

X-LRT0500HL-E08C 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
- 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

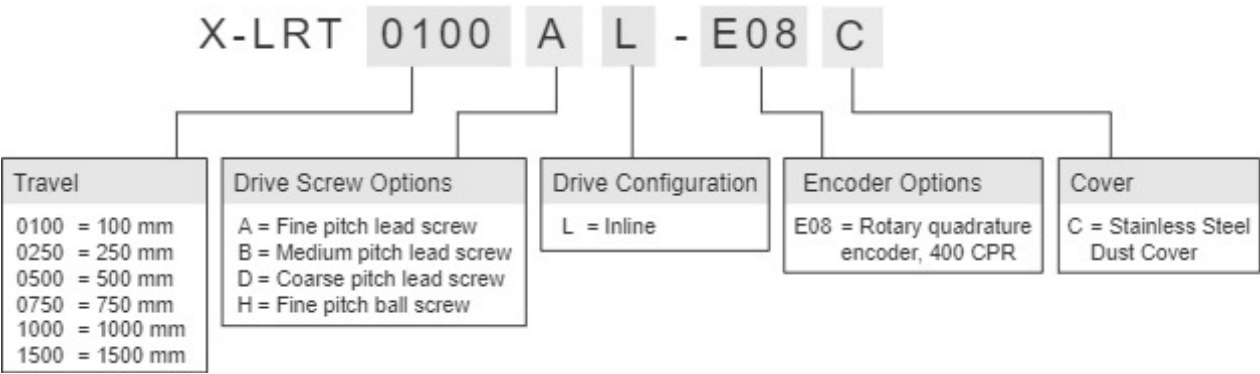
Zaber's X-LRT-EC Series devices are computer-controlled, motorized linear stages with high torsional stiffness, load capacity, and long lifetime. They have low pitch, roll, yaw, and runout. A flexible stainless steel dust cover prevents the ingress of small objects. They are stand-alone units requiring 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.

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-LRT0500HL-E08C Bundle Options

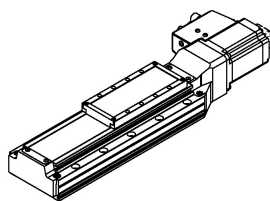
This device may be purchased stand-alone or bundled with one of the following accessory kits:

Products	Description
X-LRT0500HL-E08C	Motorized, ball-screw driven, covered linear stage, 500 mm travel, integrated motor encoder and controller, medium resolution, medium speed
with KX15N accessory kit Power supply: North America, 48 V. Powers multiple X-Series devices	<ul style="list-style-type: none"> • 1 x PS15S-48V65: Power Supply, 48 V 6.5 A, Compatible with X-Series Products • 1 x X-DC02: Data Cable, 2 ft (0.6 m), for Use with all X-Series Products • 1 x X-DC02-NP: Data Cable, no Power, 2 ft (0.6 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 KX14N 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-DC02: Data Cable, 2 ft (0.6 m), for Use with all X-Series Products • 1 x X-DC02-NP: Data Cable, no Power, 2 ft (0.6 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-LRT0500HL-E08C Drawings

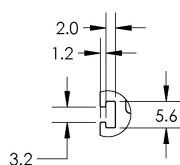
ZABER

X-LRT-C, X-LRT-EC Motorized Stage
dimensions in mm

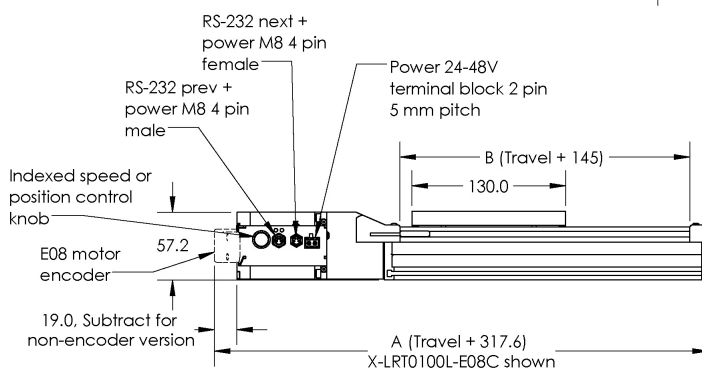
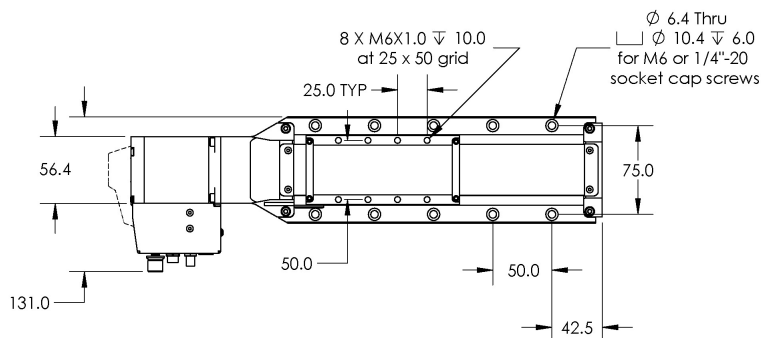
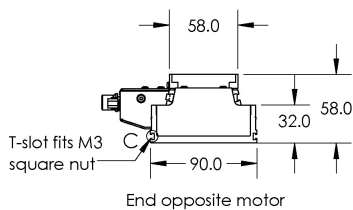


