

## VSR-V1 Series Datasheet



- Vacuum compatible to 10<sup>-3</sup> Torr
- 20 mm or 40 mm travel
- Up to 48 mm/s speed and up to 200 N thrust
- 10 kg load capacity
- 55 or 85 mm retracted height
- Only 7 feedthrough wires required to control these units
- Designed for use with an X-MCC Series stepper motor controller or any 2-phase stepper motor controller

## VSR-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".

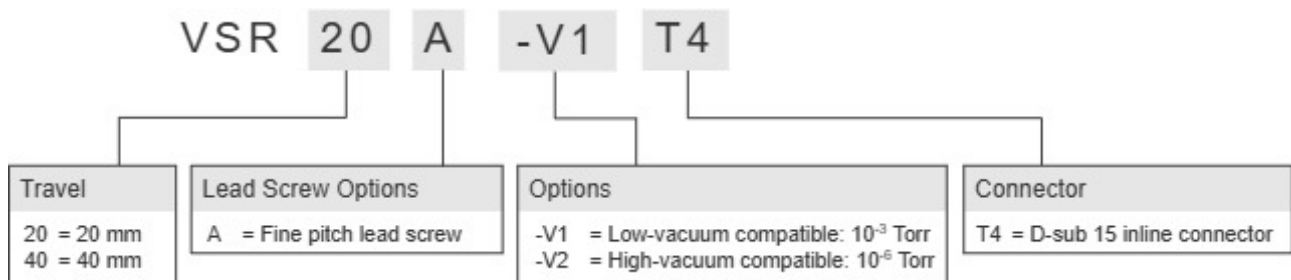
Zaber's VSR-V1 Series devices are low-vacuum compatible, computer-controlled, motorized vertical lift stages capable of moving 10 kg loads.

Like all of Zaber's products, the VSR-V1 Series is designed to be very easy to set up and operate. If you are considering a multi-axis system, with Z-axis, these lift stages make an excellent platform.

These stages are wired with a male D-sub 15 connector for plug-and-play use with our X-MCC 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/VSR-V1>

## VSR-V1 Series Part Numbering & Options



## VSR-V1 Series Drawings

- [VSR-V.png \(Drawing for the VSR-V\)](#)

## VSR-V1 Series Specifications

<b>Microstep Size (Default Resolution)</b>	<b>0.09525 <math>\mu\text{m}</math></b>
Built-in Controller	No
Recommended Controller	MCC (48 V) Recommended
AutoDetect	No
Repeatability	< 1 $\mu\text{m}$ (< 0.000039")
Loaded Backlash (10 N)	< 10 $\mu\text{m}$ (< 0.000394")
Maximum Speed	48 mm/s (1.890"/s)
Minimum Speed	0.000058 mm/s (0.000002"/s)
Speed Resolution	0.000058 mm/s (0.000002"/s)
Peak Thrust	200 N (44.9 lb)
Maximum Continuous Thrust	100 N (22.4 lb)
Maximum Centered Load	100 N (22.4 lb)
Maximum Moment (Pitch)	300 N-cm (424.8 oz-in)
Maximum Moment (Roll)	300 N-cm (424.8 oz-in)
Maximum Moment (Yaw)	300 N-cm (424.8 oz-in)
Pitch	0.08° (1.396 mrad)
Roll	0.08° (1.396 mrad)
Yaw	0.08° (1.396 mrad)
Linear Motion Per Motor Rev	1.2192 mm (0.048")
Motor Steps Per Rev	200
Motor Type	Stepper (2 phase)
Motor Rated Current	700 mA/phase
Inductance	8.7 mH/phase
Motor Connection	Teflon flying leads with D-sub15 connector
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	0-50 °C

