

X-LRT-EC Series Datasheet



- 100, 250, 500, 750, 1000, 1500 mm travel
- Up to 700 mm/s speed and up to 1200 N thrust
- 500 kg load capacity
- High cantilever stiffness
- Ball screw and lead screw configurations
- Includes stainless steel dust covers
- Optional integrated power-off brake for vertical applications
- Built-in, 400 CPR, motor encoder provides slip/stall detection and recovery
- Built-in controller; daisy-chains with other Zaber products

X-LRT-EC Series Overview

Zaber's X-LRT-EC Series devices are computer-controlled, motorized linear stages with high torsional stiffness, load capacity, and long lifetime. They have low pitch, roll, yaw, and runout. A flexible stainless steel dust cover prevents the ingress of small objects. 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 indexed knob provides convenient manual control for versatile operation even without a computer. An optional power-off brake is available to enable vertical applications with backdrivable screws.

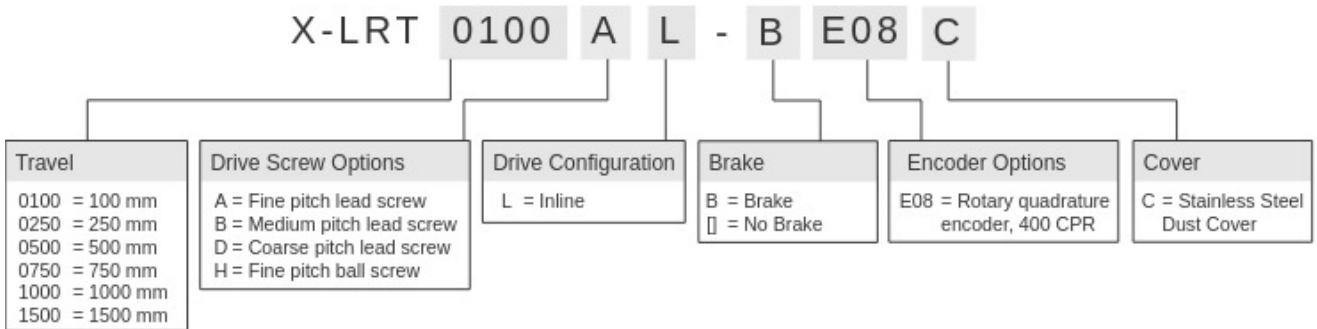
These stages connect to the RS-232 port or USB port of any computer, and they can be daisy-chained with any other Zaber products. The daisy-chain also shares power, making it possible for multiple X-Series products to share a single power supply. Convenient locking, 4-pin, M8

connectors on the unit allow for secure connection between units.

Like all of Zaber's products, the X-LRT-EC Series is designed to be 'plug and play' and very easy to set up and operate. These stages can easily be mounted in XY or XYZ configurations with an angle bracket.

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

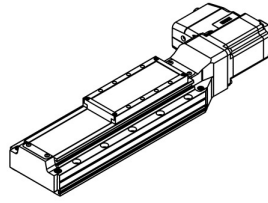
X-LRT-EC Series Part Numbering



X-LRT-EC Series Drawings

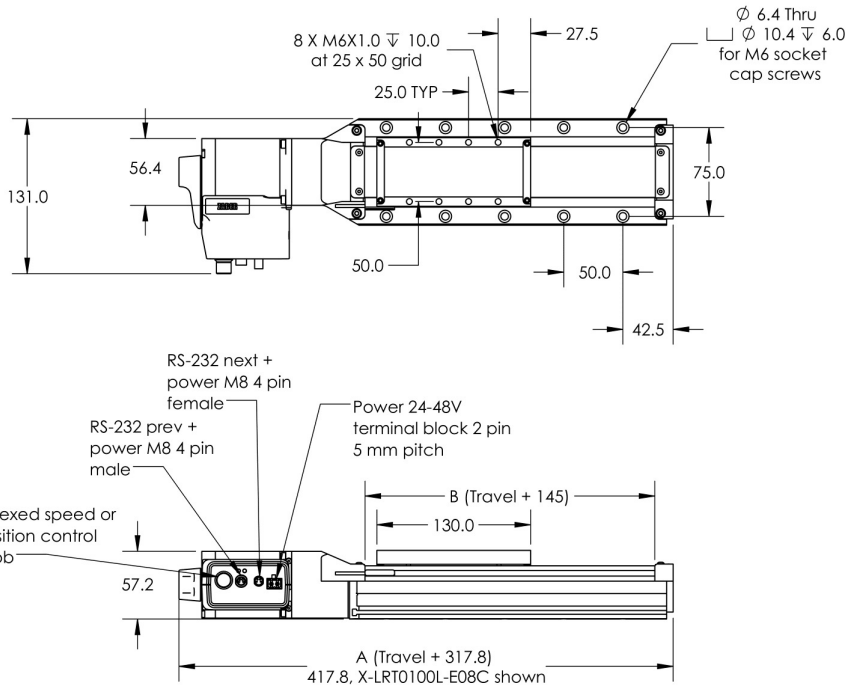
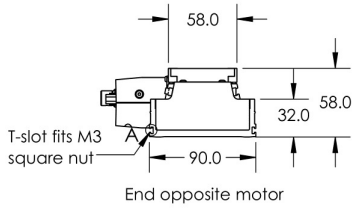
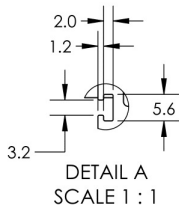
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X-LRT-EC Motorized Stage
dimensions in mm



