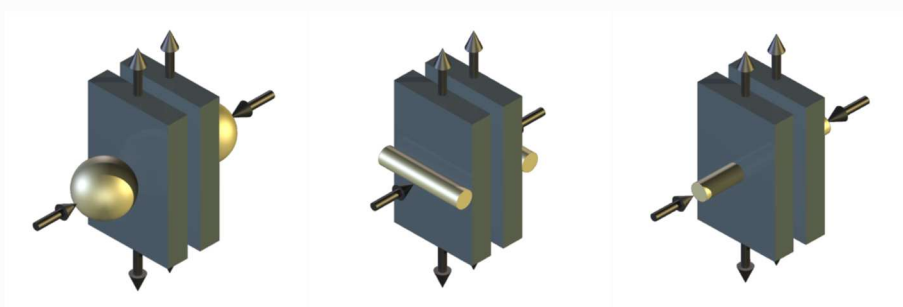


TE 76 TWO STATION RECIPROCATING VACUUM TRIBOMETER

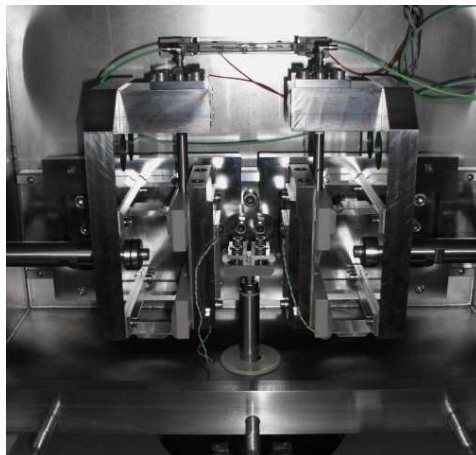


Description

The TE 76 is a two-station, vertical axis, long stroke reciprocating tribometer, which combines the reciprocating drive mechanism and fixed specimen mounting from the TE 77 High Frequency Friction Machine with a UHV test chamber.



The test assembly is located vertically above the reciprocating drive assembly and comprises two fixed specimen pads, each mounted on flexures, with movement in the friction direction resisted by piezo-electric force transducers. The pads have fluid passages allowing the samples to be heated or cooled by circulation of a heat transfer medium.



The fixed specimen assemblies are mounted on vacuum rated linear slide bearings allowing horizontal freedom of movement. Load is applied to either side of the moving specimens by squeezing the two fixed specimen assemblies together, by means of a servo controlled pneumatic bellows, with force transducer feedback. This arrangement ensures that there is no bending moment acting on the moving specimen arm.

Feed-throughs for load application and reciprocating motion are sealed with edge-welded stainless steel bellows, thus eliminating any requirement for sliding seals.

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 76 TWO STATION RECIPROCATING VACUUM TRIBOMETER

Technical Specifications

Contact Configurations:	Point Contact Line Contact Area Contact
Load Range:	1 to 100 N
Laboratory Chiller:	-35°C to 150°C
Temperature Sensor:	PT-100
Frequency Range:	2 to 25 Hz
Stroke Range:	See following tables
Friction Transducer:	Piezo-Electric Type
Interface:	Serial Link Interface Module
Software:	COMPEND 2000
Motor:	1.1 kW a.c. vector motor, 2048 ppr encoder

Stroke Range

Continuously Variable Cam - 0 to 12.5 mm

Angle - degrees:	Minimum - mm	Maximum - mm
0	0	2
18	1.04	3.04
36	2.65	4.65
54	4.25	6.25
72	5.75	7.75
90	7.09	9.09
108	8.24	10.24
126	9.17	11.17
144	9.85	11.85
162	10.26	12.26
180	10.4	12.4

Step Variable 0 to 12.5 mm:

Angle - degrees:

0

18

36

54

72

90

108

126

144

162

180

Nominal Stroke - mm

0

1.94

3.83

5.63

7.29

8.77

10.03

11.05

11.79

12.25

12.5

Step Variable 12.5 to 25 mm:

Angle - degrees:

0

18

36

54

72

90

108

126

144

162

180

Nominal Stroke - mm

12.5

13.05

14.26

15.97

17.89

19.8

21.54

23

24.09

24.77

25

Test Chamber

Pressure:

Atmospheric to 100 Picobar (10^{-5} Pa)

Environment:

Air, inert gas or vacuum

Material:

304 stainless steel

Surface Treatment:

Glass bead blasted

Viewports:

Fused Silica

Electrical Feedthrough:	1 kVolts , 15 Ampere
Coaxial Feedthrough:	BNC through Flange
Thermocouple:	Type K through Flange
Vacuum Transducer:	Cold Cathode and Pirani

Laboratory Chiller

Fluid Temperature:	-35°C to +150°C.
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Automatically Controlled Parameters

Frequency
Load
Temperature
Chamber Pressure
Test Duration

Manually Controlled Parameter

Stroke

Measured Parameters

Friction
Load
Temperature
Chamber Pressure
Frequency
Friction Coefficient

Services

Electricity:	220/240 V, single phase, 50/60 Hz, with neutral and earth, 4.5 kW
Clean, dry air:	4 cfm at 8 bar (120 psi)