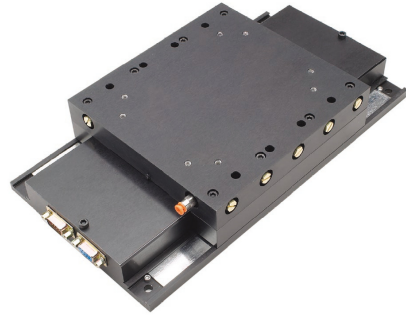


FiberBeam™ Linear Motor Positioner



Applications

- :: Non-contact air bearing, linear motor stage
- :: Non-contact optical encoder with resolutions to 1 nanometer
- :: 1 micron move and settle times of 15 milliseconds to within 20 nanometers
- :: No exposed magnets, coils, or moving cables
- :: CE Compliant

Air Bearing, Linear Motor Positioner

The FiberBeam Family of Linear Motor Positioners are specifically designed to meet the demands of photonic alignment and assembly systems. With travels of 20, 50, and 100mm, all share a very low profile of only 50mm.

FiberBeam Linear Motor Positioners incorporate a unique moving magnet/moving glass design which locates all cables and connectors in a stationary base, avoiding any cable influence on stage movement. Design simplicity makes these positioners ideally suited to cleanroom applications: the carriage floats over a featureless, precision-ground base.

For high-resolution applications demanding rapid settling, the FiberBeam Stages are an ideal match to our NanoDrive™ Linear Amplifier series of ultra-low noise and low distortion sinusoidal amplifiers.

The FiberBeam Stages incorporate proprietary porous bearing technology, avoiding the clogging

problems common to orifice bearing designs. All models bolt together directly to form X-Y assemblies without the need for adapter plates. The height of such a stack is a low 100mm.

Right angle brackets and frictionless spring or air counterbalances are available to permit vertical operation. This allows three axis X-Y-Z assemblies to be easily configured. Dual carriage/single base versions can also be supplied, where the motion of the two carriages is parallel to less than 2 arc-seconds.

In constant velocity applications, tracking errors during motion can be held to +/- 10 nanometers. The use of a single phase, brushless motor in the FiberBeam 20 stage provides the high performance of sinusoidal commutation from brush-type amplifiers — no commutation required.

