Maglev ZT Stage

Features

- High precision infinition rotation
- Dual-axis high stiffness and precision guide
- Unique large-stroke magnetic float gravity compensation technology
- High accuracy of Z-axis jitter and stability
- Full closed-loop servo design
- Mechanical travel in vertical direction up to 30mm
- Rotation velocity up to 150rpm
- 12', 8', and 6' wafer applicable

Description

The stage adopts innovative dual-axis coupling design with extremely compact and low-profile. High precision, high stiffness motion with 2 degrees of freedom in vertical and rotary axes.

Rotary axis can be rotated indefinitely.

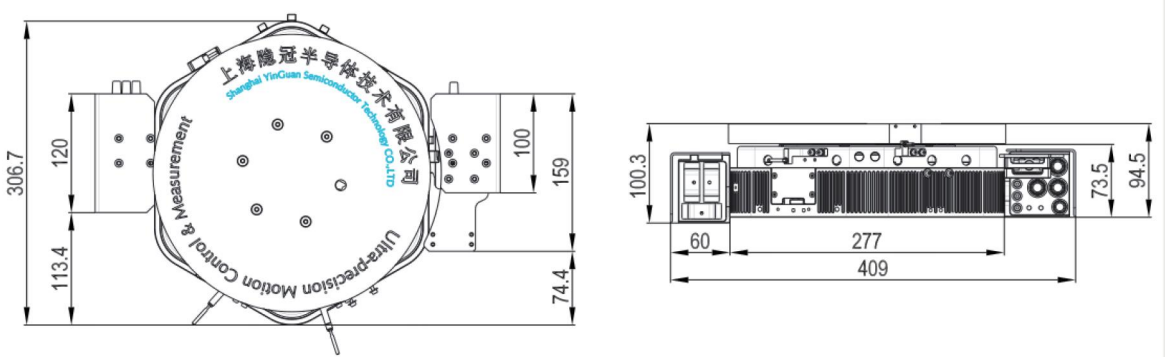
The vertical uses the large-stroke maglev gravity compensation technology, which has the function of reducing the load of the vertical motor and greatly improving the vertical motion performance and lifetime.

This product can be used in a standalone mode or mounted on top of an XY platform.

Applications

- Wafer process control applications such as optical critical dimension metrology and thin film metrology
- Wafer scribing, cleaning, and cutting
- Laser heat processing of wafer

Interface Definition



*Interface dimensions from MZT90 in the middle of vertical stroke

Technical Specifications

	MZT90-10		MZT90-20		MZT90-25	
Axes name	Z	T	Z	T	Z	T
Travel range	10 mm	360 °, Infinite	20 mm	360 °, Infinite	25 mm	360 °, Infinite
Max. velocity	100 mm/s	900 °/s	100 mm/s	900 °/s	100 mm/s	900 °/s
Max. acceleration	2 m/s²	6280 °/s²	2 m/s²	6280 °/s²	2 m/s²	6280 °/s²
Accuracy	±0.6 μm/1mm	±3 arcsec	±0.6 μm/1mm	±3 arcsec	±0.6 μm/1mm	±3 arcsec
Bidirectional repeatability	±0.3 μm /1mm	±2 arcsec	±0.3 μm/1mm	±2 arcsec	±0.3 μm /1mm	±2 arcsec
Position stability (3σ)	±15 nm*	±0.2 arcsec	±15 nm*	±0.2 arcsec	±15 nm*	±0.2 arcsec
Straightness	2 μm	NA	2 μm	NA	2 μm	NA
Axial runout	NA	±2 μm	NA	±2 μm	NA	±2 μm
Radial runout	NA	±2 μm	NA	±2 μm	NA	±2 μm
Mechanical properties						
Moving mass (without payload)	8.2 Kg					
Inertia (No load)	0.00336 Kg·m²					
Max. load	2 Kg (customizable)					
Stage mass	9.1 Kg		12.3 Kg		12.3 Kg	
Dimensions	409mmX306.7mmX73.5mm (without load)					
Material	Aviation aluminum					

*Technical data specified with 8μm pitch encoder and under active vibration isolation environment.

Customization Information

The series is configured with options that can be selected based on the user's actual application. Options include encoder, and more.

Table 1 Encoder Options

-S1	Standard, Renishaw Encoder
-S2	High-end model, Heidenhain encoder