



MOTION CONTROL TECHNOLOGY

PHA-series

Direct-Drive 6-DoF Alignment Stage

Engineered for Precision. Designed for Possibilities.

Designed for advanced silicon photonics and optical alignment applications, the direct-drive 6-DoF alignment stage delivers high dynamic response, long travel range, high positioning accuracy, and ultra-low jitter across X, Y, Z, Rx, Ry, and Rz motions. Its modular architecture enables flexible axis configuration, allowing the stage to be customized for different DoF requirements, and optical assembly processes. It is ideal for high-speed, stable, and precise active alignment of PICs, fiber arrays, optical engines, CPO modules, and other advanced photonic devices.



SPECIFICATION

PHA-series		-ZXYTPR
Travels		X: 50 mm Y: 3 mm Z: 50 mm T: 20 deg P: 20 deg R: 20 deg
Accuracy	Base Performance (-PL1)	X: $\pm 6.5 \mu\text{m}$ Y: $\pm 2.0 \mu\text{m}$ Z: $\pm 7.0 \mu\text{m}$ T: $\pm 25 \mu\text{rad}$ P/R: $\pm 90 \mu\text{rad}$
	PLUS Performance (-PL3)	X: $\pm 400 \text{ nm}$ Y: $\pm 200 \text{ nm}$ Z: $\pm 400 \text{ nm}$ T: $\pm 8 \mu\text{rad}$ P/R: $\pm 30 \mu\text{rad}$
Resolution (Min. Incremental Motion)		X/Y/Z : 10 nm
Bidirectional Repeatability		X/Z: $\pm 250 \text{ nm}$ Y: $\pm 150 \text{ nm}$ T: $\pm 3.5 \mu\text{rad}$ P/R: $\pm 18 \mu\text{rad}$
Maximum Speed		X: 400 mm/s Y: 75 mm/s Z: 200 mm/s T: 120 deg/s P/R: 150 deg/s
Load Capacity		1 kg
Total Weight		9.8 kg

APPLICATION

- Silicon Photonics (SiPh) Device Alignment
- Fiber Array to PIC Active Alignment
- Optical Engine Assembly
- Co-Packaged Optics (CPO) Assembly
- Optical Transceiver Module Alignment
- Laser / Lens Active Alignment
- Fiber-to-Chip Coupling Optimization
- Wafer-Level Photonics Testing

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DIMENSION

Unit : mm