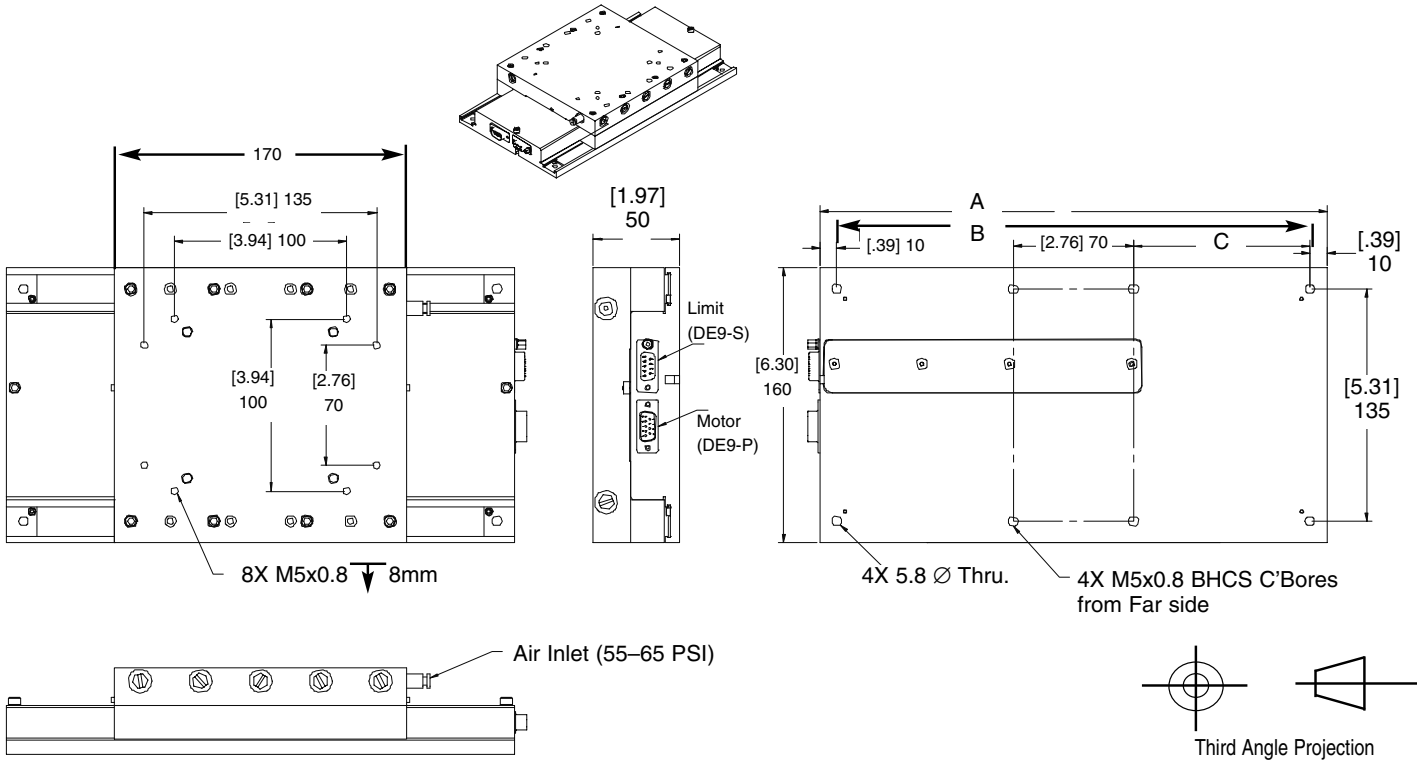
FIBERBEAM LINEAR MOTOR POSITIONER SPECIFICATION

Specification	FiberBeam-20 Stage	FiberBeam-50 Stage	FiberBeam-100 Stage
Travels	20	50	100
Overall Height	50	50	50
Accuracy	1 micron	1.5 micron	2 micron
Resolution Options		100, 40, 20, 10, 1 nm	
Bi-directional Repeatability ¹	± 1 count	± 1 count	± 1 count
Maximum Acceleration	10 m/s ²	10 m/s ²	10 m/s ²
Load Capacity	15 kg	15 kg	15 kg
Moving Mass (kg)	2.25	2.25	2.25
Total Mass (kg)	3.8	4.5	5
Motor Force Constant	6.1 N/A	3.2 N/A	3.2 N/A
Fundamental Motor Constant	2.8N / √Watt	1.45N / √Watt	1.45N / √Watt
Coil Resistance	4.8 Ohm	4.8 Ohm	4.8 Ohm
Coil Inductance	1.1mH	1.1mH	1.1mH
Continuous Current	3.4 A	2.7 A	2.7 A
Peak Current	10 A	7.5 A	7.5 A
Continuous Force	20N	8N	8N
Peak Force	60N	25N	25N
Continuous Power Rating	50 Watts	30 Watts	30 Watts
Thermal Resistance	1.33° C/W	2.5° C/W	2.5° C/W
Air Consumption (for all)	2250 SCCM @ 60PSI (2.25 liters/minute)		
Pitch & Yaw	2 arc-second	3 arc-seconds	4 arc-seconds
Motor	Single Phase Brushless	Three Phase Brushless	Three Phase Brushless
Straightness & Flatness	300 nanometer	350 nanometer	400 nanometer

¹ Amplifier and Isolation Dependent: greater of ±1 count or ±10 nm

FiberBeam™ Linear Motor Positioner

FIBERBEAM LINEAR MOTOR POSITIONER SPECIFICATIONS



Model	A	B
FiberBeam 20 Stage	215mm	62.5mm
FiberBeam 50 Stage	245mm	77.5mm
FiberBeam 100 Stage	295mm	103mm