LRM050B-E03T3A 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
- Encoder position feedback with slip/stall detection and automatic recovery
- 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

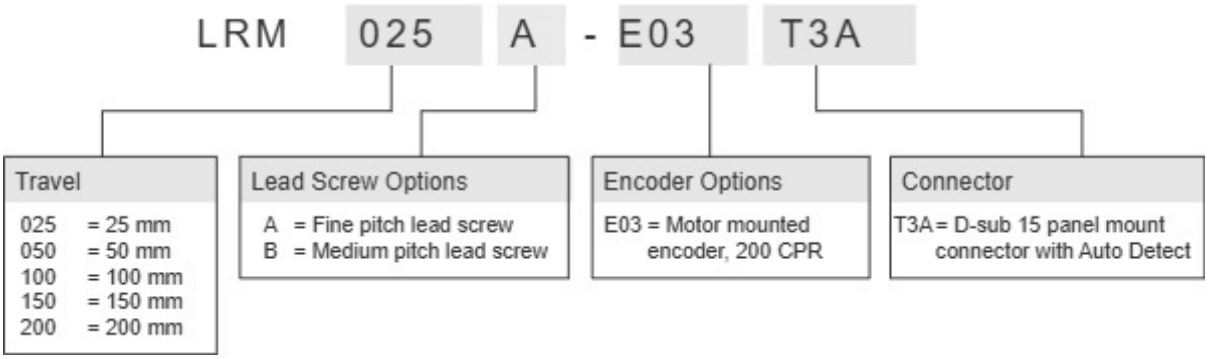
LRM-E Series Overview

Zaber's LRM-E series products are motorized linear stages with built-in motor encoders. The LRM-E's hardened steel construction and recirculating ball bearing guide provide exceptional rigidity and thermal stability. High stiffness makes the LRM-E 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-E.

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

LRM-E Series Part Numbering & Options



LRM050B-E03T3A Drawings

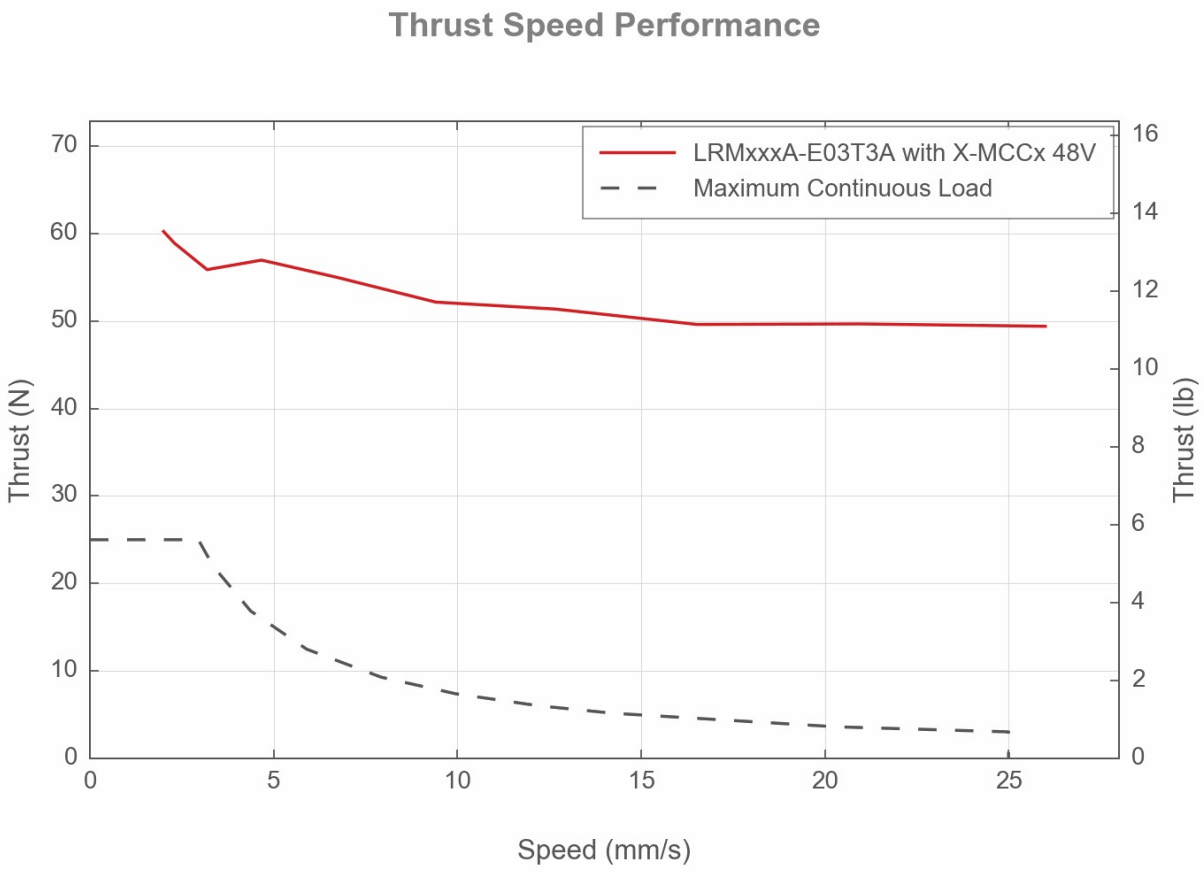
- LRM-E.png (Drawing for the LRM-E)

