

LSM150B-E03T4A Datasheet



- 25, 50, 100, 150 and 200 mm travel
- Recirculating ball bearing design for high load (25 kg) and long lifetime
- Encoder position feedback with slip/stall detection and automatic recovery
- Multiple LSM-E stages can be assembled in XY or XYZ configurations without additional hardware
- 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
- Custom versions available

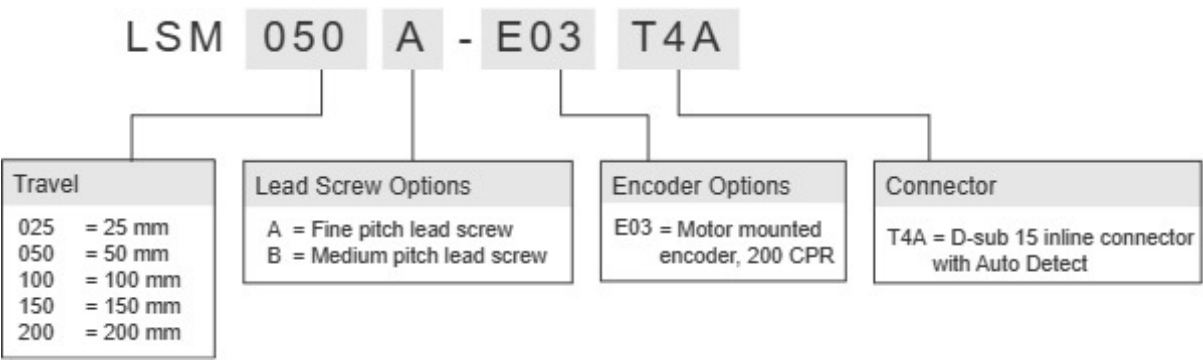
LSM-E Series Overview

Zaber's LSM-E Series devices are computer-controlled, motorized linear stages with high thrust and speed capabilities and a very compact size. They 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 LSM-E.

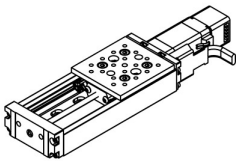
The built-in motor encoder allows closed-loop operation and slip/stall recovery features. At only 21 mm high, these miniature stages are excellent for applications where a small profile is required. The LSM-E's innovative design allows speeds up to 104 mm/s and loads up to 25 kg. The stages can be mounted in XY and XYZ configurations with no additional hardware.

