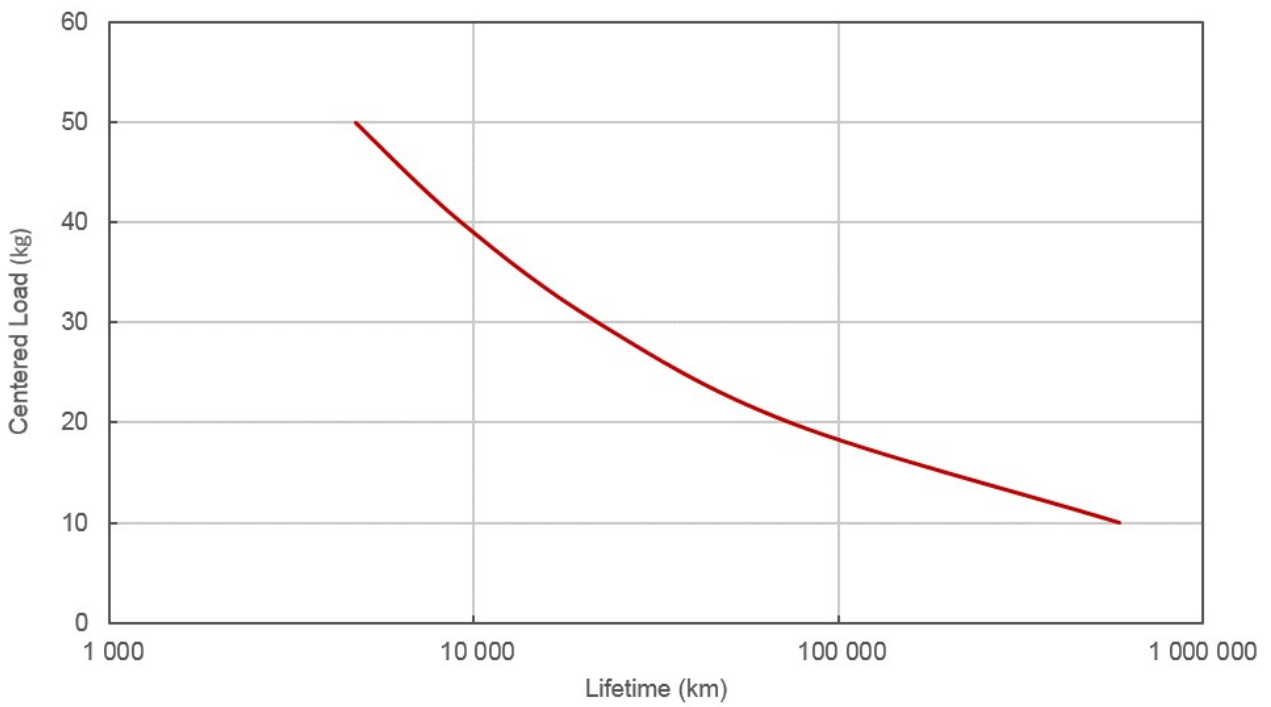
Typical Microstepping Accuracy



Typical Microstepping Accuracy



LRM Linear Bearing Lifetime



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