X-LRT1000DL-E08C Datasheet

- 100, 250, 500, 750, 1000, 1500 mm travel
- Up to 700 mm/s speed and up to 1200 N thrust
- 300 kg load capacity
- High moment 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.

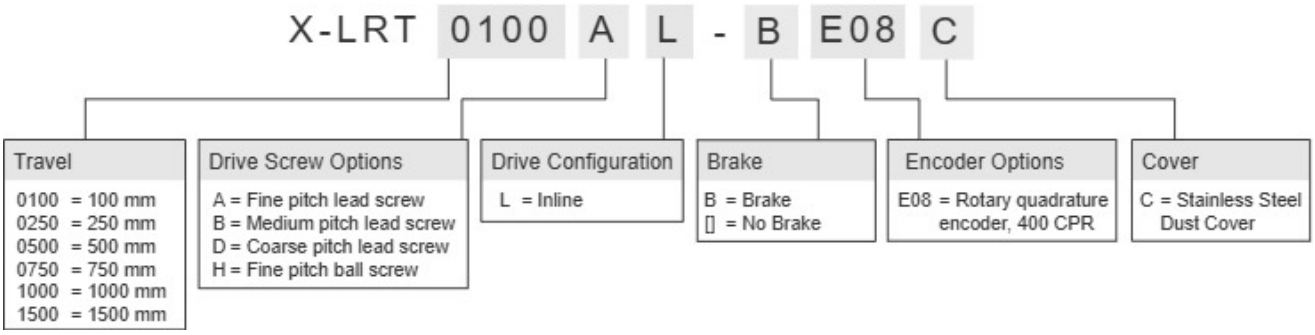
These stages connect to the RS-232 port or USB port of any computer, and they can be daisy-chained with any other Zaber products. The daisy-chain also shares power, making it possible for multiple X-Series products to share a single power supply. Convenient locking, 4-pin, M8

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 & Options



X-LRT1000DL-E08C Drawings

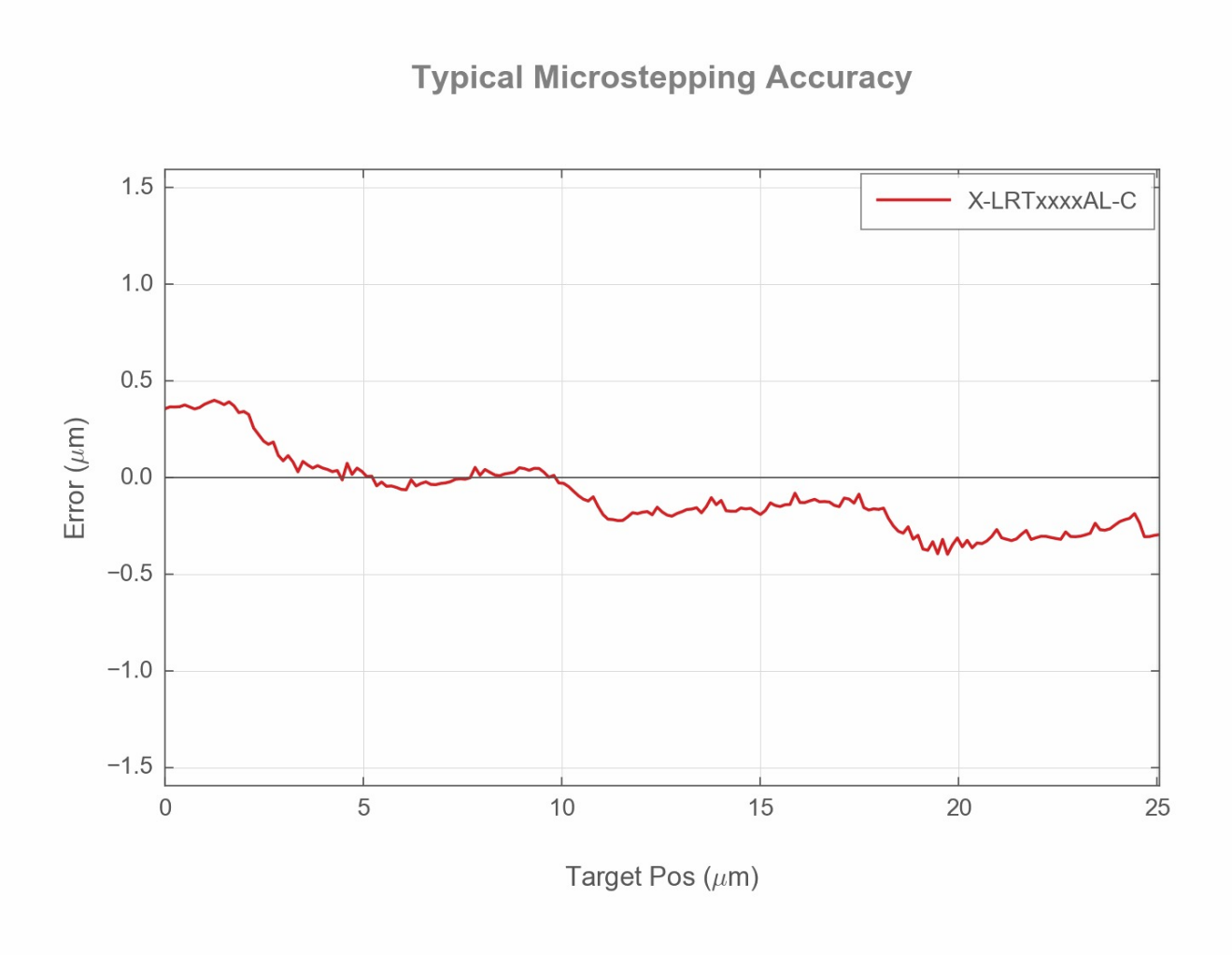
- X-LRT-EC.png (Drawing for the X-LRT-EC)

