

## X-LRQ075AL-SV1 Datasheet



- Vacuum compatible to 10<sup>-3</sup> 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

### 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".

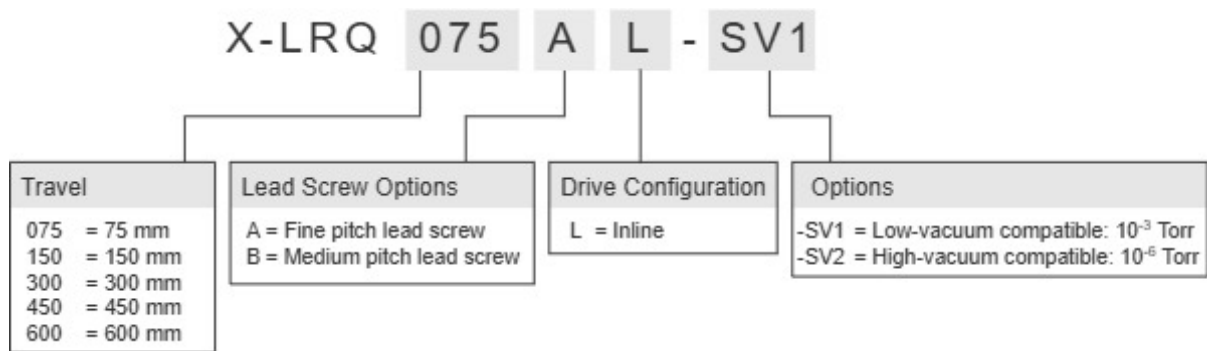
Zaber's X-LRQ-SV1 Series devices are low-vacuum, computer-controlled, motorized linear stages with high stiffness, load, and lifetime capabilities in a compact size. They are stand-alone units requiring only a standard 24 V or 48 V power supply.

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-LRQ075AL-SV1 Drawings

- [X-LRQxL-SV.png \(Dimension Drawing for the X-LRQxL-SV\)](#)