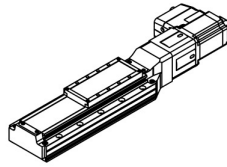
Model Number*	Travel	A	B
X-LRT0100xL-EC	100	417.8	245
X-LRT0250xL-EC	250	567.8	395
X-LRT0500xL-EC	500	817.8	645
X-LRT0750xL-EC	750	1067.8	895
X-LRT1000xL-EC	1000	1317.8	1145
X-LRT1500xL-EC	1500	1817.8	1645

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



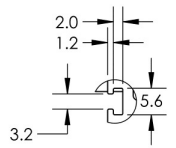
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X-LRT-BEC
dimensions in mm

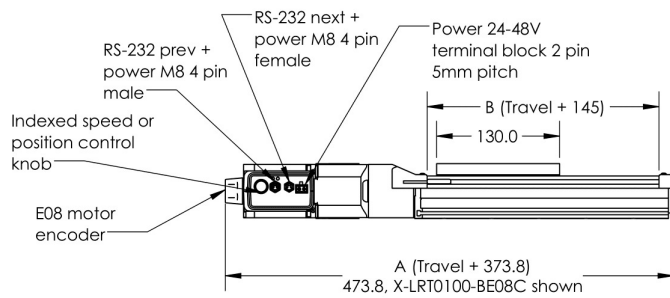
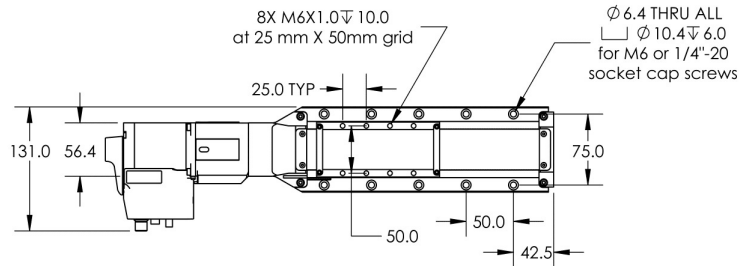
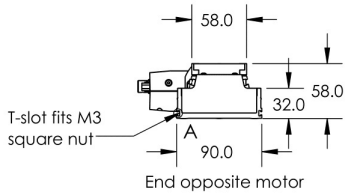


Model Number*	Travel	A	B
X-LRT0100-BE08C	100.0	473.8	245.0
X-LRT0250-BE08C	250.0	623.8	395.0
X-LRT0500-BE08C	500.0	873.8	645.0
X-LRT0750-BE08C	750.0	1123.8	895.0
X-LRT1000-BE08C	1000.0	1373.8	1145.0
X-LRT1500-BE08C	1500.0	1873.8	1645.0

