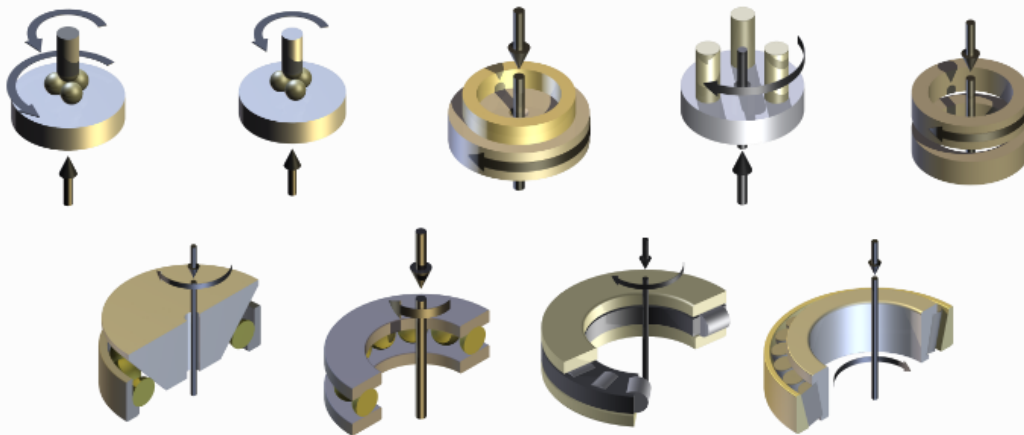


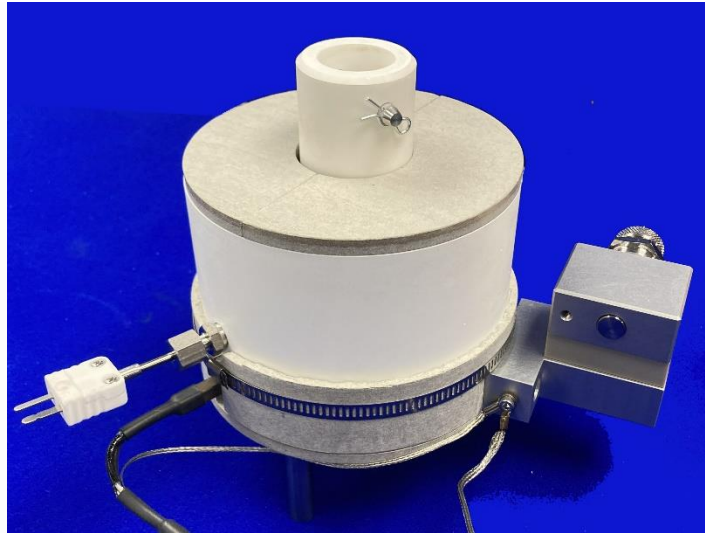
## TE 92 HT HIGH TEMPERATURE FOUR BALL TESTER



### Description

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The TE 92 HT High Temperature Four Ball Tester is a versatile test machine for research and development work on materials and lubricants for Dry Tests up to 600°C. With axial loading and an open test platform, the machine can accommodate multiple test geometries.



This is a high temperature specimen mounting for dry tests using either three pin-on-disc or thrust washer tooling.

Standard speed machine with 2.2 kW motor, single-phase supply and timing belt drive and torque limiter for speeds from 0 to 3,000 rpm and Poly-V belt drive for speeds 0 to 6,000 rpm. The test spindle main bearing is a taper roller bearing and the maximum design speed is 6,000 rpm.

## Load and Torque Measurement

Test adapters are mounted on a cross beam with linear bearings mounted on the machine columns, loaded from underneath by a pneumatic bellows with an in-line force transducer for measurement and control of load. There are two interchangeable loading assemblies TE 92/1 and TE 92/2, providing a 500:1 turn-down ratio on load.

The test adapters are placed on a thrust bearing that permits free rotation under the influence of the frictional torque, which is resisted by a strain gauge force transducer

## Temperature Measurement

Thermocouples are located in the test adapters to measure the temperature of the test sample (either material or lubricant) and this measurement is used as the feedback for software PID temperature control.

## Vibration Measurement

A piezo-electric sensor is provided to monitor vibration. The sensitivity of the detection circuit is adjustable by the operator. A sudden rise in vibration level, caused, for example, by pitting damage in a rolling contact fatigue test, will trip the circuit and stop the motor.

## 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

<b>TE 92 HT HIGH TEMPERATURE FOUR BALL TESTER</b>	
<b>Technical Specifications</b>	
	<b>TE 92 HT</b>
Rotational Speed:	30 to 3,000 rpm
Spindle Bearing Load:	10,000 N @ 3,000 rpm
Maximum Spindle Speed:	6,000 rpm
Torque Capacity:	14 Nm @ 30 to 1500 rpm
	7 Nm @ 3,000 rpm
Motor:	2.2 kW ac @ 1,500 rpm
	100% overload for 30 seconds
Heater Block Power:	550 W
Temperature Sensor:	k-type thermocouple
Vibration Sensor:	piezo-electric
Contact Resistance:	Lunn-Furey Circuit
Interface:	USB Serial Link Interface Module
Software:	<a href="#">COMPEND 2000</a>
<b>Controlled Parameters</b>	
	Rotational Speed
	Temperature
	Load
	Test Duration
<b>Recorded Parameters</b>	

	Rotational Speed
	Friction Torque
	Contact Resistance
	Temperatures
	Number of Revolutions
	Test Duration
	Sliding Speed
	Friction Coefficient
	Sliding Distance
<b>TE 92/1 Low Load Actuator Assembly</b>	
Load Range:	20 to 1,000 N
<b>TE 92/2 High Load Actuator Assembly</b>	
Load Range:	200 to 10,000 N
<b>TE 92/FOUR Heater Pad and Ball Collet for Four Ball Tests</b>	
Ball Size:	12.7 mm (0.5")
Maximum Temperature:	600°C
<b>TE 92/FOUR/1 Sliding Four Ball Test Assembly</b>	
Ball Size:	12.7 mm (0.5")
Temperature Sensor:	k-type thermocouple
<b>TE 92/FOUR/2 Rolling Four Ball Test Assembly</b>	
Ball Size:	12.7 mm (0.5")
Temperature Sensor:	k-type thermocouple
<b>TE 92/AREA-H Specimen Mount &amp; Shaft Hub for Dry Tests up to 600°C</b>	
Heater Power:	550 W

Temperature Sensor:	k-type thermocouple
Maximum Temperature:	600°C
Compatible Tooling:	TE 92/AREA/1 & 2
<b>TE 92/AREA/1 Three Pin on Disc Tooling</b>	
Contact Configuration:	Rotating Disc on Three Pins
Ball Specimen Diameter:	6 mm
Mean Friction Diameter:	40, 50 & 60 mm
Small Pin Diameter:	4 mm
Mean Friction Diameter:	40, 50 & 60 mm
Large Pin Diameter:	8 mm
Mean Friction Diameter:	50 mm
<b>Services</b>	
Electricity - TE 92 HT	220/240V, single phase,
	50/60 Hz, 7.5 kW
Clean, dry air:	4 cfm at 8 bar (120 psi)
<b>Installation</b>	
Floor-standing machine:	900 mm x 600 mm deep x 2000 mm
	350 kg
Packing Specifications:	2.2 m <sup>3</sup> , GW 550 kg