Model Number*	Travel	A	B
X-LRT0100xL-(E08)C	100	417.6	245
X-LRT0250xL-(E08)C	250	567.6	395
X-LRT0500xL-(E08)C	500	817.6	645
X-LRT0750xL-(E08)C	750	1067.6	895
X-LRT1000xL-(E08)C	1000	1317.6	1145
X-LRT1500xL-(E08)C	1500	1817.6	1645

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



DETAIL C
SCALE 1 : 1



DWG 1747 R02A

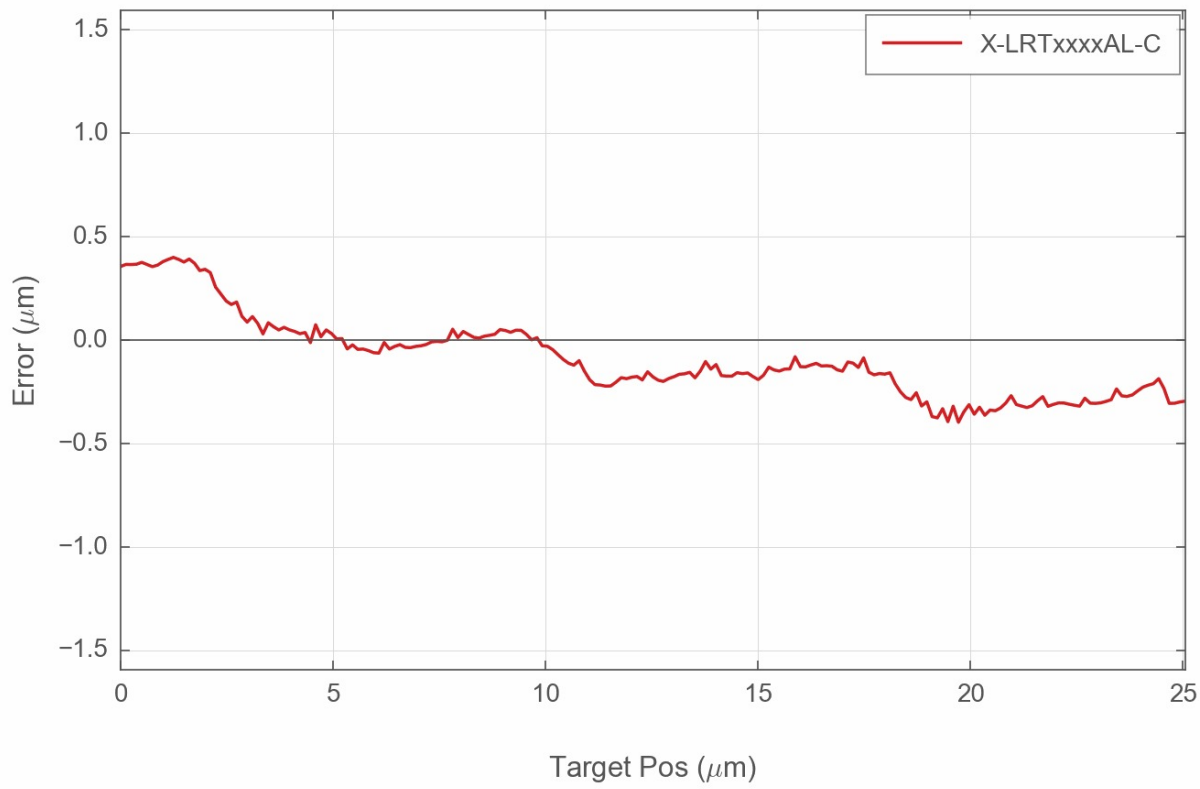
X-LRT0500HL-E08C Specifications

Specification	Value	Alternate Unit
Microstep Size (Default Resolution)	0.390625 μm	
Built-in Controller	Yes	
Travel Range	500 mm	19.685"
Accuracy (unidirectional)	225 μm	0.008858"
Repeatability	< 4 μm	< 0.000157"
Backlash	< 25 μm	< 0.000984"
Maximum Speed	240 mm/s	9.449"/s
Minimum Speed	0.000239 mm/s	0.000009"/s
Speed Resolution	0.000239 mm/s	0.000009"/s
Encoder Resolution	400 CPR	1600 states/rev
Encoder Type	Rotary quadrature encoder	
Peak Thrust	1200 N	269.1 lb
Back-driving Force	157 N ($\pm 30\%$)	35.2 lb ($\pm 30\%$)
Maximum Continuous Thrust	1200 N	269.1 lb
Communication Interface	RS-232	
Communication Protocol	Zaber ASCII	
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 $\mu\text{rad/N-m}$
Maximum Current Draw	3600 mA	
Power Supply	24-48 VDC	
Power Plug	2-pin screw terminal	

