



X-LRQ600HL-E01 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
- Custom versions available

X-LRQ-E Series Overview

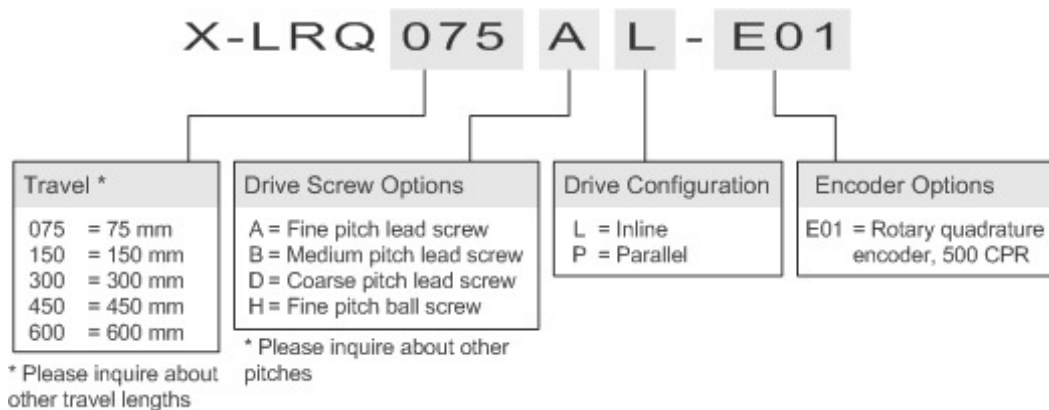
Zaber's X-LRQ-E Series devices are computer-controlled, motorized linear stages with high stiffness, load, and lifetime capabilities in a compact size. Each device is available in either an inline or parallel drive configuration. They are stand-alone units requiring only a standard 24 V or 48 V power 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 36 mm high, these stages are excellent for applications where a low profile is required. The X-LRQ-E'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-E 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-E/6>

X-LRQ-E Series Part Numbering



X-LRQ600HL-E01 Bundle Options

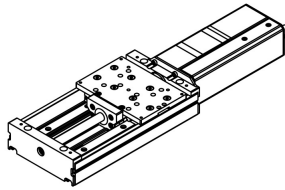
This device may be purchased stand-alone or bundled with one of the following accessory kits:

| Products | Description |
|--|---|
| X-LRQ600HL-E01 | Motorized, ball-screw driven, linear stage, 600 mm travel, integrated motor encoder and controller, fine resolution, low 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-LRQ600HL-E01 Drawings

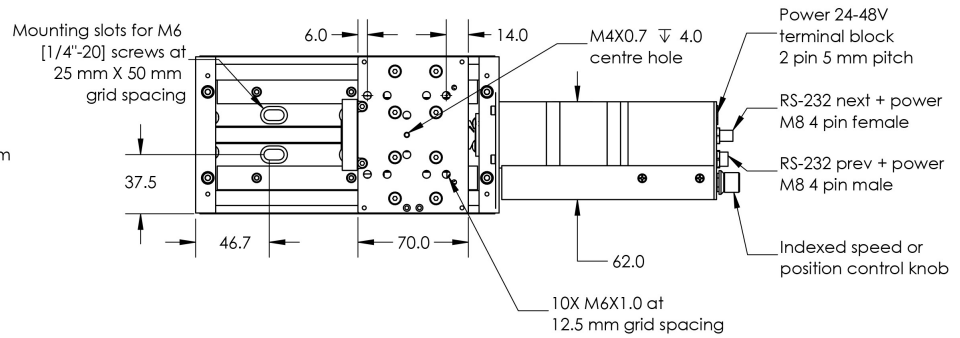
ZABER

X-LRQxL-E Motorized Linear Stage
 dimensions in mm

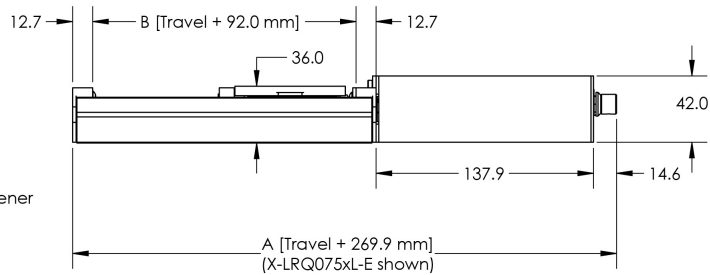
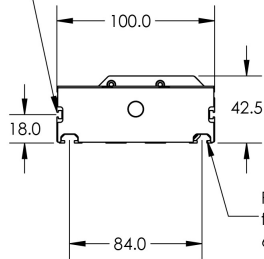


| Model Number* | Travel | A | B |
|---------------|--------|-------|-------|
| X-LRQ075xL-E | 75.0 | 344.9 | 167.0 |
| X-LRQ150xL-E | 150.0 | 419.9 | 242.0 |
| X-LRQ300xL-E | 300.0 | 569.9 | 392.0 |
| X-LRQ450xL-E | 450.0 | 719.9 | 542.0 |
| X-LRQ600xL-E | 600.0 | 869.9 | 692.0 |

