

X-LSM100A-SV2 Datasheet



- Vacuum compatible to 10⁻⁶ Torr
- 25, 50, 100, 150, 200 mm travel
- Up to 100 mm/s speed and up to 35 N thrust
- 10 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-LSM-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".

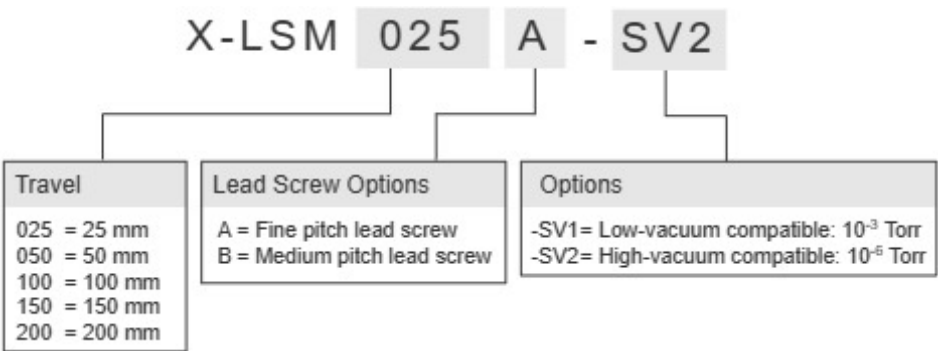
Zaber's X-LSM-SV2 Series devices are high-vacuum compatible, computer-controlled, motorized linear stages with high thrust and speed capabilities, and a compact size. They are stand-alone units requiring only a standard 24 V or 48 V power supply.

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.