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

LSM-E Series Part Numbering

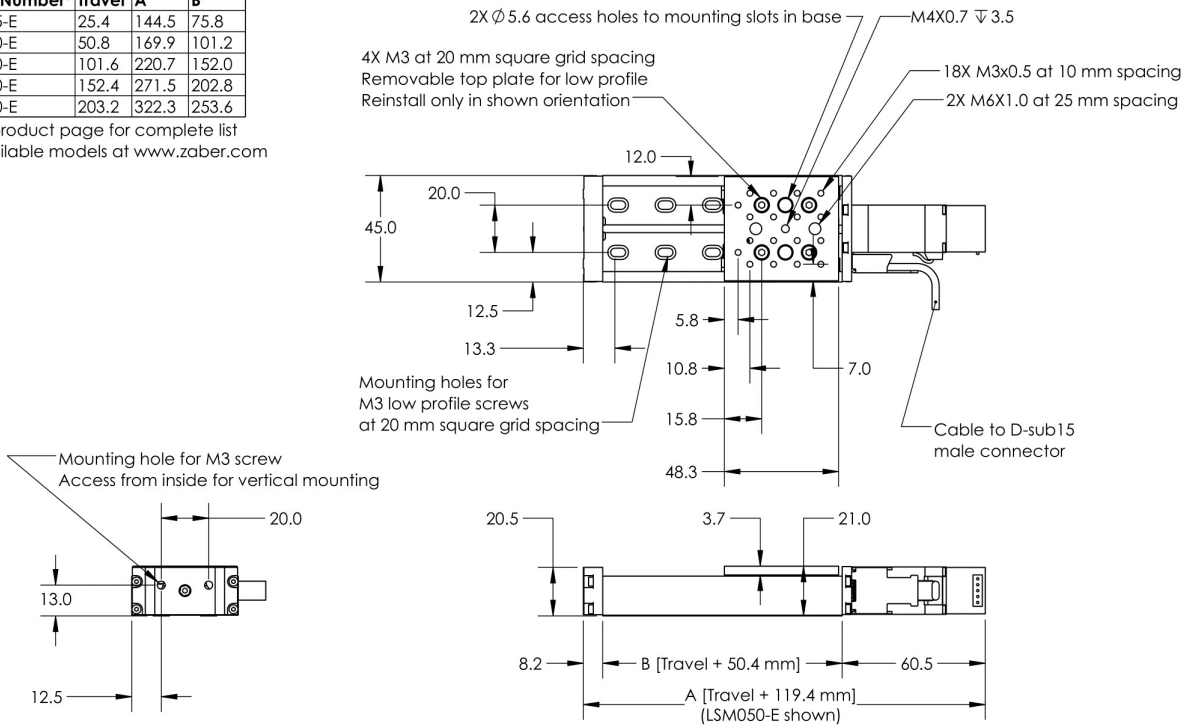


LSM150B-E03T4A Drawings



Model Number*	Travel	A	B
LSM025-E	25.4	144.5	75.8
LSM050-E	50.8	169.9	101.2
LSM100-E	101.6	220.7	152.0
LSM150-E	152.4	271.5	202.8
LSM200-E	203.2	322.3	253.6

*See product page for complete list of available models at www.zaber.com



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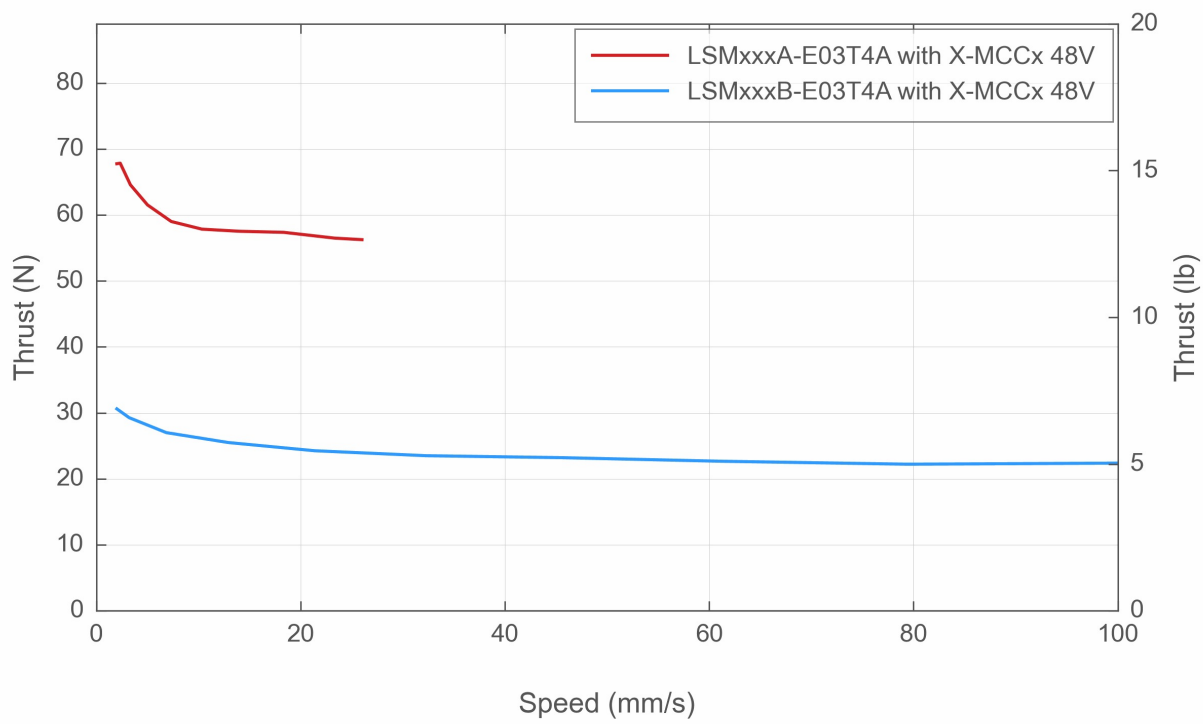
LSM150B-E03T4A Specifications

