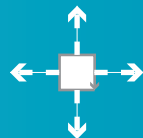
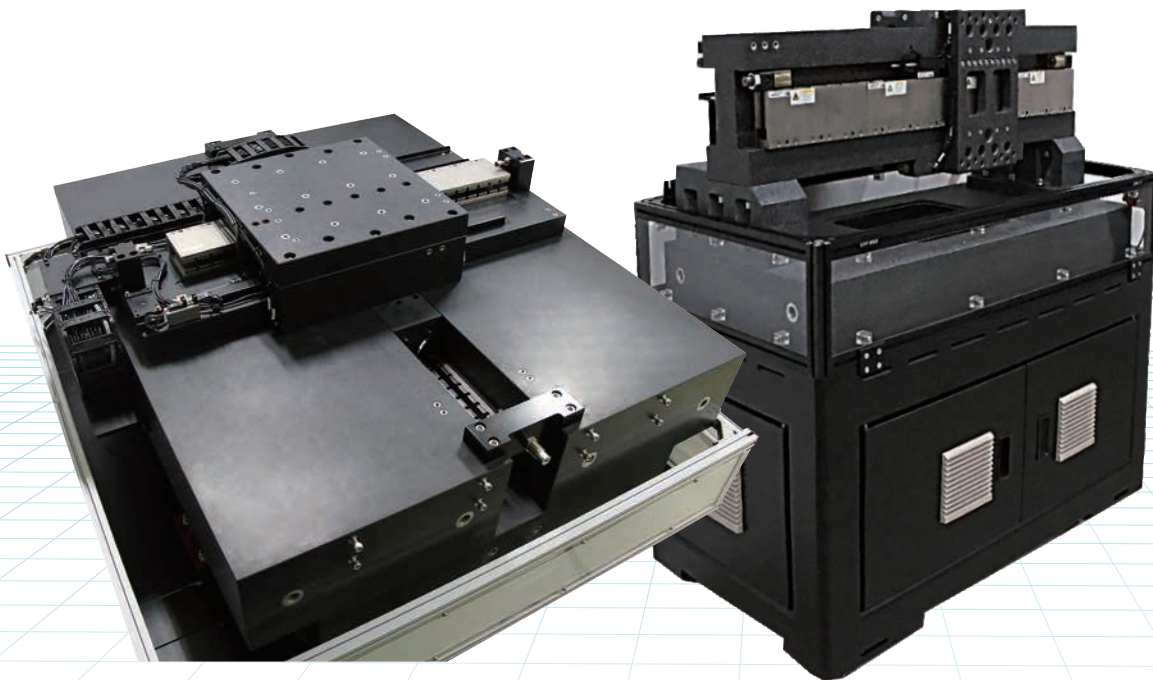




Air Bearing Direct Drive Linear Stage Mechanical Bearing Direct Drive Linear Stage

Nanometer-precision Direct-drive Air Bearing & Mechanical Bearing Linear Motor Linear stages



Flexibility



Variety



Precision

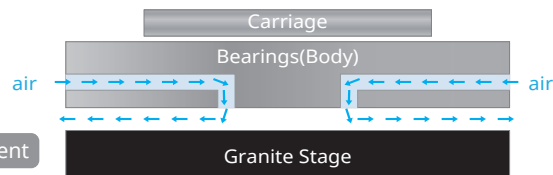
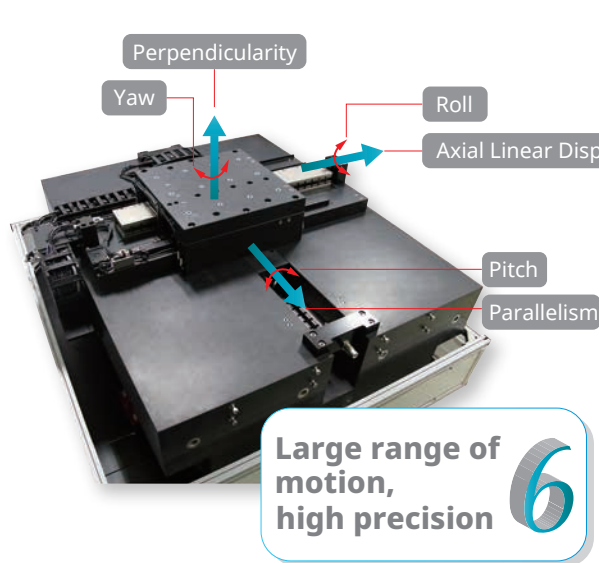


