

X-LSQ-E Series Datasheet



- 75, 150, 300, 450 and 600 mm travel
- 50 kg load capacity
- Up to 1 m/s speed and up to 100 N thrust
- Integrated recirculating ball bearing guide provides exceptional lifetime
- Encoder position feedback with slip/stall detection and automatic recovery
- Built-in controller; daisy-chains with any other Zaber products
- Custom versions available

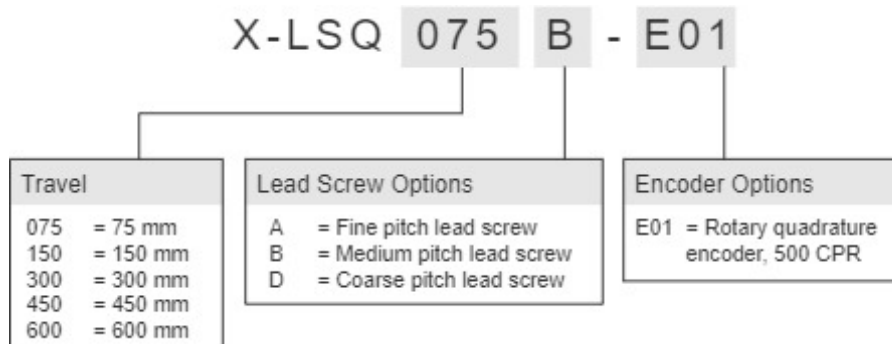
X-LSQ-E Series Overview

Zaber's X-LSQ-E Series products are computer controlled, motorized linear stages with a variety of lead screw pitches and travels. The built-in motor encoder allows closed-loop operation and slip/stall recovery features. They are stand-alone units requiring only a 48 V power supply, included with the kit version. An indexed knob provides convenient manual control for versatile operation even without a computer - press and hold to switch between velocity mode and position mode and push to stop.

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 devices.

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

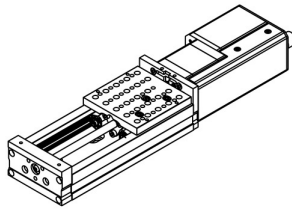
X-LSQ-E Series Part Numbering



X-LSQ-E Series Drawings

ZABER

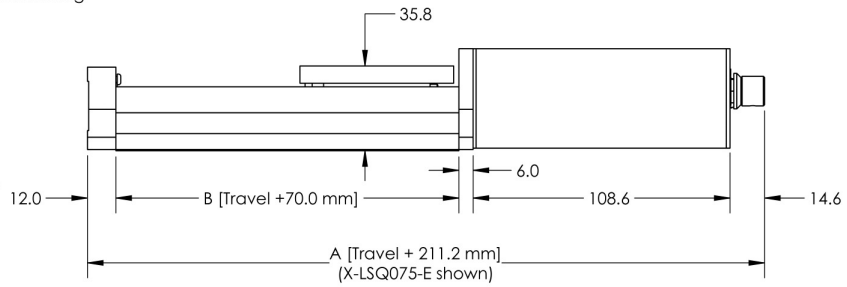
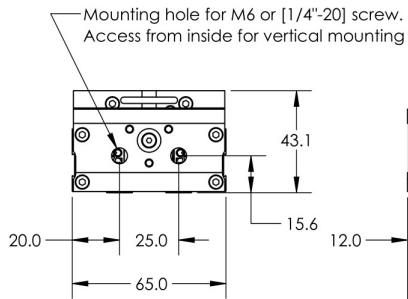
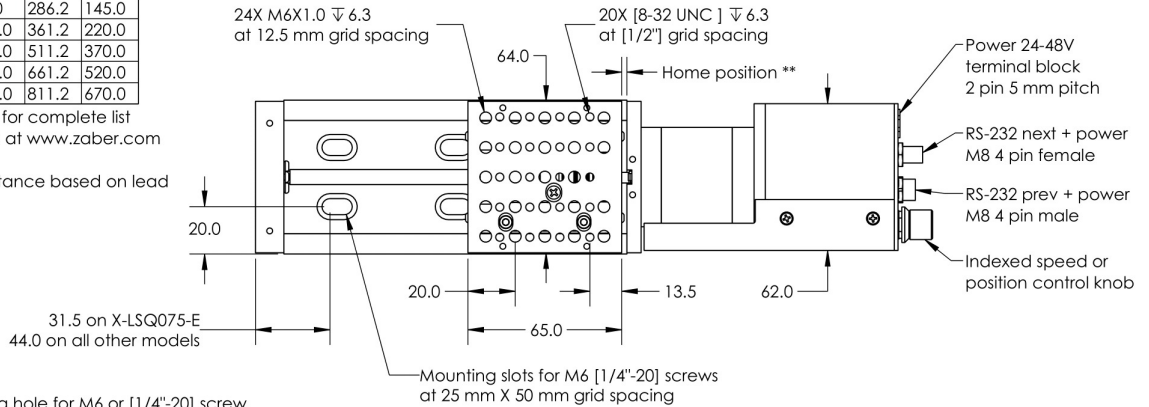
X-LSQ-E Motorized Linear Stage
dimensions in mm



