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

MTT

Modular Traction Tribometer

(Rolling-Sliding Stribeck, Traction, Wear)

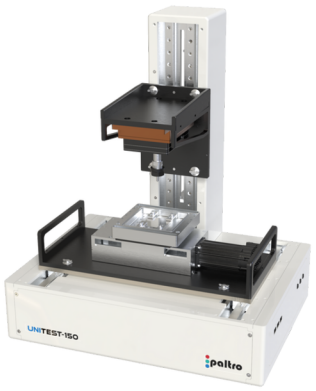
Modular Traction Tribometer (**MTT**) is a ball on disc instrument used for measuring friction and wear properties of lubricated and dry contacts under rolling-sliding conditions.

MTT is based on the UniTest (UT-150), which is a powerful, yet compact and modular test platform suited for a variety of mechanical and tribology tests including surface inspection such as 2D optical imaging and 3D profilometry. The UT-150 is a fully automated desktop instrument that can perform standardized tests like the ASTM and ISO but can also comfortably execute fully custom test procedures.

Features

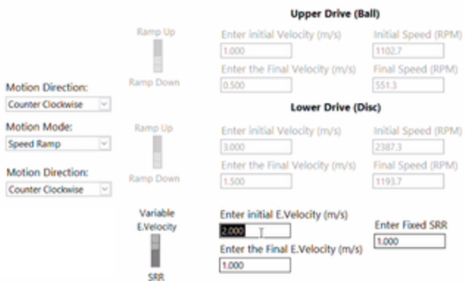
- UT-150 robotic platform with precision X, Y and Z drives for accurate positioning, scanning and mechanical testing when coupled with force sensors and motion modules.
- Automated loading with constant, step, ramp and custom load profiles. Interchangeable force sensors, MicroForce and Decaforce covering 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 plot generation
- Spill-resistant lubricant cup and unique grease scoop to prevent starvation at high entrainment speeds for accurate friction measurement
- Grease tackiness testing module for adhesion force measurement and synchronized digital imaging to capture thread formation
- Additional sensors such as electrical contact resistance, acoustic emission, etc for capturing contact interactions
- Interchangeable linear drive for fretting and linear reciprocation testing and analysis software for static/dynamic friction evaluation
- Modular upper mounting adapter, switch between tribology testing and and 3D profilometry

MTT
Technical Specifications



Linear reciprocation module

3D profilometry module



Quick plots for Traction/Stribeck as function of slide-roll-ratio and entrainment velocity

- Load: 2 to 200 N, 0.02 to 2 N (*optional*)
- Speed: 0.1 to 2000 rpm (traction), 0.1 to 3000 rpm (rotary)
- Slip: 0 to 100%
- Wear track diameter: variable, upto 35 mm
- Lubricant temperature: upto 150 °C
- Sample Volume: ~ 50 ml
- Linear reciprocation: 0.01 to 5 Hz, 0.05 to 20 mm (*optional*)
- Additional sensors, modules (tackiness, indentation, thrust washer, scratch, 3D profilometry, AE, ECR, etc)

Options - Surface Imaging

- 2D optical imaging
- 3D non-contact profilometry

Consumables - Traction Module

- Test balls (chrome alloy steel made from AISI 52100, with a diameter 20 mm, HRC between 63 to 65)
- Test disc (EN 31 Steel, Hardness HRC 58 to 62, lapped surface finish < 0.05 µm)

Power

- 110 to 230 V, 50/60Hz CE

Weight & Dimensions

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

Continuing R&D may result in specifications, appearance changes