LRT0100AL-AE53CT10A 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
- Integrated linear encoders with 50 nm resolution provide slip/stall detection and position correction
- Optional integrated power-off brake for vertical applications
- Designed for use with an X-MCC Series controller for coordinated motion
- With AutoDetect, the X-MCC controller configures its settings automatically for the connected peripheral

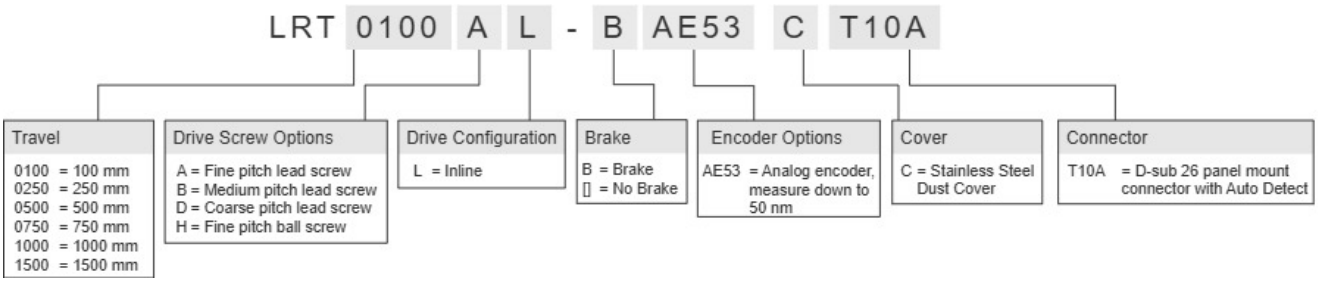
LRT-AEC Series Overview

Zaber's 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 optional power-off brake is available to enable vertical applications with backdrivable screws.

The stages are designed to connect directly to our X-MCC Series universal motor controllers, or they can be used with third party 2-phase stepper motor controllers through the panel mount DB26 connector. Set up is easy with AutoDetect. Once connected, the X-MCC controller will automatically detect and configure the LRT-AEC.

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

LRT-AEC Series Part Numbering & Options



LRT0100AL-AE53CT10A Drawings

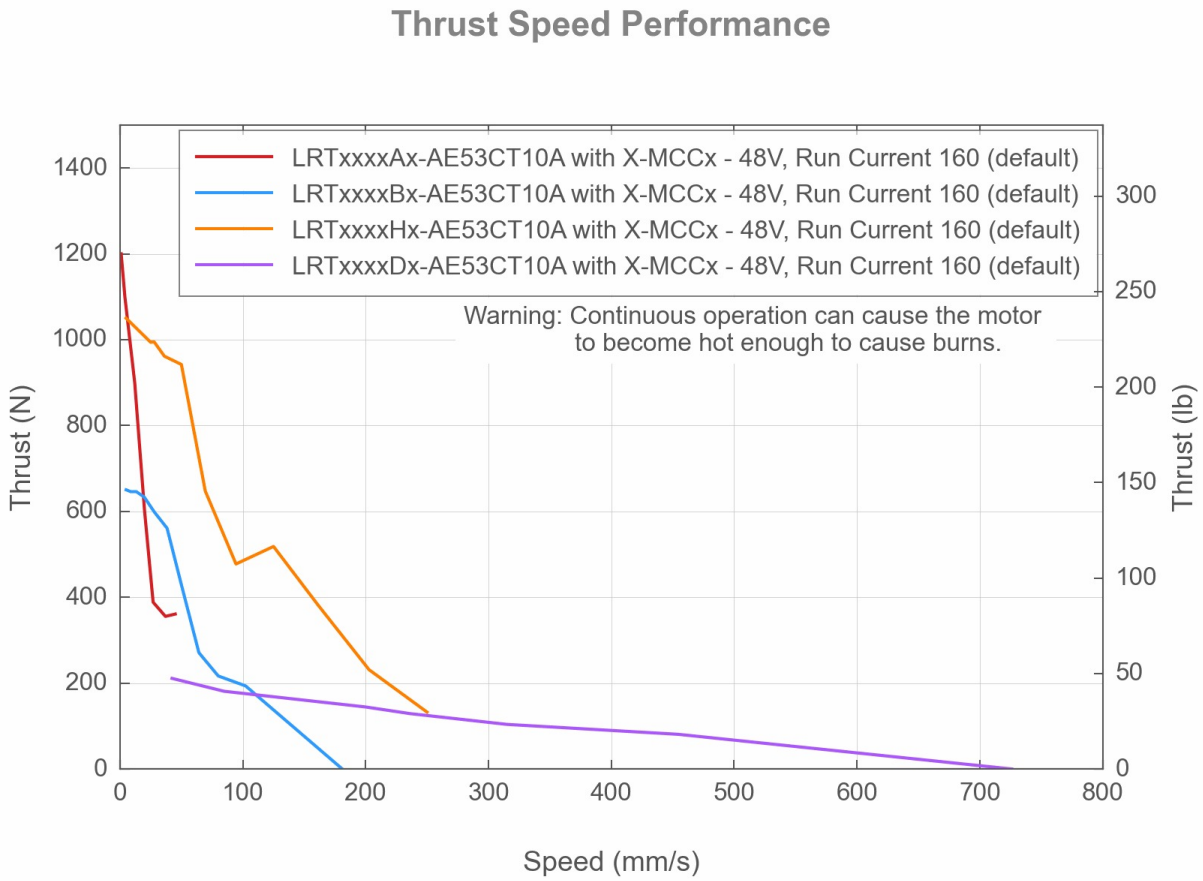
- LRT-AECT10A.png (Drawing for the LRT-AECT10A)