Model Number*	Travel	A	B
X-LSQ075-E	75.0	286.2	145.0
X-LSQ150-E	150.0	361.2	220.0
X-LSQ300-E	300.0	511.2	370.0
X-LSQ450-E	450.0	661.2	520.0
X-LSQ600-E	600.0	811.2	670.0

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

**Home position distance based on lead screw pitch:
A - 2.0 +/- 0.4 mm
B - 2.2 +/- 0.4 mm
D - 2.8 +/- 0.4 mm



DWG-3012-801A

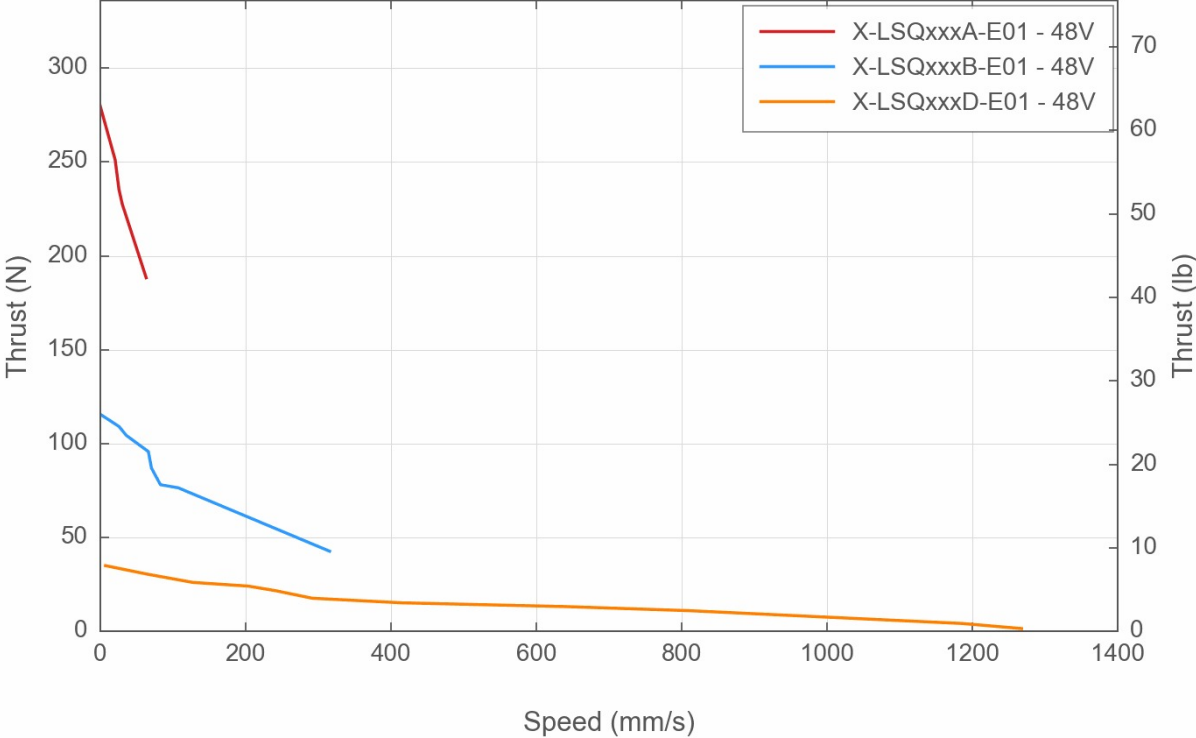
X-LSQ-E Series Specifications

Specification	Value	Alternate Unit
Microstep Size (Default Resolution)	0.09921875 μm	
Built-in Controller	Yes	
Travel Range	75 mm	2.953"
Accuracy (unidirectional)	35 μm	0.001378"
Repeatability	< 2 μm	< 0.000079"
Backlash	< 15 μm	< 0.000591"
Maximum Speed	53 mm/s	2.087"/s
Minimum Speed	0.000061 mm/s	0.000002"/s
Speed Resolution	0.000061 mm/s	0.000002"/s
Encoder Resolution	500 CPR	2000 states/rev
Encoder Type	Rotary quadrature encoder	
Peak Thrust	275 N	61.7 lb
Back-driving Force	Non-back-driving	
Maximum Continuous Thrust	100 N	22.4 lb
Communication Interface	RS-232	
Communication Protocol	Zaber ASCII (Default), Zaber Binary	
Maximum Centered Load	500 N	112.1 lb
Maximum Cantilever Load	2000 N-cm	2832.2 oz-in
