Hybrid Hexapods®

Serial & Parallel Kinematic 6-DOF Positioners

Angulares™ Hybrid Hexapod®

The Industry's First and Only 6 Degree-of-Freedom Nano-Positioner with 60 Degrees Tip and Tilt Travel

FEATURES

- Precision Crossed Roller Bearing Guides
- Direct-Read Incremental or Absolute Encoder Feedback on All Axes
- Linear Motor and/or Ball Screw Drives
- Unlimited Programmable Tool Center Point Locations and Coordinate Offsets
- Zero Backlash on All Axes

KEY PERFORMANCE

- XY Travel 60 & 100mm, Up To 450mm Standard (Capable of Unlimited XY Travel)
- Z Travel 62mm (Up To 208mm with Other Tripod Models)
- Tip/Tilt Travel 60 Deg (±30), Continuous 360 Deg Theta-Z
- XYZ Bidirectional Repeatability Less Than ±100nm
- Angular Bidirectional Repeatability Less Than ±0.6 arc-sec
- Velocity Up To 100mm/sec XY and 20mm/sec Z (> in Linear Motor Versions)
- Less Than 20nm Linear and 0.1 arc-sec Angular Minimum Incremental Motion

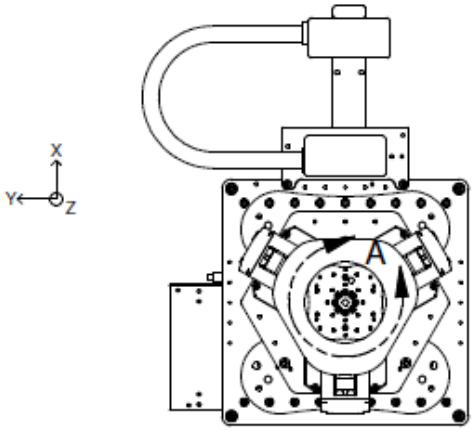
APPLICATIONS

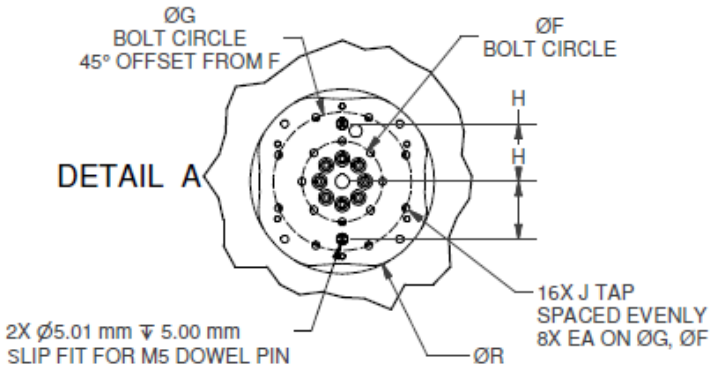
- Aspheric and Freeform Optical Metrology
- Silicon Photonics Packaging and Probing
- Laser Micro Processing (non-planar substrates and taper control)
- Wafer Metrology
- Camera Module Alignment and Assembly
- Sensor/Image Stabilization Testing
- Optical Element and Fiber Alignment

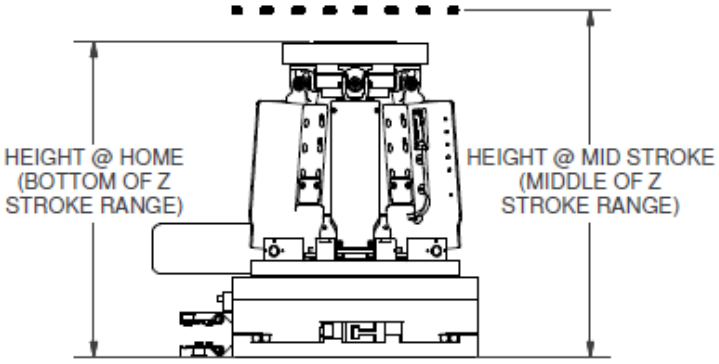
*CONTACT ALIO TO REQUEST FULL TECHNICAL DATASHEETS AT **SALES@ALIOINDUSTRIES.COM***

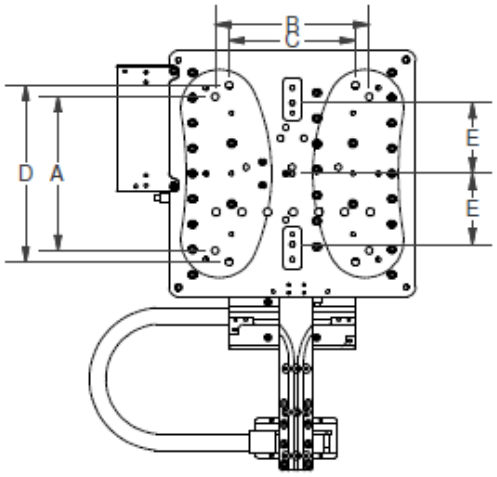
The Hybrid Hexapod® was developed by ALIO Industries to address the inherent performance limitations of conventional hexapods. ALIO's Patented 6-Degree-Of-Freedom (6-DOF) design seamlessly blends and takes advantage of the strengths of serial and parallel kinematic structures while avoiding their weaknesses. The Hybrid Hexapod offers far greater functional versatility, nanometer-level accuracy, repeatability, and superior 6-DOF trajectories than is possible with any traditional hexapod or stacked stage configuration. The unique design is comprised of a parallel kinematic tripod to deliver Z plane and tip/tilt motion. This tripod is integrated with a monolithic serial kinematic stage for XY planar motion. A rotary stage integrated into the top of the tripod (or beneath depending on application needs) provides 360-degree continuous yaw (Theta-Z) rotation. In this hybrid design, individual axes can be customized to provide XY travel ranges from millimeters to virtually unlimited ranges while maintaining nanometer-levels of precision. Novel forward and inverse controller kinematics provide an unlimited number of programmable Tool Center Point locations. The 60 degree tip/tilt travel of the Angulares Hybrid Hexapod is by far the most angular travel range available from any 6-DOF positioner on the market and offers the same unmatched positioning performance found in any of ALIO's full-line of Hybrid Hexapod systems.

Angulares™ Hybrid Hexapod®









Model Number	XY Travel (Drive Type)	Z Travel (Drive Type)	Tip & Tilt Travel (Drive Type)	Theta Z Travel (Drive Type)	R Diameter	Length	Width	Height @Mid-Stroke	A (inch)	B (inch)	C	D	E	F	G	H	I	J
AI-HH-60D-60XY-62Z-80R	60mm (Ball Screw)	62mm (Ballscrew)	± 30 Deg (Ballscrew)	360 Deg (Torque Motor)	80	204.8	180	330.8	4	3	75	100	35	35	60	25	M6 or 1/4-20	M4
AI-HH-60D-100XY-62Z-80R	100mm (Linear Motor)	62mm (Ballscrew)	± 30 Deg (Ballscrew)	360 Deg (Torque Motor)	80	244	244	343.3	6	6	125	175	70	35	60	25	M6 or 1/4-20	M4

Additional Model Travel Ranges (Drive Options)	150mm - 450mm - Unlimited (Linear Motor)	15mm - 206mm (Linear Motor)	± 10° - ± 18° (Linear Motor)

NOTE: AI-HH-60D-100XY-62Z-80R MODEL SHOWN

ALIO Industries, Inc. | +1 303-339-7500 | sales@alioindustries.com | www.alioindustries.com