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



Recommended fastener for side T-slots: standard M2.5 nuts
 Note: Do not mount stage using these side T-slots. For accessories only



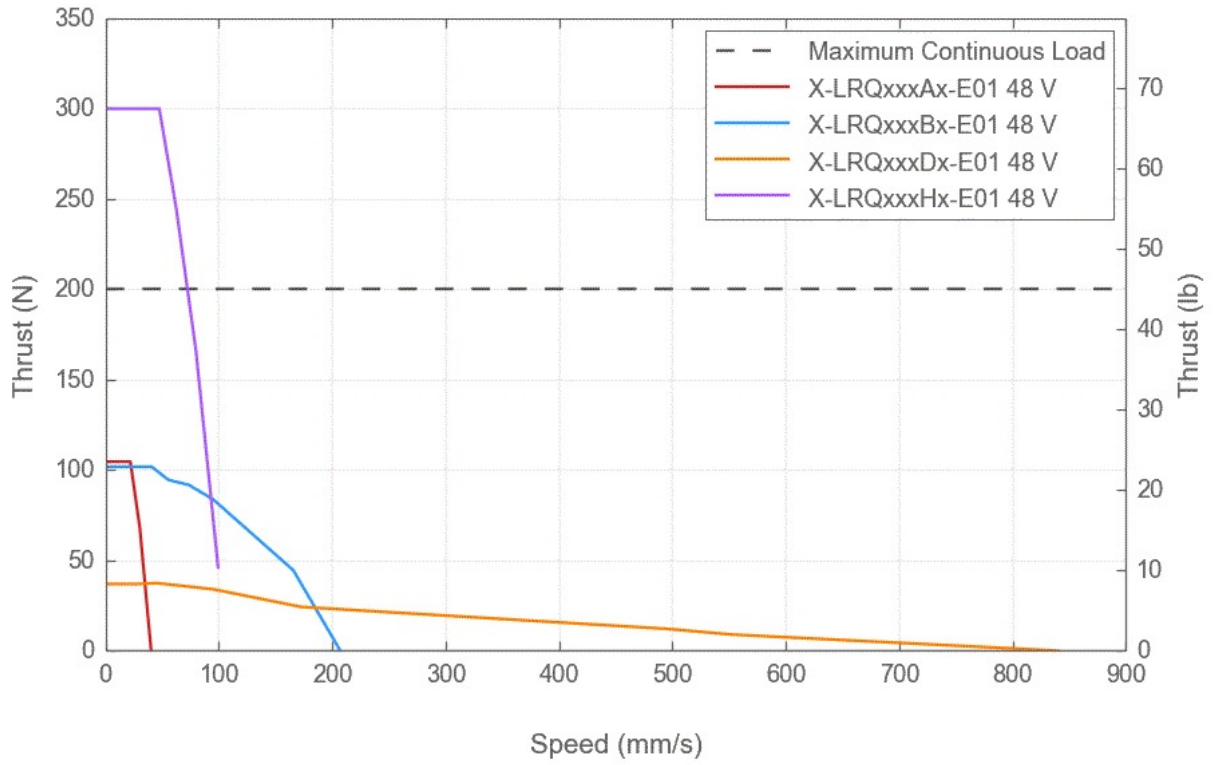
X-LRQ600HL-E01 Specifications

| Specification | Value | Alternate Unit |
|-------------------------------------|-------------------------------------|---------------------------|
| Microstep Size (Default Resolution) | 0.1953125 μm | |
| Built-in Controller | Yes | |
| Travel Range | 600 mm | 23.622" |
| Accuracy (unidirectional) | 115 μm | 0.004528" |
| Repeatability | < 5 μm | < 0.000197" |
| Backlash | < 30 μm | < 0.001181" |
| Maximum Speed | 100 mm/s | 3.937"/s |
| Minimum Speed | 0.000119 mm/s | 0.000005"/s |
| Speed Resolution | 0.000119 mm/s | 0.000005"/s |
| Encoder Resolution | 500 CPR | 2000 states/rev |
| Encoder Type | Rotary quadrature encoder | |
| Peak Thrust | 300 N | 67.3 lb |
| Back-driving Force | 93 N ($\pm 30\%$) | 20.9 lb ($\pm 30\%$) |
| Maximum Continuous Thrust | 200 N | 44.9 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 | < 75 μm | < 0.002953" |
| Horizontal Runout | < 60 μm | < 0.002362" |
| Pitch | 0.045° | 0.785 mrad |
| Roll | 0.035° | 0.611 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 | |

