

X-LRM Series Datasheet



- 25, 50, 100, 150, 200 mm travel options
- 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
- Built-in controller, daisy-chains with other Zaber products

X-LRM Series Overview

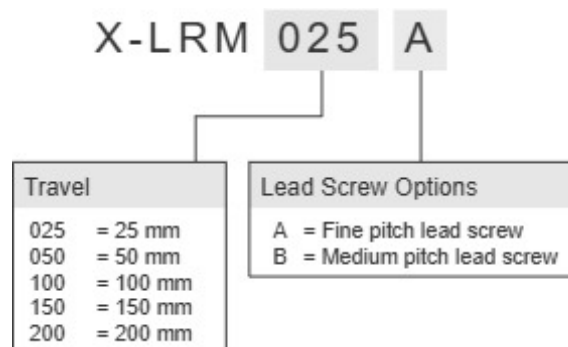
Zaber's X-LRM Series products are motorized linear stages with integrated controllers. The X-LRM's hardened steel construction and recirculating ball bearing guide provide exceptional rigidity and thermal stability. High stiffness makes the X-LRM ideal for multi-axis configurations or applications where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

The X-LRM stages are stand-alone units requiring only a standard 24-48 V power supply. An indexed knob at the end of the unit permits manual control - press and hold to switch between velocity mode and position mode, turn to move the stage, and press to stop.

The stages connect to the USB 2.0 or RS-232 port of any computer and can be chained with several units per chain. They can be chained with any other Zaber products. Convenient locking, 4-pin, M8 connectors on the unit allow for easy and secure connection between products. The chain also shares power, so multiple X-Series products can use a single power supply.

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

X-LRM Series Part Numbering & Options



X-LRM Series Drawings

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

X-LRM Series Specifications

Built-in Controller	
Repeatability	< 4 μm (< 0.000157")
Encoder Type	No
Maximum Continuous Thrust	25 N (5.6 lb)
Communication Interface	RS-232, USB 2.0
Communication Protocol	Zaber ASCII (Default), Zaber Binary
Data Cable Connection	Locking 4-pin M8
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 $\mu\text{rad/N-m}$)
Power Supply	24-48 VDC
Power Plug	2-pin Screw Terminal
Maximum Current Draw	350 mA
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	600 mA/phase
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

Built-in Controller	
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

Part Number	Microstep Size (Default Resolution)	Travel Range	Accuracy (unidirectional)	Backlash
X-LRM025A	0.047625 µm	25.0 mm (0.984")	8 µm (0.000315")	< 5 µm (< 0.000197")
X-LRM025B	0.1905 µm	25.0 mm (0.984")	8 µm (0.000315")	< 12 µm (< 0.000472")
X-LRM050A	0.047625 µm	50.0 mm (1.969")	15 µm (0.000591")	< 5 µm (< 0.000197")
X-LRM050B	0.1905 µm	50.0 mm (1.969")	15 µm (0.000591")	< 12 µm (< 0.000472")
X-LRM100A	0.047625 µm	100.0 mm (3.937")	30 µm (0.001181")	< 5 µm (< 0.000197")
X-LRM100B	0.1905 µm	100.0 mm (3.937")	30 µm (0.001181")	< 12 µm (< 0.000472")
X-LRM150A	0.047625 µm	150.0 mm (5.905")	45 µm (0.001772")	< 5 µm (< 0.000197")
X-LRM150B	0.1905 µm	150.0 mm (5.905")	45 µm (0.001772")	< 12 µm (< 0.000472")
X-LRM200A	0.047625 µm	200.0 mm (7.874")	60 µm (0.002362")	< 5 µm (< 0.000197")
X-LRM200B	0.1905 µm	200.0 mm (7.874")	60 µm (0.002362")	< 12 µm (< 0.000472")

