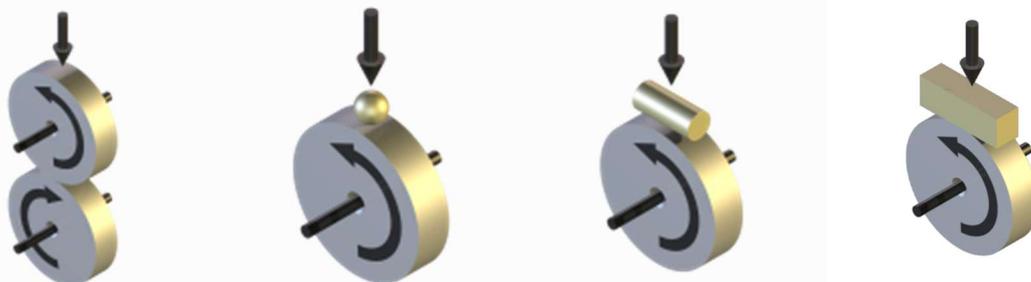
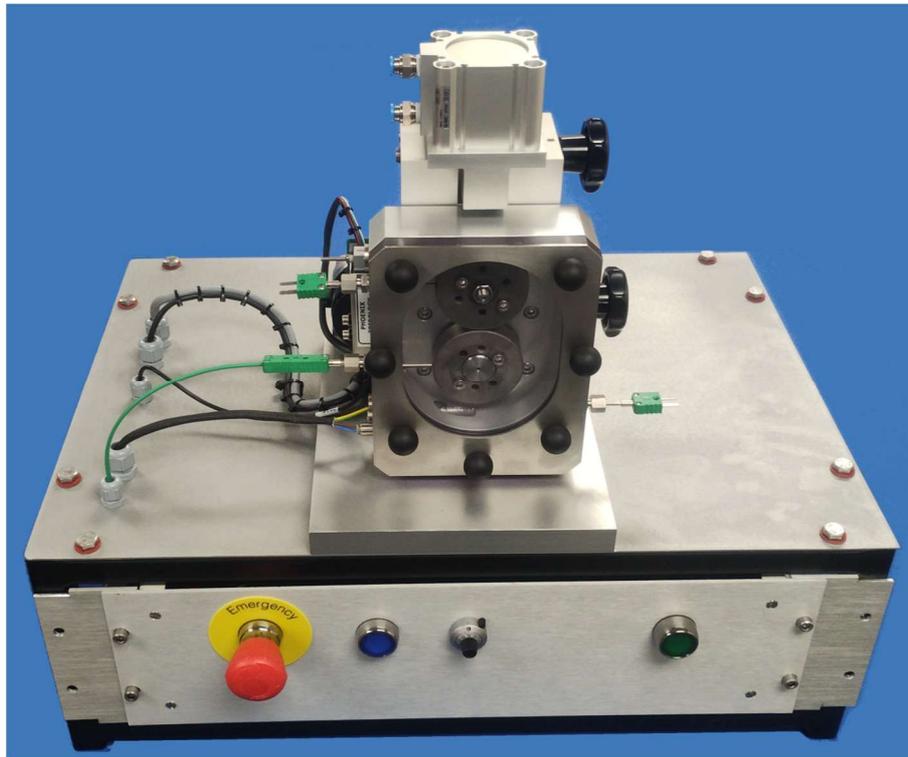


