

- Vacuum compatible to 10⁻⁶ Torr
- 25, 50, 100, 150, 200 mm travel
- 10 kg load capacity
- Up to 100 mm/s speed and up to 35 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)

Product Description

We recently released the X-LSM-SV2, a new and improved low vacuum motorized linear stage with built-in controller. If you are looking for the T-LSM-SV2, please see the T-LSM-SV2 page.

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-LSM-SV2 Series devices are high-vacuum compatible, computer-controlled, motorized linear stages with high thrust and speed capabilities, and a compact size. They are stand-alone units requiring only a standard 24 V or 48 V power supply.

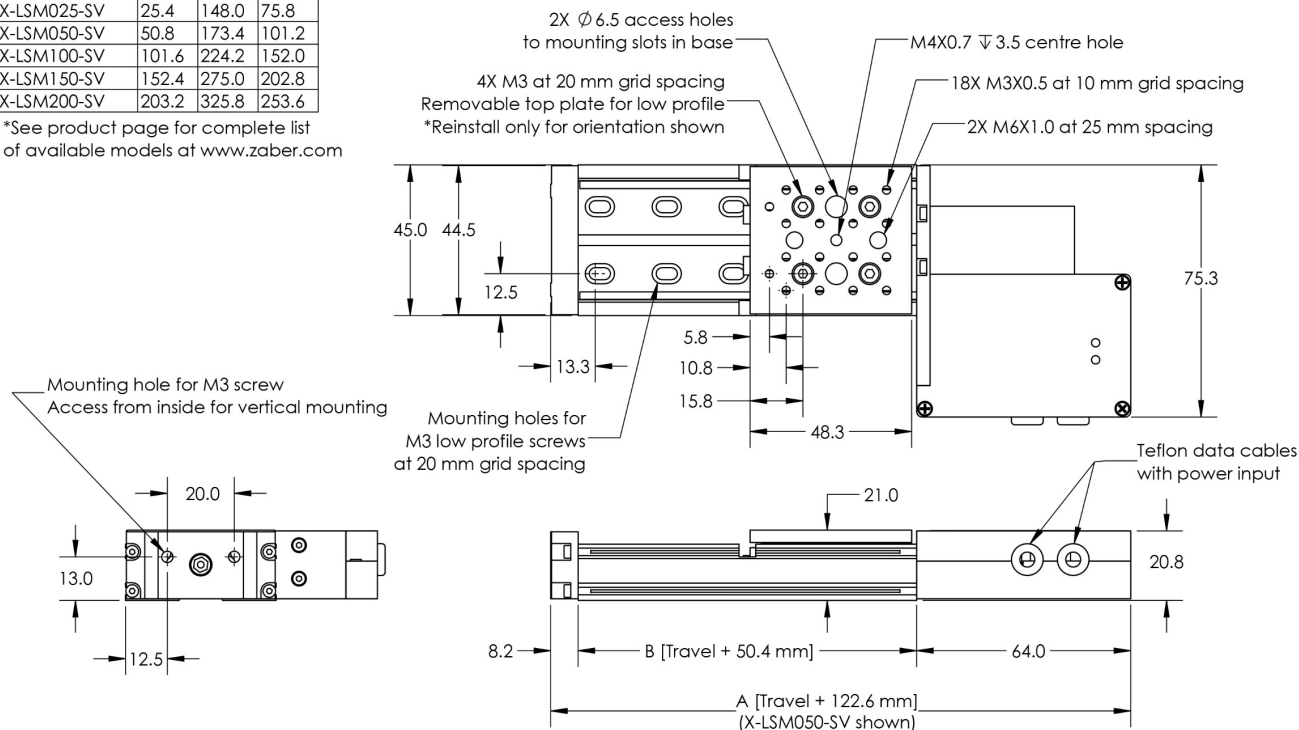
These stages connect to the RS-232 port or USB port of any computer, and they can be daisy-chained with any other Zaber products. The daisy-chain also shares power, making it possible for multiple X-Series products to share a single power supply.

