

X-LSM050B-E03C Datasheet



- 25, 50, 100, 150, 200 mm travel
- Up to 104 mm/s speed and up to 55 N thrust
- Recirculating ball bearing design for high load (25 kg) and long lifetime
- Includes stainless steel rigid cover
- Built-in controller; daisy-chains with other Zaber products
- Integrated, 200 CPR, motor mounted encoder provides slip/stall detection and recovery
- Custom versions available

X-LSM-EC Series Overview

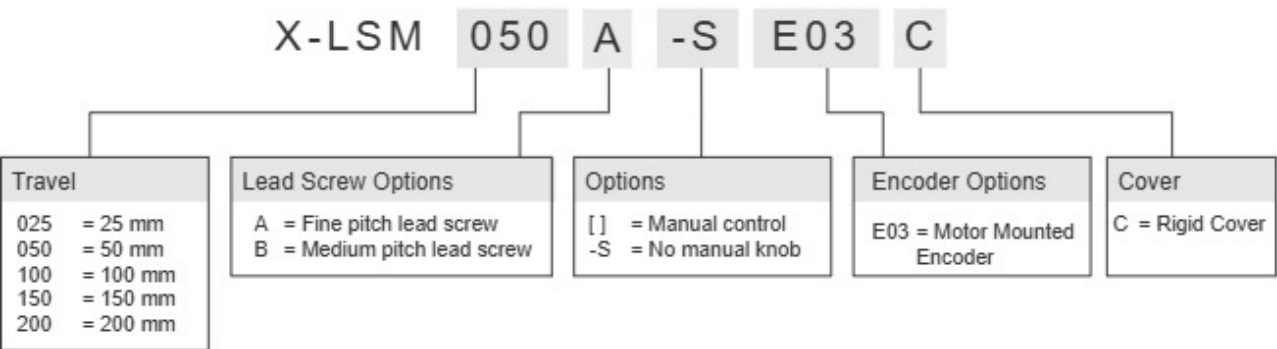
Zaber's X-LSM-EC Series devices are computer-controlled, motorized linear stages with high thrust and speed capabilities and a compact size. A rigid dust cover prevents contact with the rails and bearing system. They are stand-alone units requiring only a standard 24 V or 48 V power supply. The built-in motor encoder allows closed-loop operation and slip/stall recovery features. An optional indexed knob provides convenient manual control for versatile operation even without a computer.

These stages connect to the RS-232 port or USB port of any computer, and they can be daisy-chained with any other Zaber products. The daisy-chain also shares power, making it possible for multiple X-Series products to share a single power supply. Convenient locking, 4-pin, M8 connectors on the unit allow for secure connection between units.

At only 26.2 mm high, these miniature stages are excellent for applications where a small profile is required. The X-LSM-EC's innovative design allows speeds up to 104 mm/s and loads up to 25 kg. Like all of Zaber's products, the X-LSM-EC Series is designed to be 'plug and play' and very easy to set up and operate. If you are considering a multi-axis system, in the XY configuration, these stages make excellent microscope stages. Adding an X-JOY3 joystick controller allows manual control of both X and Y or XYZ axes from a single interface as well as allowing microscope stage positions to be saved and recalled at the touch of a button.

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

X-LSM-EC Series Part Numbering & Options



X-LSM050B-E03C Drawings

- [X-LSM-EC.pdf \(Drawing for the X-LSM-EC\)](#)

