



X-LRQ450DL-E01C Datasheet



- 75, 150, 300, 450, 600 mm travel
- 100 kg load capacity
- Up to 840 mm/s speed and up to 300 N thrust
- Built-in controller; daisy-chains with other Zaber products
- Integrated, 500 CPR, motor mounted encoder provides slip/stall detection and recovery
- Inline and parallel drive configurations
- Ball screw and lead screw configurations
- Includes stainless steel dust cover
- Custom versions available

X-LRQ-EC Series Overview

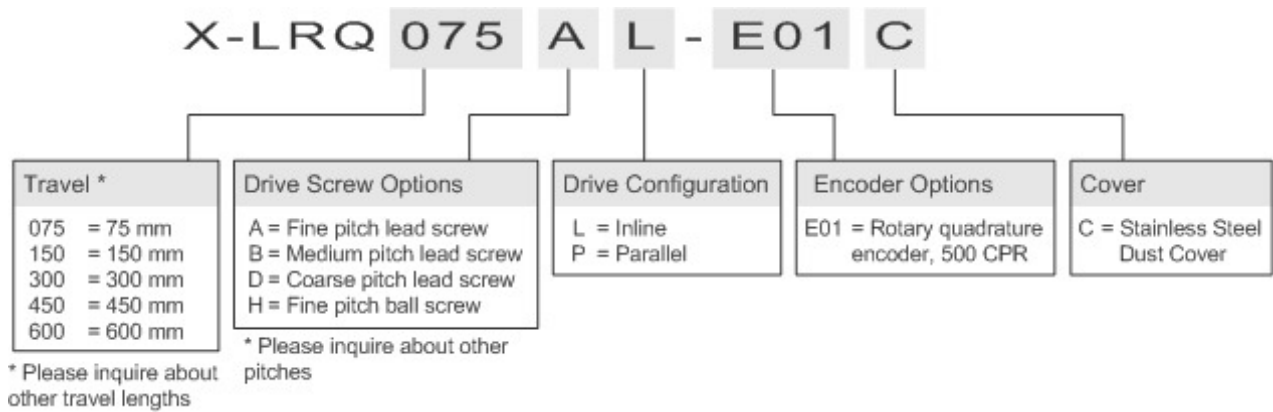
Zaber's X-LRQ-EC Series devices are computer-controlled, motorized linear stages with high stiffness, load, and lifetime capabilities in a compact size. Each device is available in either an inline or parallel drive configuration. A flexible stainless steel dust cover prevents the ingress of small objects. 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 optional 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.

At only 48 mm high, these stages are excellent for applications where a low profile is required. The X-LRQ-EC's innovative design allows speeds up to 840 mm/s and loads up to 100 kg. Like all of Zaber's products, the X-LRQ-EC Series is designed to be 'plug and play' and very easy to set up and operate. These stages can bolt together into XY and XYZ systems. Some multi axis configurations may require additional accessories, please contact Zaber Technical Support to ensure the correct ones are selected.

For more information visit: <https://www.zaber.com/products/linear-stages/X-LRQ-EC/6>

X-LRQ-EC Series Part Numbering



X-LRQ450DL-E01C Bundle Options

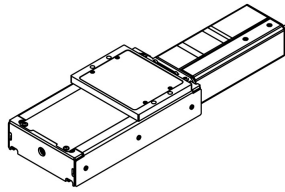
This device may be purchased stand-alone or bundled with one of the following accessory kits:

Products	Description
X-LRQ450DL-E01C	Motorized, lead-screw driven, covered linear stage, 450 mm travel, integrated motor encoder and controller, coarse resolution, high speed, inline drive
with KX14C 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-DC06: Data Cable, 6 ft (2 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 KX13C accessory kit Power supply: North America, 48 V. Powers one axis	<ul style="list-style-type: none"> • 1 x PS13S-48V12: Power Supply, 48 V 1.25 A, Compatible with X-Series Products • 1 x X-DC06: Data Cable, 6 ft (2 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-LRQ450DL-E01C Drawings

