Zaber Technologies Inc.
#2 - 605 West Kent Ave.
Vancouver, BC

1-604-569-3780 *Direct*
1-888-276-8033 *Toll Free*
1-604-648-8033 *Fax*

X-LRQ-DE Series Datasheet



- 75, 150, 300, 450, 600 mm travel
- Up to 10 µm accuracy over 600 mm travel
- Up to 205 mm/s speed and up to 300 N thrust
- 100 kg load capacity
- Inline and parallel drive configurations
- Ball screw and lead screw configurations
- Integrated linear encoders with 50 nm resolution provide slip/stall detection and position correction
- Built-in controller; daisy-chains with other Zaber products
- Custom versions available

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X-LRQ-DE Series Overview

Zaber's X-LRQ-DE Series devices are computer-controlled, motorized linear stages with high stiffness, load, and lifetime capabilities in a compact size. An integrated linear encoder combined with stage calibration provides high accuracy positioning over the full travel of the device. 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. 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-DE's innovative design allows speeds up to 205 mm/s and loads up to 100 kg. Like all of Zaber's products, the X-LRQ-DE 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-DE

X-LRQ-DE Series Part Numbering & Options

X-LRQ 075 A L - DE51

Travel	Lead Screw Options	Drive Configuration	Encoder Options
075 — 75 mm	**A** — Fine pitch lead screw	**L** — Inline	**DE51** — Linear quadrature encoder, 50 nm
150 — 150 mm	**B** — Medium pitch lead screw	**P** — Parallel	
300 — 300 mm	**H** — Fine pitch ball screw		
450 — 450 mm			
600 — 600 mm			

X-LRQ-DE Series Drawings

• View all drawings and documents at zaber.com

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X-LRQ-DE Series Specifications

Overview

Specification	Value
Built-in Controller	Yes
Manual Control	Indexed knob with push switch
Axes of Motion	1
LED Indicators	Yes

Positioning Performance

Specification	Value
Repeatability	<2 µm (<0.000079 ")
Default Resolution	1/64 of a step

Load Performance

Specification	Value
Maximum Centered Load	1000 N (224.3 lb)
Maximum Moment (Pitch)	30 N·m (22.1 lb·ft)
Maximum Moment (Roll)	30 N·m (22.14 lb·ft)
Maximum Moment (Yaw)	30 N·m (22.14 lb·ft)
Stiffness (Pitch)	500 N·m/°
Stiffness (Roll)	1180 N·m/°
Stiffness (Yaw)	450 N·m/°

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Encoder & Sensing

Specification	Value
Encoder Type	Linear quadrature encoder
Encoder Resolution	50 nm
Limit or Home Sensing	Magnetic home sensor

Motor

Specification	Value
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	2300 mA/phase
Motor Winding Inductance	2.2 mH/phase

Power and Communication

Specification	Value
Communication Interface	RS-232
Communication Protocol	Zaber ASCII (Default), Zaber Binary
Data Cable Connection	Locking 4-pin M8
Power Supply	24-48 VDC
Power Plug	2-pin screw terminal
Maximum Current Draw	1900 mA

Mechanical

Specification	Value
Guide Type	Recirculating Ball Linear Guide
Mounting Interface	M6 and M3 threaded holes

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Environmental & Compliance

Specification	Value
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No

Part Number	Travel Range	Weight	Accuracy (unidirectional)	Backlash
X-LRQ075AL-DE51	75 mm (2.953 ")	2.29 kg (5.049 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
X-LRQ075AP-DE51	75 mm (2.953 ")	2.45 kg (5.401 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
X-LRQ075BL-DE51	75 mm (2.953 ")	2.29 kg (5.049 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ075BP-DE51	75 mm (2.953 ")	2.45 kg (5.401 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ075HL-DE51	75 mm (2.953 ")	2.29 kg (5.049 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ075HP-DE51	75 mm (2.953 ")	2.45 kg (5.401 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ150AL-DE51	150 mm (5.905 ")	2.68 kg (5.908 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
X-LRQ150AP-DE51	150 mm (5.905 ")	2.84 kg (6.261 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
X-LRQ150BL-DE51	150 mm (5.905 ")	2.68 kg (5.908 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ150BP-DE51	150 mm (5.905 ")	2.84 kg (6.261 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ150HL-DE51	150 mm (5.905 ")	2.68 kg (5.908 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ150HP-DE51	150 mm (5.905 ")	2.84 kg (6.261 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ300AL-DE51	300 mm (11.811 ")	3.48 kg (7.672 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
X-LRQ300AP-DE51	300 mm (11.811 ")	3.64 kg (8.025 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")

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X-LRQ300BL-DE51	300 mm (11.811 ")	3.48 kg (7.672 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ300BP-DE51	300 mm (11.811 ")	3.64 kg (8.025 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ300HL-DE51	300 mm (11.811 ")	3.48 kg (7.672 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ300HP-DE51	300 mm (11.811 ")	3.64 kg (8.025 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ450AL-DE51	450 mm (17.716 ")	4.27 kg (9.414 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
X-LRQ450AP-DE51	450 mm (17.716 ")	4.43 kg (9.766 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
X-LRQ450BL-DE51	450 mm (17.716 ")	4.27 kg (9.414 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ450BP-DE51	450 mm (17.716 ")	4.43 kg (9.766 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ450HL-DE51	450 mm (17.716 ")	4.27 kg (9.414 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ450HP-DE51	450 mm (17.716 ")	4.43 kg (9.766 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ600AL-DE51	600 mm (23.622 ")	5.02 kg (11.067 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
X-LRQ600AP-DE51	600 mm (23.622 ")	5.18 kg (11.42 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
X-LRQ600BL-DE51	600 mm (23.622 ")	5.02 kg (11.067 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ600BP-DE51	600 mm (23.622 ")	5.18 kg (11.42 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ600HL-DE51	600 mm (23.622 ")	5.02 kg (11.067 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ600HP-DE51	600 mm (23.622 ")	5.18 kg (11.42 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")

Part Number	Flatness of Travel	Straightness of Travel	Pitch Error	Roll Error
X-LRQ075AL-DE51	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
X-LRQ075AP-DE51	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)

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X-LRQ075BL-DE51	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
X-LRQ075BP-DE51	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
X-LRQ075HL-DE51	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
X-LRQ075HP-DE51	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
X-LRQ150AL-DE51	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
X-LRQ150AP-DE51	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
X-LRQ150BL-DE51	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
X-LRQ150BP-DE51	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
X-LRQ150HL-DE51	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
X-LRQ150HP-DE51	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
X-LRQ300AL-DE51	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
X-LRQ300AP-DE51	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
X-LRQ300BL-DE51	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
X-LRQ300BP-DE51	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
X-LRQ300HL-DE51	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
X-LRQ300HP-DE51	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
X-LRQ450AL-DE51	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
X-LRQ450AP-DE51	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
X-LRQ450BL-DE51	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
X-LRQ450BP-DE51	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)

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X-LRQ450HL-DE51	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
X-LRQ450HP-DE51	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
X-LRQ600AL-DE51	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)
X-LRQ600AP-DE51	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)
X-LRQ600BL-DE51	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)
X-LRQ600BP-DE51	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)
X-LRQ600HL-DE51	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)
X-LRQ600HP-DE51	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)

Part Number	Yaw Error	Microstep Size (Default Resolution)	Peak Thrust	Maximum Continuous Thrust
X-LRQ075AL-DE51	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
X-LRQ075AP-DE51	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
X-LRQ075BL-DE51	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
X-LRQ075BP-DE51	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
X-LRQ075HL-DE51	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
X-LRQ075HP-DE51	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
X-LRQ150AL-DE51	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
X-LRQ150AP-DE51	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
X-LRQ150BL-DE51	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
X-LRQ150BP-DE51	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)

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X-LRQ150HL-DE51	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
X-LRQ150HP-DE51	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
X-LRQ300AL-DE51	0.03 ° (0.523 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
X-LRQ300AP-DE51	0.03 ° (0.523 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
X-LRQ300BL-DE51	0.03 ° (0.523 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
X-LRQ300BP-DE51	0.03 ° (0.523 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
X-LRQ300HL-DE51	0.03 ° (0.523 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
X-LRQ300HP-DE51	0.03 ° (0.523 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
X-LRQ450AL-DE51	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
X-LRQ450AP-DE51	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
X-LRQ450BL-DE51	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
X-LRQ450BP-DE51	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
X-LRQ450HL-DE51	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
X-LRQ450HP-DE51	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
X-LRQ600AL-DE51	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
X-LRQ600AP-DE51	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
X-LRQ600BL-DE51	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
X-LRQ600BP-DE51	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
X-LRQ600HL-DE51	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
X-LRQ600HP-DE51	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)

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Part Number	Back-driving Force*	Maximum Speed	Minimum Speed	Speed Resolution
X-LRQ075AL-DE51	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ075AP-DE51	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ075BL-DE51	93 (± 30%) N (20.9 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ075BP-DE51	123 (± 30%) N (27.6 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ075HL-DE51	93 (± 30%) N (20.9 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ075HP-DE51	123 (± 30%) N (27.6 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ150AL-DE51	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ150AP-DE51	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ150BL-DE51	93 (± 30%) N (20.9 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ150BP-DE51	123 (± 30%) N (27.6 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ150HL-DE51	93 (± 30%) N (20.9 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ150HP-DE51	123 (± 30%) N (27.6 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ300AL-DE51	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ300AP-DE51	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ300BL-DE51	93 (± 30%) N (20.9 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ300BP-DE51	123 (± 30%) N (27.6 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ300HL-DE51	93 (± 30%) N (20.9 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ300HP-DE51	123 (± 30%) N (27.6 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ450AL-DE51	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)

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X-LRQ450AP-DE51	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ450BL-DE51	93 (± 30%) N (20.9 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ450BP-DE51	123 (± 30%) N (27.6 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ450HL-DE51	93 (± 30%) N (20.9 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ450HP-DE51	123 (± 30%) N (27.6 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ600AL-DE51	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ600AP-DE51	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ600BL-DE51	93 (± 30%) N (20.9 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ600BP-DE51	123 (± 30%) N (27.6 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ600HL-DE51	93 (± 30%) N (20.9 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ600HP-DE51	123 (± 30%) N (27.6 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)

Part Number	Linear Motion Per Motor Rev	Mechanical Drive System
X-LRQ075AL-DE51	1.27 mm (0.05 ")	Precision lead screw
X-LRQ075AP-DE51	1.27 mm (0.05 ")	Precision lead screw
X-LRQ075BL-DE51	6.35 mm (0.25 ")	Precision lead screw
X-LRQ075BP-DE51	6.35 mm (0.25 ")	Precision lead screw
X-LRQ075HL-DE51	2.5 mm (0.098 ")	Precision ball screw
X-LRQ075HP-DE51	2.5 mm (0.098 ")	Precision ball screw
X-LRQ150AL-DE51	1.27 mm (0.05 ")	Precision lead screw

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X-LRQ150AP-DE51	1.27 mm (0.05 ")	Precision lead screw
X-LRQ150BL-DE51	6.35 mm (0.25 ")	Precision lead screw
X-LRQ150BP-DE51	6.35 mm (0.25 ")	Precision lead screw
X-LRQ150HL-DE51	2.5 mm (0.098 ")	Precision ball screw
X-LRQ150HP-DE51	2.5 mm (0.098 ")	Precision ball screw
X-LRQ300AL-DE51	1.27 mm (0.05 ")	Precision lead screw
X-LRQ300AP-DE51	1.27 mm (0.05 ")	Precision lead screw
X-LRQ300BL-DE51	6.35 mm (0.25 ")	Precision lead screw
X-LRQ300BP-DE51	6.35 mm (0.25 ")	Precision lead screw
X-LRQ300HL-DE51	2.5 mm (0.098 ")	Precision ball screw
X-LRQ300HP-DE51	2.5 mm (0.098 ")	Precision ball screw
X-LRQ450AL-DE51	1.27 mm (0.05 ")	Precision lead screw
X-LRQ450AP-DE51	1.27 mm (0.05 ")	Precision lead screw
X-LRQ450BL-DE51	6.35 mm (0.25 ")	Precision lead screw
X-LRQ450BP-DE51	6.35 mm (0.25 ")	Precision lead screw
X-LRQ450HL-DE51	2.5 mm (0.098 ")	Precision ball screw
X-LRQ450HP-DE51	2.5 mm (0.098 ")	Precision ball screw
X-LRQ600AL-DE51	1.27 mm (0.05 ")	Precision lead screw
X-LRQ600AP-DE51	1.27 mm (0.05 ")	Precision lead screw
X-LRQ600BL-DE51	6.35 mm (0.25 ")	Precision lead screw

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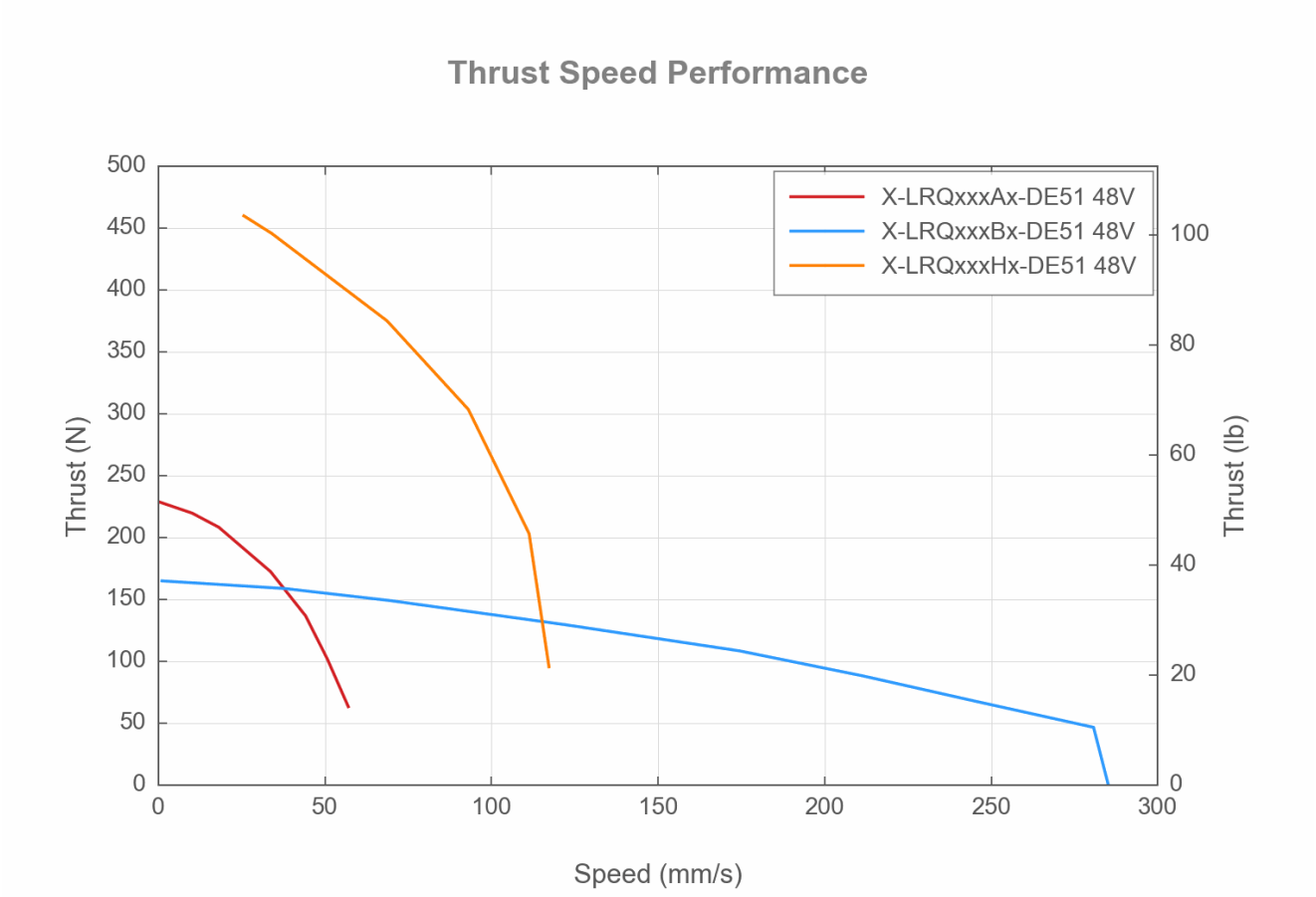
X-LRQ600BP-DE51	6.35 mm (0.25 ")	Precision lead screw
X-LRQ600HL-DE51	2.5 mm (0.098 ")	Precision ball screw
X-LRQ600HP-DE51	2.5 mm (0.098 ")	Precision ball screw

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X-LRQ-DE Series Charts

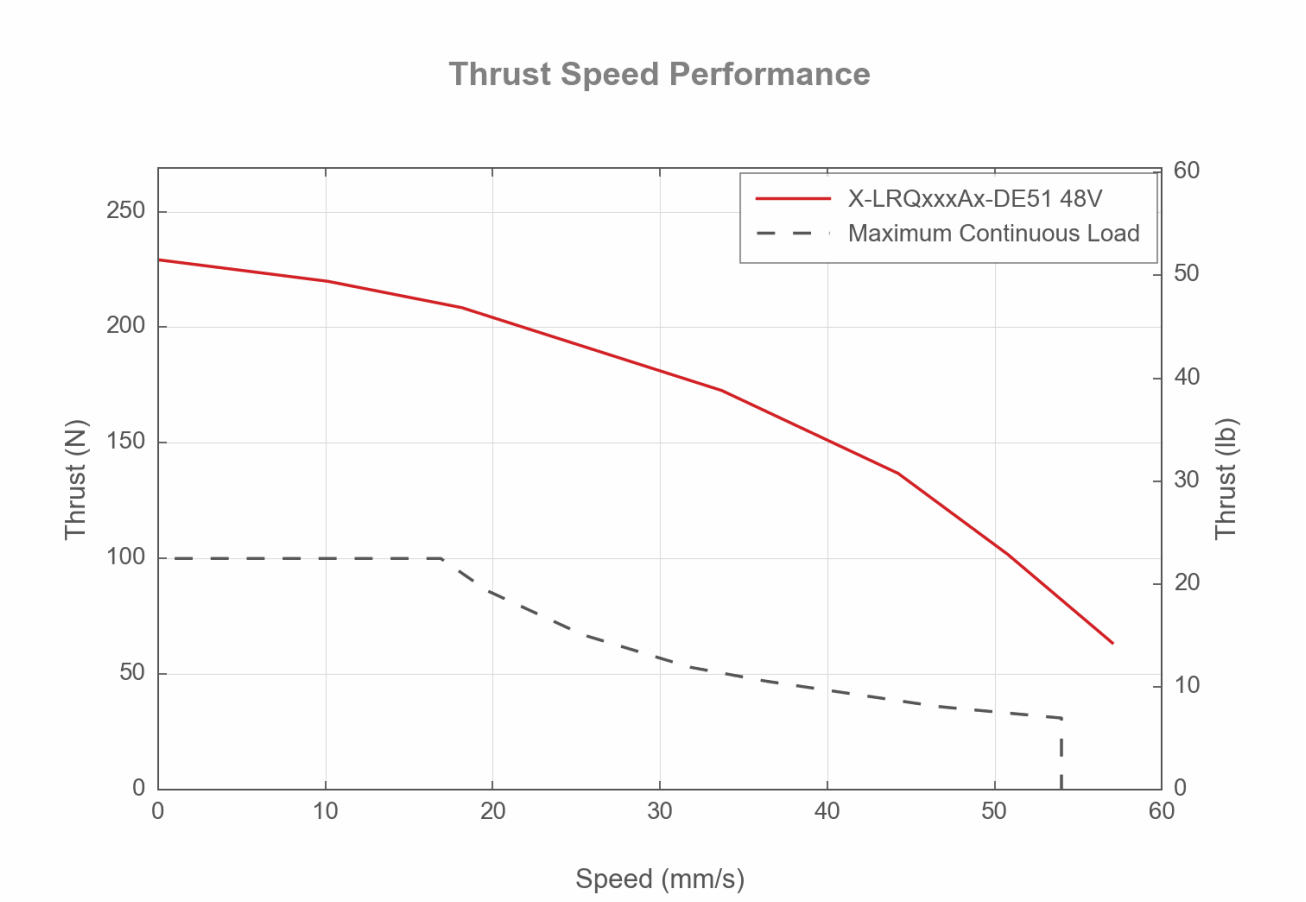
Thrust Speed



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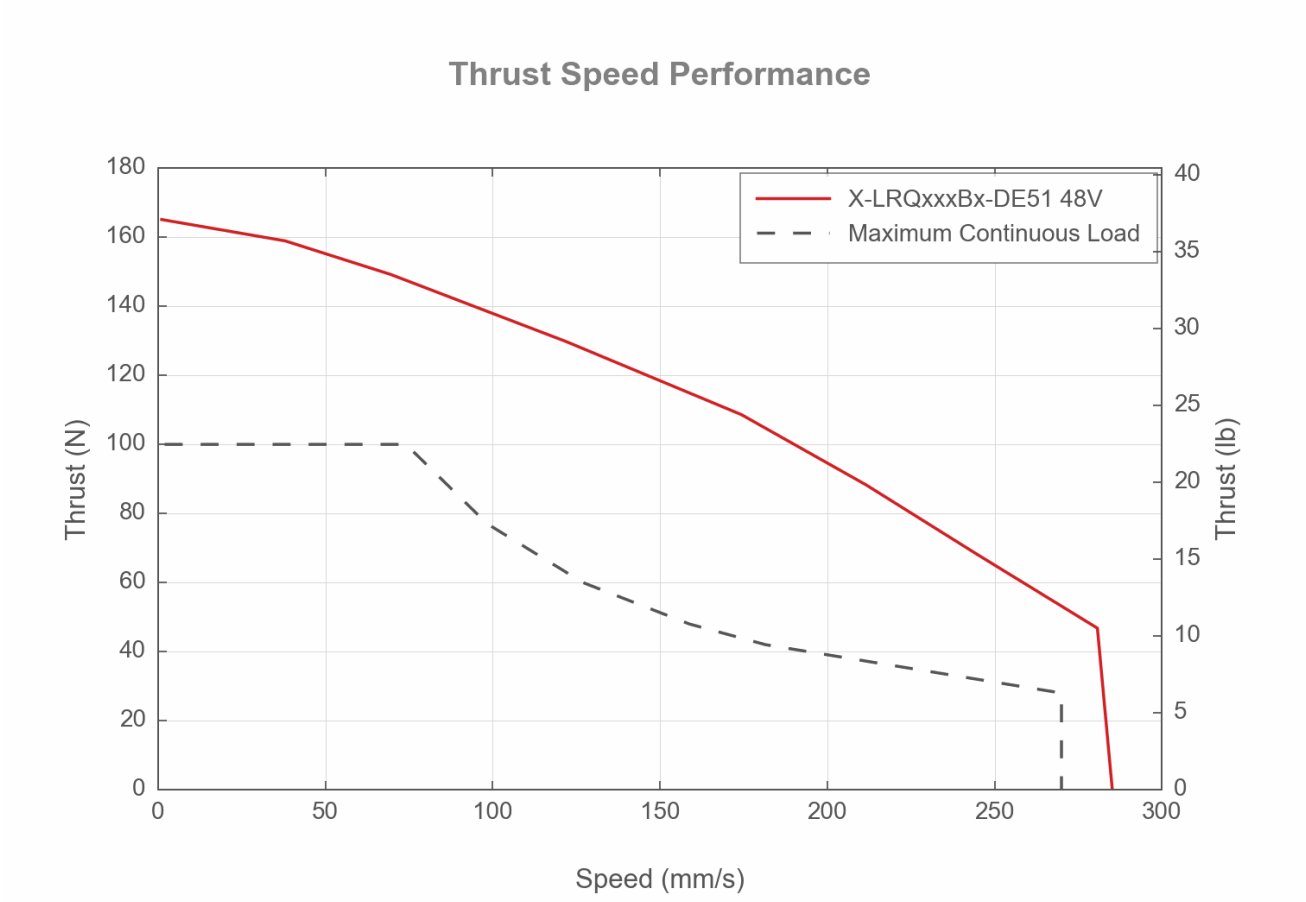
Thrust Speed



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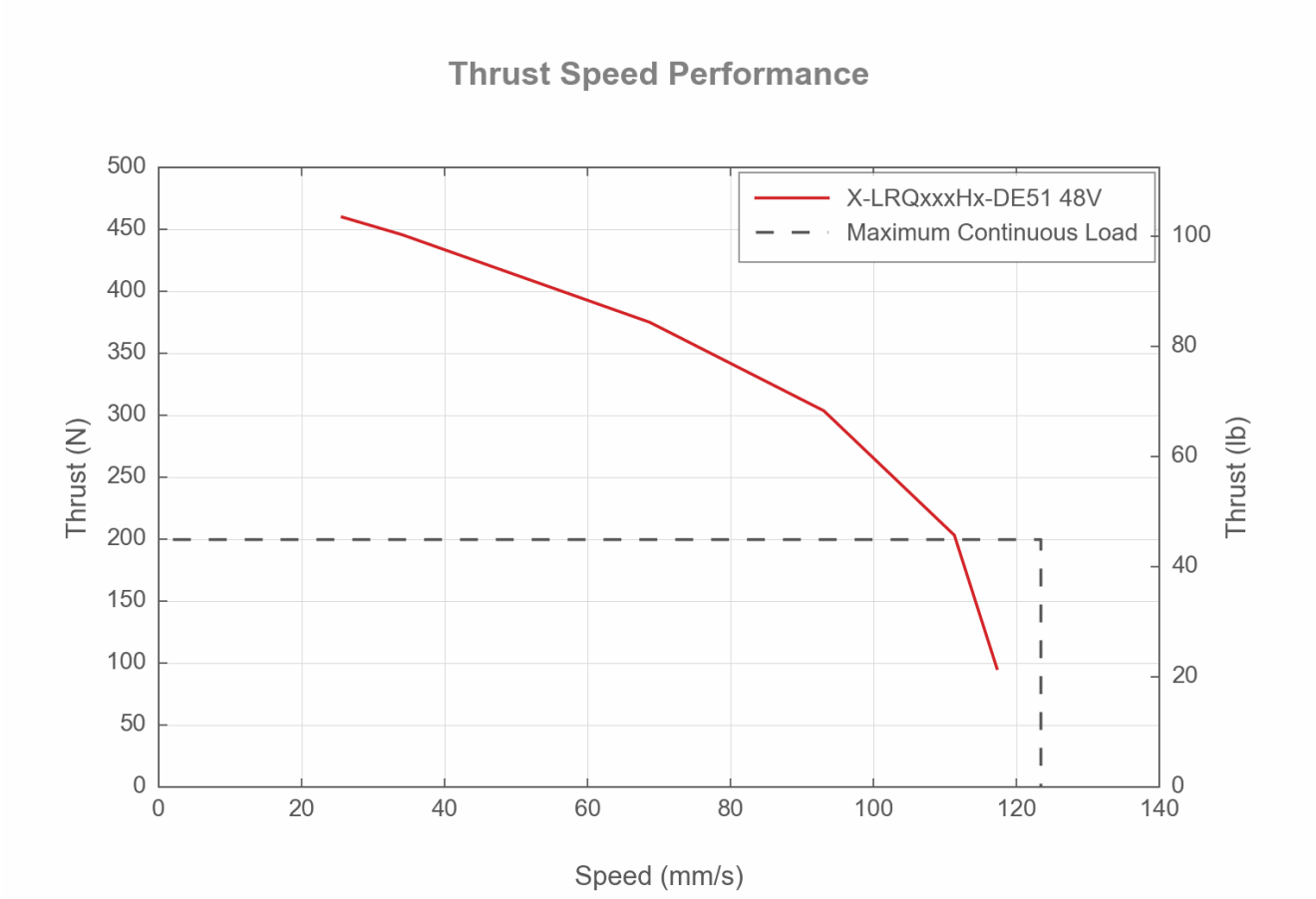
Thrust Speed



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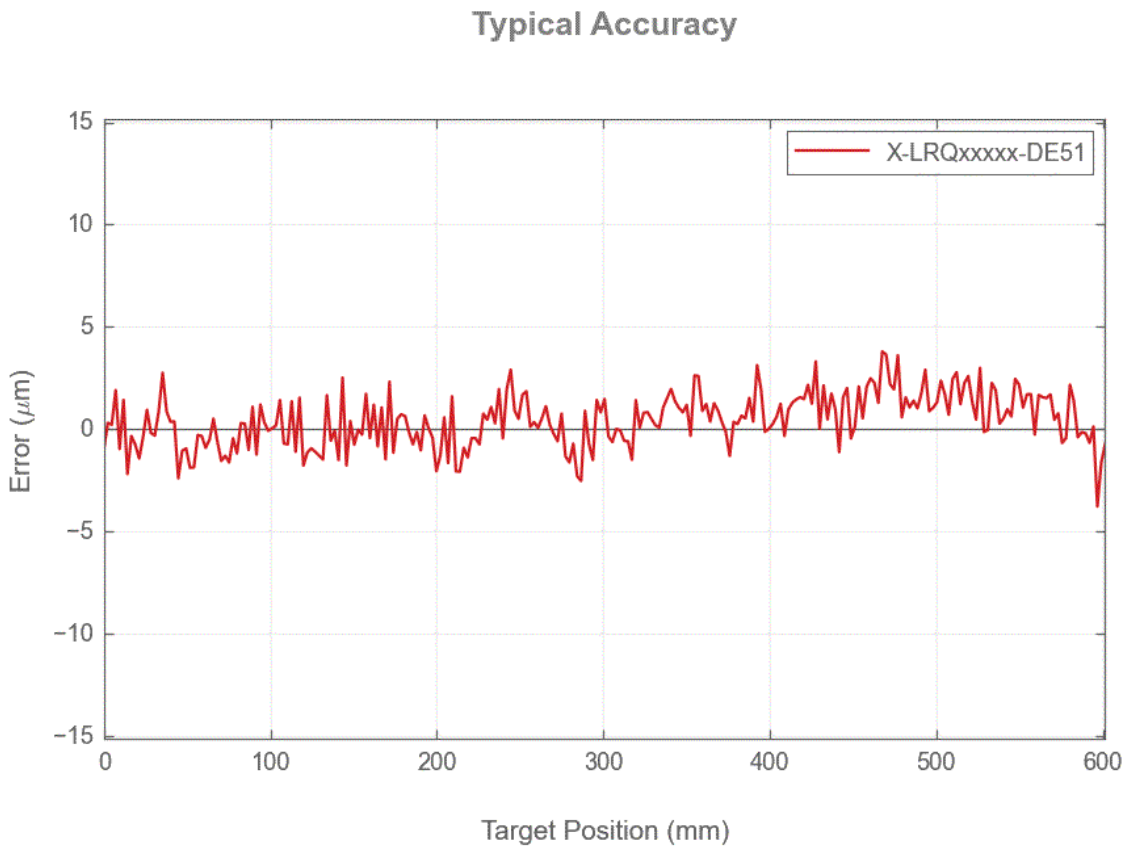
Thrust Speed



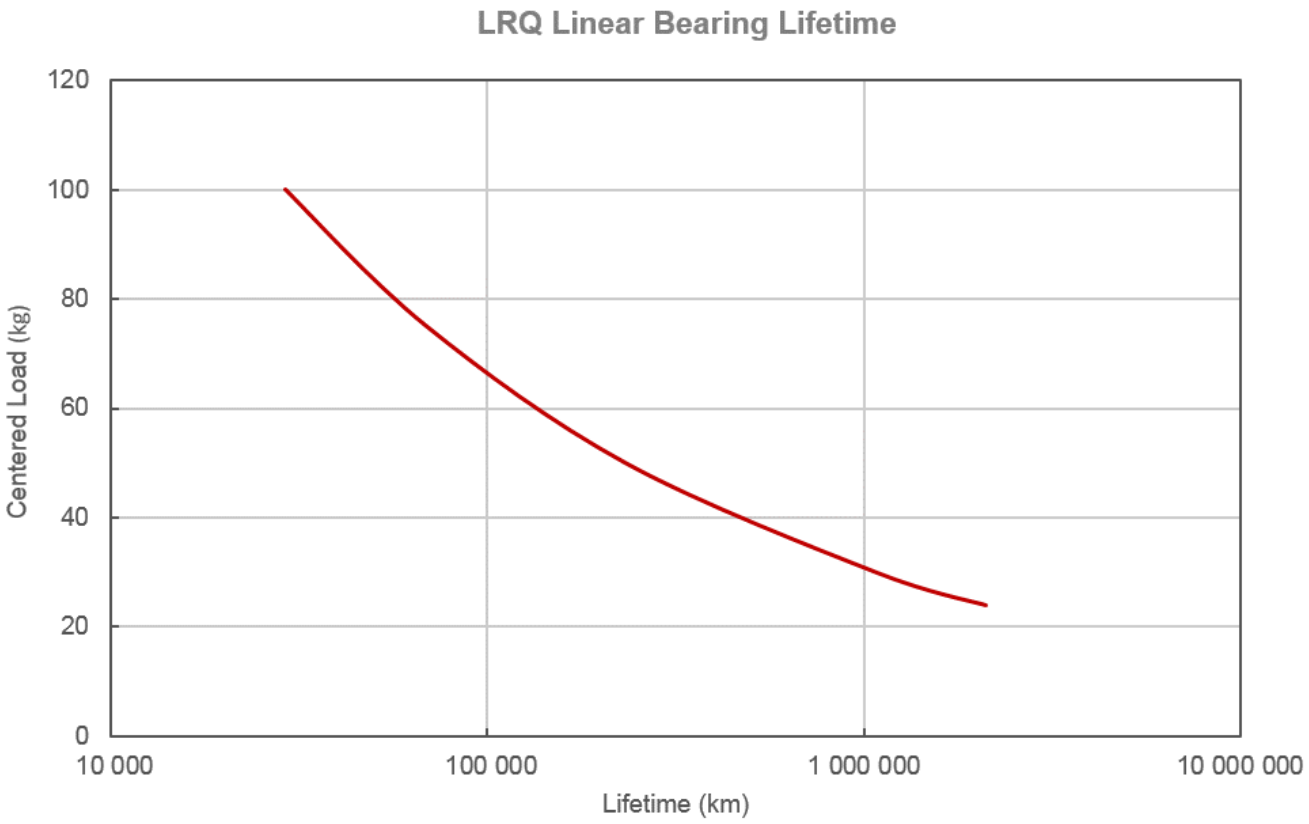
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Full Travel Accuracy



LRQ Lifetime



Contact

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X-LRQ-DEC Series Datasheet



- 75, 150, 300, 450, 600 mm travel
- Up to 10 µm accuracy over 600 mm travel
- Up to 205 mm/s speed and up to 300 N thrust
- 100 kg load capacity
- Inline and parallel drive configurations
- Includes stainless steel dust cover
- Ball screw and lead screw configurations
- Integrated linear encoders with 50 nm resolution provide slip/stall detection and position correction
- Built-in controller; daisy-chains with other Zaber products
- Custom versions available

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X-LRQ-DEC Series Overview

Zaber's X-LRQ-DEC Series devices are computer-controlled, motorized linear stages with high stiffness, load, and lifetime capabilities in a compact size. An integrated linear encoder combined with stage calibration provides high accuracy positioning over the full travel of the device. 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. 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-DEC's innovative design allows speeds up to 205 mm/s and loads up to 100 kg. Like all of Zaber's products, the X-LRQ-DEC 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-DEC

X-LRQ-DEC Series Part Numbering & Options

X-LRQ 075 A L - DE51 C

Travel
- **075** — 75 mm
- **150** — 150 mm
- **300** — 300 mm
- **450** — 450 mm
- **600** — 600 mm

Drive Screw Options
- **A** — Fine pitch lead screw
- **B** — Medium pitch lead screw
- **H** — Fine pitch ball screw

Drive Configuration
- **L** — Inline
- **P** — Parallel

Encoder Options
- **DE51** — Linear quadrature encoder, 50 nm

Cover
- **C** — Stainless Steel Dust Cover

X-LRQ-DEC Series Drawings

• View all drawings and documents at zaber.com

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X-LRQ-DEC Series Specifications

Overview

Specification	Value
Built-in Controller	Yes
Manual Control	Indexed knob with push switch
Axes of Motion	1
LED Indicators	Yes

Positioning Performance

Specification	Value
Repeatability	<2 µm (<0.000079 ")
Default Resolution	1/64 of a step

Load Performance

Specification	Value
Maximum Centered Load	1000 N (224.3 lb)
Maximum Moment (Pitch)	30 N·m (22.1 lb·ft)
Maximum Moment (Roll)	30 N·m (22.14 lb·ft)
Maximum Moment (Yaw)	30 N·m (22.14 lb·ft)
Stiffness (Pitch)	250 N·m/°
Stiffness (Roll)	600 N·m/°
Stiffness (Yaw)	430 N·m/°

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Encoder & Sensing

Specification	Value
Encoder Type	Linear quadrature encoder
Encoder Resolution	50 nm
Limit or Home Sensing	Magnetic home sensor

Motor

Specification	Value
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	2300 mA/phase
Motor Winding Inductance	2.2 mH/phase

Power and Communication

Specification	Value
Communication Interface	RS-232
Communication Protocol	Zaber ASCII (Default), Zaber Binary
Data Cable Connection	Locking 4-pin M8
Power Supply	24-48 VDC
Power Plug	2-pin screw terminal
Maximum Current Draw	1900 mA

Mechanical

Specification	Value
Guide Type	Recirculating Ball Linear Guide
Mounting Interface	M6 and M3 threaded holes

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Environmental & Compliance

Specification	Value
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No

Part Number	Travel Range	Weight	Accuracy (unidirectional)	Backlash
X-LRQ075AL-DE51C	75 mm (2.953 ")	2.51 kg (5.534 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
X-LRQ075AP-DE51C	75 mm (2.953 ")	2.68 kg (5.908 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
X-LRQ075BL-DE51C	75 mm (2.953 ")	2.51 kg (5.534 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ075BP-DE51C	75 mm (2.953 ")	2.68 kg (5.908 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ075HL-DE51C	75 mm (2.953 ")	2.51 kg (5.534 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ075HP-DE51C	75 mm (2.953 ")	2.68 kg (5.908 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ150AL-DE51C	150 mm (5.905 ")	2.93 kg (6.46 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
X-LRQ150AP-DE51C	150 mm (5.905 ")	3.1 kg (6.834 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
X-LRQ150BL-DE51C	150 mm (5.905 ")	2.93 kg (6.46 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ150BP-DE51C	150 mm (5.905 ")	3.1 kg (6.834 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ150HL-DE51C	150 mm (5.905 ")	2.93 kg (6.46 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ150HP-DE51C	150 mm (5.905 ")	3.1 kg (6.834 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ300AL-DE51C	300 mm (11.811 ")	3.77 kg (8.311 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
X-LRQ300AP-DE51C	300 mm (11.811 ")	3.95 kg (8.708 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")

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X-LRQ300BL-DE51C	300 mm (11.811 ")	3.77 kg (8.311 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ300BP-DE51C	300 mm (11.811 ")	3.95 kg (8.708 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ300HL-DE51C	300 mm (11.811 ")	3.77 kg (8.311 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ300HP-DE51C	300 mm (11.811 ")	3.95 kg (8.708 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ450AL-DE51C	450 mm (17.716 ")	4.61 kg (10.163 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
X-LRQ450AP-DE51C	450 mm (17.716 ")	4.78 kg (10.538 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
X-LRQ450BL-DE51C	450 mm (17.716 ")	4.61 kg (10.163 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ450BP-DE51C	450 mm (17.716 ")	4.78 kg (10.538 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ450HL-DE51C	450 mm (17.716 ")	4.61 kg (10.163 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ450HP-DE51C	450 mm (17.716 ")	4.78 kg (10.538 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ600AL-DE51C	600 mm (23.622 ")	5.41 kg (11.927 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
X-LRQ600AP-DE51C	600 mm (23.622 ")	5.58 kg (12.302 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
X-LRQ600BL-DE51C	600 mm (23.622 ")	5.41 kg (11.927 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ600BP-DE51C	600 mm (23.622 ")	5.58 kg (12.302 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ600HL-DE51C	600 mm (23.622 ")	5.41 kg (11.927 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
X-LRQ600HP-DE51C	600 mm (23.622 ")	5.58 kg (12.302 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")

Part Number	Flatness of Travel	Straightness of Travel	Pitch Error	Roll Error
X-LRQ075AL-DE51C	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
X-LRQ075AP-DE51C	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)

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X-LRQ075BL-DE51C	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
X-LRQ075BP-DE51C	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
X-LRQ075HL-DE51C	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
X-LRQ075HP-DE51C	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
X-LRQ150AL-DE51C	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
X-LRQ150AP-DE51C	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
X-LRQ150BL-DE51C	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
X-LRQ150BP-DE51C	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
X-LRQ150HL-DE51C	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
X-LRQ150HP-DE51C	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
X-LRQ300AL-DE51C	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
X-LRQ300AP-DE51C	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
X-LRQ300BL-DE51C	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
X-LRQ300BP-DE51C	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
X-LRQ300HL-DE51C	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
X-LRQ300HP-DE51C	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
X-LRQ450AL-DE51C	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
X-LRQ450AP-DE51C	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
X-LRQ450BL-DE51C	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
X-LRQ450BP-DE51C	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)

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X-LRQ450HL-DE51C	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
X-LRQ450HP-DE51C	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
X-LRQ600AL-DE51C	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)
X-LRQ600AP-DE51C	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)
X-LRQ600BL-DE51C	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)
X-LRQ600BP-DE51C	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)
X-LRQ600HL-DE51C	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)
X-LRQ600HP-DE51C	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)

Part Number	Yaw Error	Microstep Size (Default Resolution)	Peak Thrust	Maximum Continuous Thrust
X-LRQ075AL-DE51C	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
X-LRQ075AP-DE51C	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
X-LRQ075BL-DE51C	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
X-LRQ075BP-DE51C	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
X-LRQ075HL-DE51C	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
X-LRQ075HP-DE51C	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
X-LRQ150AL-DE51C	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
X-LRQ150AP-DE51C	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
X-LRQ150BL-DE51C	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
X-LRQ150BP-DE51C	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)

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X-LRQ150HL-DE51C	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
X-LRQ150HP-DE51C	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
X-LRQ300AL-DE51C	0.03 ° (0.523 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
X-LRQ300AP-DE51C	0.03 ° (0.523 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
X-LRQ300BL-DE51C	0.03 ° (0.523 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
X-LRQ300BP-DE51C	0.03 ° (0.523 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
X-LRQ300HL-DE51C	0.03 ° (0.523 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
X-LRQ300HP-DE51C	0.03 ° (0.523 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
X-LRQ450AL-DE51C	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
X-LRQ450AP-DE51C	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
X-LRQ450BL-DE51C	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
X-LRQ450BP-DE51C	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
X-LRQ450HL-DE51C	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
X-LRQ450HP-DE51C	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
X-LRQ600AL-DE51C	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
X-LRQ600AP-DE51C	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
X-LRQ600BL-DE51C	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
X-LRQ600BP-DE51C	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
X-LRQ600HL-DE51C	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
X-LRQ600HP-DE51C	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)

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Part Number	Back-driving Force*	Maximum Speed	Minimum Speed	Speed Resolution
X-LRQ075AL-DE51C	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ075AP-DE51C	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ075BL-DE51C	106 (± 30%) N (23.8 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ075BP-DE51C	136 (± 30%) N (30.5 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ075HL-DE51C	106 (± 30%) N (23.8 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ075HP-DE51C	136 (± 30%) N (30.5 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ150AL-DE51C	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ150AP-DE51C	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ150BL-DE51C	106 (± 30%) N (23.8 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ150BP-DE51C	136 (± 30%) N (30.5 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ150HL-DE51C	106 (± 30%) N (23.8 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ150HP-DE51C	136 (± 30%) N (30.5 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ300AL-DE51C	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ300AP-DE51C	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ300BL-DE51C	106 (± 30%) N (23.8 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ300BP-DE51C	136 (± 30%) N (30.5 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ300HL-DE51C	106 (± 30%) N (23.8 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ300HP-DE51C	136 (± 30%) N (30.5 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ450AL-DE51C	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)

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X-LRQ450AP-DE51C	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ450BL-DE51C	106 (± 30%) N (23.8 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ450BP-DE51C	136 (± 30%) N (30.5 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ450HL-DE51C	106 (± 30%) N (23.8 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ450HP-DE51C	136 (± 30%) N (30.5 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ600AL-DE51C	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ600AP-DE51C	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ600BL-DE51C	106 (± 30%) N (23.8 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ600BP-DE51C	136 (± 30%) N (30.5 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ600HL-DE51C	106 (± 30%) N (23.8 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ600HP-DE51C	136 (± 30%) N (30.5 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)

Part Number	Linear Motion Per Motor Rev	Mechanical Drive System
X-LRQ075AL-DE51C	1.27 mm (0.05 ")	Precision lead screw
X-LRQ075AP-DE51C	1.27 mm (0.05 ")	Precision lead screw
X-LRQ075BL-DE51C	6.35 mm (0.25 ")	Precision lead screw
X-LRQ075BP-DE51C	6.35 mm (0.25 ")	Precision lead screw
X-LRQ075HL-DE51C	2.5 mm (0.098 ")	Precision ball screw
X-LRQ075HP-DE51C	2.5 mm (0.098 ")	Precision ball screw
X-LRQ150AL-DE51C	1.27 mm (0.05 ")	Precision lead screw

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X-LRQ150AP-DE51C	1.27 mm (0.05 ")	Precision lead screw
X-LRQ150BL-DE51C	6.35 mm (0.25 ")	Precision lead screw
X-LRQ150BP-DE51C	6.35 mm (0.25 ")	Precision lead screw
X-LRQ150HL-DE51C	2.5 mm (0.098 ")	Precision ball screw
X-LRQ150HP-DE51C	2.5 mm (0.098 ")	Precision ball screw
X-LRQ300AL-DE51C	1.27 mm (0.05 ")	Precision lead screw
X-LRQ300AP-DE51C	1.27 mm (0.05 ")	Precision lead screw
X-LRQ300BL-DE51C	6.35 mm (0.25 ")	Precision lead screw
X-LRQ300BP-DE51C	6.35 mm (0.25 ")	Precision lead screw
X-LRQ300HL-DE51C	2.5 mm (0.098 ")	Precision ball screw
X-LRQ300HP-DE51C	2.5 mm (0.098 ")	Precision ball screw
X-LRQ450AL-DE51C	1.27 mm (0.05 ")	Precision lead screw
X-LRQ450AP-DE51C	1.27 mm (0.05 ")	Precision lead screw
X-LRQ450BL-DE51C	6.35 mm (0.25 ")	Precision lead screw
X-LRQ450BP-DE51C	6.35 mm (0.25 ")	Precision lead screw
X-LRQ450HL-DE51C	2.5 mm (0.098 ")	Precision ball screw
X-LRQ450HP-DE51C	2.5 mm (0.098 ")	Precision ball screw
X-LRQ600AL-DE51C	1.27 mm (0.05 ")	Precision lead screw
X-LRQ600AP-DE51C	1.27 mm (0.05 ")	Precision lead screw
X-LRQ600BL-DE51C	6.35 mm (0.25 ")	Precision lead screw

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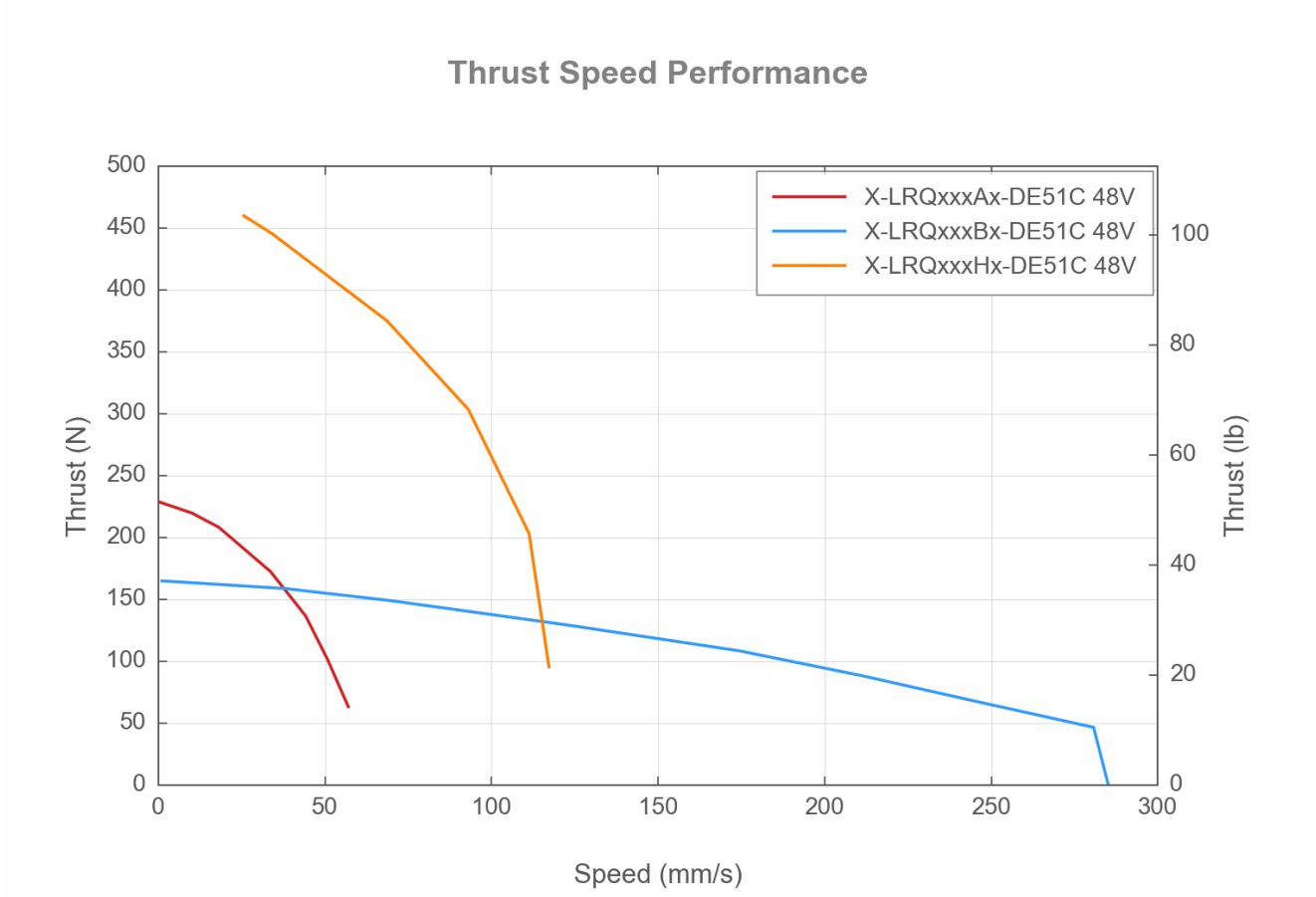
X-LRQ600BP-DE51C	6.35 mm (0.25 ")	Precision lead screw
X-LRQ600HL-DE51C	2.5 mm (0.098 ")	Precision ball screw
X-LRQ600HP-DE51C	2.5 mm (0.098 ")	Precision ball screw