LRT0100AL-AE53CT10A Specifications

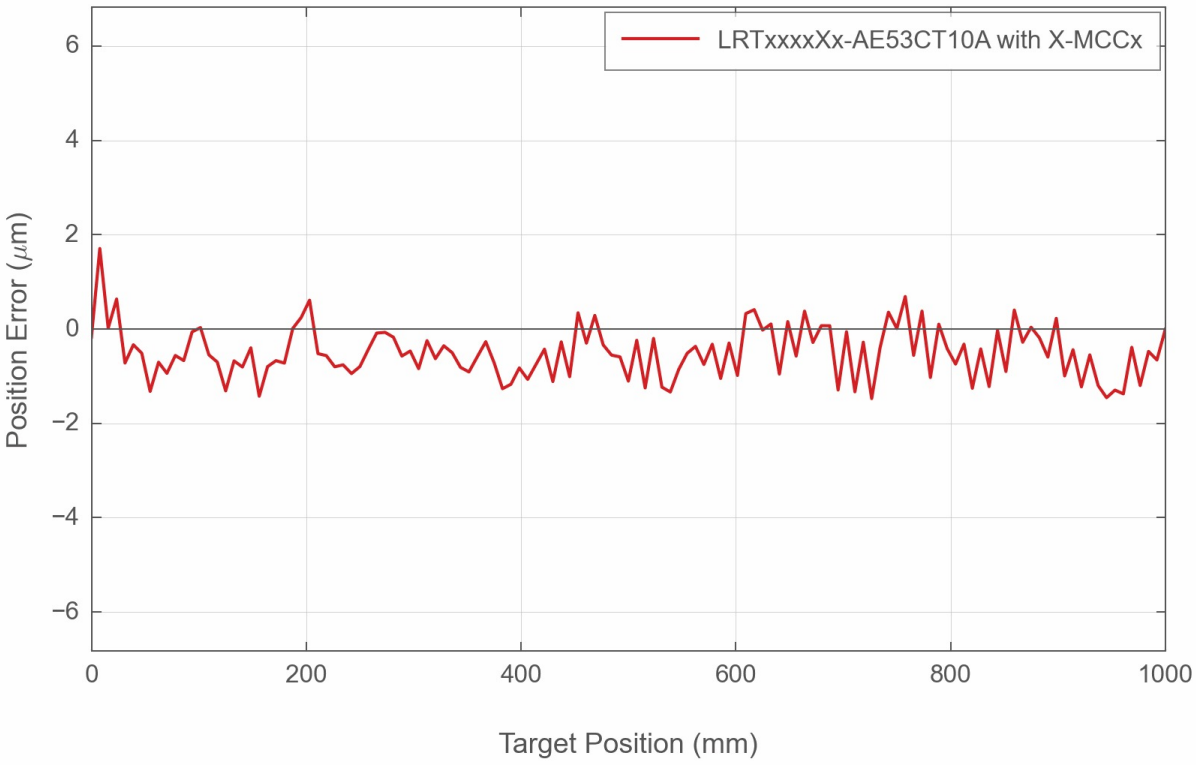
Microstep Size (Default Resolution)	**0.124023438 µm**
Built-in Controller	No
Recommended Controller	X-MCC (48 V) Recommended
AutoDetect	Yes
Travel Range	100 mm (3.937")
Accuracy (unidirectional)	20 µm (0.000787")
Repeatability	< 1 µm (< 0.000039")
Minimum Incremental Move	500 nm
Backlash	< 15 µm (< 0.000591")
Maximum Speed	45 mm/s (1.772"/s)
Minimum Speed	0.0000757 mm/s (0.000003"/s)
Speed Resolution	0.0000757 mm/s (0.000003"/s)
Encoder Type	Linear analog encoder
Encoder Resolution	50 nm
Peak Thrust	1200 N (269.1 lb)
Back-driving Force*	Non-back-driving
Maximum Continuous Thrust	1200 N (269.1 lb)
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)
Linear Motion Per Motor Rev	1.5875 mm (0.062")
Motor Steps Per Rev	200