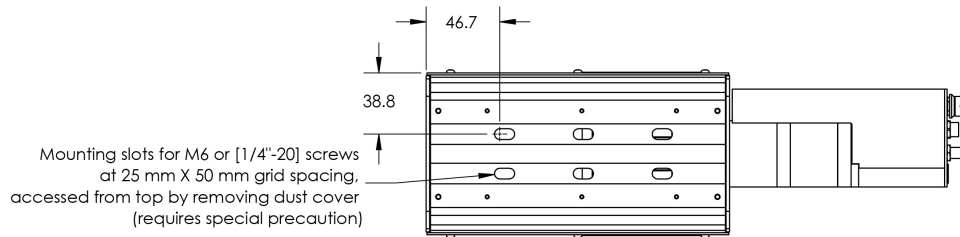
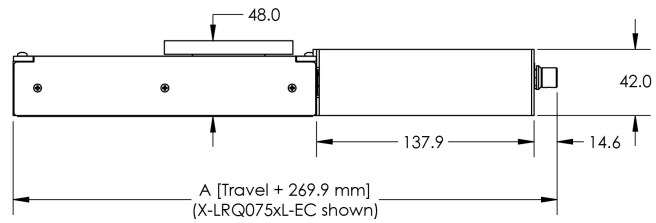
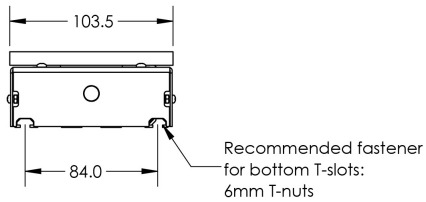
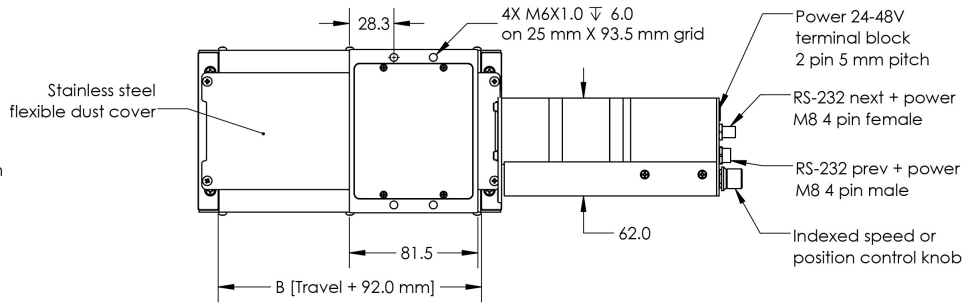
ZABER

X-LRQxL-EC Motorized Linear Stage
 dimensions in mm



Model Number*	Travel	A	B
X-LRQ075xL-EC	75.0	344.9	167.0
X-LRQ150xL-EC	150.0	419.9	242.0
X-LRQ300xL-EC	300.0	569.9	392.0
X-LRQ450xL-EC	450.0	719.9	542.0
X-LRQ600xL-EC	600.0	869.9	692.0

