X-LRT0750HL-BAE53C Datasheet

- 100, 250, 500, 750, 1000, 1500 mm travel
- 20 µm full travel accuracy
- 300 kg load capacity
- Includes stainless steel dust covers
- Ball screw and lead screw configurations
- Optional integrated power-off brake for vertical applications
- Integrated linear encoders with 50 nm resolution provide slip/stall detection and position correction
- Built-in controller; daisy-chains with other Zaber products

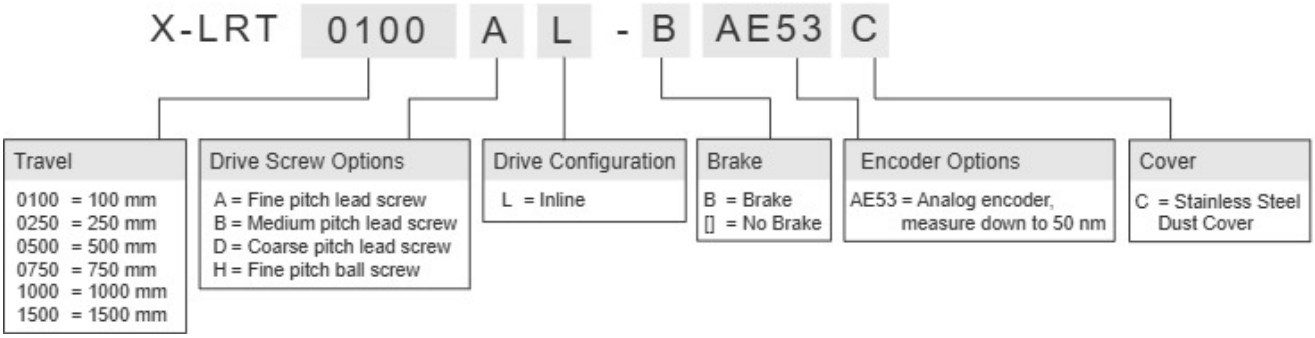
X-LRT-AEC Series Overview

Zaber's X-LRT-AEC Series are computer-controlled, motorized linear stages designed for positioning high loads to within 20 µm accuracy. An integrated linear encoder combined with stage calibration provides high accuracy positioning over the full travel of the device. They have low pitch, roll, yaw and runout and long lifetime. Flexible dust covers keep out moderate debris. 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.

X-LRT-AEC devices are stand-alone units requiring only a standard 48 V power supply. They connect to the RS-232 port or USB port of any computer, and can be daisy-chained with any other Zaber products. Like all of Zaber's products, the X-LRT-AEC Series is designed to be 'plug and play' and very easy to set up and operate.

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

X-LRT-AEC Series Part Numbering & Options



X-LRT0750HL-BAE53C Drawings

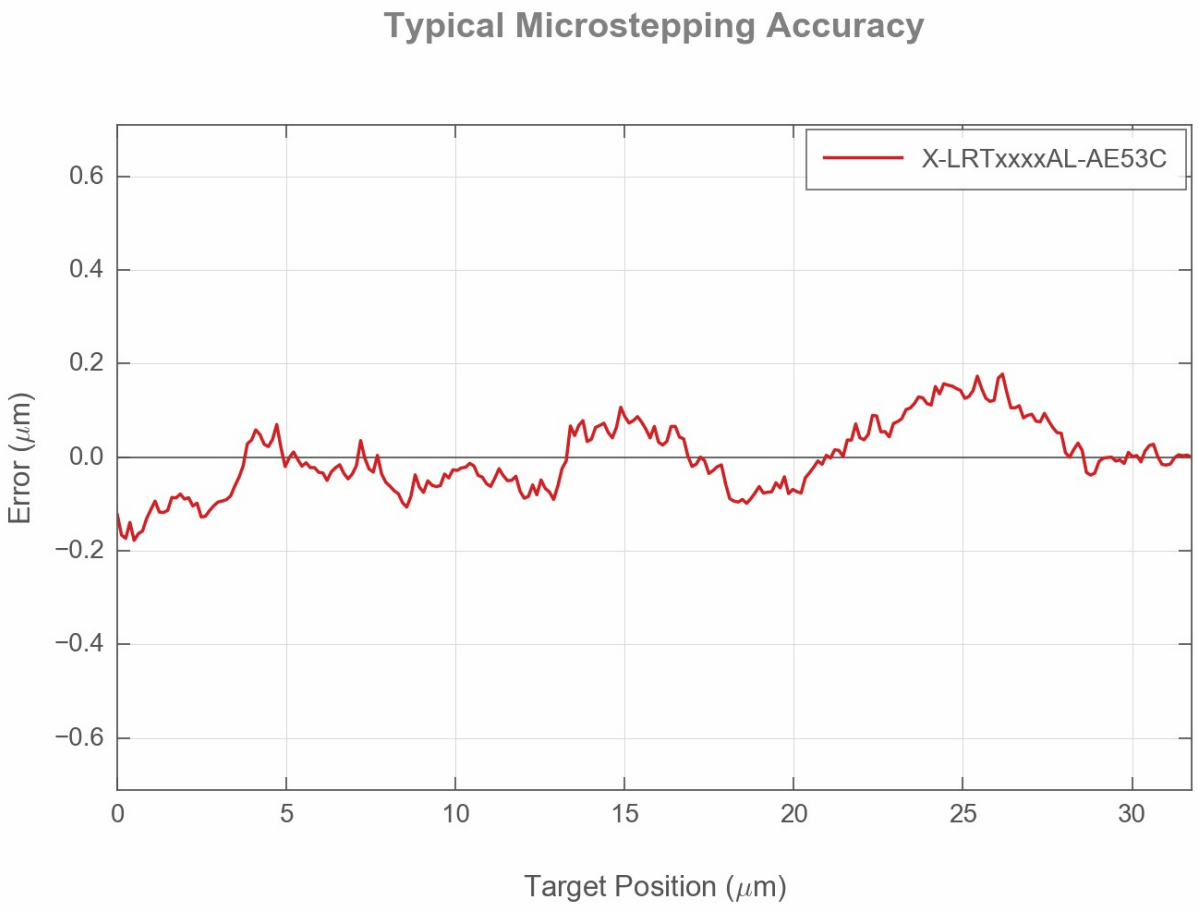
- X-LRT-BAEC.png (Drawing for the X-LRT-BAEC)