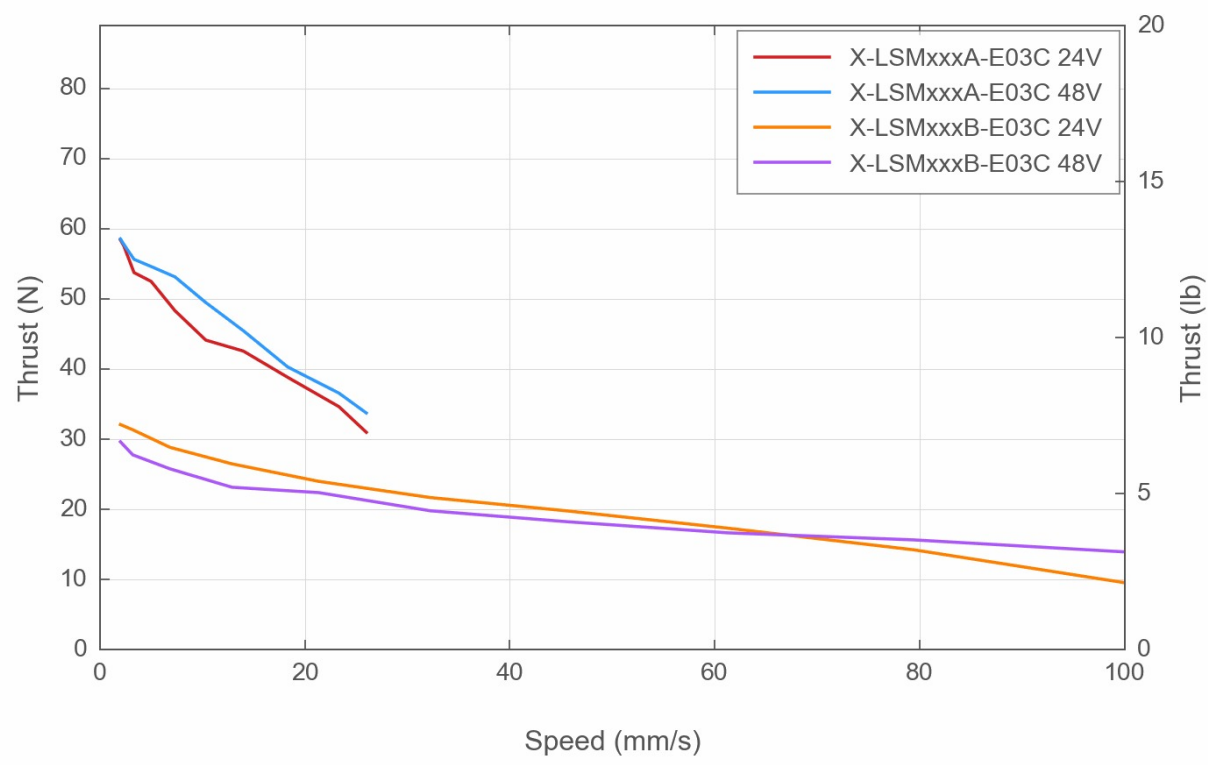
X-LSM050B-E03C Specifications

Microstep Size (Default Resolution)	0.1905 μm
Built-in Controller	Yes
Travel Range	50.8 mm (2.000")
Accuracy (unidirectional)	25 μm (0.000984")
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 (incremental)
Peak Thrust	25 N (5.6 lb)
Back-driving Force*	($\pm$ 30%) 24 N (5.4 lb)
Maximum Continuous Thrust	25 N (5.6 lb)
Communication Interface	RS-232
Communication Protocol	Zaber ASCII (Default), Zaber Binary
Data Cable Connection	Locking 4-pin M8
Maximum Centered Load	250 N (56.1 lb)
Maximum Moment (Pitch)	4 N-m (3.0 ft-lb)
Maximum Moment (Roll)	10 N-m (7.4 ft-lb)
Maximum Moment (Yaw)	4 N-m (3.0 ft-lb)
Flatness of Travel	< 11 μm (< 0.000433")
Straightness of Travel	< 14 μm (< 0.000551")
Pitch	0.03° (0.523 mrad)
Roll	0.03° (0.523 mrad)
Yaw	0.03° (0.523 mrad)
Stiffness (Pitch)	75 N-m/° (233 $\mu\text{rad/N-m}$)
Stiffness (Roll)	75 N-m/° (233 $\mu\text{rad/N-m}$)