At only 21 mm high, these miniature stages are excellent for applications where a small profile is required. The X-LSM-SV2 is designed with vacuum compatible materials to minimize outgassing and allow for faster pump down times. Like all of Zaber's products, the X-LSM-SV2 Series is designed to be 'plug and play' and very easy to set up and operate.

Dimension Drawings

Model Number*	Travel	A	B
X-LSM025-SV	25.4	148.0	75.8
X-LSM050-SV	50.8	173.4	101.2
X-LSM100-SV	101.6	224.2	152.0
X-LSM150-SV	152.4	275.0	202.8
X-LSM200-SV	203.2	325.8	253.6

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



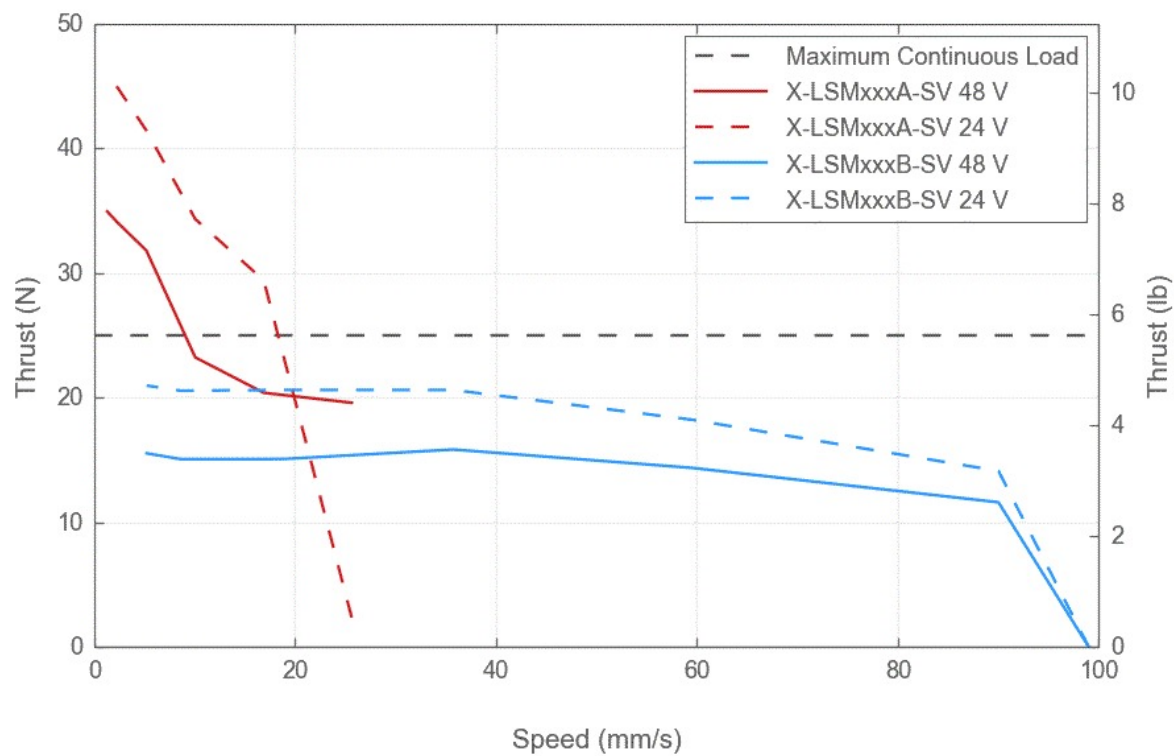
Product Specifications

Specification	Value	Alternate Unit
Microstep Size (Default Resolution)	0.1905 μm	
Built-in Controller	Yes	
Travel Range	50.8 mm	2.000 "
Accuracy (unidirectional)	15 μm	0.000591 "
Repeatability	< 4 μm	< 0.000157 "
Backlash	< 13 μm	< 0.000512 "
Maximum Speed	100 mm/s	3.937 "/s
Minimum Speed	0.000116 mm/s	0.000005 "/s
Speed Resolution	0.000116 mm/s	0.000005 "/s
Encoder Type	None	
Peak Thrust	15 N	3.4 lb
Maximum Continuous Thrust	25 N	5.6 lb
Communication Interface	RS-232	
Communication Protocol	Zaber ASCII (Default), Zaber Binary	
Maximum Centered Load	100 N	22.4 lb
Maximum Cantilever Load	300 N @ 100 mm	67.4 lb @ 40 in
Guide Type	Needle roller bearing	