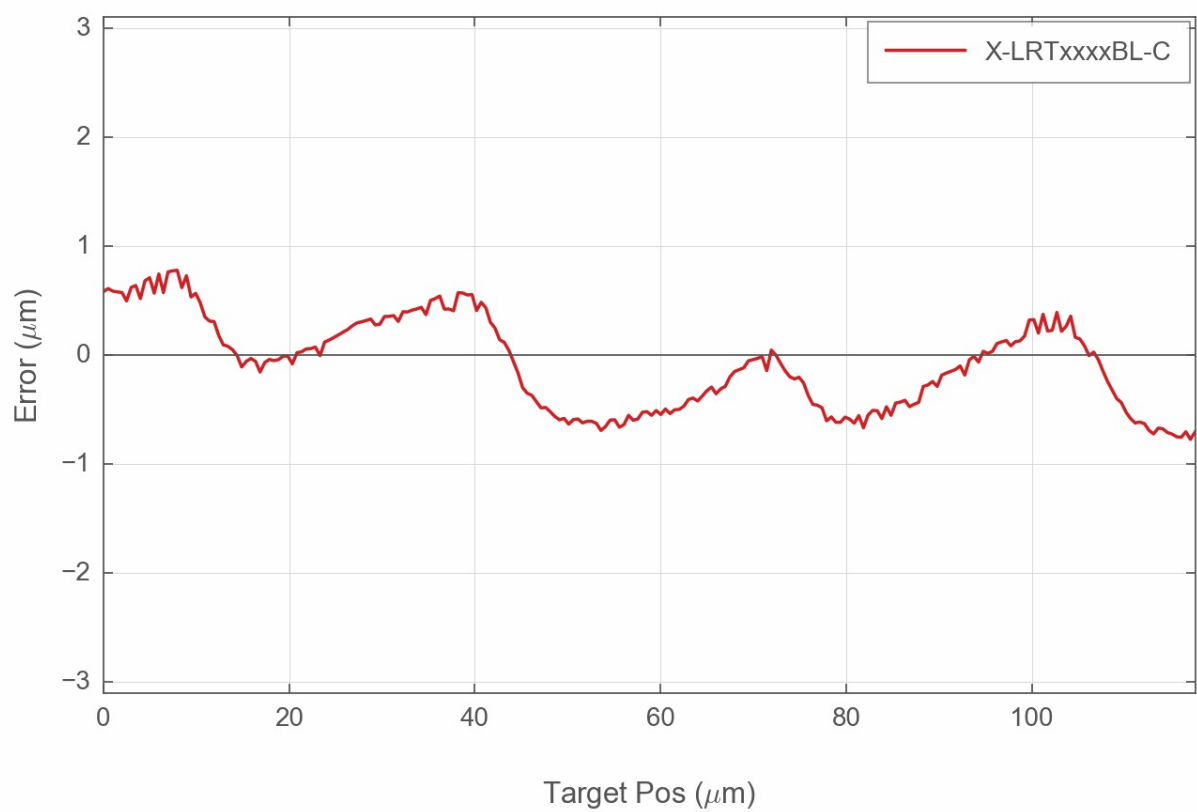
Specification	Value	Alternate Unit
Linear Motion Per Motor Rev	5 mm	0.197"
Motor Steps Per Rev	200	
Motor Type	Stepper (2 phase)	
Motor Rated Current	4200 mA/phase	
Inductance	2 mH/phase	
Default Resolution	1/64 of a step	
Data Cable Connection	Locking 4-pin M8	
Mechanical Drive System	Precision ball 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	
Vacuum Compatible	No	
RoHS Compliant	Yes	
CE Compliant	Yes	
Weight	5.758 kg	12.694 lb