Guide Type	Recirculating Ball Linear Guide	
Vertical Runout	< 30 μm	< 0.001181"
Horizontal Runout	< 20 μm	< 0.000787"
Pitch	0.06°	1.047 mrad
Roll	0.03°	0.523 mrad
Yaw	0.03°	0.523 mrad
Stiffness in Pitch	150 N-m/°	116 $\mu\text{rad/N-m}$
Stiffness in Roll	225 N-m/°	78 $\mu\text{rad/N-m}$
Stiffness in Yaw	150 N-m/°	116 $\mu\text{rad/N-m}$
Maximum Current Draw	1450 mA	
Power Supply	24-48 VDC	
Power Plug	2-pin Screw Terminal	

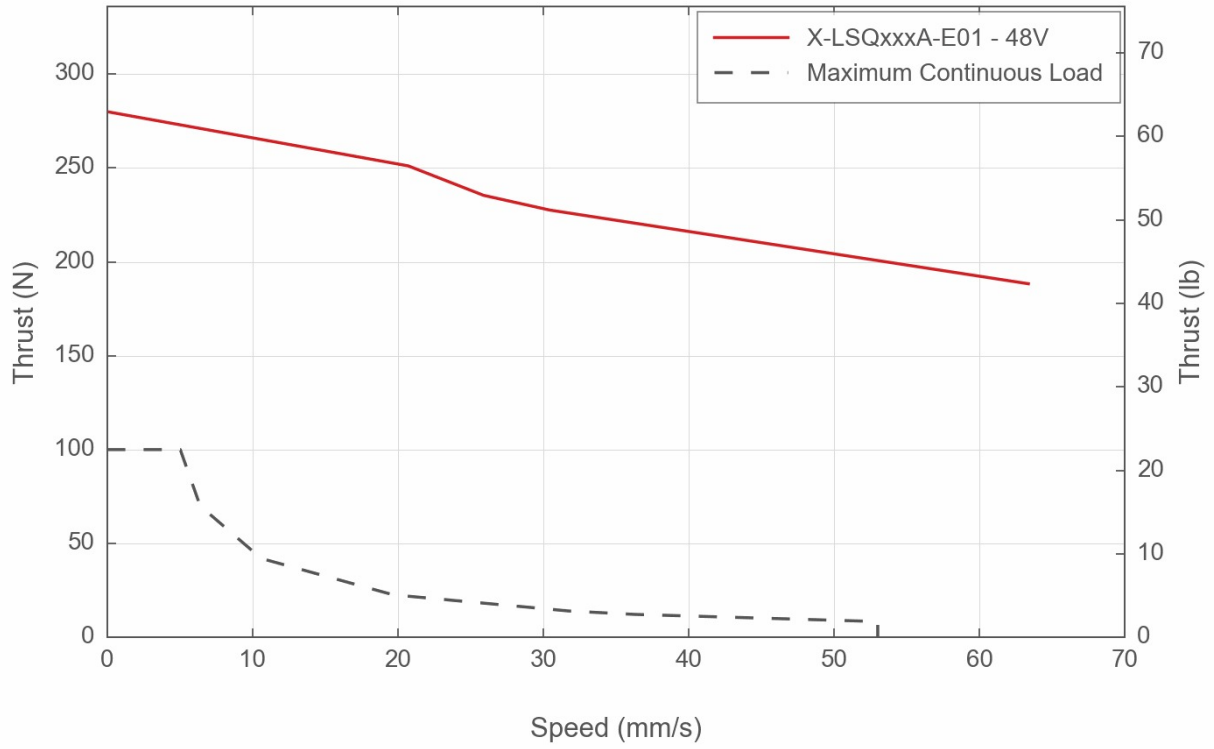
Specification	Value	Alternate Unit
Linear Motion Per Motor Rev	1.27 mm	0.050"
Motor Steps Per Rev	200	
Motor Type	Stepper (2 phase)	
Motor Rated Current	2300 mA/phase	
Inductance	2.2 mH/phase	
Default Resolution	1/64 of a step	
Data Cable Connection	Locking 4-pin M8	
Mechanical Drive System	Precision lead screw	
Limit or Home Sensing	Magnetic home sensor	
Manual Control	Indexed knob with push switch	
Axes of Motion	1	
LED Indicators	Yes	
Mounting Interface	M6 threaded holes and 8-32 threaded holes	
Operating Temperature Range	0 to 50 °C	
Vacuum Compatible	No	
RoHS Compliant	Yes	
Stage Parallelism	< 100 µm	< 0.003937"
CE Compliant	Yes	
Weight	1.20 kg	2.646 lb