LRM050B-E03T3A Specifications

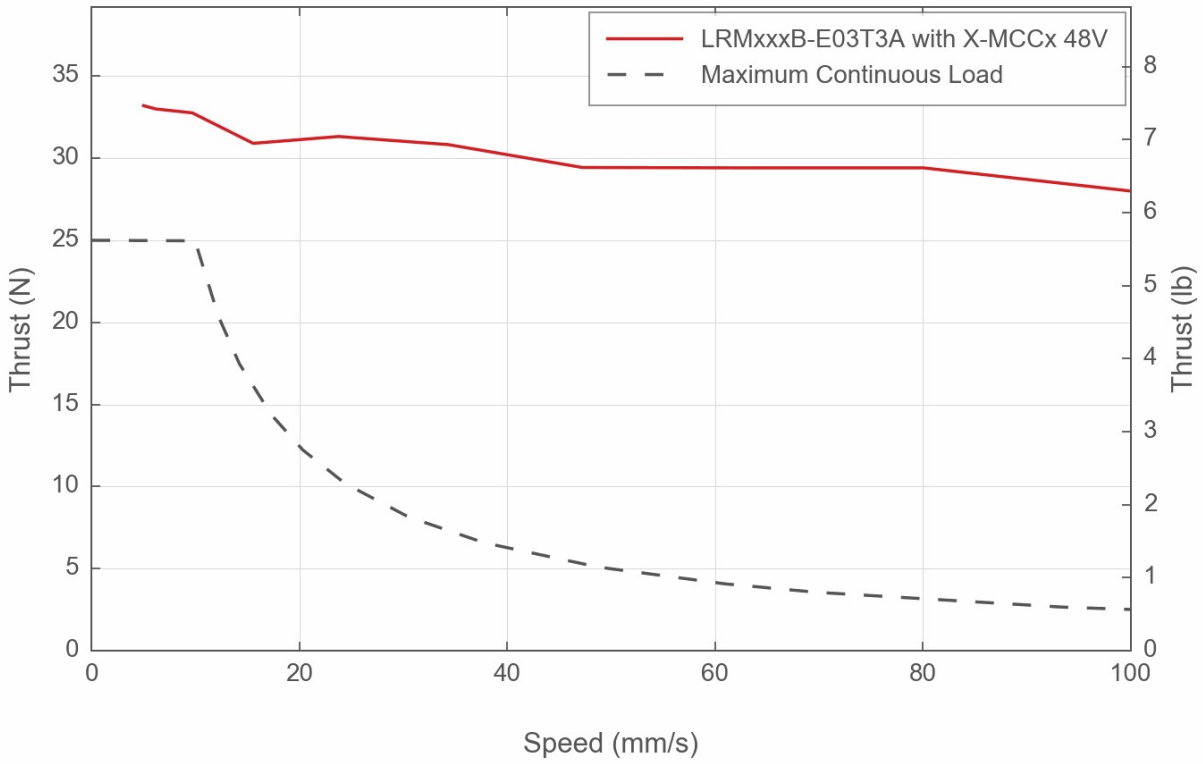
Microstep Size (Default Resolution)	**0.1905 µm**
Built-in Controller	No
Recommended Controller	X-MCC (48 V) Recommended
AutoDetect	Yes
Travel Range	50 mm (1.969")
Accuracy (unidirectional)	15 µm (0.000591")
Repeatability	< 4 µm (< 0.000157")
Backlash	< 12 µm (< 0.000472")
Maximum Speed	100 mm/s (3.937"/s)
Minimum Speed	0.000116 mm/s (0.000005"/s)
Speed Resolution	0.000116 mm/s (0.000005"/s)
Encoder Resolution	200 CPR (800 states/rev)
Encoder Type	Rotary quadrature encoder
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 µrad/N-m)
Stiffness in Roll	550 N-m/° (32 µrad/N-m)
Stiffness in Yaw	550 N-m/° (32 µrad/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

