

ST-030-1T

Single-axis rotary stage with speed, position and temperature control

This rotary stage is a high-precision single-axis rotary stage with an integrated temperature control system. It consists primarily of a precision shaft assembly, a temperature control unit and a drive control unit. Its function is to rotate the stage at a set speed and to a set position, whilst precisely controlling the temperature within the unit. It is used to test the performance parameters—such as zero bias and resonant frequency—of inertial devices, such as MEMS gyroscopes, at different temperatures.



Product Features

- High load capacity: up to 30 kg
- High rotational accuracy: $\pm 2''$
- Wide speed range: 0.001°/s to 1000°/s
- Wide temperature control range: -55°C to +85°C
- Heating and cooling rate: $\geq 3^\circ\text{C}/\text{min}$
- Customised slip rings available

Suitable scenarios

Designed for the inertial testing industry, it is primarily used to test the rate, position and temperature characteristics of devices such as MEMS gyroscopes and accelerometers across the full temperature range.

Technical Specifications

Parameter categories	Parameter items	Parameter values
Accuracy Performance	Angular position accuracy	$\pm 2''$
	Angular position repeatability	$\pm 2''$
	Rate stability	When $\omega \leq 1^\circ/\text{s}$: 2×10^{-3} (1° averaging method) When $1 < \omega < 10^\circ/\text{s}$: 2×10^{-4} (10° averaging method) When $\omega \geq 10^\circ/\text{s}$: 2×10^{-5} (360° averaging method)
Dynamic Performance	Maximum angular velocity	$\pm 1000^\circ/\text{s}$
	Maximum angular acceleration	$\geq 300^\circ/\text{s}^2$
	Range of motion	Azimuth: Continuous, unlimited (single-axis, no pitch)
Range of Motion	Load capacity	30 kg (payload only, excluding temperature chamber) Tabletop diameter: $\Phi 450$ mm
	Table diameter/dimensions	Internal dimensions of temperature chamber: 500×500×600 mm
Mechanical Specifications	Operating temperature	Temperature control range of temperature chamber: -55°C to $+85^\circ\text{C}$ (Equipment operating environment: ambient temperature)
Power and Communication	Power supply requirements	AC 220 V $\pm 10\%$, 50 Hz, maximum power approximately 3 kW (including temperature control)
	Control interface	Ethernet/RJ45, Rs232 (supports remote control and data acquisition)