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X-LRQ-DEC Series Charts

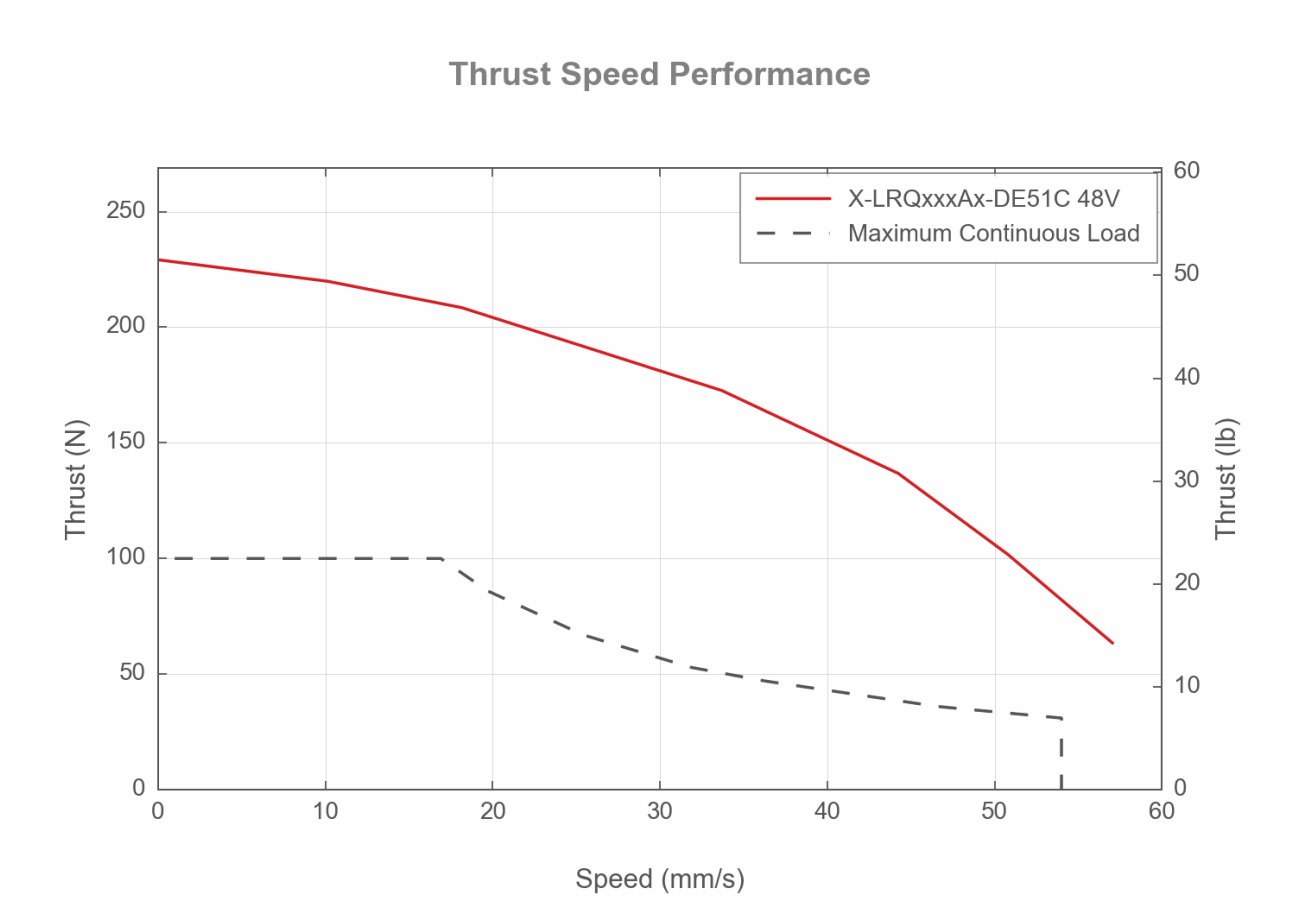
Thrust Speed



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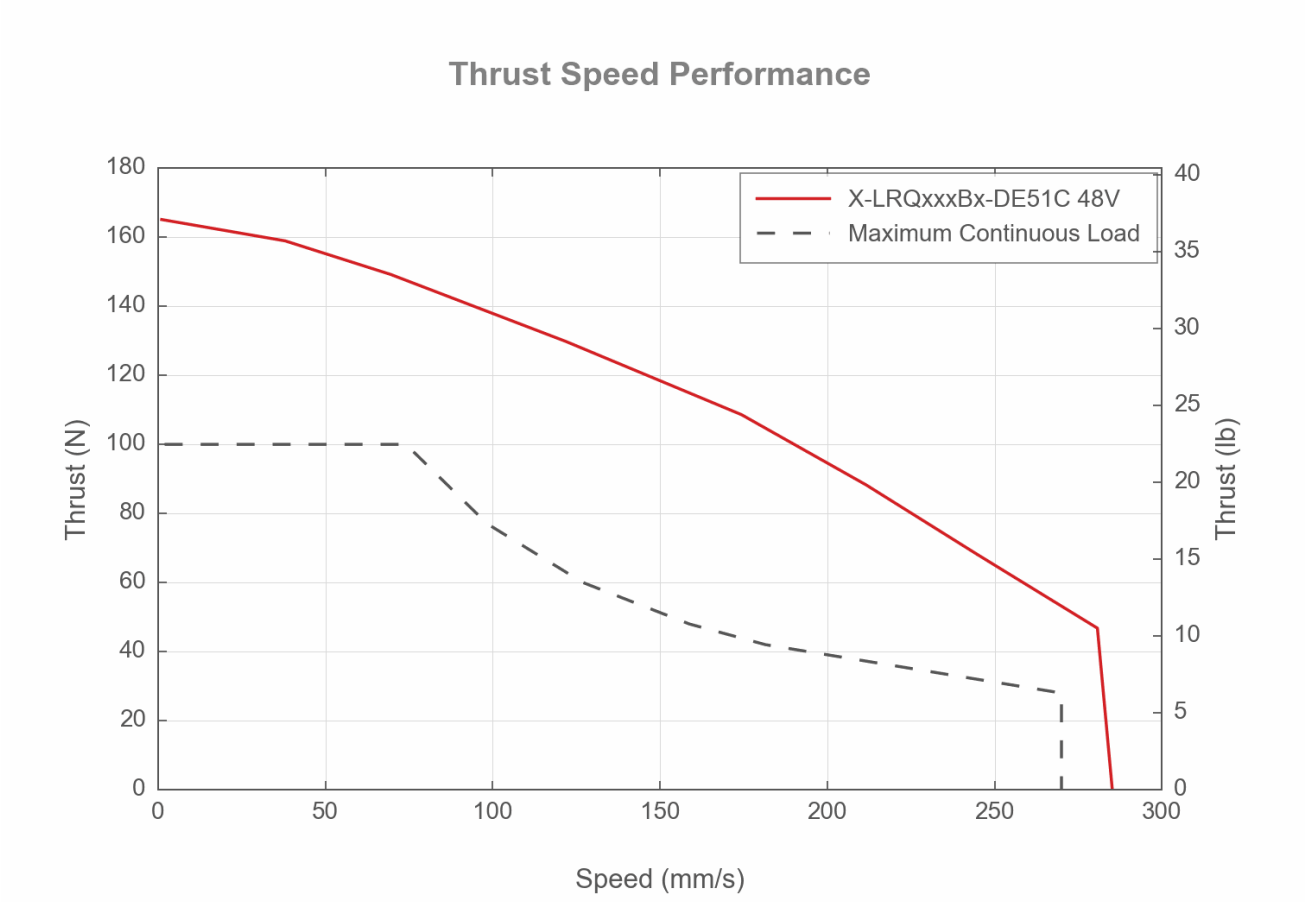
Thrust Speed



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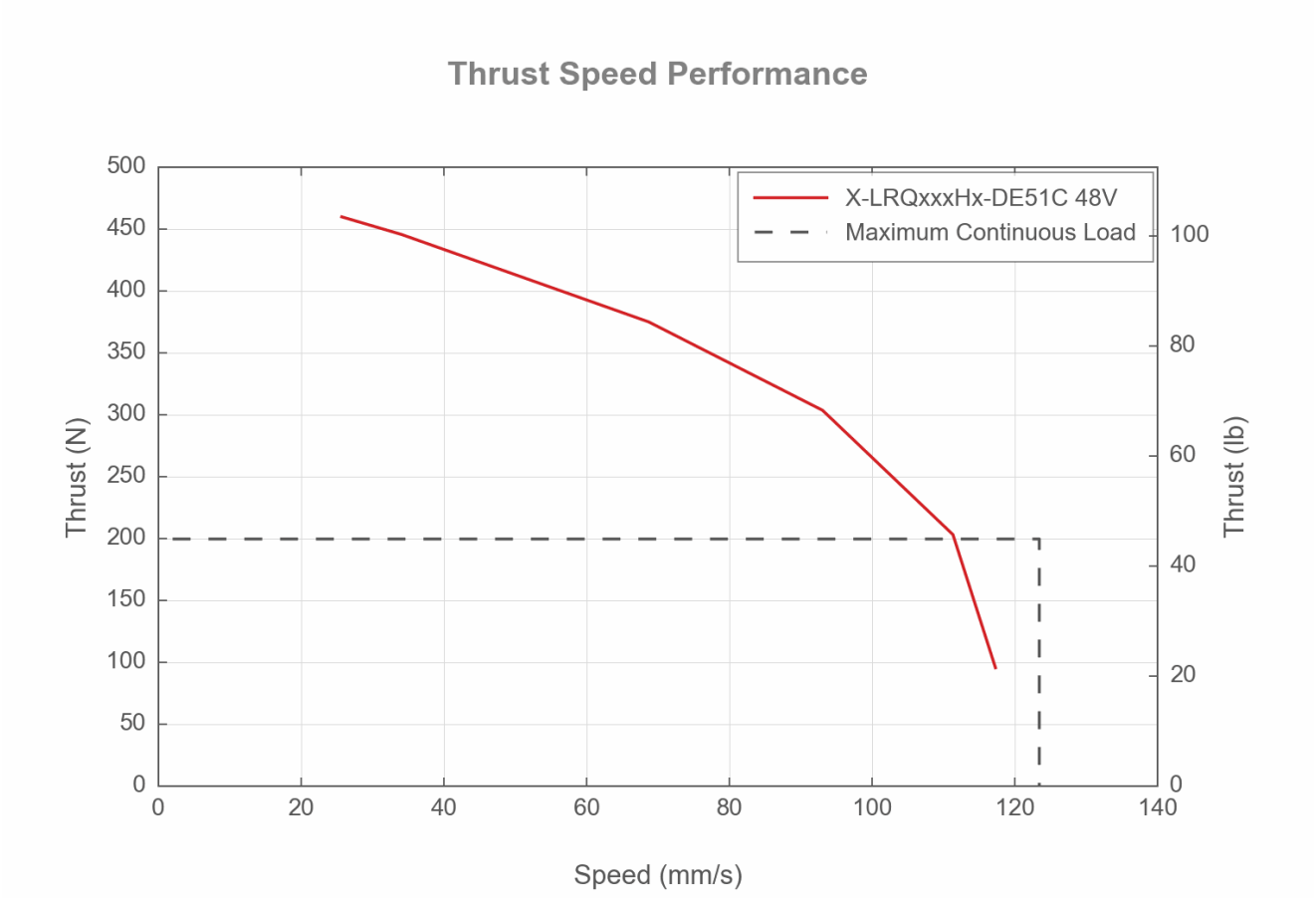
Thrust Speed



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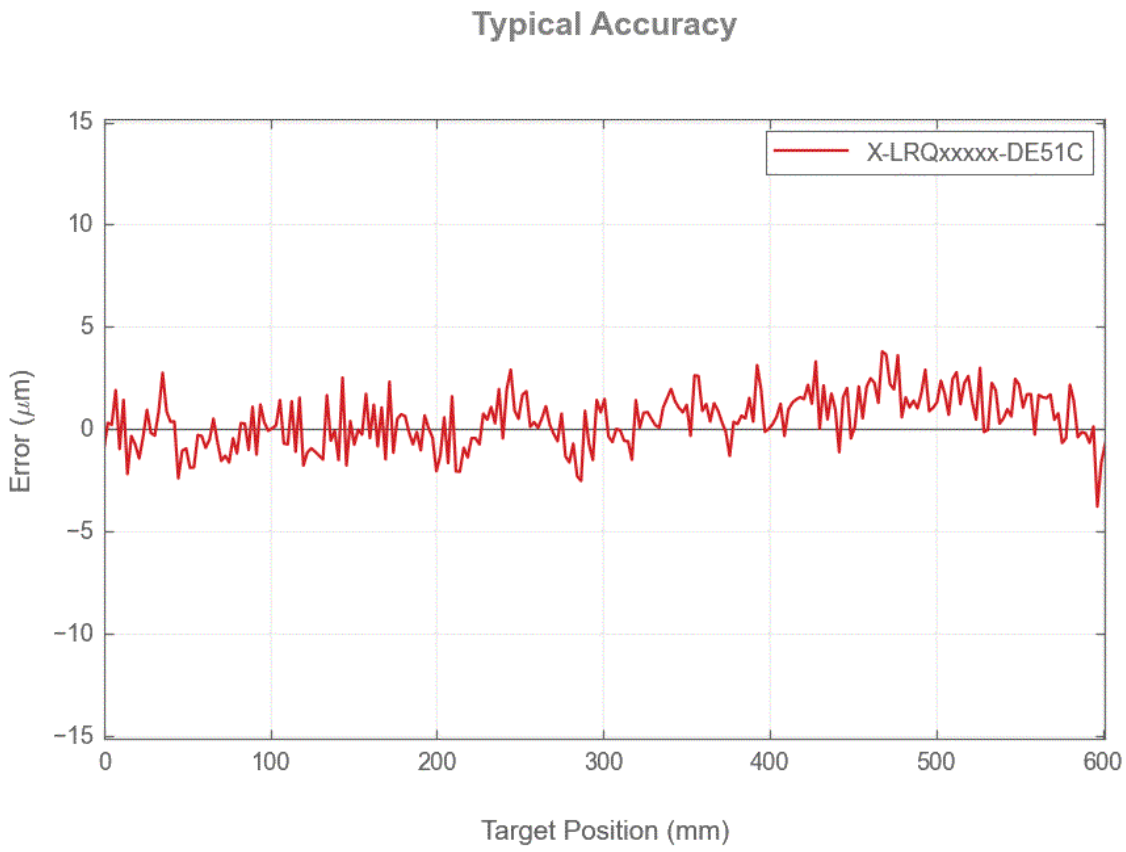
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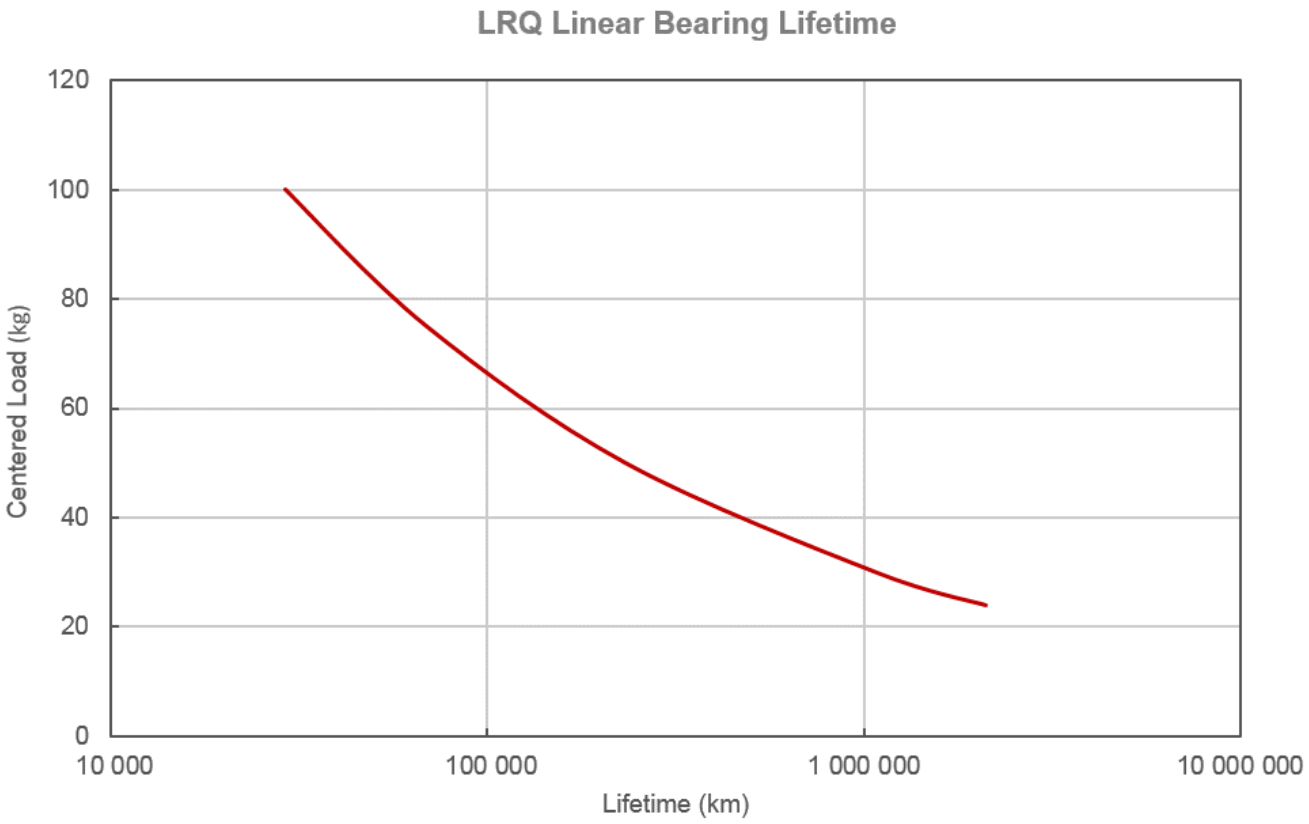
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X LRQxxxxx DE51C Full Travel Accuracy



LRQ Lifetime



Contact

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X-LRQ-E Series Datasheet



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

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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

X-LRQ-E Series Part Numbering & Options

X-LRQ 075 A L - E01

Travel

- **075** — 75 mm
- **150** — 150 mm
- **300** — 300 mm
- **450** — 450 mm
- **600** — 600 mm

Drive Screw Options

- **A** — Fine pitch lead screw
- **B** — Medium pitch lead screw
- **D** — Coarse pitch lead screw
- **H** — Fine pitch ball screw

Drive Configuration

- **L** — Inline
- **P** — Parallel

Encoder Options

- **E01** — Motor Encoder, 500 CPR

X-LRQ-E Series Drawings

• View all drawings and documents at zaber.com

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X-LRQ-E Series Specifications

Overview

Specification	Value
Built-in Controller	Yes
Manual Control	Indexed knob with push switch
Axes of Motion	1
LED Indicators	Yes

Positioning Performance

Specification	Value
Default Resolution	1/64 of a step

Load Performance

Specification	Value
Maximum Centered Load	1000 N (224.3 lb)
Maximum Moment (Pitch)	30 N·m (22.1 lb·ft)
Maximum Moment (Roll)	30 N·m (22.14 lb·ft)
Maximum Moment (Yaw)	30 N·m (22.14 lb·ft)
Stiffness (Pitch)	500 N·m/°
Stiffness (Roll)	1180 N·m/°
Stiffness (Yaw)	450 N·m/°

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Encoder & Sensing

Specification	Value
Encoder Type	Rotary quadrature encoder (incremental)
Encoder Resolution	500 CPR (2 states/rev)
Limit or Home Sensing	Magnetic home sensor

Motor

Specification	Value
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	2300 mA/phase
Motor Winding Inductance	2.2 mH/phase

Power and Communication

Specification	Value
Communication Interface	RS-232
Communication Protocol	Zaber ASCII (Default), Zaber Binary
Data Cable Connection	Locking 4-pin M8
Power Supply	24-48 VDC
Power Plug	2-pin screw terminal
Maximum Current Draw	1900 mA

Mechanical

Specification	Value
Guide Type	Recirculating Ball Linear Guide
Mounting Interface	M6 and M3 threaded holes

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Environmental & Compliance

Specification	Value
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No

Part Number	Travel Range	Weight	Accuracy (unidirectional)	Repeatability
X-LRQ075AL-E01	75 mm (2.953 ")	2.19 kg (4.828 lb)	23 µm (0.000906 ")	<2.5 µm (<0.000098 ")
X-LRQ075AP-E01	75 mm (2.953 ")	2.33 kg (5.137 lb)	23 µm (0.000906 ")	<2.5 µm (<0.000098 ")
X-LRQ075BL-E01	75 mm (2.953 ")	2.19 kg (4.828 lb)	15 µm (0.000591 ")	<2.5 µm (<0.000098 ")
X-LRQ075BP-E01	75 mm (2.953 ")	2.33 kg (5.137 lb)	15 µm (0.000591 ")	<2.5 µm (<0.000098 ")
X-LRQ075DL-E01	75 mm (2.953 ")	2.19 kg (4.828 lb)	48 µm (0.00189 ")	<3 µm (<0.000118 ")
X-LRQ075DP-E01	75 mm (2.953 ")	2.33 kg (5.137 lb)	48 µm (0.00189 ")	<3 µm (<0.000118 ")
X-LRQ075HL-E01	75 mm (2.953 ")	2.19 kg (4.828 lb)	17.5 µm (0.000689 ")	<5 µm (<0.000197 ")
X-LRQ075HP-E01	75 mm (2.953 ")	2.33 kg (5.137 lb)	27.5 µm (0.001083 ")	<5 µm (<0.000197 ")
X-LRQ150AL-E01	150 mm (5.905 ")	2.56 kg (5.644 lb)	45 µm (0.001772 ")	<2.5 µm (<0.000098 ")
X-LRQ150AP-E01	150 mm (5.905 ")	2.7 kg (5.952 lb)	45 µm (0.001772 ")	<2.5 µm (<0.000098 ")
X-LRQ150BL-E01	150 mm (5.905 ")	2.56 kg (5.644 lb)	25 µm (0.000984 ")	<2.5 µm (<0.000098 ")
X-LRQ150BP-E01	150 mm (5.905 ")	2.7 kg (5.952 lb)	25 µm (0.000984 ")	<2.5 µm (<0.000098 ")
X-LRQ150DL-E01	150 mm (5.905 ")	2.56 kg (5.644 lb)	55 µm (0.002165 ")	<3 µm (<0.000118 ")
X-LRQ150DP-E01	150 mm (5.905 ")	2.7 kg (5.952 lb)	55 µm (0.002165 ")	<3 µm (<0.000118 ")

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X-LRQ150HL-E01	150 mm (5.905 ")	2.56 kg (5.644 lb)	30 µm (0.001181 ")	<5 µm (<0.000197 ")
X-LRQ150HP-E01	150 mm (5.905 ")	2.7 kg (5.952 lb)	40 µm (0.001575 ")	<5 µm (<0.000197 ")
X-LRQ300AL-E01	300 mm (11.811 ")	3.32 kg (7.319 lb)	90 µm (0.003543 ")	<2.5 µm (<0.000098 ")
X-LRQ300AP-E01	300 mm (11.811 ")	3.46 kg (7.628 lb)	90 µm (0.003543 ")	<2.5 µm (<0.000098 ")
X-LRQ300BL-E01	300 mm (11.811 ")	3.32 kg (7.319 lb)	35 µm (0.001378 ")	<2.5 µm (<0.000098 ")
X-LRQ300BP-E01	300 mm (11.811 ")	3.46 kg (7.628 lb)	35 µm (0.001378 ")	<2.5 µm (<0.000098 ")
X-LRQ300DL-E01	300 mm (11.811 ")	3.32 kg (7.319 lb)	70 µm (0.002756 ")	<3 µm (<0.000118 ")
X-LRQ300DP-E01	300 mm (11.811 ")	3.46 kg (7.628 lb)	70 µm (0.002756 ")	<3 µm (<0.000118 ")
X-LRQ300HL-E01	300 mm (11.811 ")	3.32 kg (7.319 lb)	55 µm (0.002165 ")	<5 µm (<0.000197 ")
X-LRQ300HP-E01	300 mm (11.811 ")	3.46 kg (7.628 lb)	65 µm (0.002559 ")	<5 µm (<0.000197 ")
X-LRQ450AL-E01	450 mm (17.716 ")	4.07 kg (8.973 lb)	135 µm (0.005315 ")	<2.5 µm (<0.000098 ")
X-LRQ450AP-E01	450 mm (17.716 ")	4.21 kg (9.281 lb)	135 µm (0.005315 ")	<2.5 µm (<0.000098 ")
X-LRQ450BL-E01	450 mm (17.716 ")	4.07 kg (8.973 lb)	60 µm (0.002362 ")	<2.5 µm (<0.000098 ")
X-LRQ450BP-E01	450 mm (17.716 ")	4.21 kg (9.281 lb)	60 µm (0.002362 ")	<2.5 µm (<0.000098 ")
X-LRQ450DL-E01	450 mm (17.716 ")	4.07 kg (8.973 lb)	85 µm (0.003346 ")	<3 µm (<0.000118 ")
X-LRQ450DP-E01	450 mm (17.716 ")	4.21 kg (9.281 lb)	85 µm (0.003346 ")	<3 µm (<0.000118 ")
X-LRQ450HL-E01	450 mm (17.716 ")	4.07 kg (8.973 lb)	85 µm (0.003346 ")	<5 µm (<0.000197 ")
X-LRQ450HP-E01	450 mm (17.716 ")	4.21 kg (9.281 lb)	95 µm (0.00374 ")	<5 µm (<0.000197 ")
X-LRQ600AL-E01	600 mm (23.622 ")	4.78 kg (10.538 lb)	150 µm (0.005905 ")	<2.5 µm (<0.000098 ")
X-LRQ600AP-E01	600 mm (23.622 ")	4.92 kg (10.847 lb)	150 µm (0.005905 ")	<2.5 µm (<0.000098 ")

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X-LRQ600BL-E01	600 mm (23.622 ")	4.78 kg (10.538 lb)	90 µm (0.003543 ")	<2.5 µm (<0.000098 ")
X-LRQ600BP-E01	600 mm (23.622 ")	4.92 kg (10.847 lb)	90 µm (0.003543 ")	<2.5 µm (<0.000098 ")
X-LRQ600DL-E01	600 mm (23.622 ")	4.78 kg (10.538 lb)	100 µm (0.003937 ")	<3 µm (<0.000118 ")
X-LRQ600DP-E01	600 mm (23.622 ")	4.92 kg (10.847 lb)	100 µm (0.003937 ")	<3 µm (<0.000118 ")
X-LRQ600HL-E01	600 mm (23.622 ")	4.78 kg (10.538 lb)	115 µm (0.004528 ")	<5 µm (<0.000197 ")
X-LRQ600HP-E01	600 mm (23.622 ")	4.92 kg (10.847 lb)	125 µm (0.004921 ")	<5 µm (<0.000197 ")

Part Number	Backlash	Flatness of Travel	Straightness of Travel	Pitch Error
X-LRQ075AL-E01	<15 µm (<0.000591 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
X-LRQ075AP-E01	<15 µm (<0.000591 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
X-LRQ075BL-E01	<35 µm (<0.001378 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
X-LRQ075BP-E01	<35 µm (<0.001378 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
X-LRQ075DL-E01	<150 µm (<0.005905 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
X-LRQ075DP-E01	<150 µm (<0.005905 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
X-LRQ075HL-E01	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
X-LRQ075HP-E01	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
X-LRQ150AL-E01	<15 µm (<0.000591 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
X-LRQ150AP-E01	<15 µm (<0.000591 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
X-LRQ150BL-E01	<35 µm (<0.001378 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
X-LRQ150BP-E01	<35 µm (<0.001378 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)

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X-LRQ150DL-E01	<150 µm (<0.005905 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
X-LRQ150DP-E01	<150 µm (<0.005905 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
X-LRQ150HL-E01	<25 µm (<0.000984 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
X-LRQ150HP-E01	<25 µm (<0.000984 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
X-LRQ300AL-E01	<15 µm (<0.000591 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
X-LRQ300AP-E01	<15 µm (<0.000591 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
X-LRQ300BL-E01	<35 µm (<0.001378 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
X-LRQ300BP-E01	<35 µm (<0.001378 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
X-LRQ300DL-E01	<150 µm (<0.005905 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
X-LRQ300DP-E01	<150 µm (<0.005905 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
X-LRQ300HL-E01	<25 µm (<0.000984 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
X-LRQ300HP-E01	<25 µm (<0.000984 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
X-LRQ450AL-E01	<15 µm (<0.000591 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
X-LRQ450AP-E01	<15 µm (<0.000591 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
X-LRQ450BL-E01	<35 µm (<0.001378 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
X-LRQ450BP-E01	<35 µm (<0.001378 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
X-LRQ450DL-E01	<150 µm (<0.005905 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
X-LRQ450DP-E01	<150 µm (<0.005905 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
X-LRQ450HL-E01	<25 µm (<0.000984 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
X-LRQ450HP-E01	<25 µm (<0.000984 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)

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X-LRQ600AL-E01	<15 µm (<0.000591 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
X-LRQ600AP-E01	<15 µm (<0.000591 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
X-LRQ600BL-E01	<35 µm (<0.001378 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
X-LRQ600BP-E01	<35 µm (<0.001378 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
X-LRQ600DL-E01	<150 µm (<0.005905 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
X-LRQ600DP-E01	<150 µm (<0.005905 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
X-LRQ600HL-E01	<25 µm (<0.000984 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
X-LRQ600HP-E01	<25 µm (<0.000984 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)

Part Number	Roll Error	Yaw Error	Microstep Size (Default Resolution)	Peak Thrust
X-LRQ075AL-E01	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)
X-LRQ075AP-E01	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)
X-LRQ075BL-E01	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)
X-LRQ075BP-E01	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)
X-LRQ075DL-E01	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	1.984375 µm	35 N (7.8 lb)
X-LRQ075DP-E01	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	1.984375 µm	35 N (7.8 lb)
X-LRQ075HL-E01	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)
X-LRQ075HP-E01	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)
X-LRQ150AL-E01	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)
X-LRQ150AP-E01	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)

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X-LRQ150BL-E01	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)
X-LRQ150BP-E01	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)
X-LRQ150DL-E01	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	1.984375 µm	35 N (7.8 lb)
X-LRQ150DP-E01	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	1.984375 µm	35 N (7.8 lb)
X-LRQ150HL-E01	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)
X-LRQ150HP-E01	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)
X-LRQ300AL-E01	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.09921875 µm	230 N (51.6 lb)
X-LRQ300AP-E01	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.09921875 µm	230 N (51.6 lb)
X-LRQ300BL-E01	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.49609375 µm	150 N (33.6 lb)
X-LRQ300BP-E01	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.49609375 µm	150 N (33.6 lb)
X-LRQ300DL-E01	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	1.984375 µm	35 N (7.8 lb)
X-LRQ300DP-E01	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	1.984375 µm	35 N (7.8 lb)
X-LRQ300HL-E01	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.1953125 µm	500 N (112.1 lb)
X-LRQ300HP-E01	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.1953125 µm	500 N (112.1 lb)
X-LRQ450AL-E01	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)
X-LRQ450AP-E01	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)
X-LRQ450BL-E01	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)
X-LRQ450BP-E01	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)
X-LRQ450DL-E01	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	1.984375 µm	35 N (7.8 lb)
X-LRQ450DP-E01	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	1.984375 µm	35 N (7.8 lb)

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X-LRQ450HL-E01	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)
X-LRQ450HP-E01	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)
X-LRQ600AL-E01	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)
X-LRQ600AP-E01	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)
X-LRQ600BL-E01	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)
X-LRQ600BP-E01	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)
X-LRQ600DL-E01	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	1.984375 µm	35 N (7.8 lb)
X-LRQ600DP-E01	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	1.984375 µm	35 N (7.8 lb)
X-LRQ600HL-E01	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)
X-LRQ600HP-E01	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)

Part Number	Maximum Continuous Thrust	Back-driving Force*	Maximum Speed	Minimum Speed
X-LRQ075AL-E01	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ075AP-E01	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ075BL-E01	100 N (22.4 lb)	93 (± 30%) N (20.9 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ075BP-E01	100 N (22.4 lb)	123 (± 30%) N (27.6 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ075DL-E01	25 N (5.6 lb)	14 (± 30%) N (3.1 lb)	840 mm/s (33.071 "/s)	0.001212 mm/s (0.000048 "/s)
X-LRQ075DP-E01	25 N (5.6 lb)	45 (± 30%) N (10.1 lb)	840 mm/s (33.071 "/s)	0.001212 mm/s (0.000048 "/s)
X-LRQ075HL-E01	200 N (44.9 lb)	93 (± 30%) N (20.9 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ075HP-E01	200 N (44.9 lb)	123 (± 30%) N (27.6 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)

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X-LRQ150AL-E01	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ150AP-E01	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ150BL-E01	100 N (22.4 lb)	93 (± 30%) N (20.9 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ150BP-E01	100 N (22.4 lb)	123 (± 30%) N (27.6 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ150DL-E01	25 N (5.6 lb)	14 (± 30%) N (3.1 lb)	840 mm/s (33.071 "/s)	0.001212 mm/s (0.000048 "/s)
X-LRQ150DP-E01	25 N (5.6 lb)	45 (± 30%) N (10.1 lb)	840 mm/s (33.071 "/s)	0.001212 mm/s (0.000048 "/s)
X-LRQ150HL-E01	200 N (44.9 lb)	93 (± 30%) N (20.9 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ150HP-E01	200 N (44.9 lb)	123 (± 30%) N (27.6 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ300AL-E01	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ300AP-E01	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ300BL-E01	100 N (22.4 lb)	93 (± 30%) N (20.9 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ300BP-E01	100 N (22.4 lb)	123 (± 30%) N (27.6 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ300DL-E01	25 N (5.6 lb)	14 (± 30%) N (3.1 lb)	840 mm/s (33.071 "/s)	0.001212 mm/s (0.000048 "/s)
X-LRQ300DP-E01	25 N (5.6 lb)	45 (± 30%) N (10.1 lb)	840 mm/s (33.071 "/s)	0.001212 mm/s (0.000048 "/s)
X-LRQ300HL-E01	200 N (44.9 lb)	93 (± 30%) N (20.9 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ300HP-E01	200 N (44.9 lb)	123 (± 30%) N (27.6 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ450AL-E01	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ450AP-E01	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ450BL-E01	100 N (22.4 lb)	93 (± 30%) N (20.9 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ450BP-E01	100 N (22.4 lb)	123 (± 30%) N (27.6 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)

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X-LRQ450DL-E01	25 N (5.6 lb)	14 (± 30%) N (3.1 lb)	840 mm/s (33.071 "/s)	0.001212 mm/s (0.000048 "/s)
X-LRQ450DP-E01	25 N (5.6 lb)	45 (± 30%) N (10.1 lb)	840 mm/s (33.071 "/s)	0.001212 mm/s (0.000048 "/s)
X-LRQ450HL-E01	200 N (44.9 lb)	93 (± 30%) N (20.9 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ450HP-E01	200 N (44.9 lb)	123 (± 30%) N (27.6 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ600AL-E01	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ600AP-E01	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ600BL-E01	100 N (22.4 lb)	93 (± 30%) N (20.9 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ600BP-E01	100 N (22.4 lb)	123 (± 30%) N (27.6 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ600DL-E01	25 N (5.6 lb)	14 (± 30%) N (3.1 lb)	840 mm/s (33.071 "/s)	0.001212 mm/s (0.000048 "/s)
X-LRQ600DP-E01	25 N (5.6 lb)	45 (± 30%) N (10.1 lb)	840 mm/s (33.071 "/s)	0.001212 mm/s (0.000048 "/s)
X-LRQ600HL-E01	200 N (44.9 lb)	93 (± 30%) N (20.9 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ600HP-E01	200 N (44.9 lb)	123 (± 30%) N (27.6 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)

Part Number	Speed Resolution	Linear Motion Per Motor Rev	Mechanical Drive System
X-LRQ075AL-E01	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
X-LRQ075AP-E01	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
X-LRQ075BL-E01	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
X-LRQ075BP-E01	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
X-LRQ075DL-E01	0.001212 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
X-LRQ075DP-E01	0.001212 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw

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X-LRQ075HL-E01	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
X-LRQ075HP-E01	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
X-LRQ150AL-E01	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
X-LRQ150AP-E01	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
X-LRQ150BL-E01	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
X-LRQ150BP-E01	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
X-LRQ150DL-E01	0.001212 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
X-LRQ150DP-E01	0.001212 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
X-LRQ150HL-E01	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
X-LRQ150HP-E01	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
X-LRQ300AL-E01	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
X-LRQ300AP-E01	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
X-LRQ300BL-E01	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
X-LRQ300BP-E01	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
X-LRQ300DL-E01	0.001212 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
X-LRQ300DP-E01	0.001212 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
X-LRQ300HL-E01	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
X-LRQ300HP-E01	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
X-LRQ450AL-E01	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
X-LRQ450AP-E01	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw

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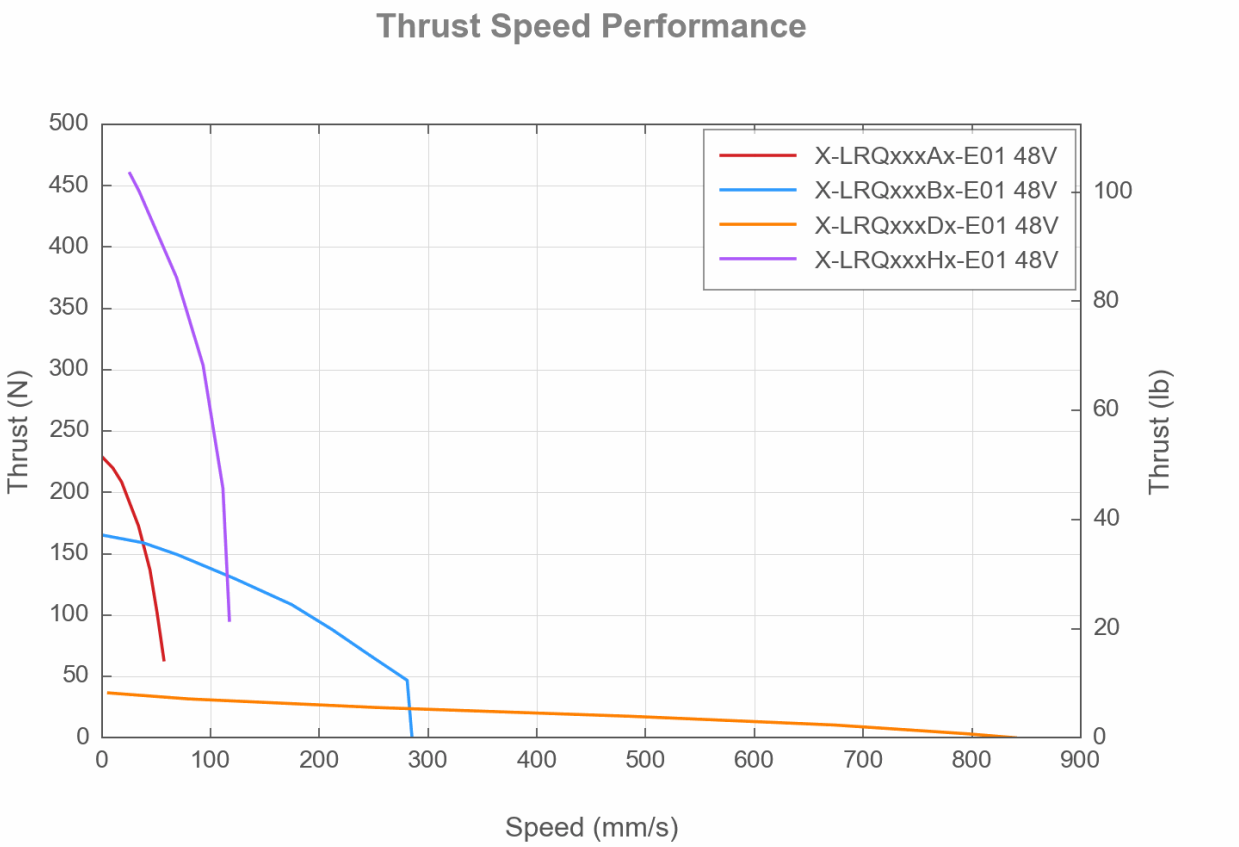
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X-LRQ450BP-E01	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
X-LRQ450DL-E01	0.001212 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
X-LRQ450DP-E01	0.001212 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
X-LRQ450HL-E01	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
X-LRQ450HP-E01	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
X-LRQ600AL-E01	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
X-LRQ600AP-E01	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
X-LRQ600BL-E01	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
X-LRQ600BP-E01	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
X-LRQ600DL-E01	0.001212 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
X-LRQ600DP-E01	0.001212 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
X-LRQ600HL-E01	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
X-LRQ600HP-E01	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw

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X-LRQ-E Series Charts

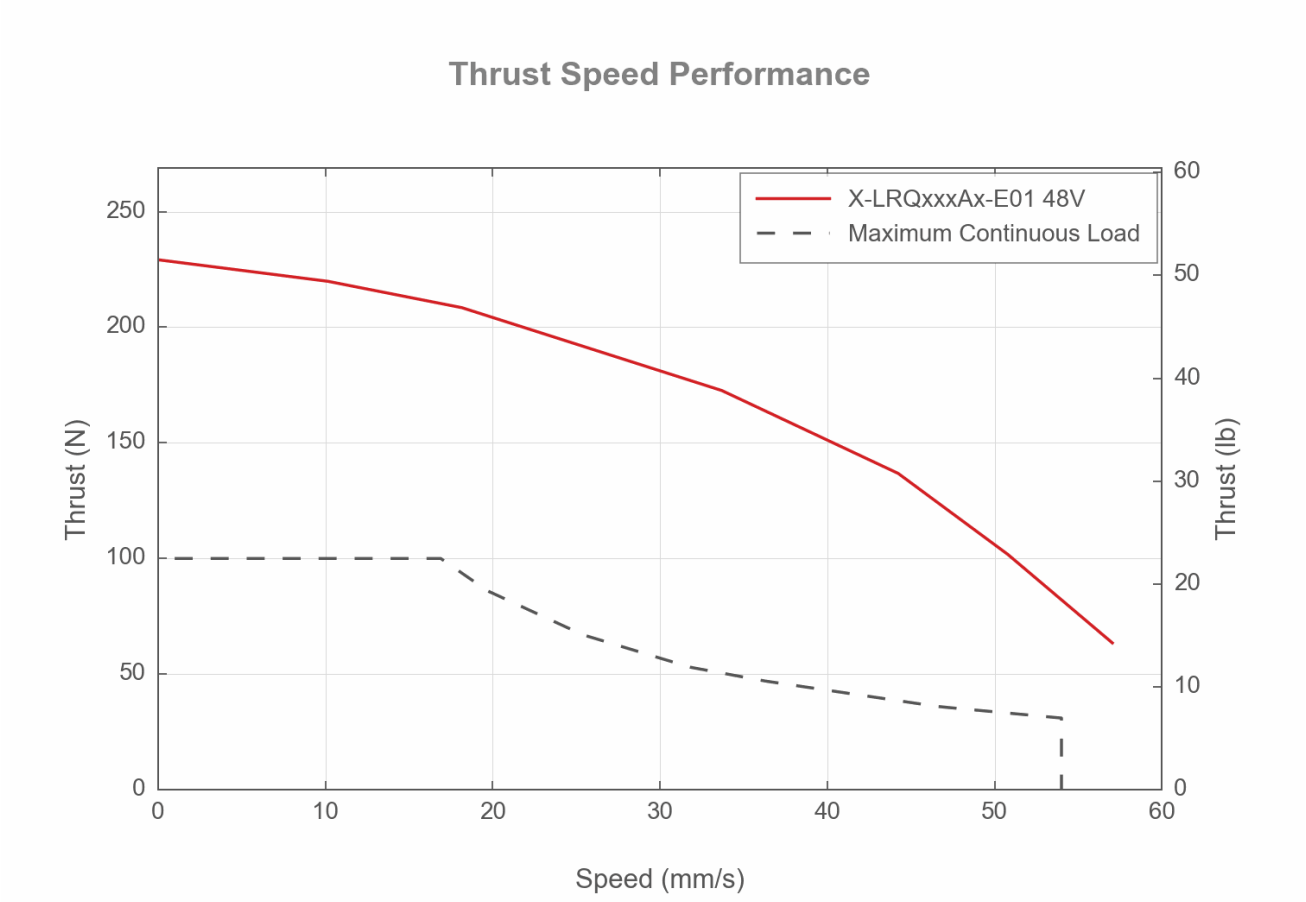
Thrust Speed



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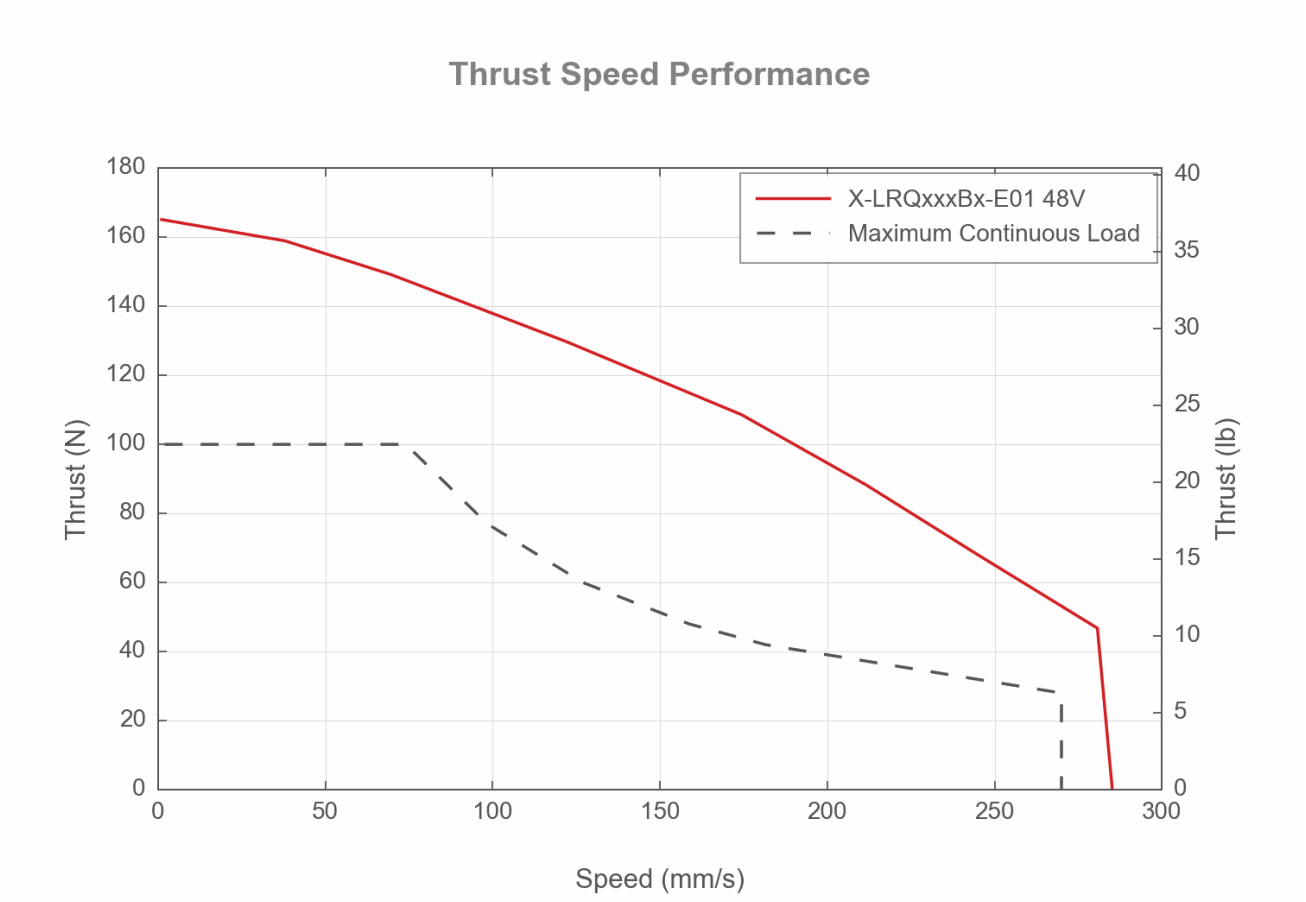
Thrust Speed



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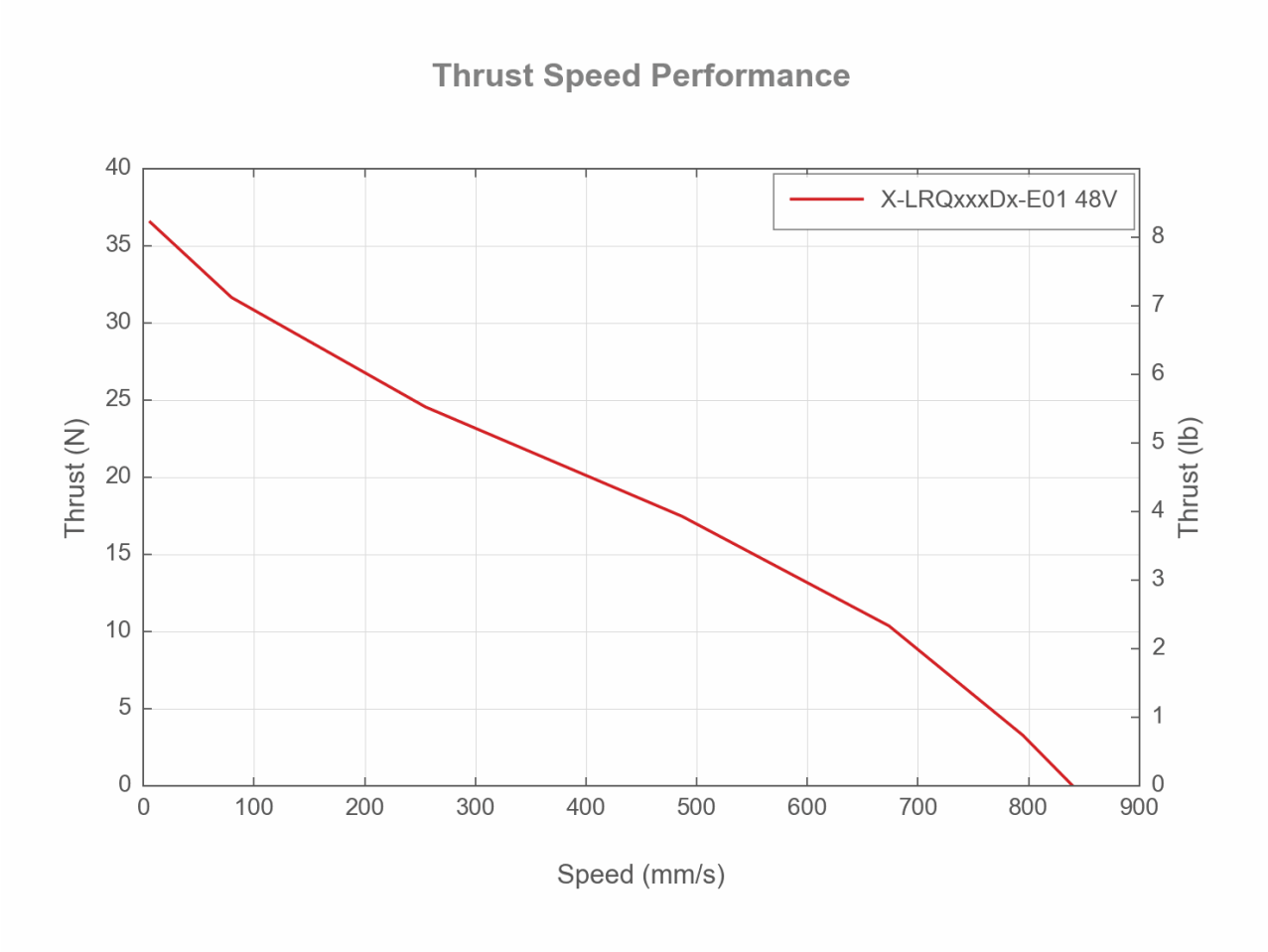
Thrust Speed



