

## 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

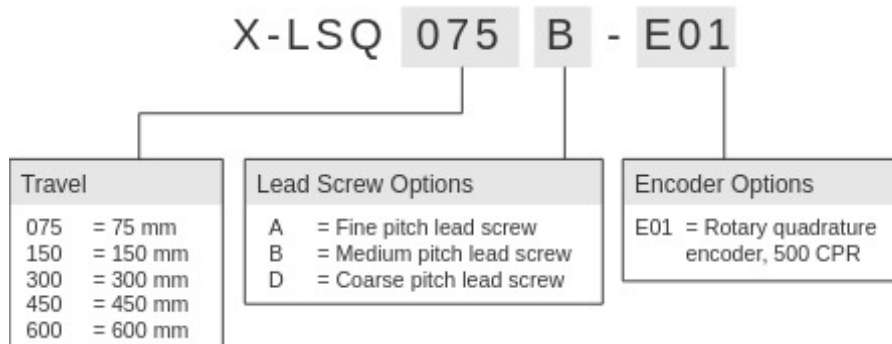
### X-LSQ-E Series Overview

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>

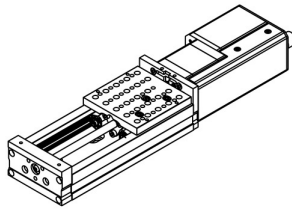
## X-LSQ-E Series Part Numbering & Options



# X-LSQ-E Series Drawings

## ZABER

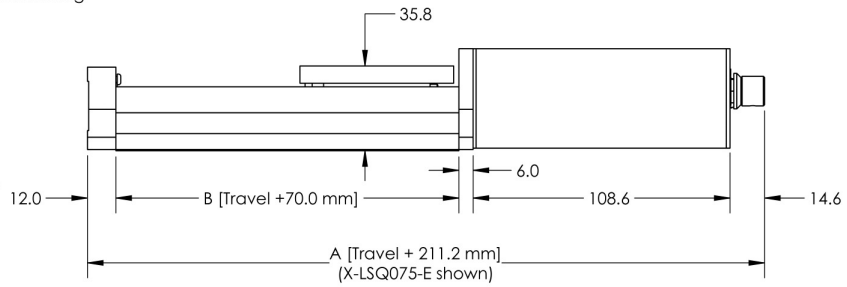
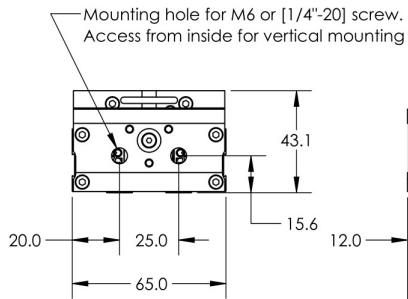
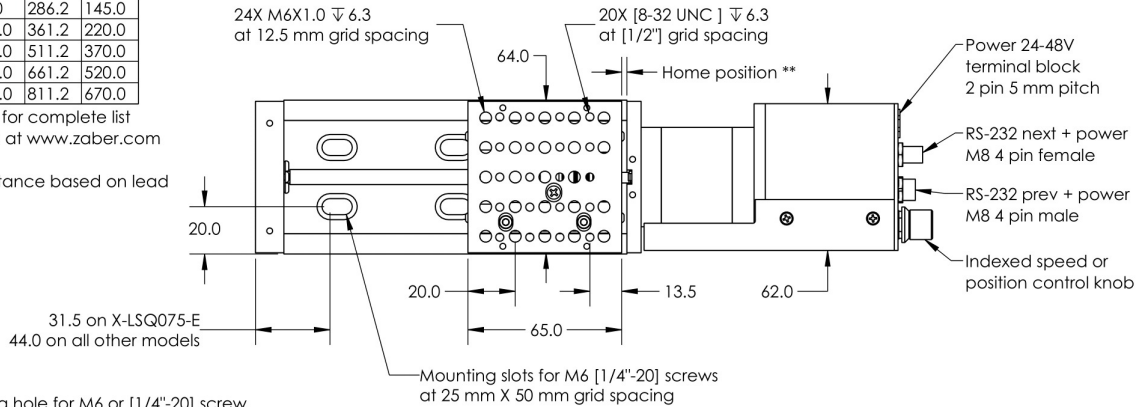
**X-LSQ-E Motorized Linear Stage**  
dimensions in mm



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](http://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