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



DETAIL A
SCALE 1 : 1



DWG 4197 R01A

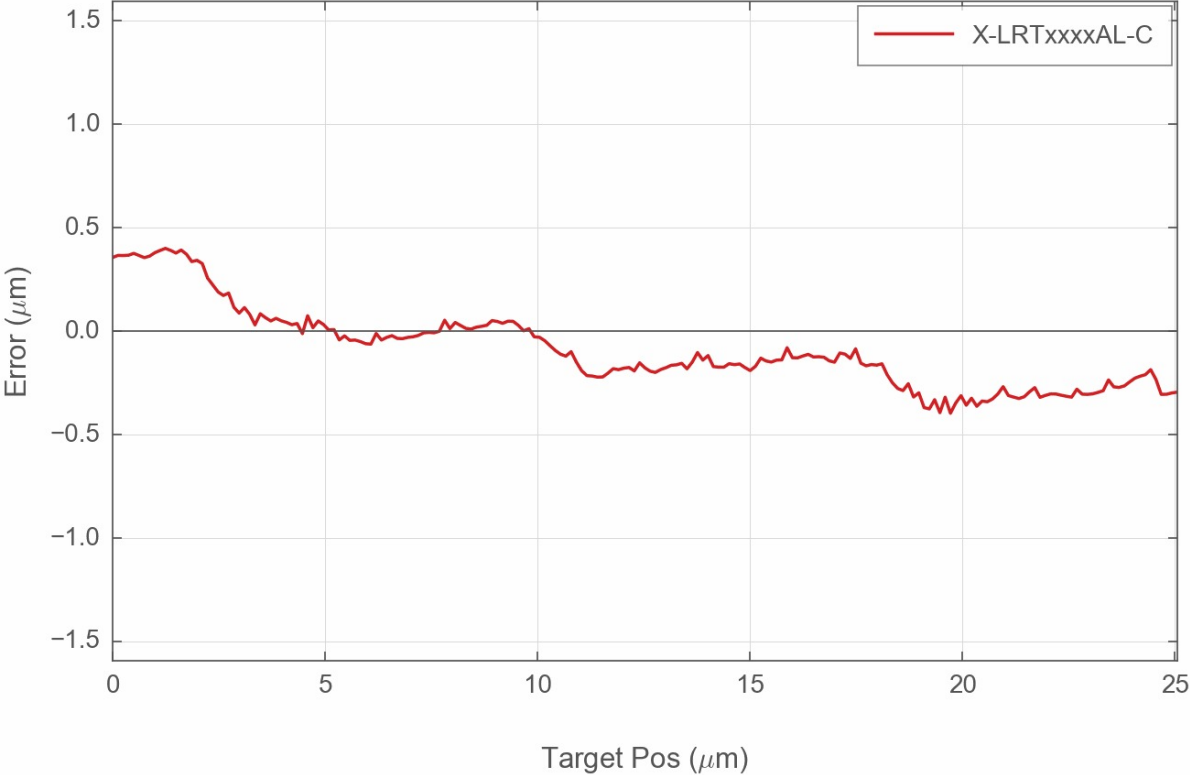
X-LRT-EC Series Specifications

Specification	Value	Alternate Unit
Microstep Size (Default Resolution)	1.984375 μm	
Built-in Controller	Yes	
Travel Range	1500 mm	59.055"
Accuracy (unidirectional)	375 μm	0.014764"
Repeatability	< 8 μm	< 0.000315"
Backlash	< 75 μm	< 0.002953"
Maximum Speed	225 mm/s	8.858"/s
Minimum Speed	0.001212 mm/s	0.000048"/s
Speed Resolution	0.001212 mm/s	0.000048"/s
Encoder Resolution	400 CPR	1600 states/rev
Encoder Type	Rotary quadrature encoder	
Peak Thrust	200 N	44.9 lb
Back-driving Force	40 N ($\pm 30\%$)	9.0 lb ($\pm 30\%$)
Maximum Continuous Thrust	200 N	44.9 lb
Communication Interface	RS-232	
Communication Protocol	Zaber ASCII	
Data Cable Connection	Locking 4-pin M8	
Maximum Centered Load	5000 N	1121.3 lb
Maximum Cantilever Load	120 N-m	88.6 ft-lb
Guide Type	Recirculating Ball Linear Guide	
Vertical Runout	< 10 μm	< 0.000394"
Horizontal Runout	< 18 μm	< 0.000709"
Pitch	0.013°	0.227 mrad
Roll	0.01°	0.174 mrad
Yaw	0.017°	0.297 mrad
Stiffness in Pitch	1400 N-m/°	12 $\mu\text{rad/N-m}$
Stiffness in Roll	700 N-m/°	25 $\mu\text{rad/N-m}$
Stiffness in Yaw	1200 N-m/°	15 $\mu\text{rad/N-m}$
Power Supply	24-48 VDC	
Power Plug	2-pin screw terminal	

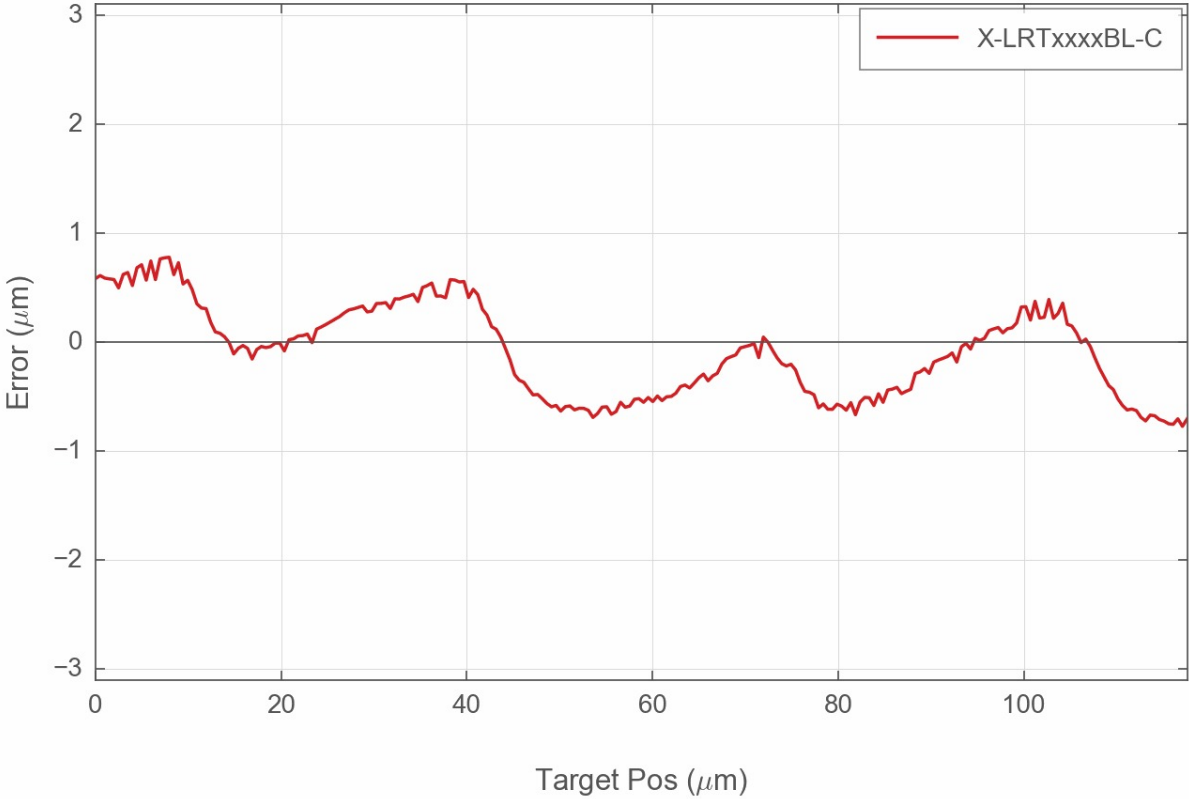
Specification	Value	Alternate Unit
Maximum Current Draw	3600 mA	
Linear Motion Per Motor Rev	25.4 mm	1.000"
Motor Steps Per Rev	200	
Motor Type	Stepper (2 phase)	
Motor Rated Current	4200 mA/phase	
Inductance	2 mH/phase	
Default Resolution	1/64 of a step	
Mechanical Drive System	Precision lead screw	
Limit or Home Sensing	Magnetic home sensor	
Manual Control	Indexed knob with push switch	
Axes of Motion	1	
LED Indicators	Yes	
Maximum Axial Brake Force	180 N	40.5 lb
Operating Temperature Range	0 to 50 °C	
RoHS Compliant	Yes	
CE Compliant	Yes	
Vacuum Compatible	No	
Weight	11.654 kg	25.693 lb

