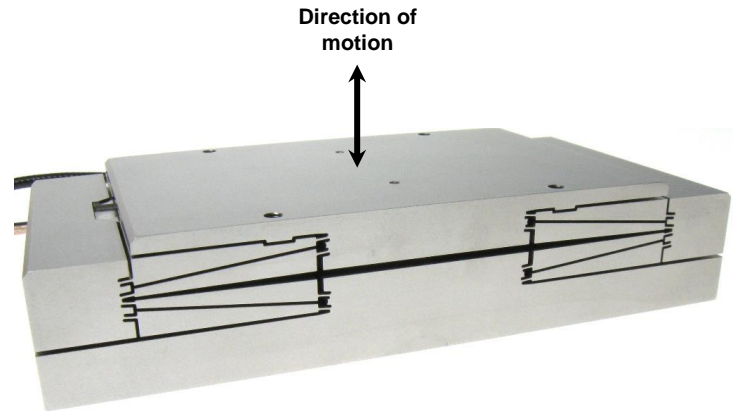


ZSA-1000C

1mm Nanopositioning Piezoelectric Z-Axis Stage

Description

DSM's nanopositioning piezoelectric ZSA-1000C stage features flexure-guided motion over a 1mm vertical travel range for scanning, metrology, and inspection processes. The stage's stable and stiff kinematic design promotes parallelism in the output motion with minimal roll and tilt as well as dynamic responsiveness for excellent position stability and control. In semiconductor industry applications, the stage has been implemented in closed-loop control using DSM's SA series servo amplifier and a high-resolution capacitive probe to provide 20 nm position stability and very stable velocity profiles over specified scan regions.



Specifications

- Motion Direction: Contracting
- Open-Loop Travel: 1050 $\mu\text{m} \pm 10\%$
- Closed-Loop Travel: 1000 $\mu\text{m} \pm 10\%$
- Closed-Loop Resolution: 20 nanometers typical
- Stiffness: 0.4 N/ $\mu\text{m} \pm 10\%$
- Blocking Force: 400 N
- Linearity: 0.12% typical
- Angular Error (Θ_x, Θ_y): <100 μrad typical
- Unloaded Resonant Freq: 200 Hz $\pm 10\%$
- Resonant Freq @100g: 150 Hz $\pm 10\%$
- Push/pull force capacity: 75/150 N Max
- Load capacity: 75 N Max
- Lateral Force: 10 N Max
- Electrical Capacitance: 30 $\mu\text{F} \pm 10\%$
- Operating Voltage: -30 to +150 V
- Operating Temp Range: 5 to 50 $^{\circ}\text{C}$
- Dimensions: 62.5 x 125 x 25.1 mm
- Mass: 1 kg $\pm 10\%$
- Material: Stainless steel
- Cable Length: 1.5 meters
- Mounting Interface: 4x M3x0.5
- Output interface: 4x M3x0.5

Application Fields

- Precision Manufacturing
- Microscopy
- Laser systems
- Material Science
- Optics/Photonics
- Electronics Manufacturing
- Science & Research institutions
- Test & Inspection Systems

System Configuration

- Integrated Sensor: Capacitive
- Servo Amplifier: DSM SA-500
- Amplifier bandwidth: >4 kHz

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