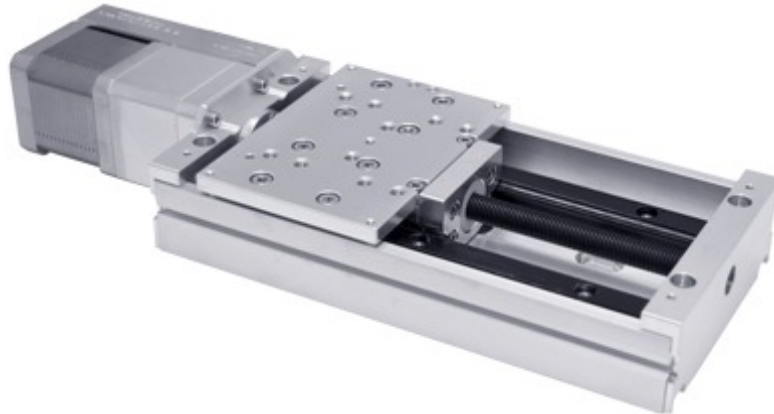


LRQ-V1 Series Datasheet



- 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 a X-MCB1 Series stepper motor controller or any 2-phase stepper motor controller
- Only 7 feedthrough wires required to control these units

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-MCB1 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

LRQ-V1 Series Drawings

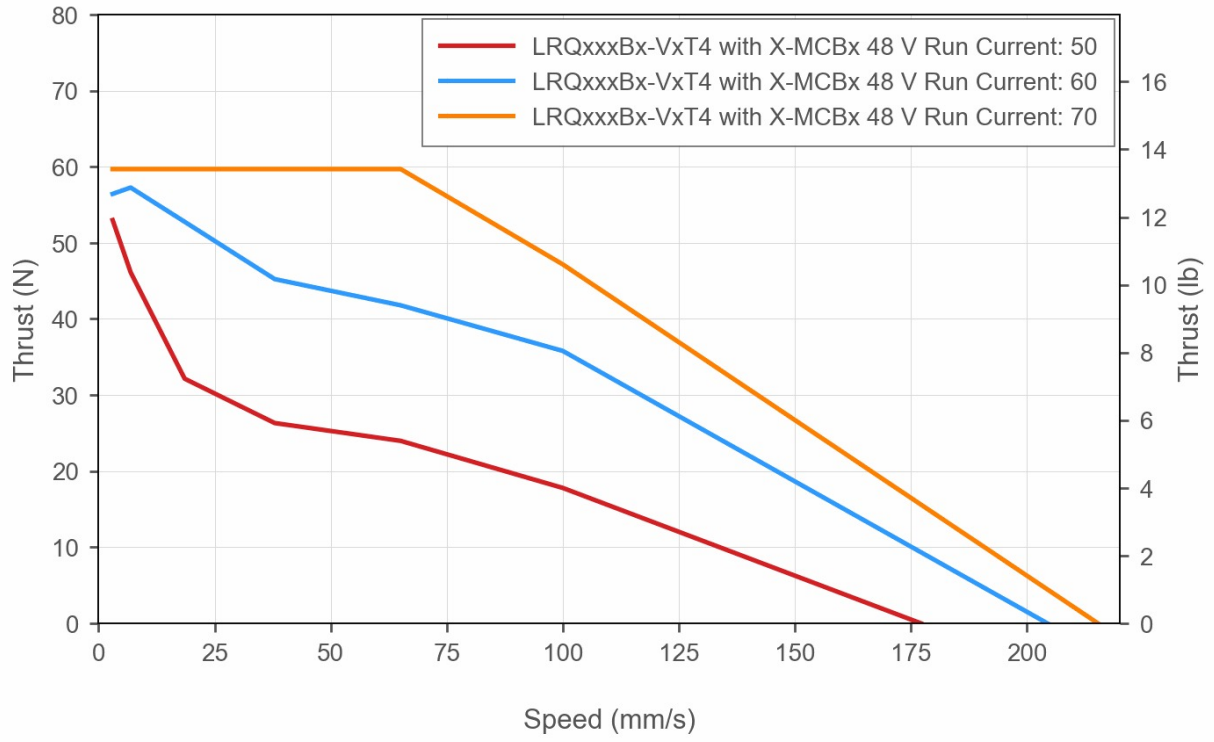
LRQ-V1 Series Specifications

Specification	Value	Alternate Unit
Microstep Size (Default Resolution)	0.09921875 μm	
Built-in Controller	No	
Recommended Controller	X-MCB1 (48 V) Recommended	
AutoDetect	No	
Travel Range	450 mm	17.716"
Accuracy (unidirectional)	135 μm	0.005315"
Repeatability	< 2.5 μm	< 0.000098"
Backlash	< 8 μm	< 0.000315"
Maximum Speed	35 mm/s	1.378"/s
Minimum Speed	0.000061 mm/s	0.000002"/s
Speed Resolution	0.000061 mm/s	0.000002"/s
Peak Thrust	100 N	22.4 lb
Maximum Continuous Thrust	100 N	22.4 lb
Maximum Centered Load	1000 N	224.3 lb