Microstep Size (Default Resolution)	**0.124023438 µm**
Motor Type	Stepper (2-phase)
Motor Rated Current	3000 mA/phase
Inductance	2 mH/phase
Motor Connection	D-sub 26
Guide Type	Recirculating Ball Linear Guide
Limit or Home Sensing	Linear Encoder Index Mark
Axes of Motion	1
LED Indicators	No
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No
Weight	3.65 kg (8.047 lb)

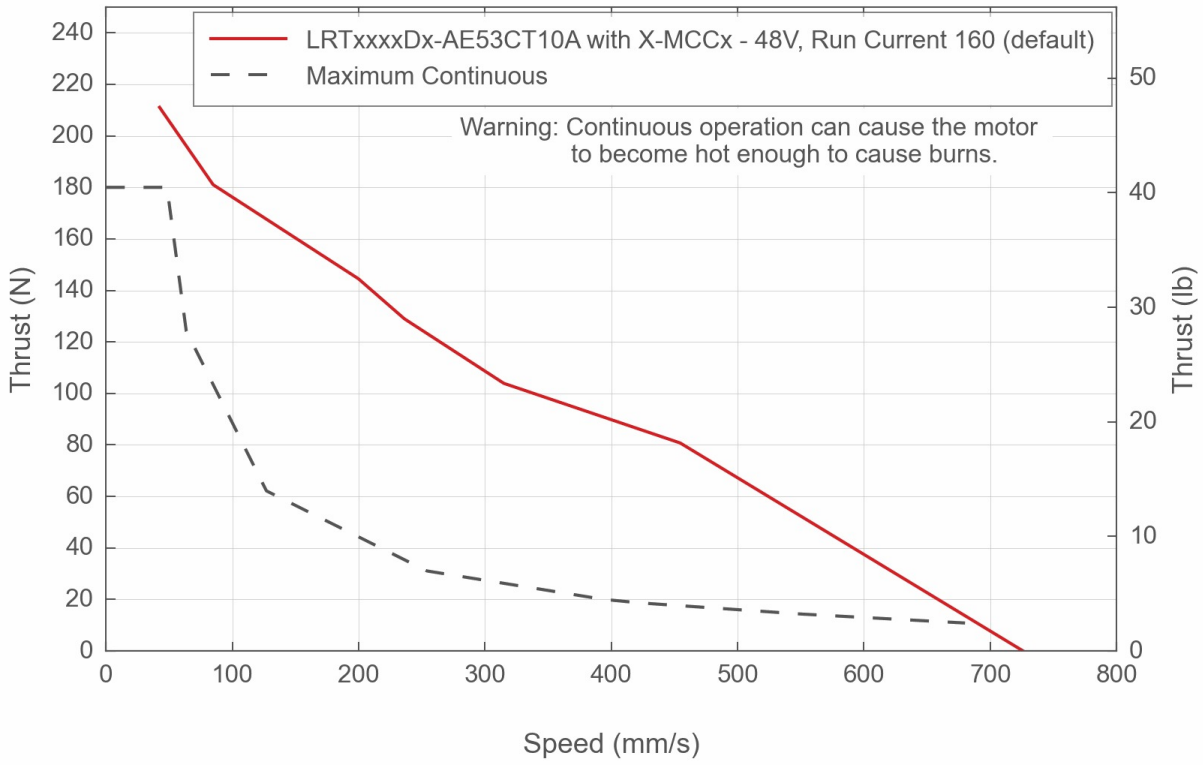
LRT-AEC Series Charts



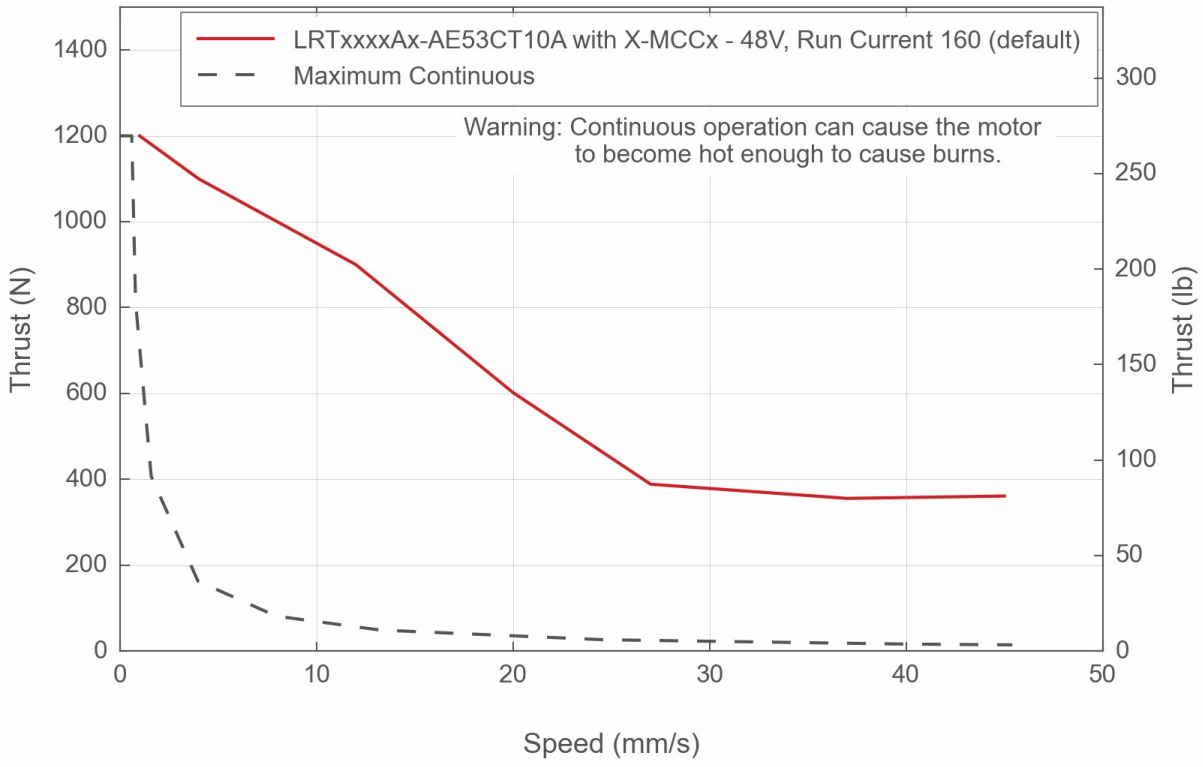
Typical Accuracy



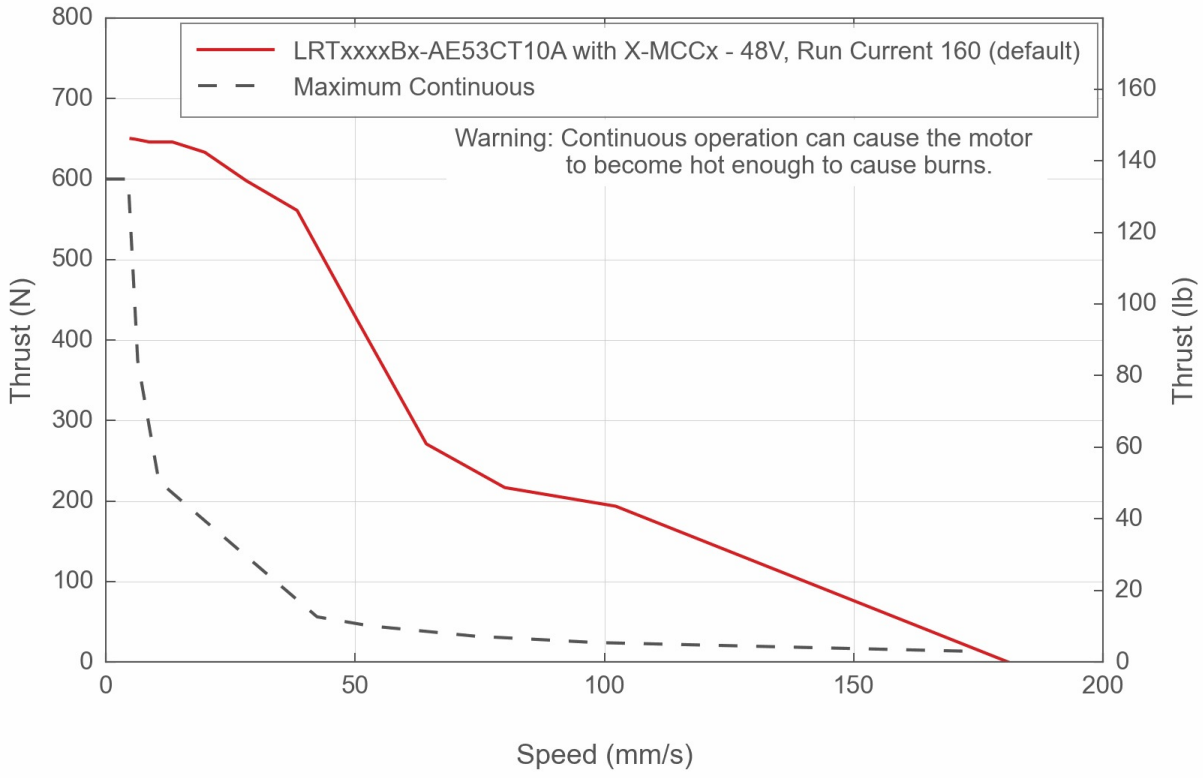