X-LRT0750HL-BAE53C Specifications

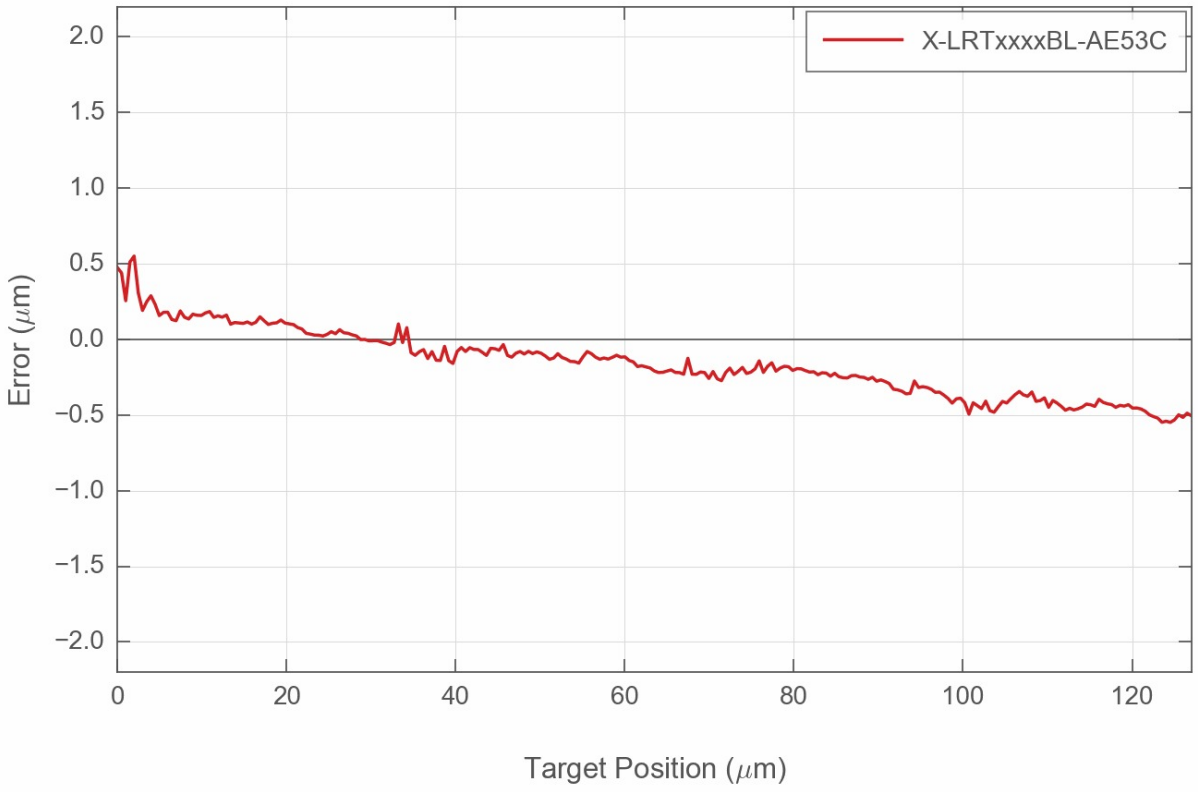
Microstep Size (Default Resolution)	**0.390625 µm**
Built-in Controller	Yes
Travel Range	750 mm (29.528")
Accuracy (unidirectional)	20 µm (0.000787")
Repeatability	< 1.5 µm (< 0.000059")
Minimum Incremental Move	1200 nm
Backlash	< 15 µm (< 0.000591")
Maximum Speed	150 mm/s (5.905"/s)
Minimum Speed	0.000239 mm/s (0.000009"/s)
Speed Resolution	0.000239 mm/s (0.000009"/s)
Encoder Type	Linear analog encoder
Encoder Resolution	50 nm
Peak Thrust	1200 N (269.1 lb)
Back-driving Force*	(± 30%) 157 N (35.2 lb)
Maximum Continuous Thrust	1200 N (269.1 lb)
Communication Interface	RS-232
Communication Protocol	Zaber ASCII (Default)
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)	80 N-m (59.0 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

Microstep Size (Default Resolution)	**0.390625 µm**
Power Plug	2-pin screw terminal
Maximum Current Draw	3600 mA
Linear Motion Per Motor Rev	5 mm (0.197")
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 ball screw
Limit or Home Sensing	Linear Encoder Index Mark
Manual Control	Indexed knob with push switch
Axes of Motion	1
LED Indicators	Yes
Maximum Axial Brake Force	1200 N (269.8 lb)
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No
Weight	7.702 kg (16.980 lb)