X-LSQ-E Series Charts

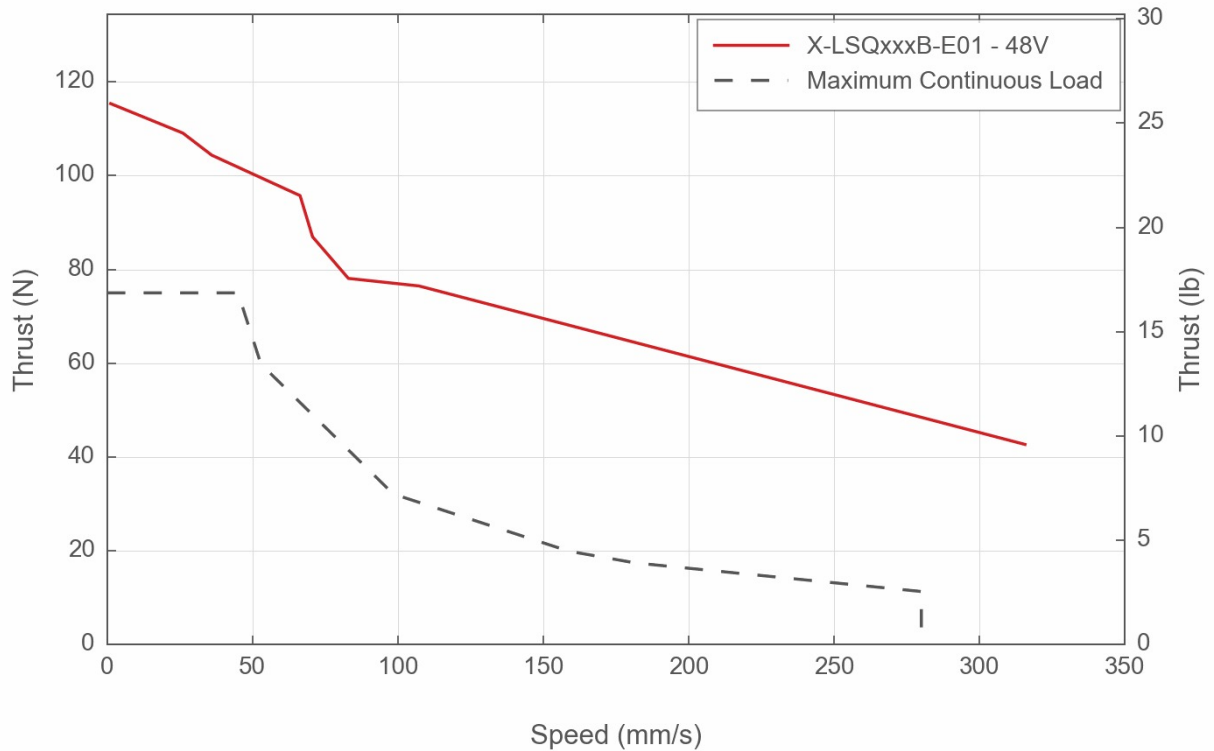
Thrust Speed Performance



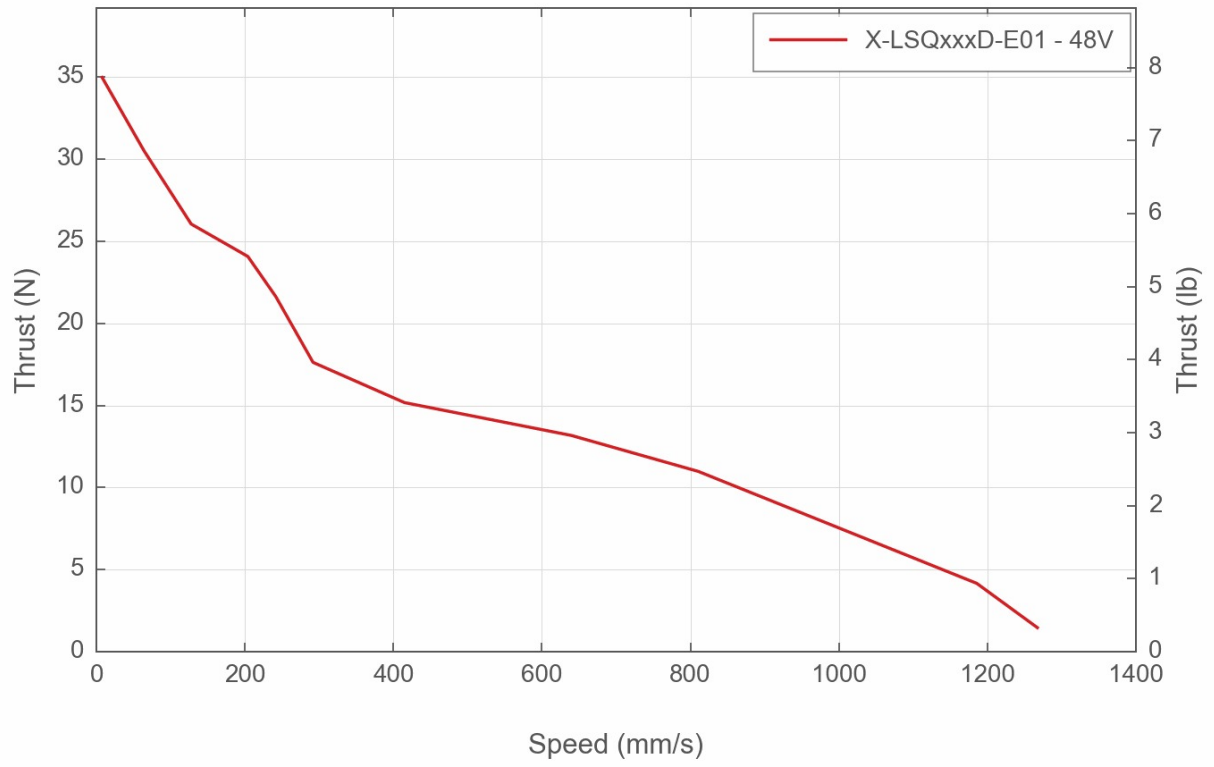