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



DWG 1452 R01

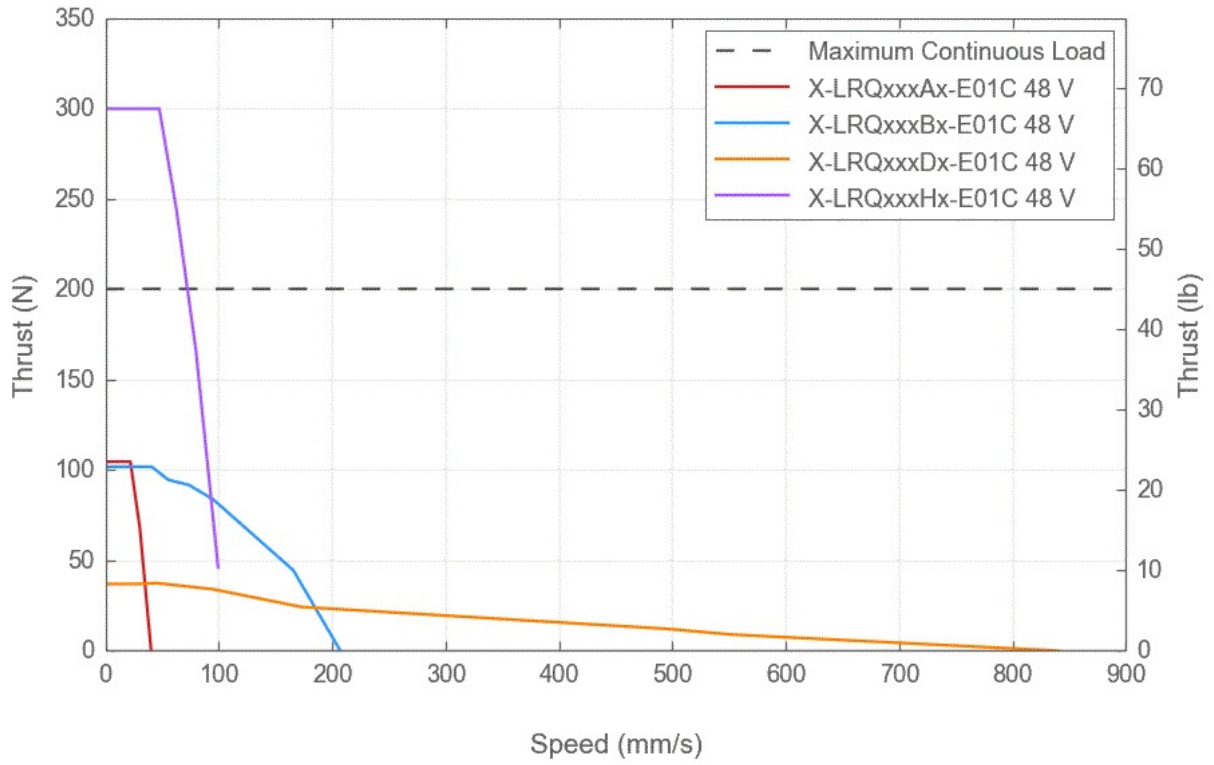
X-LRQ450DL-E01C Specifications

Specification	Value	Alternate Unit
Microstep Size (Default Resolution)	1.984375 μm	
Built-in Controller	Yes	
Travel Range	450 mm	17.716"
Accuracy (unidirectional)	145 μm	0.005709"
Repeatability	< 4 μm	< 0.000157"
Backlash	< 80 μm	< 0.003150"
Maximum Speed	840 mm/s	33.071"/s
Minimum Speed	0.001212 mm/s	0.000048"/s
Speed Resolution	0.001212 mm/s	0.000048"/s
Encoder Resolution	500 CPR	2000 states/rev
Encoder Type	Rotary quadrature encoder	
Peak Thrust	25 N	5.6 lb
Back-driving Force	27 N ($\pm 30\%$)	6.1 lb ($\pm 30\%$)
Maximum Continuous Thrust	25 N	5.6 lb
Communication Interface	RS-232	
Communication Protocol	Zaber ASCII (Default), Zaber Binary	
Maximum Centered Load	1000 N	224.3 lb
Maximum Cantilever Load	3000 N-cm	4248.4 oz-in
Guide Type	Recirculating Ball Linear Guide	
Vertical Runout	< 45 μm	< 0.001772"
Horizontal Runout	< 40 μm	< 0.001575"
Pitch	0.04°	0.698 mrad
Roll	0.025°	0.436 mrad
Yaw	0.04°	0.698 mrad
Stiffness in Pitch	640 N-m/°	27 $\mu\text{rad/N-m}$
Stiffness in Roll	1850 N-m/°	9 $\mu\text{rad/N-m}$
Stiffness in Yaw	665 N-m/°	26 $\mu\text{rad/N-m}$
Maximum Current Draw	1200 mA	
Power Supply	24-48 VDC	
Power Plug	2-pin screw terminal	