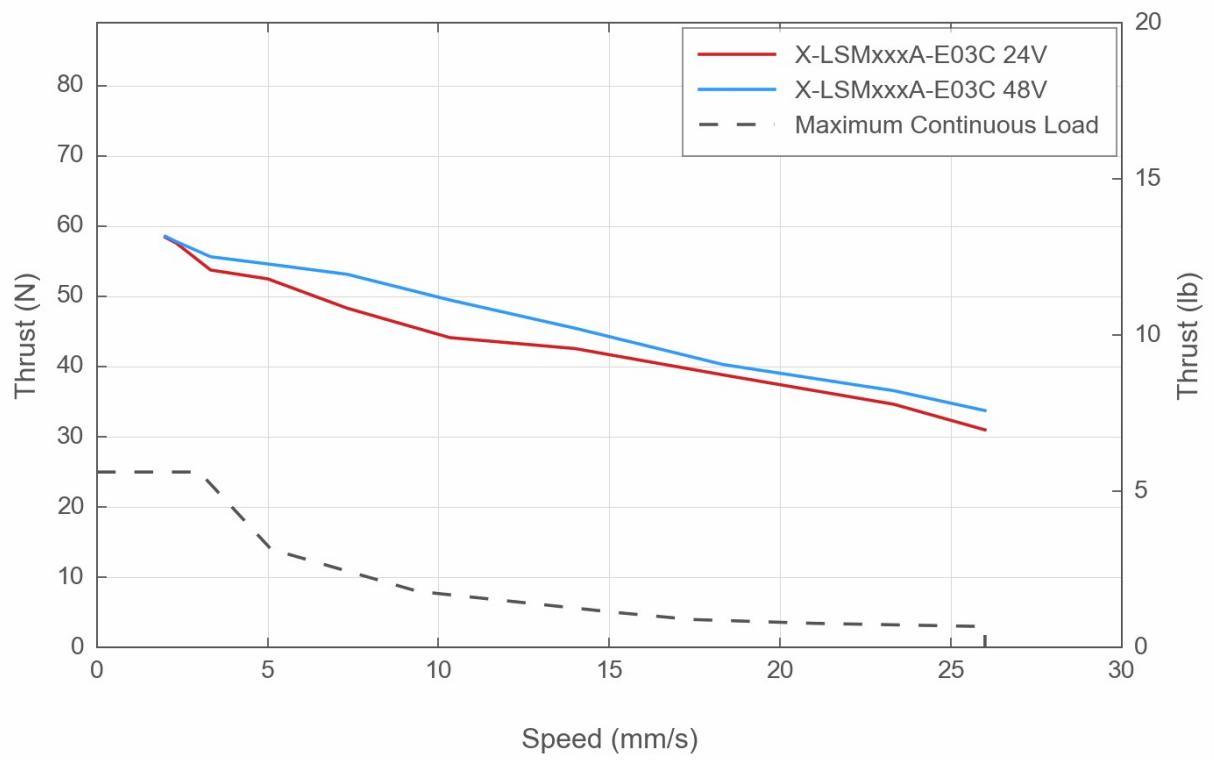
Microstep Size (Default Resolution)	0.1905 μm
Stiffness (Yaw)	150 N-m/ $^{\circ}$ (116 $\mu\text{rad/N-m}$)
Power Supply	24-48 VDC
Power Plug	2-pin Screw Terminal
Maximum Current Draw	350 mA
Linear Motion Per Motor Rev	2.4384 mm (0.096")
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	600 mA/phase
Motor Winding Inductance	3.5 mH/phase
Default Resolution	1/64 of a step
Guide Type	Recirculating ball bearing
Mechanical Drive System	Precision lead screw
Limit or Home Sensing	Magnetic hall sensor
Manual Control	Yes
Axes of Motion	1
LED Indicators	Yes
Mounting Interface	M3 and M6 threaded holes and M4 threaded centre hole
Stage Parallelism	< 25 μm (< 0.000984")
Operating Temperature Range	0 to 50 $^{\circ}\text{C}$
CE Compliant	Yes
Vacuum Compatible	No
Weight	0.36 kg (0.794 lb)