Speed



Air Bearing Direct Drive Linear Stage

Air Bearing Direct Drive, XY Linear Stage



Structure of Air Bearing

- Nozzles are built-in to the active faces of the high-precision components
- High stiffness and High load capacity
- Streamlined design featuring fewer components
- Achieves high mechanical precision through specialized geometric design
- Optimized multi-axis precision
- Long-term reliability and stability

Item	Units	The highest precision
Repeatability	μm / 300mm	< 0.3
Dynamic straightness	μm / 300mm	< 1
Dynamic Flatness	μm / 300mm*300mm	< 1
Yaw	arc sec / 300mm	< 1
Pitch	arc sec / 300mm	< 1
Perpendicularity	arc sec / 300mm*300mm	< 1

Industrial Applications

Single Axis Air Bearing Stage

Singal Axis Air Bearing Direct Drive Linear Stage

■ Semiconductor Industry High-speed Material Handling

- Effective Stroke 400mm
- Maximum acceleration 10G
- repeatability 1μm

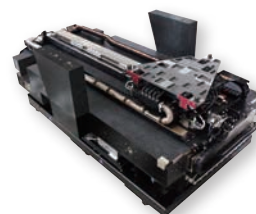


Dual-axis Direct-drive Air Bearing Linear Stage

Two Axis Air Bearing Direct Drive Linear Stage

■ Printed Circuit Board (PCB) / DI mask aligner

- Effective Stroke 350mm×1200mm
- maximum speed 1000mm/sec
- repeatability 1μm
- YAW <3arc-sec
- speed ripple, velocity stability 200mm/sec <0.2%



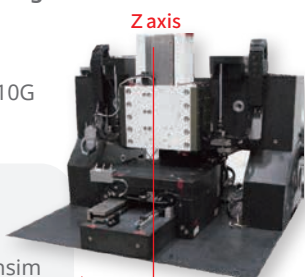
XYZ Multi-axis Direct-drive Air Bearing Linear Stage

XYZ Axis Air Bearing Direct Drive Linear Stage

■ semiconductor industry High-precision micro-drilling machining

- Effective Stroke 400mm
- Maximum acceleration 10G
- repeatability 1μm

- Air bearing used in the Z-axis
- Integrated counterbalance mechanism
- jitter <10nm
- (step) resolution <0.1μm

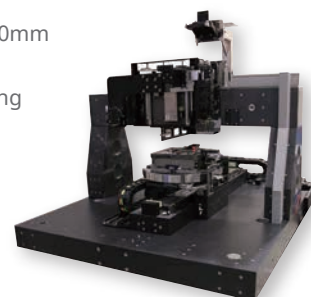


XYZR Multi-axis Direct-drive Air Bearing Linear Stage

Two Axis Air Bearing Direct Drive Linear Stage

■ semiconductor / mask detector

- Effective Stroke 500mm×500mm
- flatness <5μm
- VC-Cshock suppression rating



Mechanical Bearing Direct Drive Linear Stage

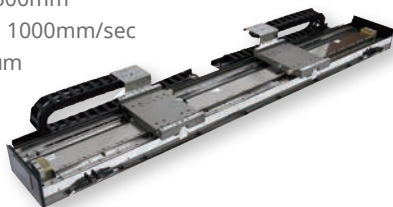
Industrial Applications

Single-axis Dual-rotor Linear Motor Stage

Dual forcer Mechanical-Bearing Direct-Drive Linear Stage

■ automated handling

- effective stroke 500mm
- maximum speed 1000mm/sec
- repeatability <1μm

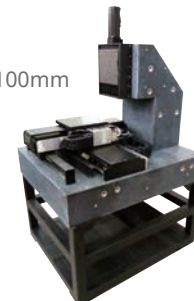


XYZ Multi-axis Mechanical Bearing Linear Stage

XY Axis Mechanical-Bearing Direct-Drive Linear Stage

■ semiconductor / AOI

- effective stroke 300mm×300mm×100mm
- maximum speed 300mm/sec
- XYrepeatability <1μm
- Zrepeatability <1μm

