

Pliglide MB Miniature Linear Stage with Air Bearings

High Performance, Cleanroom Compatible, Customizable

A-141



- Size of the motion platform 57 mm × 93 mm
- Low profile 38 mm
- Travel ranges to 35 mm
- Load capacity to 3 kg
- Velocity to 0.25 m/sec
- Acceleration to 3.5 m/s²

Product overview

The Pliglide MB linear stage with air bearing is equipped with a servo linear motor drive with preloaded air bearings and integrated optical linear encoder. This stage offers ultra-precision in miniature format. The combination of the noncontact components results in a frictionless motion platform that offers the highest performance, quality, and lifetime.

Accessories and options

- Pliglide Filter and Air Preparation Kits
- Single and multi-axis motion controller
- Base plates made of granite and systems for reducing vibration

Application fields

The stage is ideally suited for many high precision applications, such as metrology, photonics alignment, optics positioning, and scanning. The noncontact design also is ideal for cleanroom applications. Electrical cables are not moved. The air bearing module offers a locking design for the ultimate in position stability.

Motion	Unit	Tolerance	A-141.035A1
Active axes			X
Travel range in X	mm		35
Acceleration in X, unloaded	m/s ²	Max.	3.5
Maximum velocity in X, unloaded	mm/s		250
Straightness (Linear crosstalk in Y with motion in X)	μm	Max.	±0.1
Flatness (Linear crosstalk in Z with motion in X)	μm	Max.	±0.1
Roll (Rotational crosstalk in θX with motion in X)	μrad	Max.	±5
Pitch (Rotational crosstalk in θY with motion in X)	μrad	Max.	±5
Yaw (Rotational crosstalk in θZ with motion in X)	μrad	Max.	±5

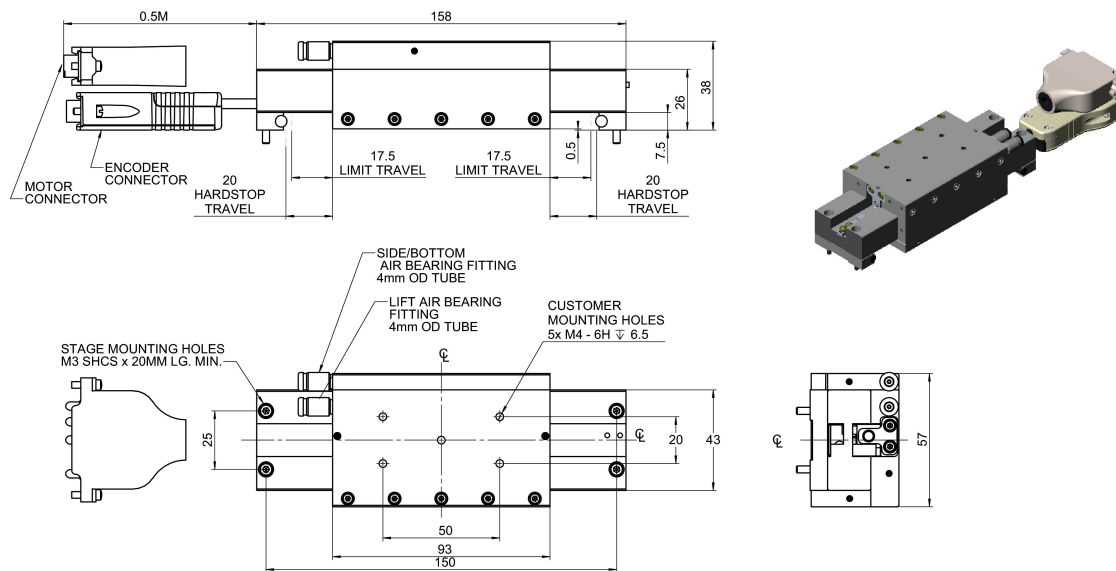
Positioning	Unit	Tolerance	A-141.035A1
Positioning accuracy in X, calibrated	μm	Typ.	±0.2
Positioning accuracy in X, uncalibrated	μm	Typ.	±2
Bidirectional repeatability in X	μm	Typ.	0.1
Reference switch			Encoder index
Limit switches			Hall effect
Integrated sensor			Incremental linear encoder
Sensor signal			Sin/cos, 1 V peak-peak
Sensor signal period	μm		20
Sensor resolution	nm		4.88

Drive Properties	Unit	Tolerance	A-141.035A1
Drive type			Electric motor/Magnetic direct drive/Ironless 3-phase linear motor
Nominal voltage	V		48
Peak voltage	V		80
Nominal current, RMS	A	Typ.	0.3
Peak current, RMS	A	Typ.	1.1
Maximum power consumption	W		
Drive force in X	N	Typ.	0.58
Peak force in X	N		2.3
Force constant	N/A		2.1
Resistance phase-phase	Ω	Typ.	22.4
Inductance phase-phase	mH		1
Back EMF phase-phase	V·s/m	Max.	0.7
Pole pitch N-N	mm		18

Mechanical Properties	Unit	Tolerance	A-141.035A1
Permissible push force in Z	N	Max.	30
Permissible torque in θx	N·m	Max.	1.1
Permissible torque in θY	N·m	Max.	2.8
Moved mass in X, unloaded	g		300
Guide			Air bearing guide/Air bearing guide with air preload
Overall mass	g		600
Material			Hardcoat aluminum, stainless steel mounting hardware

Miscellaneous	Unit	Tolerance	A-141.035A1
Operating temperature range	°C		+15 to +25
Connector			D-sub 9W4 (m)
Sensor connector			D-sub 15-pin (m)
Operating pressure	kPa		445 to 515 (65 to 75 psi)
Air consumption	L/min	Max.	28
Air quality			Clean (filtered up to 1.0 μm or better) - ISO 8573–1 class 1, Oil free - ISO 8573–1 class 1, Dry (-15 °C dew point) - ISO 8573–1 class 3
Cable length	m		0.45
Recommended controllers / drivers			A-81x, A-82x

Drawings / Images



A-141.035A1, dimensions in mm

Order Information

A-141.035A1

PIglide MB miniature linear stage with air bearing; ironless 3-phase linear motor; 35 mm travel range; 30 N load capacity; 250 mm/s maximum velocity; incremental linear encoder, 20 μ m sensor signal period, sin/cos, 1 V peak-peak; 0.45 m cable length