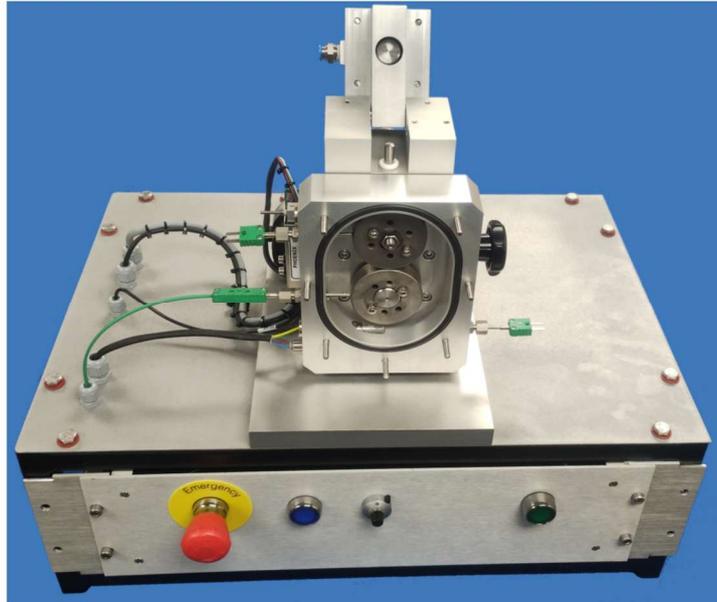
TE 53 MULTI-PURPOSE FRICTION AND WEAR TESTER



Description

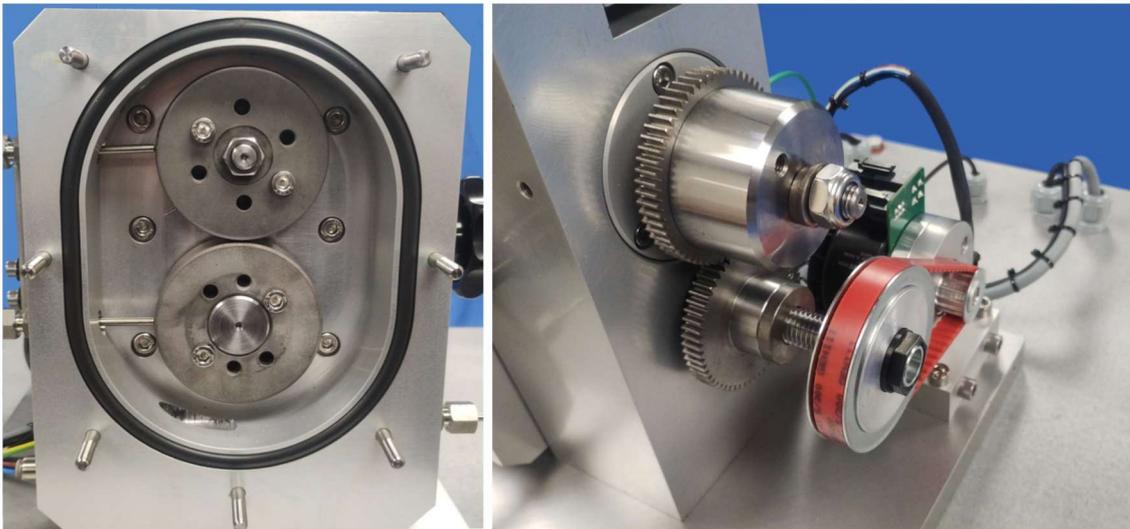
A bearing housing carries two parallel shafts. The lower shaft carries a flat profile ring or roller and is connected to a d.c. servo motor. The upper shaft is carried in a spherical bearing at one end that permits rotation about the gear contact line and has a floating bearing at the other end. This allows the shaft to pivot freely in the vertical and horizontal axes.

Horizontal movement in the direction perpendicular to the upper shaft axis and is resisted by a strain gauge transducer. This gives measurements of the tangential force in the contact, which is displayed as friction force on the control unit.

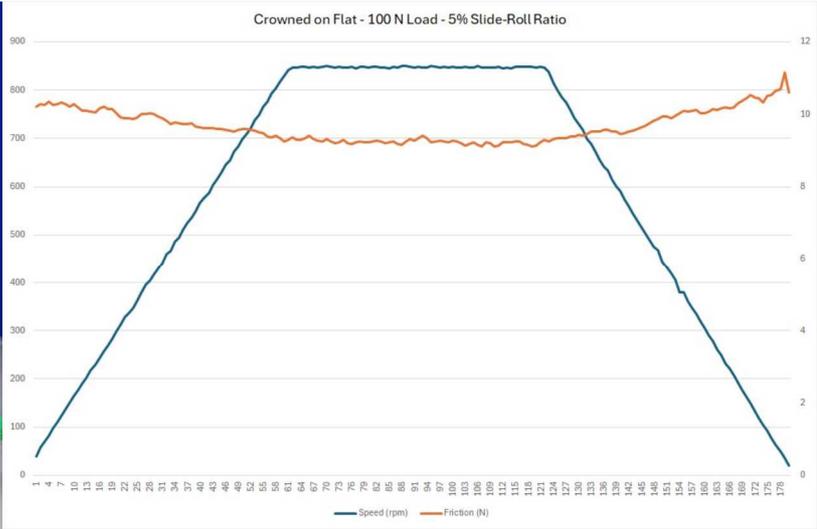
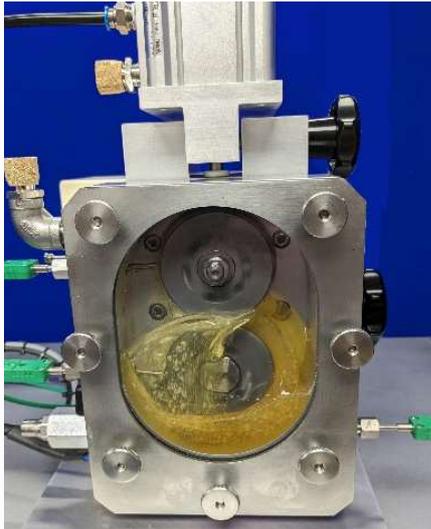


Load is applied by applied by low friction pneumatic cylinder, which is manually set using a precision regulator, pressing on the outer race of the floating bearing. A pressure transducer is provided to sense the applied load.

