

VSR Series Datasheet



- 20 mm or 40 mm of travel
- Up to 55 mm/s speed and up to 200 N thrust
- 10 kg load capacity
- 55 or 85 mm retracted height
- Designed for use with an X-MCC Series stepper motor controller or any 2-phase stepper motor controller
- With AutoDetect, the X-MCC controller configures its settings automatically for the connected peripheral

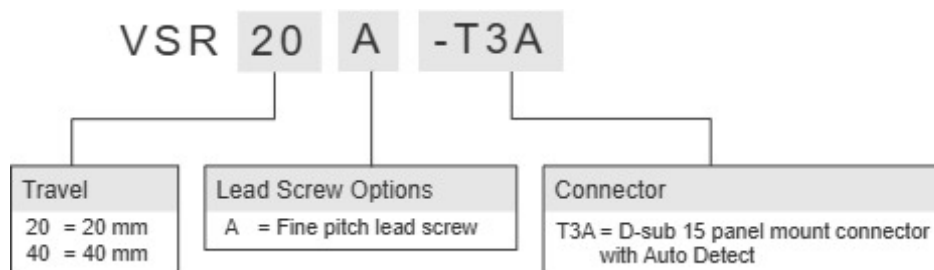
VSR Series Overview

Zaber's VSR vertical lift stages are stepper actuator driven platforms capable of moving 10 kg loads. They deliver exceptional travel and load capacity for their compact sizes, measuring only 55 mm (VSR20) or 85 mm (VSR40) tall when closed. With small footprints these stages can also mount directly onto Zaber's LRT-C and LSQ series of linear stages.

The stages are designed to connect directly to our X-MCC Series universal motor controllers, or they can be used with any 2-phase stepper motor controller through the panel mount DB15 connector. Set up is easy with AutoDetect. Once connected, the X-MCC controller will automatically detect and configure the VSR.

For more information visit: <https://www.zaber.com/products/vertical-stages/VSR>

VSR Series Part Numbering & Options



VSR Series Drawings

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

VSR Series Specifications

Microstep Size (Default Resolution)	0.09525 μm
Built-in Controller	No
Recommended Controller	MCC (48 V) Recommended
AutoDetect	Yes
Repeatability	< 1 μm (< 0.000039")
Loaded Backlash (10 N)	< 10 μm (< 0.000394")
Maximum Speed	55 mm/s (2.165"/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	1500 mA/phase
Inductance	1.9 mH/phase
Motor Connection	D-sub 15
Default Resolution	1/64 of a step
Mechanical Drive System	Precision Lead Screw
Limit or Home Sensing	Magnetic home sensor
Axes of Motion	1
Mounting Interface	M6 and M3 threaded holes
Operating Temperature Range	0-50 °C
CE Compliant	Yes

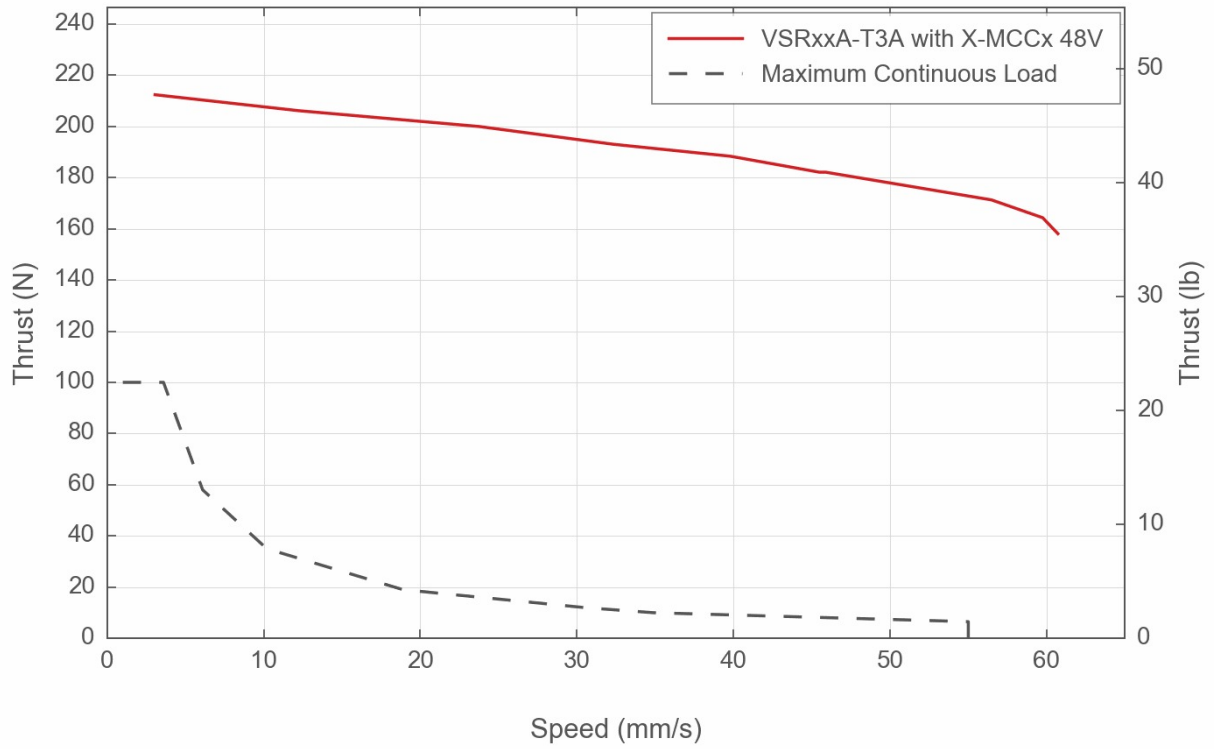
Microstep Size (Default Resolution)	0.09525 μm
Vacuum Compatible	No