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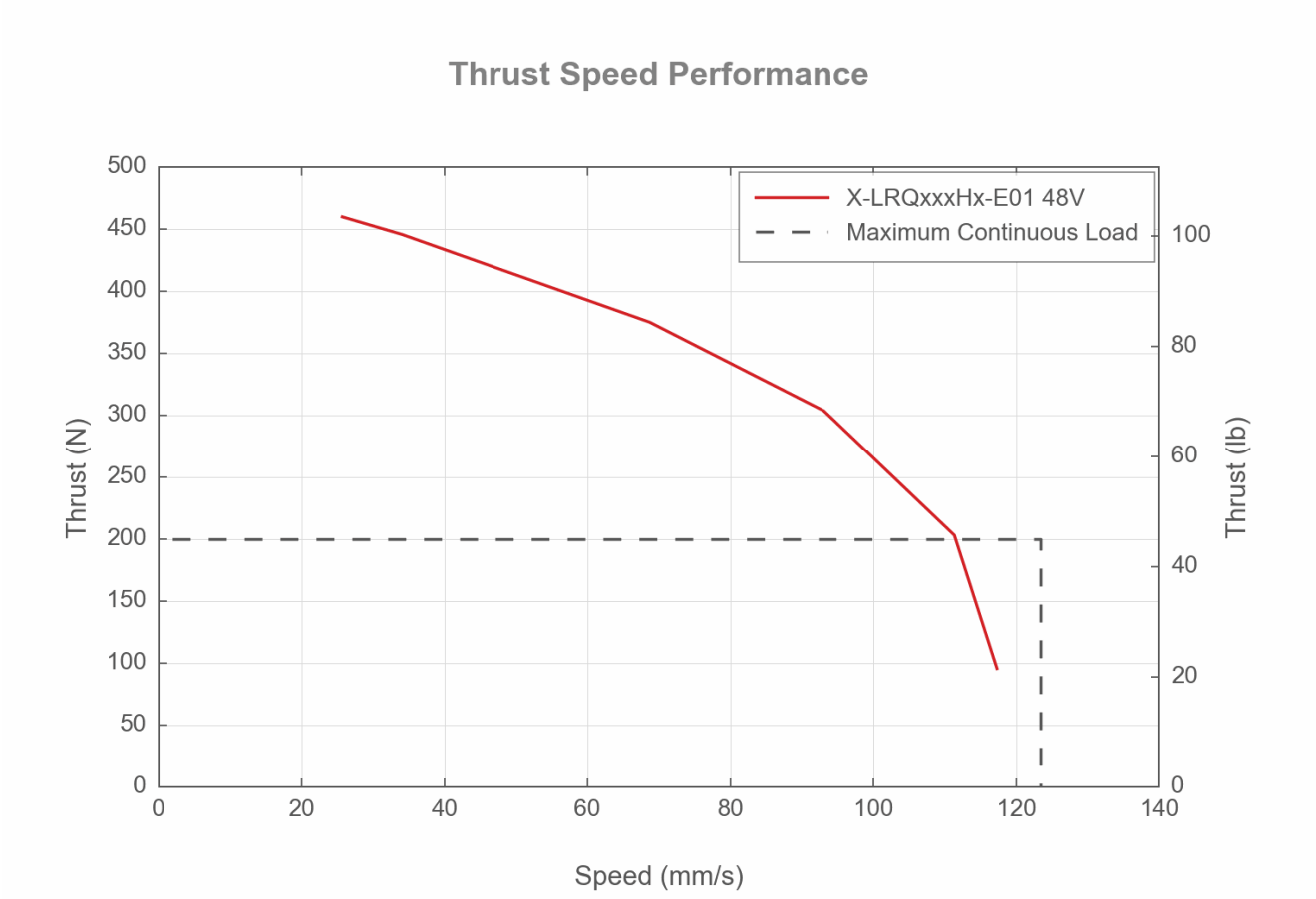
Thrust Speed



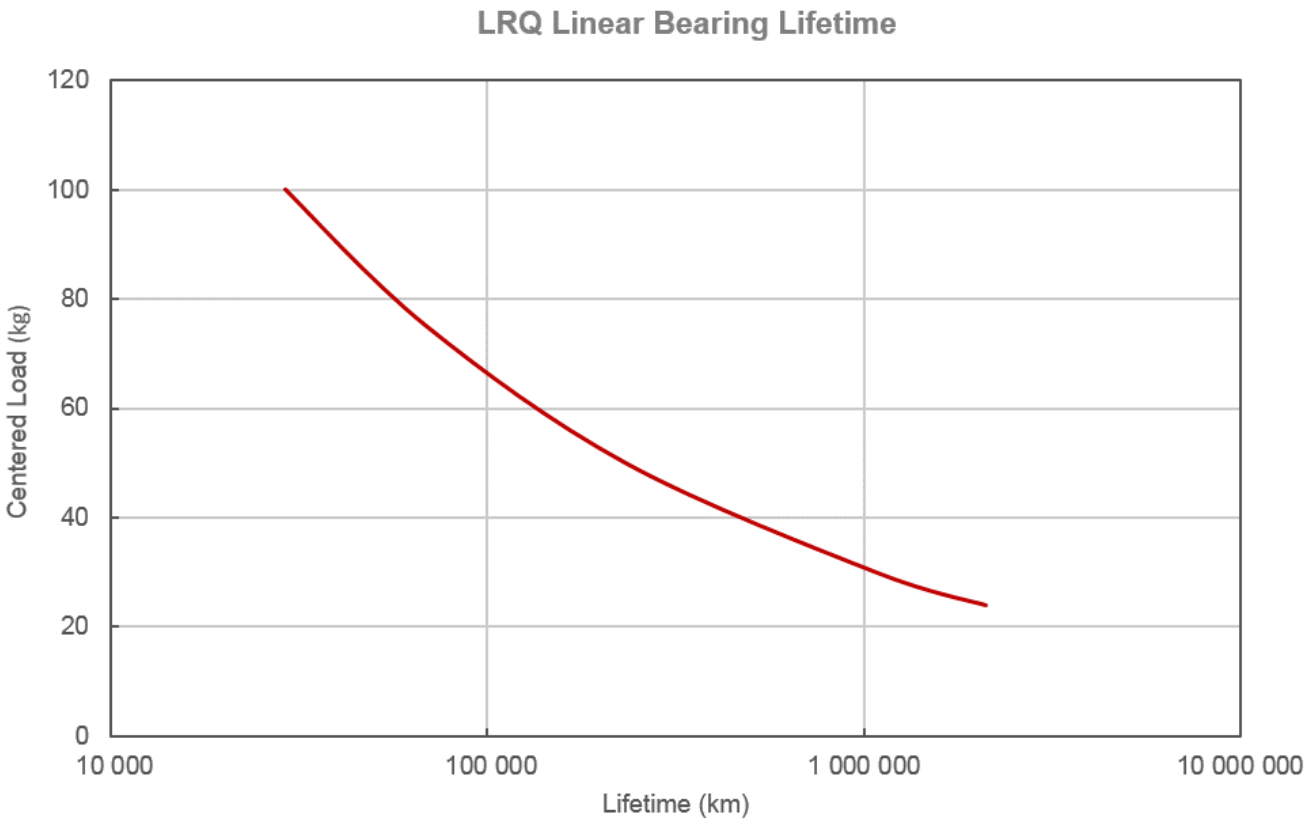
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Thrust Speed



LRQ Lifetime



Contact

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X-LRQ-EC Series Datasheet



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

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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

X-LRQ-EC Series Part Numbering & Options

X-LRQ 075 A L - E01 C

Travel
- **075** — 75 mm
- **150** — 150 mm
- **300** — 300 mm
- **450** — 450 mm
- **600** — 600 mm

Drive Screw Options
- **A** — Fine pitch lead screw
- **B** — Medium pitch lead screw
- **D** — Coarse pitch lead screw
- **H** — Fine pitch ball screw

Drive Configuration
- **L** — Inline
- **P** — Parallel

Encoder Options
- **E01** — Motor Encoder, 500 CPR

Cover
- **C** — Stainless Steel Dust Cover

X-LRQ-EC Series Drawings

• View all drawings and documents at zaber.com

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X-LRQ-EC Series Specifications

Overview

Specification	Value
Built-in Controller	Yes
Manual Control	Indexed knob with push switch
Axes of Motion	1
LED Indicators	Yes

Positioning Performance

Specification	Value
Default Resolution	1/64 of a step

Load Performance

Specification	Value
Maximum Centered Load	1000 N (224.3 lb)
Maximum Moment (Pitch)	30 N·m (22.1 lb·ft)
Maximum Moment (Roll)	30 N·m (22.14 lb·ft)
Maximum Moment (Yaw)	30 N·m (22.14 lb·ft)
Stiffness (Pitch)	250 N·m/°
Stiffness (Roll)	600 N·m/°
Stiffness (Yaw)	430 N·m/°

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Encoder & Sensing

Specification	Value
Encoder Type	Rotary quadrature encoder (incremental)
Encoder Resolution	500 CPR (2 states/rev)
Limit or Home Sensing	Magnetic home sensor

Motor

Specification	Value
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	2300 mA/phase
Motor Winding Inductance	2.2 mH/phase

Power and Communication

Specification	Value
Communication Interface	RS-232
Communication Protocol	Zaber ASCII (Default), Zaber Binary
Data Cable Connection	Locking 4-pin M8
Power Supply	24-48 VDC
Power Plug	2-pin screw terminal
Maximum Current Draw	1900 mA

Mechanical

Specification	Value
Guide Type	Recirculating Ball Linear Guide
Mounting Interface	M6 and M3 threaded holes

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Environmental & Compliance

Specification	Value
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No

Part Number	Travel Range	Weight	Accuracy (unidirectional)	Repeatability
X-LRQ075AL-E01C	75 mm (2.953 ")	2.38 kg (5.247 lb)	23 µm (0.000906 ")	<3.5 µm (<0.000138 ")
X-LRQ075AP-E01C	75 mm (2.953 ")	2.54 kg (5.6 lb)	23 µm (0.000906 ")	<3.5 µm (<0.000138 ")
X-LRQ075BL-E01C	75 mm (2.953 ")	2.38 kg (5.247 lb)	23 µm (0.000906 ")	<3.5 µm (<0.000138 ")
X-LRQ075BP-E01C	75 mm (2.953 ")	2.54 kg (5.6 lb)	23 µm (0.000906 ")	<3.5 µm (<0.000138 ")
X-LRQ075DL-E01C	75 mm (2.953 ")	2.38 kg (5.247 lb)	108 µm (0.004252 ")	<4 µm (<0.000157 ")
X-LRQ075DP-E01C	75 mm (2.953 ")	2.54 kg (5.6 lb)	108 µm (0.004252 ")	<4 µm (<0.000157 ")
X-LRQ075HL-E01C	75 mm (2.953 ")	2.38 kg (5.247 lb)	32.5 µm (0.00128 ")	<5 µm (<0.000197 ")
X-LRQ075HP-E01C	75 mm (2.953 ")	2.54 kg (5.6 lb)	42.5 µm (0.001673 ")	<5 µm (<0.000197 ")
X-LRQ150AL-E01C	150 mm (5.905 ")	2.76 kg (6.085 lb)	45 µm (0.001772 ")	<3.5 µm (<0.000138 ")
X-LRQ150AP-E01C	150 mm (5.905 ")	2.92 kg (6.437 lb)	45 µm (0.001772 ")	<3.5 µm (<0.000138 ")
X-LRQ150BL-E01C	150 mm (5.905 ")	2.76 kg (6.085 lb)	32 µm (0.00126 ")	<3.5 µm (<0.000138 ")
X-LRQ150BP-E01C	150 mm (5.905 ")	2.92 kg (6.437 lb)	32 µm (0.00126 ")	<3.5 µm (<0.000138 ")
X-LRQ150DL-E01C	150 mm (5.905 ")	2.76 kg (6.085 lb)	115 µm (0.004528 ")	<4 µm (<0.000157 ")
X-LRQ150DP-E01C	150 mm (5.905 ")	2.92 kg (6.437 lb)	115 µm (0.004528 ")	<4 µm (<0.000157 ")

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X-LRQ150HL-E01C	150 mm (5.905 ")	2.76 kg (6.085 lb)	45 µm (0.001772 ")	<5 µm (<0.000197 ")
X-LRQ150HP-E01C	150 mm (5.905 ")	2.92 kg (6.437 lb)	55 µm (0.002165 ")	<5 µm (<0.000197 ")
X-LRQ300AL-E01C	300 mm (11.811 ")	3.67 kg (8.091 lb)	90 µm (0.003543 ")	<3.5 µm (<0.000138 ")
X-LRQ300AP-E01C	300 mm (11.811 ")	3.83 kg (8.444 lb)	90 µm (0.003543 ")	<3.5 µm (<0.000138 ")
X-LRQ300BL-E01C	300 mm (11.811 ")	3.67 kg (8.091 lb)	43 µm (0.001693 ")	<3.5 µm (<0.000138 ")
X-LRQ300BP-E01C	300 mm (11.811 ")	3.83 kg (8.444 lb)	43 µm (0.001693 ")	<3.5 µm (<0.000138 ")
X-LRQ300DL-E01C	300 mm (11.811 ")	3.67 kg (8.091 lb)	130 µm (0.005118 ")	<4 µm (<0.000157 ")
X-LRQ300DP-E01C	300 mm (11.811 ")	3.83 kg (8.444 lb)	130 µm (0.005118 ")	<4 µm (<0.000157 ")
X-LRQ300HL-E01C	300 mm (11.811 ")	3.67 kg (8.091 lb)	70 µm (0.002756 ")	<5 µm (<0.000197 ")
X-LRQ300HP-E01C	300 mm (11.811 ")	3.83 kg (8.444 lb)	80 µm (0.00315 ")	<5 µm (<0.000197 ")
X-LRQ450AL-E01C	450 mm (17.716 ")	4.48 kg (9.877 lb)	135 µm (0.005315 ")	<3.5 µm (<0.000138 ")
X-LRQ450AP-E01C	450 mm (17.716 ")	4.64 kg (10.229 lb)	135 µm (0.005315 ")	<3.5 µm (<0.000138 ")
X-LRQ450BL-E01C	450 mm (17.716 ")	4.48 kg (9.877 lb)	68 µm (0.002677 ")	<3.5 µm (<0.000138 ")
X-LRQ450BP-E01C	450 mm (17.716 ")	4.64 kg (10.229 lb)	68 µm (0.002677 ")	<3.5 µm (<0.000138 ")
X-LRQ450DL-E01C	450 mm (17.716 ")	4.48 kg (9.877 lb)	145 µm (0.005709 ")	<4 µm (<0.000157 ")
X-LRQ450DP-E01C	450 mm (17.716 ")	4.64 kg (10.229 lb)	145 µm (0.005709 ")	<4 µm (<0.000157 ")
X-LRQ450HL-E01C	450 mm (17.716 ")	4.48 kg (9.877 lb)	100 µm (0.003937 ")	<5 µm (<0.000197 ")
X-LRQ450HP-E01C	450 mm (17.716 ")	4.64 kg (10.229 lb)	110 µm (0.004331 ")	<5 µm (<0.000197 ")
X-LRQ600AL-E01C	600 mm (23.622 ")	5.26 kg (11.596 lb)	150 µm (0.005905 ")	<3.5 µm (<0.000138 ")
X-LRQ600AP-E01C	600 mm (23.622 ")	5.42 kg (11.949 lb)	150 µm (0.005905 ")	<3.5 µm (<0.000138 ")

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X-LRQ600BL-E01C	600 mm (23.622 ")	5.26 kg (11.596 lb)	98 µm (0.003858 ")	<3.5 µm (<0.000138 ")
X-LRQ600BP-E01C	600 mm (23.622 ")	5.42 kg (11.949 lb)	98 µm (0.003858 ")	<3.5 µm (<0.000138 ")
X-LRQ600DL-E01C	600 mm (23.622 ")	5.26 kg (11.596 lb)	160 µm (0.006299 ")	<4 µm (<0.000157 ")
X-LRQ600DP-E01C	600 mm (23.622 ")	5.42 kg (11.949 lb)	160 µm (0.006299 ")	<4 µm (<0.000157 ")
X-LRQ600HL-E01C	600 mm (23.622 ")	5.26 kg (11.596 lb)	130 µm (0.005118 ")	<5 µm (<0.000197 ")
X-LRQ600HP-E01C	600 mm (23.622 ")	5.42 kg (11.949 lb)	140 µm (0.005512 ")	<5 µm (<0.000197 ")

Part Number	Backlash	Flatness of Travel	Straightness of Travel	Pitch Error
X-LRQ075AL-E01C	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
X-LRQ075AP-E01C	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
X-LRQ075BL-E01C	<35 µm (<0.001378 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
X-LRQ075BP-E01C	<35 µm (<0.001378 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
X-LRQ075DL-E01C	<150 µm (<0.005905 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
X-LRQ075DP-E01C	<150 µm (<0.005905 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
X-LRQ075HL-E01C	<35 µm (<0.001378 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
X-LRQ075HP-E01C	<35 µm (<0.001378 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
X-LRQ150AL-E01C	<25 µm (<0.000984 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
X-LRQ150AP-E01C	<25 µm (<0.000984 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
X-LRQ150BL-E01C	<35 µm (<0.001378 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
X-LRQ150BP-E01C	<35 µm (<0.001378 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)

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X-LRQ150DL-E01C	<150 µm (<0.005905 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
X-LRQ150DP-E01C	<150 µm (<0.005905 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
X-LRQ150HL-E01C	<35 µm (<0.001378 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
X-LRQ150HP-E01C	<35 µm (<0.001378 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
X-LRQ300AL-E01C	<25 µm (<0.000984 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
X-LRQ300AP-E01C	<25 µm (<0.000984 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
X-LRQ300BL-E01C	<35 µm (<0.001378 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
X-LRQ300BP-E01C	<35 µm (<0.001378 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
X-LRQ300DL-E01C	<150 µm (<0.005905 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
X-LRQ300DP-E01C	<150 µm (<0.005905 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
X-LRQ300HL-E01C	<35 µm (<0.001378 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
X-LRQ300HP-E01C	<35 µm (<0.001378 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
X-LRQ450AL-E01C	<25 µm (<0.000984 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
X-LRQ450AP-E01C	<25 µm (<0.000984 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
X-LRQ450BL-E01C	<35 µm (<0.001378 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
X-LRQ450BP-E01C	<35 µm (<0.001378 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
X-LRQ450DL-E01C	<150 µm (<0.005905 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
X-LRQ450DP-E01C	<150 µm (<0.005905 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
X-LRQ450HL-E01C	<35 µm (<0.001378 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
X-LRQ450HP-E01C	<35 µm (<0.001378 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)

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X-LRQ600AL-E01C	<25 µm (<0.000984 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
X-LRQ600AP-E01C	<25 µm (<0.000984 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
X-LRQ600BL-E01C	<35 µm (<0.001378 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
X-LRQ600BP-E01C	<35 µm (<0.001378 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
X-LRQ600DL-E01C	<150 µm (<0.005905 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
X-LRQ600DP-E01C	<150 µm (<0.005905 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
X-LRQ600HL-E01C	<35 µm (<0.001378 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
X-LRQ600HP-E01C	<35 µm (<0.001378 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)

Part Number	Roll Error	Yaw Error	Microstep Size (Default Resolution)	Peak Thrust
X-LRQ075AL-E01C	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)
X-LRQ075AP-E01C	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)
X-LRQ075BL-E01C	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)
X-LRQ075BP-E01C	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)
X-LRQ075DL-E01C	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	1.984375 µm	35 N (7.8 lb)
X-LRQ075DP-E01C	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	1.984375 µm	35 N (7.8 lb)
X-LRQ075HL-E01C	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)
X-LRQ075HP-E01C	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)
X-LRQ150AL-E01C	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)
X-LRQ150AP-E01C	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)

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X-LRQ150BL-E01C	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)
X-LRQ150BP-E01C	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)
X-LRQ150DL-E01C	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	1.984375 µm	35 N (7.8 lb)
X-LRQ150DP-E01C	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	1.984375 µm	35 N (7.8 lb)
X-LRQ150HL-E01C	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)
X-LRQ150HP-E01C	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)
X-LRQ300AL-E01C	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.09921875 µm	230 N (51.6 lb)
X-LRQ300AP-E01C	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.09921875 µm	230 N (51.6 lb)
X-LRQ300BL-E01C	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.49609375 µm	150 N (33.6 lb)
X-LRQ300BP-E01C	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.49609375 µm	150 N (33.6 lb)
X-LRQ300DL-E01C	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	1.984375 µm	35 N (7.8 lb)
X-LRQ300DP-E01C	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	1.984375 µm	35 N (7.8 lb)
X-LRQ300HL-E01C	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.1953125 µm	500 N (112.1 lb)
X-LRQ300HP-E01C	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.1953125 µm	500 N (112.1 lb)
X-LRQ450AL-E01C	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)
X-LRQ450AP-E01C	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)
X-LRQ450BL-E01C	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)
X-LRQ450BP-E01C	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)
X-LRQ450DL-E01C	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	1.984375 µm	35 N (7.8 lb)
X-LRQ450DP-E01C	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	1.984375 µm	35 N (7.8 lb)

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X-LRQ450HL-E01C	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)
X-LRQ450HP-E01C	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)
X-LRQ600AL-E01C	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)
X-LRQ600AP-E01C	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)
X-LRQ600BL-E01C	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)
X-LRQ600BP-E01C	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)
X-LRQ600DL-E01C	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	1.984375 µm	35 N (7.8 lb)
X-LRQ600DP-E01C	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	1.984375 µm	35 N (7.8 lb)
X-LRQ600HL-E01C	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)
X-LRQ600HP-E01C	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)

Part Number	Maximum Continuous Thrust	Back-driving Force*	Maximum Speed	Minimum Speed
X-LRQ075AL-E01C	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ075AP-E01C	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ075BL-E01C	100 N (22.4 lb)	106 (± 30%) N (23.8 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ075BP-E01C	100 N (22.4 lb)	136 (± 30%) N (30.5 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ075DL-E01C	25 N (5.6 lb)	27 (± 30%) N (6.1 lb)	840 mm/s (33.071 "/s)	0.001212 mm/s (0.000048 "/s)
X-LRQ075DP-E01C	25 N (5.6 lb)	58 (± 30%) N (13 lb)	840 mm/s (33.071 "/s)	0.001212 mm/s (0.000048 "/s)
X-LRQ075HL-E01C	200 N (44.9 lb)	106 (± 30%) N (23.8 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ075HP-E01C	200 N (44.9 lb)	136 (± 30%) N (30.5 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)

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X-LRQ150AL-E01C	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ150AP-E01C	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ150BL-E01C	100 N (22.4 lb)	106 (± 30%) N (23.8 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ150BP-E01C	100 N (22.4 lb)	136 (± 30%) N (30.5 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ150DL-E01C	25 N (5.6 lb)	27 (± 30%) N (6.1 lb)	840 mm/s (33.071 "/s)	0.001212 mm/s (0.000048 "/s)
X-LRQ150DP-E01C	25 N (5.6 lb)	58 (± 30%) N (13 lb)	840 mm/s (33.071 "/s)	0.001212 mm/s (0.000048 "/s)
X-LRQ150HL-E01C	200 N (44.9 lb)	106 (± 30%) N (23.8 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ150HP-E01C	200 N (44.9 lb)	136 (± 30%) N (30.5 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ300AL-E01C	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ300AP-E01C	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ300BL-E01C	100 N (22.4 lb)	106 (± 30%) N (23.8 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ300BP-E01C	100 N (22.4 lb)	136 (± 30%) N (30.5 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ300DL-E01C	25 N (5.6 lb)	27 (± 30%) N (6.1 lb)	840 mm/s (33.071 "/s)	0.001212 mm/s (0.000048 "/s)
X-LRQ300DP-E01C	25 N (5.6 lb)	58 (± 30%) N (13 lb)	840 mm/s (33.071 "/s)	0.001212 mm/s (0.000048 "/s)
X-LRQ300HL-E01C	200 N (44.9 lb)	106 (± 30%) N (23.8 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ300HP-E01C	200 N (44.9 lb)	136 (± 30%) N (30.5 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ450AL-E01C	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ450AP-E01C	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ450BL-E01C	100 N (22.4 lb)	106 (± 30%) N (23.8 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ450BP-E01C	100 N (22.4 lb)	136 (± 30%) N (30.5 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)

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X-LRQ450DL-E01C	25 N (5.6 lb)	27 (± 30%) N (6.1 lb)	840 mm/s (33.071 "/s)	0.001212 mm/s (0.000048 "/s)
X-LRQ450DP-E01C	25 N (5.6 lb)	58 (± 30%) N (13 lb)	840 mm/s (33.071 "/s)	0.001212 mm/s (0.000048 "/s)
X-LRQ450HL-E01C	200 N (44.9 lb)	106 (± 30%) N (23.8 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ450HP-E01C	200 N (44.9 lb)	136 (± 30%) N (30.5 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ600AL-E01C	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ600AP-E01C	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
X-LRQ600BL-E01C	100 N (22.4 lb)	106 (± 30%) N (23.8 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ600BP-E01C	100 N (22.4 lb)	136 (± 30%) N (30.5 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
X-LRQ600DL-E01C	25 N (5.6 lb)	27 (± 30%) N (6.1 lb)	840 mm/s (33.071 "/s)	0.001212 mm/s (0.000048 "/s)
X-LRQ600DP-E01C	25 N (5.6 lb)	58 (± 30%) N (13 lb)	840 mm/s (33.071 "/s)	0.001212 mm/s (0.000048 "/s)
X-LRQ600HL-E01C	200 N (44.9 lb)	106 (± 30%) N (23.8 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
X-LRQ600HP-E01C	200 N (44.9 lb)	136 (± 30%) N (30.5 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)

Part Number	Speed Resolution	Linear Motion Per Motor Rev	Mechanical Drive System
X-LRQ075AL-E01C	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
X-LRQ075AP-E01C	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
X-LRQ075BL-E01C	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
X-LRQ075BP-E01C	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
X-LRQ075DL-E01C	0.001212 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
X-LRQ075DP-E01C	0.001212 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw

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X-LRQ075HL-E01C	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
X-LRQ075HP-E01C	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
X-LRQ150AL-E01C	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
X-LRQ150AP-E01C	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
X-LRQ150BL-E01C	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
X-LRQ150BP-E01C	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
X-LRQ150DL-E01C	0.001212 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
X-LRQ150DP-E01C	0.001212 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
X-LRQ150HL-E01C	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
X-LRQ150HP-E01C	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
X-LRQ300AL-E01C	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
X-LRQ300AP-E01C	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
X-LRQ300BL-E01C	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
X-LRQ300BP-E01C	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
X-LRQ300DL-E01C	0.001212 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
X-LRQ300DP-E01C	0.001212 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
X-LRQ300HL-E01C	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
X-LRQ300HP-E01C	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
X-LRQ450AL-E01C	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
X-LRQ450AP-E01C	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw

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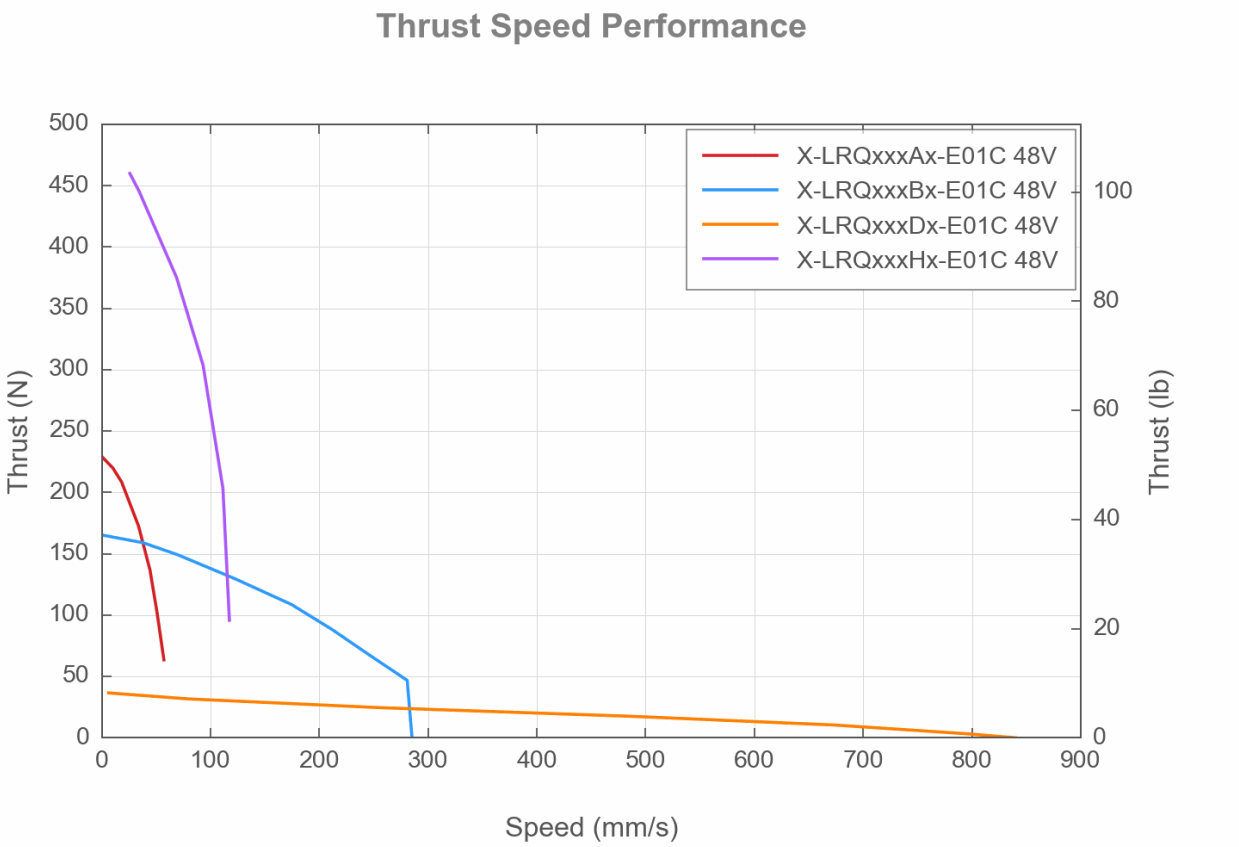
X-LRQ450BL-E01C	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
X-LRQ450BP-E01C	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
X-LRQ450DL-E01C	0.001212 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
X-LRQ450DP-E01C	0.001212 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
X-LRQ450HL-E01C	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
X-LRQ450HP-E01C	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
X-LRQ600AL-E01C	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
X-LRQ600AP-E01C	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
X-LRQ600BL-E01C	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
X-LRQ600BP-E01C	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
X-LRQ600DL-E01C	0.001212 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
X-LRQ600DP-E01C	0.001212 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
X-LRQ600HL-E01C	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
X-LRQ600HP-E01C	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw

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X-LRQ-EC Series Charts

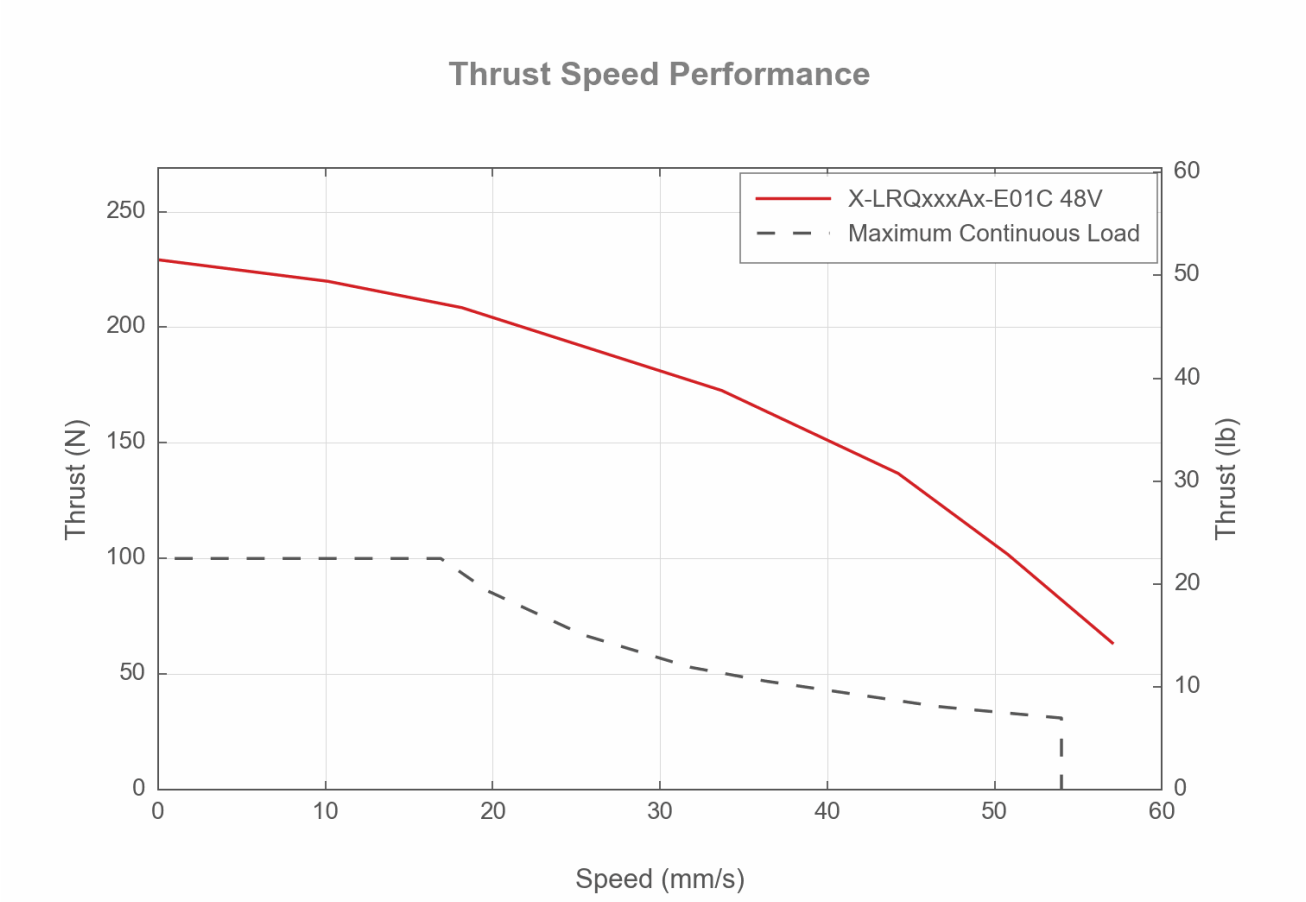
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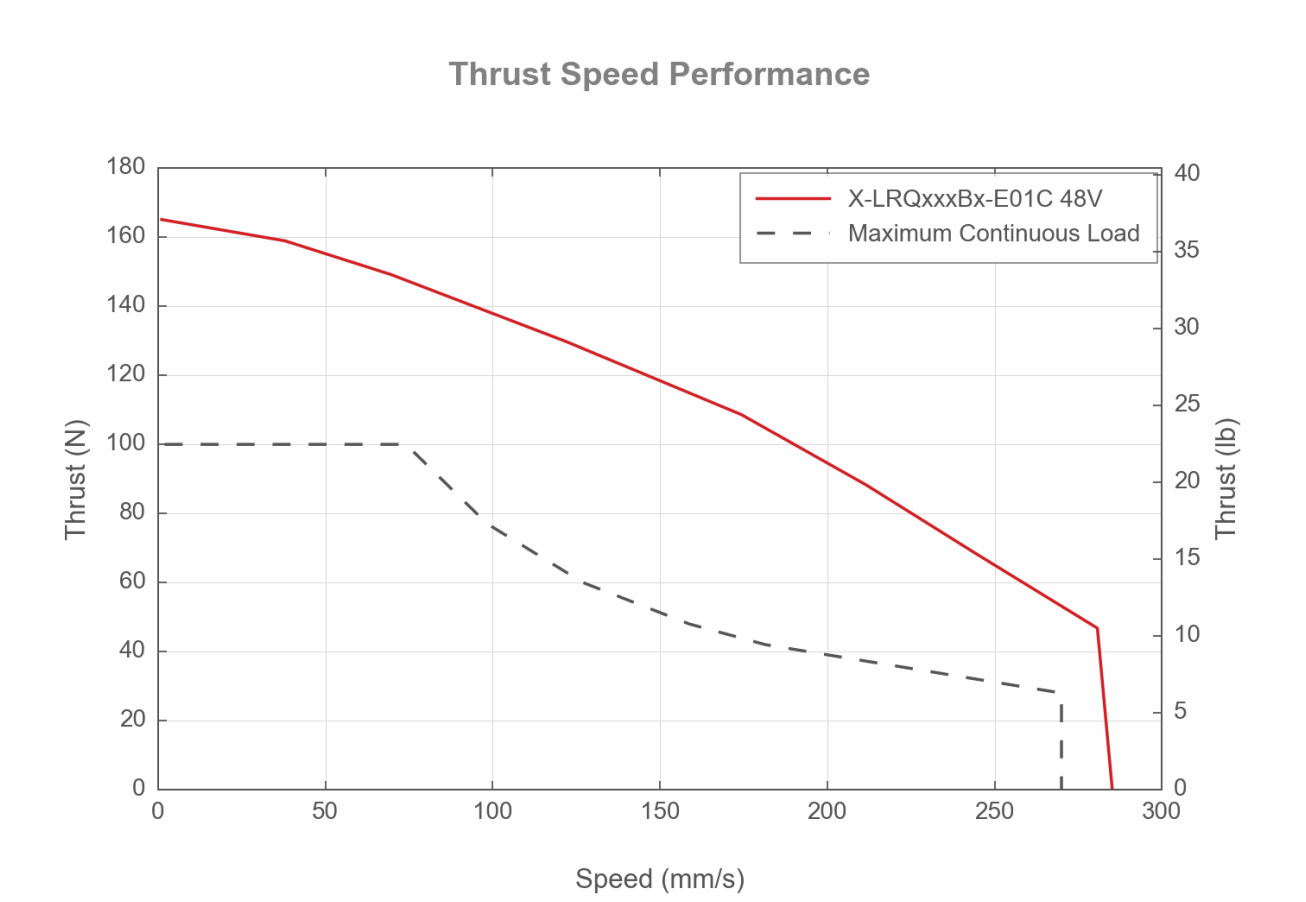
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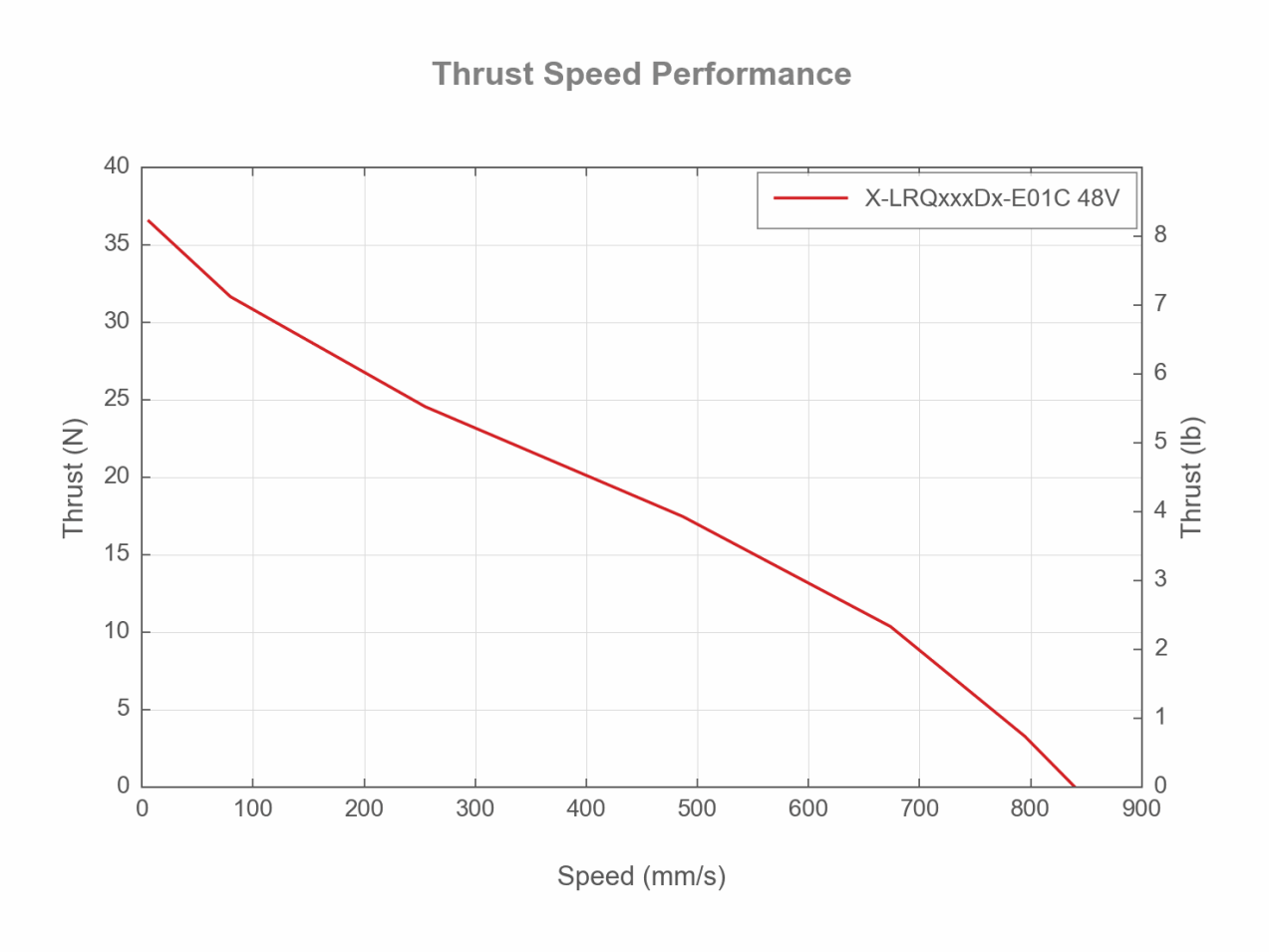
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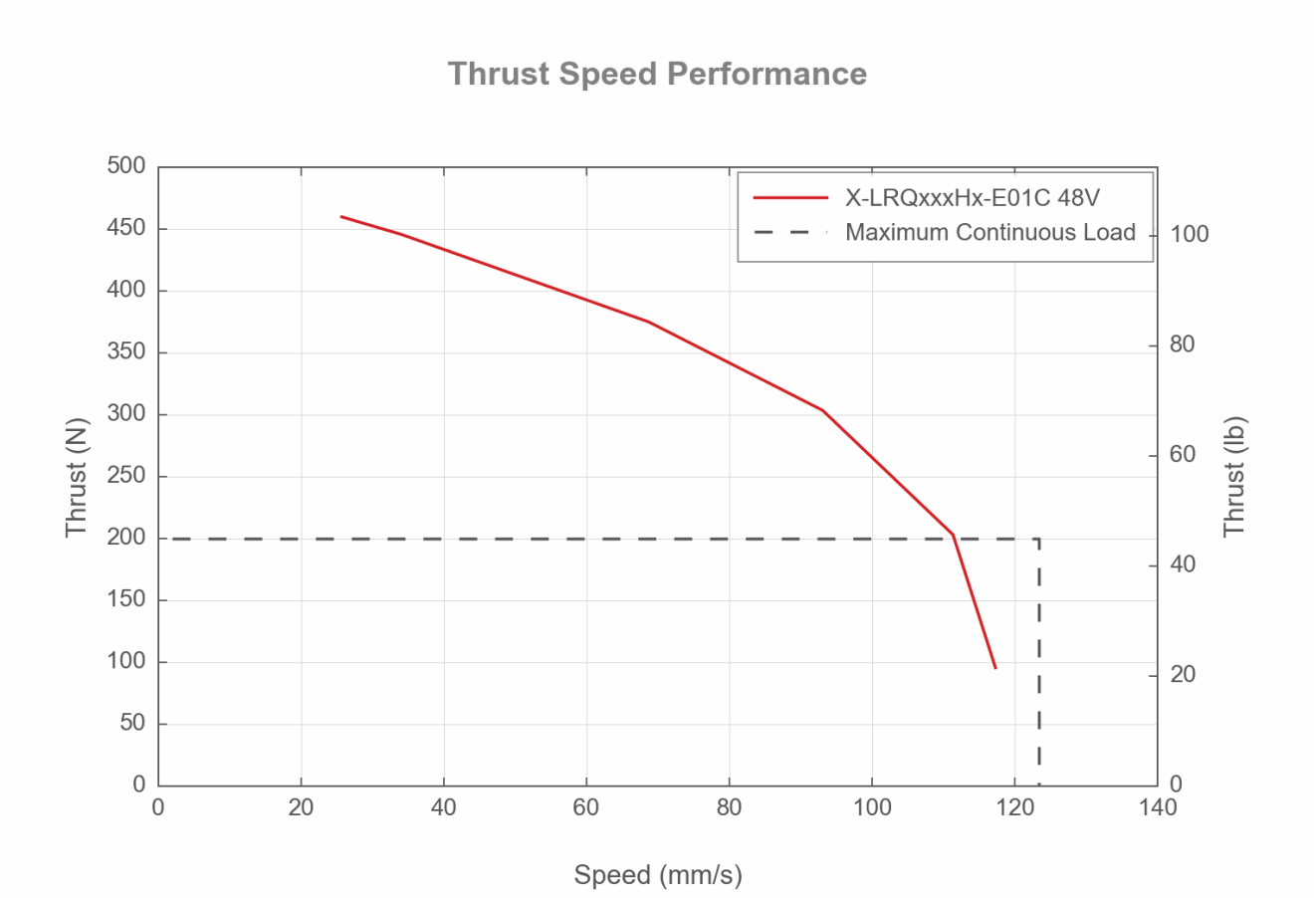
Thrust Speed



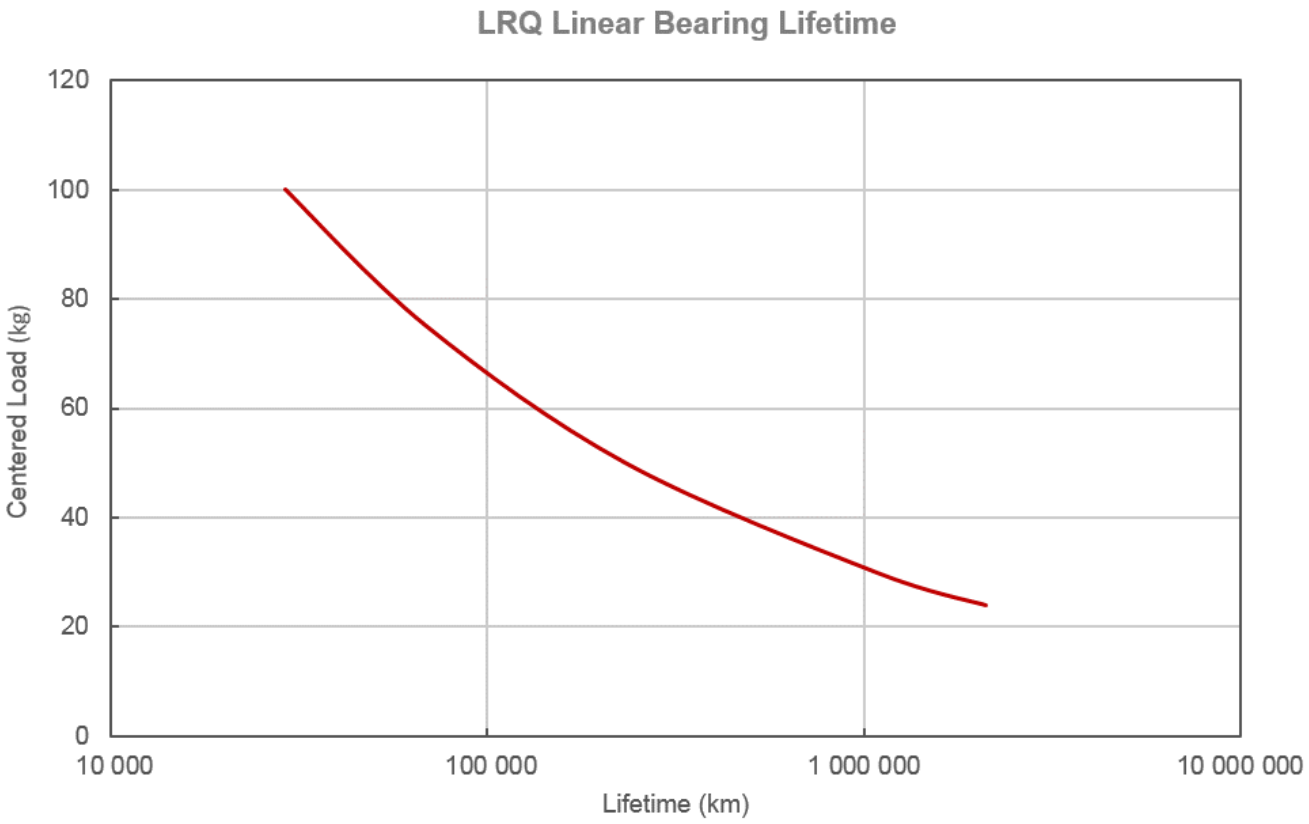
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Thrust Speed



LRQ Lifetime



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LRQ-DE Series Datasheet



- 75, 150, 300, 450, 600 mm travel
- Up to 10 µm accuracy over 600 mm travel
- Up to 270 mm/s speed and up to 500 N thrust
- 100 kg load capacity
- Inline and parallel drive configurations
- Ball screw and lead screw configurations
- Integrated linear encoders with 50 nm resolution provide slip/stall detection and position correction
- Designed for use with MCC Family controllers or any 2-phase stepper motor controller
- With AutoDetect, Zaber controllers automatically configure settings for the connected peripheral
- Custom versions available

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LRQ-DE Series Overview

Zaber's LRQ-DE Series products are computer-controlled, motorized linear stages with high stiffness, load, and lifetime capabilities in a compact size. An integrated linear encoder combined with stage calibration provides high accuracy positioning over the full travel of the device. At only 36 mm high, these stages are excellent for applications where a low profile is required. These stages are capable of speeds up to 270 mm/s, and 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. Each device is available in either an inline or parallel drive configuration.