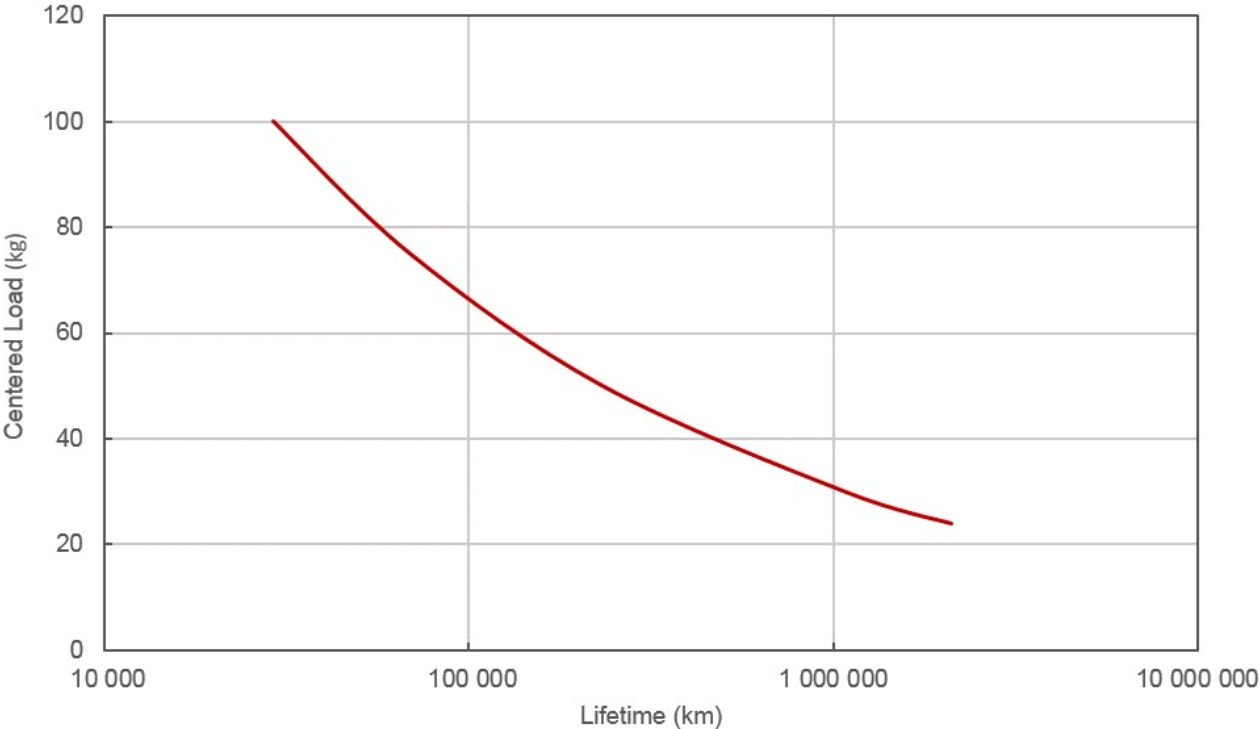
## X-LRQ075AL-SV1 Specifications

|  |  |
|--|--|
| <b>Microstep Size (Default Resolution)</b> | <b>0.09921875 <math>\mu\text{m}</math></b> |
| Built-in Controller                        | Yes  |
| Travel Range                               | 75 mm (2.953")                             |
| Accuracy (unidirectional)                  | 23 $\mu\text{m}$ (0.000906")               |
| Repeatability                              | < 2.5 $\mu\text{m}$ (< 0.000098")          |
| Backlash                                   | < 8 $\mu\text{m}$ (< 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)                            |
| Communication Interface                    | RS-232                                     |
| Communication Protocol                     | Zaber ASCII (Default), Zaber Binary        |
| Data Cable Connection                      | Teflon flying leads with M8 4 pin M/F      |
| Maximum Centered Load                      | 1000 N (224.3 lb)                          |
| Maximum Moment (Pitch)                     | 30 N-m (22.1 ft-lb)                        |
| Maximum Moment (Roll)                      | 30 N-m (22.1 ft-lb)                        |
| Maximum Moment (Yaw)                       | 30 N-m (22.1 ft-lb)                        |
| Vertical Runout                            | < 20 $\mu\text{m}$ (< 0.000787")           |
| Horizontal Runout                          | < 20 $\mu\text{m}$ (< 0.000787")           |
| Pitch                                      | 0.025° (0.436 mrad)                        |
| Roll                                       | 0.01° (0.174 mrad)                         |
| Yaw  | 0.02° (0.349 mrad)                         |
| Stiffness in Pitch                         | 500 N-m/° (35 $\mu\text{rad/N-m}$ )        |
| Stiffness in Roll                          | 1180 N-m/° (15 $\mu\text{rad/N-m}$ )       |
| Stiffness in Yaw                           | 450 N-m/° (39 $\mu\text{rad/N-m}$ )        |
| Power Supply                               | 24-48 VDC                                  |
| Power Plug                                 | None, use X-PIB                            |
| Maximum Current Draw                       | 1900 mA                                    |
| Linear Motion Per Motor Rev                | 1.27 mm (0.050")                           |
| Motor Steps Per Rev                        | 200  |

