



X-LSQ150A-E01 Datasheet



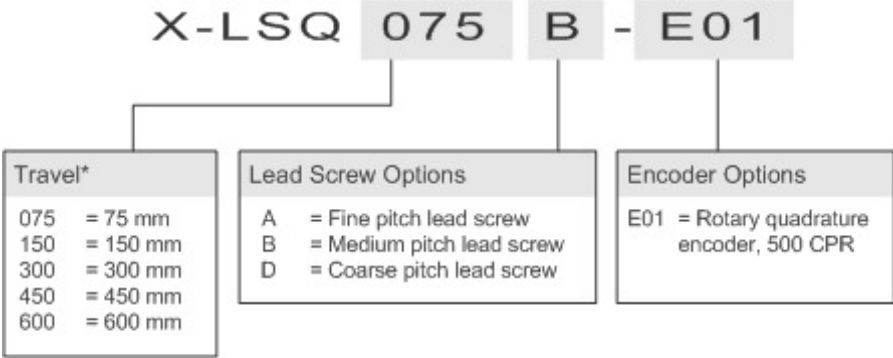
- 75, 150, 300, 450 and 600 mm travel
- Up to 1 m/s speed and up to 100 N thrust
- 20 kg load capacity
- Encoder position feedback with slip/stall detection and automatic recovery
- Built-in controller; daisy-chains with any other Zaber products
- Custom versions available

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. The stages connect to the USB 2.0 or RS-232 port of any computer and can be daisy-chained with up to 254 Zaber products per chain. Convenient locking, 4-pin, M8 connectors on the unit allow for secure connection between units. The chain also shares power, so multiple X-Series products can use a single power supply.

X-LSQ-E Series Part Numbering



* Please inquire about other travel lengths

X-LSQ150A-E01 Bundle Options

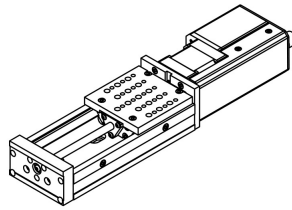
This device may be purchased stand-alone or bundled with one of the following accessory kits:

Products	Description
X-LSQ150A-E01	Motorized linear stage, integrated motor encoder and controller, 150 mm travel, fine resolution, low speed
with KX14C accessory kit Power supply: North America, 48 V. Powers multiple X-Series devices	<ul style="list-style-type: none"> • 1 x PS14S-48V37: Power Supply, 48 V 3.75 A, Compatible with X-Series Products • 1 x X-DC06: Data Cable, 6 ft (2 m), for Use with all X-Series Products • 1 x X-USBDC: USB to Serial Converter Cable with M8 Female Plug for X-Series Products
with KX13C accessory kit Power supply: North America, 48 V. Powers one axis	<ul style="list-style-type: none"> • 1 x PS13S-48V12: Power Supply, 48 V 1.25 A, Compatible with X-Series Products • 1 x X-DC06: Data Cable, 6 ft (2 m), for Use with all X-Series Products • 1 x X-USBDC: USB to Serial Converter Cable with M8 Female Plug for X-Series Products
with PTB2 accessory Power Supply Not Included	<ul style="list-style-type: none"> • 1 x PTB2: Power Terminal Block, 2 Pin, 5 mm Pitch, for Use with X-Series Devices with Custom Power Supply