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

For more information visit: https://www.zaber.com/products/linear-stages/LRQ-DE

LRQ-DE Series Part Numbering & Options

LRQ 075 A L - DE51 T10A

Travel
- **075** — 75 mm
- **150** — 150 mm
- **300** — 300 mm
- **450** — 450 mm
- **600** — 600 mm

Drive Screw Options
- **A** — Fine pitch lead screw
- **B** — Medium pitch lead screw
- **H** — Fine pitch ball screw

Drive Configuration
- **L** — Inline
- **P** — Parallel

Encoder Options
- **DE51** — Linear quadrature encoder, 50 nm

Connector
- **T10A** — D-sub 26 panel mount connector with Auto Detect

LRQ-DE Series Drawings

• View all drawings and documents at zaber.com

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LRQ-DE Series Specifications

Overview

Specification	Value
Built-in Controller	No
Recommended Controller	MCC (48 V) Recommended
AutoDetect	Yes
Axes of Motion	1

Positioning Performance

Specification	Value
Repeatability	<2 µm (<0.000079 ")
Default Resolution	1/64 of a step

Load Performance

Specification	Value
Maximum Centered Load	1000 N (224.3 lb)
Maximum Moment (Pitch)	30 N·m (22.1 lb·ft)
Maximum Moment (Roll)	30 N·m (22.14 lb·ft)
Maximum Moment (Yaw)	30 N·m (22.14 lb·ft)
Stiffness (Pitch)	500 N·m/°
Stiffness (Roll)	1180 N·m/°
Stiffness (Yaw)	450 N·m/°

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Encoder & Sensing

Specification	Value
Encoder Type	Linear quadrature encoder
Encoder Resolution	50 nm
Limit or Home Sensing	Magnetic home sensor

Motor

Specification	Value
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	2300 mA/phase
Motor Winding Resistance	1 ohms/phase
Motor Winding Inductance	2.2 mH/phase
Motor Connection	D-sub 26

Mechanical

Specification	Value
Guide Type	Recirculating Ball Linear Guide
Mounting Interface	M6 and M3 threaded holes

Environmental & Compliance

Specification	Value
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No

Part Number	Travel Range	Weight	Accuracy (unidirectional)	Backlash

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LRQ075AL-DE51T10A	75 mm (2.953 ")	2.25 kg (4.96 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
LRQ075AP-DE51T10A	75 mm (2.953 ")	2.41 kg (5.313 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
LRQ075BL-DE51T10A	75 mm (2.953 ")	2.25 kg (4.96 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ075BP-DE51T10A	75 mm (2.953 ")	2.41 kg (5.313 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ075HL-DE51T10A	75 mm (2.953 ")	2.25 kg (4.96 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ075HP-DE51T10A	75 mm (2.953 ")	2.41 kg (5.313 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ150AL-DE51T10A	150 mm (5.905 ")	2.64 kg (5.82 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
LRQ150AP-DE51T10A	150 mm (5.905 ")	2.8 kg (6.173 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
LRQ150BL-DE51T10A	150 mm (5.905 ")	2.64 kg (5.82 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ150BP-DE51T10A	150 mm (5.905 ")	2.8 kg (6.173 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ150HL-DE51T10A	150 mm (5.905 ")	2.64 kg (5.82 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ150HP-DE51T10A	150 mm (5.905 ")	2.8 kg (6.173 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ300AL-DE51T10A	300 mm (11.811 ")	3.44 kg (7.584 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
LRQ300AP-DE51T10A	300 mm (11.811 ")	3.6 kg (7.937 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
LRQ300BL-DE51T10A	300 mm (11.811 ")	3.44 kg (7.584 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ300BP-DE51T10A	300 mm (11.811 ")	3.6 kg (7.937 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ300HL-DE51T10A	300 mm (11.811 ")	3.44 kg (7.584 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ300HP-DE51T10A	300 mm (11.811 ")	3.6 kg (7.937 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ450AL-DE51T10A	450 mm (17.716 ")	4.23 kg (9.326 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
LRQ450AP-DE51T10A	450 mm (17.716 ")	4.39 kg (9.678 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")

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LRQ450BL-DE51T10A	450 mm (17.716 ")	4.23 kg (9.326 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ450BP-DE51T10A	450 mm (17.716 ")	4.39 kg (9.678 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ450HL-DE51T10A	450 mm (17.716 ")	4.23 kg (9.326 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ450HP-DE51T10A	450 mm (17.716 ")	4.39 kg (9.678 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ600AL-DE51T10A	600 mm (23.622 ")	4.98 kg (10.979 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
LRQ600AP-DE51T10A	600 mm (23.622 ")	5.14 kg (11.332 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
LRQ600BL-DE51T10A	600 mm (23.622 ")	4.98 kg (10.979 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ600BP-DE51T10A	600 mm (23.622 ")	5.14 kg (11.332 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ600HL-DE51T10A	600 mm (23.622 ")	4.98 kg (10.979 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ600HP-DE51T10A	600 mm (23.622 ")	5.14 kg (11.332 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")

Part Number	Flatness of Travel	Straightness of Travel	Pitch Error	Roll Error
LRQ075AL-DE51T10A	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
LRQ075AP-DE51T10A	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
LRQ075BL-DE51T10A	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
LRQ075BP-DE51T10A	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
LRQ075HL-DE51T10A	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
LRQ075HP-DE51T10A	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
LRQ150AL-DE51T10A	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
LRQ150AP-DE51T10A	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)

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LRQ150BL-DE51T10A	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
LRQ150BP-DE51T10A	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
LRQ150HL-DE51T10A	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
LRQ150HP-DE51T10A	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
LRQ300AL-DE51T10A	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
LRQ300AP-DE51T10A	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
LRQ300BL-DE51T10A	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
LRQ300BP-DE51T10A	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
LRQ300HL-DE51T10A	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
LRQ300HP-DE51T10A	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
LRQ450AL-DE51T10A	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
LRQ450AP-DE51T10A	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
LRQ450BL-DE51T10A	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
LRQ450BP-DE51T10A	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
LRQ450HL-DE51T10A	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
LRQ450HP-DE51T10A	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
LRQ600AL-DE51T10A	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)
LRQ600AP-DE51T10A	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)
LRQ600BL-DE51T10A	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)
LRQ600BP-DE51T10A	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)

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LRQ600HL-DE51T10A	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)
LRQ600HP-DE51T10A	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)

Part Number	Yaw Error	Microstep Size (Default Resolution)	Peak Thrust	Maximum Continuous Thrust
LRQ075AL-DE51T10A	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
LRQ075AP-DE51T10A	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
LRQ075BL-DE51T10A	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
LRQ075BP-DE51T10A	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
LRQ075HL-DE51T10A	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
LRQ075HP-DE51T10A	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
LRQ150AL-DE51T10A	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
LRQ150AP-DE51T10A	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
LRQ150BL-DE51T10A	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
LRQ150BP-DE51T10A	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
LRQ150HL-DE51T10A	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
LRQ150HP-DE51T10A	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
LRQ300AL-DE51T10A	0.03 ° (0.523 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
LRQ300AP-DE51T10A	0.03 ° (0.523 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
LRQ300BL-DE51T10A	0.03 ° (0.523 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
LRQ300BP-DE51T10A	0.03 ° (0.523 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)

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LRQ300HL-DE51T10A	0.03 ° (0.523 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
LRQ300HP-DE51T10A	0.03 ° (0.523 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
LRQ450AL-DE51T10A	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
LRQ450AP-DE51T10A	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
LRQ450BL-DE51T10A	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
LRQ450BP-DE51T10A	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
LRQ450HL-DE51T10A	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
LRQ450HP-DE51T10A	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
LRQ600AL-DE51T10A	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
LRQ600AP-DE51T10A	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
LRQ600BL-DE51T10A	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
LRQ600BP-DE51T10A	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
LRQ600HL-DE51T10A	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
LRQ600HP-DE51T10A	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)

Part Number	Back-driving Force*	Maximum Speed	Minimum Speed	Speed Resolution
LRQ075AL-DE51T10A	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ075AP-DE51T10A	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ075BL-DE51T10A	93 (± 30%) N (20.9 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ075BP-DE51T10A	123 (± 30%) N (27.6 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)

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LRQ075HL-DE51T10A	93 (± 30%) N (20.9 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ075HP-DE51T10A	123 (± 30%) N (27.6 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ150AL-DE51T10A	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ150AP-DE51T10A	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ150BL-DE51T10A	93 (± 30%) N (20.9 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ150BP-DE51T10A	123 (± 30%) N (27.6 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ150HL-DE51T10A	93 (± 30%) N (20.9 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ150HP-DE51T10A	123 (± 30%) N (27.6 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ300AL-DE51T10A	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ300AP-DE51T10A	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ300BL-DE51T10A	93 (± 30%) N (20.9 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ300BP-DE51T10A	123 (± 30%) N (27.6 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ300HL-DE51T10A	93 (± 30%) N (20.9 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ300HP-DE51T10A	123 (± 30%) N (27.6 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ450AL-DE51T10A	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ450AP-DE51T10A	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ450BL-DE51T10A	93 (± 30%) N (20.9 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ450BP-DE51T10A	123 (± 30%) N (27.6 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ450HL-DE51T10A	93 (± 30%) N (20.9 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ450HP-DE51T10A	123 (± 30%) N (27.6 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)

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LRQ600AL-DE51T10A	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ600AP-DE51T10A	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ600BL-DE51T10A	93 (± 30%) N (20.9 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ600BP-DE51T10A	123 (± 30%) N (27.6 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ600HL-DE51T10A	93 (± 30%) N (20.9 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ600HP-DE51T10A	123 (± 30%) N (27.6 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)

Part Number	Linear Motion Per Motor Rev	Mechanical Drive System
LRQ075AL-DE51T10A	1.27 mm (0.05 ")	Precision lead screw
LRQ075AP-DE51T10A	1.27 mm (0.05 ")	Precision lead screw
LRQ075BL-DE51T10A	6.35 mm (0.25 ")	Precision lead screw
LRQ075BP-DE51T10A	6.35 mm (0.25 ")	Precision lead screw
LRQ075HL-DE51T10A	2.5 mm (0.098 ")	Precision ball screw
LRQ075HP-DE51T10A	2.5 mm (0.098 ")	Precision ball screw
LRQ150AL-DE51T10A	1.27 mm (0.05 ")	Precision lead screw
LRQ150AP-DE51T10A	1.27 mm (0.05 ")	Precision lead screw
LRQ150BL-DE51T10A	6.35 mm (0.25 ")	Precision lead screw
LRQ150BP-DE51T10A	6.35 mm (0.25 ")	Precision lead screw
LRQ150HL-DE51T10A	2.5 mm (0.098 ")	Precision ball screw
LRQ150HP-DE51T10A	2.5 mm (0.098 ")	Precision ball screw

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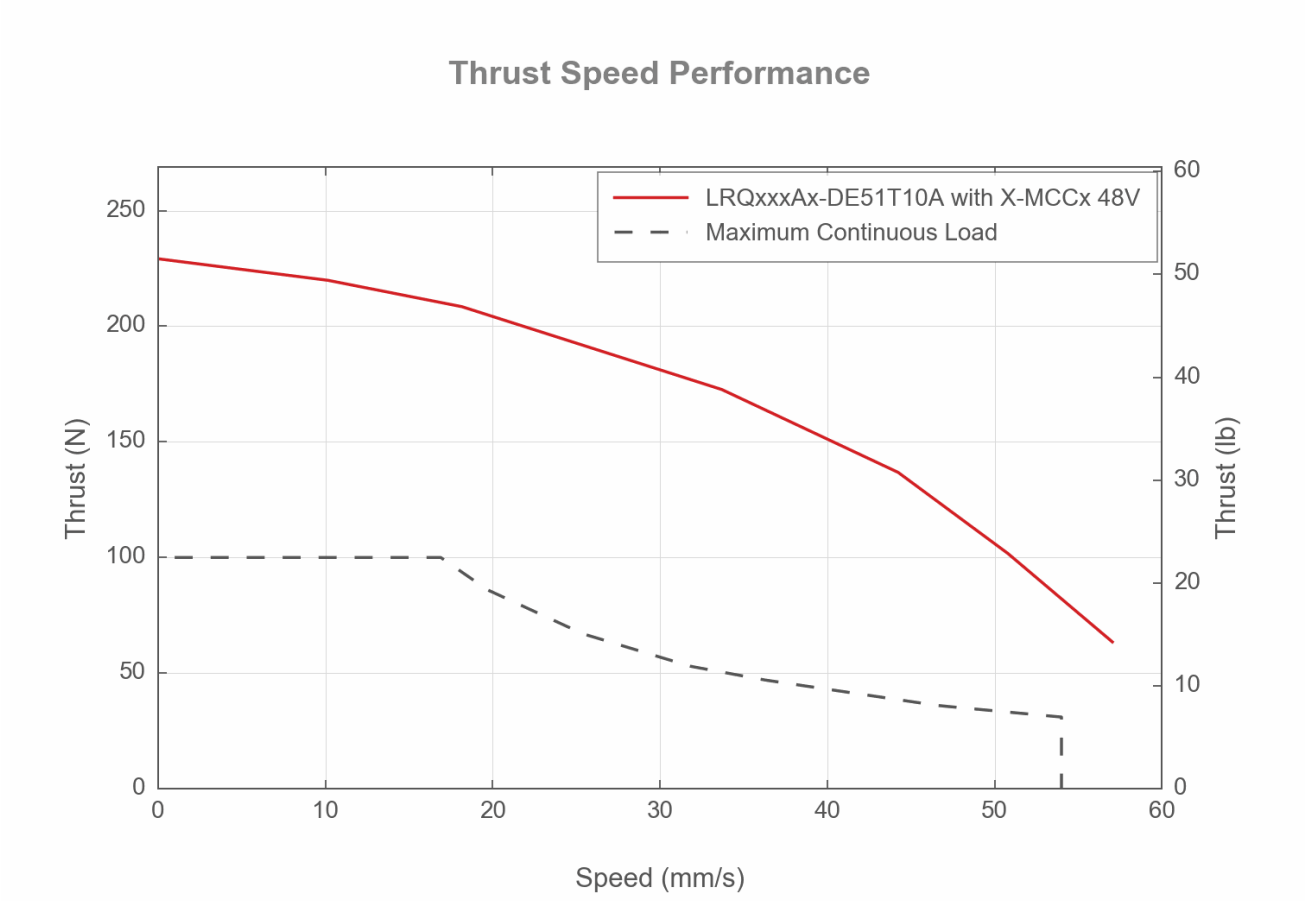
LRQ300AL-DE51T10A	1.27 mm (0.05 ")	Precision lead screw
LRQ300AP-DE51T10A	1.27 mm (0.05 ")	Precision lead screw
LRQ300BL-DE51T10A	6.35 mm (0.25 ")	Precision lead screw
LRQ300BP-DE51T10A	6.35 mm (0.25 ")	Precision lead screw
LRQ300HL-DE51T10A	2.5 mm (0.098 ")	Precision ball screw
LRQ300HP-DE51T10A	2.5 mm (0.098 ")	Precision ball screw
LRQ450AL-DE51T10A	1.27 mm (0.05 ")	Precision lead screw
LRQ450AP-DE51T10A	1.27 mm (0.05 ")	Precision lead screw
LRQ450BL-DE51T10A	6.35 mm (0.25 ")	Precision lead screw
LRQ450BP-DE51T10A	6.35 mm (0.25 ")	Precision lead screw
LRQ450HL-DE51T10A	2.5 mm (0.098 ")	Precision ball screw
LRQ450HP-DE51T10A	2.5 mm (0.098 ")	Precision ball screw
LRQ600AL-DE51T10A	1.27 mm (0.05 ")	Precision lead screw
LRQ600AP-DE51T10A	1.27 mm (0.05 ")	Precision lead screw
LRQ600BL-DE51T10A	6.35 mm (0.25 ")	Precision lead screw
LRQ600BP-DE51T10A	6.35 mm (0.25 ")	Precision lead screw
LRQ600HL-DE51T10A	2.5 mm (0.098 ")	Precision ball screw
LRQ600HP-DE51T10A	2.5 mm (0.098 ")	Precision ball screw

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LRQ-DE Series Charts

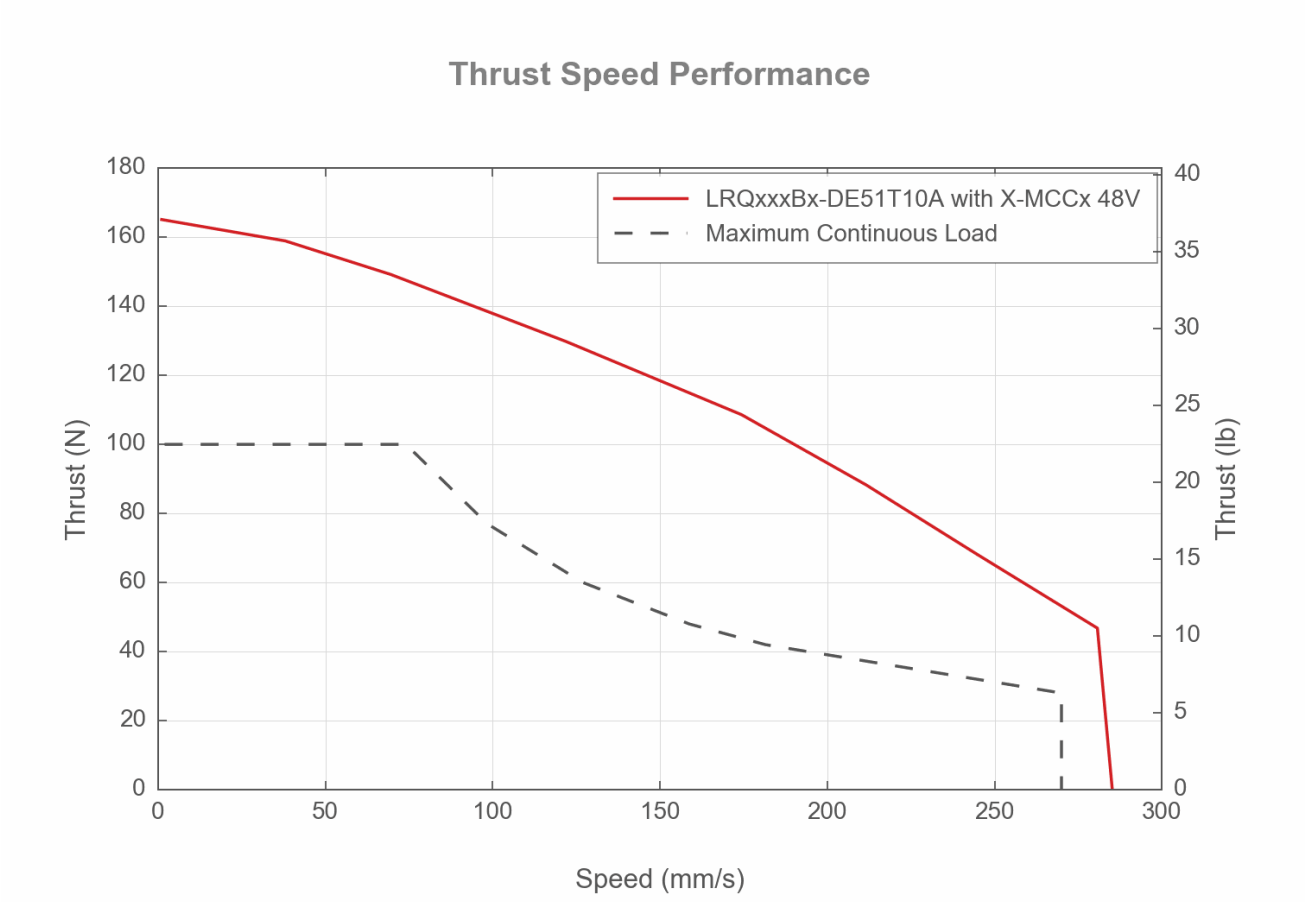
LRQxxxAx DE51T10A THRUST SPEED



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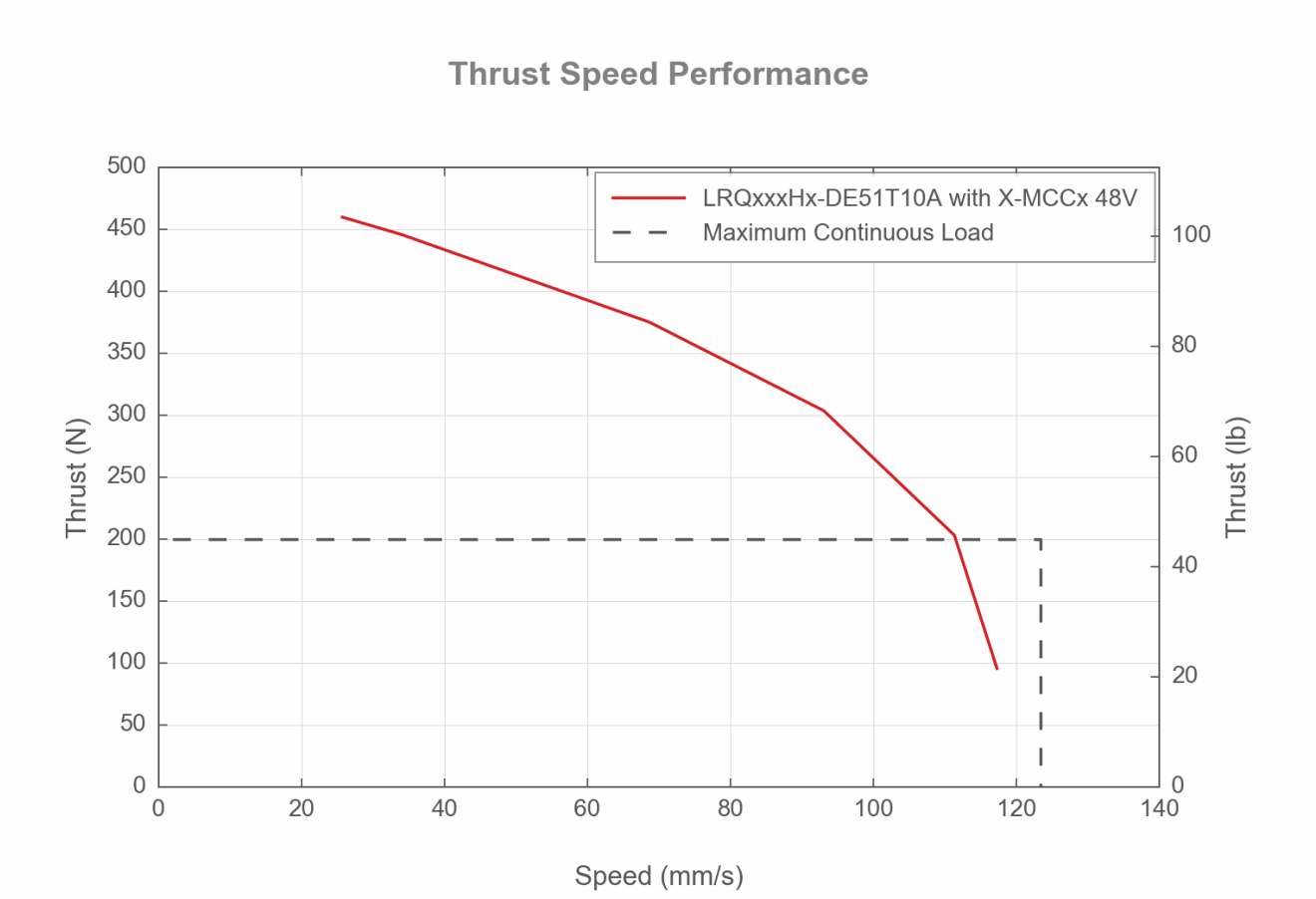
LRQxxxBx DE51T10A THRUST SPEED



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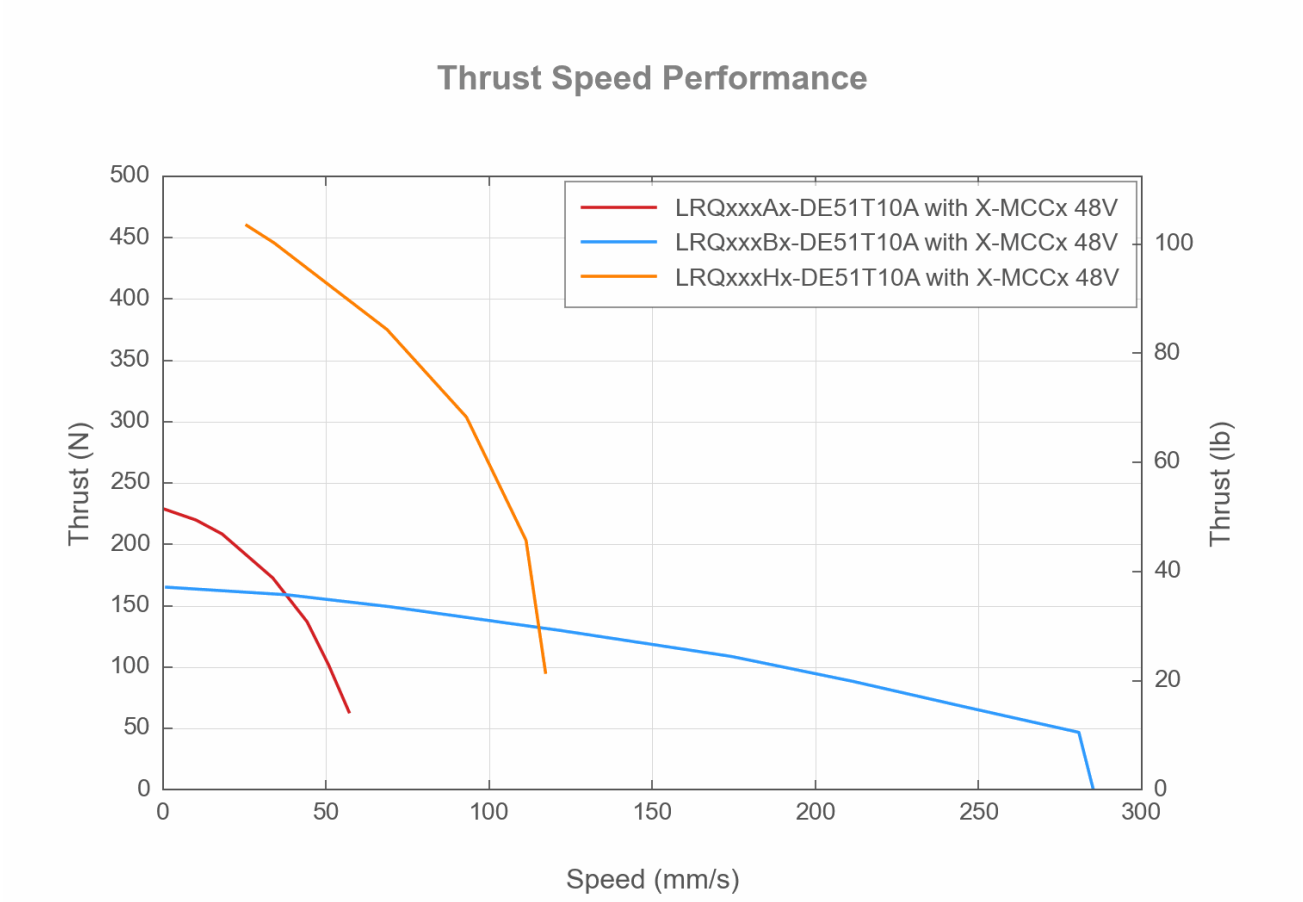
LRQxxxHx DE51T10A THRUST SPEED



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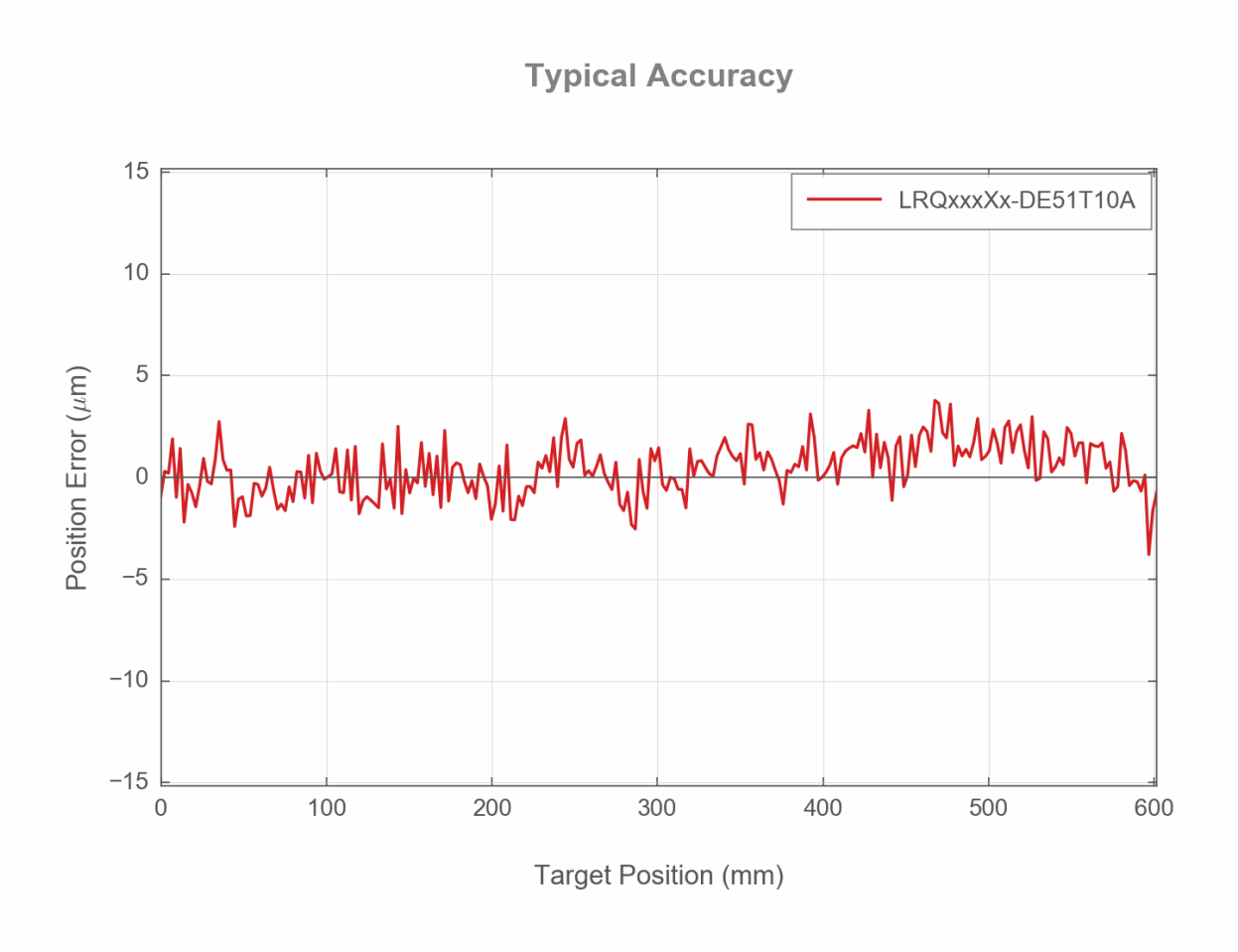
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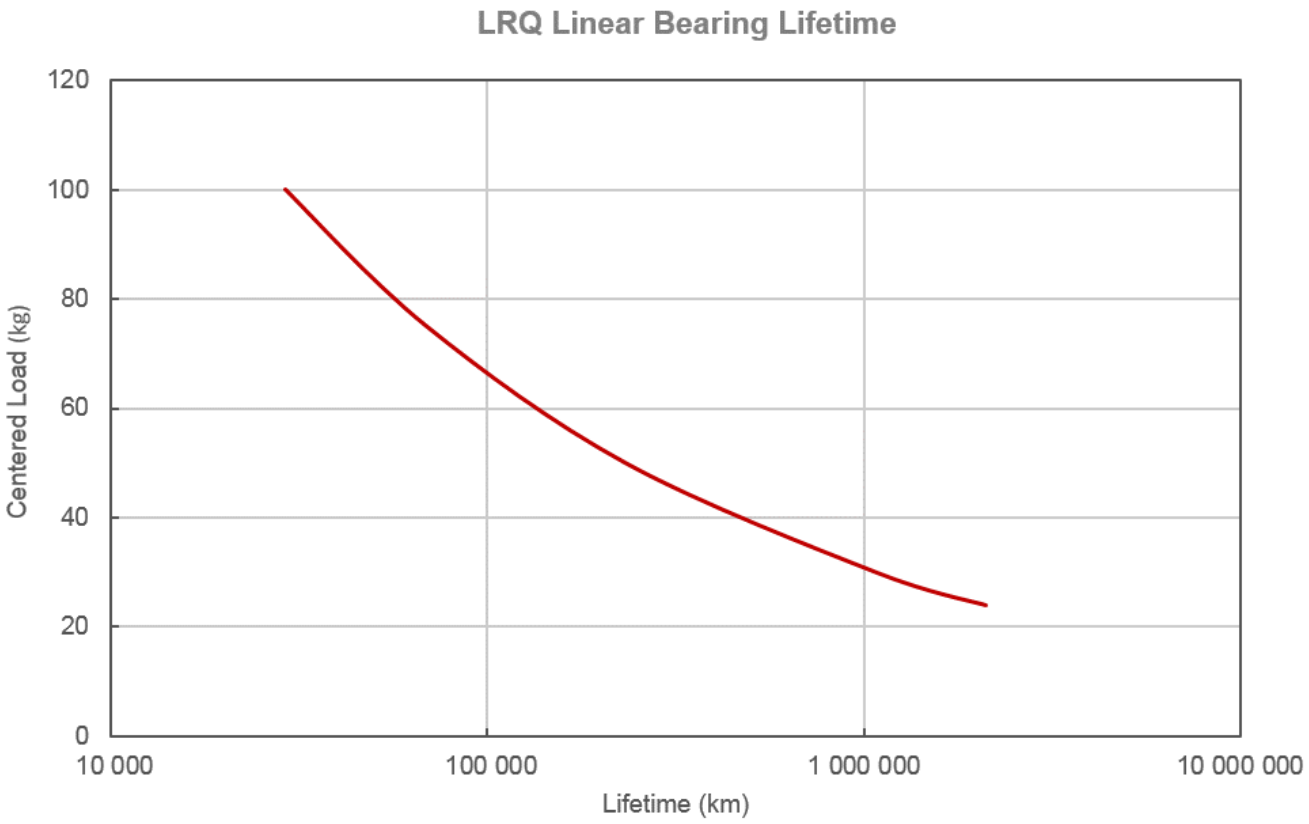
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LRQxxxxx DE51T10A ACCURACY



LRQ Lifetime



Contact

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LRQ-DEC Series Datasheet



- 75, 150, 300, 450, 600 mm travel
- Up to 10 µm accuracy over 600 mm travel
- Up to 270 mm/s speed and up to 500 N thrust
- 100 kg load capacity
- Inline and parallel drive configurations
- Includes stainless steel dust cover
- Ball screw and lead screw configurations
- Integrated linear encoders with 50 nm resolution provide slip/stall detection and position correction
- Designed for use with MCC Family controllers or any 2-phase stepper motor controller
- With AutoDetect, Zaber controllers automatically configure settings for the connected peripheral
- Custom versions available

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LRQ-DEC Series Overview

Zaber's LRQ-DEC Series products are computer-controlled, motorized linear stages with high stiffness, load, and lifetime capabilities in a compact size. An integrated linear encoder combined with stage calibration provides high accuracy positioning over the full travel of the device. A flexible stainless steel dust cover prevents the ingress of small objects. At only 48 mm high, these stages are excellent for applications where a low profile is required. These stages are capable of speeds up to 270 mm/s, and 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. Each device is available in either an inline or parallel drive configuration.

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

For more information visit: https://www.zaber.com/products/linear-stages/LRQ-DEC

LRQ-DEC Series Part Numbering & Options

LRQ 075 A L - DE51 C T10A

Travel
- **075** — 75 mm
- **150** — 150 mm
- **300** — 300 mm
- **450** — 450 mm
- **600** — 600 mm

Drive Screw Options
- **A** — Fine pitch lead screw
- **B** — Medium pitch lead screw
- **H** — Fine pitch ball screw

Drive Configuration
- **L** — Inline
- **P** — Parallel

Encoder Options
- **DE51** — Linear quadrature encoder, 50 nm

Cover
- **C** — Stainless Steel Dust Cover

Connector
- **T10A** — D-sub 26 panel mount connector with Auto Detect

LRQ-DEC Series Drawings

• View all drawings and documents at zaber.com

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LRQ-DEC Series Specifications

Overview

Specification	Value
Built-in Controller	No
Recommended Controller	MCC (48 V) Recommended
AutoDetect	Yes
Axes of Motion	1

Positioning Performance

Specification	Value
Repeatability	<2 µm (<0.000079 ")
Default Resolution	1/64 of a step

Load Performance

Specification	Value
Maximum Centered Load	1000 N (224.3 lb)
Maximum Moment (Pitch)	30 N·m (22.1 lb·ft)
Maximum Moment (Roll)	30 N·m (22.14 lb·ft)
Maximum Moment (Yaw)	30 N·m (22.14 lb·ft)
Stiffness (Pitch)	250 N·m/°
Stiffness (Roll)	600 N·m/°
Stiffness (Yaw)	430 N·m/°

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Encoder & Sensing

Specification	Value
Encoder Type	Linear quadrature encoder
Encoder Resolution	50 nm
Limit or Home Sensing	Magnetic home sensor

Motor

Specification	Value
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	2300 mA/phase
Motor Winding Resistance	1 ohms/phase
Motor Winding Inductance	2.2 mH/phase
Motor Connection	D-sub 26

Mechanical

Specification	Value
Guide Type	Recirculating Ball Linear Guide
Mounting Interface	M6 and M3 threaded holes

Environmental & Compliance

Specification	Value
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No

Part Number	Travel Range	Weight	Accuracy (unidirectional)	Backlash

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LRQ075AL-DE51CT10A	75 mm (2.953 ")	2.47 kg (5.445 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
LRQ075AP-DE51CT10A	75 mm (2.953 ")	2.64 kg (5.82 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
LRQ075BL-DE51CT10A	75 mm (2.953 ")	2.47 kg (5.445 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ075BP-DE51CT10A	75 mm (2.953 ")	2.64 kg (5.82 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ075HL-DE51CT10A	75 mm (2.953 ")	2.47 kg (5.445 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ075HP-DE51CT10A	75 mm (2.953 ")	2.64 kg (5.82 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ150AL-DE51CT10A	150 mm (5.905 ")	2.89 kg (6.371 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
LRQ150AP-DE51CT10A	150 mm (5.905 ")	3.06 kg (6.746 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
LRQ150BL-DE51CT10A	150 mm (5.905 ")	2.89 kg (6.371 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ150BP-DE51CT10A	150 mm (5.905 ")	3.06 kg (6.746 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ150HL-DE51CT10A	150 mm (5.905 ")	2.89 kg (6.371 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ150HP-DE51CT10A	150 mm (5.905 ")	3.06 kg (6.746 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ300AL-DE51CT10A	300 mm (11.811 ")	3.73 kg (8.223 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
LRQ300AP-DE51CT10A	300 mm (11.811 ")	3.91 kg (8.62 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
LRQ300BL-DE51CT10A	300 mm (11.811 ")	3.73 kg (8.223 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ300BP-DE51CT10A	300 mm (11.811 ")	3.91 kg (8.62 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ300HL-DE51CT10A	300 mm (11.811 ")	3.73 kg (8.223 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ300HP-DE51CT10A	300 mm (11.811 ")	3.91 kg (8.62 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ450AL-DE51CT10A	450 mm (17.716 ")	4.57 kg (10.075 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
LRQ450AP-DE51CT10A	450 mm (17.716 ")	4.74 kg (10.45 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")

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LRQ450BL-DE51CT10A	450 mm (17.716 ")	4.57 kg (10.075 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ450BP-DE51CT10A	450 mm (17.716 ")	4.74 kg (10.45 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ450HL-DE51CT10A	450 mm (17.716 ")	4.57 kg (10.075 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ450HP-DE51CT10A	450 mm (17.716 ")	4.74 kg (10.45 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ600AL-DE51CT10A	600 mm (23.622 ")	5.37 kg (11.839 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
LRQ600AP-DE51CT10A	600 mm (23.622 ")	5.54 kg (12.214 lb)	10 µm (0.000394 ")	<5 µm (<0.000197 ")
LRQ600BL-DE51CT10A	600 mm (23.622 ")	5.37 kg (11.839 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ600BP-DE51CT10A	600 mm (23.622 ")	5.54 kg (12.214 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ600HL-DE51CT10A	600 mm (23.622 ")	5.37 kg (11.839 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")
LRQ600HP-DE51CT10A	600 mm (23.622 ")	5.54 kg (12.214 lb)	13 µm (0.000512 ")	<6.5 µm (<0.000256 ")

Part Number	Flatness of Travel	Straightness of Travel	Pitch Error	Roll Error
LRQ075AL-DE51CT10A	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
LRQ075AP-DE51CT10A	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
LRQ075BL-DE51CT10A	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
LRQ075BP-DE51CT10A	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
LRQ075HL-DE51CT10A	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
LRQ075HP-DE51CT10A	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
LRQ150AL-DE51CT10A	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
LRQ150AP-DE51CT10A	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)

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LRQ150BL-DE51CT10A	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
LRQ150BP-DE51CT10A	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
LRQ150HL-DE51CT10A	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
LRQ150HP-DE51CT10A	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
LRQ300AL-DE51CT10A	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
LRQ300AP-DE51CT10A	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
LRQ300BL-DE51CT10A	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
LRQ300BP-DE51CT10A	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
LRQ300HL-DE51CT10A	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
LRQ300HP-DE51CT10A	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
LRQ450AL-DE51CT10A	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
LRQ450AP-DE51CT10A	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
LRQ450BL-DE51CT10A	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
LRQ450BP-DE51CT10A	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
LRQ450HL-DE51CT10A	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
LRQ450HP-DE51CT10A	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
LRQ600AL-DE51CT10A	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)
LRQ600AP-DE51CT10A	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)
LRQ600BL-DE51CT10A	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)
LRQ600BP-DE51CT10A	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)

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LRQ600HL-DE51CT10A	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)
LRQ600HP-DE51CT10A	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)

Part Number	Yaw Error	Microstep Size (Default Resolution)	Peak Thrust	Maximum Continuous Thrust
LRQ075AL-DE51CT10A	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
LRQ075AP-DE51CT10A	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
LRQ075BL-DE51CT10A	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
LRQ075BP-DE51CT10A	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
LRQ075HL-DE51CT10A	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
LRQ075HP-DE51CT10A	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
LRQ150AL-DE51CT10A	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
LRQ150AP-DE51CT10A	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
LRQ150BL-DE51CT10A	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
LRQ150BP-DE51CT10A	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
LRQ150HL-DE51CT10A	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
LRQ150HP-DE51CT10A	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
LRQ300AL-DE51CT10A	0.03 ° (0.523 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
LRQ300AP-DE51CT10A	0.03 ° (0.523 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
LRQ300BL-DE51CT10A	0.03 ° (0.523 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
LRQ300BP-DE51CT10A	0.03 ° (0.523 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)

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LRQ300HL-DE51CT10A	0.03 ° (0.523 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
LRQ300HP-DE51CT10A	0.03 ° (0.523 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
LRQ450AL-DE51CT10A	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
LRQ450AP-DE51CT10A	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
LRQ450BL-DE51CT10A	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
LRQ450BP-DE51CT10A	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
LRQ450HL-DE51CT10A	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
LRQ450HP-DE51CT10A	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
LRQ600AL-DE51CT10A	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
LRQ600AP-DE51CT10A	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)	100 N (22.4 lb)
LRQ600BL-DE51CT10A	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
LRQ600BP-DE51CT10A	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)	100 N (22.4 lb)
LRQ600HL-DE51CT10A	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)
LRQ600HP-DE51CT10A	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)	200 N (44.9 lb)

Part Number	Back-driving Force*	Maximum Speed	Minimum Speed	Speed Resolution
LRQ075AL-DE51CT10A	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ075AP-DE51CT10A	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ075BL-DE51CT10A	106 (± 30%) N (23.8 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ075BP-DE51CT10A	136 (± 30%) N (30.5 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)

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LRQ075HL-DE51CT10A	106 (± 30%) N (23.8 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ075HP-DE51CT10A	136 (± 30%) N (30.5 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ150AL-DE51CT10A	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ150AP-DE51CT10A	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ150BL-DE51CT10A	106 (± 30%) N (23.8 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ150BP-DE51CT10A	136 (± 30%) N (30.5 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ150HL-DE51CT10A	106 (± 30%) N (23.8 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ150HP-DE51CT10A	136 (± 30%) N (30.5 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ300AL-DE51CT10A	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ300AP-DE51CT10A	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ300BL-DE51CT10A	106 (± 30%) N (23.8 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ300BP-DE51CT10A	136 (± 30%) N (30.5 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ300HL-DE51CT10A	106 (± 30%) N (23.8 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ300HP-DE51CT10A	136 (± 30%) N (30.5 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ450AL-DE51CT10A	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ450AP-DE51CT10A	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ450BL-DE51CT10A	106 (± 30%) N (23.8 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ450BP-DE51CT10A	136 (± 30%) N (30.5 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ450HL-DE51CT10A	106 (± 30%) N (23.8 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ450HP-DE51CT10A	136 (± 30%) N (30.5 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)

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LRQ600AL-DE51CT10A	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ600AP-DE51CT10A	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ600BL-DE51CT10A	106 (± 30%) N (23.8 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ600BP-DE51CT10A	136 (± 30%) N (30.5 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ600HL-DE51CT10A	106 (± 30%) N (23.8 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ600HP-DE51CT10A	136 (± 30%) N (30.5 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)	0.000119 mm/s (0.000005 "/s)

Part Number	Linear Motion Per Motor Rev	Mechanical Drive System
LRQ075AL-DE51CT10A	1.27 mm (0.05 ")	Precision lead screw
LRQ075AP-DE51CT10A	1.27 mm (0.05 ")	Precision lead screw
LRQ075BL-DE51CT10A	6.35 mm (0.25 ")	Precision lead screw
LRQ075BP-DE51CT10A	6.35 mm (0.25 ")	Precision lead screw
LRQ075HL-DE51CT10A	2.5 mm (0.098 ")	Precision ball screw
LRQ075HP-DE51CT10A	2.5 mm (0.098 ")	Precision ball screw
LRQ150AL-DE51CT10A	1.27 mm (0.05 ")	Precision lead screw
LRQ150AP-DE51CT10A	1.27 mm (0.05 ")	Precision lead screw
LRQ150BL-DE51CT10A	6.35 mm (0.25 ")	Precision lead screw
LRQ150BP-DE51CT10A	6.35 mm (0.25 ")	Precision lead screw
LRQ150HL-DE51CT10A	2.5 mm (0.098 ")	Precision ball screw
LRQ150HP-DE51CT10A	2.5 mm (0.098 ")	Precision ball screw

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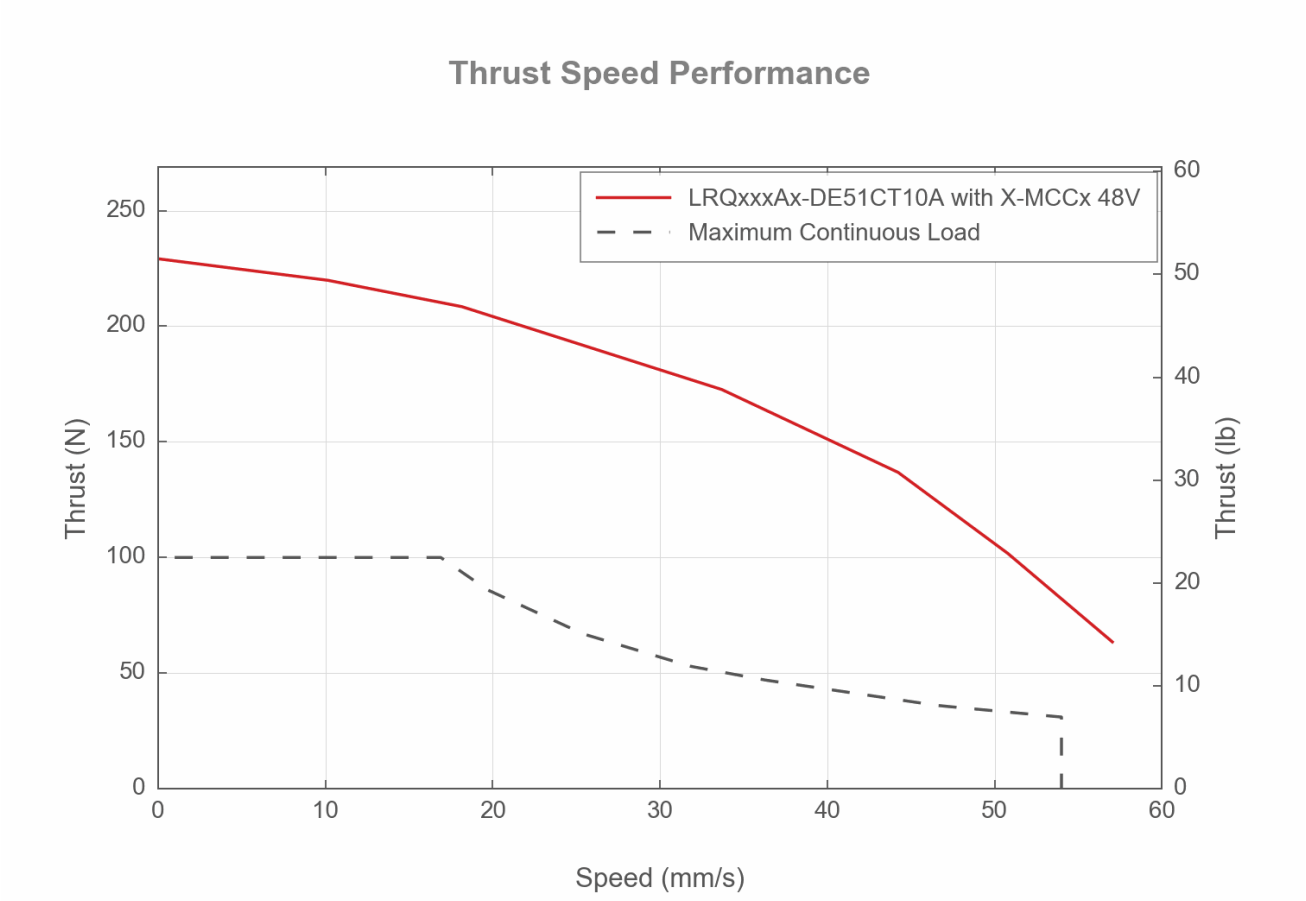
LRQ300AL-DE51CT10A	1.27 mm (0.05 ")	Precision lead screw
LRQ300AP-DE51CT10A	1.27 mm (0.05 ")	Precision lead screw
LRQ300BL-DE51CT10A	6.35 mm (0.25 ")	Precision lead screw
LRQ300BP-DE51CT10A	6.35 mm (0.25 ")	Precision lead screw
LRQ300HL-DE51CT10A	2.5 mm (0.098 ")	Precision ball screw
LRQ300HP-DE51CT10A	2.5 mm (0.098 ")	Precision ball screw
LRQ450AL-DE51CT10A	1.27 mm (0.05 ")	Precision lead screw
LRQ450AP-DE51CT10A	1.27 mm (0.05 ")	Precision lead screw
LRQ450BL-DE51CT10A	6.35 mm (0.25 ")	Precision lead screw
LRQ450BP-DE51CT10A	6.35 mm (0.25 ")	Precision lead screw
LRQ450HL-DE51CT10A	2.5 mm (0.098 ")	Precision ball screw
LRQ450HP-DE51CT10A	2.5 mm (0.098 ")	Precision ball screw
LRQ600AL-DE51CT10A	1.27 mm (0.05 ")	Precision lead screw
LRQ600AP-DE51CT10A	1.27 mm (0.05 ")	Precision lead screw
LRQ600BL-DE51CT10A	6.35 mm (0.25 ")	Precision lead screw
LRQ600BP-DE51CT10A	6.35 mm (0.25 ")	Precision lead screw
LRQ600HL-DE51CT10A	2.5 mm (0.098 ")	Precision ball screw
LRQ600HP-DE51CT10A	2.5 mm (0.098 ")	Precision ball screw