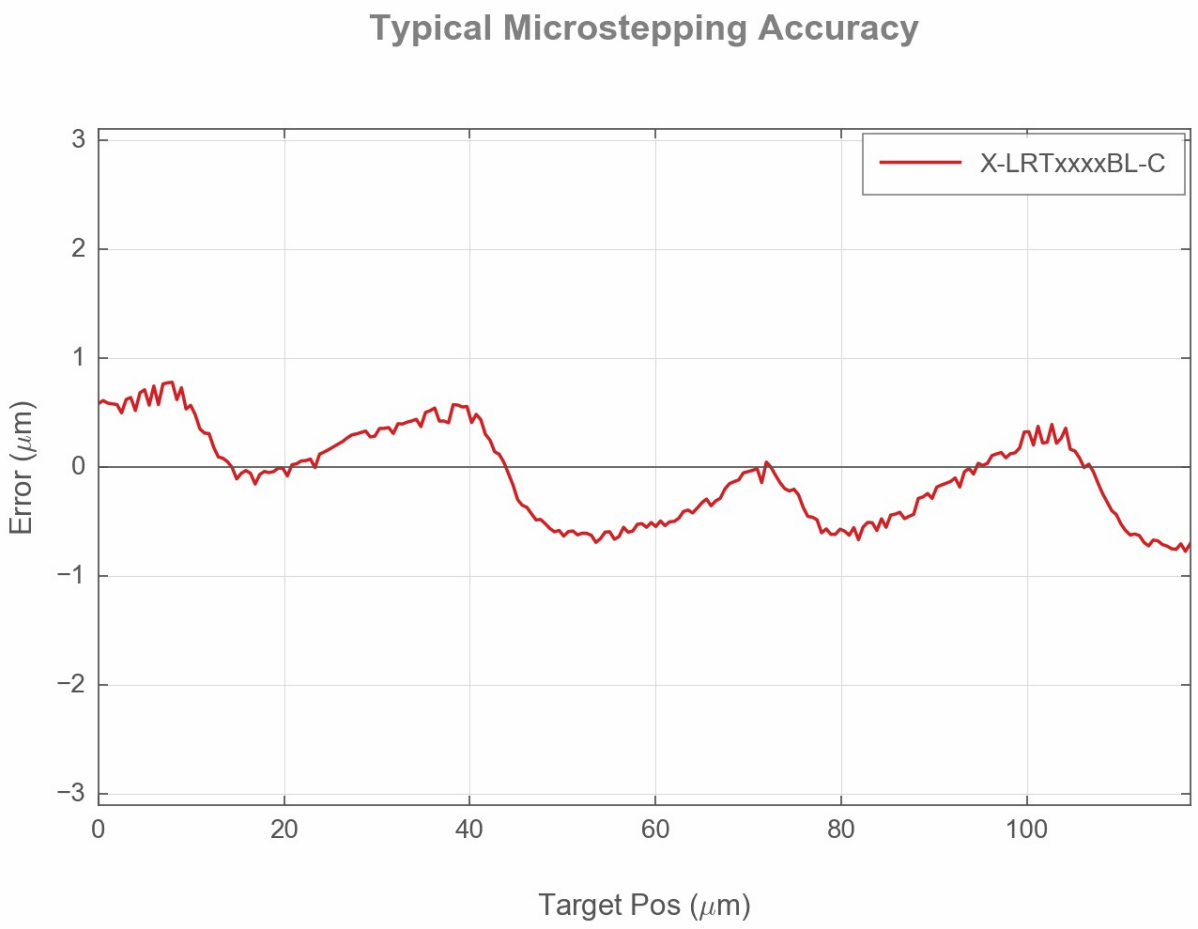
X-LRT1000DL-E08C Specifications

Microstep Size (Default Resolution)	**1.984375 µm**
Built-in Controller	Yes
Travel Range	1000 mm (39.370")
Accuracy (unidirectional)	250 µm (0.009842")
Repeatability	< 8 µm (< 0.000315")
Backlash	< 75 µm (< 0.002953")
Maximum Speed	500 mm/s (19.685"/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*	(± 30%) 40 N (9.0 lb)
Maximum Continuous Thrust	180 N (40.4 lb)
Communication Interface	RS-232
Communication Protocol	Zaber ASCII
Data Cable Connection	Locking 4-pin M8
Maximum Centered Load	2940 N (659.3 lb)
Maximum Moment (Pitch)	70 N-m (51.7 ft-lb)
Maximum Moment (Roll)	120 N-m (88.6 ft-lb)
Maximum Moment (Yaw)	70 N-m (51.7 ft-lb)
Vertical Runout	< 10 µm (< 0.000394")