X-LRT-EC Series Charts

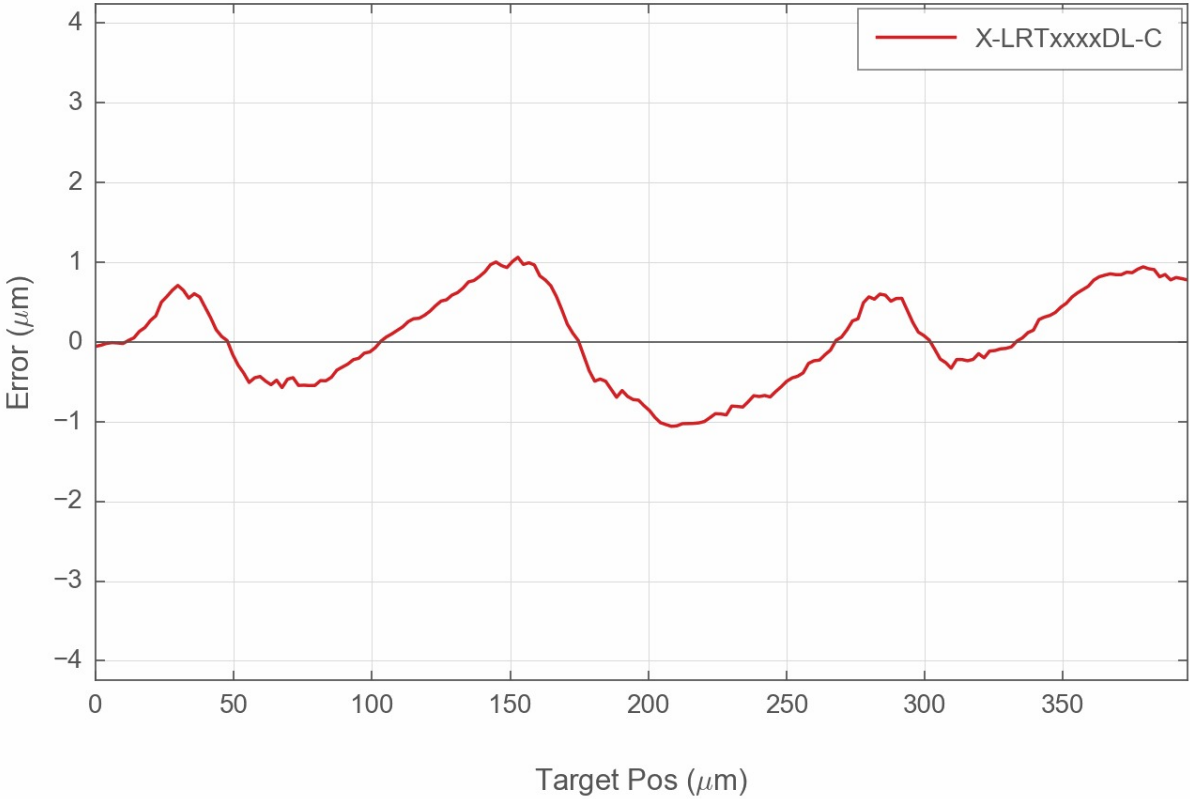
Typical Microstepping Accuracy



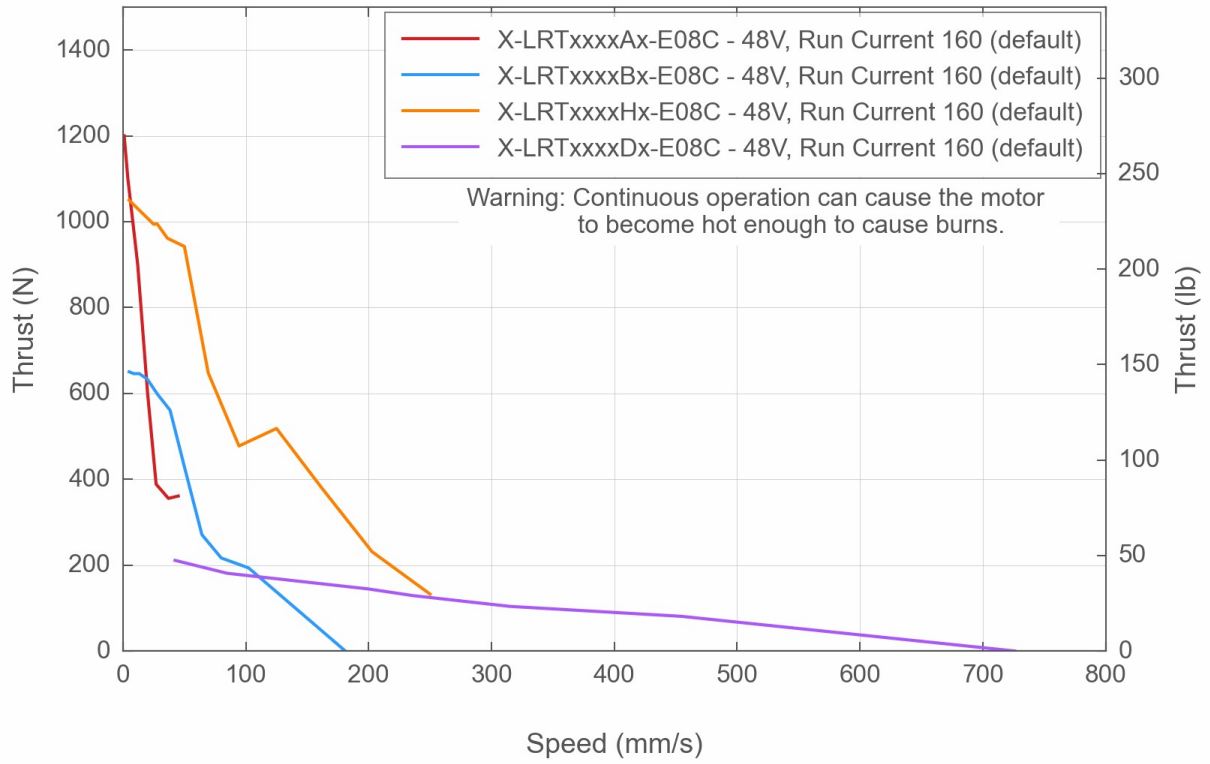
