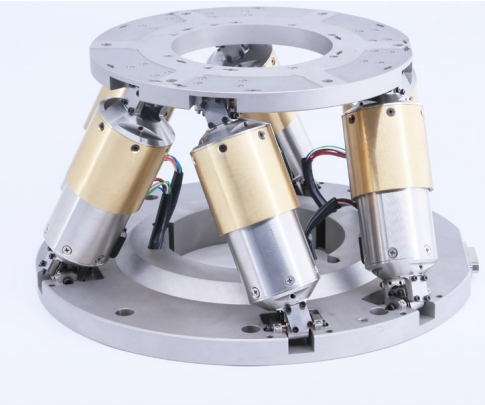
HXP-824A High-Precision Hexapod, Six-Axis, ±34 mm XY Travel, EtherCAT

Model HXP-824A · waveqvanta.com/products/hxp-824a-high-precision-hexapod

Six-degree-of-freedom hexapod for precision spatial alignment, micro-assembly and wafer inspection.



The HXP-824A is a high-precision hexapod for six-degree-of-freedom adjustment. Six push-rod actuators with double Hooke joints give a rigid, highly repeatable platform that can be mounted in any orientation. Actuators are available with absolute encoders, which retain position after power loss so no homing is needed on restart, or with incremental encoders; the drives communicate over EtherCAT for compatibility with mainstream motion control systems.

Key features

- Six push-rod actuators with double Hooke joints; can be mounted in any orientation
- Travel ±34 mm (X, Y), ±15 mm (Z), ±11° (θX, θY), ±25° (θZ)
- Unidirectional repeatability ±0.5 µm (X, Y), ±0.3 µm (Z); minimum incremental motion 1 µm and 0.001°
- Absolute or incremental encoder actuators; absolute version keeps position after power-off
- EtherCAT drive bus, compatible with mainstream motion control systems
- Control software with Euler-angle conventions, world/workpiece/tool coordinate systems (64 workpiece and 64 tool frames), load simulation, spatial calibration, 3D pose simulation and teach programming
- Software development kit for integration into equipment

Specifications

Travel X, Y	±34 mm
Travel Z	±15 mm
Travel θX, θY	±11°
Travel θZ	±25°
Actuator Resolution	0.25 µm
Minimum Incremental Motion X, Y, Z	1 µm
Minimum Incremental Motion θX, θY, θZ	0.001°
Backlash X, Y / Z	3 µm / 1 µm
Backlash θX, θY / θZ	10 arcsec / 15 arcsec
Unidirectional Repeatability X, Y / Z	±0.5 µm / ±0.3 µm
Unidirectional Repeatability θX, θY / θZ	±2 arcsec / ±2.5 arcsec
Actuator Speed	40 mm/s standard; 80 mm/s max
Load Capacity	20 kg horizontal; 2.5 kg in any orientation
Structure	Six push rods with double Hooke joints
Motor	Step-servo motor

Encoder	Absolute or incremental (selectable)
Drive Communication	EtherCAT
Coordinate Systems	World, workpiece (64), mounting, drive and tool (64) frames
Software Functions	Load simulation, spatial calibration, 3D pose simulation, teach programming, SDK
Operating Temperature	+10 to +40 °C
Body Material	Stainless steel / aluminum alloy
Weight	7 kg
Cable Length	2 m

Typical applications

- Spatial precision alignment
- Micro-device processing and assembly
- Optical communication device alignment
- Wafer inspection