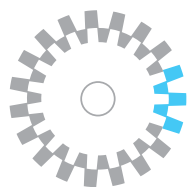




Capture Even More Light
through the Middle of the Motor.



equipMent[™]
solutions

LFA-3404 Linear Focus Actuator

Optional
Light Baffle Shields
Position Sensor

Clear Aperture

Integrated
Analog Position Sensor
Provides up to
100 Nanometer Resolution



REAR

FRONT

Lens Mount

Patented
Flexure Guidance
Provides Nearly Infinite
Lifetime of Smooth,
Striction-Free Motion

Optional Motor
Temperature Sensor



The **LFA-3404 Linear Focus Actuator** is a high performance, compact positioning system specifically developed for optical applications requiring both high precision and high-speed positioning over a short to medium stroke. Designed to send the optical path *directly through the middle of the motor* with a larger opening, optical load under acceleration will not produce any tip or tilt aberrations. Our included analog position feedback sensor, can optionally be replaced with a digital quadrature feedback element.



Up to
20 Millimeter Diameter
Clear Optical Path

Integrated English
and Metric Mounting

Integrated
Lens 'C'-Mount at Motor Center
for Tip/Tilt Free Motion

Plug-in Compatibility with
SCA814 Servo Amplifier





Need New Text

Overview: The LFA-2010 Linear Focus Actuator is ideal for optical focusing and other micro-positioning applications such as scanning interferometry, surface structure analysis, disk drive testing, auto-focus systems, confocal microscopy, biotechnology, and semiconductor test equipment.

Stage: The LFA-2010 is guided along a single axis by a patented flexure design. Flexures produce a compact and light package with zero stiction/friction, ultra-high resolution and exceptional guiding precision. The stage can be oriented in either a vertical or a horizontal position. Multiple sets of mounting holes are included for convenient mounting. A standard 'C' mount is provided on the translator element and optional adapters are available for DIN standard microscope objectives and simple lens.

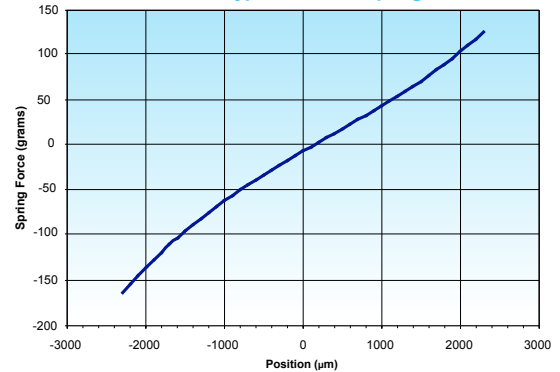
Voice Coil: The LFA-2010's responsive performance is achieved through a high force, low mass moving voice coil architecture (Voice coil motors produce the least amount of electrical noise of any motor type available today.). Our voice coil motor adds no additional friction to the stage and provides superior responsiveness over micropositioners with conventional screw drives and bearing guide way.

Positioning Feedback Sensor: The LFA-2010 includes a sub-micron resolution linear displacement sensor. Our sensor has high bandwidth and low noise for responsive and precise movements using a frictionless, non-contact optical technology. The compact nature of the system and its extremely low mass, improves system performance.

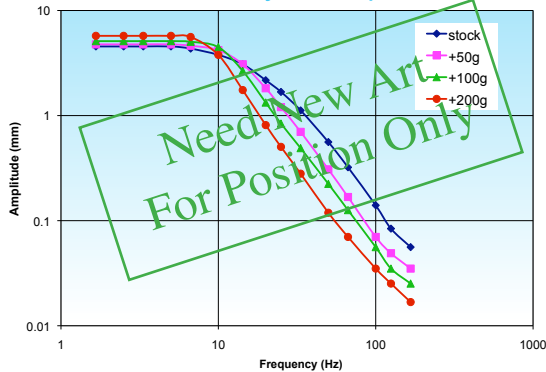
LFA-3404 Specifications:

Clear Aperture:	34 mm
Range of Motion:	4 mm
Positioning Resolution:	>100 nm
Peak Force:	40 lbs, 10sec
Max Continuous Force:	5 lbs
Motor Constant:	2.0 lbs/Amp
Coil Resistance:	2.3 Ω
Coil Inductance:	420 μ H
Non-Linearity:	< \pm 0.5%
Repeatability, Short Term:	100 nm
Repeatability, Long Term:	50 ppm/1000hrs.
Temperature Stability:	\pm 250 nm/ $^{\circ}$ C
Hysteresis:	None
Deadband:	None
Travel Non-Straightness:	<0.5 μ m
Dimensions:	89 ϕ . x 57 mm
Total Mass:	1.0 kg
Moving Mass:	90 g