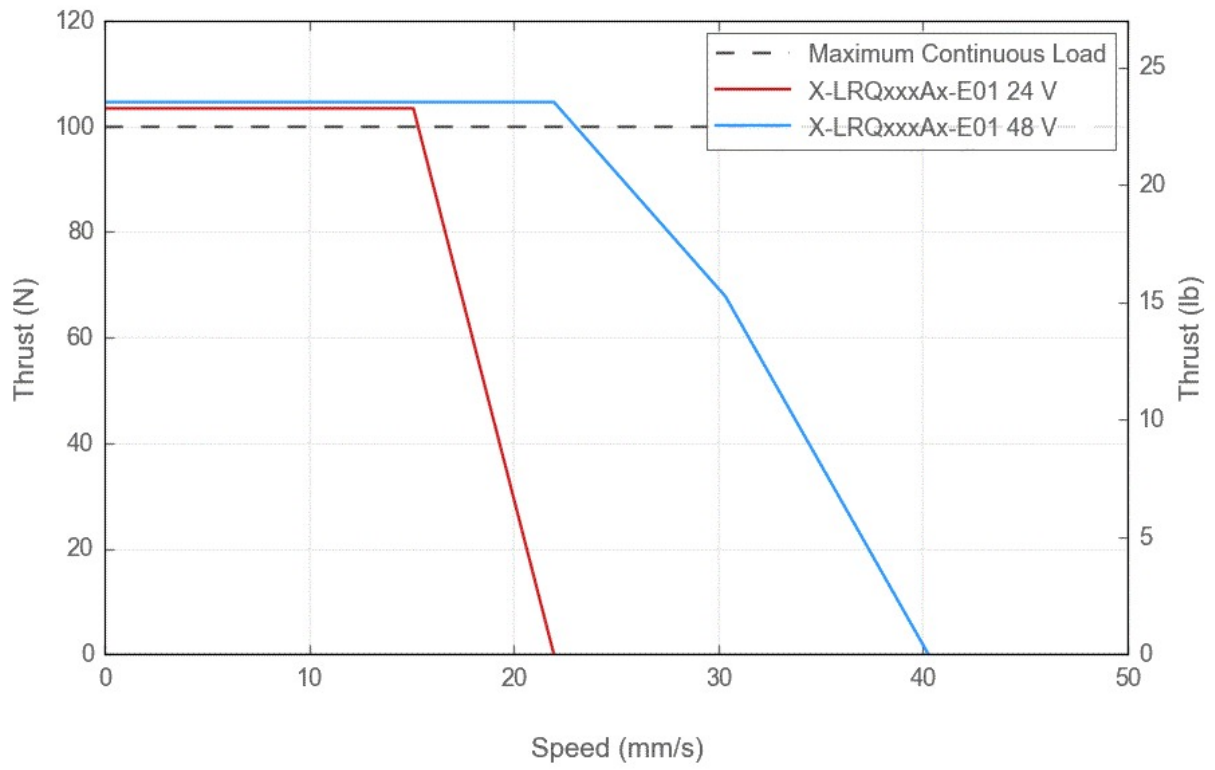
| Specification | Value | Alternate Unit |
|-----------------------------|-------------------------------|-----------------------|
| Linear Motion Per Motor Rev | 2.5 mm | 0.098" |
| Motor Steps Per Rev | 200 | |
| Motor Type | Stepper (2 phase) | |
| Motor Rated Current | 2300 mA/phase | |
| Inductance | 2.8 mH/phase | |
| Default Resolution | 1/64 of a step | |
| Data Cable Connection | Locking 4-pin M8 | |
| Mechanical Drive System | Precision ball 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 | 4.78 kg | 10.538 lb |