X-LSQ150A-E01 Drawings

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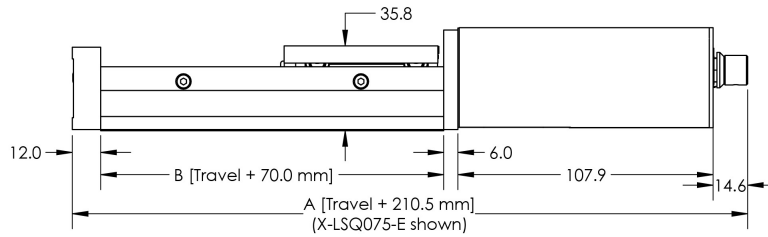
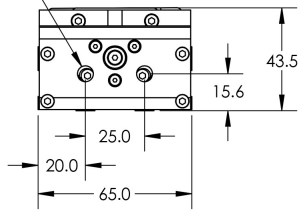
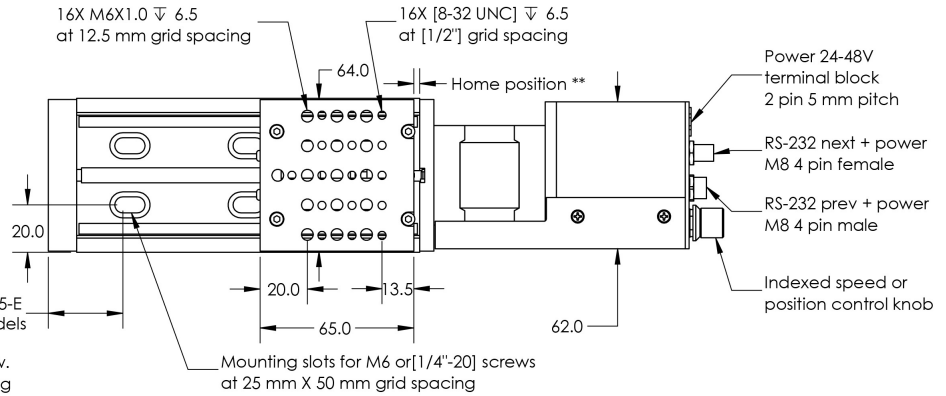
X-LSQ-E Motorized Linear Stage
 dimensions in mm



Model Number*	Travel	A	B
X-LSQ075-E	75.0	285.5	145.0
X-LSQ150-E	150.0	360.5	220.0
X-LSQ300-E	300.0	510.5	370.0
X-LSQ450-E	450.0	660.5	520.0
X-LSQ600-E	600.0	810.5	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



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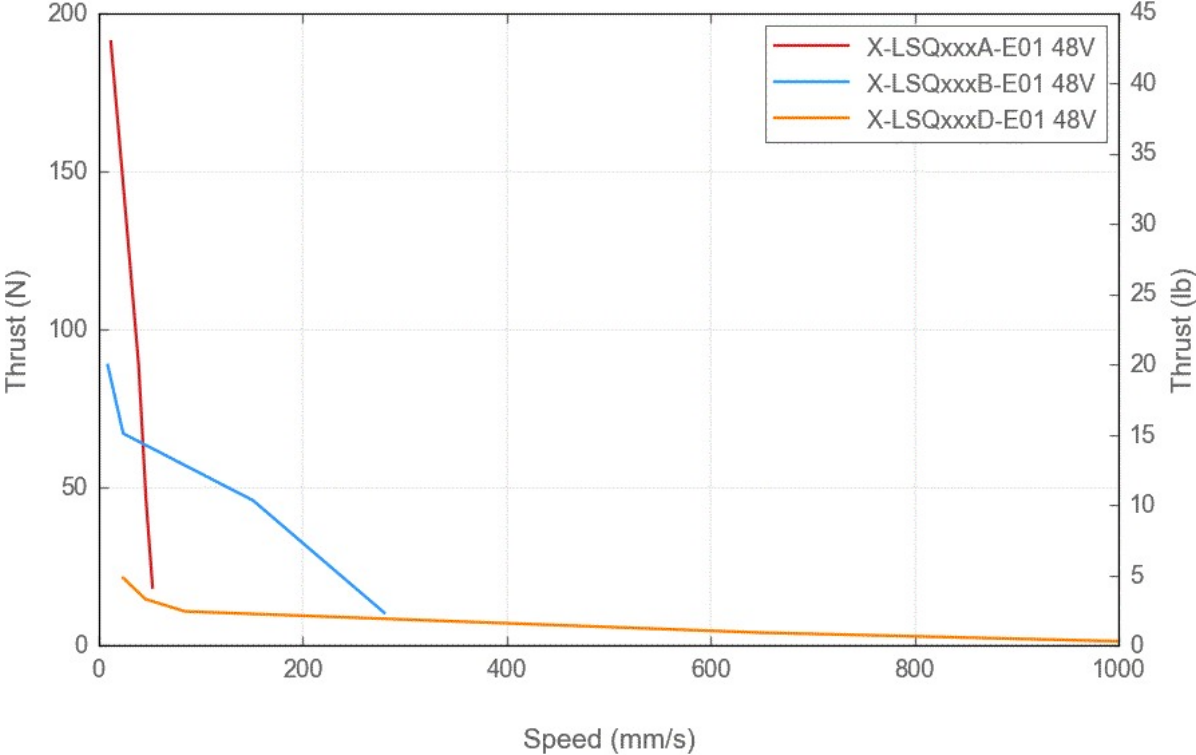
X-LSQ150A-E01 Specifications