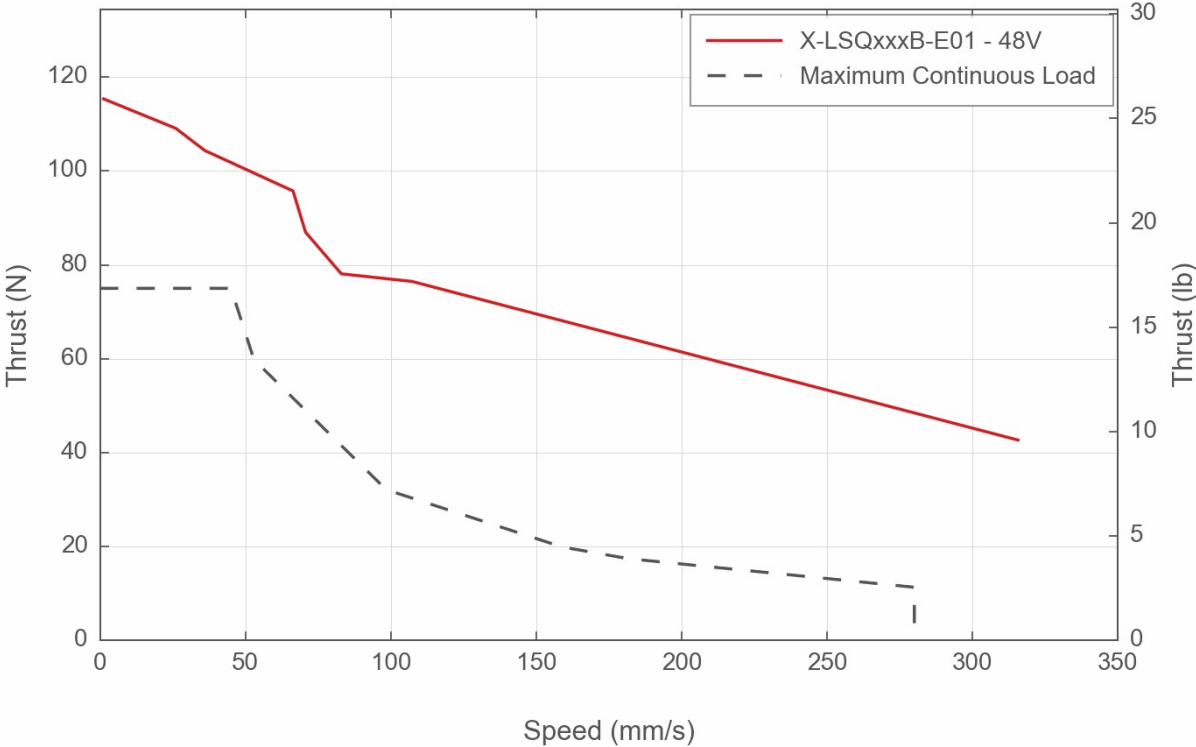
## X-LSQ-E Series Specifications

<b>Microstep Size (Default Resolution)</b>	<b>0.09921875 <math>\mu\text{m}</math></b>
Built-in Controller	Yes
Travel Range	300 mm (11.811")
Accuracy (unidirectional)	90 $\mu\text{m}$ (0.003543")
Repeatability	< 2 $\mu\text{m}$ (< 0.000079")
Backlash	< 15 $\mu\text{m}$ (< 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
Data Cable Connection	Locking 4-pin M8
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 $\mu\text{m}$ (< 0.001181")
Horizontal Runout	< 35 $\mu\text{m}$ (< 0.001378")
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 $\mu\text{rad/N-m}$ )
Power Supply	24-48 VDC
Power Plug	2-pin Screw Terminal
Maximum Current Draw	1450 mA