Horizontal Runout	< 50 µm (< 0.001968")
Pitch	0.015° (0.262 mrad)
Roll	0.02° (0.349 mrad)
Yaw	0.03° (0.523 mrad)
Stiffness in Pitch	1400 N-m/° (12 µrad/N-m)
Stiffness in Roll	700 N-m/° (25 µrad/N-m)
Stiffness in Yaw	1200 N-m/° (15 µrad/N-m)
Power Supply	24-48 VDC
Power Plug	2-pin screw terminal

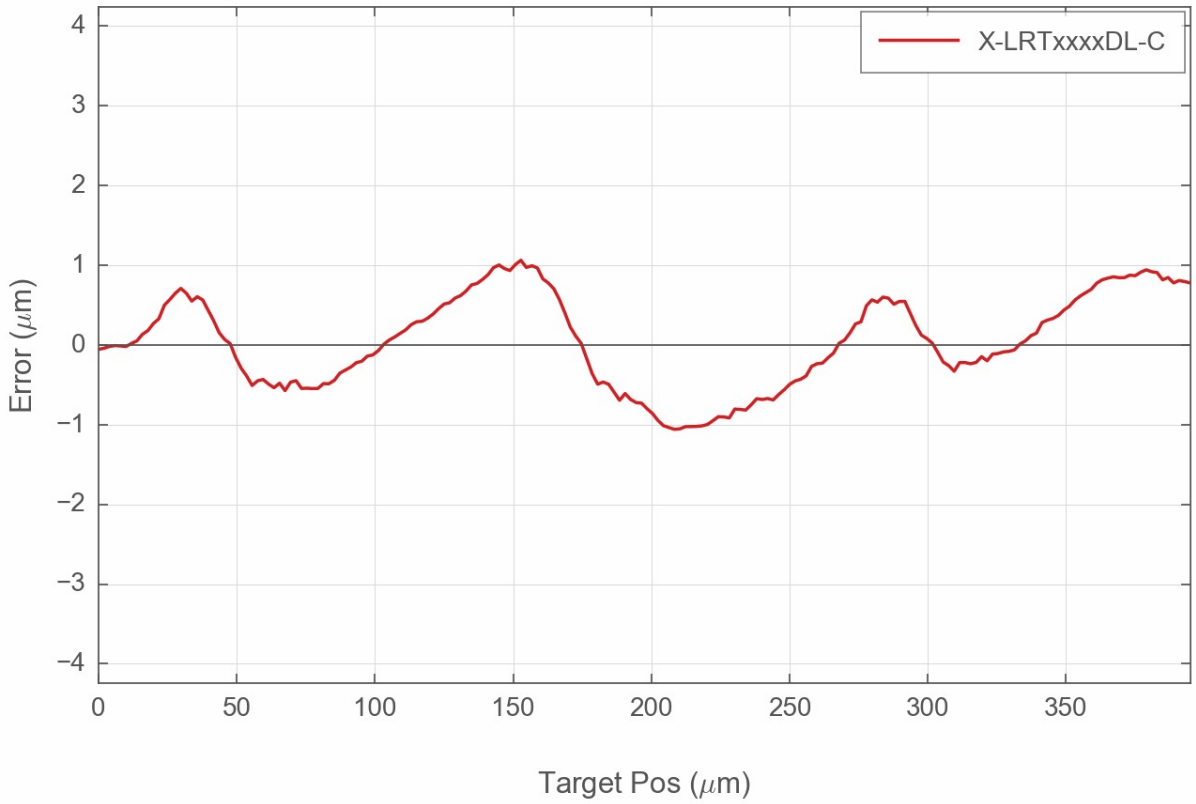
Microstep Size (Default Resolution)	**1.984375 µm**
Maximum Current Draw	3600 mA
Linear Motion Per Motor Rev	25.4 mm (1.000")
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	3000 mA/phase
Inductance	2 mH/phase
Default Resolution	1/64 of a step
Guide Type	Recirculating Ball Linear Guide
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
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No
Weight	8.393 kg (18.503 lb)