Specification	Value	Alternate Unit
Microstep Size (Default Resolution)	0.09921875 μm	
Built-in Controller	Yes	
Travel Range	150 mm	5.905"
Accuracy (unidirectional)	45 μm	0.001772"
Repeatability	< 2 μm	< 0.000079"
Backlash	< 9 μm	< 0.000354"
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	147 N	33.0 lb
Maximum Continuous Thrust	100 N	22.4 lb
Communication Interface	RS-232	
Communication Protocol	Zaber ASCII (Default), Zaber Binary	
Maximum Centered Load	200 N	44.9 lb
Maximum Cantilever Load	800 N-cm	1132.9 oz-in
Guide Type	Roller bearing	
Vertical Runout	< 24 μm	< 0.000945"
Horizontal Runout	< 26 μm	< 0.001024"
Pitch	0.075°	1.309 mrad
Roll	0.04°	0.698 mrad
Yaw	0.03°	0.523 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 $\mu\text{rad/N-m}$
Maximum Current Draw	810 mA	
Power Supply	24-48 VDC	
Power Plug	2-pin Screw Terminal	
Linear Motion Per Motor Rev	1.27 mm	0.050"

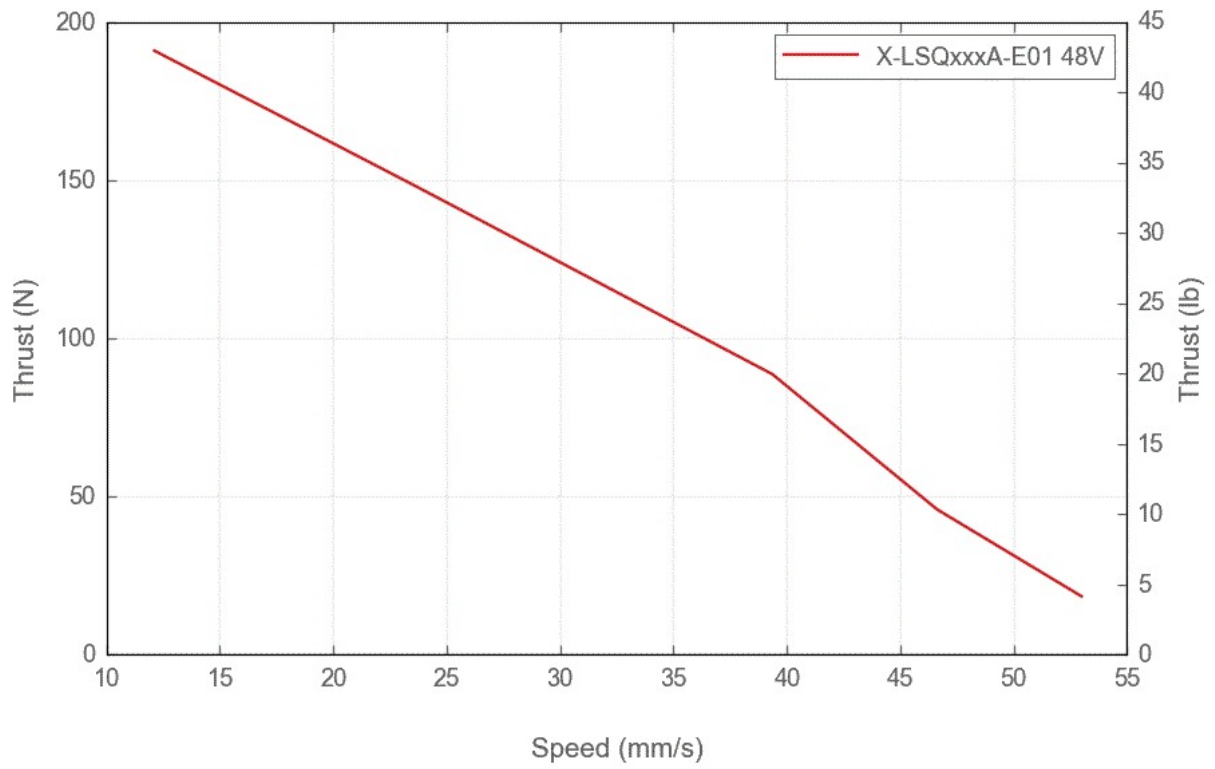
Specification	Value	Alternate Unit
Motor Steps Per Rev	200	
Motor Type	Stepper (2 phase)	
Motor Rated Current	1250 mA/phase	
Inductance	2.8 mH/phase	
Default Resolution	1/64 of a step	
Data Cable Connection	Locking 4-pin M8	
Mechanical Drive System	Precision lead screw	
Limit or Home Sensing	Magnetic 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	1.40 kg	3.086 lb