Thrust Speed Performance



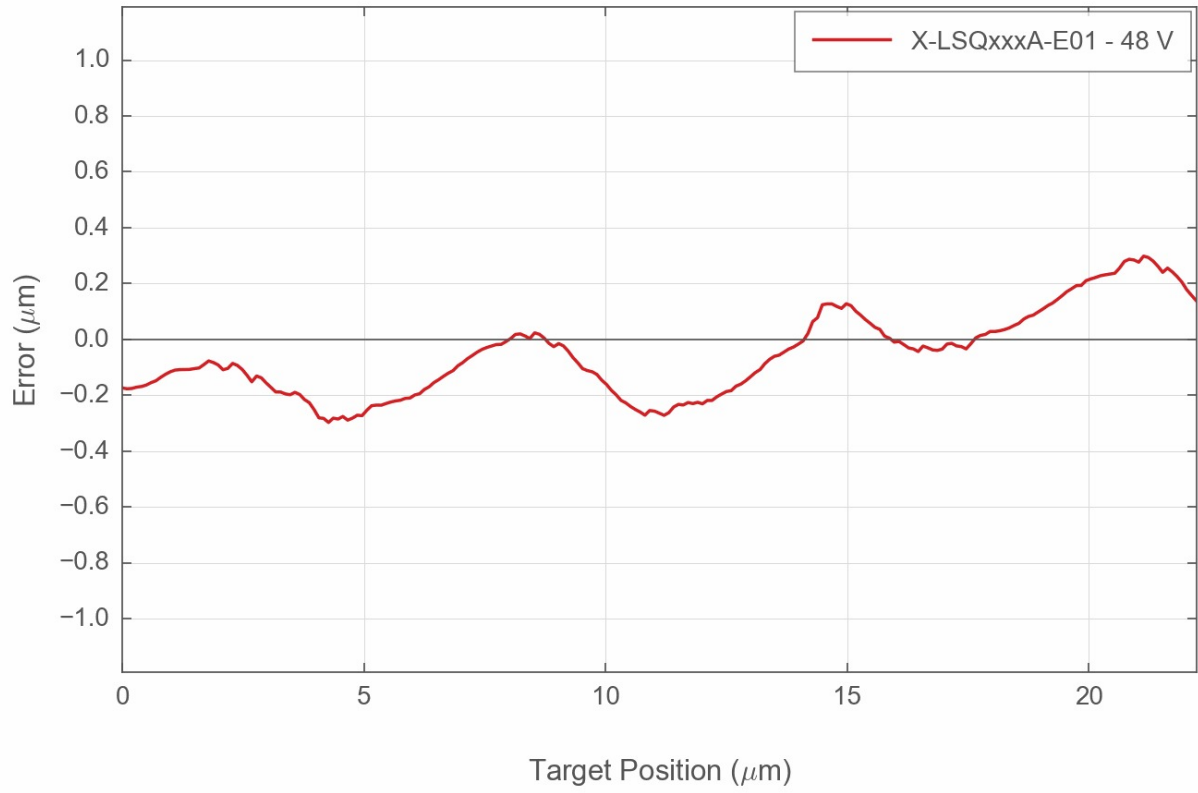
Thrust Speed Performance



