



X-LRQ-SV2 Series Datasheet



- Vacuum compatible to 10^{-6} Torr
- 75, 150, 300, 450, 600 mm travel
- 100 kg load capacity
- Up to 205 mm/s speed and up to 100 N thrust
- 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

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.

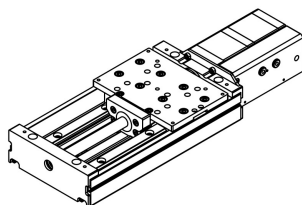
These stages connect to the RS-232 port or USB port of any computer, and they can be daisy-chained with any other Zaber products. The daisy-chain also shares power, making it possible for multiple X-Series products to share a single power supply.

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.

Drawings

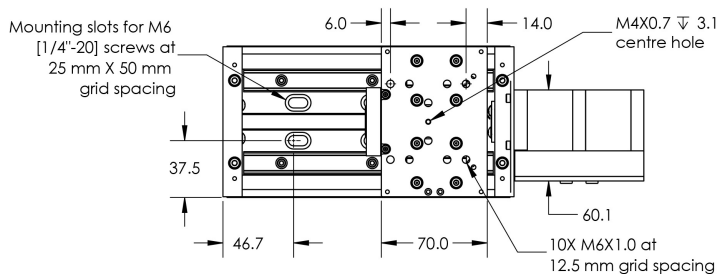
ZABER

X-LRQxl-SV Vacuum Compatible Motorized Linear Stage
 dimensions in mm



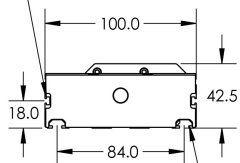
Model Number*	Travel	A	B
X-LRQ075xL-SV	75.0	278.2	167.0
X-LRQ150xL-SV	150.0	353.2	242.0
X-LRQ300xL-SV	300.0	503.2	392.0
X-LRQ450xL-SV	450.0	653.2	542.0
X-LRQ600xL-SV	600.0	803.2	692.0

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

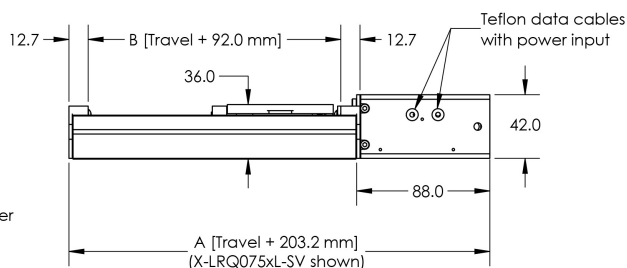


Recommended fastener for side T-slots: standard M2.5 nuts

Note: Do not mount stage using these side T-slots. For accessories only



Recommended fastener for bottom T-slots: 6mm T-nuts



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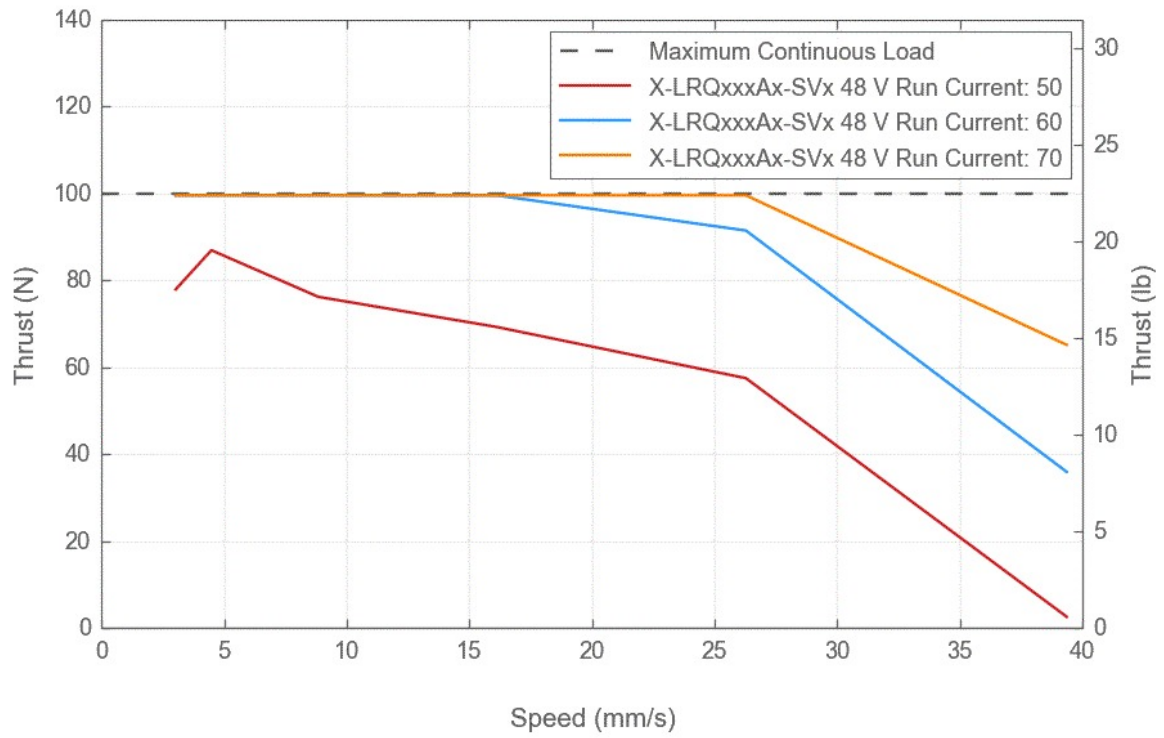
Specifications

