

# Applications for the mSR

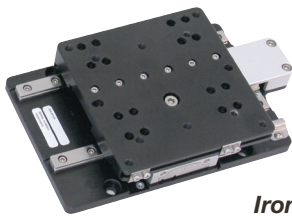
## Miniature Square Rail Positioner



The mSR series is a precision machined, square rail bearing guided linear positioner which is driven with one of two different linear servo motor technologies, and utilizes selectable levels of linear encoder technology that are configured to match the customer's need. The combination of all these features make the mSR the ideal stages for applications in electronics manufacturing, life sciences (cellular therapeutics and digital pathology), and semiconductor handling & metrology.

### The Best of Both Worlds

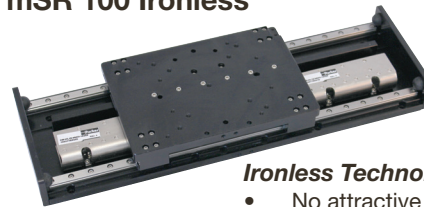
#### mSR 80 Ironcore



##### *Ironcore Technology Benefits*

- High force per size
- Lower cost
- Excellent heat dissipation

#### mSR 100 Ironless



##### *Ironless Technology Benefits*

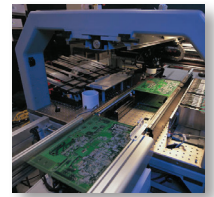
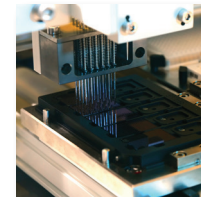
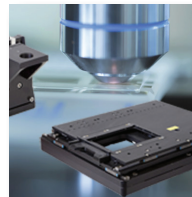
- No attractive forces between stator and magnet track yielding smoother phase transitions
- No cogging
- Lower force weight

#### Life Sciences - Cellular Therapeutics

- Highly repeatable positioning
- High precision in miniature package

#### Semiconductor Handling & Metrology

- Superior geometric performance
- Examine features on the micro or nano-scale
- Offers a stroke scalable mechanical solution

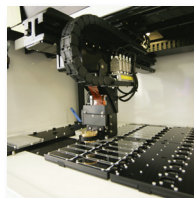
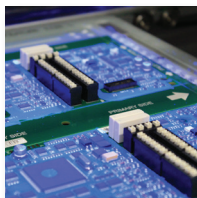


#### Electronics Manufacturing

- Quick, precise placement
- High resolution feedback
- Rated for continuous operation

#### Life Sciences - Digital Pathology

- Quick settling times
- Limited wear components



#### Electroless Nickel Option

For electrically sensitive applications in semiconductor processing and inspection or electronics manufacturing, the mSR can be given an electroless nickel coat and conductive lubricant. This allows for a conductive path to ground for constant electric discharge, lowering the risk of damaging sensitive electronics or devices.



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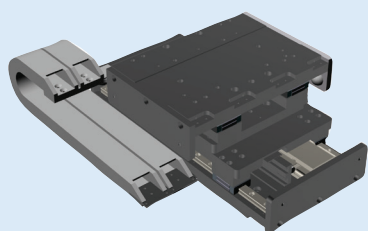
The mSR series is a miniature square rail linear motor positioner that has been engineered to deliver a combination of modularity, flexibility, and performance in an extremely compact package.



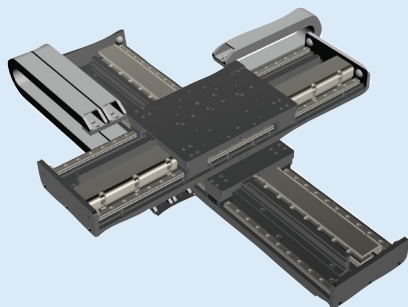
### mSR Product Features

- Two product form factors
- Dual precision, square rails
- Six different linear encoder options
- Two linear motor technologies
- Integrated home and limit sensing
- Tapped holes and dowel pin holes
- Optional magnetic counterbalance

The mSR can easily be adapted to fit any number of multi-axis systems without the need for transition plates in either a standard XY orientation, or by mounting each carriage to carriage – limiting the cable management required. In addition, the mSR can be mounted with other Parker linear motion products such as the 400XR Series.



mSR 100 Standard XY



mSR 100 Carriage to Carriage XY

### 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.

### mSR Series Specifications



Specification	mSR080	mSR100
Width x Height (mm)	80 x 25	100 x 35
Maximum Travel (mm)	150	500
Maximum Normal Load (mm)	8	12
Maximum Continuous Thrust (N)	8	16.7
Peak Thrust (N)	24	50
Maximum Acceleration (unloaded)	3G	3G
Maximum Speed (mm/s unloaded) <sup>1</sup>	2000	3000
Rated Bus Voltage (VDC)	48	48
Repeatability (μm) <sup>2</sup>	±0.1	±0.2
Accuracy (μm) <sup>2,3</sup>	5.0	5.0
Straightness & Flatness (μm) <sup>2</sup>	±4.0	±4.0
<b>Feedback Compatibility</b>		
1 μm Optical (incremental)	•	•
0.1 μm Optical (incremental)	•	•
0.01 μm Optical (incremental)	•	•
Analog Sine/Cosine	•	•
1 μm Magnetic (incremental)	•	•
0.05 μm BiSS-C Absolute		•

<sup>1</sup> Using an unloaded mSR and 1 micron encoder resolution at 48 Volts DC

<sup>2</sup> Accuracy, straightness, and flatness are travel dependent. Specs provided are 50 mm of stroke

<sup>3</sup> Accuracy based upon 2 point slope correction

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