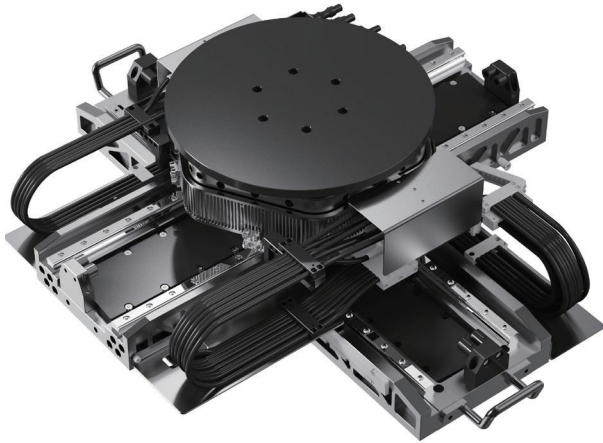


## Stacked XYZT Stage



### Features

- Stacked 4-axis stage with orthogonality design
- Global flatness and straightness up to to sub- $\mu\text{m}$  level
- X/Y axis
  - High stiffness, high precision guide
  - Consistent design of cable disturbing force
- Z-axis
  - Vertical magnetic levitation gravity compensation for high positioning accuracy
  - High stiffness, high precision guide
  - Vertical incremental encoder for up to 5nm resolution
  - Ultra-thin, lightweight design
  - Vertical mechanical travel up to 30mm
- T-axis
  - 360°rotation, no tubing wrapping, 12', 8' wafer applicable
  - Wafer warpage up to 0.7mm
  - Rotation velocity up to 150rpm

### Description

The stage adopts modularization, ultra-thin, orthogonality design to integrate the MZT90 standard module on the cross platform L2S125 for high-precision, high-stiffness motion of X, Y, Z and T axes with 4 degrees of freedom.

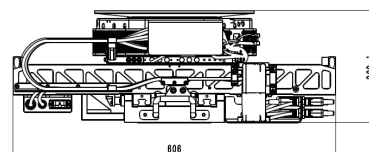
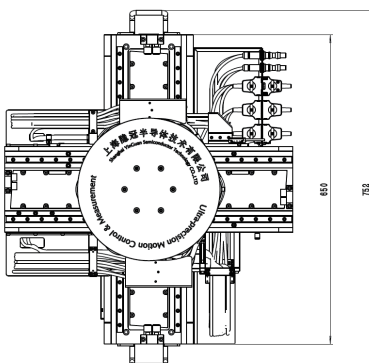
The MZT90 adopts innovative dual-axis coupling design with extremely compact profile. High precision, high stiffness motion with 2 degrees of freedom in vertical and rotary axes.

The L2S125 adopts integration, orthogonality design with a compact, low-profile. High-precision, high-stiffness linear motion in horizontal X/Y axis with 2 degrees of freedom.

### Applications

- Wafer production control applications such as: thin film metrology, critical dimension metrology
- Wafer scribing
- Wafer laser thermal annealing

### Interface Definition



## Technical Specifications

L4S210-350				
Axes name	X	Y	Z	T
Travel range	350 mm	350 mm	10 mm	360 °, Infinite
Max. velocity	1 m/s	1 m/s	0.1 m/s	900 °/s
Max. acceleration	10 m/s <sup>2</sup>	10m/s <sup>2</sup>	2 m/s <sup>2</sup>	6280 °/s <sup>2</sup>
Accuracy_indicative value	±10 μm	±10 μm		
Accuracy_calibration value	±1 μm	±1 μm	±0.5 μm	±3 arcsec
Bidirectional repeatability	±0.5 μm	±0.5 μm	±0.2 μm	±2 arcsec
Position stability (3σ) *	±2 nm*	±2 nm*	±15 nm*	±0.072 arcsec
Straightness	±2 μm over range	±2 μm over range	1 μm	
Pitch	±5 arcsec	±5 arcsec		
Roll	±5 arcsec	±5 arcsec		
Yaw	±10 arcsec	±10 arcsec		
Orthogonality	±15 arcsec			
Axial & Radial runout	NA		NA	±2 μm
<b>Mechanical properties</b>				
Moving mass (without payload)	27 Kg	45 Kg	7 Kg	0.00336 Kg·m <sup>2</sup>
Max. load	2 Kg (customizable)			
Stage mass	40 Kg (Aluminum alloy)			
Dimensions	752 mmX606 mmX209.1 mm (middle of stroke)			

\*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 encoders, Coarse Z strokes, and more.

Table 1 Encoder Options

-S1	Incremental analog optical linear encoder, 1Vpp
-S2	Incremental digital optical linear encoder, TTL
-S3	Absolute optical linear encoder, BISS

Table 2 Vertical guide Options

-G1	High-precision air-bearing guide with a vertical mechanical stroke of 6mm
-G2	High-precision cross roller guide with a vertical mechanical stroke of 24mm
-G3	High-precision anti-creep cross roller guide with vertical mechanical travel of 13mm