X-LRT-EC Series Charts

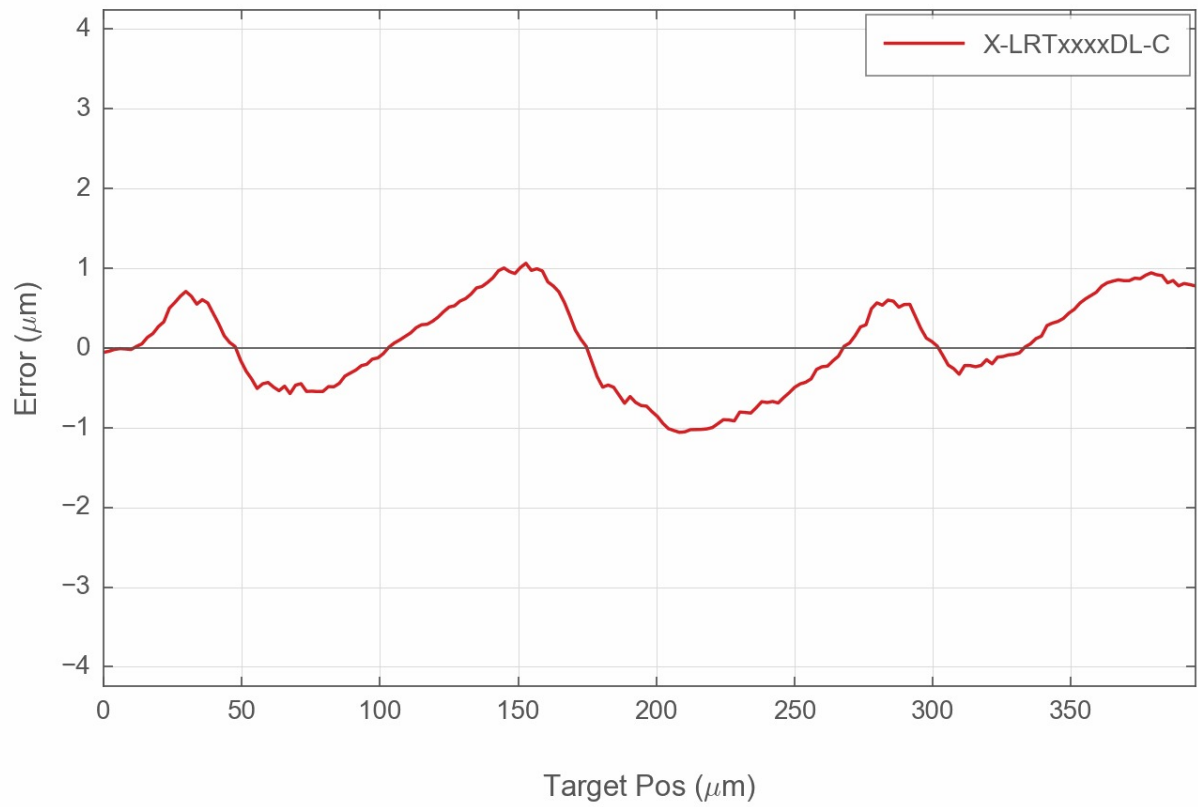
Typical Microstepping Accuracy



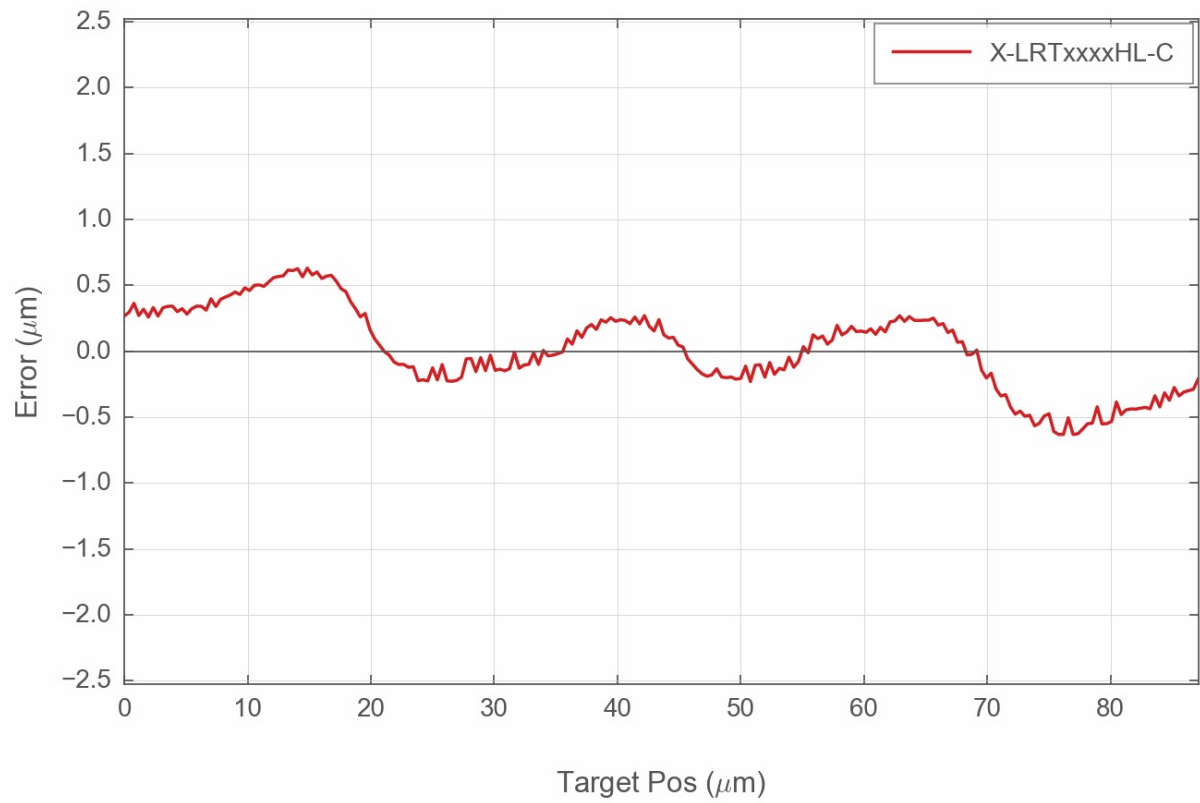