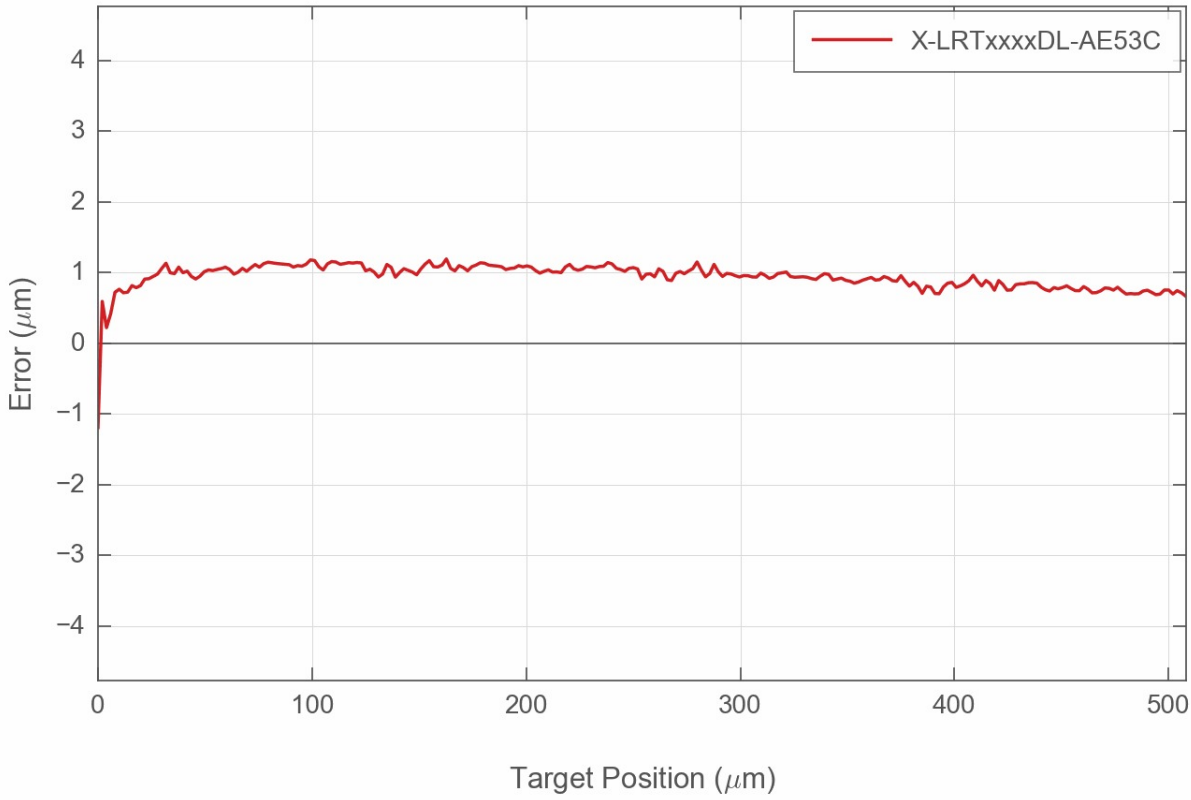
X-LRT-AEC Series Charts

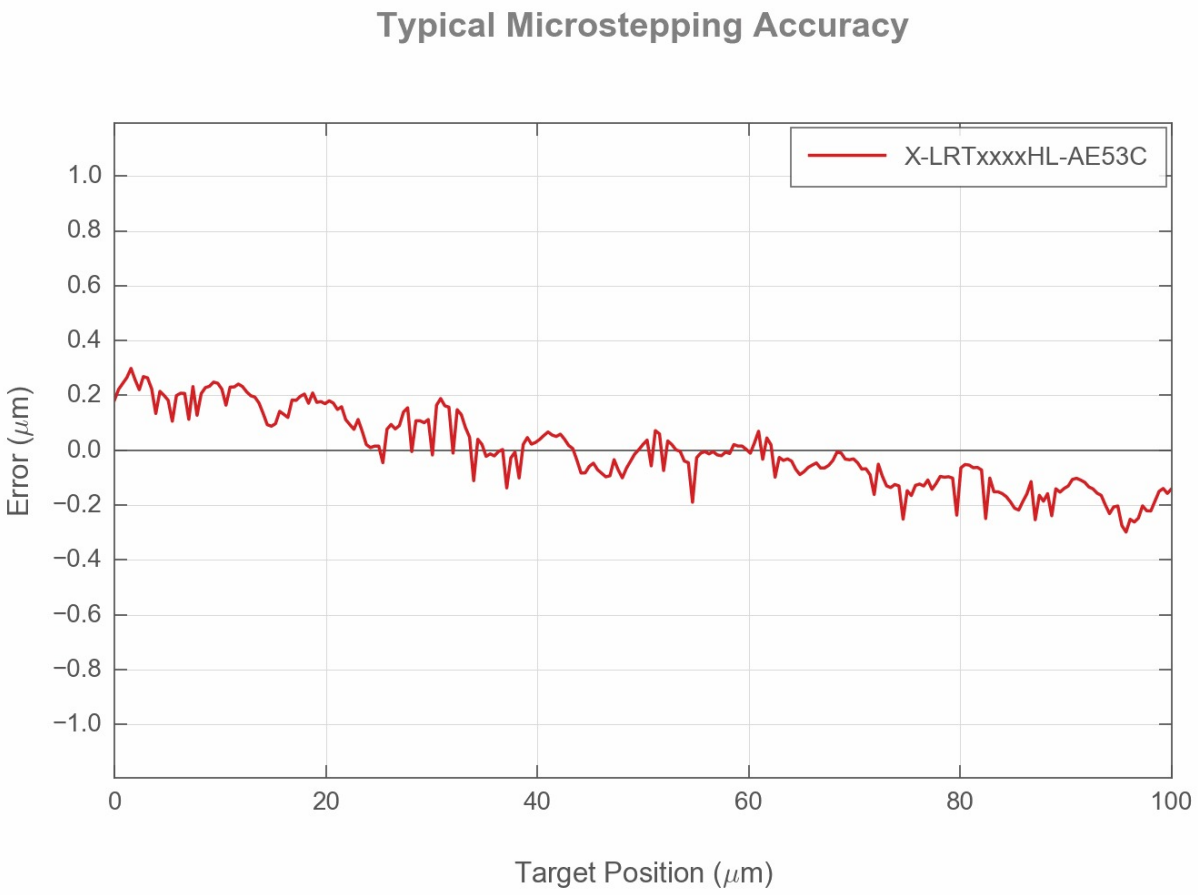


Typical Microstepping Accuracy

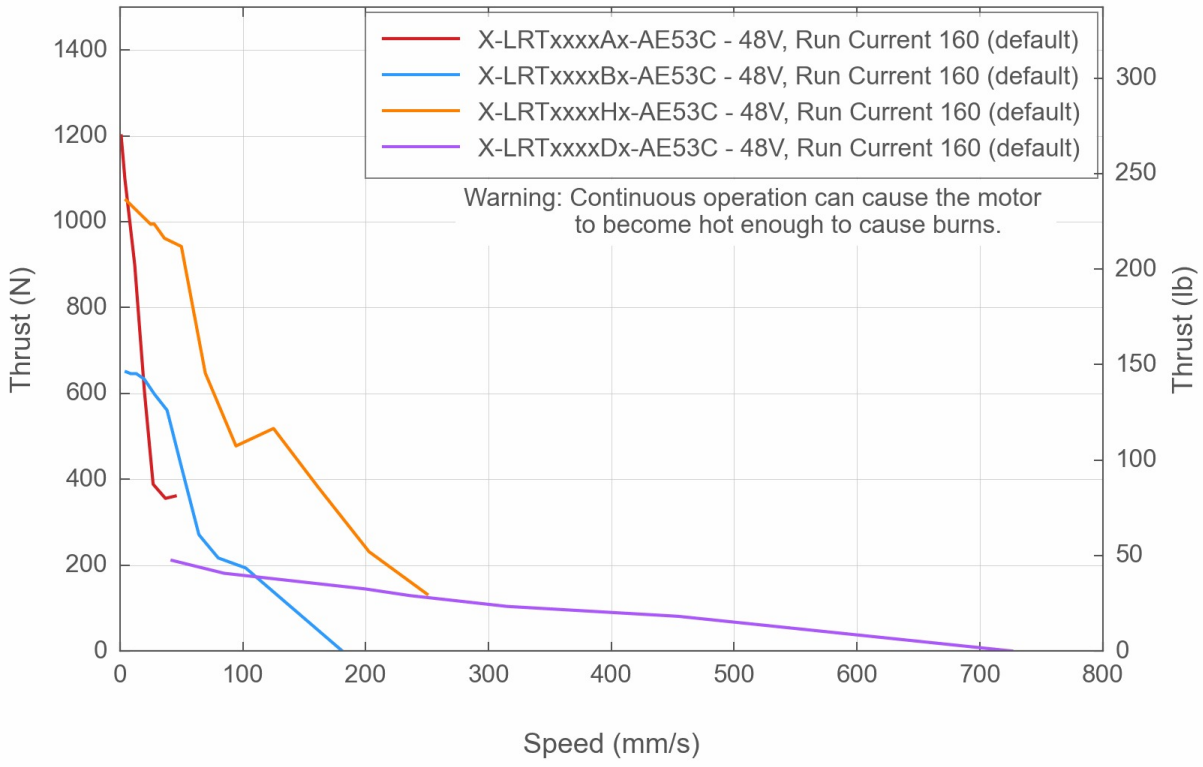


Typical Microstepping Accuracy