Specification	Value	Alternate Unit
Microstep Size (Default Resolution)	0.1905 μm	
Built-in Controller	No	
Recommended Controller	X-MCC (48 V) Recommended	
AutoDetect	Yes	
Travel Range	152.4 mm	6.000"
Accuracy (unidirectional)	65 μm	0.002559"
Repeatability	< 6 μm	< 0.000236"
Backlash	< 16 μm	< 0.000630"
Maximum Speed	104 mm/s	4.094"/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	250 N	56.1 lb
Maximum Cantilever Load	10 N-m	7.4 ft-lb
Guide Type	Recirculating ball bearing	
Vertical Runout	< 25 μm	< 0.000984"
Horizontal Runout	< 23 μm	< 0.000906"
Pitch	0.04°	0.698 mrad
Roll	0.05°	0.873 mrad
Yaw	0.05°	0.873 mrad
Stiffness in Pitch	150 N-m/°	116 $\mu\text{rad/N-m}$
Stiffness in Roll	150 N-m/°	116 $\mu\text{rad/N-m}$
Stiffness in Yaw	150 N-m/°	116 $\mu\text{rad/N-m}$
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	

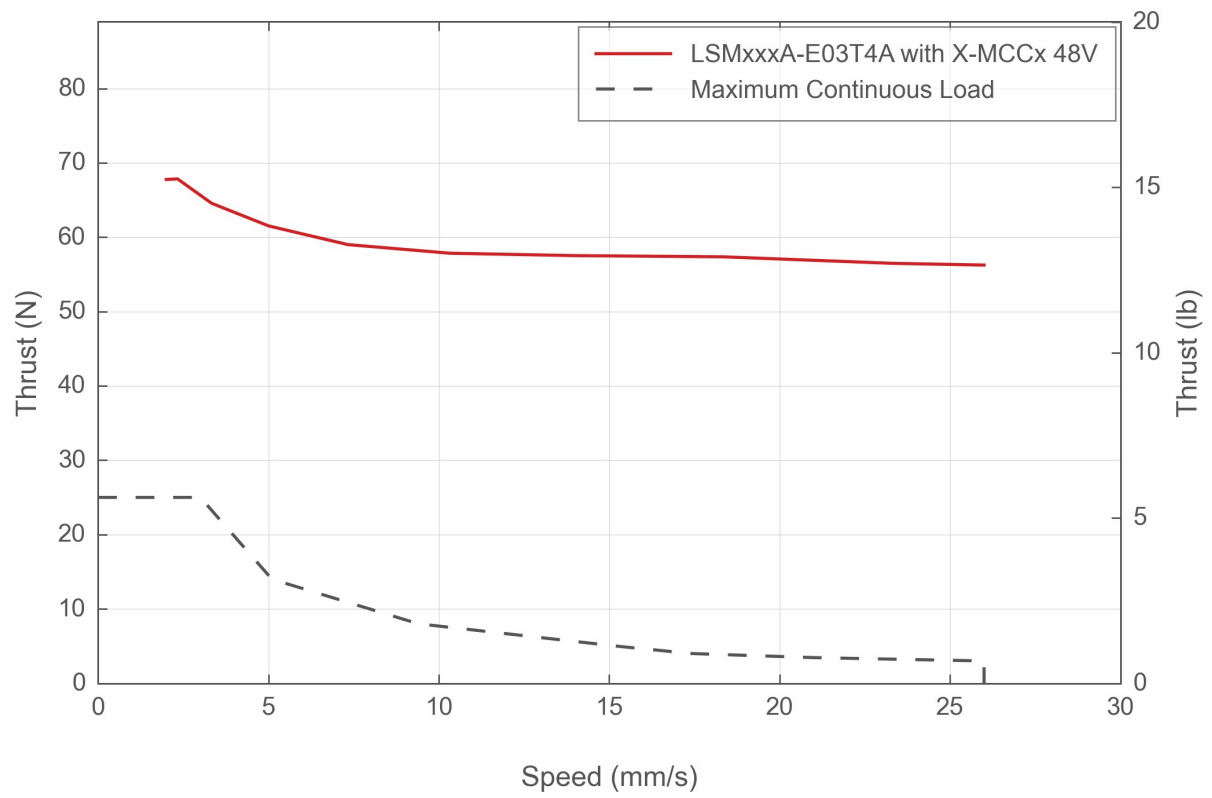
Specification	Value	Alternate Unit
Motor Winding Resistance	6.5 ohms/phase	
Inductance	3.5 mH/phase	
Motor Connection	D-sub 15	
Default Resolution	1/64 of a step	
Motor Frame Size	NEMA 08	
Mechanical Drive System	Precision lead screw	
Limit or Home Sensing	Magnetic hall sensor	
Axes of Motion	1	
Mounting Interface	M3 and M6 threaded holes and M4 threaded centre hole	
Stage Parallelism	< 25 µm	< 0.000984"
Operating Temperature Range	0 to 50 °C	
RoHS Compliant	Yes	
CE Compliant	Yes	
Vacuum Compatible	No	
Weight	0.37 kg	0.816 lb