Typical Microstepping Accuracy



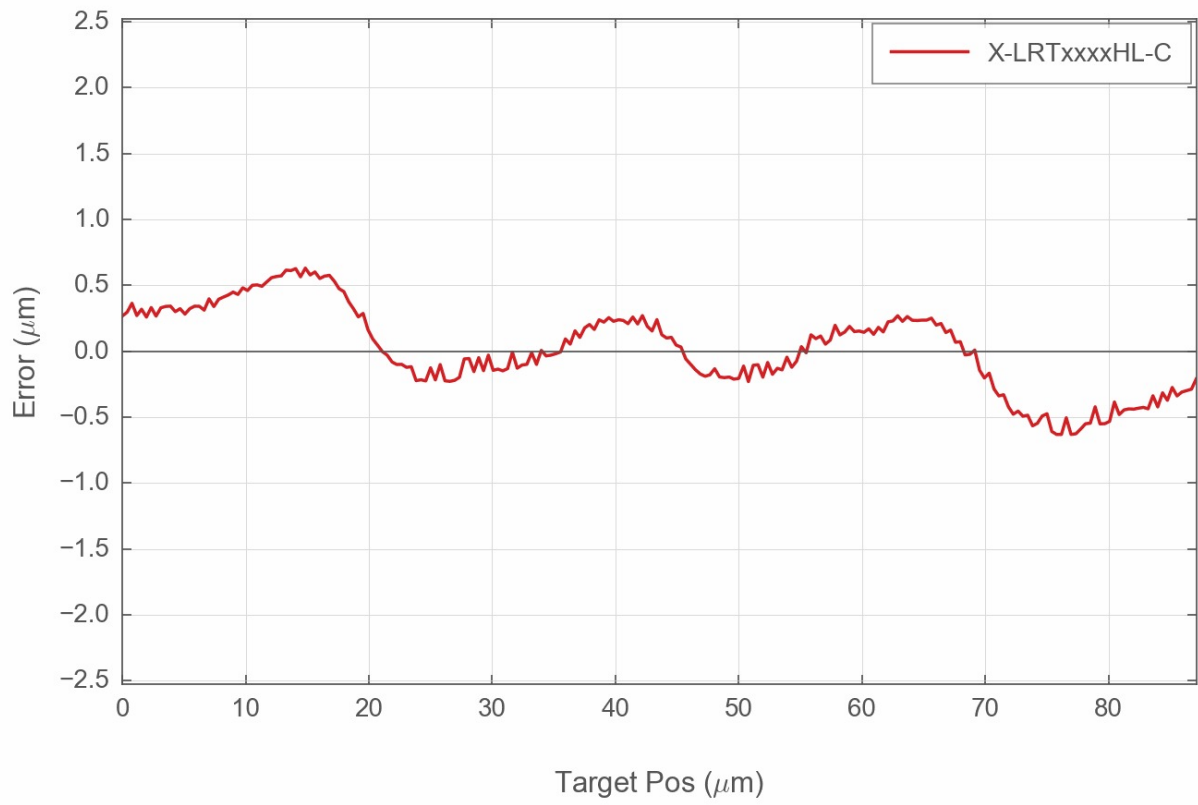
Typical Microstepping Accuracy



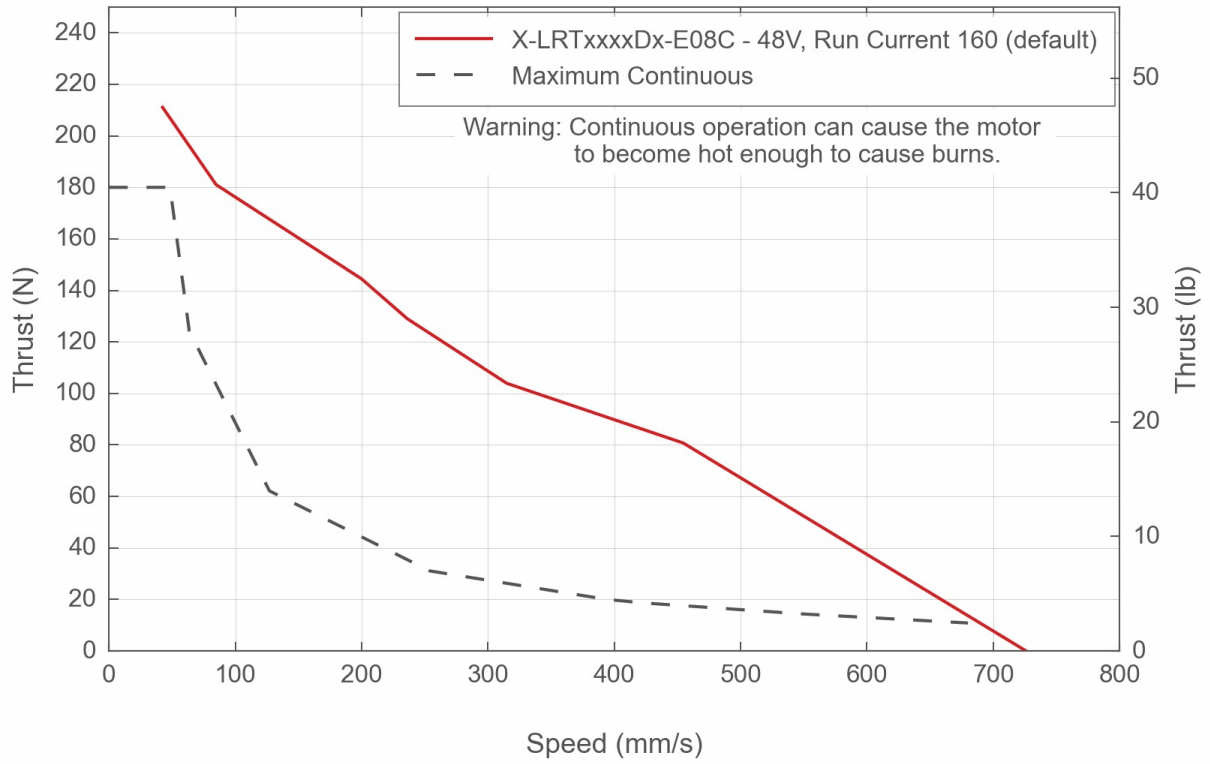