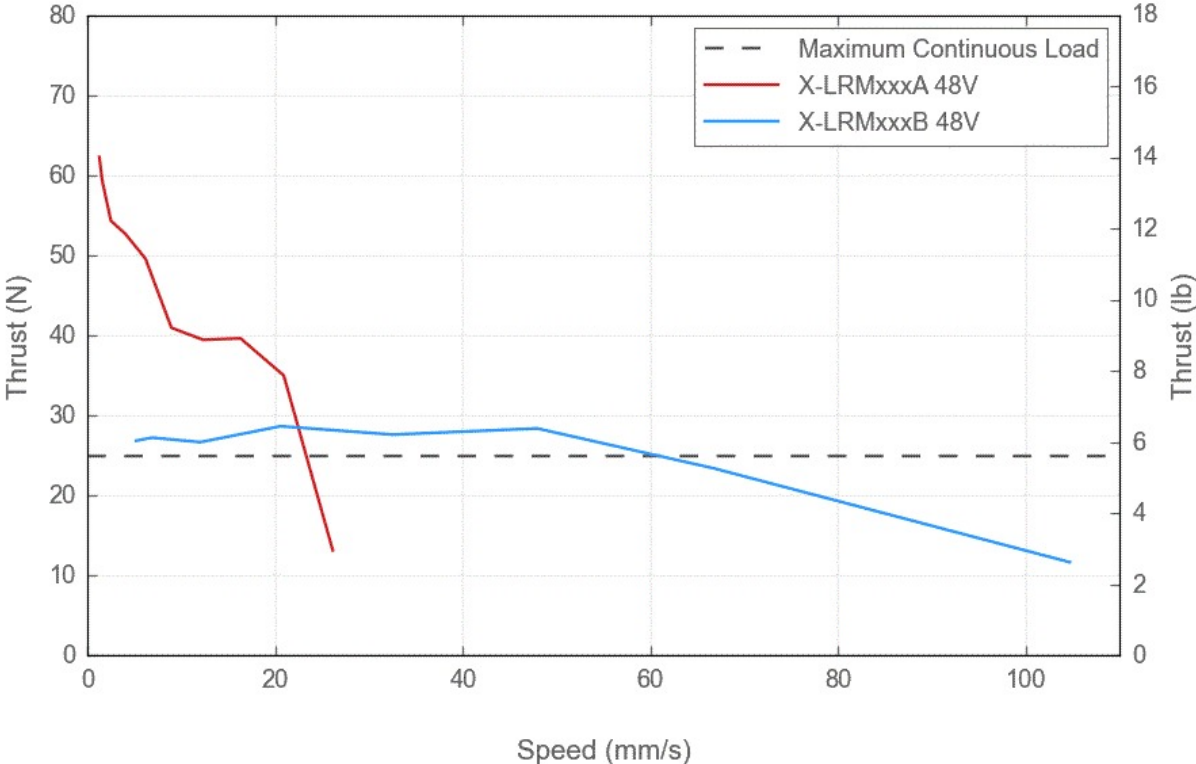
Part Number	Maximum Speed	Minimum Speed	Speed Resolution	Peak Thrust
X-LRM025A	25 mm/s (0.984"/s)	0.000029 mm/s (0.000001"/s)	0.000029 mm/s (0.000001"/s)	50 N (11.2 lb)
X-LRM025B	100 mm/s (3.937"/s)	0.000116 mm/s (0.000005"/s)	0.000116 mm/s (0.000005"/s)	25 N (5.6 lb)
X-LRM050A	25 mm/s (0.984"/s)	0.000029 mm/s (0.000001"/s)	0.000029 mm/s (0.000001"/s)	50 N (11.2 lb)
X-LRM050B	100 mm/s	0.000116 mm/s	0.000116 mm/s	25 N (5.6 lb)

Part Number	Maximum Speed	Minimum Speed	Speed Resolution	Peak Thrust
	(3.937"/s)	(0.000005"/s)	(0.000005"/s)	
X-LRM100A	25 mm/s (0.984"/s)	0.000029 mm/s (0.000001"/s)	0.000029 mm/s (0.000001"/s)	50 N (11.2 lb)
X-LRM100B	100 mm/s (3.937"/s)	0.000116 mm/s (0.000005"/s)	0.000116 mm/s (0.000005"/s)	25 N (5.6 lb)
X-LRM150A	25 mm/s (0.984"/s)	0.000029 mm/s (0.000001"/s)	0.000029 mm/s (0.000001"/s)	50 N (11.2 lb)
X-LRM150B	100 mm/s (3.937"/s)	0.000116 mm/s (0.000005"/s)	0.000116 mm/s (0.000005"/s)	25 N (5.6 lb)
X-LRM200A	25 mm/s (0.984"/s)	0.000029 mm/s (0.000001"/s)	0.000029 mm/s (0.000001"/s)	50 N (11.2 lb)
X-LRM200B	100 mm/s (3.937"/s)	0.000116 mm/s (0.000005"/s)	0.000116 mm/s (0.000005"/s)	25 N (5.6 lb)