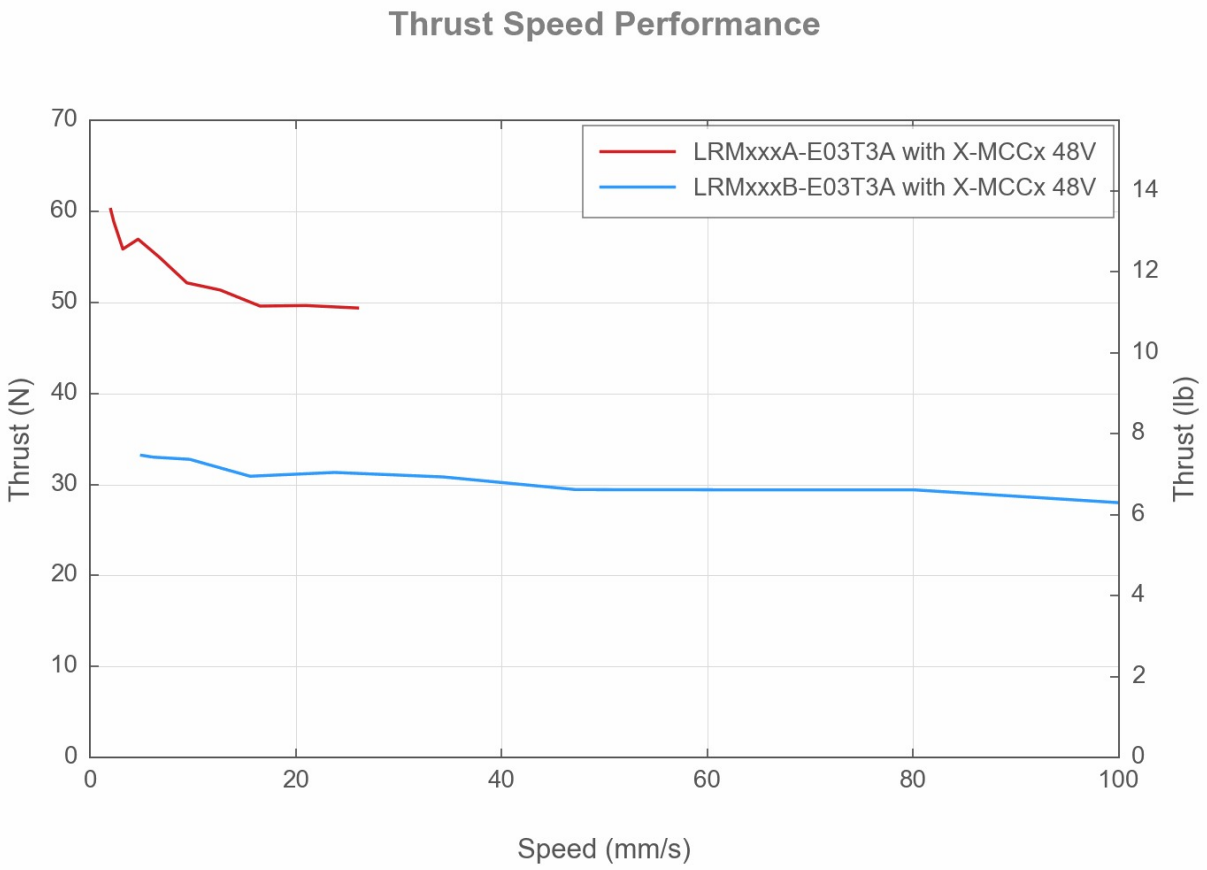
Microstep Size (Default Resolution)	**0.1905 µm**
Motor Winding Resistance	6.5 ohms/phase
Inductance	3.5 mH/phase
Motor Rated Power	6.9 Watts
Motor Connection	D-sub 15
Motor Rotor Inertia	2.9 g-cm2
Default Resolution	1/64 of a step
Motor Frame Size	NEMA 08
Guide Type	Recirculating ball bearing
Mechanical 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	0.81 kg (1.786 lb)

