

mSR Series Positioner

Miniature Square Rail Linear Positioner

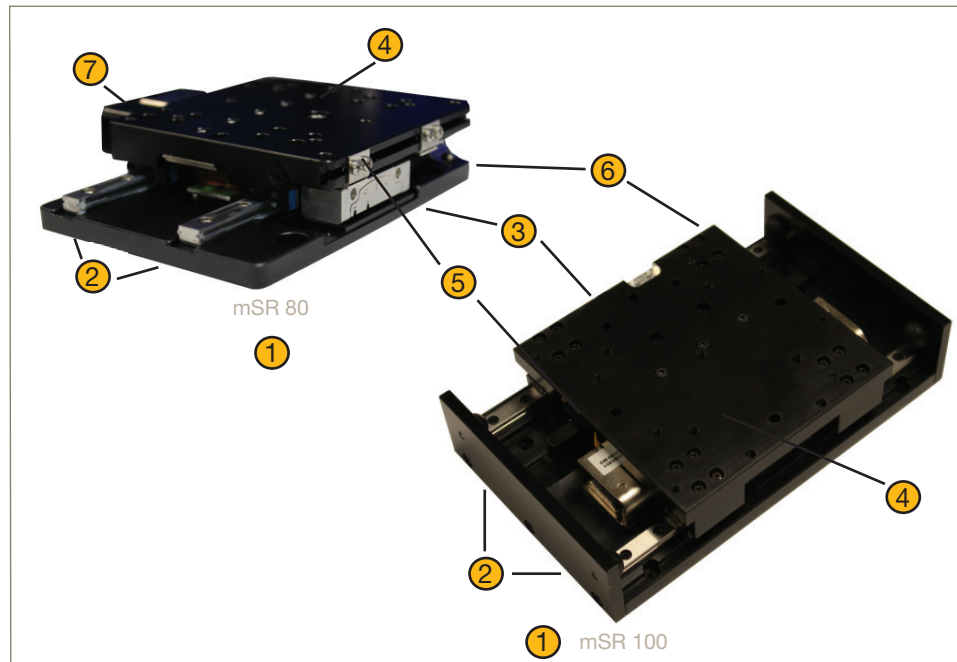


The mSR Value:

For precision instrument builders who need smooth motion in a small package, the mSR is a linear positioner that provides sub-micron level precision, in two different form factors (80 and 100). The mSR series is a precision machined, square rail bearing guided linear positioner which is driven with a linear servo motor, and utilizes selectable levels of linear encoders technology configured to match the application need.

The precision grade mSR is the most accurate standard positioner ever made by Parker Electromechanical achieving a repeatability of $\pm 0.1 \mu\text{m}$.

These positioners are ideal for variety of applications ranging from imaging systems in digital pathology equipment, to metrology instruments in semiconductor or electronics manufacturing.



mSR Product Features:

① Two product form factors

The mSR 80 measuring 80 wide by 25 mm in height, and available in travel lengths ranging from 25 to 150 mm. The mSR 100 measuring 100 mm wide by 35 mm in height, available in travel lengths ranging from 25 to 500 mm.

② Dual precision, square rails

These rails provide smooth, precise motion, while also supporting the payload.

③ Six different linear encoder options

Incremental optical (1, 0.1 and 0.01 micron), incremental magnetic (1 micron), Analog Sine/Cosine, and BiSS-C absolute

④ Two linear motor technologies

The mSR 80 is fitted with a miniature ironcore linear motor providing high thrust density, the mSR 100 is equipped with an ironless linear motor delivering best in class smoothness. Both of these motors have been optimized to run between 24 and 48 volts DC.

⑤ Integrated Home and Limit Sensing

The mSR uses tightly integrated home and limit sensors on board the encoder, limiting its cable count to two.

⑥ Tapped holes, and dowel pin holes

Tapped holes in base and top, allowing for ease of installation, and dowel holes allowing for repeatable mounting.

⑦ Optional Magnetic Counterbalance

An optional counterbalance can be fitted to the mSR 80 providing a robust alternative to pneumatic or spring equivalents.



ENGINEERING YOUR SUCCESS.

mSR Technical Data

Maximize Instrument Performance, Not Its Size.

The mSR (miniature square rail) positioner offers instrument builder's optimized packaging of a the linear motor, guidance, encoder, as well as limits and home sensors in one complete solution. In addition, the mSR has been designed with typical instrument regulations and certification in mind, and is both CE and RoHS compliant.

Specification	mSR 80	mSR 100
Width x Height (mm)	80 x 25	100 x 35
Max. Travel (mm)	150	500
Max. Normal Load (kg)	8	12
Max. Continuous Thrust (N)	8	16.7
Max. Peak Thrust (N)	24	50
Max. Acceleration (unloaded)	3G	3G
Max. Speed (mm/sec - unloaded) ¹	2000	3000
Rated Bus Voltage (Volts DC)	48	48
Repeatability (μm)	+/-0.1	+/-0.2
Accuracy (μm) ^{2,3}	5.0	5.0
Straightness & Flatness (μm) ²	+/-4.0	+/-4.0
Feedback Compatibility:		
1μm Optical (incremental)	•	•
0.1μm Optical (incremental)	•	•
0.01μm Optical (incremental)	•	•
Analog Sine/Cosine	•	•
1μm Magnetic (incremental)	•	•
0.05 μm BiSS-C Absolute		•

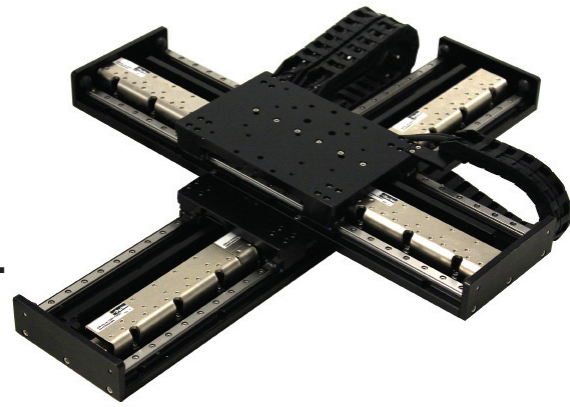
¹Using an unloaded mSR, and 1 micron encoder resolution at 48 Volts DC.

²Accuracy, straightness, and flatness are travel dependent, specifications given are at 50 mm of stroke.

³ Accuracy based upon 2 point slope correction.

Laser Grade Precision, Standard.

Every precision grade mSR is thoroughly tested with Parker's laser interferometer to ensure that it meets product specification. Parker also provides test data, with a linear slope corrected value noted, yielding higher stage accuracy with controller compensation.



Best of Breed Encoder Technology.

The mSR (miniature square rail) positioner offers instrument builder's a plethora of different encoding technologies, and resolutions to select from. Standard incremental, optical resolutions range from one micron all the way down to ten nanometers. An analog sine/cosine option is an ideal way to reach high resolution when paired controls using interpolating technology. A one micron magnetic option is ideal for cost sensitive applications requiring more basic positioning, and lastly the mSR offers a BiSS-C absolute encoder option to give absolute feedback for applications requiring constant positional information.

