

# AirBeam™ Single-Axis Shuttle



## Features

- : Ultra-smooth — ideal for scanning applications
- : Air bearing accuracy
- : Clog-free air bearing technology
- : High speed linear motor
- : Virtually unlimited service life without particle generation
- : High-flex optional cabling available upon request

## Linear Motor Air Bearing Stage

The AirBeam Series is ideal for Computer-To-Plate systems, photoplotters, wafer scanning systems, and factory automation applications. It provides straight, stiff, cog-free motion at resolutions less than a micron. The AirBeam combines breakthrough linear servo motor technology and an ultrasmooth air bearing way in a single structural beam. The linear motor and modular, serviceable moving cable set are uniquely mounted inside the main beam, minimizing particulate generation. The integral linear motor allows carriage speeds up to 1 meter per second, and accelerations up to 1 G. The linear encoder mounts just below the upper surface, minimizing Abbé error. A laser interferometer option is available for particularly demanding OEM applications with resolution down to 2.5 nanometers. Since the air bearing carriage, linear motor, and linear encoder are non-contact devices, the AirBeam provides virtually unlimited life without particle generation.

Danaher Precision Systems' unique clog-free air bearing technology provides superior reliability while eliminating costly filtration requirements, and requires minimal air consumption. The AirBeam series mounts via 3 points, eliminating degradation of positioning accuracy due to imperfect mounting surfaces. Locking, D sub-mini connectors with strain-relieved cables mount on the box beam end plate to provide convenient access to motor and limit/encoder signals. An auxiliary connector is provided for user signals, and terminates on the air bearing moving carriage. Please contact one of our Applications Engineers when high stability is needed. An optional solenoid may be added which rapidly disables compressed air to the moving carriage, resulting in a "Coulomb welded" state. In this state, motion between the spar and carriage is eliminated at the atomic level, and the only relative movement is due to thermal phenomena.

SPECIFICATIONS	AB-305	AB-610
Travel (mm)	305	610
Positional Accuracy (µm) <sup>1</sup>	10	12
Bidirectional Repeatability	±1 count	
Flatness & Straightness (µm)	2	6
Pitch & Yaw (arc-seconds)	10	14
Load Capacity (kg) <sup>2</sup>	10	
Maximum Speed (m/sec) <sup>3</sup>	1	
Mass (kg) Moving	5.0	
Total	10.9	16.3

## CONFIGURATIONS (Apply to all of the above models)<sup>4</sup>

Motor	Linear Servo	brushless		
Encoder	Linear (µm/count)	1	0.5	0.1

## OPTIONS

Laser Interferometer

<sup>1</sup>With 2 point slope correction.

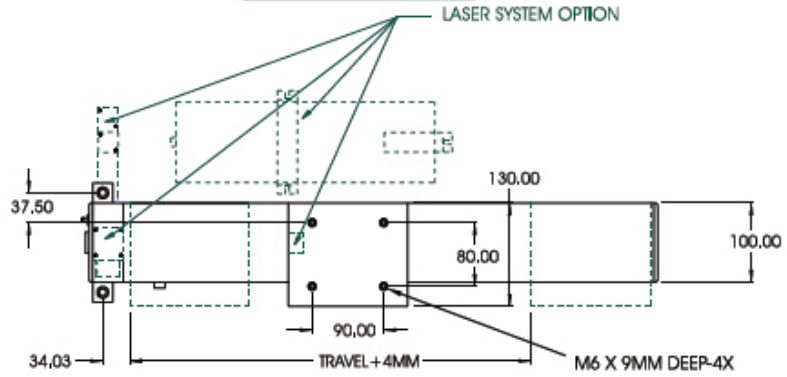
<sup>2</sup>Please contact our Applications Engineers for loads exceeding 4kg.

<sup>3</sup>The maximum speed is encoder and load dependent.

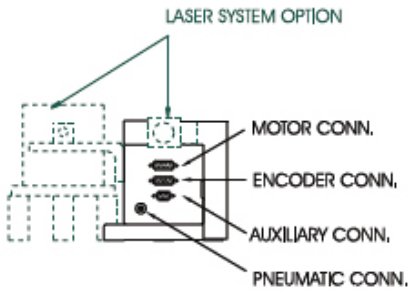
<sup>4</sup>Standard configuration is highlighted.

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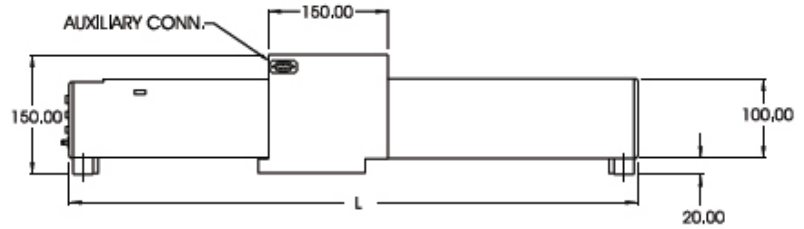
**Top View**



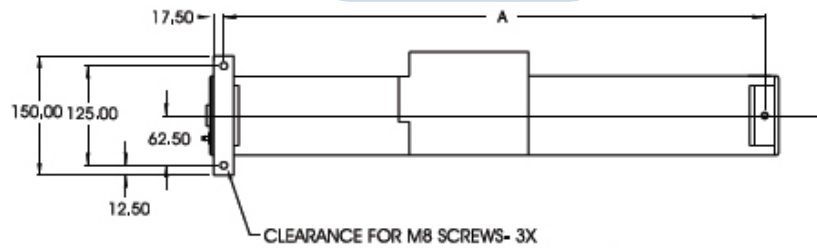
**End View**



**Side View**



**Bottom View**



Third Angle Projection
   
 Note: All Dimensions in Millimeters

MODEL	TRAVEL	LENGTH	
	T	L	A
AB-305	305	520	485
AB-610	610	825	790