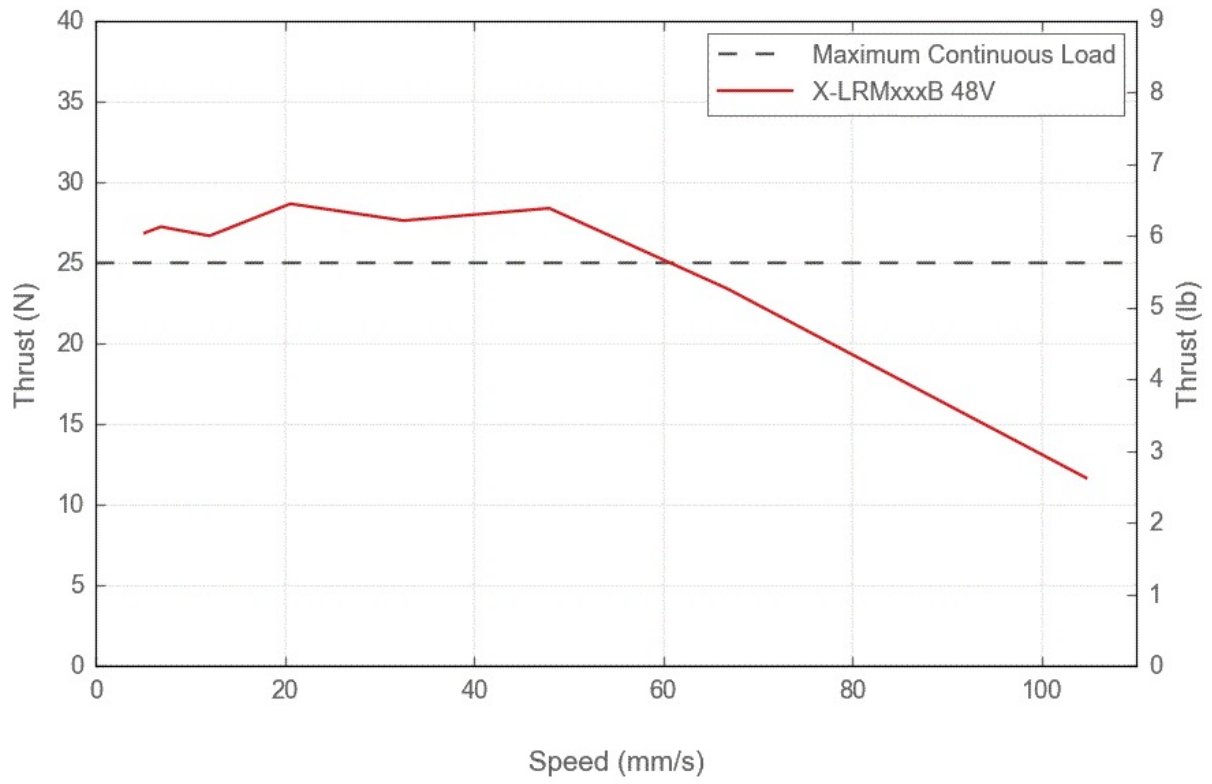
Part Number	Linear Motion Per Motor Rev	Weight
X-LRM025A	0.6096 mm (0.024")	0.72 kg (1.587 lb)
X-LRM025B	2.4384 mm (0.096")	0.72 kg (1.587 lb)
X-LRM050A	0.6096 mm (0.024")	0.80 kg (1.764 lb)
X-LRM050B	2.4384 mm (0.096")	0.80 kg (1.764 lb)
X-LRM100A	0.6096 mm (0.024")	0.95 kg (2.094 lb)
X-LRM100B	2.4384 mm (0.096")	0.95 kg (2.094 lb)
X-LRM150A	0.6096 mm (0.024")	1.12 kg (2.469 lb)
X-LRM150B	2.4384 mm (0.096")	1.12 kg (2.469 lb)
X-LRM200A	0.6096 mm (0.024")	1.28 kg (2.822 lb)
X-LRM200B	2.4384 mm (0.096")	1.28 kg (2.822 lb)