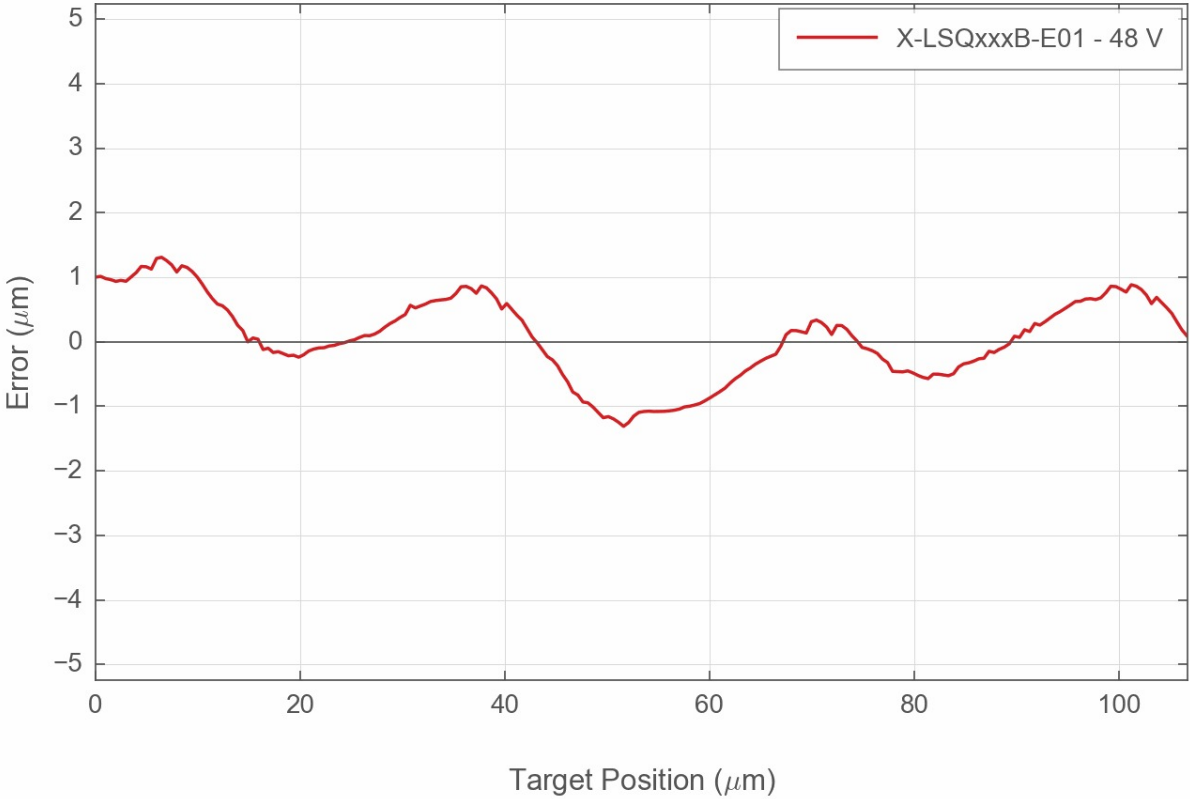
Thrust Speed Performance



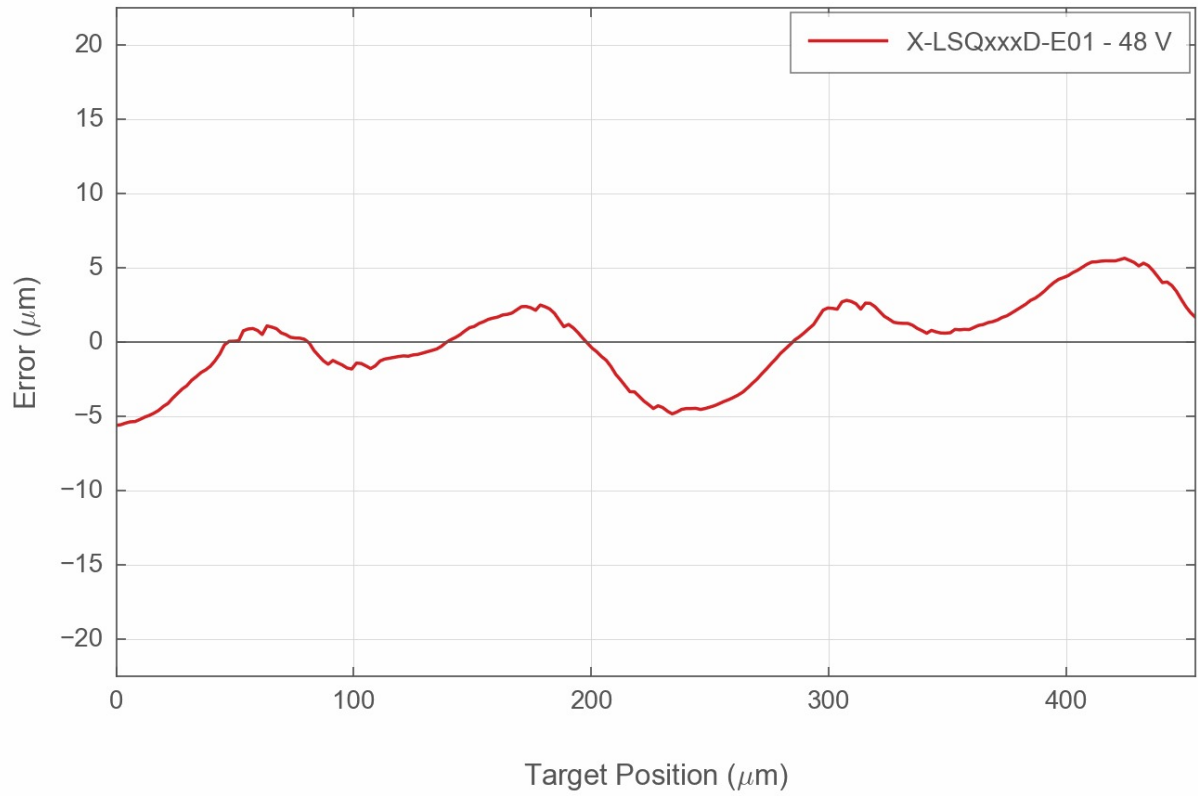