Thrust Speed Performance



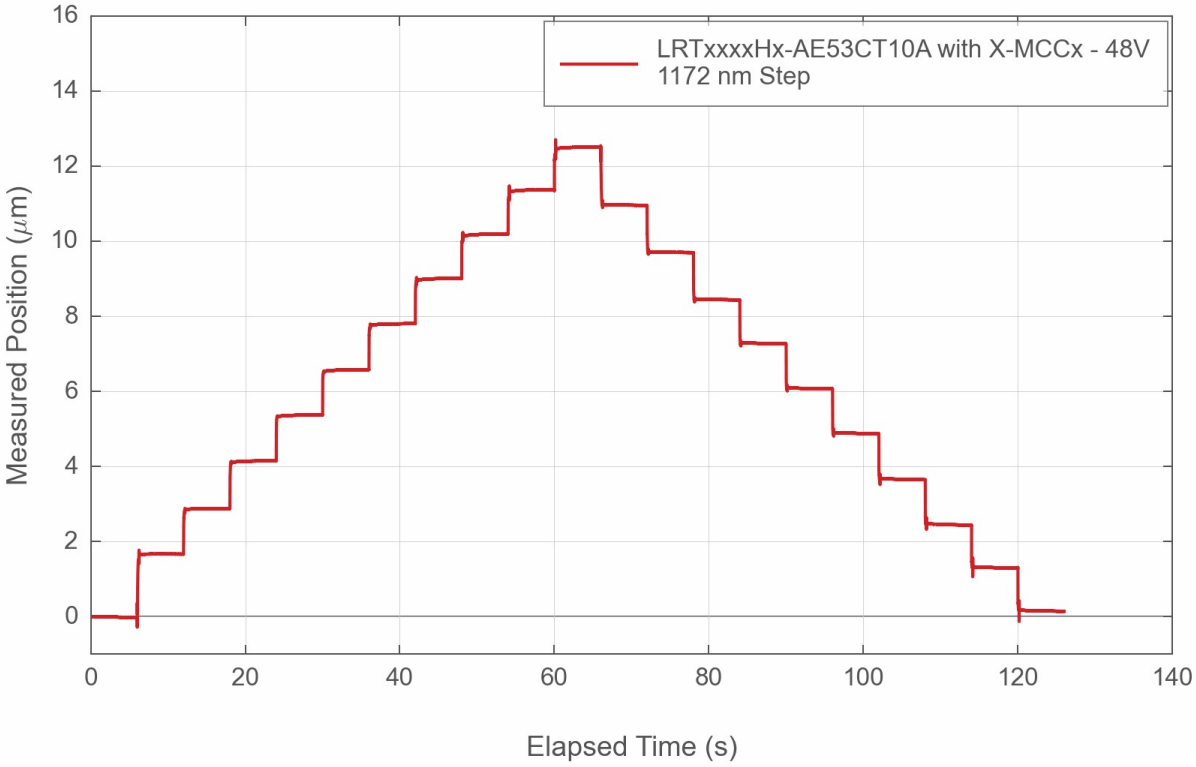
Thrust Speed Performance



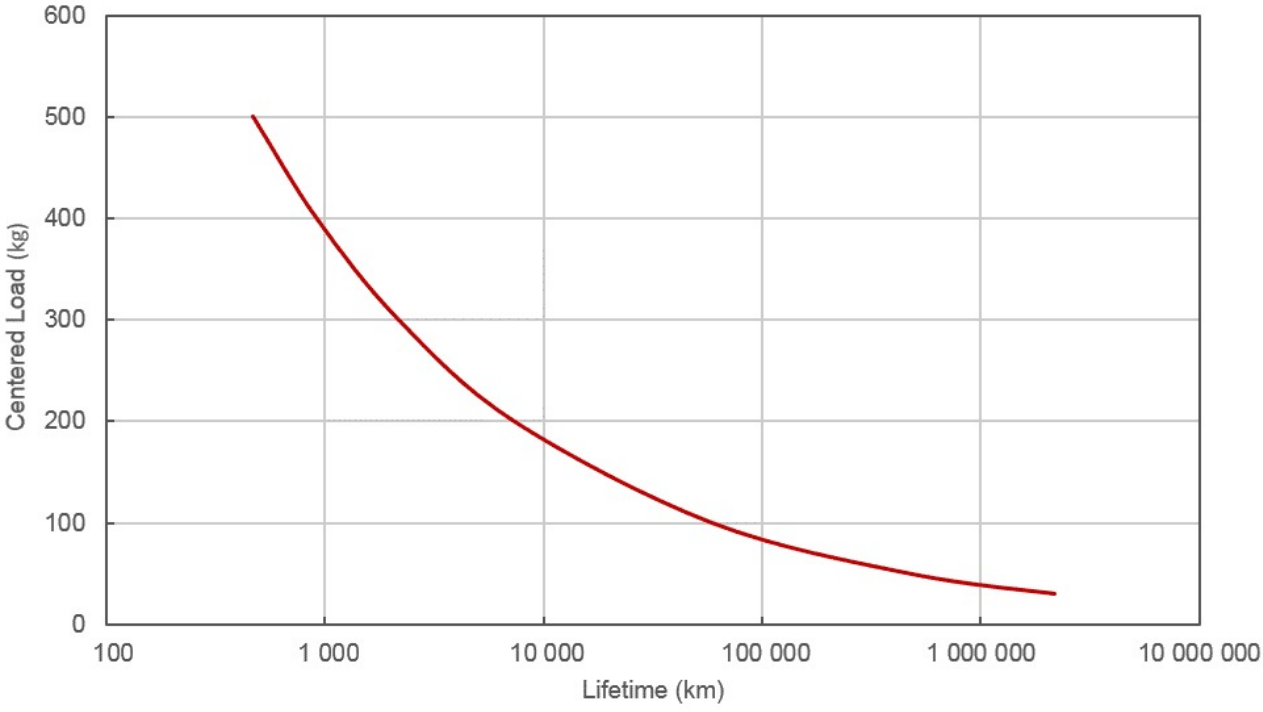
Thrust Speed Performance



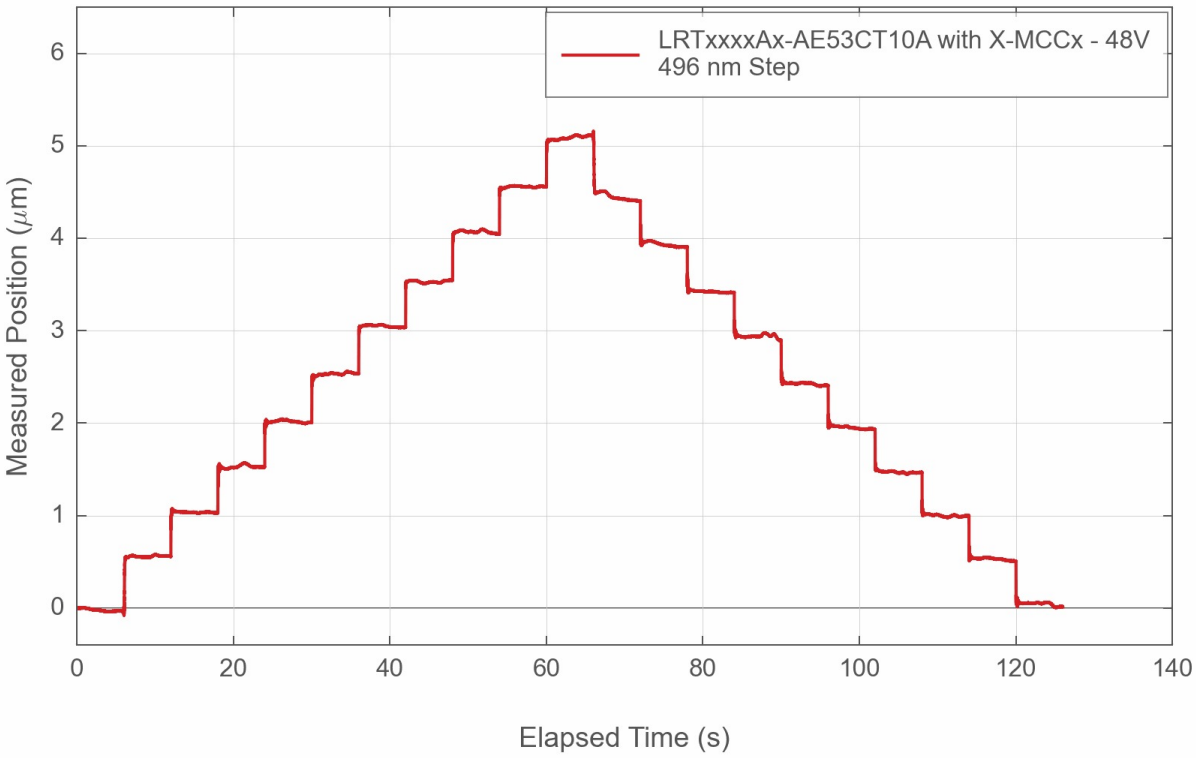