Typical Microstepping Accuracy



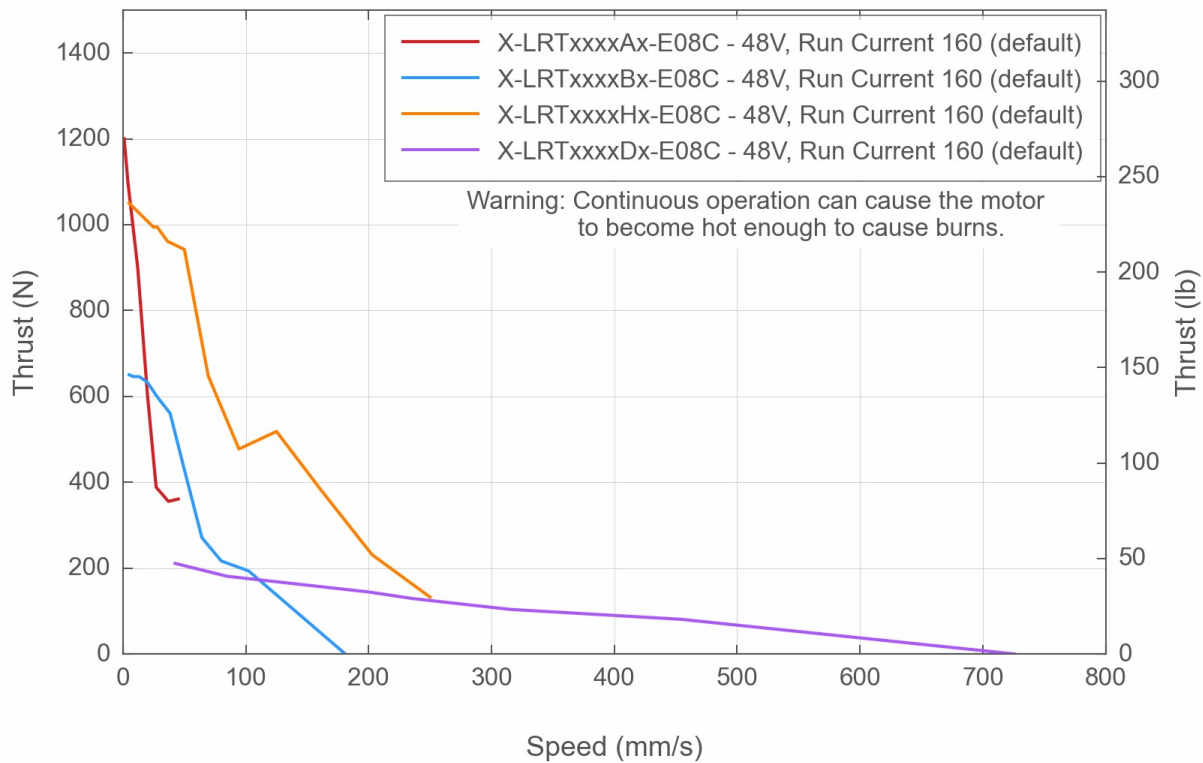
Typical Microstepping Accuracy



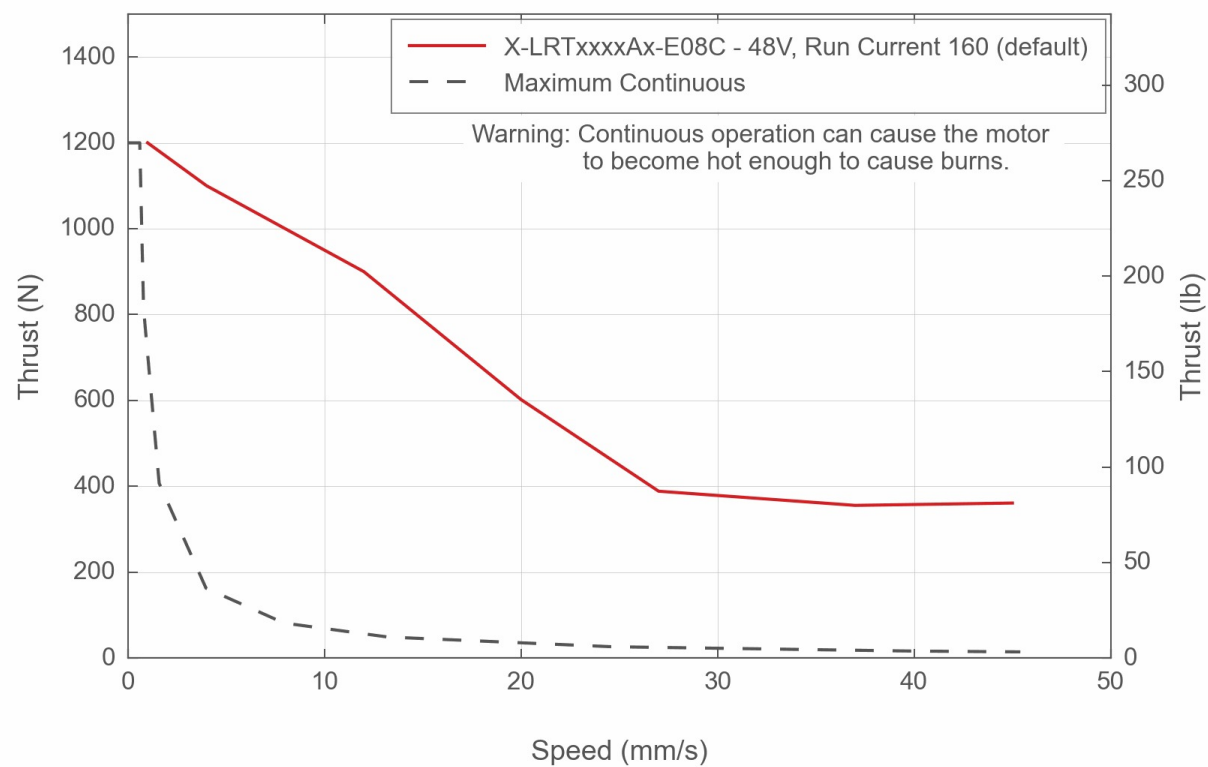