Maximum Cantilever Load	3000 N-cm	4248.4 oz-in
Guide Type	Recirculating Ball Linear Guide	
Vertical Runout	< 45 μm	< 0.001772"
Horizontal Runout	< 40 μm	< 0.001575"
Pitch	0.04°	0.698 mrad
Roll	0.025°	0.436 mrad
Yaw	0.04°	0.698 mrad
Stiffness in Pitch	640 N-m/°	27 $\mu\text{rad/N-m}$
Stiffness in Roll	1850 N-m/°	9 $\mu\text{rad/N-m}$
Stiffness in Yaw	665 N-m/°	26 $\mu\text{rad/N-m}$
Linear Motion Per Motor Rev	1.27 mm	0.050"
Motor Steps Per Rev	200	
Motor Type	Stepper (2 phase)	
Motor Rated Current	2100 mA/phase	
Inductance	2.8 mH/phase	
Motor Connection	Teflon flying leads with D-sub15 connector	

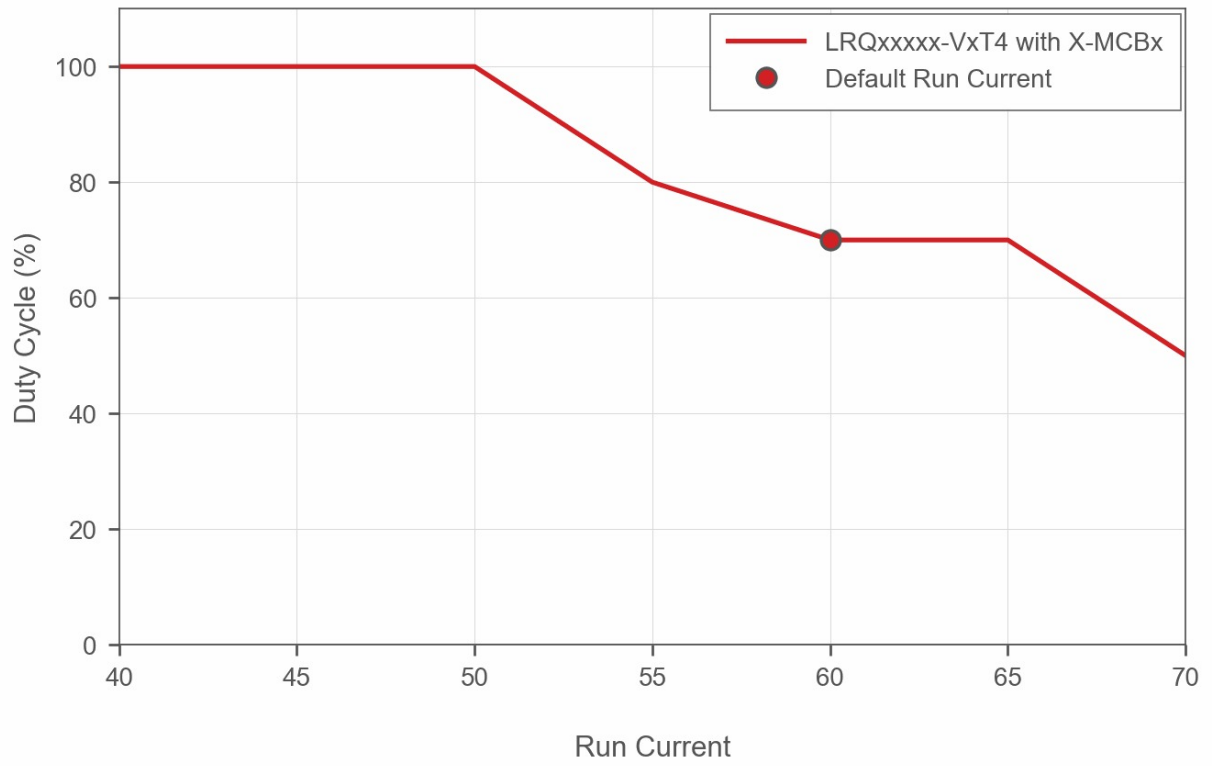
Specification	Value	Alternate Unit
Default Resolution	1/64 of a step	
Mechanical Drive System	Precision lead screw	
Limit or Home Sensing	Magnetic home sensor	
Manual Control	No	
Axes of Motion	1	
Mounting Interface	M6 and M3 threaded holes	
Operating Temperature Range	0 to 50 °C	
Vacuum Compatible	Low vacuum (10-3 Torr)	
RoHS Compliant	Yes	
CE Compliant	Yes	
Weight	4.15 kg	9.149 lb

