

Building industry leading test platforms to automate sensing and improve measurements by reducing human errors.



# UT-150

## Mini Test Lab

### (Mechanical Testing-Tribology-Imaging)

UniTest 150 (**UT-150**) is a powerful, yet compact and modular benchtop system suited for a variety of mechanical and tribology tests including surface inspection techniques such as 2D optical imaging and 3D profilometry. With an open architecture design, UT-150 can transform itself into an imaging system with ease. Different application modules for lubricant and tribocorrosion testing can be integrated. The UT-150 is a fully automated unit that can perform standardized ASTM/ISO tests such as ASTM G99, ASTM G133-A, but can also comfortably execute custom test procedures.

The UT-150 is the only truly fully automatic system where everything, including loading, test termination and sensor detection are all fully automated.

### Features

- UT-150 robotic platform with precision X, Y and Z drives for accurate positioning, scanning and mechanical testing when coupled with force sensors and motion modules.
- Automated loading with constant, step, ramp and custom load profiles. Interchangeable Microforce and Decaforce multiaxis sensors, covering load range from mN to N
- Rolling-sliding motion with independently controlled high precision drives to achieve accurate control of slide to roll ratio
- Programmable speed profiles with constant, step, ramp and custom speed profiles. Instant Traction/Stribeck friction plot generation of oils and greases.
- Interchangeable linear drive for fretting and linear reciprocation testing and analysis software for static/dynamic friction evaluation
- Diverse application specific modules such as indentation, force - displacement, scratch rolling-sliding, lubricant, tribocorrosion, humidity, controlled atmosphere, temperature.
- Additional sensors such as electrical contact resistance, acoustic emission, etc for capturing contact interactions
- Interchangeable upper mounting adapter, switch between tribology testing and and 3D profilometry
- 2D optical imaging, 3D profilometry with S/X series that include laser, confocal and interferometry techniques for scratch failure analysis and quantification of wear depth/volume

# UT-150

## Technical Specifications



Rotary module



Linear reciprocatory module



3D profilometer module

- Force : 2 to 200 N, 0.02 to 2 N
- Speed: 0.1 to 2000 rpm (traction), 0.1 to 3000 rpm (rotary)
- Wear track diameter: variable upto 30 mm (rotary)
- Linear reciprocation - I : 0.01 to 5 Hz, 0.05 to 20 mm
- Linear reciprocation - II : 1 to 5 Hz, 10 mm (fixed)
- Application modules (scratch, indentation, force-displacement, thrust washer, lubricant cup, tribocorrosion)
- S/X imaging modules (2D optical, 3D laser, confocal, interferometry)
- Sensors (electrical contact resistance, acoustic emission, temperature, humidity)
- *Specification reflects overall capabilities depending on selected modules. Contact us to configure UT-150*

### Options - Sample Pair

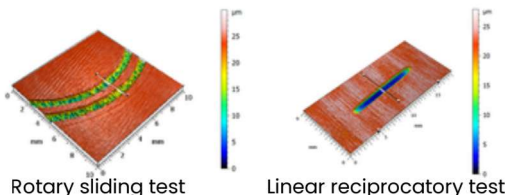
- Upper - ball, pin, diamond stylus
- Lower - disc, plate, ring
- Materials - steel, polymer, ceramic, coated samples
- Surface finish - ground, lapped

### Power

- 110 to 230 V, 50/60Hz 

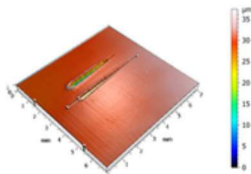
### Weight & Dimensions

- Net Dimensions: 650 x 620 x 780 mm
- Net Weight: 100 Kg

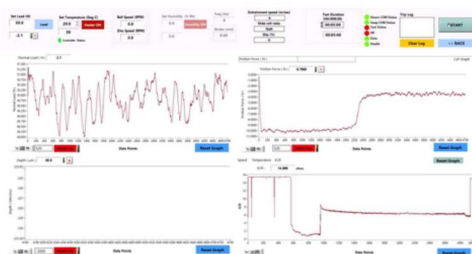


Rotary sliding test

Linear reciprocatory test



Scratch test



Live data acquisition

*Continuing R&D may result in specifications, appearance changes*