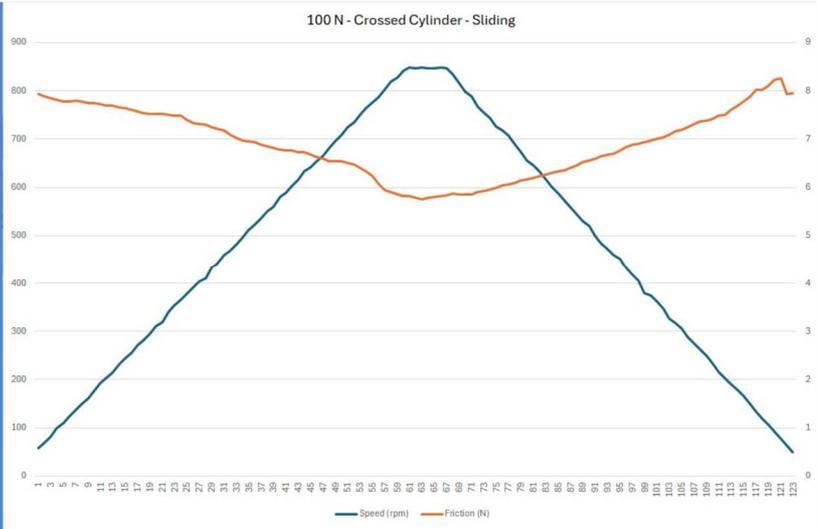
A sealed chamber surrounds the test specimens and incorporates a heater element to maintain the test fluid temperature.



In two roller configuration the upper shaft carries a roller and is driven from the lower shaft through a pair of gears. Six fixed percentage slip ratios are provided. The upper roller is mounted on a self-aligning bearing to achieve full width line contact between the specimens.



In block on ring, crossed cylinder and ball on ring configurations, the upper shaft carries a holder for the fixed specimen and is restrained from rotating. The specimen may be a ball (ball on cylinder test), a block (block on ring test) or a cylinder (crossed cylinder test). A holder for blocks described in ASTM G77 test is included.



Roller and block specimens can be manufactured easily from a variety of materials including metals, plastics, elastomers and ceramics.

Control and Data Acquisition

Control and data acquisition are implemented via host PC running COMPEND 2020 Windows compatible software, in conjunction with a Phoenix Tribology USB micro-controller interface.

Automatic control is implemented via user programmable test sequences. Manual control is implemented using on screen toggles. Data is stored to hard disc in either .csv or .tsv file formats.

TE 53 MULTI-PURPOSE FRICTION & WEAR TESTER

Technical Specifications

Contact Geometry:	Crossed Cylinder Ball on Cylinder Block on Ring Two Roller
Shaft Centre Distance:	60 mm
Roller Size:	60 mm diameter
Sliding Specimen:	12.7 mm ball, roller or block
Speed Range:	30 to 850 rpm
Equivalent Velocity:	up to 4.7 m/s
Slide-Roll Ratio Gears:	0.00%, 3.33%, 5.00%, 10.00%, 15.00% & 20.00%
Friction Range:	130 N
Friction Measurement:	Databeam (strain gauge transducer)
Load Range:	50 to 750 N
Load Actuator:	Pneumatic cylinder
Load Control:	Precision pressure regulator
Load Measurement:	Pressure transducer
Bath Temperature:	ambient to 150°C
Heater Power:	150 W
Temperature Sensor:	k-type thermocouple
Interface:	USB Serial Link Interface Module
Software:	COMPEND 2000
Motor:	Brushless d.c. servo motor - 200 W

Automatically Controlled Parameters

Rotational Speed
Reservoir Temperature
Test Duration

Manually Controlled Parameters

Measured Parameters

Load

Rotational Speed

Load

Friction Force

Temperature

Number of Revolutions

Test Duration

Sliding Speed

Friction Coefficient

Sliding Distance

Services

Electricity:

220/240V, single phase, 50 Hz, 1.2 kW

110/120 V, single phase, 60 Hz, 1.2 kW