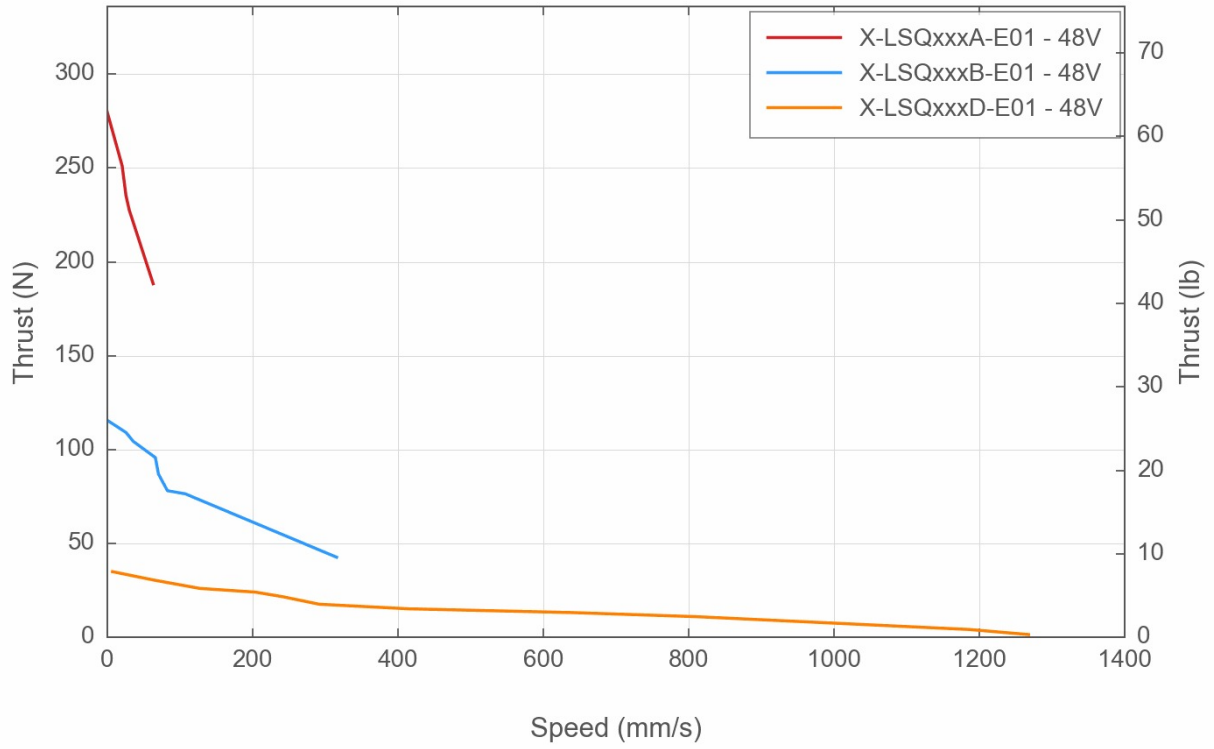
<b>Microstep Size (Default Resolution)</b>	<b>0.09921875 <math>\mu\text{m}</math></b>
Linear Motion Per Motor Rev	1.27 mm (0.050")
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	2300 mA/phase
Inductance	2.2 mH/phase
Default Resolution	1/64 of a step
Mechanical Drive System	Precision 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
Stage Parallelism	< 100 $\mu\text{m}$ (< 0.003937")
Operating Temperature Range	0 to 50 °C
RoHS Compliant	Yes
CE Compliant	Yes
Vacuum Compatible	No
Weight	1.80 kg (3.968 lb)