Vertical Runout	< 8 μm	< 0.000315 "
Horizontal Runout	< 12 μm	< 0.000472 "
Pitch	0.02°	0.349 mrad
Roll	0.005°	0.087 mrad
Yaw	0.02°	0.349 mrad
Maximum Current Draw	350 mA	
Power Supply	24-48 VDC	
Power Plug	None, use X-PIB	
Linear Motion Per Motor Rev	2.4384 mm	0.096 "
Motor Steps Per Rev	200	
Motor Type	Stepper (2 phase)	
Motor Rated Current	800 mA/phase	
Inductance	3.5 mH/phase	
Default Resolution	1/64 of a step	
Data Cable Connection	Teflon flying leads with M8 4 pin M/F	

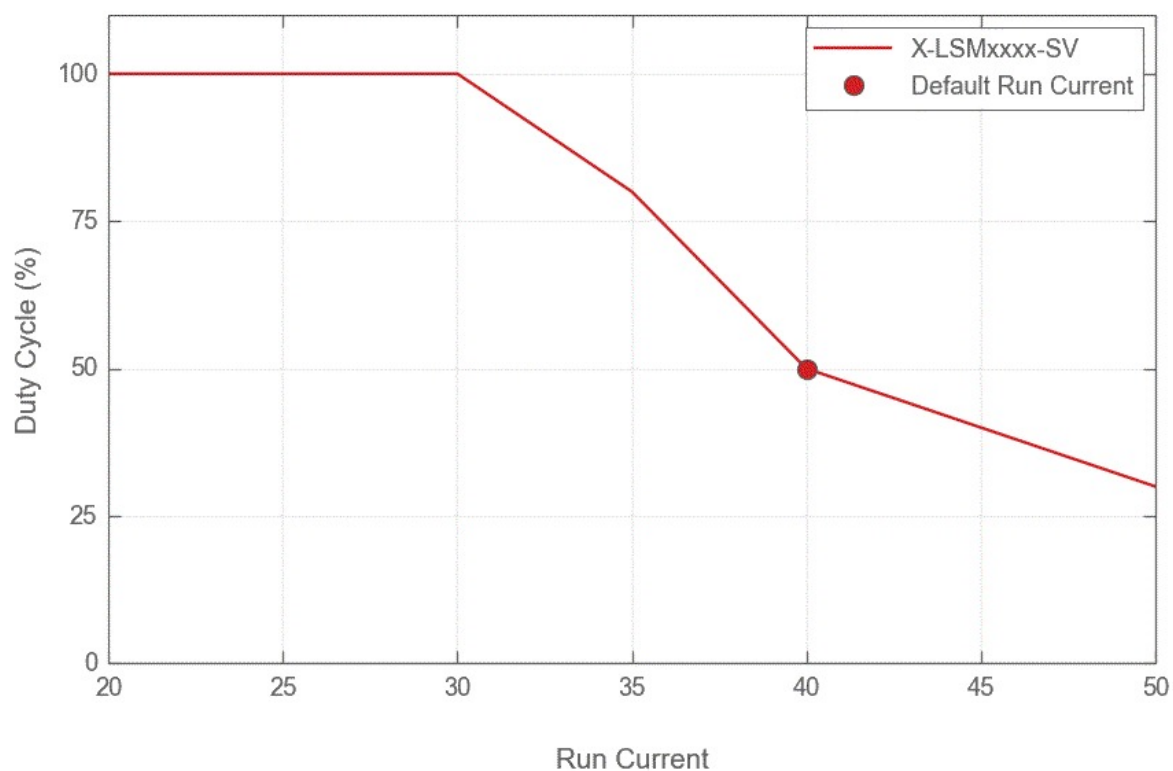
Specification	Value	Alternate Unit
Mechanical Drive System	Precision lead screw	
Limit or Home Sensing	Magnetic hall sensor	
Manual Control	No	
Axes of Motion	1	
LED Indicators	Yes	
Mounting Interface	M3 and M6 threaded holes and M4 threaded center hole	
Vacuum Compatible	High vacuum (10-6 Torr)	
Operating Temperature Range	0 to 50 °C	
Stage Parallelism	< 25 μm	< 0.000984 "
RoHS Compliant	Yes	
CE Compliant	Yes	
Stiffness in Pitch	55 $\text{N}^{\circ}\text{Å m} / ^{\circ}$	317 $\mu\text{rad} / \text{N}^{\circ}\text{Å m}$
Stiffness in Roll	52.5 $\text{N}^{\circ}\text{Å m} / ^{\circ}$	332 $\mu\text{rad} / \text{N}^{\circ}\text{Å m}$
Stiffness in Yaw	85 $\text{N}^{\circ}\text{Å m} / ^{\circ}$	205 $\mu\text{rad} / \text{N}^{\circ}\text{Å m}$
Weight	0.40 kg	0.882 lb