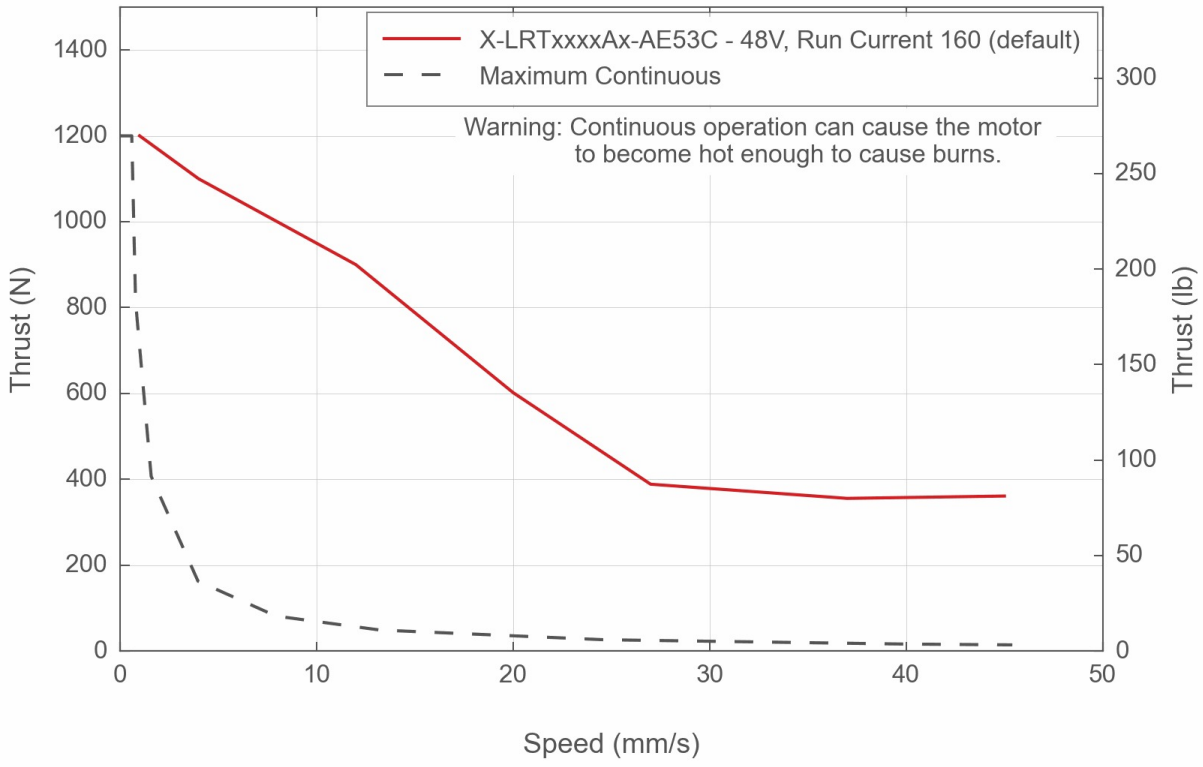



Typical Microstepping Accuracy
X-LRTxxxxHL-AE53C
1.0
0.8
0.6
0.4
0.2
0.0
−0.2
−0.4
−0.6
−0.8
−1.0
Error (μm)
0
20
40
60
80
100
Target Position (μm)