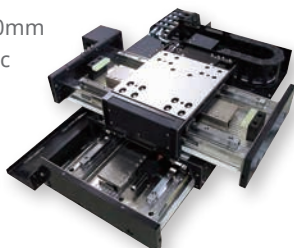


XY Dual-axis Direct-drive Mechanical Bearing Linear Stage

XY Axis Mechanical-Bearing Direct-Drive Linear Stage

■ semiconductor industry / laser machining

- effective stroke 300mmX300mm
- maximum speed 500mm/sec
- repeatability <1μm

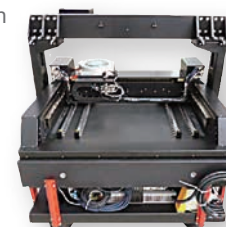


XZR Multi-axis Direct-drive Mechanical Bearing Linear Stage

Two Axis Mechanical-Bearing Direct-Drive Linear Stage

■ semiconductor / mask aligner

- effective stroke 450mm×450mm
- maximum speed 1000mm/sec
- repeatability <1μm



Dual-drive Gantry-style Mechanical Bearing Linear Stage

Multi-forcer Mechanical-Bearing Direct-Drive Linear Stage

■ photoelectric industry / 6-rotor inkjet printer

- effective stroke 1600mm×2000mm
- maximum speed 1m/sec
- repeatability <5μm

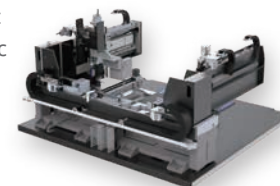


XYZ Multi-axis Direct-drive Mechanical Bearing Linear Stage

XY Axis Mechanical-Bearing Direct-Drive Linear Stage

■ semiconductor / High-speed material handling and pick-and-place

- effective stroke 500mm×500mm×100mm
- XY maximum speed 1m/sec
- Z maximum speed 0.3m/sec
- XY repeatability <1μm
- Z repeatability <1μm



XYZ Multi-axis Direct-drive Gantry-style Mechanical Bearing Linear Stage

XY Axis Mechanical-Bearing Direct-Drive Linear Stage

■ photoelectric industry / laser machining

- effective stroke 600mm×600mm×100mm
- maximum speed 1m/sec
- repeatability <2μm

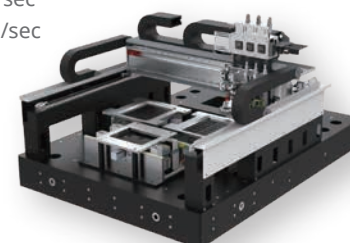


XYZ Multi-axis Mechanical Bearing Linear Stage

Two Axis Mechanical-Bearing Direct-Drive Linear Stage

■ consumer electronics / lamination

- effective stroke 1000mm×700mm×40mm
- XY maximum speed 1m/sec
- Z maximum speed 0.2m/sec
- repeatability <2μm



About Air Bearings

Brand	Air Bearing Type	Design	Module Components	Assembly & Maintenance	Precision	Stiffness	Load Capacity
Other Brand	(Air Pad)	Complex	More and complex	Hard and time-consuming	High	Average	low
TOYO	Built-in Air bearing (TOYO)	Simple	Fewer and simple	Quick and easy	Even Higher	High	High



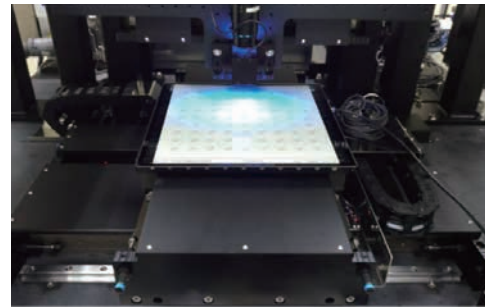
High-Precision Motion Calibration Systems

Laser Interferometry (System/Equipment)



Our direct-drive air bearing and mechanical bearing linear stages use Renishaw's XL80 laser and the XC80 compensator kits to provide superior relative dynamic positioning error measurement. Our system's measurement calibration meets the strictest standards for precision in machining and inspection applications. Our direct-drive air bearing and mechanical bearing linear stages with Renishaw's XL80 laser and the XC80 compensator kit provide immediate relative dynamic positioning error and compensation for all possible 2-D paths and positions.

Most 2D dynamic positioning systems use laser interferometry to measure absolute error, and then calculate relative error; however, this process is both unwieldy and is unable to quickly, accurately assess the real positioning error. This result arises from the potential for the relative error calculations to be time-consuming, so that the overall error in the system accumulates over the movement time, which decreases the overall accuracy of the system, and finally results in poor quality for the target processes.



Synchronized High-Precision 2D Flatness Measurement System

Service



- Service Locations : Taiwan, China, Japan, South Korea, and Thailand
- System Integration Solutions : From parts selection to full system design
- Industry Experience : 10+ years experience providing industrial automation solutions
- Large-scale Manf. Capacity : From rapid prototyping to mass production capabilities
- Japanese Technical Expertise : Japanese cutting-edge technology at a reasonable Taiwanese (manufacturer's) price
- Complete Linear Drive Product Linear-up : Asia's industry leader in direct drive module manufacturing
- ODM/OEM : Flexible cooperation to meet all of our customer's needs



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CELEBRATING
20 YEARS
IN
FA INDUSTRY