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

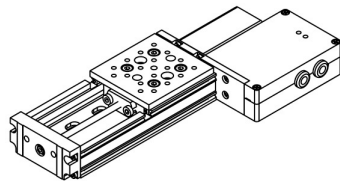
X-LSM-SV2 Series Part Numbering



X-LSM100A-SV2 Drawings

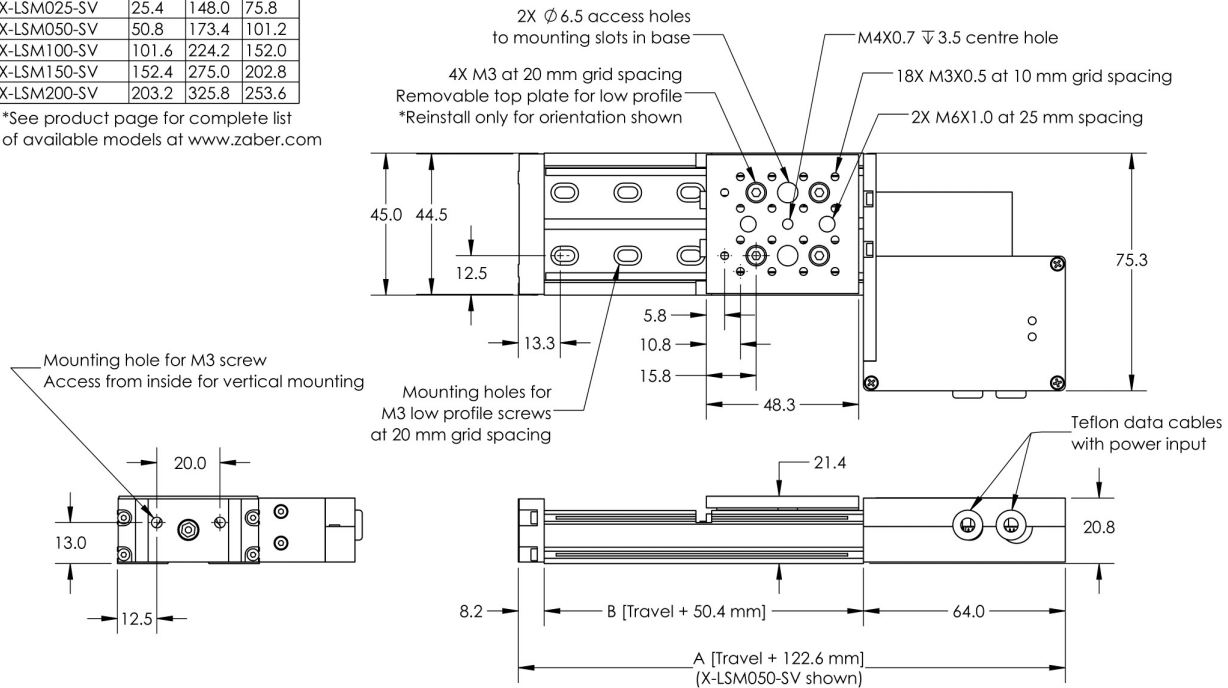


X-LSM-SV Vacuum Compatible Motorized Linear Stage
dimensions in mm



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



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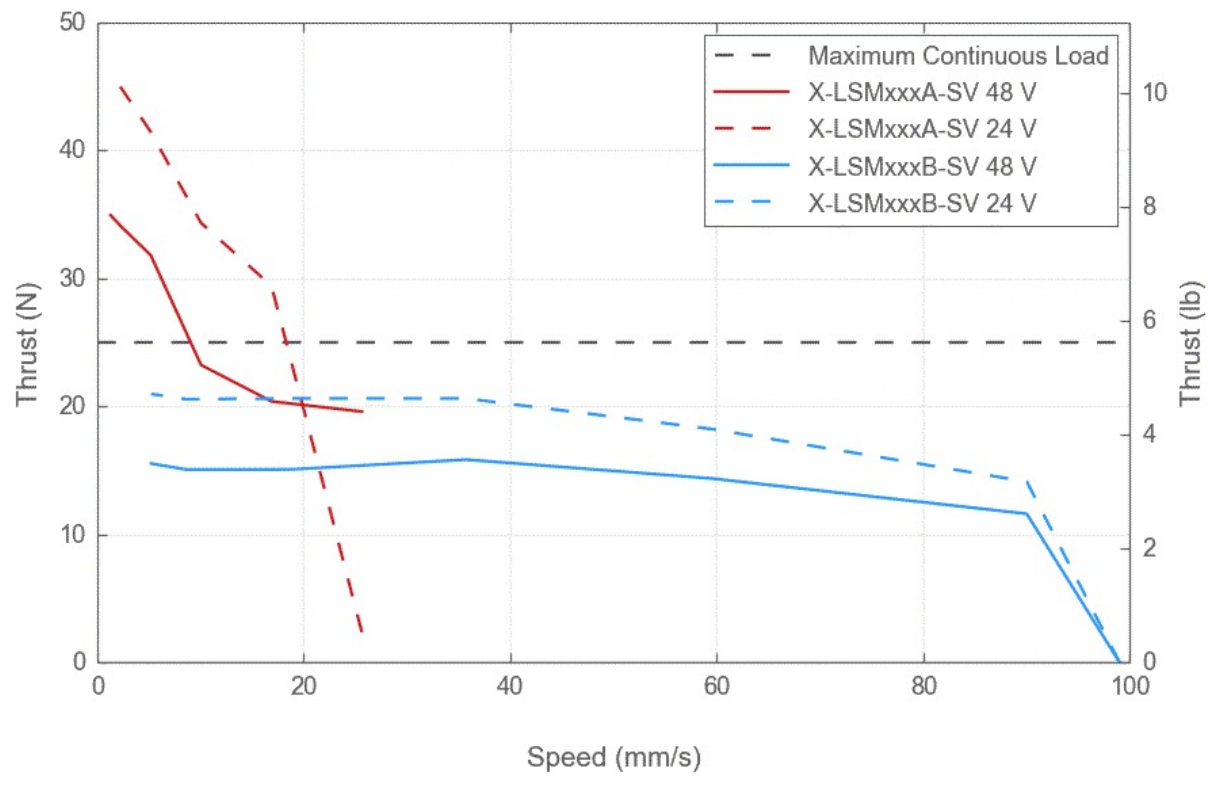
X-LSM100A-SV2 Specifications

Specification	Value	Alternate Unit
Microstep Size (Default Resolution)	0.047625 μm	
Built-in Controller	Yes	
Travel Range	101.6 mm	4.000"
Accuracy (unidirectional)	35 μm	0.001378"
Repeatability	< 3 μm	< 0.000118"
Backlash	< 12 μm	< 0.000472"
Maximum Speed	24 mm/s	0.945"/s
Minimum Speed	0.000029 mm/s	0.000001"/s
Speed Resolution	0.000029 mm/s	0.000001"/s
Encoder Type	None	
Peak Thrust	35 N	7.8 lb
Maximum Continuous Thrust	25 N	5.6 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	100 N	22.4 lb
Maximum Cantilever Load	300 N-cm	424.8 oz-in
Guide Type	Needle roller bearing	
Vertical Runout	< 18 μm	< 0.000709"
Horizontal Runout	< 18 μm	< 0.000709"
Pitch	0.04°	0.698 mrad
Roll	0.04°	0.698 mrad
Yaw	0.04°	0.698 mrad
Stiffness in Pitch	55 N-m/°	317 $\mu\text{rad/N-m}$
Stiffness in Roll	52.5 N-m/°	332 $\mu\text{rad/N-m}$
Stiffness in Yaw	85 N-m/°	205 $\mu\text{rad/N-m}$
Power Supply	24-48 VDC	
Power Plug	None, use X-PIB	
Maximum Current Draw	350 mA	
Linear Motion Per Motor Rev	0.6096 mm	0.024"