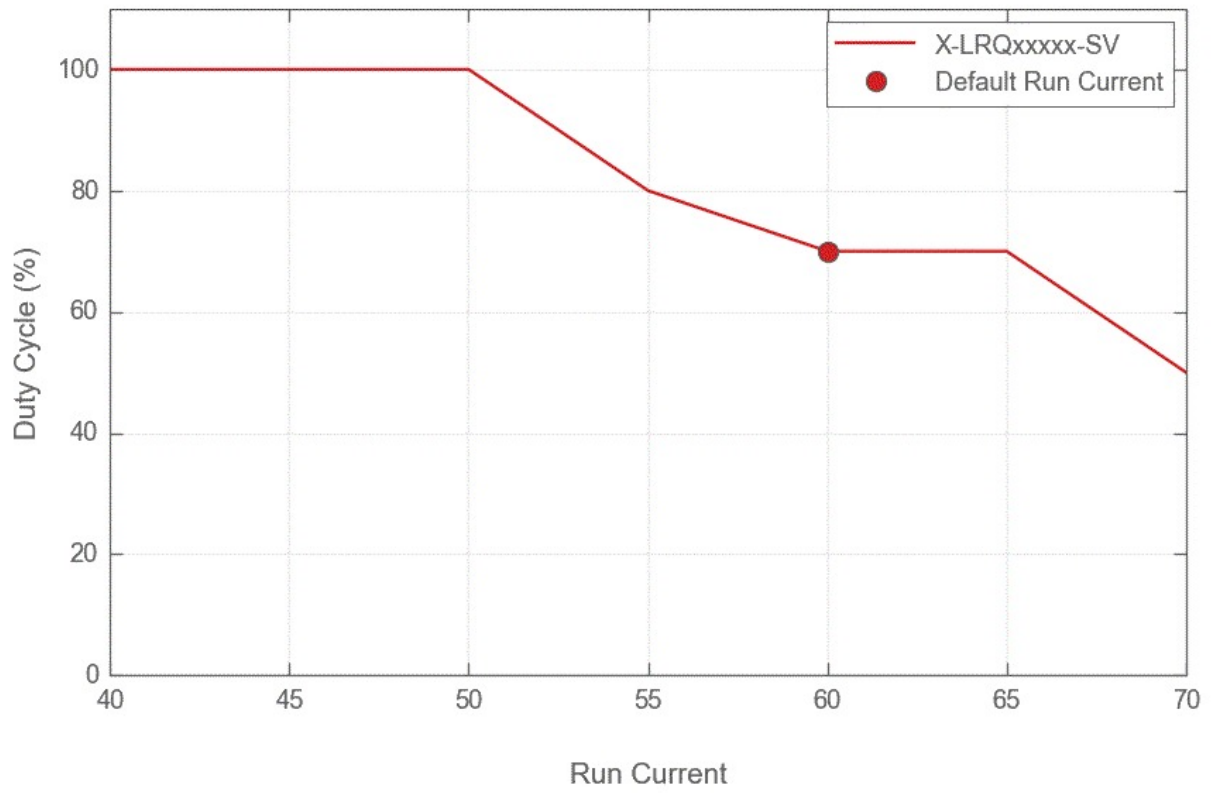
|  |  |
|--|--|
| <b>Microstep Size (Default Resolution)</b> | <b>0.09921875 <math>\mu\text{m}</math></b> |
| Motor Type                                 | Stepper (2 phase)                          |
| Motor Rated Current                        | 2100 mA/phase                              |
| Inductance                                 | 2.8 mH/phase                               |
| Default Resolution                         | 1/64 of a step                             |
| Guide Type                                 | Recirculating Ball Linear Guide            |
| 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                   |
| Operating Temperature Range                | 0 to 50 °C                                 |
| CE Compliant                               | Yes  |
| Vacuum Compatible                          | Low vacuum (10 <sup>-3</sup> Torr)         |
| Weight                                     | 2.27 kg (5.004 lb)                         |