X-LSQ-E Series Charts

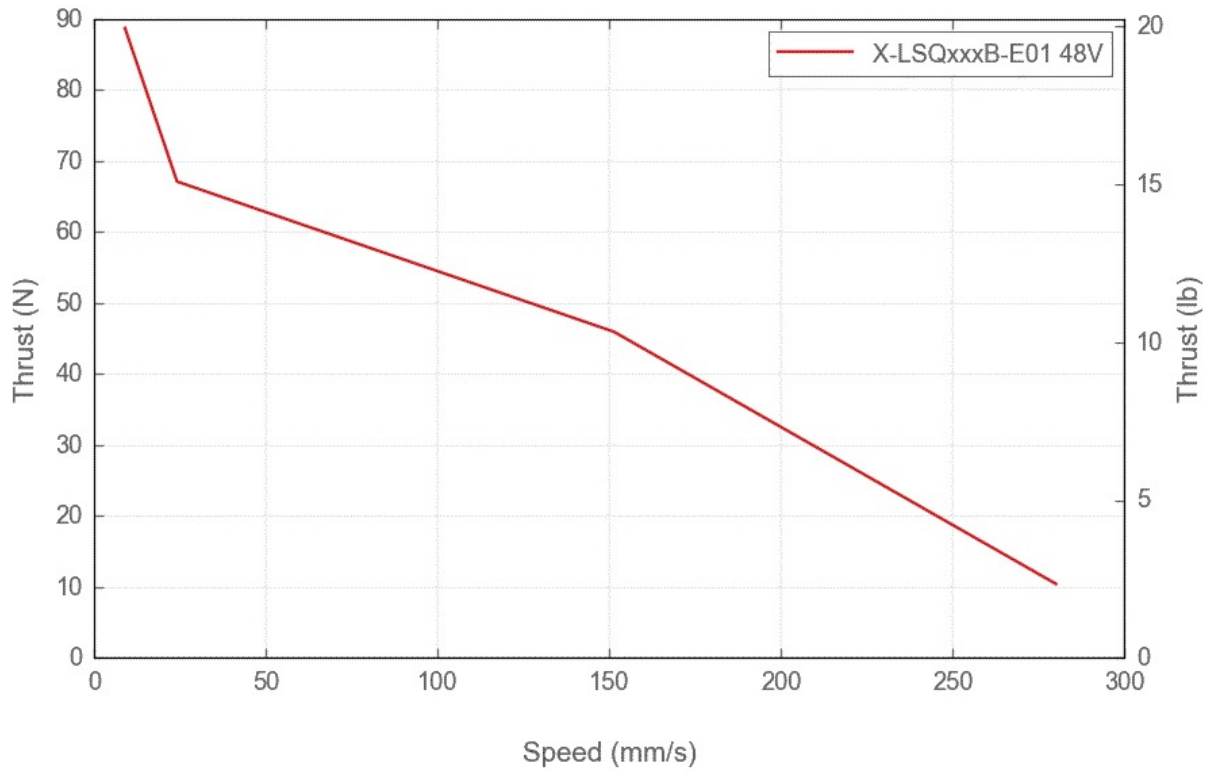
Thrust Speed Performance



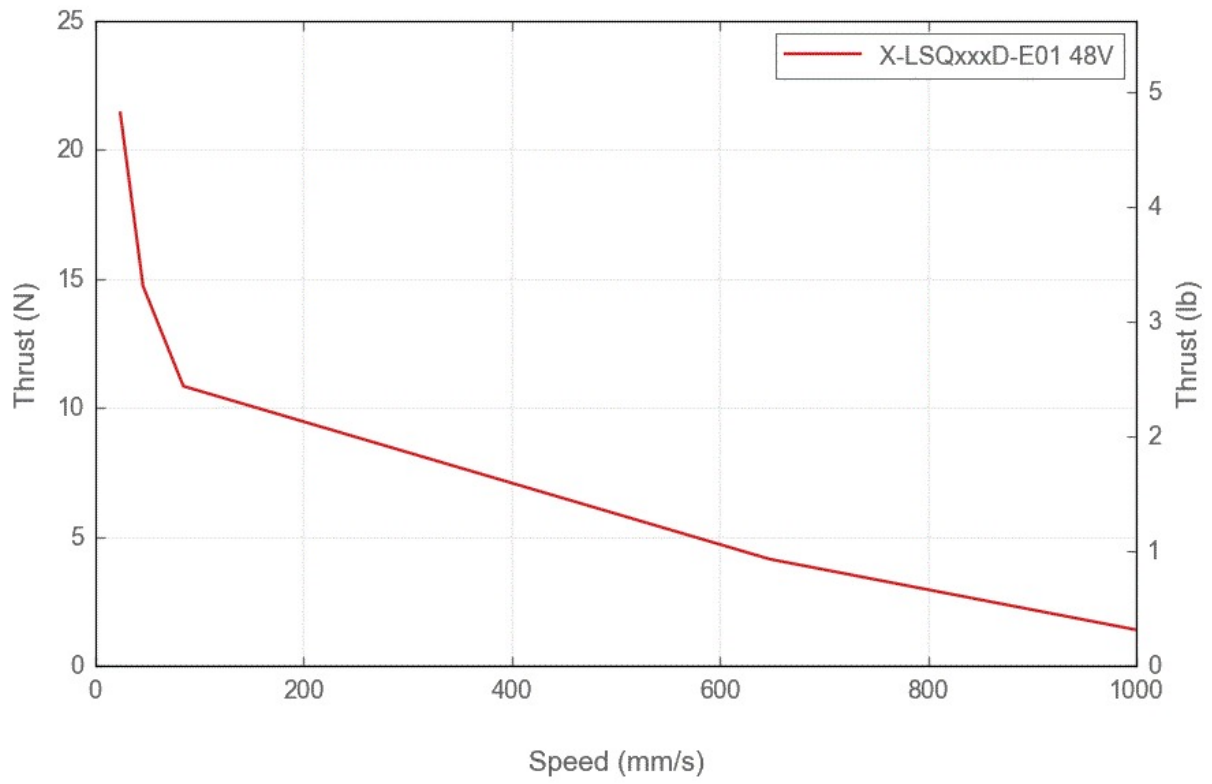