X-LRQ-E Series Charts

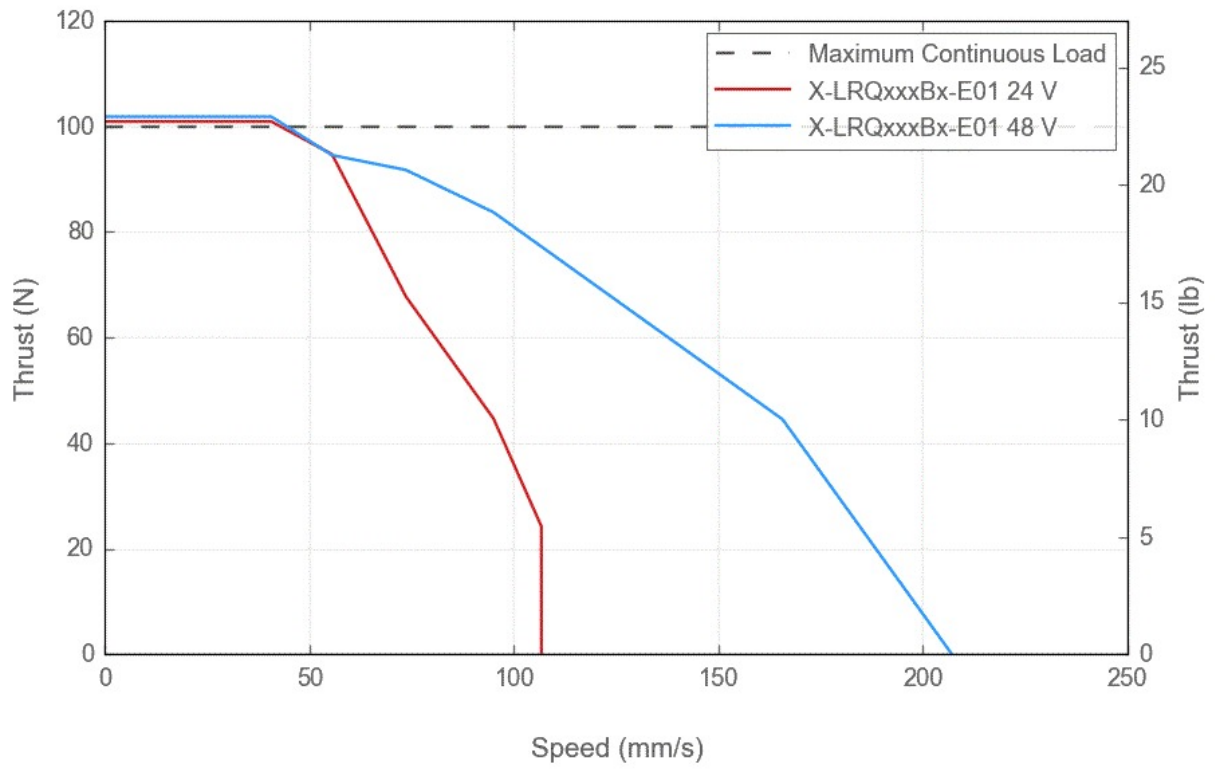
Thrust Speed Performance



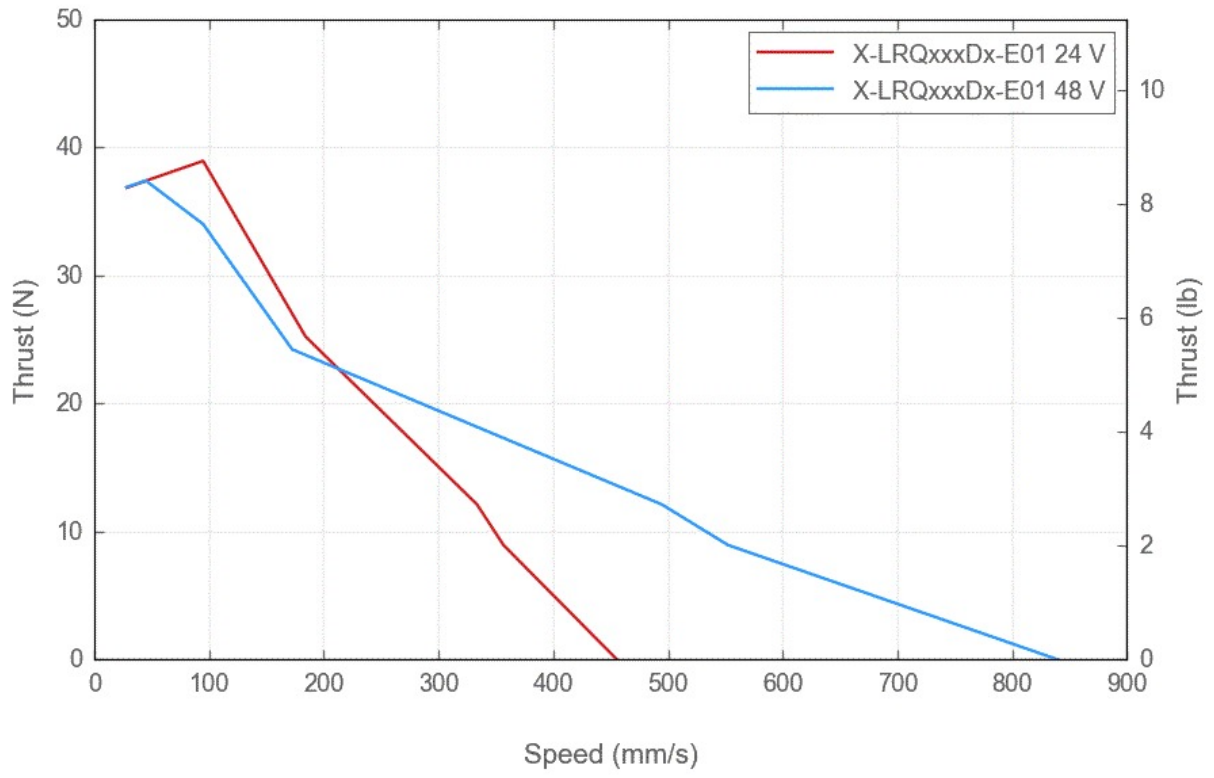
Thrust Speed Performance