LSM-E Series Charts

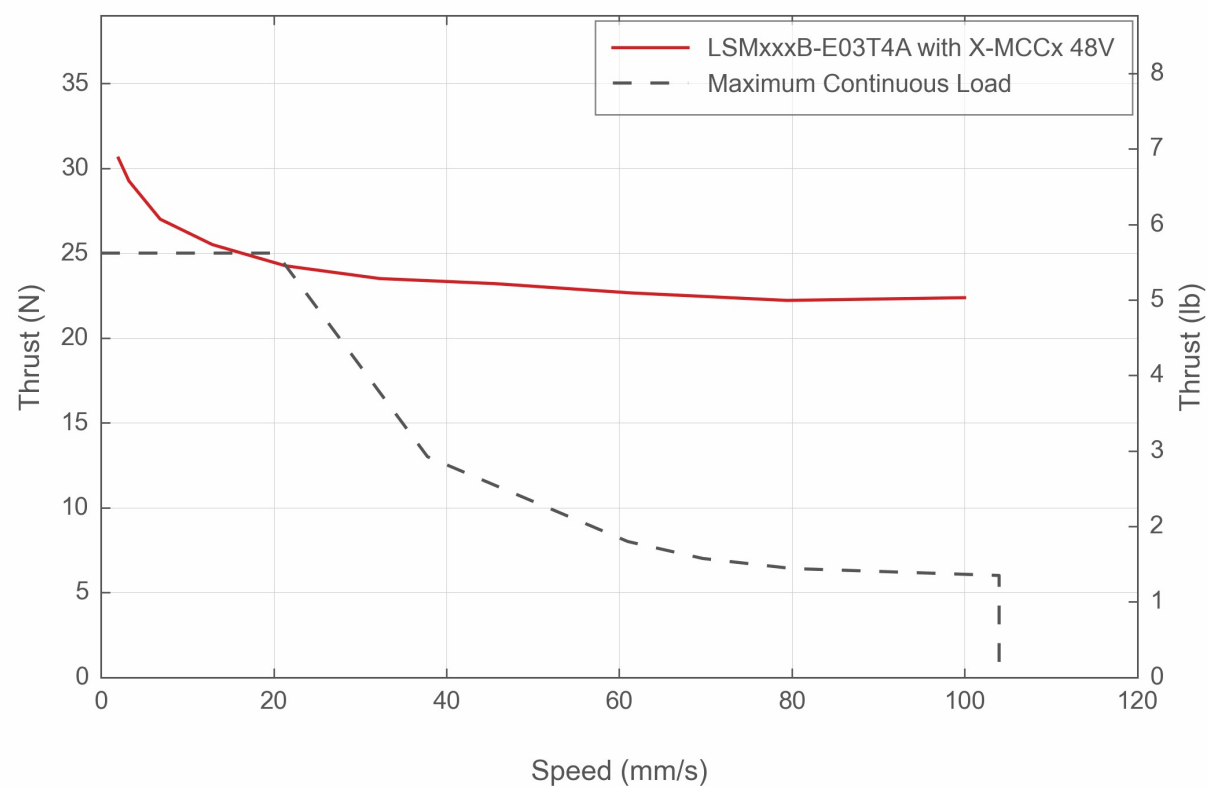
Thrust Speed Performance



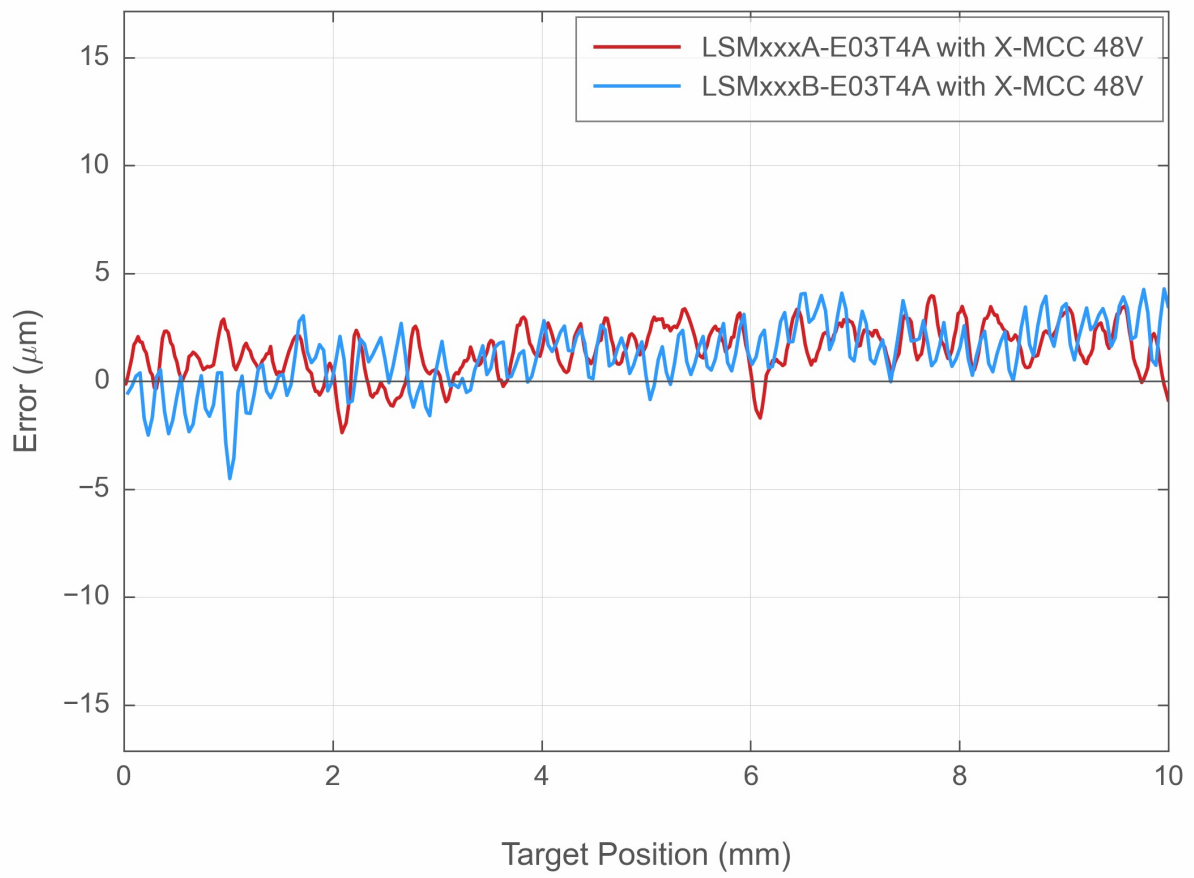
