YASDA

Finished by Masters of a machine tool builder

Suitable for large semiconductor panels

High-Precision XY Stage

Repeatability **below 0.1 µm** realized by High-rigidity and Assembly skills

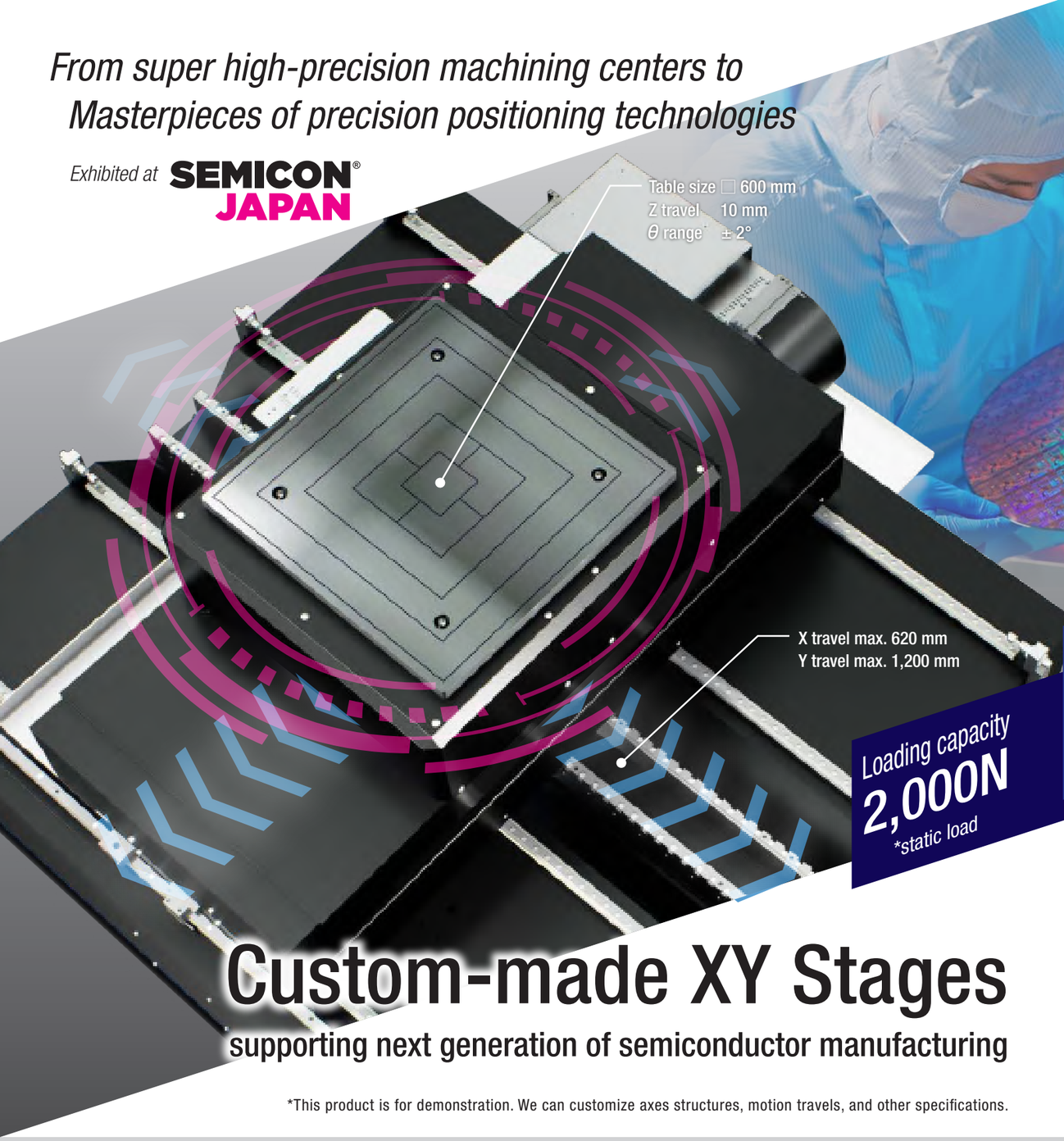
Optimized simultaneous control of 4-axis (X·Y·Z·θ)

Table and motion travel suitable for max. 600 x 600 mm semiconductor panels

YASDA Positioning Solution

From super high-precision machining centers to Masterpieces of precision positioning technologies