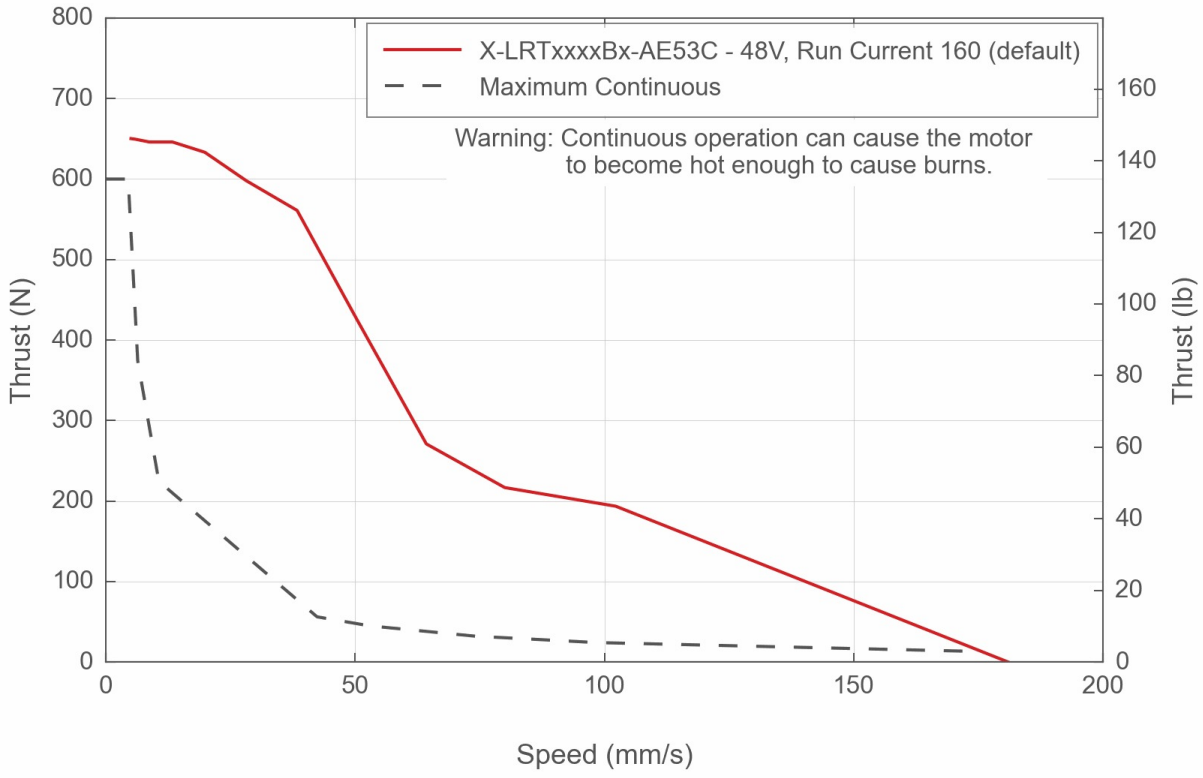
Thrust Speed Performance



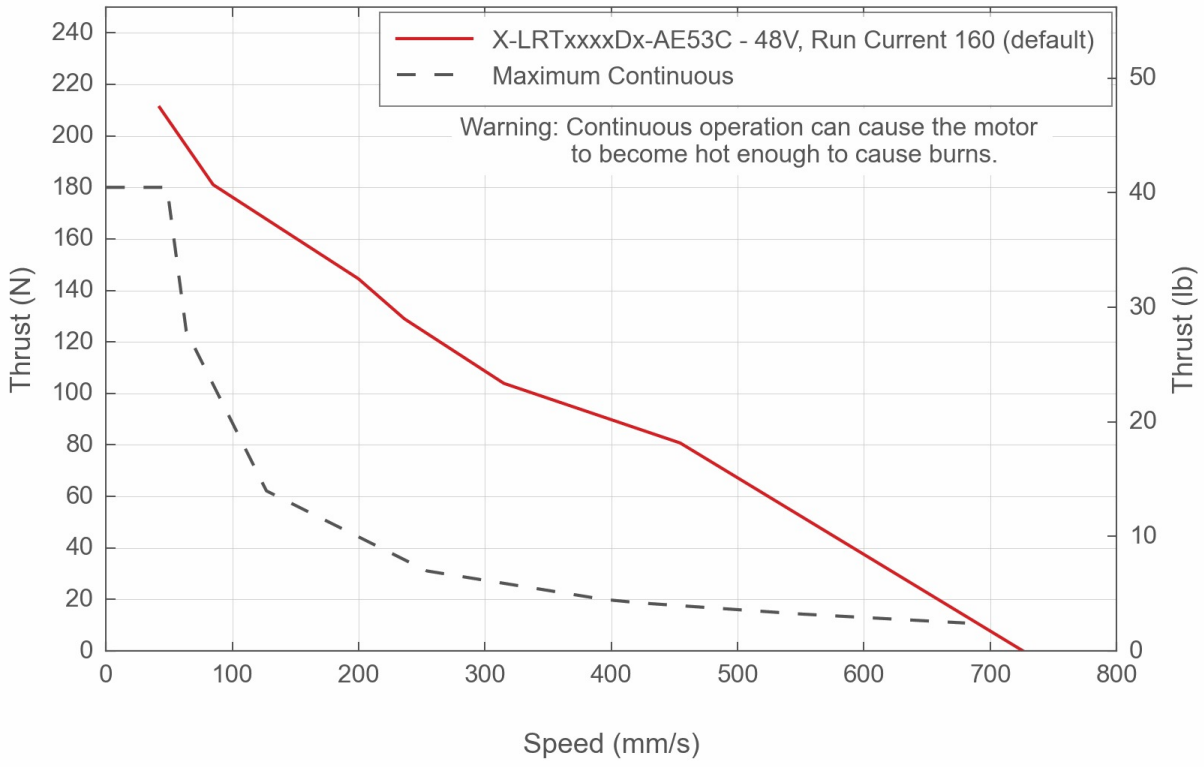
Thrust Speed Performance



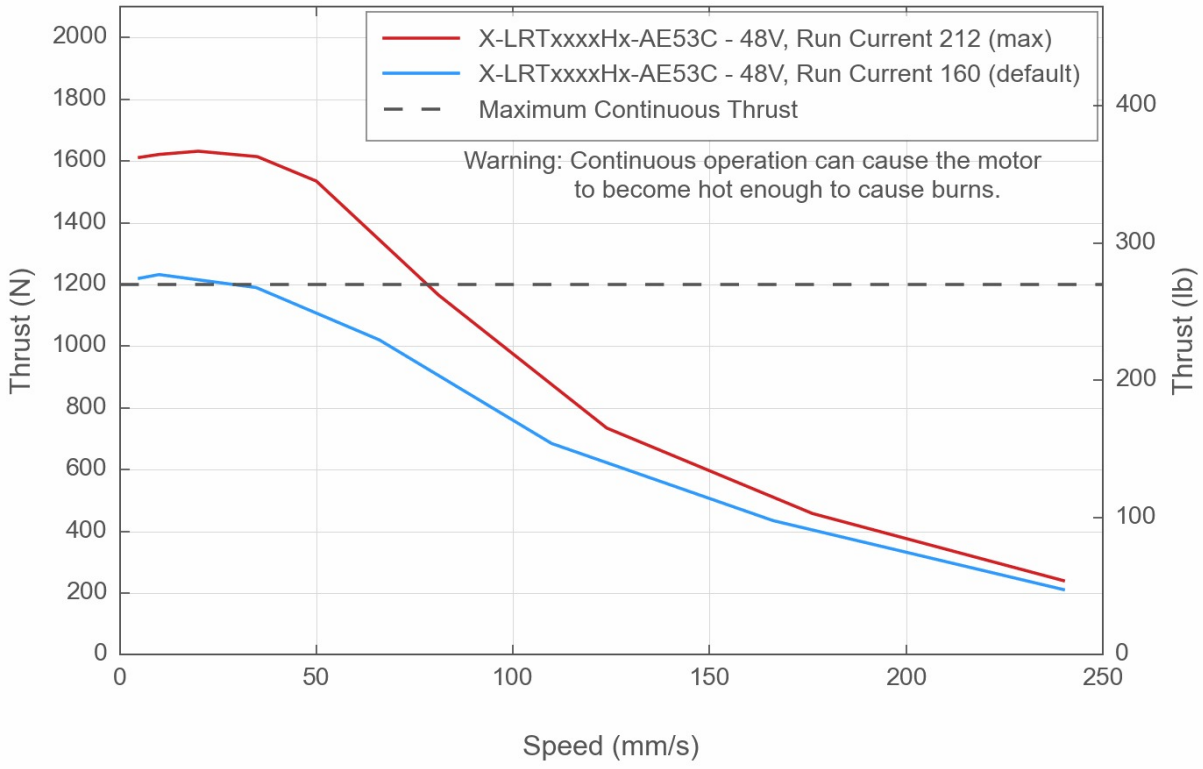
Thrust Speed Performance

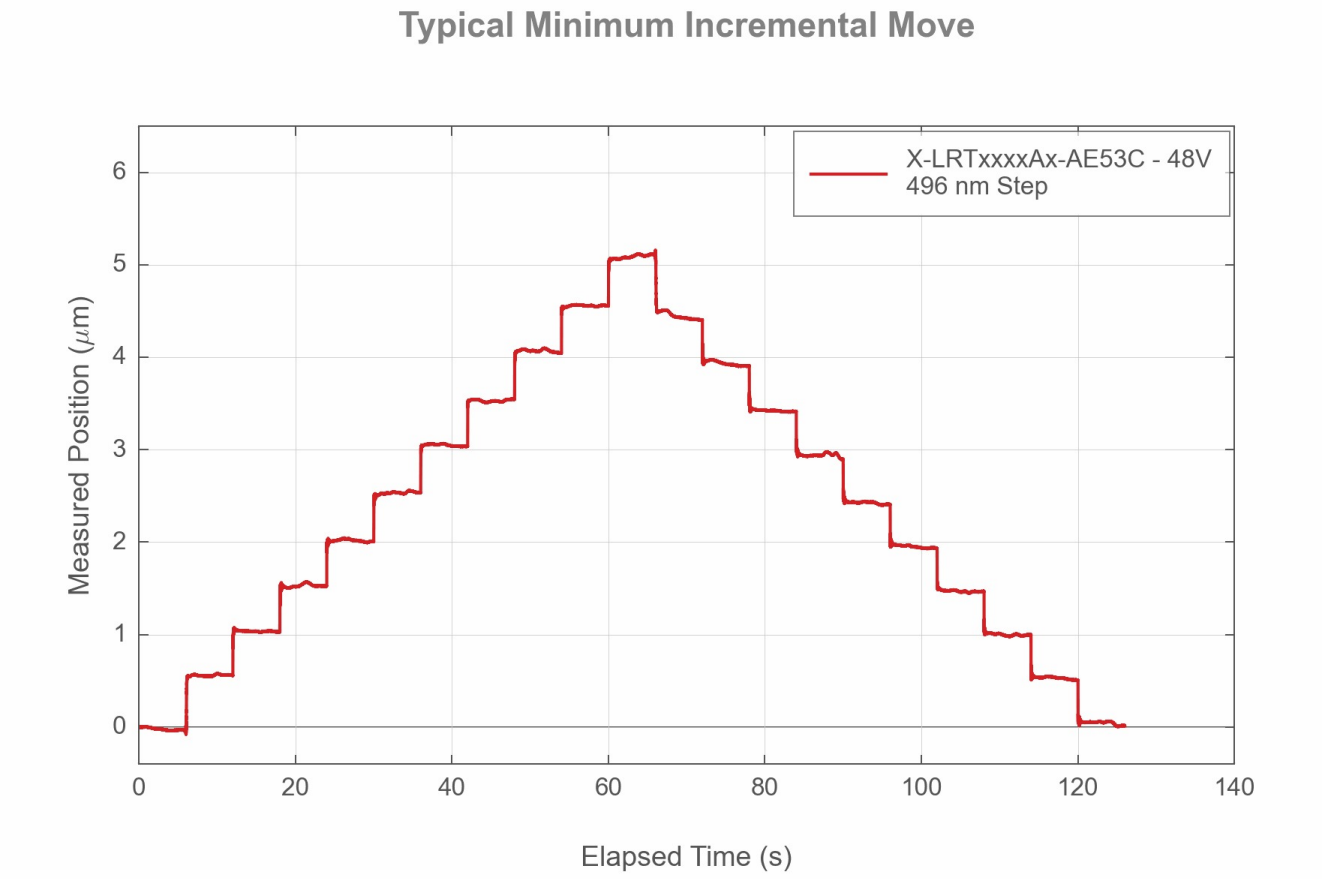