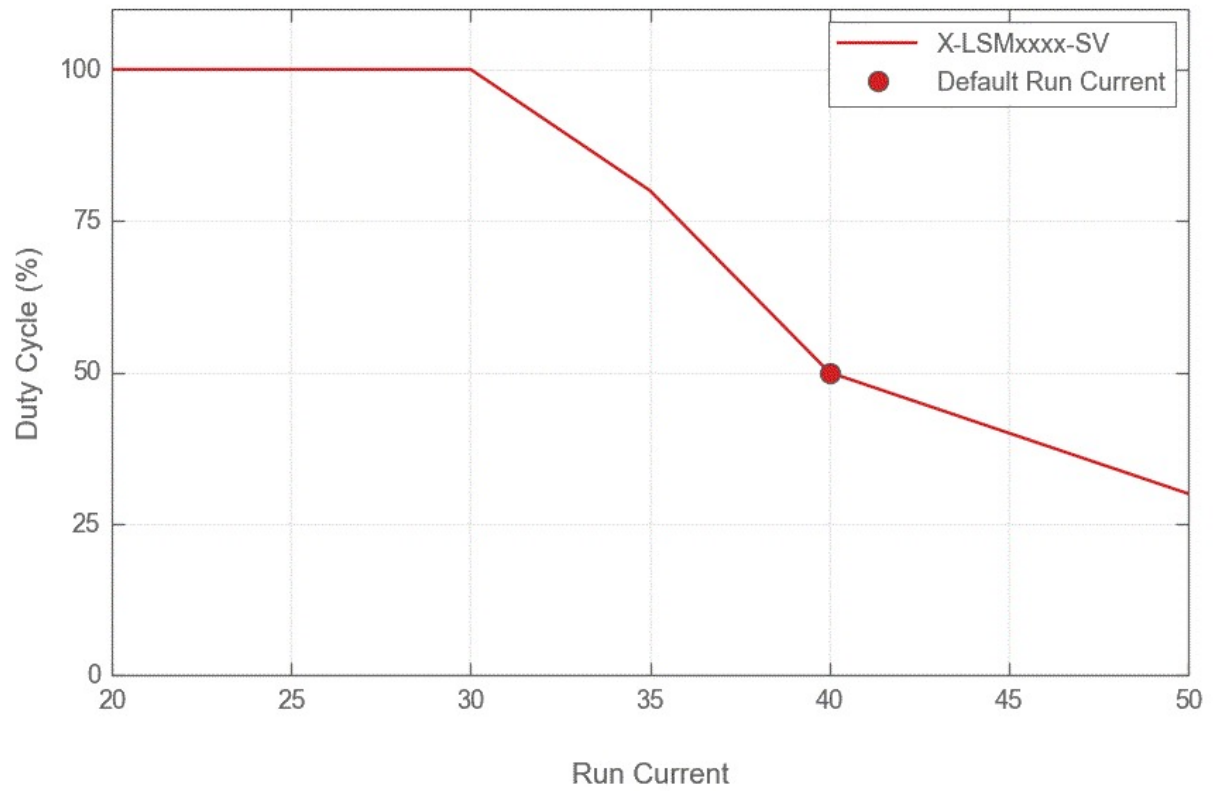
Specification	Value	Alternate Unit
Motor Steps Per Rev	200	
Motor Type	Stepper (2 phase)	
Motor Rated Current	800 mA/phase	
Inductance	3.5 mH/phase	
Default Resolution	1/64 of a step	
Mechanical Drive System	Precision lead screw	
Limit or Home Sensing	Magnetic hall sensor	
Manual Control	No	
Axes of Motion	1	
LED Indicators	Yes	
Mounting Interface	M3 and M6 threaded holes and M4 threaded center hole	
Stage Parallelism	< 25 μ m	< 0.000984"
Operating Temperature Range	0 to 50 °C	
RoHS Compliant	Yes	
CE Compliant	Yes	
Vacuum Compatible	High vacuum (10 ⁻⁶ Torr)	
Weight	0.43 kg	0.948 lb