X-LRM Series Charts

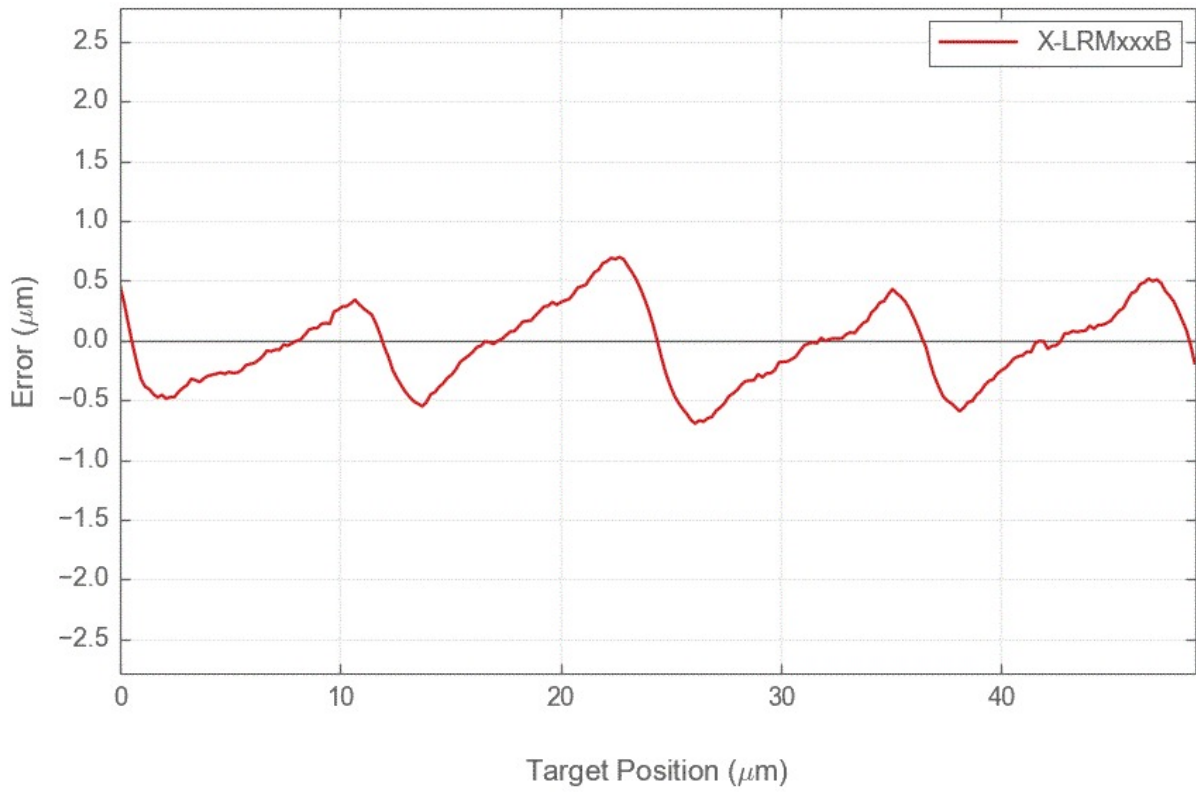
Thrust Speed Performance



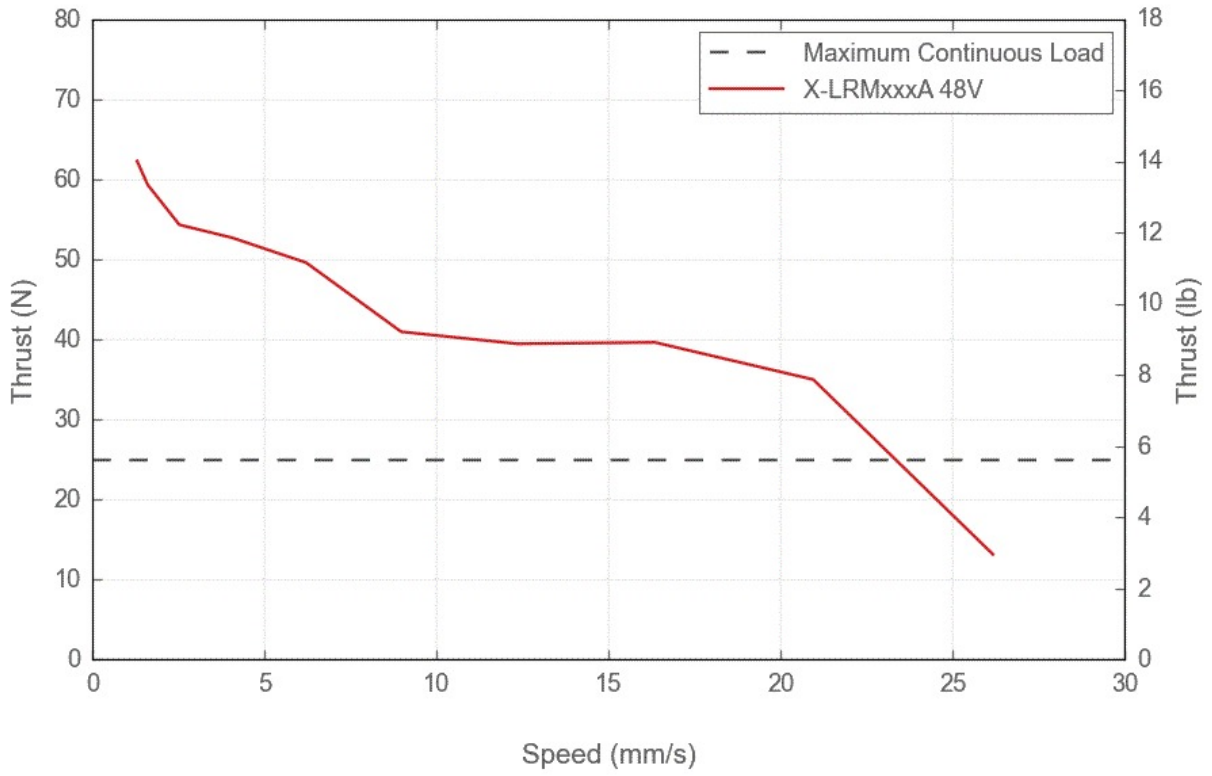
Thrust Speed Performance



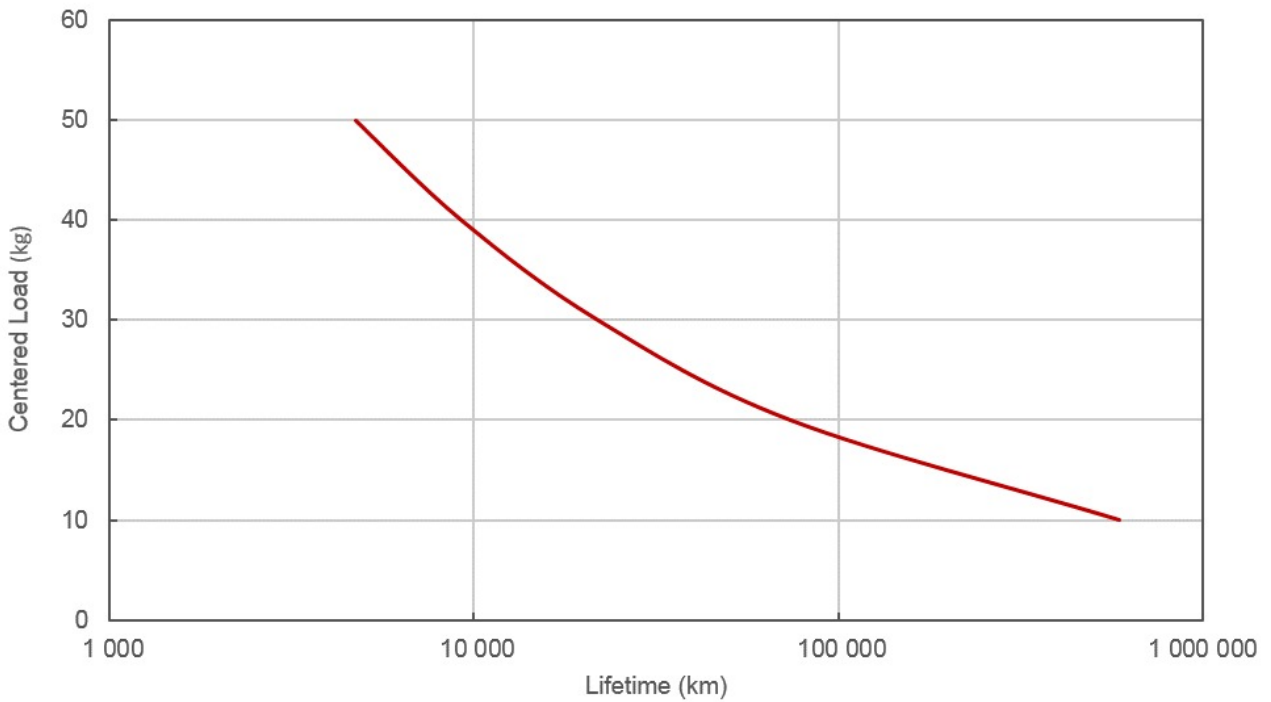