Typical Microstepping Accuracy



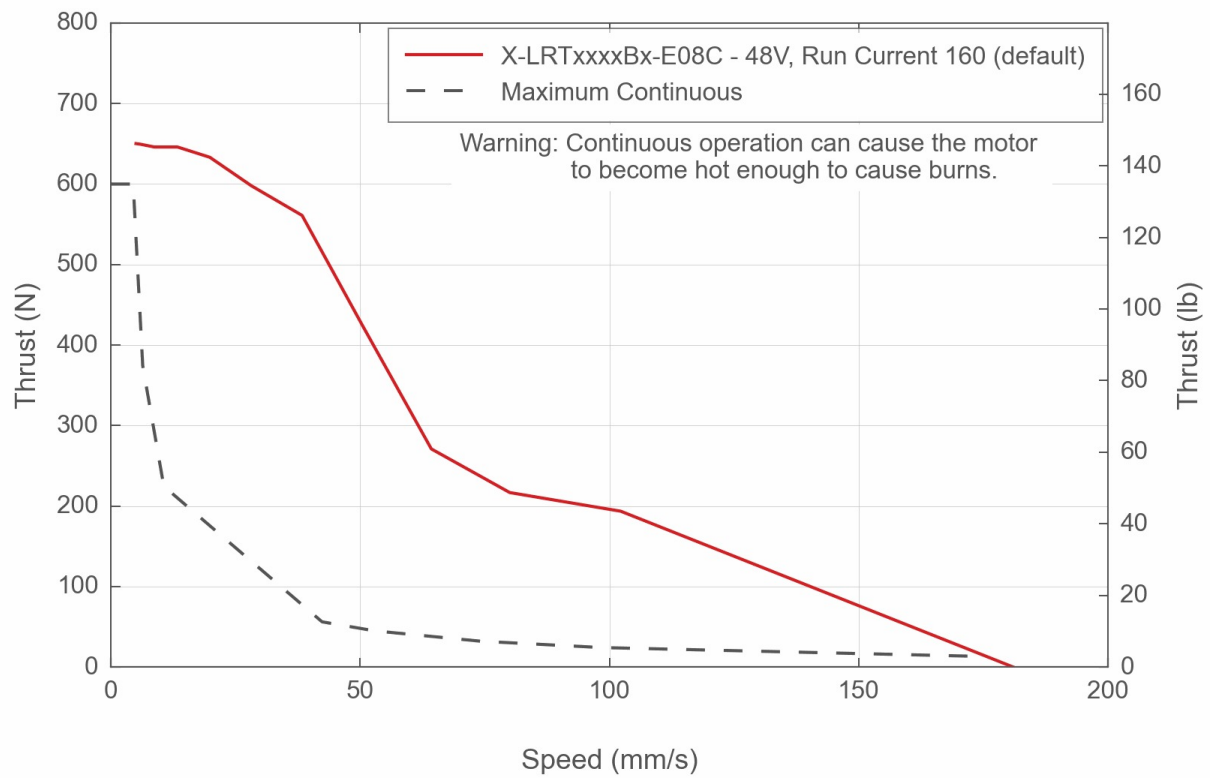
Thrust Speed Performance