Thrust Speed Performance



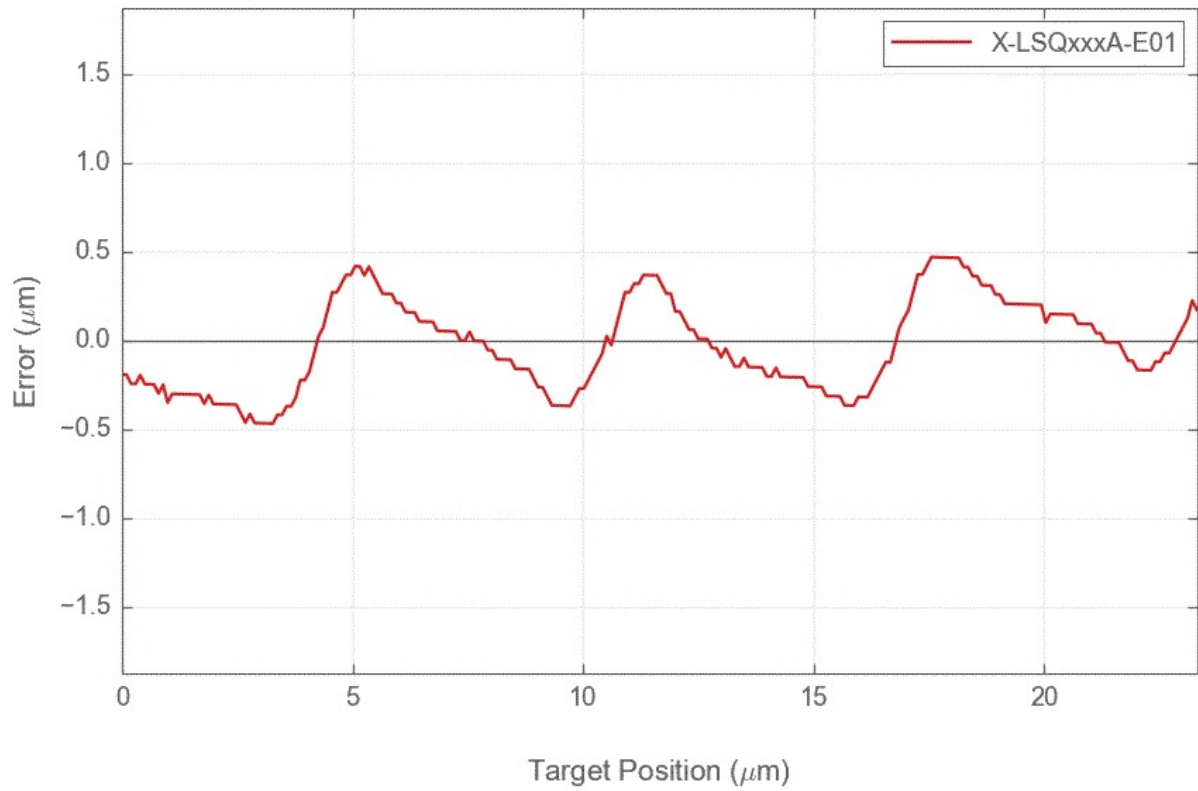
Thrust Speed Performance