Typical Microstepping Accuracy



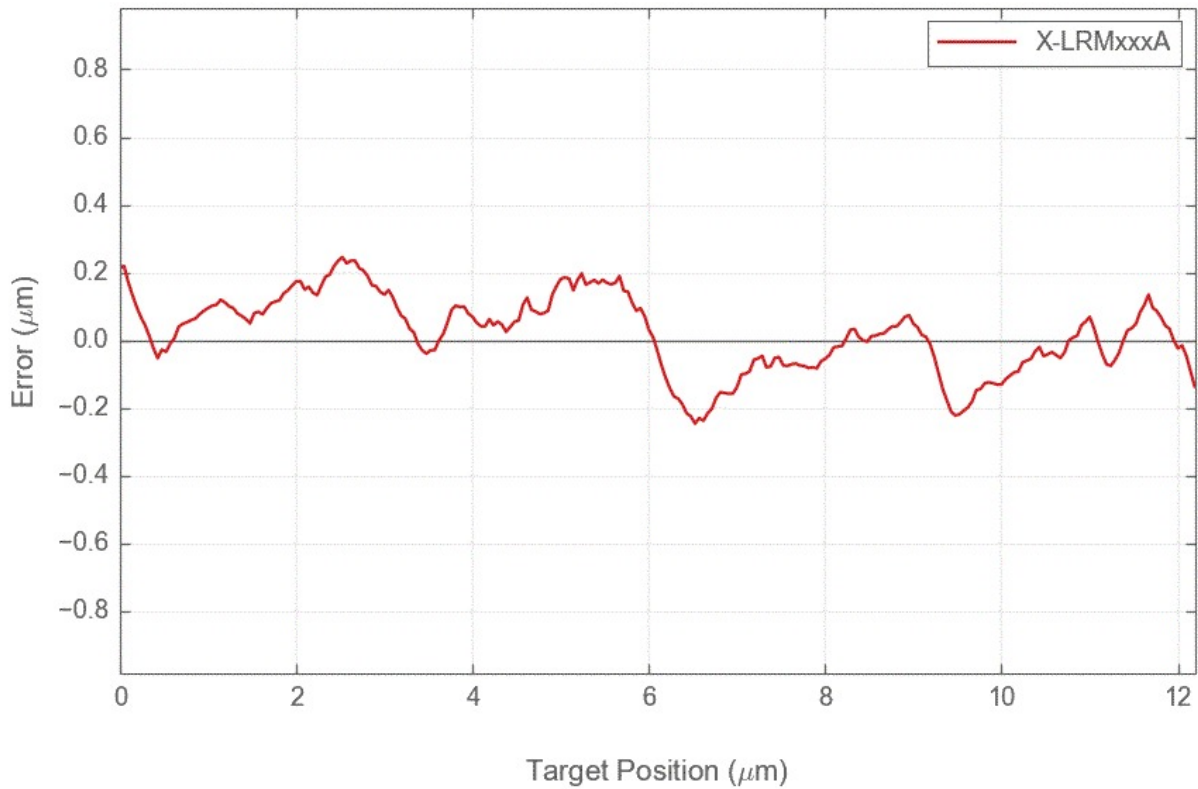
Thrust Speed Performance



LRM Linear Bearing Lifetime



Typical Microstepping Accuracy



Contact

Email: contact@zaber.com

Phone (toll free Canada/USA): 1-888-276-8033

Phone (direct): 1-604-569-3780

Fax: 1-604-648-8033

Zaber Technologies Inc.

#2 - 605 West Kent Ave. N.

Vancouver, British Columbia

Canada, V6P 6T7

<https://www.zaber.com>