Thrust Speed Performance



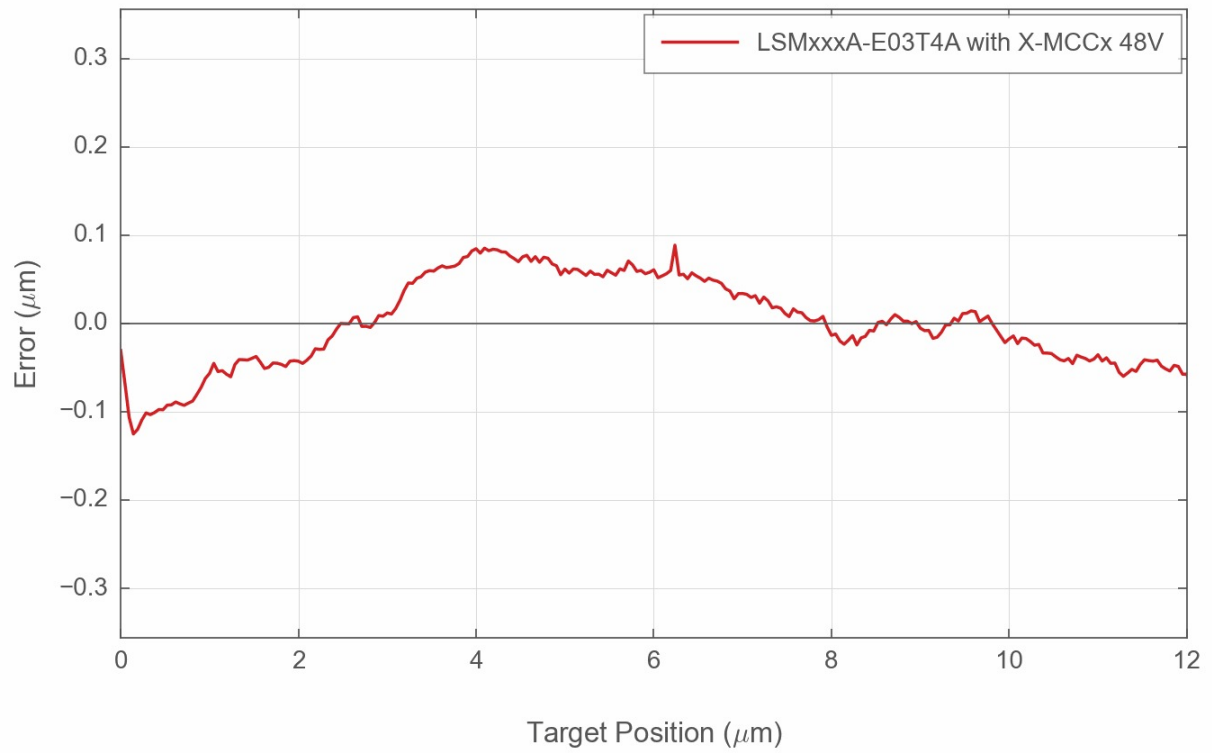
Thrust Speed Performance