Exhibited at SEMICON® JAPAN



Loading capacity **2,000N** *static load

Repeatability below **0.1 µm**

Next generation **600 x 600 mm** panels

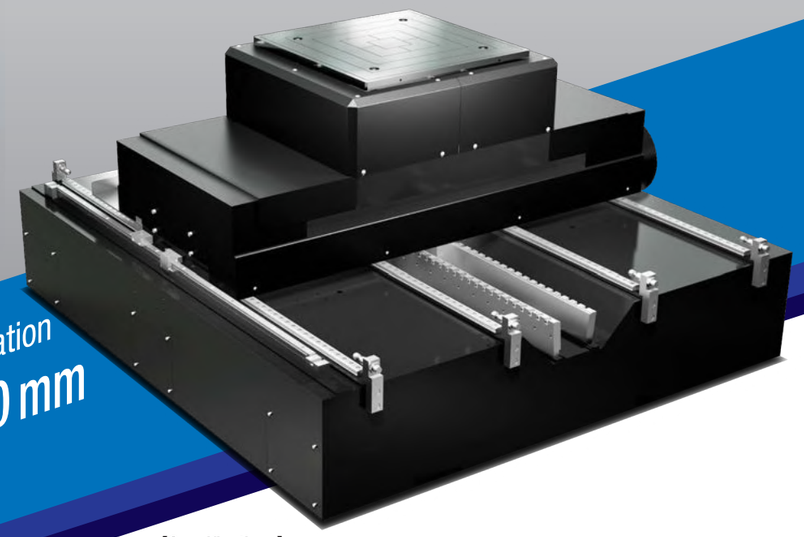
Custom-made XY Stages

supporting next generation of semiconductor manufacturing

*This product is for demonstration. We can customize axes structures, motion travels, and other specifications.

Large XY Stage for Semiconductor Manufacturing and Inspection Equipment

This mechanical stage ensures high positioning accuracy across the entire stroke range while maintaining stable posture during operation.
Straightness of 1 µm, pitching / yawing accuracy with 1 arcsecond, and repeatability accuracy below 0.1 µm over a large stroke exceeding 700 mm.
Furthermore, it achieves a static load capacity of 2,000N.



【Specifications】

● Straightness (Vertical)	: **1.0 µm**	● Travel (X axis)	: max. **620 mm**
● Straightness (Horizontal)	: **1.0 µm**	● Travel (Y axis)	: max. **1,200 mm**
● Pitching accuracy	: **1.3** arcsec	● Travel (Z axis)	: **10 mm**
● Yawing accuracy	: **1.3** arcsec	● Rotation range (θ axis)	: **±2°**
● Repeatability	: **±0.1 µm**	● Max. velocity	: **250 mm/sec**
		● Max. acceleration	: **2.2 m/s^2**

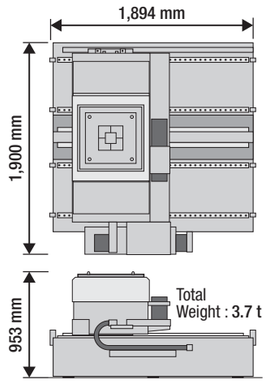
Features of YASDA XY+Zθ Stage

●Equipped with in-house manufactured Z and θ axes
Optimized synchronized control of rotational and linear axes eliminates cost for assembly adjustment.

●Supports large sized semiconductor panel manufacturing
Customized options prepared, including 600 x 600 mm square table, strokes longer than 700 mm, and high load capacity.

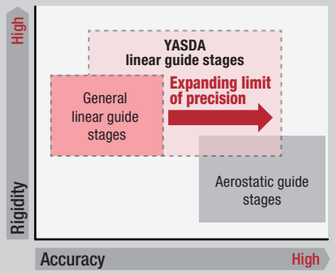
●Pursuit of fundamental precision stage performance
Achieves posture stabilities under static load, repeatability below 0.1 µm, pitching / yawing accuracy within 1.0 arcsecond.

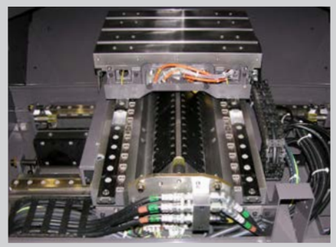
●Ultimately minimized accuracy gap between units
These technologies contribute to realize stable quality with sub-micron-level and to minimize gap in accuracy between individual units.



Technology to realize precision of machining below 0.001 mm

YASDA succeeds its design philosophy of machine tools that sustain precision over 20 years, and gives it to precision XY stages, unique in its long-term stability and high precision.
The high-precision stages are available with multi-axes and multi-tables configurations, which realize semiconductor production with high yield and high throughput, e.g., Chiplet assembly and probe inspections.





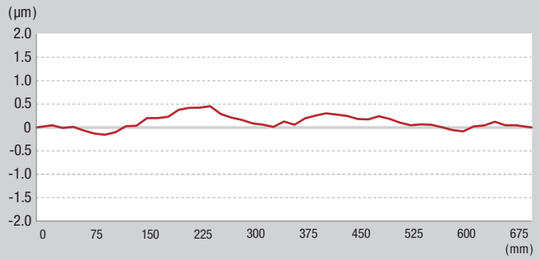
YASDA Micro Center YMC430 Linear guide ways

Toward the Future of Semiconductor Manufacturing Processes

YASDA has skilled technicians and stably supplies the high-precision stages required for semiconductor manufacturing equipment.
The heat-treated cast iron frame removes internal stress, rapidly dampens vibrations, and ensures long-term precision.
The frame's mating surfaces are hand-scraped by craftsmen, achieving straightness to 1 µm and pitching / yawing accuracy within 1 arcsecond, minimizing stage quality gap in mass production.

