



MAB-100

Linear Motor Stage

The all-new MAB-100 linear motor stage uses an air bearing guideway that delivers extremely precise straight-line motion with a total absence of friction. Motion artifacts due to recirculating bearings or anti-creep mechanisms are wholly eliminated by the non-contact, air bearing design. This small, compact design is suitable for use in a wide range of applications in the Life Sciences, Data Storage, Semiconductor, and other market segments.

The MAB-100 is driven by a non-contact, brushless servo motor with a unique moving magnet design that eliminates moving motor cables. The overall travel is 100 mm; pitch and yaw are held to less than ± 7 uradians (± 1.5 arc-second); and flatness and straightness are held to under ± 200 nanometers. Position feedback is provided by a linear optical encoder with a resolution of up to 5 nanometers. The encoder includes an index signal enabling precise position registration upon power-up. The read head is mounted on a stationary base, eliminating any need for moving cables. A pair of built-in, adjustable limit switches provide end of travel sensing, and rubber stops provide additional protection.

With a totally non-contact complement of air bearing guideway, linear motor, encoder, and limit switches, the MAB-100 stage is incapable of generating particles, and will meet (with appropriate input air filtration) Class 1 cleanroom standards.

The MAB-100 is also available with an embedded, high performance drive and control. Adding a mere 58mm to the overall length, this version (MAB-100/HRC) provides a completely integrated "Smart Stage", requiring only an external +24 VDC power supply and an RS-232 serial link for communication. The MAB-100/HRC can function either as an intelligent slave to a host computer over the serial interface, or it can be preprogrammed to auto-run sophisticated motion sequences as a stand-alone device. The MAB-100/HRC model features a 4096X encoder interpolation, providing a resolution of 5 nanometers.

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*Helping you build a better machine, **faster.***

MAB-100 Linear Motor Stage Specifications

Travel (mm)	100
Accuracy (microns)	1 ¹
Resolution Options (microns)	0.0052, 0.1, 0.5, 1, 5
Bi-directional Repeatability (microns)	<0.03 ²
Load Capacity (kg)	2.5
Moving Mass (kg)	1.05
Total Mass (kg)	2.7
Pitch and Yaw (arc-seconds)	+/- 1.5
Straightness and Flatness (microns)	+/- 0.2
Air Supply Pressure	1 bar (15psi)
Air Consumption	5300sccm@ 1 bar

¹ With two point slope correction.

² With High resolution control option.

Additional Benefits

- Reduced cost of ownership
- Reduced machine down time
- Air bearing guide reduces wear
- No requirement for periodic lubrication
- Operates on very low air pressure and low amplifier bus voltages