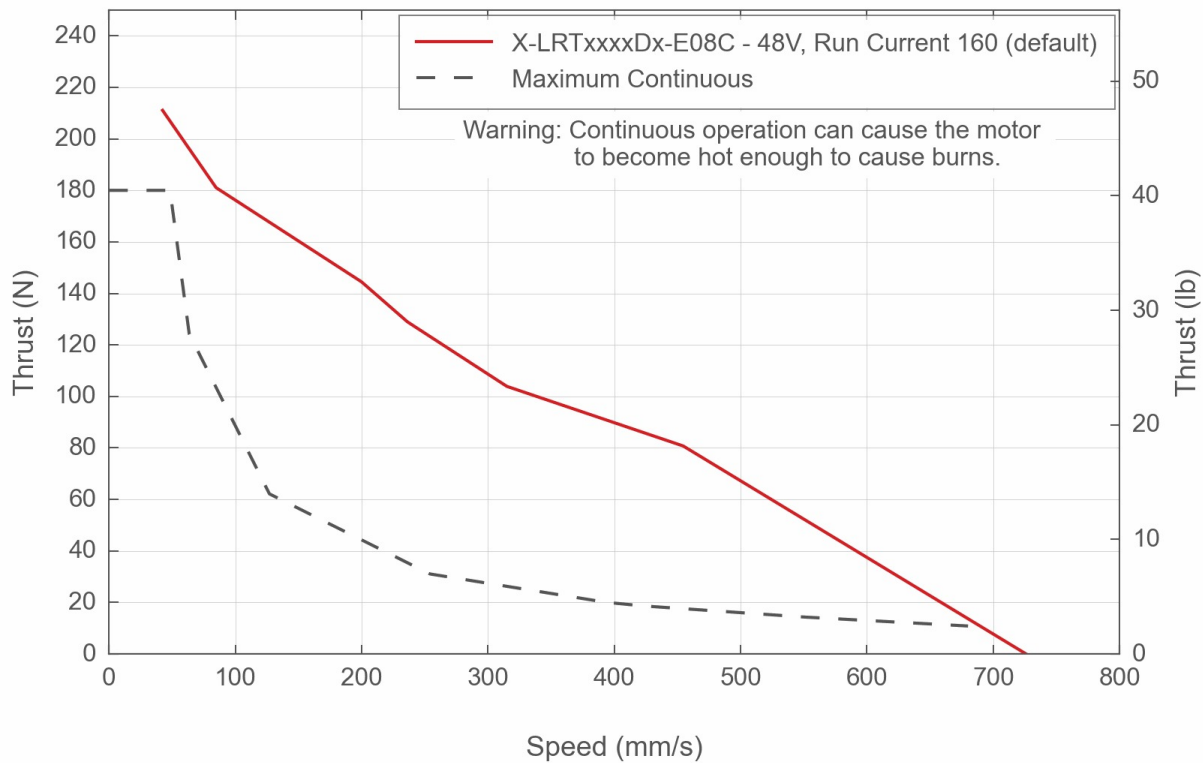
Thrust Speed Performance



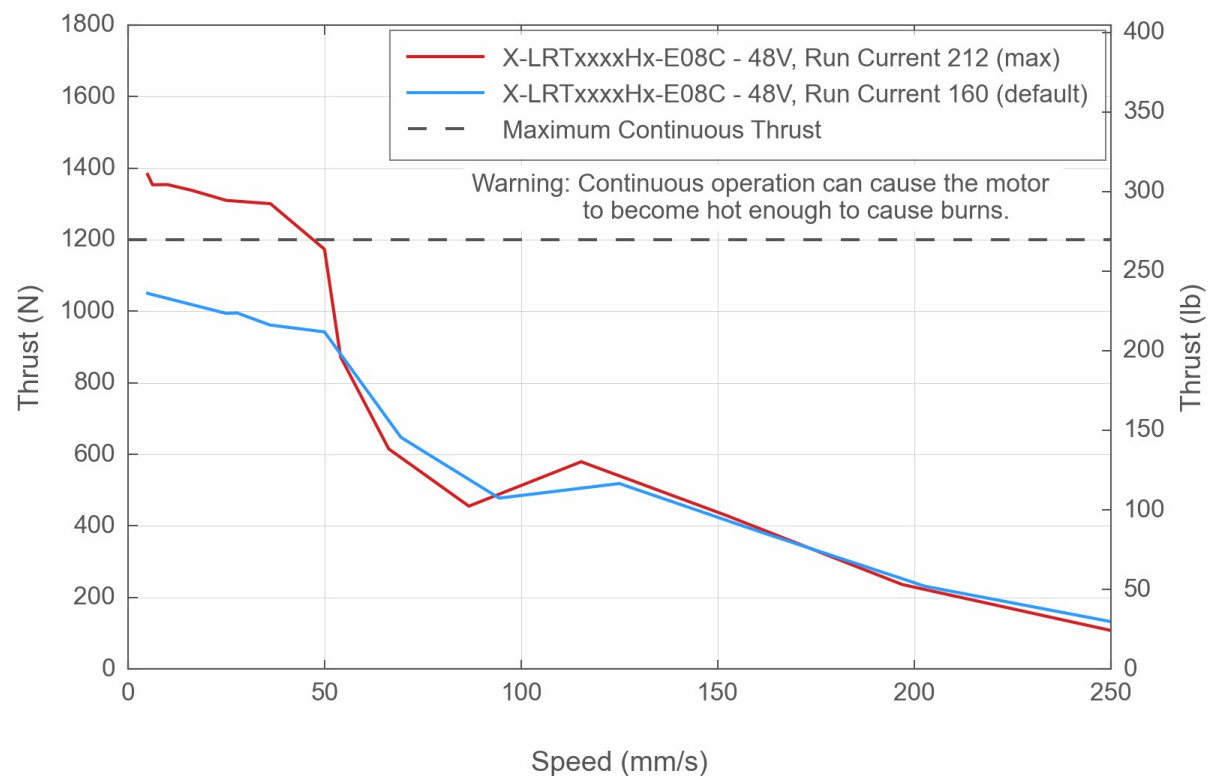
Thrust Speed Performance