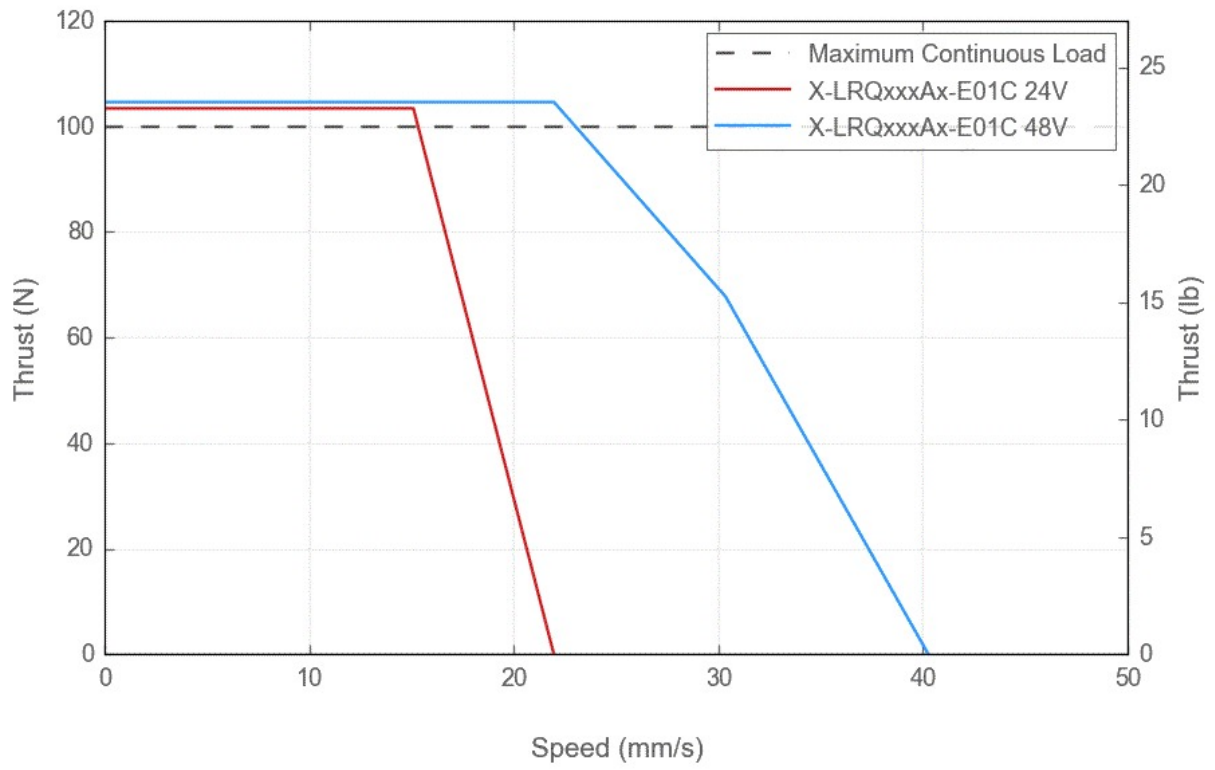
Specification	Value	Alternate Unit
Linear Motion Per Motor Rev	25.4 mm	1.000"
Motor Steps Per Rev	200	
Motor Type	Stepper (2 phase)	
Motor Rated Current	2300 mA/phase	
Inductance	2.8 mH/phase	
Default Resolution	1/64 of a step	
Data Cable Connection	Locking 4-pin M8	
Mechanical Drive System	Precision lead screw	
Limit or Home Sensing	Magnetic home sensor	
Manual Control	Indexed knob with push switch	
Axes of Motion	1	
LED Indicators	Yes	
Mounting Interface	M6 and M3 threaded holes	
Operating Temperature Range	0 to 50 °C	
Vacuum Compatible	No	
RoHS Compliant	Yes	
CE Compliant	Yes	
Weight	4.48 kg	9.877 lb