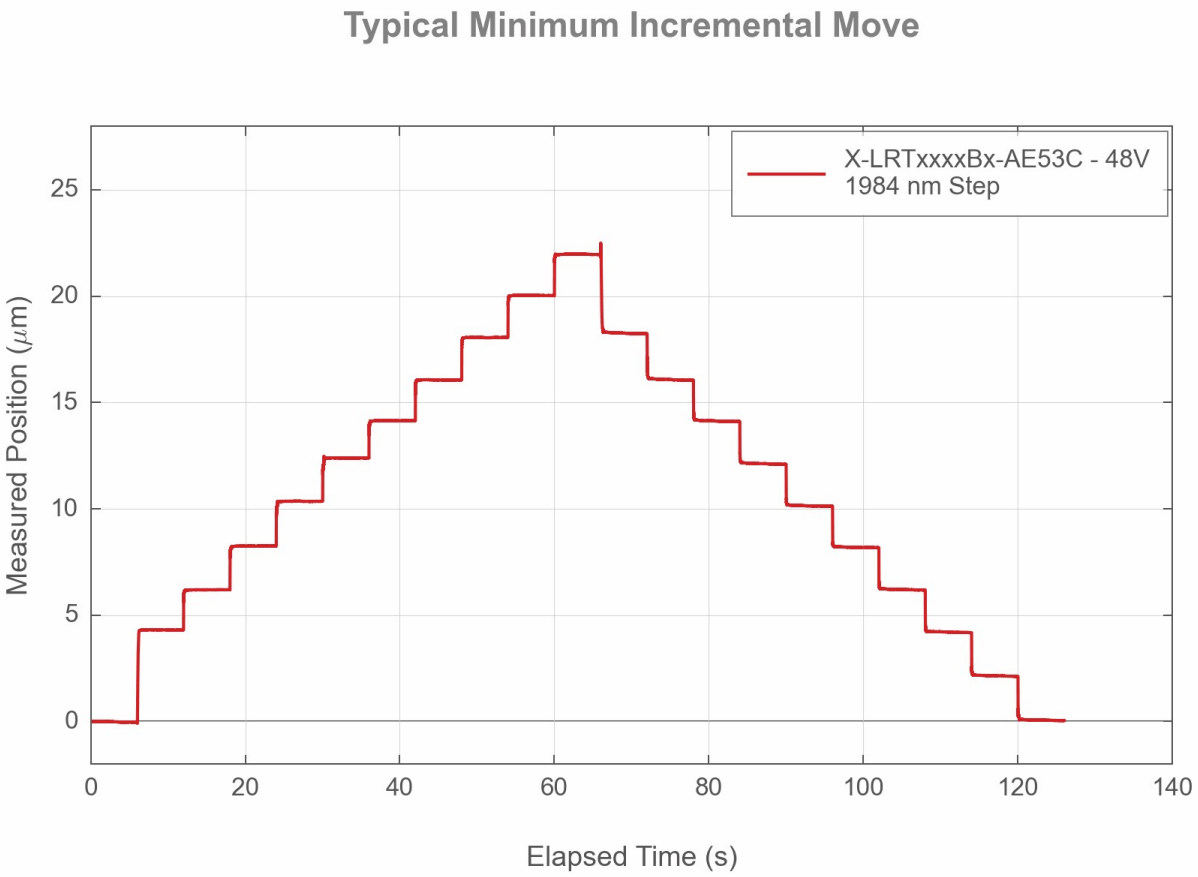
Thrust Speed Performance

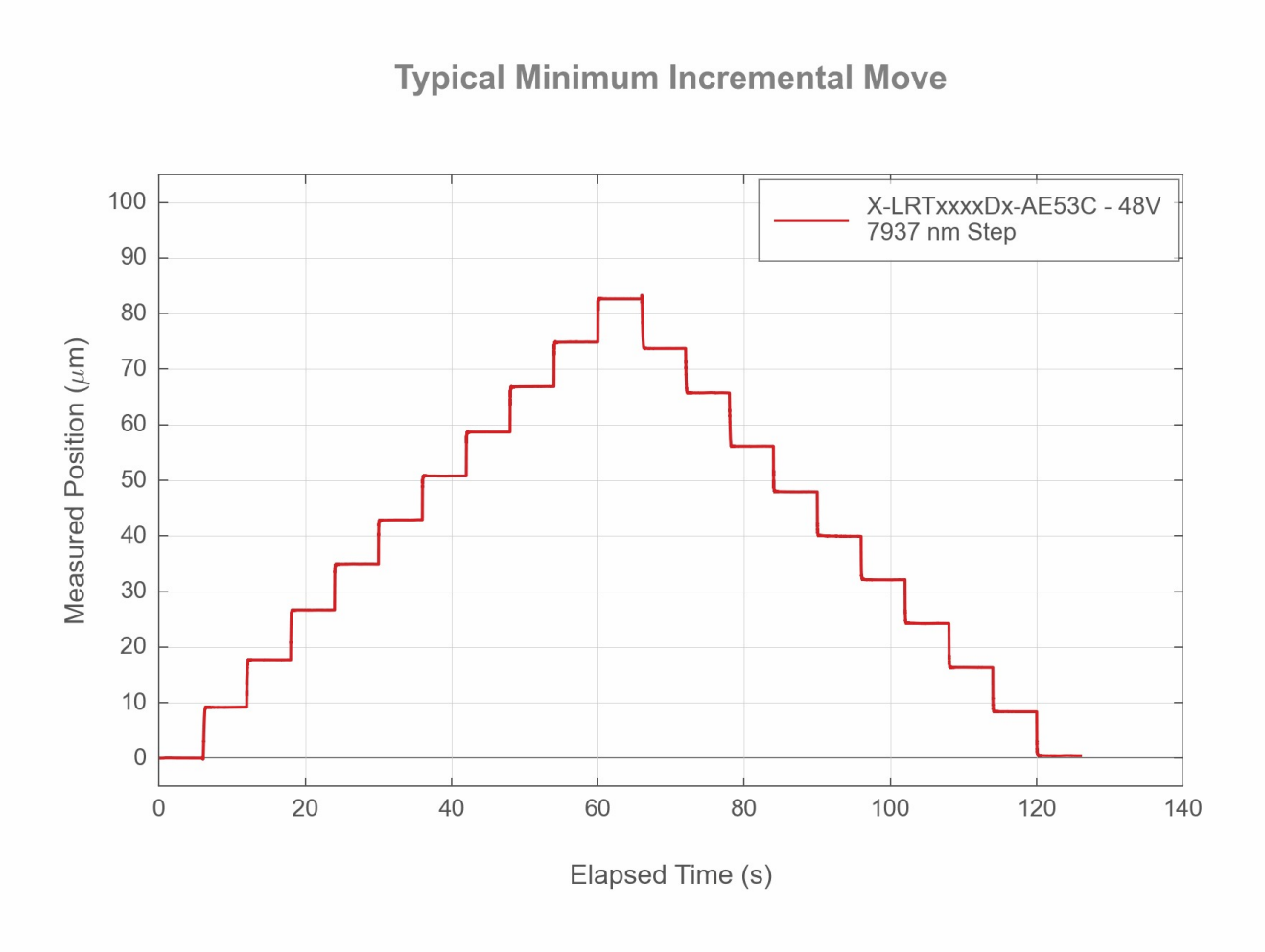


Thrust Speed Performance

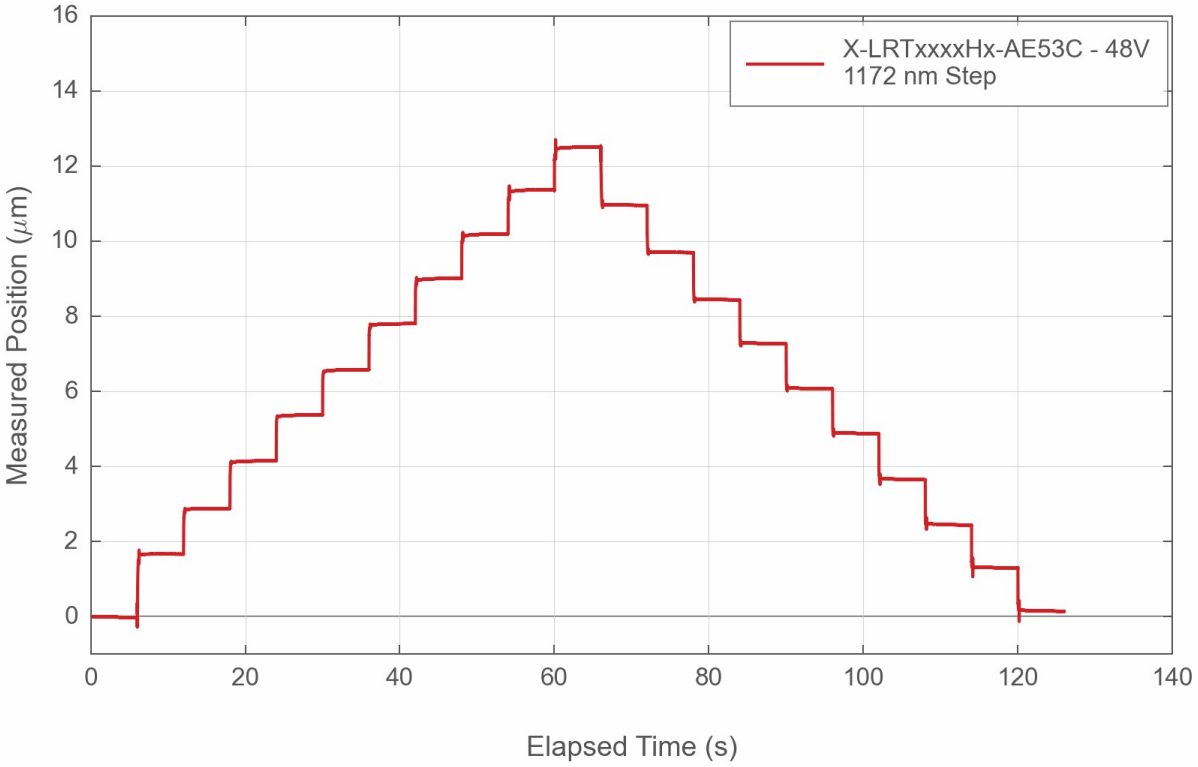



Typical Minimum Incremental Move
X-LRTxxxxAx-AE53C - 48V
496 nm Step
Measured Position (μm)