X-LSQ-E Series Charts

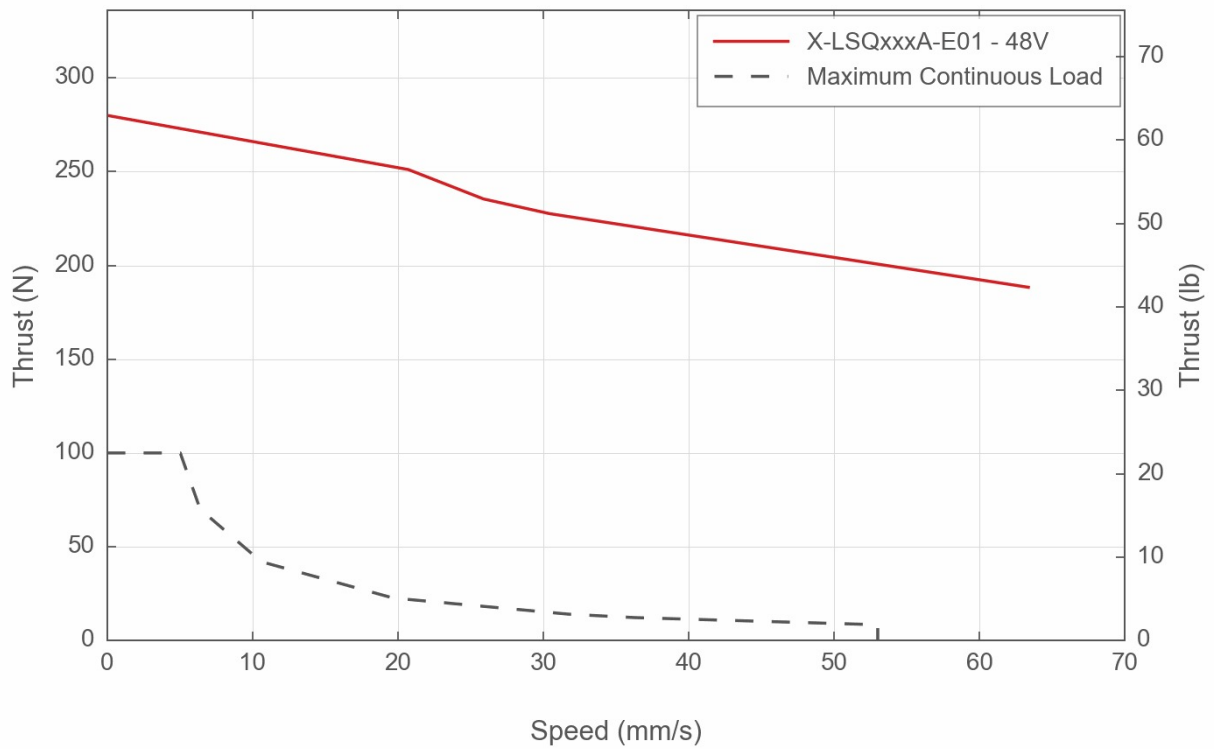
Thrust Speed Performance



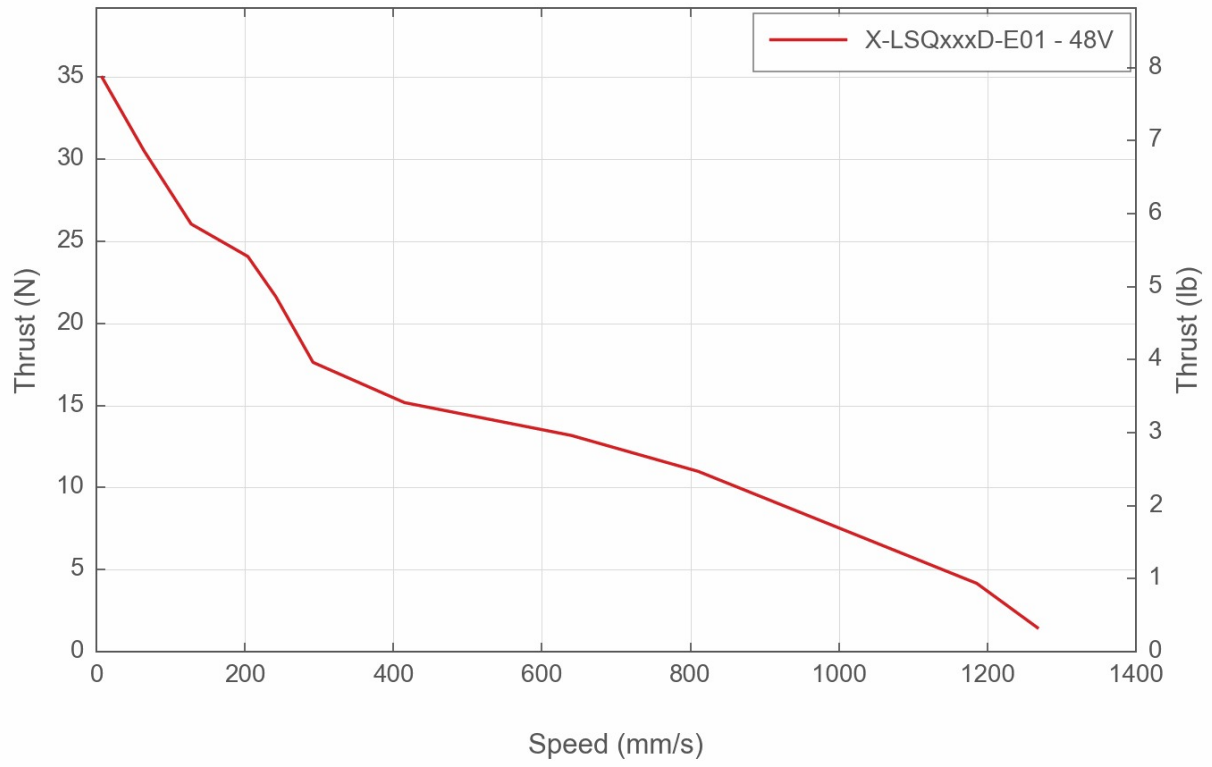