Typical Minimum Incremental Move



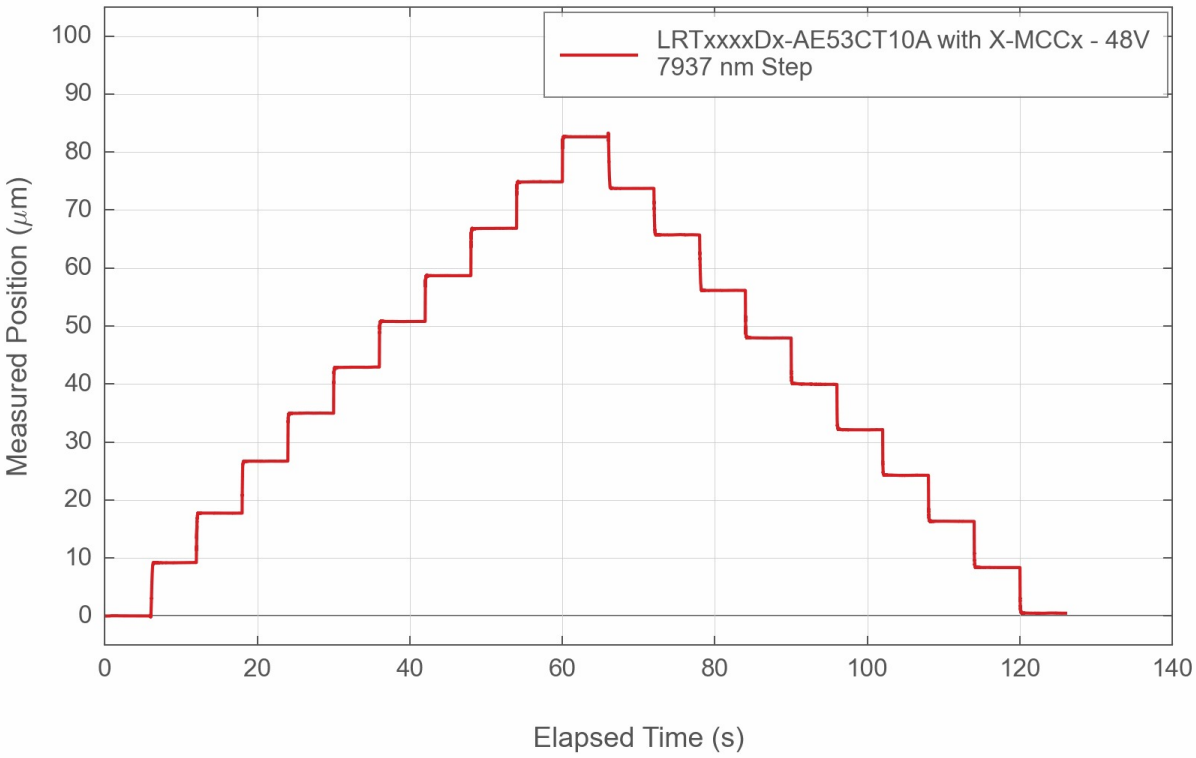
Typical LRT Bearing Lifetime



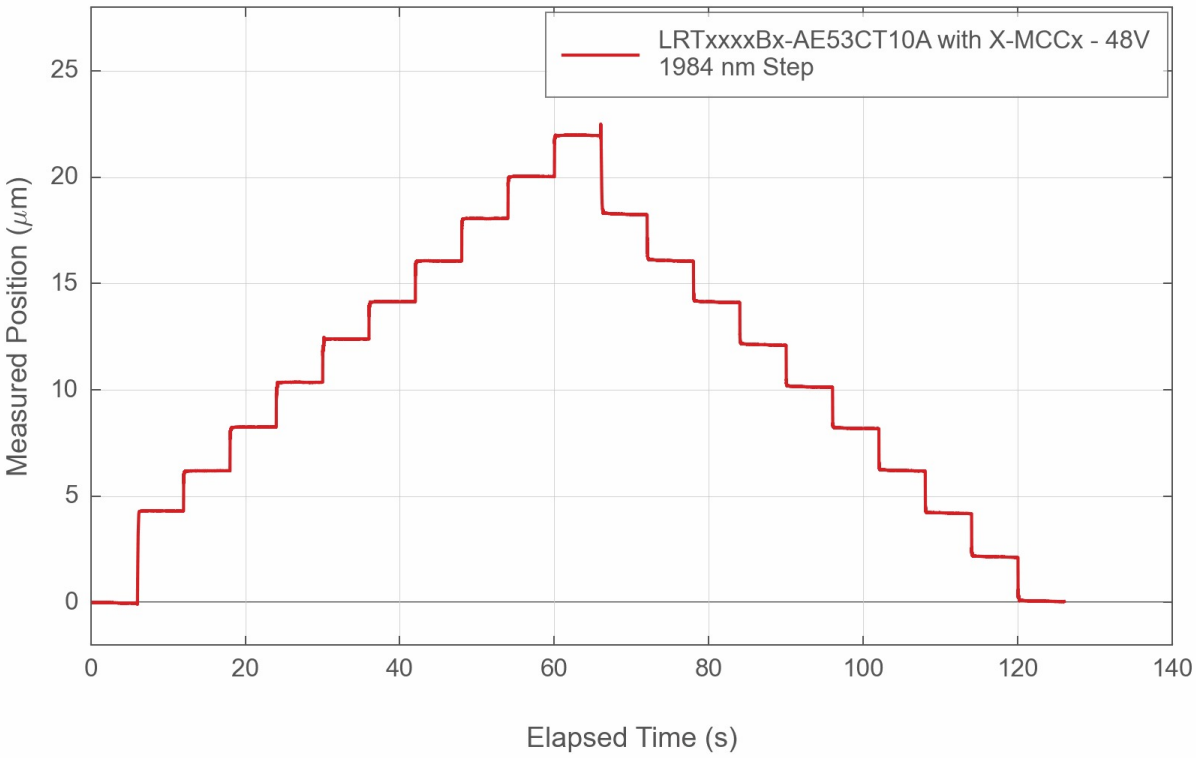
Typical Minimum Incremental Move