X-LRQ-EC Series Charts

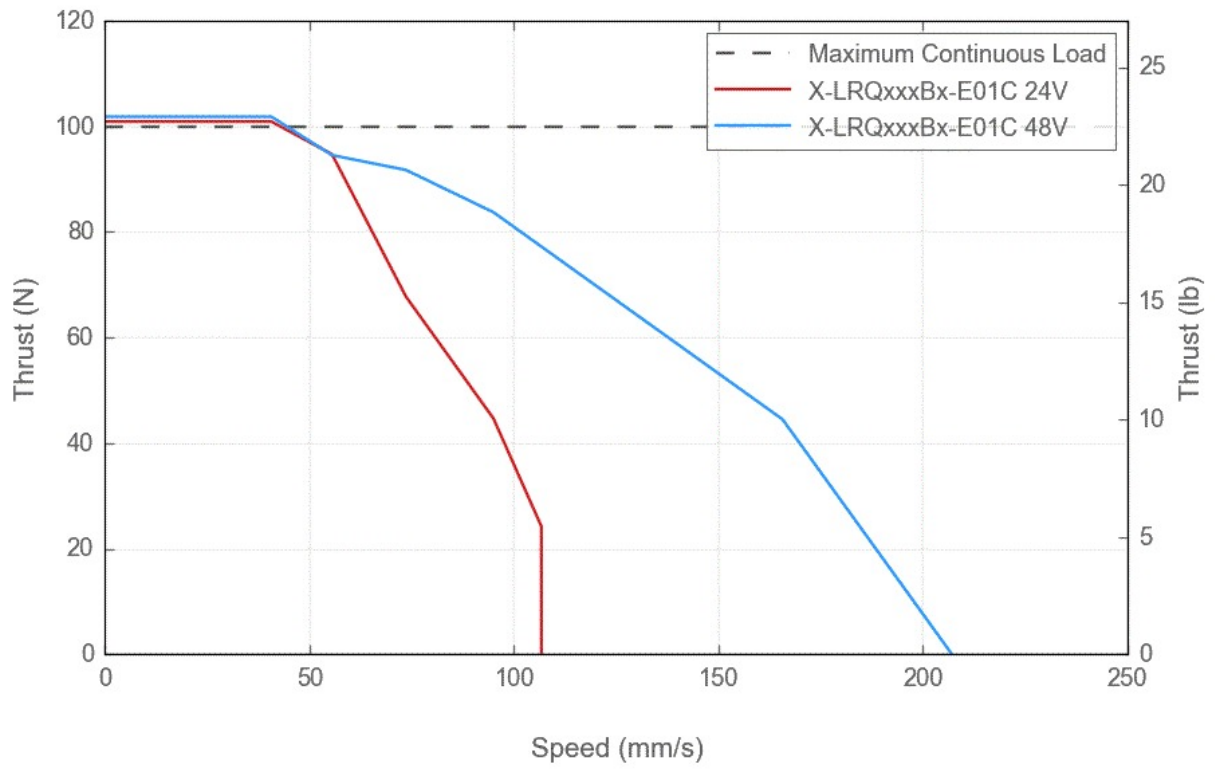
Thrust Speed Performance



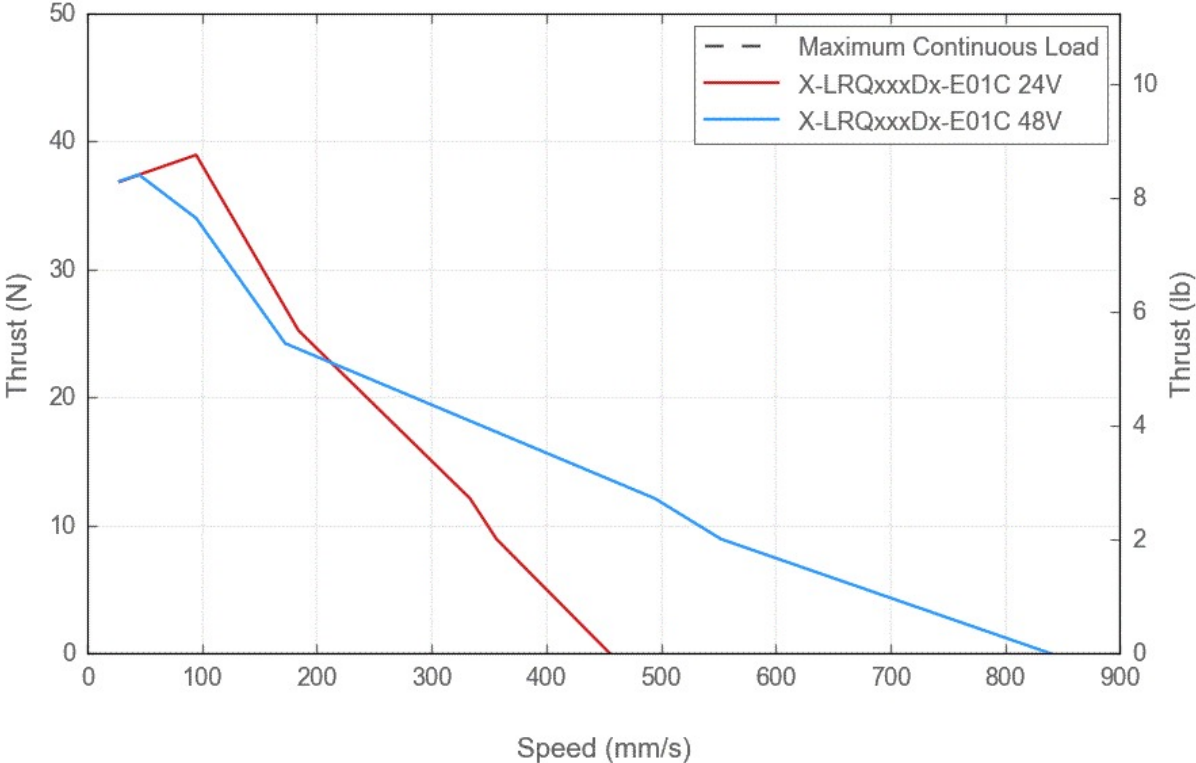
Thrust Speed Performance