### Thrust Speed Performance



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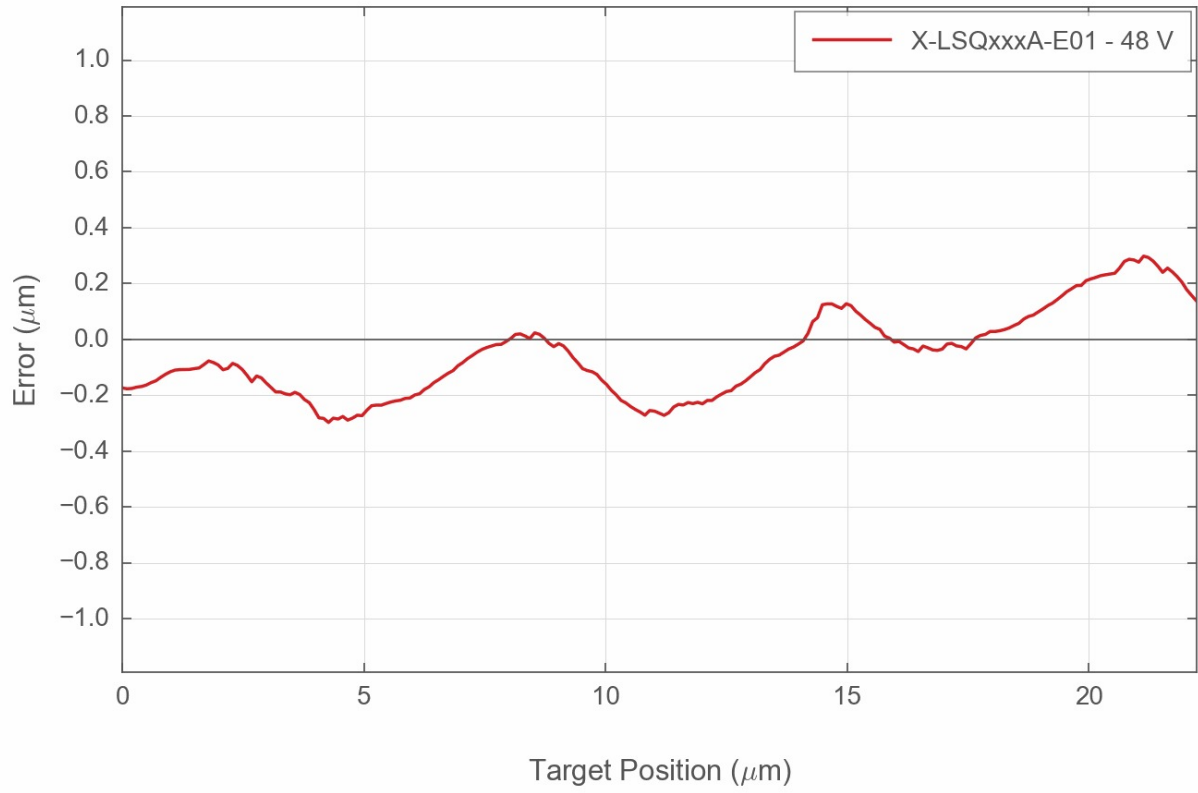