X-LSM-EC Series Charts

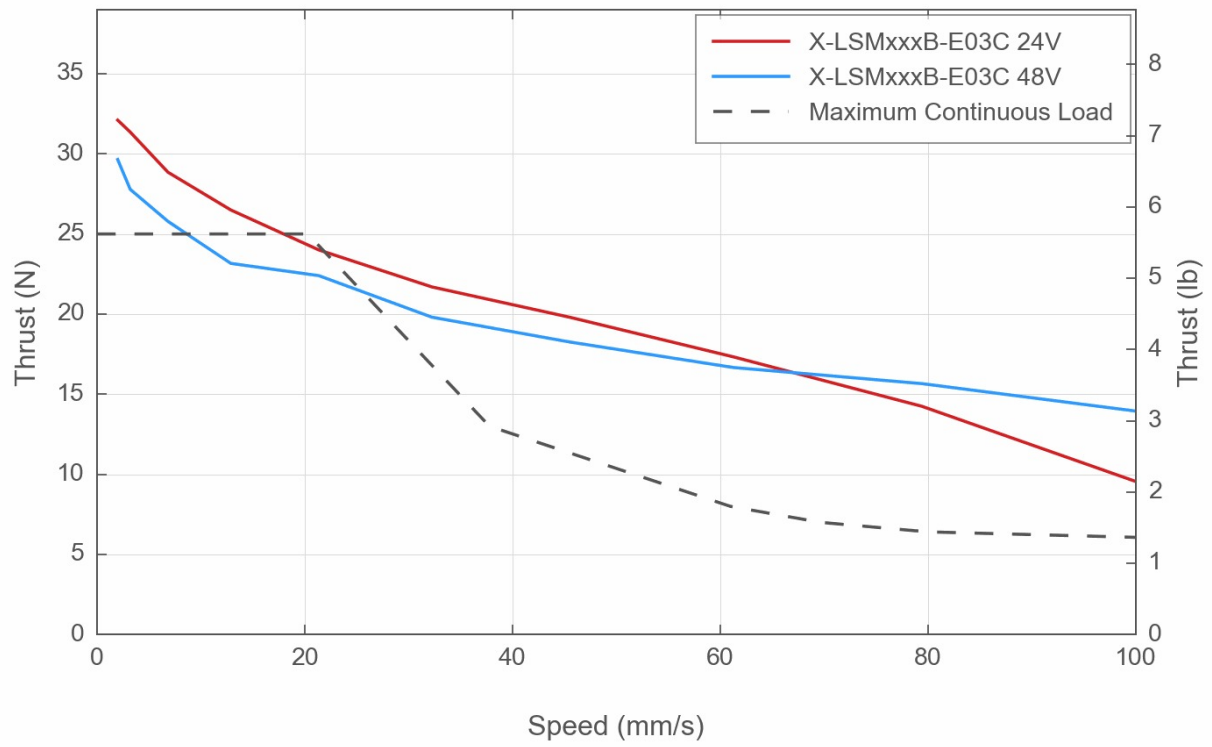
Thrust Speed Performance



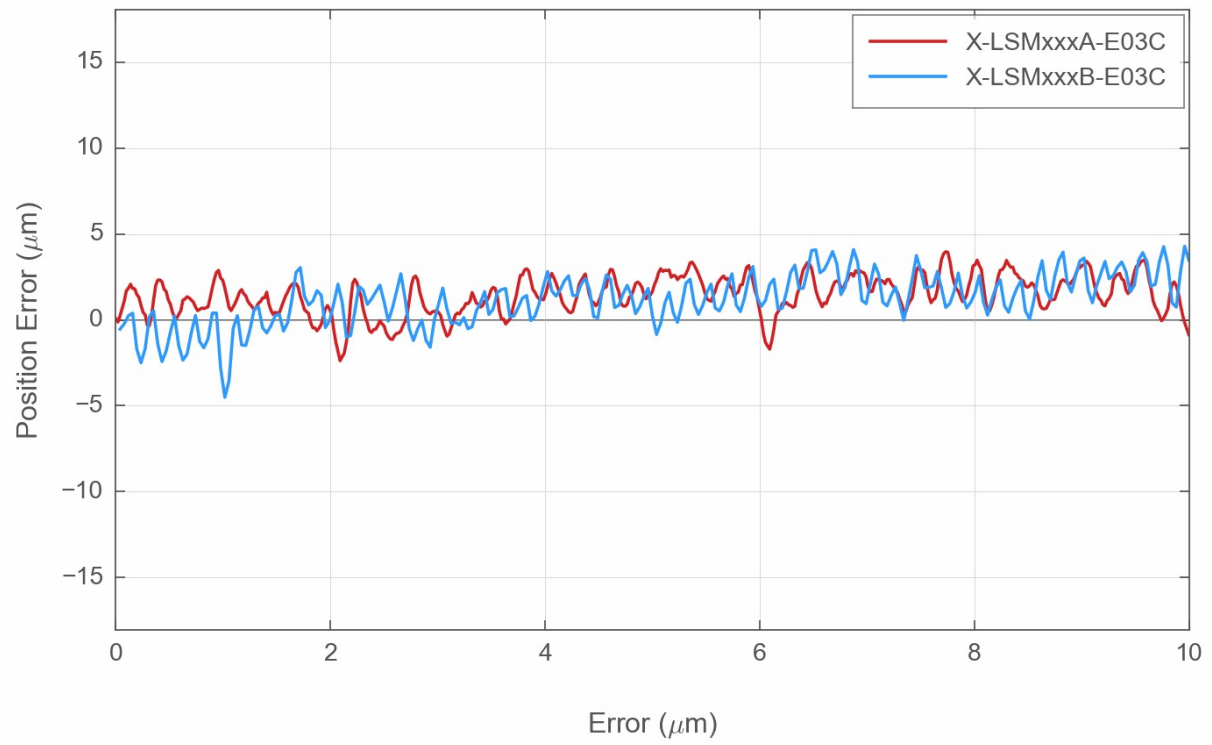