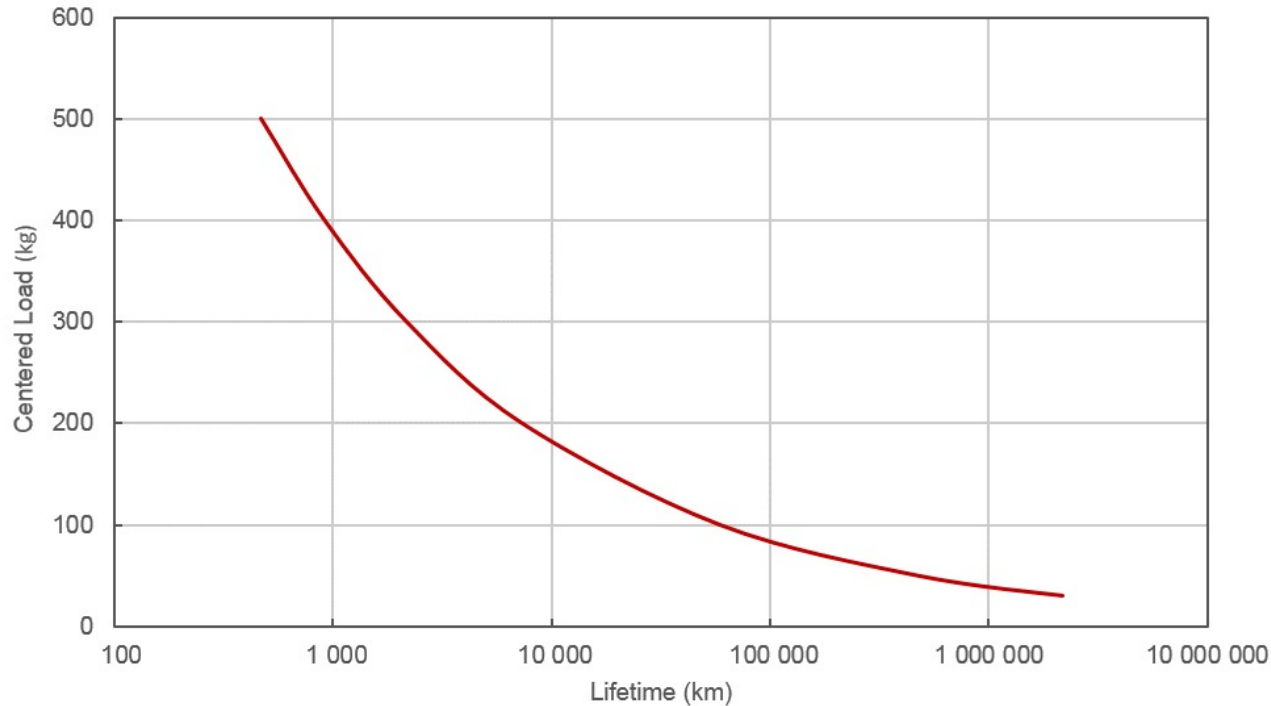
Thrust Speed Performance



Thrust Speed Performance



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>