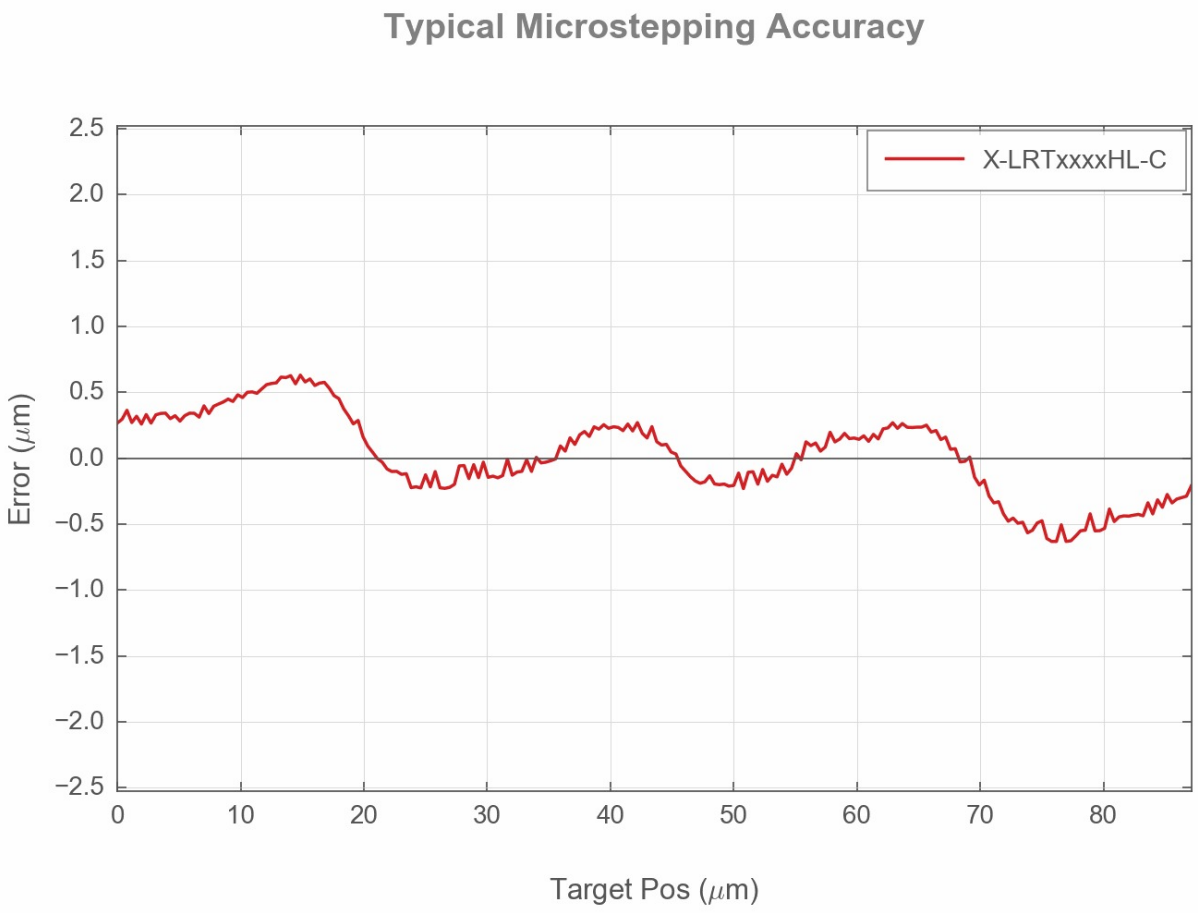
X-LRT-EC Series Charts



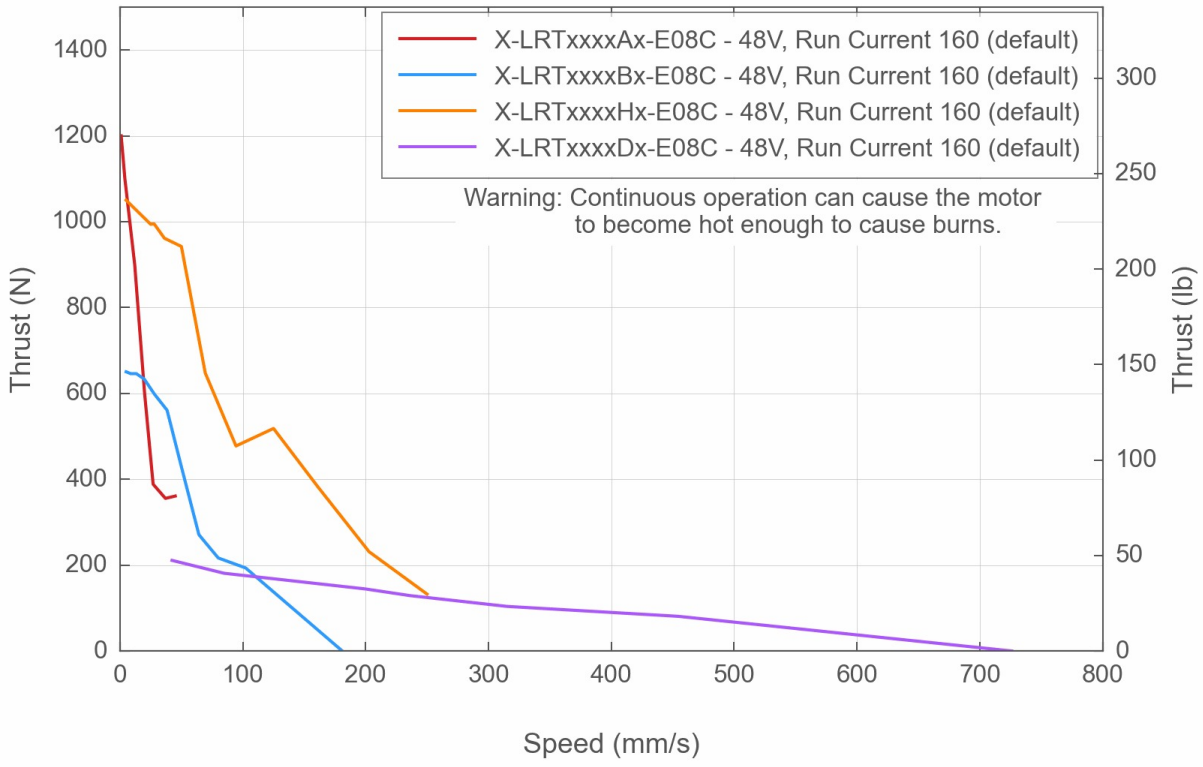

Typical Microstepping Accuracy
X-LRTxxxxBL-C
Error (μm)
Target Pos (μm)
3
2
1
0
−1
−2
−3
0
20
40
60
80
100

