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VULCANO XYZ3TH^H Stacked Platform

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The VULCANO XYZ3T^H stacked platform is a 9 axes platform moving in X, Y, Z, Tip-Tilt and Theta directions. It is a mechanical bearing stage integrating ironcore linear motors as well as high precision optical encoders, and mainly dedicated to point-to-point applications.

The VULCANO XY part of it is a three-piece-design stacked system resulting in a cost engineered solution combining high dynamics, great bidirectional repeatability, and outstanding position stability.

The bottom axis is composed of two linear motors controlled in a gantry mode moving on three decoupled linear bearings. The upper linear motor lays on a stiff and light baseplate allowing travels up to 650 mm.

The stage is modular and can be outfitted with the module best suited to each individual application.

VULCANO XYZ3T^H PLATFORM

This platform can also be integrated with ETEL's QuiET Active Isolation System to reach ultimate performance.



The standard platform shown above includes an ETEL Z3T^H combined module on the XY assembly. The Z3T^H combined module provides 364° Theta rotation, a Tip-Tilt correction over $\pm 0.1^\circ$ and dual Z-axes: a coarse Z axis for wafer loading and unloading, and a fine Z axis for precision motion. The Z3T^H module allows a reduction of XY move and settle times and a correction of the stage flatness.

Other modules moving in Theta or ZTheta can also be considered.

PERFORMANCE

	Y1-Y2	X	FINE Z	TIP-TILT	COARSE Z	THETA
Total stroke	490 mm	420 mm	± 2 mm	$\pm 0.1^\circ$	12 mm	364°
Speed	Up to 1.5 m/s	Up to 1.5 m/s	0.05 m/s	-	0.1 m/s	10 rad/s
Acceleration	Up to 2.5 g	Up to 2.5 g	0.1 g	-	0.2 g	55 rad/s ²
Position stability	$< \pm 1$ nm	$< \pm 1$ nm	± 2 nm	± 0.004 arcsec	-	± 0.004 arcsec
Bidir. repeatability	Down to ± 250 nm		± 10 nm	-	-	± 0.35 arcsec
Move and settle times 25 mm within ± 100 nm	< 130 ms		-	-	-	-
Typical payload	-	-	-	-	0.15 kg	1 kg

PRODUCT HIGHLIGHTS

- Compact footprint
- Nanometer position stability
- High dynamics: 2.5 g, 1.5 m/s
- Low move and settle times
- ISO1 clean room compatible
- Tip-Tilt correction over $\pm 0.1^\circ$
- Double Z integration
- Built-in gravity compensator in Z
- Outstanding Z straightness
- Enhanced Z repeatability and jitter
- Ability to correct stage flatness
- Built-in vacuum supply at chuck level

TYPICAL APPLICATIONS

The use of this platform is suitable for, but not limited to:

- Wafer Process Control applications such as Overlay Metrology, Critical Dimension and Thin film Metrology
- Advanced packaging applications