Part Number	Travel Range	Accuracy (unidirectional)	Loaded Accuracy (10 N)	Backlash
VSR20A-T3A	20 mm (0.787")	50 μm (0.001968")	35 μm (0.001378")	< 35 μm (< 0.001378")
VSR40A-T3A	40 mm (1.575")	35 μm (0.001378")	20 μm (0.000787")	< 120 μm (< 0.004724")

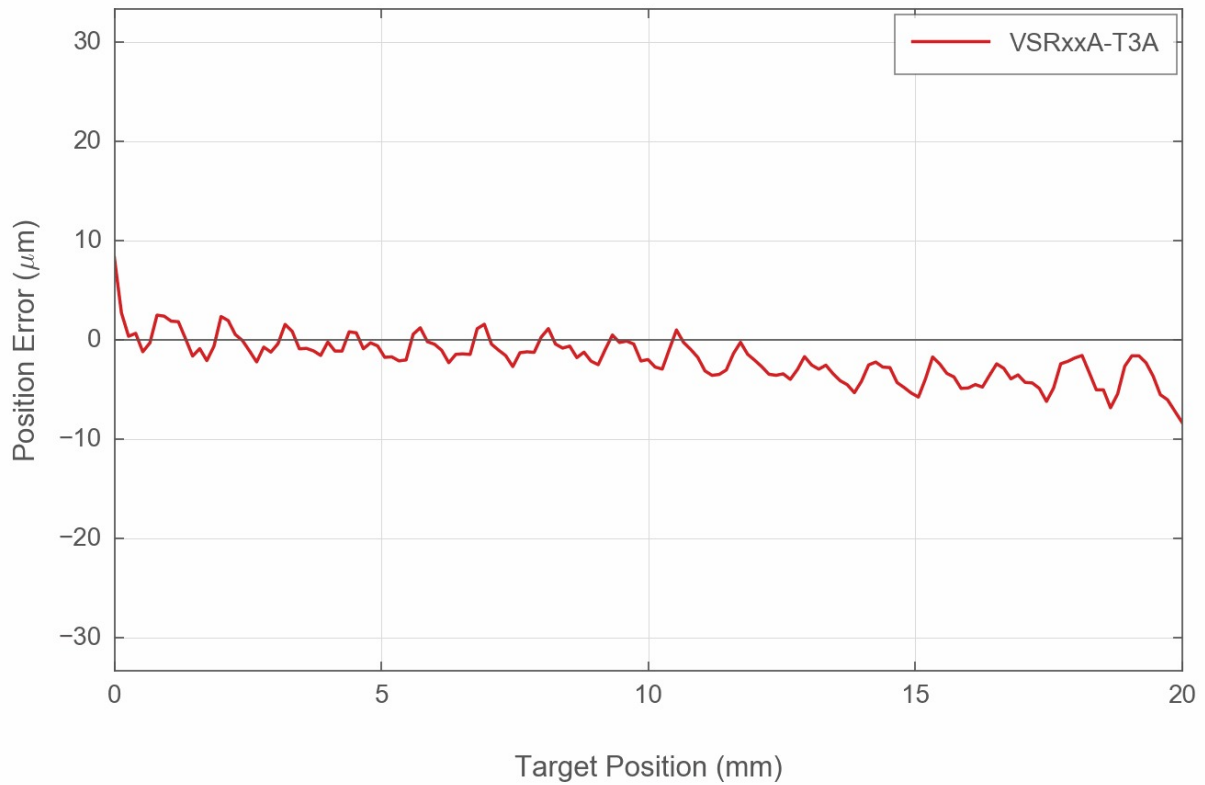
Part Number	Horizontal Runout	Guide Type	Weight
VSR20A-T3A	< 30 μm (< 0.001181")	Ball Bearing	0.55 kg (1.213 lb)
VSR40A-T3A	< 35 μm (< 0.001378")	Crossed-Roller Bearing	0.76 kg (1.676 lb)

VSR Series Charts

Thrust Speed Performance



Typical Accuracy



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