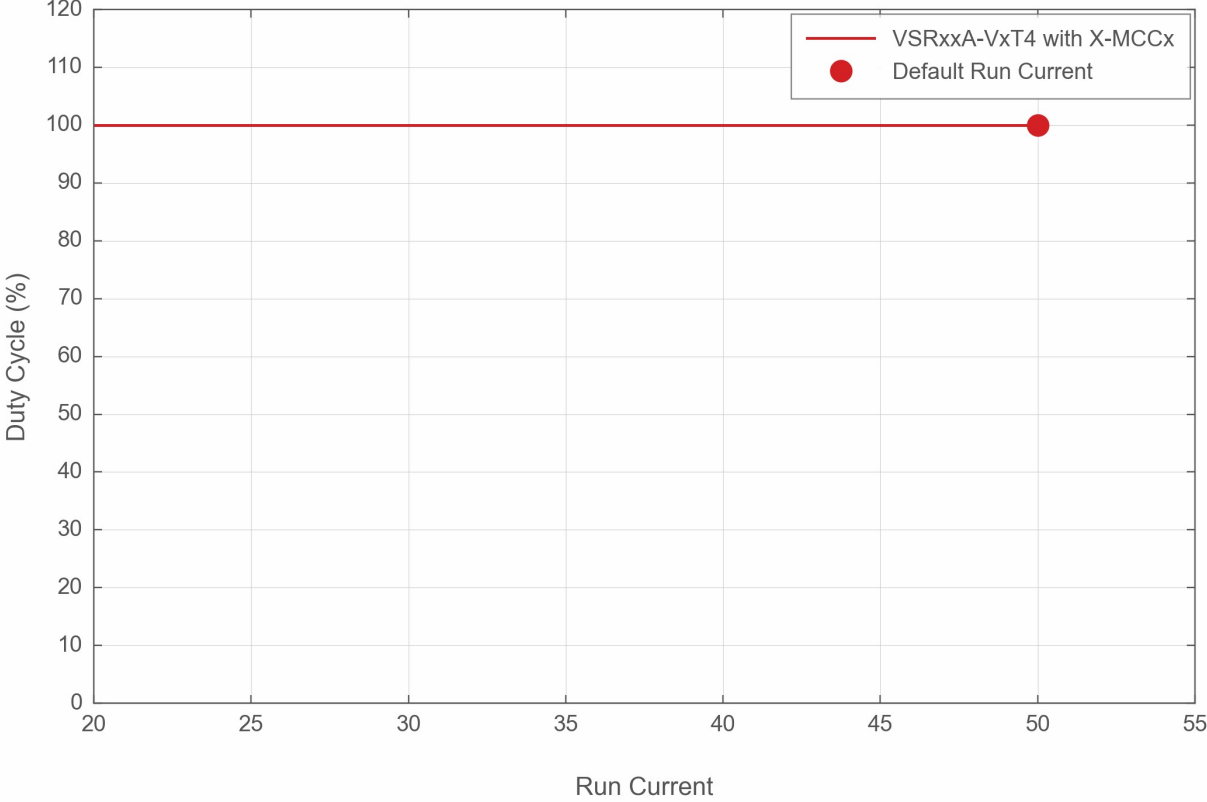
<b>Microstep Size (Default Resolution)</b>	<b>0.09525 <math>\mu\text{m}</math></b>
CE Compliant	Yes
Vacuum Compatible	Low vacuum (10 <sup>-3</sup> Torr)

<b>Part Number</b>	<b>Travel Range</b>	<b>Accuracy (unidirectional)</b>	<b>Loaded Accuracy (10 N)</b>	<b>Backlash</b>
VSR20A-V1T4	20 mm (0.787")	50 $\mu\text{m}$ (0.001968")	35 $\mu\text{m}$ (0.001378")	< 35 $\mu\text{m}$ (< 0.001378")
VSR40A-V1T4	40 mm (1.575")	35 $\mu\text{m}$ (0.001378")	20 $\mu\text{m}$ (0.000787")	< 120 $\mu\text{m}$ (< 0.004724")

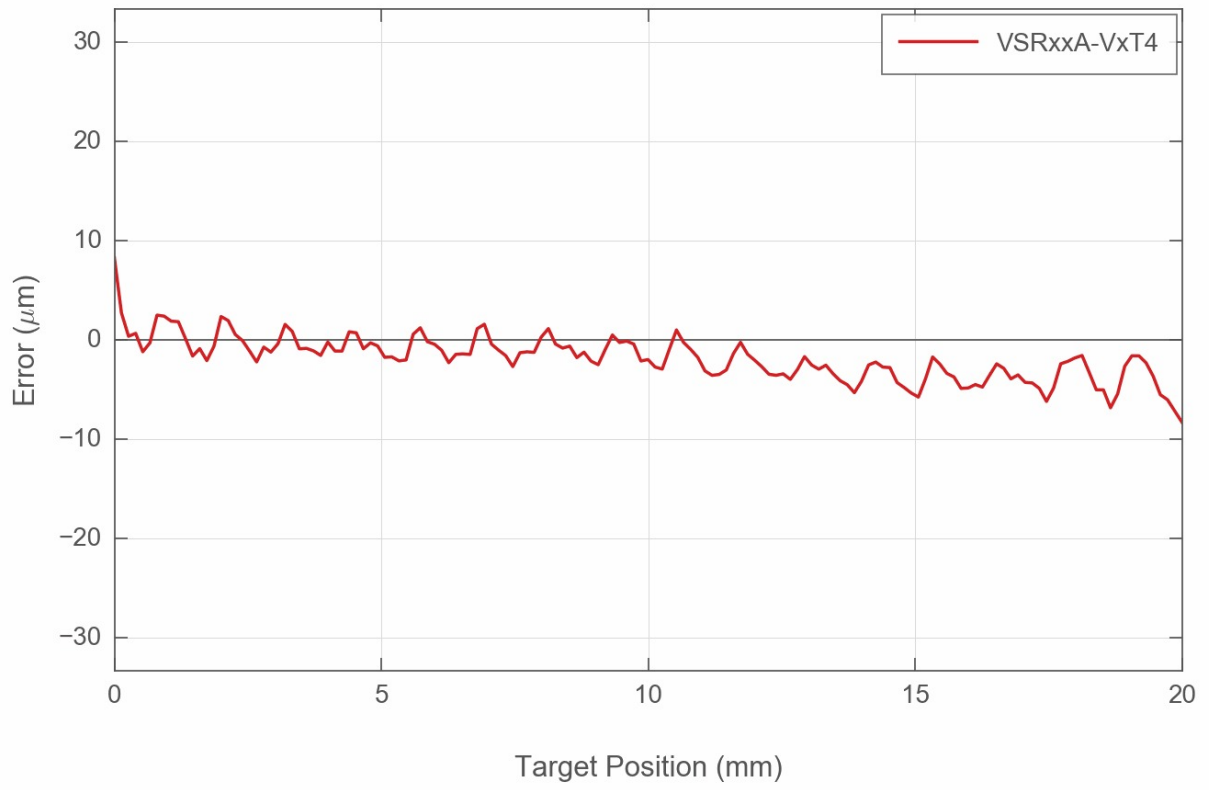
<b>Part Number</b>	<b>Horizontal Runout</b>	<b>Guide Type</b>	<b>Weight</b>
VSR20A-V1T4	< 30 $\mu\text{m}$ (< 0.001181")	Ball Bearing	0.560 kg (1.235 lb)
VSR40A-V1T4	< 35 $\mu\text{m}$ (< 0.001378")	Crossed-Roller Bearing	0.770 kg (1.698 lb)