## Thrust Speed Performance

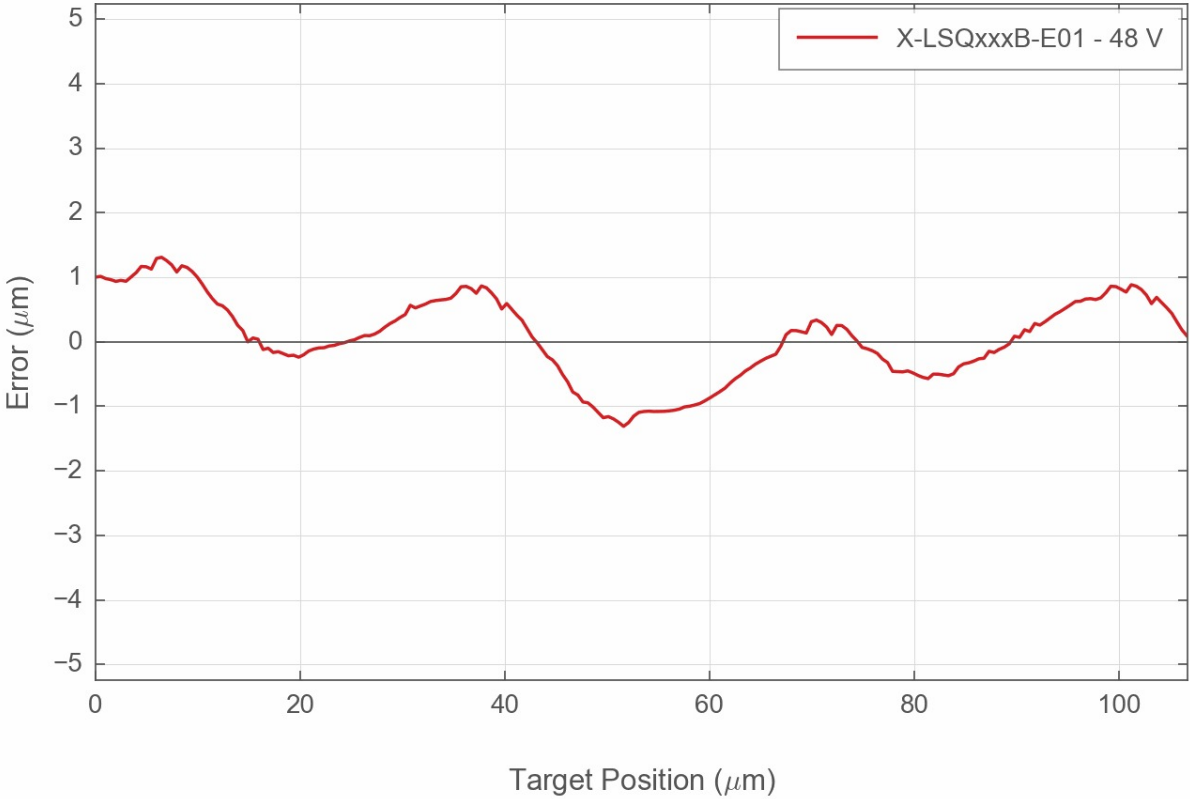




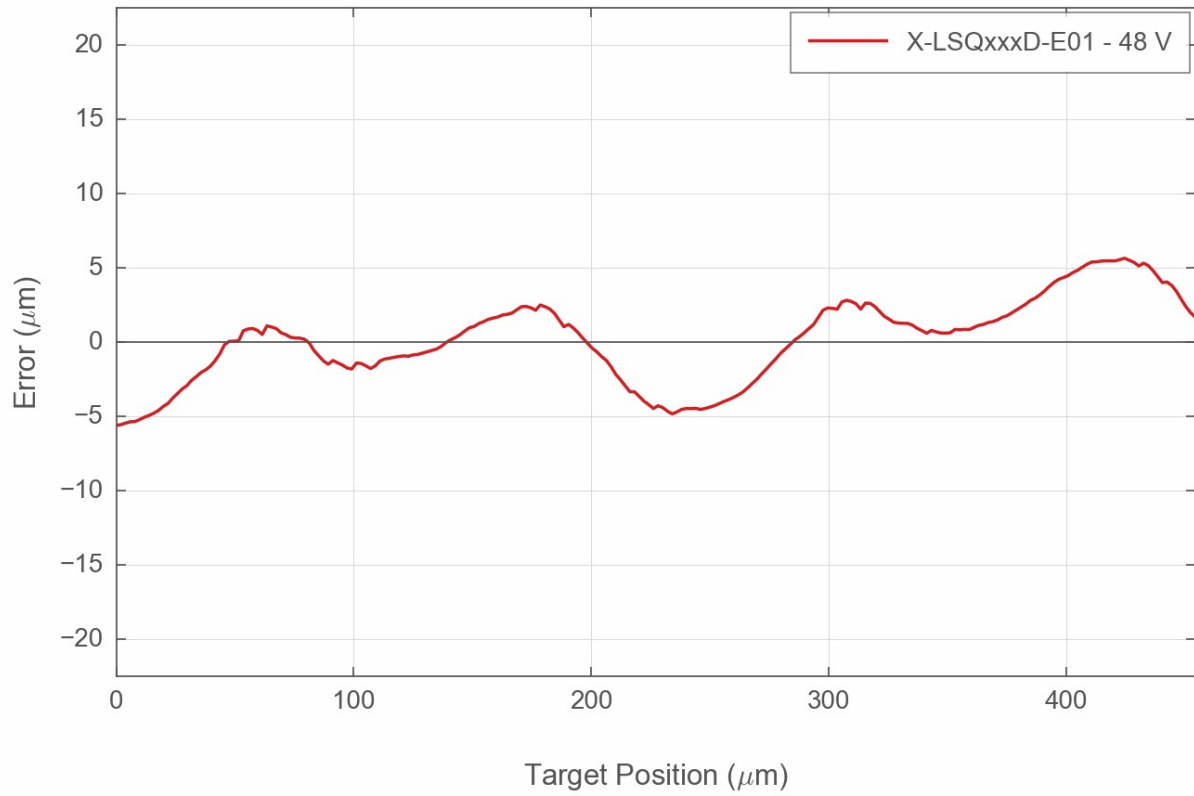
## Typical Microstepping Accuracy



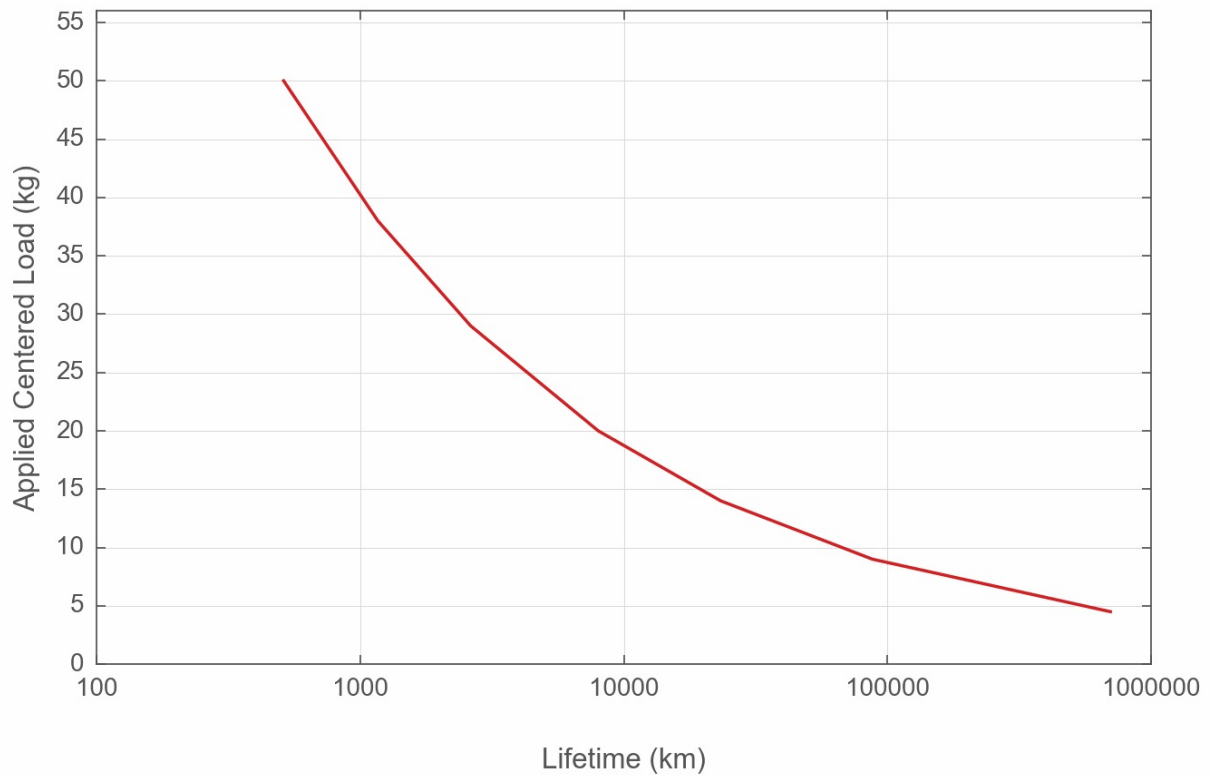
### Typical Microstepping Accuracy



## Typical Microstepping Accuracy



## LSQ Linear Bearing Lifetime



### Contact

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