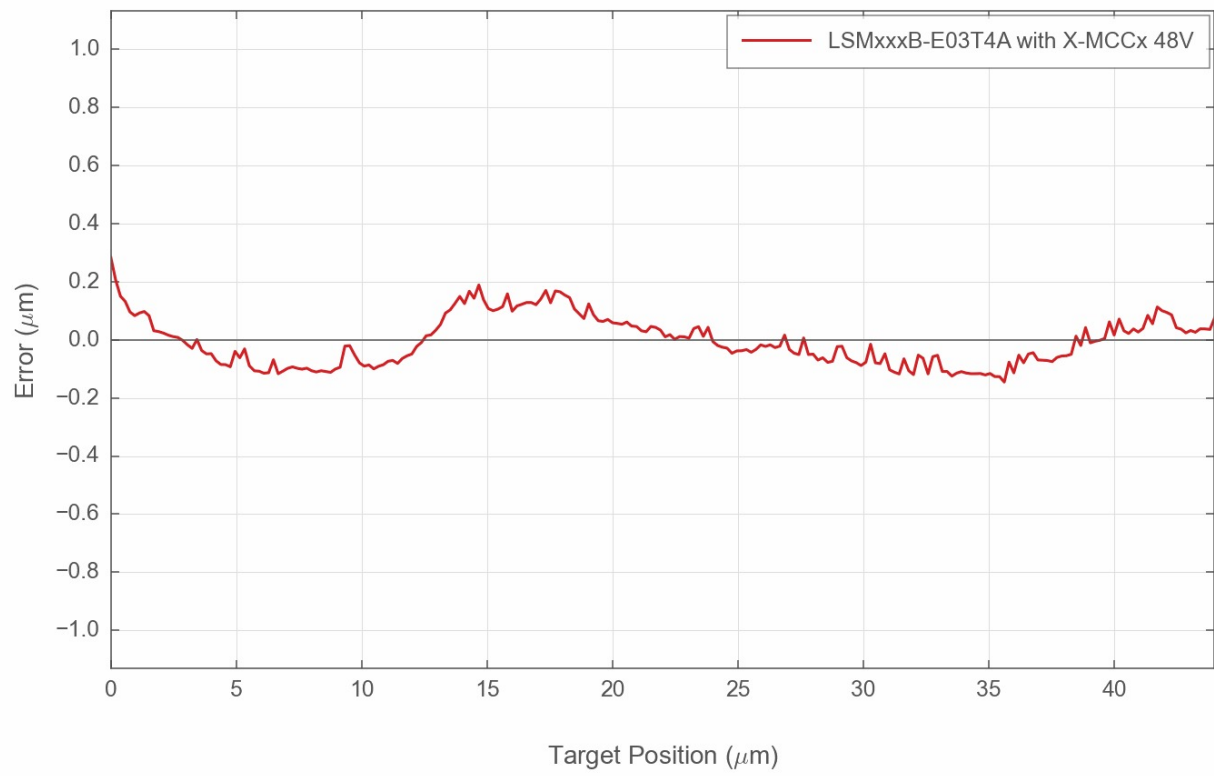
Typical Accuracy



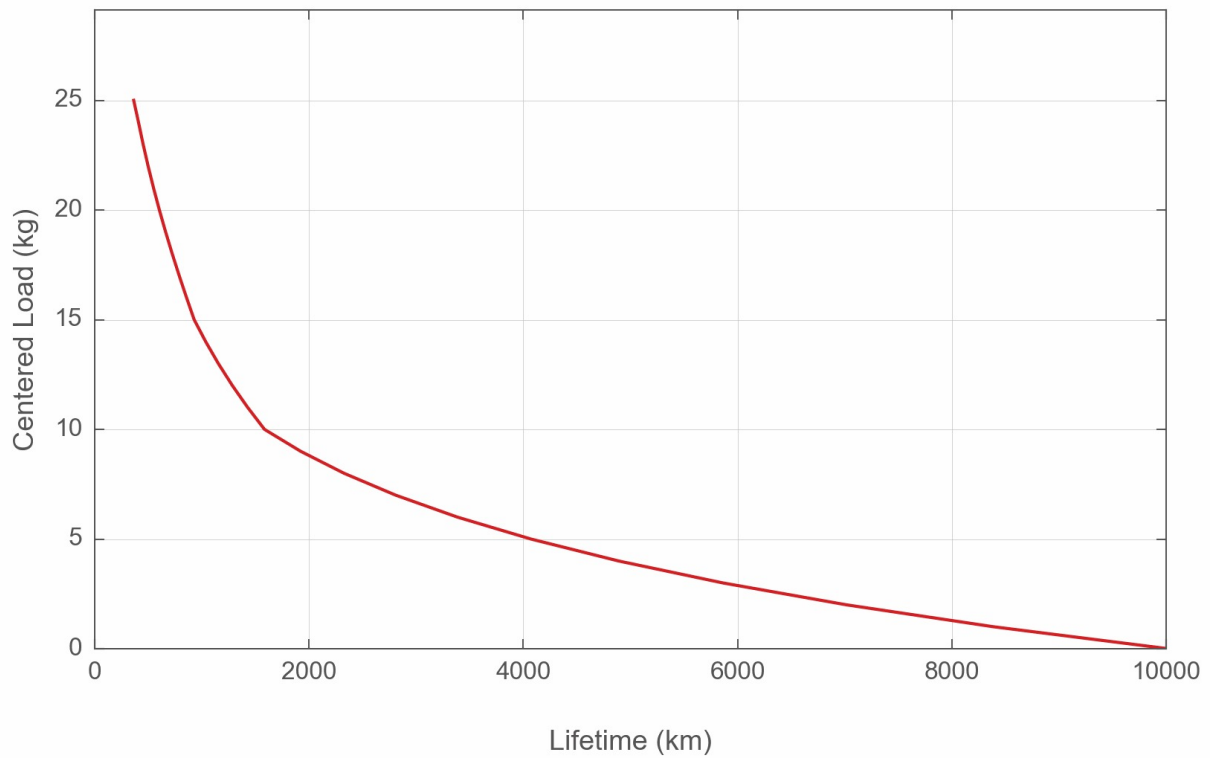
Typical Microstepping Accuracy



Typical Microstepping Accuracy



LSM Linear Bearing Lifetime



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