Thrust Speed Performance



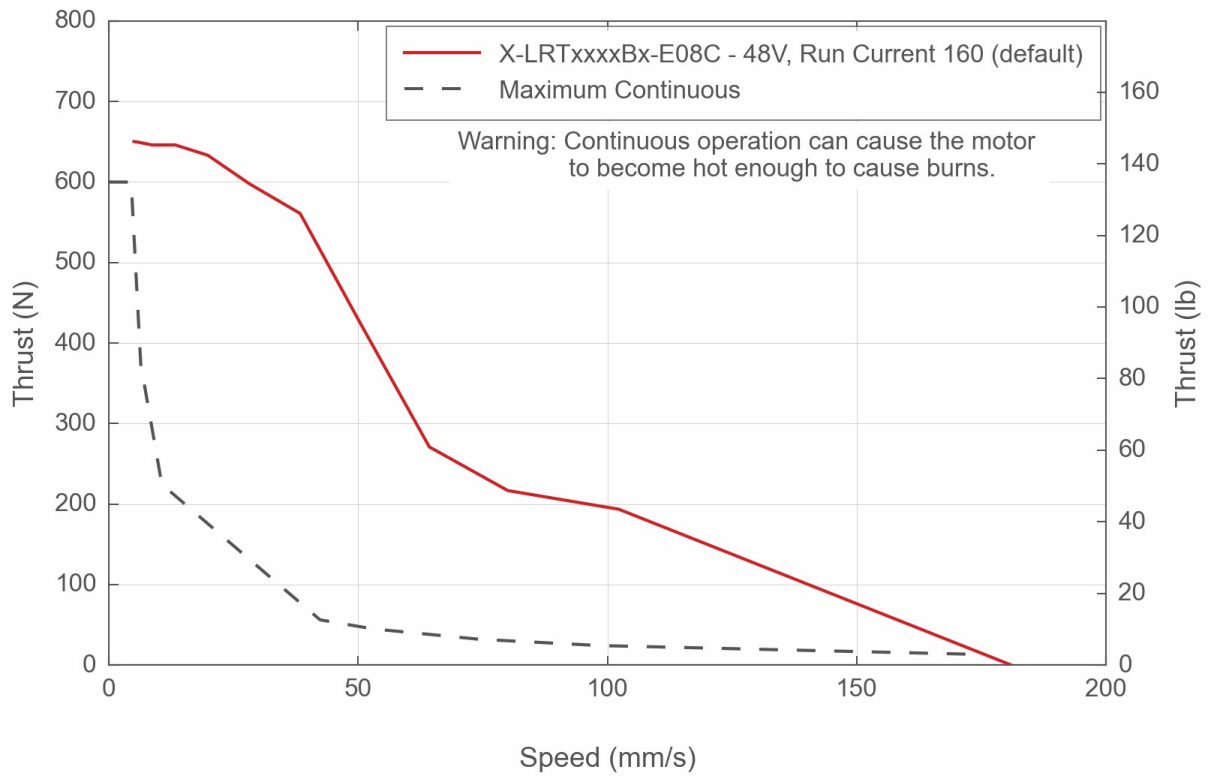
Typical Microstepping Accuracy



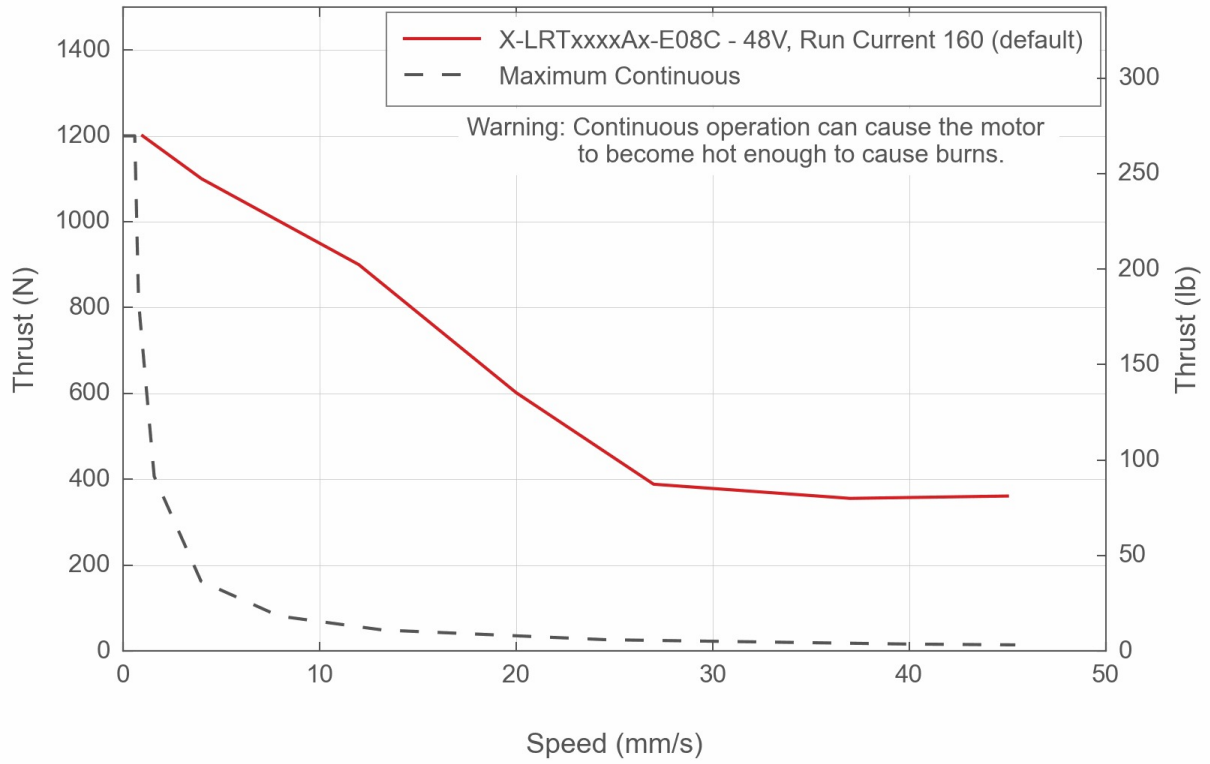
