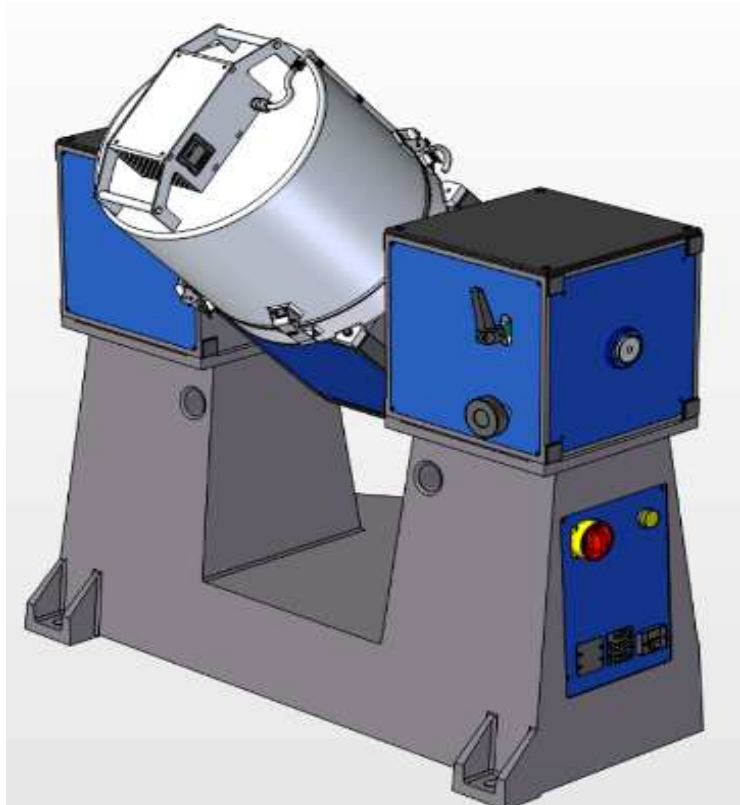


# Test Fixture Series TES-3H3\_TG

## Modes of Operation

- Positioning: absolute with a Resolution of better 0.0001deg.
- Rate: no drift, good instantaneous rate stability with a Resolution of 0.001deg/sec
- Temperature from -20 to 70°C using High Pressure CO2
- Analog: command and optional analog readout with 14 bit resolution



## Description

The Series TES-3H3\_TG Test-Fixtures offer an optimal price/performance ratio and are especially suitable for in-process checks and depot level measurements. Angular positioning, precise uniform rotation and angular motion profiling are typical operation modes. All operations are commanded via the hand-held paddle or by an optional host computer. The control software delivered with the instrument is based on LabView™.

Payloads are mounted on table top platen. Large holes in the platen facilitate the airflow around the UUT. A pattern of threaded holes accept a variety of test loads. Electrical access is provided by shielded lines terminated on the platen and the base casting by D-Sub connectors.

The Series TES-3H3 Test-Fixture consists of modular cube assemblies with precision bearings and the required servo components. The drive module houses the direct drive brushless torquer, the high resolution encoder, the slip ring capsule, the amplifier/controller assembly and power supply. All components are interchangeable facilitating repair and spare part supply management.

The test fixture is equipped with a thermal chamber cooled by high pressure CO<sub>2</sub>. The circular hood covering the payload can be removed. If balanced, the table can be operated with or without the cover and the payload. The spent CO<sub>2</sub> can be collected for safe exhaustion outside the laboratory.

## Specification Summary

### General Configuration

Payload nominal	200 mm cube, 10kg; (20kg max.)
Sliprings to UUT	2 lines 5Amp single 10 lines 2Amp single 12 lines 2Amp twisted shielded pairs terminated in two pairs D-Sub connectors on table top and base
Mounting platen	280mm dia., aluminum hard anodized with grid of threaded mounting holes, M5 with Heli-coil insert on 25mm spacing,
Platen flatness	± 0.05mm
Axis orthogonality	<±5arcsec
Axis wobble	<±4arcsec outer axis; <±2arcsec inner axis

## Series TES-3H3\_TG

### Dynamic

Rate  
Acceleration (no load)  
Torque  
Axis inertia, (no load)  
Bandwidth (-3dB)

### Inner Axis

$\pm 1500 \text{ deg/s}$   
 $15'000 \text{ deg/s}^2$   
20Nm  
 $0.07 \text{ kgm}^2$   
>60Hz

### Outer Axis

$\pm 250 \text{ deg/s}$   
 $350 \text{ deg/s}^2$   
40Nm  
 $6 \text{ kgm}^2$   
>15Hz

### Position command

Position transducer  
Position range  
Position slew  
Position resolution  
Position accuracy  
Position repeatability

SIN/COS high-resolution, absolute  
0 to 359.9999 deg unlimited rotation  
Profiling within rate and acceleration limits  
0.0001 deg (<0. 4arcsec)  
<5arcsec<sub>RSS</sub>  
better  $\pm 0.0005 \text{ deg}$  ( $\pm 2 \text{ arcsec}$ )

### Rate command

Rate slew  
Rate resolution  
Rate stability  
Event pulse

Profiling within acceleration and jerk limits  
<0.0001 deg/s  
0.001% of command rate measured over 360 deg  
1/revolution

### Acceleration Control

Rate changes can be performed with controlled acceleration.  
Acceleration Limit can be set within the dynamic range

### External Analog Command

Analog signals can be entered via a D-Sub connector.

### Command

Through RS-232 interface, baud rate 115200 bids/s, via compatible digital input device or host computer.

### Thermal Chamber

Range -20 degC to 70 degC; for short time (<30 minutes) -40 degC to 100 degC  
Ramping without load: 5 degC/ min  
Thermal stability:  $\pm 1 \text{ deg C}$   
CO2 consumption: ramping from +70 to -20  $\rightarrow 3.2 \text{ kg}$   
Dwelling at -20 deg with 250 W load  $\rightarrow 1.8 \text{ kg/h}$

### Optional

Customer tailored slipribg capsules; different number of lines and wiring  
Hardware in the loop boards