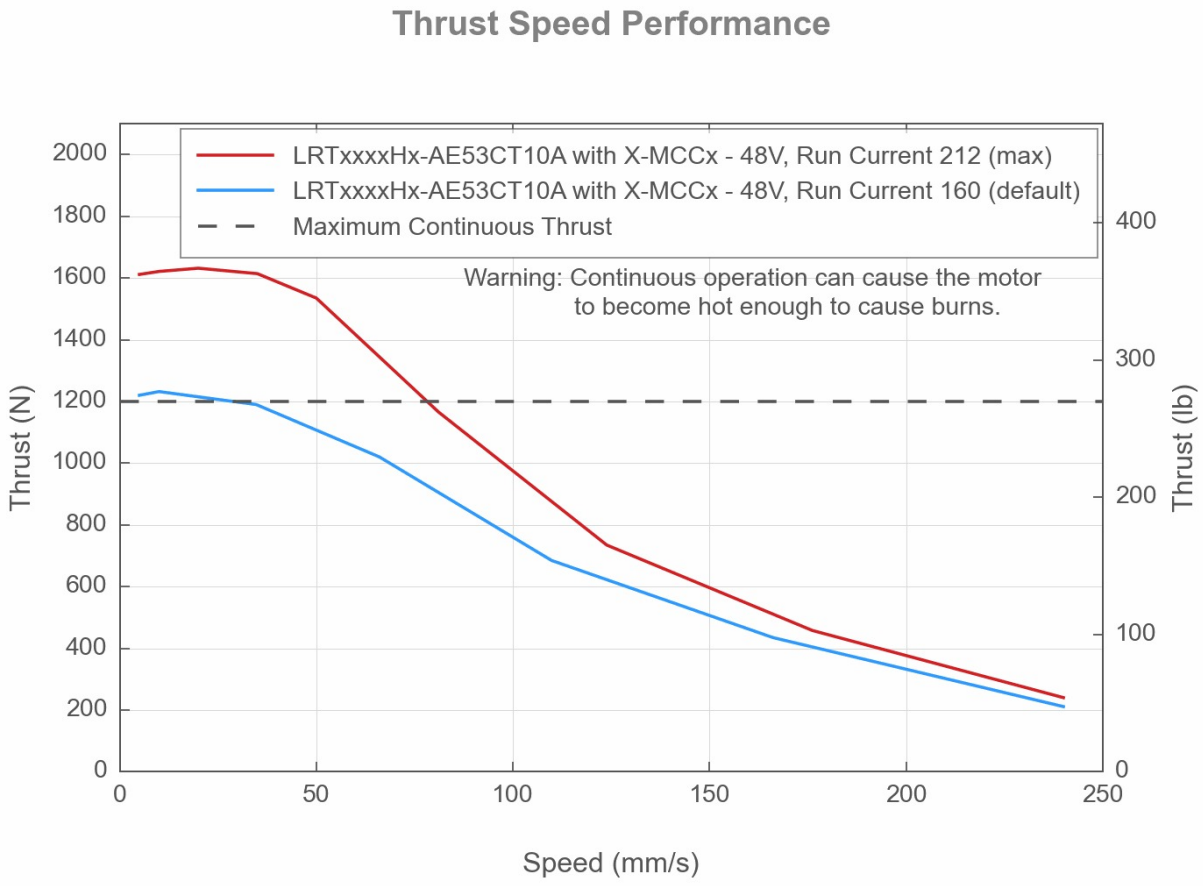


Typical Minimum Incremental Move



Typical Minimum Incremental Move





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