Thrust Speed Performance



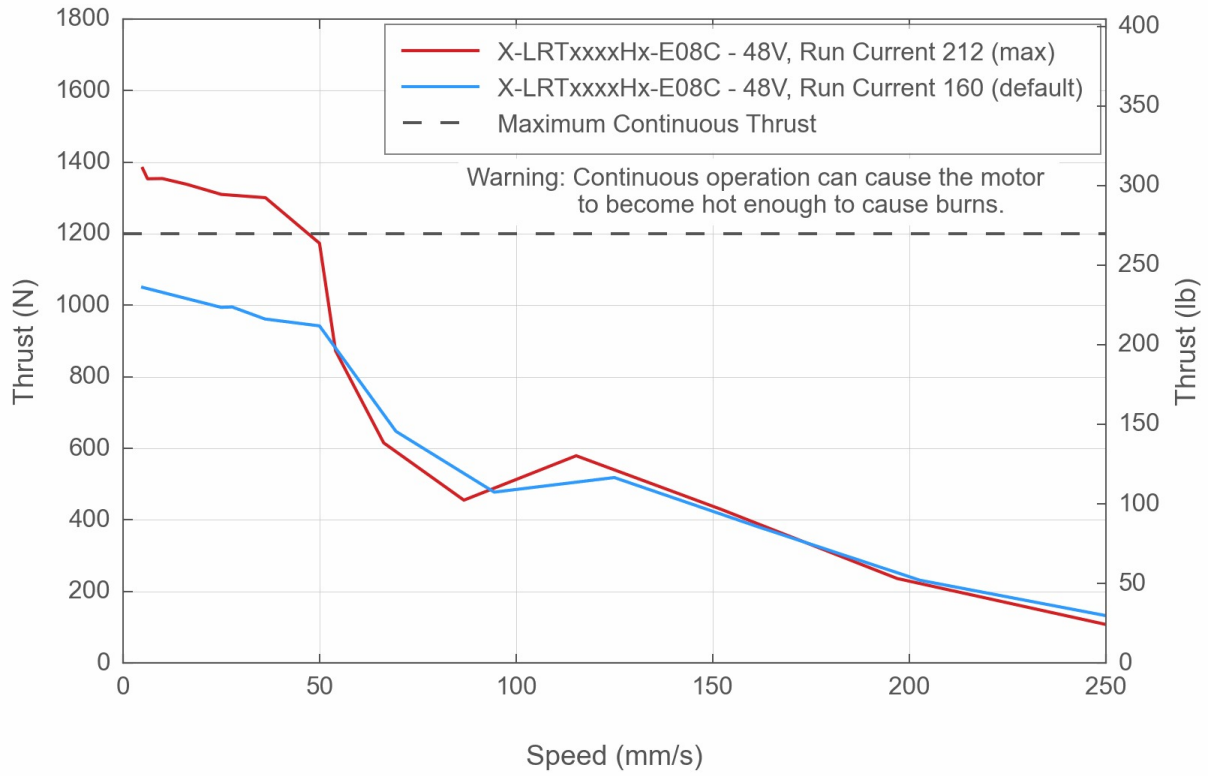
Thrust Speed Performance



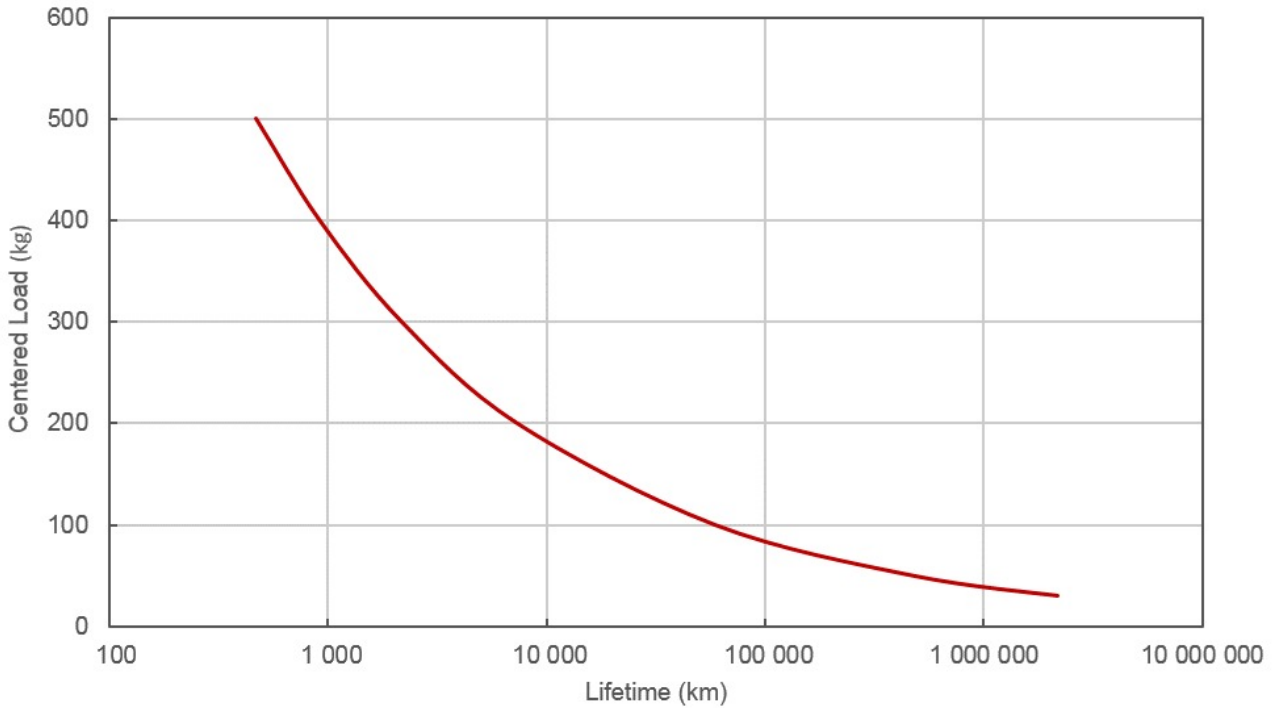
Thrust Speed Performance



Thrust Speed Performance



Typical LRT Bearing Lifetime



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