X-LSM-SV2 Series Charts

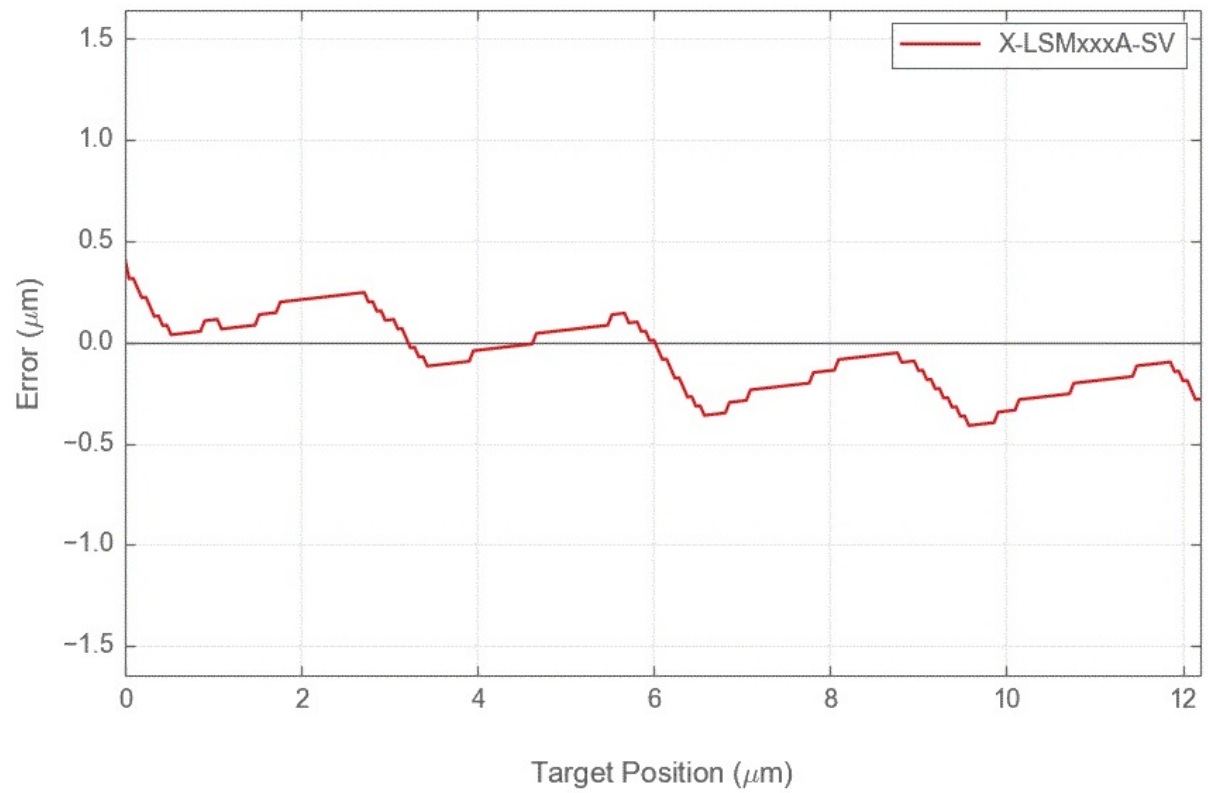
Thrust Speed Performance



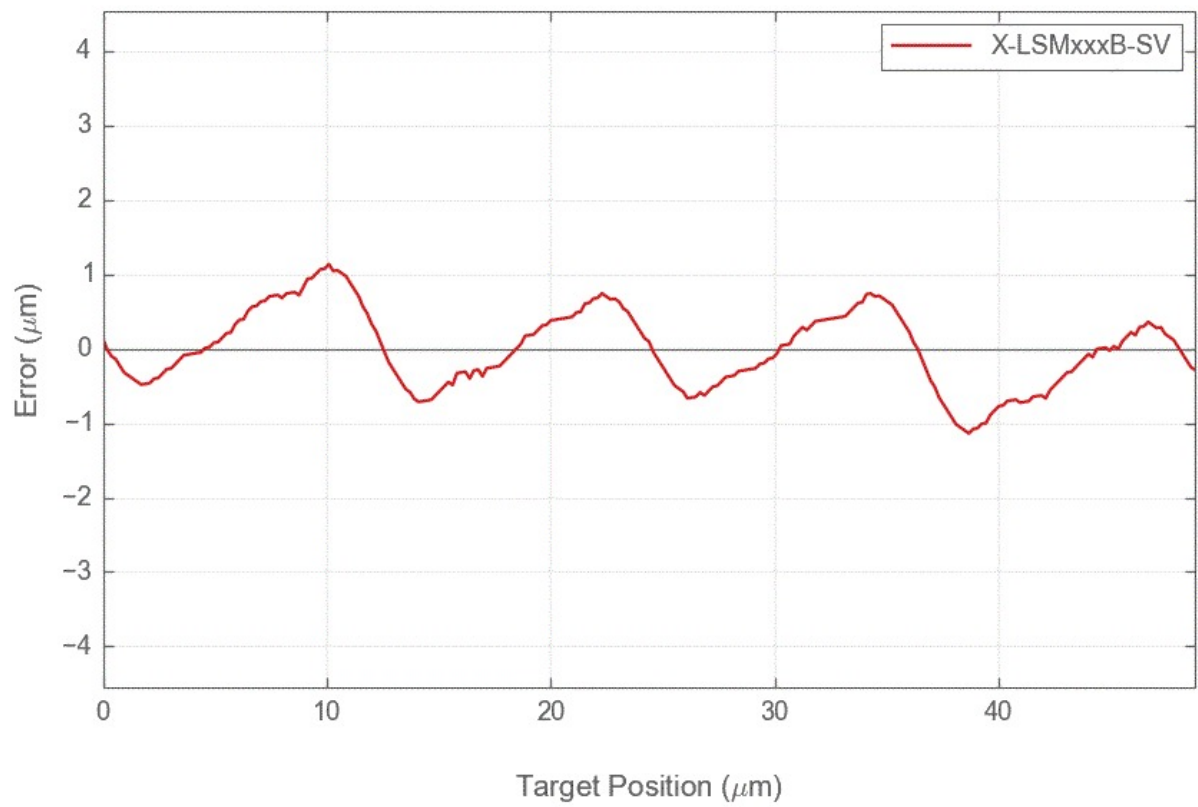
Duty Cycle vs Run Current