Specification	Value	Alternate Unit
Microstep Size (Default Resolution)	0.09921875 μm	
Built-in Controller	Yes	
Travel Range	75 mm	2.953 "
Accuracy (unidirectional)	23 μm	0.000906 "
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
Communication Interface	RS-232	
Communication Protocol	Zaber ASCII (Default), Zaber Binary	
Maximum Centered Load	1000 N	224.3 lb
Maximum Cantilever Load	3000 N-cm	4248.4 oz-in
Guide Type	Recirculating Ball Linear Guide	
Vertical Runout	< 20 μm	< 0.000787 "
Horizontal Runout	< 20 μm	< 0.000787 "
Pitch	0.025 $^{\circ}$	0.436 mrad
Stiffness in Pitch	640 N-m/ $^{\circ}$	27 $\mu\text{rad/N-m}$
Roll	0.01 $^{\circ}$	0.174 mrad
Stiffness in Roll	1850 N-m/ $^{\circ}$	9 $\mu\text{rad/N-m}$
Yaw	0.02 $^{\circ}$	0.349 mrad
Stiffness in Yaw	665 N-m/ $^{\circ}$	26 $\mu\text{rad/N-m}$
Maximum Current Draw	1200 mA	
Power Supply	24-48 VDC	
Power Plug	None, use X-PIB	
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	

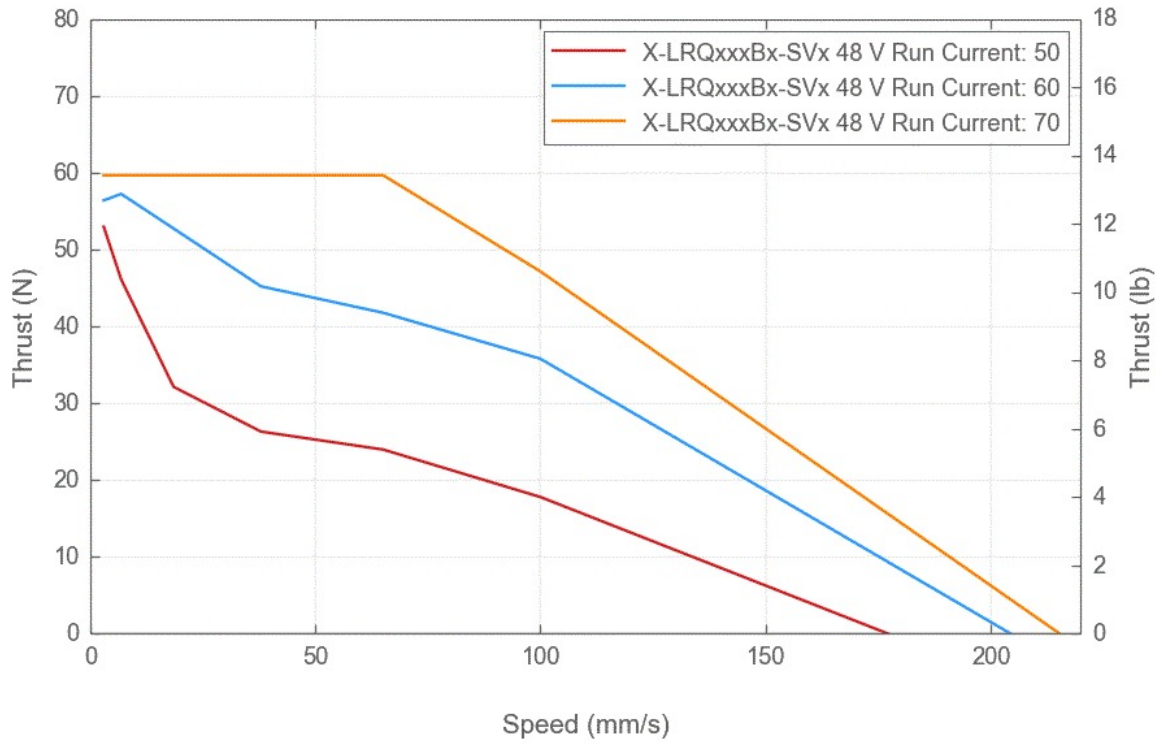
Specification	Value	Alternate Unit
Inductance	2.8 mH/phase	
Default Resolution	1/64 of a step	
Data Cable Connection	Teflon flying leads with M8 4 pin M/F	
Mechanical Drive System	Precision lead screw	
Limit or Home Sensing	Magnetic home sensor	
Manual Control	No	
Axes of Motion	1	
LED Indicators	Yes	
Mounting Interface	M6 and M3 threaded holes	
Vacuum Compatible	High vacuum (10 ⁻⁶ Torr)	
Operating Temperature Range	0 to 50 °C	
RoHS Compliant	Yes	
CE Compliant	Yes	
Weight	2.27 kg	5.004 lb