Typical Microstepping Accuracy

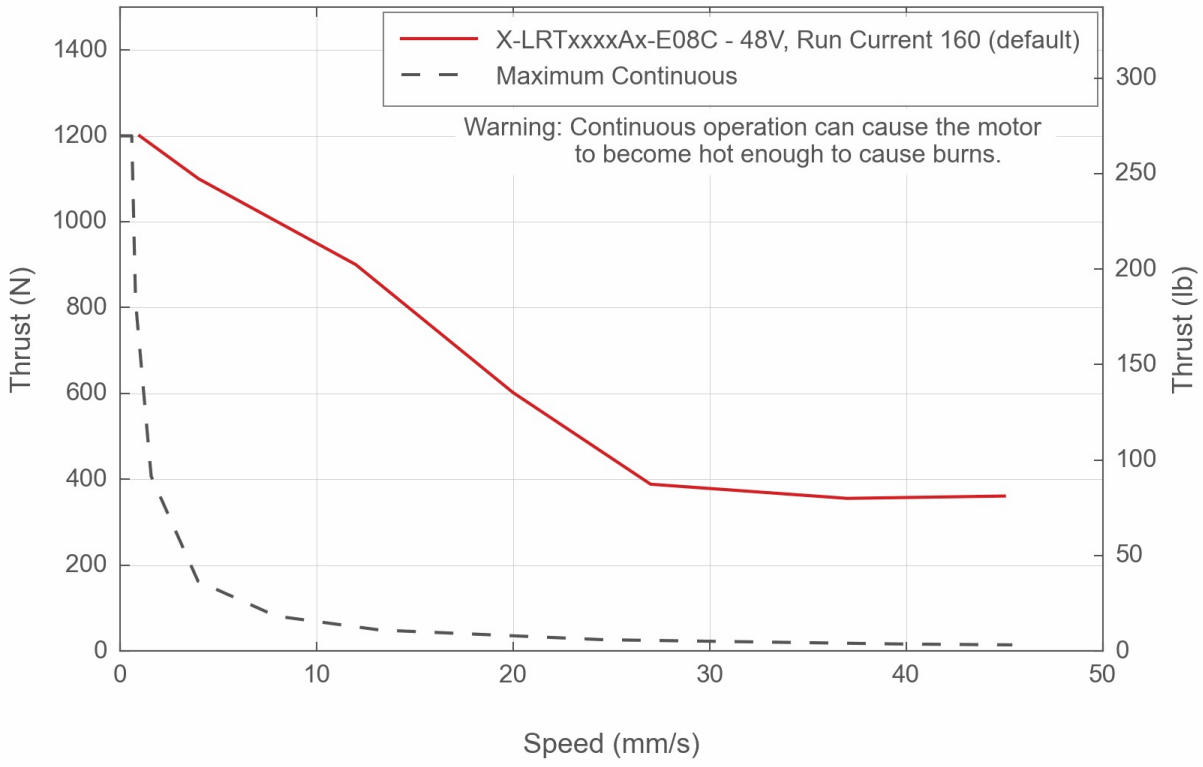



Typical Microstepping Accuracy
X-LRTxxxxHL-C
Error (μm)
Target Pos (μm)
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
−1.0
−1.5
−2.0
−2.5
0
10
20
30
40
50
60
70
80