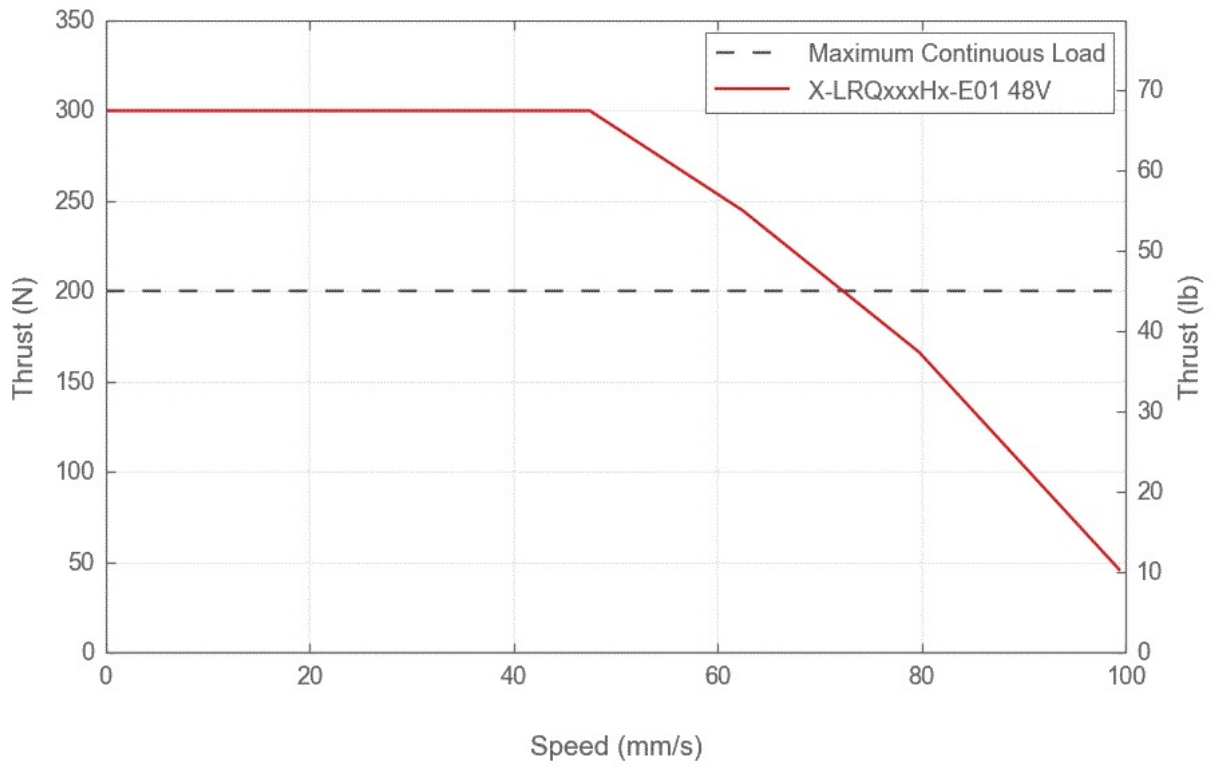
Thrust Speed Performance



Thrust Speed Performance



Thrust Speed Performance



LRQ Linear Bearing Lifetime