LRQ-V1 Series Charts

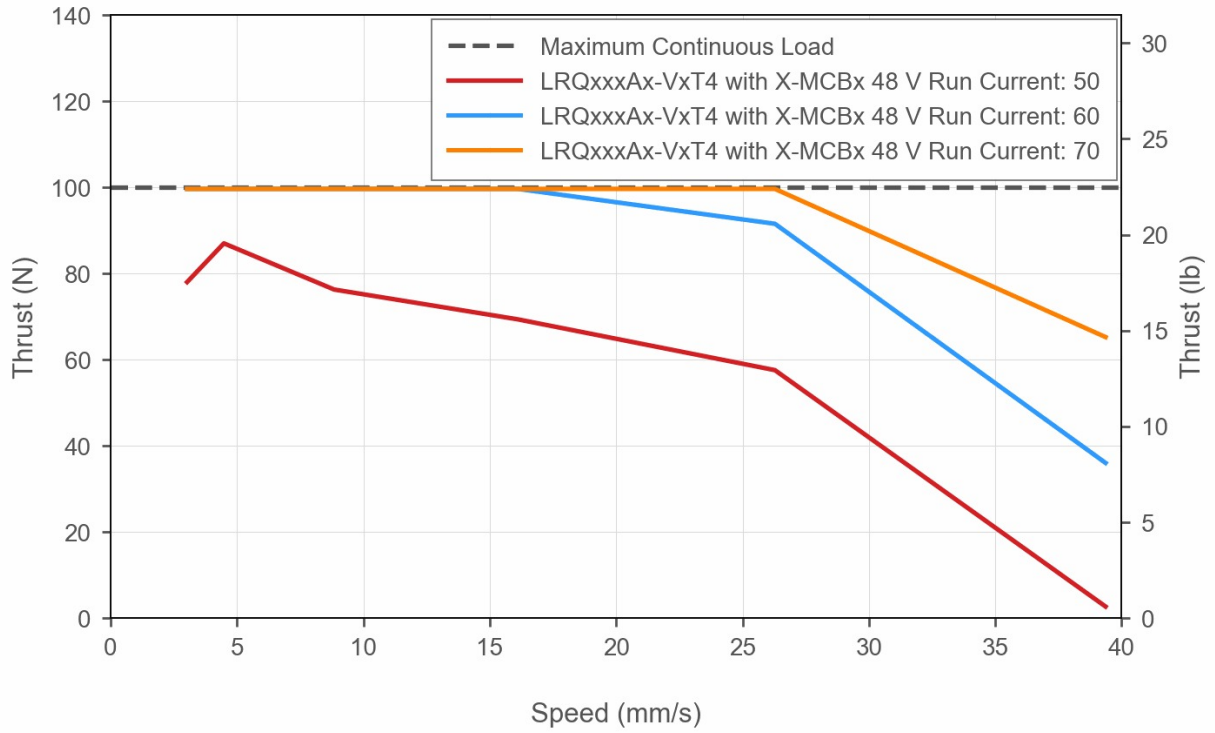
Thrust Speed Performance



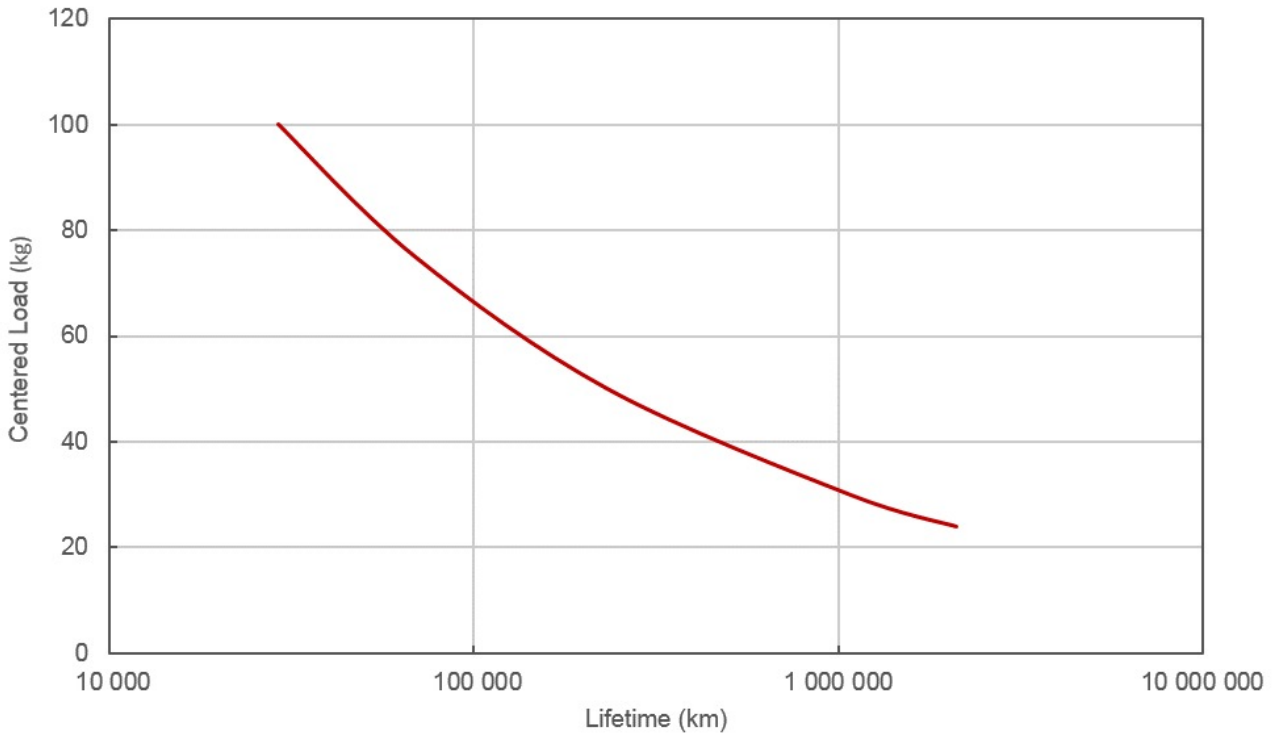
Recommended Duty Cycle



Thrust Speed Performance



LRQ Linear Bearing Lifetime



Contact

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