

Stacked XYT Stage



Features

- Stacked 3-axis stage with orthogonality design
- Global flatness and straightness up to to sub- μm level
- X/Y axis
 - High stiffness, high precision guide
 - Consistent design of cable disturbing force
- T-axis
 - Inifition angle motion with optional rotation angle hard limit
 - Vacuum feed-through to the chuck level, support for multi-airway air supply
 - Rotation velocity up to 150rpm

Description

The stage adopts modularization, low-profile, orthogonality design, the RD-180 Stage standard module is integrated on top of the cross platform L2S125 for high precision, high stiffness motion of X, Y and Z axis with 3 degrees of freedom.

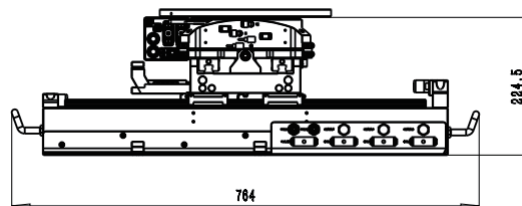
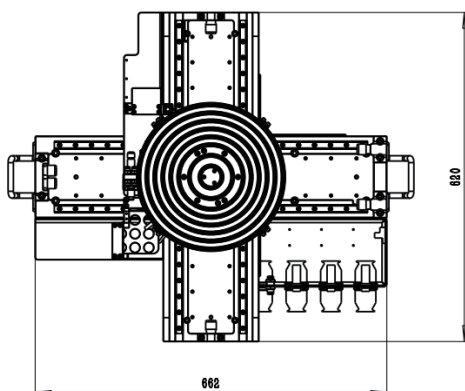
The RD-180 adopts low-profile design. High-precision, high-stiffness inifition rotation in the T axis.

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



*Interface dimensions from LST190 in the middle stroke

Technical Specifications

LST190-365			
Axes name	X	Y	T
Travel range	365 mm	365 mm	360 °, Infinite
Max. velocity	1 m/s	1 m/s	900 °/s
Max. acceleration	10 m/s ²	10 m/s ²	6280 °/s ²
Accuracy_indicative value	±10 μm	±10 μm	
Accuracy_calibration value	±1 μm	±1 μm	±3 arcsec
Bidirectional repeatability	±0.5 μm	±0.5 μm	±2 arcsec
Straightness	±2 μm over range	±2 μm over range	
Pitch	±5 arcsec	±10 arcsec	
Roll	±5 arcsec	±10 arcsec	
Yaw	±10 arcsec	±10 arcsec	
Orthogonality	±15 arcsec		
Axial & Radial runout	NA		±1.5 μm
Position stability (3σ) *	±2 nm	±2 nm	±0.072 arcsec
Move1:10μm within ±100nm*	50 ms	50 ms	
Move2:25mm within ±100nm*	140 ms	140 ms	
Move3:80mm within ±100nm*	170 ms	170 ms	
Move4:1deg within ±40μdeg			100 ms
Move5:180deg within ±40μdeg			500 ms
Mechanical properties			
Moving mass (without payload)	12 Kg	28 Kg	0.02022 Kg·m ²
Max. load	2 Kg (customizable)		
Stage mass	50 Kg		
Dimensions	764 mmX620 mmX224.5 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, chuck air supply, and more. X-axis base can be changed to marble base according to customer's requirement, which can provide higher positioning accuracy.

Table 1 Encoder Options

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

Table 2 Chuck Air Supply Options

-C1	Chuck with single air supply
-C2	Chuck with dual air supply
-C3	Chuck with triple air supply