YASDA linear guide stages Straightness

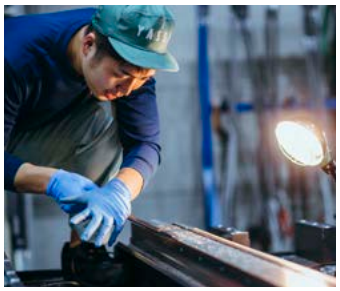
Value: 0.775 µm / 690 mm (Reference data)



Why YASDA, a manufacturer of machining centers makes XY Stage?

Aiming for the best, not the biggest.

Since our founding in 1929, YASDA has established its original manufacturing processes with craftsmen's works based on the toughest quality controls.
YASDA has maintained large-scale cleanrooms since 2000, undertaking contract manufacturing of units including precision XY stages for FPD and semiconductor manufacturing equipment.



Clean room of
Industrial Machinery Dept.
(Class 10000)

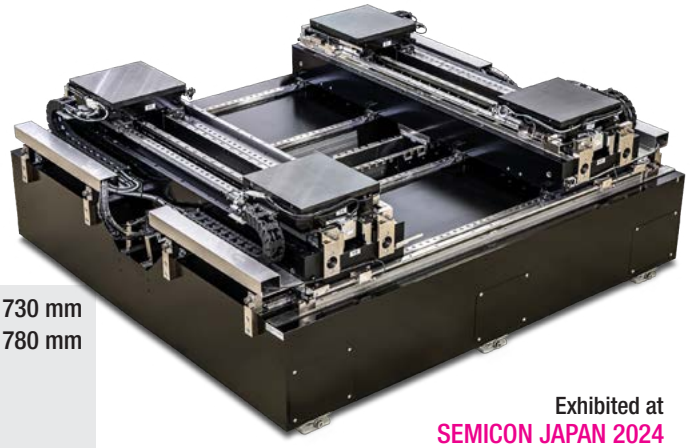
Examples

We welcome inquiries for your development projects.

XY Stage with strengthened dynamic motion control Prototype

Dynamic characteristics plus repeatability accuracy below 1 µm.
Ideal for speed stability and multi-axis synchronization accuracy.
Repeatability of precision stages, rolling and pitching accuracy and low wobble are pursued.

*This unit is prototype. We can customize axis's structure, strokes, etc.



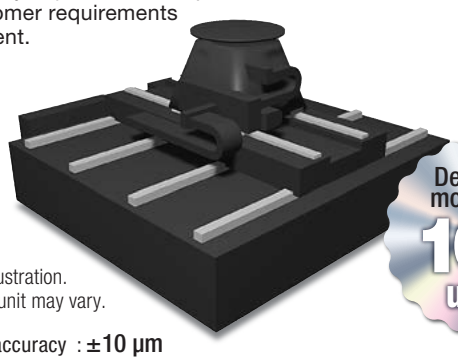
Exhibited at
SEMICON JAPAN 2024

- Straightness (Vertical) : 1.0 µm
- Straightness (Horizontal) : 1.0 µm
- Pitching accuracy : 1.3 arcsec
- Yawing accuracy : 1.3 arcsec
- Repeatability : ±0.1 µm
- Travel (X axis) : effective ±150 mm / max. 730 mm
- Travel (Y axis) : effective ±150 mm / max. 780 mm
- Max. velocity : 250 mm/sec
- Max. acceleration : 3 m/s^2

Stage for semiconductor inspection equipment

θ axis can be added to XYZ axes in-house.
Each unit is fully adjusted and inspected, meeting customer requirements before shipment.

OEM



Delivered more than 100 units

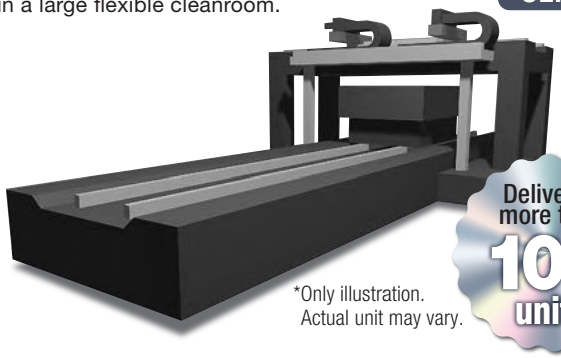
*Only illustration.
Actual unit may vary.

- Positioning accuracy : ±10 µm
- Straightness (Vertical) : ±5 µm
- Repeatability : ±2.5 µm
- Travel (X axis) : 400 mm
- Travel (Y axis) : 500 mm

Stages for FPD manufacturing equipment

YASDA can produce large stages in a large flexible cleanroom.

OEM



Delivered more than 100 units

*Only illustration.
Actual unit may vary.

- Travel (X axis) : 3,000 mm
- Travel (Y axis) : 5,000 mm
- Pitching accuracy : ≤15 arcsec
- Repeatability : ±2 µm

Please contact us.

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