VSR-V1 Series Charts

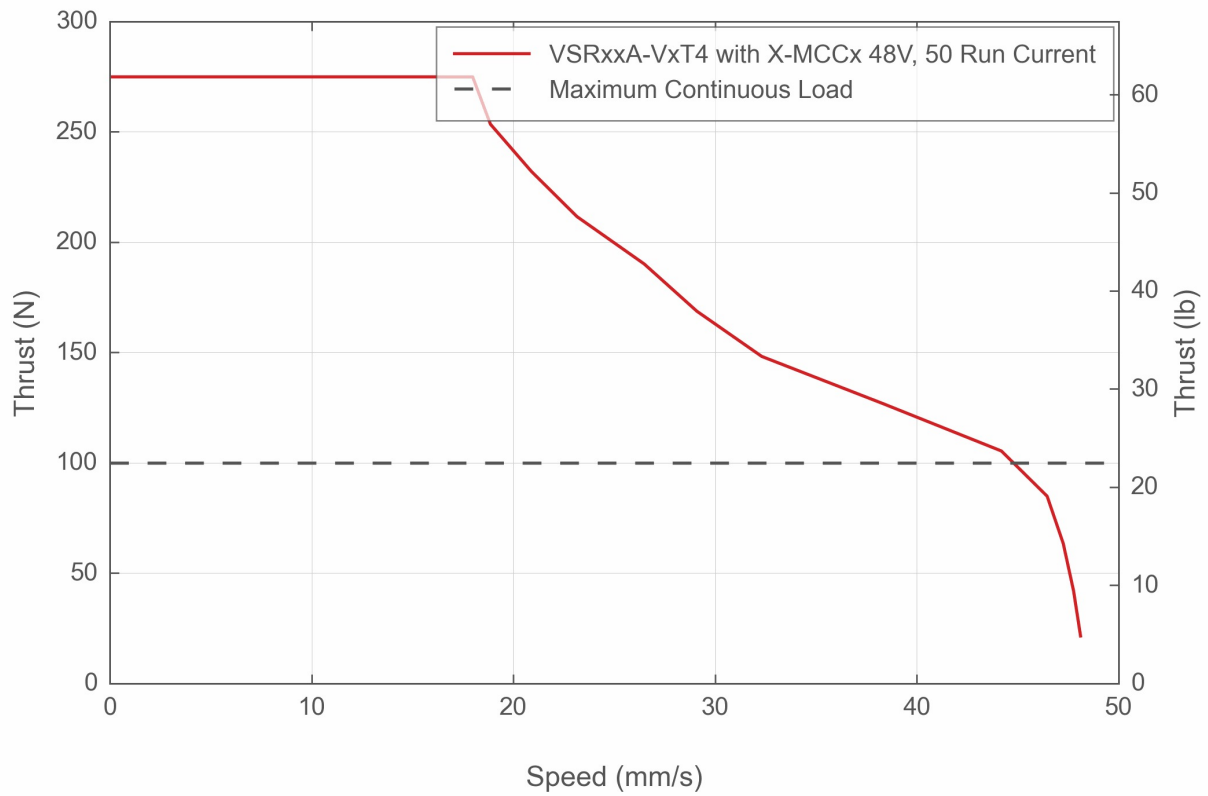
Recommended Duty Cycle



## Typical Accuracy



## Thrust Speed Performance



## Contact

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