

# LINEAX-8

Linear Motor Driven Stage



Lineax®-8 A brush less linear servo motor driven stage that combines very high speed and precision sub-micron positioning. This is the perfect combination for high throughput and demanding linear motion applications.

## Linear Motor Stages

Direct drive linear motors for stage positioning exhibit advantages over conventional screw driven stages. Lacking the elastic deformation seen in screw drive systems allows direct drive systems to produce more compliant positioning trajectories, faster settling times, higher repeatability and faster servo response. Free of rotating inertia, much faster acceleration and higher velocities are achievable. Wear of rotating components is eliminated increasing reliability, uptime, and extending servicing intervals each of these contributes to reducing cost of ownership. The direct drive linear motor with the high-resolution encoder allows precise velocity regulation. The linear motor and other components in Lineax can be prepared for vacuum compatibility.

- Environmentally hardened.
- Precision guide system provides stable trajectory across long travel and at high speeds.
- Powerful linear motors are used in the Lineax series.
- High-resolution linear encoders are incorporated to allow precise position feedback and closed

## Superior Mechanical Design

All structural materials are high-strength aluminum alloys, all surfaces are precision machined, hard coat-anodize finished. Two precision re-circulating linear ball bearings are guided by 2 integrally pre-loaded ball tracks on each rail. The guide system has extended 5 year intervals only for lubrication service.

## Features and Benefits

Stages have a compact envelope with no motor overhang. Linear motor, encoder and cables are internal with cables terminating in connectors mounted to the stage's base. A re-circulating bearing system with precision guide rails optimized for preload, accuracy, speed, and acceleration ratings support the stages' high speed, precise motion. The design of the high strength, precision machined, aluminum structure maximizes the stiffness and stability. Standard finish for aluminum components is hard-coat anodized. Special finishes like Teflon impregnated hard-coat, non-anodized, and electro less Nickel can be furnished to accommodate specific application environments. Stainless steel components are made from polished material.

## LINEAX-8 Specifications

	LX-8 SP
Travel Length	125-750 mm
Drive System	Brushless Linear Servo Motor
Maximum Acceleration	Payload Dependent
Maximum Speed	Unladen 3 m/s
Maximum Peak Force	800 N
Maximum Continuous Force	160 N
Recommended payload limit	50 kg / 110 lbs

	LX-8125	LX-8250	LX-8375	LX-8500	LX-8625	LX-8750
Travel Length	125 mm	250 mm	375 mm	500 mm	625 mm	750 mm
<b>Trajectory Control</b>						
Accuracy						
Standard SP	± 11 µm	± 22 µm	± 28 µm	± 32 µm	± 35 µm	± 40 µm
High Precision HP	± 5.5 µm	± 10 µm	± 12 µm	± 14 µm	± 16 µm	± 18 µm
<b>Straightness/Flatness</b>						
Standard SP	± 6 µm	± 12 µm	± 12 µm	± 20 µm	± 28 µm	± 36 µm
High Precision HP	± 4 µm	± 6 µm	± 6 µm	± 10 µm	± 14 µm	± 18 µm
<b>Yaw/Pitch/Roll</b>						
Standard SP	10 arc-sec	15 arc-sec	20 arc-sec	25 arc-sec	30 arc-sec	35 arc-sec
High Precision HP	8 arc-sec	11 arc-sec	14 arc-sec	17 arc-sec	20 arc-sec	23 arc-sec
<b>2 Axis System</b>						
Orthogonality						
Standard SP	20 arc-sec	20 arc-sec	20 arc-sec	20 arc-sec	20 arc-sec	20 arc-sec
High Precision HP	5 arc-sec	5 arc-sec	5 arc-sec	5 arc-sec	5 arc-sec	5 arc-sec
Extra High Precision XHP	3 arc-sec	3 arc-sec	3 arc-sec	3 arc-sec	3 arc-sec	3 arc-sec

- All trajectory data based on axis uniformly supported over full length on precision mounting surface with vibration isolation.
- Payload capacities are recommended values to achieve maximum lifetime in the worst-case scenario featuring maximum dynamic operation and off-center loading.
- Force, acceleration and speed performance are based on operations with NUTEC ELECTRONIC controls.

### LINEAX-8 Dimensions

