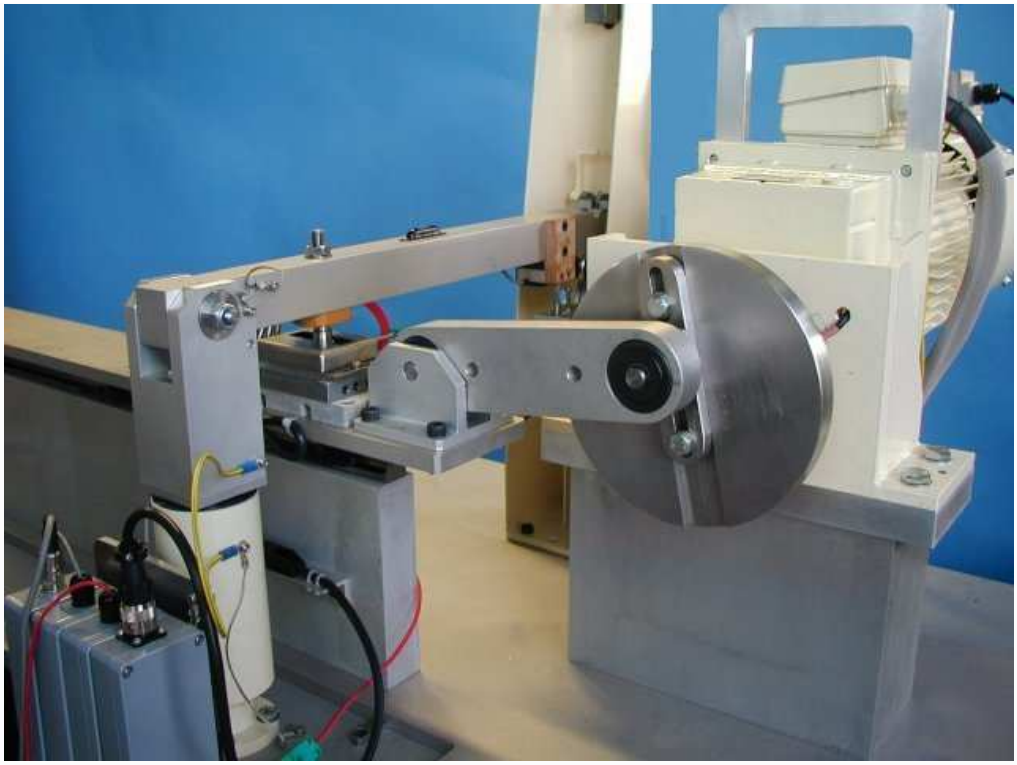
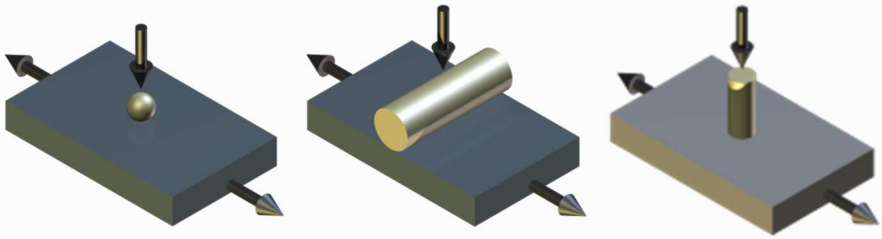
TE 88R THREE STATION PIN ON PLATE MACHINE





Description

TE 88R Three Station Pin on Plate Machine is designed for wear testing of materials under high contact pressures in reciprocating pin on plate configuration, with test geometry as per ASTM F732.

The machine is bench-mounted and includes a 1.1 kW variable speed a.c. vector motor, gear-box, variable throw crank mechanism and three pin on plate test stations.

Flat plate specimens are mounted in individual reservoirs to retain lubricating fluid with a lid to avoid spillage and reduce evaporation during long-term tests. Each station is fitted with electrical heating (for temperatures up to 400°C) and a thermocouple. The reservoirs are mounted on a

common plate, which is located by ball bushings on a linear bearing assembly. The plate is reciprocated by the variable throw crank.

Each test station has a load/friction/wear assembly. A loading beam is pivoted at one end and a pneumatic bellows is used to apply a load at the other end. A force transducer mounted on the bellows allows the applied load to be measured. Load is adjusted by means of a manually set precision regulator.

The load beam pivot is trunnion mounted and restrained from movement, when in the horizontal position, by pads mounted on the load application bracket. A strain gauge force transducer mounts on the load beam and fits between these pads when the arm is horizontal thus allowing the friction signal to be sensed.

An LVDT is mounted in contact with the underside of the load beam. As the pin wears, the vertical movement of the load beam is detected by the transducer. Wear of up to 1.5 mm at the contact can be measured.

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 88R THREE STATION PIN ON PLATE MACHINE

Technical Specifications

Contact Configurations:	Pin on Plate Ball on Plate
Number of Stations:	Three
Temperature Range:	Ambient to 400°C
Heating Power:	800 W
Temperature sensor:	k-type thermocouple
Stroke/Frequency:	Up to 25 mm at 2 Hz Up to 50 mm at 1 Hz
Normal Load:	10 to 1,000N
Signal Conditioning:	Strain Gauge Amplifier Module
Friction Force Range:	500 N
Signal Conditioning:	Strain Gauge Amplifier Module RMS/DC Converter Module
Wear:	LVDT
Range:	1.5 mm
Resolution:	1 µm
Specimen Holder:	8 mm and 5.5 mm diameter pins 10 mm and 6 mm diameter balls
Motor:	1.1 kW ac
Software:	COMPEND 2000

Automatically Controlled Parameters

Frequency x 1
Temperature x 3
Test Duration x 1

Manually Controlled Parameters

Load x 3
Stroke x 1

Measured Parameters

Frequency x 1

Friction x 3
Load x 3
Temperature x 3
Wear x 3
Number of Cycles x 1
Test Duration x 1

Derived Parameters

Sliding Distance x 1
Friction Coefficient x 3

Services

Electricity:	220/240V, single phase, 50 Hz, 3 kW 110/120 V, single phase, 60 Hz, 3 kW
Clean, dry air:	4 cfm at 8 bar (120 psi)

Installation

Bench-mounting machine:	1,300 x 720 x 850 mm high, 250 kg
Bench-mounting cabinet:	530 x 530 x 350 mm high, 40 kg
Packing Specifications:	1.25 m^3, GW 271 kg, NW 193 kg