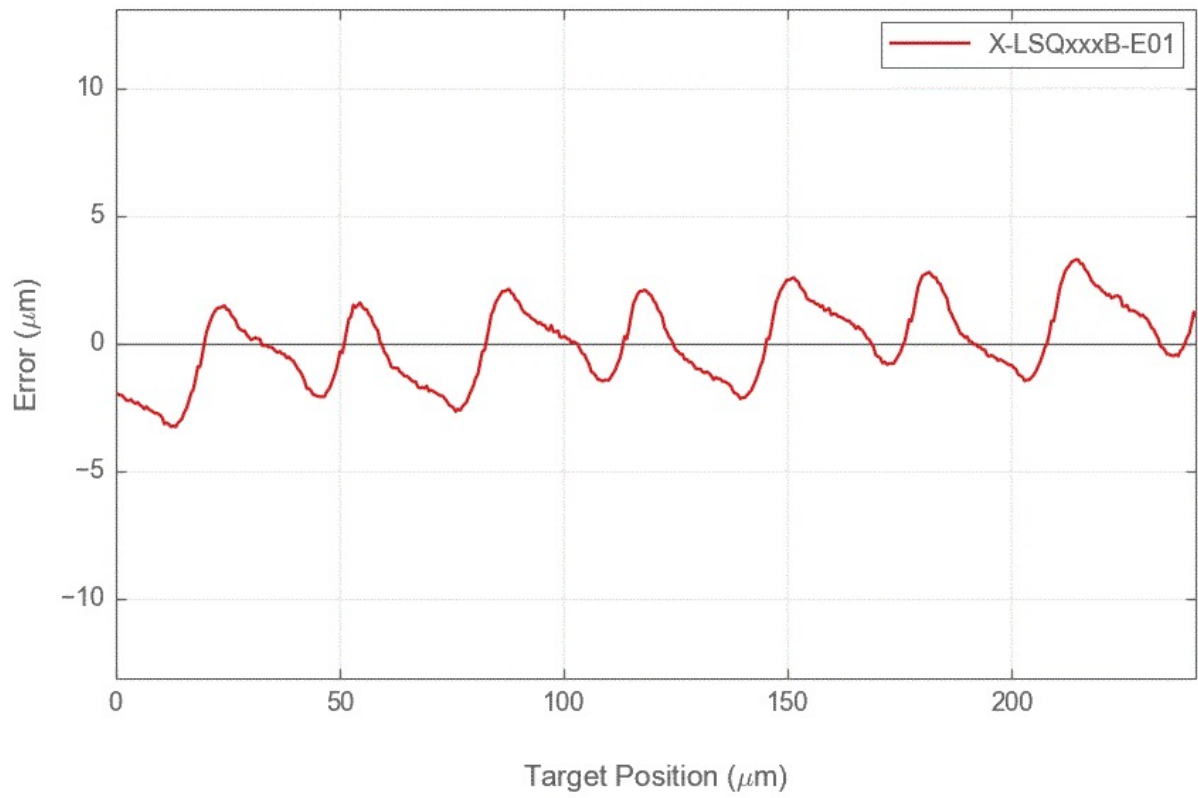
Thrust Speed Performance



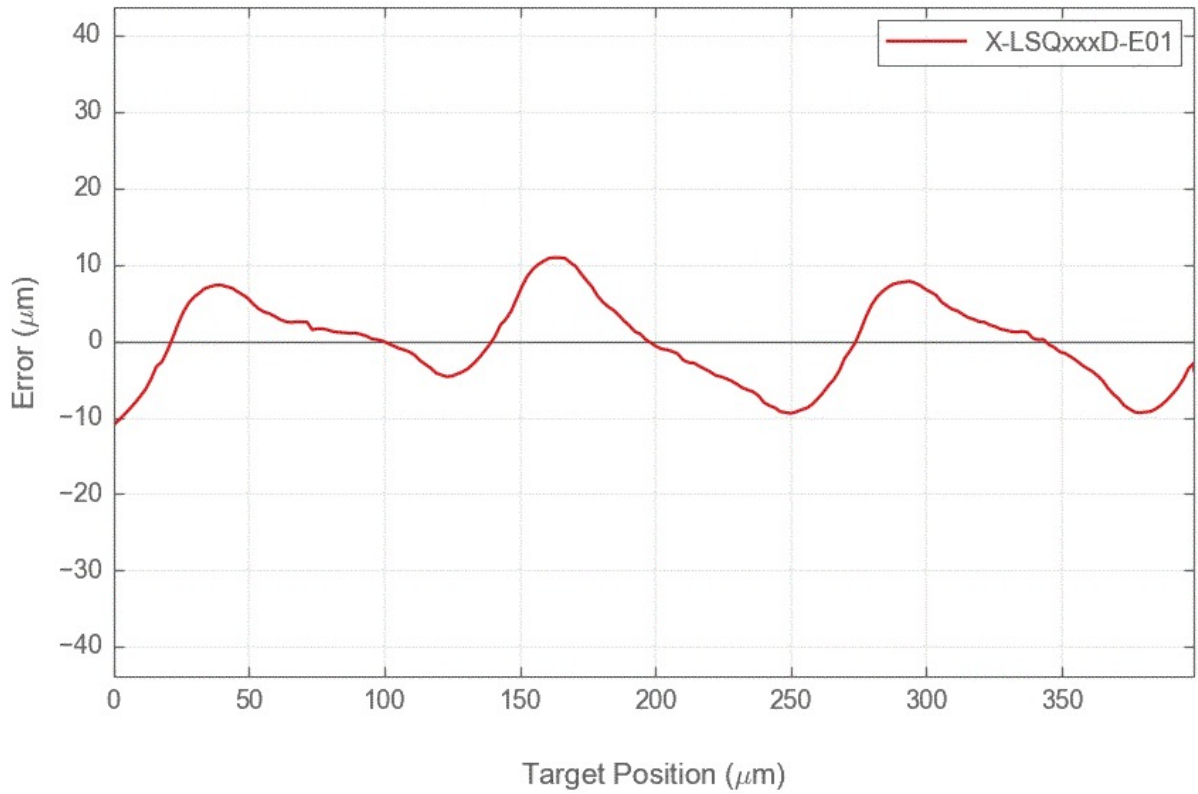
Typical Microstepping Accuracy



Typical Microstepping Accuracy



Typical Microstepping Accuracy



LSQ Linear Bearing Lifetime