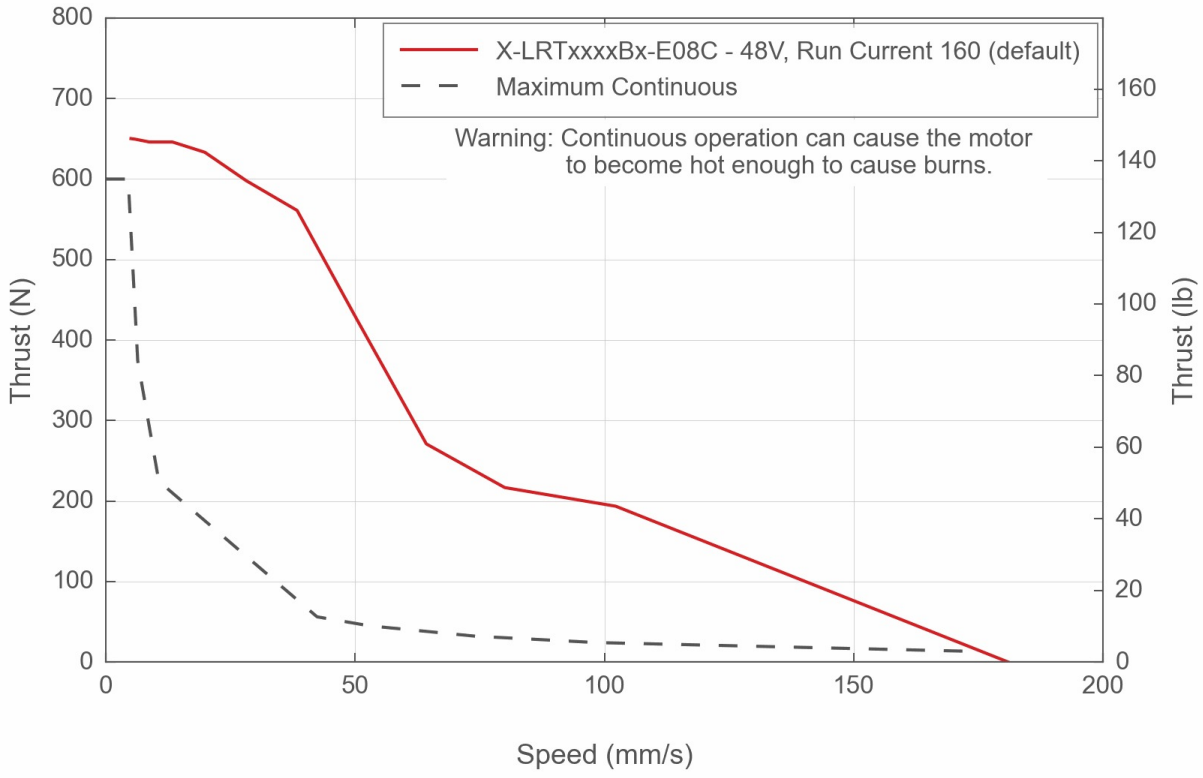
Thrust Speed Performance



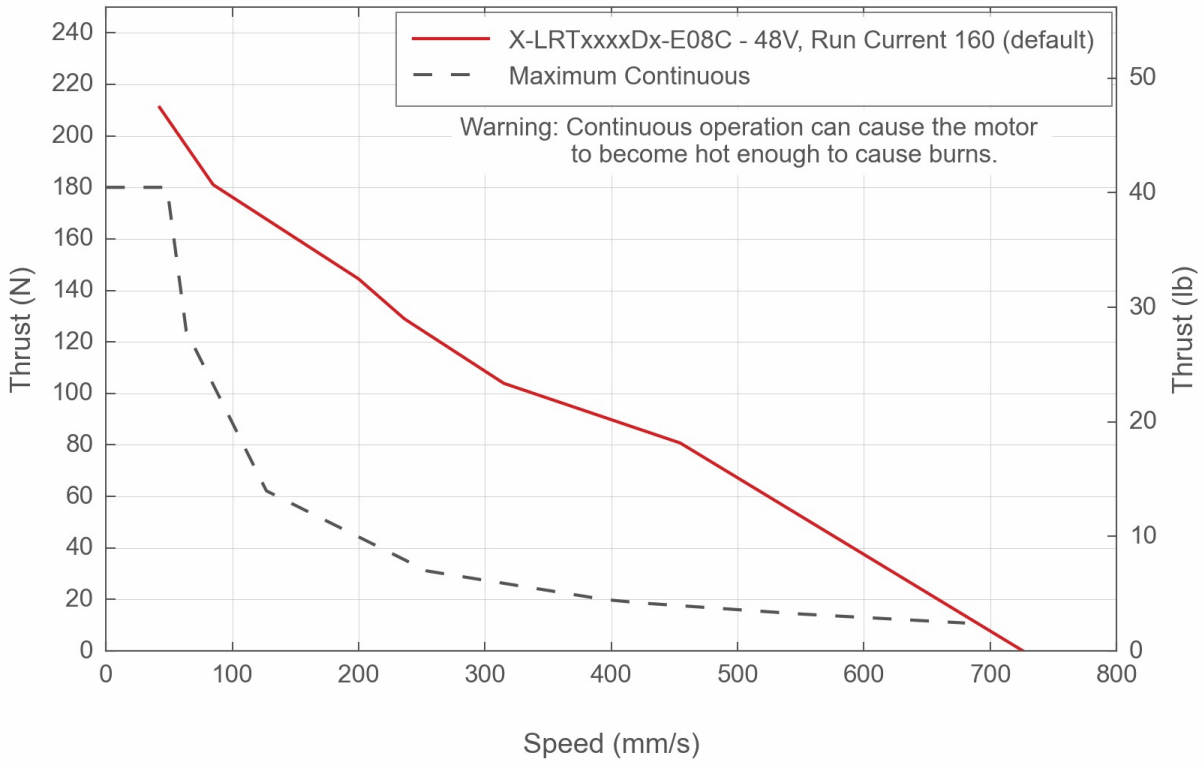
Thrust Speed Performance