Charts

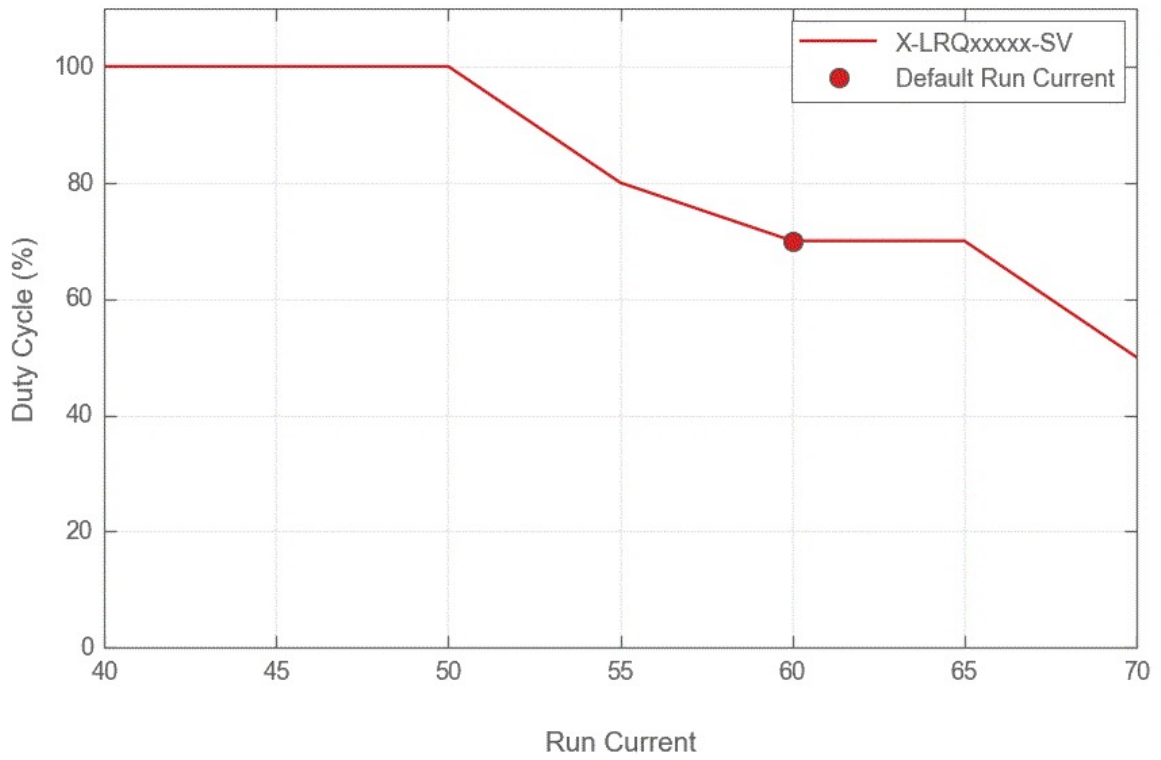
Thrust Speed Performance



Thrust Speed Performance



Recommended Duty Cycle



LRQ Linear Bearing Lifetime