Thrust Speed Performance



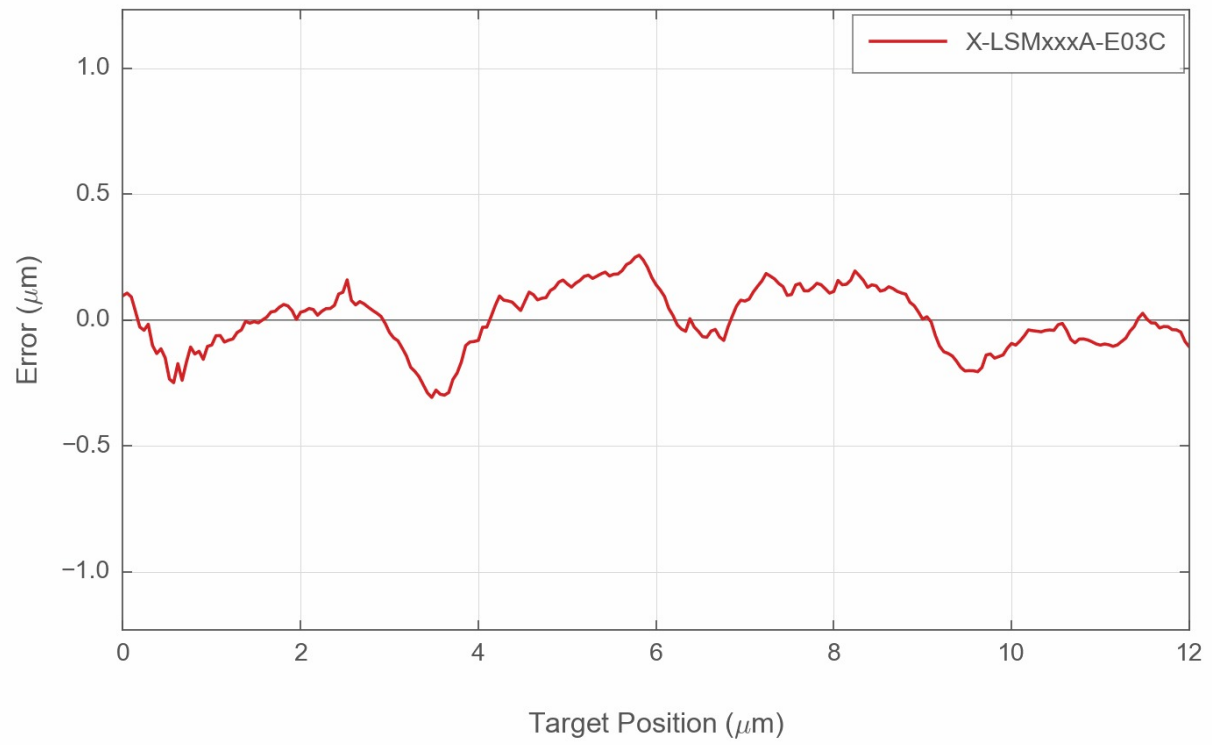
Thrust Speed Performance



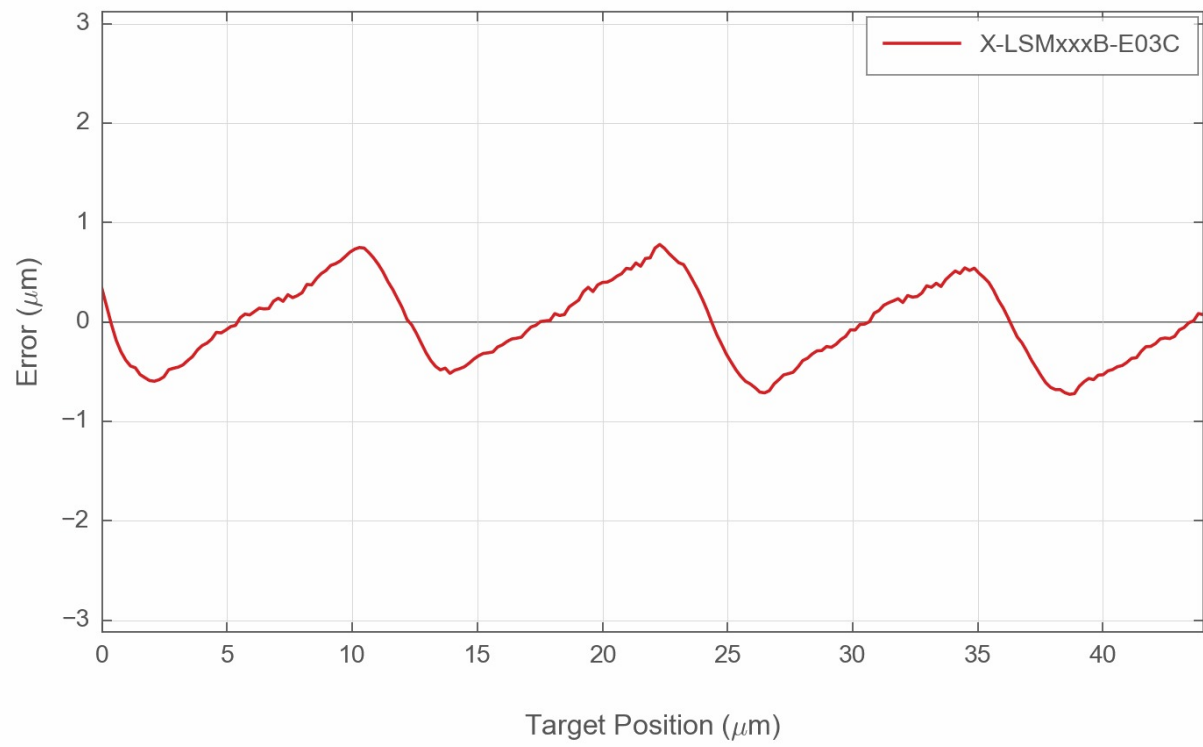
Typical Accuracy



Typical Microstepping Accuracy



Typical Microstepping Accuracy



LSM Linear Bearing Lifetime



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