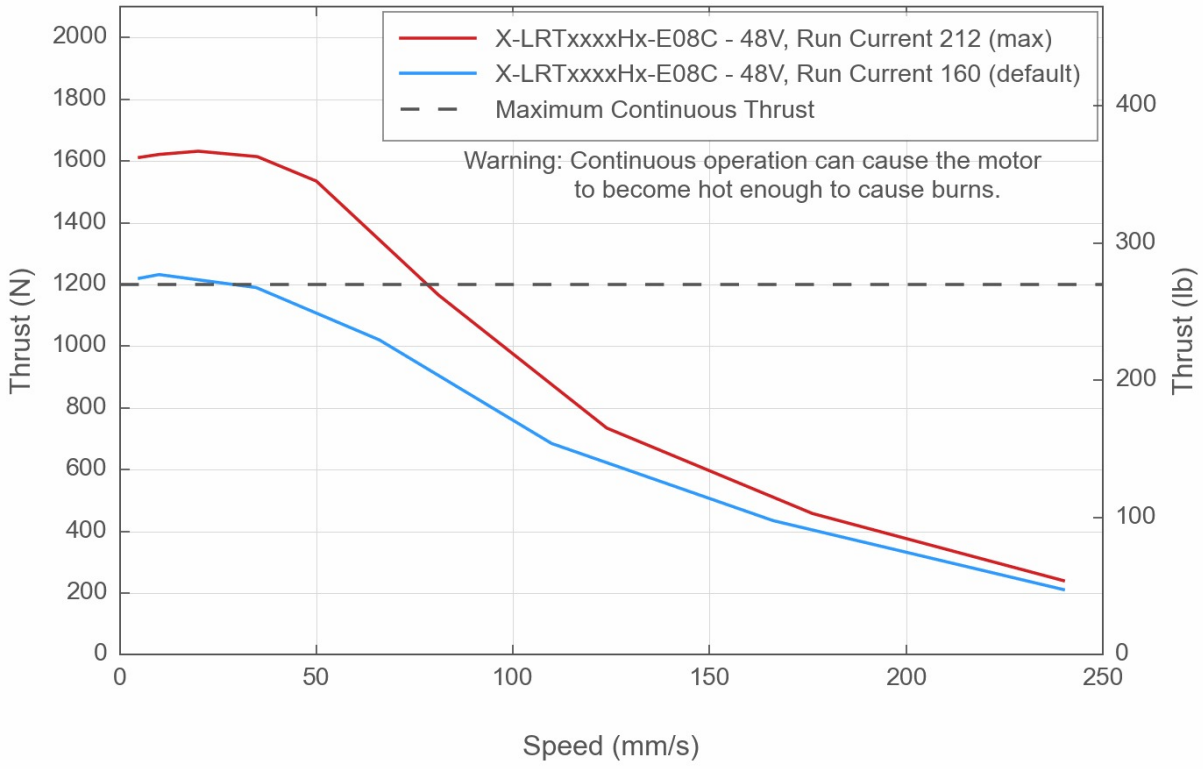
Thrust Speed Performance



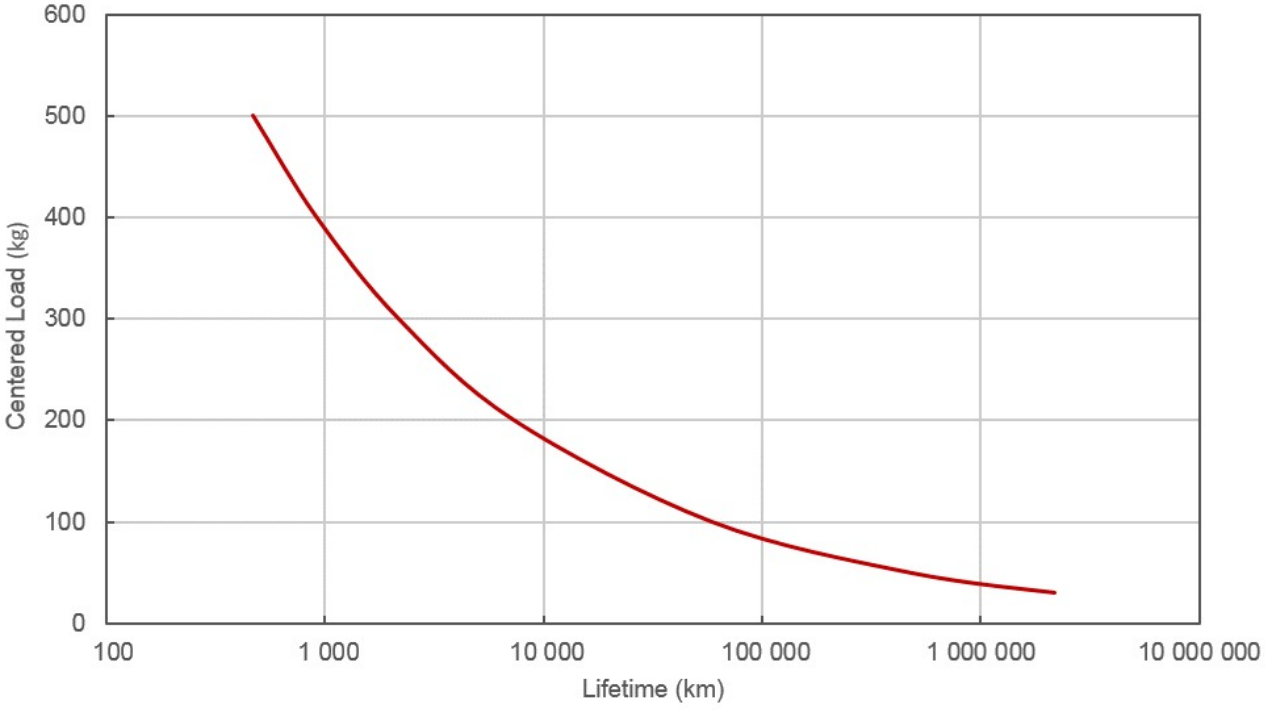
Thrust Speed Performance



Thrust Speed Performance



Typical LRT Bearing Lifetime



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