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LRQ-DEC Series Charts

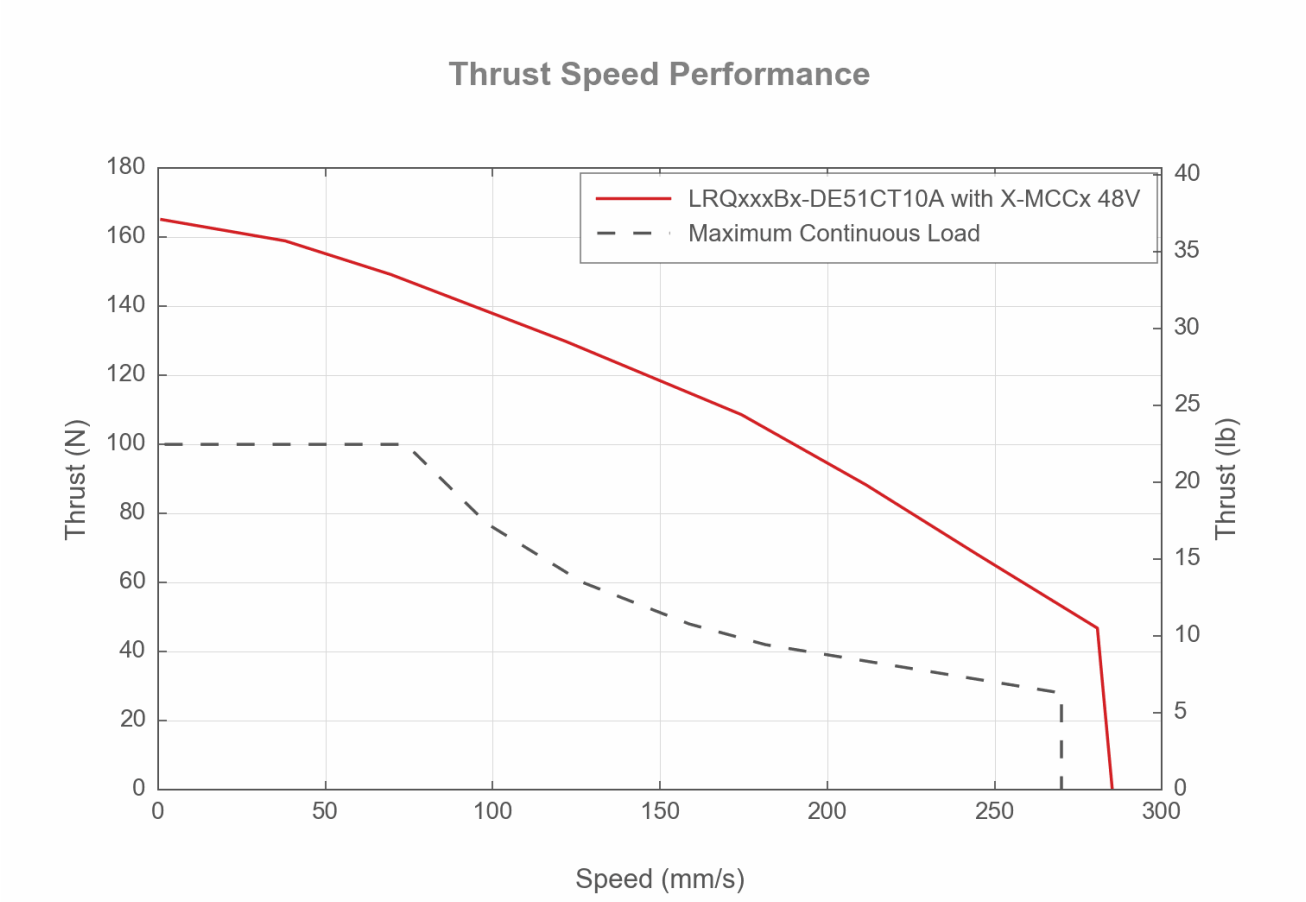
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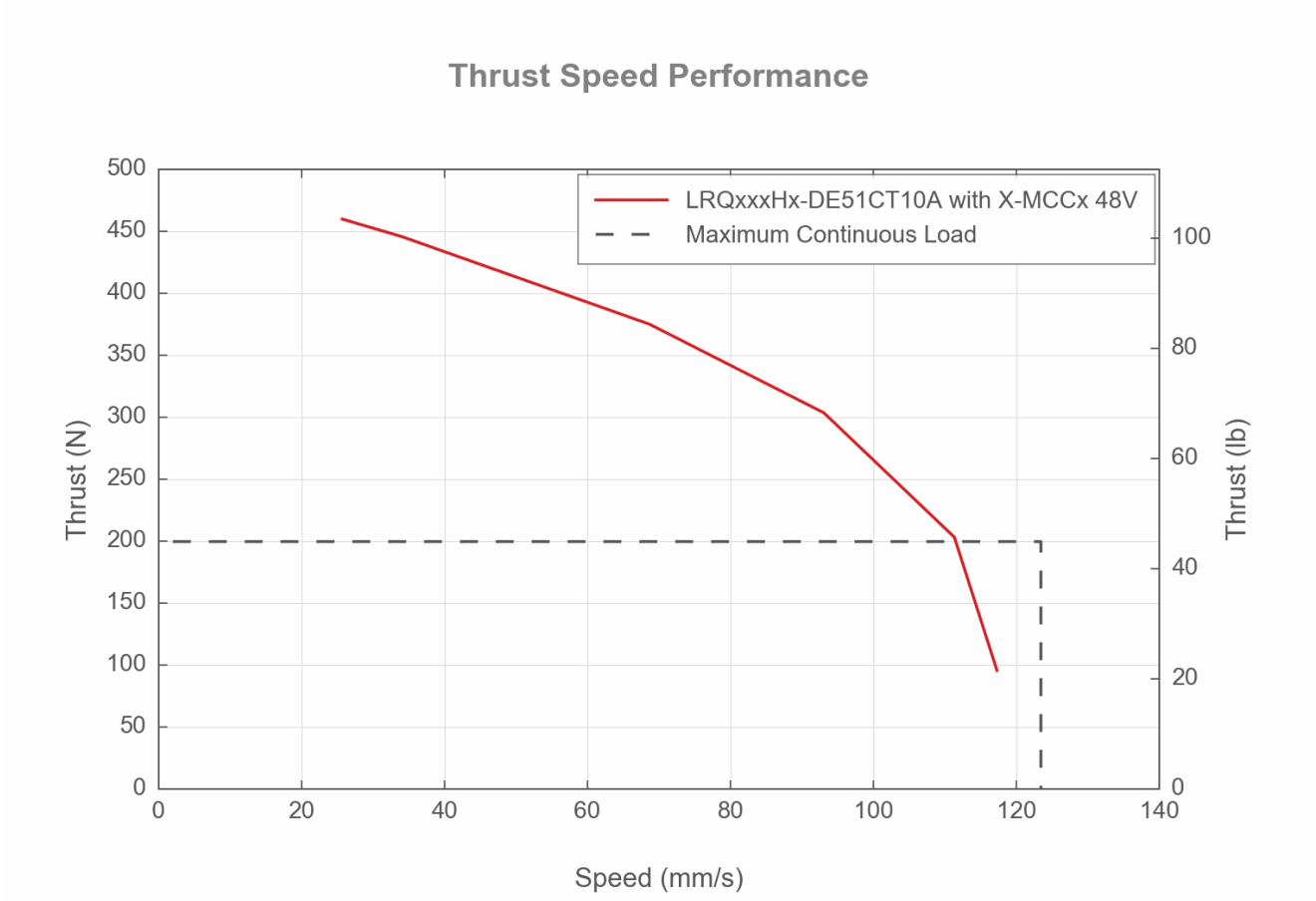
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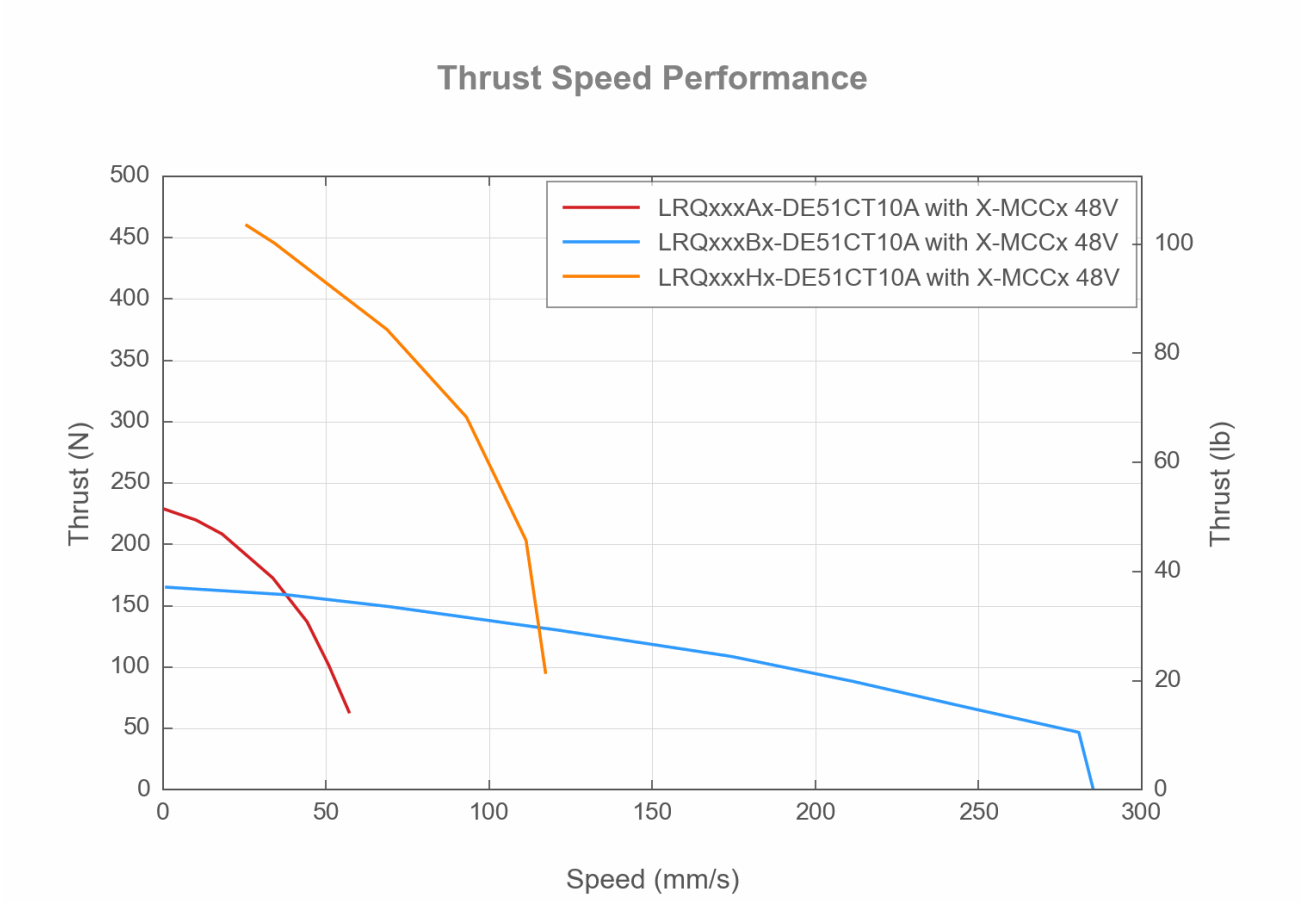
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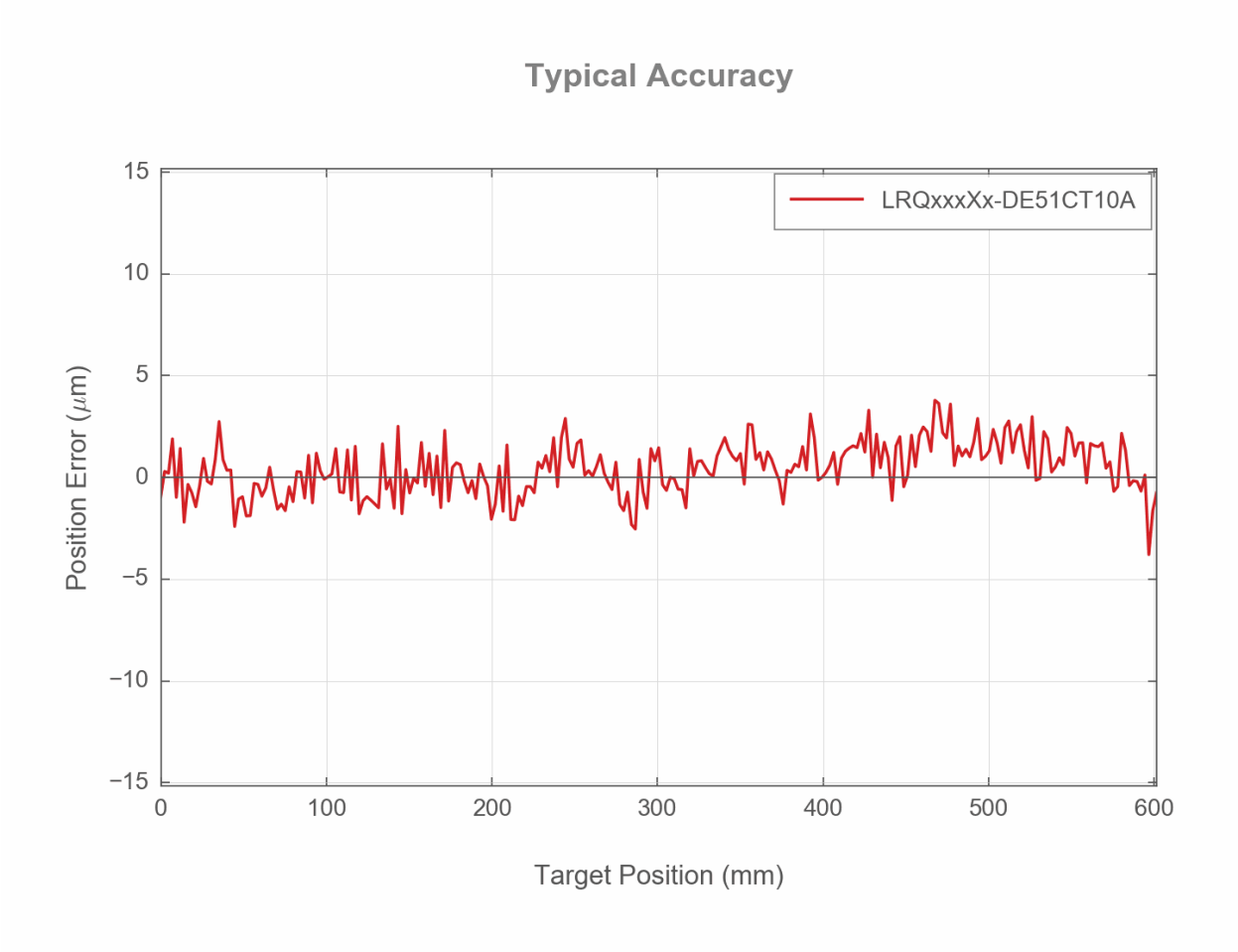
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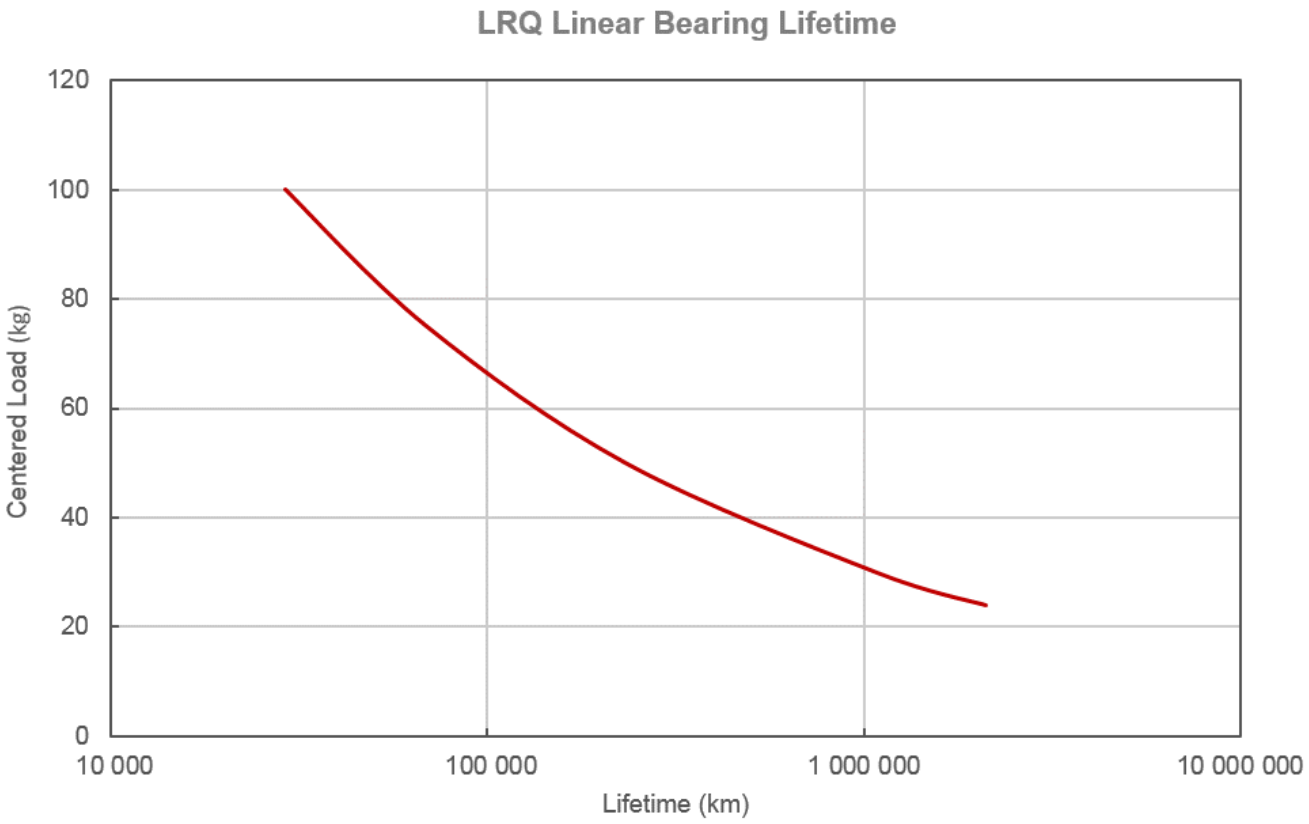
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LRQxxxxx DE51CT10A ACCURACY



LRQ Lifetime



Contact

Email: contact@zaber.com

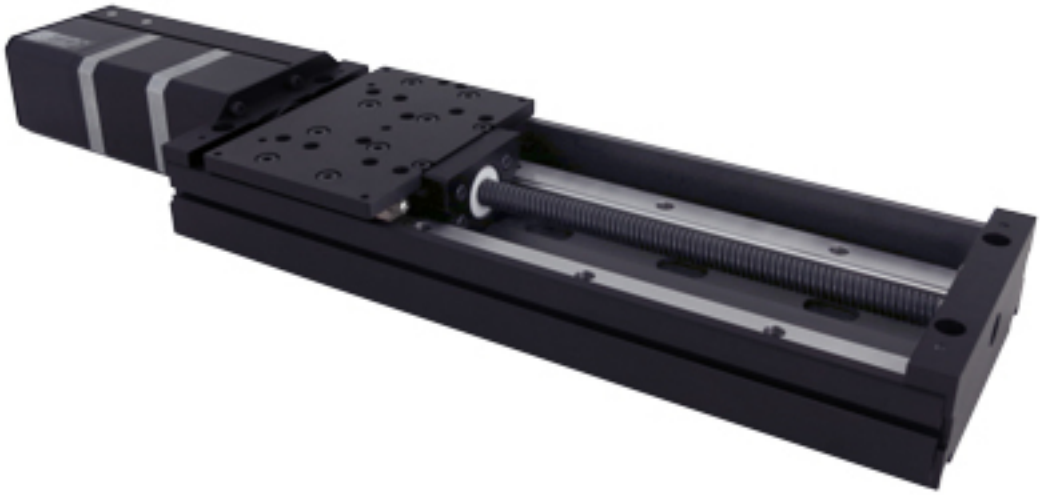
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LRQ-E Series Datasheet



- 75, 150, 300, 450, 600 mm travel
- Up to 840 mm/s speed and up to 500 N thrust
- 100 kg load capacity
- Inline and parallel drive configurations
- Encoder position feedback with slip/stall detection and automatic recovery
- Ball screw and lead screw configurations
- Designed for use with MCC Family controllers or any 2-phase stepper motor controller
- With AutoDetect, Zaber controllers automatically configure settings for the connected peripheral
- Custom versions available

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LRQ-E Series Overview

Zaber's LRQ-E Series products are computer-controlled, motorized linear stages with high stiffness, load, and lifetime capabilities in a compact size. At only 36 mm high, these stages are excellent for applications where a low profile is required. These stages are capable of speeds up to 840 mm/s, and 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. Each device is available in either an inline or parallel drive configuration. The built-in motor encoder allows for closed-loop operation and slip/stall recovery features.

The stages are designed to connect directly to our MCC Family universal motor controllers, or they can be used with any 2-phase stepper motor controller through the panel mount DB15 connector. Set up is easy with AutoDetect. Once connected, the controller will automatically detect and configure the LRQ-E.

For more information visit: https://www.zaber.com/products/linear-stages/LRQ-E

LRQ-E Series Part Numbering & Options

LRQ 075 A L - E01 T3A

Travel
- **075** — 75 mm
- **150** — 150 mm
- **300** — 300 mm
- **450** — 450 mm
- **600** — 600 mm

Drive Screw Options
- **A** — Fine pitch lead screw
- **B** — Medium pitch lead screw
- **D** — Coarse pitch lead screw
- **H** — Fine pitch ball screw

Drive Configuration
- **L** — Inline
- **P** — Parallel

Encoder Options
- **E01** — Motor Encoder, 500 CPR

Connector
- **T3A** — D-sub 15 panel mount connector with Auto Detect

LRQ-E Series Drawings

• View all drawings and documents at zaber.com

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LRQ-E Series Specifications

Overview

Specification	Value
Built-in Controller	No
Recommended Controller	MCC (48 V) Recommended
AutoDetect	Yes
Axes of Motion	1

Positioning Performance

Specification	Value
Default Resolution	1/64 of a step

Load Performance

Specification	Value
Maximum Centered Load	1000 N (224.3 lb)
Maximum Moment (Pitch)	30 N·m (22.1 lb·ft)
Maximum Moment (Roll)	30 N·m (22.14 lb·ft)
Maximum Moment (Yaw)	30 N·m (22.14 lb·ft)
Stiffness (Pitch)	500 N·m/°
Stiffness (Roll)	1180 N·m/°
Stiffness (Yaw)	450 N·m/°

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Encoder & Sensing

Specification	Value
Encoder Type	Rotary quadrature encoder (incremental)
Encoder Resolution	500 CPR (2 states/rev)
Limit or Home Sensing	Magnetic home sensor

Motor

Specification	Value
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	2300 mA/phase
Motor Winding Resistance	1 ohms/phase
Motor Winding Inductance	2.2 mH/phase
Motor Connection	D-sub 15

Mechanical

Specification	Value
Guide Type	Recirculating Ball Linear Guide
Mounting Interface	M6 and M3 threaded holes

Environmental & Compliance

Specification	Value
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No

Part Number	Travel Range	Weight	Accuracy (unidirectional)	Repeatability

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LRQ075AL-E01T3A	75 mm (2.953 ")	2.15 kg (4.74 lb)	23 µm (0.000906 ")	<2.5 µm (<0.000098 ")
LRQ075AP-E01T3A	75 mm (2.953 ")	2.29 kg (5.049 lb)	23 µm (0.000906 ")	<2.5 µm (<0.000098 ")
LRQ075BL-E01T3A	75 mm (2.953 ")	2.15 kg (4.74 lb)	15 µm (0.000591 ")	<2.5 µm (<0.000098 ")
LRQ075BP-E01T3A	75 mm (2.953 ")	2.29 kg (5.049 lb)	15 µm (0.000591 ")	<2.5 µm (<0.000098 ")
LRQ075DL-E01T3A	75 mm (2.953 ")	2.15 kg (4.74 lb)	48 µm (0.00189 ")	<3 µm (<0.000118 ")
LRQ075DP-E01T3A	75 mm (2.953 ")	2.29 kg (5.049 lb)	48 µm (0.00189 ")	<3 µm (<0.000118 ")
LRQ075HL-E01T3A	75 mm (2.953 ")	2.15 kg (4.74 lb)	17.5 µm (0.000689 ")	<5 µm (<0.000197 ")
LRQ075HP-E01T3A	75 mm (2.953 ")	2.29 kg (5.049 lb)	27.5 µm (0.001083 ")	<5 µm (<0.000197 ")
LRQ150AL-E01T3A	150 mm (5.905 ")	2.52 kg (5.556 lb)	45 µm (0.001772 ")	<2.5 µm (<0.000098 ")
LRQ150AP-E01T3A	150 mm (5.905 ")	2.66 kg (5.864 lb)	45 µm (0.001772 ")	<2.5 µm (<0.000098 ")
LRQ150BL-E01T3A	150 mm (5.905 ")	2.52 kg (5.556 lb)	25 µm (0.000984 ")	<2.5 µm (<0.000098 ")
LRQ150BP-E01T3A	150 mm (5.905 ")	2.66 kg (5.864 lb)	25 µm (0.000984 ")	<2.5 µm (<0.000098 ")
LRQ150DL-E01T3A	150 mm (5.905 ")	2.52 kg (5.556 lb)	55 µm (0.002165 ")	<3 µm (<0.000118 ")
LRQ150DP-E01T3A	150 mm (5.905 ")	2.66 kg (5.864 lb)	55 µm (0.002165 ")	<3 µm (<0.000118 ")
LRQ150HL-E01T3A	150 mm (5.905 ")	2.52 kg (5.556 lb)	30 µm (0.001181 ")	<5 µm (<0.000197 ")
LRQ150HP-E01T3A	150 mm (5.905 ")	2.66 kg (5.864 lb)	40 µm (0.001575 ")	<5 µm (<0.000197 ")
LRQ300AL-E01T3A	300 mm (11.811 ")	3.28 kg (7.231 lb)	90 µm (0.003543 ")	<2.5 µm (<0.000098 ")
LRQ300AP-E01T3A	300 mm (11.811 ")	3.42 kg (7.54 lb)	90 µm (0.003543 ")	<2.5 µm (<0.000098 ")
LRQ300BL-E01T3A	300 mm (11.811 ")	3.28 kg (7.231 lb)	35 µm (0.001378 ")	<2.5 µm (<0.000098 ")
LRQ300BP-E01T3A	300 mm (11.811 ")	3.42 kg (7.54 lb)	35 µm (0.001378 ")	<2.5 µm (<0.000098 ")

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LRQ300DL-E01T3A	300 mm (11.811 ")	3.28 kg (7.231 lb)	70 µm (0.002756 ")	<3 µm (<0.000118 ")
LRQ300DP-E01T3A	300 mm (11.811 ")	3.42 kg (7.54 lb)	70 µm (0.002756 ")	<3 µm (<0.000118 ")
LRQ300HL-E01T3A	300 mm (11.811 ")	3.28 kg (7.231 lb)	55 µm (0.002165 ")	<5 µm (<0.000197 ")
LRQ300HP-E01T3A	300 mm (11.811 ")	3.42 kg (7.54 lb)	65 µm (0.002559 ")	<5 µm (<0.000197 ")
LRQ450AL-E01T3A	450 mm (17.716 ")	4.03 kg (8.885 lb)	135 µm (0.005315 ")	<2.5 µm (<0.000098 ")
LRQ450AP-E01T3A	450 mm (17.716 ")	4.17 kg (9.193 lb)	135 µm (0.005315 ")	<2.5 µm (<0.000098 ")
LRQ450BL-E01T3A	450 mm (17.716 ")	4.03 kg (8.885 lb)	60 µm (0.002362 ")	<2.5 µm (<0.000098 ")
LRQ450BP-E01T3A	450 mm (17.716 ")	4.17 kg (9.193 lb)	60 µm (0.002362 ")	<2.5 µm (<0.000098 ")
LRQ450DL-E01T3A	450 mm (17.716 ")	4.03 kg (8.885 lb)	85 µm (0.003346 ")	<3 µm (<0.000118 ")
LRQ450DP-E01T3A	450 mm (17.716 ")	4.17 kg (9.193 lb)	85 µm (0.003346 ")	<3 µm (<0.000118 ")
LRQ450HL-E01T3A	450 mm (17.716 ")	4.03 kg (8.885 lb)	85 µm (0.003346 ")	<5 µm (<0.000197 ")
LRQ450HP-E01T3A	450 mm (17.716 ")	4.17 kg (9.193 lb)	95 µm (0.00374 ")	<5 µm (<0.000197 ")
LRQ600AL-E01T3A	600 mm (23.622 ")	4.74 kg (10.45 lb)	150 µm (0.005905 ")	<2.5 µm (<0.000098 ")
LRQ600AP-E01T3A	600 mm (23.622 ")	4.88 kg (10.759 lb)	150 µm (0.005905 ")	<2.5 µm (<0.000098 ")
LRQ600BL-E01T3A	600 mm (23.622 ")	4.74 kg (10.45 lb)	90 µm (0.003543 ")	<2.5 µm (<0.000098 ")
LRQ600BP-E01T3A	600 mm (23.622 ")	4.88 kg (10.759 lb)	90 µm (0.003543 ")	<2.5 µm (<0.000098 ")
LRQ600DL-E01T3A	600 mm (23.622 ")	4.74 kg (10.45 lb)	100 µm (0.003937 ")	<3 µm (<0.000118 ")
LRQ600DP-E01T3A	600 mm (23.622 ")	4.88 kg (10.759 lb)	100 µm (0.003937 ")	<3 µm (<0.000118 ")
LRQ600HL-E01T3A	600 mm (23.622 ")	4.74 kg (10.45 lb)	115 µm (0.004528 ")	<5 µm (<0.000197 ")
LRQ600HP-E01T3A	600 mm (23.622 ")	4.88 kg (10.759 lb)	125 µm (0.004921 ")	<5 µm (<0.000197 ")

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Part Number	Backlash	Flatness of Travel	Straightness of Travel	Pitch Error
LRQ075AL-E01T3A	<15 µm (<0.000591 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
LRQ075AP-E01T3A	<15 µm (<0.000591 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
LRQ075BL-E01T3A	<35 µm (<0.001378 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
LRQ075BP-E01T3A	<35 µm (<0.001378 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
LRQ075DL-E01T3A	<150 µm (<0.005905 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
LRQ075DP-E01T3A	<150 µm (<0.005905 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
LRQ075HL-E01T3A	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
LRQ075HP-E01T3A	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
LRQ150AL-E01T3A	<15 µm (<0.000591 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
LRQ150AP-E01T3A	<15 µm (<0.000591 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
LRQ150BL-E01T3A	<35 µm (<0.001378 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
LRQ150BP-E01T3A	<35 µm (<0.001378 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
LRQ150DL-E01T3A	<150 µm (<0.005905 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
LRQ150DP-E01T3A	<150 µm (<0.005905 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
LRQ150HL-E01T3A	<25 µm (<0.000984 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
LRQ150HP-E01T3A	<25 µm (<0.000984 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)
LRQ300AL-E01T3A	<15 µm (<0.000591 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
LRQ300AP-E01T3A	<15 µm (<0.000591 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
LRQ300BL-E01T3A	<35 µm (<0.001378 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)

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LRQ300BP-E01T3A	<35 µm (<0.001378 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
LRQ300DL-E01T3A	<150 µm (<0.005905 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
LRQ300DP-E01T3A	<150 µm (<0.005905 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
LRQ300HL-E01T3A	<25 µm (<0.000984 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
LRQ300HP-E01T3A	<25 µm (<0.000984 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
LRQ450AL-E01T3A	<15 µm (<0.000591 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
LRQ450AP-E01T3A	<15 µm (<0.000591 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
LRQ450BL-E01T3A	<35 µm (<0.001378 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
LRQ450BP-E01T3A	<35 µm (<0.001378 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
LRQ450DL-E01T3A	<150 µm (<0.005905 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
LRQ450DP-E01T3A	<150 µm (<0.005905 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
LRQ450HL-E01T3A	<25 µm (<0.000984 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
LRQ450HP-E01T3A	<25 µm (<0.000984 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
LRQ600AL-E01T3A	<15 µm (<0.000591 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
LRQ600AP-E01T3A	<15 µm (<0.000591 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
LRQ600BL-E01T3A	<35 µm (<0.001378 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
LRQ600BP-E01T3A	<35 µm (<0.001378 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
LRQ600DL-E01T3A	<150 µm (<0.005905 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
LRQ600DP-E01T3A	<150 µm (<0.005905 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
LRQ600HL-E01T3A	<25 µm (<0.000984 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)

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LRQ600HP-E01T3A	<25 µm (<0.000984 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)

Part Number	Roll Error	Yaw Error	Microstep Size (Default Resolution)	Peak Thrust
LRQ075AL-E01T3A	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)
LRQ075AP-E01T3A	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)
LRQ075BL-E01T3A	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)
LRQ075BP-E01T3A	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)
LRQ075DL-E01T3A	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	1.984375 µm	35 N (7.8 lb)
LRQ075DP-E01T3A	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	1.984375 µm	35 N (7.8 lb)
LRQ075HL-E01T3A	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)
LRQ075HP-E01T3A	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)
LRQ150AL-E01T3A	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)
LRQ150AP-E01T3A	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)
LRQ150BL-E01T3A	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)
LRQ150BP-E01T3A	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)
LRQ150DL-E01T3A	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	1.984375 µm	35 N (7.8 lb)
LRQ150DP-E01T3A	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	1.984375 µm	35 N (7.8 lb)
LRQ150HL-E01T3A	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)
LRQ150HP-E01T3A	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)
LRQ300AL-E01T3A	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.09921875 µm	230 N (51.6 lb)

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LRQ300AP-E01T3A	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.09921875 µm	230 N (51.6 lb)
LRQ300BL-E01T3A	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.49609375 µm	150 N (33.6 lb)
LRQ300BP-E01T3A	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.49609375 µm	150 N (33.6 lb)
LRQ300DL-E01T3A	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	1.984375 µm	35 N (7.8 lb)
LRQ300DP-E01T3A	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	1.984375 µm	35 N (7.8 lb)
LRQ300HL-E01T3A	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.1953125 µm	500 N (112.1 lb)
LRQ300HP-E01T3A	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.1953125 µm	500 N (112.1 lb)
LRQ450AL-E01T3A	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)
LRQ450AP-E01T3A	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)
LRQ450BL-E01T3A	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)
LRQ450BP-E01T3A	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)
LRQ450DL-E01T3A	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	1.984375 µm	35 N (7.8 lb)
LRQ450DP-E01T3A	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	1.984375 µm	35 N (7.8 lb)
LRQ450HL-E01T3A	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)
LRQ450HP-E01T3A	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)
LRQ600AL-E01T3A	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)
LRQ600AP-E01T3A	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)
LRQ600BL-E01T3A	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)
LRQ600BP-E01T3A	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)
LRQ600DL-E01T3A	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	1.984375 µm	35 N (7.8 lb)

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LRQ600DP-E01T3A	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	1.984375 µm	35 N (7.8 lb)
LRQ600HL-E01T3A	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)
LRQ600HP-E01T3A	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)

Part Number	Maximum Continuous Thrust	Back-driving Force*	Maximum Speed	Minimum Speed
LRQ075AL-E01T3A	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ075AP-E01T3A	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ075BL-E01T3A	100 N (22.4 lb)	93 (± 30%) N (20.9 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ075BP-E01T3A	100 N (22.4 lb)	123 (± 30%) N (27.6 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ075DL-E01T3A	35 N (7.8 lb)	14 (± 30%) N (3.1 lb)	840 mm/s (33.071 "/s)	0.001211 mm/s (0.000048 "/s)
LRQ075DP-E01T3A	35 N (7.8 lb)	45 (± 30%) N (10.1 lb)	840 mm/s (33.071 "/s)	0.001211 mm/s (0.000048 "/s)
LRQ075HL-E01T3A	200 N (44.9 lb)	93 (± 30%) N (20.9 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ075HP-E01T3A	200 N (44.9 lb)	123 (± 30%) N (27.6 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ150AL-E01T3A	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ150AP-E01T3A	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ150BL-E01T3A	100 N (22.4 lb)	93 (± 30%) N (20.9 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ150BP-E01T3A	100 N (22.4 lb)	123 (± 30%) N (27.6 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ150DL-E01T3A	35 N (7.8 lb)	14 (± 30%) N (3.1 lb)	840 mm/s (33.071 "/s)	0.001211 mm/s (0.000048 "/s)
LRQ150DP-E01T3A	35 N (7.8 lb)	45 (± 30%) N (10.1 lb)	840 mm/s (33.071 "/s)	0.001211 mm/s (0.000048 "/s)
LRQ150HL-E01T3A	200 N (44.9 lb)	93 (± 30%) N (20.9 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)

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LRQ150HP-E01T3A	200 N (44.9 lb)	123 (± 30%) N (27.6 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ300AL-E01T3A	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ300AP-E01T3A	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ300BL-E01T3A	100 N (22.4 lb)	93 (± 30%) N (20.9 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ300BP-E01T3A	100 N (22.4 lb)	123 (± 30%) N (27.6 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ300DL-E01T3A	35 N (7.8 lb)	14 (± 30%) N (3.1 lb)	840 mm/s (33.071 "/s)	0.001211 mm/s (0.000048 "/s)
LRQ300DP-E01T3A	35 N (7.8 lb)	45 (± 30%) N (10.1 lb)	840 mm/s (33.071 "/s)	0.001211 mm/s (0.000048 "/s)
LRQ300HL-E01T3A	200 N (44.9 lb)	93 (± 30%) N (20.9 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ300HP-E01T3A	200 N (44.9 lb)	123 (± 30%) N (27.6 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ450AL-E01T3A	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ450AP-E01T3A	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ450BL-E01T3A	100 N (22.4 lb)	93 (± 30%) N (20.9 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ450BP-E01T3A	100 N (22.4 lb)	123 (± 30%) N (27.6 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ450DL-E01T3A	35 N (7.8 lb)	14 (± 30%) N (3.1 lb)	840 mm/s (33.071 "/s)	0.001211 mm/s (0.000048 "/s)
LRQ450DP-E01T3A	35 N (7.8 lb)	45 (± 30%) N (10.1 lb)	840 mm/s (33.071 "/s)	0.001211 mm/s (0.000048 "/s)
LRQ450HL-E01T3A	200 N (44.9 lb)	93 (± 30%) N (20.9 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ450HP-E01T3A	200 N (44.9 lb)	123 (± 30%) N (27.6 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ600AL-E01T3A	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ600AP-E01T3A	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ600BL-E01T3A	100 N (22.4 lb)	93 (± 30%) N (20.9 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)

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LRQ600BP-E01T3A	100 N (22.4 lb)	123 (± 30%) N (27.6 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ600DL-E01T3A	35 N (7.8 lb)	14 (± 30%) N (3.1 lb)	840 mm/s (33.071 "/s)	0.001211 mm/s (0.000048 "/s)
LRQ600DP-E01T3A	35 N (7.8 lb)	45 (± 30%) N (10.1 lb)	840 mm/s (33.071 "/s)	0.001211 mm/s (0.000048 "/s)
LRQ600HL-E01T3A	200 N (44.9 lb)	93 (± 30%) N (20.9 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ600HP-E01T3A	200 N (44.9 lb)	123 (± 30%) N (27.6 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)

Part Number	Speed Resolution	Linear Motion Per Motor Rev	Mechanical Drive System
LRQ075AL-E01T3A	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
LRQ075AP-E01T3A	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
LRQ075BL-E01T3A	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
LRQ075BP-E01T3A	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
LRQ075DL-E01T3A	0.001211 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
LRQ075DP-E01T3A	0.001211 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
LRQ075HL-E01T3A	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
LRQ075HP-E01T3A	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
LRQ150AL-E01T3A	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
LRQ150AP-E01T3A	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
LRQ150BL-E01T3A	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
LRQ150BP-E01T3A	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
LRQ150DL-E01T3A	0.001211 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw

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LRQ150DP-E01T3A	0.001211 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
LRQ150HL-E01T3A	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
LRQ150HP-E01T3A	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
LRQ300AL-E01T3A	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
LRQ300AP-E01T3A	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
LRQ300BL-E01T3A	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
LRQ300BP-E01T3A	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
LRQ300DL-E01T3A	0.001211 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
LRQ300DP-E01T3A	0.001211 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
LRQ300HL-E01T3A	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
LRQ300HP-E01T3A	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
LRQ450AL-E01T3A	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
LRQ450AP-E01T3A	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
LRQ450BL-E01T3A	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
LRQ450BP-E01T3A	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
LRQ450DL-E01T3A	0.001211 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
LRQ450DP-E01T3A	0.001211 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
LRQ450HL-E01T3A	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
LRQ450HP-E01T3A	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
LRQ600AL-E01T3A	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw

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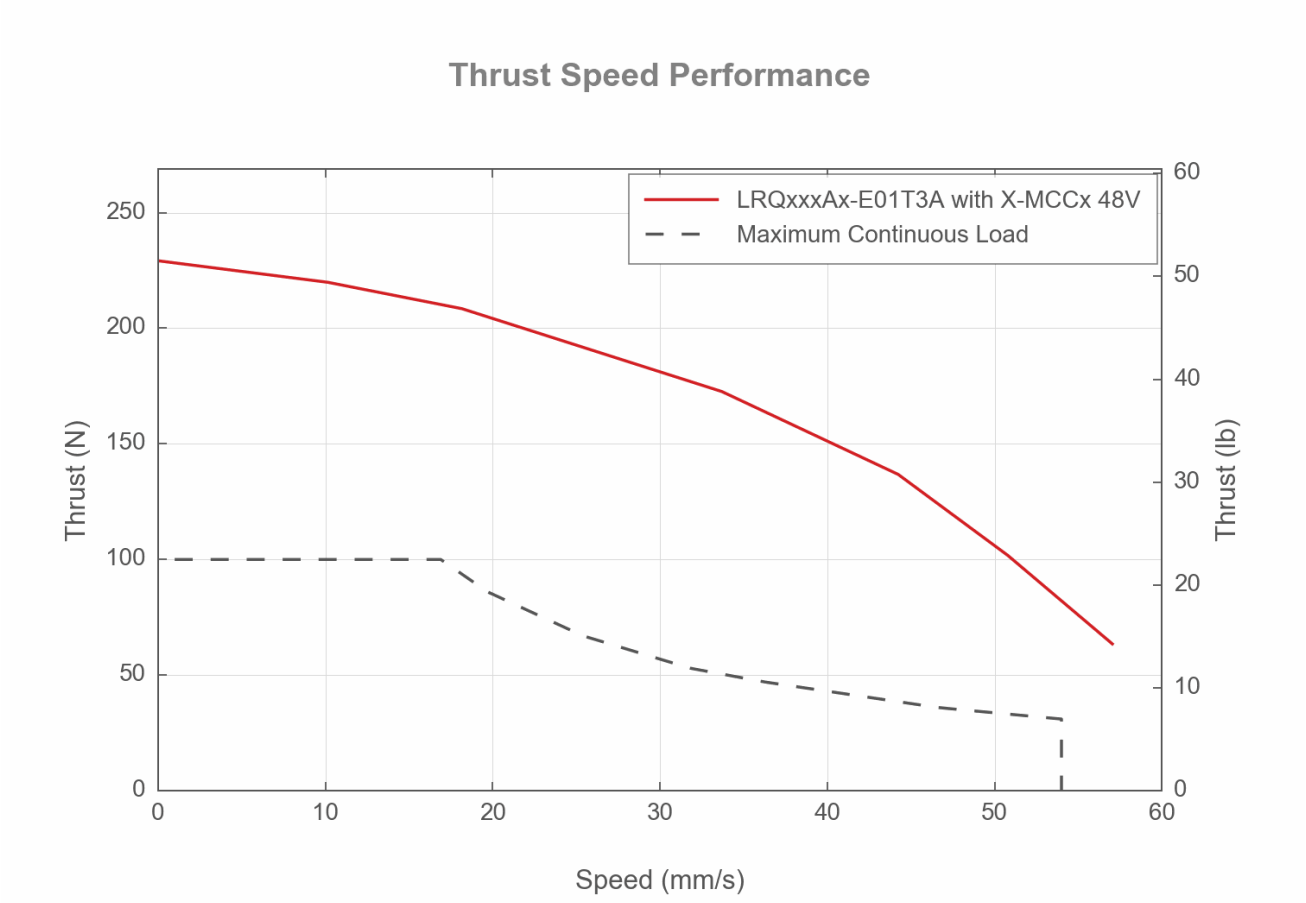
LRQ600AP-E01T3A	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
LRQ600BL-E01T3A	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
LRQ600BP-E01T3A	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
LRQ600DL-E01T3A	0.001211 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
LRQ600DP-E01T3A	0.001211 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
LRQ600HL-E01T3A	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
LRQ600HP-E01T3A	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw

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LRQ-E Series Charts

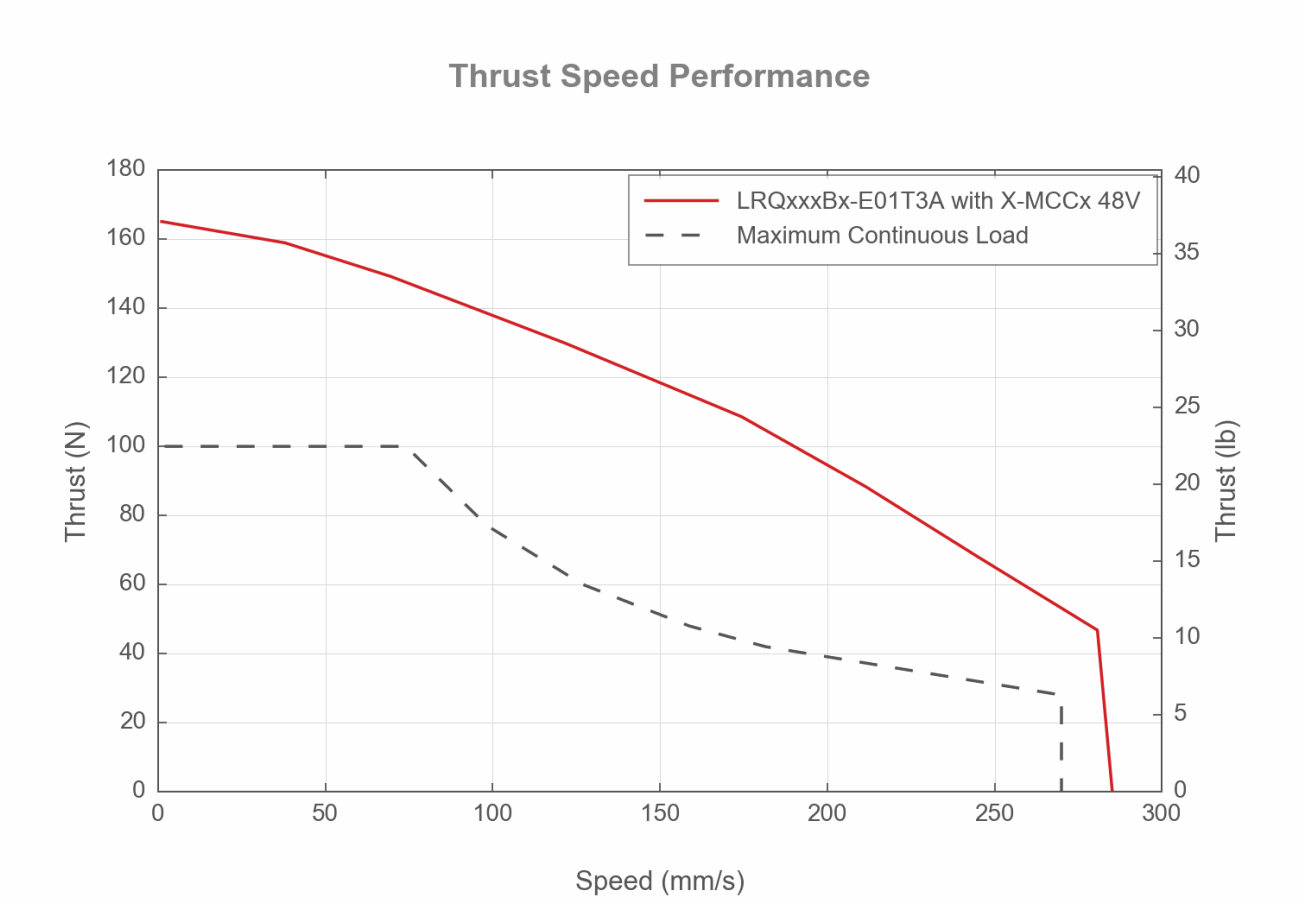
LRQxxxAx E01T3A THRUST SPEED



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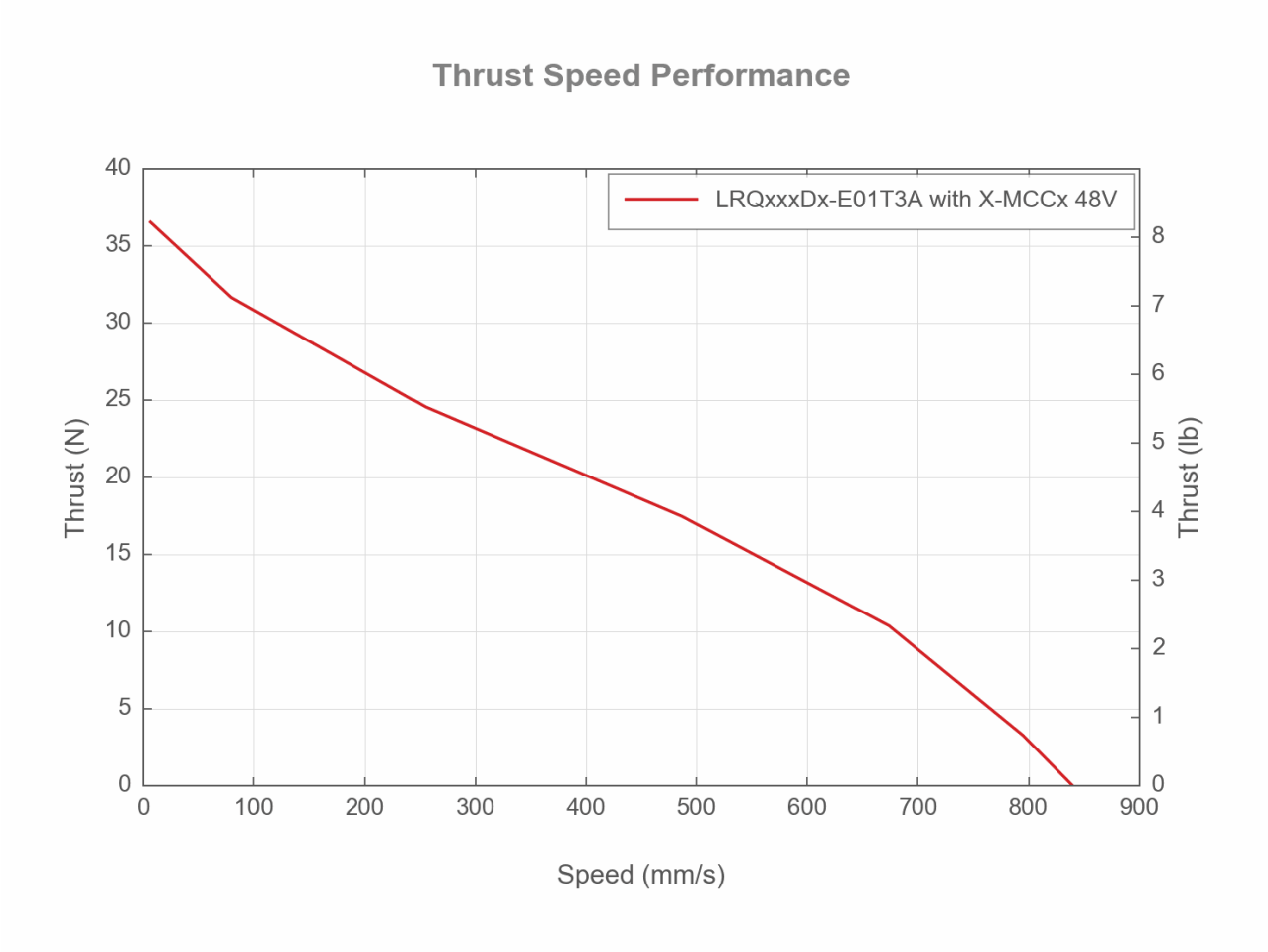
LRQxxxBx E01T3A THRUST SPEED