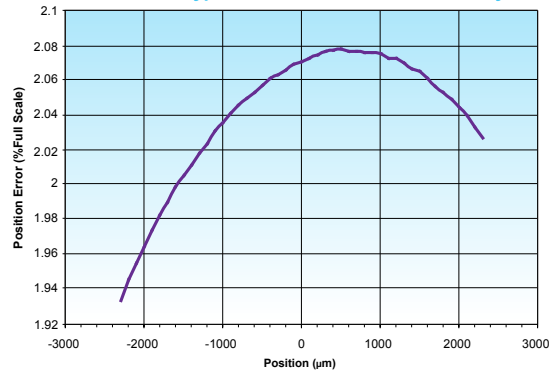
LFA-3404 Typical Flexure Spring Rate



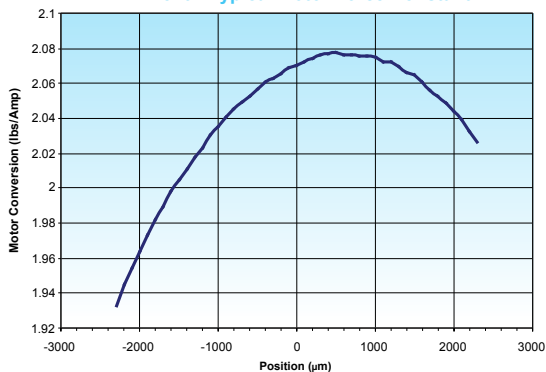
LFA-2010 Dynamic Response



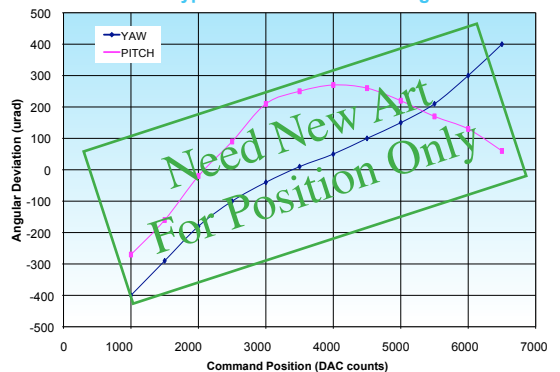
LFA-3404 Typical Position Sensor Nonlinearity



LFA-3404 Typical Motor Force Constant

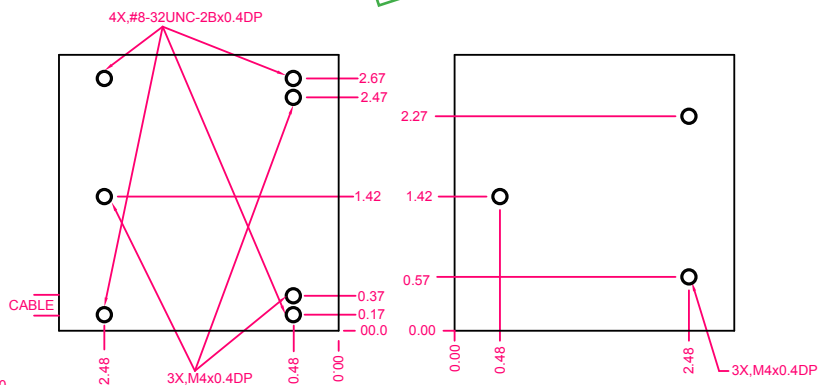


LFA-2010 Typical Position Induced Angular Error





LFA-2010 Interface (Layout Drawings)



- High Speed Sub-Micron Positioning
- Compact Packaging
- Integrated Position Feedback Sensor
- High Force Generation
- No Frictional elements
- Horizontal or Vertical Operation
- Simple Electrical Interfacing
- Clean Room Compatibility
- Patented Technologies
- Integrated Standard Mount

Compatibility
Technologies
standard 'C' Mount



We pride ourselves in giving OEMs and VARs precisely the tools they need to make the best systems possible—our highest priority is in applications support. Our knowledgeable engineers will help you analyze your objectives to achieve the very best solutions, even before you become a customer. Undivided attention and long term relationships ensures your success—and ours. Please contact Paul Swanson or our office by phone: (408) 245-7161, fax: (408) 245-7160, mail: 461 East Evelyn Avenue / Sunnyvale, California 94086, or by email: pa.swanson@equipsolutions.com