X-LRQ-SV1 Series Charts

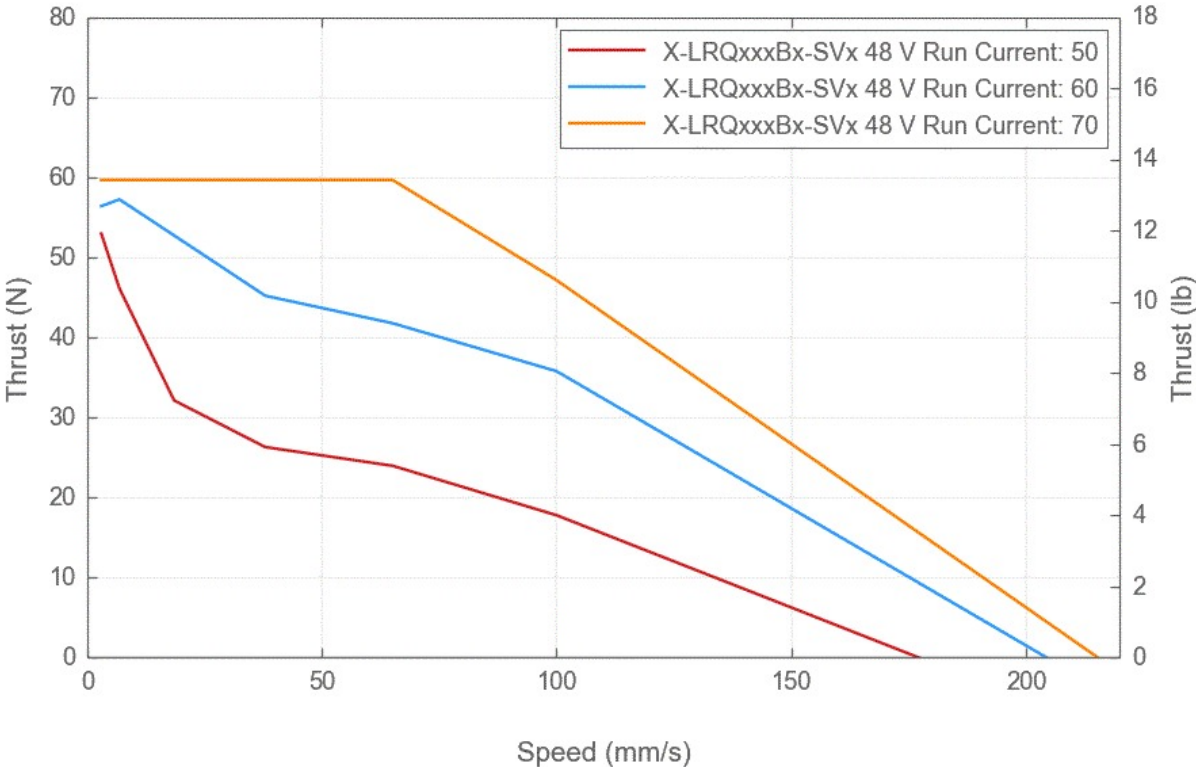
LRQ Linear Bearing Lifetime



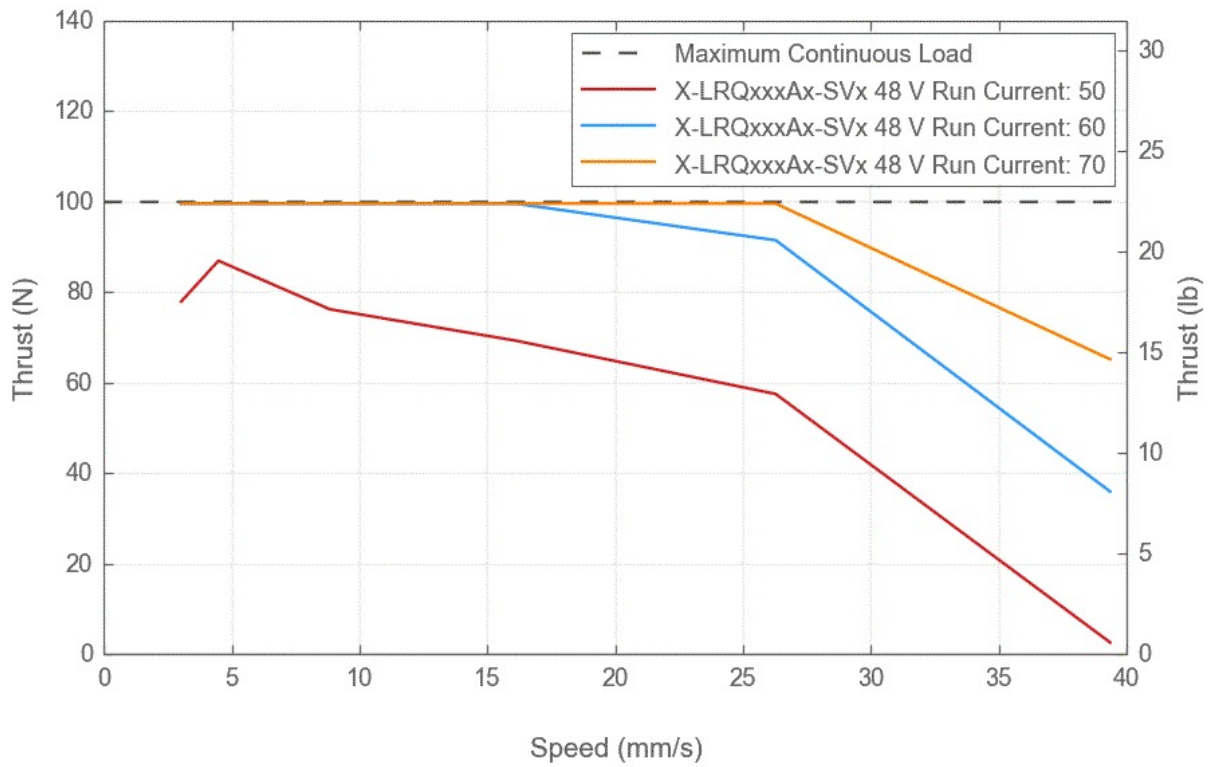
## Recommended Duty Cycle



### Thrust Speed Performance



## Thrust Speed Performance



## Contact

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