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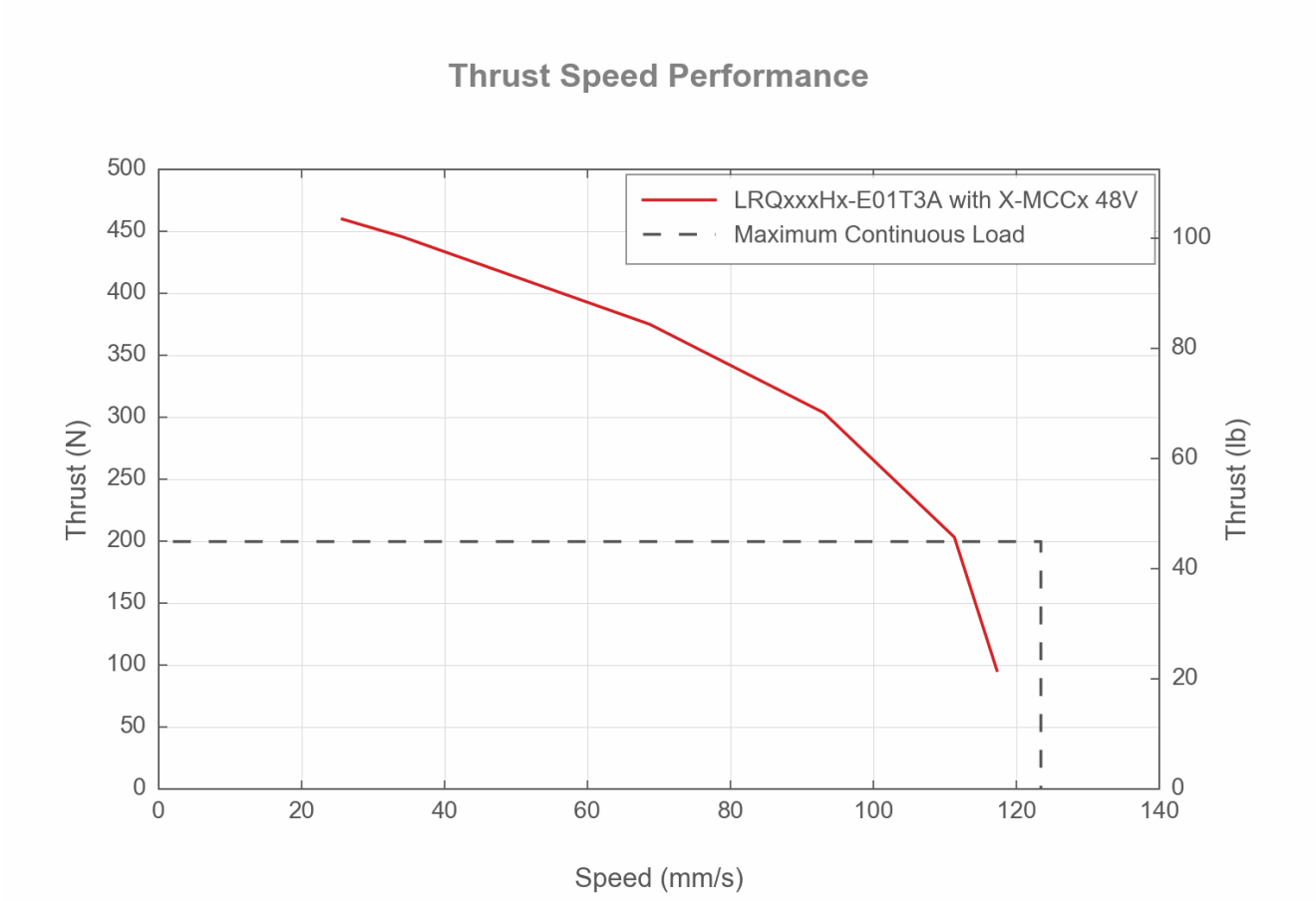
LRQxxxDx E01T3A THRUST SPEED



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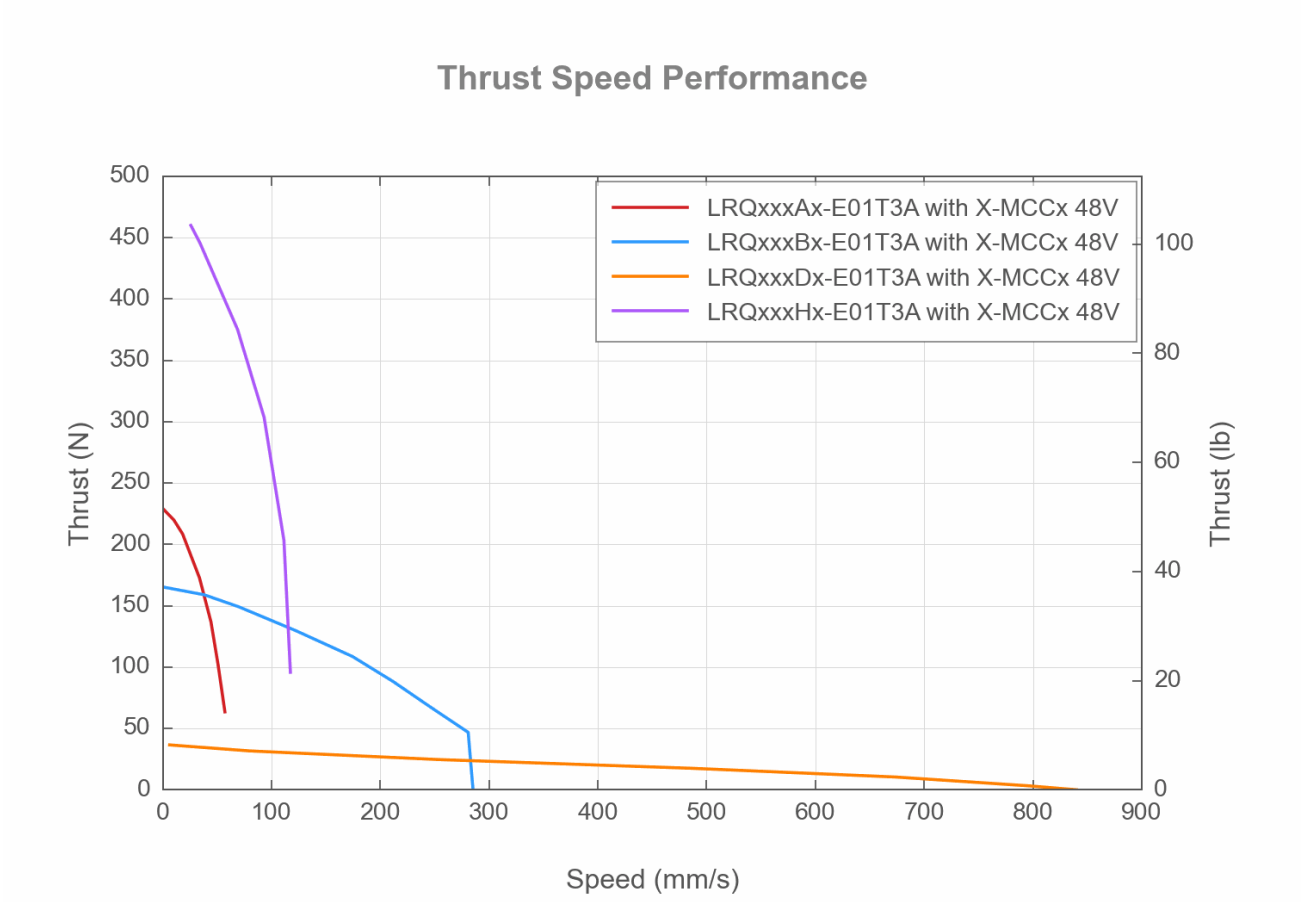
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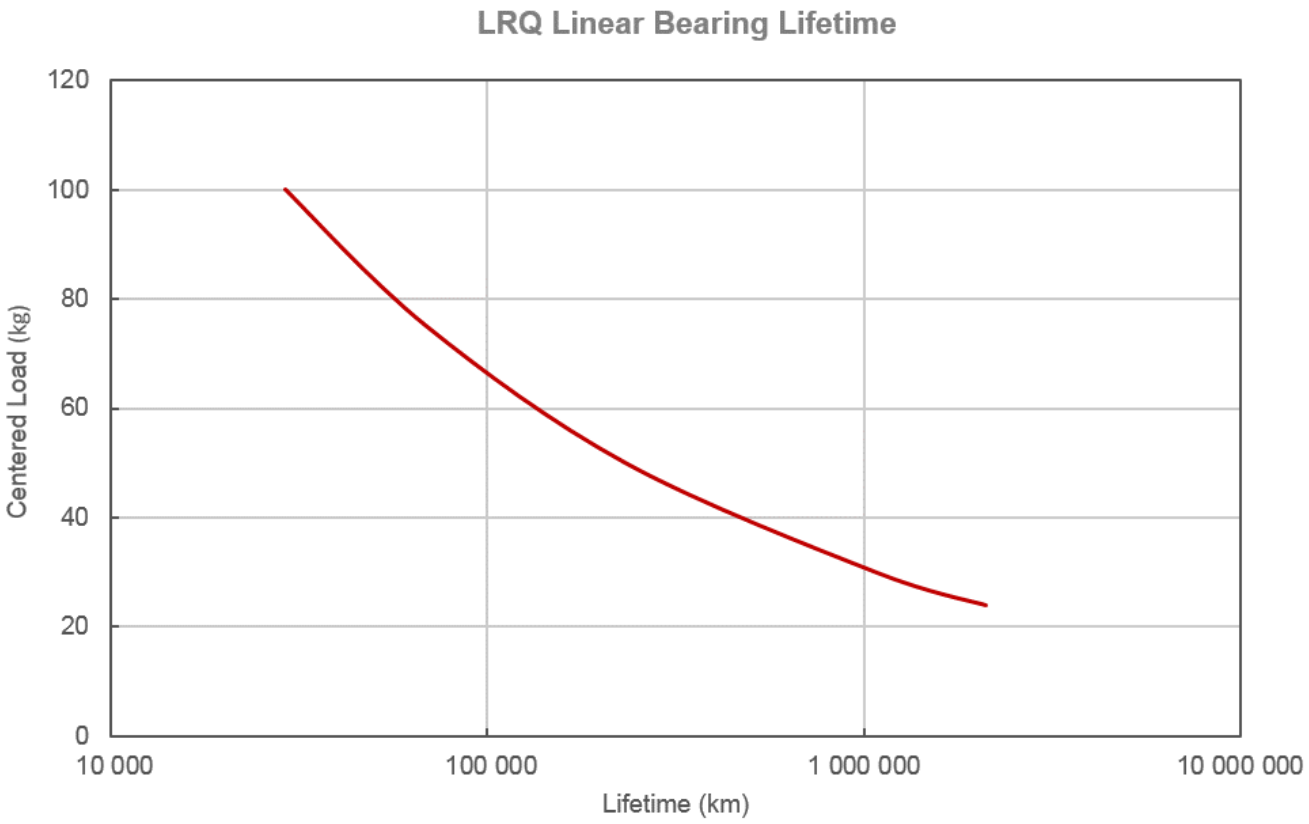
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LRQxxxxx E01T3A THRUST SPEED



LRQ Lifetime



Contact

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LRQ-EC Series Datasheet



- 75, 150, 300, 450, 600 mm travel
- Up to 840 mm/s speed and up to 500 N thrust
- 100 kg load capacity
- Includes stainless steel dust cover
- Ball screw and lead screw configurations
- Inline and parallel drive configurations
- Encoder position feedback with slip/stall detection and automatic recovery
- Designed for use with MCC Family controllers or any 2-phase stepper motor controller
- With AutoDetect, Zaber controllers automatically configure settings for the connected peripheral
- Custom versions available

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LRQ-EC Series Overview

Zaber's LRQ-EC Series products are computer-controlled, motorized linear stages with high stiffness, load, and lifetime capabilities in a compact size. A flexible stainless steel dust cover prevents the ingress of small objects. At only 48 mm high, these stages are excellent for applications where a low profile is required. These stages are capable of speeds up to 840 mm/s, and 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. Each device is available in either an inline or parallel drive configuration. The built-in motor encoder allows for closed-loop operation and slip/stall recovery features.

The stages are designed to connect directly to our MCC Family universal motor controllers, or they can be used with any 2-phase stepper motor controller through the panel mount DB15 connector. Set up is easy with AutoDetect. Once connected, the controller will automatically detect and configure the LRQ-EC.

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

LRQ-EC Series Part Numbering & Options

LRQ 075 A L - E01 C T3A

Travel
- **075** — 75 mm
- **150** — 150 mm
- **300** — 300 mm
- **450** — 450 mm
- **600** — 600 mm

Drive Screw Options
- **A** — Fine pitch lead screw
- **B** — Medium pitch lead screw
- **D** — Coarse pitch lead screw
- **H** — Fine pitch ball screw

Drive Configuration
- **L** — Inline
- **P** — Parallel

Encoder Options
- **E01** — Motor Encoder, 500 CPR

Cover
- **C** — Stainless Steel Dust Cover

Connector
- **T3A** — D-sub 15 panel mount connector with Auto Detect

LRQ-EC Series Drawings

• View all drawings and documents at zaber.com

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LRQ-EC Series Specifications

Overview

Specification	Value
Built-in Controller	No
Recommended Controller	MCC (48 V) Recommended
AutoDetect	Yes
Axes of Motion	1

Positioning Performance

Specification	Value
Default Resolution	1/64 of a step

Load Performance

Specification	Value
Maximum Centered Load	1000 N (224.3 lb)
Maximum Moment (Pitch)	30 N·m (22.1 lb·ft)
Maximum Moment (Roll)	30 N·m (22.14 lb·ft)
Maximum Moment (Yaw)	30 N·m (22.14 lb·ft)
Stiffness (Pitch)	250 N·m/°
Stiffness (Roll)	600 N·m/°
Stiffness (Yaw)	430 N·m/°

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Encoder & Sensing

Specification	Value
Encoder Type	Rotary quadrature encoder (incremental)
Encoder Resolution	500 CPR (2 states/rev)
Limit or Home Sensing	Magnetic home sensor

Motor

Specification	Value
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	2300 mA/phase
Motor Winding Resistance	1 ohms/phase
Motor Winding Inductance	2.2 mH/phase
Motor Connection	D-sub 15

Mechanical

Specification	Value
Guide Type	Recirculating Ball Linear Guide
Mounting Interface	M6 and M3 threaded holes

Environmental & Compliance

Specification	Value
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	No

Part Number	Travel Range	Weight	Accuracy (unidirectional)	Repeatability

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LRQ075AL-E01CT3A	75 mm (2.953 ")	2.34 kg (5.159 lb)	23 µm (0.000906 ")	<3.5 µm (<0.000138 ")
LRQ075AP-E01CT3A	75 mm (2.953 ")	2.5 kg (5.512 lb)	23 µm (0.000906 ")	<3.5 µm (<0.000138 ")
LRQ075BL-E01CT3A	75 mm (2.953 ")	2.34 kg (5.159 lb)	23 µm (0.000906 ")	<3.5 µm (<0.000138 ")
LRQ075BP-E01CT3A	75 mm (2.953 ")	2.5 kg (5.512 lb)	23 µm (0.000906 ")	<3.5 µm (<0.000138 ")
LRQ075DL-E01CT3A	75 mm (2.953 ")	2.34 kg (5.159 lb)	108 µm (0.004252 ")	<4 µm (<0.000157 ")
LRQ075DP-E01CT3A	75 mm (2.953 ")	2.5 kg (5.512 lb)	108 µm (0.004252 ")	<4 µm (<0.000157 ")
LRQ075HL-E01CT3A	75 mm (2.953 ")	2.34 kg (5.159 lb)	32.5 µm (0.00128 ")	<5 µm (<0.000197 ")
LRQ075HP-E01CT3A	75 mm (2.953 ")	2.5 kg (5.512 lb)	42.5 µm (0.001673 ")	<5 µm (<0.000197 ")
LRQ150AL-E01CT3A	150 mm (5.905 ")	2.72 kg (5.997 lb)	45 µm (0.001772 ")	<3.5 µm (<0.000138 ")
LRQ150AP-E01CT3A	150 mm (5.905 ")	2.88 kg (6.349 lb)	45 µm (0.001772 ")	<3.5 µm (<0.000138 ")
LRQ150BL-E01CT3A	150 mm (5.905 ")	2.72 kg (5.997 lb)	32 µm (0.00126 ")	<3.5 µm (<0.000138 ")
LRQ150BP-E01CT3A	150 mm (5.905 ")	2.88 kg (6.349 lb)	32 µm (0.00126 ")	<3.5 µm (<0.000138 ")
LRQ150DL-E01CT3A	150 mm (5.905 ")	2.72 kg (5.997 lb)	115 µm (0.004528 ")	<4 µm (<0.000157 ")
LRQ150DP-E01CT3A	150 mm (5.905 ")	2.88 kg (6.349 lb)	115 µm (0.004528 ")	<4 µm (<0.000157 ")
LRQ150HL-E01CT3A	150 mm (5.905 ")	2.72 kg (5.997 lb)	45 µm (0.001772 ")	<5 µm (<0.000197 ")
LRQ150HP-E01CT3A	150 mm (5.905 ")	2.88 kg (6.349 lb)	55 µm (0.002165 ")	<5 µm (<0.000197 ")
LRQ300AL-E01CT3A	300 mm (11.811 ")	3.63 kg (8.003 lb)	90 µm (0.003543 ")	<3.5 µm (<0.000138 ")
LRQ300AP-E01CT3A	300 mm (11.811 ")	3.79 kg (8.356 lb)	90 µm (0.003543 ")	<3.5 µm (<0.000138 ")
LRQ300BL-E01CT3A	300 mm (11.811 ")	3.63 kg (8.003 lb)	43 µm (0.001693 ")	<3.5 µm (<0.000138 ")
LRQ300BP-E01CT3A	300 mm (11.811 ")	3.79 kg (8.356 lb)	43 µm (0.001693 ")	<3.5 µm (<0.000138 ")

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LRQ300DL-E01CT3A	300 mm (11.811 ")	3.63 kg (8.003 lb)	130 µm (0.005118 ")	<4 µm (<0.000157 ")
LRQ300DP-E01CT3A	300 mm (11.811 ")	3.79 kg (8.356 lb)	130 µm (0.005118 ")	<4 µm (<0.000157 ")
LRQ300HL-E01CT3A	300 mm (11.811 ")	3.63 kg (8.003 lb)	70 µm (0.002756 ")	<5 µm (<0.000197 ")
LRQ300HP-E01CT3A	300 mm (11.811 ")	3.79 kg (8.356 lb)	80 µm (0.00315 ")	<5 µm (<0.000197 ")
LRQ450AL-E01CT3A	450 mm (17.716 ")	4.44 kg (9.789 lb)	135 µm (0.005315 ")	<3.5 µm (<0.000138 ")
LRQ450AP-E01CT3A	450 mm (17.716 ")	4.6 kg (10.141 lb)	135 µm (0.005315 ")	<3.5 µm (<0.000138 ")
LRQ450BL-E01CT3A	450 mm (17.716 ")	4.44 kg (9.789 lb)	68 µm (0.002677 ")	<3.5 µm (<0.000138 ")
LRQ450BP-E01CT3A	450 mm (17.716 ")	4.6 kg (10.141 lb)	68 µm (0.002677 ")	<3.5 µm (<0.000138 ")
LRQ450DL-E01CT3A	450 mm (17.716 ")	4.44 kg (9.789 lb)	145 µm (0.005709 ")	<4 µm (<0.000157 ")
LRQ450DP-E01CT3A	450 mm (17.716 ")	4.6 kg (10.141 lb)	145 µm (0.005709 ")	<4 µm (<0.000157 ")
LRQ450HL-E01CT3A	450 mm (17.716 ")	4.44 kg (9.789 lb)	100 µm (0.003937 ")	<5 µm (<0.000197 ")
LRQ450HP-E01CT3A	450 mm (17.716 ")	4.6 kg (10.141 lb)	110 µm (0.004331 ")	<5 µm (<0.000197 ")
LRQ600AL-E01CT3A	600 mm (23.622 ")	5.22 kg (11.508 lb)	150 µm (0.005905 ")	<3.5 µm (<0.000138 ")
LRQ600AP-E01CT3A	600 mm (23.622 ")	5.38 kg (11.861 lb)	150 µm (0.005905 ")	<3.5 µm (<0.000138 ")
LRQ600BL-E01CT3A	600 mm (23.622 ")	5.22 kg (11.508 lb)	98 µm (0.003858 ")	<3.5 µm (<0.000138 ")
LRQ600BP-E01CT3A	600 mm (23.622 ")	5.38 kg (11.861 lb)	98 µm (0.003858 ")	<3.5 µm (<0.000138 ")
LRQ600DL-E01CT3A	600 mm (23.622 ")	5.22 kg (11.508 lb)	160 µm (0.006299 ")	<4 µm (<0.000157 ")
LRQ600DP-E01CT3A	600 mm (23.622 ")	5.38 kg (11.861 lb)	160 µm (0.006299 ")	<4 µm (<0.000157 ")
LRQ600HL-E01CT3A	600 mm (23.622 ")	5.22 kg (11.508 lb)	130 µm (0.005118 ")	<5 µm (<0.000197 ")
LRQ600HP-E01CT3A	600 mm (23.622 ")	5.38 kg (11.861 lb)	140 µm (0.005512 ")	<5 µm (<0.000197 ")

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Part Number	Backlash	Flatness of Travel	Straightness of Travel	Pitch Error
LRQ075AL-E01CT3A	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
LRQ075AP-E01CT3A	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
LRQ075BL-E01CT3A	<35 µm (<0.001378 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
LRQ075BP-E01CT3A	<35 µm (<0.001378 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
LRQ075DL-E01CT3A	<150 µm (<0.005905 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
LRQ075DP-E01CT3A	<150 µm (<0.005905 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
LRQ075HL-E01CT3A	<35 µm (<0.001378 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
LRQ075HP-E01CT3A	<35 µm (<0.001378 ")	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)
LRQ150AL-E01CT3A	<25 µm (<0.000984 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.030 ° (0.523 mrad)
LRQ150AP-E01CT3A	<25 µm (<0.000984 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.030 ° (0.523 mrad)
LRQ150BL-E01CT3A	<35 µm (<0.001378 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.030 ° (0.523 mrad)
LRQ150BP-E01CT3A	<35 µm (<0.001378 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.030 ° (0.523 mrad)
LRQ150DL-E01CT3A	<150 µm (<0.005905 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.030 ° (0.523 mrad)
LRQ150DP-E01CT3A	<150 µm (<0.005905 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.030 ° (0.523 mrad)
LRQ150HL-E01CT3A	<35 µm (<0.001378 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.030 ° (0.523 mrad)
LRQ150HP-E01CT3A	<35 µm (<0.001378 ")	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.030 ° (0.523 mrad)
LRQ300AL-E01CT3A	<25 µm (<0.000984 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
LRQ300AP-E01CT3A	<25 µm (<0.000984 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
LRQ300BL-E01CT3A	<35 µm (<0.001378 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)

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LRQ300BP-E01CT3A	<35 µm (<0.001378 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
LRQ300DL-E01CT3A	<150 µm (<0.005905 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
LRQ300DP-E01CT3A	<150 µm (<0.005905 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
LRQ300HL-E01CT3A	<35 µm (<0.001378 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
LRQ300HP-E01CT3A	<35 µm (<0.001378 ")	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)
LRQ450AL-E01CT3A	<25 µm (<0.000984 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
LRQ450AP-E01CT3A	<25 µm (<0.000984 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
LRQ450BL-E01CT3A	<35 µm (<0.001378 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
LRQ450BP-E01CT3A	<35 µm (<0.001378 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
LRQ450DL-E01CT3A	<150 µm (<0.005905 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
LRQ450DP-E01CT3A	<150 µm (<0.005905 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
LRQ450HL-E01CT3A	<35 µm (<0.001378 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
LRQ450HP-E01CT3A	<35 µm (<0.001378 ")	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)
LRQ600AL-E01CT3A	<25 µm (<0.000984 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
LRQ600AP-E01CT3A	<25 µm (<0.000984 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
LRQ600BL-E01CT3A	<35 µm (<0.001378 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
LRQ600BP-E01CT3A	<35 µm (<0.001378 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
LRQ600DL-E01CT3A	<150 µm (<0.005905 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
LRQ600DP-E01CT3A	<150 µm (<0.005905 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)
LRQ600HL-E01CT3A	<35 µm (<0.001378 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)

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LRQ600HP-E01CT3A	<35 µm (<0.001378 ")	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)

Part Number	Roll Error	Yaw Error	Microstep Size (Default Resolution)	Peak Thrust
LRQ075AL-E01CT3A	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)
LRQ075AP-E01CT3A	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)
LRQ075BL-E01CT3A	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)
LRQ075BP-E01CT3A	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)
LRQ075DL-E01CT3A	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	1.984375 µm	35 N (7.8 lb)
LRQ075DP-E01CT3A	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	1.984375 µm	35 N (7.8 lb)
LRQ075HL-E01CT3A	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)
LRQ075HP-E01CT3A	0.01 ° (0.174 mrad)	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)
LRQ150AL-E01CT3A	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)
LRQ150AP-E01CT3A	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.09921875 µm	230 N (51.6 lb)
LRQ150BL-E01CT3A	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)
LRQ150BP-E01CT3A	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.49609375 µm	150 N (33.6 lb)
LRQ150DL-E01CT3A	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	1.984375 µm	35 N (7.8 lb)
LRQ150DP-E01CT3A	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	1.984375 µm	35 N (7.8 lb)
LRQ150HL-E01CT3A	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)
LRQ150HP-E01CT3A	0.015 ° (0.262 mrad)	0.02 ° (0.349 mrad)	0.1953125 µm	500 N (112.1 lb)
LRQ300AL-E01CT3A	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.09921875 µm	230 N (51.6 lb)

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LRQ300AP-E01CT3A	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.09921875 µm	230 N (51.6 lb)
LRQ300BL-E01CT3A	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.49609375 µm	150 N (33.6 lb)
LRQ300BP-E01CT3A	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.49609375 µm	150 N (33.6 lb)
LRQ300DL-E01CT3A	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	1.984375 µm	35 N (7.8 lb)
LRQ300DP-E01CT3A	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	1.984375 µm	35 N (7.8 lb)
LRQ300HL-E01CT3A	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.1953125 µm	500 N (112.1 lb)
LRQ300HP-E01CT3A	0.015 ° (0.262 mrad)	0.03 ° (0.523 mrad)	0.1953125 µm	500 N (112.1 lb)
LRQ450AL-E01CT3A	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)
LRQ450AP-E01CT3A	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)
LRQ450BL-E01CT3A	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)
LRQ450BP-E01CT3A	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)
LRQ450DL-E01CT3A	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	1.984375 µm	35 N (7.8 lb)
LRQ450DP-E01CT3A	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	1.984375 µm	35 N (7.8 lb)
LRQ450HL-E01CT3A	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)
LRQ450HP-E01CT3A	0.025 ° (0.436 mrad)	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)
LRQ600AL-E01CT3A	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)
LRQ600AP-E01CT3A	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.09921875 µm	230 N (51.6 lb)
LRQ600BL-E01CT3A	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)
LRQ600BP-E01CT3A	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.49609375 µm	150 N (33.6 lb)
LRQ600DL-E01CT3A	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	1.984375 µm	35 N (7.8 lb)

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LRQ600DP-E01CT3A	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	1.984375 µm	35 N (7.8 lb)
LRQ600HL-E01CT3A	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)
LRQ600HP-E01CT3A	0.035 ° (0.611 mrad)	0.04 ° (0.698 mrad)	0.1953125 µm	500 N (112.1 lb)

Part Number	Maximum Continuous Thrust	Back-driving Force*	Maximum Speed	Minimum Speed
LRQ075AL-E01CT3A	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ075AP-E01CT3A	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ075BL-E01CT3A	100 N (22.4 lb)	106 (± 30%) N (23.8 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ075BP-E01CT3A	100 N (22.4 lb)	136 (± 30%) N (30.5 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ075DL-E01CT3A	25 N (5.6 lb)	27 (± 30%) N (6.1 lb)	840 mm/s (33.071 "/s)	0.001211 mm/s (0.000048 "/s)
LRQ075DP-E01CT3A	25 N (5.6 lb)	58 (± 30%) N (13 lb)	840 mm/s (33.071 "/s)	0.001211 mm/s (0.000048 "/s)
LRQ075HL-E01CT3A	200 N (44.9 lb)	106 (± 30%) N (23.8 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ075HP-E01CT3A	200 N (44.9 lb)	136 (± 30%) N (30.5 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ150AL-E01CT3A	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ150AP-E01CT3A	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ150BL-E01CT3A	100 N (22.4 lb)	106 (± 30%) N (23.8 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ150BP-E01CT3A	100 N (22.4 lb)	136 (± 30%) N (30.5 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ150DL-E01CT3A	25 N (5.6 lb)	27 (± 30%) N (6.1 lb)	840 mm/s (33.071 "/s)	0.001211 mm/s (0.000048 "/s)
LRQ150DP-E01CT3A	25 N (5.6 lb)	58 (± 30%) N (13 lb)	840 mm/s (33.071 "/s)	0.001211 mm/s (0.000048 "/s)
LRQ150HL-E01CT3A	200 N (44.9 lb)	106 (± 30%) N (23.8 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)

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LRQ150HP-E01CT3A	200 N (44.9 lb)	136 (± 30%) N (30.5 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ300AL-E01CT3A	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ300AP-E01CT3A	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ300BL-E01CT3A	100 N (22.4 lb)	106 (± 30%) N (23.8 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ300BP-E01CT3A	100 N (22.4 lb)	136 (± 30%) N (30.5 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ300DL-E01CT3A	25 N (5.6 lb)	27 (± 30%) N (6.1 lb)	840 mm/s (33.071 "/s)	0.001211 mm/s (0.000048 "/s)
LRQ300DP-E01CT3A	25 N (5.6 lb)	58 (± 30%) N (13 lb)	840 mm/s (33.071 "/s)	0.001211 mm/s (0.000048 "/s)
LRQ300HL-E01CT3A	200 N (44.9 lb)	106 (± 30%) N (23.8 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ300HP-E01CT3A	200 N (44.9 lb)	136 (± 30%) N (30.5 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ450AL-E01CT3A	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ450AP-E01CT3A	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ450BL-E01CT3A	100 N (22.4 lb)	106 (± 30%) N (23.8 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ450BP-E01CT3A	100 N (22.4 lb)	136 (± 30%) N (30.5 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ450DL-E01CT3A	25 N (5.6 lb)	27 (± 30%) N (6.1 lb)	840 mm/s (33.071 "/s)	0.001211 mm/s (0.000048 "/s)
LRQ450DP-E01CT3A	25 N (5.6 lb)	58 (± 30%) N (13 lb)	840 mm/s (33.071 "/s)	0.001211 mm/s (0.000048 "/s)
LRQ450HL-E01CT3A	200 N (44.9 lb)	106 (± 30%) N (23.8 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ450HP-E01CT3A	200 N (44.9 lb)	136 (± 30%) N (30.5 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ600AL-E01CT3A	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ600AP-E01CT3A	100 N (22.4 lb)	Non-back-driving	54 mm/s (2.126 "/s)	0.000061 mm/s (0.000002 "/s)
LRQ600BL-E01CT3A	100 N (22.4 lb)	106 (± 30%) N (23.8 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)

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LRQ600BP-E01CT3A	100 N (22.4 lb)	136 (± 30%) N (30.5 lb)	270 mm/s (10.63 "/s)	0.000303 mm/s (0.000012 "/s)
LRQ600DL-E01CT3A	25 N (5.6 lb)	27 (± 30%) N (6.1 lb)	840 mm/s (33.071 "/s)	0.001211 mm/s (0.000048 "/s)
LRQ600DP-E01CT3A	25 N (5.6 lb)	58 (± 30%) N (13 lb)	840 mm/s (33.071 "/s)	0.001211 mm/s (0.000048 "/s)
LRQ600HL-E01CT3A	200 N (44.9 lb)	106 (± 30%) N (23.8 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)
LRQ600HP-E01CT3A	200 N (44.9 lb)	136 (± 30%) N (30.5 lb)	110 mm/s (4.331 "/s)	0.000119 mm/s (0.000005 "/s)

Part Number	Speed Resolution	Linear Motion Per Motor Rev	Mechanical Drive System
LRQ075AL-E01CT3A	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
LRQ075AP-E01CT3A	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
LRQ075BL-E01CT3A	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
LRQ075BP-E01CT3A	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
LRQ075DL-E01CT3A	0.001211 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
LRQ075DP-E01CT3A	0.001211 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
LRQ075HL-E01CT3A	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
LRQ075HP-E01CT3A	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
LRQ150AL-E01CT3A	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
LRQ150AP-E01CT3A	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
LRQ150BL-E01CT3A	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
LRQ150BP-E01CT3A	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
LRQ150DL-E01CT3A	0.001211 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw

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LRQ150DP-E01CT3A	0.001211 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
LRQ150HL-E01CT3A	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
LRQ150HP-E01CT3A	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
LRQ300AL-E01CT3A	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
LRQ300AP-E01CT3A	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
LRQ300BL-E01CT3A	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
LRQ300BP-E01CT3A	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
LRQ300DL-E01CT3A	0.001211 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
LRQ300DP-E01CT3A	0.001211 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
LRQ300HL-E01CT3A	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
LRQ300HP-E01CT3A	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
LRQ450AL-E01CT3A	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
LRQ450AP-E01CT3A	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
LRQ450BL-E01CT3A	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
LRQ450BP-E01CT3A	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
LRQ450DL-E01CT3A	0.001211 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
LRQ450DP-E01CT3A	0.001211 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
LRQ450HL-E01CT3A	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
LRQ450HP-E01CT3A	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
LRQ600AL-E01CT3A	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw

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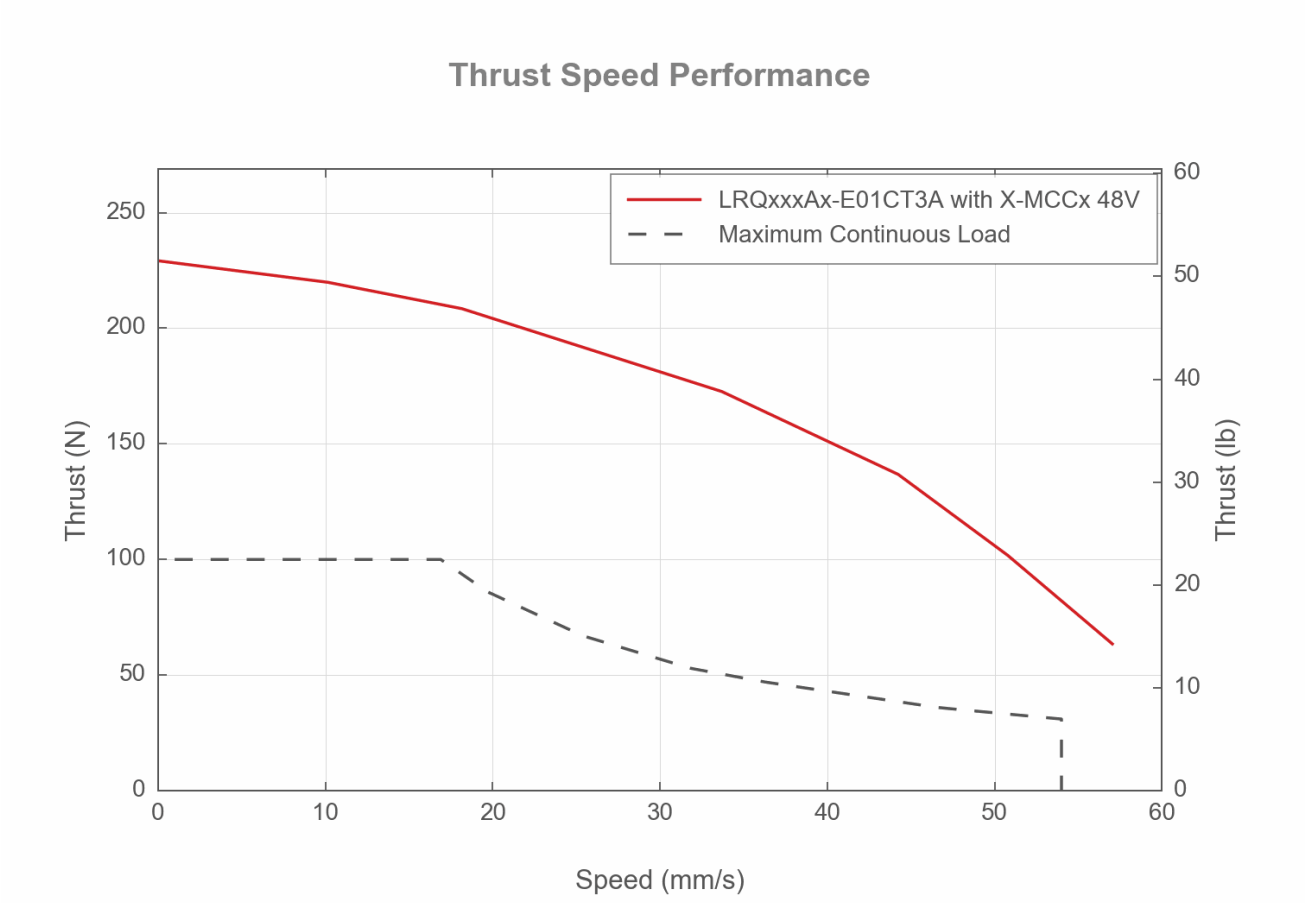
LRQ600AP-E01CT3A	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")	Precision lead screw
LRQ600BL-E01CT3A	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
LRQ600BP-E01CT3A	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")	Precision lead screw
LRQ600DL-E01CT3A	0.001211 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
LRQ600DP-E01CT3A	0.001211 mm/s (0.000048 "/s)	25.4 mm (1 ")	Precision lead screw
LRQ600HL-E01CT3A	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw
LRQ600HP-E01CT3A	0.000119 mm/s (0.000005 "/s)	2.5 mm (0.098 ")	Precision ball screw

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LRQ-EC Series Charts

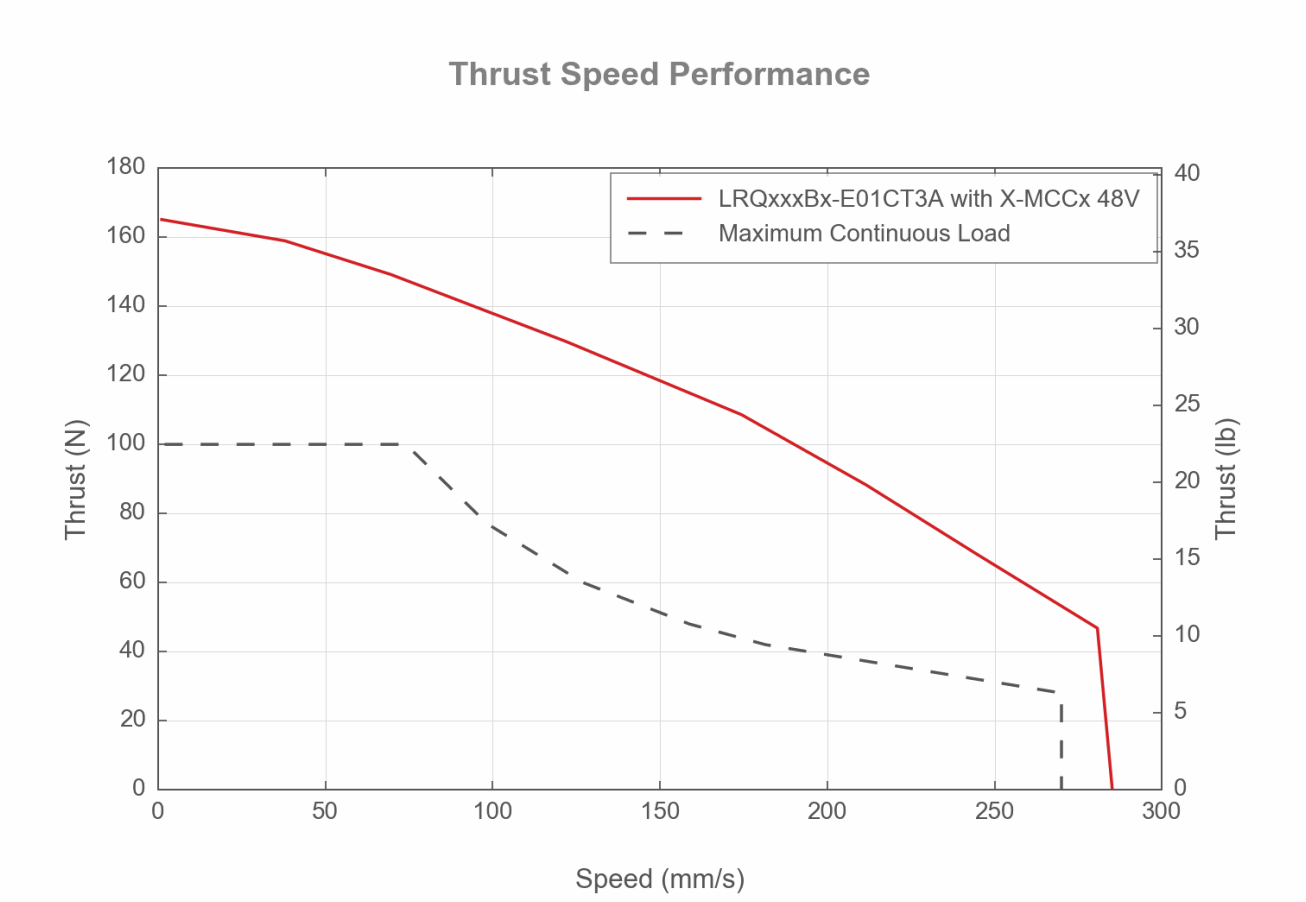
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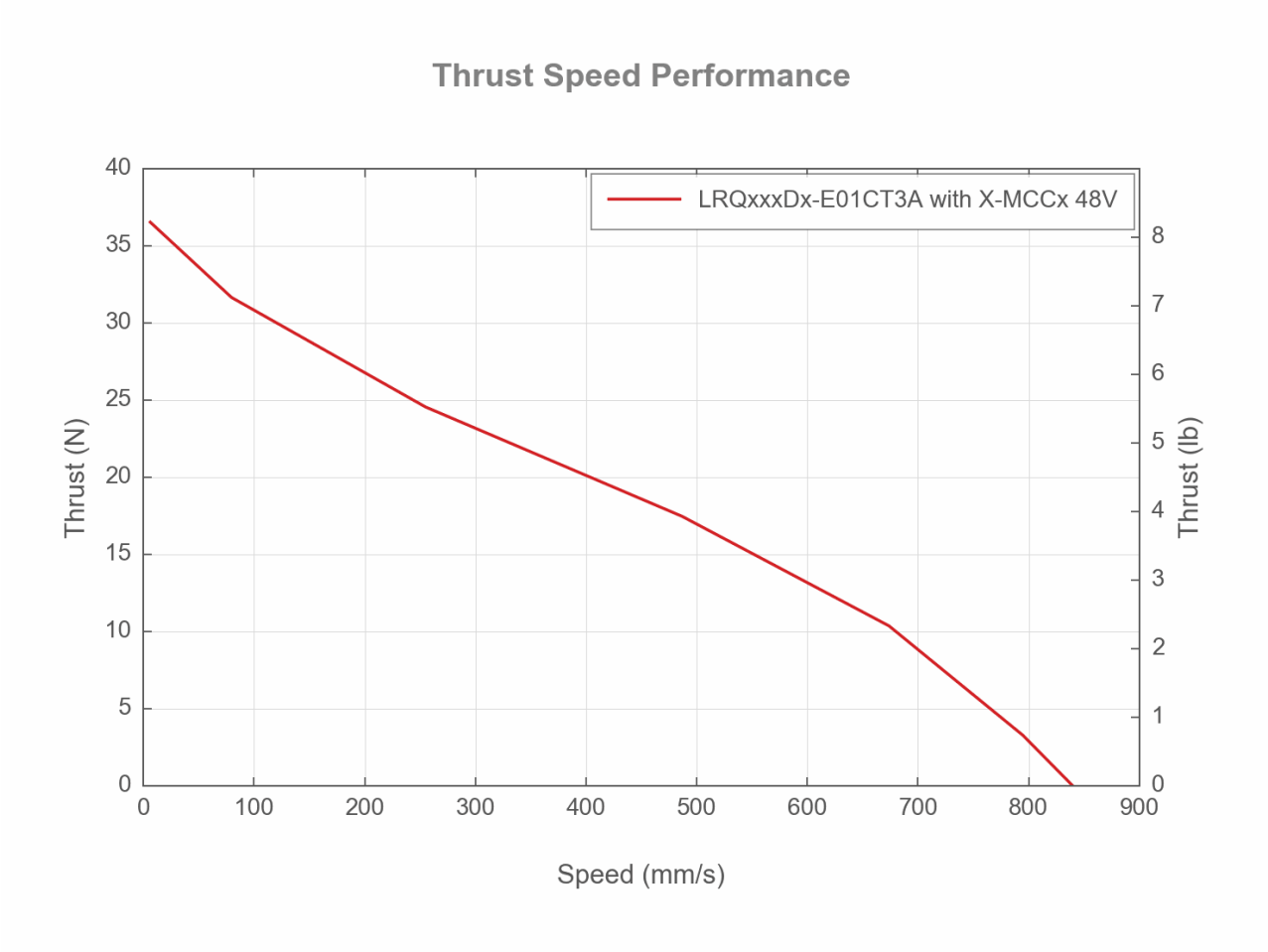
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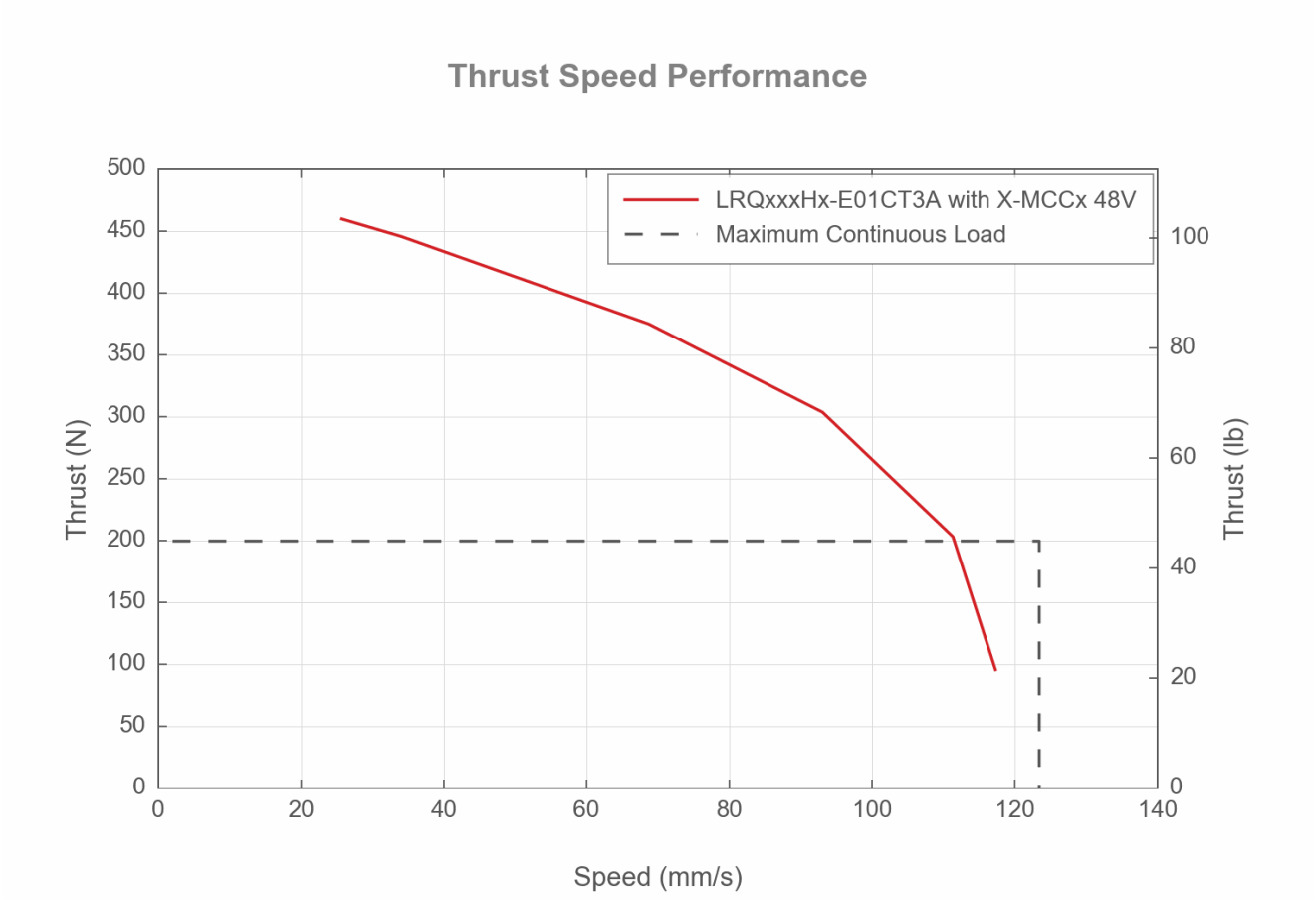
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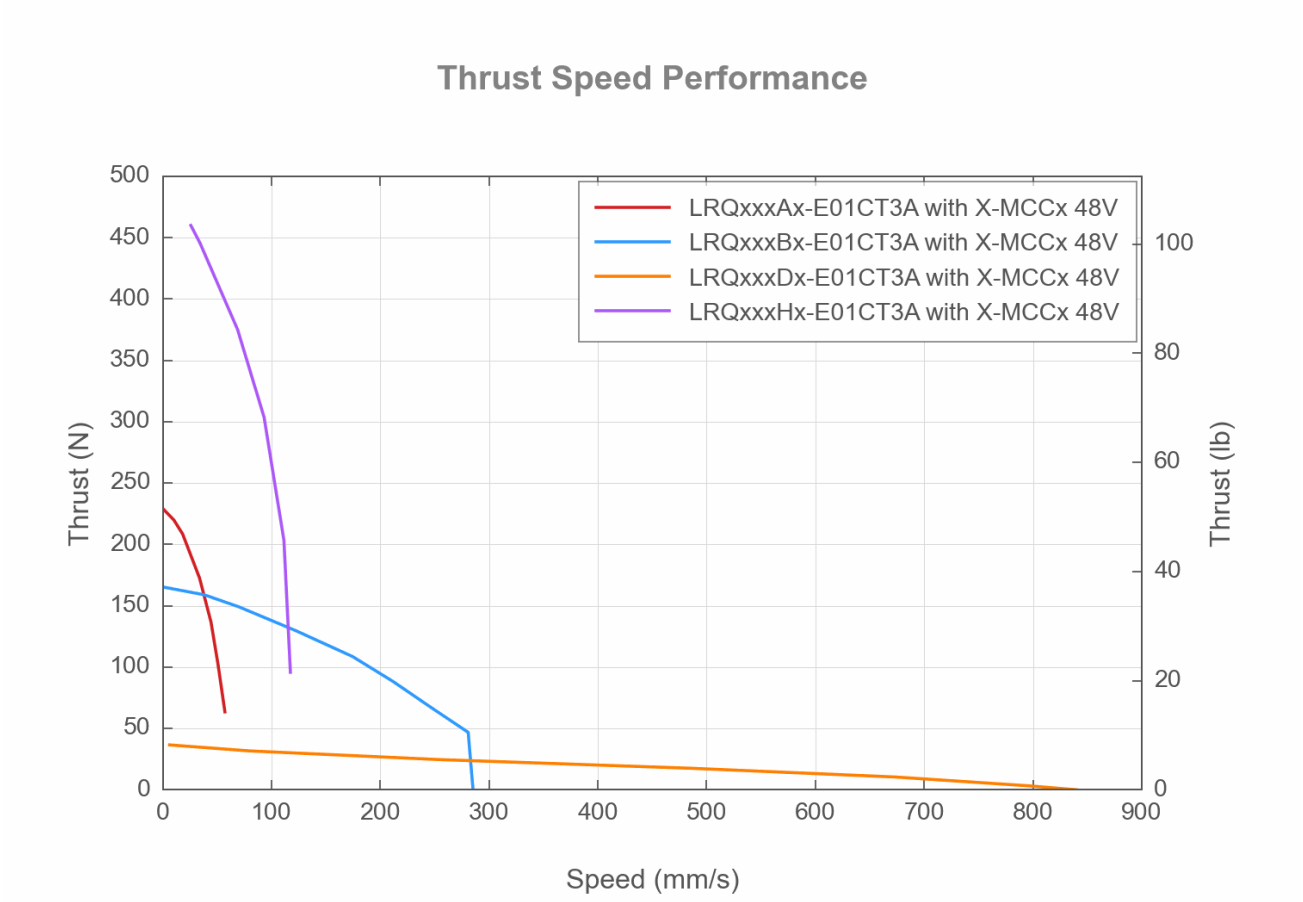
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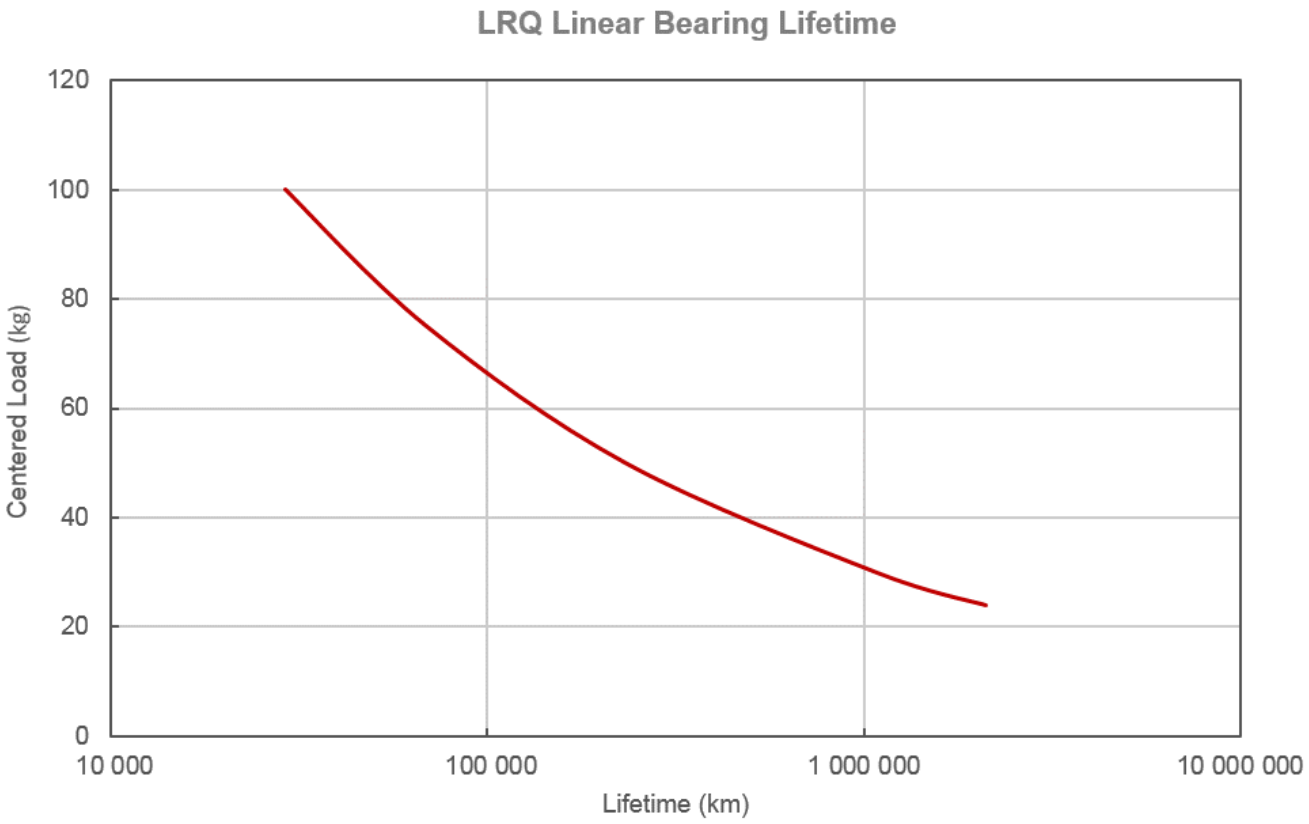
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LRQxxxxx E01CT3A THRUST SPEED