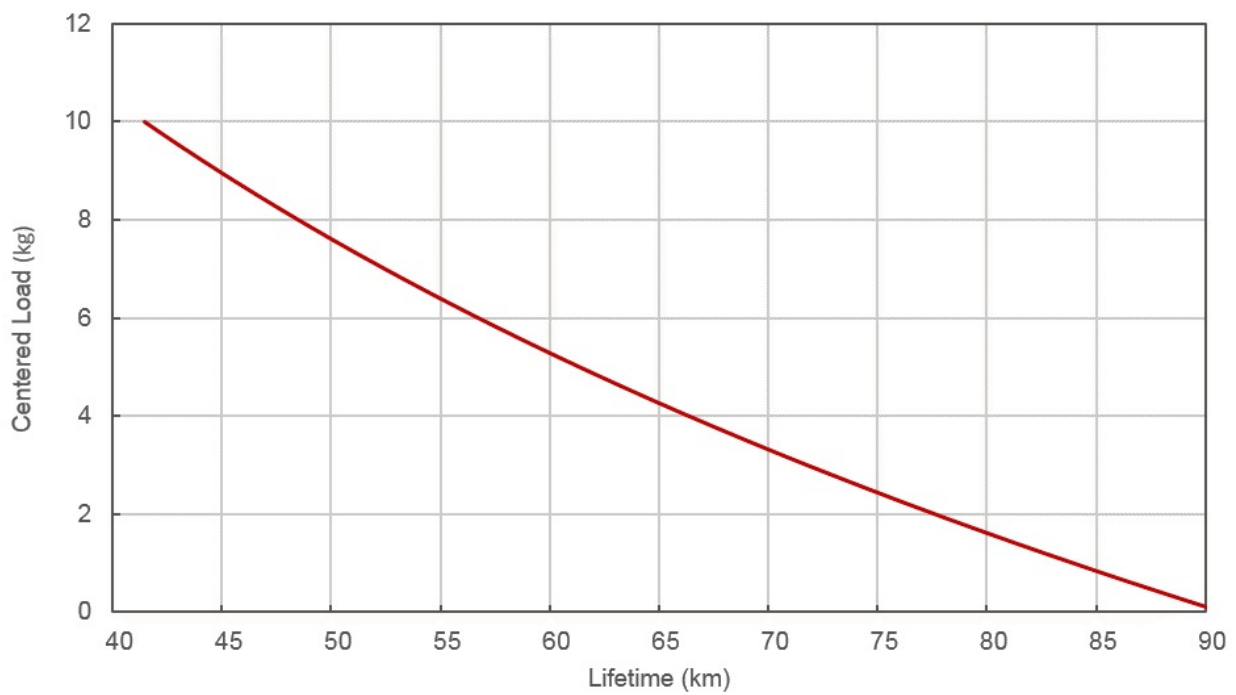
Typical Microstepping Accuracy



Typical Microstepping Accuracy



LSM Linear Bearing Lifetime



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