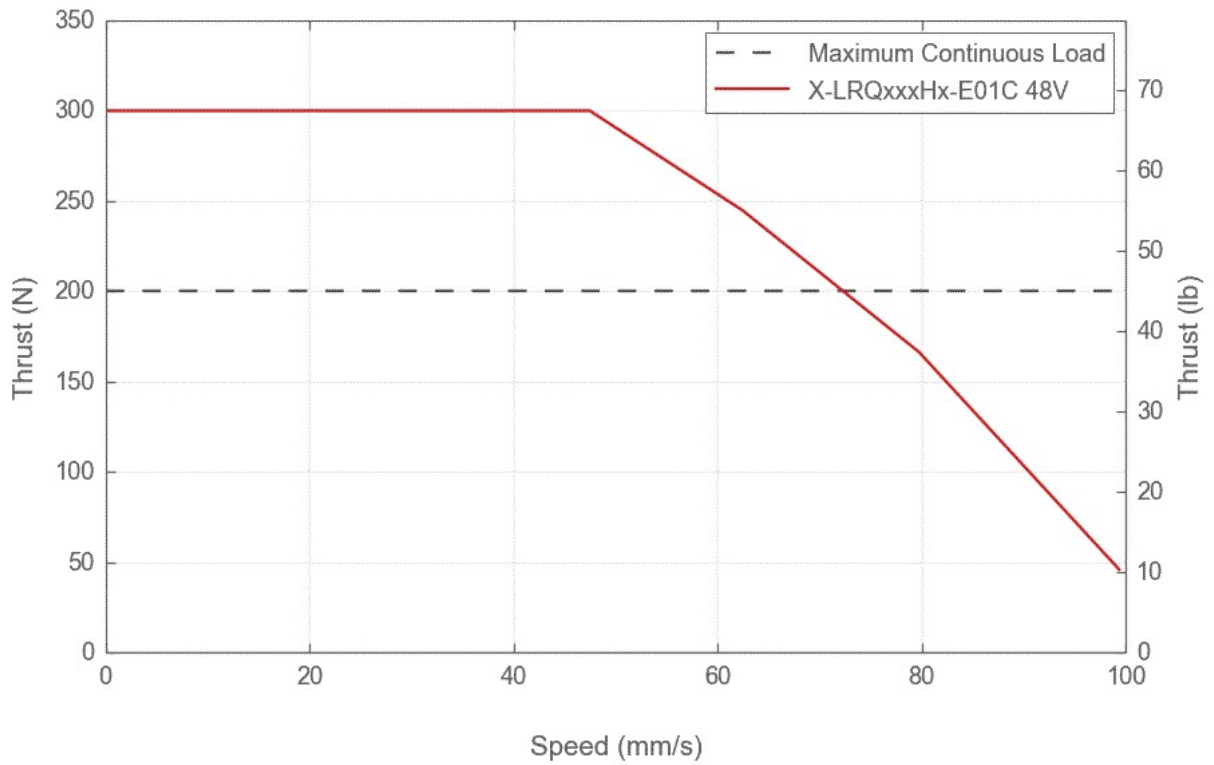
Thrust Speed Performance



Thrust Speed Performance



Thrust Speed Performance



LRQ Linear Bearing Lifetime