LRQ Lifetime



Contact

Email: contact@zaber.com

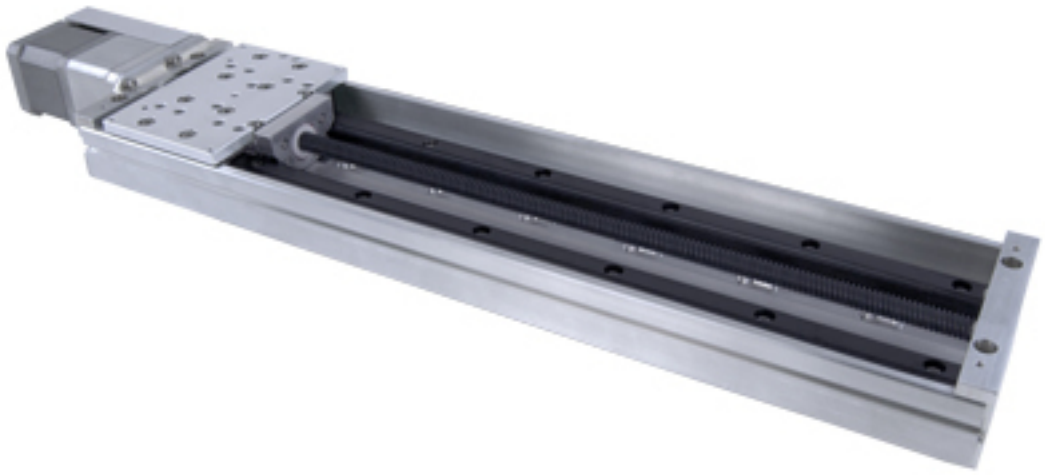
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X-LRQ-SV2 Series Datasheet



- Vacuum compatible to 10-6 Torr
- 75, 150, 300, 450, 600 mm travel
- Up to 205 mm/s speed and up to 100 N thrust
- 100 kg load capacity
- Built-in controller; daisy-chains with other Zaber products
- Only 4 feedthrough wires required to control all units in the daisy-chain via serial port (with an X-PIB adaptor)
- Custom versions available

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X-LRQ-SV2 Series Overview

For more information about the basics of a vacuum system and considerations to keep in mind when gathering requirements for your application, read our technical article, "Motion Device Design Considerations for Vacuum Applications".

Zaber's X-LRQ-SV2 Series devices are high-vacuum, computer-controlled, motorized linear stages with high stiffness, load, and lifetime capabilities in a compact size. They are stand-alone units requiring only a standard 24 V or 48 V power supply.

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.

At only 36 mm high, these vacuum stages are excellent for applications where a low profile is required. The X-LRQ-SV2's innovative design allows speeds up to 205 mm/s and loads up to 100 kg. Like all of Zaber's products, the X-LRQ-SV2 Series is designed to be 'plug and play' and very easy to set up and operate. These stages can bolt together into an XY system.

For more information visit: https://www.zaber.com/products/vacuum-compatible-stages/X-LRQ-SV2

X-LRQ-SV2 Series Part Numbering & Options

X-LRQ 075 A L -SV2

Travel	Lead Screw Options	Drive Configuration	Options
075 — 75 mm	**A** — Fine pitch lead screw	**L** — Inline	**-SV2** — High-vacuum compatible: 10-6 Torr
150 — 150 mm	**B** — Medium pitch lead screw		
300 — 300 mm			
450 — 450 mm			
600 — 600 mm			

X-LRQ-SV2 Series Drawings

- X-LRQxL-SV.png (Drawing for the X-LRQxL-SV)
- View all drawings and documents at zaber.com

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X-LRQ-SV2 Series Specifications

Overview

Specification	Value
Built-in Controller	Yes
Manual Control	No
Axes of Motion	1
LED Indicators	Yes

Positioning Performance

Specification	Value
Repeatability	<2.5 µm (<0.000098 ")
Default Resolution	1/64 of a step

Load Performance

Specification	Value
Maximum Centered Load	1000 N (224.3 lb)
Maximum Moment (Pitch)	30 N·m (22.1 lb·ft)
Maximum Moment (Roll)	30 N·m (22.14 lb·ft)
Maximum Moment (Yaw)	30 N·m (22.14 lb·ft)
Stiffness (Pitch)	500 N·m/°
Stiffness (Roll)	1180 N·m/°
Stiffness (Yaw)	450 N·m/°

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Encoder & Sensing

Specification	Value
Limit or Home Sensing	Magnetic home sensor

Motor

Specification	Value
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	2100 mA/phase
Motor Winding Inductance	2.8 mH/phase

Power and Communication

Specification	Value
Communication Interface	RS-232
Communication Protocol	Zaber ASCII (Default), Zaber Binary
Data Cable Connection	Teflon flying leads with M8 4 pin M/F
Power Supply	24-48 VDC
Power Plug	None, use X-PIB
Maximum Current Draw	1900 mA

Mechanical

Specification	Value
Guide Type	Recirculating Ball Linear Guide
Mechanical Drive System	Precision lead screw
Mounting Interface	M6 and M3 threaded holes

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Environmental & Compliance

Specification	Value
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	High vacuum (10-6 Torr)

Part Number	Travel Range	Weight	Accuracy (unidirectional)	Backlash
X-LRQ075AL-SV2	75 mm (2.953 ")	2.27 kg (5.004 lb)	23 µm (0.000906 ")	<15 µm (<0.000591 ")
X-LRQ075BL-SV2	75 mm (2.953 ")	2.27 kg (5.004 lb)	15 µm (0.000591 ")	<35 µm (<0.001378 ")
X-LRQ150AL-SV2	150 mm (5.905 ")	2.64 kg (5.82 lb)	45 µm (0.001772 ")	<15 µm (<0.000591 ")
X-LRQ150BL-SV2	150 mm (5.905 ")	2.64 kg (5.82 lb)	25 µm (0.000984 ")	<35 µm (<0.001378 ")
X-LRQ300AL-SV2	300 mm (11.811 ")	3.4 kg (7.496 lb)	90 µm (0.003543 ")	<15 µm (<0.000591 ")
X-LRQ300BL-SV2	300 mm (11.811 ")	3.4 kg (7.496 lb)	35 µm (0.001378 ")	<35 µm (<0.001378 ")
X-LRQ450AL-SV2	450 mm (17.716 ")	4.15 kg (9.149 lb)	135 µm (0.005315 ")	<15 µm (<0.000591 ")
X-LRQ450BL-SV2	450 mm (17.716 ")	4.15 kg (9.149 lb)	60 µm (0.002362 ")	<35 µm (<0.001378 ")
X-LRQ600AL-SV2	600 mm (23.622 ")	4.86 kg (10.714 lb)	150 µm (0.005905 ")	<15 µm (<0.000591 ")
X-LRQ600BL-SV2	600 mm (23.622 ")	4.86 kg (10.714 lb)	90 µm (0.003543 ")	<35 µm (<0.001378 ")

Part Number	Flatness of Travel	Straightness of Travel	Pitch Error	Roll Error
X-LRQ075AL-SV2	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
X-LRQ075BL-SV2	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)

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X-LRQ150AL-SV2	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
X-LRQ150BL-SV2	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
X-LRQ300AL-SV2	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
X-LRQ300BL-SV2	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
X-LRQ450AL-SV2	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
X-LRQ450BL-SV2	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
X-LRQ600AL-SV2	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)
X-LRQ600BL-SV2	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)

Part Number	Yaw Error	Microstep Size (Default Resolution)	Peak Thrust	Maximum Continuous Thrust
X-LRQ075AL-SV2	0.02 ° (0.349 mrad)	0.09921875 µm	100 N (22.4 lb)	100 N (22.4 lb)
X-LRQ075BL-SV2	0.02 ° (0.349 mrad)	0.49609375 µm	60 N (13.5 lb)	60 N (13.5 lb)
X-LRQ150AL-SV2	0.02 ° (0.349 mrad)	0.09921875 µm	100 N (22.4 lb)	100 N (22.4 lb)
X-LRQ150BL-SV2	0.02 ° (0.349 mrad)	0.49609375 µm	60 N (13.5 lb)	60 N (13.5 lb)
X-LRQ300AL-SV2	0.03 ° (0.523 mrad)	0.09921875 µm	100 N (22.4 lb)	100 N (22.4 lb)
X-LRQ300BL-SV2	0.03 ° (0.523 mrad)	0.49609375 µm	60 N (13.5 lb)	60 N (13.5 lb)
X-LRQ450AL-SV2	0.04 ° (0.698 mrad)	0.09921875 µm	100 N (22.4 lb)	100 N (22.4 lb)
X-LRQ450BL-SV2	0.04 ° (0.698 mrad)	0.49609375 µm	60 N (13.5 lb)	60 N (13.5 lb)
X-LRQ600AL-SV2	0.04 ° (0.698 mrad)	0.09921875 µm	100 N (22.4 lb)	100 N (22.4 lb)
X-LRQ600BL-SV2	0.04 ° (0.698 mrad)	0.49609375 µm	60 N (13.5 lb)	60 N (13.5 lb)

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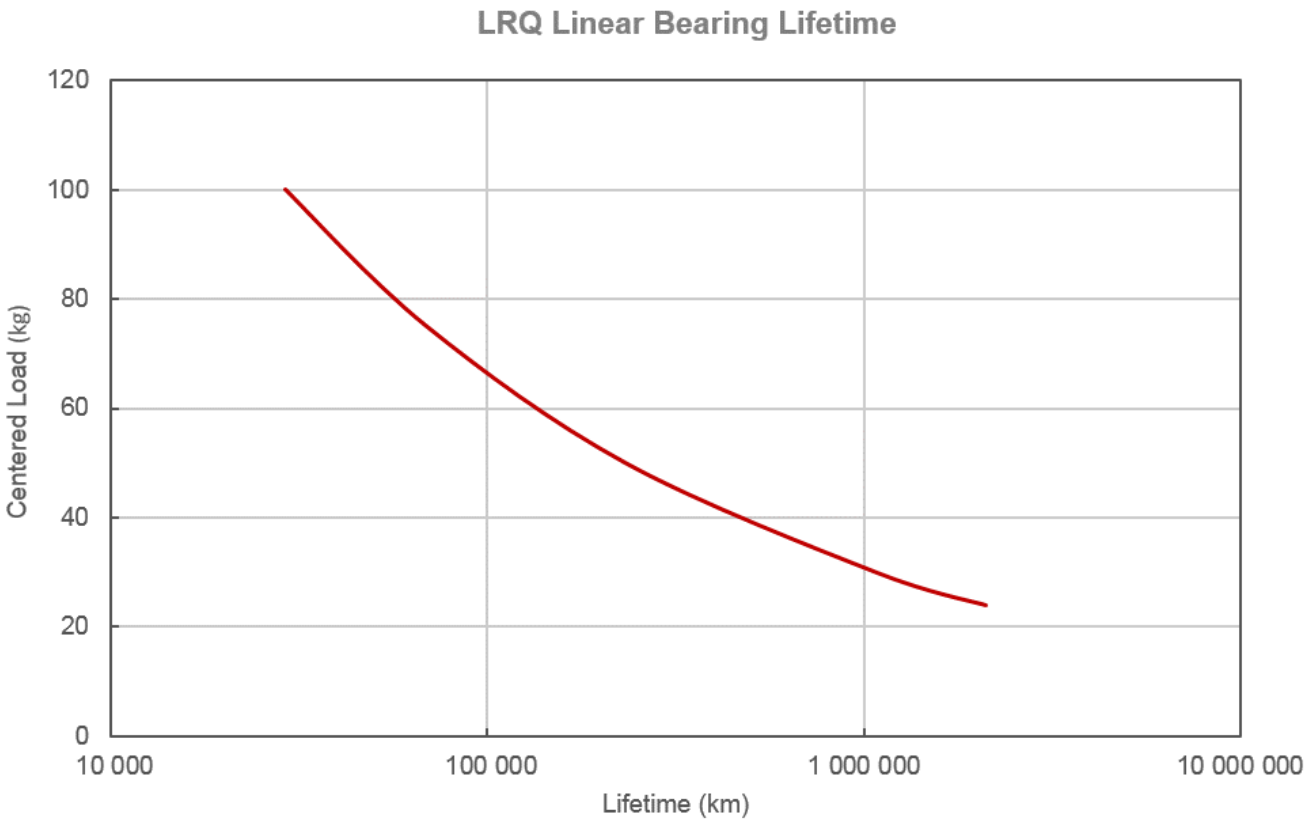
Part Number	Maximum Speed	Minimum Speed	Speed Resolution	Linear Motion Per Motor Rev
X-LRQ075AL-SV2	35 mm/s (1.378 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")
X-LRQ075BL-SV2	205 mm/s (8.071 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")
X-LRQ150AL-SV2	35 mm/s (1.378 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")
X-LRQ150BL-SV2	205 mm/s (8.071 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")
X-LRQ300AL-SV2	35 mm/s (1.378 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")
X-LRQ300BL-SV2	205 mm/s (8.071 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")
X-LRQ450AL-SV2	35 mm/s (1.378 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")
X-LRQ450BL-SV2	205 mm/s (8.071 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")
X-LRQ600AL-SV2	35 mm/s (1.378 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")
X-LRQ600BL-SV2	205 mm/s (8.071 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")

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X-LRQ-SV2 Series Charts

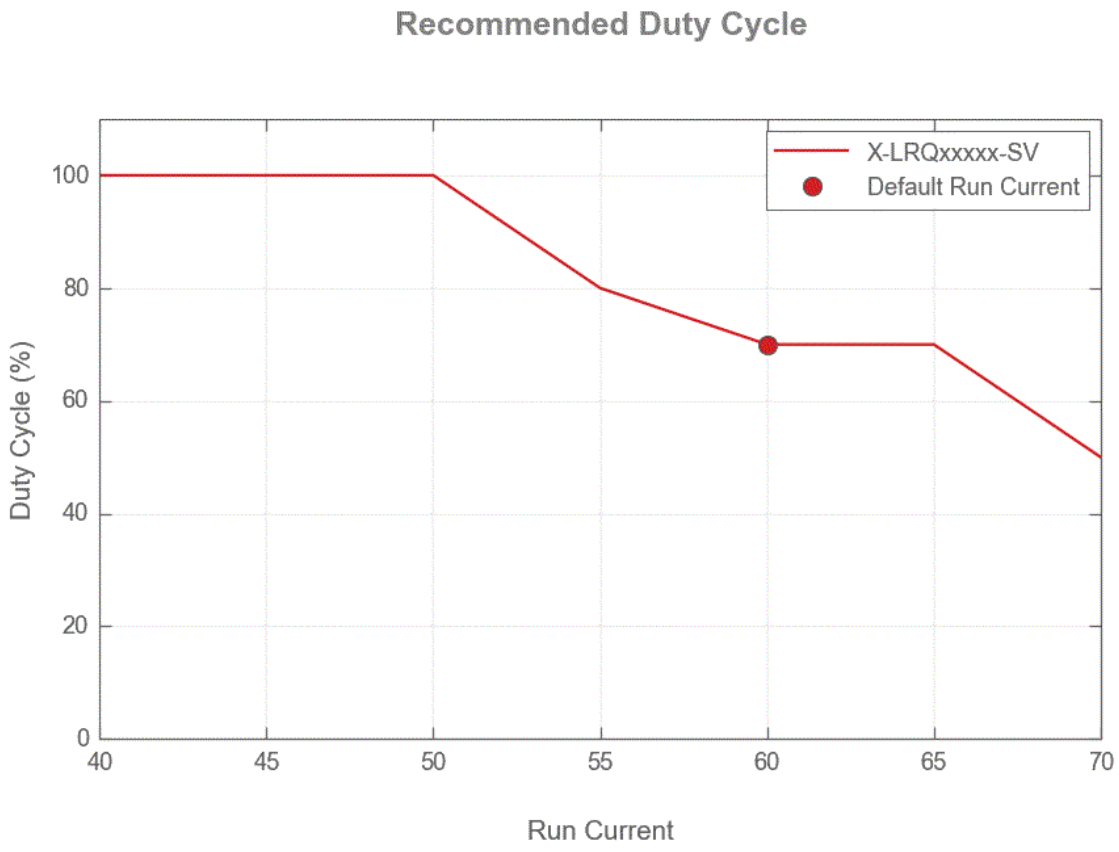
LRQ Lifetime



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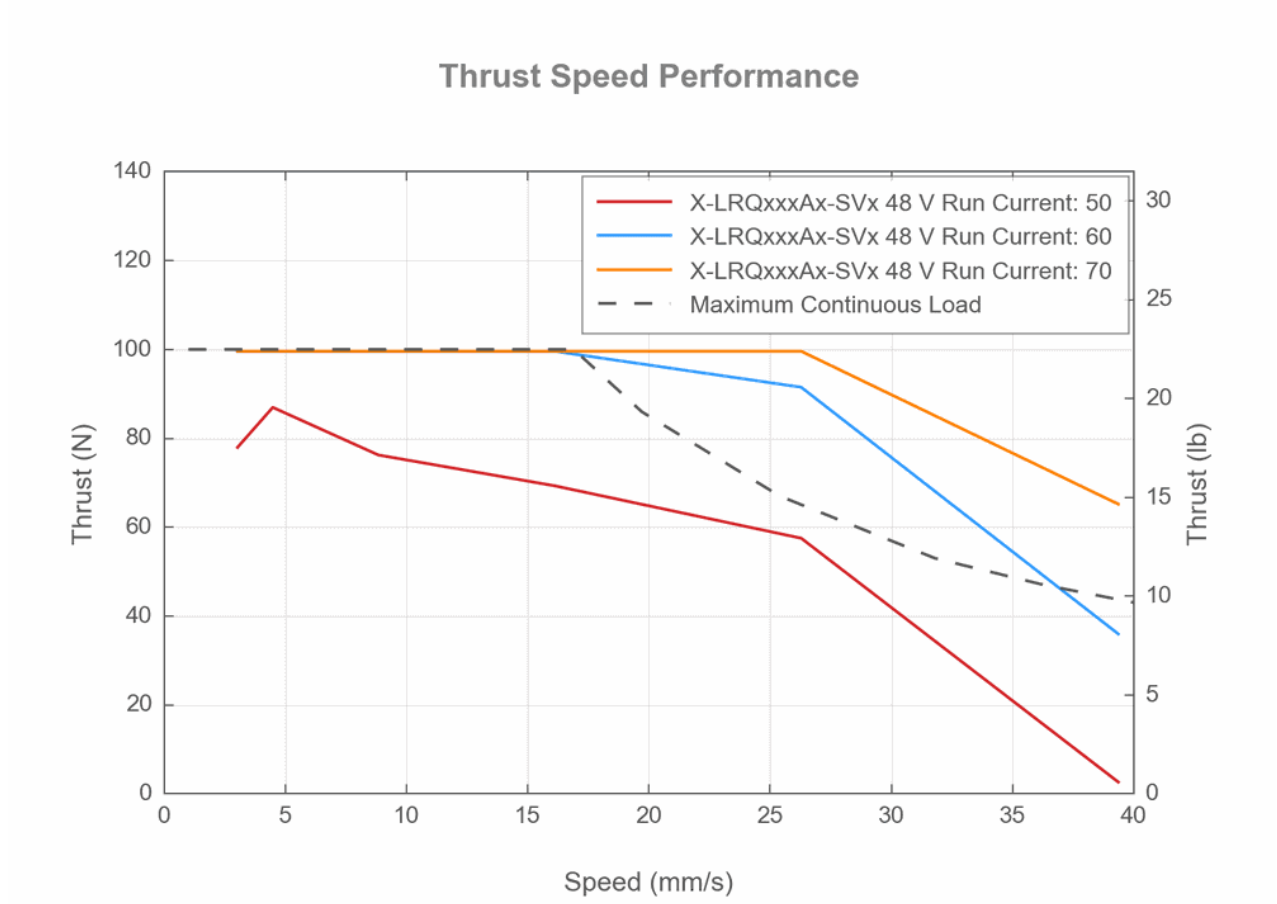
Duty Cycle Vs Run Current



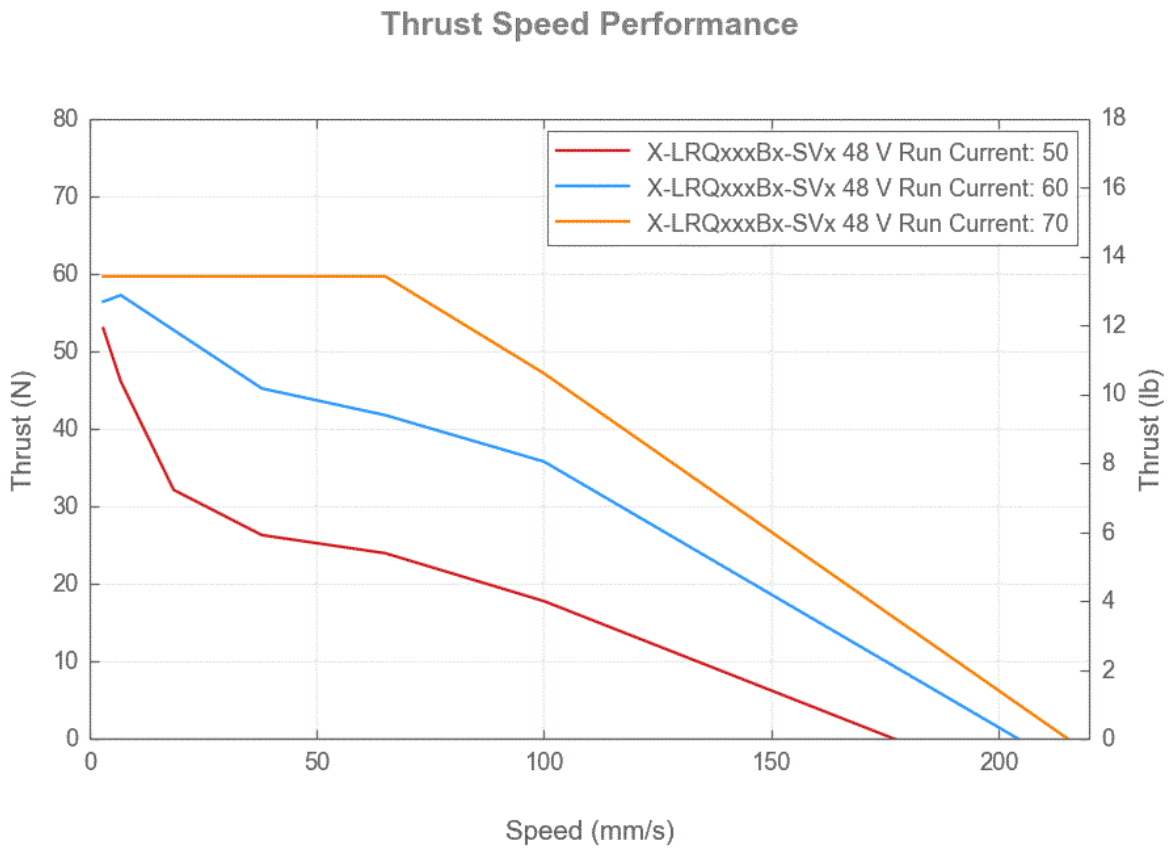
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X LRQxxxAx SVx Thrust Speed Performance



Thrust Speed



Contact

Email: contact@zaber.com

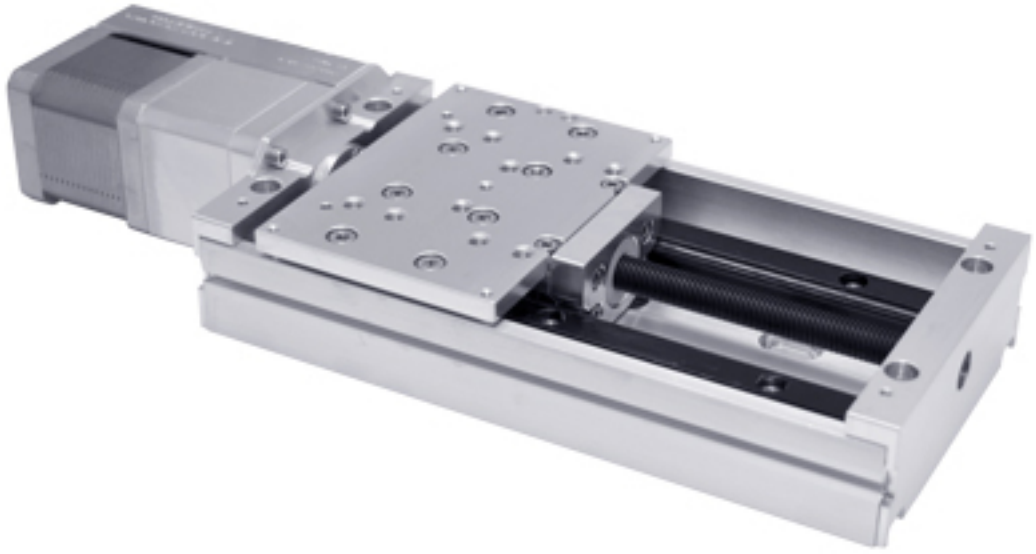
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LRQ-V2 Series Datasheet



- Vacuum compatible to 10-6 Torr
- 75, 150, 300, 450, 600 mm travel
- Up to 205 mm/s speed and up to 100 N thrust
- 100 kg load capacity
- Only 7 feedthrough wires required to control these units
- Designed for use with MCC Family controllers or any 2-phase stepper motor controller

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LRQ-V2 Series Overview

For more information about the basics of a vacuum system and considerations to keep in mind when gathering requirements for your application, read our technical article, "Motion Device Design Considerations for Vacuum Applications".

Zaber's LRQ-V2 Series devices are high-vacuum, computer-controlled, motorized linear stages with high stiffness, load, and lifetime capabilities in a compact size

At only 36 mm high, these vacuum stages are excellent for applications where a low profile is required. The LRQ-V2's innovative design allows speeds up to 205 mm/s and loads up to 100 kg. Like all of Zaber's products, the LRQ-V2 Series is designed to be very easy to set up and operate. These stages can bolt together into an XY system.

These stages are wired with a male D-sub 15 connector for plug-and-play use with our MCC Family controllers. Simply cut the connector off for flying leads in vacuum and match the wire connections outside of the vacuum for an easy connection. Our handy kits include free software, and all of the accessories that you will need to get the stage running right out of the box.

For more information visit: https://www.zaber.com/products/vacuum-compatible-stages/LRQ-V2

LRQ-V2 Series Part Numbering & Options

LRQ 075 A L -V2 T4

Travel
- **075** — 75 mm
- **150** — 150 mm
- **300** — 300 mm
- **450** — 450 mm
- **600** — 600 mm

Lead Screw Options
- **A** — Fine pitch lead screw
- **B** — Medium pitch lead screw

Drive Configuration
- **L** — Inline

Options
- **-V2** — High-vacuum compatible: 10-6 Torr

Connector
- **T4** — D-sub 15 inline connector

LRQ-V2 Series Drawings

- LRQxL-V.png (Drawing for the LRQxL-V)
- View all drawings and documents at zaber.com

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LRQ-V2 Series Specifications

Overview

Specification	Value
Built-in Controller	No
Recommended Controller	MCC (48 V) Recommended
AutoDetect	No
Manual Control	No
Axes of Motion	1

Positioning Performance

Specification	Value
Repeatability	<2.5 µm (<0.000098 ")
Default Resolution	1/64 of a step

Load Performance

Specification	Value
Maximum Centered Load	1000 N (224.3 lb)
Maximum Moment (Pitch)	30 N·m (22.1 lb·ft)
Maximum Moment (Roll)	30 N·m (22.14 lb·ft)
Maximum Moment (Yaw)	30 N·m (22.14 lb·ft)
Stiffness (Pitch)	500 N·m/°
Stiffness (Roll)	1180 N·m/°
Stiffness (Yaw)	450 N·m/°

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Encoder & Sensing

Specification	Value
Limit or Home Sensing	Magnetic home sensor

Motor

Specification	Value
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	2100 mA/phase
Motor Winding Inductance	2.8 mH/phase
Motor Connection	Teflon flying leads with D-sub15 connector

Mechanical

Specification	Value
Guide Type	Recirculating Ball Linear Guide
Mechanical Drive System	Precision lead screw
Mounting Interface	M6 and M3 threaded holes

Environmental & Compliance

Specification	Value
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	High vacuum (10-6 Torr)

Part Number	Travel Range	Weight	Accuracy (unidirectional)	Backlash
LRQ075AL-V2T4	75 mm (2.953 ")	2.27 kg (5.004 lb)	23 µm (0.000906 ")	<15 µm (<0.000591 ")

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LRQ075BL-V2T4	75 mm (2.953 ")	2.27 kg (5.004 lb)	15 µm (0.000591 ")	<35 µm (<0.001378 ")
LRQ150AL-V2T4	150 mm (5.905 ")	2.64 kg (5.82 lb)	45 µm (0.001772 ")	<15 µm (<0.000591 ")
LRQ150BL-V2T4	150 mm (5.905 ")	2.64 kg (5.82 lb)	25 µm (0.000984 ")	<35 µm (<0.001378 ")
LRQ300AL-V2T4	300 mm (11.811 ")	3.4 kg (7.496 lb)	90 µm (0.003543 ")	<15 µm (<0.000591 ")
LRQ300BL-V2T4	300 mm (11.811 ")	3.4 kg (7.496 lb)	35 µm (0.001378 ")	<35 µm (<0.001378 ")
LRQ450AL-V2T4	450 mm (17.716 ")	4.15 kg (9.149 lb)	135 µm (0.005315 ")	<15 µm (<0.000591 ")
LRQ450BL-V2T4	450 mm (17.716 ")	4.15 kg (9.149 lb)	60 µm (0.002362 ")	<35 µm (<0.001378 ")
LRQ600AL-V2T4	600 mm (23.622 ")	4.86 kg (10.714 lb)	150 µm (0.005905 ")	<15 µm (<0.000591 ")
LRQ600BL-V2T4	600 mm (23.622 ")	4.86 kg (10.714 lb)	90 µm (0.003543 ")	<35 µm (<0.001378 ")

Part Number	Flatness of Travel	Straightness of Travel	Pitch Error	Roll Error
LRQ075AL-V2T4	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
LRQ075BL-V2T4	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
LRQ150AL-V2T4	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
LRQ150BL-V2T4	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
LRQ300AL-V2T4	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
LRQ300BL-V2T4	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
LRQ450AL-V2T4	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
LRQ450BL-V2T4	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
LRQ600AL-V2T4	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)

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LRQ600BL-V2T4	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)

Part Number	Yaw Error	Microstep Size (Default Resolution)	Peak Thrust	Maximum Continuous Thrust
LRQ075AL-V2T4	0.02 ° (0.349 mrad)	0.09921875 µm	100 N (22.4 lb)	100 N (22.4 lb)
LRQ075BL-V2T4	0.02 ° (0.349 mrad)	0.49609375 µm	60 N (13.5 lb)	60 N (13.5 lb)
LRQ150AL-V2T4	0.02 ° (0.349 mrad)	0.09921875 µm	100 N (22.4 lb)	100 N (22.4 lb)
LRQ150BL-V2T4	0.02 ° (0.349 mrad)	0.49609375 µm	60 N (13.5 lb)	60 N (13.5 lb)
LRQ300AL-V2T4	0.03 ° (0.523 mrad)	0.09921875 µm	100 N (22.4 lb)	100 N (22.4 lb)
LRQ300BL-V2T4	0.03 ° (0.523 mrad)	0.49609375 µm	60 N (13.5 lb)	60 N (13.5 lb)
LRQ450AL-V2T4	0.04 ° (0.698 mrad)	0.09921875 µm	100 N (22.4 lb)	100 N (22.4 lb)
LRQ450BL-V2T4	0.04 ° (0.698 mrad)	0.49609375 µm	60 N (13.5 lb)	60 N (13.5 lb)
LRQ600AL-V2T4	0.04 ° (0.698 mrad)	0.09921875 µm	100 N (22.4 lb)	100 N (22.4 lb)
LRQ600BL-V2T4	0.04 ° (0.698 mrad)	0.49609375 µm	60 N (13.5 lb)	60 N (13.5 lb)

Part Number	Maximum Speed	Minimum Speed	Speed Resolution	Linear Motion Per Motor Rev
LRQ075AL-V2T4	35 mm/s (1.378 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")
LRQ075BL-V2T4	205 mm/s (8.071 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")
LRQ150AL-V2T4	35 mm/s (1.378 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")
LRQ150BL-V2T4	205 mm/s (8.071 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")
LRQ300AL-V2T4	35 mm/s (1.378 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")

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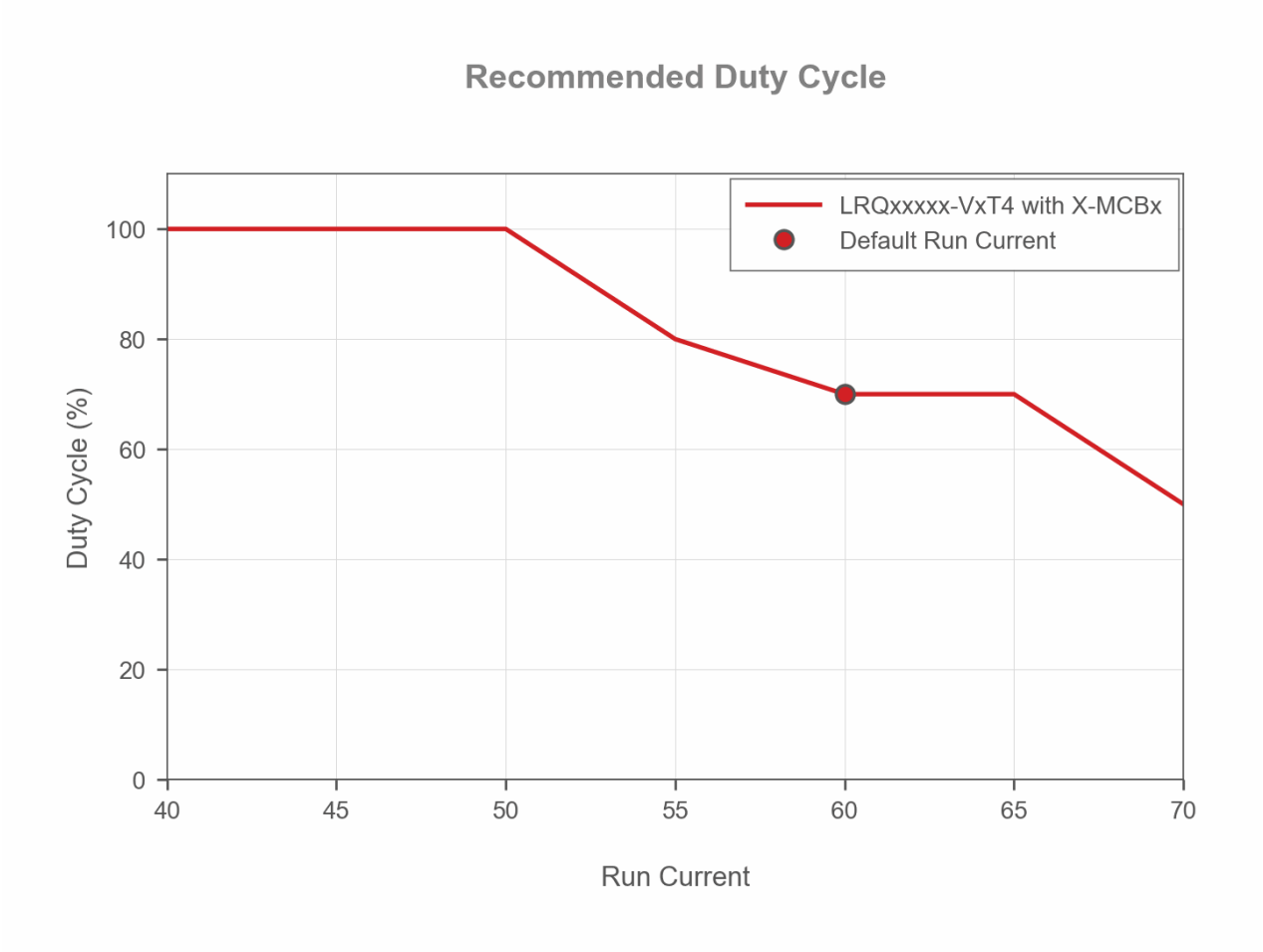
LRQ300BL-V2T4	205 mm/s (8.071 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")
LRQ450AL-V2T4	35 mm/s (1.378 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")
LRQ450BL-V2T4	205 mm/s (8.071 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")
LRQ600AL-V2T4	35 mm/s (1.378 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")
LRQ600BL-V2T4	205 mm/s (8.071 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")

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LRQ-V2 Series Charts

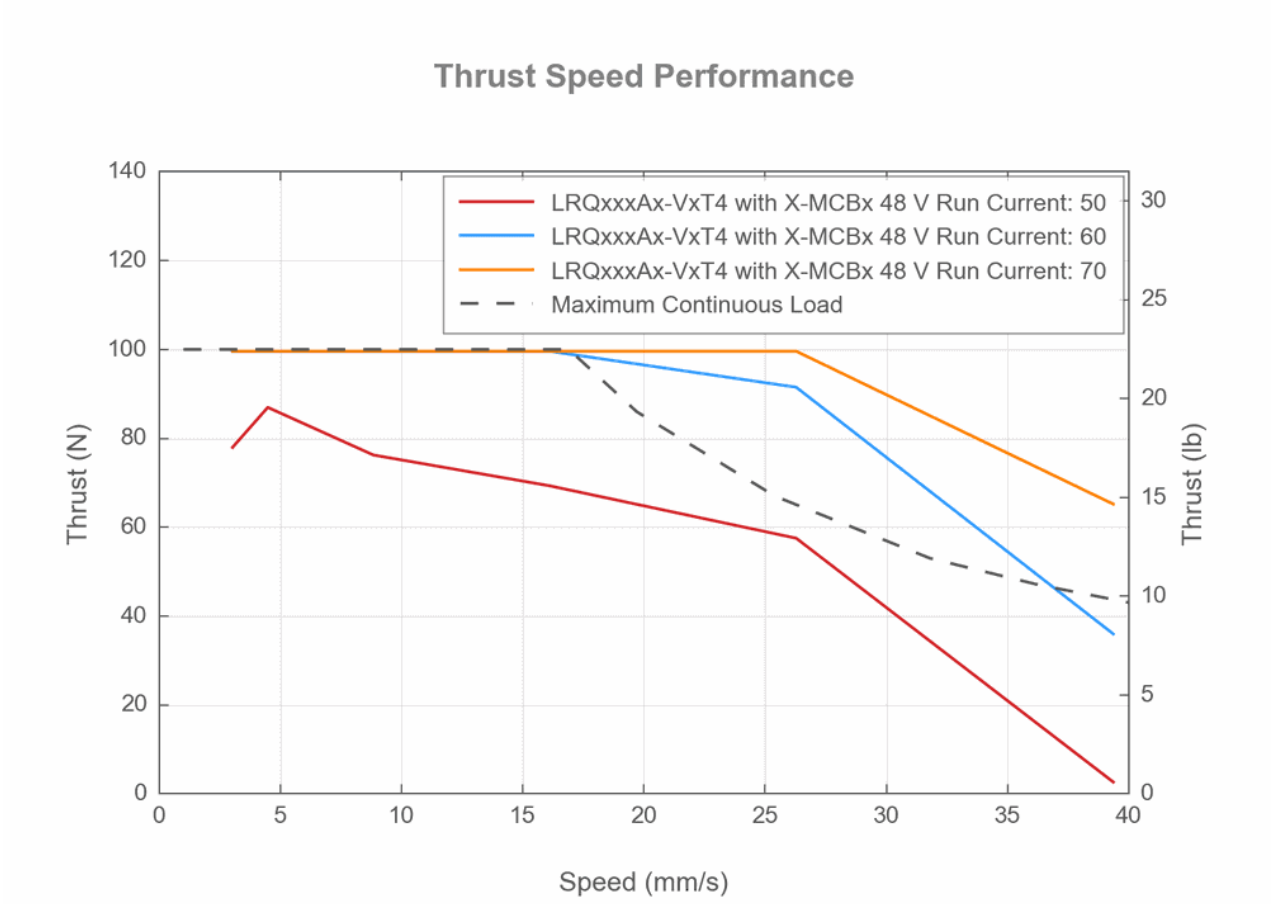
LRQxxxxx VxT4 With X MCBx Duty Cycle Vs Run Current



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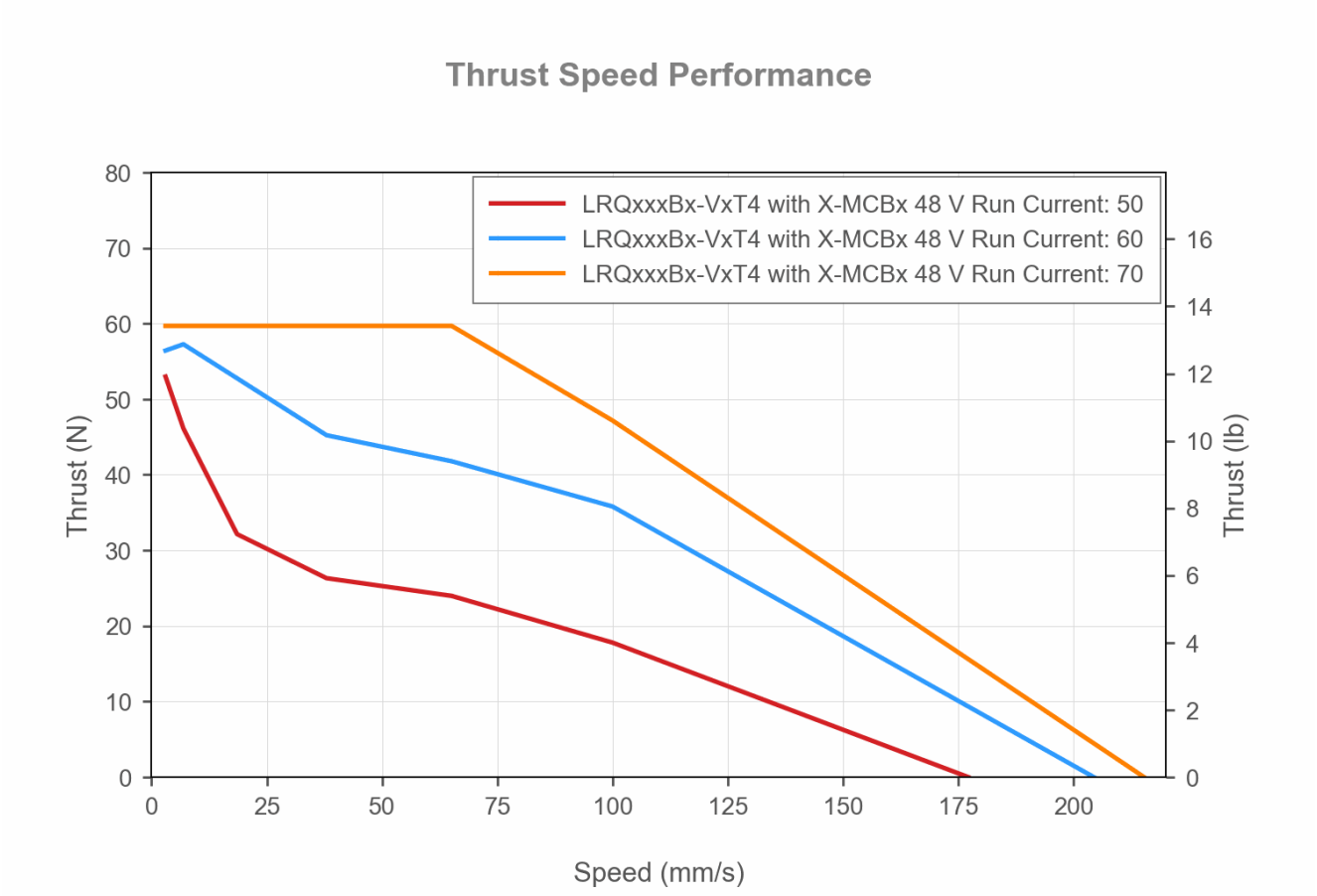
LRQxxxAx VxT4 Thrust Speed Performance



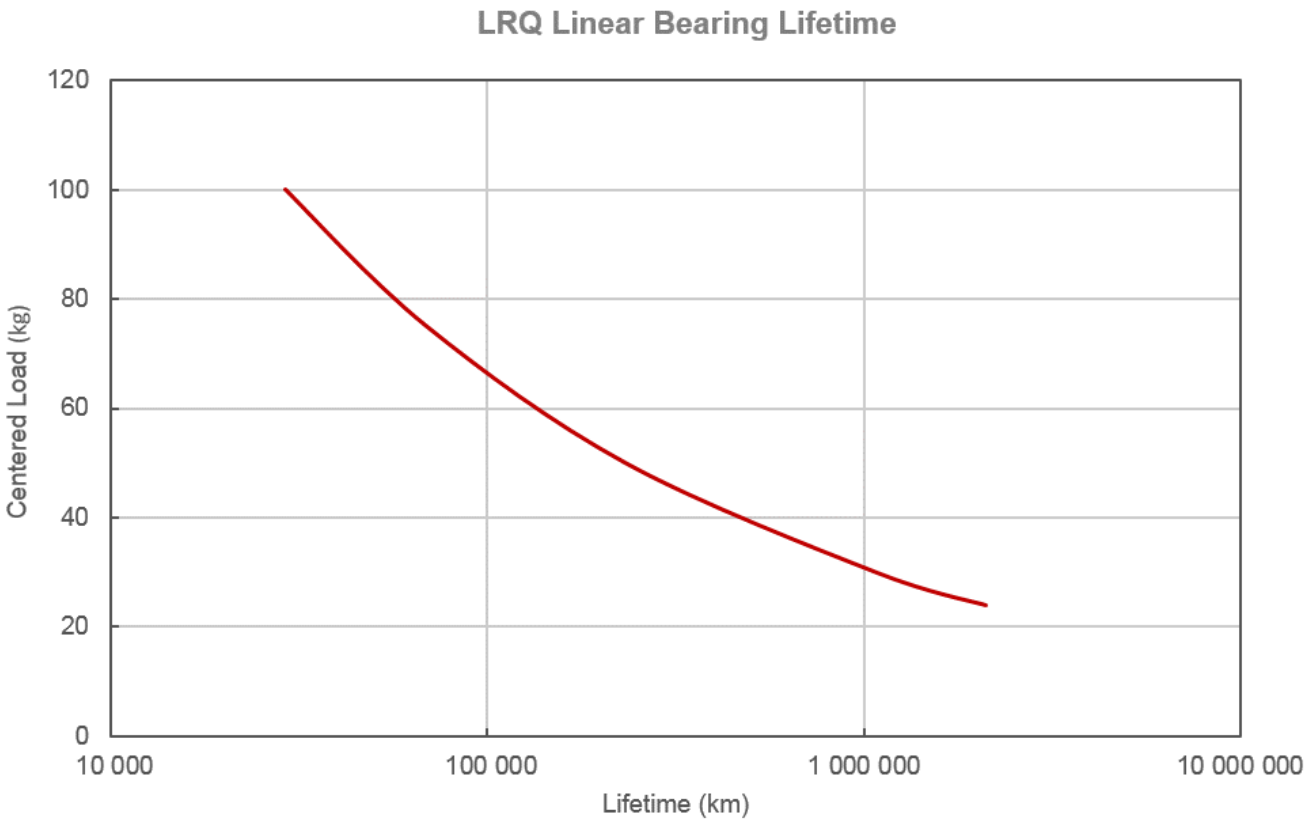
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LRQxxxBx VxT4 With X MCBx Thrust Speed



LRQ Lifetime



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X-LRQ-SV1 Series Datasheet



- Vacuum compatible to 10-3 Torr
- 75, 150, 300, 450, 600 mm travel
- Up to 205 mm/s speed and up to 100 N thrust
- 100 kg load capacity
- Built-in controller; daisy-chains with other Zaber products
- Only 4 feedthrough wires required to control all units in the daisy-chain via serial port (with an X-PIB adaptor)
- Custom versions available

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X-LRQ-SV1 Series Overview

For more information about the basics of a vacuum system and considerations to keep in mind when gathering requirements for your application, read our technical article, "Motion Device Design Considerations for Vacuum Applications".