Elapsed Time (s)
0
1
2
3
4
5
6
0
20
40
60
80
100
120
140

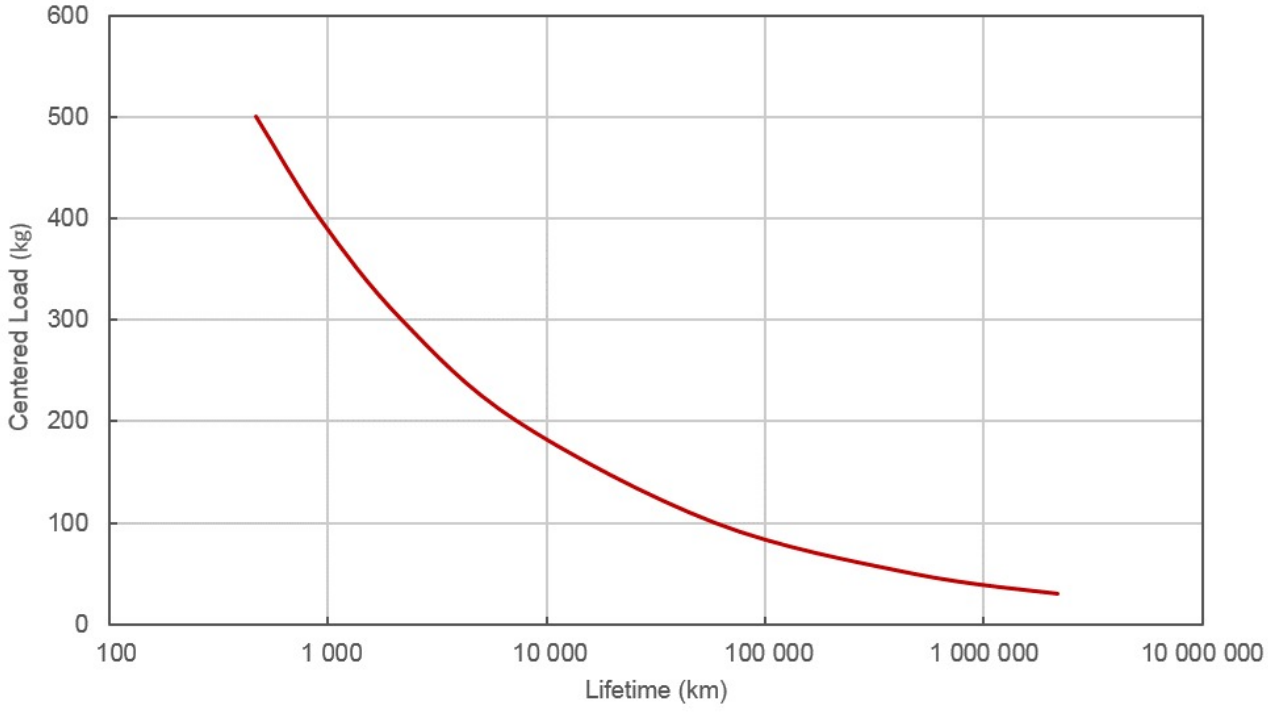

Typical Minimum Incremental Move
X-LRTxxxxBx-AE53C - 48V
1984 nm Step
Measured Position (μm)
Elapsed Time (s)
0
5
10
15
20
25
0
20
40
60
80
100
120
140


Typical Minimum Incremental Move
X-LRTxxxxDx-AE53C - 48V
7937 nm Step
Measured Position (μm)
Elapsed Time (s)
0
10
20
30
40
50
60
70
80
90
100
0
20
40
60
80
100
120
140

Typical Minimum Incremental Move



Typical LRT 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