Typical Microstepping Accuracy



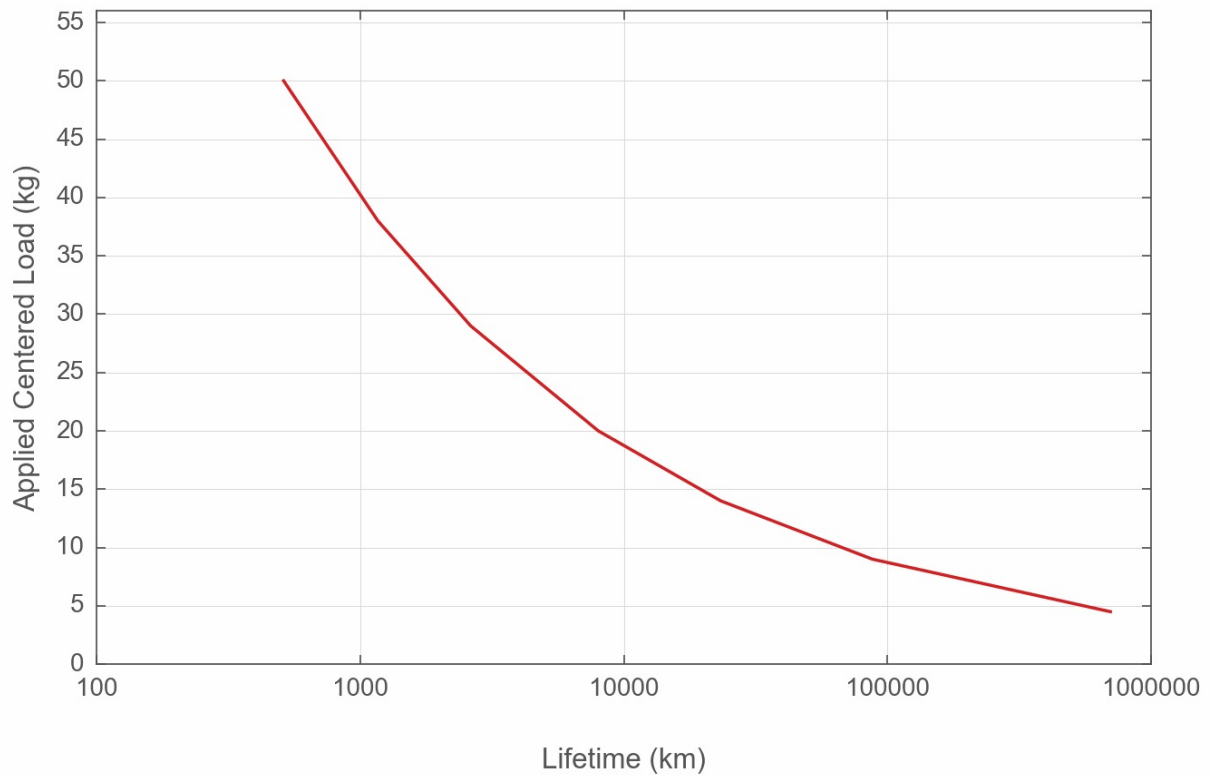
Typical Microstepping Accuracy



Typical Microstepping Accuracy



LSQ Linear Bearing Lifetime



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>