Zaber's X-LRQ-SV1 Series devices are low-vacuum, computer-controlled, motorized linear stages with high stiffness, load, and lifetime capabilities in a compact size. They are stand-alone units requiring only a standard 24 V or 48 V power supply.

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.

At only 36 mm high, these vacuum stages are excellent for applications where a low profile is required. The X-LRQ-SV1's innovative design allows speeds up to 205 mm/s and loads up to 100 kg. Like all of Zaber's products, the X-LRQ-SV1 Series is designed to be 'plug and play' and very easy to set up and operate. These stages can bolt together into an XY system.

For more information visit: https://www.zaber.com/products/vacuum-compatible-stages/X-LRQ-SV1

X-LRQ-SV1 Series Part Numbering & Options

X-LRQ 075 A L -SV1

Travel
- **075** — 75 mm
- **150** — 150 mm
- **300** — 300 mm
- **450** — 450 mm
- **600** — 600 mm

Lead Screw Options
- **A** — Fine pitch lead screw
- **B** — Medium pitch lead screw

Drive Configuration
- **L** — Inline

Options
- **-SV1** — Low-vacuum compatible: 10-3 Torr

X-LRQ-SV1 Series Drawings

- X-LRQxL-SV.png (Drawing for the X-LRQxL-SV)
- View all drawings and documents at zaber.com

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X-LRQ-SV1 Series Specifications

Overview

Specification	Value
Built-in Controller	Yes
Manual Control	No
Axes of Motion	1
LED Indicators	Yes

Positioning Performance

Specification	Value
Repeatability	<2.5 µm (<0.000098 ")
Default Resolution	1/64 of a step

Load Performance

Specification	Value
Maximum Centered Load	1000 N (224.3 lb)
Maximum Moment (Pitch)	30 N·m (22.1 lb·ft)
Maximum Moment (Roll)	30 N·m (22.14 lb·ft)
Maximum Moment (Yaw)	30 N·m (22.14 lb·ft)
Stiffness (Pitch)	500 N·m/°
Stiffness (Roll)	1180 N·m/°
Stiffness (Yaw)	450 N·m/°

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Encoder & Sensing

Specification	Value
Limit or Home Sensing	Magnetic home sensor

Motor

Specification	Value
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	2100 mA/phase
Motor Winding Inductance	2.8 mH/phase

Power and Communication

Specification	Value
Communication Interface	RS-232
Communication Protocol	Zaber ASCII (Default), Zaber Binary
Data Cable Connection	Teflon flying leads with M8 4 pin M/F
Power Supply	24-48 VDC
Power Plug	None, use X-PIB
Maximum Current Draw	1900 mA

Mechanical

Specification	Value
Guide Type	Recirculating Ball Linear Guide
Mechanical Drive System	Precision lead screw
Mounting Interface	M6 and M3 threaded holes

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Environmental & Compliance

Specification	Value
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	Low vacuum (10-3 Torr)

Part Number	Travel Range	Weight	Accuracy (unidirectional)	Backlash
X-LRQ075AL-SV1	75 mm (2.953 ")	2.27 kg (5.004 lb)	23 µm (0.000906 ")	<15 µm (<0.000591 ")
X-LRQ075BL-SV1	75 mm (2.953 ")	2.27 kg (5.004 lb)	15 µm (0.000591 ")	<35 µm (<0.001378 ")
X-LRQ150AL-SV1	150 mm (5.905 ")	2.64 kg (5.82 lb)	45 µm (0.001772 ")	<15 µm (<0.000591 ")
X-LRQ150BL-SV1	150 mm (5.905 ")	2.64 kg (5.82 lb)	25 µm (0.000984 ")	<35 µm (<0.001378 ")
X-LRQ300AL-SV1	300 mm (11.811 ")	3.4 kg (7.496 lb)	90 µm (0.003543 ")	<15 µm (<0.000591 ")
X-LRQ300BL-SV1	300 mm (11.811 ")	3.4 kg (7.496 lb)	35 µm (0.001378 ")	<35 µm (<0.001378 ")
X-LRQ450AL-SV1	450 mm (17.716 ")	4.15 kg (9.149 lb)	135 µm (0.005315 ")	<15 µm (<0.000591 ")
X-LRQ450BL-SV1	450 mm (17.716 ")	4.15 kg (9.149 lb)	60 µm (0.002362 ")	<35 µm (<0.001378 ")
X-LRQ600AL-SV1	600 mm (23.622 ")	4.86 kg (10.714 lb)	150 µm (0.005905 ")	<15 µm (<0.000591 ")
X-LRQ600BL-SV1	600 mm (23.622 ")	4.86 kg (10.714 lb)	90 µm (0.003543 ")	<35 µm (<0.001378 ")

Part Number	Flatness of Travel	Straightness of Travel	Pitch Error	Roll Error
X-LRQ075AL-SV1	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
X-LRQ075BL-SV1	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)

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X-LRQ150AL-SV1	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
X-LRQ150BL-SV1	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
X-LRQ300AL-SV1	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
X-LRQ300BL-SV1	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
X-LRQ450AL-SV1	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
X-LRQ450BL-SV1	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
X-LRQ600AL-SV1	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)
X-LRQ600BL-SV1	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)

Part Number	Yaw Error	Microstep Size (Default Resolution)	Peak Thrust	Maximum Continuous Thrust
X-LRQ075AL-SV1	0.02 ° (0.349 mrad)	0.09921875 µm	100 N (22.4 lb)	100 N (22.4 lb)
X-LRQ075BL-SV1	0.02 ° (0.349 mrad)	0.49609375 µm	60 N (13.5 lb)	60 N (13.5 lb)
X-LRQ150AL-SV1	0.02 ° (0.349 mrad)	0.09921875 µm	100 N (22.4 lb)	100 N (22.4 lb)
X-LRQ150BL-SV1	0.02 ° (0.349 mrad)	0.49609375 µm	60 N (13.5 lb)	60 N (13.5 lb)
X-LRQ300AL-SV1	0.03 ° (0.523 mrad)	0.09921875 µm	100 N (22.4 lb)	100 N (22.4 lb)
X-LRQ300BL-SV1	0.03 ° (0.523 mrad)	0.49609375 µm	60 N (13.5 lb)	60 N (13.5 lb)
X-LRQ450AL-SV1	0.04 ° (0.698 mrad)	0.09921875 µm	100 N (22.4 lb)	100 N (22.4 lb)
X-LRQ450BL-SV1	0.04 ° (0.698 mrad)	0.49609375 µm	60 N (13.5 lb)	60 N (13.5 lb)
X-LRQ600AL-SV1	0.04 ° (0.698 mrad)	0.09921875 µm	100 N (22.4 lb)	100 N (22.4 lb)
X-LRQ600BL-SV1	0.04 ° (0.698 mrad)	0.49609375 µm	60 N (13.5 lb)	60 N (13.5 lb)

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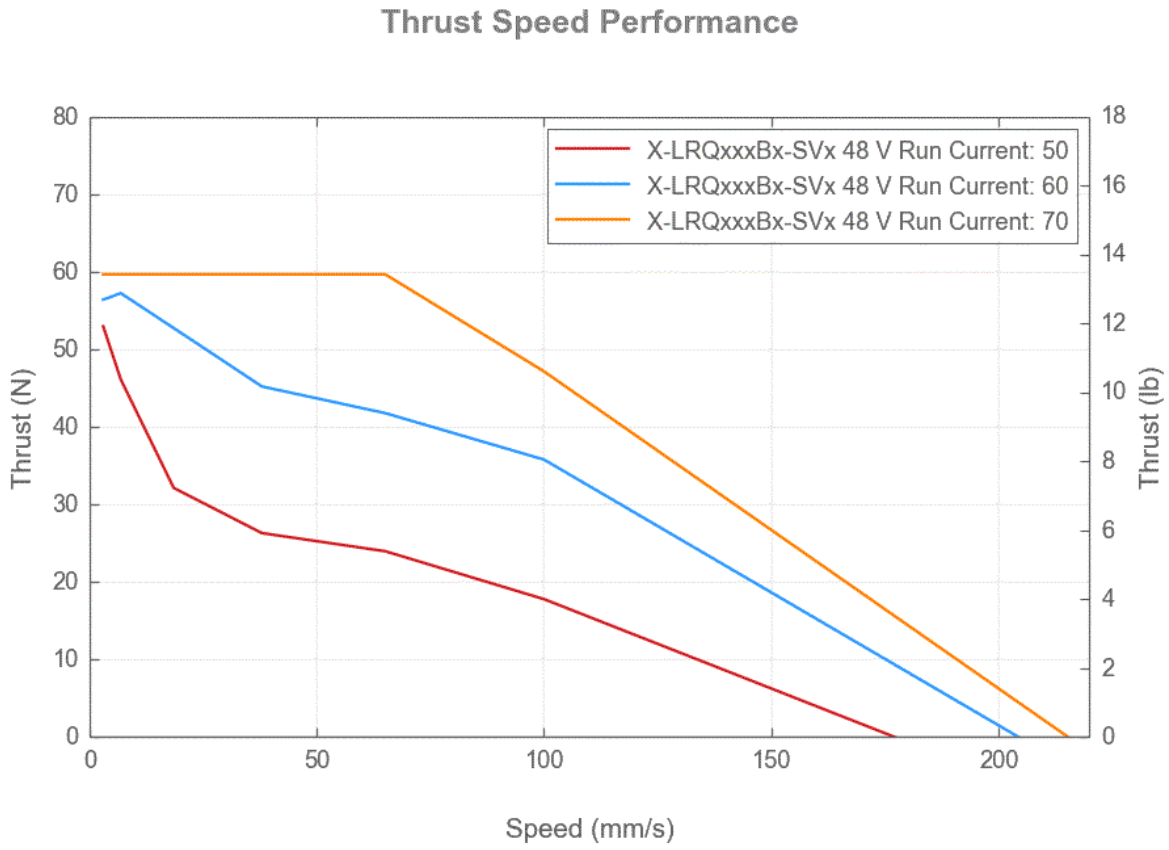
Part Number	Maximum Speed	Minimum Speed	Speed Resolution	Linear Motion Per Motor Rev
X-LRQ075AL-SV1	35 mm/s (1.378 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")
X-LRQ075BL-SV1	205 mm/s (8.071 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")
X-LRQ150AL-SV1	35 mm/s (1.378 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")
X-LRQ150BL-SV1	205 mm/s (8.071 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")
X-LRQ300AL-SV1	35 mm/s (1.378 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")
X-LRQ300BL-SV1	205 mm/s (8.071 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")
X-LRQ450AL-SV1	35 mm/s (1.378 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")
X-LRQ450BL-SV1	205 mm/s (8.071 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")
X-LRQ600AL-SV1	35 mm/s (1.378 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")
X-LRQ600BL-SV1	205 mm/s (8.071 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")

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X-LRQ-SV1 Series Charts

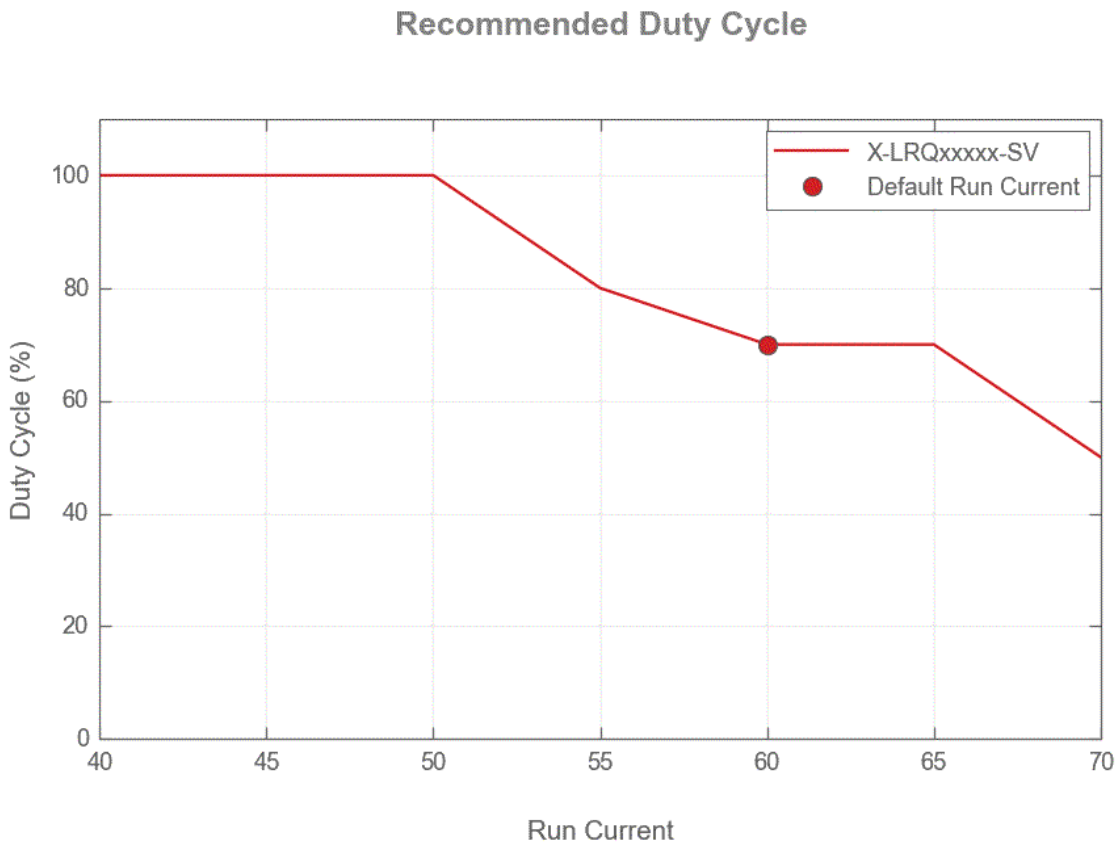
Thrust Speed



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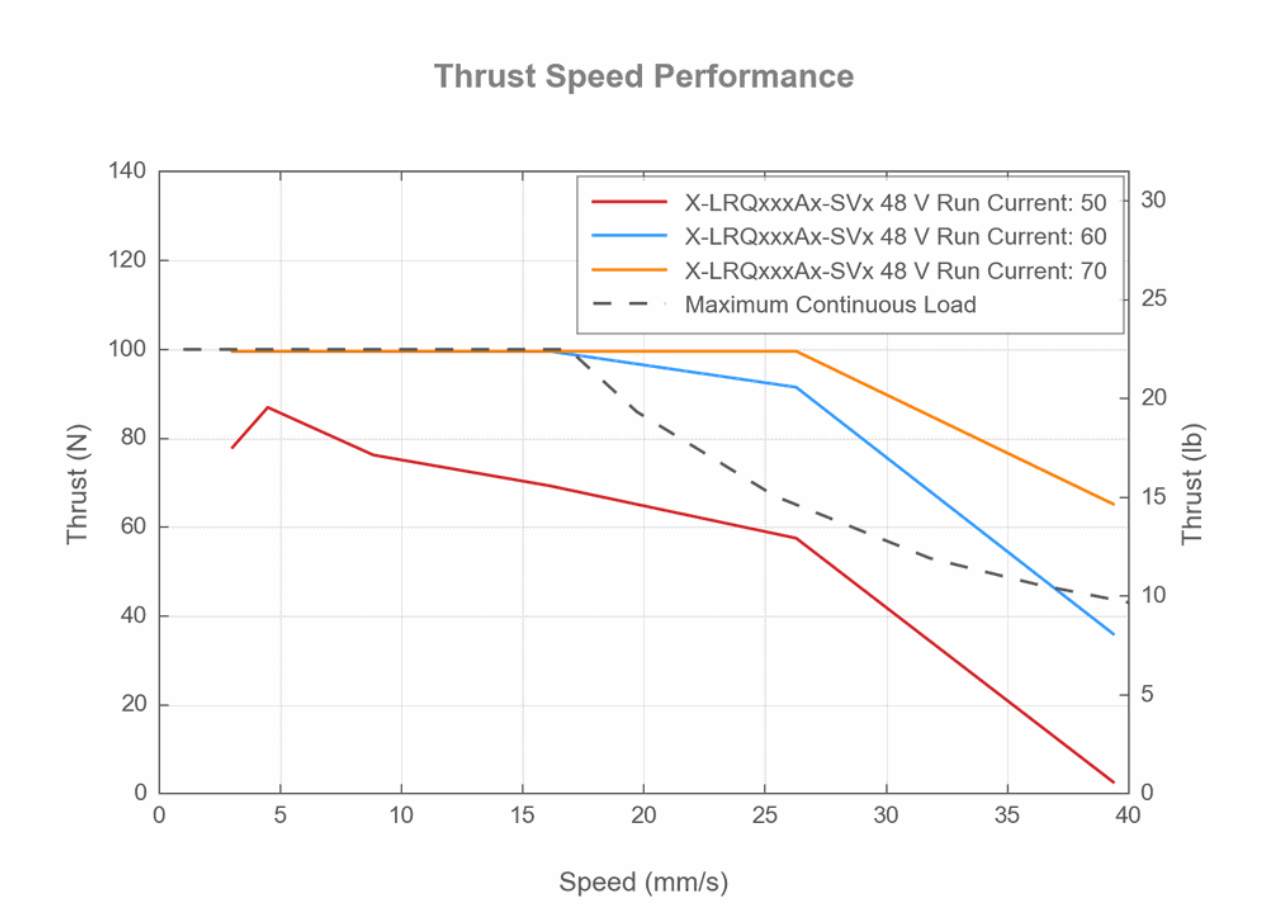
Duty Cycle Vs Run Current



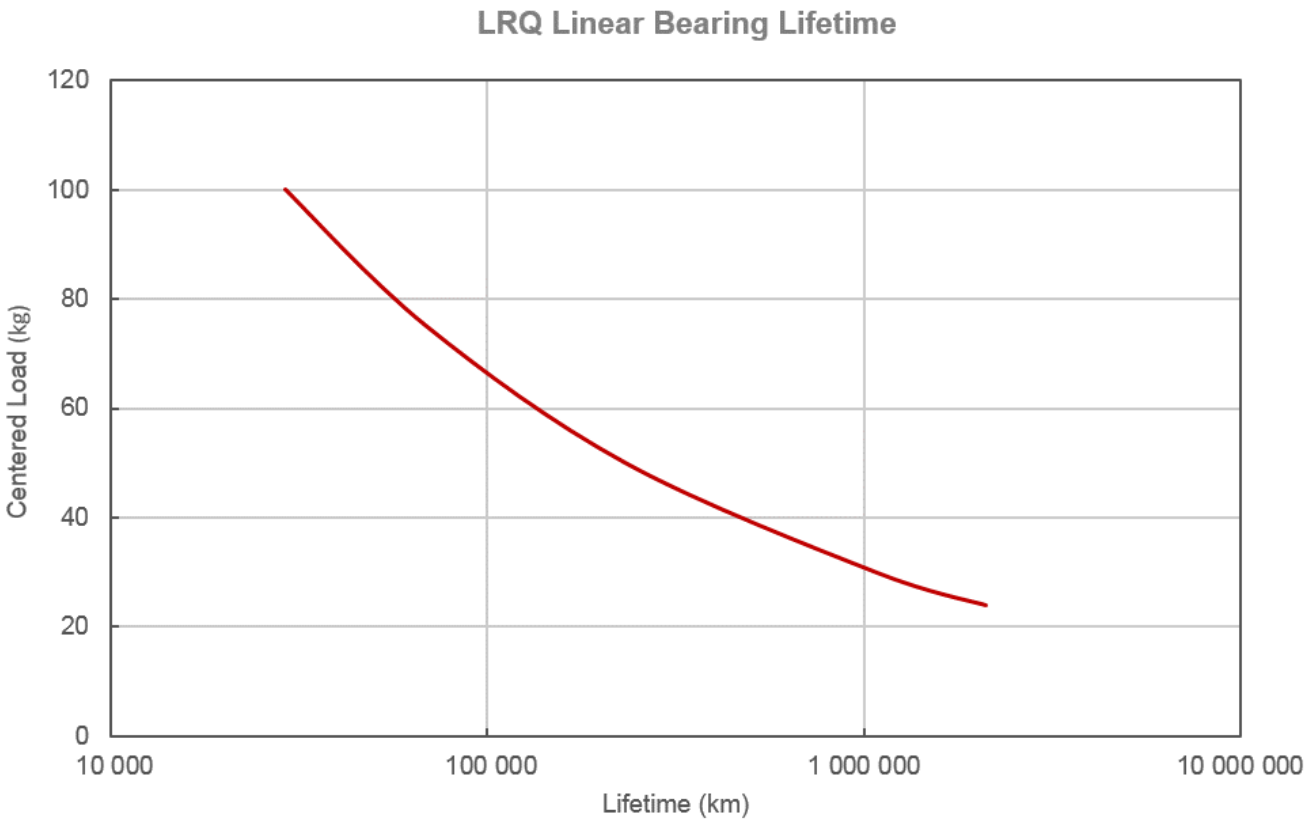
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X LRQxxxAx Vx Thrust Speed Performance



LRQ Lifetime



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LRQ-V1 Series Datasheet



- Vacuum compatible to 10-3 Torr
- 75, 150, 300, 450, 600 mm travel
- Up to 205 mm/s speed and up to 100 N thrust
- 100 kg load capacity
- Designed for use with an X-MCC Series stepper motor controller or any 2-phase stepper motor controller
- Only 7 feedthrough wires required to control these units

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LRQ-V1 Series Overview

For more information about the basics of a vacuum system and considerations to keep in mind when gathering requirements for your application, read our technical article, "Motion Device Design Considerations for Vacuum Applications".

Zaber's LRQ-V1 Series devices are low-vacuum, computer-controlled, motorized linear stages with high stiffness, load, and lifetime capabilities in a compact size.

At only 36 mm high, these vacuum stages are excellent for applications where a low profile is required. The LRQ-V1's innovative design allows speeds up to 205 mm/s and loads up to 100 kg. Like all of Zaber's products, the LRQ-V1 Series is designed to be very easy to set up and operate. These stages can bolt together into an XY system.

These stages are wired with a male D-sub 15 connector for plug-and-play use with our X-MCC Series stepper motor controllers. Simply cut the connector off for flying leads in vacuum and match the wire connections outside of the vacuum for an easy connection. Our handy kits include free software, and all of the accessories that you will need to get the stage running right out of the box.

For more information visit: https://www.zaber.com/products/vacuum-compatible-stages/LRQ-V1

LRQ-V1 Series Part Numbering & Options

LRQ 075 A L -V1 T4

Travel
- **075** — 75 mm
- **150** — 150 mm
- **300** — 300 mm
- **450** — 450 mm
- **600** — 600 mm

Lead Screw Options
- **A** — Fine pitch lead screw
- **B** — Medium pitch lead screw

Drive Configuration
- **L** — Inline

Options
- **-V1** — Low-vacuum compatible: 10-3 Torr

Connector
- **T4** — D-sub 15 inline connector

LRQ-V1 Series Drawings

- LRQxL-V.png (Drawing for the LRQxL-V)
- View all drawings and documents at zaber.com

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LRQ-V1 Series Specifications

Overview

Specification	Value
Built-in Controller	No
Recommended Controller	MCC (48 V) Recommended
AutoDetect	No
Manual Control	No
Axes of Motion	1

Positioning Performance

Specification	Value
Repeatability	<2.5 µm (<0.000098 ")
Default Resolution	1/64 of a step

Load Performance

Specification	Value
Maximum Centered Load	1000 N (224.3 lb)
Maximum Moment (Pitch)	30 N·m (22.1 lb·ft)
Maximum Moment (Roll)	30 N·m (22.14 lb·ft)
Maximum Moment (Yaw)	30 N·m (22.14 lb·ft)
Stiffness (Pitch)	500 N·m/°
Stiffness (Roll)	1180 N·m/°
Stiffness (Yaw)	450 N·m/°

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Encoder & Sensing

Specification	Value
Limit or Home Sensing	Magnetic home sensor

Motor

Specification	Value
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	2100 mA/phase
Motor Winding Inductance	2.8 mH/phase
Motor Connection	Teflon flying leads with D-sub15 connector

Mechanical

Specification	Value
Guide Type	Recirculating Ball Linear Guide
Mechanical Drive System	Precision lead screw
Mounting Interface	M6 and M3 threaded holes

Environmental & Compliance

Specification	Value
Operating Temperature Range	0 to 50 °C
CE Compliant	Yes
Vacuum Compatible	Low vacuum (10-3 Torr)

Part Number	Travel Range	Weight	Accuracy (unidirectional)	Backlash
LRQ075AL-V1T4	75 mm (2.953 ")	2.27 kg (5.004 lb)	23 µm (0.000906 ")	<15 µm (<0.000591 ")

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LRQ075BL-V1T4	75 mm (2.953 ")	2.27 kg (5.004 lb)	15 µm (0.000591 ")	<35 µm (<0.001378 ")
LRQ150AL-V1T4	150 mm (5.905 ")	2.64 kg (5.82 lb)	45 µm (0.001772 ")	<15 µm (<0.000591 ")
LRQ150BL-V1T4	150 mm (5.905 ")	2.64 kg (5.82 lb)	25 µm (0.000984 ")	<35 µm (<0.001378 ")
LRQ300AL-V1T4	300 mm (11.811 ")	3.4 kg (7.496 lb)	90 µm (0.003543 ")	<15 µm (<0.000591 ")
LRQ300BL-V1T4	300 mm (11.811 ")	3.4 kg (7.496 lb)	35 µm (0.001378 ")	<35 µm (<0.001378 ")
LRQ450AL-V1T4	450 mm (17.716 ")	4.15 kg (9.149 lb)	135 µm (0.005315 ")	<15 µm (<0.000591 ")
LRQ450BL-V1T4	450 mm (17.716 ")	4.15 kg (9.149 lb)	60 µm (0.002362 ")	<35 µm (<0.001378 ")
LRQ600AL-V1T4	600 mm (23.622 ")	4.86 kg (10.714 lb)	150 µm (0.005905 ")	<15 µm (<0.000591 ")
LRQ600BL-V1T4	600 mm (23.622 ")	4.86 kg (10.714 lb)	90 µm (0.003543 ")	<35 µm (<0.001378 ")

Part Number	Flatness of Travel	Straightness of Travel	Pitch Error	Roll Error
LRQ075AL-V1T4	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
LRQ075BL-V1T4	<20 µm (<0.000787 ")	<20 µm (<0.000787 ")	0.025 ° (0.436 mrad)	0.01 ° (0.174 mrad)
LRQ150AL-V1T4	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
LRQ150BL-V1T4	<25 µm (<0.000984 ")	<20 µm (<0.000787 ")	0.03 ° (0.523 mrad)	0.015 ° (0.262 mrad)
LRQ300AL-V1T4	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
LRQ300BL-V1T4	<35 µm (<0.001378 ")	<30 µm (<0.001181 ")	0.034 ° (0.593 mrad)	0.015 ° (0.262 mrad)
LRQ450AL-V1T4	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
LRQ450BL-V1T4	<45 µm (<0.001772 ")	<40 µm (<0.001575 ")	0.04 ° (0.698 mrad)	0.025 ° (0.436 mrad)
LRQ600AL-V1T4	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)

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LRQ600BL-V1T4	<75 µm (<0.002953 ")	<60 µm (<0.002362 ")	0.045 ° (0.785 mrad)	0.035 ° (0.611 mrad)

Part Number	Yaw Error	Microstep Size (Default Resolution)	Peak Thrust	Maximum Continuous Thrust
LRQ075AL-V1T4	0.02 ° (0.349 mrad)	0.09921875 µm	100 N (22.4 lb)	100 N (22.4 lb)
LRQ075BL-V1T4	0.02 ° (0.349 mrad)	0.49609375 µm	60 N (13.5 lb)	60 N (13.5 lb)
LRQ150AL-V1T4	0.02 ° (0.349 mrad)	0.09921875 µm	100 N (22.4 lb)	100 N (22.4 lb)
LRQ150BL-V1T4	0.02 ° (0.349 mrad)	0.49609375 µm	60 N (13.5 lb)	60 N (13.5 lb)
LRQ300AL-V1T4	0.03 ° (0.523 mrad)	0.09921875 µm	100 N (22.4 lb)	100 N (22.4 lb)
LRQ300BL-V1T4	0.03 ° (0.523 mrad)	0.49609375 µm	60 N (13.5 lb)	60 N (13.5 lb)
LRQ450AL-V1T4	0.04 ° (0.698 mrad)	0.09921875 µm	100 N (22.4 lb)	100 N (22.4 lb)
LRQ450BL-V1T4	0.04 ° (0.698 mrad)	0.49609375 µm	60 N (13.5 lb)	60 N (13.5 lb)
LRQ600AL-V1T4	0.04 ° (0.698 mrad)	0.09921875 µm	100 N (22.4 lb)	100 N (22.4 lb)
LRQ600BL-V1T4	0.04 ° (0.698 mrad)	0.49609375 µm	60 N (13.5 lb)	60 N (13.5 lb)

Part Number	Maximum Speed	Minimum Speed	Speed Resolution	Linear Motion Per Motor Rev
LRQ075AL-V1T4	35 mm/s (1.378 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")
LRQ075BL-V1T4	205 mm/s (8.071 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")
LRQ150AL-V1T4	35 mm/s (1.378 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")
LRQ150BL-V1T4	205 mm/s (8.071 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")
LRQ300AL-V1T4	35 mm/s (1.378 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")

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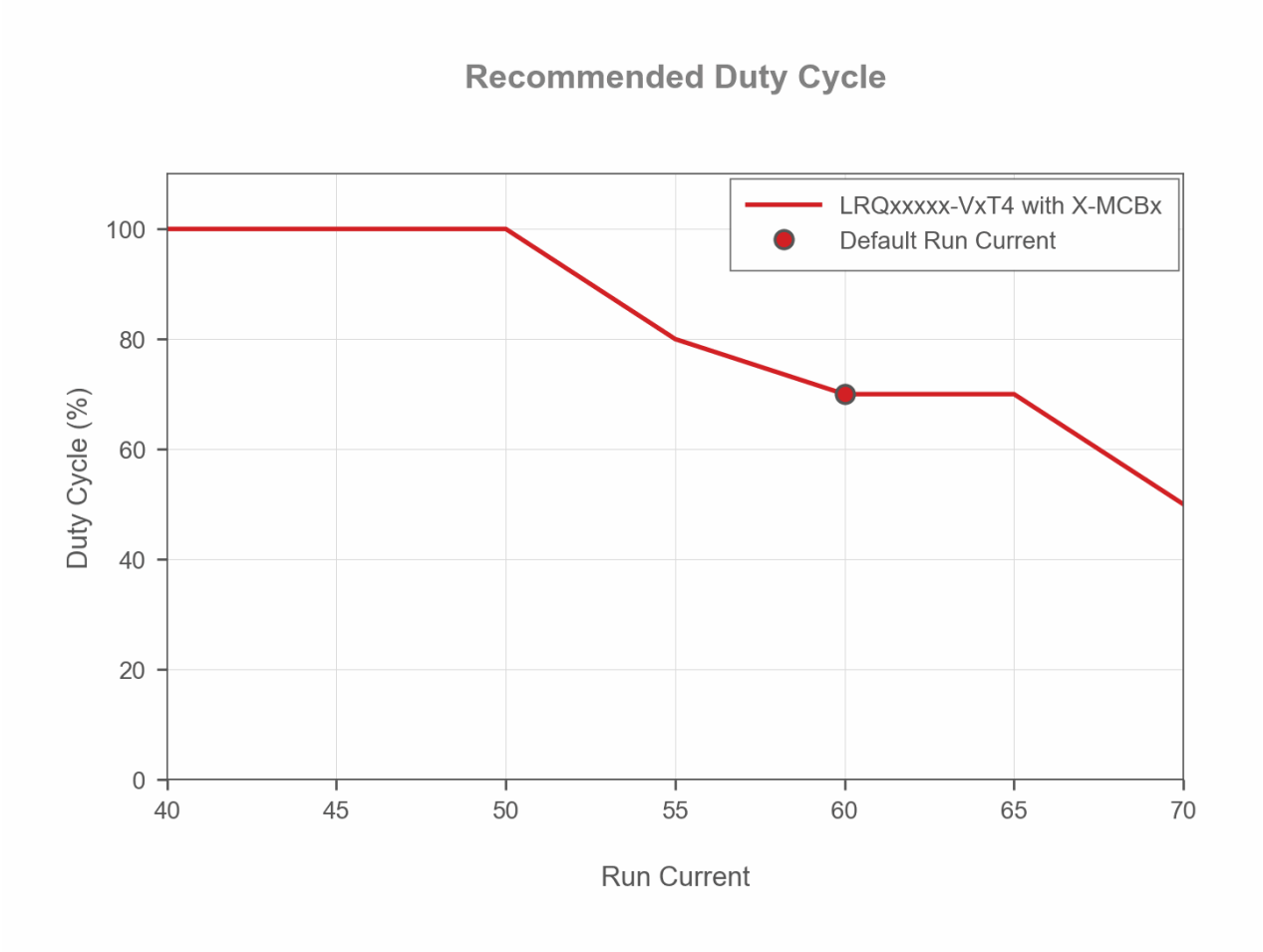
LRQ300BL-V1T4	205 mm/s (8.071 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")
LRQ450AL-V1T4	35 mm/s (1.378 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")
LRQ450BL-V1T4	205 mm/s (8.071 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")
LRQ600AL-V1T4	35 mm/s (1.378 "/s)	0.000061 mm/s (0.000002 "/s)	0.000061 mm/s (0.000002 "/s)	1.27 mm (0.05 ")
LRQ600BL-V1T4	205 mm/s (8.071 "/s)	0.000303 mm/s (0.000012 "/s)	0.000303 mm/s (0.000012 "/s)	6.35 mm (0.25 ")

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LRQ-V1 Series Charts

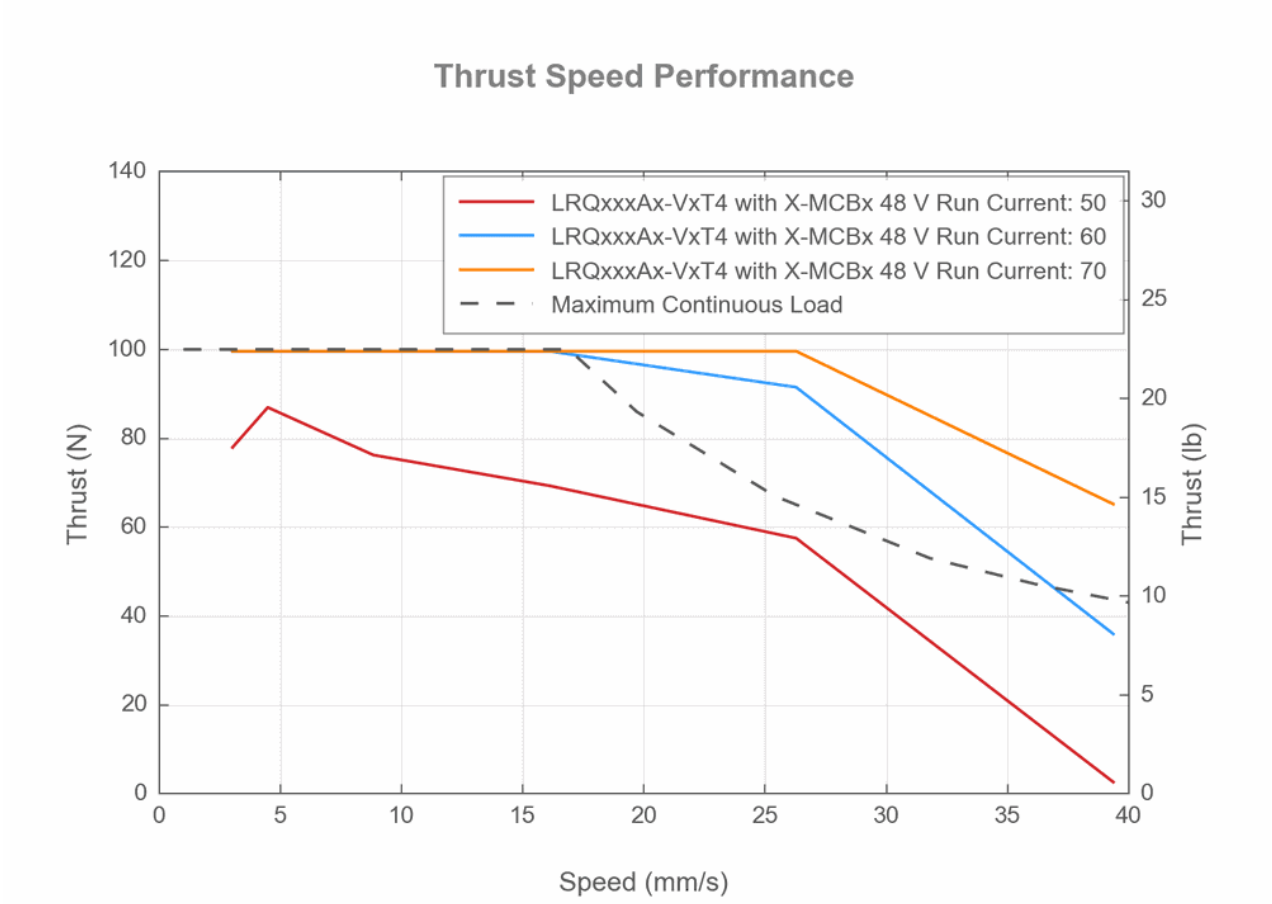
LRQxxxxx VxT4 With X MCBx Duty Cycle Vs Run Current



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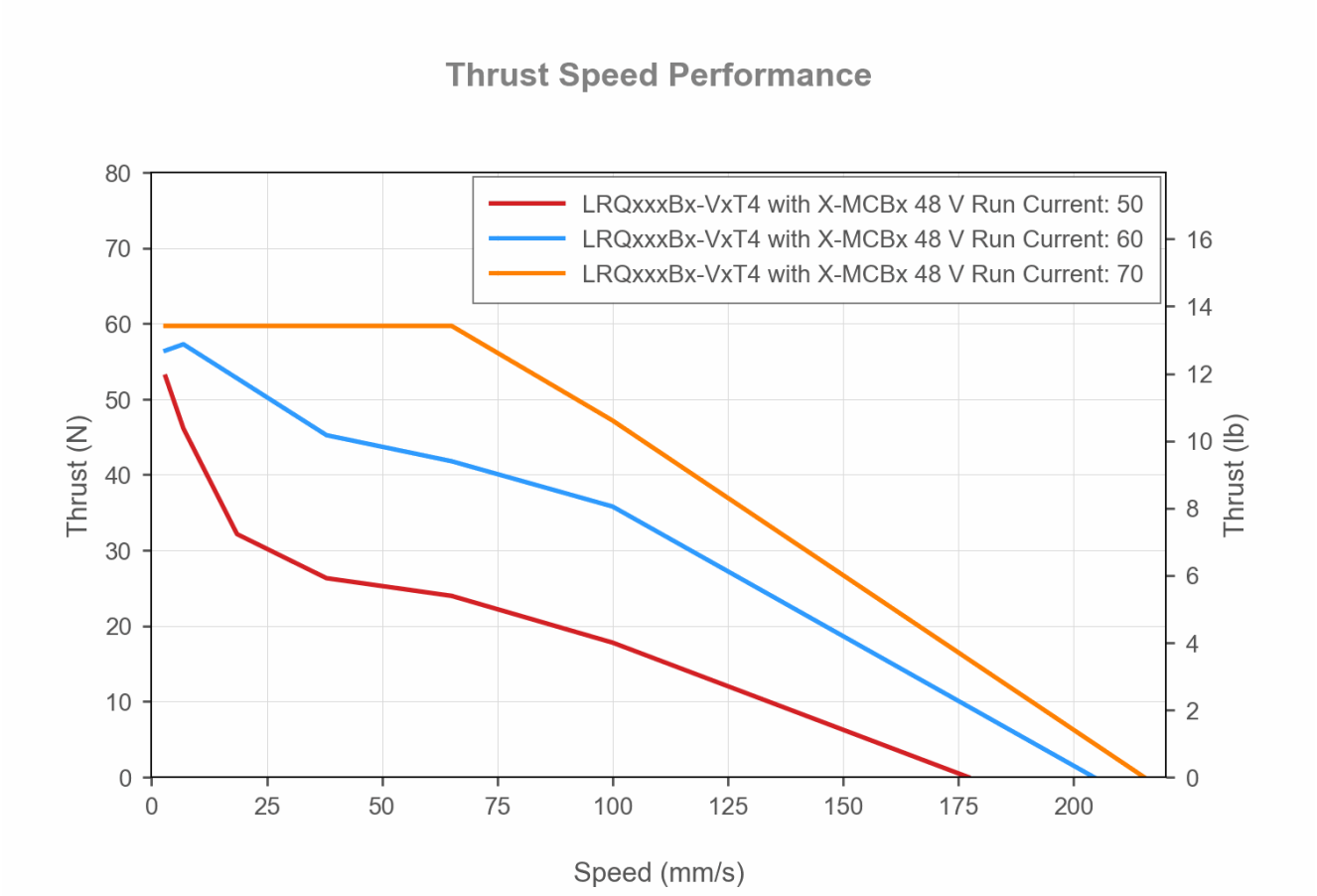
LRQxxxAx VxT4 Thrust Speed Performance



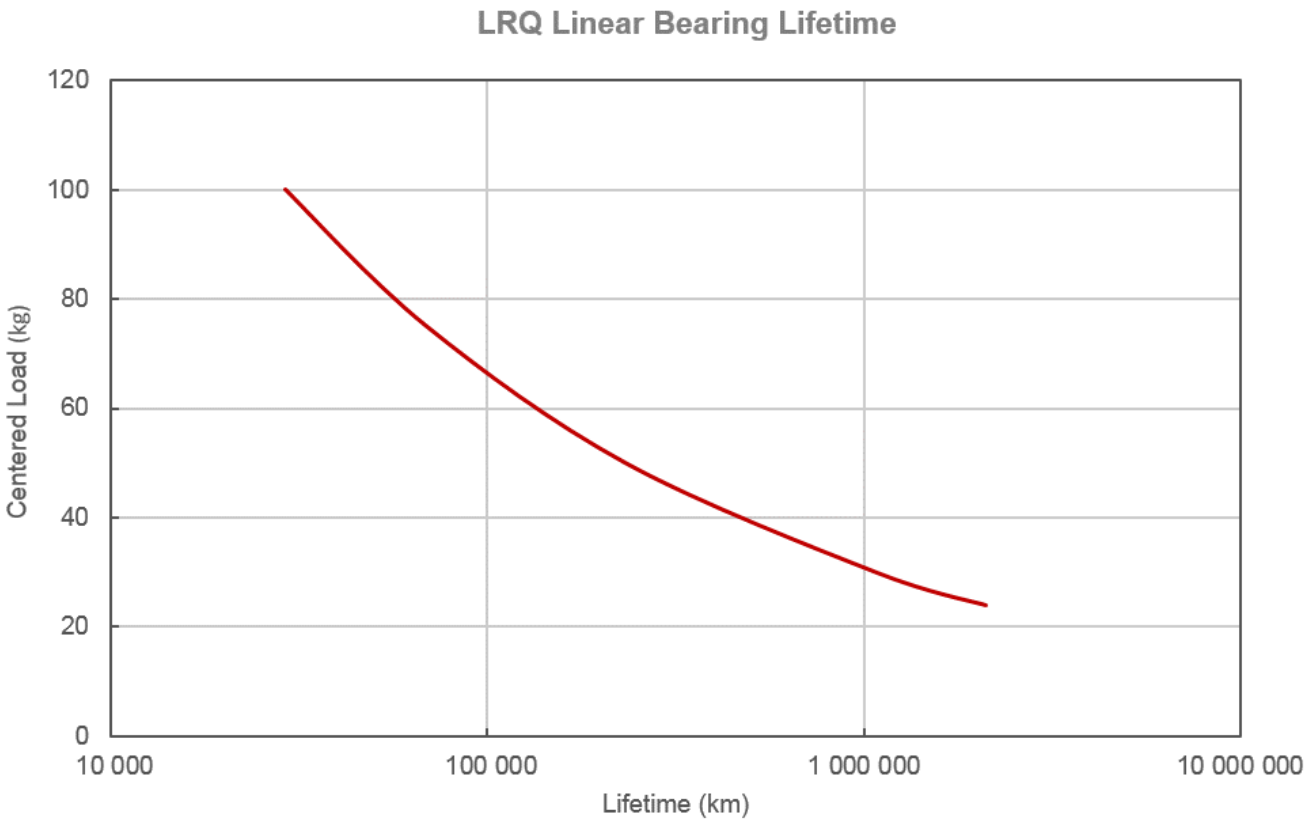
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LRQxxxBx VxT4 With X MCBx Thrust Speed



LRQ Lifetime



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