Specification Charts

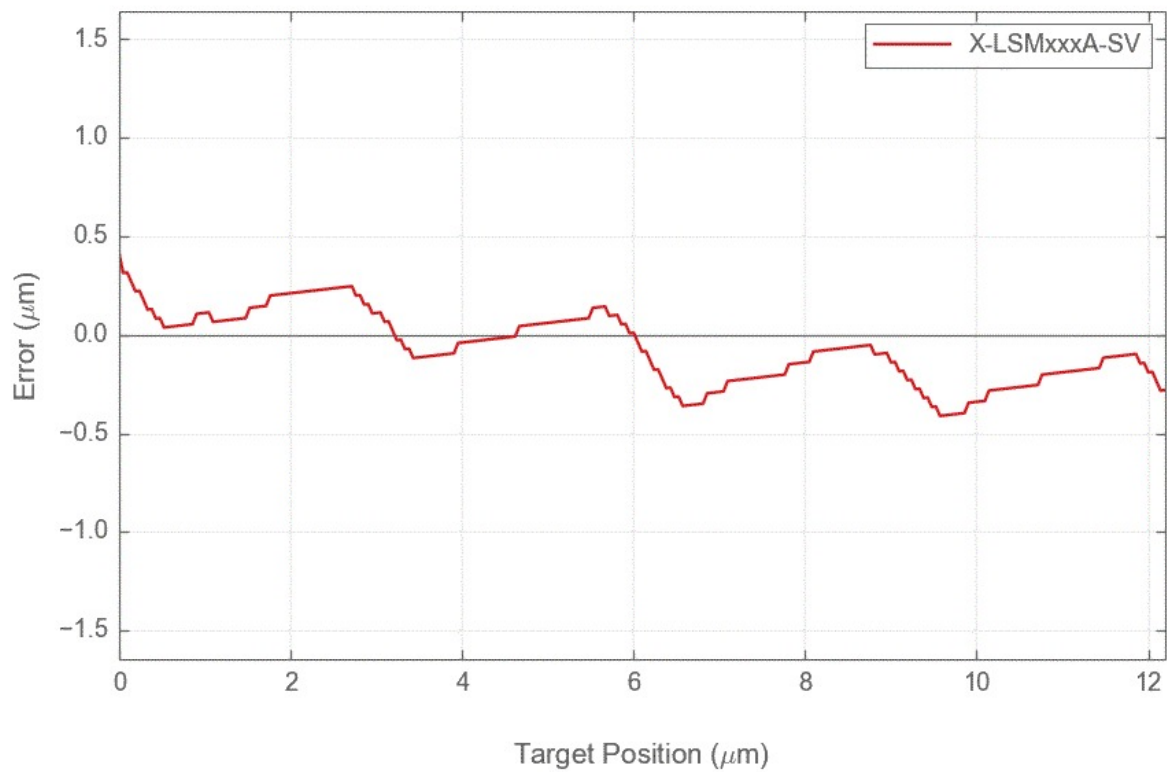
Thrust Speed Performance



Duty Cycle vs Run Current



Typical Microstepping Accuracy



Typical Microstepping Accuracy