LRM-E Series Charts



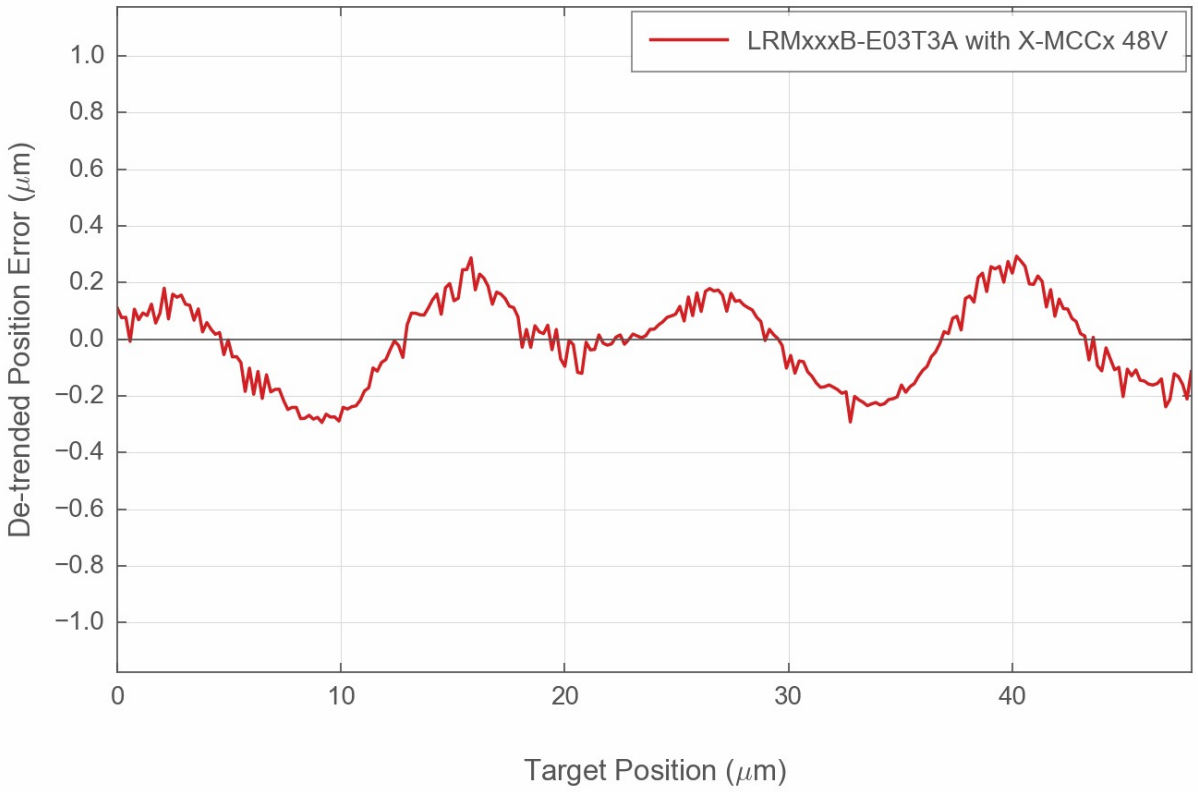
Thrust Speed Performance



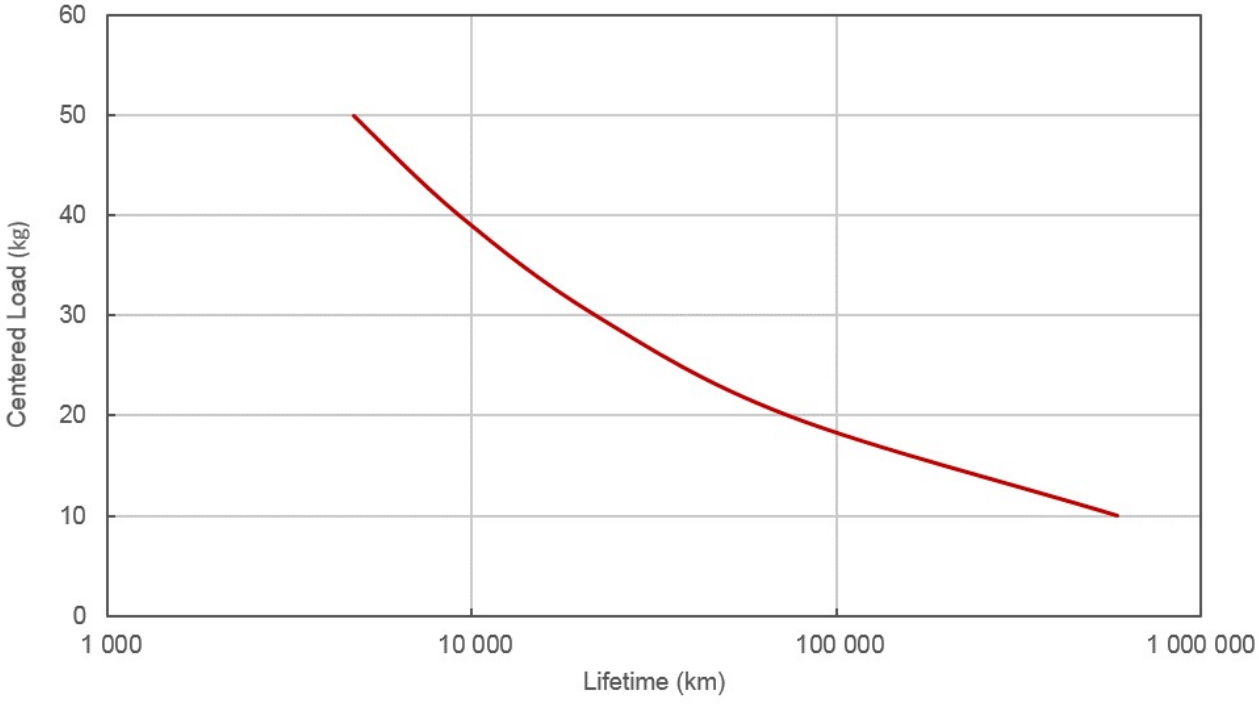

Thrust Speed Performance
LRMxxxA-E03T3A with X-MCCx 48V
LRMxxxB-E03T3A with X-MCCx 48V
Thrust (N)
Thrust (lb)
Speed (mm/s)
0
10
20
30
40
50
60
70
0
2
4
6
8
10
12
14
0
20
40
60
80
100

Typical Microstepping Accuracy

Typical Microstepping Accuracy



LRM Linear Bearing Lifetime



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